



Bricsys®

# Command reference V21

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 <b>'zoom</b> at the command prompt to temporarily interrupt the LINE command while executing the ZOOM command.



Prefix	Type	Result
- (dash)	Command line	<p>Launches a non-dialog version of a command. All command options are available in the Command line.</p> <p>E.g. Type <b>-layer</b> 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.</p>
_ (underscore)	Global	<p>Executes the original English command (global command) in translated version of BricsCAD.</p> <p>It is recommended to use the global command prefix in scripts, or when defining keyboard shortcuts or customized tools.</p>
. (period)	Non-redefined	<p>Executes commands that have been temporarily removed from BricsCAD using the <b>UNDEFINE</b> command.</p>

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 BricsCAD Help Center.



##### 3.1.1 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.



## 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.

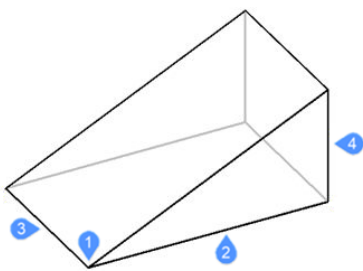
#### 5.1.2 Methods

There are ten methods to basic 3D mesh entities:

- Wedge
- Pyramid
- Box
- Cone
- cyLinder
- Sphere
- DIsh
- DOme
- Torus
- Mesh

#### Wedge

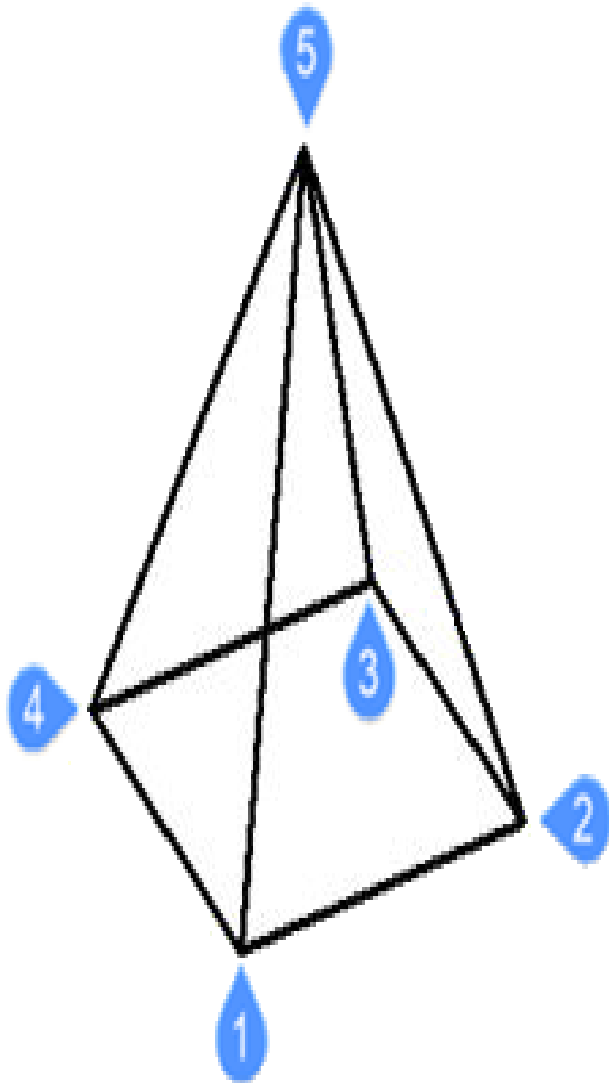
Draws 3D wedges (see AI\_WEDGE command).



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

#### Pyramid

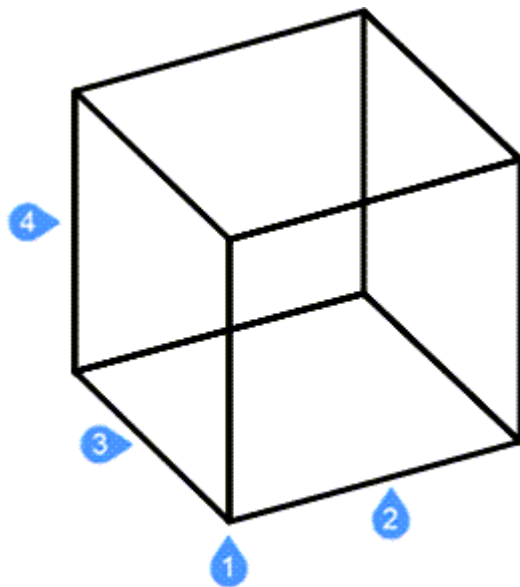
Draws 3D pyramids (see AI\_PYRAMID command).



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

### **Box**

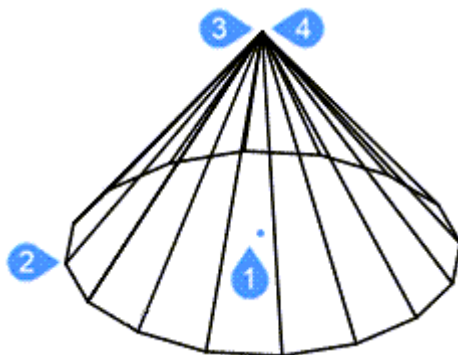
Draws 3D boxes from polyface meshes (see AI\_BOX command).



- 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**

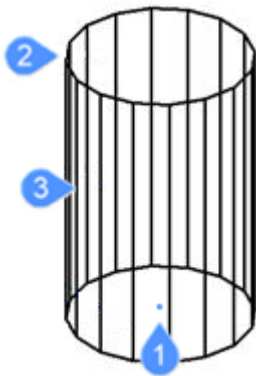
Draws 3D cones (see AI\_CONE command).



- 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**

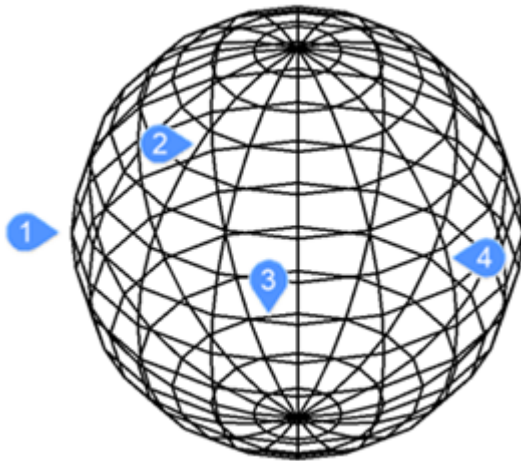
Draws 3D cylinders (see AI\_CYLINDER command).



- 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).



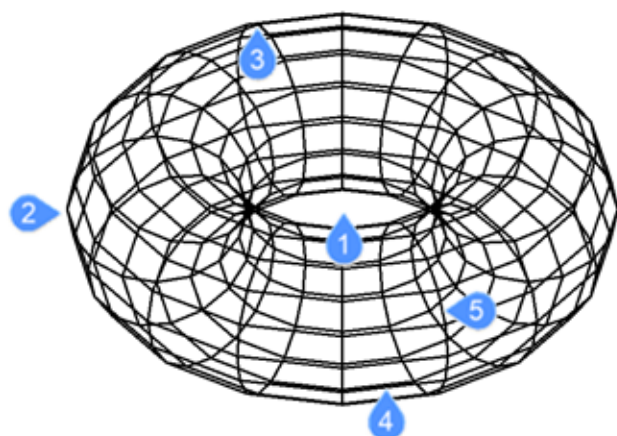
Specify center of dome (Start point)

- 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).

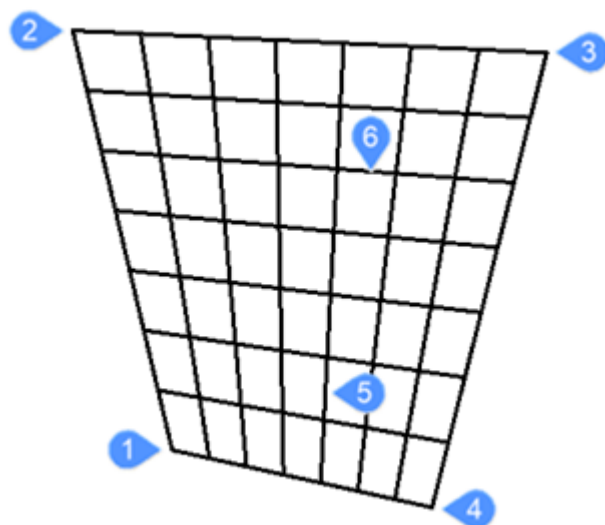




- 1 Specify center of whole torus (Start point)
- 2 Radius of whole torus
- 3 Radius of body of torus (Diameter)
- 4 Segments around body of torus
- 5 Segments around whole torus

### Mesh

Draws 3D meshes (see 3DMESH command).

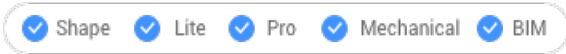



- 1 First of four corners of polygon mesh (Start point)
- 2 Second corner
- 3 Third corner
- 4 Last corner for mesh
- 5 Number of segments – primary axis
- 6 Number of segments – secondary axis



### 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

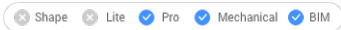
Creates 3D polar arrays.


##### Rectangular

Creates 3D rectangular arrays.

### 5.3 3DCOMPARE command

Opens the Compare two models dialog box.



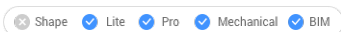
Icon: 

#### 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.



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## 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**

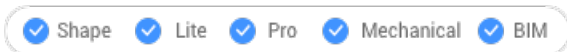
Enables all currently set 3D snap modes.

### **OFF**

Disables all currently set 3D snap modes.

## **5.11 3DPOLY command**

Creates a 3D polyline.

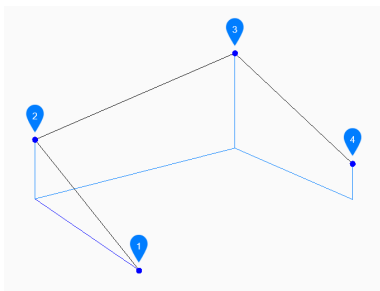


Icon: 

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]

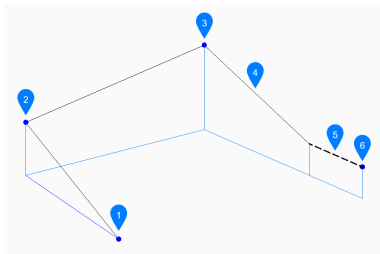
#### Follow

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:

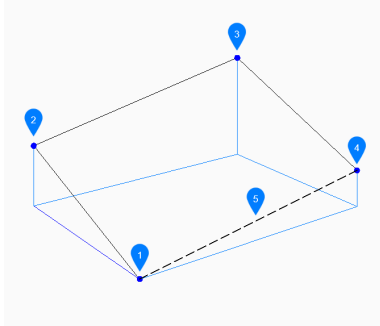


### Undo

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.



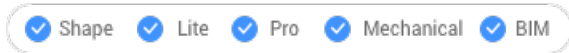
- 1 Start/End
- 2 Next
- 3 Next
- 4 Next
- 5 Last drawn segment




## 6. A

### 6.1 ABOUT command

Opens the About BricsCAD dialog box.



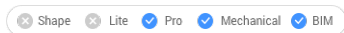
Icon: 


#### 6.1.1 Description

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

### 6.2 ACISIN command

Opens the Open an ACIS file dialog box.



Icon: 


#### 6.2.1 Description

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

### 6.3 ACISOUT command

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



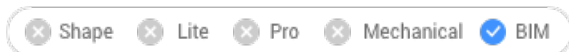
Icon: 

#### 6.3.1 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.

### 6.4 ACTIVATESECTIONVIEW command

Set viewpoint by section plane.

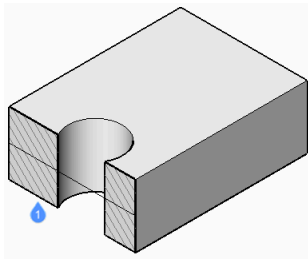


#### 6.4.1 Description

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.

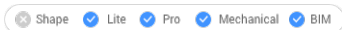




- 1 Section plane
- 2 View oriented to match the section plane

## 6.5 ADDINMAN command

Opens the Add-in manager dialog box.

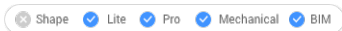


### 6.5.1 Description

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

## 6.6 ADDSELECTED command

Creates an entity similar to an existing one.



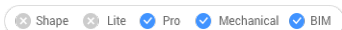
Icon:

### 6.6.1 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.

## 6.7 AI\_BOX command

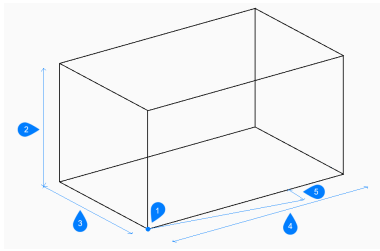
Creates a 3D polyface mesh in the shape of a box.



Icon:

### 6.7.1 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

### 6.7.2 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

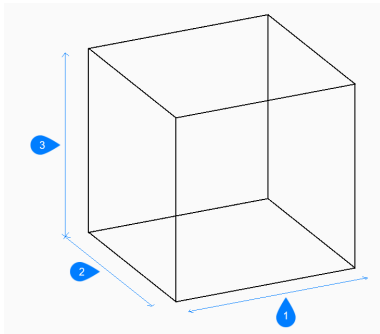
Specify the rotation angle of the base of the box in the xy-plane. The default is 0.

### 6.7.3 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

## 6.8 AI\_CONE command

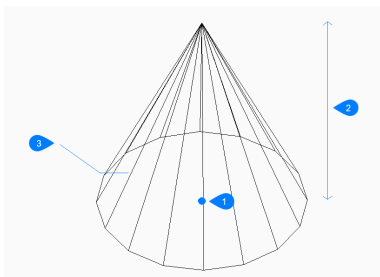
Creates a 3D polygon mesh in the shape of a cone.



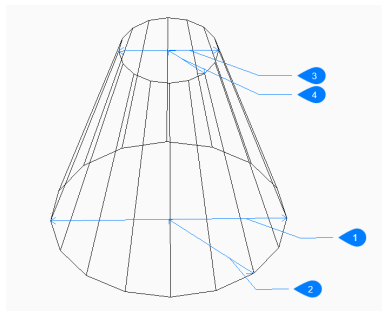
Icon: 

### 6.8.1 Description

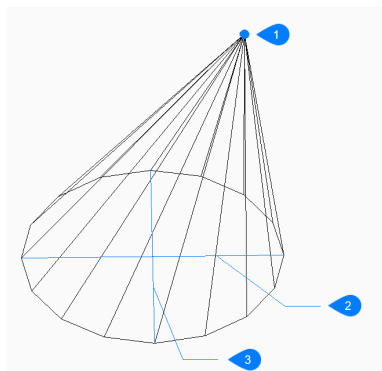
Creates a 3D polygon mesh in the shape of a circular or elliptical cone. Choose from a combination of options including center, radius, diameter, height, axis endpoints, apex, and number of segments.



- 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

## 6.8.2 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.

### 6.8.3 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.

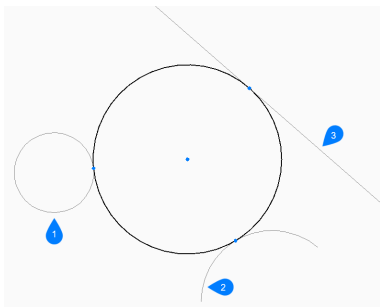
## 6.9 AI\_CIRCTAN command

Creates a tangent circle.

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### 6.9.1 Description

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



- 1 First tangent spec
- 2 Second tangent spec
- 3 Third tangent spec



### 6.9.2 Methods to create a tangent circle

There is one method to begin creating a circle with three tangents:

- Enter tangent spec

#### Enter Tangent spec

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

#### Enter second Tangent spec

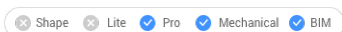
Select a tangent point on the second entity.


#### Enter third Tangent spec

Select a tangent point on the third entity.

### 6.10 AI\_CYLINDER command

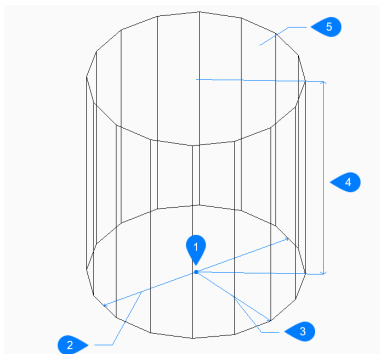
Creates a 3D polygon mesh in the shape of cylinder.



Icon: 

#### 6.10.1 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

#### 6.10.2 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.

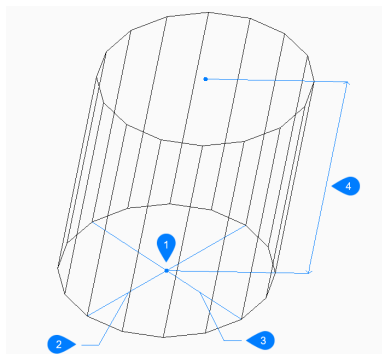
### Height of cylinder

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

### 6.10.3 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.

## 6.11 AI\_DESELECT command

Unselects all selected entities.

Shape Lite Pro Mechanical BIM

### 6.11.1 Description

Deselects all entities that have been selected in a previous operation. Meant for use with macros.

## 6.12 AI\_DIM\_TEXTABOVE command

Move text above the dimension line.

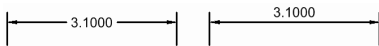
Shape Lite Pro Mechanical BIM

### 6.12.1 Description

Moves dimension text of selected dimension to above the dimension line.

Moves dimension text of selected dimension to above the dimension line.

Makes dimensions compliant with Japanese Industrial Standards (JIS) used in Japan.



## 6.13 AI\_DIM\_TEXTCENTER command

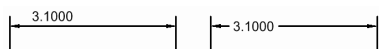
Centers dimension text vertically.

Shape Lite Pro Mechanical BIM

### 6.13.1 Description

Vertically centers dimension text of selected dimensions on the dimension line. You can type ALL to choose all non-frozen entities in the current viewport.

The program centers the dimension text on the dimension line vertically. Use the AI\_DIM\_TEXTHOME command to center text horizontally.



## 6.14 AI\_DIM\_TEXTHOME command

Centers dimension text horizontally.

Shape Lite Pro Mechanical BIM

### 6.14.1 Description

Horizontally centers dimension text of selected dimensions on the dimension line.

You can type ALL to choose all non-frozen entities in the current viewport.

**Note:** Use the AI\_DIM\_TEXTCENTER to center text vertically.






### 6.15 AI\_DISH command

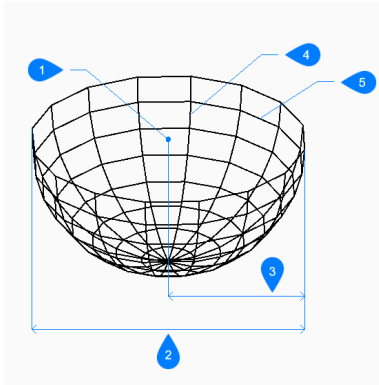
Creates a 3D polygon mesh in the shape of the bottom half of a sphere.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 6.15.1 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

#### 6.15.2 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.



### 6.15.3 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.

### 6.16 AI\_DOME command

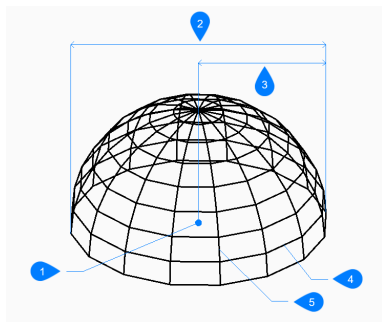
Creates a 3D polygon mesh in the shape of the upper half of a sphere.

Shape Lite Pro Mechanical BIM

Icon: 

#### 6.16.1 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

#### 6.16.2 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.

### 6.16.3 Options within the AI\_DOME command

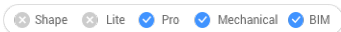
After you begin creating a dome, the following option may be available:

#### Diameter

Specify the diameter of the dome.

### 6.17 AI\_EDGESURF command

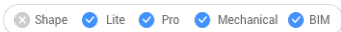
This command is obsolete. It still exists for backward compatibility only.



Use the EDGESURF command instead.

### 6.18 AI\_FMS command

Switches from paper space to model space.



#### 6.18.1 Description

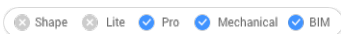
While in model space, it switches to paper space to the last used Layout and activates the viewport.

While in paper space, it activates the last deactivated viewport.

### 6.19 AI\_PSPACE command

### 6.20 AI\_PYRAMID command

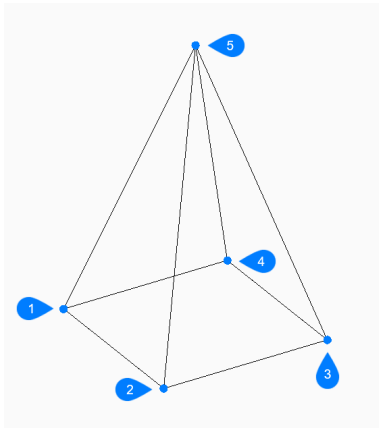
Creates a 3D polyface mesh in the shape of a pyramid.



Icon: 

#### 6.20.1 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

### 6.20.2 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]

### 6.20.3 Options within the AI\_PYRAMID command

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

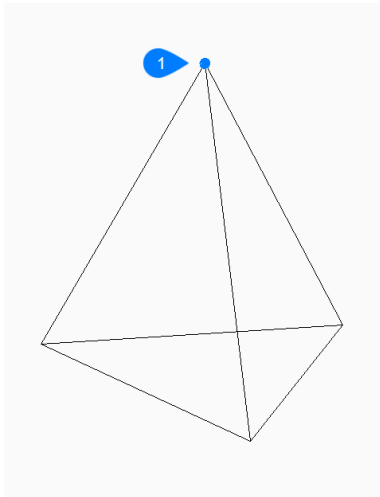
#### Tetrahedron

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.

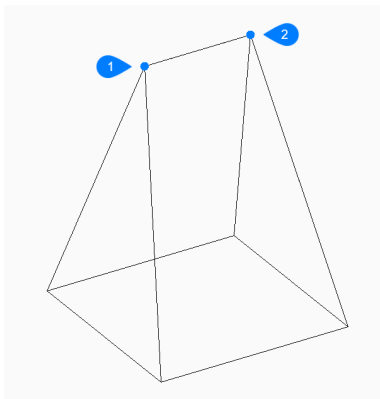
Additional option: [Top surface]



1 Apex

## Ridge

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

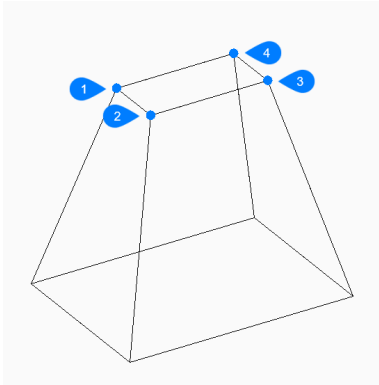


1 Start of ridge

2 End of ridge

## Top surface

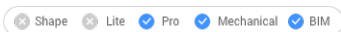
Specify four points to create a face at the top of the pyramid.



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

## 6.21 AI\_REVSURF command

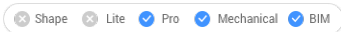
This command is obsolete. It still exists for backward compatibility only.



Use REVSURF command instead.

## 6.22 AI\_RULESURF command

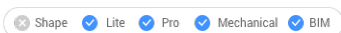
This command is obsolete. It still exists for backward compatibility only.



Use the RULESURF command instead.

## 6.23 AI\_SELALL command

Selects all entities in the current space.

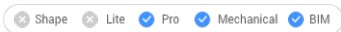


### 6.23.1 Description

Selects all non-frozen entities in the current space (model or paper). Meant for use with macros (short for “select all”).

## 6.24 AI\_SPHERE command

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

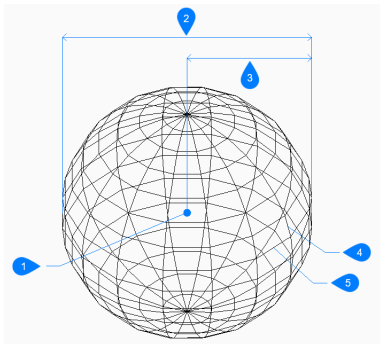


Icon: 



### 6.24.1 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

### 6.24.2 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.

### 6.24.3 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.

## 6.25 AI\_TABSURF command

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



Shape Lite Pro Mechanical BIM

Use the TABSURF command instead.

## 6.26 AI\_TORUS command

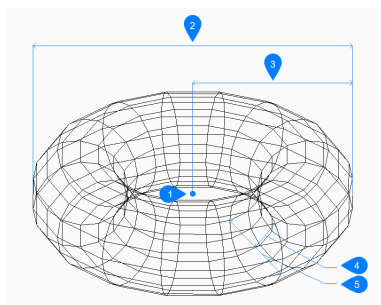
Creates a 3D polygon mesh in the shape of a torus.

Shape Lite Pro Mechanical BIM

Icon: 

### 6.26.1 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

### 6.26.2 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.

### 6.26.3 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.

## 6.27 AI\_WEDGE command

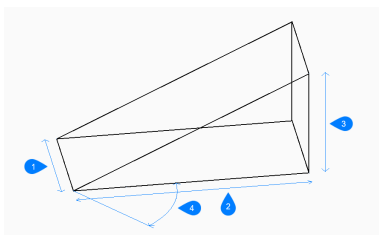
Creates a 3D polyface mesh in the shape of a wedge.



Icon: 

### 6.27.1 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

### 6.27.2 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.

## 6.28 AIMLEADEREDITADD command

Adds and removes leaders to mleaders.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 6.28.1 Description

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

### 6.28.2 Method

There are two methods to add and remove leaders:

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

### 6.28.3 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.

## 6.29 AIMLEADEREDITREMOVE command

Removes and adds leaders to mleaders.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 6.29.1 Description

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

### 6.29.2 Method

There are two methods to remove and add leaders:

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



### 6.29.3 Options within the command

#### Remove leaders

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

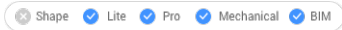
This command can remove all leaders from an mleader entity, leaving just the text.

#### Add leaders

New leaders are added to an existing mleader entity.

### 6.30 AIDIMFLIPARROW command

Flips a dimension arrow.



Icon:

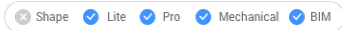
#### 6.30.1 Description

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.

### 6.31 AIDIMPREC command

Changes the display precision of dimension text.



Icon:

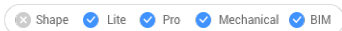
#### 6.31.1 Description

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".

### 6.32 AIDIMSTYLE command

Applies and saves dimension styles.



Icon:

#### 6.32.1 Description

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



### 6.32.2 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.

### 6.32.3 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.

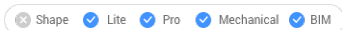
#### Save

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.

## 6.33 ALIGN command

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



Icon:

Alias: AL

### 6.33.1 Description

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

### 6.33.2 Options

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

#### Specify second source point

Specifies the second source alignment point.

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



### Specify second destination point

Specifies the matching destination point.

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

### Specify third source point

Specifies the source point for 3D alignment.

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

### Specify third destination point

Specifies the matching destination point.

### Scale objects based on alignment points

Optionally scales the source object:

#### Yes

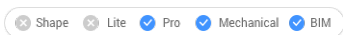
Scales objects relative to the picked points

#### No

Does not scale objects

## 6.34 ALIGNMENT command

Creates horizontal, vertical and 3D alignments.



Icon:

### 6.34.1 Description

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

### 6.34.2 Options within the command

#### Horizontal

Creates a horizontal alignment.

#### Vertical

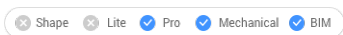
Creates a vertical alignment.

#### 3D

Creates an alignment for Civil 3D drawings.

## 6.35 ALIGNMENTEDIT command

Edits an alignment.



Icon:



### 6.35.1 Method

Select a horizontal or vertical alignment to edit.

### 6.35.2 Options

#### Add Pi

Adds a Pi Point to the alignment.

#### Remove Pi

Removes a Pi point.

#### changes Tin surface

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

## 6.36 ALIGNMENTVIEW command

Creates a vertical alignment view for the selected horizontal alignment.



Icon:

### 6.36.1 Method

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

## 6.37 ALIGNMENTVINITIAL command

## 6.38 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.

### 6.38.1 Description

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

## 6.39 ANIMATIONEDITORCLOSE command

Closes the Animation editor panel.



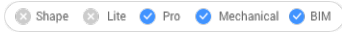



### 6.39.1 Description

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.

### 6.40 ANIMATIONEDITOROPEN command

Opens the Animation editor panel.



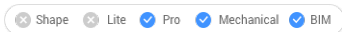
Icon: 

#### 6.40.1 Description

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

### 6.41 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.



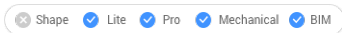
Icon: 


#### 6.41.1 Description

Displays the Motion Path Animation dialog box.

### 6.42 ANNORESET command

Resets moved annotative scale representations.



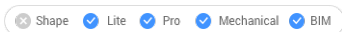
Icon: 

#### 6.42.1 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.

### 6.43 ANNOUPDATE command

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



Icon: 



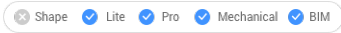
### 6.43.1 Method

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.

### 6.44 APERTURE command

### 6.45 APPARENT command

Toggles the Apparent intersection entity snap.



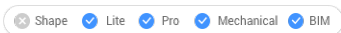
Alias: PLANVIEWINT

#### 6.45.1 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.

### 6.46 APpload command

Opens the Load application files dialog box.



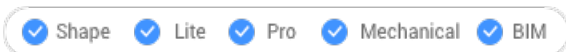
Icon: 

#### 6.46.1 Description

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

### 6.47 ARC command

Creates an arc.



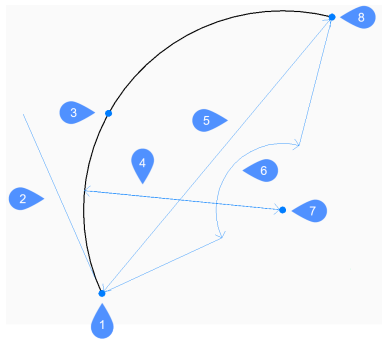
Icon: 

Alias: A

#### 6.47.1 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

### 6.47.2 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]

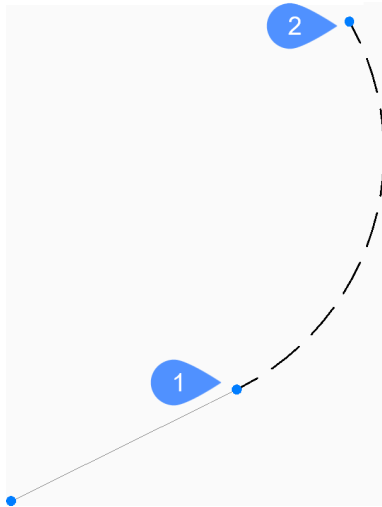


### Follow last point

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

### 6.47.3 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.

## 6.48 AREA command

Finds the area and perimeter of 2D entities.



Icon:

Alias: AA

### 6.48.1 Method

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



### 6.48.2 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.

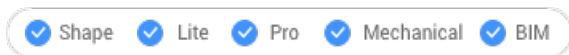
#### Subtract areas

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.

## 6.49 ARRAY command

Creates an array of entities.



Icon:

Alias: AR

### 6.49.1 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.

### 6.49.2 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.

### 6.49.3 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.

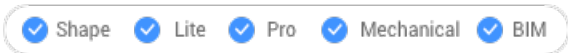


### POLAR

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

### 6.50 -ARRAY command

Creates an array of entities.



#### 6.50.1 Description

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

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

#### 6.50.2 Methods

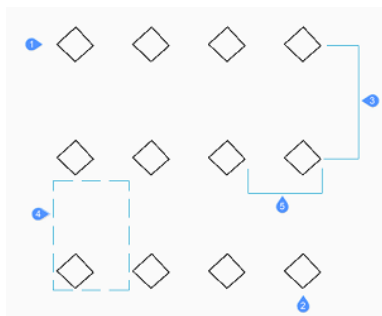
There are two methods to create an array of entities:

- Polar
- Rectangular

#### 6.50.3 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)

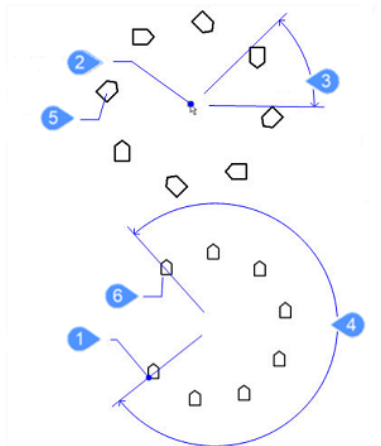


### Horizontal distance between columns

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)

## 6.51 ARRAYCLASSIC command

Opens the Array dialog box.



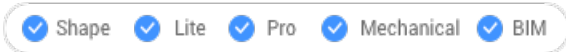
### 6.51.1 Description

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



### 6.52 ARRAYCLOSE command

Exists the associative array editing state.



Icon:

#### 6.52.1 Description

Exists 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.

#### 6.52.2 Options

##### Yes

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

##### No

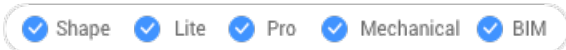
Exists the array editing state and discards all changes, thus returning the array to its original state.

##### Cancel

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

### 6.53 -ARRAYCLOSE command

Exists the associative array editing state.



#### 6.53.1 Description

Exists 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.

#### 6.53.2 Options

##### Yes

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

##### No

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

### 6.54 ARRAYEDIT command

Edits associative arrays.





Icon:

## 6.54.1 Method

Select the entities that make up associative arrays.

## 6.54.2 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.

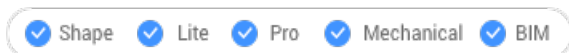
**Note:** Hold the Ctrl key to select more than one item in the associative array, then tap the Delete key to erase the selection.

### eXit

Accept the changes and conclude the command.

## 6.55 ARRAYEDITTEXT command

Provides additional editing of associative arrays.



Icon:

## 6.55.1 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 ARRAYCLASIC command or -ARRAY command.

## 6.55.2 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.



### 6.55.3 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.

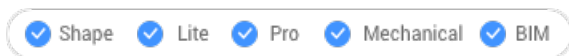
**Note:** : Positive numbers, for the rotation angle, rotate counter clockwise and negative numbers rotate clockwise.

#### Delete item

Deletes an entity of an associative array.

## 6.56 ARRAYPATH command

Creates an array along a path.



Icon:

### 6.56.1 Description

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

### 6.56.2 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

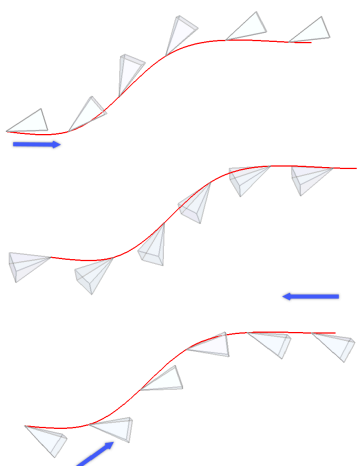
Sets the base point of the array. Items are placed relative to the base point.

## Tangent direction

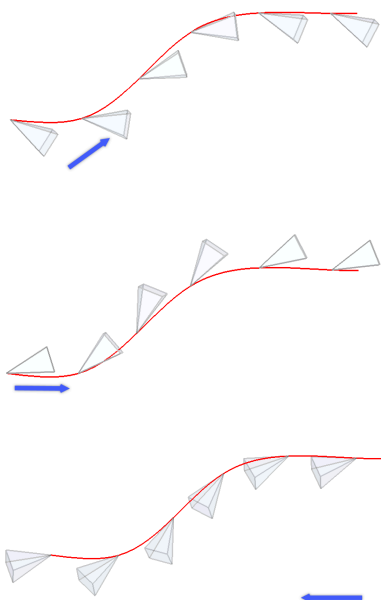
Determines how the items are aligned relative to the starting direction of the path.

## 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 point.

#### 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

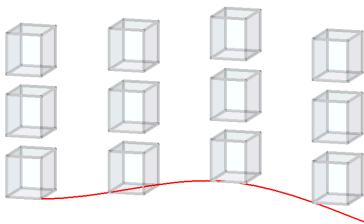
Creates 3D arrays by specifying the number and spacing of levels.

### Distance

Specifies the distance between the bottom and the top level.

### Total

Specifies the distance between the bottom and the top level.

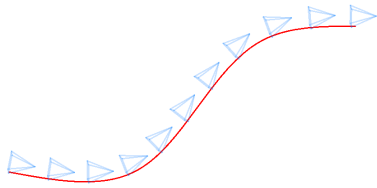


### Align items

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

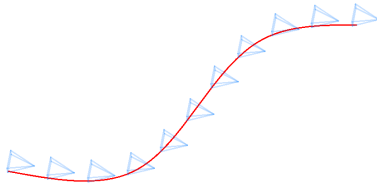
### Yes

Each item is placed tangent to the path direction.



### No

Each item keeps the orientation of the first item.

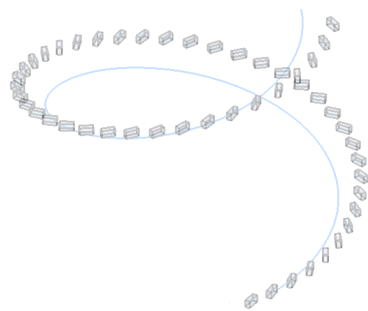


### Z direction

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

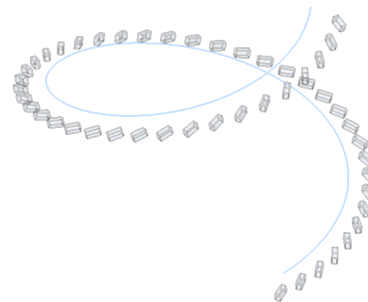
### Yes

Z direction (vertical) is maintained.



### No

Items banked along the helix.



### eXit

Accept the current settings and conclude the command.

## 6.57 ARRAYPOLAR command

Creates an array of entities, in a circular pattern.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

### 6.57.1 Description

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

### 6.57.2 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**

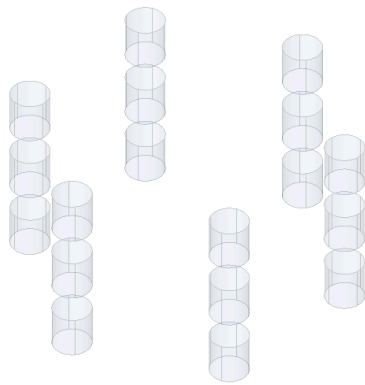
Specifies the distance between the first and the last row.

#### **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**

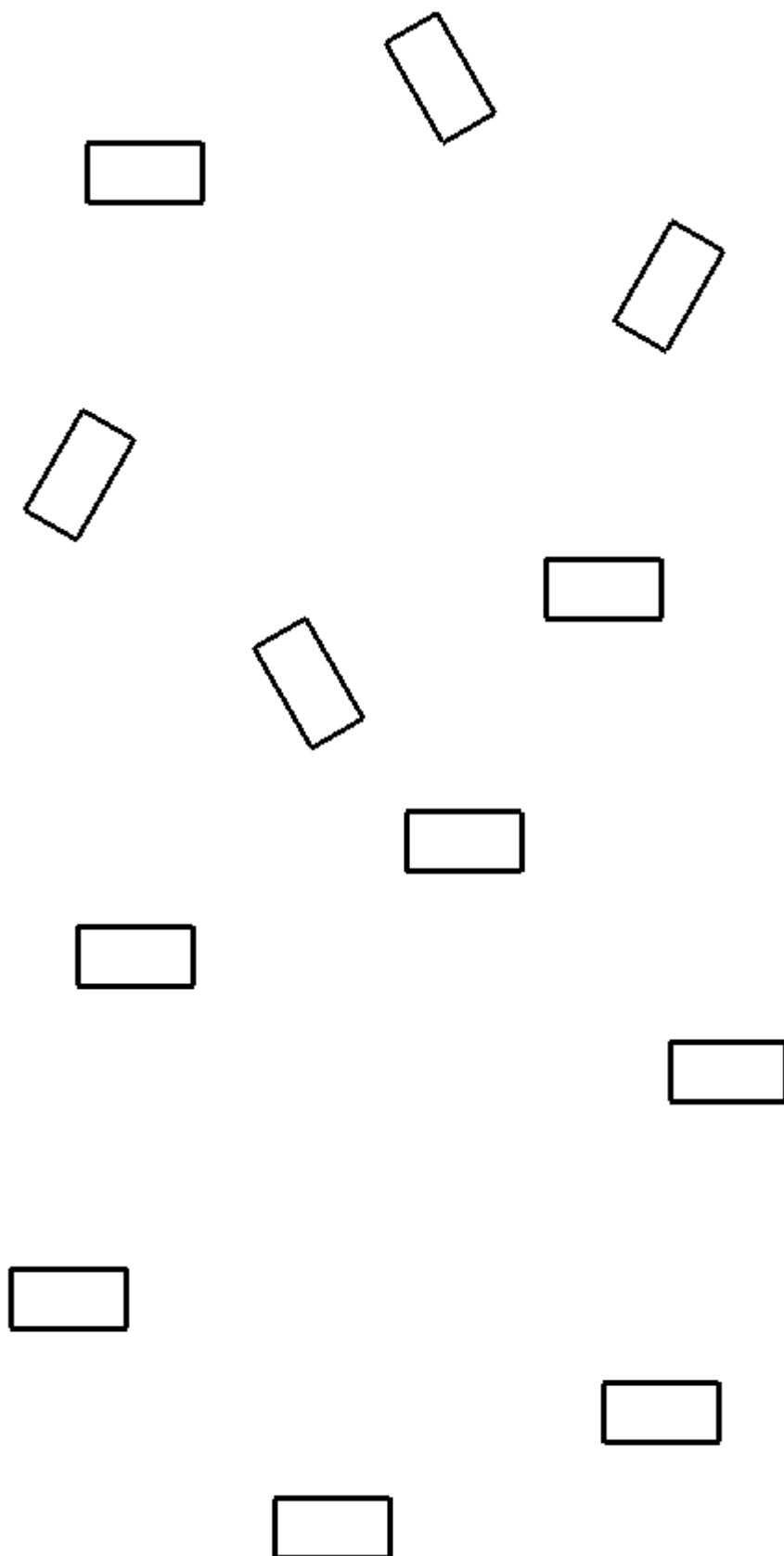
Specifies the distance between subsequent levels by typing a value or picking two points.

**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.



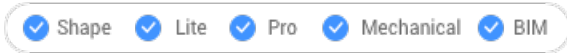


### eXit

Accept the current settings and conclude the command.

## 6.58 ARRAYRECT command

Creates a rectangular array of entities.



Icon:

### 6.58.1 Description

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

### 6.58.2 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.

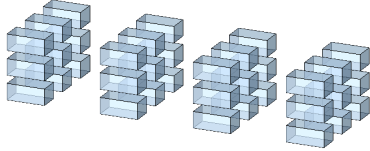


### Incrementing elevation between rows

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.

## 6.59 ATTACHMENTSPANELCLOSE command

Closes the Attachments panel.

Shape Lite Pro Mechanical BIM

### 6.59.1 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.

## 6.60 ATTACHMENTSPANELOPEN command

Opens the Attachments panel.

Shape Lite Pro Mechanical BIM

### 6.60.1 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.

## 6.61 ATTDEF command

Opens the Define attribute dialog box.

Shape Lite Pro Mechanical BIM

Icon:

Alias: AT, DDATTDEF



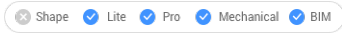


### 6.61.1 Description

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

## 6.62 -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.

### 6.62.1 Description

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

### 6.62.2 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 of 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.

## 6.63 ATTDISP command

Sets the display mode of attribute text in the drawing.



Icon:

Alias: AD

### 6.63.1 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.

### 6.63.2 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 **Normally**: displays attributes, except those set to invisible mode.

## 6.64 ATTEDIT command

Edits the values and properties of attributes.



Icon:

Alias: ATE

### 6.64.1 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.

### 6.64.2 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.

### 6.64.3 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.

## 6.65 ATTEXT command

Opens the Extract attributes dialog box.



Icon:

Alias: AX, DDATTEXT



### 6.65.1 Description

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

## 6.66 -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.

### 6.66.1 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.

### 6.66.2 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.

## 6.67 ATTREDEF command

Redefines a block and updates associated attributes.



### 6.67.1 Description

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

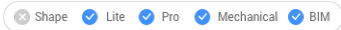


The following rules apply to existing block references:

- 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.

### 6.68 ATTSYNC command

Synchronizes block attributes.



#### 6.68.1 Description

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

#### 6.68.2 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

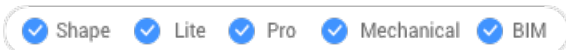
Synchronizes attributes in the selected block.

##### No – skip block

Does not synchronize the block and skips to next block.

### 6.69 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.

#### 6.69.1 Description

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



### 6.69.2 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.

## 6.70 AUTOCOMplete command

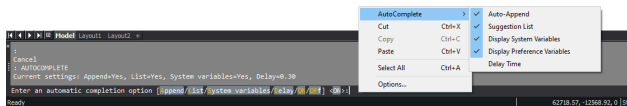
Specifies how the auto-complete function works in the BricsCAD command bar.



### 6.70.1 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.



### 6.70.2 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.

### 6.70.3 Options

#### Append

Toggles the automatically append suggestion as you type.

#### List

Toggles whether the list of suggestions is displayed or not.

#### System Variables

Toggles whether 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.

## 6.71 AUTOCONSTRAIN command

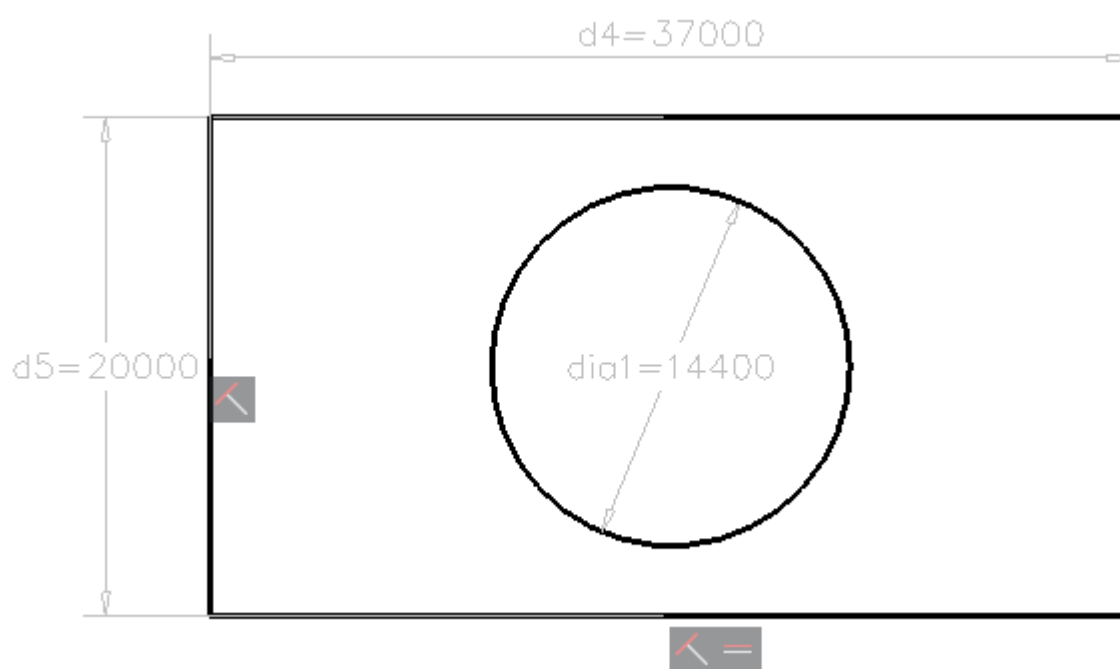
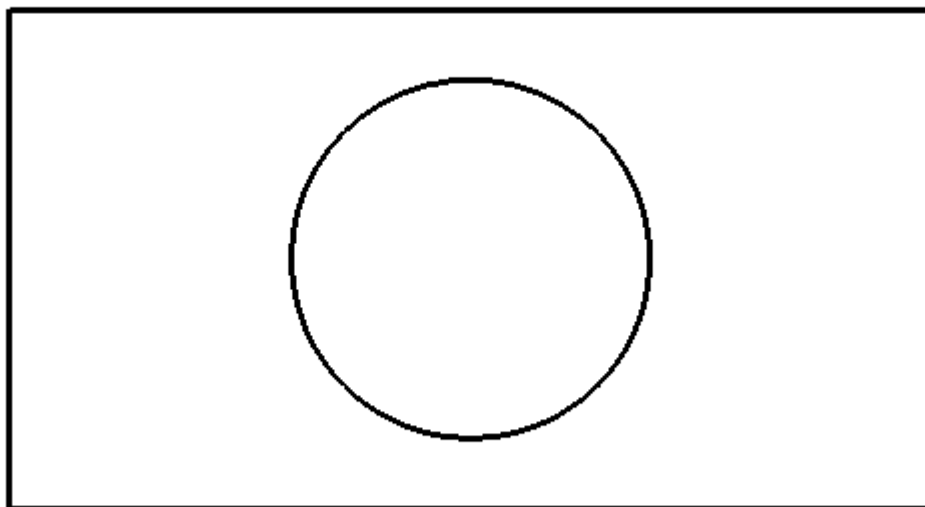
Automatically constrains 2D geometry.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 6.71.1 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 and Constraints panel.

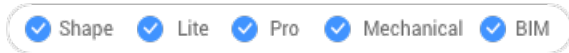
**Note:** For Pro or higher license users. Constraints can be edited in the Mechanical Browser panel.



## 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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 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 BEDIT command

Opens the Create or edit block definition dialog box.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

Alias: BE

#### 7.5.1 Description

Opens the Create or edit block definition dialog box to specify a block to open in the Block Editor.

### 7.6 -BEDIT command

Edits the entities that make up a block.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 7.6.1 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.

#### 7.6.2 Method

There are two methods to use -BEDIT command:

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

#### 7.6.3 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.

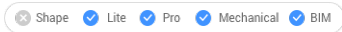
?

Lists the existing blocks.



### 7.7 BHATCH command

Opens the Hatch and gradient dialog box.

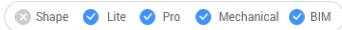


#### 7.7.1 Description

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

### 7.8 -BHATCH command

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

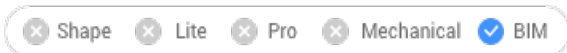


See -HATCH command.

### 7.9 BIMACTIVATEPYTHON command

#### 7.10 BIMADDECCENTRICITY command

Controls relative positions of the axis of linear solids.



Icon:

##### 7.10.1 Description

Adds eccentricity to linear solids with respect to their axis.

##### 7.10.2 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.

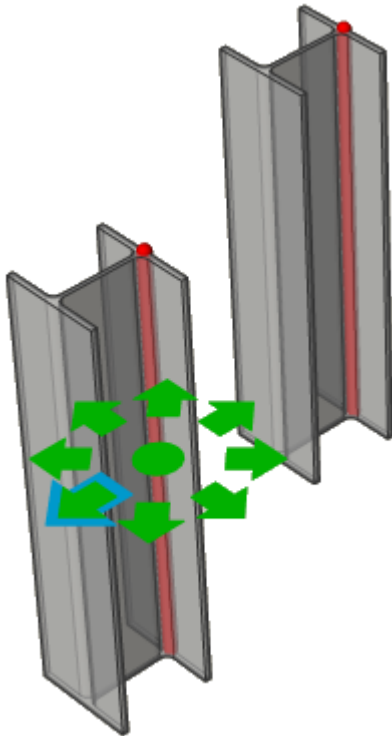
**Note:** BIMADDECCENTRICITY command only works with structural elements.

##### 7.10.3 Options within the BIMADDECCENTRICITY 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)

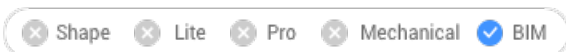
### Extra offset

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.

## 7.11 BIMANALYTICALMODEL command

Creates an analytical model from a fully classified BIM model.



### 7.11.1 Description

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

### 7.11.2 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.

### 7.11.3 Options within the command

#### Visual settings

Opens the Visual settings window. Allows to check and uncheck 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 or CIS/2 file.

### 7.11.4 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 to axes

Connects the node to a chosen axis (axes).

#### Disconnect to 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.

### 7.11.5 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.

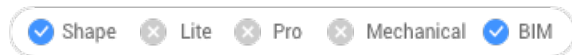
The restriction you can relax depends on the restrictions that are imposed.

Mostly these will be the restrictions that you can relax:

- Inside profile bounds.
- Outside profile bounds.
- Non-parallel.
- Allow length extension.

## 7.12 BIMAPPLYPROFILE command

Applies a profile to linear entities and linear solids.



Icon:

### 7.12.1 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 helixes. Open and closed splines are accepted only if they have default tangents that are not self-intersecting.

### 7.12.2 Methods

There are two methods to apply profiles:

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

### 7.12.3 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.

## 7.13 BIMATTACHCOMPOSITION command

Attaches a BIM composition to solids.



Icon:

### 7.13.1 Method/s

This command offers 3 methods to attach the compositions.

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

### 7.13.2 Options within the command

#### Dialog

Opens the Compositions dialog box.

See BLCompositions for more information about the dialog.

#### 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.

## 7.14 BIMATTACHSPATIALLOCATION command

Allows to attach or remove a spatial location to a selection of entities.



Icon:





### 7.14.1 Method

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

### 7.14.2 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 to remove the current spatial location from a selection set.

## 7.15 BIMAUTOMATCH command

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



Icon:

### 7.15.1 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.

### 7.15.2 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.

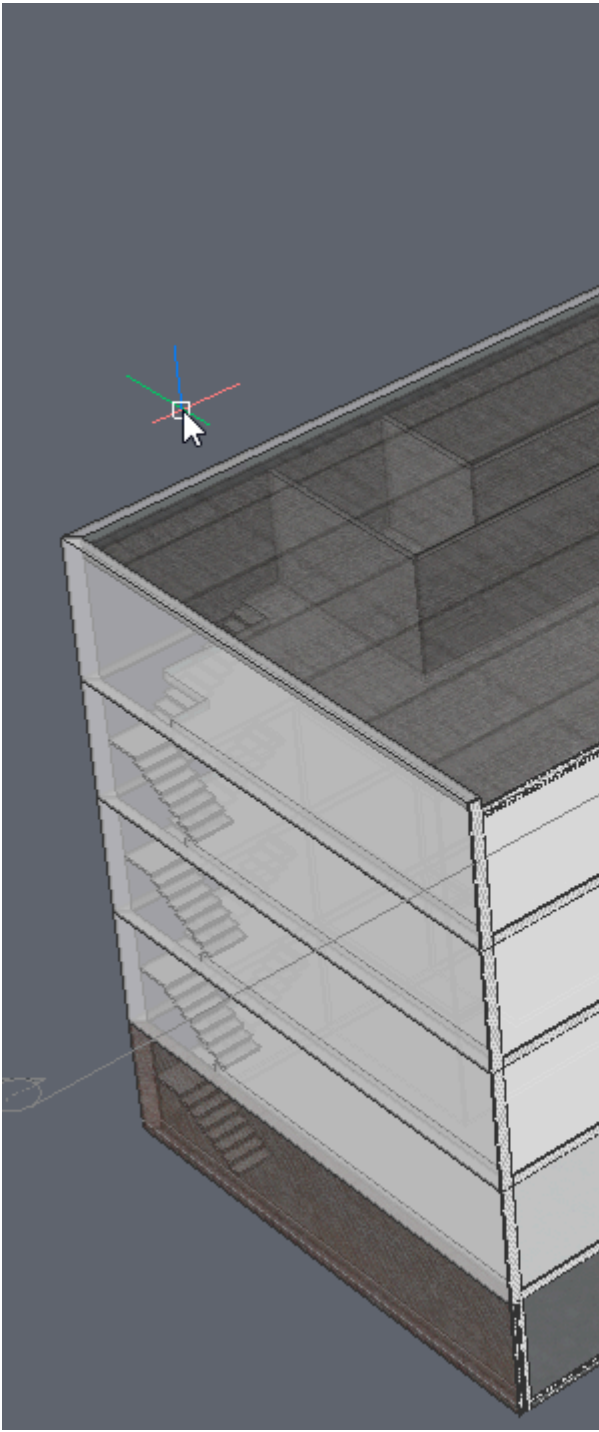
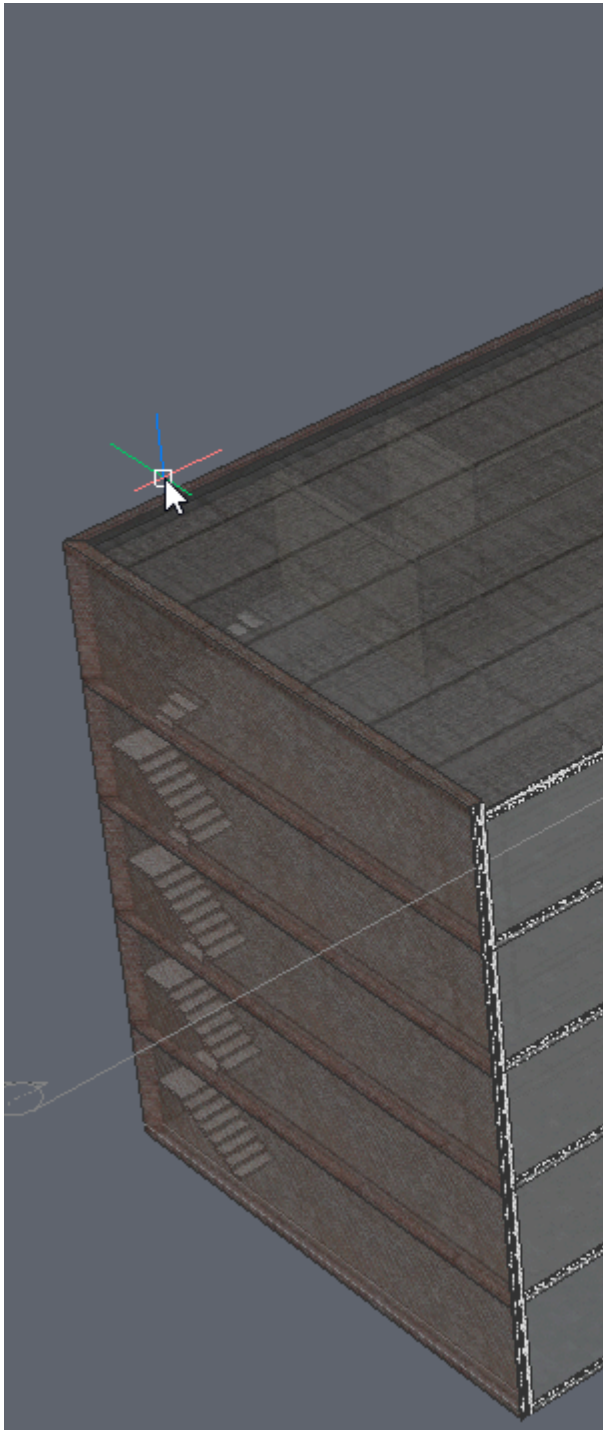
**Note:** AutoMatch is only applied as if 'Other building name' was the only building in the drawing.

### 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.

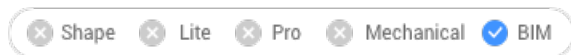
Every type of element has one entity with the correct composition.	All elements are given the correct composition.
	

## 7.16 BIMCLASSIFY command

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



Any dwg entity can be given a classification.



Icons:

### 7.16.1 Method

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

The BIM elements definition are detailed in Classify as BIM element dialog box.

### 7.16.2 Options

#### 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.

#### sSpace

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

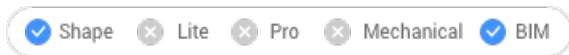
Classifies the selection as Building Structure Elements.

### Unclassify

Removes all BIM data from the selected entities.

## 7.17 BIMCOPY command

Creates copies from the planar faces of 3D solids.



Icon:

### 7.17.1 Description

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

### 7.17.2 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.

### 7.17.3 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

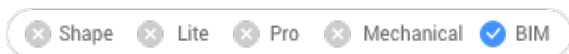
Creates a number of copies you want to have in your model.

#### Accept

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

## 7.18 BIMCREATEDetail command

Creates a detail and saves it in the library.



### 7.18.1 Method

Select reference solids, detail entities and section in the Create detail dialog box.



### 7.18.2 Options within the command

#### Accept

Accepts the detail area. Displays the Save detail dialog box, which allows you to save the detail.

#### Reject

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.

## 7.19 BIMCURTAINWALL command

Creates a curtain wall.



Icon: 

### 7.19.1 Description

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

### 7.19.2 Method

Select a face and create a grid.

### 7.19.3 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

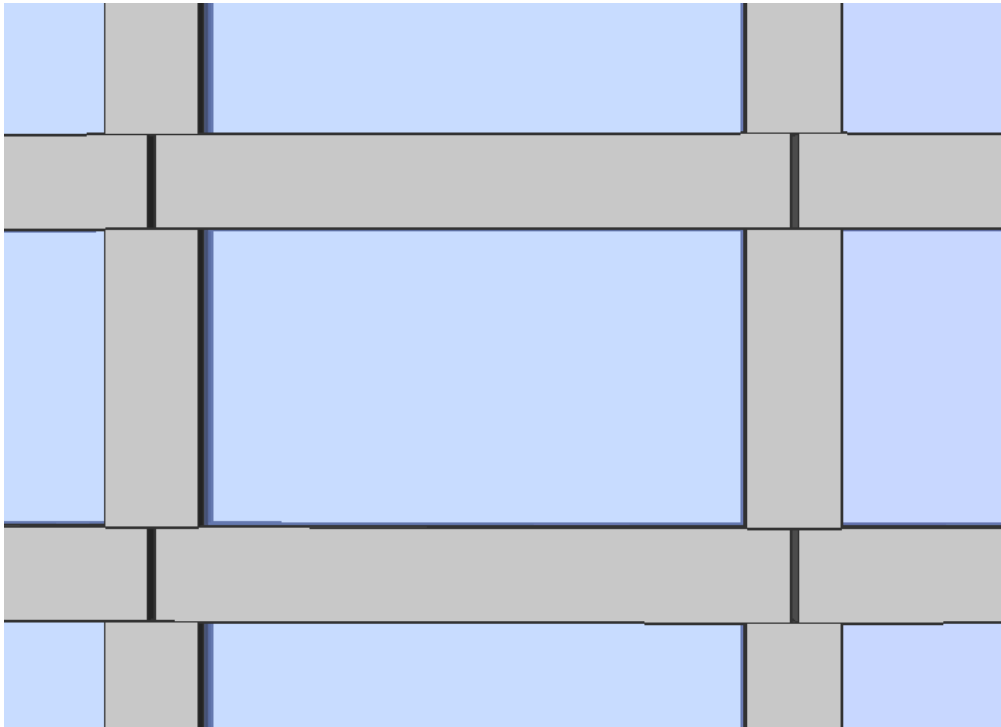
Defines the thickness of the glass panels.

#### Connections type

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

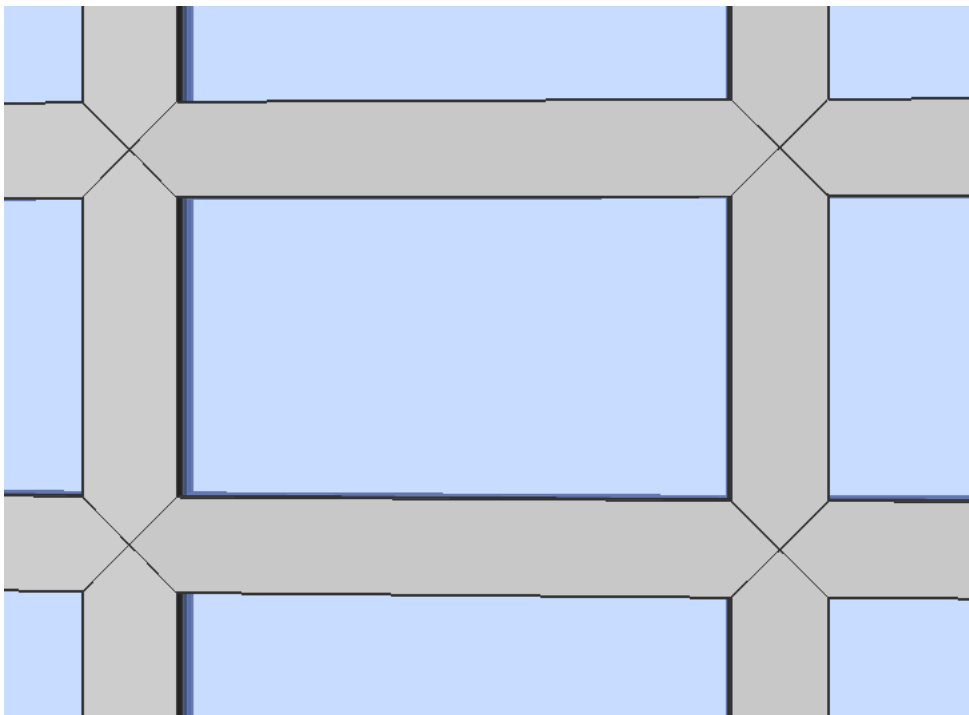
#### sTraight

Creates a straight connection.



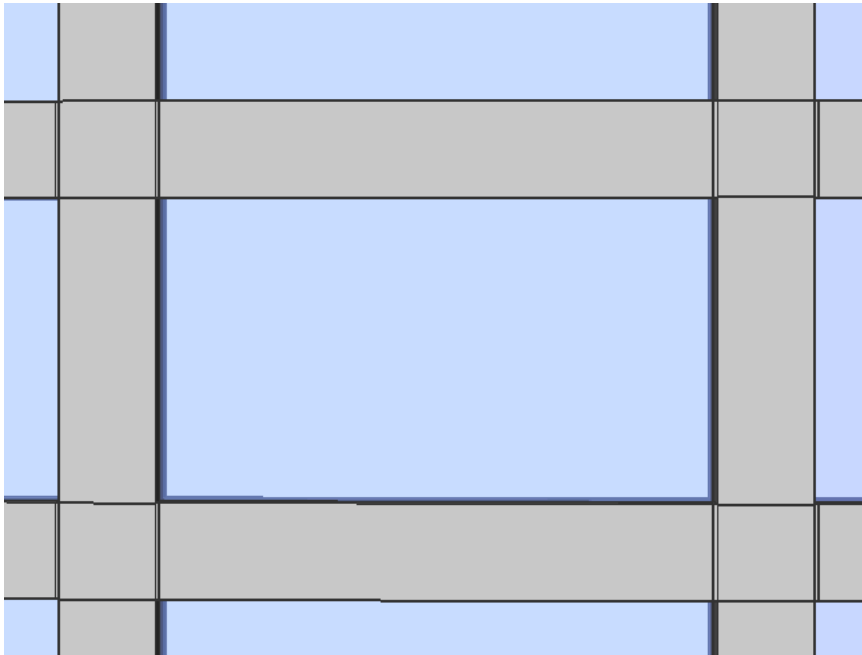
## Smooth

Creates a smooth connection.



## Nodes

Creates a node connection.

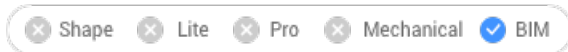


### Delete defining entities

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

## 7.20 BIMDECOMPOSE command

Decomposes compositions.



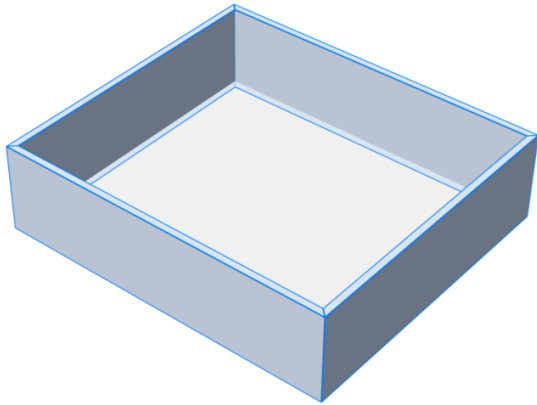
### 7.20.1 Description

Decomposes compositions into their separate plies.

### 7.20.2 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
<p>Building.dwg Building Elements Building (6) Floor 0 (6) Slab (2) Wall (4) Cavity Wall, Brick, Gypsum (4) A2 A4 A8 284</p>	<p>Building.dwg Building Elements Building (6) Floor 0 (6) Slab (2) Wall (4) Cavity Wall, Brick, Gypsum (4) Plies14328 Plies1626 Plies17093 Plies29528</p>

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

## 7.21 BIMFLIP command

Flips a starting face of a composition or mirrors/flips an insert.



Icon:

### 7.21.1 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.

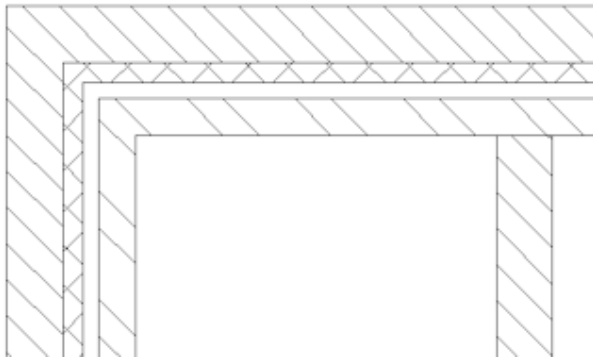


### 7.21.2 Method

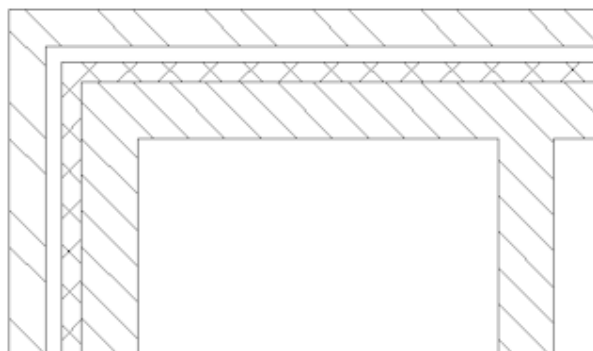
There are two methods to flip entities:

- 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.

### 7.21.3 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.

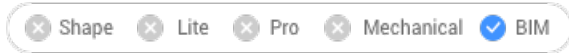


### In-out

Flips the insert to the opposite face of the solid.

## 7.22 BIMFLOWCONNECT command

Creates a connection between flow segments.



Icon:

### 7.22.1 Description

Creates a connection between flow segments, such as pipes or HVAC ducts.

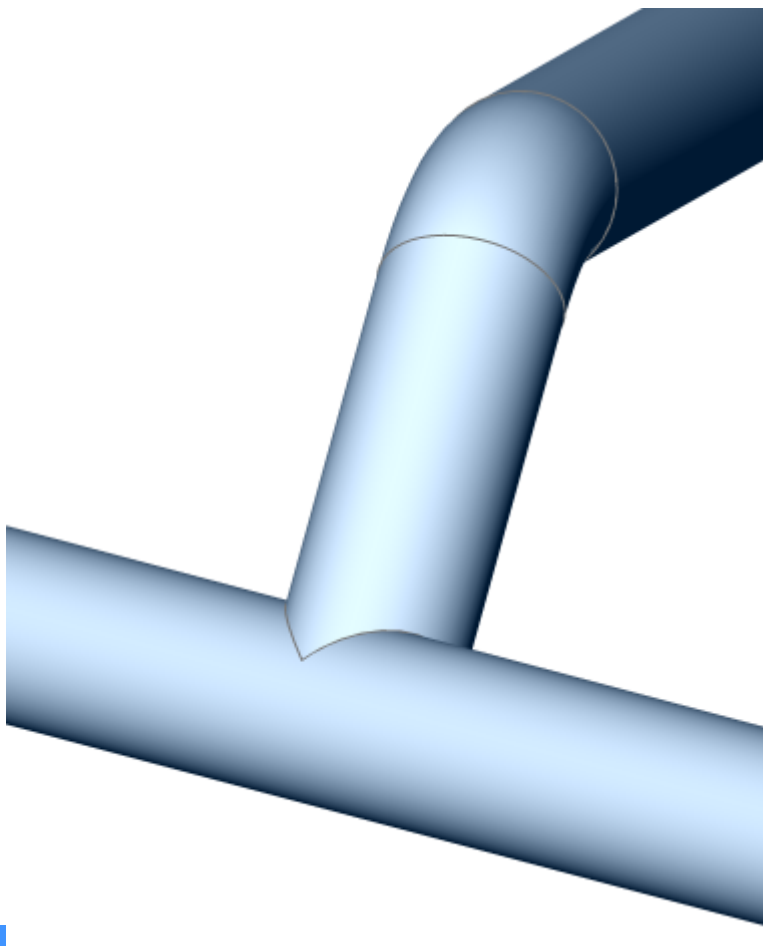
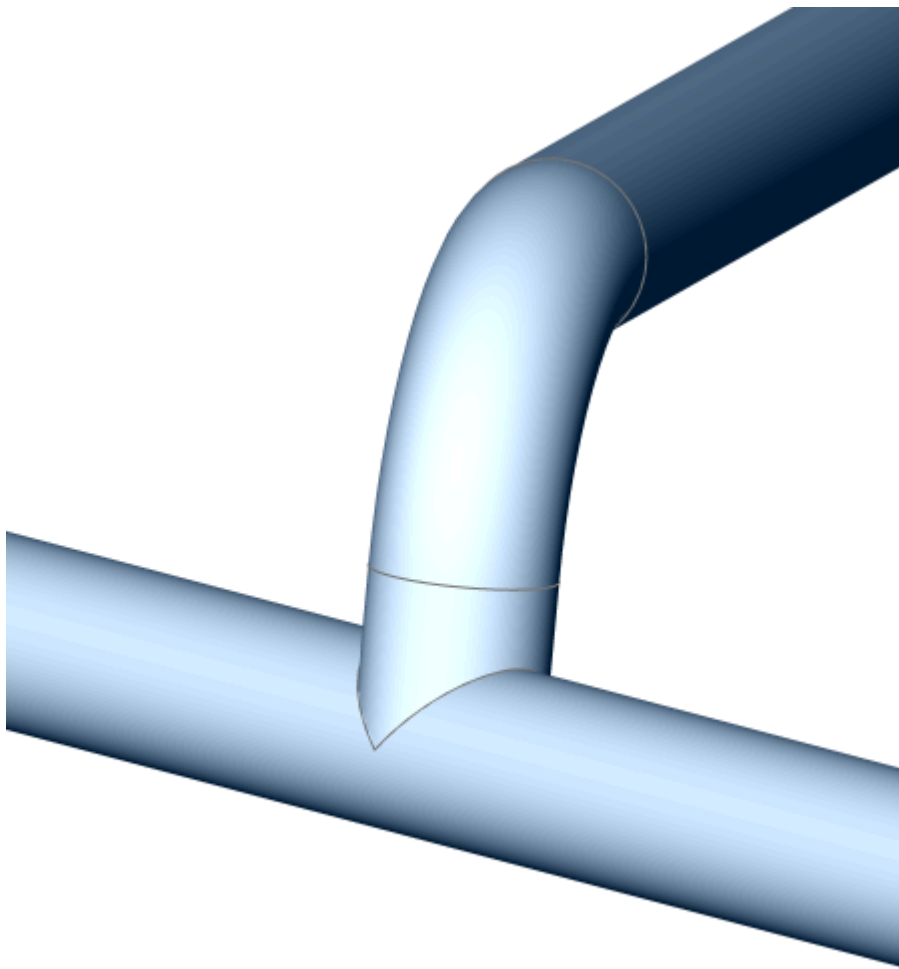
**Note:** When more than 2 flow segments are selected, the axes of the selected segments must be coplanar. When multiple coplanar segments are selected, the connections are created. When two non-coplanar solids are selected, an extra connection element is introduced.

### 7.22.2 Options

#### Switch

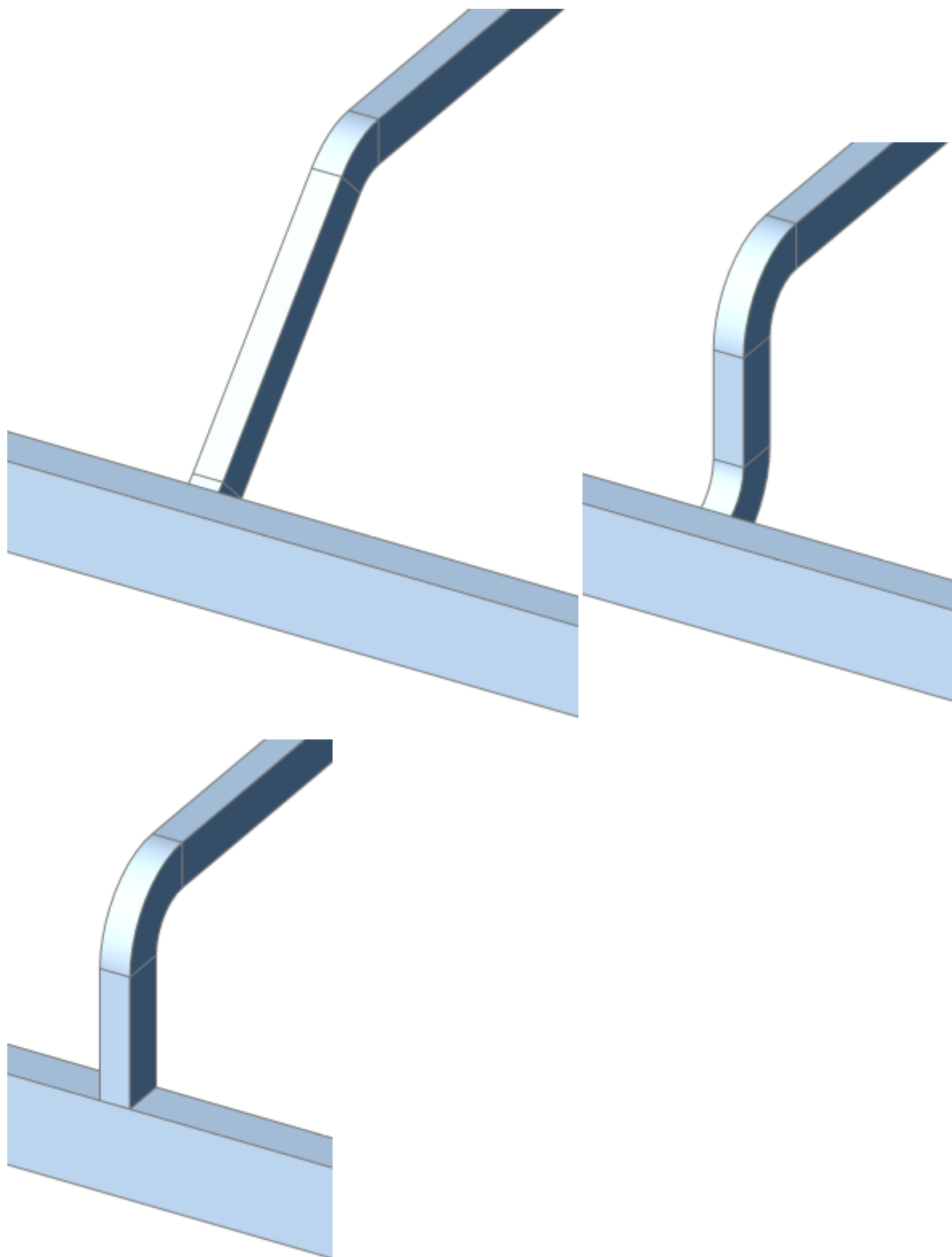
Switches between possible connections.

Alternatives for circular flow segments:





Alternatives for rectangular flow segments:

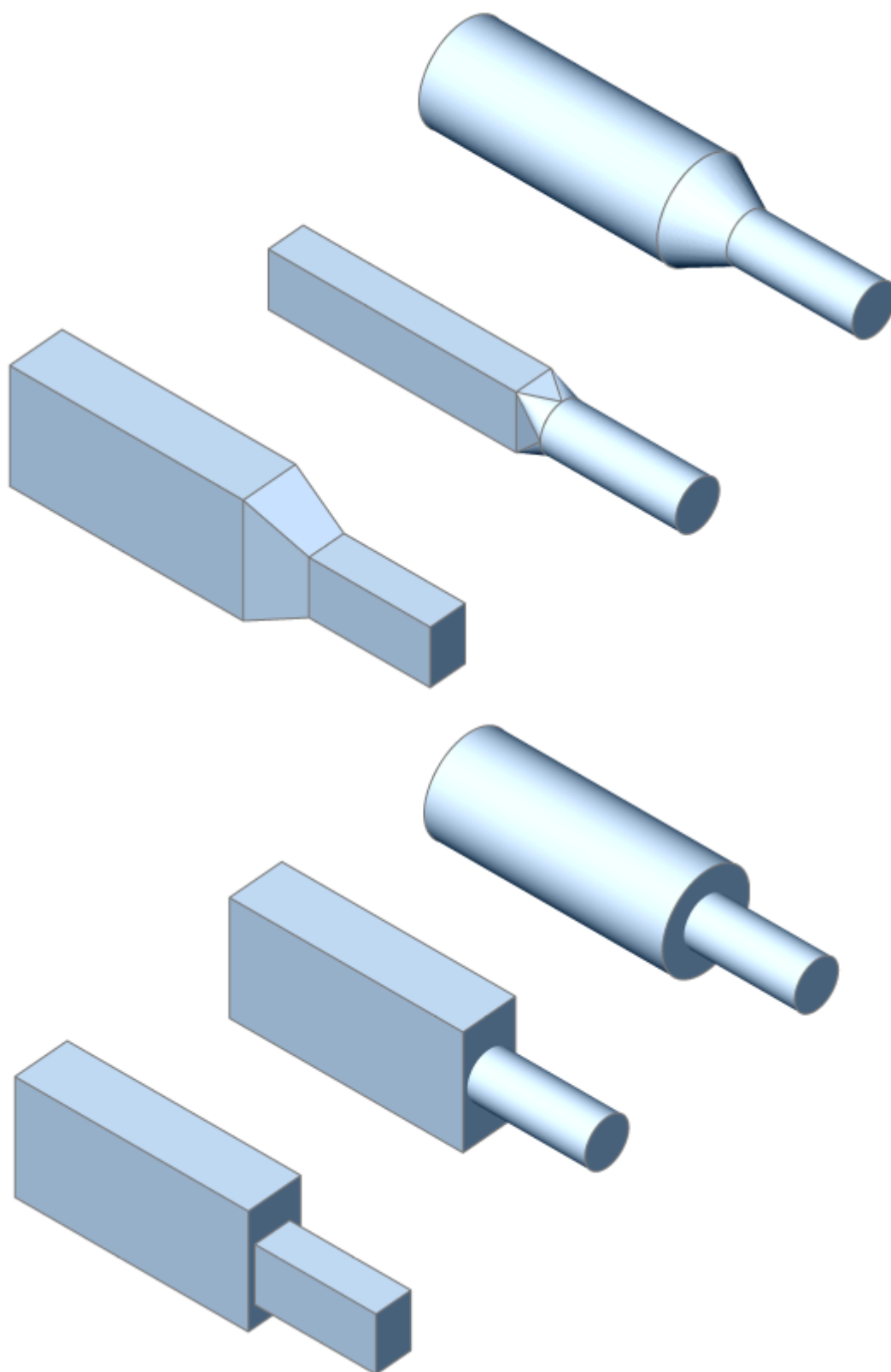


**Note:** Press Ctrl key to cycle between different types of connection. Hot Key Assistant must be set ON.



### Reducers

When the section of the selected flows is different, reducer elements are inserted.

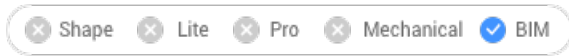




**Note:** The creation of bends and reducers is controlled by user preferences.

### 7.23 BIMGRID command

Creates 2-dimensional grids.



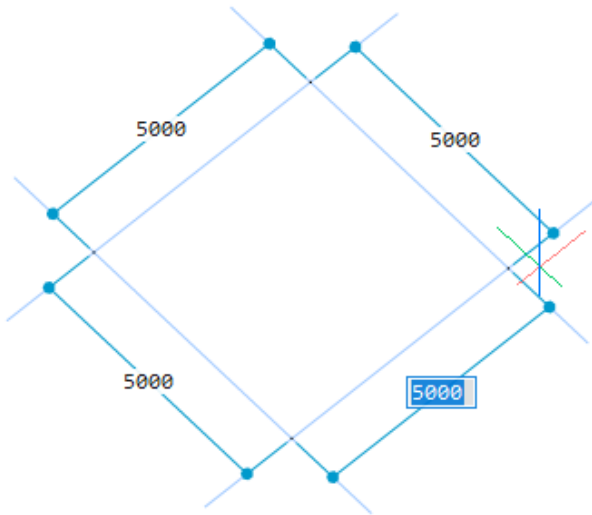
Icon: 

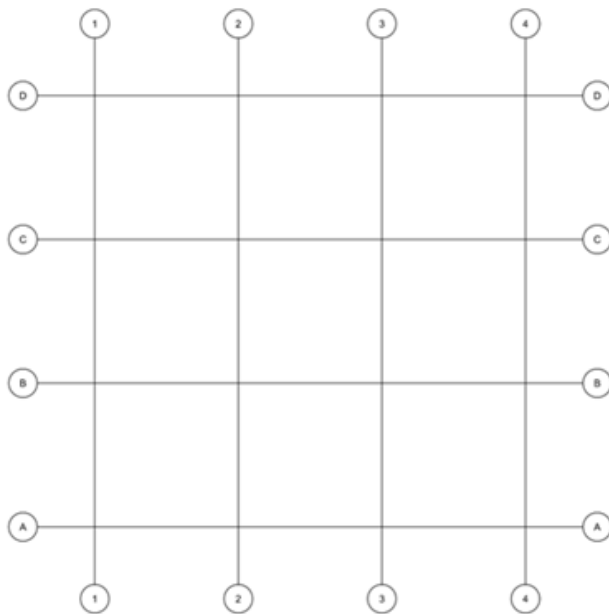
#### 7.23.1 Description

Creates 2-dimensional rectangular and radial grids.

#### 7.23.2 Method

The grid is created by specifying two points.





## 7.23.3 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.

## 7.24 BIMIFY command

Analyzes the model and runs automatic classification and spatial location assignment for the entire model.



Icon:

### 7.24.1 Description

Analyzes the model and runs 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.





### 7.24.2 Method

Running Bimify 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.

### 7.24.3 Option

#### Advanced

Opens the BIMIFY dialog box.

## 7.25 -BIMINSERT command

Inserts sheet metal form features, and mechanical and BIM components in the command line.



### 7.25.1 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.

## 7.26 BIMINSERT command

Inserts BIM components into the current drawing.



Icon:

**Note:** This command is deprecated. Use BMINSERT instead.

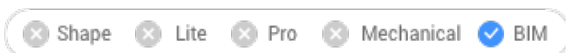
## 7.27 BIMLINEARSOLID command



Icon:

## 7.28 BIMLIST command

Lists the selected entities.



### 7.28.1 Description

Lists all the selected entities in the Command line, displaying their handle, material and GUID.

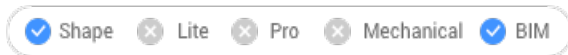
### 7.28.2 Method


Run the command and select the BIM entities to list.



## 7.29 BIMMULTISELECT command

Selects linear solids.



Icon: 

### 7.29.1 Description

Selects linear solids with coplanar and/or parallel axes.

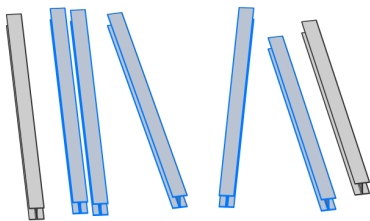
### 7.29.2 Method

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.

### 7.29.3 Options

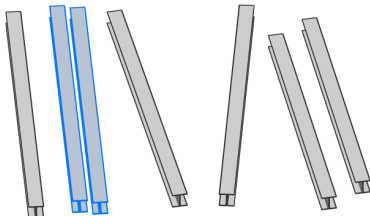
#### all Coplanar axes

Selects all solids of which the axis is coplanar with the axis of the selected solid.



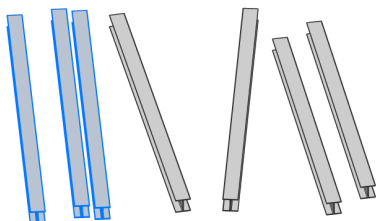
#### coplAnar and parallel axes

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.

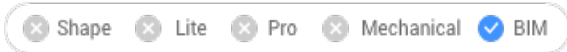


**Note:** Press Ctrl key to cycle between command's options. Hot Key Assistant must be set ON.



### 7.30 BIMPARAMETRIZEDDETAIL command

Generates parameters for a detail.



Icon:

#### 7.30.1 Description

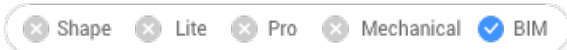
Generates parameters for a detail in order to easily change dimensions, angles, etc.

**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.

### 7.31 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.

#### 7.31.1 Description

Allows you to specify a rectangular area on a block that was previously generated and modify it.

#### 7.31.2 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.

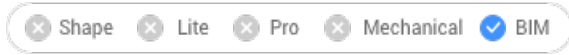
**Note:** In order to use the command, the GENERATEASSOCVIEWS system variable must be set ON.



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.

### 7.32 BIMPROFILES command

Opens the Profiles dialog box.



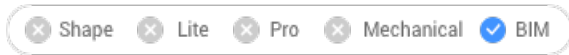
Icon:

#### 7.32.1 Description

Opens the Profiles dialog box to create and modify BIM profiles.

### 7.33 BIMPROJECTINFO command

Opens the BIM project info dialog box.

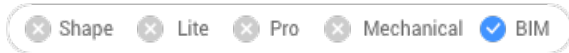


#### 7.33.1 Description

Open the BIM project info dialog box to view and modify BIM project information.

### 7.34 BIMPROPAGATE command

Maps details related to selected base solids to similar base solids in the model.



Icon:

#### 7.34.1 Description

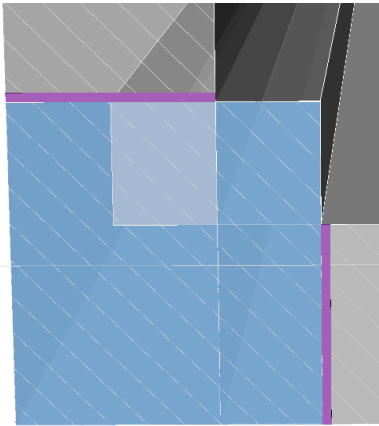
Maps details (solids, holes, finishing geometry, etc.) related to selected base solids to similar base solids in the model and optionally outlines the detail in a grid.

#### 7.34.2 Method

Select reference solids and, optionally, detail entities (solids, block references, faces, edges, etc.).

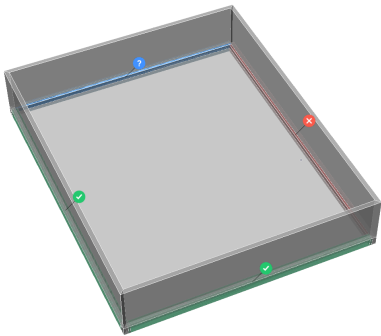
It can be used to copy details throughout your model.

**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.

### 7.34.3 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**

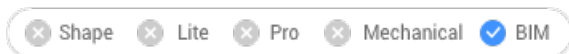
Displays the Save Drawing As dialog box, which allows you to save the detail.

#### **save detail to Library**

Displays the Save Detail dialog box, which allows you to save the detail to library.

### 7.35 BIMPROPAGATECORNER command

Propagates details.



Icon:

## 7.35.1 Description

Propagates details connected to three planar base solids (e.g. corners).

## 7.35.2 Method

Select at least three planar reference solids that form a 3D corner. The detail will be copied to similar corners.

## 7.35.3 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.

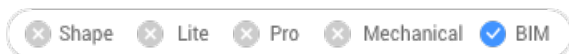
### Apply

Accept or reject suggestions by clicking on the tick.

**Note:** See the Apply option in the BIMPROPAGATE command.

## 7.36 BIMPROPAGATEEDGES command

Propagates a detail along the edge of a planar solid.



Icon:



### 7.36.1 Description

It propagates railings, gutters, borders, wall caps, etc.

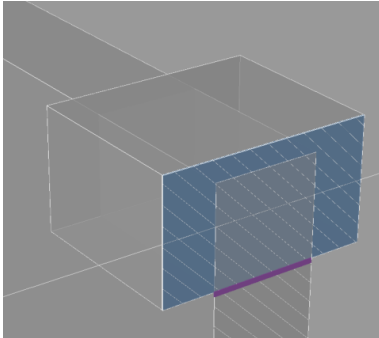
**Note:** The detail of BIMPROPAGATEEDGES will always be a 2D slice through a linear detail.

### 7.36.2 Method

Select planar reference solid to which the edge detail is related and the detail entities to be copied.

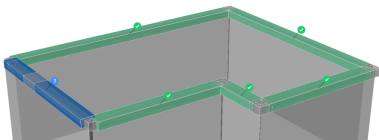
It can be used to copy details along edges of planar solids.

**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.



### 7.36.3 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

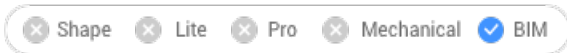
The propagated detail is placed outside the base solid. The volume of the base solids is not modified.

### Inside reference solid

The propagated detail is placed inside the base solids. The volume of the detail is subtracted from the base solids.

## 7.37 BIMPROPAGATEFROMFILE command

Opens the Select source file dialog box.



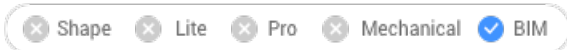
### 7.37.1 Description

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.

## 7.38 -BIMPROPAGATEFROMFILE command

Propagates a saved detail.



### 7.38.1 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.

### 7.38.2 Method

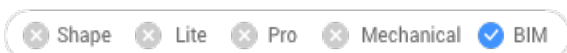
Specify the full path and file name of the saved detail.

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.

## 7.39 BIMPROPAGATELINEAR command

Propagates connections between linear elements.



Icon:

Linear elements accepted: beams, columns, pipes, ducts and their connections to walls and slabs.

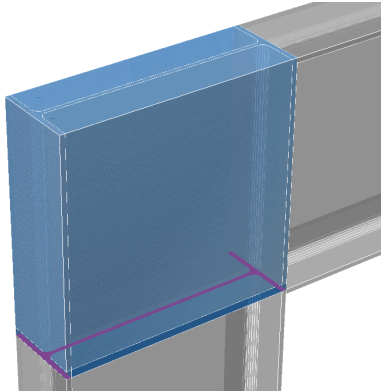




### 7.39.1 Method

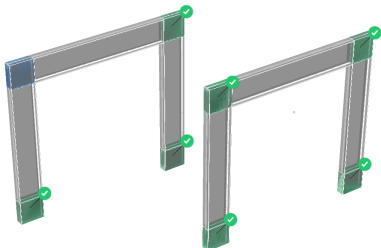
Select the linear or planar reference solids that form the connection and the detail entities to be copied. It can be used to copy detailed connections between two or more linear solids.

**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.



### 7.39.2 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.

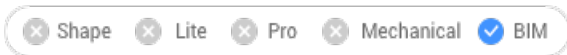
#### save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.



### 7.40 BIMPROPAGATEPATTERN command

Propagates a single element on a flat surface to multiple locations and grids.



#### 7.40.1 Description

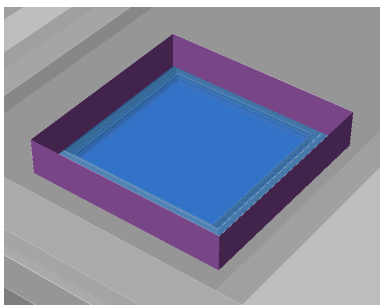
It propagates: lights, light switches, windows, air diffusers, etc.

#### 7.40.2 Method

Select planar solid to which detail is related and the detail entities to be propagated.

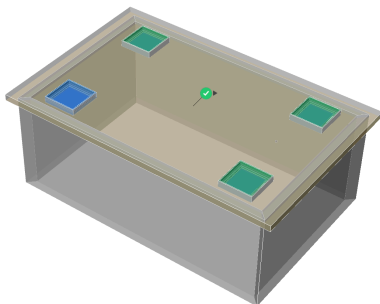
It can be used to copy objects to similar locations or over a certain pattern or grid on top of a planar solid.

**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.

#### 7.40.3 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.

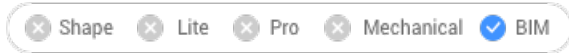


### save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

### 7.41 BIMPROPAGATEPLANAR command

Propagates connections between planar elements.



Icon:

Planar elements accepted: walls, slabs, roofs.

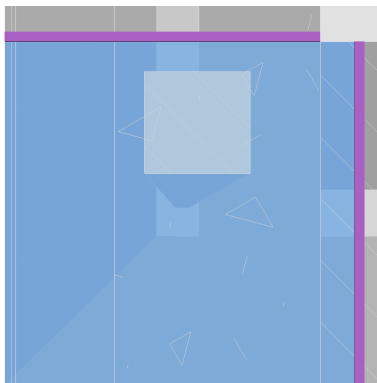
**Note:** The detail of BIMPROPAGATEPLANAR will always be a 2D slice through a linear detail.

#### 7.41.1 Method

Select planar reference solids that form the connection and, optionally, detail entities to be copied as part of the connection.

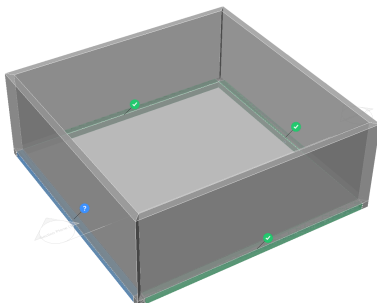
It can be used to copy detailed connections between two or more planar entities.

**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.





### 7.41.2 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

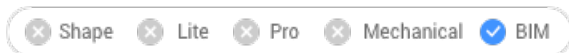
Displays the Save Drawing As dialog box, which allows you to save the detail.

#### save detail to Library

Displays the Save Detail dialog box, which allows you to save the detail to library.

### 7.42 BIMPROPERTIES command

Opens the BIM properties dialog box.



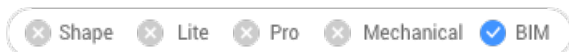
Icon:

#### 7.42.1 Description

Open the BIM properties dialog box to create and manage BIM property definitions.

### 7.43 BIMPYTHON command

Allows Python Scripting and Querying of a BIM model.



**Note:** This feature is in beta state. This means that there could still be bugs. Therefore, please be aware of the risk when trying out this command, as it might not work as expected.

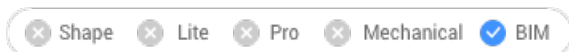
#### 7.43.1 Method

Run BIMPYTHON command and activate Python to open the Python script dialog box.

**Note:** Activate python user preference can also be activated from Settings dialog box.

### 7.44 BIMROOM command

The BIMROOM command is obsolete and has been replaced by the BIMSPACE command.



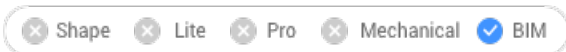
Icon:

**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.

### 7.45 BIMQUICKBUILDING command

Transforms solids into buildings.



### 7.45.1 Description

Generates parameters for a detail in order to easily change dimensions, angles, etc.

### 7.45.2 Options within the command

#### Enter desired story height (mm)

Specifies the story height. For equal story heights, specify one value. For different story heights e.g. type: 2x4000,\*3000,1x5000, which results in two stories of 4000mm, a top story of 5000mm, in-between stories of 3000mm.

#### Building requirement file

Uses a .txt file to configure the story heights of the building.

**Note:** For instance, a text line for 1 story configuration can be:

Space:

Name='Level\_1\_NameBuilding',

Area=7%,

'Floor-to-Floor Height'=2500 mm

Count=2

The values for multiple stories can be configured.

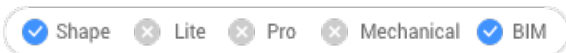
#### Spatial location

Uses the Spatial Structure as input to subdivide the building.

**Note:** The spatial locations information (like story heights) is used to create the new building. See Spatial Locations for more information.

## 7.46 BIMQUICKDRAW command

Creates and edits spaces and buildings.

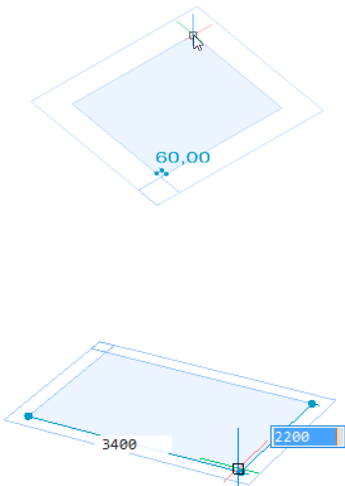


Icon:

### 7.46.1 Description

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 ON, the dimensions are displayed, as the spaces are created. The dimensions can also be entered manually.



**Note:** The default settings can be changed in the Settings dialog box.

## 7.46.2 Options

### Floor to Floor Distance (Floor Height)

Sets the floor to floor distance. The value is saved to the FLOORTOFLOORDISTANCE system variable and will be used until set differently.

**Note:** The default value is 3250mm.

### Wall Width

Sets the width of the walls being created. The width is saved to the WALLWIDTH system variable and will be used until set differently.

**Note:** The default value is 250mm.

### Slab thickness

Sets the slab thickness of the room. The thickness is saved to the SLABTHICKNESS system variable and will be used until set differently.

**Note:** The default value is 250mm.


### Auto adapt sizes

Allows to copy the wall width and height from an existing wall, thus overriding the current value of the WALLWIDTH system variable.



- ON: The width and height are copied 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 copied.
- OFF: The values of the FLOORTOFLOORDISTANCE and WALLWIDTH system variables are used.

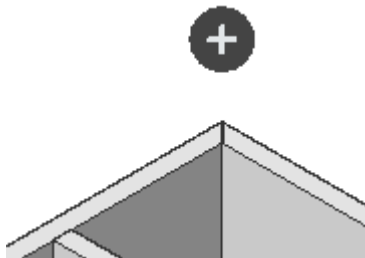
### Add story

Adds a story to the existing building:

-  Full copy of the top floor.

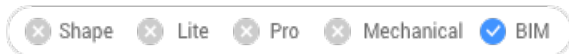



-  Copies the slab and the outer walls of the top floor.
-  Finish the building with flat roof.



### 7.47 BIMRECALCULATEAXIS command

Recalculates and repositions the axis of linear building elements.



Icon: 

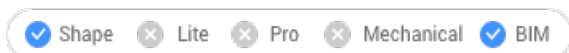
#### 7.47.1 Description


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.

### 7.48 BIMREGENERATETAGS command

### 7.49 BIMSECTION command

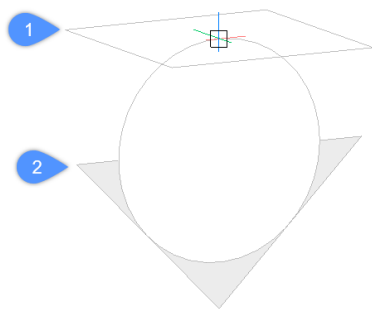
Creates a BIM section entity.



Icon: 

#### 7.49.1 Description

Creates a BIM section plane entity (1) in the XY-plane of the current coordinate system (WCS or UCS), that has 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 layer: BIM\_SECTIONS layer.*

### 7.49.2 Methods

There are three types of BIM section entities that can be created using 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:** The BIM section type can be changed from the Properties panel.

**Note:** The GENERATEASSOCVIEWS system variable controls whether 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.

### 7.49.3 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 type 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 ON.





**Note:** This option is set as default. If the Hot Key Assistant (HKA) system variable is ON, press Ctrl key to toggle clip display property off.

**Note:** Multiple sections can have clip display ON simultaneously. This property can be saved in a model view (see VIEW command).

### set clipping Off

Sets the clip display property OFF.

**Note:** Clip Display property can be changed from 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 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 Settings dialog box.

### Reflected ceiling

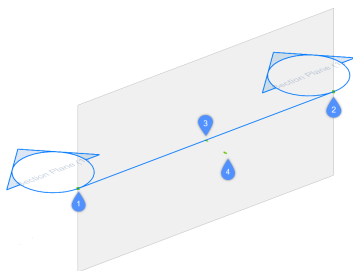
Creates the plan of a ceiling projected onto the section plane.

**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.

### Grips editing

BIM section entities can be edited through grips, depending on their state.

- Plane state:
- 

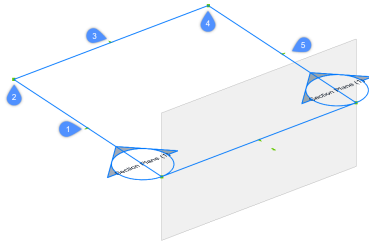


- Start grip (1) allows to move the section and the position of the Start callout.
- End grip (2) allows to modify the orientation of the section and the position of the End callout.
- Center grip (3) allows to move the section and the position of the Mid callout.
- The arrow (4) flips the view direction.



- Boundary State:

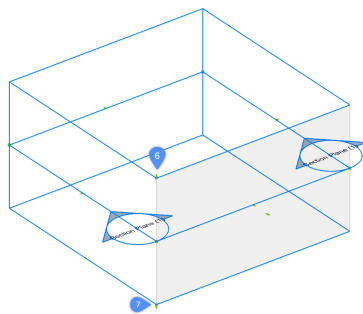
•



- 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:

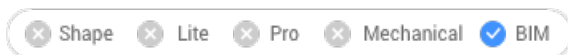
•



- (6) allows to move the top plane of the section entity.
- (7) allows to move the bottom plane of the section entity.

### 7.50 BIMSECTIONOPEN command

Opens the drawing file related to a BIM section entity.



Icon:

#### 7.50.1 Description

Opens the drawing file related to a BIM section entity, or the 3D BIM model related to a BIM section drawing.

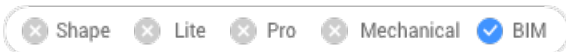
#### 7.50.2 Method

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.

### 7.51 BIMSECTIONUPDATE command

Updates the result of a BIM section entity.



Icon:

## 7.51.1 Description

Generates or updates the result of a BIM section in a drawing.

**Note:** The GENERATEASSOCATTRS system variables controls the generation of associative data on 3D solids during modeling. When set 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 has been modified.

## 7.51.2 Method

There are two methods to use the BIMSECTIONUPDATE command:

- Generate the result of a BIM section entity.

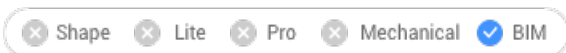
**Note:** If the Interior option of the BIMSECTION command was used during the creation of the BIM section, also BIM spaces can be selected.

- Update the result of a BIM section.

**Note:** Select a BIM section entity in Model Space or a viewport in Paper Space layout.

## 7.52 BIMSETLOADBEARINGDIRECTION command

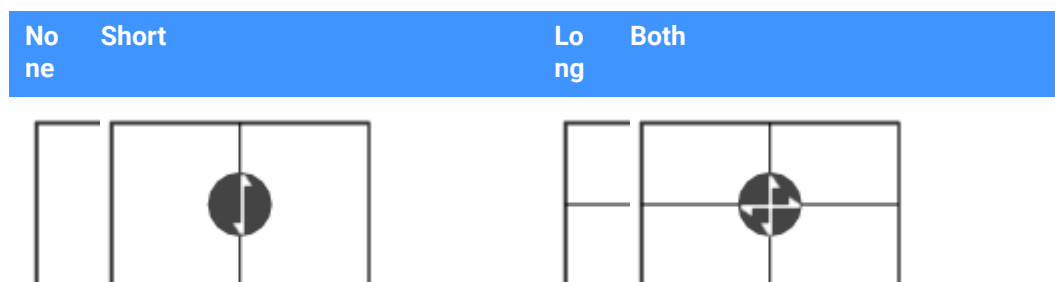
Sets the loadbearing direction for BIM slab solids.



Icon:

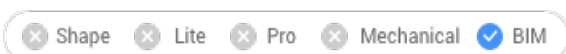
## 7.52.1 Method

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.



## 7.53 BIMSETREFERENCEFACE command

Defines a reference and an opposing face to control the ply layout of a composition.

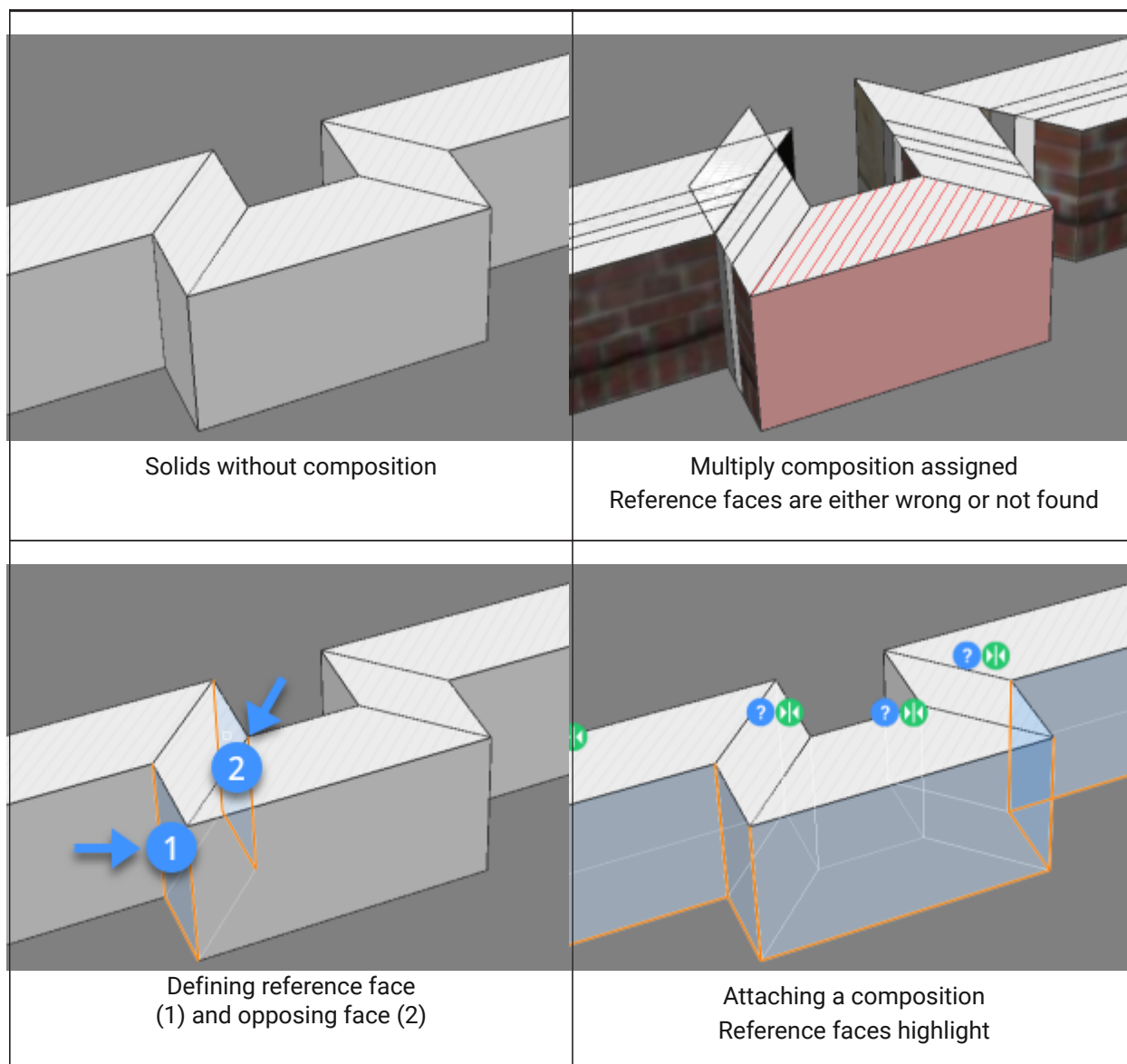


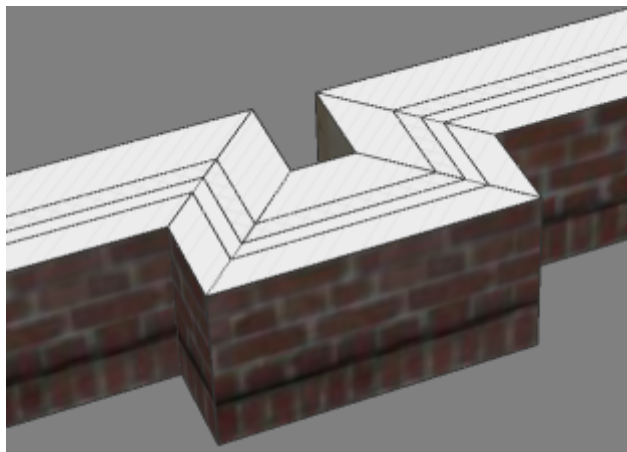


## 7.53.1 Methods

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.





Result

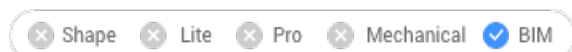
### 7.53.2 Options

#### Select manually

Selects the opposite face manually.

### 7.54 BIMSPACE command

Creates BIM Space entities from enclosed boundaries.



Icon:

#### 7.54.1 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 Yes. If the Centerline property of a space bounding solid is set to Yes, 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.

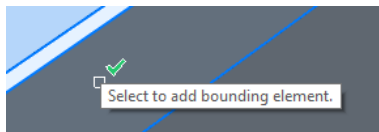
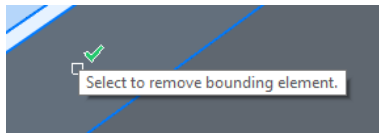
The height of the space is defined by:

- The top face of the highest bounding entity.
- The Default Space Height user preference , when all bounding entities are 2D linear entities.

#### 7.54.2 Options

##### 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 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.

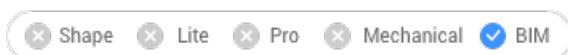
#### Interior elevations

Controls the display of Interior Elevations. If interior elevations are not created yet, the property is disabled.

**Note:** Additional properties can be created using the BIMPROPERTIES command.

## 7.55 BIMSPATIALLOCATIONS command

Allows to create and edit site, buildings and stories.



Icon:



### 7.55.1 Description

Displays the SPATIAL LOCATIONS MANAGER dialog box .

### 7.55.2 Options

#### 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

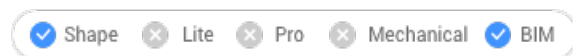
Sets an elevation for an existing story by entering the elevation value or select a point.

#### Point

Sets the point for story elevation.

## 7.56 BIMSPLIT command

Splits segmented solids into separated solids.



Icon:

### 7.56.1 Description

Automatically splits segmented solids into separated solids and allows to split a solid using a selection of cutting faces.

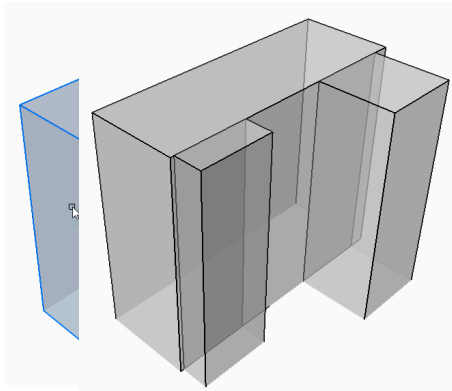
### 7.56.2 Method

Select a 3D solid or one or more faces.

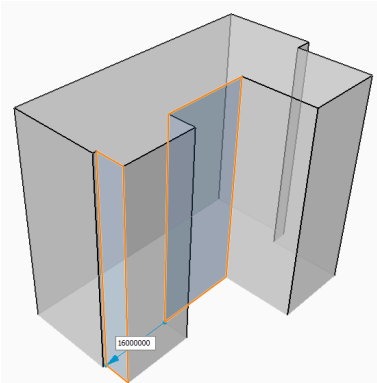
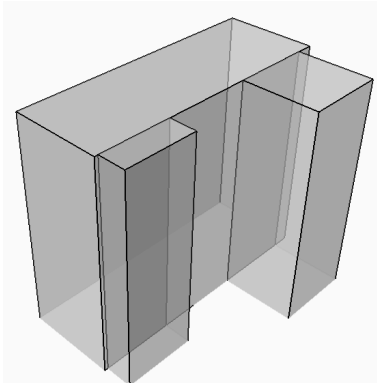
- To select a 3D solid, make sure that the value of SELECTIONPREVIEW system variable is 2 or 3; hover over the solid, then hit the TAB key until the whole solid highlights and click.
- To select a face, place the cursor over a face and click. Faces highlight one by one, regardless of the value of SELECTIONPREVIEW or SELECTIONMODES system variables.
- Inserts, such as windows and doors, which existed in the split solid are removed.

Select 3D solid:

Solid selected  
...split into 3 separate solids



Select cutting faces:

Two cutting faces selected...	...split into 3 separate solids
	

## 7.57 BIMSTAIR command

Creates stairs.

☒ Shape ☐ Lite ☐ Pro ☐ Mechanical ☒ BIM

Icon: 

### 7.57.1 Description

Creates stairs between 2 floor slabs or any empty space and it will create a stair. This command is using the default floor-to-floor-distance 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.

### 7.57.2 Methods

There are two methods to create stairs using BIMSTAIR command:

- Select a horizontal face of a solid.
- **Note:** If both the start plane and the end plane of a stair are horizontal faces of a solid, the stair height is set to the difference between Z-values of start plane and the end plane.
- Select a void area.
- **Note:** If the start plane of a stair is a horizontal face of a solid and the end plane is a void area, the stair height is set to the difference between Z-values of start plane and the end plane. If the start plane is also a void area, then the stair height is set to the current value of the FLOORTOFLOORDISTANCE system variable.

### 7.57.3 Options

#### Quarter-turn

Turns the direction of the stair cursor with 90 degrees.

**Note:** Press Ctrl key to turn the stair cursor with 90 degrees.

#### Flip

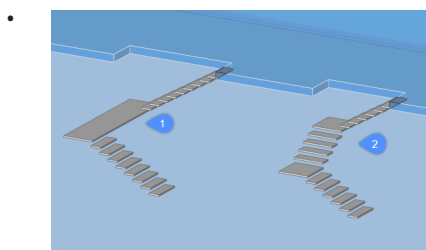
Turns the direction of the stair cursor with 180 degrees.

**Note:** Press Ctrl key to turn the stair cursor with 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 Ctrl key to cycle the possible stair types with respect to the current position of the stair cursor.

**Note:** The HOTKEYASSISTENT must be set ON to use Ctrl key functions.



### Stair settings

Opens the Settings dialog box, where the parameters of the stair can be set.

- **Stair width:** Default width of the stairs
- **Preferred tread length:** Preferred tread length of the stairs
- **Ideal riser height:** Ideal riser height of the stairs
- **Head room:** Sets the minimum clearance for the opening to be created
- **Step thickness:** Thickness of the individual steps
- **Nosing:** Horizontal distance of overlap between subsequent treads
- **Final tread length:** Length of the final tread, this always in regard to the top tread of the stair
- **Automatically flip/quarter-turn:** Turn on if you want to automatically flip or turn when you hover over the slab with your cursor and snap the blue StairCursor to the walls (the end of the arrow can then never be facing a wall)
- **Final tread:** Controls creation of a tread at the elevation of the top bounding slab.

**Note:** For all properties, parameters will be created when creating the stair, driving the constraints of the parametric stair block. These parameters can be then changed individually afterward in the Parameters section of the Properties panel.

## 7.58 BIMSTRETCH command

Stretches the ends of linear solids.



### 7.58.1 Description

Stretches the ends of linear solids while maintaining previously made connections between other linear solids in the overall structure.

### 7.58.2 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.



### 7.58.3 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

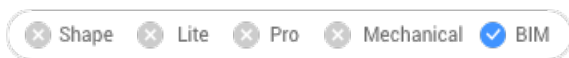
Undoes the last action.

#### Exit

Exits the command.

## 7.59 BIMSTRUCTURALCONNECT command

Connects structural profiles.



Icon:

### 7.59.1 Description

Connects structural profiles such as beams, columns and members.

### 7.59.2 Method

There are two methods to use BIMSTRUCTURALCONNECT command:

- Select two solids.
- Select multiple solids.

**Note:** The axes of the solids must be coplanar.

### 7.59.3 Options

#### Select base solid

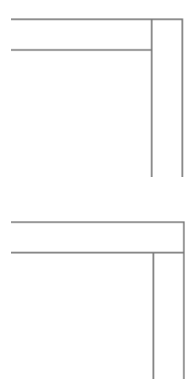
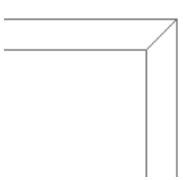

Specifies the base solid.

**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

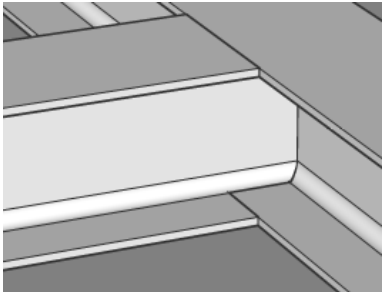
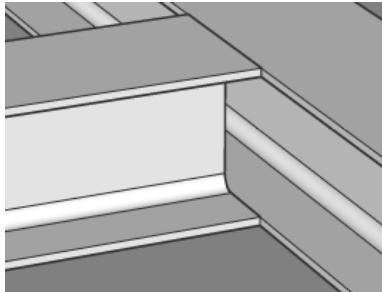
Butted Connection	Mitered L-connection	Touching connection
		

**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.

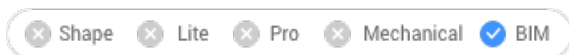
### Connection cut type


Depending on the DMCONNECTIONCUTTYPE system variable value, the connection type can be smooth or planar.

Smooth connection	Planar connection
	

## 7.60 BIMTAG command

Creates associative tags.



Icon: 

### 7.60.1 Description

Creates associative tags in generated BIM section drawings for the corresponding building entities in a 3D BIM model.

**Note:** This command can only be used on section viewports.



**Note:** The GENERATEASSOCVIEWS system variable must be ON when generating or updating BIM tags.

### 7.60.2 Method

The tags are created automatically for all building elements in the selected viewport.

**Note:** Tags are created as multileader entities using multileader styles in \_SectionTag.dwg. The content of such multileader style 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\18x64\en-US\Support\Bim\Sections`.

### 7.60.3 Options within the command

#### Auto

Creates tags automatically for all sectioned building entities in the selected viewport.

#### Manual

Creates tags on background entities in sections and elevations.

#### Current mleader style

Allows to use the current multileader style instead of the default style for selected sectioned BIM elements.

#### Change tag type

Changes the type of the selected tags.

#### Composition

Tag with all materials of composition of the sectioned BIM element.

#### Load-bearing directions

Inserts a loadbearing direction symbol when a generated line of a slab solid is selected. Make sure the load bearing direction is set by the BIMSETLOADBEARINGDIRECTION command.

#### 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.

#### 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.

## 7.61 BIMUPDATESPACE command

Recalculates a BIM space which is out-of-date.



Icon: 



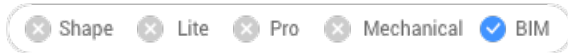
### 7.61.1 Description

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.

## 7.62 BIMUPDATETHICKNESS command

Re-applies the overall thickness of a composition to the solid.



Icon:

### 7.62.1 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.

### 7.62.2 Options within the command

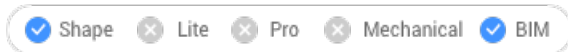
#### Symmetrical Update

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.

## 7.63 BIMWINDOWCREATE command

Creates a fully parametric window or opening based on a closed contour.



Icon:

### 7.63.1 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.

### 7.63.2 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.

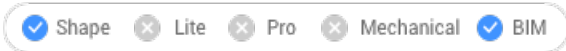
#### Opening

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.



## 7.64 -BIMWINDOWCREATE command

Creates a fully parametric window or opening based on a closed contour.



### 7.64.1 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.

### 7.64.2 Options

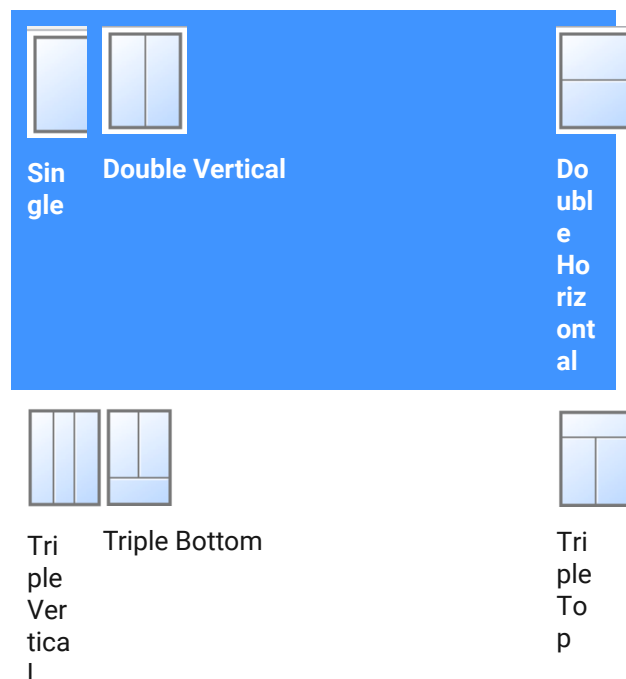
#### Window

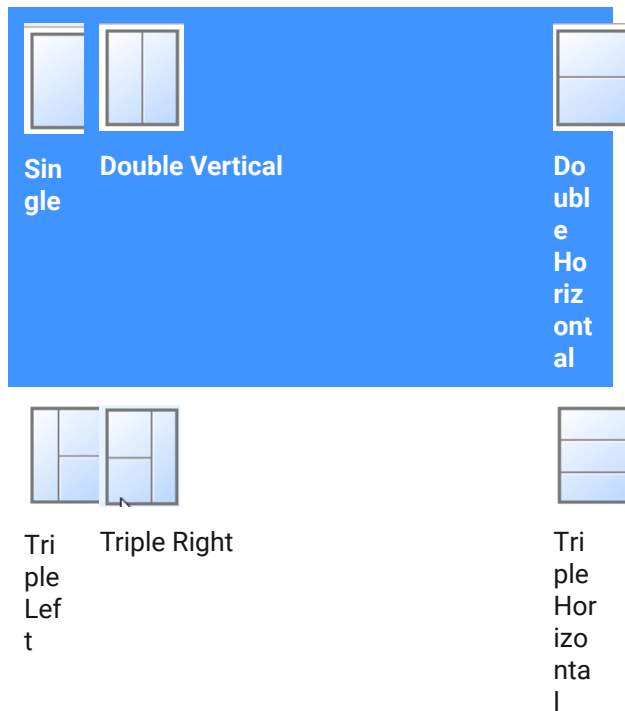
Creates a BIM Window entity. An opening in the solid on which the profile entity lies is created automatically.

#### 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





## 7.65 BIMWINDOWPRINT command

## 7.66 BIMWINDOWUPDATE command

Updates the opening made by a window or door in a solid.



Icon: 

### 7.66.1 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.

### 7.66.2 Options within the command

#### MMode

Allows to select the placement face, whether Automatic or Manual.

## 7.67 BLADE command

Opens the BricsCAD LISP Advanced Development Environment (BLADE).







### 7.67.1 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.

### 7.68 BLCOMPOSITIONS command

Opens the Compositions dialog box.



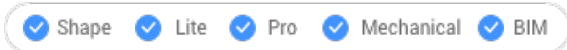
Icon:

#### 7.68.1 Description

Open the Compositions dialog box to create and manage BIM compositions.

### 7.69 BLIPMODE command

Toggles the BLIPMODE system variable.



Alias: BM

#### 7.69.1 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

### 7.70 BLMATERIALS command

Opens the Physical Materials dialog box.



Icon:

#### 7.70.1 Description

Opens the Physical Materials dialog box to create and edit material definitions in the library or project.

### 7.71 BLOCK command

Opens the Block definition dialog box.





Icon:

Alias: B

## 7.71.1 Description

Opens the Block definition dialog box to create a block definition in the current drawing.

## 7.72 -BLOCK command

Groups entities into a block.



Alias: -B

### 7.72.1 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.

### 7.72.2 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.

## 7.73 BLOCKICON command

Creates and updates preview bitmaps of blocks and stores them in the drawing.



### 7.73.1 Method

Type the name(s) of the block(s) to be processed. Separate block names by commas. You can use wild cards (? Or \*).



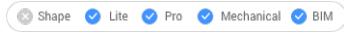
### 7.73.2 Options within the command

\*

Select all blocks.

### 7.74 BLOCKIFY command

Converts identical set of entities (2D or 3D) to block references.



Icon:

#### 7.74.1 Description

Searches the drawing for an identical set of entities (2D or 3D) and replaces them by block references.

#### 7.74.2 Method

There are three methods to use BLOCKIFY command:

- Converts 2D and 3D entities to blocks.
- Converts equally shaped solids to blocks.
- Optionally replaces block patterns by arrays.

#### 7.74.3 Options within the command

##### match Equal solids

Searches the drawing (or the selection) for equally shaped solids and replaces them by newly created block definitions. In case a solid match an existing block definition, the replacing block reference points to that block definition.

**Note:** This option is not available in the Lite license level.

##### match existing Blocks

Searches the drawing (or the selection) for 2D geometry matching existing block definitions.

##### Settings

Opens the Settings dialog box at the blockify settings.

**Note:** Selecting search space prompt is available only if "Use entire drawing as search space" is not checked.

**Note:** Selecting insertion point prompt is available only if "Use default block insertion point" is not checked.

**Note:** Specifying block name prompt is available only if "Use default block name" is not checked.

### 7.75 BMBALLOON command

Creates associative balloon entities for assembly components.



Icon:



### 7.75.1 Description

Creates associative balloon entities for assembly components in Model Space and for their generated views in a Paper Space layout. Each balloon contains an index of the component in the associated BOM-table created by BMBOM command.

**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.

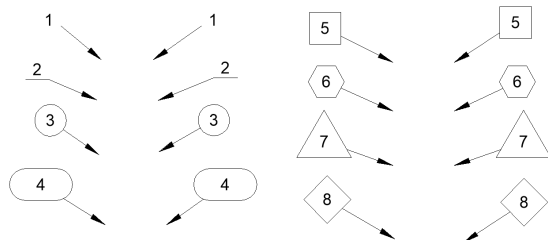
### 7.75.2 Options within the command

#### select other Table

Allows 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 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 on all components in a particular drawing view.

#### placement Mode

Specifies whether multiple balloons with the same values are generated or not.

#### Unique

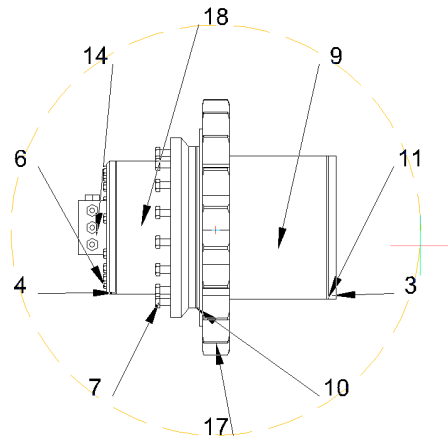
Only unique values are generated on one view.

#### All

All values are generated on one view.

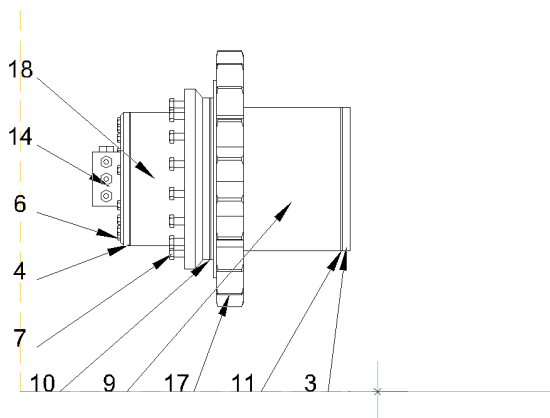
#### Circle

Aligns leaders along a circle.



## Polyline

Aligns leaders along a polyline.



## Back

Returns to previous prompt.

## 7.76 BMBOM command

Inserts a Bill of Materials (BOM) table in the current drawing.



Icon:

### 7.76.1 Options within the command

#### Name

Specifies the table name.



### **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**

Creates a BOM from a template.

### **Save as template**

Saves the current BOM configuration as a template.

### **Layout**

Changes the current layout.

### **Configure**

Add additional columns to your BOM table.

### **Description**

Add a description column.

### **density**

Add a density column.

### **Volume**

Add a volume column.

### **Mass**

Add 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**

Add a material column.

### **Thickness**

Add 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.



### **Set sorting**

Sets the sorting mode for 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 sorting mode for columns.

### **column Properties**

Configures columns.

### **Name**

Sets the name of the column.

### **Visibility**

Sets the visibility of the column.

### **ON**

Sets the visibility of the column to on.

### **OFF**

Sets the visibility of the column to off.

### **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.

### **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.

**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.

**Units**

Configures units and how they display.

**unit Mode**

Sets the units for the column values.



**Best for All**

The best unit for all values.

**BEST for each value**

The best unit for each value.

**set Fixed unit**

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.

**fFormat string**

Sets the format string for column values.

**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.



### **Property set**

Specify the properties to add from.

### **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.

### **Selection set**

Specifies the selection method for the BOM.

### **Entire model**

Creates a BOM for the entire model.

### **Subassembly**

Creates a BOM for the selected subassembly.

### **Custom selection**

Creates a BOM for the selected components.

### **drawing View**

Specifies one or more drawing views.

### **layout viewPORt**

Specifies one or more layout viewports.

### **fixed coRner**

Specifies the position of the insertion point of the table.



### Back

Returns to the previous prompt.

### 7.77 BMBOMEDIT command

Edits a single or multiple Bill of Materials (BOM) tables in the current drawing.



#### 7.77.1 Options within the command

##### APPLY

Applies the current changes.

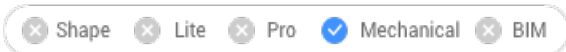
##### DISCARD

Discards the current changes.

**Note:** See the BMBOM command for the full command options.

### 7.78 BMBOMPANELCLOSE command

Closes the BOM manager panel.

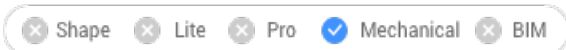


#### 7.78.1 Description

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.

### 7.79 BMBOMPANELOPEN command

Opens the BOM manager panel.

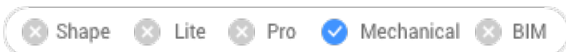


#### 7.79.1 Description

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

### 7.80 BMCONNECT command

Connects two Piping standard parts by creation of 3D constraints between their connection entities.



Icon:



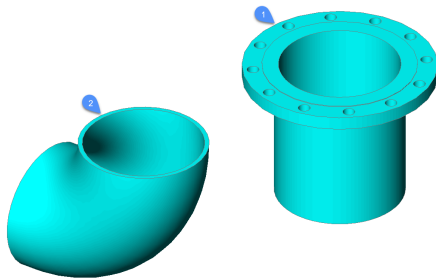
### 7.80.1 Options

#### Select StdPart to connect

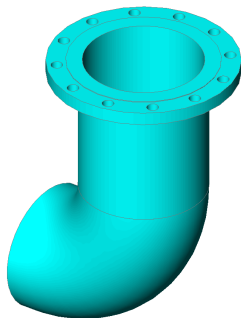
Select the part to connect. (1)

#### Select target StdPart

Select the part to connect to. (2)

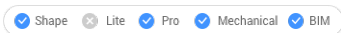


The command automatically creates a set of 3D constraints to correctly connect the parts and maintain their relative position for any further modification.



### 7.81 BMCREATECOMPONENT command

Creates library blocks.



Icon:

**Note:** The BMCREATECOMPONENT command has been replaced by the CREATELIBRARYBLOCK command.



## 7.82 -BMCREATECOMPONENT command

### 7.83 BMDEPENDENCIES command

Lists all files, containing component definitions inserted in the assembly, in the Command line.



Icon:

#### 7.83.1 Method

The files are automatically listed in the Command line once the command is run.

### 7.84 BMDISSOLVE command

Dissolves a mechanical component inserted in the current drawing.



Icon:

#### 7.84.1 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.

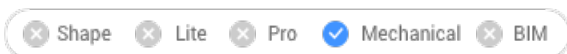
All subcomponents of a dissolved component are moved up one level in the mechanical hierarchy.

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."

### 7.85 BMEXPLODE command

Creates a block with an exploded representation of the current assembly.



Icon:

#### 7.85.1 Description

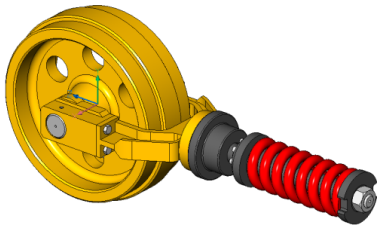
Creates a block with an exploded representation of the current assembly. This block can be inserted at any given location.



### 7.85.2 Method

It supports two levels of the exploded representation: 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.

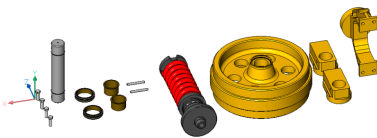
The steps to create an exploded representation are automatically completed and are displayed in the Mechanical Browser. You can add, delete and reorder the steps from the Mechanical Browser. Animate a single step of an explosion or the entire sequence.



### 7.85.3 Options

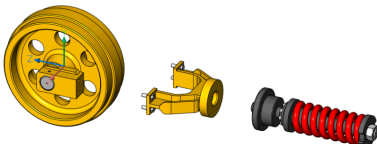
#### Table by types

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.



#### Automatic

Automatically determines the directions for each part, taking into account possible physical collisions between components.

#### enable Leader follower

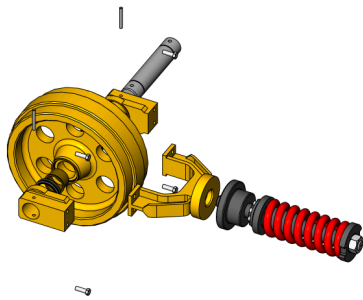
Enables the detection of parts that should move in a coherent manner. If enabled, parts that are inserted into other parts will follow the movement of the base parts they are inserted into.

#### 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.

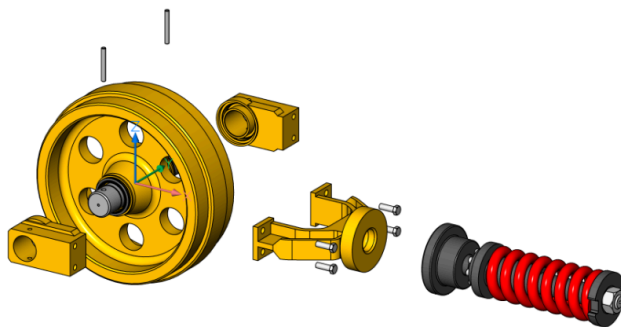
#### Auto

Enables automatic gap calculation.



### Manual

Selects the manual mode. This creates an exact copy of the assembly, ready to create a customized exploded view.

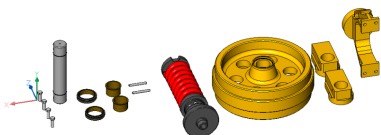


### Settings

Gives access to the command settings.

### Top

If selected, the assembly will be exploded using only top-level components.



### Bottom

If selected, the assembly will be exploded down to bottom-level components.



### set Name

Set the name for the exploded representation.

### BAck

Returns to the previous prompt.

### Edit

Opens the exploded representation for editing.



### Generate drawing views

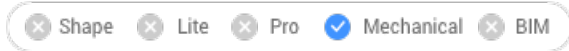
Generates drafting views from an exploded representation.

### Finish

Concludes the command.

## 7.86 BMEXPLODEMOVE command

Moves selected parts to form an exploded representation in a given direction.



Icon:

### 7.86.1 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).

### 7.86.2 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.

## 7.87 BMEXPLODESTEPEDIT command

Manages the exploded view steps.



### 7.87.1 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.

### 7.87.2 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.





### 7.87.3 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

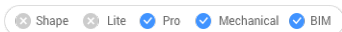
Splits the step to a sequence of steps, each of them corresponding to exactly one part.

#### list steps (?)

Lists all steps.

## 7.88 BMEXTERNALIZE command

Converts local components to external components.



Icon:

### 7.88.1 Description

Converts local components to external components through the Save Mechanical Component dialog box. This procedure is repeated for each of the selected local components.

### 7.88.2 Options

#### Entire model

For each of the local components in the assembly a file dialog displays.

#### ASk for file names

Toggles the option to ask for file names of externalized components or generate them automatically.



### Yes

File names need to be entered.

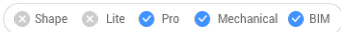
### No

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.

## 7.89 BMFORM command

Creates a new mechanical component and inserts it into the current drawing.



Icon:

### 7.89.1 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:** If necessary, run the BmMech command first to initialize the mechanical structure in the current drawing.

### 7.89.2 Options

#### Local

Creates a new component and it inserts it as a block reference into the current drawing.

#### External

Creates a new drawing, that contains the selected solid(s) and can be saved through 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.

#### Template settings

Opens Settings dialog box at the Templates section.

## 7.90 BMHARDWARE command

Opens the Library panel.



Icon:

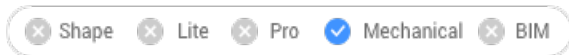
### 7.90.1 Description

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.



### 7.91 -BMHARDWARE command

Inserts a standard hardware part as a mechanical component in the current drawing.



#### 7.91.1 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 Components panel. This contains parametric Standard Mechanical Components.

#### 7.91.2 Options within the command

##### 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.

## 7.92 BMHIDE command

Hides an inserted mechanical component.



Icon:

### 7.92.1 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.

### 7.92.2 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 (/).

## 7.93 BMINSERT command

Opens the Select file to insert dialog box.



Icon:

### 7.93.1 Description

Opens the Select file to insert dialog box to select a dwg or rfa file to insert into the current drawing.

After selecting the file and choosing **Open**, the Properties panel is displayed, and you are prompted at the Command line.

### 7.93.2 Select insertion point

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 Command line options.



Additional options: [Edit inserted entity/SMART insert/Rotate component/set Base point/Name/insertion Type/Flip/mUltiple/Change target 3d solids].

### 7.93.3 Options within the BMINSERT 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.

#### Enter the parameter name or press ENTER to finish

Specify the name of the parameter.

#### Enter expression

Specify the expression for the parameter.

#### 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.

#### Select entity to insert to or

Hover the cursor over the Piping standard part you want to connect to.

Additional options: [switch Back/Rotate component/Flip/mUltiple/selection options (?)]

#### Rotate component

Enables you to change the rotation angle for the inserted entity.

#### Specify rotation angle of the insert

Specify the rotation angle.

#### Set base point

Enables you to change the basepoint for the inserted entity.

#### New base point <0,0,0>

Specify a new basepoint for the entity.

#### Name

Enables you to change the instance name for the inserted entity.

#### Component insert name <DefaultName>

Enter a name for the inserted entity.

#### Insertion type

Enables you to change the insertion type for the inserted entity.

#### Specify component type [Local/External] <External>

Choose Local or External

- Local: references an entity definition within the current drawing. See Block Reference.
- External: references an entity definition outside the current drawing. See External Reference.

#### 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.



### Select insertion point

Specify a point in the current drawing where the entity will be inserted. Continue inserting entities until you press Enter to end the command.

Additional options: [Edit inserted entity/Rotate/Base point/Name/Insertion Type/Flip/Array/Change target 3d solids]

### Array

Enables you to create an associative array of the inserted entity.

### Specify base point for the array

Specify a point.

### Enter the distance between columns

Specify the distance between columns

Additional options: [Direction]

### Enter the distance between rows

Additional options: [Single row/Rectangular/Direction]

### Select an end point for creating array

Specify a point.

### Accept resulting array

Press Enter to accept the array.

Additional options: [Base point/Columns/Rows/Accept] <Accept>:

### Change target 3d solids

Enables you to apply the inserted entity to existing 3D solids in the current drawing.

### Select target 3D solids

Select the 3D solids to which you want

Additional options: [clear/Select all affected 3d solids]

### Select all affected 3d solids

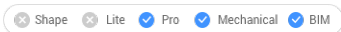
All solids intersecting or touching solids in the BC\_SUBTRACT and BC\_UNITE layers of the inserted entity are affected.

### Clear

Clears the selection set to ensure no solids are affected by the inserted entity.

## 7.94 -BMINSERT command

Inserts sheet metal form features and components in the current drawing.



### 7.94.1 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.



### 7.95 BMLINK command

Changes target 3D solids of component-based features.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 7.95.1 Description

Changes the target 3D solids of component-based features by adding or removing target 3D solids.

#### 7.95.2 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.

##### clearR

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.

### 7.96 BMLOCALIZE command

Converts external components to local components.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 7.96.1 Description

Converts external components to local components by selecting the components manually.

If multiple inserts of the same external component exist in the model, all inserts are converted to local components.

#### 7.96.2 Options within the command

##### Entire model

Converts all external components in the model to local components.

### 7.97 BMMASSPROP command

Computes mass properties for the current model using densities of materials assigned to its components.

✕ Shape ✕ Lite ✕ Pro ✓ Mechanical ✕ BIM



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.

## 7.97.1 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.

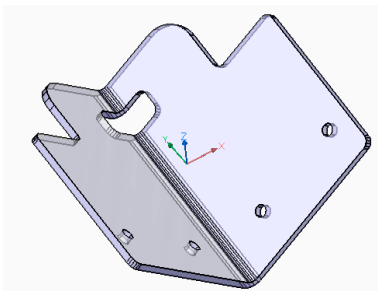
Selects the 3D solids and subcomponents or the entire model and will get a Report in the Prompt History window:

```
----- 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
```

## 7.97.2 Options

### Yes

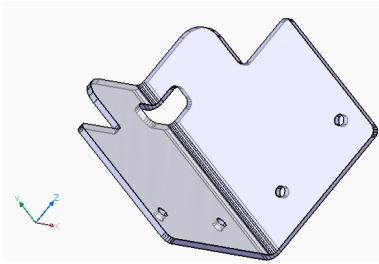
Aligns the UCS with the principal moment axes.



### No

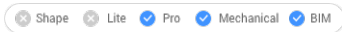
Keeps the current UCS.





## 7.98 BMMECH command

Converts the current drawing into a mechanical component.



Icon:

### 7.98.1 Description

Converts the current drawing into a mechanical component.

If the drawing contains block references or external references, they can also be converted into inserts of local and external components.

If the drawing is a mechanical component already, BMMECH does nothing.

### 7.98.2 Options within the command

#### Yes

If the drawing contains block references or external references, blocks are converted to internal components and external references are converted to external components.

**Note:** Blocks are not available in the INSERT command. Use BMINSERT to insert blocks as internal components.

#### No

The mechanical structure is initialized but blocks and external references are not converted.

## 7.99 BMNEW command

Creates a mechanical component as a new drawing file.



Icon:

### 7.99.1 Description

Creates a mechanical component by automatically opening a new drawing file.

## 7.100 BMOPEN command

Opens the source drawing of an external mechanical component.





Icon:

### 7.100.1 Description

Opens the source drawing of an external mechanical component by selecting it in the model, in order to change or visualize it.

## 7.101 BMOPENCOPY command

Opens a copy of a component insert as a new drawing.

Shape Lite Pro Mechanical BIM

Icon:

### 7.101.1 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.

## 7.102 -BMPARAMETERS command

Allows to list and edit the parameters of inserted components and associative arrays.

Shape Lite Pro Mechanical BIM

### 7.102.1 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.

### 7.102.2 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.

#### ?

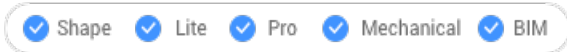
Lists the parameters of the selected components in the Prompt History window.

**Note:** Press F2 to display the Prompt History window.



### 7.103 BMPOUT command

Saves the current view as a BMP file.

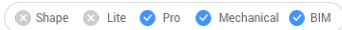


#### 7.103.1 Description

Opens the Save Bitmap dialog box to save the current view (model or paper space) as a bitmap BMP file.

### 7.104 BMRECOVER command

Recovers a broken mechanical structure.



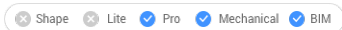
#### 7.104.1 Description

Recovers a broken mechanical structure selected through 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.

### 7.105 BMREPLACE command

Replaces a component insert.



#### 7.105.1 Description

Replaces a mechanical component inserted in the current drawing with another one selected from Select file component dialog box.

#### 7.105.2 Options within the command

##### SIMilar inserts

Allows 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 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 to control which parameter values will be used after the replacement is complete.

- **Yes - reapply:** parameter values of the replaced component are applied.



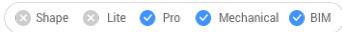
- **No - use replacement as is:** parameter values of the replacement component are applied.

### from File

Allows to select a .dwg file from the Select file for component dialog box for the replacement component.

## 7.106 BMSHOW command

Shows hidden mechanical components from the drawing.



### 7.106.1 Description

Shows previously hidden mechanical components inserted in the current drawing.

### 7.106.2 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.

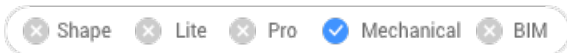
#### Insert name

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 (/).

## 7.107 BMTRAILINGLINES command

Creates all necessary trailing lines for selected parts.



### 7.107.1 Description

Creates all necessary trailing lines by selecting entities.

**Note:** An exploded view needs to be selected before the command can be run.

### 7.107.2 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.



### 7.108 BMUNLINK command

Breaks the connection between a component insert and a 3D solid retaining the opening.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 7.108.1 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.

### 7.109 BMUNMECH command

Converts mechanical components.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 7.109.1 Description

The command converts the current mechanical component into a plain drawing.

**Note:** The command applies to drawings that are a mechanical component only.

#### 7.109.2 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.

### 7.110 BMUPDATE command

Reloads all referenced components from external files and updates BOM tables.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 7.110.1 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.



### 7.110.2 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.

### 7.111 BMVSTYLE command

Applies a visual style to a mechanical component inserted.



#### 7.111.1 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.

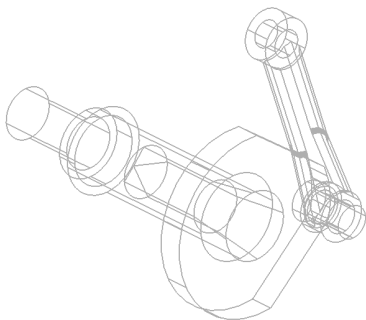
#### 7.111.2 Options

##### by Viewport

Applies the current visual style of the viewport.

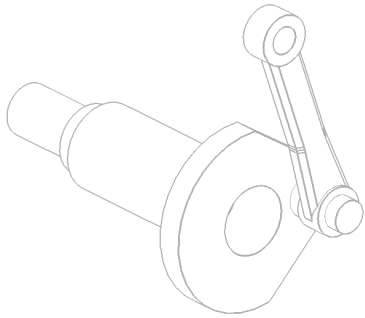
##### Wireframe

Applies the 3D Wireframe visual style.



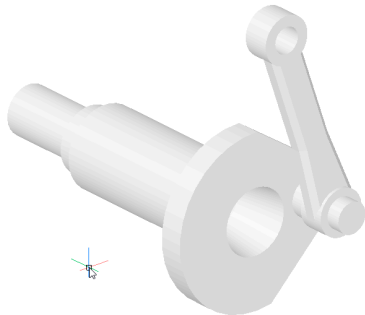
##### Hidden

Applies the Hidden visual style.



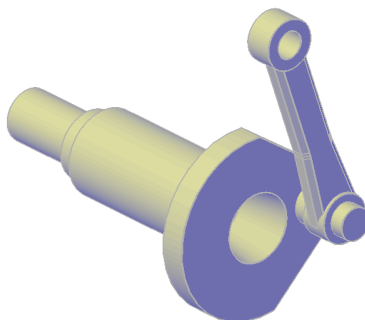
### Realistic

Applies the Realistic visual style.



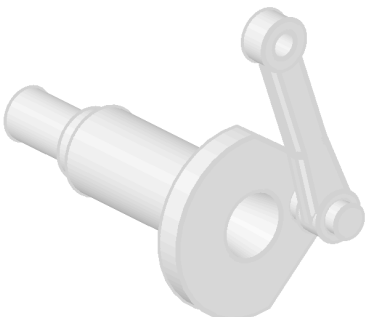
### Conceptual

Applies the Conceptual visual style.



### Modeling

Applies the Modeling visual style.



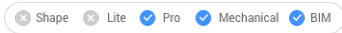


## by Name

Applies a named visual style.

## 7.112 BMXCONVERT command

Converts X-Hardware solids to mechanical components.

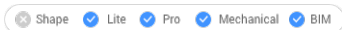


### 7.112.1 Description

Converts X-Hardware solids in the current drawing to mechanical components.

## 7.113 BOUNDARY command

Creates closed polylines from bounding entities.



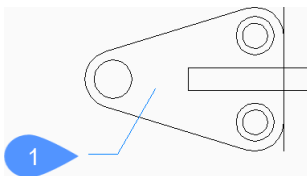
Icon:

Alias: BO, BPOLY

### 7.113.1 Description

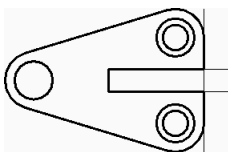
Creates closed polylines, defined by surrounding entities. Options allow you to pick an internal point, specify the boundary set, and detect islands.

Original entities:



1 Internal point

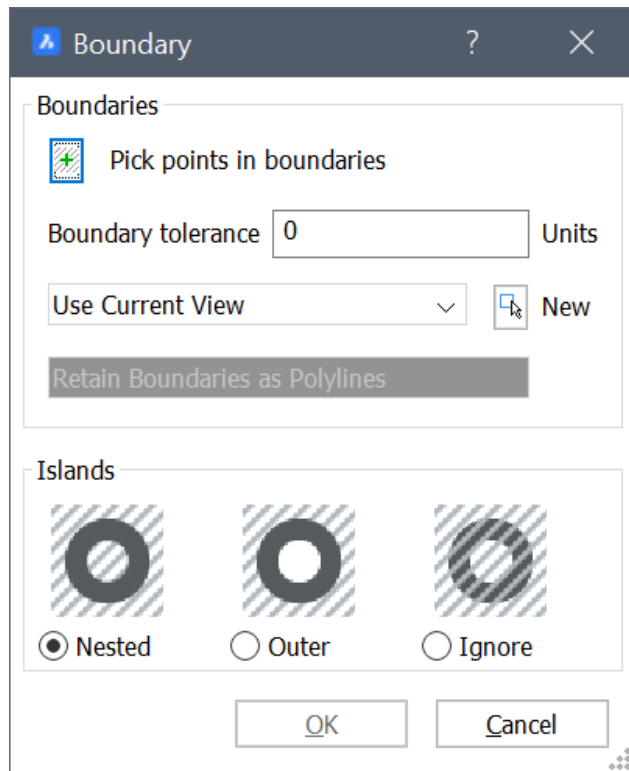
Resulting polylines:



### 7.113.2 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.



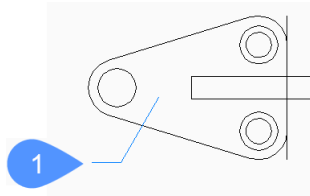
### Outer

Create a boundary of only the outermost entities.

### Ignore

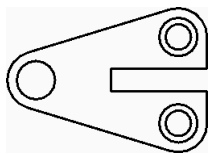
Ignore the innermost areas. A boundary is created between the outermost area and islands.

Original entities:

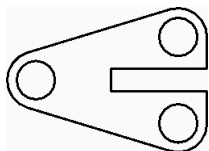


1 Internal point

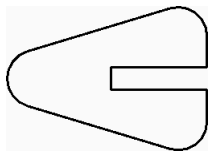
Nested:



Outer:



Ignore:



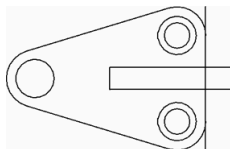
### 7.113.3 Options within the BOUNDARY command

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

#### Select entities

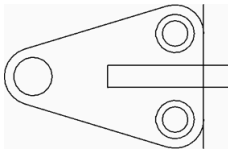
Select entities to use as boundaries.

Original entities:

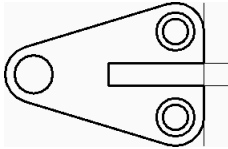




Selected entities:



Resulting polylines:

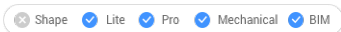


### Undo

Undo the last internal pick point and continue picking points to specify additional enclosed areas.

## 7.114 -BOUNDARY command

Creates closed polylines from bounding entities.

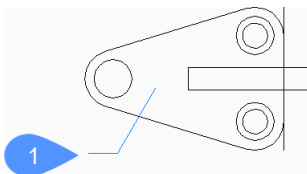


Alias: -BO

### 7.114.1 Description

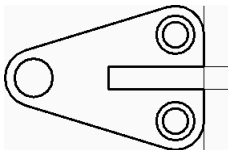
Create closed polylines, defined by surrounding entities using the Command line. Options allow you to pick an internal point, specify the boundary set, and detect islands. See the BOUNDARY command to access similar functionality using a dialog box.

Original entities:



1 Internal point

Resulting polylines:



### 7.114.2 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]

### 7.114.3 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.

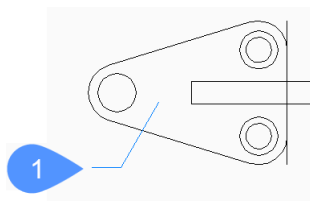
- **New:** create a new selection set of entities that make up the boundary.
- **Everything:** select all entities in the current viewport.

#### Island

Specify the island detection. An island is an enclosed area inside a boundary.

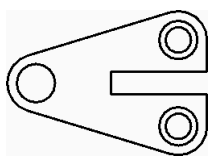
- **Yes:** treat every island as a boundary.
- **No:** create a boundary of only the outermost entities.
- **Outer only:** ignore the innermost areas. A boundary is created between the outermost area and islands.

Original entities:

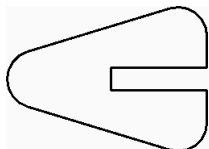


1 Internal point

Yes:

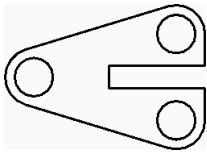


No:





Outer only:



## Exit

Return to the previous prompt.

## Undo

Undo the last internal pick point and continue picking points to specify additional enclosed areas.

## 7.115 BOX command

Creates a 3D solid in the shape of a box.

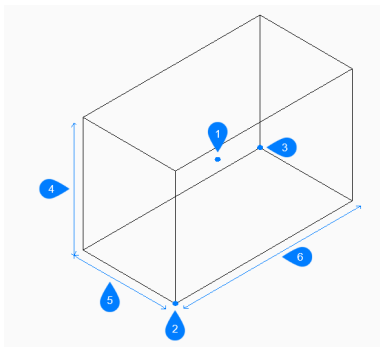
**Note:** In BricsCAD Lite, which doesn't support 3D Solids, the BOX command launches the AI\_BOX command.



Icon: 

### 7.115.1 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

### 7.115.2 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]

## **7.115.3 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.

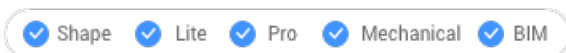
Additional option: [2Point]

### **2Point**

Specify the height of the box by picking any two points.

## **7.116 BREAK command**

Removes a portion of an entity.



Icon:

Alias: BR

You can break arcs, circles, ellipses, lines, polylines, rays and infinite lines.

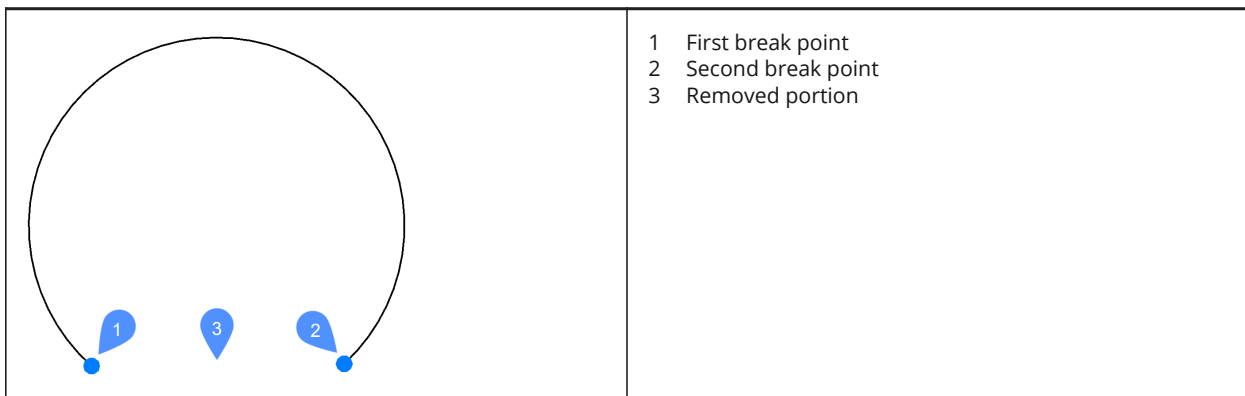
**Note:** Breaking a circle converts it to an arc. A ray is broken into a ray and a line. An infinite line is broken into two rays.

### 7.116.1 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.



### 7.116.2 Options within the command

#### First break point

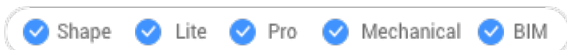
Specifies the start of the portion of the entity to remove.

#### @

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.

## 7.117 BROWSER command

Opens the default Web browser.

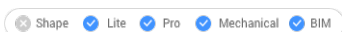


### 7.117.1 Description

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.

## 7.118 BSAVEAS command

Opens the Save block definition dialog box.





### 7.118.1 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.

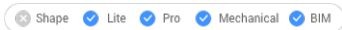




## 8. C

### 8.1 CAL command

Opens the BricsCAD Calculator.



#### 8.1.1 Description

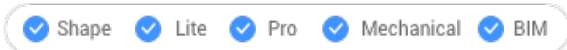
Opens the BricsCAD Calculator to perform common calculation and conversion operations. It opens in an external application window, allowing it to remain open while you work on your drawings in BricsCAD. You can move and resize it with standard application window controls.

### 8.2 CALLOUT command



### 8.3 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	▼		
<b>General</b>			
Handle	9B		
<b>Camera</b>			
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		
<b>Clipping</b>			
Front plane	100 mm		
Back plane	20 mm		
Clipping	Front and back on		

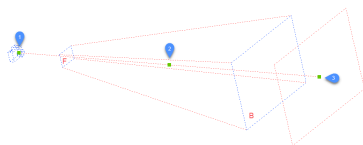
### Grips Editing

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:

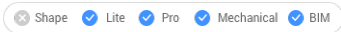
- Position the camera (1).
- Move the camera definition as a whole (2).
- Position the target (3).






## 8.4 CENTER command

Toggles the Center entity snap.



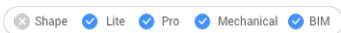
Icon: 

### 8.4.1 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.

## 8.5 CENTERDISASSOCIATE command

Breaks the association of a centerline entity with two selected lines, or else a center mark with a circle or an arc.



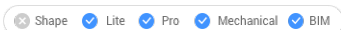
Icon: 

### 8.5.1 Description

Breaks the association of centerline and center mark entities with the associated entities, such as lines, arcs, and circles.

## 8.6 CENTERLINE command

Creates a centerline.



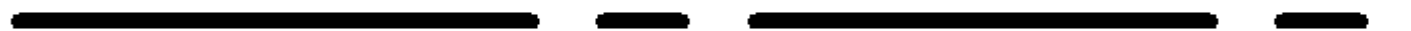
Icon: 

Alias: CL

### 8.6.1 Description

Creates a centerline geometry associated with two selected lines or polyline segments.

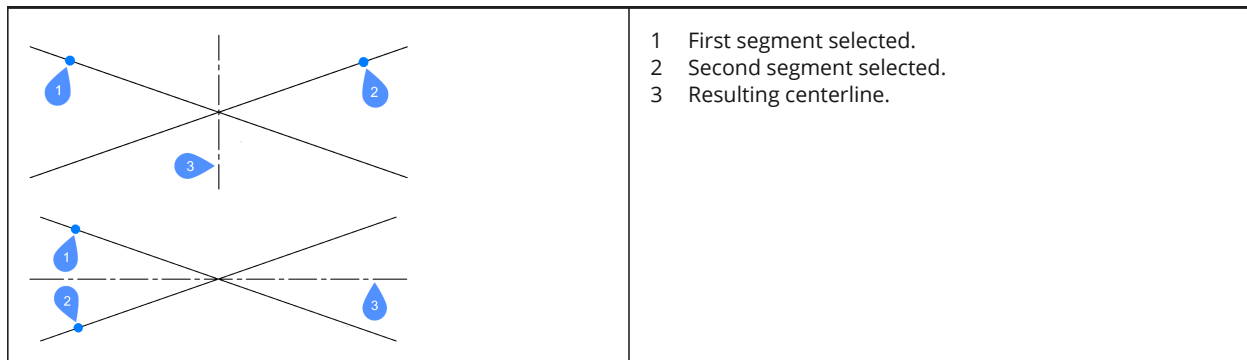
**Note:** Centerlines are drawing reference entities to indicate axes of symmetry.





## 8.6.2 Method

When applying a centerline to the intersection of two lines, the location of the picked points determines the direction of the 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.

## 8.7 CENTERMARK command

Creates a center mark.

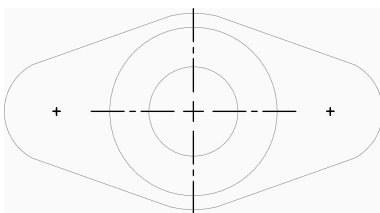


Icon:

Alias: CM

### 8.7.1 Description

Creates a center mark associated with a selected circle, arc, or polyarc.



### 8.7.2 Methods to create a center mark

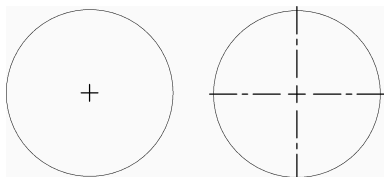
There is one method to begin creating a center mark:

- 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 center settings further control the appearance of centermarks.



The center mark is associative, so when the arc or circle is moved or resized, the centermark follows.  
Additional options: [selection options (?)]

### 8.7.3 Options within the CENTERMARK command

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

## 8.8 CENTERREASSOCIATE command

Associates a centerline entity with two selected lines, or else a center mark with a circle or an arc.



Icon:

### 8.8.1 Description

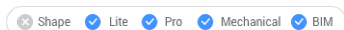
Selects the center mark or a centerline to associate with their specific entities.

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.

## 8.9 CENTERRESET command

Resets centerline and center mark entities.



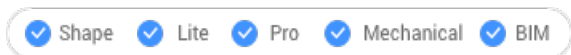
Icon:

### 8.9.1 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.

## 8.10 CHAMFER command

Creates chamfers at intersections, defined by two lengths, or a length and an angle.



Icon:



Alias: CHA

### 8.10.1 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.

### 8.10.2 Options

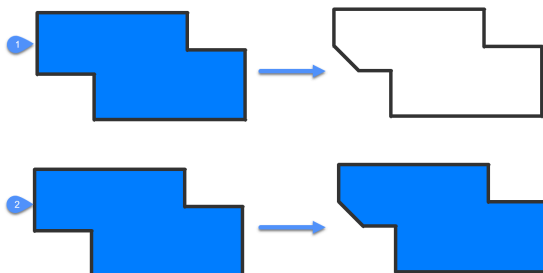
#### chamfer Settings

Opens the Settings dialog box at the chamfer parameters.

#### Polyline

Chamfers the vertices where two segments meet of the selected polyline (if applicable).

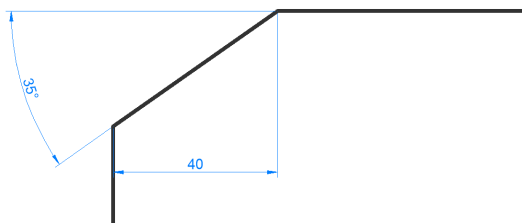
**Note:** Creating chamfers on a hatch boundary created with individual lines (1) results in removal of hatch associativity. Associativity is maintained if the boundary is defined from a polyline (2).



#### Angle

Changes the method to length-angle.

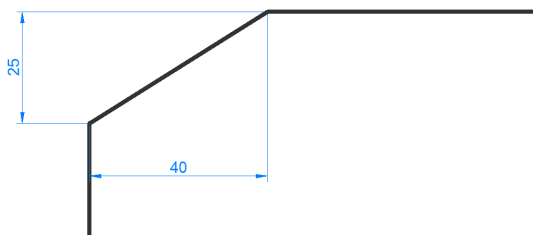
**Note:** BricsCAD measures the angle from 0 degrees, the X axis.





### 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 ESC to exist the command.

### Create 3D chamfer

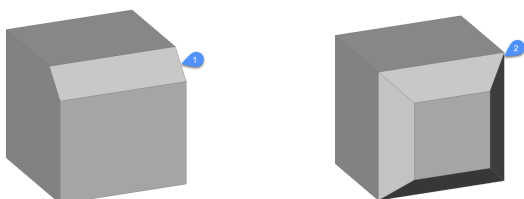
Create 3D chamfer by selecting the edge of a 3D solid or surface.

### Enter surface selection option

Select between surfaces adjacent to the selected edge.

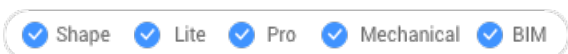
### Select edge or Loop

Select edge (1) to be chamfered or loop around selecting all tangential edges belonging to the base surface (2).




## 8.11 CHANGE command

Changes the properties of entities, through the Command line. This command has largely been superseded by the PROPERTIES panel.







Icon: 

Alias: -CH

### 8.11.1 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.

### 8.11.2 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.

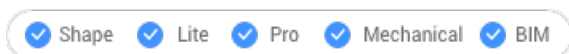
#### Properties...

Color/Elevation/Layer/LineType/linetype Scale/Line Weight/ Thickness/Transparency/Material/Annotative

For more explanation, see the Properties panel.

## 8.12 CHPROP command

Changes the properties of the selected entity.



### 8.12.1 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.



### 8.12.2 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

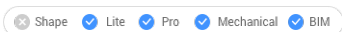
Applies a material.

#### Annotative

Sets the annotative property.

### 8.13 CHSPACE command

Moves entities from paper space to model space and vice versa.



**Note:** This command can only be used in a Paper Space.

#### 8.13.1 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.

#### 8.13.2 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.



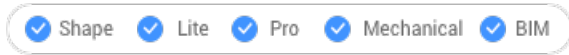
### Select SOURCE viewport


Select source viewport as reference.

**Note:** The scale factor equals the custom scale of the selected source viewport.

## 8.14 CIRCLE command

Creates circle entities.



Icon: 

Alias: C

### 8.14.1 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.

### 8.14.2 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

### 8.14.3 Options within the CIRCLE command

#### Select center of circle

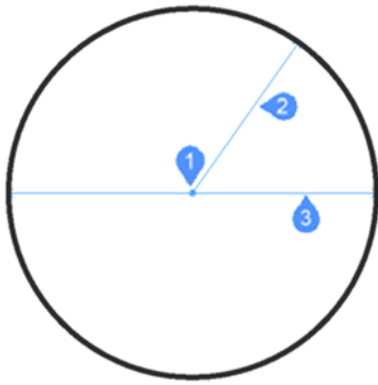
Specify a point (1)

#### Set Radius

Specify a point (2)

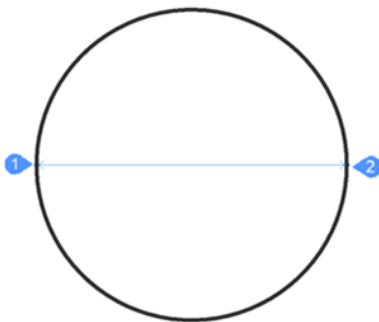
#### Set Diameter

Specify a point (3)



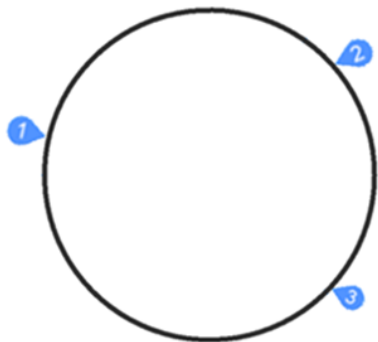
### 2P

Specify 2 diametrically opposite points (1 and 2) to define the circle.



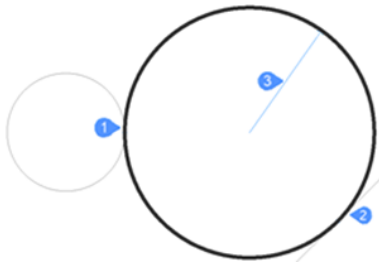
### 3P

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.



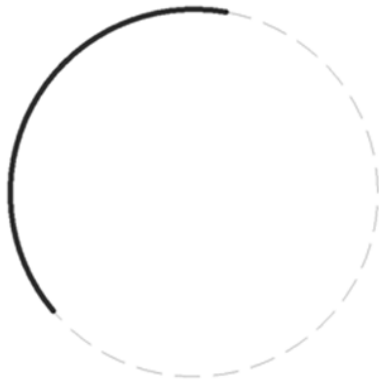
### Tangent-Tangent-Radius

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.



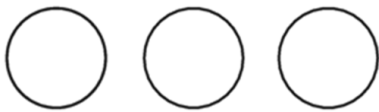
### Turn Arc into circle

Converts an arc entity into a circle by extending it to 360 degrees.



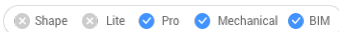
### Multiple circles

Create multiple circles with the same size using one of the listed methods above. Press Enter to end the command.



## 8.15 CIVIL3DIMPORT command

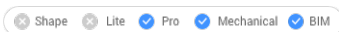
Opens the Import Civil 3D dialog box.



### 8.15.1 Description

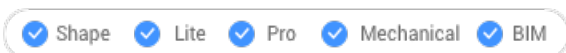
Opens the Import Civil 3D dialog box to select a dwg file to import into the current drawing.

## 8.16 CIVILDWGEXPORT command



## 8.17 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.

### 8.18 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.

#### 8.18.1 Method

Elements in the user interface are hidden according to the values of the CLEANSCREENOPTIONS system variable.

### 8.19 CLEANUNUSEDVARIABLES command

Purges parametric variables not used by constraint expressions and not linked to dimensions.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 8.19.1 Description

Automatically deletes parametric variables not used by constraint expressions and not linked to dimensions when the command is run.

### 8.20 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 can be toggled also through the Properties panel.

### 8.21 CLOSE command

Closes the current drawing.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 8.21.1 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.

### 8.22 COLOR command

Opens the Select color dialog box.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

Alias: COL, COLOUR, DDCOLOR, DDCOLOUR, SETCOLOR

### 8.22.1 Description

Opens the Select color dialog box to specify the current color.

## 8.23 -COLOR command

Sets the current working color, through the Command line.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Alias: -COL, -COLOUR

### 8.23.1 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.

## 8.24 COMMANDLINE command

Opens the Command line panel.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 8.24.1 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.

## 8.25 COMMANDLINEHIDE command

Closes the Command line panel.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

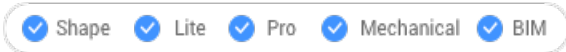
### 8.25.1 Description

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.



### 8.26 COMMANDS command

Lists the names of the commands.



#### 8.26.1 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.

#### 8.26.2 Options

##### Internal

Lists command names native to BricsCAD.

##### External

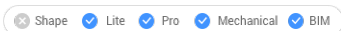
Lists command names from add-on applications.

##### Both

List both internal and external command names.

### 8.27 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).

#### 8.27.1 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

### 8.28 COMPONENTSPANELCLOSE command

This command is deprecated.

Use LIBRARYPANELCLOSE instead.

### 8.29 COMPONENTSPANELOPEN command

This command is deprecated.

Use LIBRARYPANELOPEN instead.

### 8.30 CONE command

Creates a 3D Solid in the shape of a cone.





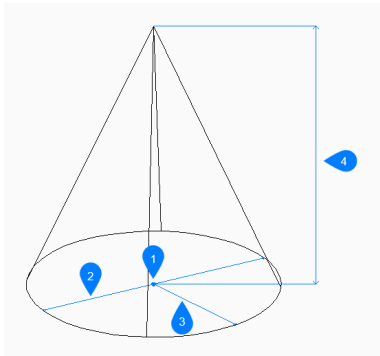
**Note:** In BricsCAD Lite, which doesn't support 3D solids, the CONE command launches the AI\_CONE command.



Icon: 

### 8.30.1 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

### 8.30.2 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.

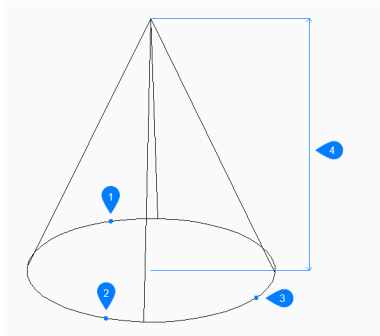
#### Third point

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:

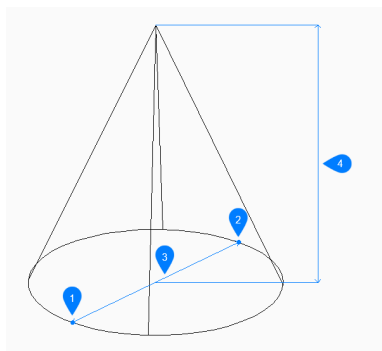
#### Second end of diameter

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.

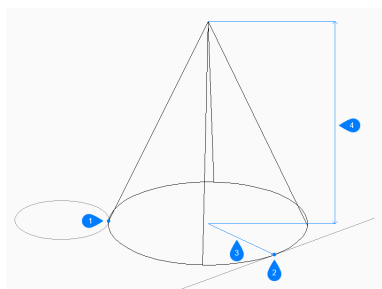
### Radius of circle

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.



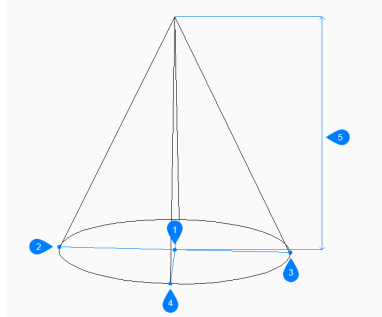
### Other end of ellipse axis

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

### 8.30.3 Options within the CONE command

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

#### 2Point

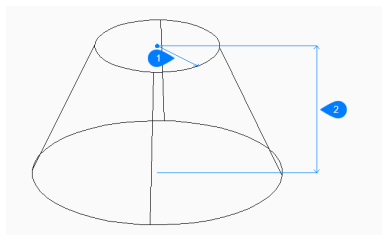
Specify the height of the cone as the distance between any two points.

#### 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

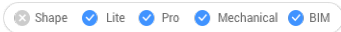
#### Diameter

Specify the diameter of the cone's base.



### 8.31 CONSTRAINTBAR command

Shows and hides constraint bars.



Icon:

#### 8.31.1 Description

Shows and hides constraint bars next to entities constrained with geometric constraints.

**Note:** Constraint Bars are initially hidden when a drawing is opened.

#### 8.31.2 Options

##### Show

Displays the constraint bar next to the entities you selected.

##### Hide

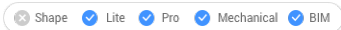
Hides the constraint bar next to the entities you selected.

##### Reset

Relocates constraint bars to their default positions, which is near the midpoint of the entity.

### 8.32 CONTENTBROWSERCLOSE command

Closes the Content browser panel.



#### 8.32.1 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.

### 8.33 CONTENTBROWSEROPEN command

Opens the Content browser panel.



#### 8.33.1 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.

### 8.34 CONVERTCTB command

Opens the Select color-dependent plot style table file dialog box.





### 8.34.1 Description

Opens the Select color-dependent plot style table file dialog box to select a ctb file to convert to an stb file.

## 8.35 CONVERTOLDLIGHTS command

Converts the definitions old lights to that of the current format.

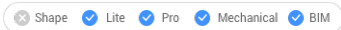


### 8.35.1 Description

The drawing is searched for old light definitions, which are then converted to the current format automatically. It may be necessary to check their properties (in case some may have changed) by editing the converted lights with the LIGHTLIST command.

## 8.36 CONVERTOLDMATERIALS command

Converts old definitions of material to that of the current format.

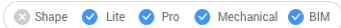


### 8.36.1 Description

The drawing is searched for old material definitions, which are then converted to the current format automatically. It might be necessary to edit the converted materials to check their settings with the Materials command.

## 8.37 CONVERTPOLY command

Converts 2D and 3D polylines between modern lightweight and classic polylines (heavyweight) definitions.



### 8.37.1 Method

The primary benefit to using this command is to reduce the drawing file size by using lightweight polyline definitions.

This command does not convert the following kinds 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:

- Editing commands apply to both classic and lightweight polylines.
- The PLINETYPE system variable specifies whether classic polylines are converted to lightweight polylines automatically when an older drawing is opened. You can use this system variable to determine which style of polyline is created in new drawings.

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



### 8.37.2 Options

#### Heavy

Converts classic 2D polylines to lightweight ones.

#### Light

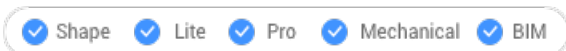
Converts lightweight 2D polylines to classic, heavyweight polylines. This may be needed to make drawings compatible with certain software.

#### 3dPoly

Converts 3D polylines (The abbreviation for this option is 3P)

## 8.38 CONVERTPSTYLES command

Converts the current drawing from Color Dependent (CTB) to Named (STB) plot style mode and vice versa.



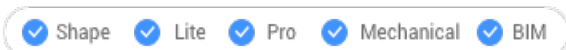
**Note:** A drawing can use either CTB or STB plot styles, but not both.

### 8.38.1 Description

Converts the drawing's plot style tables before converting the drawing, using the CONVERTCTB command.

## 8.39 CONVTOMESH command

Converts entities to mesh entities.



### 8.39.1 Description

Converts valid 2D and 3D entities to Mesh entities. Valid entities include:

- 3D Solid
- Surface
- Polygon Mesh
- Region
- Closed Polyline

### 8.39.2 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:

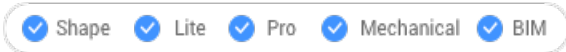
#### Select entities

Select another valid entity or press Enter to complete the command.



### 8.40 CONVTOSOLID command

Converts entities to solid entities.



#### 8.40.1 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

#### 8.40.2 Method to convert to solid

There is one method to convert entities to 3D Solid entities:

- Select entities

##### Select Entities

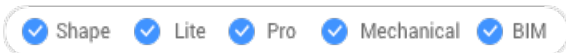
Begin converting an entity to a 3D Solid entity by selecting a valid entity then:

##### Select entities

Select another valid entity or press Enter to complete the command.

### 8.41 CONVTOSURFACE command

Converts entities to Surface entities.



#### 8.41.1 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





### 8.41.2 Method to convert to surface

There is one method to convert entities to Surface entities:

- Select entities

#### Select Entities

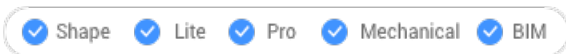
Begin converting an entity to a Surface entity by selecting a valid entity then:

#### Select entities

Select another valid entity or press Enter to complete the command.

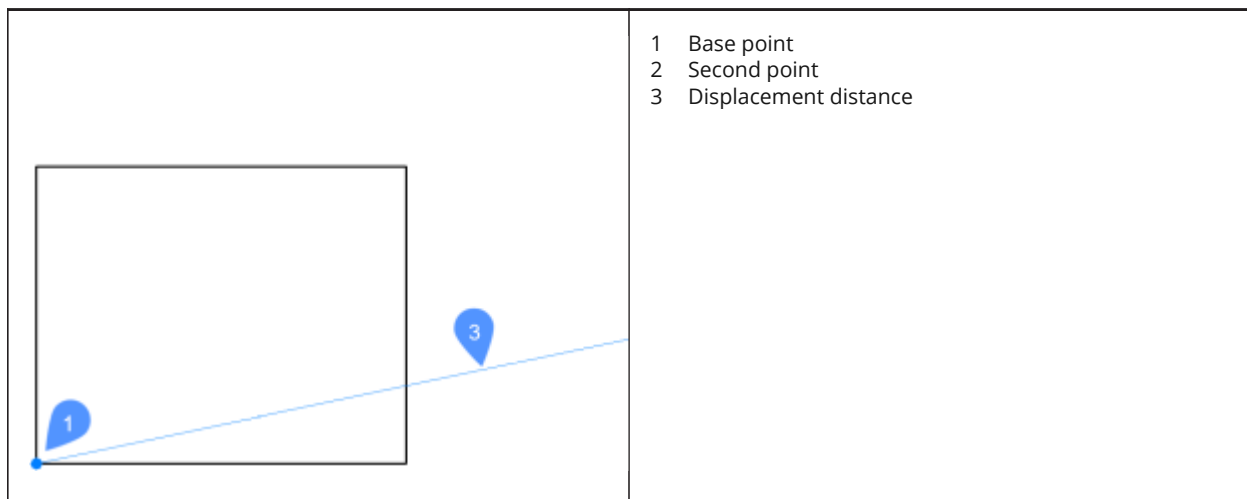
## 8.42 COPY command

Makes copies of entities.



Icon:

Alias: CO, CP



### 8.42.1 Method

This command allows you to make a single or multiple copies of entities by entering a base point and a displacement vector.

### 8.42.2 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.

## 8.43 COPYBASE command

Copies entities to the Clipboard.



Icon:

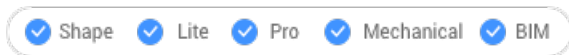
### 8.43.1 Description

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.

## 8.44 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.

### 8.44.1 Description

Copies selected entities to the Clipboard for pasting into drawings and other documents.

## 8.45 COPYEDATA command

Copies extended entity data from one entity to others.



Icon:



### 8.45.1 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.

### 8.45.2 Options

#### ? to list application names

Lists the names of applications loaded in the current drawing.

## 8.46 COPYGUIDED command

Copies entities using guide curves.



Icon:

### 8.46.1 Description

Automatically aligns copied entities with relevant geometry, using temporary guide curves.

### 8.46.2 Method

The command can be executed in two ways:

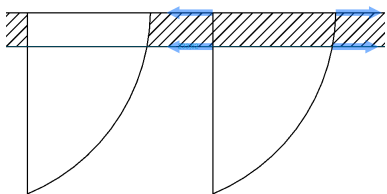
- Pre-pick mode: select entities first, then launch the command.

**Note:** The entities to be copied are displayed in green.

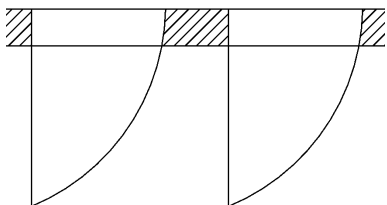
- Post-pick mode: launch the command, then select the entities using a selection window.

**Note:** All entities that fall completely within the selection window 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 type a distance in the dynamic entry fields.





### 8.46.3 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.

### 8.47 COPYHIST command

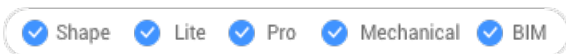
Copies all text from the Command line history to the Clipboard.



**Note:** The ScrHist system variable determines how many lines of command history the Prompt History window retains.

### 8.48 COPYTOLAYER command

Copies entities to another layer.



#### 8.48.1 Description

Creates duplicates of selected entities on a layer specified by the user. You can specify a different location for the duplicated entities.

#### 8.48.2 Method

There are two methods to copy to layer:

- Select entity on target layer.
- Select target layer in the Copy to Layer dialog box.

#### 8.48.3 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.

### 8.49 CORRIDOR command

Creates a corridor from a corridor template.



Shape Lite Pro Mechanical BIM

Icon: 

## 8.49.1 Description

Creates a corridor using a corridor template along an 3D alignment line.

## 8.49.2 Options

### Select 3D alignment to be used as a template. (1)

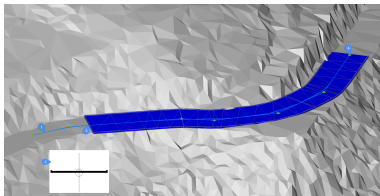
Select corridor template.

### Region start station. (2)

The starting point along the 3D alignment line.

### Region end station. (3)

The ending point along the 3D alignment line.



## 8.50 CORRIDOREEDIT command

Adds or removes regions for a selected corridor.

Shape Lite Pro Mechanical BIM

## 8.50.1 Method

There are two methods to use CORRIDOREEDIT command:

- Add regions for a selected corridor.
- Remove regions for a selected corridor.

## 8.50.2 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.

## 8.51 CORRIDOREXTRACT command

Extracts a 3D solid, 3D mesh, 3D polyline or outer boundary from a corridor.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 8.51.1 Method

There are two methods to use CORRIDOREXTRACT command:

- Extract all 3D solids, 3D meshes, 3D polylines or outer boundaries.
- Extract individual 3D solids, 3D meshes, 3D polylines or outer boundaries.

### 8.51.2 Options within the command

#### Mesh

Extract a 3D mesh.

#### All Shapes

Extract 3D mesh or 3D solid from all shapes.

#### Solid

Extract a 3D solid.

#### Polylines

Extract a 3D polyline.

#### All Stringlines

Extract a 3D polyline from all stringlines.

#### 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.

## 8.52 CORRIDORTEMPLATE command

Creates a corridor template.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

### 8.52.1 Method

Pick a point to create a corridor template.

Add corridor template elements to existing corridor template.



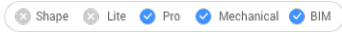
### 8.52.2 Options within the command


#### Add template element

Select a corridor template element that you wish to append.

### 8.53 CORRIDORTEMPLATEELEMENT command

Creates a corridor template element.



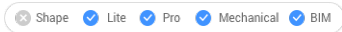
Icon: 

#### 8.53.1 Method

Select closed polylines to create a corridor template element.

### 8.54 CPAGESETUP command

Opens the Page setup dialog box.

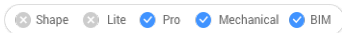


#### 8.54.1 Description

Opens the Page setup dialog box to view and modify the page setup for the current layout or model space.

### 8.55 CREATELIBRARYBLOCK command

Opens the Add block to library dialog box.



Icon: 

#### 8.55.1 Description

Opens the Add block to library dialog box to create a block definition and add it to the library.

### 8.56 -CREATELIBRARYBLOCK command

Creates and categorizes components.



#### 8.56.1 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, then the command will display the option to save in that category or a new category.

Categories are listed in alphabetical order:

- 1 - Building
- 2 - Doors



- 3 - Furnishing elements
- 4 - Holes
- 5 - Landscape
- 6 - Mechanical electrical plumbing flow connection points
- 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

### 8.57 CREATETHUMBNAIL command

Creates a thumbnail image of the current drawing.



#### 8.57.1 Description

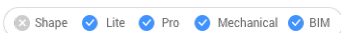
Creates custom thumbnail views to show the content of drawing files by file managers and other non-CAD programs. The thumbnails are small raster preview images, and usually are created automatically of the current view as the drawing is saved.

#### 8.57.2 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.

### 8.58 CUILOAD command

Opens the Customization groups dialog box.



#### 8.58.1 Description

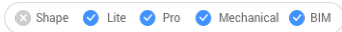
Opens the Customization groups dialog box to load and unload customization groups.





## 8.59 CUIUNLOAD command

Opens the Customization groups dialog box.

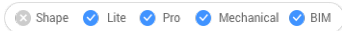


### 8.59.1 Description

Opens the Customization groups dialog box to load and unload customization groups.

## 8.60 CUSTOMIZE command

Opens the Customize dialog box.



Icon:

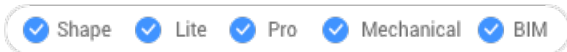
Alias: CUI

### 8.60.1 Description

Opens the Customize dialog box to customize the user interface.

## 8.61 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.

### 8.61.1 Description

Copies selected entities to the Clipboard for pasting into drawings and other documents. It automatically erases the selected entities from the drawing.

## 8.62 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.

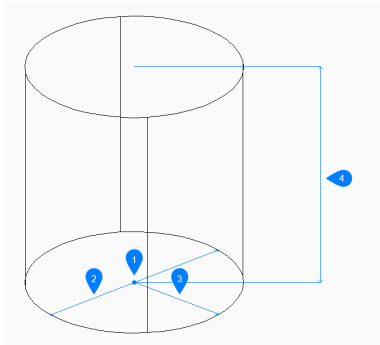


Alias: CYL



### 8.62.1 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

### 8.62.2 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

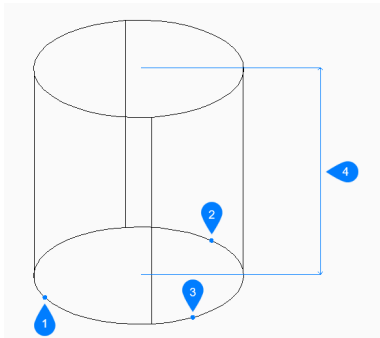
Specify the third point on the circumference.



### 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:

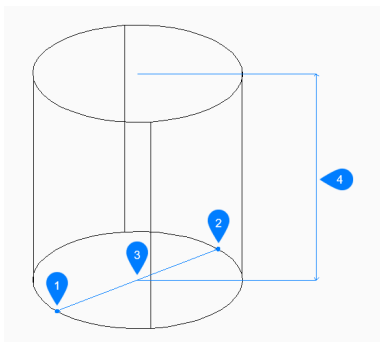
#### Second end of diameter

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.



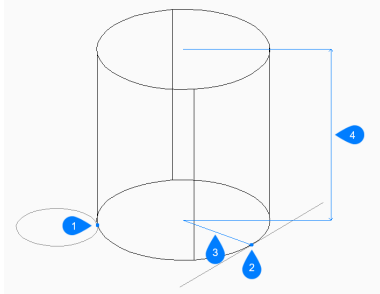
### Radius of circle

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.

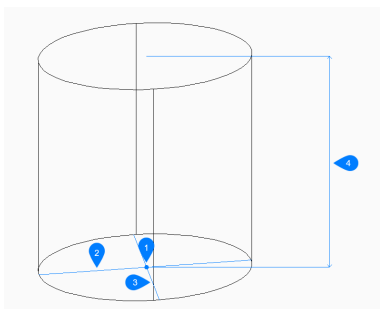
### Other end of ellipse

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



### 8.62.3 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.



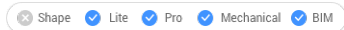
Icon:

#### 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.



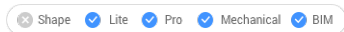
Icon:

#### 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

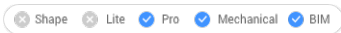
Prompts you to select table entities.

#### Update all

Synchronizes all linked data in all tables in the drawing.

## 9.5 DATASMITHEXPORT command

Opens the Export drawing to dialog box.

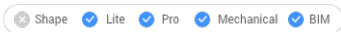


### 9.5.1 Description

Opens the Export drawing to dialog box to save data from the current drawing to a udatasmith file.

## 9.6 DBLIST command

Lists information about all entities in the drawing (short for "database listing").



### 9.6.1 Description

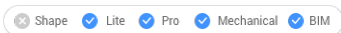
Displays information about every entity from the drawing.

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. PressEsc to stop the command.

## 9.7 DCALIGNED command

Constrains the distance between two entities.



Icon:

### 9.7.1 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.



### 9.7.2 Method

There are three methods to begin creating an aligned constraint:

- Entity
- Point & line
- 2Lines

### 9.7.3 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.

## 9.8 DCANGULAR command

Constraints angles.



Icon:

### 9.8.1 Description

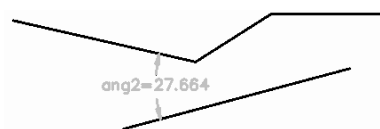
Constraints the angle between two lines or straight polyline segments; also constrains the angles of arcs, polyline arcs, and any three constraint points.

### 9.8.2 Methods

There are three methods to begin constraining angles:

#### Between two straight segments

Constraints the angle between two segments.



#### Of arcs or polyline arcs

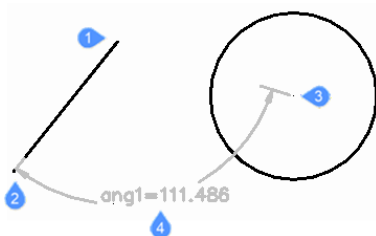
Constraints the angle of an arc between its endpoints.





## Between three valid constraint points

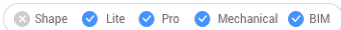
Valid constraint points are at the same geometric locations as entity snaps, such as the ends and middles of lines, centers and quad points of circles and arcs, and so on.



- 1 Angle vertex
- 2 First angle constraint point
- 3 Second angle constraint point
- 4 Dimension location

## 9.9 DCCONVERT command

Turns associative dimensions into constraints.



Icon:

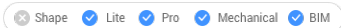
### 9.9.1 Description

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.



## 9.10 DCDIAMETER command

Constrains diameters.

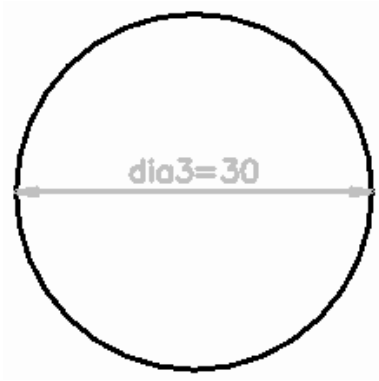


Icon:

### 9.10.1 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.



## 9.11 DCDISPLAY command

Toggles dimensional constraint visibility.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 9.11.1 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.

## 9.12 DCHORIZONTAL command

Constrains entities horizontally.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 9.12.1 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.

### 9.12.2 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.



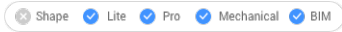
### 9.12.3 Options within the command

#### Entity

Constrains the horizontal distance between the endpoints of an entity.

### 9.13 DCLINEAR command

Constrains linearly.



Icon:

#### 9.13.1 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.

#### 9.13.2 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.

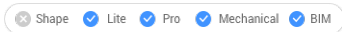
### 9.13.3 Options within the command

#### Entity

Constrains the horizontal or vertical distance between the endpoints of an entity.

### 9.14 DCRADIUS command

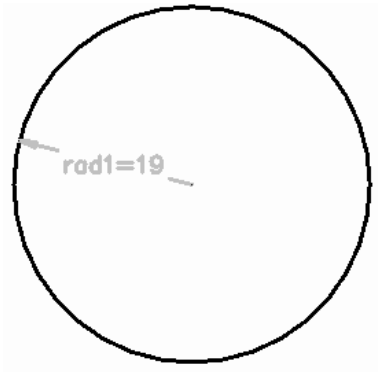
Constrains radii.



Icon:

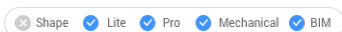
#### 9.14.1 Description

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.



## 9.15 DCVERTICAL command

Constrains entities vertically.



Icon:

### 9.15.1 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.

### 9.15.2 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.

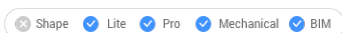
### 9.15.3 Options within the command

#### Entity

Constrains the vertical distance between the endpoints of an entity.

## 9.16 DDATTE command

Edits the values of attributes through a dialog box. This command is superseded by the BATTMAN command.



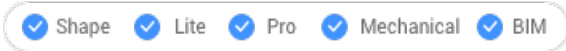


### 9.16.1 Description

Opens the Edit Attributes dialog box where may change the value of the attribute text.

## 9.17 DDEDIT command

Edits single-line text, multi-line text (mtext), dimension text, attribute definition and leader text.



Alias: ED

### 9.17.1 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.

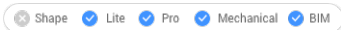
If the selected entity is represented by an attribute definition, the Edit Attribute Definition dialog box opens.

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.

## 9.18 DDEMODES command

Sets default values for creating entities.



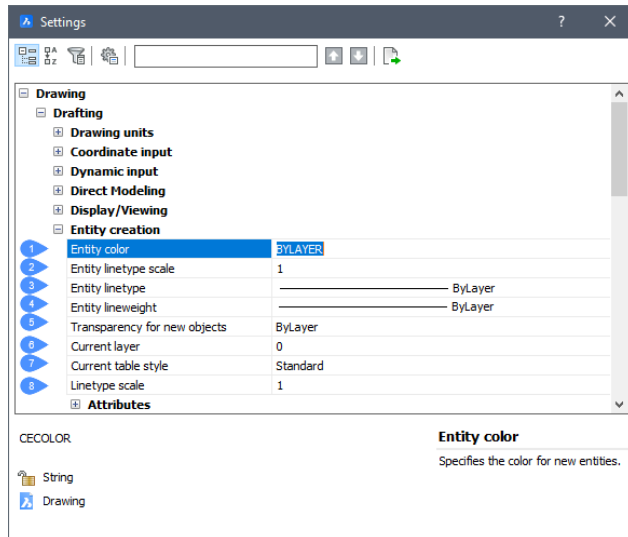
### 9.18.1 Description

Displays the Entity Creation section of the Settings dialog box.

**Note:** This command is superseded by the Settings command.

### 9.18.2 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

## 9.18.3 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.

### 9.19 DDFILTER command

Creates a selection set of the entities.



**Note:** This command is superseded by the SELECT command.

#### 9.19.1 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."

### 9.20 DDGRIPS command

Opens the Settings dialog box with the **Grips** category expanded.



Alias: GR

#### 9.20.1 Description

Opens the Settings dialog box with the **Grips** category expanded to view and modify relevant system variables.

### 9.21 DDPTYPE command

Opens the Settings dialog box with the **Points** category expanded.

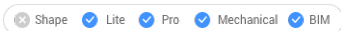


#### 9.21.1 Description

Opens the Settings dialog with the **Points** category expanded to view and modify relevant system variables.

### 9.22 DDSELECT command

Opens the Settings dialog box with the **Entity selection** category expanded.



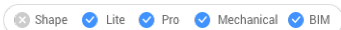
Alias: SE

#### 9.22.1 Description

Opens the Settings dialog box with the **Entity selection** category expanded to view and modify relevant system variables.

### 9.23 DDSETVAR command

Opens the Settings dialog box.



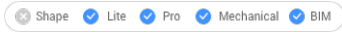


### 9.23.1 Description

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.

### 9.24 DDSTRACK command

Opens the Settings dialog box with the **Snap tracking** category expanded.

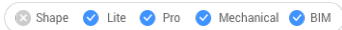


#### 9.24.1 Description

Opens the Settings dialog box with the **Snap tracking** category expanded to view and modify relevant system variables.

### 9.25 DDVPOINT command

Opens the Set viewpoint dialog box.



Alias: SETVPOINT, VIEWCTL, VP

#### 9.25.1 Description

Opens the Set viewpoint dialog box to specify a 3D viewpoint for the current viewport.

### 9.26 DEFAULTSCALELIST command

Opens the Default scale list dialog box.

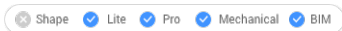


#### 9.26.1 Description

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.

### 9.27 DELAY command

Delays execution of commands.



#### 9.27.1 Description

This command is used to delay the execution of the next command.

**Note:** Meant to use with scripts.

#### 9.27.2 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).





## 9.28 DELCONSTRAINT command

Removes dimensional and geometrical constraints from selected entities.

Shape Lite Pro Mechanical BIM

### 9.28.1 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:

## 9.29 DELEDATA command

Deletes extended entity data for specific applications from the selected entities (short for "delete entity data").

Shape Lite Pro Mechanical BIM

### 9.29.1 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.

### 9.29.2 Options

? to list application names

Lists names of applications loaded in the current drawing.

## 9.30 DESIGNTABLE command

Imports .csv files that contain sets of parameter values or else creates them from scratch.

Shape Lite Pro Mechanical BIM

Icons:

### 9.30.1 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).

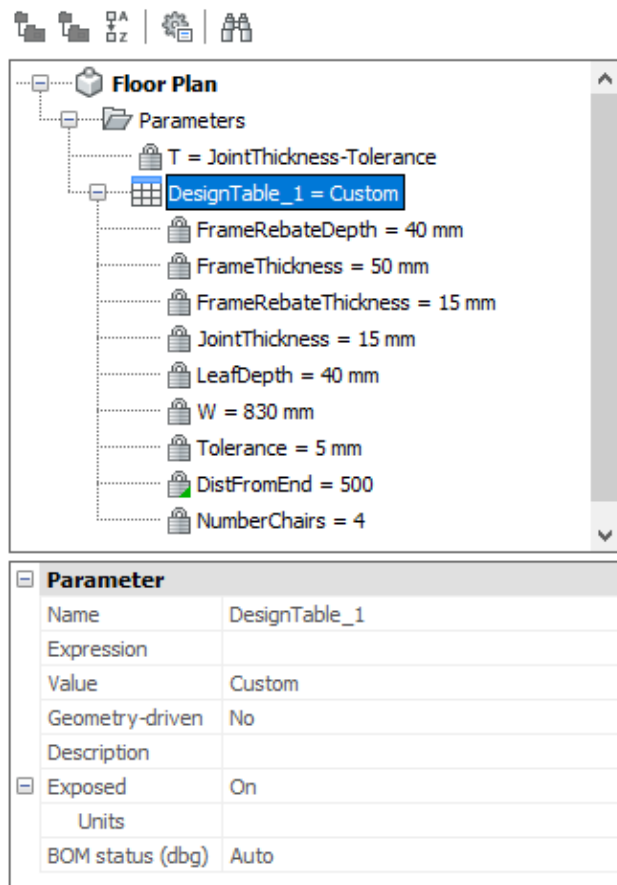
### 9.30.2 Options

**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:** Enter the MECHANICALBROWSEROPEN command to view the constraints:



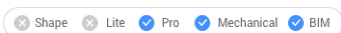
## Empty

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.

## 9.31 -DESIGNTABLEEDIT command

Edits design tables.



**Note:** This command can be entered transparently during the commands ('designtable').

### 9.31.1 Options

#### 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.

#### 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.

## 9.32 DETAILSPANELCLOSE command

Closes the Details panel.



### 9.32.1 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.

## 9.33 DETAILSPANELOPEN command

Opens the Details panel.



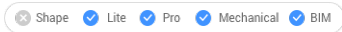
### 9.33.1 Description

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.



### 9.34 DGNEXPORT command

Exports the current drawing to a DGN file format.

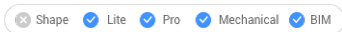


#### 9.34.1 Description

Opens the Export drawing as dialog box to export the current drawing to a MicroStation DGN File (\*.dgn) format.

### 9.35 -DGNEXPORT command

Exports the current drawing to MicroStation DGN File (\*.dgn) format in the command line.



#### 9.35.1 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.

#### 9.35.2 Options within the command

##### DGN

Converts reference to DGN.

##### DWG

Keeps reference to DGN.

##### Bind

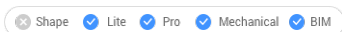
Binds reference file to the parent DGN.

##### Detach

Detaches external reference.

### 9.36 DGNIMPORT command

Opens the Import file dialog box.



#### 9.36.1 Description

Opens the Import file dialog box to select a dgn file to import into the current drawing.

### 9.37 DGNIMPORTOPTIONS command

Opens the Settings dialog box with the **DGNIMPORT** category expanded.



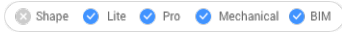


### 9.37.1 Description

Opens the Settings dialog box with the **DGNIMPORT** category expanded to view and modify relevant system variables.

### 9.38 DIM command

Creates multiple dimension types in a single workflow.



Icon:

Alias: DIMENSION

#### 9.38.1 Description

Allows to create multiple dimensions or types of dimensions at once.

#### 9.38.2 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.

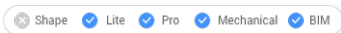
### **LAYER**

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.

## **9.39 DIM1 Command**

Executes a single dimension command at the 'Dimensioning command:' prompt.



### **9.39.1 Description**

Allows to create a single type of dimension, as specified in the Command line.

### **9.39.2 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.

## 9.40 DIMALIGNED command

Creates an aligned dimension.

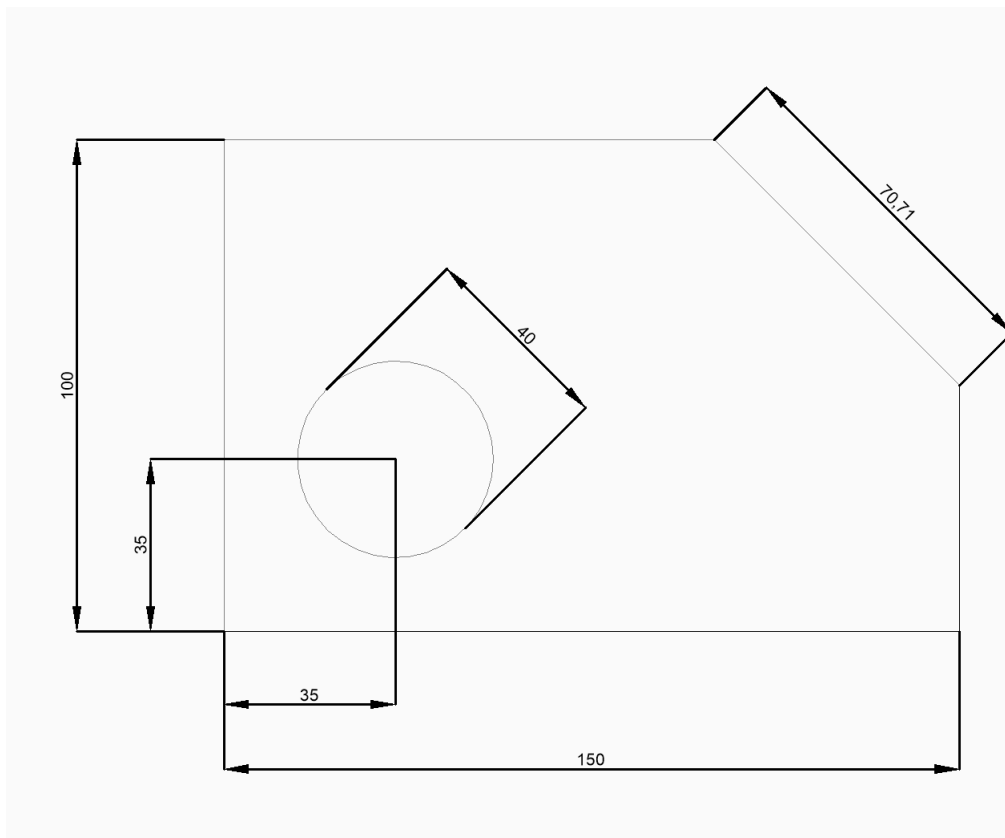


Icon:

Alias: DAL, DIMALI

### 9.40.1 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.







### 9.40.2 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:

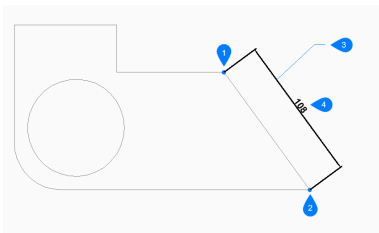
#### Origin of second extension line

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]



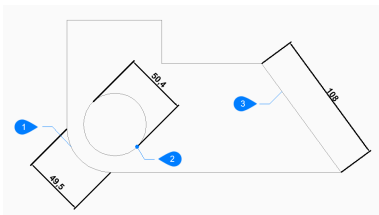
- 1 Origin of first extension line
- 2 Origin of second extension line
- 3 Location of dimension line
- 4 Aligned dimension

#### 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.

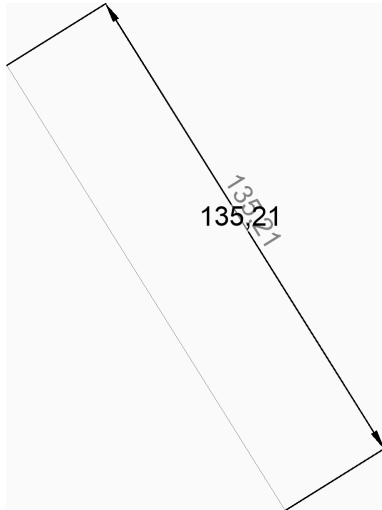
Additional options: [Angle/Text]

### 9.40.3 Options within theDIMALIGNEDcommand

After you begin creating analigned dimension, the following options may be available:

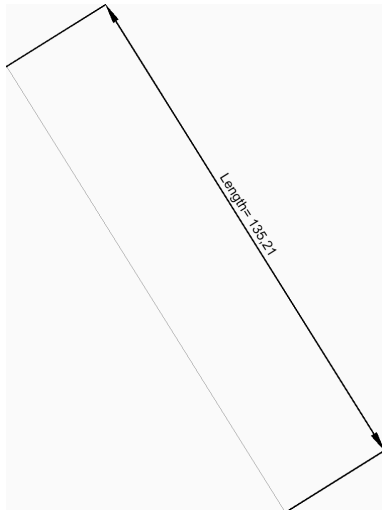
#### Angle

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.



### 9.41 DIMANGULAR command

Creates an angular dimension.



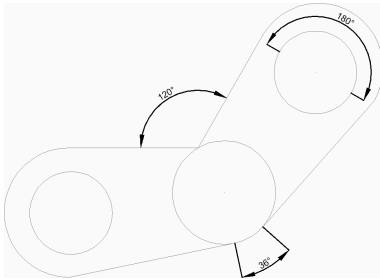
Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: DAN, DIMANG

## 9.41.1 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.



## 9.41.2 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

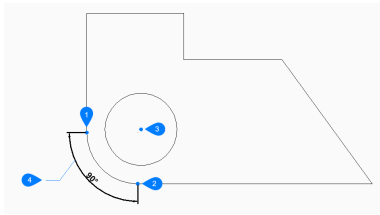
Specify the location of the dimension arc.

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]

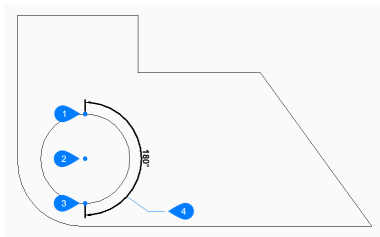
If you selected a circle

### 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

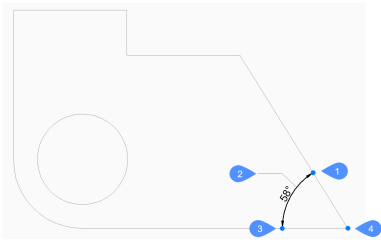
Specify a point to define one side of the angle.

### 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

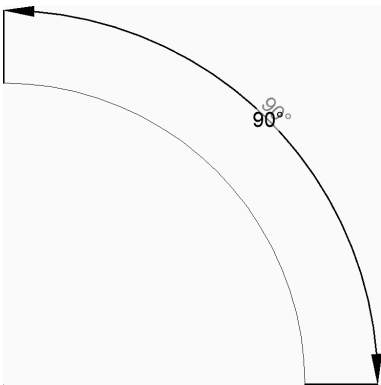
Additional options: [Angle/Text]

### 9.41.3 Options within the DIMANGULAR command

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

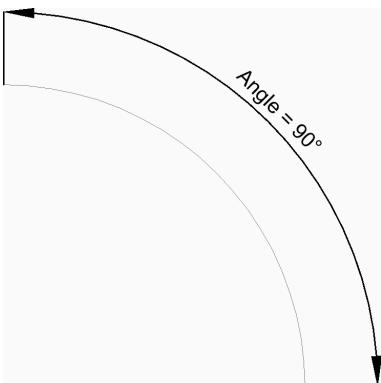
#### Angle

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.





## 9.42 DIMARC command

Creates an arc length dimension.

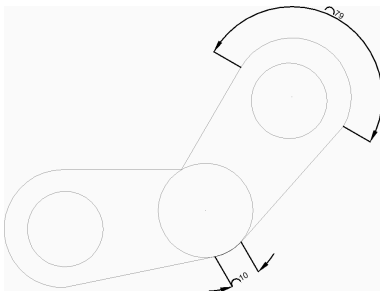
✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

Alias: DAL, DIMALI

### 9.42.1 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.



### 9.42.2 Methods to create an arc length dimension

There is one method to begin creating an arc length dimension:

- Select arc or polyline arc segment

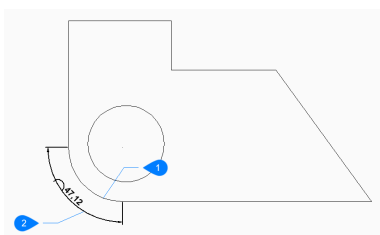
#### Select arc or polyline arc segment

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

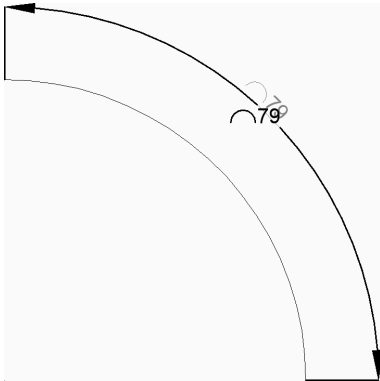
### 9.42.3 Options within the DIMARC command

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:

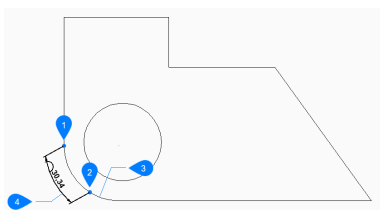
#### Specify second point for arc length dimension

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.



## 9.43 DIMBASELINE command

Creates stacked dimensions from the same baseline.

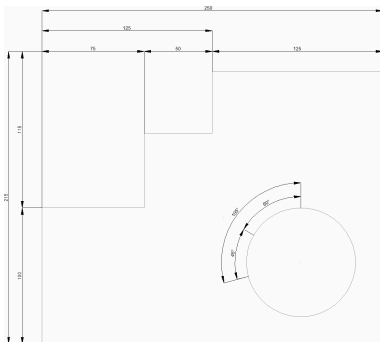
Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: DBA, DIMBASE

### 9.43.1 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.



### 9.43.2 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

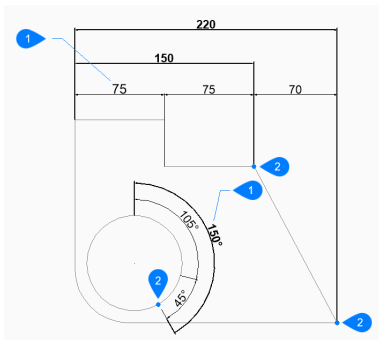
Begin creating baseline dimensions from the last linear, angular, or ordinate dimension by specifying a point for the next extension line.

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:

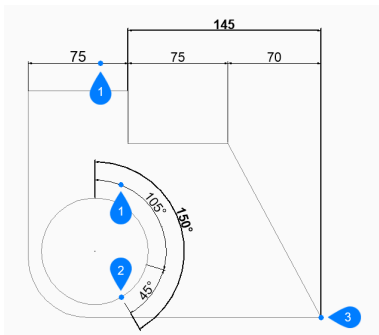
### Origin of next extension line

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

## 9.43.3 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.

## 9.44 DIMBREAK command

Breaks dimension lines, extension lines, and leaders at the locations where they cross other entities.



Icon:



### 9.44.1 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).



### 9.44.2 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

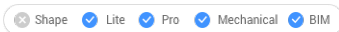
Removes all dimension breaks from the selected dimension entities.

#### Manual

The width of the dimension break can be manually defined. This option is not available in Auto mode.

## 9.45 DIMCENTER command

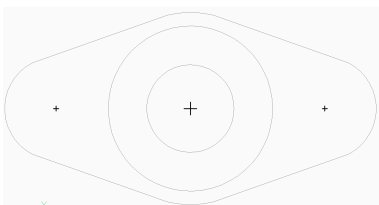
Creates a center mark.



Icon:

### 9.45.1 Description

Create a center mark at the center of a circle, arc or polyarc. See the CENTERMARK command to create associative center marks.



### 9.45.2 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 (?)]

### 9.45.3 Options within the DIMCENTER command

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

### 9.46 DIMCONSTRAINT command

Applies a dimensional constraint to an entity or between constraint points on entities; converts associative dimensions to dynamic dimensions.

Shape Lite Pro Mechanical BIM

#### 9.46.1 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.

#### 9.46.2 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.

### 9.47 DIMCONTINUE command

Creates dimensions in a continuous line or arc.

Shape Lite Pro Mechanical BIM

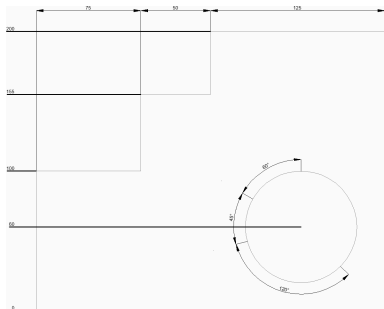


Icon:

Alias: DCO, DIMCONT

## 9.47.1 Description

Creates a continuous line or arc from an existing linear, angular, or ordinate dimension. The dimensions are based on the current dimension style.



## 9.47.2 Methods to create continuous dimensions

This command has 2 methods to begin creating continuous dimensions:

- Origin of next extension line
- Select starting dimension

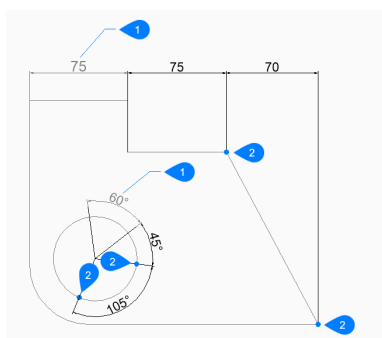
### Origin of next extension line

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

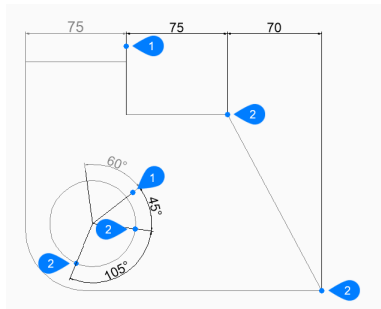
Specify a point for the next extension line.



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

### 9.47.3 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.

## 9.48 DIMDIAMETER command

Creates a diametric dimension.

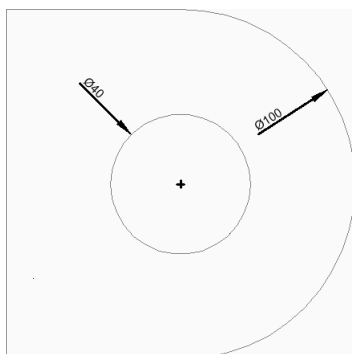


Icon:

Alias: DDI, DIMDIA

### 9.48.1 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.





### 9.48.2 Methods to create a diametric dimension

There is one method to begin creating a diametric dimension:

- Select arc or circle to dimension

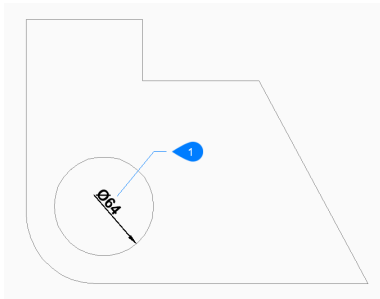
#### Select arc or circle to dimension

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]



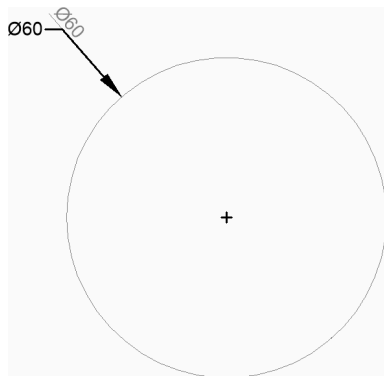
1 Location of dimension line

### 9.48.3 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.





## 9.49 DIMDISASSOCIATE command

Removes the associativity of selected dimension entities.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 9.49.1 Description

Disassociates the selected dimension entities and prompts you in the Command line the number of disassociated dimensions.

## 9.50 DIMEDIT command

Edits particular dimension elements.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: DED, DIMED

### 9.50.1 Description

Edits the position, angle, and wording of dimension text, and changes the angle of extension lines.

### 9.50.2 Methods

There are four methods to edit dimensions:

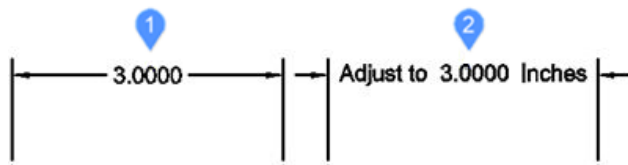
- Edit text
- Oblique lines
- Rotate text
- Restore text

### 9.50.3 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).

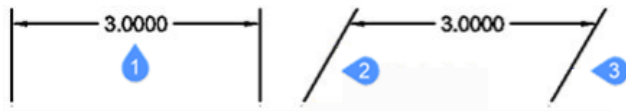


#### Oblique lines

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.

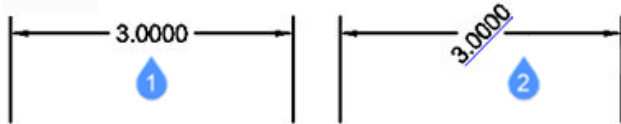


## Rotate text

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).



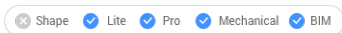
## Restore text

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.



## 9.51 DIMLEADER command

Creates a leader.

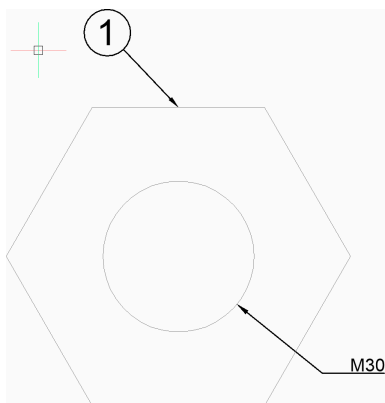


Icon: ↵A

### 9.51.1 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.







### 9.51.2 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.

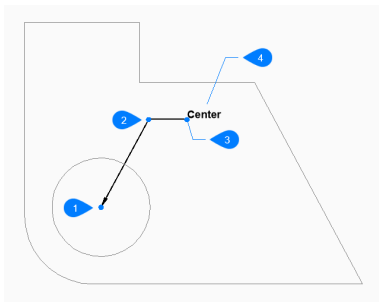
Additional options: [Format/Undo/Annotation]

#### 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

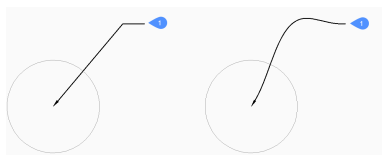
### 9.51.3 Options within the DIMLEADER command

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.

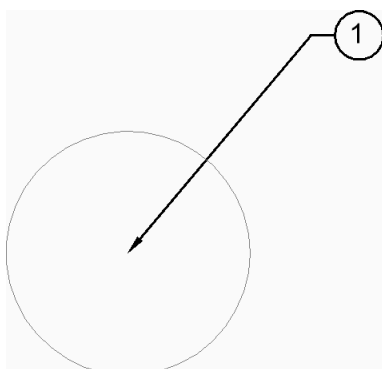
## Dimension text options [Block/Copy/None/Tolerance/MText]

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

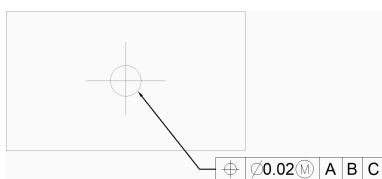
Select an mtext, text, block reference or tolerance entity in the drawing.

### 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.



## 9.52 DIMLINEAR command

Creates a linear dimension.

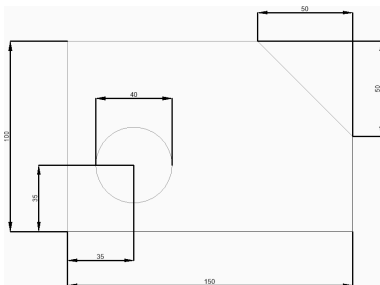
Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: DIMHORIZONTAL, DIMLIN, DIMROTATED, DIMVERTICAL, DLI

### 9.52.1 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.



### 9.52.2 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:

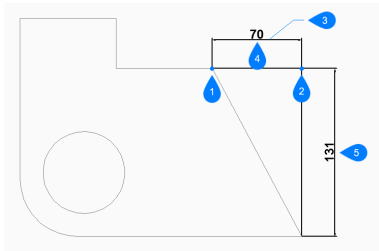
#### Origin of second extension line

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

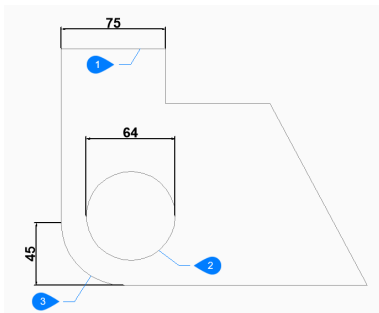
Select a line, polyline segment, arc, or circle to dimension. When selecting a line, the endpoints of the line are used for the extension origins. When selecting an arc, the endpoints of the arc are used for the extension origins. When selecting a circle, the quadrants of the circle are used for the 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

## 9.52.3 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

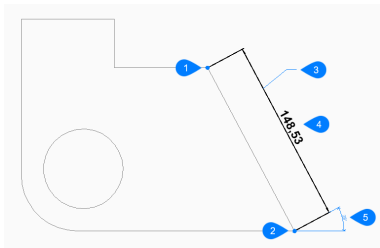
Specify the location of the dimension to place it in the drawing. This creates a vertical dimension regardless of how the endpoints are aligned.

### Rotated

Specify an angle for the dimension then:

#### Location of dimension line

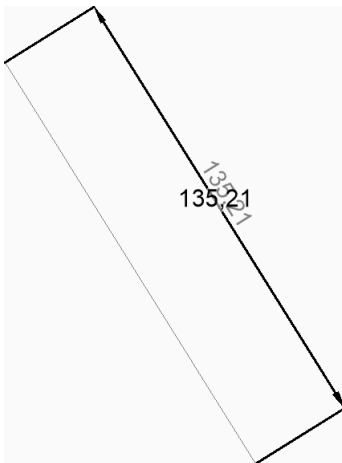
Specify the location of the dimension line. The dimension is rotated from its default (vertical or horizontal) location by the specified angle.



- 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

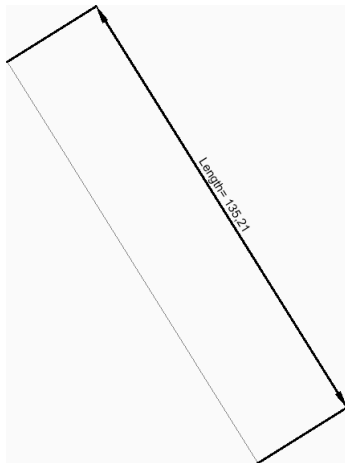
### Angle

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.



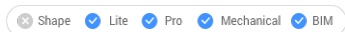
### Text

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.



## 9.53 DIMORDINATE command

Creates an ordinate dimension.

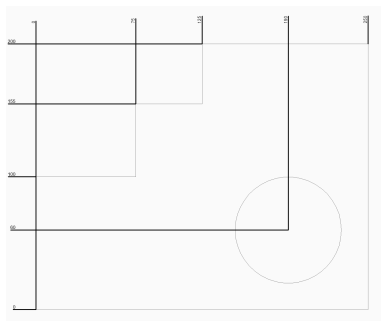


Icon:

Alias: DIMORD, DOR

### 9.53.1 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.



### 9.53.2 Methods to create an ordinate dimension

This command has 1 method to begin creating an ordinate dimension:

- Select point for ordinate dimension

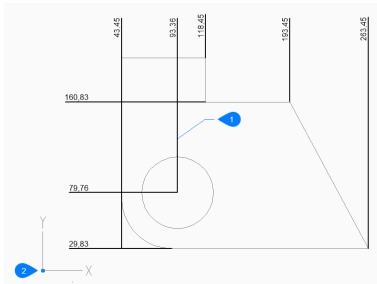
#### Select point for ordinate dimension

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

## 9.53.3 Options within the DIMORDINATE command

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

### **XDatum**

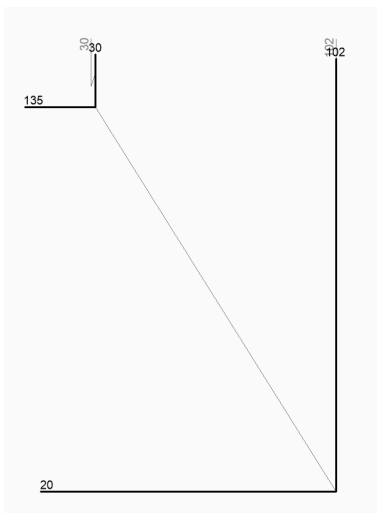
Specify the endpoint for an X ordinate regardless of which direction you drag from the start point.

### **YDatum**

Specify the endpoint for a Y ordinate regardless of which direction you drag from the start point.

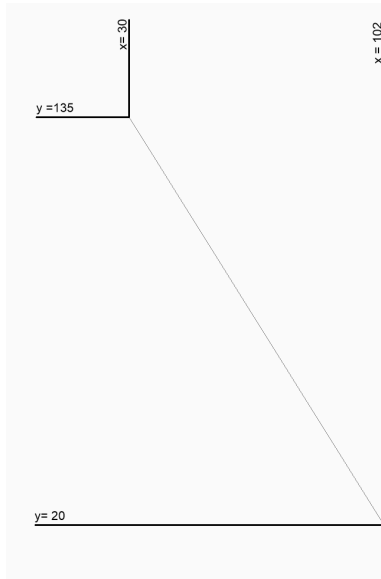
### **Angle**

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.



## 9.54 DIMOVERRIDE command

Overrides the values of the current dimension style.



Alias: DIMOVER, DOV

### 9.54.1 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.

### 9.54.2 Options within the command

#### Clear

Resets the values of dimension variables, clearing the overrides.

## 9.55 DIMRADIUS command

Creates a radial dimension.



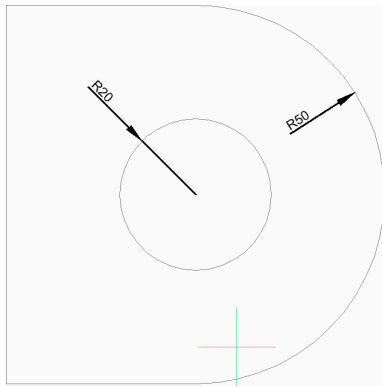
Icon:

Alias: DIMRAD, DRA

### 9.55.1 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.





## 9.55.2 Methods to create a radial dimension

This command has 1 method to begin creating a radial dimension:

- Select arc or circle to dimension

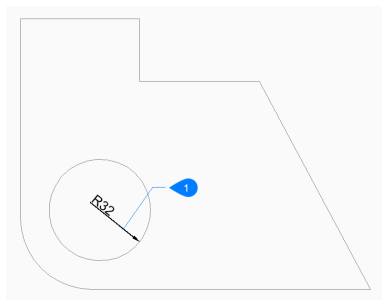
### Select arc or circle to dimension

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]



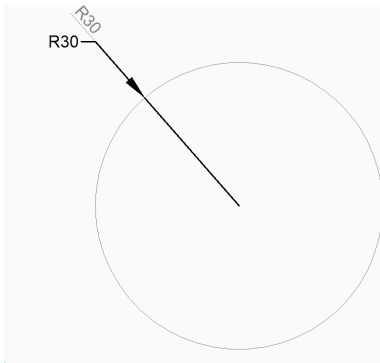
1 Location of dimension line

## 9.55.3 Options within the DIMRADIUS command

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

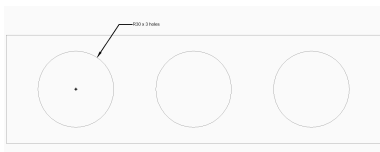
### Angle

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.



## 9.56 DIMREASSOCIATE command

Reassociates or associates dimensions to entities or points on entities.



Icon:

### 9.56.1 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.

### 9.56.2 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.

## 9.56.3 Options

### Disassociated

Prompts to reassociate ALL disassociated dimension entities in the drawing. All disassociated dimensions highlight one by one.

## 9.57 DIMREGEN command

Updates associative dimensions.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 9.57.1 Description

Updates ALL associative dimensions in the drawing file.

## 9.58 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

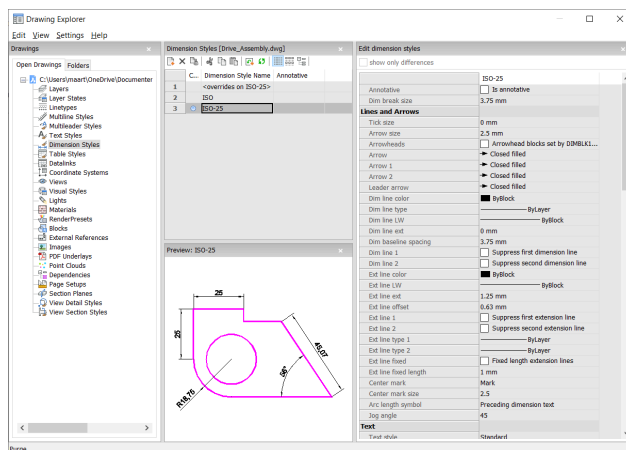
### 9.58.1 Description

Opens the Drawing explorer dialog box with **Dimension Styles** category selected to view and modify dimension styles in the current drawing.

### 9.58.2 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".





### 9.58.3 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.

### 9.58.4 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 LINETYPES 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).

### **Dime 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

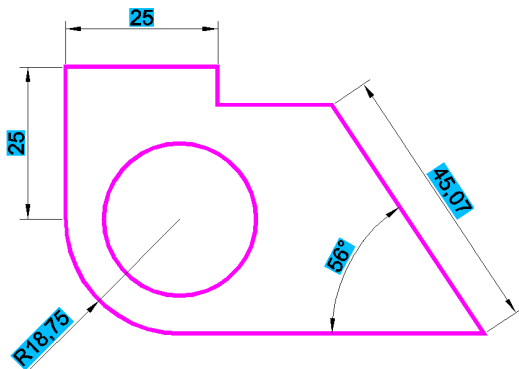
Specifies the color of the text. Click Select color... to select additional color from the Select Color dialog box.



### 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"

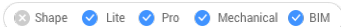
### **Alt tolerance suppress zero inches**

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"

## **9.59 -DIMSTYLE command**

Creates and modifies dimensions styles at the Command line.



Icon:

Alias: -DST

### **9.59.1 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.



### 9.59.2 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.

#### **Status**

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.

## 9.60 DIMSTYLESET command

Reports the current dimension style in the Command line.

Shape Lite Pro Mechanical BIM

### 9.60.1 Method

The name of the current dimension style is also shown in the BricsCAD application window as Current Dimension Style in the Status bar.

## 9.61 DIMTEDIT command

Changes the position of dimension text.

Shape Lite Pro Mechanical BIM

Icon:

Alias: DIMTED

### 9.61.1 Description

Allows you to change the position and angle of the text within a dimension entity.







### 9.61.2 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.

### 9.61.3 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

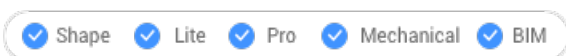
Moves the dimension text next to the right extension line of the dimension, depending on the original positioning of the dimension.

#### REstore

Resets the rotation angle of the dimension text to 0 degrees and does not change repositioned dimension text.

## 9.62 DISH command

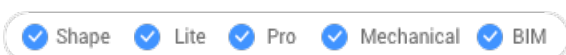
This command is obsolete and exists for backward compatibility only. Use the AI\_DISH command instead.



Icon:

## 9.63 DIST command

Reports the distance and angle between two points.



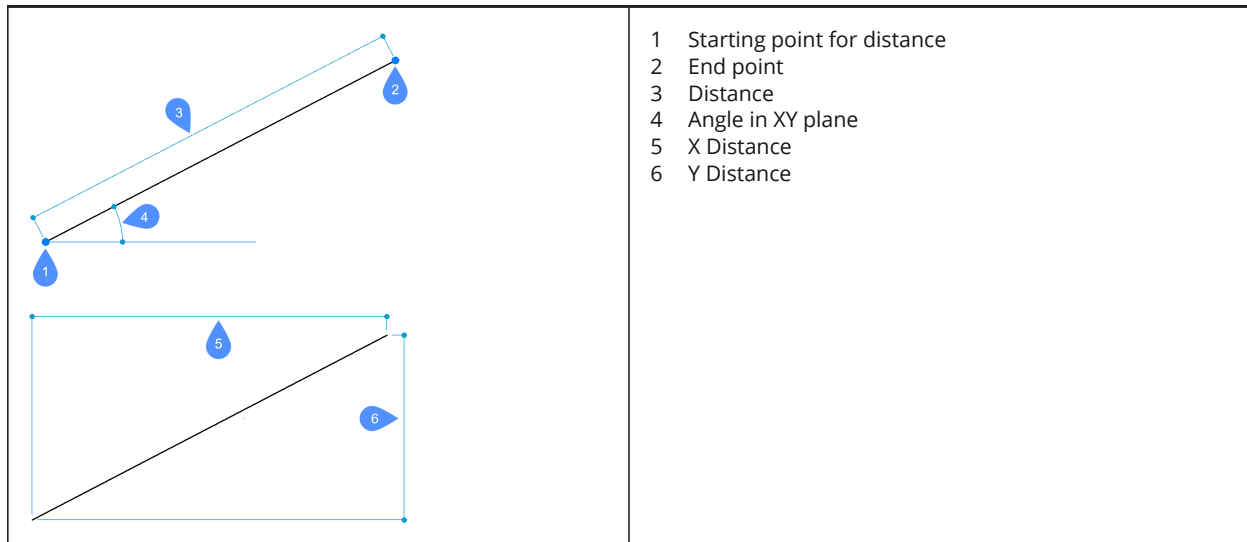
Icon:



Alias: DI

## 9.63.1 Method

The distance can be measured between two points or multiple points.



**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.

## 9.63.2 Options within the command

### Multiple points

Allows to measure the total distance between multiple points.

### Arc

Allows to specify an arc distance.

### Angle

Specify the angle for the arc.

### Radius

Specify the radius of the arc.

### Center

Specify the center of the arc. Hold CTRL key to switch direction.

### Direction

Specify the direction of the arc.

### Line

Allows to specify a line distance.

### Length

Allows to add a distance.

### Undo

Removes the last point.




### Total

Prints the total length in the Command line and concludes the command.

## 9.64 DISTANTLIGHT command

Places distant lights for renderings.



Icon: 

### 9.64.1 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.

### 9.64.2 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.

## 9.65 DIVIDE command

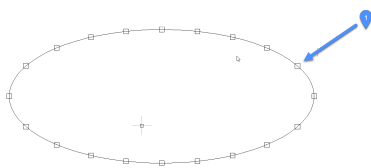
Places a specific number of points or blocks spaced equally along an entity.



Icon:

Alias: DIV

### 9.65.1 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.



### 9.65.2 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

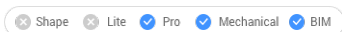
Rotates blocks for them to match the local orientation of the entity, such as along an arc.

#### No – do not align

The blocks maintain their orientation (they do not rotate).

## 9.66 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:

### 9.66.1 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.

### 9.66.2 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.

#### BBlock

Allows you to choose, as an argument, the subentity of the coordinate system of the block. 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 as an argument the subentity of the coordinate system of the block;

### None

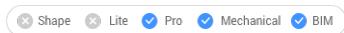
creates Angle constraint instead of Planar Angle constraint, without third argument.

### Geometry-driven

Accepts the current value and creates a geometry-driven constraint.

## 9.67 DMAUDIT command

Analyzes and repairs errors.



Icon:

### 9.67.1 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 DMAUDIT whenever 3D geometry is imported.

### 9.67.2 Methods

There are two methods to audit the drawing by selecting one or more entities or the entire model:

- Check problems
- Fix problems

### 9.67.3 Options within the command

#### Check

Checks the 3D geometry in the drawing for errors without fixing them.

#### Fix

Repairs errors.

#### Settings

Audits the drawing in function of one of the options you select.

#### 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**

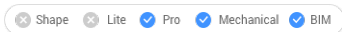
Checks and fixes coincident faces. Requires audit level set to High.

**Nested blocks**

Checks and fixes entities in nested blocks.

### 9.68 DMAUDITALL command

Analyzes and repairs errors in drawings inserted as external references



#### 9.68.1 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.

#### 9.68.2 Method

There are two methods to audit the drawing:

- Check problems.
- Fix problems.

#### 9.68.3 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

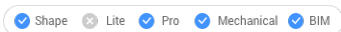
This is the default level.

### Coincident faces

Checks and fixes coincident faces. Requires audit level set to High.

## 9.69 DMCHAMFER command

Creates equal and variable distance chamfers between adjacent faces sharing a sharp edge.



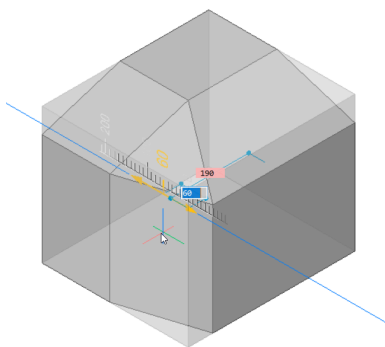
Icons:

### 9.69.1 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.



### 9.69.2 Options

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.

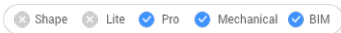
### **VARIABLE aNgular \***

Allows you to specify two pairs of offsets and an angle.

\* Creates a curved chamfer face.

## **9.70 DMCOINCIDENT3D command**

Applies a concentric constraint between two circular subentities of 3D entities.



Icons:

### **9.70.1 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.

### **9.70.2 Options**

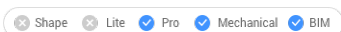
#### **World**

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.

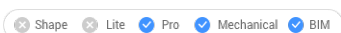
## **9.71 DMCONCENTRIC3D command**



Icon:

## **9.72 DMCONSTRAINT3D command**

Applies geometric and dimensional constraints for 3D entities.





### 9.72.1 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.

Select the subentities between which you will apply a dimensional or geometric constraint.

Press the TAB key to select obscured geometry.

### 9.72.2 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.

#### **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.

#### **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.

#### **Rlgidset**

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

### Enable

Toggles the selected constraint Enable/Disable.

### Value

Type a value in the Command line.

### type a value in the Command line.

Choose whether the parameter is visible and can be modified when the component is inserted in an assembly:

### Auto

The parameter is exposed only if it does not depend on other parameters.

### ON

The parameter is always exposed.

### OFF

The parameter is never exposed.

### Geometry-driven

For parametric constraints, choose whether the constraint is ordinary or geometry-driven.

### Rename

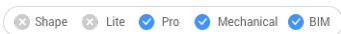
Allows to rename a constraint.


### Delete

Allows to delete a constraint.

## 9.73 DMCOPYFACES command

Copies a feature from a 3D solid.



Icon: 

### 9.73.1 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.



### 9.73.2 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

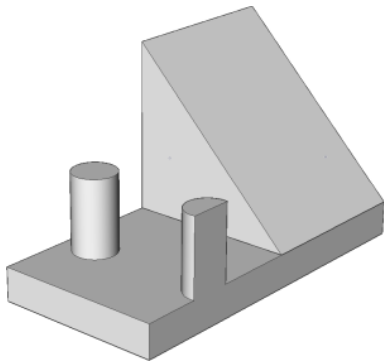
Insert multiple copies of a feature.

#### MDe

Toggles between various cutting options.

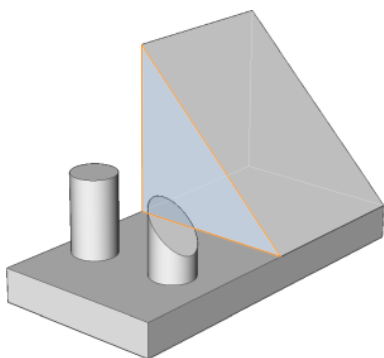
#### Placement Face

Cuts the copied feature so that it suits the placement face.



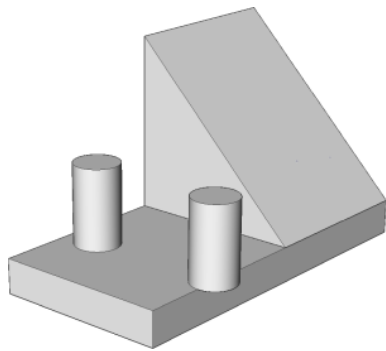
#### Select Faces

Cuts the copied feature so that it suits the selected face.



#### No Cut

Does not cut the copied feature.



## 9.74 DMDEFORMCURVE command

Deforms 3D solids or surfaces by replacing their edges with given curves.

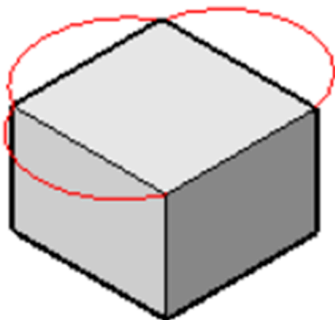
Shape Lite Pro Mechanical BIM

Icon:

### 9.74.1 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.





## 9.74.2 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.

## 9.75 DMDEFORMMOVE command

Deforms 3D solids, surfaces or regions by moving and/or rotating their edges.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

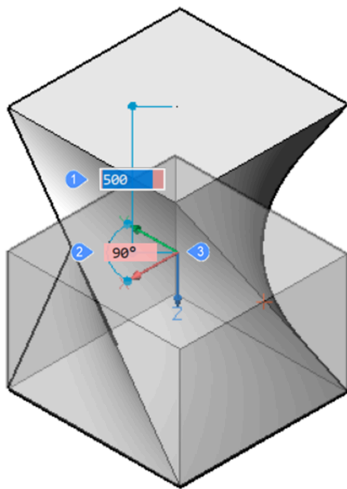
### 9.75.1 Description

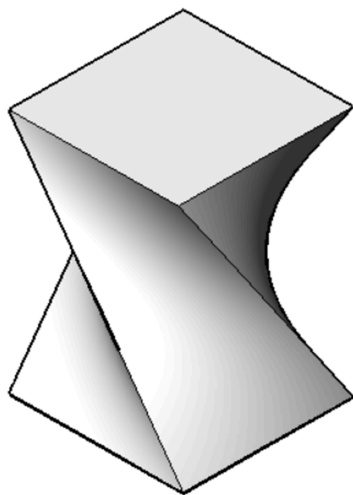
Deforms connected faces of a 3D solid or a surface by moving and/or rotating their edges.

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)

## 9.75.2 Options

### Base point

Allows to specify the base point. The deformation axis passes through the base point.

### Direction

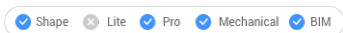
Allows to specify the direction of the deformation axis. You may choose to define the direction by specifying two points in the drawing or choose one of the UCS axis.

### additional Faces

Allows to select additional faces to be deformed, in addition to ones adjacent to the selected edge(s).

## 9.76 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.

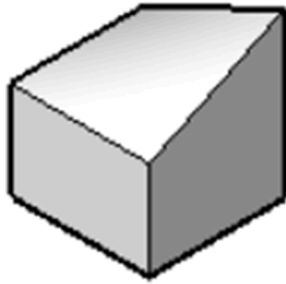
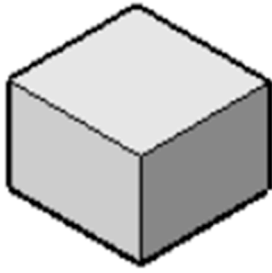


Icon:

### 9.76.1 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.



### 9.76.2 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.

### 9.77 DMDELETE command

Erases entities from the drawing.



Icon:

The DMDELETE command was integrated into the ERASE command.

### 9.78 DMDISTANCE3D command

Applies a distance constraint between two entities.



Icon:

#### 9.78.1 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.

#### 9.78.2 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.



### 9.79 DMEXTRUDE command

Creates 3D solids or surfaces by extruding entities.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 9.79.1 Description

Creates 3D solids or surfaces by extruding opened 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.

#### 9.79.2 Method

There are two methods to extrude entities:

- Create 3D solids.
- Create surfaces.

#### 9.79.3 Options within the command

##### MOde

Allows to create either solids or surfaces.

##### SOLid

Creates 3D solids.

##### SURface

Creates surfaces.

**Note:** DMEXTRUDE does not extrude open 2D entities as 3D solids because they cannot be watertight.

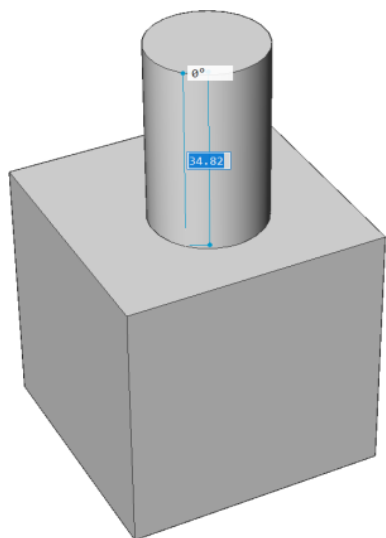
##### Specify height of extrusion

Allows to set a height of extrusion. The extrusion height is measured perpendicularly to the source entity.

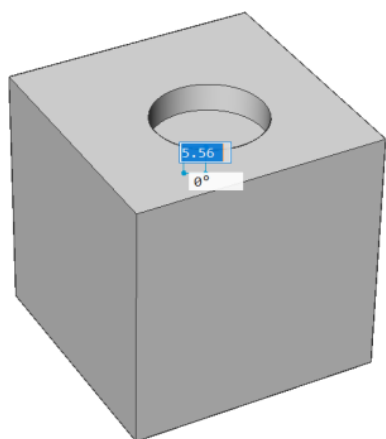
##### Auto

The result depends on the extrusion direction and the value of DMEXTRUDEMODOE system variable.

- When you highlight an entity and extrude it to the outward, a new volume is added.

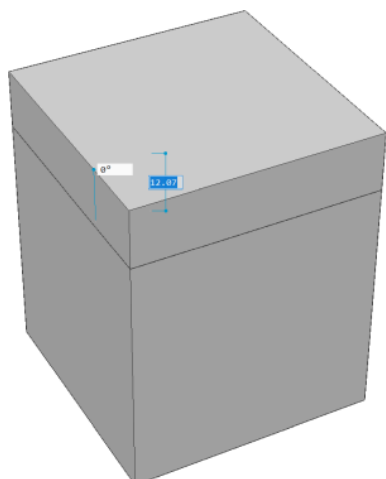


- When you highlight an entity and extrude it to the inward, a volume is subtracted from the main solid.



## Create

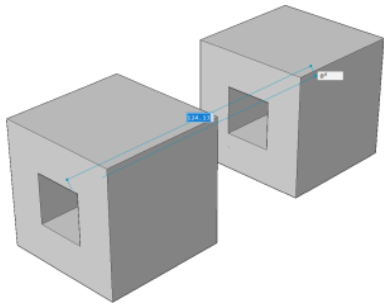
A new volume or surface is created, regardless of the extrusion direction.





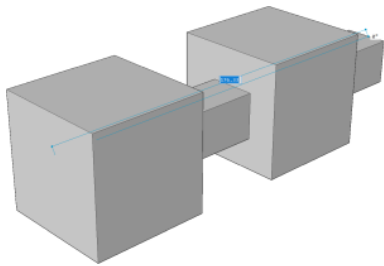
### Subtract

The 3D solid is subtracted from each interfering existing solid.



### Unite

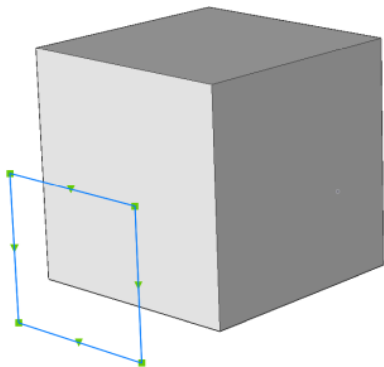
The new 3D solid is unified with each interfering existing solid.



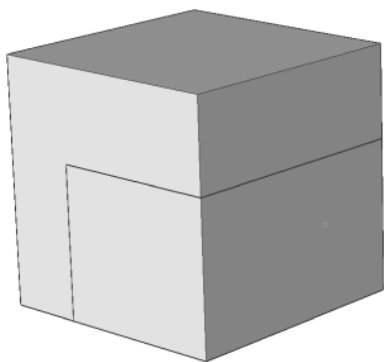
### Slice

Cuts through solids with the extruded surface.

- Select an entity to be extruded.



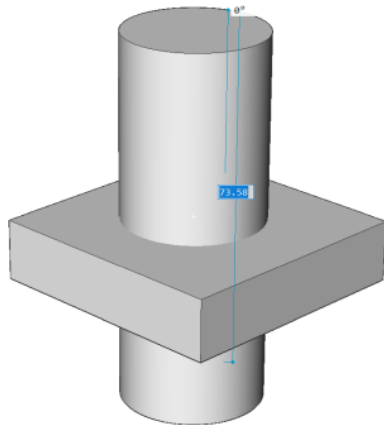
- The extruded surface cuts through solids.





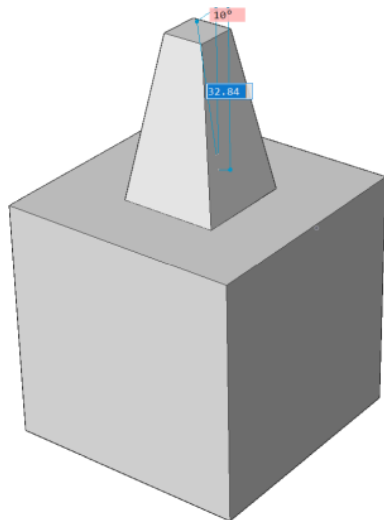
### Both sides

Extrudes symmetrically in both sides.



### Taper angle

Specifies the taper angle for the extrusion. The angle is measured from the extrusion direction. A negative value tapers outwards.



### set Direction

Allows to specify the extrusion direction.

### 2Points

Define the extrusion direction by specifying two points.

### 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

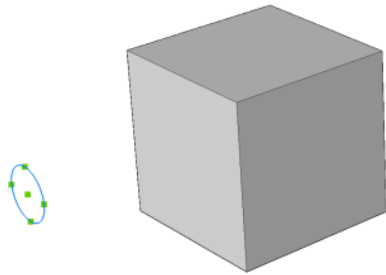
Sets the extrusion direction parallel to the Z axis of the current UCS.



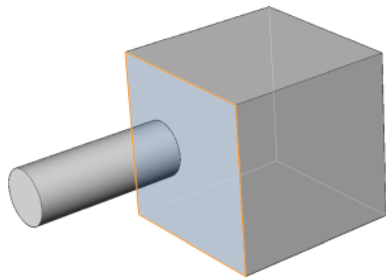
## set Limit

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.



## 9.80 DMFILLET command

Creates a smooth fillet between adjacent faces sharing a sharp edge.

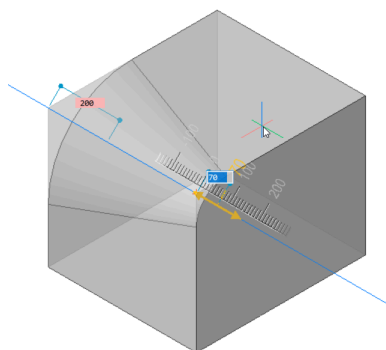


Icon:

### 9.80.1 Description

Creates constant or variable radius fillets between adjacent faces that are sharing a sharp edge. After selecting the edges, you may 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.





### 9.80.2 Options

#### Variable radius mode

Allows to create a variable fillet between adjacent faces that share a sharp edge(s).

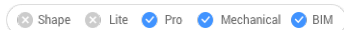
**Note:** All advanced mode fillet procedures start by creating a constant radius fillet, which is then modified by specifying the first, second radius or intermediate points. Before specifying the final value of the radius you can press the TAB key to modify previously specified values.

#### Intermediate radius mode

Allows you to introduce different values for radius for intermediate points.

### 9.81 DMFIX3D command

Applies a fixed constraint to 3D entity.



Icon:

#### 9.81.1 Description

Applies a fixed constraint to a solid or to an edge or a face of a solid.

#### 9.81.2 Options

##### Multiple

Allows to select multiple entities or subentities like:

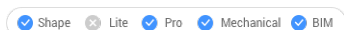
- 3D entities: all faces and edges of the 3D solid or surface will be fixed.
- Faces: the selected faces will be fixed and cannot be moved or rotated.
- Edges: the selected edges will be fixed. The adjacent faces can be rotated, but not moved.

##### BLOCK

Allows you to choose, as an argument, the subentity of the coordinate system of the block.

### 9.82 DMGROUP command

Creates group features, which are named persistent collections of faces and edges of 3D solids and surfaces.



#### 9.82.1 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.



### 9.82.2 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.

### 9.83 DMMOVE command

Moves entities or sub-entities.



Icon:

#### 9.83.1 Description

Moves solids, faces, edges or vertices of a solid or inserts using a vector.

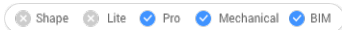
You can select one or more entities. Press Enter to stop selecting. To specify the base and the endpoint you can choose one of the following methods:

- Specify a point by clicking the left mouse button.
- Type a value in the dynamic input field.

The selected geometry moves dynamically.

### 9.84 DMPARALLEL3D command

Applies a parallel constraint between subentities of 3D entities.



Icon:

#### 9.84.1 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.

#### 9.84.2 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.






### 9.85 DMPATH3D command

Allows a point to move along a curve by specifying the curve's parameters.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 9.85.1 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.

#### 9.85.2 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.

### 9.86 DMPERPENDICULAR3D command

Applies a perpendicular constraint between two subentities of two 3D entities.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 9.86.1 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.

#### 9.86.2 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.

### 9.87 DMPUSHPULL command

Adds or removes volume from a solid by moving highlighted faces.

✓ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

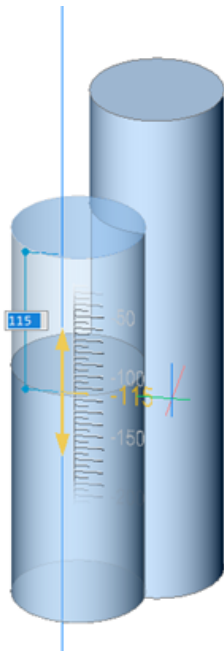


### 9.87.1 Description

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.

### 9.87.2 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 pushpulled 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.

### 9.88 DMRADIUS3D command

Applies a radius constraint to circular 3d entities or subentities.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 9.88.1 Description

Applies a radius constraint to circular edges, cylindrical surfaces, spheres and tori by indicating the radius value or using geometry-driven.

#### 9.88.2 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 may constrain the rotation radius or/and the tube radius.

Press the TAB key to select obscured geometry.

#### 9.88.3 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.

### 9.89 DMREPAIR command

Analyzes and repairs errors.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

**Note:** The DMREPAIR command has been replaced by the DMAUDIT command.

### 9.90 DMREVOLVE command

Creates 3D solids or surfaces by revolution of open or closed 2D entities or regions about an axis.

✓ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icons:



### 9.90.1 Description

Creates a 3D solid or 3D surface by revolving open or closed 2D entities, regions about an axis.

There are three methods to use DMREVOLVE command:

- Select a region.
- Select a closed 2D entity.
- Select a face of a solid.

**Note:** Closed boundaries in the XY-plane of the current coordinate system or on the face of a solid are recognized automatically if the Select detect boundaries option of the SELECTIONMODES system variable is active.

**Note:** The available entities/ subentities for selection depends on the type of the resulting 3D entity: 3D Solid or 3D Surface. Any 2D and 3D entity can be used as a source if the resulting 3D entity does not intersect itself.

**Note:** The selected entities are revolved dynamically.

### 9.90.2 Options

#### Mode

Allows to create either solids or surfaces.

#### Select entities/subentities to revolve

Depending on the value of the DELOBJ (Delete Object) system variable, the defining entities are either retained or deleted or you are prompted whether to keep or delete the source entities.

#### Select a linear (sub)entity as axis

Select a line or an edge of a solid.

**Note:** Edges of a solid can only be selected if the Edges option of the SELECTIONMODES system variable is set.

#### 2Points

Indicate the start point of the axis or press Enter to accept the origin point of the current UCS.

Indicate the end point of the axis or press Enter to set the axis parallel to the view direction (= perpendicular to the screen).

#### Xaxis

Uses the x axis of the current UCS.

#### Yaxis

Uses the y axis of the current UCS.

#### Zaxis

Uses the z axis of the current UCS.

**Note:** Other options available through the HOTKEYASSISTANT. Repeatedly press the Ctrl key during the dynamic display of the extrusion to cycle the various options:

#### Auto

The result depends on the extrusion direction of the 3D solid and the value of the DMEXTRUDEMOMODE system variable. Move the mouse to specify the angle direction.



### Create

Regardless of the revolving direction, a new 3D solid is created.

### Subtract

The 3D solid is subtracted from each interfering existing solid.

### Unite

The new 3D solid is unified with each interfering existing solid.

### Both sides

Revolves in both directions.

**Note:** If HOTKEYASSISTANT system variable is ON the Hotkey Assistant widget displays:

Solid mode:



- : Auto
- : Create
- : Subtract
- : Unite

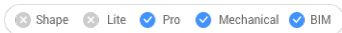
Surface mode:



- : Auto
- : Create

## 9.91 DMRIGIDSET3D command

Allows to define a set of entities or subentities as a rigid body.



Icon:

### 9.91.1 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.

### 9.91.2 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.

## 9.92 DMROTATE command

Rotates the selected geometry around an axis.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

### 9.92.1 Description

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.

### 9.92.2 Method

There are two methods to select a rotation axis:

- Select any linear entity in the model. To do that:
  - 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.
- Define axis by choosing between: 2Points, Xaxis, Yaxis, Zaxis.

### 9.92.3 Options within the command

#### Start

Starts the rotation of the selected entity. It automatically selects a rotation axis if the cursor is over a planar face.

#### Select axial entity

Allows you to select any linear entity in the model as the rotation axis.

#### Define axis

Allows you to choose a method to define the axis.

#### 2Points

Define the axis by specifying two points.

#### 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.



### Pick start point of rotation

Allows you to pick a start point of rotation after selecting an axis.

### Specify rotation angle

Specify the rotation dynamically or type a value.

### Triangulation

Rotates a vertex with triangulation of adjacent faces.

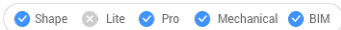
### Rotate

Rotates a vertex without triangulation of adjacent faces.

**Note:** If the HOTKEYASSISTANT system variable is set on, press Ctrl key to cycle between the two rotation methods.

## 9.93 DMSELECT command

Selects edges and faces of 3D solids or surfaces based on their geometric properties.



### 9.93.1 Description

Allows to select a group of faces, which form a geometric feature, such as a protrusion, a depression, a blend, or a blend network. You can combine different options of this command, e.g. select all blends, which radius is less than given value. Select the faces or edges of which characteristics will be considered as pattern for the selection set.

### 9.93.2 Options

#### Selection

Allows to select a set of subentities:

#### sUbsset

Only faces/edges in the subset will be selected.

#### Sample

The preselected set of faces/edges should be considered as samples, of which the geometric characteristics (length, area, radius) will be used as parameters for the selection.

#### sEed

The preselected set of faces /edges should be considered as seed elements for the selection of features such as blends, blend networks, protrusion or depressions.

#### 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.

### Exclude short fillets

Excludes short fillets from the selection, which might be useful when working with imported sheet metal parts.

Then choose between:

### Current sample

To use 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.

### Blend

Selects blends.

### blend Network

Selects blend networks.

## 9.94 DMSELECTEDGES command

Selects the edges of faces and solids.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

### 9.94.1 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.

## 9.95 DMSIMPLIFY command

Simplifies the geometry and topology of 3d solid entities.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

### 9.95.1 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.

### 9.95.2 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.

## 9.96 DMSIMPLIFYALL command

Simplifies the geometry in solids, within drawings inserted as external references.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 9.96.1 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.

### 9.96.2 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.

## 9.97 DMSTITCH command

Converts a set of region and surface entities that bound a watertight area to a 3d solid.

✓ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

### 9.97.1 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.



### 9.97.2 Options

#### MDe

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.

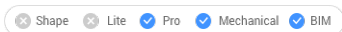
#### Tolerances

Type a value or accept Auto.

**Note:** The selected validation mode is stored and re-used for future calls of the command.

## 9.98 DMTANGENT3D command

Applies a tangent constraint between circular subentities of 3D entities.



Icon:

### 9.98.1 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.

### 9.98.2 Options

#### WOrld

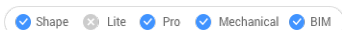
Allows you to select the WCS subentity as an argument.

#### BLock

Allows you to choose as an argument the subentity of the coordinate system of the block.

## 9.99 DMTHICKEN command

Creates 3D solids by thickening surfaces, their faces, faces of 3D solids, regions and wire entities.



Icon:



## 9.99.1 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.

## 9.99.2 Options

### Single side

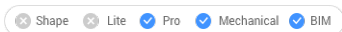
Adds the thickening in the specified direction.

### Both sides

Adds thickening in both directions.

## 9.100 DMTHREAD command

Creates threads on cylindrical faces, which are represented according to drafting standards in drawing views.



Icon:

### 9.100.1 Description

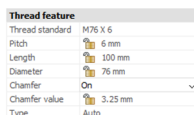
Creates a thread feature in the model that is represented according to drafting standards in drawing views or section view created with VIEWBASE and VIEWSECTION commands.

**Note:** This command can be entered transparently during commands with 'dmthread'.

### 9.100.2 Method

Selecting a cylindrical face and specifying the pitch and length values a thread feature will be created, that will be represented according to drawing 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.

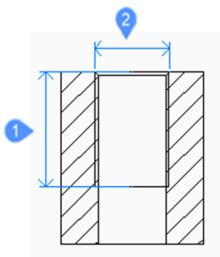
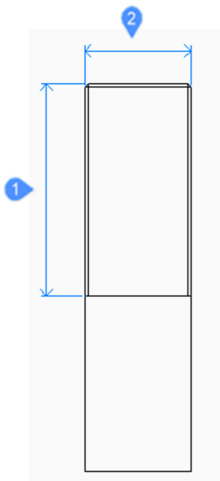


**Note:** Male and female thread types are supported.

**Note:** This command operates only in Model Space.



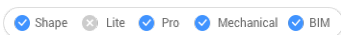
Below you can see the result of VIEWBASE and VIEWSECTION commands.



- 1 Length
- 2 Diameter

### 9.101 DMTWIST command

Twists a portion of an entity around an axis.



Icon:

#### 9.101.1 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.

#### 9.101.2 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.

#### 9.101.3 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

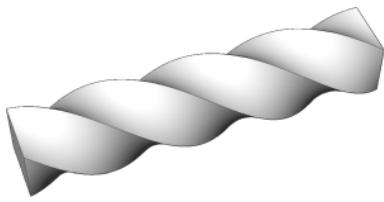
Specify an angle dynamically or type a value.

### Continuity

Allows to control whether the transition between the deformed and non-deformed part is sharp or smooth.

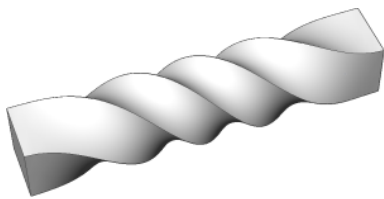
#### G0

No continuity.



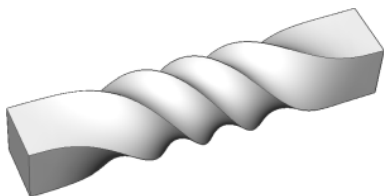
#### G1

Tangent faces.



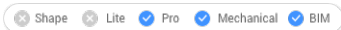
#### G2

Curvature continuity.



## 9.102 DMUPDATE command

Forces 3d constraints to update.



Icon:

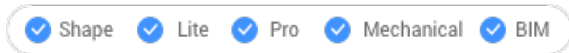
### 9.102.1 Description

Updates all 3d constraints applied to all 3D entities existing in the drawing.



## 9.103 DOME command

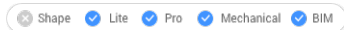
This command is obsolete and exists for backward compatibility only. Use instead the AI\_DOME command.



Icon:

## 9.104 DONUT command

Creates a closed polyline in the shape of a donut.

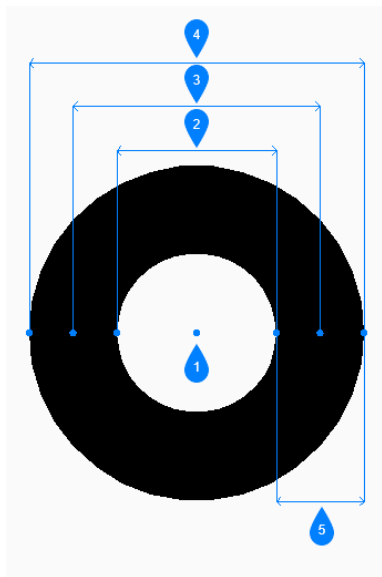


Icon:

Alias: DO, DOUGHNUT

### 9.104.1 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



### 9.104.2 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

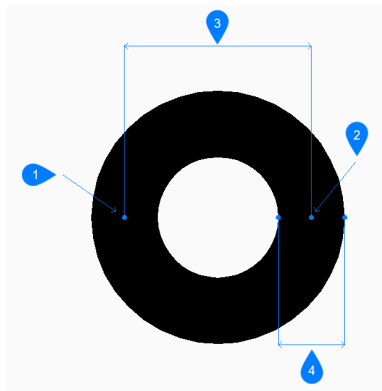
Begin creating a donut by specifying its width then:

#### 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

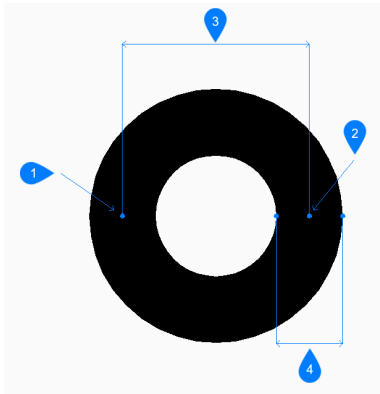
Specify the second point on the circumference of the imaginary circle.





### 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

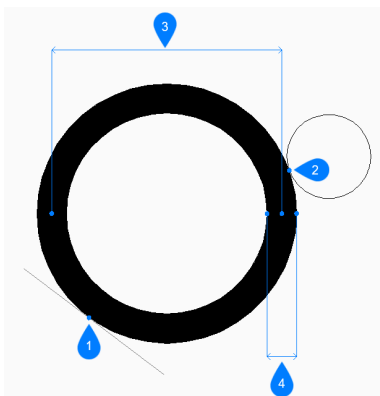
Select a tangent point on the second entity.

#### 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.

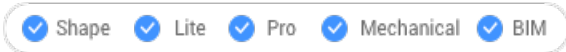


- 1 Tangent point 1
- 2 Tangent point 2
- 3 Diameter
- 4 Width



### 9.105 DRAG command

Moves 3D solids.



Icon:

#### 9.105.1 Description

Moves 3D solids perpendicular to a selected face by dragging that face. Optionally preserves connections to other solids.

#### 9.105.2 Method

After selecting one or more planar face(s):

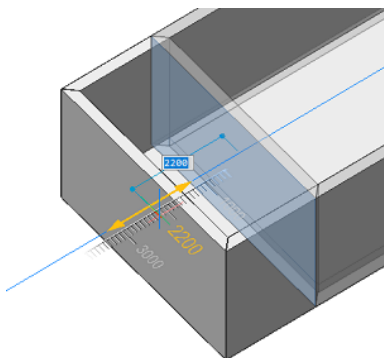
- Type a value in the dynamic distance field.

**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.



#### 9.105.3 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.

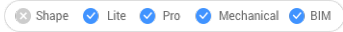


Optionally the Hot Key Assistant can be toggled On, from the status bar, to display the current used connectivity mode.

**Note:** If the Hot Key Assistant is not displayed, right click on the toggle button and check its configuration.

### 9.106 DRAGMODE command

Controls the appearance of objects.



#### 9.106.1 Description

Controls the appearance of the objects while being dragged. The command is no longer necessary and is kept only for compatibility.

#### 9.106.2 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.

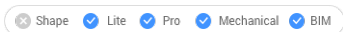
##### Auto

Turns on DRAGMODE.

**Note:** Dragged objects are always shown.

### 9.107 DRAWORDER command

Changes the display order of overlapping entities.



Icon:

Alias: DR

#### 9.107.1 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.

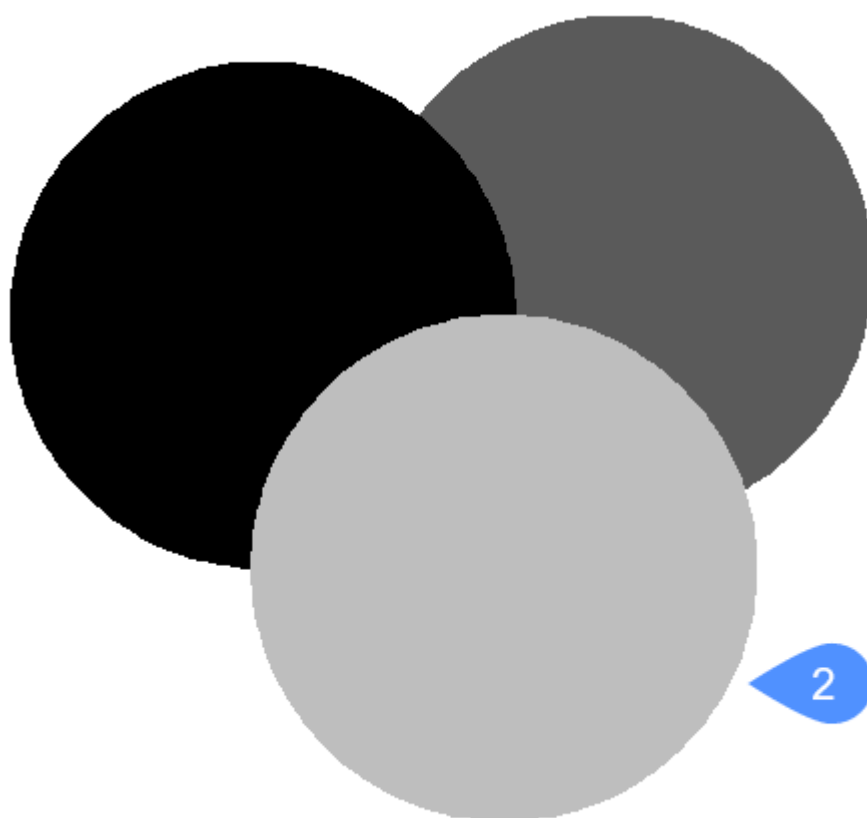
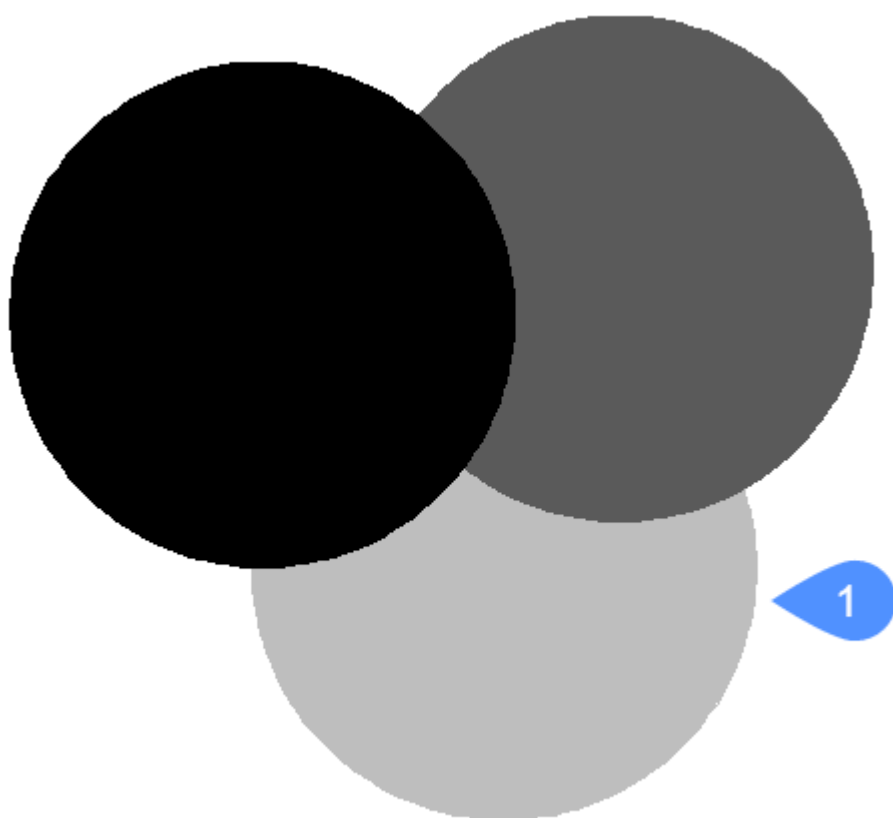
**Note:** Hatches and text entities in BricsCAD already have handy commands controlling their display order: HatchToBack places all hatching below all other entities, and TextToFront displays all text above all entities.



### 9.107.2 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





### 9.107.3 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).

### 9.108 DRAWORDERBYLAYER command

Opens the Open layer list file dialog box.

Shape Lite Pro Mechanical BIM

#### 9.108.1 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.

### 9.109 DSETTINGS command

Opens the Settings dialog box.

Shape Lite Pro Mechanical BIM

Alias: DDRMODES, RM

#### 9.109.1 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.

### 9.110 DTEXT command

Creates a single-line text entity.

Shape Lite Pro Mechanical BIM

Alias: DT

See the TEXT command.


### 9.111 DUMPSTATE command

### 9.112 DVIEW command

Changes the 3D viewpoint interactively and turns on perspective mode (short for "dynamic view").



Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

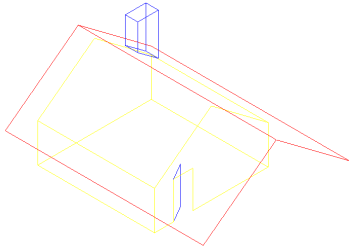
Icon: 

Alias: DV

**Note:** The PERSPECTIVE system variable toggles the perspective property of a view.

## 9.112.1 Method

Select entities or use DVIEWBLOCK that displays the below built-in 3d block .



## 9.112.2 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).

## 9.113 DWFOUT command

Saves the drawing in DWF and other formats.



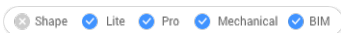
### 9.113.1 Description

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](http://www.autodesk.com/designreview).

## 9.114 DWGCODEPAGE command

Changes the language code for text in drawings.



### 9.114.1 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.





## 9.115 DWGCOMPARE command

Compares a selected drawing with the current drawing.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 9.115.1 Description

Compares a selected drawing with the current drawing, showing the differences between the two.

### 9.115.2 Method

The Open drawing file dialog box is displayed. Select a drawing with which to compare the current drawing.

The command looks for differences in the same entities between the current drawing and the drawing opened for comparison.

BricsCAD reports in the Command line if any differences have been found.

When the program finds differences, entities are shown in these colors:

- Entities added - green (color is set by variable CMPCLRNEW).
- Entities removed - red (set by variable CMPCLRMISS).
- Entities changed in the original drawing - gray (by variable CMPCLRMOD1).
- Entities changed in the comparison drawing - yellow (variable CMPCLRMOD2).

**Note:** The colors are set by the Settings dialog box. Search for variables that begin with CMPCLR.

As well, you can see a list of differences in the Structurepanel. Open it with theSTRUCTUREPANELcommand and ensure the Default CST configuration file is loaded. Expand theComparisonnode in the Structure panel.



**Note:** The ENDCOMPARE command unloads the comparison drawing.

### 9.115.3 Options within the command

#### Limit

Sets the limit on how many entities to compare in the drawing.

## 9.116 DWGPROPS command

Opens the Drawing properties dialog box.

☒ Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

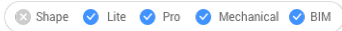


### 9.116.1 Description

Opens the Drawing properties dialog box to view and modify drawing properties.

### 9.117 DXFIN command

Opens the Load DXF file dialog box.

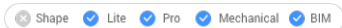


#### 9.117.1 Description

Opens the Load DXF file dialog box to select a dxf file to import into the current drawing.

### 9.118 DXFOUT command

Opens the Select DXF file dialog box.



Alias: DX

#### 9.118.1 Description

Opens the Select DXF file dialog box to save data from the current drawing to a dxf file.

#### 9.118.2 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

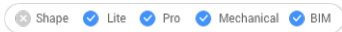
Specifies the DXF version number. If unspecified, the dxf file is exported to the most current version. Exporting to an older version can cause some entities or properties to be lost.



## 10. E

### 10.1 EATTEDIT command

Edits attributes contained in a single block.



Icon:

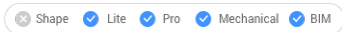
Alias: ATE

#### 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

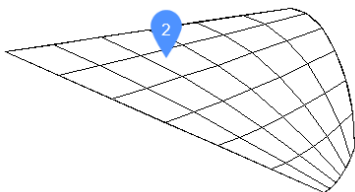
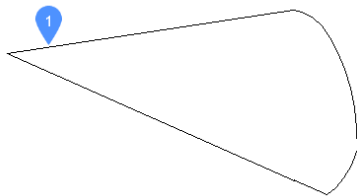
Creates 3D polygon mesh patches between four linear entities (short for “edge-defined surface”).



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:

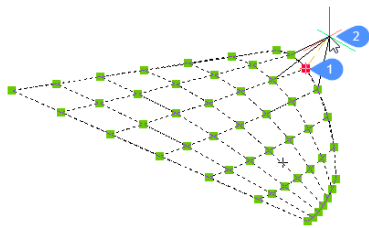
- Linear: open entities, such as lines, arcs, open splines, and open polylines.
- Connected: touching or overlapping, so that they form a closed area.

#### 10.2.2 Grips Editing

Edge meshes can be edited directly through grips:

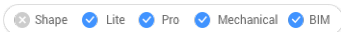


Drag a grip (1) to stretch (2) the adjacent faces.



## 10.3 EDITEDATA command

Edits extended entity data.



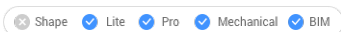
Icon:

### 10.3.1 Method

Select an entity to display the Create or Edit Entity Data dialog box.

## 10.4 ELEV command

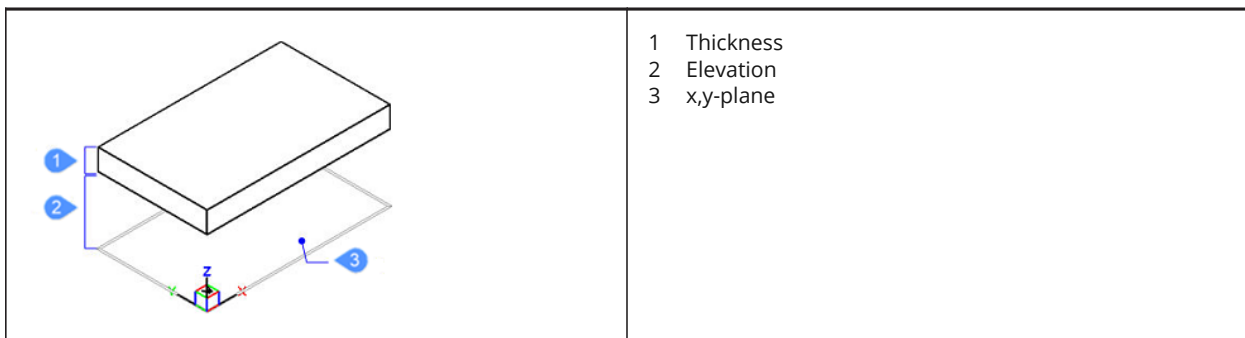
Changes the elevation and thickness of selected objects.



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.



### 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.

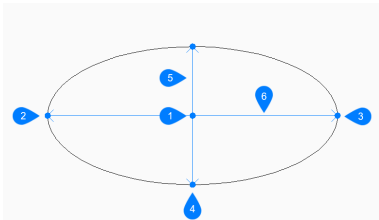
Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

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

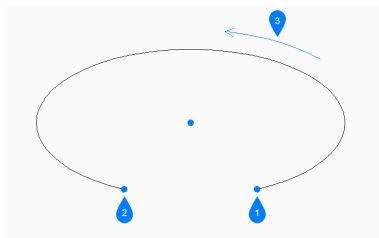
Specify the start angle to define the arc's starting point. The angle is measured counter-clockwise from the positive x-axis.

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.

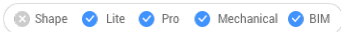
#### Rotation

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

## 10.7 ENDCOMPARE command

Exits a drawing that was in comparison mode.



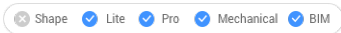
Icon:

### 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.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

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.

✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

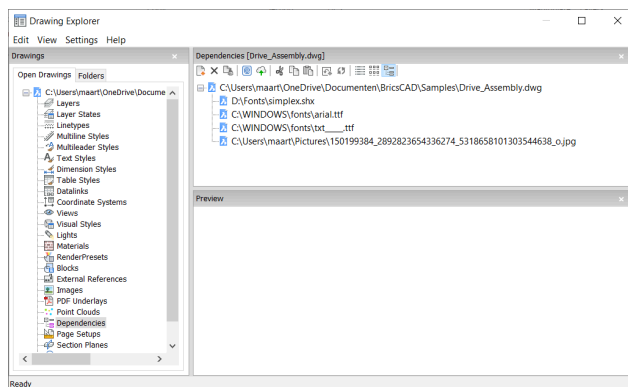
Icon: @

### 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

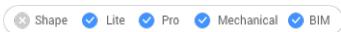
Add another drawing to the eTransmit procedure. The File dialog box opens to let you choose another drawing.

##### 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

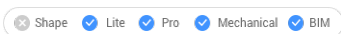
Specifies how files are organized into folders.

##### File list

Determines which files are included in the transmittal package.

### 10.12 EXECUTETOOL command

Repeats the last tool used from the Tool palettes panel.





## 10.13 EXPBLOCKS command

Opens the **Blocks** category of the Drawing explorer dialog box for inserting, deleting, and creating blocks.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

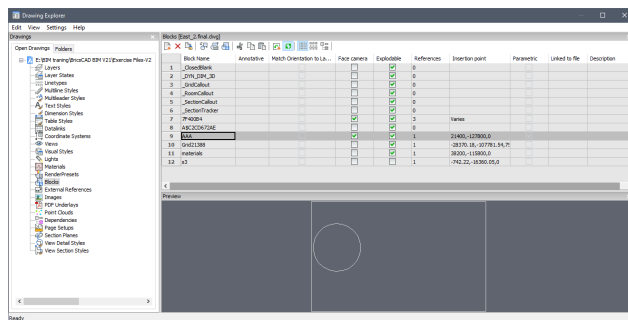
Icon:

Alias: XB

**Note:** Non-Uniformly scaled blocks can be exploded only if EXPLMODE system variable is ON.

### 10.13.1 Description

Displays the Blocks category of the Drawing explorer dialog box:



### 10.13.2 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.

## **10.13.3 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.

## **10.14 EXPFOLDERS command**

Opens the Drawing explorer dialog box with the **Folders** tab selected.

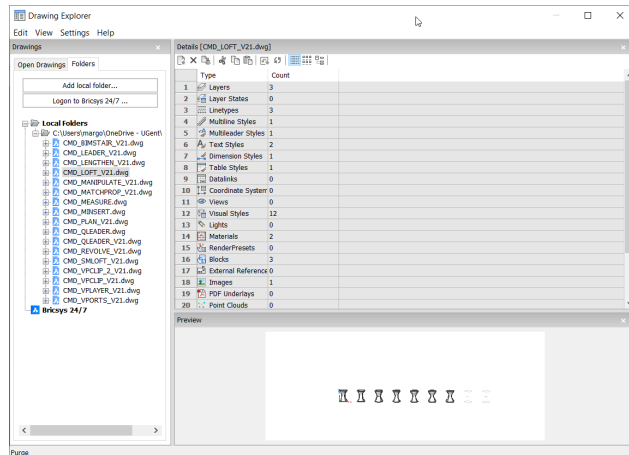


Shape Lite Pro Mechanical BIM

Icon:

## 10.14.1 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.

## 10.14.2 Context Menu Options

### Select All

Selects all items.

### Invert selection

Deselects the current selection and vice versa.

## 10.14.3 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.

## 10.15 EXPIMAGES command

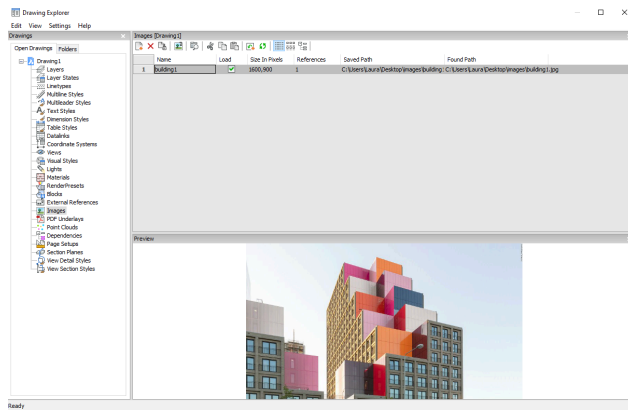
Opens the Drawing explorer dialog box with **Images** selected.

Shape Lite Pro Mechanical BIM

Icon:

## 10.15.1 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

## 10.15.2 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.

## 10.15.3 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.

## 10.16 EXPLAYERS command

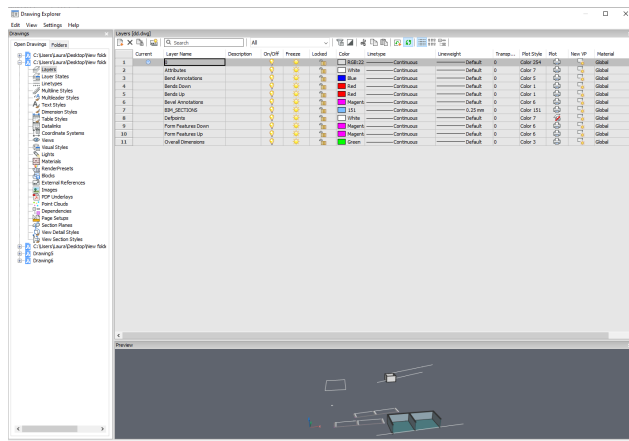
Opens the Drawing explorer dialog box with **Layers** selected.



Icon:




### 10.16.1 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.

## 10.16.2 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.

## **10.16.3 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

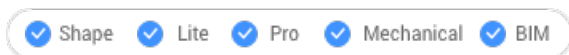
Pastes the copied or cut group, including its layers.

### Convert to Group

Converts a property filter to a group filter.

## 10.17 EXPLODE command

Reduces complex entities to simpler ones.



Icon:

Alias: X

### 10.17.1 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.

### 10.17.2 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.

### 10.18 EXPLORER command

Opens the Drawing explorer dialog box.

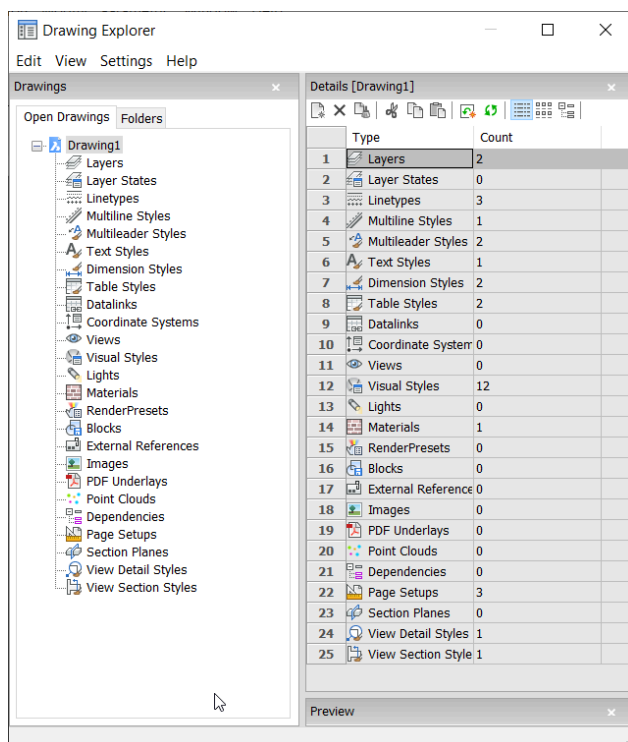


Icon:

#### 10.18.1 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.





### 10.18.2 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 changes

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.

### 10.18.3 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.

## 10.19 EXPORT command

Opens the Export drawing as dialog box.



Icon:



Alias: DWFOUT, EXP

### 10.19.1 Description

Opens the Export drawing as dialog box to save data from the current drawing to a variety of file formats.

## 10.20 EXPORTLAYOUT command

Opens the Export layout to drawing dialog box.



### 10.20.1 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.

## 10.21 EXPORTPDF command

Opens the Export drawing as dialog box.



Icon: 

### 10.21.1 Description

Open the Export drawing as dialog box to save data from the current drawing to a PDF file.

## 10.22 EXPPDFS command

Attaches PDF files as underlays to the current drawing through the Drawing Explorer.

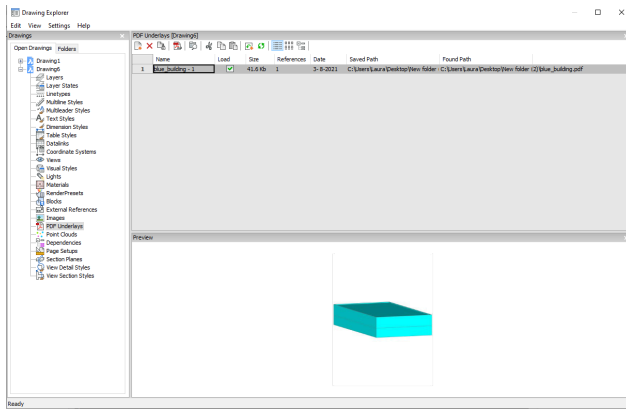


Icon: 

**Note:** To import PDF files as drawing entities, use the PDFIMPORT command.

### 10.22.1 Description

Displays the PDF Underlays category of the Drawing explorer dialog box:



## 10.22.2 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 were 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.

## 10.22.3 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.

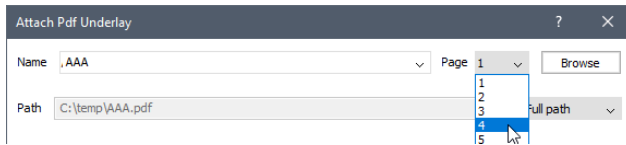
### Purge

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 cash

Clear Cache for pdfs.

## Relative path

Shows the Saved Path as a relative path.

## Absolute path

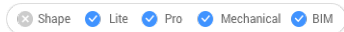
Shows the Saved Path as an absolute path of the PDF file located in the drawing folder.

## Filename as a path

Replaces the saved path with the file name.

## 10.23 EXPUCS command

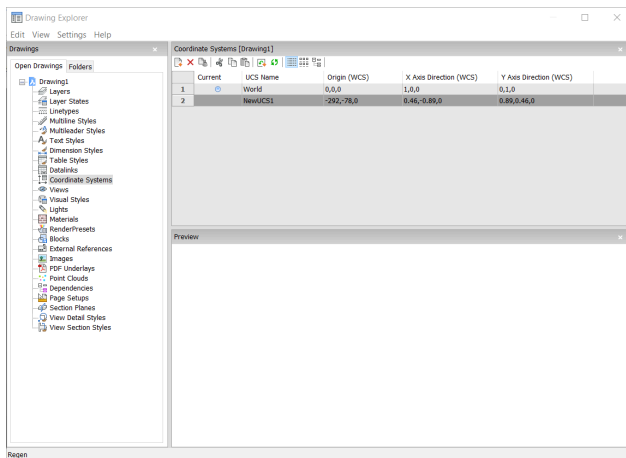
Creates, renames and deletes named UCS's trough the Drawing explorer dialog box.



Alias: DDUCS, UC

### 10.23.1 Description

Open the Drawing explorer dialog box on the Coordinate systems category:





### 10.23.2 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.

### 10.23.3 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.

## 10.24 EXPXREF command

Combines several xref-related commands through the Drawing explorer.



Icon:

### 10.24.1 Description

This command attaches DWG files to the current drawing and controls the state of the attachments (short for "external reference").

**Note:** The XDWFADCTL system variable sets the fading of external references. Values between 0 (no fading) and 90 are accepted.

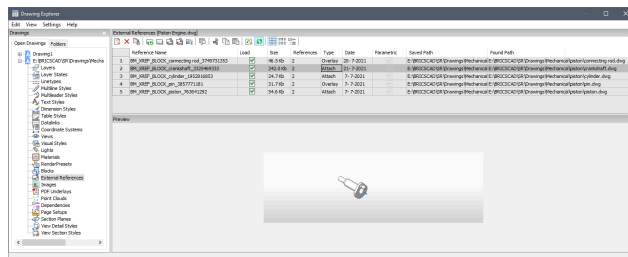




**Note:** The BINDTYPE variable system influences the behavior of the Bind option of the -XREF command.

## 10.24.2 Method

Displays the External Reference section of the Drawing explorer:



## 10.24.3 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.



### 10.24.4 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 variable system 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

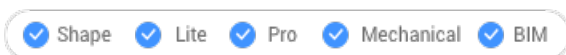
Shows the Saved Path as an absolute path of the PDF file located in the drawing folder.

#### Filename as a path

Replaces the saved path with the file name.

## 10.25 EXTEND command

Extends or trims one or more open entities to a boundary entity.



Icon:

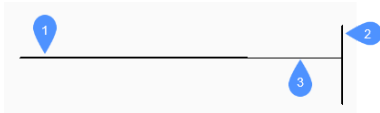
Alias: EX



### 10.25.1 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.

### 10.25.2 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.

## 10.26 EXTENSION command

Toggles the Extension entity snap.



Icon:



## 10.26.1 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.

## 10.27 EXTRUDE command

Extrudes 2D entities to 3D entities.



Icon:

Alias: EXT

### 10.27.1 Description

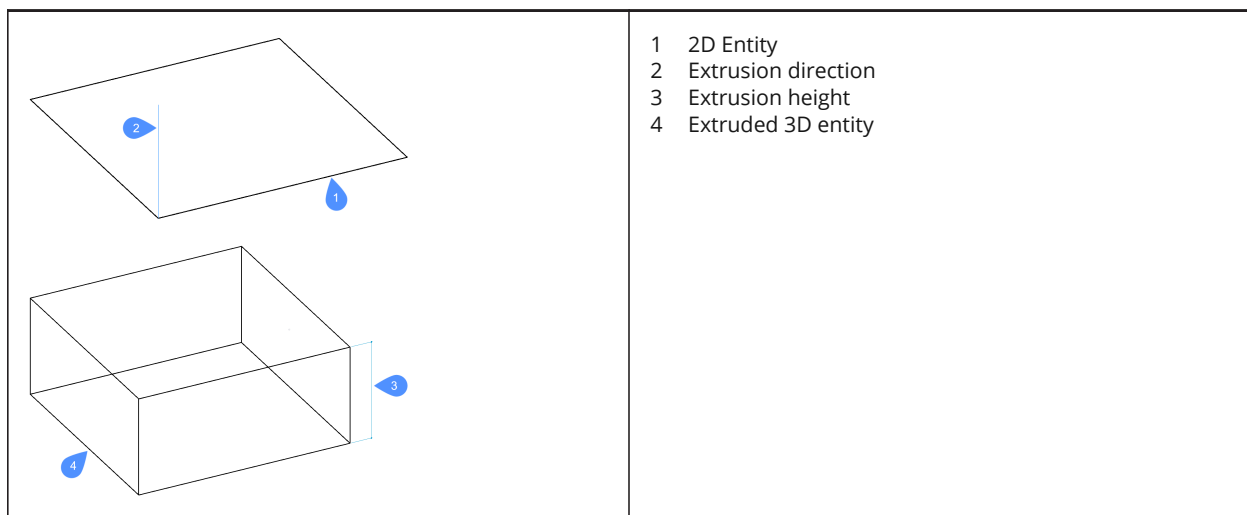
Creates 3D solids or surfaces by extruding opened or closed 2D entities.

**Note:** 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.

### 10.27.2 Method

There are two methods to extrude entities:

- Create 3D solids.
- Create surfaces.



### 10.27.3 Options within the command

#### Mode

Determines how 2D entities are extruded.



### **SOLID**

Creates 3D solids.

### **SURFACE**

Creates surfaces.

### **Specify height of extrusion**

Allows to set a height of extrusion. The extrusion height is measured perpendicularly to the source entity.

### **Direction**

Sets the extrusion direction (up or down) and height at the same time.

### **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.

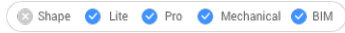
**Note:** The angle must be shallow enough so that the sloping sides do not intersect after the top of the extrusion.



## 11. F

### 11.1 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.

#### 11.1.1 Method

There are two methods to export to FBX format:

- Export all visible entities.
- Export only the selected entities.

#### 11.1.2 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.

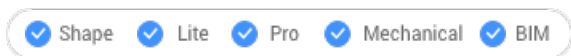
##### Enter path to export fbx file:

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.

### 11.2 -FBXEXPORT command

Exports 3D entities in the current drawing to FBX format.





See the FBXEXPORT command.

### 11.3 FIELD command

Opens the Field dialog box.



Icon:

#### 11.3.1 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

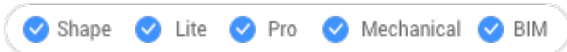
Specify the height of the field text.

##### Justify

Specify a justification for the field text.

### 11.4 FILEOPEN command

Opens files from the Command line.



#### 11.4.1 Description

Opens drawing (DWG), template (DWT), and interchange (DXF) files from the command line, replacing the current drawing.

#### 11.4.2 Options within the command

##### Save the changes to drawing file?

Specifies whether the current drawing should be saved or not.

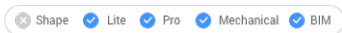
##### Open Drawing

Type the name of the drawing, including path.

**Note:** Enter ~ to display the Open Drawing dialog box.

### 11.5 FILES command

Opens the operating system's file manager to access files.



### 11.6 FILL command

Toggles the FILLMODE system variable.



Shape Lite Pro Mechanical BIM

## 11.6.1 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

## 11.7 FILLET command

Fillets intersections; joins intersecting lines with an arc of any suitable radius.

Shape Lite Pro Mechanical BIM

Icon:

Alias: F

### 11.7.1 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.

### 11.7.2 Options

#### 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
Fillet radius	10 mm
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.

## **11.8 FIND command**

Opens the Find and replace dialog box.



Icon:

### **11.8.1 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.

## **11.9 FITARC command**

Fits arcs to entities.



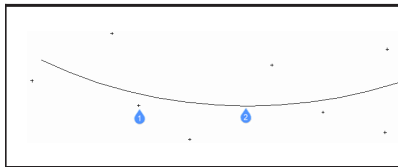
### **11.9.1 Description**

Draws an arc fitted to at least two entities. The command minimizes accumulated perpendicular distances to the points of the selected entity(ies). The command works with every type of entity, even text.

### **11.9.2 Method**

There are two methods to begin fitting an arc to entities:

- Select fitting entities: choose at least two entities to which the arc should be fitted.
- Use entire drawing: chooses all non-frozen entities in the current viewport.



- 1 Points used by the command to fit the arc.
- 2 Arc fitted to the points.

## 11.9.3 Options within the command

### use Entire drawing

Use all entities in the drawing as input.

### Delete initial entities

Deletes the selected entities.

## 11.10 FITLINE command

Fits lines to entities.



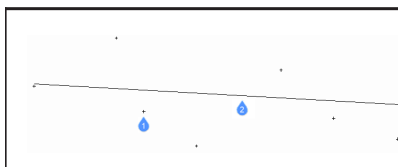
### 11.10.1 Description

Draws a line fitted to one or more entities. The command minimizes accumulated perpendicular distances to the points of the selected entity(ies). The command works with every type of entity, even text.

### 11.10.2 Method

There are two methods to begin fitting a line to entities:

- Select fitting entities - choose the entities to which the line should be fitted.
- use Entire drawing - choose all non-frozen entities in the current viewport.



- 1 Points used by the command to fit the line.
- 2 Line fitted to the points.

## 11.10.3 Options within the command

### use Entire drawing

Use all entities in the drawing as input.

### Delete initial entities

Deletes the selected entities.

## 11.11 FLATSHOT command

Opens the Flatshot dialog box.



Icon:

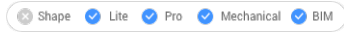


### 11.11.1 Description

Opens the Flatshot dialog box to create a flattened, hidden line representation of a 3D model as a block or a new drawing.

### 11.12 FLATTEN command

Flattens 2D and 3D entities.



Icon:

#### 11.12.1 Description

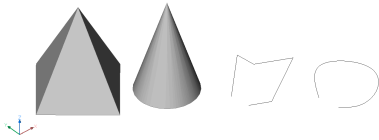
Flattens 2D and 3D entities by projecting them onto the XY-plane of the current view.

**Note:** The PERSPECTIVE system variable must be set to 0.

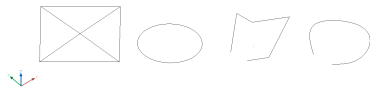
#### 11.12.2 Method

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 (WCX 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.

#### 11.12.3 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.

### 11.13 FROM command

This command is obsolete.



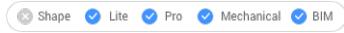
Use Entity snap tracking instead.



## 12. G

### 12.1 GCCOINCIDENT command

Creates a coincident geometric constraint on 2D entities.



Icon:

#### 12.1.1 Description

Creates a coincident constraint to ensure a point on an entity remains coincident with a specified point or entity.

#### 12.1.2 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.

#### 12.1.3 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.

### 12.2 GCCOLINEAR command

Creates a colinear geometric constraint on 2D entities.





Icon:

### 12.2.1 Description

Creates a colinear constraint to ensure two or more linear entities remain colinear.

### 12.2.2 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.

## 12.3 GCCONCENTRIC command

Creates a concentric geometric constraint on 2D entities.



Icon:

### 12.3.1 Description

Creates a concentric constraint to ensure two circular or elliptical entities remain concentric.

### 12.3.2 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:

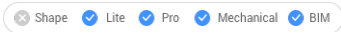
#### Select second entity

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.



## 12.4 GCENTER command

Toggles the Geometric center entity snap.



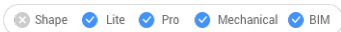
Icon:

### 12.4.1 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.

## 12.5 GCEQUAL command

Creates an equal geometric constraint on 2D entities.



Icon:

### 12.5.1 Description

Creates an equal constraint to ensure circular entities maintain equal radii or linear entities maintain equal lengths.

### 12.5.2 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.



### 12.6 GCFIX command

Creates a fixed geometric constraint on 2D entities.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 12.6.1 Description

Creates a fixed constraint on a point or entity to maintain its position in the drawing.

#### 12.6.2 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.

### 12.7 GCHORIZONTAL command

Creates a horizontal geometric constraint on 2D entities.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

#### 12.7.1 Description

Creates a horizontal constraint to ensure a linear entity or pair of points remains parallel to the x-axis.

#### 12.7.2 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:

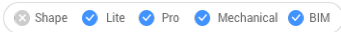
Specify the second point to make horizontal to the x-axis. The first point maintains its position while the second point moves to become horizontal with the first point.





### 12.8 GCPARALLEL command

Creates a parallel geometric constraint on 2D entities.



Icon:

#### 12.8.1 Description

Creates a parallel constraint to ensure linear entities remain parallel to each other.

#### 12.8.2 Methods to create a parallel constraint

This command has 1 method to create a parallel constraint:

- Select first entity

##### Select First Entity

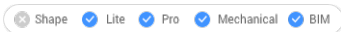
Begin creating a parallel constraint by selecting a linear entity then:

##### 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.

### 12.9 GCPERPENDICULAR command

Creates a perpendicular geometric constraint on 2D entities.



Icon:

#### 12.9.1 Description

Creates a perpendicular constraint to ensure linear entities remain perpendicular to each other.

#### 12.9.2 Methods to create a perpendicular constraint

This command has 1 method to begin creating a perpendicular constraint:

- Select first entity

##### Select First Entity

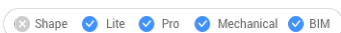
Begin creating a perpendicular constraint by selecting a linear entity then:

##### 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.

### 12.10 GCSMOOTH command

Creates a smooth geometric constraint on 2D entities.



Icon:



### 12.10.1 Description

Creates a smooth constraint to ensure two splines maintain fluid geometric continuity between them.

### 12.10.2 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

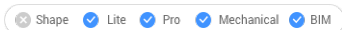
Begin creating a smooth constraint by selecting a spline curve then:

#### 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.

## 12.11 GCSYMMETRIC command

Constrains a symmetric geometric constraint on 2D entities.



Icon:

### 12.11.1 Description

Creates a symmetric constraint to ensure two entities remain symmetric with respect to a selected line.

### 12.11.2 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.



### 12.12 GCTANGENT command

Creates a tangent geometric constraint on 2D entities.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

#### 12.12.1 Description

Creates a tangent constraint to ensure curved entities remain tangent to another curved or linear entity.

#### 12.12.2 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.

### 12.13 GCVERTICAL command

Creates a vertical geometric constraint on 2D entities.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

#### 12.13.1 Description

Creates a vertical constraint to ensure a linear entity or pair of points remains parallel to the y-axis.

#### 12.13.2 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:

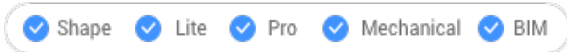
##### Select Second Point:

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.



### 12.14 GENERATEBOUNDARY command

Generates a closed polyline or spline around the boundary of a flat, closed area.



Icon:

#### 12.14.1 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.

#### 12.14.2 Method

Select a planar enclosed point to generate a boundary by picking a point inside one of the following entities:

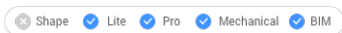
- Closed planar area
- Planar face on a 3D solid; to select the face of a 3D solid hold down the Ctrl key.
- Hatch pattern

The resulting boundary are:

- Polyline - when the boundary is polygonal (has corners, like a square)
- Spline - when the boundary is curved, like a spline.

### 12.15 GEOGRAPHICLOCATION command

Opens the Geographic location dialog box.



Icon:

Alias: GEO

#### 12.15.1 Description

Opens the Geographic location dialog box to apply a longitude and latitude to a point in the current drawing.

### 12.16 GEOIMPORT command

Imports a drawing with respect to the geographic location.



#### 12.16.1 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.



## 12.16.2 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).

## 12.17 GEOMCONSTRAINT command

Applies geometric relationships between entities, on entities, and on valid constraint points.

Shape Lite Pro Mechanical BIM

### 12.17.1 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

### 12.17.2 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.

## 12.18 GOTOSTART command

Displays the Start Tab.



### 12.18.1 Description

Opens or activates the Start Tab.

### 12.18.2 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.

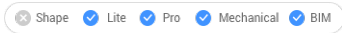
- Access the Third-Party Application catalog on the Bricsys website.




**Note:** Internet access is required.

### 12.19 GRADIENT command

Opens the Hatch and gradient dialog box.



Icon: 

#### 12.19.1 Description

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

### 12.20 -GRADIENT command

Fills closed areas with a gradient fill.



#### 12.20.1 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.

#### 12.20.2 Method

There are two methods to fill in gradients:

- Single color
- Two colors

#### 12.20.3 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 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 CETRANSPPARENCY system variable.

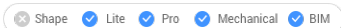
**Note:** The transparency value for new hatches is saved by the HPTRANSPARENCY system variable.

### **Undo**

Removes selected boundaries from the selection.

## **12.21 GRADIENTBKGOFF command**

Turns off the background gradient.

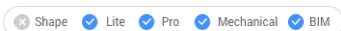


### **12.21.1 Description**

Turns off the background gradient colors (used by all visual styles, except for 2D Wireframe) to display the default background color.

## **12.22 GRADIENTBKGN command**

Turns on the background gradient.



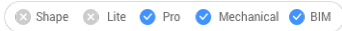


### 12.22.1 Description

Turns on the background gradient colors, which are used by all visual styles (except for 2D Wireframe).

### 12.23 GRADING command

Creates a graded surface on existing topo surfaces.



Icon:

#### 12.23.1 Description

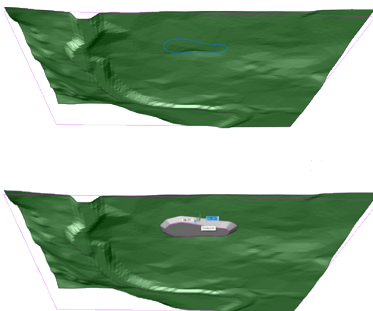
Creates a graded surface between a selected entity and a TIN surface or an offset or slope graded surface from a selected entity. Select the entity to define a graded surface, select the target TIN surface to create a graded surface and move the mouse to adjust the slope of the grading.

#### 12.23.2 Options

##### sLOpe/offset

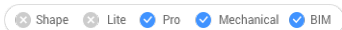
Sets either the slope or offset option of the grading.

**Note:** The offset-slope projection method requires input entity, offset, and slope.



### 12.24 GRADINGBALANCE command

Balances grading cut and fill volumes.



Icon:

#### 12.24.1 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.

### 12.25 GRAPHSCR command

Switches to the graphic screen.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

## 12.25.1 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.

## 12.26 GRID command

Toggles the display of the grid and sets some of its properties.

✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

Alias: G

### 12.26.1 Method

Specify the grid spacing value. It makes the x and y grid spacing the same.

### 12.26.2 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.

## 12.27 GROUP command

Opens the Entity grouping dialog box.

✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

### 12.27.1 Description

Opens the Entity grouping dialog box to view and manage named groups of entities in the current drawing.

## 12.28 -GROUP command

Creates and modifies groups of entities.

✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM



### 12.28.1 Description

Creates and modifies named groups of entities at the Command line.

### 12.28.2 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**

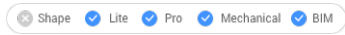
Creates new groups.




## 13. H

### 13.1 HATCH command

Opens the Hatch and gradient dialog box.



Icon: 

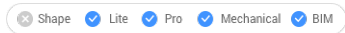
Alias: BH, H

#### 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**

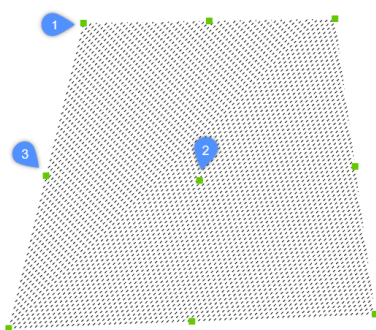
Applies the current transparency value as defined by the CETRANSPPARENCY system variable.

**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

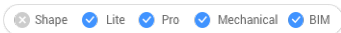
Converts arc segments to line segments.

#### convert to ARc

Converts line segments to arc segments.

## 13.6 HATCHGENERATEBOUNDARY command

Generates a boundary around a hatch or gradient fill.



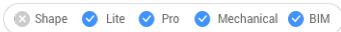
Icon:

### 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.

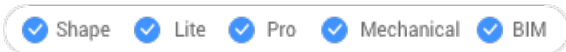


Icon:

**Note:** This command selects all hatch patterns in the current drawing automatically.

## 13.8 HELIX command

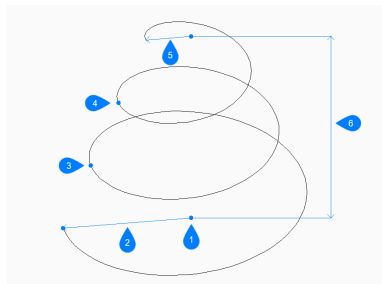
Creates a 2D spiral or a 3D helix.



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.

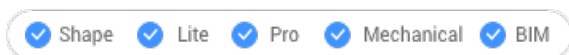


### 13.10.1 Description

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.



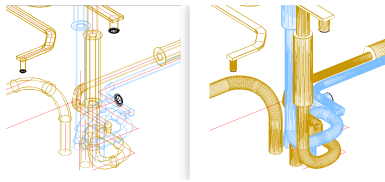
Icon: 

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.

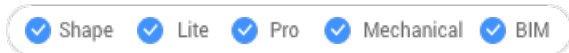
Displays no prompt in the Command line; the program immediately removes hidden lines.



**Note:** To return to wireframe display, change the visual style to 2D Wireframe.

## 13.12 HIDEOBJECTS command

Hides selected entities.

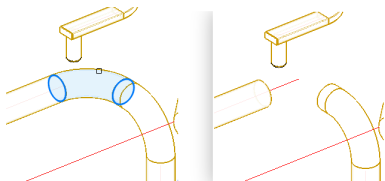


Icon:

### 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.

## 13.13 HYPERLINK command

Links entities and web pages.



### 13.13.1 Description

Links selected entities with fields and web pages through 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

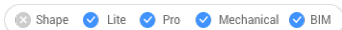
Describes the hyperlink.

#### 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

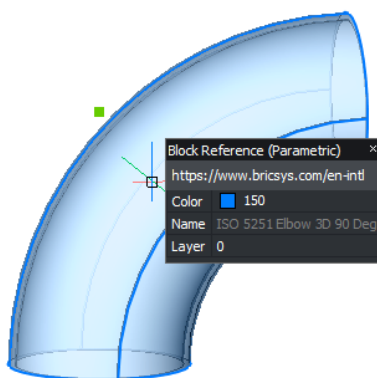
Toggles the display of the hyperlink cursor and URL tooltip and adds Hyperlink to the shortcut menu.

#### 13.15.2 Options within the command

##### Display hyperlink cursor, tooltip and shortcut menu

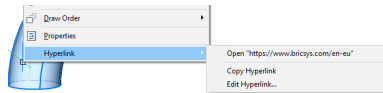
Toggles the display of the "hyperlink" icon, tooltip displaying the URL, and the Hyperlink sub-menu on shortcut menus.

**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

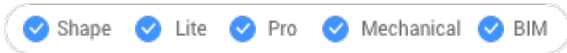
Opens the Edit Hyperlink dialog box.



## 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.



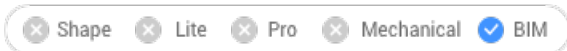
#### 14.2.1 Method

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.



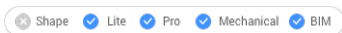
#### 14.3.1 Description

Exports a BIM model to IFC, partially or entirely.

**Note:** Select the entities to be exported or press Enter to export the entire model.

### 14.4 IMAGE command

Opens the Attachments panel.



Icon:

Alias: IM



### 14.4.1 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.

## 14.5 IMAGEADJUST command

Adjusts the properties of images through the Properties panel.



Alias: IAD

Keyboard Shortcuts: **click the image frame**

### 14.5.1 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

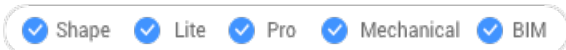
#### Fade

Fades the image:

- 0 - no fade
- 100 - fully faded

## 14.6 -IMAGEATTACH

Attaches raster images to the drawing.



### 14.6.1 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.





### 14.6.2 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

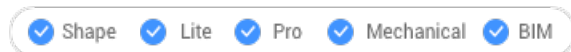
Specifies the scale factors for the X and Y directions independently.

#### Rotation angle

Specifies the rotation angle.

## 14.7 IMAGEATTACH command

Opens the Select image file dialog box.



Icon:

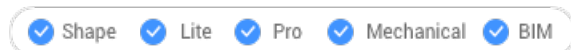
Alias: IAT

### 14.7.1 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.

## 14.8 IMAGECLIP command

Clips images with rectangular or polygonal shapes.



Icon:

Alias: ICL



### 14.8.1 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').

### 14.8.2 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

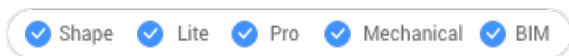
Undraws the last polygonal segment.

#### Rectangular

Creates a rectangular clipping boundary.

## 14.9 IMAGEFRAME command

Toggles the IMAGEFRAME system variable.



Icon:

### 14.9.1 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.

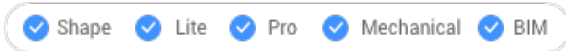
- 0: sets the IMAGEFRAME system variable to 0.
- 1: sets the IMAGEFRAME system variable to 1.



- 2: sets the IMAGEFRAME system variable to 2.

### 14.10 IMAGEQUALITY command

Specifies the display quality of attached images.



Icon:

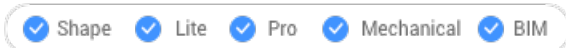
#### 14.10.1 Description

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.

### 14.11 -IMPORT command

Imports geometry from external files at the command prompts.



**Note:** This command opens all file formats supported by the IMPORT command.

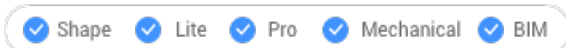
#### 14.11.1 Method

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.

### 14.12 IMPORT command

Opens the Import file dialog box.



Icon:

Alias: IMP

#### 14.12.1 Description

Opens the Import file dialog box to select a supported file type to import into the current drawing.

### 14.13 IMPRINT command

Imprints 2D entities onto planar faces of 3D solids and surfaces to create additional edges.



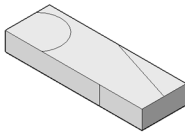
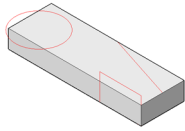
Icon:



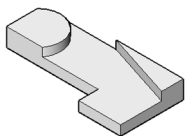
**Note:** Use dynamic UCS (DUCS) to draw on the faces of 3D objects (UCSDETECT system variable =1).

### 14.13.1 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.



### 14.14 INSERT command

Opens the Insert block dialog box.



Icon:

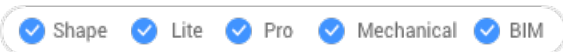
Alias: DDINSERT, I

#### 14.14.1 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.

### 14.15 -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



### 14.15.1 Description

Inserts blocks through prompts in the Command line. And prompts for attribute values, if any are part of the block definition.

### 14.15.2 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).

### 14.15.3 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.

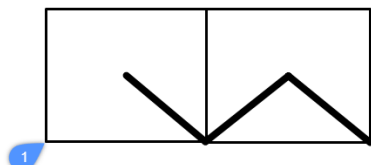
**Note:** If necessary, press F2 key to view the full list; see TEXTSCR command. You must restart the - INSERT command to insert the block.

#### ~ to open the file dialog

Displays the Insert Block dialog box . Choose a DWG or DXF file and open it.

#### insertion point (1)

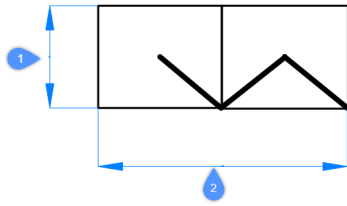
Specify the X-, Y- and Z- coordinates or pick a point for the block's insertion point (lower left corner). The Z coordinate is typically left at 0 for 2D blocks.



#### 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.

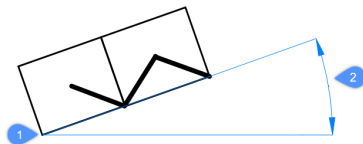
### Z scale

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.

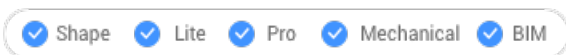
### Corner

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.

## 14.16 INSERTALIGNED command

Inserts blocks aligned to entities.



Alias: INSAL

### 14.16.1 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.



## 14.16.2 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

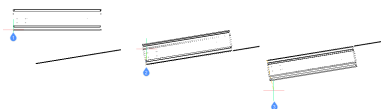
Moves the cursor in order to flip the block about its insertion point.

### 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

## 14.17 INSERTION command

Toggles the Insertion entity snap.



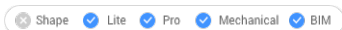
Icon:

### 14.17.1 Description

Toggles the Insertion 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.

## 14.18 INSERTOBJ command

Opens the Insert object dialog box.



Alias: IO

### 14.18.1 Description

Opens the Insert object dialog box to insert an OLE object into the current drawing.



### 14.19 INTERFERE command

Shows volumes and areas of interference between two sets of ACIS entities.

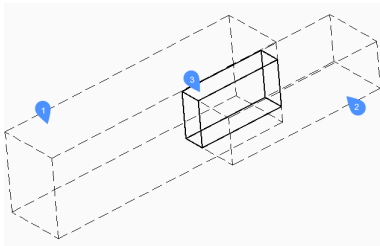
Shape Lite Pro Mechanical BIM

Icon:

Alias: INF

**Note:** This command can be entered transparently ('interfere) during the commands.

#### 14.19.1 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 Platinum 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.

#### 14.19.2 Options

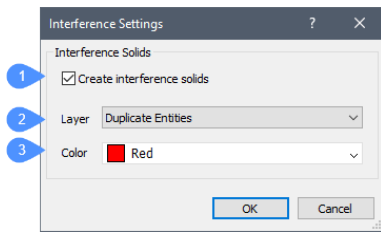
##### Nested selection

Selects ACIS entities inside blocks or xrefs.

##### Settings

Displays a dialog box:





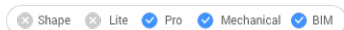
- 1 Create interference solids - when ticked on, makes new solids from the interference area or volume.
- 2 Layer - specifies the layer on which interference entities are created. Default = layer stored in INTERFERELAYER system variable. Do not select a layer of selected entities as it is considered 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

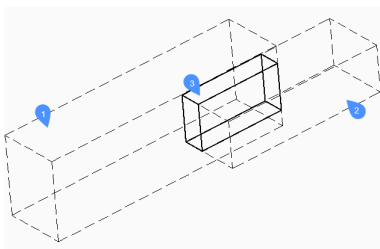
Checks the interference of entities in the first set, when it contains two or more entities, and then creates interference entity(ies) of them.

## 14.20 -INTERFERE command

Shows volumes and areas of interference between two sets of ACIS entities.



### 14.20.1 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 Platinum 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.

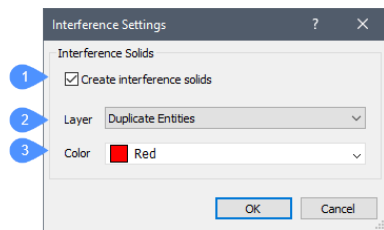
### 14.20.2 Options

#### 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.

## 14.21 INTERSECT command

Performs Boolean intersection operations on 3D solids and 2D regions.



Icon:

Alias: IN

### 14.21.1 Description

Performs Boolean intersection operations on 3D solids and 2D regions by removing all but portions in common.

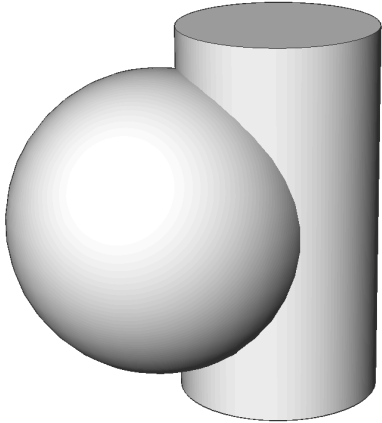
**Note:** If solids and regions do not intersect, BricsCAD erases them.



### 14.21.2 Method

Specify the 3D solids and/or 2D regions to be intersected. The program removes all but the volumes and areas in common from the selected entities.

The entities selected:

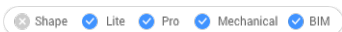


Result:



### 14.22 INTERSECTION command

Toggles the Intersection entity snap.





### 14.22.1 Description

Toggles the Intersection 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.

### 14.23 INVOKETESTAPP command

### 14.24 ISAVEAS command

Saves images.



#### 14.24.1 Description

Saves images to your computer through the Save Image File dialog box.

### 14.25 ISOLATEOBJECTS command

Hides all but the entity(ies) selected.



Icon:

Alias: ISOLATE

#### 14.25.1 Description

Selected entities display only. Other entities are hidden.

**Note:** Use the UNISOLATEOBJECTS command to make the hidden entities visible again.

**Note:** The OBJECTISOLATIONMODE variable controls what happens to the hidden state of the entities that weren't selected to be hidden.

### 14.26 ISOPLANE command

Toggles the SNAPISOPAIR system variable.



Alias: IS

#### 14.26.1 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.

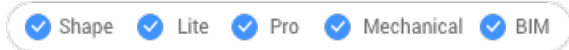
- Left: sets the SNAPISOPAIR system variable to Left.



- 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).

### 14.27 IUNEMBED command

Converts an embedded image to an attached one.



#### 14.27.1 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).

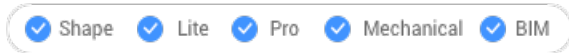
**Note:** This command reverts the action of IEMBED command.



## 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.

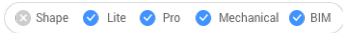
**Note:** Collinear means the entities lie in the same imaginary line. Coplanar means the entities lie in the same plane.



## 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

### 17.2 LANDXMLIMPORT command

Opens the Open land XML file dialog box.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 17.2.1 Description

Opens the Open land XML file dialog box to select an xml file to import. After choosing **Open** in the dialog box, you are prompted at the Command line:

##### Draw Breaklines as Polylines

Specifies if breaklines are imported as polylines.

### 17.3 LAYCUR command

Moves selected entities to the current layer.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

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 -LAYER command

Manages layers through the Command line.

✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Alias: -LA

#### 17.4.1 Description

Creates layers and layer states and changes their properties.

**Note:** The current layer cannot be turned off and frozen.





### 17.4.2 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.

#### **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

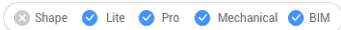
Locks layers so that their entities remain visible but cannot be edited.

### Unlock

Unlocks layers that were previously locked.

## 17.5 LAYER command

Opens the Layers panel.



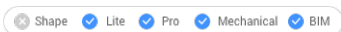
Alias: DDLMODES, LA

### 17.5.1 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.

## 17.6 LAYERP command

Restores layer properties to their previous state.



Icon:

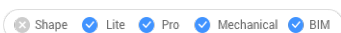
### 17.6.1 Description

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.

## 17.7 LAYERSPANELCLOSE command

Closes the Layers panel.



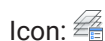
Closes the Layers panel to hide it from the current workspace. If the Layers panel is stacked when you close it, the Layers tab or icon is removed from the stack.

Opens the Layers panel.



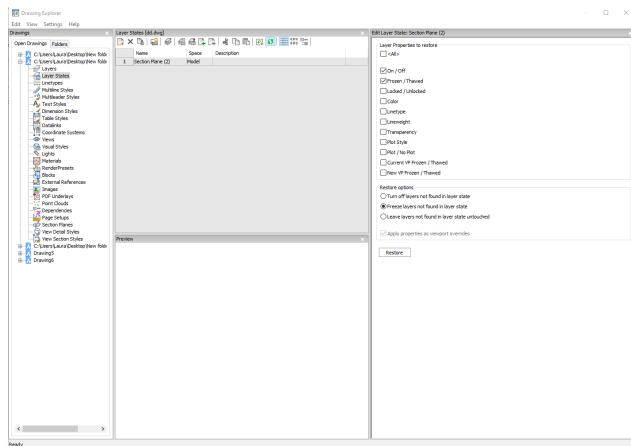
Opens the Layers panel link to display it in the current workspace. The Layers panel appears at the same size and location that it did before it was closed or collapsed. Like any other dockable panel, the Layers panel can be either floating, docked or stacked.

Opens the Drawing explorer dialog box with **Layer States** selected.



Alias: LAS

Open the Drawing explorer dialog box on the Layer States category to manage layer states of layers that are used in the selected drawing.



**<All>**

Selects or deselects all properties. See the LAYER command for the meaning of the properties

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.

### 17.9.3 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.

### 17.10 LAYFRZ command

Freezes layers of selected entities.





Icon:

### 17.10.1 Description

Freezes layers of selected entities to hide all entities that are on the same layers as the selected entities.

### 17.10.2 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 (?)]

### 17.10.3 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

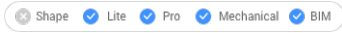
Undo the previous LAYFRZ operation.



## Selection options

### 17.11 LAYISO command

Isolates the layers of selected entities.



Icon:

#### 17.11.1 Description

Isolates the layers of selected entities lock or hide all entities except those that are on the same layers as the selected entities.

#### 17.11.2 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 (?)]

#### 17.11.3 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

### 17.12 LAYLCK command

Locks the layer of a selected entity.





Icon: 

### 17.12.1 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.

### 17.12.2 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.

## 17.13 LAYMCUR command

Changes the working layer to that of the entity selected (short for "layer make current").

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

Alias: SETLAYER

### 17.13.1 Method

Choose one entity whose layer will be made the current layer.

## 17.14 LAYOFF command

Turns off layers of selected entities.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

### 17.14.1 Description

Turns off layers of selected entities to hide all entities that are on the same layers as the selected entities.

You are prompted:



### 17.14.2 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 (?)]

### 17.14.3 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


### 17.15 LAYON command

Turns on all layers in the drawing.





Shape Lite Pro Mechanical BIM

Icon: 

## 17.15.1 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.

## 17.16 LAYOUT command

Creates, copies, renames, and deletes layouts.

Shape Lite Pro Mechanical BIM

Icon: 

### 17.16.1 Method

You can create up to 255 layouts in a single drawing. Each layout represents a sheet of paper.

### 17.16.2 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.

## 17.17 LAYOUTMANAGER command

Opens the Layout manager dialog box.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 17.17.1 Description

Opens the Layout manager dialog box to view and manage layouts in the current drawing.

## 17.18 LAYTHW command

Thaws all layers in the drawing.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 17.18.1 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.

## 17.19 LAYTRANS command

Opens the Layer translator dialog box.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 17.19.1 Description

Opens the Layer translator dialog box to translate layer properties by mapping to other layers.

## 17.20 LAYULK command

Unlocks the layer of a selected entity.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 17.20.1 Description

Unlocks the layer of a selected entity to enable entities on that layer to be edited.

### 17.20.2 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

### 17.21 LAYUNISO command

Restores isolated layers to their previous state.



Icon:

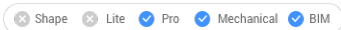
#### 17.21.1 Description

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.

### 17.22 LCONNECT command

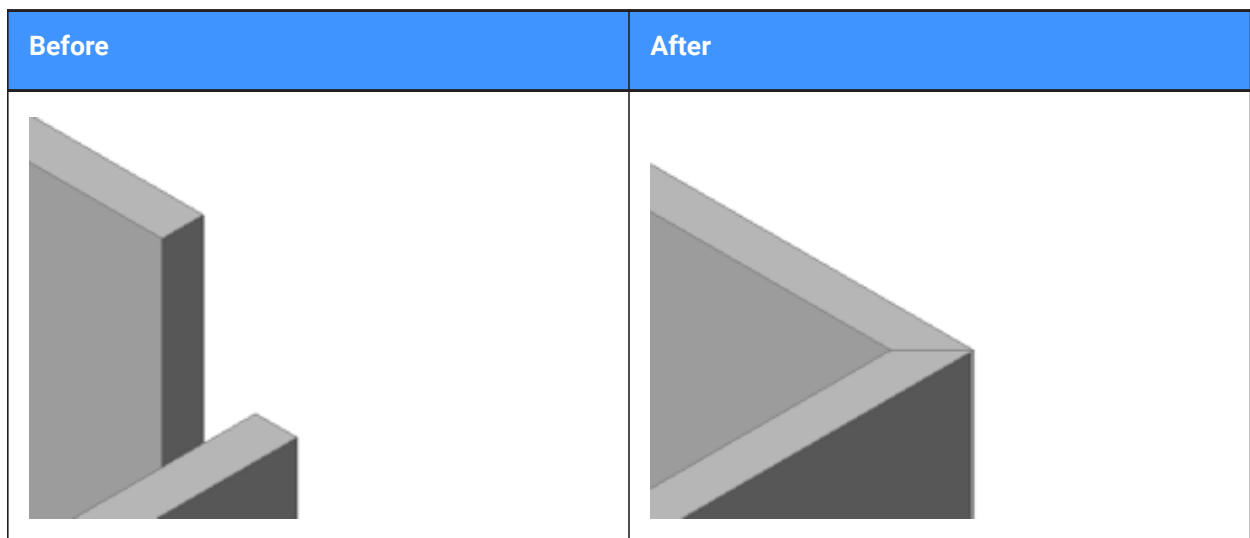
Creates or modifies an L-connection between solids.

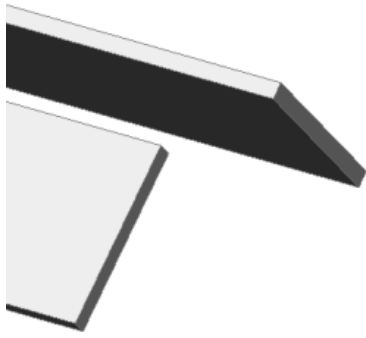
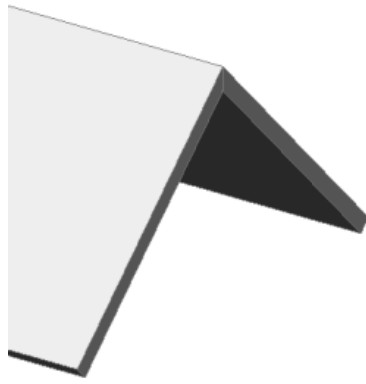
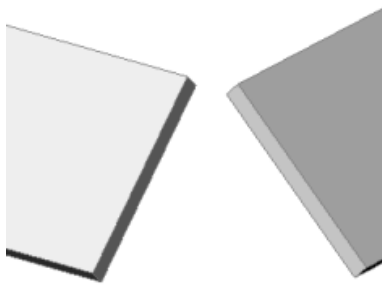
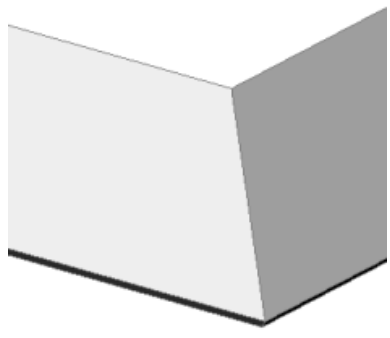
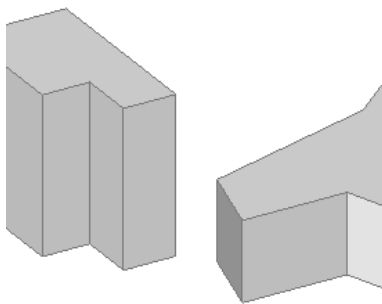
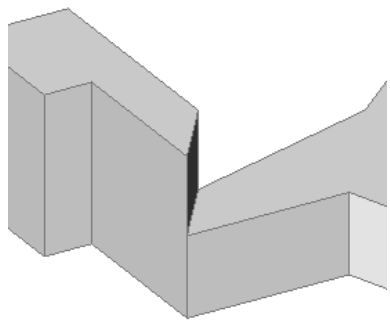


Icon:

#### 17.22.1 Description

Creates or modifies an L-connection between solids. Optionally disconnects L-connected solids.



Before	After
	
	
	

### 17.22.2 Options

#### Select entities to connect

Manually select the two entities you want to connect.

#### Switch

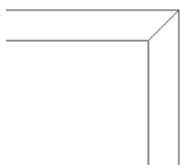
Allows to choose between two butted L-connections:



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.

## 17.23 LEADER command

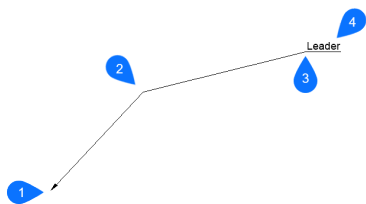
Draws leaders.



Alias: LE, LEAD

### 17.23.1 Description

Draws leaders by specifying several points.





- 1 Start point
- 2 Next point
- 3 To point
- 4 Annotation

**Note:** After you begin creating a leader, options regarding the annotation may be available.

### 17.23.2 Options

#### **Format**

Specifies the leader style.

#### **Arrow**

Draws an arrowhead at the leader's start point (default).

#### **None**

Draws no arrowhead.

#### **Spline**

Draws the leader as a spline.

#### **STraight**

Draws the leader as a straight-line segment (default).

#### **Undo**

Undoes the last leader style.

#### **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, be 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.

### 17.24 LENGTHEN command

Changes the length of open objects such as lines, polyline segments and arcs.



Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: EDITLEN, LEN

## 17.24.1 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.

## 17.24.2 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.

## 17.25 LIBRARYPANELCLOSE command

Closes the Library panel.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 17.25.1 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.



### 17.26 LIBRARYPANELOPEN command

Opens the Library panel.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

#### 17.26.1 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.

### 17.27 LICENSEMANAGER command

Opens the BricsCAD license manager dialog box.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

#### 17.27.1 Description

Opens the BricsCAD License manager dialog box to view and manage your BricsCAD license.

### 17.28 LIGHT command

Places light glyphs in drawings for generating more realistic renderings.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

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.

#### 17.28.1 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.

## 17.29 LIGHTLIST command

Opens the Drawing explorer dialog box with **Lights** selected.

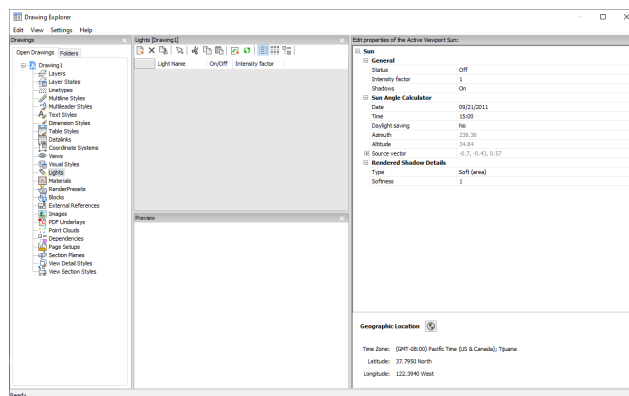


Icon:

Alias: LL

### 17.29.1 Description

Opens the Drawing explorer dialog on the Lights category to manage the lights in the selected drawing.



### 17.29.2 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.

### 17.29.3 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

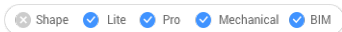
Selects all items.

### Invert selection

Deselects the current selection and vice versa.

## 17.30 LIMITS command

Sets an imaginary boundary for the extents of the drawing and optionally, of the grid.



Icon:

### 17.30.1 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.

### 17.30.2 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.

## 17.31 LINE command

Creates line segments.



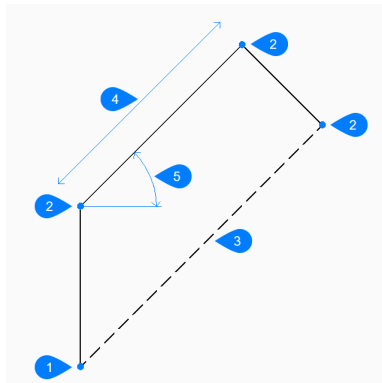


Icon:

Alias: 3DLINE, L

## 17.31.1 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

## 17.31.2 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.

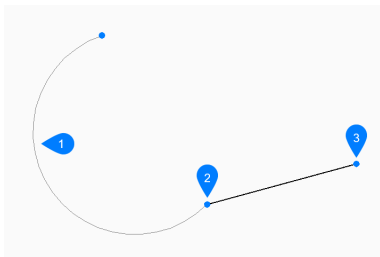
Additional options: [Angle/Length/Follow/Close/Undo]

### 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

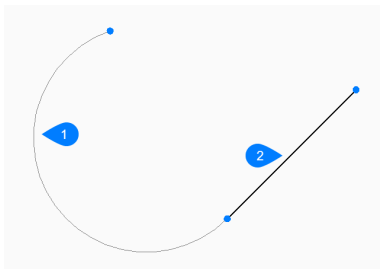
Additional options: [Angle/Length/Follow/Close/Undo]

### **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]

### **17.31.3 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.

### **17.32 -LINETYPE command**

Loads, sets, and creates linetypes in the Command line.



Shape Lite Pro Mechanical BIM

Alias: -LT

## 17.32.1 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.

## 17.32.2 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.

## 17.33 LINETYPE command

Opens the Drawing explorer dialog box with **Linetypes** selected.

Shape Lite Pro Mechanical BIM

Icon: 

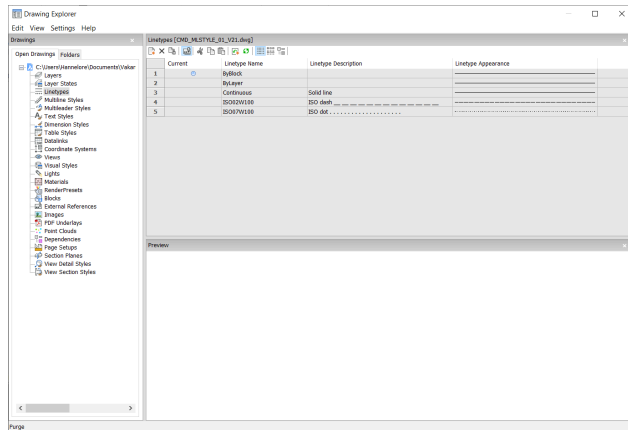
Alias: DDLTYPE, EXPLTYPES, LT

## 17.33.1 Description

Opens the Drawing explorer dialog box with **Linetypes** category selected to view and modify linetypes in the current drawing.

New drawings contain at least these linetype definitions: Continuous, ByLayer, and ByBlock. 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.



## 17.33.2 Context Menu Options

### New

Loads additional linetype definitions into the drawing. Displays the Load Linetypes dialog box.

### Delete

Deletes linetype definitions from the drawing. The following linetype definitions cannot be deleted:

- Continuous
- ByLayer
- ByBlock
- Any linetype in use

### Rename

Renames the selected linetype.

**Note:** Following linetypes cannot be renamed:

- ByBlock
- ByLayer
- Continuous

### Select all

Selects all linetype definitions.

### Invert selection

Deselects the current selection and vice versa.

### Set Current

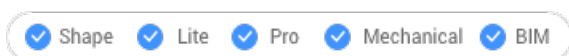
Sets the selected linetype as the current one.

### Hide xref symbols

Toggles the visibility of xref symbols on and off.

## 17.34 LIST command

Lists the properties of selected entities.





Icon:

Alias: LI, LS

### 17.34.1 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

### 17.34.2 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.

### 17.34.3 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.



### 17.35 LIVESECTION command

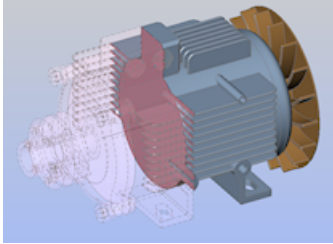
Toggles section views on/off.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 17.35.1 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.

### 17.36 LOAD command

Opens the Load shape file dialog box.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM


#### 17.36.1 Description

Opens the Load shape file dialog box to select an shx file to load into the current drawing.

### 17.37 LOFT command

Creates 3D solids or 3D surfaces.

✓ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 17.37.1 Description

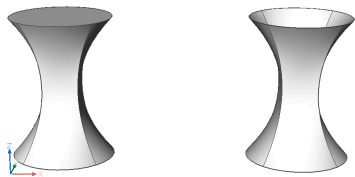
Creates 3D solids or 3D surfaces passing through 2 selected cross sections.

#### 17.37.2 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**

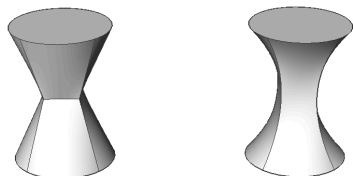
Sets variables that affect how the loft is constructed.

**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

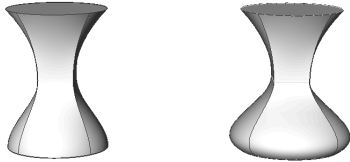




### Draft angles

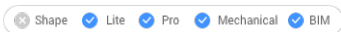
Specifies the angles at the starting and ending cross-sections to modify the loft shape.

**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.



### 17.38 LOGFILEOFF command

Turns off log file recording.



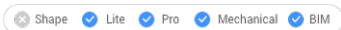
#### 17.38.1 Description

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.

### 17.39 LOGFILEON command

Turns on log file recording.



#### 17.39.1 Description

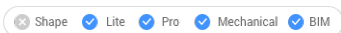
Turns on log file recording.

**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.

### 17.40 -LOGIN command

Authenticates to Bricsys server.





### 17.40.1 Description

Opens the Login dialog box to authenticate to Bricsys server.

### 17.41 -LOGOUT command

Logs out of the Bricsys account.

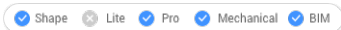


#### 17.41.1 Description

Logs the user out of the Bricsys account, which was used to access online services.

### 17.42 LOOKFROM command

Toggles LookFrom widget.



Alias: NAVVCUBE

#### 17.42.1 Description

Changes the display of the LookFrom widget between on and off, and accesses the settings for displaying the widget.

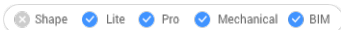
#### 17.42.2 Methods

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.

### 17.43 LWEIGHT command

Opens the Settings dialog box with the **Lineweights** category expanded.



#### 17.43.1 Description

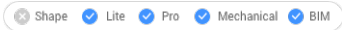
Opens the Settings dialog box with the **Lineweights** category expanded to view and modify relevant system variables.



## 18. M

### 18.1 MAIL command

Opens the default email client.

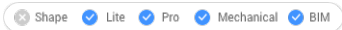


#### 18.1.1 Description

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 MANIPULATE command

Launches the manipulator widget to rotate, move, copy, mirror, and/or scale 2D entities and 3D models.



Icon: 

#### 18.2.1 Methods

There are multiple methods to access the manipulator.

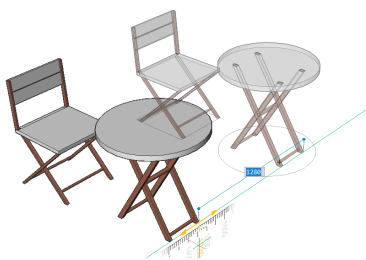
- Manipulate command
- Select entities and press enter.
- Quad
- Long press an object
- Make sure the MANIPULATOR system variable is set right.

#### 18.2.2 Options

##### Select an axis

Moves the selection of entities along the selected axis.

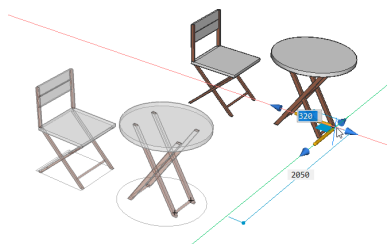
Select an axis and enter the value of displacement or define the new position by specifying a point.



##### Select a plane

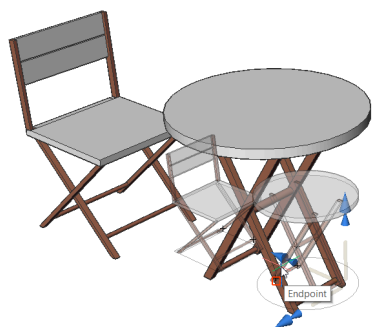
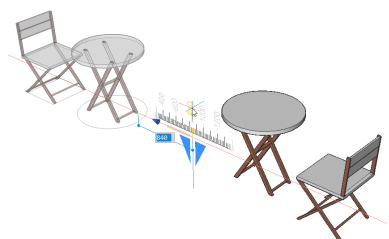
Moves the selection of entities in the selected plane.

Select a plane and enter the value of displacement or define the new position by specifying a point.



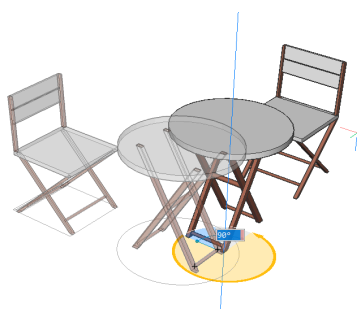
## Select an arrowhead

Mirrors or scales the selection. By right clicking when hovering over the entity, a contexts menu with other options is displayed. There 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.



## 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

Moves the manipulator. Specify a point to relocate.



**Note:** To copy the original entity so a new entity is created, hold down the Ctrl-key before starting the axis or make sure the copy option is enabled.

### 18.3 MAPCONNECT command

Allows to set up a connection with a Web Map Service.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 18.3.1 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.

### 18.4 MASSPROP command

Reports mathematical properties of 3D and 2D regions.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 18.4.1 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.

#### 18.4.2 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.

### 18.5 MATBROWSERCLOSE command

Closes the Render materials panel.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 18.5.1 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.

### 18.6 MATBROWSEROPEN command

Opens the Render materials panel.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Alias: MATB



## 18.6.1 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.

## 18.7 MATCHPERSPECTIVE command

Matches the current model space view with a background image.



### 18.7.1 Description

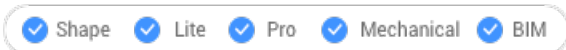
Matches the viewpoint of model space with the apparent perspective view provided by a background image, after three or more pairs of matching points are selected.

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.



## 18.8 MATCHPROP command

Copies selected properties and styles from one entity and applies it to one or more entities.

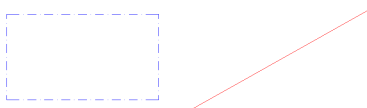


Icon:

Alias: MA

### 18.8.1 Method

Select the entity whose properties will be copied and the entities to apply the properties to.





## 18.8.2 Options

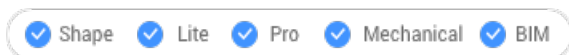
### Settings

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.

## 18.9 MATERIALASSIGN command

Assigns current material to entities.



### 18.9.1 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.

### 18.9.2 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

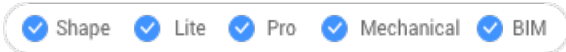
To remove materials, apply the “BYLAYER” material to entities or to layers.





## 18.10 MATERIALMAP command

Adjusts the placement of texture images.



Icon:

Alias: SETUV

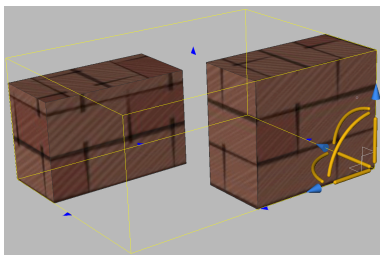
### 18.10.1 Description

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.

### 18.10.2 Method

The selected entities are included in a yellow bounding box. Blue grips and the manipulator widget appear:

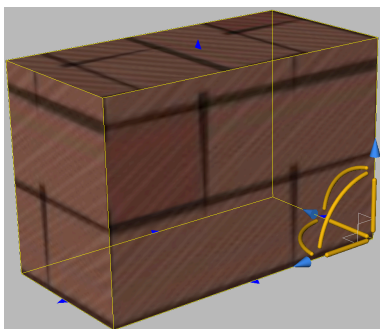
- Drag the blue grips to change the scale of the material horizontally and vertically.
- Click different parts of the manipulator to move, scale, and rotate the material.



### 18.10.3 Options within the command

#### Box

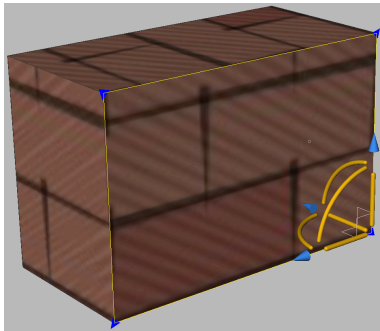
Wraps the texture around the six faces of the bounding box.



#### Planar

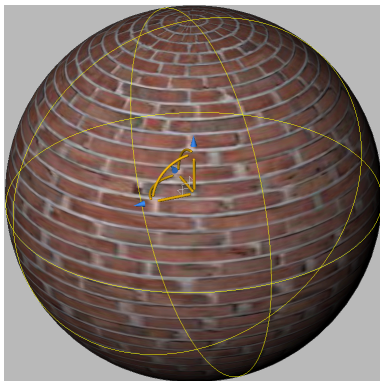
Aligns the texture to a single face.

**Note:** To select a face of a 3D solid, tick the Select Faces option of the SELECTIONMODES variable.



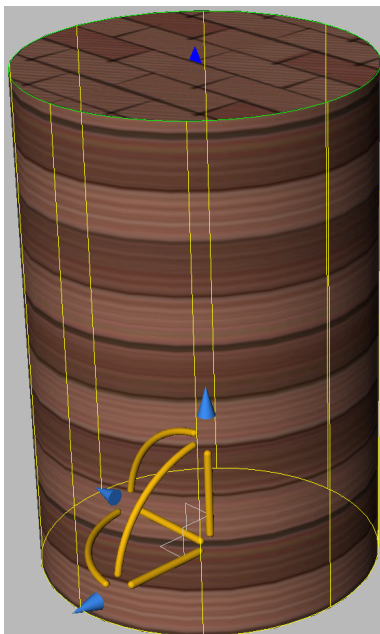
## Spherical

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.

## 18.11 MATERIALS command

Opens the Drawing explorer dialog box with **Materials** selected.



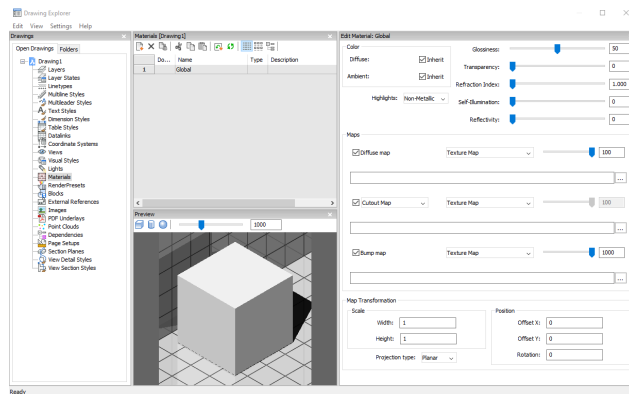
Icon:

Alias: FINISH, MAT, RMAT

### 18.11.1 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.



### 18.11.2 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.

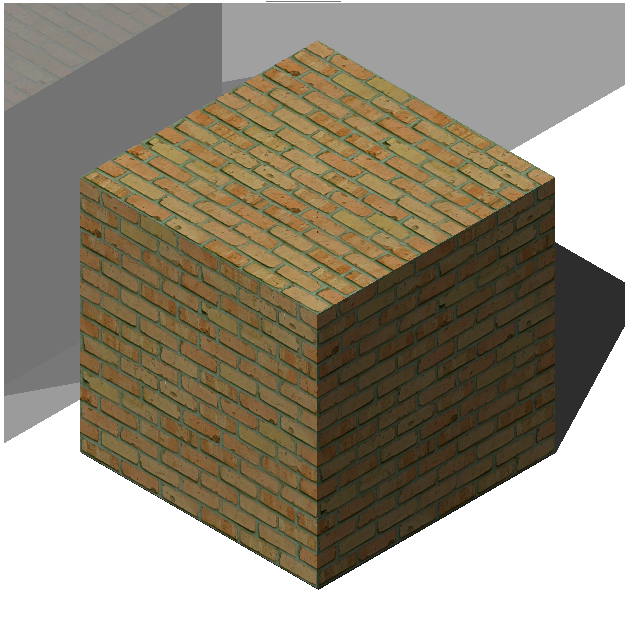
### Maps

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.



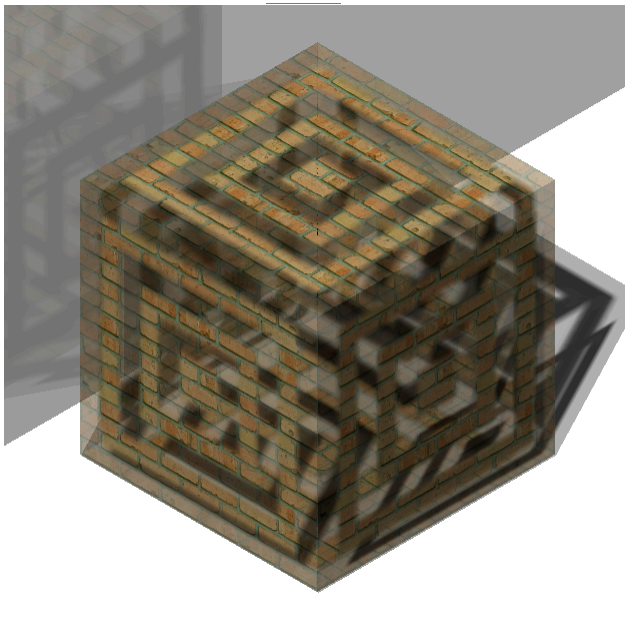
### Blend factor

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.

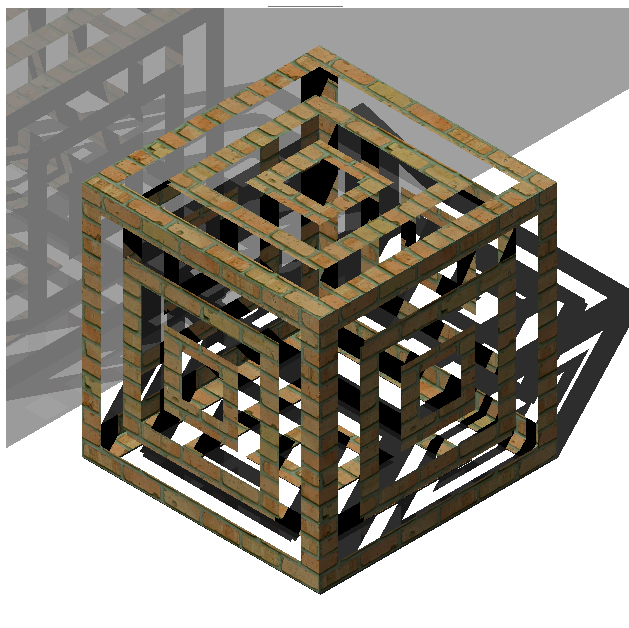
**Note:** If you select a colored image, it will be converted to a grayscale image in the background. The alpha channel of the image is ignored.





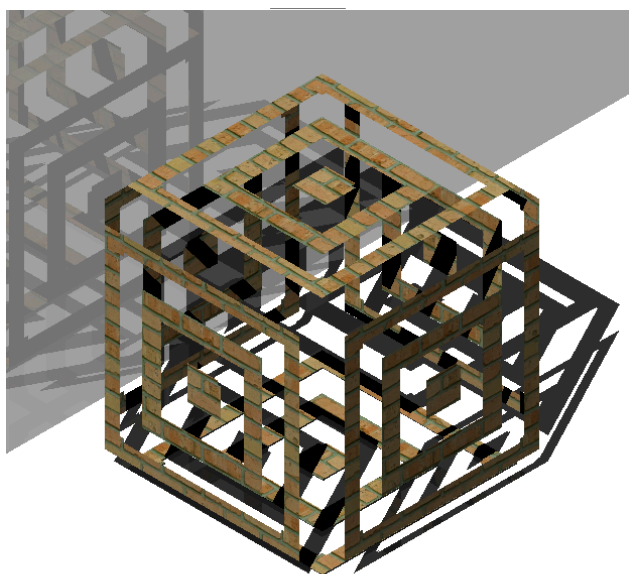
### Cutout Map

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.



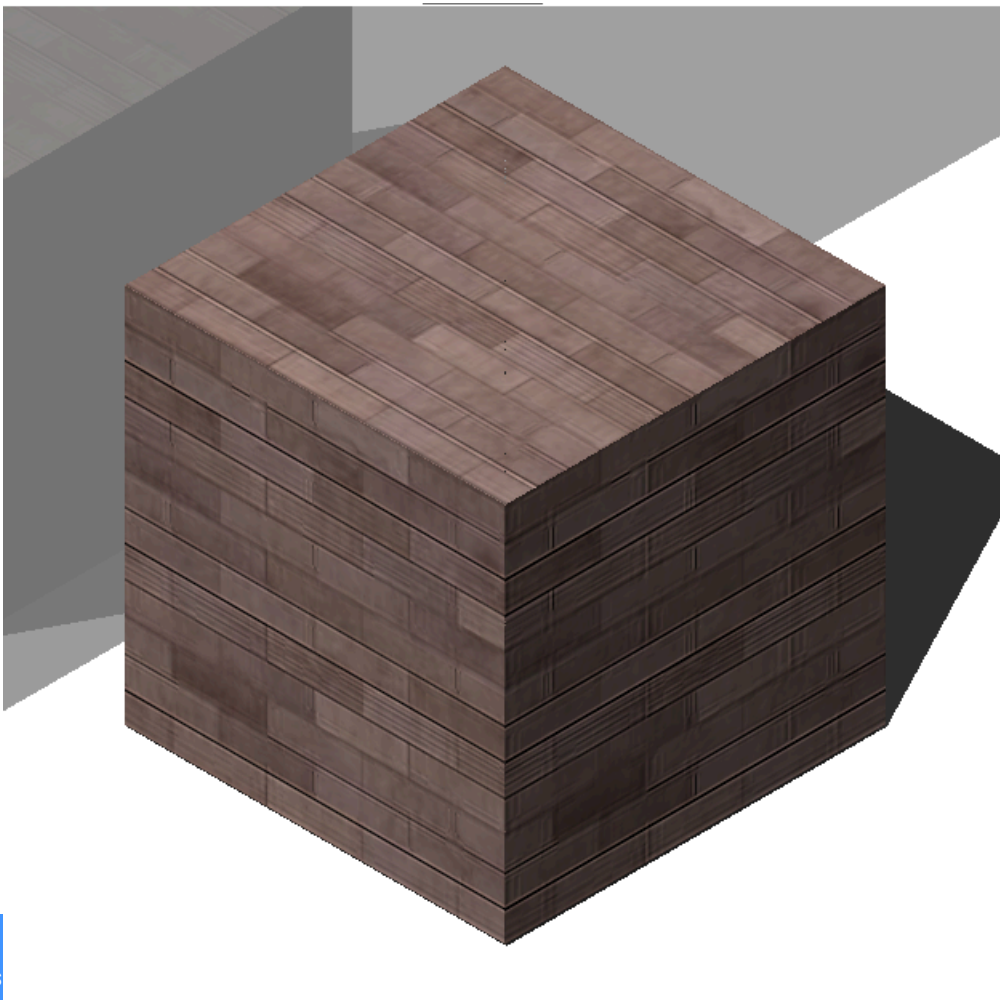
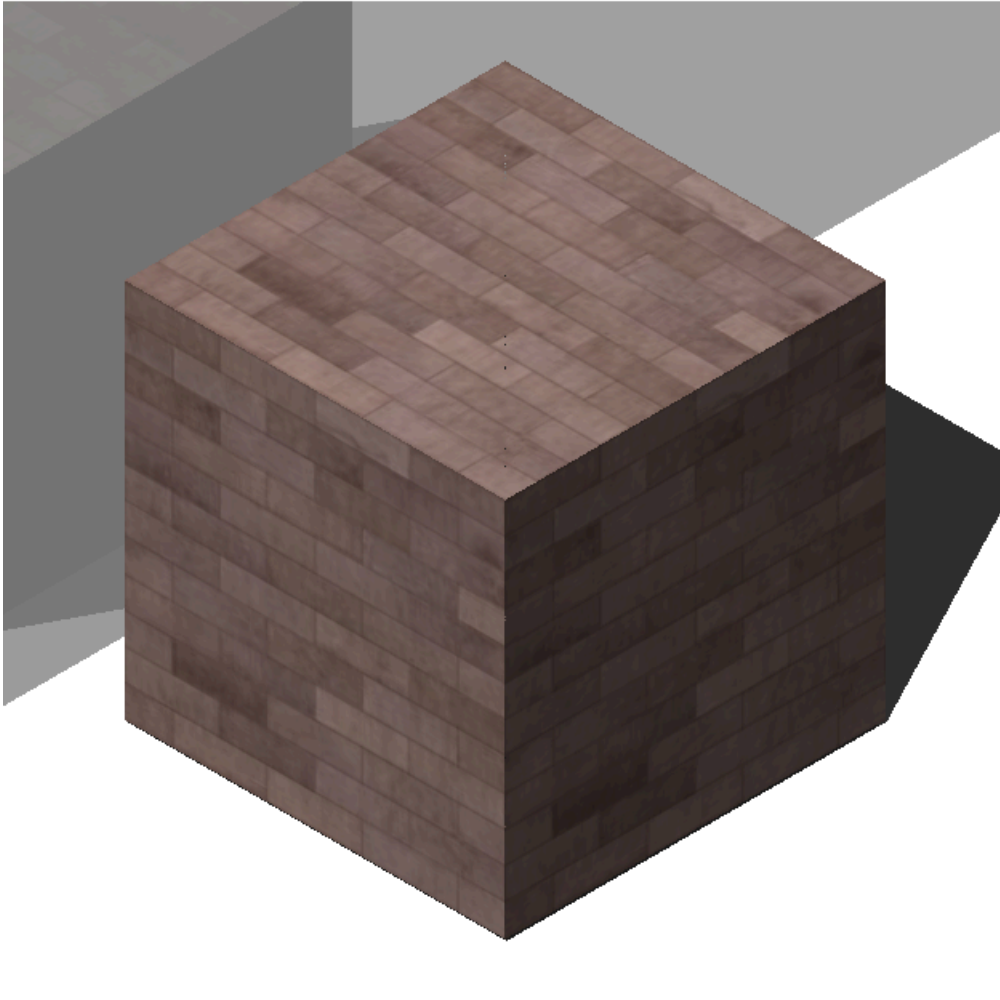
### **Blend factor**

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.

## 18.11.3 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.

## 18.12 MATLIB command

Opens the Render materials panel.



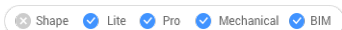


### 18.12.1 Description

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.

### 18.13 MEASURE command

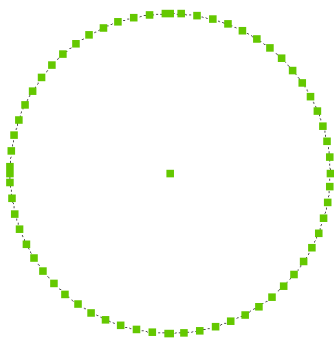
Places points or blocks along entities at equally-spaced specified distance.



Icon:

#### 18.13.1 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.

#### 18.13.2 Options within the command

##### Insert block

Inserts a block instead of a point.

##### Align block

Rotates the blocks to match the entity alignment.

### 18.14 MECHANICALBROWSERCLOSE command

Closes the Mechanical browser panel.



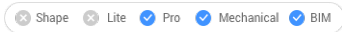
#### 18.14.1 Description

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.



### 18.15 MECHANICALBROWSEROPEN command

Opens the Mechanical browser panel.



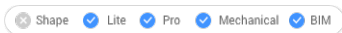
Icon:

#### 18.15.1 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.

### 18.16 MENU command

Opens the Choose a customization file dialog box.



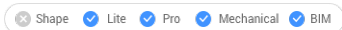
Icon:

#### 18.16.1 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.

### 18.17 MENULOAD command

Opens the Customization groups dialog box.

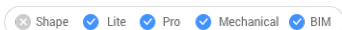


#### 18.17.1 Description

Opens the Customization groups dialog box to load and unload customization groups.

### 18.18 MENUUNLOAD command

Opens the Customization Groups dialog box.

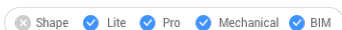


#### 18.18.1 Description

Opens the Customization Groups dialog box to load and unload customization groups.

### 18.19 MIDPOINT command

Toggles the Midpoint entity snap.



Icon:

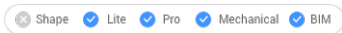


### 18.19.1 Description

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.

### 18.20 MINSERT command

Inserts a block as a rectangular array.



#### 18.20.1 Description

Inserts a block as a rectangular array. It is a combination of the –INSERT and -ARRAY commands and creates a MInsert Block entity.

#### 18.20.2 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.

## 18.21 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.

### 18.21.1 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.

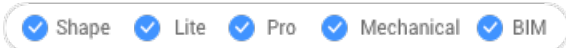
### 18.21.2 Options within the command

#### Delete the original entities?

Determines whether the original entities are erased or not.

## 18.22 MIRROR3D command

Mirrors entities about a mirror plane in 3D space.



Icon:

Alias: 3DMIRROR, 3DM

### 18.22.1 Description

Creates a mirror copy of selected entities in three-dimensional space.

### 18.22.2 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

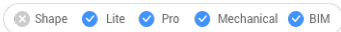
Defines the mirror plane by three points.

### Delete the original entities?

Determines whether the original entities are erased or not.

## 18.23 MLEADER command

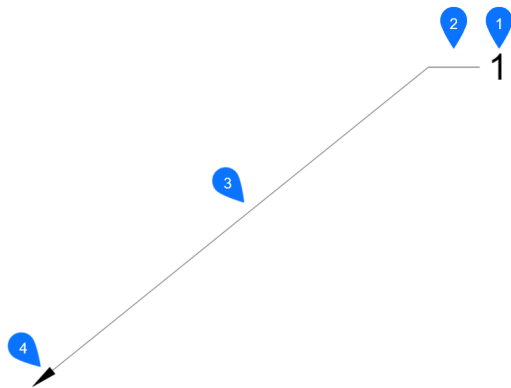
Creates multileader entities using the current multileader style.



Icon:

### 18.23.1 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

### 18.23.2 Methods

There are three methods to begin creating a multileader:

- leader arrowHead first



- leader Landing first
- Content first

### 18.23.3 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 lAnding**

Specify 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**

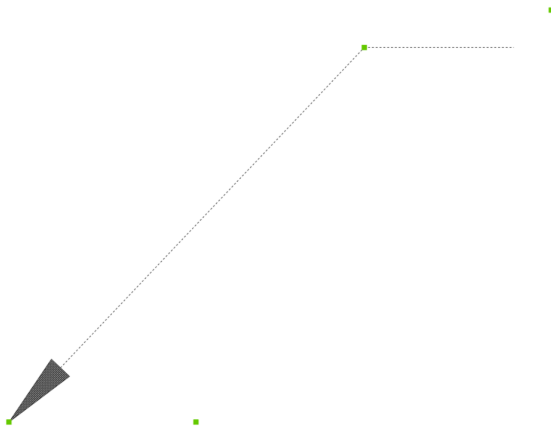
Enter the first angle constraint.

#### **Second angle**

Enter the second angle constraint.

#### **Grip editing**

By clicking the green squares, you can edit the grip points of the multileader.



## 18.24 MLEADERALIGN command

Aligns the balloons of two or more multileaders.



Icon:

### 18.24.1 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.

### 18.24.2 Method

This command offers five methods to align multileaders:

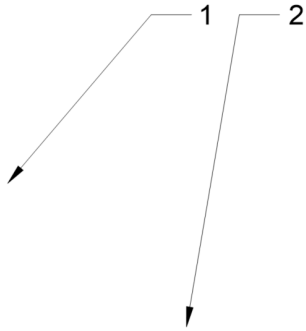
- byMleader
- onpolyLine
- Parallel
- Spacing
- Circle

### 18.24.3 Options within the command

#### byMleader

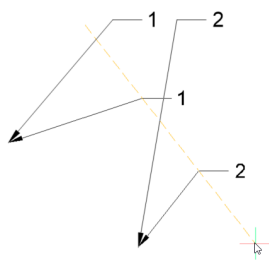
Align the landings of the multileaders to the landing of a selected multileader.





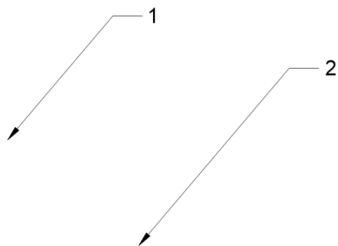
## onpolyLine

Align multileaders along an imaginary polyline.



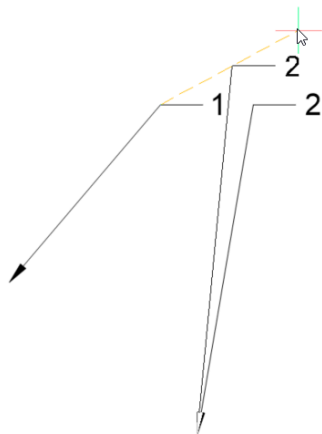
## Parallel

Align the segment of the multileaders parallel to the segment of a selected multileader.



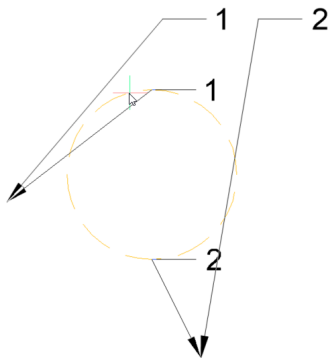
## Spacing

Specify the spacing between multileaders.



## Circle

Arrays the multileaders around a circle.



## 18.25 MLEADERCOLLECT command

Collects two or more multiline leaders into a single leader.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 18.25.1 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.

### 18.25.2 Method

There are five methods to collect multileaders:

- Vertical
- Horizontal

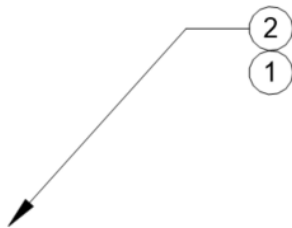


- Wrap
- Sorting
- Collapsing

### 18.25.3 Options within the command

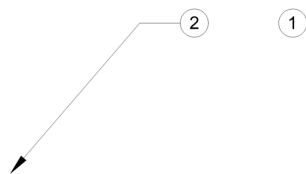
#### Vertical

Arranges the content blocks vertically to a single leader.



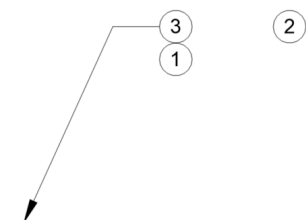
#### Horizontal

Arranges the content blocks horizontally to a single leader.



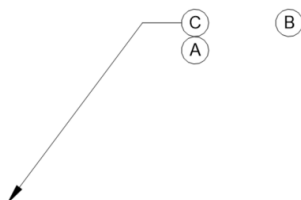
#### Wrap

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.



## 18.26 MLEADEREDIT command

Edit leaders from multileader entities.



Icon:

### 18.26.1 Description

Adds and removes leaders to and from multileader entities.

### 18.26.2 Method

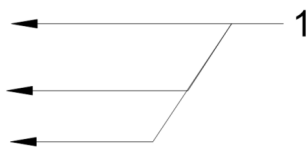
There are two methods to edit multileaders:

- Add leaders
- Remove leaders

### 18.26.3 Options within the command

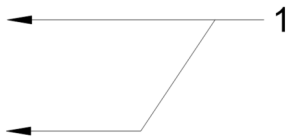
#### Add leaders

Adds leaders to the selected mleader entity.



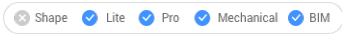
#### Remove leaders

Removes leaders from the selected mleader entity.



## 18.27 MLEADEREDITEXT command

Edit leaders from multileader entities.



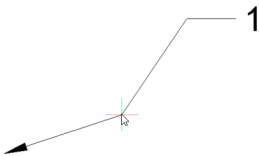
### 18.27.1 Description

Adds and removes leader lines, adds and removes vertices, and changes the landing length of a multileader entity (short for "multiline leader edit extended").

### 18.27.2 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.

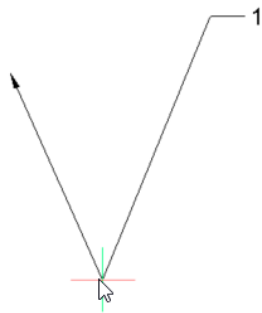


#### Remove vertex

Removes a vertex from the leader line.

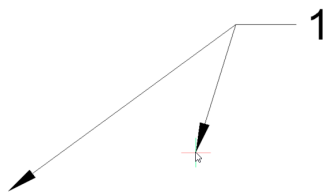
#### Stretch vertex

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.



## 18.28 MLEADERSTYLE command

Opens the Drawing explorer dialog box with **Multileader Styles** selected.



### 18.28.1 Description

Opens the Drawing explorer dialog box with **Multileader Styles** selected to view and modify multileader styles in the current drawing.

## 18.29 MLINE command

Creates an mline.



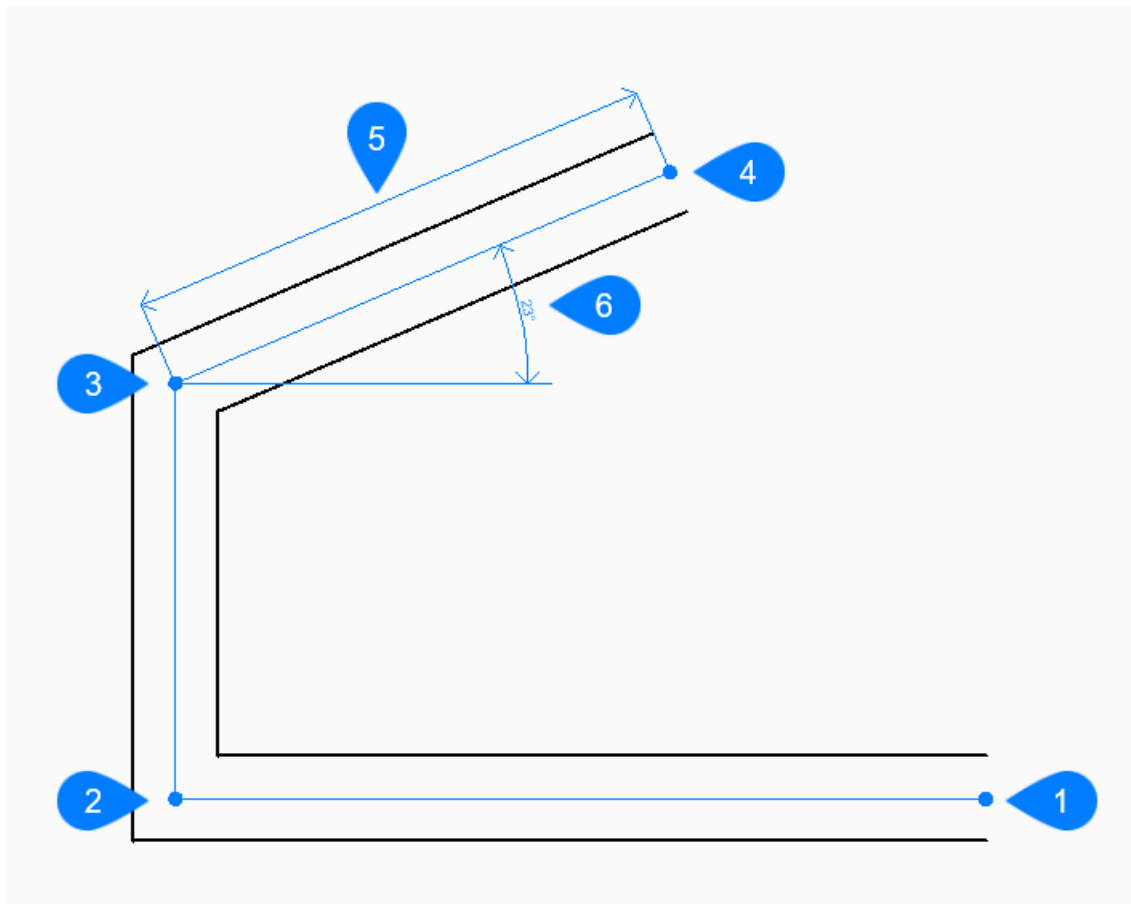


Icon:

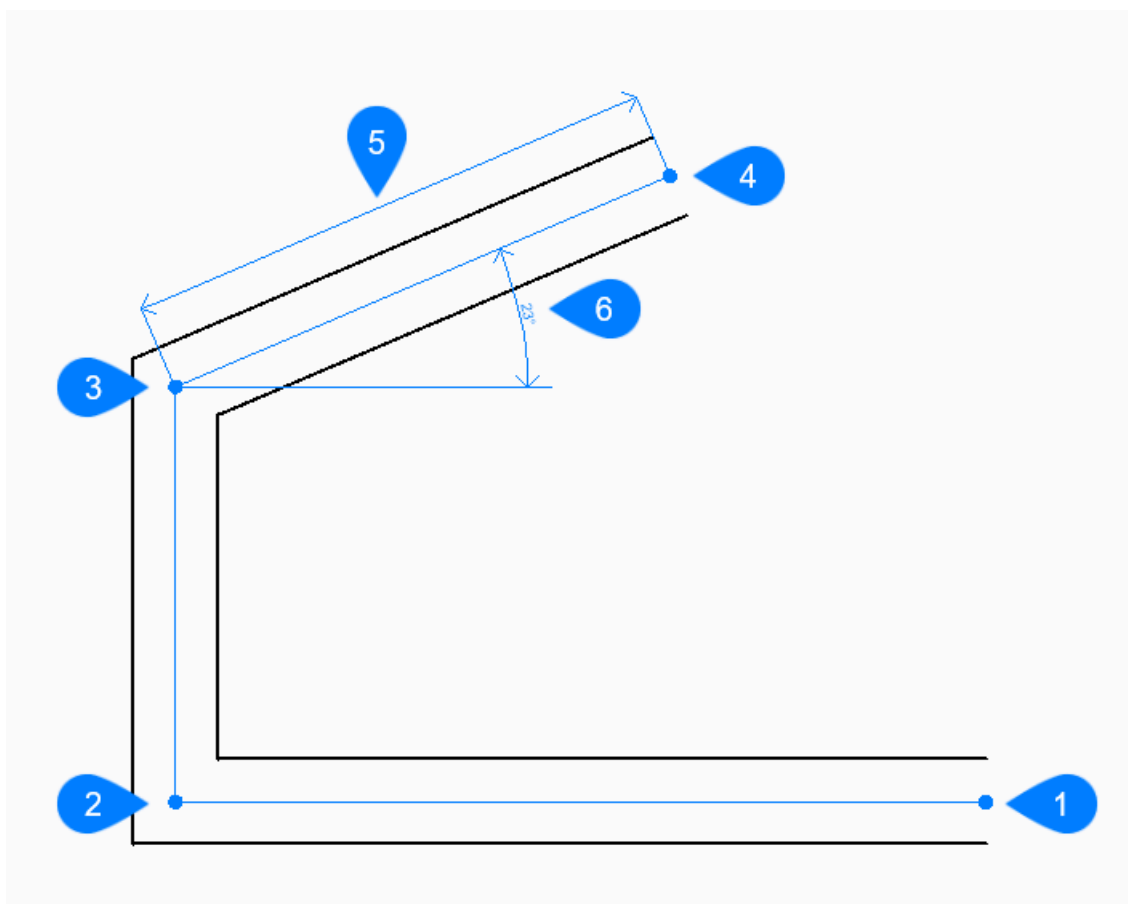
Alias: ML

## 18.29.1 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

## 18.29.2 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/SType/Follow]

### Set end point

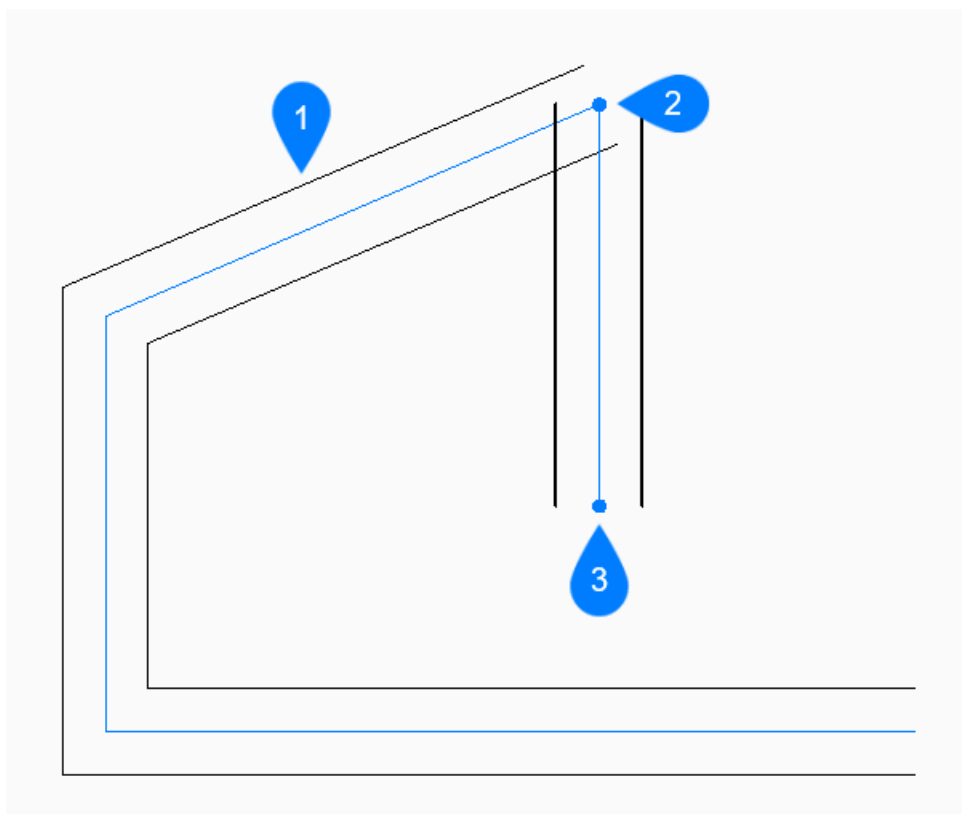
Specify the endpoint of the mline segment.

Additional options: [Angle/Length/Follow/Close/Undo]





## Last point



- 1 Last drawn segment
- 2 Last point
- 3 End point

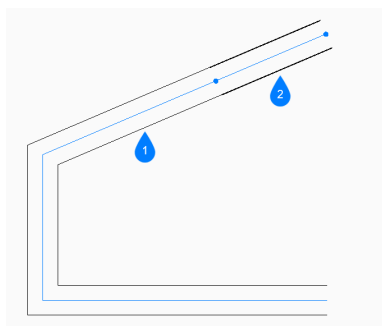
Begin creating an mline from the last point picked then:

### 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

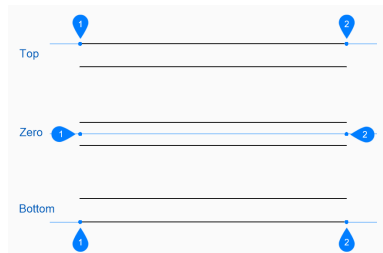
Specify the length of the mline segment. Picking a point only determines the length since the angle follows the previous segment.

### 18.29.3 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

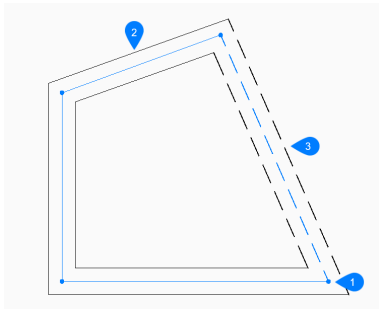
Specify the angle of the mline segment measured counterclockwise from the positive x-axis.

#### Undo

Undo the last mline segment and continue drawing from its previous start point.

#### Close

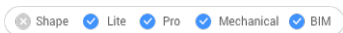
Automatically draw an mline segment from the end point of the last segment to the start point of the first segment.




- 1 Start/End
- 2 Last drawn segment
- 3 Close

## 18.30 MLSTYLE command

Opens the Drawing explorer dialog box with **Multiline Styles** selected.

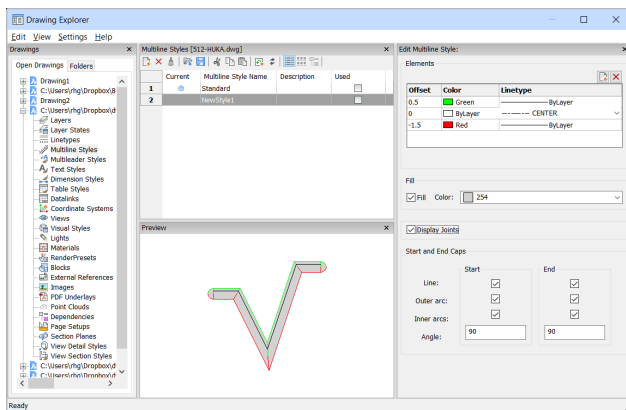


Icon: 

### 18.30.1 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.



### 18.30.2 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

Erases a line from the multiline definition without warning.

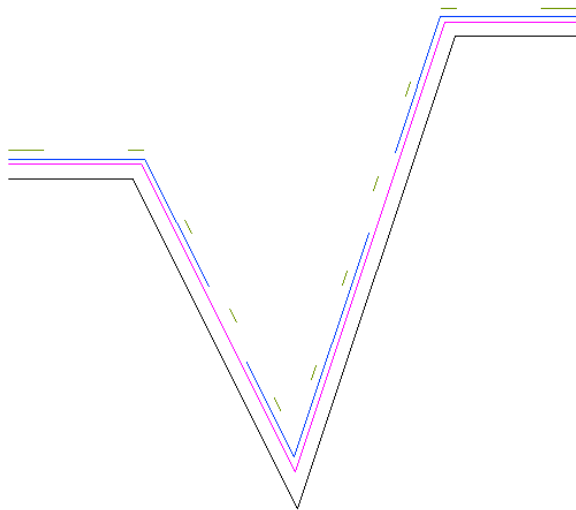
**Note:** Following multiline style cannot be deleted: The Standard Style.

Specifies how far each line is from the center line of the mline.

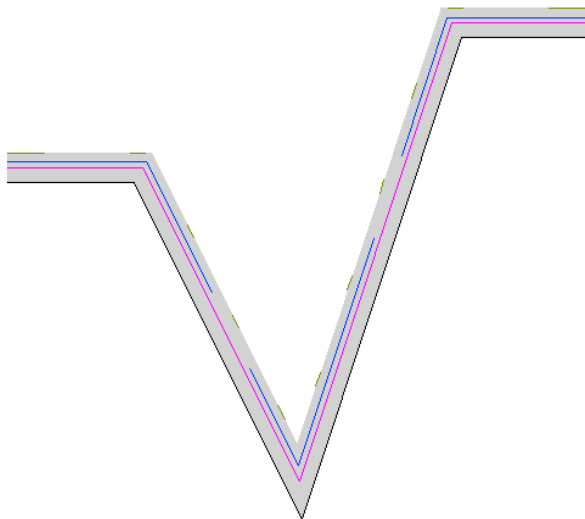
Specifies the color of each line.

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.

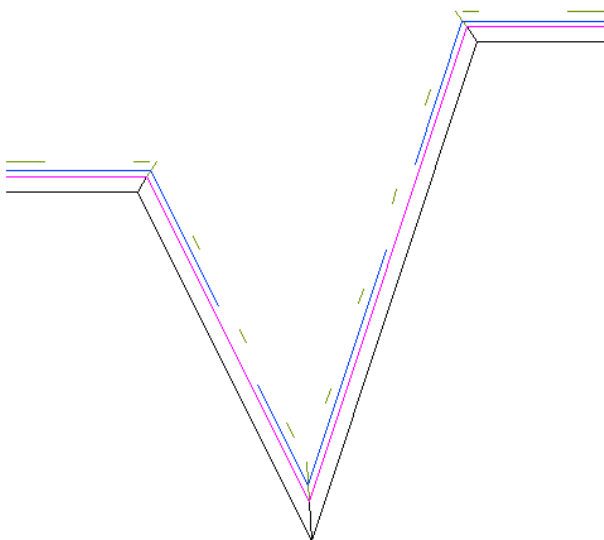


When turned on, a solid fill floods the mline between the outer lines.



### Display Joints

When selected, the mline draws joints (diagonal lines) between segments.

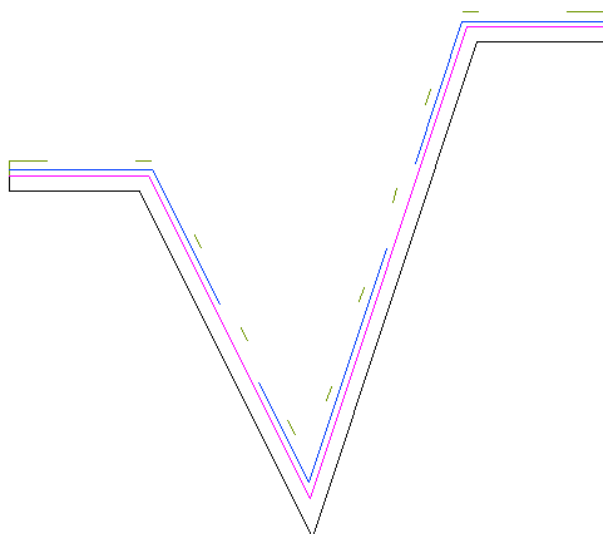


### Start and End Caps

Closes the end segments of open multilines by a variety of methods.

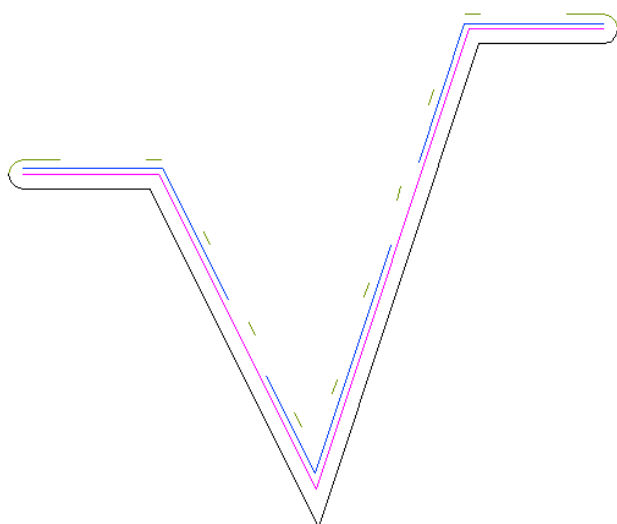
#### Line

Draws a straight line to close the end segments.



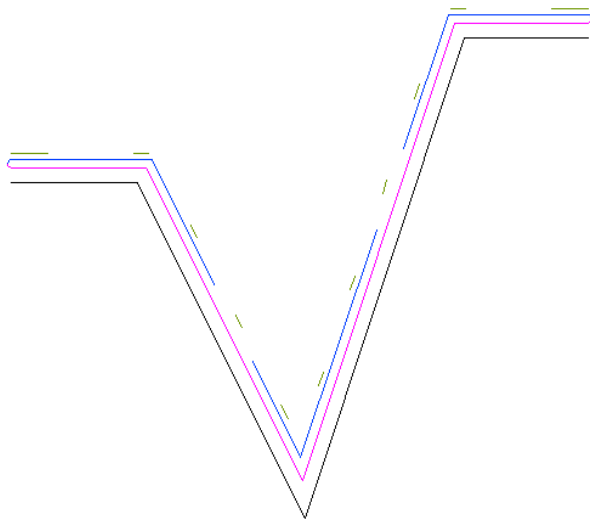
### Outer arc

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.

### 18.30.3 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.

### 18.31 MODELERPROPERTIES command

Opens the Settings dialog box with the **Modeler properties for ACIS** category expanded.



Shape Lite Pro Mechanical BIM

## 18.31.1 Description

Opens the Settings dialog box with the **Modeler properties for ACIS** category expanded to view and modify relevant system variables.

## 18.32 -MODELERPROPERTIES command

ACIS modeler settings.

Shape Lite Pro Mechanical BIM

### 18.32.1 Description

Specifies settings for the ACIS modeler.

### 18.32.2 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.

### 18.32.3 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.

## 18.33 MOVE command

Moves entities.

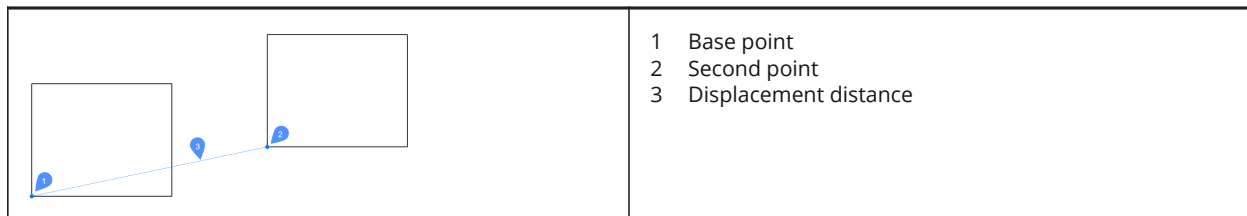


Icon:

Alias: M

### 18.33.1 Description

Moves entities by specifying the starting point and the destination.





### 18.33.2 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.

### 18.34 MOVEEDATA command

Moves extended entity data from one entity to one or more others.



Icon:

#### 18.34.1 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.

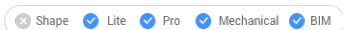
#### 18.34.2 Options

##### ? to list application names

Lists names of applications loaded in the current drawing.

### 18.35 MOVEGUIDED command

Moves entities using guide curves.



Icon:

#### 18.35.1 Description

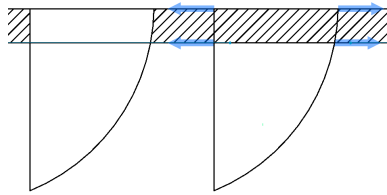
Automatically aligns moved entities with relevant geometry, using temporary guide curves.

#### 18.35.2 Method

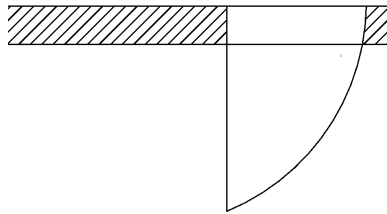
The command can be executed in two ways:

- Pre-pick mode: select entities first, 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 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.



## 18.35.3 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.

## 18.36 MSLIDE command

Opens the Create snapshot dialog box.



Icon:

Alias: MSNAPSHOT

### 18.36.1 Description

Opens the Create snapshot dialog box to save data from the current drawing to an sld file.

## 18.37 MSPACE command

Switches from paper space to model space viewports.



Alias: MS



## 18.37.1 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.

## 18.38 MTEXT command

Places text in a bounding box.



Icon:

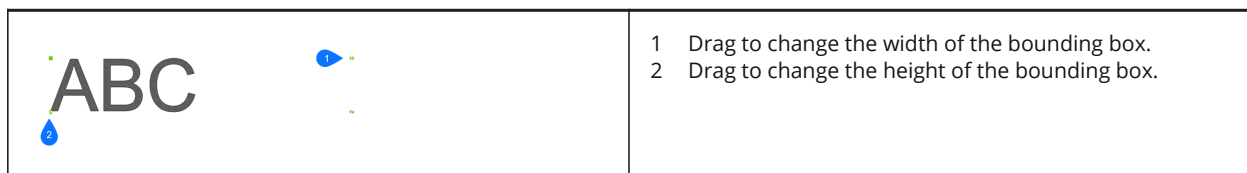
Alias: MT, T

### 18.38.1 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.

Mtext bounding boxes can be edited directly through grips:



### 18.38.2 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 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 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.



### **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 "infinite" width.

### **Line spacing**

Defines the line spacing of the text.

### **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**

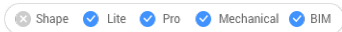
A fixed amount of columns with fixed dimensions is created.

### **Dynamic**

A dynamic amount of columns is created. The amount of columns depends on the length of the text.

## **18.39 -MTEXT command**

Creates multiline text with the Command line.



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.

### **18.39.1 Description**

Creates a multiline text by specifying the first corner and the opposite corner for block of text.

### **18.39.2 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.

## 18.40 MTP command

Allows to specify a point as the midpoint.

⊗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 18.40.1 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.



### 18.40.2 Method

This command works only with commands that prompts to enter a point.

**Note:** This command sets entity snaps, similar to OSNAP command.

### 18.40.3 Options within the command

#### First point of mid

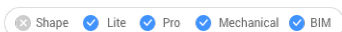
Identify the first reference point.

#### Second point of mid

Identify the second reference point.

## 18.41 MULTIPLE command

Repeats commands.



### 18.41.1 Description

Repeats commands until you press the Esc key.

**Note:** This command is useful for commands that do not repeat automatically.

## 18.42 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:

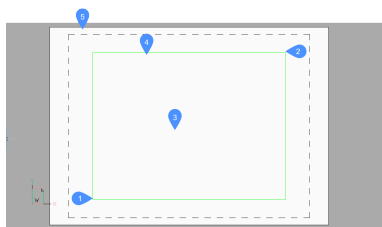
Alias: MV

**Note:** This command operates only in Paper Space.

**Note:** To create viewports in Model space, use the VPORTS command.

### 18.42.1 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)

### 18.42.2 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.

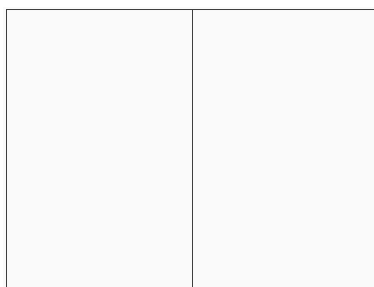
##### Horizontal

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.





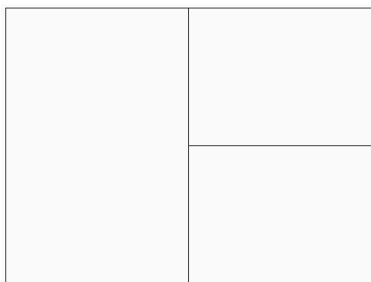
### **Below**

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**

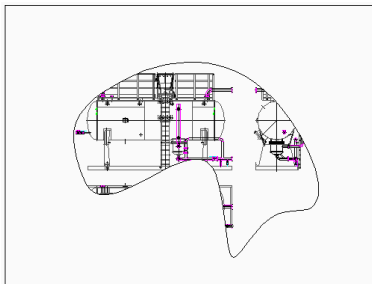
Draws four rectangular viewports of equal size.



### 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

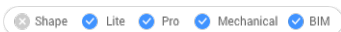
Draws the next line segment at a specified distance and angle.

### Follow

Draws the next line segment at the same angle.

## 18.43 MVSETUP command

Creates multiple paper space viewports and edits them.



### 18.43.1 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.



### 18.43.2 Method

There are two methods to use MVSETUP command:

- In Model tab.
- In Layer tab.

### 18.43.3 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

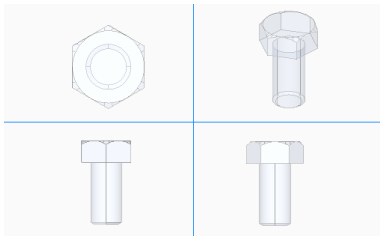
Creates viewports in the current layout.

#### 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**

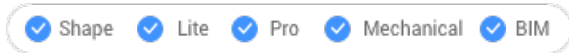
Scales the viewport on a metric scale.



## 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.

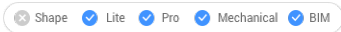
##### Right click

Brings up the Navigation Settings dialog box.



## 19.2 NEAREST command

Toggles the Nearest entity snap.



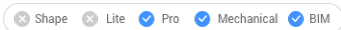
Icon:

### 19.2.1 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.

## 19.3 NETLOAD command

Opens the Netload dialog box.

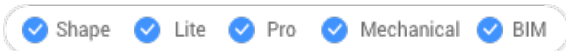


### 19.3.1 Description

Opens the Netload dialog box to select a dll file and load the application.

## 19.4 NEW command

Opens the Select template dialog box.



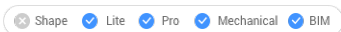
Icon:

### 19.4.1 Description

Opens the Select template dialog box to select a dwt or dwg file to use as a template for creating a new drawing.

## 19.5 NEWSHEETSET command

Opens the Create new sheet set dialog box.



Icon:

### 19.5.1 Description


Opens the Create new sheet set dialog box to create a new sheet set.

## 19.6 NEWWIZ command

Opens the Create new drawing dialog box.





Icon: 

Alias: DDNEW

## 19.6.1 Description

Open the Create new drawing dialog box to create a new drawing using a wizard.

## 19.7 NODE command

Toggles the Node entity snap.



Icon: 

## 19.7.1 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.

## 19.8 NONE command

Disables all 2D entity snaps.



Icon: 

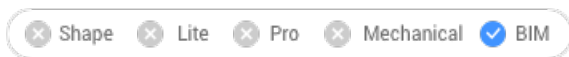
## 19.8.1 Description

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.

## 19.9 NUMBER command

Creates incremental number tags for BIM entities.



Icon: 

## 19.9.1 Description

Provides first index for the selected entities.



**Note:** Integer numbers are accepted.

### 19.9.2 Options within the command

#### **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, ...).

#### **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**

From oldest to most recent.

#### **Tolerance**

Specify the tolerance for sorting.

#### **Overwrite Numbers**

Allows to overwrite or keep existing numbers.

#### **Kept**

Existing numbers are kept.





### Overwritten

Existing numbers are overwritten.



## 20. 0

### 20.1 OBJECTSCALE command

Adds or removes scale factors.



Icon:

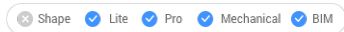
#### 20.1.1 Description

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.

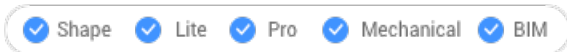
**Note:** See SCALELISTEDIT command.



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

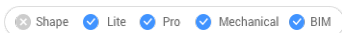
Places the offset entity on the current layer.

### Source

Places the offset on the same layer as that of the source entity.

## 20.4 OLELINKS command

Opens the Links dialog box.

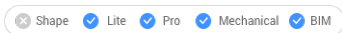


### 20.4.1 Description

Opens the Links dialog box to view and manage OLE links.

## 20.5 OLEOPEN command

Opens the selected OLE object.



### 20.5.1 Description

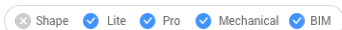
Opens the selected OLE object in the source application for editing. (short for "object linking and embedding linking"). If the link between the drawing and the source application is broken, the OLE object cannot open.

**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.



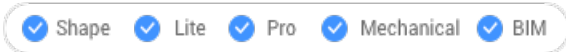
### 20.6.1 Description

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

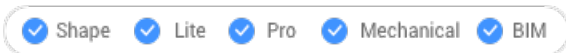
#### 20.7.1 Description


Restores the last erased entity, including those erased by the **Block** command. 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.



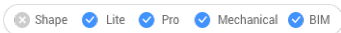
Icon: 

#### 20.8.1 Description

Opens the Open file dialog box to select a file to open in the drawing editor.

### 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.

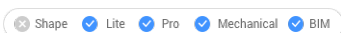


#### 20.10.1 Description

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

Opens the Optimize 2D lines dialog box.





Icon:

## 20.11.1 Description

Opens the Optimize 2D lines dialog box to correct inaccuracies in the current drawing. These inaccuracies may include small gaps between lines or lines that are almost vertical, horizontal or 45 degrees.

## 20.12 -OPTIMIZE command

Corrects inaccurately-drawn entities.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 20.12.1 Description

Corrects inaccuracies in drawings, such as removing small gaps between lines and straightening lines that are nearly vertical or horizontal; works at the command line.

**Note:** This command operates only on lines; it does not function with other entities, such as polylines and other open entities.

	<ol style="list-style-type: none"><li>1 Line drawn at a slight angle.</li><li>2 Line optimized by being made horizontal.</li></ol>
--	--

### 20.12.2 Options within the command

#### change reference Angles

Specify the slopes of angles to straighten out:

##### Horizontal lines

Straighten out nearly-horizontal lines (near 0 degrees).

##### Vertical lines

Straighten out nearly-vertical lines (near 90 degrees).

##### 45-Degree lines

Fix lines nearly at 45-degrees.

##### All

Fix all lines.

#### change Tolerances

Specify the maximum values for angles, distance, rounding and gaps.

##### Specify 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.

##### Specify distance tolerance

Sets the distance tolerance.

Parallel Lines within this distance will be merged.



### Specify rounding tolerance

Sets the rounding tolerance.

The calculated coordinates of the start- and endpoints will be rounded to the closest multiple of the rounding tolerance.

### Specify gap tolerance

Sets the gap tolerance.

Gaps between collinear lines within the gap tolerance will be filled.

**Note:** Distance units are those specified by the INSUNITS variable.

### change closing Gap settings

Specify whether gaps should be closed or not.

## 20.13 OPTIONS command

Opens the Settings dialog box with the **Program options** category expanded.



Icon:

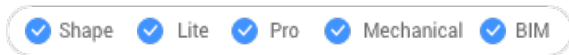
Alias: CFG, CONFIG, OP, PREFERENCES, PREFS

### 20.13.1 Description

Opens the Settings dialog box with the **Program options** category expanded to view and modify relevant system variables.

## 20.14 ORTHOGONAL command

Toggles the ORTHOMODE system variable.



Alias: OR, ORTHO

### 20.14.1 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.

## 20.15 OSNAP command

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



Alias: DDESnap, DDOSnap, OS, SETESnap

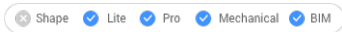


### 20.15.1 Description

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

## 20.16 -OSNAP command

Toggles entity snap modes.



Alias: -OS, ESNAP

### 20.16.1 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.

### 20.16.2 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.

## 20.17 OVERKILL command

Deletes duplicate and overlapping entities and combines duplicate blocks.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM



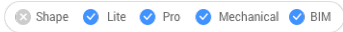
### 20.17.1 Description

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.

After selecting the entities, Delete Duplicate Entities dialog box is displayed.

### 20.18 -OVERKILL command

Deletes duplicate and overlapping entities and combines duplicate blocks.



#### 20.18.1 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.

#### 20.18.2 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**

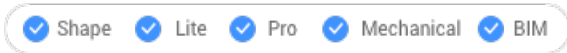
Deletes duplicate block definitions.



## 21. P

### 21.1 PACKAGE command

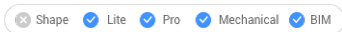
Creates a package ZIP file of the drawing and its dependencies.



See the -ETRANSMIT command.

### 21.2 PAGESETUP command

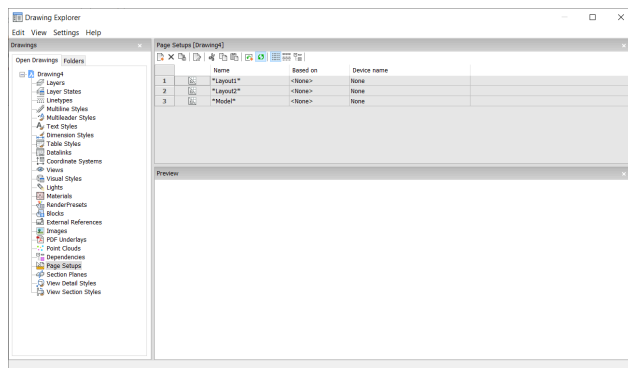
Opens the Drawing explorer dialog box with **Page Setups** selected.



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

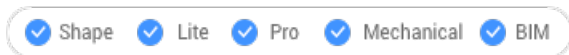
Selects all page setup definitions.


### 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.

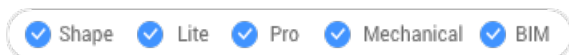
**Note:** The PERSPECTIVE system variable must be set to 0.

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.

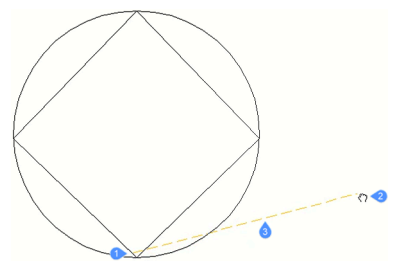
**Note:** The PERSPECTIVE system variable must be set to 0.

### 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.



	<ol style="list-style-type: none"><li>1 Pan base point.</li><li>2 Pan cursor which specifies the pan displacement point.</li><li>3 Pan displacement.</li></ol>
---	--

## 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.

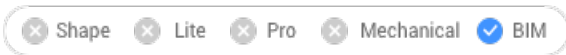
### PaGe Down

Pans the drawing 100% downwards.

**Note:** You can also press Shift + Down cursor key.

## 21.5 PANELIZE command

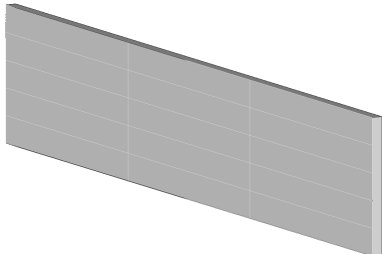
Creates a grid on the face of a 3D Solid, as a block reference.



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 PARAMETERCOPYMODE command

## 21.8 -PARAMETERS command

Manages dimensional-constraint parameters.





### 21.8.1 Description

Creates, edits, renames, and deletes parametric equations made of dimensional constraints and user-defined variables; works at the Command line.

### 21.8.2 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.

## 21.9 PARAMETERSPANELCLOSE command

Closes the Parameters and constraint panel.

Shape Lite Pro Mechanical BIM

### 21.9.1 Description

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

## 21.10 PARAMETERSPANELOPEN command

Opens the Parameters and constraints panel.

Shape Lite Pro Mechanical BIM

Icon: 

### 21.10.1 Description

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

## 21.11 PARAMETRICBLOCKIFY command

Replaces equally shaped sets of solids with parametric block references.

Shape Lite Pro Mechanical BIM





Icon:

## 21.11.1 Description

Automatically replaces equally shaped sets of solids, matching a selected parametric block or a set of parametrized solids in a model, by parametric block references.

**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.

## 21.11.2 Methods

There are two methods to use PARAMETRICBLOCKIFY command:

- Select parametric block/s
- Select parametrized entities

## 21.11.3 Options

### check Library

Searches the components library for parametric blocks. The current drawing is then searched for matching geometry. This geometry is then replaced by inserts of the block(s) in the library.

**Note:** the library search path is: <Install\_Folder>/UserDataCache/Support/<Language>/BIM/Components.

### Settings

Displays the BLOCKIFYMODE system variable in the Settings dialog box.

### use Default point

Uses the default insertion point.

### Entire drawing

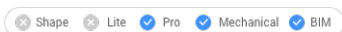
Searches the entire drawing for matching geometry.

### Use default name

Uses the default block name (Param\_Block) to which adds an incrementing number.

## 21.12 PARAMETRIZE command

Applies constraints automatically.



### 21.12.1 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).

## 21.13 PARAMETRIZE2D command

Automatically applies 2D geometric and dimensional constraints to selected 2D geometry.





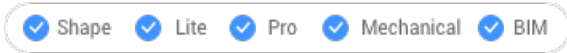
### 21.13.1 Description

Select the 2D entities to automatically add dimensional and geometrical constraints.

The parameters and constraints can be edited in the Parameters and constraints panel or in Mechanical browser.

### 21.14 PASTEBLOCK command

Pastes CAD entities from the Clipboard as a block.



Icon:

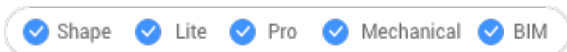
**Note:** Before you can use this command, first use the COPYCLIP or COPYBASE commands to copy entities from the current drawing, or even from another CAD program.

#### 21.14.1 Description

This command can only paste CAD entities into the drawing as block entities. Other Clipboard content may be pasted as OLE entities.

### 21.15 PASTECLIP command

Pastes 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.

#### 21.15.1 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.

#### 21.15.2 Options within the command

##### Rotate

Specifies the angle by which to rotate the entities.

##### Scale

Specifies the scale factor.

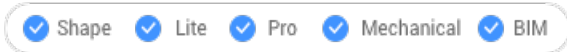
##### Mirror

Mirrors the entities about a mirror line in a 2D plane.



### 21.16 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 commands to copy entities from the current drawing.

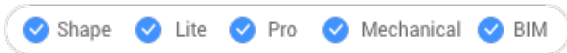
#### 21.16.1 Description

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.

### 21.17 PASTESPEC command

Opens the Paste special dialog box.



Icon:

Alias: PA

#### 21.17.1 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.

### 21.18 PDF command

Opens the Attachments panel.



Icon:

#### 21.18.1 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.

### 21.19 PDFADJUST command

Adjusts graphical properties of a PDF underlay.





Icon:

### 21.19.1 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.

### 21.19.2 Options

#### Fade

Sets the fade setting of the PDF underlay(s).

- 0: minimum fade: Underlay PDF is fully displayed
- 100: maximum fade: Underlay PD 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

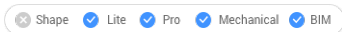
Turns colors into shades of gray.

#### No

Keeps the PDF as-is.

### 21.20 PDFATTACH command

Opens the Select PDF underlay file dialog box.



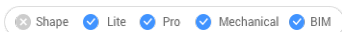
Icon:

### 21.20.1 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.

### 21.21 -PDFATTACH command

Attaches a PDF file as an underlay.



### 21.21.1 Description

Attaches a PDF file as an underlay into the current drawing through the command bar.



### 21.21.2 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 only has 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

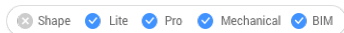
Scales the underlay separately in X-an Y direction differently.

#### Rotation Angle

Specifies the angle of the underlay.

## 21.22 PDFCLIP command

Clips a PDF underlay with a boundary.



Icon: 

### 21.22.1 Description

Clips a PDF underlay with a rectangular or polygonal boundary and inverts the boundary.

### 21.22.2 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.

## 21.23 PDFIMPORT command

Imports a PDF and converts its content to simple CAD entities.



Icon:

### 21.23.1 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

### 21.23.2 Options

#### 21.23.3 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.

### 21.23.4 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.



### 21.24 -PDFIMPORT command

Imports a PDF and converts its content to simple CAD entities.

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For more information see PDFIMPORT command.

### 21.25 PDFLAYERS command

Toggles the display of layers in PDF underlays.

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#### 21.25.1 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.

### 21.26 PDFOPTIONS command

Opens the Settings dialog box with the **PDF export** category expanded.

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#### 21.26.1 Description

Opens the Settings dialog box with the **PDF export** category expanded to view and modify relevant system variables.

### 21.27 PEDIT command

Edits polylines.

☒ Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

Alias: EDITPLINE, PE

#### 21.27.1 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.

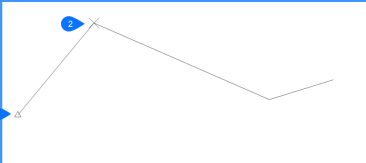
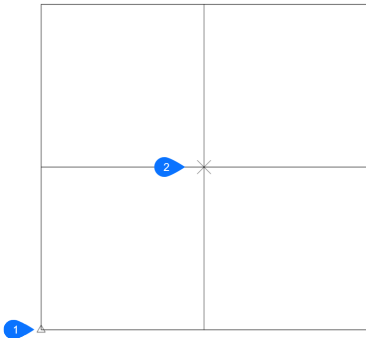
#### 21.27.2 Options

##### Edit vertices

Edits the vertices.





	<ol style="list-style-type: none"><li>1 Triangle marker at the start of the polyline.</li><li>2 X marker at the current vertex.</li></ol>
	<ol style="list-style-type: none"><li>1 Triangle marker at the home vertex.</li><li>2 X marker at the current vertex.</li></ol>

**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.

**SSelect**

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 closed, 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 closed, 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.

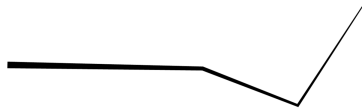
### Spline

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.

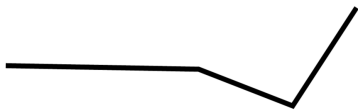
### Taper

Tapers the width of the entire polyline from one end to the other.



### Width

Changes the width of all segments.



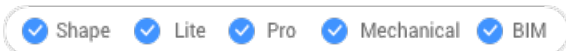
**Note:** This option overrides tapered widths.

### Undo

Undoes the last action.

## 21.28 PEDITEXT command

Edits vertices and segments of a polyline.



Icons:

### 21.28.1 Description

Edits vertices and segments of a polyline interactively, without first selecting the polyline.

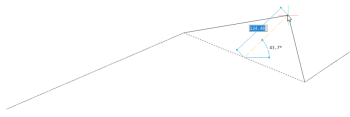
**Note:** This command was meant for use with the Quad cursor. See the related procedure Editing a polyline using the Quad on how to use this command with the Quad.

### 21.28.2 Options



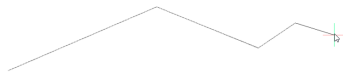
## Add vertex

Adds a vertex to the selected segment.



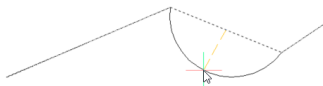
## add vertex at the End

Adds a new vertex at the end of the polyline.



## adjust Bulge

Modifies the bulge factor of the selected segment.

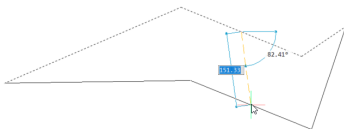


## Remove segment

Deletes the selected segment.

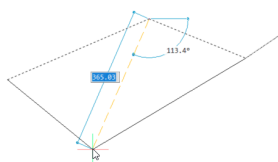
## Stretch segment

Moves the selected segment.



## Stretch Vertex

Moves the selected vertex.



## 21.29 PERPENDICULAR command

Toggles the Perpendicular entity snap.





Icon:

## 21.29.1 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.

## 21.30 PFACE command

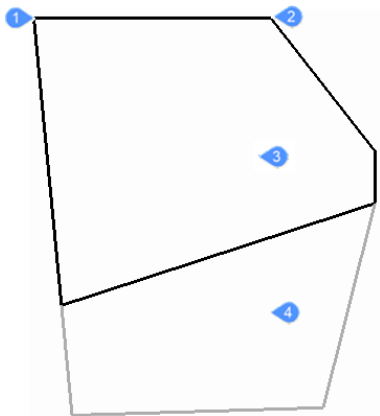
Draws multi-sided meshes.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon:

### 21.30.1 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

### 21.30.2 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.

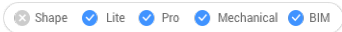
#### Layer

Specify the layer name for the edge by entering the name of a layer.



### 21.31 PLACEVIEW command

Import named views from a source drawing.



#### 21.31.1 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.

#### 21.31.2 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.

#### 21.31.3 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.

### 21.32 PLAN command

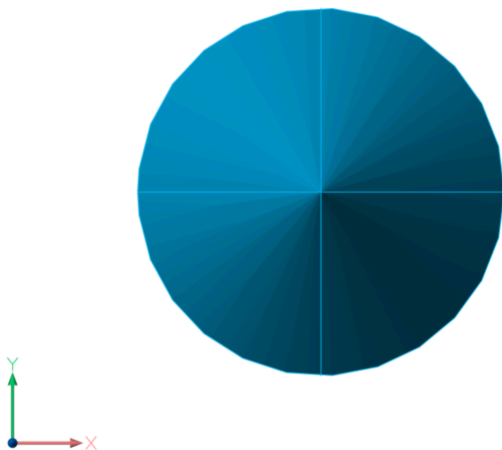
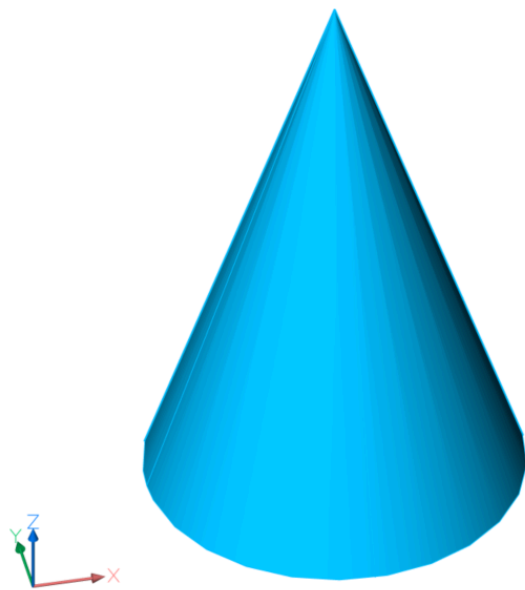
Displays the plan viewpoint of drawings.



Icon:

#### 21.32.1 Description

Shows the 3D model in plan view which looks straight down on the x,y-plane.



## 21.32.2 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 the system variable [DUCS](#) (insert link) 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.

## 21.33 PLINE command

Creates a polyline.

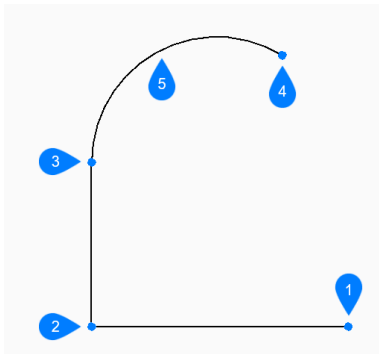


Icon:

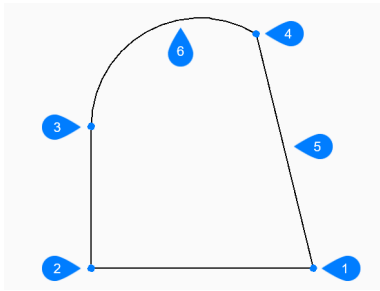
Alias: PL, POLYLINE

### 21.33.1 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

### 21.33.2 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.

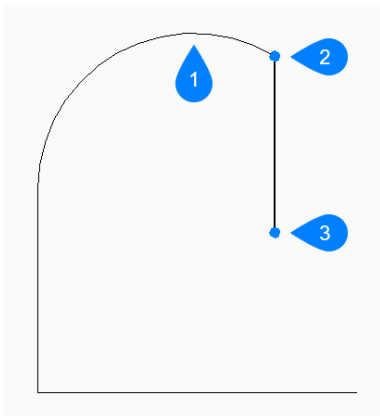
Additional options: [draw Arcs/Close/Distance/Follow/Halfwidth/Width/Undo]

#### 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

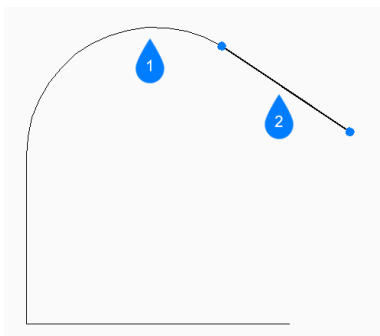
Additional options: [draw Arcs/Close/Distance/Follow/Halfwidth/Width/Undo]

### 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

### 21.33.3 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.

## 21.34 PLOT command

Opens the Print dialog box.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 21.34.1 Description

Opens the Print dialog box to specify print options and preview or print the current drawing.

## 21.35 -PLOT command

Plots drawings to printers and to files.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 21.35.1 Description

Plots drawings to printers and to files, through the Command line.

**Note:** This command is meant for scripts and routines.

### 21.35.2 Method

Choose whether to proceed a detailed plot configuration.

### 21.35.3 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 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?

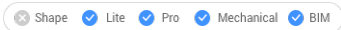
Toggles plotting of the drawing.

### Enter a page setup name

Specifies the name of a page setup.

## 21.36 PLOTSTAMP command

Opens the Plot stamp dialog box.

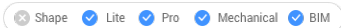


### 21.36.1 Description

Opens the Plot stamp dialog box to add information about drawings to the edge of the plotted drawing.

## 21.37 PLOTSTYLE command

Sets the current plot style.



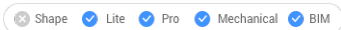
### 21.37.1 Description

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.

## 21.38 PLOTTERMANAGER command

Create and edit plotter settings.



### 21.38.1 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.

## 21.39 PNGOUT command

Opens the Save PNG dialog box.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

## 21.39.1 Description

Opens the Save PNG dialog box to save data from the current drawing to a png file. The current view specifies what data to include in the image.

## 21.40 POINT command

Creates a point.

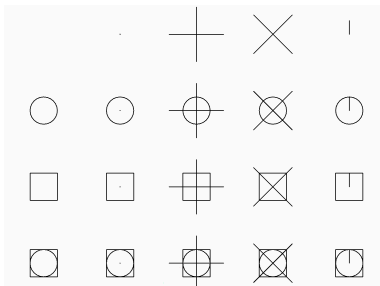
✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

Alias: PO

### 21.40.1 Description

Creates one or multiple points, controlling their size and style.



### 21.40.2 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]

### 21.40.3 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.

## 21.41 POINTCLOUD command

Manages Point Cloud files.

✗ Shape ✗ Lite ✓ Pro ✓ Mechanical ✓ BIM

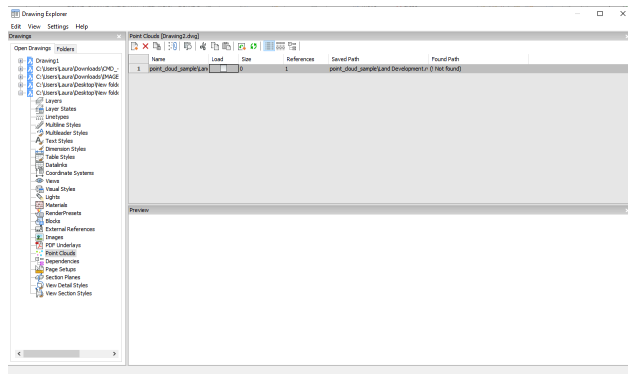
Icon:





## 21.41.1 Description

Displays the Point Clouds category of the Drawing explorer:



## 21.41.2 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.

## 21.41.3 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

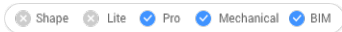
Deselects the current selection and vice versa.

### Run extended search for missing attachments

Runs an extended search for missing attachments.

## 21.42 POINTCLOUDALIGN command

Rotates the point cloud to optimally align it with the X and Y axes.



Icon:

### 21.42.1 Description

Rotates the point cloud to optimally align it with the X and Y axes in the world coordinate system. This enables you to efficiently create and edit entities relative to the point cloud using common tools such as orthogonal and polar tracking. If the current drawing has only one point cloud attached, it is automatically selected for the align operation. If the current drawing has more than one point cloud attached, you are prompted so select which point cloud to align.

### 21.42.2 Methods to align a point cloud

This command has 2 methods to align a selected point cloud.

- Full
- Selection

#### Full

Analyzes the entire point cloud to determine the optimal orientation.

#### Selection

Analyzes points within the selection window to determine the optimal orientation.

#### First corner point

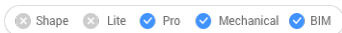
Specify the first corner of a rectangular selection window.

#### Specify opposite corner

Specify the opposite corner of a rectangular selection window.

## 21.43 POINTCLOUDATTACH command

Attaches point cloud files to the current drawing.



Icon:

### 21.43.1 Description

Displays the pre-process Attach Point Cloud dialog box.

**Note:** The files should be previously converted to BricsCAD's BPT format.



### 21.43.2 Options within the command

#### File

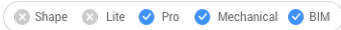
Specifies the file to import.

#### Folder

Specifies the folder to import.

## 21.44 -POINTCLOUDATTACH command

Attaches point cloud files to the current drawing.



### 21.44.1 Description

Attaches point cloud files (that were previously converted to BricsCAD's BPT format) to the current drawing through the Command line.

### 21.44.2 Options within the command

#### Specify point cloud data to attach

Specify point cloud link to attach to the current drawing.

#### Enter displacement vector

Enter displacement vector coordinates or specify on screen.

#### Rotation angle

Specify rotation angle.

#### Scale factor

Specify scale factor.

## 21.45 POINTCLOUDCOLORMAP command

Colorizes the point cloud.



Icon:

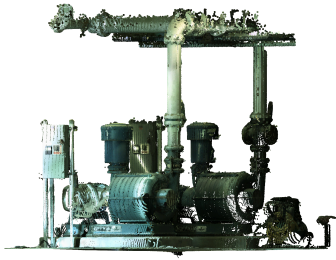
### 21.45.1 Description

Colorizes the point cloud based on a range of colors.

### 21.45.2 Options within the command

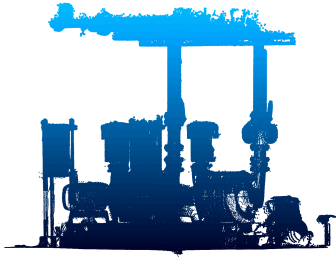
#### Scan

Assigns color based on the color data collected by the scan.



### Elevation

Assigns color based on the elevation of the points using a specified color map.



### Spectrum

Assigns a range of colors based across the color spectrum.

### Earth

Assigns a range of colors from light brown to dark brown.

### Hydro

Assigns a range of colors from light blue to dark blue.

### grAy

Assigns a range of colors from light gray to dark gray.

### Reds

Assigns a range of colors from light red to dark red.

### Greens

Assigns a range of colors from light green to dark green.

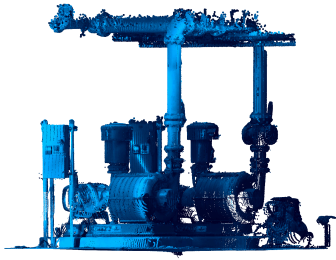
### Blues

Assigns a range of colors from light blue to dark blue.

### Intensity

Assigns colors according to their intensity value based on the specified color map.

**Note:** When the point cloud file contains no intensity data, then the colors are assigned by height, regardless of which option you select.



## 21.46 POINTCLOUDCROP command

Creates a crop boundary on a point cloud.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

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.

### 21.46.1 Method

Crops a point cloud entity, displaying only the part of the point cloud inside or outside a prismatic or cylindrical volume.

### 21.46.2 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.



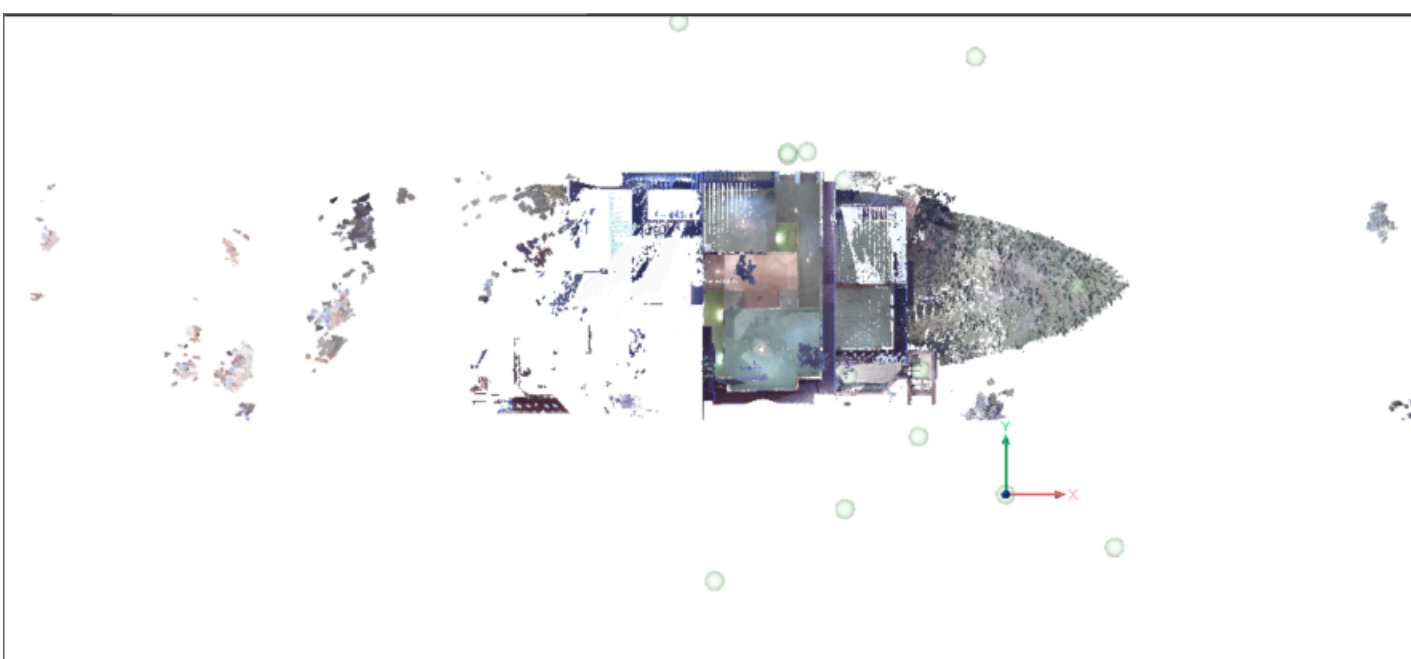


### Circular

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.

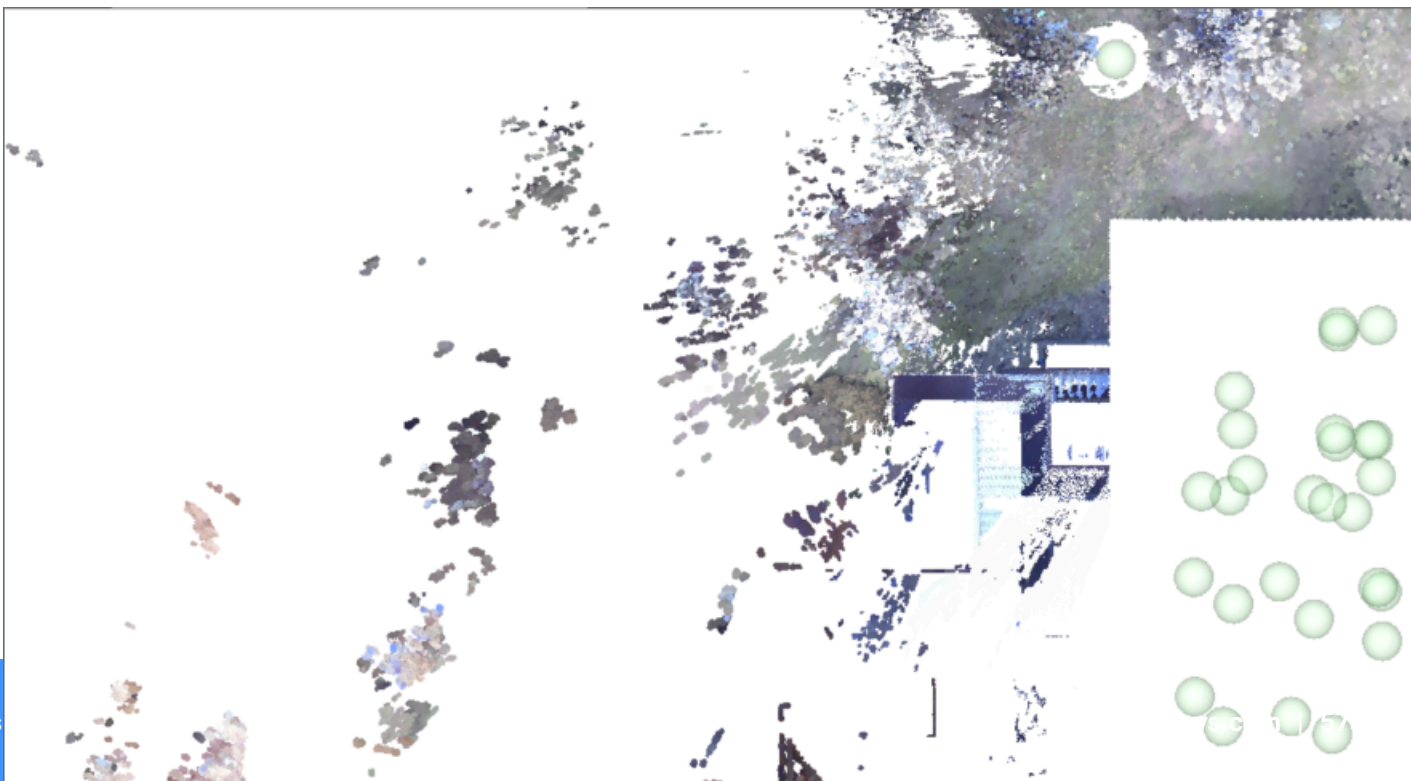
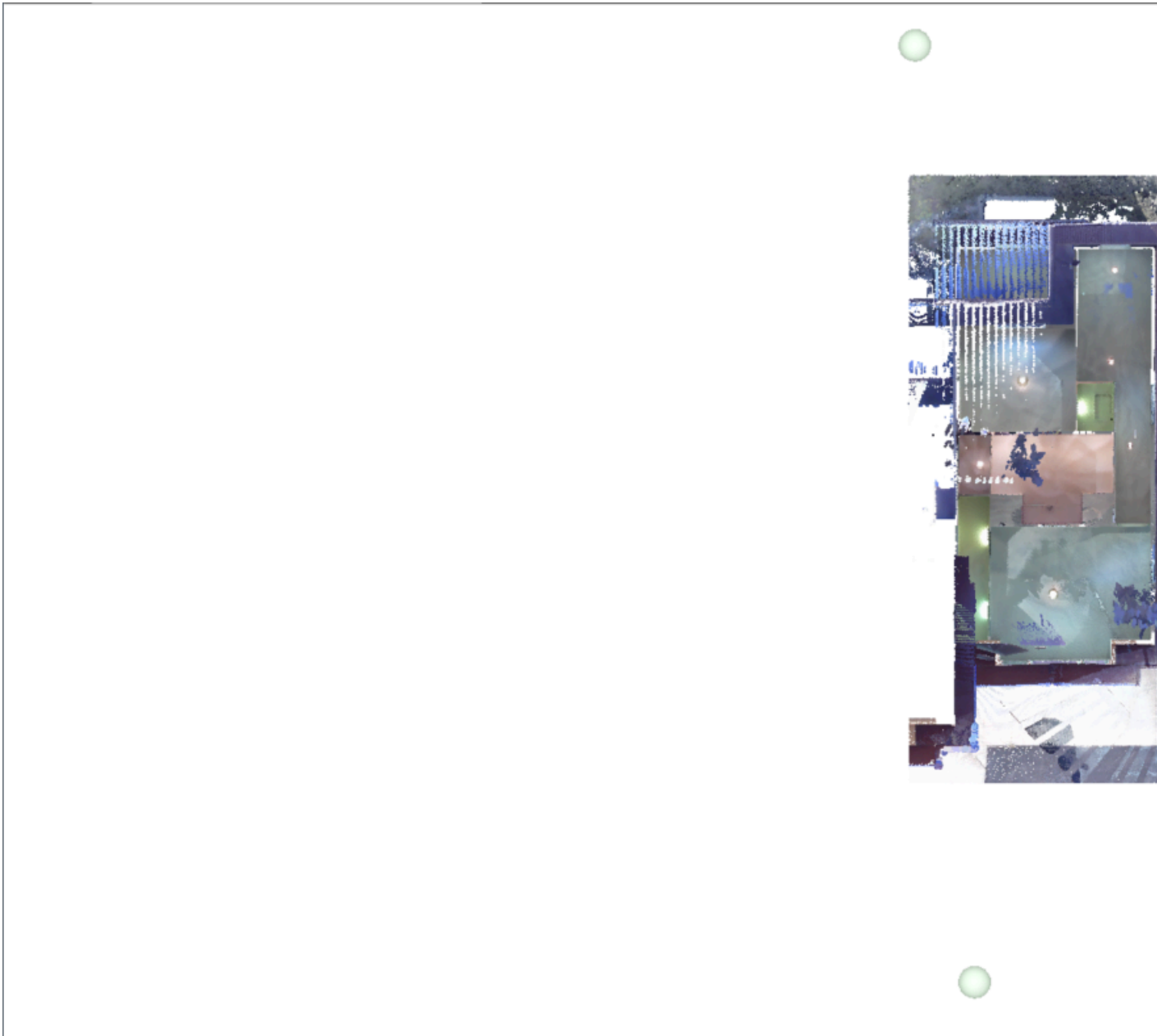
**Note:** The crop boundary creates a polygonal volume of points perpendicular to the view in which you defined it.





### **Invert**

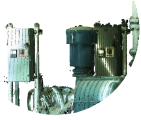
Inverts the current cropping. Toggles between Inside/Outside.





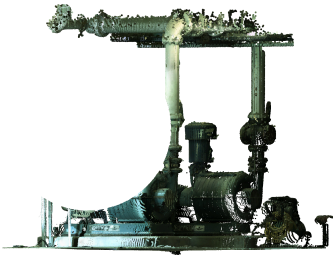
### Inside

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

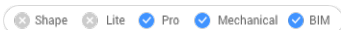
Removes the most recently added cropping volume.

### removeAll

Removes all cropping.

## 21.47 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.

### 21.47.1 Method

There are two methods to convert solids or polysolids to a crop solid:

- Inside
- Outside

### 21.47.2 Options within the command

#### Inside

Converts the selected solids into inside crop solids.



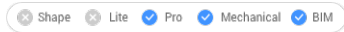
### Outside

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.

### 21.48 POINTCLOUDDELETEITEM command

Opens the Select Items To Delete From Cache dialog box.



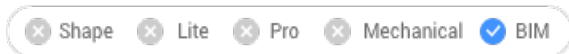
Icon:

#### 21.48.1 Description

Opens the Select Items To Delete From Cache dialog box to delete point cloud files from the cache.

### 21.49 POINTCLOUDDETECTFLOORS command

Generates volume sections.



Icon:

#### 21.49.1 Description

Generates volume sections for each floor found in a point cloud representing a building.

#### 21.49.2 Options within the command

##### Full

Automatically detects floors for the entire Point Cloud.

##### Selection

Specifies the Point Cloud area where to detect floors.

### 21.50 POINTCLOUDEXPORT command

Exports a cropped selection of a point cloud to a .pts file.



Icon:

#### 21.50.1 Description

Saves data from the current drawing to a pts file.


### 21.51 POINTCLOUDFITPLANAR command

Creates a planar surface or a solid.







Icon: 

### 21.51.1 Description

Searches a point cloud for a dense set of points and creates a planar surface or a solid.

**Note:** The command can be executed in model view or in a bubble view. Double click the bubble you want to start the command in.

### 21.51.2 Options within the command

#### Select point cloud entity

Specifies point cloud entity where to search.

#### Select point cloud in model view

Specifies point cloud entity where to create a planar surface or solid.

#### Accept

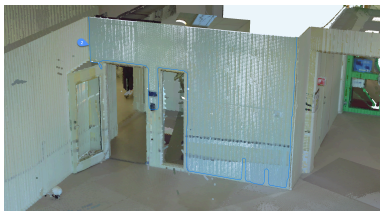
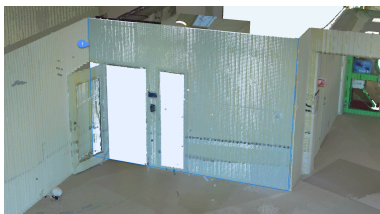
Accept current planar surface or solid.

#### Decline

Decline current planar surface or solid.

#### Mode

Switches between rectangular (1), contour (2) or solid (3).



**Note:** Solid is available in Model view only, if a dense area is detected in a plane that is parallel to the detected surface.

#### Undo

Removes the most recently added surface from the current selection. Use Decline to remove the surface that was selected first.



### Select point in bubble viewer or switch bubble

Specifies point in bubble viewer where to create a planar surface or solid.

#### Bubble

Switch between bubble viewers. Select bubble to switch to.



**Note:** Surfaces that share an edge will be joined according to the current value of the PlaneFitTolerance property of the point cloud. You can edit the value of this property in the Misc properties in the Properties panel.

**Note:** Use Shift + Click for rapid selection in bubble view.

#### Switch

Switch between bubble viewers. Select bubble to switch to.

## 21.52 POINTCLOUDIMPORT command

Opens the Select VRM file dialog box.

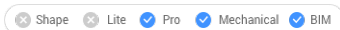


### 21.52.1 Description

Opens the Select VRM file dialog box to select a vrm file to import into the current point cloud cache location.

## 21.53 POINTCLOUDPOINTSIZEMINUS command

Decreases the display size of points in a point cloud.



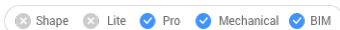
### 21.53.1 Description

Decreases the display size of points in a point cloud to see the individual scan points more clearly. This decreases the POINTCLOUDPOINTSIZESYSTEM variable by one.

This command displays no prompts and has no options.

## 21.54 POINTCLOUDPOINTSIZEPPLUS command

Increases the display size of points in a point cloud.







### 21.54.1 Description

Increases the display size of points in a point cloud to visually fill gaps between individual scan points. This increases the POINTCLOUDPOINTSIZE system variable by one.

This command displays no prompts and has no options.

### 21.55 POINTCLOUDPREPROCESS command

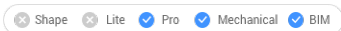
Attaches point cloud files to the current drawing.



**Note:** Since BricsCAD V20, this command has been replaced by the POINTCLOUDTATTACH command.

### 21.56 -POINTCLOUDPREPROCESS command

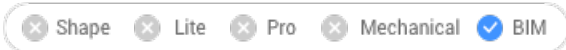
Attaches point cloud files to the current drawing.



**Note:** Since BricsCAD V20, this command has been replaced by the -POINTCLOUDTATTACH command.

### 21.57 POINTCLOUDPROJECTSECTION command

Automatically generates a 2D raster image with optional contour lines from a defined section box.



Icon:

#### 21.57.1 Description

Opens the Wall detection options dialog box.

### 21.58 POINTCLOUDREFERENCE command

Opens the Select item to Attach to this Drawing dialog box.



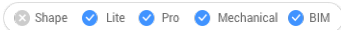
Icon:

#### 21.58.1 Description

Opens the Attach to this Drawing dialog box to attach point cloud files from the cache to the current drawing.

### 21.59 POINTCLOUDSHOWBUBBLES command

Toggles the display of point cloud bubbles.



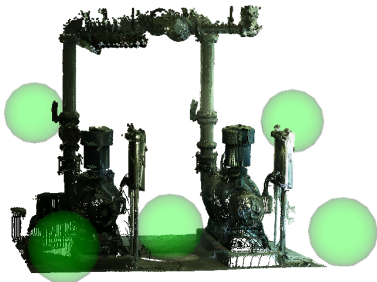
**Note:** You can change the bubbles size in the Properties panel.



### 21.59.1 Options within the command

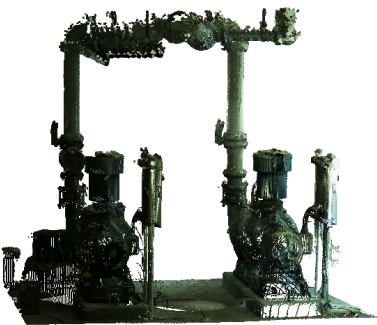
#### Yes

Displays the bubbles.



#### No

Does not display the bubbles.




### 21.60 POINTCLOUDUNCROP command

☒ Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 21.61 POINTLIGHT command


Places point lights.

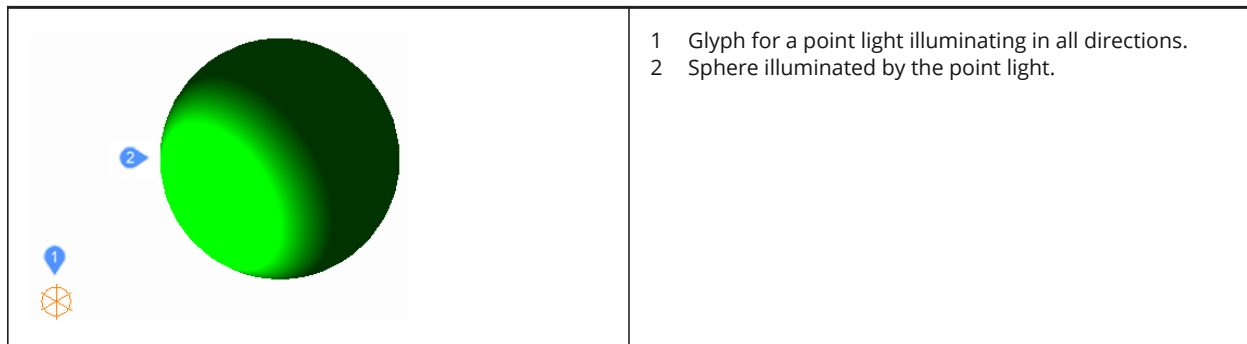
☒ Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

#### 21.61.1 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. 



**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.

### 21.61.2 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 sAmples**

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**

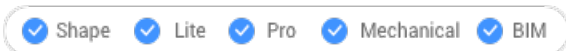
Specifies the color using three parameters Hue, Saturation and Lightness.


## **Colorbook**

Specifies a bookcolor name.

## **21.62 POLYGON command**

Creates a closed polyline in the shape of a polygon.

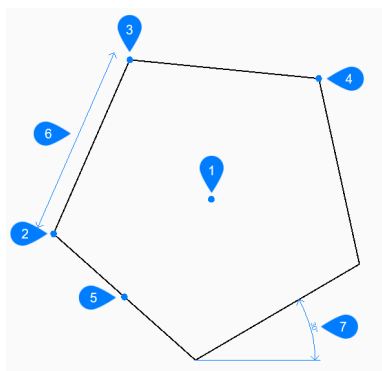


Icon: 

Alias: POL

### **21.62.1 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



### 21.62.2 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]

### 21.62.3 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

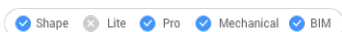
Specify the endpoints of one edge of the polygon to define its size and angle.

#### 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.

## 21.63 POLYSOLID command

Creates a 3D solid in the shape of a wide, extruded polyline.

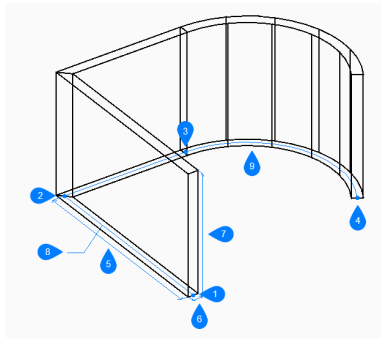


Icon:

Alias: PSO

### 21.63.1 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

### 21.63.2 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.

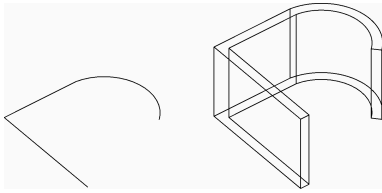
The height is saved in the PSOLHEIGHT variable.

#### 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.

## 21.63.3 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

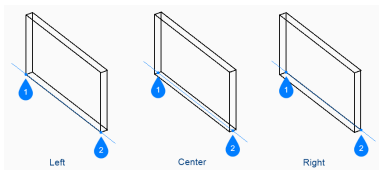
Specify the width of the polysolid.

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.

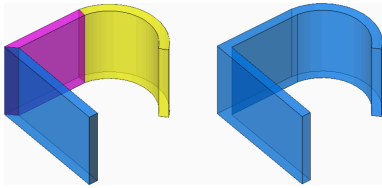


### Separate solids

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.



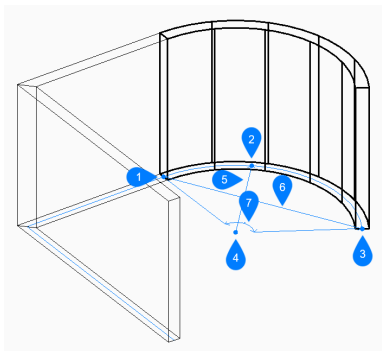


### Dynamic

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]

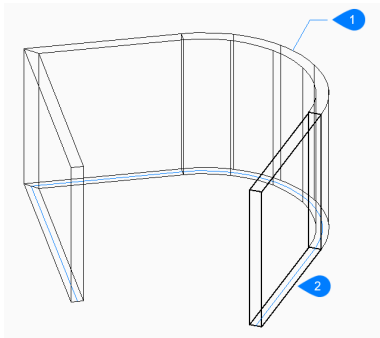
### Distance

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.



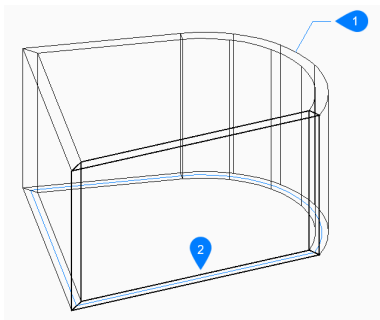
- 1 Last drawn segment
- 2 Follow

### Undo

Undo the last polysolid segment and continue drawing from its previous start point.

### Close

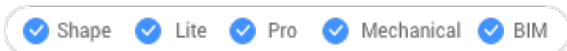
Automatically draw a polysolid segment from the end point of the last segment to the start point of the first segment. This ends the command.



- 1 Last drawn segment
- 2 Close

## 21.64 PREVIEW command

Displays the Preview window so that you can check how the drawing looks before plotting it.



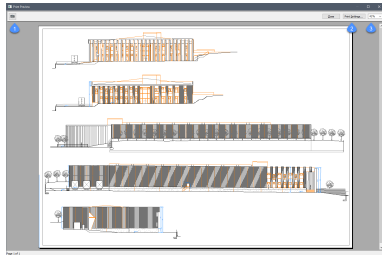
Icon:

Alias: PREVIEW, PRE

**Note:** This command does not work with the "None" printer; use the PRINT or PAGESETUP command to first specify a printer.

### 21.64.1 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

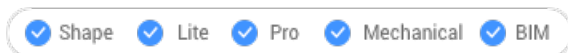
Displays the PRINT dialog box. See PAGESETUP command.

## 3. Zoom

Changes the size of the preview.

## 21.65 PRINT command

Opens the Print dialog box.



Icon: 

### 21.65.1 Description

Opens the Print dialog box to specify print options and preview or print the current drawing.

## 21.66 PROFILEMANAGER command

Opens the User profile manager dialog box.



### 21.66.1 Description

Opens the User profile manager dialog box to create and manage user profiles.

## 21.67 PROJECTGEOMETRY command

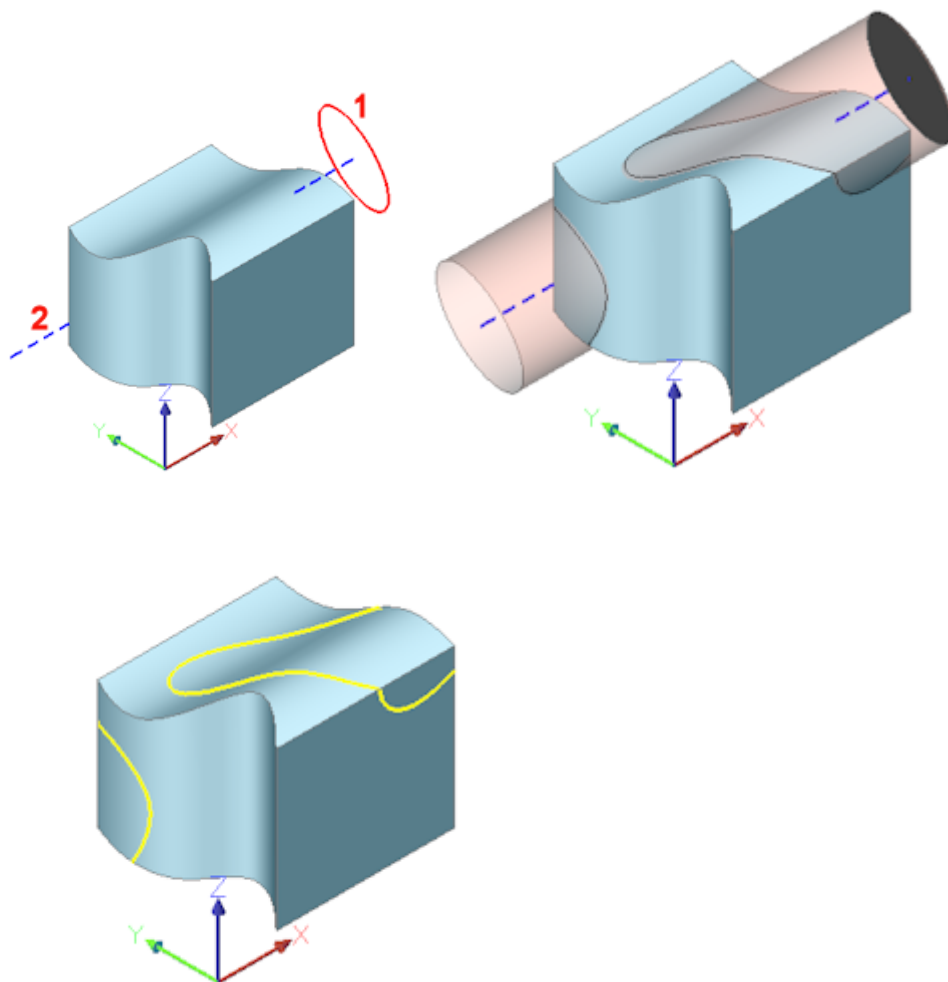
Projects 2D geometry.



Icon: 

### 21.67.1 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

## 21.67.2 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

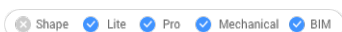
Uses the Z-axis of the current UCS.

### Points

Specify the start and end point of the projection direction.

## 21.68 PROPERTIES command

Opens the Properties panel in Properties mode.





Icon:

Alias: CH, DDCHPROP, DDMODIFY, MO, PR, PROPS

### 21.68.1 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.

## 21.69 PROPERTIESCLOSE command

Closes the Properties panel.

Shape Lite Pro Mechanical BIM

Alias: PRC

### 21.69.1 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.

## 21.70 PROXYINFO command

Opens the Proxy information dialog box.

Shape Lite Pro Mechanical BIM

### 21.70.1 Description

Opens the Proxy information dialog box to view information about proxy entities and toggle their display in the current drawing.

## 21.71 PSETUPIN command

Opens the Select page setup from file dialog box.

Shape Lite Pro Mechanical BIM

### 21.71.1 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.

## 21.72 -PSETUPIN command

Imports page setup definitions.

Shape Lite Pro Mechanical BIM

### 21.72.1 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.

### 21.72.2 Method

Run the command to open the Select Page Setup From File dialog box.

## 21.73 PSPACE command

Switches from model space and paper space viewports.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Alias: PS

### 21.73.1 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.

## 21.74 PUBLISH command

Opens the Publish dialog box.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icon: 

### 21.74.1 Description

Opens the Publish dialog box to batch print a specified set of drawings.

## 21.75 -PUBLISH command

Prints the content of a DSD file.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

### 21.75.1 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.

### 21.75.2 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.

## 21.76 PURGE command

Removes unused named entities from drawings.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon:

Alias: PU

## 21.76.1 Method

Specify which type of entities to be purged.

## 21.76.2 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 after 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

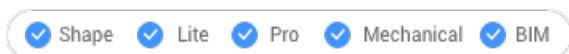
Removes empty text entities from the current drawing.

### Orphaned data

Performs a drawing scan and removes obsolete DGN linestyle data.

## 21.77 -PURGE command

Removes unused named entities from drawings.

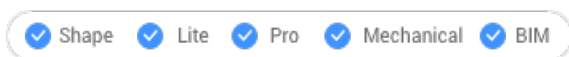


Alias: -PU

See the PURGE command.

## 21.78 PYRAMID command

Creates a 3D Solid in the shape of a pyramid.



Icon: 

Alias: PYR

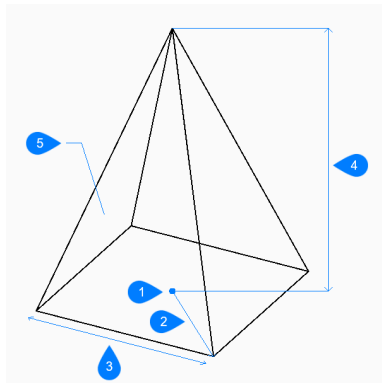
**Note:** In BricsCAD Lite, which doesn't support 3D Solids, the PYRAMID command launches the AI\_PYRAMID command.





## 21.78.1 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

## 21.78.2 Methods to create a pyramid

This command has 2 methods to begin creating a pyramid:

- Specify center point
- Edge

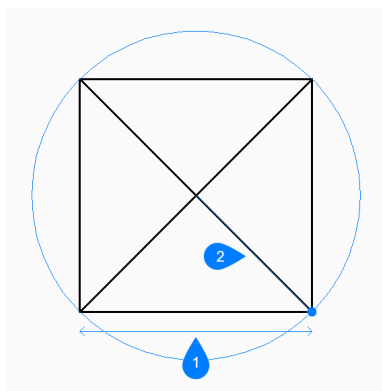
### Specify center point

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]

### 21.78.3 Options within the PYRAMID command

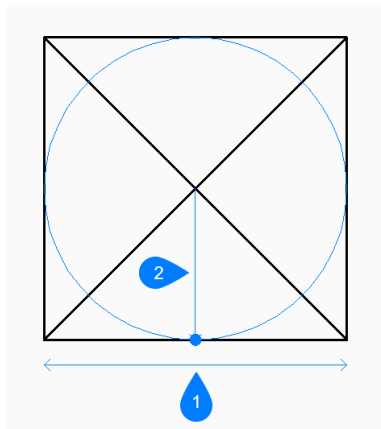
After you begin creating a pyramid, the following options may be available:

#### 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

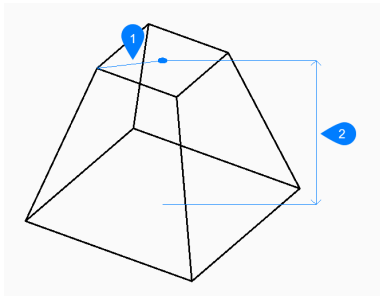
Specify the height of the pyramid as the distance between any two points.

#### 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.



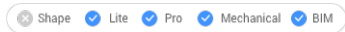
- 1 Top radius
- 2 Height



## 22. Q

### 22.1 QLEADER command

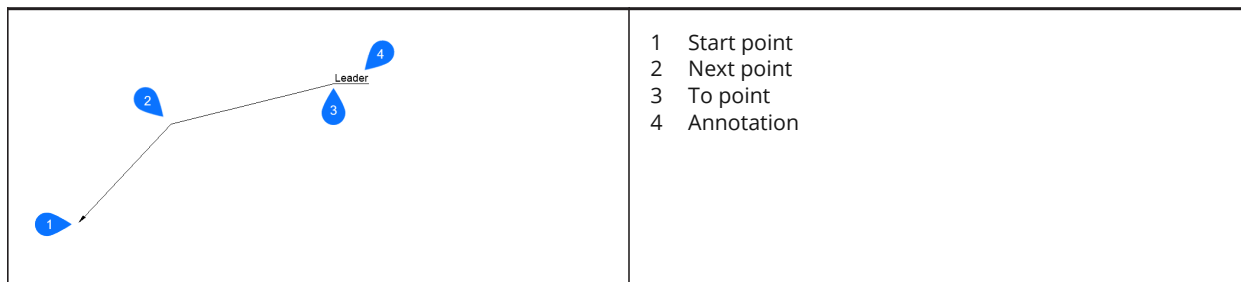
Draws leaders through a dialog box.



Icon:

#### 22.1.1 Description

Draws leaders with a variety of annotation types and allows you to specify the properties through a dialog box.



#### 22.1.2 Options within the command

##### Settings

The QLeader Settings dialog box pops up. Several settings can be specified there.

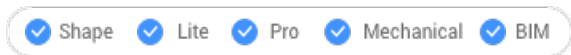
##### Text width

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.

### 22.2 QNEW command

Starts a new drawing based on the default template file.



Icon:

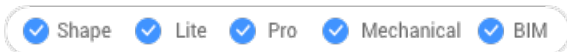
Alias: N


#### 22.2.1 Description

Opens a new document tab based on the default template and user profile (short for "quick new").

### 22.3 QPRINT command

Prints the drawing using the default print configuration.



Icon: 

## 22.3.1 Description

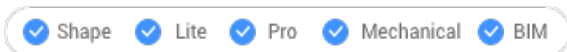
Allows printing a drawing without displaying the Print dialog box (short for "quick print").

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.

## 22.4 QSAVE command

Saves the drawing immediately.



Icon: 

### 22.4.1 Description

Saves the drawing without displaying the Save dialog box (short for "quick save").

### 22.4.2 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.

## 22.5 QSELECT command

Opens the Properties panel in Quick select mode.



Icon: 

### 22.5.1 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.

## 22.6 QTEXT command

Toggles the QTEXTMODE system variable.



Alias: QT



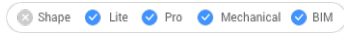
### 22.6.1 Description

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.

### 22.7 QUADRANT command

Toggles the Quadrant entity snap.



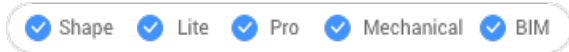
Icon:

#### 22.7.1 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.

### 22.8 QUIT command

Closes all open drawings and exits BricsCAD; offers the opportunity to save unsaved drawings.



Icon:

Alias: EXIT

#### 22.8.1 Method

If all drawings have been saved before, the commands exits BricsCAD without displaying a dialog box.

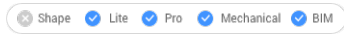
If there are unsaved files that are still open, you are asked if you want to save the drawings. For each unsaved drawing, a dialog box pops up and you can decide to save the drawing or not.



## 23. R

### 23.1 RAY command

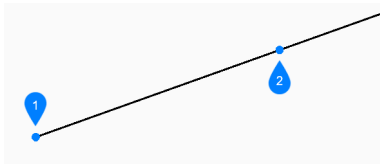
Creates rays.



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:

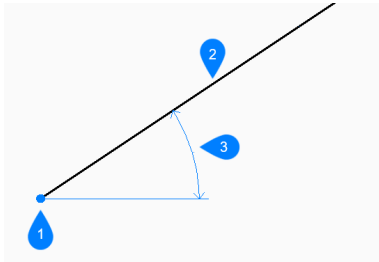
#### Enter angle

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.

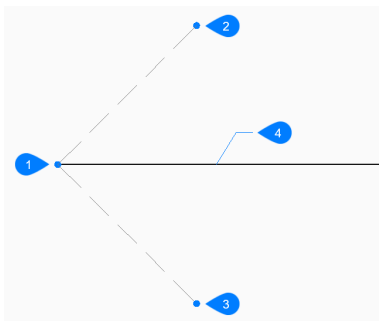
Additional option: [Entity]

#### 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

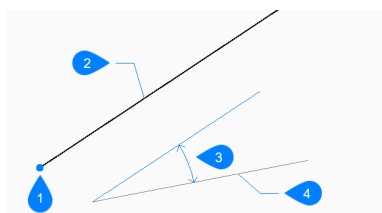
Specify the angle to place the ray relative to the selected entity.

#### 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:

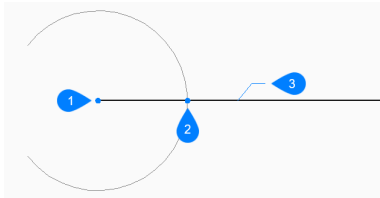


### Select side for ray bisection

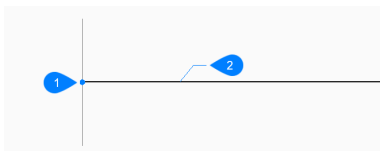
Specify the side on which to place the ray.

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

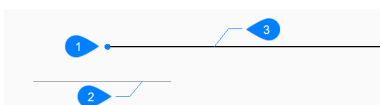
Specify a point through which to draw the ray.

### 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:

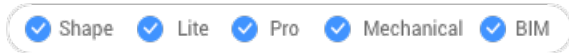


### 23.2.1 Description

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.



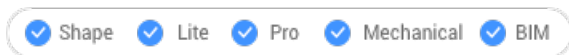
Icon:

### 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.



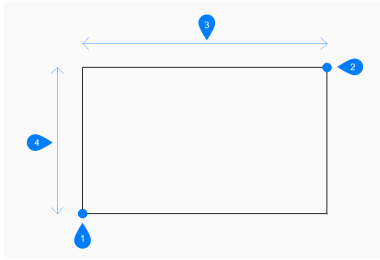
Icon:

Alias: REC, RECT, RECTANGLE



### 23.6.1 Description

Creates a closed, four-sided rectangular polyline [Insert link to Polyline Entities article 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:

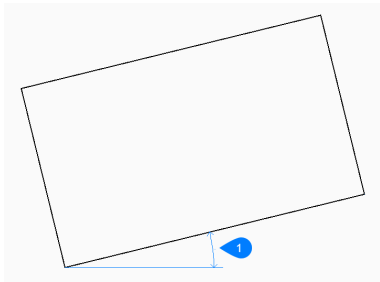
Additional options: [Chamfer/Fillet/Rotated/Square/Elevation/Thickness/Width of line/Area/Dimensions]:

#### 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:

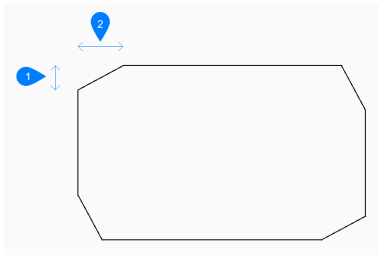
### **Chamfer**

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

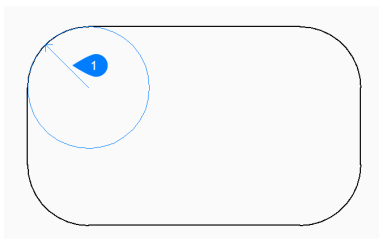


- 1 First chamfer distance
- 2 Second chamfer distance

## 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.



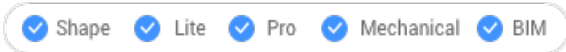
### 23.7.1 Description

Reactivates commands that were deactivated with the Undefine command by entering the name of the undefined command.



## 23.8 REDO command

Reverses the action of the previous U or UNDO command.



Icon:

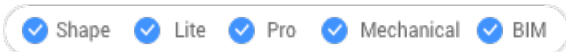
### 23.8.1 Description

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.

## 23.9 REDRAW command

Redraws entities in the current viewport.



Icon:

Alias: R

### 23.9.1 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.

## 23.10 REDRAWALL command

Redraws entities in all viewports.



Icon:

Alias: RA

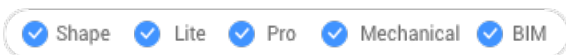
### 23.10.1 Description

Redraws entities in all viewports to remove graphic debris such as blip or drag marks.

This command displays no prompts and has no options.

## 23.11 REDSDKINFO command

Displays rendering related hardware and driver specifications in the command bar.





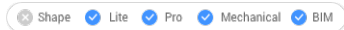
### 23.11.1 Description

Prints a report in the command window containing information about the graphics capabilities of your computer.

Press F2 to open the prompt history window.

### 23.12 REFCLOSE command

Closes the reference drawing editor.



Icons:

#### 23.12.1 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.

#### 23.12.2 Methods

There are 2 methods to close the reference drawing editor:

- Save
- Discard

#### 23.12.3 Options

##### Save

Saves the Reference drawing including the changes.

##### Discard

Saves the Reference drawing without saving the changes.

### 23.13 REFEDIT command

Edits block references and externally referenced drawings.



Icon:

#### 23.13.1 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 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 the message that you cannot edit the selected xref block.

**Note:** Only one reference can be edited at a time.





### 23.14 -REFEDIT command

Edits block references and externally referenced drawings.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

#### 23.14.1 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.

#### 23.14.2 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.

## 23.15 REFERENCECURVES command

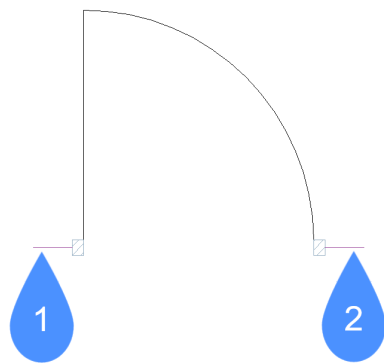
Creates reference geometry to automatically align a block during insertion.

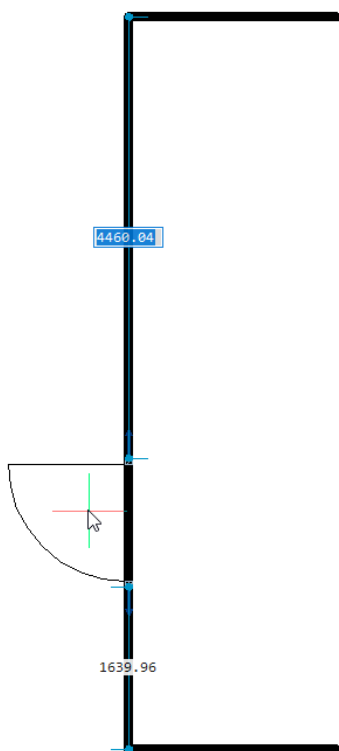
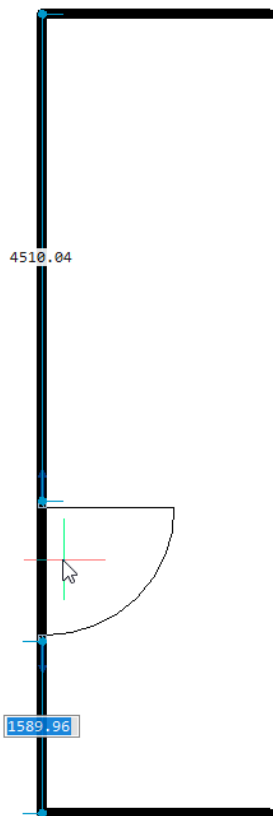
Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

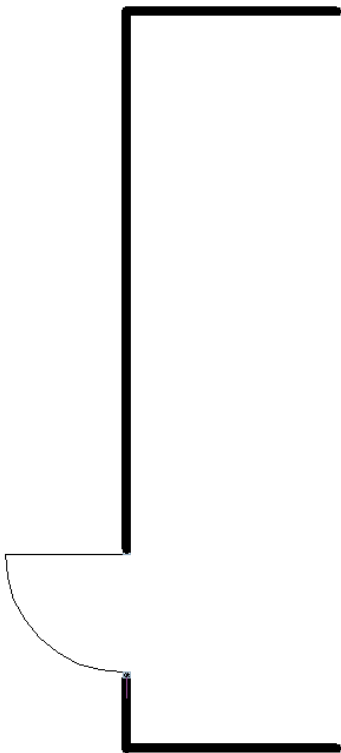
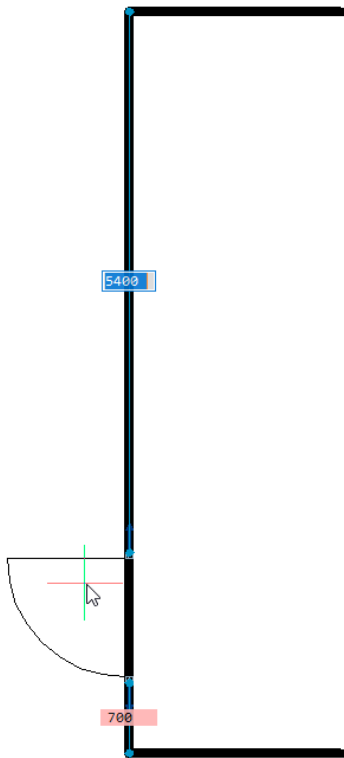
### 23.15.1 Method

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.

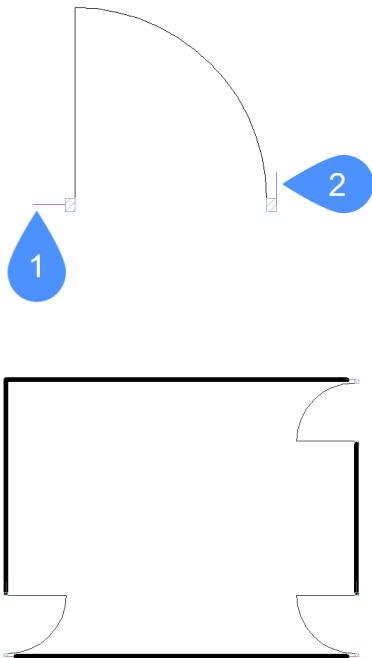








You can also use reference curves to automatically align with corners. The following example includes a parallel reference curves (1) and a corner reference curve (2) enabling the door block to align with geometry that matches the parallel line and the perpendicular line.



### 23.16 REFSET command

Adds or removes entities from the reference (block or xref) being edited.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

Icons:

#### 23.16.1 Description

Transfers objects between the RefEdit working set and host drawing.

**Note:** This command can be used only after the REFEDIT command has commenced.

#### 23.16.2 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.

### 23.17 REGEN command

Regenerates entities in the current viewport.

☒ Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM



Icon: 

Alias: RE

## 23.17.1 Description

Regenerates entities in the current viewport for optimal display and selection performance.

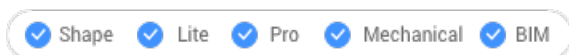
REGEN does the following:

- 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.

## 23.18 REGENALL command

Regenerates entities in all viewports.



Icon: 

Alias: REA

## 23.18.1 Description

Regenerates entities in all viewports for optimal display and selection performance.

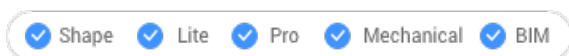
REGENALL does the following:

- 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.

## 23.19 REGENAUTO command

Toggles the REGENMODE system variable.



## 23.19.1 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.



## 23.20 REGION command

Creates regions.



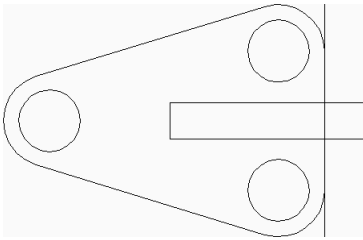
Icon:

Alias: REG

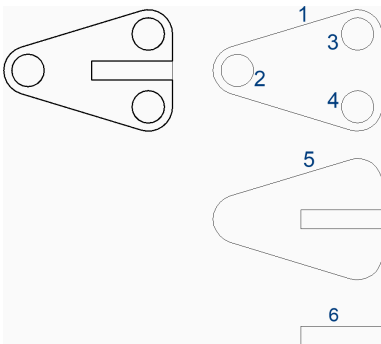
### 23.20.1 Description

Creates regions from closed entities or sets of entities that enclose a space.

Original entities:



Regions (6):



### 23.20.2 Options to create a region

This command has 1 option to begin creating 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 (?)]

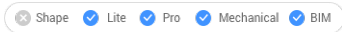
### 23.20.3 Options within the REGION command

Selection options (?)



## 23.21 REINIT command

Reloads the alias (PGP) file.



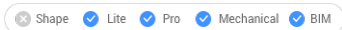
Alias: RI

### 23.21.1 Description

Reloads the alias (PGP) file after it has been edited externally. A BricsCAD dialog box confirms if you want to reload the file.

## 23.22 RENAME command

Renames named entities through the Drawing explorer dialog box.



Alias: DDRENAME, REN

### 23.22.1 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.

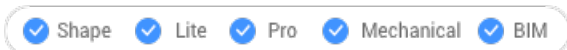
**Note:** To change names at the Command line, use the -RENAME command.

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"

## 23.23 -RENAME command

Renames entities in the Command line.



Alias: -REN





### 23.23.1 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.

#### **Vlew**

Renames views.

#### **ViewPort**

Renames viewport configurations.

### 23.24 RENDER command

Opens the Render dialog box.



Icon:

Alias: RR

#### 23.24.1 Description

Opens the Render dialog box to create a photo-realistic rendering of the current drawing.

### 23.25 -RENDER command

Renders 3D models.



#### 23.25.1 Description

Generates photo-realistic renderings of 3D models in the current viewport, and applies materials and lights if available; works at the Command line.



## 23.25.2 Options

### Render preset

Choose a preset rendering style from the ones included with the program, or else choose Other to select a custom preset made by users 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

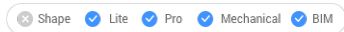
Display the rendering in one of the following locations:

- Viewport - displays the rendering in the current viewport. If the cursor hovers the working area the rendering result will disappear as the viewport is redrawn.
- File - saves the rendering as a BMP file in the folder defined by the DWGPREFIX variable.
- Render view - displays the rendering in a separate window. The dimensions of the rendering are specified in pixels.

## 23.26 RENDERCOMPOSITIONSMATERIAL command

## 23.27 RENDERPRESETS command

Creates and edits properties for renderings through Drawing explorer dialog box.

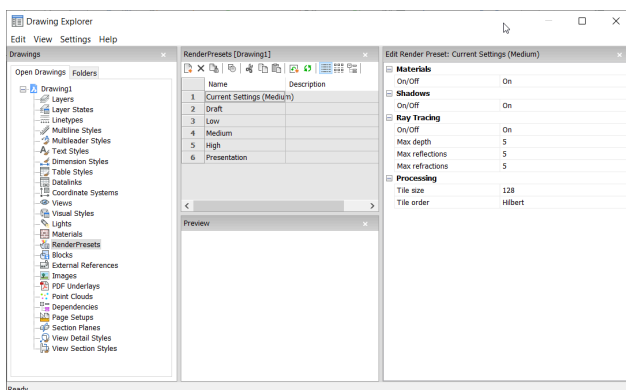


Icon:

Alias: ROPTIONS

### 23.27.1 Description

Opens the Drawing explorer dialog box with RenderPresets category selected to view and modify render presets in the current drawing.





### 23.27.2 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](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.

### 23.27.3 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.

## 23.28 RENDERWINCLOSE command

Closes the Render window.



### 23.28.1 Description

Closes the Render window, which had displayed the result of the Render command.

## 23.29 REPORTPANELCLOSE command

Closes the Report panel.



### 23.29.1 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.

## 23.30 REPORTPANELOPEN command

Opens the Report panel.

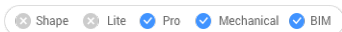


### 23.30.1 Description

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.

## 23.31 RESETASSOCVIEWS command

Removes associativity between 2D drawings and 3D models.

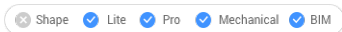


### 23.31.1 Description

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.

## 23.32 RESETBLOCK command

Resets parametric blocks to default values.



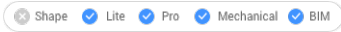


### 23.32.1 Description

Parametric blocks can be manipulated by users interactively, and so this command sets the blocks back to their original condition.

### 23.33 RESUME command

Resumes paused scripts.

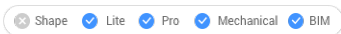



#### 23.33.1 Description

Resumes scripts after they have been stopped with Esc key.

### 23.34 REVLOUD command

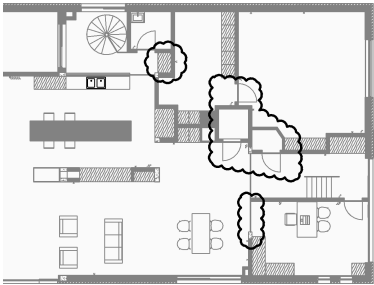
Creates a polyline in the shape of a revision cloud.



Icon: 

#### 23.34.1 Description

Creates a closed polyline in the shape of a revision cloud. Choose from a combination of options including rectangular, polygonal, freehand, and entity.



#### 23.34.2 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

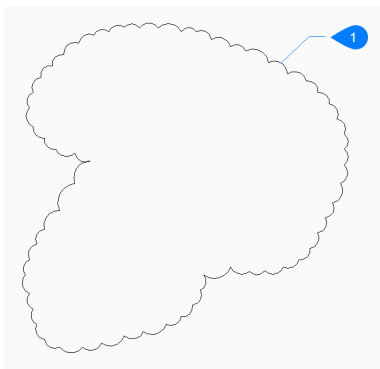
Begin creating a freehand revision cloud by specifying a start point then:

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

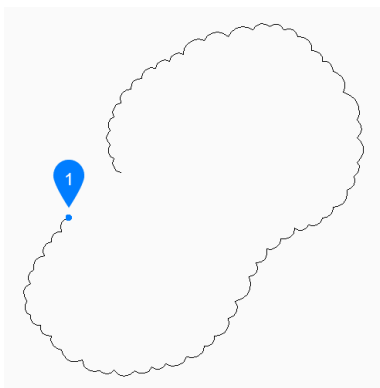
Or

Right-click to create an open revision cloud then:

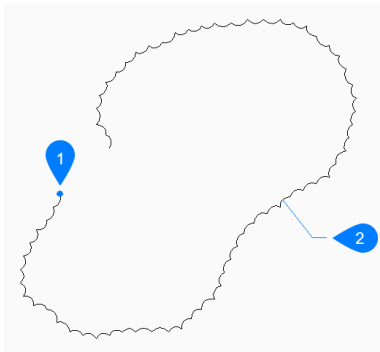
### Reverse direction [Yes/No]

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

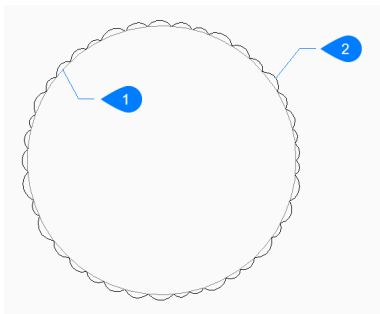
### Entity

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.

### 23.34.3 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.



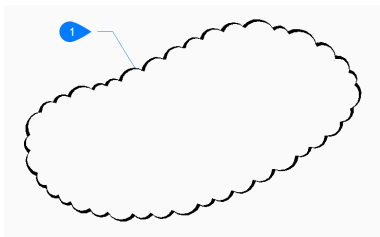


- 1 Minimum arc length
- 2 Maximum arc length

### 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

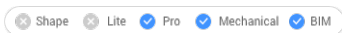
The arc style is stored in the REVCLLOUDARCSTYLE system variable.

### Undo

Undo the last segment in a polygonal revision cloud and continue drawing from the previous segment.

## 23.35 REVOLVE command

Revolves open or closed 2D entities, solid edges and faces into 3D solids or 3D surfaces.



Icon:

Alias: REV

### 23.35.1 Method

There are two methods to revolve open or closed 2D entities and solid edges:

- Solids
- Surfaces

### 23.35.2 Options within the command

#### Mode

Depending on the settings of the Mode, different kinds of entities are formed:

- Open 2D entities: Surfaces
- Closed 2D entities: Solids or surfaces
- Edges on 3D solids: surfaces



- Faces on 3D solids: solids or surfaces

**Note:** Almost any kind of 2D or 3D entity can be used, as long as the resulting 3D entity doesn't intersect itself.

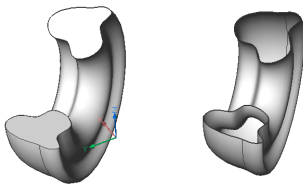
**Note:** The DELOBJ variable determines whether the source entities are retained or deleted following this command.

### Solid

Creates a 3D solid.

### Surface

Creates a 3D surface.



### Axis of revolution

Specifies the starting point and endpoint 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 an object. Pick a line or a polyline segment.

### Xaxis

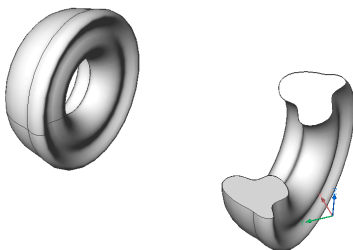
Uses the x axis of the current coordinate system as the axis of rotation.

### Yaxis

Uses the y axis of the current coordinate system as the axis of rotation.

### Angle of revolution

Specifies how far around the source entity is rotated about the axis.



## 23.36 REVSURF command

Creates a 3D mesh surface by revolving a linear entity around a line (short for "revolved surface").

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

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.

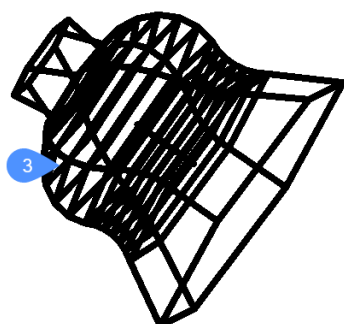
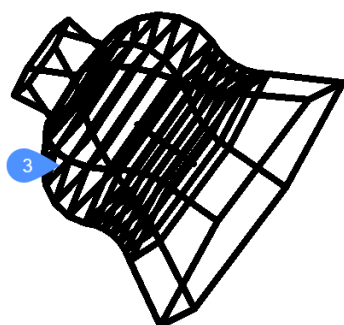
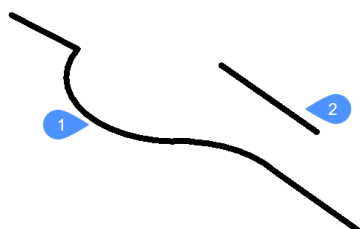
The SURFTAB2 system variable controls the number of segments of each arc segment in the revolved entity

### 23.36.1 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.

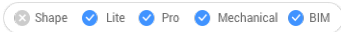
Specifies the starting angle (4) of the revolution and the angle revolved (5), the number of degrees by which the entity is revolved.





### 23.37 RIBBON command

Opens the Ribbon panel.

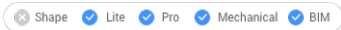


#### 23.37.1 Description

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

### 23.38 RIBBONCLOSE command

Closes the Ribbon panel.



#### 23.38.1 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.

### 23.39 ROTATE command

Rotates entities about a specified point.



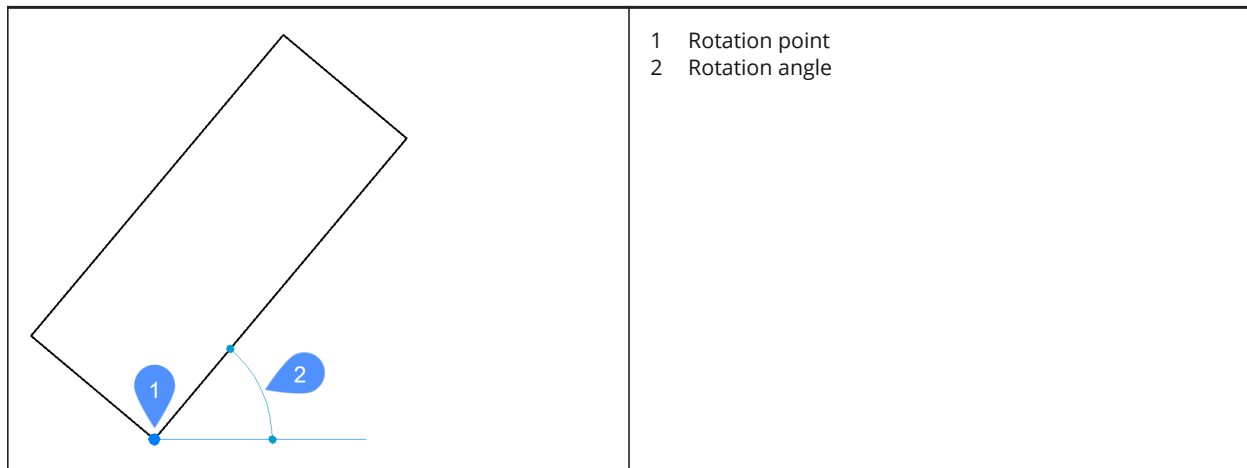
Icon:

Alias: RO

#### 23.39.1 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.



## 23.39.2 Options within the command

### Base angle

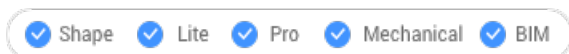
Specifies a new base angle, which is a starting angle other than 0. This option lets you define a different angle as the starting point.

### Copy

Rotates a copy of the source entity, instead of rotating the source itself.

## 23.40 ROTATE3D command

Rotates entities about an axis in 3D space.



Icon: 

Alias: 3DROTATE, 3R

### 23.40.1 Method

There are two methods to rotate entities:

- Specify an axis.
- Use the geometry of an entity as the axis for rotating the entities.

### 23.40.2 Options within the command

#### Entity

The program uses the geometry of the entity to determine the axis of rotation:

- Arc, circle, ellipse, 2D polyline arc segment: axis of rotation is centered vertically on the arc's center point.
- Line, 2D polyline segment, 3D polyline segment: the line or segment is the axis of rotation.

#### 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.

### Xaxis

The X axis is the axis of rotation.

**Note:** The axis of rotation is parallel to the X axis, passing through the picked point.

### Yaxis

The Y axis is the axis of rotation.

**Note:** The axis of rotation is parallel to the Y axis, passing through the picked point.

### Zaxis

The Z axis is the axis of rotation.

**Note:** The axis of rotation is parallel to the Z axis, passing through the picked point.

### 2points

Defines the rotation axis by two points.

### Rotation angle

Specifies the angle by which to rotate the entities.

### Base angle

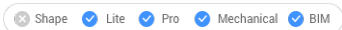
Specifies a new base angle.

### Copy

Rotates a copy of the selection set.

## 23.41 RSCRIPT command

Reruns the currently loaded SCR script file.



**Note:** Load and run SCR script files with the Script command.

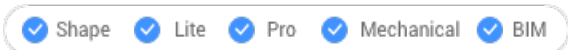
**Note:** This command can be entered transparently during commands ( **'rscript'** ).

### 23.41.1 Method

After a script file is loaded and run, enter RSCRIPT to run it again (short for "repeat script").

## 23.42 RTLOOK command

Looks around in a 3D scene.



### 23.42.1 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.



### 23.42.2 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**

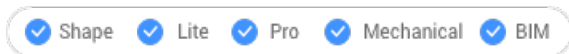
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

#### **Sphere**

Rotates the 3D drawing in real-time. Starts the RTROT command.

## 23.43 RTPAN command

Pans the drawing in real-time.



Icon: 

### 23.43.1 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.

### 23.43.2 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**

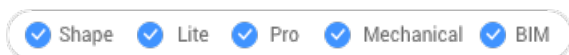
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

#### **Sphere**

Rotates the 3D drawing in real-time. Starts the RTROT command.

## 23.44 RTROT command

Rotates 3D drawings in a constrained manner, in real-time.



Icon: 



### 23.44.1 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.

### 23.44.2 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.

## 23.45 RTROTCTR command

Rotates 3D drawings about a center point that you pick in the drawing, in real-time.



### 23.45.1 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.

### 23.45.2 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

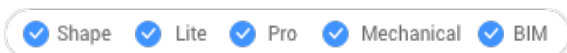
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

#### Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.


## 23.46 RTROTTF command

Rotates 3D drawings about a fixed point, in real-time.







Icon: 

### 23.46.1 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.

### 23.46.2 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

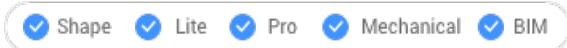
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.


#### Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

## 23.47 RTROTX command

Rotates 3D drawings in real-time about the x axis.



Icon: 

### 23.47.1 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.

### 23.47.2 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.

### 23.48 RTROTY command

Rotates 3D drawings in real-time about the y axis.



Icon:

#### 23.48.1 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.

#### 23.48.2 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

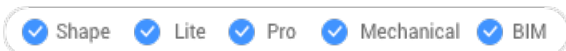
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

### Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

### 23.49 RTROTZ command

Rotates 3D drawings in real-time about the z axis.



Icon:

#### 23.49.1 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.

#### 23.49.2 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**

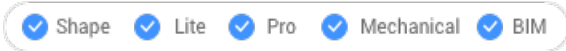
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

### **Sphere**

Rotates the 3D drawing in real-time. Starts the RTROT command.

## **23.50 RTUPDOWN command**

Moves the viewpoint up and down, and left and right in a 3D scene, in real time.



### **23.50.1 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.

### **23.50.2 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**

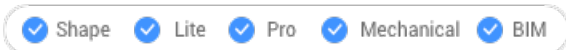
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.

### **Sphere**

Rotates the 3D drawing in real-time. Starts the RTROT command.

## **23.51 RTWALK command**

Walks left-right and forward-backwards through 3D scenes, in real-time.



### **23.51.1 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.

### **23.51.2 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

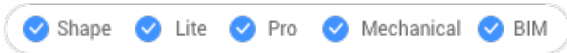
Rotates the 3D drawing in real-time. Starts the RTROTCTR command.


### Sphere

Rotates the 3D drawing in real-time. Starts the RTROT command.

## 23.52 RTZOOM command

Zooms the viewpoint in and out of the drawing in real-time.



Icon: 

### 23.52.1 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.

### 23.52.2 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 RULESURF command

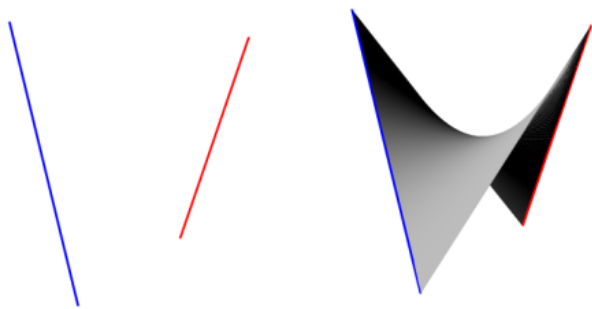
Creates 3D polygon mesh by connecting two separate linear entities (short for "ruled surfaces").



Icon: 

### 23.53.1 Description

Creates a 3D polygon mesh in the shape of a ruled surface by specifying two separate entities.



### 23.53.2 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.

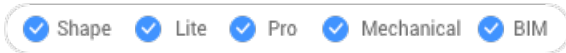
### 23.54 RUNASLEVEL command




## 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, or dwt file.

### 24.2 SAVEALL command

Opens the Save drawing as dialog box.

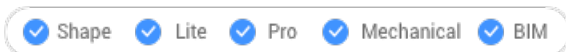



#### 24.2.1 Method

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.



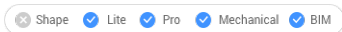
Icon: 

#### 24.3.1 Description

Opens the Save drawing as dialog box to save data from the current drawing to a dwg, dxf, or dwt file.

### 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 SAVEFILEFOLDER command

Opens the default file explorer.



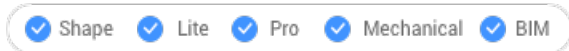


### 24.5.1 Description

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.

## 24.6 SCALE command

Resizes 2D and 3D entities.



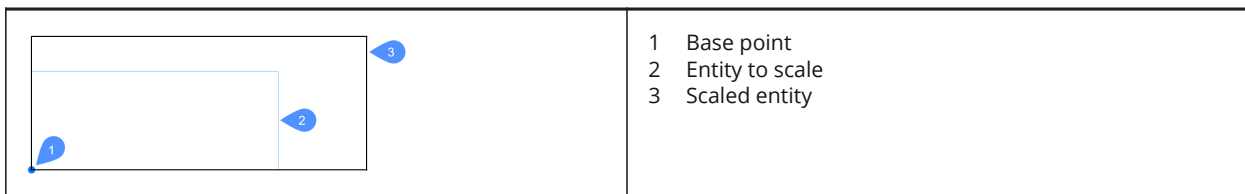
Icon:

Alias: SC

### 24.6.1 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.



### 24.6.2 Options within the command

#### Reference

Resizes entities using a base or reference scale.

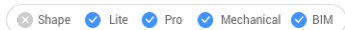
**Note:** Use this option to scale entities relative to other entities. This command normally scales from a base factor of 1.

#### Copy

Scales a copy of the selection set, leaving the original entities intact.

## 24.7 SCALELISTEDIT command

Opens the Edit scale list dialog box.



### 24.7.1 Description

Opens the Edit scale list dialog box to edit the list of scales accessible by some commands.

## 24.8 -SCALELISTEDIT command

Edits preset scale factors.



Shape Lite Pro Mechanical BIM

## 24.8.1 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.

## 24.8.2 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.

## 24.9 SCREENSHOT command

Opens the Save image file dialog box.

Shape Lite Pro Mechanical BIM

## 24.9.1 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.

## 24.10 SCRIPT command

Opens the Run script dialog box.

Shape Lite Pro Mechanical BIM

Icon: 

Alias: SCR

## 24.10.1 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.

## 24.11 SCROLLBAR command

Toggles the WNDLSCRL system variable.

Shape Lite Pro Mechanical BIM





### 24.11.1 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: 'WNDLSCRL.

- 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.

## 24.12 SECTION command

Creates section planes.



Icon:

Alias: SEC

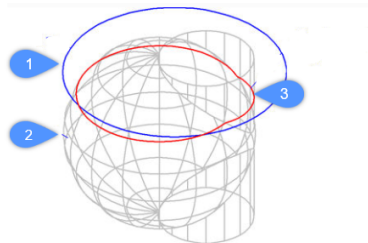
### 24.12.1 Description

Creates section planes of 3D solids, surfaces, polyface meshes, and 3D faces. The result is a slice made of region entities.

### 24.12.2 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.

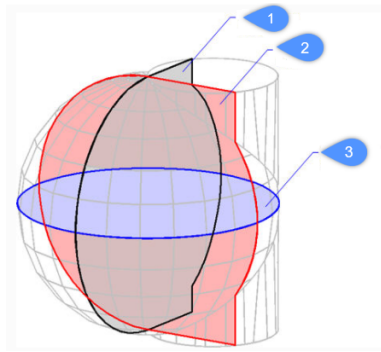
**Note:** The entity defines the plane through which to create the section.

#### 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.

## 24.13 SECTIONPLANE command

Creates section entities.



Icon:

### 24.13.1 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.

### 24.13.2 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

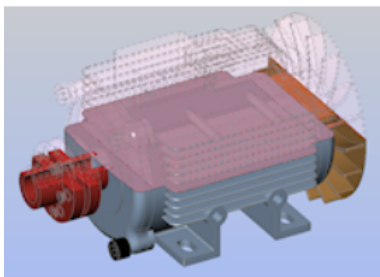
Define the section plane by two or more points. Draws L and U-shaped section planes.

**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:



## 24.14 SECTIONPLANESETTINGS command

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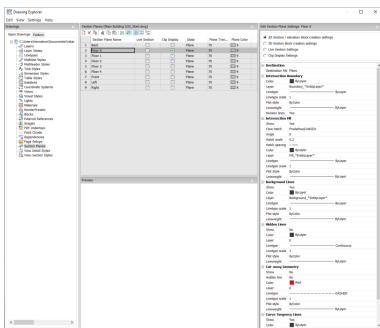
Icon:

### 24.14.1 Description

Opens the Drawing Explorer dialog box with Section Planes category selected.

### 24.14.2 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.

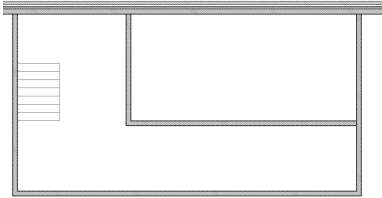


### 24.14.3 Options within the command

#### Section Types

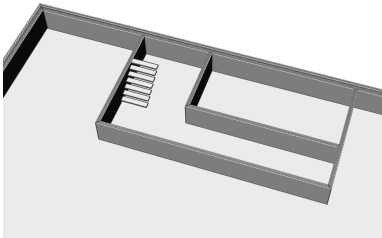
##### 2D Section/elevation block creation settings

Specifies properties for 2D sections and elevations. These properties are assigned to the 2D section you create as a block.



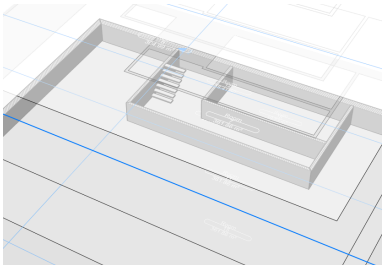
##### 3D section block creation settings

Specifies properties for 3D sections. These properties are assigned to the 3D section you create as a block.



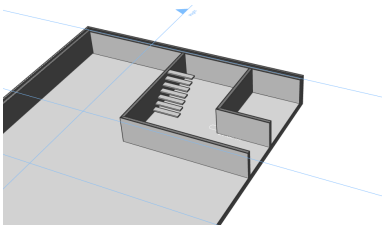
##### Live Section Settings

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.

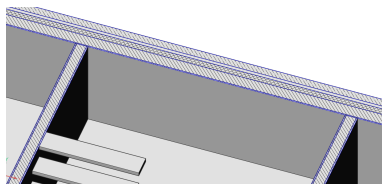
#### Division lines (option available for the 2D sections)

Specifies whether the division lines of the intersection boundary should be drawn.

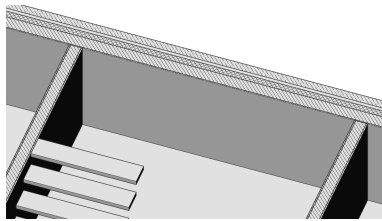
#### Show (option available for the 3D sections)

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.



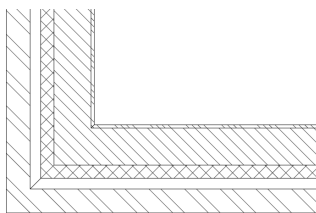
**Note:** The intersection boundary is still visible, since the lines are also drawn for the intersection fill. The color is now determined by the intersection fill instead of by the intersection boundary.

### 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

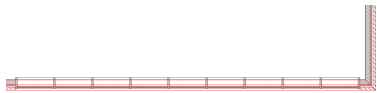
Specifies the lineweight of the hidden lines.

## Cut-away Geometry

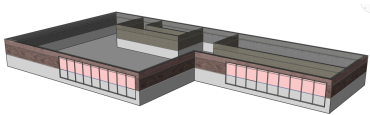
### Show

Specifies whether the section lines of the geometry that is cut away are shown.

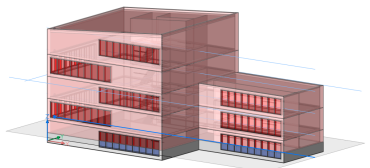
- Yes: the cut-away geometry is displayed.



Cut-away geometry of a 2D section.



Cut-away geometry of a 3D section.

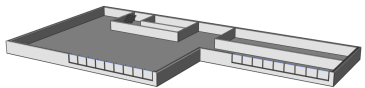


Cut-away geometry of a live section.

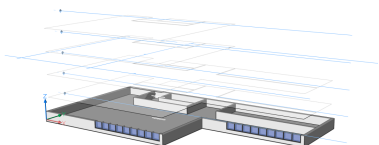
- No: no cut-away geometry lines are displayed



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.

## 24.14.4 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

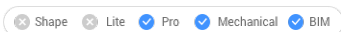
Selects all section plane definitions.

### Invert selection

Deselects the current selection and vice versa.

## 24.15 SECTIONPLANETOBLOCK command

Opens the Create section/elevation dialog box.



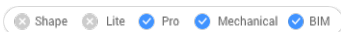
Icon:

### 24.15.1 Description

Opens the Create section/elevation dialog box to save section geometry as a block or to an external dwg file.

## 24.16 SECURITY command

Opens the Security dialog box.



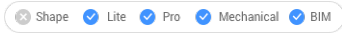


### 24.16.1 Description

Opens the Security dialog box to specify if VBA macros are allowed to run automatically.

## 24.17 SECURITYOPTIONS command

Opens the Security options dialog box.




### 24.17.1 Description

Opens the Security options dialog box to specify a password to protect your drawing from unauthorized access.

## 24.18 SELECT command

Selects entities.



Icon: 

### 24.18.1 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.

### 24.18.2 Methods

There are two methods to select entities:

- Select entities separately using the command.
- Ctrl+A selects all entities on non-frozen layers.

### 24.18.3 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**

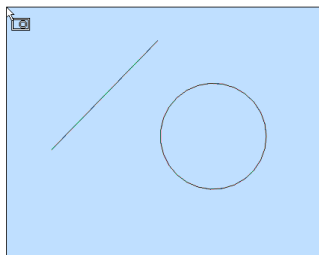
Add the entities from the previous selection to the current select set.

### **Last entity in drawing**

Adds the last entity drawn to the selection set.

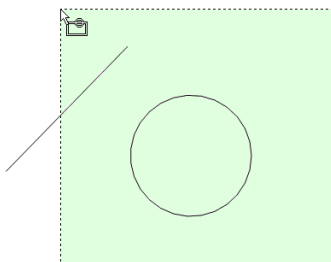
### **inside Window**

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.

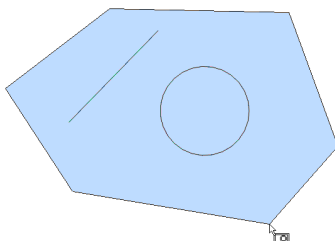


### **Outside window**

Selects all entities fully outside a rectangular selection window.

### **Window Polygon**

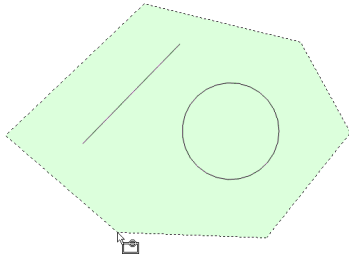
Selects all entities fully inside a polygonal selection window. The selection polygon outline is drawn, filled with transparent blue.





### 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.

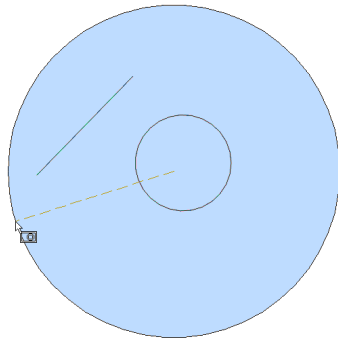


### Outside Polygon

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.

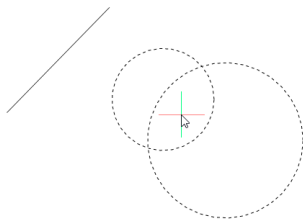
### Box

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.

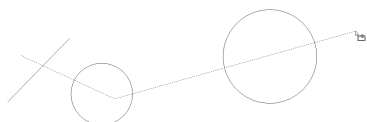
### POint

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.

## 24.19 SELECTALIGNEDFACES command

Selects all faces in a model that are coplanar with a selected face.

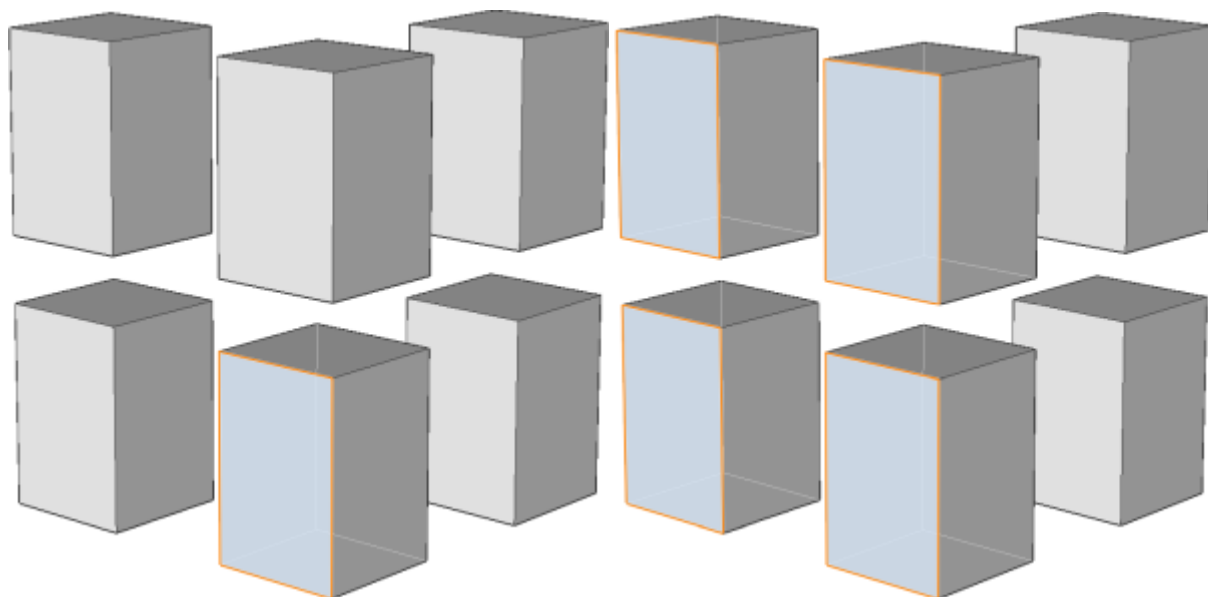


Icon:

### 24.19.1 Method

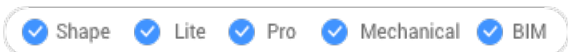
Select a single face. The program selects all other faces that are in the same plane, shown outlined.





## 24.20 SELECTALIGNEDSOLIDS command

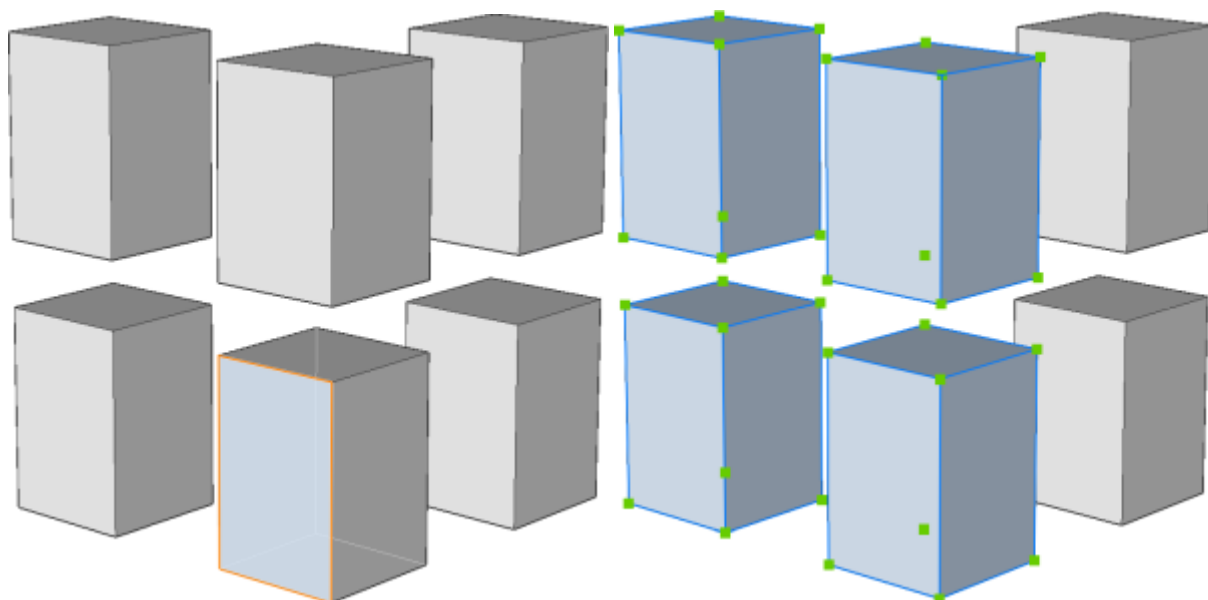
Selects all solids in a model that have faces coplanar with the selected face.



Icon:

### 24.20.1 Method

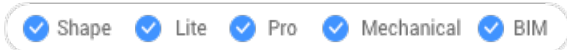
Select a single face. The program selects all solids that have faces in the same plane, shown outlined.





## 24.21 SELECTCONNECTEDFACES command

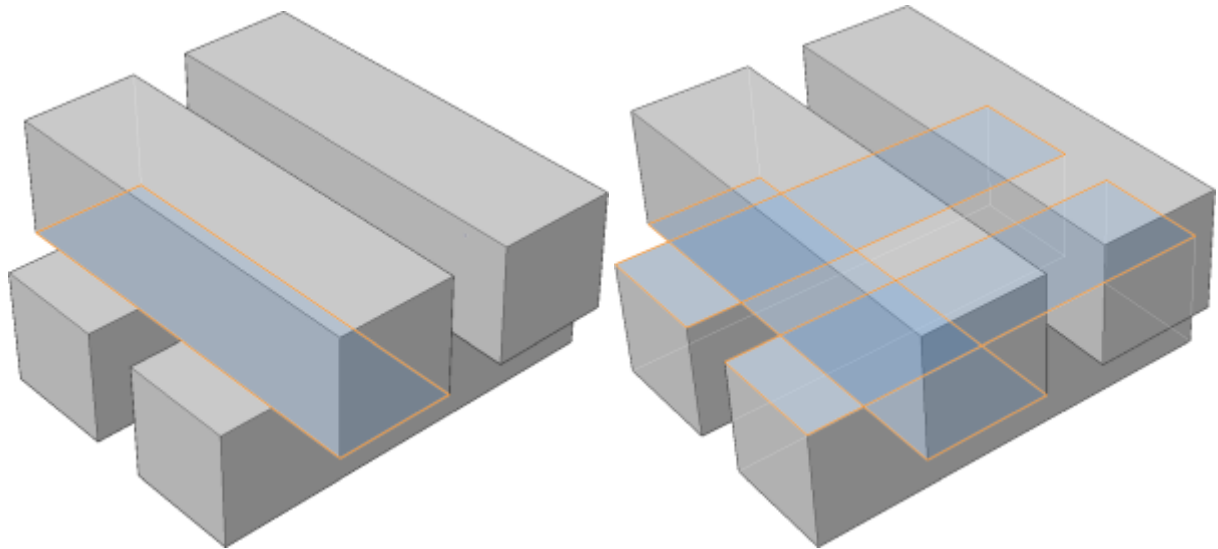
Selects all faces in a model that are connected to a selected face.



Icon:

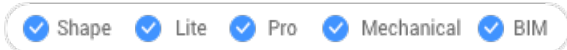
### 24.21.1 Method

Select a face. The program selects all other faces that are connected to the selected face, shown outlined.



## 24.22 SELECTCONNECTEDSOLIDS command

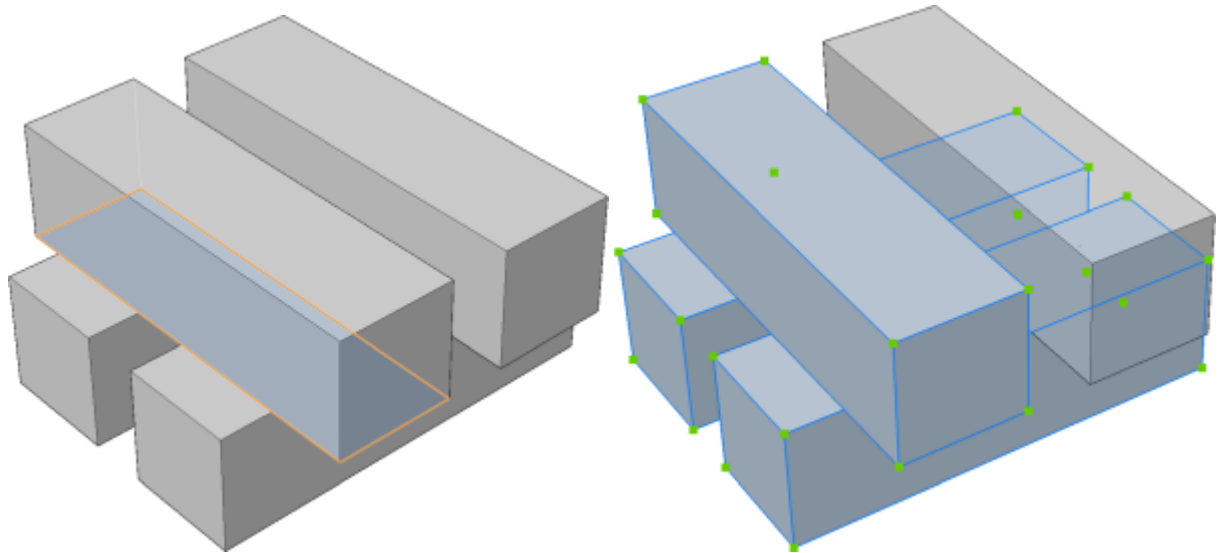
Selects all solids in a model that are connected to a selected face.



Icon:

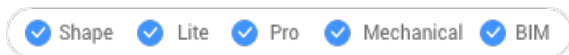
### 24.22.1 Method

Select a face. The program selects all solids that are connected to the selected face, shown outlined.



## 24.23 SELECTSIMILAR command

Selects similar entities.



Icon:

### 24.23.1 Description

Selects all entities with the same properties as the currently selected entity.

### 24.23.2 Method

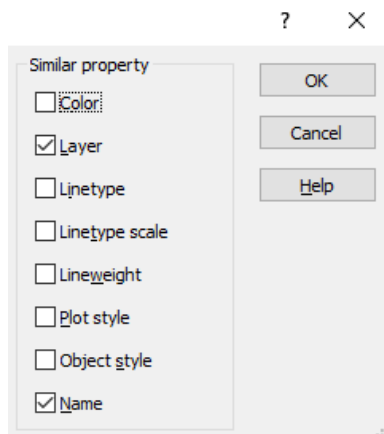
Select one or more entities and choose the properties based on which the selection will be made. When you exit the command, the entities that match the properties are shown as dashed and with entity grips.

**Note:** For this command to operate as intended, at least one property must be selected.

### 24.23.3 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.

### 24.24 SELGRIPS command

Displays entities grips.



#### 24.24.1 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.

### 24.25 SETBYLAYER command

Resets overridden properties to BYLAYER.



#### 24.25.1 Description

Changes the value of overridden properties (color, linetype, lineweight, material, plot style, and transparency ) back to the default value of BYLAYER.

#### 24.25.2 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.



### 24.25.3 Options

#### Settings

Allows to select the entity properties to be changed from the SetByLayer settings dialog box:

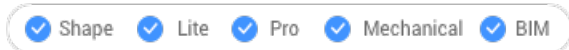
- Color - resets the color of the selected entities to BYLAYER.
- Linetype - resets the linetype of the selected entities to BYLAYER.
- Lineweight - resets the lineweight of the selected entities to BYLAYER.
- Material - resets the material of the selected entities to BYLAYER.
- Plot Style - (only in 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.

### 24.26 -SETBYLAYER command

Sets the property overrides of selected entities 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 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.

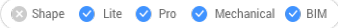
**Note:** The settings are saved through the SETBYLAYERMODE system variable.



**Note:** The Plotstyle option is available for STB drawings only. See the CONVERTCTB and CONVERTPSTYLES command.

### 24.27 SETLICENSELEVEL command

Changes the available commands by setting the license type.



#### 24.27.1 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.

#### 24.27.2 Methods

There are two methods to change the license level:

- Change the license level of BricsCAD.
- Change the license level of Communicator.

#### 24.27.3 Options

##### Run BricsCAD at another license level

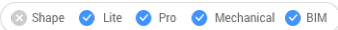
- Run BricsCAD as: Lite - runs BricsCAD without 3D functionalities, except API and LISP.
- Pro - runs BricsCAD without BIM and Mechanical commands.
- Bim - runs BricsCAD with Pro and BIM commands.
- Mechanical - runs BricsCAD with Pro and Mechanical commands.
- Ultimate - runs BricsCAD with full functionalities, 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.

### 24.28 SETTINGS command

Opens the Settings dialog box.



Icon:

#### 24.28.1 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.

### 24.29 SETTINGSSEARCH command

Opens the Settings Dialog box at the word specified by the user.



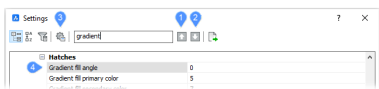
Shape Lite Pro Mechanical BIM

## 24.29.1 Description

Searches the in the Settings dialog box for the word specified by the user.

## 24.29.2 Methods

- 1 Enter a single word. The search word that will be matched to the following items:
  - Category titles
  - Variable titles, names, and values
  - Variable help text
- 2 The program displays the Settings dialog box and goes to the first entry that matches the search word.
- 3 Click the Find Previous and Find Next buttons to find other instances of the search word.
- 4 Click the Configuration button to change how the program searches Settings.



- 1 Find Previous
- 2 Find Next
- 3 Configuration
- 4 Search phrase found

## 24.30 SETUCS command

Opens the User coordinate system dialog box.

Shape Lite Pro Mechanical BIM

Icon:

Alias: DDUCSP, UCP

## 24.30.1 Description

Opens the User coordinate system dialog box to specify a viewpoint to use for the current UCS (User Coordinate System).

## 24.31 SETVAR command

Displays and changes the values of system variables.

Shape Lite Pro Mechanical BIM

Alias: SET

## 24.31.1 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.

### 24.31.2 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.

### 24.31.3 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.

## 24.32 SH command

## 24.33 SHADE command

Generates shaded images of 3D drawings.

Shape Lite Pro Mechanical BIM

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

Insert License Level Insert link to Tool icon

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

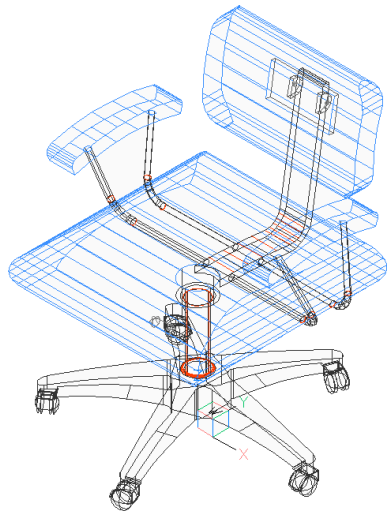
Choose the name of a preset visual style.





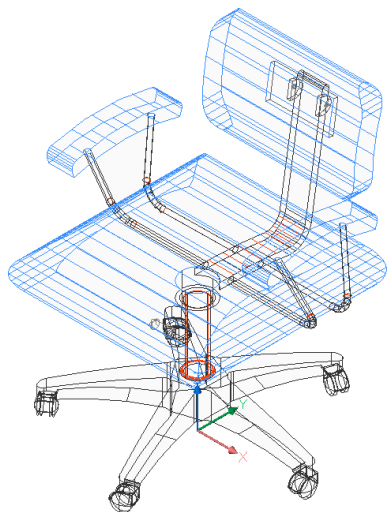
## 2dwireframe

Default display mode.



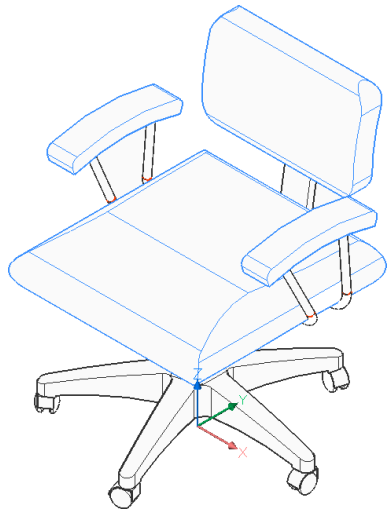
## Wireframe

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.



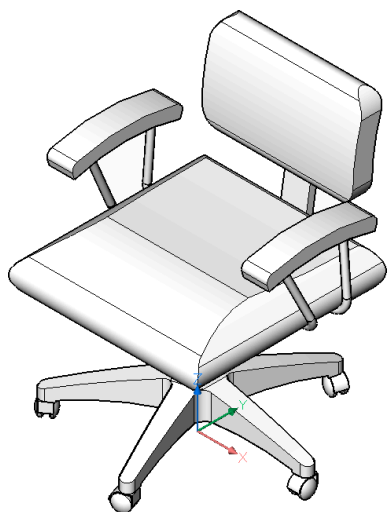
## shaded with Edges

Rendered with contrasting edges, without materials.



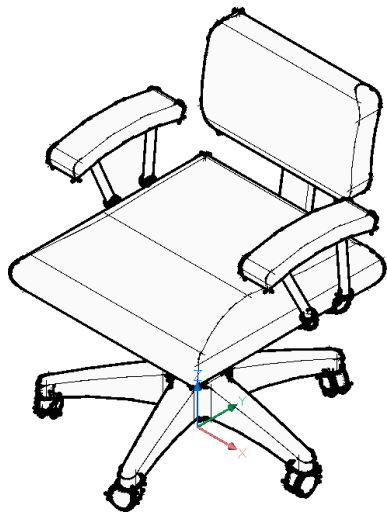
## shades of Grey

Rendered in shades of gray, without colors.



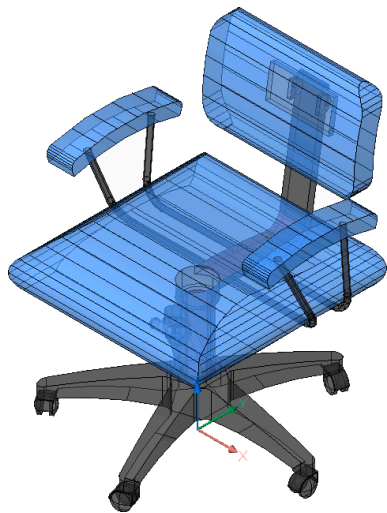
## Sketchy

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

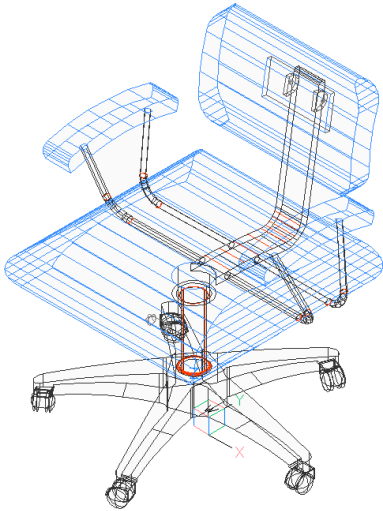
Specifies the shading style for the current drawing to be used by the SHADE command.

### 24.35.2 Options



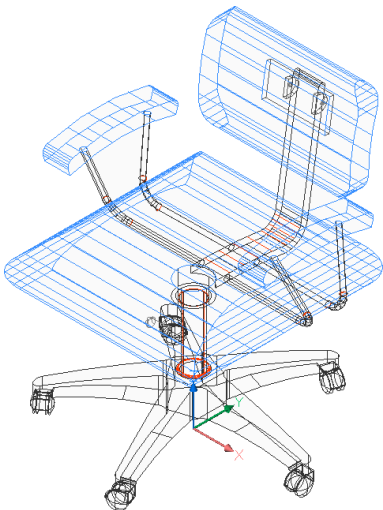
## 2dwireframe

Wireframe display with no shading.



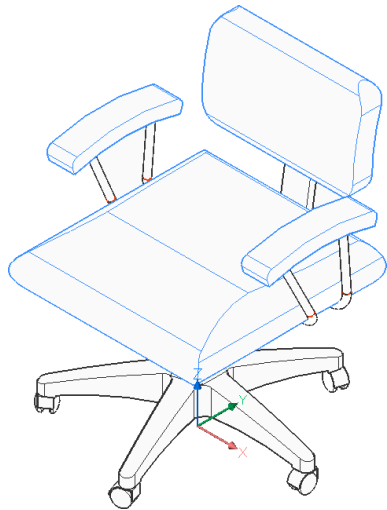
## 3d wireframe

Wireframe display with no shading.



## Hidden

Wireframe with hidden lines removed.



## Flat

Flat shading.



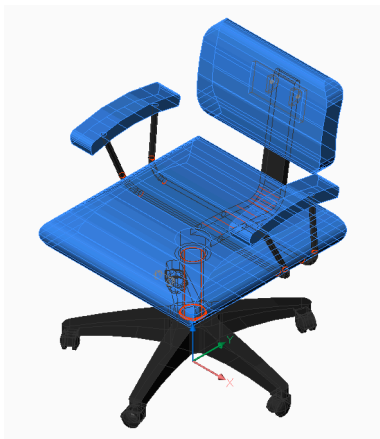
## Gouraud

Smooth shading.



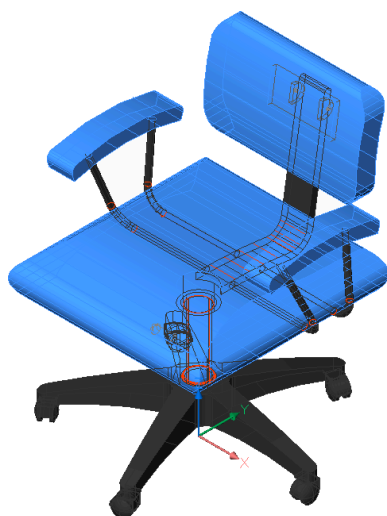
## **fLat+edges**

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 that 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 command prompt window.

Shape Lite Pro Mechanical BIM

### 24.39.1 Description

Opens 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 SIMPLIFY command

Simplifies entities.

Shape Lite Pro Mechanical BIM

Icon:

### 24.40.1 Description

Reduces the number of vertices of polylines and hatch boundaries without changing their general shape.

**Note:** Simplified entities are easier to manipulate and can significantly reduce file size.

### 24.40.2 Options within the command

#### Simplify

Reduces the number of vertices.

#### sMoothen

Controls whether consecutive straight segments (at least three), of which the endpoints lie on an arc, are replaced by a bulged polyline segment.

## 24.41 SINGLETON command

Determines whether (or not) multiple copies of BricsCAD can run at the same time.

Shape Lite Pro Mechanical BIM

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



### 24.41.1 Options within the command

#### Yes

Allows only one copy of BricsCAD to run.

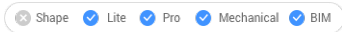
#### No

Allows two or more copies of BricsCAD to run.

**Note:** Some third-party applications run only in a single instance of BricsCAD.

## 24.42 SKETCH command

Creates lines or polylines from a freehand sketch.



Icon:

Alias: FREEHAND

### 24.42.1 Description

Creates a series of individual lines or a polyline by sketching freehand.



### 24.42.2 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

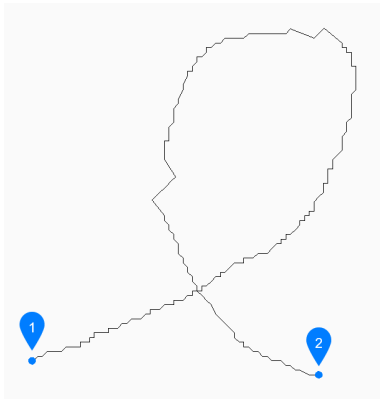
Begin creating a sketch by specifying the length of the sketch line segments. A small segment length creates a smoother sketch but increases the size of the drawing. The length is saved in the SKETCHINC variable.

#### 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)]

### 24.42.3 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.

### 24.43 SLICE command

Creates 3D solids and surfaces by cutting existing entities.



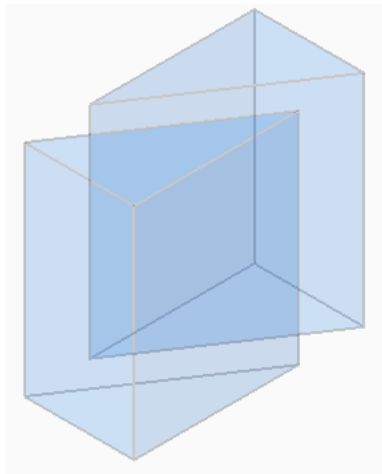
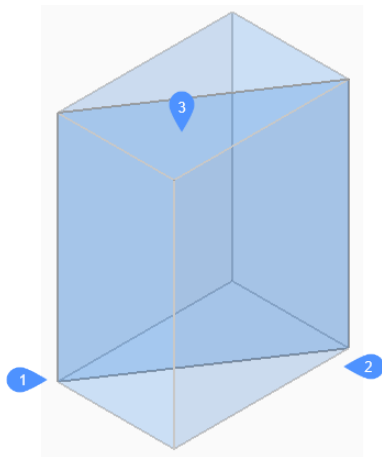
Icon:

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.



### 24.43.1 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.

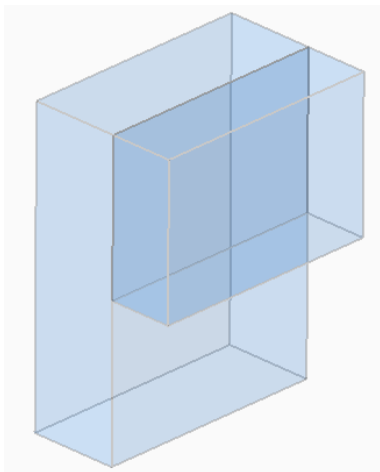
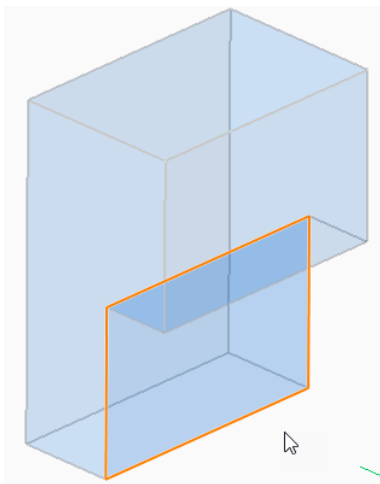
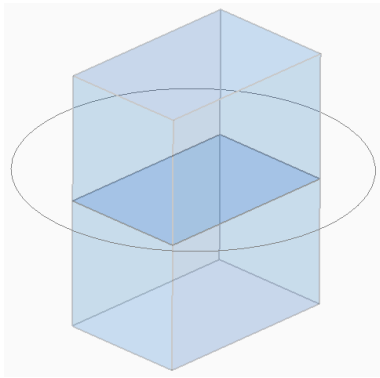
Specify the first (1) and the second (2) point on slicing plane and choose to keep only one of the parts (3) or both. The section plane is perpendicular to the XY-plane of the World coordinate system (WCS):

The sliced entity can be manipulated as independent entities.

### 24.43.2 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.

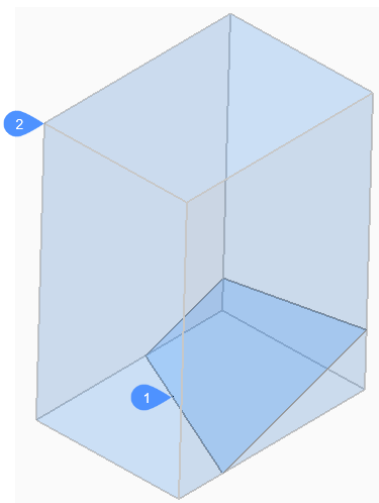


## Surface

Slices solids and surfaces with a surface.

## Zaxis

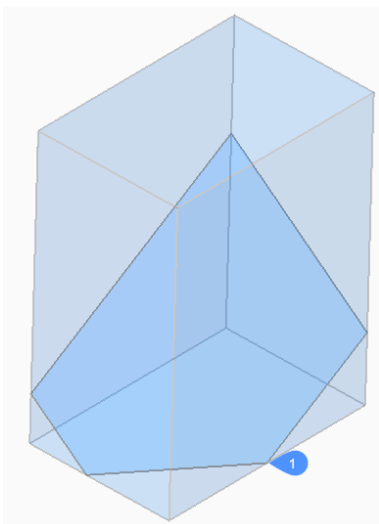
Slices solids and surfaces with a plane perpendicular with a line defined by one point on the plane (1), and a second point on the plane's normal axis (z axis) (2).



## View

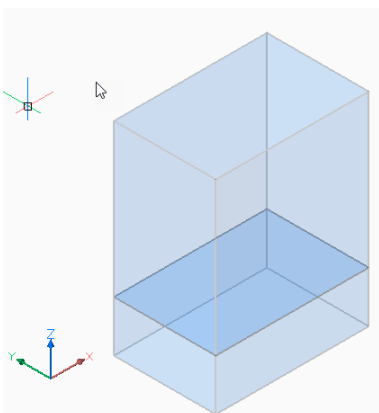
Slices solids and surfaces with a plane defined by the current 3D viewpoint.

The section plane is perpendicular to the view direction and passes through the picked point.



## XY

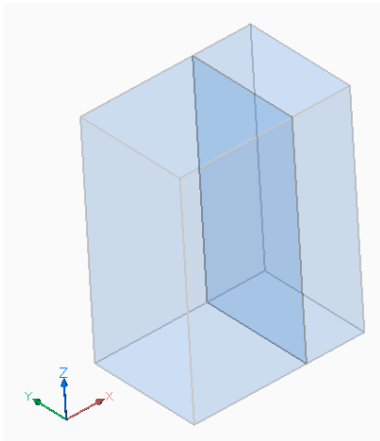
Slices solids and surfaces with a plane parallel to the XY-plane of the current coordinate system.





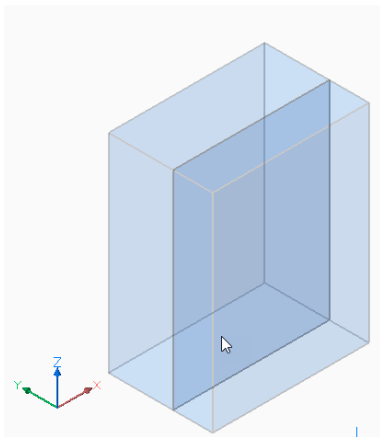
## YZ

Slices solids and surfaces with a plane parallel to the YZ-plane of the current coordinate system.



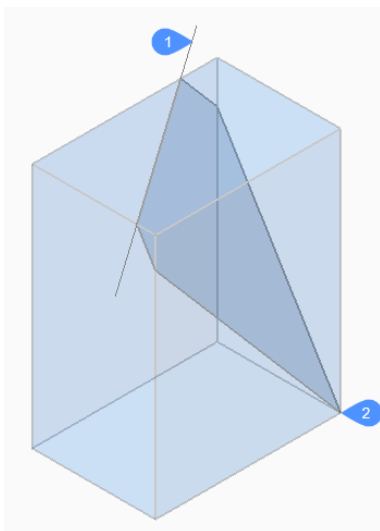
## ZX

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).

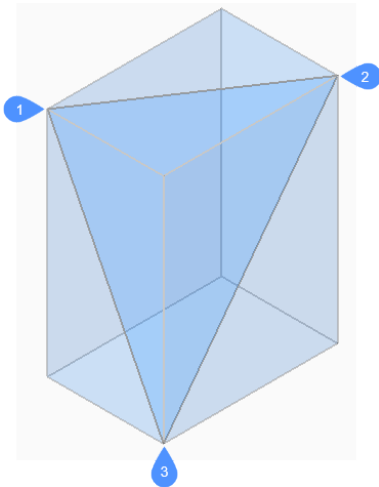






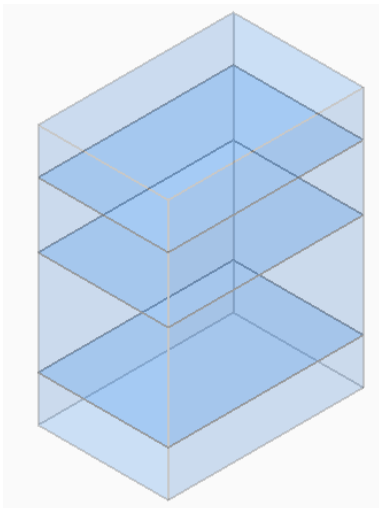
## 3points

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.

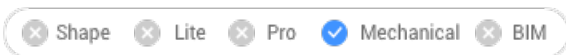


## Both

Retains both parts.

## 24.44 SMASSEMBLYEXPORT command

Searches the assembly structure, of the current drawing, for 3D solids within a component and applies the SMCONVERT and SMEXPORT2D commands.



Icon:



### 24.44.1 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 status and links to the corresponding .dwg and .dxf files.

**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 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.

### 24.44.2 Options within the command

#### Output folder

Specifies the output folder.

#### bend Table

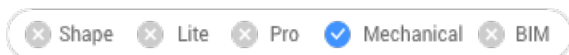
Assigns a bend table used during SMEXPORT2D call in the output process.

#### Dxf version

Specifies the DXF version.

## 24.45 SMBENDCREATE command

Converts hard edges (sharp edges between flange faces) or junctions into bends.



Icon:

### 24.45.1 Method

Select hard edges, junctions, flanges or 3D solids.





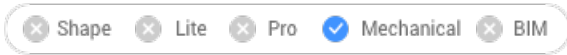
### 24.45.2 Options within the command

#### Entire Model

Detects and converts hard edges or junctions in the entire model.

### 24.46 SMBENDSWITCH command

Converts bends to lofted bends.



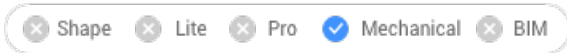
Icon:

#### 24.46.1 Description

Allows selecting bend faces which will be transformed into lofted bends.

### 24.47 SMCONVERT command

Automatically recognizes sheet metal features.



Icon:

#### 24.47.1 Description

Automatically recognizes flanges, bends, lofted bends, ribs, form features and holes for selected 3D solids.

### 24.47.2 Options within the command

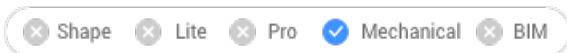
#### Entire Model

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.

### 24.48 SMDELETE command

Removes features from sheet metal elements.



Icon:



### 24.48.1 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.

### 24.48.2 Method

There are two methods to replace features by hard edges:

- Select feature faces.
- Select thickness faces.

## 24.49 SMDISSOLVE command

Removes the sheet metal data from the selected features.



Icon:

### 24.49.1 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.

### 24.49.2 Method

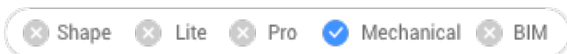
There are two methods to remove sheet metal data from features:

- Select faces on model.
- Remove from the entire drawing.

## 24.50 SMEXPLODE command

## 24.51 SMEXPORT2D command

Exports the unfolded representation of a sheet metal body.

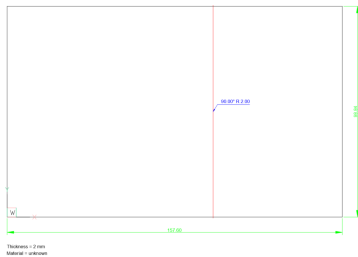


Icon:

### 24.51.1 Description

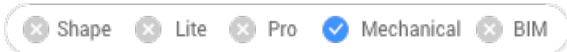
Exports the unfolded representation of a sheet metal body as a 2D profile in .dxf / .dwg file format.

Displays the Save unfolded 2D entities dialog box. Here you can save the 2D profile file.



## 24.52 SMEXPORTOSM command

Exports a sheet metal solid to an Open Sheet Metal (.osm) file format.



Icon: 

### 24.52.1 Description

Displays the Save OSM file dialog box, which allows you to select a folder for the exported file.

### 24.52.2 Method

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.

**Note:** You can set the accuracy of the approximation and the minimal length of the document.

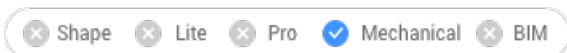
### 24.52.3 Options within the command

#### add Decorations

Allows you to export adjacent non-sheet metal parts in same .osm part.

## 24.53 SMEXTRUDE command

Creates sheet metal part by extruding a planar polyline.



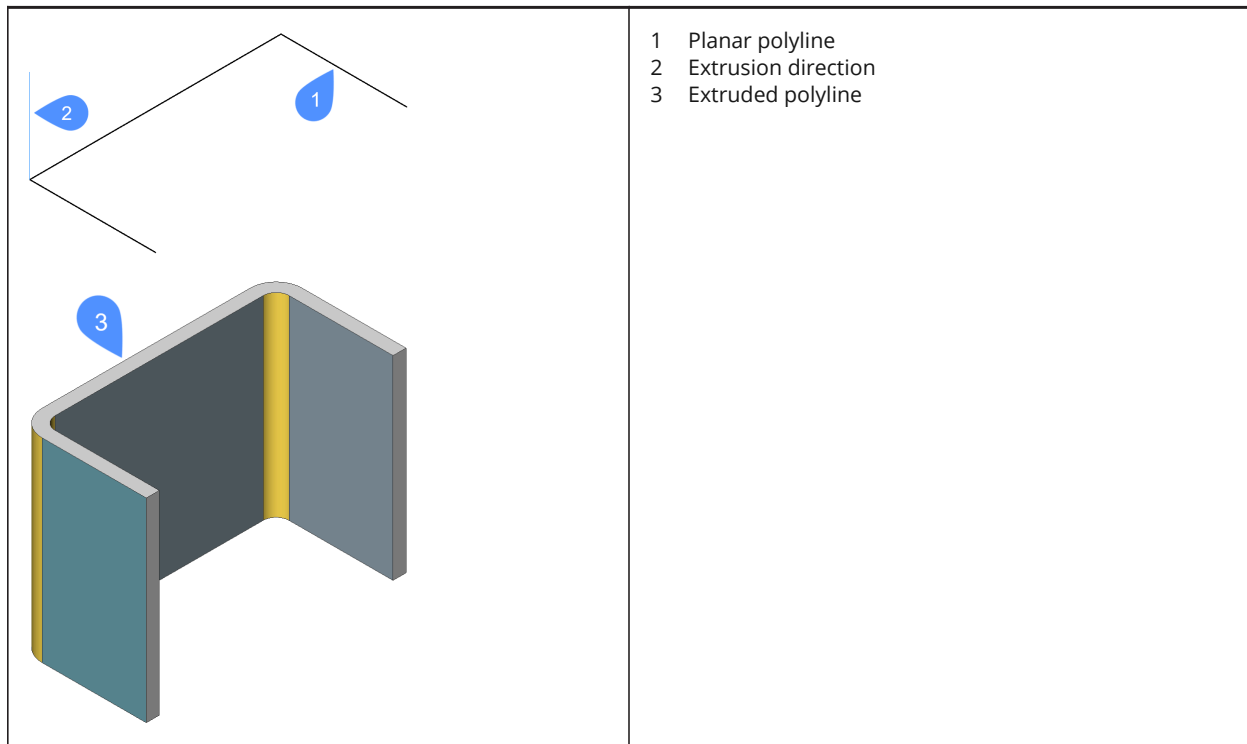
Icon: 

### 24.53.1 Description

Creates sheet metal part from a planar polyline by extruding it orthogonally to the plane of the polyline.

### 24.53.2 Method

Select a planar polyline and specify the height of extrusion.



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.

## 24.54 SMFLANGEBASE command

Creates a base (initial) flange.



Icon:

### 24.54.1 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.

### 24.54.2 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.



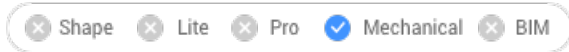
**Note:** If the Hot Key Assistant is toggled ON, you can cycle the various option by pressing the Ctrl key.

### Accept model

Accept the current extrusion.

## 24.55 SMFLANGEBEND command

Allows to bend an existing flange along a line, obeying the k-factor for given bend radius.



Icon:

### 24.55.1 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.

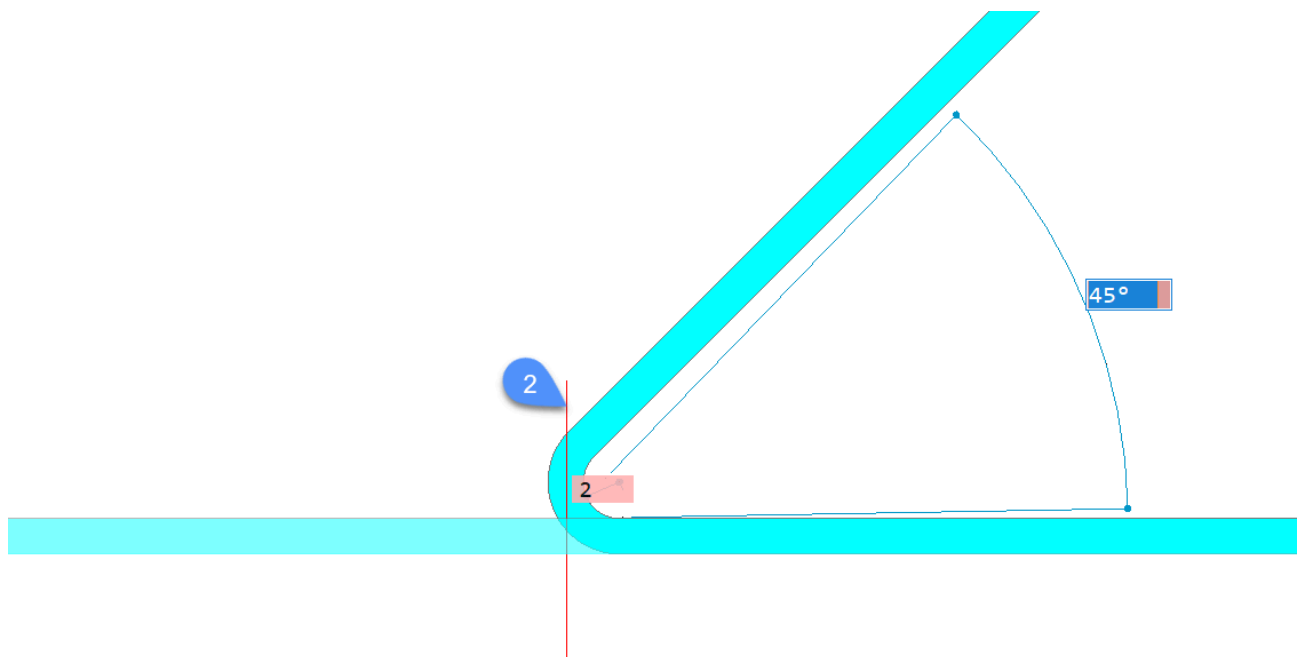
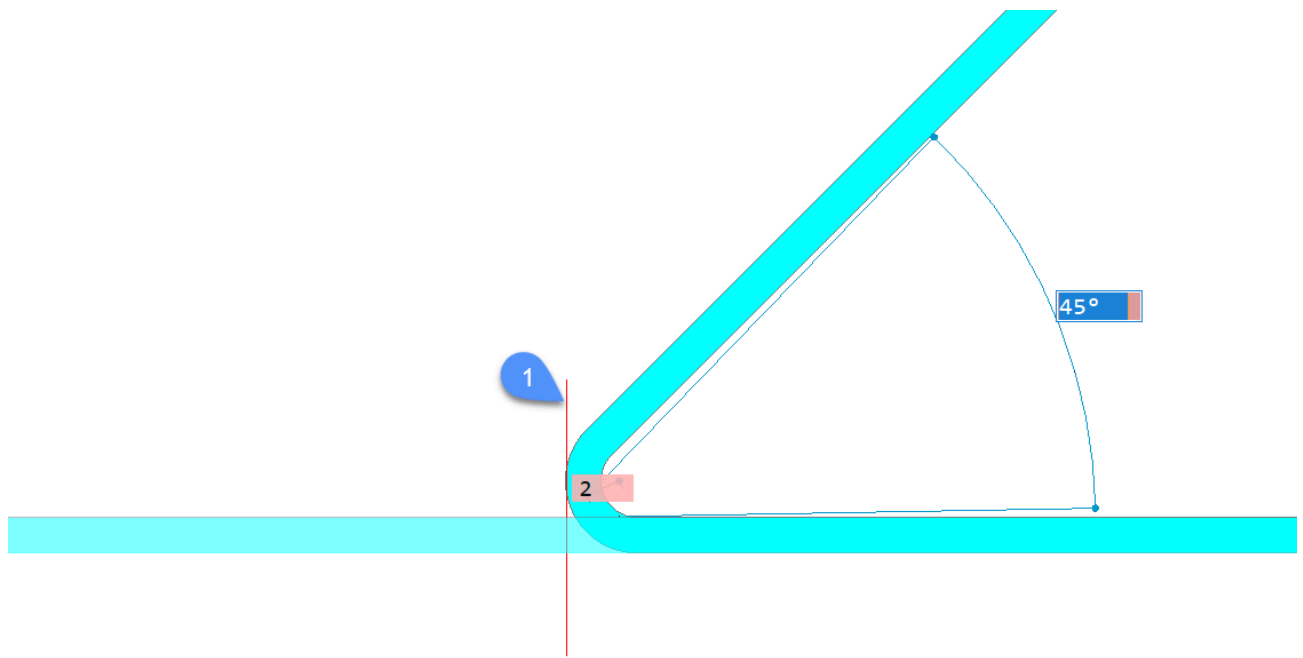
#### Switch sides

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.



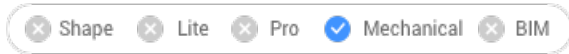




### ACcept

Creates the bend at the current angle and radius.

### 24.56 SMFLANGECONNECT command



Icon:

### 24.57 SMFLANGECONTOUR command

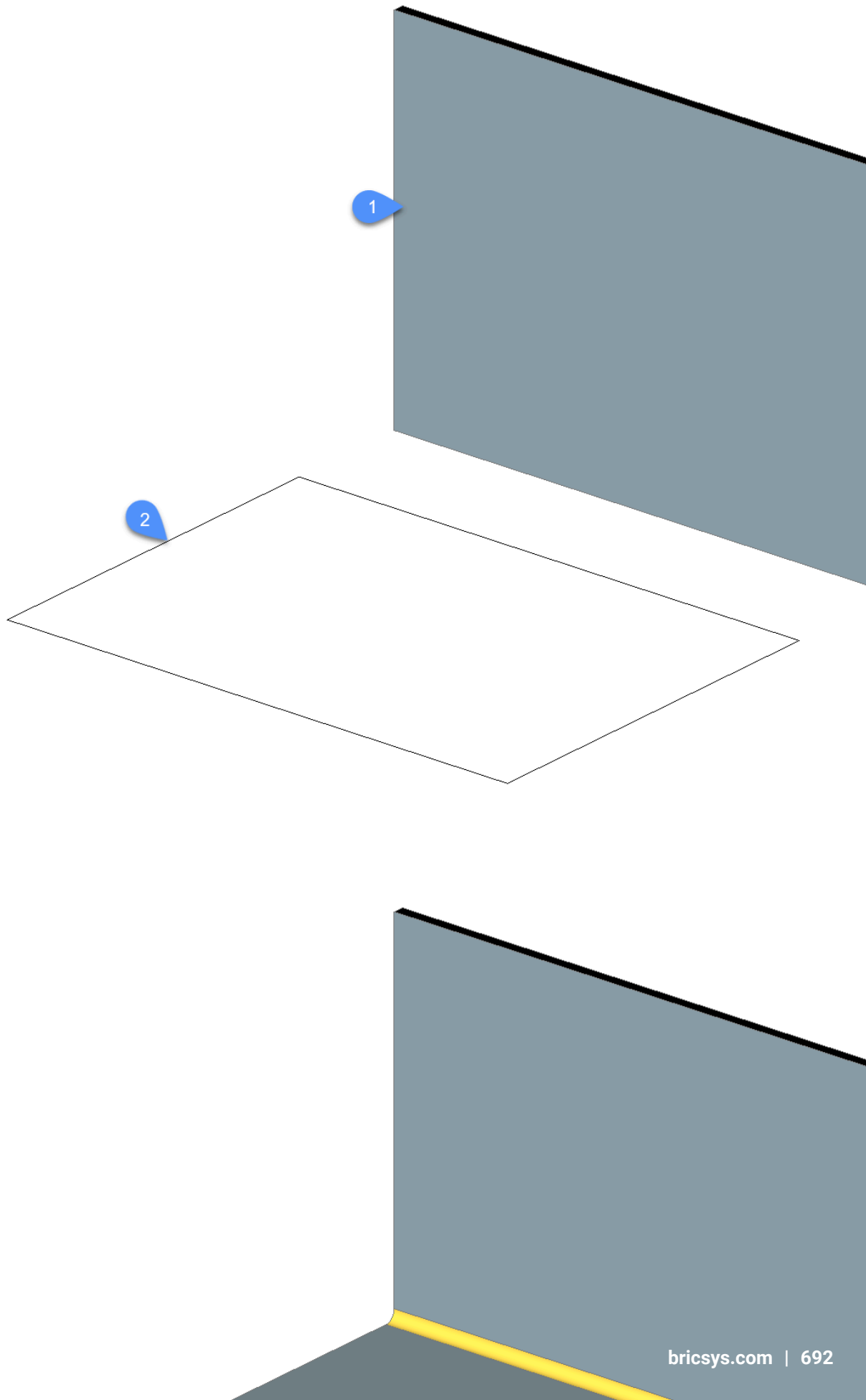
Creates a new flange from a closed contour and attaches it to an existing sheet metal part.



Icon:

#### 24.57.1 Description

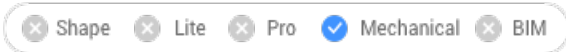
Extrudes a flange from a contour and connects it with selected flanges via bends.





### 24.58 SMFLANGEEDGE command

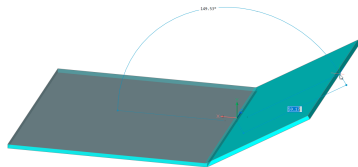
Creates flanges to a sheet metal part.



Icon:

#### 24.58.1 Description

Creates one or more flanges to a sheet metal part by pulling one or more edges of an existing flange.



#### 24.58.2 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:** The TAB key switches between the height and angle field.

##### Angle

First defines the angle of the flange, then the height.

##### Length

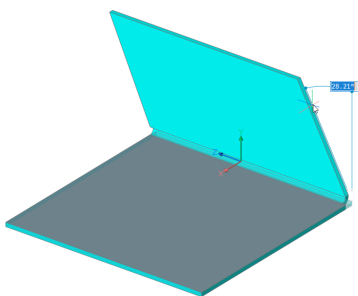
First defines the length of the flange, then the angle.

##### 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.

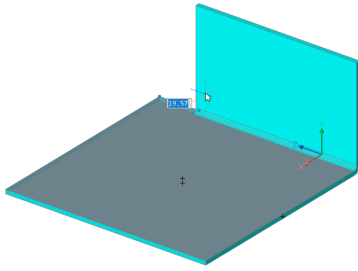
##### Skip

Keep 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

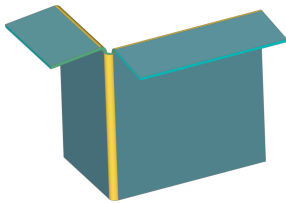
Keeps the side edge of the flange at the end point of the edge.

### Toggle connection

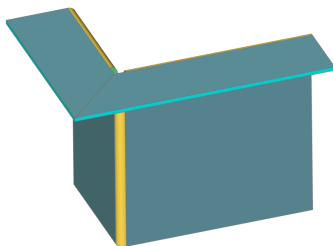
Toggles between different connection options when creating several flanges simultaneously.

**Note:** The toggle connection is only available when at least two neighbor edges are selected.

### No connection



### With connection



**Note:** You can use Ctrl-key to cycle the options.

**Note:** If TIPS = ON, the currently selected option is indicated in the Tips widget at the bottom of the screen.

## 24.59 SMFLANGERROTATE command

Rotates a selected flange of a sheet metal part.

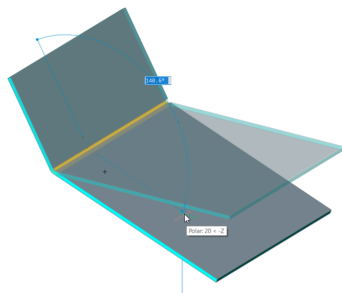


Shape Lite Pro **Mechanical** BIM

Icon:

## 24.59.1 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.

## 24.60 SMFLIP command

Swaps sides of a selected flange.

Shape Lite Pro **Mechanical** BIM

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.

### 24.60.1 Method

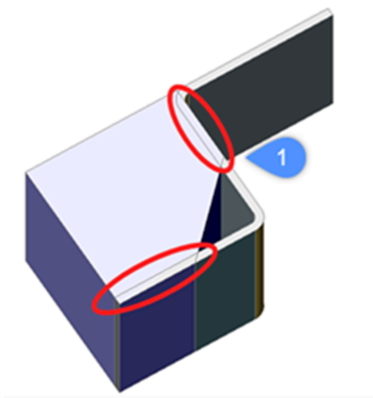
Select a 3D solid or a flange face or press Enter to flip sides for all flanges.

### 24.60.2 Options within the command

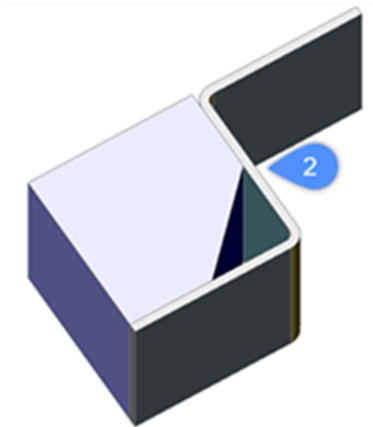
#### Flip reference side only

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.



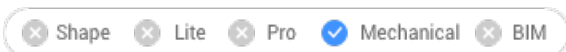
2. Collisions solved after applying SMFLIP.

## Entire Model

Applies flip operation to all flanges in the drawing.

## 24.61 SMFORM command

Converts a selected set of faces to a form feature.



Icon:

### 24.61.1 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 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. 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.

### 24.61.2 Options within the command

#### Create new form feature

Creates new form features.

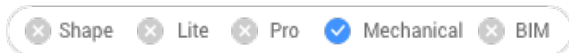
#### Explode form feature

Explodes existing form features into flanges and bends.

**Note:** At least one face of each form feature to be exploded must be selected.

### 24.62 SMHEMCREATE command

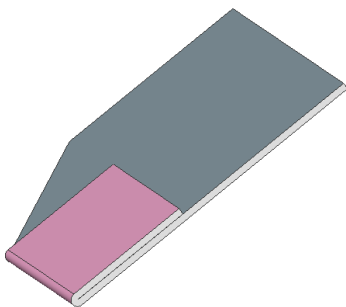
Creates one or more hem features on a sheet metal part by pulling one or more edges of an existing flange.



Icons:

#### 24.62.1 Method

By default, the command creates closed hem.

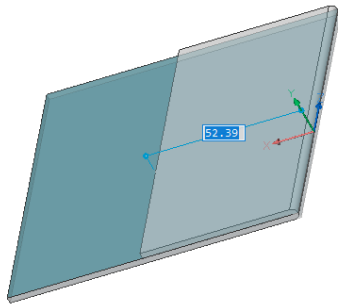


#### 24.62.2 Option within the command

##### Length

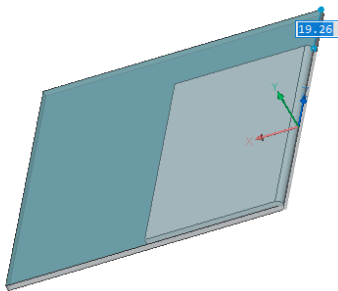
Input the length of the hem.





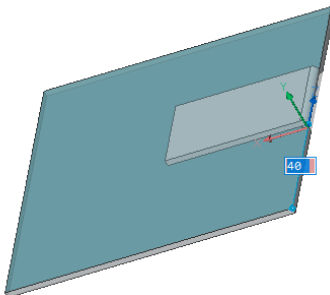
### Width

By default, the hem width is equal to the length of the selected edge. The Width option defines a different width. 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.

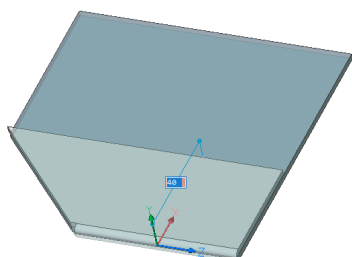
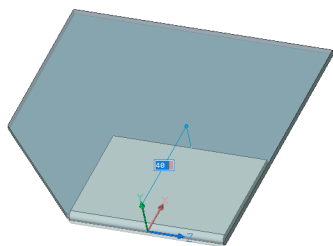


### Back

Undo the current Width procedure.

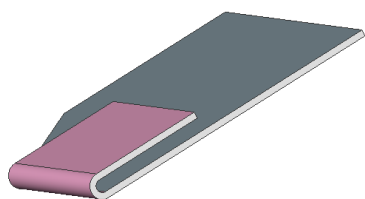
### Toggle tapering

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.

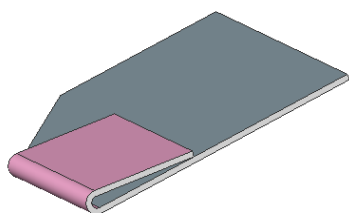


## Radius

Defines the radius of the hem.

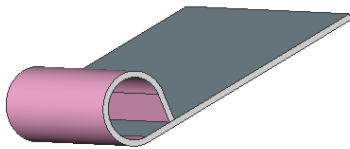
## Teardrop

Creates a teardrop shape hem.



## Round

Creates a round shape hem.



## 24.63 SMIMPRINT command

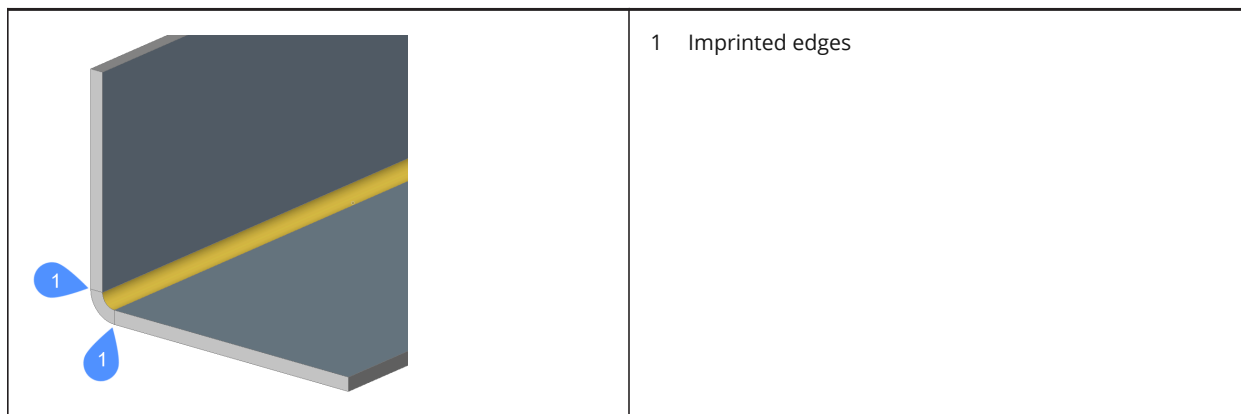
Splits thickness faces of a sheet metal part by imprinted edges, according to adjacent flanges and bends.



Icon:

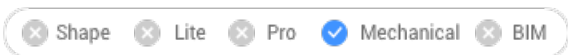
### 24.63.1 Description

Imprints edges on thickness faces to separate them into areas, which can be reworked automatically.



## 24.64 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).

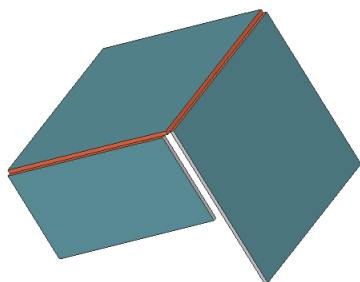
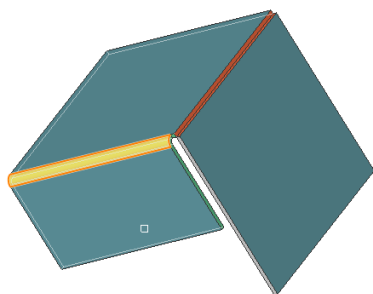


Icon:

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.

### 24.64.1 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.



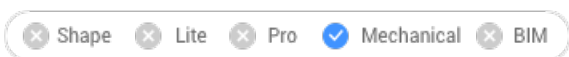
## 24.64.2 Option within the command

### 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).

## 24.65 SMJUNCTIONSWITCH command

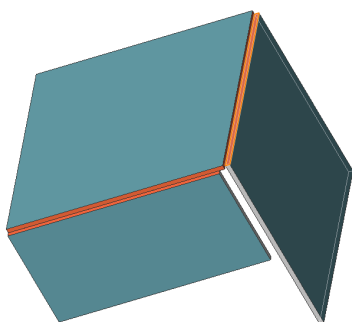
Allows changing a symmetrical junction feature to one with overlapping faces.

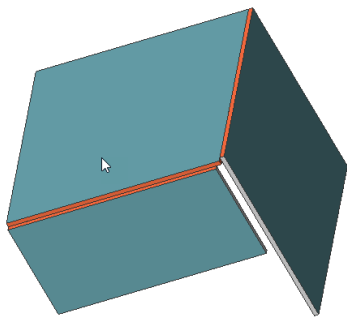


Icon:

### 24.65.1 Method

Select the junction face (left side picture) and see how the junction is transformed (right side picture).



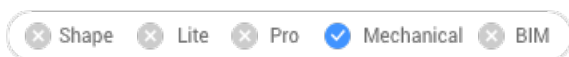


## 24.66 SMLISPGET command

## 24.67 SMLISPSET command

## 24.68 SMLOFT command

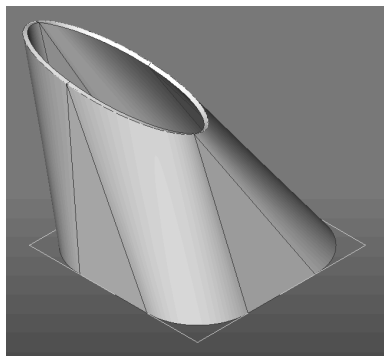
Creates sheet metal part.



Icon: 

### 24.68.1 Description

Creates sheet metal part with lofted bends and flanges from two non-coplanar curves.



### 24.68.2 Options within the command

#### fillets Radius

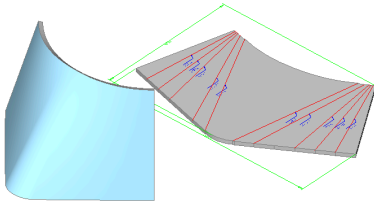
Sets radius of fillet which will be created on straight lines connections. A radius can be specified or the minimum radius can be calculated regarding the thickness of the model by pressing enter.

#### Thickness

Sets model thickness.

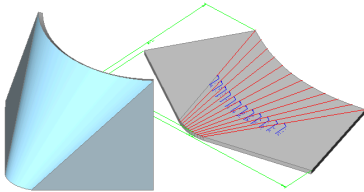
#### Single bend

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

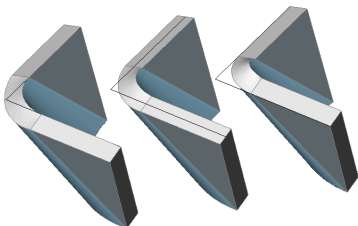
Thickening direction is selected that way that 3D part is inside the selected 2D entities.

## Both sides

Thickens at both sides of the selected 2D entities.

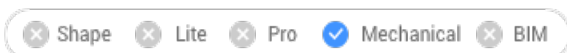
## thicken Outside

Thickening direction is selected that way that 3D part is outside the selected 2D entities.



## 24.69 SMPARAMETRIZE command

Creates a consistent set of 3D constraint for a selected sheet metal part.



Icon:



### 24.69.1 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.

### 24.70 SMRELIEFCREATE command

Creates proper corner and bend reliefs.



Icon:

#### 24.70.1 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 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).

#### 24.70.2 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.

### 24.71 SMRELIEFSWITCH command

Converts corner reliefs.



Icons:



## 24.71.1 Description

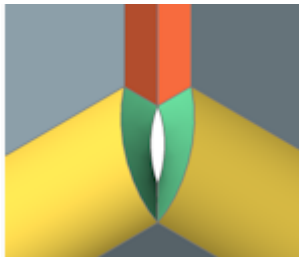
Converts corner reliefs to circular, rectangular or V-shaped reliefs. Converts bend reliefs to smooth, round, rip or rectangular bend reliefs. This command also allows to change the parameters of existing corner reliefs.

## 24.71.2 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

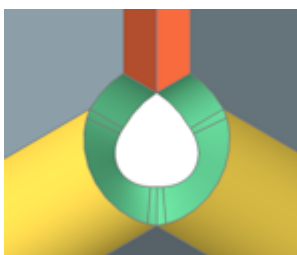
Switches the selected bend reliefs/ corner reliefs to rectangular.

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.

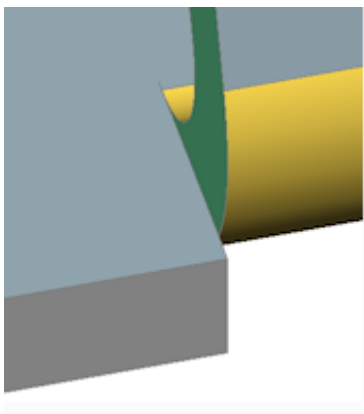
**Note:** Smooth bend reliefs can be applied only if the current relief type is Rectangular. If not, BricsCAD displays the message: Unable to build relief geometry for this configuration.



### **Rip**

Switches the selected bend reliefs to rip.

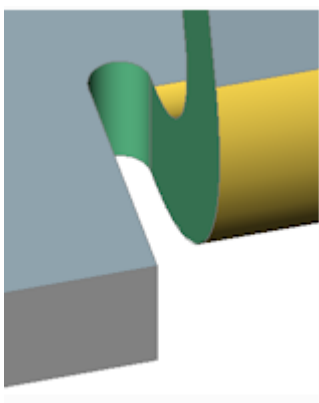
**Note:** Rip bend reliefs can be applied only if the current relief type is Rectangular. If not, BricsCAD displays the message: Unable to build relief geometry for this configuration.



### **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**

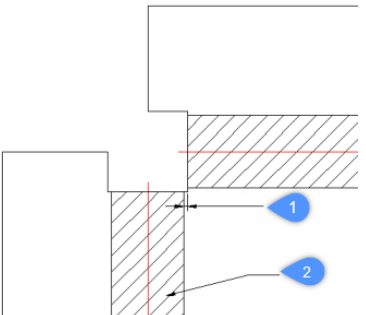
All corner or bend reliefs in all sheet metal parts in the model will be switched to the specified type using the specified parameters.

**Note:** If this option is chosen as the response to the initial prompt, all corner reliefs switch to V-type.

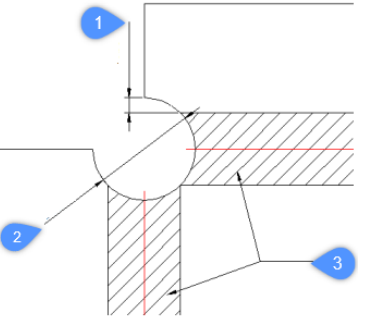
### **24.71.3 Relief extension illustration**

**Rectangular and V-type reliefs:**

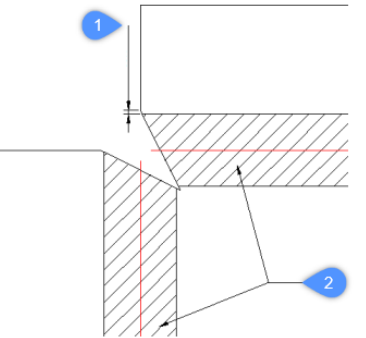


	<ul style="list-style-type: none"><li>1 Extension</li><li>2 Bend</li></ul>
---	--

## Circular reliefs:

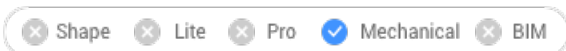
	<ul style="list-style-type: none"><li>1 Minimal extension</li><li>2 Diameter of the relief in the unfolded representation</li></ul> <p><b>Note:</b> Reference to determine the center of the relief.</p> <ul style="list-style-type: none"><li>3 Bend</li></ul>
--	---

## V-type reliefs:

	<ul style="list-style-type: none"><li>1 Extension</li><li>2 Bend</li></ul>
---	--

## 24.72 SMREPAIR command

SmRepair restores the 3D solid model of a sheet metal part.



Icon:

### 24.72.1 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

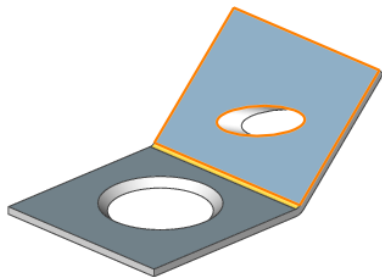
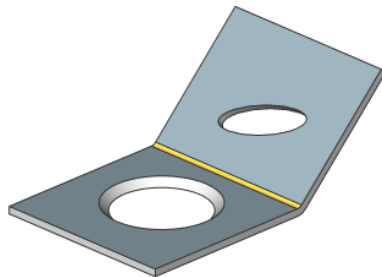
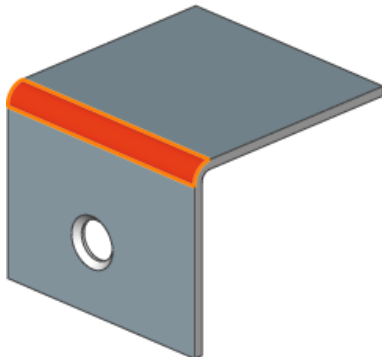
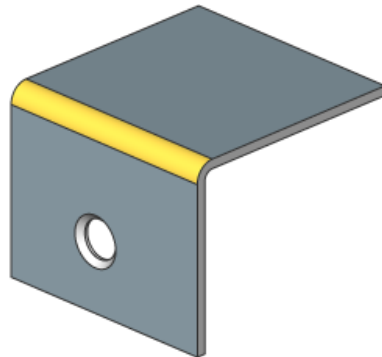
**Note:** Converts incorrect bends to regular bends. If a single, incorrect bend is selected, it will be repaired. If a 3D solid is selected, then all incorrect bends will be converted to regular bends.

### 24.72.2 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.

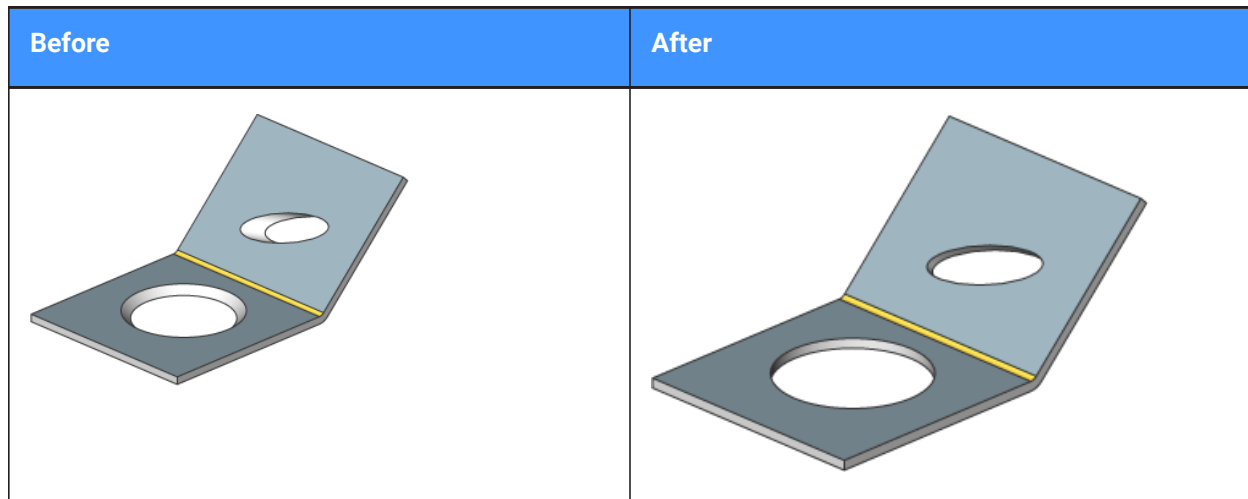
**Note:** The size and position of the opening on the selected face is preserved and the size and position of the opening on the opposite face is adjusted.

Before (flange face is selected)	After
	
Before (incorrect bend face is selected)	After
	

### 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.

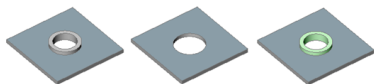
**Note:** The size and position of the opening on the selected face is preserved and the size and position of the opening on the opposite face is adjusted.



### 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.

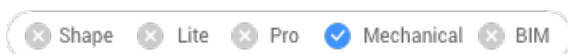


From left to right:

- 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.

## 24.73 SMREPLACE command

Replaces form features in sheet metal parts.



Icon: 



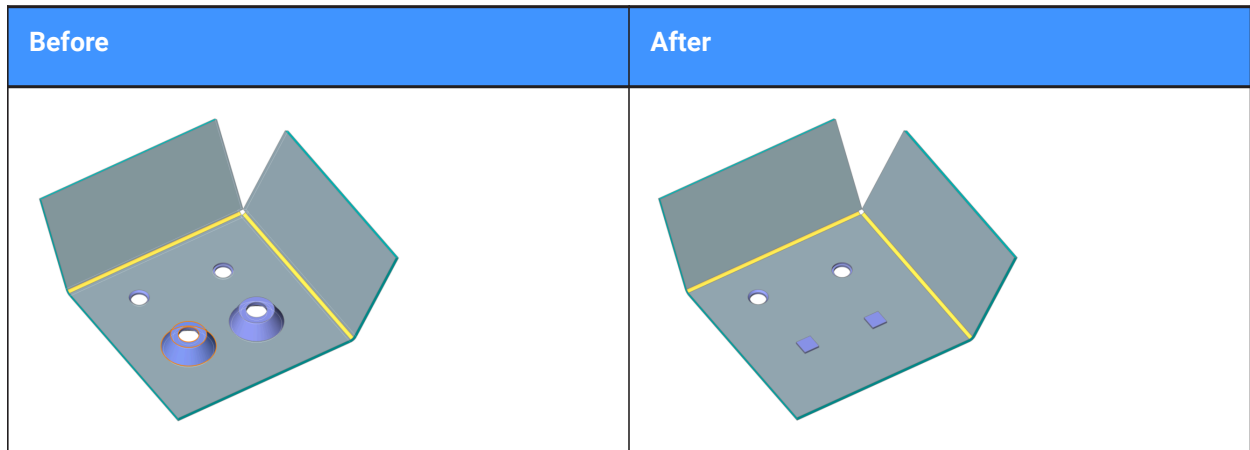
### 24.73.1 Description

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.

### 24.73.2 Options within the command

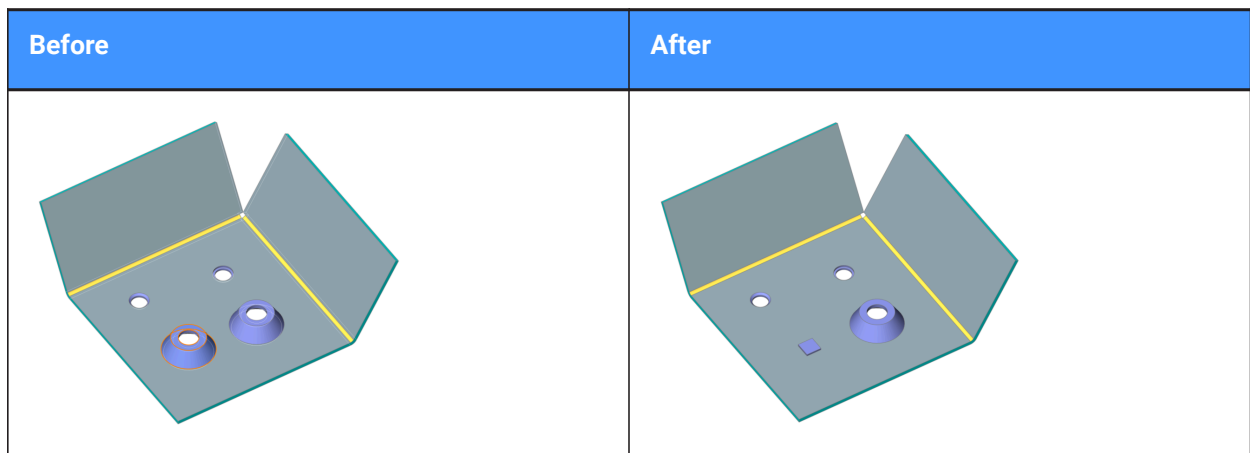
#### Yes

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.

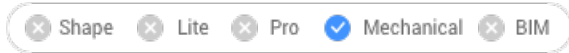


### Edit parameters

Allows to edit all parameters.

## 24.74 SMRIBCREATE command

Creates associative Rib form features on sheet metal.



Icon:

### 24.74.1 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 SMRIBCREATE command can have an arbitrary trajectory.

### 24.74.2 Method

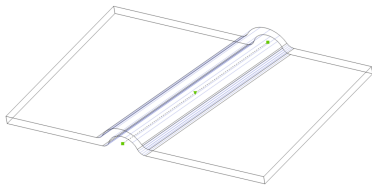
There are two methods to create rib form features:

- Profile radius
- Round radius

### 24.74.3 Options within the command

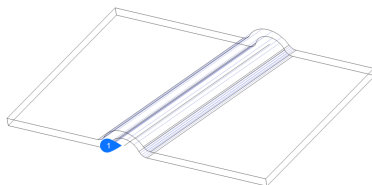
#### Select control curve

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 cannot intersect itself or other form features.



#### Profile radius

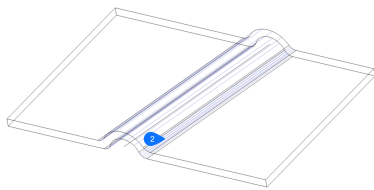
Sets the radius of the rib profile (1).



**Note:** The initial value of the Profile Radius is taken from the Mechanical Browser for Sheet Metal.

#### Round radius

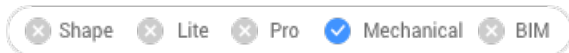
Sets the radius of the smoothing fillets (2).



**Note:** The initial value of the Profile Radius is taken from the Mechanical Browser for Sheet Metal.

## 24.75 SMSELECT command

Selects all identical form features in the sheet metal model.



Icons:

### 24.75.1 Description

Selects hard edges, same form features, non-orthogonal thickness edges, flat edges, and the side of a sheet metal part.

### 24.75.2 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.

## 24.76 SMSPLIT command

Splits a flange.



Icons:





### 24.76.1 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).

### 24.76.2 Method

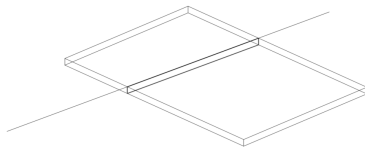
There are three methods to split sheet metal:

- Split
- Smart Split
- Smart Split Propagate

### 24.76.3 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

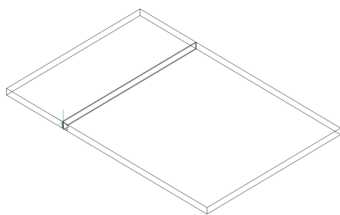
Splits to the right side of the polyline.

#### 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.

## 24.77 SMTABCREATE command

Creates tab features on sheet metal parts.



Icons:

### 24.77.1 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)

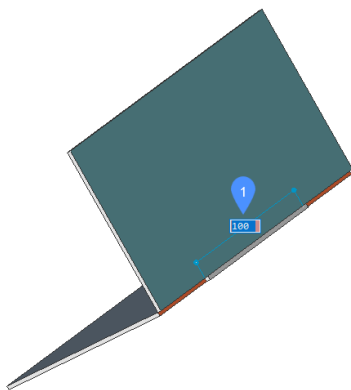
### 24.77.2 Option within the command

#### Single tab

Creates a single tab.

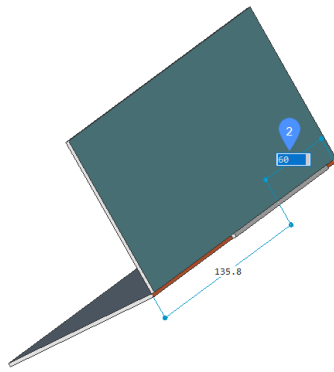
#### Length

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

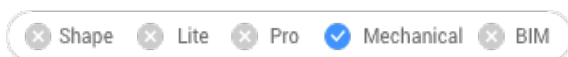
Creates a filleted tab with a given fillet radius.

## CHamfer distance

Creates a chamfered tab with a given chamfer parameter.

## 24.78 SMUNFOLD command

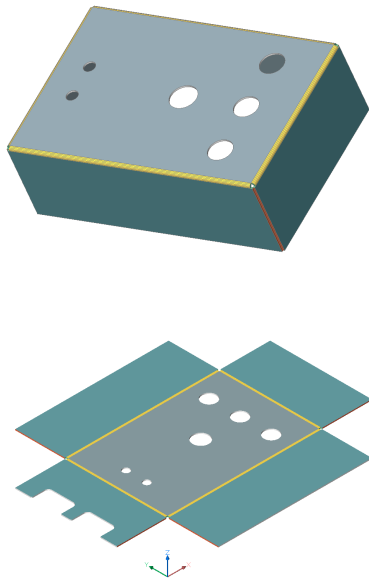
Creates an unfolded 2D or 3D representation of a sheet metal part.



Icons:

### 24.78.1 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.



## 24.78.2 Option within the command

### Associative

Opens an additional window with model's unfolded representation. Both folded (left) and unfolded (right) representations have bidirectional associativity which allows transferring modifications to neighbor model automatically when changing window focus.

### save 2D geometry

Saves the 2D geometry 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).

### 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.

## 24.79 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.

### 24.79.1 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.

### 24.79.2 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.

## 24.80 SOLID command

Draws solid-filled polygons.

✕ Shape   ✓ Lite   ✓ Pro   ✓ Mechanical   ✓ BIM

Icon: 

Alias: PLANE, SO

Draws 3 and 4-sided solid-filled regular and irregular 2D polygons.

**Note:** Does not draw 3D solids.

### 24.80.1 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.

### 24.80.2 Options within the command

#### Rectangle

Draws one or more connected solid-filled rectangles.

#### Square

Draws one or more connected solid-filled squares.

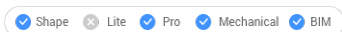
#### Triangle

Draws one or more connected equilateral solid-filled triangles.

**Note:** 2D solids can be edited directly through grips.

## 24.81 SOLIDEDIT command

Edits 3D solids and 2D regions.



### 24.81.1 Description

Edits the faces, edges, and bodies of 3D solids and 2D regions.

### 24.81.2 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.

### cClean

cleans the 3D solid.

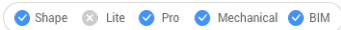
**Note:** The cleaning operation checks for errors in the 3D solid.

### Check

Reports on the 3D solid.

## 24.82 SOLPROF command

Creates hidden line representations of 3D solids in layout viewports.



Icon:

### 24.82.1 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.

### 24.82.2 Options within the command

#### Use separate layers for hidden lines?

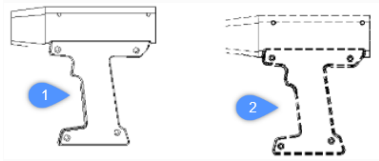
Determines if hidden lines are placed on a separate layer from the visible lines.





### 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:

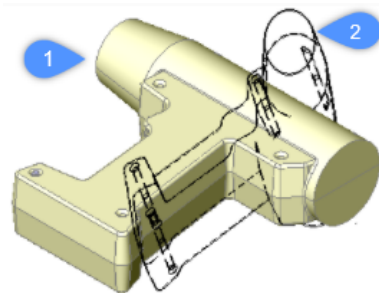
- \*U identifies blocks created by the program
- PH is short for “profile hidden”
- PV is short for “profile visible”

### 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.

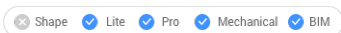
### Hide tangential edges?

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.

## 24.83 SPELL command

Opens the Spell checking dialog box.





Icon: <sup>ABC</sup> ✓

Alias: SP

## 24.83.1 Description

Opens the Spell checking dialog box to find and fix potential spelling errors in the current drawing.

## 24.84 SPHERE command

Creates a 3D Solid in the shape of a sphere.

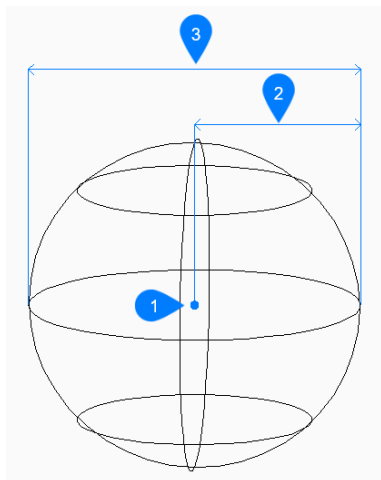


Icon:

**Note:** In BricsCAD Lite, which doesn't support 3D Solids, the SPHERE command launches the AI\_SPHERE command.

### 24.84.1 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

### 24.84.2 Methods to create a sphere

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:

Additional option: [Diameter]

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

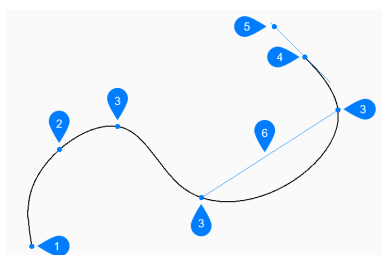
Specify the diameter of the sphere.

Creates a spline.



Alias: SPL

Creates a 2D or 3D spline that is open or closed. Options allow you to specify start and end points, fit points, and tangencies.



- 1 First point of spline (no tangency)
- 2 Second point
- 3 Next point
- 4 End point
- 5 Tangent point to end point
- 6 Distance between two drag lines

This command has 1 method to begin creating a spline:

- First point for spline

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

Begin creating a spline by specifying the start point then:



### Second point

Specify the first fit point.

### Set next point

Specify the next fit point.

Additional options: [Close/Fit tolerance/Undo]

### Select starting tangent point

Specify a tangency for the starting point or press Enter to ignore this option.

### Enter tangent for ending point

Specify a tangency for the ending point or press Enter to ignore this option.

## 24.85.3 Additional options within the SPLINE command

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

### Close

Automatically draw a spline segment between the start and end points to create a closed spline.

### Fit tolerance

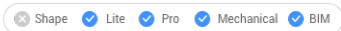
Specify (in drawing units) how closely the spline matches its fit points. If the fit tolerance is 0, the spline passes through its fit points.


### Undo

Undo the last fit point and continue drawing from the previous fit point.

## 24.86 SPLINEDIT command

Modifies the properties of a spline. Converts a spline to a polyline.



Icon: 

Alias: SPE

### 24.86.1 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.

### 24.86.2 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.

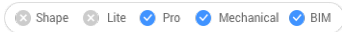
**eXit**


Concludes the editing of the spline or returns to the previous prompt.



### 24.87 SPOTLIGHT command

Creates a spotlight.



Icon: 

#### 24.87.1 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 LIGHTUNITS system variable.

#### 24.87.2 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 LIGHTINGUNITS system variable's value is 0, this option is named Intensity.

##### Status

Toggles the use of this 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 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 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:** If a Falloff angle that is smaller than the Hotspot angle is entered, 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 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.

### Shadow sample

Specify 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 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, 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.

**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

Specifies an AutoCAD Color Index color.

### Hsl

Specifies the color using three parameters Hue, Saturation and Lightness.

### Colorbook

Enter a name from a colorbook.

### eXit

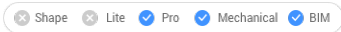
Concludes the command and creates the light.





### 24.88 STANDARDPARTSPANELCLOSE command

This command is obsolete.

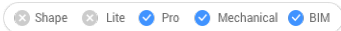


#### 24.88.1 Description

Use LIBRARYPANELCLOSE instead.

### 24.89 STANDARDPARTSPANELOPEN command

This command is obsolete.



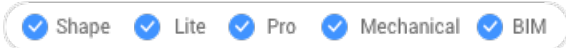
#### 24.89.1 Description

Use LIBRARYPANELOPEN instead.

### 24.90 START command

### 24.91 STATBAR command

Toggles the STATUSBAR system variable.



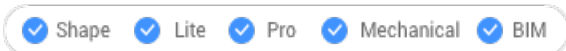
#### 24.91.1 Description

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.

### 24.92 STATUS command

Reports the status of the drawing.



Icon:

#### 24.92.1 Description

Displays the status report of the drawing in the Command line.

**Note:** To see the full report press F2 key.

### 24.93 STLOUT command

Export 3D solids and watertight meshes.



✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

## 24.93.1 Description

Exports 3D solids and watertight meshes in a format that can be used for stereolithography (3D printing).

## 24.93.2 Method

There are two methods to use STLOUT command:

- Export 3D solids.
- Export meshes.

## 24.93.3 Options within the command

### Create binary STL file

Determines whether the output file is in binary or ASCII format.

**Note:** Binary STL files 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.

## 24.94 STOPSCRIPT command

Stops the recording of scripts.

✗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

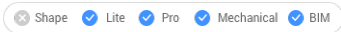
## 24.94.1 Description

Stops the recording of scripts begun by the RECSCRIPT command.



### 24.95 STRETCH command

Stretches 2D entities.



Icon:

Alias: S

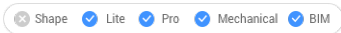
**Note:** This command does not stretch texts, shapes, and 3D solids.

#### 24.95.1 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.

### 24.96 STRUCTUREPANEL command

Opens the Structure panel.

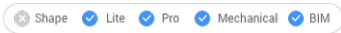


#### 24.96.1 Description

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.

### 24.97 STRUCTUREPANELCLOSE command

Closes the Structure panel.

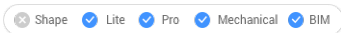


#### 24.97.1 Description

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.

### 24.98 STYLE command

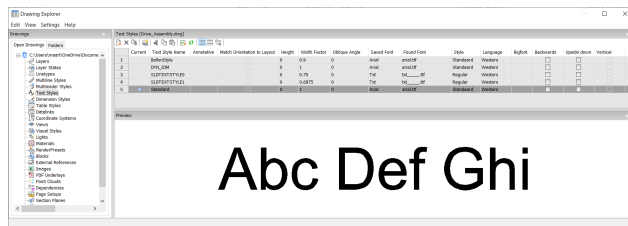
Opens the Drawing explorer dialog box with **Text Styles** selected.



Alias: DDSTYLE, EXPFONTS, EXPSTYLE, EXPSTYLES, ST

#### 24.98.1 Description

Opens the Drawing explorer dialog box with Text Styles category selected to view and modify styles in the current drawing.



## 24.98.2 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 Front

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 Front

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\V21x64\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.

## 24.98.3 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

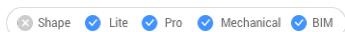
Deselects the current selection and vice versa.

### Set current

Specifies the current working style. Only one style can be current at a time.

## 24.99 -STYLE command

Creates and modifies text styles.



Alias: FONT

### 24.99.1 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.

### 24.99.2 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

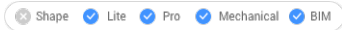
An annotatively-scaled style adjusts its height in paper space automatically, according to the plot scale.

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.

## 24.100 STYLESMANAGER command

Creates and edits plot style files.



### 24.100.1 Method

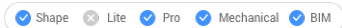
This command displays a file manager dialog box from which a CTB or STB file can be selected. Double click on a file to display the Plot Style Table Editor dialog box or on Create Plot Style Table to create a plot style from scratch or from an existing table.

**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.

## 24.101 SUBTRACT command

Performs Boolean subtraction operation.



Icon:

Alias: SU

### 24.101.1 Description

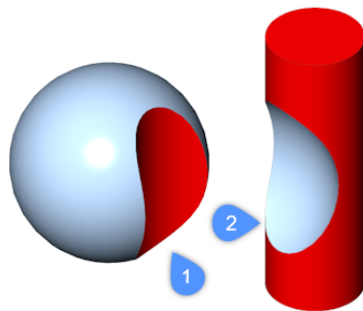
Performs Boolean subtraction operations on 3D solids and 2D regions by removing the overlapping portions of one from another.

### 24.101.2 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.

## 24.102 SUNPROPERTIES command

Opens the Drawing explorer dialog box with **Lights** selected.

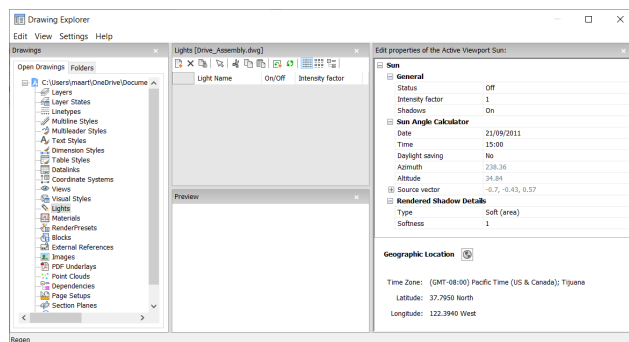


Icon:

Alias: SUN

### 24.102.1 Description

Opens the with **Lights** category selected to view and modify sun properties in the current drawing.



### 24.102.2 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.

### 24.102.3 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.

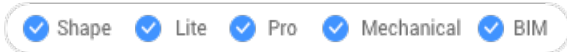
#### Set current

Sets the selected light definition as current.



### 24.103 SUPPORTFOLDER command

Opens the operating system's file manager at the Support folder.



#### 24.103.1 Description

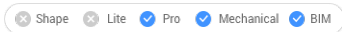
Displays a file manager dialog box showing the contents of the support folder.

**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.

### 24.104 SUPPRESS command

Suppresses the display of entities.



Icon:

#### 24.104.1 Description

Creates named groups of entities whose display can be turned off. Use the STRUCTUREPANEL command to turn their display back on.

#### 24.104.2 Options within the command

##### New

Create a new named group of entities.

##### Edit

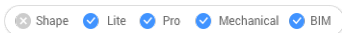
Change the entities included with a named group.

##### Dissolve

Turn the display of suppressed entities back on and remove the name of the group.

### 24.105 SVGOPTIONS command

Opens the Settings dialog box with the **SVG export** category expanded.



#### 24.105.1 Description

Opens the Settings dialog box with the **SVG export** category expanded to view and modify relevant system variables.

### 24.106 SWEEP command

Creates 3D solids or surfaces by sweeping profiles along a path.





Icon:

### 24.106.1 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.

### 24.106.2 Methods

There are two methods to sweep entities:

- Create 3D solids
- Create surfaces

### 24.106.3 Options within the command

#### MDe

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.

### 24.107 SYSWINDOWS command

Arranges windows.



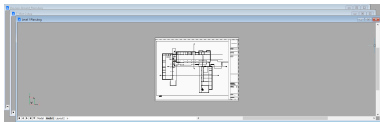
#### 24.107.1 Description

Arranges the program's windows in tiled or cascaded formations (short for "system windows").

#### 24.107.2 Options within the command

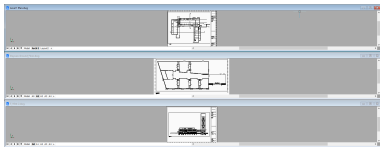
##### Cascade

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.

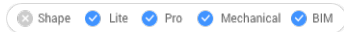





## 25. T

### 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

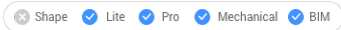
Edits text in a table cell through the Text Formatting window.

**Note:** To edit the format of cells, use the TABLEMOD command.

**Note:** The Text Formatting window operates exactly like the one from the MTEXT command.

## 25.4 TABLEEXPORT command

Exports the contents of a table.



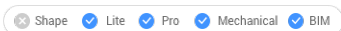
### 25.4.1 Method

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 then 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 then 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 for that 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 returned.

### 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 then choose an option.

**Note:** The content of each selected cell is aligned inside the cell. For instance, 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 then choose and 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.

**Note:** This option is not implemented yet.

### 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 then 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

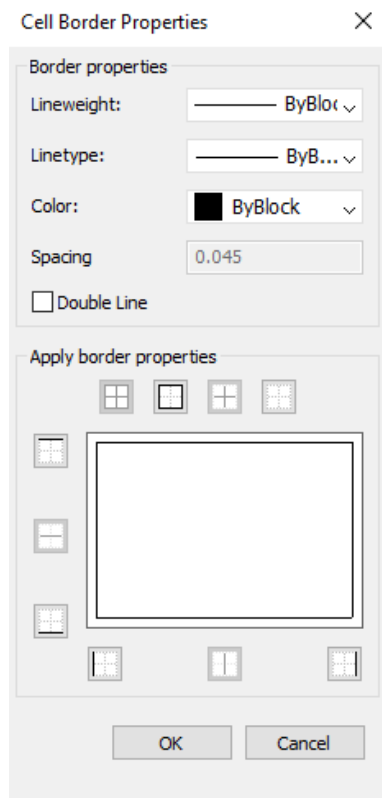
**Note:** The properties of the Header, Border, and Cell sub-styles are defined by the table style; see the TABLESTYLE command.

### Cell background

Sets the background color of the selected cell(s). Click on the drop 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, Linetype 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:** So that the Inside borders option to work, you have to select more than one cell.

**Note:** Although the preview window shows only the double line effect, the other properties are applied to the specified cell border line.



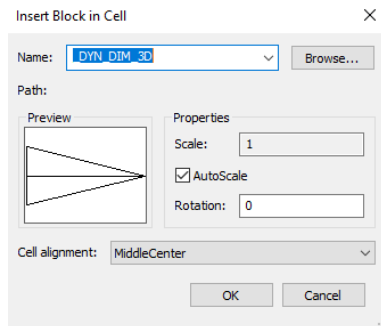


### OK

Exists 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.



### Name

Specifies the name of the block or drawing to insert or click on Browse to display the Open drawing file dialog box and search for a block to insert.

**Note:** When the cell is small, the block or drawing may be barely perceptible. You may need to increase the size of the row or column to accommodate the blocks. A cell can hold text and one or more blocks. When a 3D model is pasted into the cell, the 2D plan view is displayed.

### Properties

Determines the size of the block in the cell.

#### Scale

Specifies the size of the block:

- Numbers larger than 1.0 make the block larger
- 1 - inserts the block at its actual size
- Numbers smaller than 1.0 make the block smaller
- Negative numbers flip the block upside down

**Note:** This option is unavailable when AutoScale is turned on.

#### AutoScale

Sizes the block to fit the cell:

- On - the block is resized to fit the cell
- Off - the cell is resized to fit the block

#### Rotation

Rotate the block about its center point (and not its insertion point); enter an angle:

- Positive numbers rotate the block counter clockwise
- 0 - does not rotate the block
- Negative numbers rotate the block clockwise

#### Cell Alignment

Aligns the block in the cell.

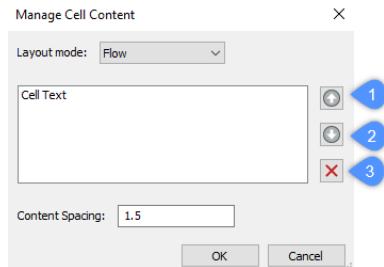


### OK

Exists the dialog box, inserts the block and returns to the Table toolbar.

### 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 the list, so that it appears above other elements in the cell.

### Move Down (2)

Moves the selected element down 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 see 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 DATALINK command.

### Remove DataLink

Removes the link to the table, but the data remains in the table.

**Note:** Available only 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

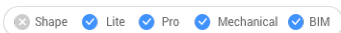
Sizes all rows in the table to match the tallest row.

### Size all columns equally

Sizes all column in the table to match the widest column.

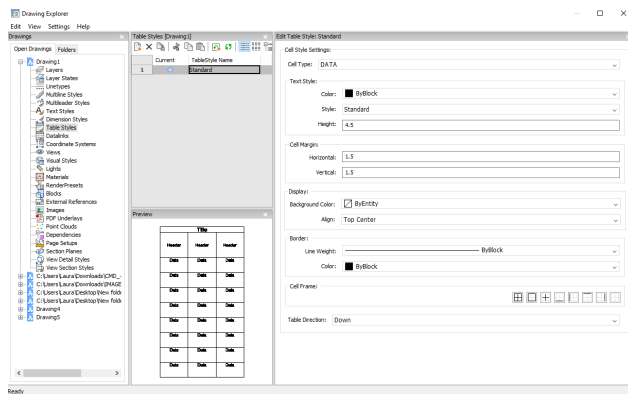
## 25.6 TABLESTYLE command

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 withing 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 trough the Color dialog box.

### Align

Specifies an alignment trough a drop-down list

### Border

Sets the lineweight and color of the cell borders.

### Lineweight

Sets lineweight trough 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

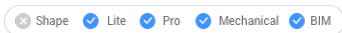
Deselects the current selection and vice versa.

### Set current

Sets the selected table style as current.

## 25.7 TABLET command

Configures digitizing tablets.



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

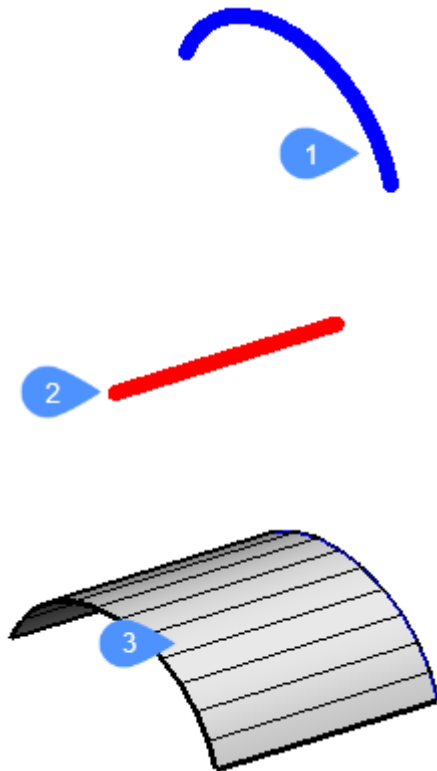
Icon:

### 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 TCONNECT command

Connects solid faces and edges of planar surfaces to other solids, planar surfaces or regions.

Shape Lite Pro Mechanical BIM

Icons:

### 25.10.1 Description

Connects the selected solid faces or edges of the planar surfaces to other solid faces, planar surfaces or regions.

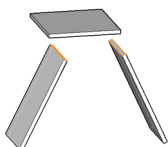
Step1	Step2	Step3

**Note:** If the DELETEINTERFERENCE system variable is ON, the connected solid is subtracted from interfering solids.

### 25.10.2 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).

Before	Disconnect result

## Connect

Switch to the connect face mode.

## 25.11 TEMPLATEFOLDER command

Accesses the folder holding template files.



### 25.11.1 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`.

## 25.12 TESTDBUSERIO command

## 25.13 TESTDLG command

## 25.14 TESTFATAL command

## 25.15 TESTINTERNAL command

## 25.16 TESTSELECTION command

## 25.17 TEXT command

Creates a single-line text entity.





✓ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: A

Alias: TX

**Note:** When the TextEval system variable is set to 1, this command evaluates LISP expressions.

## 25.17.1 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.

## 25.17.2 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...

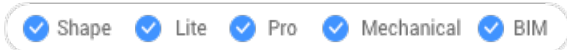
Displays all justification options. Choose between: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right.

**Note:** Text can be moved or stretched through grips.



## 25.18 -TEXT command

Places single-line text in drawings.



Alias: -T

### 25.18.1 Description

Places single lines of text in the drawing, unformatted; works at the Command line.

See the TEXT command.

## 25.19 TEXTSCR command

Switches to the text screen.



### 25.19.1 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.

## 25.20 TEXTTOFRONT command

Displays text and/or dimensions on front of all other drawing entities.



Icon:

### 25.20.1 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.

### 25.20.2 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.

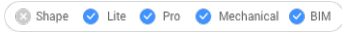


## 25.21 TFLOAD command

## 25.22 TFSAVE command

## 25.23 TIME command

Reports the use of time in the drawing.



Icon:

Alias: TI

### 25.23.1 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 12:17:58
Drawing was last updated: Wed Sep 15, 2021 12:17:58
Total editing time:    0 days 0 hours 0 minutes 8.8478 seconds
Elapsed timer (on):    0 days 0 hours 0 minutes 8.8778 seconds
[timer:ON/timer:OFF/display timer/reset timer]:
```

### 25.23.2 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

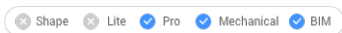
Reports the date and time the drawing was created, last updated, and the amount of time spent editing (that the drawing was open).

#### Reset timer

Resets the independent timer.

## 25.24 TIN command

Creates a topographical surface (TIN surface).



Icon:

### 25.24.1 Description

Creates a topographical surface using TIN (Triangulated Irregular Network) surface tool from an imported points file or placing new points



### 25.24.2 Method

Select a set of points and polylines from the drawing or select a point cloud in the drawing and transform them into a TIN (Triangulated Irregular Network) surface. Points are added to the surface as points, 3D polylines are added to the surface as breaklines. Linear entities could be added to the TIN surface as breaklines or as points.

### 25.24.3 Options within the command

#### Import from file

Displays the Open file dialog box and allows creating a TIN surface from an imported points file in text file format (.TXT) or comma-delimited file format (.CSV). Multiple point files could be selected to create a TIN surface.

#### place Points

Creates a TIN surface by placing at least three points with different elevations.

#### create from Faces

Creates a TIN surface by selecting 3D faces. You may choose to add edges of 3D faces as breaklines (Y) or to create TIN Surface only with points of 3D Faces (N).

#### Create from civil3d surface

Creates a toposurface from a Civil 3D surface.

#### cLip polygon

Creates a toposurface only in the area defined by the CLIP polygon (a closed polyline).

## 25.25 TINASSIGNIMAGE command

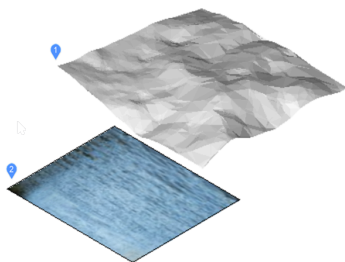
Assigns a raster image as a TIN surface material.

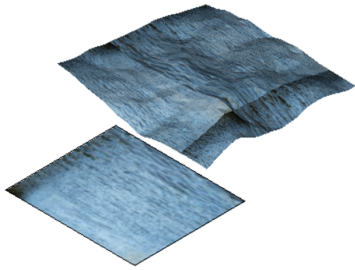


Icon:

### 25.25.1 Method

Select the TIN surface (1) and select an attached raster image (2) to assign to the surface.





## 25.26 TINEDIT

Allows editing a topographical surface (TIN surface).



Icons:

### 25.26.1 Description

Allows adding or removing points, breaklines, and boundaries on a TIN (triangulated irregular network) surface.

Pick points and specify their elevation value to add them to an existing TIN surface or choose an option.

### 25.26.2 Options within the command

#### Add Points

Sets points to add to a toposurface.

#### Add Breaklines

Sets linear entities to be added as breaklines to a toposurface.

#### Add bOundaries

Sets a closed polyline as boundaries to add to a toposurface.

You may choose the boundary type:

#### Outer

Creates an outer surface boundary.

#### Show

Shows the surface boundary inside a hidden surface boundary.

#### Hide

Hides the surface boundary.

#### Remove Points

Deletes points from a surface.

#### Remove Breaklines

Deletes breaklines from a surface.

#### Remove bOundaries

Deletes boundaries from a surface.



### CLip

Clips an existing TIN Surface in the drawing with a selected polygon as clipping boundary for the surface. You may choose if you want the polygonal breaklines to be removed or not.

## 25.27 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:

### 25.27.1 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.

### 25.27.2 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.

## 25.28 TINMERGE command

Combines two or more TIN surfaces (or gradings) into a new TIN surface.



Icon:

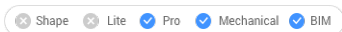
### 25.28.1 Description

Combines a base surface and two or more other TIN surfaces to merge with, that will replace the part of the base surface that it covers.

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.

## 25.29 TINMODIFY command

Deforms or smoothenes a selected TIN surface.



Icon:

### 25.29.1 Description

Modifies a selected TIN surface by deforming or smoothening it or creates a new modified TIN surface.

### 25.29.2 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.

## 25.30 TINPROJECT command

Projects a point-based entities or linear entities to a TIN surface.

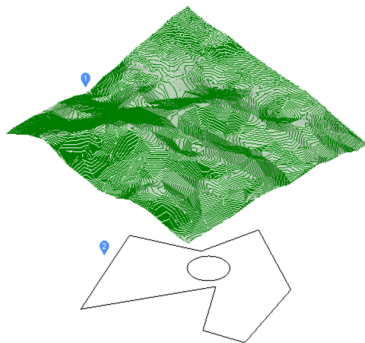
Shape Lite Pro Mechanical BIM

Icon:

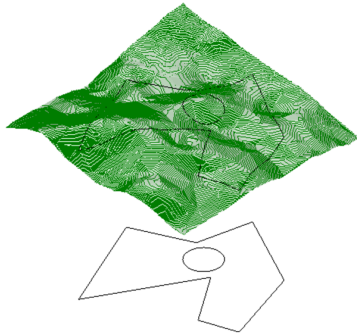
### 25.30.1 Description

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.







## 25.31 TINSERT command

Inserts blocks into the cell of a table.

Shape Lite Pro Mechanical BIM

### 25.31.1 Method

Pick a table cell to open the Insert Block in Cell dialog box.

## 25.32 TINVOLUME command

Creates a TIN volume surface between a base and comparison TIN surfaces or an elevation.

Shape Lite Pro Mechanical BIM

Icon:

### 25.32.1 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.

### 25.32.2 Options within the command

#### Elevation

It creates a TIN volume surface between a base and an elevation.

Select the base TIN surface, enter the wanted elevation value and select a bounding area for the TIN volume surface.

## 25.33 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:

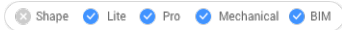


### 25.33.1 Method

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.

### 25.34 TIPS command

Displays the Tips panel.



#### 25.34.1 Description

Displays the Tips panel, which provides helpful advice on using certain commands.

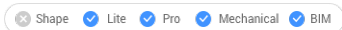
#### 25.34.2 Method

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.

### 25.35 TOLERANCE command

Opens the Geometric tolerance dialog box.



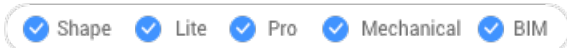
Icon:  $\pm$

#### 25.35.1 Description

Opens the Geometric tolerance dialog box to add tolerance symbols to the current drawing.

### 25.36 TOOLBAR command

Toggles the display of toolbars at the Command line.



#### 25.36.1 Method

Enter the name of the toolbar or choose the All option to turn all toolbars on or off.

#### 25.36.2 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

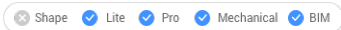
Docks the toolbar(s) to the bottom.

### Float

Show the floating toolbar(s).

## 25.37 -TOOLBAR command

Toggles the display of toolbars at Command line.

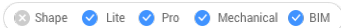


### 25.37.1 Description

For more information see TOOLBAR command.

## 25.38 TOOLPALETTES command

Opens the Tool palettes panel.

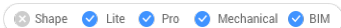


### 25.38.1 Description

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.

## 25.39 TOOLPALETTECLOSE command

Closes the Tool palettes panel.

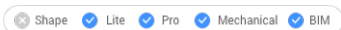


### 25.39.1 Description

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.

## 25.40 -TOOLPANEL command

Toggles the display of panels.



### 25.40.1 Description

Turns the display of panels on and off, such as the Properties and Tips panels.



### 25.40.2 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.

### 25.40.3 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.

## 25.41 TORUS command

Creates a 3D Solid in the shape of a torus.



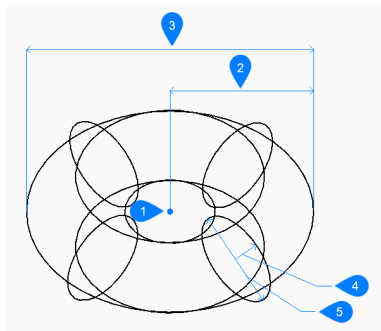
Icon: 

Alias: TOR

**Note:** In BricsCAD Lite, which doesn't support 3D Solids, the TORUS command launches the AI\_TORUS command.

### 25.41.1 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



### 25.41.2 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]

### 25.41.3 Options within the TORUS command

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

#### Diameter (of whole torus)

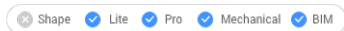
Specify the diameter of the entire torus. The diameter is twice the distance from the center of the whole torus to the center of the body (tube) of the torus.

#### Diameter (of body of torus)

Specify the diameter of the body of the torus.

## 25.42 TPNAVIGATE command

Loads tool palettes at the Command line.



### 25.42.1 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.

### 25.42.2 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.

## 25.43 TRACE command

Draws traces.



Icon:

**Note:** This command is rarely used as the PLINE command is more convenient.



### 25.43.1 Description

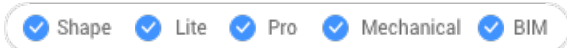
Draws traces, like wide lines, with mitered vertices.

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.

## 25.44 TRANSPARENCY command

Toggles the transparency of monotone images.



### 25.44.1 Description

When transparency is turned 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 panels.

**Note:** This command only works with raster images attached to the drawing that have a monochrome palette.

### 25.44.2 Options within the command

#### ON

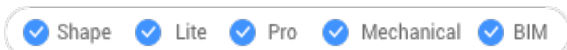
Turns on transparency.

#### OFF

Turns off transparency.

## 25.45 TRIM command

Trims entities by a cutting line.



Icon:

Alias: TR

### 25.45.1 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.



### 25.45.2 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.

### 25.46 TXT2MTXT command

Combines a selection of TEXT and MTEXT entities into a single MTEXT entity.



Alias: COMBINETEXT

#### 25.46.1 Method

Select the TEXT and MTEXT objects to combine. The combination is made depending on the value of the COMBINETEXTMODE system variable.

#### 25.46.2 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.

## 25.47 TXTEXP command

Explodes text into polylines.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

### 25.47.1 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.

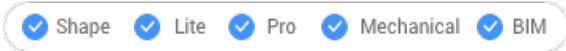





## 26. U

### 26.1 U command

Reverses the action of the previous command.



Icon: 

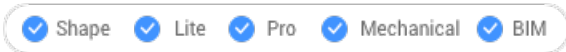
#### 26.1.1 Description


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

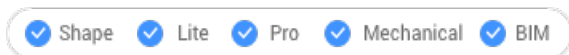
Moves the origin of the current UCS, keeping the orientation of the axes.

### 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.

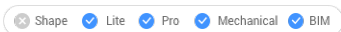
#### display in Corner

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.

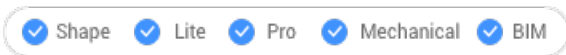
Undefined commands are accessed:

- 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 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.

### None

Turns off the undo mechanism.

**Note:** This is useful when disk space is running low, cause the undo mechanism uses disk space.

### One

Limits this command to a single undo. The Undo command is turned into the U command.

### All

Turns on the Undo mechanism.

### Auto

Considers all commands executed by a macro as a single undo.

## 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

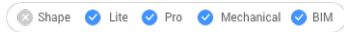
Reverses the undo action.



**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

#### 26.8.1 Description

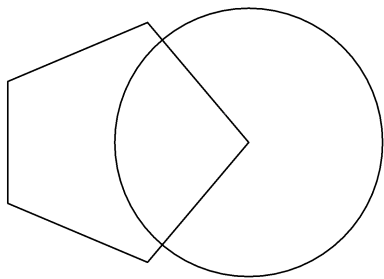
Performs Boolean union operations on 3D solids and 2D regions by adding set of entities to another set to form a single entity.

**Note:** The resulting entity takes on the properties of the ACIS entity selected first.

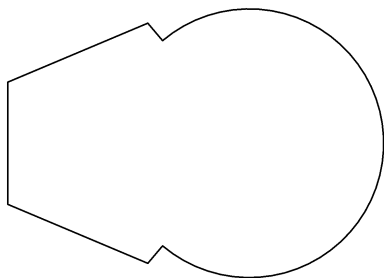
#### 26.8.2 Method

Specify the ACIS entities to join into a single entity. The program joins regions and 3D solids into a single entity.

The entities selected:

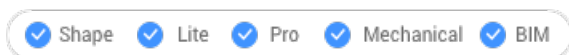


Result:



## 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.

## 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.





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  $2\pi$  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.

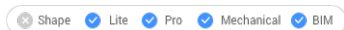
### Do you want angles measured clockwise?

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:

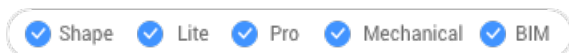
### 26.12.1 Description

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 URL command

Opens the default Web browser.



Icon:

### 26.13.1 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.






## 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").

Shape Lite Pro Mechanical BIM

Icon: 

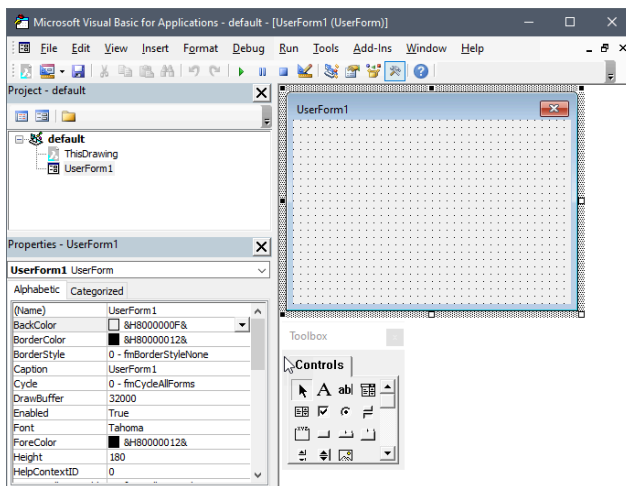
Alias: VBA

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.

Shape Lite Pro Mechanical BIM

#### 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 VBASECURITY 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.

✕ Shape ✕ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 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.

##### CheckOut

Checks out a drawing from your Bricsys 24/7 projects.



### Project name

Specify the name for the new project/for the project from which you want to check out a drawing. 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.

### Version control folder

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.

### CheckIn

Checks in drawings from your local version control folder to the associated Bricsys 24/7 project.

### File to Commit

Specify if you want to check in all files in the version control folder or you commit modified and untracked files.

### Check in Message

Enter a relevant Check In message.

### Update

Syncs project drawings from your local folder with the associated Bricsys 24/7 project.

### ReName

Renames a drawing that is under version control.

### History

Enables you to go to older versions.

### ReVert

Reverts to previous state.

## 27.11 VIEW command

Opens the Drawing explorer dialog box with **Views** selected.

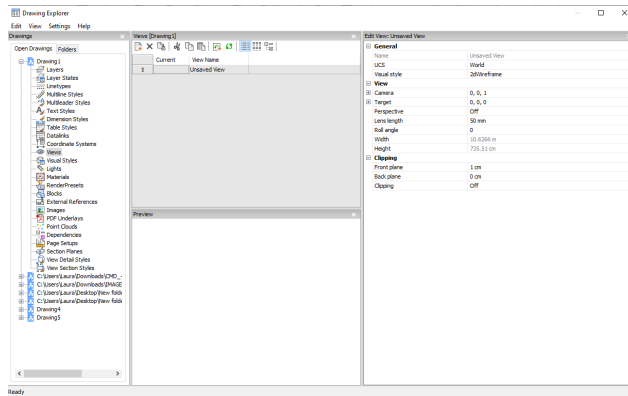


Icon:

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.
- DRAWINGVIEWQUALITY variable defines the quality 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.

Then, 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

Select 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.

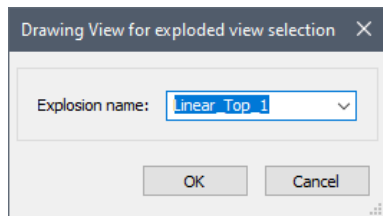
#### Special views

Select 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.

From the drop-down list, choose a style for the exploded representation.



#### 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.

#### 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.

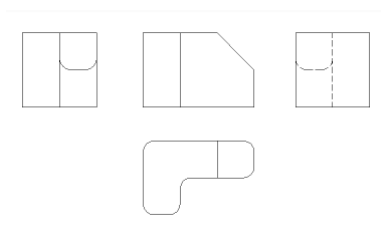
When the BM\_Ortho\_Hidden and BM\_Isometric\_Hidden layers are off or frozen, hidden lines will not display.

### 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.

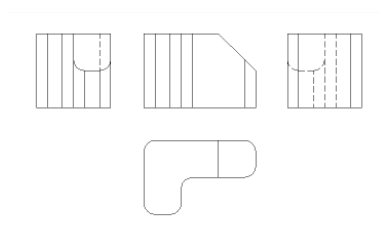
#### No

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.



### 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

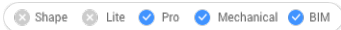
Includes all entities from model space in the drawing views.

### 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.



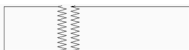
#### Spline

Spline geometry. Supports the Gap distance, Width and Height.



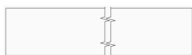
#### Zigzag

Spline geometry. Supports the Gap distance, Width and Height properties.



#### sMall zigzag

Supports the Gap distance, Width, Height and Step properties.



**Note:** The properties of the Broken Symbol can be edited in the Properties panel:

Broken Symbol	
Type	Small Zigzag
Gap distance	1.25 mm
Width	1 mm
Height	1 mm
Step	5 mm

### Type

Select the type in the drop-down list.

### Gap distance

Defines the distance\* between the two parts of the broken symbol.

### 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 Zig-zag symbols.

\* Expressed in layout units.

### Vertical

Aligns the symbol along the Y axis.





### Horizontal

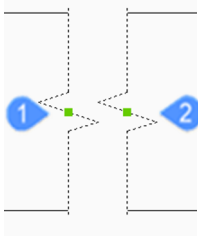
Aligns the symbol along the X axis.



### Edit Grips

You can edit break symbol grips.

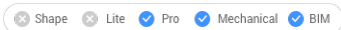
Select the break symbol and 2 Grips display:



- 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.

### modelL edge

Controls whether a connection line is drawn between the detail view and the detail boundary in the parent view.

### smooth with Border

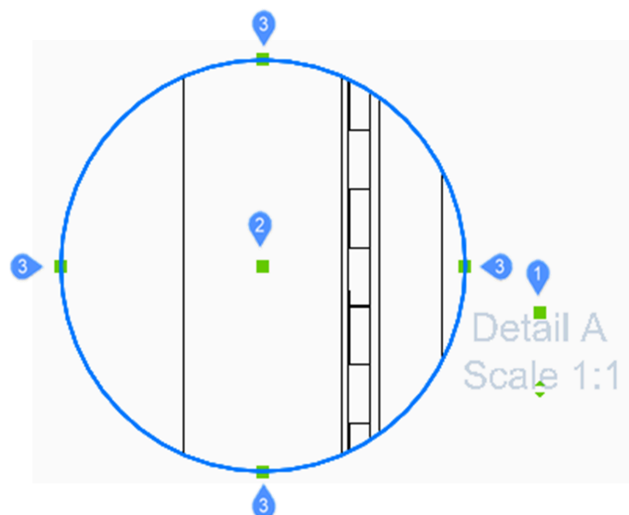
Does not draw a line.

### 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.

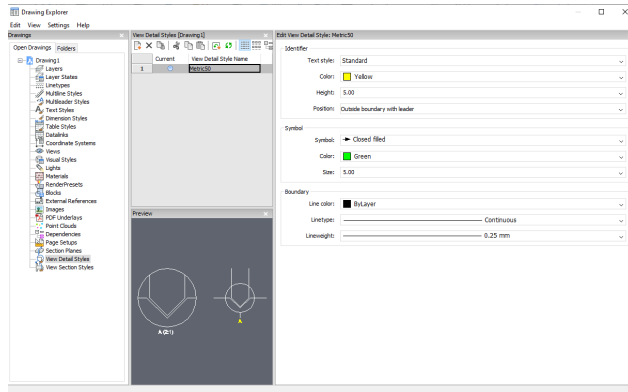


Icon:



## 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

## 27.21 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.

### 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

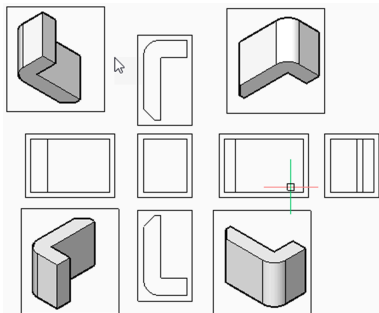
Sets the style for isometric views.

#### 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:

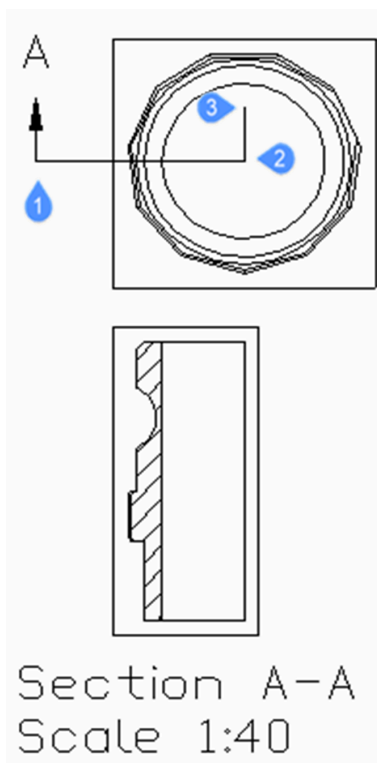
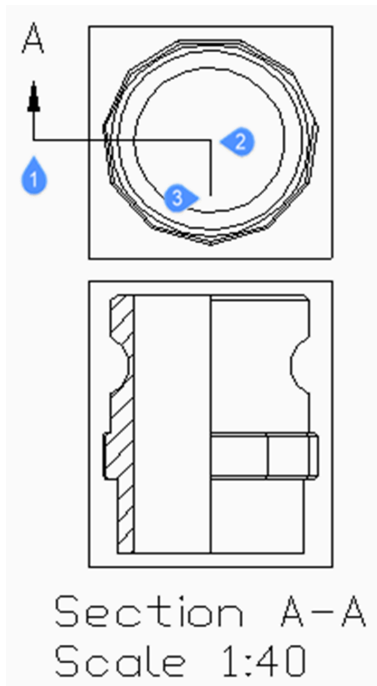
##### Full

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.

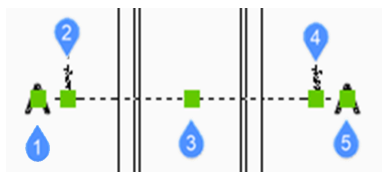
### Custom angle

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.

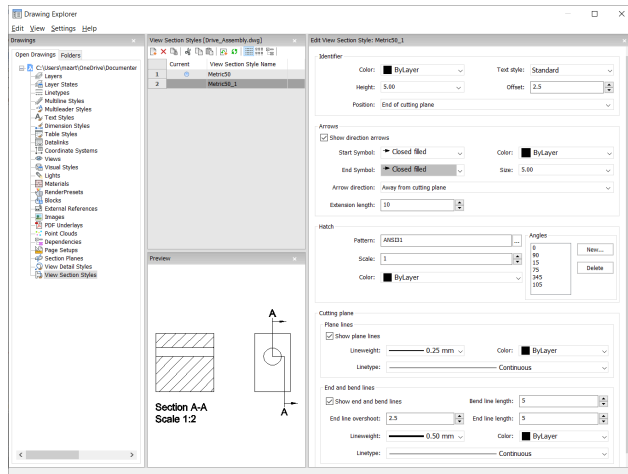




Icon:

## 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

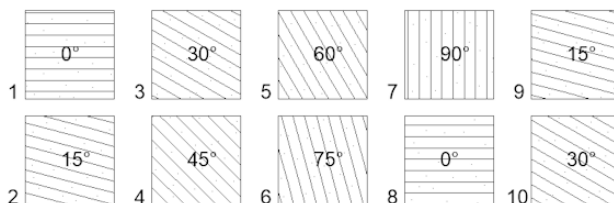
Sets the properties of the section arrows.

- 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

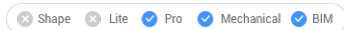
Selects all view section style definitions.

#### Invert selection

Deselects the current selection and vice versa.

## 27.26 VIEWUPDATE command

Updates drawing views.



Icon:

### 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

Opens the Manage visibility dialog box.



Icon:

### 27.27.1 Description

Opens the Manage visibility dialog box to create and edit visibility states in the current block definition.



**Note:** BricsCAD visibility states are not compatible with AutoCAD® visibility states. When you open a drawing with BricsCAD parametric blocks in AutoCAD® they display as saved in BricsCAD. However, when such parametric blocks are edited, or copied to another drawing in AutoCAD®, all entities in the block become visible.

## 27.28 VISIBLE command

## 27.29 VISUALSTYLES command

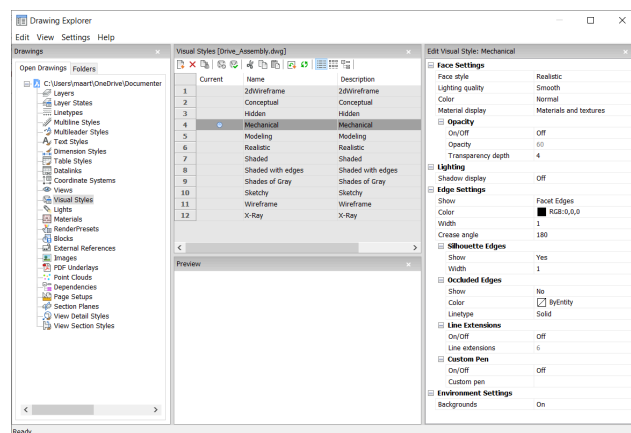
Opens the Drawing explorer dialog box with **Visual Styles** selected.



Icon:

### 27.29.1 Description

Opens the Drawing explorer dialog box with **Visual Styles** category selected to view and modify visual styles in the current drawing.



### 27.29.2 Options within the command

#### 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
- Full 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 viewport 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.

### Background 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.

Mechanical Drafting and Mechanical Drafting Section visual styles are used by the BMGENDRAFT and BMGENSECTION commands.



### 27.29.3 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**

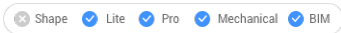
Selects all visual style definitions.

#### **Invert selection**

Deselects the current selection and vice versa.

### 27.30 -VISUALSTYLES command

Manages visual styles.



#### 27.30.1 Description

The command sets and manages visual styles at the Command line.

#### 27.30.2 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.

##### **cUrrrent**

Sets the current visual style.

##### **Save as**

Saves the current visual style by a new name when users make changes to the properties of a visual style.

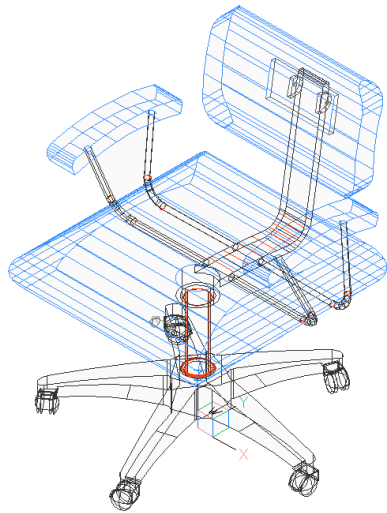
##### **Delete**

Deletes a visual style by name. The currently-used style(s) and those defined by the program cannot be deleted.

##### **?**

List the names of visual styles available in the drawing:

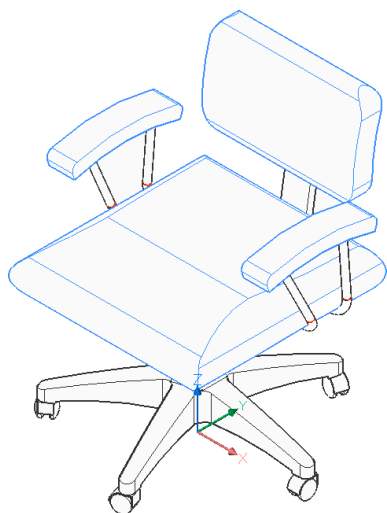
- 2dWireframe



- Conceptual



- Hidden



- Realistic



- Shaded

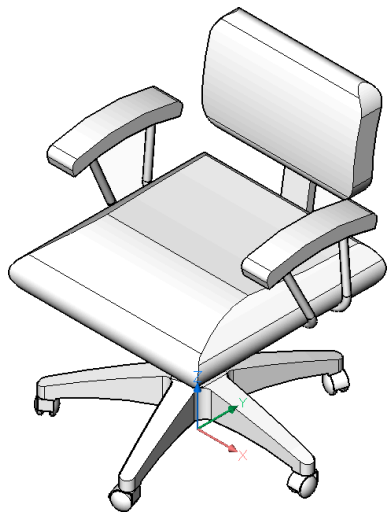


- Shaded with edges

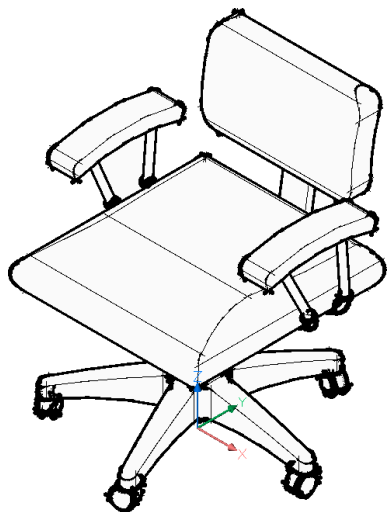




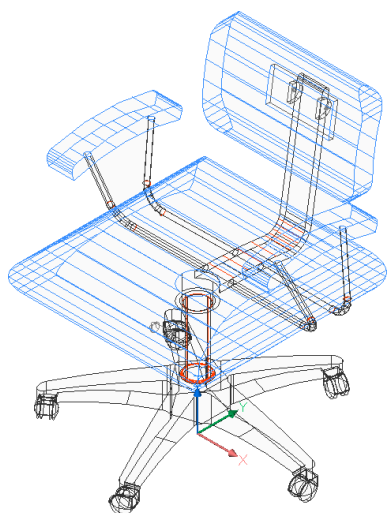
- Shades of Gray



- Sketchy



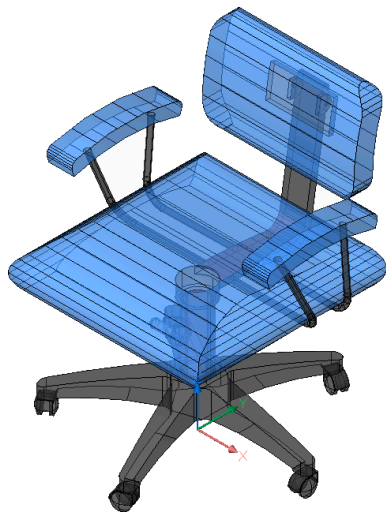
- Wireframe







- X-Ray



### 27.31 VLIDE command

Opens the BricsCAD LISP Advanced Development Environment (BLADE).

⊗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 27.31.1 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.

### 27.32 VMLOUT command

Opens the Create HTML file dialog box.

⊗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 27.32.1 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.

### 27.33 VPCLIP command

Makes viewports from entities.

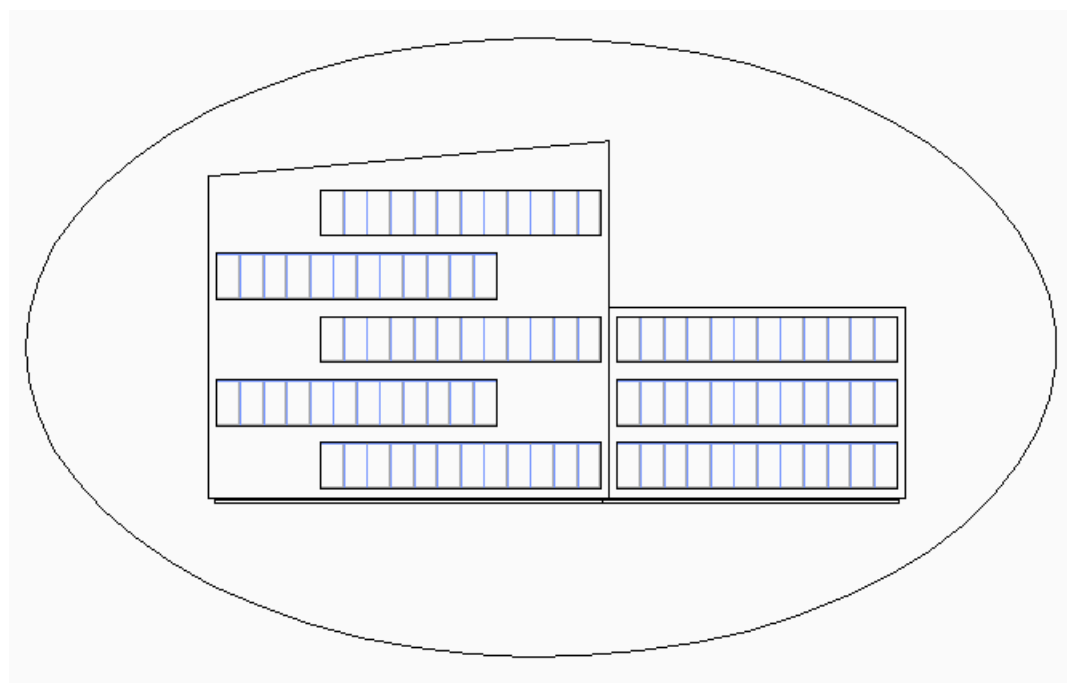
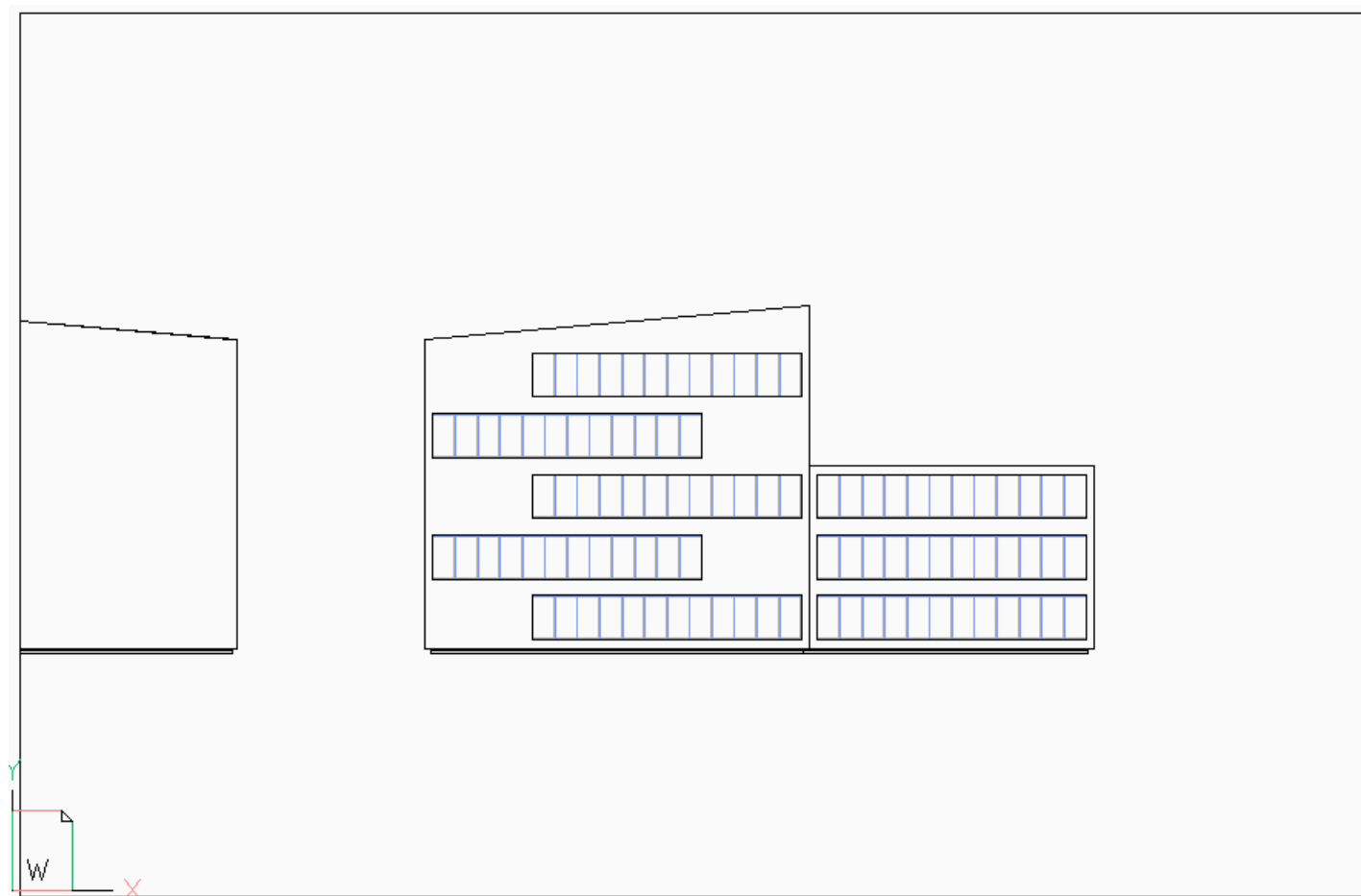
⊗ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 27.33.1 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.





### 27.33.2 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.

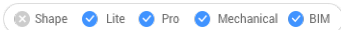
#### Delete

Deletes the clipping boundary and returns the original rectangular viewport.

**Note:** This option appears only when a clipped viewport is selected.

### 27.34 VPLAYER command

Changes the properties of layers in the current paper space viewport.



#### 27.34.1 Description

Allows every viewport to show a different set of layers.

**Note:** This command does not operate in model space.

#### 27.34.2 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 selected viewports.



### **Red, Yellow, Green, Cyan, Blue, Magenta**

Specifies the color for the layers in selected viewports.

### **COlorbook**

Opens a color book by entering its name.

### **Line type**

Overrides the linetype of specific layers in selected viewports.

### **Line Weight**

Overrides the linewidth 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.

## **27.35 VPMAX command**

Maximizes the current viewport.





### 27.35.1 Method

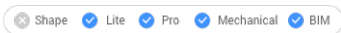
This command can be used both in Model space and Paper space to expand the selected viewport.

**Note:** Before using the VPMAX command in Model space, create viewports using VPORTS command.

**Note:** To minimize the viewport use VPMIN command.

### 27.36 VPMIN command

Minimizes the current viewport.



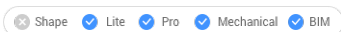
#### 27.36.1 Method

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.

### 27.37 VPOINT command

Changes the 3D viewpoint.



Alias: -VIEWPOINT, -VP, -VPOINT, VIEWPOINT

#### 27.37.1 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.

#### 27.37.2 Options within the command

##### Set view point

Specifies the viewpoint by entering coordinates in the Command line.

##### 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.

### 27.38 VPORTS command

Creates one or more viewports in model space.



Shape Lite Pro Mechanical BIM

Icon:

Alias: VIEWPORTS, VPORT, VW

## 27.38.1 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.

## 27.38.2 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.

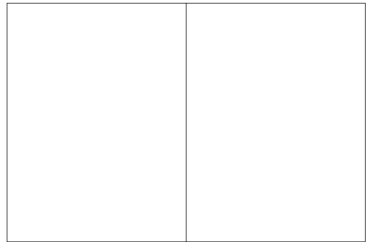
**Horizontal**

Creates two horizontal viewports, one above another.



### Vertical

Creates two vertical viewports, one beside another.

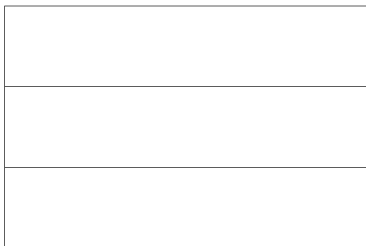


### Create 3 viewports

Splits the current viewport into three rectangular viewports.

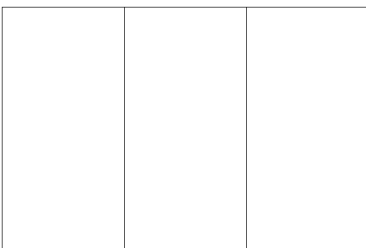
#### Horizontal

Creates three horizontal viewports, one above another.



#### Vertical

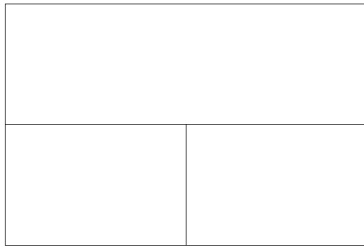
Creates three vertical viewports, one beside another.



### Above

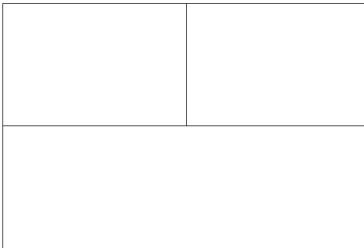
Creates a single wide viewport above two side-by-side viewports.





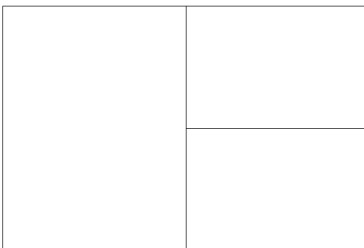
### **Below**

Creates two side-by-side viewports above one wide viewport.



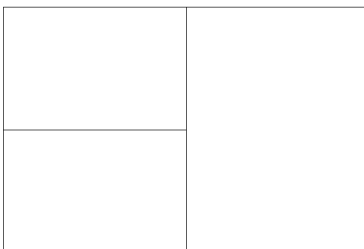
### **Left**

Creates one tall viewport to the left of two stacked viewports.



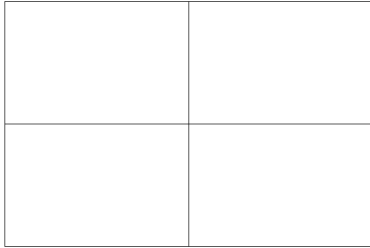
### **Right**

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.

### 27.39 -VPOR TS command

Creates one or more viewports in model space.

Shape Lite Pro Mechanical BIM

#### 27.39.1 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 VPOR TS command.

### 27.40 VSCURRENT command

Sets the visual style for the current viewport.

Shape Lite Pro Mechanical BIM

#### 27.40.1 Description

Sets the visual style for the current viewport in the Command line.

#### 27.40.2 Options within the command

##### cU rrent

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.

### 27.41 VSLIDE command

Opens the View snapshot dialog box.

Shape Lite Pro Mechanical BIM



Icon:

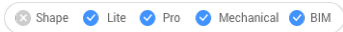
Alias: VS, VSNAPSHOT

### 27.41.1 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.

## 27.42 VTOPTIONS command

Opens the Settings dialog box with the **View Transition Options** category expanded.



### 27.42.1 Description

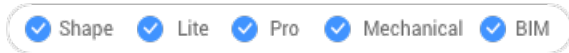
Opens the Settings dialog box with the **View Transition Options** category expanded to view and modify relevant system variables.



## 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.

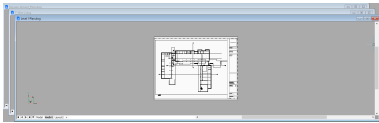


Icon: 

**Note:** This is a Windows only command.

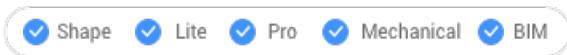
### 28.3.1 Description

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.



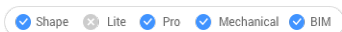
Alias: CLOSEALL

### 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 illuminates 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:** 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 must 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 values between 0.00 and the maximum value supported by your system (max float = maximum value of a floating point number).

#### Status

Toggles the use of this 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)

Indicated 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 a.

#### ?

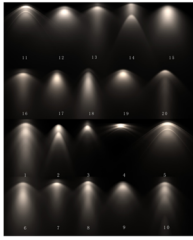
Displays the names of available colors.

#### Kelvin

Specifies a color temperature expressed in Kevin degrees.

#### weB

Specifies the light distribution map, called a "web" as an uneven light distribution can look vaguely like a spider's web:

**File**

Specifies a Web file name (.IES file) which is a text file that describes the intensity of a light source at many points on a spherical grid (image credit Vertheim).

**X**

Define the X rotation for the web.

**Y**

Define the Y rotation for the web.

**Z**

Define 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 sAmples**

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 is rectangular (faster to render).)

**filterColor**

Specifies the color of the light by entering the true color (R, G, B) or enter 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

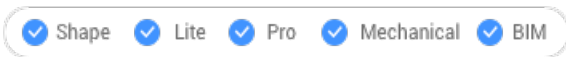
Specifies the color using three parameters Hue, Saturation and Lightness


### 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.



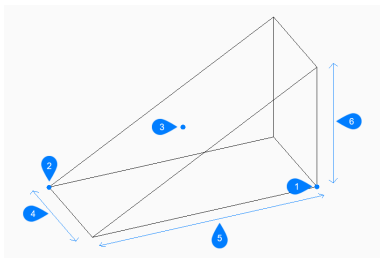
Icon: 

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

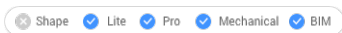
Specify the height of the wedge. The tall end of the wedge is drawn from the first corner that you specified.

### 2Point

Specify the height of the wedge as the distance between any two points.

## 28.8 WHOHAS command

Opens the Open drawing dialog box.



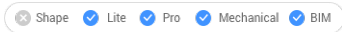
### 28.8.1 Description

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 WHTILE command

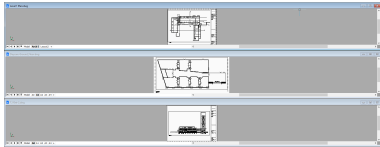
Tiles windows horizontally.



Icon:

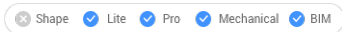
### 28.9.1 Description

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

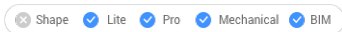
Arranges the icons of minimized windows at the bottom of the graphical screen.

**Note:** This command works only when windows are minimized as icons.

- Command only available on the Windows platform.

## 28.11 WIPEOUT command

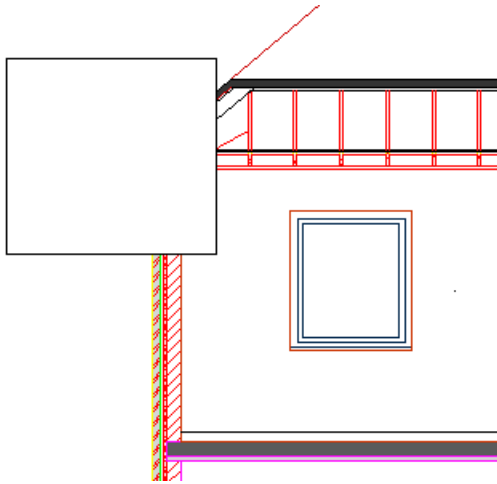
Creates a wipeout.



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

Opens the Create WMF file dialog box.



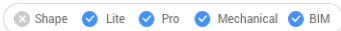
Alias: WO

### 28.12.1 Description

Opens the Create WMF file dialog box to save data from the current drawing to a wmf file.

## 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.



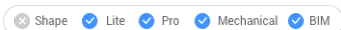
Icon: 

### 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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 28.16.1 Description

Displays the previous drawing window when multiple drawings are open.

### 28.17 WSSAVE command

Opens the Save workspace dialog box.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

#### 28.18.1 Description

Opens the Customize dialog box to customize the user interface.

### 28.19 WVTILE command

Tiles windows vertically.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

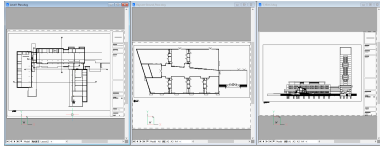


Icon:

## 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

Opens the Select reference file dialog box.



Icon:

Alias: XA

#### 29.1.1 Description

Opens the Select reference file dialog box to select a dwg file to reference into 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.

### 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 XEDGES command

Extracts edges from 3D entities.

Shape Lite Pro Mechanical BIM

Icon:

### 29.3.1 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.

## 29.4 XFACES command

Extracts faces from 3D entities.

Shape Lite Pro Mechanical BIM

Icon:





### 29.4.1 Description

Makes copies of one or more faces from one or more 3D solids and 3D surfaces.

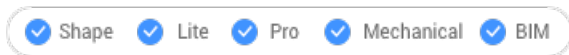
### 29.4.2 Options within the command

#### Move

Move the extracted face/s by the distance indicated by two points or by a displacement vector.

## 29.5 XLINE command

Creates xlines.

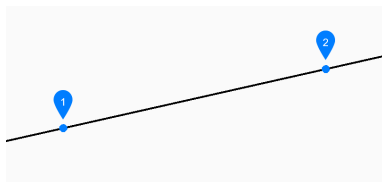


Icon:

Alias: INFLINE, XL

### 29.5.1 Description

Creates an xline (infinitely long line) from a combination of options point, direction, and angle.



- 1 Point along line
- 2 Direction

### 29.5.2 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:

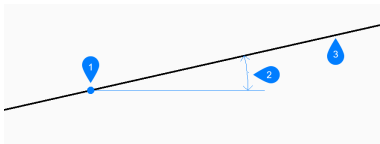
### Enter angle

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.

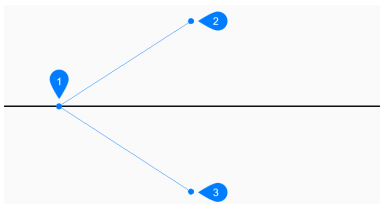
Additional option: [Entity]

### 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.

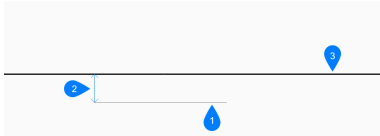
Additional option: [Through point]

### 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

## 29.5.3 Options within the XLINE command

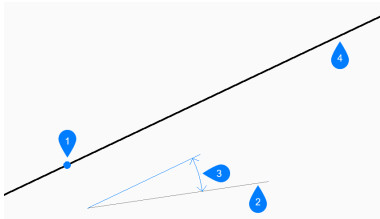
After you begin creating an xline, the following option may be available:

### 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.

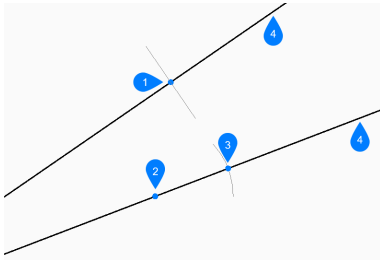


- 1 Location
- 2 Reference entity
- 3 Angle
- 4 Xline

### 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's midpoint
- 4 Xline

### Through point

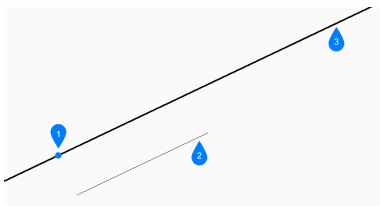
Specify a point through which to draw the xline

### 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

## 29.6 XMLSAVE command

## 29.7 XOPEN command

Opens referenced drawings for editing.



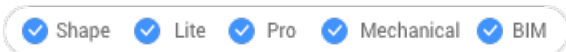
Icon:

### 29.7.1 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.

## 29.8 XPLODE command

Explodes entities.



Icon: 

## 29.8.1 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.

## 29.8.2 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

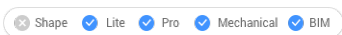
Specifies the linetype scale for the exploded entities.

### Inherit all from parent

Inherits the color, layer and linetype scale from source entities.

## 29.9 XREF command

Opens the Attachments panel.



Icon: 



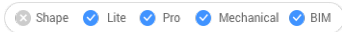
Alias: XR

### 29.9.1 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.

### 29.10 -XREF command

Attaches and detaches DWG files.



Alias: -XR

#### 29.10.1 Description

Controls DWG drawing files that are attached to the current drawing (short for "external reference").

#### 29.10.2 Options within the command

##### ? to list external references

List the names and paths of attached drawings, if any, and their status.

##### Attach

Opens Select File to Attach dialog box to select a DWG file to attach.

##### Overlay

Opens Select File to Overlay dialog box to select a DWG file to overlay.

##### Bind

Copy the contents of the attached drawing to the current drawing as entities or as a block, depending on the value of BINDTYPE system variable:

##### Detach

Remove attached drawings.

##### Path

Changes the path (drive and folder) to the source DWG file, should the original path no longer point to the file.

##### Reload

Reload the attached drawing, after its contents have changed.

##### Unload

Hide the attached drawing from view, but keep it attached.



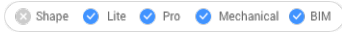
## 30. Y




## 31. Z

### 31.1 ZCENTER command

Toggles the Center of a Face 3D entity snap.



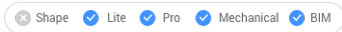
Icon: 


#### 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.



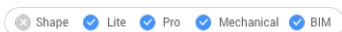
Icon: 

#### 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 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.





### 31.4 ZMIDPOINT command

Toggles the Midpoint 3D entity snap.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

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.

✕ Shape ✓ Lite ✓ Pro ✓ Mechanical ✓ BIM

Icon: 

#### 31.6.1 Description

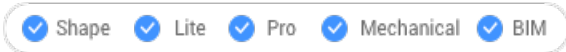
Disables all 3D entity snaps to prevent the cursor from snapping to 3D entities. You can launch this command at the Command prompt to turn off running entity snaps. Doing so changes the value of the 3DOSMODE system variable to zero. You can also launch this command within another command to turn off 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 0.5.

##### Out

Zooms out by 50%. It is equivalent to Zoom 2.

##### 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.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

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.

Shape ☒ Lite ☒ Pro ☒ Mechanical ☒ BIM

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.