



Bricsys®

Command reference (V23)

Product Documentation





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1. Command reference

1.1 Executing Commands

In BricsCAD, you can launch commands in the following ways:

- Command Bar: by typing the CommandName
- Menu Bar: searching in the menu bar the CommandName, e.g. Draw | Line
- Ribbon: searching in the ribbon the CommandName, e.g. Home | Draw | Line
- Toolbar: searching in the toolbar the CommandName, e.g. Draw | 

Note: To open a specific toolbar, place the cursor on a toolbar, right-click and open **Toolbars > BricsCAD** and choose the toolbar that you want to be visible on the display.

- Quad tab: searching in the quad tab the CommandName, e.g. Draw | 

1.2 Command options

Command options appear in the status bar or command bar and also in a prompt menu, depending on the PROMPTMENU system variable setting.

The PROMPTOPTIONFORMAT system variable controls how command options display in the command line prompts.

1.3 Command Prefixes

The following prefixes can be used with the BricsCAD commands:

Prefix	Type	Result
' (single quote or apostrophe)	Transparency	Allows a command to be executed inside another command. E.g. If you are drawing a line, type 'zoom at the command prompt to temporarily interrupt the LINE command while executing the ZOOM command.
- (dash)	Command line	Launches a non-dialog version of a command. All command options are available in the Command line. E.g. Type -layer in the command prompt to suppress the Drawing explorer / Layers dialog box. All command options are available in the Command line. This is especially useful if you need to execute such commands in a script.
_ (underscore)	Global	Executes the original English command (global command) in translated version of BricsCAD. It is recommended to use the global command prefix in scripts, or when defining keyboard shortcuts or customized tools.



Prefix	Type	Result
. (period)	Non-redefined	Executes commands that have been temporarily removed from BricsCAD using the UNDEFINE command.

Command prefixes can be combined. E.g. if the ZOOM command is temporarily undefined '.zoom executes the ZOOM command transparently.




2. +

2.1 +STRUCTUREPANEL command

Opens the Structure tree configuration file dialog box.



Icon: 

2.1.1 Description

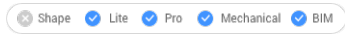
Opens the Structure tree configuration file dialog box to select a cst file to include in the Structure panel. After choosing **Open** in the dialog box, the Structure panel displays.



3. ?

3.1 ? command

Opens the Bricsys Help Center.



3.1.1 Description

Opens the main page of the Bricsys Help Center website to learn more about BricsCAD commands, system variables, and workflows. It opens in your default web browser, allowing it to remain open while you work on your drawings in BricsCAD.



4. 2

4.1 2DINTERSECTION command

Toggles the intersection entity snap.

Shape Lite Pro Mechanical BIM

4.1.1 Description

Toggles the apparent intersection entity snap, which snaps to the intersections of entities, even when they only appear to be intersecting in 3D space.

Note: This command can be entered transparently during commands, but must be entered without the transparency apostrophe prefix (').

5. 3

5.1 3D command

Draws basic 3D mesh entities.

Shape Lite Pro Mechanical BIM

5.1.1 Description

Draws basic 3D mesh entities, including boxes, cones, cylinders, dishes, domes, meshes, pyramids, spheres, tori, and wedges.

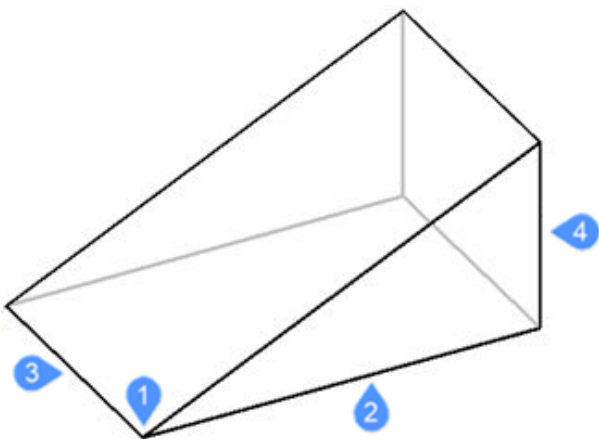
5.1.2 Methods

There are ten methods to basic 3D mesh entities:

- Wedge
- Pyramid
- Box
- Cone
- cyLinder
- Sphere
- Dish
- DOME
- Torus
- Mesh

Wedge

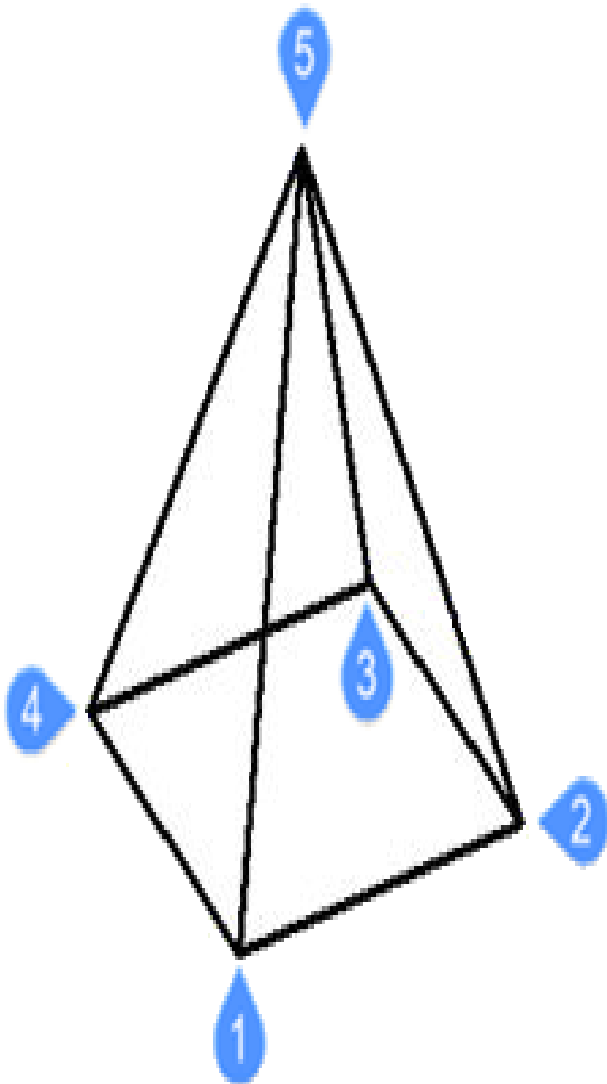
Draws 3D wedges (see AI_WEDGE command).



- 1 Corner of the wedge (Start point)
- 2 Length of the wedge
- 3 Width of the wedge
- 4 Height of the wedge

Pyramid

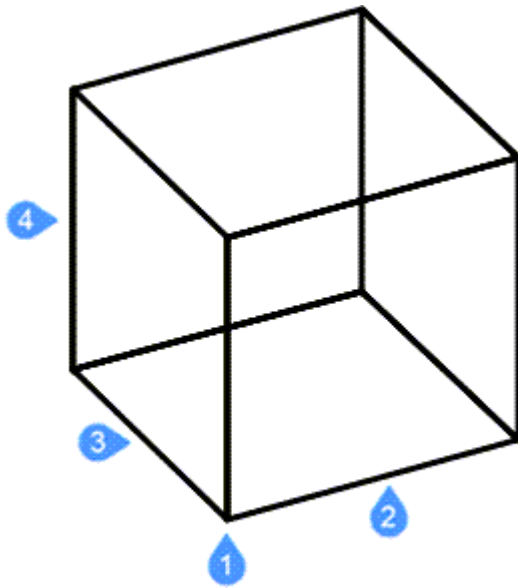
Draws 3D pyramids (see AI_PYRAMID command).



- 1 First point of base (Start point)
- 2 Second point
- 3 Third point
- 4 Last point for base
- 5 Set apex of pyramid

Box

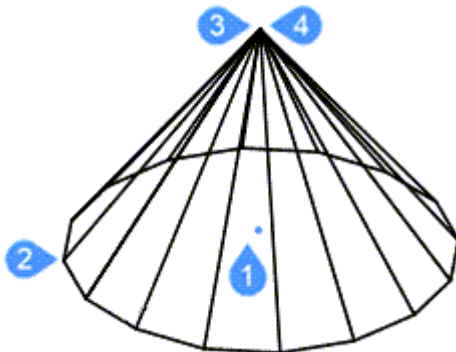
Draws 3D boxes from polyface meshes (see AI_BOX command).



- 1 Corner of box (Start point)
 - 2 Length of side of box
 - 3 Width of box
 - 4 Height of box
- (Finish by applying rotation angle of box)

Cone

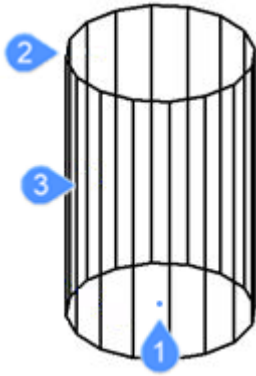
Draws 3D cones (see AI_CONE command).



- 1 Center of base of cone (Start point)
 - 2 Radius of base of cone or Diameter
 - 3 Radius of top of cone or Diameter
 - 4 Height of cone
- (Finish by applying number of segments in cone)

cyLinder

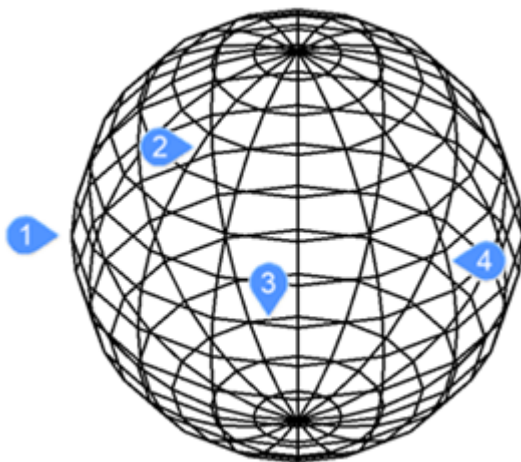
Draws 3D cylinders (see AI_CYLINDER command).



- 1 Center of base of cylinder (Start point)
 - 2 Radius of base of cylinder or Diameter
 - 3 Height of cylinder
- (Finish by applying number of segments in cylinder)

Sphere

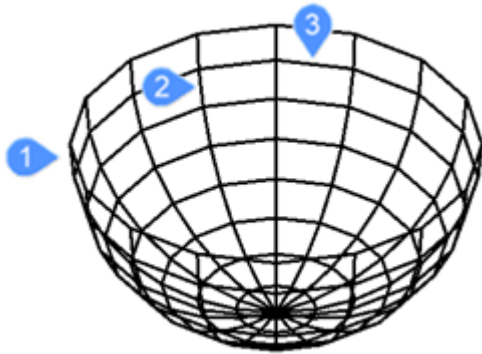
Draws 3D spheres (see AI_SPHERE command).



- 1 Specify center of sphere (Start point)
- 2 Radius of sphere (Diameter)
- 3 Number of longitudinal segments
- 4 Number of latitudinal segments

Dish

Draws 3D dishes (bottom half of spheres) (see AI_DISH command).

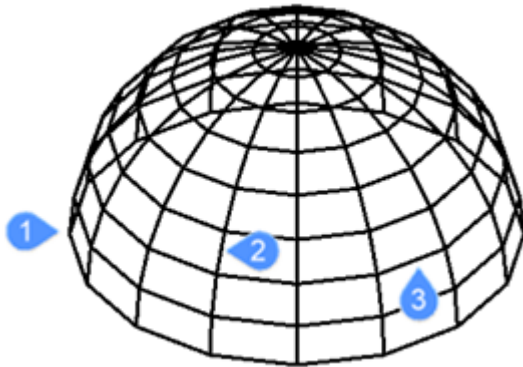


Specify center of dish (Start point)

- 1 Radius of dish (Diameter)
- 2 Number of segments around dish
- 3 Number of top-to-bottom segments

DOME

Draws 3D domes (top half of spheres) (see AI_DOME command).

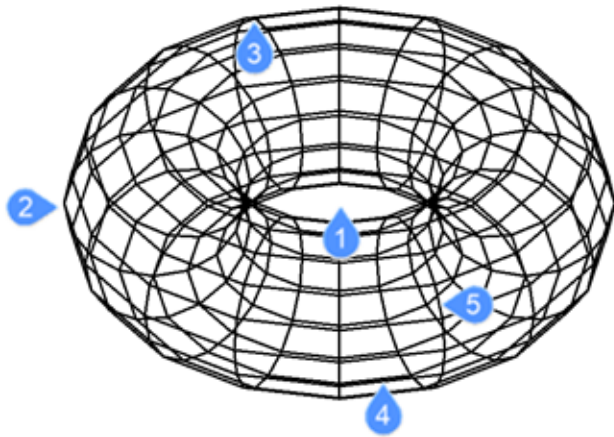


Specify center of dome (Start point)

- 1 Radius of dome (Diameter)
- 2 Number of segments around dome
- 3 Number of top-to-bottom segments

Torus

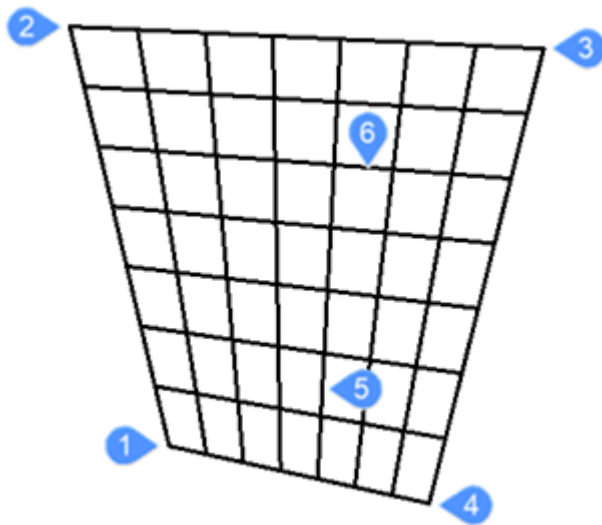
Draws 3D tori (donuts) (see AI_TORUS command).



- 1 Specify center of whole torus (Start point)
- 2 Radius of whole torus
- 3 Radius of body of torus (Diameter)
- 4 Segments around body of torus
- 5 Segments around whole torus

Mesh

Draws 3D meshes (see 3DMESH command).

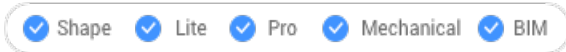



- 1 First of four corners of polygon mesh (Start point)
- 2 Second corner
- 3 Third corner
- 4 Last corner for mesh
- 5 Number of segments – primary axis
- 6 Number of segments – secondary axis



5.2 3DARRAY command

Constructs static rectangular and polar arrays in rows, columns, and levels.



Icon: 

Alias: 3A, ARRAY3D

5.2.1 Description

Creates 3D rectangular arrays using rows, columns, and levels and 3D polar arrays using a center axis/center point and rotation angle.

5.2.2 Method

There are two methods to create 3D arrays:

- Polar
- Rectangular

5.2.3 Options within the command

Polar

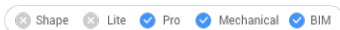
Creates 3D polar arrays.

Rectangular

Creates 3D rectangular arrays.

5.3 3DCOMPARE command

Opens the Compare two models dialog box.



Icon: 

5.3.1 Description

Opens the Compare two models dialog box to compare solid and surface geometry between two drawing files.

5.4 3DCONVERT command

Converts 3D solids to polyface meshes.



5.4.1 Description

Converts 3D ACIS selected entities to 3D polyface meshes.

5.5 3DDWF command

Opens the Export 3D DWF dialog box.



Shape Lite Pro Mechanical BIM


5.5.1 Description

Opens the Export 3D DWF dialog box to save data from the current drawing to a 3D dwf or dwfx file. The default file format is specified by the DWFFORMAT system variable.

5.6 3DFACE command

Draws 3D 4-edged faces.

Shape Lite Pro Mechanical BIM

Icon: 

Alias: 3F, FACE

5.6.1 Description

Draws 3D 4-edged faces with optional invisible edges, by entering values in the Command line or picking points in drawing space.

5.6.2 Options within the command

select invisible edge


Makes the next edge invisible.

Note: The edge appears invisible in the wireframe visual style.

5.7 3DINTERSECTION command

Toggles the intersection entity snap.

Shape Lite Pro Mechanical BIM

Icon: 

5.7.1 Description

This command can be entered transparently during commands, but must be entered without the transparency apostrophe prefix (').

Note: This entity snaps to entities that physically intersect each other. To snap to apparent intersections, use 2DINTERSECTION entity snap.

5.8 3DMESH command

Creates 3D surface meshes.

Shape Lite Pro Mechanical BIM

Icon: 

Alias: MESH



5.8.1 Description

Creates 3D surface meshes by entering the number of vertices and their position.

5.8.2 Options within the command

Number of vertices in M direction (between 2 and 256)

Specifies the number of vertices in the primary direction.

Number of vertices in N direction (between 2 and 256)

Specifies the number of vertices in the secondary direction.

Position of vertex (M,N)

Specifies the position of the vertex.

Note: 3D meshes can be edited directly through grips.

5.9 3DOSNAP command

Opens the **Settings** dialog box with the **Entity 3D snap mode** category expanded.



Icons:

5.9.1 Description

Opens the **Settings** dialog box with the **Entity 3D snap mode** category expanded to view and modify relevant system variables.

5.10 -3DOSNAP command

Toggles entity snap modes for 3D entities.



5.10.1 Description

Toggles 3D entity snap modes for drawing and editing entities in 3D space at the Command line (short for "3D object snap").

5.10.2 Options within the command

nearest (ZNEA)

Snaps to a point on the face of a 3D entity that is nearest to the cursor, equivalent to the ZNEAREST command.

vertex (ZVER)

Snaps to the closest vertex of a 3D entity, equivalent to the ZVERTEX command.

midpoint (ZMID)

Snaps to the midpoint of a face's edge, equivalent to the ZMIDPOINT command.

center (ZCEN)

Snaps to the center of a flat or curved 3D face, equivalent to the ZCENTER command.



perpendicular (ZPER)

Snaps to a point perpendicular to a face, equivalent to the ZPERPENDICULAR command.

Knot (ZKNO)

Snaps to a knot on a spline, equivalent to the ZKNOT command.

intersection (ZINT)

Snaps to the intersection of linear entities, edges and polar or entity snap tracking lines with faces, equivalent to the ZINTERSECTION command.

PointCloud Nearest

Snaps to the nearest point cloud point.

NON

Turns off all 3D snap modes, equivalent to the ZNONE command.

ON

Enables all currently set 3D snap modes.

OFF

Disables all currently set 3D snap modes.

5.11 3DPOLY command

Creates a 3D polyline.

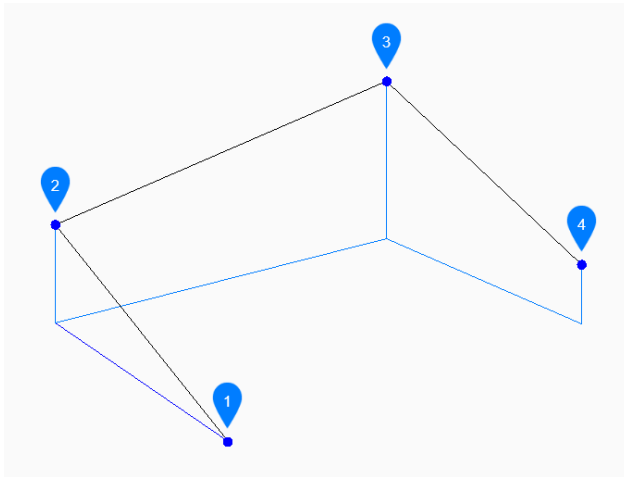


Icon: 

Alias: 3P

5.11.1 Description

Creates a single 3D polyline entity with multiple line segments by specifying the start and end point of each segment. Options allow you to undo and close the geometry.



- 1 Start
- 2 Next
- 3 Next
- 4 End

5.11.2 Methods to create a 3D polyline

This command has 3 methods to begin creating a 3D polyline:

- Start of polyline
- Last point
- Follow

You can continue adding unlimited segments until you press Enter to end the command.

Start of polyline

Begin creating a 3D polyline by specifying a start point then:

Set next point

Specify the next vertex of the polyline.

Additional options: [Close/Undo]

Last point

Begin creating a 3D polyline from the last point picked then:

Next point

Specify the next vertex of the polyline.

Additional options: [Close/Undo]

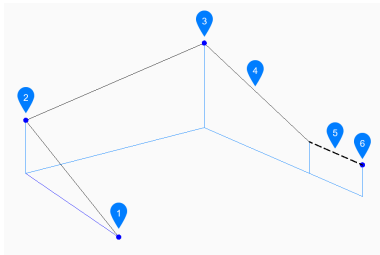
Follow

Begin creating a 3D polyline from the last drawn arc or line segment, following its angle, then:

Next point

Specify the length of the segment. Picking a point only determines the length since the angle follows the last segment.

Additional options: [Close/Undo]



- 1 Start
- 2 Next
- 3 Next
- 4 Last Drawn Segment
- 5 Follow
- 6 End

5.11.3 Options within the 3DPOLY command

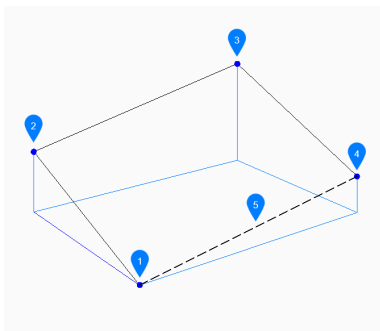
After you begin creating a 3D polyline, the following options may be available:

Undo

Undo the last 3D polyline segment and continue drawing from its previous start point.

Close

Automatically draw a 3D polyline segment from the end point of the last segment to the start point of the first segment. This ends the command.



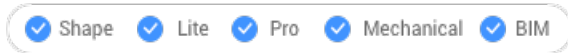
- 1 Start/End
- 2 Next
- 3 Next
- 4 Next
- 5 Last drawn segment



6. A

6.1 ABOUT command

Opens the About BricsCAD dialog box.



Icon:

6.1.1 Description

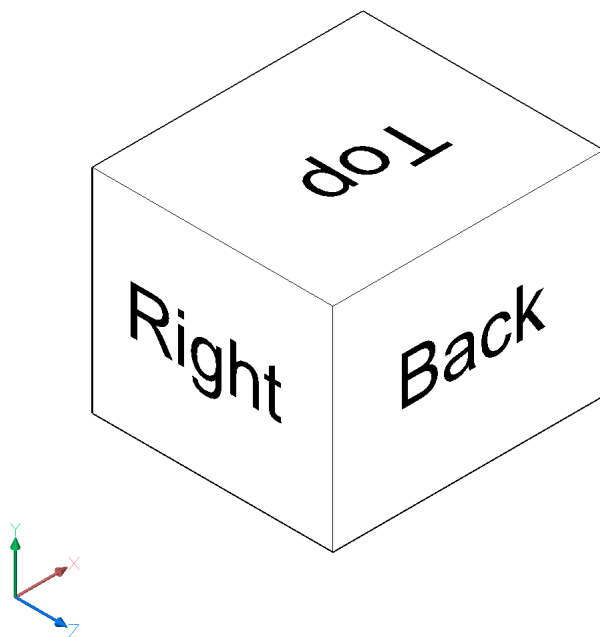
Opens the About BricsCAD dialog box to view BricsCAD version and copyright information.

6.2 ACETUCS-BACK command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the back plane of the drawing and the Z-axis points away from it.

6.2.1 Method

The UCS automatically changes when running the command.

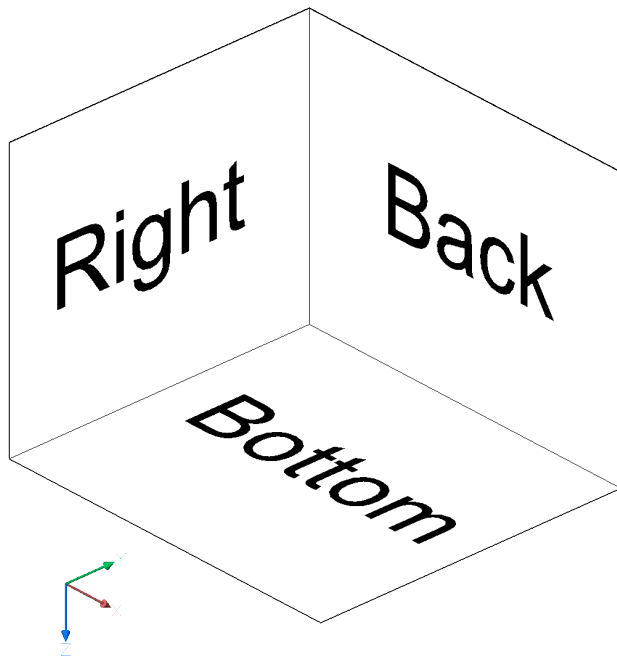


6.3 ACETUCS-BOTTOM command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the bottom plane of the drawing and the Z-axis points away from it.

6.3.1 Method

The UCS automatically changes when running the command.

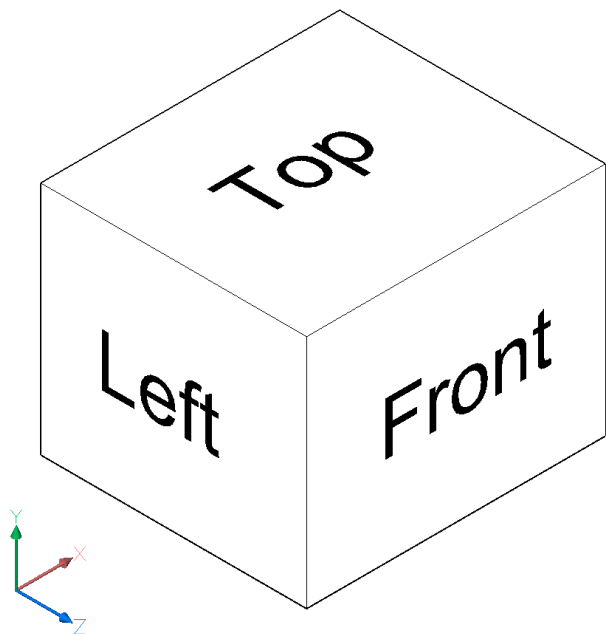


6.4 ACETUCS-FRONT command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the front plane of the drawing and the Z-axis points away from it.

6.4.1 Method

The UCS automatically changes when running the command.



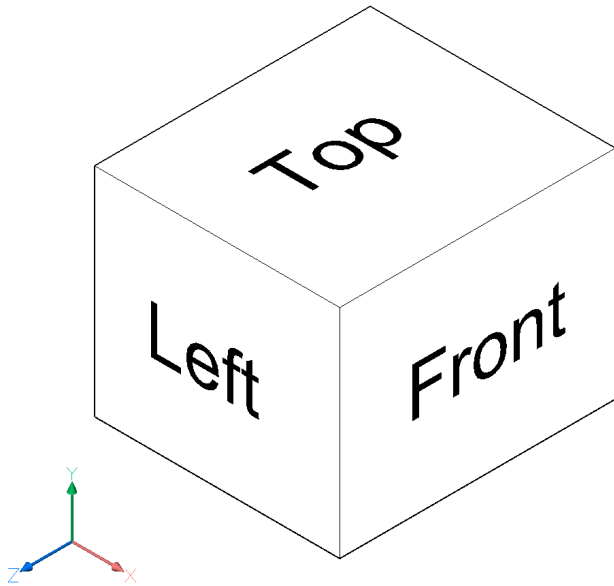


6.5 ACETUCS-LEFT command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the left plane of the drawing and the Z-axis points away from it.

6.5.1 Method

The UCS automatically changes when running the command.

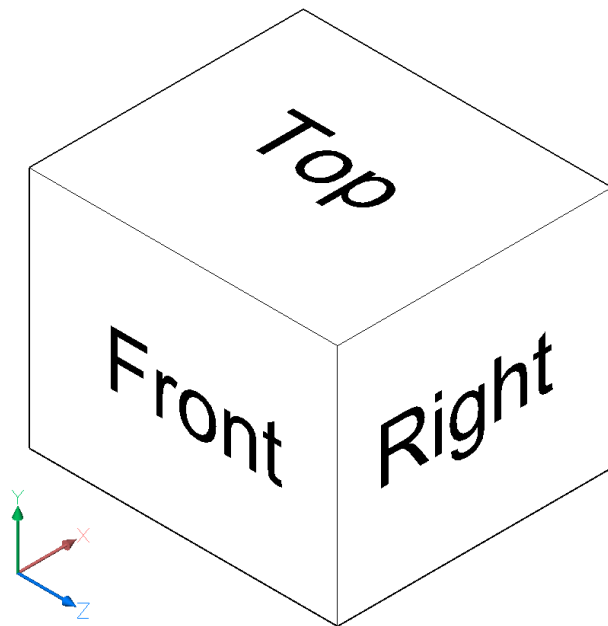


6.6 ACETUCS-RIGHT command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the right plane of the drawing and the Z-axis points away from it.

6.6.1 Method

The UCS automatically changes when running the command.

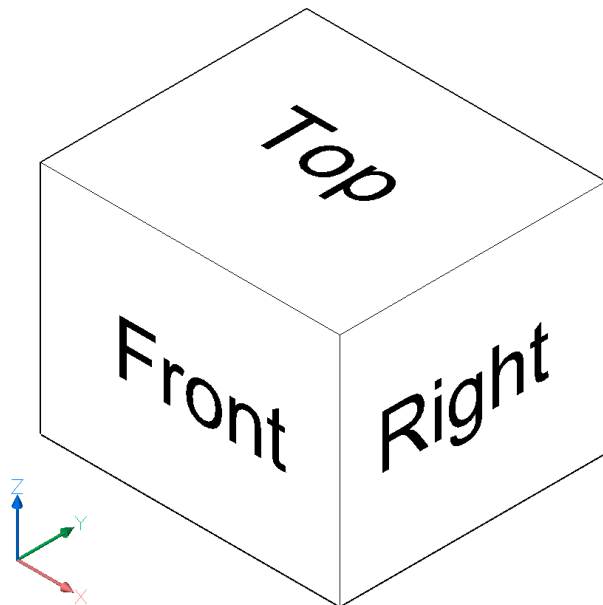


6.7 ACETUCS-TOP command (Express Tools)

Changes the UCS so that the XY-plane is parallel to the top plane of the drawing and the Z-axis points away from it.

6.7.1 Method

The UCS automatically changes when running the command.



6.8 ACISIN command

Imports .sat or .sab files into the current drawing.



Shape Lite Pro Mechanical BIM

Icon:

6.8.1 Description

Opens the **Open an ACIS file** dialog box to select a .sat or .sab file to import into the current drawing.

Note: The ACISIN command ignores the INSUNITS system variables of the .sat and .dwg files, so one unit of the imported SAT or SAB file is always converted to one DWG drawing unit.

6.9 ACISOUT command

Exports solid and surface models in ACIS format for use by other solid modeling programs.

Shape Lite Pro Mechanical BIM

Icon:

6.9.1 Description

Opens the **Create an ACIS file** dialog box to export 3D solids and surface entities in ACIS format, either in human-readable ASCII .sat or compact binary .sab format. Exported files can be shared with other 3D CAD programs capable of solid modeling or analyzing solid models.

Note: The scale factor stored in the file is always 1.

6.10 ACTIVATESECTIONVIEW command

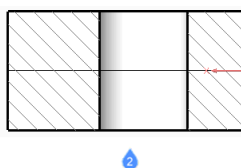
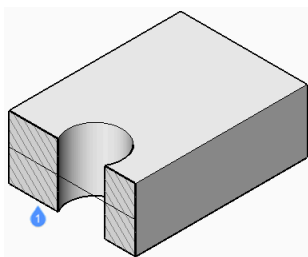
Set viewpoint by section plane.

Shape Lite Pro Mechanical BIM

6.10.1 Description

The command reorients the viewpoint to be head-on to the selected section plane.

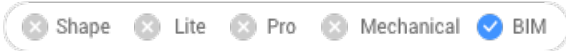
It requires at least one section plane in the drawing, made with the SECTIONPLANE command.



- 1 Section plane
- 2 View oriented to match the section plane

6.11 ACTIVATESTORY command

Activates a named story.



6.11.1 Method

Enter the building and story numbers.

Note: Building and story numbers are listed in the Command line along with their names.

Decide whether or not to show the story in **Top View Mode**. The default value is **Yes**.

6.11.2 Options within the command

Yes

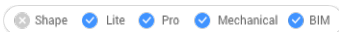
Activates the story in **Top View Mode**.

No

Activates the story without any view modification.

6.12 ADDINMAN command

Opens the Add-in manager dialog box.

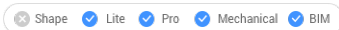


6.12.1 Description

Opens the Add-in manager dialog box to specify how VBA modules are loaded.

6.13 ADDSELECTED command

Creates an entity similar to an existing one.



Icon:

6.13.1 Method

Begin adding a new entity to the drawing by selecting an existing entity of the same type and properties you wish to add. BricsCAD automatically launches the appropriate command and applies properties to create a matching entity. For instance, select a spline and the program immediately starts the Spline command. Some entities are not yet supported.

6.14 ADDSURFACELABELS command

Creates surface labels.



Icon:

6.14.1 Description

Creates spot elevation levels, slope labels or contour labels on a surface.



6.14.2 Method

Choose the type of the surface label and select the surface to apply to.

6.14.3 Options within the command

Contour

Creates major and minor contour labels using the available label styles.

spot Elevation

Creates spot elevation labels using an available label style with a specified symbol style name.

Grid

Places spots elevation on a grid with a specified X and Y spacing, and rotation.

Slope

Creates slope labels using the available label styles.

Single point

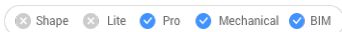
Creates a slope label by indicating a point on a surface.

Two points

Creates a slope label by indicating two points.

6.15 AI_BOX command

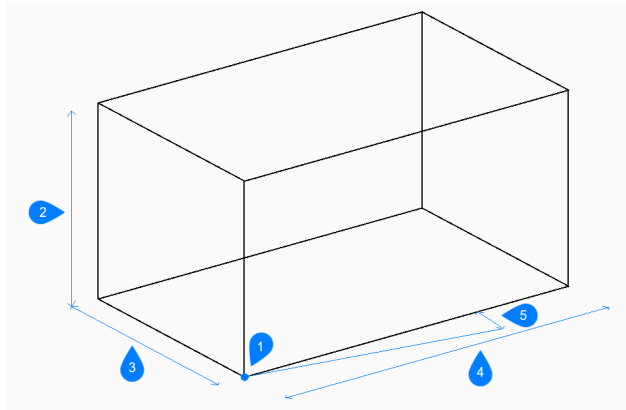
Creates a 3D polyface mesh in the shape of a box.



Icon: 

6.15.1 Description

Creates a 3D polyface mesh in the shape of a rectangular or square box. Choose from a combination of options including corner, length, width, height, cube, and rotation angle.



- 1 Corner of box
- 2 Height
- 3 Width
- 4 Length
- 5 Rotation angle

6.15.2 Methods to create a box

here is one method to begin creating a box:

- Corner of box

Corner of box

Begin creating a box by specifying a corner for the base of the box then:

Length of side of box

Specify the length of the box.

Set width of box

Specify the width of the box.

Additional option: [Cube]

Height of box

Specify the height of the box.

Rotation angle for box

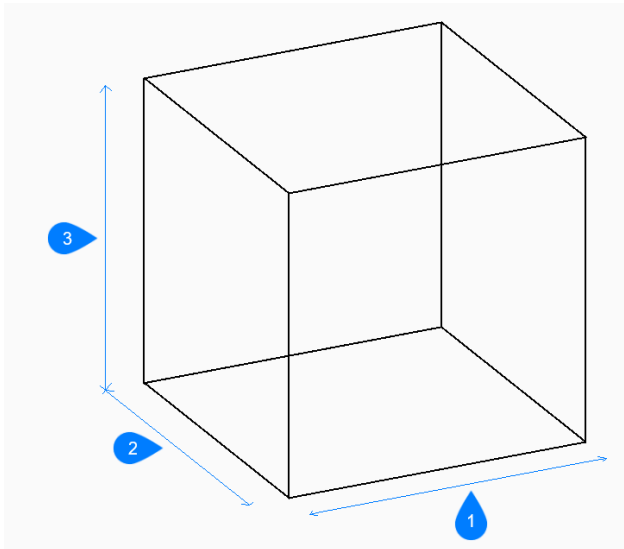
Specify the rotation angle of the base of the box in the xy-plane. The default is 0.

6.15.3 Option within the AI_BOX command

After you begin creating a box, the following option may be available:

Cube

Specify a single distance to use for the length, width, and height of the box.



- 1 Length
- 2 Width
- 3 Height

6.16 AI_CONE command

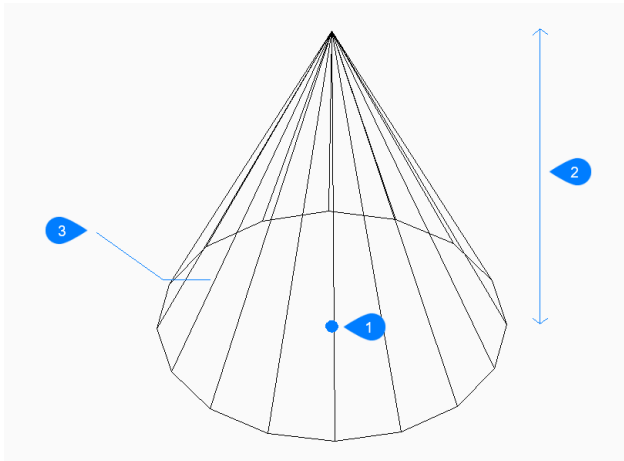
Creates a 3D polygon mesh in the shape of a cone.

Shape Lite Pro Mechanical BIM

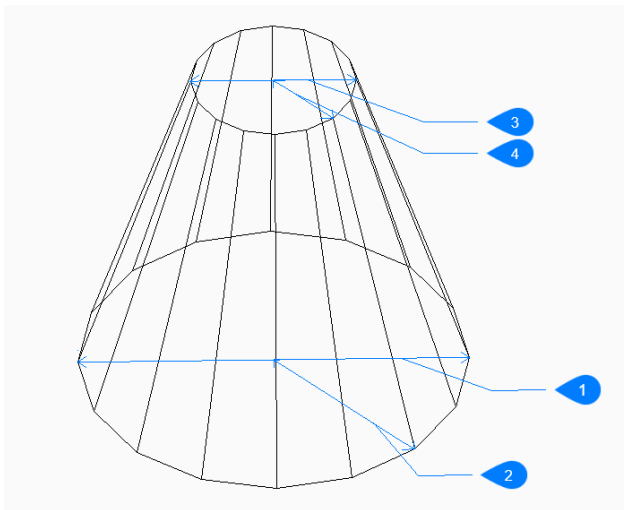
Icon: 

6.16.1 Description

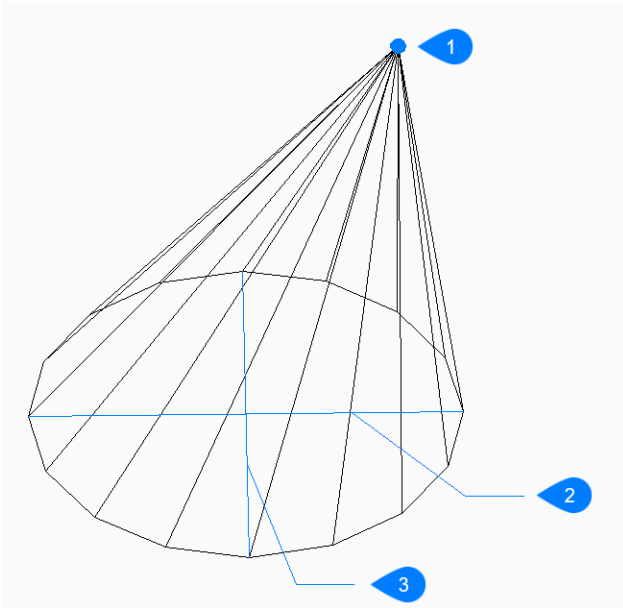
Creates a 3D polygon mesh in the shape of a circular or elliptical cone. Choose from a combination of options including center, radius, diameter, height, axis endpoints, apex, and number of segments.



- 1 Center
- 2 Height
- 3 Segments



- 1 Base diameter
- 2 Base radius
- 3 Top diameter
- 4 Top radius



- 1 Apex
- 2 Ellipse axis
- 3 Other axis

6.16.2 Methods to create a cone

This command has 2 methods to begin creating a cone:

- Center of base of cone
- Elliptical

Center of base of cone

Begin creating a circular cone by specifying the center of the base then:

Radius of base

Specify the radius of the base of the cone.

Additional option: [Diameter]

Height of cone

Specify the height of the cone.

Number of segments

Specify the number of isolines used to simulate the cone's curved surface. The default is 16.

Elliptical

Begin creating an elliptical cone by specifying the first end of the ellipse axis then:

Additional option: [Center]

Second end of ellipse axis

Specify the second end of the ellipse axis.

Other axis

Specify the radius of the other axis.



Height of cone

Specify the height of the cone.

Additional option: [Apex]

Number of segments

Specify the number of isolines used to simulate the cone's curved surface. The default is 16.

6.16.3 Options within the AI_CONE command

After you begin creating a cone, the following options may be available:

Diameter

Specify the diameter of the cone's base or top.

Center

Specify the center of an elliptical base.

Apex

Specify the location for the top of the cone.

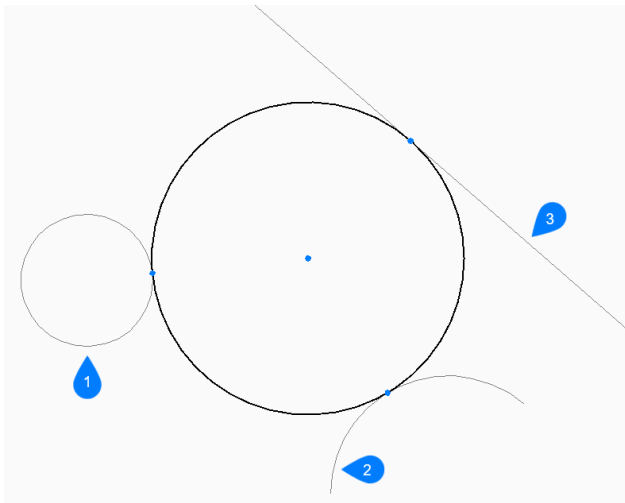
6.17 AI_CIRCTAN command (Express Tools)

Creates a tangent circle.



6.17.1 Description

Creates a circle tangent to three entities that can include lines, polyline segments, polylines, circles, arcs, xlines or rays.



- 1 First tangent definition point
- 2 Second tangent definition point
- 3 Third tangent definition point

6.17.2 Method

Enter first, second and third tangent definition points.



First Tangent definition point

Begin creating a circle by selecting a tangent point on the first entity.

Second Tangent definition point

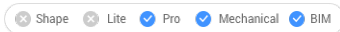
Select a tangent point on the second entity.


Third Tangent definition point

Select a tangent point on the third entity.

6.18 AI_CYLINDER command

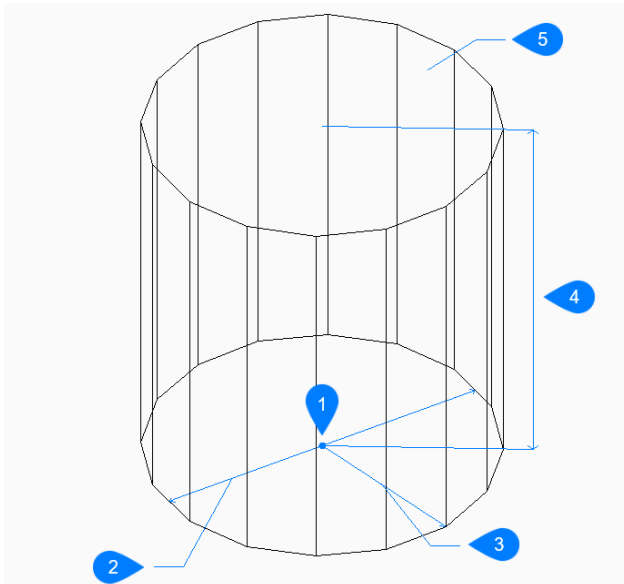
Creates a 3D polygon mesh in the shape of cylinder.



Icon: 

6.18.1 Description

Creates a 3D polygon mesh in the shape of a circular or elliptical cylinder. Choose from a combination of options including center, radius, diameter, height, axis endpoints, and number of segments.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Height
- 5 Segment

6.18.2 Methods to create a cylinder

This command has 2 methods to begin creating a cylinder:

- Center of base of cylinder



- Elliptical

Center of base of cylinder

Begin creating a circular cylinder by specifying the center of the base then:

Radius of base of cylinder

Specify the radius of the cylinder.

Additional option: [Diameter]

Height of cylinder

Specify the height of the cylinder.

Number of segments

Specify the number of isolines used to simulate the cylinder's curved surface. The default is 16.

Elliptical

Begin creating an elliptical cylinder by specifying the first end of the ellipse axis then:

Alternate option: [Center]

Second end of ellipse axis

Specify the second end of the ellipse axis.

Other axis

Specify the radius of the other axis.

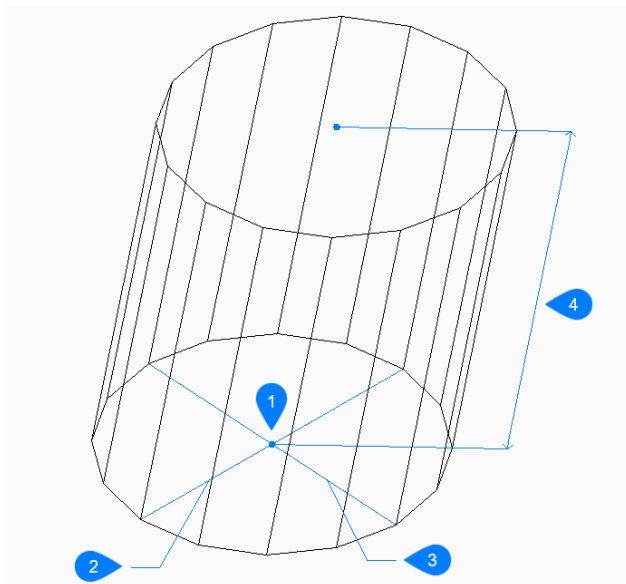
Height of cylinder

Specify the height of the cylinder.

Additional option: [Center of second end]

Number of segments

Specify the number of isolines used to simulate the cylinder's curved surface. The default is 16.



- 1 Center
- 2 First axis
- 3 Other axis
- 4 Height



6.18.3 Options within the AI_CYLINDER command

After you begin creating a cylinder, the following options may be available:

Diameter

Specify the diameter of the cylinder.

Center of second end

Specify the center for the other end of the axis to create an oblique cylinder.

6.19 AI_DESELECT command (Express Tools)

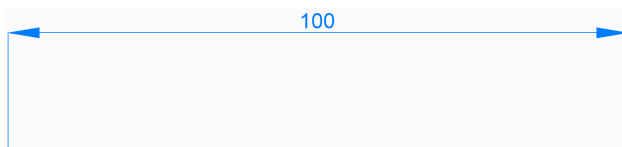
Deselects all entities.

6.20 AI_DIM_TEXTABOVE command (Express Tools)

Places the DIM text above the dimension line.

6.20.1 Method

Select the dimension entities. The DIM text is automatically placed above the dimension line.



6.21 AI_DIM_TEXTCENTER command (Express Tools)

Places the DIM text in the center of the dimension line.

6.21.1 Method

Select the dimension entities. The DIM text is automatically placed in the center of the dimension line.



6.22 AI_DIM_TEXTHOME command (Express Tools)

Restores dimension texts to the default position.

Note: The command changes the dimension text position horizontally only.

6.23 AI_DISH command

Creates a 3D polygon mesh in the shape of the bottom half of a sphere.

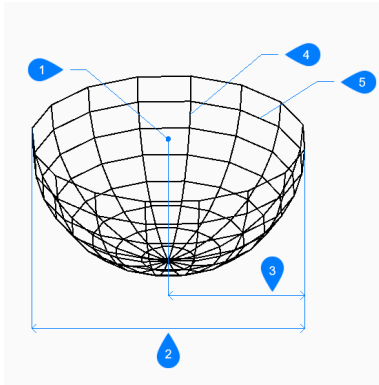


Icon:



6.23.1 Description

Creates a 3D polygon mesh in the shape of the bottom half of a sphere. Choose from a combination of options including center, radius, diameter and number of segments.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Top to bottom segments
- 5 Segments around dish

6.23.2 Methods to create a dish

There is one method to begin creating a dish:

- Center of dish

Center of dish

Begin creating a dish by specifying the center of the dish's open end then:

Set radius of dish

Specify the radius of the dish.

Additional option: [Diameter]

Number of segments around dish

Specify the number of isolines, perpendicular to the xy-plane, used to simulate the dish's curved surface. The default is 16.

Number of top-to-bottom segments

Specify the number of isolines, parallel to the xy-plane, used to simulate the dish's curved surface. The default is 8.

6.23.3 Options within the AI_DISH command

After you begin creating a dish, the following option may be available:

Diameter


Specify the diameter of the dish.



6.24 AI_DOME command

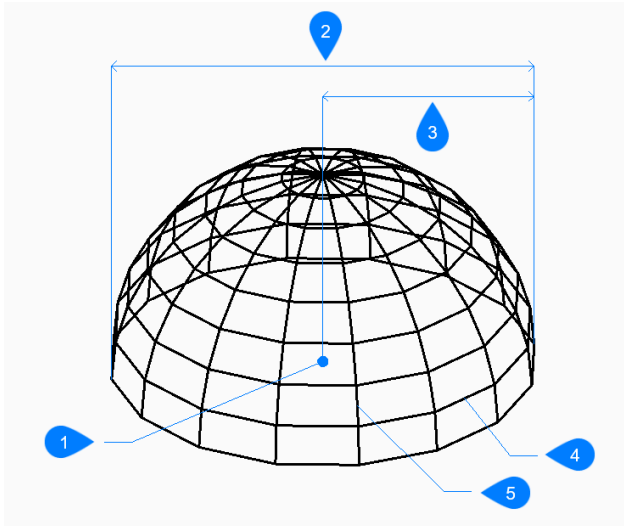
Creates a 3D polygon mesh in the shape of the upper half of a sphere.

Shape Lite Pro Mechanical BIM

Icon: 

6.24.1 Description

Creates a 3D polygon mesh in the shape of the upper half of a sphere. Choose from a combination of options including center, radius, diameter and number of segments.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Top to bottom segments
- 5 Segments around dome

6.24.2 Methods to create a dome

There is one method to begin creating a dome:

- Center of dome

Center of dome

Begin creating a dome by specifying the center of the dome's open end then:

Radius of dome

Specify the radius of the dome.

Additional option: [Diameter]

Number of segments around dome

Specify the number of isolines, perpendicular to the xy-plane, used to simulate the dome's curved surface. The default is 16.



Number of top-to-bottom segments

Specify the number of isolines, parallel to the xy-plane, used to simulate the dome's curved surface. The default is 8.

6.24.3 Options within the AI_DOME command

After you begin creating a dome, the following option may be available:

Diameter

Specify the diameter of the dome.

6.25 AI_DRAWORDER command (Express Tools)

Changes the display order of overlapping entities.

6.25.1 Method

Moves the visual display of selected entities:

- Above
- Under
- Front
- Back

6.25.2 Options within the command

Above

Moves the visual display of the selected entities above a reference entity.

Under

Moves the visual display of the selected entities under a reference entity.

Front

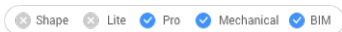
Moves the selected entities' display order above all other overlapping entities.

Back

Moves the selected entities' display order below all other overlapping entities.

6.26 AI_EDGESURF command

This command is obsolete. It still exists for backward compatibility only.



Use the EDGESURF command instead.

6.27 AI_FMS command (Express Tools)

Switches from paper space to model space viewports.

6.27.1 Method

If you are in model space, it switches to the last opened layout in paper space.



6.28 AI_MOLC command (Express Tools)

Sets current the layer of the selected entity.

6.29 AI_MSPACE command (Express Tools)

Switches to model space.

6.30 AI_PROPCHK command (Express Tools)

Opens the **Properties** panel for the selected entities.


6.31 AI_PSPACE command (Express Tools)

Switches to the last opened layout in paper space.

6.32 AI_PYRAMID command

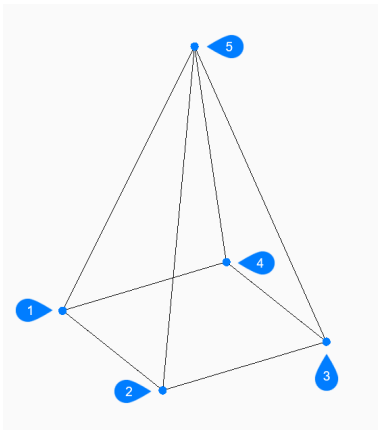
Creates a 3D polyface mesh in the shape of a pyramid.



Icon: 

6.32.1 Description

Creates a 3D polyface mesh in the shape of a pyramid with three or four sides. The sides of the base may have unequal lengths. Options allow you to specify a pointed, ridged, or flat top.



- 1 First point
- 2 Second point
- 3 Third point
- 4 Last point
- 5 Apex

6.32.2 Methods to create a pyramid

There is one method to begin creating a pyramid

- First point for the base of pyramid



First point for base of pyramid

Begin creating a pyramid by specifying a corner for the base of the pyramid then:

Second point

Specify the second point of the base.

Third point

Specify the third point of the base.

Set last point for base

Specify the fourth point of the base.

Additional option: [Tetrahedron]

Set apex of pyramid

Specify the location for the top of the pyramid.

Additional options: [Ridge/Top surface]

6.32.3 Options within the AI_PYRAMID command

After you begin creating a pyramid, the following options may be available:

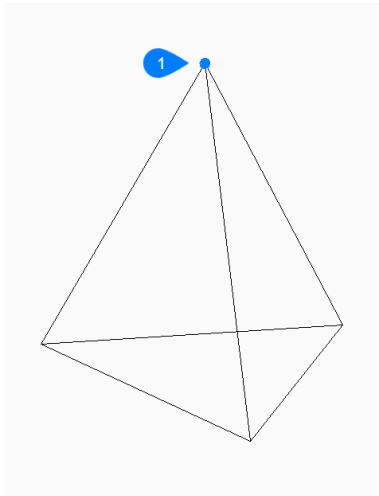
Tetrahedron

Choose this option to finish creating the base of the pyramid after specifying the third point to create a three-sided pyramid (tetrahedron) then:

Set apex of tetrahedron

Specify the top of the tetrahedron.

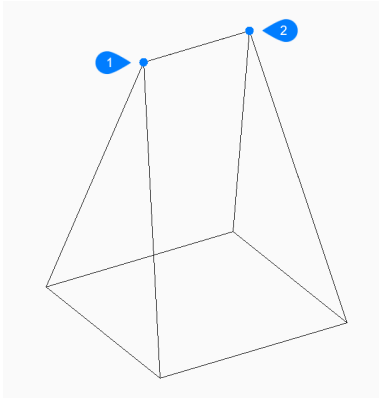
Additional option: [Top surface]



1 Apex

Ridge

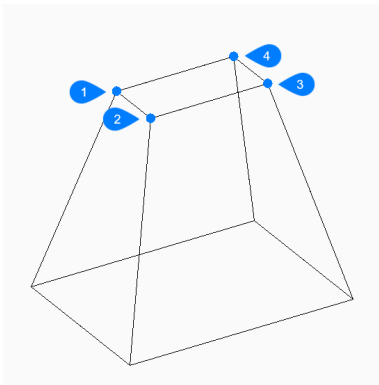
Specify the start and end points to create an edge at the top of the pyramid.



- 1 Start of ridge
- 2 End of ridge

Top surface

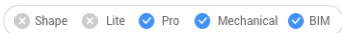
Specify four points to create a face at the top of the pyramid.



- 1 First point
- 2 Second point
- 3 Third point
- 4 Last point

6.33 AI_REVSURF command

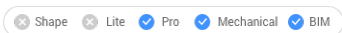
This command is obsolete. It still exists for backward compatibility only.



Use REVSURF command instead.

6.34 AI_RULESURF command

This command is obsolete. It still exists for backward compatibility only.



Use the RULESURF command instead.

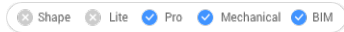



6.35 AI_SELALL command (Express Tools)

Selects all the entities in the drawing, except for those on frozen layers.

6.36 AI_SPHERE command

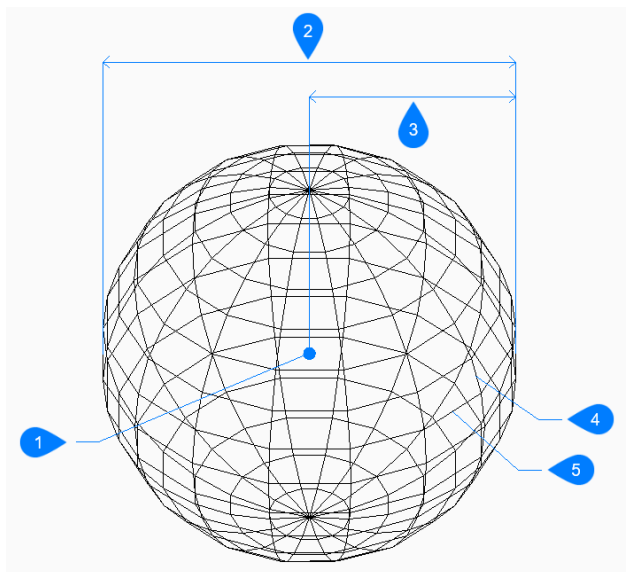
Creates a 3D polygon mesh in the shape of a sphere.



Icon: 

6.36.1 Description

Creates a 3D polygon mesh in the shape of a sphere. Choose from a combination of options including center, radius, diameter, and number of segments.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Latitudinal segments
- 5 Longitudinal segments

6.36.2 Methods to create a sphere

There is one method to begin creating a sphere:

- Center of sphere

Center of sphere

Begin creating a sphere by specifying the center then:

Set radius of sphere

Specify the radius of the sphere.

Additional option: [Diameter]



Number of longitudinal segments

Specify the number of isolines, perpendicular to the xy-plane, used to simulate the sphere's curved surface. The default is 16.

Number of latitudinal segments

Specify the number of isolines, parallel to the xy-plane, used to simulate the sphere's curved surface. The default is 16.

6.36.3 Options within the AI_SPHERE command

After you begin creating a sphere, the following option may be available:

Diameter

Specify the diameter of the sphere.

6.37 AI_TABSURF command

This command is obsolete. It still exists for backward compatibility only.



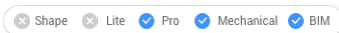
Use the TABSURF command instead.

6.38 AI_TILEMODE1 command (Express Tools)

Sets the TILEMODE system variable to 1.

6.39 AI_TORUS command

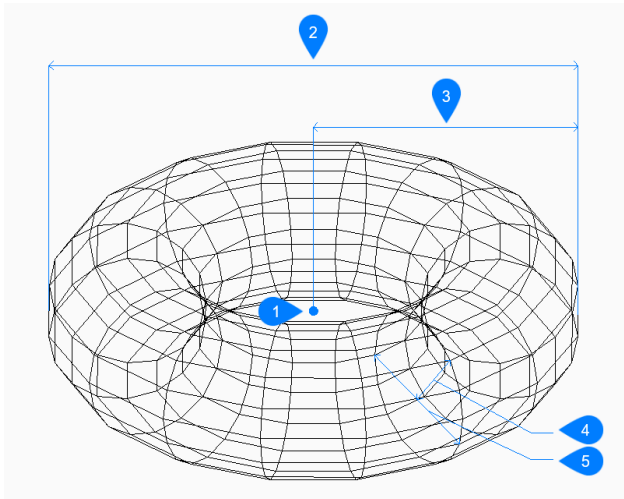
Creates a 3D polygon mesh in the shape of a torus.



Icon: 

6.39.1 Description

Creates a 3D polygon mesh in the shape of a torus. Choose from a combination of options including center and radius or diameter of both the whole torus and the body of the torus.



- 1 Center
- 2 Diameter of the whole torus
- 3 Radius of the whole torus
- 4 Radius of the body
- 5 Diameter of the body

6.39.2 Methods to create a torus

There is one method to begin creating a torus:

- Center of whole torus

Center of whole torus

Begin creating a torus by specifying its center then:

Set radius of whole torus

Specify the overall radius of the torus. The radius is measured from the center of the whole torus to the outer edge of the body (tube) of the torus.

Additional option: [Diameter]

Set radius of body of torus

Specify the radius of the body (tube) of the torus.

Additional option: [Diameter]

Segments around body of torus

Specify the number of isolines, perpendicular to the xy-plane, used to simulate the torus's curved surface. The default is 16.

Segments around whole torus

Specify the number of isolines, parallel to the xy-plane, used to simulate the torus's curved surface. The default is 16.

6.39.3 Option within the AI_TORUS command

After you begin creating a torus, the following option may be available:



Diameter (of whole torus)

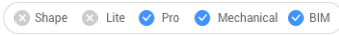
Specify the diameter of the whole torus. The diameter is twice the distance from the center of the whole torus to the outer edge of the body (tube) of the torus.


Diameter (of body of torus)

Specify the diameter of the body of the torus.

6.40 AI_WEDGE command

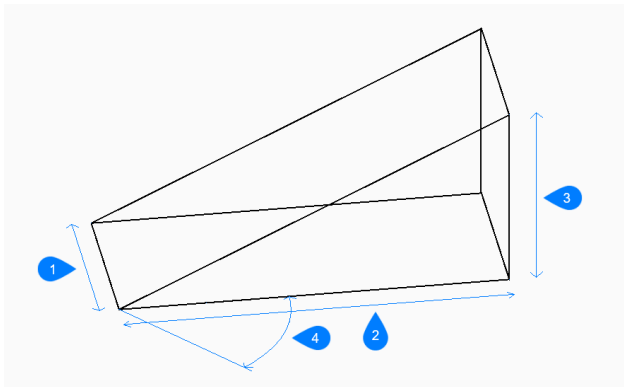
Creates a 3D polyface mesh in the shape of a wedge.



Icon: 

6.40.1 Description

Creates a 3D polyface mesh in the shape of a wedge by specifying a corner, the length, width, height and rotation angle.



- 1 Width
- 2 Height
- 3 Length
- 4 Rotation angle

6.40.2 Methods to create a wedge

There is one method to begin creating a wedge:

- Corner of wedge

Corner of wedge

Begin creating a wedge by specifying a corner for the base of the wedge then:

Length of wedge

Specify the length of the wedge.

Width of wedge

Specify the width of the wedge.

Height of wedge

Specify the height of the wedge.

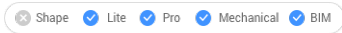


Rotation angle for wedge

Specify the rotation angle of the base of the wedge in the xy-plane.

6.41 AIMLEADEREDITADD command

Adds and removes leaders to mleaders.



Icon:

6.41.1 Description

Adds and removes one or more leader lines to and from multi-line leaders.

6.41.2 Method

There are two methods to add and remove leaders:

- Add leaders to an existing mleader.
- Remove leaders from an mleader.

6.41.3 Options within the command

Add leaders

New leaders are added to an existing mleader entity.

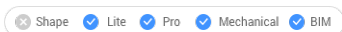
Remove leaders

One or more leaders are removed from an existing mleader entity.

This command can remove all leaders from an mleader entity, leaving just the text.

6.42 AIMLEADEREDITREMOVE command

Removes and adds leaders to mleaders.



Icon:

6.42.1 Description

Removes and adds one or more leader lines to and from multi-line leaders.

6.42.2 Method

There are two methods to remove and add leaders:

- Remove leaders from an mleader.
- Add leaders to an existing mleader.

6.42.3 Options within the command

Remove leaders

One or more leaders are removed from an existing mleader entity.

This command can remove all leaders from an mleader entity, leaving just the text.

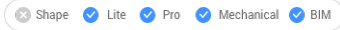


Add leaders

New leaders are added to an existing mleader entity.

6.43 AIDIMFLIPARROW command

Flips a dimension arrow.



Icon:

6.43.1 Description

Flips the dimension arrows so that they point in the opposite direction.

Even though the prompt refers to plural entities, the command flips one arrow at a time, the one closest to the picked point along the dimension or extension line.

6.44 AIDIMPREC command

Changes the display precision of dimension text.



Icon:

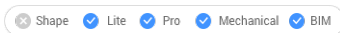
6.44.1 Description

Increases and decreases the display precision of dimension values retroactively, changing either the number of decimal places or the denominator of fractions. The measured precision remains unchanged.

This command rounds off dimension values up or down, and so it can display false values that seem too high or too low in value. For example, setting AIDIMPREC to 0 on a dimension with a length of 3.525" rounds the display to 4" but the measured length remains 3.525".

6.45 AIDIMSTYLE command

Applies and saves dimension styles.



Icon:

6.45.1 Description

Saves the current dimension settings as a named style and applies a preset style to selected dimensions in the current drawing.

6.45.2 Method

There are two methods to begin working with dimension styles:

- Apply a saved dimension style to dimensions in the drawing.
- Save dimension settings in the current drawing as a named style.



6.45.3 Options within the command

Apply

Apply an existing dimension style to one or more dimensions.

Note: Use the '-DIMSTYLE command transparently during this command to list the names of dimension styles in the current drawing.

This overrides the changes made to dimensions with commands like AIDIMFLIPARROW and AIDIMPREC.

Save

Save the style properties of an existing dimension to a named style.

The properties of the saved style can be examined with the DIMSTYLE command.

6.46 ALIGN command

Moves, rotates, and scales entities to align with specified points.



Icon:

Alias: AL

6.46.1 Description

Moves, rotates and scales entities in 2D or 3D space by specifying a set of alignment points.

6.46.2 Options within the command

Select entities

Selects entities that are to be aligned.

Note: Do not select destination entities, otherwise they are also moved.

Specify first source point

Specifies the source alignment point.

Specify first destination point

Specifies the destination alignment point.

Note: If you press Enter at this prompt, the source object moves.

Note: Specify a second pair of source and destination points to move and rotate entities.

Specify second source point

Specifies the second source alignment point.

Specify second destination point

Specifies the matching destination point.

Note: Press Enter to move and rotate 2D entities.

Note: Specify a third pair of source and destination points to move and rotate 3D entities.



Scale objects based on alignment points

Allows you to scale the source object.

Note: Scaling is only available when aligning entities using two pairs of points.

Yes

Scales objects relative to the picked points.

No

Does not scale objects.

Specify third source point

Specifies the source point for 3D alignment.

Specify third destination point

Specifies the matching destination point.

6.47 ALIASEDIT command (Express Tools)

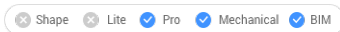
Creates, edits and removes BricsCAD command aliases.

6.47.1 Method

Opens the **Customize** dialog box, **Command Aliases** tab to create, edit and remove command aliases.

6.48 ALIGNMENT command

Creates Horizontal and 3D alignments.



Icon: 

6.48.1 Description

Creates Horizontal and 3D alignments to represent a reference system used to position linear objects in space.

Note: You can offset Horizontal Alignments. The result of the OFFSET command on Horizontal Alignments is a non-associative polyline.

Horizontal Alignment is created by specifying points of intersection (PI) of the tangent polygon. Curves are drawn automatically between the tangents.

Note: The DEFAULTCURVETYPEHA system variable specifies the curve type to be used when create a new horizontal alignment or adding new PI. The default value is **Auto Spiral-Curve-Spiral**.

6.48.2 Options within the command

Select TIN surface

Allows you to select a TIN surface used to drape Horizontal alignment and to create 3D alignment.

Note: Two 3D alignments are created: one represents the projection of the Horizontal Alignment to the TIN Surface and second represents the Vertical Alignment, which is calculated based on the **Vertical tolerance** parameter.



Pick pi point

Allows you to pick the PI points for your Horizontal alignment.

Note: If **Select TIN surface** option was previously selected, the 3D alignment is automatically generated.

Undo

Undoes the last PI point.

Specify start station

Allows you to define the start station when start creating a new alignment.

6.49 ALIGNMENT3D command

Creates a **3D Alignment** from a specified vertical alignment.



Icon:

6.49.1 Description

Creates a **3D Alignment** entity by selecting a vertical alignment.

6.50 ALIGNMENTCURVE command

Creates unconstrained curve element on existing or on a new **Horizontal Alignment**.



Icon:

6.50.1 Method

There are two methods:

- Create a new curve element on existing horizontal alignment.
- Create a new alignment by drawing a curve element.

The unconstrained curve element can be created on **existing** or on a **new Horizontal Alignment** in two ways. In both ways an existing horizontal alignment needs to be selected first. The user can then either specify a curve centre point in the drawing or select **Points** option from the command line. If the user has specified a centre point, he determines the orientation of the curve element in the next step, and at the end specify its diameter. Otherwise, if option **Points** has been selected in the command line, the user specifies three points that define the new curve element. User can then continue drawing new curve elements on existing horizontal alignment until presses the Enter key.

6.50.2 Options within the command

Select existing horizontal alignment

Creates a new curve element on existing alignment.

Create new alignment

Creates new curve element on existing **Horizontal Alignment**.



Specify curve direction

Toggles between clockwise and counterclockwise direction.

Points

Creates new curve element of the **Horizontal Alignment** by specifying its start point, second point and end point.

6.51 ALIGNMENTEDIT command

Edits an alignment.



Icon:

6.51.1 Method

Select a Horizontal or Vertical alignment to edit.

6.51.2 Options within the command for Horizontal alignment

Continue with Pi

Allows you to continue the Horizontal alignment.

Note: This option works only if the last element is fixed line.

Delete Element

Allows you to delete alignment elements.

Add Pi

Adds a Pi Point to the alignment.

Remove Pi

Removes a Pi point.

changes Tin surface

Changes the Tin surface of the Horizontal alignment by adding additional TIN surface.

Add Station equation

Allows you to add station equation.

Remove Station equation

Allows you to remove station equation by specifying the index.

6.51.3 Options within the command for Vertical alignment

Add Pvi

Adds a Pvi point to the alignment.

Remove Pvi

Removes a PVI point.

change Tin surface

Changes the Tin surface of the Vertical alignment by adding additional TIN surface.



6.52 ALIGNMENTELEMENTBETWEEN command

Creates a new element between two selected alignment elements.



Icon:

6.52.1 Description

The new element is drawn tangential to both attachment elements.

Note: Therefore, we say that such an element is constrained by both selected elements.

Depending on the selected type of the new element, some parameters of the element are maintained when attachment elements are edited.

The following types of new elements can be created between two existing elements: lines, curves, spirals, spiral-curve-spiral combinations, spiral-spiral combinations and the spiral-line-spiral combinations.

6.52.2 Options within the command

Line

Creates new line element between two existing curve elements. The new line is drawn tangential to both attachment elements. The tangency is maintained when attachment elements are edited.

The line can be added between the following element combinations:

- Between two existing unconstrained circles.
- Between two existing constrained circles as a part of combinations, such as a Curve with Spiral and a Curve-Spiral-Spiral combination.
- Between an existing unconstrained and constrained circle.

Note: The way the line is drawn between the selected elements depends on their directions.

Curve

Creates a new curve element between two existing alignment elements. The new curve is drawn tangential to both attachment elements. The tangency and the curve radius are maintained when attachment elements are edited.

The position of points on (attachment) elements, between which new curve is created and the curve length are adjusted according to the editing of attachment elements.

The curve can be added between all element combinations except between the first selected element and the constrained spiral.

Note: The curve is defined by the type of attachment elements, specified curve radius and solution angle (< or >180°). The way the circle is drawn between the selected elements depends on the attachment elements direction.

Spiral

Creates new spiral element between two existing alignment elements. The new spiral is drawn tangential to both attachment elements. The tangency is maintained when attachment elements are edited.

Note: A free spiral is defined by the type and the direction of selected attachment elements. Since the spiral has only one geometric solution, the user cannot specify parameters, such as parameter A or the spiral length.

Spiral-Curve-Spiral

Creates new spiral-curve-spiral combination between two existing alignment elements. The new combination is drawn tangential to both attachment elements. The tangency, curve radius and both spiral lengths are maintained, when attachment elements are edited.

The position of points on (attachment) elements, between which new combination is created and the curve length are adjusted according to the editing of attachment elements.

Select attachment elements, specify curve radius and spiral lengths to add spiral-curve-spiral combination between selected alignment elements.

Spiral-Spiral

Creates new spiral-spiral combination between two existing curve elements with the same orientation and possibly different radii. The new combination is drawn tangential to both attachment elements. The tangency is maintained when attachment elements are edited.

Spiral parameters (length and parameter A) and the position of points on (attachment) elements, between which new combination is created, are calculated according to the specified A1/A2 (or L1/L2) ratio.

Note: The position of points on (attachment) elements, between which new combination is created and the curve length are adjusted according to the editing of attachment elements.

Spiral-Line-Spiral

Creates new spiral-line-spiral combination, with a specified spiral lengths, between two existing curve elements. The new combination is drawn tangential to both attachment elements.

Note: The position of points on (attachment) elements, between which new combination is created, and spiral parameters are adjusted according to the editing of attachment elements.

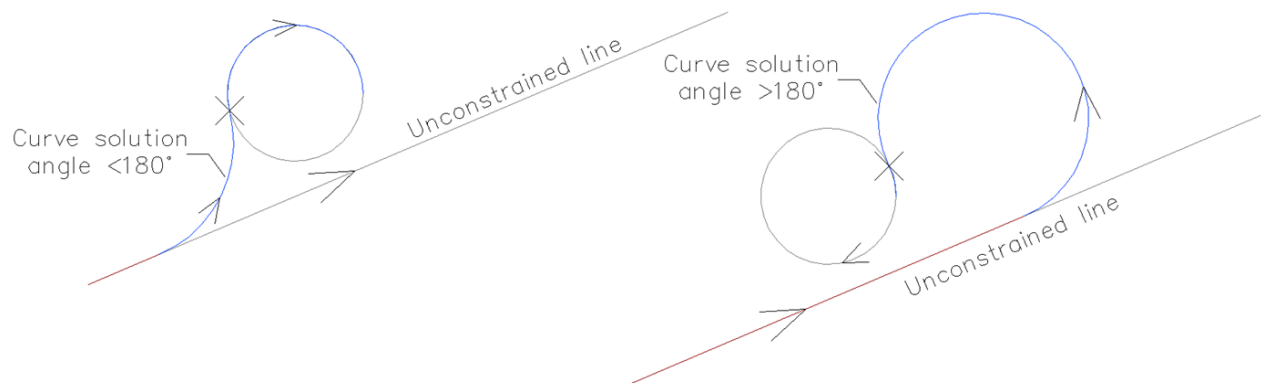
Specify first / second entity

Allows you to select the first and second alignment element, between which a new element is created.

Is curve solution angle

Toggles between **Greaterthan180** and **Lessthan180**.

The figure below shows two possible solutions for a curve with an angle $< 180^\circ$ (left) and $> 180^\circ$ (right) added between an unconstrained line and an arc element.



spiral parameter A

Allows you to specify the A1/A2 ratio.

Spiral length

Allows you to specify the L1/L2 ratio.



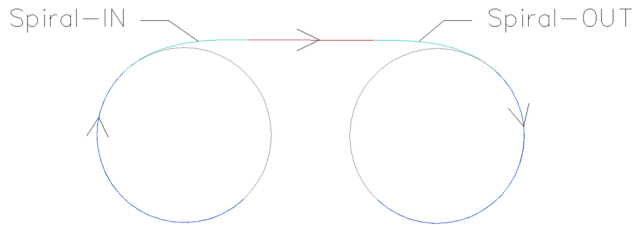
Spiral in-length

Allows you to specify the spiral-in length.

Spiral out-length

Allows you to specify the spiral-out length.

The figure below shows the spiral-line-spiral combination, created between two unconstrained curves, where the user specifies the spiral-IN and spiral-OUT lengths.




Specify radius

Allows you to specify the radius of the new spiral and curve element.

6.53 ALIGNMENTELEMENTFROM command

Attaches new alignment element before (to) or after (from) the existing alignment element.



Icon: 

6.53.1 Description

The following types of new elements can be attached to existing elements: lines, curves, spirals, lines with spirals, curves with spirals and curve-spiral-spiral combination.

Note: New element is always drawn tangential to the specified point on the selected attachment element.

6.53.2 Options within the command

Line

Attach a new line element before (to) or after (from) the selected alignment element.

Note: Line length can be either specified in the drawing or its value can be entered in the command line.

Curve

Attach a new curve element before (to) or after (from) the selected alignment element.

To attach a curve before the existing element, select it closer to the element start point. Otherwise click closer to attachment element end point to attach curve after (starting from) the element.

Note: The curve geometry is defined by the curve radius, curve angle solution (greater or less than 180°) and the pass-through point.

Spiral

Attach a new spiral element before (to) or after (from) the selected alignment element.

To attach a spiral before the existing element, select it closer to the element start point. Otherwise click closer to the attachment element end point, to attach curve after (starting from) the element.



Note: The spiral geometry is defined by the radius, length and the direction (clockwise or counter-clockwise).

Line with Spiral

Attach a **Line-Spiral** combination before (to) or after (from) the selected alignment element. As the name implies, a combination consists of two elements, a spiral and a line.

Note: The sequence of created elements depends on whether the combination is attached before or after the selected element. To create a combination before the selected element, select attachment element closer to its start point. In this way we get the **Line-Spiral** combination. Otherwise, if existing element is selected closer to its end point, then we get the **Spiral-Line** combination after the attachment element. Such combination starts by spiral transition to a line, which passes through a specified pass-through point (line end point).

Curve with Spiral

Attach a **Curve-Spiral** combination before (to) or after (from) the selected alignment element. As the name implies, a combination consists of two elements, a spiral and a curve.

Note: The sequence of created elements depends on whether the combination is attached before or after the selected element. To create a combination before the selected element, select existing element closer to its start point. In this way we get the **Curve-Spiral** combination. Otherwise, if attachment point is selected closer to element end point, then we get the **Spiral-Curve** combination. Such combination starts by spiral transition to a curve, which passes through a specified pass-through point.

First select the attachment element, then specify spiral radius and length, then specify the curve solution angle (greater or less than 180°) and last specify the curve pass-through point to draw the **Curve-Spiral** combination.

Curve-Spiral-Spiral

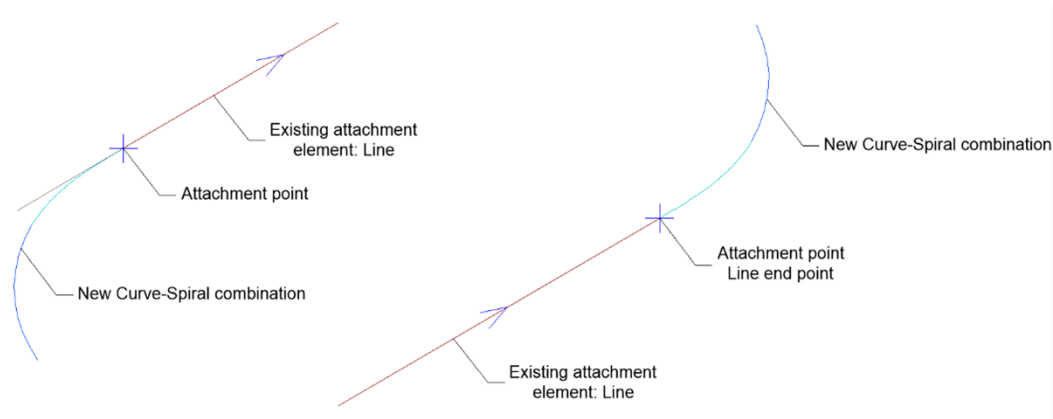
Attach a **Curve-Spiral-Spiral** combination before (to) or after (from) the selected alignment element. As the name implies, a combination consists of two oppositely directed spirals and a curve that passes through a specified point.

Note: The sequence of created elements depends on whether the combination is attached before or after the selected element. To create a combination before the selected element, select attachment element closer to its start point. In this way we get the **Curve-Spiral-Spiral** combination. Otherwise, if existing element is selected closer to its end point, then we get the **Spiral-Spiral-Curve** combination.

First select the attachment element, then specify spiral-in length and radius, then specify spiral-out length and specify curve pass-through point in the last step to draw **Curve-Spiral-Spiral** combination.

Element

Select this option to attach new element (or combination of elements) to the specified point on the attachment element. Select attachment element closer to its start point to attach new element before (to) the attachment element. Or select attachment element closer to its end point to attach new element after (from) attachment element.



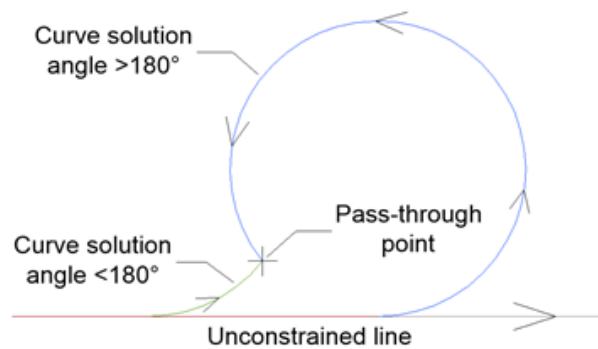
element END

Select this option to attach new element (or combination of elements) to the start/end point of the attachment element. Select attachment element closer to its start point to attach new element before (to) the attachment element. Or select attachment element closer to its end point to attach new element after (from) attachment element.

Is curve solution angle

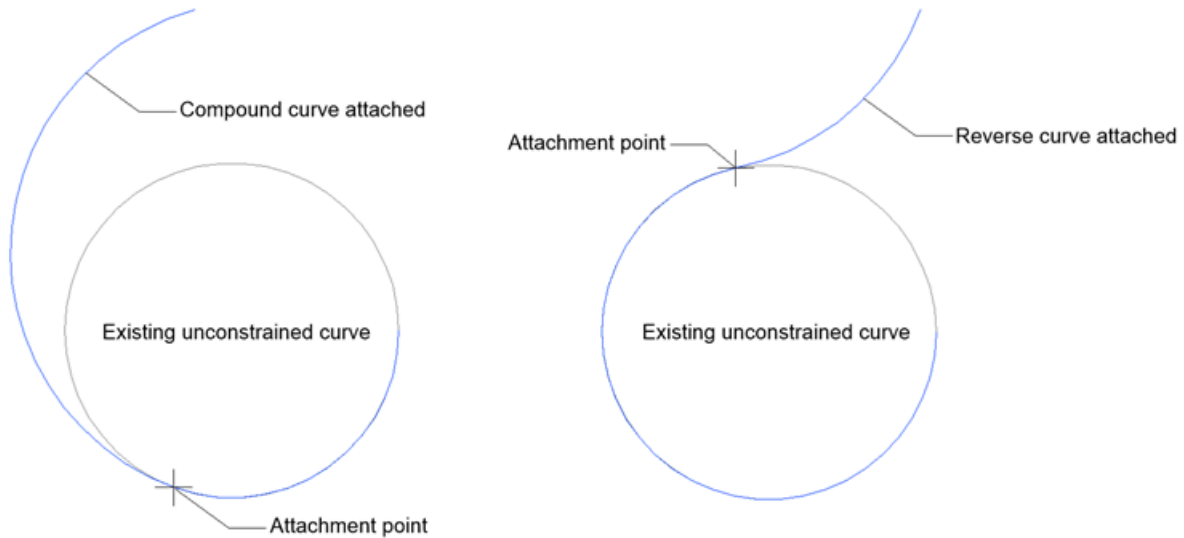
Toggles between **Greaterthan180** and **Lessthan180**.

The figure below shows two possible solutions for the curve passes through the same specified point, depends on the selected option for the curve solution angle.



Is curve compound or reverse?

Toggles between **Compound** and **Reverse** curve attached to existing unconstrained curve element, as illustrated in the figure below:



Length

Allows you to specify the new line length.

Specify spiral length

Allows you to specify the new spiral length.

Specify radius

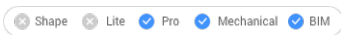
Allows you to specify the radius of the new spiral and curve element.

Specify curve direction

Specifies the new element orientation. Toggles between clockwise and counter-clockwise orientation.

6.54 ALIGNMENTLINE command

Creates unconstrained line element between two specified points on existing or on a new **Horizontal Alignment**.



Icon: 

6.54.1 Method

There are two options:

- Create a new line element between two specified points on existing horizontal alignment.
- Create a new alignment by drawing a line element between two specified points.

6.54.2 Options within the command

Select existing horizontal alignment

The new unconstrained line element is created on selected existing Horizontal Alignment, between two specified points.



Note: First select the existing horizontal alignment in the drawing, and then specify the first and second point, between which a new line element is created. You can then continue drawing new line elements on existing horizontal alignment until you press the Enter key.

Create new alignment

Creates new **Horizontal Alignment** by drawing a line element between two specified points.

Note: Specify the first and second point in the drawing, between which a new line element is created. You can continue drawing new line elements until press the Enter key.

6.55 ALIGNMENTVIEW command

Creates a vertical alignment view for the selected horizontal alignment.



Icon:

6.55.1 Method

Select a horizontal alignment, previously created with ALIGNMENT command, and a point as the origin for vertical alignment view.

6.56 ALIGNMENTVERTICAL command

Creates **Vertical Alignment**.



Icon:

6.56.1 Description

Creates **Vertical Alignment** on a selected **Vertical Alignment View**. It also automatically draws the **3D Alignment** of the corresponding alignment.

6.56.2 Method

There are two methods:

- Creates **Vertical Alignment** by picking PVI points.
- Creates **Vertical Alignment** automatically.

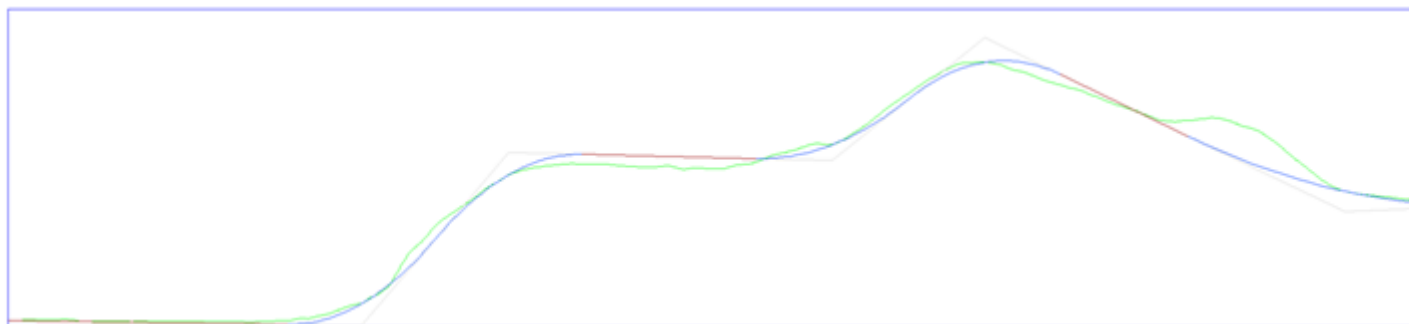
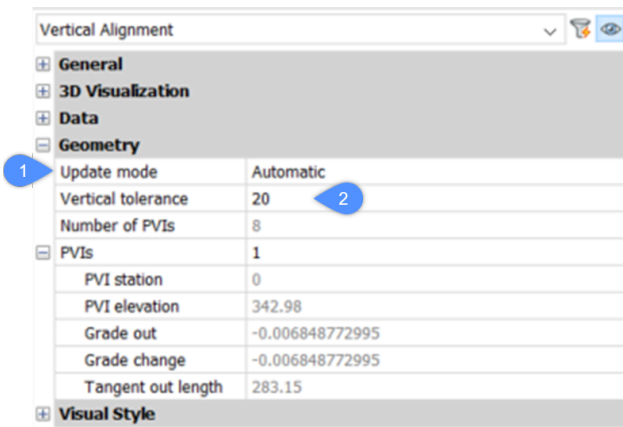
6.56.3 Options within the command

Undo

Undoes the last specified vertical alignment PVI point.

Automatic 3d alignment

Automatically creates **Vertical Alignment** and **3D Alignment**.



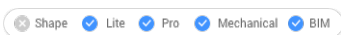
The Automatic Vertical Alignment is calculated so that the elevation difference to the terrain line does not exceed the value of the **Vertical tolerance** parameter, which is set to 0.1 by default.

Once the **Vertical Alignment** is created, you can edit the value of the **Vertical tolerance** (2) parameter in the **Properties** panel.

Additionally, the value of the **Update mode** (1) parameter is set to **Automatic**. This means that you cannot edit the geometry of the Automatic Vertical Alignment. To edit it, set the **Update mode** parameter to **Manual**.

6.57 ALIGNSPACE command

Adjusts viewport angle, zoom factor, and pan position based on alignment points specified in model space and paper space.



Note: This command can be entered transparently during commands ('alignspace').

Note: This command works only in paper space.

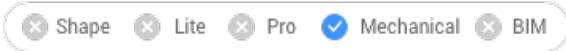
Note: The model space viewports must have PERSPECTIVE mode OFF.


6.57.1 Description

Adjusts viewport angle, zoom factor, and pan position by selecting points in the same model space viewport and paper space.

6.58 AMDATUMID command

Creates a datum identifier symbol



Icon: 

6.58.1 Method

Select the object to attach the datum identifier symbol and specify the points for its location, then the **Datum Identifier** dialog box opens. The first leader segment is perpendicular to the attached object.

There are two use cases to activate the mechanical entities:

- 1 **When creating a new drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Start a new drawing using a Mechanical2d template.
- 2 **When opening a drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

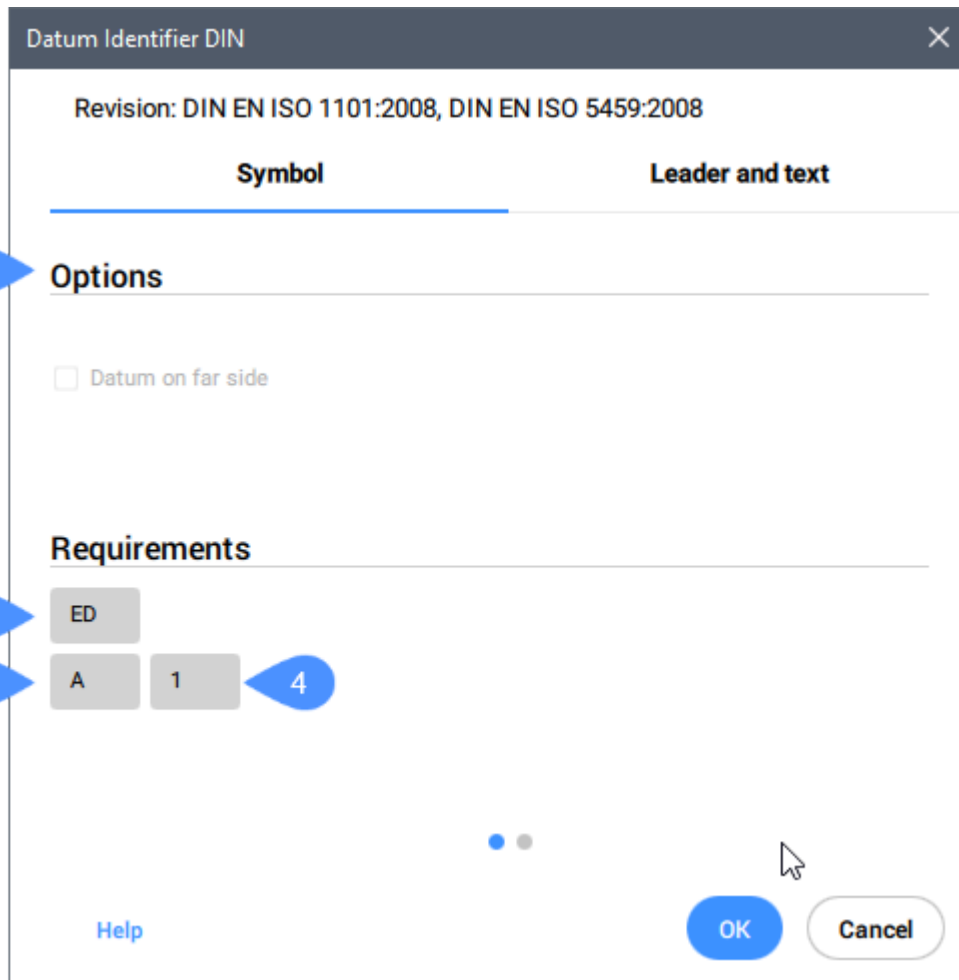
Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

The **Datum Identifier** dialog box allows you to set all parameters for the symbol.

6.58.2 Symbol

Specifies the datum identifier symbol characteristics.



Options (1)

Toggles the datum type.

Identifier (2)

Defines the identifier which can contain a maximum of two characters.

Thread note (3)

Defines the thread notes, which are placed on symbols attached to gears or screw threads. They specify which diameter to use as the datum.

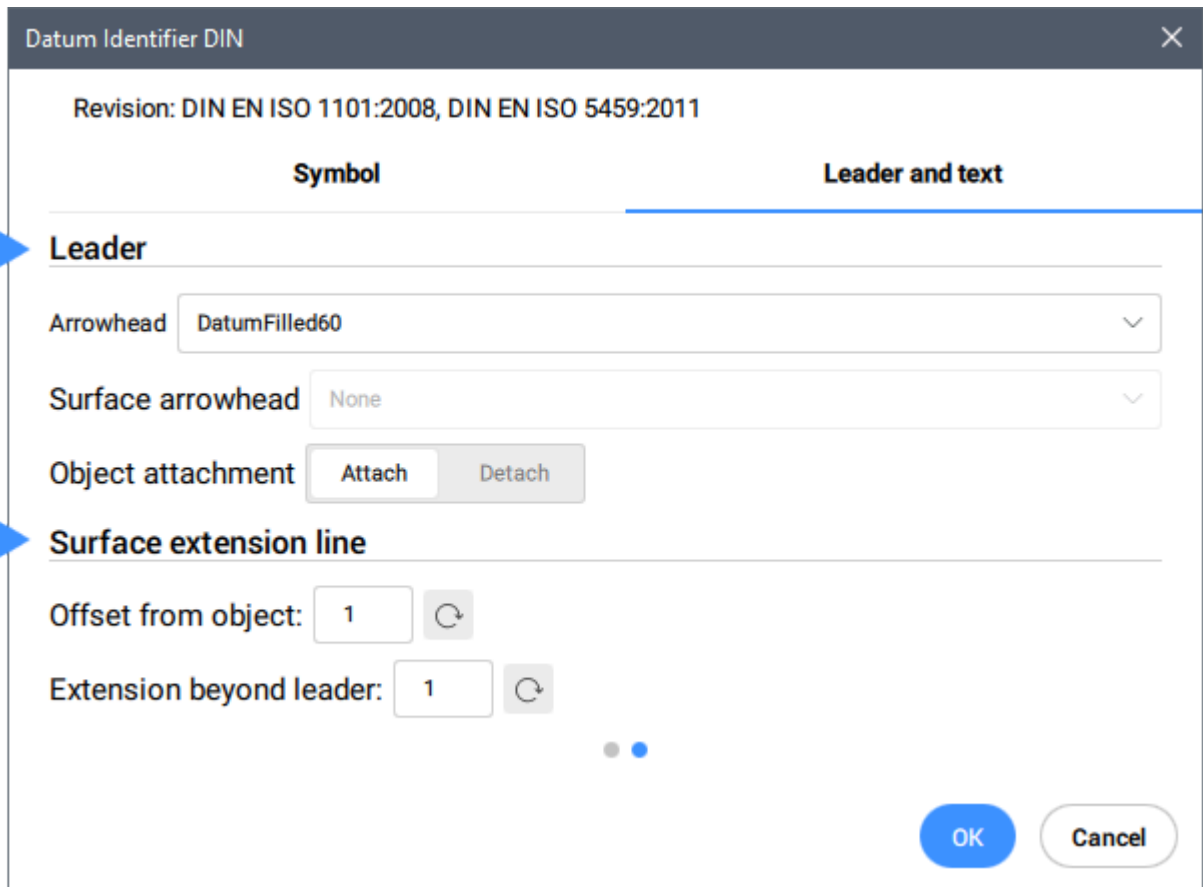
Datum note (4)

Defines the reference datum targets which correspond to points on a surface. Generally, it contains a series of datum targets separated by commas (",").

Note: Thread and datum notes are not available for all standards.

6.58.3 Leader and text

Specifies the Leader and text characteristics.



Leader (5)

Sets the leader characteristics.

Arrowhead

Sets the default leader arrowhead type.

Surface arrowhead

Sets the arrowhead for surface indication leaders.

Note: This option is only available for the standards which allow surface indicator leaders.

Object attachment

Defines if the symbol leader is attached or detached to the object.

Attach

Attaches the symbol to the selected object.

Detach

Detaches the symbol from the object.

Surface extension line (6)

Sets the surface extension line characteristics.

Offset from object

Sets the offset from the object.



Extension beyond leader

Sets the extension beyond leader.

After creating the datum identifier symbol with the AMDATUMID command, their properties can be changed in the **Properties** panel:

Symbol	
Drafting standard	DIN
Standard revision	DIN EN ISO 1101:2008, DIN EN ISO 5459:
Scale	1
Requirements	
Datum Area	Near side
Identifier	1
Thread note	A
Datum note	B
Leader	
Primary arrowhead	DatumBlank45
Surface arrowhead	
Offset from Object	0
Extension beyond leader	0

Symbol

Drafting standard

Displays the drafting standard.

Standard revision

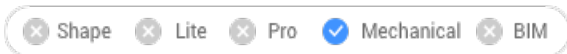
Displays the standard revision.

Scale

Sets the note scale.

6.59 AMEDGESYM command

Creates an edge symbol.



Icon:

6.59.1 Method

Select the object to attach the edge symbol to and specify the points for its location.

There are two use cases to activate the mechanical entities:

- When creating a new drawing that contains mechanical entities:**
 - Set the LOADMECHANICAL2D system variable to ON (1).
 - Start a new drawing using a Mechanical2d template.
- When opening a drawing that contains mechanical entities:**
 - Set the LOADMECHANICAL2D system variable to ON (1).
 - Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.



Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

After creating the edge symbol with the AMEDGESYM command, its properties can be configured in the **Properties** panel:

Symbol	
Drafting standard	DIN
Standard revision	DIN ISO 13715:2000
Scale	1
Majority symbol	Off
Requirements	
Direction	Defined
Undefined size	Undercut required
Undefined size direction	At Top
Upper limit	
Lower limit	
All around	Off
Standart label	Off
Leader	
Primary arrowhead	By Standard

6.59.2 Symbol

Drafting standard

Displays the drafting standard.

Standard revision

Displays the standard revision.

Scale

Sets the note scale.

Majority symbol

Chooses to display or to not display the majority symbol.

6.59.3 Requirements

Defines the edge symbol requirements.

Direction

Defines the position of the **Undefined size** sign.

Defined

The sign will be on a position defined by the **Undefined size direction** property.



Undefined

The sign will be on an undefined (middle) position.

Undefined size

Defines the edge:

None

Defines no requirements for the edge type. If available, upper and lower limits are displayed.

Burr or passing permitted

Defines the edge type as burr or passing.

Undercut required

Defines the edge type as undercut.

Undefined size direction

Defines the position of the undefined size sign.

Upper limit

Defines the upper value by typing it in the box or by selecting it from the drop-down list.

Lower limit

Defines the lower value by typing it in the box or by selecting it from the drop-down list.

All around

Adds the all around mark to the edge symbol.

Standard label

Displays the standard revision next to the symbol.

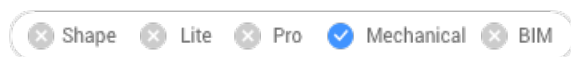
6.59.4 Leader

Primary arrowhead

Sets the leader style.

6.60 AMFCFRAME command

Adds a feature control frame symbol.



Icon:

6.60.1 Description

Allows you to create a feature control frame symbol that can be attached to an entity in the drawing.

Note: The command can be launched only when using a Mechanical2d template file for the current drawing (JIS, ANSI, DIN and ISO standards).

6.60.2 Method

Select the entity to attach the edge symbol and specify the points for its location.



There are two use cases to activate the mechanical entities:

1 **When creating a new drawing that contains mechanical entities:**

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Start a new drawing using a Mechanical2d template.

2 **When opening a drawing that contains mechanical entities:**

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Open an existent ACM drawing and start special symbols creation.

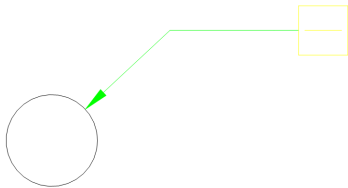
Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

Select the entity to attach the feature control frame symbol to. Depending on the selected entity, you can select the start point or the second point of the feature control frame leader. If needed, add more points to the leader, then press Enter to end the command.



After creating the frame symbol with the AMFCFRAME command, their properties can be configured in the **Properties** panel:



Symbol	
Drafting standard	DIN
Standard revision	DIN EN ISO 1101:2008
Scale	1
All around	Off
Top Note	
Bottom Note	
Requirements	
Frame Row	1st Frame
Geometric Symbol	Straightness
Tolerance 1	
Tolerance 2	
Datum 1	
Datum 2	
Datum 3	
Leader	
Primary arrowhead	By Standard
Secondary arrowhead	
Surface arrowhead	
Offset from Object	0
Extension beyond leader	0

6.60.3 Symbol

Drafting standard

Displays the drafting standard.

Standard revision

Displays the standard revision.

Scale

Sets the note scale.

All around

Toggles the visibility of the all around surface texture in the symbol.

Top Note

Inserts a note to add above the symbol.

Bottom Note

Inserts a note to add below the symbol.

6.60.4 Requirements

Defines the symbol requirements.

Frame row

Allows you to choose between **1st Frame** or **2nd Frame**.

Geometric Symbol

Allows you to choose a geometric symbol from the drop-down list.

Tolerance 1

Allows you to type in the tolerance to appear next to the geometric symbol.



Datum 1/2/3

Allows you to type in additional data.

6.60.5 Leader

Primary arrowhead

Sets the leader primary arrowhead style.

6.61 AMNOTE command

Creates a NOTE symbol.



Icon:

6.61.1 Method

Select the object to attach the leader note and specify the points for its location. Next, add the text note in the **Contents** field of the **Properties** panel.

There are two use cases to activate the mechanical entities:

- 1 **When creating a new drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Start a new drawing using a Mechanical2d template.
- 2 **When opening a drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

After creating the leading note with the AMNOTE command, their properties can be configured in the **Properties** panel:



Symbol	
Drafting standard	DIN
Standard revision	DIN 6780:2000-10
Scale	1
Flip symbol	Right aligned
Show reference line	Off
Text justification	Align Left
Leader justification	To Reference Line
Requirements	
Contents	
Leader	
Primary arrowhead	By Standard

6.61.2 Symbol

Drafting standard

Displays the drafting standard.

Standard revision

Displays the standard revision.

Scale

Sets the note scale.

Flip Symbol

Switches between Right and Left aligned text from the ending of the extension line.

Show reference line

Switches between show (ON) and hidden (OFF) the reference line.

Text justification

Specifies the location of the text regarding the extension line.

Leader justification

Sets the leader justification type.

6.61.3 Requirements

Content

After creating an AMNOTE, add the content of the note.

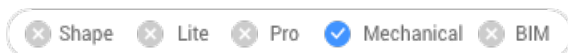
6.61.4 Leader

Primary arrowhead

Sets the leader style.

6.62 AMPOWERDIM_ALI command

Creates aligned linear dimensions.



Icon:



6.62.1 Description

Creates aligned linear dimensions. This command is a shortcut to the **Linear Aligned** option of the PDIM command.

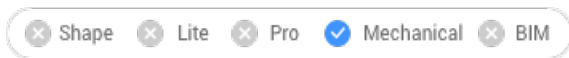
6.62.2 Methods

Define the two extension lines and specify the location of the dimension. The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.63 AMPOWERDIM_ANG command

Creates angular dimensions.



Icon:

6.63.1 Description

Creates angular dimensions. This command is a shortcut to the **Angular** option of the PDIM command.

6.63.2 Methods

There are three methods to define the angle:

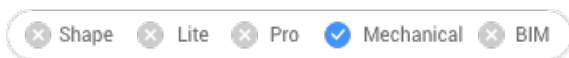
- By defining the three points.
- By defining the two lines.
- By defining an arc or a circle.

The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.64 AMPOWERDIM_DIA command

Creates a diameter dimension.



Icon:

6.64.1 Description

Creates diameter dimensions for arcs and circles. The command is a shortcut to the **Radial Diameter** option of the PDIM command. It automatically adds a diameter symbol to the dimension text.



6.64.2 Methods

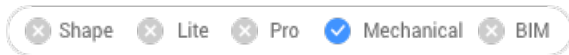
Select the arc or the circle and the location of the dimension line.

The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.65 AMPOWERDIM_HOR command

Creates linear horizontal dimensions.



Icon:

Alias:

6.65.1 Description

Creates linear horizontal dimensions. The command is a shortcut to the **Linear Horizontal** option of the PDIM command.

6.65.2 Methods

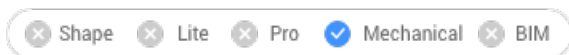
Select two points and the location of the dimension line.

The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.66 AMPOWERDIM_RAD command

Creates radial dimensions for arcs and circles.



Icon:

Alias:

6.66.1 Description

Creates radial dimensions for arcs and circles. This command is a shortcut to the **Radial Radius** option of the PDIM command. It automatically adds a radius symbol to the dimension text.

6.66.2 Methods

Select the arc or the circle and the location of the dimension line.

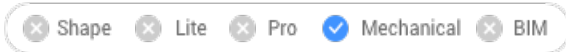
The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.



6.67 AMPOWERDIM_ROT command

Creates rotated linear dimensions.



Icon:

Alias:

6.67.1 Description

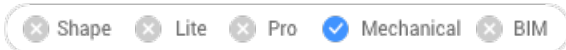
Creates rotated linear dimensions. It measures the distance between two points in a direction that is at an angle to a line connecting the two points. This command is a shortcut to the **Linear Rotated** option of the PDIM command.

6.67.2 Methods

Select two extension points, define the angle of the dimension line, and the location of the dimension line. The **Edit Dimensioning** dialog box opens to define the parameters of the dimension. After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.68 AMPOWERDIM_VER command

Creates vertical linear dimensions.



Icon:

6.68.1 Description

Creates vertical linear dimensions. The command is a shortcut to the **Linear Vertical** option of the PDIM command.

6.68.2 Methods

Select two points and the location of the dimension line. The **Edit Dimensioning** dialog box opens to define the parameters of the dimension. After the aligned linear dimension is created, you can define new dimensions by choosing PDIM command options.

6.69 AMPOWEREDIT command

Identifies the selected entity and executes the most relevant command to edit it.

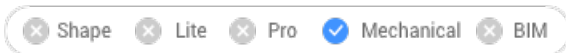


6.69.1 Description

The AMPOWEREDIT command identifies any entity you select and executes the most appropriate command to edit it. For example, if you run the command and select a dimension entity, the **Edit Dimensioning** dialog box opens.

6.70 AMSETUPDWG command

Changes the current standard of a mechanical 2D drawing or set up a mechanical 2D template for a non-mechanical drawing.



6.70.1 Methods

There are two use cases for opening a drawing that contains mechanical entities:

- 1 **When creating a new drawing that will contain mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Start a new drawing using a Mechanical2d template.
- 2 **When opening a drawing that contains mechanical entities**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Open an existent ACM drawing.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand. It will be possible when a user copies the mechanical-related entities to the non-mechanical drawing. In the case of copying entities that are not related to the mechanical data, a non-mechanical drawing will not be filled with mechanical data.

After opening a drawing which contains mechanical entities there are two use cases:

- 1 The standard of the current mechanical drawing can be changed by selecting another .dwt mechanical2D template file from the **Choose one of the Mechanical 2D template file** dialog box.
- 2 The standard of a non-mechanical drawing can be changed with a standard of a mechanical drawing, by selecting a .dwt mechanical2D template file from the **Choose one of the Mechanical 2D template file** dialog box. The mechanical-related data, like dictionaries, style tables... will be initialized.

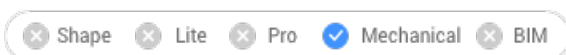
Note: A message with the name of a new standard will be displayed on the command bar.

Note: If select a template without a defined mechanical standard, an error message is displayed in the command bar, **You did not choose a mechanical 2D template.**

Note: If the mcad2d functionality is not available, an error message will be displayed in the command bar.

6.71 AMSIMPLEWELD command

Creates caterpillars and side weld annotations.



Icon:



6.71.1 Method

There are two use cases to activate the mechanical entities:

1 **When creating a new drawing that contains mechanical entities:**

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Start a new drawing using a Mechanical2d template.

2 **When opening a drawing that contains mechanical entities:**

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

6.71.2 Options within the command

Front

Creates a front view fillet or single -V butt welds (caterpillars) along a curve (line, polyline, arc, ellipse) between two specified points.

Note: Caterpillars are created as block references in the layout.

Alignment

Defines the type of the caterpillars weld:

Left

Adds a partial caterpillar and places it on the left of the curve.

Center

Adds a full caterpillar and centers it on the curve.

Right

Adds a partial caterpillar and places it on the right of the curve.

Note: If the HOTKEYASSISTANT system variable is ON, the **Hotkey Assistant** widget displays. Repeatedly press the **Ctrl** key to cycle the above various options.

Width

Defines the weld width.

Note:

- For a partial caterpillar, the weld width is the distance between the endpoint of the beam and the selected edge.
- For a full caterpillar, the weld width is the distance between the two endpoints of the beam.



Step

Defines the bead pitch.

switch Orientation

Toggles the bead orientation.

switch Direction

Toggles the bead direction.

Full

Creates the front weld symbol along the entire selected curve.

Side

Creates a side view seam or single -V butt welds with the specified Leg width and rotation angle.

Fillet

Creates a side view for a fillet weld.

single - V butt

Creates a side view for a single - V butt weld.

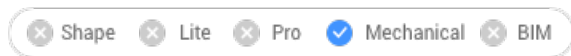
Note: If the HOTKEYASSISTANT system variable is ON, the **Hotkey Assistant** widget displays. Repeatedly press the **Ctrl** key to cycle through the above options.

change leg Width

Defines another value for the leg width.

6.72 AMSURFSYM command

Creates a surface symbol.



Icon: $\sqrt{\quad}$

6.72.1 Method

Select the object to attach the surface symbol and specify the points for its location.

There are two use cases to activate the mechanical entities:

1 When creating a new drawing that contains mechanical entities:

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Start a new drawing using a Mechanical2d template.

2 When opening a drawing that contains mechanical entities:

- a Set the LOADMECHANICAL2D system variable to ON (1).
- b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user

copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

After creating the symbol prototype with the AMSURFSYM command, you can configure the exact surface symbol's properties in the **Properties** panel:

Symbol	
Drafting standard	JIS
Standard revision	JIS B 0031 : 2003 (ISO 1302 : 2002)
Scale	1
Symbol type	Material removal prohibited
Majority symbol	Off
Requirements	
All Around	Off
Machine allowance	
Process note	
First requirement	6,3
Second requirement	6,3
Third requirement	9
Direction of lay	Crossed in two oblique directions
Leader	
Offset from Object	0
Extension beyond leader	0

Note: The surface symbol properties depend on the used standard.

Symbol	
Drafting standard	ISO
Standard revision	ISO 1302:2002(E)
Scale	1
Symbol type	Basic Symbol
Majority symbol	Off
Requirements	
All Around	Off
Machine allowance	
Roughness average max	
Roughness average min	
Process note	
Process note 2	Process note
Sampling length	
Cutoff	
Other roughness max	
Other roughness min	
Direction of lay	None
Leader	
Primary arrowhead	By Standard
Offset from Object	0
Extension beyond leader	0

6.72.2 Symbol

Symbol type

Choose one of the following:

- Basic symbol ✓
- Material removal required ✓



- Material removal prohibited ✓

Majority symbol

Indicates the common state of all surfaces using a single collective indication symbol.

OFF: shows only the collective indication.

ON: shows the state of other surface texture symbols elsewhere in the drawing in parenthesis at the right side of the collective indication.

6.72.3 Requirements

All Around

Toggles the visibility of the All Around surface texture in the symbol.

Machine allowance

Specifies the machining allowance for the surface.

Process note

Defines the process requirements for the surface.

First requirement

Defines the first requirement for the surface.

Second requirement

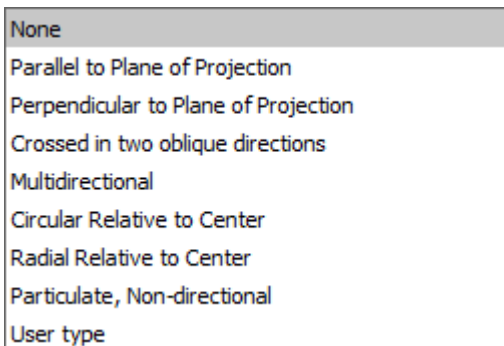
Defines the second requirement for the surface.

Third requirement

Defines the third requirement for the surface.

Direction of lay

Sets the direction of lay for the surface.



Roughness average max

Defines the maximum roughness average for the surface.

Roughness average min

Defines the minimum roughness average for the surface.

Process note2

Defines the process requirements for the surface.

Sampling length

Defines the sampling length required for the surface.



Other roughness max

Defines the maximum other roughness for the surface.

Other roughness min

Defines the minimum other roughness for the surface.

6.72.4 Leader

Offset from Object

Specifies the distance between the extension line's start point and the attached object.


Extension beyond leader

Specifies the distance between the symbol's start point and the surface extension line's end point.

6.73 AMWELDSYM command

Creates a welding symbol.



Icon: 

6.73.1 Method

Select the entity to attach the welding symbol and specify the points for its location. The **Weld Symbol** dialog box opens, where you can customize the weld symbol.

There are two use cases to activate the mechanical entities:

- 1 **When creating a new drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Start a new drawing using a Mechanical2d template.
- 2 **When opening a drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.

Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

After creating the symbol prototype with the AMWELDSYM command, you can configure the exact welding symbol's properties from the **Properties** panel:



Symbol	
Drafting standard	DIN
Standard revision	DIN EN 22553:1997, DIN EN ISO
Scale	1
All around	On
Field weld	On
Note tail	Off
Process notes	
Closed note tail	Off
Stagger	None
Flip symbol	Left aligned
Requirements - Arrow Side	
Weld type	Fillet
Depth	10
Size	12
Number	11
Length	x50
Spacing	
Contour	Convex Contour
Requirements - Other Side	
Weld type	Fillet
Depth	1
Size	2
Number	10
Length	x100
Spacing	
Contour	Concave Contour
Leader	
Arrowhead	By Standard

Symbol

All Around

Toggles the visibility of the All Around symbol in the welding symbol.

Field weld

Toggle the visibility of the Field weld symbol in the welding symbol.

Note tail

Displays the state of the note tail.

Process notes

Defines the process notes.

Closed note tail

Defines the closed note tail.

Stagger

Chooses between move and mirrored stagger for intermittent welds on both sides.



Flip symbol

Chooses between left and right aligned for weld symbol.

Requirements - Arrow side

Weld type

Defines the weld type from the options below:



Depth

Defines the groove depth of the weld.

Size

Defines the size of the weld.

Length

Defines the length of the weld.

Spacing

Defines the spacing dimension for intermittent weld.

Contour

Defines the shape of the weld.

Requirements - other side

Defines the type and dimensions of the weld on the other side.

Leader

Defines the default arrowhead type for welding symbols.

6.74 ANIMATIONEDITORCLOSE command

Closes the Animation editor panel.



6.74.1 Description

Closes the Animation editor panel to hide it from the current workspace. If the Animation editor panel is stacked when you close it, the Animation editor tab or icon is removed from the stack.



6.75 ANIMATIONEDITOROPEN command

Opens the Animation editor panel.



Icon:

6.75.1 Description

Opens the Animation editor panel to display it in the current workspace. The Animation editor panel appears at the same size and on the same location as it did before it was closed or collapsed. Like any other dockable panel, the Animation editor panel can be either floating, docked or stacked.

6.76 ANIMATIONEDITORPLAYBACK command

Loads animation graphics.



6.76.1 Description

Loads animation graphics data from a zip-archive or a folder.

Note: This command is only executed if the **Animation Editor** panel is active. After the graphics are loaded, **Animation Editor** is switched to a special animation graphics playback mode.

6.77 ANIMATIONEDITORRECORD command

Records animation graphics.



6.77.1 Description

Records animation graphics and saves it to a zip-archive or to a folder of your choice. After selecting the needed save option, the recording process will start. Depending on the complexity of the model, this can take a long time.

6.77.2 Options within the command

Zip-file

Opens the **Select a zip-file name to save animation graphics** dialog box that allows you to save the animation graphics to a zip-archive.

Folder


Opens the **Select a folder to save animation graphics** dialog box that allows you to save the animation graphics to a folder of your choice.

6.78 ANIPATH command

Records the animation of a camera moving along a path or panning in a 3D model and saves it to a movie file.





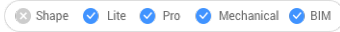
Icon: 


6.78.1 Description

Displays the Motion Path Animation dialog box.

6.79 ANNORESET command

Resets moved annotative scale representations.



Icon: 


6.79.1 Description

The locations of scale representations linked with annotative entities can be moved with grips. This command returns selected scale representations to their default positions.

6.80 ANNOUPDATE command

Updates the selected annotative entities to match their current annotative style.



Icon: 

6.80.1 Method

Select one or more annotative entities, such as text, dimensions, hatches, blocks to update them to their current annotative styles. If all the entities in the drawing are selected, the program will ignore non-annotative entities.

6.81 APPARENT command

Toggles the Apparent intersection entity snap.



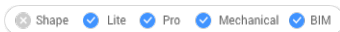
Alias: PLANVIEWINT

6.81.1 Description

Toggles the Apparent intersection entity snap to enable or disable snapping to apparent intersection. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

6.82 APpload command

Opens the Load application files dialog box.





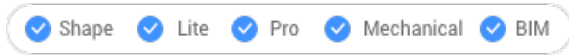
Icon:

6.82.1 Description

Opens the Load application files dialog box to load application files to run inside BricsCAD.

6.83 ARC command

Creates an arc.

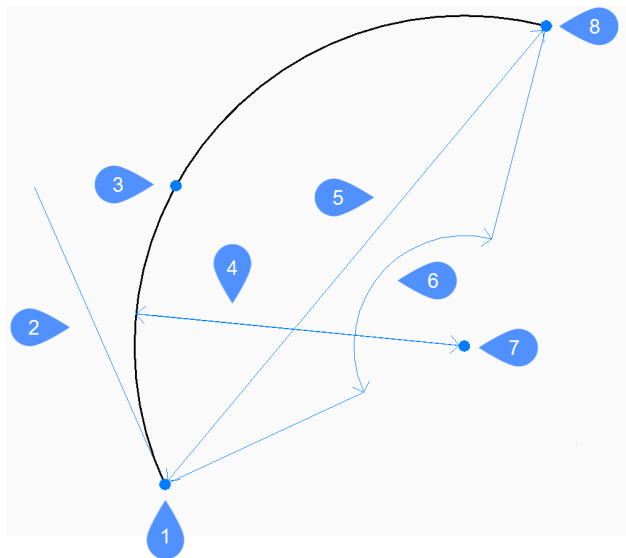


Icon:

Alias: A

6.83.1 Description

Creates an arc from a combination of options including the start point, second point, end point, center, included angle, direction, and length of chord.



- 1 Start
- 2 Direction
- 3 Second
- 4 Radius
- 5 Length of cord
- 6 Angle
- 7 Center
- 8 End



6.83.2 Methods to create an arc

This command has 3 methods to begin creating an arc:

- Start of arc
- Center
- Follow last point

You can press the Ctrl key while drawing an arc to change its direction from counterclockwise to clockwise.

Start of arc

Begin creating an arc by specifying a start point then:

Second point

Specify a point along the arc's circumference.

Additional options: [Angle/Center/Direction/End/Radius]

End

Specify the end point of the arc.

Center

Begin creating an arc by specifying a center point then:

Start

Specify the start point of the arc.

End

Specify the end point of the arc.

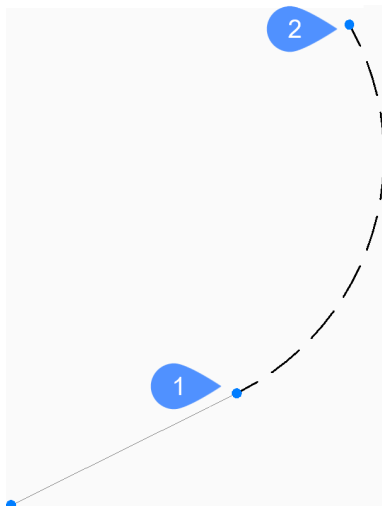
Additional options: [Angle/Length of chord]

Follow last point

Begin creating an arc from the last drawn arc or line segment, following its angle, then:

End

Specify the end point of the arc. The arc is drawn tangent to the previous segment.



1 Last point

2 End of arc



6.83.3 Additional options within the ARC command

After you begin creating an arc, the following options may be available:

Angle

Specify the included angle of the arc.

Direction


Specify the direction of the arc.

Radius

Specify the radius of the arc.

6.84 ARCTEXT command (Express Tools)

Adds text aligned with a selected arc.

Icon: 

6.84.1 Description

Adds text aligned with a selected arc or edits the text of an existing arc aligned text entity.

6.84.2 Method

Select an arc or an arc aligned text entity.

Note: You cannot use this tool with splines, polylines or circles.

The **ArcAligned Text Workshop - Create** dialog box opens, which allows you to customize the display of the text.

6.85 AREA command

Finds the area and perimeter of 2D entities.



Icon: 

Alias: AA

6.85.1 Method

Specify the points that define the area for which BricsCAD will report the area and perimeter.

Note: You can stop the calculation by pressing ESC.

6.85.2 Options

find area of one Entity

Provides the area and/or perimeter of the selected entity.

Note: The information reported by this command varies according to the entity selected:

- Line and sketch - length
- Arc and elliptical arc – area and length



- Circle and ellipse - area and circumference/perimeter
- Closed polyline and closed spline - area and perimeter
- Open polyline and spline - area and length
- 3D objects - surface area

Add areas together

Allows to add up the areas of two or more entities.

Subtract areas

Allows to remove areas of entities from the total area and perimeter.

Note: This option can only be used after you have found the area of at least one entity.

6.86 ARRANGE command

Spatially organizes a set of entities by aligning and/or distributing them along the axes of the current UCS.



Icon:

6.86.1 Methods

The ARRANGE command spatially organizes a set of entities (2D and/or 3D) by aligning and/or distributing them along the axes of the current UCS. You can perform as many arrange operation as you want on the original set of entities with a single run of the command.

This command creates a new arrangement of the selected entities. The arrangement of the entities is defined based on the bounding boxes of the selected entities (i.e., the smallest box which contains the entity), with respect to the selection bounding box (i.e., the smallest box which contains all selected entities).

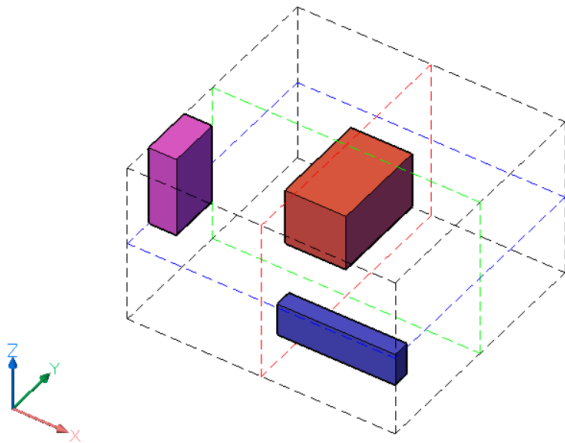
To make a new arrangement with the selected entities, the ARRANGE command uses the following elements:

- A selection of entities (these can be both 2D and 3D).
- A direction for the arrangement. This can be a main axis (X, Y, or Z) of the current UCS.
- The bounding box of the selection.
- The bounding boxes of each entity in the selection.
- The arrangement option selected by the user.

The arrangement of the selected entities is done with the following approach:

To create a new configuration of the selected entities, the ARRANGE command uses some bounds. First, there are the main bounds, that are attached to the selection bounding box. Then, there are the secondary bounds, that are attached to the bounding boxes of each entity in the selection.

This is a simple example of a selection bounding box and three other bounding boxes for the entities in the selection:



The selection bounding box is represented by black dashed lines. The bounds of the selection bounding box are defined by its six faces, two for each axis of the current UCS. There are also three center bounds, one for each axis, located in the center of the selection bounding box. The center bounds are represented by colored dashed lines, red for X axis, green for Y axis and blue for Z axis.

The colored boxes are the bounding boxes of the selected entities. For each entity in the selection, there are six outside bounds, defined by the faces, and three center bounds. The bounds of an entity are defined similarly to the ones of the selection bounding box.

In summary:

- The selection of entities has a total of nine bounds. There are three bounds for each of the axes of the UCS. The notation of these bounds are **1** (Center), **2** (Lower), and **3** (Upper), for each of the axes.
- Also, each entity has nine bounds, similar to the ones of the selection.

For each axis, the bounds are defined as follows:

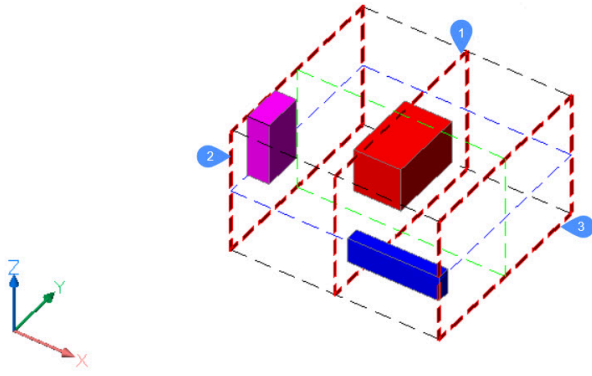
2 - the Lower bound is defined by the face of the bounding box placed at the smallest coordinate along the specified axis.

3 - the Upper bound is defined by the face of the bounding box placed at the largest coordinate along the specified axis.

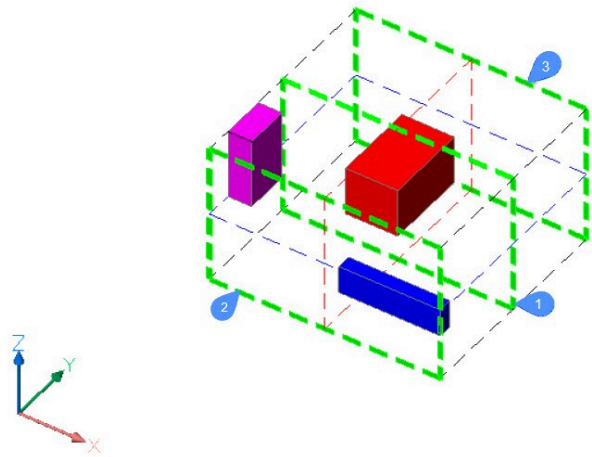
1 - the Center bound is located between the **2** (Lower) and **3** (Upper) bounds at the same distance from each of them.

In the pictures below, the bounds of the selection bounding box are highlighted with thick dashed lines.

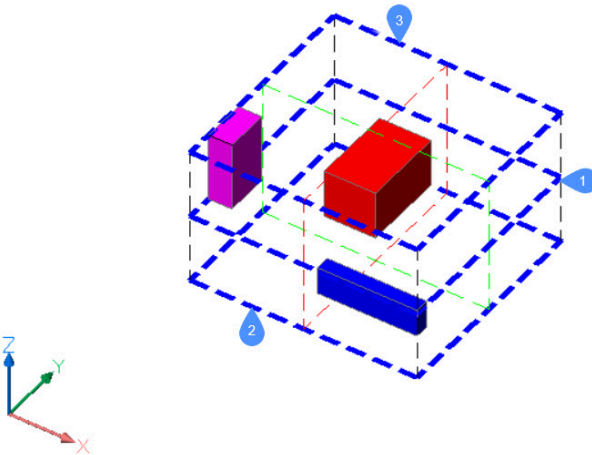
For the X axis:



For the Y axis:



For the Z axis:

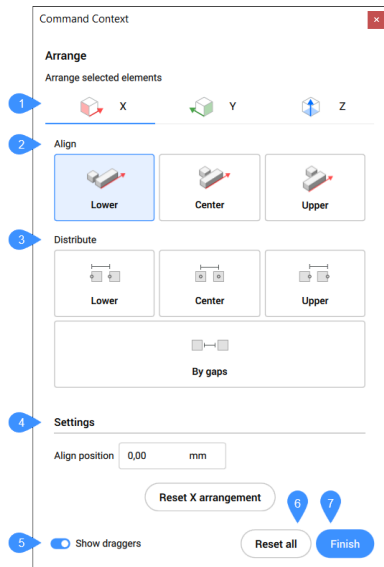


To define the new position of an entity in the selection, the ARRANGE command uses the bounds of the selection, the bounds of the entity, and the method selected by the user.



6.86.2 Arrange Command Context Panel

The Arrange Command Context Panel opens after finishing selecting entities.



1 Direction

2 Align

3 Distribute

4 Settings

5 Show draggers

6 Reset all

7 Finish

8 **Note:** The options within the command are the same options as in the Arrange Command Context panel.

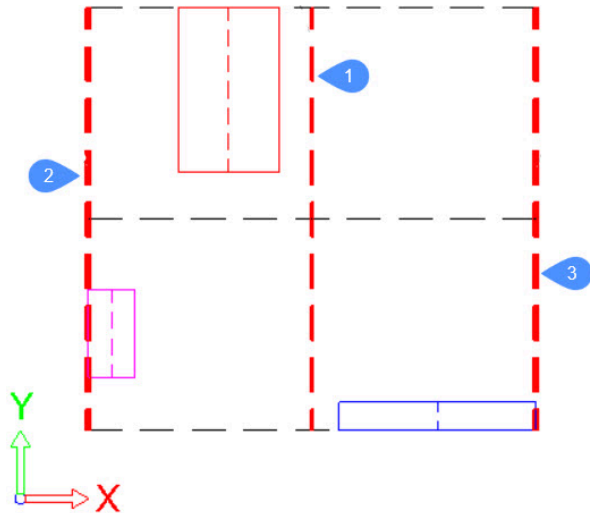
Note: The Command line can still be used to arrange the selected entities while the Arrange Command Context panel is active.

6.86.3 Direction

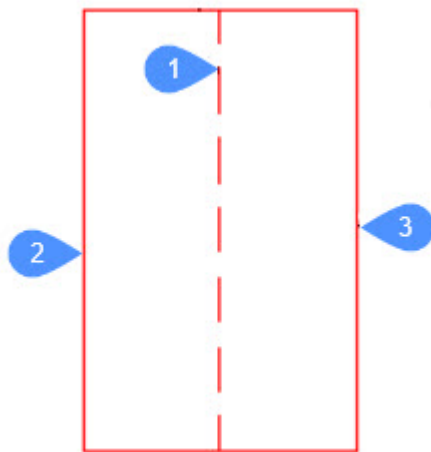
Defines the direction along which the entities are arranged. The possible directions are the three main axes of the UCS.

X-direction

As example, this is a simplified 2D view, in XY plane, of the situation described above:



The main bounds, attached to the selection bounding box, are represented by thick dashed red lines. For each entity in the selection, its bounding box is represented by continuous lines, each with a different color. In this case, for each entity, the bounds, **2 (Lower)**, **1 (Center)** and **3 (Upper)**, will be the left side, center line and right side of its bounding rectangle, respectively. For the red entity, the bounds will be like this:



Y-direction

The bounds are defined in a similar way as in the X-direction.

Z-direction

The bounds are defined in a similar way as in the X-direction.

6.86.4 Align

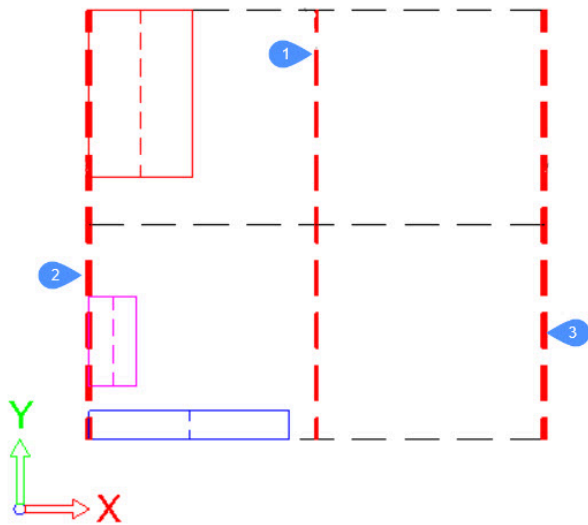
None

The entities will not be arranged along the specified direction. If an arrangement was already set along the specified direction during the execution of the command, the entity will be moved to its original position on the specified axis.



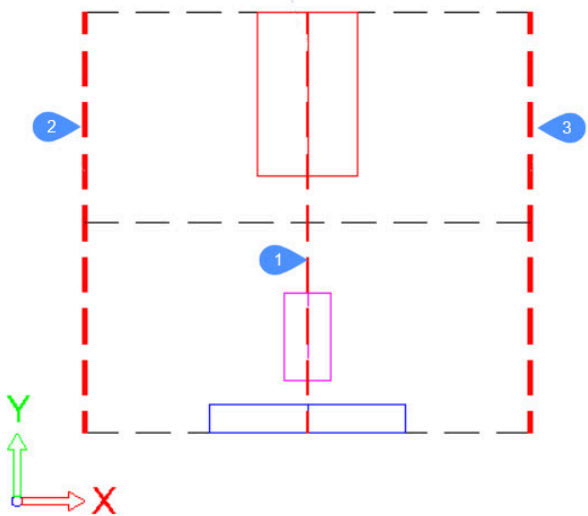
Lower Align

The lower bound of each entity will be aligned with the lower bound of the selection bounding box in the specified direction.



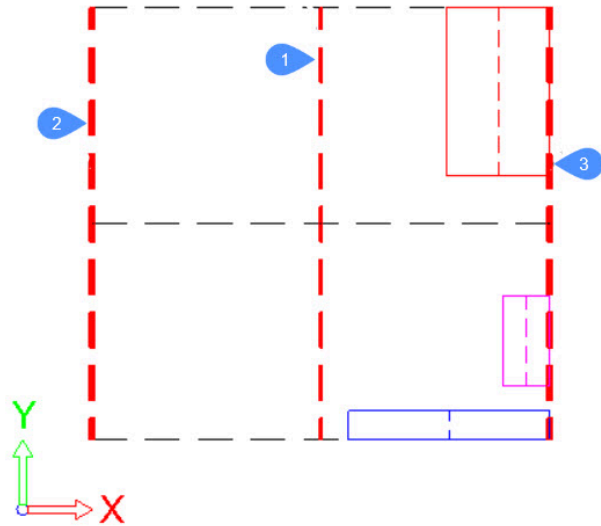
Center Align

The center bound of each entity will be aligned with the center bound of the selection bounding box in the specified direction.



Upper Align

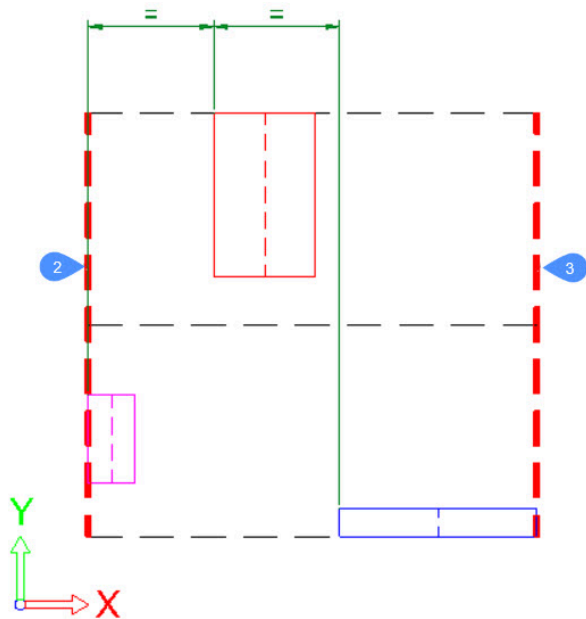
The lower bound of each entity will be aligned with the lower bound of the selection bounding box in the specified direction.



6.86.5 Distribute

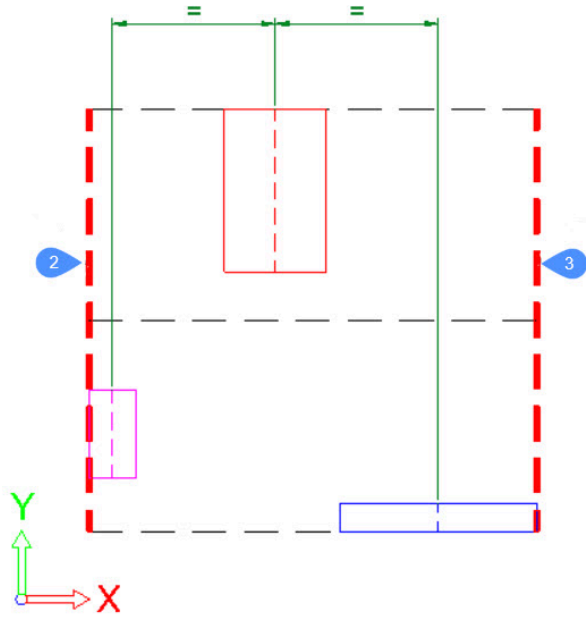
Lower (Equally spaced)

The distance between the lower bounds of consecutive entities will be the same along the specified direction.



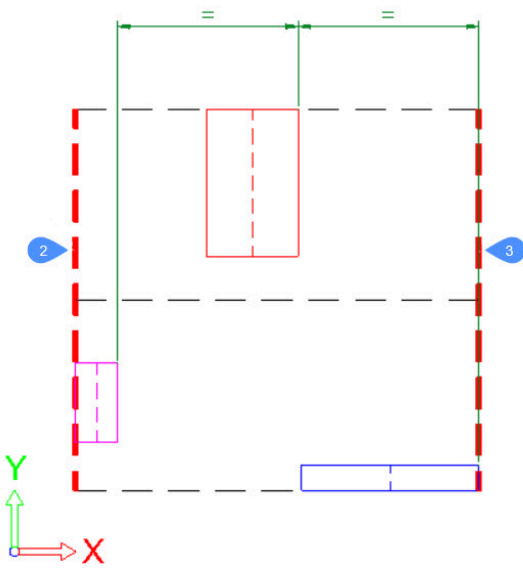
Center (Equally spaced)

The distance between the center bounds of consecutive entities will be the same along the specified direction.



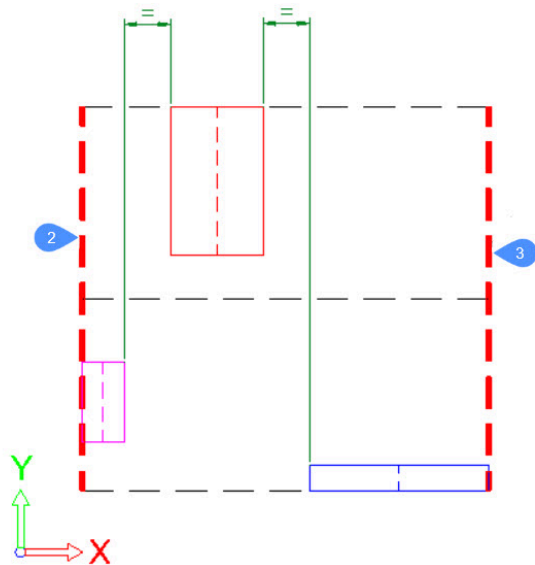
Upper (Equally spaced)

The distance between the lower bounds of consecutive entities will be the same along the specified direction.



By gaps/Equally spaced

The gaps between the entities will have the same size along the specified direction.



6.86.6 Settings

Modifies the characteristic positions of the set arrangement:

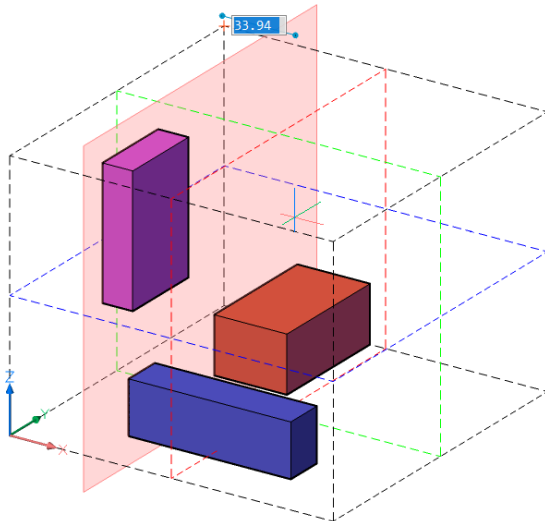
- **Align position** for align arrangements, which have one characteristic position, the alignment position.
- **First position, Last position** and **Distance** or **Gap size** for distribute arrangements, which have two characteristic positions, the position of the first and last entity, and the distance between consecutive entities, or the gap size between the entities.

Note: The **Distance** and **Gap size** options are available for editing only when one of the **First position** and **Last position** options is locked.

- **Reset X/Y/Z arrangement** to reset the entities along the selected axis.

6.86.7 Show draggers

Toggles the positioning widgets on/off. These draggable widgets can be used to modify the arrangement (i.e., alignment/distribution) positions. Click and drag the widgets to modify the characteristic arrangement positions.



6.86.8 Reset all

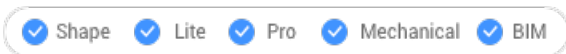
Resets all entities to their initial position as before the command was launched.

6.86.9 Finish

Finalizes the rearrangement and closes the command.

6.87 ARRAY command

Creates an array of entities.



Icon:

Alias: AR

6.87.1 Description

Creates a polar or rectangular array, or along a path of entities through the command line.

Note: Arrays can be created using 2D or 3D entities.

6.87.2 Methods

There are three methods to create an array of entities:

- Rectangular
- Path
- Polar

Note: The default array type is saved by the ARRAYTYPE variable.



6.87.3 Options

Rectangular

Distributes entity copies into any number of rows, columns and levels (on Z direction).

PAth

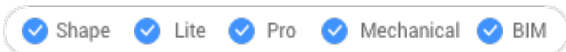
Distributes entity copies evenly along a path into multiple rows and levels.

Polar

Distributes entity copies evenly in a circular pattern about a center point or axis of rotation, using multiple rows and levels.

6.88 -ARRAY command

Creates an array of entities.



6.88.1 Description

Creates a static polar or rectangular array of entities through the Command line.

Note: Arrays can be created using 2D or 3D entities.

6.88.2 Methods

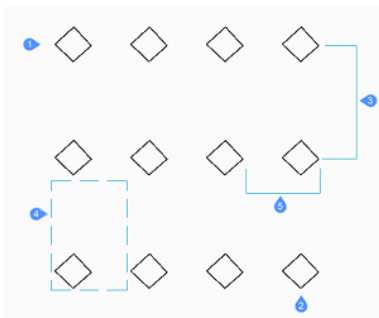
There are two methods to create an array of entities:

- Polar
- Rectangular

6.88.3 Options

Rectangular

Creates linear, rectangular, or square arrays.



Number of rows in the array

Specifies the number of rows. (1)

Note: Enter 1 for a linear array and a negative number to draw the array downwards.

Number of columns

Specifies the number of columns. (2)

Note: Enter a number value to draw the array to the left.

Vertical distance between rows of entities

Specifies the distance between rows of entities. (3)

Spacing rectangle

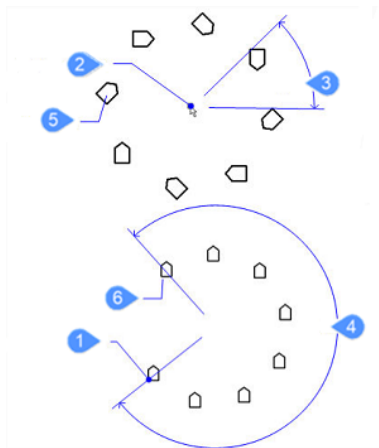
Specifies two points that indicate the spacing between rows and columns. (4)

Horizontal distance between columns

Specifies the distance between columns of entities. (5)

Polar

creates polar (circular) arrays.

**Base**

Relocates the base point of the selected entities. (1)

Center of polar array

Specifies the center point. (2)

Number of items to array

Specifies the number of items in the array.

Note: Enter a number larger than 1.

enter to specify Angle between items

Specifies the angle between each copy. (3)

Angle to fill

Determines the extent and direction of the array. (4)

Note: Enter 360 for a full circle of copies or a smaller number to draw a partial polar array. Enter a positive angle to draw the array counterclockwise or a negative number to draw the array clockwise.

Rotate entities around the array?

Determines whether copies are rotated when they are arrayed.

Yes (5)

No (6)

6.89 ARRAYCLASSIC command

Opens the Array dialog box.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM


6.89.1 Description

Opens the Array dialog box to create a non-associative 2D rectangular or polar array.

6.90 ARRAYCLOSE command

Exits the associative array editing state.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

6.90.1 Description

Exits the associative array editing state, displaying the Array Close dialog box to save or discard the changes made to the array's source entities.

Note: This command is available only after an associative array is checked out with the ARRAYEDIT command, Source option.

6.90.2 Options

Yes

Saves the changes made to the source entities of the array and then exits the array editing state.

No

Exits the array editing state and discards all changes, thus returning the array to its original state.

Cancel

Closes the dialog box and stays in the array editing state.

6.91 -ARRAYCLOSE command

Exits the associative array editing state.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

6.91.1 Description

Exits the associative array editing state, prompting at the Command line to save or discard the changes made to the array's source entities.

Note: This command is available only after an associative array is checked out with ARRAYEDIT command, Source option.

6.91.2 Options

Yes

Saves the changes made to the source entities of the array and then exits the array editing state.

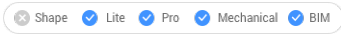
No

Exits the array editing state and discards all changes, thus returning the array to its original state.



6.92 ARRAYDETECT command

Creates arrays of entities (2D or 3D) based on found entity patterns.



6.92.1 Description

Searches for entity patterns in a set of selected entities (2D and/or 3D) and converts them into array entities. Using ARRAYDETECT to replace sets of entities by arrays adds structure to the drawing and reduces file size.

Note: This functionality was extracted from the BLOCKIFY command where it is no longer available.

6.92.2 Methods

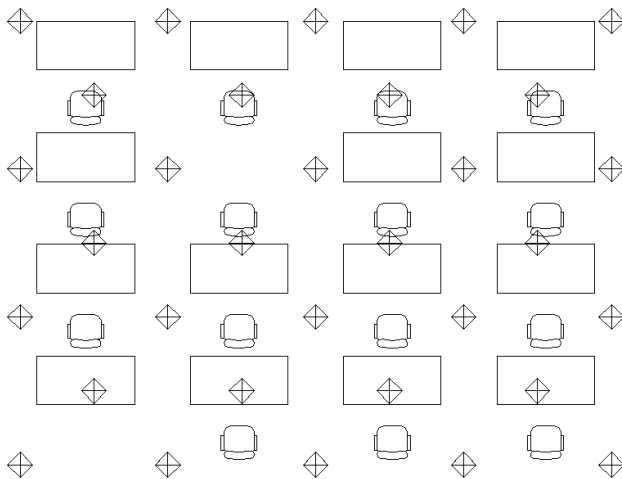
There are two methods to detect arrays:

- Multiple entities source.
- Single entity source.

Note: The **Command Context** panel opens to let you choose which of the found patterns using the selected method will be converted to array.

The steps to use ARRAYDETECT command are:

- 1 Select the entities in which you want to find patterns.

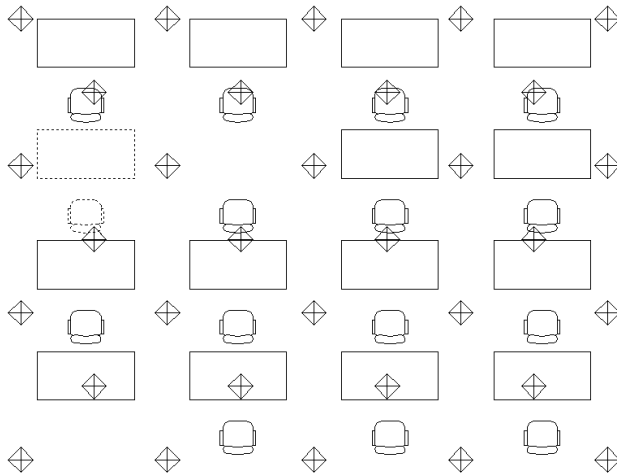


- 2 Choose one of the two array detection modes:

- Detects patterns with multiple entities source (you have to select the source entities of the



patterns to be found).

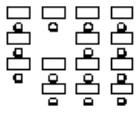


Array Detect

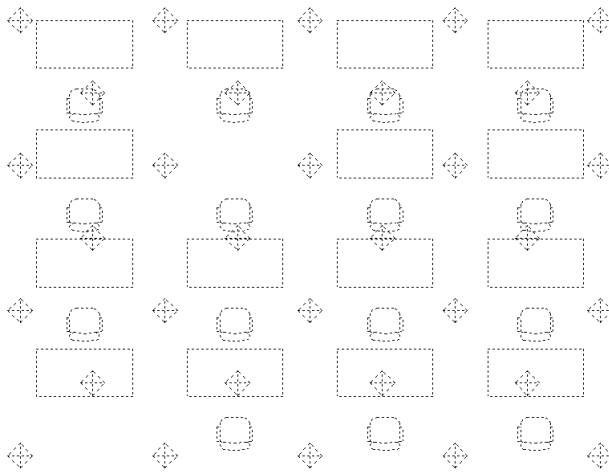
Add structure to your drawing and reduce file size by replacing sets of entities by arrays.

Patterns

1 pattern found:

 4 columns, 4 rows, 14 elements

- Detects all patterns with a single entity source (no entity selection is needed).

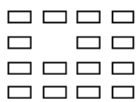




Array Detect

Add structure to your drawing and reduce file size by replacing sets of entities by arrays.

Patterns

3 patterns found:

-  4 columns, 4 rows, 15 elements
-  8 columns, 8 rows, 32 elements
-  4 columns, 4 rows, 15 elements

Note: To reduce the number of single entity patterns detected, you can use BLOCKIFY command before using ARRAYDETECT command.

- 3 Specify which of the found patterns need to be converted into arrays.



6.92.3 Options within the command

select source Entities

Detects patterns with the selected multiple entities source.

autodetect Single entity arrays

Detects all patterns with a single entity source.

Convert selected

Converts to arrays all patterns selected in the **Command Context** panel.

convert Separately

Sequentially zooms the view on each found pattern and lets you choose whether to convert it to array.

6.93 ARRAYEDIT command

Edits associative arrays.



Icon:

6.93.1 Method

Select the entities that make up associative arrays.

6.93.2 Options

Source

Edits the source entities of the array.

Note: Displays Array Editing State dialog box. Only the selected entity is displayed in Associative Array Edit environment so it can be easy to modify, add and delete entities. The changes are applied to all the entities once the array editing state is closed.

REPlace

Replace some or all the entities in the array.

RESet

Restores erased entities and removes any item overrides.

Note: Hold the Ctrl key to select more than one item in the associative array, then tap the Delete key to erase the selection.

eXit

Accept the changes and conclude the command.

6.94 ARRAYEDITTEXT command

Provides additional editing of associative arrays.



Icon:



6.94.1 Description

Provides additional editing for all elements of an associative array or for an individual element in the associative array.

Note: Arrays edited by this command must have been made associative by the ARRAY command. It does not work with arrays created by the ARRAYCLASSIC command or -ARRAY command.

6.94.2 Method

There are two methods when editing an associative array using ARRAYEDITTEXT command:

- Edit all elements of the array: interactively adjusts the spacing between them and changes the number of elements.
- Edit an individual item of the array: moves (offset), scales, rotates or deletes it.

6.94.3 Options

SPacing

Adjusts the spacing of an entire associative array interactively.

REsizing

Resizes the entire array by removing entities interactively.

Offset items

Moves the entities of an associative array to a different location.

Note: Pick points or enter x, y coordinates.

Scale item

Resize an entity of an associative array.

Note: A scale factor larger than 1 makes the entity larger and smaller than 1 makes is smaller.

Rotate item

Rotates an entity of an associative array.

Note: : Positive numbers, for the rotation angle, rotate counter clockwise and negative numbers rotate clockwise.

Delete item

Deletes an entity of an associative array.

6.95 ARRAYPATH command

Creates an array along a path.



Icon:

6.95.1 Description

Associatively distributes entity copies evenly along a path into multiple rows and levels.



6.95.2 Options

ASsociative

Determines whether an array entity is created or a series of copies of the selected entities.

Note: The default setting is saved by the ARRAYASSOCIATIVITY system variable.

Note: Parameters for associative arrays can be specified with parametric expressions set in the Array properties, found in Mechanical browser, Properties panel or through the ARRAYEDIT command.

Method

Specifies how to distribute entities along the path.

Divide

Distributes a specific number of items evenly spaced along the path.

Note: Distributes a specific number of items evenly spaced along the path.

Measure

Places a sufficient number of items along the path, separated by the specified interval.

Base point

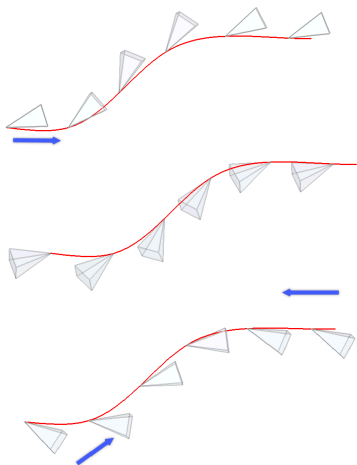
Sets the base point of the array. Items are placed relative to the base point.

Tangent direction

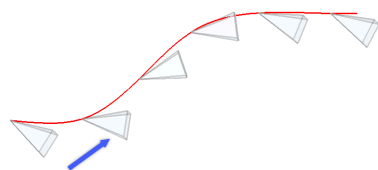
Determines how the items are aligned relative to the starting direction of the path.

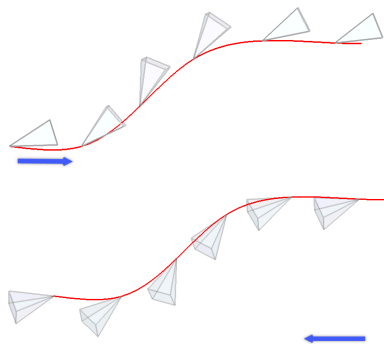
2 Points

Specify two points that define the tangency of the first item relative to the starting direction of the path. Depending on the Align Items setting, the other items are placed parallel to the first item or at the specified tangent direction relative to the direction of the path. In the image **Tangent direction - 2 points**, the blue arrow indicated the tangency direction.



Tangent direction - 2 points





Normal

Orients the Z direction of the item with the starting direction of the path.

Items

Specifies the number of items or the distance between items, depending on the Method setting.

Enter number of items along path

Places items along the entire path at the specified distance.

Note: Placing items along a portion of the path is possible, by specifying a smaller number.

Enter the distance between items along path

Specifies the distance between items by entering a value or picking two points.

Expression

A mathematical formula or equation can be used to derive the value.

Fill entire path

Fills the entire path with items at given spacing.

Note: This option operates like grips editing. If the number of items changes, the length of the path should also change. When the path is modified using grips editing, the array entity is recreated along the modified path.

Rows

Specifies the number of rows in the array, the distance between them and the incremental elevation.

Distance between rows

Specify the distance between subsequent rows by entering a value or picking two points.

Total

Specify the distance between the first and the last row.

Incrementing elevation between rows

Defines the increasing or decreasing elevation for each subsequent row.

Levels

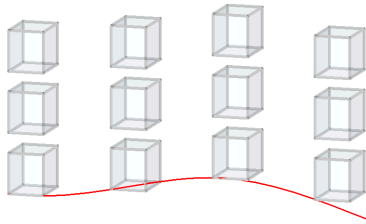
Creates 3D arrays by specifying the number and spacing of levels.

Distance

Specifies the distance between the bottom and the top level.

Total

Specifies the distance between the bottom and the top level.

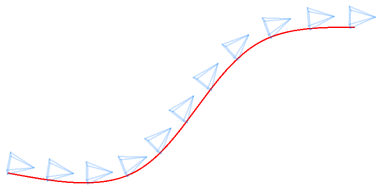


Align items

Specifies whether to align each item tangent to the path's direction. Alignment is relative to the first item's orientation.

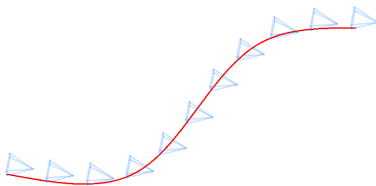
Yes

Each item is placed tangent to the path direction.



No

Each item keeps the orientation of the first item.

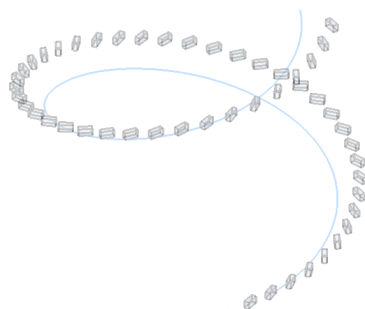


Z direction

Determines whether to maintain the items' original Z direction or to bank the items naturally along a 3D path.

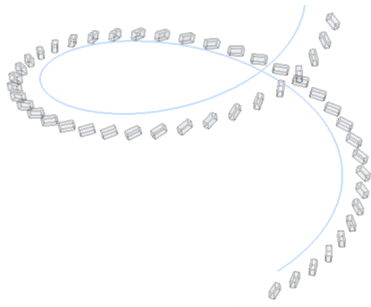
Yes

Z direction (vertical) is maintained.



No

Items banked along the helix.



eXit

Accept the current settings and conclude the command.

6.96 ARRAYPOLAR command

Creates an array of entities, in a circular pattern.



Icon:

6.96.1 Description

Associatively distributes entity copies evenly in a circular pattern about a center point or axis of rotation, using multiple rows and levels.

6.96.2 Options

ASsociative

Determines whether an array entity is created or a series of copies of the selected entities.

Note: The default setting is saved by the ARRAYASSOCIATIVITY system variable.

Note: Parameters for associative arrays can be specified with parametric expressions set in the Array properties, found in Mechanical browser, Properties panel or through the ARRAYEDIT command.

Base point

Sets the base point of the array. Items are placed relative to the base point.

Items

Specifies the number of items in the array.

Angle between

Specifies the angle between two subsequent items.

Expression

A mathematical formula or equation can be used to derive the value.

Fill angle

Specifies the angle between the first and last item.

ROWS

Specifies the number of rows, the spacing between subsequent rows and the incremental elevation.



Distance

Specifies the distance between subsequent rows.

Total

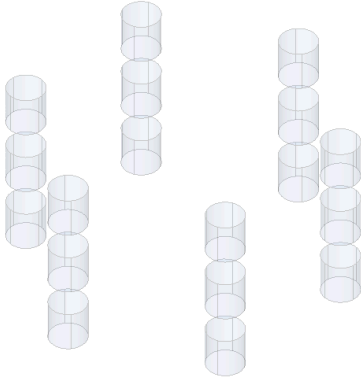
Specifies the distance between the first and the last row.

Incremental elevation between rows

Specifies the increasing or decreasing elevation for each subsequent row.

Levels

Creates 3D arrays by specifying the number and spacing of levels.



Distance

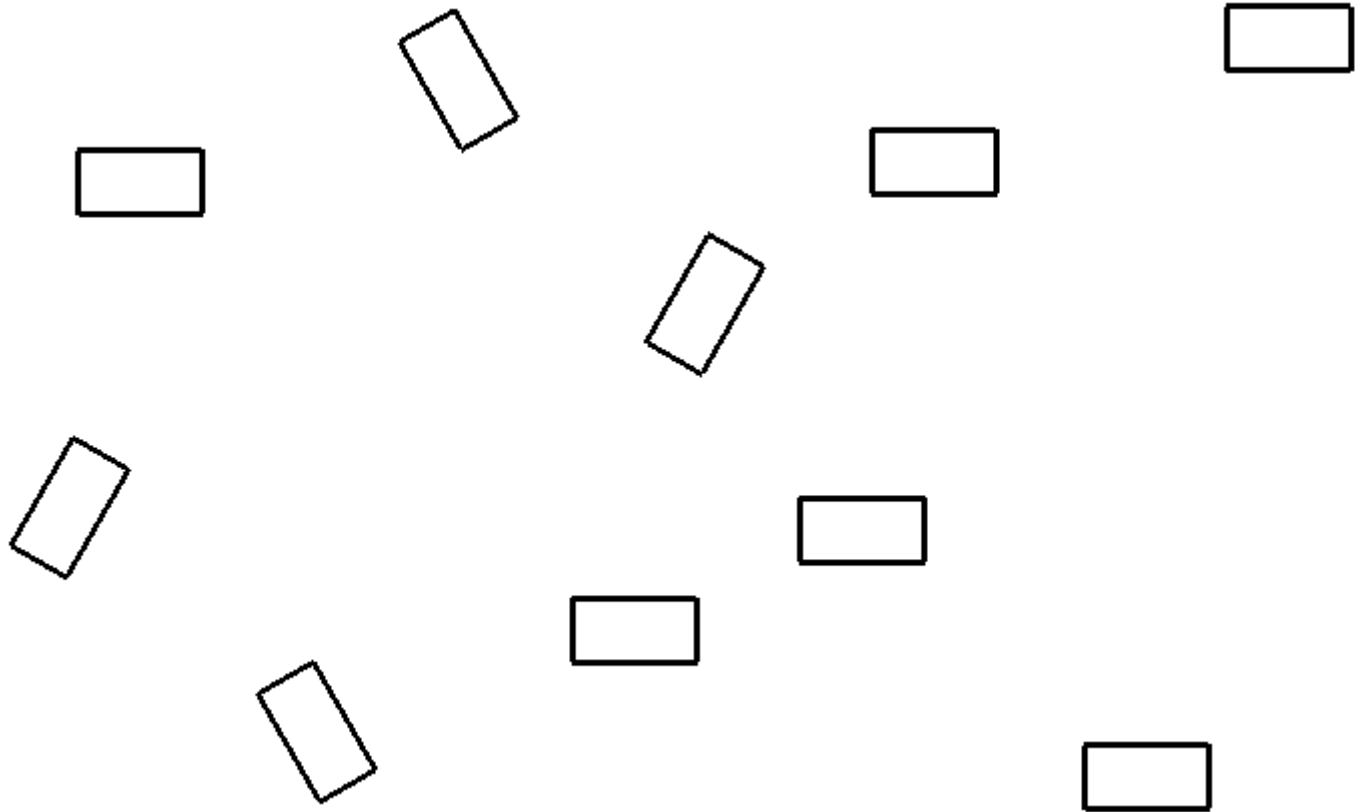
Specifies the distance between subsequent levels by typing a value or picking two points.

Total

Specifies the distance between the bottom and the top level.

ROTate

Determines whether items are rotated around the circular path or they preserve the orientation of the source entities.

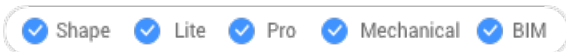


eXit

Accept the current settings and conclude the command.

6.97 ARRAYRECT command

Creates a rectangular array of entities.



Icon: 

6.97.1 Description

Associatively distributes copies of entities into any number of rows, columns and levels.

6.97.2 Options

ASsociative

Determines whether an array entity is created or a series of copies of the selected entities.

Note: The default setting is saved by the ARRAYASSOCIATIVITY system variable.

Note: Parameters for associative arrays can be specified with parametric expressions set in the Array properties, found in Mechanical browser, Properties panel or through the ARRAYEDIT command.



Base point

Sets the base point of the array. Items are placed relative to the base point.

COUnt

Specifies the number of rows and columns.

Spacing

Specifies the distance between columns and/or rows.

Unit cell

A rectangle is displayed dynamically. Specify a point or enter the desired column and row spacing in the dynamic entry fields. To switch back and forth between the entry fields, press Tab key.

Note: If dynamic input is on, then the width and height of the spacing rectangle are displayed.

COLumns

Specifies the number of columns and the spacing between subsequent columns.

Expression

A mathematical formula or equation can be used to derive the value.

Rows

Specifies the number of rows, the spacing between subsequent rows and the incremental elevation.

Distance

Specifies the distance between subsequent columns/rows.

Total

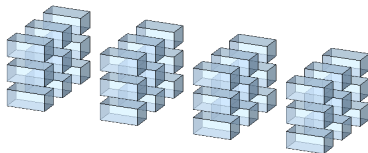
Specifies the distance between the first and the last column/row.

Incrementing elevation between rows

Specifies the increasing or decreasing elevation for each subsequent row.

Levels

Creates 3D arrays by specifying the number and spacing of levels.



Distance

Specifies the distance between subsequent levels by typing a value or picking two points.

Total

Specifies the distance between the bottom and the top level.

eXit

Accept the current settings and conclude the command.

6.98 ATTACHMENTSPANELCLOSE command

Closes the **Attachments** panel.



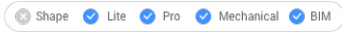


6.98.1 Description

Closes the **Attachments** panel to hide it from the current workspace. If the **Attachments** panel is stacked when you close it, the **Attachments** tab or icon is removed from the stack.

6.99 ATTACHMENTSPANELOPEN command

Opens the **Attachments** panel.

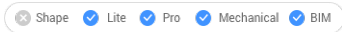


6.99.1 Description

Opens the **Attachments** panel to display it in the current workspace. The **Attachments** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Attachments** panel can be either floating, docked or stacked.

6.100 ATTDEF command

Opens the Define attribute dialog box.



Icon:

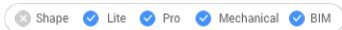
Alias: AT, DDATTDEF

6.100.1 Description

Opens the **Define attribute** dialog box to add an attribute to a block definition.

6.101 -ATTDEF command

Defines attribute data.



Alias: -AT

Note: This command is meant for use by macros, scripts, and LISP routines. To specify attributes with a dialog box, use the ATTDEF command.

6.101.1 Description

Defines attribute data (used by blocks) at the Command line.

6.101.2 Options

Define an attribute by toggling attribute modes.

Toggle attribute modes: Constant = Off Invisible = Off Preset = Off Verify = Off Lock position = Off Annotative = Off Multiple Lines = Off

Constant – type C

- Off - users can change the value of the attribute.
- On - users cannot change the value.



Invisible – type **I**

- Off - displays the attribute in the drawing.
- On - hides the attribute

Note: Invisible attributes are not displayed nor printed, but can be displayed with the ATTDISP command.

Preset – type **P**

- Off - prompts the user to enter values.
- On - inserts attributes automatically, without prompting the user.

Note: The value of attributes can be changed later with the ATTEDIT command.

Verify -type **V**

- Off - user enters the attribute value once.
- On- forces the user to enter the value a second time to ensure the value is entered correctly.

Lock position – type **L**

- Off - users can move attributes using grip editing.
- On - locks the position of the attribute within the block reference.

Annotative – type **A**

- Off – creates attributes using a non-annotative style.
- On - creates attributes using an annotative style.

Multiple lines - type **M**

- Off - forces the use only of single-line text.
- On - allows the use uses multiline text.

Tag name of attribute

Specifies the tag of the attribute; this is the name by which BricsCAD identifies the attribute. You can use up to 255 letters, numbers and punctuation.

Prompt

Specifies the user prompt; this is displayed at the command prompt when the attribute is later inserted in the drawing. You can leave this field blank; BricsCAD uses the tag as the prompt during attribute insertion.

Default text

Specifies the default value and set the style and justification of the text, as with TEXT command. If the Multiple lines mode is on, you may introduce more text lines.

Text start point

Specify the start point of the text.

user defined Style

Specifies the name of the text style.

Align on line

Aligns the text between two points. The text height is adjusted to maintain its aspect ratio.

Fit between points

Aligns the text between two points.

Center horizontally

Centers the text's baseline on the pick point.



Middle (hor/vert)

Centers the text on the pick point.

Justification options...

Accesses additional justification options.

Height of text

Specifies the height of the attribute text, unless overridden by the text style or justification.

Rotation angle of text

Specifies the rotation angle of the rotation text.

6.102 ATTDISP command

Sets the display mode of attribute text in the drawing.



Icon:

Alias: AD

6.102.1 Description

Toggles the display of attribute text in the drawing, between turn all on, turn all off, or turn on only non-visible ones.

When attributes are off or invisible, they are not displayed in the drawing and are not plotted.

6.102.2 Options within the command

Attribute display mode

Changes the display of attribute values:

- display attribute (**ON**): displays all attributes, including those set to invisible mode by the ATTDEF command.
- hide attributes (**OF**): hides all attributes.
- display **N**ormally: displays attributes, except those set to invisible mode.

6.103 ATTEDIT command

Edits the values and properties of attributes.



Icon:

Alias: ATE

6.103.1 Description

Edits the values and properties of attributes. This command is meant for editing attributes globally with macros, scripts, and LISP routines. For editing individual attributes, it is easier to use the dialog box of the EATTEDIT command.



6.103.2 Methods

There are two methods:

- **Yes** – edit one at a time: edits attributes one at a time; allows changes to values and properties.
- **No** – edit multiple: edits attributes globally; allows changes to values only.

6.103.3 Options within the command

Edit attributes of which blocks

Specifies the names of blocks; you can use wildcards to specify similarly named blocks: * refers to all characters in the block's name.

Edit attributes with these names

Specifies the names of attributes. You can use wildcards to specify similarly named tags.

Edit attributes with this text

Specifies the values of attributes. You can use wildcards to specify similarly named values.

Select attributes

Chooses the attributes to edit.

Position

Moves the attribute's insertion point to the new specified point.

Angle

Changes the rotation angle of the attribute text to the specified angle.

Text

Changes the value of the attribute.

- **Change**: searches and replaces text.
- **Replace**: new attribute text replaces the text of the currently selected attribute.

Style

Changes the text style of the attribute; the style name must exist in the drawing. (Use the STYLE command to create or edit text styles.)

Enter a distinctive style name, or press Enter to keep the style name.

Color

Changes the color of the attribute text by entering a different color name or number.

Height

Change the height of the attribute text by entering a different text height, pick two points in the drawing, or else press Enter to keep the height.

Layer

Changes the layer of the attribute; the layer name must exist in the drawing. (Use the Layer command to create layers.)

Enter a different layer name, or press Enter to keep the layer name.

Next

Goes to the next attribute; if there are no more attributes to edit, exits the command.

pRevious

Goes to the previous attribute, if any.



Quit

Exits the command.

Edit only attributes visible on screen

This option appears when you choose to edit multiple attributes at a time. It determines which group of attributes to edit:

- **Yes – visible only:** edits only attributes visible in the current viewport.
- **No – edit all:** edits all attributes in the drawing.

Text to change

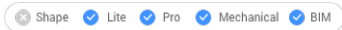
Specifies the attribute value to change.

New text

Specifies the replacement value.

6.104 ATTEXT command

Opens the Extract attributes dialog box.



Icon:

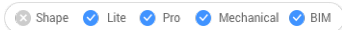
Alias: AX, DDATTEXT

6.104.1 Description

Opens the Extract attributes dialog box to export data from block attributes to a text file.

6.105 -ATTEXT command

Copies data from attributes to a text file through the Command line.



Alias: -AX

Note: The template .txt file must exist before this command is used. See the ATTEXT command for the format of this file.

6.105.1 Methods

There are two methods to use –ATTEXT command:

- Select entities: the Attribute Extract Template File dialog box displays.
- Extract as Dxf/Cdf/Sdf: the Attribute Extract Output File dialog box displays.

6.105.2 Options

select Entities

Specifies the entities from which will extract attribute value.

Note: If you select blocks without attributes and non-block entities, BricsCAD ignores them. If you ignore this option by entering DXF, SDF, or CDF directly, then BricsCAD selects all attributes in the drawing.



extract attributes as Dxf

Exports the attribute values in a partial DXF format.

Note: This format is meant for use with other computer programs that can read .dxx files (DXF eXtraction).

extract attributes as Cdf

Exports the attributes with commas separating values.

Note: : This format is meant for use with spreadsheets and databases.

extract attributes as Sdf

Exports the attributes in fixed-width format.

Note: This format is meant for use in word processors.

6.106 ATTIN command (Express Tools)

Inserts block attribute information into the current drawing from an external TXT file.

Icon:

6.106.1 Description

Reads the input .txt file and processes each line. If a block reference with the same handle and block name as the row it is processing is found in the current drawing, it applies the attribute changes to that block.

Note: Make sure the input file has the correct layout, otherwise the ATTIN command will not be able to import the data from the file. It must be in the same format that is generated by the ATTOUT command.

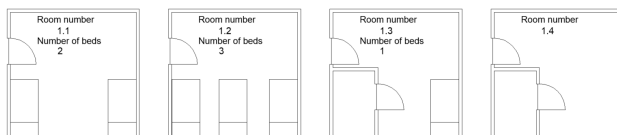
6.106.2 Method

Opens the **Enter file name for attribute input** dialog box that allows you to select an external .txt file.

The file contains information of the block references ordered in a table. The **HANDLE** and **BLOCKNAME** columns give the handle and block name of a block reference. The additional columns give the values of the block attributes. Each row represents a block reference and its values of the attributes. The ATTIN command will search for differences with the current drawing and adapt it according to the imported file.

Note: The string <> indicates that this attribute value does not apply for this specific block.

HANDLE	BLOCKNAME	ROOM_NUMBER	BEDS
'601	Room 4	1.4	<>
'58F	Room 3	1.3	1
'564	Room 2	1.2	3
'53E	Room 1	1.1	2



1 Room number 1.1



- Number of beds: 2
- 2 Room number 1.2
Number of beds: 3
- 3 Room number 1.3
Number of beds: 1
- 4 Room number 1.4

6.107 ATTIPEDIT command (Express Tools)

Edits the text of an attribute within a block.

6.107.1 Method

When selecting a single-line attribute, the In-Place Text Editor displays without the **Text Formatting** toolbar and the ruler. Right-click to display the context menu with additional options.

When selecting a multiple-line attribute, the In-Place Text Editor displays with the **Text Formatting** toolbar and the ruler.

6.108 ATTOUT command (Express Tools)

Extracts block attribute information from the current drawing to an external TXT file.

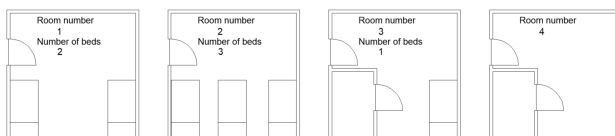
Icon: 

6.108.1 Description

Exports data from selected block attributes to a .txt file, which can be reviewed and modified later.

6.108.2 Method

Opens the **Enter file name for attribute output** dialog box that allows you to save the information of the selected block attributes in an external .txt file.



- 1 Room number 1
Number of beds: 2
- 2 Room number 2
Number of beds: 3
- 3 Room number 3
Number of beds: 1
- 4 Room number 4



The output of the ATTOUT command is a .txt file. The file contains information of the selected blocks ordered in a table. The **HANDLE** and **BLOCKNAME** column give the handle and block name of a block, the additional columns give the values of the block attributes. Each row represents a block reference and its values of the attributes.

Note: The string <> indicates that this attribute does not apply for this specific block.

HANDLE	BLOCKNAME	ROOM_NUMBER	BEDS
'601	Room 4		4
'58F	Room 3		3
'564	Room 2		2
'53E	Room 1		1

6.109 ATTREDEF command

Redefines a block and updates associated attributes.

Shape Lite Pro Mechanical BIM

6.109.1 Description

Redefines an existing block reference, and updates any associated attributes, from new or existing entities and attributes available in the drawing.

The following rules apply to existing block references:

- New attributes use default values.
- Values of old attributes that are included in the new block definition are preserved.
- Old attributes that are not included in the new block definition are deleted.
- Format or property changes made with the ATTEDIT or EATTEDIT commands are removed.
- Extended data associated with the block are deleted.

6.110 ATTSYNC command

Synchronizes block attributes.

Shape Lite Pro Mechanical BIM

6.110.1 Description

Synchronizes attribute definitions in all block references of a specified block definition.



6.110.2 Options within the command

Select

Selects the block whose attributes should be used as the template for synchronizing other blocks.

Name

Selects the block definition to be synchronized by name or list of names.

ATTSYNC block?

Synchronizes attributes in the specified blocks.

Yes

Synchronizes attributes in the selected block.

No – skip block

Does not synchronize the block and skips to next block.

6.111 AUDIT command

Analyzes the integrity of the current drawing and fixes errors.



Icon:

Note: Set the AUDITCTL system variable to 1, to let Audit create an ASCII file describing problems and the action taken. This report, with the file extension .adt, is placed in the same directory as the current drawing.

6.111.1 Description

Checks the current drawing for errors and optionally repairs the drawing. It removes duplicate ACIS attributes.

6.111.2 Options within the command

Yes

Fixes errors, if BricsCAD finds any.

No

Searches and reports errors in the drawing database but does not repair them.

6.112 AUTOCOMPLETE command

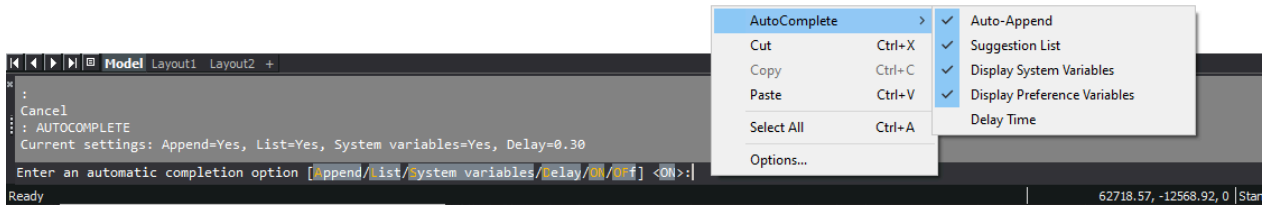
Specifies how the auto-complete function works in the BricsCAD command bar.



6.112.1 Description

This command sets the behavior of the auto-complete function in the BricsCAD command line. This is done by defining how to append and list which commands and system variables are displayed.

Note: There are six settings, which can also be set by right-clicking in the Command line, using the AutoComplete item in the context menu.



6.112.2 Method

There are six settings available when using the AUTOCOMPLETE command:

- Append: automatically appends suggestions as you type.
- List: displays a list of suggestions.
- System Variables: includes system variables in the above suggestions.
- Delay: specifies a delay time before the suggestion list appears.
- ON: switches on the auto-complete mode.
- Off: switches off the auto-complete mode.

6.112.3 Options

Append

Toggles the automatically append suggestion as you type.

List

Toggles weather the list of suggestions is displayed or not.

System Variables

Toggles weather the system variables are included in the list of suggestions or not.

Delay

Specifies the delay time before the list of suggestions displays.

ON

Switches on auto-complete mode.

OFF

Switches off auto-complete mode.

6.112.4 AI-based AutoComplete suggestions

This functionality is an extension to the list of auto-completed commands. This feature adds three more suggestions on top of the ones that are completed in an alphabetical order. These three suggestions are predicted by a Machine Learning model, which is trained based on the commands the user has used in the past.

This feature is available only for the users that choose to be a part of the **Diagnostics & Usage Data Program**.

Note: This feature is set OFF by default. It can be enabled from Settings.



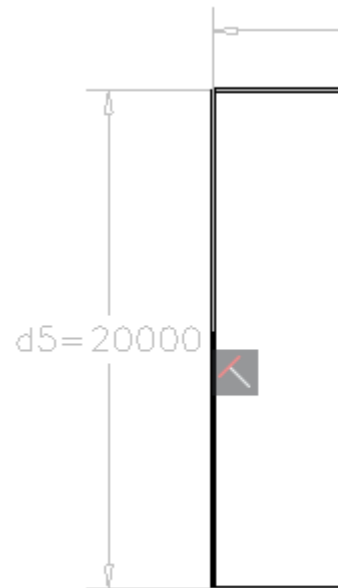
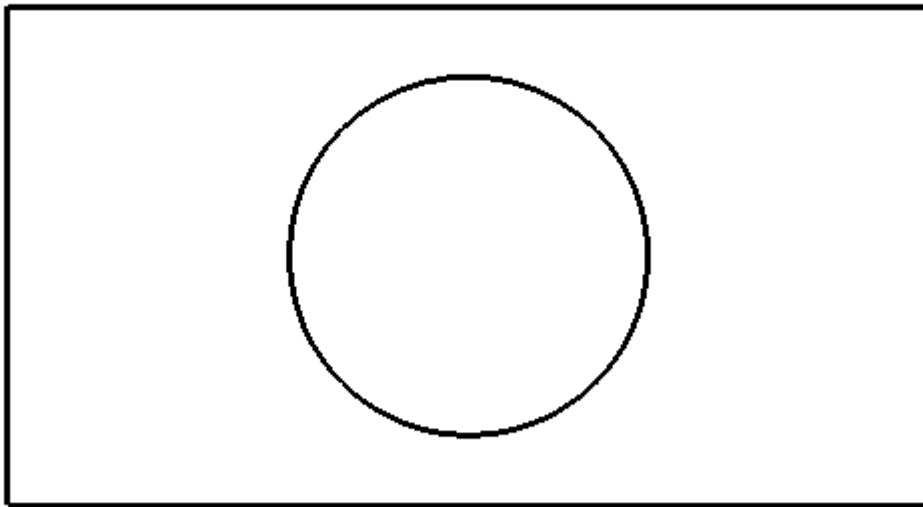
6.113 AUTOCONSTRAIN command

Automatically constrains 2D geometry.

Shape Lite Pro Mechanical BIM

6.113.1 Description

Automatically constrains 2D entities in a drawing, providing both 2D geometric constraints and 2D dimensional constraints.



Note: For Lite license users, constraints can be edited in the **Parameters Manager** panel.

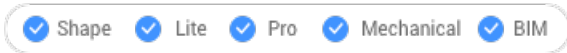
Note: For Pro or higher license users. Constraints can be edited in the **Mechanical Browser** panel.



7. B

7.1 BACKGROUND command

Opens the Background dialog box.



Icon:

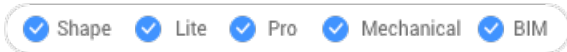
Alias: BACKGROUNDS

7.1.1 Description

Opens the Background dialog box to apply a background to the current viewport.

7.2 BASE command

Changes the drawing's base insertion point.



Icon:

7.2.1 Description

Changes the drawing's base insertion point for when it is inserted in other drawings, usually as a block or external reference. The base point can be indicated using X, Y, Z coordinates in the current UCS or by picking a point in the drawing.

Alias: BA

7.2.2 Description

Changes the drawing's base insertion point for when it is inserted in other drawings, usually as a block or external reference. The base point can be indicated using X, Y, Z coordinates in the current UCS or by picking a point in the drawing.

7.3 BATTMAN command

Opens the Block attribute manager dialog box.



Icon:

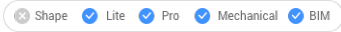
7.3.1 Description

Opens the Block attribute manager dialog box to view and modify block attribute definitions, properties, and text.



7.4 BCLOSE command

Closes a Block Edit session and saves or discards changes.



7.4.1 Options within the command

Save

Save changes and close Edit Block session.

Discard block editing changes

Discard changes and close Edit Block session.

7.5 BCOUNT command (Express Tools)

Reports the number of instances of each block in a selection set.

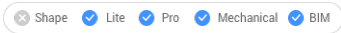
7.5.1 Method

Select entities or press Enter to include all block references. The report is displayed in the Command line.

```
-----  
Table 6p..... 1  
Piano..... 1  
Sofa..... 3  
Sink..... 2  
Bed..... 6
```

7.6 BEDIT command

Opens the Create or edit block definition dialog box.



Icon:

Alias: BE

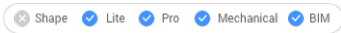
7.6.1 Description

Opens the **Create or Edit Block Definition** dialog box to specify a block to open in the Block Editor.

Note: The HIDEOBJECTS, ISOLATEOBJECTS, and UNISOLATEOBJECTS commands are enabled.

7.7 -BEDIT command

Edits the entities that make up a block.



7.7.1 Description

Edits the entities that make up a block in Block Editor environment, after introducing the name of the block to the Command line. Optionally creates a new block.



7.7.2 Method

There are two methods to use -BEDIT command:

- Edit an already existing block.
- Create a new block.

7.7.3 Options within the command

Block name

Enter a block name to open the Block Editor environment and start editing.


Note: Enter an unused name to create a new block.

?

Lists the existing blocks.

7.8 BEXTEND command (Express Tools)

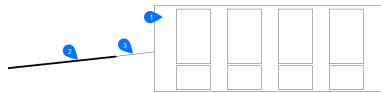
Extends entities to entities nested in blocks and external references.

Icon: 

7.8.1 Method

Choose one or more entities nested in blocks or external references to use as boundary entity (1). These are the entities to which the subsequently picked entities are extended.

Choose the entity to be extended (2). When another end of an entity could be extended to a boundary, BricsCAD extends the closest end to your pick point.



- 1 Boundary entity
- 2 Entity to be extended
- 3 Extended entity

Note: Switch to trim mode: press and hold the Shift key to select the part of an entity to be trimmed at the intersection with the nearest boundary entities. See the BTRIM command.

7.8.2 Options within the command

Fence

Selects all entities that cross the selection fence. The selection fence is a series of temporary line segments. The selection fence does not form a closed loop.

Crossing

Selects entities within and crossing a rectangular area defined by two points.

Edge mode

Toggles between **Extend** and **No extend**.



Extend

Extends the boundary object along its natural path to intersect another object or its implied edge in 3D space.

No extend

Specifies that the object is to extend only to a boundary object that actually intersects it in 3D space.

Projection

Specifies the projection method used when extending objects.

No projection

Extends only those entities that intersect real boundaries in 3D space.

xy plane of Ucs

Projects entities and boundaries to the x,y plane of the current UCS, and then extends the projected entities that would intersect projected boundaries.

current View

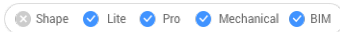
Projects entities into the current view, and then extends them accordingly.

eRase

Deletes selected entities.

7.9 BHATCH command

Opens the Hatch and gradient dialog box.

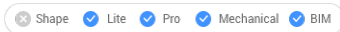


7.9.1 Description

Opens the Hatch and gradient dialog box to create a hatch entity in the current drawing.

7.10 -BHATCH command

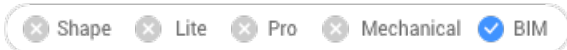
Fills closed 2D areas with repeating patterns or solid colors.



See -HATCH command.

7.11 BIMADDECCENTRICITY command

Controls relative positions of the axis of linear solids.



Icon:

7.11.1 Description

Adds eccentricity to linear solids with respect to their axis.



7.11.2 Method

Select one or multiple linear solids and choose a base location. You can use the widget or type a location in the Command line.

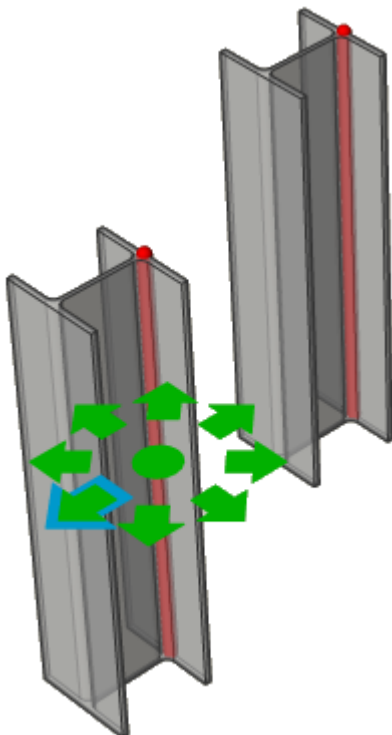
Optionally, you can insert an additional offset vector.

Note: BIMADDECENTRICITY command only works with structural elements.

7.11.3 Options within the BIMADDECENTRICITY command

Choose base location

- Click one of the nine locations of the widget.



- Type a location in the Command line. The options are: **TR**: Top Right, **TM**: Top Middle, **TL**: Top Left, **MR**: Middle Right, **ML**: Middle Left, **BR**: Bottom Right, **BM**: Bottom Middle, **BL**: Bottom left, **C**: Center (resets the axes of the selection set to the default location)

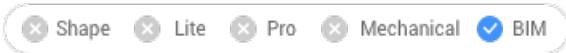
Extra offset

Allows to move axis to any point.

- **Reset**: resets extra offset.
- **To centroid**: moves axis to the geometrical midpoint of the profile.
- **Eccentricity**: allows to set axis to one of the nine predefined positions.

7.12 BIMALIGNSECTIONBLOCKS command

Aligns section blocks in model space.



7.12.1 Description

This command realigns section results based on *SECTIONRESULTINTERVAL* system variable.

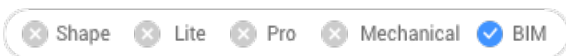
7.12.2 Method

Aligns BIM section blocks in the model space of generated section blocks drawing.

Note: *BIMSECTIONUPDATE* identifies if overlap between generated section blocks happened in model space and suggests calling *BIMALIGNSECTIONBLOCKS* in this case.

7.13 BIMANALYTICALMODEL command

Creates an analytical model from a fully classified BIM model.



7.13.1 Description

Allows you to generate an analytical model from a full 3D model of a structure.

7.13.2 Method

The command opens the **Allowed Deviations From Center Axis** dialog box and starts with an automatically generated proposal but allows users to further adapt the model.

The automatic proposal will try to minimize rigid links (eccentricities) as much as possible by shifting, extending and even rotating some axis lines. The number of such changes can be controlled by the deviation settings.

Note: The generated proposal can be modified afterward by using the options inside the **Allowed Deviations From Center Axis** Dialog Box.

7.13.3 Options within the command

Visual settings

Opens the **Visual settings** dialog box. Allows to tick and untick different features of axes and nodes to highlight (in yellow) the axes and nodes that match these features. Also, the size of the disks representing the nodes can be changed from here.

Recalculate

Propagates the effect of a local change further, allowing modifications in the complete model. It will launch a global solution that again tries to minimize rigid links, respecting the changes made.

Export and exit

Exports the model to an IFC (*.ifc) or CIS/2 (*.stp) file.

7.13.4 Options in a node

Select connected axes

Selects the axes connected to the node.



Remove

Removes the node and the connected axes will be disconnected.

Connect from axes

Connects the node to a chosen axis (axes).

Disconnect from axes

Disconnects the node from a chosen axis (axes).

Auto split

Automatically splits the node into two nodes.

Split along axis

Manually splits the node along an axis.

Merge

Merges two or more selected nodes together.

7.13.5 Options in an axis

Select connected nodes

Selects the nodes connected to the axis.

Remove

Removes the axis.

Connect to node

Connects the axis to a chosen node.

Disconnect from node

Disconnects the axis from a chosen node.

Add restrictions

Adds a restriction on the axis.

The restriction you can add depends on the restrictions that are already imposed.

If there are no restrictions yet, you can add the following restrictions:

- Parallel to the centerline.
- Inside profile bounds.
- To closest midplane.
- To closest base position.
- To center.
- No length extension.

Relax restrictions

Relaxes a restriction on the axis.

The restriction you can relax depends on the restrictions that are imposed.

Mostly these will be the restrictions that you can relax:

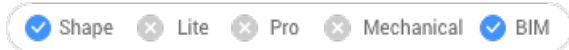
- Inside profile bounds.
- Outside profile bounds.



- Non-parallel.
- Allow length extension.

7.14 BIMAPPLYPROFILE command

Applies a profile to linear entities and linear solids.



Icon:

7.14.1 Description

Allows you to add profiles, to detach current profile and to convert solids to line.

Note: Linear entities accepted: lines, polylines, arcs, circles, elliptical arcs, ellipses and helices. Open and closed splines are accepted only if they have default tangents that are not self-intersecting.

7.14.2 Methods

There are two methods to apply profiles:

- Choose a profile from the library.
- Choose a profile entity in the drawing.

7.14.3 Options within the BIMAPPLYPROFILE command

Select path

Select linear entities or linear solids.

Select profile

Select a profile entity in the drawing (a closed 2D entity, a region or an existing linear solid) or press Enter to display the Profiles dialog box.

Apply profile?

- **Quarter turn:** rotates the profile 90° counterclockwise.
- **Rotate:** rotates the profile at a user-defined angle. Positive values rotate the profile counterclockwise.
- **Delete clippings:** removes all clippings from the selected linear solid(s).

If you select as path linear solids, you have three options:

- **Library:** change the profile.
- **Convert solids to line:** converts linear solids to their axis line.
- **Detach current profile(s):** detaches profiles only if the entities have an attached profile.

7.15 BIMATTACHCOMPOSITION command

Attaches a BIM composition to solids.



Icon:



7.15.1 Method/s

This command offers 3 methods to attach the compositions.

- Enter the composition name
- Compositions dialog box
- Select an entity

7.15.2 Options within the command

Dialog

Opens the **Compositions** dialog box.

For more information about the dialog box, see the article **BLCOMPOSITIONS** command.

Entity

Applies the composition of an existing solid. First you select the entities to copy the composition from, next you select one or multiple entities to attach the composition to.

deTach

Allows to detach a composition, while keeping the BIM classification, as different from the **Unclassify** option of the BIMCLASSIFY command, which removes all BIM data.

7.16 BIMATTACHSPATIALLOCATION command

Attaches or removes a spatial location to/from a selection of entities.



Icon:

7.16.1 Method

Run the command and choose one of the location numbers or choose to attach or unattach locations.

7.16.2 Options within the command

Auto attach locations

Allows you to automatically assign a spatial location. If necessary, new building(s) and stories are created in the **Building and Story Manager** dialog box.

Unattach current location

Allows you to remove the current spatial location from a selection set (including the **Space** property).

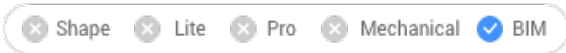
Select space

Allows you to assign a space to a selection of entities by first selecting the entities and then the space to be assigned.

Note: Assigning a **Space** property to a building element overrides the element's **Story** and **Building** properties with those of the space.

7.17 BIMAUTOMATCH command

Matches the composition, properties or parameters of example entities to all similar entities in your project.



Icon:

7.17.1 Method

BIMAUTOMATCH finds similarities based on the type of element, interior/exterior property, orientation, spatial location, amount of windows in a wall and already defined properties. It will not overwrite already defined properties, unless no unmodified entity can be found and the user specifies a source entity.

E.g.: You have attached a specific composition to a wall and a floorslab in the project. Instead of attaching the composition to all the similar walls and floor slabs 1 by 1, you can use this command to do it for you.

Note: This command works best when the project is bimified.

7.17.2 Options

Displays Auto Match dialog box:

Note: When there are unmodified or unclassified entities in the drawing and there is only one building, nothing is prompted.

Autocomplete

Matches all chosen options for entities in the open drawing with similar entities in the open drawing.

Note: When choosing **Autocomplete** with multiple buildings in the drawing, you have to specify the building/(s) to apply style on:

All

All the buildings will be taken into account while doing AutoMatch.

Building

AutoMatch is only applied as if **Building** was the only building in the drawing.

0 for building-2

AutoMatch is only applied as if **building-2** was the only building in the drawing.

1 for building-3

AutoMatch is only applied as if **building-3** was the only building in the drawing.

Other building name (first letter capitalized)

All building names, available in the current drawing, are listed here.

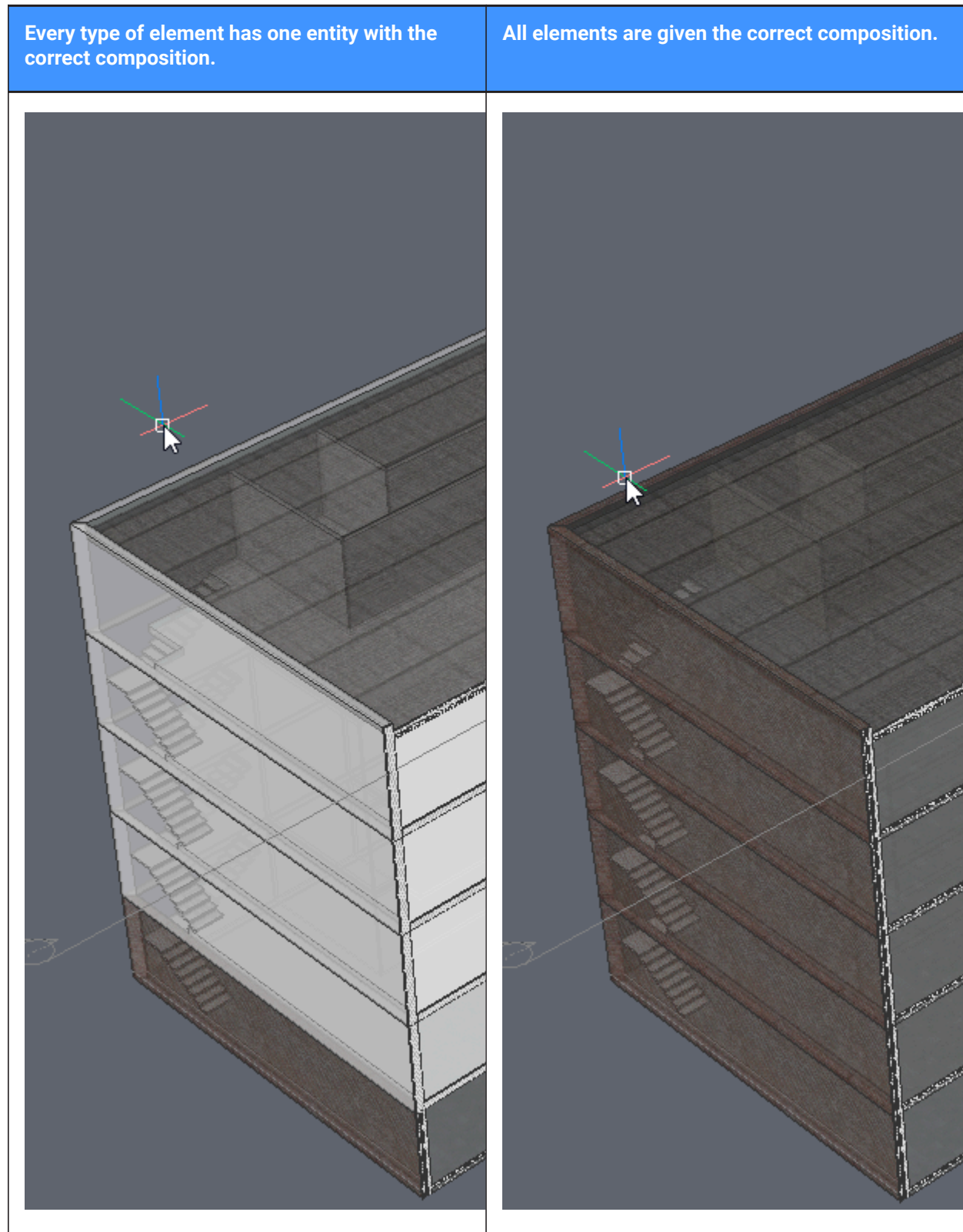
Note: AutoMatch is only applied as if **Other building name** was the only building in the drawing.

External file

Matches all chosen options for entities in the chosen drawing with similar entities in the open drawing.

Note: When choosing **External file** with multiple buildings in both drawings, you have to select a building to detect style from and all or only one building to apply style on (see above options).

Note: When all entities have compositions or a same customized property or all windows or stairs have customized parameters you will be prompted to select an entity, a window or a stair in the drawing from which you want to copy the composition or parameters to let AUTOMATCH to overwrite them.



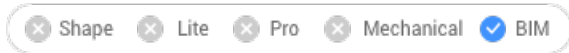
7.18 BIMCLASSIFY command

Classifies an entity and gets a name and an internal unique **GUID** (= globally unique identifier).



Note: The **GUID** is maintained even when the BIM classification changes.

A classification can be assigned to any .dwg entity.



Icons:

7.18.1 Method

Select the entities to classify or press **Enter** to classify the entire drawing.

The BIM elements definition are detailed in the **Classify As BIM Element** dialog box.

7.18.2 Options within the command

Wall

Classifies the selection as walls.

Note: Attaching a Wall composition to a solid automatically classifies the solid as a wall.

Column

Classifies the selection as columns.

Slab

Classifies the selection as slabs.

Note: Attaching a Slab composition to a solid automatically classifies the solid as a slab.

Beam

Classifies the selection as beams.

window

Classifies the selection as windows.

Door

Classifies the selection as doors.

sPace

Classifies 2D and 3D entities as spaces. (IFC Spatial Structure Element)

Converts BIM rooms to BIM spaces.

buILDing

Classifies 3D entities as buildings. (IFC Spatial Structure Element)

sTory

Classifies 3D entities as stories. (IFC Spatial Structure Element)

building Element

Classifies the selection as unspecified building elements.

Xref

Classifies the selection as External References.

Other

Allows to classify the selection or convert the selection to a block and classify the block reference.



Note: Displays the **Classify As Bim Element** dialog box.

Auto

Automatically classifies the selected entity or entities.

Note: This is the same as running BIMIFY command.

stRuctural

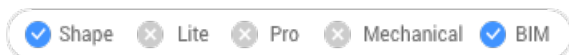
Classifies the selection as Building Structure Elements.

Unclassify

Removes all BIM data from the selected entities.

7.19 BIMCOPY command

Creates copies from the planar faces of 3D solids.



Icon:

7.19.1 Description

Creates copies from the planar faces of 3D solids, and the sides and ends of linear solids.

7.19.2 Method

Specify a distance to create copy.

Note: You can specify a distance in the dynamic dimension field and right-click to create a single copy.

7.19.3 Options within the command

Copy

Creates copies.

Repeat

Repeats the copy using the same displacement. Move the cursor in the displacement direction.

Note: Move the cursor in the displacement direction. The further you move away from the source solid, the more copies are created.

Number

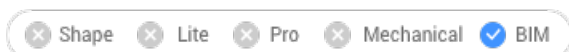
Creates a number of copies you want to have in your model.

Accept

Accepts the current distance you entered in the dynamic dimension field.

7.20 BIMCREATEDetail command

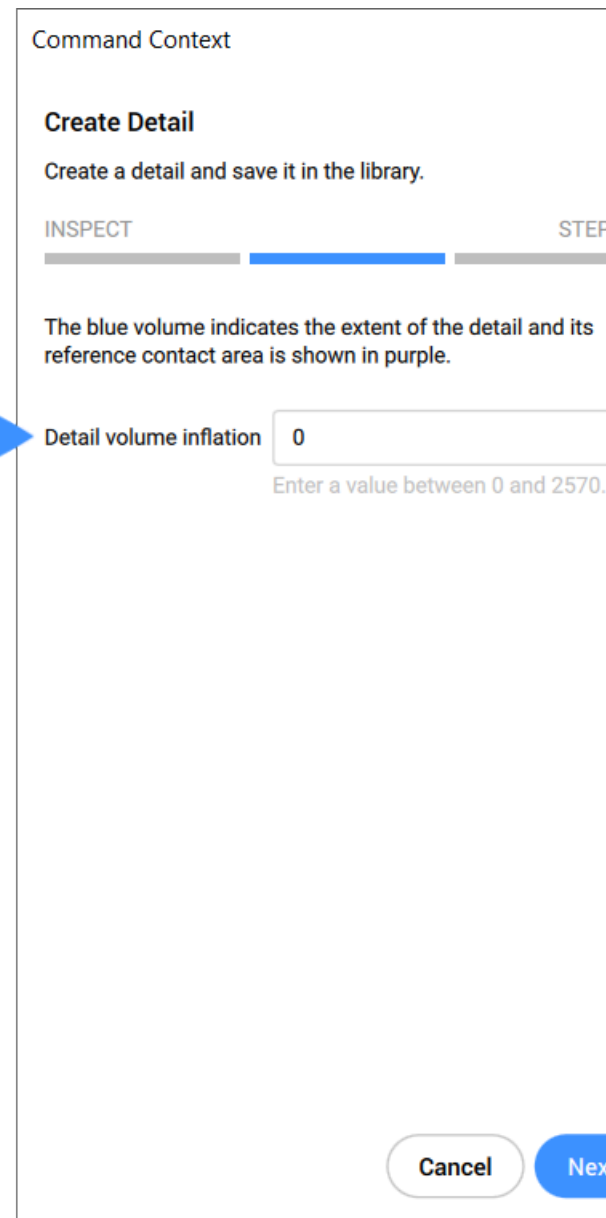
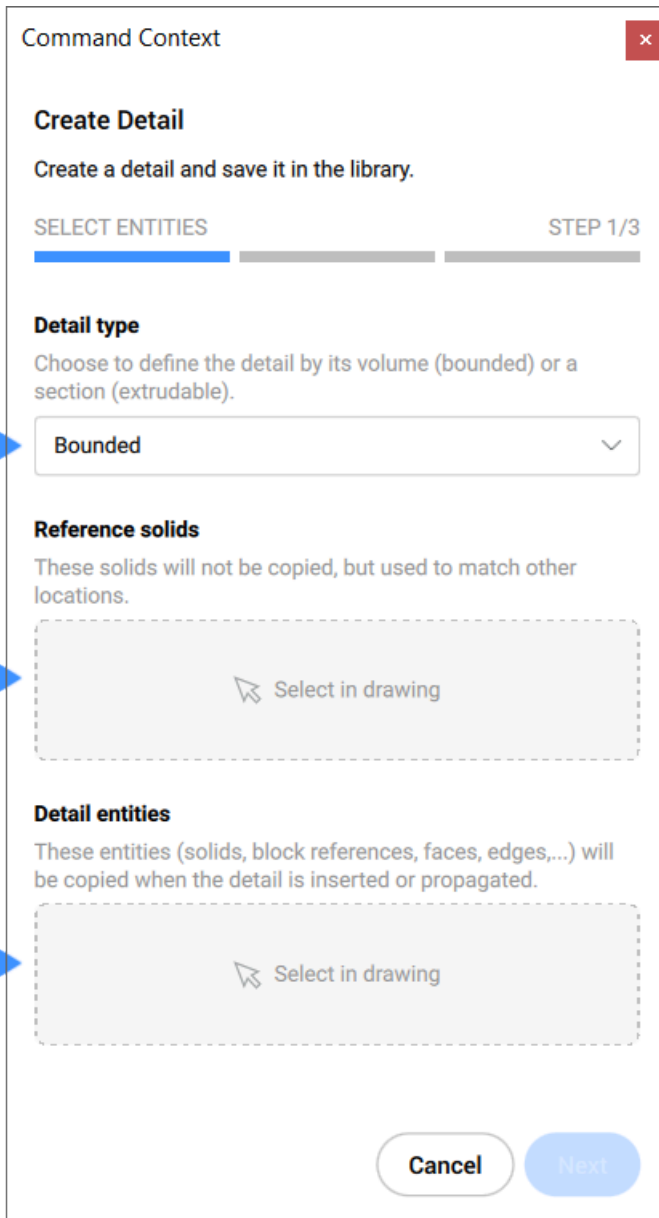
Creates a detail and saves it in the **Details** library.





7.20.1 Method

Launching the command opens the **Create Detail** command context panel to let you define the detail in three steps.



- 1 Detail type
- 2 Reference solids



- 3 Detail entities
- 4 Detail volume inflation
- 5 Name
- 6 Category
- 7 Insert detail reference
- 8 Add general tag
- 9 Solid Reference Tags

Detail type

Choose the type of detail to create:

Bounded

The detail will be applied to the selected solids to a length defined by the detail length.

Extrudable

The detail will be applied to the whole length of the selected solids (e.g. slab, wall, etc.)

Reference solids

Select the solids that define the situation where the detail should be applied. At least one reference solid must be selected in order to continue to the next step.

Detail entities

You can optionally select entities to add more detail in relation to the selected reference solid (solids).

Detail volume inflation

Expands the sensitive zone of the detail to include similar solids which are not connected yet in the model. The edges of the initially detected detail volume are moved outward by the specified factor.

Name

Type in the name of the detail to be created.

Category

Select a category or enter a name to create a subcategory.

Insert detail reference

Toggles **On/Off** the insertion of detail reference in the model space at the place where the detail is created from.

Add general tag

Lets you add a new general tag. The newly added tag will differ in colour from those automatically added.

Note: You can also remove tags, previously defined automatically or manually.

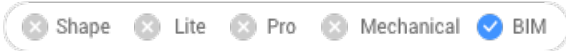
Solid Reference Tags


Displays the automatically defined solid reference tags. You can remove tags by clicking the corresponding **X** button.

Note: The options within the command line reflect the options found in the command context panel.

7.21 BIMCURTAINWALL command

Creates a curtain wall.



Icon: 

7.21.1 Description

Creates a curtain wall, as a block, from the face of a 3D Solid.

7.21.2 Method

Select a face and create a grid.

7.21.3 Options within the command

Length U panels

Sets the length of the panels in U direction (height).

Length V panels

Sets the length of the panels in V direction (width).

Number U panels

Number of panels in U direction (rows).

Number V panels

Number of panels in V direction (columns).

Width

Defines the width of the curtain wall frame, mullions and transoms.

Depth

Defines the depth of the curtain wall frame, mullions and transoms.

Glass thickness

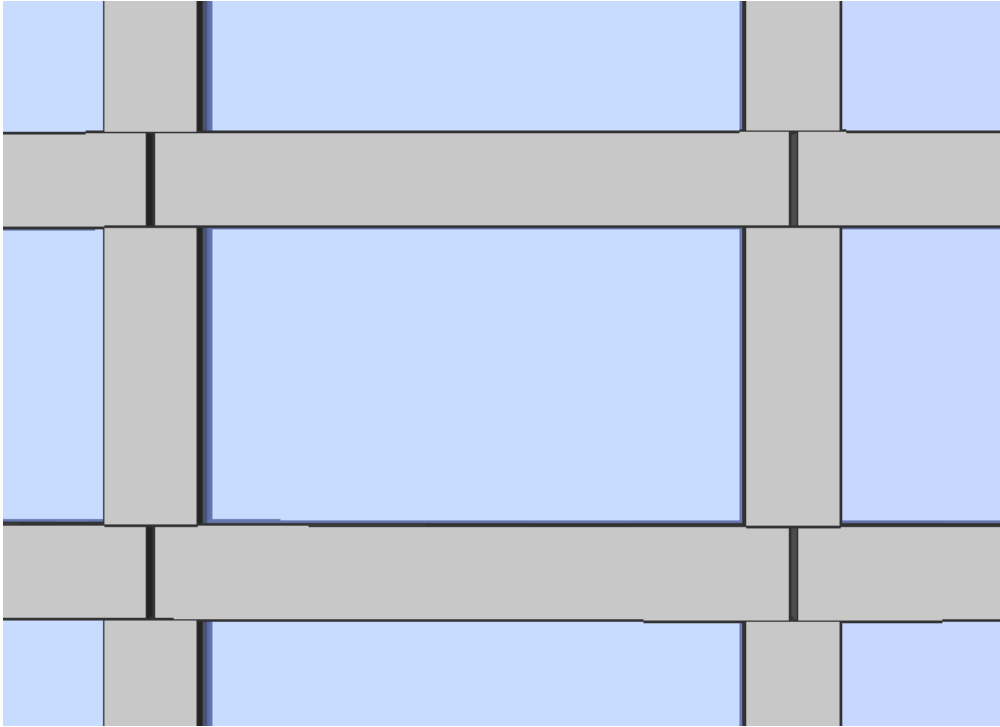
Defines the thickness of the glass panels.

Connections type

Defines the type of the connections between horizontal and vertical mullions.

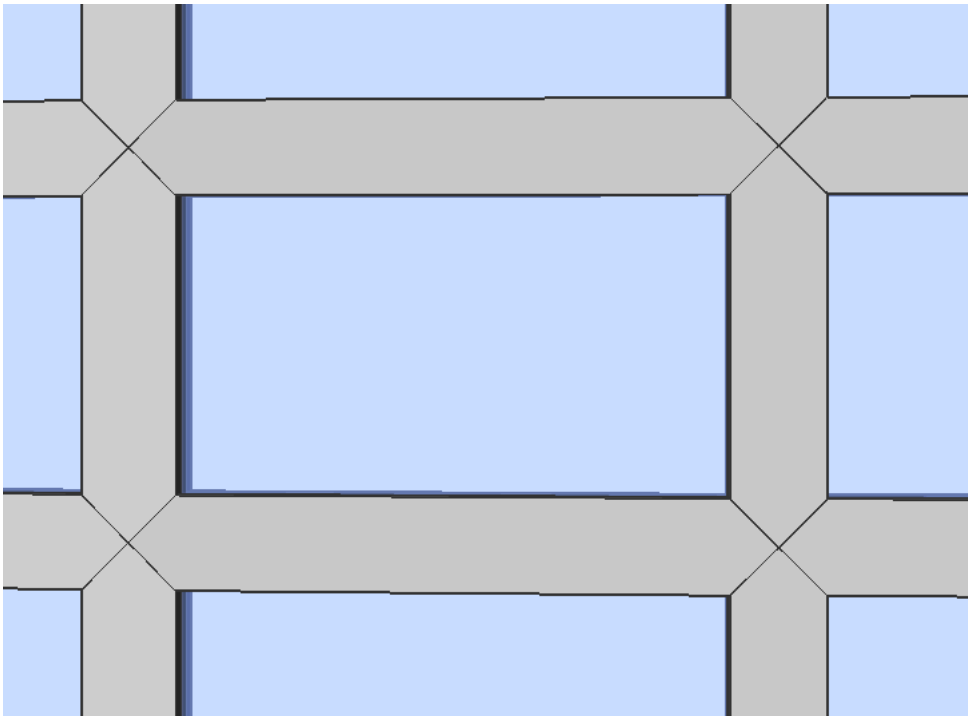
sTraight

Creates a straight connection.



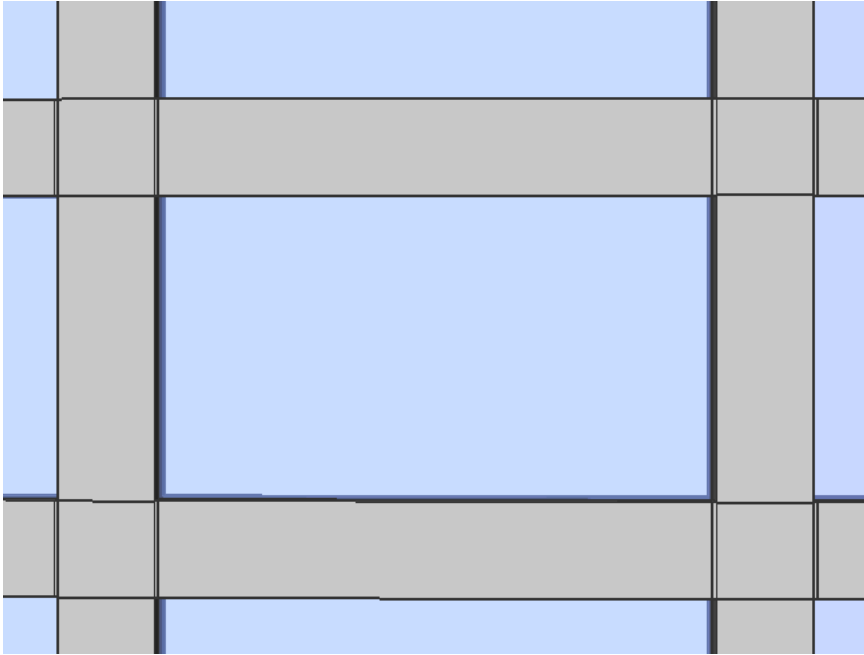
Smooth

Creates a smooth connection.



Nodes

Creates a node connection.



Delete defining entities

Whether the selected source entity is retained or deleted depends on the value of the DELOBJ system variable.

7.22 BIMDECOMPOSE command

Decomposes compositions.

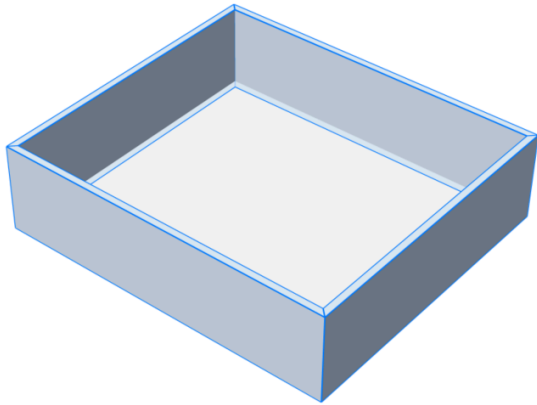


7.22.1 Description

Decomposes compositions into their separate plies.

7.22.2 Method

This command offers one method to decompose compositions. After running the command, you can manually select BIM solids to decompose.



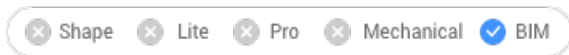
The solids are decomposed into their separate plies, which are put into one block. Each ply has inherited the BIM data of the original solid. You can see this in the Structure Browser.

Before	After

Note: If you now want to manipulate the plies, you can use the BEDIT command.

7.23 BIMDIMENSION command

Dimensions the selected entities in the viewport semi-automatically.



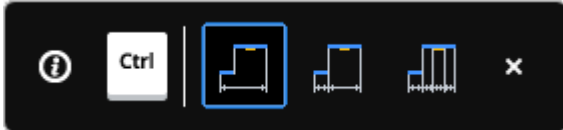
Icon: 

Note: This command is only available in Paper Space.



7.23.1 Method

Select single or multiple entities in the viewport by clicking one by one or with Box selection, apply filters available in the **Dimension** dialog box and pick the location for dimensions. Press the CTRL key to toggle dimensioning options depending on the selected entities type.

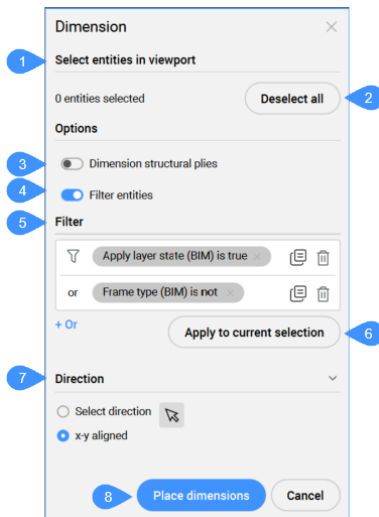


Note: Make sure that the Hot Key Assistant (**HKA** field in the **Status bar**) is ON.

Press Enter for a new selection set.

Note: You can also make a selection by using a python script to query specific objects (see the BIMPYTHON command).

This command opens the **Dimension** command panel.



- 1 Select entities in viewport
- 2 Deselect all
- 3 Dimension structural plies
- 4 Filter entities
- 5 Filter
- 6 Apply filter to current selection
- 7 Direction
- 8 Place dimensions

Select entities in viewport

Shows the number of selected entities.

Deselect all

Deselects all entities.



Dimension structural plies

Allows you to choose whether or not to dimension the plies of a wall with Function equal to Structure.

Filter entities

Toggles the display of the **Filter** selection section.

Filter

Allows to filter the selected entities by adding one or more parameter filters from the drop-down list. Filter rows can be added to filter by multiple parameter combinations. These rows are separated using the logical "OR" operation. The rows can be copied by clicking the copy symbol or deleted by clicking the delete symbol.

Apply filter to current selection

Applies the filter to the current selection.

Direction

Indicates the direction for the dimensions.

Select direction

Allows you to define a direction by pressing the arrow from the right side and specify an angle. The default direction is x, y axis.

x-y align

Dimensions will be aligned with x, y axis (horizontal or vertical).

Place dimensions

Specifies the place for dimensions.

7.23.2 Options within the command

place Dimensions

Pick a point to place the dimensions.

Undo

Undoes the last action.

Deselect all

Removes the selection set.

Select direction

Selects the direction for the dimensions.

x-y align

Dimensions will be aligned with x, y axis (default direction).

Angle

Dimensions will be oriented with the specified angle.

7.24 BIMEXTEND command

Extends a wall.



Icon: 

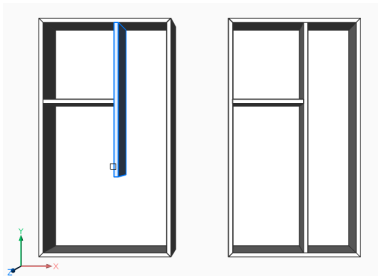


7.24.1 Method

The command extends a side of a wall that doesn't intersect other walls by automatically detecting the nearest wall to extend it to.

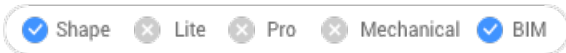
Select 0-1 entities/subentities

Select the part of the wall that should be extended.



7.25 BIMFLIP command

Flips a starting face of a composition or mirrors/flips an insert.



Icon:

7.25.1 Description

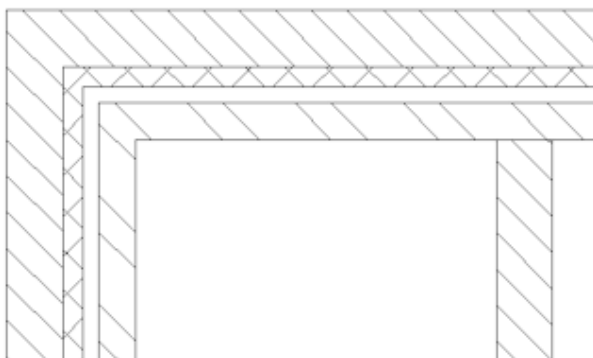
Flips the starting face from which the layers of a composition are set out, or mirrors an insert (e.g. a window or door) left/right or flips it inside/outside.

7.25.2 Method

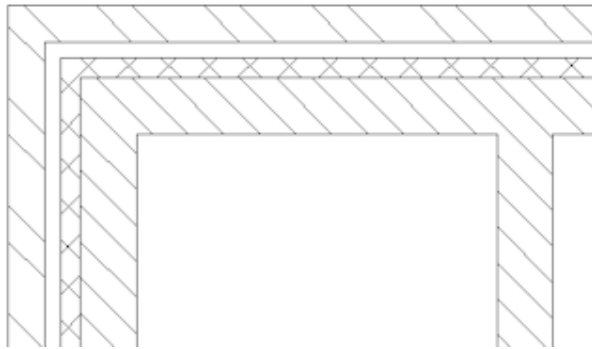
There are two methods to flip entities:

- Left-right.
- In-out

Before:



After:



Note: The result is visible in drawings generated by the BIMSECTIONUPDATE command if a multi-layered composition is attached to the sectioned solid.

7.25.3 Options

Select BIM entity to flip

Inserts, walls and slabs are accepted in the command.

Note: The command only succeeds for solids that meet the following conditions:

- have a BIM composition attached.
- contain a BIM classification
- are in a calculated BIM section.

Left-right

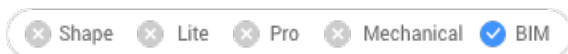
Mirrors the insert about a vertical axis in the face of the solid.

In-out

Flips the insert to the opposite face of the solid.

7.26 BIMFLOWCONNECT command

Creates a connection between flow segments.



Icon:

7.26.1 Description

Creates a connection between flow segments, such as pipes or HVAC ducts.

Note: When more than 2 flow segments are selected, the axes of the selected segments must be coplanar. When multiple coplanar segments are selected, the connections are created. When two non-coplanar solids are selected, an extra connection element is introduced.

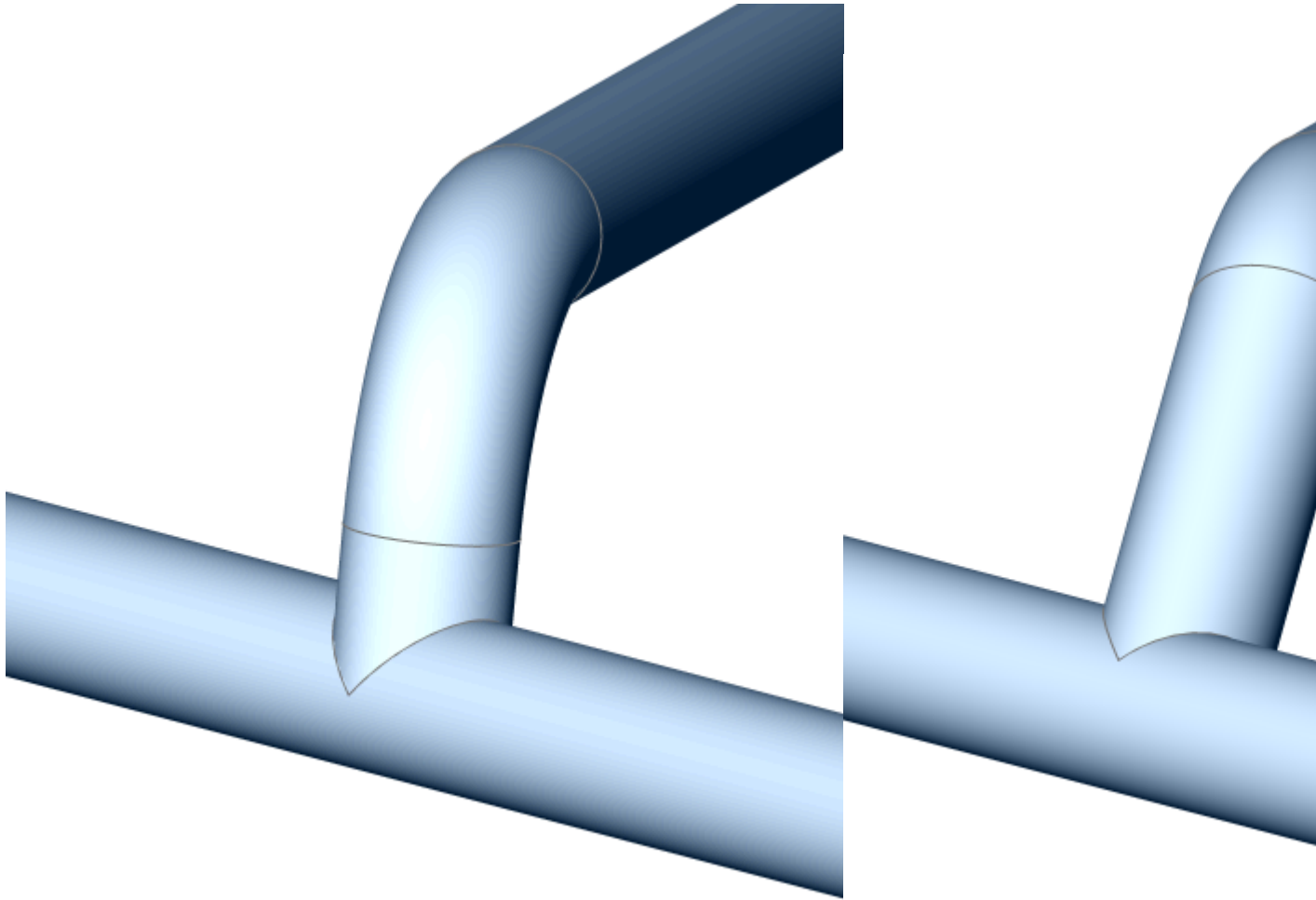
7.26.2 Options

Switch

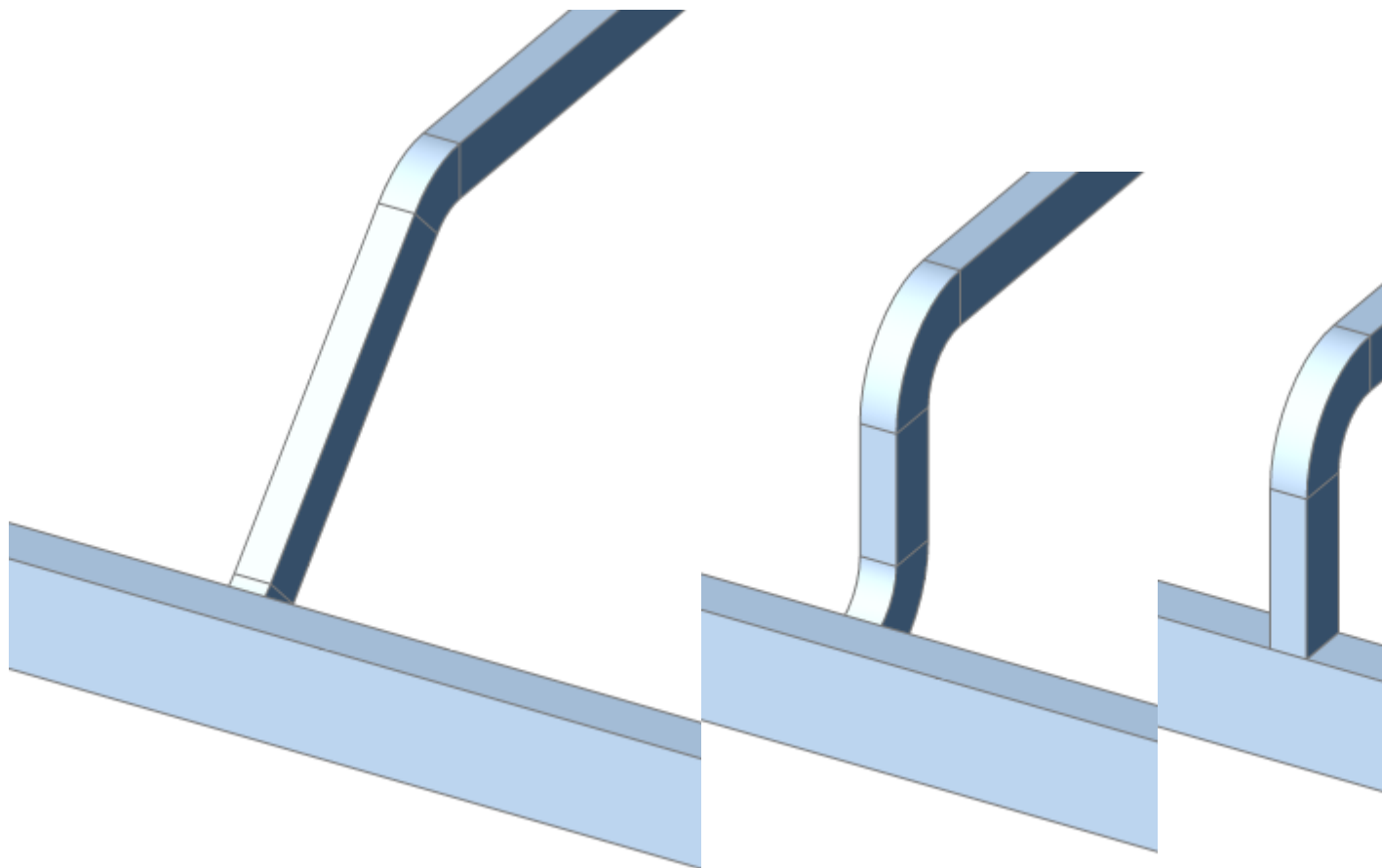
Switches between possible connections.



Alternatives for circular flow segments:



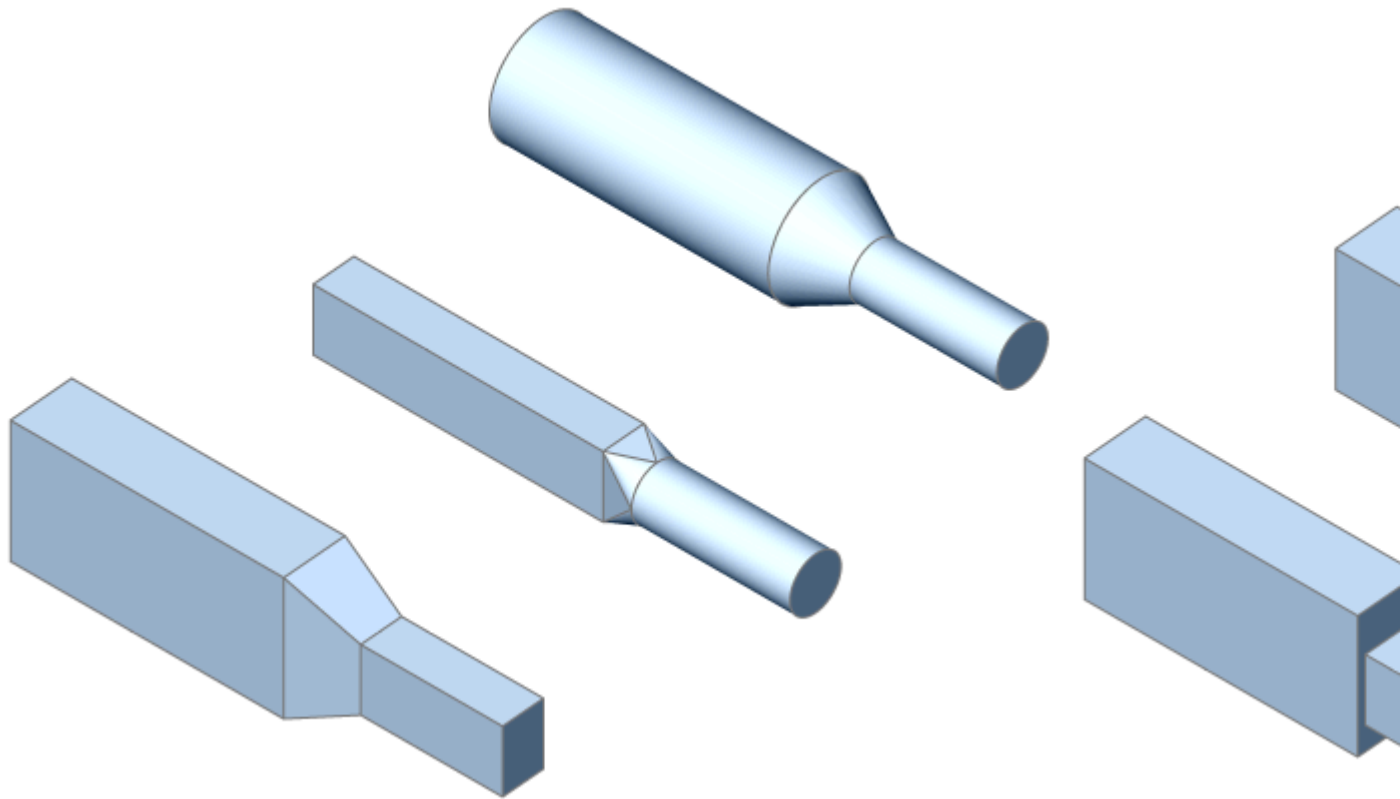
Alternatives for rectangular flow segments:



Note: Press the Ctrl key to cycle through different types of connection. Hot Key Assistant must be set ON.

When the section of the selected flows is different, reducer elements are inserted.

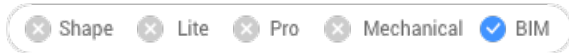
Alternatives for reducers:



Note: The creation of bends, tees and reducers is controlled by related system variables.

7.27 BIMGRID command

Creates 2-dimensional grids.



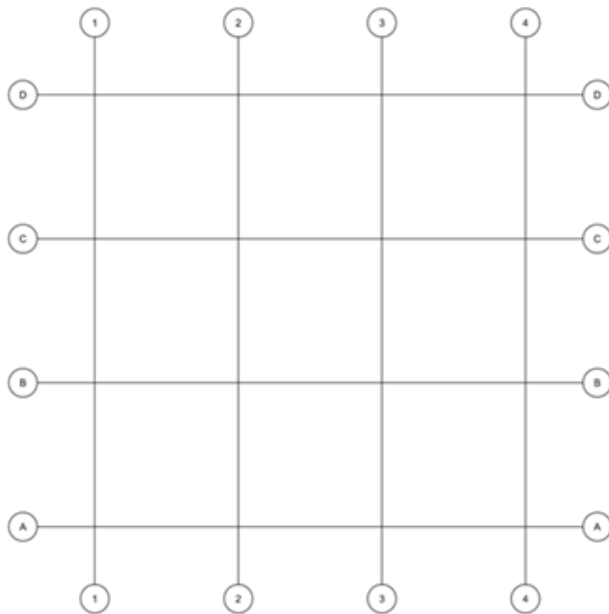
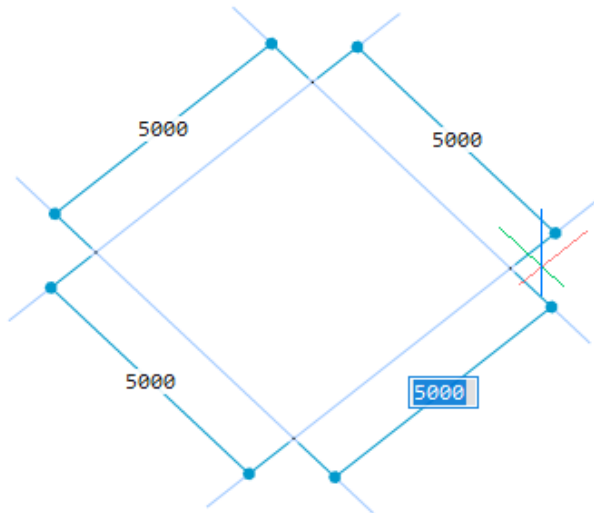
Icon: 

7.27.1 Description

Creates 2-dimensional rectangular and radial grids.

7.27.2 Method

The grid is created by specifying two points.



7.27.3 Options

Offset U

Sets the line offset between U lines in V direction (interdistance between the U lines).

Offset V

Sets the line offset between V lines in U direction (interdistance between the V lines).

Offset Labels

Sets the label offset to grid axes.

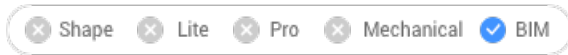
Radial


Creates a radial grid by specifying the center point, the start lines and the end lines.



7.28 BIMIFY command

Analyzes the model and runs automatic classification and spatial location assignment for the entire model.



Icon: 

7.28.1 Description

Analyzes the model and runs an automatic classification and spatial location assignment for the entire model. Creates new buildings and/or stories and spaces if necessary. Optionally creates plan sections and elevations.

Note:

- Section entities are converted to BimSection entities.
- Simple block references can be classified.

7.28.2 Method

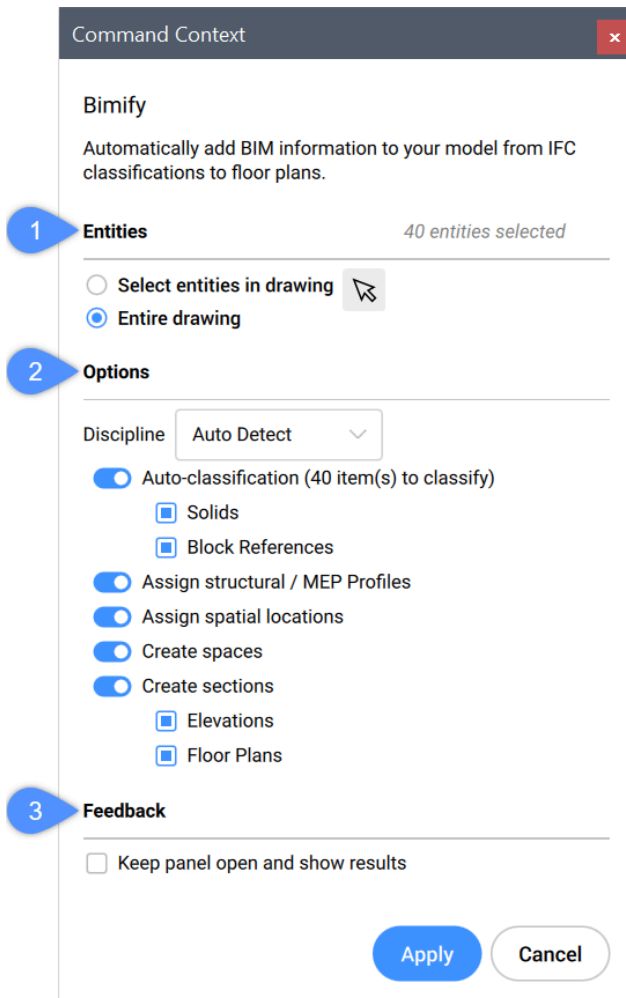
Running BIMIFY command on the entire model will classify objects, assign spatial locations, detect spaces and create elevations and floor plan section planes in the model.

When the BIMIFY process is completed, an overview of the result is provided in the Command line.

This command opens the **Bimify** command panel.

7.28.3 Bimify command panel

The **Bimify** command panel allows you to analyze the model and run an automatic classification and a spatial location assignment for the entire model.



- 1 Entities
- 2 Options
- 3 Feedback

Entities

Select entities in drawing

The BIMIFY command runs for the selected entities in the drawing.

Entire drawing

The BIMIFY command runs for all entities in the drawing.

Options

Discipline

Determines to what discipline the model belongs in order to improve the automatic classification.

Auto Detect

An AI algorithm determines the discipline automatically.

Architectural

The model is classified as an architectural model.



Structural

The model is classified as a structural model.

MEP

The model is classified as a MEP model.

Mixed Model

The model cannot be assigned to 1 discipline and is perceived as a mixed model.

Auto-classification

Defines the classification of solids and blocks.

Note: Also see the BIMCLASSIFY command.

Solids

Makes sure that 3D solids are classified as walls, slabs, etc.

Block References

Makes sure that blocks are classified as windows, doors, etc.

Assign structural/MEP Profiles

Assigns columns, beams, members or flow segments profiles that are available in the **BIM Profiles** panel.

Note: If no match can be found for a profile element in the standard library, the BIMIFY command creates a new custom profile in the project's library.

Assign spatial locations

Assigns spatial locations (buildings and floors). See the BIMATTACHSPATIALLOCATION command.

Create spaces

Detects external walls and sets the property **Wall Common/is External to On** and also detects spaces. See the BIMSPACE command.

Create sections

Creates BIM Section entities. See the BIMSECTION command.

Elevations

Creates 4 elevations (Front, Back, Left and Right).

Floor Plans

Creates a plan section for each floor.

Feedback

Keep panel open and show results

If toggled **On**, the panel will show the progress and results while calculating.

Note: This option is **Off** by default for consistency with previous versions.

7.29 -BIMINSERT command

Inserts sheet metal form features, and mechanical and BIM components in the command line.





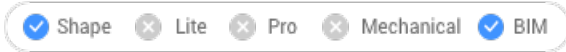
7.29.1 Method

Specify the full path and file name of the file.

Note: Type ~ (tilde) to display the Select file to insert dialog box, which allows you to select a file to insert.

7.30 BIMINSERT command

Inserts BIM components into the current drawing.

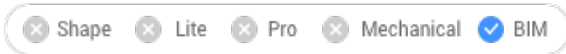


Icon:

Note: This command is deprecated. Use BMINSERT instead.

7.31 BIMINVERTSPACES command

Converts a set of input 3D solid entities and closed polylines, which represent spaces, to a building structure which encompasses these spaces.



Icon:

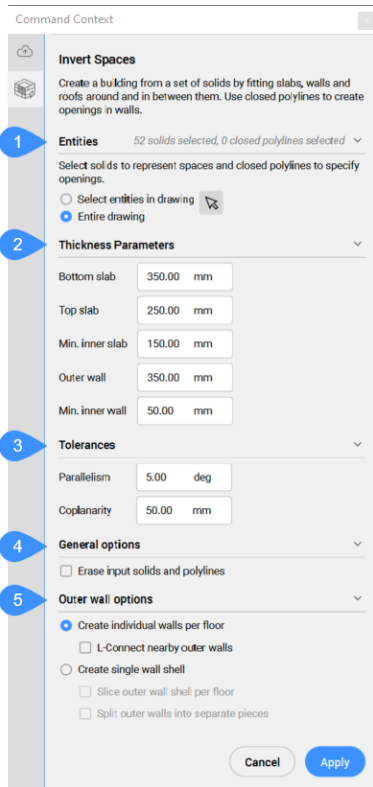
7.31.1 Method

This command uses a set of 3D solid entities and closed polylines to create a building structure made of walls, openings, slabs, and roofs.

This command is envisioned to be most useful in a Scan-2-BIM workflow. Starting from a point cloud, using the FITPLANAR command to fit planar faces to the point cloud and stitch them together to solids (representing spaces) and finally using these solids as input for the BIMINVERTSPACES command.

The command takes closed polylines (created manually or with POINTCLOUDFITPLANAR command) into account and creates parametric opening components based on these polylines. The polylines do not need to be coplanar with a face (exactly on the face) of the space. When polylines are detected on both sides of the wall, the two polylines are interpolated and the opening is created based on the interpolation results. The parametric opening object can then easily be replaced with a window or door component, using the BMREPLACE command.

Launching the command opens the **Invert Spaces** command context panel to let you define the settings.



- 1 Entities
- 2 Thickness Parameters
- 3 Tolerances
- 4 General options
- 5 Outer wall options

Entities

Displays the options for selecting the entities to be used as input.

Select entities in the drawing

Click on the arrow button to select specific 3D solids and closed polylines.

Entire drawing

All the 3D solids and closed polylines in the drawing will be used as input.

Thickness Parameters

Displays the values of the parameters used to create the building structure.

Bottom slab

Sets the thickness of the slabs created at the bottom of the structure.

Top slab

Sets the thickness of the slabs created at the top of the structure.

Min. inner slab

Sets the minimum distance required between parallel faces for creating an inner slab.



Outer wall

Sets the thickness of the walls created on the outside of the structure.

Min. inner wall

Sets the minimum distance required between parallel faces for creating an inner wall.

Tolerances

Displays the tolerance values for the relative positions of the faces that belong to the 3D solids used as input.

Note: The units used by these settings are those set in the drawing.

Parallelism

Sets the angular tolerance for determining if the faces are parallel.

Coplanarity

Sets the allowed distance between the faces for being coplanar.

General options

Erase input solids and polylines

On the completion of the command, the input entities are erased if the checkbox is ticked or kept if the checkbox is not ticked.

Outer wall options

Displays the options for creating the outer walls.

Create individual walls per floor

Creates separate outer walls for each floor. Outer walls are created by extruding coplanar groups of outer faces outward.

L-connect nearby outer walls

Creates mitered corner connections between nearby walls.

Create single wall shell

Creates the outer walls of the whole structure as a tight-fitting, single solid shell. Shelling may sometimes fail on non-aligned geometry.

Slice outer wall shell per floor

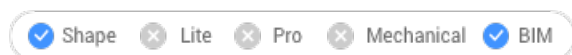
Divides the computed outer wall shell(s) to multiple 3D solids by slicing it by a horizontal plane at each floor level.

Split outer walls in separate pieces

Divides the computed outer wall shell(s) into smaller box-like 3D solids, one for each side of the structure.

7.32 BIMLINEARSOLID command

Creates a chain of linear solids.



Icon:



7.32.1 Options within the command

Last point

Press Enter to use the most recently specified point.

Follow

Draws the next linear solid at the same angle as the previous one.

Rectangular

Switches to a default rectangular profile.

Circular

Switches to a default circular profile.

Library

Opens the **Profiles** dialog box.

select in Model

Allows to select a profile in the model.

adJust profile

Allows to adjust the dimensions of the default rectangular and circular profiles.

Note: For the rectangular profile you can change the width and the height, and for the circular profile you can change the radius.

Angle

Draws at a user-specified angle and distance.

Length

Draws at a user-specified distance and angle.

Undo

Erases the last linear solid.

Quarter turn

Rotates the profile 90° counter clockwise.

Rotate

Allows to rotate the profile by a user defined angle.

Positive values rotate the profile counter clockwise.

choose other Profile

Allows to use a different profile for the next linear solid.

7.33 BIMLIST command

Lists the selected entities.



7.33.1 Description

Lists all the selected entities in the Command line, displaying their handle, material and GUID.

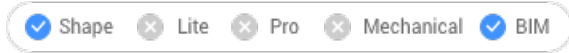


7.33.2 Method

Run the command and select the BIM entities to list.

7.34 BIMMULTISELECT command

Selects linear solids.



Icon:

7.34.1 Description

Selects linear solids with coplanar and/or parallel axes.

7.34.2 Method

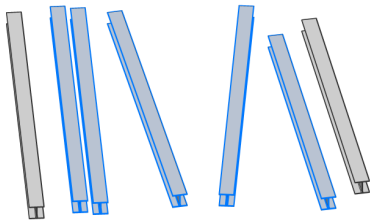
Selects linear solids with coplanar and/or parallel axes. If a face of a linear solid is selected, the corresponding faces of the linear solids with coplanar/parallel axes are selected.

Note: Select a different face by repeatedly pressing the TAB key to cycle through all faces of the selected solid.

7.34.3 Options

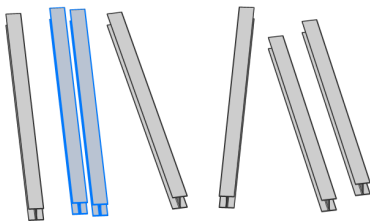
all Coplanar axes

Selects all solids of which the axis is coplanar with the axis of the selected solid.



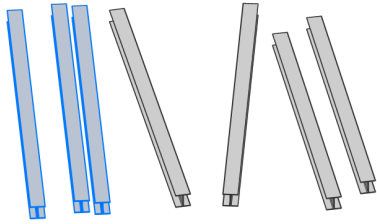
coplanar and parallel axes

Selects all solids of which the axis is coplanar and parallel with the axis of the selected solid.



all Parallel axes

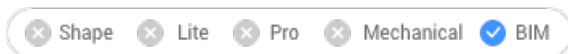
Selects all solids of which the axis is parallel with the axis of the selected solid.



Note: Press the Ctrl key to cycle through the command's options. Hot Key Assistant must be set ON.

7.35 BIMPARAMETRIZEDDETAIL command

Generates parameters for a detail.



Icon:

7.35.1 Description

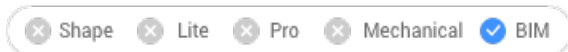
Generates parameters for a detail in order to easily change dimensions, angles, etc.

Note: Use this command in the detail file, not in a project. Detail files are saved in the folder, and its subfolders, which is defined by the `DETAILSPATH` system variable. By default, this is `C:\ProgramData\Bricsys\Details\`.

Note: The parameters and constraints can be edited in the Mechanical Browser.

7.36 BIMPATCH command

Allows to replace part of a generated section.



Note: `BIMPATCH` cuts out part of geometry and replaces it by a block reference. In this cutting process, entity data linked to the 3D model are lost. Therefore, starting from V21.2, this command is no longer available.

7.36.1 Description

Allows you to specify a rectangular area on a block that was previously generated and modify it.

7.36.2 Method

Patches can be edited same as blocks, using the `REFEDIT` command.

When the corresponding BIM section is updated, BricsCAD will check if the generated section result within that rectangle is identical to the result which was generated at the time the BIM patch was created:

- If not, then the user edited BIM patch is preserved but the boundary is colored red.
- If it is, the user edited BIM patch is preserved.



Intersection points and endpoints of curves originating from 3D objects are used to find the position of a BIM patch rectangle. When objects are modified or moved in the 3d model in such way that the position of these intersection points change, but the geometry inside the BIM patch rectangle is not affected, then BricsCAD will relocate the user edited BIM patch.

Note: The command is valid in model space only.

Note: In order to use the command, the GENERATEASSOCVIEWS system variable must be set ON.

This command cuts out part of geometry and replaces it by a block reference. The cut-out is generated as a nested block in the BIM section. BIM patch blocks are named Patch1, Patch2, etc. The rectangular boundary of a BIM patch is placed on layer BIMPATCH_BOUNDARY.

7.37 BIMPROFILES command

Opens the Profiles dialog box.



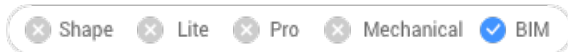
Icon:

7.37.1 Description

Opens the Profiles dialog box to create and modify BIM profiles.

7.38 BIMPROJECTINFO command

Opens the BIM project info dialog box.



7.38.1 Description

Open the BIM project info dialog box to view and modify BIM project information.

7.39 BIMPROPAGATE command

Maps details related to selected base solids to similar base solids in the model.



Icon:

7.39.1 Description

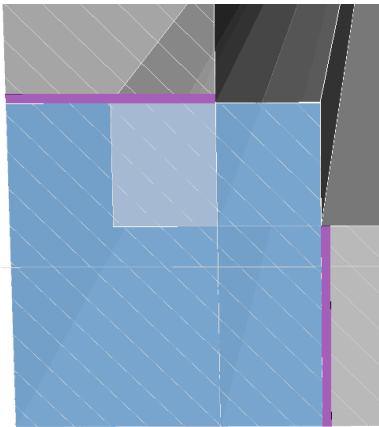
Maps details (solids, holes, finishing geometry, etc.) related to selected base solids to similar base solids in the model and optionally outlines the detail in a grid.

7.39.2 Method

Select reference solids and, optionally, detail entities (solids, block references, faces, edges, etc.).

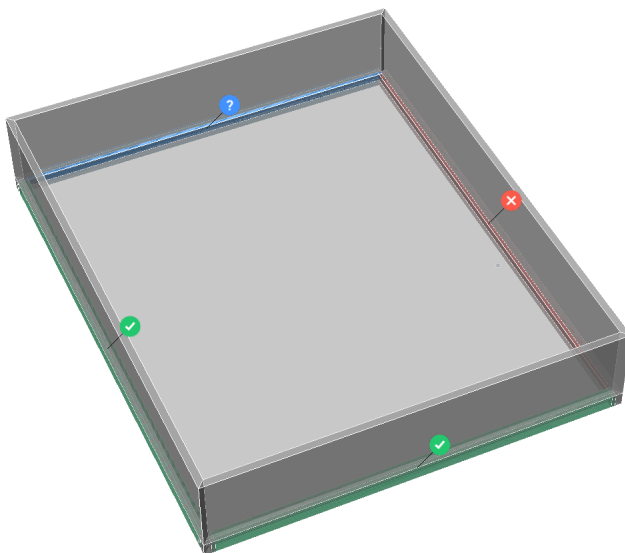
It can be used to copy details throughout your model.

Note: The detail area to be copied is displayed in blue. The reference contact area is displayed in purple.



You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.



Note: Hovering over the widget will reveal more options.

Note: If the PROPAGATESEARCHSPACE system variable is ON, you can select a search space which allows you to limit the places that will be propagated.

7.39.3 Options within the command

Block

Propagates the detail as a block.

Copy

Propagates the detail as a copy.



Select search space

Select the space(s) to limit the places that will be propagated.

Entire drawing

Selects the entire drawing as a search space.

No

Does not accept the detail.

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.

Save detail

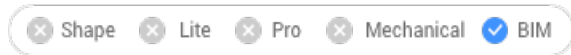
Displays the **Save Drawing As** dialog box, which allows you to save the detail.

save detail to Library

Displays the **Save Detail** dialog box, which allows you to save the detail to library.

7.40 BIMPROPAGATECORNER command

Propagates details.



Icon:

7.40.1 Description

Propagates details connected to three planar base solids (e.g. corners).

7.40.2 Method

Select at least three planar reference solids that form a 3D corner. The detail will be copied to similar corners.

7.40.3 Options

Select detail objects

Select additional solids, blocks or faces to be included in the corner detail.

yes, copy as Block

This option is available only when detail objects are selected. A block is created from the selected detail objects, which is then copied.

Note: The default block names are Block, Block 1, Block 2, ... You can rename blocks in the Blocks category in the Drawing explorer. See the EXPBLOCKS command.

yes, plain Copy

This option is available only when detail objects are selected. The detail objects are copied as is.

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.



Save detail

A SAVE STANDARD FILE dialog box displays.

You are prompted to specify a file name to save the detail.

save detail to Library

The SAVE DETAIL dialog box displays.

See the BIMCREATEDDETAIL command.

Apply

Accept or reject suggestions by clicking on the tick.

Note: See the Apply option in the BIMPROPAGATE command.

7.41 BIMPROPAGATEEDGES command

Propagates a detail along the edge of a planar solid.



Icon:

7.41.1 Description

It propagates railings, gutters, borders, wall caps, etc.

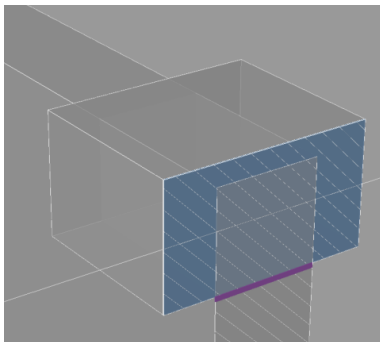
Note: The detail of BIMPROPAGATEEDGES will always be a 2D slice through a linear detail.

7.41.2 Method

Select planar reference solid to which the edge detail is related and the detail entities to be copied.

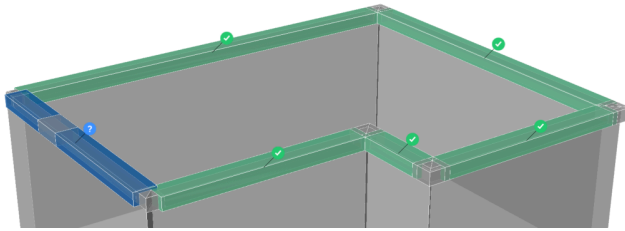
It can be used to copy details along edges of planar solids.

Note: The detail area to be copied is displayed in blue. The reference contact area is displayed in purple.



You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.



7.41.3 Options within the command

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.

Save detail

Displays the Save Drawing As dialog box, which allows you to save the detail.

save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

Yes

Only edges with similar orientation are selected.

No

All minor faces of similar planar solids are selected.

Outside reference solid

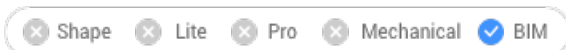
The propagated detail is placed outside the base solid. The volume of the base solids is not modified.

Inside reference solid

The propagated detail is placed inside the base solids. The volume of the detail is subtracted from the base solids.

7.42 BIMPROPAGATEFROMFILE command

Opens the Select source file dialog box.



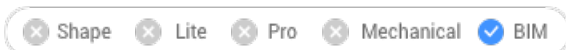
7.42.1 Description

Opens the Select source file dialog box to select a dwg file to propagate in the current drawing.

After selecting the file and choosing **Open**, you are prompted at the Command line. The prompt sequence depends on the type of detail you selected: **Planar**, **Linear**, **Pattern**, **Edge** or **Corner**. For more information see the relevant BIMPROPAGATE commands.

7.43 -BIMPROPAGATEFROMFILE command

Propagates a saved detail.





7.43.1 Description

Propagates a saved detail on all suitable connections in your project.

Note: The prompt sequence depends on the selected detail type: planar, linear, patter, edge or corner.

7.43.2 Method

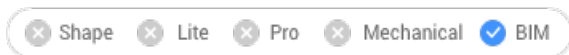
Specify the full path and file name of the saved detail.

You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.

7.44 BIMPROPAGATELINEAR command

Propagates connections between linear elements.



Icon:

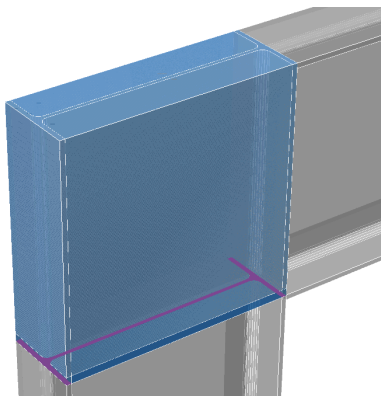
Linear elements accepted: beams, columns, pipes, ducts and their connections to walls and slabs.

7.44.1 Method

Select the linear or planar reference solids that form the connection and the detail entities to be copied.

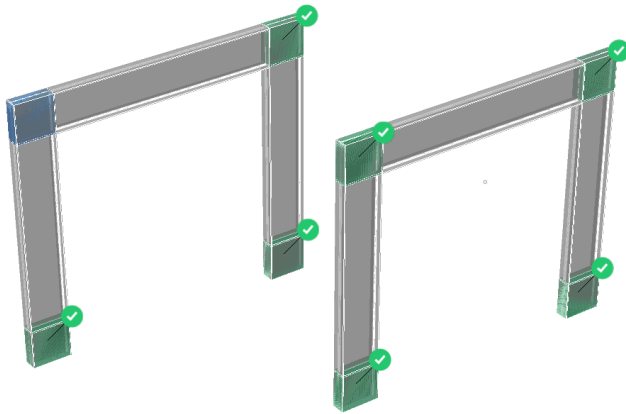
It can be used to copy detailed connections between two or more linear solids.

Note: The detail area to be copied is displayed in blue. The reference contact area is displayed in purple.



You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.



7.44.2 Options within the command

Block

Propagates the detail as a block.

Copy

Propagates the detail as a copy.

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.

Save detail

Displays the Save Drawing As dialog box, which allows you to save the detail.

save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

7.45 BIMPROPAGATEPATTERN command

Propagates a single element on a flat surface to multiple locations and grids.



7.45.1 Description

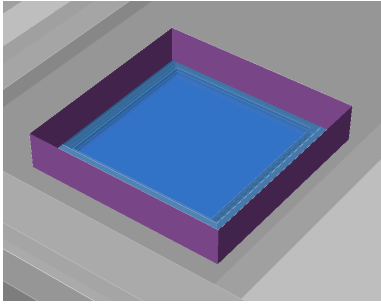
It propagates: lights, light switches, windows, air diffusers, etc.

7.45.2 Method

Select planar solid to which detail is related and the detail entities to be propagated.

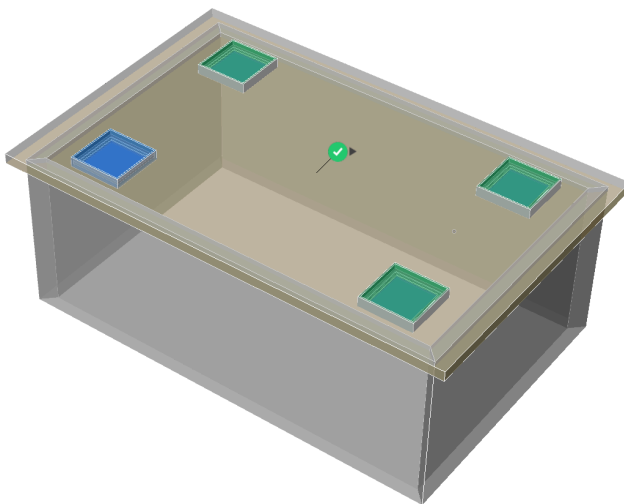
It can be used to copy objects to similar locations or over a certain pattern or grid on top of a planar solid.

Note: The detail area to be copied is displayed in blue. The reference contact area is displayed in purple.



You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.



Note: Hover over the tick to toggle between Similar location and Grid options.

7.45.3 Options within the command

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.

Save detail

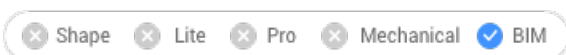
Displays the Save Drawing As dialog box, which allows you to save the detail.

save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

7.46 BIMPROPAGATEPLANAR command

Propagates connections between planar elements.





Icon:

Planar elements accepted: walls, slabs, roofs.

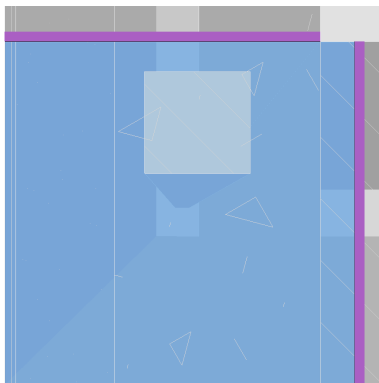
Note: The detail of BIMPROPAGATEPLANAR will always be a 2D slice through a linear detail.

7.46.1 Method

Select planar reference solids that form the connection and, optionally, detail entities to be copied as part of the connection.

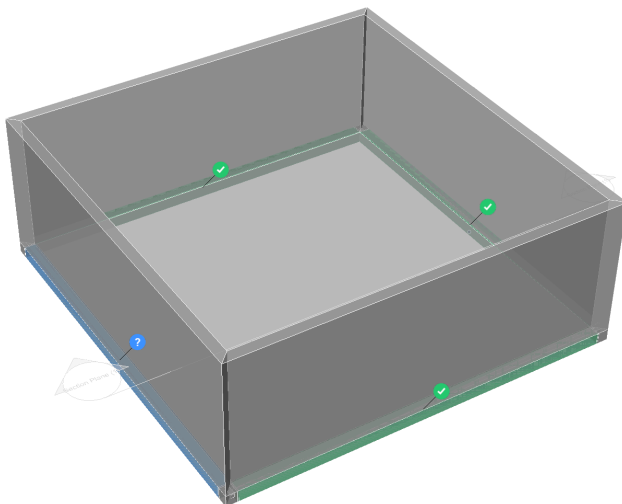
It can be used to copy detailed connections between two or more planar entities.

Note: The detail area to be copied is displayed in blue. The reference contact area is displayed in purple.



You can accept or reject suggestions by clicking on the tick.

- A green check mark means that the suggestion will be applied.
- A question mark means that the suggestion will not be applied due to one of several possible reasons.
- A red X mark means that the suggestion will not be applied.





7.46.2 Options within the command

Inflate first

Expands the sensitive zone to include similar solids which are not connected yet in the model. The edges of the initially detected detail are moved outward over a specified distance.

Save detail

Displays the Save Drawing As dialog box, which allows you to save the detail.

save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

7.47 BIMPROPERTIES command

Opens the **BIM Properties** dialog box.



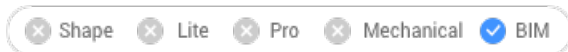
Icon:

7.47.1 Description

Opens the **BIM Properties** dialog box to create and manage BIM property definitions.

7.48 BIMPYTHON command

Allows Python Scripting and Querying of a BIM model.



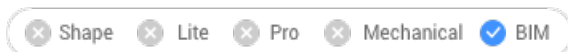
7.48.1 Method

Opens the Standard Open File - Python script dialog box and runs the chosen script.

Note: Python version shipped with BricsCAD is increased to 3.9.6.

7.49 BIMQUICKBUILDING command

Transforms solids into buildings.

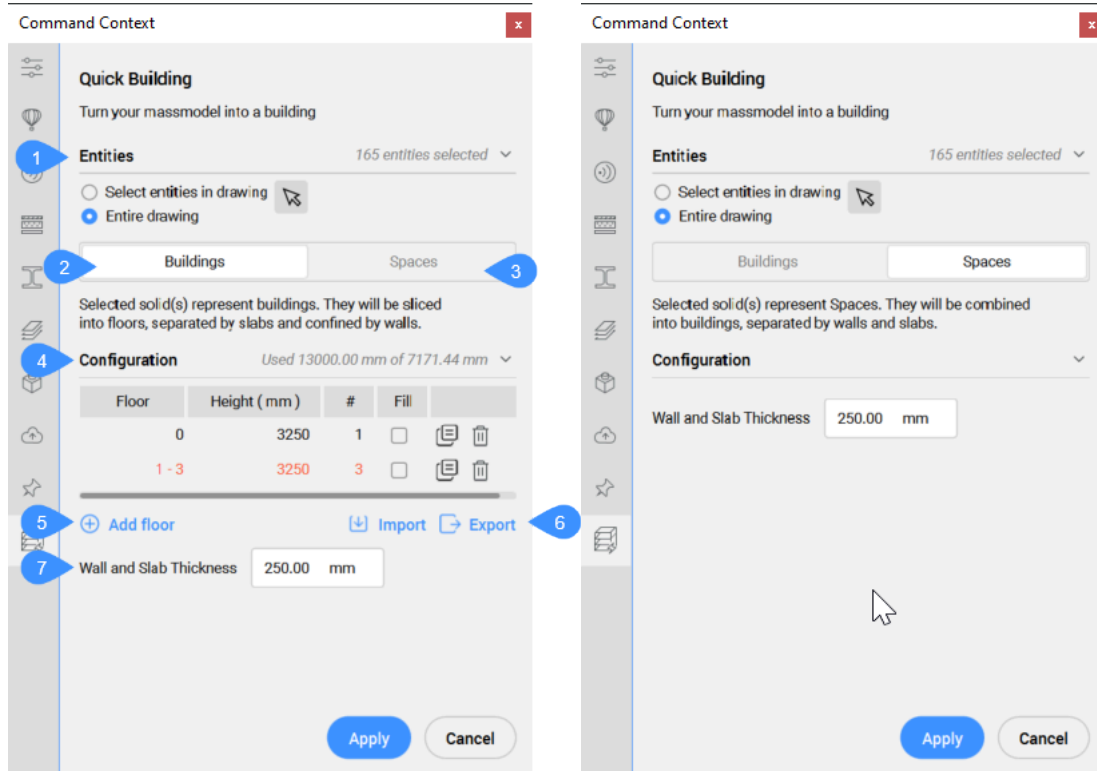


7.49.1 Description

Creates a separate drawing for the generated BIM building. In this drawing, walls, slabs and roofs, as well as spatial elements such as floors and spaces will be automatically created.

7.49.2 Method

The command opens the **Quick Building** command context panel.



- 1 Entities (selected)
- 2 Building mode
- 3 Spaces mode
- 4 Configuration
- 5 Add floor
- 6 Import / Export
- 7 Wall and Slab Thickness

Entities (selected)

Select entities in the drawing

Allows you to choose which entities to select.

Entire drawing

By default, the panel selects all 3D solids in the model space.

Buildings mode



Overlapping input solids will be unionized and for each resulting solid a building will be created. Additional input is needed to divide the building in multiple storeys. They will be sliced into floors, separated by slabs and confined by walls.

Configuration

Displays the elevation table.

- **Floor:** displays the storey number.
- **Height:** sets and displays the storey height (elevation value).



- #: sets and displays the number of equal storeys height (number of floors).
- **Fill**: if checked, an automatic number of storeys are generated according to the elevation input (**Height**) value and the remaining available height (elevation value).
- : duplicates a storey.
- : deletes a storey.

Add floor

Adds a storey.

Import / Export

Imports from or exports to an elevation table as .csv format file.

Wall and Slab Thickness

Sets and displays the value of the wall and slab thickness.

Note: The elevation input (**Height**) and **Wall and Slab Thickness** respects the insertion units of the drawing.

Spaces mode

The individual input solids will be considered as spaces in a building. For each group of touching solids, a building will be created. Each resulting building will consist of floor slabs and inner walls, corresponding to the touching face pairs of the input solids.

7.49.3 Options within the command

change Selection

Allows you to select entities in the drawing, as, by default, the entire drawing is selected.

Import

Uses a .csv or .txt file to configure the storey heights of the building.

Note: For instance, a text line for 2 storeys configuration can be:

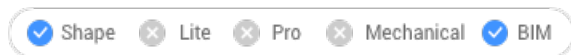
```
Floor;Height- mm;Amount;Fill  
0 - 10;3250.000000;11;Yes  
12 - 16;5000.000000;5;No
```

sPaces

Generates spaces for buildings.

7.50 BIMQUICKDRAW command

Creates and edits spaces and buildings.



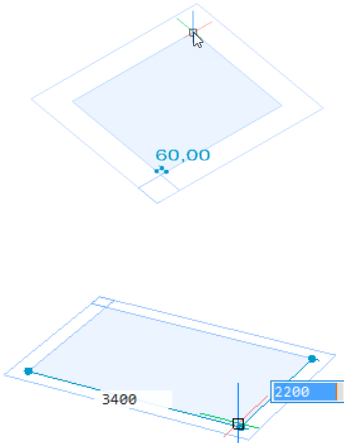
Icon: 



7.50.1 Description

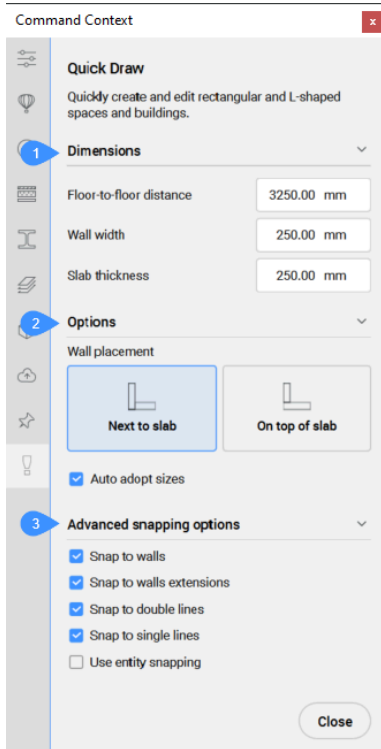
The command quickly creates and edits rectangular and L-shaped spaces and buildings. The layout of the **QuickDraw** cursor represents the space being created. It also indicates the alignment with existing walls and distances from existing solids.

Note: If dynamic input (**DYN**) is set to **On**, the dimensions are displayed as the spaces are created. The dimensions can also be entered manually.



7.50.2 Method

The command opens the **Quick Draw** command context panel. The **Hotkey Assistant** widget appears as well.



- 1 Dimensions
- 2 Options
- 3 Advanced snapping options

The **Hotkey Assistant** widget lets you change the justification of the walls.



7.50.3 Dimensions

Floor-to-floor distance (Floor height)

Sets the distance between the elevations of two subsequent floors.

Note: The default value is 3250mm.

Wall width

Sets the width of the walls being created.

Note: The default value is 250mm.

Slab thickness

Sets the slab thickness of the room.

Note: The default value is 250mm.

Note: The dimensions set in the command context panel become the new default values.



7.50.4 Options

Wall placement

Allows you to set the connection type between the slab and the outer walls.

- **Next to slab:** places the wall next to the slab.
- **On top of slab:** places the wall on top of the slab.

Auto adopt sizes

Controls whether wall width, wall height and slab thickness should be adopted from nearby rooms.

- **ON:** the width and height are adopted from the highlighted wall when you place the QuickDraw cursor against a wall to specify the first corner of a new room. When two walls of different height or width highlight (corner), the dimensions of the wall that highlights first are adopted.
- **OFF:** the dimensions used are those specified in the command panel.

7.50.5 Advanced snapping options

Snap to walls

Controls whether the room cursor should snap to walls.

Snap to walls extensions

Controls whether the room cursor should snap to extensions of walls.

Snap to double lines

Controls whether the room cursor should snap to parallel double lines placed a 'wall-width' apart.

Snap to single lines

Controls whether the room cursor should snap to single lines (e.g., grid lines, etc.).


Use entity snapping

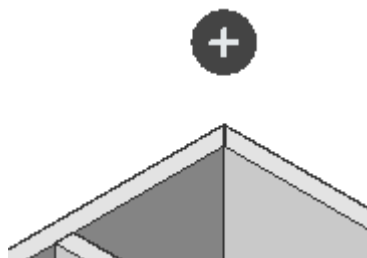
Controls whether the room cursor should also snap to entities using **ESNAP**.


Cancel

Closes the command panel and ends the command.



7.50.6 Add story widget

You can use the  widget to add a story to an existing building. For each new story added, you are able to select the desired wall placement configuration from the command context panel (or use the current setting), before choosing one of the options:



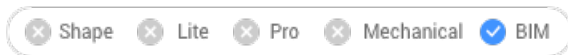
-  Full copy of the top floor.



-  Copies the slab and the outer walls of the top floor.
-  Finish the building with a top slab.

7.51 BIMQUICKWALL command

Creates X- and Y- axis aligned walls.



Icon: 

7.51.1 Description

Allows you to easily create X-axis or Y-axis aligned walls.

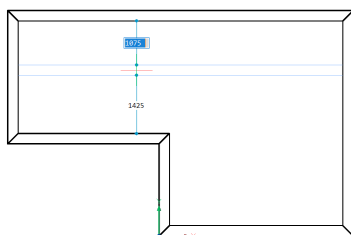
Note: The command only works if there is already a wall in the drawing. A red cross next to the cursor is displayed if the command is launched in a drawing without walls or when you click in the wrong place in a drawing to indicate the command cannot be used.



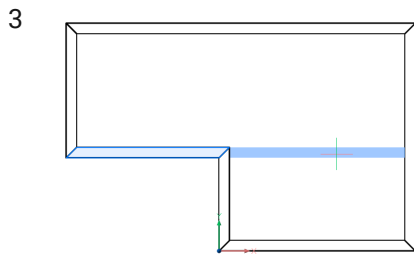
7.51.2 Methods

There are five methods to draw a wall using the BIMQUICKWALL command:

- 1 Between two parallel walls (both ends of the newly created wall are connected to the perpendicular walls).
- 1 **Note:** If dynamic input (**DYN**) is set to **On**, the distances to the parallel walls are displayed. Tap **TAB** key to switch between the dimensions and set them manually.



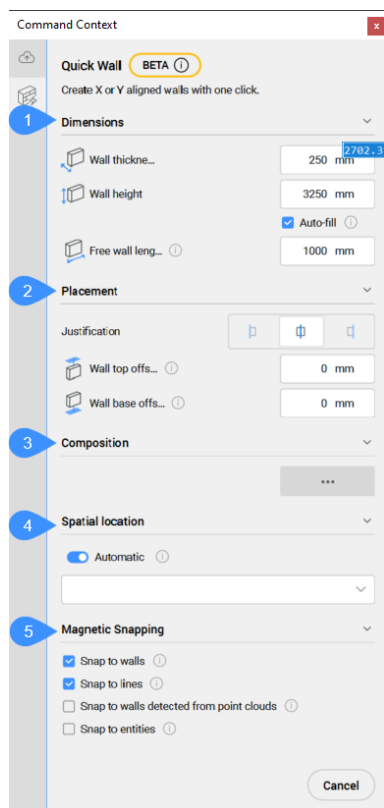
- 2 As an extension of an existing wall, where both ends of the newly created wall are connected to walls (one to the existing wall being extended and the other to the perpendicular wall).



- 4 As an extension of an existing wall, where only one end of the newly created wall is connected to the existing wall being extended (the other wall end is free).
- 5 As a free wall with a configurable fixed length (the ends of the newly created wall are not connected to other walls).
- 6 While in **Top View Mode** (TVM), by automatically detecting wall width from an underlying point cloud and setting it as the wall width value in the command context panel. The wall preview cursor adopts this width as well and sticks to the wall location.

Note: To enter the TVM, open the **Story Bar** by setting the STORYBAR system variable to 1 or 2, then click a story disk to activate a story.

The **Quick Wall** command context panel opens when the BIMQUICKWALL command is launched, as well as the **Hotkey Assistant** widget.



- 1 Dimensions
- 2 Placement



- 3 Composition
- 4 Spatial location
- 5 Magnetic Snapping

Dimensions

Allows you to define the walls dimensions.

Wall thickness

Sets the thickness of the walls being created.

Wall height

Sets the height of the walls being created.

Auto-fill

Automatically fills in the **Wall height** field by searching for solids above the wall to connect to.

Free wall length

Sets the length of the free walls being created.

Placement

Allows you to define the walls placement.

Justification

Allows you to select the wall justification.

Wall top offset

Sets the top offset from the slab detected above the walls being created.

Note: This option becomes unavailable when the **Auto-fill** option is set to **Off**.

Wall base offset

Sets the base offset from the slab detected bellow the walls being created.

Composition

Click the browse button () to open the **Compositions** dialog box that lets you select a wall composition.

Spatial Location

You can accept the automatically assigned spatial location or define a new one by selecting an option from the drop-down menu.

Automatic

Assigns the detected building and floor to the walls being created.

Note: Selecting a different spatial location than the one automatically assigned toggles the **Automatic** option to **Off**.

Magnetic Snapping

Toggles **On/Off** multiple magnetic snapping options.

Snap to walls

Controls whether the wall cursor should snap to existing walls.

Snap to lines

Controls whether the wall cursor should snap to existing lines.



Snap to walls detected from point clouds

Controls whether the wall cursor should snap to wall detected from point clouds.

Snap to entities

Controls whether the wall cursor should snap to entities in the drawing.

The **Hotkey Assistant** widget lets you change the direction of the walls to be created. You can press **Ctrl** key to switch between **X-aligned wall** and **Y-aligned wall** options.



Note: The **Hotkey Assistant** widget is displayed if the `HOTKEYASSISTANT` system variable is set to 1 and the **Display Hotkey Hints for BIMQUICKWALL options** checkbox is ticked in the **Hotkey Assistant Configuration** dialog box.

7.51.3 Options within the command

X-aligned wall

Creates an X-aligned wall.

Y-aligned wall

Creates a Y-aligned wall.

7.52 BIMREASSOCIATE command

Automatically re-associates invalid Tags and Dimensions to the underlying geometry.

7.52.1 Description

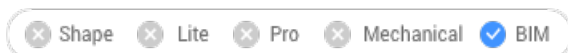
Select a BIM section viewport in order to automatically re-assign invalid Tags and Dimensions to the underlying geometry.

Note: The BIM **Associativity** property indicates whether a tag is associated.

Note: The BIM **Associative coloring** property visualizes an unassociated tag in red, if true. It doesn't change the color property. After re-associating, BIM tags are displayed in their layer color.

7.53 BIMRECALCULATEAXIS command

Recalculates and repositions the axis of linear building elements.



Icon:

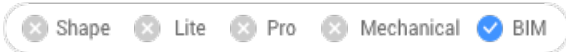
7.53.1 Description

Recalculates the axis of linear building elements and repositions it back on the center line of a linear element. When the command is run, select all linear solids for which to recalculate the axis.



7.54 BIMROOM command

The BIMROOM command is obsolete and has been replaced by the BIMSPACE command.



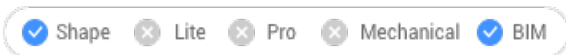
Icon:

Note: You can still open BIM rooms, but it is not possible to create new BIM rooms or update their geometry.

Note: Use the Space option of the BIMCLASSIFY command to convert a BIM room to a BIM space.

7.55 BIMSECTION command

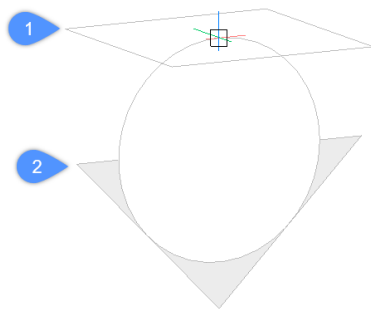
Creates a BIM section entity.



Icon:

7.55.1 Description

Creates a BIM section plane entity (1) in the XY-plane of the current coordinate system (WCS or UCS), with the view direction (2) in the negative Z-direction of the current coordinate system.



Note: If dynamic UCS (UCSDETECT) is **On**, the section plane aligns to the face of a 3D solid under the cursor.

BIM section entities are created on a dedicated BIM_SECTIONS layer.

7.55.2 Methods

There are three types of BIM section entities that can be created using the BIMSECTION command:

- Plan section type: displays a horizontal section plane.
- Section section type: displays a vertical section that cuts through the model.
- Elevation section type: displays the exterior elevation view.

Note: You can change the BIM section type in the **Properties** panel.

Note: The GENERATEASSOCVIEWS system variable controls if VIEWSECTION produces 2D drawings which are persistently associated with the source 3D model. If GENERATEASSOCVIEWS is **On**, associative



dimensions are updated automatically when the 3D model is modified and BIMSECTIONUPDATE is executed.

7.55.3 Options

Select a point to place section

Specify a point.

Note: The section plane displays dynamically parallel to UCS XY-plane, through the cursor position.

Specify distance

Type a distance or specify a point.

Note: It is recommended to have Dynamic Dimensions (DYN) active. It allows to enter the distance in the dynamic entry field.

Note: The section plane is defined through the point or at the specified offset from the first point. The section line is parallel to the X-axis of the UCS or dynamic UCS and through the point at the specified offset from the first point.

Note: Only the section line and the callouts of a BIM Section entity display. When highlighted or selected the section plane, section boundary and/or section volume display.

set clipping on

Sets the clip display property to **On**.

Note: This option is set by default. If the Hot Key Assistant (HKA) system variable is **On**, press the Ctrl key to toggle the clip display property off.

Note: Multiple sections can have the clip display **On** simultaneously. This property can be saved in a model view (see the VIEW command).

set clipping Off

Sets the clip display property to **Off**.

Note: You can change the clip display property in the **Properties** panel.

Detail

Creates a Detail section type.

Based on an existing section

Creates a Detail section type based on an existing section. The base rectangle of the detail section will be parallel to the section plane of the selected section.

Interior

Creates interior elevations and a floor plan of a space.

Note: The **BIM/Interior elevation** property of a space is set to **On**. Use the BIMSECTIONUPDATE command to update the interior elevation.

Scale

Sets the **Scale** property of the viewport in the drawing file created by the BIMSECTIONUPDATE command.

Note: The default **Scale** is saved through the SECTIONSCALE user preference (default value is 0.02) in the **Settings** dialog box.



Reflected ceiling

Creates the plan of a ceiling projected onto the section plane.

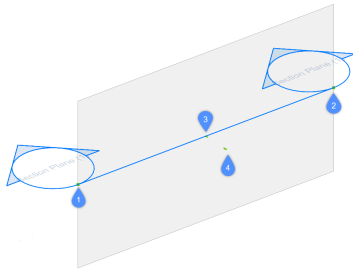
Note: A reflected ceiling plan shows the size and location of light fixtures and other structures on the ceiling. The clip display property of a reflected ceiling section is **Off** by default.

7.55.4 Grips editing

BIM section entities can be edited through grips, depending on their state.

- Plane state:

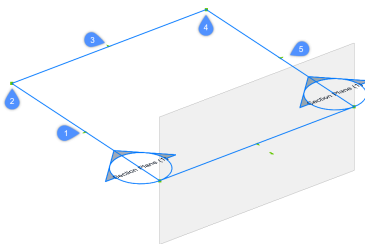
•



- Start grip (1) allows to move the section and the position of the Start callout.
- End grip (2) allows to modify the orientation of the section and the position of the End callout.
- Center grip (3) allows to move the section and the position of the Mid callout.
- The arrow (4) flips the view direction.

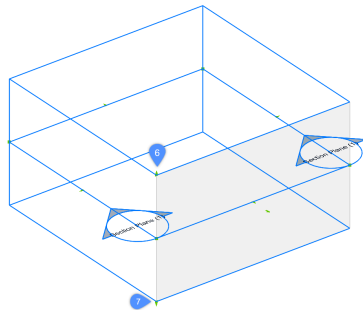
- Boundary State:

•



- Midpoint grip (1) allows to move the section entity.
- Corner grip (2 & 4) allows to deform the section boundary/volume.
- Midpoint grip (3 & 5) allows to stretch the section boundary/volume.

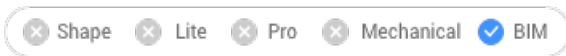
- Volume State:



- (6) allows to move the top plane of the section entity.
- (7) allows to move the bottom plane of the section entity.

7.56 BIMSECTIONOPEN command

Opens the drawing file related to a BIM section entity.



Icon:

7.56.1 Description

Opens the drawing file related to a BIM section entity, or the 3D BIM model related to a BIM section drawing.

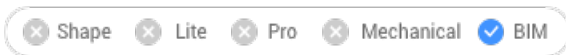
7.56.2 Method

There are two methods to use BIMSECTIONOPEN command:

- Select a BIM section entity in Model Space.
- Select a BIM section result (a viewport) in Paper Space.

7.57 BIMSECTIONUPDATE command

Updates the result of a BIM section entity.



Icon:

7.57.1 Description

Generates or updates the result of a BIM section in a drawing.

Note: The GENERATEASSOCATTRS system variable controls the generation of associative data on 3D solids during modeling. When set to **On**, 3D solids contain associative data from the moment of creation. This allows BIMSECTIONUPDATE to produce drawings for which dimensions and tags can be automatically updated when the 3D model is modified.

Note: When GENERATEASSOCVIEWS system variable is ON, the BIMSECTIONUPDATE command will generate/update the section indicators, grid callouts and story callouts.

Tags are not automatically generated with the BIMSECTIONUPDATE command.

Story indicators, section indicators and grid callouts are generated in paper space and are essentially BIM tags.

7.57.2 Method

There are two methods to use the BIMSECTIONUPDATE command:

- Generate the result of a BIM section entity.
 - Note:** If the **Interior** option of the BIMSECTION command was used during the creation of the BIM section, BIM spaces can also be selected.
- Update the result of a BIM section.
 - Note:** Select a BIM section entity in the Model Space or a viewport in the Paper Space layout.

After BIMSECTIONUPDATE, all BIM tags and annotations will have the new properties **Associativity** and **Associative Coloring** attached. When **Associativity** is **Not Associated** and **Associative Coloring** is **On**, the annotation will be visualized in red, but the native property color of the entity will not be changed.

You can add a background image to the BIM section result viewport by setting that viewport's **(Beta) Generate background** property to **Raster image** or **Line drawing + Raster image** before running the BIMSECTIONUPDATE command. For more information, see the article **Generating drawings**.

7.58 BIMSETLOADBEARINGDIRECTION command

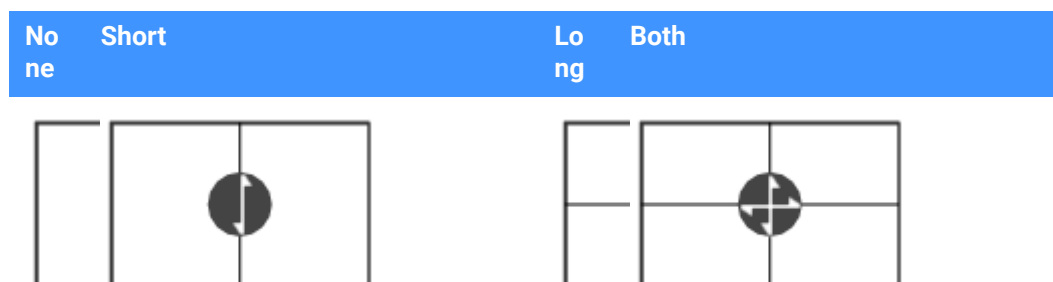
Sets the loadbearing direction for BIM slab solids.



Icon: 

7.58.1 Method

An icon is displayed in the center of the slab after selecting a slab solid. Set the loadbearing direction for BIM slab solids by clicking on the icon.



7.59 BIMSETREFERENCEFACE command

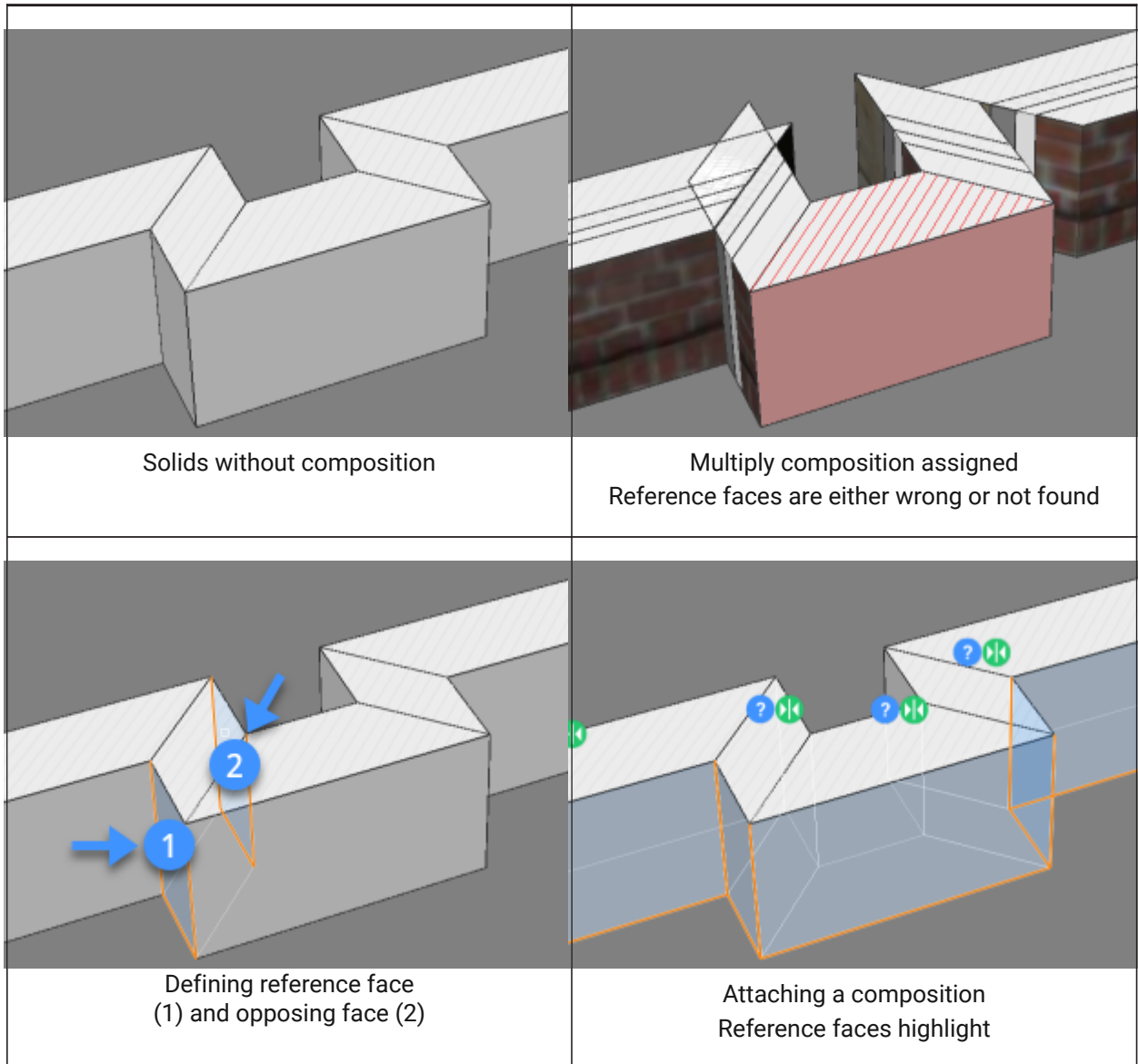
Defines a reference and an opposing face to control the ply layout of a composition.

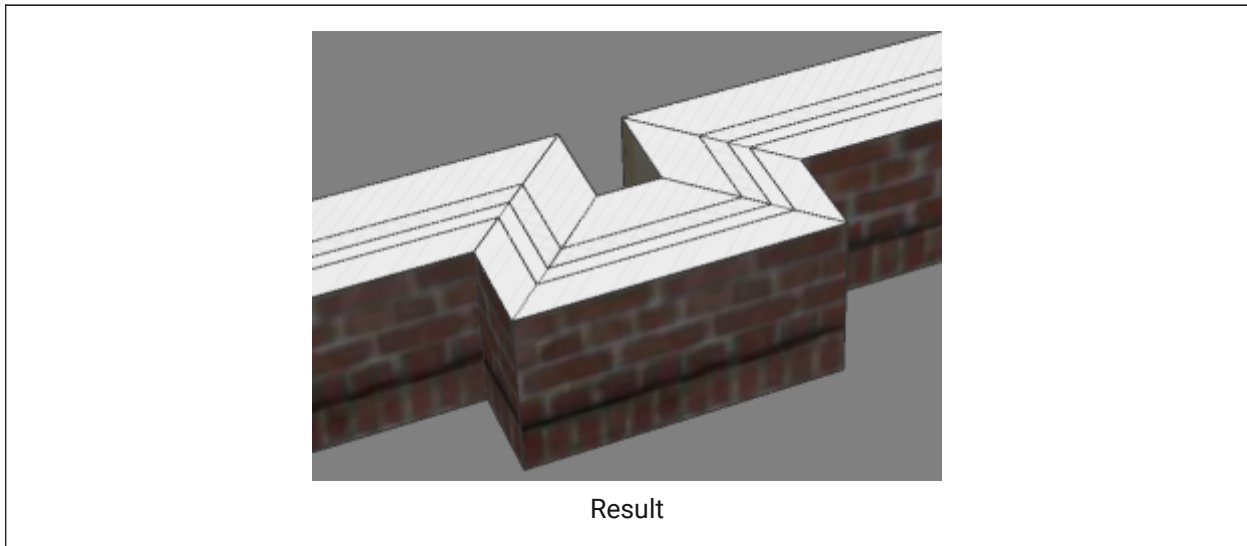


7.59.1 Methods

The reference face can be set manually by selecting a face. If the opposing face is parallel to the reference face, a suggestion for the opposing face is given and can either be accepted or be changed.

Note: If one of the plies of the composition has a variable thickness, the reference and opposing face can be non-parallel. In this case the fixed thickness plies are set out starting from the reference face, and the remainder of the solid is filled by the variable ply.





7.59.2 Options

Select manually

Selects the opposite face manually.

7.60 BIMSLICEWALL command

Slices a selected wall vertically.



Icon:

7.60.1 Method

Select a wall, a wall-like solid or a linear solid. The BIMSLICEWALL command automatically defines the plane as a vertical plane, perpendicular to the length direction of the solid.

A blue line displays at the cursor, from the cursor to both ends of the solid, which allows to precisely indicate the slicing position dynamically.

7.61 BIMSPACE command

Creates BIM Space entities from enclosed boundaries.



Icon:

7.61.1 Description

Creates BIM Space entities by picking a point inside an enclosed area defined by space bounding entities.



Note: Space bounding entities are 3D solids or linear 2D entities, which are classified as a BIM entity and having **Space bounding** property set to **On**. If the **Centerline** property of a space bounding solid is set to **On**, the center of the solid is used as the space boundary.

A label is created at the geometric center of space.

Note: The **Space** option of the BIMCLASSIFY command converts any 2D or 3D entity into a BIM Space entity.

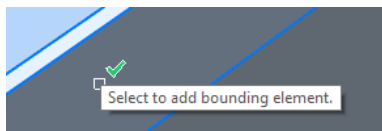
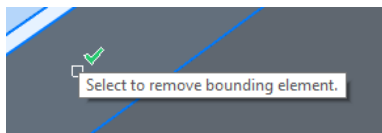
The height of the space is defined by:

- The top face of the highest bounding entity.
- The **Default Space Height** user preference, when all bounding entities are 2D linear entities.

7.61.2 Options within the command

Edit

Launches the **Edit** mode, which allows to add or remove space bounding entities in a Space by clicking them.



Note: After editing, launch the BIMUPDATESPACE command to update the space.

Note: If the **Update method** property of the space is set to **Manually**, the space cannot be updated by the BIMUPDATESPACE command. This can be solved by setting this property to **Automatic**.

Note: The BIM Spaces properties can be edited in the **Properties** panel.

BIM Space Properties

Representation

Sets the visual representation of the BIM Space:

- **Footprint:** Space stamp only.
- **Solid:** Transparent 3D solid. The height of the solid is copied from the surrounding wall solids.

Status

Specifies the status of the Space.

Note: If the space is out-of-date, an exclamation mark icon is displayed next to the space stamp. This can be solved with the BIMUPDATESPACE command.

Name

Sets the name of the space, which is also visible on the space stamp.

Description

Describes the space.



Building

Specifies the building to which the space is assigned to.

Story

Specifies the story to which the space is assigned to.

Number

Assigns a new number to the space. By default the space is automatically numbered.

Interior Elevations

Controls the display of **Interior Elevations**. If interior elevations are not created yet, the property is disabled.

Entity property sets

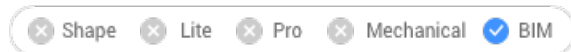
Click the **Browse** button to open the **Enable per-instance property set** dialog box, then check the **User** namespace.

Note: Additional properties can be created using the BIMPROPERTIES command.

Note: Assigning a **Space** property to a building element overrides the element's **Story** and **Building** properties with those of the space.

7.62 BIMSPATIALLOCATIONS command

Create and edit site, buildings and stories.



Icon:

7.62.1 Description

Displays the **Spatial Locations Manager** dialog box.

7.62.2 Options within the command

Dialog

Opens the **Spatial Locations Manager** dialog box.

add Building

Adds a new building to the model.

Rename Building

Renames a building.

add Story

Adds a new story in the selected building.

Rename Story

Renames a story.

sEt story elevation

Sets an elevation for an existing story by entering the elevation value or select a point.



Point

Sets the point for story elevation.

7.63 BIMSPPLIT command

Splits segmented solids into separated solids.



Icon:

7.63.1 Description

Automatically splits segmented solids into separate solids and allows to split a solid using a selection of cutting faces. Specifically designed to recognize planar & linear shapes such as walls, slabs & columns it can help you split your mass model into separate entities, which is necessary for a typical BIM workflow.

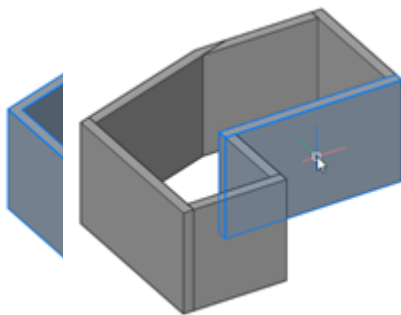
7.63.2 Method

Select a solid for auto splitting

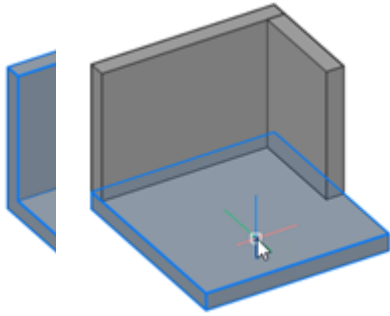
One method is to select an entire solid and let BIMSPPLIT decide automatically where the solid should be cut. This will be done along logical cutting faces, yielding results as shown in the table below.

Note: For complex geometry BIMSPPLIT may not give the expected result. In that case, try simplifying by first splitting the geometry into smaller parts manually.

Solid selected ...split into 7 separate solids

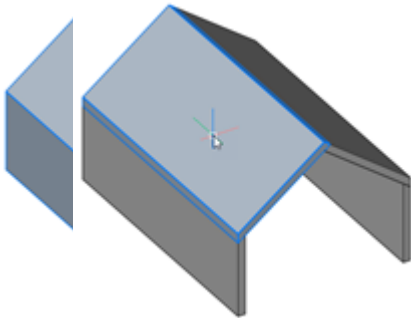


Solid selected ...split into 3 separate solids



Solid selected ...split into 4 separate solids

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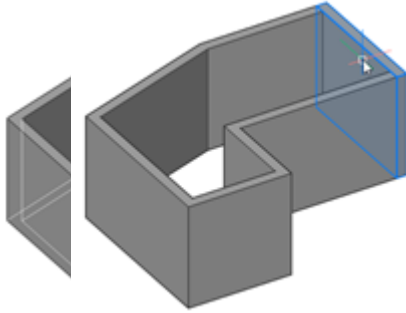


Select cutting faces for manual splitting

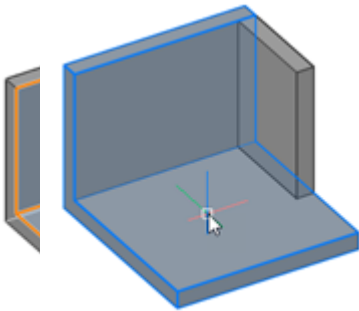
Another method is to select cutting faces manually. This behavior is similar to the SLICE command, the main difference being that it is possible to select multiple cutting faces. Adjacent cutting faces will keep their respective parts of the solids intact.

One cutting face selected ... split into 2 separate solids

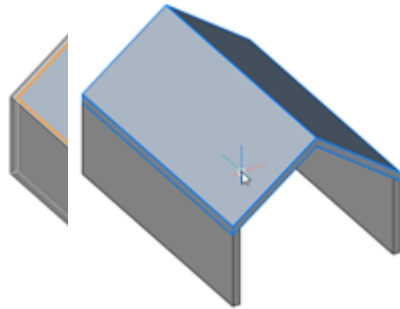
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...



Two cutting faces selected ...



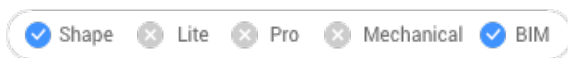
Two cutting faces selected ...



Note: Inserts, such as windows and doors, which existed in the split solid are removed.

7.64 BIMSTAIR command

Creates stairs.



Icon: 

7.64.1 Description

Creates stairs between two floor slabs or any empty spaces. This command is using the distance between the Z-values of the selected start plane and end plane as height.

The stairs display automatically when the cursor is moved. The type of stair being created depends on the position of the cursor with respect to the position of the selected start point.

Note: The staircase is created as a parametric block. The Stair Type is assigned automatically and can be edited in the **Properties** panel. Editing this property does not affect the geometry of the staircase.

7.64.2 Method

There are two methods to create stairs using the BIMSTAIR command:

- Select a horizontal face of a solid.
- Select a void area.

The **Stair** command panel opens, which allows you to easily change the settings while placing the stair.



Stair

Stair width 1000.00 mm

Head room 2000.00 mm

Automatically flip/quarter-turn

Preferred tread length 290.00 mm

Preferred riser height 170.00 mm

Step thickness 50.00 mm

Nosing 50.00 mm

Final tread

Final tread length 290.00 mm

Landing extension up 0.00 mm

Landing extension down 0.00 mm

Cancel

Stair width

Sets the stair width of the stairs.

The default value is 40 for MEASUREMENT=0 (inches), and 1000 for MEASUREMENT=1 (millimeters).

Head room

Sets the minimal head clearance of the stairs.

The default value is 80 for MEASUREMENT=0 (inches), and 2000 for MEASUREMENT=1 (millimeters).

Automatically flip/quarter-turn

Toggles the stairs type.

Preferred tread length

Sets the preferred tread length of the stairs.

The default value is 11.5 for MEASUREMENT=0 (inches), and 290 for MEASUREMENT=1 (millimeters).

Preferred riser height

Sets the preferred riser height of the stairs.

The default value is 7 for MEASUREMENT=0 (inches), and 170 for MEASUREMENT=1 (millimeters).

Step thickness

Sets the thickness of the individual steps.

The default value is 2 for MEASUREMENT=0 (inches), and 50 for MEASUREMENT=1 (millimeters).

Nosing

Sets the horizontal distance of the overlap between subsequent treads.

The default value is 2 for MEASUREMENT=0 (inches), and 50 for MEASUREMENT=1 (millimeters).

Final tread

Controls the creation of a tread at the elevation of the top bounding slab.

Final tread length

Sets the length of the final tread.

The default value is 11.5 for MEASUREMENT=0 (inches), and 290 for MEASUREMENT=1 (millimeters).

Landing extension up

Sets the extension of the landings created with the BIMSTAIR command in the **up** direction. Default value is 0.

Landing extension down

Sets the extension of the landings created with the BIMSTAIR command in the **down** direction. The default value is 0.

Note: The last value for the above settings are remembered.

Note: For all properties, parameters will be created when creating the stair, driving the constraints of the parametric stair block. These parameters can be changed individually afterward in the **Parameters** section of the **Properties** panel.

7.64.3 Options within the command

Quarter-turn

Turns the direction of the stair cursor by 90 degrees.

Note: Alternatively, you can press the **Ctrl** key to turn the stair cursor by 90 degrees.

Flip

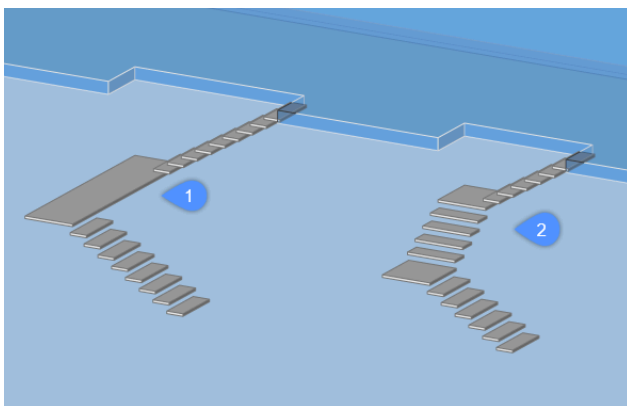
Turns the direction of the stair cursor by 180 degrees.

Note: Alternatively, you can press the **Ctrl** key to turn the stair cursor by 180 degrees.

U-shape type

Switches between two different U-shape type stairs:

- Double-flight U-shaped stairs (1): with a single rectangular landing solid bridging the perpendicular distance between both opposing stair flights.
- Triple-flight U-shaped stairs (2): with two square landing solids between each pair of subsequent stair flights.



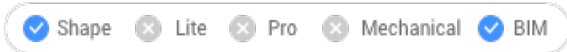
Note: Press the **Ctrl** key to switch between the possible stair types with respect to the current position of the stair cursor.

Note: To use the **Ctrl** key functions, the HOTKEYASSISTENT must be set to **On**.



7.65 BIMSTRETCH command

Stretches the ends of linear solids.



7.65.1 Description

Stretches the ends of linear solids while maintaining previously made connections between other linear solids in the overall structure.

7.65.2 Method

There are two methods to use BIMSTRETCH command:

- Stretch structural connections.

Note: Stretching elements that are classified as Beam, Column or Member.

- Stretch MEP connections.

Note: Stretching elements that are classified as Flow segments.

Before using the BIMSTRETCH command make sure that:

- 'Display sides and ends' is enabled.
- 'Display Axes' is enabled.
- Structural profiles are connected with StructuralConnect.
- MEP connections are connected with FlowConnect.

Note: Before running the command, select the ends of the entities that will be modified.

7.65.3 Options within the command

Base Point

Specifies new basepoint to start the displacement from.

Copy

Makes a copy of the connected entities and places them in the new position.

Undo

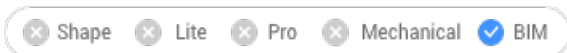
Undoes the last action.

Exit

Exits the command.

7.66 BIMSTRUCTURALCONNECT command

Connects structural profiles.



Icon: 



7.66.1 Description

Connects structural profiles such as beams, columns and members.

7.66.2 Method

There are two methods to use BIMSTRUCTURALCONNECT command:

- Select two solids.
- Select multiple solids.

Note: The axes of the solids must be coplanar.

7.66.3 Options

Select base solid

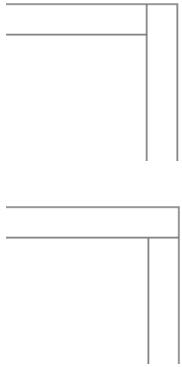
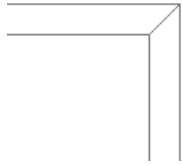

Specifies the base solid.

Note: : This option is only available for L-connection.

Switch

Allows to choose between different types of L-connections:

- Butted connection
- Mitered L- connection
- Touching/disconnected connection

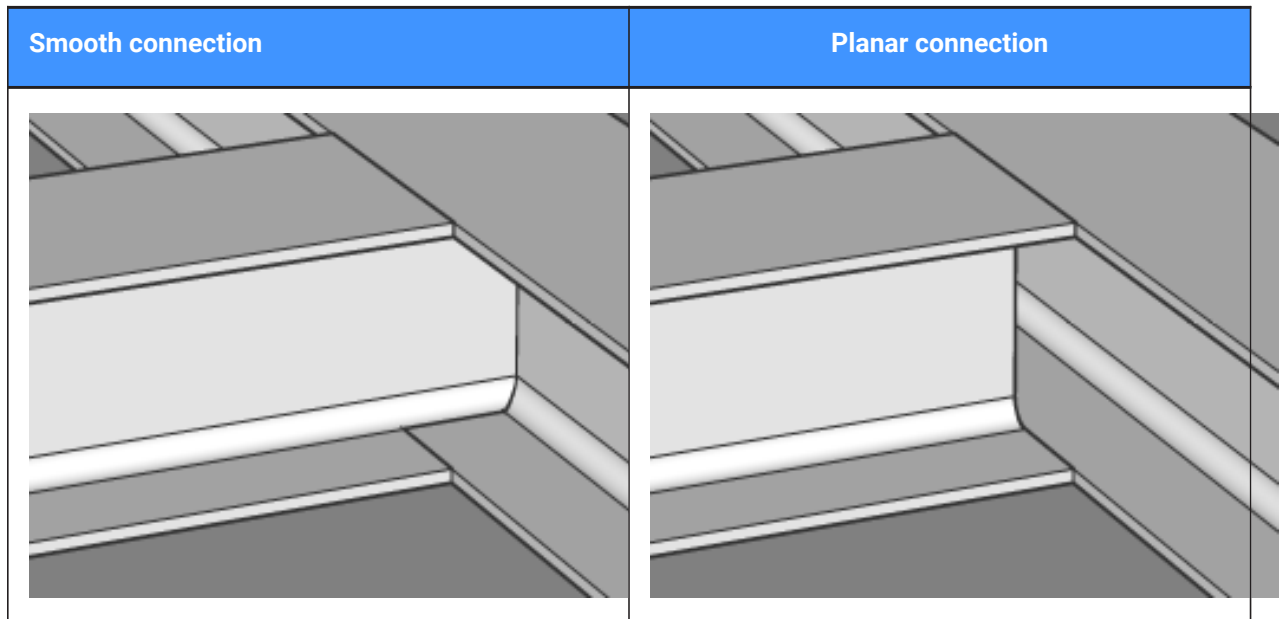
Butted Connection	Mitered L-connection	Touching connection
		

Note: : Press the Ctrl key to cycle between the connection types. Hot Key Assistant must be set ON.

Note: If a T-connection is created, there are no options available.

Connection cut type

Depending on the DMCONNECTIONCUTTYPE system variable value, the connection type can be smooth or planar.



7.67 BIMTAG command

Creates associative tags.



Icon: 

7.67.1 Description

Creates associative tags in generated BIM section drawings for the corresponding building elements in a 3D BIM model. The tags will have an **Associativity** property and an **Associative coloring** property. The **Associativity** property indicates whether a tag is associated to a BIM element. The **Associative coloring** property visualizes an unassociated tag in red, if the property value is **On** (this doesn't affect the entity's **Color** property).

Note: This command can only be used on section viewports.

Note: The GENERATEASSOCVIEWS system variable must be **ON** when generating or updating tags.

7.67.2 Method

The tags are created automatically for the selected building elements.

Note: Tags are created as multileader entities using multileader styles in `_SectionTag.dwg`. The content of such a multileader style can be a field referring to a property of BIM entity type or is a block with attributes. Each attribute refers to a property of a BIM entity type. BIM entity types are linked to a multileader style in `_TagTypeToStyle.xml`. All source files can be found in the Support folder, for example: `C:\Users\<UserName>\AppData\Roaming\Bricsys\BricsCAD\V23x64\en_US\Support\Bim\Sections`.

Note: Section indicators, story indicators and grid call-outs are generated automatically within section update.



Note: Grid and Space call-outs are stored in the _SectionSettings.dwg file.

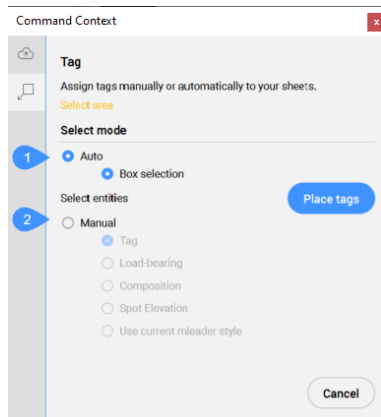
The selection modes are:

- **Automatic:** select a viewport.
- **Box selection:** select an area of a viewport.
- **Manual:** individually select entities in the viewport by picking a point on their surface.

Note: If the selected point is shared between multiple BIM entities, use the **Ctrl** key to cycle through the different possible tags.

Note: Both **Manual** and **Box selection** modes allow you to tag background entities.

The command opens the **Tag** command context panel to let you access the options and see useful messages and instructions.



1 Auto

2 Manual

Auto

Creates tags automatically for all sectioned building entities in the selected viewport, including section indicators, story indicators and grid callouts.

Box selection

Creates tags for all entities in a selected area of viewport. After selecting the area, click the **Place tags** button to have the tags created in the viewport.

Manual

Creates a tag with the selected tag type for the selected element in a viewport.

Tag

Allows you to pick a point on the element, then drag the tag to adjust its position and left-click to place it.

Load-bearing

Inserts a load-bearing direction symbol when a generated line of a slab solid is selected. Make sure the load-bearing direction is set by the BIMSETLOADBEARINGDIRECTION command.

Composition

Tag with all materials of composition of the sectioned BIM element.



Spot Elevation

Inserts a tag that indicates the elevation of the identified point in elevations and vertical sections.

Note: The following options are available only if tags have already been assigned to the section.

Use current mleader style

Allows to use the current multileader style instead of the default style for selected sectioned BIM elements.

Note: Both **Manual** and **Box Selection** modes allow you to tag background entities.

Note: If the selected point is shared between multiple BIM entities, use the **Ctrl** key to cycle through the different possible tags.

The options within the command context panel can also be accessed from the command line.

7.67.3 Options within the command line

change Tag type

Changes the type of the tags to be created.

Note: The following options are available only if tags have already been assigned to the section.

Update existing

Updates the existing tags in the selected viewport. The position of relocated tag blocks is preserved.

update existing and add New

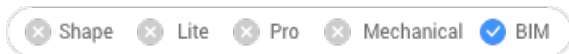
Updates the existing tags in the selected viewport and adds new tags.

Regenerate all

Updates all tags in the selected viewport. Repositioned tag blocks are moved to their default location.

7.68 BIMTRIM command

Trims a wall.



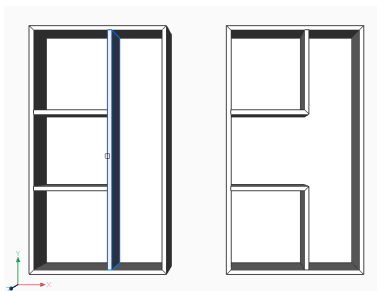
Icon:

7.68.1 Method

The command trims a part of a wall by automatically detecting other walls and using them as trim objects.

Select wall

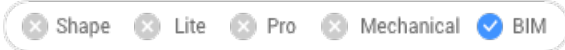
Select the part of the wall that should be trimmed.





7.69 BIMUPDATESPACE command

Recalculates a BIM space which is out-of-date.



Icon:

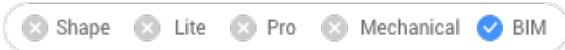
7.69.1 Description

Recalculates a BIM space which is out-of-date, for example, after adding or removing bounding entities. After the command is run, select all spaces to update.

Note: Only spaces that have the **Update method** property set to **Automatic** can be processed.

7.70 BIMUPDATETHICKNESS command

Re-applies the overall thickness of a composition to the solid.



Icon:

7.70.1 Description

Re-applies the overall thickness of a composition to the solid by selecting the solid.

Note: Only solids that need to be updated are processed.

7.70.2 Options within the command

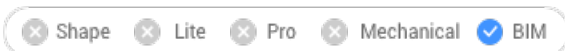
Symmetrical Update

Allows to update the thickness symmetrically or with respect to the reference face (See BIMATTACHCOMPOSITION command).

Note: If the thickness is updated symmetrically, the position of the axis of the solid is preserved.

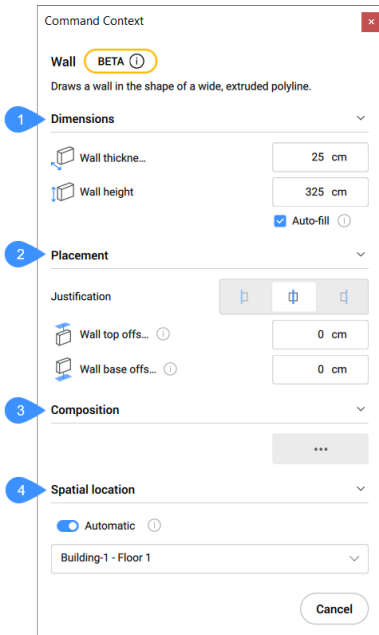
7.71 BIMWALL command

Draws a polyline shaped wall, unconstrained by the X or Y axis.



7.71.1 Method

The command creates walls unconstrained by the X or Y axis. You can define the options through the command context panel that opens when the command is launched, as well as through the Command line.



- 1 Dimensions
- 2 Placement
- 3 Composition
- 4 Spatial location

Dimensions

Allows you to define the walls dimensions.

Wall thickness

Sets the thickness of the walls being created.

Wall height

Sets the height of the walls being created.

Auto-fill

Automatically fills in the **Wall height** field by searching for solids above the wall to connect to.

Placement

Allows you to define the walls placement.

Justification

Allows you to select the wall justification.

Wall top offset

Sets the top offset from the slab detected above the walls being created.

Note: This option becomes unavailable when the **Auto-fill** option is set to **Off**.

Wall base offset

Sets the base offset from the slab detected below the walls being created.

Composition

Click the browse button () to open the **Compositions** dialog box that lets you select a wall composition.



Spatial Location

You can accept the automatically assigned spatial location or define a new one by selecting an option from the drop-down menu.

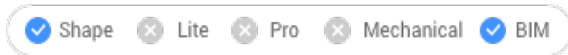
Automatic

Assigns the detected building and floor to the walls being created.

Note: Selecting a different spatial location than the one automatically assigned toggles the **Automatic** option to **Off**.

7.72 BIMWINDOWCREATE command

Creates a fully parametric window or opening based on a closed contour.



Icon:

7.72.1 Description

Creates parametric windows using as profile any entity such as a boundary, a closed polyline or grid.

Note: A series of parameters is created, which can be edited in the Parameters section of the Properties panel.

7.72.2 Options within the command

Window

Creates a BIM Window entity. An opening in the solid on which the profile entity lies is created automatically. The Choose Window Style dialog box opens and the windows style can be chosen.

Opening

Creates an opening in the solid on which the profile entity lies. The opening is created by a solid on the BIM_SUBTRACT layer. This layer is frozen by default. Thaw the layer to select the opening.

7.73 -BIMWINDOWCREATE command

Creates a fully parametric window or opening based on a closed contour.



7.73.1 Description

Creates parametric windows using as profile any entity such as a boundary, a closed polyline or grid.

Note: This command operates at the Command line.

7.73.2 Options

window

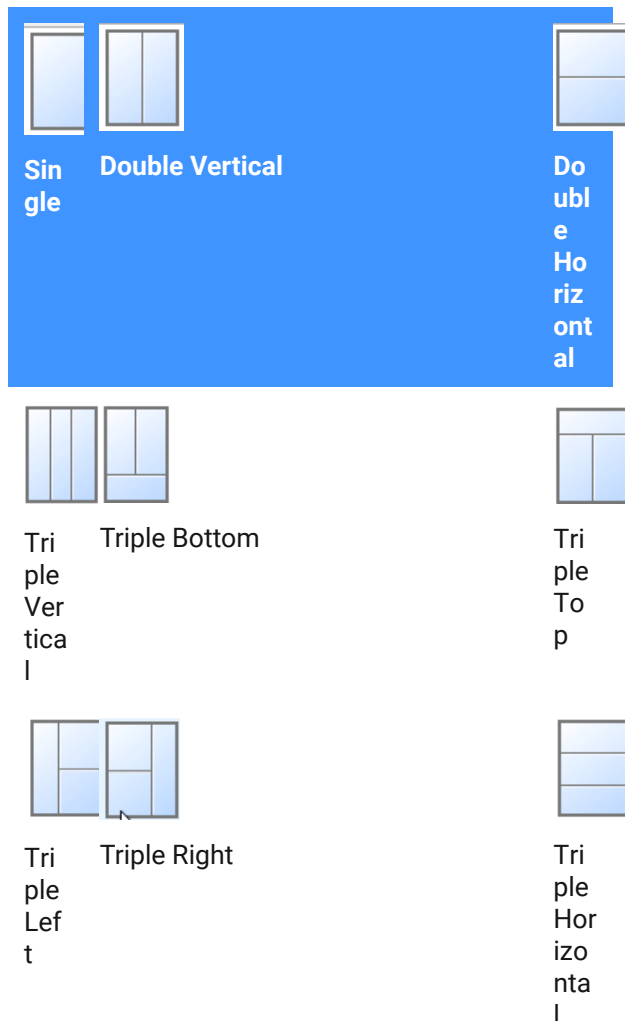
Creates a BIM Window entity. An opening in the solid on which the profile entity lies is created automatically.



Opening

Creates an opening in the solid on which the profile entity lies. The opening is created by a solid on the BIM_SUBTRACT layer. This layer is frozen by default. Thaw the layer to select the opening.

Panel type



7.74 BIMWINDOWUPDATE command

Updates the opening made by a window or door in a solid.



Icon:

7.74.1 Description

Updates the opening created by a window or door in case the definition changed in such way that the opening was not correctly updated automatically.



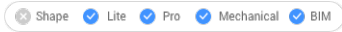
7.74.2 Options within the command

M0de

Allows to select the placement face, whether Automatic or Manual.

7.75 BLADE command

Opens the BricsCAD LISP Advanced Development Environment (BLADE).

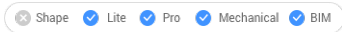



7.75.1 Description

Opens the BricsCAD LISP Advanced Development Environment (BLADE) to interactively edit and debug LISP applications. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

7.76 BLCOMPOSITIONS command

Opens the **Compositions** dialog box.



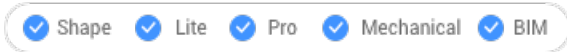
Icon: 

7.76.1 Description

Opens the **Compositions** dialog box to create and manage BIM compositions.

7.77 BLIPMODE command

Toggles the BLIPMODE system variable.



Alias: BM

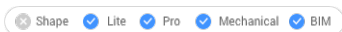
7.77.1 Description

Toggles the BLIPMODE system variable to show or hide marker blips that indicate where you picked in the drawing. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'BLIPMODE.

- On: turns on the BLIPMODE system variable
- Off: turns off the BLIPMODE system variable
- Toggle: changes the BLIPMODE system variable to the opposite of the current setting

7.78 BLMATERIALS command

Opens the Physical Materials dialog box.



Icon: 

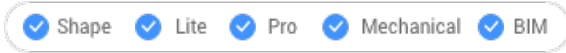


7.78.1 Description

Opens the Physical Materials dialog box to create and edit material definitions in the library or project.

7.79 BLOCK command

Opens the Block definition dialog box.



Icon:

Alias: B

7.79.1 Description

Opens the Block definition dialog box to create a block definition in the current drawing.

7.80 -BLOCK command

Groups entities into a block.



Alias: -B

7.80.1 Method

Specify whether the block will follow annotative scaling and match the orientation of the viewport.

Note: Optionally, include REFERENCECURVES during the selection of entities which allows to automatically align a block during insertion.

7.80.2 Options within the command

Name for new block

Specifies the name of a new block.

?

Lists the names of blocks already in the drawing, so that an existing name won't be used.

Note: If an existing name is entered, BricsCAD asks you if you want to redefine the block. If it is redefined, all the instances of that block name will be changed.

Insertion point for new block

Pick a point in the drawing or enter X, Y and Z coordinates.

Note: The Z coordinate is optional, default is 0.

Annotative

Specifies if the block will follow annotative scaling.

Orient relative to sheet in paper space viewports

Determines if the annotative blocks match the orientation of the layout.



7.81 BLOCK? command (Express Tools)

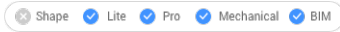
Lists the entities in a block definition.

7.81.1 Method

Enter a block name or press Enter to select a block in the drawing, then specify an entity type. The entity list is displayed in the Command line.

7.82 BLOCKICON command

Creates and updates preview bitmaps of blocks and stores them in the drawing.



7.82.1 Method

Type the name(s) of the block(s) to be processed. Separate block names by commas. You can use wild cards (? Or *).

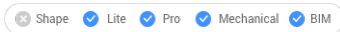
7.82.2 Options within the command

*

Select all blocks.

7.83 BLOCKIFY command

Converts identical set of entities (2D or 3D) to block references.



Icon:

7.83.1 Description

Searches the drawing for an identical set of entities (2D or 3D) and replaces them with block references.

7.83.2 Method

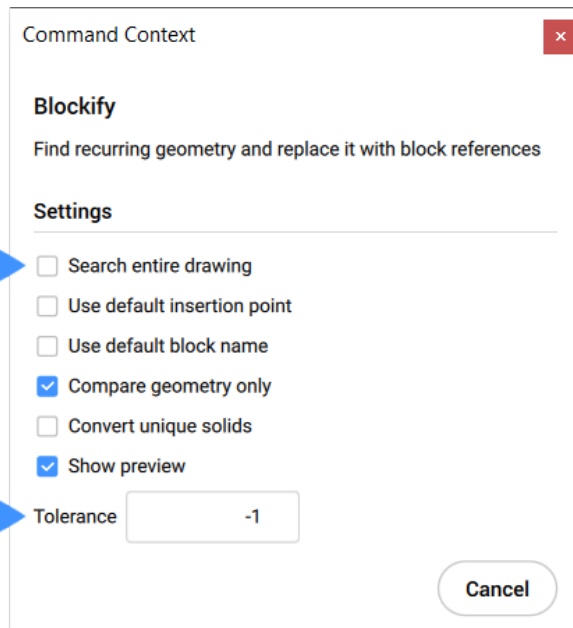
There are four methods to use the BLOCKIFY command:

- Convert 2D and 3D entities to blocks.
- Convert equally shaped solids to blocks.
- Find collections.
- Match existing blocks.

Note: To replace block patterns by arrays of entities, use the ARRAYDETECT command.

If a selection set is active when launching the command, the current settings of the BLOCKIFYMODE and BLOCKIFYTOLERANCE system variables are used for running the command.

If no selection set is active when launching the command, the **Command Context** panel opens:



1 Blockifymode settings

2 Tolerance

Blockifymode settings

Shows all the settings available in BLOCKIFYMODE system variable with their current state and lets you modify them:

Search entire drawing

Use the entire drawing as search space.

Use default insertion point

Let the application automatically assign the insertion point when creating new block definitions.

Use default block name

Use the default block name as specified in settings.

Compare geometry only

Ignore color, layer, line type, scale, weight and thickness, transparency, plot style and material properties when comparing entities.

Convert unique solids

Convert solids to blocks when they occur only once.

Show preview

View the matches in the drawing and select the matches you want to replace with block references.

Tolerance

Allows you to modify the current value of the BLOCKIFYTOLERANCE system variable that specifies the relative tolerance for determining whether two entities are equal.

Note: Changing the settings in the **Command Context** panel modifies the values of the BLOCKIFYMODE and/or the BLOCKIFYTOLERANCE system variables.



7.83.3 Options within the command

match Equal solids

Searches the drawing (or the selection) for equally shaped solids and replaces them with newly created block definitions. In case a solid matches an existing block definition, the replacing block reference points to that block definition.

Note: This option is not available in the Lite license level.

Specify block name or <ENTER to use default name>

Specify a block name or use the default name. If you choose to use the default name, block definitions with names like **Block**, **Block1**, **Block2** etc. are created.

Note: If BLOCKIFY is used on BIM entities, it checks the BIM Name property of all equal-shaped BIM classified solids and tries to find the longest common substring to use it as the name of the block definitions.

find Collections

Identifies collections and eventually nested blocks are created. This option opens the Find Collections panel.



Find Collections

Find collections of block references and combine them into a new block.

Options

Maximum gap

0.0

m

Recalculate

Collections

Select a set of collections:



8 collections
4 entities each




4 collections
2 entities each

Some collections overlap with others. You need to remove overlapping collections before creating the collection.

Highlight overlapping collections

Details

Show < 1 of 8 > 🔍



Remove Reset

Block Name:

... Create Cancel

Note:

- This option only works on block references. If the model also contains other entities, these will not be taken into consideration.
- With a large number of input entities, calculating all possible collections can take a long time. Press the Esc key to cancel the calculation at any time, and choose from the collections found so far.

Maximum gap

Increases the allowed gap between entities to find a more complex collection.



For example: if a drawing contains multiple block references of desks and chairs, you can find a collection of both elements by setting the maximum gap between a desk and a chair.

Recalculate

Recalculates the collections based on the new maximum gap.

Collections

Displays the found collections.

Note: A message is displayed if the model contains overlapping collections. Overlapping collections are collections that have at least one solid in common. These collections are highlighted if the **Highlight overlapping collections** option is ticked.

Details

Tick the **Show** option to highlight one collection at a time and cycle through them by using the arrows. Use the **zoom in** button to extend the view to the shown collection.

Remove

Removes the current collections.

Reset

Resets to the initially found collections, by re-adding any collections that were removed.

Note: After creating a block reference, the collections are recalculated, taking into account the newly created block reference. The solids that are part of the newly created block reference could previously appear in a different collection, but now they are part of a single block reference and always have to appear together. This can decrease the choices for creating more collections.

match existing Blocks

Searches the drawing (or the selection) for 2D geometry matching existing block definitions.

selection options (?)

Lets you choose one of the listed methods to add entities to the selection set.

7.84 BLOCKREPLACE command

Replaces block definitions.



Icon:

7.84.1 Method

This command displays the **Block Replace** dialog box.

Note:

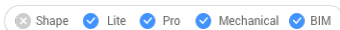
- Modified (anonymous) instances of dynamic blocks cannot be selected by name.
- Externally dependent blocks cannot be replaced.
- When a block with attributes is replaced by a block without attributes, the replaced block reference keeps the old attributes.
- When a block without attributes is replaced by a block with attributes, the replaced block references doesn't insert new attributes.



- When an annotative block is replaced with a non-annotative block, the block reference keeps the old context data manager and annotation scales in the extension dictionary.
- When a non-annotative block is replaced with an annotative block, BricsCAD adds context data immediately according to CANNOSCALE.
- When a dynamic block is replaced by a non-dynamic block or another dynamic block, the old extension dictionary **AcDbBlockRepresentation** is removed from the block reference.
- Dynamic blocks that are replaced keeps their parameter values if the replacement blocks have parameters with the same name and type.

7.85 -BLOCKREPLACE command

Replaces block definitions.



7.85.1 Method

There are two methods to replace block definitions:

- By replacing all block instances.
- By replacing particular block instances.

Note:

- Modified (anonymous) instances of dynamic blocks cannot be selected by name.
- Externally dependent blocks cannot be replaced.
- When a block with attributes is replaced by a block without attributes, the replaced block reference retains the old attributes.
- When a block without attributes is replaced by a block with attributes, the replaced block references doesn't insert new attributes.
- When an annotative block is replaced with a non-annotative block, the block reference keeps the old context data manager and annotation scales in the extension dictionary.
- When a non-annotative block is replaced with an annotative block, BricsCAD adds context data immediately according to CANNOSCALE.
- When a dynamic block is replaced by a non-dynamic block or another dynamic block, the old extension dictionary **AcDbBlockRepresentation** is removed from the block reference.

7.85.2 Options within the command

Enter name of block to be replaced

Enter the name of the block to be replaced. Note that modified (anonymous) instances of dynamic blocks cannot be selected by name.

?

Lists the block names.



select object (=)

Select a block reference with the desired name. Note that modified (anonymous) dynamic blocks cannot be selected.

options (*)

Lists the replace options.

by block Name

Enter a block name to replace. Note that modified (anonymous) dynamic blocks cannot be selected by name.

Selected block instances

Selects any block instances, including modified (anonymous) dynamic block instances to be replaced.

SIMilar inserts

Replaces all modified (anonymous) and unmodified instances of dynamic blocks and all instances of non-dynamic blocks selected.

Enter block name or file to replace selected entities

Enter a block name or file to replace selected entities as follow:

- blockname: name of a block already defined in the current drawing;
- fileName.dwg: name of an external .dwg or .dxf file (file name will be used as a new block name);
- blockName=fileName.dwg: when new block name should be different than fileName.

Note: fileName.dwg can have blocks with the same names as in the current drawing. In this case blocks from file do not re-define blocks with the same names already present in the current drawing.

Note: The file name should include the entire path if the file is not located in the support file search path.

Enter a block name or a file name to replace selected entities. The file name should include the entire path if the file is not located in the support file search path.

Purge unreferenced when finished?

Removes unreferenced block instances.

7.86 BLOCKTOXREF command

Replaces all instances of a block with an Xref.



Icon:

7.86.1 Method

Select one or more block references to replace with Xref/s.

This command displays the Block to Xref dialog box.

Note: The block name for the Xref is generated from the file name. If an Xref (or overlay) with the same name already exists in the drawing, the block is replaced using existing Xref.

7.87 -BLOCKTOXREF command

Replaces all instances of a block with an Xref at the command line.



Shape Lite Pro Mechanical BIM

7.87.1 Method

Select one or more block references to replace with Xref/s.

Note: The block name for the Xref is generated from the file name. If an Xref (or overlay) with the same name already exists in the drawing, the block is replaced using existing Xref.

7.87.2 Options within the command

Enter block name of the block to be replaced with an xref

Enter a block name.

?

Lists the block names.

select objects (=)

Select a block reference with the desired block name.

options (*)

Lists the replacement options.

by block Name

Enter a block name to replace.

Selected block instances

Select the block instance(s) to replace.

SIMilar inserts

Replaces all instances of a block and all its modified (anonymous) dynamic blocks.

Note: If non-dynamic block is selected, then all instances with the same block name is replaced with Xref.

Note: This option acts like the BLOCKREPLACE command.

with Conversion to xref

Yes

First saves the block and then replaces the block with the newly created Xref.

No

The block is replaced with an Xref.

Ask for filename for newly created Xref

Yes

Saves the block before replacing it with an Xref.

No

A new drawing is created next to the original drawing with the same name as the block name.

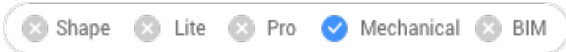
Enter an xref file (~ to open file dialog)

Enter the name of an xref file or enter ~ to open the Select an Xref file dialog box.



7.88 BMANIMATE command

Runs a quick animation of an exploded view and exploded view steps.



7.88.1 Method

- 1 Open for edit the exploded representation using the BEDIT command.
- 2 Launch the BMANIMATE command.
- 3 Select **Exploded view** and define the first and the last steps for animation.
- 4 After finishing the animation, launch the BCLOSE command, to close the block editing session.

7.88.2 Options within the command

paUse

Pauses the animation.

Play

Plays the animation.

Stop

Stops the animation.

pRevious

Shows the previous step of the animation.

Show

Shows the next step of the animation.

Finish

Finishes the animation at that moment.

7.89 BMBALLOON command

Creates associative balloon entities for assembly components.



Icon: 

7.89.1 Description

Creates associative balloon entities for mechanical and non-mechanical components in the Model Space and for their generated views in a Paper Space layout. Each balloon contains an index of the mechanical component, or an id string for a non-mechanical solid or a block in the associated BOM table created by the BMBOM command.

Note: In the **BOM Manager** panel set the **Column role** option as **Number** for the id string for a non-mechanical solid or a block which will be displayed in the balloon.



Note: Objects with non-empty id that are not found in BOM tables will be marked as invalid and will display "?" in the balloon.

Note: Balloons are created as Multileader entities using the current Multileader style. Create a Multileader style with the **Content** set to **Block** and adjust the **Scale** property to control the size of the balloon frame.

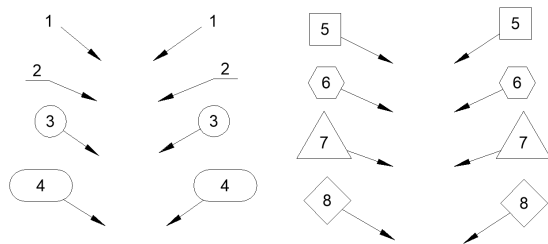
7.89.2 Options within the command

select other Table

Allows you to select a different BOM table in case multiple tables exist in the layout. The most recently inserted BOM table is selected by default.

select balloon Style

Allows you to define the shape of the balloon.



Note: Predefined balloon styles from `_BalloonStyles.dwg` can be used, as well as any custom user-defined styles.

Note: The PROMPTMENU variable allows the selection of the balloon styles.

Auto mode

Allows automatic placement of balloons only on components listed in the specified BOM table in a particular drawing view.

placement Mode

Specifies whether multiple balloons with the same values are generated or not.

Unique

Only unique values are generated on one view.

All

All values are generated on one view.

Number mode

Consecutive

Enumerates the balloons in consecutive order during a circle or a polyline pattern.

Circle

Enumerates the balloons in consecutive order to a circular pattern.

Toggle direction

Toggles the numeration direction between clockwise and counterclockwise. Same action occurs by pressing Ctrl key.



move start Forward

Moves the start balloon forward. Same action occurs by pressing Tab key.

move start Backward

Moves the start balloon backward. Same action occurs by pressing Shift+Tab key.

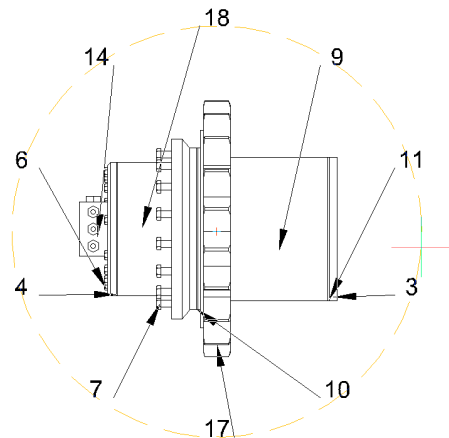
by BOM table

Places the balloons with respect of the BOM table order.

Note: The BOM table will be reordered accordingly to the balloons order.

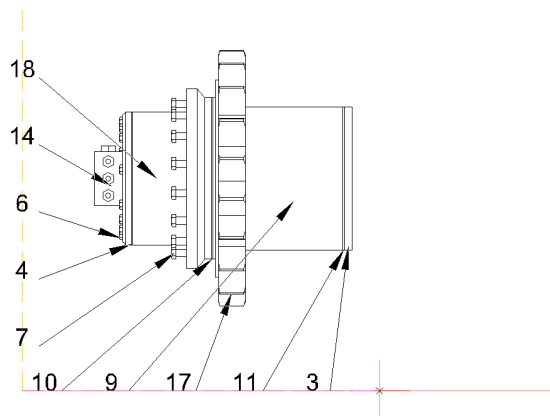
Circle

Aligns leaders along a circle.



Polyline

Aligns leaders along a polyline.



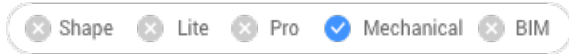
Back

Returns to previous prompt.



7.90 BMBOM command

Inserts a Bill of Materials (BOM) table in the current drawing.



Icon:

7.90.1 Description

Inserts a Bill of Materials (BOM) table in the current drawing.

The BOMFILTERSETTINGS system variable controls which components will be included in the BOM table.

7.90.2 Options within the command

Name

Specifies the table name.

Note: The BOMTEMPLATE system variable defines the path to the file with default BOM template which will be used to create new BOM tables.

Note: If the BOMTEMPLATE system variable is empty or the path is not valid, the below default BOM configuration will be used.

Top level

Creates a BOM of the top-level components only.

Bottom level

Creates a BOM of the subcomponents.

Hierarchical

Creates a hierarchical BOM listing all (sub)components.

Load from template

Opens the **Select file with the BOM table template** which allows you to select a .bom file to create a BOM from a template.

Save as template

Opens the **Select file to save BOM table template** which allows you to save the current BOM configuration as a template.

LAYOUT

Changes the layout where the table will be placed.

Configure

Allows you to add additional columns to your BOM table.

Description

Adds a description column.

dDensity

Adds a density column.

Volume

Adds a volume column.



Mass

Adds a mass column.

parameterS

If multiple inserts of the same parametric component exist in the assembly, they will be grouped in different BOM rows depending on the values of the parameters.

mAterials

Adds a material column.

Thickness

Adds a thickness column.

Note: If a component is a sheet metal part, this column shows the thickness of the part. Otherwise, it is empty.

More

Displays more configuration options.

Toggle column

Adds or removes columns from the BOM.

add Formula field

Adds a formula field.

Note: Use < > to refer to other columns.

add Thumbnails

Adds a thumbnail column.

Name

Sets the name of the column.

Width

Sets the thumbnails width in pixels.

Height

Sets the thumbnails height in pixels.

Block Scale

Sets the block scale for thumbnails.

View type

Sets the orientation of the camera.

Orthographic

Allows you to choose an orthographic projection view.

Isometric

Allows you to choose an isometric projection view.

viSual style

Sets the visual style for thumbnails.

BackGround color

Sets the thumbnails background color.



Transparent

Sets transparent background for thumbnails.

seleCt color

Opens the **Select color** dialog box to select a color.

Folder

Opens the **Select image folder** which allows you to choose a folder for thumbnail images.

Add column

Adds a thumbnail column with specified parameters to the BOM table.

Set sorting

Sets the sorting mode for the BOM.

Automatic

Sets the automatic sorting for the table.

No sorting

Disables the sorting for the BOM.

Custom sorting

Specifies the column for sorting.

Toggle sorting column

Sets the number of the ordering column for sorting.

column Properties

Configures columns properties. It depends on the column type.

Name

Sets a name for the column.

Visibility

Sets the visibility of the column.

ON

Makes the column visible.

OFF

Makes the column invisible.

Width

Sets the column width.

Auto

Sets the automatic width of the column.

Prefix

Sets the prefix for numbers in the **Number** column.

Suffix

Sets the suffix for numbers in the **Number** column.

Delimiter

Sets the delimiter between levels in numbers for hierarchical BOM tables.



NuMeraTion type

Sets the numeration type for hierarchical BOM tables.

Full numbers

Numbers for each level are combined using the provided delimiter and shown in the **Number** column.

Short numbers

Only numbers for the current level of each part are used. This mode is supposed to be used with **Level** column.

Continuous numbers

All parts are numbered continuously, regardless of their level.

Aggregate function

Sets the aggregate function.

None

Removes an aggregate function from the column.

Sum

Shows the total sum of values in the group.

Average

Shows the average value of values in the group.

MINimum

Shows the lowest value in the group.

MAXimum

Shows the highest value in the group.

CONcatenate

Combines all values in the group using the provided delimiter.

CONCatenate with count

Combines all values in the group with their number using the provided delimiters, prefix and suffix.

sEttings

Configures the aggregated column.

value Separator

Sets the delimiter between concatenated values.

count Position

Sets the position of the number of encounters for concatenated values.

After value

The number of instances is placed after the corresponding value.

bEfore value

The number of instances is placed before the corresponding value.

Count separator

Sets the delimiter between a value and its number of encounters.

count PREfix

Sets the prefix that will be added before the number of encounters.



count SUFFix

Sets the suffix that will be added after the number of encounters.

Thumbnails Parameters

Sets the thumbnails parameters, similar with add thumbnail columns.

Footer type

Sets the footer type.

None

Removes the column from the footer.

Sum

Adds the total sum to the footer.

Average

Adds the average value to the footer.

MINimum

Adds the minimal value to the footer.

MAXimum

Adds the maximal value to the footer.

Note: It is possible to add footers to formula or template columns as well.

Note: A different unit and format for footer values can be set.

Units

Configures units and how they display.

unit Mode

Sets the units for the column values.

Best for All

Sets the best unit for all values.

BEst for each value

Sets the best unit for each value.

set Fixed unit

Allows you to choose the unit manually.

unit Format

Sets how the units display.

Title

Places the unit symbol in the column title.

Same cell

Places the unit symbol in the same cell as the value.

separate Column

Places the unit symbol in a separate column.

do Not show units

Hides the units symbol.



title Format

Sets the format for the column title for the Title option.

fOrmat string

Sets the format string for column values.

Footer format

Sets a footer format string for footer values. If the footer format is not set, then the column format string will be used.

Role

Sets the column role for the column.

Regular

Sets the regular role for the column.

Number

Sets the number role for the column. (So it will be used as the number source for the BMBALLON command).

nAme

Sets the name role for the column. (So it will be used as the name source for the BMBALLON command).

Quantity

Sets the quantity role for the column. (So it will be used as the quantity source for the BMBALLON command).

table sEttings

Configures the properties of a BOM table.

footer Title

Sets the title of the footer row.

Filter

Sets the table filter.

Note: The BOMFILTERSETTINGS system variable sets the default filter settings to define which objects to include.

change Mode

Sets the mode to include or exclude objects.

Components / ExClude components

Includes / Excludes mechanical components, block and solids.

Xrefs / EXclude xrefs

Includes / Excludes non-mechanical external references as top level objects.

Xrefs as Transparent

Treats external references as transparent.

Others / Exclude Others

Includes / Excludes non-mechanical local block and solids.

Plies / Exclude Plies

Includes / Excludes solid plies.



Ignore bom status / Respect bom status

Ignores / Respects BOM status of existing objects.

Stop at Leaf Parts

When ON, non-mechanical objects will not be extracted to BOM from components, unless those components have "Transparent" BOM status.

Property set

Specify the properties to add from.

Note: The BOMPROPERTYSET system variable sets the default set of properties for BOM tables.

Mechanical only

Only mechanical properties of components and instances will be available.

all Except coordinates

All properties of mechanical components and instances will be available, including properties of associated database entities, except coordinates.

All

All properties of mechanical components and instances will be available, including properties of associated database entities.

Grouping mode

Specifies the grouping mode for the current table.

Auto

Groups the parts with respect to their definitions and parameters.

by COmponents and columns

Groups the parts with respect to their definitions and properties used in the table.

by Columns only

Groups the parts with respect to their properties used in the table only. (So one row may correspond to completely different parts if their properties displayed in BOM are the same).

Counting mode

Specifies the counting mode for hierarchical BOM.

by Document

Sets the counting mode to count all instances.

by parent Component

Sets the counting mode to count instances in parent component.

max Level

Allows you to specify the maximal level of parts in hierarchical BOM tables.

Selection set

Allows you to specify a selection set linked to this BOM table.

Entire model

Sets entire model as the selection set.

Subassembly

Sets a selected subassembly as the selection set.



Custom selection

Sets a custom selection of top-level components as the selection set.

drawing View

Associates this BOM table with selected drawing views.

layout viewPort

Associates this BOM table with selected layout viewports.

eXclude current document

Excludes the current document.

Other documents

Includes parts from other documents.

Add drawing or sheet set

Adds the drawing or sheet sets from the Select drawing file or sheet set dialog box that is opened.

add Folder

Adds an entire folder selected from the Folder Options dialog box. The user may include only the documents that match specified wildcards, entire BIM project or entire sheet set.

Note: Internally, BOM uses the logic implemented in the data extractor. It means that it will check for duplicated top-level objects, but if one document refers to another via an external reference, and that another document is also explicitly added, then the content of that document will be counted twice. When the document is saved, all paths are converted to be relative to that document when possible.

fixed coRner

Changes the fixed corner of the table. The fixed corner will remain in position during table changes.

Note: Press the **Tab** key to cycle the corners of the table. The table position will change to place the fixed corner under the cursor, thus helping to align the table with other objects in the drawing.

Top Left

Sets top left corner of the table as fixed.

Top Right

Sets top right corner of the table as fixed.

Bottom Left

Sets bottom left corner of the table as fixed.

Bottom Right

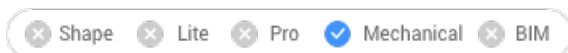
Sets bottom right corner of the table as fixed.

Back

Returns to the previous prompt.

7.91 BMBOMEDIT command

Edits an existing Bill of Materials (BOM) table in the current drawing.





7.91.1 Options within the command

APPLY

Applies the current changes.

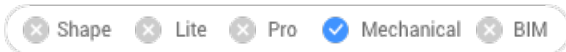
DISCARD

Discards the current changes.

Note: See the BMBOM command for the full command options.

7.92 -BMBOMEXPORT command

Exports the content of a BOM table as a table with link, or to a .csv or .xlsx file.



7.92.1 Options within the command

Options for source BOM table

Bom table

Defines the BOM table that will be exported.

List tables

Lists the available BOM tables in the current document.

Current bom

Selects the current BOM.

template File

Defines the BOM table template that will be exported. The file path name has to be specified in the Command line.

Options for target

Table with link

Exports the content of the BOM table to another table with datalink, which allows to use the bill of materials like BIM schedules. Opens the **Select file to save the BOM table template** dialog box.

csv or excel File

Exports a BOM table to a .csv or .xlsx file. The file path name has to be specified in the Command line.

7.93 BMBOMEXPORT command

Exports the content of a BOM table as a table with link, or to a .csv or .xlsx file.



7.93.1 Options within the command

Options for source BOM table

Bom table

Defines the BOM table that will be exported.

List tables

Lists the available BOM tables in the current document.



Current bom

Selects the current BOM.

template File

Defines the BOM table template that will be exported. Opens the **Select file with a BOM table template** dialog box.

Options for target

Table with link

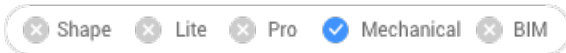
Exports the content of the BOM table to another table with datalink, which allows to use the bill of materials like BIM schedules. Opens the **Select file to save the BOM table template** dialog box.

csv or excel File

Exports a BOM table to a .csv or .xlsx file. Opens the **Select file to export BOM table** dialog box.

7.94 BMBOMPANELCLOSE command

Closes the BOM manager panel.

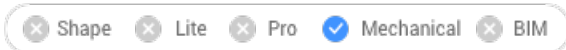


7.94.1 Description

Closes the BOM manager panel to hide it from the current workspace. If the BOM manager panel is stacked when you close it, the BOM manager tab or icon is removed from the stack.

7.95 BMBOMPANELOPEN command

Opens the **BOM manager** panel.



7.95.1 Description

Opens the **BOM manager** panel to display it in the current workspace. The **BOM manager** panel appears at the same size and location as it did before it was closed or collapsed. Like any other dockable panel, the **BOM manager** panel can be either floating, docked or stacked.

7.96 BMBOMTEMPLATEEDIT command

Creates or edits a standalone Bill of Materials (BOM) template files using both the command line and the **BOM Manager** panel.



7.96.1 Description

Creates or edits a BOM template file using both BMBOM command and the **BOM Manager** panel. For creating a new .bom template file, the user has to provide a non-existing file name. After the .bom file is selected, the **BOM Manager** panel will be opened.



The **BOM Manager** will show a BOM table created using the selected file with the current document as the source of objects. In that mode, the **BOM Manager** will work mostly similarly to the normal mode, with following key differences:

- Instead of the list of BOM tables in the document, the top selector will show the name of the current template only.
- Commands to create a new BOM table are disabled.
- Refreshing the content of the BOM Manager button is disabled.
- All selection set modes except "Entire model", "Exclude current document", and "Additional documents" will be disabled. The property to set a target component will not be present as well.
- If the button to place a BOM table is pressed, then the command will switch to the table placement mode. After the table is placed in the document, the command will finish as if "OK" button was pressed.
- This command will not affect existing BOM tables in the document, nor will add any new BOM table to the document. The "Place BOM" command simply will create a table with BOM content, but this table will be not associated with any BOM table in the document.

7.96.2 Options within the command

Supplementary options in the command line, other than for the **BMBOM** command

APPLY

Applies the current changes.

DISCARD

Discards the current changes.

Note: See the **BMBOM** command for the full command options.

Supplementary options in **BOM Manager** panel

OK

The template .bom file will be updated according to the configuration in the BOM Manager, and the command will finish.

Cancel

All changes to the template .bom file will be discarded.

Note: In both cases, the BOM Manager will switch back to show the current BOM table in the document. If the BOM Manager has not been active at the start of the command (i.e, not visible and not stacked), the command will close it automatically.

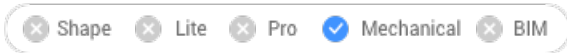
Note: See the **BOM Manager** panel

Note: The **BMBOMTEMPLATEEDIT** will always use filter settings, grouping mode and property set suitable for BIM models, even if no BIM project is found.



7.97 BMCONNECT command

Connects two components by creation of 3D constraints between their connection entities. Also, under the **complete flange Assembly** option, a gasket and a bolting assembly are inserted, resized, and connected to a pair of flanges.



Icon:

7.97.1 Method

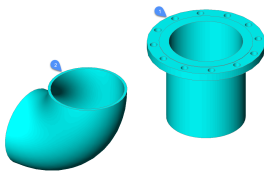
Select components to connect

Select the component to connect. (1)

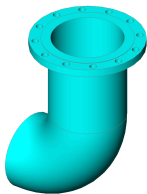
Select target component

Select the component to connect to. (2)

Note: Mechanical blocks are also accepted.



The command automatically creates a set of 3D constraints to correctly connect the parts and maintain their relative position for any further modification.



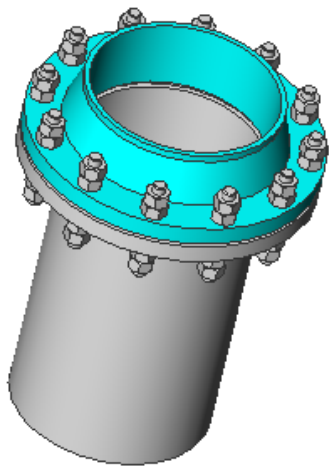
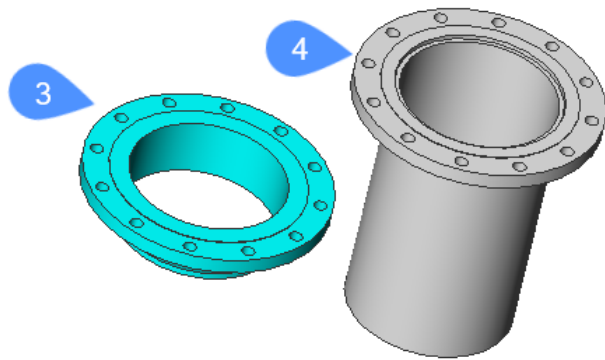
7.97.2 Option within the command

Flip

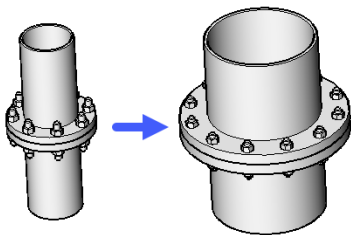
The next pair of connection point and line is selected for the component (1)

complete flange Assembly

A gasket and a bolting assembly can be selected to automatically connect the flanges (3) and (4).



If the flanges', the gaskets' the bolting assembly's Size and Rating parameters are linked to the global Size and Rating parameters, the flange assembly will be updated properly when these global parameters are changed.



Gasket

Allows to choose a gasket for the flange assembly.

list available gaskets (?)

Lists all available gaskets in the command line.

Path

Allows to choose a custom gasket from the Select a gasket file (Standard Open File) dialog box.

Clear

Removes the chosen gasket.



BOLting assembly

Selects a bolting assembly.

Note: Bolting is a parametric assembly of fasteners for one pair of flanges' bolting holes, e.g., a stud and 4 nuts. All nuts are of the same type. Two of these nuts can be suppressed, according to NutsNumber parameter.

Note: Bolting Assembly is a parametric assembly that contains a polar array of boltings (and connection 2d entities). Its Size and Rating parameters can be linked to the corresponding global parameters.

Note: Flange Assembly is an assembly of the connected pair of flanges, gasket, and bolting assembly.

Path

Allows to choose an existing bolting assembly from the Select a bolting assembly file (Standard Open File) dialog box.

Generate

Generates a boltings assembly from a bolting.

Path

Allows to choose an existing bolting from the Select a bolting file (Standard Open File) dialog box.

Generate

Generates a bolting.

Select a stud

list available studs (?)

Lists all available studs in the command line.

Path

Allows to choose a custom stud from the Select a stud file (Standard Open File) dialog box.

Select a nut

list available nuts (?)

Lists all available nuts in the command line

Path

Allows to choose a custom nut from the Select a nut file (Standard Open File) dialog box.

Specify the bolting name

Gives a name to the bolting generated above and save it in the Select the bolting file dialog box.

Specify the bolting assembly name

Gives a name to the bolting assembly generated above and save it in the Select the bolting file dialog box.

Keep the bolting file

Specifies if keep the bolting file

Select nuts number

Specifies the nuts number.

Input length increment

Specifies the length increment of the stud.

Auto

Applies the default stud, nut, length increment, nuts number for the boltings assembly.



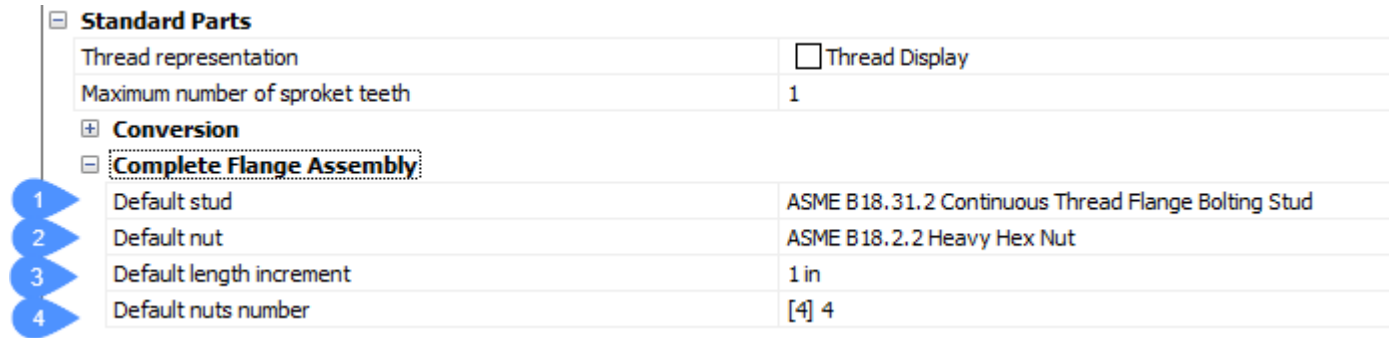
A temporary bolting assembly is generated and is chosen. Its file will be removed at the end of the command execution.

Clear

Removes the chosen bolting assembly.

SETtings

Opens the Settings dialog box:



- 1 BoltingAsmDefaultStud - default stud to generate bolting assembly.
- 2 BoltingAsmDefaultNut - default nut to generate bolting assembly.
- 3 BoltingAsmDefaultLengthIncrement - default length increment for default stud.
- 4 BoltingAsmDefaultNutsNumber - default nuts number for bolting assembly.

Back

Returns to the previous command line options.

Finish

Creates the assembly of flanges, gasket and bolting assembly.

7.98 BMCONVERT command

Converts BIM Linear solids with circular profiles to Mechanical assemblies.



7.98.1 Method

Select entities to convert and choose the proper styles for pipes.

7.98.2 Options within the command

Pipe

Allows you to select a style for the pipe segment.

Elbow

Allows you to change the styles for the pipe elbows (45 deg and 90 deg).

Reducer

Allows you to change the styles for the pipe reducers (concentric and eccentric).

Splitter

Allows you to change the styles for the pipe tee and pipe cross.



?

Lists available styles

Note: Use ; to select multiple styles.

Use current

Uses the current style.

SETtings

Opens the Settings dialog box with the **Conversion** section expanded.

7.99 BMCREATECOMPONENT command

Creates library blocks.



Icon:

Note: The BMCREATECOMPONENT command has been replaced by the CREATELIBRARYBLOCK command.

7.100 -BMCREATECOMPONENT command

The -BMCREATECOMPONENT command has been replaced by the -CREATELIBRARYBLOCK command.

7.101 BMDEPENDENCIES command

Lists all files, containing component definitions inserted in the assembly, in the Command line.



Icon:

7.101.1 Method

The files are automatically listed in the Command line once the command is run.

7.102 BMDISSOLVE command

Dissolves a mechanical component inserted in the current drawing.



Icon:

7.102.1 Description

Dissolves a mechanical component inserted in the current drawing by selecting all entities to dissolve manually.

Note: Only components at the first level, directly branching from the root component, in the mechanical hierarchy can be dissolved. To dissolve a component at a lower level, its parent component(s) must be dissolved first.

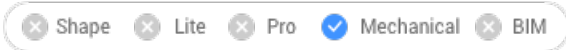
All subcomponents of a dissolved component are moved up one level in the mechanical hierarchy.

Dissolving a component insert does not affect the source drawing of the component.

The selection set must contain component inserts only. If not, a message displays in the Command line: "No components selected."

7.103 BMEXPLODE command

Creates a block with an exploded representation of the current assembly.



Icon: 

7.103.1 Description

Creates a block with an exploded representation of the current assembly. This block can be inserted at any location.

Note:

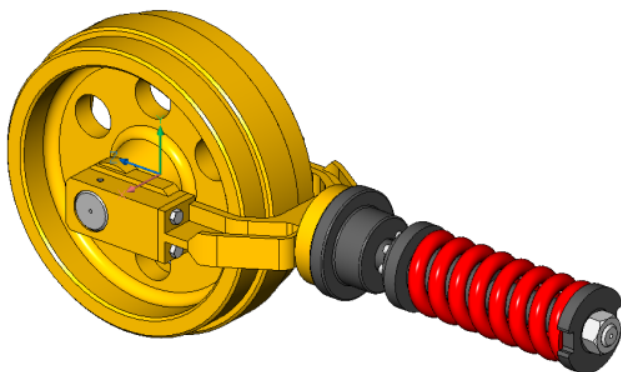
- Local mechanical components based on blocks and solids, and mechanical external references are fully supported in exploded views.
- Non-mechanical entities are also supported, making it possible to create exploded views without creating a mechanical assembly first.

7.103.2 Method

You can create an exploded view using the entire model as selection set or specify a set of parts to create an exploded view from.

Two levels of the exploded representation are supported: top and bottom. Top-level means that the assembly will be exploded down to top level components. Bottom-level means that the assembly will be exploded down to bottom level components.

The steps to create an exploded representation are automatically completed and are displayed in the **Mechanical Browser**. You can add, delete and reorder the steps from the **Mechanical Browser**. Animate a single step of an explosion or the entire sequence.

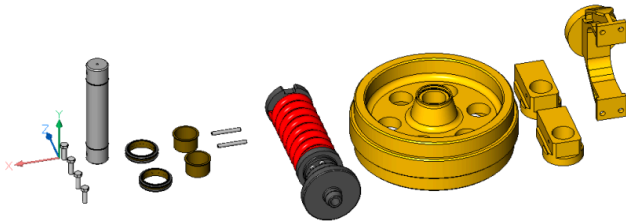




7.103.3 Options

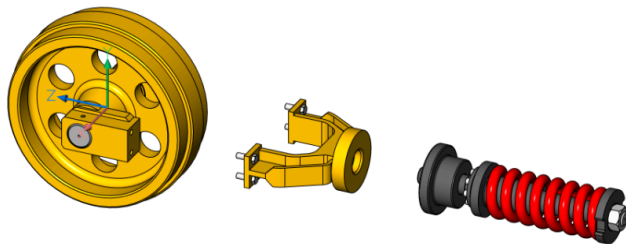
Table by types

Groups identical parts on the same row and different parts on different rows.



Linear

Automatically creates exploded representations of assemblies in a given direction, taking into account possible physical collisions between components.



2Points

Allows you to define or select the linear exploded representation's direction.

Object

Allows you to select an axial entity and sets the direction parallel to that entity.

Last

Uses the previous axis as the representation direction.

View

Allows you to specify a point on view direction axis.

Xaxis

Sets the exploded representation direction parallel to the X axis of the current UCS.

Yaxis

Sets the exploded representation direction parallel to the Y axis of the current UCS.

Zaxis

Sets the exploded representation direction parallel to the Z axis of the current UCS.

Automatic

Automatically determines the directions for each part, taking into account possible physical collisions between components.

enable Leader follower

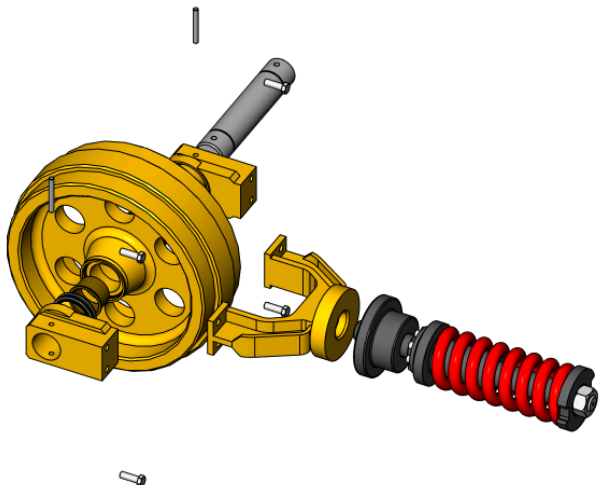
Enables the detection of parts that should move in a coherent manner. If enabled, parts that are inserted into other parts will follow the movement of the base parts they are inserted into.

use Current projection for gap

Enables the gap calculation with respect to the current camera orientation. It minimizes the probability that some parts will be hidden by other parts on a 2D view with the current camera orientation.

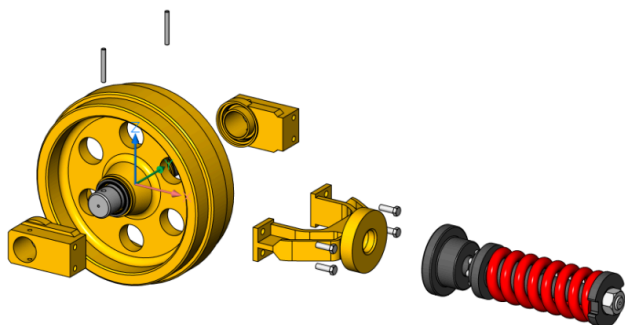
Auto

Enables automatic gap calculation.



Manual

Selects the manual mode. This creates an exact copy of the assembly, ready to create a customized exploded view.



Update

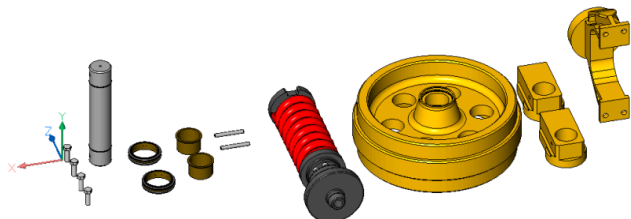
Updates solids and block references in exploded view block with model space objects.

Settings

Gives access to the command settings.

Top

If selected, the assembly will be exploded using only top-level components.





BAck

Returns to the previous prompt.

Bottom

If selected, the assembly will be exploded down to bottom-level components.



set Name

Sets the name for the exploded representation.

set Mode

Lets you change the selection filter mode in order to include or exclude non-mechanical entities.

Note: The default selection filter mode is set by the BOMFILTERSETTINGS system variable whose default value is to include only mechanical components, blocks and solids.

ExClude components/Components

Excludes/includes non-mechanical local components, blocks and solids.

Xrefs as Transparent/Xrefs

Treats/doesn't treat external references as transparent.

EXclude xrefs/Xrefs as Transparent

Excludes/includes non-mechanical external references.

Exclude Others/Others

Excludes/includes solids and block references.

Ignore bom status/Respect bom status

Ignores/respects the BOM status.

Stop at Leaf Parts

When OFF, and the mode is configured to include non-mechanical objects, non-mechanical objects in bottom-level parts will be treated as separate parts. If a component contains a mix of solids and other components, the solids will be included in exploded views.

Edit

Opens the exploded representation for editing.

Generate drawing views

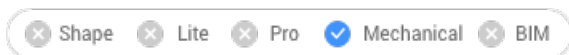
Generates drafting views from an exploded representation.

Finish


Concludes the command.

7.104 BMEXPLODEMOVE command

Moves selected parts to form an exploded representation in a given direction.





Icon: 

7.104.1 Description

Moves selected parts to form an exploded representation in a given direction, taking into account possible physical collisions between components (similar to the Linear option of the BMEXPLODE command).

This command also has an automatic mode. This determines the direction for each selected part automatically (similar to the Automatic option of the BMEXPLODE command).

7.104.2 Options within the command

Automatic

Enables automatic mode. An automatically exploded representation of the selected parts is created.

Entire model

Selects the entire model.

Linear

Enables the linear explode mode.

7.105 BMEXPLODESTEPEDIT command

Manages the exploded view steps.



7.105.1 Description

Allows to create, delete, merge, copy, split and reorder exploded view steps as well as to save the current step and to change the current step.

7.105.2 Method

Select an exploded view created with BMEXPLODE command and open it for edit (from MECHANICALBROWSER or with -BEDIT command).

Perform the necessary operations to get the desired exploded representation following the below options. Do not forget to save the current step.

Then, save changes using BCLOSE command with the option Save.

7.105.3 Options

Add step

Adds a new step after the last one. The new step will be automatically set as current. All unsaved modifications of the exploded representation will be lost.

cOpy step

Copy an existing step. Step names are case sensitive.

merGe step with previous

Merges a step with the previous one and removes the previous step.



Move step

Moves a step up (-) or down (+) in the list.

Remove step

Removes a step as well as associated movements of parts. The positions of parts in the exploded representation will be updated accordingly.

reName step

Renames a step.

Save current state

Saves the current positions of parts in the current step.

set Current step

Sets the step as the current and updates the parts in the exploded representation according to this step.

sPlit step

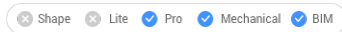
Splits the step to a sequence of steps, each of them corresponding to exactly one part.

list steps (?)

Lists all steps.

7.106 BMEXTERNALIZE command

Converts local components to external components.



Icon:

7.106.1 Description

Local Mechanical components are converted to external components with the **Save Mechanical Component** dialog box.

Local Mechanical blocks are converted to external references with the **Save Block** dialog box.

This procedure is repeated for each selected local component.

7.106.2 Options

Entire model

A file dialog displays for each local component in the assembly.

ASk for file names

Toggles the option to ask for file names of externalized components or to generate them automatically.

Yes

File names need to be entered.

No

File names are generated automatically.

Note: some symbols used in component names cannot be used in file names and will be automatically replaced with an underscore.



7.107 BMFORM command

Creates a new mechanical component or a mechanical block, and inserts it into the current drawing.



Icon:

7.107.1 Description

Creates a new mechanical component as an internal reference in the current drawing. The selected solid(s) are removed from the current drawing.

Note: When the MECHANICALBLOCKS system variable is enabled (set to 1), BMFORM creates mechanical blocks by default.

Note: If necessary, run the BMMECH command first to initialize the mechanical structure in the current drawing.

7.107.2 Options

Local

Creates a new component and inserts it as a block reference into the current drawing.

Note: When MECHANICALBLOCKS system variable is enabled (set to 1), creates an internal mechanical block. Use BEDIT command to edit block definition.

External

Creates a new drawing which contains the selected solid(s) and can be saved with the **Save Drawing As** dialog box. The selected solid(s) are removed from the current drawing. The new drawing is inserted as an external reference in the current drawing.

mechanical Component

Creates a new mechanical component.

mechanical Block

Creates a new mechanical block.

Template settings

Opens the **Settings** dialog box at the BMFORMTEMPLATEPATH system variable to choose a template file.

7.108 BIMGENERATE2DSTAIR command

Generates a symbolic 2D representation of a 3D stair by projecting the steps onto a plane.



Icon:

7.108.1 Description

Generates a 2D symbolic representation of a 3D entity classified as stair or as slab by projecting the steps or slabs to a plane.



Note: 3D entities classified as stairs can be:

- Stairs resulting from the BIMSTAIR command.
- Stairs which are created via direct modeling tools.
- Stairs imported from other software packages.
- Stairs created via Grasshopper scripts.

The automatically generated symbolic representation will be placed in the **BIM_2D_BACK+_Stair*** layers so that the solid geometry of the stair is still shown in the section result. Objects below the visible part of the stair will appear hidden. The layers can be customized and used during the section generation.

The direction of the stair is indicated in a 2d representation by an arrow pointing the up direction of the stair. The arrow starts at the first step and ends at the last step. A circle indicates the first step of the stair.

The numbering of steps starts with 1.

7.108.2 Options within the command

Select Section Plane

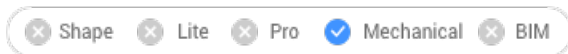
Allows you to select a Section Plane to project the stair or slab, to create a 2D stair or slab representation.

Continue without section plane

Creates a 2D stair or slab representation of the whole stair without selecting a Section Plane.

7.109 BMHARDWARE command

Opens the **Library** panel.



Icon:

7.109.1 Description

Opens the **Library** panel to display it in the current workspace. The **Library** panel appears at the same size and location as before it was closed or collapsed. Like any other dockable panels, the **Library** panel can be either floating, docked or stacked.

7.110 -BMHARDWARE command

Inserts a standard hardware part as a mechanical component in the current drawing.



7.110.1 Method

This command can only be executed via the options in the Command line.

Note: To initialize the mechanical structure in the current drawing, run the BMMECH command.

Note: This command is obsolete and creates non-parametric standard hardware parts. To insert parametric standard hardware, use the **Library** panel. This contains parametric Standard Mechanical Components.



7.110.2 Options within the command

Parametric

Allows to switch on/off the creation of parametric standard parts.

create Custom

Allows to create custom standard parts from prepared tables. Opens the **Select configuration table file** dialog box that allows to select your created .txt file (or files).

Edit inserted entity

Edits the parameters of the selected insert.

SMART insert

Allows to automatically connect a Piping standard part to an existing Piping standard part by creating a proper set of 3D constraints between them and by copying expressions for the parameters of existing inserted part to the new part.

Rotate component

Specifies the rotation angle by entering a value.

set Base point

Specifies a new base point for the insert.

Name

Renames the insert by entering a name.

insertion Type

Specifies the insertion type.

Local

Inserts the part locally.

External

Inserts the part externally.

Flip

Inserts the selected insert in the opposite face of the solid.

mUltiple

Allows you to insert multiple copies by entering multiple insertion points.

Array

Creates an associative array of components.

Change target 3d solids

Allows you to choose the new set of target solids. Any current component-based features will be removed and new ones will be created for the selected solids.

cleaR

Removes the existing component-based features with their geometry. See the BMUNLINK command.

Select all affected 3d solids

Automatically chooses solids. A solid is selected if any solids from the BC_SUBTRACT layer or if any layer from the BC_UNITE touches or intersects it.



7.111 BMHIDE command

Hides an inserted mechanical component.



Icon:

7.111.1 Description

Hides a mechanical component inserted in the current drawing.

The command affects the visibility of the selected inserts only. Hidden inserts will still be considered by commands such as BMBOM, BMMASSPROP etc.

7.111.2 Options

Component name

Type the component name of the component insert(s) you want to hide. All inserts of the specified component will be hidden.

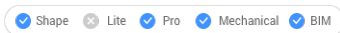
Insert name

Type the insert name of the component insert you want to hide.

If you want to hide a nested component insert (subcomponent insert) first type the insert name of the parent component insert, then the component insert name separated by a slash (/).

7.112 BMINSERT command

Inserts a component into the current drawing.

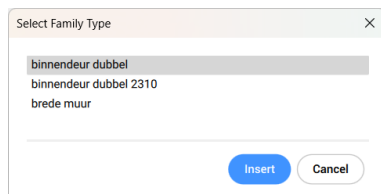


Icon:

7.112.1 Description

Opens the **Select file to insert** dialog box to select a .dwg or an .rfa file to insert into the current drawing.

When inserting a Revit family containing multiple types, the **Select Family Type** dialog box displays, which enables you to import the preferred type of the Revit family. The RFA files attributes are also imported.



After selecting the file and choosing **Open**, the **Properties** panel displays, and you are prompted to the Command line.

Note: In order to insert a file with a mechanical block as mechanical block, you must enable MECHANICALBLOCKS system variable.



Note: A simple file (unmeched) is inserted as a mechanical block when the MECHANICALBLOCKS system variable is enabled.

7.112.2 Method

Specify a point in the current drawing where the entity will be inserted. You can change the insertion before it is inserted using the **Properties** panel and the Command line options.

7.112.3 Options within the command

Edit inserted entity

Enables you to change the parameter expressions for the inserted entity. Continue editing individual parameters until you press Enter to end the option. This option is also available in the Hot Key Assistant.

SMART insert

Enables you to connect a Piping standard part to an existing Piping standard part. It automatically creates appropriate 3D constraints between the two parts and copies expressions for the parameters of the existing part to the new part. This option is also available in the Hot Key Assistant.

Rotate component

Enables you to change the rotation angle for the inserted entity.

set Base point

Enables you to change the base point for the inserted entity.

Note: By default is <0,0,0>.

Name

Enables you to change the instance name for the inserted entity.

insertion Type

Enables you to change the insertion type for the inserted entity.

Local

References an entity definition within the current drawing.

External

References an entity definition outside the current drawing.

Note: Mechanical components as well as mechanical blocks can be inserted as external references.

Flip

Enables you to flip the direction for the inserted entity.

mUltiple

Enables you to insert multiple copies of the same entity by specifying an insertion point for each instance or creating an Array.

Note: Continue inserting entities until you press Enter to end the command.

Array

Enables you to create an associative array of the inserted entity by specifying the base point, distance between columns, distance between rows and end point of the array.

Direction

Allows you to select an existing axial entity to define the direction.



2Points

Selects two points to define the direction.

Xaxis

Selects the X axis as direction.

Yaxis

Selects the Y axis as direction.

Single row

Distributes entity copies into a single row.

Rectangular

Distributes entity copies into any number of rows.

Accept

Accepts the resulting array.

Change target 3d solids

Enables you to apply the inserted entity to existing 3D solids in the current drawing.

clearR

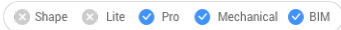
Clears the selection set to ensure no solids are affected by the inserted entity.

Select all affected 3d solids

All solids intersecting or touching solids in the BC_SUBTRACT and BC_UNITE layers of the inserted entity are affected.

7.113 -BMINSERT command

Inserts sheet metal form features and components in the current drawing.



7.113.1 Description

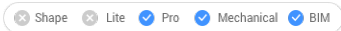
Inserts sheet metal form features, mechanical and BIM components in the current drawing.

Note: This command inserts a *.RFA file as a BIM component.

This command operates at the Command line. Enter the path of the file to be inserted and choose one of the options. For more details about the options see BMINSERT command.

7.114 BMLINK command

Changes target 3D solids of component-based features.



Icon:

7.114.1 Description

Changes the target 3D solids of component-based features by adding or removing target 3D solids.



7.114.2 Options within the command

Change target 3d solids

Specifies a set of target solids. Component-based features will be removed and new ones will be created for selected solids.

Append

Adds new solids to set of target solids. Component-based features will be updated and new ones will be created for the selected solids.

cleaR

Removes the existing component-based features and their geometry (see the BmUnlink command).

Select all affected 3d solids

This mode is similar to **Change target 3d solids** but solids are chosen automatically.

Note: A solid will be chosen if any solids from BC_SUBTRACT layer intersects it or if any other solid from the BC_UNITE layer touches or intersects it.

7.115 BMLOCALIZE command

Converts external components to local components.



Icon:

7.115.1 Description

Converts external components to local components by selecting the components manually.

Note: Mechanical external references are supported as well as traditional mechanical components.

If multiple inserts of the same external component exist in the model, all inserts are converted to local components.

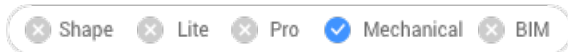
7.115.2 Options within the command

Entire model

Converts all external components in the model to local components.

7.116 BMASSPROP command

Computes mass properties for the current model using densities of materials assigned to its components.



Icon:

Note: BmMassProp will format the values of mass, volume and linear nature with their corresponding units only if the PROPUNITS system variable has the corresponding bits set to 1 or the corresponding flag in the Settings dialog for the Property units field is checked.

7.116.1 Method

The density values used for the mass property calculations are taken from materials defined by the Material property of the components and subcomponents, which can be either inherited from the main component of the assembly or set explicitly. The density of the main component is defined by the materials set in the Material field in the Mechanical Browser dialog. If a material does not have an assigned density, or its density is less or equal to zero, an error message displays, and the mass properties will not be computed. All materials involved in the assembly must have non-zero non-negative densities. Selects the 3D solids and subcomponents or the entire model and will get a Report in the Prompt History window:

```

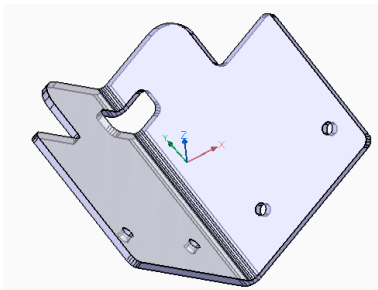
----- Component -----
Mass: 6.7757 kg
Volume: 846.9586 cm³
Centroid: X= -267.9141 mm Y= 46.2431 mm Z= -435.3534 mm
Moments of inertia: X= 1.3564 kg·m² Y= 1.8427 kg·m² Z= 0.5730 kg·m²
Products of inertia:
XY: -0.0808 kg·m²
YZ: -0.1535 kg·m²
ZX: 0.7934 kg·m²
Radii of gyration: X= 447.4159 mm Y= 521.4979 mm Z= 290.802 mm
Principal moments and X-Y-Z directions about centroid:
I: 0.0551 kg·m² along X= 0.0000 Y= -0.7071 Z= 0.7071
J: 0.0570 kg·m² along X= 0.9906 Y= 0.0970 Z= 0.0969
K: 0.0899 kg·m² along X= -0.1371 Y= 0.7004 Z= 0.7004

```

7.116.2 Options

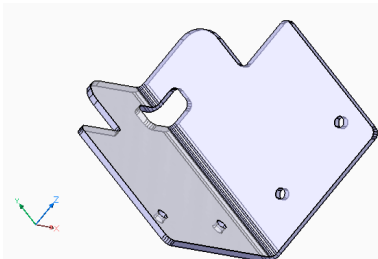
Yes

Aligns the UCS with the principal moment axes.



No

Keeps the current UCS.

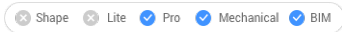


Note: The command can be interrupted by pressing the CANCEL button when it takes too long.



7.117 BMMECH command

Converts the current drawing into a mechanical component.



Icon:

7.117.1 Description

If the drawing contains block references or external references, they can also be converted into inserts of local and external components. If mechanical blocks are enabled, solids and regular named blocks can be converted to mechanical entities and blocks correspondingly as well.

If the drawing is a mechanical component already, BMMECH does nothing.

Note: Mechanical blocks are enabled if the MECHANICALBLOCKS system variable is set to 1.

7.117.2 Options within the command

create Legacy components

(Only if Mechanical blocks are enabled) Changes the command mode to create mechanical (legacy) components.

create mechanical Blocks

(Only if Mechanical blocks are enabled) Changes the command mode to create mechanical blocks and mechanical entities. If there is no root component in the document, the document will become a mechanical block itself.

Yes - to convert all

If the drawing contains block references or external references, and the if the command is in Mechanical blocks mode (MECHANICALBLOCKS system variable is ON), block references, external references and solids in the model space will be converted to mechanical blocks and entities. Also, arrays of block references or external references will be converted into mechanical blocks.

If MECHANICALBLOCKS system variable is OFF, blocks are converted to internal components and external references are converted to external components.

Note: Blocks converted to mechanical (legacy) components are not available in the INSERT command. Use BMINSERT to insert blocks as internal components. However, mechanical blocks are available in the INSERT command, as they are regular blocks with mechanical data attached.

Note: When a BIM entity is converted to a mechanical block, its BIM name is retained as a component name.

Blocks - to convert blocks

(Only if Mechanical blocks are enabled). If the drawing contains block references or external references, they will be converted to mechanical blocks. Solids from the model space will not be converted in that mode.

No - to skip conversion

The mechanical structure is initialized but blocks and external references are not converted.

7.118 BMNEW command

Creates a mechanical component as a new drawing file.



Shape Lite Pro Mechanical BIM

Icon:

7.118.1 Description

Creates a mechanical component by automatically opening a new drawing file.

Note: When the MECHANICALBLOCKS system variable is enabled (ON), a mechanical root block is created instead.

7.119 BMOPEN command

Opens the source drawing of an external mechanical component.

Shape Lite Pro Mechanical BIM

Icon:

7.119.1 Description

Opens the source drawing of an external mechanical component by selecting it in the model, in order to change or visualize it.

7.120 BMOPENCOPY command

Opens a copy of a component insert as a new drawing.

Shape Lite Pro Mechanical BIM

Icon:

7.120.1 Description

Opens a copy of a selected external mechanical component in a new drawing.

If you open a copy of a parametric mechanical component, the current values of the various parameters are applied to the copy.

After saving it you may replace the original component with the newly created drawing using BMREPLACE command.

7.121 -BMPARAMETERS command

Allows to list and edit the parameters of inserted components and associative arrays.

Shape Lite Pro Mechanical BIM

7.121.1 Description

Allows to list and edit the parameters of inserted components and associative arrays. By pressing Enter, the parameter expression can be changed.

Note: Parameters of components nested inside an array can be changed or assigned to an expression.



7.121.2 Options within the command

Edit

Edits the value of a parameter.

Delete

Allows to reset a previously edited parameter to its default value.

Link to parameter

Assigns parameters as an expression for a parameter of a dimensional constraint (both 2D and 3D) associated with an entity which has been put into an associative array.

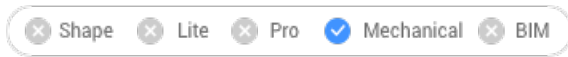
?

Lists the parameters of the selected components in the Prompt History window.

Note: Press F2 to display the Prompt History window.

7.122 BMPROPERTIES command

Creates, edits and deletes property definitions and organizes properties in property sets.



Icon:

7.122.1 Description

Opens the **Mechanical Properties** dialog box to create and manage property definitions.

7.123 BMPOUT command

Saves the current view as a BMP file.



7.123.1 Description

Opens the **Save Bitmap** dialog box to save the current view (model or paper space) as a bitmap BMP file.

7.124 BMRECOVER command

Recovers a broken mechanical structure.



7.124.1 Description

Recovers a broken mechanical structure selected through the Select file dialog box. The command overwrites the original drawing.

Note: The command differs from the basic Audit and Recover commands. It is recommended to use BMRECOVER to mend issues with a MCAD drawing.

7.125 BMREPLACE command

Replaces a component insert.



Shape Lite Pro Mechanical BIM

7.125.1 Description

Replaces a mechanical component inserted in the current drawing with another one selected from **Select file component** dialog box.

Note:

- Mechanical blocks can also be replaced by other mechanical blocks.
- The command does not support cross-replacement: each kind of component can only be replaced by a component of the same kind.

7.125.2 Options within the command

SIMilar inserts

Allows you to replace similar inserts automatically, depending on the chosen option.

- **Yes:** replaces all similar inserts of the selected mechanical component(s) in assembly.
- **No:** replaces the selected component(s) only.

component Type

Allows you to choose the insertion type for a replacement component. The following options are available:

- **Local:** the new component will be local.
- **External:** the new component will be external.
- **Keep as is:** the new component inherits the insertion type from the replaced component.
- **component Default:** the new component will be linked as specified in its source file.

See External and local components in the User Guide.

Parameter changes

Allows you to control which parameter values will be used after the replacement is complete.

- **Yes - reapply:** parameter values of the replaced component are applied.
- **No - use replacement as is:** parameter values of the replacement component are applied.

from File

Allows you to select a .dwg file from the **Select file for component** dialog box to choose the replacement component.

7.126 BSCALE command (Express Tools)

Scales block references relative to their insertion points.

7.126.1 Options within the command

Absolute

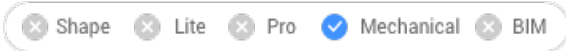
Specifies an absolute scale factor in X and Y-direction or in X-, Y- and Z-direction.

Relative

Specifies a relative scale factor in the X and Y-direction or in the X-, Y- and Z-direction.

7.127 BMEXPLODECONFIG command

Assigns preferable directions for entities during automatic generation of exploded views.



7.127.1 Description

Automatically converts directions defined in WCS to local directions of selected entities during generation of exploded views.

7.127.2 Method

Select entities which will use the preferable direction for exploded view, then set the direction.

7.127.3 Options within the command

Set

Selects entities to set preferable direction for disassembly.

Root part

Selects only root part.

Entire model

Selects entire model.

Remove

Selects entities to remove from preferable direction for disassembly.

Select the direction

Selects the direction for selected entities which will be follow on exploded views.

Select axial entity

Allows you to select an existing axial entity.

2Points

Selects two points to define the direction.

Xaxis

Selects the X axis as direction.

Yaxis

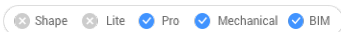
Selects the Y axis as direction.

Zaxis

Selects the Y axis as direction.

7.128 BMSHOW command

Shows hidden mechanical components from the drawing.



7.128.1 Description

Shows previously hidden mechanical components inserted in the current drawing.



7.128.2 Options within the command

show ALL

Shows all component inserts.

COmponent name

Type the component name of the component insert(s) you want to show. This affects all inserts of the specified component.

Insert name

Type the insert name of the component insert you want to show.

If you want to show a nested component insert (subcomponent insert), first type the insert name of the parent component insert, then the component insert name separated by a forward slash (/).

7.129 BMTRAILINGLINES command

Creates all necessary trailing lines for selected parts.



7.129.1 Description

Creates all necessary trailing lines by selecting entities.

When you select two parts and a 3D polyline, a custom trailing line based on the 3D polyline will be generated. This trailing line will be visible in the **Mechanical Browser**.

Note: An exploded view needs to be selected and open for editing before the command can be run.

7.129.2 Options within the command

use Origin points

Switches the mode used to choose the reference point for parts to the origin (insertion point) of the component.

use Center points

Switches the mode used to choose the reference point for parts to the center point of the bounding box of the component.

Entire model

Selects the entire model and starts the processing.

7.130 BMUNLINK command

Breaks the connection between a component insert and a 3D solid retaining the opening.



7.130.1 Description

Breaks the connection between a component insert (e.g. a Window) and a 3D solid (e.g. a Wall) retaining the opening by selecting the components.

7.131 BMUNMECH command

Converts mechanical components.



Shape Lite Pro Mechanical BIM

7.131.1 Description

The command converts the current mechanical component into a plain drawing.

Note: The command applies to drawings that are a mechanical component only.

7.131.2 Options within the command

Yes

Removes the mechanical structure from the drawing, by turning it into a plain drawing.

Inserts of local components are converted to block references (the component name becomes the block name). Inserts of external components are converted to external references.

No

Aborts the command.

7.132 BMUPDATE command

Reloads all referenced components from external files and updates BOM tables.

Shape Lite Pro Mechanical BIM

7.132.1 Description

The command:

- Reloads referenced components from external files (BmInsert).
- Rebuilds component based features, sheet metal form features and BIM windows/doors components (see BC_SUBTRACT layer, Form Features, BmInsert).
- Updates the Bill Of Material (BmBom).
- Regenerates drawing views produced out of 3D model (ViewBase).

Note: If the BMAUTOUPDATE system variable is ON, external assembly components are reloaded on opening the file.

7.132.2 Options within the command

Mode

Defines the new placement face.

Note: Each inserted component-based feature or BIM Window component has an associated placement face of the correspondent 3D solid the feature is attached to. This is the face which will be used for feature placement in the BMINSERT command. The associated placement face of the feature can be lost in modeling or copying operations or it can be absent if the feature has been inserted in an empty area. The BMUPDATE command allows to re-associate the feature with its placement face.

Automatic

The placement face for the feature is detected automatically.

Manual

Select a new placement face manually.

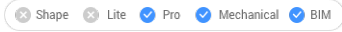


Entire model

Updates the entire model.

7.133 BMVSTYLE command

Applies a visual style to a mechanical component inserted.



7.133.1 Description

Applies a chosen visual style to all or only some inserted components by typing ALL or the component's names inserted, separated by slashes (/). Component insert names are case sensitive.

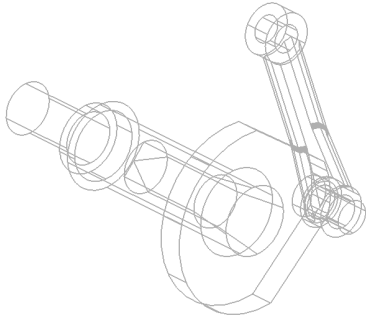
7.133.2 Options

by Viewport

Applies the current visual style of the viewport.

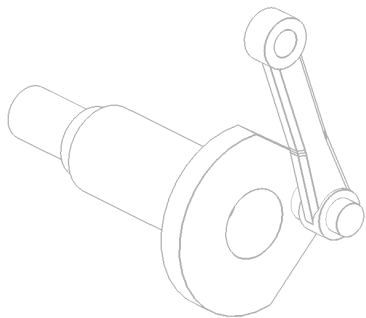
Wireframe

Applies the 3D Wireframe visual style.



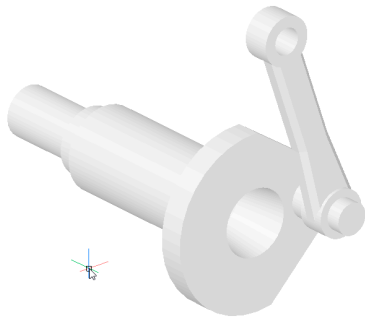
Hidden

Applies the Hidden visual style.



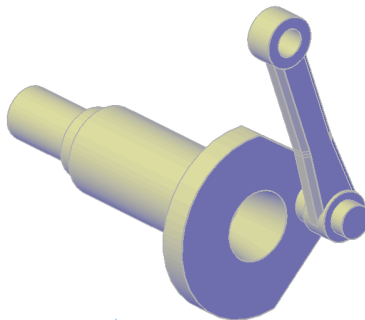
Realistic

Applies the Realistic visual style.



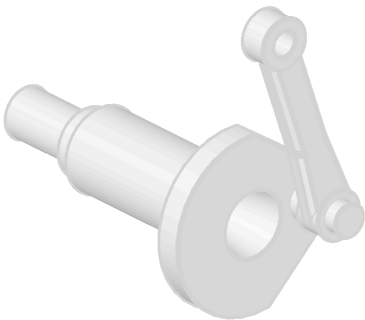
Conceptual

Applies the Conceptual visual style.



Modeling

Applies the Modeling visual style.



by Name

Applies a named visual style.

7.134 BMWELDANNOTATE command

Creates annotates for arbitrary 2D entity in the paper space with caterpillars and welding symbols.



Icon:

7.134.1 Method

Select the welding symbol type and the curve from the paper space to annotate.



7.134.2 Option within the command

Front

Creates a caterpillar welding symbol. Select the symbol representation from the **Load Linetypes** dialog box.

Note: If the lines are already loaded, a warning message box is opened to agree with the replacement of lines.

Load linetype

Opens the **Load Linetypes** dialog box to select another symbol representation.

Select curve

Applies the caterpillar symbol on the selected curve.

Note: A preview of the caterpillar symbol is shown.

Partial

Defines a part of the curve to apply the caterpillar symbol.

Flip

Flips the caterpillar symbol side for the last selected curve.

Scale

Scales the caterpillar symbol for the last selected curve.

Side

Creates a side view welding symbol.

Fillet

Creates a fillet side view symbol.

J-groove

Creates a J-groove side view symbol.

V-groove

Creates a V-groove side view symbol.

U-groove

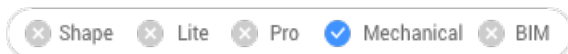
Creates a U-groove side view symbol.

Seam

Creates a seam side view symbol.

7.135 BMWELDING command

Creates a fillet or groove welding for faces (or two sets of faces) of different 3D solids.



Icon:



7.135.1 Method

Select the faces of the two 3D solids (members) between which the weld will be created, if possible:

- For fillet welding you can select a face of the first member and one or multiple faces of the second member.
- For groove welding you can select one or multiple faces of the first member and one or multiple faces of the second member.

Note: When the operation is not possible for all selected faces, a notifying balloon will appear on the screen. Click **More details...** to open the **Report** panel where the faces not included in the operation are listed.

7.135.2 Options within the command

Fillet

Creates a fillet welding using one of the following sizes, according with the value of the FILLETWELDING-COMBINEADJACENT system variable:

Input Z

Specifies a value for the Z (Leg) length of the fillet welding.

Note: The default Z size is stored by the FILLETWELDINGZSIZE system variable.

Input A

Specifies a value for the A (Throat) size of the fillet welding.

Note: The default A size is calculated as $FILLETWELDINGSIZE \text{ value} * \sin(45 \text{ degrees})$.

Groove

Creates a groove welding.

7.136 BMXCONVERT command

Converts X-Hardware solids to mechanical components.

Shape Lite Pro Mechanical BIM

7.136.1 Description

Converts X-Hardware solids in the current drawing to mechanical components.

7.137 BOUNDARY command

Creates closed polylines from bounding entities.

Shape Lite Pro Mechanical BIM

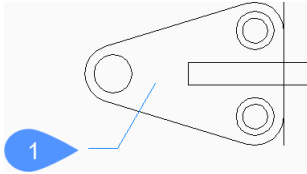
Icon:

Alias: BO, BPOLY

7.137.1 Description

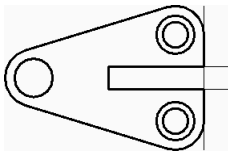
Creates closed polylines, defined by surrounding entities. Options allow you to pick an internal point, specify the boundary set, and detect islands.

Original entities:



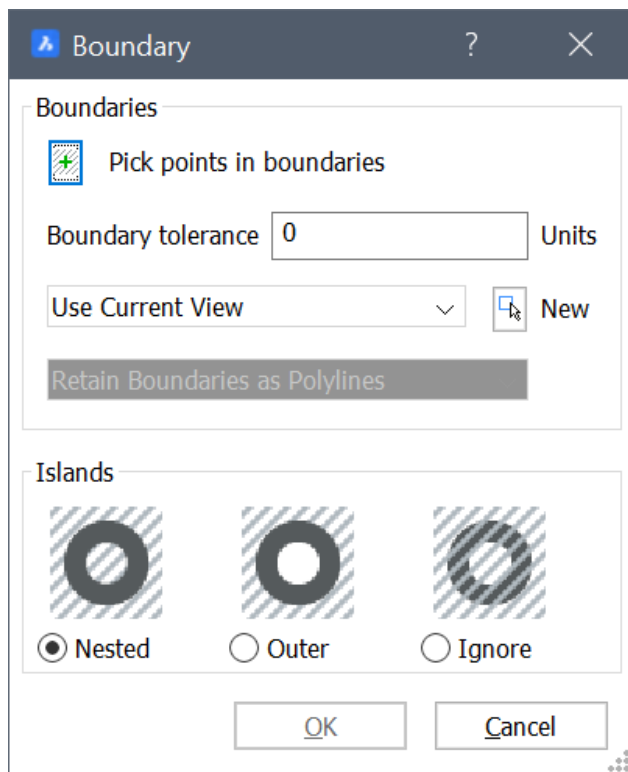
1 Internal point

Resulting polylines:



7.137.2 Boundary dialog box

Begin creating boundaries by selecting options in the Boundary dialog box.



Boundaries

Specify boundary options.



Pick points in boundary

Specify a point inside an enclosed area for which you want to create a boundary. You can continue picking additional points until you press Enter to return to the Boundary dialog box.

Additional options: [Select entities/Undo]

Boundary tolerance

Specify the largest gap that can exist in the boundary for BricsCAD to consider the area closed. When boundary tolerance is 0, no gaps can exist.

Boundary set

Specify where BricsCAD should search for entities that make up the boundary.

- **Use Current View:** search all entities in the current viewport.
- **Use Boundary Set:** search only the current selection set.
- **New:** create a new selection set. Press Enter to finish selecting entities and return to the Boundary dialog box.

Retain Boundaries as Polylines [Read only]

Indicates how boundaries are retained.

Islands

Specify island detection. An island is an enclosed area inside a boundary.

Nested

Treat every island as a boundary.

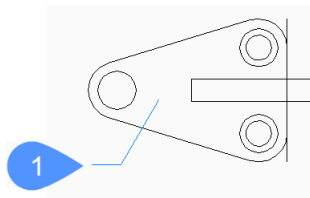
Outer

Create a boundary of only the outermost entities.

Ignore

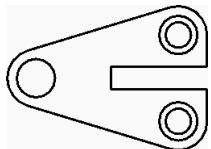
Ignore the innermost areas. A boundary is created between the outermost area and islands.

Original entities:

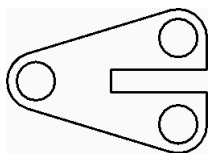


1 Internal point

Nested:

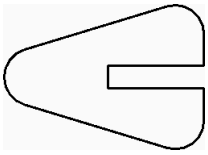


Outer:





Ignore:



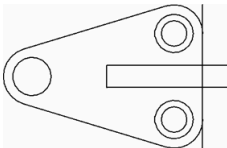
7.137.3 Options within the BOUNDARY command

After you begin creating boundaries, the following options may be available:

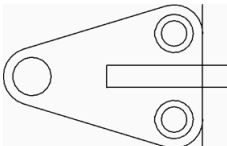
Select entities

Select entities to use as boundaries.

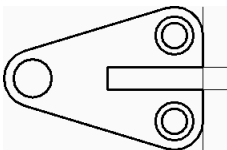
Original entities:



Selected entities:



Resulting polylines:

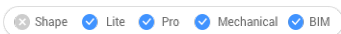


Undo

Undo the last internal pick point and continue picking points to specify additional enclosed areas.

7.138 -BOUNDARY command

Creates closed polylines from bounding entities.



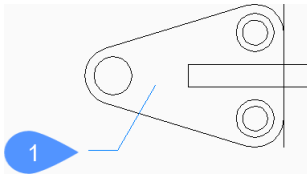
Alias: -BO

7.138.1 Description

Create closed polylines, defined by surrounding entities using the Command line. Options allow you to pick an internal point, specify the boundary set, and detect islands. See the BOUNDARY command to access similar functionality using a dialog box.

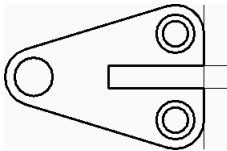


Original entities:



1 Internal point

Resulting polylines:



7.138.2 Methods to create a boundary

There is one method to begin creating a boundary:

- Internal point

Internal point

Begin creating boundaries by specifying a point inside an enclosed area for which you want to create a boundary. You can continue picking additional points until you press Enter to end the command.

Alternate options: [Advanced/Undo]

7.138.3 Options within the -BOUNDARY command

After you begin creating boundaries, the following options may be available:

Advanced

Choose to modify boundary options or island detection.

Boundary

Specify where BricsCAD should search for entities that make up the boundary.

- **New:** create a new selection set of entities that make up the boundary.
- **Everything:** select all entities in the current viewport.

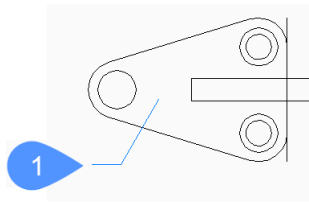
Island

Specify the island detection. An island is an enclosed area inside a boundary.

- **Yes:** treat every island as a boundary.
- **No:** create a boundary of only the outermost entities.
- **Outer only:** ignore the innermost areas. A boundary is created between the outermost area and islands.

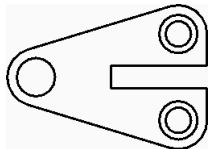


Original entities:

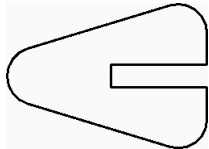


1 Internal point

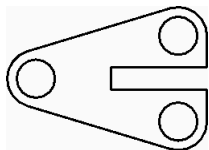
Yes:



No:



Outer only:



Exit

Return to the previous prompt.

Undo

Undo the last internal pick point and continue picking points to specify additional enclosed areas.

7.139 BOX command

Creates a 3D solid in the shape of a box.

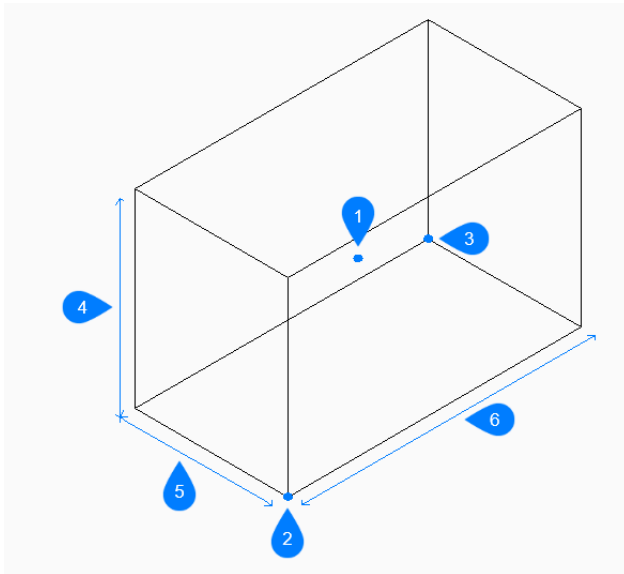
Note: In BricsCAD Lite, which doesn't support 3D Solids, the BOX command launches the AI_BOX command.



Icon: 

7.139.1 Description

Create a 3D solid in the shape of a rectangular or square box. Choose from a combination of options including corner, center, length, width, height, and cube.



- 1 Center of box
- 2 Corner of box
- 3 Opposite corner
- 4 Height
- 5 Width
- 6 Length

7.139.2 Methods to create a box

This command has 2 methods to begin creating a box:

- Set corner of box
- Center

Set corner of box

Begin creating a box by specifying a corner for the base of the box then:

Set opposite corner

Specify the opposite corner for the base of the box to apply both the length and width. The box is created parallel to the x and y axes.

Additional options: [Cube/Length of side]

Height of box

Specify the height of the box.

Additional option: [2Point]

Center

Begin creating a box by specifying the center of the box then:

Set corner of box

Specify a corner on the midplane of the box to apply both the length and width. The box is created parallel to the x and y axes.

Additional options: [Cube/Length of side]



Height of box

Specify the height of the box.

Additional option: [2Point]

7.139.3 Options within the BOX command

After you begin creating a box, the following options may be available:

Cube

Specify a single distance to use for the length, width, and height of the box.

Length of side

Specify the length of the side of the box then:

Width of box

Specify the width of the box.

Height of box

Specify the height of the box.

Additional option: [2Point]

2Point

Specify the height of the box by picking any two points.

7.140 BREAK command

Removes a portion of an entity.



Icon: 

Alias: BR

You can break arcs, circles, ellipses, lines, polylines, rays and infinite lines.

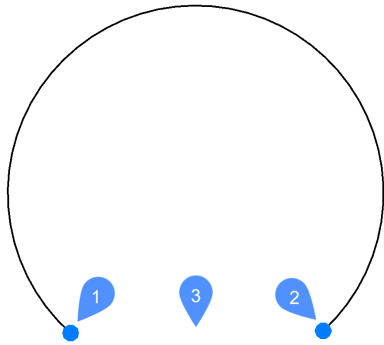
Note: Breaking a circle converts it to an arc. A ray is broken into a ray and a line. An infinite line is broken into two rays.

7.140.1 Method

When breaking entities, you must specify two points for the break. The portion between the two break points is removed.

On arcs and circles, the break occurs in the counter-clockwise direction from first to second break points.

Note: By default, the point you use to select the entity becomes the first break point.



- 1 First break point
- 2 Second break point
- 3 Removed portion

7.140.2 Options within the command

First break point

Specifies the start of the portion of the entity to remove.

@

Specifies that the first and second break points are at the same location on the entity. The selected entity is broken into two connected parts.

7.141 BREAKLINE command (Express Tools)

Creates a polyline with a breakline symbol.

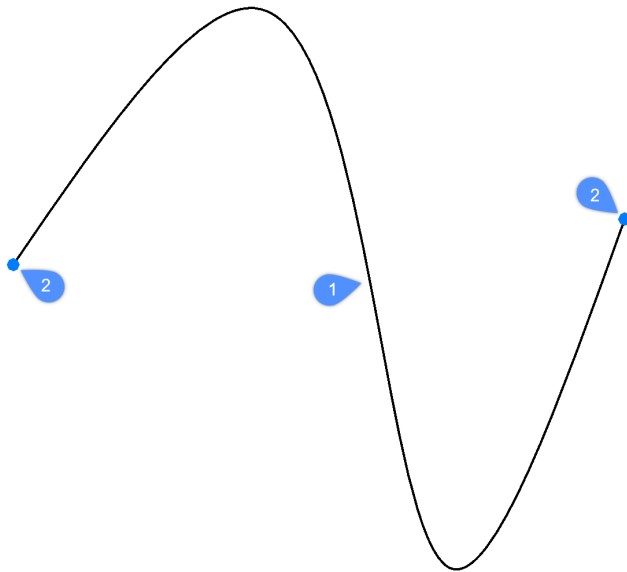
Icon: 

7.141.1 Method

Specify the first and the second point for the breakline, then specify the location for the breakline symbol.

You can customize the breakline symbol with these steps:

- 1 Open a new drawing.
- 2 Draw a symbol (1).
- 3 Set the **Defpoints** layer current.
- 4 Add two points (2) to the symbol, using the POINT command. The breakline will intersect the symbol in these points.



5 Save this drawing in the ExpressTools folder. The default path is: *C:\Program Files\Bricsys\BricsCAD V23 en_US\ExpressTools*.

7.141.2 Options within the command

Block

Specifies the block that is used as a breakline symbol.

Note: The default block is defined by the **brkline.dwg**.

Size

Sets the size of the breakline symbol.

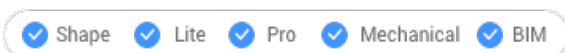
Note: The size of the breakline symbol determines the minimal length of the breakline.

Extend

Sets the extension length of the breakline when a break symbol is added.

7.142 BROWSER command

Opens the default Web browser.



7.142.1 Description

Opens the default Web browser to browse the internet starting from a specified URL. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

7.143 BSAVEAS command

Opens the Save block definition dialog box.






7.143.1 Description

Open the Save block definition dialog box to copy the current block definition to a new name. This command is only available from the Block Editor.

7.144 BTRIM command (Express Tools)

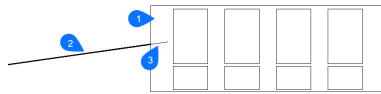
Trims entities to entities nested in blocks and external references.

Icon: 

7.144.1 Method

Choose one or more entities nested in blocks or external references to use as cutting edge (1).

Choose the entity to be trimmed (2).



- 1 Cutting edge entity
- 2 Entity to be trimmed
- 3 Trimmed part

Note: Switch to extend mode: press and hold the Shift key to select an entity to be extended to the nearest boundary entities. See the BEXTEND command.

7.144.2 Options within the command

Fence

Selects all entities that cross the selection fence. The selection fence is a series of temporary line segments. The selection fence does not form a closed loop.

Crossing

Selects entities within and crossing a rectangular area defined by two points.

Edge mode

Toggles between **Extend** and **No extend**.

Extend

Extends the boundary object along its natural path to intersect another object or its implied edge in 3D space.

No extend

Specifies that the object is to extend only to a boundary object that actually intersects it in 3D space.

Projection

Specifies the projection method used when extending objects.

No projection

Extends only those entities that intersect real boundaries in 3D space.

xy plane of Ucs

Projects entities and boundaries to the x,y plane of the current UCS, and then extends the projected entities that would intersect projected boundaries.



current View

Projects entities into the current view, and then extends them accordingly.

eRase

Deletes selected entities.

7.145 BURST command (Express Tools)

Explodes blocks, converting the attributes values into text entities.

Icon: 

7.145.1 Method

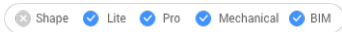
Select the block that you want to explode and press Enter.



8. C

8.1 CAL command

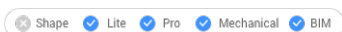
Opens the BricsCAD Calculator.



8.1.1 Description

Opens the BricsCAD Calculator to perform common calculation and conversion operations. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

8.2 CALLOUT command

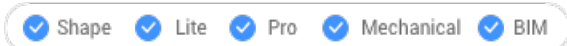


8.2.1 Description

This is a service command which is not supposed to be entered directly by the user. It is used by the program when a context menu item is selected.

8.3 CAMERA command

Places camera glyphs in drawings that point at target points, and creates named views.



Icon: 

8.3.1 Method

Specify the location of the camera and the location of the target (the point at which the camera looks).

A camera glyph displays in the drawing to indicate the position of the camera.

Note: A camera glyph displays in the drawing to indicate the position of the camera.

8.3.2 Options

?

Displays a list of existing cameras. Press Enter to list all existing cameras.

Use wildcards (* or ?) to list a selection of cameras. For example, Cam* lists all cameras names that start with 'cam' and ?a* lists all camera names of which the second letter is 'a'

Name

Names the new camera.

Location

Positions the camera by picking a point in the drawing or typing the x, y, z coordinates in the Command line.



Height

Sets the height (z coordinate) of the camera.

Target

Positions the target, the point at which the camera looks by picking a point in the drawing or typing the x, y, z coordinates in the command line.

LEns

Defines the lens length. A smaller number, such as 20, provides a wider field of view, while a higher number, such as 200, provides a closer look, like a zoom lens on a camera.

CLipping

Defines the front and back clipping planes, which cut off the view.

View

Sets the camera as current view.

Note: Properties of a camera view can be edited:

- in the dialog box displayed by the VIEW command.
- in the Properties panel after selecting the camera glyph in the drawing.

Camera	
General	
Handle	9B
Camera	
Name	Camera2
Camera	50.96, 233.35, 135.2
X	50.96
Y	233.35
Z	135.22
Target	50.96, 120.35, 172.2
X	50.96
Y	120.35
Z	172.22
Lens length	100 mm
Field of view	19.85
Roll angle	0
Plot glyph	Yes
Clipping	
Front plane	100 mm
Back plane	20 mm
Clipping	Front and back on

Grips Editing

Cameras can be edited directly through grips:

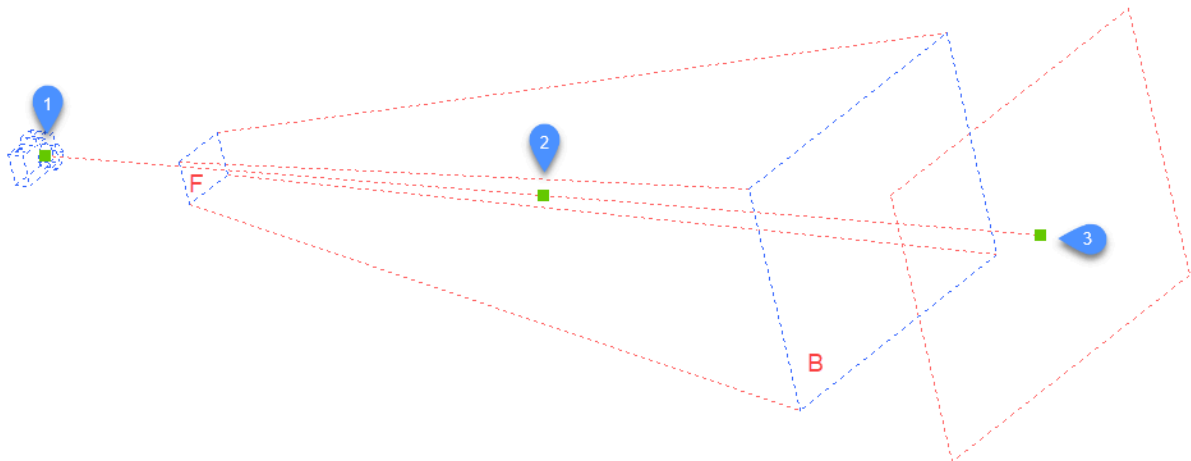
Select the camera glyph in the drawing. Notice that it has three grips. Front (F) and back (B) clipping planes display in a blue dotted line.

Drag the grips to perform the following actions:

- Position the camera (1).
- Move the camera definition as a whole (2).



- Position the target (3).



8.4 CDORDER command (Express Tools)

Arranges the entities draw order based on their index color.

Icon:  123

8.4.1 Method

Select the entities you want to arrange. The **Color based Draw Order** dialog box opens, where you can specify the color priority.

8.5 -CDORDER command (Express Tools)

Arranges the entities draw order based on their index color via the command line.

8.5.1 Options within the command

Draworder

Changes the display order of the selected entities using the DRAWORDER command.

Enter color numbers separated by comma

Allows you to specify the colors indexes, separated by comma.

Note: The first color places the entities in the front, while the last color places the entities in the back.

Enter draworder location for objects

Allows you to choose between **Front** and **Back**.

Front

Places the selected entities in front of the entities that are not specified in the color list.

Back

Places the selected entities behind the entities that are not specified in the color list.

Redefine order for selected blocks?

Changes the display order of the entities in blocks.



Y

The selected blocks are reordered.

N

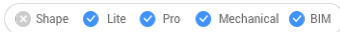
The selected blocks remain unchanged.

Handles

Changes the display order of the selected entities by reordering entities in the drawing database.

8.6 CENTER command

Toggles the Center entity snap.



Icon: 

8.6.1 Description

Toggles the Center entity snap to enable or disable snapping to center. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

8.7 CENTERDISASSOCIATE command

Breaks the association of a centerline entity with two selected lines, or else a center mark with a circle or an arc.



Icon: 

8.7.1 Description

Breaks the association of centerline and center mark entities with the associated entities, such as lines, arcs, and circles.

8.8 CENTERLINE command

Creates a centerline.



Icon: 

Alias: CL

8.8.1 Description

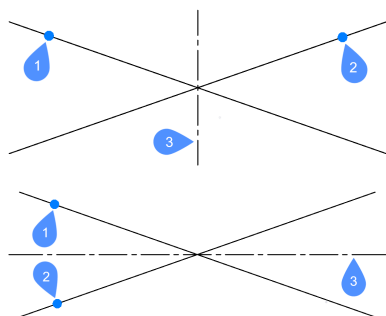
Creates a centerline geometry associated with two selected lines or polyline segments.

Note: Centerlines are drawing reference entities to indicate axes of symmetry.



8.8.2 Method

When applying a centerline to the intersection of two lines, the location of the picked points determines the direction of the centerline.



- 1 First segment selected.
- 2 Second segment selected.
- 3 Resulting centerline.



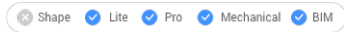
The lines and polyline segments can be selected inside blocks and in drawing view viewports. You can pick two segments of the same polyline.

Note: The centerline is associative, so when one or both lines are moved, the centerline repositions itself.

Note: Centerlines can be edited through grips. It can be moved and lengthened by dragging the grips. The CENTERRESET command can be used to reset the centerline.

8.9 CENTERMARK command

Creates a center mark.

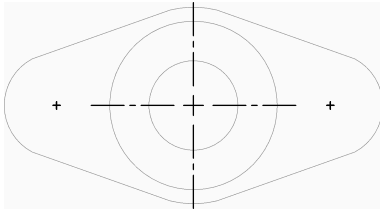


Icon:

Alias: CM

8.9.1 Description

Creates a center mark associated with a selected circle, arc, or polyarc.



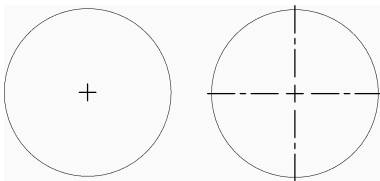
8.9.2 Method

There is one method to begin creating a center mark:

- Select circle or arc

Select circle or arc

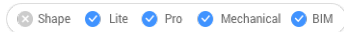
Begin creating a center mark by selecting a circle, arc or polyarc. Depending on the current value of the CENTERMARKEXE system variable, the center mark is drawn with or without extension lines. Additional system variables further control the appearance of centermarks.



The center mark is associative, so when the arc or circle is moved or resized, the centermark follows.

8.10 CENTERREASSOCIATE command

Associates a centerline entity with two selected lines, or else a center mark with a circle or an arc.



Icon:



8.10.1 Description

Selects the center mark or a centerline to associate with their specific entities.

If you select a center mark you have to specify a circle or an arc (circular entity) to associate with.

If you select a centerline you have to specify two lines to associate with.

8.11 CENTERRESET command

Resets centerline and center mark entities.



Icon:

8.11.1 Description

Centerlines are reset by the program when one of the associated lines is moved. Center marks are reset automatically when the associated circle or arc is moved or when their radius or diameter is modified.

8.12 CHAMFER command

Creates chamfers at intersections, defined by two lengths, or a length and an angle.



Icon:

Alias: CHA

8.12.1 Methods

There are four methods to create chamfers:

- Create chamfer by specifying two distances.
- Create chamfer by length and angle.
- Create chamfers along a polyline.
- Create chamfers on a 3D solid edge (obsolete, replaced by DMCHAMFER command).

Note: The command cannot place a chamfer between two polylines, but it can place a chamfer between a line and a polyline, even a closed polyline.

Note: To connect two entities without creating a chamfer, hold the Shift key when selecting the second entity. This acts like a combined Trim-Extend command.

8.12.2 Options within the command

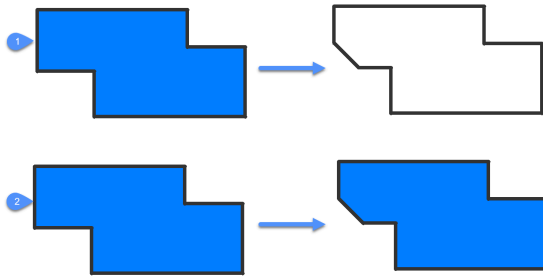
chamfer Settings

Opens the Settings dialog box at the chamfer parameters.

Polyline

Chamfers the vertices where two segments meet of the selected polyline (if applicable).

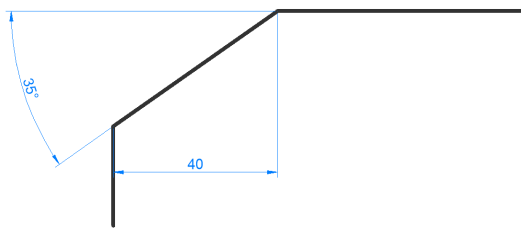
Note: Creating chamfers on a hatch boundary created with individual lines (1) results in removal of hatch associativity. Associativity is maintained if the boundary is defined from a polyline (2).



Angle

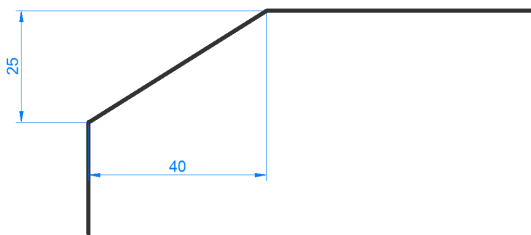
Changes the method to length-angle.

Note: BricsCAD measures the angle from 0 degrees, the X axis.



Distance

Changes the method to distance-distance.



mEthod

Specify between angle and distance methods.

Note: The program will keep using the same method for determining the chamfer until the method is changed again.

Trim

Determines if the entities are trimmed or extended to meet the endpoints of the chamfer line.



Undo

Undoes the last chamfer when in multiple mode.

Multiple

Create multiple chamfers with the same settings. Press the Esc key to exit the command.

Create 3D chamfer

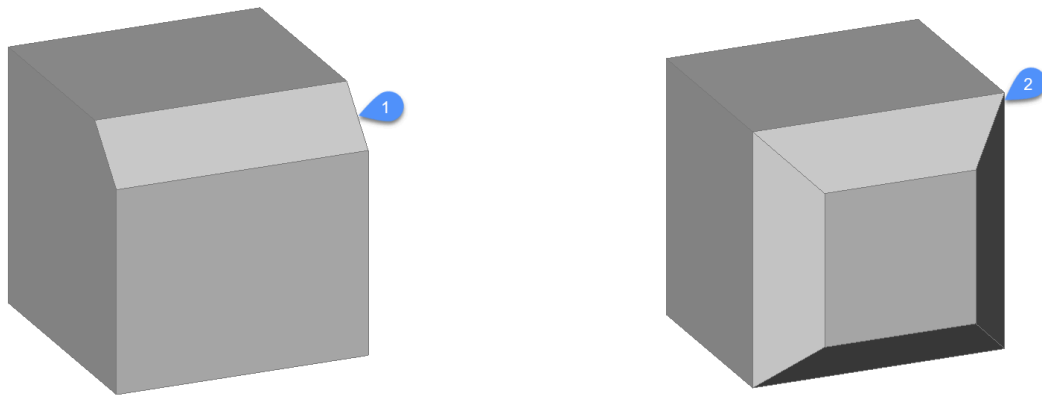
Create 3D chamfer by selecting the edge of a 3D solid or surface.

Enter surface selection option

Select between surfaces adjacent to the selected edge.

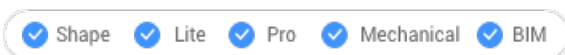
Select edge or Loop

Select edge (1) to be chamfered or loop around selecting all tangential edges belonging to the base surface (2).



8.13 CHANGE command

Changes the properties of entities, through the Command line. This command has largely been superseded by the PROPERTIES panel.



Icon: 

Alias: -CH

8.13.1 Method

Choose one or more entities in the drawing and choose a change point which changes the size of the entity, depending on what the entity is:

- Lines - moves the endpoint closest to the pick point.
- Arcs - changes the length closest to the pick point.
- Circles - changes the diameter.



- Text - moves the text.
- Blocks - moves the block.

Note: This option has no effect on polylines.

8.13.2 Options

special Entities

Specifies options for changing the properties of rays and infinite lines (xlines):

Point change for Rays and Infinite Lines affects:

change Angles

Changes the angle.

definition Points

Changes the location of the points defining the rays and infinite lines.

No changes

Leaves entities unchanged.

Properties...

Color/Elevation/LAyer/LineType/linetype Scale/Line Weight/ Thickness/TRansparency/Material/Annotative

For more explanation, see the Properties panel.

8.14 CHECKFORUPDATES command

Displays information about BricsCAD versions.

8.14.1 Description

Displays the current installed version and which are the latest available BricsCAD version for download.

The download page will open in the browser when you click **Yes**.

8.15 CHECKSTANDARDS command

Checks the current drawing for inconsistencies that violate the standards.



8.15.1 Methods

The CHECKSTANDARDS command is used to view and manage the violations of standards in the current drawing.

This command allows the user to fix or ignore each reported violation. The user can hide or show the ignored violations. If the ignored violations are hidden, they will no longer be reported as violations. See the STANDARDSOPTIONS system variable.

The user can choose to be notified about the standards violations. When the notification option is on, the user will be notified with an alert when a violation occurs. See the STANDARDSVIOLATION system variable.

The purpose of this command is to make some changes in the current drawing based on the standards that are defined for the drawing.



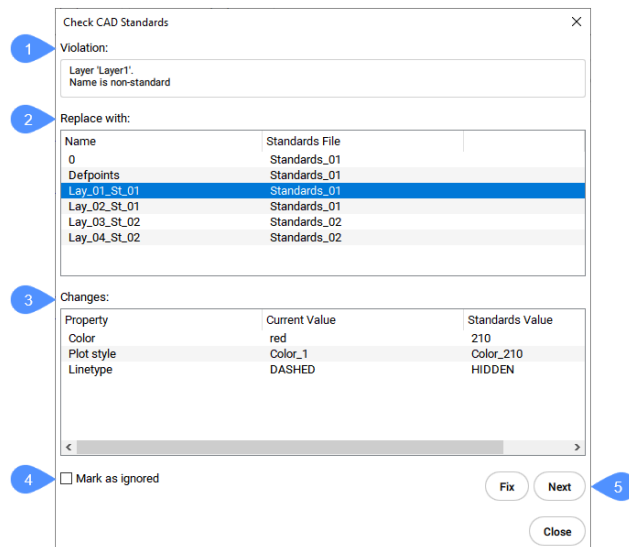
A standard is a set of properties of a named object in the standards file.

The properties of named objects in the current drawing are compared with the definitions in the standards file. When the named object does not comply with any standard, a violation occurs. In this case, the user can choose to apply a replacement. A replacement assigns a standard to a named object in the current drawing. All the properties of this named object are replaced by the values in the standard.

This command has an associated dialog box that manages all necessary operations.

8.15.2 CHECKSTANDARDS dialog box

The CHECKSTANDARDS dialog box allows to select the options for the CHECKSTANDARDS command.



- 1 Violation
- 2 Replace with
- 3 Changes
- 4 Mark as ignored
- 5 Fix / Next / Close

Violation

This section contains a description of the current violation. The current violation includes a target named object in the current drawing that does not comply with the standards. The description includes the target named object type and name and the first property of the target named object.

Replace with

This section contains a list of standards that can be applied to the target named object. An entry of the list includes the name of the source named object in the standards, and the standards file name where this source named object is located. Clicking on an entry will highlight it and make it active.

Changes

This section displays the changes that can be made to the target named object. It contains a table that displays the properties of the target named object, in the current drawing. For each property, the table dis-



plays the current value and the standards value. The current value is the property value that is currently assigned to the target named object. The standards value is the property value defined in the standard. When the user chooses to make the change, the properties of target named object will take the values in the chosen standard.

Mark as ignored

This option allows to ignore a certain violation. The user can choose to hide the ignored violations. See the STANDARDSOPTIONS system variable.

Fix / Next / Close

This section contains the buttons assigned to the actions that can be taken.

Fix

Applies the selected standard to the target named object.

Next

Proceeds with the next violation in the current drawing.

Close

Closes the dialog box.

8.16 CHPROP command

Changes the properties of the selected entity.



8.16.1 Description

Changes the properties of the selected entities, with fewer options than the CHANGE command. You can change the properties for one or multiple entities.

Note: This command is largely superseded by the properties panel.

8.16.2 Options within the command

Color

Changes the color of the entity.

COlorbook

Select colorbook to append.

LAyer

Changes the layer to which the entities are assigned.

LineType

Changes the linetype. Linetype must be loaded into the drawing.

linetype Scale

Changes the linetype scale.

Line Weight

Changes the lineweight.

Thickness

Changes the thickness.



TRansparency

Changes the transparency.

Material

Applies a material.

Annotative

Sets the annotative property.

8.17 CHSPACE command

Moves entities from paper space to model space and vice versa.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Note: This command can only be used in a Paper Space.

8.17.1 Method

There are two methods to use CHSPACE command:

- Moves entities from paper space to model space.
- Moves entities from model space to paper space.

8.17.2 Options within the command

Note: The following options are available only with multiple viewports active

Select TARGET viewport

Select target viewport as reference.

Note: The scale factor is the inverse of custom scale of the selected target viewport. For example, if the custom scale = 1/2 (0.5), then the scale factor = 2.

Select SOURCE viewport

Select source viewport as reference.

Note: The scale factor equals the custom scale of the selected source viewport.

8.18 CHURLS command (Express Tools)

Changes previously placed URL addresses.

Icon: 

8.18.1 Method

Opens the **Change URL for entity** dialog box which allows you to change the URL address attached to the selected entity.

8.19 CIRCLE command

Creates circle entities.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM



Icon: ○


Alias: C

8.19.1 Description


Creates a circle from a combination of options including the center, radius, two points, three points or tangent to entities. You can also convert an arc to a circle.

8.19.2 Methods

There are 7 different methods to create circle entities:

 Center-Radius

 Center-Diameter

 2 Point

 3 Point

 Tangent-Tangent-Radius

 Turn Arc into circle

Multiple circles

8.19.3 Options within the CIRCLE command

Select center of circle

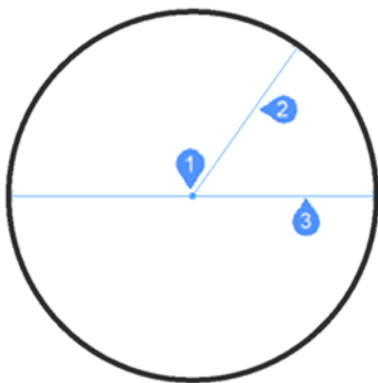
Specify a point (1)

Set Radius

Specify a point (2)

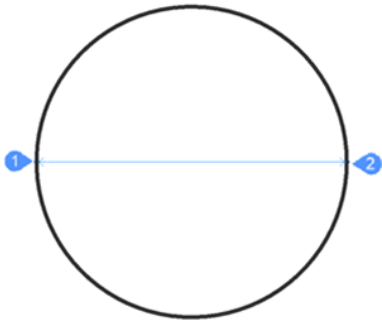
Set Diameter

Specify a point (3)



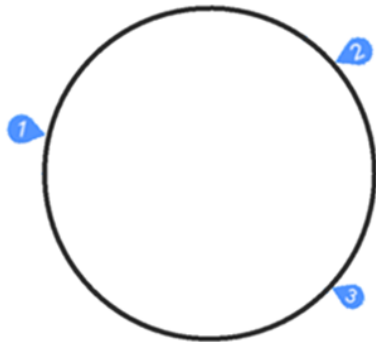
2P

Specify 2 diametrically opposite points (1 and 2) to define the circle.



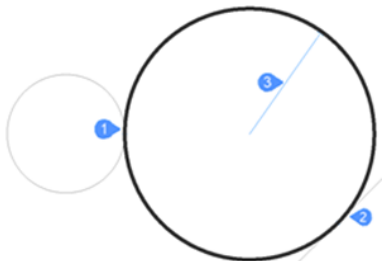
3P

Specify 3 points to define the circle. Tangent entity snap allows defining a circle by picking 3 tangent points to other entities. The TanTanTan method is also available by AI_CIRCTAN command.



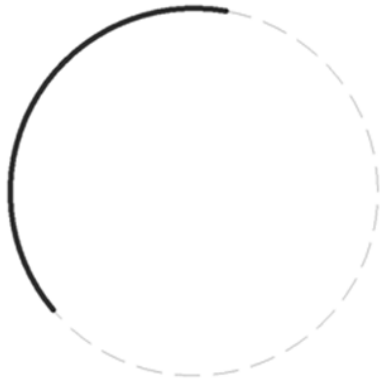
Tangent-Tangent-Radius

Define the circle by two tangent points (to other entities – 1 and 2) and its radius. When you specify a radius that is not possible with the selected tangents, you are prompted to specify the second tangent and the radius again.



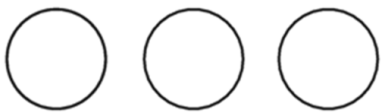
Turn Arc into circle

Converts an arc entity into a circle by extending it to 360 degrees.



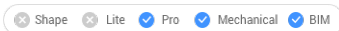
Multiple circles

Create multiple circles with the same size using one of the listed methods above. Press Enter to end the command.



8.20 CIVIL3DIMPORT command

Creates BricsCAD civil entities from an Autodesk® Civil 3D drawing.



8.20.1 Description

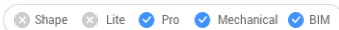
Opens the **Import Civil 3D** dialog box which allows you to import AutoCAD® Civil 3D entities from a selected .dwg file, or to convert them directly from the current drawing.

The following objects from AutoCAD® Civil 3D can be imported, which are in BricsCAD also created as Civil entities:

- Cogo points and point groups
- TIN Surfaces
- TIN Volume Surfaces
- Grid Surfaces
- Alignments (both Alignments by PI and Alignments by Elements are supported)
- Profile Views
- Profiles (Vertical Alignments)

8.21 CIVILDWGEXPORT command

Exports BricsCAD Civil entities as native CAD entities.



Icon: ^{DWG}
→



8.21.1 Description

Opens the **Save Drawing As** dialog box which allows you to export Civil entities as native CAD entities in a new drawing.

8.22 CIVILEXPLORERCLOSE command

Closes the **Civil Explorer** panel.

8.22.1 Description

Closes the **Civil Explorer** panel to hide it from the current workspace. If the **Civil Explorer** panel is stacked when you close it, the **Civil Explorer** tab or icon is removed from the stack.

8.23 CIVILEXPLOREROPEN command

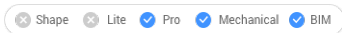
Opens the **Civil Explorer** panel.

8.23.1 Description

Opens the **Civil Explorer** panel to display it in the current workspace. The **Civil Explorer** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Civil Explorer** panel can be either floating, docked or stacked.

8.24 -CIVILPOINT command

Creates Civil Points via Command line.



8.24.1 Description

Civil Points are defined in BricsCAD as Civil entities, which are represented by symbols and labels. In addition to XYZ coordinates, Civil Points can have a variety of attributes assigned, including point number, point name, raw (field) description and full (expanded) description.

Use the **Properties** panel to edit the properties of an individual point or a group of selected points.

For improved organization, Civil Points can be collected into point groups based on certain criteria determined by filters.

You can use the basic BricsCAD commands to edit Civil Points in a drawing. For example, COPY, COPYCLIP, PASTE, MOVE, ROTATE...

You can use Civil Points as input objects for creating a TIN Surface, which is automatically updated when editing points.

8.24.2 Method

There are two methods to insert Civil Points:

- Insert a single point by specifying its location in a drawing.
- Import multiple points from an ASCII point file.

Note: In addition to the basic ASCII file, points can also be imported from a LandXML file using the LANDXMLIMPORT command.



8.24.3 Options within the command

Specify point location

Allows you to specify the location of a new individual point in a drawing.

Enter point description

Allows you to specify a description for the Civil Point.

Enter point elevation

Allows you to specify an elevation for the Civil Point.

Import points from file

Creates Civil Points from an imported points file in text file format (.TXT), comma-delimited file format (.CSV), and other text formats where the XYZ coordinates in the input file are separated by any delimiter.

Enter file name

Allows you to specify the file path name.

Enter file format name

Allows you to specify the point file format.

set Style

Allows you to specify a point symbol style when inserting a new point.

Note: More information on point styles and labels can be found in the **Working with Civil points** article.

?

Lists the names of the available point symbol styles in the Command line.

8.25 CIVILPOINT command

Creates Civil Points.



Icon:

8.25.1 Description

Civil Points are defined in BricsCAD as Civil entities, which are represented by symbols and labels. In addition to XYZ coordinates, Civil Points can have a variety of attributes assigned, including point number, point name, raw (field) description and full (expanded) description.

Use the **Properties** panel to edit the properties of an individual point or a group of selected points.

For improved organization, Civil Points can be collected into point groups based on certain criteria determined by filters.

You can use the basic BricsCAD commands to edit Civil Points in a drawing. For example, COPY, COPYCLIP, PASTE, MOVE, ROTATE...

You can use Civil Points as input objects for creating a TIN Surface, which is automatically updated when editing points.



8.25.2 Method

There are two methods to insert Civil Points:

- Insert a single point by specifying its location in a drawing.
- Import multiple points from an ASCII point file.

Note: In addition to the basic ASCII file, points can also be imported from a LandXML file using the LANDXMLIMPORT command.

8.25.3 Options within the command

Specify point location

Allows you to specify the location of a new individual point in a drawing.

Enter point description

Allows you to specify a description for the Civil Point.

Enter point elevation

Allows you to specify an elevation for the Civil Point.

Import points from file

Creates Civil Points from an imported points file in text file format (.txt), comma-delimited file format (.csv) and other text formats where the XYZ coordinates in the input file are separated by any delimiter. You can select multiple point files from the **Select Point File** dialog box which allows you to import Civil Points from an ASCII point file and to select the appropriate point file format.

set Style

Allows you to specify a point symbol style when inserting a new point.

Note: More information on point styles and labels can be found in the **Working with Civil points** article.

?

Lists the names of the available point symbol styles in the Command line.

8.26 CIVILPOINTATTRIBUTES command

Adds or removes user-defined attributes to Civil Points.



Icon:

8.26.1 Options within the command

Select civil points

Allows you to select Civil Points to add user-defined attributes.

? to list user attributes

Lists the existing user-defined attributes on Civil Points in the Command line.

Add attribute

Adds attributes for the selected Civil Point by specifying a key (name) and a value.

User defined attributes are added to the **User Attributes** (1) section in the Properties panel.



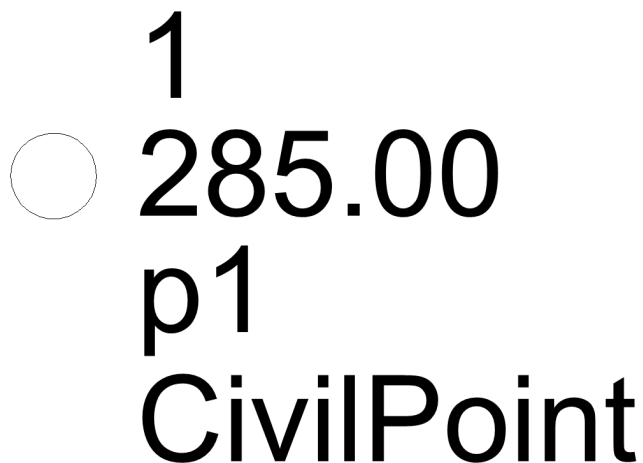
Properties	
Civil Point	
General	
3D Visualization	
Data	
Name	
Point number	1
Point raw description	p1
Point full description	p1
Point Group	_All points
Symbols	
Symbol block	Bsys_civilpoint_symbol
Symbol rotation	0
Symbol size type	Drawing units
Symbol size	1 mm
Labels	
Label block	Bsys_civilpoint_label
Label rotation	0
Label orientation reference	View
Label readability angle	90
Label readability flip	On
Geometry	
Easting	115
Northing	67
Elevation	285
Leader	
Visibility	On
Type	Line with arrow
Arrow	-> Open
Arrow size	2.5
Attachment	Point of insertion
User Attributes	
user-defined	CivilPoint

You can use the block editor to add a new custom attribute to the Civil point **Symbol block**. The new attribute is added by writing the attribute key in angle brackets: **<user-defined>**. The attribute key can be written as Text or as an Attribute definition.

User defined attribute added in the block editor:

- <Number>
- <Elevation>
- <Full Description>
- <user-defined>

The Civil point Symbol block displayed in the Layout view:





Remove

Removes user-defined attributes on Civil Points based on the specified attribute keys.

8.27 CIVILPOINTGROUP command

Creates **Civil Point** groups.



Icon:

8.27.1 Description

Depending on the specified filters, points can be included or excluded from the point group.

8.27.2 Method

There are two ways to use the command:

- Create a new point group and add filters to include or exclude points from the group.
- Edit filters of an existing point group.
- With this method, you can specify the name of the existing point group in the first step and then you can edit the filters.

8.27.3 Options within the command

Enter point group name

Allows you to enter the name of a new point group for which you will create a new filter. It also allows you to enter the name of an existing point group for which you want to edit the filters.

filter to Include

Allows you to create a new or to edit an existing filter in which you specify the criteria for including points in the selected point group.

- 1 Select the name of existing Civil Point attribute in the Command line.
- 2 Specify either an individual attribute value, multiple values, a range of values, or any combination of the listed options, based on which points are included in the desired point group. When specifying multiple attribute values, a comma (,) without a space is used for separation.

In addition to entering full attribute values/keys, you can define filters in other ways:

- Only specify the first character of the name and the "*" sign, such as "a*", where the filter will take into consideration all names starting with "a".
- Specify the first and last character with an intermediate sign "*", such as "a*z", where the filter will take into consideration all names starting with "a" and ending with "z".
- Specify sign "*" and a last character, such as "*z", where the filter will take into consideration all names ending with "z".
- Specify individual characters, missing characters are replaced with the "*" sign, such as "a*b*" where the filter will take into consideration all names starting with "a", and with the third character "b".



Note:

- Multiple filters can be added to the existing point group.
- Once an individual filter is created in a particular drawing, it also affects all the points that are inserted later in that drawing.

filter to Exclude

Allows you to create a new or to edit an existing filter in which you specify the criteria for excluding points from the selected point group.

The procedure of adding a new filter is exactly the same as described in the **filter to Include** section.

? to list point groups

Lists existing point groups in the drawing on the Command line.

Specify point numbers to include

Allows you to enter the point numbers to be included in the specified filter.

Specify point numbers to exclude

Allows you to enter the point numbers to be excluded from the specified filter.

Name

Allows you to enter the point names to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the point names to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.

Note: **_All points** cannot be excluded or edited.

Elevation

Allows you to enter the point elevations to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the point names to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.

An example of an Elevation filter with multiple attribute values, including a range of values, looks like this: "100-200,>400". This filter includes all points with an elevation range between 100 and 200 meters and at the same time all points with an elevation higher than 400 m.

Let's add a new filter to our sample point group to include points based on points raw description: "Manhole".

Based on the additional filter, only points that meet criteria of both filters: Elevation="100-200,>400" and Raw Description="Manhole" are included in the example point group.

Full description

Allows you to enter the point full descriptions to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the point full descriptions to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.

Raw description

Allows you to enter the point raw descriptions to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the point raw descriptions to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.



User attribute Key

Allows you to enter the user-defined attribute keys (attribute names) to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the user-defined attribute keys (attribute names) to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.

User attribute Value

Allows you to enter the user-defined attribute keys (attribute names) to be included in the specified filter, if the option **filter to Include** is selected in the previous step.

Allows you to enter the user-defined attribute keys (attribute names) to be excluded from the specified filter, if the option **filter to Exclude** is selected in the previous step.

8.28 CIVILPOINTGROUPEDIT command

Edits **Civil Point** groups.



Icon:

8.28.1 Description

This command allows you to change the name of the selected point group or delete it.

8.28.2 Options within the command

Enter point group to edit

Allows you to enter the point group name to edit.

? to list point groups

Lists existing point groups in the drawing on the Command line.

? to list points

Lists all points that are included in the selected point group on the Command line.

Remove

Allows you to remove the selected point group.

rEname

Allows you to rename the selected point group.

Note: **_All points** cannot be removed or edited.

8.29 CLEANSCREENOFF command

Displays user interface elements that were hidden by the CLEANSCREENON command.



Note: Do not use the numeric keypad. On AZERTY keyboards: do not press the Shift key when hitting the number key.

8.30 CLEANSCREENON command

Makes the drawing area larger by hiding elements of the user interface.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Note: Do not use the numeric keypad. On AZERTY keyboards: do not press the Shift-key when hitting the number key.

8.30.1 Method

Elements in the user interface are hidden according to the values of the CLEANSCREENOPTIONS system variable.

8.31 CLEANUNUSEDVARIABLES command

Purges parametric variables not used by constraint expressions and not linked to dimensions.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

8.31.1 Description

Automatically deletes parametric variables not used by constraint expressions and not linked to dimensions when the command is run.

8.32 CLIPDISPLAY command

Toggles the Clip Display property of section planes and BIM section entities.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

Note: The display of the section entity and be toggled also through the Properties panel.

8.33 CLIPIT command (Express Tools)

Clips images, wipeouts, blocks or external references.

Icon:

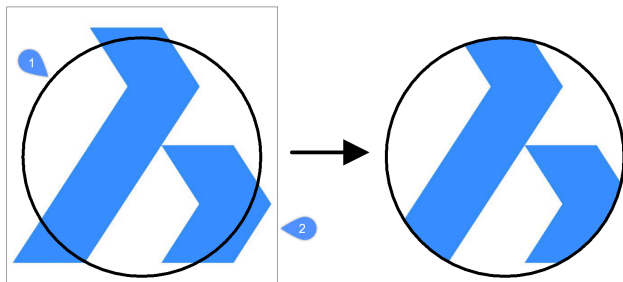
8.33.1 Description

Clips images, wipeouts, blocks or external references by a clipping edge.

Note: Only polyline, circle, arc, ellipse or text entities can be used as a clipping edge.

8.33.2 Method

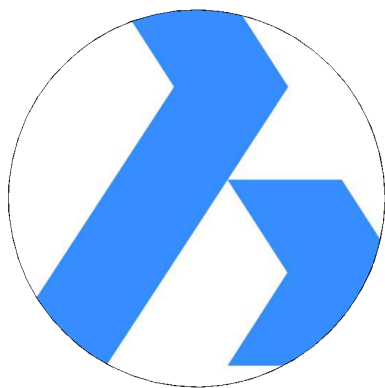
Select the clipping edge (1), then the entity to clip (2).



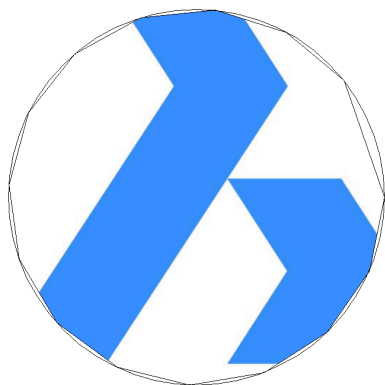
Enter the maximum allowable error distance for the resolution of arc segments.

Note: The default value is 0.02. A lower value gives a smoother clipping but results in a slower performance of BricsCAD when a drawing is regenerated.

- Error distance = 0.02



- Error distance = 1



8.34 CLOSE command

Closes the current drawing.



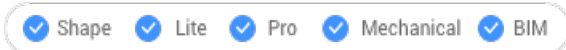
8.34.1 Description


Closes the current drawing after it has been saved. If changes have been made since the last save, a BricsCAD dialog box offers you the opportunity to save the drawing before closing it.



8.35 COLOR command

Opens the Select color dialog box.



Icon: 

Alias: COL, COLOUR, DDCOLOR, DDCOLOUR, SETCOLOR

8.35.1 Description

Opens the Select color dialog box to specify the current color.

8.36 -COLOR command

Sets the current working color, through the Command line.



Alias: -COL, -COLOUR

8.36.1 Methods

Enter the name, number, or RGB value of a color:

- Specify a color name: Red, Yellow, Green, Cyan, Blue, Magenta, White, ByLayer, or ByBlock.
- Specify a number from 0 to 256, which represents the Index Color.
- Specify a value for each of red, green, and blue, which represents the True Color. The range is from 0 to 255. For example, white is 255,255,255 and gray is 128,128,128.
- Specify a bookcolor name.

8.37 COMMANDLINE command

Opens the Command line panel.

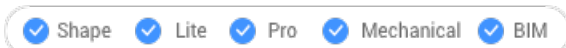


8.37.1 Description

Opens the Command line panel to display it in the current workspace. The Command line panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Command line panel can be either floating, docked or stacked.

8.38 COMMANDLINEHIDE command

Closes the Command line panel.



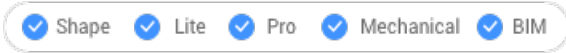


8.38.1 Description

Closes the Command line panel to hide it from the current workspace. If the Command line panel is stacked when you close it, the Command line tab or icon is removed from the stack.

8.39 COMMANDS command

Lists the names of the commands.



8.39.1 Description

Lists the names of commands available in the program according to your license level, first the name in English followed by the localized command name.

8.39.2 Options

Internal

Lists command names native to BricsCAD.

External

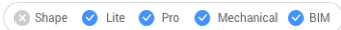
Lists command names from add-on applications.

Both

List both internal and external command names.

8.40 COMMUNICATORINFO command

Checks whether the Communicator add-on is correctly installed and provides a diagnostic report.



The command is available on Windows only.

Until V21, the major versions of BricsCAD and Communicator should match (e.g. Communicator V20.2.x works with BricsCAD V20.2.x).

Starting with V21 the compatibility between minor releases is supported (e.g. Communicator V21.1.x will work with BricsCAD V21.2.x).

8.40.1 Description

Switches to the Prompt History window and then provides a report.

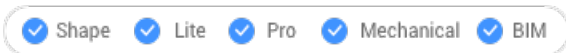
When Communicator is not installed, then the command reports:

Brief check result: Communicator installation: FAILED

8.41 CONE command

Creates a 3D Solid in the shape of a cone.

Note: In BricsCAD Lite, which doesn't support 3D solids, the CONE command launches the AI_CONE command.

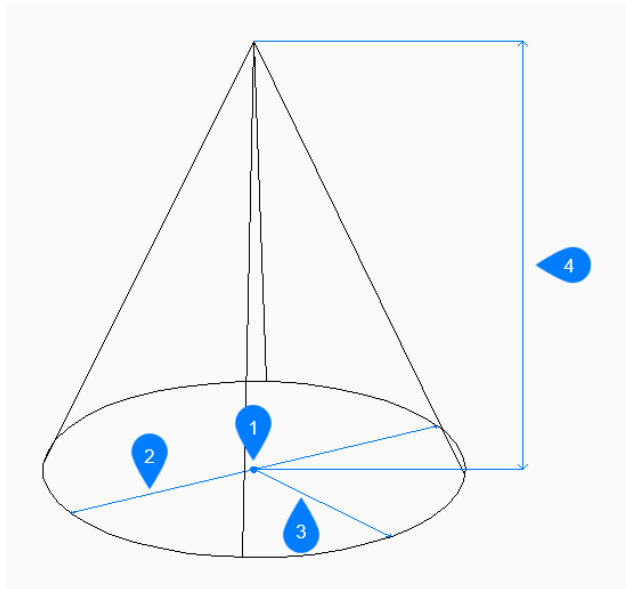




Icon: 

8.41.1 Description

Creates a 3D solid in the shape of a circular or elliptical cone. Choose from a combination of options including center, radius, diameter, 3 point, 2 point, tangents, axis endpoints, and height.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Height

8.41.2 Methods to create a cone

This command has 5 methods to begin creating a cone:

- Center point
- 3 Point
- 2 Point
- Tangent tangent radius
- Elliptical

Center point

Begin creating a circular cone by specifying the center of the base then:

Radius of base of cone

Specify the radius of the base of the cone.

Additional option: [Diameter]

Specify height

Specify the height of the cone.

Additional options: [2Point/Axis endpoint/Top radius]



3 Point

Begin creating a circular cone by specifying the first of three points on the circumference of its base then:

Second point

Specify the second point on the circumference.

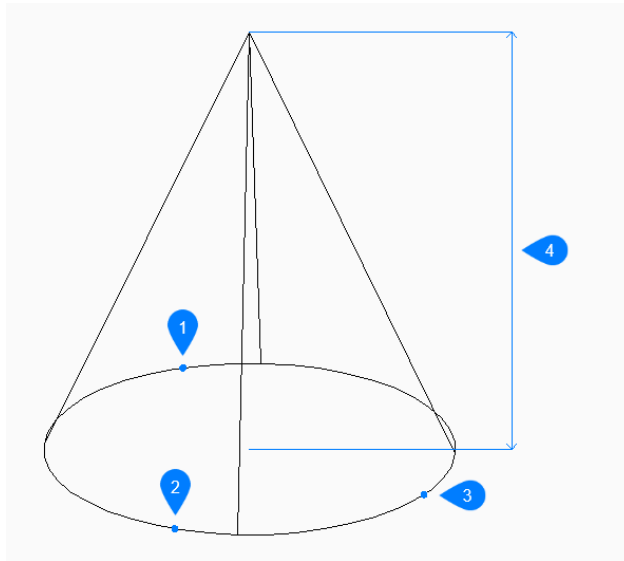
Third point

Specify the third point on the circumference.

Specify height

Specify the height of the cone.

Additional options: [2Point/Axis endpoint/Top radius]



1 Point 1

2 Point 2

3 Point 3

4 Height

2 Point

Begin creating a circular cone by specifying the first of two points on the circumference of its base then:

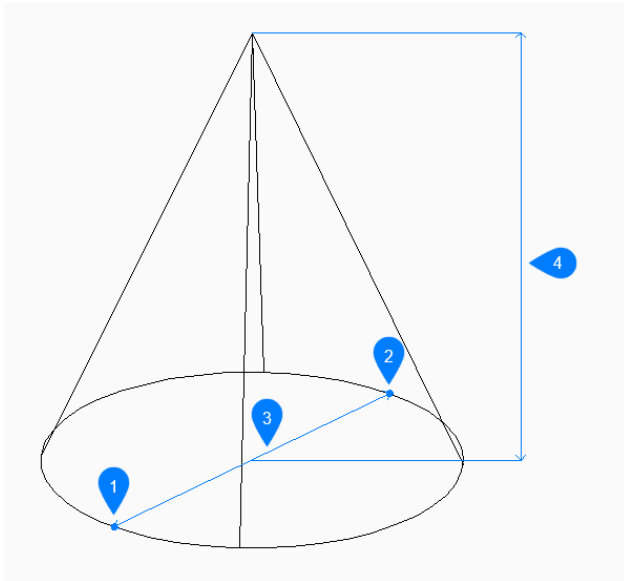
Second end of diameter

Specify the second point on the diameter. The two points define the diameter of the base.

Specify height

Specify the height of the cone.

Additional options: [2Point/Axis endpoint/Top radius]



- 1 Point 1
- 2 Point 2
- 3 Diameter
- 4 Height

Tangent Tangent Radius

Begin creating a circular cone by selecting a tangent point on the first entity then:

Specify point on object for second tangent

Select a tangent point on the second entity.

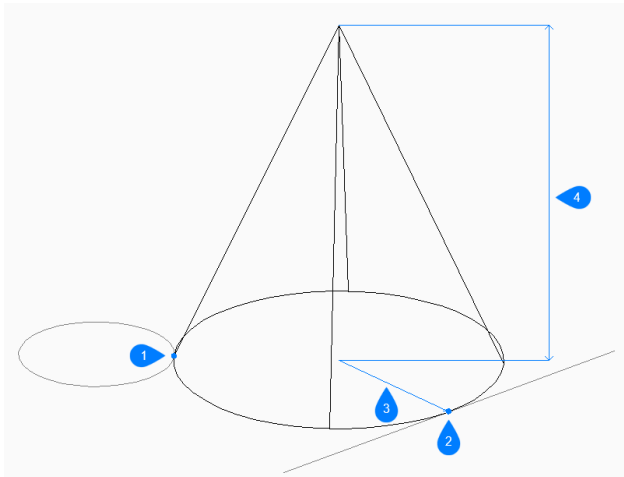
Radius of circle

Specify a valid radius for the base. If you specify a radius that is not possible with the selected tangents, you are prompted to specify the tangents and radius again.

Specify height

Specify the height of the cone.

Additional options: [2Point/Axis endpoint/Top radius]



- 1 Tangent point 1
- 2 Tangent point 2
- 3 Radius
- 4 Height

Elliptical

Begin creating an elliptical cone by specifying the first end of the ellipse axis then:

Alternate option: [Center]

Second end of ellipse axis

Specify the second end of the ellipse axis.

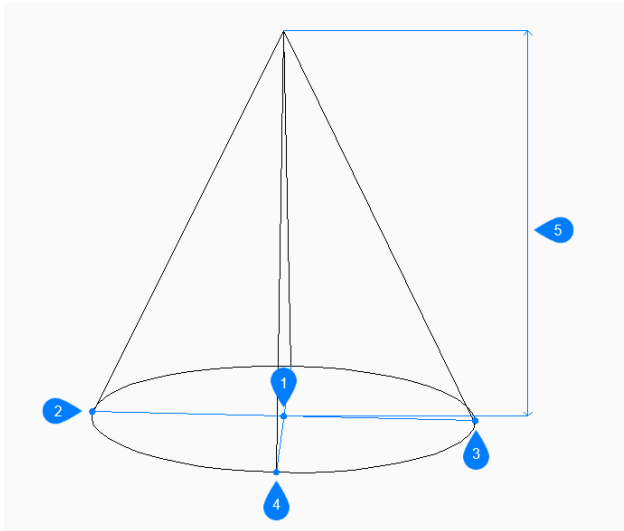
Other end of ellipse axis

Specify the radius of the other ellipse axis.

Specify height

Specify the height of the cone.

Additional options: [2Point/Axis endpoint/Top radius]



- 1 Center
- 2 First end of ellipse axis
- 3 Second end of ellipse axis
- 4 End of other axis
- 5 Height

8.41.3 Options within the CONE command

After you begin creating a cone, the following options may be available:

2Point

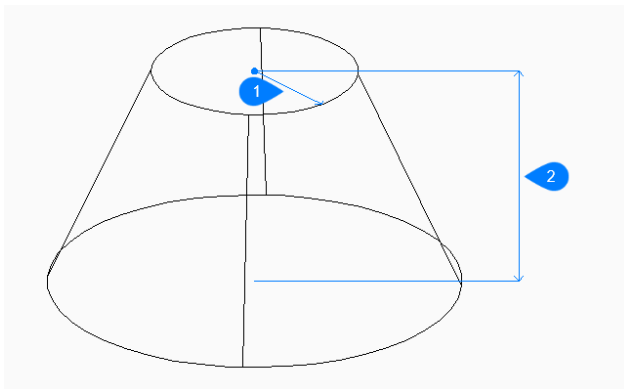
Specify the height of the cone as the distance between any two points.

Axis endpoint

Specify the axis endpoint to define the height and orientation of the cone in 3D space. The center of the base is used as the other axis endpoint.

Top radius

Specify a radius for the top of the cone. Any radius larger than zero (0) creates a cone with a flat top.



- 1 Top radius
- 2 Height



Diameter

Specify the diameter of the cone's base.

8.42 CONNECT command

Connects coplanar lines, arcs and/or polylines.

Shape Lite Pro Mechanical BIM

Icon:

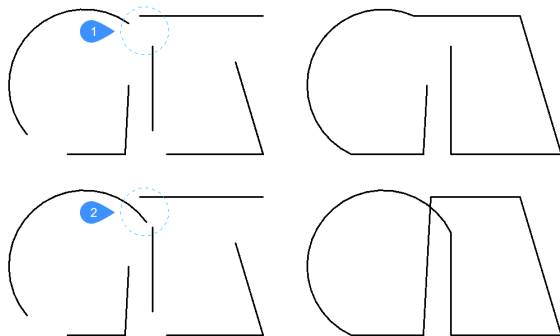
8.42.1 Description

Allows you to connect one or more coplanar lines, arcs and/or polylines whose start and/or end points don't overlap by trimming and extending as needed. The connected entities are then joined into one or more polylines, when possible.

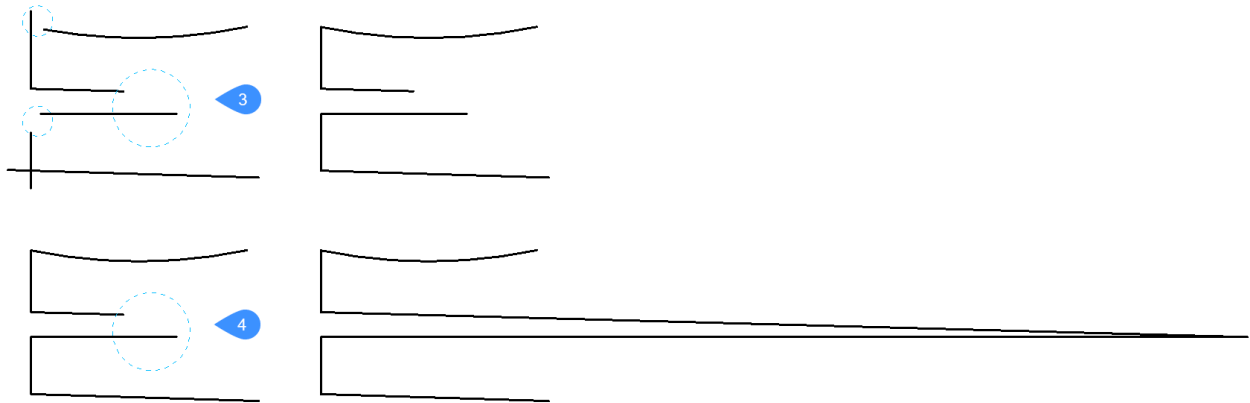
8.42.2 Method

The command finds and hierarchically closes the gaps between the selected entities. Based on the distribution of gap sizes, small gaps are closed first (see differences between (1) and (2) and the corresponding results). Entities whose extensions do not intersect are ignored.

Note: The underlying geometric definition of the input entities is not changed.

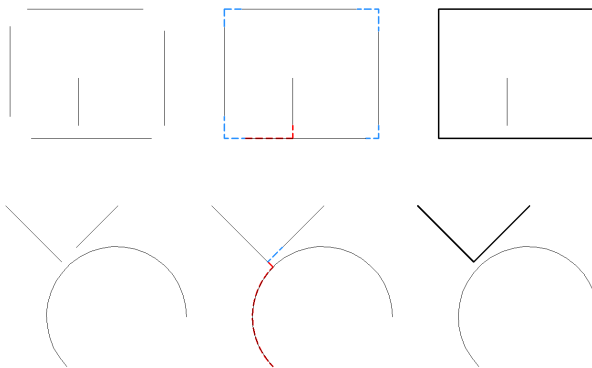


Running the command a second time on the same selection set can result in additional gaps being closed (e.g. gaps between nearly parallel entities (4)) that were previously considered much larger than the other gaps (3).



The CONNECT command can also be applied to collinear lines, to combine these into a single line or polyline segment. There can be exceptions when multiple (pairs of) lines converge in the same point. In all cases, smaller gaps are closed first.

Note: The gap size between two entities (lines and/or arcs) is defined as the sum of the distances between the current end points of the entities and the possible connection point. This is exemplified in the images below that show small gaps (in blue) and big gaps (in red), and the command's results for the two situations.



8.42.3 Options within the command

Select entities

Lets you select entities to connect.

Entire drawing

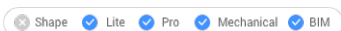
Selects all entities in the drawing to connect.

selection options (?)

Lists all additional selection methods.

8.43 CONSTRAINTBAR command

Shows and hides constraint bars.





Icon:

8.43.1 Description

Shows and hides constraint bars next to entities constrained with geometric constraints.

Note: Constraint Bars are initially hidden when a drawing is opened.

8.43.2 Options

Show

Displays the constraint bar next to the entities you selected.

Hide

Hides the constraint bar next to the entities you selected.

Reset

Relocates constraint bars to their default positions, which is near the midpoint of the entity.

8.44 CONTENTBROWSERCLOSE command

Closes the Content browser panel.

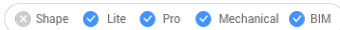


8.44.1 Description

Closes the Content browser panel to hide it from the current workspace. If the Content browser panel is stacked when you close it, the Content browser tab or icon is removed from the stack.

8.45 CONTENTBROWSEROPEN command

Opens the Content browser panel.

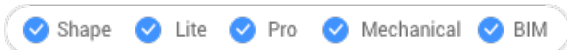


8.45.1 Description

Opens the Content browser panel to display it in the current workspace. The Content browser panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Content browser panel can be either floating, docked or stacked.

8.46 CONVERTCTB command

Opens the Select color-dependent plot style table file dialog box.



8.46.1 Description

Opens the Select color-dependent plot style table file dialog box to select a ctb file to convert to an stb file.

8.47 CONVERTPOLY command

Converts 2D and 3D polylines between modern lightweight and classic polylines (heavyweight) definitions.



Shape Lite Pro Mechanical BIM

8.47.1 Method

The main benefit of this command is to reduce the drawing file size by using lightweight polyline definitions.

This command does not convert the following types of polylines:

- Curve-fit.
- Splined polylines.
- Polylines with extended object data stored on their vertices.

Note: BricsCAD ignores ineligible entities.

You may not need to use this command in the following situations:

- When editing commands apply to both classic and lightweight polylines.
- You can also use the PLINETYPE system variable to specify if classic polylines are automatically converted to lightweight polylines when an older drawing is opened. This system variable determines which style of polyline is created in new drawings.

Note: You can enter this command transparently during commands ('convertpoly').

8.47.2 Options

Heavy

Converts lightweight and 3D polylines to heavyweight ones.

This might be necessary to make drawings compatible with certain software.

Light

Converts heavyweight and 3D polylines to lightweight ones.

After selecting, you are prompted:

Split 3d polyline into planar polylines if it is not planar?[Yes/No] <Yes>:

- **Yes:** 3D polylines are converted.
- **No:** 3D polylines are not converted.

3dPoly

Converts lightweight and heavyweight polylines to 3D polylines.

8.48 CONVERTPSTYLES command

Converts the current drawing from Color Dependent (CTB) to Named (STB) plot style mode and vice versa.

Shape Lite Pro Mechanical BIM

Note: A drawing can use either CTB or STB plot styles, but not both.

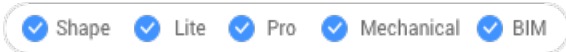
8.48.1 Description

Converts the drawing's plot style tables before converting the drawing, using the CONVERTCTB command.



8.49 CONVTOMESH command

Converts entities to mesh entities.



8.49.1 Description

Converts valid 2D and 3D entities to Mesh entities. Valid entities include:

- 3D Solid
- Surface
- Polygon Mesh
- Region
- Closed Polyline

8.49.2 Method to convert to mesh

There is one method to convert entities to Mesh entities:

- Select entities

Select Entities

Begin converting an entity to a Mesh entity by selecting a valid entity then:

Select entities

Select another valid entity or press Enter to complete the command.

Note: The BIM data and GUID are maintained after converting.

8.50 CONVTOSOLID command

Converts entities to solid entities.



8.50.1 Description

Converts valid 2D and 3D entities to 3D Solid entities. Valid entities include:

- Watertight 3D Mesh
- Watertight 3D Surface
- 3D Polygon Mesh
- 3D Polyface Mesh
- Circle with thickness
- Closed Polyline of non-zero thickness and uniform width

8.50.2 Method to convert to solid

There is one method to convert entities to 3D Solid entities:

- Select entities



Select Entities

Begin converting an entity to a 3D Solid entity by selecting a valid entity then:

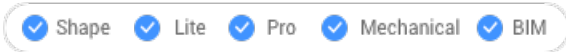
Select entities

Select another valid entity or press Enter to complete the command.

Note: The BIM data and GUID are maintained after converting.

8.51 CONVOTOSURFACE command

Converts entities to Surface entities.



8.51.1 Description

Converts valid 2D and 3D entities to Surface entities. Valid entities include:

- 2D Solid
- 3D Solid
- Region
- Open Polyline with non-zero thickness and zero width
- Line with non-zero thickness
- Arc with non-zero thickness
- Circle with non-zero thickness
- Mesh
- Planar 2D Face

8.51.2 Method to convert to surface

There is one method to convert entities to Surface entities:

- Select entities

Select Entities

Begin converting an entity to a Surface entity by selecting a valid entity then:

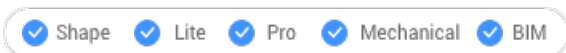
Select entities

Select another valid entity or press Enter to complete the command.

Note: The BIM data and GUID are maintained after converting.

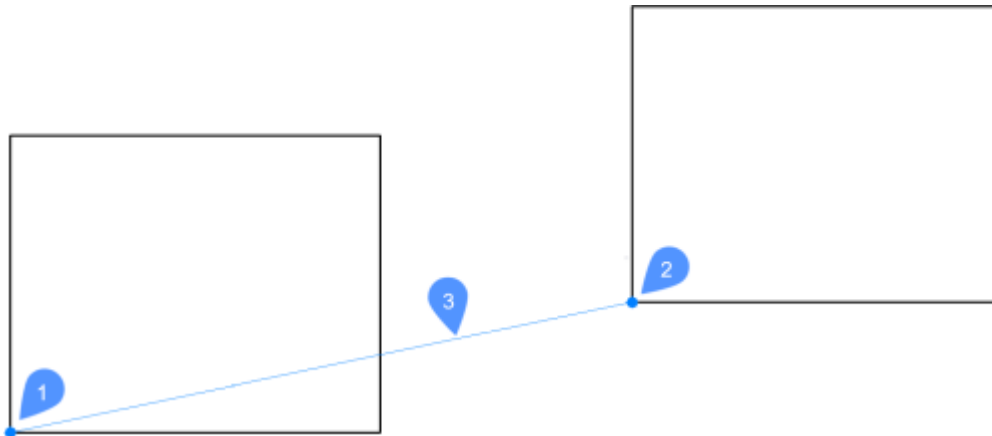
8.52 COPY command

Makes copies of entities.



Icon:

Alias: CO, CP



- 1 Base point
- 2 Second point
- 3 Displacement distance

8.52.1 Method

This command allows you to make a single or multiple copies of entities by entering a base point and a displacement vector.

8.52.2 Options within the command

Displacement

Specify the displacement vector (the distance at which to position the copy). 'Vector' means that you specify the distance and angle at the same time.

Note: When Dynamic Input Mode is active, you can type a distance and angle in the dynamic input fields.

mOde

Toggle between single and multiple copying modes.

Array

Specifies the number of copies to create and the distance between each copy or the distance between the first and last copies.

Multiple

In single-copy mode only: Switches to multiple-copy mode.

Undo

In multiple-copy mode only: Undoes the last copy operation.

Repeat

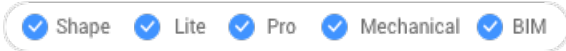
Repeats the copy using the same displacement.

Exit

In multiple-copy mode only: Exits this command.

8.53 COPYBASE command

Copies entities to the Clipboard.



Icon:

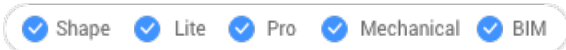
8.53.1 Description

Copies entities to the Clipboard with a base point for pasting into the same drawing or another drawing.

Note: When you paste entities copied with the COPYBASE command, it uses a user-defined base point.

8.54 COPYCLIP command

Copies entities to the Clipboard.



Icon:

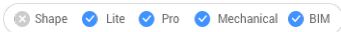
Note: The PictureExportScale system variable sets the resolution of the image when the exported geometry is pasted in bitmap format, such as in a Word document.

8.54.1 Description

Copies selected entities to the Clipboard for pasting into drawings and other documents.

8.55 COPYEDATA command

Copies extended entity data from one entity to others.



Icon:

8.55.1 Method

Enter the name of the application to which the entity data belongs, select the entity from which to copy Entity Data and one or more entities to which to copy Entity Data (that will receive the edata).

Extended Entity Data can be created with EDITEDATA command.

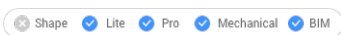
8.55.2 Options

? to list application names

Lists the names of applications loaded in the current drawing.

8.56 COPYGUIDED command

Copies entities using guide curves.



Icon:



8.56.1 Description

Automatically aligns copied entities with relevant geometry, using temporary guide curves. Polyline segments and multiline segments are also accepted as guide lines.

8.56.2 Method

The command can be executed in two ways:

Pre-pick mode

First select entities, then launch the command.

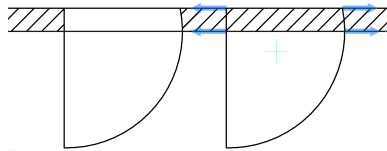
Note: The entities to be copied are displayed in green.

Post-pick mode

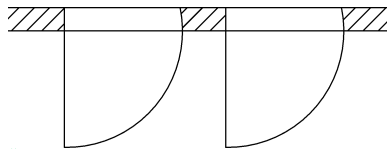
Launch the command, then select the entities using a selection window.

Note: All entities that fall completely within the selection window, including polyline segments, are included in the copy selection set and are displayed in yellow. Entities that cross the selection window are used as guide curves and are displayed in blue.

Blue arrows indicate the anchor points and direction of the guide curves. The copied entities will only align with geometry that matches the number of guide curves and distances between them.



Click to place the copy or enter a distance in the dynamic entry fields.



8.56.3 Options within the command

Polygonal

Creates a polygonal selection window.

Rectangular

Creates a rectangular selection window.

Region

Pastes the clipped area inside the selection window.

Entities

Pastes the entities inside the selection window.

Save detail

Allows to save a detail as a block/Parametric block.

Note: Displays the **Write block to file** dialog box.



switch to 3D mode

This option links the COPYGUIDED command to the COPYGUIDED3D functionality.

Note: See the COPYGUIDED3D command for more information.

Manually specify source faces

Sets the source faces manually.

Reset

Resets the selection entirely or alters the automatic selection.

Automatic detection of source faces

Sets the recognition of source faces to automatic.

Disable display of source faces

Toggles the display of source faces.

switch back to 2D mode

Switches back to 2D mode, if 3D mode was previously selected.

8.57 COPYGUIDED3D command

Copies 3D Solids, Block references or a set of faces from one location to another, using reference faces of the user's choice.



8.57.1 Method

Selecting a solid, a block or a set of faces activates the automatic detection of connections and source faces. These source faces should not intersect with the detail extents.

Only faces with analytical geometry (planar, cylindrical, spherical, conical and toroidal) are taken into account.

To find insertion points, the algorithm uses faces in a similar way as how COPYGUIDED uses curves.

Dynamic dimensions are used to position the detail entities.

The detail can transform to fit a new position. The transformation of the detail can consist of translations, rotations and mirrorings.

The detail can be visualized in two colors:

- Blue means the detail extent is in **Free mode** without any possibilities to insert.
- Green means the algorithm has recognized a placement for the detail extents, the transformation has been found and the detailed has already been transformed in the preview. Therefore, the next mouse-click will insert the detail using the found transformation.

When a possible insertion has been detected, press the **Ctrl** key to cycle through all detected alternatives for the current cursor placement. Next, hold down the **Shift** key to fix a set of faces, to prevent the command from searching for these faces.



8.57.2 Option within the command

Manually specify source faces

Sets the source faces manually.

specify Base point

Pick a point or enter coordinates to specify the base point.

Rotate detail

Allows you to rotate the detail dynamically.

Reset

Resets the selection entirely or alters the automatic selection.

Automatic detection of source faces

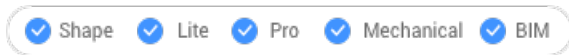
Sets the recognition of source faces to automatic.

Disable display of source faces

Toggles the display of source faces.

8.58 COPYHIST command

Copies all text from the Command line history to the Clipboard.



Note: The ScrlHist system variable determines how many lines of command history the Prompt History window retains.

8.59 COPYM command (Express Tools)

Makes multiple copies of selected entities.

Icon:

8.59.1 Method

Select the entities you want to copy, then specify the base point.

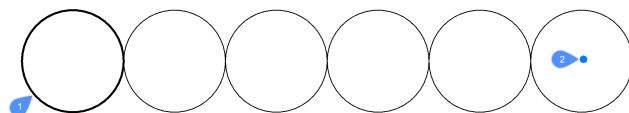
8.59.2 Options within the command

Repeat

The last copy is repeated, using the same offset distance and direction.

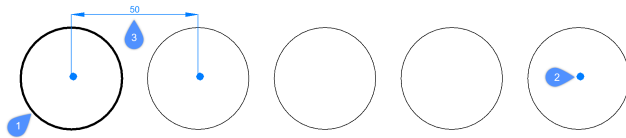
Divide

Creates a number of copies of the original entity (1), based on an end point for division (2) and a number of copies.



Measure

Creates a number of copies of the original entity (1), based on an end point for measure (2) and a distance between copies (3).

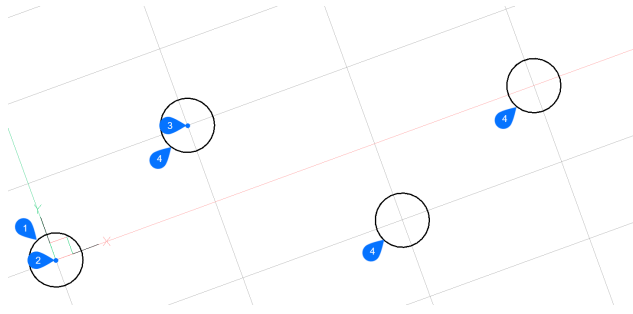


Array

Allows you to choose between the **Pick**, **Measure** and **Divide** options.

Pick

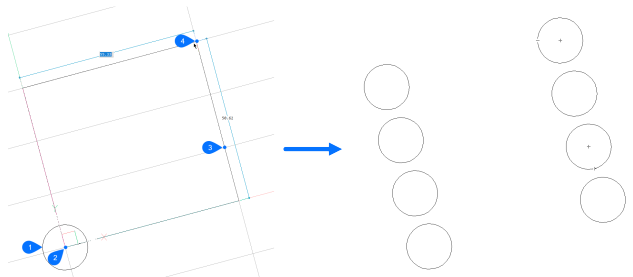
Allows you to interactively pick locations for the copied entities, using a temporary array.



After selecting an object to copy (1) and a base point (2), specify an angle and define the column and row spacing for the array by selecting a point (3). The cursor snaps to the intersection of each column and row, so you can only pick one array element at a time (4).

Measure

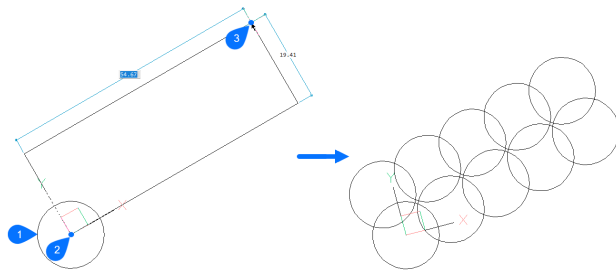
Allows you to specify an array set to be filled with copies of the selected entity based on a specified inter-distance.



After selecting an object to copy (1) and a base point (2), specify an angle and define the column and row spacing for the array by selecting a second point (3). Next, specify the third point (4) to indicate the array zone.

Divide

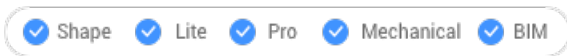
Allows you to define a box that represents an array set, to be filled with a specified number of copies of the selected entity.



Specify an angle and choose the other corner for the array set, then specify the number of columns and rows.

8.60 COPYTOLAYER command (Express Tools)

Copies entities to another layer.



8.60.1 Description

Creates duplicates of selected entities on a layer specified by the user. You can specify a different location for the duplicated entities.

8.60.2 Method

There are two methods to copy to layer:

- Select entity on target layer.
- Select target layer in the **Copy to Layer** dialog box.

8.60.3 Options within the command

Name

Displays the **Copy To Layer** dialog box that allows selecting a target layer.

Displacement

Specify the displacement vector (the distance at which to position the copy). **Vector** means that you specify the distance and angle at the same time.

Note: When **Dynamic Input Mode** is active, you can type a distance and angle in the dynamic input fields.

8.61 -COPYTOLAYER command (Express Tools)

Copies entities to another layer.

8.61.1 Description

Creates duplicates of selected entities on a specified layer. You can specify a different location for the duplicated entities.

8.61.2 Options within the command

?

Lists the available layer names.



=

Allows you to select an entity with the necessary layer name.


return

Creates the copies in the same location as the selected entities.

8.62 CORRIDOR command

Creates a corridor from a corridor template.



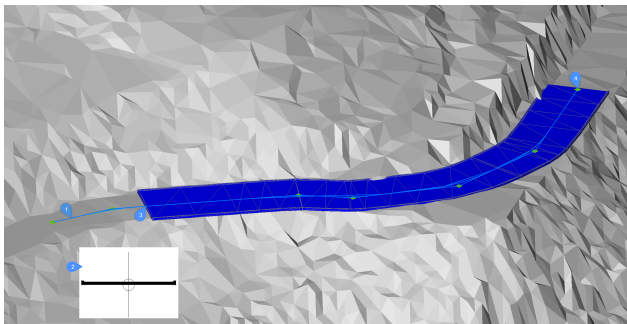
Icon: 

8.62.1 Methods

There are two methods for creating a corridor:

1 Creates a corridor using a corridor template along an 3D alignment line.

- Select 3d alignment used as a corridor baseline (1).
- Select corridor template (2).
- Enter region start station (the starting point along the 3D alignment line) (3) .
- Enter region end station (the ending point along the 3D alignment line) (4).



2 Creates a simple corridor using a corridor template along a path defined by picking horizontal alignment PI points.

- Select TIN Surface
- Select corridor template
- Pick horizontal alignment PI point: pick as many horizontal PI points needed and press Enter to finish.

8.62.2 Options

create Simple corridor

Creates a simple corridor using a corridor template along a path defined by picking horizontal alignment PI points.

Predefined

Sets the predefined corridor template and specifies the template position.



Change template

Allows to change the corridor template.

8.63 CORRIDOREEDIT command

Adds or removes regions for a selected corridor.

Shape Lite Pro Mechanical BIM

8.63.1 Method

There are two methods to use CORRIDOREEDIT command:

- Add regions for a selected corridor.
- Remove regions for a selected corridor.

8.63.2 Options within the command

Add Region

Allows you select a template for a selected corridor.

Enter region start station

The starting point along the 3D alignment line.

Enter region end station

The ending point along the 3D alignment line.

Note: The available intervals are displayed in the command window.

Remove Region

Select region to remove.

enter Index

Select index to be removed.

Note: Index is calculated from region start station to region end station.

8.64 CORRIDOREXTRACT command

Extracts a 3D solid, 3D mesh, TIN surface, 3D polyline or outer boundaries from a corridor.

Shape Lite Pro Mechanical BIM

8.64.1 Description

Extracts a 3D solid, 3D mesh, TIN surface, 3D polyline or outer boundaries from a corridor. Corridor template element (CTE) is defined by points, links and shapes and each of these can contain multiple codes. Corridor region applies template (a collection of CTEs) at incremental stations along it's baseline. Subsequent points, links or shapes are stitched together to form a newly extracted entity. Points are used to extract 3D polylines and outer boundaries for each region separately. Similarly shapes are used to extract 3D solids or 3D meshes in each region. Whereas links are used to create TIN surfaces, but they are always combined from all regions into a single TIN surface, and can only be specified using codes.



8.64.2 Method

There are three methods to use CORRIDOREXTRACT command:

- Extract all 3D solids, 3D meshes, 3D polylines, TIN surface or outer boundaries.
- Extract individual 3D solids, 3D meshes, 3D polylines TIN surface or outer boundaries.
- Extract 3D solids, 3D meshes, 3D polylines, TIN surface or outer boundaries by code.

8.64.3 Options within the command

Mesh

Extract a 3D mesh.

All Shapes

Extract 3D mesh or 3D solid from all shapes.

by Codes

Extract 3D mesh or 3D solid by codes.

Solid

Extract a 3D solid.

Tin

Specify the links to extract

? to list all link codes

Lists all link codes in command line.

liSt selected link codes

Lists the selected link codes.

Polylines

Extract a 3D polyline.

All Stringlines

Extract a 3D polyline from all stringlines.

Stringlines are lines that connect points with the same code value along the corridor baseline.

by Codes

Extract a 3D polyline from all stringlines by code.

outer Boundaries

Extract the outer boundary as a 3D polyline.

Create dynamic link

Specify if the created boundary or stringline should be linked to the original corridor.

8.65 CORRIDORTEMPLATE command

Creates a corridor template.



Icon:



8.65.1 Method

Pick a point to create a corridor template.

Add corridor template elements to existing corridor template.

8.65.2 Options within the command

Add template element

Select a corridor template element that you wish to append.

8.66 CORRIDORTEMPLATEELEMENT command

Creates a corridor template element from polylines with a specified base point and orientation (left, right, none).



Icon: 

8.66.1 Description

The geometry of the corridor template element is created on the basis of the specified polylines, which can later be edited with the command CORRIDORTEMPLATEELEMENTEDIT.

Input polylines can contain a large number of segments. An individual segment can be drawn as a line or arc. The ARCTESSELLATIONTEMPLATEELEMENT system variable controls the Mid-Ordinate Distance parameter which approximates arc segments.

8.66.2 Method

Select polylines to create a corridor template element and specify the base point.

8.66.3 Options

None

No orientation.

Right

Right orientation.

Left

Left orientation.

8.67 CORRIDORTEMPLATEELEMENTEDIT command

Edits corridor template elements by adding or removing components and targets.



Icons:



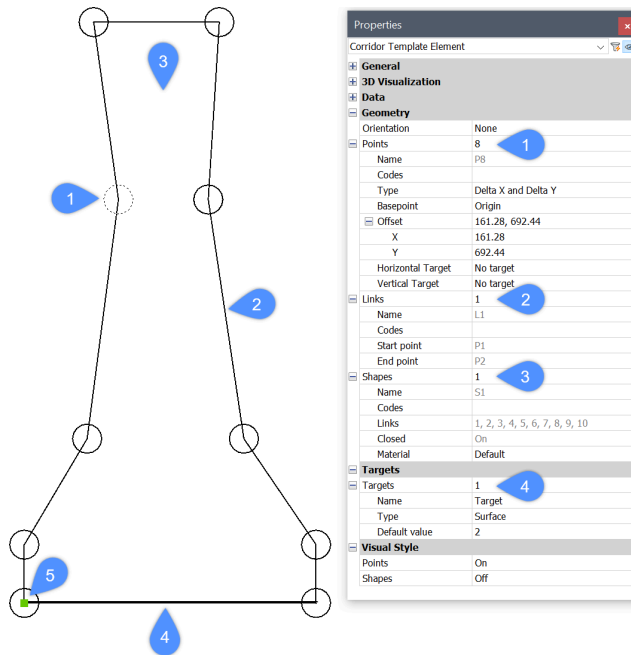


8.67.1 Description

Edits corridor template elements by adding or removing components (points, links, shapes) and targets to an existing template element.

Note:

- After insertion, points (1), links (2), shapes (3) and targets (4) can be also edited in the Properties panel.
- The currently selected point and link are highlighted.
- The green square (5) represents the origin of the corridor template element.



8.67.2 Options within the command

Add Point

Adds a new point to an existing template element by specifying its location.

Basepoint

Allows to specify a basepoint, relative to which the position of the new point is determined. A new point can be inserted directly after the specified basepoint or as the last point of the selected template element.

by Index

Allows to enter an index which corresponds to the point template element component (point, link, shape) by the index. The index represents the sequence number of the template element component.

Point P1 has an index value of 1, point P2 value has an index value of 2, and so on. Link L1 has an index value of 1, link L2 has an index value of 2, and so on. The same applies to shapes.

Add new points directly after the basepoint?

Toggles between Yes or No.

Unset basepoint

Unsets basepoint, which is set to the origin for the new point.



unset insertion Index

Unsets insertion index, which is set to the last value for the new point.

Let's take an example from the figure above, where the template element consists of 10 points, named P1 to P10. Assume that we want to insert a new point directly after the specified basepoint P5. If we select the **unset insertion Index** option in the command line, the new point will get an index value equal to 11, so the name of new point will be P11. If this option is not selected, the new point will get an index value of 6 and the point name will be P6. Existing points from P6 onwards are re-indexed and renamed.

insert bEfore

Adds new point before a specified point.

If a new point is added to the template element before the existing point P5, the new point will get an index value equal to 5, and the name P5. The existing point will be re-indexed and renamed to P6.

Links between existing points and a newly added point are not created automatically, so these points need to be re-linked.

insert After

Adds new point after a specified point. The index of a newly added point is one unit higher than the index of an existing selected point.

If a new point is added to the template element after the existing point P5, the new point will get an index value equal to 6, and the name P6. Existing points from P6 onwards are re-indexed and renamed.

Links between existing points and a newly added point are not created automatically, so these points need to be re-linked.

Remove Point

Removes the template element point by clicking on it or by typing an index. The remaining points are re-indexed accordingly after editing.

Add Link

Creates a link between selected points.

Remove Link

Removes the template element link by clicking on it or by typing an index. The remaining links are re-indexed accordingly after editing.

Add Shape

Creates shapes from template element links.

Shapes determine the geometry of the cross-sectional elements. They can be created from a single template element link or from multiple links forming a closed polygon. We assign materials to the shapes in the Properties panel for a realistic representation of the Corridor model.

Remove Shape

Remove the template element shape by clicking on it or by typing an index. The remaining shapes are re-indexed accordingly after editing.

Add Target

Allows you to create **Surface**, **Horizontal** and **Vertical** targets.

When the geometry of an individual corridor template element must follow a specific surface, horizontal or vertical object, a target is created and added to the corresponding point on the corridor template element.

Remove Target

Removes template element target by clicking on it or by typing an index.



8.68 CPAGESETUP command

Opens the Page setup dialog box.

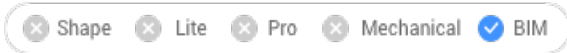


8.68.1 Description

Opens the Page setup dialog box to view and modify the page setup for the current layout or model space.

8.69 CREATEBIMPROJECT command

opens the **New Project** dialog box.




8.69.1 Description

Opens the **New Project** dialog box, which allows you to easily create a new BIM Project and specify the project name, model name and path of the new BIM project.

8.70 CREATELIBRARYBLOCK command

Opens the Add block to library dialog box.



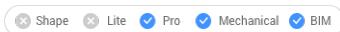
Icon: 

8.70.1 Description

Opens the **Add block to library** dialog box to create a block definition and add it to the library.

8.71 -CREATELIBRARYBLOCK command

Creates and categorizes components.



8.71.1 Description

Adds entities to the **Library** panel in the form of components that are categorized and displayed as thumbnails. This command is meant for macros.

The component will be added to an existing category or to a new category. If a specific category is open in the **Library** panel, the command will display the option to save the category in, or a new category.

Categories are listed in alphabetical order:

- 1 - Building
- 2 - Doors
- 3 - Furnishing elements
- 4 - Holes
- 5 - Landscape
- 6 - Mep flow connection points⁶



- 7 - People
- 8 - Sheet metal
- 9 - Standard parts
- 10 - Transportation
- 11 - Windows
- 0 - Add a new category
- <rootCat (current category)> - add component to the current category

A thumbnail is created from the desired view:

- TFL - Top front left isometric view
- TFR - Top front right isometric view
- TBL - Top back left isometric view
- TBR - Top back isometric right view
- T - Top view

8.72 CREATETHUMBNAIL command

Creates a thumbnail image of the current drawing.



8.72.1 Description

Creates custom thumbnail views to show the content of drawing files by file managers and other non-CAD programs. The thumbnails are small raster preview images, and usually are created automatically of the current view as the drawing is saved.

8.72.2 Method

Accept the thumbnail frame by zooming and panning the drawing to the position in which you prefer to save the thumbnail image. Opens the Save Drawing As dialog box to save the thumbnail image.

8.73 CUILOAD command

Opens the Customization groups dialog box.



8.73.1 Description

Opens the Customization groups dialog box to load and unload customization groups.

8.74 CUIUNLOAD command

Opens the Customization groups dialog box.



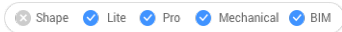
8.74.1 Description

Opens the Customization groups dialog box to load and unload customization groups.



8.75 CUSTOMIZE command

Opens the Customize dialog box.



Icon:

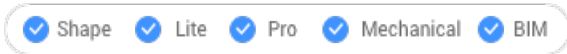
Alias: CUI

8.75.1 Description

Opens the Customize dialog box to customize the user interface.

8.76 CUTCLIP command

Copies entities to the Clipboard, and then erases them from the drawing.



Icon:

Note: The PICTUREEXPORTSCALE system variable sets the resolution of the image when the exported geometry is pasted in bitmap format, such as in a Word document.

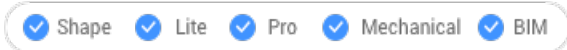
8.76.1 Description

Copies selected entities to the Clipboard for pasting into drawings and other documents. It automatically erases the selected entities from the drawing.

8.77 CYLINDER command

Creates a 3D solid in the shape of a cylinder.

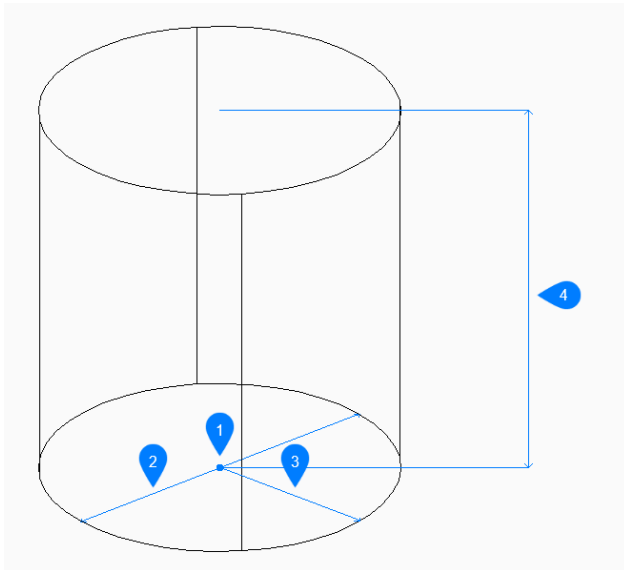
Note: In BricsCAD Lite, which doesn't support 3D solids, the CYLINDER command launches the AI_CYLINDER command.



Alias: CYL

8.77.1 Description

Creates a 3D solid in the shape of a circular or elliptical cylinder. Choose from a combination of options including center, radius, diameter, 3 point, 2 point, tangents, axis endpoints, and height.



- 1 Center
- 2 Diameter
- 3 Radius
- 4 Height

8.77.2 Methods to create a cylinder

This command has 5 methods to begin creating a cylinder:

- Center point
- 3 Point
- 2 Point
- Tangent tangent radius
- Elliptical

Select center point

Begin creating a circular cylinder by specifying the center of the base then:

Radius of base of cylinder

Specify the radius of the cylinder.

Additional option: [Diameter]

Specify height

Specify the height of the cylinder.

Additional options: [2Point/Axis endpoint]

3 Point

Begin creating a circular cylinder by specifying the first of three points on the circumference of its base then:

Second point

Specify the second point on the circumference.



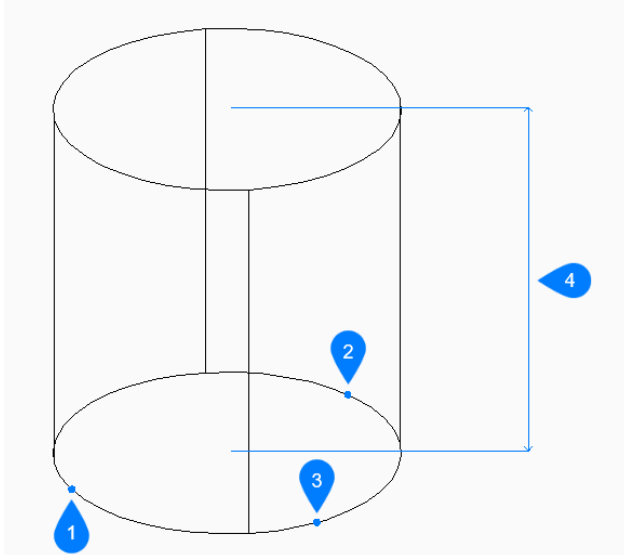
Third point

Specify the third point on the circumference.

Specify height

Specify the height of the cylinder.

Additional options: [2Point/Axis endpoint]



1 Point 1

2 Point 2

3 Point 3

4 Height

2 Point

Begin creating a circular cylinder by specifying the first of two points on the circumference of its base then:

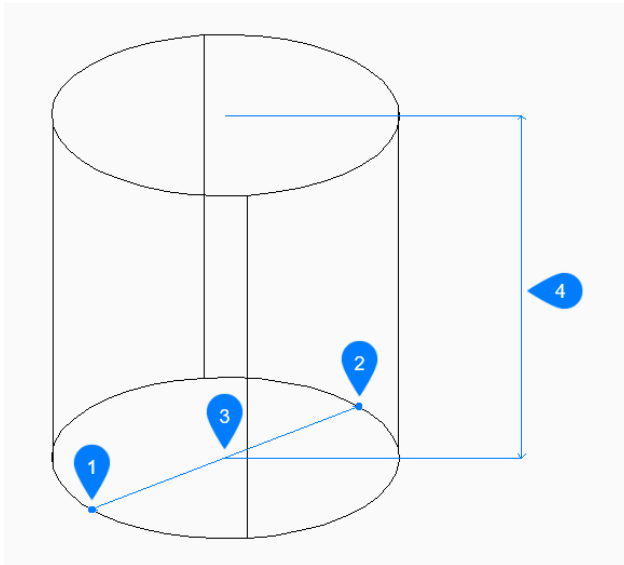
Second end of diameter

Specify the second point on the diameter. The two points define the diameter of the base.

Specify height

Specify the height of the cylinder.

Additional options: [2Point/Axis endpoint]



- 1 Point 1
- 2 Point 2
- 3 Diameter
- 4 Height

Tangent Tangent Radius

Begin creating a cylinder by selecting a tangent point on the first entity then:

Specify point on object for second tangent

Select a tangent point on the second entity.

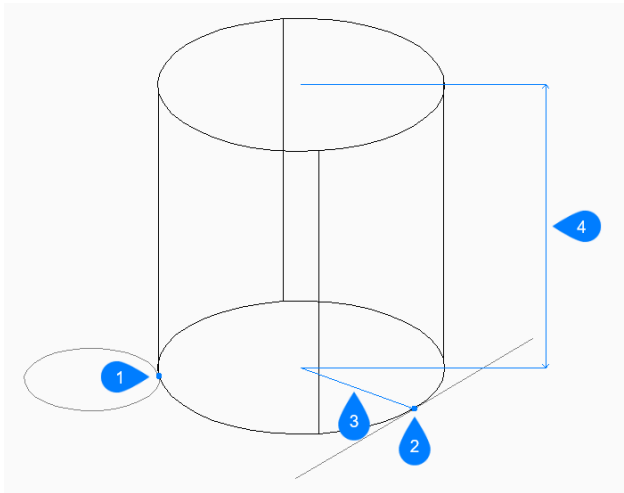
Radius of circle

Specify a valid radius for the base. If you specify a radius that is not possible with the selected tangents, you are prompted to specify the tangents and radius again.

Specify height

Specify the height of the cylinder.

Additional options: [2Point/Axis endpoint]



- 1 Tangent point 1
- 2 Tangent point 2
- 3 Radius
- 4 Height

Elliptical

Begin creating an elliptical cylinder by specifying the first end of the ellipse axis then:

Alternate option: [Center]

Second end of ellipse

Specify the second end of the ellipse axis.

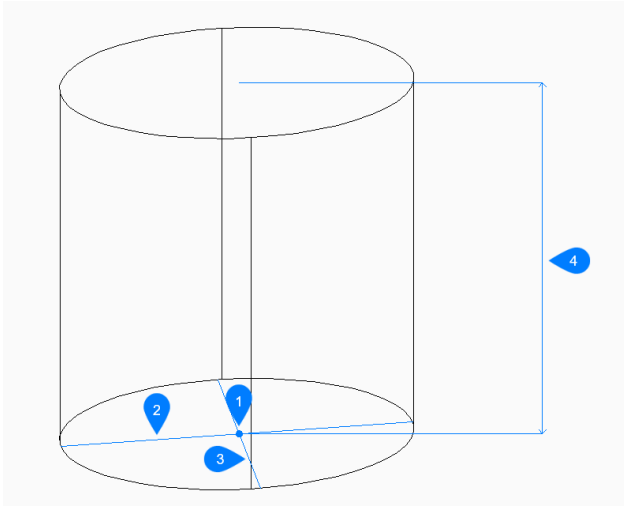
Other end of ellipse

Specify the radius of the other ellipse axis.

Specify height

Specify the height of the cylinder.

Additional options: [2Point/Axis endpoint]



- 1 Center
- 2 First axis
- 3 Second axis
- 4 Height

8.77.3 Options within the CYLINDER command

After you begin creating a cylinder, the following options may be available:

2Point

Specify the height of the cylinder as the distance between any two points.

Axis endpoint

Specify axis endpoint to define the height and orientation of the cylinder in 3D space. The center of the base is used as the other axis endpoint.

Diameter

Specify the diameter of the cylinder's base.



9. D

9.1 DATAEXTRACTION command

Opens the Wizard page dialog box.



Icon:

9.1.1 Description

Opens the Wizard page dialog box to export entity properties, block attributes, and drawing information to a table or external data file.

9.2 -DATAEXTRACTION command

Inserts a data extraction table.



9.2.1 Method

Select the data extraction (.dxd) file from the Standard Open File dialog box and the insertion point for the table.

9.3 DATALINK command

Opens the Datalink manager dialog box.



Icon:

9.3.1 Description

Opens the Datalink dialog box to create and manage datalinks in the current drawing.

9.4 DATALINKUPDATE command

Synchronizes the linked data in tables in the current drawing with data in the linked source file.



Icon:

9.4.1 Method

There are two methods to use DATALINKUPDATE command:

- Update the data link existing in a table in the drawing.
- Update the linked data in an external file.



9.4.2 Options within the command

Update data link

Updates the linked data in a table in the drawing with data that has been changed in the external source file.

Write data link

Updates the linked data in an external file with data that has been changed in a table in the drawing.

Select objects

Prompts you to select table entities.

Update all

Synchronizes all linked data in all tables in the drawing.

9.5 DATASMITHCONNECT command

Creates a connection to which Twinmotion and/or Unreal Engine can connect.



Icon:

9.5.1 Description

Creates a datasmith connection, which can be picked up by Twinmotion or Unreal Engine to establish a Direct Link.

If a connection was already established for another drawing, it will be removed and replaced by the new connection.

Note:

- After establishing a connection to Twinmotion with Direct Link, the model is automatically synchronized the first time.
- Use the DATASMITHSYNC command to synchronize the latest changes of the current drawing to the Direct Link.

9.6 DATASMITHEXPORT command

Exports the current drawing to a udatasmith file.



Icon:

9.6.1 Description

Opens the **Export drawing to** dialog box to save data from the current drawing to a udatasmith file, which can be used in Twinmotion and/or Unreal Engine.

9.7 DATASMITHSYNC command

Sends changes to Twinmotion and/or Unreal Engine since the last call to the connection.



Shape Lite Pro Mechanical BIM

Icon:

9.7.1 Description

If a datasmith connection for a Direct Link with Twinmotion and/or Unreal Engine exists, it synchronizes it to reflect the latest changes in the current drawing.

Note: When there is no connection yet, use the DATASMITHCONNECT command first.

9.8 DATE command (Express Tools)

Displays the date and time in the Command line.

9.8.1 Method

The date and time are automatically displayed in the Command line.

Thu Sep 15, 2022 10:20:37

9.9 DBLIST command

Lists information about all entities in the drawing (short for "database listing").

Shape Lite Pro Mechanical BIM

9.9.1 Description

Displays information about every entity from the drawing.

The information can refer to handle, current space, layer, color, etc.

Note: PressF2to see the data listed in the Prompt History window. For drawings with many entities, the list can take a long time to finish. PressEscsto stop the command.

9.10 DCALIGNED command

Constrains the distance between two entities.

Shape Lite Pro Mechanical BIM

Icon:

9.10.1 Description

Constrains the shortest distance between a point and an entity. Constrains the length of a line, a polyline segment, or an arc. Constrains the distance between two lines, making them parallel. Only the distance is constrained (locked); entities can still be moved (in tandem), rotated, and so on. Aligned constraints look like aligned dimensions.

9.10.2 Method

There are three methods to begin creating an aligned constraint:

- Entity



- Point & line
- 2Lines

9.10.3 Options within the command

Entity

Constraints the length of a line, a polyline segment or the chord of an arc.

Note: The entity can still be modified (moved, rotated), even if the length is constrained.

Point & line

Constraints the perpendicular distance between a point and a line or polyline segment.

Note: A valid constraint point is usually the same geometric location as entity snaps, such as the ends and middles of lines, centers of circles and arcs, and so on.

Note: The constrained distance can be edited directly or with the Properties panel.

2Lines

Constraints the distance between two straight linear segments. If the entities are not parallel, then the entity picked second is rotated around its midpoint to be parallel to the first entity.

Note: The constrained distance can be edited directly or with the Properties panel.

9.11 DCANGULAR command

Constraints angles.



Icon:

9.11.1 Description

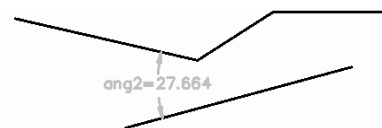
Constraints the angle between two lines or straight polyline segments; also constrains the angles of arcs, polyline arcs, and any three constraint points.

9.11.2 Methods

There are three methods to begin constraining angles:

Between two straight segments

Constraints the angle between two segments.



Of arcs or polyline arcs

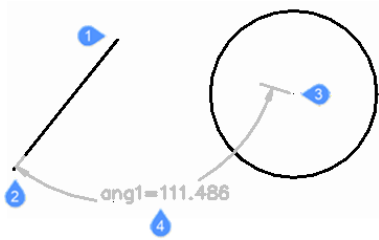
Constraints the angle of an arc between its endpoints.





Between three valid constraint points

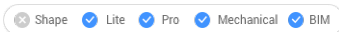
Valid constraint points are at the same geometric locations as entity snaps, such as the ends and middles of lines, centers and quad points of circles and arcs, and so on.



- 1 Angle vertex
- 2 First angle constraint point
- 3 Second angle constraint point
- 4 Dimension location

9.12 DCCONVERT command

Turns associative dimensions into constraints.



Icon:

9.12.1 Description

Converts dimensions to the appropriate dimensional constraints, such as linear dimensions into linear constraints, or diameter dimensions into diameter constraints. Dimensional constraints are colored gray.



9.13 DCDIAMETER command

Constrains diameters.

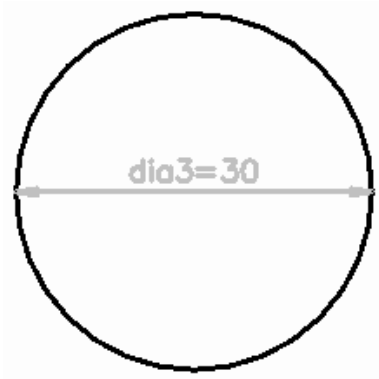


Icon:

9.13.1 Description

Constrains the diameters of circles, arcs, and polyline arc segments.


Although the diameter of the entity is fixed (constrained), the entity can be moved, rotated, and so on.



9.14 DCDISPLAY command

Toggles dimensional constraint visibility.



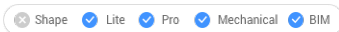
Icon: 


9.14.1 Description

Toggles the display of dimensional constraints (attached to selected entities) between visible and hidden. All dimensional constraints are initially hidden when a drawing containing them is opened. Many constraints in a drawing can clutter it, and so it is useful to hide them.

9.15 DCHORIZONTAL command

Constrains entities horizontally.



Icon: 

9.15.1 Description

Horizontally constrains the distance between two points, or the length of a single entity.

Note: "Horizontal" means the constraint lies in the X direction of the current coordinate system.

9.15.2 Method

There are two methods to begin constraining horizontally:

- By distance: constrain the distance between two entities horizontally.
- **Note:** Valid constraint points are located at same geometric locations as entity snaps, such as the ends and middles of lines, centers and quad points of circles and arcs, and so on.
- By entity: constrain an entity horizontally.
Note: Constrains the following entities horizontally: Line, Arc, Polyline segment, Polyline arc segment.



9.15.3 Options within the command

Entity

Constrains the horizontal distance between the endpoints of an entity.

9.16 DCLINEAR command

Constrains linearly.



Icon:

9.16.1 Description

Constrains the distance between two points, or the length of a single entity, to the horizontal or vertical, depending how the cursor is moved, as in the DIMLINEAR command.

Note: “Horizontal” means the constraint lies in the X direction of the current coordinate system, and “vertical” in the Y direction.

9.16.2 Method

There are two methods to begin constraining linearly:

- By distance: constrain the distance between two entities vertically or horizontally.
Note: Valid constraint points are found at the same geometric locations as entity snaps, such as the ends and middles of lines, centers and quad points of circles and arcs, and so on.
- By entity: constrain the length of an entity between its endpoints, vertically or horizontally.
Note: Constrains one of the following entity types horizontally or vertically: Line, Arc, Polyline segment, Polyline arc segment.

The program applies a vertical or horizontal constraint, depending on how the cursor is moved during the command.

9.16.3 Options within the command

Entity

Constrains the horizontal or vertical distance between the endpoints of an entity.

9.17 DCRADIUS command

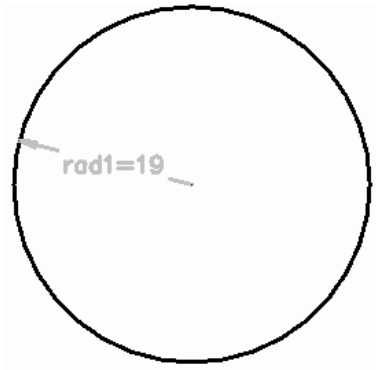
Constrains radii.



Icon:

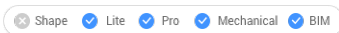
9.17.1 Description

Constrains the radius of circles, arcs, or polyline arc segments. Although the radius of the entity is fixed (constrained), the entity can be moved, rotated, and so on.



9.18 DCVERTICAL command

Constrains entities vertically.



Icon:

9.18.1 Description

Vertically constrains the distance between two points, or the length of an entity.

Note: “Vertical” means the constraint lies in the Y direction of the current coordinate system.

9.18.2 Method

There are two methods to begin constraining vertically:

- By distance: constrain the distance between two entities vertically.
Note: Valid constraint points are found at the same geometric locations as entity snaps, such as the ends and middles of lines, centers and quad points of circles and arcs, and so on.
- By entity: constrain an entity vertically.
Note: Constrains any of the following entities vertically: Line, Arc, Polyline segment, Polyline arc segment.

To constrain the distance between two entities vertically, select a valid constraint point on each entity and enter the constraint distance. The value controls the distance between the two entities.

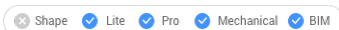
9.18.3 Options within the command

Entity

Constrains the vertical distance between the endpoints of an entity.

9.19 DDATTE command

Edits the values of attributes through a dialog box. This command is superseded by the BATTMAN command.



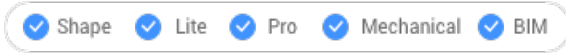


9.19.1 Description

Opens the Edit Attributes dialog box where may change the value of the attribute text.

9.20 DDEDIT command

Edits single-line text, multi-line text (mtext), dimension text, attribute definition and leader text.



Alias: ED

9.20.1 Description

Allows to edit single-line texts, multi-line text(mtext), dimension text, attribute definition and leader text.

If the selected entity is represented by multi-line text, dimension text or leader text, the Text formatting window opens.

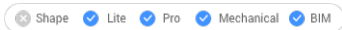
If the selected entity is represented by an attribute definition, the Edit Attribute Definition dialog box opens.

If the selected entity is represented by single-line text, the in-place editor is displayed (this editor has no User Interface).

Note: Change the value of TEXTED system variable to change the editing method of a single-line text.

9.21 DDEMODES command

Sets default values for creating entities.



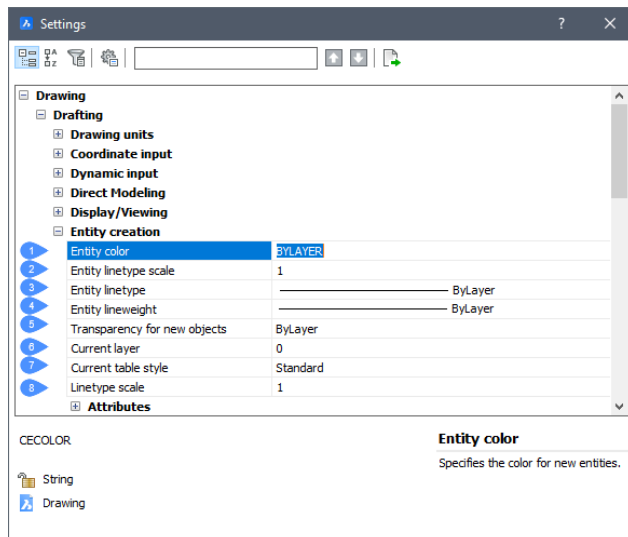
9.21.1 Description

Displays the Entity Creation section of the Settings dialog box.

Note: This command is superseded by the Settings command.

9.21.2 Method

Displays Settings dialog box at the Entity Creation section:



- 1 Entity color
- 2 Entity linetype scale
- 3 Entity linetype
- 4 Entity lineweight
- 5 Transparency for new objects
- 6 Current layer
- 7 Current table style
- 8 Linetype scale

9.21.3 Options

Entity Color

Specifies the default color of new entities; initial value is ByLayer, which means that entity colors are governed by layer properties.

Entity Linetype Scale

Specifies the default scale factor for linetypes; initial value is 1.0000.

Entity Linetype

Specifies the default linetype for new entities; initial value is ByLayer, which means that entity linetypes are governed by layer properties.

Entity Lineweight

Specifies the default linetype for new entities; initial value is ByLayer, which means that entity lineweights are governed by layer properties.

Current Layer

Specifies the default layer for new entities; initial value is layer 0.

Current Table Style

Specifies the initial value of the table style name for new tables.

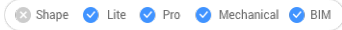


Linetype Scale

Specifies the global linetype scale factor; this factor affects entity linetype scale factors.

9.22 DDFILTER command

Creates a selection set of the entities.



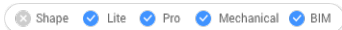
Note: This command is superseded by the SELECT command.

9.22.1 Description

Creates a selection set that include the selected entities, so you may access it by entering "P" (previous) the next time a command prompts you "Select entities."

9.23 DDGRIPS command

Opens the Settings dialog box with the **Grips** category expanded.



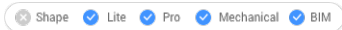
Alias: GR

9.23.1 Description

Opens the Settings dialog box with the **Grips** category expanded to view and modify relevant system variables.

9.24 DDPTYPE command

Opens the Settings dialog box with the **Points** category expanded.



9.24.1 Description

Opens the Settings dialog with the **Points** category expanded to view and modify relevant system variables.

9.25 DDSELECT command

Opens the Settings dialog box with the **Entity selection** category expanded.



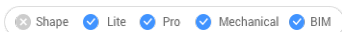
Alias: SE

9.25.1 Description

Opens the Settings dialog box with the **Entity selection** category expanded to view and modify relevant system variables.

9.26 DDSETVAR command

Opens the Settings dialog box.



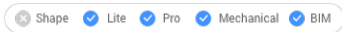


9.26.1 Description

Opens the Settings dialog box to view and modify system variables. Most, but not all, system variables are available in the Settings dialog box. You can modify all system variables using the SETVAR command.

9.27 DDTRACK command

Opens the Settings dialog box with the **Snap tracking** category expanded.

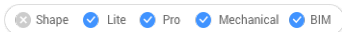


9.27.1 Description

Opens the Settings dialog box with the **Snap tracking** category expanded to view and modify relevant system variables.

9.28 DDVPOINT command

Opens the Set viewpoint dialog box.



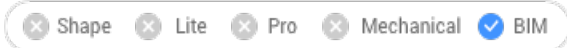
Alias: SETVPOINT, VIEWCTL, VP

9.28.1 Description

Opens the Set viewpoint dialog box to specify a 3D viewpoint for the current viewport.

9.29 DEACTIVATESTORY command

Deactivates an active story.

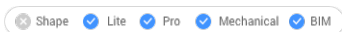


9.29.1 Description

Automatically deactivates an active story without any view modification.

9.30 DEFAULTSCALELIST command

Opens the Default scale list dialog box.

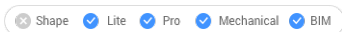


9.30.1 Description

Opens the Default scale list dialog box to view and manage the default scale list. The default scale list is stored in the registry. When you reset the current drawing's scale list, it updates to match the default scale list.

9.31 DELAY command

Delays execution of commands.





9.31.1 Description

This command is used to delay the execution of the next command.

Note: Meant to use with scripts.

9.31.2 Options within the command

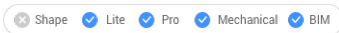
Milliseconds to delay

Specifies the amount of time BricsCAD waits before continuing to the next command in the script.

Note: Enter a number between 0 and 2,147,483,627(approximately 24 days).

9.32 DELCONSTRAINT command


Removes dimensional and geometrical constraints from selected entities.



9.32.1 Method

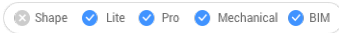
Select one or more entities or type ALL to select all entities in the drawing to delete all their dimensional and geometric constraints.

Note: To remove individual constraints one at a time:

- Dimensional constraints: select the dimensional constraint, and then press ERASE command.
- Geometric constraints: click the tiny x on the constraint bar: 

9.33 DELEDATA command

Deletes extended entity data for specific applications from the selected entities (short for "delete entity data").



9.33.1 Description

Specifies the name of the application to which the entity data belongs and selects one or more entities from which Entity Data will be deleted.

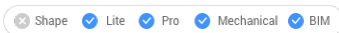
9.33.2 Options

? to list application names

Lists names of applications loaded in the current drawing.

9.34 DEPARAMETRIZE command

Deparametrizes the selected entities.



9.34.1 Description

Deparametrizes the selected entity. This command can also be used with parametrized 2D entities.

Note: Make sure the parametrized entities are converted to blocks before running the command.



9.34.2 Options within the command

Once the command is initiated, options regarding the selection of entities to deparametrize are available.

Select block references to make static

Select block references in the drawing to deparametrize. Only the selected entities will be made static.

Entire drawing

Deparametrizes all entities in the current drawing.

Note: To verify whether the block reference is made static or not, check the properties of the selected block in the **Properties** panel.

9.35 DESIGNTABLE command

Imports .csv files that contain sets of parameter values or else creates them from scratch.



Icons:

9.35.1 Description

Imports .csv files that contain sets of parameter values or creates them from scratch. Parameters are then added to the Mechanical Browser panel and to parametric component properties in Properties panel.

Note: This command can be entered transparently during the commands ('designtable).

9.35.2 Options within the command

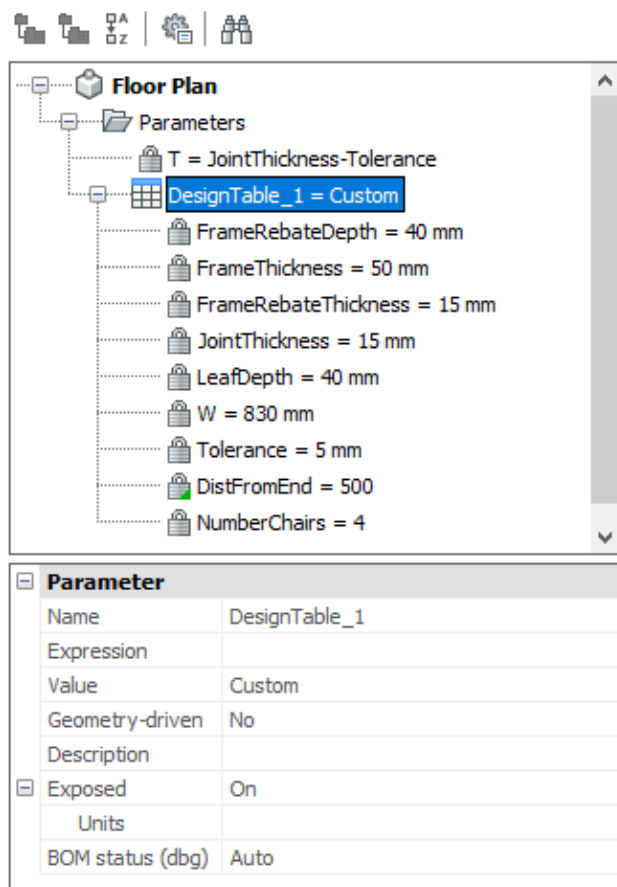
From file

Creates a design table by importing a .csv file (comma-separated values file). Make sure the list separator character on your system is the same as the one used in the CSV file.

Displays the Select Design Table File dialog box from where you will select the .csv file and open it.

Note: All parameters defined in the .csv file are created automatically.

Note: Enter the MECHANICALBROWSEROPEN command to view the constraints:



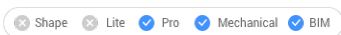
Empty

Creates an empty design table from scratch.

Note: Enter the names of the parameters to include in the design table or choose to add all parameters that have a constant value. The constant parameters do not depend on another parameter.

9.36 -DESIGNTABLEEDIT command

Edits design tables.



Note: This command can be entered transparently during the commands ('designable').

9.36.1 Options within the command

eXport

Exports the content of a design table entity in .csv format file.

Replace

Replaces the content of a design table with data from a .csv format file.

Delete

Deletes a design table.



Configurations

Creates, removes, or views configurations.

Save current

Creates a new configuration as a copy of an existing one.

Remove

Removes a configuration.

? to list

List the names of design tables attached to the current drawing.

Parameters

Manages parameters:

Unlink

Unlinks parameters from the design table.

Link

Links parameters to the design table.

Note: (*) to link all: restores all initially existent but removed parameter links.

Clear expressions

Clears expressions (values and formulae) from parameters.

? to list columns

Lists parameters.

Apply configuration

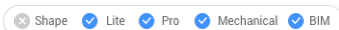
Creates a new row using the current values of variables.

? to list

Lists design tables attached to the current drawing.

9.37 DETAILSPANELCLOSE command

Closes the Details panel.



9.37.1 Description

Closes the Details panel to hide it from the current workspace. If the Details panel is stacked when you close it, the Details tab or icon is removed from the stack.

9.38 DETAILSPANELOPEN command

Opens the Details panel.



9.38.1 Description

Opens the Details panel to display it in the current workspace. The Details panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Details panel can be either floating, docked or stacked.



9.39 DGNEXPORT command

Exports the current drawing to a DGN file format.

Shape Lite Pro Mechanical BIM

9.39.1 Description

Opens the **Export Drawing As** dialog box to export the current drawing to a MicroStation DGN File (*.dgn) format.

9.40 -DGNEXPORT command

Exports the current drawing to MicroStation DGN File (*.dgn) format in the command line.

Shape Lite Pro Mechanical BIM

9.40.1 Method

Specify the full path and file name for the exported DGN file.

Note: Type ~ (tilde) to display the Export Drawing As dialog box, which allows you to specify the folder and the name for the DGN file.

9.40.2 Options within the command

DGN

Converts reference to DGN.

DWG

Keeps reference to DGN.

Bind

Binds reference file to the parent DGN.

Detach

Detaches external reference.

9.41 DGNIMPORT command

Imports MicroStation DGN files into the current drawing.

Shape Lite Pro Mechanical BIM

9.41.1 Description

Opens the **Import file** dialog box to select a .dgn file to import into the current drawing.

Note: Run the DGNIMPORTOPTIONS command to open the **Settings** dialog box with the DGNIMPORT category expanded. All options affecting the import of .dgn files can be modified here.

9.42 DGNIMPORTOPTIONS command

Opens the **Settings** dialog box with the **DGNIMPORT** category expanded.

Shape Lite Pro Mechanical BIM

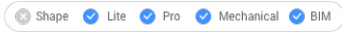


9.42.1 Description

Opens the **Settings** dialog box with the **DGNIMPORT** category expanded to view and modify relevant system variables.

9.43 DIGITALSIGN command

Applies a digital signature (block of encrypted information) to the drawing.



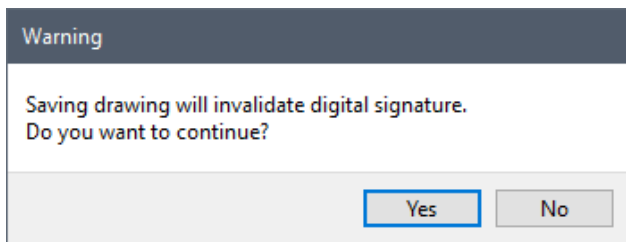
9.43.1 Method

Opens the Digital Signatures dialog box where you can attach a digital signature to the drawing in order to validate the origin, authenticity and unaltered state of the file since the digital signature was applied.

Note: The digital signature remains valid after renaming the drawing.

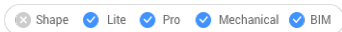
Note: The SIGWARN system variable controls the display of a dialog with the signature content when a drawing with a digital signature is opened.

Note: After the DIGITALSIGN command is launched, a digital signature is applied every time when saving the drawing until it is closed. The next time the signed drawing is opened and modified, a warning message appears when saving.



9.44 DIM command

Creates multiple dimension types in a single workflow.



Icon:

Alias: DIMENSION

9.44.1 Description

Allows to create multiple dimensions or types of dimensions at once.

Note: Isometric view can be dimensioned and reflect the actual true geometry size.

9.44.2 Options within the command

HORIZONTAL

Places horizontal linear dimensions, same as the DimLinear command.

VERTICAL

Places vertical dimensions, same as the DimLinear command.



ALigned

Places linear dimensions that are aligned to entities, same as the DimAligned command.

ANgular

Places angular dimensions that measure angles, same as the DimAngular command.

Leader

Places leaders, same as the DimLeader command.

OBlique

Changes the angle of extension lines, same as the DimEdit command.

ROtated

Places linear dimensions at an angle, same as the DimLinear command.

CEnter

Places marks at the centers of circles and arcs, same as the DimCenter command.

Diameter

Places diameter dimensions on circles and arcs, same as the DimDiameter command.

RA dius

Places radial dimensions on circles and arcs, same as the DimRadius command.

Baseline

Places multiple linear and angular dimensions from the same base point, same as the DimBaseline command.

COntinue

Continues linear and angular dimensions from the last endpoint, same as the DimContinue command.

ORdinate

Places x and y ordinate measurements from an origin point, same as the DimOrdinate command.

Position

Repositions the dimension text, same as the DimTEdit command.

DIStribute

Spaces selected dimensions equally. There are two options between which to choose how the dimensions will be distributed.

Equal

Distributes equally all the dimensions selected.

Offset

All selected dimensions are distributed at a specified offset distance.

UPdate dimensions

Applies the current dimension style to a selection of dimension entities; see Apply option of the -DimStyle command.

variable SStatus

Lists the status of all dimension variables in the Prompt History window.

OVERRIDE

Overrides the values of the current dimension style, same as DimOverride command.



SEttings...

Opens the Drawing explorer | Dimension Styles dialog box which allows you and modifying dimension styles, same as the DIMSTYLE command.

LAyer

Sets a different layer for the default layer on which dimensions are draw.

Note: Dimensions are created on the layer which is specified by the DIMLAYER system variable.

9.45 DIM1 Command

Executes a single dimension command at the 'Dimensioning command:' prompt.



9.45.1 Description

Allows to create a single type of dimension, as specified in the Command line.

9.45.2 Options within the command

HORizontal

Places horizontal linear dimensions, same as the DimLinear command.

VERTical

Places vertical dimensions, same as the DimLinear command.

ALigned

Places linear dimensions that are aligned to entities, same as the DimAligned command.

ANGular

Places angular dimensions that measure angles, same as the DimAngular command.

Leader

Places leaders, same as the DimLeader command.

OBlique

Changes the angle of extension lines, same as the DimEdit command.

ROtated

Places linear dimensions at an angle, same as the DimLinear command.

CEnter

Places marks at the centers of circles and arcs, same as the DimCenter command.

Diameter

Places diameter dimensions on circles and arcs, same as the DimDiameter command.

RA dius

Places radial dimensions on circles and arcs, same as the DimRadius command.

Baseline

Places multiple linear and angular dimensions from the same base point, same as the DimBaseline command.

COntinue

Continues linear and angular dimensions from the last endpoint, same as the DimContinue command.



ORDinate

Places x and y ordinate measurements from an origin point, same as the DimOrdinate command.

Position

Repositions the dimension text, same as the DimTEdit command.

DIStribute

Spaces selected dimensions equally. There are two options between which to chose how the dimensions will be distributed.

Equal

Distributes equally all the dimensions selected.

Offset

All selected dimensions are distributed at a specified offset distance.

UPdate dimensions

Applies the current dimension style to a selection of dimension entities; see Apply option of the -DimStyle command.

variable Status

Lists the status of all dimension variables in the Prompt History window.

OVerride

Overrides the values of the current dimension style, same as DimOverride command.

SEttings...

Opens the Drawing explorer | Dimension styles dialog box which allows you and modifying dimension styles, same as the DIMSTYLE command.

LAyer

Sets a different layer for the default layer on which dimensions are draw.

Note: Dimensions are created on the layer which is specified by the DIMLAYER system variable.

9.46 DIMALIGNED command

Creates an aligned dimension.

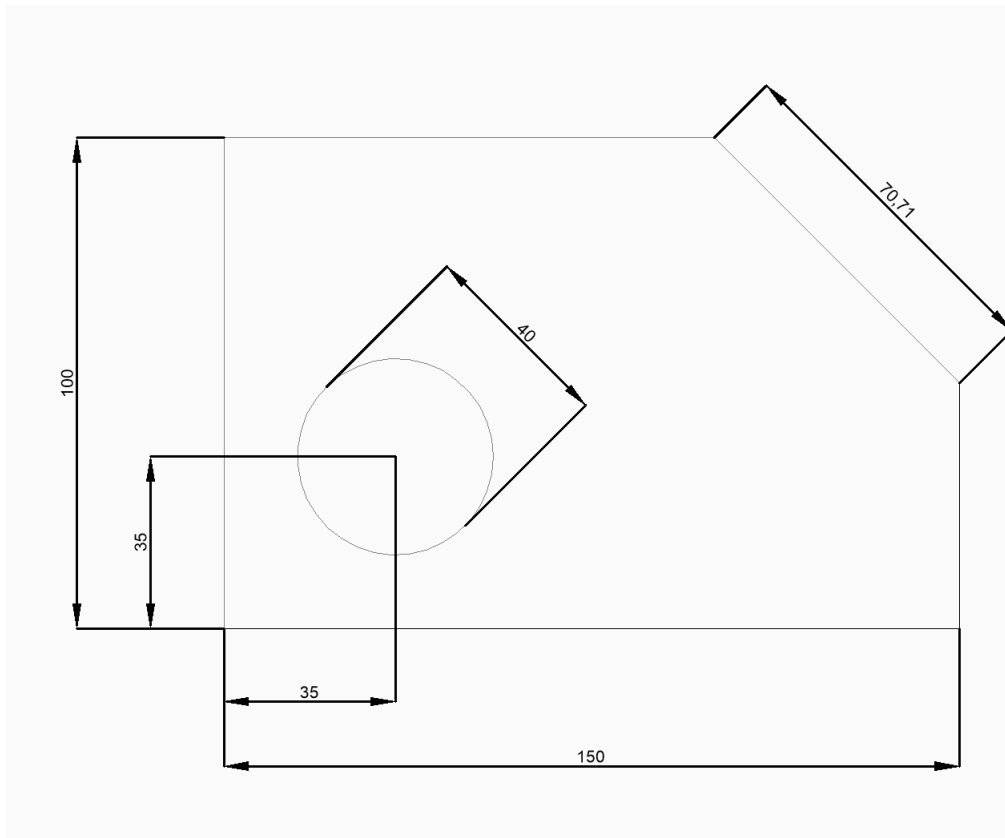


Icon:

Alias: DAL, DIMALI

9.46.1 Description

Creates a dimension that aligns with the origin points of the extension lines. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



Note: Isometric view can be dimensioned and reflect the actual true geometry size.

9.46.2 Methods to create an aligned dimension

This command has 2 methods to begin creating an aligned dimension:

- Origin of first extension line
- Select entity

Origin of first extension line

Begin creating an aligned dimension by specifying a point for the first extension line then:

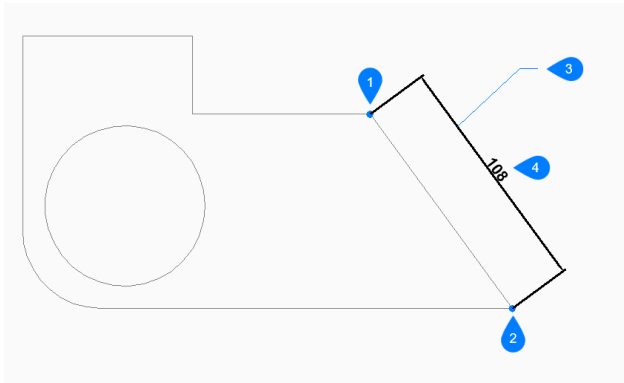
Origin of second extension line

Specify a point for the second extension line.

Location of dimension line

Specify the location of the dimension line. The dimension is placed at the same distance from each of the extension line origins.

Additional options: [Angle/Text]



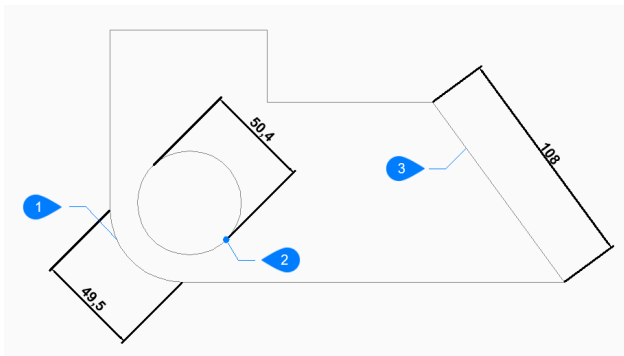
- 1 Origin of first extension line
- 2 Origin of second extension line
- 3 Location of dimension line
- 4 Aligned dimension

Select entity

Begin creating an aligned dimension by pressing Enter then:

Select entity to dimension

Select a line, polyline segment, arc, or circle to dimension. When selecting a line, the endpoints of the line are used for the extension origins. When selecting an arc, the endpoints of the arc are used for the extension origins. When selecting a circle, the selection point on the circle is used for the first extension origin and the opposite point on the diameter of the circle is used for the second extension origin.



- 1 Arc entity
- 2 Selection point of circle entity
- 3 Polyline entity

Additional option: [selection options (?)]

Location of dimension line

Specify the location of the dimension line. The dimension is placed at the same distance from each of the extension line origins.

Additional options: [Angle/Text]

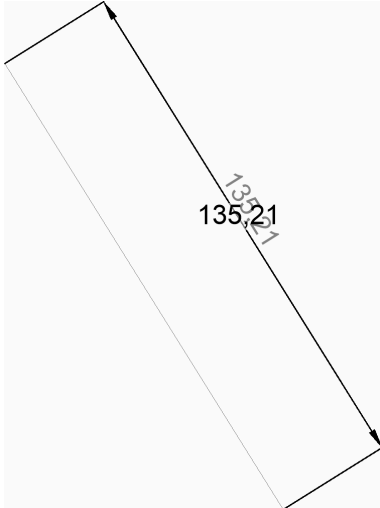


9.46.3 Options within the DIMALIGNED command

After you begin creating aligned dimension, the following options may be available:

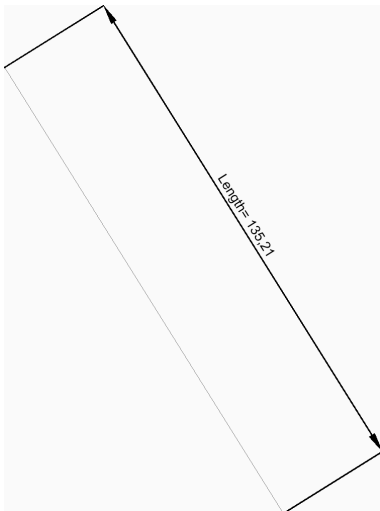
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



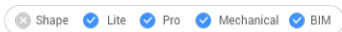
Text

Enter text to override the default dimension text which includes the measured length of the dimension. You can use two angle brackets <> to display the measured length of the dimension in addition to other text.



9.47 DIMANGULAR command

Creates an angular dimension.



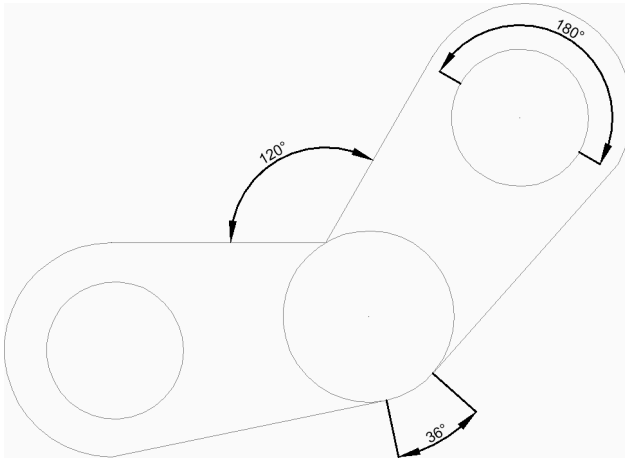
Icon:

Alias: DAN, DIMANG



9.47.1 Description

Creates an angular dimension by selecting an entity or specifying the vertex and both sides of the angle. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



9.47.2 Methods to create an angular dimension

This command has 2 methods to begin creating an angular dimension:

- Select line, arc, or circle
- Press ENTER to specify angle

Select line, arc or circle

Begin creating an angular dimension by selecting a line, arc, or circle to dimension then:

Additional options: [selection options (?)]

If you selected a line or line segment

Other line for angular dimension

Specify another line segment.

Location of dimension arc

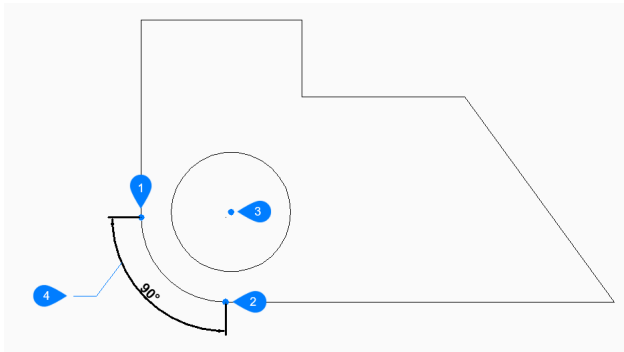
Specify the location of the dimension arc.

Additional options: [Angle/Text]

If you selected an arc or arc segment

Location of dimension arc

Specify the location of the dimension arc.



- 1 First side of angle
- 2 Other side of angle
- 3 Vertex of angle
- 4 Location of dimension arc

Additional options: [Angle/Text]

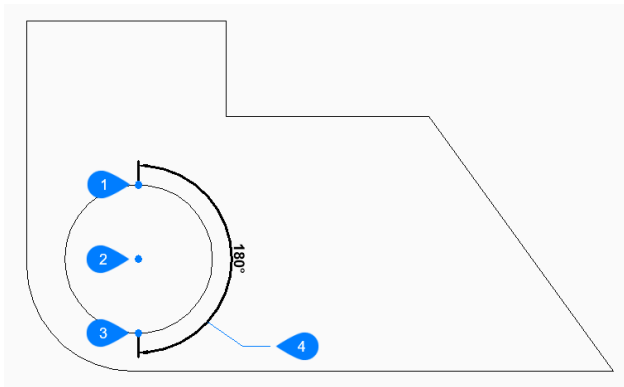
If you selected a circle

Other side of angle

Specify a point to define one side of the angle. The point where you first selected the circle defines the other side of the angle.

Location of dimension arc

Specify the location of the dimension arc.



- 1 Select circle
- 2 Other side of circle
- 3 Vertex of angle
- 4 Location of dimension arc

Additional options: [Angle/Text]

Press ENTER to specify angle

Begin creating an angular dimension by specifying the vertex of the angle then:

First side of angle

Specify a point to define one side of the angle.

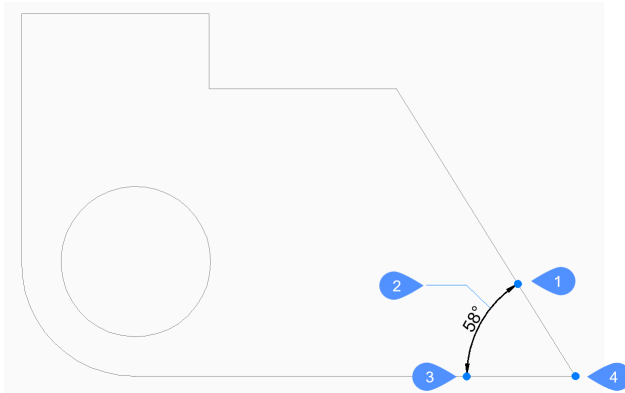


Other side of angle

Specify a point to define the other side of the angle.

Location of dimension arc

Specify the location of the dimension arc.



- 1 First side of angle
- 2 Location of dimension arc
- 3 Other side of angle
- 4 Vertex of angle

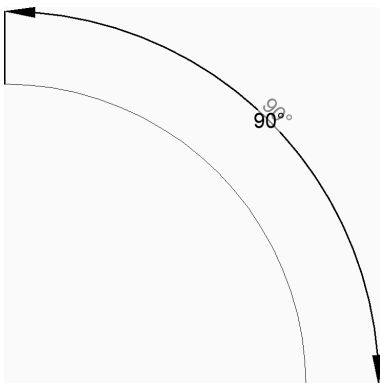
Additional options: [Angle/Text]

9.47.3 Options within the DIMANGULAR command

After you begin creating an angular dimension, the following options may be available:

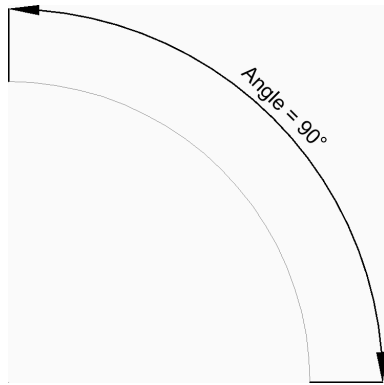
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



Text

Enter text to override the default dimension text which includes the measured length of the dimension. You can use two angle brackets <> to display the measured length of the dimension in addition to other text.



9.48 DIMARC command

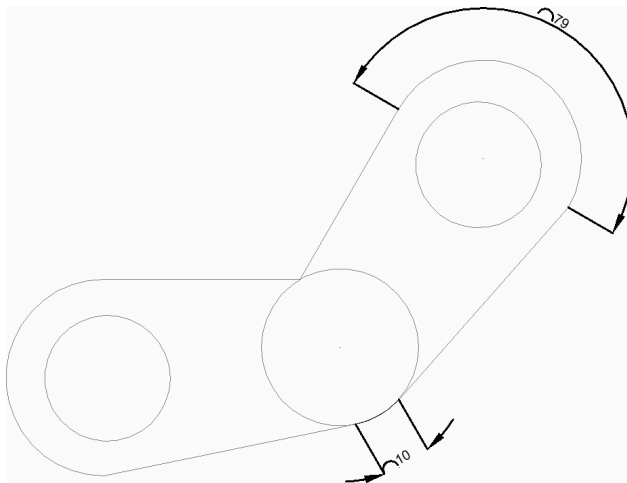
Creates an arc length dimension.

Shape Lite Pro Mechanical BIM

Icon:

9.48.1 Description

Creates a dimension that measures the length of an arc or polyline. The dimension is based on the current dimension style. Options allow you to include a leader and specify the angle and contents of the dimension text.



9.48.2 Methods to create an arc length dimension

There is one method to begin creating an arc length dimension:

- Select arc or polyline arc segment

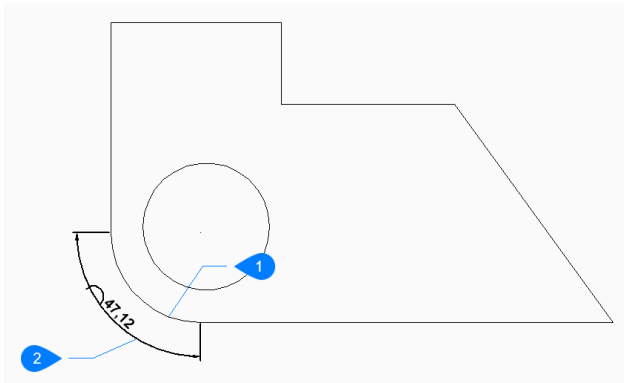
Select arc or polyline arc segment

Begin creating an arc length dimension by selecting an arc or polyline arc segment then:

Location of dimension arc

Specify a point to locate the position of the dimension arc.

Additional options: [Angle/Text/Partial/Leader]



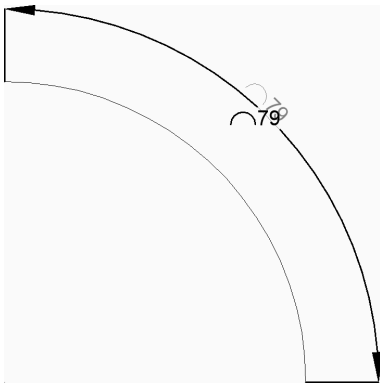
- 1 Arc segment
- 2 Location of dimension arc

9.48.3 Options within the DIMARC command

After you begin creating an arc length dimension, the following options may be available:

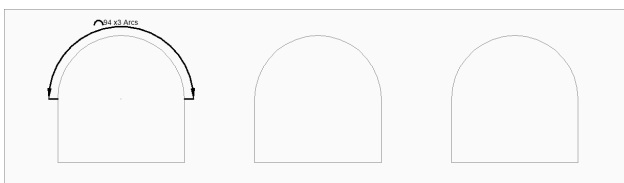
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



Text

Enter text to override the default dimension text which includes the measured length of the dimension. You can use two angle brackets <> to display the measured length of the dimension in addition to other text.



Partial

Specify a point for the first extension line then:

Specify second point for arc length dimension

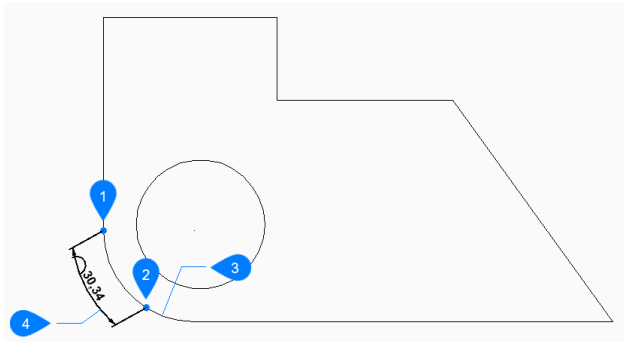
Specify a point for the second extension line.

Location of dimension arc

Specify the location of the dimension line.



Additional options: [Angle/Text/Partial]



- 1 First point of arc length dimension
- 2 Second point of arc length dimension
- 3 Arc segment
- 4 Location of dimension arc

Leader

Toggle on a leader from the dimension text to the arc.

No leader

Toggle off the leader from the dimension text to the arc.

9.49 DIMBASELINE command

Creates stacked dimensions from the same baseline.

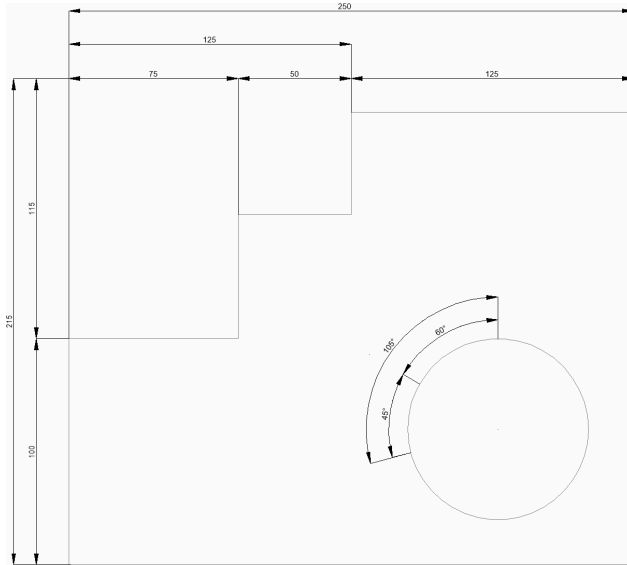


Icon:

Alias: DBA, DIMBASE

9.49.1 Description

Creates stacked linear, angular or ordinate dimensions from the same baseline as an existing dimension. The dimensions are based on the current dimension style and the dimension spacing is specified by the DIMDLI variable.



9.49.2 Methods to create baseline dimensions

This command has 2 methods to begin creating baseline dimensions:

- Origin of next extension line
- Select starting dimension

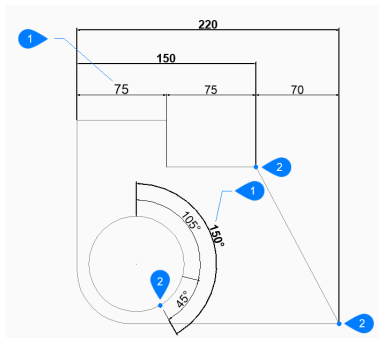
Origin of next extension line

Begin creating baseline dimensions from the last linear, angular, or ordinate dimension by specifying a point for the next extension line.

For linear and angular dimensions, the first extension line of each baseline dimension coincides with the first extension line of the previous dimension.

Continue placing dimensions until you press Enter to end the command.

Additional options: [Select starting dimension/Undo]



- 1 Existing dimension
- 2 Origin of next extension line

Select starting dimension

Begin creating a baseline dimension by selecting an existing linear, angular, or ordinate dimension then:

Origin of next extension line

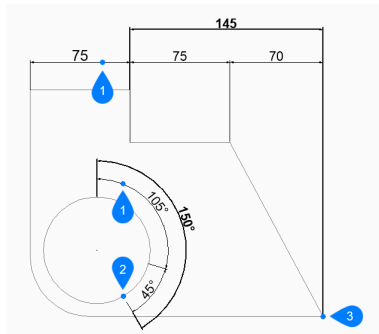
Specify a point for the next extension line.



For linear and angular dimensions, the first extension line coincides with the extension line nearest to where you selected the existing dimension.

Continue placing dimensions until you press Enter to end the command.

Additional options: [Select starting dimension/Undo]



- 1 Starting dimension
- 2 Origin of next extension line

9.49.3 Options within the DIMBASELINE command

After you begin creating a baseline dimension, the following option may be available:

Undo

Undo the last dimension and continue drawing from the previous dimension.

9.50 DIMBREAK command

Breaks dimension lines, extension lines, and leaders at the locations where they cross other entities.



Icon:

9.50.1 Description

Allows breaking entities such as dimension lines, extension lines or leaders by a certain object and it can also remove breaks.

The dimension entity can be broken on different entities: the dimension line itself (1), on the extension line (2) or on the leader (3).



9.50.2 Options

Multiple

Allows multiple dimension entities to be broken in the desired spots.



Auto

Breaks all the selected dimension entities at all intersections found with other entities.

Remove

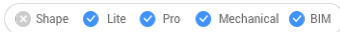
Removes all dimension breaks from the selected dimension entities.

Manual

The width of the dimension break can be manually defined. This option is not available in Auto mode.

9.51 DIMCENTER command

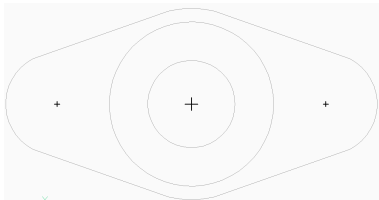
Creates a center mark.



Icon:

9.51.1 Description

Create a center mark at the center of a circle, arc or polyarc. See the CENTERMARK command to create associative center marks.



9.51.2 Methods to create a center dimension

There is one method to begin creating a center mark.

- Select arc or circle to dimension

Select arc or circle to dimension

Begin creating a center dimension by selecting an arc, polyline arc segment, or circle. The DIMCEN system variable controls the length and appearance of the center mark lines.

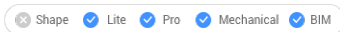
Additional options: [selection options (?)]

9.51.3 Options within the DIMCENTER command

After you begin creating a center dimension, the following options may be available:

9.52 DIMCONSTRAINT command

Applies a dimensional constraint to an entity or between constraint points on entities; converts associative dimensions to dynamic dimensions.



9.52.1 Method

Select an associative dimension or else choose an option to place a dimensional constraint.



The associative dimension is converted to the dimensional constraint of the same type. This option is equivalent to the DCCONVERT command.

9.52.2 Options

Linear

Constrains the horizontal distance (X-distance) or vertical distance (Y-distance) between two points with respect to the current coordinate system. This option is equivalent to the DCLINEAR command.

Horizontal

Constrains the horizontal distance (X-distance) between two points with respect to the current coordinate system. This option is equivalent to the DCHORIZONTAL command.

Vertical

Constrains the vertical distance (Y-distance) between two points with respect to the current coordinate system. This option is equivalent to the DCVERTICAL command.

Aligned

Constrains the distance between two points. This option is equivalent to the DCALIGNED command.

Angular

Constrains the angle between two lines or linear polyline segments; the total angle of an arc or an arc polyline segment; or the angle between three points on entities. This option is equivalent to the DCANGULAR command.

Radial

Constrains the radius of a circle or an arc. This option is equivalent to the DCRADIUS command.

Diameter

Constrains the diameter of a circle or an arc. This option is equivalent to the DCDIAMETER command.

9.53 DIMCONTINUE command

Creates dimensions in a continuous line or arc.

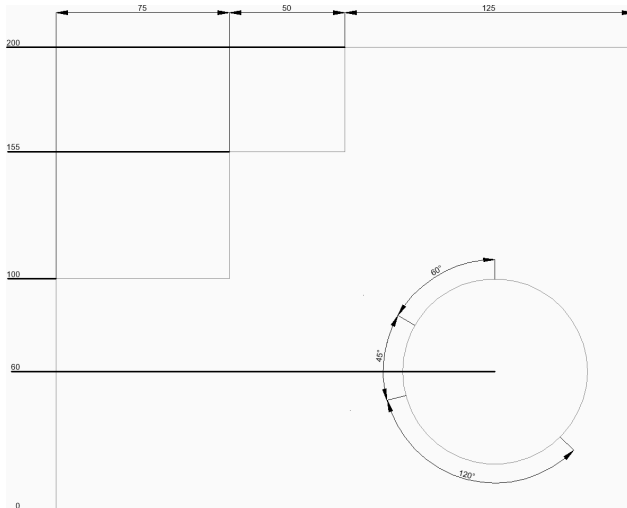


Icon:

Alias: DCO, DIMCONT

9.53.1 Description

Creates a continuous line or arc from an existing linear, angular, or ordinate dimension. The dimensions are based on the current dimension style.



9.53.2 Methods to create continuous dimensions

This command has 2 methods to begin creating continuous dimensions:

- Origin of next extension line
- Select starting dimension

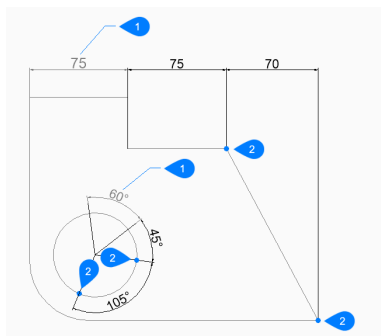
Origin of next extension line

Begin creating continuous dimensions from the last linear, angular, or ordinate dimension by specifying a point for the next extension line.

For linear and angular dimensions, the first extension line of each continuous dimension coincides with the second extension line of the previous dimension.

Continue placing dimensions until you press Enter to end the command.

Additional options: [Select starting dimension/Undo]



- 1 Last dimension
- 2 Origin of next extension line

Select starting dimension

Begin creating a continuous dimension by selecting an existing linear, angular, or ordinate dimension then:

Origin of next extension line

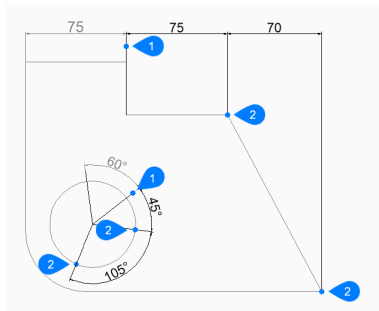
Specify a point for the next extension line.

For linear and angular dimensions, the first extension line coincides with the extension line nearest to where you selected the existing dimension.

Continue placing dimensions until you press Enter to end the command.



Additional options: [Select starting dimension/Undo]



- 1 Starting dimension
- 2 Origin of next extension line

9.53.3 Options within the DIMCONTINUE command

After you begin creating a continuous dimension, the following options may be available:

Undo

Undo the last dimension and continue drawing from the previous dimension.

9.54 DIMDIAMETER command

Creates a diametric dimension.

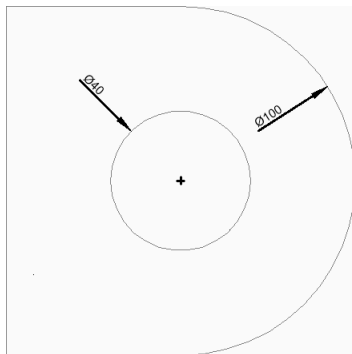


Icon:

Alias: DDI, DIMDIA

9.54.1 Description

Creates a diametric dimension for an arc, polyarc, or circle. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



9.54.2 Methods to create a diametric dimension

There is one method to begin creating a diametric dimension:

- Select arc or circle to dimension



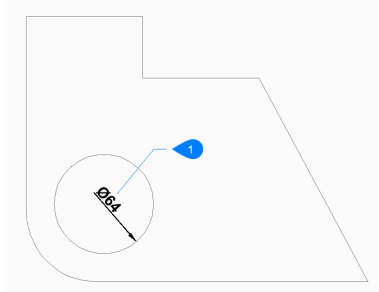
Select arc or circle to dimension

Begin creating a diametric dimension by selecting an arc, polyline arc, or circle then:

Location of dimension line

Specify the location of the dimension line.

Additional options: [Angle/Text]



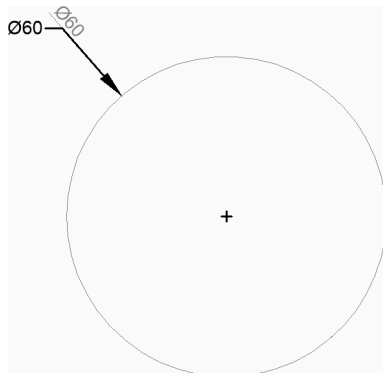
1 Location of dimension line

9.54.3 Options within the DIMDIAMETER command

After you begin creating a diametric dimension, the following options may be available:

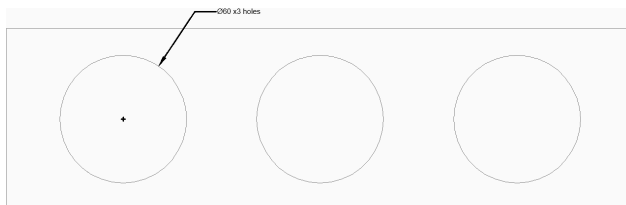
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



Text

Enter text to override the default dimension text which includes the measured length of the diameter. You can use two angle brackets <> to display the measured length of the diameter in addition to other text.



9.55 DIMDISASSOCIATE command

Removes the associativity of selected dimension entities.





Icon:

9.55.1 Description

Disassociates the selected dimension entities and prompts you in the Command line the number of disassociated dimensions.

9.56 DIMEDIT command

Edits particular dimension elements.



Icon:

Alias: DED, DIMED

9.56.1 Description

Edits the position, angle, and wording of dimension text, and changes the angle of extension lines.

9.56.2 Methods

There are four methods to edit dimensions:

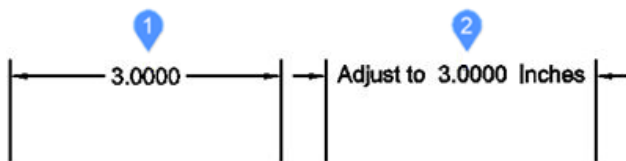
- Edit text
- Oblique lines
- Rotate text
- Restore text

9.56.3 Options within the DIMEDIT command

Edit text

This option will allow you to edit the existing dimension text.

Use any selection mode to choose the dimension entities to be edited. Use the <> symbols to indicate the default text (1), so that you can insert text in front or behind the default, such as "Adjust to <> inches" (2).



Oblique lines

This option will rotate (obliques or slants) the extension lines of selected linear dimensions.

The obliquing angle is measured counterclockwise from the positive x-axis.

Select linear dimensions (1) and enter the obliquing angle (2). The extension lines (3) will become oblique.



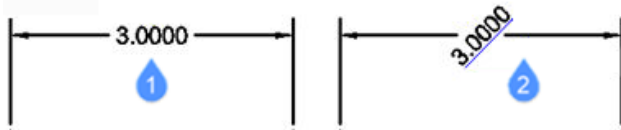


Rotate text

This option will rotate the dimension text.

The dimension text rotation angle is measured counterclockwise from the positive x-axis.

Select the dimension text (1) and enter the angle of dimension text (2).



Restore text

This option will restore the dimension text (1) back to its original position (2). This option does not restore edited text or obliqued extension lines.



9.57 DIMEX command (Express Tools)

Exports dimension styles and their settings to an external file.

Icon:

9.57.1 Method

Opens the **Export DimensionStyles** dialog box that allows you to export the available dimension styles from the current drawing to a DSE. The file can be imported in another drawing using the DIMIM command.

9.58 DIMIM command (Express Tools)

Imports dimension styles and their settings from an external file.

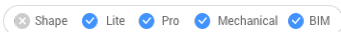
Icon:

9.58.1 Method

Opens the **Import DimensionStyles** dialog box that allows you to import dimension styles that were previously exported using the DIMEX command.

9.59 DIMLEADER command

Creates a leader.

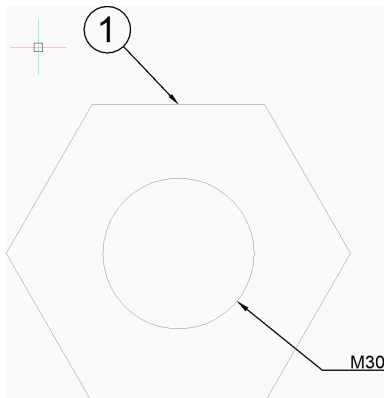


Icon:



9.59.1 Description

Creates a leader by specifying a sequence of points. The leader is based on the current dimension style. Options allow you to specify the format and annotation of the leader.



9.59.2 Methods to create a leader

There is one method to begin creating a leader:

- Start of leader

Start of leader

Begin creating a leader by specifying a start point then:

Next point

Specify the next vertex of the leader.

To point

Specify the next vertex. You can continue adding unlimited vertices until you press Enter to access the annotation option.

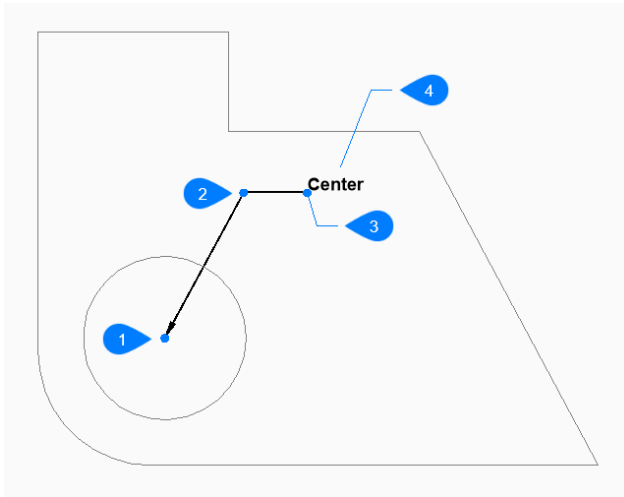
Additional options: [Format/Undo/Annotation]

Annotation

Enter the first line of annotation text and press Enter or press Enter without entering text to access dimension text options.

Next line of annotation text

Enter the next line of annotation text. You can continue adding lines of text until you press Enter to end the command.



- 1 Start of leader
- 2 Next point (vertex)
- 3 To point
- 4 Annotation

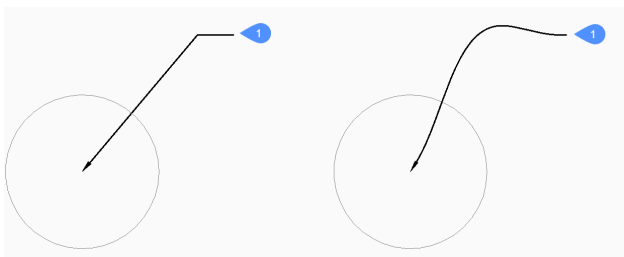
9.59.3 Options within the DIMLEADER command

After you begin creating a leader, the following options may be available:

Format

Specify if the leader line includes an arrow and whether it has spline or straight segments:

- Arrow: draw the arrowhead.
- None: does not draw the arrowhead.
- Spline: draw the leader line as a spline.
- Straight: draw the leader line as straight segments.
- Exit: exit the Format options.



- 1 Center

Undo

Undo the last leader line segment and continue drawing from the previous one.

Dimension text options [Block/Copy/None/Tolerance/MText]

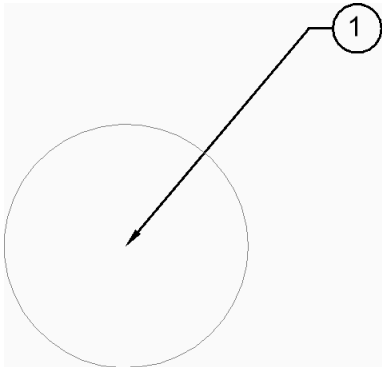
Specify the type of annotation to use for the leader:



Block

Specify the name of a block in the drawing.

Alternate option: [? to list blocks in drawing/open file Dialog]



Copy

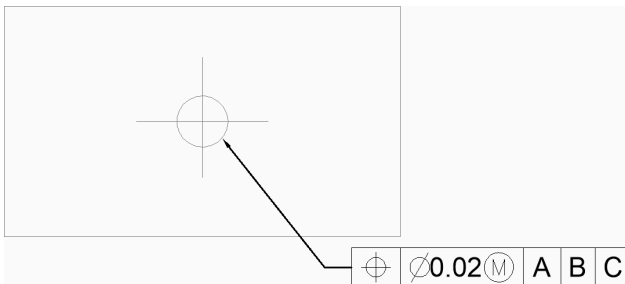
Select an mtext, text, block reference or tolerance entity in the drawing.

None

The leader line is created without annotations.

Tolerance

Specify tolerance using the Geometric Tolerance dialog box.



MText

Enter annotation text using the MText editor.

? to list blocks in drawing

Enter * to list the names of all block definitions in the current drawing. You can also use * as a wildcard with other characters.

Open file Dialog

Select a .dwg file from the file dialog box to use as an annotation block.

9.60 DIMLINEAR command

Creates a linear dimension.



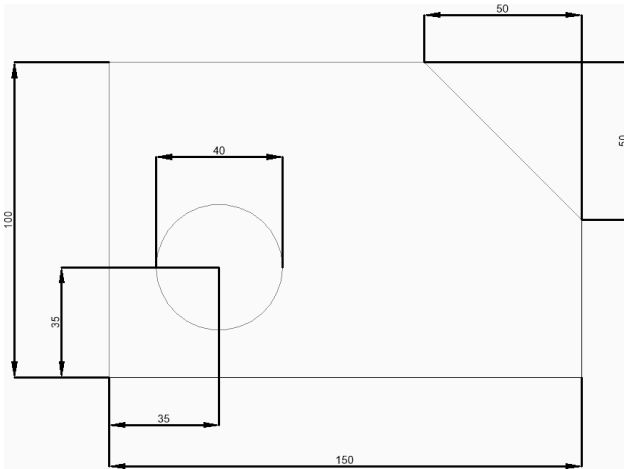
Icon:

Alias: DIMHORIZONTAL, DIMLIN, DIMROTATED, DIMVERTICAL, DLI



9.60.1 Description

Creates a linear dimension that is horizontal, vertical, or rotated. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



9.60.2 Methods to create a linear dimension

This command has 2 methods to begin creating a linear dimension:

- Origin of first extension line
- Select entity

Origin of first extension line

Begin creating a linear dimension by specifying a point for the first extension line then:

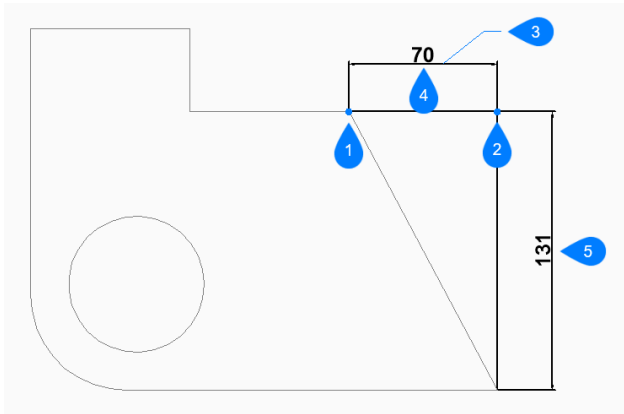
Origin of second extension line

Specify a point for the second extension line.

Location of dimension line

Specify the location of the dimension line. If the two extension points you specified are aligned vertically or horizontally, you are restricted to placing a vertical or horizontal dimension, respectively. If the two extension points you specified are not vertically or horizontally aligned, you can drag the cursor to place either a vertical or a horizontal dimension.

Additional options: [Angle/Text/Horizontal/Vertical/Rotated]



- 1 Origin of first extension line
- 2 Origin of second extension line
- 3 Location of dimension line
- 4 Horizontal dimension
- 5 Vertical dimension

Select entity

Begin creating a linear dimension by pressing Enter then:

Select entity to dimension

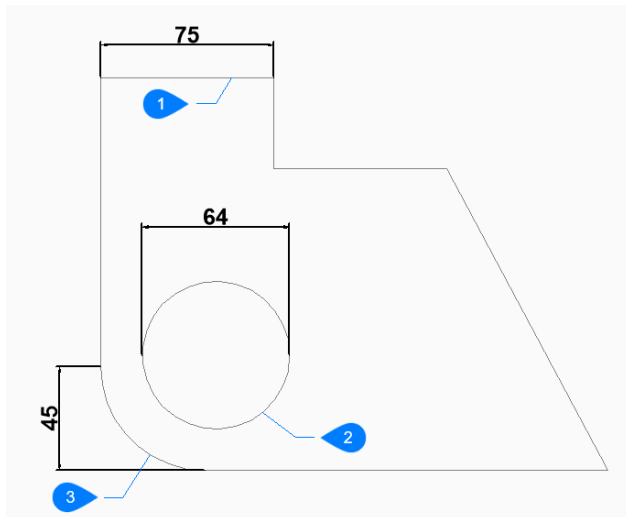
Select a line, polyline segment, arc, or circle to dimension. When selecting a line, the endpoints of the line are used for the extension origins. When selecting an arc, the endpoints of the arc are used for the extension origins. When selecting a circle, the quadrants of the circle are used for the extension origins.

Additional option: [selection options (?)]

Location of dimension line

Specify the location of the dimension line. If the endpoints of the entity you selected are aligned vertically or horizontally, you are restricted to placing a vertical or horizontal dimension, respectively. If the endpoints of the entity you selected are not aligned vertically or horizontally, you can drag the cursor to place either a vertical or a horizontal dimension.

Additional options: [Angle/Text/Horizontal/Vertical/Rotated]



- 1 Line entity
- 2 Circle entity
- 3 Arc entity

9.60.3 Options within the DIMLINEAR command

After you begin creating a linear dimension, the following options may be available:

Horizontal

Specify the location of the dimension to place it in the drawing. This creates a horizontal dimension regardless of how the endpoints are aligned.

Vertical

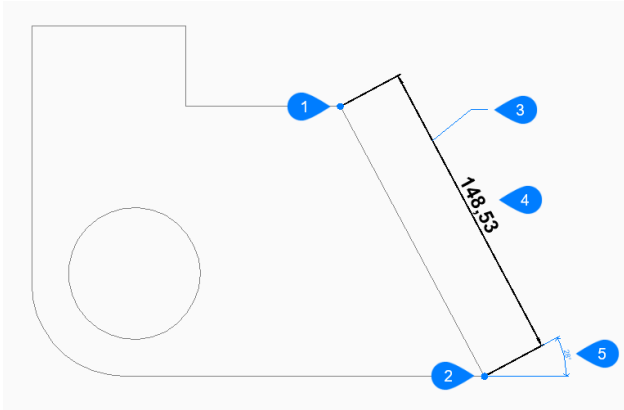
Specify the location of the dimension to place it in the drawing. This creates a vertical dimension regardless of how the endpoints are aligned.

Rotated

Specify an angle for the dimension then:

Location of dimension line

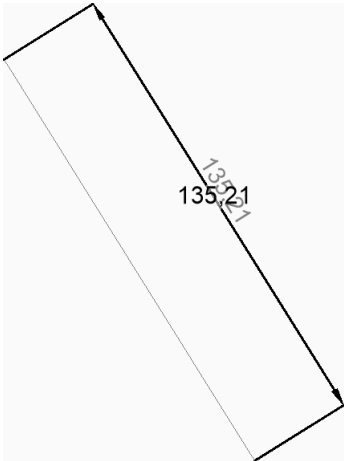
Specify the location of the dimension line. The dimension is rotated from its default (vertical or horizontal) location by the specified angle.



- 1 Origin of first extension line
- 2 Origin of second extension line
- 3 Location of dimension line
- 4 Rotated dimension
- 5 Angle of dimension line

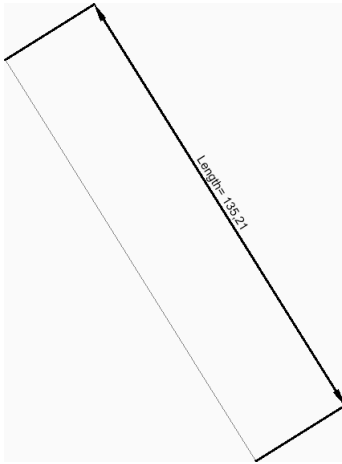
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



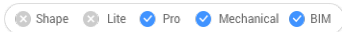
Text

Enter text to override the default dimension text which includes the measured length of the dimension. You can use two angle brackets <> to display the measured length of the dimension in addition to other text.



9.61 DIMMARKOVERRIDES command

Adds or removes underline to dimensions with overridden dimtext.



9.61.1 Description

Adds or removes underline to dimensions with overridden dimtext by making database modifications.

Select dimensions

Select dimensions with overridden dimension text. When all desired dimensions are selected, press **Enter**.

Note: To mark dimensions with overridden dimtext without database modification, set the DIMMARKTYPE system variable value to 1 or 2.

9.61.2 Options within the command

Once all desired entities are selected, two options are available:

Mark

Underlines the overridden text for the selected dimensions.

Unmark

Removes the overridden text underline for the selected dimensions.

9.62 DIMORDINATE command

Creates an ordinate dimension.



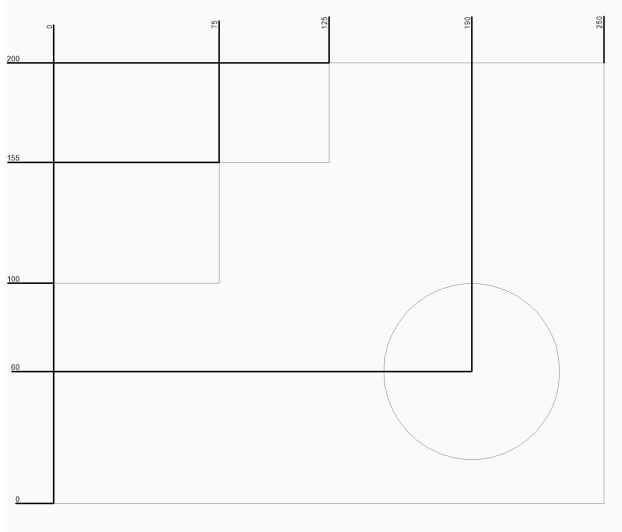
Icon:

Alias: DIMORD, DOR



9.62.1 Description

Create an ordinate dimension that measures the x or y distance from the current UCS origin to a specified point in the drawing. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



9.62.2 Methods to create an ordinate dimension

This command has 1 method to begin creating an ordinate dimension:

- Select point for ordinate dimension

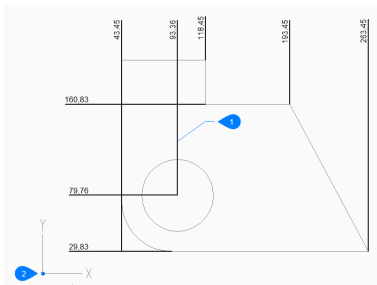
Select point for ordinate dimension

Begin creating an ordinate dimension by specifying a start point for the leader then:

Leader endpoint

Specify an endpoint for the leader. The direction you drag from the start point determines whether you create an X or Y ordinate.

Additional options: [XDatum/YDatum/Text/Angle]



- 1 Location of ordinate line
- 2 UCS Basepoint

9.62.3 Options within the DIMORDINATE command

After you begin creating an ordinate dimension, the following options may be available:



XDatum

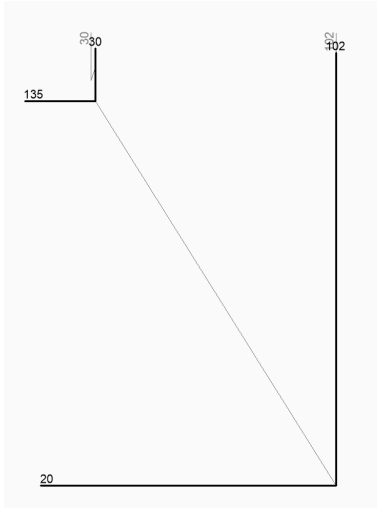
Specify the endpoint for an X ordinate regardless of which direction you drag from the start point.

YDatum

Specify the endpoint for a Y ordinate regardless of which direction you drag from the start point.

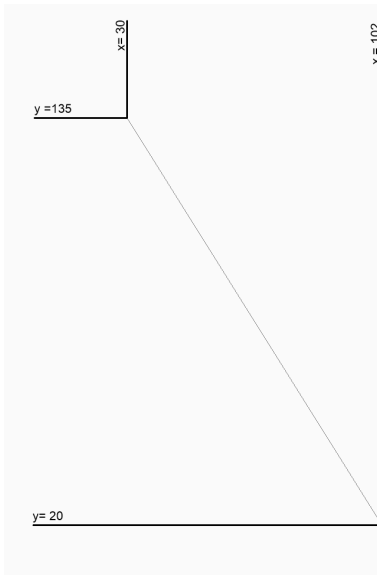
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



Text

Enter text to override the default dimension text which includes the measured length of the dimension. You can use two angle brackets <> to display the measured length of the dimension in addition to other text.



9.63 DIMOVERRIDE command

Overrides the values of the current dimension style.





Alias: DIMOVER, DOV

9.63.1 Description

Allows the override of dimension style values in a selected dimension.

Note: This command is superseded by the Override function of the DIMSTYLE command.

9.63.2 Options within the command

Clear

Resets the values of dimension variables, clearing the overrides.

9.64 DIMRADIUS command

Creates a radial dimension.

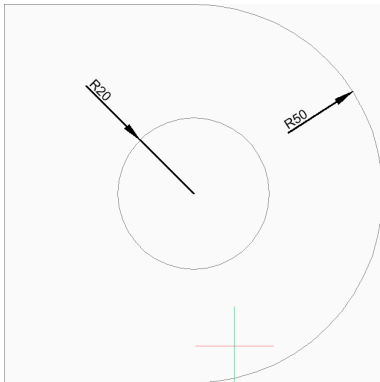


Icon:

Alias: DIMRAD, DRA

9.64.1 Description

Creates a radial dimension for an arc, polyarc, or circle. The dimension is based on the current dimension style. Options allow you to specify the angle and contents of the dimension text.



9.64.2 Methods to create a radial dimension

This command has 1 method to begin creating a radial dimension:

- Select arc or circle to dimension

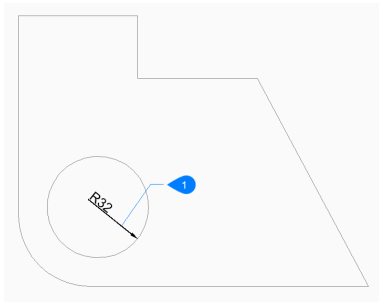
Select arc or circle to dimension

Begin creating a radial dimension by selecting an arc, polyline arc, or circle then:

Location of dimension line

Specify the location of the dimension line.

Additional options: [Angle/Text]



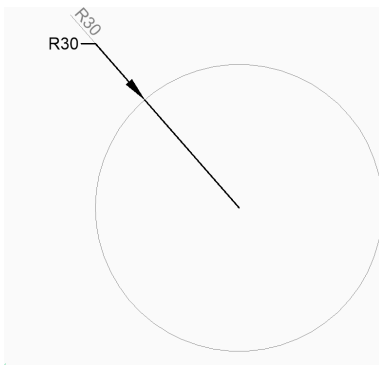
1 Location of dimension line

9.64.3 Options within the DIMRADIUS command

After you begin creating a radial dimension, the following options may be available:

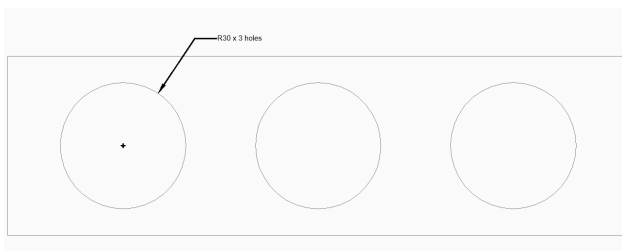
Angle

Specify the angle of the dimension text. A value of 0 aligns the dimension text with the dimension line. Any other value rotates the dimension text relative to the x-axis of the current UCS.



Text

Enter text to override the default dimension text which includes the measured length of the radius. You can use two angle brackets <> to display the measured length of the radius in addition to other text.

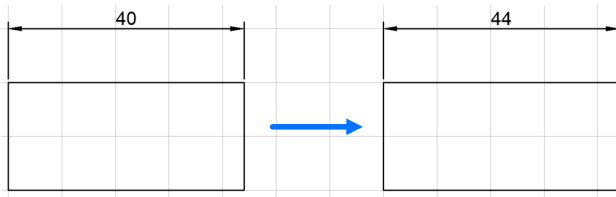


9.65 DIMREASSOC command (Express Tools)

Restores the measured value of a dimension text that has been previously modified or overwritten.

9.65.1 Method

Select entities with non-associative text and press Enter.



9.66 DIMREASSOCIATE command

Reassociates or associates dimensions to entities or points on entities.



Icon:

9.66.1 Description

Selected dimension entities highlight one by one with prompts to specify association points or entities for the currently highlighted dimension entity.

Note: A marker displays at the current position of the edited dimension point:

- indicates a non-associated dimension point.
- indicates an associated dimension point.

9.66.2 Methods

The DIMREASSOCIATE command can be used in six different ways:

- Linear (rotated and aligned): specify an entity or two lines.
- Diameter: select arc, circle or polyline arc.
- Radius: select arc, circle or polyline arc.
- Angular: select 2 lines or 3 points, an Arc or a circle.
- Ordinate: specify feature location.
- Leader: specify leader association point.

9.66.3 Options

Disassociated

Prompts to reassociate ALL disassociated dimension entities in the drawing. All disassociated dimensions highlight one by one.

9.67 DIMREGEN command

Updates associative dimensions.



9.67.1 Description

Updates ALL associative dimensions in the drawing file.



9.68 DIMSPACE command

Adjusts the spacing between the lines of parallel linear/angular dimensions.

Shape Lite Pro Mechanical BIM

9.68.1 Description

Allows you to equally adjust the spacing between the lines of parallel linear/angular dimensions that share a common vertex, starting from a base dimension.

9.68.2 Method

There are two methods to adjust parallel linear/angular dimensions spacing:

- equally space dimensions lines
- line up a series of dimensions lines

After running the command, the following prompts display:

Select base dimension

Select the base dimension from which the other dimensions will be spaced.

Select dimensions to space

Select the dimensions to space equally/line up from the base dimension, then press Enter.

Enter value

Enter a spacing value.

Note: To line up the dimension lines, enter a spacing value of 0.

9.68.3 Options within the command

selection options (?)

Allows you to choose a selection method.

Auto

The spacing distance becomes twice the text height specified in the dimension style of the selected base dimension.

9.69 DIMSTYLE command

Opens the **Drawing Explorer** dialog box with **Dimension Styles** selected.

Shape Lite Pro Mechanical BIM

Icon:

Alias: D, DDIM, DIMSTY, DS, DST, EXPDIMSTYLES, SETDIM

9.69.1 Description

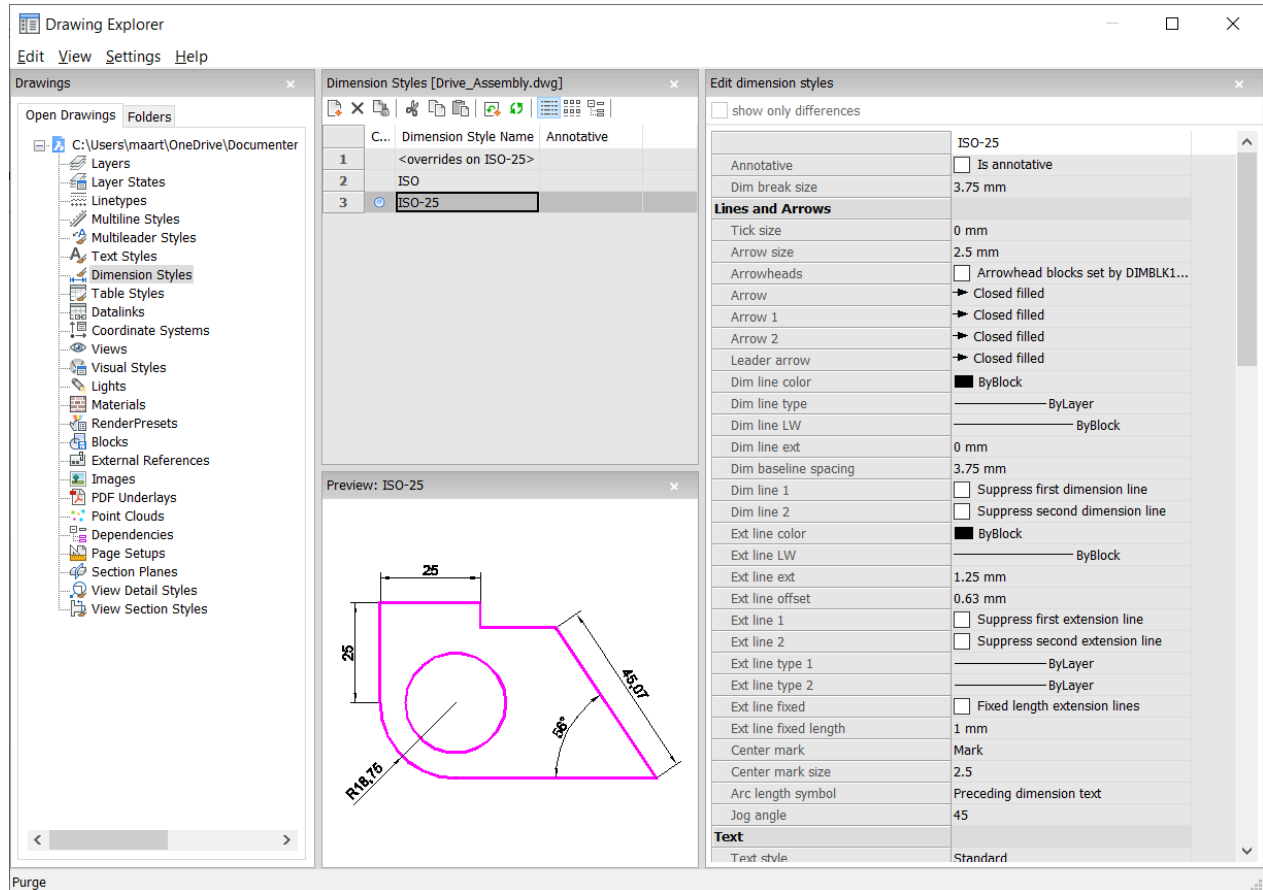
Opens the **Drawing Explorer** dialog box with **Dimension Styles** category selected to view and modify dimension styles in the current drawing.



9.69.2 Method

There are two methods when using DIMSTYLE command:

- <Overrides>: overrides the values of individual dimension variables without creating a new style.
- Standard: lists the dimension settings for the dimension style named "Standard".



9.69.3 Context Menu Options

The following options appear when you right-mouse click on a dimension style:

New

Loads additional Dimension Styles definitions into the drawing.

Delete

Deletes Dimension Styles definitions from the drawing. The following dimension styles cannot be deleted:

- <overrides on ISO-25>/<overrides on Standard>
- ISO-25/Standard

Rename

Renames the Dimension Styles. The following dimension styles cannot be renamed:

- <overrides on ISO-25>
- ISO-25



Select All

Selects all Dimension Styles definitions.

Invert selection

Deselects the current selection and vice versa.

Set current

Sets the selected Dimension Style as current.

Save overrides to current style

Saves the override variables of the selected dimension style to the current dimension style.

Save to new style

Creates a new dimension style based on the selected dimension style.

New child style

Creates a new dimension child style. A dimension style can have up to 6 child styles: Linear, Angular, Radius, Diameter, Ordinate, and Leader. If defined, then the child style is used for the corresponding dimension type.

Dimension child styles share all settings with the parent style, except for the properties that are defined explicitly differently.

9.69.4 Options within the command

Edit dimension styles

Show only differences

If multiple styles are selected, compares the selected styles, and shows the differences only.

Name

Names the dimension style. The following dimension styles cannot be renamed:

- <overrides on ISO-25>
- ISO-25

Annotative

Sets the annotative property of the dimension style.

Dim break size

Sets the value of the gap created by the DIMBREAK command.

Lines and Arrows



Lines and Arrows	
Tick size	0 mm
Arrow size	2.5 mm
Arrowheads	<input type="checkbox"/> Arrowhead blocks set by DIMBLK1...
Arrow	➤ Closed filled
Arrow 1	➤ Closed filled
Arrow 2	➤ Closed filled
Leader arrow	➤ Closed filled
Dim line color	■ ByBlock
Dim line type	———— ByLayer
Dim line LW	———— ByBlock
Dim line ext	0 mm
Dim baseline spacing	3.75 mm
Dim line 1	<input type="checkbox"/> Suppress first dimension line
Dim line 2	<input type="checkbox"/> Suppress second dimension line
Ext line color	■ ByBlock
Ext line LW	———— ByBlock
Ext line ext	1.25 mm
Ext line offset	0.63 mm
Ext line 1	<input type="checkbox"/> Suppress first extension line
Ext line 2	<input type="checkbox"/> Suppress second extension line
Ext line type 1	———— ByLayer
Ext line type 2	———— ByLayer
Ext line fixed	<input type="checkbox"/> Fixed length extension lines
Ext line fixed length	1 mm
Center mark	Mark
Center mark size	2.5
Arc length symbol	Preceding dimension text
Jog angle	45

Tick size

Determines the size of tick marks drawn instead of arrowheads for linear, radius and diameter dimensioning. If the value is zero, arrowheads are drawn.

Arrow size

Determines the size of arrowheads of dimension lines and leader lines.

Arrowheads

Controls whether dimension line arrowhead blocks are set by DIMBLK or DIMBLK1 or DIMBLK2.

Arrow

Determines the name of the block displayed at the ends of dimension lines and leader lines. The block name can be either a standard name or refer to a user-defined arrowhead block.

Arrow 1

Specifies the style of arrowhead for the starting end of the dimension line.

Arrow 2

Specifies the style of arrowhead for the other end of the dimension line.

Leader arrow

Specifies the style of arrowhead for the starting end of the leader line.

Dim line color

Specifies the color of the dimension line; choose from:

- Any Index Color
- Any True Color



- ByBlock
- ByLayer

Dim line type

Specifies the line type of the dimension line. Choose from any line type loaded into the current drawing. To access additional linetypes, click Load..., and then choose one from the **Load Linetypes** dialog box. See the LINETYPE command.

Dim line LW

Specifies the lineweight of the dimension line. Choose from any lineweight supported by the program.

Dim line ext

Specifies the distance that the dimension line extends beyond the extension lines.

Dim baseline spacing

Specifies the default distance between dimensions added with the DIMBASELINE command.

Dim line 1

Toggles the display of the first half of the dimension line (between the starting extension line and the text).

Dim line 2

Toggles the display of the second half of the dimension line (between the other extension line and the text).

Ext line color

Specifies the color of the dimension line. To select additional colors, click Select color... and choose one from the **Select Color** dialog box.

See the COLOR command.

Ext line LW

Specifies the lineweight of the extension line. Choose from any lineweight supported by the program.

Ext line ext

Specifies the distance that the extension lines extend beyond the dimension line.

Ext line offset

Specifies the offset distance between the object and the start of the extension lines.

Ext line 1

Toggles the display of the first extension line.

Ext line type 1

Specifies the line type of the first extension line. You can choose from any line type loaded into the current drawing.

To access additional linetypes, click Load... . The **Load Linetypes** dialog box is displayed where you can choose a linetype.

Ext line type 2

Specifies the line type of the second extension line. You can choose from any line type loaded into the current drawing.

To access additional linetypes, click Load... . The **Load Linetypes** dialog box is displayed where you can choose a linetype.

Ext line 2

Toggles the display of the second extension line.



Ext line fixed

Determines whether fixed length extension lines are used.

Ext line fixed length

Specifies the total length of the extension lines.

Center mark

Specifies the type of center mark:

- Mark
- Line
- None

Center mark size

Specifies the size of the center mark.

Arc length symbol

Specifies the location of the arc length symbol:

- Preceding dimension text.
- Above dimension text.
- Not displayed.

Jog angle

Specifies the angle of the jog (default is 45 degrees). Enter another angle.

Text

Text	
Text style	Standard
Text color	■ ByBlock
Text fill	No fill
Text fill color	■ ByBlock
Text height	2.5 mm
Draw frame around text	<input type="checkbox"/> Draw frame around text
Text position vertical	Above
Text position horizontal	Centered
Text offset	0.625
Text vertical offset	0
Text inside align	<input type="checkbox"/> Horizontal
Text outside align	<input type="checkbox"/> Horizontal
Text view direction	Left to right

Text style

Specifies the style for dimension text; can use only styles created with the STYLE command.

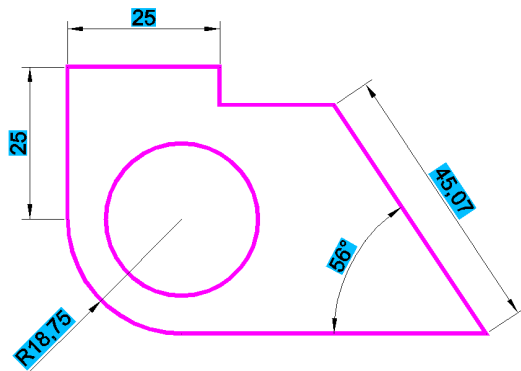
Text color

Specifies the color of the text. Click Select color... to select additional color from the **Select Color** dialog box.

Text fill

Determines whether the dimension text has a rectangular background filled with color.

- No fill: does not apply a background fill.
- Background: uses the background color of the drawing, usually white or black.
- Color: uses the color specified by the Text Fill Color option.



Text fill color

Specifies the background fill color when Text Fill is set to Color. You can choose a color from the drop-down list or choose Select Color..., and choose a color from the **Select Color** dialog box.

Text height

Specifies the height of the text.

Draw frame around text

Draws a rectangle around the text.

Text position vertical

Justifies the text vertically relative to the dimension line:

- Centered: centers the text on the dimension line.
- Above: places the text above the dimension line.
- Outside: places text outside of the extension lines.
- JIS: places text above the dimension line, according to the Japanese Industry Standard.
- Below: places the text below the dimension line.

Text position horizontal

Justifies the text horizontally relative to the extension lines:

- Centered: centers the text between the extension lines.
- First Extension Line: places the text near the first extension line.
- Second Extension Line: places the text near the second extension line.
- Over First Extension: places the text over the first extension line.
- Over Second Extension: places the text over the second extension line.

Text offset

Specifies the size of gap between the dimension line and the text.

Text vertical offset

Sets the vertical position of dimension text above or below the dimension line.

Text inside align

Justifies text when located between extension lines:

- Aligned with Dimension Line: aligns text with dimension line.
- Horizontal: forces text to be always horizontal.



Text outside align

Justifies text when located outside of the extension lines:

- Aligned with Dimension Line: aligns text with dimension line.
- Horizontal: forces text to be always horizontal.

Text view direction

Sets the dimension text reading direction.

Fit

Fit	
Arrow and text fit	Best fit
Text inside	<input type="checkbox"/> Force text between extension lines
Dim line inside	<input type="checkbox"/> Suppress outside arrowheads
Text movement	Keep dim line with text
Dim scale overall	1
Place text manually	<input type="checkbox"/> Cursor controls both the text posit...
Dim line forced	<input checked="" type="checkbox"/> Force dimension lines even when ...

Arrow and text fit

Specifies where text and arrows should be located when there is insufficient space for both between the extension lines:

- Text and Arrows: forces both text and arrows between the extension lines.
- Arrows Only: forces arrows to stay within extension lines; moves text outside when there is insufficient space.
- Text Only: forces text to stay within extension lines; moves arrows outside when there is insufficient space.
- Best Fit: requires the program to figure out where to place text and arrows, depending on the space between extension lines.

Text inside

Specifies whether the text is forced between extension lines:

- On: forces text between extension lines.
- Off: draws text outside if there is insufficient space between extension lines.

Dim line inside

Specifies whether the dimension line is forced between extension lines:

- On: forces dimension line always between extension lines.
- Off: draws dimension line outside if there is insufficient space between extension.

Text movement

Specifies what happens when text is moved away from its default location:

- Keep dim line with text: moves the dimension line with the text, stretching the extension lines.
- Move text, add leader: draws a leader between the text and the dimension line.
- Move text, no leader: does not draw a leader.

Dim scale overall

Specifies the overall scale factor for dimensions. This affects the size of arrows and text only.

This setting is not editable for annotative dimension styles. It is recommended to set Dim Scale Overall = 1 for annotative dimension styles.



Place text manually

Toggles whether the user must always specify the text location when creating dimensions.

Dim line forced

Forces the dimension line to be always drawn; forces leaders to be drawn with the DIMDIAMETER and DIMRADIUS commands.

Primary units

Primary units	
Dim units	Decimal
Dim precision	0.00
Fractional type	Horizontal
Decimal separator	,
Dim round	0
Dim prefix	
Dim suffix	
Dim sub-units suffix	
Dim scale linear	1
Dim sub-units scale	100
Suppress leading zeros	<input type="checkbox"/> Suppress leading zeros
Suppress trailing zeros	<input checked="" type="checkbox"/> Suppress trailing zeros
Suppress zero feet	<input checked="" type="checkbox"/> Suppress zero feet
Suppress zero inches	<input checked="" type="checkbox"/> Suppress zero inches
Dim angle units	Decimal degrees
Dim angle precision	0
Suppress angle leading zeros	<input type="checkbox"/> Suppress trailing zeros
Suppress angle trailing zeros	<input type="checkbox"/> Suppress trailing zeros

Dim units

Specifies the display units for dimensions:

- Scientific: scientific notation, such as 1.2345E+01
- Decimal: metric, such as 1.2345
- Engineering: feet and decimal inches, such as 1'-2.3456"
- Architectural: feet and fractional inches, such as 1'-2 1/16"
- Fractional: fractional inches only; no feet, such as 14 1/16"
- Windows Desktop: uses the units set by Windows

Dim precision

Specifies the precision of units, either decimal places or fractional accuracy.

Fractional type

Specifies how fractions are stacked:

- Horizontal: stacks fractions vertically, with a horizontal separator line.
- Diagonal: stacks diagonally, with a diagonal separator line.
- None: does not stack fractions, placed horizontally with a slash separator.

Decimal separator

Specifies the character used to indicate the decimal point; can be any character. North American countries use the period; European countries use the comma.

Dim round

Specifies the rounding of decimal numbers. The range goes from none to 8 decimal places.



Dim prefix

Specifies a prefix text that appears in front of the dimension text, if any.

Dim suffix

Specifies a suffix text that appears after the dimension text, if any.

Dim sub-units suffix

Specifies suffix text in case the subunit is used. For example, enter 'cm' to display 0.96 as 96cm.

Note: suppress leading zeros must be set to Yes to display dimension distances less than one unit in sub units.

Dim scale linear

Specifies the scale factor for linear dimension values, such as 25.4 for changing inches to millimeters.

Positive values apply to dimensions in both model space and paper space. Negative values apply to paper space dimensions only.

Dim sub-units scale

Sets the scale factor for the sub-units. For example, enter 10 if the drawing unit is cm, and the subunit suffix is mm.

Note: suppress leading zeros must be set to Yes to display dimension distances less than one unit in subunits.

Suppress leading zeros

Toggles the display of zeros in front of the decimal point. For example, 0.23 is displayed as:

- On: suppresses the leading zero, such as .23
- Off: permits the leading zeros, such as 0.23

Suppress trailing zeros

Toggles the display of zeros after the decimal point. For example, 1.2300 is displayed as:

- On: suppresses trailing zeros, such as 1.23
- Off: allows trailing zeros, such as 1.2300

Suppress zero feet

Toggles the display of zero feet. For example, 0'-3" is displayed as:

- On: suppresses zero feet, such as 3"
- Off: allows zero feet, such as 0'-3"

Suppress zero inches

Toggles the display of zero inches; for example, 1'-0" is displayed as:

- On: suppresses the display of zero inches, such as 1'
- Off: allows zero inches, such as 1'-0"

Dim angle units

Specifies the format of units in angular dimensions:

- Decimal Degrees: 360 degrees in a circle. For example, 123.45 degrees
- Deg/Min/Sec: degrees, minutes, seconds. For example, 123d 12' 45.67"
- Grads: 400 grads in a circle. For example, 230g
- Radians: 2pi radians in a circle. For example, 1.5r



Dim angle precision

Specifies the number of decimal places. The range goes from 0 to 8.

Suppress angle leading zeros

Toggles the display of zero degrees. For example, 0.1234 degrees is displayed as:

- On: suppresses zero degrees, such as .1234
- Off: allows zero degrees, such as 0.1234

Suppress trailing leading zeros

Toggles the display of zeros after degrees. For example, 0.1200 degrees is displayed as:

- On: suppresses trailing zeros, such as 0.12
- Off: allows trailing zeros, such as 0.1200

Alternate units

Alternate units	
Alt enabled	<input type="checkbox"/> Enable alternate units
Alt units	Decimal
Alt precision	0.000
Alt scale factor	0.03937007874
Alt sub-units scale	100
Alt round	0
Alt prefix	
Alt suffix	
Alt sub-units suffix	
Alt suppress leading zeros	<input type="checkbox"/> Alt suppress leading zeros
Alt suppress trailing zeros	<input type="checkbox"/> Alt suppress trailing zeros
Alt suppress zero feet	<input checked="" type="checkbox"/> Alt suppress zero feet
Alt suppress zero inches	<input checked="" type="checkbox"/> Alt suppress zero inches

Alt enabled

Toggles the display of alternate units:

- On: second, alternative units displayed to the right of primary units.
- Off: only primary units are displayed.

Alt units

Specifies the alternate unit type for linear dimensions:

- Scientific: scientific notation, such as 1.2345E+01.
- Decimal: metric, such as 1.2345
- Engineering: feet and decimal inches, such as 1'-2.3456"
- Architectural Stacked: such as 4'-6.61"
- Fractional Stacked: such as 54 1/2
- Architectural: feet and fractional inches, such as 1'-2 1/16"
- Fractional: fractional inches only; no feet, such as 14 1/16"
- Windows Desktop: uses the units set by Windows

Alt precision

Specifies the precision of alternate units, either decimal places or fractional accuracy.



Alt scale factor

Specifies the multiplier for alternate values, such as 25.4 for showing millimeters (alternate units) next to inches (primary units).

Alt sub-units scale

Specifies the multiplier for alternate values, such as 25.4 for showing millimeters (alternate units) next to inches (primary units).

Alt round

Specifies the rounding of alternate numbers. The range goes from zero to 8 decimal places.

Alt prefix

Specifies a prefix text that appears in front of the alternate text, if any.

Alt suffix

Specifies a suffix text that appears after the alternate text, if any.

Alt sub-units suffix

Specifies suffix text in case the subunit is used.

Note: suppress leading zeros must be set to Yes to display alternate distances less than one unit in subunits.

Alt suppress leading zeros

Toggles the display of zeros in front of the decimal point. For example, 0.23 is displayed as:

- On: suppresses the leading zero, such as .23
- Off: permits the leading zero, such as 0.23

Alt suppress trailing zeros

Toggles the display of zeros in front of the decimal point. For example, 1.2300 is displayed as:

- On: suppresses trailing zeros, such as 1.23
- Off: allows trailing zeros, such as 1.2300

Alt suppress zero feet

Toggles the display of zero feet; for example, 0'-3" is displayed as:

- On: suppresses zero feet, such as 3" Off: allows zero feet, such as 0'-3"

Alt suppress zero inches

Toggles the display of zero inches. For example, 1'-0" is displayed as:

- On: suppresses the display of zero inches, such as 1'
- Off: allows zero inches, such as 1'-0"

Tolerances



Tolerances	
Tolerance display	<input type="checkbox"/> Display tolerance
Limits display	<input type="checkbox"/> Generate dimension limits as defa...
Tolerance precision	0.00
Tolerance limit lower	0
Tolerance limit upper	0
Tolerance text height	1 mm
Tolerance position vertical	Bottom
Tolerance suppress leading zeros	<input type="checkbox"/> Tolerance suppress leading zeros
Tolerance suppress trailing zeros	<input checked="" type="checkbox"/> Tolerance suppress trailing zeros
Tolerance suppress zero feet	<input checked="" type="checkbox"/> Tolerance suppress zero feet
Tolerance suppress zero inches	<input checked="" type="checkbox"/> Tolerance suppress zero inches
Alt tolerance precision	0.000
Alt tolerance suppress leading zeros	<input type="checkbox"/> Alt tolerance suppress leading zeros
Alt tolerance suppress trailing zeros	0
Alt tolerance suppress zero feet	<input checked="" type="checkbox"/> Alt tolerance suppress zero feet
Alt tolerance suppress zero inches	<input checked="" type="checkbox"/> Alt tolerance suppress zero inches

Tolerance display

Toggles the display of tolerance text.

Limits display

Sets the default text to dimension limits.

Tolerance precision

Specifies the display precision of tolerance text. The range goes from 0 to 8 decimal places or 1/1 to 1/256 inch.

Tolerance limit lower

Specifies the value of the upper tolerance.

Tolerance limit upper

Specifies the value of the lower tolerance.

Tolerance text height

Specifies the height of the tolerance text.

Tolerance position vertical

Locates the tolerance text relative to the dimension text:

- Bottom: aligns tolerance text with the bottom of the dimension text.
- Middle: aligns tolerance text with the middle of the dimension text.
- Top: aligns tolerance text with the top of the dimension text.

Tolerance suppress leading zeros

Toggles the display of zeros in front of the decimal point. For example, 0.23 is displayed as:

- On: suppresses the leading zero, such as .23
- Off: permits the leading zero, such as 0.23

Tolerance suppress trailing zeros

Toggles the display of zeros behind the decimal point. For example, 1.2300 is displayed as:

- On: suppresses trailing zeros, such as 1.23
- Off: allows trailing zeros, such as 1.2300



Tolerance suppress zero feet

Toggles the display of zero feet; for example, 0'-3" is displayed as:

- On: suppresses zero feet, such as 3"
- Off: allows zero feet, such as 0'-3"

Tolerance suppress zero inches

Toggles the display of zero inches. For example, 1'-0" is displayed as:

- On: suppresses the display of zero inches, such as 1'
- Off: allows zero inches, such as 1'-0"

Alt tolerance precision

Specifies the number of decimal places for tolerances in alternate units.

Alt tolerance suppress leading zeros

Toggles the display of zeros in front of the decimal point. For example, 0.23 is displayed as:

- On: suppresses the leading zero, such as .23
- Off: permits the leading zero, such as 0.23

Alt tolerance suppress trailing zeros

Toggles the display of zeros behind the decimal point. For example, 1.2300 is displayed as:

- On: suppresses trailing zeros, such as 1.23
- Off: allows trailing zeros, such as 1.2300

Alt tolerance suppress zero feet

Toggles the display of zero feet; for example, 0'-3" is displayed as:

- On: suppresses zero feet, such as 3"
- Off: allows zero feet, such as 0'-3"

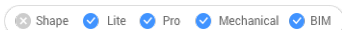
Alt tolerance suppress zero inches

Toggles the display of zero inches. For example, 1'-0" is displayed as:

- On: suppresses the display of zero inches, such as 1'
- Off: allows zero inches, such as 1'-0"

9.70 -DIMSTYLE command

Creates and modifies dimension styles at the Command line.



Icon:

Alias: -DST

9.70.1 Method

Run the command to create a new dimension style by choosing one of the options. The command also prompts the name of the current dimension style.



9.70.2 Options within the command

?

Lists the names of all dimension styles loaded into the current drawing, other than Standard.

ANnotative

Sets the annotative property of the dimension style.

Apply

Changes or restores the style of existing dimensions by applying the current style.

Save

Saves the current dimension settings as a style.

Note: This option is useful for saving overrides as a style.

SStatus

Displays the current value of every dimension variable.

Variables

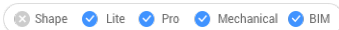
Lists the values of dimension variables belonging to the selected dimension.

Restore

Resets the values of dimension variables to those of the selected dimension.

9.71 DIMSTYLESET command

Reports the current dimension style in the Command line.

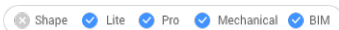


9.71.1 Method

The name of the current dimension style is also shown in the BricsCAD application window as Current Dimension Style in the Status bar.

9.72 DIMTEDIT command

Changes the position of dimension text.



Icon:

Alias: DIMTED

9.72.1 Description

Allows you to change the position and angle of the text within a dimension entity.





9.72.2 Methods

This command offers four methods to change the position of dimension text.

- Rotate the dimension text.
- Move the dimension text to the left.
- Move the dimension text to the right.
- Center the dimension text.

9.72.3 Options

Angle

Rotates the dimension text from the original dimension text position (1) to the rotated dimension text position (2).

Left

Moves the dimension text next to the left extension line of the dimension, depending on the original positioning of the dimension.

Center

Centers the dimension text between the two extension lines of the dimension.

Right

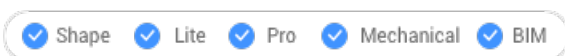
Moves the dimension text next to the right extension line of the dimension, depending on the original positioning of the dimension.

REstore

Resets the rotation angle of the dimension text to 0 degrees and does not change repositioned dimension text.

9.73 DISH command

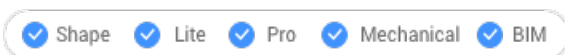
This command is obsolete and exists for backward compatibility only. Use the AI_DISH command instead.



Icon:

9.74 DIST command

Reports the distance and angle between two points.



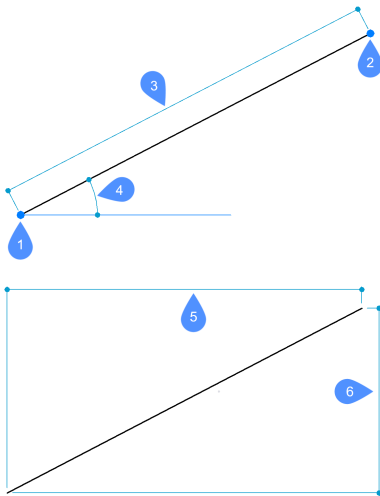
Icon:



Alias: DI

9.74.1 Method

The distance can be measured between two points or multiple points.



- 1 Starting point for distance
- 2 End point
- 3 Distance
- 4 Angle in XY plane
- 5 X Distance
- 6 Y Distance

Note: When DRAGSNAP = ON and the Dynamic Dimensions are enabled, the distance is displayed in the dynamic entry field when hovering over the second point using an appropriate entity snap.

To improve the workflow, the command allows you to use as the starting point the last point previously picked in the program. To do so, press **Enter** after launching the command (when prompted for the starting point).

Note: The last picked point is specified by the LASTPOINT system variable.

9.74.2 Options within the command

Multiple points

Allows you to measure the total distance between multiple points.

Arc

Allows you to specify an arc distance through different options.

Angle

Specify the angle for the arc.

CEnter

Specify the center of the arc. Hold the Ctrl key to switch direction.



Direction

Specify the direction of the arc.

Line

Allows you to specify a line distance.

Radius

Specify the radius of the arc.

Second point

Allows you to specify the arc's second point before specifying its end point.

CLOSE

Closes the command.

Length

Allows you to add a distance.

Undo

Removes the last point.

Total

Prints the total length in the Command line and concludes the command.

9.75 DISTANTLIGHT command

Places distant lights for renderings.



Icon: 

9.75.1 Description

Places distant lights for use with renderings. Distant lights represent sources that are far off, such as the sun, and so does not display a glyph in drawings.

Note: having DEFAULTLIGHTING=1 will open a dialog box where you are asked.

9.75.2 Options

Name

Specifies a name for the light.

Intensity factor

Indicates the relative brightness of the light.

Status

Toggles the light on and off

Photometry

Specifies the parameters for color and intensity.

shadoW

Specifies the look of shadows, if any.



filterColor

Sets the color of the light.

Vector

The direction of the light beams can be defined by a vector, whose XYZ tuple determines the direction of the light, starting at infinity. The default direction points up, in the Z direction.

Unlike regular vectors, this lighting vector specifies only direction, not magnitude.



1: Distant light illuminating from default vector direction.

9.76 DIVIDE command

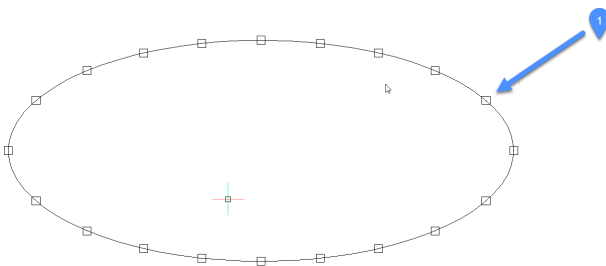
Places a specific number of points or blocks spaced equally along an entity.



Icon:

Alias: DIV

9.76.1 Method



1. Points placed evenly divided along entity

The command allows creating and placing points or blocks along the perimeter of an entity, at equal distances.

The following entities can be divided:

- Line
- Polyline



- Spline
- Arc
- Circle
- Ellipse

Note: It might be necessary to adjust the Point display mode settings (DDPTYPE) to display the points correctly.

9.76.2 Options

Number of segments

An integer number between 2 and 32767 can be specified. This will represent the number of segments, the equally-divided distances between points.

Note: Entering 2 for the number of segments places a single point or block at the midpoint of the entity, as the entity is divided into two segments. There is always one more segment than points placed, as no point or block is placed at the start or endpoints of the entity.

insert Block

Place equally-spaced blocks along the entity, instead of points. You can specify the name of the block or use ? to list available blocks.

Yes – align blocks

Rotates blocks for them to match the local orientation of the entity, such as along an arc.

No – do not align

The blocks maintain their orientation (they do not rotate).

9.77 DMANGLE3D command

Creates an angle constraint between faces and/or edges of 3D solids, WCS subentities and subentities of a coordinate system of a block.



Icons:

9.77.1 Description

Creates an angle constraint between faces and/or edges of 3D solids, WCS subentities, and subentities of a coordinate system of a block. Creates a Planar Angle constraint by default: coordinate planes of the WCS are used as third reference objects whenever possible. It also allows to control the top angle of a cone. Press the TAB key to select obscured geometry.

9.77.2 Options

cone Angle constraint

Allows you to control the top angle of a cone by specifying the angle between the axis and the cone face (= cone half angle). Values must be smaller than 90°.

World

Allows you to select the WCS subentity as an argument.



Block

Allows you to choose the subentity of the coordinate system of the block as an argument. You can choose from: X axis/Y axis/Z axis/XY plane/YZ plane/ZX plane.

Set reference entity

Allows you to manually specify the reference entity:

Keep as is

Allows you to keep the proposed reference object.

World

Allows you to select the WCS subentity as an argument.

Block

Allows you to choose the subentity of the coordinate system of the block as an argument.

None

Creates an Angle constraint instead of a Planar Angle constraint, without a third argument.

Geometry-driven

Accepts the current value and creates a geometry-driven constraint.

Note: The constraint value displays when hovering over the 3D angle constraint widget.

Note: You can set upper and lower bounds in the **Mechanical Browser** panel, which are taken into account in dynamic operations, like DMMOVE and ROTATE3D.

9.78 DMAUDIT command

Analyzes and repairs errors.



Icon:

9.78.1 Description

This command is a powerful tool to analyze and automatically fix problems in 3D geometry supported by ACIS kernel (3D solids, surfaces).

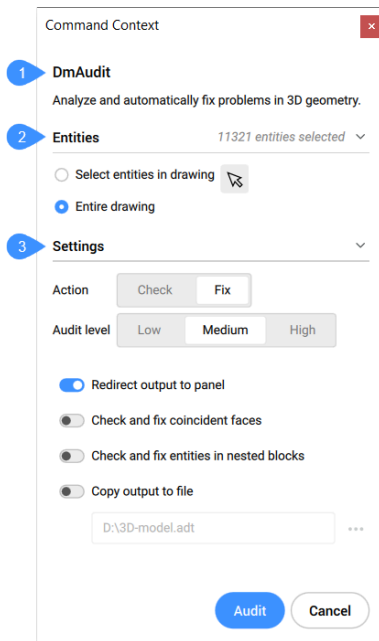
Note: It is recommended to run DMAUDIT whenever 3D geometry is imported.

9.78.2 Method

There are two methods to audit the drawing by selecting one or more entities or the entire model:

- Check problems
- Fix problems

The command opens the **Command Context** panel.



- 1 Description
- 2 Entities
- 3 Settings

Entities:

- **Select entities in the drawing:** by default, the panel lets you choose which entities to select.
- **Entire drawing:** selects all entities in the model space.

Settings:

Action

Lets you set the audit mode.

- **Check:** checks the 3D geometry in the drawing for errors without fixing them.
- **Fix:** by default, repairs errors.

Audit level

Sets the strictness of the check.

- **Low:** runs basic analysis (for example, catching common fatal topology errors).
- **Medium:** this is the default level.
- **High:** goes deep (for example, catching self-intersections in solid bodies).

Redirect output to panel

Toggled on by default to redirect the output of the command to the **Report** panel.

Note: Depending on the value of REPORTPANELMODE variable, it might be necessary to click on the red exclamation mark in the lower right corner to see more details in the **Report** panel.

Check and fix coincident faces

Toggle on to check and fix coincident faces. Requires audit level set to High.



Check and fix entities in nested blocks

Toggle on to check and fix entities in nested blocks.

Copy output to file

Toggle on to report the output of the command in a file.

Note: The options within the command line reflect the options within the **Command Context** panel.

9.79 DMAUDITALL command

Analyzes and repairs errors in drawings inserted as external references



9.79.1 Description

It is a powerful tool to analyze and automatically fix problems in 3D geometry supported by ACIS kernel (3D solids, surfaces).

Note: It is recommended to run DMAUDITALL whenever 3D geometry is imported.

9.79.2 Method

There are two methods to audit the drawing:

- Check problems.
- Fix problems.

9.79.3 Options within the command

Check

Checks the 3D geometry in the drawing for errors without fixing them.

Fix

Repairs errors.

Back

Returns to the main prompt of the command.

report Panel

Redirects the output of the command to the Report panel.

Note: Depending on the value of REPORTPANELMODE variable, it might be necessary to click on the red exclamation mark in the lower right corner to see more details in the Report panel.

copy to File

Reports the output of the command in a file.

audit Level

Sets the strictness of the check.

Low

Runs basic analysis (for example, catching common fatal topology errors).

High

Goes deep (for example, catching self-intersections in solid bodies).



Medium

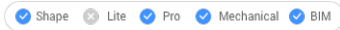
This is the default level.

Coincident faces

Checks and fixes coincident faces. Requires audit level set to High.

9.80 DMCHAMFER command

Creates equal and variable distance chamfers between adjacent faces sharing a sharp edge.



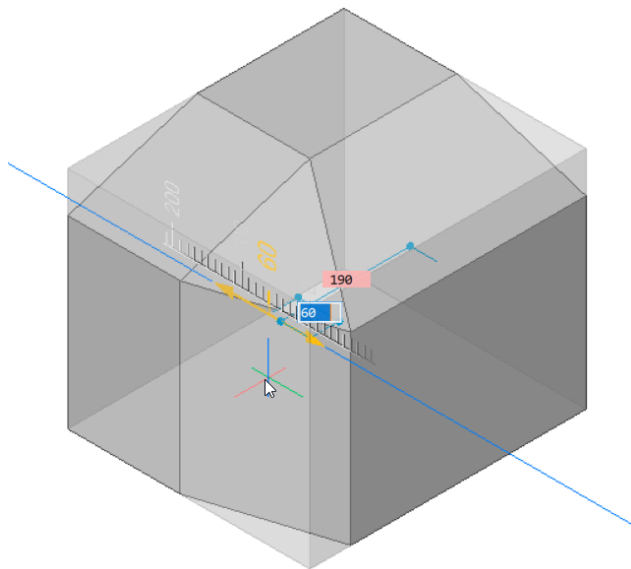
Icons:

9.80.1 Description

Creates equal or variable distance chamfers between adjacent faces that share a sharp edge.

After selecting the edges to create chamfer you may choose to specify a constant symmetrical offset or one of the available advanced options.

The chamfer is applied dynamically, and the manipulator is displayed.



9.80.2 Options within the command

Allows to create variable chamfers. All advanced mode chamfer procedures start by creating a symmetrical offset, which is then modified by specifying offsets and/or angles. Before specifying the final value, you can press the TAB key to modify previously specified values.

ASymmetrical

Allows you to specify two offsets.

ANGular

Allows you to specify an offset and an angle.



Variable Symmetrical

Allows you to specify two offsets.

Variable aSymmetrical *

Allows you to specify four offsets.

Variable aNgular *

Allows you to specify two pairs of offsets and an angle.

* Creates a curved chamfer face.

9.81 DMCOINCIDENT3D command

Applies a coincident constraint between two subentities of 3D entities.



Icons:

9.81.1 Method

Applies a coincident constraint between two edges, two faces, an edge and a face or a vertex and a face or edge of two different solids or surfaces.

Select the two cylindrical (circular or elliptical), spherical or conical surfaces between which a concentric constraint will be applied. Press the TAB key to select obscured geometry.

9.81.2 Options

Autoconstrain

Automatically creates a coincident constraint between each pair of connected faces in selection of solids. You can check which constraints are created in the Mechanical Browser panel or in Parameter and Constraints panel.

World

Allows you to select the WCS subentity as an argument.

Block

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.82 DMCONCENTRIC3D command

Applies a concentric constraint between two circular subentities of 3D entities.



Icon:

9.82.1 Method

The concentric constraint could be applied between any two circular surfaces or circular edges of a 3D entities (cylindrical (circular or elliptical), spherical or conical surfaces and their edges) or between a subentity of a 3D entity and a 2D circular entity.



Select the two circular subentities between which the concentric constraint will be applied. Press the TAB key to select obscured geometry.

9.82.2 Options within the command

WOrld

Allows you to select the WCS subentity as an argument.

BLock

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.83 DMCONSTRAINT3D command

Applies geometric and dimensional constraints for 3D entities.



9.83.1 Description

Applies geometric and dimensional constraints between faces, surfaces or edges of 3D entities.

The geometric constraints create a specific relationship between two subentities/entities, like parallelism, perpendicularity, tangency, coincidence, concentricity, fixed or rigid.

The dimensional constraints restrain the value of a dimension of an entity or between entities, like radius, angle or distance. It is also possible to specify the lower or/and upper bounds for the constraint value, and remove them if desired.

Select the subentities between which you will apply a dimensional or geometric constraint.

Press the Tab key to select obscured geometry.

9.83.2 Options

New

Allows to create a new parameter.

Fix

Applies a fixed constraint to a solid or to an edge or a face of a solid. The option is equivalent to the DMFIX3D command.

Multiple

Selects multiple entities.

BLock

Selects a block reference.

Coincident

Applies a coincident constraint between two edges, two faces, or an edge and a face of two different solids. The option is equivalent to the DMCOINCIDENT3D command.

Autoconstrain

Creates automatic constraints.

WOrld

Select a reference coordinate system subentity.



PAtH

Allows a point to move along a curve by specifying the curve's parameters with an expression. The option is equivalent to the DMPATH3D command.

CONcentric

Applies a concentric constraint between two cylindrical, spherical or conical surfaces. The option is equivalent to the DMCONCENTRIC3D command.

Parallel

Applies a parallel constraint between two faces of a solid or of different solids. The option is equivalent to the DMPARALLEL3D command.

PErpendicular

Applies a perpendicular constraint between two faces of a solid or of different solids. The option is equivalent to the DMPERPENDICULAR3D command.

Tangent

Applies a tangent constraint between a face and a curved surface of different solids. The option is equivalent to the DMTANGENT3D command.

Rigidset

Allows to define a set of entities or subentities as a rigid body. The option is equivalent to the DMRIGIDSET3D command.

Distance

Applies a distance constraint between two subentities of a solid or of different solids. The option is equivalent to the DMDISTANCE3D command.

Radius

Applies a radius constraint to cylindrical surfaces or circular edges. The option is equivalent to the DMRADIUS3D command.

Angle

Applies an angle constraint between two faces of a solid or of different solids. The option is equivalent to the DMANGLE3D command.

Edit

Allows to edit the named constraint

Nodeld

Specify the constraint by its ordered number.

Enable

Enables/disables the selected constraint.

change Arguments

Allows to change the 3D constraint arguments.

Replace argument

Specify the index of the argument to be replaced and its replacement.

Exclude argument

Specify the index of the argument to be excluded.

Note: This option is available only for RigidSet constraints.



Add arguments

Specify the position where the new arguments to be added.

Note: This option is available only for RigidSet constraints.

Append arguments

The new argument is added at the end of the list.

Edit Arguments

Allows to edit the list of 3D constraint arguments by selecting entities or by choosing one of the options.

Note: This option is available only for RigidSet constraints.

Edit options specific for dimensional constraints:

Value

Specifies a new value for the parameter

Lower Bound

Specifies a lower bound for the parameter.

Upper Bound

Specifies an upper bound for the parameter.

eXpose

Specifies whether the dimensional constraint is exposed when the drawing is inserted in another drawing.

Geometry-driven

Specifies whether the parameter is geometry driven.

Properties

Allows you to edit the arguments of the parameter.

Placements

Specifies the placement of the arguments.

Direction

Specifies the new direction of the constraint.

Use as

Specifies how to use the arguments.

Rename

Allows you to rename a constraint.

Delete

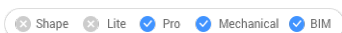
Allows you to delete a constraint.

?

Lists the constraints and their status.

9.84 DMCOPYFACES command

Copies a feature from a 3D solid.



Icon: 



9.84.1 Description

Copies a set of 3D solid faces forming a protrusion or depression feature, such as holes, pockets, extrusions, ribs, and their combinations within the same 3D solid or from one 3D solid to another.

9.84.2 Options within the command

Select entities

Select all faces of the entire feature.

Base point

Specify the base point.

Insertion point

Allows you to select an insertion point.

Rotate

Rotates the faces around the Z axis of the UCS.

mUltiple

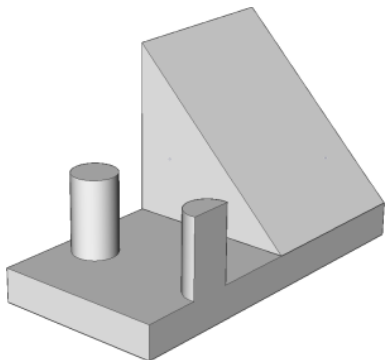
Insert multiple copies of a feature.

M0de

Toggles between various cutting options.

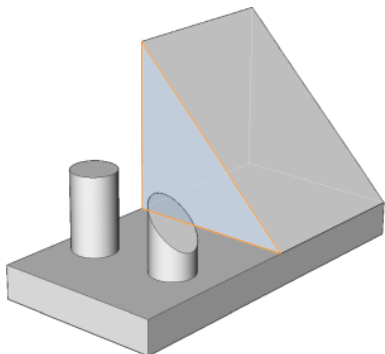
Placement Face

Cuts the copied feature so that it suits the placement face.



Select Faces

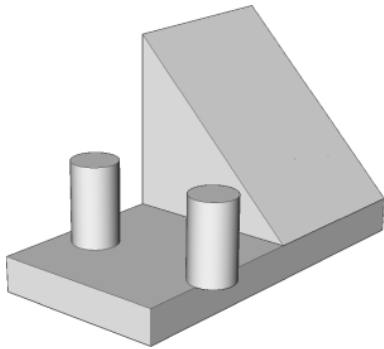
Cuts the copied feature so that it suits the selected face.





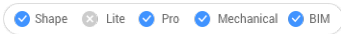
No Cut


Does not cut the copied feature.



9.85 DMDEFORMCURVE command

Deforms 3D solids or surfaces by replacing their edges with given curves.

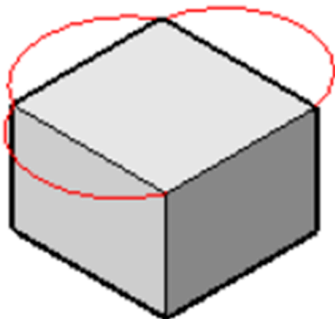


Icon: 

9.85.1 Description

Deforms one or more connected faces of a 3D solid or a surface by replacing their edges with given curves.

Select the edges that will be replaced with the target curves to get the new 3d solid or surface.





9.85.2 Options

add Faces

Allows to select additional faces, other than the faces adjacent to selected edges, to deform.


Multiple edges

Allows the deformation of a chain of edges to a single target curve.

9.86 DMDEFORMMOVE command

Deforms 3D solids, surfaces or regions by moving and/or rotating their edges.

Shape Lite Pro Mechanical BIM

Icon: 

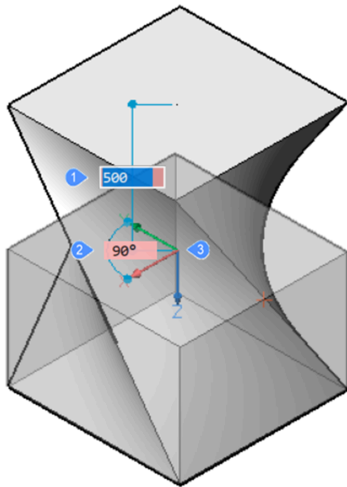
9.86.1 Description

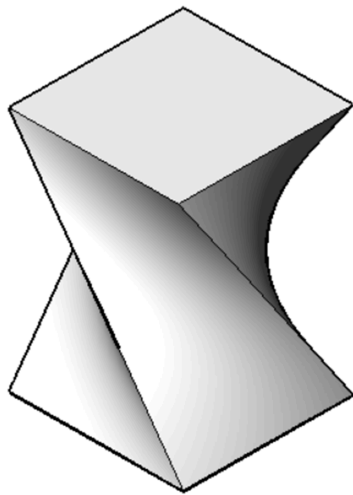
Deforms connected faces of a 3D solid or a surface by moving and/or rotating their edges.

To specify the deformation do one of the following:

- Specify a point in the drawing.
- Type a value in the dynamic entry fields.
- Hit the TAB key to switch between the distance (1) and angle (2) fields.

The edges are rotated around an axis passing through the base point (3) in the deformation direction.





Dynamics (left) and final result (right)

9.86.2 Options

Base point

Allows to specify the base point. The deformation axis passes through the base point.

Direction

Allows to specify the direction of the deformation axis. You may choose to define the direction by specifying two points in the drawing or choose one of the UCS axis.

additional Faces

Allows to select additional faces to be deformed, in addition to ones adjacent to the selected edge(s).

9.87 DMDEFORMPOINT command

Deforms a region, face(s) of a 3D solid or a surface by moving a point lying on one of them in arbitrary 3D direction.

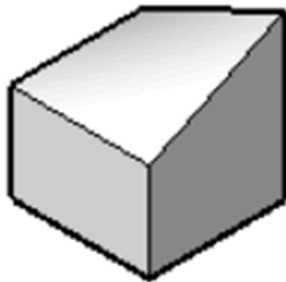
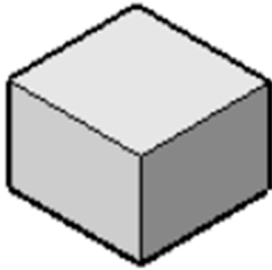


Icon: 

9.87.1 Description

Deforms a region, one or more connected faces of a 3D solid or a surface by moving a point lying on one of them in arbitrary 3D direction. The selected faces are deformed as smooth as possible. The initial continuity between deformed faces (G1 – tangent faces, or G2 – curvature continuity) is kept when deformed.

Select a region or a face or some connected faces of a 3D solid or surface, then specify the deformation point and the deformation value to deform the entity.



9.87.2 Options

change Parameters

Choose a method to change parameters.

Alpha

Specifies the resistance to stretching. It is a second order tensor which can be described with three numbers. Each value must be either 0 or a positive number:

- alpha U: U-direction resistance,
- alpha V: V-direction resistance,
- alpha theta: the angle between U and V principal directions of the surface and the material property directions.

Beta

Specifies the resistance to bending. Similarly to Alpha, Beta is defined as a triple: beta U, beta V, beta theta. Each value must be either 0 or a positive number.

Gamma

Specifies the resistance to the rate of change in bending. The value must be either 0 or a positive number.

Delta

Specifies the resistance to deviations from the default shape. The value must be either 0 or a positive number.

set Target Point

The entities are deformed towards the specified point.

set Direction

The selected entities are deformed dynamically in the specified direction.

change Base point

Select a new deformation point.



9.88 DMDELETE command

Erases entities from the drawing.



Icon:

The DMDELETE command was integrated into the ERASE command.

9.89 DMDISTANCE3D command

Applies a distance constraint between two entities.



Icon:

9.89.1 Description

Applies a distance constraint between two subentities of the same solid or of different solids, as well as WCS entities, points, cylinders, and spheres.

Select the two entities/subentities for which the distance constraint will be applied by specifying the distance value. Press the TAB key to select obscured geometry.

9.89.2 Options

Use as

Gives the option to specify how the distance must be measured between cylindrical and spherical faces. The default measurement mode is Axis.

Boundary

The boundary of the argument.

Axis

An argument that has an axis; circle, cylinder, cone, or torus.

Center

An argument that has a central point; circle, sphere or torus.

Vertex

A cone vertex only.

World

Allows you to select the WCS subentity as an argument.

Block

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

Geometry-driven

Accepts the current value and creates a geometry-driven constraint.

Note: You can set upper and lower bounds in the **Mechanical Browser** panel, which are taken into account in dynamic operations, like DMMOVE and ROTATE3D.



9.90 DMEXTRUDE command


Creates 3D solids or surfaces by extruding entities.

The DMEXTRUDE command has been unified with the EXTRUDE command. Use the EXTRUDE command instead.

9.91 DMFILLET command

Creates a smooth fillet between adjacent faces sharing a sharp edge.

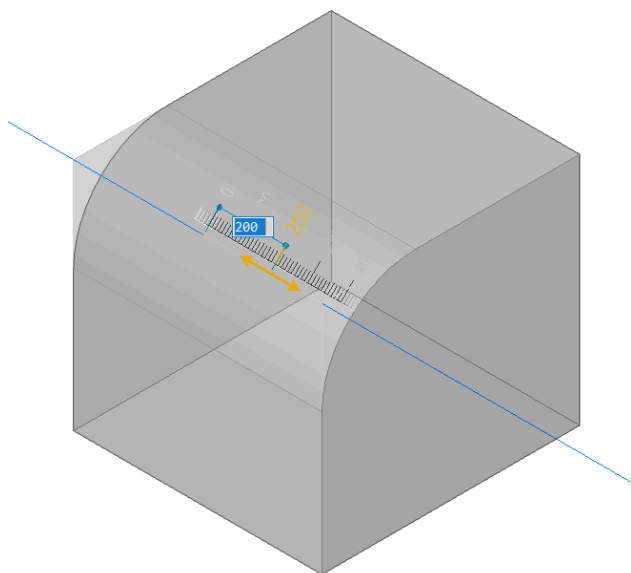
Shape Lite Pro Mechanical BIM

Icon: 

9.91.1 Description

Creates constant or variable radius fillets between adjacent faces that are sharing a sharp edge. After selecting the edges, you can choose to specify a constant radius to fillet edges or one of the available advanced options.

The fillet is applied dynamically and the manipulator is displayed.

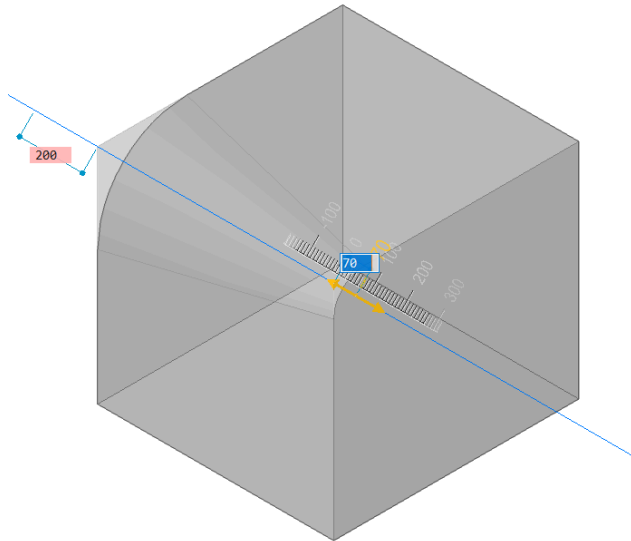


9.91.2 Options within the command

Variable radius mode

Allows you to create a variable fillet between adjacent faces that share (a) sharp edge(s) by specifying the two end radii.

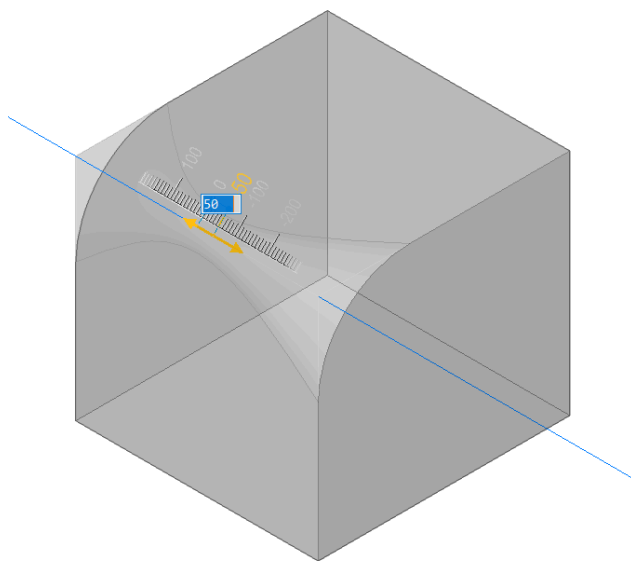
Note: This option is available only for smoothly connected not cyclical edges.



Intermediate radius mode

Allows you to insert intermediate radii by picking points along the selected edges, after specifying a constant radius.

Note: This option is available only for smoothly connected edges.



Erase points

Allows you to erase previously inserted intermediate radii points along the selected edges. Move the cursor on the edge near the desired radius and select the corresponding point to be deleted.

9.92 DMFIX3D command

Applies a fixed constraint to 3D entity.

Shape Lite Pro Mechanical BIM



Icon:

9.92.1 Description

Applies a fixed constraint to a solid or to an edge or a face of a solid.

9.92.2 Options

Multiple

Allows to select multiple entities or subentities like:

- 3D entities: all faces and edges of the 3D solid or surface will be fixed.
- Faces: the selected faces will be fixed and cannot be moved or rotated.
- Edges: the selected edges will be fixed. The adjacent faces can be rotated, but not moved.

BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.93 DMGROUP command

Creates group features, which are named persistent collections of faces and edges of 3D solids and surfaces.



9.93.1 Description

Creates group features, which are named persistent collections of faces and edges of 3D solids and surfaces.

A group feature can be coupled with its description, which can be used to store manufacturing instructions or any other information with your model. Group features usually survive after modification of 3D solids/surfaces and can be accessed or created in Lisp scripts and BRX applications.

9.93.2 Options

New

Creates a new group.

Edit

Allows to edit an existing group feature by calling its name.

Use Shift to select entities from this selection set.

Dissolve

Allows to delete an existing group feature by calling its name.

Note: Group feature names are case sensitive.

9.94 DMMOVE command

Moves entities or sub-entities.





Icon:

9.94.1 Description

Moves solids, faces, edges or vertices of a solid or inserts using a vector.

You can select one or more entities. Press Enter to stop selecting. To specify the base and the endpoint you can choose one of the following methods:

- Specify a point by clicking the left mouse button.
- Type a value in the dynamic input field.

The selected geometry moves dynamically.

Note: Geometric and dimensional constraints between selected entities are taken in consideration, as well as the lower and upper bounds parameters for 3D dimensional constraints. Constraints can be accessed and modified through the **Mechanical Browser** panel.

9.95 DMPARALLEL3D command

Applies a parallel constraint between subentities of 3D entities.



Icon:

9.95.1 Method

Select two faces of a solid or two faces of different solids or surfaces or a face and an edge of two different solids between which the parallel constraint will be applied. Press the TAB key to select obscured geometry.

9.95.2 Options

WORLD

Allows you to select the WCS subentity as an argument.

BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.96 DMPATH3D command

Allows a point to move along a curve by specifying the curve's parameters.



Icon:

9.96.1 Method

Select any curve entity (polyline, 3D polyline, spline or helix) as the path and a point/vertex from a 3D solid and specify the value of the curve parameter. Press the TAB key to select obscured geometry.



9.96.2 Options

WORLD

Allows you to select the WCS subentity as an argument.

BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

Geometry-driven

Accepts the current value and creates a geometry-driven constraint.

9.97 DMPERPENDICULAR3D command

Applies a perpendicular constraint between two subentities of two 3D entities.



Icon:

9.97.1 Description

Applies a perpendicular constraint between faces or edges of a solid, or of different solids or surfaces. Select the two subentities of the 3D entities between which the perpendicular constraint will be applied. Press the TAB key to select obscured geometry.

9.97.2 Options

WORLD

Allows you to select the WCS subentity as an argument.

BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.98 DMPUSHPULL command

Adds or removes volume from a solid by moving highlighted faces.



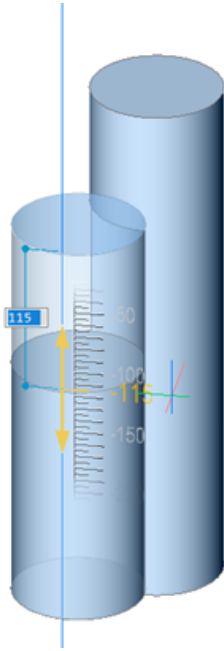
Icon:

9.98.1 Description

Adds volumes to or removes volume from a solid using the cursor movement or direct distance input. You can use this command to edit any face of a 3D solid or a surface. You can select more faces or detected boundaries. Press Enter to complete the selection set.

Note: Plies of multiply compositions are selectable if the Select Faces of the SELECTIONMODES system variable is set.

The selected geometry moves dynamically. Using the Manipulator you can do one of the following:



- You can press the TAB key to select a different reference face. All faces which are parallel to the face being push/pulled are recognized, beginning with the first ones. Press and hold the SHIFT key when pressing the TAB key to cycle reference faces in reverse order. To select a reference face on a different solid, move the cursor over that face, then hit the TAB key. The selected face is highlighted.
- Click a point in the model.
- Type a value in the dynamic distance field.
- Move the cursor to adjust the value in the dynamic distance field. You can optionally zoom in/out to set the snap increment size of the ruler.

9.98.2 Options within the command

Enable subtract

Solids being push/pulled are subtracted from other 3D solids they intersect.

Disable subtract

Solids being push/pulled are not subtracted from other 3D solids they intersect.

Note: When the system variable DMPUSHPULLSUBTRACT = 1, the solid being push/pulled is subtracted from interfering solids. Pressing the Ctrl key allows you to override the DMPUSHPULLSUBTRACT system variable.


Note: If the Hotkey Assistant (HKA) is ON the Hotkey Assistant widget displays, indicating whether the command is in subtract mode or not.

9.99 DMRADIUS3D command

Applies a radius constraint to circular 3d entities or subentities.





Icon: 

9.99.1 Description

Applies a radius constraint to circular edges, cylindrical surfaces, spheres and tori by indicating the radius value or using geometry-driven.

9.99.2 Method

Select a cylindrical or sphere surface or a circular edge and specify the radius value or keep the geometry-driven. In case of selecting a torus surface, you can constrain the rotation radius or/and the tube radius.

Press the TAB key to select obscured geometry.

9.99.3 Options

Rotation radius

Specify the rotation radius to be constrained.

Tube radius

Specify the tube radius to be constrained.

Geometry-driven

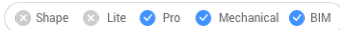
Accept the current value and create a geometry-driven constraint.

Note: The constraint value displays when hovering over the 3D radius constraint widget.

Note: You can set upper and lower bounds in the **Mechanical Browser** panel, which are taken into account in dynamic operations, like DMMOVE and ROTATE3D.

9.100 DMREPAIR command

Analyzes and repairs errors.



Icon: 

Note: The DMREPAIR command has been replaced by the DMAUDIT command.

9.101 DMREVOLVE command

Creates 3D solids or surfaces by revolving 2D entities about an axis.



Icons: 

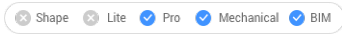
9.101.1 Description

Note: The *DMREVOLVE* command has been unified with the *REVOLVE* command. Use the *REVOLVE* command instead.



9.102 DMRIGIDSET3D command

Allows to define a set of entities or subentities as a rigid body.



Icon:

9.102.1 Method

Select a set of edges, faces or 3D entities that will be linked as a rigid body.

All members of a rigid set are moved (DMMOVE command) and rotated (DMROTATE command) together, while their relative positions within the rigid set are preserved.

Press the TAB key to select obscured geometry.

9.102.2 Options within the command

WORLD

Allows you to select the WCS subentity as an argument.

BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

9.103 DMROTATE command

Rotates the selected geometry around an axis.

This command is deprecated. Use the ROTATE3D command instead.

9.104 DMSELECT command

Selects edges and faces of 3D solids or surfaces based on their geometric properties.



9.104.1 Description

Allows you to select a group of faces which form a geometric feature, such as a protrusion, a depression, etc. You can combine different options of this command, e.g. select all fillets whose radius is less than a given value. Select the faces or edges whose characteristics will be considered as the selection set's pattern.

9.104.2 Options within the command

Attribute

Radius

Selects faces/edges by radius.

Area

Selects faces by area.

Length

Selects edges by length.



Type

Selects faces/edges by their geometric type.

Offset

Selects faces/edges by their offset value.

Exclude short fillets

Excludes short fillets from the selection. This option might be useful when working with imported sheet metal parts.

Then choose between:

from Sample

Uses the value of the sample face/edge.

Value

Type a value in the Command line.

Note: In case of a non-zero value, you may filter entities as **Less/Less or eQual/Equal/Greater or eQual/Greater**.

Relation

Coincident

Selects coincident faces/edges.

Parallel

Selects parallel faces/edges.

coAxial

Selects coaxial faces/edges.

Smooth

Selects the smooth side of a part.

Primitive

Face

Selects faces.

Edge

Selects edges.

Loop

Selects edge loops.

Note: The preselection will determine the result. It is necessary to select a set of connected faces. The command will then select all edges, which describe the border of the selection set; internal edges will be skipped. If the result contains multiple loops and you want only one, the preselection should contain a set of connected faces one edge of the desired output loop. If none of the loops of the selection set contains the selected edge, the output will be empty.

edge Network

Finds an adjacent edge which has similar convexity for a given input edge.



feaTure

Protrusion

Selects protrusions.

Depression

Selects depressions.

Fillet

Selects fillets.

fillet Network

Selects fillet networks.

Chamfer

Selects chamfers.

Chamfer Network

Selects chamfer networks.

Select seed

The selected set of faces /edges should be considered as seed elements for features selection.

Subset

Select the subsets to be considered as seed elements for features selection.

sKip

The entire model is considered as seed for features selection.

Finish

Finishes the command.

9.105 DMSELECTEDGES command

Selects the edges of faces and solids.



Icon:

9.105.1 Method

Select the faces or solids from which all edges will be in the selection set.

Press and hold the CTRL key, then click the edges to be removed from the selection set.

9.106 DMSIMPLIFY command

Simplifies the geometry and topology of 3d solid entities.



Icon:



9.106.1 Description

Removes unnecessary edges and vertices, merges seam edges, and replaces the geometry of faces and edges by analytic surfaces and curves, if possible within the user-specified tolerance.

Note: It is recommended to always run this command on imported 3d solid geometry.

9.106.2 Options

Entire model

Simplifies the entire model.

SEttings

Allows to access the command settings.

Geometry

Define the geometrical settings.

Topology

Define the Topology settings.

ON

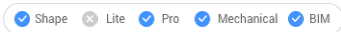
Switches topological/ geometrical simplification on.

OFF

Switches topological/ geometrical simplification off.

9.107 DMSIMPLIFYALL command

Simplifies the geometry in solids, within drawings inserted as external references.



9.107.1 Description

Removes unnecessary edges and vertices, merges seam edges, and replaces the geometry of faces and edges by analytic surfaces and curves, if possible within the user-specified tolerance.

Note: It is recommended to always run this command on imported drawings with inserted external references.

9.107.2 Options

Entire model

Simplifies the entire model.

SEttings

Allows to access the command settings.

Geometry

Define the geometrical settings.

ON

Switches topological/geometrical simplification on.



OFF

Switches topological/geometrical simplification off.

Topology

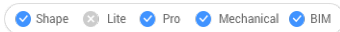
define the Topology settings.

Auto

Simplifies the detected geometry or topology.

9.108 DMSTITCH command

Converts a set of region and surface entities that bound a watertight area to a 3d solid.



Icon:

9.108.1 Method

Select the surfaces to stitch and convert them in a 3D solids or surfaces.

Note: If DMREPORTPANEL system variable is set ON, the result is reported in the Report panel instead of the Command line.

9.108.2 Options

MODE

Allows to set the validation mode either manual or automatic.

Auto

Creates only valid 3d solid or surface entities without free or non-manifold edges.

SOLID

Creates invalid 3d solid entities.

SURFACE

Creates invalid surfaces.

Note: Creating an invalid 3d solid entities could be useful for understanding the reason of a failure. The command reports problems (free or non-manifold edges) and highlights them. You can either accept the invalid 3d solid by pressing Enter or refuse it by pressing Cancel.

Tolerances

Type a value or accept Auto.

Note: The selected validation mode is stored and re-used for future calls of the command.

9.109 DMTANGENT3D command

Applies a tangent constraint between circular subentities of 3D entities.



Icon:



9.109.1 Description

Applies a tangent constraint between a face and a curved surface of different 3D entities or a surface and WCS reference coordinate system or a surface and a reference coordinate system of a block reference. Press the TAB key to select obscured geometry.

9.109.2 Options

WORLD

Allows you to select the WCS subentity as an argument.

BLOCK

Allows you to choose as an argument the subentity of the coordinate system of the block.

9.110 DMTHICKEN command

Creates 3D solids by thickening surfaces, their faces, faces of 3D solids, regions and wire entities.



Icon:

9.110.1 Description

Creates 3D solids by thickening surfaces, their faces, faces of 3D solids, regions and wire entities by specifying the thickness value.

The following wire entities are accepted: lines, polylines, circles, ellipses, arcs, helices, splines.

Note: If you thicken a multi-face surface of several adjacent faces of one 3D solid/surface, then the corresponding faces remain adjacent on the opposite side of the new 3D solid(s). This differs the DMTHICKEN command from DMEXTRUDE.

Note: When a wire entity is selected, a circle with the radius of the specified thickness value is swept along the wire.

9.110.2 Options

Single side

Adds the thickening in the specified direction.

Both sides

Adds thickening in both directions.

9.111 DMTHREAD command

Creates threads on cylindrical faces, which are represented according to drafting standards in drawing views.



Icon:



9.111.1 Description

Creates a thread feature in the model that is represented according to drafting standards in drawing views or section view created with VIEWBASE and VIEWSECTION commands.

Note: This command can be entered transparently during commands with 'dmthread'.

9.111.2 Method

Selecting a cylindrical face and specifying the pitch and length values a thread feature will be created, that will be represented according to drafting standards in drawing views. With VIEWUPDATE command the changes will be applied in the drawing views.

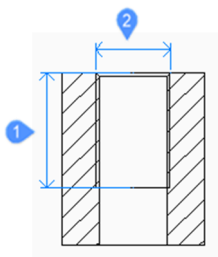
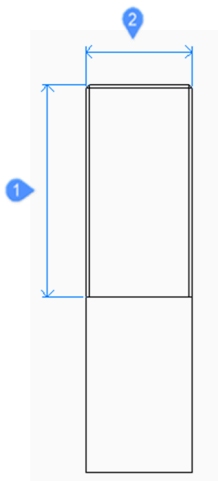
Thread features display in the Mechanical browser , where you can edit the thread parameters.

Thread feature	
Thread standard	M76 X 6
Pitch	6 mm
Length	100 mm
Diameter	76 mm
Chamfer	On
Chamfer value	3.25 mm
Type	Auto

Note: Male and female thread types are supported.

Note: This command operates only in Model Space.

Below you can see the result of VIEWBASE and VIEWSECTION commands.




- 1 Length
- 2 Diameter



9.112 DMTWIST command

Twists a portion of an entity around an axis.

Shape Lite Pro Mechanical BIM

Icon: 

9.112.1 Description

Modifies 3D solids, surfaces or regions by twisting a portion defined by two points around an axis.

Note: You can twist for an angle smaller than 360 degrees.

9.112.2 Method

It is possible to specify the continuity between the deformed and the fixed portion of the entities. You can choose between sharp, smooth and in-between.

9.112.3 Options within the command

Start point of twisting axis

Specify a point where the twisting deformation will start.

End point of twisting axis

Specify a point where the twisting deformation will end.

Start point of twisting

Specify a point where the twisting will begin.

Twist angle

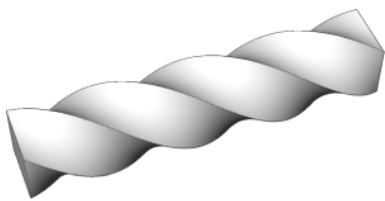
Specify an angle dynamically or type a value.

Continuity

Allows to control whether the transition between the deformed and non-deformed part is sharp or smooth.

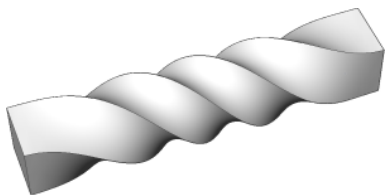
G0

No continuity.



G1

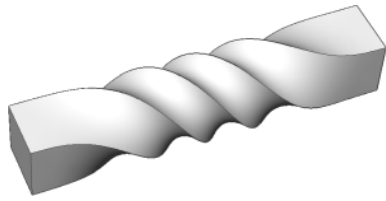
Tangent faces.





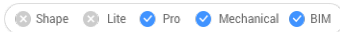
G2

Curvature continuity.



9.113 DMUPDATE command

Forces 3d constraints to update.



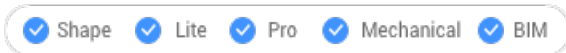
Icon:

9.113.1 Description

Updates all 3d constraints applied to all 3D entities existing in the drawing.

9.114 DOME command

This command is obsolete and exists for backward compatibility only. Use instead the AI_DOME command.



Icon:

9.115 DONUT command

Creates a closed polyline in the shape of a donut.

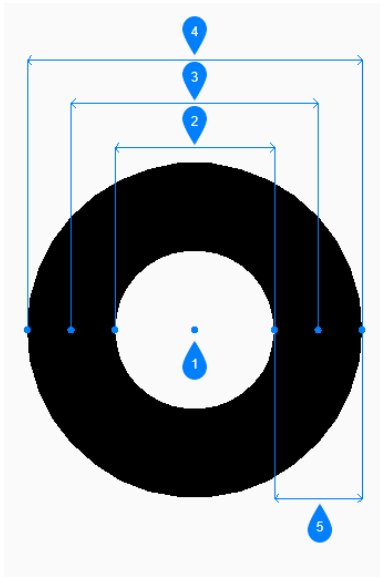


Icon:

Alias: DO, DOUGHNUT

9.115.1 Description

Creates a closed polyline in the shape of a donut from a combination of options including the inside diameter, outside diameter, center and width.



- 1 Center
- 2 Inside diameter
- 3 Diameter
- 4 Outside diameter
- 5 Width

9.115.2 Methods to create a donut

This command has 4 methods to begin creating a donut:

- Inside diameter of a donut
- 2 Point
- 3 Point
- Tangent Tangent Radius

Inside diameter of donut

Begin creating a donut by specifying its inside diameter then:

Outside diameter of donut

Specify the outside diameter of the donut.

Center of donut

Specify the center of the donut to place it in the drawing. You can continue placing donuts of the same size until you press Enter to end the command.

2 Point

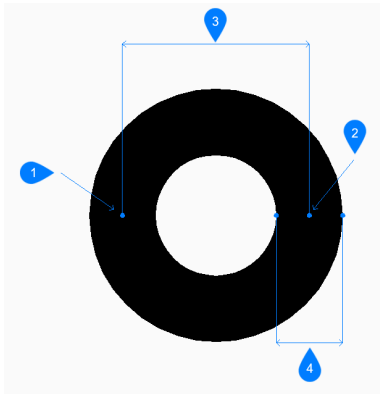
Begin creating a donut by specifying its width then:

First point on diameter

Specify a point on the diameter.

Second point on diameter

Specify the second point on the diameter.



- 1 Point 1
- 2 Point 2
- 3 Diameter
- 4 Width

3 Point

Begin creating a donut by specifying its width then:

First point on donut

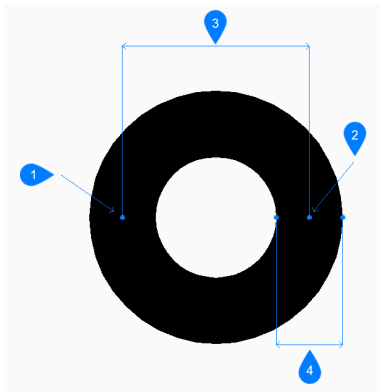
Specify a point on the circumference of an imaginary circle that runs through the center of its width.

Second point

Specify the second point on the circumference of the imaginary circle.

Third point

Specify the third point on the circumference of the imaginary circle.



- 1 Point 1
- 2 Point 2
- 3 Point 3
- 4 Width

Tangent Tangent Radius

Begin creating a donut by selecting a tangent point on the first entity then:

Specify point on object for second tangent on donut

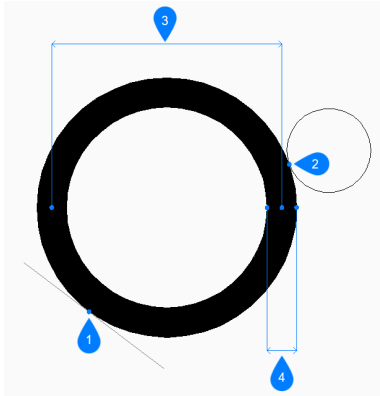
Select a tangent point on the second entity.

Width of donut

Specify the width of the donut.

Diameter of donut

Specify a valid diameter for the donut. If you specify a diameter that is not possible with the selected tangents, you are prompted to specify the tangents and diameter again.




- 1 Tangent point 1
- 2 Tangent point 2
- 3 Diameter
- 4 Width

9.116 DRAG command

Moves 3D solids.



Icon: 

9.116.1 Description

Moves 3D solids perpendicular to a selected face by dragging that face. Optionally preserves connections to other solids.

9.116.2 Method

After selecting one or more planar face(s):

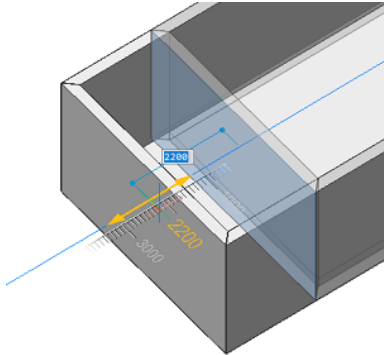
- Type a value in the dynamic distance field.

Note: Toggle Dynamic Input ON from the Status bar.

- Type a value in the Command line.
- Move the cursor to adjust the value in the dynamic distance field.

Note: The selected face(s) move(s) dynamically. The manipulator displays the distance from the current position of the selected face in the dynamic entry field.

Note: Select a different reference face by repeatedly pressing TAB key to cycle all parallel faces of the solid. All parallel faces under the cursor are recognized.



9.116.3 Options within the command

Disable connectivity mode

The connectivity is not kept.

Note: This mode is set as default.

Note: Press Ctrl key to toggle the enable connectivity mode.

Enable connectivity mode

The connectivity is kept.

Note: Press Ctrl key to toggle the disable connectivity mode.

Optionally the Hot Key Assistant can be toggled On, from the status bar, to display the current used connectivity mode.

Note: If the Hot Key Assistant is not displayed, right click on the toggle button and check its configuration.

9.117 DRAGMODE command

Controls the appearance of objects.



9.117.1 Description

Controls the appearance of the objects while being dragged. The command is no longer necessary and is kept only for compatibility.

9.117.2 Options within the command

ON

Turns on DRAGMODE.

Note: Dragged objects are always shown.



OFF

Turns off DRAGMODE.

Note: Dragged objects and the dragline are never shown on the screen.

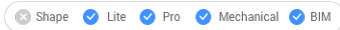
Auto

Turns on DRAGMODE.

Note: Dragged objects are always shown.

9.118 DRAWINGRECOVERY command

Opens the **Drawing Recovery Manager** panel.

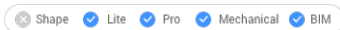


9.118.1 Description

Opens the **Drawing Recovery Manager** panel to display it in the current workspace. The **Drawing Recovery Manager** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Drawing Recovery Manager** panel can be either floating, docked or stacked.

9.119 DRAWINGRECOVERYHIDE command

Closes the **Drawing Recovery Manager** panel.

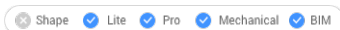


9.119.1 Description

Closes the **Drawing Recovery Manager** panel to hide it from the current workspace. If the **Drawing Recovery Manager** panel is stacked when you close it, the **Drawing Recovery Manager** tab or icon is removed from the stack.

9.120 DRAWORDER command

Changes the display order of overlapping entities.



Icon:

Alias: DR

9.120.1 Description

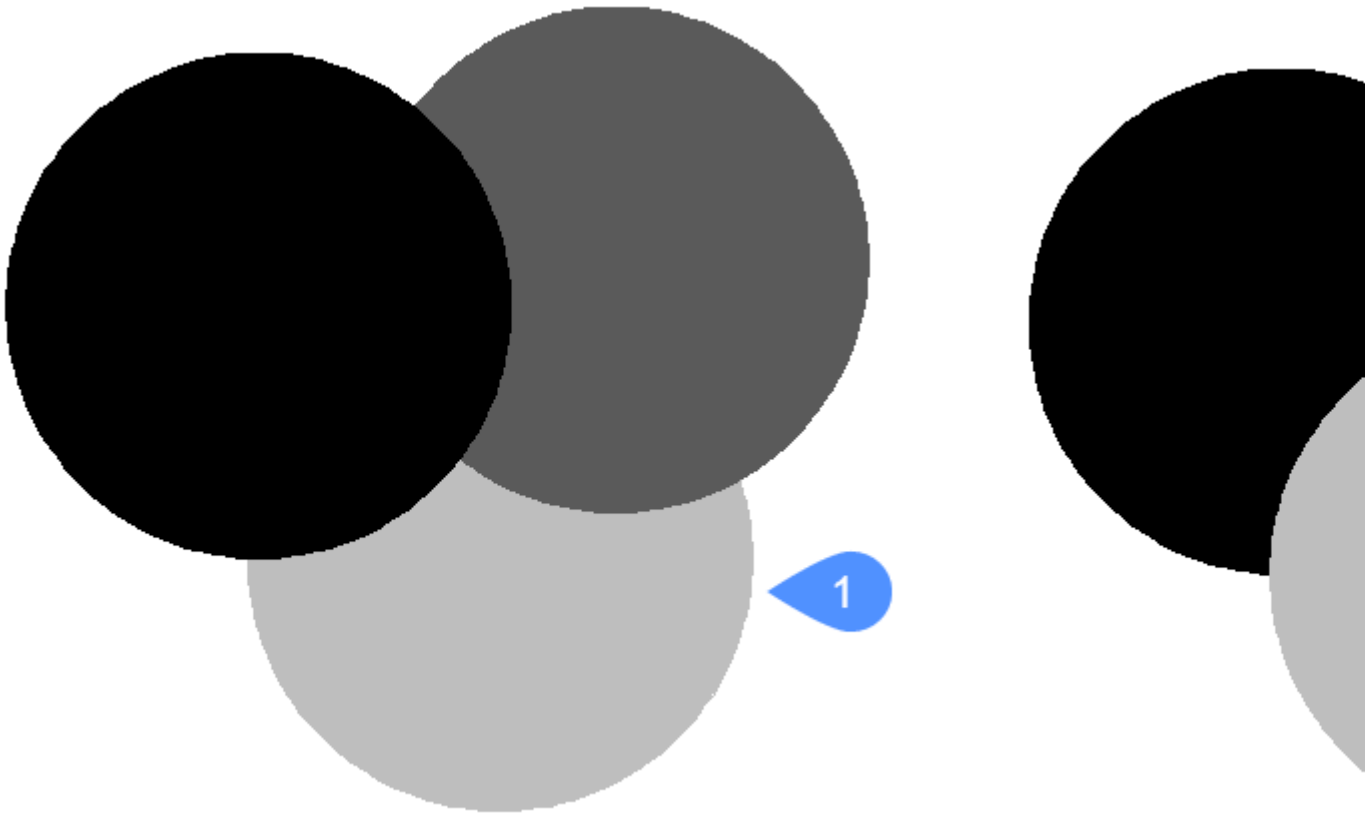
This command is used to display entities over the top of other entities that would otherwise overlap or hide them. This command is meant to work with overlapping objects. While this command works with non-overlapping entities, it has no effect on them.

Note: Hatches and text entities in BricsCAD already have handy commands controlling their display order: HatchToBack places all hatching below all other entities, and TextToFront displays all text above all entities.

9.120.2 Method

This command offers 5 methods to change the draw order of overlapping entities:

- Above
- Under
- Bring to front
- Bring to back
- Clear all orders



9.120.3 Options within the command

Above

Moves the visual display of selected entities above the other entities; this option does not necessarily move them to the top (front) of display order.

Under

Moves the visual display of selected entities under the other entities; this option does not necessarily move them to the bottom (back) of the display order.

Clear all orders

Clears the assigned display orders, with entities displayed as they were originally created.



Send to Back

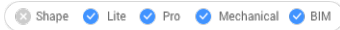
Moves the selected entities' display order below all other overlapping entities (1).

Bring to Front

Moves the selected entities' display order above all other overlapping entities (2).

9.121 DRAWORDERBYLAYER command

Opens the Open layer list file dialog box.



9.121.1 Description

Opens the Open layer list file dialog box to select an lst file that controls the display order of entities based on their layers.

9.122 DSETTINGS command

Opens the Settings dialog box.



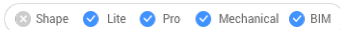
Alias: DDRMODES, RM

9.122.1 Description

Open the Settings dialog box to view and modify system variables. Most, but not all, system variables are available in the Settings dialog box. You can modify all system variables using the SETVAR command.

9.123 DTEXT command

Creates a single-line text entity.

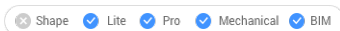


Alias: DT

See the TEXT command.

9.124 DUMPSTATE command

Writes information about the current state of the command history



9.124.1 Description

The command is a diagnostics feature that writes some information about the current state of the command history and related internal structures to dumpstate_report.txt file.

9.124.2 Method

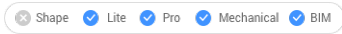
Once you encounter a problem with repeating the last command, enter DUMPSTATE at the command line after the incident as soon as possible. The generated file is then placed in the current working directory.


Note: The generated file is overwritten on each DUMPSTATE run.



9.125 DVIEW command

Changes the 3D viewpoint interactively and turns on perspective mode (short for "dynamic view").



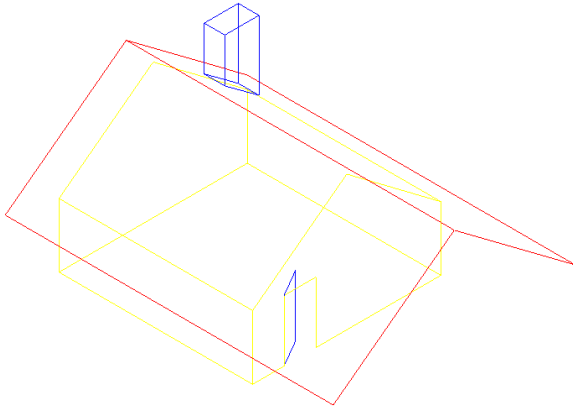
Icon: 

Alias: DV

Note: The PERSPECTIVE system variable toggles the perspective property of a view.

9.125.1 Method

Select entities or use DVIEWBLOCK that displays the below built-in 3d block .



9.125.2 Options

rotate CAmera

Specifies the camera (eye) location.

rotate TARget

Specifies the target (look at) location.

Twist view

Sets the twist (view rotation about Z axis) angle.

Distance to target

Specifies the camera to target distance.

Note: This option turns on perspective mode.

x y z POints

Specifies the camera and target location.

CLipping

Sets the clipping distances, which cut off the front and back parts of the model. The front and back clipping planes are positioning perpendicular to the imaginary line between the camera and target.

Note: The clipping planes can be set using the slider bar.

Front clipping

Sets the front clipping plane which obscures objects located between it and the camera.



frONt clipping on

Switch on front clipping at the current clipping distance.

front clipping OFF

Switch off front clipping.

front clipping at Eye

Sets the front clipping plane at the camera location.

Back clipping

Sets the back clipping plane which obscures objects behind it:

back clipping ON

Switch on back clipping at the current clipping distance

back clipping OFF

Switch off back clipping

clipping Off

Removes the clipping planes.

perspective Off

Turns off perspective mode. Use the Distance option to turn perspective mode on.

Hide

Removes hidden lines from the model.

PAn

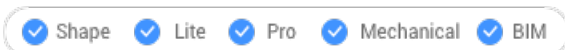
Interactively pans around the drawing.

Zoom

Zooms in and out interactively (enter a number to change the zoom level).

9.126 DWFOUT command

Saves the drawing in DWF and other formats.



9.126.1 Description

Saves the drawing in DWF and other formats (short for "drawing Web format output"). DWFOUT is an alias for theEXPORTcommand.

Note: DWF files can be viewed with the DesignReview software, available free from www.autodesk.com/designreview.

9.127 DWGCODEPAGE command

Changes the language code for text in drawings.



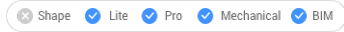


9.127.1 Description

Text on computers is defined by the Unicode system, which determines the alphabet used to display text, such as English or Turkish. DWGCODEPAGE changes the code number that specifies the alphabet. This command does not affect the language displayed by the user interface.

9.128 DWGCOMPARE command

Compares a selected drawing with the current drawing.



Icon:

9.128.1 Description

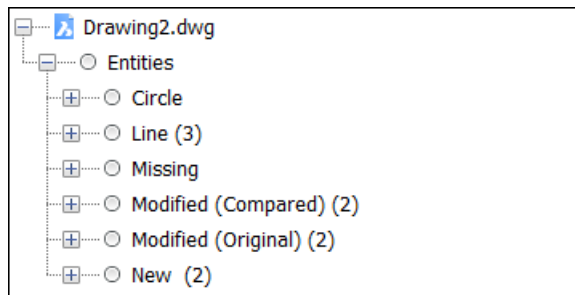
Opens the **Compare** panel to compare a selected drawing with the current drawing, showing the differences.

When the program finds differences, entities are shown in these colors:

- Green (set by the CMPCLRNEW system variable): added entities.
- Red (set by the CMPCLRMISS system variable): removed entities .
- Gray (set by the CMPCLRMOD1 system variable): changed entities in the original drawing.
- Yellow (set by the CMPCLRMOD2 system variable): changed entities in the comparison drawing.

Note: These colour system variables can also be set in the **Settings** dialog box or by clicking on the color preview in the **Compare** panel (under **Legend**).

You can see a list of differences in the **Structure** panel as well. Open it with the STRUCTUREPANELcommand and make sure that the Default CST configuration file is loaded. Expand the **Comparison** node in the **Structure** panel.



Note: The ENDCOMPARE command unloads the comparison drawing.

9.128.2 Options within the command

Select

Opens the **Select the file to compare with** dialog box that lets you select a drawing to compare the current drawing to.

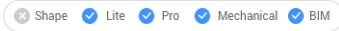
Limit

Sets the limit on how many entities to compare in the drawing.



9.129 DWGCOMPARECLOSE command

Closes the **Compare** panel.

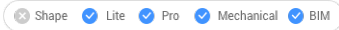


9.129.1 Description

Closes the **Compare** panel to hide it from the current workspace. If the **Compare** panel is stacked when you close it, the **Compare** tab or icon is removed from the stack.

9.130 DWGCOMPAREOPEN command

Opens the **Compare** panel.

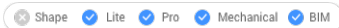


9.130.1 Description

Opens the **Compare** panel to display it in the current workspace. The **Compare** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Compare** panel can be either floating, docked or stacked.

9.131 -DWGHEALTH command

Combines the functionality of multiple stand-alone BricsCAD commands that help to improve overall drawing size and accuracy via command line.



9.131.1 Description

Runs one of the existing routine.

Note: Press any character to list available routines.

The predefined routines are:

2D cleanup

Performs the following tasks:

Unused Objects

Checks and removes various types of unused objects, shown in the below picture. You can decide the object types that will be included in the check. You can run this check manually using the PURGE command.

Audit

Analyzes the integrity of the current drawing and fixes the errors. You can run this check manually using the AUDIT command.

Duplicate Block definition

Checks the block definitions with identical contents, and (optionally) removes duplicates, according to the user's preferences. You can run this check manually using the OVERKILL command with the **Combine duplicate block definitions** option.



Match Existing Block Definitions

Checks for geometry that matches existing block definitions and replaces it with block references, decreasing file size and loading times, according to the user's preferences. You can run this check manually using the BLOCKIFY command with the **match existing Blocks** option.

3D cleanup

Performs the following tasks, already described:

- **Unused Objects**
- **Duplicate Block Definition**
- **Match Existing Block Definitions**

And the below additional tasks:

Audit 3D Geometry

Analyzes and automatically fix the problems in 3D geometry, accordingly with the user's preferences. You can run this check manually using the DMAUDIT command.

Equal Solids

Replaces equal solids with block references to add structure to the drawing and decreases file size and loading times, according to the user's preferences. You can run this check manually using the BLOCKIFY command with the **Equal Solids** option.

Cleanup database

Performs the following tasks, already described:

- **Unused Objects**
- **Duplicate Block Definition**

Fix errors

Performs the following tasks, already described:

- **Audit**
- **Audit 3D Geometry**

9.132 DWGHEALTH command

Combines the functionality of multiple stand-alone BricsCAD commands that help to improve overall drawing size and accuracy.



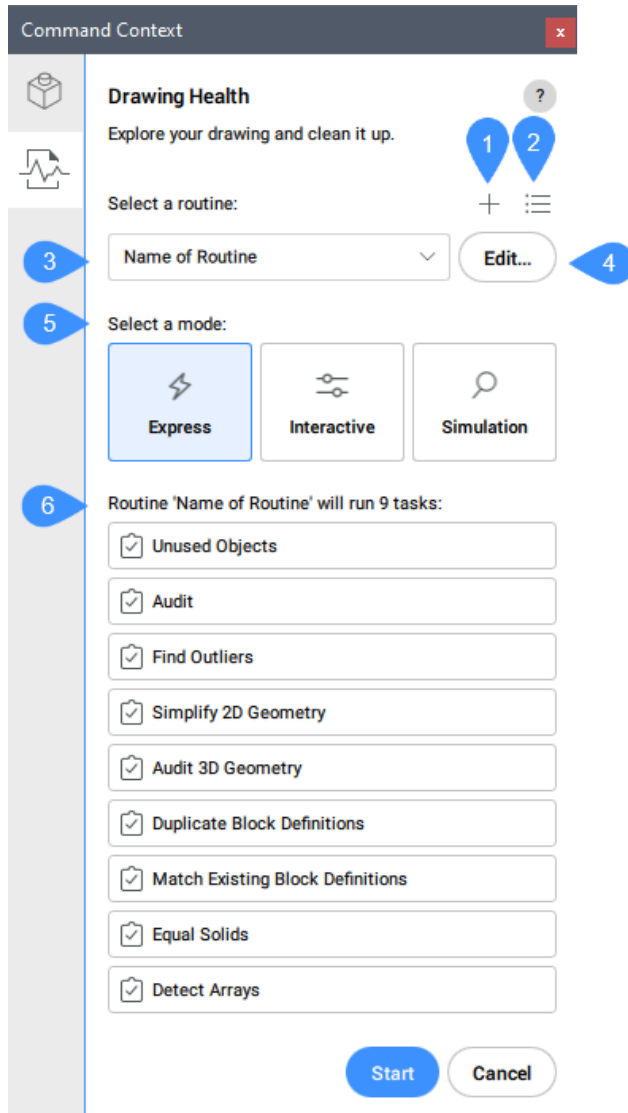
9.132.1 Description

Combines the power of multiple commands (PURGE, AUDIT, FINDOUTLIERS, SIMPLIFY, OVERKILL, BLOCKIFY, OPTIMIZE) in one location. Reduces drawing size, removes unused styles, entities and layers and improves drawing quality.

You can run the DWGHEALTH command in three different modes: **Express**, **Interactive**, and **Simulation**.

When running the command for the first time, a tutorial dialog opens, explaining the DWGHEALTH command in three steps.

The DWGHEALTH command opens the **Drawing Health** Command Context Panel:



- 1 Add a routine
- 2 Manage routines
- 3 Select a routine
- 4 Edit
- 5 Select a mode
- 6 List of tasks

9.132.2 Add a routine

Adds a new routine. Opens the **Edit Routine** dialog box.

9.132.3 Manage routines

Opens the **Manage Routines** dialog box.



9.132.4 Select a routine

Allows you to select a routine from the drop-down list.

9.132.5 Edit

Edits the selected routine. Opens the **Edit Routine** dialog box.

9.132.6 Select a mode

Express

The fastest way: performs everything automatically and provides a report at the end.

Interactive

For details and maximum control: manually checks every step and fine-tunes every task.

Simulation

Preview mode: displays a report with all the changes the routine will make, when run in other modes. Does not change the drawing.

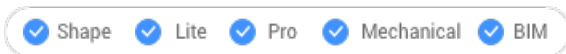
Note: You can save the report as a .txt file.

9.132.7 List of tasks

Lists all the tasks that will run with the selected routine.

9.133 DWGPROPS command

Opens the Drawing properties dialog box.



9.133.1 Description

Opens the Drawing properties dialog box to view and modify drawing properties.

9.134 DXFIN command

Opens the Load DXF file dialog box.



9.134.1 Description

Opens the Load DXF file dialog box to select a dxf file to import into the current drawing.

9.135 DXFOUT command

Opens the Select DXF file dialog box.



Alias: DX

9.135.1 Description

Opens the Select DXF file dialog box to save data from the current drawing to a dxf file.



9.135.2 Method

After choosing **Save** in the dialog box, you are prompted at the Command line:

Enter decimal places of accuracy (0-16)

Specify the accuracy of real numbers in the dxf file. Some CNC (computerized numerical control) machines require 4 decimal places in dxf files.

Alternate options: [Entities/Binary/Version]

Entities

Specifies the entities to export. If unspecified, all entities are exported.

Binary

Specifies binary format for the dxf file. If unspecified, the dxf file is exported to ASCII (text) format.

Version

Specifies the DXF version number. If unspecified, the dxf file is exported to the most current version. Exporting to an older version can cause some entities or properties to be lost.



10. E

10.1 EATTEDIT command

Edits attributes contained in a single block.



Icon:

Alias: ATE

10.1.1 Description

Edits the values and most properties of all attributes contained in a single block, through the Attribute Editor dialog box.

10.2 EDGESURF command

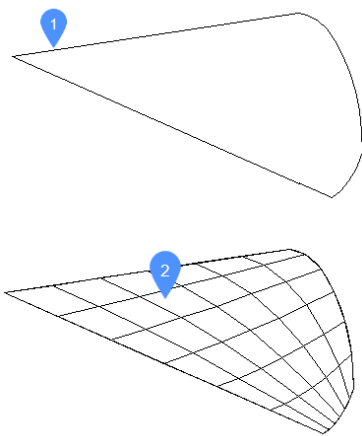
Creates 3D polygon mesh patches between four linear entities (short for “edge-defined surface”).



Icon:

10.2.1 Method

Create an edge surface (2) by selecting each four connected linear entities (1) for it.



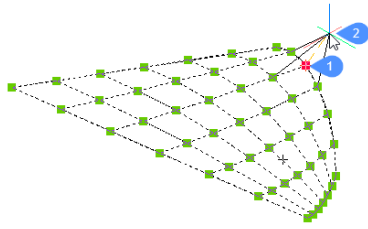
The four entities must be:

- Linear: open entities, such as lines, arcs, open splines, and open polylines.
- Connected: touching or overlapping, so that they form a closed area.

10.2.2 Grips Editing

Edge meshes can be edited directly through grips:

Drag a grip (1) to stretch (2) the adjacent faces.



10.3 EDITEDATA command

Edits extended entity data.



Icon:

10.3.1 Method

Select an entity to display the Create or Edit Entity Data dialog box.

10.4 ELEV command

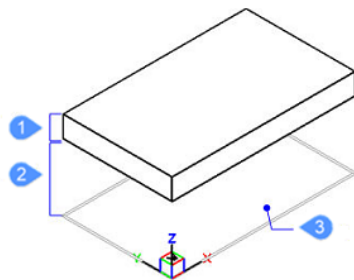
Changes the elevation and thickness of selected objects.



Icon:

10.4.1 Description

Changes the elevation (as measured from the x,y-plane in the z direction) and thickness (as measured from the elevation) of selected entities.



- 1 Thickness
- 2 Elevation
- 3 x,y-plane

10.4.2 Options within the command

New current elevation

Specifies the elevation above or below the x,y-plane. For a negative elevation, a negative value can be entered.

Note: The elevation is reported on the status bar as the z coordinate.



New current thickness

Specifies the thickness. Enter a negative value for thickness that are drawn downwards.

Note: The thickness begins at the elevation.


Note: The thickness is the extrusion distance, in the z direction, of non-3D entities, such as: points, lines, polylines, arcs and circles. When thickness is not 0:

- Points become vertical lines.
- Lines and open polylines become vertical planes.
- Arcs become curved surfaces.
- Circles become open-ended cylinders.
- Closed polylines become open-ended tubes.

10.5 ELLIPSE command

Creates an ellipse or elliptical arc.

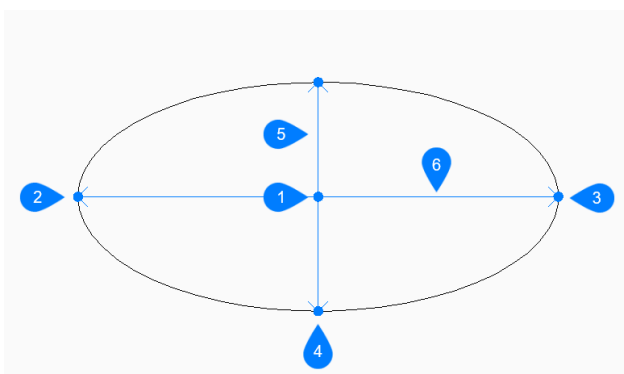


Icon: 

Alias: EL

10.5.1 Description

Create an ellipse or elliptical arc from a combination of options including the center, axis endpoints, axis radius, rotation angle, and included angle.



- 1 Center
- 2 First end of ellipse axis
- 3 Second end of ellipse axis
- 4 End of other axis
- 5 Major axis
- 6 Minor axis



10.5.2 Methods to create an ellipse

This command has 3 methods to begin creating an ellipse:

- First end of ellipse axis
- Arc
- Center

If the PELLIPSE variable is set to 1, the Arc option is not available.

First end of ellipse axis

Begin creating an ellipse by specifying a point on the ellipse's first axis then:

Second end of axis

Specify the end point of the ellipse's first axis.

Set other axis

Specify the radius of the other axis.

Additional option: [Rotation]

Arc

Begin creating an elliptical arc by specifying a point on the ellipse's first axis then:

Additional options: [Center]

Second end of axis

Specify the end point of the ellipse's first axis.

Set other axis

Specify the radius of the other axis.

Additional options: [Rotation]

Set start angle of arc

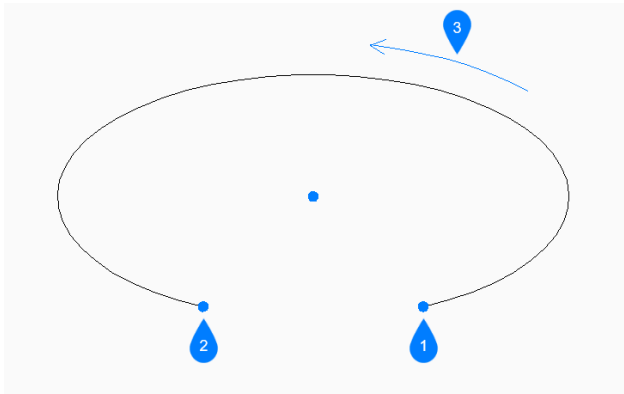
Specify the start angle to define the arc's starting point. The angle is measured counter-clockwise from the positive x-axis.

Additional option: [Parameter]

End angle

Specify the end angle to define the arc's endpoint.

Additional options: [Parameter/Included angle]



- 1 Start angle
- 2 End angle
- 3 Included angle

Center

Begin creating an ellipse by specifying its center point then:

Endpoint of axis

Specify an endpoint of the ellipse's first axis, measured from the center.

Set other axis

Specify an endpoint of the other axis, measured from the center.

Additional option: [Rotation]

10.5.3 Additional options within the ELLIPSE command

After you begin creating an ellipse, the following options may be available:

Included angle

Specify the included angle, measured from the starting point.

Parameter

Specify values for the parametric formula that defines the elliptical arc:

$$p(b) = c + a * \cos(u) = b * \sin(u)$$

where:

- a = major axis.
- b = minor axis.
- c = center of the ellipse.
- u = point along the arc.

Rotation

Specify the angle of the ellipse around the major axis. The angle can vary between 0 and 89.9. An angle of 0 degrees draws a circle. An angle of 89.9 degrees draws a very thin ellipse.

10.6 ENABLEASSOCVIEWS command

Adds the service data to the drawing and its Xrefs.





10.6.1 Description

It affects only associativity of the section result.

Note: If this command is not called and both GENERATEASSOCVIEWS and GENERATEASSOCATTRS are turned off, the result will be visually the same, but not associative.

10.6.2 Method

After the data is added, BIMSECTIONUPDATE and VIEWBASE commands cause no extra modifications in the referenced drawings.

Note: If the drawing contains a Xref file which requires modification, a message will appear to confirm modification of the Xref file.

10.6.3 Options within the command

Proceed

Toggles between Yes or No.

10.7 ENDCOMPARE command

Exits a drawing that was in comparison mode.



Icon:

10.7.1 Description

Exits a drawing that was in comparison mode begun by the DWGCOMPARE command.

10.8 ENDPOINT command

Toggles the Endpoint entity snap.



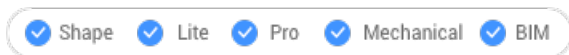
Icon:

10.8.1 Description

Toggles the Endpoint entity snap to enable or disable snapping to endpoint. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

10.9 ERASE command

Erases entities from the drawing; erases the faces and edges of 3D solids.



Icon:



Alias: DELETE, E

10.9.1 Method

Select entities, edges or faces to be removed.

Select the edges of an opening in a surface to delete the opening.

Select the edge(s) between coplanar faces of a 3D solid to remove the edges. Alternatively use DMSIMPLIFY command to remove redundant edges.

Select the interior faces of an opening in a 3D solid to remove the opening.

10.10 ETRANSMIT command

Opens the Drawing explorer dialog box with **Dependencies** selected.



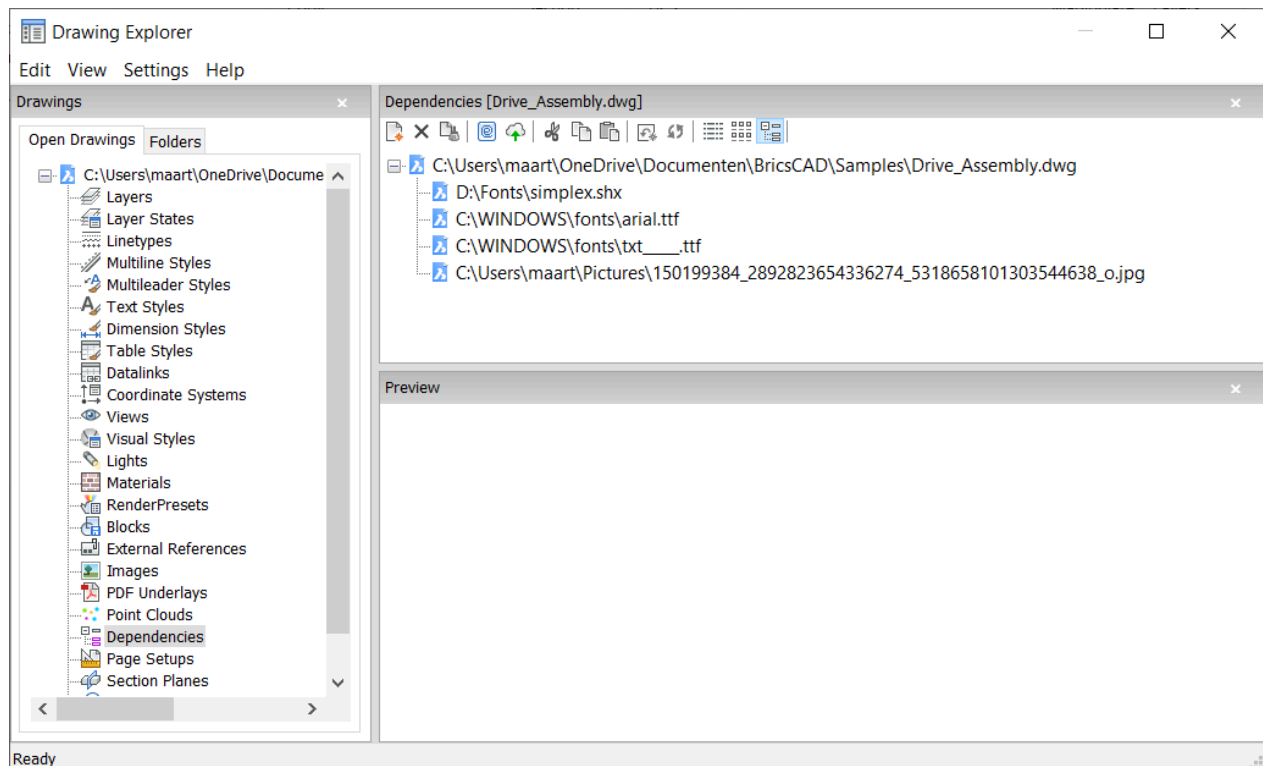
Icon:

10.10.1 Description

Creates a package consisting of the drawing file and all its dependencies, such as external references, images, font files, plot configuration files, plot style tables, and font map files.

10.10.2 Methods

Opens the Drawing explorer dialog box with Dependencies category selected to view and modify all dependencies in the current drawing.





10.10.3 Context Menu Options

eTransmit

Starts the eTransmit procedure. The eTransmit dialog box opens, which lists the files to include.

Upload to Bricsys 24/7

Opens the Upload to Bricsys 24/7 dialog box to allow you upload the drawing and its dependencies onto Bricsys 24/7.

10.10.4 Options within the command

New

Add another drawing to the eTransmit procedure. The File dialog box opens to let you choose another drawing.

Delete

Deletes Dependency definitions from the drawing.

10.11 -ETRANSMIT command

Creates a package ZIP file at the Command line.



10.11.1 Description

Creates a package ZIP file at the Command line, consisting the current drawing file and all its dependent files.

10.11.2 Options within the command

Create

Creates a package ZIP file that contains the drawing and its support files.

Yes

Automatically creates a package ZIP file that has the same name as the drawing. On subsequent usage of the command, the package will be saved in the previously used folder path.

No

Opens a File dialog box to let you select a folder and specify a file name.

Settings

Prompts you for changes to the settings in the Command line.

Save format

Specifies the format of the drawing files in the eTransmit package.

Output format

Specifies whether to create a ZIP file or copy the files to the output folder.

FOLDER structure

Specifies how files are organized into folders.

File list

Determines which files are included in the transmittal package.

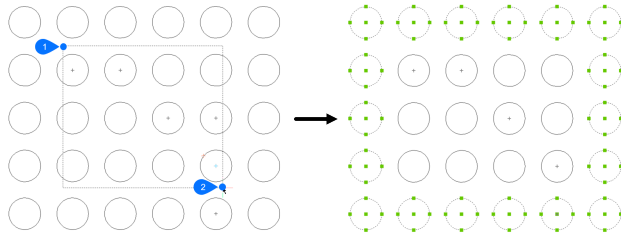


10.12 EXC command (Express Tools)

Selects all entities outside a specified rectangle.

10.12.1 Method

If you select a first corner (1) and a second corner (2), a temporary rectangle is drawn. All entities in the drawing are selected, except the ones that are included in or intersect the selection window.

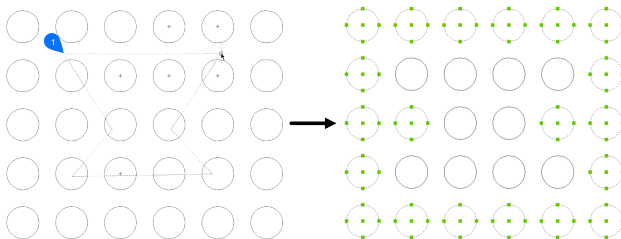


10.13 EXCP command (Express Tools)

Selects entities outside a specified polygon.

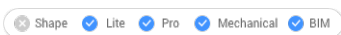
10.13.1 Method

Draw a temporary polygon (1), which is indicated with a dashed line. All entities in the drawing are selected, except the ones that are included in or intersect the selection polygon.



10.14 EXECUTETOOL command

Repeats the last tool used from the Tool palettes panel.

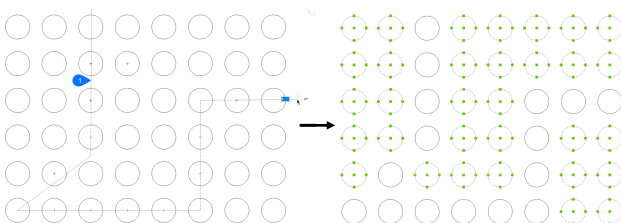


10.15 EXF command (Express Tools)

Selects all entities that do not intersect a specified fence line.

10.15.1 Method

Draw a fence line (1), which is indicated with a dashed line. All entities in the drawing are selected, except the ones that intersect the fence line.





10.16 EXOFFSET command (Express Tools)

Offsets the selected entities.

Icon:

10.16.1 Method

Enter the offset distance and select the entities to offset.

10.16.2 Options within the command

Through

Offsets the selected entity through a specified point.

Multiple

Offsets the selected entity multiple times.

Options

Lists the values of **Distance**, **Layer** and **Gaptype** in the command line.

Note: The **Gaptype** is controlled by the OFFSETGAPTYPE system variable.

10.17 EXP command (Express Tools)

Selects all entities in the drawing except the previous selection.

10.17.1 Description

The previous selection can be the entities from the last-used command or a set created by API calls.

10.18 EXPLAN command (Express Tools)

Displays the plan viewpoint of drawings, without changing the zoom factor.

Icon:

10.18.1 Options within the command

UCS

Displays the plan view of a named UCS or Dynamic UCS after entering a name or placing the cursor over a 3D solid.

?

Lists the names of UCS's in the current drawing.

World

Displays the plan view of the World Coordinate System.

Current

Displays the plan view of the current UCS.

10.19 EXPBLOCKS command

Opens the **Blocks** category of the Drawing explorer dialog box for inserting, deleting, and creating blocks.

Shape Lite Pro Mechanical BIM



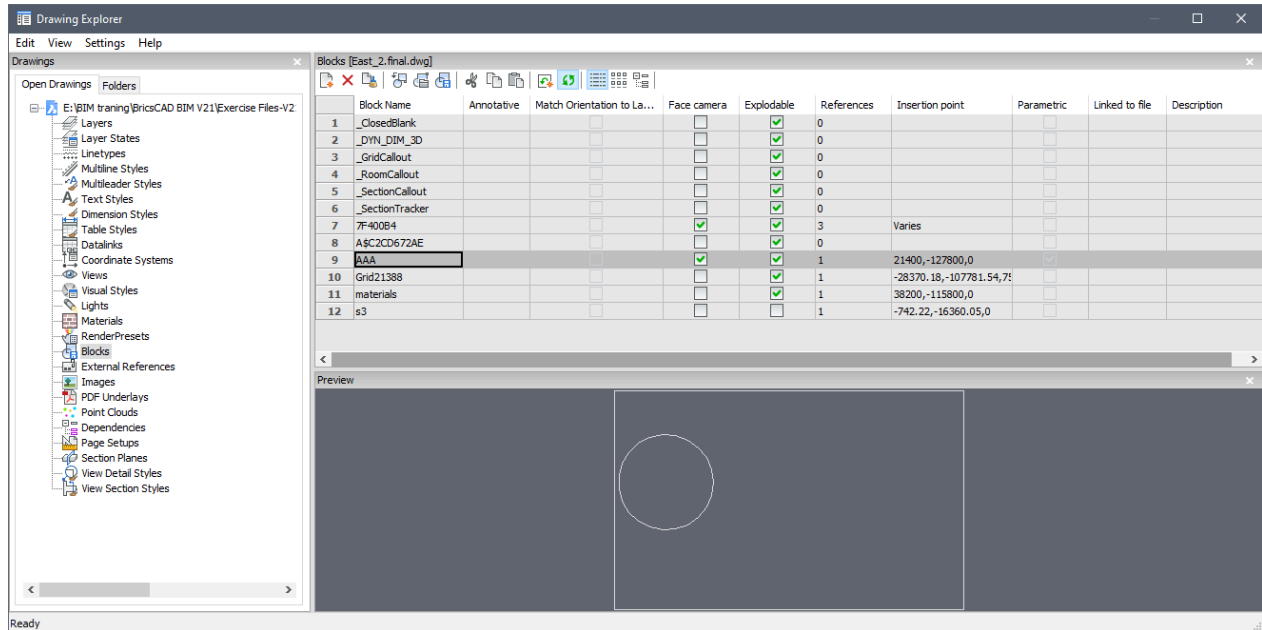
Icon:

Alias: XB

Note: Non-Uniformly scaled blocks can be exploded only if EXPLMODE system variable is ON.

10.19.1 Description

Displays the Blocks category of the Drawing explorer dialog box:



10.19.2 Context Menu Options

New

Creates new blocks; dismisses the Drawing explorer dialog box, and the starts the -BLOCK command. See BLOCK command.

Delete

Deletes the block definition; available only for those block definitions not inserted in the drawing.

Insert

Inserts the selected block; dismisses the Drawing explorer dialog box, and the starts the -INSERT command. See INSERT command.

Insert External

Inserts DWG files as blocks; starts the INSERT command, and then displays the INSERT BLOCK dialog box. See INSERT command.

Save Block

Exports the selected block as a DWG file; displays the Save Block dialog box. Right-click a block to display the shortcut menu, and then choose Options.

Add to current Toolpalette

Adds the block to the current Tool Palettes.



Options

Displays the Drawing explorer options dialog box to allow you to align, set the scale or the rotation of the inserted blocks.

Align with view

When checked, inserts the block to face the camera (blocks are rotated about their local Z-axis to face the camera).

Note: Parametric blocks cannot be cut, copied or renamed.

Rename

Renames the selected block.

Select All

Selects all blocks definitions.

Invert Selection

Inverts the selected blocks. For instance, if you have one block selected, then this option deselects it, and then selects all other blocks.

10.19.3 Options within the command

Block Name

Specifies the name of the block.

Annotative

When checked, sets the Annotative property.

Match Orientation to Layout

When checked, sets the Match Orientation property of annotative blocks.

Face Camera

When checked, inserts the block to face the camera (blocks are rotated about their local Z-axis to face the camera). See the CAMERA command.

Explodable

When checked, blocks of this definition can be exploded into its component parts by the EXPLODE command. Non-Uniformly scaled blocks can be exploded only if EXPLMODE system variable is ON.

References

Reports the number of insertions of the block in the current drawing; number is set by the program, and so you cannot change it.

Insertion Point

Reports the insertion point of the block; reports "Varies" when the block has been inserted in the drawing more than once.

Parametric

Indicates if the block is parametric or not.

Linked to file

Shows file path for External Parametric blocks

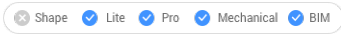
Description

Optional description of the block.



10.20 EXPFOLDERS command

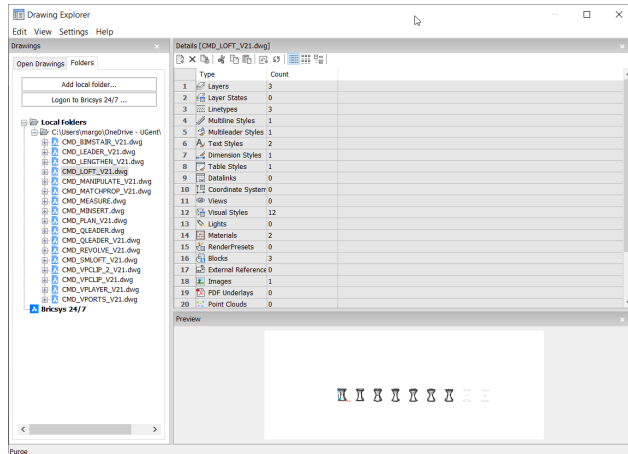
Opens the Drawing explorer dialog box with the **Folders** tab selected.



Icon:

10.20.1 Description

Opens the Drawing explorer dialog box on the Folders tab.



Note: The categories (such as Layers, Blocks, etc.) can be copy-pasted from Folders tab to Open Drawings tab.

10.20.2 Context Menu Options

Select All

Selects all items.

Invert selection

Deselects the current selection and vice versa.

10.20.3 Options within the command

Add local folder

Opens a Choose a Folder dialog box.

Logon to Bricsys 24/7

Displays the Bricsys 24/7 dialog box to log on.

10.21 EXPIMAGES command

Opens the Drawing explorer dialog box with **Images** selected.

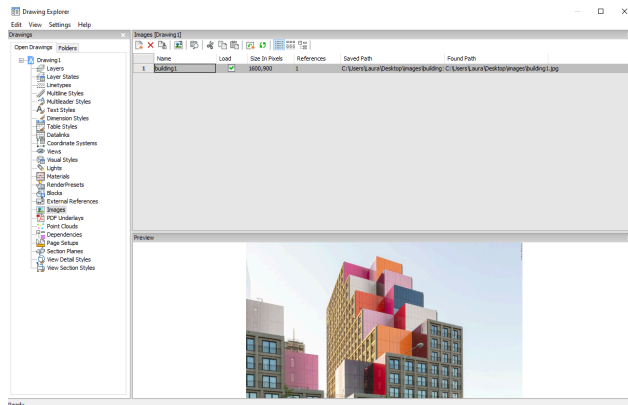


Icon:



10.21.1 Description

Displays the Images category of the Drawing explorer dialog box:



Supports the following formats:

BMP: Windows bitmap

ECW: Enhanced Compressed Wavelet format

GIF: CompuServe graphic image format

JPG, JPEG, and JPEG2000 (JP2, j2k) : Joint Photographic Experts Group (common among digital cameras)

MTI: Multi-resolution Tiled Image (Bricsys raster format for large images)

PCX: PC Paintbrush

PNG: Portable network graphics

SID: MrSID is an acronym for Multi-resolution Seamless Image Database

TGA: Targa

TIF, TIFF: Tagged Image File Format

10.21.2 Context menu options

New

Attaches raster image files to the drawing. dismisses the Drawing explorer dialog box, and the starts the IMAGEATTACH command. See IMAGEATTACH command.

Delete

Removes the image from the drawing. You may need to use the REGEN command to update the screen.

Insert

Inserts more images in the drawing, like the New button. Displays the Attach Raster Image dialog box. See IMAGEATTACH command.

Run extended search for missing attachments

Runs an extended search for missing attachments.

Clear cash

Clears the folder where temporary image cache files are stored.



Relative path

Shows the Saved Path as a relative path.

Absolute path

Shows the Saved Path as an absolute path of the image located in the drawing folder.

Filename as a path

Replaces the saved path with the file name.

10.21.3 Options within the command

Name

Specifies the name of the image. This usually is the image's file name.

Load

Toggles whether the image is displayed in the drawing:

On: displays the image in the drawing

Off: displays only the image's frame, which is turned off by the IMAGEFRAME command

Size in Pixels

Reports the size of the image in pixels, horizontally and vertically.

References

Reports the number of times the image occurs in the drawing.

Saved Path

Reports the path to the image file when first loaded. When the path cannot be found, click the Browse button which will display the Choose a File dialog box and locate the missing image file.

Found Path

Reports the current path to the image file. This path should match the Saved Path in most cases.

10.22 EXPLAYERS command

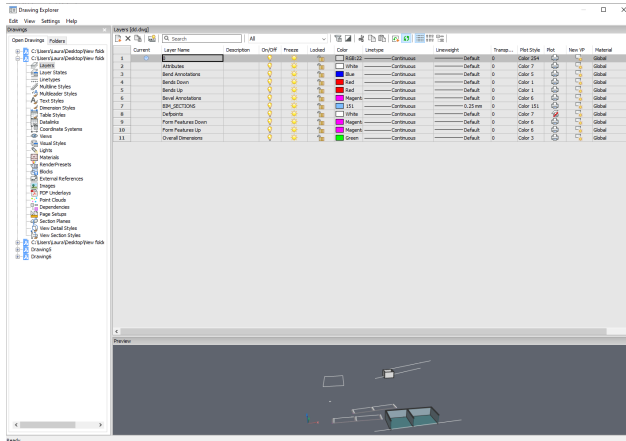
Opens the Drawing explorer dialog box with **Layers** selected.



Icon:




10.22.1 Description

Opens the Drawing explorer dialog box with Layers category selected to view and modify layers in the current drawing.



Note: When you open the Drawing explorer - Layers dialog when in paper space, additional columns are displayed: VP Freeze, VP Color, VP Linetype, VP Lineweight, and VP Plot Style, where VP is short for viewport.

Note: By default, these columns match the corresponding model space settings, but viewport layer properties can be set differently for each layout and for each paper space viewport. If the SHOWLAYERUSAGE variable is on, then the **Layer Usage** icons indicates whether viewport settings for the current layout and paper space viewport are different from model space settings:

- : current layer with viewport overrides.
- : layer with viewport overrides.
- : empty layer with viewport overrides.

Note: If no paper space viewport is active, then the settings apply to entities in the current layout. If a viewport is active, then viewport settings override the BYLAYER properties in the current viewport.

Note: The VP Freeze setting allows you to control the visibility of model space entities in the current viewport. The New setting controls whether a layer is either Frozen or Thawed in the new paper space viewports.

10.22.2 Context Menu Options

New

Create a new layer definition into the drawing. The new layer that is created copies the properties of the currently selected layer.

Delete

Deletes layer definitions from the drawing. The following layer definitions cannot be deleted:

- Layer 0
- Defpoints
- Layers in use
- The current layer



Merge to...

Opens the Merge Layers dialog box. Here you can choose a target layer where the selected layers will be merged to.

The following layer definitions cannot be merged:

- Layer 0
- Defpoints
- The current layer

Note: you can only merge layers which are in use. If there aren't any entities assigned to a layer, the merge option will delete the selected layer.

Remove from group

Removes layers from the group they are assigned to.

Create Group Filter From Selection

Creates a group with the selected layers assigned to it.

Rename

Renames the selected layer.

Following layers can not be renamed:

- Layer 0
- Defpoints

Select All

Selects all layers.

Invert selection

Deselects the current selection and vice versa.

Remove Viewport Overrides

Removes overrides from properties that were set differently for viewports.

From Selected Layers

- For current viewport: removes overrides from the current viewport
- For all viewports: removes overrides from all viewports in the drawing

From All layers

Removes the overrides from all layers in the drawing for either the current viewport or all viewports.

Isolate Selected Layers

Dims the entities on all which are not selected. Use the LAYUNISO command to unisolate layers.

10.22.3 Options within the command

Filters

You can think of layer filters as "layer groups," groups of layers that you need to show or turn on-or-off all at once.

New Properties Filter

Creates a new properties filter. Displays the Layer Property Filter dialog box.

New Group Filter

Creates a new group filter.



Layers state

Toggles the layers state of all the layers in the selected group.

- On: toggles the layers on.
- Off: toggles the layers off.
- Thaw: thaws the layers.
- Freeze: freezes the layers.
- Lock: locks the layers.
- Unlock: unlocks the layers.

Isolate layers

Isolates the layers in the selected group.

- Current viewport: removes overrides from the current viewport.
- All viewports: removes overrides from all viewports in the drawing.

Add layers from selection

In the selected layer group filter, the layers from the selected objects in the drawing are added.

Replace with layers from selection

The layers from the selected group filter are replaced with the layers of the selected objects in the drawing.

Add layers from panel selection

Adds the layers which are selected in the layers panel.

Paste with Layers

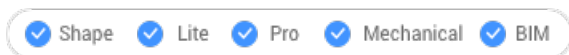
Pastes the copied or cut group, including its layers.

Convert to Group

Converts a property filter to a group filter.

10.23 EXPLODE command

Reduces complex entities to simpler ones.



Icon:

Alias: X

10.23.1 Description

Reduces complex entities to simpler ones, such as blocks into constituent parts, and polylines into lines and arcs.

Note: Entities on frozen and locked layers are not exploded.

10.23.2 Method

The result depends on the entities you selected:

- Polylines become lines and arcs. Width is lost.
- Regions become lines, arcs and splines.



- Dimensions becomes lines, text, and solids (arrowheads).
- Blocks become individual entities and nested blocks. You may need to use Explode a second time.
- **Note:** Only blocks that have Explodable property set can be exploded. Non-Uniformly scaled blocks can be exploded only if EXPLMODE=ON.
- ByBlock colors and linetypes may change.
- Attributes revert to attribute definitions.
- 3D surface entities become 3D faces.
- Meshes become 3D faces.

Note: Simple entities, such as line and circles, cannot be exploded.

10.24 EXPLORER command

Opens the Drawing explorer dialog box.

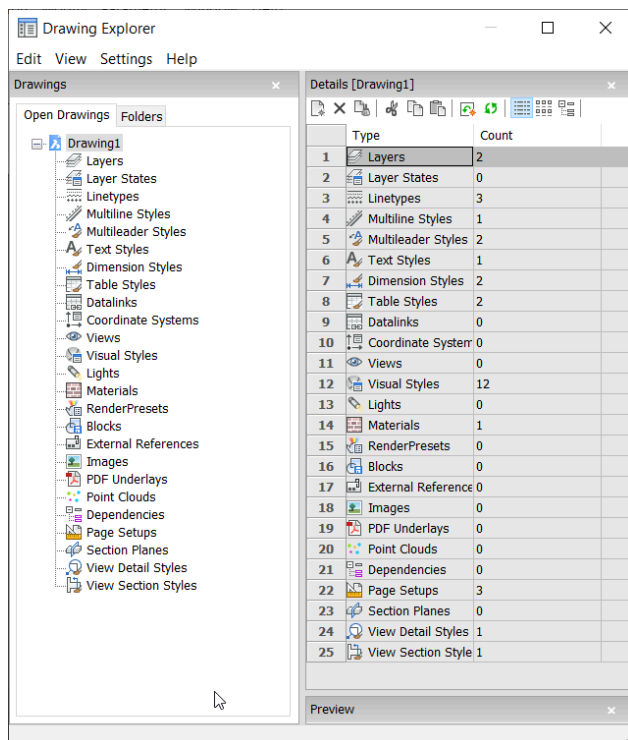


Icon:

10.24.1 Description

Opens the Drawing explorer dialog box on the last used tab or category to manage definitions and reference content that is used in the drawing.

Note: Press F1 to access help. To close, Press X.





10.24.2 Options within the menu bar

View

Check boxes

Toggles the visibility of specific items in the Drawing Explorer dialog box on and off.

Tree/Icons Details

Selects a visual style to list all definitions of the selected drawing.

Regen

Regenerates all definitions.

Regen at each change

Regenerates definitions each time a change has been made.

Hide xref symbols

Toggles the visibility of xref symbols on and off.

Settings

Restore default layout

Restores the modified layout of the Drawing explorer to the default layout.

Options

Displays the Drawing explorer options dialog box. Options regarding inserting a block can be defined.

Columns

Columns can be switched on and off and repositioned by drag-and-drop:

- Move: drag it by its header to a new location.
- Change width: drag the separator line back and forth.
- Restore width: double-click the separator line.

Show all columns

Displays all columns including the ones that were hidden before.

Restore Column positions

Returns columns to their original position.

10.24.3 Context Menu Options

New

Creates a new item with a generic name, such as NewLayer1 or NewStyle1.

Delete

Deletes the selected item from the drawing. When the selected item is in use, for example a layer with entities, several options may be available.

Delete

Deletes the selected layer and all entities on it.

Change

Changes the characteristic of all entities on the item to delete to another characteristic item. Afterward, the item will be deleted.



Cancel

Cancels the deleting operation so that no changes are made.

Note: Some automatically generated definitions cannot be deleted.

Cut

Cuts the selected item to the clipboard.

Copy

Copies the selected item to the clipboard.

Note: The options Cut and Copy can only be used when additional items were already made and cannot be used on automatically generated items.

Paste

Pastes the copied item from the clipboard. When the same name item already exists, several options may be available:

Purge

Removes unused named entities from drawings, such as unused layers and linetypes.

Copy and replace

Replaces the original item in the current drawing with the item that is being copied.

Don't copy

The item will not be pasted in the current drawing.

Copy, but keep both

The item will be pasted into the drawing with a new name 'NAME'1.

Cancel

Cancels the Paste operation.

Note: This option cannot be used before cutting or copying an item.

Rename

Renames the item.

Note: Some automatically generated definitions cannot be renamed.

Select All

Selects all items.

Invert selection

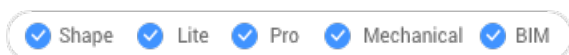
Deselects the current selection and vice versa.

Set current

Sets the selected item as current.

10.25 EXPORT command

Exports data from the current drawing to a variety of file formats.



Icon:



Alias: DWFOUT, EXP

10.25.1 Description

Opens the **Export Drawing As** dialog box to save the data from the current drawing to a variety of file formats.

These are the supported file formats for export, depending on the license level:

BricsCAD Lite

- **FBX binary file** (.fbx)
- **FBX ASCII file** (.fbx)
- **AutoCAD Drawing** (dwg)
- **AutoCAD ASCII DXF** (dxf)
- **Drawing Template** (.dwt)
- **Bitmap file**⁽²⁾ (.bmp)
- **Windows Meta File** (.emf)^{(1) (2)}
- **Enhanced Windows Meta File** (.wmf)^{(1) (2)}
- **3D DWF v6.01** (.dwf)
- **Binary DWF v6.0** (.dwf)
- **Zipped ASCII Encoded 2D Stream DWF v6.0** (.dwf)
- **Compressed DWF v5.5** (.dwf)
- **Binary DWF v5.5** (.dwf)
- **ASCII DWF v5.5** (.dwf)
- **Compressed DWF v4.2** (.dwf)
- **Binary DWF v4.2** (.dwf)
- **ASCII DWF v4.2** (.dwf)
- **XPS DWFx** (.dwx)
- **Scalable Vector Graphics** (.svg)
- **Lithography** (.stl)
- **Collada file** (.dae)
- **Micro Station DGN File** (.dgn)

BricsCAD Pro

- **Unreal Datasmith** (.udatasmith)^{(1) (2)}
- **Rhino file** (.3dm)^{(1) (2)}
- **3D PDF**: .pdf
- **Assembly ACIS file** (.asat)
- **Assembly ACIS file** (.asab)

Note: Native export to 3D PDF and ASAT formats also support mechanical blocks, external references and solids.

Note: EXPORT stores a scale factor in the SAT and SAB files relative to mm which will be used to scale while IMPORT, and creates the current SPATIAL ACIS format which cannot be imported into AutoCAD®.

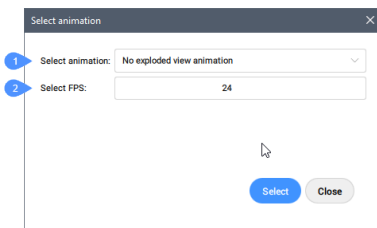
BricsCAD BIM / Mechanical / Ultimate

- **IFC2x3 file (.ifc)**
- **IFC4 file (.ifc)**
- **IFC4x1 (.ifc)**

(1) Not available for BricsCAD for Linux.

(2) Not available for BricsCAD for macOS.

Note: If the EXPORT3DPDFWRITER system variable is set to 1 (Internal 3D PDF writer) and you save the drawing as a 3D PDF file, the **Select animation** dialog box displays:



Choose an animation to export (1) and set the required number of frames per second (fps) (2), or select No exploded view animation to export the document without animation.

Note: Export to **Binary DWF v6.0 (.dwf)** takes into account only the **Plot area** of the layout or model space defined in the Page Setup. Therefore, everything outside the plot area will be removed and or clipped away.

Note: The EXPORTMODELSPACE, EXPORTPAPERSPACE and EXPORTPAGESETUP system variables currently are dummies for .dwf exports.

Note: More 3D formats are available through a separate module, **BricsCAD Communicator**. You can download it from the Bricsys website.

The import and export procedures using Communicator are controlled through a series of user preferences. See the Communicator section in the Settings dialog box.

Note: To export to a PDF format, use the EXPORTPDF command.

Note: The EXPORT command supports components architecture based on regular blocks.

10.26 EXPORTLAYOUT command

Opens the **Export layout to drawing** dialog box.



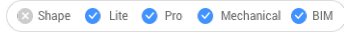


10.26.1 Description

Opens the **Export layout to drawing** dialog box to save data from the current drawing to a .dwg file. The current layout specifies what data to include in the drawing. After the drawing is created, a BricsCAD dialog box allows you to choose if you want to open the new drawing.

10.27 EXPORTPDF command

Saves data from the current drawing to a PDF file.



Icon:

10.27.1 Description

Open the **Export drawing as** dialog box to save data from the current drawing to a PDF file.

Note: This command adds a watermark to export output obtained using an Academic license.

10.28 EXPPDFS command

Attaches PDF files as underlays to the current drawing through the Drawing Explorer.

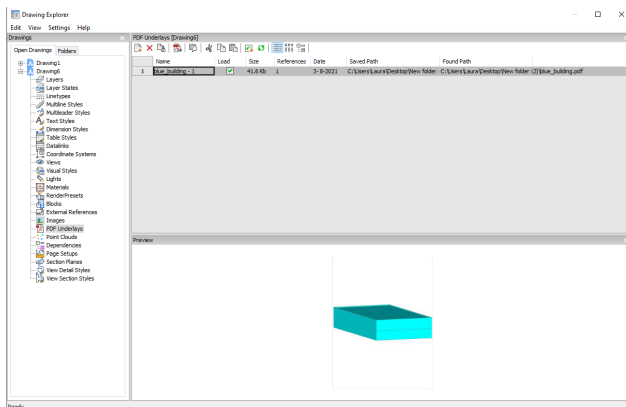


Icon:

Note: To import PDF files as drawing entities, use the PDFIMPORT command.

10.28.1 Description

Displays the PDF Underlays category of the Drawing explorer dialog box:



10.28.2 Option within the command

Name

Reports the name of the PDF insert. This name is generated by the program, but can be edited by pressing double click on the name or right-click and choose Rename from the shortcut menu.



Load

Toggles loading of the PDF:

On: loads the PDF, and makes it visible.

Off: unloads the PDF, making it invisible.

Size

Reports the size of the PDF file.

References

Reports the number of times the PDF is attached to the drawing.

Date

Reports the date of the file. This can be useful in determining whether you are working with the most recent revision.

Saved Path

Reports the path to the PDF file when first loaded. When the path cannot be found, click the Browse button which will display the Choose a File dialog box and locate the missing PDF file.

Found Path

Reports the current path to the PDF file. This path should match the Saved Path in most cases.

10.28.3 Context menu options

New

Attaches a PDF file to the current drawing. From the Select PDF Underlay File dialog box open a PDF file, specifies the parameters in the Attach PDF Underlay dialog box and an insertion point to locate the lower-left corner of the PDF.

Delete

Detaches the selected PDF attachments without warning.

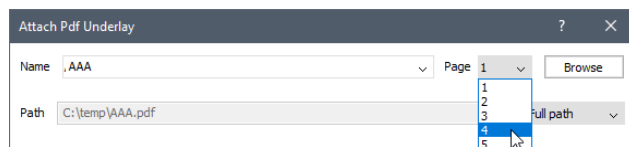
Purge

Purges selected PDF files from the drawing; available only for those PDF file definitions that are not inserted in the drawing.

Insert

Attaches additional pages from a multi-page PDF file already attached to the current drawing.

From the Attach Pdf Underlay dialog box choose a page number from the Page drop-list.



The added page appears in Drawing explorer with the page number as a suffix to its name.

	Name	Load	Size	References	Date	Saved Path	Found Path
1	AAA - 1	✓	26.8 Mb	1	23- 7-2021	C:\temp\AAA.pdf	C:\temp\AAA.pdf
2	AAA - 2	✓	26.8 Mb	1	23- 7-2021	C:\temp\AAA.pdf	C:\temp\AAA.pdf
3	AAA - 4	✓	26.8 Mb	2	23- 7-2021	C:\temp\AAA.pdf	C:\temp\AAA.pdf

Run extended search for missing attachments

Runs an extended search for missing attachments.



Clear cache

Clear Cache for PDFs.

Relative path

Shows the Saved Path as a relative path.

Absolute path

Shows the Saved Path as an absolute path of the PDF file located in the drawing folder.

Filename as a path

Replaces the saved path with the file name.

10.29 EXPRESSMENU command (Express Tools)

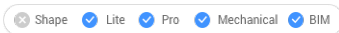
Activates the EXPRESSTOOLS menu and ribbon.

10.30 EXPRESSTOOLS command (Express Tools)

Activates the Express Tools.

10.31 EXPUCS command

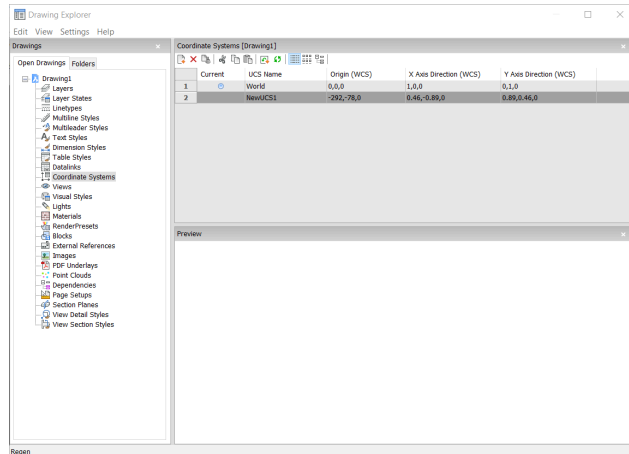
Creates, renames and deletes named UCS's through the Drawing explorer dialog box.



Alias: DDUCS, UC

10.31.1 Description

Open the Drawing explorer dialog box on the Coordinate systems category:



10.31.2 Options within the command

Current

Indicates the current UCS.

UCS Name

Lists the names of UCS's in the drawing; click to rename.



Origin (WCS)

Reports the origin (0,0,0) of the UCS in x,y,z coordinates of the WCS; cannot be edited.

X Axis Direction (WCS)

Reports the direction of the x axis in WCS coordinates.

Note: Cannot be edited.

Y Axis Direction (WCS)

Reports the direction of the y axis in WCS coordinates.

Note: Cannot be edited.

10.31.3 Context Menu Options

New

Creates additional UCS into the drawing through the model space.

Delete

Deletes Coordinate system from the drawing. The World coordinate system definitions cannot be deleted.

Rename

Renames the Coordinate System.

Select All

Selects all Coordinate System definitions.

Invert selection

Deselects the current selection and vice versa.

Set current

Sets the selected Coordinate System as current.

10.32 EXPXREFS command

Combines several xref-related commands through the Drawing explorer.



Icon:

10.32.1 Description

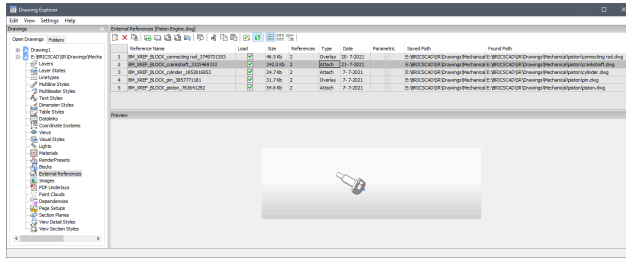
This command attaches DWG files to the current drawing and controls the state of the attachments (short for "external reference").

Note: The XDWGFADECTL system variable sets the fading of external references. Values between 0 (no fading) and 90 are accepted.

Note: The BINDTYPE system variable influences the behavior of the Bind option of the -XREF command.

10.32.2 Method

Displays the External Reference section of the Drawing explorer:



10.32.3 Option within the command

Reference Name

Reports the name of the xref insert. This name is assigned by the program, but could be edited by pressing double click on the name or right-click and choose the Rename from the shortcut menu.

Load

Toggles loading of the xref:

On: loads the xref, and makes it visible

Off: unloads the xref, making it invisible

Size

Reports the size of the xref DWG file. Very large files can slow down the system.

References

Reports the number of times the xref is attached to the drawing.

Type

Reports whether the xref is attached or overlaid, how they treat xrefs that have xrefs themselves:

Attach: all xrefs are displayed.

Overlay: only the first xref of nested xrefs is displayed.

Date

Reports the date of the file. This can be useful in determining whether you were working with the most recent revision.

Parametric

Indicates if the Xref drawings is parametric or not.

Saved Path

Reports the original path to the xref DWG file when first loaded. When the path cannot be found, click the Browse button which will display the Choose a File dialog box and locate the missing DWG file.

Path for parametric blocks cannot be changed.

Found Path

Reports the current path to the xrefs DWG file. This path should match the Saved Path in most cases.

10.32.4 Context menu options

Attach Xref

Attaches DWG files as xrefs to the current drawing. From the Attach External Reference dialog box browse and choose a dwg file and specify the parameters and an insertion point to locate the xref file. See -XREF command.



Detach Xref

Erases the selected xref from the drawing without warning. This is equivalent to using the Detach option.

Reload Xref

Reloads the selected xref. This is useful when the original DWG file has changed and you want to see the updated version in your drawing.

Unload Xref

Unloads the selected xref. This hides the xref from view. You can also click the checkboxes in the Load column.

Bind Xref

Binds the xref to the current drawing to make the xref part of the drawing. References to the xref disappear from the Drawing explorer. (This option is not available for xrefs that are unloaded.)

This option sets the BINDTYPE system variable OFF (Traditional binding behavior), thus influencing the behavior of the Bind option of the -XREF command.

Insert Xref

Converts xrefs into blocks. This is like using the Insert command to insert external DWG files in drawings. References to the xref disappear from the Drawing explorer. (This option is not available for xrefs that are unloaded.)

Open Xref

Opens the xref DWG file for editing. See the XOPEN command.

Run extended search for missing attachments

Runs an extended search for missing attachments.

Relative path

Shows the Saved Path as a relative path.

Absolute path

Shows the Saved Path as an absolute path of the Xref file located in the drawing folder.

Filename as a path

Replaces the saved path with the file name.

10.33 EXTEND command

Extends or trims one or more open entities to a boundary entity.



Icon:

Alias: EX

10.33.1 Method

Choose one or more entities to use as boundaries entity (2). These are the entities to which subsequently picked entities are extended or press ENTER to choose all entities in the drawing as boundaries. There is no need to pick individual entities as boundaries, except in certain cases.



Chooses the entity to be extended (1). When another end of an entity could be extended to a boundary, BricsCAD extends the closest end to your pick point.



- 1 Entity to be extended
- 2 Boundary entity
- 3 Extended entity

Note: Switches to trim mode: press and hold the Shift key to select the part of an entity to be trimmed at the intersection with the nearest boundary entities. See the TRIM command.

10.33.2 Options

Fence

Allows fence selection, an irregular selection window.

Crossing

Allows crossing rectangle selection. The entities that cross the specified rectangle are extended.

Edge mode

Toggles edge mode.

Projection

Specifies how the entity is projected to the boundary.

No projection

Extends only those entities that intersect real boundaries in 3D space.

xy plane of Ucs

Projects entities and boundaries to the x,y - plane of the current UCS, and then extends the projected entities that would intersect projected boundaries.

current View

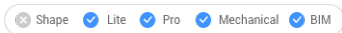
Projects entities into the current view, and then extends them accordingly.

eRase

Deletes selected entities.

10.34 EXTENSION command

Toggles the Extension entity snap.



Icon:

10.34.1 Description

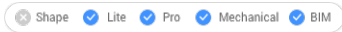
Toggles the Extension entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the



OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

10.35 EXTRACTBLOCKS command

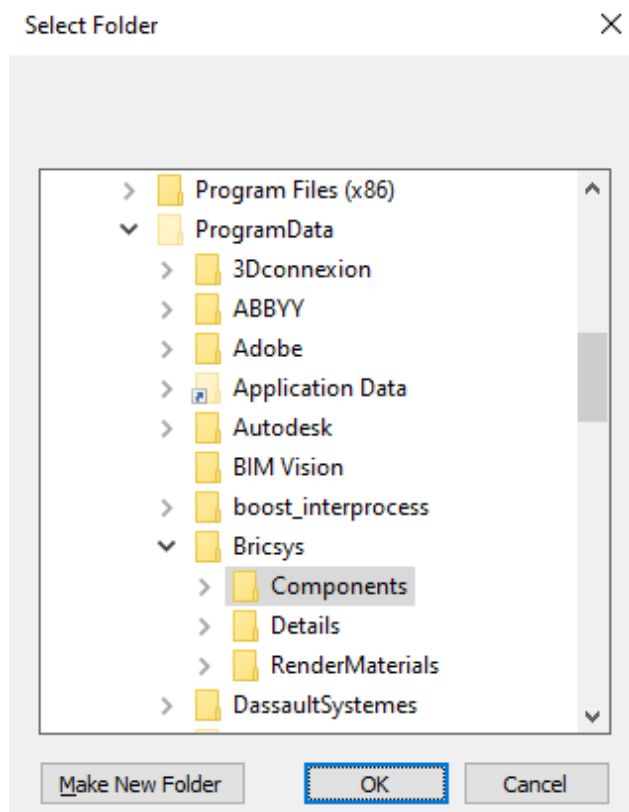
Extracts blocks to individual files.



10.35.1 Method

This command extracts a block instance from a drawing, creating a separate .dwg file in a user-specified location.

After selecting a block to extract, the Select Folder dialog box displays to choose the location for the new created .dwg file.



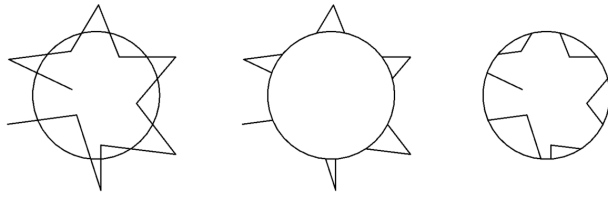
10.36 EXTRIM command (Express Tools)

Trims entities that cross a cutting edge.

10.36.1 Method

Select the cutting edge entity, then click on the side you want to erase the entities from.


Note: The cutting edge entities accepted are: 3D Face, Polyline, Line, Circle, Arc, Ellipse, Image, Text or Attribute Definition.



10.37 EXTRUDE command

Creates 3D solids or surfaces by extruding entities.



Icon: 

Alias: EXT

10.37.1 Description

Creates 3D solids or surfaces by extruding open or closed 2D entities, faces of 3D solids, regions or closed boundaries.

Note:

- The SELECTIONPREVIEW system variable must be set to 2 or 3 to highlight faces.
- Depending on the value of the DELOBJ system variable, the source entities are either retained or deleted. If not, you are prompted whether you want the entities deleted or not.

10.37.2 Method

There are two methods to extrude entities:

- Create 3D solids.
- Create surfaces.

10.37.3 Options within the command

MOde

Allows you to create either solids or surfaces.

SOLid

Creates 3D solids.

SURface

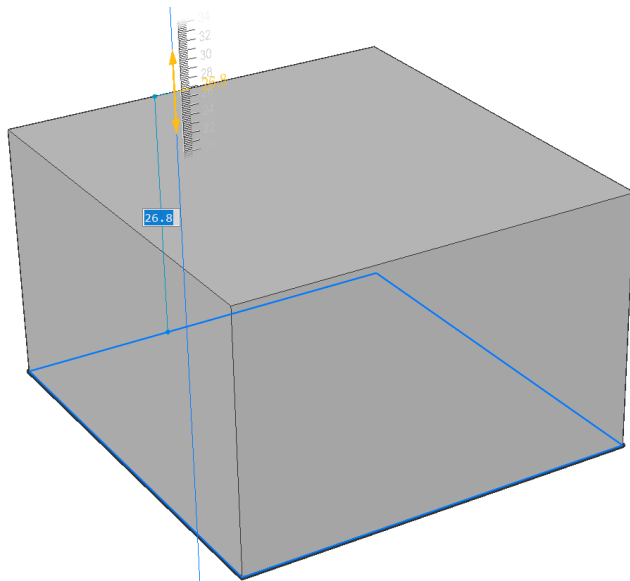
Creates surfaces.

Note: EXTRUDE does not extrude open 2D entities as 3D solids because they cannot be watertight.

Specify height of extrusion

Allows you to set a height of extrusion. The extrusion height is measured perpendicularly to the source entity.

Note: You can specify the height dynamically, using the **Manipulator**, or typing a distance value.



Direction

Allows you to specify the extrusion direction.

Path

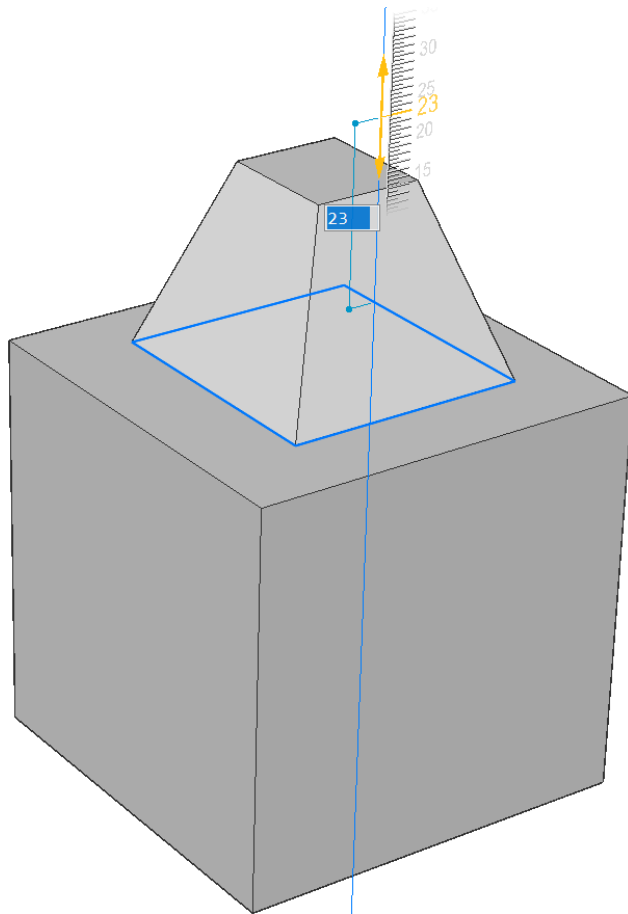
Specify the extrusion height and taper by another entity. The program uses the path to determine how to extrude the source entity.

Note: The path entity cannot lie in the same plane as the extrusion entity.

Taper angle

Specifies the taper angle for the extrusion. The angle is measured from the extrusion direction. A negative value tapers outwards.

Note: The angle must be shallow enough so that the sloping sides do not intersect after the top of the extrusion.



Auto

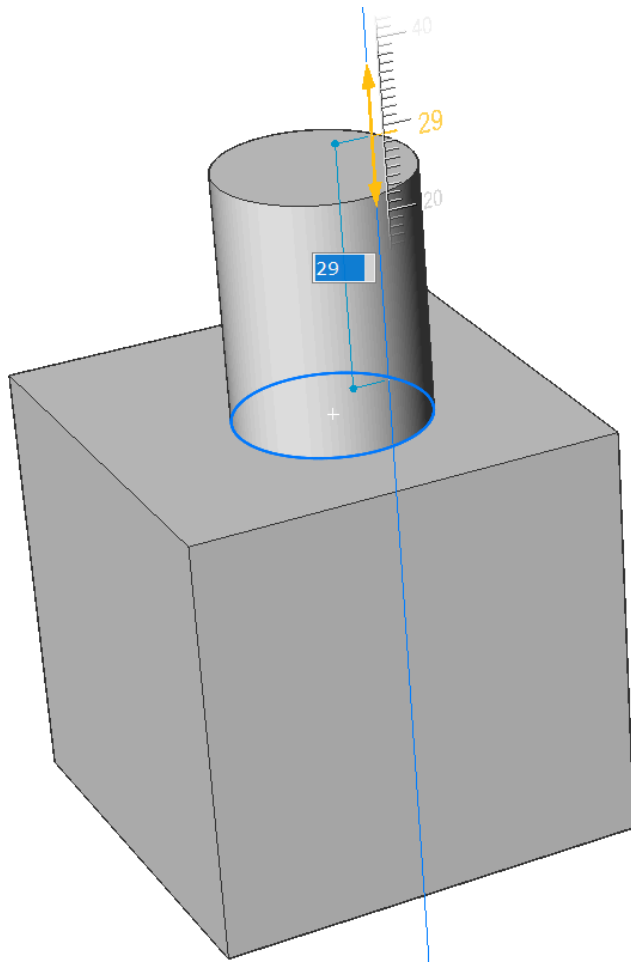
The result depends on the extrusion direction and the value of the four **Extrude mode** system variables: EXTRUDEOUTSIDE, EXTRUDEINSIDE, INTERSECTEDENTITIES and UNITESURFACES.

Note: The default value of all above **Extrude mode** system variables depends on the Workspace:

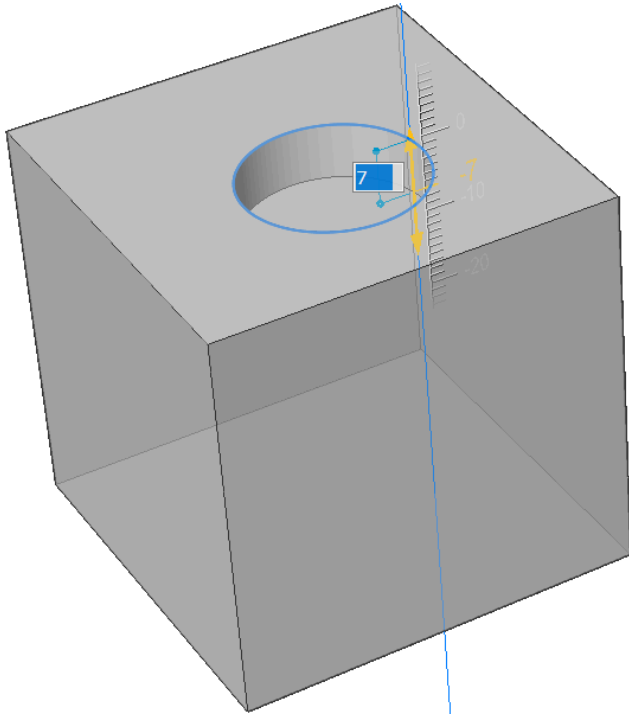
- **0** for Draft and Modeling.
- **1** for Mechanical and BIM.

For example, in the Mechanical and BIM workspaces if all Extrude Mode system variables have the default value, the extrude result is like below:

- When you highlight an entity and extrude it to the outward, a new volume is added.

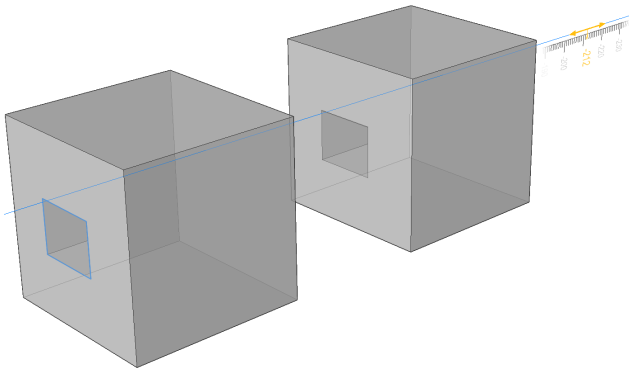


- When you highlight an entity and extrude it to the inward, a volume is subtracted from the main solid.



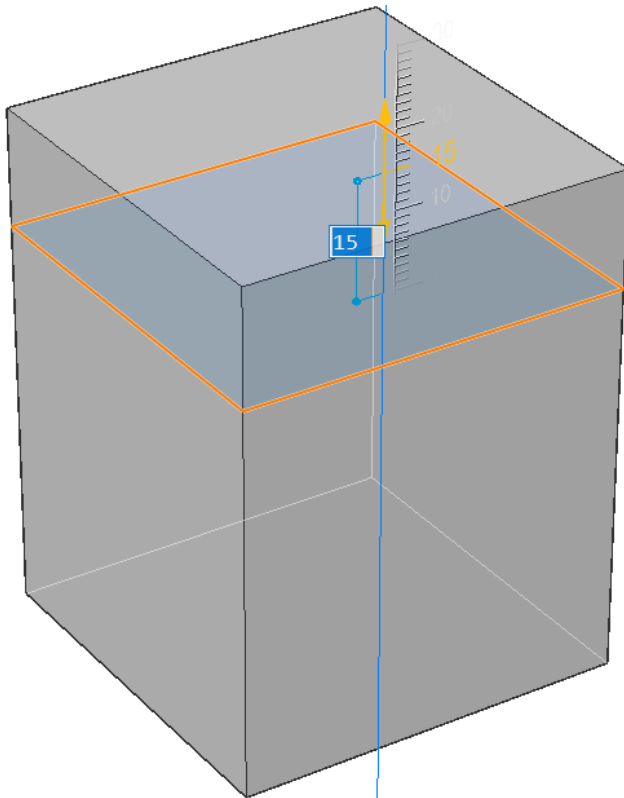
Subtract

The 3D solid is subtracted from each interfering existing solid.



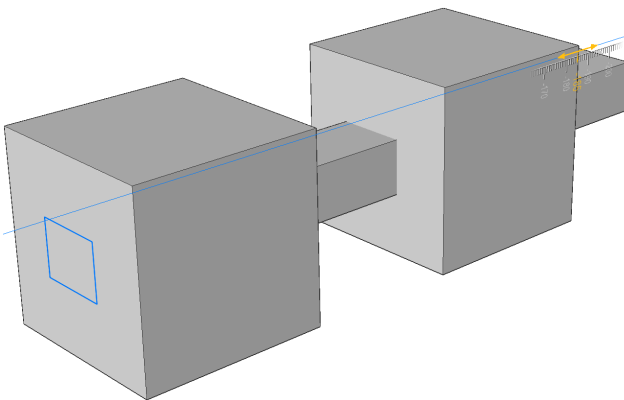
Create

A new volume or surface is created, regardless of the extrusion direction.



Unite

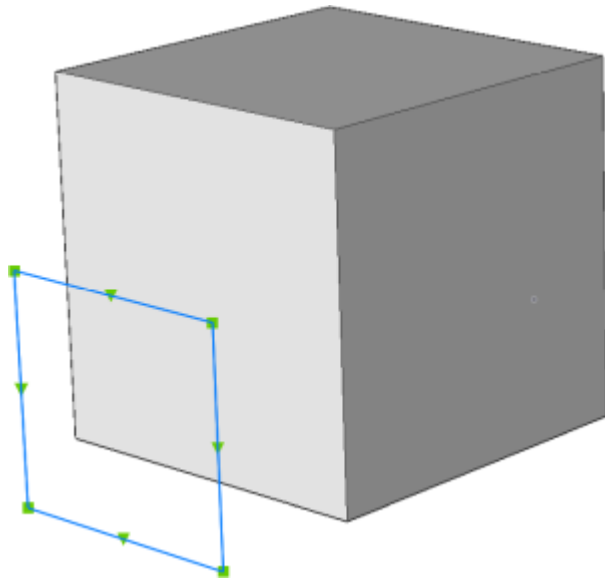
The new 3D solid is unified with each interfering existing solid.



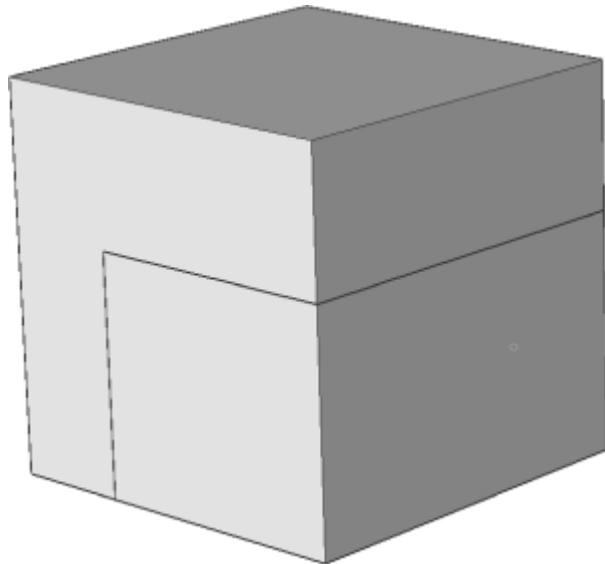
Slice

Cuts through solids with the extruded surface.

- Select an entity to be extruded.

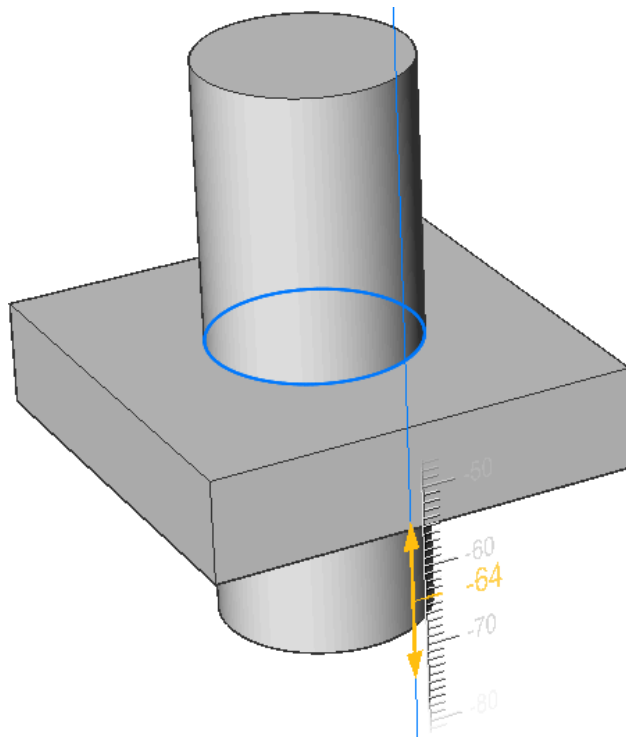


- The extruded surface cuts through solids.



Both sides

Extrudes symmetrically in both sides.



ALign

Allows you to select or to define an axis.

2Points

Define the extrusion direction by specifying two points.

Entity

Allows you to select an axial entity.

Last

Uses the previous axis.

View

Allows you to specify a point on view direction.

Xaxis

Sets the extrusion direction parallel to the X axis of the current UCS.

Yaxis

Sets the extrusion direction parallel to the Y axis of the current UCS.

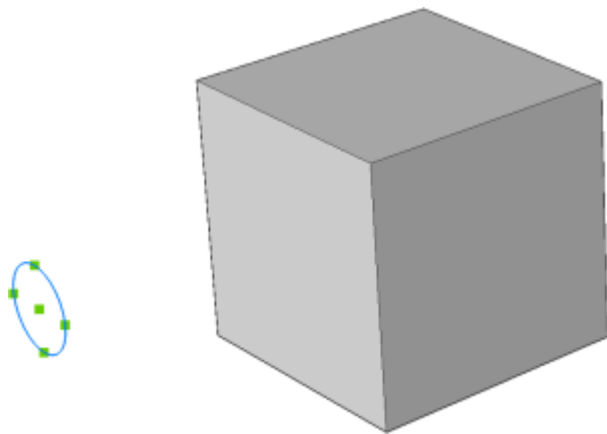
Zaxis

Sets the extrusion direction parallel to the Z axis of the current UCS.

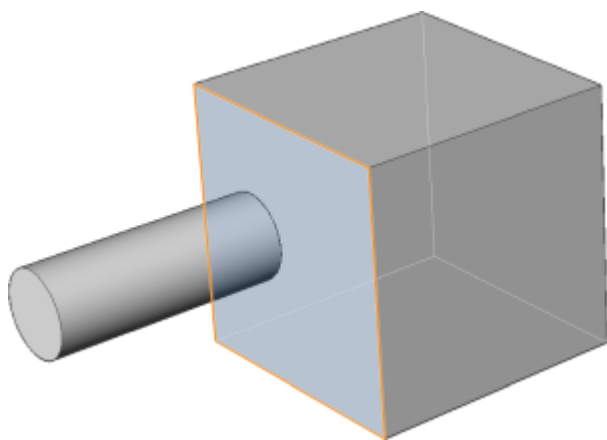
set Limit

Allows to limit the extrusion by the face of a solid.

- Select an entity to be extruded.



- Select a face as limit of the extrusion.



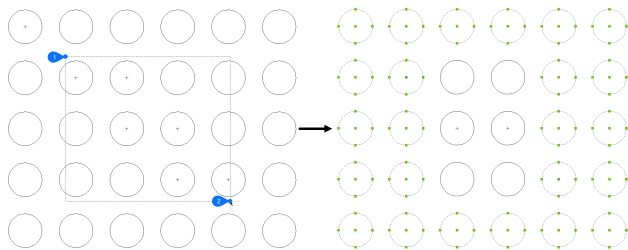
Note: If the HOTKEYASSISTANT system variable is ON, the **Hotkey Assistant** widget displays. Repeatedly press the Ctrl key during the dynamic display of the extrusion to cycle the various options

10.38 EXW command (Express Tools)

Selects all entities of your drawing except the ones inside a specified rectangle.

10.38.1 Method

Select the first (1) corner and the second (2) corner to draw a temporary rectangle. All entities in the drawing are selected except the ones inside the rectangle.



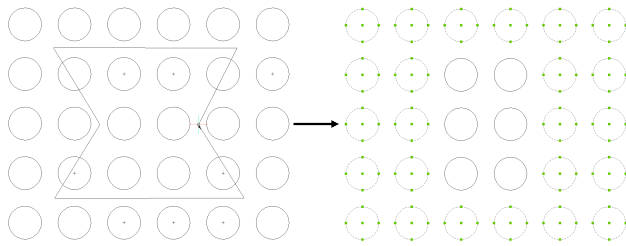
10.39 EXWP command (Express Tools)

Selects all entities in the drawing except the ones inside a specified polygon.



10.39.1 Method

Draw a temporary polygon. All the entities in your drawing will be selected except the ones enclosed by this polygon.






11. F

11.1 FASTSEL command (Express Tools)

Selects all entities that touch the selected entity.

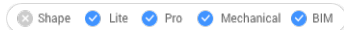
Icon: 

11.1.1 Method

The behavior of the FASTSEL command is controlled by the FSMODE command.

11.2 FBXEXPORT command

Exports 3D entities in the current drawing to FBX format.



Note: If you wish to export 2D entities, you must first give them a thickness.

11.2.1 Method

There are two methods to export to FBX format:

- Export all visible entities.
- Export only the selected entities.

11.2.2 Options within the command

Selected

Select the entities to be exported.

Visible

Exports all visible entities.

Note: This option excludes the entities on frozen or off layers, and those that are not visible in the current viewport.

Select

Prompts to select among entities, lights, cameras and materials.

All

Exports all entity types.

Embedded

Includes the texture files into the FBX file.

Reference to file

Adds a reference link in the FBX file to the location of the texture files.

Copy to file

Copies the texture files to the destination folder, separately from the FBX file.

Note: Texture files are not included in the FBX files when they are very large or when a common set of texture files are used by rendering and animation projects.



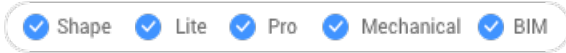
Enter path to export fbx file:

Specify the path to the folder in which to place the FBX file, or press Enter key to accept the path provided.

Note: Typing ~ displays the FBX export dialog box, which allows you to select a folder.

11.3 -FBXEXPORT command

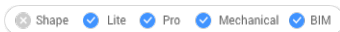
Exports 3D entities in the current drawing to FBX format.




See the FBXEXPORT command.

11.4 FIELD command

Opens the Field dialog box.



Icon: 

11.4.1 Method

Open the Field dialog box to create a field in the current drawing. After you select the field and choose **OK**, you are prompted at the Command line:

Specify start point

Specify a point in the current drawing where the field will be inserted.

Additional options: [Height/Justify]

Height

Specify the height of the field text.

Justify

Specify a justification for the field text.

11.5 FILEOPEN command

Opens files from the Command line.



11.5.1 Description

Opens drawing (DWG), template (DWT), and interchange (DXF) files from the command line, replacing the current drawing.

11.5.2 Options within the command

Save the changes to drawing file?

Specifies whether the current drawing should be saved or not.

Open Drawing

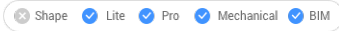
Type the name of the drawing, including path.



Note: Enter ~ to display the Open Drawing dialog box.

11.6 FILES command

Opens the operating system's file manager to access files.



11.7 FILL command

Toggles the FILLMODE system variable.



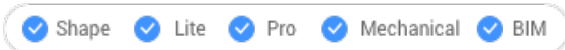
11.7.1 Description


Toggles the FILLMODE system variable to specify the display of filled 2D entities including polyline, hatch, solid, and trace entities. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'FILLMODE. You must use REGEN or REGENALL to see the change.

- On: turns on the FILLMODE system variable
- Off: turns off the FILLMODE system variable

11.8 FILLET command

Fillet intersections; joins intersecting lines with an arc of any suitable radius.



Icon: 

Alias: F

11.8.1 Description

Sets a radius value for fillet between two entities.

The entities could be:

- Lines, including parallel lines
- All vertices of a single 2D polyline; two polylines cannot be filleted
- Rays, including parallel rays
- Infinite lines, including parallel infinite lines
- Arcs

Note: Press and hold the Shift key when select the second entity to create a corner (radius = 0). The selected entities are extended or trimmed at the intersection point. The selected part of the entities is kept.

Note: If the second entity is parallel to the first entity the entities are connected by a semicircle. If the parallel entities are not of equal length, then the second entity is extended or trimmed when Trim Mode = Trim.



11.8.2 Options within the command

fillet Settings

Displays the Chamfer/Fillet section of the Settings dialog box:

Chamfer/Fillet	
Chamfer mode	[0] Distance-Distance
Chamfer first distance	0 mm
Chamfer second distance	0 mm
Chamfer length	0 mm
Chamfer angle	0
1 Fillet radius	10 mm
2 Trim mode	<input checked="" type="checkbox"/> Trim selected edges to the endpoints of chamfer lines and fillet arcs

- 1 Fillet radius - sets the radius of the fillet arc.
- 2 Trim mode - toggles whether the entities are trimmed back to meet the fillet radius.

Polyline

Fillets the all vertices of a polyline.

Radius

Toggles edge mode.

Trim

Sets the trim mode for chamfers and fillets:

Trim

Trims or extends the selected entities.

No trim

Creates the chamfer or fillet, but leaves the selected entities unchanged.

Undo

Undoes the last fillet when in Multiple mode.

Multiple

Lets to create additional fillets using the same settings without having to restart the command.

11.9 FIND command

Opens the Find and replace dialog box.



Icon:


11.9.1 Description

Opens the Find and replace dialog box to find and optionally replace strings of text in the current drawing. It searches for text in blocks, attributes, dimensions, and hyperlinks.

11.10 FINDOUTLIERS command

Finds any outlier outside of the valid area.

Shape Lite Pro Mechanical BIM

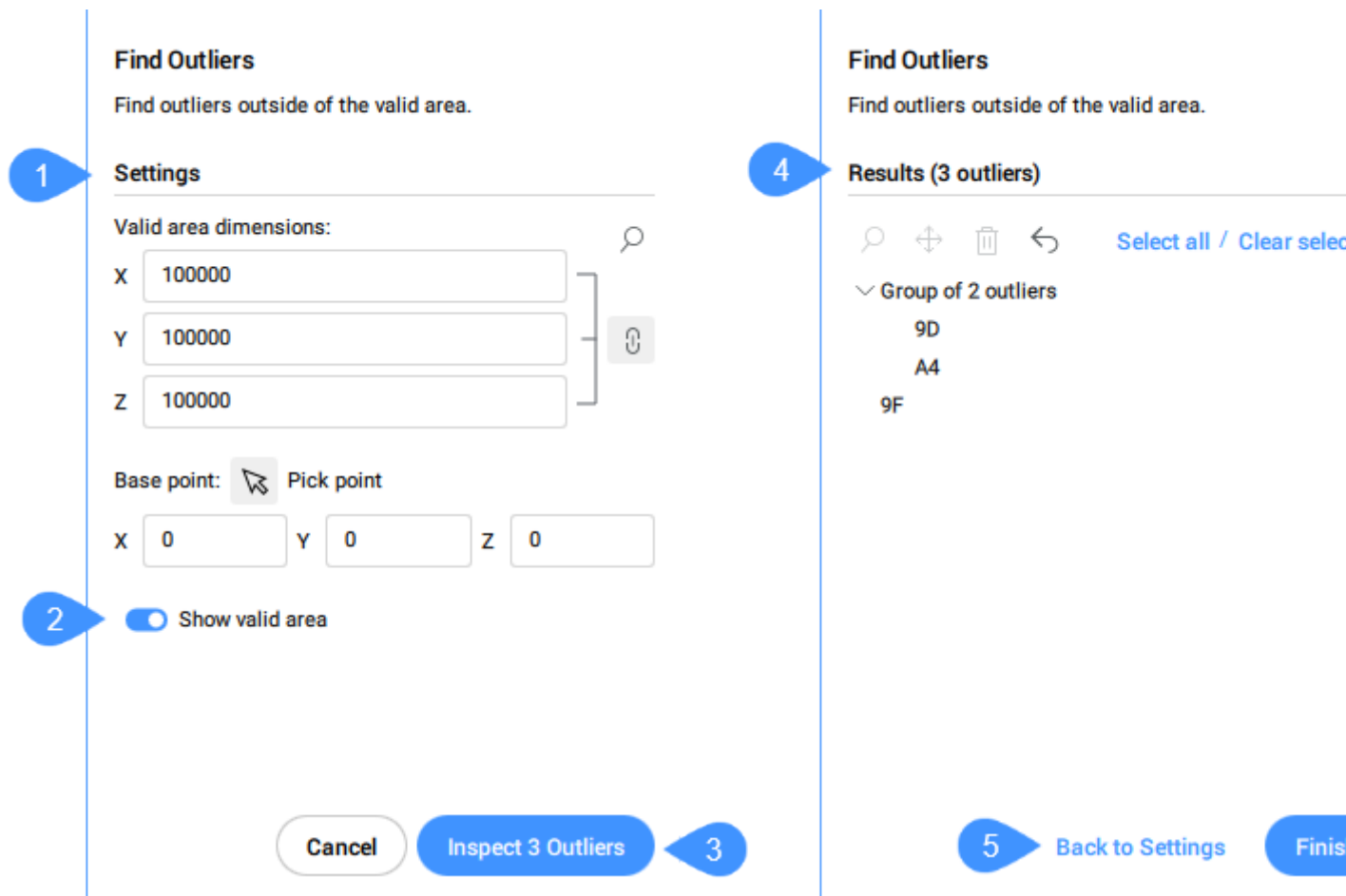
Icon: 

11.10.1 Description

Finds entities positioned at extreme coordinates which are hard to find. These entities are typically hard to detect and can make it difficult to manipulate the view, because it depends on the total extents of the drawing.

11.10.2 Method

The command opens the **Find Outliers** command panel.



- 1 Settings
- 2 Show valid area
- 3 Inspect Outliers
- 4 Results
- 5 Back to Settings
- 6 Finish



Note: The options within the FINDOUTLIERS command line are identical to the options in the **Find Outliers** command context panel.

11.10.3 Settings



Valid area dimensions

Sets the valid area of the drawing. The entities outside this area are considered to be at extreme coordinates and are listed in the **Results** section of the **Find Outliers** command panel.

Note: In the Command line, the **change Dimension** option allows you to set the valid area dimensions.

The default value for the X, Y and Z dimensions is 100000.

Note:

- Click the **Sync all dimensions**  button to sync or unsync all dimension.
 - When the link button is On and you modify one dimension, the other two dimensions change to the same value.
 - If the dimensions have different values and you turn On the link button, the Y and Z values change to the same value as X.
- The valid area is graphically displayed in the model space by a transparent green box.
- The unit used depends on the template you are working in. For example, if you are working in the Default-mm template, the unit for the valid area is mm.
- In the Command line, the **Keep all dimension identical** option defines if all dimensions will be modified at once.
- Click the magnifying glass icon  to zoom to extents.

Base point

Sets the base point of the valid area. You can pick a point in the drawing or enter the coordinates. By default, it is set to the origin of the drawing (0,0,0).





11.10.4 Show valid area

Enables/Disables the display of the valid area.

11.10.5 Inspect Outliers

Displays the **Results** section.

11.10.6 Results

Displays the outliers found in the drawing. You can select the outlier by clicking it. The entity is then selected in the drawing. After selecting an outlier, you can press the magnifying glass icon  to zoom in, the move icon  to **Move to valid region origin** or in any other place, or the trashcan icon  to delete it. Also, you can undo the move or delete actions by pressing the undo icon .



The same options are available in the context menu opened by right clicking the selected outliers.

Note: After moving an outlier to the valid region, the list of outliers will be updated accordingly.



Outliers that lie close to each other are clustered as a group. When selecting a group of outliers, all the elements in the group are selected at once to zoom in on them, move, or delete them. If there is only one group present, the entities are listed individually, and not clustered in a group.

Note: You cannot modify the selected entity while the command is running.

When selecting outliers, a widget appears in the drawing area. The widget gives you control to zoom in () to the entity attached to it or zoom out () when clicking it again.

Note:

- Click the widget of a cluster to zoom to the extents of the cluster. The zoom widget of the cluster disappears and individual widgets get displayed for the individual outliers in the cluster.
- If you select more than 1 cluster in the command panel list (for example: 2 clusters, or 1 cluster and 4 individual outliers) and use the action menu to zoom to them, widgets are only displayed for the entire clusters, not on the level of the individual outliers in the cluster.
- If you select one cluster in the command panel list and use the action menu to zoom to them, all individual outliers of the cluster have a widget.
- Selected visible outliers that do not belong to a cluster have a widget.

11.10.7 Back to Settings

Goes back to the **Settings** section.

11.10.8 Finish

Closes the **Find Outliers** command panel and keeps the selected outliers.

11.11 FITARC command

Fits an arc or a circle to entities.



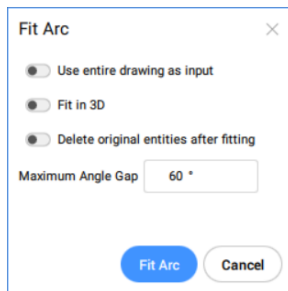
11.11.1 Description

Draws an arc or circle fitted to one or more entities. The command minimizes accumulated perpendicular distances to the points of the selected entity(ies).

A realistic use case is a production company of advertisement cardboard. Typically, the 2D CAD files to pass to the cutting machine are imported from other design software, where polylines and splines are the typical 2D curve entity types. Take the example where the machine has to cut a half-circle in the cardboard, and the half-circle is represented by a polyline with a lot of small subsequent linear segments. When passing this drawing to the cutting machine, the machine will make a sequence of many of small cuts. After each cut, the machine has to stop, change orientation and restart. For each stop-change-restart action, there is a chance for errors. This would not only lead to a much longer cutting time, also the resulting cut will be suboptimal and look rough. In this case, FITARC could be used to turn this polyline into an ARC, leading to one fast and smooth cut operation.

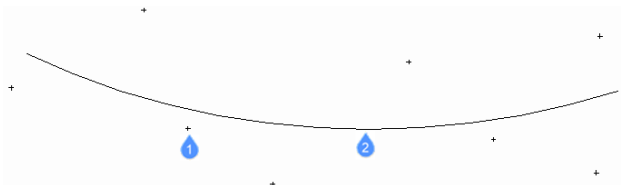
11.11.2 Methods

This command opens the **Fit Arc** command panel.

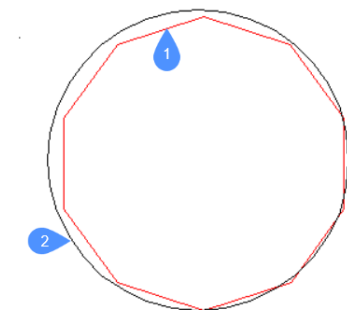


The options within the FITARC command are the same as the options in the **Fit Arc** command panel.

The entities and the results of this command are shown in the examples below:



- 1 Points used by the command to fit the arc.
- 2 Arc fitted to the points.



- 1 Polyline used by the command to fit the arc.
- 2 Arc fitted to the polyline.

11.11.3 Options within the command

use Entire drawing

Use all entities in the drawing as input.

Fit in 3d

This option applies when one or more input entities do not lie in the XY-plane.

If checked, the resulting arc or circle is created in 3D space, otherwise the input entities are projected onto the XY-plane first.



Note: The XY plane used for projection is the one of the current UCS (User Coordinate System). This allows the user to make the fit in any plane.

Delete original entities after fitting

When this option is set to **Yes**, the initial entities are deleted.

maximum Gap angle

Defines the threshold value for the maximum angle gap between the characteristic points of the input entities. If the maximum gap angle is larger than the threshold value, an arc is created. Otherwise, a circle is created.

selection options (?)

Allows to choose a selection method. See the SELECT command.

Note: The options **Use entire drawing**, **Fit in 3d**, and **Delete original entities after fitting** can be set using the system variable FITLINEFITARCMODE. The option **Maximum gap angle** can be set using the FITARCMAXGAP system variable.

11.12 FITLINE command

Fits a line to entities.



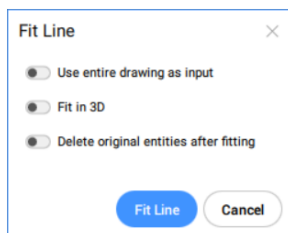
11.12.1 Description

Draws a line fitted to one or more entities. This command minimizes accumulated perpendicular distances to the points of the selected entities.

The FITLINE command works on any input entity type, so can be applied in various real life use cases. You can use it to draw a line which optimally matches a set of scanned points in the XY-plane. You can use FITLINE to find the optimal line that fits a multi-segment polyline or spline curve that goes up and down.

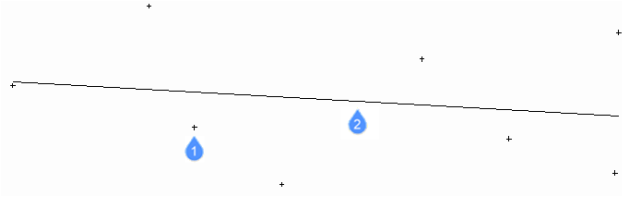
11.12.2 Methods

The command opens the **Fit Line** command panel.

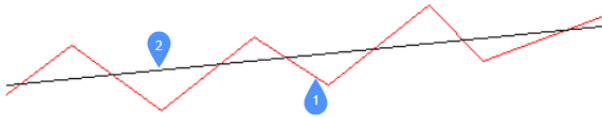


The options in the FITLINE command are the same as the options in the **Fit Line** command panel.

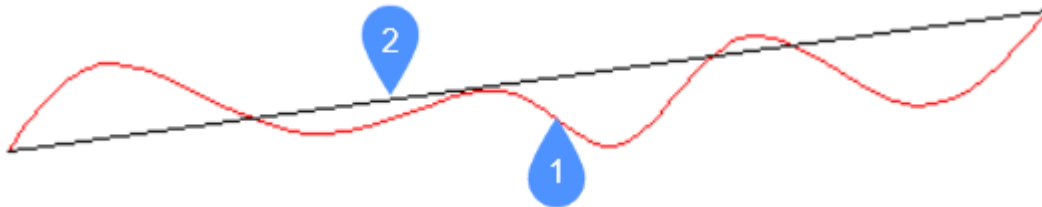
The entities and the results of this command are shown in the examples below:



- 1 Points used by the command to fit the line.
- 2 Line fitted to the points.



- 1 Polyline used by the command to fit the line.
- 2 Line fitted to the polyline.



- 1 Spline used by the command to fit the line.
- 2 Line fitted to the spline.

11.12.3 Options within the command

use Entire drawing

Use all entities in the drawing as input.

Fit in 3d

This option applies when one or more input entities do not lie in the XY-plane.

If checked, the resulting line is created in 3D space, otherwise the input entities are projected onto the XY-plane first.

Note: The XY plane used for projection is the one of the current UCS (User Coordinate System). This allows the user to make the fit in any plane.

Delete original entities after fitting

When this option is set to Yes, the initial entities are deleted.

selection options (?)

Allows to choose a selection method. See the SELECT command.


Note: The options **Use entire drawing**, **Fit in 3d**, and **Delete original entities after fitting** can be set using the FITLINEFITARCMODE system variable.

11.13 FITPOLYLINE command

Fits polylines to entities.



Shape Lite Pro Mechanical BIM

Icon: 

11.13.1 Description

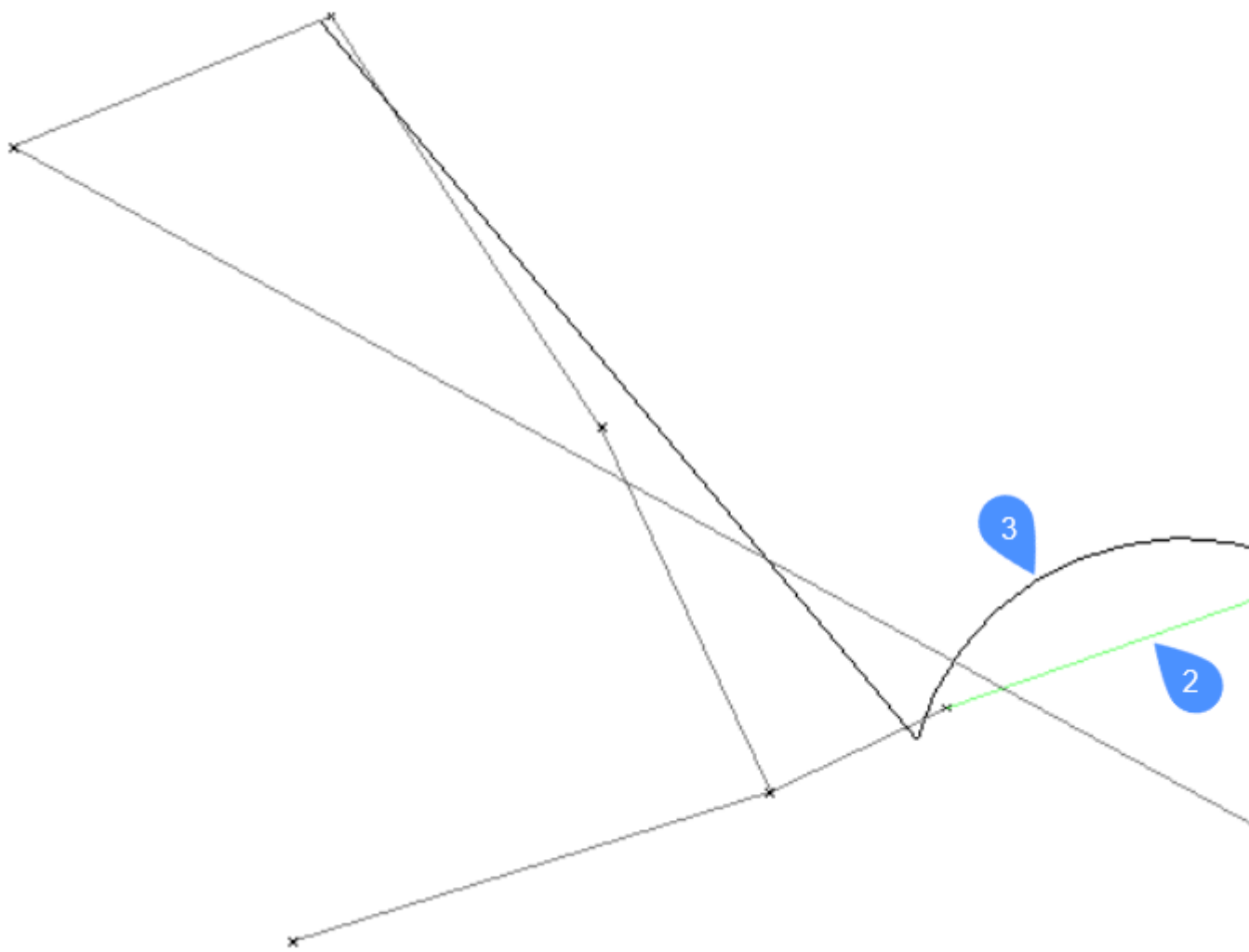
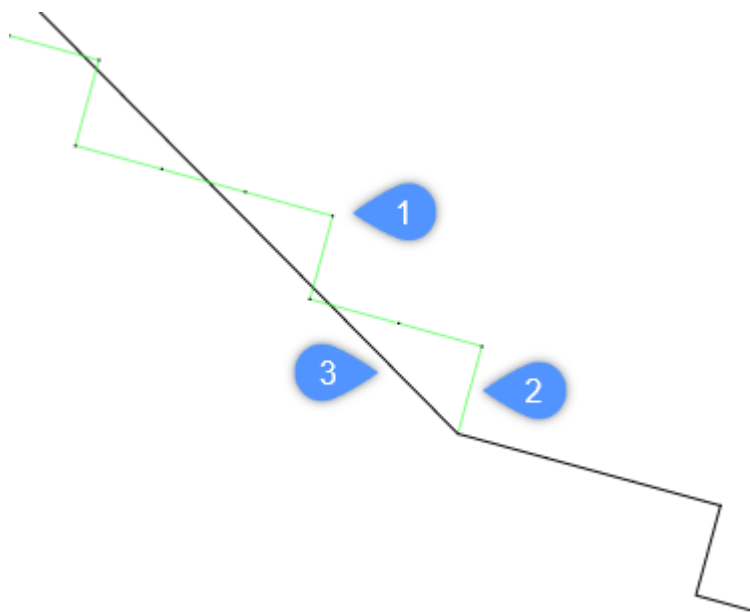
Draws one or multiple polyline entities, fit to the characteristic points of the input entities. The command minimizes accumulated perpendicular distances to the points of the selected entities. The command works with every type of entity, as long as it has characteristic points.

11.13.2 Method

There are two ways to define the input to the FITPOLYLINE command:

- Select fitting entities: choose the entities to which the polyline should be fit.
- Use entire drawing: select all non-frozen entities in the current viewport.

Pick a point for Start of polyline. The guideline is used as a visual aid for the user, helping to pick the envisioned polyline vertices.



- 1 The points used by the command to fit the polyline.
- 2 The suggested guideline.
- 3 The polyline.



11.13.3 Options within the command

use Entire drawing

Selects all non-frozen entities in the current viewport.

Select fitting entities

Allows you to select the entities to which the polyline should be fit.

Note:

- If you select a point cloud and a section, the FITPOLYLINE command automatically looks for points inside that section and works with these points.
- If you select a point cloud but not a section, the application asks to select a section.
- If you select a section but not a point cloud, the application asks to select a point cloud.

Selection contained multiple pointclouds, select one

Allows you to select a specific point cloud.

Note: This option becomes available when there is more than one point cloud in the selection set.

Selection contained multiple sections, select one

Allows you to select a specific section.

Note: This option becomes available when there is more than one section in the selection set.

change section crop mOde

Allows you to choose between **points Inside section** and **points Below section**.

Start the polyline

Choose a point and start the polyline.

fit Lines

Fits a linear polyline segment to the points between the last fixed polyline vertex and the mouse position.

Note: See the FITLINE command.

fit Arcs

Fits an arc polyline segment between the points between the last fixed polyline vertex and the mouse position.

Note: See the FITARC command.

Best fit

The algorithm automatically decides whether a linear or an arc polyline segment is best suited to fit the points between the last fixed polyline vertex and the mouse position.

Note: If the HOTKEYASSISTANT system variable is set ON, press the **Ctrl** key to cycle between the fit options.

Undo

Undoes the last action.

Close polyline

Closes the polyline.

start New polyline

Starts a new polyline.



Note: Press the **Esc** key once to end the current polyline and start a new polyline.

Note: Press the **Esc** key twice to finish the command.

Finish

Finishes the command.

11.14 FLATSHOT command

Creates a flattened, hidden line representation of a 3D model.



Icon:

11.14.1 Description

Opens the **Flatshot** dialog box to create a flattened, hidden line representation of a 3D model as a block or a new drawing.

11.15 FLATTEN command

Flattens 2D and 3D entities.



Icon:

11.15.1 Description

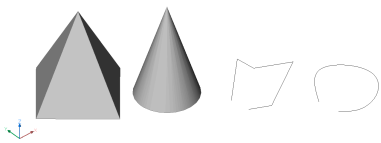
Flattens 2D and 3D entities by projecting them onto the XY-plane of the current view.

Note: The PERSPECTIVE system variable must be set to 0.

11.15.2 Method

The entities will be projected onto the XY plane of the current view. In top view, the entities will be projected onto the XY-plane of the current coordinate system (WCS or UCS).

Entities before FLATTEN command:



Entities after FLATTEN command:



- Pyramid converted to a square with its diagonals.
- Cone becomes a circle with a point in the center.



- 3D polyline and spline are converted to 2D polylines.

11.15.3 Options within the command

new ucs Elevation

Specifies the new elevation for the resulting 2D entities.

Note: The elevation and thickness of the 2D entities can be changed with the ELEV command.

allow EXplode

Explodes compounded entities, such as 3D solids.

11.16 FLIPLINE command

Creates a line, used to flip the entities of a block.



11.16.1 Methods

This command is used with 2D parametric blocks.

The FLIPLINE command allows you to draw a line used as a reference axis for flipping the selected entities of the block. When the flip line is created, it has a green color and it is moved to a special layer named FLIPLINES.

The FLIPLINE command will automatically create a special type of parameter and will associate it to the flip line entity. This parameter has two possible values: **Not Flipped** and **Flipped**.

The flip of the block will occur when the value of the flip parameter is changed. You can access this parameter in the **Parameters Manager** panel. Another way to change the flip parameter is to select the block and open the **Properties** panel, in the **Parameters** section.

When the flip parameter is set to **Not Flipped**, the block is in its default configuration, as it was drawn.

When the flip parameter value is changed to **Flipped**, the block is flipped around the flip line.

Note: Creating a flip line is equivalent to drawing a line using the **Line** command.

11.16.2 Options within the command

Specify what to flip

Specifies the mode to select entities to be flipped.

Select entities to flip

Selects which entities should be flipped.

flip Everything

Selects all entities in the drawing for flipping.

Angle

Specifies the angle of the line segment.

Length

Specifies the length of the line segment.



Undo

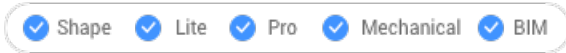
Undoes the last line segment and continues drawing from its previous start point.

Close

Automatically draws a line from the end point of the last segment to the start point of the first segment.

11.17 FROM command

Allows you to enter relative coordinates with respect to a reference point whenever a command prompts you to enter a point.



Icon:

Note: From is a command modifier, not a command, and so it is entered only during a drawing or editing command.

Note: This command is useful for starting entities offset from another entity, such as inserting a door relative to the end of a wall.

11.17.1 Options within the command

Base point

Pick a point or enter coordinates to specify the base point.

Offset or regular point

Enter the offset by specifying relative coordinates, using the @x,y,z format

11.18 FS command (Express Tools)

Selects all entities that touch the selected entity.

Icon:

11.18.1 Method

The behavior of the FS command is controlled by the FSMODE command.

11.19 FSMODE command (Express Tools)

Controls the chain selection during the FS or FASTSEL commands.

11.19.1 Options within the command

OFF

Only the entities that touch the selected entity are selected.

ON

All entities that touch the selected entities and the ones that touch those are selected. The selection goes on until all the connecting entities are selected.



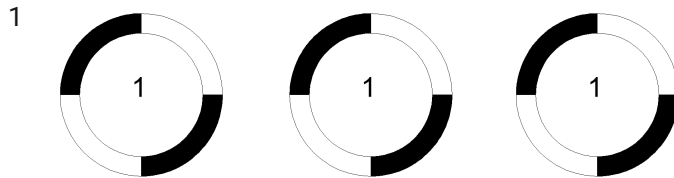
12. G

12.1 GATTE command (Express Tools)

Changes the attribute values for all instances of a specified block.

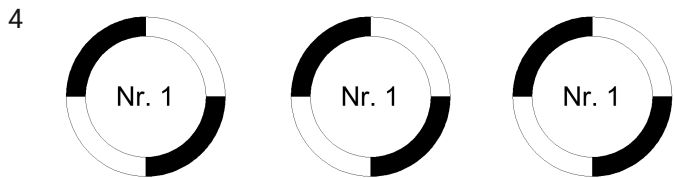
12.1.1 Method

1 Enter a block name or select an attribute.



2 Enter the new text.

3 Reports the number of blocks found and changes the attribute value.



12.1.2 Options within the command

Yes

Automatically changes all attribute values.

No

Allows you to select the attributes you want to change.

12.2 GCCOINCIDENT command

Creates a coincident geometric constraint on 2D entities.



Icon:

12.2.1 Description

Creates a coincident constraint to ensure a point on an entity remains coincident with a specified point or entity.

12.2.2 Methods to create a coincident constraint

This command has 3 methods to begin creating a coincident constraint:

- Select first point
- Entity
- Autoconstrain



Select first point

Begin creating a coincident constraint by specifying a point on an entity then:

Select second point

Specify a point on an entity to make coincident with the first point. The point on the first entity maintains its position while the second entity adjusts, as necessary, to become coincident.

Additional Options: [Entity]

Entity

Begin creating a coincident constraint by selecting an entity then:

Select a point

Specify a point on an entity to make coincident with the first entity. The first entity maintains its position while the point on the second entity adjusts, as necessary, to become coincident.

Additional Options: [Multiple]

Autoconstrain

Create coincident constraints by selecting all entities to which you want to apply relevant coincident constraints.

12.2.3 Options within the GCCOINCIDENT command

After you begin creating a coincident constraint, the following option may be available:

Multiple

Create multiple coincident constraints until you press Enter to end the command.

12.3 GCCOLINEAR command

Creates a colinear geometric constraint on 2D entities.



Icon:

12.3.1 Description

Creates a colinear constraint to ensure two or more linear entities remain colinear.

12.3.2 Methods to create a colinear constraint

This command has 2 methods to begin creating a colinear constraint:

- Select first entity
- Multiple

Select first entity

Begin creating a colinear constraint by selecting a linear entity then:

Select second entity

Select a linear entity to make colinear to the first one. The first entity maintains its position while the second entity adjusts, as necessary, to become colinear.

Multiple

Begin creating more than one colinear constraint by specifying the Multiple option then:



Select first entity

Select a linear entity then:

Select entity to make collinear to the first

Select a linear entity to make colinear to the first one. You can continue adding colinear constraints to other entities until you press Enter to end the command. The first entity maintains its position while subsequent entities adjust, as necessary, to become colinear.

12.4 GCCONCENTRIC command

Creates a concentric geometric constraint on 2D entities.



Icon:

12.4.1 Description

Creates a concentric constraint to ensure two circular or elliptical entities remain concentric.

12.4.2 Method to create a concentric constraint

This command has 1 method to begin creating a concentric constraint:

- Select first entity

Select first entity

Begin creating a concentric constraint by selecting a circular or elliptical entity then:

Select second entity

Select a circular or elliptical entity to make concentric with the first entity. The first entity maintains its position while the second entity moves, as necessary, to become concentric.

12.5 GCENTER command

Toggles the Geometric center entity snap.



Icon:

12.5.1 Description

Toggles the Geometric entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

12.6 GCEQUAL command

Creates an equal geometric constraint on 2D entities.





Icon: =

12.6.1 Description

Creates an equal constraint to ensure circular entities maintain equal radii or linear entities maintain equal lengths.

12.6.2 Methods to create an equal constraint

This command has 2 methods to begin creating an equal constraint:

- Select first entity
- Multiple

Select first entity

Begin creating an equal constraint by selecting an arc, circle, line, or polyline segment then:

Select second entity

Select a similar entity to make equal to the first. The first entity maintains its radius or length while the radius or length of the second entity updates to match the first entity.

Multiple

Begin creating more than one equal constraint by specifying the Multiple option then:

Select first entity

Select an arc, circle, line, or polyline segment.

Select entity to make equal to the first

Select a similar entity to make equal to the first. Continue selecting similar entities until you press Enter to end the command. The first entity maintains its radius or length while the radius or length of all subsequent entities update to match the first entity.

12.7 GCFIX command

Creates a fixed geometric constraint on 2D entities.



Icon:

12.7.1 Description

Creates a fixed constraint on a point or entity to maintain its position in the drawing.

12.7.2 Methods to create a fixed constraint

This command has 2 methods to create a fixed constraint:

- Select point
- Entity

Select point

Create a fixed constraint by specifying a point on an entity. The point maintains its position while other geometry moves, as necessary, to maintain other constraints.

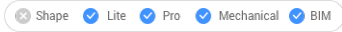



Entity

Create a fixed constraint by selecting an entity. The entity maintains its position while other geometry moves, as necessary, to maintain other constraints.

12.8 GCHORIZONTAL command

Creates a horizontal geometric constraint on 2D entities.



Icon: 

12.8.1 Description

Creates a horizontal constraint to ensure a linear entity or pair of points remains parallel to the x-axis.

12.8.2 Methods to create a horizontal constraint

This command has 2 methods to begin creating a horizontal constraint:

- Select an entity
- 2 Points

Select an entity

Create a horizontal constraint by selecting a linear entity to make parallel to the x-axis.

2 Points

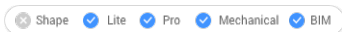
Begin creating a horizontal constraint by specifying the first point to make parallel to the x-axis then:


Select Second Point:

Specify the second point to make horizontal to the x-axis. The first point maintains its position while the second point moves to become horizontal with the first point.

12.9 GCPARALLEL command

Creates a parallel geometric constraint on 2D entities.



Icon: 

12.9.1 Description

Creates a parallel constraint to ensure linear entities remain parallel to each other.

12.9.2 Methods to create a parallel constraint

This command has 1 method to create a parallel constraint:

- Select first entity

Select First Entity

Begin creating a parallel constraint by selecting a linear entity then:

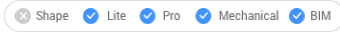


Select Second Entity

Select a second linear entity to make parallel to the first. The first entity maintains its position while the second entity moves, as necessary, to become parallel to the first entity.

12.10 GCPERPENDICULAR command

Creates a perpendicular geometric constraint on 2D entities.



Icon:

12.10.1 Description

Creates a perpendicular constraint to ensure linear entities remain perpendicular to each other.

12.10.2 Methods to create a perpendicular constraint

This command has 1 method to begin creating a perpendicular constraint:

- Select first entity

Select First Entity

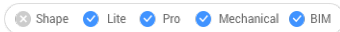
Begin creating a perpendicular constraint by selecting a linear entity then:

Select Second Entity

Select a second linear entity to make perpendicular to the first. The first entity maintains its position while the second entity moves, as necessary, to become perpendicular to the first entity.

12.11 GCSMOOTH command

Creates a smooth geometric constraint on 2D entities.



Icon:

12.11.1 Description

Creates a smooth constraint to ensure two splines maintain fluid geometric continuity between them.

12.11.2 Methods to create a smooth constraint

This command has 1 method to begin creating a smooth constraint:

- Select first spline entity

Select first spline curve

Begin creating a smooth constraint by selecting a spline curve then:

Select second curve

Select a second spline entity. The first spline maintains its position while the second spline stretches, as necessary, to smoothly connect to the first spline.

12.12 GCSYMMETRIC command

Constrains a symmetric geometric constraint on 2D entities.



Shape Lite Pro Mechanical BIM

Icon: 

12.12.1 Description

Creates a symmetric constraint to ensure two entities remain symmetric with respect to a selected line.

12.12.2 Methods to create a symmetric constraint

There are two methods to begin creating a symmetric constraint:

- Select first entity
- 2 Points

Select First Entity

Begin creating a symmetric constraint by selecting a 2D entity then:

Select Second Entity

Select an entity to make symmetric to the first entity then:

Select Line of symmetry:

Select a line to act as a mirror line between the two entities. The first entity maintains its position while the second entity adjusts, as necessary, to become symmetric about that line.

2 Points

Begin creating a symmetric constraint by selecting a valid point on a 2D entity then:

Select second point

Select a second valid point on a 2D entity to make symmetric with the first point.

Select line of symmetry

Select a line to act as a mirror line between the two entities. The first point maintains its position while the second point adjusts, as necessary, to become symmetric about that line.

12.13 GCTANGENT command

Creates a tangent geometric constraint on 2D entities.

Shape Lite Pro Mechanical BIM

Icon: 

12.13.1 Description

Creates a tangent constraint to ensure curved entities remain tangent to another curved or linear entity.

12.13.2 Methods to create a tangent constraint

This command has 1 method to begin creating a tangent constraint:

- Select first entity

Select First Entity

Begin creating a tangent constraint by selecting a linear or curved entity then:

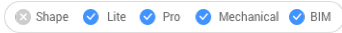


Select Second Entity

Select a second entity to make tangent to the first. The first entity maintains its position while the second entity moves, as necessary, to become tangent to the first entity. At least one curved entity must be selected per tangent constraint.

12.14 GCVERTICAL command

Creates a vertical geometric constraint on 2D entities.



Icon: 

12.14.1 Description

Creates a vertical constraint to ensure a linear entity or pair of points remains parallel to the y-axis.

12.14.2 Methods to create a vertical constraint

This command has 2 methods to begin creating a vertical constraint.

- Select an entity
- 2 Points

Select an entity

Create a vertical constraint by selecting a linear entity to make parallel to the y-axis.

2 Points

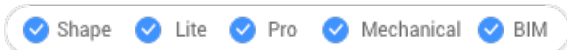
Begin creating a vertical constraint by specifying the first point to make parallel to the y-axis then:

Select Second Point:

Specify the second point to make horizontal to the y-axis. The first point maintains its position while the second point moves to become vertical with the first point.

12.15 GENERATEBOUNDARY command

Generates a closed polyline or spline around the boundary of a flat, closed area.



Icon: 

12.15.1 Description

Generates a closed polyline or spline around the boundary of a planar closed area, a planar face of a 3D solid or around the area of a hatch pattern.

12.15.2 Method

Select a planar enclosed point to generate a boundary by picking a point inside one of the following entities:

- Closed planar area
- Planar face on a 3D solid; to select the face of a 3D solid hold down the Ctrl key.



- Hatch pattern


The resulting boundary are:

- Polyline - when the boundary is polygonal (has corners, like a square)
- Spline - when the boundary is curved, like a spline.

12.16 GEOGRAPHICLOCATION command

Opens the Geographic location dialog box.



Icon: 

Alias: GEO

12.16.1 Description

Opens the Geographic location dialog box to apply a longitude and latitude to a point in the current drawing.

12.17 GEOIMPORT command

Imports a drawing with respect to the geographic location.



12.17.1 Description

Imports a drawing with respect to the geographic location in the source and the target drawing.

Note: The geographic location must be defined in both the source and the target drawing.

12.17.2 Method

This command displays the Open drawing file dialog box, which allows you to select either a Standard Drawing File (*.dwg) or a Drawing Exchange Format (*.dxf).

12.18 GEOMAP command

Sets the visibility of online maps.



12.18.1 Description

Sets the visibility and the map style of online maps from the Microsoft Bing Service in the current viewport.

Note: Make sure the geographical location and coordinate system is set using the GEOGRAPHICLOCATION command.

12.18.2 Options within the command

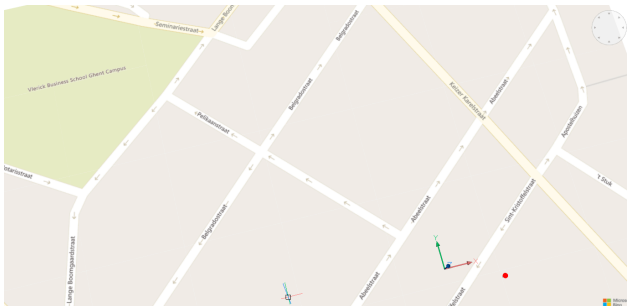
Aerial

The map is displayed in the **Aerial** map style.



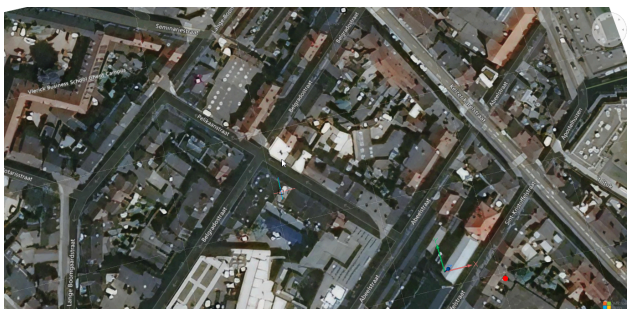
Road

The map is displayed in the **Road** map style.



Hybrid

The map is displayed in the **Hybrid** map style, combining **Aerial** with **Road** map styles.

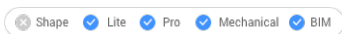


Off

Hides the geographical map.

12.19 GEOMAPIMAGE command

Creates an image capture of online maps.



12.19.1 Description

Creates a rectangle image capture of an Microsoft Bing online map and embeds it in the drawing.

Note: You can use the GEOMAPIMAGETYPE, GEOMAPIMAGERESOLUTION and GEOMAPIMAGEUPDATE commands to further manage the map image.



12.19.2 Method

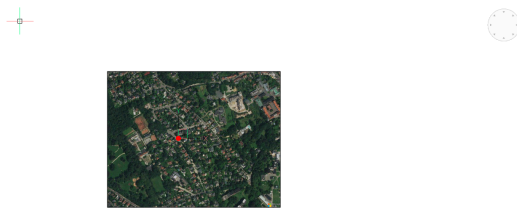
Select the area on the Microsoft Bing map of which you want to create a capture. An embedded image of the online maps is then created, and a frame is displayed on the map indicating the created image capture.

Note: Before creating a map image capture, you first have to run the GEOGRAPHICLOCATION command to define and store a geographic location for the current drawing and run the GEOMAP command to set an online maps style.



The size and/or the position of the map image frame can then be adjusted and the map image is updated accordingly.

Note: To keep only the map image capture visible, run the GEOMAP command again and select the **Off** option.



Note: The Microsoft copyright and watermark is added in the bottom right corner of the map image.

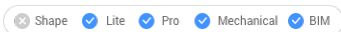
12.19.3 Options within the command

Viewport

Sets the current viewport as frame for the capture image of online maps.

12.20 GEOMAPIMAGERESOLUTION command

Sets the resolution for a map image.



12.20.1 Description

Sets the resolution for the map image that was created with the GEOMAPIMAGE command.

12.20.2 Options within the command

Coarse

Sets the resolution of the map image to a less detailed view.



Optimal

Sets the resolution of the map image to an optimal detailed view.

Fine

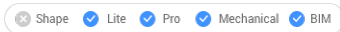
Sets the resolution of the map image to a high detailed view.

VeryFine

Sets the resolution of the map image to a very high detailed view.

12.21 GEOMAPIMAGETYPE command

Sets the map style of a map image.



12.21.1 Description

Sets the map style of the map image that was created with the GEOMAPIMAGE command.

12.21.2 Options within the command

Aerial

The captured map image is displayed in the **Aerial** map style.

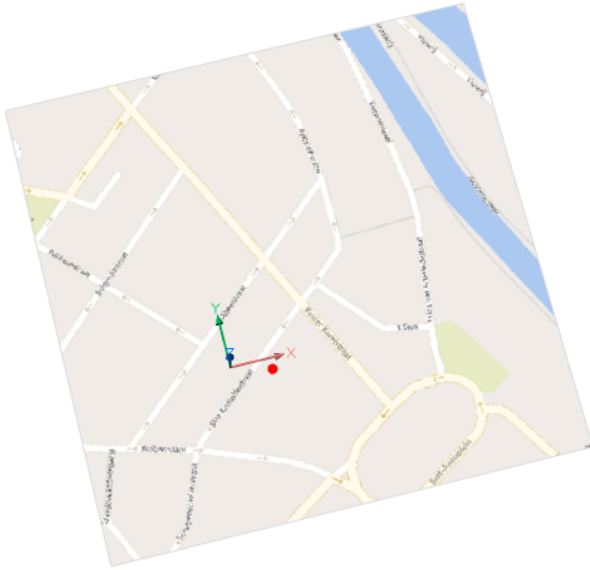


Road

The captured map image is displayed in the **Road** map style.

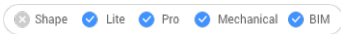
Hybrid

The captured map image is displayed in the **Hybrid** map style, combining **Aerial** with **Road** map styles.



12.22 GEOMAPIMAGEUPDATE command

Updates a map image.



12.22.1 Description

Updates the map image that was created with the GEOMAPIMAGE command.

12.22.2 Options within the command

Optimal

Optimises the map image.

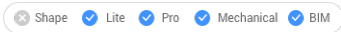
Reload

Reloads the map image.



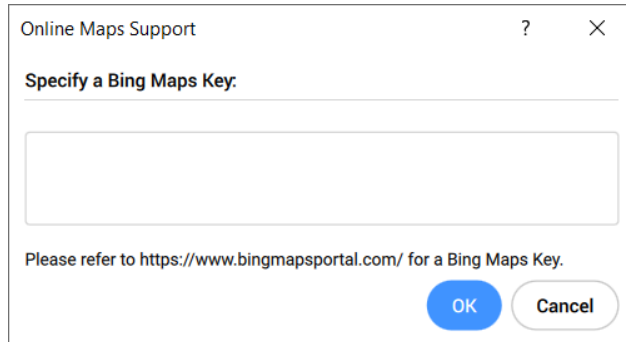
12.23 GEOMAPKEY command

Adds a user-defined Bing Maps Key.



12.23.1 Description

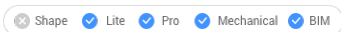
Lets you define a Bing Maps Key through the **Online Maps Support** dialog box that opens when the command is launched.



Note: To create a Bing Maps Key, go to the Bing Maps Dev Center at <https://www.bingmapsportal.com/>.

12.24 GEOMAPMODE command

Reports the online maps style.



12.24.1 Description

Reports the online maps style.

Note: You can change the map style with the GEOMAP command.



Reported value



12.25 GEOMCONSTRAINT command

Applies geometric relationships between entities, on entities, and on valid constraint points.

Shape Lite Pro Mechanical BIM

12.25.1 Description

Constraints keep entities in a fixed position, such as perpendicularly or vertically.

Note: Geometric constraints can be applied to the following entities and their constraint points:

Entity Type	Valid Constraint Points
Lines	Endpoints, midpoint
Arcs, elliptical arcs	Endpoints, center point, midpoint
Circles, ellipses	Center point
Polyline segments	Endpoints, vertices, midpoints
Polyline arcs	Endpoints, vertices, midpoints, center points
Splines	Endpoints
Inserted entities: blocks, xrefs, text, mtext, attributes, tables	Insertion points

12.25.2 Options

Horizontal

Constrains entities or pairs of points to lie parallel to the X-axis of the current coordinate system. See the GCHORIZONTAL command.

Vertical

Constrains entities or pairs of points to lie parallel to the Y-axis of the current coordinate system. See the GCVERTICAL command.

Perpendicular

Constrains two entities to lie perpendicularly to each other. See the GCPERPENDICULAR command.

Parallel

Forces two entities to be parallel to one other. See the GCPARALLEL command.

Tangent

Constrains two entities to maintain a point of tangency to each other or their extensions. See the GCTANGENT command.



SMooth

Forces a spline to maintain fluid geometric continuity with another spline, line, arc or polyline. See the GCSMOOTH command.

Coincident

Applies a coincident geometrical constraint to two points or constrains a point to an entity. See the GCCOINCIDENT command.

CONcentric

Constrains the center points of circles, arcs, ellipses or elliptical arcs to coincide. See the GCCONCENTRIC command.

COLlinear

Forces entities to be collinear. See the GCCOLLINEAR command.

Symmetric

Constrains two entities or points to lie symmetrically with respect to a selected line. See the GCSYMMETRIC command.

Equal

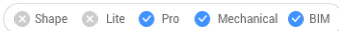
Constrains circular entities to the same radius, or linear entities to the same length. See the GCEQUAL command.

Fix

Constrains points and entities at a fixed position. See the GCFIX command.

12.26 GISEXPORT command

Exports vector geographic features with their original location, shape and attributes to a Shape file.



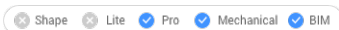
Icon: ^{GIS} →

12.26.1 Method

Select the entities you want to export and press Enter. The **Save ESRI Shape file** dialog box opens to export vector geographic features with their original location, shape and attributes to a SHP file.

12.27 GISIMPORT command

Imports vector geographic features with their original location, shape and attributes from Shape files.



Icon: ^{GIS} ←

12.27.1 Description

This command allows you to import vector geographic features with their original location, shape and attributes from SHP files into the current drawing and specify properties for each imported GIS Feature (Layer).



12.27.2 Method

Select the SHP files in the **Open ESRI Shape file** dialog box.

The SHP files to import are displayed in the **GIS import** dialog box, where you can modify their properties, such as drawing layer, GIS Data, elevation and import area.

Note:

- GIS Features are imported in the drawing as CAD entities: Points, Lines, Polylines.
- GIS Features are imported on specified Drawing Layers.
- Only GIS Features inside the specified area are imported in a drawing.

12.28 GETSEL command (Express Tools)

Creates a selection set of entities based on entity type and layer filters.

Icon: 

12.28.1 Method

Select an entity on the source layer, then select an entity of the type you want.

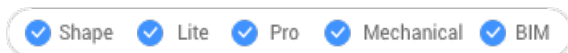
For example, if you select at the first prompt an entity on NewLayer1 and at the second prompt a circle, the GETSEL command collects all circle entities on layer NewLayer1.

Note:

- The entities are placed in the current selection set.
- These entities can be selected using the SELECT command and entering **P**.

12.29 GOTOSTART command

Displays the Start Tab.



12.29.1 Description

Opens or activates the Start Tab.

12.29.2 Method

In the Start tab you can:

- Open a recent drawing.

Note: The number of available recent files is controlled by the value of the RECENTFILES system variable.

- Create a new drawing.

Note: Click on Template to choose what template is used when creating the new drawing.

- Open a drawing using the Open file dialog box.
- Access BricsCAD tutorials and sample drawings.

Note: Internet access is required.

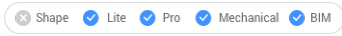
- Access the Third-Party Application catalog on the Bricsys website.




Note: Internet access is required.

12.30 GRADIENT command

Opens the Hatch and gradient dialog box.



Icon: 

12.30.1 Description

Opens the **Hatch and gradient** dialog box to create a hatch entity in the current drawing.

12.31 -GRADIENT command

Fills closed areas with a gradient fill.



12.31.1 Description

Fills closed areas with solid fills in gradients of one or two colors in a variety of patterns.

Note: 3D entities cannot be filled in gradients.

12.31.2 Method

There are two methods to fill in gradients:

- Single color
- Two colors

12.31.3 Options within the command

hatch Properties

Allows to specify a hatch pattern.

?

Lists the names of all hatch patterns. Press F2 to see the list in the prompt history window.

Solid fill

Specify a solid-color filled hatch.

User defined

Allows you to customize the hatch pattern.

Angle for lines

Specify the angle for the pattern lines.

Space between standard pattern lines

Specify the space between the hatch lines.

Cross-hatch

The pattern is repeated at 90 degrees to the original.



Gradient

Allows to specify a gradient pattern.

angle for the gradient

Allows to specify an angle for the gradient fill.

Center the gradient

Centers the gradient.

?

Lists the names of all gradient patterns. Press F2 to see the list in the prompt history window.

Single color

Specify a new gradient color and tint.

shade or tint value

Specify a number between 0 and 1 (0 = dark, 1 = light).

COlorbook

Enter Color Book name.

Two color

Specify two new gradient colors.

Remove boundaries

Removes boundary entities.

Advanced options

Allows you to set advanced options for the hatch.

Boundary set

Specify the entities to consider while creating boundaries.

Retain boundary

Determine whether the temporary boundary is retained after the command ends.

Island detection

Toggle whether islands are hatched over or not. Islands represent interior boundaries.

Specify style

Specifies how islands are treated.

Nested

Alternating islands are hatched, beginning with the outermost one.

Outer

Only the outermost region is hatched. Interior islands are not hatched.

Ignore

Islands are ignored and hatched over.

set Associativity

Toggles whether hatches are associative, so they do update/not update their geometry alongside the boundaries.



boundary Tolerance

Specify the largest gap the program ignores when hatching a boundary that is not fully closed.

Note: A value of 0 means that no gaps in the boundary are tolerated by the program.

separate Hatches

Specifies to create separate hatches for each closed area or a single hatch entity for all.

Draw order

Specifies whether the hatch pattern appears visually above/below overlapping entities or its boundary.

Origin

Specify a new value for the hatch origin.

Annotative

Sets the annotative property for the hatch. It applies the current annotative scale, defined by CANNOS-CALE system variable.

Layer

Specify the layer on which the hatch should be placed.

Transparency

Specify a value between 0 and 90 for the transparency.

Note: A value of 0 means fully opaque. The transparency level is limited to 90% to avoid confusion with layers that are frozen or turned off.

ByLayer

Applies the value of the transparency property of the layer on which the hatch resides.

ByBlock

The transparency value is controlled by block.

Use current

Applies the current transparency value as defined by the CETRANSPARENCY system variable.

Note: The transparency value for new hatches is saved by the HPTRANSPARENCY system variable.

Undo

Removes selected boundaries from the selection.

12.32 GRADIENTBKG OFF command

Turns off the background gradient.



12.32.1 Description

Turns off the background gradient colors (used by all visual styles, except for 2D Wireframe) to display the default background color.

12.33 GRADIENTBK GON command

Turns on the background gradient.



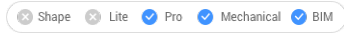


12.33.1 Description

Turns on the background gradient colors, which are used by all visual styles (except for 2D Wireframe).

12.34 GRADING command

Creates a graded surface on existing TIN surfaces.



Icon:

12.34.1 Description

Creates a graded surface between a selected entity and a TIN surface or an offset or slope graded surface from a selected entity. Select the entity to define a graded surface, select the target TIN surface to create a graded surface and move the mouse to adjust the slope of the grading.

12.34.2 Method

Grading can be created along the entire length of the selected input entity or between specified start and end point.

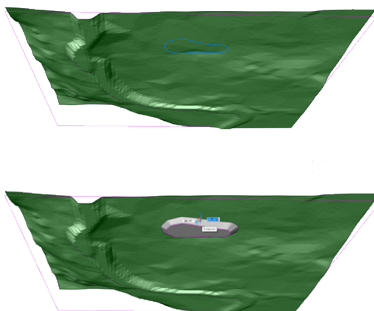
Note: Gradings also support transitions.

12.34.3 Options

sLOpe/offset

Sets either the slope or offset option of the grading.

Note: The offset-slope projection method requires input entity, offset, and slope.



Entire length

Creates a grading using the entire input entity.

12.35 GRADINGBALANCE command

Balances grading cut and fill volumes.



Icon:

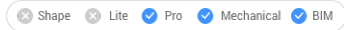



12.35.1 Description

Balances grading cut and fill volumes within the specified tolerance. This is achieved by raising/lowering the elevation of the grading input entity and the result is grading that has a net volume around zero, depending on the set tolerance.

12.36 GRADINGEDIT command

Splits or merges gradings.



Icon: 

12.36.1 Description

Merges two gradings into one with several regions with (automatic) calculation of transitions between gradings, or splits the grading into multiple regions so that the slopes for each region can be edited separately.

Select a grading to be split into multiple regions, or to be merged with another grading.

12.36.2 Options

Split

Splits the grading into multiple regions, so the slopes for each region can be edited separately by moving the grips.

Merge

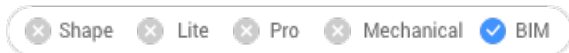
Merges two gradings into one.

Switch

Switches the direction.

12.37 GRAPHICOVERRIDE command

Temporarily modifies the appearance of entities in 3D model space.

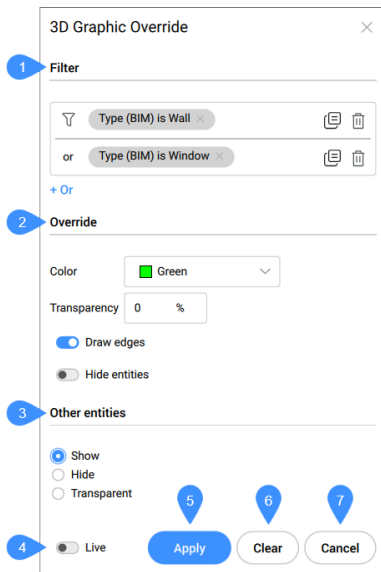


Icon: 

12.37.1 Method

GRAPHICOVERRIDE is a 3D drawing customization feature that allows you to temporarily override the visual appearance of a specific selection of objects based on BIM properties.

The command opens the **3D Graphic Override** command panel to allow you to define which entities in the 3D model space will be overridden and how their appearance should be modified.



- 1 Filter
- 2 Override
- 3 Other entities
- 4 Live
- 5 Apply
- 6 Clear
- 7 Cancel

Filter

Allows you to define which entities in the 3D model space will be overridden by setting one or multiple criteria based on BIM properties, quantities, or custom properties. Filter rows can be added to filter by multiple parameter combinations. These rows are separated using the logical "OR" operation. The rows can be copied by clicking the copy symbol or deleted by clicking the delete symbol.

Override

Allows you to define how the filtered entity will be visualized.

Color

Allows you to select the color from the drop-down list with presets, or from the more extensive **Select Color** dialog box.

Transparency

Sets a transparency level for the selected entities.

Draw edges

Tick the option to draw the edges for the filtered selection.

Hide entities

Tick the option to hide the filtered selection.

Other entities

Allows you to define how all other entities, that do not meet the filter criteria, will be shown in the drawing.



Show

Shows all the other entities in the drawing as normal.

Hide

Hides all other entities that do not meet the filter criteria, which will visually isolate your selection.

Transparent

All other entities will become transparent. This will also put a clear focus on your selection, but you will still be able to see the other building elements for a visual context.

Live

By enabling the **Live** mode, every change you make to the settings is immediately applied to the model.

Apply

Applies the current settings to the 3D model of the opened document. This will overwrite any existing override on that model.

Clear

Clears any existing override of the current open document.

Cancel

Closes the command panel keeping the override active on the 3D model.

12.38 GRAPHSCR command

Switches to the graphic screen.



12.38.1 Description

Switches from the programs Prompt History window to the drawing window.

Prompt History window is displayed by the TEXTSCR command or by the F2 key.

12.39 GRID command

Toggles the display of the grid and sets some of its properties.



Icon: 

Alias: G

12.39.1 Method

Specify the grid spacing value. It makes the x and y grid spacing the same.

12.39.2 Options within the command

ON

Turns on the display of the grid.

OFF

Turns off the display of the grid.



Snap

Synchronizes the grid spacing with the current snap spacing, so that the two are the same.

Aspect

Sets the aspect ratio of the grid by specifying the horizontal and vertical spacing.

12.40 GROUP command

Opens the Entity grouping dialog box.



Icon:

12.40.1 Description

Opens the Entity grouping dialog box to view and manage named groups of entities in the current drawing.

12.41 -GROUP command

Creates and modifies groups of entities.



12.41.1 Description

Creates and modifies named groups of entities at the Command line.

12.41.2 Options within the command

?

Lists named and unnamed groups in the drawing.

Note: Unnamed groups are prefixed with *A, followed by an incremented number, such as *A3.

Order

Reverses the order of entities in a group.

Add

Adds entities to a group.

Remove

Removes entities from a group.

Explode

Ungroups the selected group.

reName

Renames groups.

Selectable

Toggles the selectivity of groups.

Create

Creates new groups.




13. H

13.1 HATCH command

Opens the Hatch and gradient dialog box.



Icon: 

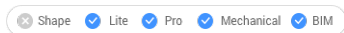
Alias: BH, H

13.1.1 Description

Opens the **Hatch and gradient** dialog box to create a hatch entity in the current drawing.

13.2 -HATCH command

Fills closed 2D areas with repeating patterns or solid colors.



Alias: -BH, -B

Note: 3D entities cannot be hatched.

13.2.1 Method

There are two methods to apply a hatch pattern:

- Specify internal point.
- Select entities.

Note: Entities which are not visible in the current viewport when the command is launched cannot be selected. Partly visible entities can, however, be selected.

13.2.2 Options within the command

hatch Properties

Allows to specify a hatch pattern.

?

Lists the names of all hatch patterns. Press F2 to see the list in the prompt history window.

Solid fill

Specify a solid-color filled hatch.

User defined

Allows you to customize the hatch pattern.

Angle for lines

Specify the angle for the pattern lines.

Space between standard pattern lines

Specify the space between the hatch lines.



Cross-hatch

The pattern is repeated at 90 degrees to the original.

Gradient

Allows to specify a gradient pattern.

angle for the gradient

Allows to specify an angle for the gradient fill.

Center the gradient

Centers the gradient.

?

Lists the names of all gradient patterns. Press F2 to see the list in the prompt history window.

Single color

Specify a new gradient color and tint.

shade or tint value

Specify a number between 0 and 1 (0 = dark, 1 = light).

COlorbook

Enter Color Book name.

Two color

Specify two new gradient colors.

Remove boundaries

Removes boundary entities.

Advanced options

Allows you to set advanced options for the hatch.

Boundary set

Specify the entities to consider while creating boundaries.

Retain boundary

Determine whether the temporary boundary is retained after the command ends.

Island detection

Toggle whether islands are hatched over or not. Islands represent interior boundaries.

Specify style

Specifies how islands are treated.

Nested

Alternating islands are hatched, beginning with the outermost one.

Outer

Only the outermost region is hatched. Interior islands are not hatched.

Ignore

Islands are ignored and hatched over.

set Associativity

Toggles whether hatches are associative, so they do update/not update their geometry alongside the boundaries.

boundary Tolerance

Specify the largest gap the program ignores when hatching a boundary that is not fully closed.



Note: A value of 0 means that no gaps in the boundary are tolerated by the program.

separate Hatches

Specifies to create separate hatches for each closed area or a single hatch entity for all.

Draw order

Specifies whether the hatch pattern appears visually above/below overlapping entities or its boundary.

Origin

Specify a new value for the hatch origin.

Annotative

Sets the annotative property for the hatch. It applies the current annotative scale, defined by CANNOSCALE system variable.

Layer

Specify the layer on which the hatch should be placed.

Transparency

Specify a value between 0 and 90 for the transparency.

Note: A value of 0 means fully opaque. The transparency level is limited to 90% to avoid confusion with layers that are frozen or turned off.

ByLayer

Applies the value of the transparency property of the layer on which the hatch resides.

ByBlock

The transparency value is controlled by block.

Use current

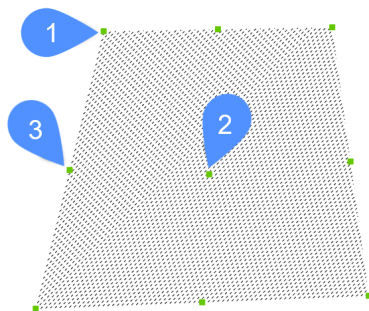
Applies the current transparency value as defined by the CETRANSOPARENCY system variable.

Note: The transparency value for new hatches is saved by the HPTRANSPARENCY system variable.

Undo

Removes selected boundaries from the selection.

Note: Hatches can be edited directly through grips.




- Drag the central grip (2) to move the hatch.
- Drag the vertex (1) or a midpoint grip (3) to change the hatch boundary.

13.3 HATCHEDIT Command

Edits hatches through a dialog box.



Shape Lite Pro Mechanical BIM

Icon: 

Alias: HE

13.3.1 Description

Selects a hatch pattern or a gradient fill and edit them through Hatch Edit dialog box.

Note: The Properties panel can also be used to edit hatches and gradient fills.

13.4 -HATCHEDIT command

Edits the boundaries of hatch entities at the Command line.

Shape Lite Pro Mechanical BIM

13.4.1 Description

Edits the boundaries of hatch and gradient entities at the Command line.

13.4.2 Method

There are two methods to use -HATCHEDIT command:

- Select a hatch entity.
- Select a gradient entity.

13.4.3 Options within the command

Disassociate

Removes the associative property of the selected hatch or gradient entity.

ADD boundaries

The area of a hatch is modified by adding boundaries.

Specify internal point

The boundary is determined from an existing enclosed area around the specified point. The selected hatch is then associated with that boundary.

Select entities

The boundary is determined from the selected entities that form an enclosed area. The selected hatch is then associated with that boundary.

Remove boundary

The area of a hatch is modified by removing boundaries.

ASsociate

Associate the selected hatch or gradient entity to a different boundary set.

13.5 HATCHEDITTEXT command

Edits the vertices of a hatch or gradient entity.

Shape Lite Pro Mechanical BIM



13.5.1 Description

Edits the vertices of a hatch or gradient entity interactively through the command line.

13.5.2 Options within the command

Add vertex

Adds vertices by stretching selected grip points.

Remove vertex

Removes vertices.

convert to Line

Converts arc segments to line segments.

convert to ARc

Converts line segments to arc segments.

13.6 HATCHGENERATEBOUNDARY command

Generates a boundary around a hatch or gradient fill.



Icon: 


13.6.1 Description

Creates a boundary made of a polyline around the selected hatches or gradient fill.

13.7 HATCHTOBACK command

Moves all hatch entities in the drawing behind all other overlapping entities.

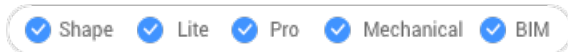



Icon: 

Note: This command selects all hatch patterns in the current drawing automatically.

13.8 HELIX command

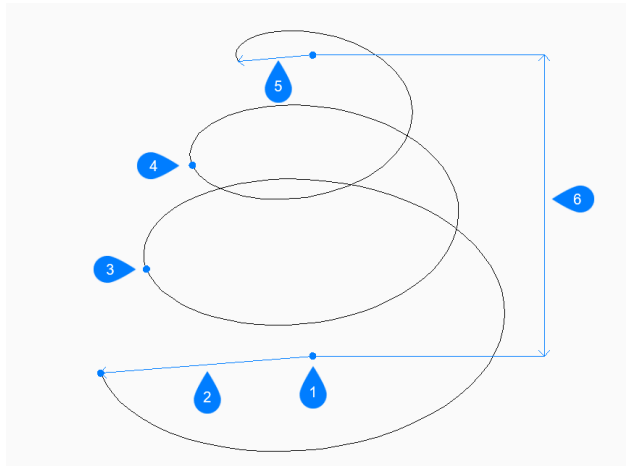
Creates a 2D spiral or a 3D helix.



Icon: 

13.8.1 Description

Creates a 2D spiral or a 3D helix from a combination of options including center, radius, diameter, height, axis endpoints, turns, distance between turns, and twist.



- 1 Center of base
- 2 Base radius
- 3 Start turn 2
- 4 Start turn 3
- 5 Top radius
- 6 Height

13.8.2 Methods to create a helix

This command has 1 method to begin creating a helix:

- Specify center point of base

Specify center point of base

Begin creating a helix by specifying the center of the base then:

Specify base radius

Specify the radius of the helix's base.

Additional option: [Diameter]

Specify top radius

Specify the radius of the helix's top.

Additional option: [Diameter]

Specify helix height

Specify the height of the helix.

Additional options: [Axis endpoint/Turns/Turn height/Twist]

13.8.3 Options within the HELIX command

After you begin creating a helix, the following options may be available:

Diameter

Specify the diameter of the base or top of the helix.

Axis endpoint

Specify the axis endpoint to define height and orientation of the helix in 3D space. The center of the base is used as the other axis endpoint.



Turns

Specify the number of revolutions for the helix, between 1 and 500. The default is 3.

Turn height

Specify the distance between each revolution of the helix. The turn height and the number of turns define the height of the helix.

Twist

Specify which direction the helix rotates.

- CW: clockwise
- CCW: counterclockwise

13.9 HELP command

Opens the BricsCAD Help Center.



Icon:

13.9.1 Description

Opens the BricsCAD Help Center Description to learn more about BricsCAD commands, system variables, and workflows. It opens in an external application window, using the default Web browser, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

13.10 HELPSEARCH command

Searches online help from the Command line.

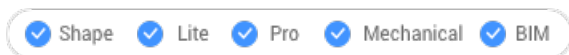


13.10.1 Description

Searches the online BricsCAD help pages and then displays the result in your computer's default Web browser; works at the Command line.

13.11 HIDE command

Removes hidden lines from 3D entities.



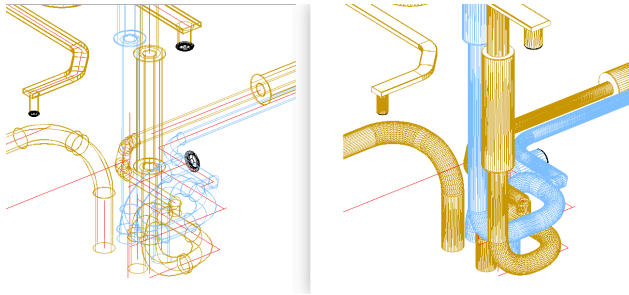
Icon:

Alias: HI

13.11.1 Method

This command offers only one method to remove hidden lines. The command is run automatically after typing "HIDE" in the Command line and hitting enter.

Displays no prompt in the Command line; the program immediately removes hidden lines.



Note: To return to wireframe display, change the visual style to 2D Wireframe.

13.12 HIDEOBJECTS command

Hides selected entities.

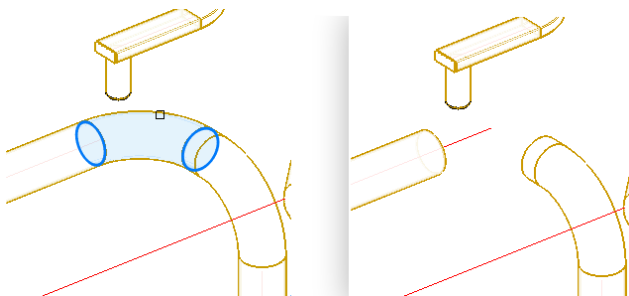


Icon: 

13.12.1 Description

Hides selected entities, like using the Freeze option of the Layer command but for individual entities. Hidden entities optionally stay hidden between drawing sessions.

Note: To return hidden objects to view, use the UNISOLATEOBJECTS command.



Note: The OBJECTISOLATIONMODE system variable controls whether the hidden state is saved or not.

Note: The HIDEOBJECTS command is enabled under BEDIT and REFEDIT sessions.

13.13 HYPERLINK command

Links entities and web pages.



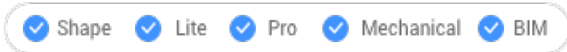
13.13.1 Description

Links selected entities with fields and web pages through the **Edit Hyperlink** dialog box.



13.14 -HYPERLINK command

Links entities and web pages.



13.14.1 Description

Links entities with fields and web pages at the Command line.

Note: This command is meant for use by macros and LISP routines.

13.14.2 Options within the command

Remove

Removes hyperlinks from entities.

Insert

Adds a hyperlink to one or more entities.

Enter URL

Specify the path and name of the file, networked file, or location on the Internet.

Enter named location

Specifies a bookmark name.

Note: The # character specifies locations (bookmarks) within files or Web pages.

Enter description

Describes the hyperlink.

Overwrite

Replaces the existing hyperlink with the new one or leaves the existing hyperlink as it is.

13.15 HYPERLINKOPTIONS command

Toggles the display of the hyperlink.



13.15.1 Description

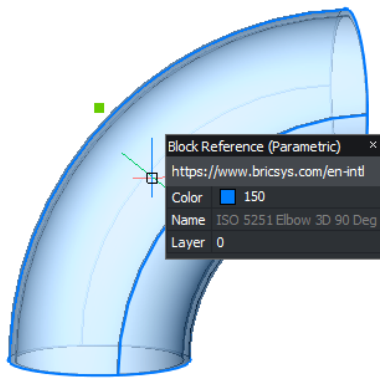
Toggles the display of the hyperlink cursor and URL tooltip and adds Hyperlink to the shortcut menu.

13.15.2 Options within the command

Display hyperlink cursor, tooltip and shortcut menu

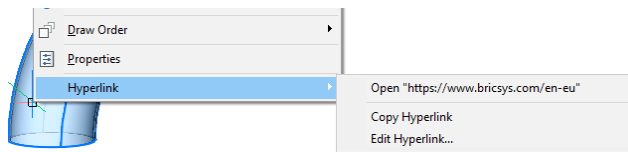
Toggles the display of the "hyperlink" icon, tooltip displaying the URL, and the Hyperlink sub-menu on shortcut menus.

Note: The text of the tooltip is specified by the HYPERLINK command's Hyperlink Description option.



Hyperlink menu

Right-click on the selected entity that contains hyperlinks, the Hyperlink item is added to the menu.



Open URL

Opens the location specified by the URL: a location on the Internet or a file with the associated application.

Note: This option executes the URL command.

Copy Hyperlink

Copies the URL to the Clipboard.

Note: The URL can be pasted into the drawing or other documents with the Ctrl + V shortcut or PASTECLIP command.

Edit Hyperlink

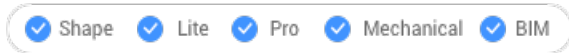
Opens the Edit Hyperlink dialog box.



14. I

14.1 ID command

Reports the x,y,z coordinate.



Icon:

Alias: IDPOINT

14.1.1 Description

Reports the x,y,z coordinates of a specified point using the current coordinate system.

14.2 IEMBED command

Embeds an attached bitonal .tiff image file to the current drawing.



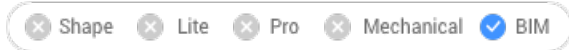
14.2.1 Method

Usually, the images attached to a drawing are saved in a separate file. This command saves a render image within the current drawing.

Note: To reverse this action use the IUNEMBED command.

14.3 IFCEXPORT command

Exports a BIM model to IFC.



14.3.1 Description

Exports a BIM model to IFC, partially or entirely. IFC attributes are managed dynamically, for example properties and property sets. This allows you to choose between IFC2x3 or IFC4 attributes.

Note: The import and export of Alignments and TIN Surfaces with IFC 4X1 is supported.

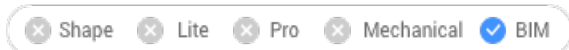
Note: A color resembling the material by layer color is applied for entities with Redway materials.

14.3.2 Method

Select the entities to export or press **Enter** to export the entire model.

14.4 IFCVALIDATE command

Checks the quality of an existing IFC file.





14.4.1 Description

Validates an existing IFC file before importing it.

14.4.2 Method

Opens the **Import file** dialog box to select the IFC file.

An IFC file validation report is displayed in the Command line, then you have to decide whether or not to import the IFC file.

Note: The report is also written to a log file next to the IFC file.

14.4.3 Options within the command

Yes

Imports the IFC file.

No

Does not import the IFC file.

14.5 IMAGE command

Opens the Attachments panel.



Icon: 

Alias: IM

14.5.1 Description

Opens the Attachments panel to display it in the current workspace. The Attachments panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Attachments panel can be either floating, docked or stacked.

14.6 IMAGEAPP command (Express Tools)

Specifies the image editor application used for the IMAGEEDIT command.

14.6.1 Method

Use the IMAGEAPP command to specify the image editor application, for example Microsoft Paint.

14.7 IMAGEADJUST command

Adjusts the properties of images through the Properties panel.



Alias: IAD

Keyboard Shortcuts: **click the image frame**



14.7.1 Method

After selecting one or more image entities by their frames the Properties panel will display the Raster Image properties.

The Image Adjust properties are:

Brightness

Lightens and darkens the image:

- 0 - very dark or black
- 50 - normal
- 100 - very light or white

Contrast

Increases and decreases the contrast:

- 0 - very low contrast
- 50 - normal
- 100 - very high contrast

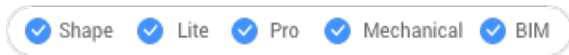
Fade

Fades the image:

- 0 - no fade
- 100 - fully faded

14.8 -IMAGEATTACH command

Attaches raster images to the drawing.



14.8.1 Method

Introduce the path and file name of the image file, the insertion point, the scale factor and rotation factor to insert the raster image in the drawing.

14.8.2 Options

Specifies how the program should remember the path to the image, which is saved in the drawing:

Full path

The full path of the image file is saved such as D:\BricsCAD Training\EN\Exercises\Gearbox.png

Relative path

The path relative to the drawing folder is saved such as ..\Exercises\Gearbox.png

No path

The path is not saved, and so the program searches for the image in the drawing folder or in support search file path that could be added with SRCHPATH command.

use Geocoding info

Uses geocoding data to determine the image's insertion point, scale, and rotation angle.



Geocoding file path

Specifies the name of a PGW file that contains the geocoding data.

Embedded geocoding info

Use the geocoding information embedded in the image file.

Xy scales factors

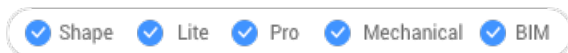
Specifies the scale factors for the X and Y directions independently.

Rotation angle

Specifies the rotation angle.

14.9 IMAGEATTACH command

Opens the Select image file dialog box.



Icon: 

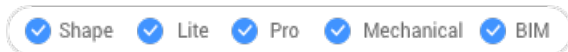
Alias: IAT


14.9.1 Description

Opens the Select image file dialog box to select an image file to reference into the current drawing. After selecting the file and choosing **Open**, the Attach Raster Image file dialog box displays. It enables you to specify where and how to attach the image.

14.10 IMAGECLIP command

Clips images with rectangular or polygonal shapes.



Icon: 

Alias: ICL

14.10.1 Method

Select the image by clicking on its frame and create a new clipping boundary.

Clipped images can be edited directly through grips.

Note: An image can have just one clipping boundary; creating a new one erases the old one.

Note: This command can be entered transparently during commands ('imageclip).

14.10.2 Options

ON

Turns on the clipping and displays the clipping boundary.

OFF

Turns off the clipping and hides the clipping boundary.



Invert

Inverts the clipping mode so that the image is clipped on the outside or the inside the clipping boundary.

Delete boundary

Removes the clipping boundary.

New boundary

Creates a new clipping boundary, and turns on clipping.

Select polyline

Creates a clipping boundary by closing a selected polyline.

Polygonal

Creates a polygonal boundary.

Undo


Undraws the last polygonal segment.

Rectangular

Creates a rectangular clipping boundary.

14.11 IMAGEEDIT command (Express Tools)

Edits the selected image in an external image editor application.

Icon: 

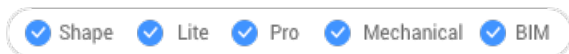
14.11.1 Description

Opens the **Image Edit** dialog box that allows you to select an image to open in an external image editor application.

Note: The external image editor is specified with the IMAGEAPP command, for example Microsoft Paint.

14.12 IMAGEFRAME command

Toggles the IMAGEFRAME system variable.



Icon: 

14.12.1 Description

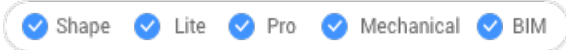
Toggle the IMAGEFRAME system variable to change the visibility and plotting for image frames. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'IMAGEFRAME.

- 0: sets the IMAGEFRAME system variable to 0.
- 1: sets the IMAGEFRAME system variable to 1.
- 2: sets the IMAGEFRAME system variable to 2.



14.13 IMAGEQUALITY command

Specifies the display quality of attached images.



Icon:

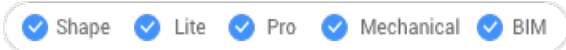
14.13.1 Description

Specifies the display quality of attached images to increase performance or image resolution.

- Draft: increases performance by reducing color resolution, image size, and memory usage. This does not affect the quality of plotted images.
- High: increases image quality resulting in decreased performance for large images.

14.14 -IMPORT command

Imports geometry from external files at the command prompts.



Note: This command opens all file formats supported by the IMPORT command.

14.14.1 Method

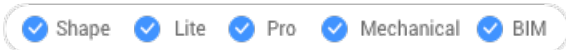
Specify the full path and file name of an importable file.

Note: Type ~ (tilde) to display the Import file dialog box, which allows you to select a file to import.

Note: File types available for importing are the same as for the **IMPORT** command.

14.15 IMPORT command

Imports the geometry from external files into the current drawing.



Icon:

Alias: IMP

14.15.1 Description

Opens the **Import file** dialog box to select a supported file type to import into the current drawing.

The supported file types to import are:

- **Drawing Exchange Format** (.dxf; .dwg)
- **Windows Metafile Formats*** (.wmf; .emf; .wmz; .emz)^{(1) (2)}
- **Collada** (.dae)
- **Micro Station DGN File** (.dgn)



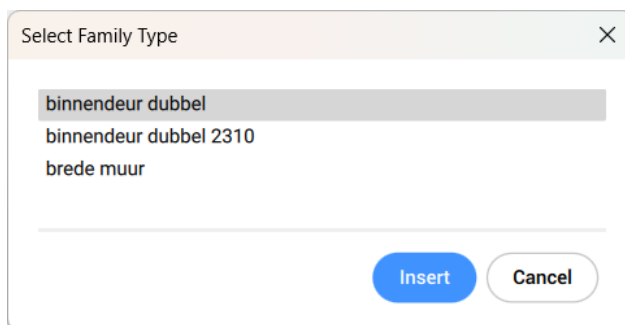
Formats available with the BIM add-on:

- **Wavefront Object file** (.obj)
- **Rhino file** (.3dm)⁽¹⁾ ⁽²⁾
- **SketchUp file** (.skp)⁽¹⁾ ⁽²⁾

Note: The Trimble SketchUp files are imported as subdivision meshes (entities are imported as named blocks, render material definitions and the material mappings are imported on the meshes). The CONVOSOLID and CONVTOMESH commands provide easy conversion between meshes and solids.

- **IFC file** (.ifc; .ifczip)
- **Revit family** (.rfa)

When a Revit family contains multiple types, the **Select Family Type** dialog box displays, which enables you to import the preferred type of the Revit family. The RFA files attributes are also imported.



- **Revit Project** (.rvt)
 - (1) Not available in BricsCAD for Linux.
 - (2) Not available in BricsCAD for macOS.

Note: BricsCAD currently supports the import of **Revit 2015-2021** files only. If you would like to import a model created in a later version of Revit, please consider importing the model into BricsCAD as an IFC file.

Note:

More 3D format files are available through a separate module, BricsCAD Communicator. You can download it from the Bricsys website.

The import and export procedures using Communicator are controlled through a series of user preferences. See the Communicator section in the Settings dialog box.

Note: If the imported assembly has physical materials assigned to its parts, the materials can be imported together with the assembly structure. For each material in the imported file, a corresponding material will be created in the target document material library, and its name, density, specific heat and thermal conductivity will be copied from the source material. If the imported file contains several materials with the same name, the first one will be used. If the document already has a material with the same name in its material library, this material will be used instead.

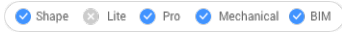


Materials copied to the document material library will not be erased with Undo operations.

Note: The IMPORT command supports components architecture based on regular blocks.

14.16 IMPRINT command

Imprints 2D entities onto planar faces of 3D solids and surfaces to create additional edges.

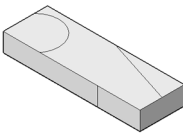
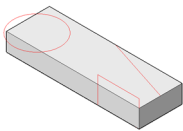


Icon:

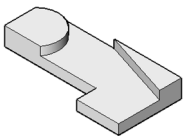
Note: Use dynamic UCS (DUCS) to draw on the faces of 3D objects (UCSDETECT system variable =1).

14.16.1 Method

Select a 3D solid that has at least one flat face, a surface or a region entity. Select the source objects, 2D entities lying on or intersecting a planar face of the selected entity and after each choose if delete or keep the source object.

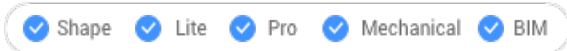


With the entities imprinted on the solid, you can use commands like EXTRUDE or DMPUSHPULL to manipulate the newly created faces, as shown below.



14.17 INSERT command

Opens the Insert block dialog box.



Icon:

Alias: DDINSERT, I

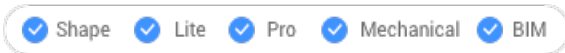
14.17.1 Description

Opens the **Insert block** dialog box to insert a block instance from a block definition. The block definition may exist in the current drawing or as an external dwg file.



14.18 -INSERT command

Inserts blocks through prompts in the Command line. Also prompts for attribute values, if any are part of the block definition.



Alias: -I

14.18.1 Description

Inserts blocks through prompts in the Command line. And prompts for attribute values, if any are part of the block definition.

14.18.2 Method

Specify the name of the block to insert or press Enter to accept the name of the previously inserted block and specify the insertion point, the scale factor, the rotation angle for the inserted block. BricsCAD prompts in the Command line the block inserted units, e.g. Units: Millimeters.

Note: The current drawing can be inserted as a block by typing the drawing name as block name.

Note: If the block contains attributes, the value of the ATTDIA (Attribute Dialog) system variable determines whether you are prompted in the Command line to set the attributes (ATTDIA=0) or through the Edit Attributes dialog box (ATTDIA=1).

14.18.3 Options

? to list blocks in drawing

Lists the names of all blocks in the current drawing.

Enter part of a name to view the names of certain blocks. You can use wildcards like ? for an individual character and * for all characters.

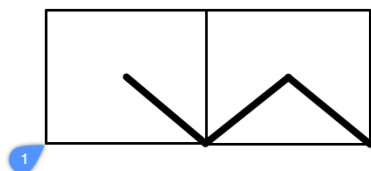
Note: If necessary, press F2 key to view the full list; see TEXTSCR command. You must restart the -INSERT command to insert the block.

~ to open the file dialog

Displays the Insert Block dialog box. Choose a DWG or DXF file and open it.

insertion point (1)

Specify the X-, Y- and Z- coordinates or pick a point for the block's insertion point (lower left corner). The Z coordinate is typically left at 0 for 2D blocks.



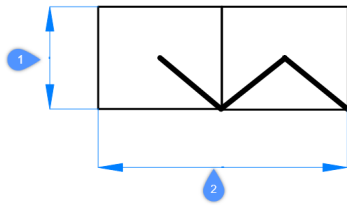
Scale

Scales the block:

- Values larger than 1 - make the block larger.



- 1 - inserts the block at actual size.
- Values smaller than 1 - make the block smaller.
- Values less than zero - flip the block, like mirroring it.



X scale (2)

Specifies the scale factor along the x axis; enter a negative value to mirror the block about the y axis.

Y scale (1)

Specifies the scale factor along the y axis; enter a negative value to mirror the block about the x axis.

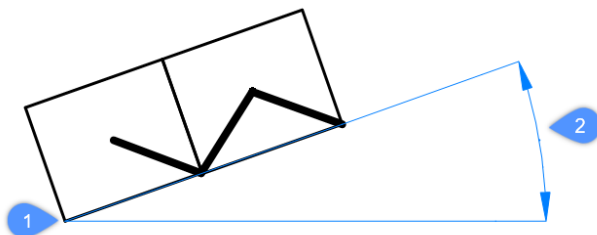
Z scale

Specifies the scale factor along the z axis.

Rotate

Specifies the rotation angle (2) of the block about its insertion point (1), starting with the x-axis as 0 degrees:

- **Positive angles** - rotate the block counter-clockwise.
- **Negative angles** - rotate the block clockwise.



Multiple blocks

Inserts multiple session of the block in the specified insertion points.

Corner

Indicates the size of the block by specifying a second corner of a rectangle. The insertion point is the first corner.

Note: Blocks can be edited directly through grips.

14.19 INSERTALIGNED command

Inserts blocks aligned to entities.



Alias: INSAL



14.19.1 Description

Inserts blocks aligned with entities and optionally mirrors them. Hover the cursor over an existing entity in order to align the block to its geometry. Entity snap does not need to be on, but placement is more accurate when it is.

14.19.2 Options

Block to insert

- Enter block name
- ~ - opens a dialog box to choose an external drawing to insert
- ? - lists the existing block definitions.

Block mirroring control point

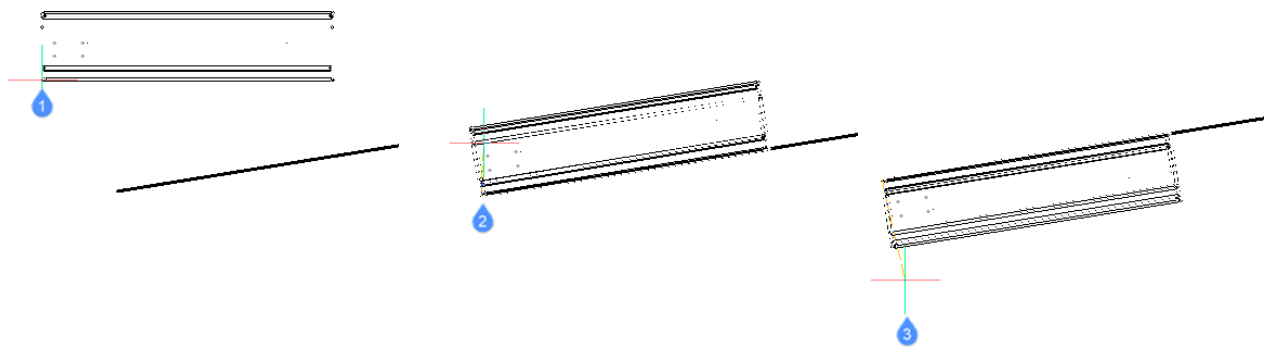
Moves the cursor in order to flip the block about its insertion point.

X/Y/Z Scale

Sets the corresponding scale of the inserted block.

Multiple

Inserts multiple instances of the block.



- 1 Block being inserted
- 2 Block aligned with entity
- 3 Block mirrored about the entity

14.20 INSERTION command

Toggles the Insertion entity snap.



Icon:

14.20.1 Description

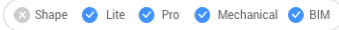
Toggles the Insertion entity snap to enable or disable snapping to the insertion point of objects. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command



to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

14.21 INSERTLAYOUT command

Inserts a named layout of a drawing, as a Block Reference, in the current Paper Space.



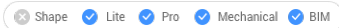
14.21.1 Description

Select a drawing from the **Select drawing** dialog box and specify the layout name and the insertion point. A Block reference that replicates the entities in the layout will be inserted in the current Paper Space.

Note: The command is only available in Paper Space.

14.22 -INSERTLAYOUT command

Inserts a named layout of a drawing, as a Block Reference, in the current Paper Space.



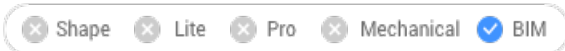
14.22.1 Description

Specify the drawing path name to export the layout from and the layout name, together with the insertion point. A Block reference that replicates the entities in the layout will be inserted in the current Paper Space.

Note: The command is only available in Paper Space.

14.23 -INSERTMULTIPLELAYOUT command

Inserts multiple layouts, as Block References, in the current Paper Space via command line.



14.23.1 Description

Inserts named layouts of multiple drawings in the current Paper Space as Block References.

Note: The command is only available in Paper Space.

14.23.2 Method

Enter the margin to be used between viewports in the Paper Space.

Note: A positive value, or zero, is needed.

Enter the list of drawings to export layouts from, by specifying the drawing path names one by one. When finished, press Enter with an empty string to continue with exporting.

The -INSERTMULTIPLELAYOUT command now loops over the files and asks you to enter the layout name for each drawing.

Specify the base point and second point for the Block References.



14.24 INSERTOBJ command

Opens the Insert object dialog box.



Alias: IO

Note: This is a Windows only command.

14.24.1 Description

Opens the Insert object dialog box to insert an OLE object into the current drawing.

14.25 INTERFERE command

Shows volumes and areas of interference between two sets of ACIS entities.

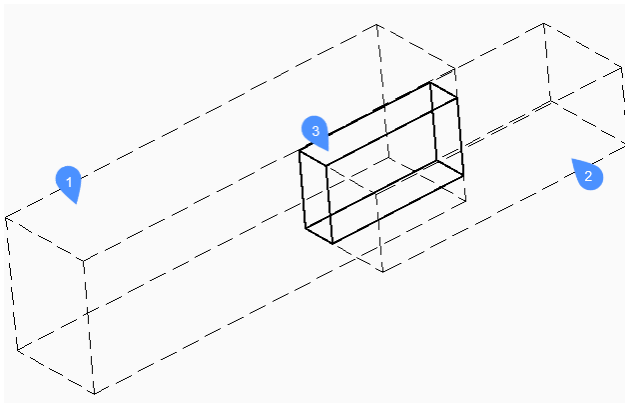


Icon:

Alias: INF

Note: This command can be entered transparently ('interfere) during the commands.

14.25.1 Method



Specifies the first (1) and the second (2) set of ACIS entities: choose one or more 3D solids and/or 2D regions.

You can respond with ALL to place all ACIS entities into a set and later use the Check first Set option to check them against each other. This avoids the need to create two sets of entities.

The entities in the first set are compared to the entities in the second set and results in an interference volume (3) or area which is created in a layer defined by the INTERFERELAYER system variable that is stored in the registry and has "Interferences" as an initial value.

Note: The Pro edition additionally shows volumes of interference between two sets of ACIS solids and then, optionally, creates new ACIS solids from the common portions of pairs of intersecting solids, placing them on layer "Interferences".



The interference solid(s) remain(s) in the drawing when the command ends.

Note: Entities which are on the layer that is set by the INTERFERELAYER system variable are not accepted when selecting entities, as it is considered the output layer only.

Note: When you select an interference entity in the model or in the **Structure** panel, the originating entities highlight along with the selected interference entity.

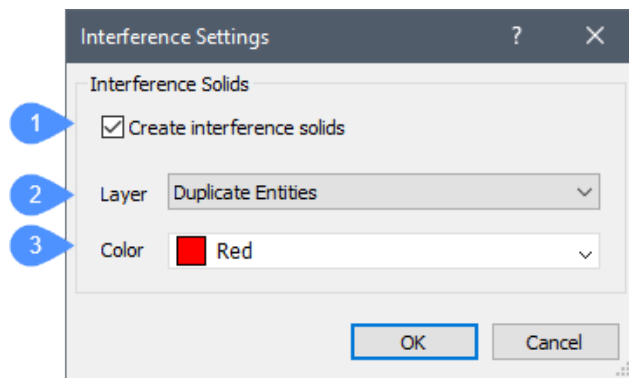
14.25.2 Options

Nested selection

Selects ACIS entities inside blocks or xrefs.

Settings

Displays a dialog box:



- 1 **Create interference solids:** when ticked, new solids are created from the interference area or volume.
- 2 **Layer:** specifies the layer on which interference entities are created. Default = layer stored in INTERFERELAYER system variable. Do not select a layer of selected entities as it is considered the output layer only. It is recommended to select an empty layer or accept the default layer.
- 3 **Color:** specifies the color of the interference entities; the color of the Interference layer is changed to match this color.

check first set

Checks the interference of entities in the first set, when it contains two or more entities, and then creates interference entity(ies) of them.

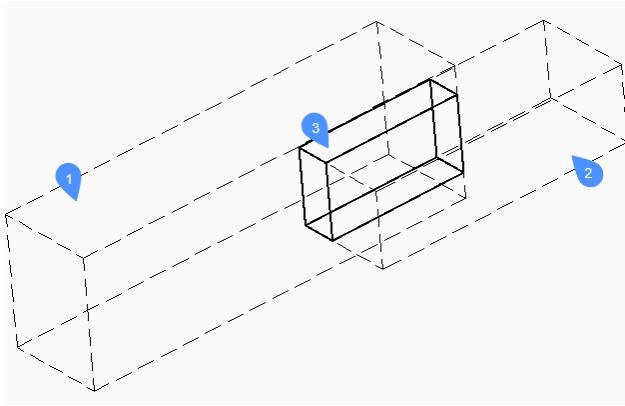
Note: You can interrupt the command by pressing the CANCEL button.

14.26 -INTERFERE command

Shows volumes and areas of interference between two sets of ACIS entities.



14.26.1 Method



Specifies the first (1) and the second (2) set of ACIS entities: choose one or more 3D solids and/or 2D regions.

You can respond with ALL to place all ACIS entities into a set and later use the Check first Set option to check them against each other. This obviates the need to create two sets of entities.

The entities in the first set are compared with the entities in the second set and results an interference volume (3) or area which is created in layer defined by INTERFERELAYER system variable that is stored in the registry and has initial value for "Interferences".

Note: The Pro edition additionally shows volumes of interference between two sets of ACIS solids and then, optionally, creates new ACIS solids from the common portions of pairs of intersecting solids, placing them on layer "Interferences".

The interference solid(s) remain(s) in the drawing when the command ends.

Note: Entities which are on the layer that is set by the INTERFERELAYER system variable are not accepted when selecting entities, as it is considered the output layer only.

Note: When you select an interference entity in the model or in the STRUCTURE panel, the originating entities highlight along with the selected interference entity.

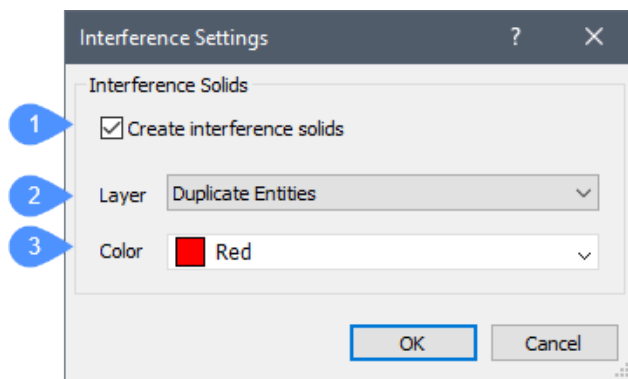
14.26.2 Options

Nested selection

Selects ACIS entities inside blocks or xrefs.

Settings

Displays a dialog box:



- 1 Create interference solids - when ticked on, makes new solids from the interference area or volume.
- 2 Layer - specifies the layer on which interference entities are created. Default = layer stored in INTERFERELAYER system variable. Do not select a layer of selected entities as it is considered the output layer only. It is recommended to select an empty layer or accept the default layer.
- 3 Color - specifies the color of the interference entities; the color of the Interference layer is changed to match this color.

check first set

Checks the interference of entities in the first set, when it contains two or more entities, and then creates interference entity(ies) of them.

Create interface solid?

Choose whether to create interface solid or not.

14.27 INTERSECT command

Performs Boolean intersection operations on 3D solids and 2D regions.



Icon: 

Alias: IN

Note: In the BricsCAD Lite license level, the command applies to region entities only.

14.27.1 Description

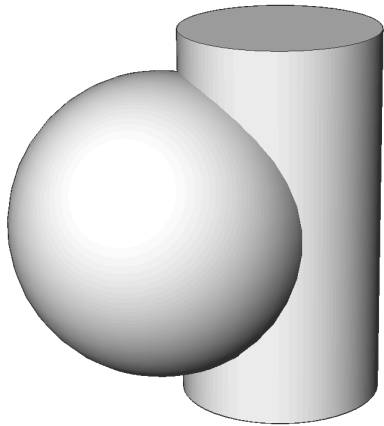
Performs Boolean intersection operations on 3D solids and 2D regions by removing all except portions in common.

Note: If solids and regions do not intersect, BricsCAD erases them.

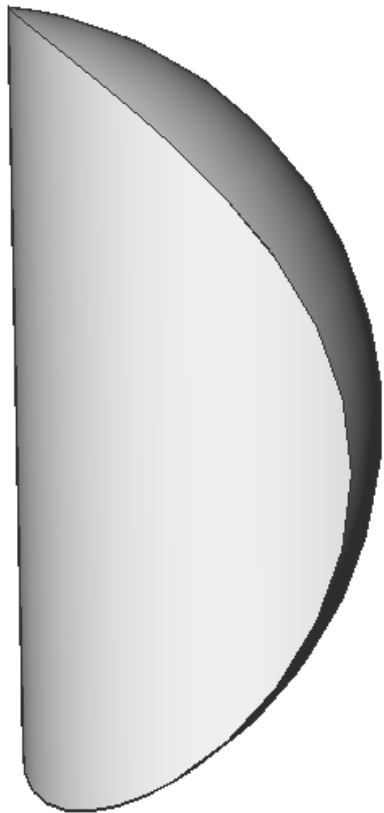
14.27.2 Method

Specify the 3D solids and/or 2D regions to be intersected. The program removes all except the volumes and areas in common from the selected entities.

The entities selected:



Result:



Note: You can interrupt the command by pressing the CANCEL button.

14.28 INTERSECTION command

Toggles the Intersection entity snap.



14.28.1 Description

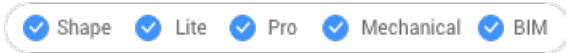
Toggles the Intersection entity snap to enable or disable snapping to intersection. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the



OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

14.29 ISAVEAS command

Saves images.

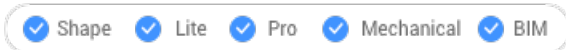


14.29.1 Description

Saves images to your computer through the Save Image File dialog box.

14.30 ISOLATEOBJECTS command

Hides all but the entity(ies) selected.



Icon:

Alias: ISOLATE

14.30.1 Description

Only selected entities are displayed. Other entities are hidden.

Note: Use the UNISOLATEOBJECTS command to make the hidden entities visible again.

Note: The OBJECTISOLATIONMODE variable controls what happens with the hidden state of the entities that weren't selected to be hidden.

Note: The ISOLATEOBJECTS command is enabled under BEDIT and REFEDIT sessions.

14.31 ISOPLANE command

Toggles the SNAPISOPAIR system variable.



Alias: IS

14.31.1 Description

Toggles the SNAPISOPAIR system variable to specify the drafting plane for isometric drawings. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'ISOPLANE.

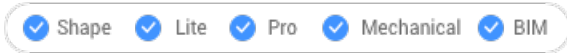
- Left: sets the SNAPISOPAIR system variable to Left.
- Right: sets the SNAPISOPAIR system variable to Right.
- Top: sets the SNAPISOPAIR system variable to Top.



- Toggle: changes the SNAPISOPAIR system variable to the next setting. It cycles in order from the current setting (left-top-right-left).

14.32 IUNEMBED command

Converts an embedded image to an attached one.



14.32.1 Description

Converts an embedded image into an attached image by exporting the embedded image to a file (which the image entity is then attached to).

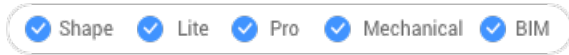
Note: This command reverts the action of IEMBED command.



15. J

15.1 JOIN command

Joins 2D entities at their common endpoints.



Icon:

15.1.1 Description

Joins lines, lightweight and old-style 2D polylines, 3D polylines, arcs, elliptical arcs, polyarcs, splines, and helices at their common endpoints.

Note: The type of the resulting entity depends on the types of the input entities and on their coplanarity.

15.1.2 Method

Two 2D polylines are joined into a single:

- 2D polyline- when they are coplanar.
- 3D polyline- when they are not coplanar and if they are composed only of straight segments.
- Spline- when they are not coplanar and if at least one of the polylines has a bulged (arc) segment.

A 2D polyline and a 3D polyline are joined into a single:

- 2D polyline: when they are coplanar.
- 3D polyline: when they are not coplanar and if the 2D polyline only has straight segments.
- Spline: when they are not coplanar and if the 2D polyline has at least one arc segment.

A line and a circular arc (or a polyline with arcs) are joined into a single:

- 2D polyline: when they are coplanar.
- Spline: when they are not coplanar.

The following pairs of entities are joined into a spline:

- Line and an elliptical arc.
- Spline and another open entity, such as an elliptical arc or polyline.
- Helix and another open entity, such as a line or arc.

Even when there are gaps between these entities, the command joins them into a single entity:

- Collinear lines: joined into a single line.
- Coplanar arcs (with same radii and center points): joined into an arc or a circle.
- Coplanar elliptical arcs (with same major and minor axes): joined into an elliptical arc or ellipse.

Circular and elliptical arcs are joined in a counterclockwise direction starting from the source arc.

Note: Collinear means the entities lie in the same imaginary line. Coplanar means the entities lie in the same plane.



16. K

16.1 KEEPME command

Adds changed entities to the source drawing, when two somewhat different drawings are being compared visually.



Icon: ✓

Note: The command works only during a session begun by the DWGCOMPARE command.

16.1.1 Method

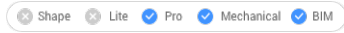
Select one or more entities or else type ALL to select all entities in the drawing to add them to the source drawing.



17. L

17.1 LANDXMLEXPORT command

Exports Civil entities to a LandXML file.



17.1.1 Description

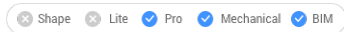
Allows you to select the BricsCAD Civil entities you want to export to a LandXML file. Once the entities are selected, the **Save LandXML file** dialog opens, where you can specify the location and name of the output LandXML file.


17.1.2 Method

Select Civil points, TIN surfaces, gradings or Horizontal Alignments and 3D Alignments in the drawing and specify the output file.

17.2 LANDXMLIMPORT command

Creates TIN surfaces or alignments from a LandXML file.



Icon: 

17.2.1 Description

Opens the **Open LandXML file** dialog box to select an .xml file to import.

The following BricsCAD Civil entities can be imported from the specified LandXML file: Civil Points, Surfaces, Horizontal Alignments (both Alignments by PI and Alignments by Elements are supported), and 3D Alignments.

17.2.2 Options within the command

Draw Breaklines as Polylines

Specifies if breaklines are imported as polylines.

Note: This option is available when importing TIN surfaces with breaklines.

The units in the drawing are different than those in the XML file. What would you like to do:

This option is available if the units in the current drawing do not match the units in the input XML file.

Scale

Scales the XML file units.

Import without scaling

Imports the XML file without scaling.

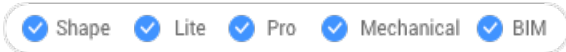
Cancel

Cancels the command.



17.3 LAYCUR command

Moves selected entities to the current layer.



Icon:

17.3.1 Description

Moves selected entities to the current layer without having to specify the name of the current layer.

You are prompted:

Select entities to be moved to the current layer

Select one or more entities you want to move to the current layer. You can continue selecting entities until you press Enter to end the command. The Command line indicates how many entities were moved and to what layer:

entities were moved to the current layer ("LayerName1").

17.4 LAYDEL command (Express Tools)

Permanently deletes a layer from the current drawing, with all entities on it.

Icon:

17.4.1 Method

Select an entity on the layer to be deleted. All the entities on that layer are deleted, along with the layer.

17.4.2 Options within the command

Type-it

Allows you to enter the layer name.

List

Allows you to enter the layer name(s) to list.

*

Lists all available layers.

Continue to delete the layer(s) ?

Yes

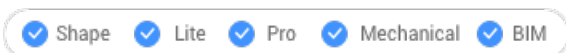
Permanently deletes the layer with all entities on it.

No

Exits the operation.

17.5 -LAYER command

Manages layers through the Command line.





Alias: -LA

17.5.1 Description

Creates layers and layer states and changes their properties.

Note: The current layer cannot be turned off and frozen.

17.5.2 Options within the command

?

Lists the names of layers in the current drawing.

New layer

Creates new layers.

Note: You can create several new layers by separating each name with a comma (,).

Make new current layer

Creates a new layer, and then makes it current.

Set layer as current

Sets a layer as the current one.

Rename

Renames the layer.

Color

Changes the color of layers.

Linetype

Changes the linetype of layers.

LineWeight

Changes the lineweight of layers.

TRansparency

Sets the entity transparency factor between 0 (fully opaque) and 90 (fully transparent).

MATerial

Sets the material property for all entities on the layer.

Plot

Changes the plot status of layers.

stAte

Manages layer states.

Save

Saves the current layer state.

Restore

Restores a saved layer state.

Edit

Edits a saved layer state.



reName

Renames a saved layer state.

Delete

Deletes a saved layer state.

Import

Displays the Import Layers States dialog box, which allows you to import a layer state from a file into the current drawing.

eXport

Exports a saved layer state in the current drawing to a layer state file.

turn layer ON

Turns layers on that were previously turned off.

turn layer OFF

Turns layers off to hide their entities from view.

Freeze

Freezes layers so that they are hidden from view.

Thaw

Thaws layers that were previously hidden with the Freeze option.

LOCK

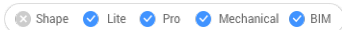
Locks layers so that their entities remain visible but cannot be edited.

Unlock

Unlocks layers that were previously locked.

17.6 LAYER command

Opens the Layers panel.



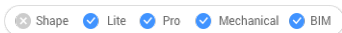
Alias: DDLMODES, LA

17.6.1 Description

Opens the Layers panel to display it in the current workspace. The Layers panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Layers panel can be either floating, docked or stacked.

17.7 LAYERP command

Restores layer properties to their previous state.



Icon:



17.7.1 Description

Restores layer properties to their previous state one change at a time. This command only works when the LAYERPMODE system variable is enabled.

There are no prompts. The Command line indicates: Previous layer settings were restored.

17.8 LAYERSPANELCLOSE command

Closes the Layers panel.

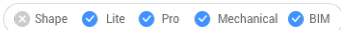


17.8.1 Description

Closes the Layers panel to hide it from the current workspace. If the Layers panel is stacked when you close it, the Layers tab or icon is removed from the stack.

17.9 LAYERSPANELOPEN command

Opens the Layers panel.

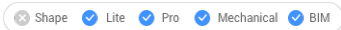


17.9.1 Description

Opens the Layers panel link to display it in the current workspace. The Layers panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Layers panel can be either floating, docked or stacked.

17.10 LAYERSTATE command

Opens the Drawing explorer dialog box with **Layer States** selected.

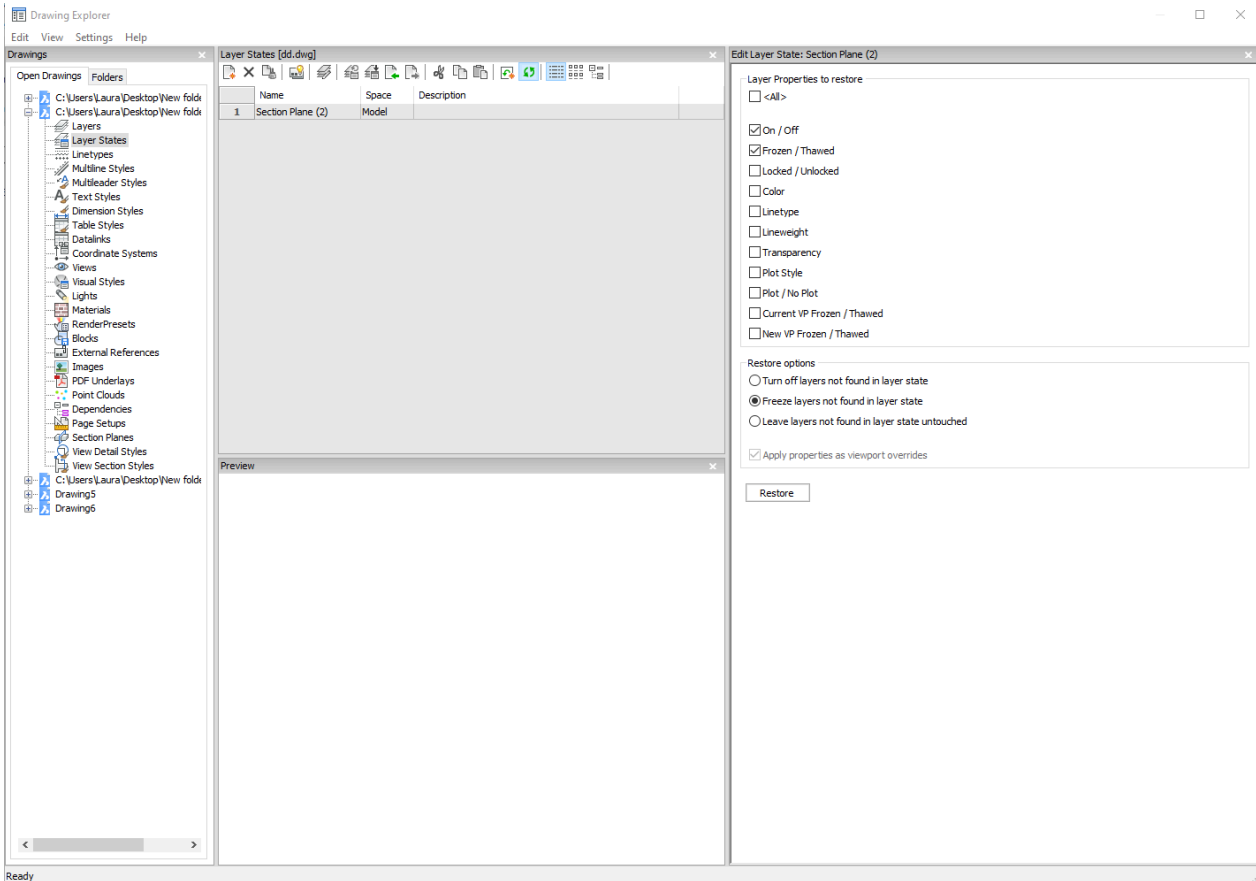


Icon:

Alias: LAS

17.10.1 Description

Open the Drawing explorer dialog box on the Layer States category to manage layer states of layers that are used in the selected drawing.



17.10.2 Options within the command

<All>

Selects or deselects all properties. See the LAYER command for the meaning of the properties

Restore options

Determines what happens with layers not found in the layer state such as those added after the layer state was created.

Apply properties as viewport overrides

Applies the layer state as viewport overrides (see VP Layer properties) to the current layout viewport.

Note: This option is only available on a layout within a layout viewport.

17.10.3 Context Menu Options

New

Creates a new layers state with a generic name.

Delete

Deletes the selected layer state from the drawing.

Note: Layer states that are used in the drawing will be deleted without warning.

Hide xref symbols

Toggles the visibility of xref symbols on and off.



Edit Layer State

Displays the Edit Layer State dialog box to change the status of the layer state.

Add

Adds layers to layer state

Remove

Remove layers from layer state.

Restore

Restores the selected layer state to the default state.

Note: The properties of the layer will change after closing the Drawing Explorer dialog box.

Overwrite

Overrides the settings of the selected layer state with new settings changed by the Edit Layer State panel.

Import

Imports layer states from a LAS file through the Layer States dialog box.

Export

Exports layer states to a LAS file through the Layer States dialog box.

Note: The layer state file can be imported into other drawings or send to clients.

Rename

Renames the item.

Select All

Selects all items.


Invert selection

Deselects the current selection and vice versa.

17.11 LAYFRZ command

Freezes layers of selected entities.



Icon: 

17.11.1 Description

Freezes layers of selected entities to hide all entities that are on the same layers as the selected entities.

17.11.2 Method

You are prompted:

Select an entity on the layer to be frozen

Select one or more entities on layers you want to freeze. You can continue selecting entities until you press Enter to end the command. The Command line indicates which layers have been frozen:

- **This layer has been frozen: LayerName1**
- **This layer has been frozen: LayerName2**



If any of the selected entities are on the current layer, the Command line indicates that layer can't be frozen:

Cannot freeze layer: LayerName3. It is the current layer.

Additional options: [Settings/Undo/selection options (?)]

17.11.3 Options within the LAYFRZ command

After you begin the LAYFRZ command, the following options may be available:

Settings

Choose to modify viewport or block selection settings.

Viewports

Specify the behavior for layout viewports.

- **Off:** freezes layers in all viewports. This is the default option.
- **VPFreeze:** freezes layers in the current viewport.

Block selection

Specify the behavior for blocks and external references.

- **Selection:** freezes the layer of selected entities including blocks and external references. It ignores layers of entities within the block or external reference regardless of where you pick the block. This is the default option.
- **Block:** freezes the layer of the selected block/xref or nested block/xref. This option requires you to select entities by picking each one individually. Where you pick, on a parent or nested block/xref, determines which layer is frozen.
- **Entity:** freezes the layer of the selected entity within a block/xref or nested block/xref. This option requires you to select entities by picking each one individually. Where you pick, on a parent or nested block/xref, determines which layer is frozen.
- **None:** this option behaves the same as the Selection option.

Undo

Undo the previous LAYFRZ operation.

Selection options

17.12 LAYISO command

Isolates the layers of selected entities.



Icon:

17.12.1 Description

Isolates the layers of selected entities lock or hide all entities except those that are on the same layers as the selected entities.



17.12.2 Method

You are prompted:

Select entities on the layer(s) to be isolated

Select one or more entities on layers you want to isolate. You can continue selecting entities until you press Enter to end the command. If all selected entities are on the same layer, the Command line indicates which layer has been isolated and makes it the current layer:

This layer has been isolated: LayerName1. This layer is current: LayerName1.

If the selected entities are on more than one layer, the Command line indicates how many layers have been isolated.

Number of isolated layers: #.

If the selected entities don't include one from the current layer, the current layer is changed to one of the isolated layers.

Additional options: [Settings/selection options (?)]

17.12.3 Options within the LAYISO command

Settings

Specify the behavior of layers that are not isolated.

Lock

Lock layers that are not isolated. This is the default option.

Off

Hide entities on layers that are not isolated. You can specify how entities are hidden for layout viewports.

- **Off:** freezes layers in all viewports. This is the default option.
- **VPFreeze:** freezes layers in the current viewport.

Selection options

17.13 LAYLCK command

Locks the layer of a selected entity.



Icon:

17.13.1 Description

Opens the Layers panel to display it in the current workspace. The Layers panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Layers panel can be either floating, docked or stacked.

17.13.2 Method

Lock the layer of a selected entity to prevent entities on that layer from being edited.

You are prompted:



Select an entity on the layer to be locked

Select an entity on the layer you want to lock.

The Command line indicates which layers have been locked:

- **This layer has been locked: LayerName1**
- **This layer has been locked: LayerName2**

Entities on locked layers are faded by default. You can change layer fading with the LAYLOCKFADECTL system variable.

17.14 LAYMCH command (Express Tools)

Changes the layer of selected entities to match a destination layer.

Icon:

17.14.1 Method

Select entities to be changed and then select an entity on the target layer.

17.14.2 Options within the command

Type-it

Allows you to enter the layer name.

17.15 LAYMCUR command

Changes the working layer to that of the entity selected (short for "layer make current").



Icon:

Alias: SETLAYER

17.15.1 Method

Choose one entity whose layer will be made the current layer.

17.16 LAYMRG command (Express Tools)

Merges layers of selected entities into a destination layer.

Icon:

17.16.1 Method

Select the entities on the layers to be merged and then select an entity on the target layer.

Note:

- The entities on the merged layers are moved to the target layer.
- The merged layers are purged from the drawing.



17.16.2 Options within the command

Type-it

Allows you to enter the layer name.

List

Allows you to enter the layer name(s) to list.

*

Lists all available layers.

Do you want to continue?

Yes

The merged layers are purged.

No

Exits the command, without merging the layers.

17.17 LAYOFF command

Turns off layers of selected entities.



Icon:

17.17.1 Description

Turns off layers of selected entities to hide all entities that are on the same layers as the selected entities.

You are prompted:

17.17.2 Select an entity on the layer to be turned off

Select one or more entities on layers you want to turn off. You can continue selecting entities until you press Enter to end the command. The Command line indicates which layers have been turned off:

- **This layer has been turned off: LayerName1**
- **This layer has been turned off: LayerName2**

If any of the selected entities are on the current layer, you are prompted:

This layer is current: LayerName3. Do you want to turn off current layer?

Specify if you want to turn the current layer off.

- **Yes:** turn off the current layer.
- **No:** do not turn off the current layer.

Additional options: [Settings/Undo/selection options (?)]

17.17.3 Options within the LAYOFF command

After you begin the LAYOFF command, the following options may be available:

Settings

Choose to modify viewport or block selection settings.



Viewports

Specify the behavior for layout viewports.

- **Off:** turns off layers in all viewports. This is the default option.
- **VPFreeze:** freezes layers in the current viewport.

Block selection

Specify the behavior for blocks and external references.

- **Selection:** turns off the layer of selected entities including blocks and external references. It ignores layers of entities within the block or external reference regardless of where you pick the block. This is the default option.
- **Block:** turns off the layer of the selected block/xref or nested block/xref. This option requires you to select entities by picking each one individually. Where you pick, on a parent or nested block/xref, determines which layer is turned off.
- **Entity:** turns off the layer of the selected entity within a block/xref or nested block/xref. This option requires you to select entities by picking each one individually. Where you pick, on a parent or nested block/xref, determines which layer is turned off.
- **None:** this option behaves the same as the Selection option.

Undo

Undo the previous LAYOFF operation.

Selection options

17.18 LAYON command

Turns on all layers in the drawing.



Icon:

17.18.1 Description

Turns on all layers in the drawing to view and edit entities on those layers.

There are no prompts. The Command line indicates: all layers have been turned on.

Note: Entities on frozen layers are only visible if you also thaw the layer. Entities on locked layers are only editable if you also unlock the layer.

17.19 LAYOUT command

Creates, copies, renames, and deletes layouts.



Icon:

17.19.1 Method

You can create up to 255 layouts in a single drawing. Each layout represents a sheet of paper.



17.19.2 Options within the command

?

Lists the names of layouts already defined in the drawing.

Set

Switches to the specified layout.

New

Creates new layouts.

Copy

Creates a new layout by making a copy of an existing layout.

Delete

Erases layouts from the drawing.

Rename

Renames layouts.

SAve

Saves the mentioned layout as DWG or DXF files format.

Template

Imports layouts from DWG, DWF, or DXF drawing files. The Insert Layout(s) dialog box displays, which allows you to select a layout name.

neXt

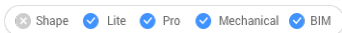
Displays the next layout.

Previous

Displays the previous layout.

17.20 LAYOUTMANAGER command

Opens the Layout manager dialog box.



17.20.1 Description

Opens the Layout manager dialog box to view and manage layouts in the current drawing.

17.21 LAYOUTMERGE command (Express Tools)

Merges entities from specified layouts into a destination layout.

Icon: 

17.21.1 Method

Opens the **LAYOUTMERGE** dialog box that allows you to merge entities from specified layouts into a destination layout, saving the corresponding views.



17.21.2 Options within the command

Delete empty layouts?

Allows you to choose to delete empty layouts or not.

17.22 -LAYOUTMERGE command (Express Tools)

Merges entities from specified layouts into a destination layout.

17.22.1 Method

Opens the **LAYOUTMERGE** dialog box that allows you to merge entities from specified layouts into a destination layout, saving the corresponding views.

17.22.2 Options within the command

Delete empty layouts?

Allows you to choose to delete empty layouts or not.

17.23 LAYTHW command

Thaws all layers in the drawing.



Icon:

17.23.1 Description

Thaws all layers in the drawing to view and edit entities on those layers.

There are no prompts. The Command line indicates: all layers have been thawed.

Note: Entities on layers are turned off are only visible if you also turn on the layer. Entities on locked layers are only editable if you also unlock the layer.

17.24 LAYTRANS command

Opens the Layer translator dialog box.



17.24.1 Description

Opens the Layer translator dialog box to translate layer properties by mapping to other layers.

17.25 LAYULK command

Unlocks the layer of a selected entity.



Icon:



17.25.1 Description

Unlocks the layer of a selected entity to enable entities on that layer to be edited.

17.25.2 Method

You are prompted:

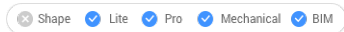
Select an entity on the layer to be unlocked

Select an entity on the layer you want to unlock. The Command line indicates which layers have been locked:

- This layer has been locked: LayerName1
- This layer has been locked: LayerName2

17.26 LAYUNISO command

Restores isolated layers to their previous state.



Icon:

17.26.1 Description

Restores the Lock, On/Off, and VP Freeze properties of isolated layers as they were before you used the LAYISO command.

There are no prompts. The Command line indicates: Layers isolated by LAYISO command have been restored.

17.27 LAYWALK command (Express Tools)

Displays selected layers and freezes all other layers.

Icon:

17.27.1 Method

Opens the **LayWalk** dialog box which allows you to select the layers for which entities are displayed.

17.28 LCONNECT command

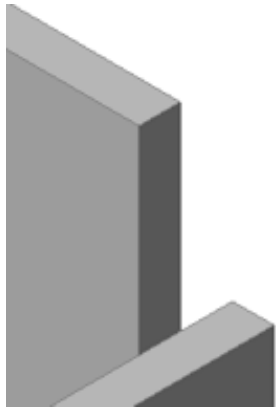
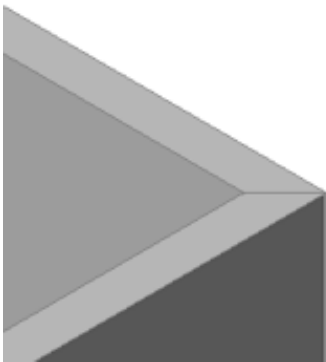
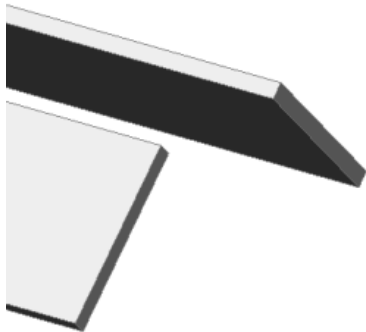
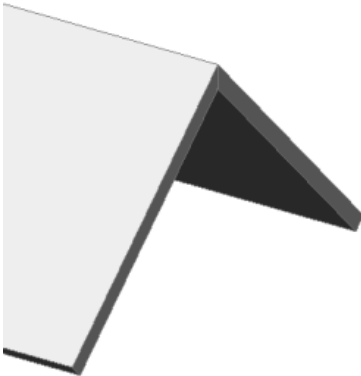
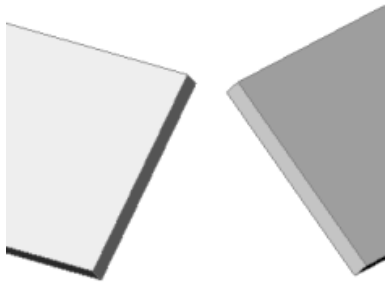
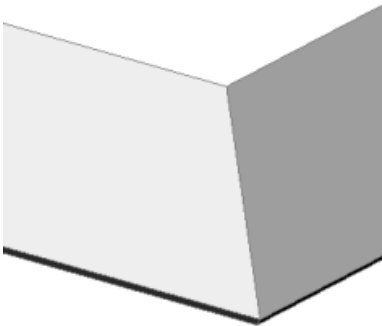
Creates or modifies an L-connection between solids.

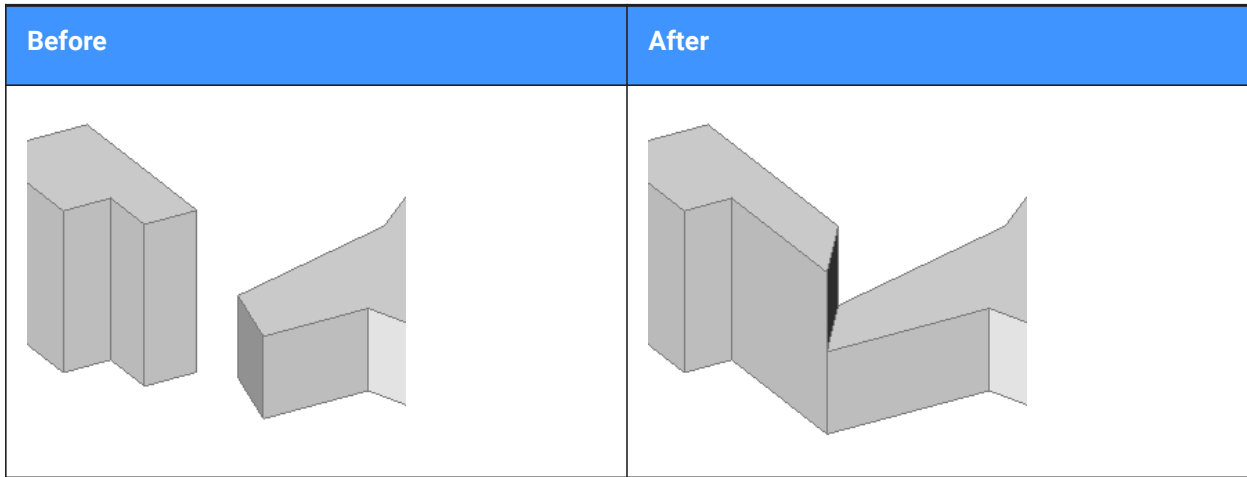


Icon:

17.28.1 Description

Creates or modifies an L-connection between solids. Optionally disconnects L-connected solids.

Before	After
	
	
	



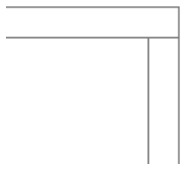
17.28.2 Options

Select entities to connect

Manually select the two entities you want to connect.

Switch

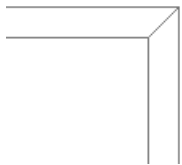
Allows to choose between two butted L-connections:



or



or a mitered L-connection:



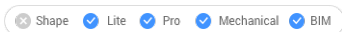
or a touching (disconnected) connection:



Note: If the HOTKEYASSISTANT is set ON, press Ctrl key to cycle between the connection types.

17.29 LEADER command

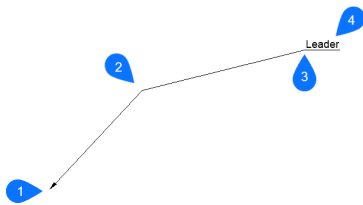
Draws leaders.



Alias: LE, LEAD

17.29.1 Description

Draws leaders by specifying several points.



- 1 Start point
- 2 Next point
- 3 To point
- 4 Annotation

Note: After you start creating a leader, options regarding the annotation may be available.

17.29.2 Options

Format

Specifies the leader style.

Arrow

Draws an arrowhead at the leader's start point (default).

None

Does not draw an arrowhead.

Spline

Draws the leader as a spline.



STraight

Draws the leader as a straight-line segment (default).

Undo

Undoes the last leader line segment.

Annotation

Starts adding text to the end of the leader line.

Note: The annotation is created as an MTEXT entity.

Note: The annotation is independent of the leader line. When moving a leader, make sure to include the annotation in the selection set.

Block

Select a block in the drawing or upload a block file from the computer.

Copy

Select a Mtext, text, block reference or tolerance object from the drawing to use as annotation of the leader.

None

The leader command closes without annotation.

Tolerance

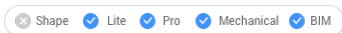
Enter the annotation as a tolerance notation through the geometric tolerance dialog box.

Mtext

Enter annotation as Mtext through a text formatting toolbar.

17.30 LENGTHEN command

Changes the length of open objects such as lines, polyline segments and arcs.



Icon:

Alias: EDITLEN, LEN

17.30.1 Method

There are four methods to change an object's length.

- Dynamic
- Increment
- Percent
- Total length

Note: By selecting an object, the current length is listed in the Command line.

17.30.2 Options

DYnamic

Specify a point to define the starting point of the object.



Note: The direction of the object won't change.

edit Mode

Returns to original prompt to switch lengthening modes.

Increment

Changes the length by a specified amount.

Angle

Changes the angle by a specified amount.

Percent

Changes the length of entities by a percentage.

Note: : For example, enter 25 (for 25%), and a 1"-long line is shorted to 0.25". Enter 150%, and the 1" line becomes 1.5".

Total

Enter the new total length of the object.

17.31 LIBRARYPANELCLOSE command

Closes the Library panel.

Shape Lite Pro Mechanical BIM

17.31.1 Description

Closes the Library panel to hide it from the current workspace. If the Library panel is stacked when you close it, the Library tab or icon is removed from the stack.

17.32 LIBRARYPANELOPEN command

Opens the Library panel.

Shape Lite Pro Mechanical BIM

17.32.1 Description

Opens the Library panel to display it in the current workspace. The Library panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Library panel can be either floating, docked or stacked.

17.33 LICENSEMANAGER command

Opens the BricsCAD license manager dialog box.

Shape Lite Pro Mechanical BIM

Icon: 

17.33.1 Description


Opens the BricsCAD License manager dialog box to view and manage your BricsCAD license.



17.34 LIGHT command

Places light glyphs in drawings for generating more realistic renderings.



Icon: 

Alias: LIGHTING

Note: Set DEFAULTLIGHTING system variable OFF to take into consideration the active lights sources defined in the drawing. Otherwise, only the default lighting will be used.

17.34.1 Options

Point

Creates a point light.

Note: See the POINTLIGHT command for the meaning of its options.

Spot

Creates a spot light.

Note: See the SPOTLIGHT command for the meaning of its options.

Web

Creates a web light.

Note: See the WEBLIGHT command for the meaning of its options.

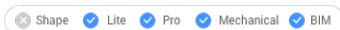
Distant

Creates a distant light.

Note: See DISTANTLIGHT command for the meaning of its options.

17.35 LIGHTLIST command

Opens the Drawing explorer dialog box with **Lights** selected.

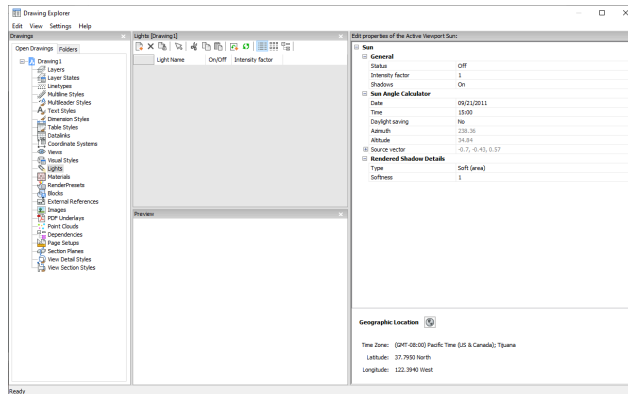


Icon: 

Alias: LL

17.35.1 Description

Open the Drawing explorer dialog on the Lights category to manage the lights in the selected drawing.



17.35.2 Options within command

General

Defines general settings of the sun.

Intensity factor

Specifies an intensity factor that makes the light brighter or dimmer, at its source.

Sun Angle Calculator

Defines the sun angle by entering date, time and location information.

Rendered Shadow Details

Defines shadow rendering settings.

Graphic Location

Defines the graphic location.

Note: For more information about the properties of a distance light named Sun, which simulates sunlight, see SUNPROPERTIES command.

17.35.3 Context Menu Options

New

Creates a new layers state with a generic name.

Delete

Deletes the selected layer state from the drawing.

Note: Layer states that are used in the drawing will be deleted without warning.

Select lights in the drawing

Selects a light through the model space of the drawing.

Rename

Renames the item.

Select All

Selects all items.

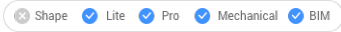
Invert selection


Deselects the current selection and vice versa.



17.36 LIMITS command

Sets an imaginary boundary for the extents of the drawing and optionally, of the grid.



Icon: 

17.36.1 Description

The command creates an imaginary rectangle boundary inside the drawing area.

Drawing outside of the area defined by this command is restricted when the LIMCHECK system variable is On. "Selected point is outside limits. Please select another point." will be reported in the Command line.

The imaginary boundary also limits the grid display when the first flag of the GRIDDISPLAY variable is not set.

17.36.2 Options

Lower left corner

Specifies the lower left corner of the limits.

Upper right corner

Specifies the upper right corner of the limits.

ON

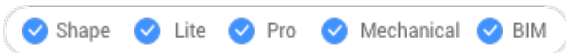
Turn on the limits for your drawing area.


OFF

Turn off the limits for your drawing area.

17.37 LINE command

Creates line segments.

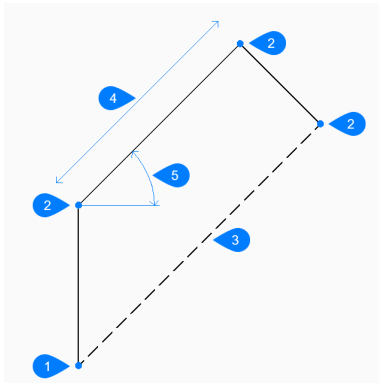


Icon: 

Alias: 3DLINE, L

17.37.1 Description

Creates a series of individual line entities by specifying the start and endpoint of each segment. Options allow you to specify the angle, undo, and close the geometry.



- 1 Start
- 2 End
- 3 Close
- 4 Length
- 5 Arc

17.37.2 Methods to begin a line

This command has 3 methods to begin creating a line segment:

- Start of line
- Last point
- Follow

You can continue adding unlimited segments until you press Enter to end the command.

Start of line

Begin creating a line by specifying the start point then:

Set end point

Specify the end point of the line segment.

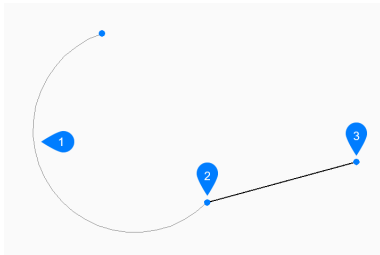
Additional options: [Angle/Length/Follow/Close/Undo]

Last point

Begin creating a line from the last point picked then:

Set end point

Specify the end point of the line segment.



- 1 Last drawn arc
- 2 Last point
- 3 End point

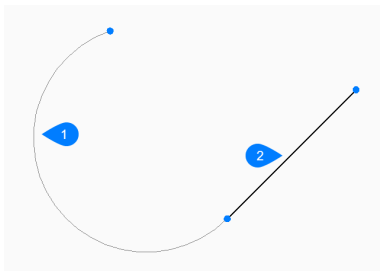
Additional options: [Angle/Length/Follow/Close/Undo]

Follow

Begin creating a line from the last drawn arc or line segment, following its angle, then:

Length of line

Specify the length of the line. Picking the endpoint only determines the length since the angle follows the previous segment.



- 1 Last drawn arc
- 2 Follow

Additional options: [Angle/Length/Follow/Close/Undo]

17.37.3 Options within the LINE command

After you begin creating a line, the following options may be available:

Angle

Specify the angle of the line segment.

Length

Specify the length of the line segment.

Undo

Undo the last line segment and continue drawing from its previous start point.

Close

Automatically draw a line from the end point of the last segment to the start point of the first segment.

17.38 -LINETYPE command

Loads, sets, and creates linetypes in the Command line.



Shape Lite Pro Mechanical BIM

Alias: -LT

17.38.1 Method

You can create a new linetype by specifying a description (up to 47 characters long) and a linetype definition.

The linetype definition consists on a series of numbers separated by commas:

- Dashes: are shown by positive numbers.
- Spaces: are shown by negative numbers.
- Dots: are shown by number zero.

Note: After creating a new linetype, you need to load it to be accessible.

17.38.2 Options within the command

?

Displays the Select Linetype File dialog box, which allows you to select a LIN file.

Create

Displays the Create or Append Linetype File dialog box, which allows you to select a LIN file to add a new linetype.

Load

Displays the Select Linetype File dialog box, which allows you to load a linetype definition.

Set

Sets current a loaded linetype.

17.39 LINETYPE command

Opens the Drawing explorer dialog box with **Linetypes** selected.

Shape Lite Pro Mechanical BIM

Icon:

Alias: DDLTYPE, EXPLTYPES, LT

17.39.1 Description

Opens the **Drawing explorer** dialog box with the **Linetypes** category selected to view and modify linetypes in the current drawing.

New drawings contain at least these linetypes: Continuous, ByLayer, and ByBlock.

- **Continuous** linetype: displays entities with a solid, unbroken line.
- **ByLayer** linetype: displays entities with the linetype assigned to the current layer.
- **ByBlock** linetype: displays entities with the **Continuous** linetype until the entities are combined into a block definition.

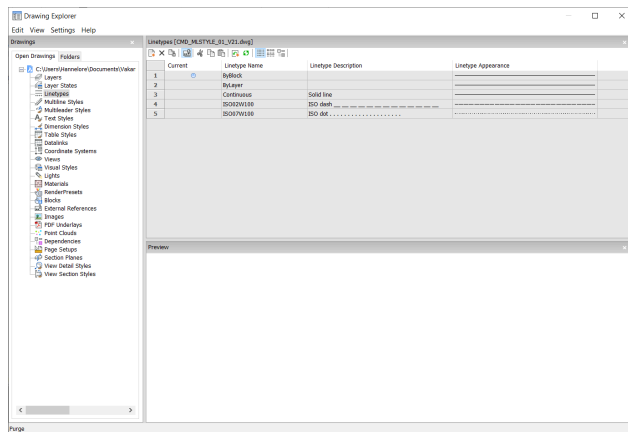


Note:

- If you need to control the linetype of a certain part of a block, you can assign the **ByBlock** value to that part of the block. This means that this part of the block does not have any value assigned until it is inserted into a drawing. You should assign the **ByBlock** value to entities before creating the block or change it in the block editor after.
- When the block is inserted into the drawing, it displays the current linetype of the drawing for those entities.

Any other linetype must be loaded into the drawing before it can be used: click the **New** button to load the linetype.

To start new drawings with all linetypes loaded, create and save the drawing as a DWT template file.



17.39.2 Context Menu Options

New

Loads additional linetypes into the drawing. Displays the **Load Linetypes** dialog box.

Delete

Deletes linetypes from the drawing.

Note: The following linetypes cannot be deleted:

- Continuous
- ByLayer
- ByBlock
- Any linetype in use

Rename

Renames the selected linetype.

Note: The following linetypes cannot be renamed:

- ByBlock
- ByLayer
- Continuous



Select all

Selects all linetypes.

Invert selection

Deselects the current selection and vice versa.

Set Current

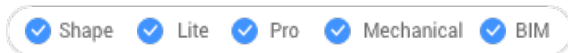
Sets the selected linetype as the current one.

Hide xref symbols

Toggles the visibility of xref symbols on and off.

17.40 LIST command

Lists the properties of selected entities.



Icon:

Alias: LI, LS

17.40.1 Description

Returns a list of properties of the selected entities. A long lists of data could be generated, so press F2 to switch to the Prompt History window. When listing gets too long, press Esc to end it.

Following properties are listed for each entity:

- Entity type
- Layer, Color, Linetype, lineweight: if these properties are not specifically defined, the information will be set to 'ByLayer'.
- Bounding box coordinates

17.40.2 Method

This command offers two methods to display the properties of a selected entity.

- Selecting entities before running the LIST command: Returns the properties of the selected entity.
- Running the LIST command before selecting entities: Allows to choose between different options before selecting the entities.

17.40.3 Options

SOrt

Entities will be listed in sort of varying properties.

SEquential

Entities will be listed in the order by which they were selected.

Tracking

Specifies the number of lines of text to be displayed.



add to set (+)

Extra entities can be added, to list their properties.

subtract from set (-)

Allows to select the entity you want to remove from the selection.

Previous selection

Select the option in the Command line to go back to the previous selection.

select by PROPERTIES

Lists the properties of entities with the same specified properties. Entities with the same property value for properties such as color, layer, linetype, name, thickness, type, value, width, handle, location, can be selected.

selection methods

Changes the selection method, same as the PICKAUTO system variable works.

17.41 LIVESECTION command

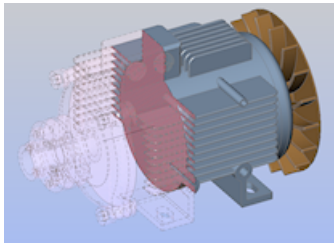
Toggles section views on/off.



Icon:

17.41.1 Description

Turns the display of the Live Section property of section planes on and off. When on, the insides of 3D models can be viewed.



Live sections differ from regular section planes by being interactive. This command requires at least one section plane in a drawing that was made with the SECTIONPLANE command.

Note: If the section was on, then it is turned off -- and vice versa.

Note: It is recommended to use the Clip Display property instead of Live Section. The Clip Display status can be set for multiple section entities simultaneously.

17.42 LMAN command (Express Tools)

Saves, edits and restores layer states.

Icon:



17.42.1 Method

Opens the **Layer Manager: Save, Edit and Restore Layer States** dialog box which allows you to save, edit and restore layer states.

Layer states are stored in the drawing, but can also be exported or read from a .lay file.

17.43 -LMAN command (Express Tools)

Saves, edits and restores layer states via the Command line.

17.43.1 Options within the command

?

Lists the available layer states.

Import

Opens the **Import file name** dialog box, which allows you to choose a .lay file to open.

Export

Opens the **Export file name** dialog box, which allows you to export the selected layer state to a .lay file format.

Save

Saves the current layer status.

Restore

Restores the layer settings of the mentioned layer state.

Delete

Deletes the mentioned layer state.

reName

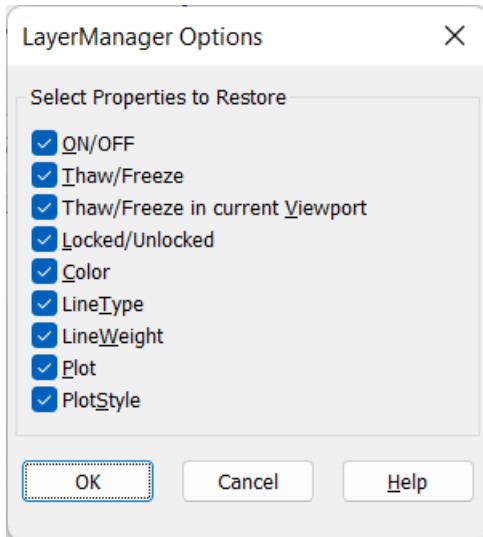
Rename a saved layer status by specifying the old name and the new name.

17.44 LMANMODE command (Express Tools)

Sets the layer manager options.

17.44.1 Method

Opens the **LayerManager Options** dialog box to select layer properties to restore.



17.45 -LMANMODE command (Express Tools)

Sets the layer manager options via the command line.

17.45.1 Description

Sets the LMAN mode setting by specifying a bit-code.

17.46 LOAD command

Opens the Load shape file dialog box.



17.46.1 Description

Opens the Load shape file dialog box to select an shx file to load into the current drawing.

17.47 LOFT command

Creates 3D solids or 3D surfaces.



Icon:

17.47.1 Description

Creates 3D solids or 3D surfaces passing through 2 selected cross sections.

Note: When the CREATESKETCHFEATURE system variable is ON, loft features are created in a dedicated BC_SKETCHES layer, which is not visible by default.

Note: The CREATESKETCHFEATURE system variable can also be controlled by pressing the

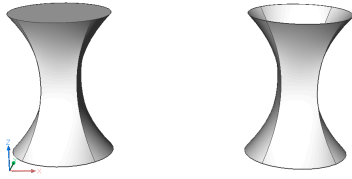
CreateSketchFeature toggle button in the ribbon.

17.47.2 Options



Mode

Determines if the resulting loft is a solid or a surface.



Solid

Creates lofts as solid.

Surface

Creates lofts as surfaces.

Guides

Uses both cross-sections and guide lines between the selected cross sections to create the loft.

Note: When DELOBJ system variable is set to 2, the selected guide entities are deleted.

Path

Specify the path curve.

Cross sections only

Uses only cross section entities to create the loft, and no guides.

Settings

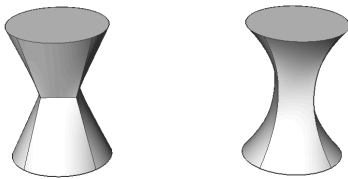
Sets variables that affect how the loft is constructed.

Ruled

Draws straight surfaces between the cross sections, features sharp edges at each cross-section.

Smooth fit

Draws smooth surfaces between the cross sections.



Normal to

Draws surfaces normal to the chosen cross sections. Select one of the options to become one of the following results:

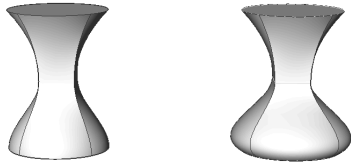
- Start
- Both
- End
- All



Draft angles

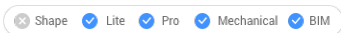
Specifies the angles at the starting and ending cross-sections to modify the loft shape.

Note: The angle option specifies the angle at which the loft starts from a cross section. The magnitude option sets the relative distance of the surface from the cross section in the direction of the draft angle before surface starts to bend towards next section.



17.48 LOGFILEOFF command

Turns off log file recording.



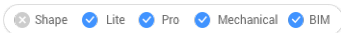
17.48.1 Description

Turns off log file recording.

Note: Log files record all prompts from the program and all of your keyboard input. It does not record mouse actions or other non-keyboard activities.

17.49 LOGFILEON command

Turns on log file recording.



17.49.1 Description

Turns on log file recording.

Note: Log files record all prompts from the program and all your keyboard input. It does not record mouse actions or other non-keyboard activities.

BricsCAD records all command text to the LOG file located in the folder specified by the LogFilePath system variable. The default name of the file is "drawingname_year-month-date_hour-minutes-seconds.log", such as drawing1_2029-08-31_08-32-46.log. Setting the LOGFILEMODE system variable to 1 has the same effect as the LOGFILEON command. You can open the resulting log file in Notepad or another text editor.

17.50 -LOGIN command

Authenticates to Bricsys server.



Shape Lite Pro Mechanical BIM

17.50.1 Description

Opens the Login dialog box to authenticate to Bricsys server.

17.51 -LOGINUSAGEDATAPROGRAM command

Opens the **Login** dialog box.

Shape Lite Pro Mechanical BIM

17.51.1 Description

Note: If you are already logged in, a login warning message displays. Press OK to continue.

17.52 -LOGOUT command

Logs out of the Bricsys account.

Shape Lite Pro Mechanical BIM

17.52.1 Description

Logs the user out of the Bricsys account, which was used to access online services.

17.53 LOOKFROM command

Toggles LookFrom widget.

Shape Lite Pro Mechanical BIM

Alias: NAVVCUBE

17.53.1 Description

Changes the display of the LookFrom widget between on and off, and accesses the settings for displaying the widget.

17.53.2 Methods

There are two methods to control the widget:

- ON/OFF - toggle the widget's display.
- Settings - adjust the widget's look, by accessing the LookFrom Control section of the Settings dialog box.

17.54 LSP command (Express Tools)

Shows a list of all BricsCAD LISP commands, functions and variables.

17.54.1 Options within the command

Commands

Lists all BricsCAD LISP commands.



Functions

Lists all BricsCAD LISP functions.

Variables

Lists all BricsCAD LISP variables.

Load

Opens the **Load Application Files** dialog box to load and unload application files.

17.55 LSPSURF command (Express Tools)

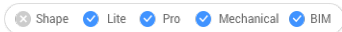
Edits and debugs LISP applications.

17.55.1 Method

Opens the **BLADE - BricsCAD LISP Advanced Development Environment** dialog box to edit and debug LISP applications.

17.56 LWEIGHT command

Opens the Settings dialog box with the **Lineweights** category expanded.



17.56.1 Description

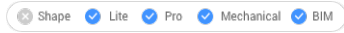
Opens the Settings dialog box with the **Lineweights** category expanded to view and modify relevant system variables.



18. M

18.1 MAIL command

Opens the default email client.

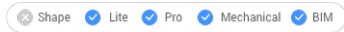


18.1.1 Description

Opens the default email client to automatically start a new email with the current drawing attached. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

18.2 MANAGEUSAGE DATA command

Opens the **BricsCAD Usage Data Program** dialog box.

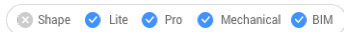


18.2.1 Description

Opens the **BricsCAD Usage Data Program** dialog box which allows you to improve BricsCAD by sending pseudonymized diagnostics and usage data to Bricsys.

18.3 MANIPULATE command

Launches the manipulator widget to rotate, move, copy, mirror, and/or scale 2D entities and 3D models.



Icon:

18.3.1 Methods

There are multiple methods to access the manipulator.

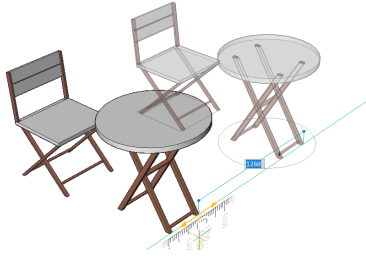
- Manipulate command
- Select entities and press enter.
- Quad
- Long press an object
- Make sure that the MANIPULATOR system variable is set correctly.

18.3.2 Options

Select an axis

Moves the selection of entities along the selected axis.

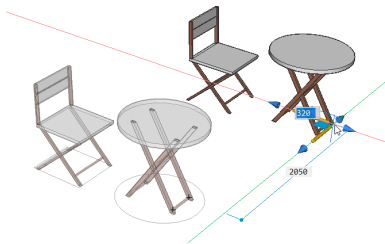
Select an axis and enter the value of the displacement or define the new position by specifying a point.



Select a plane

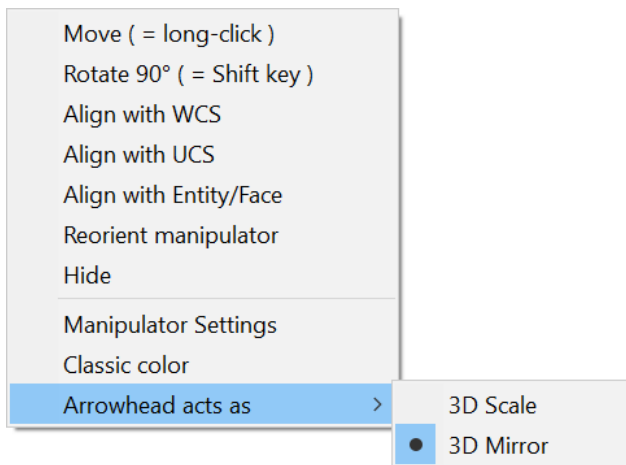
Moves the selection of entities in the selected plane.

Select a plane and enter the value of the displacement or define the new position by specifying a point.



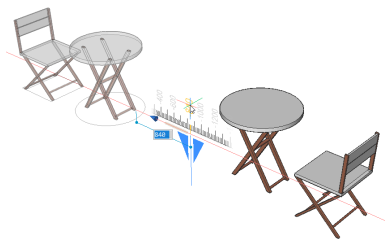
Select an arrowhead

Mirrors or scales the selection. By right-clicking when hovering over the manipulator widget, a contexts menu with other options displays. Here, the function of an arrowhead can be changed between 3D mirror and 3D scale.

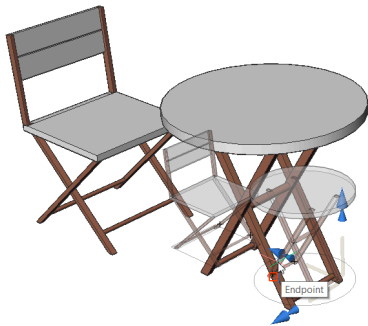


Select one of the arrowheads and specify the mirror axis or scale.

3D Mirror

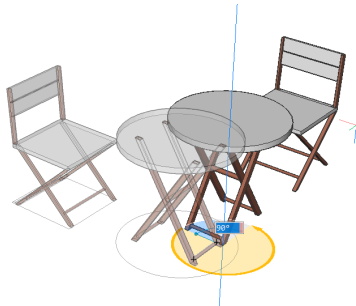


3D Scale



Select a rotation arc

Rotates the selection around one of the manipulator axes. Enter the rotation angle value or specify by clicking on a point in the drawing.



Select the anchor handle

- If MANIPULATORHANDLE = 0: Moves the manipulator. Specify a point to relocate.
- If MANIPULATORHANDLE = 1: Moves the selected entities unrestrictedly.
- Long-click the manipulator handle and move it to a new location.

Note: To copy the original entity so that a new entity is created, hold down the Ctrl key before starting the axis or make sure the copy option is enabled.

18.4 MAPCONNECT command

Allows to set up a connection with a Web Map Service.



18.4.1 Description

Displays the Map connect dialog box.


Note: Before adding map data to a drawing, you must run the GEOGRAPHICLOCATION command to define the geographic location of the drawing.

18.5 MAPTRIM command

Trims entities by a selected boundary.



Shape Lite Pro Mechanical BIM

Icon: 

18.5.1 Description

Offers an easy and fast way to trim drawing entities, either inside or outside a specified boundary.

Note: The command enables to erase or ignore entities that cannot be trimmed, such as blocks and texts.

18.5.2 Method

There are two methods to define a boundary:

- Select an entity as a trim boundary.
- Define a polygon.

Entities accepted as trim boundary:

- Closed polylines
- Circles
- Closed splines
- Ellipses

Note: Entities that cannot be trimmed:

- Leaders
- Blocks
- Texts
- Mtexts
- 3d faces
- Solids
- Wipeouts
- Raster images
- Surfaces
- Regions
- Dimensions
- Hatches
- 3d solids
- Polyface meshes
- Polygon meshes

18.5.3 Options within the command

Select a trim boundary

Allows you to select an existing entity in the drawing as the boundary polygon.



Define

Allows you to define points as the boundary polygon.

Undo

Undoes the last endpoint of line.

Select entities to trim

Allows you to select entities to trim in the drawing.

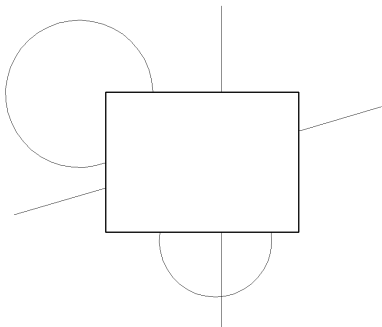
Automatic

Automatically selects all entities in the drawing to be trimmed.

Note: **Automatic** is the default option for entity selection.

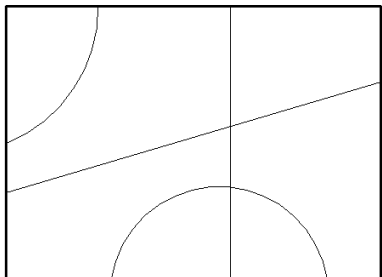
Inside

Trims the entities inside the defined boundary.



Outside

Trims the entities outside the defined boundary.



Note: **Outside** is the default option to trim entities.

Ignore

Ignores the entities that cannot be trimmed.

Delete

Deletes the entities that cannot be trimmed.

Reference

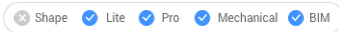
If the **Inside** option was chosen, the entity that cannot be trimmed is deleted only if its insertion point lies inside the specified boundary.

If the **Outside** option was chosen, the entity that cannot be trimmed is deleted only if its insertion point lies outside the specified boundary.



18.6 MASSPROP command

Reports mathematical properties of 3D and 2D regions.



18.6.1 Description

Reports the area, perimeter and other mathematical properties of 3D solid models and 2D region entities.

Note: All other entities are ignored by the program.

Note: You can stop the calculation by pressing ESC.

18.6.2 Options

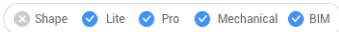
Write analysis to a file?

Decides whether to save the report into a *.mpr file or not.

Note: If Yes, the **Create Mass** and **Area Properties File** dialog box opens. The *.mpr file can be opened in any text editor. MPR is short for Mass Properties Report.

18.7 MATBROWSECLOSE command

Closes the Render materials panel.

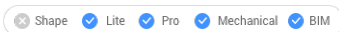


18.7.1 Description

Closes the Render materials panel to hide it from the current workspace. If the Render materials panel is stacked when you close it, the Render materials tab or icon is removed from the stack.

18.8 MATBROWSEOPEN command

Opens the Render materials panel.



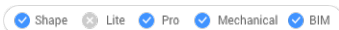
Alias: MATB

18.8.1 Description

Opens the Render materials panel to display it in the current workspace. The Render materials panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Render materials panel can be either floating, docked or stacked.

18.9 MATCHPERSPECTIVE command

Matches the current model space view with a background image.



18.9.1 Description

Matches the viewpoint of model space with the apparent perspective view provided by a background image, after three or more pairs of matching points are selected.



Before starting this command, place an image in the drawing with the BACKGROUND command, and then switch the viewpoint to perspective mode with the PERSPECTIVE variable.



18.10 MATCHPROP command

Copies selected properties and styles from one entity and applies it to one or more entities.

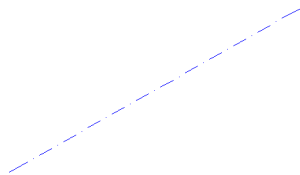
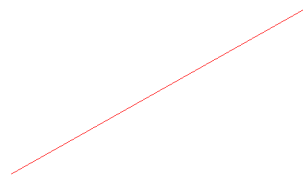


Icon:

Alias: MA

18.10.1 Method

Select the entity whose properties will be copied and the entities to apply the properties to.





18.10.2 Options

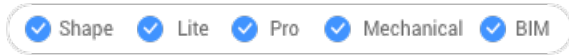
Settings

Specifies which settings to be copied. The Match Properties dialog box lists applicable properties along with their current value.

Check all properties that may be applied on other entities so not all properties are automatically matched.

18.11 MATERIALASSIGN command

Assigns current material to entities.



18.11.1 Description

Applies a material definition to filled entities. These materials make the results of visual styles and renderings look more realistic. They do not define physical properties, such as mass. Among visual styles, materials are displayed by the Modeling, Realistic, and Xray styles.

18.11.2 Method

Before a material can be assigned, one must be chosen. There are three methods of picking, assigning, and removing materials to and from entities.

Picking Materials

Follow one of these methods to specify the material to be applied:

- Specify a material with the CMATERIAL command:
- (Hidden option.) After starting the MATERIALASSIGN command, hold down the ALT key:

Use the dropper widget to select an entity that already has a material assigned to it.



Assigning Materials

Use the paintbrush glyph to apply the material to one or more valid entities.



Valid entities are 3D solids and 3D surfaces, as well as “solid filled” 2D entities, such as regions and traces. Materials cannot be assigned to unfilled entities, such as circles, nor to open entities, such as arcs, nor to areas that appear to be filled, such as those filled with hatches or gradients.

To apply the material to just one face instead of the entire entity, hold down the CTRL key.

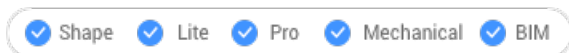
Choose more entities, or undo the last material assignment or end the command.

Removing Materials

To remove materials, apply the **BYLAYER** material to entities or to layers.

18.12 MATERIALMAP command

Adjusts the placement of texture images.



Icon:



Alias: SETUV

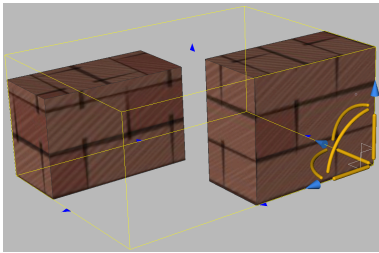
18.12.1 Description

Adjusts the placement of texture images onto 3D solids, 3D faces, wide polylines, and polygon meshes to create a more realistic look, such as matching a brick pattern to the wall of a house.

18.12.2 Method

The selected entities are included in a yellow bounding box. Blue grips and the manipulator widget appear:

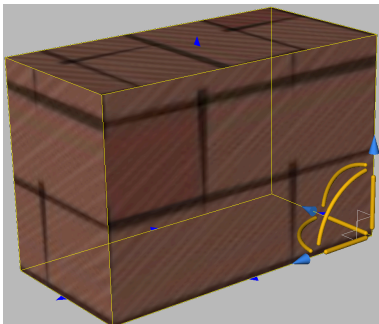
- Drag the blue grips to change the scale of the material horizontally and vertically.
- Click different parts of the manipulator to move, scale, and rotate the material.



18.12.3 Options within the command

Box

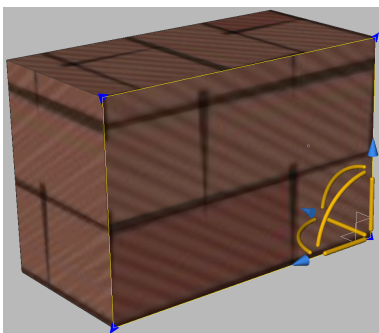
Wraps the texture around the six faces of the bounding box.



Planar

Aligns the texture to a single face.

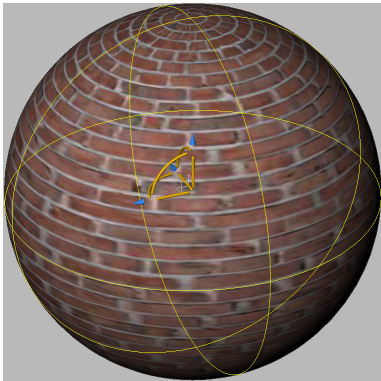
Note: To select a face of a 3D solid, tick the Select Faces option of the SELECTIONMODES variable.





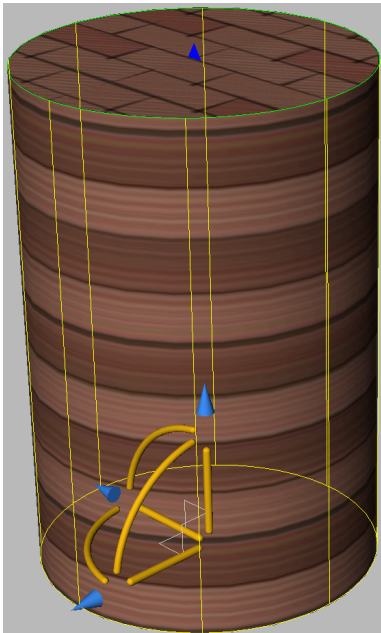
Spherical

Aligns the texture to a spherical shape. The top and bottom edges of the image are compressed to a point at the north and south poles of the sphere.



Cylindrical

Aligns the texture to a cylinder shape. The vertical edges of the image are wrapped together. The height of the image is scaled along the axis of the cylindrical shape.



sWitch mapping mode

Switches to a different mapping mode.

copY mapping to

Applies mapping from the source entity or face to the selected entities, thus duplicating the mapping, including any adjustments, to other entities. All entities share the same mapping origin, axes and scale. As a result, the texture image is extended seamlessly from one entity to another.

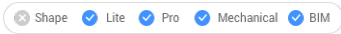
Reset mapping

Restores the default mapping.



18.13 MATERIALS command

Opens the Drawing explorer dialog box with **Materials** selected.



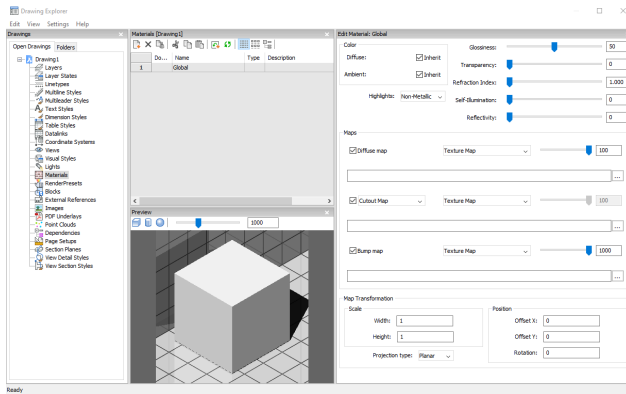
Icon:

Alias: FINISH, MAT, RMAT

18.13.1 Method

Open the Drawing explorer dialog box with **Materials** category selected to view and modify Materials in the current drawing.

Note: Materials provided by RedWay cannot be edited initially and so their settings are grayed-out, except for Map Transformation. To edit these materials, right-click a Redway material, and then choose Convert to regular material from the context menu.



18.13.2 Options within the command

Preview options

Cube

Displays a preview of the selected material applied to a cube.

Cylinder

Displays a preview of the selected material applied to a cylinder.

Sphere

Displays a preview of the selected material applied to a sphere.

Light Intensity

Sets the light intensity in the Preview window.

Color

Diffuse

Sets the diffuse color. You can click the colored tile to choose a color in the Select Color dialog box. When Inherit is checked on, the entity color is applied.



Ambient

Sets the ambient color. You can click the colored tile to choose a color in the Select Color dialog box. When Inherit is checked on, the entity color is applied.

Highlights

Sets the highlight property of the material. You can choose between Non-metallic or Metallic.

Glossiness

Defines the glossiness of the material surface. You can choose a number in the range of 0 – 100.

Transparency

Defines the transparency of the material surface. You can choose a number in the range of 0 – 100.

Refraction Index

Defines the refraction index of the material surface. You can choose a number in the range of 1.00 – 3.00.

Self-Illumination

Defines the self-illumination of the material surface. You can choose a number in the range of 0 – 100.

Reflectivity

Defines the reflectivity of the material surface. You can choose a number in the range of 0 – 100.

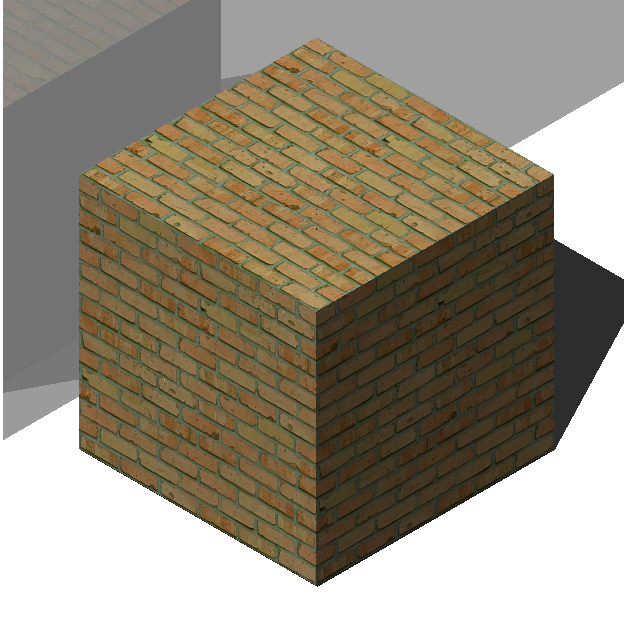
Maps

Texture maps add detail to a surface, which is not included in the 3D model itself.

Note: The TextureMapPath user preference defines the search path for texture map images. In the BricsCAD program folder exist three subfolders under Textures, each containing a number of texture files of the same name. Images in folder1 have a size of 256 x 256 pixels, folder2 contains images of 512 x 512 pixels, images in folder3 have a size of 1024 x 1024 pixels. If the Diffuse map setting of a material uses the image name only (not path), you can control the quality of a rendered image by setting the TextureMapPath user preference to folder1, 2 or 3.

Diffuse map

Diffuse maps apply a texture to the surface of a material such as wood grains, bricks, or tiles. You can select a texture bitmap file with the Browse button. The selected Texture Map can be applied as Transparency Map or as Cutout Map.



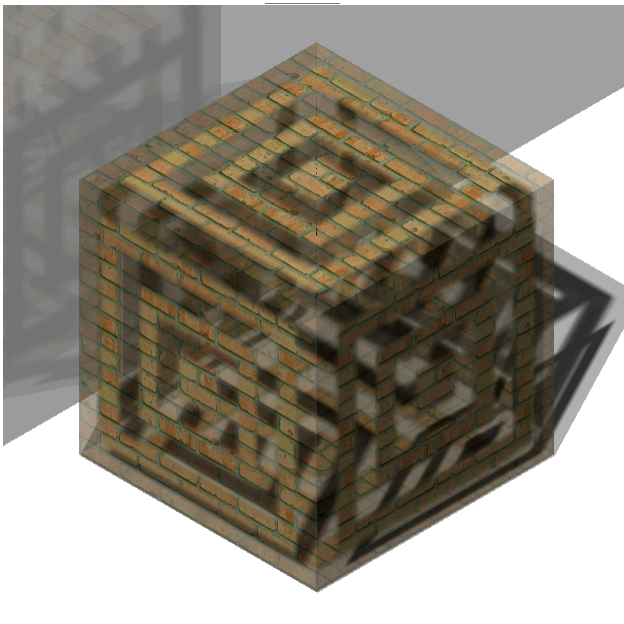
Blend factor

Sets the intensity of the texture map. In this way you can blend the texture map with the Color settings. You can set the blend factor in a range of 0 to 100.

Transparency Map

If Transparency Map is selected, the selected Texture Map image defines a transparency map. The image is recommended to be a grayscale image. White pixels will be invisible, black pixels will be opaque and gray pixels will be transparent.

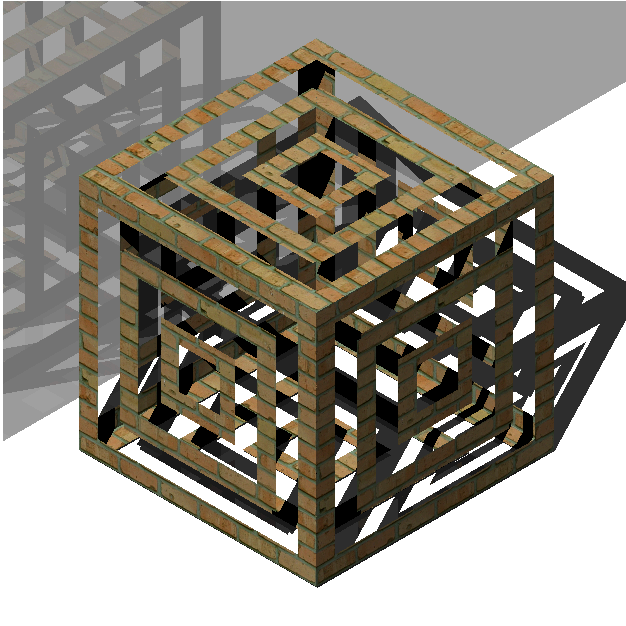
Note: If you select a colored image, it will be converted to a grayscale image in the background. The alpha channel of the image is ignored.





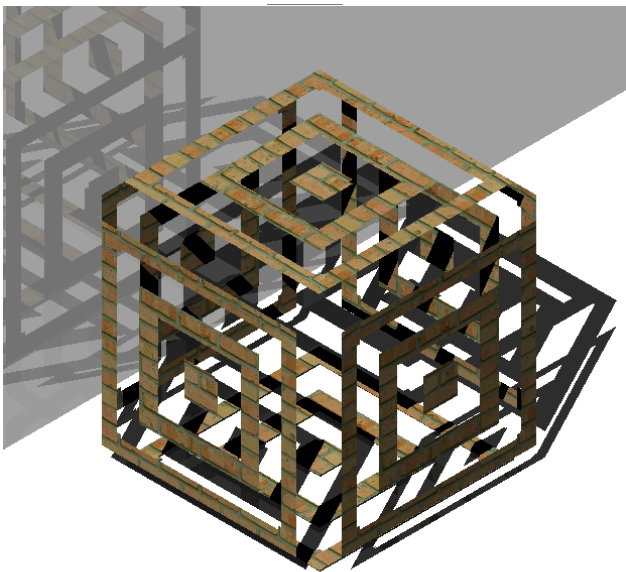
Cutout Map

If Cutout Map is selected, then the selected transparency map defines cutouts. White pixels are visible, and black pixels are invisible. The image is recommended to be a bitonal black-and-white image, without grays.



Cutout Map Inverted

Inverts the Cutout Map effect. Black pixels are visible and white pixels are invisible.



Note: If you select a colored or grayscale image, it will be converted to a black-and-white image in the background. The alpha channel of the image is ignored.

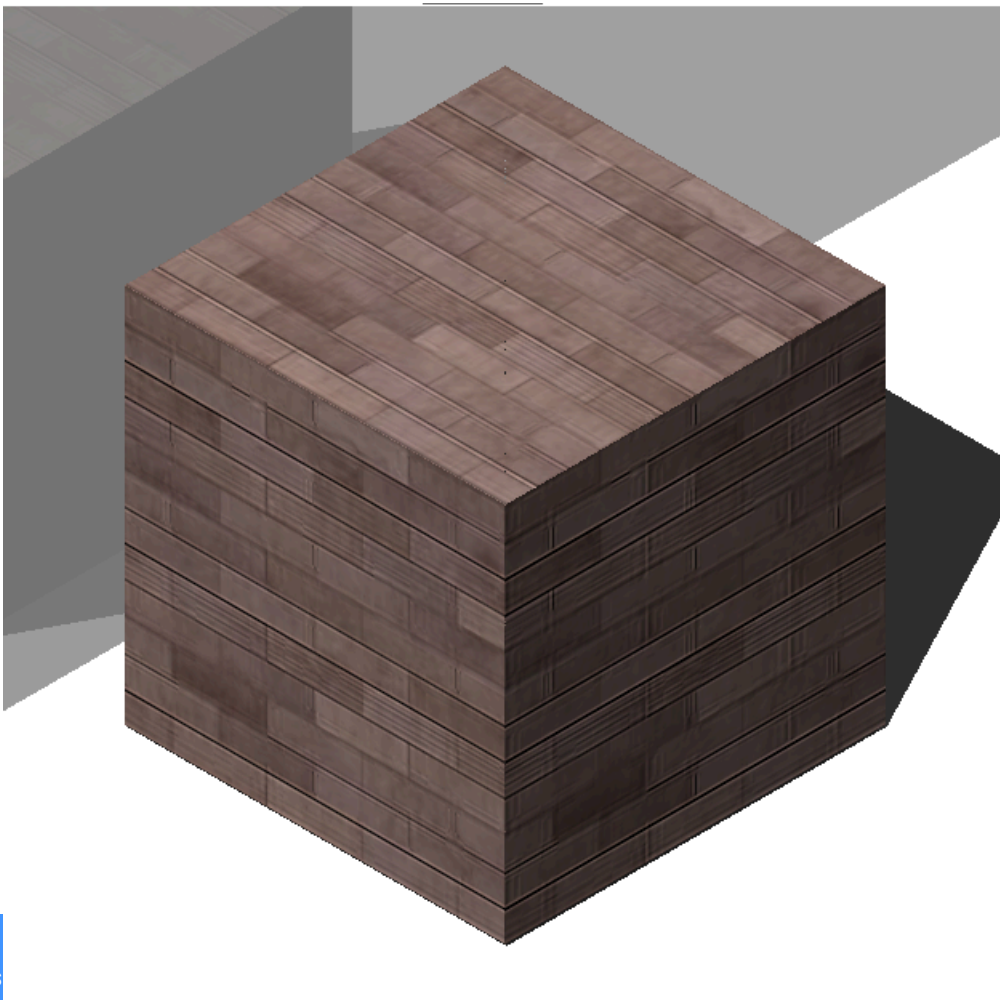
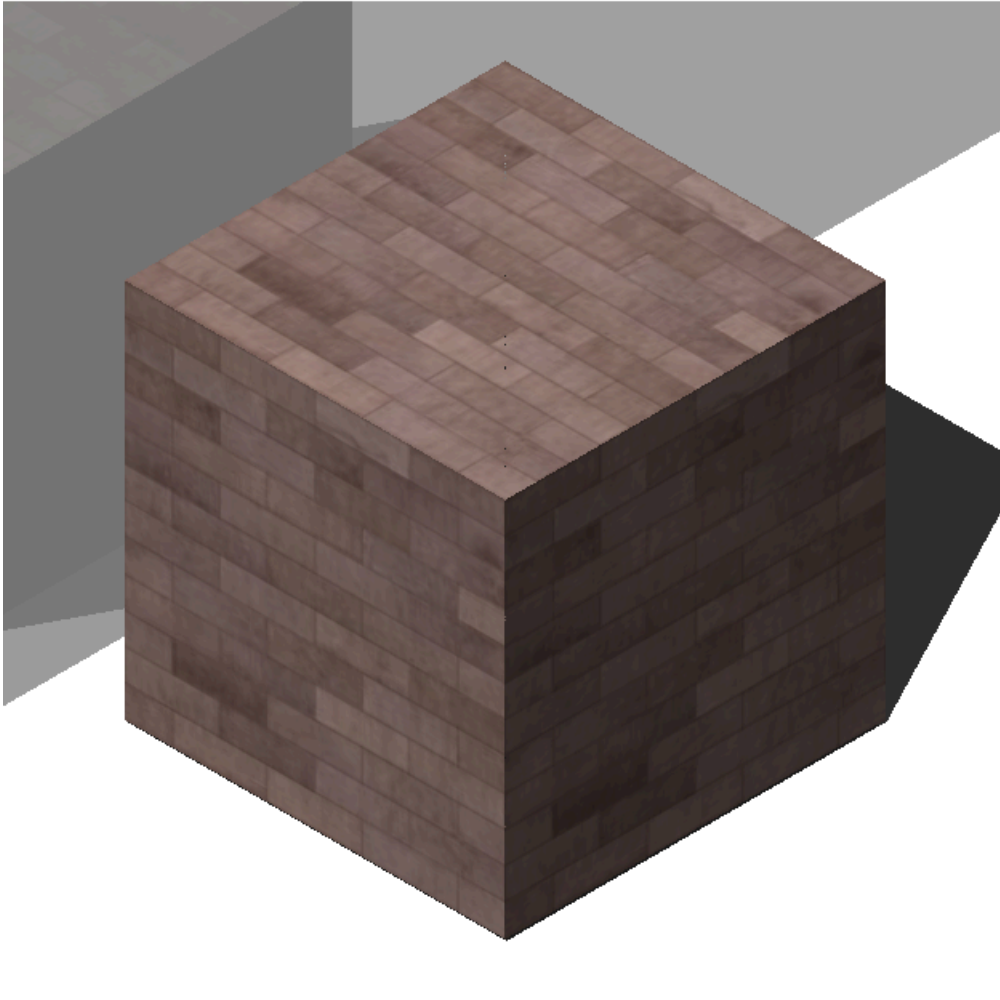


Blend factor

The transparency values in the texture will approach the scalar Transparency setting as the blend factor approaches 0. This means that if the Blend factor is 100, then the transparency value will be controlled completely by the Texture Map image. If the Blend factor is 0, the transparency texture will be completely ignored and the scalar Transparency value will be used.

Bump map

Simulates bumps and wrinkles on the surface of an object. The result is a bumpy surface although the surface of the underlying object is not modified.





Blend factor

Defines the amount of bump which is applied to the material.

Map Transformation

Scale

The texture map image is applied at a size of 1 drawing unit multiplied by the Width and Height factors. E.g. if the Width and Height factors or both set to 10, the size of the texture image is 10 x 10 drawing units.

Position

Offset

Texture maps are tiled starting from the origin of the WCS.

To adjust the tiling, you can define an Offset X and Offset Y. The offsets are expressed in drawing units.

Rotation

Sets the rotation of the texture maps.

Projection type

Defines the way the material is projected onto the object.

18.13.3 Context menu options

New

Creates a new material.

Delete

Deletes material definitions from the drawing. The following material definition cannot be deleted:

- Global
- Materials in use

Rename

Renames the material.

Note: Following material cannot be renamed: Global.

Select All

Selects all material definitions.

Invert selection

Deselects the current selection and vice versa.

Convert to regular material

Converts materials to regular material and makes it possible to edit them.

Add material(s) to library

Adds materials to the material library so you can use them in other files as well.

18.14 MATLIB command

Opens the Render materials panel.



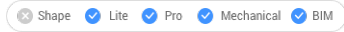


18.14.1 Description

Opens the Render materials panel to display it in the current workspace. The Render materials panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Render materials panel can be either floating, docked or stacked.

18.15 MEASURE command

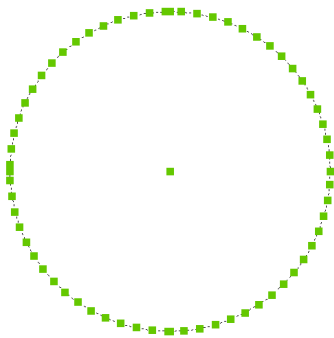
Places points or blocks along entities at equally-spaced specified distance.



Icon:

18.15.1 Method

Specify the entity you want to measure and enter a block distance value or insert a block. On the entity the points are places at equally-spaced specified distance.



Note: Points are usually invisible, so use the PdMode variable to make them larger.

18.15.2 Options within the command

Insert block

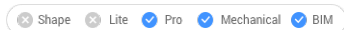
Inserts a block instead of a point.

Align block

Rotates the blocks to match the entity alignment.

18.16 MECHANICALBROWSERCLOSE command

Closes the Mechanical browser panel.



18.16.1 Description

Closes the Mechanical browser panel to hide it from the current workspace. If the Mechanical browser panel is stacked when you close it, the Mechanical Browser tab or icon is removed from the stack.



18.17 MECHANICALBROWSEROPEN command

Opens the Mechanical browser panel.



Icon:

18.17.1 Description

Opens the Mechanical browser panel to display it in the current workspace. The Mechanical browser panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Mechanical browser panel can be either floating, docked or stacked.

18.18 MENU command

Opens the Choose a customization file dialog box.



Icon:

18.18.1 Description

Opens the Choose a customization file dialog box to select a cui, cuix, mnu, mns, or icm file to load. These customization files modify the BricsCAD user interface.

18.19 MENULOAD command

Opens the Customization groups dialog box.



18.19.1 Description

Opens the Customization groups dialog box to load and unload customization groups.

18.20 MENUUNLOAD command

Opens the Customization Groups dialog box.



18.20.1 Description

Opens the Customization Groups dialog box to load and unload customization groups.

18.21 MIDPOINT command

Toggles the Midpoint entity snap.



Icon:

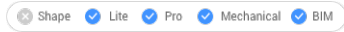


18.21.1 Description

Toggles the Midpoint entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

18.22 MINSERT command

Inserts a block as a rectangular array.



18.22.1 Description

Inserts a block as a rectangular array. It is a combination of the -INSERT and -ARRAY commands and creates a MInsert Block entity.

18.22.2 Options within the command

Block to insert

Specify the name of the block to be inserted.

~

Displays the Insert Block dialog box.

Insertion point for block

Specify the insertion point of the selected block.

Scale

Allows to set the X and Y scale factor equally.

Corner

Specifies the size of the block by picking a second point.

X scale

Specifies the scale factor of the block in the x direction.

Y scale

Specifies the scale factor of the block in the y direction.

Z scale

Specifies the scale factor of the block in the z direction.

Rotate

Specifies the rotation angle of the block around its insertion point.

Multiple blocks

Allows to insert a rectangular array of multiple blocks.

Number of rows in the array

Specifies the number of rows.

Note: To insert a linear array, enter 1. To draw the array downwards, enter a negative number.



Number of columns in the array

Specifies the number of columns.

18.23 MIRROR command

Mirrors entities about a mirror line in a 2D plane.



Icon:

Alias: MI

Note: MIRRTEXT system variable determines whether text is mirrored by the MIRROR command or not.

18.23.1 Description

The entities are mirrored about a mirror line, which you define by specifying two points.

Note: To mirror vertically or horizontally, press the Shift-key when specifying the second point or use Polar Tracking.

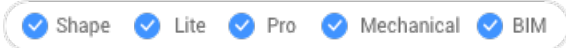
18.23.2 Options within the command

Delete the original entities?

Determines whether the original entities are erased or not.

18.24 MIRROR3D command

Mirrors entities about a mirror plane in 3D space.



Icon:

Alias: 3DMIRROR, 3DM

18.24.1 Description

Creates a mirror copy of selected entities in three-dimensional space.

18.24.2 Options within the command

Entity

Defines the mirror plane by extrusion direction.

Note: This option does not work with flat entities or 3D solids. To give an entity an extrusion, use the Properties panel's Thickness option.

Last

Reuses the last mirror plane.

View

Defines the mirror plane as the current view plane.



Z axis

Defines the mirror plane by the z axis and a point on the view plane.

X-Y plane

Specifies the mirror plane as the x,y plane.

Y-Z plane

Specifies the mirror plane as the y,z plane.

Z-X plane

Specifies the mirror plane as the z,x plane.

3 points


Defines the mirror plane by three points.

Delete the original entities?

Determines whether the original entities are erased or not.

18.25 MKLTYPE command (Express Tools)

Creates a linetype based on selected entities.

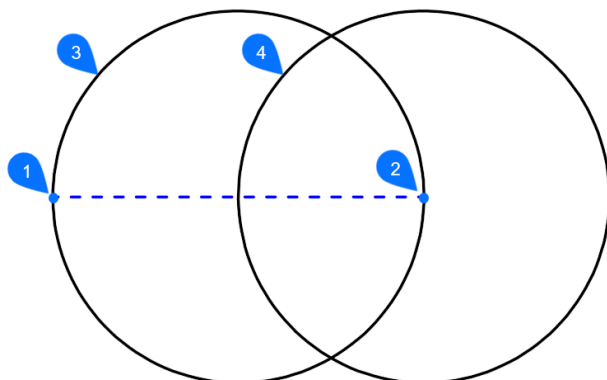
Icon: 

18.25.1 Method

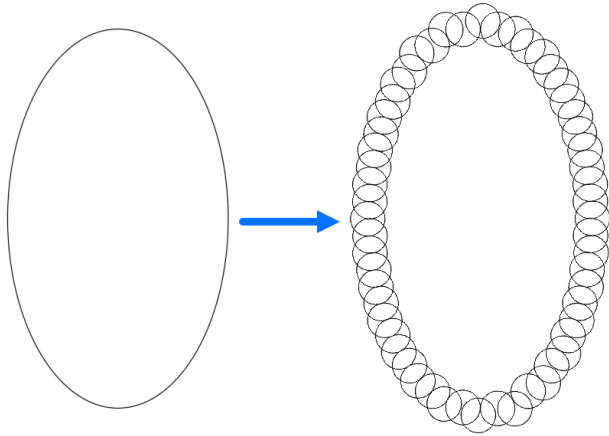
Opens the **MKLTYPE - Select Linetype file to create** dialog box that allows you to save the linetype definition.

To create the linetype definition:

- 1 Specify the linetype name.
- 2 Specify a linetype description.
Note: Press Enter to leave this field blank.
- 3 Specify a start point (1) for line definition.
- 4 Specify an end point (2) for line definition.
- 5 Select the entities you want to use (3 and 4).




The linetype is automatically loaded in the current drawing.



18.26 MKSHAPE command (Express Tools)

Creates a shape definition based on selecting entities.

Icon: 

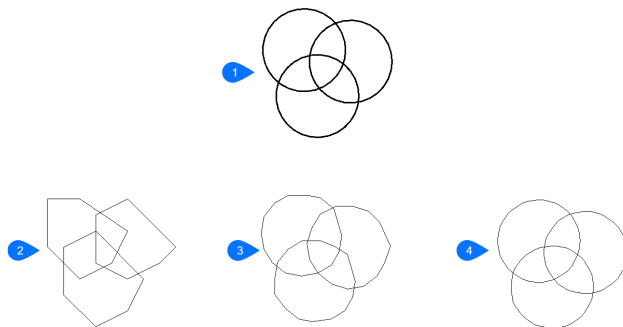
18.26.1 Method

Opens the **MKSHAPE - Select the Shape File to create** dialog box that allows you save the shape definition.

To create the shape definition:

- 1 Specify the shape name.
- 2 Enter the resolution. The larger this value, the more accurate the representation of the selected geometry will be, but the more processing time will be needed.

Note: The resolution value will be round off to a multiple of 8 and the maximum value equals 32,767.



- 1. Original objects
 - 2. Shape resolution = 8
 - 3. Shape resolution = 48
 - 4. Shape resolution = 160
- 3 Specify a base point for the shape.
 - 4 Select the entities you want to use and press enter. A shape will be created.



Note: The created shape can be inserted in your drawing using the SHAPE command.

Note: The created shape can be loaded in an other drawing using the LOAD command.

18.27 MLEADER command

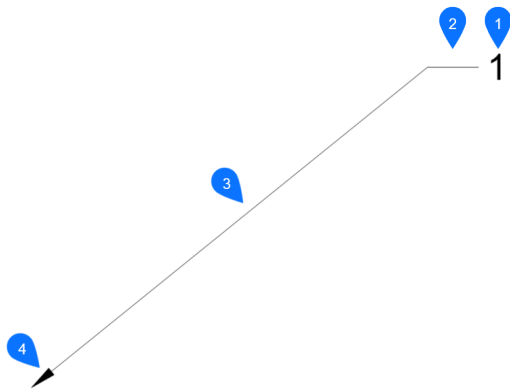
Creates multileader entities using the current multileader style.

Shape Lite Pro Mechanical BIM

Icon:

18.27.1 Description

Creates a multileader with three components: a leader line with an optional arrowhead, a landing line and the content, such as text or a block. Multileaders support more than one leader line per content.



- 1 Mtext/block
- 2 Landing
- 3 Segment
- 4 Arrowhead

18.27.2 Methods

There are three methods to begin creating a multileader:

- leader arrowHead first
- leader Landing first
- Content first

18.27.3 Options with the command

leader arrowHead first

Create a multileader by first specifying the location of the arrowhead.

leader Landing first

Create a multileader by first specifying the location of the leader landing.

Content first

Create a multileader by first specifying the location of the content.



Leader type

Sets the leader type: straight, spline or none.

Straight

The leader is drawn from straight segments.

Spline

A spline is drawn using the pick points as the control points.

None

No leader is drawn.

leader lAanding

Specifies whether to draw a landing or not.

Content type

Specifies the content type of the multileader.

Block

Uses the block name you insert.

Mtext

Uses mtext; displays the MText editor.

None

Draws no content.

Maxpoints

Enter the maximum points.

First angle

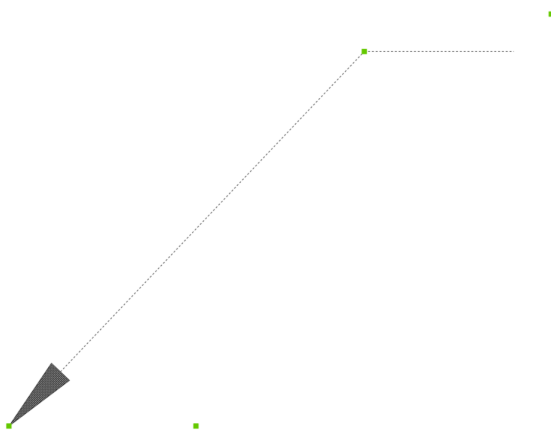
Enter the first angle constraint.

Second angle

Enter the second angle constraint.

Grip editing

By clicking the green squares, you can edit the grip points of the multileader.





18.28 MLEADERALIGN command

Aligns the balloons of two or more multileaders.

Shape Lite Pro Mechanical BIM

Icon:

18.28.1 Description

Aligns the balloons of two or more multileaders to each other, to a polyline or array around a circle. You can also specify the spacing between multileaders.

18.28.2 Method

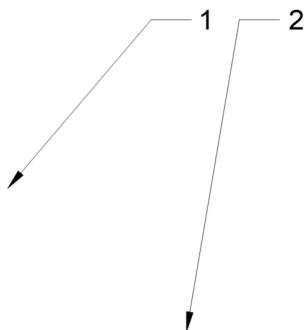
This command offers five methods to align multileaders:

- byMleader
- onpolyLine
- Parallel
- Spacing
- Circle

18.28.3 Options within the command

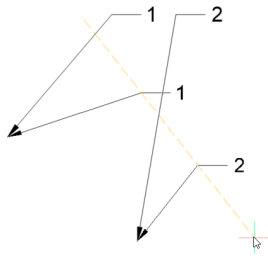
byMleader

Align the landings of the multileaders to the landing of a selected multileader.



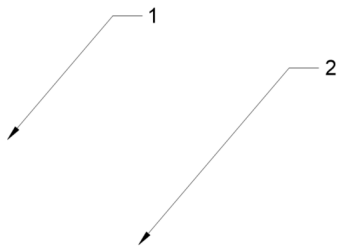
onpolyLine

Align multileaders along an imaginary polyline.



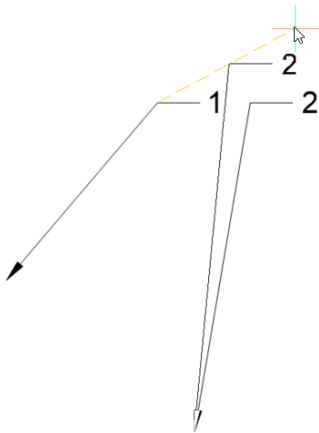
Parallel

Align the segment of the multileaders parallel to the segment of a selected multileader.



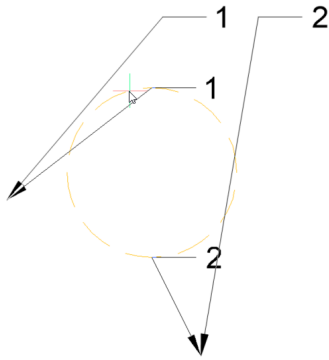
Spacing

Specify the spacing between multileaders.



Circle

Arrays the multileaders around a circle.



18.29 MLEADERCOLLECT command

Collects two or more multiline leaders into a single leader.



Icon:

18.29.1 Description

Collects two or more multiline leaders into a single leader in a horizontal or vertical arrangement. The leaders can be sorted alphabetically.

Note: The command only works with mleaders that have blocks as content.

18.29.2 Method

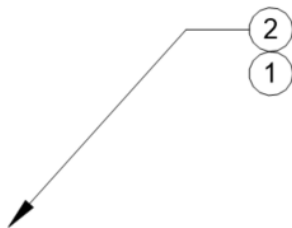
There are five methods to collect multileaders:

- Vertical
- Horizontal
- Wrap
- Sorting
- Collapsing

18.29.3 Options within the command

Vertical

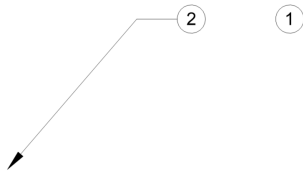
Arranges the content blocks vertically to a single leader.





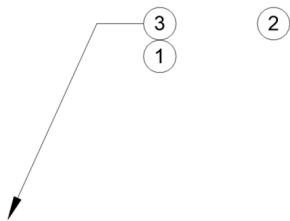
Horizontal

Arranges the content blocks horizontally to a single leader.



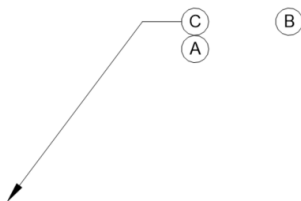
Wrap

Arranges the content blocks horizontally to a maximum width, and then places the remaining blocks in the row below.



Sorting

Sorts the content by name.



None

Does not sort the blocks.

Ascending

Sorts from A to Z.

Descending

Sorts from Z to A.

Collapsing

Arranges the content blocks horizontally to a single leader.



18.30 MLEADEREDIT command

Edit leaders from multileader entities.



Shape Lite Pro Mechanical BIM

Icon:

18.30.1 Description

Adds and removes leaders to and from multileader entities.

18.30.2 Method

There are two methods to edit multileaders:

- Add leaders
- Remove leaders

18.30.3 Options within the command

Add leaders

Adds leaders to the selected mleader entity.



Remove leaders

Removes leaders from the selected mleader entity.



18.31 MLEADEREDITEXT command

Edit leaders from multileader entities.

Shape Lite Pro Mechanical BIM

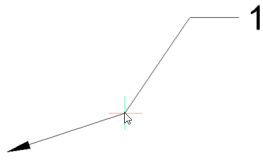
18.31.1 Description

Adds and removes leader lines, adds and removes vertices, and changes the landing length of a multileader entity (short for "multiline leader edit extended").

18.31.2 Options within the command

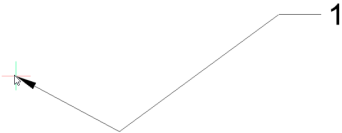
Add vertex

Adds a vertex to the leader line.



add vertex at ENd

Adds a vertex and a new leader line at the arrowhead.

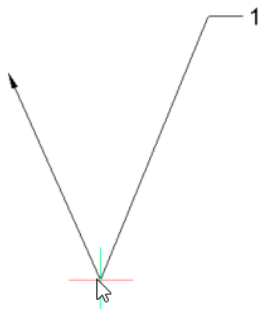


Remove vertex

Removes a vertex from the leader line.

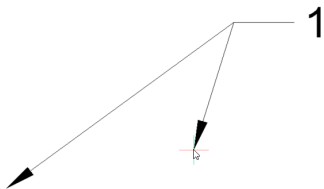
Stretch vertex

Stretch a leader line by moving a vertex.



add Leader

Adds one or more leader lines to an existing mleader.



rEmove Leader

Removes a leader and associated vertex from the leader line.



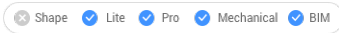
lengthen LAnding

Changes the length of the landing.



18.32 MLEADERSTYLE command

Opens the Drawing explorer dialog box with **Multileader Styles** selected.



18.32.1 Description

Opens the Drawing explorer dialog box with **Multileader Styles** selected to view and modify multileader styles in the current drawing.

18.33 MLINE command

Creates an mline.

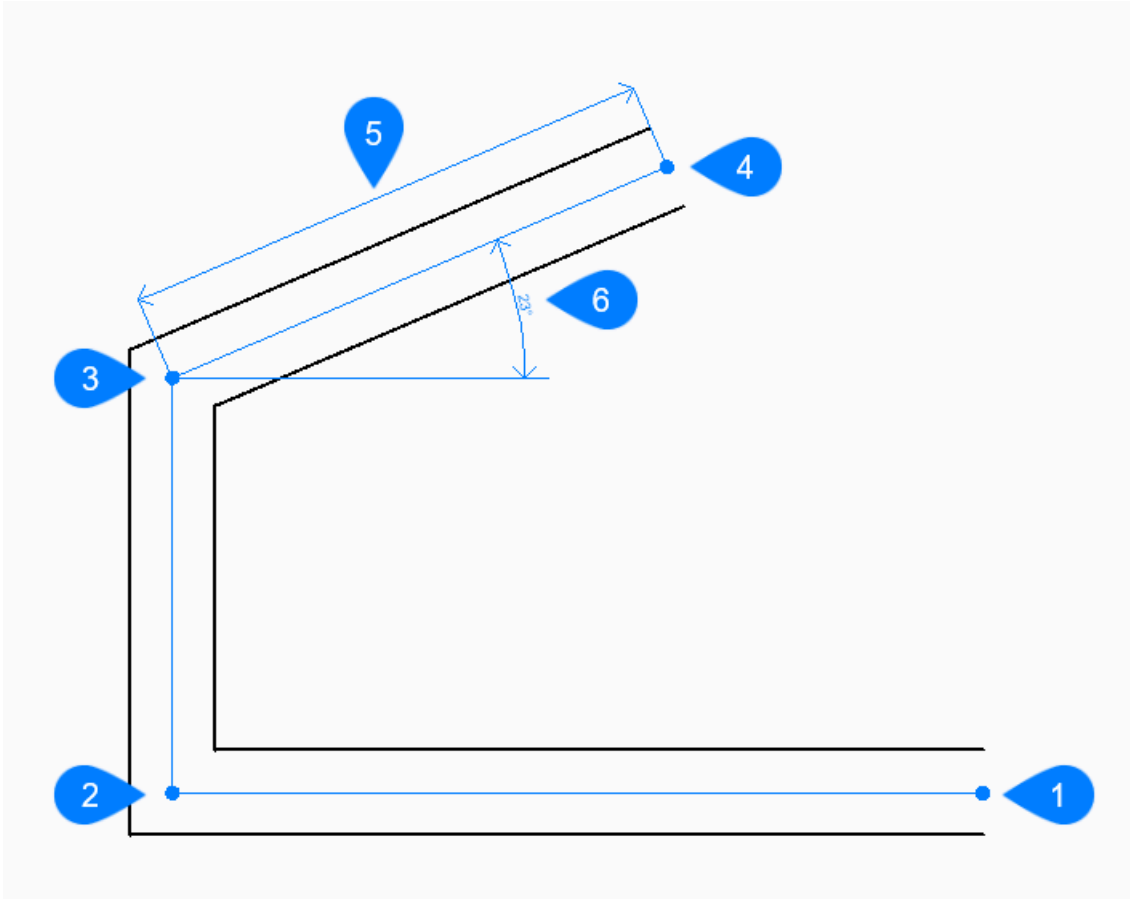


Icon:

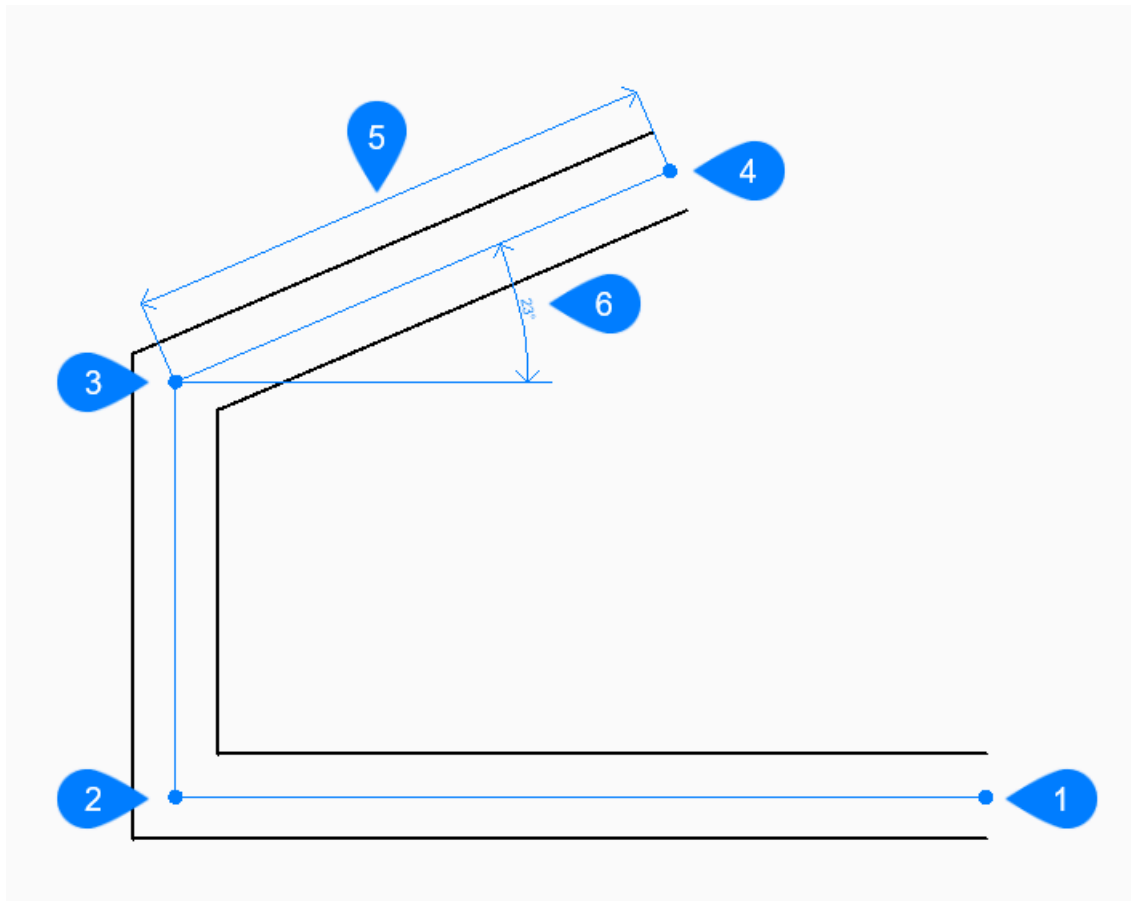
Alias: ML

18.33.1 Description

Creates a single mline entity with multiple parallel lines and segments by specifying the start and endpoint of each segment. The mline is based on the current multiline style. Options allow you to specify the justification and scale.



- 1 Start
- 2 Next
- 3 Next
- 4 End
- 5 Length
- 6 Angle



- 1 Start
- 2 Next
- 3 Next
- 4 End
- 5 Close

18.33.2 Methods to create an mline

This command has 3 methods to begin creating an mline:

- Start of line
- Last point
- Follow

You can continue adding unlimited segments until you press Enter to end the command.

Start of line

Begin creating an mline by specifying the start point then:

Additional options: [Justification/Scale/STyle/Follow]

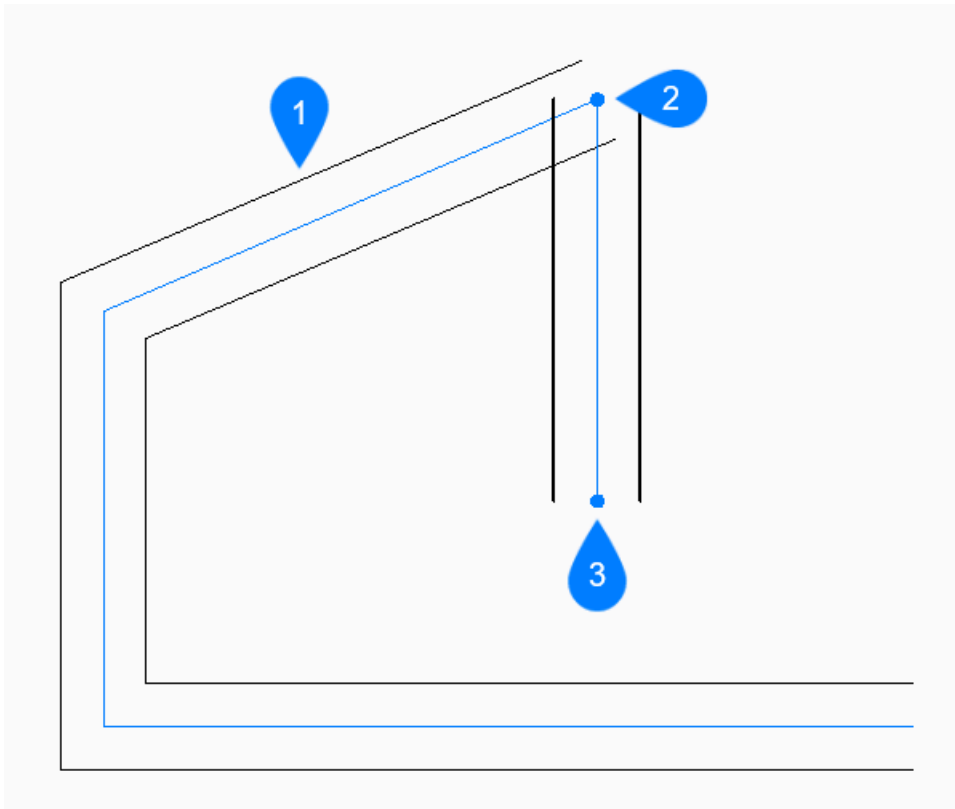
Set end point

Specify the endpoint of the mline segment.

Additional options: [Angle/Length/Follow/Close/Undo]



Last point



- 1 Last drawn segment
- 2 Last point
- 3 End point

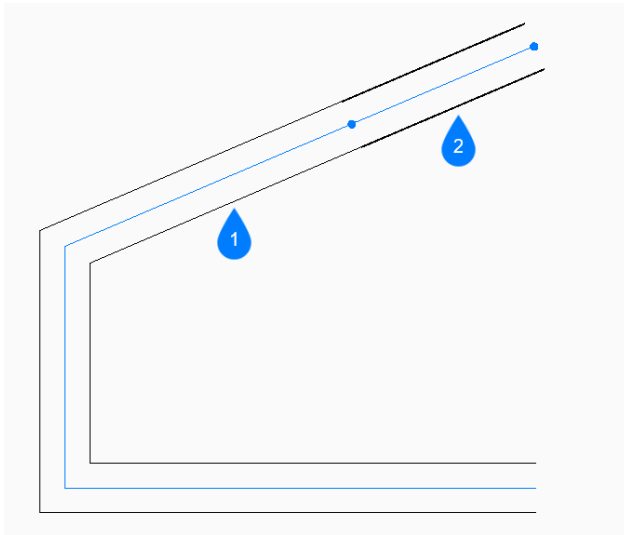
Begin creating an mline from the last point picked then:

Set end point

Specify the endpoint of the mline segment.

Additional options: [Angle/Length/Follow/Close/Undo]

Follow



- 1 Last drawn segment
- 2 Follow

Begin creating an mline from the last drawn line segment, following its angle, then:

Length of Line

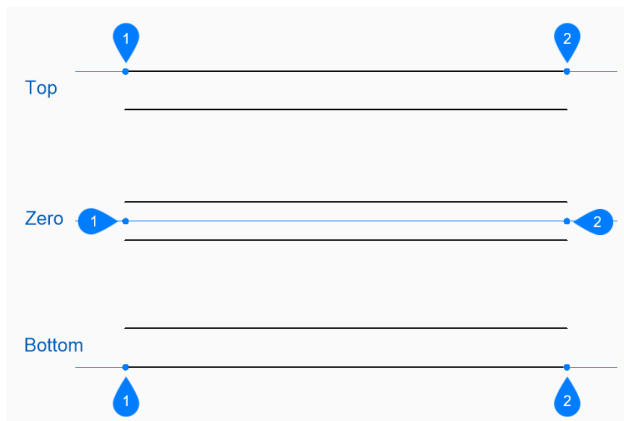
Specify the length of the mline segment. Picking a point only determines the length since the angle follows the previous segment.

18.33.3 Options within the MLINE command

After you begin creating an mline, the following options may be available:

Justification

Specify the justification of the mline relative to the start point.



- 1 Start
- 2 End

The justification is saved in the CMLJUST variable.

Scale

Specify the overall scale of the mline.



The scale is saved in the CMLSCALE variable.

Style

Specify the style to use for the mline as defined by the MLSTYLE command. The style is saved in the CMLSTYLE variable.

Additional option: [? to list available styles]

[? to list available styles]

Type ? to view a list of all multiline styles that are defined in the drawing.

Angle

Specify the angle of the mline segment measured counterclockwise from the positive x-axis.

Length of line

Specify the length of the mline segment.

Length

Specify the length of the mline segment.

Angle of line

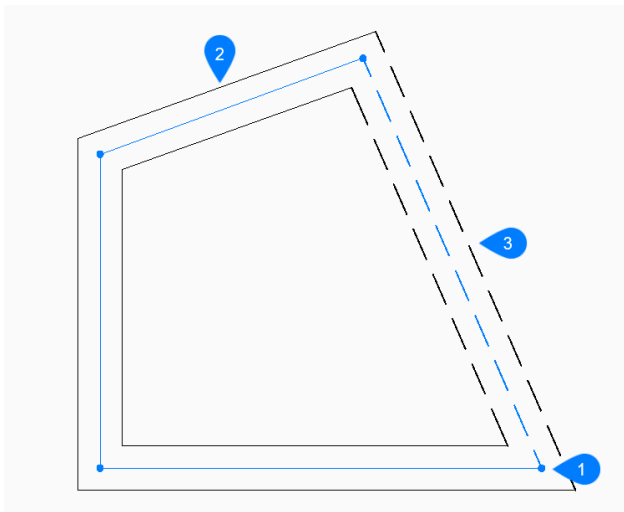
Specify the angle of the mline segment measured counterclockwise from the positive x-axis.

Undo

Undo the last mline segment and continue drawing from its previous start point.

Close

Automatically draw an mline segment from the end point of the last segment to the start point of the first segment.



- 1 Start/End
- 2 Last drawn segment
- 3 Close

18.34 MLSTYLE command

Opens the Drawing explorer dialog box with **Multiline Styles** selected.



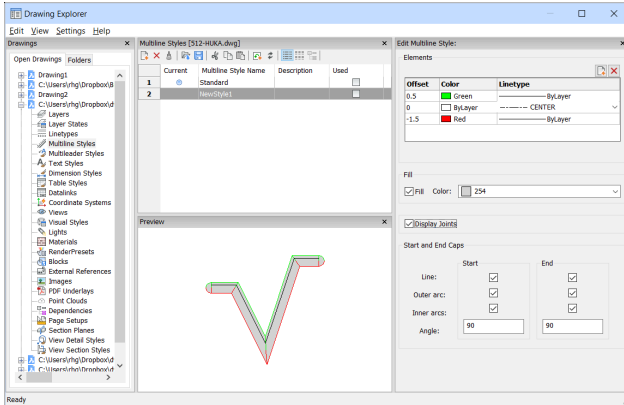


Icon:

18.34.1 Description

Opens the Drawing explorer dialog box with Multiline Styles category selected to view and modify multiline styles in the current drawing.

Note: Some properties defined by this command can be overridden by options in the MLine command.



18.34.2 Options within the command

Elements

Edits the elements of the multiline.

Add

Adds a line to the multiline definition using the default properties.

- Offset = 0 drawing units
- Color = Bylayer
- Linetype = Bylayer

Delete

Erases a line from the multiline definition without warning.

Note: Following multiline style cannot be deleted: The Standard Style.

Offset

Specifies how far each line is from the center line of the mline.

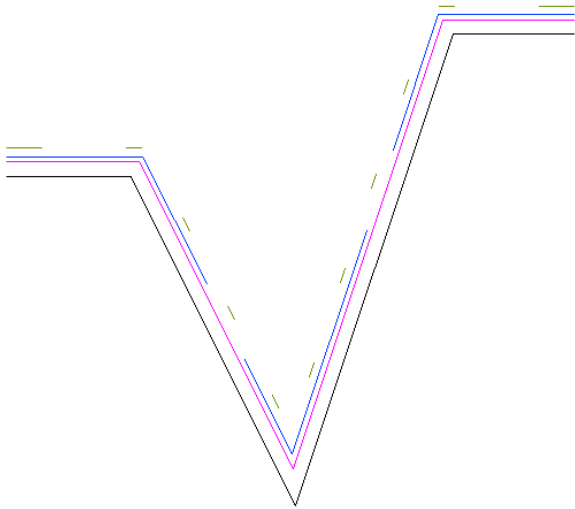
Color

Specifies the color of each line.

Linetype

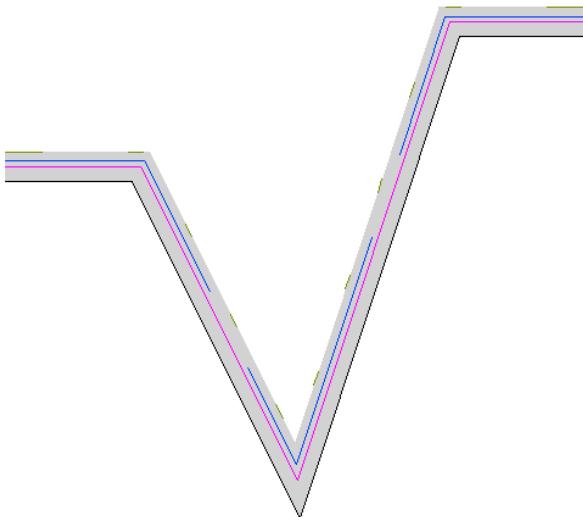
Specifies the linetype for each line. You can choose a linetype from the list or choose load to access additional linetypes.

Note: As you add elements and change properties, the preview pane shows what the mline now looks like. If the changes do not load, you should click regen or close and reopen the dialog box.



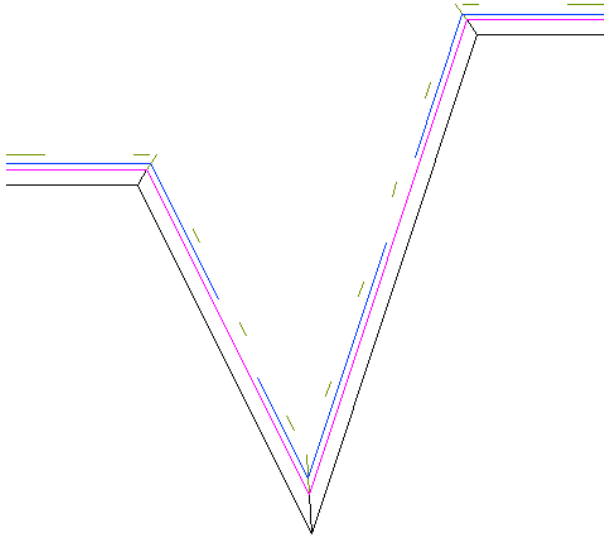
Fill

When turned on, a solid fill floods the mline between the outer lines.



Display Joints

When selected, the mline draws joints (diagonal lines) between segments.

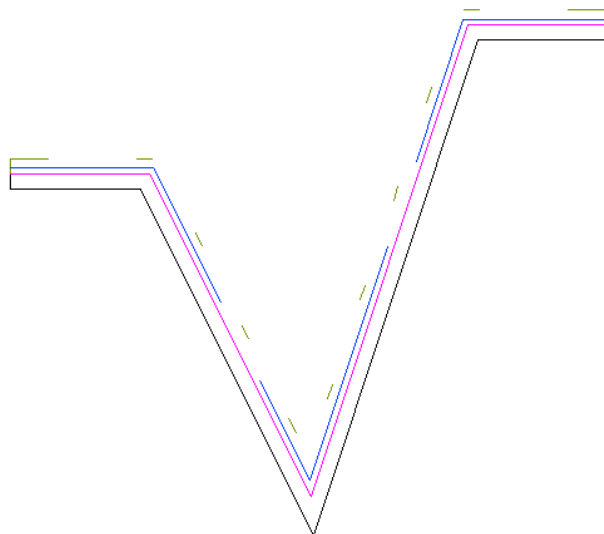


Start and End Caps

Closes the end segments of open multilines by a variety of methods.

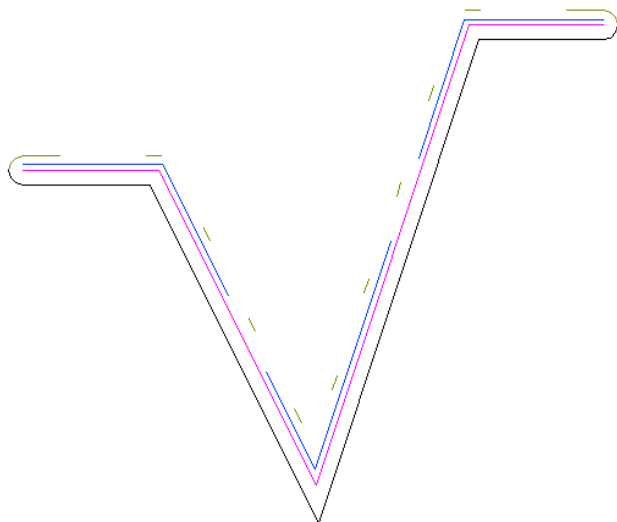
Line

Draws a straight line to close the end segments.



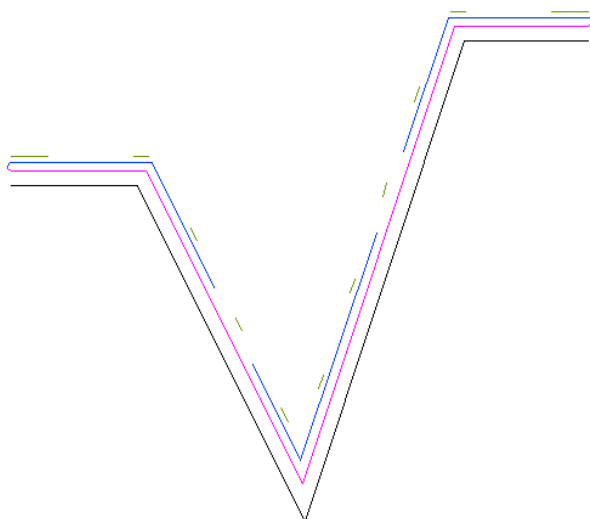
Outer arc

Draws an arc which connect the outer lines of the multiline to close the end segments.



Inner arcs

Draws arcs which connect the inner lines of the multiline to close the end segments.



Angle

Sets the angle of the outer and inner arcs.

18.34.3 Context Menu Options

New

Creates a new multiline style definition. Displays the New Multiline Style dialog box.

Delete

Deletes multiline style definitions from the drawing. The following multiline style definitions cannot be deleted:

- Standard style
- The styles in use



Load from mln file

Loads multiline styles from a multiline (*.mln) file. Displays the Load Multiline Styles dialog box.

Save to mln file

Saves all multiline styles in the drawing to a multiline (*.mln) file for use by other CAD systems. Displays the Save Multiline Styles file dialog box.

Rename

Renames the multiline style.

Note: Following multiline style cannot be renamed: Standard style.

Select All


Selects all multiline style definitions.

Invert selection

Deselects the current selection and vice versa.

18.35 MOCORO command (Express Tools)

Moves, copies, rotates or scales entities.

Icon: 

18.35.1 Method

Select the entities and specify a base point.

18.35.2 Options within the command

Move

Allows you to move the selected entities.

Copy

Allows you to make a copy of the selected entities.

Rotate

Allows you to rotate the selected entities around the specified base point.

Scale

Allows you to scale the entities.

Base

Allows you to select a new base point.

Undo

Undoes the last change.

18.36 MODELERPROPERTIES command

Opens the Settings dialog box with the **Modeler properties for ACIS** category expanded.





18.36.1 Description

Opens the Settings dialog box with the **Modeler properties for ACIS** category expanded to view and modify relevant system variables.

18.37 -MODELERPROPERTIES command

ACIS modeler settings.



18.37.1 Description

Specifies settings for the ACIS modeler.

18.37.2 Method

There are 14 methods to set ACIS modeling properties:

- view Properties
- USe facetres
- Surface tolerance
- Normal tolerance
- Max grid lines
- Edge length
- grid aspect Ratio
- Adjust mode
- Grid mode
- Triangulation mode
- min U grid lines
- min V grid lines
- mass properties aCcuracy
- check Level

Note: Turning on FACETRES turns off all other settings.

To adjust the Hidden Line Accuracy setting, use the MODELPROPERTIES command.

18.37.3 Options within the command

view Properties

Reports the value of each setting.

USe facetres

Reads the value of the FACETRES variable to set the smoothness of shaded and rendered scenes.

Surface tolerance

Sets the value for the SPANORMALTOL variable.



Normal tolerance

Sets the value for the SPASURFACETOL variable.

Max grid lines

Sets the value for the SPAMAXNUMGRIDLINES variable.

Edge length

Sets the value for the SPAMAXFACETEDGELENGTH variable.

grid aspect Ratio

Sets the value for the SPAGRIDASPECTRATIO variable.

Adjust mode

Sets the value for the SPAADJUSTMODE variable.

Grid mode

Sets the value for the SPAGRIDMODE variable.

Triangulation mode

Sets the value for the SPATRIANGMODE variable.

min U grid lines

Sets the value for the SPAMINUGRIDLINES variable.

min V grid lines

Sets the value for the SPAMINVGRIDLINES variable.

mass properties aCcuracy

Sets the value for the MASSPROPACCURACY variable.

check Level

Sets the value for the SPACHECKLEVEL variable.

18.38 MOVE command

Moves entities.

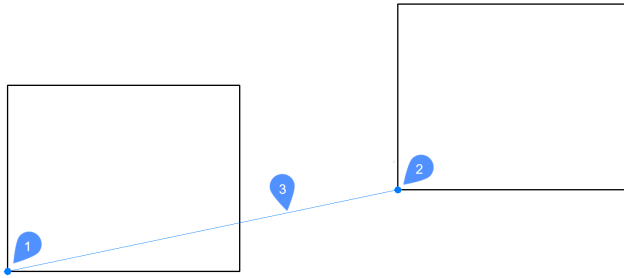


Icon:

Alias: M

18.38.1 Description

Moves entities by specifying the starting point and the destination.



- 1 Base point
- 2 Second point
- 3 Displacement distance

18.38.2 Options within the command

Displacement

Specify the displacement vector (the distance at which to position the copy). 'Vector' means that you specify the distance and angle at the same time.

Note: When Dynamic Input Mode is active, you can type a distance and angle in the dynamic input fields.

18.39 MOVEBAK command (Express Tools)

Sets the destination folder for backup files.

Icon:

18.39.1 Method

Specify a new folder name for all .bak files.

Note:

- Enter a . (dot) to clear the MOVEBAK folder name. New .bak files will be created in the original folder.
- Type ~ to open the **Select Folder** dialog box, which allows you to select the MOVEBAK directory.
- The creation of backup files is controlled by ISAVEBAK system variable.

18.40 MOVEEDATA command

Moves extended entity data from one entity to one or more others.



Icon:

18.40.1 Method

Enter the name of the application to which the entity data belongs, select the entity from which to move Entity Data and one or more entities to which Entity Data will be moved (that will receive the edata).

Extended Entity Data can be created with EditEDData command.



18.40.2 Options

? to list application names

Lists names of applications loaded in the current drawing.

18.41 MOVEGUIDED command

Moves entities using guide curves.



Icon:

18.41.1 Description

Automatically aligns moved entities with relevant geometry, using temporary guide curves. Polyline segments are also accepted as guide lines.

18.41.2 Method

The command can be executed in two ways:

Pre-pick mode

First select entities, then launch the command.

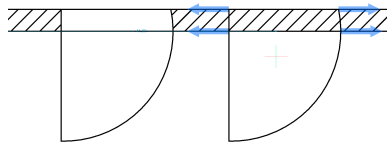
Note: The entities to be copied are displayed in green.

Post-pick mode

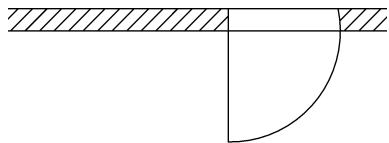
Launch the command, then select the entities using a selection window.

Note: All entities that fall completely within the selection window, including polyline segments, are included in the copy selection set and are displayed in yellow. Entities that cross the selection window are used as guide curves and are displayed in blue.

Blue arrows indicate the anchor points and direction of the guide curves. The moved entities will only align with geometry that matches the number of guide curves and distances between them.



Click to place the moved entity or type a distance in the dynamic entry fields.



18.41.3 Options within the command

Polygonal

Creates a polygonal selection window.



Rectangular

Creates a rectangular selection window.

Region

Pastes the clipped area inside the selection window.

Entities

Pastes the entities inside the selection window.

18.42 MPEDIT command (Express Tools)

Edits multiple polylines and converts lines and arcs into polylines.

18.42.1 Method

The MPEDIT command is similar to the PEDIT command, but it has the ability to operate on multiple polylines at once.

18.42.2 Options within the command

Convert Lines and Arcs to polylines?

Allows you to decide if the selected lines and arcs are converted to polylines.

Open

Opens closed polylines by removing the last segment drawn to close the polyline.

Close

Closes the polyline by adding a segment between the start and endpoints.

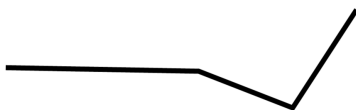
Join

Adds open entities to the selected polyline. A fuzzy distance has to be specified.

Note: This option works only with open and with cojoined entities. Cojoined means that the endpoints of entities meet, such as when drawn with ENDpoint object snap or with the Last point option. The joined entities take on the source polyline's properties, such as color, width, and layer.

Width

Changes the width of all segments.



Note: This option overrides tapered widths.

Fit

Fits a curve to the polyline.

Note: To unfit the polyline, use the **Decurve** option.

Spline

Converts the polyline into a spline.

Note: All width information is lost. Use the **Width** option to reapply width. The spline is a Bezier-spline whose smoothing is defined by the SPLINETYPE system variable.



Decurve

Reverses the effects of the **Fit** and **Spline** options.

Ltype gen

Determines how linetypes appear on polylines.

ON

Linetypes start and stop at the polyline's start and endpoints.

OFF

Linetypes start and stop at each vertex.

Note: This option is stored in the PLINEGEN system variable.

Undo

Undoes the last action.

18.43 MSLIDE command

Opens the Create snapshot dialog box.



Icon: 

Alias: MSNAPSHOT

18.43.1 Description

Opens the Create snapshot dialog box to save data from the current drawing to an sld file.

18.44 MSPACE command

Switches from paper space to model space viewports.



Alias: MS

18.44.1 Description

Switches from paper space to model space viewport in a layout tab. This command has a shortcut menu that opens by right-clicking on M:Layout on the Status Bar.

Note: This command operates only when a layout tab is in paper space mode. To reverse the action of this command double-click outside the viewport border, or use PSPACE command.

18.45 MSTRETCH command (Express Tools)

Stretches entities by defining multiple crossing windows or crossing polygons.

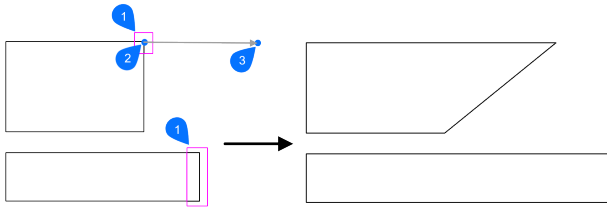
Icon: 

18.45.1 Method

- 1 Define crossing polygons or crossing windows (1).



- 2 Specify a base point (2).
- 3 Specify a second base point (3).



18.45.2 Options within the command

CP

Creates a crossing window.

C

Creates a crossing polygon.

Undo

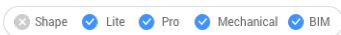
Removes the last defined window for stretch.

Remove objects

Removes entities from the selection set.

18.46 MTEXT command

Places text in a bounding box.



Icon:

Alias: MT, T

18.46.1 Description

Places formatted paragraph text in a bounding box that limits the extent of the text.

After specifying the limits of the text bounding box, the **Text Formatting** toolbar opens.

You can edit Mtext bounding boxes directly using grips:



- 1 Drag to change the width of the bounding box.
- 2 Drag to change the height of the bounding box.

18.46.2 Options within the command

Justification

Specifies the justification (horizontal alignment) of the text inside the bounding box.



Rotation angle

Specifies the rotation angle of the text block. Positive angles rotate the text block counter-clockwise.

text Style

Specifies the text style to use. See the Style command.

text Height

Specifies the height of the text.

Note: This option is unavailable when the style specifies the text height.

Direction

Specifies the direction in which the bounding box is expanded.

Left-to-right

The text is placed on the left and expands the bounding box to the right.

Top-to-bottom

The text is placed at the top and expands the bottom of the bounding box.

By-Style

Uses the direction defined by the text style.

Width

Specifies the width of the bounding box.

Note: When set to 0, the box has an *infinite* width.

Line spacing

Defines the text's line spacing style and line spacing factor.

Note: These settings default value is specified by the TSPACETYPE and TSPACEFAC system variables.

At least

Specifies the minimum line spacing factor.

Exactly

Specifies the exact line spacing factor.

Columns

Defines the amount of columns.

No columns

No columns are created.

Static

A fixed amount of columns with fixed dimensions is created.

Dynamic

A dynamic amount of columns is created. The number of columns depends on the length of the text.

18.47 -MTEXT command

Creates multiline text with the Command line.

Shape Lite Pro Mechanical BIM



Places formatted, paragraph text in a bounding box that limits the extent of the text.

Note: The text does not appear in the drawing until you end the command.

18.47.1 Description

Creates a multiline text by specifying the first corner and the opposite corner for block of text.

18.47.2 Options within the command

Justification

Specifies the horizontal alignment of the text inside the bounding box. Choose between: Top-Left, Top-Center, Top-Right, Middle-Left, Middle-Center, Middle-Right, Bottom-Left, Bottom-Center, Bottom-Right.

Rotation angle

Specifies the rotation angle of the text block.

Note: Positive angles rotate the text block counter-clockwise.

text Style

Specifies the text style to use for the mtext.

?

Lists all styles defined in the current drawing.

text Height

Specifies the height of the text.

Note: This option is unavailable when the style specifies the text height.

Direction

Specifies the direction in which the bounding box is expanded.

Left-to-right

The text is placed at the left and expands the bounding box to right.

Top-to-bottom

The text is placed at the top and expands the bottom of the bounding box.

Width

Specifies the width of the bounding box.

Note: When set to 0, the box has "infinite" width.

Line spacing

Specifies the line spacing of the mtext.

At least

The lines of text will be automatically adjusted, based on the highest character in the line.

Exactly

The line spacing will be the same for all lines of the mtext.

Columns

Specify the properties of the columns.



No columns

Sets no column to the mtext.

Static

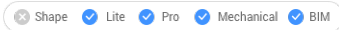
Specify total width, number of columns, gutter (space between columns) and height of the columns.

Dynamic

Specify width, gutter (space between columns) and height of the columns.

18.48 MTP command

Allows to specify a point as the midpoint.



18.48.1 Description

Allows to specify a point as the midpoint between two points whenever a command prompts to enter a point.

Note: This is a transparent command.

18.48.2 Method

This command works only with commands that prompts to enter a point.

Note: This command sets entity snaps, similar to OSNAP command.

18.48.3 Options within the command

First point of mid

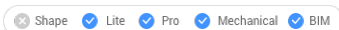
Identify the first reference point.

Second point of mid

Identify the second reference point.

18.49 MULTIPLE command

Repeats commands.



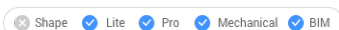
18.49.1 Description

Repeats commands until you press the Esc key.

Note: This command is useful for commands that do not repeat automatically.

18.50 MVIEW command

Creates one or more viewports in Paper space (short for "make viewports") to display entities drawn in Model space. Each viewport can have its own settings, shown below.



Icon:



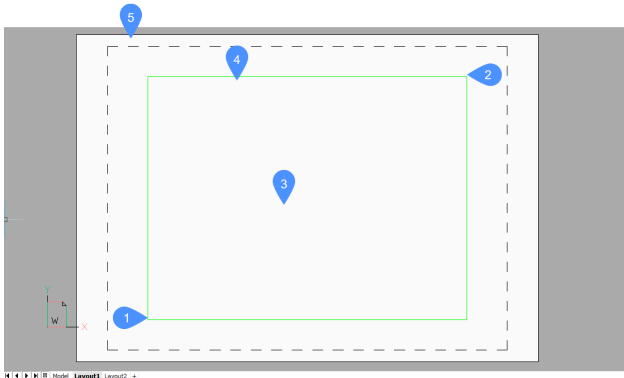
Alias: MV

Note: This command operates only in Paper Space.

Note: To create viewports in Model space, use the VPORTS command.

18.50.1 Description

Specifies the first and the opposite corners to create a rectangular viewport.



- 1 First corner
- 2 Opposite corner
- 3 Viewport
- 4 Viewport border
- 5 Paper space (Layout)

18.50.2 Options

ON

Turns on viewports that are turned off.

OFF

Turns off viewports.

This option hides the content of the viewport; the viewport border remains visible. To hide the viewport border, place it on a separate layer, and then freeze the layer.

Lock

Locks the viewport's scale factor.

Set the scale factor with the ZOOM command's nXP option.

Fit

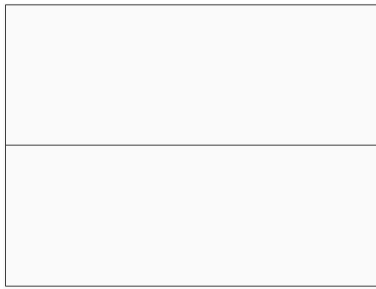
Draws a rectangular viewport that fits the current layout.

create 2 viewports

Draws two rectangular viewports.

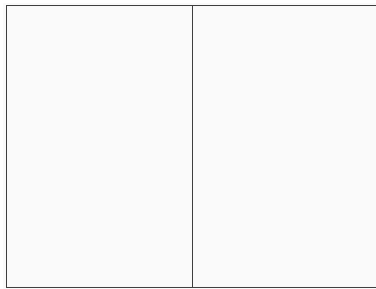
Horizontal

Draws two horizontal viewports of equal size.



Vertical

Draws two vertical viewports of equal size.



create 3 viewports

Draws three rectangular viewports.

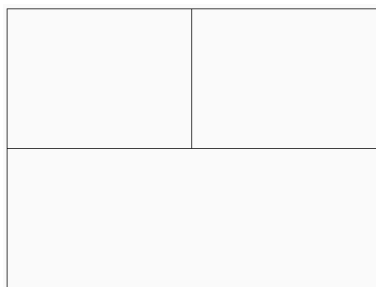
Above

Draws one viewport above two side-by-side viewports.



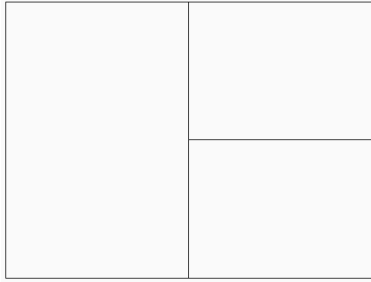
Below

Draws one viewport below two side-by-side viewports.



Left

Draws one viewport to the left of two stacked viewports.



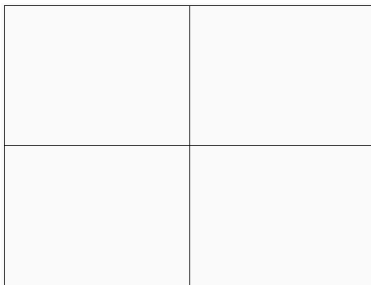
Right

Draws one viewport to the right of two stacked viewports.



create 4 viewports

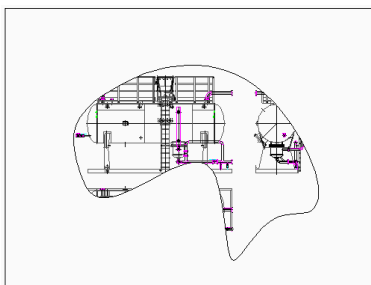
Draws four rectangular viewports of equal size.



Object

Converts an object into a viewport border.

The viewport is traced over the object; the original object remains in the drawing. This option is useful for ensuring a viewport border precisely matches an outline.



Polygonal

Draws non-rectangular viewports made of lines and arcs.



draw Arcs

Enters arc drawing mode; options from ARC command are activated.

draw Lines

Enter line drawing mode; options from LINE command are activated.

Distance

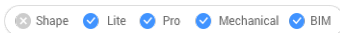
Draws the next line segment at a specified distance and angle.

Follow

Draws the next line segment at the same angle.

18.51 MVSETUP command

Creates multiple paper space viewports and edits them.



18.51.1 Description

Creates multiple paper space viewports and then aligns, rotates and scales them.

Note: This command operates differently, depending on whether it starts in Model tab or Layout tab.

Note: This command can be entered transparently.

18.51.2 Method

There are two methods to use MVSETUP command:

- In Model tab.
- In Layout tab.

18.51.3 Options within the command

Yes

Switches to Layout tab.

No

Stay in Model tab.

Align

Pans the display in a viewport to align it with a base point in a reference viewport.

Note: Depending on the relative position of the two viewports, the display of the panned viewport might be shifted outside of the viewport boundary.

Angled

Pans the view in the second viewport is panned over the specified distance and angle.

Horizontal alignment

Pans the view in the second viewport vertically to align the base point and the anchor point horizontally.

Vertical alignment

Pans the view in the second viewport horizontally to align the base point and the anchor point vertically.



Rotate view

Rotates the view in the viewport by the specified angle.

Note: When the VPROTATEASSOC variable is ON, the display in a viewport is rotated if the viewport is rotated.

Undo

Undoes the previous action and returns to the options prompt.

Create

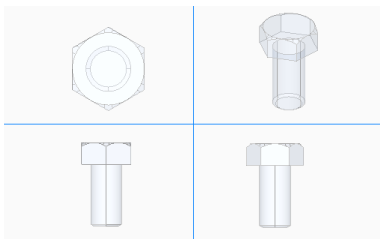
Creates viewports in the current layout.

Delete objects

Deletes viewport entities.

2 - std. engineering

Creates 4 viewports preset to top, front, right and south-east isometric viewpoints.



3 - array of viewports

Creates a desired number of viewports.

Scale viewports

Specifies the scaling inside viewports.

Interactively

Scale each viewport separately.

Uniform

Scale all viewports equally.

Undo

Undoes all operations executed by the current MVSETUP command session.

Scientific

Scales the viewport on a scientific scale.

Decimal

Scales the viewport on a decimal scale.

Engineering

Scales the viewport on an engineering scale.

Architectural

Scales the viewport on an architectural scale.

Metric

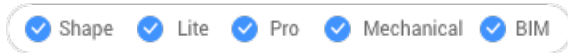
Scales the viewport on a metric scale.



19. N

19.1 NAVIGATE command

Changes the way you navigate in BricsCAD.



Icon:

19.1.1 Description

Walks and flies through 3D models with the keyboard, as used in computer games.

19.1.2 Method

There are two methods to navigate through the model:

- Keyboard option: Hover the mouse cursor over the target location and then hold down a key to navigate.
- Mouse option: Hold down left button and drag the mouse.

Pressing right click brings up the Navigation Settings dialog box.

19.1.3 Keyboard options

A/Left arrow

Moves to the left.

W/Up arrow

Moves forward.

S/Down arrow

Moves backwards.

D/Right arrow

Moves to the right.

F

Toggles flight mode on and off.

ESC

Exits the command.

19.1.4 Mouse options

Hold down left button and drag the mouse

Look around mode.


Right click

Brings up the Navigation Settings dialog box.



19.2 NCOPY command (Express Tools)

Copies entities nested inside external references and blocks without having to explode or bind it.

Icon: 

19.2.1 Method

- 1 Select the nested entities you want to copy.
- 2 Enter a base point.
- 3 Enter a second point.

19.2.2 Options within the command

Displacement

Allows you to define a displacement vector instead of a second point.

Mode

Toggles between **Single** and **Multiple**.

Multiple

Allows you to make multiple copies.

Array

Asks for a number of copies and a distance.

19.3 NEAREST command

Toggles the Nearest entity snap.



Icon: 

19.3.1 Description

Toggles the Nearest entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

19.4 NETLOAD command

Opens the Netload dialog box.

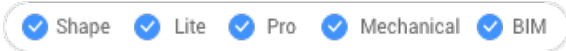


19.4.1 Description

Opens the Netload dialog box to select a dll file and load the application.

19.5 NEW command

Opens the Select template dialog box.



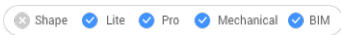
Icon:

19.5.1 Description

Opens the Select template dialog box to select a dwt or dwg file to use as a template for creating a new drawing.

19.6 NEWSHEETSET command

Opens the Create new sheet set dialog box.



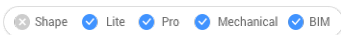
Icon:

19.6.1 Description

Opens the Create new sheet set dialog box to create a new sheet set.

19.7 NEWWIZ command

Opens the Create new drawing dialog box.



Icon:

Alias: DDNEW

19.7.1 Description

Open the Create new drawing dialog box to create a new drawing using a wizard.

19.8 NODE command

Toggles the Node entity snap.



Icon:

19.8.1 Description

Toggles the Node entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

19.9 NONE command

Disables all 2D entity snaps.



Shape Lite Pro Mechanical BIM

Icon:

19.9.1 Description

Disables all 2D entity snaps to prevent the cursor from snapping to 2D entities. You can launch this command at the Command prompt to turn off running entity snaps. Doing so changes the value of the OSMODE system variable to zero. You can also launch this command within another command to turn off entity snaps only for the current operation. This does not change the value of the OSMODE system variable.

This command displays no prompts and has no options.

19.10 NUMBER command

Creates incremental number tags for BIM entities.

Shape Lite Pro Mechanical BIM

Icon:

19.10.1 Description

Provides the first index for the selected entities.

Note: Integer numbers are accepted.


The command opens the Number command panel.



Number

Number selected elements according to given sorting order.

Entities 3 entities selected

Select entities in drawing 

Entire drawing

Numbering Options Current: 1, 2, ...

Start index

Increment

Field Width

Formatting

Prefix

Suffix

Formatting style ▼

Sorting Options Current: selection order

Choose which axis to order in first.

First axis

Second axis

Third axis

Distance tolerance

Overwrite Options

Overwrite existing numbers

Select entities:

- **Select entities in the drawing:** choose which entities to select.
- **Entire drawing:** by default, the panel selects all BIM entities in the model space.

Numbering Options

- **Start index:** sets the index from which to start the numbering.
- **Increment:** sets the increment used for numbering
- **Field Width:** sets the total length of the number field. This will add the appropriate amount of leading zeros in front of Arabic numbers, so that the length of the resulting string is equal to the field width.

Formatting

- **Prefix:** sets a prefix for the numbering.



- **Suffix:** sets a suffix for the numbering.
- **Formatting style:** choose a number style from the drop-down list.

Sorting Options

Allows to specify which axis to order first.

X

Based on the value of the x-coordinate, from low to high.

Y

Based on the value of the y-coordinate, from low to high.

Z

Based on the value of the z-coordinate, from low to high.

None

Uses selection order, unless the option 'Entire Drawing' was chosen, in which case it will order from oldest to most recent.

Distance Tolerance

Sets the distance tolerance for sorting in comparison. Two solid's centroids within a given tolerance are considered equal, and they will be numbered in selection order.

Overwrite Options

Allows to overwrite or to keep existing numbers.

19.10.2 Options within the command line

Increment

Sets the increment for the numbering.

Prefix

Specifies a prefix for the numbering.

Suffix

Specifies a suffix for the numbering.

Number style

Defines the number style.

0

Define Arabic numbers (1, 2, 3, ...).

1

Define roman uppercase numbers (I, II, III, ...).

2

Define roman lowercase numbers (i, ii, iii, ...).

3

Define uppercase letters (A, B, C, ...).

4

Define lowercase letters (a, b, c, ...).



Field Width

Sets the total length of the number field. This will add the appropriate amount of leading zeros in front of Arabic numbers.

Entities sorting

Allows to specify the sorting order.

X

Based on the value of the x-coordinate, from low to high.

Y

Based on the value of the y-coordinate, from low to high.

Z

Based on the value of the z-coordinate, from low to high.

None

Uses selection order, unless the option **Entire Drawing** was selected, in which case it will order from oldest to most recent.

Tolerance

Sets the distance tolerance for sorting in comparison. Two solid's centroids within a given tolerance are considered equal, and they will be numbered in selection order.

Overwrite Numbers

Allows to overwrite or to keep existing numbers.

Kept

Keeps existing numbers.

Overwritten

Overwrites existing numbers.

Change Selection

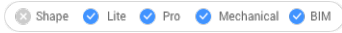
Allows to change the selection set.



20. 0

20.1 OBJECTSCALE command

Adds or removes scale factors.



Icon:

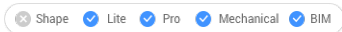
20.1.1 Description

Adds or removes scale factors used with annotative entities through Annotation Object Scale dialog box.

Note: Annotative scaling adjust scale factors of annotative items, such as text and hatch patterns, to match the plot scale.

20.2 -OBJECTSCALE command

Adds or removes scale factors.



20.2.1 Description

Adds or removes scale factors used with annotative entities through Annotation Object Scale dialog box.

Note: Annotative scaling adjust scale factors of annotative items, such as text and hatch patterns, to match the plot scale.

20.2.2 Options within the command

Select annotative entities

Select one or more items using any selection method.

Note: Write all in the Command line to select all entities in the drawing. The program filters out ineligible entities automatically.

Add

Adds annotation scales to the selected annotative entities.

Note: Enter ? to list the annotation scale factors available.

Delete

Deletes annotation scales from the selected annotative entities.

?

Displays a list of available annotation scales as defines in the scale list.

Note: See SCALELISTEDIT command.



Scale Name	Paper Units	Drawing Units	Effective Scale
1: 100:1	100.0000	1.0000	100.0000
2: 10:1	10.0000	1.0000	10.0000
3: 1:1	1.0000	1.0000	1.0000
4: 1:10	1.0000	10.0000	0.1000
5: 1:100	1.0000	100.0000	0.0100
6: 1:125	1.0000	125.0000	0.0080
7: 1:16	1.0000	16.0000	0.0625
8: 1:2	1.0000	2.0000	0.5000
9: 1:20	1.0000	20.0000	0.0500
10: 1:25	1.0000	25.0000	0.0400
11: 1:250	1.0000	250.0000	0.0040
12: 1:30	1.0000	30.0000	0.0333
13: 1:4	1.0000	4.0000	0.2500
14: 1:40	1.0000	40.0000	0.0250
15: 1:5	1.0000	5.0000	0.2000
16: 1:50	1.0000	50.0000	0.0200
17: 1:8	1.0000	8.0000	0.1250
18: 2:1	2.0000	1.0000	2.0000
19: 4:1	4.0000	1.0000	4.0000
20: 8:1	8.0000	1.0000	8.0000

20.3 OFFSET command

Creates parallel copies.



Icon:

Alias: O

20.3.1 Description

Creates parallel copies of 2D entities and 3D solid faces.

Note: The OFFSETGAPTYPE system variable determines how potential gaps between segments are treated when polylines are being offset.

Note: The SELECTIONMODES system variable determines how potential conflicts are handled.

Note: When curved entities are offset, the command changes the radii of the copies.

20.3.2 Method

There are four methods to create an offset:

- Enter offset distance
- Through point
- Erase
- Layer

20.3.3 Options within the command

Enter offset distance

Specifies the distance between the original entity and its parallel copy.

Note: The offset distance is saved to the OFFSETDIST variable.

Both Sides

Places offset copies on both sides of the entity.

Multiple

Repeats the command until you press ESC.



Through point

Specifies the offset distance by picking two points.

Multiple

Repeats the command until you press ESC.

Erase

Deletes the source entity after the offset operation.

Note: The status is saved to the OFFSETERASE variable with the drawing, but is then reset (turned off) with the next drawing.

Layer

Specifies the layer on which to place the copied entity.

Current

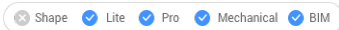
Places the offset entity on the current layer.

Source

Places the offset on the same layer as that of the source entity.

20.4 OLELINKS command

Opens the Links dialog box.

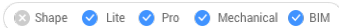


20.4.1 Description

Opens the Links dialog box to view and manage OLE links.

20.5 OLEOPEN command

Opens the selected OLE object.



20.5.1 Description

Opens the selected OLE object in the source application for editing. (short for "object linking and embedding linking"). If the link between the drawing and the source application is broken, the OLE object cannot open.

Note: Use the InsertObj command to insert OLE objects in drawings.

Note: The command is only available on the windows platform.

20.6 ONWEB command

Opens the default Web browser.



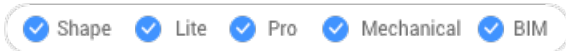


20.6.1 Description

Opens the default Web browser to browse the internet starting from the BricsCAD home page. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

20.7 OOPS command

Restores the last erased entity.



Alias: UNDELETE, UNERASE

20.7.1 Description

Restores the last erased entity, including those erased by theBlockcommand. If there are no erased entities in the drawing, BricsCAD indicates: There is nothing to un-erase.

This command displays no prompts and has no options.

20.8 OPEN command

Opens the Open file dialog box.



Icon: 

20.8.1 Description

Opens the Open file dialog box to select a file to open in the drawing editor.

Supported open file formats are:

- **Standard Drawing File** (.dwg)
- **Drawing Exchange Format** (.dxf)
- **Template Format** (.dwt)
- **Standards File** (.dws)
- **Windows Metafile Formats** (.wmf; .emf; .wmz; .emz)^{(1) (2)}
- **Collada** (.dae)
- **Micro Station DGN File** (.dgn)

Formats available with the BIM add-on:

- **Rhino file** (.3dm)^{(1) (2)}
- **SketchUp file** (.skp)^{(1) (2)}
- **IFC file** (.ifc; .ifczip)
- **Revit Family** (.rfa)^{(1) (2)}



- **Revit Project (.rvt)**⁽¹⁾ ⁽²⁾
 - (1) Not available in BricsCAD for Linux.
 - (2) Not available in BricsCAD for macOS.

20.9 OPENSHEETSET command

Opens the Select a sheet set file dialog box.



Icon:

20.9.1 Description

Opens the Select a sheet set file dialog box to select a dst file to open in the Sheet Sets panel.

20.10 -OPENSHEETSET command

Opens a sheet set file.



20.10.1 Description

Opens a .dst sheet set file, and then displays the Sheet Sets panel which lists all drawings and sheets associated with the set; meant for use by macros. An example of path and file name of a .dst sheetset file is *F:\work\Documentation\Documentation\project.dst*.

20.11 OPTIMIZE command

Corrects inaccuracies in the drawing, for 2D entities or 3D entities.



Icon:

20.11.1 Description

This command works with either 2D entities or 3D entities. The supported 2D entities are lines, arcs and polylines. The command makes corrections such as small gaps between lines or near vertical, horizontal and diagonal lines.

The supported 3D entities are solids, 3D regions and surfaces. The command makes corrections such as faces that are near parallel to the orthogonal planes to be coplanar to these planes; and faces that belong to different solids to be coplanar to one another.

This command opens the **Optimize** command context panel.



Optimize

Rectify line segments to align with a coordinate system axis and connect gaps between line and arc segments, or rectify faces to align with a coordinate system plane.

Mode: 2D 3D

Entities 3 entities selected

Select entities in drawing
 Entire drawing

Options

Close gaps smaller than mm
 Fix T-connections (trim overshoots, extend undershoots)

Rectify lines that are less than ° from:
 Horizontal
 Vertical
 Diagonal

Align parallel lines less than mm apart

Round coordinates to mm

Feedback

Highlight entities to be optimized
No entities will be rectified. No gaps will be closed.

Preview

Apply Keep Selection Cancel

Optimize

Rectify line segments to align with a coordinate system axis and connect gaps between line and arc segments, or rectify faces to align with a coordinate system plane.

Mode: 2D 3D

Entities 2 entities s

Select entities in drawing
 Entire drawing

Options

Rectify faces that are less than ° from:
 parallel to reference planes
 perpendicular to reference planes
Reference planes:
 XY-plane
 YZ-plane
 XZ-plane

Align parallel faces if less than m

Round coordinates to m

Feedback

Highlight entities to be optimized
6 faces will be optimized

Preview

Cancel Keep Selection

Note:

- The options within the OPTIMIZE command are the same as in the **Optimize** command context panel.
- The **Optimize** command context panel allows you to toggle On/Off the live Feedback. When turned On, it highlights the entities that match the selected options and displays the number of entities that will be optimized.



20.11.2 Methods

There are two methods to begin optimizing entities:

Entire drawing

When this option is selected, all non-frozen entities in the current viewport are used as input.

selection options (?)

Allows to choose a selection method. See the SELECT command.

20.11.3 Options within the command, in 2D mode

change reference Angles

This option determines which entities will be optimized based on their orientation.

Note: In the **Optimize** command context panel set the value for the **Rectify lines that are less than** option.

Horizontal lines

Corrects near horizontal lines according to the angle tolerance.

Vertical lines

Corrects near vertical lines according to the angle tolerance.

45-Degree lines

Corrects near 45° lines according to the angle tolerance.

All

Corrects near horizontal, near vertical and near 45° lines according to the angle tolerance.

None

Does not correct entities based on their orientation.

change Tolerances

Allows you to set the tolerances for the parameters used during the optimization.

Angle tolerance

Sets the angle tolerance in degrees, with respect to the World Coordinate System (WCS). Near horizontal, vertical or diagonal lines within this angle tolerance will be optimized.

Note: In the **Optimize** command context panel set the value for the **Rectify lines that are less than** option.

Distance tolerance

Sets the distance tolerance (see **Note**). Parallel lines within this distance will be merged.

Note: In the **Optimize** command context panel set the value for the **Align parallel lines less than** option.

Rounding precisions


Sets the rounding precision (see **Note**). This option rounds the coordinates to the specified number of digits following the decimal.

Note: In the **Optimize** command context panel set the value for the **Round coordinates to** option.

Gap tolerance

Sets the gap tolerance (see **Note**). Gaps between collinear lines within the gap tolerance will be filled.



Note: In the **Optimize** command context panel set the value for the **Close gaps smaller than** option. Gaps smaller than this value will be closed with a transparent red circles in the drawing. You can also use the picker () to set the gap tolerance by specifying two points in the drawing.

When the Fix T-connections (trim overshoots, extend undershoots) option is check, the lines are trimmed and extended to close T-connections for smaller gaps than gap tolerance value.

Note: The values respects the insertion units of the drawing (see the INSUNITS system variable).

change Options

Determines if gaps will be closed, if the lines will be aligned with a referenced direction, and if the drawing will be rounded.

close Gaps

If this option is enabled, the gaps between collinear lines that are smaller than the gap tolerance will be closed.

Note: In the **Optimize** command context panel tick the **Close gaps smaller than** checkbox.

rectify Lines

If this option is enabled, entities will be aligned along the referenced directions (horizontal, vertical or diagonal) when their deviation are less than the specified angle tolerance.

Note: In the **Optimize** command context panel tick the **Rectify lines that are less than** checkbox.

Note: If this option is disabled, the **Round Coordinates** option will be disabled too.

Make lines Collinear

If this option is enabled, lines that are almost collinear will be aligned as collinear.

Note: In the **Optimize** command context panel tick the **Align parallel lines less than** checkbox.

Round coordinates

If this option is enabled, it rounds the coordinates to the rounding precision.

If this option is disabled, the drawing will not be rounded.

Note: In the **Optimize** command context panel tick the **Round coordinates to** checkbox.

Note: This action is controlled by the **Rounding precision** tolerance setting.

enable All

Enables all **close Gaps**, **Make lines Collinear**, and **Round coordinates** options.

change Input selection

Allows you to make a new selection of entities to be used by the command.

apply settings and PReview

Makes a preview of the rectified segments. You can accept or reset the result.

Keep selection

Clicking this button will cancel the command without optimizing, but with keeping the highlighted lines selected. This option allows you to select suboptimal lines in a drawing.

switch to 3d Mode

Switches the mode to 3D.



20.11.4 Options within the command, in 3D mode

change reference Plane

Determines which plane will be the referenced for correcting faces position. You can choose XY plane, YZ plane, XZ plane or all of them.

change Tolerances

This option allows setting the tolerances for the parameters used during the optimization.

Angle tolerance

Sets the angle tolerance, in degrees, for a relative position of faces and planes.

Note: In the **Optimize** command context panel set the value for the **Rectify faces that are less than** option.

Distance tolerance

Sets the distance tolerance (see **Note**).

The faces within the tolerance will be made coplanar, parallel or perpendicular, according to the settings.

Note: In the **Optimize** command context panel set the value for the **Align parallel faces if less than** option.

Rounding precisions

Sets the rounding precision (see **Note**). This option rounds the coordinates to the specified number of digits following the decimal.

Note: In the **Optimize** command context panel set the value for the **Round coordinates to** option.

Note: The values respects the insertion units of the drawing (see the INSUNITS system variable).

change Options

Changes the options for correcting the faces position.

make faces Coplanar

Makes the faces in the selection coplanar, with respect to the values in the **Tolerances** section.

rectify faces PArallel to reference planes

Makes the faces in the selection parallel to the selected reference planes, with respect to the values in the **Tolerances** section.

rectify faces PErpendicular to reference planes

Makes the faces in the selection perpendicular to the selected reference planes, with respect to the values in the **Tolerances** section.

Round coordinates

If this option is enabled, it rounds the coordinates to the rounding precision.

If this option is disabled, the drawing will not be rounded.

Note: This action is controlled by the **Rounding precision** setting.

enable All

All the options for 3D faces (coplanar, parallel, perpendicular and round) will be used by the command.

change Input selection

Allows making a new selection of entities to be used by the command.



apply settings and PReview

Makes a preview of the rectified faces. You can accept or reset the result.

Keep selection

Clicking this button will cancel the command without optimizing, but with keeping the highlighted entities selected. This option allows you to select suboptimal entities in a drawing.

switch to 2d Mode

Switches the mode to 2D.

20.12 OPTIONS command

Opens the Settings dialog box with the **Program options** category expanded.



Icon:

Alias: CFG, CONFIG, OP, PREFERENCES, PREFS

20.12.1 Description

Opens the Settings dialog box with the **Program options** category expanded to view and modify relevant system variables.

20.13 ORTHOGONAL command

Toggles the ORTHOMODE system variable.



Alias: OR, ORTHO

20.13.1 Description

Toggles the ORTHOMODE system variable to specify if the cursor is constrained to dragging at 90 degree angles. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'ORTHOGONAL.

- On: turns on the ORTHOMODE system variable.
- Off: turns off the ORTHOMODE system variable.
- Toggle: changes the ORTHOMODE system variable to the opposite of the current setting.

20.14 OSNAP command

Opens the Settings dialog box with the **Entity snap mode** category expanded.



Alias: DDESAP, DDOSAP, OS, SETESAP

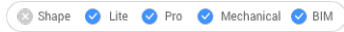


20.14.1 Description

Opens the Settings dialog box with the **Entity snap mode** category expanded to view and modify relevant system variables.

20.15 -OSNAP command

Toggles entity snap modes.



Alias: -OS, ESNAP

20.15.1 Description

Toggles entity snap modes at the Command line (short for "object snap").

Note: Entity snaps help you draw and edit precisely by snapping the cursor to the nearest geometric feature.

20.15.2 Options within the command

NEArest

Toggles nearest entity snap mode. Snaps to the nearest point on any entity.

Note: Can also toggle with the NEAREST command.

ENDpoint

Toggles endpoint entity snap mode. Snaps to the endpoints of open entities, such as lines, arcs, open polylines, and open splines.

Note: Can also be toggled with the ENDPOINT command.

MIDpoint

Toggles midpoint entity snap mode. Snaps to the midpoint of open entities.

Note: Can also be toggled with the MIDPOINT command.

CENter

Toggles center entity snap mode. Snaps to the center of circular entities, such as circles, arcs, and polylines.

Note: Can also be toggled with the CENTER command.

GeometriC cEnter

Toggles geometric center entity (GCenter) snap mode. Snaps to the centroid of any closed polylines and splines, planar 3d polylines, regions and planar faces of 3D solids.

Note: Can also be toggled with the GCENTER command.

PERpendicular

Toggles perpendicular entity snap mode. Snaps to the perpendicular of one entity to another.

Note: Can also be toggled with the PERPENDICULAR command.

TANgent

Toggles Tangent entity snap mode. Snaps to the tangencies of circular entities.



Note: Can also be toggled with the TANGENT command.

QUAdrAnt

Toggles quadrant entity snap mode. Snaps to the quadrant points of circular entities, such as circles, arcs, and polyarcs.

Note: Can also be toggled with the QUADRANT command.

INSertion point

Toggles insertion entity snap mode. Snaps to the insertion point of blocks and text.

Note: Can also be toggled with the INSERTION command.

POInt

Toggles node entity snap mode. Snaps to point entities.

Note: Can also be toggled with the NODE command.

EXTension

Toggles extension entity snap mode. Snaps to the intersection of open entities, as if they were extended to the point of intersection.

Note: Can also be toggled with the EXTENSION command.

PARAllel

Toggles parallel entity snap mode. Snaps to the parallel point of entities. Allows to draw lines, polyline segments, xlines and rays parallel to another entity.

Note: Can also be toggled with the PARALLEL command.

INTersection

Toggles intersection entity snap mode. Snaps to the intersection of any pair of entities.

Note: Can also be toggled with the INTERSECTION and 3DINTERSECTION commands.

APParent intersection

Toggles Apparent entity snap mode. Snaps to the apparent intersection of entities in 3D space.

Note: Can also be toggled with the APPARENT and 2DINTERSECTION commands.

NON

Clears entity snaps.

ON

Turns all entity snap modes on.

OFF

Turns all entity snap modes off.

Note: Modes can also be turned off with the NONE command.

20.16 OVERKILL command

Deletes duplicate and overlapping entities and combines duplicate blocks.

Shape Lite Pro Mechanical BIM



20.16.1 Description

Deletes duplicate entities and overlapping lines, arcs, and polylines, and unifies partly overlapping or contiguous ones. Optionally moves duplicates to a dedicated layer. Combines duplicate blocks and optionally purges duplicate block definitions.

After selecting the entities, the **Delete Duplicate Entities** dialog box displays.

20.16.2 Options within the command

Instead of selecting entities, another option can also be selected.

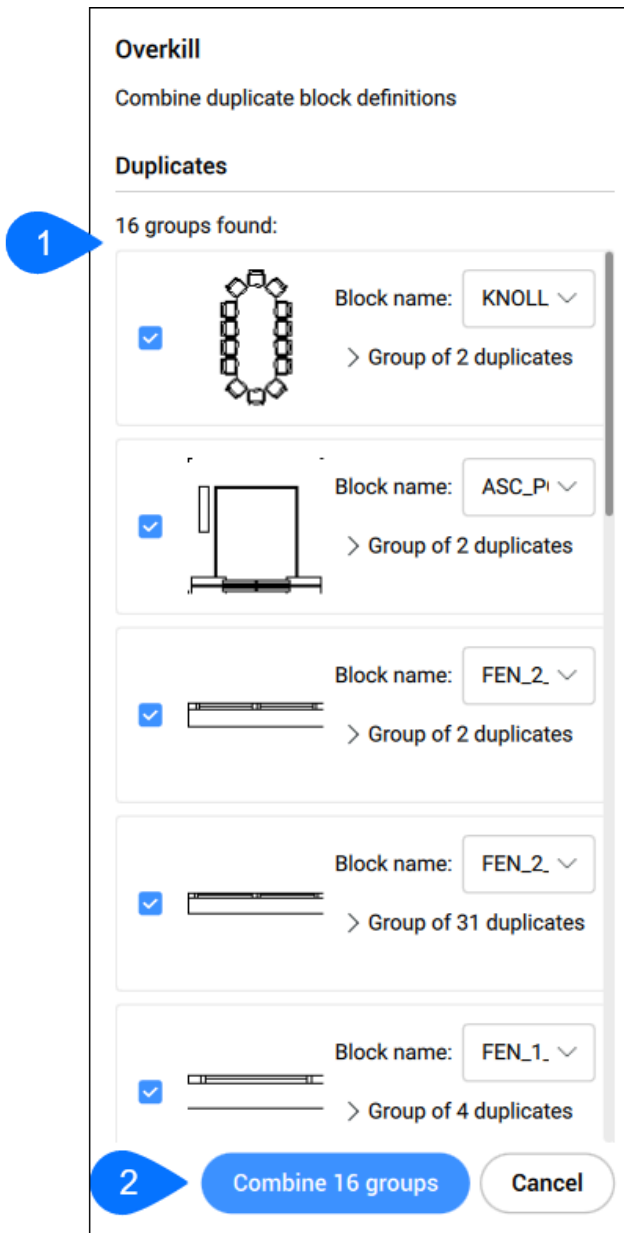
Combine duplicate block definitions

This options displays the **Combine Duplicate Block Definition** dialog box. Here you can define entity properties to ignore and tolerances.

Once all preferences are defined and applied, the **Overkill** command panel displays.

20.16.3 Overkill command panel

The **Overkill** command panel allows you to specify which duplicate block definitions should be combined.



1 Block list

Displays a list of all duplicate block definitions to combine. You can deselect these block definitions.

2 Combine

Combines all selected duplicate block definitions of the list.

20.17 -OVERKILL command

Deletes duplicate and overlapping entities and combines duplicate blocks.





20.17.1 Description

Deletes duplicate entities and overlapping lines, arcs, and polylines, and unifies partly overlapping or contiguous ones. Optionally moves duplicates to a dedicated layer. Combines duplicate blocks and optionally purges duplicate block definitions.

20.17.2 Options within the command

Done

Executes the overkill procedure.

Ignore

Sets the properties to ignore.

None

Properties are taken into account to determine if overlapping entities should be combined.

All

All properties are taken into account.

Color, etc.

The colors of overlapping entities are considered. If the colors match, then they are combined or deleted.

Tolerance

Sets the tolerance for the comparison process.

Note: When is set to 0, entities must match completely before being evaluated in the overkill process.

optimize Plines

Segments of selected polylines are evaluated individually, duplicate vertices and segments are removed. If lines or arcs duplicate a polyline segment, one of them is deleted, which might break a polyline.

segment width

Specifies if the width property of polyline segments is ignored.

Break polyline

Polyline segments are kept intact even if the duplicates are deleted.

Yes

Optimizes polyline entities.

No

Polyline entities are not optimized.

combine partial overlap

Partially overlapping entities are unified into a single entity.

combine Endtoend

Collinear lines and polyline segments having coinciding endpoints are unified into a single entity or segment.

Associativity

Associative entities are not processed.

delete or Move duplicates

Determines what to do with duplicate entities.



Move

Entities are moved to Overkill Layer.

Note: This layer is set by the OVERKILLLAYER system variable. By default, it is set to Duplicate Entities.

Combine duplicate block definitions

Searches the drawing for duplicate block definitions and replaces all such block instances by the most recent of these duplicates.

Purge duplicate block definitions

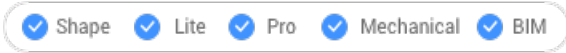
Deletes duplicate block definitions.



21. P

21.1 PACKAGE command

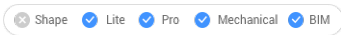
Creates a package ZIP file of the drawing and its dependencies.



See the -ETRANSMIT command.

21.2 PAGESETUP command

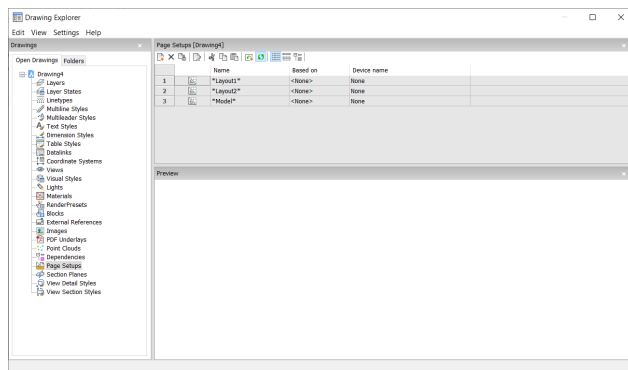
Opens the Drawing explorer dialog box with **Page Setups** selected.



Icon:

21.2.1 Description

Opens the Drawing explorer dialog box with **Page Setups** category selected to view and modify page setups in the current drawing.



21.2.2 Context Menu Options

New

Loads additional page setup definitions into the drawing. Displays the New Page Setup dialog box.

Delete

Deletes page setup definitions from the drawing. The following page setup definitions cannot be deleted:

- The Model tab
- The last layout

Edit Page Setup

Edit the selected page setup. Displays the Page Setup dialog box. Here you can edit the properties of the selected page setup.

Rename

Renames the layout tabs.



Note: Following linetypes cannot be renamed:

- The Model tab
- The Layout tabs

Select All

Selects all page setup definitions.

Invert selection

Deselects the current selection and vice versa.

21.3 PAN command

Moves the entire drawing.



Icon: 

Alias: P

21.3.1 Description

Moves the entire drawing in real-time within the current viewport.

Note: Real-time means that the drawing moves as the mouse moves.

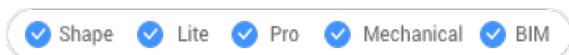
Note: The PERSPECTIVE system variable must be set to 0.

After running the command, the cursor changes into a hand icon. Hold down the left mouse key and then move the mouse to pan the drawing or right-click to open the Pan context menu.

Note: Pan the drawing also with the scroll bars. Turn them on with the SCROLLBAR command.

21.4 -PAN command

Moves the entire drawing.



Alias: -P

21.4.1 Description

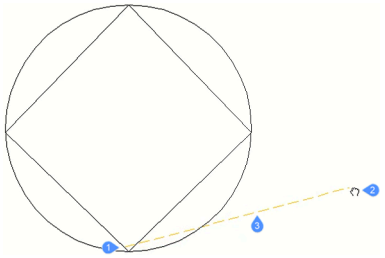
Moves the entire drawing within the current viewport.

Note: The PERSPECTIVE system variable must be set to 0.

21.4.2 Method

There are two methods to use -PAN command:

- Pick a base point and a displacement point.
- Choose one of the predefined options.



- 1 Pan base point.
- 2 Pan cursor which specifies the pan displacement point.
- 3 Pan displacement.

21.4.3 Options within the command

Pan base point

Specifies the pan distance's starting point.

Pan displacement point

Specifies the pan distance's ending point.

Note: The drawing is panned by 5% or 100% of the width of the current viewport.

Left

Pans the drawing 5% to the right.

Right

Pans the drawing 5% to the left.

Up

Pans the drawing 5% downwards.

Down

Pans the drawing 5% upwards.

PaGe Left

Pans the drawing 100% to the right.

Note: You can also press Shift + Left cursor key.

PaGe Right

Pans the drawing 100% to the left.

Note: You can also press Shift + Right cursor key.

PaGe Up

Pans the drawing 100% upwards.

Note: You can also press Shift + Up cursor key.

PaGe Down

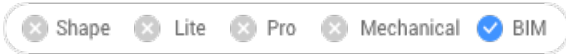
Pans the drawing 100% downwards.

Note: You can also press Shift + Down cursor key.



21.5 PANELIZE command

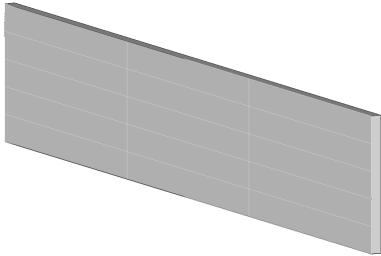
Creates a grid on the face of a 3D Solid, as a block reference.



Icon:

21.5.1 Description

Creates a custom grid on the face of a 3D Solid, by mentioning the length and the number of panels.



21.5.2 Options

Length U panels

Sets the length of the panels in U direction (height).

Length V panels

Sets the length of the panels in V direction (width).

Number U panels

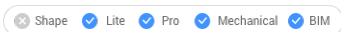
Number of panels in U direction (rows).

Number V panels

Number of panels in V direction (columns).

21.6 PARALLEL command

Toggles the Parallel entity snap.



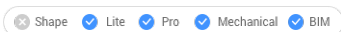
Icon:

21.6.1 Description

Toggles the Parallel entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

21.7 -PARAMETERS command

Manages dimensional-constraint parameters.





21.7.1 Description

Creates, edits, renames, and deletes parametric equations made of dimensional constraints and user-defined variables; works at the Command line.

21.7.2 Options

?

Lists all dimensional constraints and user variables in the current drawing, showing the name, expression and current value of each dimensional constraint or user variable.

New

Creates a user variable.

Edit

Edits the expression for the dimensional constraint or user variable.

Rename

Renames a dimensional constraint or user variable.

Delete

Deletes a dimensional constraint or user variable.

Properties

Sets the lower and the upper bounds for the parameter.

Lower bound

Defines the lower value for the parameter.

Upper bound

Defines the upper value for the parameter.

Note: The upper and lower bounds are taken into account in dynamic operations, like DMMOVE and ROTATE3D.

21.8 PARAMETERSPANELCLOSE command

Closes the **Parameters Manager** panel.



21.8.1 Description

Closes the **Parameters Manager** panel to hide it from the current workspace. If the **Parameters Manager** panel is stacked when you close it, the **Parameters Manager** panel tab or icon is removed from the stack.

21.9 PARAMETERSPANELOPEN command

Opens the **Parameters Manager** panel.



Icon:

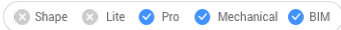


21.9.1 Description

Opens the **Parameters Manager** panel to display it in the current workspace. The **Parameters Manager** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Parameters Manager** panel can be either floating, docked or stacked.

21.10 PARAMETRICBLOCKASSIST command

Converts an AutoCAD® Dynamic Block into a BricsCAD Parametric Block.



Alias: PBLOCKASSIST

21.10.1 Description

Converts AutoCAD® Dynamic Blocks into BricsCAD Parametric Blocks. When the command is launched, the **Parametric Block Assist** dialog box displays.

21.10.2 Method

In most common cases, the following dynamic block features are supported for conversion: visibility actions, one-grip stretch and one-grip move actions, flip action, array action, alignment action parameter, lookup action, with history-dependent actions, and block table feature.

Note: The history of the dynamic blocks will be lost during the conversion to parametric blocks. A warning message about the possible different look of converted block references will be displayed.

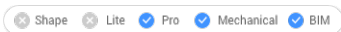
Note: Rotation-related actions are not yet supported.

Each dynamic block feature is reconstructed to one or several BricsCAD Parametric Block features: parametric stretch, parametric flip, reference curves, design tables, parameters formulas, and associative arrays.

Once the **Parametric Block Assist** dialog box is displayed, all AutoCAD® dynamic blocks of the current drawing are listed. Tick all blocks to convert and specify conversion details (location, suffix).

21.11 PARAMETRICBLOCKIFY command

Automatically replaces sets of entities, matching a selected parametric block or a set of parametrized entities in a model, by parametric block references.



Icon:

21.11.1 Description

The PARAMETRICBLOCKIFY command replaces sets of entities in the current drawing by parametric blocks. To make the replacements, this command uses some input entities. There are two types of input entities:

- A reference to a block definition containing parametrized entities.



- A set of parametrized entities.

The workflow of this command includes the following steps:

- 1 First, the command defines some input entities to be used for comparison. These input entities can be parametric block or sets of parametrized entities.
- 2 The geometry of each input entity is driven by some parameters. A configuration is defined by the values of the parameters.
- 3 After the input entities have been defined, the command searches the current drawing for sets of entities with a geometry that match the geometry of one of the configurations.
- 4 A match occurs when the input entities can be configured exactly as the set of entities which that input is compared to.
- 5 After a match has been found, the set of entities will be replaced by a parametric block. The parameters will have the values specific to the configuration for which the match has been found.

Note:

- The BLOCKIFYMODE system variable defines the behavior of the PARAMETRICBLOCKIFY command. Depending on the value of the system variable, some options are not available.
- The PARAMETRICBLOCKIFY command supports 2D parametric blocks or a selection set of 2D geometry containing parameters and constraints. Also, when the input is a 2D parametric block, flip lines and visibility states are correctly supported: geometry in the search space matching a specific flip and/or visibility state of the input block, will be correctly recognized and converted.
- The PARAMETRICBLOCKIFY command does not support parametric stretches. It will not replace any geometry with a parametric block when a parametric block containing a parametric stretch is used as input entity. An exception is the case where the geometry of a set of entities is exactly equal to the geometry of the entities inside the 2D parametric block definition, which contains a parametric stretch.

21.11.2 Methods

There are three methods of using PARAMETRICBLOCKIFY command:

- Using a single parametric block selected in the drawing.
- Using a set of parametrized entities selected in the drawing.
- Using the block definitions from the library

Using a single parametric block

- Select the parametric block to create the input entity.
- Search through the current drawing for sets of entities that match the input entity.
- A match is when the input entity can be configured exactly as the set of entities being searched.
- When a match is found, the set of entities will be replaced by an instance of the parametric block.
- If there is no match, the command makes no changes to the drawing.

Using a set of parametrized entities

- Select a set of parametrized entities to create the input.



- Search through the current drawing database for sets of entities that match the input.
- A match is when the input entities can be configured exactly as the set of entities being searched.
- When at least one match is found, the input entities will be converted into a parametric block definition. The input and the matching sets of entities will then be replaced by instances of the newly created parametric block.
- If there is no match, the command makes no changes to the drawing.

Using block definitions from the library

- The inputs used in this case are the parametric blocks in the library.
- In this case, there are many inputs. Each parametric block in the library is an input.
- Search through the current drawing for sets of entities that match one of the inputs.
- A match is when the one of the inputs can be configured exactly as the set of entities being searched.
- When a match is found, the set of entities will be replaced by an instance of the parametric block that matched.
- If there is no match, the command makes no changes to the drawing.

21.11.3 Options within the command

Select input parametric block or parametrized entities

This option allows to make a selection. The type of selection will determine which method will be used by the command.

Settings

Displays the BLOCKIFYMODE system variable in the Settings dialog box. For more information see the BLOCKIFYMODE system variable.

selection options (?)

Allows to choose a selection method.

check Library

This option allows to select blocks outside the drawing to be used in the search for matching.

Use Library components path or [select Folder/Library] <Library>

This prompt allows to select either the library or a specified folder as the source of parametric blocks to be used by the command.

The default option is **Library**. This option will use the blocks in the library as inputs to match.

Note:

- The library search path is *<Install_Folder>/UserDataCache/Support/<Language>/BIM/Components*. This path does not include the standard parts.
- The **Library** option also supports library components that are not parametrized.
- If the **Select Folder** option is selected, the user can select a folder containing .dwg files. In this case, the geometry in each of the files will be used as input.

Select search space or [Entire drawing/selection options (?)] <Entire drawing>:

This option allows to select where the search will be performed. The user can select an area of the drawing or the entire drawing.



Select parametric block insertion point or [use Default point] <use Default point>:

This option is available only for the parametrized entities method.

It allows to select an insertion point for the parametric block that is to be created after a match has been found. The default point is calculated by the command depending on the geometry of the selected parametrized entities.

Specify parametric block name or <ENTER to use default name>:

This option is available only for the parametrized entities method.

It allows the user to enter the name of the parametric block that is to be created. The default block name is **Param_Block** to which an incrementing number is added.

21.12 PARAMETRICSTRETCH command

This command defines a parameter to be used by a stretch operation on some entities of a parametric block.



Icon:

21.12.1 Methods

This command allows to stretch some entities in a block. The appearance of the block can be controlled by changing the value of the parameter associated with the stretch operation.

The goal of this parametric stretch action is to simplify the stretching of entities in the block. Usually, the same behavior could be obtained with parameters and constraints, but it would take more time and effort to obtain the same behavior.

The PARAMETRICSTRETCH command can be launched from the command line by typing `_PARAMETRICSTRETCH`. Another way to launch this command is from the ribbon in a **Drafting** workspace. Go to tab **Parametric** > **Parametric Blocks** panel.

Note: The stretch parameter might not work well in combination with the geometric and dimensional constraints. The behavior of the block when applying the stretch parameter together with constraints is highly dependent on the complexity of the geometry and the number and type of the constraints.

21.12.2 Options within the command

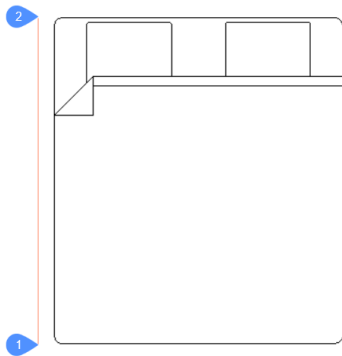
Base point of displacement

A location point for the origin of the stretch vector.

Second point of displacement

A location point for the head of the stretch vector.

For example, when defining a parametric block for a bed symbol, the stretch vector could look like this:



The point marked with 1 is the base point of displacement (the origin of the vector) and the point marked with 2 is the second point of displacement (the head of the vector). The two points are located on a vertical line at a distance equal to the length of the bed. The points can be placed on the actual geometry if this is more convenient for the user. Here, for visualization purposes, the points have been placed on the side of the block.

The parametric stretch vector will have a soft red color and will be placed on a special layer named PARAMETRIC_STRETCH_VECTORS.

Construct stretch frame: pick first point of rectangular frame [Polygonal]

The first corner of the rectangular stretch frame.

Opposite corner

The second corner of the rectangular stretch frame .

Polygonal

Allows to enter a series of points that will set a polygonal stretch frame.

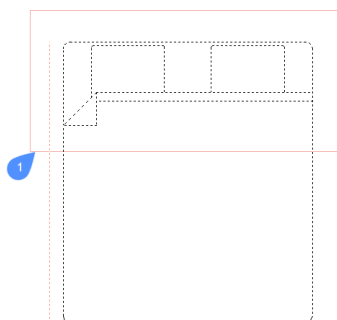
Note: The vertices inside the selection contour (rectangle or polygon) will be moved according to the stretch vector.

Select/deselect entities which can be affected by the stretch [selection options (?)]:

Allows to edit the selection of entities to be affected by the stretch action.

By default, all the entities which have stretch points inside the stretch frame are selected. Using this option, the user can change the selection. All the selected entities will be highlighted.

At this step, the screen will look like this:



The contour marked with 1 is the stretch frame. The vertices that are inside this contour and belong to a selected entity, will be affected by the parametric stretch.



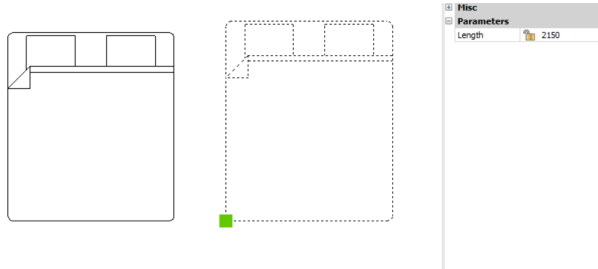
Enter name for the stretch parameter <Stretch>:

Allows to give a name to the stretch parameter. The default name is **Stretch**.

For this example, the stretch parameter is named **Length**.

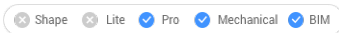
To see the block at work, open a new drawing and insert the block. After insertion, with the block selected, go to the **Properties** panel in the **Parameters** section, and change the value of the stretch parameter, **Length** in this case.

The block entities that were selected for stretch will adjust according to the new value of the stretch parameter.



21.13 PARAMETRIZE command

Applies constraints automatically.

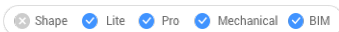


21.13.1 Description

Automatically adds geometric constraints and parametric equations to 3D solid geometry. The resulting parameters and geometric constraints can be viewed and edited in the Mechanical Browser (MECHANICALBROWSEROPEN command).

21.14 PARAMETRIZE2D command

Automatically applies 2D geometric and dimensional constraints to selected 2D geometry.



21.14.1 Description

Select the 2D entities to automatically add dimensional and geometrical constraints.

The parameters and constraints can be edited in the **Parameters Manager** panel or in **Mechanical browser** panel.

21.15 PASTEBLOCK command

Pastes CAD entities from the Clipboard as a block.



Icon: 

Note: Before you can use this command, first use the COPYCLIP or COPYBASE commands to copy entities from the current drawing, or even from another CAD program.

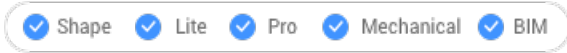


21.15.1 Description

This command can only paste CAD entities into the drawing as block entities. Other Clipboard content may be pasted as OLE entities.

21.16 PASTECLIP command

Pastes CAD entities from the Clipboard into the current drawing.



Icon: 

Note: Before you can use this command, first use the COPYCLIP or COPYBASE commands to copy entities from the current drawing, or even from another CAD program.

21.16.1 Method

This command can only paste CAD entities into the drawing as entities.

When the Clipboard contains non-BricsCAD entities:

- Non-BricsCAD entities, such as raster images, are pasted as OLE entities.
- If non-BricsCAD text (including LISP and Diesel code) is pasted in the Command line, the program executes the text as commands.

21.16.2 Options within the command

Rotate

Specifies the angle by which to rotate the entities.

Scale

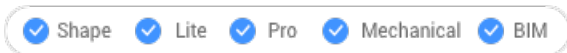
Specifies the scale factor.

Mirror

Mirrors the entities about a mirror line in a 2D plane.

21.17 PASTEORIG command

Pastes entities from the clipboard into a different drawing.



Icon: 

Note: Before you can use this command, first use the COPYCLIP or COPYBASE command to copy entities from the current drawing.

Note: The PASTEORIG command works concomitantly with the INSUNITS system variable. The INSUNITS system variable must have the same value in both source and destination drawing.



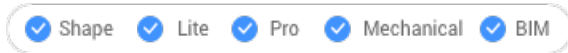
21.17.1 Description

Pastes CAD entities from the Clipboard into a different drawing using the coordinates of the entities in the source drawing. PASTEORIG comes from **paste at original coordinates**.

Note: This command does not paste entities back into the source drawing.

21.18 PASTESPEC command

Opens the Paste special dialog box.



Icon: 

Alias: PA

Note: This is a Windows only command.

21.18.1 Description

Opens the Paste special dialog box to specify how entities from the clipboard are pasted into the current drawing. This command is only available on the Windows platform.

21.19 PDF command

Opens the Attachments panel.



Icon: 

21.19.1 Description

Opens the Attachments panel to display it in the current workspace. The Attachments panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Attachments panel can be either floating, docked or stacked.

21.20 PDFADJUST command

Adjusts graphical properties of a PDF underlay.



Icon: 

21.20.1 Description

Adjusts the face, contrast and monochrome level of one or more PDF underlays attached to the current drawing.

Note: It can be easier to use the Properties panel's Underlay Section to adjust the parameters.



21.20.2 Options

Fade

Sets the fade setting of the PDF underlay(s).

- 0: minimum fade: Underlay PDF is fully displayed
- 100: maximum fade: Underlay PDF is barely visible

Contrast

Sets the contrast setting of the PDF underlay(s).

- 0: minimum contrast: both dark and light elements are displayed medium gray
- 100: maximum contrast: dark elements are displayed dark, light elements are displayed light

Monochrome

Toggles the monochrome setting of the PDF underlay(s).

Yes

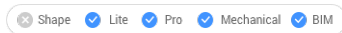
Turns colors into shades of gray.

No

Keeps the PDF as-is.

21.21 PDFATTACH command

Opens the Select PDF underlay file dialog box.



Icon: 

21.21.1 Description

Opens the PDF underlay file dialog box to select a PDF file to reference into the current drawing. After selecting the file and choosing **Open**, the Attach PDF Underlay dialog box displays. It enables you to specify where and how to attach the PDF file.

21.22 -PDFATTACH command

Attaches a PDF file as an underlay.



21.22.1 Description

Attaches a PDF file as an underlay into the current drawing through the command bar.

21.22.2 Options

PDF Underlay file

Specifies the file name of the PDF file to attach by entering the path of PDF name.

Note: To open the File dialog box, enter ~ .

PDF underlay page number

Specifies the page number of a multi-page PDF file to insert.



Note: This option does not appear when the PDF has only one page.

Insertion point

Specifies the insertion point in the drawing. This can be done in 2 ways.

- Picking a point
- Entering x, y coordinates

Scale

Specifies the size of the PDF underlay by entering a scale factor or by moving the cursor.

Size

Sets the size of the insert dynamically. The first point is the insertion point. By moving the cursor, the program ghosts the size and position of the underlay relative to the insertion point.

XY Scale factors

Scales the underlay separately in X and Y direction differently.

Rotation Angle

Specifies the angle of the underlay.

21.23 PDFCLIP command

Clips a PDF underlay with a boundary.



Icon: 

21.23.1 Description

Clips a PDF underlay with a rectangular or polygonal boundary and inverts the boundary.

21.23.2 Options

PDF Underlay file

Selects the PDF underlay to clip by clicking the PDF border.

ON

Turns the clipping boundary on. The area outside the clipping Boundary is hidden from the view.

OFF

Turns the clipping boundary off. All of the PDF underlay is visible. The clipping boundary is saved.

Delete

Deletes an existing clipping boundary.

Invert

Inverts the clipping boundary. If the PDF underlay outside the clipping boundary is hidden before it will be visible afterward and the PDF underlay inside the clipping boundary is hidden. Use this option to invert it, so that the portion of the PDF inside the boundary is hidden, and that outside is visible.

Note: : You may find it more convenient to use the Misc section of the Properties panel to turn the clipping on and off, and to invert it.



New

Draws a new clipping boundary. The type needs to be specified.

Polygonal

Draws multi-sided clipping boundaries. The start and next point are specified by picking points.

Note: To undo the last point, press U.

Rectangular

Draws rectangular clipping boundary by picking two opposite corners.

21.24 PDFIMPORT command

Imports a PDF and converts its content to simple CAD entities.



Icon:

21.24.1 Method

This command also converts a PDF underlay already attached to the drawing to CAD entities.

Different conversions are made depending on the type of the PDF entity.

PDF entity	CAD Entity
Straight and curved lines	Polylines and splines
SHX text	Polylines
TrueType text	MText
Solid-filled areas and wide lines	Hatches with 50% transparency
Raster images	Raster images
Layers	Layers
Lines with linetypes	Polyline segments

There are 2 methods to convert a PDF to CAD entities

- PDF Underlay
- PDF file



21.24.2 Options

21.24.3 Underlay options

Specify area

Picks the first two points to convert a rectangular area of an underlay to CAD entities.

Polygonal

Picks three or more points to convert a polygonal area of an underlay to CAD entities.

Note: When picking points that are not on the PDF, BricsCAD ignores those points so more points need to be picked.

All

Selects the entire PDF underlay for conversion to CAD entities.

Settings

Displays the PDF Import Settings section of the Setting dialog box.

Keep

Keeps the PDF underlay in place, in addition to converting its vector portions to CAD entities.

Detach

Detaches the PDF underlay so that it is no longer seen in the drawing but is still attached to the drawing.

Unload

Unloads the PDF underlay so that it is no longer seen the drawing but is still attached to the drawing.

21.24.4 Import file Options

Page number

Imports a specific page from the PDF file. When pressing enter, the first page will be imported.

?

Lists the page number in the PDF document.

Note: To view the content of the pages before importing them, use the File Managers preview window.

Settings

Displays the PDF Import Settings section of the Settings dialog box.

Insertion point

Specifies the insertion point in the drawing.

Scale

Specifies the scaling factor or the inserted geometry.

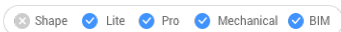
Rotation

Specifies the rotation angle.

Note: The angle needs to be entered and cannot be specified by picking points in the drawing.

21.25 -PDFIMPORT command

Imports a PDF and converts its content to simple CAD entities.

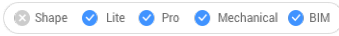




For more information see PDFIMPORT command.

21.26 PDFLAYERS command

Toggles the display of layers in PDF underlays.

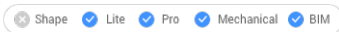


21.26.1 Description

Toggles the display of layers in PDF underlays. After entering the command and selecting a PDF underlay, the dialog box Underlay Layers displays. Here you can edit the display of the layers of the PDF.

21.27 PDFOPTIONS command

Opens the Settings dialog box with the **PDF export** category expanded.

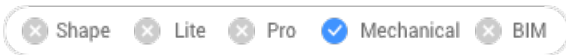


21.27.1 Description

Opens the Settings dialog box with the **PDF export** category expanded to view and modify relevant system variables.

21.28 PDIM command

Creates dimensions as ACM entities. It is an AMPOWERDIM command.



Icon:

21.28.1 Method

Select the objects to create dimension and specify the point for its location. The **Edit Dimensioning** dialog box opens to define the parameters of the dimension.

There are two use cases to activate the mechanical entities:

- 1 **When creating a new drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Start a new drawing using a Mechanical2d template.
- 2 **When opening a drawing that contains mechanical entities:**
 - a Set the LOADMECHANICAL2D system variable to ON (1).
 - b Open an existent ACM drawing and start special symbols creation.

Note: These dimensions are compatible with the legacy AutoCAD® Mechanical application.

Note: The dimensions will be added to the AM_5 layer.

Note: After opening a drawing that contains mechanical entities, filling other drawings with mechanical-related data will be done on-demand in contrast to previous versions. It will be possible when a user copies the mechanical-related entities to the vanilla drawing. In case of copying entities that are not related to the mechanical data, a vanilla drawing will not be filled with mechanical data.



Note: When you open a drawing that contains mechanical entities, but the LOADMECHANICAL2D system variable is OFF, a warning bubble is displayed at the status bar that describes the situation and provides a hyperlink to immediately enable and load the mechanical 2d modules.

21.28.2 Options within the command

Linear

Creates a linear dimension.

Angle

Defines the angle for dimension text.

Text

Overrides the automatic dimension text.

Horizontal

Creates a horizontal dimension.

Vertical

Creates a vertical dimension.

Rotated

Creates a rotated dimension. It measures the distance between two points in a direction that is at an angle to a line connecting the two points.

Aligned

Creates an aligned dimension.

Angular

Creates an angular dimension.

Radial

Creates a radial dimension.

Diameter

Creates a diameter dimension.

Radius

Creates a radial dimension.

21.29 PEDIT command

Edits polylines.



Icon:

Alias: EDITPLINE, PE

21.29.1 Description

Edits polylines, 3D polylines, and 3D meshes (short for "polyline edit") and converts 2D entities into polylines.



Note: The options of this command change, depending on the entity you are editing. You can edit single or multiple 2D polylines, single 3D polylines, 3D meshes and single or multiple lines, arcs, circles, splines or helixes.

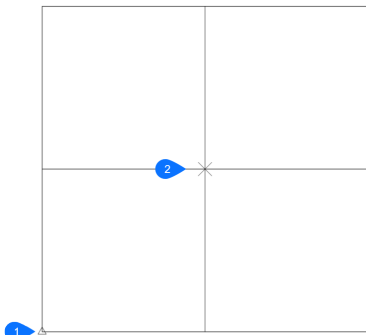
21.29.2 Options

Edit vertices

Edits the vertices.



- 1 Triangle marker at the start of the polyline.
- 2 X marker at the current vertex.



- 1 Triangle marker at the home vertex.
- 2 X marker at the current vertex.

Note: It can be easier to edit the vertices with grips editing.

Next vertex

Moves the X marker to the next vertex. When the marker reaches the last vertex of a closed polyline, it does not move to the "next" (first) vertex.

Previous vertex

Moves the X marker to the previous vertex.

Angle

Changes the angle of the current segment. If it is an arc segment, the angle (curvature) of the arc is changed. If it is a line segment, it is turned into an arc. To convert an arc into a line segment, enter an angle of zero degrees.

Note: angle > 0 is counterclockwise, angle = 0 is straight, angle < 0 is clockwise.

Break

Removes segments from the polyline between the two vertices marked with X markers. This action turns closed polylines into open polylines and open polylines into two polylines, with a gap between them.

Insert vertex

Inserts a vertex. A drag line previews the location of the new vertex.

**Left**

Moves the X marker to the vertex on the left.

Right

Moves the X marker to the vertex on the right.

Up

Moves the X marker to the higher-numbered vertex.

Down

Moves the X marker to the lower-numbered vertex.

Next

Choose the next vertex.

Previous

Choose the previous vertex.

Select

Moves second X marker directly to the selected vertex.

Go

Break the polyline between the first and second marked vertices.

Note: It is much easier to use the BREAK or TRIM commands to remove part of a polyline.

Move

Moves the current vertex. The drag line previews the new location of the vertex.

Note: It is much easier to move the vertices of a polyline with grips editing.

Regen

Regenerates the polyline to show changes made by the editing actions of this command.

SElect

Moves the X marker directly to another vertex that you select. This works faster than using the Next and Previous options.

Straighten

Removes all segments between two vertices. When you select the start and end points of a multi-segment polyline, the entire polyline is straightened, becoming a single segment; this also applies to closed polylines.

Next

Moves the second X marker to the next vertex.

Previous

Moves the second X marker to the previous vertex.

Select

Moves second X marker directly to another selected vertex.

Go

Replaces the segments between the two marked vertices with a single segment.

Tangent

Edits the tangent direction of the vertex.



Width

Changes the width of the current segment. The current segment is the segment that lays between the X-marked vertex and the next vertex.

Close

Closes the polyline by adding a segment between the start and endpoints. When the polyline is closed, this option reads Open.

Open

Opens closed polylines by removing the last segment drawn to close the polyline. When the polyline is open, this option reads Close.

Decurve

Reverses the effects of the Fit and Spline options.

Desmooth

Removes the Bezier-spline smoothing of 3D meshes.

Fit

Fits a curve to the polyline.

Note: To unfit the polyline, use the Decurve option.

Join

Adds open entities to the selected polyline.

Note: This option works only with open and with cojoined entities. Cojoined means that the endpoints of entities meet, such as when drawn with ENDpoint object snap or with the Last point option. The joined entities take on the source polyline's properties, such as color, width, and layer.

Fuzz distance

When endpoints are within the fuzz distance, the entities are extended or trimmed.

Jointype

Specify the type of joining.

Extend

Extends or trims segments to the nearest endpoints.

Add

Adds linear segments between the nearest endpoints.

Both

Extends or trims if possible, otherwise adds linear segments.

M close

Closes the 3D mesh in the m direction. When the mesh is closed, this option reads M open.

M open

Opens the 3D mesh in the m direction. When the mesh is open, this option reads M close.

N close

Closes the 3D mesh in the n direction. When the mesh is closed, this option reads N open.

N open

Open the 3D mesh in the n direction. When the mesh is open, this option reads NClose.



Linetype mode

Determines how linetypes appear on polylines.

On

Linetypes start and stop at the polyline's start and endpoints.

Off

Linetypes start and stop at each vertex.

Note: This option is stored in the PLINEGEN variable.

Reverse direction

Reverses the direction of the polyline: the starting point is now its end point, and vice versa. The polyline does not change its look with this operation, except that the triangle marker moves to the other end of open polylines. This option affects operations that depend on the direction of a polyline, such as vertex editing.

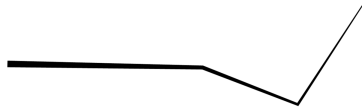
Spline

Converts the polyline into a spline.

Note: all width information is lost. Use the Width option to reapply width. The spline is a Bezier-spline whose smoothing is defined by the SPLINETYPE system variable.

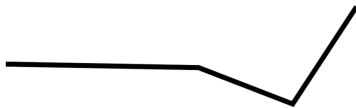
Taper

Tapers the width of the entire polyline from one end to the other.



Width

Changes the width of all segments.



Note: This option overrides tapered widths.

Undo

Undoes the last action.

21.30 PEDITEXT command

Edits vertices and segments of a polyline.



Icons:

21.30.1 Description

Edits vertices and segments of a polyline interactively, without first selecting the polyline.

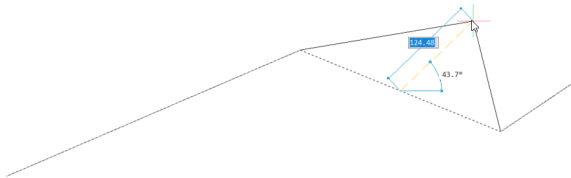


Note: This command was meant for use with the Quad cursor. See the related procedure Editing a polyline using the Quad on how to use this command with the Quad.

21.30.2 Options

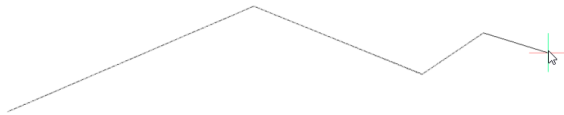
Add vertex

Adds a vertex to the selected segment.



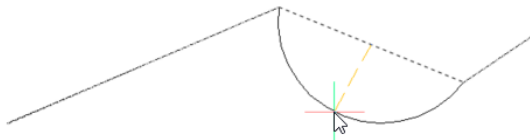
add vertex at the End

Adds a new vertex at the end of the polyline.



adjust Bulge

Modifies the bulge factor of the selected segment.

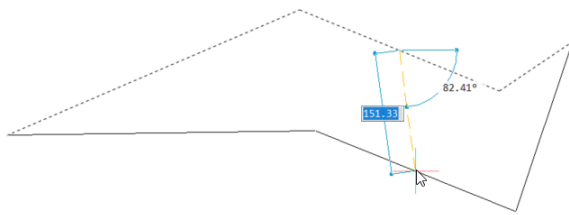


Remove segment

Deletes the selected segment.

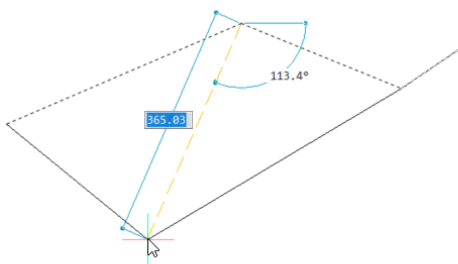
Stretch segment

Moves the selected segment.



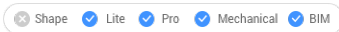
Stretch Vertex

Moves the selected vertex.



21.31 PERPENDICULAR command

Toggles the Perpendicular entity snap.



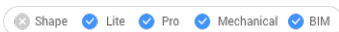
Icon:

21.31.1 Description

Toggles the Perpendicular entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

21.32 PFACE command

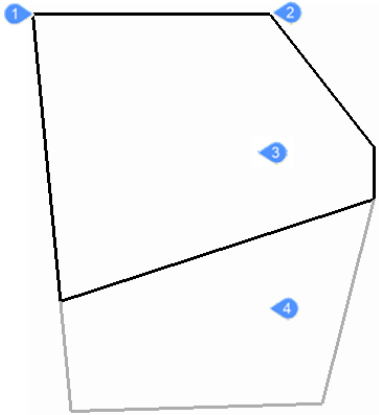
Draws multi-sided meshes.



Icon:

21.32.1 Description

Draws multi-sided polyface meshes in 3D; meant for use by macros.



- 1 Vertex 1
- 2 Vertex 2
- 3 Face 1
- 4 Face 2

21.32.2 Options

Invisible

(Hidden option.) Specify an invisible edge by entering a negative number.

Color

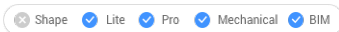
Specify the color of the edge by entering a color name, number, or color book name.

Layer

Specify the layer name for the edge by entering the name of a layer.

21.33 PLACEVIEW command

Import named views from a source drawing.



21.33.1 Description

Places named views from a source drawing into a paper space layout of the current drawing.

Note: This command works only in paper space, and is meant for use with sheet sets.

Note: It is not allowed to place a named view in a layout of the source drawing.

21.33.2 Methods

There are two methods to place named views:

- Command line: start the command by typing placeview in the Command line.
- Mouse: drag a model view from the Content Browser panel onto a paper space layout.



21.33.3 Options

Enter file name

Enter the file name from the source file from which the views will be imported.

Enter view name to place

Enter the name of the view you want to import.

?

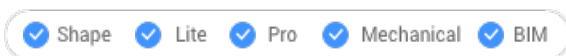
Prints a list of the named views in the Prompt History window.

Enter view origin point

Specify the location of the lower left corner of the named view.

21.34 PLAN command

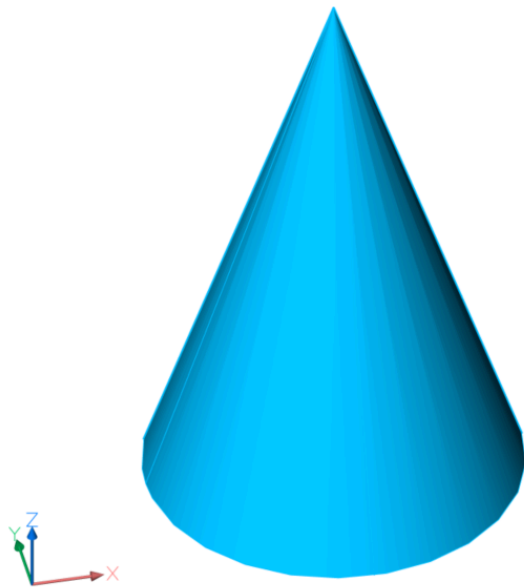
Displays the plan viewpoint of drawings.

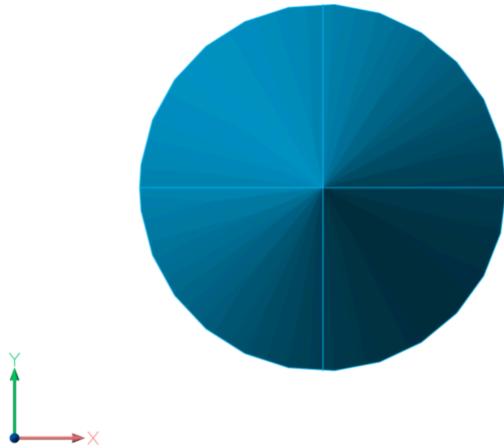


Icon:

21.34.1 Description

Shows the 3D model in plan view which looks straight down on the x,y-plane.





21.34.2 Options

UCS

Displays the plan view of a named UCS or Dynamic UCS after entering a name or placing the cursor over a 3D solid.

Note: To be able to run this command the second way, make sure that the UCSDETECT system variable is turned On.

?

Lists the names of UCSs in the current drawing.

World

Displays the plan view of the World Coordinate System.

Current

Displays the plan view of the current UCS.

21.35 PLINE command

Creates a polyline.

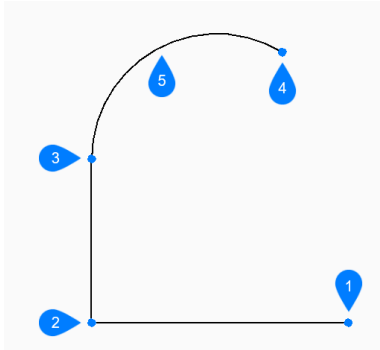


Icon:

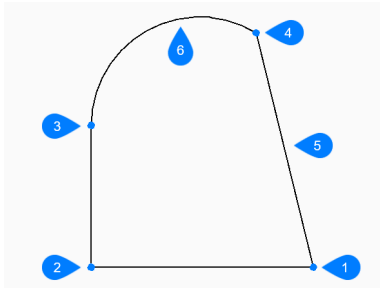
Alias: PL, POLYLINE

21.35.1 Description

Creates a single polyline entity with multiple line and arc segments by specifying the start and end point of each segment. Options allow you to switch between line and arc segments, apply widths, undo, and close the geometry.



- 1 Start
- 2 Next
- 3 Next
- 4 End
- 5 Arc segment



- 1 Start/End
- 2 Next
- 3 Next
- 4 Next
- 5 Close
- 6 Arc segment

21.35.2 Methods to create a polyline

This command has 3 methods to begin creating a polyline:

- Start of polyline
- Last point
- Follow

You can continue adding unlimited segments until you press Enter to end the command.

Start of polyline

Begin creating a polyline by specifying a start point then:



Set next point

Specify the next vertex of the polyline.

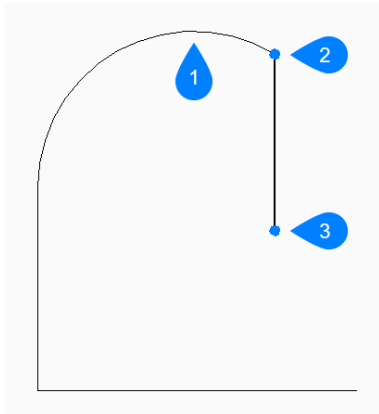
Additional options: [draw Arcs/Close/Distance/Follow/Halfwidth/Width/Undo]

Last point

Begin creating a polyline from the last point picked then:

Set next point

Specify the next vertex of the polyline.



1 Last drawn segment

2 Last point

3 End point

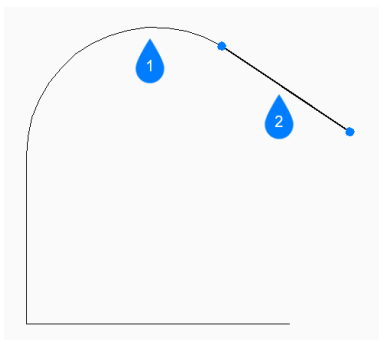
Additional options: [draw Arcs/Close/Distance/Follow/Halfwidth/Width/Undo]

Follow

Begin creating a polyline from the last drawn arc or line segment, following its angle, then:

Set next point

Specify the length of the segment. Picking a point only determines the length since the angle follows the previous segment.



1 Last drawn segment

2 Follow

21.35.3 Options within the PLINE command

After you begin creating a polyline, the following options may be available.



Draw arcs

Specify the end point of the polyline arc segment. The arc is drawn tangent to the previous segment.
Additional options: [draw Lines/Angle/CENTER/Direction/Halfwidth/Radius/Second point/Width]

Angle

Specify the included angle of the arc segment then:

Set end of arc

Specify the next vertex of the polyline.

Additional options: [Center/Radius]

Center

Specify the center point of the arc segment then:

Set end of arc

Specify the next vertex of the polyline.

Additional options: [Angle/Length of chord]

Direction

Specify the direction of the arc segment then:

End of arc

Specify the next vertex of the polyline.

Radius

Specify the radius of the arc segment then:

Set end of arc

Specify the next vertex of the polyline.

Additional options: [included Angle]

Second point

Specify a point along the arc's circumference.

Draw Lines

Specify the end point of the line segment.

Additional options: [draw Arcs/Close/Distance/Follow/Halfwidth/Width/Undo]:

Distance

Specify the distance for the line segment then:

Angle of segment

Specify the angle of the line segment.

Halfwidth

Specify the starting and ending half-width of the segment, as well as all segments that follow -- until you change the width or halfwidth.



1 Halfwidth

The width is saved in the PLINEWID variable.



Width

Specify the starting and ending width of the segment, as well as all segments that follow -- until you change the width or halfwidth.



- 1 Start width
- 2 End width

The width is saved in the `PLINEWID` variable.

Undo

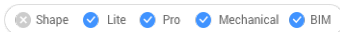
Undo the last polyline segment and continue drawing from its previous start point.

Close

Automatically draw a polyline segment from the end point of the last segment to the start point of the first segment. This ends the command.

21.36 PLOT command

Plots drawings to printers and to files.



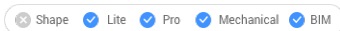
21.36.1 Description

Opens the **Print** dialog box to specify print options and preview or print the current drawing.

Note: This command adds a watermark to print output obtained using an Academic license.

21.37 -PLOT command

Plots drawings to printers and to files.



21.37.1 Description

Plots drawings to printers and to files, via the Command line.

Note: This command is meant for scripts and routines.

Note: This command adds a watermark to print output obtained using an Academic license.

21.37.2 Method

Choose whether to proceed a detailed plot configuration.

21.37.3 Options

Detailed plot configuration?

Choose whether to change the plot configuration.

Yes

Prompts 16 options to configure the plot.



No

Prompts 6 options.

Enter a layout name or ?

Specifies the name of the layout to plot. Enter ? to list the layouts in the current drawing.

Enter an output device name or ?

Specifies the name of the output device (plotter or file). Enter ? to list the available plot devices.

Enter paper size or ?

Specifies the name of the paper size. Enter ? to list the available media sizes.

Enter paper units

Specifies the paper units: inches or millimeters.

Enter drawing orientation

Specifies the drawing orientation: portrait or landscape.

Plot upside down?

Plots the drawing upside down.

Note: This option is useful when paper with a drawing border is loaded backwards in the printer.

Enter plot area

Specifies which area of the drawing to plot.

Display

Plots the area shown in the current viewport.

Extents

Plots the extents of the drawing, ensuring all non-frozen entities are plotted.

Limits

Plots the limits of the drawing, as defined by the LIMITS command.

View

Plots the current view, or a named view. See the VIEW command.

Window

Plots a rectangular area defined by the user.

Enter plot scale

Specifies the plot scale factor.

Note: The Fit option calculates the scale factor automatically.

Enter plot offset

Specifies the offset distance for the print.

Note: Enter positive or negative distances to move the drawing in the x and/or y distances. Positive values move the drawing up and to the right and negative values move the drawing down and to the left.

Note: The lower left corner of the drawing is moved by the specified distance. This is useful when the paper has a title block area that might interfere with the drawing.

Plot with plot styles?

Toggles the use of plot styles.



Note: Plot styles override lineweight settings.

Enter plot style table name

Specifies the plot style table to use, which assigns properties to "pens", colors, and entities.

Note: Enter ? to list the plot styles available in the drawing.

Plot with lineweights?

Toggles the use of lineweights.

Note: This option is unavailable when **Plot with Plot Styles** is turned on.

Yes

Mimics lineweights assigned to the drawing in the print.

Enter shade plot

Specifies the shade plot. Overrides the visual style of the current view when printing model space.

Note: This option is disabled when printing a paper space layout. The Shade Plot mode of a paper space viewport is defined in the Shade Plot property of the viewport. The quality of the Rendered option is defined through the current render preset. See the RENDERPRESETS command.

Write plot to a file?

Determines whether the plot is sent to a file. If Yes, displays the **Create plot file** dialog box.

Note: The plot is saved in a .plt file.

Save changes to layout?

Toggles saving the plot parameters to the model or layout tab.

Proceed with plot?

Toggles plotting of the drawing.

Enter a page setup name

Specifies the name of a page setup.

21.38 PLOTSTAMP command

Opens the Plot stamp dialog box.



21.38.1 Description

Opens the Plot stamp dialog box to add information about drawings to the edge of the plotted drawing.

21.39 PLOTSTYLE command

Sets the current plot style.



21.39.1 Description

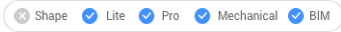
The command opens the Current Plot Style dialog box where you can set the current plot style.

Note: This command operates only when plot styles are enabled in drawings.



21.40 PLOTTERMANAGER command

Create and edit plotter settings.



21.40.1 Description

Opens a generic system dialog box PlotConfig where you can choose a plotter configuration file or where you can create and edit customized parameter PC3 files for printers and other output devices.

21.41 PLT2DWG command (Express Tools)

Imports HPGL plot files into the current drawing.

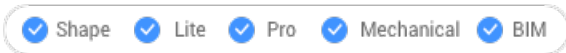
Icon:

21.41.1 Method

Opens the **Enter the plot file** dialog box that allows you to choose a .PLT file to open.

21.42 PNGOUT command

Saves the entities from the current drawing to a PNG file.

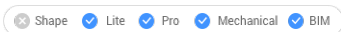


21.42.1 Description

Opens the **Save Png** dialog box to save the entities from the current drawing to a .png file. The current view specifies what entities to include in the image.

21.43 POINT command

Creates a point.

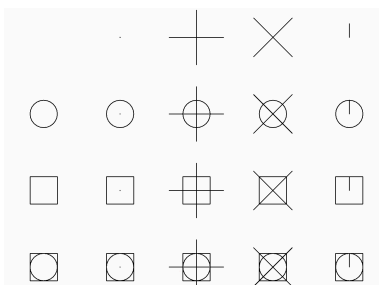


Icon:

Alias: PO

21.43.1 Description

Creates one or multiple points, controlling their size and style.





21.43.2 Option to create a point

Create a single point, represented by a dot, by specifying the location of point.

Location of point

Specify the location of the point.

Alternate options: [point Settings.../Multiple points]

21.43.3 Additional options within the POINT command

Before you begin creating a point, the following options may be available.

Point settings

Access the Settings dialog box to specify the display mode and size for points.

Multiple points

Draw multiple points until you press enter to end the command.

21.44 POINTCLOUD command

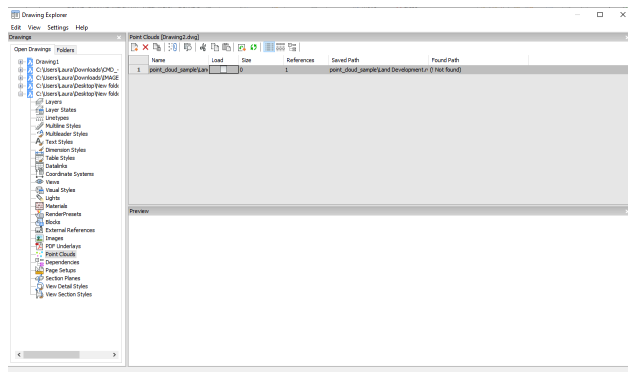
Manages Point Cloud files.



Icon:

21.44.1 Description

Displays the Point Clouds category of the Drawing explorer:



21.44.2 Option within the command

Name

Reports the name of the Point Cloud file insert.

Load

Toggles loading of the Point Cloud file.

- On: loads the Point Cloud, and makes it visible
- Off: unloads the Point Cloud, making it invisible

Size

Reports the size of the Point Cloud file. Very large files can slow down the system.



References

Reports the number of times the Point Cloud is attached to the drawing.

Saved Path

Reports the original path to the point cloud file when first loaded. When the path cannot be found, click the Browse button which will display the Choose a File dialog box and locate the missing point cloud file.

Found Path

Reports the current path to the point cloud file. This path should match the Saved Path in most cases.

21.44.3 Context menu options

New

Attaches a point cloud file to the current drawing, like the POINTCLOUDATTACH command.

Delete

Removes the selected point cloud from the current drawing.

Insert

Inserts additional copies of the existing point cloud files into the drawing; displays the Attach Point Cloud dialog box, like the POINTCLOUDATTACH command.

Select all

Selects all linetype definitions.

Invert selection

Deselects the current selection and vice versa.

Run extended search for missing attachments

Runs an extended search for missing attachments.

21.45 POINTCLOUDALIGN command

Rotates the point cloud to optimally align it with the X and Y axes.



Icon:

21.45.1 Description

Rotates the point cloud to optimally align it with the X and Y axes in the world coordinate system or creates an UCS aligned with the point cloud. This enables you to efficiently create and edit entities relative to the point cloud using common tools such as orthogonal and polar tracking.

21.45.2 Options within the command

Select point cloud entity

Allows you to select a point cloud entity if the current drawing has more than one point cloud attached.

Note: If the current drawing has only one point cloud attached, it is automatically selected for the align operation.

First corner point

Specifies the first corner of a rectangular selection window.



Specify opposite corner

Specifies the opposite corner of a rectangular selection window.

Ucs

Creates an UCS aligned with the point cloud.

Yes

Saves the UCS using the point cloud name or a user-specified name.

No

UCS is created without saving.


Rotate

Rotates the point cloud to optimally align it with the X and Y axes in the world coordinate system.

21.46 POINTCLOUDATTACH command

Attaches point cloud files to the current drawing.



Icon: 

21.46.1 Method

Select a file or a folder, specify the Point cloud data name, enter a unit for point coordinate and then attach it from the **Attach Point Cloud** dialog box.

The point cloud file or folder is preprocessed in the background to create a cache entry, and a balloon message displays when it is ready.

Note: When the same source data is selected again for which cache is already available, this is detected and the point cloud is directly inserted in the dwg file without new preprocessing.

Note: The POINTCLOUDCACHEFOLDER system variable defines the folder where the point cloud data are stored.

Note: When the POINTCLOUDHSPC system variable is set to ON, the file is inserted in the HSPC format.

Note: When a LAS/LAZ file contains classification data, it is shown in the **Point Cloud Manager** panel. Visibility of the classified points can be toggled on or off per class. This information is only available if the point cloud is preprocessed in HSPC format.

21.46.2 Options within the command

File

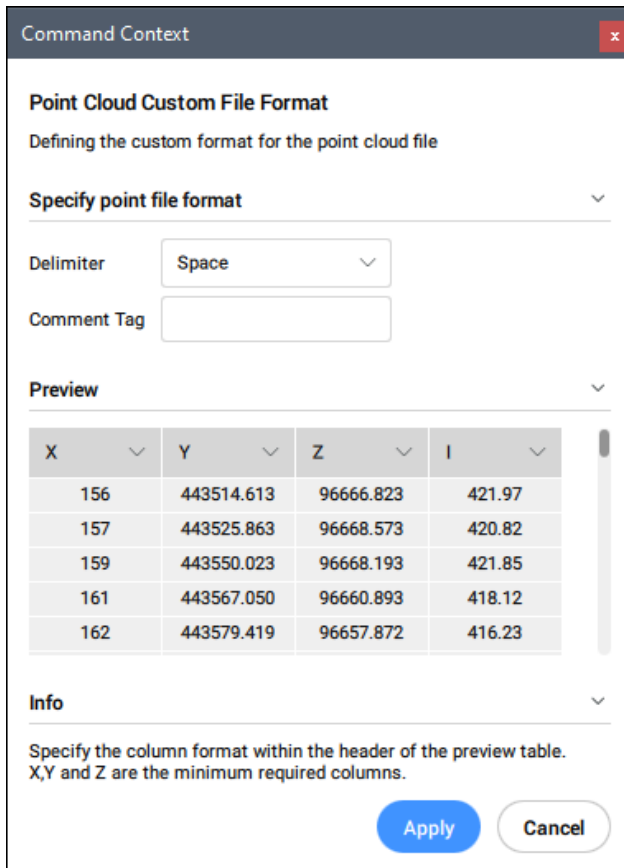
Opens the **Pre-process Point Cloud Data File(s)** dialog box from where you have to select a point cloud file to attach.

Note:

- The source file name is the same as the cache key and is used to check if the point cloud is available in the cache folder.

- The point cloud cache name is a user specified name for the preprocessed Pointcloud. It is the default point cloud name if the user does not specify a Pointcloud name for insertion. Multiple insertions can have the same or a different point cloud name.

Note: You can import an ASCII point cloud file of almost any extension, with a custom separator, or a custom data distribution across the columns. When an unsupported file format is selected (extensions other than *.e57, *.ptx, *.pts, *.las/z, *.rcp/s, *.hspc), you can define how the point data is stored in the file by accessing the Command line options or the **Point Cloud Custom File Format** command context panel. To be able to select an unsupported file format, select **all files (*)** in the open file/folder dialog.



Point Cloud Custom File Format
Defining the custom format for the point cloud file

Specify point file format ▾

Delimiter ▾

Comment Tag

Preview ▾

X	Y	Z	I
156	443514.613	96666.823	421.97
157	443525.863	96668.573	420.82
159	443550.023	96668.193	421.85
161	443567.050	96660.893	418.12
162	443579.419	96657.872	416.23

Info ▾

Specify the column format within the header of the preview table.
X,Y and Z are the minimum required columns.

Specify point file format

Defines the custom format for the point cloud file.

Delimiter

Sets a delimiter from the drop-down list.

comment Tag

Defines a comment tag. Any content after this tag in the same line is ignored.

Preview

Displays a preview of the point file. You can configure the column format.

columnFormat

Sets a column format.



fOlder

Opens the **Choose Input Folder** dialog box where you have to select a folder to import.

Toggle ignore geotags

Toggles ignore geotags, available at the Command line when the POINTCLOUDIGNOREGEOTAGS system variable is set to 0.

21.47 -POINTCLOUDATTACH command

Attaches point cloud files to the current drawing.



21.47.1 Description

Attaches point cloud files (that were previously converted to BricsCAD's BPT format) to the current drawing through the Command line.

21.47.2 Options within the command

Inputdata

Allows you to specify the point cloud link to attach to the current drawing.

Toggle geotags

Toggles between using or ignoring geotags.

Enter translation vector

Enter translation vector coordinates or specify it on the screen.

Rotation angle

Specify rotation angle or specify it on the screen.

Scale factor

Specify scale factor or specify it on the screen.

21.48 POINTCLOUDBUBBLEVIEWER command

Opens the **Bubble viewer**.



21.48.1 Description

Opens the **Bubble viewer** for the specified bubble index.

21.49 POINTCLOUDCOLORMAP command

Colorizes the point cloud.



Icon: 

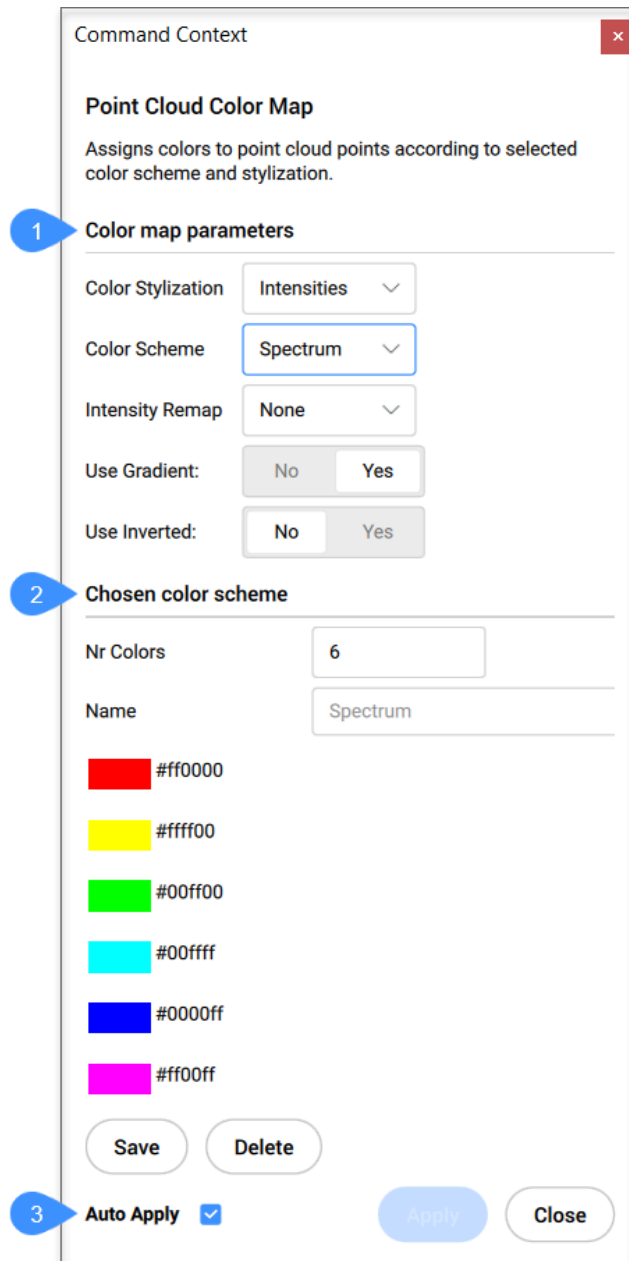
21.49.1 Description

Colorizes the point cloud based on a range of colors. You can do this in the following ways:

- Use the **Point Cloud Color Map** Command Context panel.
- In the Command line.

21.49.2 Point Cloud Color Map command context panel

The **Point Cloud Color Map** command context panel is automatically displayed when running the command. You can specify color map parameters and color schemes.



1 Color map parameters



2 Chosen color scheme

3 Auto Apply

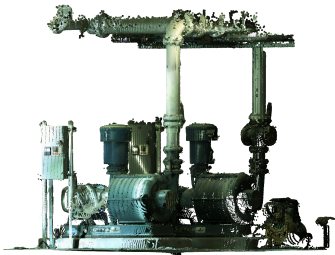
Color map parameters

Allows you to set the color map parameters.

Color Stylization

Specifies the color stylization. Depending on the chosen color stylization, different settings are further available.

Scan: assigns colors based on the color data collected by the scan.

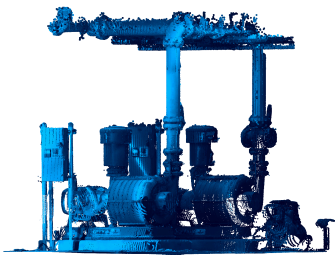


Elevation: assigns colors based on the elevation of the points using a specified color map.



Intensities: assigns colors according to their intensity value based on the specified color map.

Note: When the point cloud file does not contain any intensity data, the colors are assigned by height, regardless of the option you select.



Color Scheme

Hydro: assigns a range of colors from light blue to dark blue.

Grayscale: assigns a range of colors from light gray to dark gray.

Earth: assigns a range of colors from light brown to dark brown.

Blues: assigns a range of colors from light blue to dark blue.

Greens: assigns a range of colors from light green to dark green.

Reds: assigns a range of colors from light red to dark red.

Spectrum: assigns a range of colors based across the color spectrum.



Intensity Remap

Contains two functions to be applied to the intensities first, in order to improve the intensity contrast in the darker areas:

Gamma is a power function (the square root) of the input intensities.

Shadows is a function applied to input intensities, also to get better contrast in darker areas before mapping them to color.

Use Gradient

Specify whether to use a gradient or not:

No: no gradient is applied, the colorization of the point cloud is defined by using value intervals defined by the number of colors used in the scheme. The desired number of colors needs to be specified.

Yes: a gradient will be applied to the point cloud points.

Use Inverted

Specifies whether the order of the colors in the selected color scheme should be used inverted.

No: the order of the colors specified in the selected color scheme is used.

Yes: the inverted order of the colors specified in the selected color scheme is used.

Chosen color scheme

Allows you to edit an existing Color Scheme or to create a new one. These maps are stored in the .dwg file in a ACAD compatible way.

Number of colors

Specifies the number of colors used in the color scheme. Enter a value to change this number.

Name

Specifies the name of the color scheme.

Save

Saves the modifications made to the color scheme

Delete

Deletes the color scheme

Auto Apply

When checked, modifications are automatically applied to the point cloud.

Note: When this option is not checked, changes can be applied manually by pressing **Apply**.

21.49.3 Options within the command

The point cloud color map can also be modified through the command line. The same options are accessible as mentioned above.

21.50 POINTCLOUDCOMPRESS command

Compresses a point cloud cache entry.





21.50.1 Method

Opens the **Please provide a point cloud cache** dialog box where you can select a point cloud cache folder. Inside the selected folder, data files at the relative path Data/*.pnt will be compressed. The extension of the data files will change from .pnt to .pnz.

The compression ratio is displayed on the Command line.

Note: If FILEDIA =0, you have to specify the location of the point cloud cache folder in the Command line.

Note: Manual compressing and decompressing a point cloud cache file may be needed in case of data exchange between BricsCAD V21 and V22 versions. BricsCAD V22 can work seamlessly with compressed or uncompressed data, but BricsCAD V21 only works with uncompressed data.

Note: Set the POINTCLOUDCACHEFOLDER system variable as you prefer.

21.51 POINTCLOUDCROP command

Creates a crop boundary on a point cloud.



Icons:

Creates a crop boundary on an attached point cloud to limit the displayed points to a specific area. If the current drawing has only one point cloud attached, it is automatically selected for the crop operation. If the current drawing has more than one point cloud attached, you are prompted so select which point cloud to crop.

21.51.1 Method

Crops a point cloud entity, displaying only the part of the point cloud inside or outside a prismatic or cylindrical volume.

21.51.2 Options within the command

Rectangular

Creates a rectangular prismatic cropping.

Note: The crop boundary creates a rectangular volume of points perpendicular to the view in which you defined it.

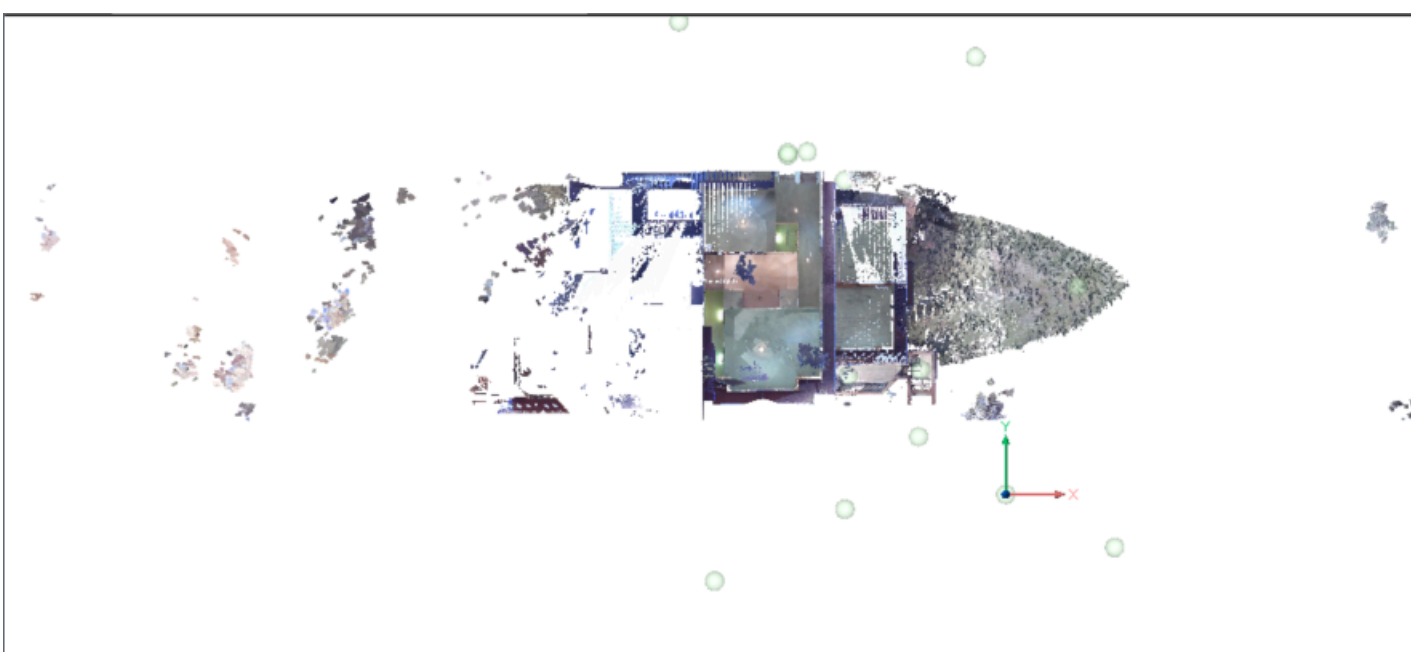




Circular

Creates a cylindrical cropping

Note: The crop boundary creates a circular volume of points perpendicular to the view in which you defined it.

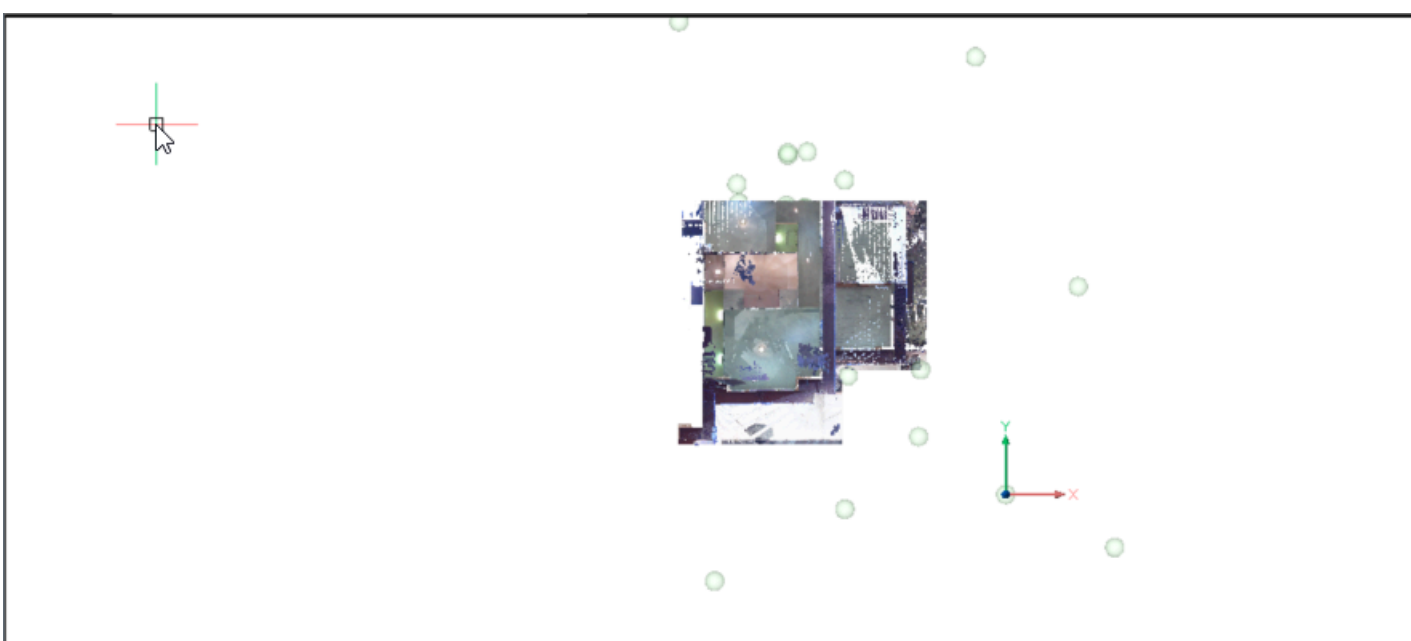




Polygonal

Creates a polygonal prismatic cropping.

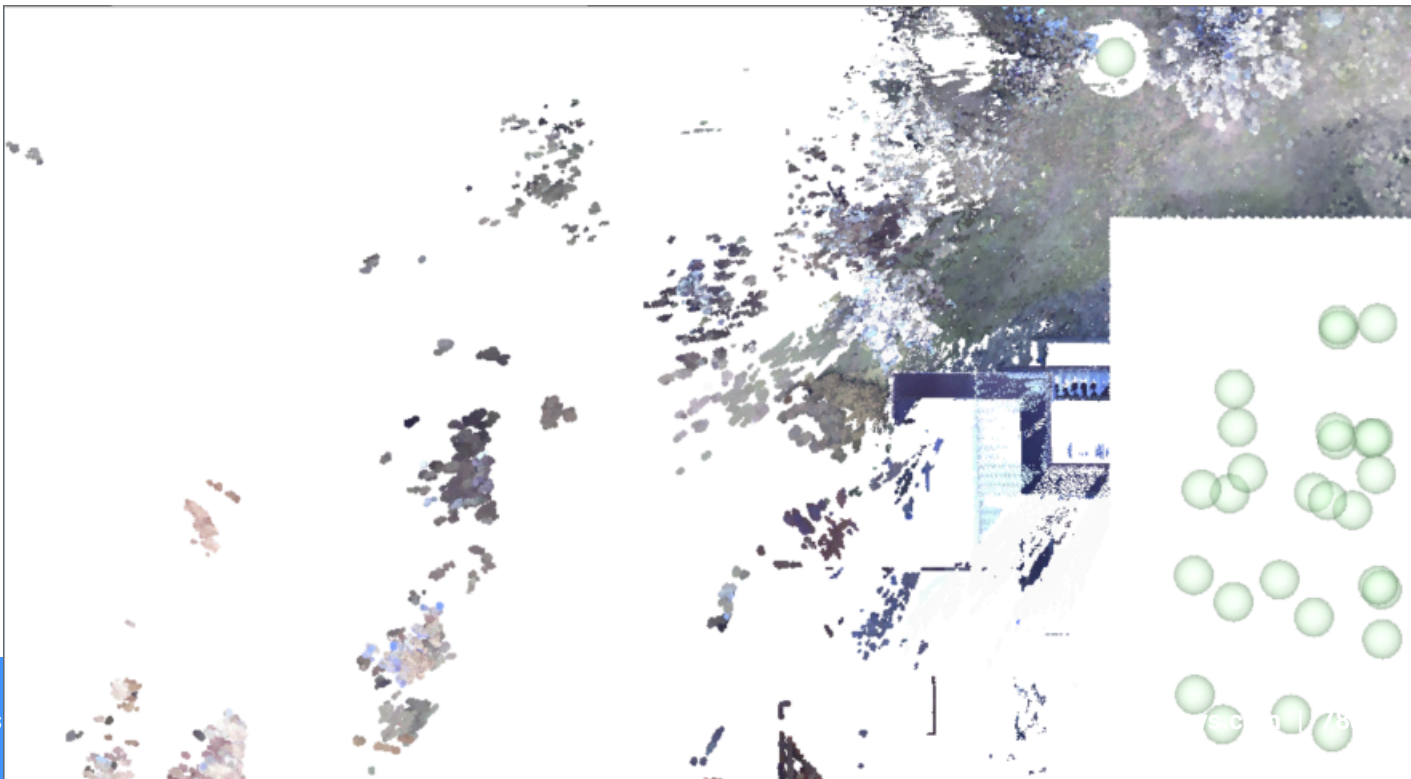
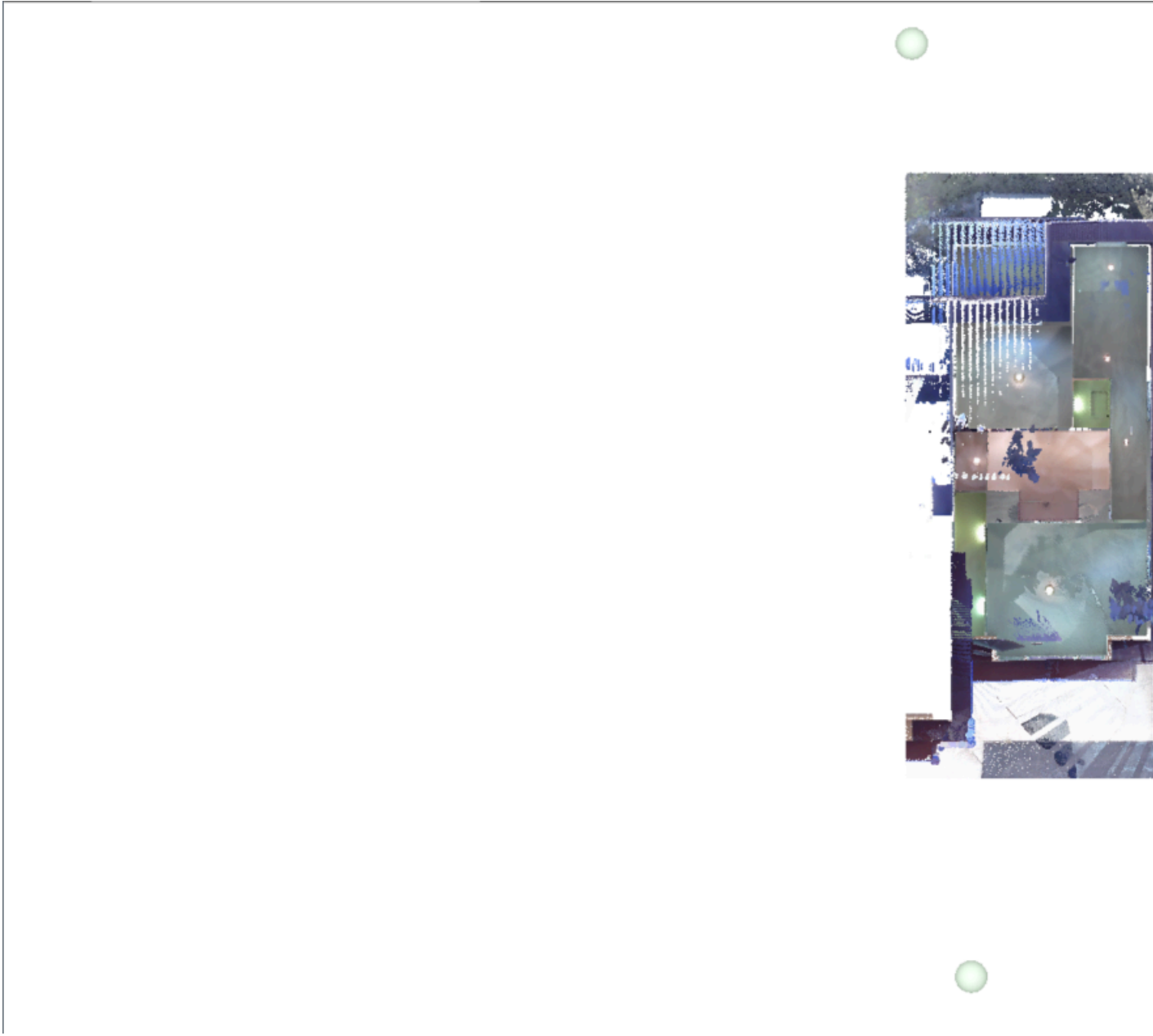
Note: The crop boundary creates a polygonal volume of points perpendicular to the view in which you defined it.





Invert

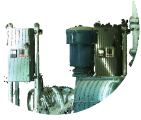
Inverts the current cropping. Toggles between Inside/Outside.





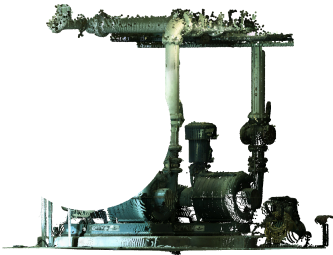
Inside

Displays the part of the point cloud inside the volume only.



Outside

Displays the part of the point cloud outside the volume only.



showToggle

Toggles the current cropping on/off.

removeLast

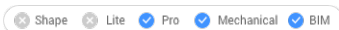
Removes the most recently added cropping volume.

removeAll

Removes all cropping.

21.52 POINTCLOUDCROPSOLID command

Converts an extruded solid/polysolid to a crop solid.



Icon:

Note: Crop solids can be used to crop point clouds in 3D and can be modified like any other BricsCAD solid.

21.52.1 Method

There are two methods to convert solids or polysolids to a crop solid:

- Inside
- Outside

21.52.2 Options within the command

Inside

Converts the selected solids into inside crop solids.



Outside

Converts the selected solids into outside crop solids.

Note: You can switch the Inside/Outside cropping property of a crop solid from the Properties panel.

21.53 POINTCLOUDDECOMPRESS command

Decompress a point cloud cache entry.

21.53.1 Method

Opens the **Please provide a point cloud cache** dialog box where you can select a point cloud cache folder. Inside the selected folder, data files at the relative path Data/*.pnz will be decompressed. The extension of the data files will change from .pnz to .pnt.

The compression ratio is displayed on the Command line.

Note: If FILEDIA =0, you have to specify the location of the point cloud cache folder in the Command line.

Note: Manual compressing and decompressing a point cloud cache file may be needed in case of data exchange between BricsCAD V21 and V22 versions. BricsCAD V22 can work seamlessly with compressed or uncompressed data, but BricsCAD V21 only works with uncompressed data.

Note: Set the POINTCLOUDCACHEFOLDER system variable as you prefer.

21.54 POINTCLOUDDELETEITEM command

Deletes point cloud files.



Icon:

21.54.1 Description

Opens the **Point Cloud Reference Manager** dialog box to delete point cloud files from the cache.

Note: It also removes all the insertions (if any) of that point cloud in the current drawing.

21.55 -POINTCLOUDDELETEITEM command

Deletes point cloud files.



21.55.1 Description

Deletes point cloud files from the cache through the Command line.

Note: It also removes all the insertions (if any) of that point cloud in the current drawing.

21.55.2 Method

Enter the index of the point cloud to delete it.

Note:

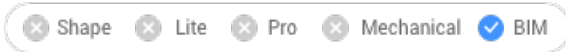
- You can separate indexes by commas to delete multiple point clouds.



- Type **All** to delete all.
- The cached point clouds are listed in the Command line history.

21.56 POINTCLOUDDetectFloors command

Generates volume sections.



Icon:

21.56.1 Description

Generates volume sections for each floor and ceiling found in a Point Cloud representing a building.

21.56.2 Options within the command

Full

Automatically detects floors for the entire Point Cloud.

Selection

Specifies the Point Cloud area where to detect floors.

Create spatial elements

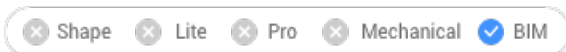
Choose **Yes** to let the command create spatial elements based on the detected floors height.

Note:

- The newly defined spatial elements can be visualised in the **Spatial Locations Manager** dialog box that can be accessed by launching the BIMSPATIALLOCATION command.
- With the **Story Bar** open (STORYBAR system variable is set to 1 or 2), you can easily switch between the defined floors in **Top View Mode** to start creating walls.

21.57 POINTCLOUDDeviation command

Identifies and visually transposes the closeness of fit of point cloud points with respect to their closest selected planar (sub)entity or TIN surface.



Icon:

21.57.1 Method

Assigns colors to point cloud points to visualize their closeness of fit with respect to the closest selected planar (sub)entity or TIN surface. The selected entities are isolated using crops while the **Command Context** panel is open.

After selecting the planar surface, TIN surface or the solid to compare the point cloud to, the **Point Cloud Deviation** Command Context panel opens to let you easily change the settings.



Point Cloud Deviation
Assigns colors to point cloud points to visualize closeness of fit with respect to its closest selected planar (sub)entity.

Entities *Select entities in drawing* ▾
 Select entities in drawing
 Entire drawing

Deviation range parameters ▾

Use Crops:

Crop Thickness: cm

Good fit tolerance (G): cm

Bad fit tolerance (B): cm

Color Mode: ▾

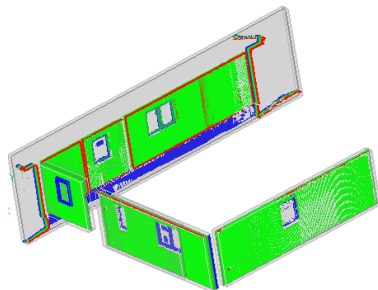
Deviation Results ▾

Vertical Bar Pie Chart

Range	Category	Percentage
Out+		
+2B (+1 cm)	Bad+	28.45%
+B (+0.5 cm)	Intermed.+	0.00%
+G (+0.5 cm)	Good	48.80%
0		
-G (-0.5 cm)	Intermed.-	0.00%
-B (-0.5 cm)	Bad-	22.75%
-2B (-1 cm)		
Out-		

Keep Deviation Colors on Close

Auto Apply



21.57.2 Options within the command context panel

Entities

Select entities in the drawing

Selects specific geometric entities in the drawing.

Entire drawing

Selects all geometric entities in the drawing.

Deviation range parameters

Note: Parameters previously set by the user are remembered.



Use Crops

Toggles the crop of the solids.

Note: This option is available only when the input entity is a solid.

Crop Thickness

Defines the thickness of a solid that is used around the geometry as a reference for proximity analysis.

Note: This option is available only when the input entity is a solid.

Good fit tolerance (G)

Sets the good fit (OK) tolerance value.

Bad fit tolerance (B):

Sets the bad fit (warning) tolerance value.

Color Mode

Continuous

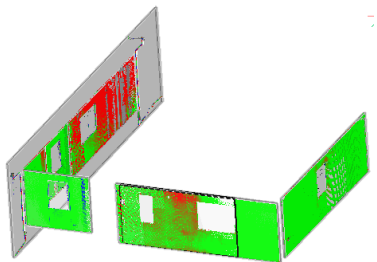
Spreads colors continuously

Discrete

Spreads colors discontinuously.

Deviation Results

Displays the point cloud distribution in percentage and colors. You can switch between the **Vertical Bar** and **Pie Chart** tabs to visualise the percentages.



Keep Deviation Colors on Close

Toggles the visualisation of the point cloud distribution in colors after closing the panel.

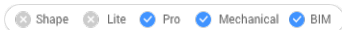
Auto Apply

Automatically applies the changes made in the **Command Context** panel.

Note: The options within the **Command Context** panel reflect the options within the command line.

21.58 POINTCLOUDEXPORT command

Exports the visible parts of a point cloud to a .pts, .Hspc or a .laz file.



Icon:

21.58.1 Description

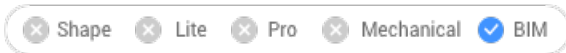
Saves data from the current drawing to the specified file format [Pts/Hspc/Laz].




Note: The HSPC file format is a proprietary format developed by Hexagon VCH (Visual Computing Hub).

21.59 POINTCLOUDFITCYLINDER command

Creates cylinders in Point Clouds.



Icon: 

21.59.1 Description

This command can only operate in **Bubble Viewer**.

21.59.2 Method

Open **Bubble Viewer** and choose two points along the axis to create a cylinder.

After selecting the second point, the cylinder is inserted in model space. Press **Ctrl+A** keys to sync the drawing view to match the **Bubble Viewer** and see the new inserted cylinder.

21.59.3 Options within the command

Accept

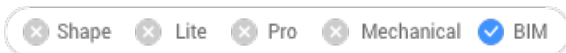
Accepts the new inserted cylinder.


Decline

Does not accept the new inserted cylinder.

21.60 POINTCLOUDFITPLANAR command

Creates a planar surface or a solid from a point cloud point.



Icon: 

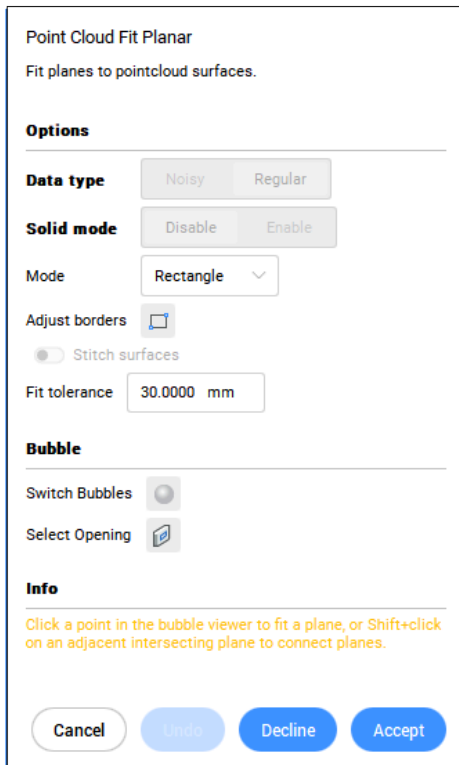
21.60.1 Method

Searches a point cloud for a dense set of planar points around selected seed point(s) and creates a planar surface or a solid if possible.

Note: Enables to create multiple surfaces or solids until you cancel.

Note: You can execute the command in model view or in a bubble view. Double click the bubble in which you want to start the command before launching the command.

This command opens the **Point Cloud Fit Planar** command panel.



21.60.2 Options within the command

Select point cloud entity

Specifies point cloud entity.

Data type

- **Noisy:** robust detection for coarse/noisy data - requires selecting 3 seed points.
- **Regular:** normal data - requires selecting 1 seed point.

Solid mode

Searches for a parallel plain in the point cloud to create a solid. For example a wall or a slab.

- **Disable:** disables the computation of solid mode data in order to save time.
- **Enable:** enables the computation of solid mode data.

Note: Solid mode is available in Model view only, if a dense area is detected in a plane that is parallel to the detected surface.

Select seed point in model view

Specifies the seed point for creating a planar surface or solid.

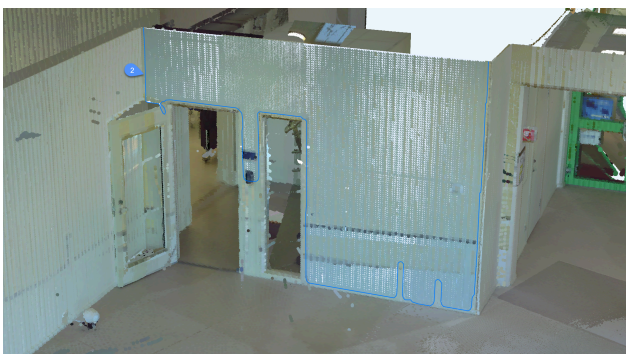
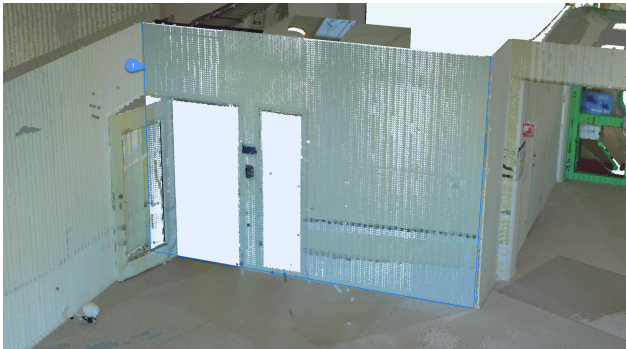
Mode

Switches between:

- **rectangle (1):** creates a single plane around the chosen point, rectangle outer border;
- **contour (2):** creates a single plane around the chosen point, contoured outer border;

- **solid (3)**: creates a cuboid solid with a face that contains the specified seed point and an automatically detected second plane nearby.

Note: Press **Ctrl** to switch between the available modes.



adJust borders

Defines a new border for the selected plane by specifying the vertices (Select vertices on border).

Stitch surfaces

Stitches adjacent surfaces selected in the rapid selection mode.

Note: Rapid selection is activated by holding down the **Shift** key.

Fit tolerances

Set a tolerance value for the plane fit.

Accept

Accept the current planar surface or solid.



Decline

Decline the current planar surface or solid.

Undo

Removes the most recently added surface from the current selection set. Use **Decline** option to remove the complete set.

Bubble



Note: Use **Shift** + click for rapid selection of adjacent surfaces. If **Stitch surfaces** is on, these surfaces will be stitched together.

Switch Bubbles

Switches between bubble viewers. Selects the bubble to switch to. Only available in bubble mode.

Select Opening

Creates an opening by selecting a point on an opening in a surface. Only available in bubble mode.

21.61 POINTCLOUDGEOGRAPHICLOCATION command

Sets the geographic location based on point cloud.



Sets the geographic location based on point cloud; sets point cloud transform based on geographic location; relatively aligns two point clouds.

Note: Only LAS and LAZ file formats can make use of this functionality.

21.61.1 Method

There are three methods:

- Geolocation
- Transform
- Relative

21.61.2 Options within the command

Geolocation

Allows to set a geographic marker in the DWG based on a point cloud with geographic location.

Transform

Updates the point cloud transform based on a geographic location in the DWG, as well as the geographic information in the point cloud.

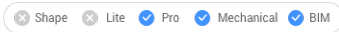
Relative

Relatively aligns two point clouds if both contain a geographic location.



21.62 POINTCLOUDIMPORT command

Opens the Please provide a point cloud cache dialog box.

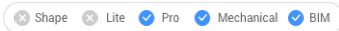


21.62.1 Description

Opens the **Please provide a point cloud cache** dialog box to select a point cloud cache folder.

21.63 POINTCLOUDMANAGERPANELCLOSE command

Closes the **Point Cloud Manager** panel.

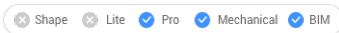


21.63.1 Description

Closes the **Point Cloud Manager** panel to hide it from the current workspace. If the **Point Cloud Manager** panel is stacked when you close it, the **Point Cloud Manager** tab or icon is removed from the stack.

21.64 POINTCLOUDMANAGERPANELOPEN command

Opens the **Point Cloud Manager** panel.

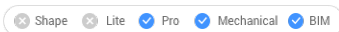


21.64.1 Description

Opens the **Point Cloud Manager** panel to display it in the current workspace. The **Point Cloud Manager** panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the **Point Cloud Manager** panel can be either floating, docked or stacked.

21.65 POINTCLOUDPOINTSIZESIZE_MINUS command

Decreases the display size of points in a point cloud.



21.65.1 Description

Decreases the display size of points in a point cloud to see the individual scan points more clearly. This decreases the POINTCLOUDPOINTSIZESIZE system variable by one.

This command displays no prompts and has no options.

21.66 POINTCLOUDPOINTSIZESIZE_PLUS command

Increases the display size of points in a point cloud.



21.66.1 Description

Increases the display size of points in a point cloud to visually fill gaps between individual scan points.

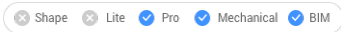
This increases the POINTCLOUDPOINTSIZESIZE system variable by one.

This command displays no prompts and has no options.



21.67 POINTCLOUDPREPROCESS command

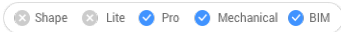
Attaches point cloud files to the current drawing.



Note: Since BricsCAD V20, this command has been replaced by the POINTCLOUDATTACH command.

21.68 -POINTCLOUDPREPROCESS command

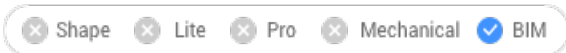
Attaches point cloud files to the current drawing.




Note: Since BricsCAD V20, this command has been replaced by the -POINTCLOUDATTACH command.

21.69 POINTCLOUDPROJECTSECTION command

Automatically generates a 2D raster image with optional contour lines from a defined section box.



Icon: 

21.69.1 Description

Opens the Command Context panel.




Command Context ✕

Project Section

Create 2D projections of point clouds using section volumes.

Entities No entities selected

Select entities in drawing 

Entire drawing

Projection Settings

Pixel size mm

Attach to ▾

Resolution ▾

Attachment point Section plane

X-Y plane

Back plane

Wall Detection Settings

Detect walls

Search area ▾

Wall distance mm

Gap tolerance mm

Angular tolerance deg

Minimum length mm

Overwrite old projection files

Remove old images/lines

Note: The options within the POINTCLOUDPROJECTSECTION command are identical to the ones in the **Command Context** panel.

21.69.2 Options within the command

change Selection

Allows you to select section volumes to project.

change Pixel size

Controls the pixel size of the generated image.

Attach to

Determines where the resulting image is generated. Allows you to switch between **Same.dwg** and **New destination**.

Same dwg

The projection is made in the same file.



Destination file

Creates a new .dwg file to make the projection.

Note: You can overwrite a previous file or create a new one.

Resolution

Determines the resolution of the projection. Allows you to switch between **Finest** and **Adaptive**.

Finest

Produces a sharp and detailed background picture. It uses all the points in the point cloud.

Note: The projection in the finest resolution would take longer to complete.

Adaptive

Produces a less detailed and softer background image.

Attachment point

Determines the insertion point for the generated image. Allows you to switch between **Section plane**, **X-y plane** and **Back plane**.

Section plane

Attaches the projection to the section plane.

X-y plane

Attaches the projection flat to the X-Y plane.

Back plane

Attaches the projection to the back plane of the section volume.

detect Walls

Allows you to switch between **Yes** and **No**.

Yes

Lines representing walls will be generated with the raster image.

No

Only a raster image is created.

tolerances

Allows you to modify the parameters that control 2D line drawing.

Search area

Allows you to switch between **Across volume** and **Distance from section**.

Across volume

Detects all walls in the point clouds. This option is often used to generate floor plans.

Distance from section

Detects walls in a given radius from a plane. This option is often used to generate vertical sections.

Wall distance

Controls the search area for wall detection.

Gap

Controls the search area for the algorithm to draw lines. Gaps smaller than the specified value will be closed.



Angular

Controls the angular tolerance of the generated lines. A high tolerance will result in pronounced right angles. This is useful for perpendicular plans.

Generated lines with a smaller angle than the specified value will be merged.

Minimum length

Controls the minimum length of a generated line. Lines with a smaller length than the specified value will not be generated.

Overwrite

Allows you to switch between **Yes** and **No**.

If applicable, it overwrites any old image files on disk related to this section volume.

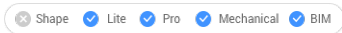
reMove old

Allows you to switch between **Yes** and **No**.

If applicable, it removes previously added images or lines to this section volume.

21.70 POINTCLOUDREFERENCE command

Attaches point cloud files to the current drawing.



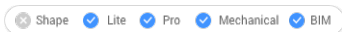
Icon:

21.70.1 Description

Opens the **Point Cloud Reference Manager** dialog box where you can load point clouds from cache or insert new point clouds to the current drawing.

21.71 -POINTCLOUDREFERENCE command

Attaches point cloud files to the current drawing.



21.71.1 Description

Attaches point cloud files to the current drawing through the Command line.

21.71.2 Methods

There are two methods:

- Import a new point cloud.
- Load from cache.

21.71.3 Options within the command

Cache

Allows you to enter the index of the point cloud to attach it to the current drawing.

Note: The valid cached point clouds are listed in the Command line history.



New

Attaches a new point cloud to the current drawing.

Inputdata

Allows you to specify the point cloud link to attach to the current drawing.

Toggle geotags

Toggles between using or ignoring geotags.

Enter translation vector

Allows you to enter the translation vector coordinates or specify it on the screen.

Rotation angle

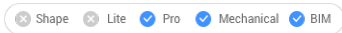
Allows you to enter the rotation angle or specify it on the screen.

Scale factor

Allows you to enter the scale factor or specify it on the screen.

21.72 POINTCLOUDREGION command

Creates regions in a point cloud.



21.72.1 Options within the command

Draw

Allows you to select parts of the point cloud to convert to a region.

Select

Allows you to continue selecting parts of the point cloud.

Finish

Finishes the selection process.

Convert

Converts solids or crop solids to regions.

Select solids or polysolids to convert

Allows you to select solids or polysolids to convert to a region.

Note: The solids or crop solids are not deleted after the region is created.

Some of the selected solids are not cropsolids, do you want to convert them?

Allows you to choose between **Yes** and **No**.

- **Yes:** converts the entities to crop solids.
- **No:** does not convert the entities to crop solids.

Select point cloud entity

If there are more point clouds attached in the drawing, it allows you to select the point cloud for which you can create regions.

Enter region name

Allows you to specify the name of the region.

Note: Press the **Esc** key to exit the command.



21.73 POINTCLOUDSHOWBUBBLES command

Toggles the display of point cloud bubbles.

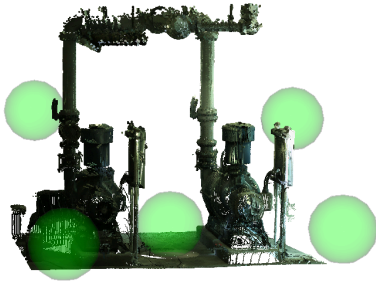
Shape Lite Pro Mechanical BIM

Note: You can change the bubbles size in the Properties panel.

21.73.1 Options within the command

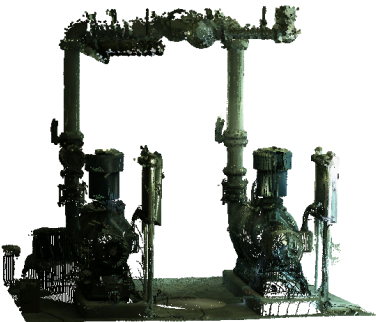
Yes

Displays the bubbles.



No

Does not display the bubbles.



21.74 POINTCLOUDUNCROP command

Removes the crop display of a point cloud.

Shape Lite Pro Mechanical BIM

21.74.1 Description

Removes the crop display of a point cloud previously created with the POINTCLOUDCROP command.

21.75 POINTLIGHT command

Places point lights.

Shape Lite Pro Mechanical BIM

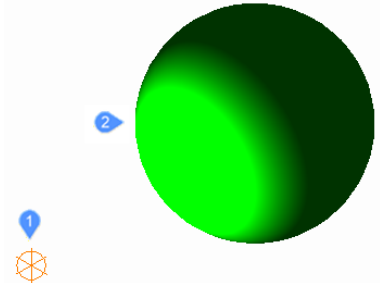
Icon: 



21.75.1 Description

Places point lights for use with renderings. A point light represents sources that illuminate in all directions,

such as a bare lightbulb, and it so has no target.



- 1 Glyph for a point light illuminating in all directions.
- 2 Sphere illuminated by the point light.

Note: Unlike all other light types, point lights do not have a target or vector associated with them. Drawings can have more than one point light.

21.75.2 Options within the command

Name

Specifies a name for the light so that it can be identified by the LightList command.

Intensity factor

Specifies the intensity of the light.

Status

Toggles the use of this light.

Photometry

Specifies the photometric properties of the light.

Intensity

Sets the intensity expressed in candela.

Flux

Sets the luminous flux expressed in lumens.

Illuminance

Sets the illuminance expressed in lux or foot-candles.

Distance

Sets a distance expressed in drawing units.

Color

Sets the color.

?

Lists the names of available colors.



Kelvin

Sets a color temperature expressed in degrees Kelvin.

shadoW

Specifies the look of shadows cast by this light.

Off

Disables the calculation of shadows for the light.

Sharp

Displays shadows with sharp edges. Use this option to increase performance.

soFt mapped

Displays realistic shadows with soft edges.

soft sAmpled

Displays realistic shadows with softer shadows based on extended light sources.

Shape

Sets the shape of the light.

Disk

Sets the radius of the disk.

Rect

Sets the length and width of the rectangle.

sAmplEs

Specifies the sampling size of the shadow.

Note: Larger numbers are more accurate but take longer to render.

Visible

Toggles the shape visibility.

Attenuation

Specifies how the illumination falls off with distance from the light.

attenuation Type

Specifies the type of attenuation.

None

No attenuation so that the distance to the light source has no influence.

Inverse linear

Attenuation is the inverse of the linear distance from the light.

Note: At a distance of 2 units from the light source, light is half as strong. At a distance of 4 units, light is one quarter as strong.

inverse Squared

Attenuation is the inverse of the square of the distance from the light.

Note: At a distance of 2 units, light is one quarter as strong. At a distance of 4 units, light is one sixteenth as strong.



Use limits

Toggles whether the extent of the illumination is limited.

attenuation start Limit

Defines the point where the light starts to shine, measured from the center of the light.

attenuation End limit

Defines the point where the light stops to shine, measured from the center of the light.

filterColor

Specifies the color of the light.

Index color

Specifies an Index color.

Hsl

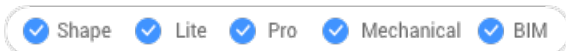
Specifies the color using three parameters Hue, Saturation and Lightness.


Colorbook

Specifies a bookcolor name.

21.76 POLYGON command

Creates a closed polyline in the shape of a polygon.

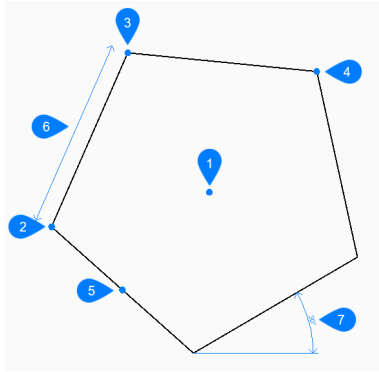


Icon: 

Alias: POL

21.76.1 Description

Creates a closed polyline in the shape of an equal-sided polygon. Options allow you to specify the center, number of sides, edge length and angle, and the distance from the center to the vertex or midpoint of an edge.



- 1 Center of polygon
- 2 First endpoint edge
- 3 Second endpoint edge
- 4 Vertex
- 5 Midpoint of side
- 6 Edge length
- 7 Angle of polygon

21.76.2 Methods to begin a polygon

This command has 1 method to begin creating a polygon:

- Set number of sides

Set number of sides

Begin creating a polygon by specifying the number of sides between 3 and 1024 then:

Additional options: [Width of line/Multiple polygons]

Set center of polygon

Specify the center point of the polygon.

Additional option: [Specify by Edge]

Select midpoint of side

Specify the location of the midpoint of a polygon line segment. The location of the midpoint defines the size and angle of the polygon.

Additional option: [Specify by Vertex]

21.76.3 Additional options within the POLYGON command

After you begin creating a polygon, the following options may be available.

Width of line

Specify the width of the polygon line segments. All segments have the same width.

Multiple Polygons

Create multiple polygons with the same size and orientation when using the Set center of polygon option. Continue placing polygons until you press Enter to end the command.

Specify by Edge

Specify the endpoints of one edge of the polygon to define its size and angle.



Specify by Vertex

Specify the location of a vertex of the polygon. The location of the vertex defines the size and angle of the polygon.

21.77 POLYSOLID command

Creates a 3D solid in the shape of a wide, extruded polyline.

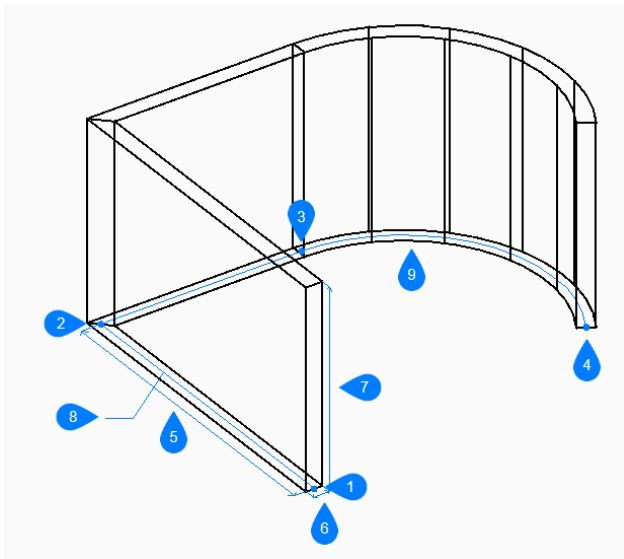
Shape Lite Pro Mechanical BIM

Icon:

Alias: PSO

21.77.1 Description

Creates a 3D solid in the shape of a wide, extruded polyline with multiple line and arc segments. Options allow you to specify the width, height and justification.



- 1 Start
- 2 Next
- 3 Next
- 4 End
- 5 Length
- 6 Width
- 7 Height
- 8 Base path
- 9 Arc segment



21.77.2 Methodstocreateapolysolid

This command has 2methodsto begin creating a polysolid:

- Start point
- Entity

Start point

Begin creating a polysolid by specifying a start point for the base path then:

Additional options: [Height/Width/Justification/ Separate solids/Dynamic]

Set next point:

Specify the next vertex of the base path.

You can continue adding unlimited vertices until you press Enter to end the command.

Additional options: [draw Arcs/Close/Distance/Follow/Undo]

Height of polysolid

Specify the height of the polysolid.

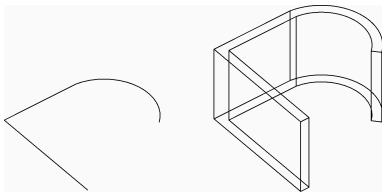
The height is saved in the PSOLHEIGHT variable.

Entity

Begin creating a polysolid by selecting a 2D entity (line, open or closed polyline, arc, circle, ellipse, elliptical arc, or splines) as the base path then:

Height of polysolid

Specify the height of the polysolid.



The height is saved in the PSOLHEIGHT variable.

21.77.3 Additional options within the POLYSOLIDcommand

After you begin creating a polysolid, the following options may be available:

Height

Specify the height of the polysolid.

The height is saved in the PSOLHEIGHT system variable.

Width

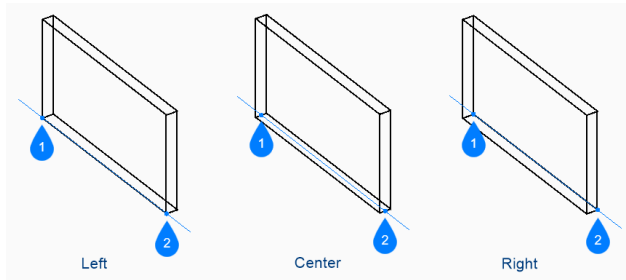
Specify the width of the polysolid.

The width is saved in the PSOLWIDTH system variable.

Justification

Specify the position of the polysolid with respect to the base path.

- **Left:** the left edge of the polysolid follows the base path.
- **Right:** the right edge of the polysolid follows the base path.
- **Center:** the center of the polysolid follows the base path.



- 1 Start
- 2 End

Hot Key Assistant

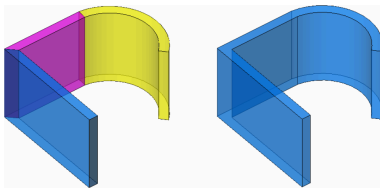
When Hot Key Assistant (HKA) is enabled, the following widget allows you to dynamically switch between left, center, and right justification by pressing the Ctrl key.



Separate solids

Specify whether polysolid creates an individual 3D solid for each segment or a single 3D solid for all the segments.

- **On:** create individual solids.
- **Off:** create a single solid.

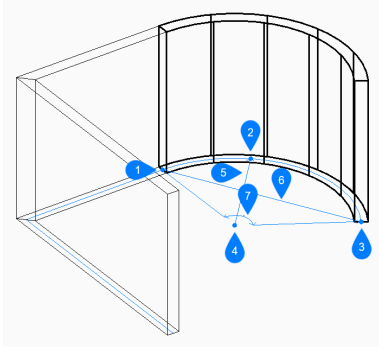


Dynamic

Specify whether you are prompted to specify the height when creating a polysolid.

- **On:** you are prompted to specify the height.
- **Off:** the height is defined by the PSOLHEIGHT system variable.

Draw arcs



- 1 First point
- 2 Second point
- 3 End of arc
- 4 Center
- 5 Radius
- 6 Length of chord
- 7 Angle

Specify the end point of a polysolid arc segment. The arc segment is drawn tangent to the previous segment.

Additional options: [draw Lines/CLose/Direction/Second point/Undo]Direction

Specify the direction of the polysolid arc segment then:

End of arc

Specify the next vertex of the polysolid.

Second point

Specify a point along the polysolid arc's circumference.

Draw lines

Specify the end point of a polysolid line segment. The line segment is drawn tangent to the previous segment.

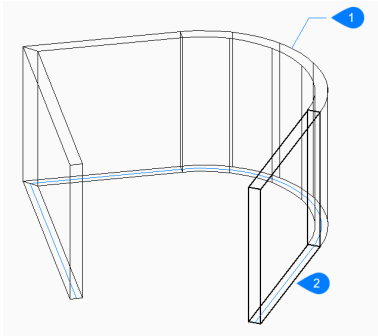
Additional options: [draw Arcs/Close/Distance/Follow/Undo]

Distance

Specify the length and angle of a polysolid segment.

Follow

Begin creating a polysolid from the last drawn arc or line segment, following its angle.



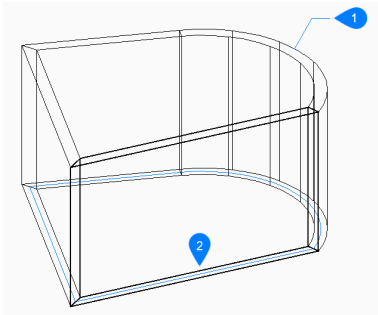
- 1 Last drawn segment
- 2 Follow

Undo

Undo the last polysolid segment and continue drawing from its previous start point.

Close

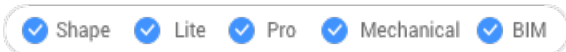
Automatically draw a polysolid segment from the end point of the last segment to the start point of the first segment. This ends the command.



- 1 Last drawn segment
- 2 Close

21.78 PREVIEW command

Displays the Preview window so that you can check how the drawing looks before plotting it.



Icon: 

Alias: PREVIEW, PRE

Note: This command does not work with the "None" printer; use the PRINT or PAGESETUP command to first specify a printer.

21.78.1 Description

Displays a window:



Use the mouse scroll wheel to zoom and use the scroll bars to pan.

1. Print

Prints the drawing; does not display the PRINT dialog box. See PRINT command.

2. Print Settings

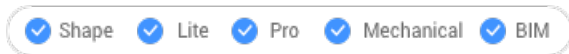
Displays the PRINT dialog box. See PAGESETUP command.

3. Zoom

Changes the size of the preview.

21.79 PRINT command

Prints the drawing to printers, plotters or files.



Icon: 

21.79.1 Description

Opens the **Print** dialog box to specify print options and to preview or print the current drawing.

Note: This command adds a watermark to print output obtained using an Academic license.

21.80 PROFILEMANAGER command

Opens the User profile manager dialog box.




21.80.1 Description

Opens the User profile manager dialog box to create and manage user profiles.

21.81 PROJECTGEOMETRY command

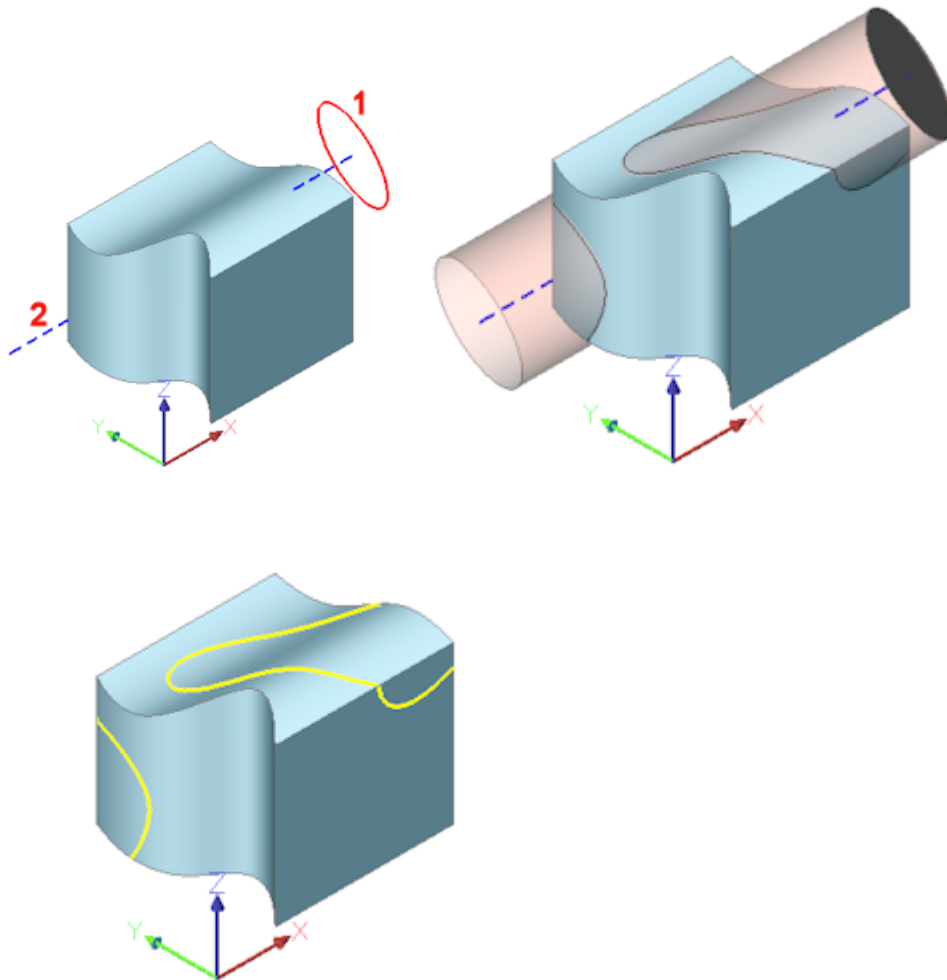
Projects 2D geometry.



Icon: 

21.81.1 Description

Projects 2D geometry onto regions, surfaces, or 3D solids to create additional edges (line work).



(1) 2D entity; (2) 3D solid; blue line = projection direction; pink tube = projection; yellow curves = new edges

21.81.2 Options within the command

set PROjection direction

Defines the projection direction. By default, 2D geometry is projected orthogonally onto the receiving entity.

View

Sets the projection direction perpendicular to the current view orientation.

UCS

Uses the Z-axis of the current UCS.

Points


Specify the start and end point of the projection direction.



21.82 PROPERTIES command

Opens the Properties panel in Properties mode.



Icon: 

Alias: CH, DDCHPROP, DDMODIFY, MO, PR, PROPS

21.82.1 Description

Opens the Properties panel to display it in the current workspace. The Properties panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Properties panel can be either floating, docked or stacked.

21.83 PROPERTIESCLOSE command

Closes the Properties panel.



Alias: PRC

21.83.1 Description

Closes the Properties panel to hide it from the current workspace. If the Properties panel is stacked when you close it, the Properties tab or icon is removed from the stack.

21.84 PROPULATE command (Express Tools)

Lists, removes or updates drawing properties data.

Icon: 

21.84.1 Description

Allows you to list, remove or update drawing properties data. Using a template, the drawing properties data can be added to folders of drawings. If a customized template is used it is possible to extract attribute values from title blocks to the drawing properties. The information that can be extracted are attribute values of blocks and lists of attached xrefs, images and fonts.

21.84.2 Options within the command

Active template

Opens the **Select Propulate Template File** dialog box that allows you to select a propulate template file that is used to update drawing properties fields.

Edit template

Opens the **Edit Propulate Template** dialog box that allows you to create and edit propulate template files.

List

Allows you to choose between **Current drawing** and **Other drawings**.

Current drawing

Displays the drawing properties for the current drawing.



Other drawings

Asks you to specify a search directory and a drawing name.

Note: If you add a * in the directory, all the drawings starting with the directory part before the * will be searched and optionally its subfolders. For example, if you use *C:\Drawings\Plan**, all the drawings with a name that start with Plan will be searched in the *C:\Drawings* folder.

Search subdirectories?

Choose **Yes** to search in subfolders of the directory.

Remove

Removes the drawing properties from the current drawing or a specified drawing.

Update

Populates the drawing properties from the current drawing or a specified drawing using the active template.

21.85 PROXYINFO command

Opens the Proxy information dialog box.



21.85.1 Description

Opens the Proxy information dialog box to view information about proxy entities and toggle their display in the current drawing.

21.86 PSBSCALE command (Express Tools)

Sets or updates the scale of block references relative to paper space.

21.86.1 Method

For the inserted blocks in model space, you can specify the size they should be displayed in paper space.

Note: Use the **Update** option to adjust previously set entities, in case the zoom factor changes.

21.86.2 Options within the command

Set

Specifies the X and Y scale factor relative to paper space.

XYZ

Specifies the X, Y and Z scale factor relative to paper space.

Update

Updates the scale of the selected block reference.

21.87 PSETUPIN command

Opens the Select page setup from file dialog box.



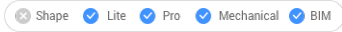


21.87.1 Description

Opens the Select page setup from file dialog box to select a dwg, dwt, or dxf file from which to import page setups. After selecting the file and choosing **Open**, the Import page setups dialog box displays. It enables you to choose which page setups from the selected file you wish to import into the current drawing.

21.88 -PSETUPIN command

Imports page setup definitions.



21.88.1 Description

Imports page setup definitions from another drawing through the Command line.

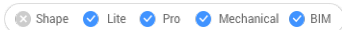
Note: Page setups define how a drawing is printed and are used by the Print and Publish commands.

21.88.2 Method

Run the command to open the Select Page Setup From File dialog box.

21.89 PSPACE command

Switches from model space and paper space viewports.



Alias: PS

21.89.1 Description

Switches from model space to paper space viewport in a layout tab. This command has a shortcut menu that opens by right-clicking on **P:Layout** on the Status Bar.

Note: This command operates only when a layout tab is in paper space mode.

21.90 PSTSCALE command (Express Tools)

Sets or updates the scale of text entities relative to paper space.

21.90.1 Description

Sets or updates the paper space height of single-line and multiline text entities from model space in a layout viewport.

21.90.2 Options within the command

Set

Allows you to specify the text height in paper space units.

Update

Updates the scale of the selected block reference.

21.91 PUBLISH command

Prints the content of a DSD file.



Shape Lite Pro Mechanical BIM

Icon:

21.91.1 Description

Opens the **Publish** dialog box to batch print a specified set of drawings.

Note: This command adds a watermark to publish output obtained using an Academic license.

21.92 -PUBLISH command

Prints the content of a DSD file.

Shape Lite Pro Mechanical BIM

21.92.1 Description

Prints the content of a Drawing Set Description (*.dsd) file at the Command line.

Note: Create the .dsd file with the PUBLISH command. The .dsd file specifies the file name, layouts, page setups, plotter and printer names, orientation, plot scale, number of copies, optional plot stamp, and the order in which to plot the files.

Note: This command adds a watermark to publish output obtained using an Academic license.

21.92.2 Method

Select a .dsd file in the **Select Sheet List** dialog box.

Note: If the BACKGROUNDPLOT system variable is 2 or 3, the sheets are printed in the background.

21.93 PURGE command

Removes unused named entities from drawings.

Shape Lite Pro Mechanical BIM

Icon:

Alias: PU

21.93.1 Description

Opens the **Purge** dialog box to select unused named entities to remove from the drawing.

21.94 -PURGE command

Removes unused named entities from drawings.

Shape Lite Pro Mechanical BIM

Alias: -PU



21.94.1 Method

Specify which type of entities to purge.

21.94.2 Options within the command

BAtch all

Purges all unused named entities from the drawing without prompts.

purge All

Purges all unused named entities from the drawing following the prompts.

Yes

Purges each unused named entity when you confirm.

No

Purges all unused named entities without confirmation.

Blocks

Removes unused block definitions from the current drawing.

DEtail view styles

Removes unused detail view styles.

Dimension styles

Removes unused dimension styles from the current drawing.

Groups

Removes unused named groups from the current drawing.

LAyers

Removes unused layers from the current drawing.

LineTypes

Removes unused linetypes from the current drawing.

MAterials

Removes unused materials from the current drawing.

MLine styles

Removes unused multiline styles from the current drawing.

MUltileader styles

Removes unused multileader styles from the current drawing.

Plot styles

Removes unused plot styles from the current drawing.

Regapps

Removes unused regapp keys from the current drawing.

Note: Regapp (registered application) keys are used to attach additional information to entities in drawings by third-party applications.

SEction view styles

Removes unused section view styles from the current drawing.



SHapes

Removes unused shapes loaded into the drawing with the LOAD command.

Table styles

Removes unused table styles from the current drawing.

text STyles

Removes unused text styles from the current drawing.

Visual styles

Removes unused user defined visual styles from the current drawing.

Note: Only user defined visual styles can be purged. Hard coded visual styles cannot be purged.

Zero-length geometry

Removes geometry with no length.

Empty text entities

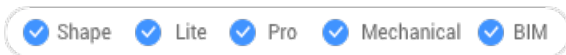
Removes empty text entities from the current drawing.

Orphaned data

Performs a drawing scan and removes unused DGN linestyles data.

21.95 PYRAMID command

Creates a 3D Solid in the shape of a pyramid.



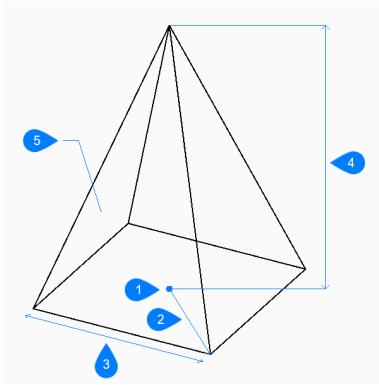
Icon: 

Alias: PYR

Note: In BricsCAD Lite, which doesn't support 3D Solids, the PYRAMID command launches the AI_PYRAMID command.

21.95.1 Description

Creates a 3D Solid in the shape of a pyramid with at least three sides. Choose from a combination of options including center, edge, radius, sides, height, and axis. The pyramid can have a pointed or flat top.



- 1 Center
- 2 Radius
- 3 Edge
- 4 Height
- 5 Side

21.95.2 Methods to create a pyramid

This command has 2 methods to begin creating a pyramid:

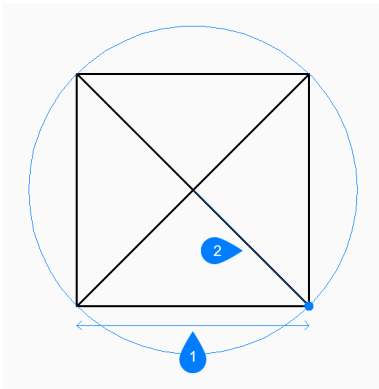
- Specify center point
- Edge

Specify center point

Begin creating a pyramid by specifying the center for the base of the pyramid then:
Alternate options: [Edge/Sides]

Base radius

Specify the distance from the center to a vertex as if the base is inscribed in a circle.



- 1 Center
- 2 Radius

Additional option: [Circumscribed]

Height

Specify the height of the pyramid.



Additional options: [2Point/Axis endpoint/Top radius]

Edge

Begin creating a pyramid by specifying the first endpoint for an edge of the base then:

Specify second point of edge

Specify the second point of the edge to define its length and angle in the xy-plane.

Specify height

Specify the height of the pyramid.

Additional options: [2Point/Axis endpoint/Top radius]

21.95.3 Options within the PYRAMID command

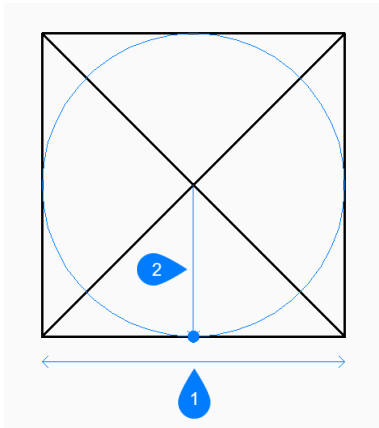
After you begin creating a pyramid, the following options may be available:

Sides

Specify the number of sides or vertices for the base.

Circumscribed

Specify the distance from the center to a midpoint on an edge as if the base is circumscribed about a circle.



1 Edge

2 Radius

2Point

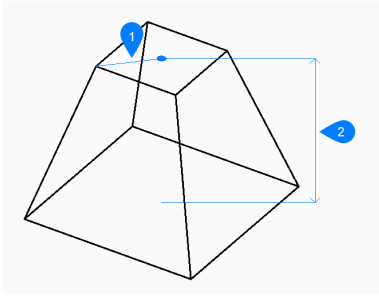
Specify the height of the pyramid as the distance between any two points.

Axis endpoint

Specify the axis endpoint to define the height and orientation of the pyramid in 3D space. The center of the base is used as the other axis endpoint.

Top radius

Specify the distance from the center of the top face to a vertex as if the top face is inscribed in a circle. Any radius larger than zero (0) creates a pyramid with a flat top.



- 1 Top radius
- 2 Height



22. Q

22.1 QLATTACH command (Express Tools)

Associates a leader to an annotation entity.

Icon:

22.1.1 Method

Select a leader entity, then select an MText, Tolerance or Block entity.

22.2 QLATTACHSET command (Express Tools)

Associates selected leaders with their annotation.

Icon:

22.2.1 Method

Select leader entities. The number of unlocked leaders and attached annotations displays in the Command line.

22.3 QLDETACHSET command (Express Tools)

Disassociates selected leaders from an annotation.

Icon:

22.3.1 Method

Select leader entities. The number of unlocked leaders and annotation detached displays in the Command line.

22.4 QLEADER command

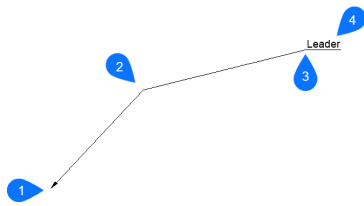
Draws leaders through a dialog box.



Icon:

22.4.1 Description

Draws leaders with a variety of annotation types and allows you to specify the properties through a dialog box.



- 1 Start point
- 2 Next point
- 3 To point
- 4 Annotation

22.4.2 Options within the command

Settings

The QLeader Settings dialog box pops up. Several settings can be specified there.

Text width

Specifies the text width for the text bounding box. Enter a value or 0 if no limit on the width needs to be set.

Note: When the length of the text exceeds the bounding box width, the text flows automatically to the next line.

22.5 QNEW command

Starts a new drawing based on the default template file.



Icon:

Alias: N

22.5.1 Description

Opens a new document tab based on the default template and user profile (short for "quick new").

22.6 QPRINT command

Prints the drawing using the default print configuration.



Icon:

22.6.1 Description

Allows printing a drawing without displaying the Print dialog box (short for "quick print").

If there is no printer added as a default printer a warning message will appear.



You will want to configure the drawing's print properties ahead of time with the PageSetup command.

22.7 QUIT command (Express Tools)

Quickly closes all drawings and exits.

Icon:

22.7.1 Method

If all drawings have been saved before, the command exits BricsCAD without displaying a dialog box. If there are unsaved files that are still open, you are asked if you want to save the drawings. For each unsaved drawing, a dialog box pops up and you can decide to save the drawing or not.

22.8 QRTEXT command

Creates an MText and displays it as a QR code.



Icon:

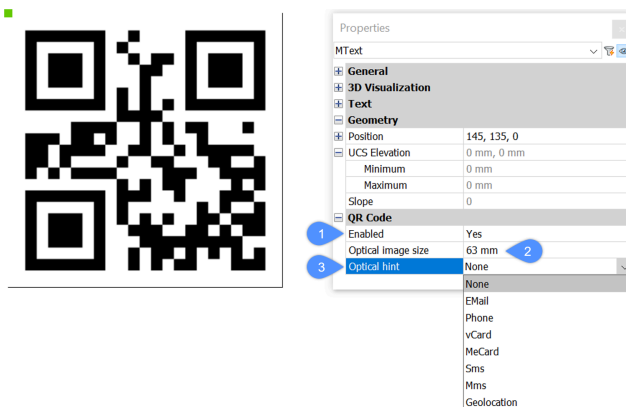
22.8.1 Description

Creates an MText which is represented as QR code by default.

Note:

- The QR code for a text is represented as a raster image.
- You can use the **Properties** panel to switch every text or mtext to QR code by setting the **Enabled** option to **Yes** (1), editing the **Optical image size** (2) and controlling the type of QR code by changing the **Optical hint** option (3).

The **Optical hint** option allows you to specify 7 types of hints for QR code scanner: EMail, Phone, vCard, MeCard, Sms, Mms, Geolocation.



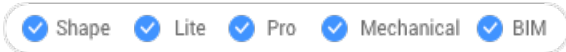
22.8.2 Options within the command


The Command line options are identical to the Command line options in the MTEXT command. See the MTEXT command article for details.



22.9 QSAVE command

Saves the drawing immediately.



Icon: 

22.9.1 Description

Saves the drawing without displaying the Save dialog box (short for "quick save").

22.9.2 Method

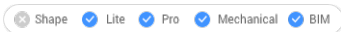
If the drawing file has already been saved at least once, no dialog box pops up and the drawing is saved.

To save the drawing by another name, use the Save As command.

When the drawing has never been saved before or when the drawing is opened in read-only mode, the Save Drawing As dialog box pops up.

22.10 QSELECT command

Opens the Properties panel in Quick select mode.



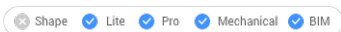
Icon: 

22.10.1 Description

Opens the Properties panel in **Quick Select** mode to display it in the current workspace. The Properties panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Properties panel can be either floating, docked or stacked.

22.11 QRLEADER command

Creates a leader and displays its text as a QR code.



Icon: 

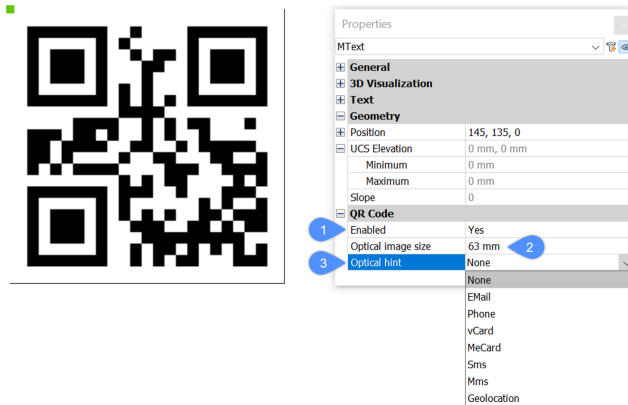
22.11.1 Description

Creates a leader with the text represented as QR code by default.

Note:

- The QR code for a text is represented as a raster image.
- You can use the **Properties** panel to switch every text or mtext to QR code by setting the **Enabled** option to **Yes** (1), editing the **Optical image size** (2) and controlling the type of QR code by changing the **Optical hint** option (3).

The **Optical hint** option allows you to specify 7 hints for QR code scanner: EMail, Phone, vCard, MeCard, Sms, Mms, Geolocation.



22.11.2 Options within the command

The Command line options are identical to the Command line options in the LEADER command. See the LEADER command article for details.

22.12 QTEXT command

Toggles the QTEXTMODE system variable.



Alias: QT

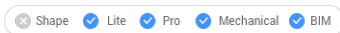
22.12.1 Description

Toggles the QTEXTMODE system variable to display text entities as rectangles or text. You must use REGEN or REGENALL to see the change.

- On: turns on the QTEXTMODE system variable.
- Off: turns off the QTEXTMODE system variable.
- Toggle: changes the QTEXTMODE system variable to the opposite of the current setting.

22.13 QUADRANT command

Toggles the Quadrant entity snap.



Icon: 

22.13.1 Description

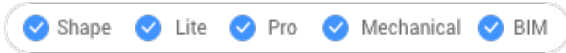
Toggles the Quadrant entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn



off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

22.14 QUIT command

Closes all open drawings and exits BricsCAD; offers the opportunity to save unsaved drawings.



Icon:

Alias: EXIT

22.14.1 Method

If all drawings have been saved before, the command exits BricsCAD without displaying a dialog box.

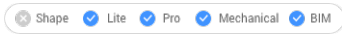
If there are unsaved files that are still open, you are asked if you want to save the drawings. For each unsaved drawing, a dialog box pops up and you can decide to save the drawing or not.




23. R

23.1 RAY command

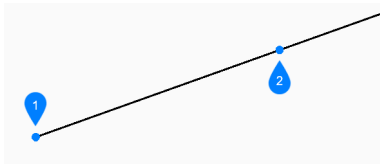
Creates rays.



Icon: 

23.1.1 Description

Creates a ray (semi-infinite line) from a combination of options including point, direction and angle.



- 1 Start of ray
- 2 Direction

23.1.2 Methods to begin a ray

This command has 6 methods to begin creating a ray:

- Start of ray
- Horizontal
- Vertical
- Angle
- Bisect
- Parallel

You can continue adding unlimited rays until you press Enter to end the command.

Start of ray

Begin creating a ray by specifying the starting point of the ray then:

Direction

Specify the direction of the ray from the starting point.

Horizontal

Begin creating a ray horizontal to the x-axis then:

Location

Specify the starting point of the ray.

Vertical

Begin creating a ray parallel to the y-axis then:

Location

Specify the starting point of the ray.



Angle

Begin creating a ray based on an angle then:

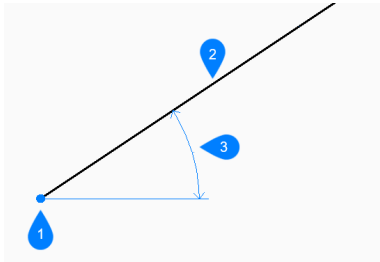
Enter angle

Specify the angle of the ray.

Additional option: [Reference]

Location

Specify the starting point of the ray.



- 1 Location
- 2 Ray
- 3 Angle

Bisect

Begin creating a ray which bisects the angle between two imaginary lines then:

Set vertex point

Specify the start point of the ray.

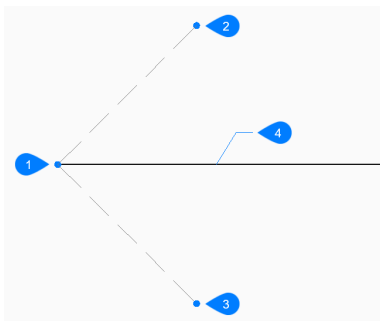
Additional option: [Entity]

Bisection angle start point

Specify a point to define the first imaginary line. The vertex is used as the other point.

Bisection angle end point

Specify a point to define the second imaginary line. The vertex is used as the other point.



- 1 Vertex point
- 2 Bisection angle start point
- 3 Bisection angle end point
- 4 Ray



Parallel

Begin creating a ray parallel to a line or polyline segment then:

Set offset distance for parallel infinite ray

Specify the offset distance for the ray.

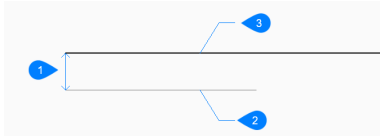
Additional option: [Through point]

Select entity for parallel infinite ray

Select a line or polyline segment from which to offset the ray.

Side for parallel infinite ray

Specify the side on which to place the ray. The ray's start point is parallel to the line's start point.



- 1 Offset distance
- 2 Line segment
- 3 Ray

23.1.3 Options within the RAY command

After you begin creating a ray, the following options may be available:

Reference

Select an entity to use a reference angle then:

Enter angle

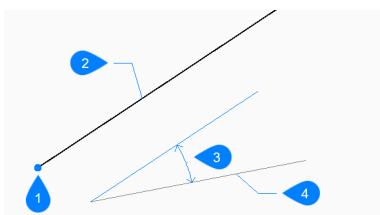
Specify the angle to place the ray relative to the selected entity.

Location

Specify the starting point of the ray.

Location

The **Location** prompt repeats so that you can draw more angled rays with different starting points. Press Enter to end the command.



- 1 Location
- 2 Ray
- 3 Angle
- 4 Reference entity

Entity

Select a line, arc, a polyline segment to bisect then:

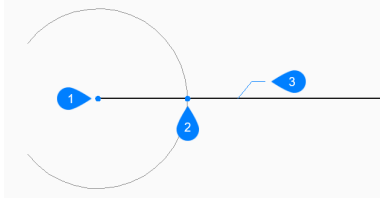


Select side for ray bisection

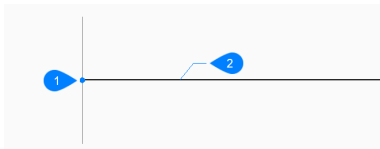
Specify the side on which to place the ray.

When you select a line or polyline segment, the command draws the xline perpendicular to the segment's midpoint. When you select an arc or polyarc, the command draws the xline perpendicular to the arc's center and midpoint.

This command works with splined polylines, but not with splined entities.



- 1 Perpendicular to arc center point
- 2 Perpendicular to arc midpoint
- 3 Ray



- 1 Perpendicular to line midpoint
- 2 Ray

Through point

Specify a point through which to draw the ray.

Select entity for parallel infinite ray

Specify the entity to offset with the ray.

Through the point

Specify the point through which to draw the ray. This point is the ray's start point.



- 1 Through point
- 2 Line segment
- 3 Ray

23.2 REASSOCAPP command

Opens the Reassociate entity data dialog box.



Icon:

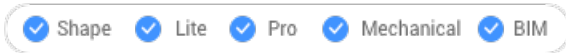


23.2.1 Description

Opens the Reassociate entity data dialog box to associate extended entity data with a specific application.

23.3 RECOVER command

Opens the Open drawing dialog box.



Icon:

23.3.1 Description

Opens the Open drawing dialog box to select a damaged dwg, dwt, or dxf file from which to recover data.

23.4 RECOVERALL command

Opens the Open drawing dialog box.



23.4.1 Description

Opens the Open drawing dialog box. to select a damaged dwg, dwt, or dxf file from which to recover data. In addition to the selected file, BricsCAD will attempt to recover data from all nested external references.

23.5 RECSCRIPT command

Opens the Record script dialog box.



Icon:

23.5.1 Description

Opens the Record script dialog box to save data from the current drawing to an scr file. After choosing Save in the dialog box, the commands and pick point you specify in the drawing editor are recorded in the scr file until you run the STOPSCRIPT command.

23.6 RECTANG command

Creates a polyline in the shape of a rectangle.



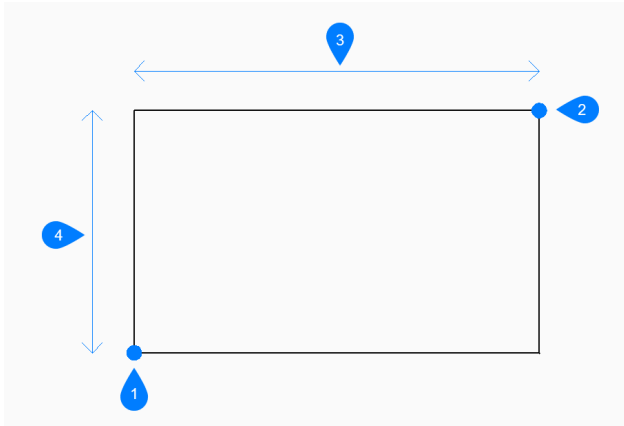
Icon:

Alias: REC, RECT, RECTANGLE



23.6.1 Description

Creates a closed, four-sided rectangular polyline in the shape of a rectangle, square, and variants with chamfers or fillets.



- 1 First corner
- 2 Second corner
- 3 Length
- 4 Width

23.6.2 Methods to create a rectangle

This command has 5 methods to begin creating a rectangle:

- Select first corner of rectangle
- Rotated
- Square
- Area
- Dimensions

Additional options: [Chamfer/Fillet/Elevation/Thickness/Width of line]

Select first corner of rectangle

Begin creating a rectangle by specifying a corner of a rectangle then:

Other corner of rectangle:

Specify the opposite corner of the rectangle. The rectangle is drawn parallel to the x and y axes.

Rotated

Begin creating a rectangle by specifying a corner of a rectangle then:

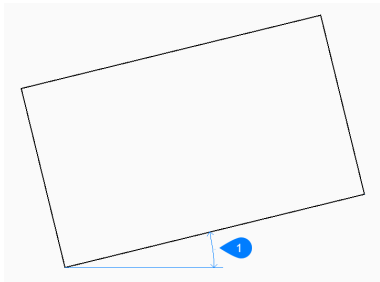
Additional options: [Chamfer/Fillet/Rotated/Square/Elevation/Thickness/Width of line/Area/Dimensions]:

Other corner of rectangle:

Specify the opposite corner of the rectangle.

Rotation angle for rectangle

Specify the rotation angle of the rectangle.



1 Rotation angle

Square

Begin creating a rectangle by specifying a corner of a square then:

Additional options [Chamfer/Fillet/Rotated/Elevation/Thickness/Width of line/Area/Dimensions]

Second corner of square

Specify a corner along the same side of the square to define its length and angle.

Area

Begin creating a rectangle by specifying its area then:

Calculate rectangle dimensions based on [Length/Width]

Choose whether to use the length or width to calculate the dimensions for the rectangle.

- **Length:** enter rectangle length
- **Width:** enter rectangle width

Dimension

Begin creating a rectangle by specifying its length then:

Width to use for rectangles

Specify the width of the rectangle.

Select first corner of rectangle

Specify the first corner of the rectangle.

Additional options: [Chamfer/Fillet/Rotated/Square/Elevation/Thickness/Width of line/Area/Dimensions]:

23.6.3 Options within the RECTANG command

After you begin creating a rectangle, the following options may be available:

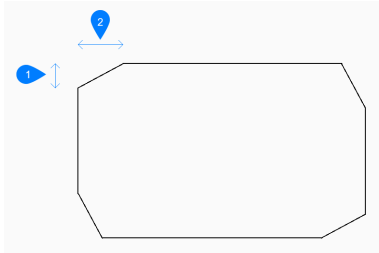
Chamfer

Specify the first chamfer distance to use for all rectangles then:

Additional options [turn chamfer Off, use Default setting]

Second chamfer distance to use for all rectangles

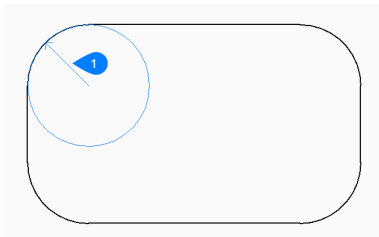
Specify the second chamfer distance to use for all rectangles



- 1 First chamfer distance
- 2 Second chamfer distance

Fillet

Specify the fillet distance to use for all rectangles.
Additional options [turn fillet Off, use Default setting]



- 1 Fillet radius

Elevation

Specify the height above the xy-plane to use for all rectangles.
Additional options: [use Default]:

Width of line

Specify the width of the rectangle line segments. All segments have the same width.

Thickness

Specify the thickness of the rectangle line segments. All segments have the same thickness.

Turn chamfer off

Turn off chamfer.

Turn fillet off.

Turn off fillet.

Use default

Reset the default value.

23.7 REDEFINE command

Activates commands that were deactivated with the Undefine command.



23.7.1 Description

Reactivates commands that were deactivated with the Undefine command by entering the name of the undefined command.



23.8 REDIR command (Express Tools)

Redefines hard-coded paths in external references, images, shapes, styles and rtexts.

Icon:

23.8.1 Method

1 Enter the old directory.

Note: Type * to redefine all.

2 Specify the new directory.

23.8.2 Options within the command

options

Opens the **REDIR Settings** dialog box that allows you to select which element types you want to replace the directories from.

23.9 REDIRMODE command (Express Tools)

Sets the type of entities you want to find and replace the directories from.

23.9.1 Method

Opens the **REDIR Settings** dialog box which allows you to specify which types of entities to include for the REDIR command.

23.10 -REDIRMODE command (Express Tools)

Sets the type of entities you want to find and replace the directories from via the Command line.

23.10.1 Method

Specify the type of entities to be included when using the REDIR command, separated by comma. There is no need to type the complete word, for example, s, x, i, r are valid entries.

Note: Type * to specify all type of entities.

23.11 REDO command

Reverses the action of the previous U or UNDO command.



Icon:

23.11.1 Description

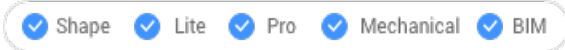
Reverses the action of the previous U or UNDO command to restore entities to their state prior to the U or UNDO operation. The REDO command only works immediately following the U or UNDO commands.

This command displays no prompts and has no options.



23.12 REDRAW command

Redraws entities in the current viewport.



Icon:

Alias: R

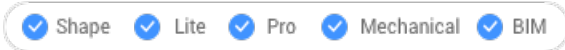
23.12.1 Description

Redraws entities in the current viewport to remove graphic debris such as blip or drag marks.

This command displays no prompts and has no options.

23.13 REDRAWALL command

Redraws entities in all viewports.



Icon:

Alias: RA

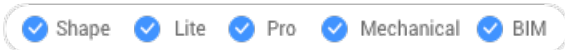
23.13.1 Description

Redraws entities in all viewports to remove graphic debris such as blip or drag marks.

This command displays no prompts and has no options.

23.14 REDSDKINFO command

Displays rendering related hardware and driver specifications in the command bar.



23.14.1 Description

Prints a report in the command window containing information about the graphics capabilities of your computer.

Press F2 to open the prompt history window.

23.15 REFCLOSE command

Closes the reference drawing editor.



Icons:

23.15.1 Description

Closes the reference drawing editor, used to edit externally-referenced files in the current drawing session.



Note: This command can only be used after the REFEDIT command has commenced.

23.15.2 Methods

There are 2 methods to close the reference drawing editor:

- Save
- Discard

23.15.3 Options

Save

Saves the Reference drawing including the changes.

Discard

Saves the Reference drawing without saving the changes.

23.16 REFEDIT command

Edits block references and externally referenced drawings.



Icon:

23.16.1 Description

Edits the selected block reference or externally referenced drawing. The **Reference Edit** dialog box displays after you select a block. You can use the REFCLOSE command or the Ref Edit toolbar to end the reference editing session. The XFADECTL system variable sets the fading for the rest of the drawing when editing an external reference or block. Values between 0 (no fading) and 90 are accepted. If the XEDIT system variable of the selected external reference is 0 or OFF, a dialog box displays a message that you cannot edit the selected xref block.

Note: Only one reference can be edited at a time.

Note: The HIDEOBJECTS, ISOLATEOBJECTS, and UNISOLATEOBJECTS commands are enabled.

23.17 -REFEDIT command

Edits block references and externally referenced drawings.



23.17.1 Description

Edits the selected block or externally-referenced drawing. The XFADECTL system variable sets the fading the rest of the drawing when editing an external reference or block. Values between 0 (no fading) and 90 are accepted. Use the REFCLOSE command or the Refedit toolbar to end reference editing session.

Note: Only one reference can be edited at a time.



23.17.2 Options

Nesting level

Specifies a nested reference to edit.

Ok

Edits the selected reference.

Next

Edits reference on a deeper nesting level.

Note: This option will keep repeating until O is entered.

Entity selection method

Specifies how nested references are selected.

All

Selects all nested entities automatically.

Nested

Selects specific nested entities.

inside Window

Selects all nested entities inside a rectangular window, specified by picking 2 opposite corners.

Crossing window

Selects all nested entities crossing a rectangular window, specified by picking 2 opposite corners.

Window Polygon

Selects all nested entities inside a polygonal window, specified by picking points.

Crossing Polygon

Selects all nested entities crossing a polygonal window, specified by picking points.

Add

Adds entities to the selection.

Remove

Removes entities from selection.

Undo

Undoes the last step of selecting entities.

Display attribute definitions

Toggles the inclusions of attributes on or off.

Yes

Attribute definitions can be edited, all attribute values are visible.

No

Attributes are unavailable for editing.

Note: Modified attribute definitions do not affect existing insertions; they come into effect with insertions made from now on.



23.18 REFERENCECURVES command

Creates reference geometry to automatically align a block during insertion.

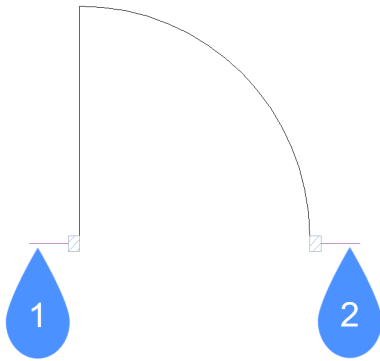
Shape Lite Pro Mechanical BIM

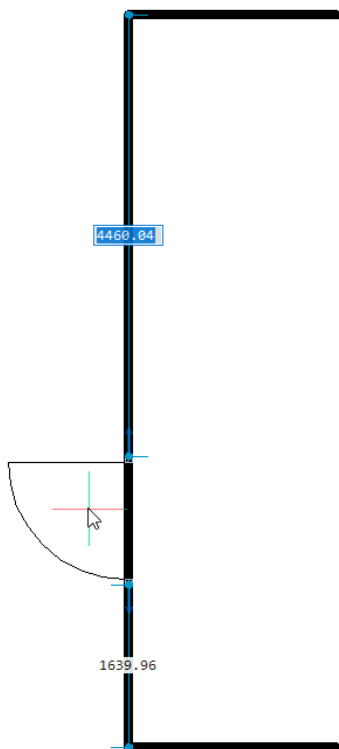
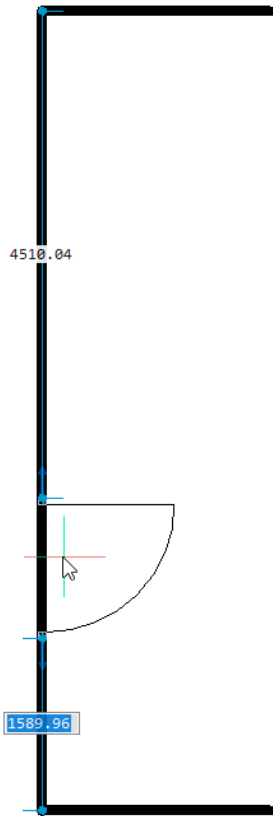
Icon: 

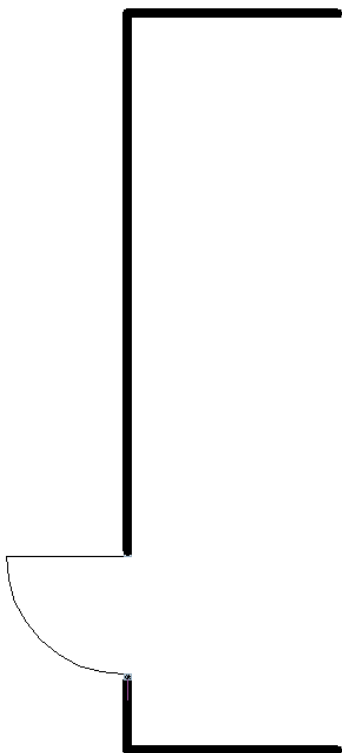
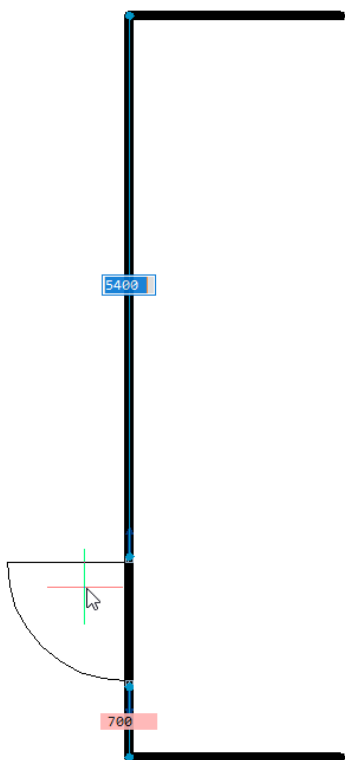
23.18.1 Method

The selected entities which you want to use as a reference to align the inserted block will be moved in a new created REFERENCE_CURVES layer (if it doesn't already exist).

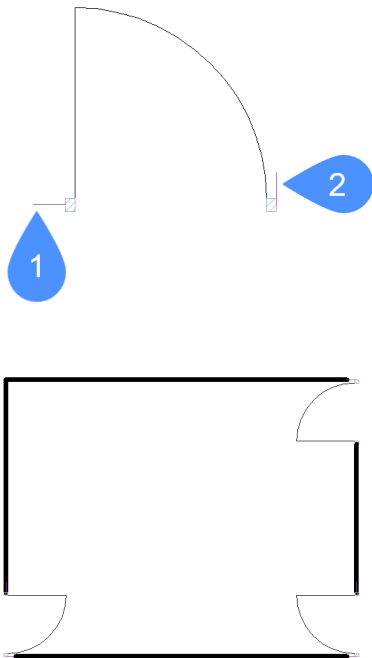
With reference curves ((1) and (2)) specified in a drawing or block definition, you can automatically align the block or drawing to relevant geometry when you insert it. The number of reference curves and the distance between them determines with which geometry it can align. As the cursor approaches relevant geometry, the block can automatically flip, offering multiple insertion options. Distances between the ends of the relevant geometry and block are displayed, enabling you to enter specific values if you wish. And, if the reference curves include gaps, relevant geometry is automatically trimmed to produce matching gaps.







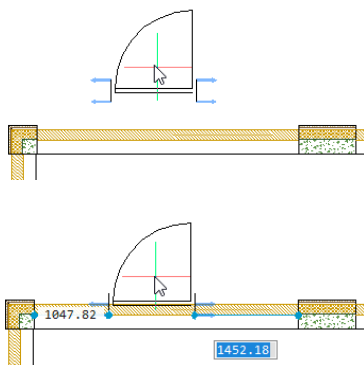
You can also use reference curves to automatically align with corners. The following example includes a parallel reference curves (1) and a corner reference curve (2) enabling the door block to align with geometry that matches the parallel line and the perpendicular line.



23.18.2 Options

Parametrize

Parametrizes the reference curves, so that the resulting parametric block can be inserted in a "fuzzy" mode. E.g. you can parametrize the four parallel reference curves in a simple door example. Then you can insert in a guided way the resulting parametric door block into walls with different thicknesses.



Accept

Creates reference curves without parametrizing.

23.19 REFSET command

Adds or removes entities from the reference (block or xref) being edited.





Icons:

23.19.1 Description

Transfers objects between the RefEdit working set and host drawing.

Note: This command can be used only after the REFEDIT command has commenced.

23.19.2 Options

Add

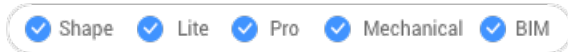
Adds entities from the drawing to the reference being edited.

Remove

Removes entities from the reference being edited; removed entities are placed in the drawing. Entities not in the reference are shown in gray.

23.20 REGEN command

Regenerates entities in the current viewport.



Icon:

Alias: RE

23.20.1 Description

Regenerates entities in the current viewport for optimal display and selection performance.

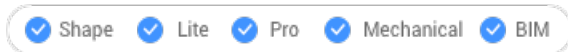
REGEN does the following:

- Recalculates the location and visibility of all entities in the current viewport.
- Reindexes the drawing database.
- Updates the area available for zooming and panning.

This command displays no prompts and has no options.

23.21 REGENALL command

Regenerates entities in all viewports.



Icon:

Alias: REA

23.21.1 Description

Regenerates entities in all viewports for optimal display and selection performance.

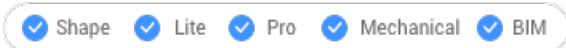
REGENALL does the following:

- Recalculates the location and visibility of all entities.
- Reindexes the drawing database.
- Updates the area available for zooming and panning.

This command displays no prompts and has no options.

23.22 REGENAUTO command

Toggles the REGENMODE system variable.



23.22.1 Description

Toggles the REGENMODE system variable to specify if the display automatically regenerates when needed. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'REGENMODE.

- On: turns on the REGENMODE system variable.
- Off: turns off the REGENMODE system variable.
- Toggle: changes the REGENMODE system variable to the opposite of the current setting.

23.23 REGION command

Creates regions.



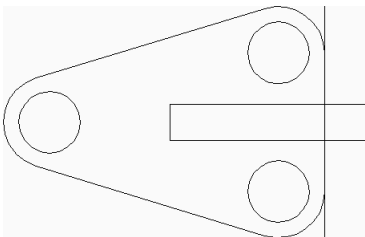
Icon: 

Alias: REG

23.23.1 Description

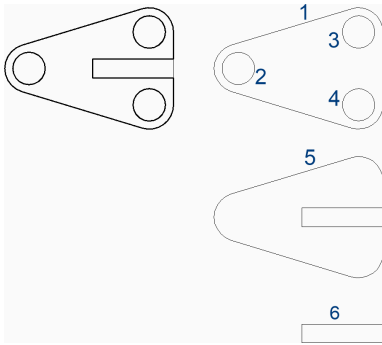
Creates regions from closed entities or sets of entities that enclose a space.

Original entities:





Regions (6):



23.23.2 Method

There is one method to create a region:

- Select entities or boundaries

You can continue creating regions until you press Enter to end the command.

Select entities or boundaries

Begin creating a region by selecting closed entities or sets of entities that enclose a space. Each closed entity or set of entities produces a region. Depending on the current value of the DELOBJ system variable the original geometry is deleted or retained.

Additional options: [selection options (?)]

23.23.3 Options within the command

selection options (?)

Allows you to choose a selection method.

23.24 REINIT command

Reloads the alias (PGP) file.



Alias: RI

23.24.1 Description

Reloads the alias (PGP) file after it has been edited externally. A BricsCAD dialog box confirms if you want to reload the file.

23.25 RENAME command

Renames named entities through the Drawing explorer dialog box.



Alias: DDRENAME, REN



23.25.1 Description

Opens the Drawing explorer dialog box on the last used tab or category to manage definitions and reference content that is used in the drawing. Rename can be accessed through the context menu.

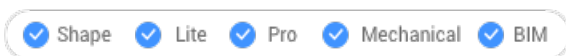
Note: To change names at the Command line, use the `-RENAME` command.

You cannot change the names of attached files, such as images and external references, nor the following names:

- Layer "0"
- Linetype "ByBlock", "ByLayer", or "Continuous"
- Text style "Standard"
- Dimension style "Standard"
- Multiline style "Standard"
- Visual style "2DWireframe"
- Material "Global"
- Page layouts that have * as a prefix and suffix, such as *Model*
- View detail style "Metric50"
- View section style "Metric 50"

23.26 -RENAME command

Renames entities in the Command line.



Alias: `-REN`

23.26.1 Options within the command

Block

Renames blocks.

Dimension style

Renames dimension styles.

LAyer

Renames layers.

LineType

Renames linetypes.

text Style

Renames text styles.

Table style

Renames table styles.

Ucs

Renames user-defined coordinate systems.



View

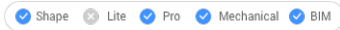
Renames views.


ViewPort

Renames viewport configurations.

23.27 RENDER command

Opens the Render dialog box.



Icon: 

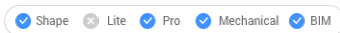
Alias: RR

23.27.1 Description

Opens the Render dialog box to create a photo-realistic rendering of the current drawing.

23.28 -RENDER command

Renders 3D models.



23.28.1 Description

Generates photo-realistic renderings of 3D models in a file or window and applies materials and lights if available. It works from the Command line.

23.28.2 Options

Render preset

Choose a predefined preset rendering style or choose **Other** to select a custom preset created with the RENDERPRESET command:

- Draft: renders 3D models without ray tracing; fastest rendering speed.
- Low: renders with ray tracing set to level 3 (low).
- Medium: renders with ray tracing set to level 5 (medium).
- High: renders with ray tracing set to level 7 (high).
- Presentation: renders with ray tracing set to level 9 (highest); slowest rendering speed.
- Other: specify the name of a user-defined rendering preset.

Render destination

Display the rendering in one of the following locations:

- File: saves the rendering as a BMP file in the folder defined by the DWGPREFIX system variable.
- Render window: displays the rendering in a separate window. The dimensions of the rendering are specified in pixels.

23.29 RENDERPRESETS command

Creates and edits properties for renderings through Drawing explorer dialog box.



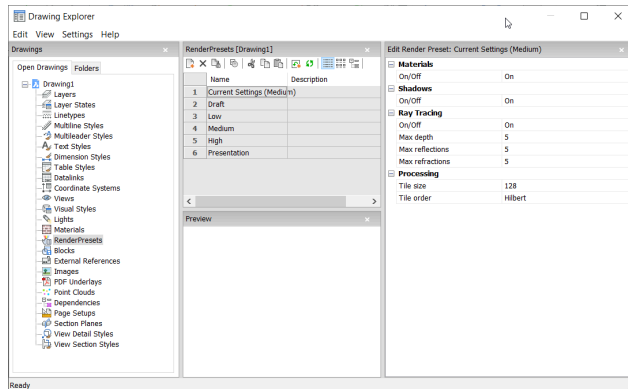
Shape Lite Pro Mechanical BIM

Icon:

Alias: ROPTIONS

23.29.1 Description

Opens the Drawing explorer dialog box with RenderPresets category selected to view and modify render presets in the current drawing.



23.29.2 Options within the command

Materials

Toggles the use of materials in a rendering

Note: Materials are applied to layers and entities, see Materials command.

On

Uses material definitions for rendering.

Note: This comes with the cost of a slower rendering process.

Off

Does not use materials.

Note: This comes with the cost of a less realistic rendering

Shadows

Toggles the use of shadows in the rendering

On

Uses shadows for rendering.

Note: This comes with the cost of a slower rendering process.

Off

Does not use shadows.

Note: This comes with the cost of a less realistic rendering.

Ray Tracing

Tracks each ray of light from each light source as it travels through the scene and bounces off entities.



On

Uses ray tracing.

Note: this comes with the cost of a slower rendering process.

Off

Does not use Ray tracing.

Note: this comes with the cost of a less realistic rendering.

Max Depth

Specifies the maximum total number of times light bounces and refracts.

Max Reflections

Specifies the maximum times that light beams bounce off entities.

Max Refractions

Specifies the maximum times that light refract through transparent entities.

Processing

Specifies how the rendered image is processed, applied to renderings sent to a separate window.

Tile Size

Sets the size of the tile, representing the area of the rendered image being processed.

Tile Order

Defines the order in which the tiles are generated

- **Hilbert:** renders with a Hilbert curve, a continuous fractal space-filling; see http://en.wikipedia.org/wiki/Hilbert_curve for a description.
- **Spiral:** renders in a counterclockwise spiral from the center.
- **Left to right:** renders vertical columns, starting from the bottom left corner.
- **Right to left:** renders vertical columns, starting from the bottom right corner.
- **Top to bottom:** renders horizontal rows, starting at the top left corner.
- **Bottom to top:** renders horizontal rows, starting at the bottom left corner.

23.29.3 Context Menu Options

New

Creates additional Render Preset definitions into the drawing. Displays the New Render Preset dialog box.

Delete

Deletes Render Preset definitions from the drawing. The following Render Preset definitions cannot be deleted:

- Draft
- Low
- Medium
- High
- Presentation

Set current

Sets the selected Render Preset as current.



Note: The current render preset is used by the RENDER command or when printing using the shade plot type Rendered as defined in Shade Plot setting in the Page Setup and the Print commands. The name of the current render preset displays between brackets: e.g. Current Settings (Medium).

Note: You can override the properties of a preset in the Edit Render pane. When overrides exist, an asterisk displays in front of the current render preset name: e.g. Current Settings (*Medium).

Rename

Renames the Render Preset.

Note: Following Render Preset items cannot be renamed:

- Draft
- Low
- Medium
- High
- Presentation

Select All

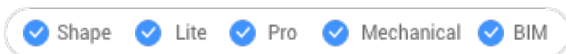
Selects all Render Preset definitions.

Invert selection

Deselects the current selection and vice versa.

23.30 RENDERWINCLOSE command

Closes the Render window.



23.30.1 Description

Closes the Render window, which had displayed the result of the Render command.

23.31 REPORTPANELCLOSE command

Closes the Report panel.



23.31.1 Description

Closes the Report panel to hide it from the current workspace. If the Report panel is stacked when you close it, the Report tab or icon is removed from the stack.

23.32 REPORTPANELOPEN command

Opens the Report panel.






23.32.1 Description

Opens the Report panel to display it in the current workspace. The Report panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Report panel can be either floating, docked or stacked.

23.33 REPURLS command (Express Tools)

Finds and replaces previously attached URL addresses.

Icon: 

23.33.1 Method

Select the entities. The **Replace URL text** dialog box opens, which allows you to replace a specified text string in a URL.

23.34 RESETASSOCVIEWS command

Removes associativity between 2D drawings and 3D models.



23.34.1 Description

Removes the associativity between 2D drawings and 3D models, which had been generated by commands like VIEWBASE. This can be used to “freeze” drawing layouts at certain stages throughout the 3D model development, such as for archiving plans.

23.35 RESETBLOCK command

Resets parametric blocks to default values.



23.35.1 Description

Parametric blocks can be manipulated by users interactively, and so this command sets the blocks back to their original condition.

23.36 RESUME command

Resumes paused scripts.



23.36.1 Description


Resumes scripts after they have been stopped with Esc key.

23.37 REVLOUD command

Creates a polyline in the shape of a revision cloud.

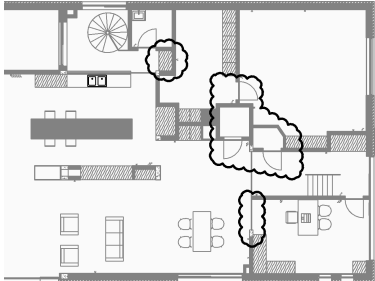




Icon: 

23.37.1 Description

Creates a closed polyline in the shape of a revision cloud. Choose from a combination of options including rectangular, polygonal, freehand, and entity.



23.37.2 Methods to create a revision cloud

This command has 4 methods to begin creating a revision cloud:

- Rectangular
- Polygonal
- Freehand
- Entity

Rectangular

Begin creating a rectangular revision cloud by specifying a corner of the rectangle then:

Additional options: [Arc length/Entity/Rectangular/Polygonal/Freehand/Style]

Specify opposite corner point

Specify the opposite corner of the rectangle. The revision cloud is drawn parallel to the x and y axes.

Polygonal

Begin creating a polygonal revision cloud by specifying a vertex of the polygon then:

Additional options: [Arc length/Entity/Rectangular/Polygonal/Freehand/Style]

Specify next point

Specify the next point of the polygon.

You can continue adding unlimited vertices until you press Enter to end the command.

Additional option: [Undo]

Freehand

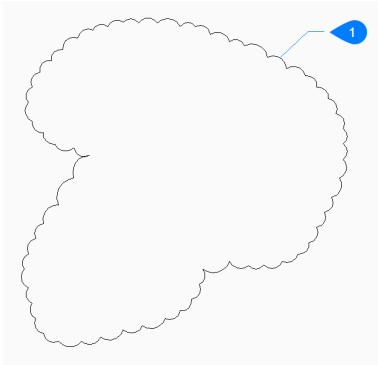
Begin creating a freehand revision cloud by specifying a start point then:

Additional options: [Arc length/Entity/Rectangular/Polygonal/Freehand/Style]

Guide crosshairs along cloud path...

Drag the cursor to add revision cloud segments. Continue adding segments until you:

Pass the cursor over the start point to create a closed revision cloud.



1 Closed revcloud

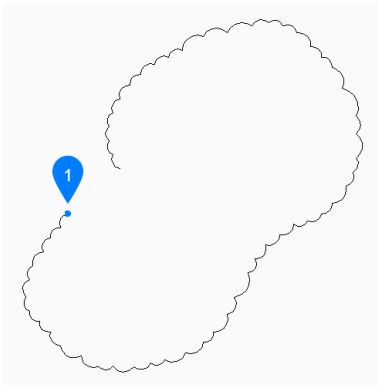
Or

Right-click to create an open revision cloud then:

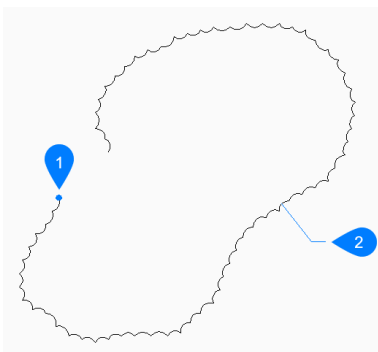
Reverse direction [Yes/No]

Specify whether you want to change the direction of the revision cloud.

- **Yes:** the direction of the arc segments is reversed.
- **No:** the direction of the arc segment is retained.



1 Start point



1 Start point

2 Reversed

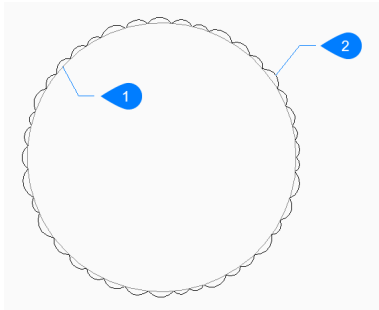
Entity

Begin creating a revision cloud by selecting an existing entity to convert to a revision cloud then:

Reverse direction [Yes/No]

Specify whether you want to change the direction of the revision cloud.

- **Yes:** the direction of the arc segments is reversed.
- **No:** the direction of the arc segment is retained.



- 1 Original entity
- 2 Revcloud

Entities can be open or closed. The original entity is erased.

23.37.3 Options within the REVLOUD command

After you begin creating a revision cloud, the following options may be available.

Arc length

Specify the shortest and longest length for the arcs that form the cloud.

Specify minimum length of arc

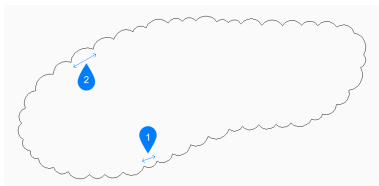
Specify the minimum length of the arcs.

The minimum arc length is stored in the REVLOUDMINARCLENGTH system variable.

Specify maximum length of arc

Specify the maximum length of the arcs.

The minimum arc length is stored in the REVLOUDMAXARCLENGTH system variable.

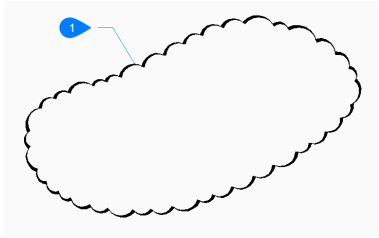


- 1 Minimum arc length
- 2 Maximum arc length

Style

Specify the arc style to use for the revision cloud.

- **Normal:** the polyline making up the cloud has a uniform width.
- **Calligraphy:** the polyline has a varying width (tapered polyarcs) to simulate a calligraphic look.



1 Calligraphic style

The arc style is stored in the REVLOUDARCSTYLE system variable.

Undo

Undo the last segment in a polygonal revision cloud and continue drawing from the previous segment.

23.38 REVERT command (Express Tools)

Closes the current drawing without saving and reopens it.

Icon:

23.38.1 Methods

If there are unsaved changes in the current drawing, BricsCAD asks if you want to discard the changes.

23.39 REVOLVE command

Creates 3D solids or surfaces by revolving 2D entities about an axis.



Icon:

Alias: REV

23.39.1 Description

Revolves open or closed 2D entities, solid edges, faces of 3D solids, regions or closed boundaries into 3D solids or 3D surfaces.

Note:

- The SELECTIONPREVIEW system variable must be set to 2 or 3 to highlight faces.
- Depending on the value of the DELOBJ system variable, the source entities are either retained or deleted, or else you are prompted whether you want the entities deleted or not.

23.39.2 Method

There are two methods to revolve entities:

- Create 3D solids.
- Create surfaces.



23.39.3 Options within the command

MOde

Allows you to create either solids or surfaces.

SOLid

Creates a 3D solid.

SURface

Creates a 3D surface.

Xaxis

Uses the X axis of the current coordinate system as the axis of rotation.

Yaxis

Uses the Y axis of the current coordinate system as the axis of rotation.

Zaxis

Uses the Z axis of the current coordinate system as the axis of rotation.

2Points

Specify the start point and end point of the axis of revolution.

Note: If the resulting 3D entity is self-intersecting, an error will occur.

Object

Specifies the axis of rotation by selecting an axial entity of the object.

Last

Uses the last entered axis for rotating the entities.

View

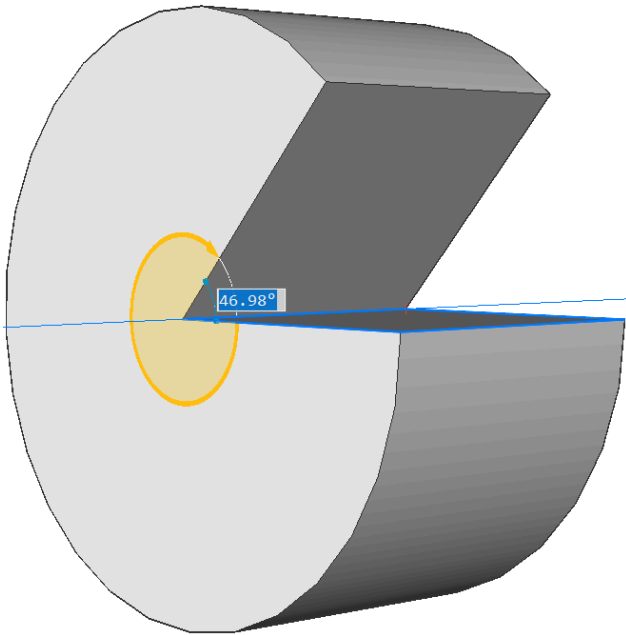
Uses the current view as the axis for rotating the entities.

Note: The axis of rotation is parallel to the direction of view, passing through the picked point.

Angle of revolution

Specifies how far around the source entity is rotated about the axis.

Note: You can specify the angle of revolution dynamically, using the **Manipulator**, or typing a value.



Auto

Move the mouse to specify the angle direction.

The result depends on the extrusion direction and the value of the four **Extrude mode** system variables: EXTRUDEOUTSIDE, EXTRUDEINSIDE, INTERSECTEDENTITIES and UNITESURFACES.

Subtract

The 3D solid is subtracted from each interfering existing solid.

Create

Regardless of the revolving direction, a new 3D solid is created.

Unite

The new 3D solid is unified with each interfering existing solid.





Both sides

Revolves in both directions.

Note: If the HOTKEYASSISTANT system variable is ON, the **Hotkey Assistant** widget displays. Repeatedly press the **Ctrl** key during the dynamic display of the extrusion to cycle the various options:

- Solid mode:



-  : Auto
-  : Create
-  : Subtract
-  : Unite

- Surface mode:



- : Auto
- : Create

23.40 REVSURF command

Creates a 3D mesh surface by revolving a linear entity around a line (short for "revolved surface").



Icon:

Note: To create 3D surfaces and 3D solids by revolving a profile around an axis, use the REVOLVE command.

The SURFTAB1 system variable controls the number of segments of the revolution surface.

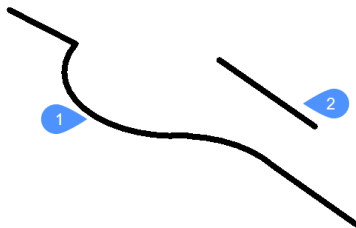
The SURFTAB2 system variable controls the number of segments of each arc segment in the revolved entity

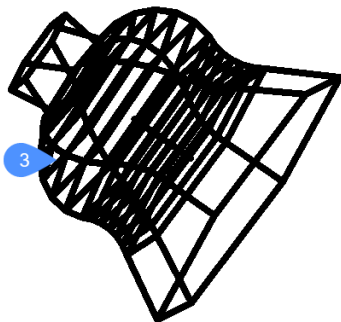
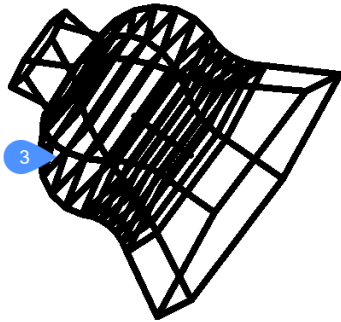
23.40.1 Method

Specifies a single entity (1) to be revolved into a 3D surface mesh (3). You may choose a line, circle, arc, open or closed polyline, or open or closed spline; 3D objects do not work.

Specifies the entity (2) about which the surface is revolved; you may choose a line or polyline; curved objects do not work.

Specifies the starting angle (4) of the revolution and the angle revolved (5), the number of degrees by which the entity is revolved.





23.41 RIBBON command

Opens the **Ribbon** panel.

Shape Lite Pro Mechanical BIM

23.41.1 Description

Opens the **Ribbon** panel in the current workspace. The **Ribbon** panel appears at the same size and location as it did before it was closed or collapsed. Like any other dockable panel, the **Ribbon** panel can be either floating, docked or stacked.

Note: To display the new ribbon, set the USENEWRIBBON system variable to 1(ON).

23.42 RIBBONCLOSE command

Closes the **Ribbon** panel.

Shape Lite Pro Mechanical BIM

23.42.1 Description

Closes the **Ribbon** panel to hide it from the current workspace. If the **Ribbon** panel is stacked when you close it, the Ribbon tab or icon is removed from the stack.

23.43 ROTATE command

Rotates entities about a specified point.

Shape Lite Pro Mechanical BIM



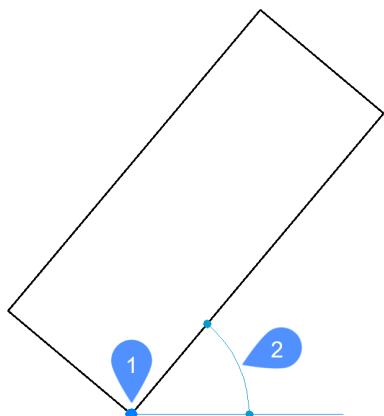
Icon:

Alias: RO

23.43.1 Description

Rotate entities about a specified point at a specified rotation angle, or by an angle referenced to a base angle.

Note: A positive number rotates the entities counter-clockwise. A negative number rotates the entities clockwise. The starting angle is 0 degrees, and the rotation angle is measured from the positive x axis.



- 1 Rotation point
- 2 Rotation angle

23.43.2 Options within the command

Base angle

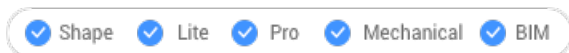
Specifies a new base angle, which is a starting angle other than 0. This option lets you define a different angle as the starting point.

Copy

Rotates a copy of the source entity, instead of rotating the source itself.

23.44 ROTATE3D command

Rotates entities about an axis in 3D space.



Icon:

Alias: 3DROTATE, 3R

23.44.1 Description

Dynamically rotates 3D solids, surfaces, 2D entities, faces (planar, cylindrical, spherical, conical, and toroidal faces of a 3D solid or surface), edges, or vertices of a solid around an axis.



Note: When the face of a solid or surface is rotated, adjacent faces and edges are adjusted to preserve the correct solid/surface topology.

23.44.2 Method

There are two methods to rotate entities:

- Specify an axis.
- Use the geometry of an object as the axis for rotating the selected entities.
 - Hover over a line or linear polyline segment. Click when the entity highlights.
 - Hover over a 3D solid face, then move the cursor close to the edge you want to use as the rotation axis. A rotation arc and the rotation axis display dynamically. Click to accept the rotation axis.

23.44.3 Options within the command

Xaxis

Rotates the selection around the X-axis of the current coordinate system.

Yaxis

Rotates the selection around the Y-axis of the current coordinate system.

Zaxis

Rotates the selection around the Z-axis of the current coordinate system.

2points

Defines the rotation axis by two points.

Object

Uses the geometry of an object to determine the axis for rotating the selected entities.

Start

Starts the rotation of the selected entity. It automatically selects a rotation axis if the cursor is over a planar face.

Last

Uses the last entered axis for rotating the entities.

View

Uses the current view as the axis for rotating the entities.

Note: The axis of rotation is parallel to the direction of view, passing through the picked point.

Rotation angle

Specifies the angle by which to rotate the entities.

Base angle

Allows you to define a new base angle.

Copy

Rotates a copy of the selection set.

Repeat

Creates multiple copies.



Disable connectivity mode

Removes the connectivity with adjacent entities.

Enable connectivity mode

Keeps the connectivity with adjacent entities.

Note: If the HOTKEYASSISTANT system variable is on, press the Ctrl key to cycle between disable/enable connectivity mode.

Note: Geometric and dimensional constraints between selected entities are taken in consideration, as well as the lower and upper bounds parameters for 3D dimensional constraints. Constraints can be accessed and modified through the **Mechanical Browser** panel.

23.45 RSCRIPT command

Reruns the currently loaded SCR script file.



Note: Load and run SCR script files with the Script command.

Note: This command can be entered transparently during commands (**'rscript'**).

23.45.1 Method

After a script file is loaded and run, enter RSCRIPT to run it again (short for "repeat script").

23.46 RTEDIT command (Express Tools)

Edits remote text entities.

23.46.1 Options within the command

Style

Specifies the name of the text style to use.

?

Lists the available text styles.

Height

Specifies the height for the RTEXT entity.

Rotation

Specifies a rotation angle for the RTEXT entity.

Edit

Opens the **Edit RText** dialog box to edit the content of the RTEXT entity.

23.47 RTEXT command (Express Tools)

Inserts or edits a remote text entity.

Icon:



23.47.1 Description

The RTEXT command can be used to add frequently used text to multiple files. The command inserts the text of a .txt file to the drawing.

23.47.2 Options within the command

Style

Allows you to specify the text style.

?

Allows you to enter the text style mask to list.

*

Lists all available text styles.

Height

Allows you to specify the RText height.

Rotation

Allows you to specify the rotation angle of the RText.

File

Opens the **Select text file** dialog box that allows you to select a .txt file.

Diesel

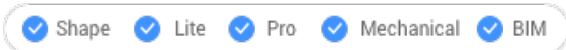
Opens the **Edit Rtext** dialog box that allows you to use a DIESEL code.

23.48 RTEXTAPP command (Express Tools)

Assigns a specific text file editor used for the RTEXT command.

23.49 RTLOOK command

Looks around in a 3D scene.



23.49.1 Method

The look-around cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to look around in real-time.

23.49.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.




Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.50 RTPAN command

Pans the drawing in real-time.



Icon: 

23.50.1 Method

The pan cursor is displayed during real-time panning. Hold down the mouse's left button and then move the mouse to pan the drawing in real-time.

Note: Hold down the Shift key to restrict panning to the X and Y direction of the viewport.

23.50.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.51 RTROT command

Rotates 3D drawings in a constrained manner, in real-time.



Icon: 

23.51.1 Method

The constrained rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to rotate the drawing in real-time.

Note: The ORBITAUTOTARGET variable determines if the viewpoint rotates around your pick point or the center of the objects.

23.51.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.



Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.52 RTROTCTR command

Rotates 3D drawings about a center point that you pick in the drawing, in real-time.



23.52.1 Method

The constrained rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to rotate the drawing in real-time.

23.52.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.


Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.53 RTROTTF command

Rotates 3D drawings about a fixed point, in real-time.



Icon: 

23.53.1 Method

The rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to look around in real-time.

Note: The ORBITAUTOTARGET system variable determines if the viewpoint rotates around your pick point or the center of the object.



23.53.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

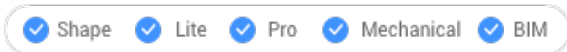
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.54 RTROTX command

Rotates 3D drawings in real-time about the x axis.



Icon:

23.54.1 Method

The rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to rotate the drawing in real-time.

Note: The ORBITAUTOTARGET system variable determines if the viewpoint rotates around your pick point or the center of the object.

23.54.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

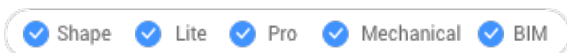
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.55 RTROTY command

Rotates 3D drawings in real-time about the y axis.



Icon:



23.55.1 Method

The rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to rotate the drawing in real-time.

23.55.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.56 RTROTZ command

Rotates 3D drawings in real-time about the z axis.



Icon: 

23.56.1 Method

The rotation cursor is displayed during real-time rotation. Hold down the mouse's left button and then move the mouse to rotate the drawing in real-time.

23.56.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.57 RTUCS command (Express Tools)

Rotates the UCS dynamically.



23.57.1 Method

Click and drag the screen pointer perpendicular to the active axis to rotate the UCS around it. The UCS is rotated around the highlighted axis at an angle specified by the **Angle** option.

Note: Press the Tab key to change the axis to be rotated. The active axis is dashed. The default active axis is the X-axis.

23.57.2 Options within the command

Save

Saves the current UCS.

Restore

Cycles through the UCSs that were previously saved.

Delete

Deletes the specified UCS from the saved list.

Cycle

Cycles through the standard UCS orientations (Top, Front, Right, Back, Left and Bottom).

Angle

Allows you to specify a minimum rotation increment for the current axis.

Origin

Allows you to set a new origin point for the UCS.

View

Rotates the UCS to align the XY-plane with the current viewing direction. It does not change the UCS origin.

World

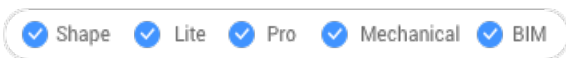
Changes the UCS to the World Coordinate System.

Undo

Undoes the UCS changes.

23.58 RTUPDOWN command

Moves the viewpoint up and down, and left and right in a 3D scene, in real time.



23.58.1 Method

The up-down cursor is displayed during real-time movement. Hold down the mouse's left button and then move the mouse to move up-down and left-right in real-time.

23.58.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.



Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

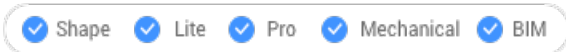
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.59 RTWALK command

Walks left-right and forward-backwards through 3D scenes, in real-time.



23.59.1 Method

The walk cursor is displayed during real-time movement. Hold down the mouse's left button and then move the mouse to walk left-right and forward-backward in real-time.

23.59.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.

Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

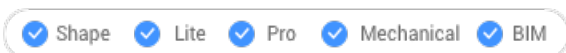
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.60 RTZOOM command

Zooms the viewpoint in and out of the drawing in real-time.



Icon:

23.60.1 Method

The zoom cursor is displayed during real-time zooming. Hold down the mouse's left button and then move the mouse to zoom the drawing in real-time.

23.60.2 Context Menu Options

Right-click to display the context menu to switch viewing mode.

Pan

Pans the drawing in real-time. Starts the RTPAN command.



Zoom

Zooms the drawing in real-time. Starts the RTZOOM command.

Constrained sphere

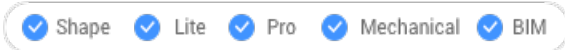
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.


Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

23.61 RULESURF command

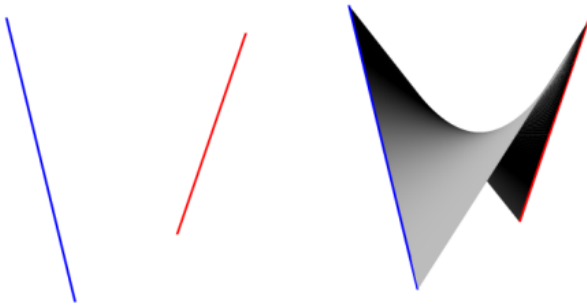
Creates 3D polygon mesh by connecting two separate linear entities (short for “ruled surfaces”).



Icon: 

23.61.1 Description

Creates a 3D polygon mesh in the shape of a ruled surface by specifying two separate entities.



23.61.2 Method

Specify the first and the second boundary entity. For the first boundary any open object, such as a line, arc, polyline or spline can be selected.

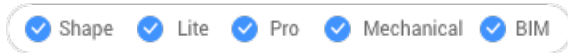
Closed entities and 3D entities are not accepted.




24. S

24.1 SAVE command

Opens the Save drawing as dialog box.



Icon: 

Alias: SA

24.1.1 Description

Opens the Save drawing as dialog box to save data from the current drawing to a dwg, dxf, dwt or dws file.

File types available to save are:

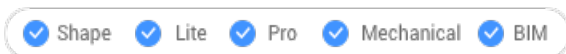
- **AutoCAD 2018** (*.dwg)
- **AutoCAD 2018 ASCII DXF** (*.dxf)
- **AutoCAD 2018 Binary DXF** (*.dxf)
- **Standard File** (*.dws)
- **Drawing Template** (*.dwt)
- **AutoCAD 2013** (*.dwg)
- **AutoCAD 2013 ASCII DXF** (*.dxf)
- **AutoCAD 2013 Binary DXF** (*.dxf)
- **AutoCAD 2010** (*.dwg)
- **AutoCAD 2010 ASCII DXF** (*.dxf)
- **AutoCAD 2010 Binary DXF** (*.dxf)
- **AutoCAD 2007** (*.dwg)
- **AutoCAD 2007 ASCII DXF** (*.dxf)
- **AutoCAD 2007 Binary DXF** (*.dxf)
- **AutoCAD 2004** (*.dwg)
- **AutoCAD 2004 ASCII DXF** (*.dxf)
- **AutoCAD 2004 Binary DXF** (*.dxf)
- **AutoCAD 2000** (*.dwg)
- **AutoCAD 2000 ASCII DXF** (*.dxf)
- **AutoCAD 2000 Binary DXF** (*.dxf)
- **AutoCAD Release 14** (*.dwg)
- **AutoCAD Release 14 ASCII DXF** (*.dxf)
- **AutoCAD Release 14 Binary DXF** (*.dxf)
- **AutoCAD Release 14** (*.dwg)



- **AutoCAD Release 14 ASCII DXF** (*.dxf)
- **AutoCAD Release 14 Binary DXF** (*.dxf)
- **AutoCAD Release 13 Drawing** (*.dwg)
- **AutoCAD Release 13 ASCII DXF** (*.dxf)
- **AutoCAD Release 13 Binary DXF** (*.dxf)
- **AutoCAD Release 11/12 Drawing** (*.dwg)
- **AutoCAD Release 11/12 ASCII DXF** (*.dxf)
- **AutoCAD Release 11/12 Binary DXF** (*.dxf)
- **AutoCAD Release 10 ASCII DXF** (*.dxf)
- **AutoCAD Release 10 Binary DXF** (*.dxf)
- **AutoCAD Release 9 ASCII DXF** (*.dxf)

24.2 SAVEALL command

Opens the Save drawing as dialog box.



24.2.1 Method

The dialog is displayed for each open drawing that has been modified since the previous save.

24.3 SAVEAS command

Opens the Save drawing as dialog box.



Icon:

24.3.1 Description

Opens the Save drawing as dialog box to save data from the current drawing to a dwg, dxf, dwt or dws file.

Note: File types available for saving are the same as for the SAVE command.

24.4 SAVEASR12 Command

Opens the Save drawing as dialog box.



24.4.1 Description

Opens the Save drawing as dialog box to save data from the current drawing to an R11/12 dwg file.

24.5 SAVE-CLOSEALL command (Express Tools)

Saves and closes all open drawings.



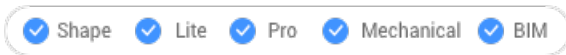
24.5.1 Method

If changes have been made to any drawings since their last save, the **Save Copy As** dialog box opens to save each drawing before closing them.

Note: For the last open drawing, a BricsCAD dialog box offers you the opportunity to save the drawing before closing it.

24.6 SAVEFILEFOLDER command

Opens the default file explorer.



24.6.1 Description

Opens the default file explorer to quickly access automatic save and backup files. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

24.7 SCALE command

Resizes 2D and 3D entities.



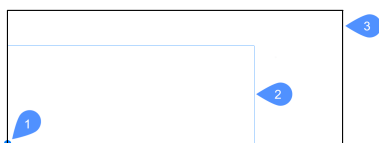
Icon:

Alias: SC

24.7.1 Method

You can specify the scale factor by selecting a base point and a length or by typing an explicit scale factor in the Command line.

Note: A scale factor smaller than 1 shrinks the entities. A negative scale factor scales the entities in the negative direction.



- 1 Base point
- 2 Entity to scale
- 3 Scaled entity

24.7.2 Options within the command

Reference

Resizes entities using a base or reference scale.



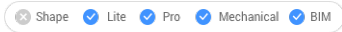
Note: Use this option to scale entities relative to other entities. This command normally scales from a base factor of 1.

Copy

Scales a copy of the selection set, leaving the original entities intact.

24.8 SCALELISTEDIT command

Opens the Edit scale list dialog box.

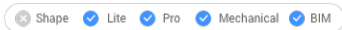


24.8.1 Description

Opens the Edit scale list dialog box to edit the list of scales accessible by some commands.

24.9 -SCALELISTEDIT command

Edits preset scale factors.



24.9.1 Description

Adds and removes scale factors to and from the list used by commands, such as Print, and by annotative scaling; works at the Command line.

24.9.2 Options within the command

? to list

Lists existing preset scale factors in the Prompt History window.

Add

Creates a new scale factor.

Delete

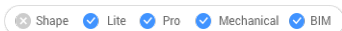
Removes specified scale factor or all unused scale factors.

Reset

Removes all custom scale factors that are not used.

24.10 SCREENSHOT command

Opens the Save image file dialog box.

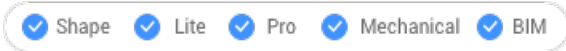


24.10.1 Description

Opens the Save image file dialog box to save data from the current drawing to a png file. The current view specifies what data to include in the image.

24.11 SCRIPT command

Opens the Run script dialog box.



Icon:

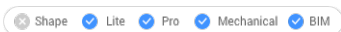
Alias: SCR

24.11.1 Description

Opens the Run script dialog box to select an scr file to run. After choosing Open in the dialog box, the script begins running immediately. You can press the Esc key to stop it.

24.12 SCROLLBAR command

Toggles the WNDLSCRL system variable.



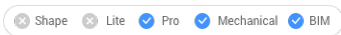
24.12.1 Description

Toggles the WNDLSCRL system variable to show or hide the drawing window scroll bars. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'SCROLLBAR.

- On: turns on the WNDLSCRL system variable.
- Off: turns off the WNDLSCRL system variable.
- Toggle: changes the WNDLSCRL system variable to the opposite of the current setting.

24.13 SECTION command

Creates section planes.



Icon:

Alias: SEC

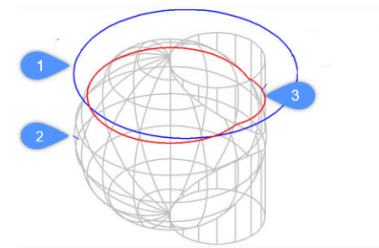
24.13.1 Description

Creates section planes of 3D solids, surfaces, polyface meshes, and 3D faces. The result is a slice made of region entities.

24.13.2 Options within the command

Object

Creates the section from entities that intersect the 3D solid.



- 1 Circle entity
- 2 3D solid
- 3 Section defined by the plane of the circle.

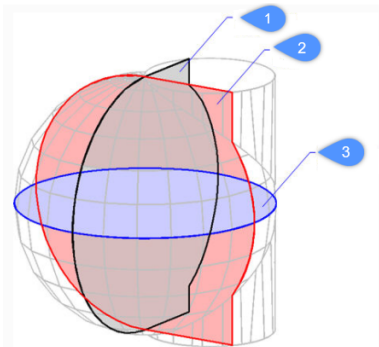
Note: The entity defines the plane through which to create the section.

Zaxis

Creates a section in the plane defined by one point on the plane, and a second on the plane's normal (z axis).

View

Creates a section in the plane of the current 3D viewport.



XY (3)

Creates a section parallel to the x, y plane.

YZ (2)

Creates a section parallel to the y, z plane.

ZX (1)

Creates a section parallel to the z, x plane.

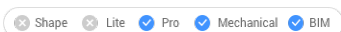
3points

Pick points to specify the location of the plane in which the section lies.

Note: Three points define a plane.

24.14 SECTIONPLANE command

Creates section entities.



Icon:



24.14.1 Description

Creates section entities from 3D solids, 3D surfaces, polyface meshes and 3D faces. This command helps to see inside a 3D entity.

Note: New created section planes have their Clip Display status set to on. As section planes are entities, they can be edited and deleted.

24.14.2 Options within the command

Specify start point

Specifies the starting point of a 2D section plane.

Note: BricsCAD ghosts the section plane during the cursor's movement.

Note: Use entity snaps to make the pick points accurate.

select Face

Select the planar face of a 3D solid.

Note: BricsCAD ghosts the section plane during the cursor's movement. Use entity snaps to make the pick points accurate.

Note: The section plane coincides with the selected face. The Live Section property is turned on automatically. Live sections are sections that can be interactively edited through the Properties panel.

Draw

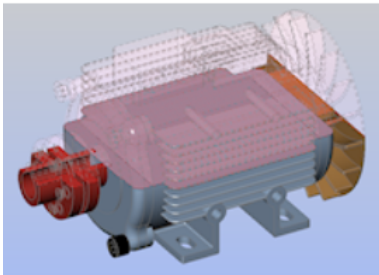
Define the section plane by two or more points. Draws L and U-shaped section planes.

Note: The section plane is created through the specified points and perpendicular to the current UCS.

Orthographic

Places a section plane entity in one of the six standard drawing orientations, relative to the current UCS.

Note: BricsCAD draws the orthographic section plane through the center of the bounding box that contains all 3D entities in the drawing. E.g.; the result of a Top section plane:



24.15 SECTIONPLANESETTINGS command

Shape Lite Pro Mechanical BIM

Icon: 

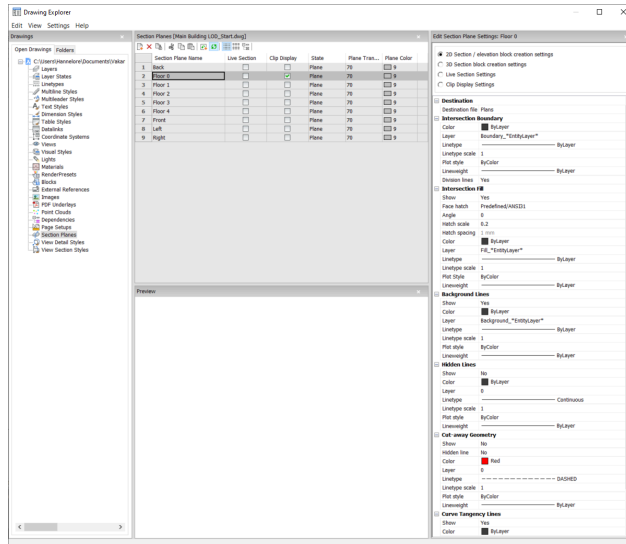


24.15.1 Description

Opens the Drawing Explorer dialog box with Section Planes category selected.

24.15.2 Methods

Open the Drawing explorer dialog box with Section Planes category selected to view and modify section planes in the current drawing.



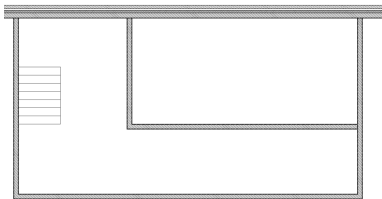
Note: The available options differ depending on the kind of section you choose to edit.

24.15.3 Options within the command

Section Types

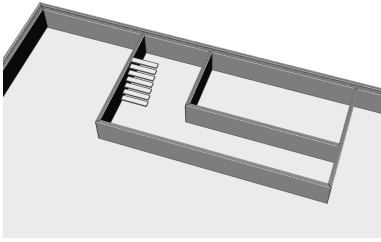
2D Section/elevation block creation settings

Specifies properties for 2D sections and elevations. These properties are assigned to the 2D section you create as a block.



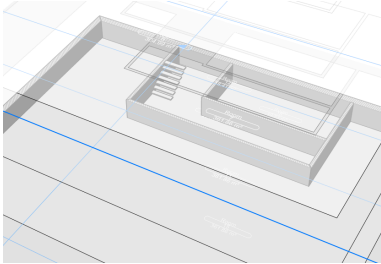
3D section block creation settings

Specifies properties for 3D sections. These properties are assigned to the 3D section you create as a block.



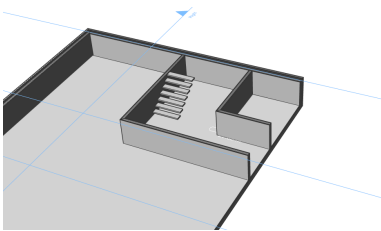
Live Section Settings

Specifies properties for live sections. With live sections, the entities in the drawing are temporarily modified and viewable in the drawing.



Clip Display Settings

When using the clip display status, the display of entities is clipped. The status can be set for multiple section entities simultaneously.



Destination

Destination file

Specifies the destination file to save the section plane to.

Intersection Boundary

Color

Defines the color of the intersection boundary. You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the intersection boundary. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.

Note: This overwrites the other specified properties.

- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.



Linetype

Specifies the linetype of the intersection boundary. You can choose between:

- The available linetypes in the drawing
- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the intersection boundary.

Plot style

Specifies the plotstyle of the intersection boundary.

Lineweight

Specifies the lineweight of the intersection boundary.

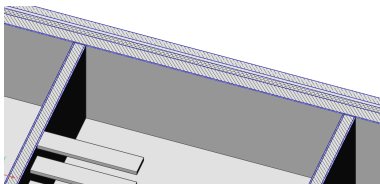
Division lines (option available for the 2D sections)

Specifies whether the division lines of the intersection boundary should be drawn.

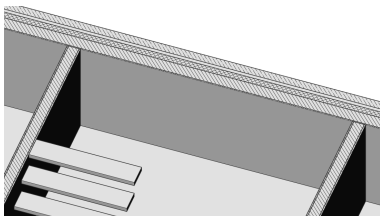
Show (option available for the 3D sections)

Specifies whether the intersection boundary is drawn.

- Yes: the intersection boundary is displayed. The intersection boundaries are indicated in blue.



- No: no intersection boundary is displayed.



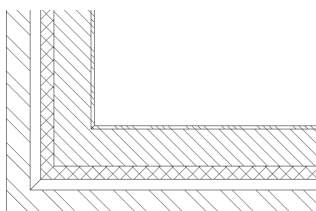
Note: The intersection boundary is still visible, since the lines are also drawn for the intersection fill. The color is now determined by the intersection fill instead of by the intersection boundary.

Intersection Fill

Show

Specifies whether the intersection filling is showed.

- Yes: the cut through geometry is displayed by a hatch





- No: no hatch is drawn on the cut through geometry



Face hatch

Specifies the used hatch pattern to fill the section. Opens the Hatch Pattern Type dialog box where you can choose a hatch pattern.

Angle

Specifies the angle of the hatch pattern.

Hatch scale

Specifies the scale of the hatch pattern.

Hatch spacing

Specifies the hatch spacing.

Color

Specifies the color of the hatch. You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the intersection boundary. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.
Note: This overwrites the other specified properties.
- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.

Linetype

Specifies the linetype of the intersection boundary. You can choose between:

- The available linetypes in the drawing
- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the hatch pattern.

Plot Style

Specifies the plot style of the hatch pattern.

Lineweight

Specifies the lineweight of the hatch pattern.

Background Lines



Show

Specifies whether the background lines are drawn. These are the lines that show the geometry behind the section plane, which is not cut-through.

- Yes: the background lines are displayed



- No: no background lines are displayed



Color

Specifies the color of the background lines. You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the background lines. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.

Note: This overwrites the other specified properties.

- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.

Linetype

Specifies the linetype of the background lines. You can choose between:

- The available linetypes in the drawing
- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the background lines.

Plot Style

Specifies the plot style of the background lines.

Lineweight

Specifies the lineweight of the background lines.

Hidden lines

Show

Specifies whether the hidden lines are drawn.

- Yes: the hidden lines are displayed.





- No: no hidden lines are displayed.



Color

Specifies the color of the hidden lines. You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the hidden lines. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.

Note: This overwrites the other specified properties.

- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.

Linetype

Specifies the linetype of the hidden lines. You can choose between:

- The available linetypes in the drawing
- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the hidden lines.

Plot Style

Specifies the plot style of the hidden lines.

Lineweight

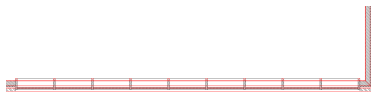
Specifies the lineweight of the hidden lines.

Cut-away Geometry

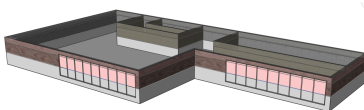
Show

Specifies whether the section lines of the geometry that is cut away are shown.

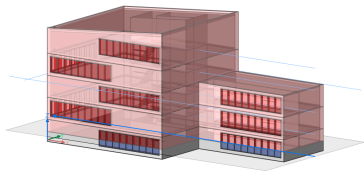
- Yes: the cut-away geometry is displayed.



Cut-away geometry of a 2D section.



Cut-away geometry of a 3D section.

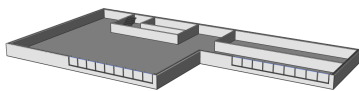


Cut-away geometry of a live section.

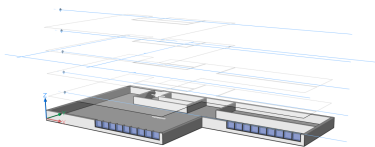
- No: no cut-away geometry lines are displayed



No cut-away geometry of a 2D section is shown.



No cut-away geometry of a 3D section is shown.



No cut-away geometry of a live section is shown.

Hidden line

Specifies whether the hidden lines of the cut-away geometry are shown.

Color

Specifies the color of the cut-away geometry (lines). You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the cut-away geometry. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.

Note: This overwrites the other specified properties.

- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.

Linetype

Specifies the linetype of the cut-away geometry. You can choose between:

- The available linetypes in the drawing



- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the cut-away geometry lines.

Plot Style

Specifies the plot style of the cut-away geometry lines.

Lineweight

Specifies the lineweight of the cut-away geometry lines.

Curve Tangency Lines

Show

Specifies whether the curve tangency lines are drawn.

Color

Specifies the color of the curve tangency lines. You can choose a color from the drop list or choose Select Color, the Select Color dialog box will then display.

Layer

Specifies the layer of the curve tangency lines. You can choose between:

- The available layers in the drawing.
- *EntityLayer*_IntersectionBoundary: the properties of layers of the entities in the section are kept, but a copy of these layers is created.

Note: This overwrites the other specified properties.

- New layer name settings: option opens the New Layer Name dialog box. Here you can edit the name settings for the option above.

Linetype

Specifies the linetype of the curve tangency lines. You can choose between:

- The available linetypes in the drawing
- Load to load new linetypes. This opens the Load Linetypes dialog box where you can choose new linetypes to load into the drawing.

Linetype scale

Specifies the linetype scale of the curve tangency lines.

Plot Style

Specifies the plot style of the curve tangency lines.

Lineweight

Specifies the lineweight of the curve tangency lines.

24.15.4 Context Menu Options

New

Creates a new section plane definitions into the drawing. For a detailed explanation, see the SECTIONPLANE command.



Delete

Deletes section planes from the drawing.

Rename

Renames the selected section plane.

Select All

Selects all section plane definitions.

Invert selection

Deselects the current selection and vice versa.

24.16 SECTIONPLANETOBLOCK command

Opens the Create section/elevation dialog box.



Icon:

24.16.1 Description

Opens the Create section/elevation dialog box to save section geometry as a block or to an external dwg file.

24.17 SECURITY command

Opens the Security dialog box.



24.17.1 Description

Opens the Security dialog box to specify if VBA macros are allowed to run automatically.

24.18 SECURITYOPTIONS command

Opens the Security options dialog box.



24.18.1 Description

Opens the Security options dialog box to specify a password to protect your drawing from unauthorized access.

24.19 SELECT command

Selects entities.



Icon:



24.19.1 Description

Selects one or more entities through a variety of selection methods.

Note: You access the selection set during subsequent commands with the Previous option.

24.19.2 Methods

There are two methods to select entities:

- Select entities separately using the command.
- Ctrl+A selects all entities on non-frozen layers.

24.19.3 Options within the command

Select entities to include in set

Chooses entities to add to the selection set; use one of methods listed below. As you add entities to the selection set, the program highlights them with dashes.

select ALL entities

Selects all entities in the drawing, except for those on frozen layers.

Add

Adds additional entities to the selection set. (Used after the Remove option by typing Add in the Command line.)

add to set (+)

Adds additional entities to the selection set. (Used after the Remove option by typing + in the Command line.)

Remove

Removes entities from the selection set. As you remove entities from the selection set, the program unhighlights them.

subtract from set (-)

Removes entities from the selection set. As you remove entities from the selection set, the program unhighlights them.

Previous selection

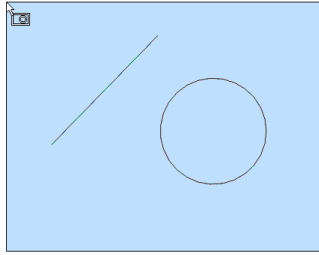
Add the entities from the previous selection to the current select set.

Last entity in drawing

Adds the last entity drawn to the selection set.

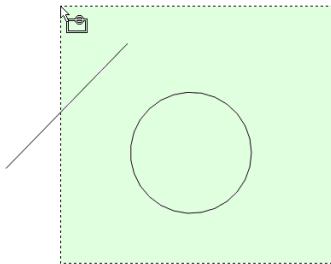
inside Window

Selects all entities that are entirely inside a rectangular selection window. The selection window outline is drawn, filled with transparent blue.



Crossing window

Selects all entities that are inside of and cross a rectangular selection window. The selection window outline is drawn in a dashed line, filled with transparent blue.

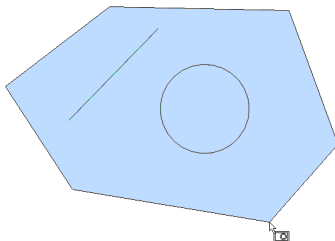


Outside window

Selects all entities fully outside a rectangular selection window.

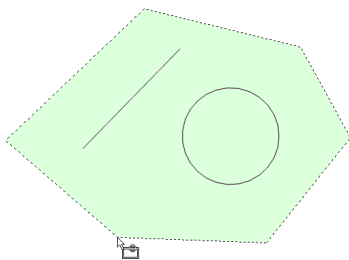
Window Polygon

Selects all entities fully inside a polygonal selection window. The selection polygon outline is drawn, filled with transparent blue.



Crossing Polygon

Selects all entities inside and crossing a polygonal selection window. The selection polygon outline is drawn with a dashed line, filled with transparent green.



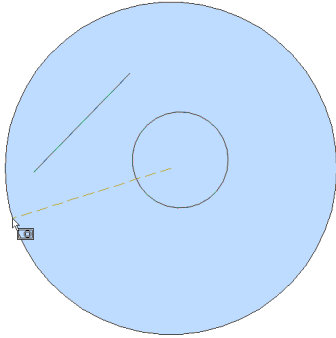


Outside Polygon

Selects all entities fully outside a polygonal selection window.

Window Circle

Selects all entities fully inside a circular selection window. The selection circle outline is drawn, filled with transparent blue.



Crossing Circle

Selects all entities inside and crossing a circular selection window. The selection circle outline is drawn with a dashed line, filled with transparent green.

Outside Circle

Selects all entities fully outside a circular selection window.

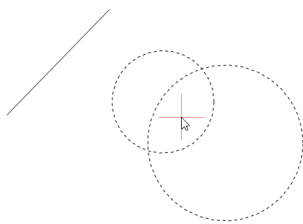
Box

Selects entities depending on the direction you move the cursor:

- Right to left - Box acts like Crossing mode.
- Left to right - Box acts like Window mode.

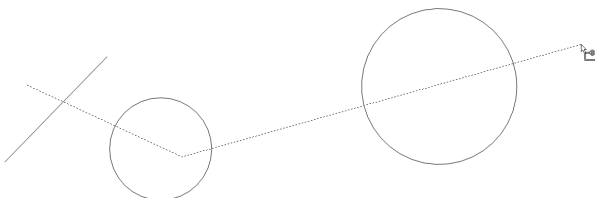
POint

Selects all closed entities surrounding the pick point, such as all walls of a room.



Fence

Selects all entities that cross the fence selection lines.





AUto

Selects entities depending on how you use the cursor:

- Pick an entity - the entity is selected
- Pick two points right to left - Auto acts like Crossing mode.
- Pick two points left to right - Auto acts like Window mode.

Multiple

All entities selected during this mode are added to the selection set.

Single

After you select a single entity, the command ends.

select by PROPERTIES...

Selects entities based on their properties.

Note: For the panel version of this option, see the QSELECT command.

Color

Selects entities based on their color.

Note: If there are entities colored in a specific color because the color properties of the layer or the block are on that specific color, these entities will not be selected.

COLORbook

Selects entities with a colorbook color.

Note: If there are entities colored in a colorbook color because the color properties of the layer or the block, these entities will not be selected.

Layer

Selects entities based on their layer. Enter * to select all layers.

LineType

Selects entities based on their linetype. Enter * to select all linetypes.

Name

Selects entities based on their entity name. Enter * to select all entity names.

Thickness

Selects entities based on their thickness.

Type

Selects entities based on their entity type, such as line, circle, arc... Enter * to select all entity types.

Value

Selects entities based on their value. Enter * to select all values.

Width

Selects entities based on the width of the entities.

Handle

Selects entities based on the value of a handle. This is a hexadecimal number that uniquely identifies each entity in the drawings; the List command reports handle numbers.



Location

Returns to the 'Select entities to include in set' prompt.

selection methods...

Displays the Entity Selection section of the Settings dialog box.

Undo

Undoes the last action during this command.

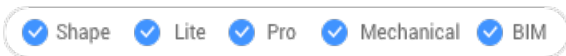
Group

Adds a group to the selection set. See the GROUP command.

Note: In macros, the ^S metacharacter selects the entity under the cursor automatically.

24.20 SELECTALIGNEDFACES command

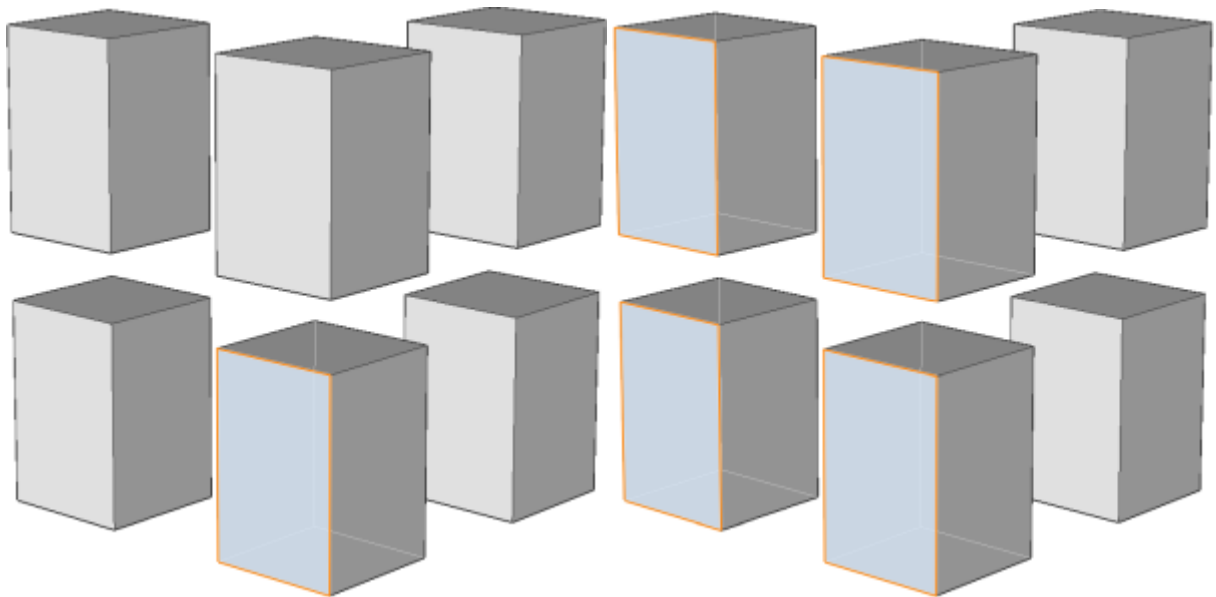
Selects all faces in a model that are coplanar with a selected face.



Icon:

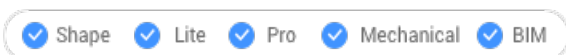
24.20.1 Method

Select a single face. The program selects all other faces that are in the same plane, shown outlined.



24.21 SELECTALIGNEDSOLIDS command

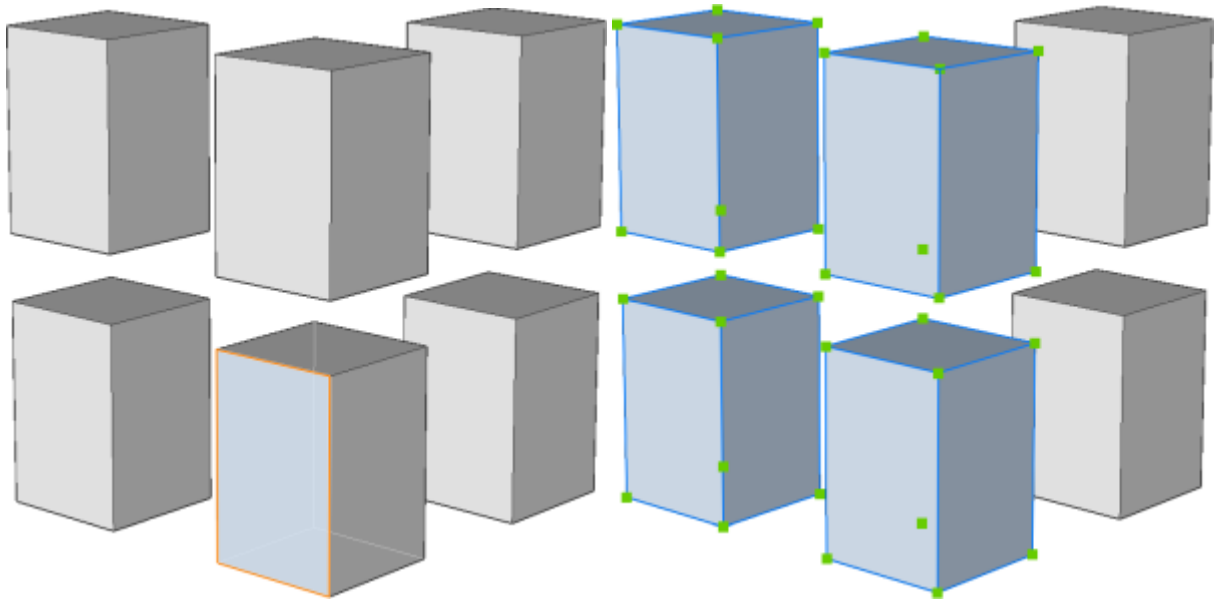
Selects all solids in a model that have faces coplanar with the selected face.



Icon:

24.21.1 Method

Select a single face. The program selects all solids that have faces in the same plane, shown outlined.



24.22 SELECTCONNECTEDFACES command

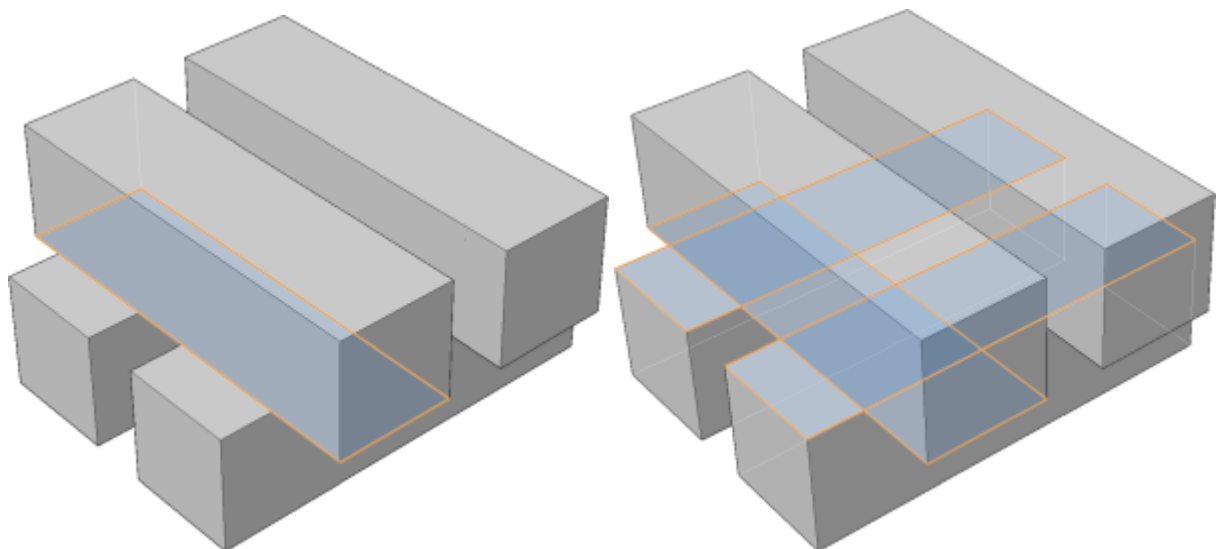
Selects all faces in a model that are connected to a selected face.



Icon:

24.22.1 Method

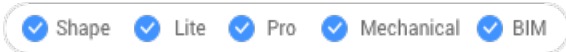
Select a face. The program selects all other faces that are connected to the selected face, shown outlined.





24.23 SELECTCONNECTEDSOLIDS command

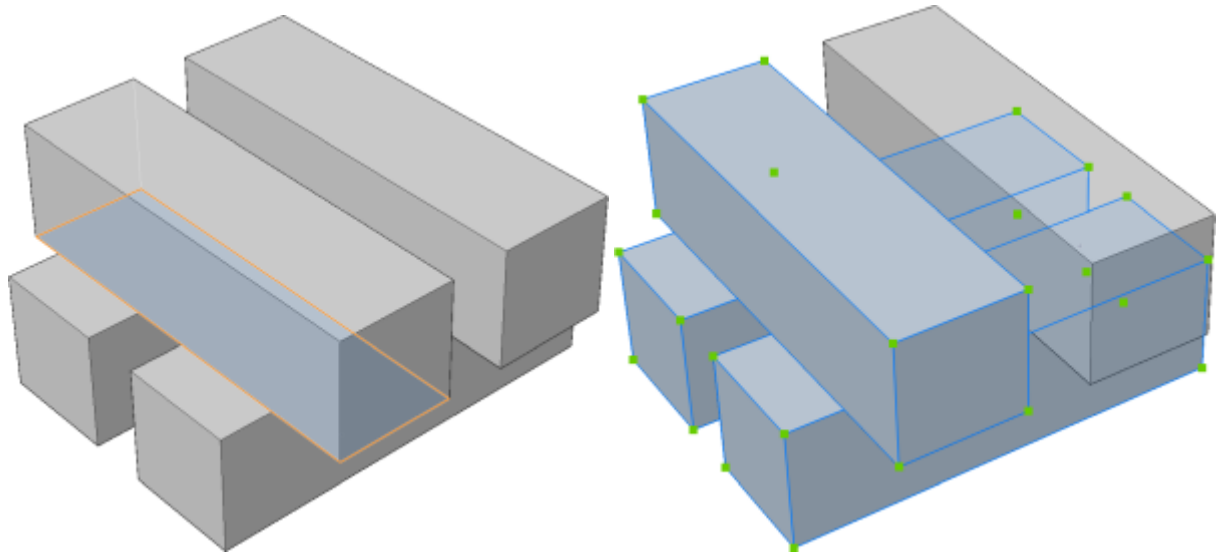
Selects all solids in a model that are connected to a selected face.



Icon:

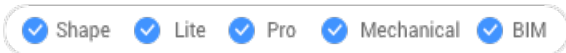
24.23.1 Method

Select a face. The program selects all solids that are connected to the selected face, shown outlined.



24.24 SELECTSIMILAR command

Selects similar entities.



Icon:

24.24.1 Description

Selects all entities with the same properties as the currently selected entity.

24.24.2 Method

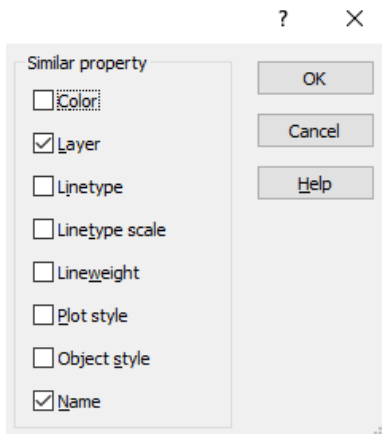
Select one or more entities and choose the properties based on which the selection will be made. When you exit the command, the entities that match the properties are shown as dashed and with entity grips.

Note: For this command to operate as intended, at least one property must be selected.

24.24.3 Options within the command

SEttings

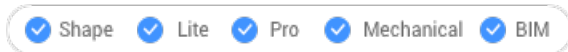
Displays a dialog box to select the properties.



Note: Changing the settings in this dialog box changes the value of the SELECTSIMILARMODE system variable, which is accessed through the Settings command.

24.25 SELGRIPS command

Displays entities grips.



24.25.1 Description

Selects entities and then displays their grips.

BricsCAD highlights selected entities and displays their grips.

Edit the entities by dragging the grips. To select all entities in the drawing, press Ctrl+A.

24.26 SETBYLAYER command

Resets overridden properties to BYLAYER.



24.26.1 Description

Changes the value of overridden properties (color, linetype, lineweight, material, plot style, and transparency) back to the default value of BYLAYER.

24.26.2 Methods

Select the entities whose properties will be set as BYLAYER according to the value of the SETBYLAYERMODE system variable.

Enter 'all' to select all non-frozen entities in the current viewport.

When entities contain blocks the BricsCAD asks whether blocks should have their properties changed.



24.26.3 Options

Settings

Allows to select the entity properties to be changed from the SetByLayer settings dialog box:

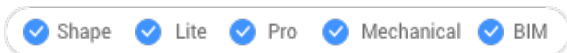
- Color - resets the color of the selected entities to BYLAYER.
- Linetype - resets the linetype of the selected entities to BYLAYER.
- Lineweight - resets the lineweight of the selected entities to BYLAYER.
- Material - resets the material of the selected entities to BYLAYER.
- Plot Style - (only in drawings with plot styles) resets the plot style of the selected entities to BYLAYER.
- Transparency - resets the transparency value of the selected entities to BYLAYER.

Note: The settings are saved through the SETBYLAYERMODE system variable.

Note: The Plotstyle option is available for STB drawings only. See the CONVERTCTB and CONVERTPSTYLES command.

24.27 -SETBYLAYER command

Sets the property overrides of selected entities to ByLayer.



24.27.1 Description

Changes the value of overridden properties (color, linetype, lineweight, material, plot style, and transparency) back to the default value of BYLAYER.

24.27.2 Methods

Select the entities whose properties will be set as BYLAYER according to the value of the SETBYLAYERMODE system variable.

Enter 'all' to select all non-frozen entities in the current viewport.

When entities contain blocks the BricsCAD asks whether blocks should have their properties changed.

24.27.3 Options

Settings

Allows to select the entity properties to be changed from the command line:

- Color - resets the color of the selected entities to BYLAYER.
- Linetype - resets the linetype of the selected entities to BYLAYER.
- Lineweight - resets the lineweight of the selected entities to BYLAYER.
- Material - resets the material of the selected entities to BYLAYER.
- Plot Style - (only in drawings with plot styles) resets the plot style of the selected entities to BYLAYER.
- Transparency - resets the transparency value of the selected entities to BYLAYER.

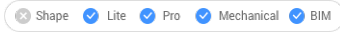
Note: The settings are saved through the SETBYLAYERMODE system variable.



Note: The Plotstyle option is available for STB drawings only. See the CONVERTCTB and CONVERTPSTYLES command.

24.28 SETLICENSELEVEL command

Changes the available commands by setting the license type.



24.28.1 Description

Runs BricsCAD and/or Communicator at different license levels, which affects the commands that are available to the user. For the new license level to take effect, users must exit BricsCAD and then start it again.

24.28.2 Methods

There are two methods to change the license level:

- Change the license level of BricsCAD.
- Change the license level of Communicator.

24.28.3 Options

Run BricsCAD at another license level

- Run BricsCAD as: Lite - runs BricsCAD without 3D functionalities, except API and LISP.
- Pro - runs BricsCAD without BIM and Mechanical commands.
- Bim - runs BricsCAD with Pro and BIM commands.
- Mechanical - runs BricsCAD with Pro and Mechanical commands.
- Ultimate - runs BricsCAD with full functionalities, including BIM and Mechanical commands.

Run Communicator at another license level

- Run Communicator with: No license - disables Communicator.
- Trial - stops running Communicator after 30 days.
- Full - runs Communicator normally.

24.29 SETTINGS command

Opens the Settings dialog box.



Icon:

24.29.1 Description

Opens the Settings dialog box to view and modify system variables. Most, but not all, system variables are available in the Settings dialog box. You can modify all system variables using the SETVAR command.

24.30 SETTINGSSEARCH command

Opens the **Settings** dialog box only for a list of words specified by the user.



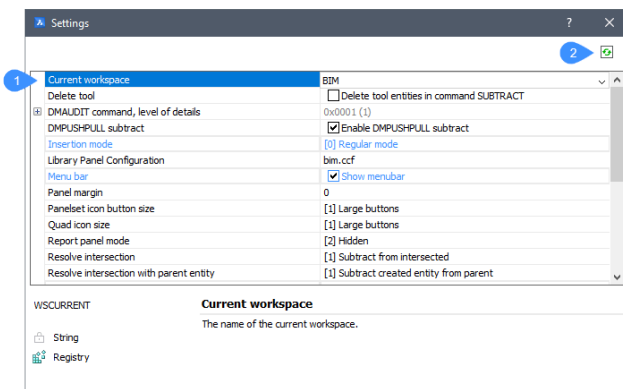
Shape Lite Pro Mechanical BIM

24.30.1 Description

Searches the **Settings** dialog box for a user-specified list of words separated by commas or semicolons, and displays only those filtered variables.

24.30.2 Methods

- 1 Enter a list of words separated by commas or semicolons. The search words will be matched to the following items:
 - Category titles
 - Variable titles, names, and values
 - Variable help text
- 2 The **Settings** dialog box will only display system variables that contain the specified words:



- 1 Search result
- 2 Toggle button

Search result

Displays the filtered system variables which contain the at least one of the specified word in the list.

Toggle button

Toggles the display of **filtered variables to all variables** in the **Settings** dialog box.

24.31 SETUCS command

Opens the User coordinate system dialog box.

Shape Lite Pro Mechanical BIM

Icon:

Alias: DDUCSP, UCP

24.31.1 Description

Opens the User coordinate system dialog box to specify a viewpoint to use for the current UCS (User Coordinate System).



24.32 SETVAR command

Displays and changes the values of system variables.



Alias: SET

24.32.1 Description

Displays and changes the values of system variables at the Command line.

Note: This command can be entered transparently: 'SETVAR.

Note: The names of system variables can also be entered directly at the Command line, without using this command.

24.32.2 Methods

There are two methods to use SETVAR command:

- Enter the name of a system variable to see its state.
- Choose to display a list that contains all the system variable.

24.32.3 Options

Variable name

Specify the name of a system variable.

?

Lists the names of system variables.

*

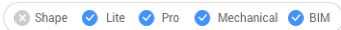
Lists all system variables.

Name*

Lists all system variables starting with Name.

24.33 SHADE command

Generates shaded images of 3D drawings.



Icon: 

Alias: SHA

24.33.1 Description

Generates shaded images of the current 3D drawing, based on the current setting of the SHADEMODE command. Shaded images are simpler versions of visual styles and rendered images.

24.34 SHADEMODE command

Specifies the shading style for the current drawing.



Shape Lite Pro Mechanical BIM

24.34.1 Description

Specifies the shading style for the current drawing to be used by the SHADE command.

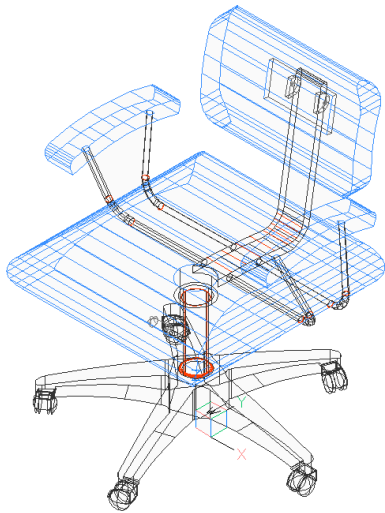
24.34.2 Options

Enter visual style

Choose the name of a preset visual style.

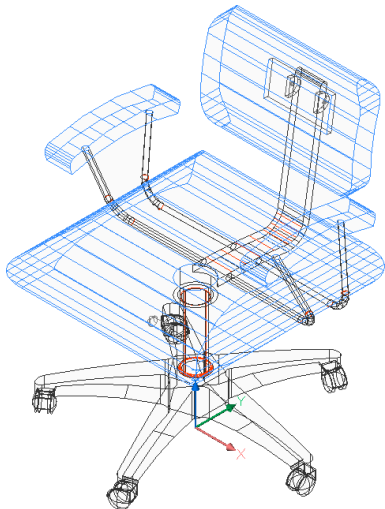
2dwireframe

Default display mode.



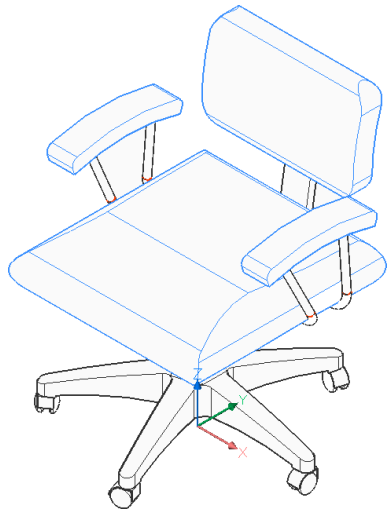
Wireframe

Wireframe, which shows all edges.



Hidden

Wireframe with hidden lines removed.



Realistic

Rendered with materials, if available.



Conceptual

Rendered with psychographic color range.



Shaded

Rendered without materials.



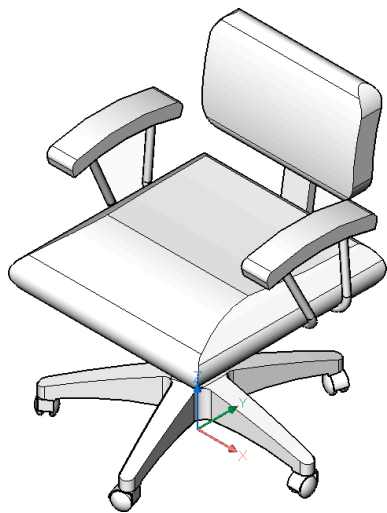
shaded with Edges

Rendered with contrasting edges, without materials.



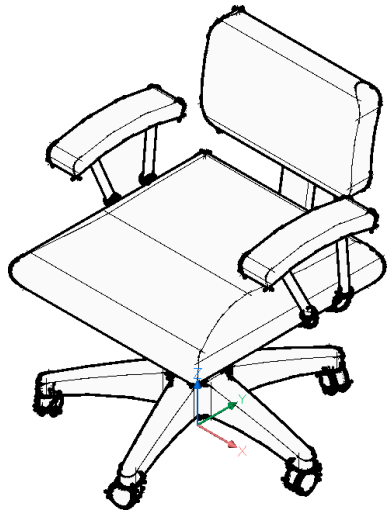
shades of Grey

Rendered in shades of gray, without colors.



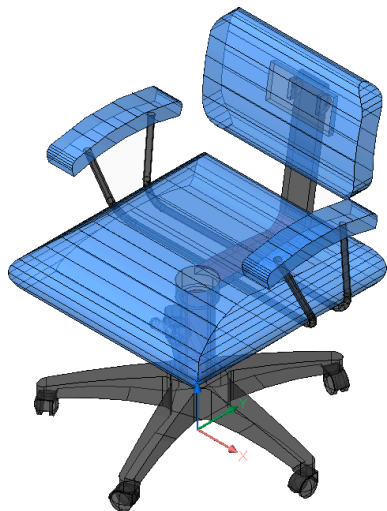
Sketchy

Rendered with rough edge lines.



X-ray

Rendered with semi-transparent faces.



Other

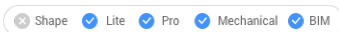
Create a new visual style.

cUrrrent

keep the current visual style.

24.35 -SHADEMODE command

Specifies the shading style for the SHADE command.



24.35.1 Description

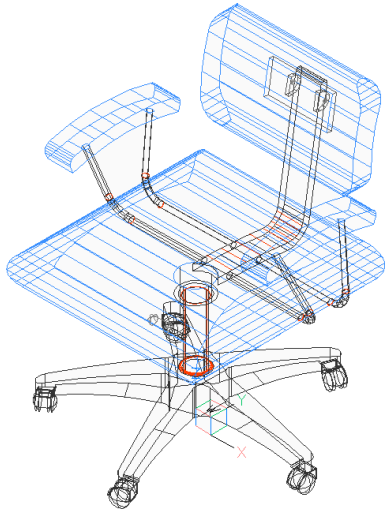
Specifies the shading style for the current drawing to be used by the SHADE command.

24.35.2 Options



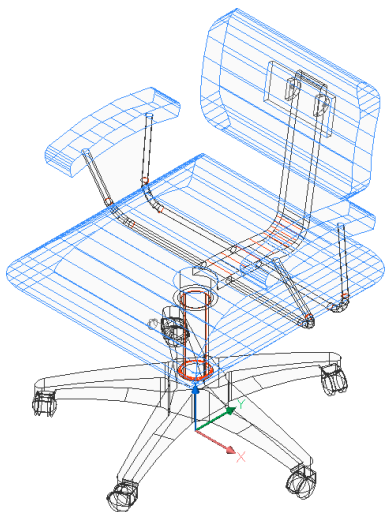
2dwireframe

Wireframe display with no shading.



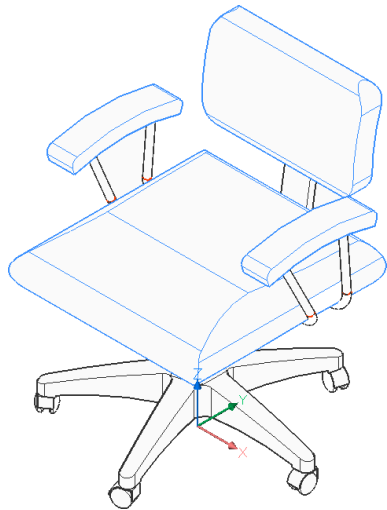
3d wireframe

Wireframe display with no shading.



Hidden

Wireframe with hidden lines removed.



Flat
Flat shading.

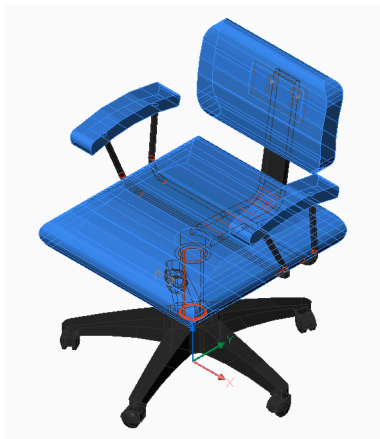


Gouraud
Smooth shading.



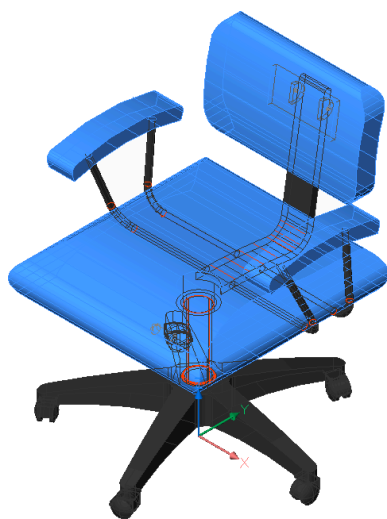
fLat+edges

Flat shading with edges highlighted.



gOuraud+edges

Smooth shading with edges highlighted.





24.36 SHAPE command

Places shapes in drawings.



Icon: ✖

Note: Before you can place shapes in drawings, you must first load a SHX shape file with the Load command.

24.36.1 Method

Enter the name of the shape and specifies the insertion point, the scale and rotation angle to place it in the drawing.

Shapes are an early version of blocks that were highly efficient but difficult to code; shapes are rarely used anymore. The SHP format is also used by certain fonts; it contains a flag to distinguish between shapes and fonts.

24.36.2 Options within the command

? to list

Lists the names of shapes loaded in the current drawing. Reports the file name and names of shapes:

Shape file: C:\temp\611.shx

HAIE BOIS

HOTALU BATALU

CLOTUR FROST

RAILS PGA

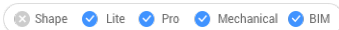
PGAE PGBR

If no shapes are loaded, reports: "No shapes loaded."

Note: Shapes can be edited through grips.

24.37 SHEETSET command

Opens the Sheet sets panel.



Icon:

Alias: SSM

24.37.1 Description

Opens the **Sheet Sets** panel to display it in the current workspace. The **Sheet Sets** panel appears at the same size and location as it did before it was closed or collapsed. Like any other dockable panel, the **Sheet Sets** panel can be either floating, docked or stacked.

24.38 SHEETSETHIDE command

Closes the Sheet sets panel.



Shape Lite Pro Mechanical BIM

24.38.1 Description

Closes the Sheet sets panel to hide it from the current workspace. If the Sheet sets panel is stacked when you close it, the Sheet sets tab or icon is removed from the stack.

24.39 SHELL command

Opens the command prompt window.

Shape Lite Pro Mechanical BIM

24.39.1 Description

Opens the command prompt window and runs other applications.

Note: This is a Windows only command.

24.39.2 Method

There are two methods to use the SHELL command:

- Specify the name of a program to run.
- Press Enter to open the command prompt window.

24.40 SHOWURLS command (Express Tools)

Displays all embedded URL addresses in the drawing and allows you to edit them.

Icon: 

24.40.1 Methods

Opens the **Show Entities with attached URLs** dialog box that allows you to show, edit and replace URL addresses.

24.41 SHP2BLK command (Express Tools)

Converts all instances of a selected shape entity with an equivalent block reference.

Icon: 

24.41.1 Method

Select a shape entity and enter the name of the replacement block.

Note: It replaces all instances of the shape with instances of the defined block.

24.42 SIGVALIDATE command

Displays the digital signatures for the drawing and its Xrefs.

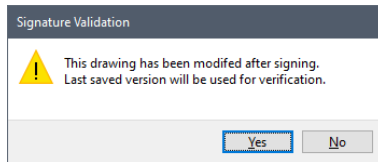
Shape Lite Pro Mechanical BIM



24.42.1 Method

Opens the Validate Digital Signature dialog box.

Note: If the current drawing was modified after the last signing, the warning message below will be displayed:



Note: The SIGWARN system variable controls the display of a dialog with the signature content when a drawing with a digital signature is opened.

24.43 SIMPLIFY command

Simplifies entities.



Icon:

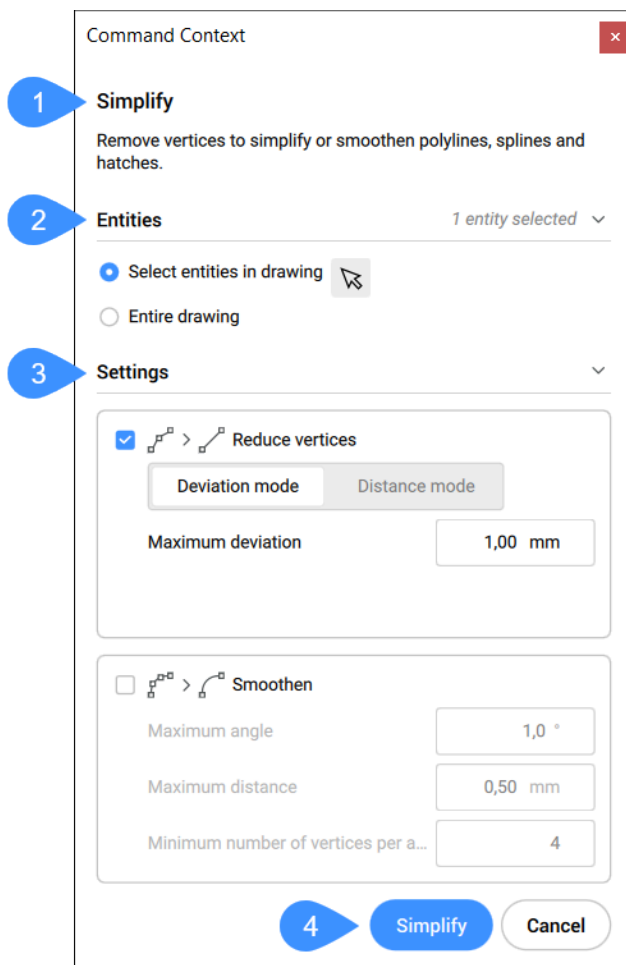
24.43.1 Description

Reduces the number of vertices of polylines, splines and non-associative hatches with geometry boundaries represented by polylines, without changing their general shape.

Note: Simplified entities are easier to manipulate and can significantly reduce file size.

24.43.2 Method

Running the command opens the **Command Context** panel for choosing the command settings.



- 1 Description
- 2 Entities
- 3 Settings
- 4 Simplify

24.43.3 Entities

Here you can toggle between the options to select the entities that will be simplified.

Select entities in the drawing

This option allows you to select entities in the drawing by clicking on them.

Entire drawing

All entities in the drawing are selected to be simplified.

24.43.4 Settings

Specifies the settings and tolerances on how the entities should be simplified. The two different options, **Reduce vertices** and **Smoothen**, can be toggled on or off.

Note: polylines that contain arcs are never simplified.



Reduce vertices

Reduces the number of vertices by combining segments. There are two modes to reduce vertices:

- 1 **Deviation mode:** removes vertices that fall inside the Maximum deviation to convert segments into a single straight segment. This method is available for lw/2d polylines and splines.

Maximum deviation

Specifies the maximum arc's length between each two adjacent vertices and maximum arc's angle between each two adjacent vertices.

- 2 **Distance mode:** removes vertices, if the variation in angle between the segments is smaller than Maximum angle, to convert segments into a single straight segment, shorter than Maximum distance. This method is available for lw/2d polylines, hatches and 3d polylines.

Maximum angle

Specifies the maximum change (angle) in a direction between each two consecutive segments to straighten.

Maximum distance

Specifies the maximum distance between non-collinear vertices to straighten.

Smoothen

Controls whether consecutive straight segments (at least three), of which the endpoints lie on an arc, are replaced by a bulged polyline segment.

Maximum angle

Specifies the maximum arc's variation in angle between each two adjacent segments.

Maximum distance

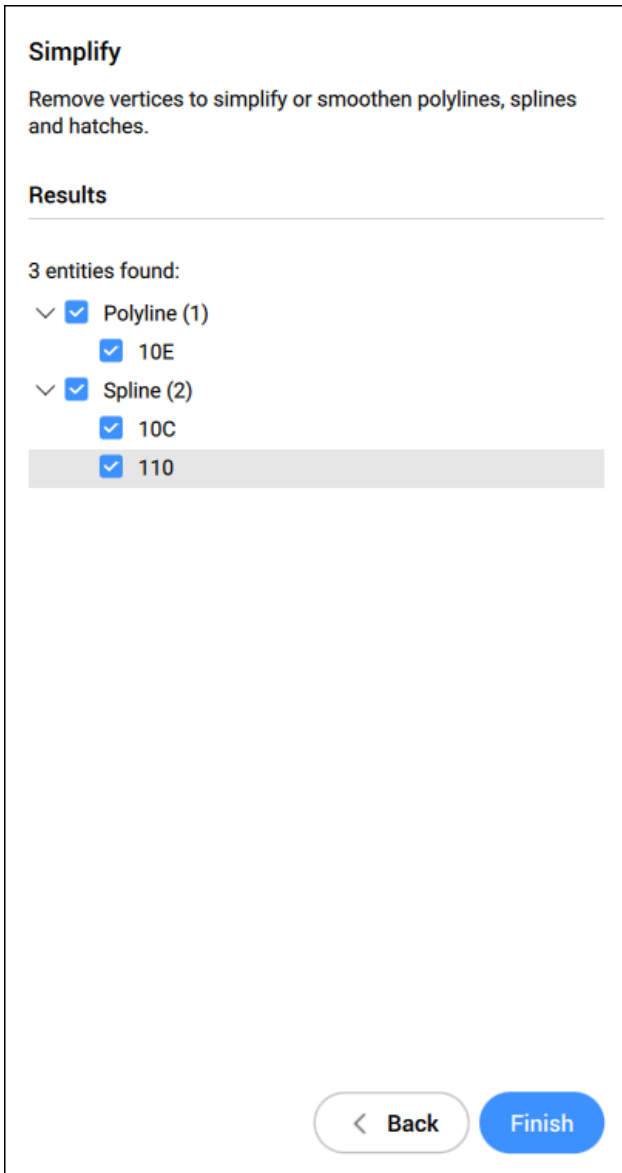
Specifies the maximum arc's length between each two adjacent vertices.

Maximum number of vertices per arc

Specifies the minimum number of vertices per arc.

24.43.5 Simplify

After clicking **Simplify**, the panel shows a new screen:



The entities that can be simplified according to the settings are listed here. You can uncheck the entities that should not be simplified. A preview of the simplified entities is shown in the model space when the entities are checked on.

Click **Back** to edit the settings or click **Finish** to simplify the selected entities and close the command.

24.43.6 Options within the command line

Apply

Applies the settings on the selected entities.

Finish

Closes the command.

Back

Goes back to the options overview.



change Input selection

Change the selected entities.

Note: The options here are similar to those found in the command context panel's **Entities** section.

change Settings

Allows you to change the settings of the **Reduce vertices** and **Smoothen** modes through the command line.

Note: The options here are similar to those found in the command context panel's **Settings** section.

24.44 SINGLETON command

Determines whether (or not) multiple copies of BricsCAD can run at the same time.



Note: This command can be entered transparently during commands ('singleton').

24.44.1 Options within the command

Yes

Allows only one copy of BricsCAD to run.

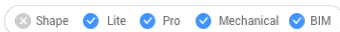
No

Allows two or more copies of BricsCAD to run.

Note: Some third-party applications run only in a single instance of BricsCAD.

24.45 SKETCH command

Creates lines or polylines from a freehand sketch.



Icon:

Alias: FREEHAND

24.45.1 Description

Creates a series of individual lines or a polyline by sketching freehand.



24.45.2 Methods to begin a sketch

This command has 1 method to begin creating a sketch:

- Length of sketch line segments

Length of sketch line segments

Begin creating a sketch by specifying the length of the sketch line segments. A small segment length creates a smoother sketch but increases the size of the drawing. The length is saved in the SKETCHINC variable.

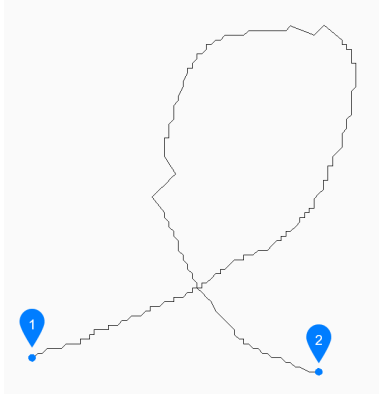


Press ENTER or click to toggle

Press the Enter key or click the left mouse button to lower the pen. The cursor changes to a pen, automatically sketching as you move it.

Press ENTER or click to toggle

Press the Enter key or click the left mouse button to raise the pen. You can move the cursor without drawing.



- 1 Pen up
- 2 Pen down

You can continue raising and lowering the pen to create unlimited sketches until you press X or Q to end the command.

Additional options: [Erase/Connect/save and eXit/Quit no save/Record (save)]

24.45.3 Options within the SKETCH command

After you begin creating a sketch, the following options may be available:

Erase

Erase sketch lines sequentially by dragging the cursor along the sketch from either endpoint. Click the left mouse button to stop erasing and start sketching.

Connect

Continue to the last sketch point, after raising the pen, by passing the cursor over the end of the previous segment.

Save and exit

Save the sketch and end the command. Each continuous sketch is saved as a series of individual lines or a polyline based on the SKPOLY variable.

Quit no save

Exit the command without saving the sketch.

Record (save)


Save the current sketch without ending the command, allowing you to continue sketching.

24.46 SLICE command

Creates 3D solids and surfaces by cutting existing entities.



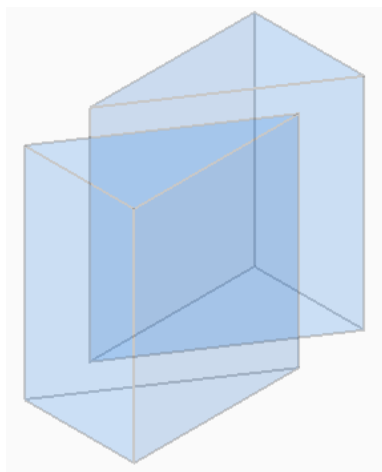
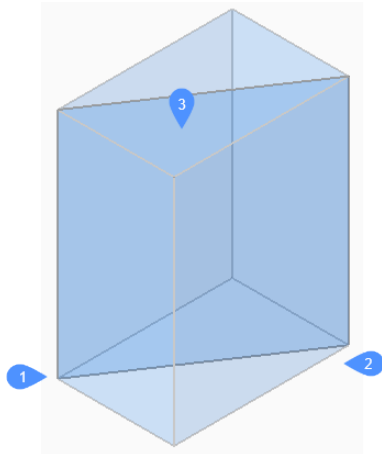


Icon: 

Alias: SL

Note: Ensure that the Select Faces option of the SELECTIONMODES system variable is on to be able to use a planar 3D solid as the slicing plane.

24.46.1 Method



Specifies the entities that will be sliced. Choose one or more 3D solids or surfaces.

Note: This command does not work with 2D regions.

Specify the first (1) and the second (2) point on slicing plane and choose to keep only one of the parts (3) or both. The section plane is perpendicular to the XY-plane of the World coordinate system (WCS):

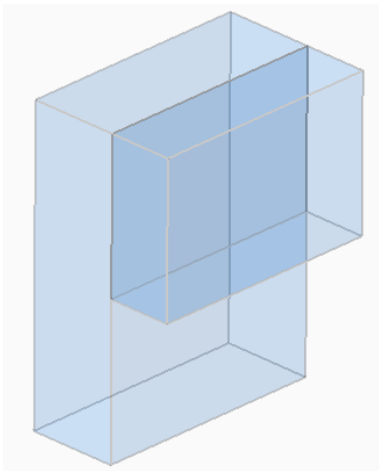
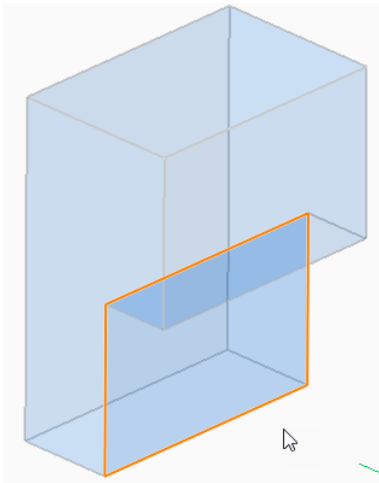
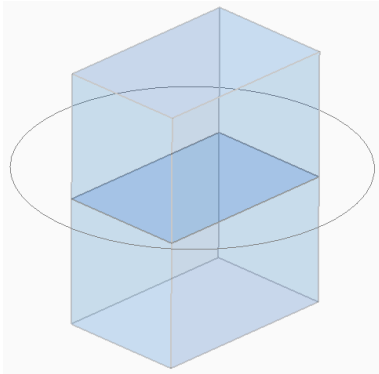
The sliced entity can be manipulated as independent entities.

24.46.2 Options within the command



Object

Slices solids and surfaces with an intersecting entity (circle, ellipse, arc, 2D-spline, 2D-polyline, planar 3d Solid face, planar Surface face, or planar region). The entity defines the plane that slices the 3D selected entities.



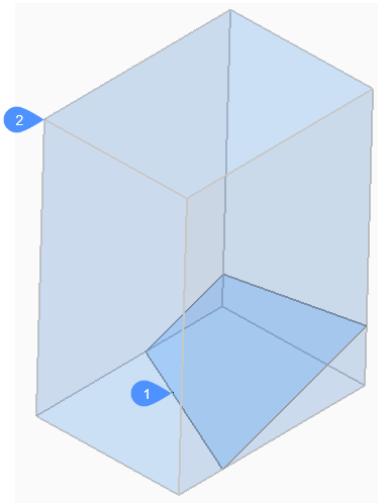
Surface

Slices solids and surfaces with a surface.



Zaxis

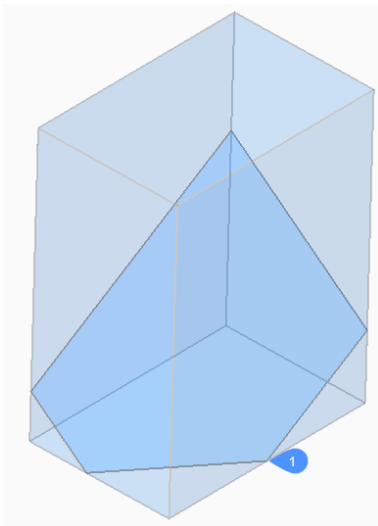
Slices solids and surfaces with a plane perpendicular with a line defined by one point on the plane (1), and a second point on the plane's normal axis (z axis) (2).



View

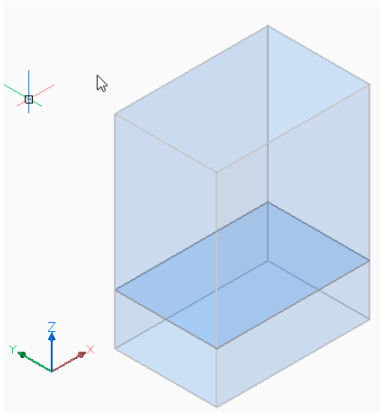
Slices solids and surfaces with a plane defined by the current 3D viewpoint.

The section plane is perpendicular to the view direction and passes through the picked point.



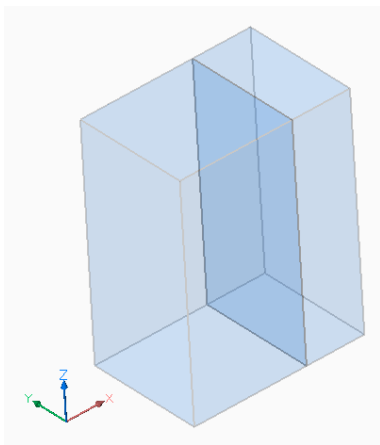
XY

Slices solids and surfaces with a plane parallel to the XY-plane of the current coordinate system.



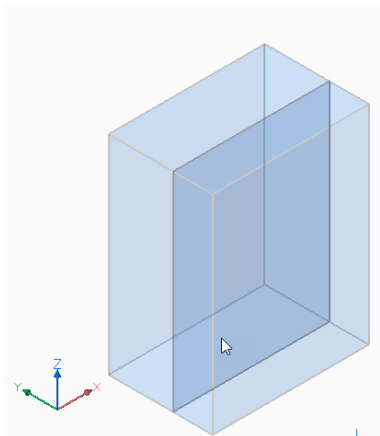
YZ

Slices solids and surfaces with a plane parallel to the YZ-plane of the current coordinate system.



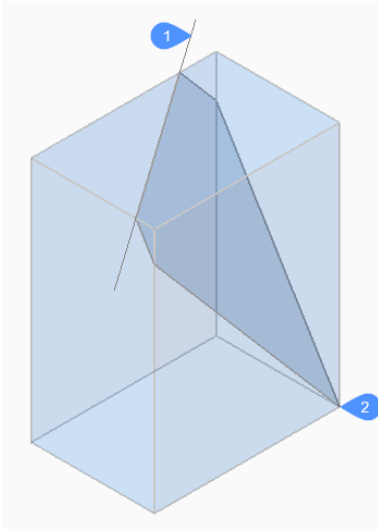
ZX

Slices solids and surfaces with a plane parallel to the ZX-plane of the current coordinate system.



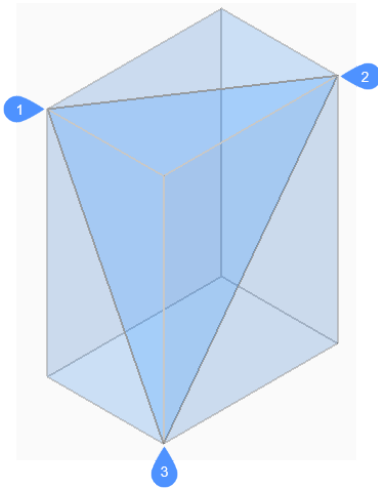
Line-point

Slices solids and surfaces with a plane defined by a linear entity (1) and a point (2).



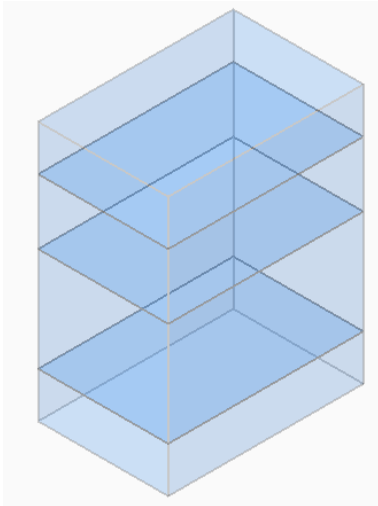
3points

Slices solids and surfaces with a plane defined by three points.



Multislice

Slices solids and surfaces in more than one piece using a face and specifying the distance between slices.


**Both**

Retains both parts.

24.47 SMASSEMBLYEXPORT command

Searches the assembly structure of the current drawing for 3D solids, mechanical blocks and external references within a component and applies the SMCONVERT and SMEXPORT2D commands.



Icon: 

24.47.1 Method

The result of this command is a set of .dxf files with unfold information saved in a user-defined output folder and sorted by thickness. Parts processed with command warning or errors are placed in a special folder. An HTML report listing all the solids in the assembly is generated. This indicates their statuses and links to the corresponding .dwg and .dxf files. The HTML report uses names of mechanical solids instead of their handles when possible.

Note: SMASSEMBLYEXPORT can be applied to mixed assemblies containing both sheet metal and non-sheet metal parts. It quickly sorts out non-sheet metal parts from sheet metal parts.

The solid classification is as follows:

- Sheet Metal – solid is a sheet metal part.
- Poor Sheet Metal – solid looks like a sheet metal design, user assistance and rework are needed.
- Not Sheet Metal – solid is not recognized as a sheet metal design.

Note: SMASSEMBLYEXPORT can be applied to simple drawings with solids, to assemblies created in BricsCAD and to drawings imported with the Communicator for BricsCAD.

Note: For optimal processing, set the IMPORTPRODUCTSTRUCTURE system variable to 2, otherwise mechanical components will be exploded to solids, increasing processing time.



Note: For optimal performance set the Visual Style to 2dWireframe.

24.47.2 Options within the command

Output folder

Specifies the output folder.

bend Table

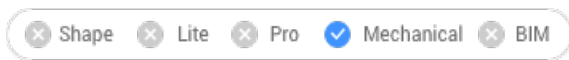
Assigns a bend table used during the SMEXPORT2D call in the output process.

Dxf version

Specifies the DXF version.

24.48 SMBEAD command

Creates associative Rib form features on sheet metal.



Icon:

24.48.1 Description

Creates associative Rib form features on sheet metal parts from 2D profiles. The feature is updated automatically when its defining profile is changed.

The difference with linear rib features inserted from the library by BMINSERT command is that rib features created by the SMBEAD command can have an arbitrary trajectory.

24.48.2 Method

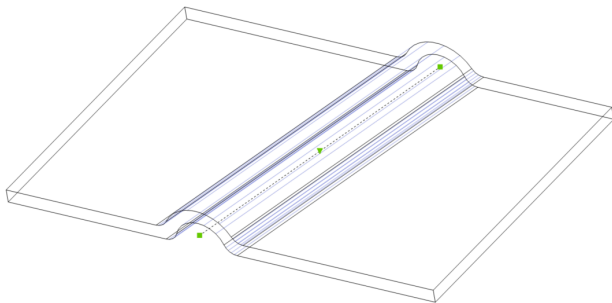
There are two methods to select a control curve along which the rib will be created:

- Specify a profile radius.
- Specify a round radius.

24.48.3 Options within the command

Select control curve

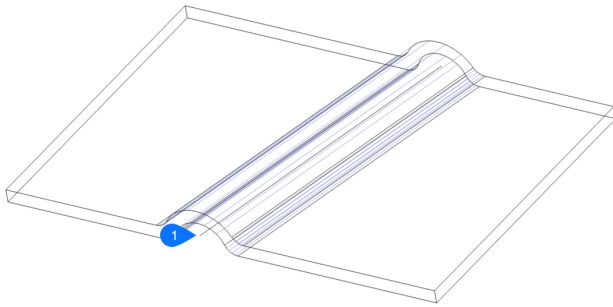
Selects a control curve along which the rib will be created. The selected curve can be a line, polyline, circle, arc, ellipse, elliptical arc or a spline. The 2D curve can be open or closed but it cannot intersect itself or other form features.





Profile radius

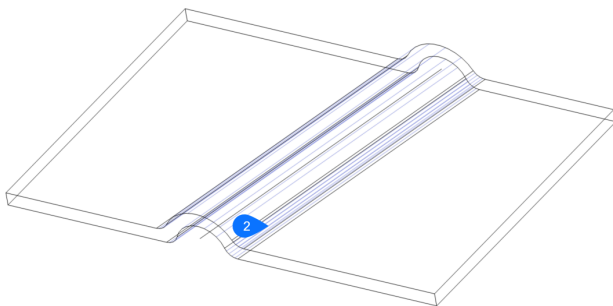
Sets the radius of the rib profile (1).



Note: The initial value of the Profile Radius is taken from the **Mechanical Browser for Sheet Metal** or from the **Bead feature** in **Settings > Initial Parameters**.

Round radius

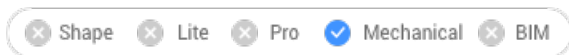
Sets the radius of the smoothing fillets (2).



Note: The initial value of the Round Radius is taken from the **Mechanical Browser for Sheet Metal** or from the **Bead feature** in **Settings > Initial Parameters**.

24.49 SMBEND command

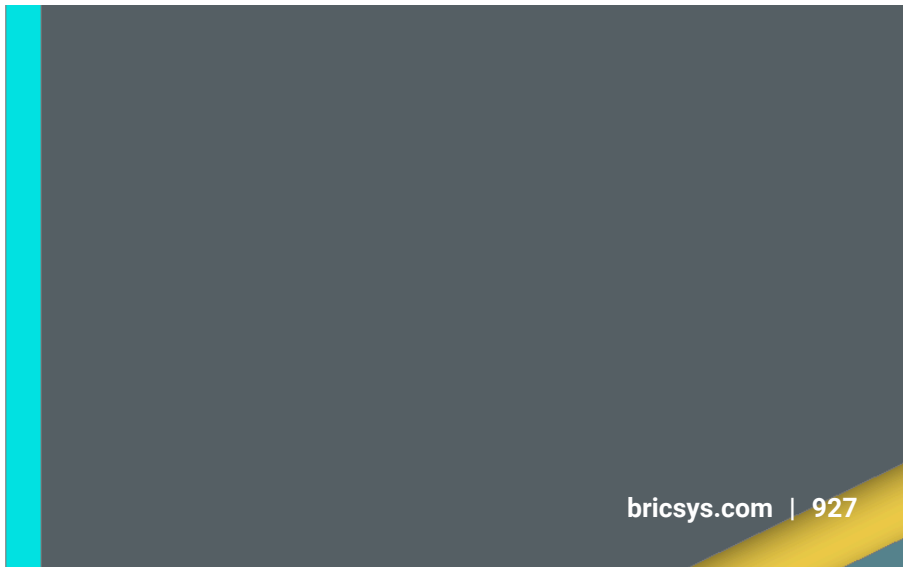
Converts hard edges (sharp edges between flange faces) or junctions into bends.



Icon:

24.49.1 Method

Select hard edges, junctions, flanges or 3D solids.





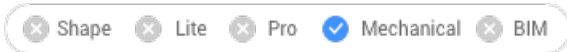
24.49.2 Options within the command

Entire Model

Detects and converts hard edges or junctions in the entire model.

24.50 SMBENDCREATE command

Converts hard edges (sharp edges between flange faces) or junctions into bends.

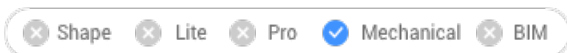



24.50.1 Description

This command is obsolete. Use the *SMBEND* command instead.

24.51 SMBENDSWITCH command

Converts bends to lofted bends.



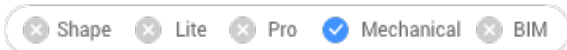
Icon: 

24.51.1 Description

Allows selecting bend faces which will be transformed into lofted bends.

24.52 SMCONVERT command

Automatically recognizes sheet metal features.



Icon: 

24.52.1 Description

Automatically recognizes flanges, bends, lofted bends, ribs, form features and holes for selected 3D solids.

24.52.2 Options within the command

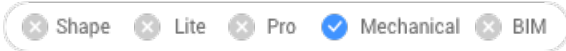
Entire Model

Applies the command to the entire model.

Note: All the solids in the model are analyzed and if possible, converted to Sheet Metal bodies. The command recognizes sheet metal features (such as flanges and bends) in the input geometry. The body thickness of the sheet metal drawing is the criteria in case multiple solids are selected. Therefore, selected bodies must have the same thickness, otherwise an error message displays in the command window.

24.53 SMDELETE command

Removes features from sheet metal elements.



Icon:

24.53.1 Description

Removes a bend or a junction by restoring a hard edge between two flanges. This command can also remove a flange with all the bends adjacent to it and it can remove miter by restoring geometry being cut by the feature.

The adjacent flanges are extended up to a junction configuration with the flange being deleted.

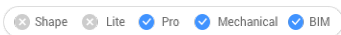
24.53.2 Method

There are two methods to replace features by hard edges:

- Select feature faces.
- Select thickness faces.

24.54 SMDISSOLVE command

Removes the sheet metal data from the selected features.



Icon:

24.54.1 Description

Dissolves sheet metal feature on 3D solid faces. Dissolved features are no longer listed in the Mechanical Browser. Faces of dissolved features can be moved, rotated or push-pulled freely.

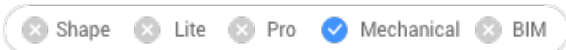
24.54.2 Method

There are two methods to remove sheet metal data from features:

- Select faces on model.
- Remove from the entire drawing.

24.55 SMEXPLODE command

Converts bends, forms, hems, jogs, junctions and tabs into their possibly primitive features and removes the original feature.



Icon:



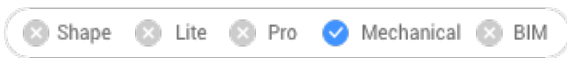
24.55.1 Method


The feature is either decomposed into some primitives (i.e. a form feature into bends and flanges), or separated into several ones of the same type (i.e. a bend with hole into two bends):

- Bend containing several connectivity components into a list of bend features;
- Junction with several components into several junction;
- Form into flanges and bends;
- Jog into flanges and bends;
- Hem into flanges and bends;
- Tab into multiple junctions;

24.56 SMEXPORT2D command

Exports the unfolded representation of a sheet metal body.

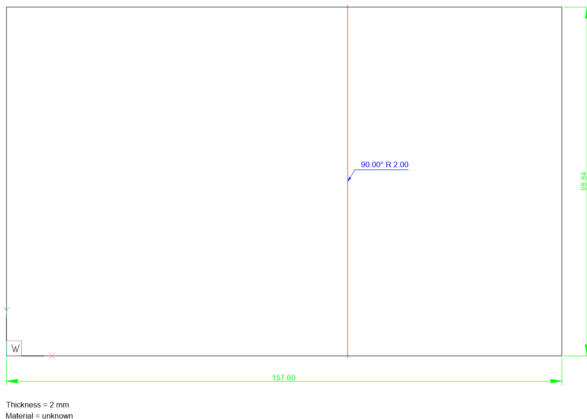


Icon: 

24.56.1 Description

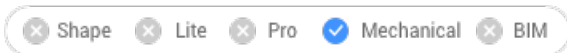
Exports the unfolded representation of a sheet metal body as a 2D profile in .dxf / .dwg file format.

Displays the Save unfolded 2D entities dialog box. Here you can save the 2D profile file.



24.57 SMEXPORTOSM command

Exports a sheet metal solid to an Open Sheet Metal (.osm) file format.



Icon: 

24.57.1 Description

Reinterprets the supplied sheet metal model as an OSM part to be saved in an *.osm document.



The command is side-sensitive. It unfolds and scales the unfolded planes for each feature and then it connects these plane parts in accordance with the original model in the resulting *.osm document.

The .osm part is saved as mm- or inch-based, depending on the value of the document MEASUREMENT system variable. Document INSUNITS are considered for proper scaling.

The custom properties of all mechanical objects are imported into the OSM document and the OSM tags.

Note: You can set the accuracy of the approximation and the minimal edge length in the units of the document.

24.57.2 Options within the command

add Decorations

Exports non-sheet metal parts in the same .osm part.

add 2D entities

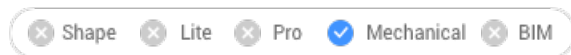
Exports 2D entities in the same .osm part.

set Layer

Specifies the layer where the 2d entities will be stored.

24.58 SMEXTRUDE command

Creates sheet metal part by extruding a planar polyline.



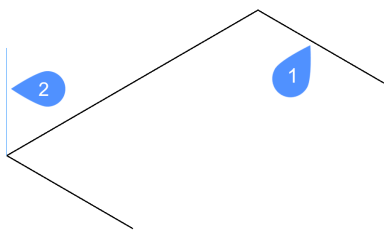
Icon:

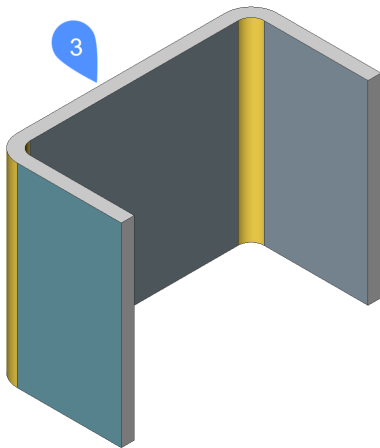
24.58.1 Description

Creates sheet metal part from a planar polyline by extruding it orthogonally to the plane of the polyline.

24.58.2 Method

Select a planar polyline and specify the height of extrusion.





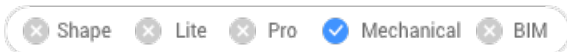
- 1 Planar polyline
- 2 Extrusion direction
- 3 Extruded polyline

The thickening direction of the extruded surface is applied for each flange separately, to preserve the overall dimensions of polyline.

The overall dimensions of the Sheet Metal part match the dimensions of the extruded polyline.

24.59 SMFLANGE command

Creates a base (initial) flange.



Icon:

24.59.1 Description

Creates a base (initial) flange of a sheet metal part from a closed planar profile.

Note: A base flange is created for each selected closed polyline or region. In the **Mechanical Browser** a body and a flange are added for each entity.

24.59.2 Options within the command

Up

The flange is extruded on top of the base entity.

Middle

The flange is extruded on both sides of the base entity.

Down

The flange is extruded below the base entity.

Note: If the **Hot Key Assistant** is toggled ON, you can cycle the various option by pressing the Ctrl key.

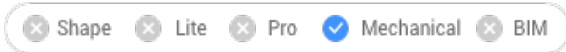
Accept model

Accept the current extrusion.



24.60 SMFLANGEBASE command

Creates a base (initial) flange.

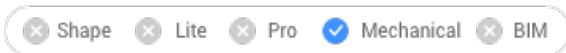


24.60.1 Description

This command is obsolete. Use the *SMFLANGE* command instead.

24.61 SMFLANGEBEND command

Allows to bend an existing flange along a line, obeying the k-factor for given bend radius.



Icon: 

24.61.1 Options within the command

New line

Allows to draw a line to define the bend location.

Angle

Specifies the bend angle.

Radius

Specifies the bend radius.

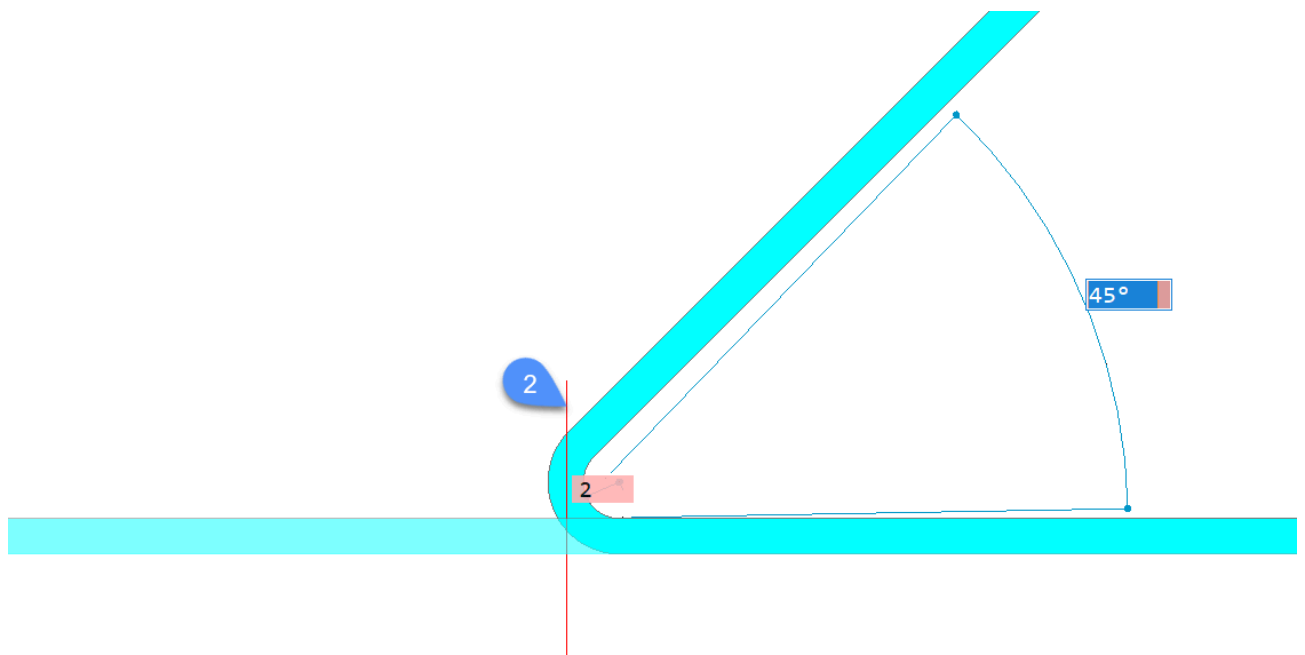
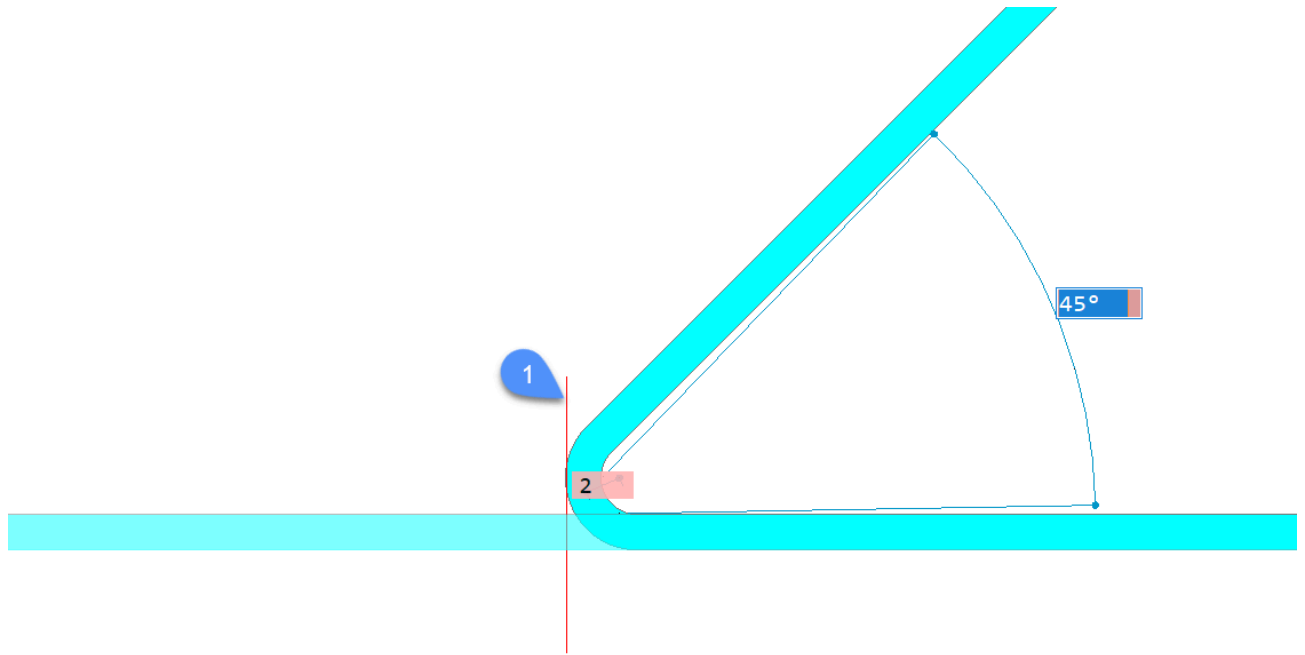
Note: The default bend radius is defined by the Modeling/Bend Radius property in the Mechanical Browser for Sheet Metal.

Switch sides

Allows to move the part of the flange on the other side of the line or edge.

Toggle bend extents

Toggles between keeping the bend extents (1) or not (2). Default is not.





ACcept

Creates the bend at the current angle and radius.

24.62 SMFLANGECONNECT command

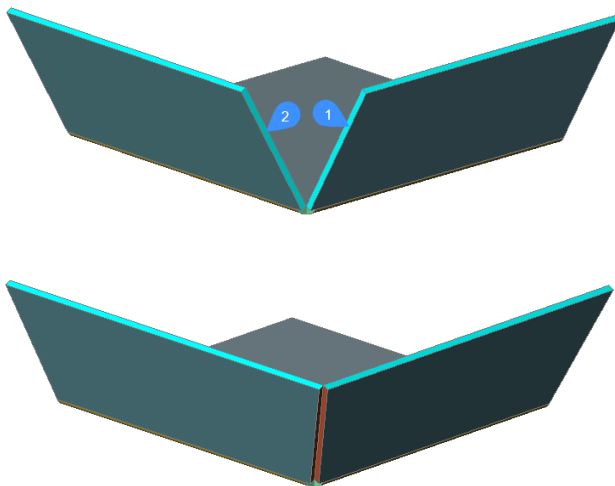
Closes gaps between two arbitrarily oriented non-coplanar flanges.



Icon:

24.62.1 Method

Select planar thickness faces of two flanges to connect them.



Note: If SELECTIONPREVIEW system variable is 2 or 3, thickness faces of flanges are highlighted. Press the TAB key to select obscured faces.

24.63 SMFLANGECONTOUR command

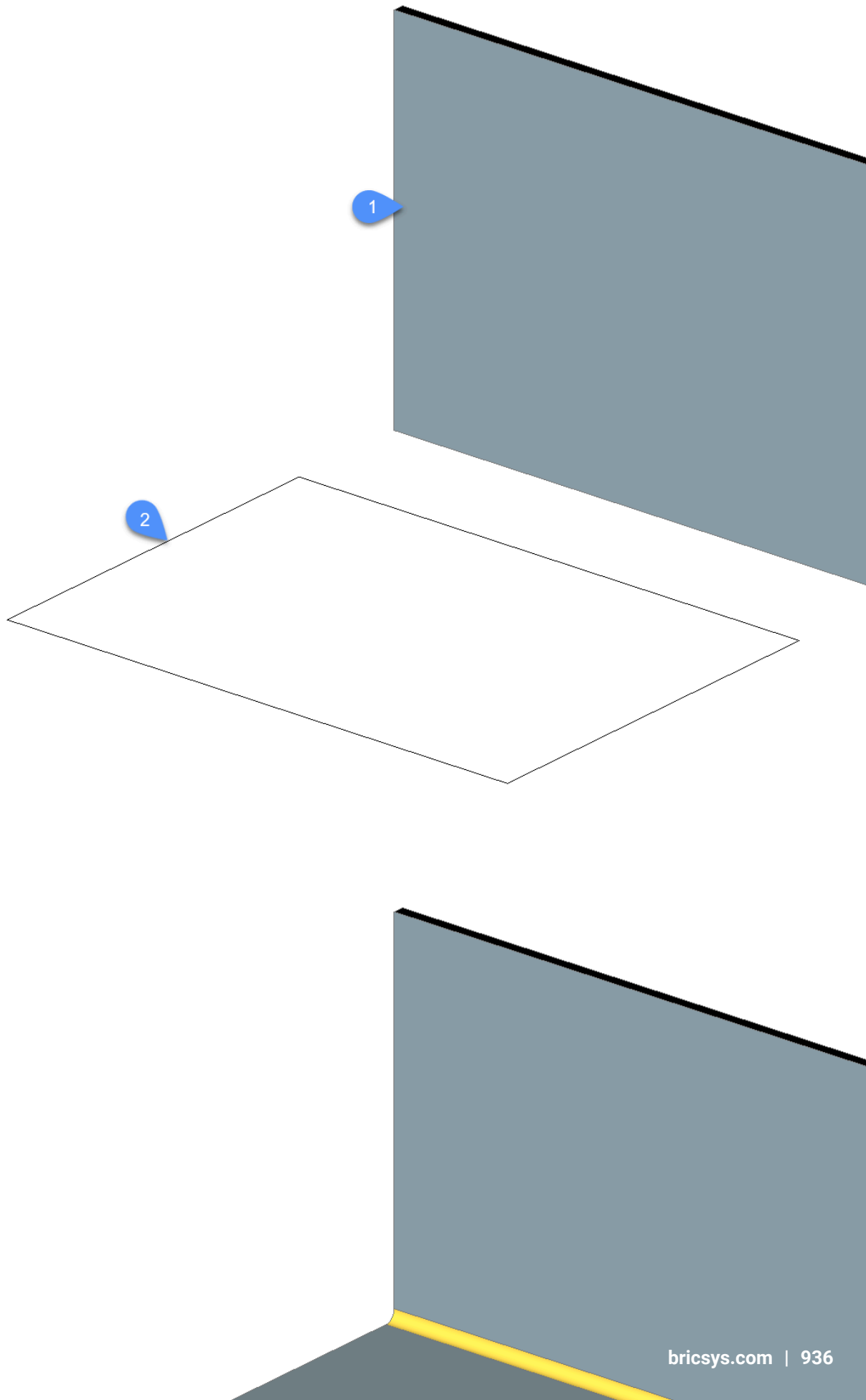
Creates a new flange from a closed contour and attaches it to an existing sheet metal part.



Icon:

24.63.1 Description

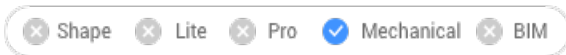
Extrudes a flange from a contour and connects it with selected flanges via bends.





24.64 SMFLANGEEDGE command

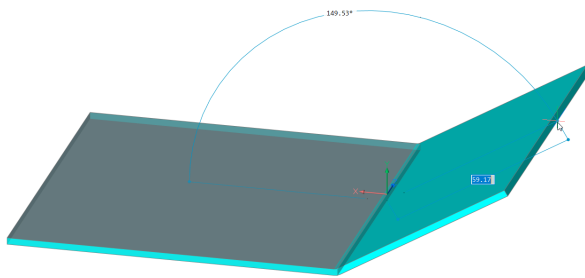
Creates flanges to a sheet metal part.



Icon:

24.64.1 Description

Creates one or more flanges to a sheet metal part by pulling one or more edges of an existing flange or lofted bend.



24.64.2 Options within the command

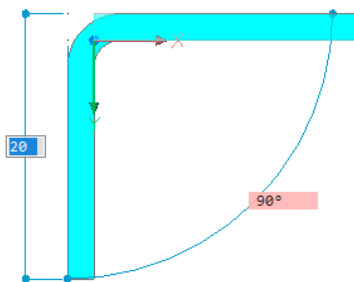
Dynamic dimensions

Creates a new flange using the dynamic dimensions of the height and angle of the new flange or by positioning the location.

Note: Use the Tab key to switch between the height and angle field.

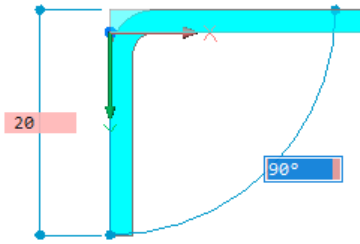
Material Outside

Creates a flange shifted by one material thickness to the outside.



material Inside

Creates a flange preserving the external dimensions of the parent flange.



Angle

Allows you to first define the angle of the flange, then the height.

Length

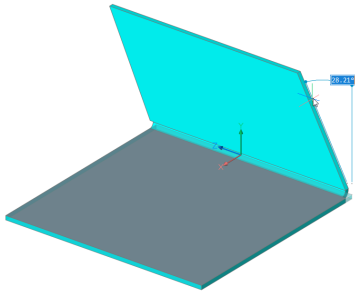
Allows you to first define the length of the flange, then the angle.

Radius

Defines the radius of the bend connected to the new flange.

Taper Angle

Creates a flange with one or two tapered side faces.



Note: This option is not available if multiple edges are selected.

Back

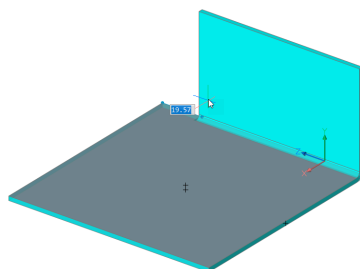
Goes back to the previous prompt.

Skip

Keeps the flange side orthogonal instead of tapering it.

Width

Allows to define a different width than the length of the selected edge. By default, the flange width equals the length of the selected edge.



Note: This option is not available if multiple edges are selected.



Back

Undoes the current width procedure.

Skip

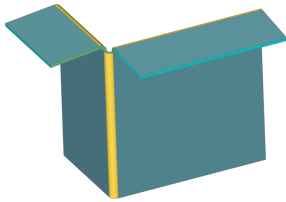
Keeps the side edge of the flange at the end point of the edge.

Toggle connection

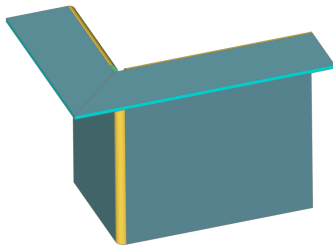
Toggles between different connection options when creating several flanges simultaneously.

Note: The toggle connection is only available when at least two adjacent edges are selected.

No connection



With connection



Note: Use the Ctrl key to cycle through the options. Make sure that the Hot Key Assistant (HKA field in the Status bar) is ON.

Note: If TIPS = ON, the currently selected option is indicated in the Tips widget at the bottom of the screen.

set Direction

Defines the angle of the flange by specifying a direction to be parallel to.

2Points

Defines the direction by specifying two points.

Xaxis

Uses the X axis as direction.

Yaxis

Uses the Y axis as direction.

Zaxis

Uses the Z axis direction., if suitable.

Entity

Defines the direction by selecting an axial entity (e.g. linear edges or planar faces).

Last

Uses the last used direction.



View

Uses the Z direction of the view.

24.65 SMFLANGERROTATE command

Rotates a selected flange of a sheet metal part.

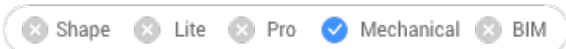


24.65.1 Description

This command is obsolete. Use the *SMROTATE* command instead.

24.66 SMFLIP command

Swaps sides of a selected flange.



Icon:

Swaps sides of a selected flange so that reference faces are on the other geometric side of the flange. Optionally shifts the flange over the thickness of the sheet metal part.

24.66.1 Method

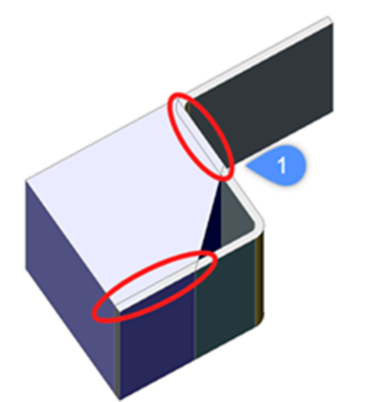
Select a 3D solid or a flange face or press Enter to flip sides for all flanges.

24.66.2 Options within the command

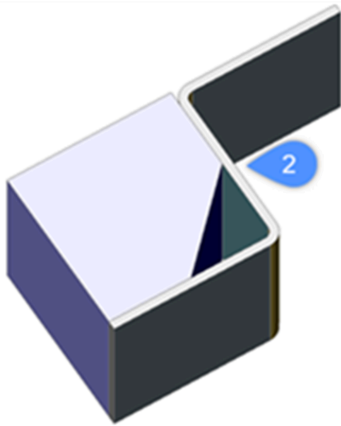
Flip reference side only

Turns OFF the shift of flanges by thickness, in this mode reference sides for selected flanges are just swapped.

Note: Changing reference faces with shift by thickness might be necessary if SMEXTRUDE command creates flanges which collide with another solid.



1. Collisions between a solid and sheet metal flanges.



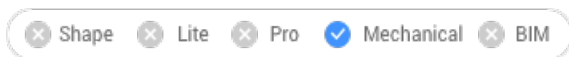
2. Collisions solved after applying SMFLIP.

Entire Model

Applies flip operation to all flanges in the drawing.

24.67 SMFORM command

Converts a selected set of faces to a form feature.



Icon:

24.67.1 Method

This command converts a selected set of faces to a form feature or explodes form features into flanges and bends:

In Create mode, the command allows you to define a form feature by selecting the faces manually.

Note: This can be necessary if automatic recognition by SMCONVERT does not produce the expected result.

For example: if you insert and dissolve the **Cardguide** form feature from the library, SMCONVERT recognizes two forms features because their geometry is separated. A manual selection of the form feature faces when executing SMFORM solves the problem.

Note: Form features created by SMFORM have the same set of basic operations as if they were created by BMINSERT or recognized by SMCONVERT.

In Explode mode, the command dissolves the form feature and tries to recognize its geometry as flanges and bends. This can be helpful if SMCONVERT incorrectly recognizes the design as a form feature.

24.67.2 Options within the command

Create new form feature

Creates new form features.

Explode form feature

Explodes existing form features into flanges and bends.

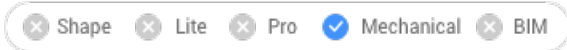
Note: At least one face of each form feature to be exploded must be selected.

COntvert to form

Allows converting bead and bevel features in forms.

24.68 SMHEM command

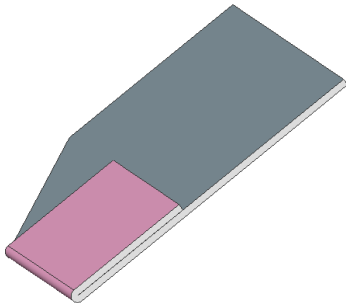
Creates one or more hem features on a sheet metal part by pulling one or more edges of an existing flange.



Icons: 

24.68.1 Method

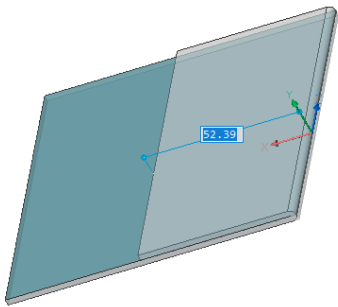
By default, the command creates closed hem.



24.68.2 Option within the command

Length

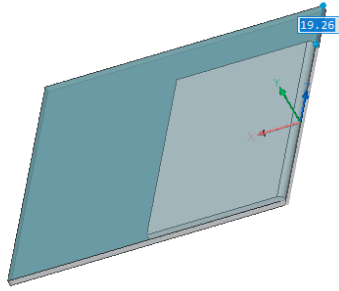
Input the length of the hem.



Width

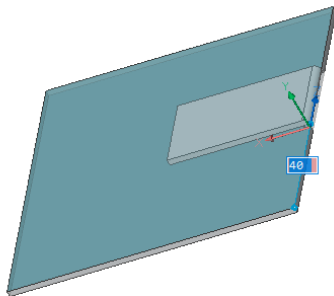
By default, the hem width is equal to the length of the selected edge. The **Width** option defines a different width.

Note: The **Width** option is not available if multiple edges are selected.



Skip

Keeps the distance value for the first side edge of the flange at the start point of the edge and switch the dynamic field to define the offset from the end point of the edge.

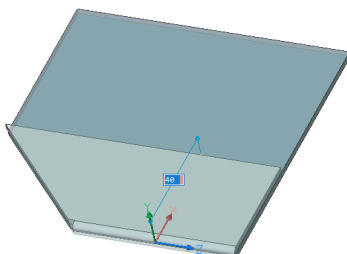
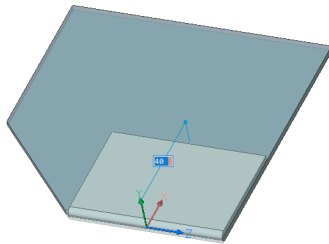


Back

Undoes the current **Width** procedure.

Toggle tapering

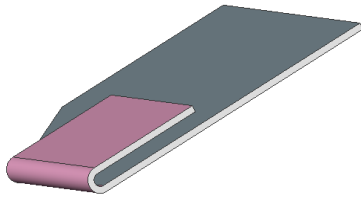
Toggle how a new hem fits the border of an existing flange. Two variants are possible: The option only works if the edges of a flange at the corner are not at 90°.





open Hem

Creates an open hem.

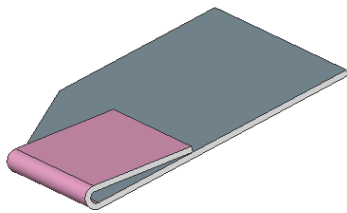


Radius

Defines the radius of the hem.

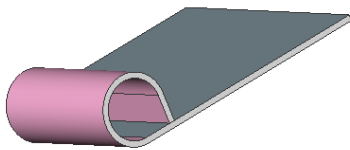
Teardrop

Creates a teardrop shape hem.



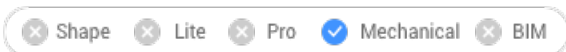
Round

Creates a round shape hem.



24.69 SMHEMCREATE command

Creates one or more hem features on a sheet metal part by pulling one or more edges of an existing flange.

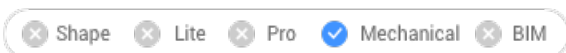


24.69.1 Method

This command is obsolete. Use the *SMHEM* command instead.

24.70 SMIMPRINT command

Splits thickness faces of a sheet metal part by imprinted edges, according to adjacent flanges and bends.

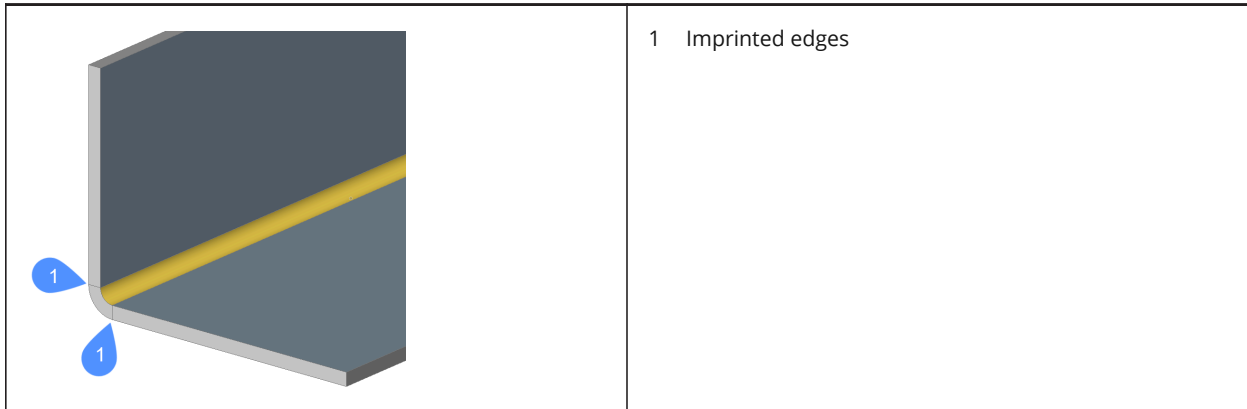


Icon:



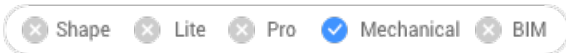
24.70.1 Description

Imprints edges on thickness faces to separate them into areas, which can be reworked automatically.



24.71 SMJOG command

Creates a jog on a flange or on cylindrical lofted bends that avoid the collision with the other extent and allowing to do the smallest cuts.

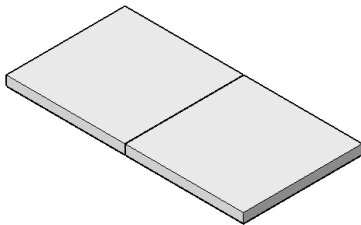


Icon:

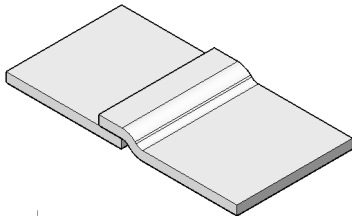
24.71.1 Method

Jog on a flange

Select an edge of a flange:



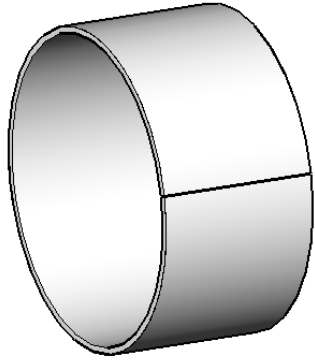
When Dynamic Input Mode (DYN) is active, type the length in the dynamic input fields.



Note: There is no collision on the other part.

Jog on cylindrical lofted bends

Select an edge of the cylindrical lofted bend.

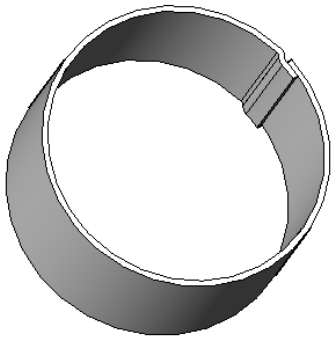


When Dynamic Input Mode (DYN) is active, type the length in the dynamic input fields.



Note: There is no collision on the other part.

Optionally, jog can be built on internal edges:



Note: If the FEATURECOLORS system variable is ON, the jogs will be displayed in the color set by SMCOLORJOG system variable.

24.71.2 Option within the command

Angle

Sets the jog angle; the default angle is 45 degrees.

Length

Sets the length of the jog. When Dynamic Input Mode (DYN) is active, type the length in the dynamic input fields.



Height

Sets the height of the jog.

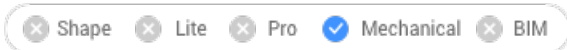
Radius

Sets the radius for the jog.

Note: The starting point to measure the above dimensions is on the selected edge.

24.72 SMJUNCTION command

Creates a junction feature on hard edges (sharp edges between flange faces) and bends or curved hard edges between two bends (or lofts).



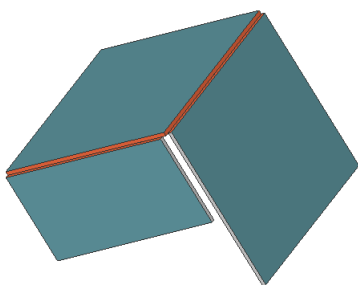
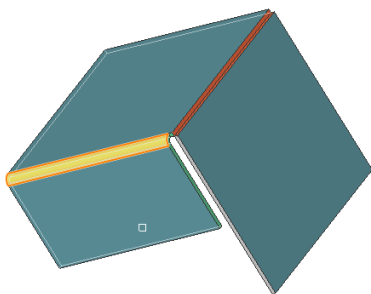
Icon:

24.72.1 Description

The "Heal coincident junction" setting (*SMJUNCTIONCREATEHEALCOINCIDENT* system variable) controls how BricsCAD recognizes junction designs with coincident faces and how they are converted to regular junctions.

24.72.2 Method

Select flanges, hard edges, bends or 3D solids. You can also select "curved" edges between flanges and bends, between flanges and lofted bends, between two bends, or between two lofts.





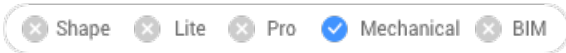
24.72.3 Option within the command

Entire model

Analyzes the entire model to detect hard edges. A curved hard edge into a curved tabbed connection of a flange and a bend (or lofted bend).

24.73 SMJUNCTIONCREATE command

Creates a junction feature on hard edges (sharp edges between flange faces) and bends or curved hard edges between two bends (or lofts).

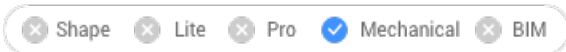


24.73.1 Description

This command is obsolete. Use the *SMJUNCTION* command instead.

24.74 SMJUNCTIONSWITCH command

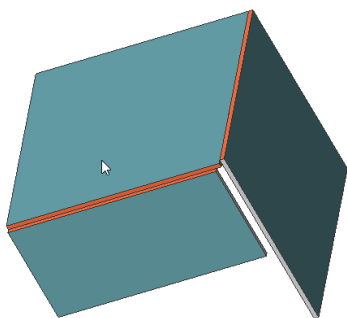
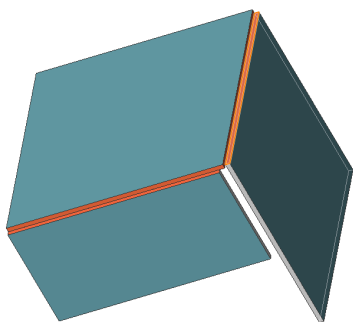
Allows changing a symmetrical junction feature to one with overlapping faces.



Icon:

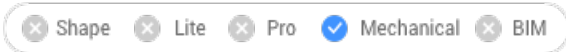
24.74.1 Method


Select the junction face (left side picture) and see how the junction is transformed (right side picture).



24.75 SMLOFT command

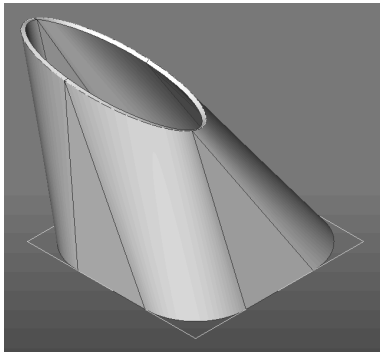
Creates sheet metal part.



Icon: 

24.75.1 Description

Creates sheet metal part with lofted bends and flanges from two non-coplanar curves.



24.75.2 Options within the command

fillets Radius

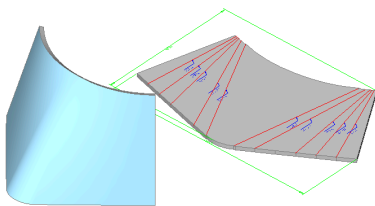
Sets radius of fillet which will be created on straight lines connections. A radius can be specified or the minimum radius can be calculated regarding the thickness of the model by pressing enter.

Thickness

Sets model thickness.

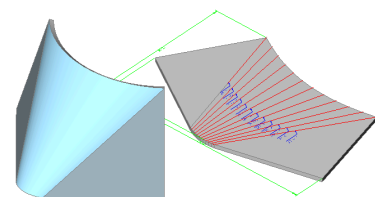
Single bend

Creates only lofted bend feature without any flanges.



Flanges with bends

Creates a flange feature for each straight segment of the selected 2D entities or a lofted bend feature for curved segments.



Alignment

After setting all options, the alignment of the metal sheet loft can be chosen.

Note: Hit the CTRL key to adjust the alignment: Inside, Both Sides or Outside.



thicken Inside

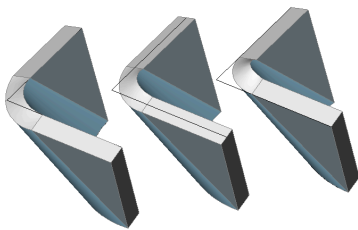
Thickening direction is selected that way that 3D part is inside the selected 2D entities.

Both sides

Thickens at both sides of the selected 2D entities.

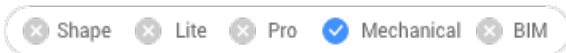
thicken Outside

Thickening direction is selected that way that 3D part is outside the selected 2D entities.



24.76 SMPARAMETRIZE command

Creates a consistent set of 3D constraint for a selected sheet metal part.



Icon: 

24.76.1 Description

Creates a consistent set of 3D constraints for a selected sheet metal part and recognizes a rectangular array of holes on flanges. The command takes into account implicit constraints from sheet metal features and ensures that the constraint system is not overdefined.

For the best results, the sheet metal part should have a complete set of features including flanges, bends, junctions and bend & corner reliefs.

Constraints can be edited in the Mechanical Browser panel.

24.77 SMQUICK command

Suggests the optimal set of splits/junctions/bends for a shelled solid.



Icon: 



24.77.1 Method

This command can be used on 3D Solids and on Sheet Metal solids.

If a 3D Solid is selected, this command can be used to:

- Create shelled solids.
- Create reliefs.
- Convert hard edges into junctions and bends.

If a Sheet Metal Solid is selected, this command recognizes its features and creates reliefs, junctions, and bends.

24.77.2 Options within the command

Enter shell offset distance

Specifies a distance.

Note: If a positive distance is entered, the body shells outwards. If a negative distance is entered, the body shells inwards.

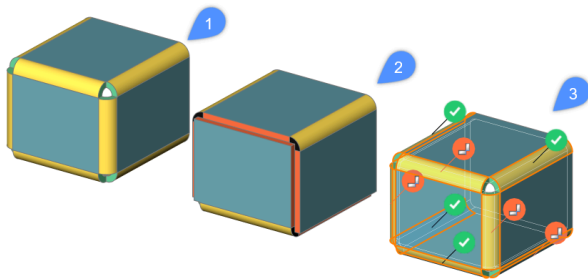
Note: If the shell offset distance is larger than 3D solid, the command fails.

Skip

Skips the creation of shelled solid and acts similar to SMCONVERT command.

Select optimization mode

Select a mode to optimize the model.



Off (1)

Creates bends for all hard edges.

Auto (2)

Creates bends, junctions and split.

Interactive (3)

Gives suggestions for bend, junctions and split using a widget interface. Choose to apply the suggested configuration or change the suggestions.

24.78 SMRELIEF command

Creates proper corner and bend reliefs.





Icon:

24.78.1 Description

Corner reliefs are built on corners which have three or more adjacent flanges. Bend reliefs are built at the start and end of a flange edge. Command supports the creation of reliefs on wrong bends.

The command automatically decides whether a relief must be created for a given bend. The size is either automatically chosen by default from the **Mechanical Browser for Sheet Metal** in the drawing or can be entered in the Command line.

In order to force the creation of bend relief for given bend, select the face of desired bend. In this case a bend will be created, even if the command decides a bend relief is not needed (i.e., it detects there are no clashes or stretches of the material).

24.78.2 Options within the command

Entire model

Creates reliefs on all hard edges, bends and corners in the entire model.

force Bend reliefs

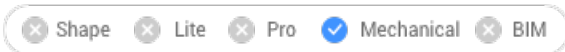
Forces bend relief creation on bends.

Auto

The command automatically detects bend radii and adjusts the relief size accordingly.

24.79 SMRELIEFCREATE command

Creates proper corner and bend reliefs.

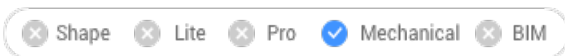


24.79.1 Description

This command is obsolete. Use the *SMRELIEF* command instead.

24.80 SMRELIEFSWITCH command

Converts corner reliefs.



Icons:

24.80.1 Description

Converts corner reliefs to circular, rectangular or V-shaped reliefs. Converts bend reliefs to smooth, round, rip or rectangular bend reliefs. This command also allows to change the parameters of existing corner reliefs.

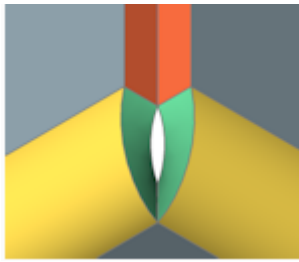
24.80.2 Options within the command



V-type



Switches the selected corner reliefs to V-type.

Note: Only corner reliefs which are related to exactly two bends can be switched to v-type.



REctangular

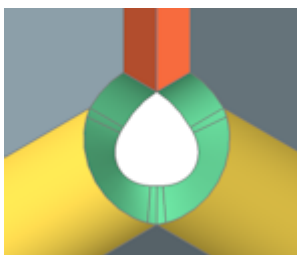
Switches the selected bend reliefs/ corner reliefs to rectangular.

Bend	Corner
	

Circular

Switches corner reliefs to circular.

Note: Only corner reliefs which are related to exactly two bends can be switched to circular reliefs.



relief Diameter

Specifies the relief diameter.

Auto

Uses the minimal diameter.



REference point

Specifies the reference point for the relief.

Middle

The reference point is at the intersection of the bend lines.

Corner

The reference point is at the circular arc through the base points of the corresponding rectangular reliefs.

from Global settings

Uses the value from global sheet metal settings of document.

SMooth

Switches the selected bend reliefs to smooth.

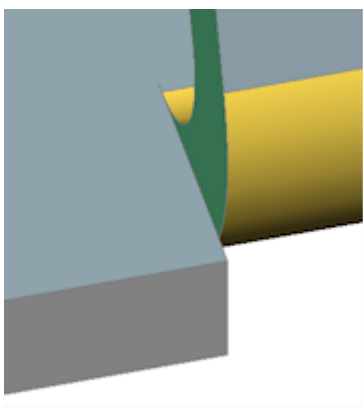
Note: Smooth bend reliefs can be applied only if the current relief type is Rectangular. If not, BricsCAD displays the message: Unable to build relief geometry for this configuration.



Rip

Switches the selected bend reliefs to rip.

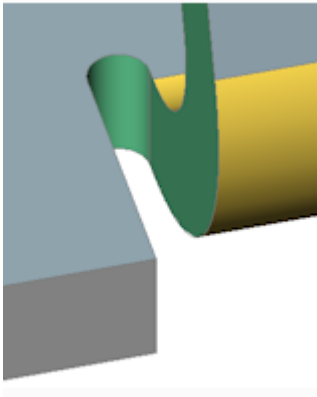
Note: Rip bend reliefs can be applied only if the current relief type is Rectangular. If not, BricsCAD displays the message: Unable to build relief geometry for this configuration.



ROund

Switches the selected bend reliefs to round.

Note: Round bend reliefs can be applied only if the current relief type is Rectangular. If not, BricsCAD displays the message: Unable to build relief geometry for this configuration.



relief EXTension

Specifies the relief extension.

Auto

Keep the current extension.

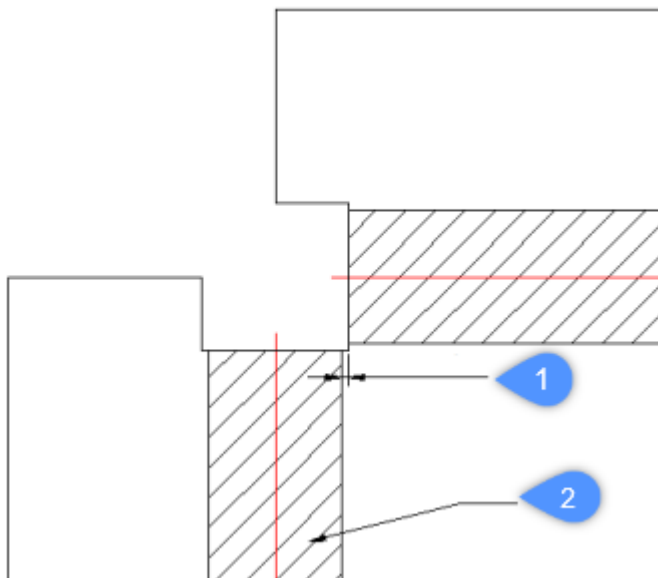
Entire model

All corner or bend reliefs in all sheet metal parts in the model will be switched to the specified type using the specified parameters.

Note: If this option is chosen as the response to the initial prompt, all corner reliefs switch to V-type.

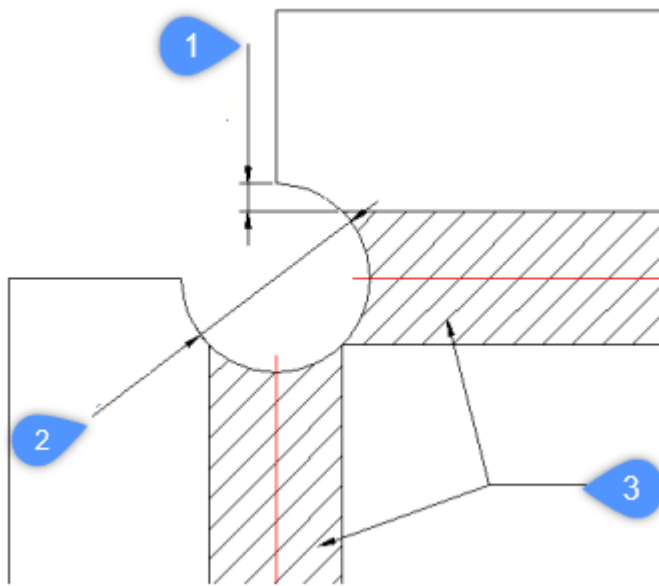
24.80.3 Relief extension illustration

Rectangular and V-type reliefs:



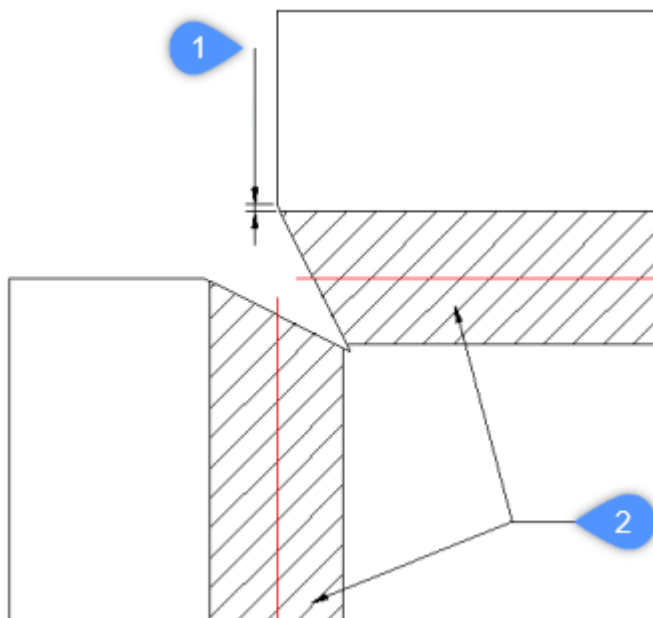
- 1 Extension
- 2 Bend

Circular reliefs:



- 1 Minimal extension
- 2 Diameter of the relief in the unfolded representation
Note: Reference to determine the center of the relief.
- 3 Bend

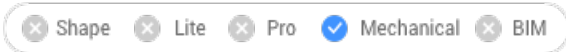
V-type reliefs:




- 1 Extension
- 2 Bend

24.81 SMREPAIR command

SmRepair restores the 3D solid model of a sheet metal part.



Icon: 

24.81.1 Method

There are three methods:

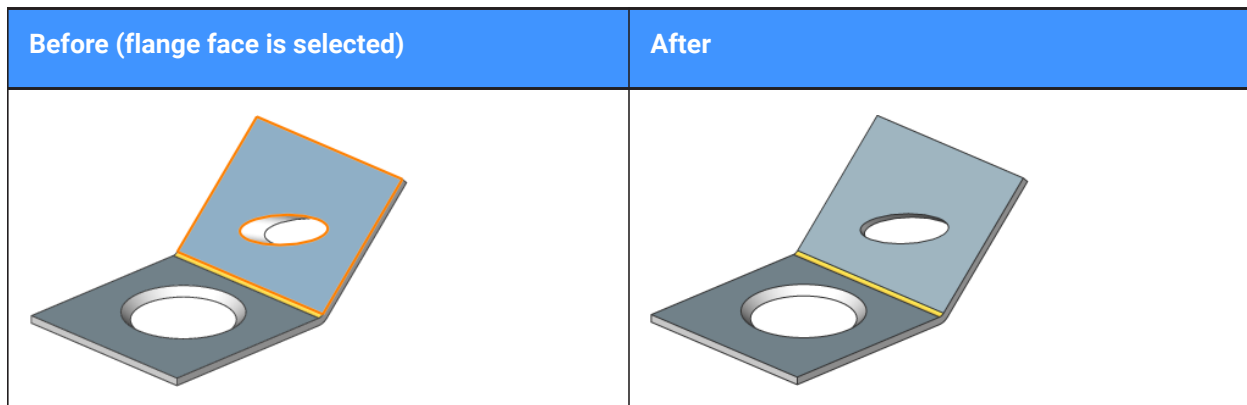
- Repair by thickening one of the sides
 - Note:** SmRepair restores the 3D solid model of a sheet metal part by thickening one of its sides. All thickness faces become perpendicular to the flange faces.
- Repair of lofted bend features
 - Note:** Fixes problems specific to parts with lofted bend features. It merges adjacent bends and provides tangential connections with flanges.
- Repair by converting bends
 - Note:** Converts incorrect bends to regular bends. If a single, incorrect bend is selected, it will be repaired. If a 3D solid is selected, then all incorrect bends will be converted to regular bends.

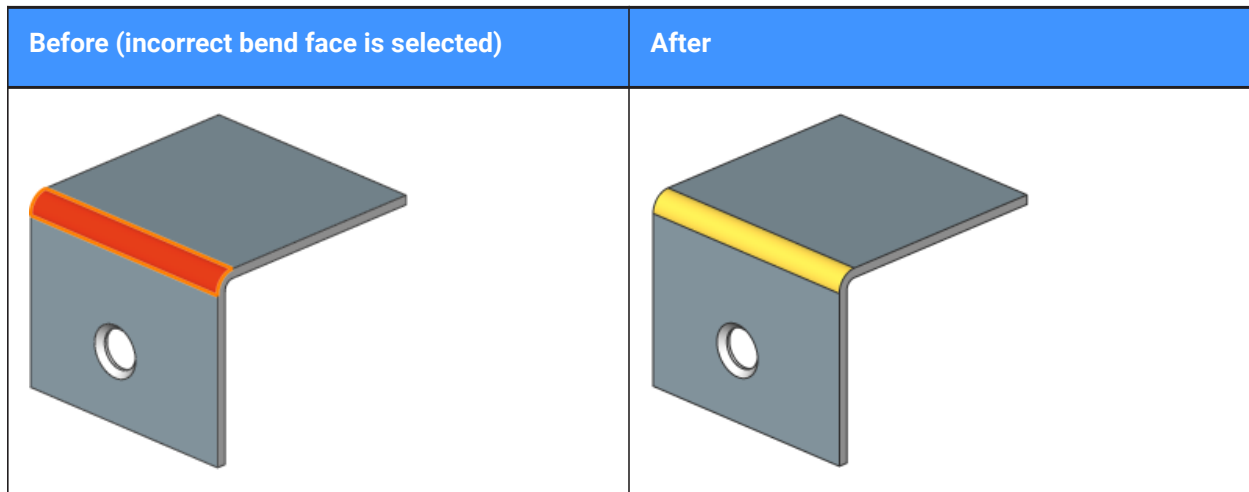
24.81.2 Options within the command

switch on Local repairing

Repairs one selected flange face, lofted bend face, thickness face or side edge. A body with thickness faces perpendicular to the selected face and without adjacent lofted bends will be created.

Note: The size and position of the opening on the selected face is preserved and the size and position of the opening on the opposite face is adjusted.

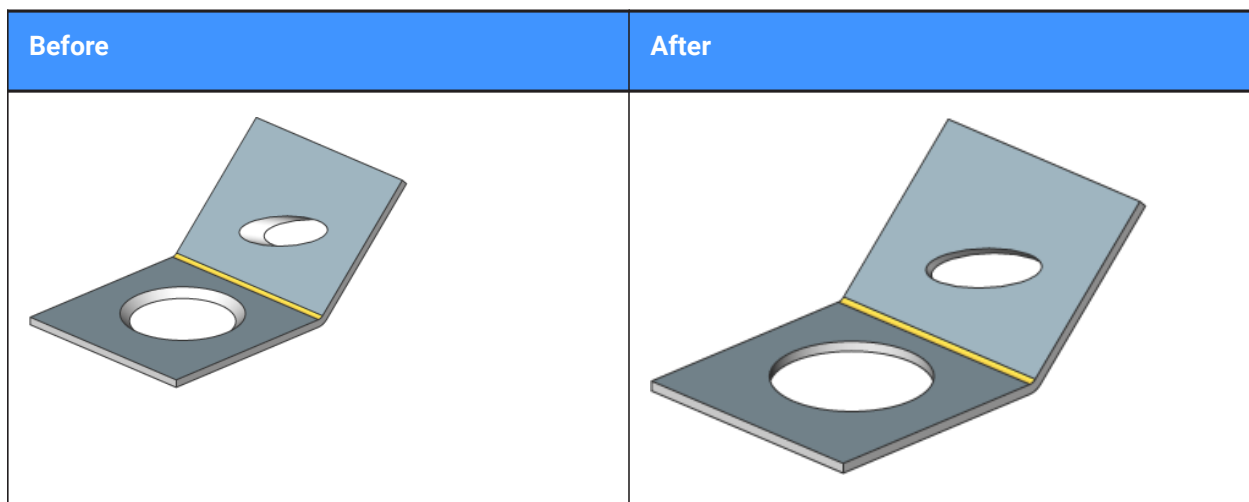




switch on Global repairing

Repairs all the incorrect flange faces, lofted bend faces, thickness faces or side edges from the selected solid. A body with thickness faces perpendicular to the selected face and without adjacent lofted bends will be created.

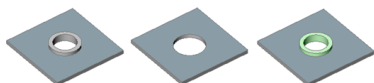
Note: The size and position of the opening on the selected face is preserved and the size and position of the opening on the opposite face is adjusted.



Scan for lost details

Searches and retains model parts that remain as separated bodies after repair.

Note: The scan tolerance is a fraction of the initial model volume. This fraction will be ignored and only larger bodies will be retained. For example, if the scan tolerance = 0.25, only parts with a volume that is larger than 25% of the initial body will be retained.

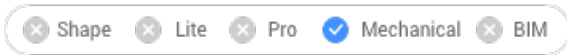



From left to right:

- Initial model with an unrecognized form feature.
- Model after SmRepair without scanning for lost details: the circular feature is removed.
- Model after SmRepair with scanning for lost details. Two bodies are created: a horizontal flange with a hole and a separate body (highlighted in green color). The bodies can be unified with the Union command if required.

24.82 SMREPLACE command

Replaces form features in sheet metal parts.



Icon: 

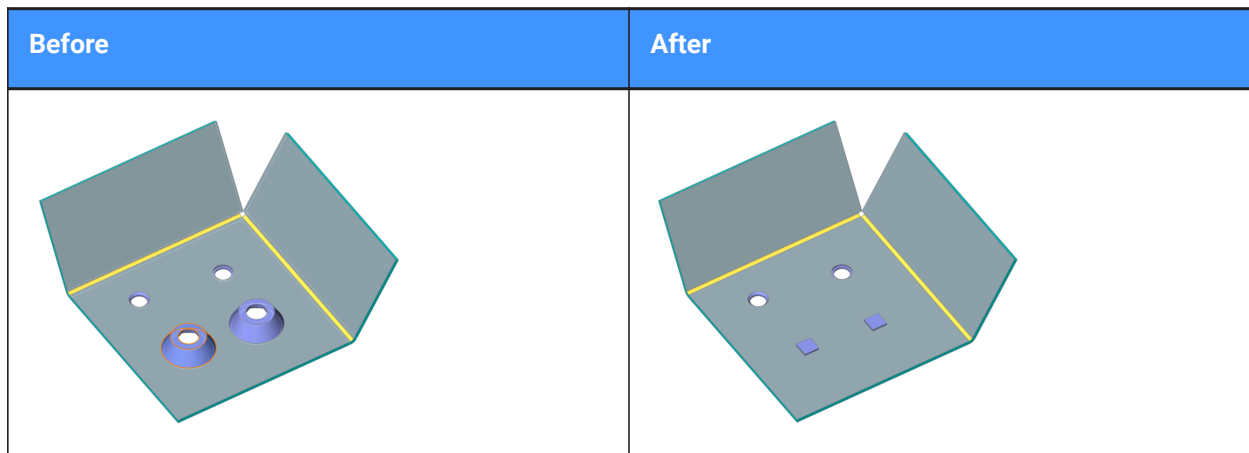
24.82.1 Description

Replaces form features (including recognized ones) in sheet metal parts with form features from the built-in or user library. Displays the Select file for form feature dialog box where you can select a form feature file.

24.82.2 Options within the command

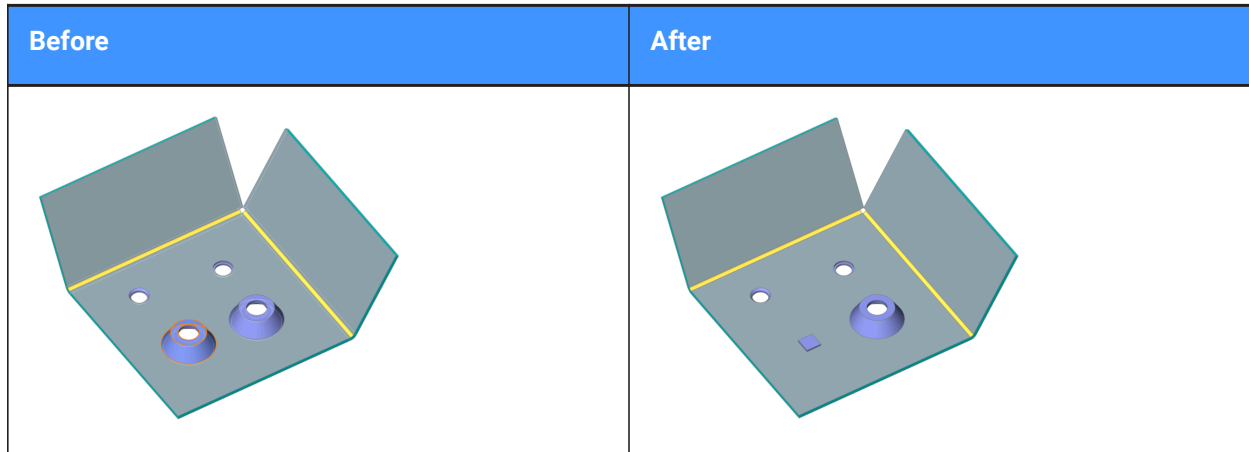
Yes

Replaces all form features of the same type as selected feature(s).



No

Replaces the selected form feature(s) only.



parameters Mode

Controls whether the parameter values of the form features that are replaced will be inherited or not. It is defined by the selected mode of replacement.

component Defaults

Parameter values of the new form feature are used.

Inherit from replaced features

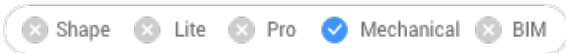
If possible, parameter values are copied from the form feature(s) being replaced.

Edit parameters

Allows to edit all parameters.

24.83 SMRIBCREATE command

Creates associative Rib form features on sheet metal.



24.83.1 Description

This command is obsolete. Use the SMBEAD command instead.

24.84 SMROLLEDEGE command

Creates rolled edges on curved flanges.



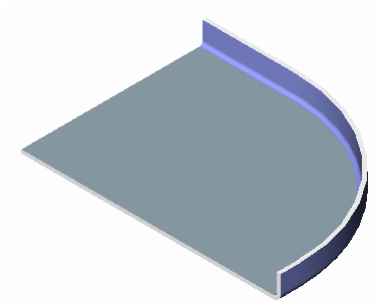
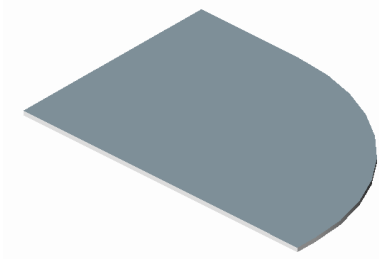
Icon: 

24.84.1 Method

Select the edges on flanges or the flange face (entire flange's side) and specify the length of the rolled edge.

Note: The RolledEdge is not created on edges adjacent to Bend, Jog, BendRelief, CornerRelief.

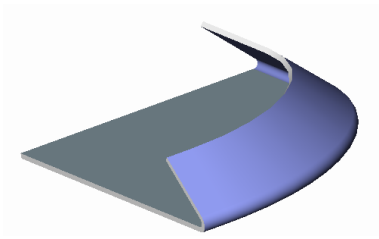
When Dynamic Input Mode (DYN) is active, type the length in the dynamic input fields.



24.84.2 Option within the command

Angle

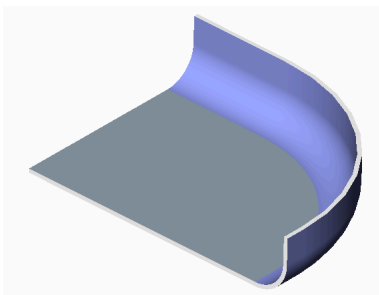
Specifies the angle of the rolled edge. The default value is 90 degrees.



Note: If the FEATURECOLORS system variable is ON, the rolled edges will be displayed in the color set by SMCOLORROLLEDEGE system variable.

Radius

Specifies the radius of the rolled edge. The default value is the thickness of the flange.



24.85 SMROTATE command

Rotates a selected flange of a sheet metal part.

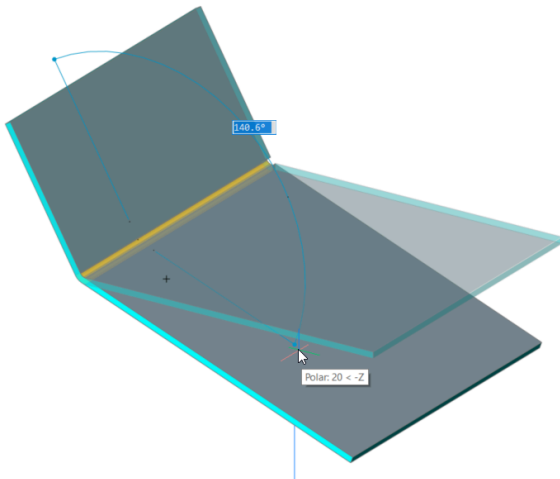


Shape Lite Pro **Mechanical** BIM

Icon:

24.85.1 Description

Rotates a selected flange of a sheet metal part with automatic selection of the rotation axis depending on the design intent.



Note: A dynamic field angle displays the angle between the selected flange and the base flange. You can press the TAB key to display the absolute rotation angle.

24.86 SMSELECT command

Selects all identical form features in the sheet metal model.

Shape Lite Pro **Mechanical** BIM

Icons:

24.86.1 Description

Selects hard edges, same form features, non-orthogonal thickness edges, flat edges, and the side of a sheet metal part.

24.86.2 Options within the command

Hard edges

Selects all hard edges in the model.

Same form features

Selects all form features identical to the selected feature.

Similar form features

Selects all form features similar (the same type, but with different parameter values) to the selected feature.



Non-orthogonal thickness faces

Selects all edges of a specified flange common with non-orthogonal thickness faces.

SIDe of sheet metal part

Selects faces on the same side of a sheet metal part within a selected face.

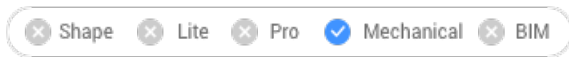
Note: Requires flange, regular or lofted bend face to start.

Flat edges

Selects all flat edges on a specified solid.

24.87 SMSPLIT command

Splits a flange.



Icons:

24.87.1 Description

Splits a flange along a polyline drawn along a face. It splits lofted bends along the line on the ruled surface. (Short for Sheet Metal Split).

24.87.2 Method

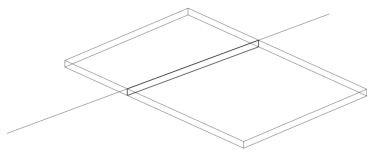
There are three methods to split sheet metal:

- Split
- Smart Split
- Smart Split Propagate

24.87.3 Options within the command

Select lines or edges to split the flange

Splits the flange according to a selected line or edge.



Center

Splits along the center of the polyline.

Left

Splits to the left side of the polyline.

Right

Splits to the right side of the polyline.

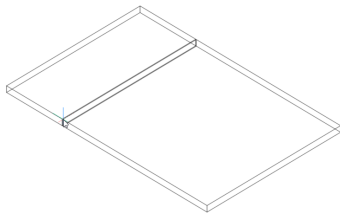
Accept

Accepts the suggested way to split.



SMart split

Splits the flange at a specified point.



Note: Make sure the 3D entity snaps are toggled on to be able to pick points on the flange.

Propagate

Automatically suggests multiple splits of a similar type.



: Selected suggestion. Click to switch to not selected.



: Not selected suggestion. Click to switch to selected.

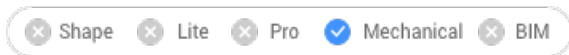
draw a New line

Gives the option to draw a line on a selected flange to split the flange.

Note: Make sure the 3D entity snaps are toggled on to be able to pick points on the flange.

24.88 SMTAB command

Creates tab features on sheet metal parts.



Icons:

24.88.1 Method

There are two main workflows:

- Convert a junction into tabbed junction (in either Single tab or Array tab mode).
- Convert a curved hard edge into a curved tabbed connection of a flange and a bend (or lofted bend).

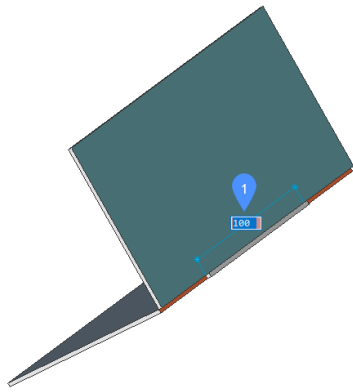
24.88.2 Option within the command

Single tab

Creates a single tab.

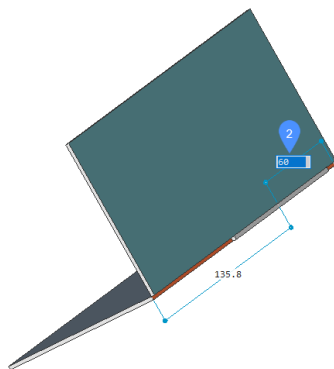
Length

Defines the length of the tab (1). The tab is placed symmetrically with respect to the center point.



Central point

Positions the tab along the junction. The dynamic dimension fields show the distance to the end points of the junction (2). Press the TAB key to switch between the dynamic fields.



Array tab

Creates multiple tabs.

Flip tab

Allows to toggle between two possible configurations when the tab feature is not symmetrical with respect to the junction sides.

slot Number

Defines the number of slots.

Distance

Defines the distance between the tabs.

Length

Defines the length of a tab.

Round radius

Creates a filleted tab with a given fillet radius.

CHamfer distance

Creates a chamfered tab with a given chamfer parameter.

24.89 SMTABCREATE command

Creates tab features on sheet metal parts.



Shape Lite Pro **Mechanical** BIM

24.89.1 Description

This command is obsolete. Use the *SMTAB* command instead.

24.90 SMUNFOLD command

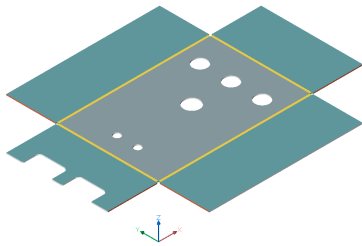
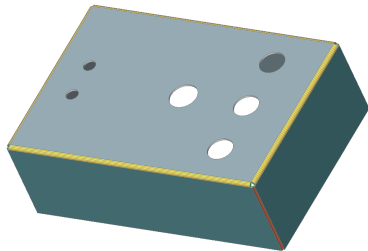
Creates an unfolded 2D or 3D representation of a sheet metal part.

Shape Lite Pro **Mechanical** BIM

Icons:

24.90.1 Method

Select the base flange of the sheet metal part, specify a point in the drawing to place the unfolded body and press Enter to keep the unfolded body in the drawing or choose an option.



24.90.2 Option within the command

Associative

Opens an additional window with the model's unfolded representation. Both folded (left) and unfolded (right) representations have bidirectional associativity which allows transferring modifications to the neighbor model automatically when changing window focus.

Note: Tangent bends, jogs (with and without flange) and hems (all types, except closed hems) are also supported.

save 2D geometry

Saves the 2D geometry of the unfolded metal part as a separate drawing file.

From the **Standard Save File** dialog box you have to choose to save the drawing either in Drawing Exchange Format (*.dxf) or in Standard Drawing File (*.dwg).



save 3D geometry

Saves the 3D solid of the unfolded metal part as a separate drawing file.

From the **Standard Save File** dialog box displayed you have to choose to save the drawing either in Drawing Exchange Format (*.dxf) or Standard Drawing File (*.dwg).

Place view to layout

Places the view in a new or an existing layout.

Optimize bend annotations

Optimizes the bend annotations in the exported geometry.

Keep

Places the unfolded 3D solid in the current drawing.

24.91 SNAP command

Sets the cursor snapping properties.



Icon: 

Alias: SN

Sets the cursor snapping increments either by specifying the x and y values or between two points, the rotation and the style.

24.91.1 Method

There are three methods to set snapping increments:

- By specifying a single value for both the X and Y axis.
- By specifying a distance between two points as a value for both the X and Y axis.
- By specifying the spacing independently for the X and Y axis.

Note: Independent X and Y spacing work only in the Standard snap style.

24.91.2 Options within the command

snap ON/OFF

Turns on/off snap.

Note: Snap must be turned on in each viewport separately.

Note: The snap can be controlled by SNAPTYPE, POLARDIST, ADAPTIVEGRIDSTEPSIZE and SNAPSTYL system variables.

Rotate

Specify the base point and rotation angle for the snap grid.

snap Style

Toggle between Standard and Isometric snap distances.

Standard

Rectangular snap distance.



Aspect

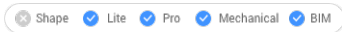
Specifies the grid spacing independently for the horizontal(X) and vertical(Y) directions.

Isometric

Sets the grid, snap distance and crosshair to the current isometric plane.

24.92 SOLID command

Draws solid-filled polygons.



Icon:

Alias: PLANE, SO

Draws 3 and 4-sided solid-filled regular and irregular 2D polygons.

Note: Does not draw 3D solids.

24.92.1 Method

There are four methods to draw solid-filled polygons:

- By picking points.

Note: After picking the first point, BricsCAD draws a ghost line to the next point. After specifying the second corner of the polygon, its shape and size can be previewed. If a fourth point is specified, an adjacent polygon is created (the third and fourth points of the first polygon become the first and second points of the second polygon).

- Rectangular.
- Square.
- Triangle.

24.92.2 Options within the command

Rectangle

Draws one or more connected solid-filled rectangles.

Square

Draws one or more connected solid-filled squares.

Triangle

Draws one or more connected equilateral solid-filled triangles.

Note: 2D solids can be edited directly through grips.

24.93 SOLIDEDIT command

Edits 3D solids and 2D regions.



Icons:



24.93.1 Description

Edits the faces, edges, and bodies of 3D solids and 2D regions.

24.93.2 Options within the command

Face

Edit a face.

Extrude

Extrudes the selected face or region.

Specify height of extrusion

Specify a distance.

Note: Positive distance extrudes outwards from the face (creates a post). Negative distance extrudes into the body (creates a hole).

Path

Specifies the entity for defining the extrusion shape and direction.

Specify angle of taper for extrusion

Specify an angle.

Note: Positive angle tapers inwards (get narrower). Negative angle tapers outwards (gets wider).

Move

Moves the selected face.

Vector

Specifies the displacement through a vector measured from the origin (0,0,0) to the cursor's pick point.

Rotate

Slants the selected face about an axis.

Specify the rotation angle

Specify an angle.

Note: Positive angle rotates the face counterclockwise around the axis. Negative angle rotates the face clockwise.

Offset

Extends the selected face.

Specify offset distance

Specify a distance.

Note: When entering a positive distance, the face is offset outwards (3D body becomes larger). When entering a negative distance, the face is offset inwards (3D body becomes smaller).

Taper

Tapers (slants) the selected face.

Delete

Deletes the selected face and then repairs the model.



Note: The selected faces are deleted and BricsCAD repairs the 3D solid to keep it solid. This option cannot remove innate faces.

Copy

Copies faces. Selected faces turn into regions.

coLor

Changes the color of the selected face.

Undo

Undoes the last editing operation.

eXit

Returns to the previous prompt.

Edge

Edits an edge.

Copy

Copies the selected edge and turns it into a line.

Note: The copies edges are turned into entities such as lines and splines.

Body

Edits the body of a 3D solid.

Imprint

Imprints 2D onto 3D solids. The 2D entity must lie on, or intersect, one of the 3D solid's faces.

Note: The imprint can be extruded.

seParate

Separates disjointed 3D solids.

Note: This option does not work on bodies created through Boolean operations (Union, Intersect, Subtract).

Shell

Turns the 3D solid into a hollow entity (shelled).

Enter shell offset distance

Specify a distance.

Note: If a positive distance is entered, the body shells outwards. If a negative distance is entered, the body shells inwards.

Note: If the shell offset distance is larger than 3D solid, the command fails.

cLean

cleans the 3D solid.

Note: The cleaning operation checks for errors in the 3D solid.

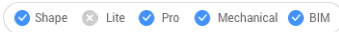
Check

Reports on the 3D solid.



24.94 SOLPROF command

Creates hidden line representations of 3D solids in layout viewports.



Icon:

24.94.1 Method

Select one or more 3D solids and create hidden line representations of them. The representations are blocks.

Note: This command operates only in model space of a layout tab viewport. Use the MSPACE command to activate the model space viewport.

Note: This command does not work with any other kind of 3D entity or with 3D solids referenced externally (xrefs). BricsCAD can filter out the ineligible entities.

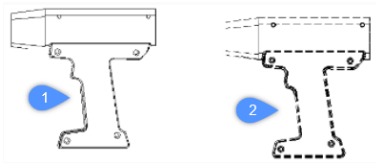
24.94.2 Options within the command

Use separate layers for hidden lines?

Determines if hidden lines are placed on a separate layer from the visible lines.

Yes

Creates two 2D blocks, one for the visible lines placed on layer PV (1) and another block for hidden lines on layer PH (2).



No

Creates one block of both hidden and visible lines on layer PV.

Note: The blocks and layers are named by the program, such as block *U3 and layers PH-88 and PV_88:

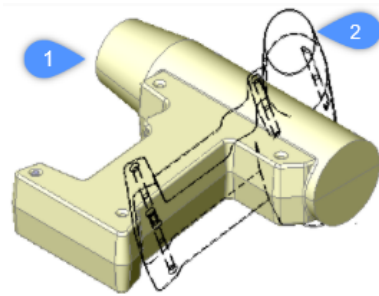
- *U identifies blocks created by the program
- PH is short for “profile hidden”
- PV is short for “profile visible”

Project result onto plan?

Determines if the profiles are projected (if the resulting blocks are 2D).

Yes

Profile lines are projected onto the drawing. The 3D solids (1) are projected onto a plane parallel with the layout's viewport, creating a block in 2D (2).



Note: In this image, the viewpoint has been rotated to show that the block(s) are indeed 2D.

No

No projection, the blocks are made of 3D entities.

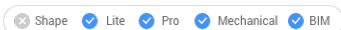
Hide tangential edges?

Toggles the display of tangential lines.

Note: Tangential lines are used to show the transition between two faces that are curved. In a 3D shaded model, they are not needed as highlights and shadows indicate the transition. In 2D wireframe mode it can be useful to show them.

24.95 SPELL command

Opens the Spell checking dialog box.



Icon:

Alias: SP

24.95.1 Description

Opens the Spell checking dialog box to find and fix potential spelling errors in the current drawing.

24.96 SPHERE command

Creates a 3D Solid in the shape of a sphere.

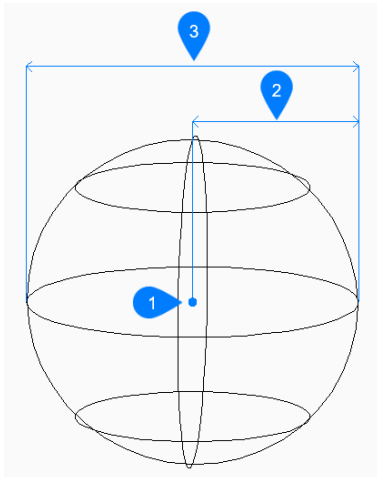


Icon:

Note: In BricsCAD Lite, which doesn't support 3D Solids, the SPHERE command launches the AI_SPHERE command.

24.96.1 Description

Creates a 3D Solid in the shape of a sphere. Choose from a combination of options including center, radius and diameter.



- 1 Center
- 2 Radius
- 3 Diameter

24.96.2 Method

This command has 1 method to begin creating a sphere:

- Center of sphere

Center of sphere

Begin creating a sphere by specifying the center then:

Set radius of sphere

Specify the radius of the sphere.

Additional option: [Diameter]

24.96.3 Option within the command

After you begin creating a sphere, the following option may be available:

Diameter

Specify the diameter of the sphere.

24.97 SPLINE command

Creates a spline.



Icon:

Alias: SPL

24.97.1 Description

Creates a 2D or 3D spline that is open or closed, or converts an object to a spline.



24.97.2 Method

Set the first point, the second point, and the next ones. You can add unlimited points until you press Enter to end the command.

Set first point

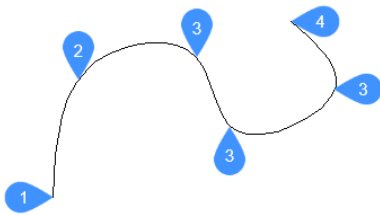
Begin creating a spline by specifying the start point.

Set second point

Specify the first fit point.

Set next point

Specify the next fit point.



- 1 First point of spline (no tangency)
- 2 Second point
- 3 Next point
- 4 End point

24.97.3 Options within the command

Object

Converts selected entities in splines.

start Tangency

Allows you to specify a tangency for the starting point.

Press Enter to ignore this option.

end Tangency

Allows you to specify a tangency for the ending point.

Press Enter to ignore this option and finish the command.

toLerance

Sets the fit tolerance. Specify (in drawing units) how closely the spline matches its fit points. If the fit tolerance is 0, the spline passes through its fit points.

Undo

Removes the last fit point and continues drawing from the previous fit point.

Close

Automatically draws a spline segment between the start and end points to create a closed spline.

24.98 SPLINEDIT command

Modifies the properties of a spline. Converts a spline to a polyline.



Shape Lite Pro Mechanical BIM

Icon: 

Alias: SPE

24.98.1 Description

Allows the modification of the fit data (fit points, fit tolerance, tangents at the endpoints and knot parametrization), vertices, the polynomial degree of the spline and the weights of each control vertex. Also allows the joining of the spline with an open 2D entity and reversing the direction of the spline.

24.98.2 Options within the command

Close/Open

Opens or closes the spline by adding or removing a segment between the start and endpoint.

Join

Joins the spline with an open 2D entity that shares an (coincident) endpoint with the spline.

Fit Data

Modifies the fit point data.

Add

Adds a fit point between two existing ones.

Delete

Removes fit points.

Kink

Adds a knot and fit point at the specified location on the spline which does not maintain tangent or curvature continuity at that point.

Move

Moves a fit point.

Purge

Replaces the fit data from the spline with control vertices.

Tangents

Specifies the start and end tangents.

toLerance

Refits the selected spline to the existing fit points using a new tolerance value.

Edit vertex

Edits control frame data.

Add

Adds a new control vertex at the specified point.

Delete

Removes a control vertex.



Elevate order

Increases the polynomial order of the spline (degree plus one) to increase the number of control vertices across the spline. Maximum value is 26.

Move

Relocates control vertices one by one.

Weight

Changes the weight of a specified control vertex then recalculates the spline based on the new value. Larger weights pull the spline closer to the control vertex.

convert to Polyline

Converts the spline to a polyline. The precision determines how closely the resulting polyline matches the spline.

Note: The PLINECONVERTMODE variable specifies the kind of polyline to convert to (0 – with line segments, 1 – with arc segments).

Reverse

Reverses the direction of the spline; a triangle icon appears on what was formerly the spline's endpoint.

Undo

Undoes the previous modification.

eXit

Concludes the editing of the spline or returns to the previous prompt.

24.99 SPOTLIGHT command

Creates a spotlight.



Icon: 

24.99.1 Description

Creates a spotlight, which casts a narrow beam towards a target point.

Note: The options of this command are influenced by the value of the LIGHTUNITS system variable.

24.99.2 Options within the command

Specify source position

Specifies the location of the light in 3D space.

Specify target position

Specifies the location of the target.

Note: The target is the point at which the spotlight is focused.

Name

Specifies the name for the spotlight.

Intensity factor

Specifies the intensity of the light.



Note: Enter an intensity value between 0.00 and the maximum value supported by your system (max float = maximum value of a floating-point number).

Note: When the LIGHTINGUNITS system variable value is 0, this option is named Intensity.

Status

Toggles the use of light.

ON

Light is included when calculating rendering.

OFF

Light is excluded.

Photometry

Specifies the photometric properties of the light.

Note: This option is only available when the LIGHTUNITS value is 1 or 2.

Intensity

Enter the intensity expressed in candela (Cd).

Flux

Enter the luminous flux in lumens (Lm).

Illuminance

Enter the illuminance expressed in lux (Lx) or foot-candles (Fc).

Distance

Enter a distance expressed in drawing units.

Color

Enter a color name.

?

Lists the names of available colors.

Kelvin

Enter a Kelvin temperature expressed in degrees Kelvin.

Hotspot

Specifies the angle of the hotspot, the area of light concentration.

Note: The Hotspot angle represents the angle of the central light cone.

Note: The angle determines the size of the hotspot, regardless the distance of target.

Falloff

Specifies the angle of weaker illuminations surrounding the hotspot.

Note: The Falloff angle represents the angle of the full light cone.

Note: Outside of the falloff, there is no light.

Note: When a Falloff angle is entered that is smaller than the Hotspot angle, the latter is set equal to the Falloff angle. When a surface is illuminated by a spotlight, there is an area of maximum illumination (hotspot) that is surrounded by an area of lesser intensity (falloff).



Note: The difference between the hotspot angle and the falloff angle defines the area of lesser light intensity. If the falloff angle and the hotspot angle are almost equal, the edge of the light cone is rather sharp. The greater the difference between both angles, the softer the edge of the light cone.

shadoW

Specifies the look of shadows cast by this light.

Off

Disables the calculation of shadows for the light.

Sharp

Displays shadows with sharp edges.

Note: Use this option to increase performance.

soFt mapped

Displays realistic shadows with soft edges.

soft sAmpled

Displays realistic shadows with softer shadows based on extended light sources.

Shape

Disk

Defines a circular shadow shape that behaves as an area light.

Rect

Defines a rectangular shadow shape that behaves as an area light.

sAmplies

Specifies the sampling size of the shadow.

Note: Larger numbers are more accurate but take longer to render.

Visible

Casts a shadow that represents shapes (more accurate) or that is rectangular (faster to render).

Attenuation

Specifies how the illumination falls off with distance from the light.

attenuation Type

Specifies the type of attenuation.

None

No attenuation so that the distance to the light source has no influence.

Inverse linear

Attenuation is the inverse of the linear distance from the light.

Note: At a distance of 2 units from the light source, the light is half as strong. At a distance of 4 units, the light is one quarter as strong.

inverse Squared

Attenuation is the inverse of the square of the distance from the light.

Note: At a distance of 2 units, the light is one quarter as strong. At a distance of 4 units, the light is one sixteenth as strong.



Use limits

Toggles whether the extent of the illumination is limited.

attenuation start Limit

Defines the point where the light starts to shine, measured from the center of the light.

attenuation End limit

Defines the point where the light stops to shine, measured from the center of the light.

filterColor

Specifies the color of the light.

Note: When the LIGHTUNITS system variable's value is 0, this option is named Color.

Enter true color

The RGB color model is an additive color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. The component values are stored as integer numbers in the range 0 to 255, the range that a single 8-bit byte can offer (by encoding 256 distinct values).

Index color

Defines the color name by the index color.

Hsl

Specifies the color using three parameters Hue, Saturation and Lightness.

Colorbook

Enter a name from a colorbook.

eXit

Concludes the command and creates the light.

24.100 SSX command (Express Tools)

Creates a selection set based on a selected entity using filters.

24.100.1 Method

Creates a selection set that contains entities similar to or exactly the same as the selected entity.

Note: To access the selection set for a subsequent command, use the **Previous selection** option.

24.100.2 Options within the command

Block name

Allows you to specify a block name to add or remove from the selection filter.

Color

Allows you to specify a color number to add to or remove from the selection filter.

Entity

Allows you to specify an entity to add to or remove from the selection filter.

Flag

Turns the Entities follow flag On or Off.

Layer

Allows you to specify a layer name to add to or remove from the selection filter.



Ltype

Allows you to specify a linetype name to add to or remove from the selection filter.

Pick

Allows you to select an entity.

Style

Allows you to specify a text style name to add to or remove from the selection filter.

Thickness

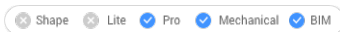
Allows you to specify a thickness value to add to or remove from the selection filter.

Vector

Allows you to specify an extrusion vector to add to or remove from the selection filter.

24.101 STANDARDPARTSPANELCLOSE command

This command is obsolete.

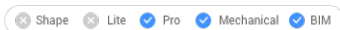


24.101.1 Description

Use LIBRARYPANELCLOSE instead.

24.102 STANDARDPARTSPANELOPEN command

This command is obsolete.

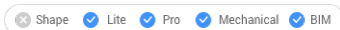


24.102.1 Description

Use LIBRARYPANELOPEN instead.

24.103 STANDARDS command

Allows to add and edit CAD standards for the current drawing.



Icon: 

24.103.1 Methods

This command associates one or more standard (DWS) files to the current drawing.

A standards file defines common properties for many drawing files to maintain consistency throughout those files. This consistency might be important in collaborative environments, where many people are involved in creating sets of drawings that should comply with some predefined rules.

Standards are created for the following named objects:

- Layers
- Text styles
- Line types



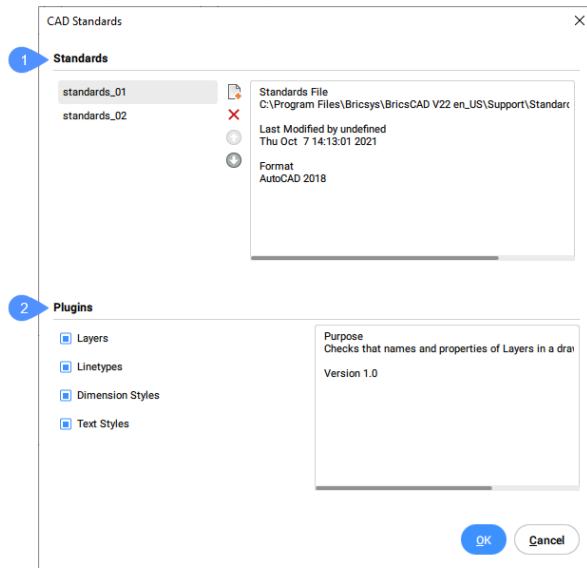
- Dimension styles

Standard (DWS) files can be created by the SAVEAS command, when you choose Standards File (*.dws) from the Save as type list.

This command has an associated dialog box that manages all the operations associated with this command.

24.103.2 STANDARDS dialog box

The STANDARDS dialog box allows to select the options for the STANDARDS command.



1 Standards

2 Plugins

Standards

This section is split into two sides.

The left side contains a list with the names of the standards already loaded into the drawing and a set of buttons for managing the list.

The names of the standards are the same as the names of the files selected as standards.

The buttons for managing the list are from top to bottom:

- **Adds Standards file:** adds the selected files to the list of standards.
- **Removes Standards file:** removes the selected file from the list of standards.
- **Moves Standards file one position up:** moves the name selected in the list one position up.
- **Moves Standards file one position down:** moves the name selected in the list one position down.

The right side of the **Standards** section displays some properties of the standard selected in the list. These properties include the path of the file containing the standard, the date of creation and the file format.

Standard (DWS) files can be created by the SAVEAS command, when you choose Standards File (*.dws) from the Save as type list.



Plug-ins

This section contains a list of plug-ins to be used by a checking operation.

A plug-in is a property or a set of properties of the entities in the standards files. When the corresponding checkbox of a plug-in is checked, the checking operation will include that plug-in.

The available plug-ins are as the following:

Layers

The layers defined in the standard files.

Linetypes

The line types defined in the standard files.

Dimension Styles

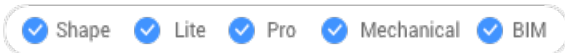
The dimension styles defined in the standard files.

Text Styles

The text styles defined in the standard files.

24.104 STATBAR command

Toggles the STATUSBAR system variable.



24.104.1 Description

Toggles the STATUSBAR system variable to show or hide the status bar. You can launch this command at the Command prompt or within another command by preceding it with an apostrophe: 'STATBAR.

- On: turns on the STATUSBAR system variable.
- Off: turns off the STATUSBAR system variable.
- Toggle: changes the STATUSBAR system variable to the opposite of the current setting.

24.105 STATUS command

Reports the status of the drawing.



Icon:

24.105.1 Description

Displays the status report of the drawing in the Command line.

Note: To see the full report press F2 key.

24.106 STLOUT command

Export 3D solids and watertight meshes.





24.106.1 Description

Exports 3D solids and watertight meshes in a format that can be used for stereolithography (3D printing).

24.106.2 Method

There are two methods to use STLOUT command:

- Export 3D solids.
- Export meshes.

24.106.3 Options within the command

Create binary STL file

Determines whether the output file is in binary or ASCII format.

Note: Binary STL file are more compact, while an ASCII text STL file is human-readable.

Select smoothness of object exported to STL file

Adjusts the quality of the exported entities.

Note: When exporting 3D solids to STL, curved faces become faceted. Use the FACETRES variable to determine the size of the facets:

- Minimum: 0.01 for coarser curves but smaller file size.
- Default: 0.5.
- Maximum: 10 for very fine curves but larger file size.

Low

Exports with FACETRES = 0.5.

Medium

Exports with FACETRES = 2.0.

High

Exports with FACETRES = 10.

Default

The modeler properties from Settings are used.

Note: The modeler properties override FACETRES to control smoothness by using different parameters.

24.107 STOPSCRIPT command

Stops the recording of scripts.



Icon:

24.107.1 Description

Stops the recording of scripts begun by the RECSCRIPT command.

24.108 STRETCH command

Stretches 2D entities.



Shape Lite Pro Mechanical BIM

Icon:

Alias: S

Note: This command does not stretch texts, shapes, and 3D solids.

24.108.1 Method

Select an area in your drawing using either a rectangular window or a polygon, then specify a base point and a displacement point. All points and nodes inside the selected area will be moved over the specified distance.

24.109 STRUCTUREPANEL command

Opens the Structure panel.

Shape Lite Pro Mechanical BIM

24.109.1 Description

Opens the Structure panel to display it in the current workspace. The Structure panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Structure panel can be either floating, docked or stacked.

24.110 STRUCTUREPANELCLOSE command

Closes the Structure panel.

Shape Lite Pro Mechanical BIM

24.110.1 Description

Closes the Structure panel to hide it from the current workspace. If the Structure panel is stacked when you close it, the Structure tab or icon is removed from the stack.

24.111 STYLE command

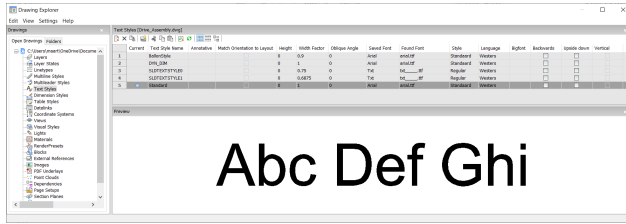
Opens the Drawing explorer dialog box with **Text Styles** selected.

Shape Lite Pro Mechanical BIM

Alias: DDSTYLE, EXPFONTS, EXPSTYLE, EXPSTYLES, ST

24.111.1 Description

Opens the Drawing explorer dialog box with Text Styles category selected to view and modify styles in the current drawing.



24.111.2 Options within the command

Current

Designates the current text style. This is the style used by default by the TEXT and MTEXT commands.

Text Style Name

Specifies the style name.

Annotative

Sets the Annotative property of the text entities created with this style.

Note: When the text style is an annotative one, the Height property specifies the height in paper space, while in model space the height depends on the current annotation scale (specified by the CANNOSCALE and CANNOSCALEVALUE variables).

Match Orientation to Layout

Matches the orientation of the text to the orientation of the paperspace layout.

Note: This option is for annotative text only.

Height

Specifies the height of the text. Enter 0 or a number larger than 0:

- 0: does not set the height; TEXT command prompts for height.
- Not 0: specifies the height of text; TEXT command does not ask for height.

Width Factor

Specifies the width factor of the text. For example, entering 2 makes the text twice as wide.

Enter a number larger or smaller than 1:

- Less than 1: text is squeezed narrower.
- More than 1: text is spread wider.

Oblique Angle

Specifies the obliquing angle for the text. For example, entering 15 slants the text forward by 15 degrees.

Enter a positive or negative number:

- Negative number: text slants to the left.
- 0: text is upright.
- Positive number: text slants to the right.

Saved Font

Specifies the SHX or TTF font file to use; choose a name from the drop-down list:

- SHX: compiled shape files created for AutoCAD and BricsCAD
- TTF: TrueType font files created for Windows and Macintosh

Note: The program can use any SHX and TTF font found on your computer.



Found Font

Shows the name of the font file found. If the font defined in by Saved Font is not found .shx fonts are replaced by the font defined by the FONTALT (Alternative font) system variable.

Note: TTF fonts are replaced according to the replacement table defined by the FONTMAP system variable. By default, this is the Default.fmp file stored in the Support subfolder of the roamable root folder (e.g. C:\Users\<UserName>\AppData\Roaming\Bricsys\BricsCAD\V23x64\en_US\Support).

Note: Fonts that have been replaced display in Red.

Style

Specifies style for TTF fonts; choose a style from the drop-down list:

- Regular: applies neither bold nor italics
- Bold: applies boldface
- Italic: applies italics
- Bold Italic: applies bold and italics

Note: This property is not available for SHX fonts.

Language

Specifies the language for TTF fonts. Choose one from the drop-down list.

Note: Available languages may vary for each font. This property affects accents and other attributes specific to languages.

Note: This property is not available for SHX fonts. Use Bigfont property instead.

Bigfont

Lists the names of SHX bigfont files. Choose one from the drop-down list.

Note: "Bigfonts" is the name given to large SHX files that contain characters for multiple languages.

Note: This property is not available for TTF fonts. Use Language property instead.

Backwards

Toggles backwards text. Backwards text is useful when text is plotted on the back of mylar or other clear media.

Upside down

Toggles upside-down text.

Vertical

Toggles vertical text. Only some SHX fonts support vertical text; this option is not available for TTF fonts.

Preview

Shows what the current style looks like: the font with the properties applied.

24.111.3 Context Menu Options

New

Loads additional Text Style definitions into the drawing.

Delete

Deletes Text Style definitions from the drawing. The current style and the Standard style cannot be deleted.



Rename

Renames the selected style.

Select All

Selects all styles.

Invert selection

Deselects the current selection and vice versa.

Set current

Specifies the current working style. Only one style can be current at a time.

24.112 -STYLE command

Creates and modifies text styles.



Alias: FONT

24.112.1 Description

Creates and modifies text styles that set the look of text, such as its font and height. It is meant for macros. Styles determine the look of text in single-line text, mtext, attributes, tables, and dimensions and leaders, but not in dimensional constraints.

24.112.2 Options within the command

?

Lists existing styles and some of their properties including style name, height, generation.

Text style to create or modify

Specifies the style name.

Font type

SHX - font files created for DWG-based programs like BricsCAD.

TTF - font files created for Windows and macOS, and can be used by BricsCAD.

Height

Indicate the height of the text, measured from the baseline to the top of the ascenders.

Width

Makes characters wider or narrower.

Obliquing angle

Slants text to the left for a negative number, to the right for a positive number and keep text upright for value 0.

Draw text backwards

Toggles backwards text.

Draw upside down draw

Toggles upside-down text.

Draw text vertically

Toggles vertical text. This option is available only with certain SHX font files and not at all with TTF font file.



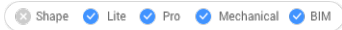
Annotative

An annotatively-scaled style adjusts its height in paper space automatically, according to the plot scale. You can toggle the creation of an annotative text style, match the text orientation to layout.

When the text style is an annotative one, the text height property specifies the height in paper space, while the annotation scale sets the height in model space.

24.113 STYLESMANAGER command

Creates and edits plot style files.



24.113.1 Method

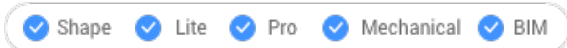
This command displays a file manager dialog box from which a CTB or STB file can be selected. Double click on a file to display the Plot Style Table Editor dialog box or on Create Plot Style Table to create a plot style from scratch or from an existing table.

Note: Plot styles fine-tune how drawings are printed but are not necessary for printing. BricsCAD supports two groups of plot styles to control the printed output:

- CTB color tables simply use colors.
- STB style tables use an extensive range of properties.

24.114 SUBTRACT command

Performs Boolean subtraction operation.



Icon:

Alias: SU

Note: In the BricsCAD Lite license level, the command applies to region entities only.

24.114.1 Description

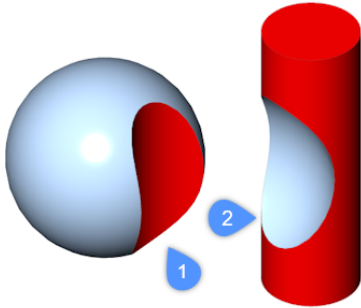
Performs Boolean subtraction operations on 3D solids and 2D regions by removing the overlapping portions of one from another.

24.114.2 Method

Select the object to subtract from and the objects to subtract. The DELETETOOL system variable determines whether the source entities are deleted or retained.

Note: The result of this command is sensitive to the order in which you select entities.

- A cylinder was subtracted from a sphere (1) and vice versa (2).



- The order in which you select entities also applies to regions.

Note: You can interrupt the command by pressing the CANCEL button.

24.115 SUNPROPERTIES command

Opens the Drawing explorer dialog box with **Lights** selected.

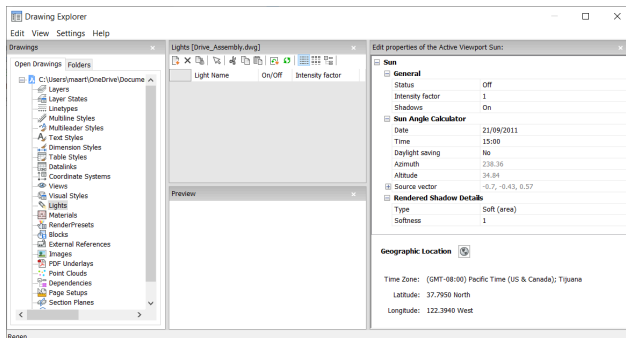


Icon:

Alias: SUN

24.115.1 Description

Opens the with **Lights** category selected to view and modify sun properties in the current drawing.



24.115.2 Options within the command

General

Status

Toggles the sun on and off.

Intensity factor

Specifies the intensity or brightness of the sun; the higher the number, the brighter the light.

Shadows

Toggles the display of shadows by the sunlight.

Note: The color of the sunlight is hard-coded.



Sun Angle Calculator

Date

Displays the current date. Edit the date to show the sun at a different time of year.

Time

Displays the current time. Edit the time to show the sun at a different time of day.

Daylight saving

Toggles the effect of daylight saving time on the time property.

Azimuth

Reports the horizontal angle of the sun measured clockwise from the north.

Note: This setting cannot be changed as the program calculates it from the other settings in this section.

Altitude

Reports the vertical angle of the sun, measured from the horizon.

Note: This setting cannot be changed as the program calculates it from the other settings in this section.

Source vector

Reports the direction of the sunlight. This setting cannot be changed as the program calculates it from the other settings in this section.

Rendered Shadow Details

Type

Displays realistic shadows with softer shadows based on extended light sources, according to the Softness property.

Softness

Determines the sampling size of shadows. Larger numbers are more accurate but take longer to render.

Geographic Location

Reports location of the drawing on earth. To change the location, click the Edit button to access the Geographic Location dialog box; see GEOGRAPHICLOCATION command.

24.115.3 Context menu options

New

Loads additional light definitions into the drawing.

Delete

Deletes light definitions from the drawing.

Rename

Renames the light definition.

Select All

Selects all light definitions.

Invert selection

Deselects the current selection and vice versa.

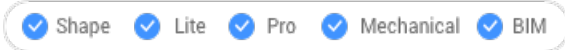
Set current

Sets the selected light definition as current.



24.116 SUPPORTFOLDER command

Opens the operating system's file manager at the Support folder.



24.116.1 Description

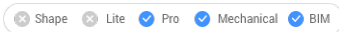
Displays a file manager dialog box showing the contents of the support folder.

Note: The support folder holds many files that drawings and commands need, such as linetype patterns and tool palette libraries.

Note: Support folder paths are stored in the SRCHPATH system variable, and the default path is: `C:\Users\<user_name>\AppData\Roaming\Bricsys\BricsCAD\Vxx\en_US\Support`.

24.117 SUPPRESS command

Suppresses the display of entities.



Icon:

24.117.1 Description

Creates named groups of entities whose display can be turned off. Use the STRUCTUREPANEL command to turn their display back on.

24.117.2 Options within the command

New

Create a new named group of entities.

Edit

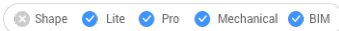
Change the entities included with a named group.

Dissolve

Turn the display of suppressed entities back on and remove the name of the group.

24.118 SVGOPTIONS command

Opens the Settings dialog box with the **SVG export** category expanded.



24.118.1 Description

Opens the Settings dialog box with the **SVG export** category expanded to view and modify relevant system variables.

24.119 SWEEP command

Creates 3D solids or surfaces by sweeping profiles along a path.





Icon:

24.119.1 Description

Creates 3D solids or surfaces by sweeping profiles (open or closed 2D entities or 3D subentities) along an open or closed path.

Entities accepted as profile entities: 2D splines, 3D splines, 2D polylines, 2D solids, 3D solid faces, 3D solid edges, arcs, circles, ellipses, elliptical arcs, lines, regions, surface and mesh edges, traces.

Entities accepted as a path entity: 2D splines, 3D splines, 2D polylines, 3D polylines, edges of 3D solids, surfaces or meshes, helices, arcs, circles, ellipses, elliptical arcs, lines.

Note: Depending on the value of the DELOBJ system variable, the defining entities are either retained or deleted.

24.119.2 Methods

There are two methods to sweep entities:

- Create 3D solids
- Create surfaces

24.119.3 Options within the command

MODE

Sets the 3D entity type this command will create.

- **Solid:** creates 3D solids.
- **Surface:** creates surfaces.

Note: Open entities always construct 3D surfaces.

Select sweep path

Select an entity to define the path.

Alignment

Determines the angle at which the profile 2D entities are swept along the paths.

- **Yes:** aligns the sweep entity perpendicularly to the sweep path entity
- **No:** the sweep entity maintains its original orientation, and so it's not rotated along the path.

Base point

Defines the point on the sweep entity that follows the path. This option allows offset sweep paths.

Twist

Specifies a twist angle for the swept entity. The twist angle is the amount of rotation along the entire length of the sweep path.

- **Banking:** determines whether the swept entities will rotate naturally along a 3D sweep path, such as those made from a 3D polyline, spline, or helix.

Interactive

Allows to dynamically sweep profiles along a sequence of interconnected linear entities or along a portion of a path.


- **Transform profile:** use the Manipulator to move, rotate, mirror or scale the profile.



- **Accept:** accepts the current position of the profile.
- **Move cursor along selected edge:** the profile is swept dynamically along the path or path segment.
- **Select adjacent edge:** click when the next segment highlights to continue.
- **Undo:** removes the last segment.

24.120 SYSVDLG command (Express Tools)

Views, edits and saves system variable settings.

Icon: 

24.120.1 Method

Opens the **System Variables** dialog box that allows you to view, edit and save system variable settings.

24.121 SYSWINDOWS command

Arranges windows.



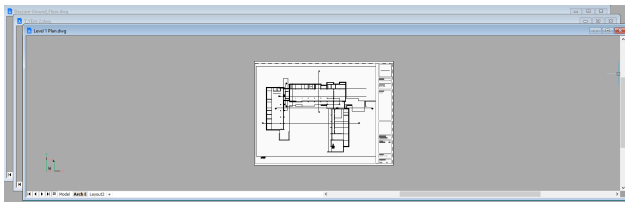
24.121.1 Description

Arranges the program's windows in tiled or cascaded formations (short for "system windows").

24.121.2 Options within the command

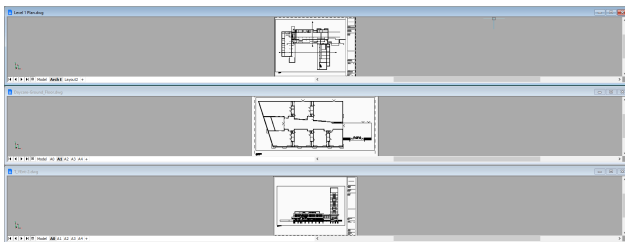
Cascade

Overlaps windows in a cascading arrangement like the WCASCADE command.



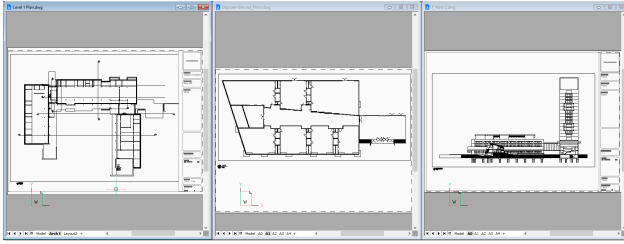
tile Horizontally

Arranges windows horizontally like the WHTILE command.



tile Vertically

Arranges windows vertically like the WVTILE command.



Arrange icons

Arranges icons of minimized windows at the bottom of the main window like the WIARRANGE command.

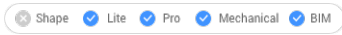





25. T

25.1 TABLE command

Opens the Insert table dialog box.



Icon: 

25.1.1 Description

Opens the **Insert Table** dialog box to create a table entity in the current drawing.

25.2 -TABLE command

Creates a table entity.



25.2.1 Description

Creates a table using specified number of columns and rows or automatically by specifying a point and dragging.

25.2.2 Method

There are 2 methods:

- By specifying the number of columns and rows.
- Automatically by dragging.

25.2.3 Option within the command

Style

Specifies the table style.

Width

Specifies the column width.

Height

Specifies the minimum row height.

Auto

Specify for the columns, rows or both to be created automatically by dragging.

Note: The Text Formatting window is displayed after creating the table.

25.3 TABLEEDIT command

Edits text in a table cell.





25.3.1 Method

Edits text in a table cell through the **Text Formatting** window.

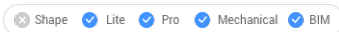
Note: To edit the format of cells, use the TABLEMOD command.

Note: The **Text Formatting** window operates the same way as the one from the MTEXT command.

Note: Error cells are evaluated as blank or zero values when used in another cell's formula.

25.4 TABLEEXPORT command

Exports the contents of a table.



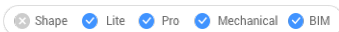
25.4.1 Method

Exports the contents of a table to a CSV or XML file, through the Export Data dialog box.

Note: The CSV file can be imported into spreadsheet and database programs to format and further process the data.

25.5 TABLEMOD command

Formats the properties of table cells and inserts blocks.



25.5.1 Method

Select a table cell to edit and the Table toolbar will be displayed.



Note: Hold the left mouse button and define a rectangle to select multiple cells.

Note: To edit format text in cells, use the TABLEEDIT command.

25.5.2 Options within the command

Insert row above

Inserts an empty row above the selected cell.

Insert row below

Inserts an empty row below the selected cell.

Delete row

Deletes the row(s) of the selected cell(s) without warning.

Note: Use the U command to reverse the change.

Insert column left

Inserts an empty column at the left of the selected cell.



Insert column right

Inserts an empty column at the right of the selected cell.

Delete column

Deletes the column(s) of the selected cell(s) without warning.

Note: Use the U command to reverse the change.

Merge cells (1)

Merges the selected cells. Click the icon and choose an option.

- **Merge All:** merges all selected cells into a single cell.
- **Merge by Row:** merges the selected cells into rows, each with one cell.
- **Merge by Column:** merges the selected cells into columns, each with one cell.

Note: When cells are merged, all their content is erased, except the content of the first cell.

Unmerge cells (2)

Splits previously merged cells by rows and columns. BricsCAD uses the row numbers (1, 2, 3, etc) and column letters numbers (A, B, C, etc) to know how to split the merged cells into the original set.

Note: When cells are unmerged, the content erased by the Merge Cells option is not restored.

Border style (3)

Sets the border style of the selection. Displays the **Cell Border Properties** dialog box.

Text alignment (4)

Sets the text alignment of text in the selected cells. Click the icon and choose an option.

Note: The content of each selected cell is aligned inside the cell. For example, if you select four cells and then choose Bottom Right, the content in each of the four cells is justified bottom-right.

Lock/unlock (5)

Locks and unlocks the content and/or the format of selected cells. Click the icon and choose an option:

- **Unlocked:** the selected cells are unlocked, which means that they can be edited.
- **Locked Content:** the content of the selected cells is locked, but the format of the cells can still be modified.
- **Locked Format:** the format of the selected cells is locked, but the content of the cells can still be edited.
- **Locked Format and Content:** the content and the format of the selected cells are locked.

Note: It is common to lock header cells.

Cell format (6)

Sets the cell format of the selection from the **Table Cell Format** dialog box.

Insert block reference (7)

Inserts a block or a drawing in the selected cell. Click the icon to display the **Insert Block in Cell** dialog box.

Note: Placing a large drawing in a small cell can lead to program instability.

Note: You can have both text and blocks in a single cell.



Note: Use the **Manage Cell Content** dialog box to arrange the text and blocks.

Manage cell content (8)

Manages blocks and drawings in cells; click the icon to display the **Manage Cell Content** dialog box.

Cell style

Sets the sub-style of the selected cells. Click on the drop list and choose a sub-style name:

- **Title:** the title style is usually applied to the topmost row of the table
- **Header:** the Header style is usually applied to the first row of a column
- **Data:** the Data style is usually applied to all other rows in the table

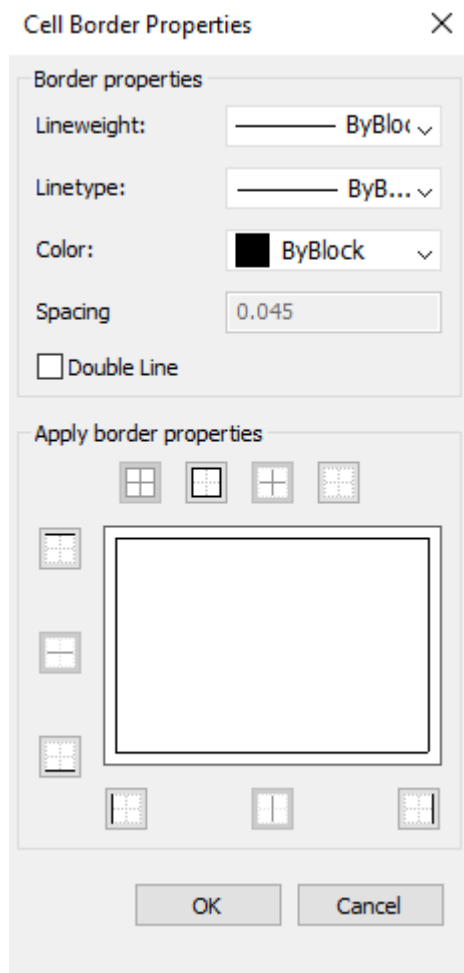
Note: The properties of the Header, Border, and Cell sub-styles are defined by the table style. See the TABLESTYLE command.

Cell background

Sets the background color of the selected cell(s). Click on the drop-down list and choose a color.

Cell border properties dialog box

The **Cell Border Properties** dialog box controls the border properties of a table cell.





Border properties

Determines the look of the borders that surround each cell. More information about the Lineweight, Line-type and Color properties can be found in **Properties** panel.

Note: The Spacing option is not implemented yet.

Apply border properties

Applies properties to only certain borders.

Note: Select more than one cell for the Inside borders option to work.

Note: Although the preview window only shows the double line effect, the other properties are applied to the specified cell border line.

OK

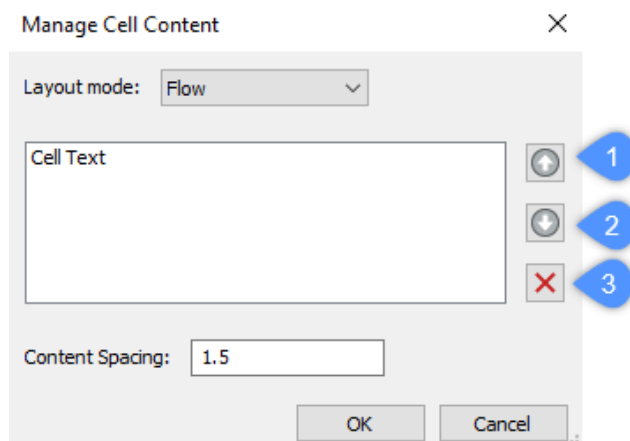
Exits the dialog box, applies the properties and returns to the Table toolbar.

Insert block in cell dialog box

The **Insert Block in Cell** dialog box manages the insertion of a block in a table cell (see **Insert Block in Cell** dialog box article).

Manage cell content dialog box

The **Manage cell Content** dialog box manages the content of a table cell.



Layout mode

When a cell contains more than one element, this option determines how they relate to each other. Click the drop list and then choose an option:

- **Flow:** arranges the elements to fit the cell.
- **Stacked horizontal:** forces the elements to be arranged horizontally.
- **Stacked vertical:** forces the elements to be arranged vertically.

Move Up (1)

Moves the selected element up in the list so that it appears above other elements in the cell.

Move Down (2)

Moves the selected element down in the list so that it's below other elements in the cell.

Delete (3)

Deletes the selected element from the cell.



Content Spacing

Specifies the distance between elements in the cell. Enter a number in drawing units.

Note: This option is inoperable.

OK

Exits the dialog box, changes the arrangement of the cell's contents, and then returns to the Table toolbar.

25.5.3 Context Menu Options

When the TABLEMOD command is running, right-click a cell to open its context menu.

Clear Cell Overrides

Resets the properties of cells to the Cell sub-style settings defined in the table style.

Clear Table Overrides

Resets the table properties to those defined in the table style.

Insert Block Reference

Inserts blocks and drawings.

Manage cell Content

Manages the text and blocks in cells.

Copy

Copies the content of the cell(s) to the Clipboard for pasting into other cell(s).

Cut

Cuts the content of the cell(s) to the Clipboard for pasting into other cell(s).

Paste

Pastes cell content from the Clipboard into cell(s), with these caveats:

- All content in the cell is replaced by the pasted item.
- When more than one cell is selected for pasting, content is pasted only in the first cell.
- Non-cell data is not pasted, such as entities from the drawing or text from another application.

Insert DataLink

Adds data from an external file to the end of the table. Acceptable file formats are:

- CVS: ASCII files in which fields are separated by a delimiter character, such as comma or tab.
- XLS: older Excel spreadsheet files.
- XLSX: new Excel spreadsheet files.

Note: For more details, see the DATALINK command.

Remove DataLink

Removes the link to the table, but the data remains in the table.

Note: Only available when the table has a datalink.

Update DataLink

Updates the data in the table from the external file.

Note: Available only when the table has a datalink.



Size rows equally

Sizes the selected rows to match the size of the tallest cell in the selection set.

Size columns equally

Sizes the selected columns to match the size of the widest cell in the selection set.

Size all rows equally

Sizes all rows in the table to match the tallest row.

Size all columns equally

Sizes all column in the table to match the widest column.

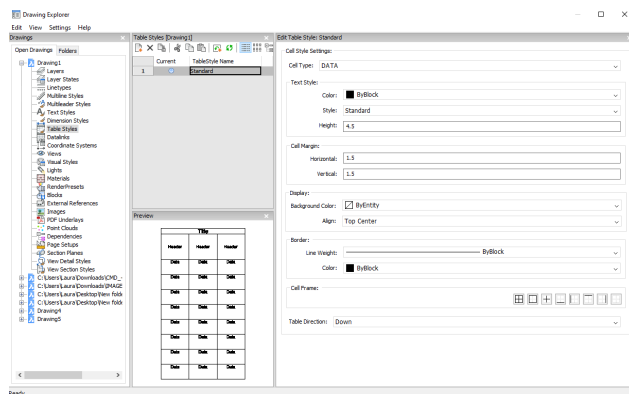
25.6 TABLESTYLE command

Opens the Drawing explorer dialog box with **Table Styles** selected.



25.6.1 Description

Opens the Drawing explorer dialog box with **Table Styles** section selected to view and modify table styles in the current drawing.



25.6.2 Options within the command

Cell style settings

Defines the cell style settings for each cell style: Title, Header, and Data. Click the drop-down list and choose a cell style.

Text Style

Sets the Color, Style and Height for the selected cell style.

Cell Margin

Defines the spacing between the cell border and the content of the cell.

Horizontal

Specifies the distance between the cell content and the vertical cell borders.

Vertical

Specifies the distance between the cell content and the horizontal cell borders.



Display

Defines the background color and the text alignment.

Background color

Specifies background color This can be done from the drop-down list or through the Color dialog box.

Align

Specifies an alignment through a drop-down list

Border

Sets the lineweight and color of the cell borders.

Lineweight

Sets lineweight through a drop-down list.

Color

Pick a border color from the drop-down list, or else choose Select Color to display the Color dialog box.

Cell Frame

Applies the border properties to specific lines that make up the cell frames.

Table Direction

Determines the direction in which the table grows when you add and remove rows.

Down

The title and header cells at the top, and the table grows downwards.

Up

The title and header cells at the bottom, and the table grows upwards.

25.6.3 Context Menu Options

New

Creates a new table style.

Delete

Deletes table style definitions from the drawing. The following table style definitions cannot be deleted

- Table styles in use
- 'Standard' table style

Rename

Renames the select table style.

Select All

Selects all table style definitions.

Invert selection

Deselects the current selection and vice versa.

Set current

Sets the selected table style as current.

25.7 TABLET command

Configures digitizing tablets.



Shape Lite Pro Mechanical BIM

Alias: TA

25.7.1 Description

Works only with Windows, and requires that Wintab32.dll be installed in folder *C:\Windows\System32*.

25.7.2 Method

Toggles tablet mode. Configures and calibrates digitizing tablets.

25.7.3 Options within the command

ON

Turns on digitizing mode so that the entire surface of the tablet can be used for picking points and choosing entities, like a mouse.

OFF

Turns off digitizing mode to make available the menu areas for choosing commands.

CALibrate

Calibrates the corners of the tablet.

ConFiGure

Configures the tablet's menu areas.

25.8 TABSURF command

Creates a 3D mesh surface by extruding an 2D entity along a straight path entity.

Shape Lite Pro Mechanical BIM

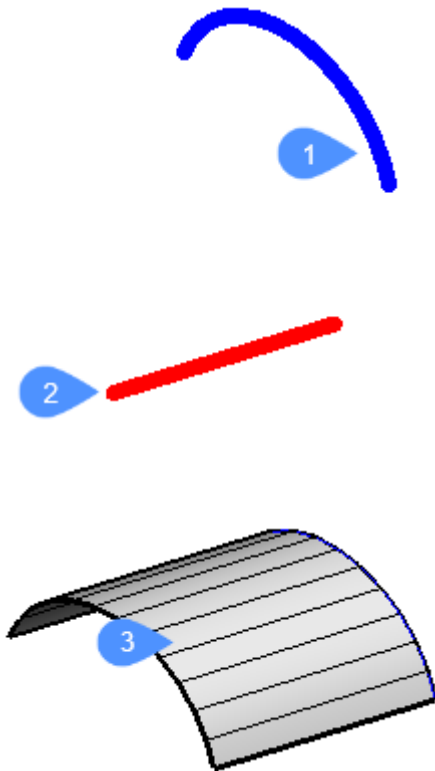
Icon: 

25.8.1 Method

Specify the cross-section shape (1) of the extrusion. The entity to be extruded must be open and must be a single entity.

Specify the extrusion path (2), which can be a line or open polyline. The polyline need not be a line segment. If it is a polyarc or multisegment polyline, the extrusion (3), however, is always "straight," going from the start to the endpoint of the polyline.

The path is a vector, which means its length specifies the length of the surface. Its direction specifies the direction of extrusion. The extrusion starts at the entity to be extruded, but goes in the direction indicated by the path. The end selected on the polyline or line defines the direction of the extrusion.



25.9 TANGENT command

Toggles the Tangent entity snap.

Shape Lite Pro Mechanical BIM

Icon:

25.9.1 Description

Toggles the Tangent entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

25.10 TCASE command (Express Tools)

Changes the case of the selected text entities.

Icon:

25.10.1 Method

Opens the **Change Text Case** dialog box that allows you to change the case of selected text entities.

25.11 -TCASE command (Express Tools)

Changes the case of the selected text entities via the Command line.



25.11.1 Method

Select the text entities you want to change and specify the case mode.

25.11.2 Options within the command

Sentence

Capitalizes the first letter of the first word.

Lower

Changes all letters of the selected text to lowercase.

Upper case

Capitalizes all letters of the selected text.

Title

Capitalizes the first letter of each word.

toGgle

Changes the first letter of each word to lowercase and capitalizes the rest of the letters.

25.12 TCIRCLE command (Express Tools)

Surrounds text, mtext or attribute definition entities with circles, rectangles or slots.

Icon: 

25.12.1 Method

Select the entities and enter an offset factor.

25.12.2 Options within the command

Circles

Draws a circle around the selected text.

Slots

Draws a slot around the selected text.

Rectangs

Draws a rectangle around the selected text.

Constant

Surrounds selected entities with entities that are all the same size, the size of the largest enclosing entity.

Enter constant slot

Allows you to choose between **Width**, **Height** and **Both**.

Note: This option is available only for **Slots** and **Rectangs**.

Variable

Adjusts to the size of each selected entity, based on the offset factor.

25.13 TCONNECT command

Connects solid faces and edges of planar surfaces to other solids, planar surfaces or regions.

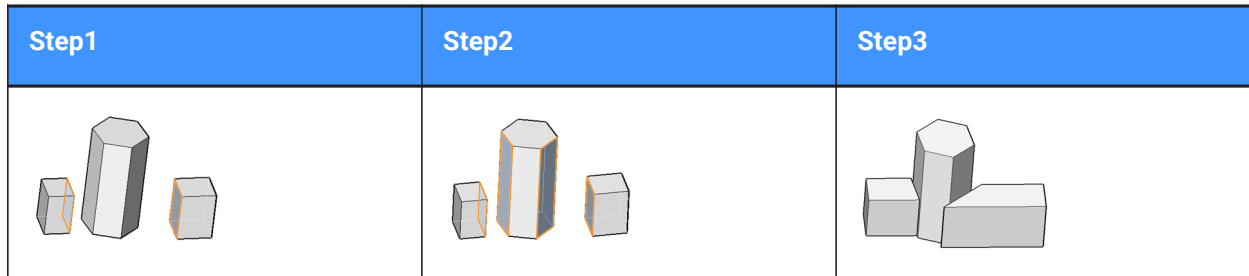


Shape Lite Pro Mechanical BIM

Icons:  

25.13.1 Description

Connects the selected solid faces or edges of the planar surfaces to other solid faces, planar surfaces or regions.

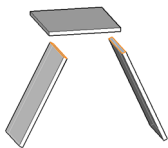


Note: If the DELETEINTERFERENCE system variable is ON, the connected solid is subtracted from interfering solids.

25.13.2 Options within the command

Connect to nearest

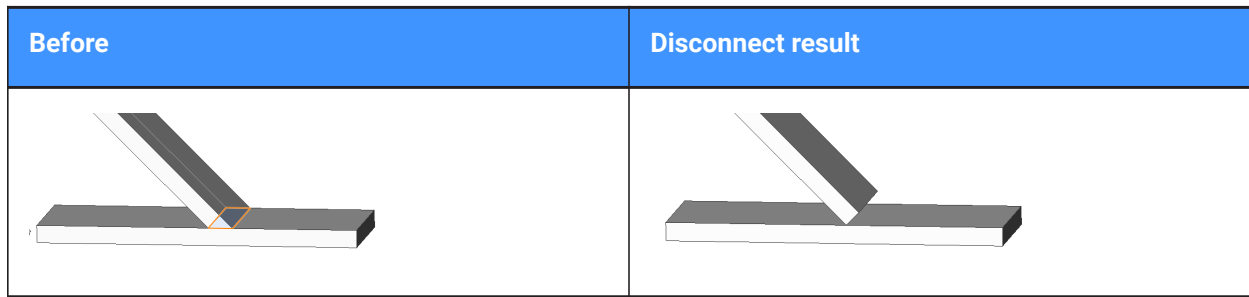
Connects the selected face(s) or edges of planar surfaces to the nearest regions, planar surfaces or face(s) of other solid(s).



Disconnect

This option applies to solid faces only. The face is disconnected and made perpendicular to the adjacent faces, which results in a single edge or vertex connection.

Select a 3D solid face, planar surface or region to disconnect from the nearest face in the model (or the currently connected face).




Connect

Switch to the connect face mode.

25.14 TCOUNT command (Express Tools)

Adds a sequential numbering to text and mtext entities.

Icon: 

25.14.1 Method

- 1 Select text entities.
- 2 Specify the sorting method.
- 3 Enter starting number and increment, separated by comma.
- 4 **Note:** Negative increments are supported.

Note: Sequential numbering is added to each line of mtext entities and to individual text entities.

25.14.2 Options within the command

X

Adds numbering by increasing the x-coordinate values of the selected text entities.

Y

Adds numbering by decreasing the y-coordinate values of the selected text entities.

Select-order

Adds numbering according to the order in which the text entities have been selected.

Overwrite

Replaces the selected texts with a sequential numbering.

Prefix

Adds numbering in front of the text string.

Suffix

Adds numbering after the text string.

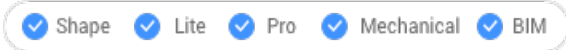
Find&replace

Replaces a specified text string with a sequential number.



25.15 TEMPLATEFOLDER command

Accesses the folder holding template files.



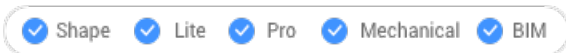
25.15.1 Description

Opens the Templates folder in which the program stores DWT template files; the folder is displayed by the operating system's file manager. To open the template file as a new drawing, double-click a file name.

By default, the template files are found here: `C:\Users\<user_name>\AppData\Local\Bricsys\BricsCAD\Vxx\en_US\Templates`.

25.16 TEXT command

Creates a single-line text entity.



Icon: T

Alias: TX

Note: When the TextEval system variable is set to 1, this command evaluates LISP expressions.

25.16.1 Method

There are two methods:

- Places single lines of text in the drawing by specifying height of text and rotation angle.
- Evaluates LISP expressions.

Note: If the text style is annotative, the height value defines the paper space height of the text. The model space height depends on the current annotation scale as defined by the CANNOSCALE and CANNOSCALEVALUE system variables.

25.16.2 Options within the command

use defined Style

Changes the text style to use for the text.

?

Lists all styles defined in the current drawing.

Align on line

Aligns text between two points.

Note: This option suppresses the height and angle prompts, because the height and angle are determined by the two pick points.

Fit between points

Fits text between two points and prompts for the height.



Note: This option suppresses the angle prompt, because the angle is determined by the two pick points. Entering certain heights can cause the text to be excessively elongated or squeezed.

Center horizontally

Centers text in the middle of the baseline.

Middle (hor/vert)

Centers text on the middle of the text.

Right justify

Right-justifies each line of text.

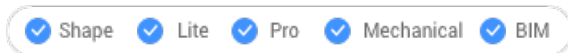
Justification options...

Displays all justification options. Choose between: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right.

Note: Text can be moved or stretched through grips.

25.17 -TEXT command

Places single-line text in drawings.



Alias: -T

25.17.1 Description

Places single lines of text in the drawing, unformatted; works at the Command line.

See the TEXT command.

25.18 TEXTEDIT command (Express Tools)

Edits the selected text entity.

25.18.1 Description

Opens the In-Place text editor to edit the selected text entity.

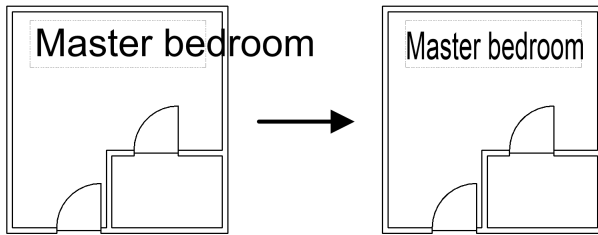
25.19 TEXTFIT command (Express Tools)

Fits text between two selected points.

Icon:

25.19.1 Method

Select a text to stretch or shrink and specify the end point.




25.19.2 Options within the command

Start point

Allows you to specify a new starting point for the selected text entity.

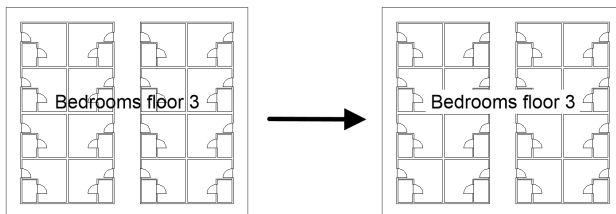
25.20 TEXTMASK command (Express Tools)

Creates a mask behind the selected text or mtext entities.

Icon: 

25.20.1 Method

Creates a mask entity behind the selected text or mtext entities, by specifying the mask type and the offset value.



Note: Use the TEXTUNMASK command to remove the mask from the text.

25.20.2 Options within the command

Masktype

Allows you to set the mask type.

Wipeout

Creates a wipeout entity, displayed in the background color of the drawing.

3d face

Creates a 3D face entity.

Solid

Creates a 2D solid entity, using a specified color.

Opens the **Select Color** dialog box which allows you to select the color.

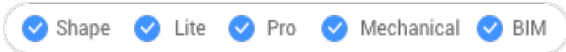
Offset

Allows you to define an offset distance.



25.21 TEXTSCR command

Switches to the text screen.



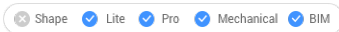
25.21.1 Description

Displays the Prompt History window (short for "text screen"). This window displays the last 256 lines of command and prompt text. To display greater or fewer lines of history, change the value of the SCRLHIST variable. To return to the graphics screen, enter the GRAPHSCR command or press F2.

Note: A context menu displays when you right click on the command history. See the full description in the Command line panel article.

25.22 TEXTTOFRONT command

Displays text and/or dimensions on front of all other drawing entities.



Icon:

25.22.1 Description

Brings the display of all text and/or all dimensions to the front of the display order, so that no other drawing entities can overlap text and dimensions.

25.22.2 Options within the command

Text

Brings all text to the front of the display order.

Dimensions

Brings all dimensions to the front.

Both

Brings both text and dimensions to the front.

25.23 TEXTUNMASK command (Express Tools)

Removes the mask from behind selected text or mtext entities.

Icon:

25.24 TFRAMES command (Express Tools)

Toggles visibility of image and wipeout frame borders.

Icon:

25.24.1 Method

Automatically changes the frame display of wipeouts and images in the drawing.



- **TFRAMES is OFF:**

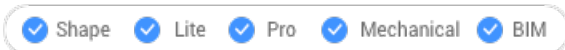


- **TFRAMES is ON:**



25.25 TIFFOUT command

Saves the selected entities to a TIFF file format.



25.25.1 Method

Opens the **Save TIFF** dialog box that allows you to choose a name and a folder for the .tif file.

Select the entities you want to include in the TIFF file.

Note: The TIFF file reflects what is shown on the screen.

25.26 TIME command

Reports the use of time in the drawing.



Icon:

Alias: TI



25.26.1 Description

Reports the date and time the drawing was created, last updated, and spent editing; works at the Command line.

```
: TIME
The current time is:      Wed Sep 15, 2021 12:17:58
Drawing was created:     Wed Sep 15, 2021 12:17:50
Drawing was last updated: Wed Sep 15, 2021 12:17:50
Total editing time:      0 days 0 hours 0 minutes 8.0470 seconds
Elapsed timer (on):      0 days 0 hours 0 minutes 8.0770 seconds
[timer ON/timer OFF/Display timer/Reset timer]:
```

25.26.2 Options within the command

timer ON

Turns on the independent (“elapsed”) timer. The program reports, “The drawing timer is ON.”.

timer OFF

Turns off the independent timer. The program reports, “The drawing timer is OFF.”.

Display timer

Reports the date and time the drawing was created, last updated, and the amount of time spent editing (that the drawing was open).

Reset timer

Resets the independent timer.

25.27 -TIN command

Creates a TIN Surface using only the Command line (you have to introduce all file names and their path manually).



25.27.1 Description

A TIN Surface is a three-dimensional geometric representation of a terrain or a civil feature, which also includes its representation with triangles, contours, slopes and elevation ranges.

The algorithm connects the nearest lying points into triangles that form a Triangular Irregular Network (TIN), using the Delaunay triangulation method.

You can affect the way points are connected by adding boundaries and breaklines to the TIN Surface.

Triangles always follow specified boundaries and breaklines and never intersect them. You can also edit the TIN Surface with other options available in the TINEDIT command.

A TIN Surface is dynamically linked to its input data, while other Civil entities such as Gradings, Alignments and Corridors are dynamically linked to the TIN Surface.

25.27.2 Method

You can create a TIN Surface from different type of input data:

- From CAD elements (points and linear entities) and Civil points.
- From imported point files.
- From Civil points, for which the position and elevation is specified in the drawing.



- From 3D Face elements.
- From Point Cloud element.
- From a specified point group.

Select a set of points, polylines, 3D faces or a point cloud in the drawing to create a TIN Surface. Points are added to the surface as TIN points, 3D polylines are added to the surface as breaklines. Linear entities can be added to the TIN Surface as breaklines, edges or points.

25.27.3 Options within the command

Import from file

Creates a TIN surface from an imported points file in text file format (.txt), comma-delimited file format (.csv) and other text formats where the XYZ coordinates in the input file are separated by any delimiter. You can select multiple point files to create a TIN surface. The file names and their path have to be introduced in the Command line.

Enter file format name

Sets the file format name. Predefined format names are listed in the **Select surface file** dialog box.

place Points

Creates a TIN surface from picked points.

create from Faces

Creates a TIN Surface by selecting 3D faces. You can choose to add edges of 3D faces as breaklines (Y) or to create TIN Surface only with points of 3D Faces (N).

create from Point Cloud

Creates a TIN Surface from a Point Cloud.

create from Point Groups

Creates a TIN Surface from a Point Group.

cLip polygon

Creates a TIN Surface only in the area defined by the CLIP polygon (a closed polyline).

Note: An option exists to remove the crossed breaklines, if any.

Simplify the TIN surface?

Yes: the TIN Surface created from an imported points file is simplified, and from a Point Cloud by reducing the points density. The surface simplification process is defined by setting values for the radius or simplification step, and for elevation difference.

No: a TIN Surface is created from all points in the input point file or in Point Cloud.

Note: After the first iteration of the simplification, a report on the command line displays, stating the number of points before simplification, the number of removed points and the number of points after simplification. In the next step, you can choose between the options **Simplify again** or **Create TIN Surface**.

Create TIN surface

Creates the TIN Surface.



Densify TIN surface

Yes: after the TIN Surface is simplified, the maximum elevation difference between the simplified TIN Surface and the excluded input points on a specified area in a TIN Surface is specified. All input points with a greater elevation difference than specified are added back to the simplified TIN Surface.

No: the TIN surface is created according to the specified parameters for simplification.

Enter for entire TIN surface

Applies the densify process for the entire TIN Surface.

Select polygons

Applies the densify process for the selected polygons.

Draw polygon


Applies the densification for a polygon, specified in a drawing.

Note: The parameters for TIN Simplify and TIN Densify processes can be subsequently edited using the appropriate definition for creating a TIN surface in **Civil Explorer**.

25.28 TIN command

Creates a TIN Surface.



Icon: 

25.28.1 Description

A TIN Surface is a three-dimensional geometric representation of a terrain or a civil feature, which also includes its representation with triangles, contours, slopes and elevation ranges.

The algorithm connects the nearest lying points into triangles that form a Triangular Irregular Network (TIN), using the Delaunay triangulation method.

You can affect the way points are connected by adding boundaries and breaklines to the TIN Surface.

Triangles always follow specified boundaries and breaklines and never intersect them. You can also edit the TIN Surface with other options available in the TINEDIT command.

A TIN Surface is dynamically linked to its input data, while other Civil entities such as Gradings, Alignments and Corridors are dynamically linked to the TIN Surface.

25.28.2 Method

You can create a TIN Surface from different type of input data:

- From CAD elements (points and linear entities) and Civil points.
- From imported point files.
- From Civil points, for which the position and elevation is specified in the drawing.
- From 3D Face elements.
- From Point Cloud element.
- From a specified point group.



Select a set of points, polylines, 3D faces or a point cloud in the drawing to create a TIN Surface. Points are added to the surface as TIN points, 3D polylines are added to the surface as breaklines. Linear entities can be added to the TIN Surface as breaklines, edges or points.

25.28.3 Options within the command

Import from file

Creates a TIN surface from an imported points file in text file format (.txt), comma-delimited file format (.csv) and other text formats where the XYZ coordinates in the input file are separated by any delimiter. The **Select surface file** dialog box opens to select the file name and point file format.

place Points

Creates a TIN surface from picked points.

create from Faces

Creates a TIN Surface by selecting 3D faces. You can choose to add edges of 3D faces as breaklines (Y) or to create TIN Surface only with points of 3D Faces (N).

create from Point Cloud

Creates a TIN Surface from a Point Cloud.

create from Point Groups

Creates a TIN Surface from a Point Groups.

cLip polygon

Creates a TIN Surface only in the area defined by the CLIP polygon (a closed polyline).

Note: An option exists to remove the crossed breaklines, if any.

Simplify the TIN surface?

Yes: the TIN Surface created from an imported points file is simplified, and from a Point Cloud by reducing the points density. The surface simplification process is defined by setting values for the radius or simplification step, and for elevation difference.

No:: a TIN Surface is created from all points in the input point file or in Point Cloud.

Note: After the first iteration of the simplification, a report on the command line displays, stating the number of points before simplification, the number of removed points and the number of points after simplification. In the next step, you can choose between the options **Simplify again** or **Create TIN Surface**.

Create TIN surface

Creates the TIN Surface.

Densify TIN surface

Yes: after the TIN Surface is simplified, the maximum elevation difference between the simplified TIN Surface and the excluded input points on a specified area in a TIN Surface is specified. All input points with a greater elevation difference than specified are added back to the simplified TIN Surface.

No: the TIN surface is created according to the specified parameters for simplification.

Enter for entire TIN surface

Applies the densify process for the entire TIN Surface.

Select polygons

Applies the densify process for the selected polygons.



Draw polygon

Applies the densification for a polygon, specified in a drawing.

Note: The parameters for TIN Simplify and TIN Densify processes can be subsequently edited using the appropriate definition for creating a TIN surface in **Civil Explorer**.

25.29 TINASSIGNIMAGE command

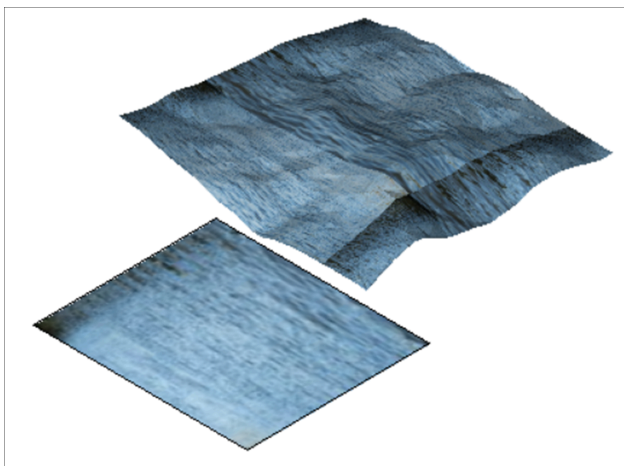
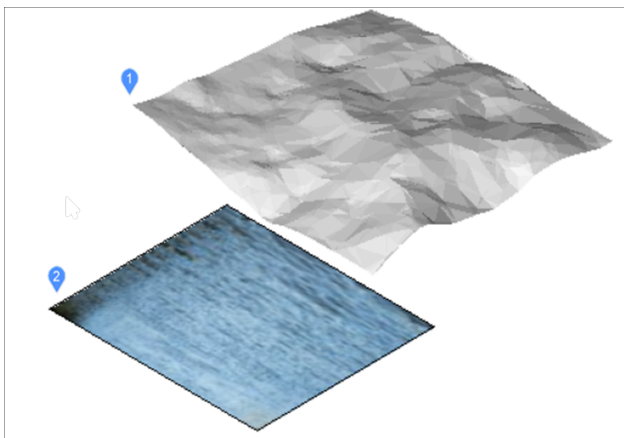
Assigns a raster image as a TIN surface material.

Shape Lite Pro Mechanical BIM

Icon:

25.29.1 Method

Select the TIN surface (1) and select an attached raster image (2) to assign to the surface.



Note: When you assign a very large raster image to a TIN surface, a warning message is displayed that offers a way to automatically create a reduced raster.

25.30 TINEDIT command

Allows editing a topographical surface (TIN surface).



Shape Lite Pro Mechanical BIM

Icons:

25.30.1 Description

Allows you to add or remove points or point groups on a TIN (triangulated irregular network) surface. You can add breaklines and boundaries.

Pick points and specify their elevation value to add them to an existing TIN surface or choose another option in the Command line.

25.30.2 Options within the command

Add Points

Sets points or linear entities to add to a TIN surface.

Add Point Groups

Enables you to select point groups to add to a TIN surface.

Note: Civil point groups need to be defined first.

Add Breaklines

Sets linear entities to be added as breaklines to a TIN surface.

Standard

Adds standard breaklines.

Projected

Adds projected (non-destructive) breaklines.

Add bOundaries

Sets a closed polyline as boundaries to add to a TIN surface.

You can choose the boundary type:

Show

Shows the surface boundary inside a hidden surface boundary.

Hide

Hides the surface boundary.

Outer

Creates an outer surface boundary.

Clip

Clips an existing TIN Surface in the drawing with a selected polygon as the clipping boundary for the surface.

You can choose to remove the polygonal breaklines or not.

Remove Points

Deletes points from a surface.

Multiple

Allows you to select multiple points to remove whole polygons from the TIN surface.



Swap Edge

Deletes a selected edge of the surface.

Point Location

Allows you to modify a point location by specifying the point to edit location and the new location.

Multiple

Allows to select multiple points to edit on the TIN surface.

Point Elevation

Allows you to modify a point elevation by specifying a point and entering a new elevation value.

Multiple

Allows you to select multiple points to edit the elevation of whole polygons from the TIN surface.

Add Line

Allows you to add a new line by specifying the first point and the second point.

Delete Line

Deletes lines covered by a selection window.

Note: The lines to be deleted are displayed in red.

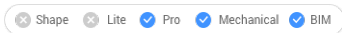
Remove Outer Edges

Removes edges that do not correspond with the entered characteristics.

- Maximum triangle length
- Minimum triangle length
- Maximum angle

25.31 TINEXTRACT command

Extract entities from TIN surface to which creates a mesh or 3D solid between TIN surfaces or between a TIN surface and elevation or vertical offset.



Icon:

25.31.1 Description

Creates a mesh or 3D solid between two TIN surfaces or between a TIN surface and elevation or vertical offset.

Select a TIN surface and choose which entity want to extract or create.

25.31.2 Options within the command

Mesh

Creates a mesh as an offset, between surfaces or as an elevation:

vertical offset

Creates a mesh as a vertical offset above the TIN surface.

between Surfaces

Creates a mesh between two TIN surfaces.



Elevation

Creates a mesh vertically from a TIN surface to a fixed elevation height.

Solid

Creates a solid as an offset, between surfaces or as an elevation.

vertical offset

Creates a solid as a vertical offset above the TIN surface.

between Surfaces

Creates a solid between the TIN surfaces.

Elevation

Creates a solid vertically from a TIN surface to a fixed elevation height.

Points

Extracts all points on the surface.

Faces

Extracts all triangular faces of the surface.

Contours

Extracts the contours of the surfaces for an elevation.

Minor

Extracts the contours of the surfaces for elevation according to minor contours interval set in TIN surface properties panel .

maJor

Extracts the contours of the surfaces for elevation according to major contours interval set in TIN surface properties panel.

All

Creates contours for all elevations.

Border

Extracts the outer boundary of the surface.

25.32 TINMERGE command

Combines two or more TIN surfaces (or gradings) into a new TIN surface.



Icon: 

25.32.1 Description

Combines a base surface and two or more other TIN surfaces to merge with, which will replace the part of the base surface that it covers.

25.32.2 Methods

Select a base TIN surface and one or more TIN surfaces to merge with, and specify if you want to keep or delete the original surfaces.



25.32.3 Options within the TINMERGE command

Removal of original surfaces

- **Yes**
The original surfaces are deleted. This options results in a merged TIN surface that cannot be edited.
- **NO**
The original surface to merge is not deleted. This option results in 2 TIN surfaces:
 - Original TIN surface to merge
 - When selecting and moving this surface, the merged TIN surface changes accordingly.
 - Merged TIN surface.

25.33 TINMODIFY command

Deforms or smoothens a selected TIN surface.



Icon:

25.33.1 Description

Modifies a selected TIN surface by deforming or smoothing it or creates a new modified TIN surface.

25.33.2 Options within the command

Deform

Modifies the selected TIN surface or creates the deformable part as a new TIN surface.

specify Contour

Creates a deformation with a contour.

select Entity

Creates a deformation with an elevated chosen closed entity.

Note: Net volume = fill-cut.

draw Polygon

Creates a deformation with an elevated polygon.

Smoothen

Modifies the selected TIN surface by smoothing it between the indicated boundaries.

Creates a circular smoothing boundary by indicating a radius value and a location where you want the smoothing.

select Entity

Smoothens the surface part between the boundaries of an entity.

Select a closed entity for the smoothing and choose a location where you want the smoothing.

draw Polygon

Smoothens the surface part between the boundaries of a polygon.


Pick points for a polygon and press ENTER to Close the polygon and choose a location where you want the smoothing.



25.34 TINPROJECT command

Projects a point-based entities or linear entities to a TIN surface.

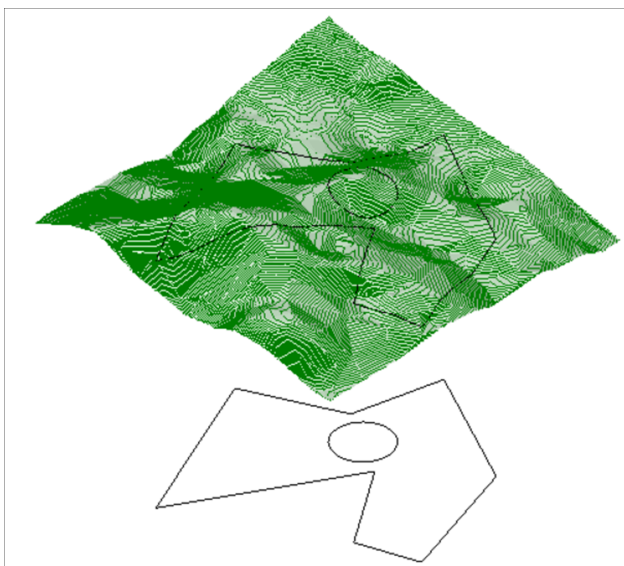
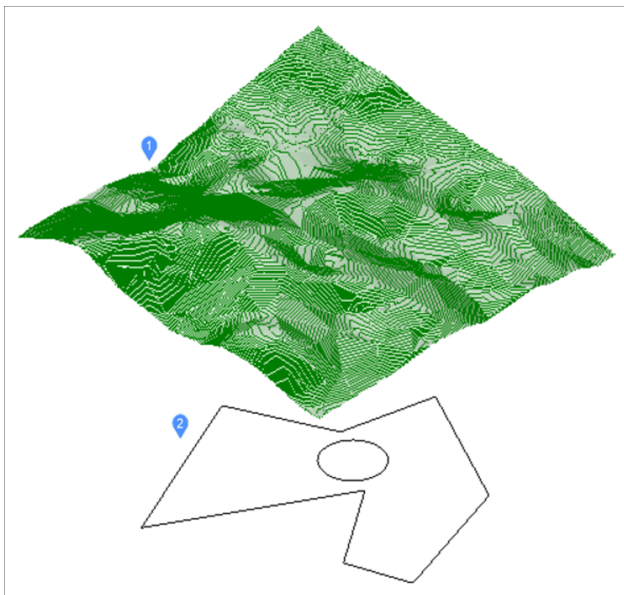
Shape Lite Pro Mechanical BIM

Icon: 

25.34.1 Description

Projects point entities (Point, Block, Text) or linear entities (Line, Polyline, Circle) to a TIN Surface.

Select the TIN surface (1), select the entities to project (2) and choose to keep or delete the projected entities.





25.35 TINSERT command

Inserts blocks into the cell of a table.

Shape Lite Pro Mechanical BIM


25.35.1 Method

Pick a table cell to open the **Insert Block in Cell** dialog box.

25.36 TINVOLUME command

Creates a TIN volume surface between a base and comparison TIN surfaces or an elevation.

Shape Lite Pro Mechanical BIM

Icon: 

25.36.1 Method

When the TIN Volume Surface associativity option of the Civil / Associativity user preference is set, TIN volume surfaces automatically rebuild when their source surfaces change.

Select the base and the comparison TIN surfaces between which a TIN volume surface will be created and select a bounding area for the TIN volume surface.

25.36.2 Options within the command

Elevation

Creates a TIN volume surface between a base and an elevation.

Select the base TIN surface, enter the desired elevation value and select a bounding area for the TIN volume surface.

25.37 TINWATERDROP command

Creates water drop paths in real-time by moving the cursor over a TIN Surface. Water path is created as a 3D polyline in the current position if you click the left mouse button.

Shape Lite Pro Mechanical BIM

Icon: 

25.37.1 Method

Select the TIN surfaces, move the cursor over the surface and a line representing the drop path is shown in real time. Click the left mouse button to create the 3D polyline of the water drop path.

25.38 TIPS command

Displays the Tips panel.

Shape Lite Pro Mechanical BIM



25.38.1 Description

Displays the Tips panel, which provides helpful advice on using certain commands.

25.38.2 Method

There is no command named Tips. To display this panel, right-click a toolbar or the ribbon, and then choose Tips from the context menu.

Note: The Tips panel is always open in Shape.

25.39 TJUST command (Express Tools)

Changes the justification point of text, mtext, and attribute definition entities.

Icon: 

25.39.1 Options within the command

Start

Justifies the text at the left of the baseline.

Center

Justifies the text in the center of the baseline.

Middle

Justifies the text in the center.

Right

Justifies the text on the right of the baseline.

TL

Justifies the text at the top left of the text.

TC

Justifies the text at the top in the middle.

TR

Justifies the text at the top right of the text.

ML

Justifies the text in the middle left.

MC

Justifies the text in the middle center.

MR

Justifies the text in the middle right.

BL

Justifies the text at the bottom left.

BC

Justifies the text at the bottom center.

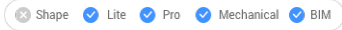


BR

Justifies the text at the bottom right.

25.40 TOLERANCE command

Opens the Geometric tolerance dialog box.



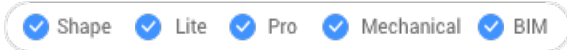
Icon:

25.40.1 Description

Opens the Geometric tolerance dialog box to add tolerance symbols to the current drawing.

25.41 TOOLBAR command

Toggles the display of toolbars at the Command line.



25.41.1 Method

Enter the name of the toolbar or choose the All option to turn all toolbars on or off.

25.41.2 Options within the command

Show

Displays the toolbar(s).

Hide

Hides the toolbar(s).

Left

Docks the toolbar(s) on the left.

Right

Docks the toolbar(s) on the right.

Top

Docks the toolbar(s) to the top.

Bottom

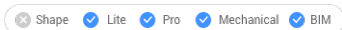
Docks the toolbar(s) to the bottom.

Float

Show the floating toolbar(s).

25.42 -TOOLBAR command

Toggles the display of toolbars at Command line.



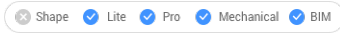


25.42.1 Description

For more information see TOOLBAR command.

25.43 TOOLPALETTES command

Opens the Tool palettes panel.

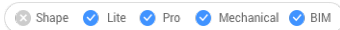


25.43.1 Description

Opens the Tool palettes panel to display it in the current workspace. The Tool palettes panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Tool palettes panel can be either floating, docked or stacked.

25.44 TOOLPALETTECLOSE command

Closes the Tool palettes panel.

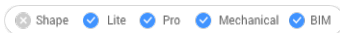


25.44.1 Description

Closes the Tool palettes panel to hide it from the current workspace. If the Tool palettes panel is stacked when you close it, the Tool palettes tab or icon is removed from the stack.

25.45 -TOOLPANEL command

Toggles the display of panels.



25.45.1 Description

Turns the display of panels on and off, such as the Properties and Tips panels.

25.45.2 Method

There are two methods to toggle panels:

- Enter the name of the panel, and then choose a display option.
- Enter ? to list the names of all panels in the program.

25.45.3 Options within the command

Show

Displays the tool panel.

Hide

Hides the tool panel.

Toggle

Toggles the display of the tool panel, On and Off.



25.46 TORIENT command (Express Tools)

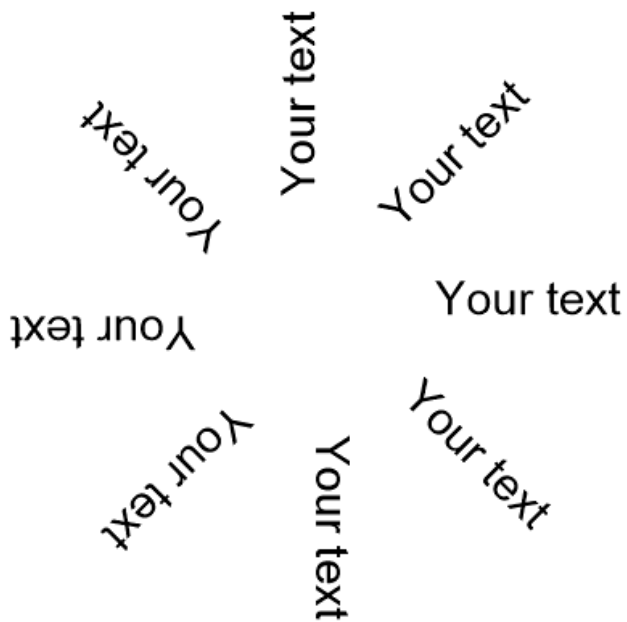
Rotates text, mtext, attribute definitions and block attribute entities to new orientation.

Icon:

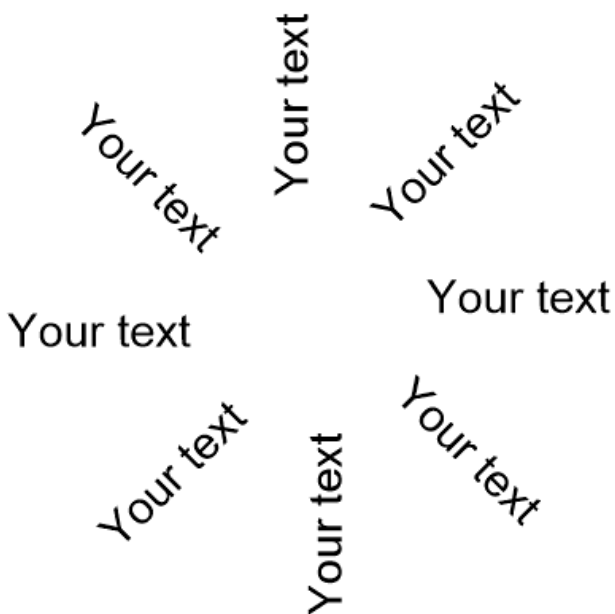
25.46.1 Method

Select entities and specify the rotation angle. The entities are rotated around their middle point in 180-degree increments.

- **Original text:**



- **Best fit:**





- Specified angle of 0 degree:

Your text
Your text Your text

Your text Your text

Your text Your text
 Your text

25.46.2 Options within the command

Best fit

Orients the text in the most readable way.

25.47 TORUS command

Creates a 3D Solid in the shape of a torus.



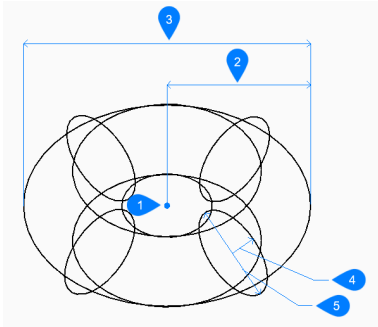
Icon: 

Alias: TOR

Note: In BricsCAD Lite, which doesn't support 3D Solids, the TORUS command launches the AI_TORUS command.

25.47.1 Description

Creates a 3D Solid in the shape of a torus. Choose from a combination of options including center and the radius or diameter of both the whole torus and the body of the torus.



- 1 Center
- 2 Radius of the whole torus
- 3 Diameter of the whole torus
- 4 Radius of the body
- 5 Diameter of the body

25.47.2 Methods to create a torus

This command has 1 method to begin creating a torus:

- Center of whole torus

Center of whole torus

Begin creating a torus by specifying its center then:

Set radius of whole torus

Specify the overall radius of the torus. The radius is measured from the center of the whole torus to the center of the body (tube) of the torus.

Additional option: [Diameter]

Set radius of body of torus

Specify the radius of the body (tube) of the torus.

Additional option: [Diameter]

25.47.3 Options within the TORUS command

After you begin creating a torus, the following options may be available:

Diameter (of whole torus)

Specify the diameter of the entire torus. The diameter is twice the distance from the center of the whole torus to the center of the body (tube) of the torus.

Diameter (of body of torus)

Specify the diameter of the body of the torus.

25.48 TPNAVIGATE command

Loads tool palettes at the Command line.





25.48.1 Description

Loads a tool palette or palette group by name. If the Tool Palettes panel is not already open, then it is displayed (short for "tool palette navigation"). This command is meant for use by macros.

25.48.2 Method

There are two methods to load tool palettes:

- Specify the tool palette to display by entering the name of a palette.
- Specify the palette group to display by entering the name of a group.

25.49 TRACE command

Draws traces.



Icon:

Note: This command is rarely used as the PLINE command is more convenient.

25.49.1 Description

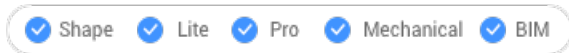
Draws traces, like wide lines, with mitered vertices.

The trace is not drawn until the second pick point. The delay allows BricsCAD to determine the mitering needed at vertices, which this command does automatically.

Note: The FILLMODE system variable affects the look of traces.

25.50 TRANSPARENCY command

Toggles the transparency of monotone images.



Icon:

25.50.1 Methods

This command allows to set the transparency for a certain type of images. When transparency is on, the background color of the image is transparent.

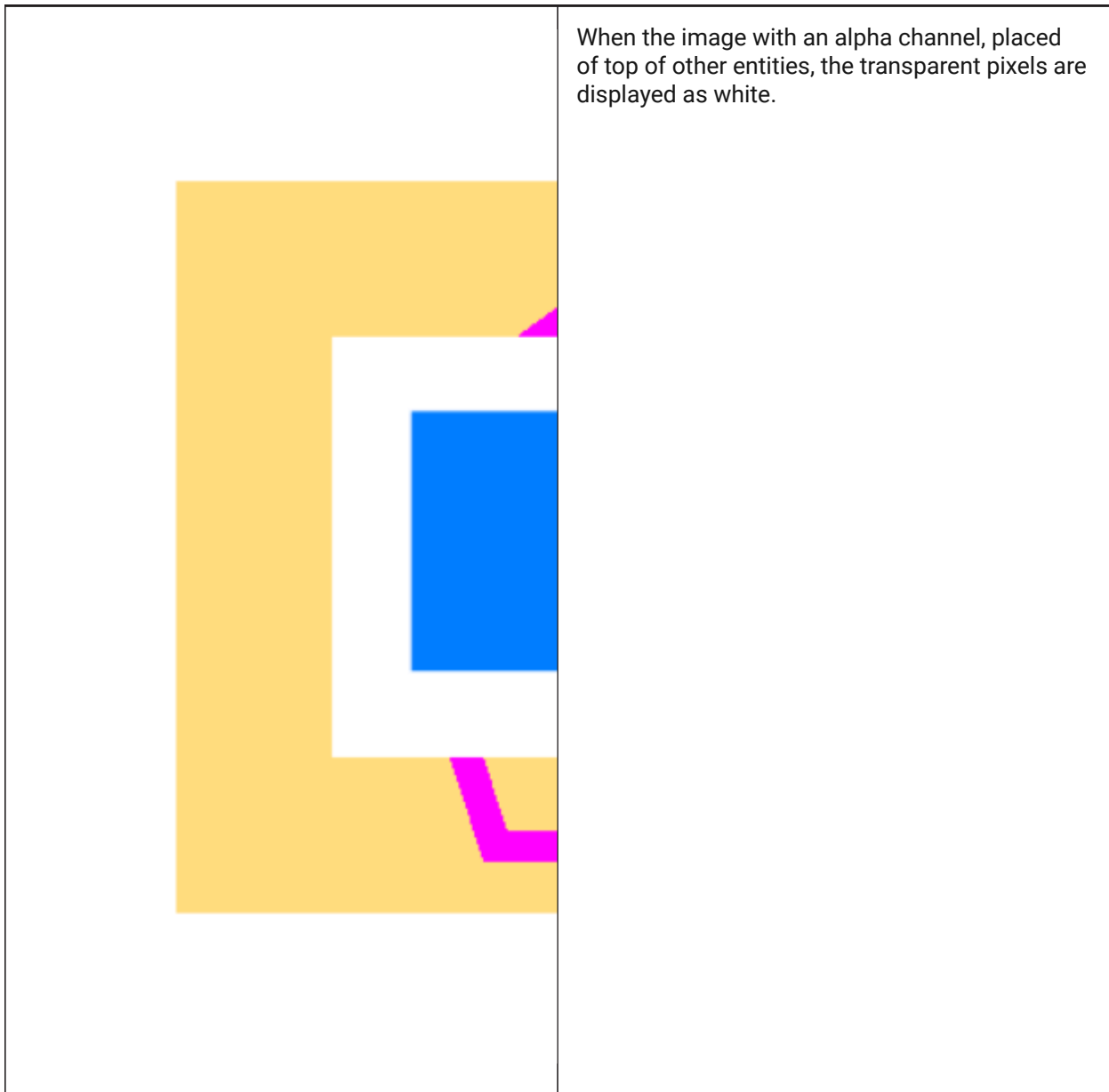
Note: To change the transparency of entities, use the Transparency property in the LAYER and PROPERTIES commands.

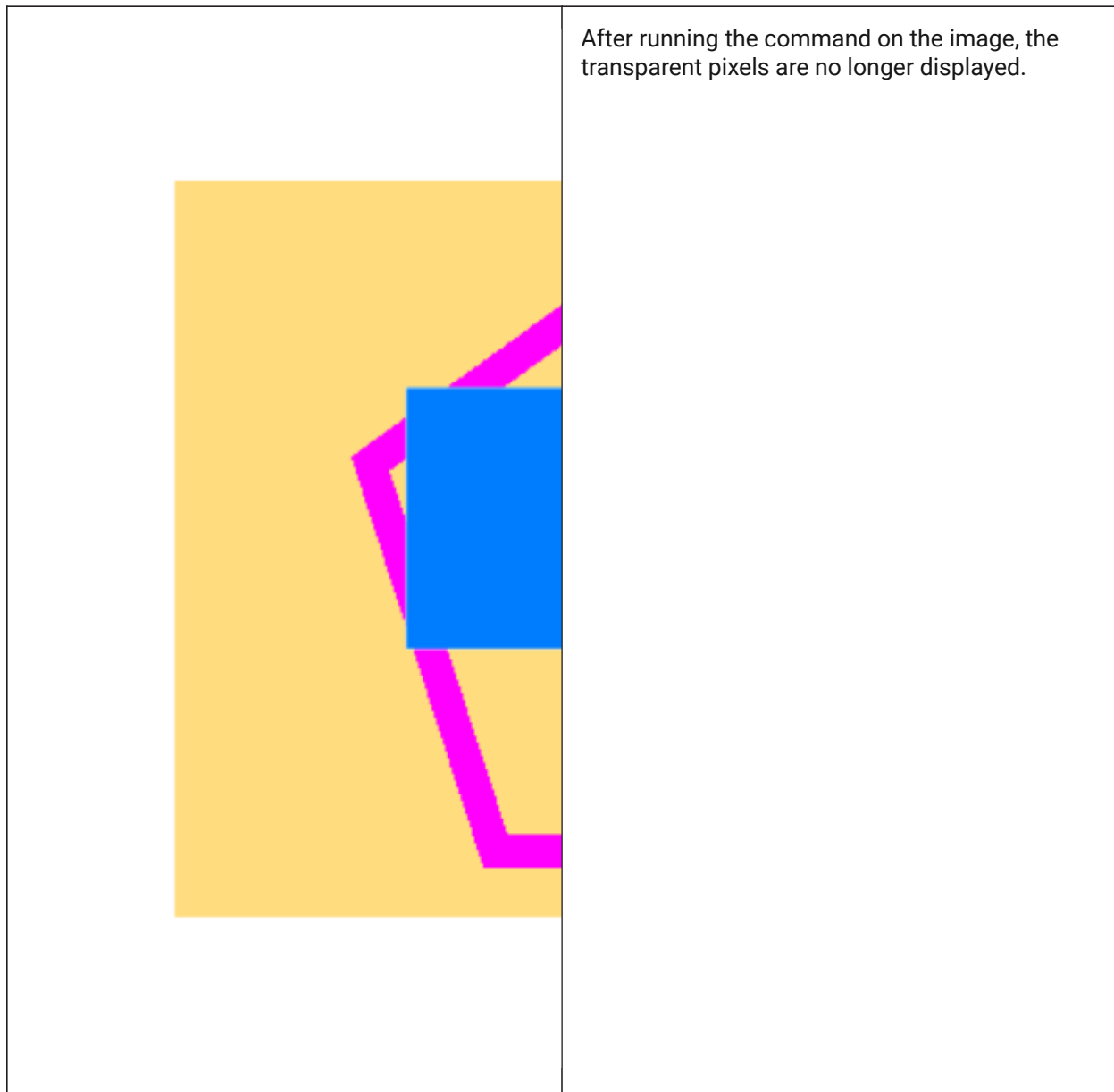
There are two main categories of images that can be processed by this command:

- Images that contain transparency in form of an alpha channel, usually PNG and TIFF formats.
- Images that do not contain an alpha channel.

Example of an image that contains an alpha channel

The images with an alpha channel can be processed by the TRANSPARENCY command. Before running the command on the image, its transparent pixels will be displayed as white. After the command has been run on the image, its transparent pixels will no longer be displayed.





Example of an image that does not contain an alpha channel

Before processing this kind of images, they must be converted to a monochrome palette using some photo editor.

There are some conditions for an image to be affected by this command and to obtain a satisfactory result:

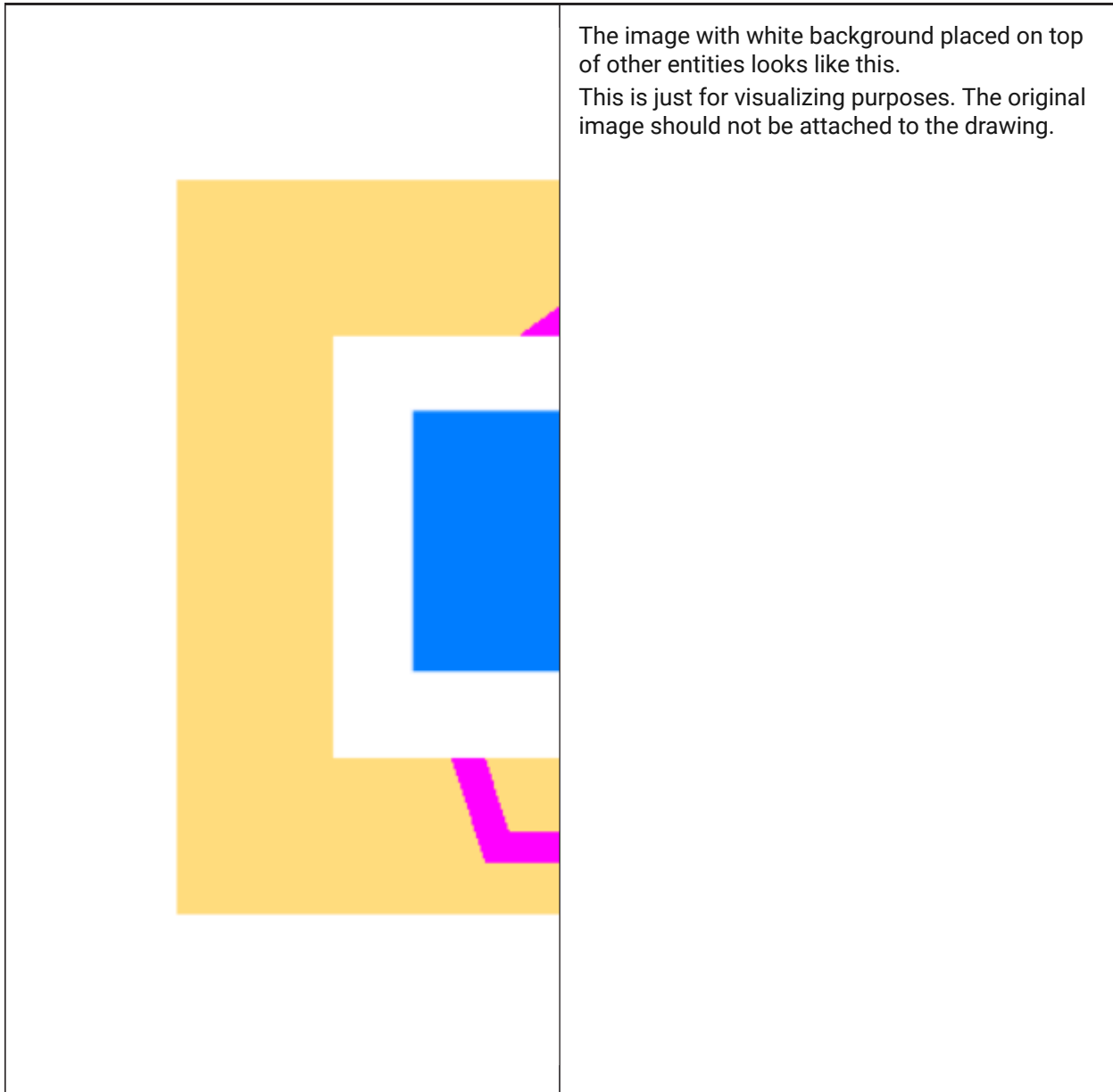
1. The image must be in TIFF, BMP or PNG graphical format.
2. The background color of the image must be white or very close to white.
3. The image must have a good contrast between the objects in focus and the background.
4. In a photo editor, there should be applied a Threshold adjustment. This way, there would be only two colors in the image: black and white.

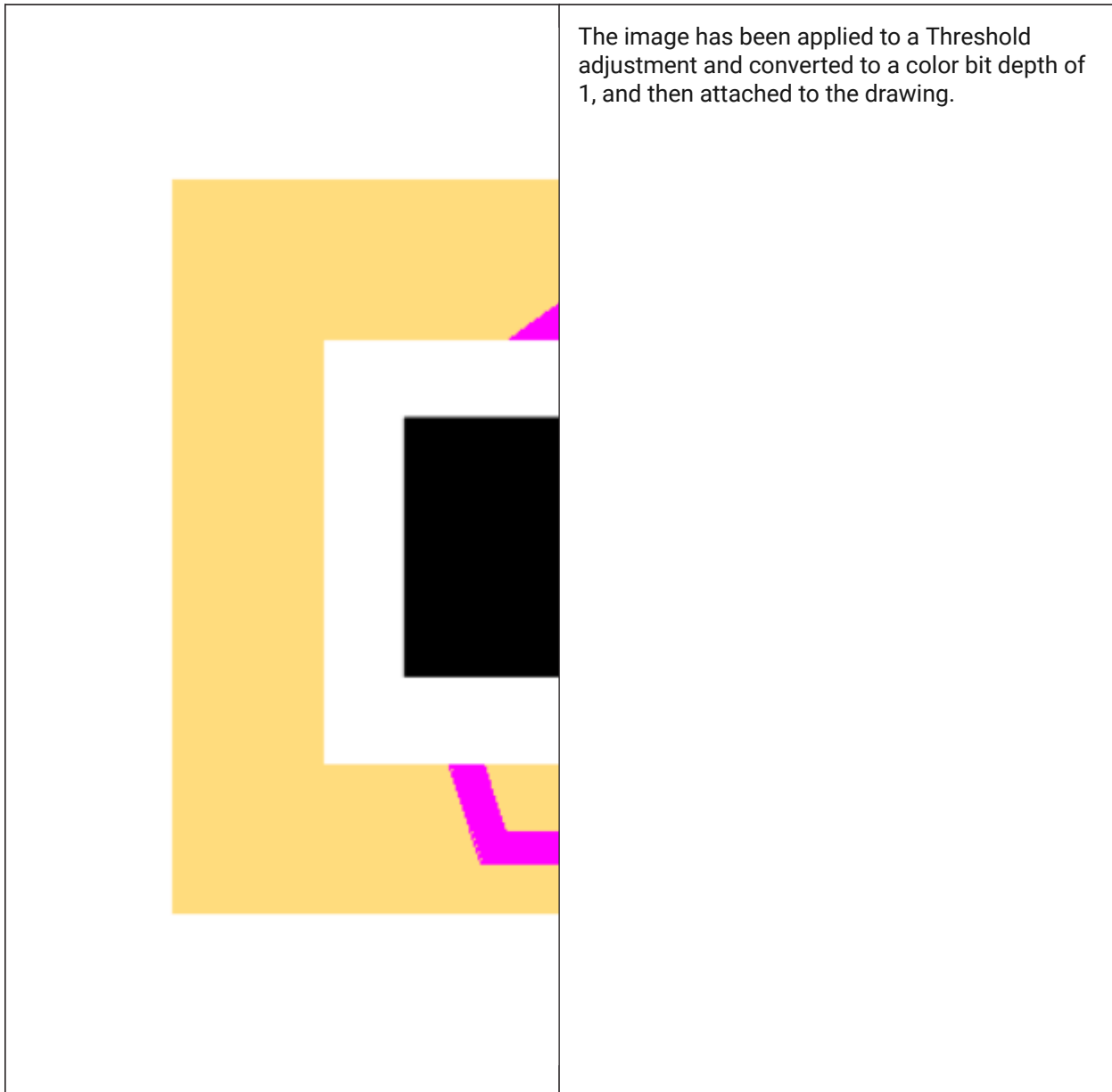


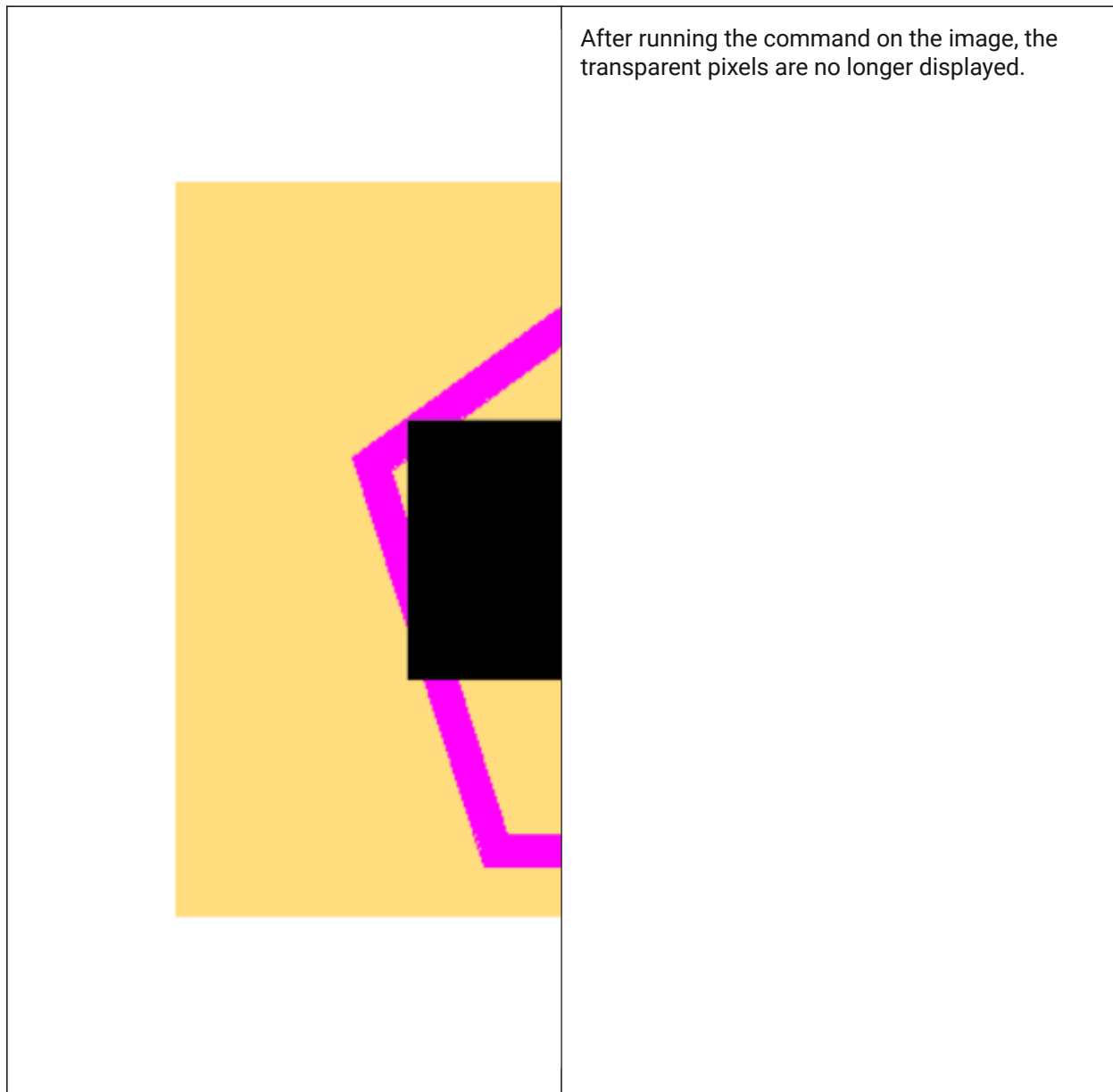
5. The image must be saved in a graphical format with a color bit depth of 1.

Note: Saving with a color bit depth of 1 is an important step. Even if there are only black and white colors in the image, the graphical format could be different than this. Check the graphical format before attaching the image to the drawing.

After running the command on the image, the white pixels will become transparent.







Other graphical formats, as JPEG, are not affected by this command. The files that have one of these formats must be converted using a photo editor that can output according to the specifications above.

25.50.2 Options within the command

selection options(?)

Allows to choose a selection method. See the SELECT command.

Enter transparency mode [ON/Off]

Toggles the transparency of the selected images.

25.51 TREX command (Express Tools)

Extends or trims entities.



25.51.1 Method

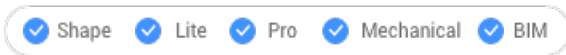
Select cutting/boundary edges or press Enter for all entities.


Note: Click entities to trim or hold the Shift key + click to extend.

See also the EXTEND and TRIM command articles.

25.52 TRIM command

Trims entities by a cutting line.



Icon: 

Alias: TR

25.52.1 Method

There are two methods:

- Trims entities.
- Extends entities while holding down the Shift key.

Note: The following entities can be trimmed: lines, two and three dimensional polylines, arcs, circles, ellipses, elliptical arcs, splines, rays and infinite lines.

Note: Cutting entities can be: lines, splines, polylines, arcs, circles, elliptical arcs, ellipses, rays, infinite lines, layout viewports.

25.52.2 Options within the command

Edge mode

Toggles edge mode.

Extend

Trims entities that do not physically intersect the cutting entity.

No extend

Trim only entities that intersect.

Projection

Defines how intersections are projected.

Note: This option affects the operation of the Edge mode option.

No projection

Entities are not projected.

Ucs

Entities are projected according to the current UCS.

View

Entities are projected according to the current view plane.



eRase

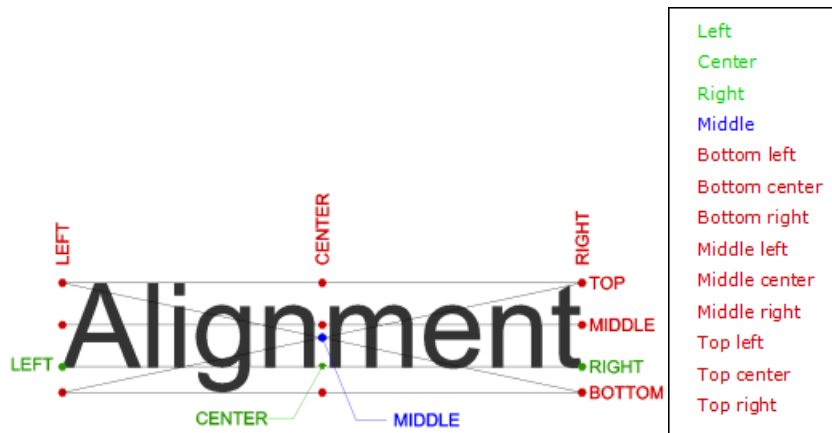
Undoes the last trim action.

25.53 TSCALE command (Express Tools)

Scales texts, mtexts, attributes and attribute definitions.

25.53.1 Method

Select the entities and specify the justification used for scaling.



25.53.2 Options within the command

Scale

Allows you to specify a scale factor.

Height

Allows you to specify the text height.

25.54 TSPACEINVADERS command (Express Tools)

Creates a selection set of the text entities that have another entity that overlaps it.

25.54.1 Method

Select the entities you want to check for overlapping entities or type **all** to check the entire drawing. The number of overlapping entities is displayed in the command line.

25.54.2 Options within the command

Should each text be queried individually?

Allows you to decide if each text should be queried individually.

Y

All overlapping entities are highlighted one by one. It allows you to choose if you want to add the highlighted entity to the selection set.

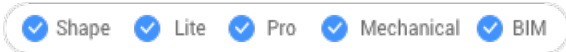
N

The command ends and creates a selection set.



25.55 TXT2MTEXT command (Express Tools)

Combines a selection of TEXT and MTEXT entities into a single MTEXT entity.



Alias: COMBINETEXT

25.55.1 Method

Select the TEXT and MTEXT objects to combine. The combination is made depending on the value of the COMBINETEXTMODE system variable.

25.55.2 Options within the command

Settings

Displays the options of the COMBINETEXTMODE system variable in a dialog box.

Combine into a single mtext

Combines the selected TEXT entities into a single MTEXT entity.

Sort top-down

Specifies the order of the selected text entities by descending vertical position.

Word-wrap text

Combines all selected TEXT entities into a single line and then wraps any text that exceeds the width of the MTEXT to the next line. The MTEXT width matches the width of the largest text entity in the selection. Paragraphs in the selected MTEXT entities are preserved.

Uniform linespacing

Applies consistent interline spacing.

25.56 TXTEXP command (Express Tools)

Explodes text into polylines.



25.56.1 Method

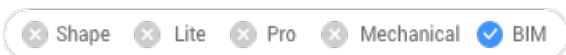
Select the TEXT entities to be exploded.

Note: SHP and TTF fonts are exploded to individual polylines and polyarcs.

Note: The command does not explode attributes in blocks or text in tables, or text in another space (Model vs Paper). Standalone attributes are, however, exploded.

25.57 TYPEDPLANS command

Opens the **BIM Typed Plans** dialog box.



Icon:



25.57.1 Description

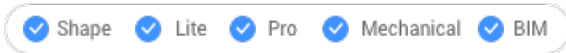
Opens the **BIM Typed Plans** dialog box, listing all Typed Plans in the support folder. You will be able to customize drawing plans as well as the BIM Tags.



26. U

26.1 U command

Reverses the action of the previous command.



Icon:

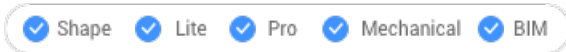
26.1.1 Description

Reverses the action of the previous command to restore entities to their prior state.

This command displays no prompts and has no options.

26.2 UCS command

Creates and displays user-defined coordinate systems (UCS) through the command line.



Icon:

26.2.1 Method

Specify a new UCS origin through one, two or three points in the drawing or choose one of the command's options.

26.2.2 Options within the command

Face

Aligns the UCS to a face of a 3D solid.

Note: This option works only with flat 3D faces and not curved ones, such as on a sphere.

Flip

Reverses the direction of the Z-axis.

Xrotate

Rotates the UCS 180° about the X-axis.

Yrotate

Rotates the UCS 180° about the Y-axis.

NAMed

Creates, restores and deletes names UCSs.

?

Lists the names of UCSs in the drawing.

Note: Type:

- *to list all UCS names.



- name* to list name of UCSs that begin with name.
- name to list the UCS specified by name.

Entity

Aligns the UCS to a selected entity.

UCS definition

Represents the orientation and type of entity defining the orientation of the UCS.

Note: The UCS origin is located to the end point, center point, or vertex closest to the pick point. The x-axis is aligned with the entity or an edge. The x,y-plane is aligned to the entity's plane. For ambiguous objects with obvious orientation, like a circle, the orientation is maintained.

Previous

Changes the UCS to the previous one.

View

Sets the UCS to the current viewpoint.

Note: The x axis and y axis are parallel to the view edges. The z axis is perpendicular to the view, with positive Z-axis pointing to the viewer. The origin is copied from the previous coordinate system.

X

Rotates the current UCS about the X-axis.

Y

Rotates the current UCS about the Y-axis.

Z

Rotates the current UCS about the Z-axis.

Z Axis

Sets the UCS relative to the Z-axis.

Note: Y-plane is perpendicular to the Z-axis with the X-axis horizontal and the Y-axis pointing upwards.

Move

Moves the origin of the current UCS, keeping the orientation of the axes.

World

Switches to the world coordinate system (WCS).

26.3 UCSICON command

Controls the display of the UCS icon.



26.3.1 Description

The UCS icon is displayed differently, depending on the visual style and workspace.

The colors denote the directions of the axes. It can be controlled by the COLORX, COLORY, COLORZ system variables.



26.3.2 Options within the command

display in All views

Applies the changes to all viewports.

display at ORigin

When the origin is outside of the viewport, the UCS icon is displayed at the corner defined by the UCSICONPOS system variable.

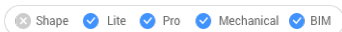
display in Corner

Displays the UCS icon in the viewport corner defined by the UCSICONPOS system variable.

Note: The values for UCSICONPOS system variable are displayed in the Settings dialog box.

26.4 UNDEFINE command

Removes access to commands temporarily.



26.4.1 Method

Enter the name of the command to undefine.

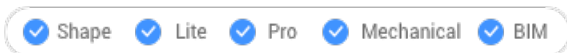
Undefined commands are accessed:

- By prefixing the command name with a dot, such as: .CommandName.
- By using the REDEFINE command to recover the command name.

Note: Commands are undefined by developers who want to replace the command with a more extensive version they're written, or to prevent neophytes from using destructive commands, like ERASE and EXPLODE.

26.5 UNDO command

Undoes one or more commands.



Icon: ↶

26.5.1 Description

Undoes one or more commands. BricsCAD reports the commands being undone.

Note: Some commands cannot be undone.

26.5.2 Options within the command

Number of steps to undo

Specifies the number of commands to undo by entering a number.

Mark

Sets a marker.



Back to mark

Undoes all commands back to when the marker was set.

BEGIN set

Sets the start to a group that groups the following commands. The UNDO command treats the commands in the set as a single undo.

End set

Ends the group of commands.

Control

Specifies several options for the command.

None

Turns off the undo mechanism.

Note: This is useful when disk space is running low, because the undo mechanism uses disk space.

One

Limits this command to a single undo. The UNDO command is changed into the U command.

All

Turns on the Undo mechanism.

Layer

Specifies whether the UNDO command combines Layer dialog operations.

Auto

Considers all commands executed by a macro as a single undo.

Note: When Control is set to **None** or **One**, the **Auto**, **Begin** and **Mark** options are not available.

26.6 UNDOENT command

Undoes revisions to entities.



26.6.1 Description

Reverses editing changes made to individual entities. Acts like the UNDO command, but is specific to each entity.

This command treats a block, xref, or 3D solid as a single entity, but a group as individual entities.

26.6.2 Options within the command

Number of steps to undo

Specify the number of editing steps to reverse. After the initial revision is undone, the entity is erased from the drawing.

rEvisions

Report the number of revisions the selected entity has undergone.

eXit

Exit the command.



Redo

Reverses the undo action.

Note: When an entity is connected to other ones, such as an edge connected to a face, BricsCAD asks if the other entities should be reverted. Alternatively, use the History drop-down list in the Properties panel to undo revisions to entities.

26.7 UNGROUP command

Explodes groups of entities.



Icon:

26.7.1 Method

There are two methods to explode a group of entities:

- By selecting the group.
- By entering its name in the Command line.

26.7.2 Options within the command

Name

Enter the name of a group to explode.

?

Lists the groups existing in the drawing.

26.8 UNION command

Performs Boolean union operations on 3D solids and 2D regions.



Icon:

Alias: UNI

Note: In the BricsCAD Lite license level, the command applies to region entities only.

26.8.1 Description

Performs Boolean union operations on 3D solids and 2D regions by adding set of entities to another set to form a single entity.

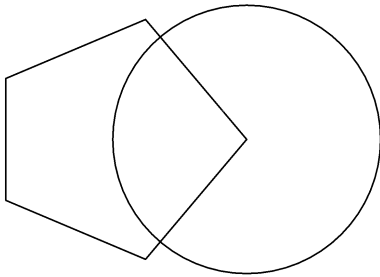
Note: The resulting entity takes on the properties of the ACIS entity selected first.

26.8.2 Method

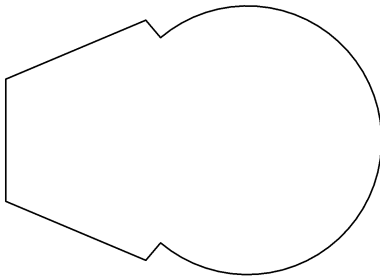
Specify the ACIS entities to join into a single entity. The program joins regions and 3D solids into a single entity.



The entities selected:



Result:



Note: You can interrupt the command by pressing the CANCEL button.

26.9 UNISOLATEOBJECTS command

Unhides entities.



Icon:

Alias: UNHIDE, INHIDOBJECTS, UNISOLATE

26.9.1 Description

Unhides entities that were hidden by the HIDEOBJECTS and ISOLATEOBJECTS commands.

Note: The UNISOLATEOBJECTS command is enabled under BEDIT and REFEDIT sessions.

26.10 UNITS command

Opens the Settings dialog box with the **Drawing Units** category expanded.



Icon:

Alias: DDUNITS, UN

26.10.1 Description

Opens the Settings dialog box with the **Drawing Units** category expanded to view and modify relevant system variables.



26.11 -UNITS command

Sets units of linear and angular measurements in the Command line.

Shape Lite Pro Mechanical BIM

Alias: -UN

transparent: '-units

26.11.1 Options

Unit mode (LUNITS)

- 1 Scientific 4.225E+01
- 2 Decimal 42.25
- 3 Engineering 3'-6.25"
- 4 Architectural 3'-6 1/4"
- 5 Fractional 42 1/4

Number of decimal places for LUNITS

Specifies the display precision for decimal units. Enter a number between 0 and 8:

- **0** - 0 decimal places, such as 0.
- **1** - 1 decimal places, such as 0.0
- **2** - 2 decimal places, such as 0.00
- **3** - 3 decimal places, such as 0.000
- **4** - 4 decimal places, such as 0.0000
- **5** - 5 decimal places, such as 0.00000
- **6** - 6 decimal places, such as 0.000000
- **7** - 7 decimal places, such as 0.0000000
- **8** - 8 decimal places, such as 0.00000000

This option also affects the display precision of fractions used by architectural and fractional units:

- **0** - 0 fractional precision, such as 1
- **1** - 1/2
- **2** - 1/4
- **3** - 1/8
- **4** - 1/16
- **5** - 1/32
- **6** - 1/64
- **7** - 1/128
- **8** - 1/256

Angular unit mode (AUNITS)

Specifies the display style of angular units. Enter a number:

- 1 Decimal degrees 90.0



- 2 Degrees/minutes/seconds 90d0'0
- 3 Grads 100.00g
- 4 Radians 1.57r

5 Surveyor's units N 00d0'0"E

There are 400 grads in a circle. There are 2π radians (approximately 6.282) in a circle. The N and E in Surveyor's units refers to North and east.

AUNITS variables stores the style of angular units.

Number of decimal places for angular units

Specifies the number of decimal places. Enter a number between 0 and 8.

Angle 0 direction

Specifies the direction for 0 degrees. Enter an angle, or pick two points in the drawing. The default is the positive x axis. You can also rotate the drawing through the Snap command's Rotate option.

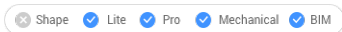
Do you want angles measured clockwise?

Specifies the direction in which to measure angles:

- **Yes** - measures angles clockwise
- **No** - measures angles counterclockwise (default)

26.12 UPDATEFIELD command

Updates the display values of fields.



Icon:

26.12.1 Description

Fields are lines of text that change as conditions in drawings change.

UPDATEFIELD forces selected field text to update, to reflect the changes.

26.13 UPDATELAYOUTBLOCK command

Updates an inserted layout block reference.



26.13.1 Method

Updates a layout block reference inserted using the INSERTLAYOUT command according to the source drawing layout changes.

Select inserted block

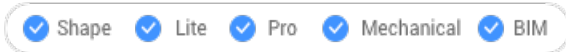
Select the inserted layout block reference that should be updated.


Note: For the block to be updated, the name of the source file must be the one from when the layout was inserted.



26.14 URL command

Opens the default Web browser.



Icon: 

26.14.1 Description

Opens the default Web browser to browse the internet starting from a specified URL. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

26.15 USAVE-CLOSEALL command (Express Tools)

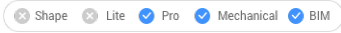
Closes all drawings without saving them, except for the active one.



27. V

27.1 VBAIDE command

Opens the Microsoft Visual Basic editing window for writing and debugging VBA code (short for "visual basic for applications integrated development environment").



Icon:

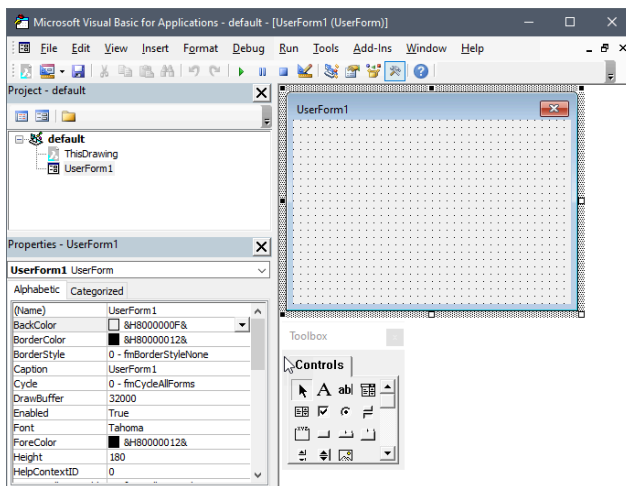
Alias: VBA

Keyboard Shortcuts: **Alt+F11**

Note: Command only available on the Windows platform.

27.1.1 Description

Displays a window:

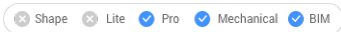


27.1.2 Option within the command

See the help files provided by Microsoft for Visual Basic.

27.2 VBALOAD command

Opens the Open dialog box.



27.2.1 Description

Opens the Open dialog box to select a dvb or vbi file to load. After the project is loaded, use the VBARUN command to run macros within the project.

27.3 -VBALOAD command

Loads VBA projects.



Shape Lite Pro Mechanical BIM

27.3.1 Description

Loads a VBA project; works in the Command line (short for “Visual Basic for Applications”).

27.4 VBAMAN command

Opens the VBA manager dialog box.

Shape Lite Pro Mechanical BIM

27.4.1 Description

Opens the VBA manager dialog box to manage VBA projects.

27.5 VBANEW command

Begins a new VBA project.

Shape Lite Pro Mechanical BIM

27.5.1 Description

Starts a new VBA project (short for “Visual Basic for Applications”).

27.6 VBARUN command

Opens the Run BricsCAD VBA macro dialog box.

Shape Lite Pro Mechanical BIM

27.6.1 Description

Opens the Run BricsCAD VBA macro dialog box to run and manage VBA macros.

27.7 -VBARUN command

Runs VBA macros.

Shape Lite Pro Mechanical BIM

27.7.1 Description

Runs a VBA macro defined in a DVB (drawing visual basic) file (short for “Visual Basic for Applications”). This command is meant for use by macros.

27.8 VBASESECURITY command

Opens the Security dialog box.

Shape Lite Pro Mechanical BIM

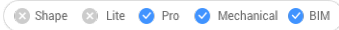
27.8.1 Description

Opens the Security dialog box to specify if VBA macros are allowed to run automatically.



27.9 VBAUNLOAD command

Unloads VBA projects.

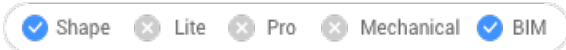


27.9.1 Description

Unloads DVB (drawing visual basic) project files from the program (short for “Visual Basic for Applications”).

27.10 VERSIONCONTROL command

Enables multi-user collaboration.



27.10.1 Description

Enables multi-user collaboration by storing and managing projects in the cloud. Drawings are stored in the cloud using Bricsys 24/7 and checked in and out from each user's local machine.

Note: This is Beta functionality and you must request access by submitting a support request following this procedure:

- 1 Log into your Bricsys account.
- 2 Choose New Support Request.
- 3 Open the BricsCAD menu and choose **BricsCAD > Version Control**.
- 4 In the Subject field enter: Access to VERSIONCONTROL Beta.
- 5 Fill in the rest of the fields as needed.
- 6 Choose Send Support Request.

27.10.2 Method

The first time you launch VERSIONCONTROL in a new BricsCAD session and choose one of the options, it prompts you to log into your Bricsys account.

If your account has not been granted access to the beta functionality, it directs you to a web page with instructions to request access.

If your account has access to the beta functionality, your successful login is indicated in the Command window and it prompts you to enter the name of the project on which you want to work.

27.10.3 Options within the command

Init

Creates a new multi-user project in Bricsys 24/7. If you are not already logged into your Bricsys account, the **Login** dialog box displays.

Project name

Once logged in, specify the name for the new project. If the project name already exists, you are prompted to specify a different project name.



Note: Keep in mind that project names are case-sensitive.

CReate local

Creates a new local version control project by entering the path of the considered folder to create a project from.

Version control folder

Allows you to specify the folder on your local machine to set under version control. The default location is *drive:\Users\username\Documents\Bricsys247\projectname*. However, you can specify any location.

- If the location doesn't exist, it's created and set under version control.
- If the location already exists, it's set under version control.
- If the location is already under version control, you are prompted to specify a different location.

check Out

Checks out a drawing from your Bricsys 24/7 projects.

CHeck In

Checks in drawings from your local version control folder to the associated Bricsys 24/7 project.

All

Checks in all files in the version control folder.

Commit

Commits a list of modified and untracked files.

Once the files to check in are selected, a Check in Message can be defined.

Check in Message

Enter a relevant Check In message.

Update

Syncs project drawings from your local folder with the associated Bricsys 24/7 project.

Revert

Reverts to previous state.

History

Enables you to go to older versions.

REname

Renames a drawing that is under version control.

History

Enables you to go to older versions.

27.11 VIEW command

Opens the Drawing explorer dialog box with **Views** selected.



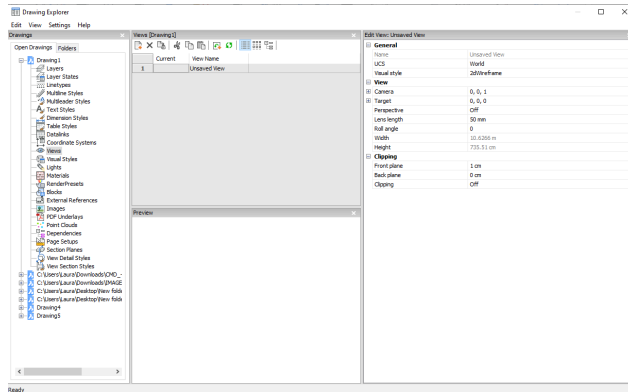
Icon:

Alias: DDVIEW, EXPVIEWS, V



27.11.1 Description

Opens the Drawing explorer dialog box with **Views** section selected to view and modify views in the current drawing.



27.11.2 Options within the command

General

Name

Sets the name of the current view.

UCS

Assigns a UCS. When the drawing contains no saved UCS's, the droplist shows <None>. See the UCS and EXPUCS commands.

Background

Sets the background for the view. See the BACKGROUND command.

Clip Display

Assigns a clip display.

Layer Snapshot

Toggles whether to assigned the current on and off settings of layers to the view.

- Yes: assigns the current visual state of layers, so that the next time you make this view current, the layers turn themselves on or off.
- No: does not assigns the current visual state of layers, so that the next time you make this view current, the layers do not turn themselves on or off.

Visual Style

Sets the visual style. See the VISUALSTYLES command.

View

Camera

Specifies the camera point of the view in x,y,z coordinates in visual perspective mode.

Target

Specifies the target point of the view in x,y,z coordinates in visual perspective mode.



Perspective

Toggles perspective view:

- On: view is displayed in visual perspective mode
- Off: view displays in parallel perspective mode

A camera glyph is displayed in the drawing for perspective views (see the CAMERA command).

Lens Length

Sets the lens length of the camera.

Roll Angle

Rotates the camera around the view axis.

Width

Specifies the width of the view in current units.

Height

Specifies the height of the view in current units.

Clipping

Front Plane

Sets the distance between the target point and the front clipping plane.

Back Plane

Sets the distance between the target point and the back clipping plane.

Clipping

Toggles the clipping planes, which remove from any entities that are outside the planes.

27.11.3 Context Menu Options

New

Creates new named views.

Delete

Erases the named view from the drawing without warning.

Rename

Renames the view.

Select All

Selects all view definitions.

Invert selection

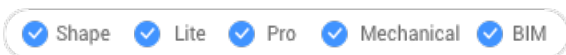
Deselects the current selection and vice versa.

Set current

Sets the selected view as current.

27.12 -VIEW command

Controls named views.





Alias: -V

27.12.1 Description

Creates and sets named views in the current viewport, and deletes named views from the drawing. Every viewport can show a different view in model and paper space.

27.12.2 Options within the command

Enter ? to list the existing views in the current drawing.

Enter Delete, Save and Restore options to perform the appropriate action.

Orthographic

Set a standard orthographic view point in the current viewport -- either the Top, Bottom, Front, Back, Left, or Right view.

Twist

Rotate the current view about the Z axis in the direction set by the ANGDIR variable.

Window

Save a windowed area as a named view.

27.13 VIEWBASE command

Generates associative orthographic and isometric views of 3D models in paper space layouts.



Icon:

Note:

- This command is valid in Model Space only.
- Use the Tab key to select obscured entities.
- When the GENERATEASSOCVIEWS (Generate associative drawings) system variable is ON, associative dimensions for generated views are updated automatically when the 3D model is modified.
- Setting the GENERATEASSOCATTRS (Generate associative attributes) system variables ON, allows VIEWBASE to generate drawings in which dimensions and tags are updated automatically when the 3D model has been modified.
- The DRAWINGVIEWQUALITY system variable defines the quality of drawing views.
- The DRAWINGVIEWFLAGS system variable enables parallel creation or updating of drawing views. This can reduce view processing time, but uses more resources.
- The DRAWINGVIEWASM system variable enables the use of assembly data structures to optimize generation of drawing views.
- This command can be entered transparently during commands ('viewbase).



27.13.1 Method

Select one or more entities (3D solids, blocks, components) or press Enter to select all 3D entities in the Model Space from which to generate the drawing views in a layout tab or choose an option. Hit the Tab key to select nested entities.

Enter the name of a new or existing layout or press Enter to accept the current layout.

The command switches to the layout tab where a point must be picked to define a position for the base view or enter an option.

Select the position for each projected view by moving the cursor. Depending on the position of the cursor with respect to the base view one of five orthogonal views (top, left, right, back and bottom) and four isometric views can be inserted. The views are aligned automatically depending on the selected projection type (see above).

Tap the Ctrl key to toggle alignment ON and OFF. When it is off, you can place the current view in any location.

27.13.2 Options within the command

Entire model

Selects all the 3D entities in model space.

preseTs

Specifies the types of generated drawings and their placement in the layout; displays the **Drawing View Presets** dialog box.

The selected preset is saved through the DRAWINGVIEWPRESET system variable.

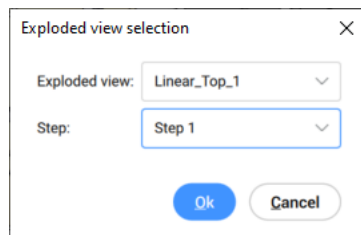
Special views

Selects a style of exploded representations, if any exist in the drawing.

Exploded view

Creates an exploded drawing view if an exploded representations exists in the drawing.

The created views correspond to the selected step when selected. For "<All steps>", the views should correspond to the final state of the exploded view (last step).



Explosion name

From the drop-down list, choose a style for the exploded representation.

Step

From the drop-down list, choose a step for the exploded representation.

- For "<All steps>", the views correspond to the final state of the exploded view (last step)
- For a specified step, the views correspond to the selected step.



Unfolded view

Creates an unfolded drawing view for solids with associated unfolded view.

Back

Returns to the previous prompt.

Scale

Sets the Scale property of the paper space viewports for the various views:

fit 4 views

The scale is adjusted to fit the four standard orthographic views: Front, Top, Left, Right. The Front view (base view) is defined by the Orientation option.

fit 9 views

Adjusts the scale to fit five orthographic views and four isometric views.

fit 5 views

Adjusts the scale to fit five orthographic views: Front, Top, Left, Right, Back.

fit 10 views

Adjusts the scale to fit six orthographic views and four isometric views.

Standard scales

Displays the scale list as maintained by the SCALELISTEDIT command; select a scale from the list.

Custom scales

Prompts you to type a scale in the Command line.

Hidden Lines

Controls the visibility of hidden lines.

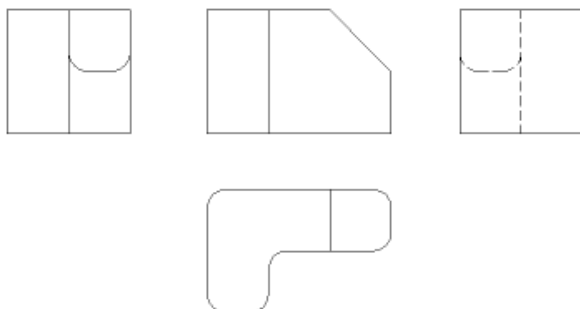
When the BM_Ortho_Hidden and BM_Isometric_Hidden layers are off or frozen, hidden lines will not display.

Tangent Lines

Toggles whether tangent edges between tangent faces are created. Visible tangent edges are created on the BM_Tangent_Visible layer. Hidden tangent edges are created on the BM_Tangent_Hidden layer.

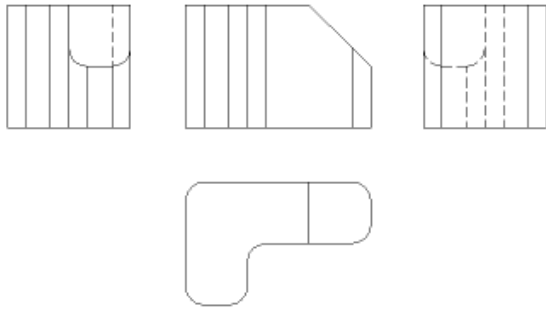
No

Does not display tangent lines.

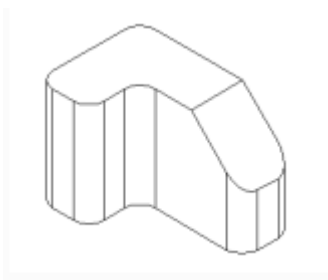


Yes

Displays the tangent lines.



Note: Tangent edges are always created for isometric views. Freeze or switch off the display of the BM_Tangent_Visible layer to hide tangent edges in isometric views.



INterference edges

Toggles between ON and OFF the visibility of interference edges between solids which intersect with each other. When it is ON, a line is drawn where the solids are met.

trailiNg lines

Controls the visibility of trailing lines.

To create exploded views, use the BMEXPLODE command; the model must have inserts of mechanical components to use this command.

Orientation

Defines the base view orientation. Rotates the 3D model so that the main view is projected on the vertical projection plane (V.P.).

Projection type

Defines the layout of the views.

First angle

It is also known as European projection.

Third angle

It is also known as American projection.

The default projection type depends on the value of the MEASUREMENT system variable.

Isometric Geometry

Defines the style for the isometric views: rendered 3D view or 2D drawing:

2D views

Draws isometric views as 2D drawings.



3D views

Draws isometric views as 3D solids with the Conceptual visual style applied.

sElect

Selects additional entities to include or exclude.

Remove

Removes entities from drawing views.

Entire model

Includes all entities from model space in the drawing views.

Layout

Opens the previous layout with updated drawing views.

27.14 VIEWBREAK command

Creates a broken view on drawing views generated by the VIEWBASE command in a paper space layout.



Icon:

Note: This command operates only in Paper Space.

Note: This command can be entered transparently during commands ('viewbreak)

27.14.1 Method

Select the drawing view from which to generate the broken view by clicking inside the drawing view. Select the first and the second points which specifies the first and the second planes of the cuts.

The default direction of the symbol is based on the size of the viewport:

- Vertical if the viewport is wider than high.
- Horizontal if the viewport is higher than wide.

27.14.2 Options within the command

Type

Allows to set the broken symbol type:

sTraight

Line geometry. Supports the Gap distance property.



Spline

Spline geometry. Supports the Gap distance, Width and Height.



Zigzag

Spline geometry. Supports the Gap distance, Width and Height properties.



Small zigzag

Supports the Gap distance, Width, Height and Step properties.



Current

Use the last used broken symbol type.

Note: The properties of the Broken Symbol can be edited in the Properties panel:

Broken Symbol	
Style	Small Zigzag
Gap distance	5 mm
Type	Small Zigzag
Overshoot	3 mm
Width	5 mm
Height	5 mm
Step	20 mm

Style/Type

Select the style / type in the drop-down list.

Gap distance

Defines the distance* between the two parts of the broken symbol.

Overshoot

Defines the length of the extends for the break lines outside of the 2D view.

Width

Defines the width* of the shape symbol in the symbol direction.

Height

Defines the height* of the shape symbol in the direction orthogonal to the symbol direction.

Step

Defines the distance* between the small zigzag symbols.

* Expressed in layout units.

Vertical

Aligns the symbol along the Y axis.



Horizontal

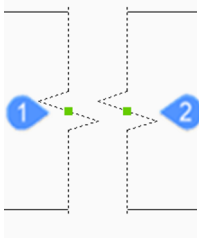
Aligns the symbol along the X axis.



27.14.3 Edit Grips

You can edit break symbol grips.

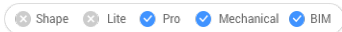
Select the break symbol and 2 Grips display:



- 1 Controls the position of the first break plane in the model space
- 2 Controls the position of the second break plane in the model space

27.15 VIEWDETAIL command

Draws view details of drawing views made with the VIEWBASE command.



Icon:

Note:

- This command operates only in Paper Space.
- When the GENERATEASSOCVIEWS (Generate associative drawings) system variable is ON, associative dimensions for detailed views are updated automatically when the 3D model is modified.
- DRAWINGVIEWQUALITY variable defines the quality of drawing views.
- The AUTOVPFITTING variable controls whether the size of the viewport is adjusted automatically to fit the current extents of the 3D geometry. By default AUTOVPFITTING = ON.

27.15.1 Method

Select the drawing view from which to extract the detail by clicking inside a drawing view. The program highlights the selected view.

After that, specify the center point of the detail view by picking a point inside the parent view and the style of the view boundary.

There are two boundary types from which you can choose:

- Circular - draws a circular boundary.
- Rectangular - draws a rectangular boundary.

Note: You may always switch the boundary type between circular and rectangular using the Boundary option.

Specify the position for detail view by picking a point in the layout, away from the parent view.

27.15.2 Options within the command

Scale

Specifies the scale of the detail view, which by default is twice the parent viewport scale:

Standard scales

Choose a standard scale in the list; the list can be edited by the SCALELISTEDIT command.



Custom

Specify a custom scale factor.

Relative custom scale

Calculates the scale factor relative to parent view by multiplying the scale factor of the source view with this number.

from Parent

Sets the scale of the section view equal to the scale of the parent view.

Hidden lines

Control the visibility of hidden lines, or uses the same hidden lines setting as the parent view.

Note: When the BM_Ortho_Hidden and BM_Isometric_Hidden layers are off or frozen, hidden lines will not display.

Tangent lines

Controls the display of tangent edges which appear in the transition from a flat face and a curved face, such as with fillets:

Note: When the BM_Tangent_Visible layer is off or frozen, tangent lines are not display.

anChor

Determines if the center of the viewport is anchored so that the viewport grows and shrinks around its center point or not.

Geometry

Selects the visual style for the section view:

2D

Section view uses the 2dWireframe visual style.

3D

Section view uses a rendered visual style. This is Conceptual by default. Use the Properties panel to choose a different visual style.

Annotation

Determines the annotations to use.

Identifier

Specifies the view detail identifier by entering a name for the view detail.

Label

Toggles the display of the view detail label.

Boundary

Toggles the style the boundary between circular and rectangular.

Circular

Changes the boundary to a circle.

Rectangular

Changes the boundary to a rectangle.



model edge

Controls whether a connection line is drawn between the detail view and the detail boundary in the parent view.

smooth with Border

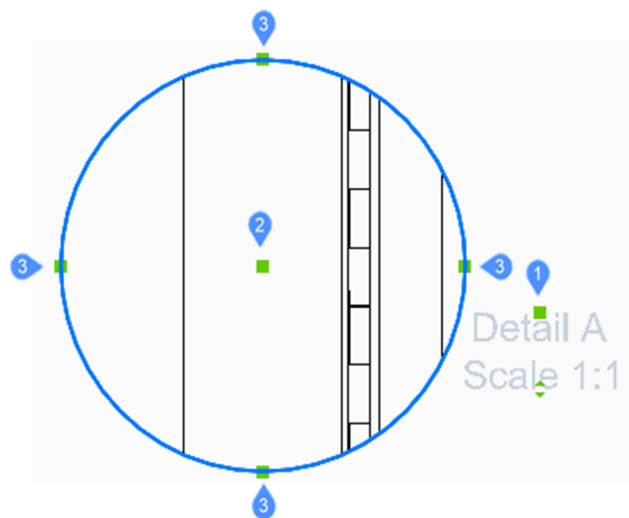
Does not draw a line.

smooth with Connection line

Draws a connecting line from the detail view to the parent view.

27.15.3 Grips Editing

Detail views can be edited through grips: select the view and six grips display:



- 1 Controls the position of the identifier.
- 2 Controls the position of the section detail.
- 3 4 grips control the size of the detail boundary.

27.16 VIEWDETAILSTYLE command

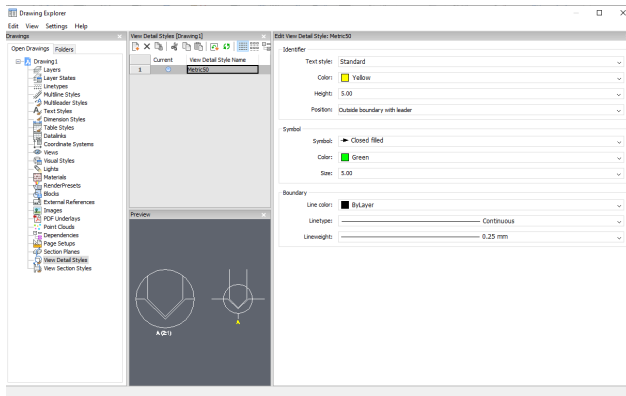
Opens the Drawing explorer dialog box with **View Detail Styles** selected.



Icon:

27.16.1 Description

Displays the Drawing explorer dialog box with the View Detail Style category selected to create and modify view detail styles.



27.16.2 Options within the command

Identifier

Defines the properties of the view detail identifier.

Text style

Specifies the text style used by the identifier text.

Color

Specifies the color of the identifier.

Height

Specifies the height of the identifier.

Position

Determines where the identifier is located.

Outside boundary

Places the identifier outside the detail's boundary. No symbol is used.

Outside boundary with leader

Places the identifier outside the detail's boundary and draws a leader from the parent view to the detail. No symbol is used

On boundary

Places the identifier on the detail's boundary.

On boundary with leader

Places the identifier on the detail's boundary and draws a leader from the parent view to the detail.

Symbol

Defines the properties of the symbol.

Symbol

Specifies the look of the symbol.

Color

Specifies the color of the symbol.

Size

Specifies the size of the symbol.



Boundary

Defines the properties of the detail viewport boundary.

Line color

Specifies the color of the boundary line

Linetype

Specifies the line type of the boundary.

Lineweight

Specifies the weight of the boundary line.

27.16.3 Context Menu Options

New

Creates new named view detail styles.

Delete

Erases the named view detail style from the drawing without warning.

Rename

Renames the view detail style.

Select All

Selects all view detail styles definitions.

Invert selection

Deselects the current selection and vice versa.

Set current

Sets the selected view detail style as current.

27.17 VIEWEDIT command

Changes the scale and hidden line visibility of a drawing view(s) if the view(s) was created with the VIEWBASE command.



Icon:

Note: This command operates only in Paper Space.

27.17.1 Method

Select the drawing view(s) for modifying by clicking inside one or more drafting viewports or press Enter to select all drawing views in the current layout.

The next prompt will vary depending on the selected view type. When different view types are selected, only the shared options are available.

27.17.2 Options within the command

Standard view options: see the VIEWBASE command

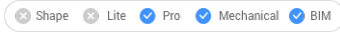


Section view options: see the VIEWSECTION command

Detail view options: see the VIEWDETAIL command

27.18 VIEWEXPORT command

Exports drawing views.



Icon:

27.18.1 Description

Exports drawing views generated by the VIEWBASE , VIEWSECTION or VIEWDETAIL commands to the model space of the current drawing, via the Clipboard to a new drawing or as a DWG/DXF file on disc.

27.18.2 Method

Click inside one or more viewports or select All views and choose the destination of the views (see options).

27.18.3 Options within the command

Clipboard

Exports the selected view(s) to the clipboard, which can then be pasted into any drawing.

File

Exports the selected views to a DWG or DXF file; displays the Save Exported Views dialog box.

Model space

Exports the view to the current drawing's model space.

Note: Specify if remove exported views:

- Yes - the viewports of exported views are removed from the layout.
- No - viewports of exported views are kept in the layout.

27.19 VIEWHORIZONTAL command

Rotates viewpoint to the horizontal.



27.19.1 Description

Sets the Z component of the 3D viewpoint to 0 in the current UCS, so that the viewpoint rotates to the horizontal.

This command works like setting Z to 0 with the VIEWPOINT command.

27.20 VIEWLABEL command





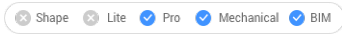
27.20.1 Description

This is a service command which is not supposed to be entered directly by the user. It is used by the program when a context menu item is selected.

27.21 VIEWPOINT command

27.22 VIEWPROJ command

Generates additional projected views from an existing drawing view previously created by the VIEWBASE command (short for "view projection").



Icon:

Note:

- This command operates only in Paper Space.
- The DRAWINGVIEWFLAGS system variable allows to enable parallel creation or updating of drawing views. This can reduce view processing time, but uses more resources.

27.22.1 Method

Select the view from which to generate new projected views and select the position of the new projected views.

Depending on where you move the cursor, you can place up to five orthogonal and four isometric views. The views are aligned automatically. Press Ctrl key to toggle alignment on and off to place the view anywhere on the sheet.

27.22.2 Options within the command

Isometric geometry

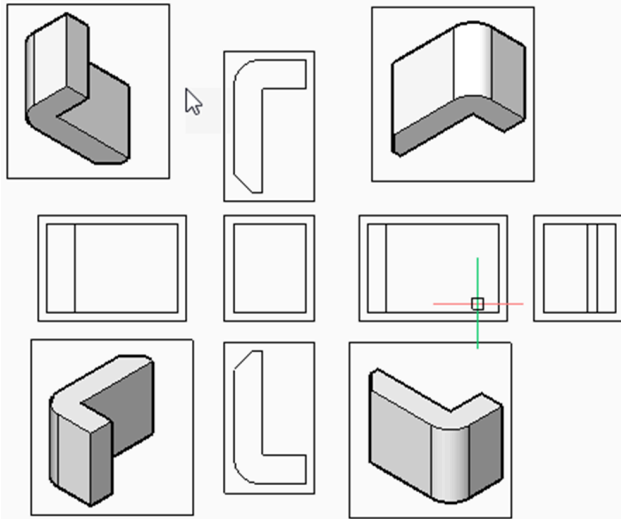
Sets the style for isometric views.

2D views

Draws isometric views as 2D projections of the 3D geometry and turns on the BM_Hidden layer so that hidden lines are shown as dashed lines.

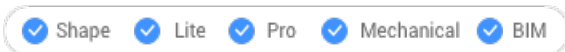
3D views

Draws isometric views as 3D geometry and sets the visual style of the viewport.



27.23 VIEWRES command

Sets viewing resolution.



27.23.1 Description

Sets the view resolution for curved entities; also toggles fast-zoom mode (short for "view resolution").

27.23.2 Options within the command

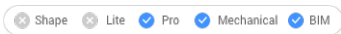
Choose whether to use redraws or regenerations for view changes, such as zooms.

Choose the level of quality for displaying 2D curves, such as circles and arcs (range 1-20000)

- 1 - curves like circles and arcs may look like polygons, but display at a fast speed.
- 100 - default value.
- 20000 - curves almost always look round, but at a slower display speed.

27.24 VIEWSECTION command

Creates cross-section views of drawing views generated with the VIEWBASE command in a paper space layout.



Icons: 

Note:

- This command operates only in Paper Space.
- When the GENERATEASSOCVIEWS (Generate associative drawings) system variable is ON, associative dimensions for section views are updated automatically when the 3D model is modified.
- If the SECTIONABLE property of a mechanical component is OFF, the component appears non-sectioned in the section views of the Full section type.

- DRAWINGVIEWQUALITY variable defines the quality of drawing views.
- The AUTOVPFITTING variable controls whether the size of the viewport is adjusted automatically to fit the current extents of the 3D geometry. By default AUTOVPFITTING = ON.
- This command can be entered transparently during commands ('viewsection')

27.24.1 Method

Select the drawing view to generate the section by clicking inside a drawing view. The program highlights the selected view. Create a section and choose a location for the result view.

27.24.2 Options within the command

Select type

Control the shape of the section plane:

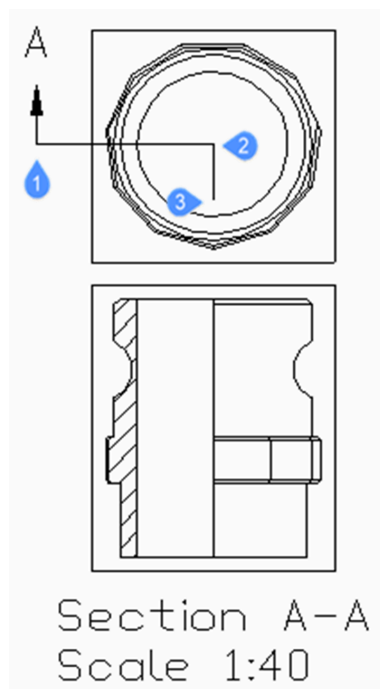
Full

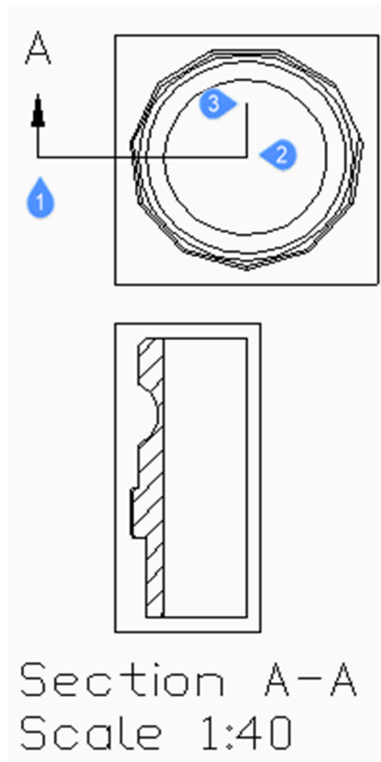
The section line defines an infinite plane that cuts through the entire model.

Half

The section line defines a half-plane that cuts part of the model. You must specify by clicking the start point (1) of section line, the second point (2) to define the limit of the half plane and the third point (3) to define the view direction.

The position of the third point determines whether the part of the model that is not cut displays (left) or not (right).





Offset

The section line defines a series of cutting regions located on different offsets from each other. Enter Done to complete the section line.

Aligned

The section line defines a polyline, where every segment defines a cutting region. The resulting section will have the length equal to the sum of the lengths of cutting regions. Enter Done to complete the section line.

Scale

Specifies the scale of the detail view, which by default is twice the parent viewport scale.

Standard scales

Choose a standard scale from the list; the list can be edited by the SCALELISTEDIT command.

Custom

Specify a custom scale factor.

from Parent

Sets the scale of the section view equal to the scale of the parent view.

Hidden lines

Control the visibility of hidden lines or : uses the same hidden lines setting as the parent view.

Note: When the BM_Ortho_Hidden and BM_Isometric_Hidden layers are off or frozen, hidden lines will not display.

Tangent lines

Controls the display of tangent edges which appear in the transition from a flat face and a curved face, such as with fillets.



Note: When the BM_Tangent_Visible layer is off or frozen, tangent lines are not display.

anChor

Determines if the center of the viewport is anchored so that the viewport grows and shrinks around its center point or if the geometry is fixed.

Geometry

Selects the visual style for the section view.

2D

The section view uses the 2dWireframe visual style.

3D

The section view uses a rendered visual style. This is Conceptual by default. Use the Properties panel to choose a different visual style.

Annotation

Determines the annotations to use.

Identifier

Specifies the view detail identifier by entering a name for the view detail.

Label

Toggles the display of the view detail label.

Depth

Specifies the view depth of a section view.

Full

Sets the depth to the extents of the model (maximum view depth).

Custom

Limits the view depth by entering the depth distance (type a positive value or move the cursor to define the view depth dynamically).

Projection

Determines how the section is projected.

Normal

Draws the section as a union of projections from every cutting region (each segment of the section polyline) in its normal direction.

Orthogonal

Draws the section in the normal direction of the first section region (the first segment of the section polyline).

Rotate view

Allows you to rotate the drawing view viewport but does not rotate the frame.

Horizontal

Rotates a segment horizontally.

Vertical

Rotates a segment vertically.



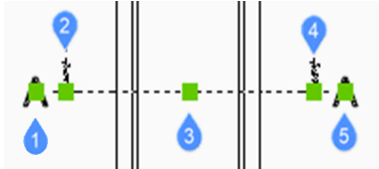
Custom angle

Allows you to specify the angle of alignment.

27.24.3 Grips Editing

You can edit section lines with grips.

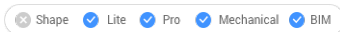
Selecting either the section line, one of the identifiers or an arrow, 5 Grips display:



- 1 Controls the position of the first identifier.
- 2 Defines the start point of the section line.
- 3 Allows you to move the section line.
- 4 Defines the endpoint of the section line.
- 5 Controls the position of the second identifier.

27.25 VIEWSECTIONSTYLE command

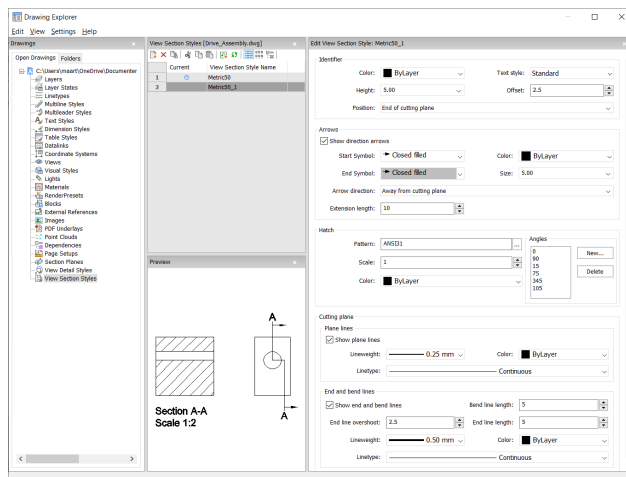
Opens the Drawing explorer dialog box with **View Section Styles** selected.



Icon:

27.25.1 Description

Opens the Drawing explorer dialog box with **View Section Styles** category selected to view and modify view section styles in the current drawing.





27.25.2 Options within the command

Identifier

Sets the properties of the section identifier.

Color

Specifies the color of the identifier.

Text Style

Specifies the text style used by the identifier text. To employ a different text style, use the STYLE command to create it.

Height

Specifies the height of the identifier.

Offset

Specifies the distance from the end of the cut lines to the arrow.

Position

Determines where the identifiers are located.

- End of cutting plane: places the identifiers at the ends of the cutting lines.
- Above direction line: places the identifiers outside the detail's boundary and draws a leader from the parent view to the detail. No symbol is used.
- On boundary: places the identifiers on the detail's boundary.
- On boundary with leader: places the identifier on the detail's boundary and draws a leader from the parent view to the detail.

Arrows

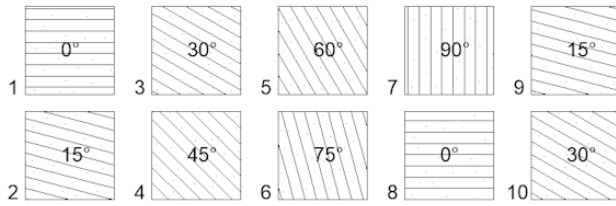
Sets the properties of the section arrows.

- Show direction arrows: toggles the display of the arrows
- Start Symbol: specifies the look of the start symbol
- Color: specifies the color of the arrow
- End Symbol: specifies the look of the end symbol
- Size: specifies the size of the arrow
- Arrow direction: points the arrow towards or away from the cutting line
- Extension length: determines the length of the "dimension" line on the arrows

Hatch

Sets the properties of the section hatching.

- Pattern: choose a pattern name from the drop-down list.
- Browse: displays the Hatch Pattern Palette dialog box, from which you choose a pattern visually.
- Angles: sets the angle for the pattern, one angle for subsequent cuts. The first angle in the list is applied to the first solid, the second angle to the second, and so on. When there are more solids to cut than angles listed, then the program starts again from the first angle. See figure below.



A-A (1:5)

- **New:** adds angles to the list. Displays the New Hatch Angle dialog box, in which you enter an angle.
- **Delete:** deletes the selected angle from the list.
- **Scale:** specifies the scale of the pattern.
- **Color:** specifies the color of the pattern.

Cutting Plane | Plane Lines

Sets the properties of the cutting plane lines.

- **Show plane lines:** toggles the display of the lines.
- **Lineweight:** specifies the weight of the lines.
- **Color:** specifies the color of the lines.
- **Linetype:** specifies the pattern of the lines.

Cutting Plane | End and Bend Lines

Sets the properties of the end and bend lines.

- **Show end and bend lines:** toggles the display of the lines.
- **Bend line length:** specifies the distance the bend line offsets from one cut line to another.
- **End line overshoot:** specifies the distance from the section to the end of the plane line.
- **End line length:** specifies the length of the end lines.
- **Lineweight:** specifies the weight of the lines.
- **Color:** specifies the color of the lines.
- **Linetype:** specifies the pattern of the lines.

27.25.3 Context Menu Options

New

Creates a new view detail style as a copy of the currently selected style.

Delete

Removes the selected style from the drawing.

Rename

Renames the selected view section style.

Select All

Selects all view section style definitions.

Invert selection


Deselects the current selection and vice versa.



27.26 VIEWUPDATE command

Updates drawing views.



Icon: 

Note:

- The DRAWINGVIEWFLAGS system variable enables parallel creation or updating of drawing views. This can reduce view processing time, but uses more resources.
- The DRAWINGVIEWASM system variable enables the use of assembly data structures to optimize generation of drawing views.

27.26.1 Description

Manually updates the selected or all drawing views created by the VIEWBASE and VIEWSECTION commands when automatic updates (VIEWUPDATE) are turned off.

27.26.2 Options within the command

Select drawing views

Updates the selected views.

All views

Updates all views in the current layout.

27.27 VISIBILITYSTATES command

Creates and edits visibility states in the Command line.



Icon: 

27.27.1 Description

Creates and edits visibility states via Command line. It also opens the **Visibility States** panel if it was closed before running the VISIBILITYSTATES command.

Note: BricsCAD visibility states are not compatible with AutoCAD® visibility states. When you open a drawing with BricsCAD parametric blocks in AutoCAD®, they are displayed as they were saved in BricsCAD. However, when such parametric blocks are edited or copied to another drawing in AutoCAD®, all entities in the block become visible.

27.27.2 Options within the command

New parameter

Creates a new parameter.

Type a name for the parameter (<P>), then press Enter.



Enter new state for <P>

Type a name for the new parameter state (<S>).

Add entities

Adds entities to the specified state of a parameter.

Select entities for <P>=<S> [selection options (?)]

Select entities for the new state using any selection method.

Press Enter to stop selecting.

When the parameters and states already exist in the drawing, the existing parameters and states are added to the prompts:

New parameter or [<P> (1)/ [<P> (2) ...]

Do one of the following:

- Type a name for a new parameter.
- Type the number of the parameter you want to edit.

Enter new state for [<P> or [<S> (1)/ [<S> (2) ...]

Do one of the following:

- Type a name for a new state of the parameter.
- Type the number of the state you want to edit.

Remove entities

Removes entities from the specified state of a parameter.

make entities Visible

Makes entities visible to the specified state of a parameter.

make entities Invisible

Makes entities invisible to the specified state of a parameter.

Select state

Makes the mentioned state active.

Note:

- <P> is a placeholder for the name of the visibility parameter entered in the previous step.
- <S> is a placeholder for the name of the active visibility state of the parameter <P>. On the screen, the actual names of the parameter and the state will be displayed instead of <P> and <S>.

27.28 VISIBILITYSTATESPANELCLOSE command

Closes the Visibility states panel.



Icon:

27.28.1 Methods

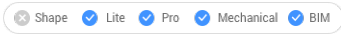
The VISIBILITYSTATESPANELCLOSE command closes the Visibility states panel.

For more information on viewing and managing the visibility parameters and states see the article [Visibility states panel](#).



27.29 VISIBILITYSTATESPANELOPEN command

Opens the Visibility states panel.



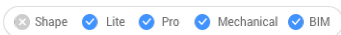
Icon:

27.29.1 Methods

The VISIBILITYSTATESPANELOPEN command opens the Visibility states panel.

For more information on viewing and managing the visibility parameters and states see the article Visibility states panel.

27.30 VISIBLE command

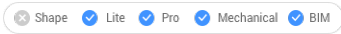


27.30.1 Description

This is a service command which is not supposed to be entered directly by the user. It is used by the program when a context menu item is selected.

27.31 VISUALSTYLES command

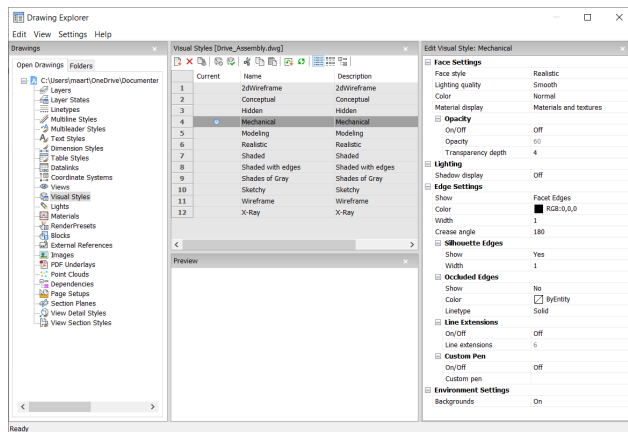
Opens the Drawing explorer dialog box with Visual Styles selected.



Icon:

27.31.1 Method

Opens the Drawing explorer dialog box with Visual Styles category selected to view and modify visual styles in the current drawing.



Reset to default ()

Restores the original settings for predefined visual styles.



Apply visual style

Applies the selected visual style to the current viewport.

Edit visual style

Displays the settings of the selected visual styles. To edit a setting: click the settings field, then type a new value or select an option in the drop down list.

Face Settings

Specifies the look of faces of 3D models.

Face style

Selects an overall color scheme for the visual style.'

Lighting quality

Specifies the quality of curved faces.

Color

Selects the color mode.

Material display

Determines whether materials are displayed. Materials are applied with the MATERIALASSIGN command. When **Material Display** is not off, then highlights and opacity are ignored, as materials provide their own values for them.

Opacity

Specifies the level of transparency of faces.

On/Off

Toggles the opacity on and off.

Opacity

Specifies the level of transparency (not available when materials are on).

Transparency depth

Specifies how far transparency reaches in terms of the number of overlapping entities.

Lighting

Determines whether shadows are displayed.

Shadow display

Specifies how shadows are displayed:

- **Off:** objects cast no shadows, the preferred option as shadow-casting slows down the program's display speed, so leave it turned off unless you are saving images to file or plotting them.
- **Ground shadows:** objects cast shadows on the shadow plane, but not on each other
- **Mapped object shadows:** objects cast shadows on the ground and on each other

Edge Settings

Specifies the style of edge to display.

Show

Specifies how edges are displayed.

- **None:** neither facets nor isolines nor edges are displayed; this setting turns off many other settings.



- **Isolines:** isolines and edges are displayed; isolines are the curved lines that simulate the surfaces of curved faces.
- **Facet Edges:** facets and edges are displayed on entities.

Color

Specifies the color for all edges.

Width

Specifies the width of edge lines.

Number of lines

Specifies the number of isolines drawn on curved surfaces, from 0 to 2047.

Always on top

Determines if all isolines are displayed, or only those that are "on top" (hidden isolines being hidden).

Silhouette Edges

Determines how fat outlines are around models.

Show

Toggles the display of silhouette edges.

Width

Specifies the width of the silhouette edges in the range of 1 to 25 pixels; applies to all entities in the view-port equally.

Occluded Edges

Specifies how to handle occluded (hidden) edges and facets; this setting allows you to display hidden lines in a different color and linetype from visible lines.

Show

Toggles the visibility of occluded edges and facets.

Color

Specifies the color for visible obscured edges and facets. Click **Select color...** to select another color from the **Select Color** dialog box.

Linetype

Specifies the line type for visible obscured edges and facets. The program does not use the usual linetype patterns, but a separate set. All these settings do not apply to isolines.

Line Extensions

Extends edges beyond their boundaries, also known as "overhang".

On/Off

Turn line extensions on or off.

Line extensions

Specifies the distance over which the lines extend beyond boundaries, such as face edges.

Custom Pen

Determines the use of a custom line drawing style.

On/Off

Turn the drawing style on or off.



Custom pen

Specifies the style of line drawing.

Environment Settings

Toggles the display of a background in the viewport.

Backgrounds consist of either a solid color, a gradient of two or three colors, or a raster image, and are set by the BACKGROUND command.

Note: The ANTIALIASSCREEN system variable controls the amount of anti-aliasing (edge smoothing) applied during on-screen rendered mode display. The default value is 1, maximum value is 5. High anti-alias values incur a high calculation cost.

27.31.2 Context Menu Options

New

Creates a new visual style.

Delete

Deletes the selected visual style, except for predefined visual styles such as 2dWireframe, 3D Hidden, 3dWireframe, Conceptual, Realistic...

Reset to default

Restores the selected visual style(s) to default.

Apply to current viewport

Applies the selected visual style to the current viewport.

Rename

Renames the selected visual style.

Select All

Selects all visual style definitions.

Invert Selection

Deselects the current selection and vice versa.

27.32 -VISUALSTYLES command

Manages visual styles.



27.32.1 Description

The command sets and manages visual styles at the Command line.

27.32.2 Options within the command

set Current

Sets a visual style for the current viewport. The options are

- 2dwireframe
- Wireframe
- Hidden
- Realistic



- Conceptual
- Shaded
- shaded with Edges
- shades of Grey
- SKetchy
- X-ray
- Other
- cUrrrent

Other

Selects a visual style customized by users. For example, BIM templates have specific predefined visual styles, Bim, Maquette, Render and See-through.

cUrrrent

Sets the current visual style.

Save as

Saves the current visual style by a new name when you make changes to the properties of a visual style.

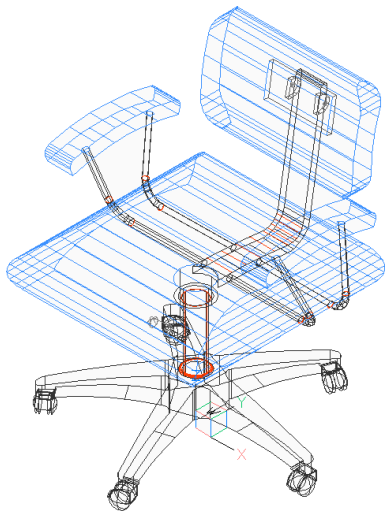
Delete

Deletes a visual style by name. The currently-used style(s) and those defined by the program cannot be deleted.

?

Lists the names of visual styles available in the drawing:

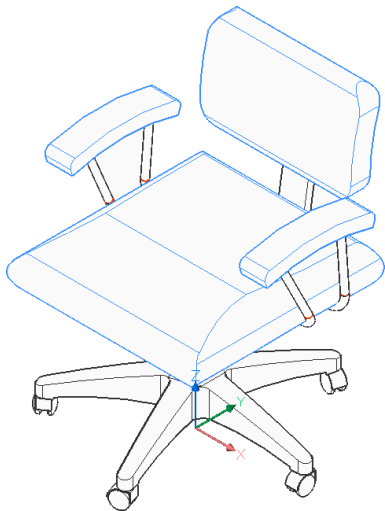
- 2dWireframe



- Conceptual



- Hidden



- Realistic



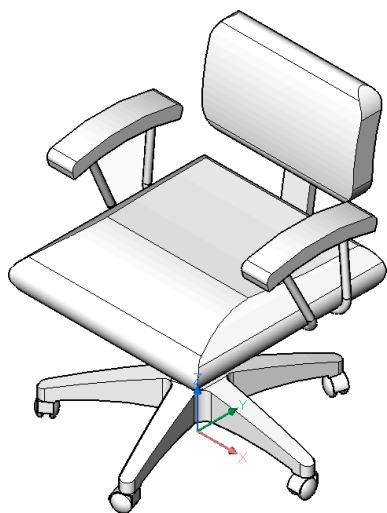
- Shaded



- Shaded with edges

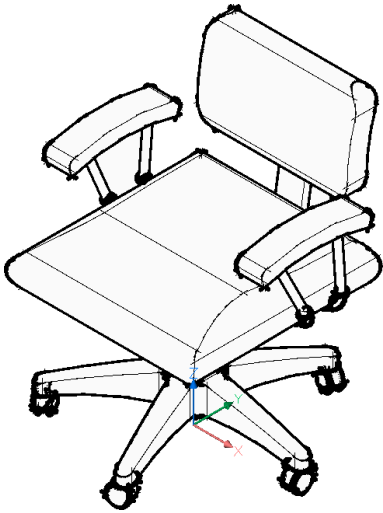


- Shades of Gray

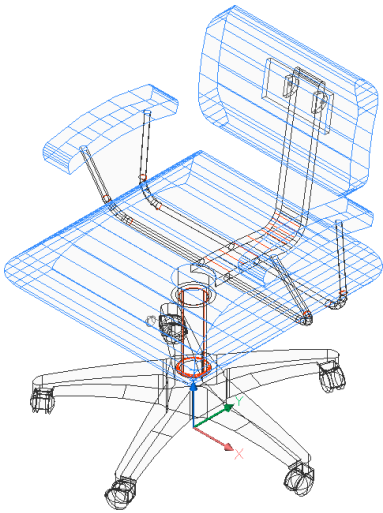




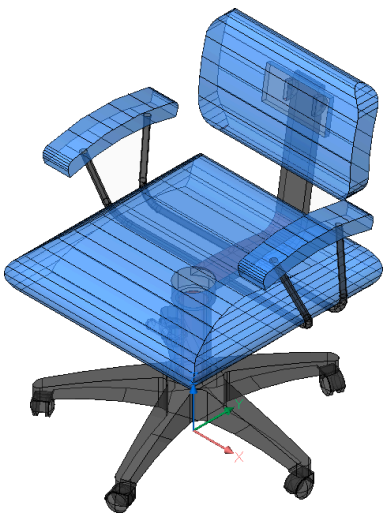
- Sketchy



- Wireframe



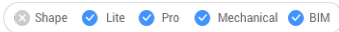
- X-Ray





27.33 VLIDE command

Opens the BricsCAD LISP Advanced Development Environment (BLADE).

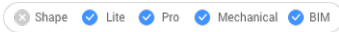


27.33.1 Description

Opens the BricsCAD LISP Advanced Development Environment (BLADE) to interactively edit and debug LISP applications. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

27.34 VLISP command

Opens the BricsCAD LISP Advanced Development Environment (BLADE).

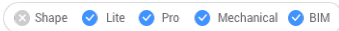


27.34.1 Description

Opens the BricsCAD LISP Advanced Development Environment (BLADE) to interactively edit and debug LISP applications. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

27.35 VMLOUT command

Exports drawings in VML format, embedded in an HTML file (short for "vector markup language").



27.35.1 Description

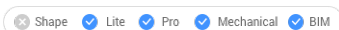
Opens the Create HTML file dialog box to save data from the current drawing to an HTML file. The data is stored in VML format and embedded in an HTML file. You can view the file in a Web browser. However, you may need to install a VML plug-in.

The output is in HTML format and looks something like this:

```
<html xmlns:v="urn:schemas-microsoft-com:vml">
<head>
  <object id="VMLRender" classid="CLSID:10072CEC-8CC1-11D1-986E-00A0C955B42E"></
object>
  <style>
    v\:* { behavior: url(#VMLRender); }
  </style>
</head>
<body>
  <v:group id="AN00001_" style="width:8in;height:8in;" coordSize="1600,1600">
  <v:shape style="width:1600;height:1600" path="mf m 214,42 l 213,41 214,41 e"/>
```

27.36 VPCLIP command

Makes viewports from entities.

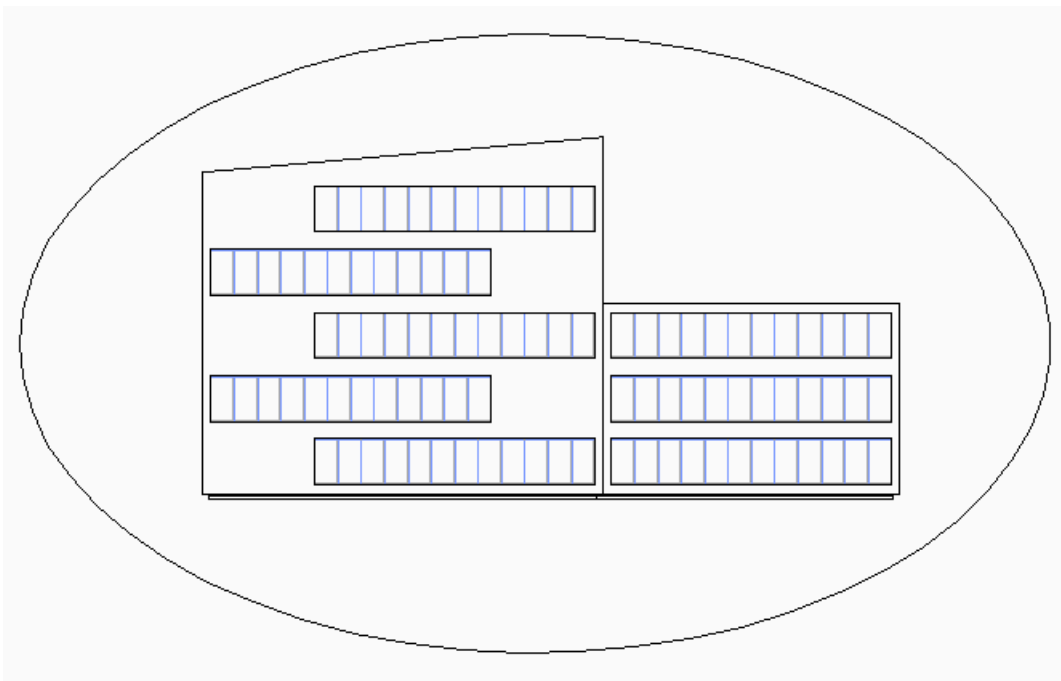
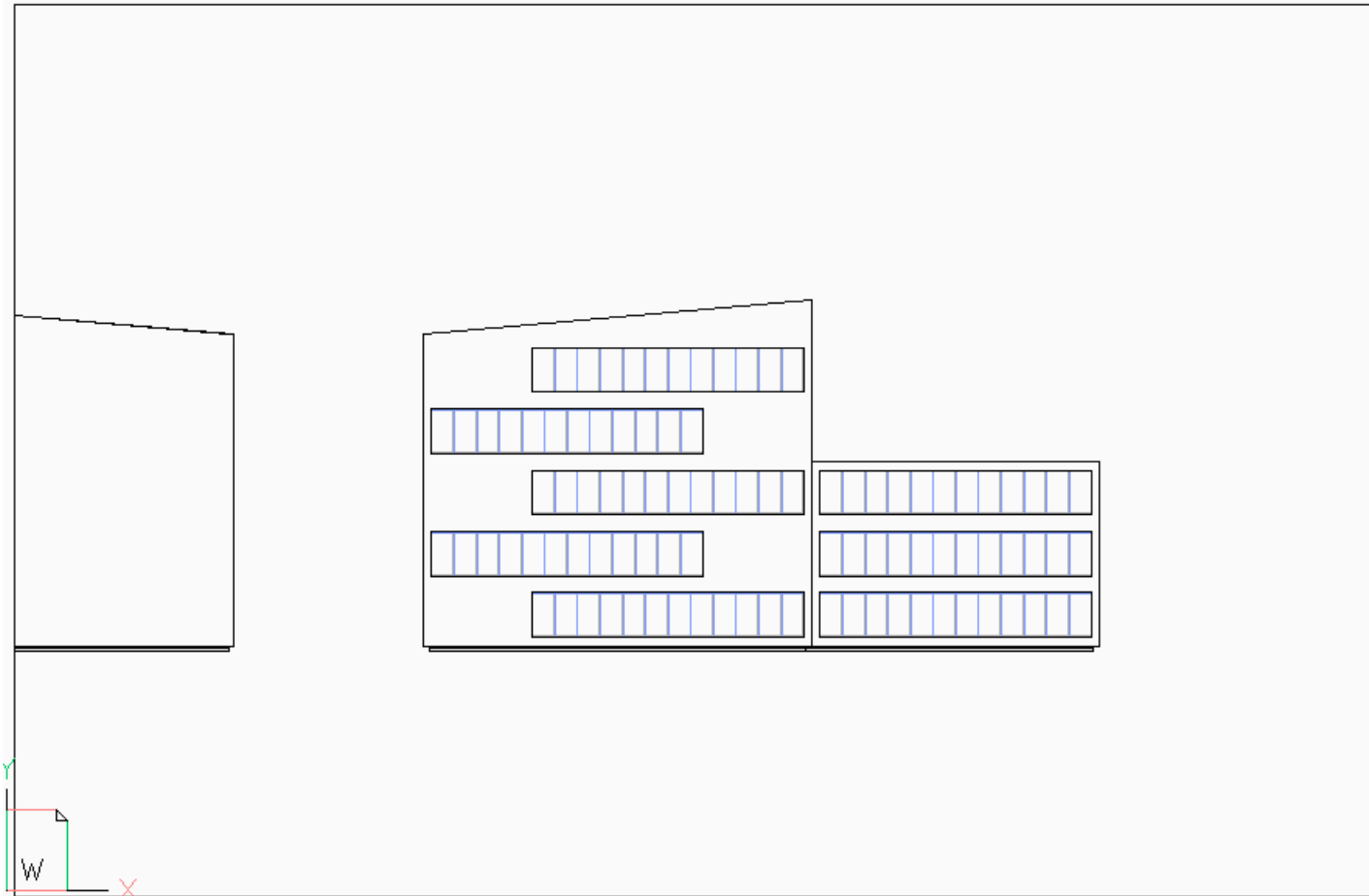




27.36.1 Description

Makes viewports from closed 2D entities (short for "viewport clipping") and can be easily used to show less of a drawing.

Note: This command only operates in the paper space of a layout tab and only works with already existing viewports. use the MVIEW command to make additional viewports.





27.36.2 Options within the command

Select viewport to clip

Select a viewport border of the viewport to clip.

Select clipping entity

Converts a close entity such as a circle or closed polyline into a viewport boundary.

Note: The entity needs to be drawn in paper space.

Polygonal

Draws a polygonal viewport border made of straight and arc segments. Press Enter when done.

Draw Arcs

Draws an arc segment in the polygonal viewport. See the ARC command to explore the options within this option.

Distance

Specifies the distance and angle for the next polygonal segment.

Follow

Draws the next segment at the same angle as the previous polygonal segment. The length of the segment needs to be specified.

Undo

Undoes the last polygonal segment.

Close

Closes the polygon. The model space drawing is shown.

Delete

Deletes the clipping boundary and returns the original rectangular viewport.

Note: This option appears only when a clipped viewport is selected.

27.37 VPLAYER command

Changes the properties of layers in the current paper space viewport.



27.37.1 Description

Allows every viewport to show a different set of layers.

Note: This command does not operate in model space.

27.37.2 Options within the command

List frozen layers

Reports whether layers are frozen in the selected viewport. In the Command line, the frozen layers are shown after selecting a viewport.

Color

Overrides the color of specific layers in selected viewports. A new color is specified by entering the RGB code and applied to the layers in the selected viewports.



Red, Yellow, Green, Cyan, Blue, Magenta, White

Specifies the color for the layers in selected viewports.

Truecolor

Allows you to specify the true color for the layers in selected viewports, by entering the values for Red, Green, and Blue.

COlorbook

Opens a color book by entering its name and allows you to specify a color name from the loaded color book.

Note: The COLORBOOKPATH system variable specifies the folder(s) in which BricsCAD should look for color book files.

Line type

Overrides the linetype of specific layers in selected viewports.

Line Weight

Overrides the lineweight of specific layers in selected viewports.

Transparency

Overrides the transparency of specific layers in selected viewports.

Freeze layers

Freezes specific layers in the current viewport.

Thaw Layers

Thaws specific layers in the current viewport.

Reset Layers

Resets frozen and thawed layers to their original settings.

New frozen layers

Creates new layers that are initially frozen when a new viewport is created.

Default visibility settings

Changes the default freeze/thaw setting for layers.

Frozen

Changes the layer's default property to frozen.

Thawed

Changes the layer's default property to thawed.

Select viewport

Specifies viewports to apply changes to.

All

Selects all viewports.

Select

Specifies a selection of viewports.

Current

Adapts changes to the current viewport.



EXcept current

Adapts changes to all viewports except the current viewport.

27.38 VPMAX command

Maximizes the current viewport.

Shape Lite Pro Mechanical BIM

27.38.1 Method

This command can be used both in Model space and Paper space to expand the selected viewport. When the Paper space only contains one viewport, running the command automatically selects the viewport. The command stops when there are no viewports available. If the selected object is not a viewport, the message **A single viewport is expected** appears in the Command line. The background color of the maximized viewport is automatically changed to the color of the Model space.

Note: Before using the VPMAX command in Model space, create viewports by using the VPORTS command.

Note: To minimize the viewport, use the VPMIN command.

27.39 VPMIN command

Minimizes the current viewport.

Shape Lite Pro Mechanical BIM

27.39.1 Method

This command can be used both in Model space and Paper space. This command restores the viewport to the form it was before it was maximized.

Note: To maximize the viewport use VPMAX command.

27.40 VPOINT command

Changes the 3D viewpoint.

Shape Lite Pro Mechanical BIM

Alias: -VIEWPOINT, -VP, -VPOINT, VIEWPOINT

27.40.1 Description

Changes the 3D viewpoint to change the view of the model through specifying several options.

Note: It is faster, and easier, to use the **LookFrom** widget to change the 3D viewpoint.

27.40.2 Options within the command

Set view point

Specifies the viewpoint by entering coordinates in the Command line or by specifying a point in the drawing.



Rotate

Changes the viewpoint by specifying angles.

Planview

Displays the plan view of the current UCS. See the PLAN Command.

Perspective

Sets the perspective property of the viewport.

On

Turns on perspective viewing mode. Objects further away look smaller.

Off

Turns off perspective viewing mode, returning back to orthogonal viewing mode.

27.41 VPORTS command

Creates one or more viewports in model space.



Icon:

Alias: VIEWPORTS, VPORT, VW

27.41.1 Description

Creates one or more viewports in model space and allows you to see more than one view of the same drawing.

Note: To create viewports in paper space, use the MVIEW command.

27.41.2 Options within the command

?

Lists the names and x,y coordinates of saved viewports.

Note: Press F2 key to open the prompt history window.

Save

Saves the current viewport arrangement by name.

Note: If the name already exists, you are asked to overwrite the existing configuration or not.

Yes

Replaces the viewport configuration with a new one.

No

Saves the configuration with a different specified name.

Restore

Restores a named viewport configuration after entering the name of the configuration to restore.

Delete

Erases a named viewport configuration from the drawing.

Note: Only one configuration at the time can be deleted.



Single

Creates a single viewport of the current viewport, removing all others. This option can be used to return the drawing to its original single-viewport state.

Join

Joins two or more viewports to a single viewport after specifying the dominant viewport and the ones to join.

Note: If the two viewports were to join to form a non-rectangular shape, such as an L or a T shape, BricsCAD displays the message: 'The selected viewports do not form a rectangle.'. The 'Select viewport to join' prompts you to try again.

Create 2 viewports

Splits the current viewport into two rectangular viewports.

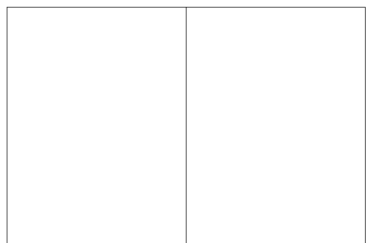
Horizontal

Creates two horizontal viewports, one above another.



Vertical

Creates two vertical viewports, one beside another.



Create 3 viewports

Splits the current viewport into three rectangular viewports.

Horizontal

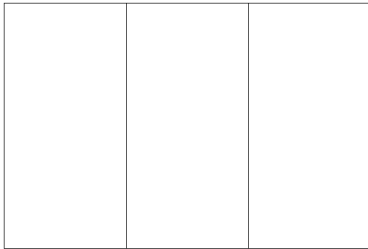
Creates three horizontal viewports, one above another.





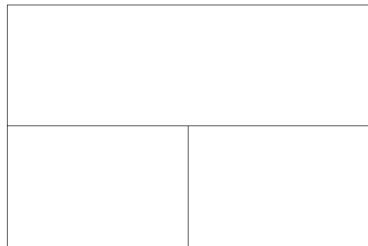
Vertical

Creates three vertical viewports, one beside another.



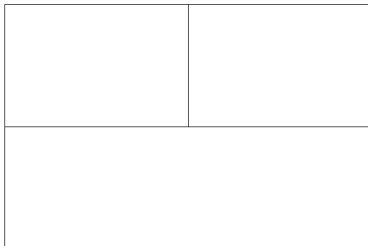
Above

Creates a single wide viewport above two side-by-side viewports.



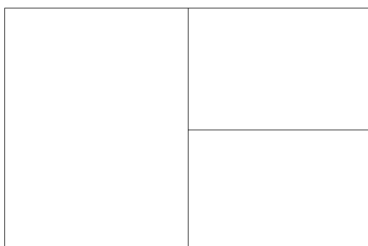
Below

Creates two side-by-side viewports above one wide viewport.



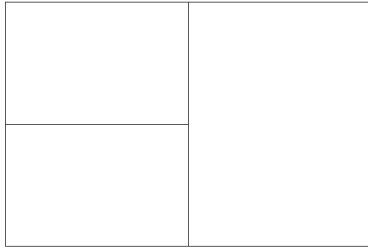
Left

Creates one tall viewport to the left of two stacked viewports.



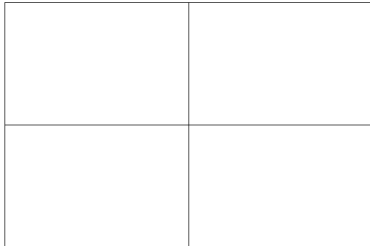
Right

Creates one tall viewport to the right of two stacked viewports.



Create 4 viewports

Splits the current viewport into four rectangular viewports.

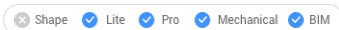


Note: This style is sometimes called "engineering" viewports, as it allows you to see the top, front, side, and isometric views at the same time, once you adjust the viewpoint in each viewport, which can be done with the MVSETUP command.

Note: Viewports can be resized by dragging their borders.

27.42 -VPORPTS command

Creates one or more viewports in model space.



27.42.1 Description

Creates one or more viewports in model space and allows you to see more than one view of the same drawing.

For more information see VPORPTS command.

27.43 VPSCALE command (Express Tools)

Displays the scale of a selected viewport.

Icon:

27.43.1 Method

The VPSCALE command only works in paper space.

27.44 VPSYNC command (Express Tools)

Aligns the view in layout viewports with a reference viewport.

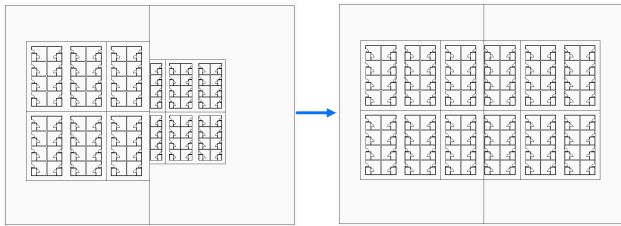
Icon:



27.44.1 Method

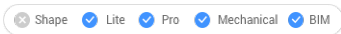
Select the reference viewport, then select viewports to aligned to the reference viewport.

Note: The VPSYNC command only works in paper space.



27.45 VSCURRENT command

Sets the visual style for the current viewport.



27.45.1 Description

Sets the visual style for the current viewport in the Command line.

27.45.2 Options within the command

cUrrrent

Specifies the current visual style and gives the opportunity to keep it.

Note: The styles named in this list are the ones included with the program.

Other

Selects a user-defined visual style that was created with the VisualStyles command.

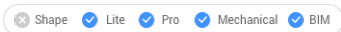
?

Displays the list of all available visual styles.

Note: Press F2 to open the Prompt History window.

27.46 VSLIDE command

Opens the View snapshot dialog box.



Icon:

Alias: VS, VSNAPSHOT

27.46.1 Description

Opens the View snapshot dialog box to select an sld, slb, emf, or wmf file to view in the current viewport. You can use the REDRAW command to remove the slide.

27.47 VTOPTIONS command

Opens the Settings dialog box with the **View Transition Options** category expanded.



✕ Shape Lite Pro Mechanical BIM

27.47.1 Description

Opens the Settings dialog box with the **View Transition Options** category expanded to view and modify relevant system variables.



28. W

28.1 WBLOCK command

Opens the Write block to file dialog box.



Icon:

Alias: W

28.1.1 Description

Opens the Write block to file dialog box to create a block definition as an external dwg file.

28.2 -WBLOCK command

Saves blocks and other drawing entities to DWG/DXF files.



28.2.1 Description

Saves blocks and other drawing entities through the Save Block dialog box.

28.2.2 Options within the command

Block to save as WBlock

Specifies name of the block to write to a file.

Select entities

Selects entities to write to the file on disk.

Insertion point

Specifies the origin point of the drawing.

Select entities

Specifies the entities to create a block.

Note: The selected entities are deleted from the current drawing. To restore them, use the Oops command.

Annotative

Saves the block as an annotative block.

& to include multiple blocks

Saves multiple blocks from this drawing to the file on disk.

Note: The definitions are saved to the new drawing.

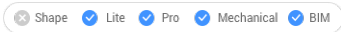
* for whole drawing

Saves the whole drawing, equivalent to SaveAs.



28.3 WCASCADE command

Arranges windows.

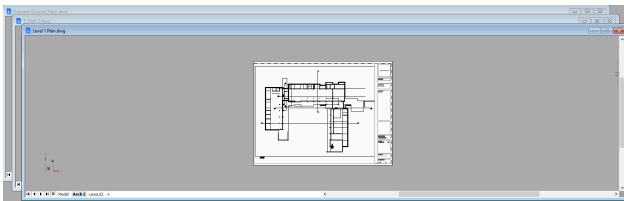


Icon:

Note: This is a Windows only command.

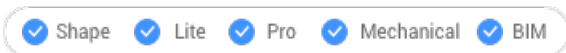
28.3.1 Description

Overlaps all windows in a cascading fashion, with the current drawing the topmost one (short for “window cascade”).



28.4 WCLOSE command

Closes the current drawing.

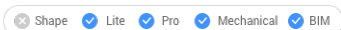


28.4.1 Description

Closes the current drawing after it has been saved. If changes have been made since the last save, a BricsCAD dialog box offers you the opportunity to save the drawing before closing it.

28.5 WCLOSEALL command

Closes all drawings.



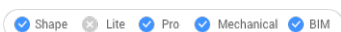
Alias: CLOSEALL

28.5.1 Description

Closes all drawings after they have been saved. If changes have been made to any drawings since their last save, a BricsCAD dialog box offers you the opportunity to save each of those drawings before closing them.

28.6 WEBLIGHT command

Creates web lights.



Icon:



28.6.1 Description

Creates web lights, which illuminate scenes with a 3D representation of the light's intensity distribution.

Note: Web lights are defined by IES files, which are provided by lighting manufacturers.

Note: The command is not allowed when LIGHTINGUNITS system variable = 0.

Note: If the LIGHTINGUNITS system variable is 1 (American lighting units) or 2 (International lighting units), you need to specify the location of the light in 3D space and of the point at which the light is focused.

28.6.2 Options within the command

Name

Specifies a name for the light.

Intensity factor

Specifies the intensity of the light. Enter an intensity value between 0.00 and the maximum value supported by your system (max float = maximum value of a floating point number).

Status

Toggles the status of the light.

ON

Light is included when calculating renderings.

OFF

Light is excluded when calculating renderings.

Photometry

Specifies the photometric properties of the light:

Intensity (Cd)

Indicates the intensity expressed in candela (Cd).

Flux (Lm)

Indicates the luminous flux expressed in lumens (Lm).

Illuminance (Lx)

Indicates the illuminance expressed in lux (Lx) or in **Distance**, expressed in drawing units.

Color

Specifies a color name or choose an option.

?

Allows you to enter a color name.

*

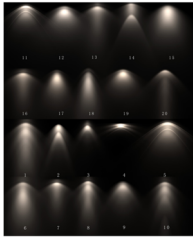
Displays all the available color names.

Kelvin

Specifies a color temperature expressed in Kelvin degrees.

weB

Specifies the light distribution map, called **web** as an uneven light distribution can look like a spider's web:

**File**

Specifies a Web file name (.IES file). This is a text file that describes the intensity of a light source at many points on a spherical grid (image credit Vertheim).

X

Defines the X rotation for the web.

Y

Defines the Y rotation for the web.

Z

Defines the Z rotation for the web.

shadoW

Specifies the look of shadows cast by this light:

Off

Disables the calculation of shadows for the light.

Sharp

Displays shadows with sharp edges. Use this option to increase performance.

soFt mapped

Displays realistic shadows with soft edges.

soft sAmpled

Displays realistic shadows with softer shadows based on extended light sources:

Shape

Defines the shape of the shadow circular (Disk) or rectangular (Rect) and their dimensions.

sAmples

Defines the sampling size of the shadow; larger numbers are more accurate but take longer to render.

Visible

Defines the shape visibility (type Yes or No to cast a shadow that represents shapes (more accurate) or that is rectangular (faster to render).)

filterColor

Specifies the color of the light by entering the true color (R, G, B) or entering an option.

True color (R, G, B)

The RGB color model is an additive color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. The name of the model comes from the initials of the three additive primary colors, red, green, and blue. The component values are stored as integer numbers in the range 0 to 255, the range that a single 8-bit byte can offer (by encoding 256 distinct values).



Index color

Specifies a color name or number.

Hsl

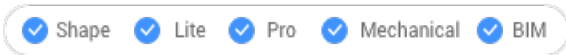
Specifies the color using three parameters Hue, Saturation and Lightness

Colorbook

Specifies the colorbook name and the color name inside of it. Verify if the colorbook (.acb) file is located in the folder indicated by the COLORBOOKPATH command.

28.7 WEDGE command

Creates a 3D Solid in the shape of a wedge.



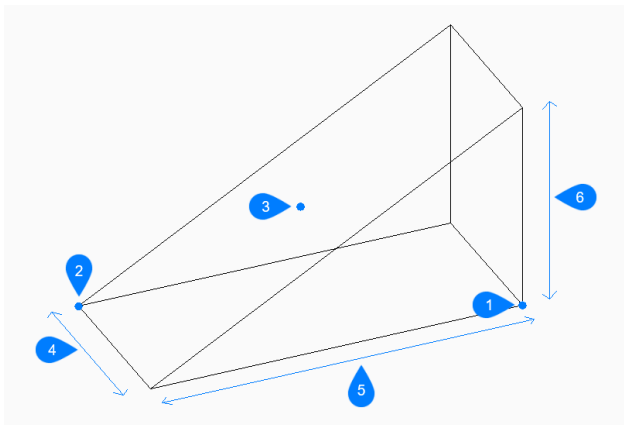
Icon: 

Alias: WE

Note: In BricsCAD Lite, which doesn't support 3D Solids, the WEDGE command launches the AI_WEDGE command.

28.7.1 Description

Creates a 3D solid in the shape of a rectangular or square wedge. Choose from a combination of options including corner, center, length, height, and cube.



- 1 First corner
- 2 Opposite corner
- 3 Center of wedge
- 4 Width
- 5 Length
- 6 Height



28.7.2 Methods to create a wedge

This command has 2 methods to begin creating a wedge:

- Set corner of wedge
- Center

Set corner of wedge

Begin creating a wedge by specifying a corner for the base of the wedge then:

Set opposite corner

Specify the opposite corner for the base of the wedge to apply both the length and width. The wedge is created parallel to the x and y axes.

Additional option: [Cube/Length of side]

Height of wedge

Specify the height of the wedge. The tall end of the wedge is drawn from the first corner that you specified.

Additional option: [2Point]

Center

Begin creating a wedge by specifying the center of the wedge then:

Set corner of wedge

Specify a corner on the midplane of the wedge to apply both the length and width of the wedge's base. The wedge is created parallel to the x and y axes.

Additional option: [Cube/Length of side]

Height of wedge

Specify the height of the wedge. The tall end of the wedge is drawn from the first corner that you specified.

Additional option: [2Point]

28.7.3 Options within the WEDGE command

After you begin creating a wedge, the following options may be available:

Cube

Specify a single distance to use for the length, width, and height of the wedge.

Length of side

Specify the length and angle for one side of the wedge then:

Width of wedge

Specify the width of the wedge.

Height of wedge

Specify the height of the wedge. The tall end of the wedge is drawn from the first corner that you specified.

2Point

Specify the height of the wedge as the distance between any two points.

28.8 WHOHAS command

Opens the Open drawing dialog box.



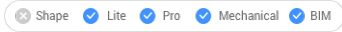


28.8.1 Description

Opens the Open drawing dialog box to select a dwg file to find out who has it open. After selecting the file and choosing Open, a BricsCAD dialog box displays. It indicates who has the file open and when they opened it.

28.9 WHITLE command

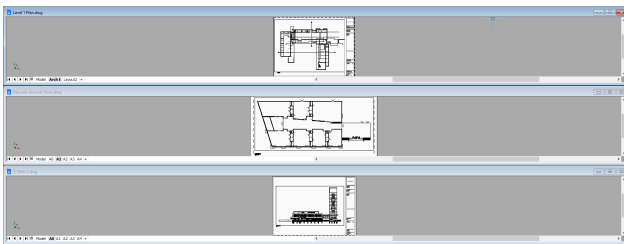
Tiles windows horizontally.



Icon:

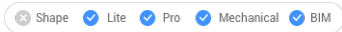
28.9.1 Description

Tiles the drawing windows horizontally to maximize their width (short for "window horizontal tile").



28.10 WIARRANGE command

Lines up iconized drawing windows.



28.10.1 Description

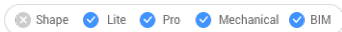
Arranges the icons of minimized windows at the bottom of the graphical screen.

Note: This command works only when windows are minimized as icons.

- Command only available on the Windows platform.

28.11 WIPEOUT command

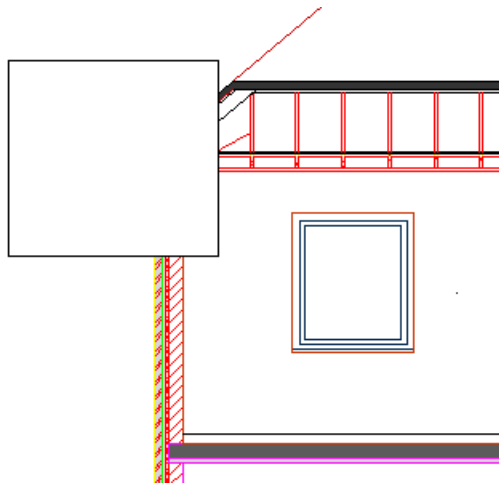
Creates a wipeout.



Icon:

28.11.1 Description

Creates a wipeout to mask parts a drawing. Options allow you to convert a polyline to a wipeout and control the display of wipeout frames.



28.11.2 Methods to create a wipeout

This command has 2 methods to begin creating a wipeout:

- Specify start point
- Polyline

Specify start point

Begin creating a wipeout by specifying a start point then:

Specify next point

Specify the next vertex of the wipeout. You can continue adding vertices until you press Enter to end the command.

Additional options: [Undo/Close]

Polyline

Begin creating a wipeout by selecting an existing closed polyline then:

Delete selected polyline? [Yes/No]

Choose whether to erase or retain the original polyline.

- **Yes:** erases the polyline.
- **No:** retains the polyline in addition to the wipeout.

28.11.3 Options within the WIPEOUT command

After you begin creating a wipeout, the following options may be available:

Frames

Specify whether to display wipeout frames. This is saved in the WIPEOUTFRAME system variable and applies to all wipeout entities in the drawing.

- **On:** display and plot wipeout frames.
- **Off:** hide wipeout frames.
- **Display but not plot:** display but do not plot wipeout frames.

Undo

Undo the last wipeout vertex and continue drawing from the previous one.



Close

Automatically draw a wipeout segment from the last vertex to the first one. This ends the command.

28.12 WMFOUT command

Saves data from the current drawing to a .wmf file.



Alias: WO

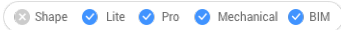
28.12.1 Method

Opens the **Create WMF file** dialog box to save data from the current drawing to a wmf file.

Select the entities you want to export.

28.13 WNEXT command

Switches to the next window.



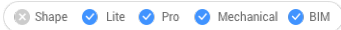
28.13.1 Description

Brings another drawing window to the foreground (short for "window next"). It is useful when multiple drawings are open. Meant for use by macros.

The program changes focus to the next window. Windows are switched to in the order that they were created.

28.14 WORKSETS command

Opens the Working sets dialog box.



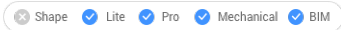
Icon:

28.14.1 Description

Opens the Working sets dialog box to create and load sets of drawing files. This makes it easy to load an entire group of drawings at once.

28.15 WORKSPACE command

Sets the current workspace.



Icon:

28.15.1 Description

Sets the current workspace and lets you create, modify and save workspaces.



28.15.2 Options within the command

set Current

Sets the current workspace after entering a name.

?

Lists all the available workspaces.

Save As

Saves the current settings to a new workspace.

Rename

Renames a workspace.

Delete

Deletes a workspace.

SEttings

Opens the Workspaces tab of the Customize dialog box. Make adjustments to the workspace of your choice.

28.16 WPREV command

Displays the previous drawing window.



28.16.1 Description

Displays the previous drawing window when multiple drawings are open.

28.17 WSSAVE command

Opens the Save workspace dialog box.



28.17.1 Description

Opens the Save workspace dialog box to save the current workspace configuration to a new workspace name.

28.18 WSSETTINGS command

Opens the Customize dialog box.



28.18.1 Description

Opens the Customize dialog box to customize the user interface.

28.19 WVTILE command

Tiles windows vertically.



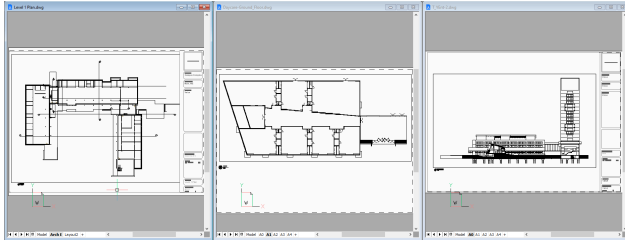


Icon:

28.19.1 Description

Tiles drawing windows vertically to maximize their height.

BricsCAD tiles all windows vertically, with the most recent drawing window highlighted.

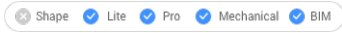




29. X

29.1 XATTACH command

Attaches an external referenced file in the current drawing.



Icon:

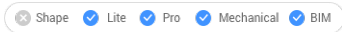
Alias: XA

29.1.1 Description

Opens the **Select reference file** dialog box to select a DWG file to reference to in the current drawing. After selecting the file and choosing **Open**, the **Attach external reference** dialog box displays. It enables you to specify where and how to attach the DWG file. The attached file will be visible in the **Attachments** Panel.

29.2 XCLIP command

Clips externally-referenced drawings with polygons to hide parts of them, and adjusts the front and rear clipping planes (short for "xref clip").



Icon:

Alias: CLIP

29.2.1 Method

Choose one or more xrefs to be clipped or enter ALL to choose all xrefs in the current drawing and create the desired clipping boundary.

29.2.2 Options within the command

ON

Turns on clipping boundaries that were turned off by the OFF option.

OFF

Turns off clipping so that all of the xref is again visible. The clipping is saved and is turned on again with the ON option.

Clipdepth

Sets 3D clipping to the front and rear, to hide parts of 3D models that might obscure the front and confuse the back.

Specify front or back clip point

Specifies the position of the front and back clipping plane by picking the two points or enter coordinates. The cutting plane is parallel to the current viewpoint.

Distance

Specifies the distance of the clipping point by entering the distance from the clipping boundary to the front or rear planes.



Remove

Removes the front or rear clipping point.

This option does not operate until you create at least one clipping boundary. It is no useful for 2D xrefs.

Invert

Inverts the clipping mode so that the interior of the clipping boundary is hidden from view (the outer area is visible); repeat this option to invert again, making the inner portion visible.

It is much easier to toggle the Invert status through the Properties panel.

Delete

Erases all clipping boundaries; does not prompt or warn you.

generate Polyline

Draws a polyline over a selected clipping boundary: this allows you to edit the clipping boundary, but in an indirect manner. This new generated polyline could be edited with PEDIT command and reused it as a New boundary option.

New boundary

If an existing boundary is detected you may choose to delete it or not.

Caution! This option replaces all existing clipping boundaries with the new one. The command continues only when all previous boundaries are deleted.

If no previous boundary exists or just deleted an existing one:

Select polyline

Choose any open or closed entity made from polylines, such as splined polylines, rectangles, donuts, and polygons. While the polyline does not need to be closed, it cannot cross over itself.

Polygonal

Creates non-rectangular clipping boundaries, with a minimum of three sides.

Rectangular

Creates rectangular clipping boundaries.

29.3 XDATA command (Express Tools)

Attaches extended entity data (xdata) to a selected entity.

Icon: 

29.3.1 Method

- 1 Select an entity.
- 2 Enter an application name. This will be the application ID.

Note: Use the XDLIST command to view the xdata attached to entities.

29.3.2 Options within the command

3Real

Allows you to specify 3 real numbers (group code 1010).

DIR

Allows you to specify a 3D World direction (group code 1013).



DISP

Allows you to specify a 3D World displacement (group code 1012).

DIST

Allows you to enter a distance (group code 1041).

Hand

Allows you to specify an entity handle (group code 1005).

Int

Allows you to specify a 16-bit integer (group code 1070).

LAYER

Allows you to specify a layer name (group code 1003).

LONG

Allows you to specify a 32-bit integer (group code 1071).

Pos

Allows you to specify a 3D World space position (group code 1011).

Real

Allows you to specify a real number (group code 1040).

SCALE

Allows you to specify a scale factor (group code 1042).

STR

Allows you to specify an ASCII string (group code 1000).

Exit

Ends the XDATA command.

29.4 XDEDIT command (Express Tools)

Edits the extended entity data (xdata) associated with an entity.

Icon:

29.4.1 Method

Opens the **XDATA Editor** dialog box which allows you to edit the xdata of a selected entity.

29.5 XDLIST command (Express Tools)

Lists the extended entity data (xdata) associated with an entity.

Icon:

29.5.1 Method

- 1 Select an entity.
- 2 Enter an application name.



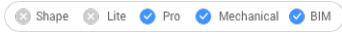
29.5.2 Options within the command

*

Lists all applications.

29.6 XEDGES command

Extracts edges from 3D entities.



Icon:

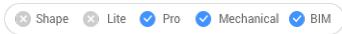
29.6.1 Description

Makes entities out of one or more edges found on 3D solids, 3D surfaces, and 2D regions; extracted edges become 2D entities in 3D space, such as arcs and lines.

Newly created entities are placed in the same location as the source edges, and on the current layer.

29.7 XFACES command

Extracts faces from 3D entities.



Icon:

29.7.1 Description

Makes copies of one or more faces from one or more 3D solids and 3D surfaces.

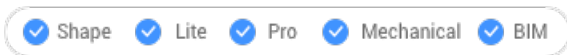
29.7.2 Options within the command

Move

Move the extracted face/s by the distance indicated by two points or by a displacement vector.

29.8 XLINE command

Creates xlines.

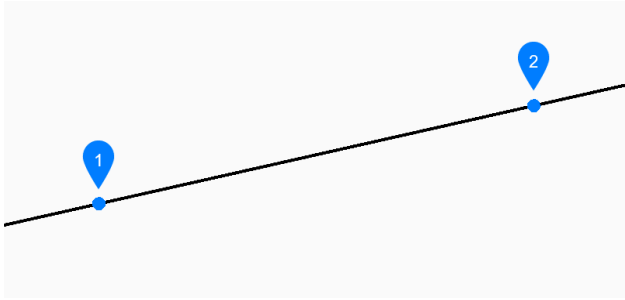


Icon:

Alias: INFLINE, XL

29.8.1 Description

Creates an xline (infinitely long line) from a combination of options point, direction, and angle.



- 1 Point along line
- 2 Direction

29.8.2 Methods to begin an xline

This command has 6 methods to begin creating an xline:

- Set point along line
- Horizontal
- Vertical
- Angle
- Bisect
- Parallel

You can continue adding unlimited xlines until you press Enter to end the command.

Set point along line

Begin creating an xline by specifying a point on the xline then:

Direction

Specify the direction of the xline from the starting point.

Horizontal

Begin creating an xline parallel to the x-axis then:

Location

Specify a point on the xline.

Vertical

Begin creating an xline parallel to the y-axis then:

Location

Specify a point on the xline.

Angle

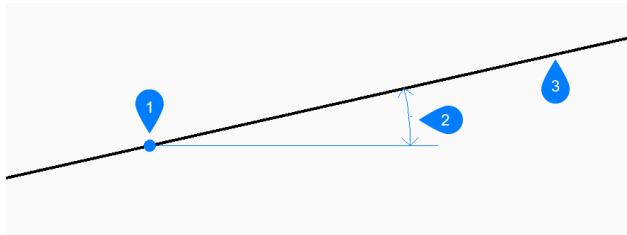
Begin creating an xline based on an angle then:

Enter angle

Specify the angle of the xline.
Additional option: [Reference]

Location

Specify a point on the xline.



- 1 Location
- 2 Angle
- 3 Xline

Bisect

Begin creating an xline which bisects two imaginary lines then:

Set vertex point

Specify a point at the vertex of the two imaginary lines.

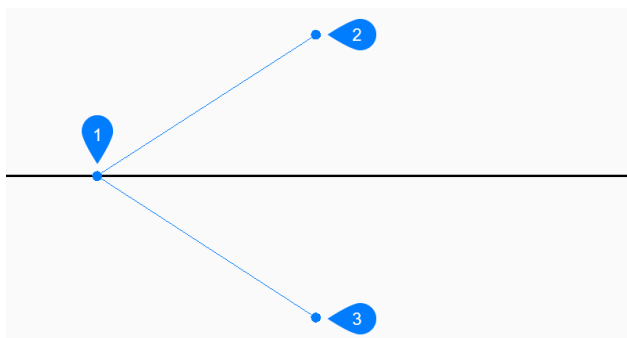
Additional option: [Entity]

Bisection angle start point

Specify a point to define the first imaginary line. The vertex is used as the other point.

Bisection angle end point

Specify a point to define the second imaginary line. The vertex is used as the other point.



- 1 Vertex point
- 2 Bisection angle start point
- 3 Bisection angle end point

Parallel

Begin creating an xline parallel to a line or polyline segment then:

Set offset distance for parallel infinite line

Specify the offset distance for the xline.

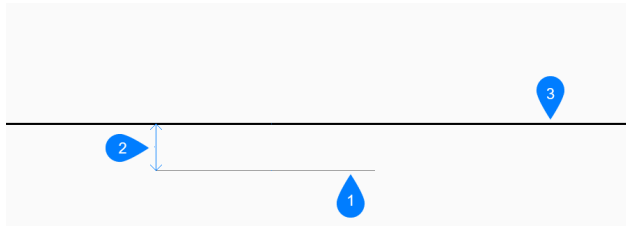
Additional option: [Through point]

Select entity for parallel infinite line

Select a line or polyline segment from which to offset the xline.

Side for parallel infinite line

Specify the side on which to place the xline.



- 1 Line segment
- 2 Offset distance
- 3 Xline

29.8.3 Options within the XLINE command

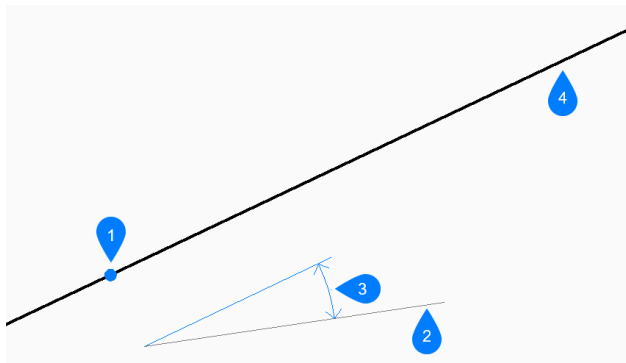
After you begin creating an xline, the following option may be available:

Reference

Select an entity to use as a reference angle then:

Enter angle

Specify the angle to place the xline relative to the selected entity.

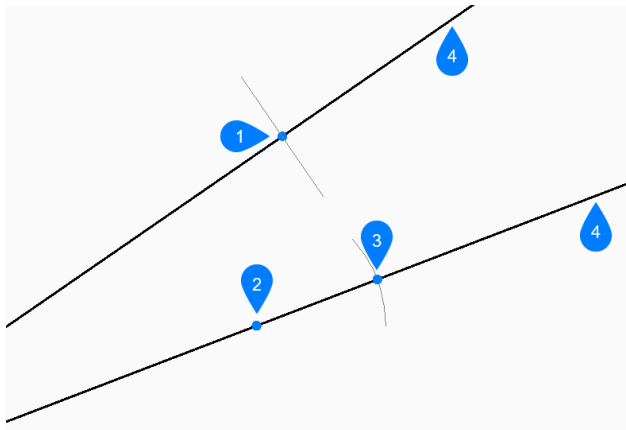


- 1 Location
- 2 Reference entity
- 3 Angle
- 4 Xline

Entity

Select a line, arc or polyline segment to bisect. When you select a line or polyline segment, the command draws the xline perpendicular to the segment's midpoint. When you select an arc or polyarc, the command draws the xline perpendicular to the arc's center and point.

This option works with splined polylines, but not with spline entities.



- 1 Perpendicular to line's midpoint
- 2 Perpendicular to arc's centerpoint
- 3 Perpendicular to arc' midpoint
- 4 Xline

Through point

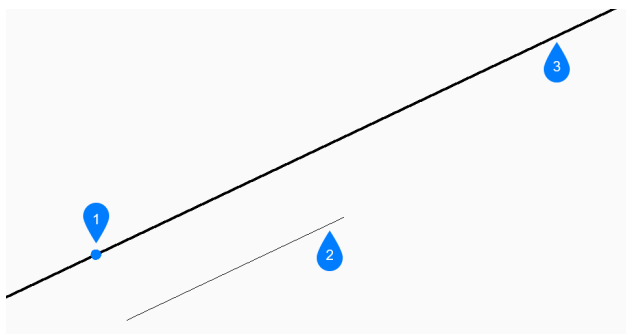
Specify a point through which to draw the xline

Select entity for parallel infinite line

Select an entity to which the xline should be parallel.

Through the point

Specify a point through which to draw the xline.



- 1 Through point
- 2 Line segment
- 3 Xline

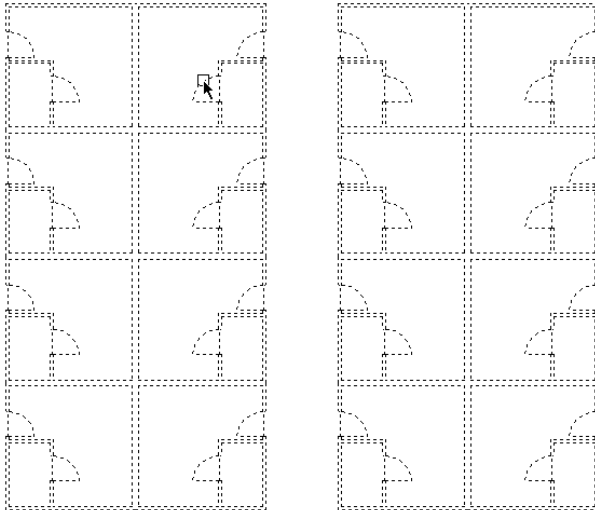
29.9 XLIST command (Express Tools)

Displays properties of entities nested in external references and blocks.

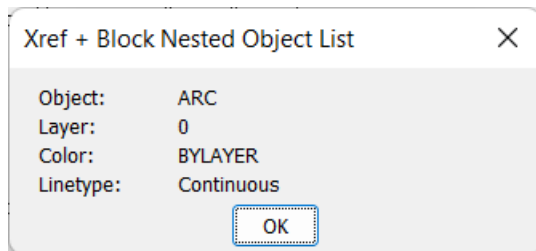
Icon:

29.9.1 Method

Select nested xref or block entity:



The **Xref + Block Nested Object List** dialog box opens and displays the properties of the selected nested entity.



29.10 -XLIST command (Express Tools)

Displays properties of entities nested in external references and blocks in the Command line.

29.10.1 Method

Select a nested xref or block entity. The properties of the selected nested entity are displayed on the Command line.

29.11 XOPEN command

Opens referenced drawings for editing.



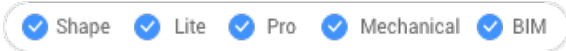
Icon:

29.11.1 Description

Opens an externally-referenced drawing (xref, attached to the current drawing) for editing in a separate drawing tab. When done editing, close the tab.

29.12 XPLODE command

Explodes entities.



Icon:

29.12.1 Description

Explodes entities providing control over the resulting entities.

Note: This command does not explode attached references, entities on frozen layers or basic entities such as lines, circles and arcs.

29.12.2 Options within the command

Entities to explode

Selects the entities to explode.

Note: Entities on frozen layers are not selected and not exploded.

Separately

Explodes one entity at a time.

All

Explodes all selected entities at once.

All listed

Allows to specify all properties for the selected entities.

Multiple

Specifies more than one property for the exploded entities by choosing properties one by one.

LAYER

Specifies the layer for the exploded entities

Note: The layer must already exist in the drawing.

Color

Specifies the color for the exploded entities.

LType

Specifies the linetype for the exploded entities.

ItScale

Specifies the linetype scale for the exploded entities.

Inherit all from parent

Inherits the color, layer and linetype scale from source entities.

29.13 XREF command

Opens the Attachments panel.



Icon:



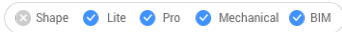
Alias: XR

29.13.1 Description

Opens the Attachments panel to display it in the current workspace. The Attachments panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Attachments panel can be either floating, docked or stacked.

29.14 -XREF command

Attaches and detaches DWG files.



Alias: -XR

29.14.1 Description

Controls DWG drawing files that are attached to the current drawing (short for **external reference**).

29.14.2 Options within the command

? to list external references

Lists the names, paths and statuses of attached drawings, if any.

Attach

Opens the **Select File to Attach** dialog box to select a DWG file to attach. The Xref can be reloaded from the **Attachments** panel, and all its inserts including parametric ones are rebuilt.

Overlay

Opens the **Select File to Overlay** dialog box to select a DWG file to overlay.

Bind

Copies the contents of the attached drawing to the current drawing as a block reference. Parametric external references are converted to local parametric blocks.

Note: The BINDTYPE system variable defines how the Xref layers/objects will be brought in the current drawing.

Detach

Removes attached drawings.

Path

Changes the path (drive and folder) to the source DWG file, in case the original path no longer points to the file.

Reload

Reloads the attached drawing, after its content has changed.

Unload

Hides the attached drawing, but keeps it attached.



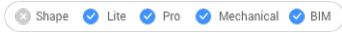
30. Y




31. Z

31.1 ZCENTER command

Toggles the Center of a Face 3D entity snap.



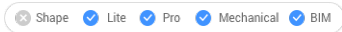
Icon: 


31.1.1 Description

Toggles the Center of a Face 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

31.2 ZINTERSECTION command

Toggles the Intersection 3D entity snap.



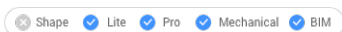
Icon: 

31.2.1 Description

Toggles the Intersection 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

31.3 ZKNOT command

Toggles the Knot 3D entity snap.



Icon: 

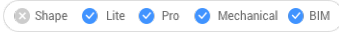
31.3.1 Description

Toggles the Knot 3D entity snap to enable or disable snapping to spline knot. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.



31.4 ZMIDPOINT command

Toggles the Midpoint 3D entity snap.



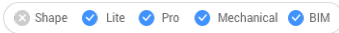
Icon:

31.4.1 Description

Toggles the Midpoint 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

31.5 ZNEAREST command

Toggles the Nearest 3D entity snap.



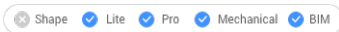
Icon:

31.5.1 Description

Toggles the Nearest 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

31.6 ZNONE command

Disables all 3D entity snaps.



Icon:

31.6.1 Description

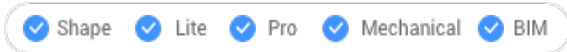
Disables all 3D entity snaps to prevent the cursor from snapping to 3D entities. You can launch this command at the Command prompt to turn off running entity snaps. Doing so changes the value of the 3DOSMODE system variable to zero. You can also launch this command within another command to turn off entity snaps only for the current operation. This does not change the value of the 3DOSMODE system variable.

This command displays no prompts and has no options.



31.7 ZOOM command

Visually changes the size of the drawing within the current viewport.



Icon:

Alias: Z

31.7.1 Description

You can change the magnification of your drawing at any time by zooming.

31.7.2 Options within the command

In

Zooms in by 50%. It is equivalent to Zoom 2.

Out

Zooms out by 50%. It is equivalent to Zoom 0.5.

All

Displays the entire drawing.

Center

Zooms in or out about a specified center point.

Dynamic

Pans and zooms using a rectangular box which represents the viewport. This option first executes a zoom extents or zoom limits to show the original size of the viewport as a dashed rectangle.

Adjust the size of the view box dynamically, then pan it to the part of the drawing you want to view.

Extents

Displays the drawing to the extents of entities.

Note: Limits and frozen entities are ignored.

Left

Zooms in or out with the lower left corner specified by a point.

Previous

Displays the previous view, whether set by the Zoom, Pan, or View commands.

Right

Zooms in or out with the upper right corner specified by a point.

Scale

Specifies the absolute zoom scale factor.

Note: Less than 1 makes the drawing appear smaller. More than 1 makes the drawing appear larger.

nx

Specifies the zoom factor relative to the current zoom. For example, 2x makes the current view twice as large.



Nxp

Specifies the zoom factor in paper space relative to model space. For example, 2xp makes the model space view twice as large as the surrounding paper space.

Window

Zooms in to a rectangular area.

Object

Zooms in on a single entity or a selection set.

31.8 ZPERPENDICULAR command

Toggles the Perpendicular on a face 3D entity snap.



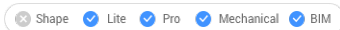
Icon:

31.8.1 Description

Toggles the Perpendicular on a face 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.

31.9 ZVERTEX command

Toggles the Vertex 3D entity snap.



Icon:

31.9.1 Description

Toggles the Vertex 3D entity snap to enable or disable snapping to extension. You can launch this command at the Command prompt to toggle a running entity snap. Doing so changes the value of the OSMODE system variable accordingly. You can also launch this command within another command to turn off the entity snap only for the current operation. This does not change the value of the OSMODE system variable.