GstarCAD 2023 VS AutoCAD 2023

GstarCAD 2023

GstarCAD

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GstarCAD 2023 VS AutoCAD 2023

GstarCAD 2023 is greatly optimized in performance by supporting Multi-Core and Parallel processing. The user experience and compatibility are also improved by many practical improvements and over 16 new features, such as supporting NAVICUBE, Lisp Debugger, Digital Signature and VPSYNC, etc, as well as offering ObjectARX APIs, improving the display of Palettes, and providing two more valuable tools in the Block Editor.

1. Comprehensive Evaluation

- GstarCAD 2023 provides a light installation package which is easy to install and boot. However, AutoCAD 2023 installs a large number of additional programs which boot slowly and occupy a lot of system resources.

- GstarCAD 2023 performs better than AutoCAD 2023 in normal operations such as zooming, panning, moving, and copying. The advantage is more obvious especially in large drawings, and the performance of 3D and hatch is not as good as that of AutoCAD.

- GstarCAD develops dozens of innovative features which can double the design efficiency for specific operations, but lacks parametric constraints, 3D rendering, etc. The functional richness of GstarCAD 2023 is equivalent to AutoCAD 2023.

- GstarCAD provides free training, technical support and solutions and comprehensive localization services, while AutoCAD services are provided by distributors and need to be purchased separately by users.

- GstarCAD not only supports the subscription, but also provides perpetual license with a lower price, while AutoCAD only supports subscription with a higher price and you have to pay for it annually.

- GstarCAD provides flexible licensing. Choosing stand-alone or network depends on your working environment, while AutoCAD does not support network so the floating license is impossible. That means the staffs have to own a license no matter the roles in the company, as long as you have the need to use CAD, you have to buy one.

2. Compatibility

GstarCAD drawing file and data are compatible with AutoCAD perfectly. GstarCAD can open the drawings with latest 2018 DWG/DXF file format, and is compatible with AutoCAD2.5-2023 versions. To open a drawing created by AutoCAD, you don't need any conversion, GstarCAD realizes bidirectional compatibility with AutoCAD.

In order to ensure the drawing display and printing effect are consistent with AutoCAD, GstarCAD is compatible with AutoCAD data files, font file (*.shx), line type file (*.lin), hatch pattern file (*.pat), alias name file (*.pgp), sheetset file (*.dst), slide file(*.sld), script file(*.scr) and so on.

GstarCAD LISP, VBA, SDS, GRX interfaces are compatible with AutoCAD perfectly. The tools and plug-ins in AutoCAD can be transferred to GstarCAD platform easily.

The main compatible file formats and application development interface comparison:

Item	GstarCAD 2023
2.5-2018 version DWG/DXF	√
Template file (*.DWT)	√
Standard file (*.DWS)	√
Interface file (*.CUI/*.CUIX)	√
Old menu file (*.MNU)	√
Sheet set file（*.dst）	√
Hatch file（*.pat）	√
Font file（*.shx）	√
Linetype file（*.lin）	√
Alias file（*.pgp）	√
Script file（*.scr）	√
Print style file(*.CTB/*.STB)	√
LISP development interface	√
VBA development interface	√
Class ARX development interface	√
.net development interface	√

3. Performance Comparison

Higher performance plays an important role in GstarCAD. GstarCAD not only constantly provides users with more useful functions, but also delivers great performance in both 2D and 3D operations.

The performance of common-use operations like "OPEN", " MOVE", "UNDO", "REDO", "COPY", "MIRROR", "Ctrl+C", " Ctrl+V", and more commands are significantly faster than AutoCAD. Big drawings could be opened more quickly and your work can be saved in only a fraction of a second.

The chart below provides an overview of the the performance. We build an operation speed comparison of the basic features between GstarCAD and AutoCAD. The drawing which used to test the operation time is around 47 MB. To make sure the data validation, same operations will be tested twice and get the average value.

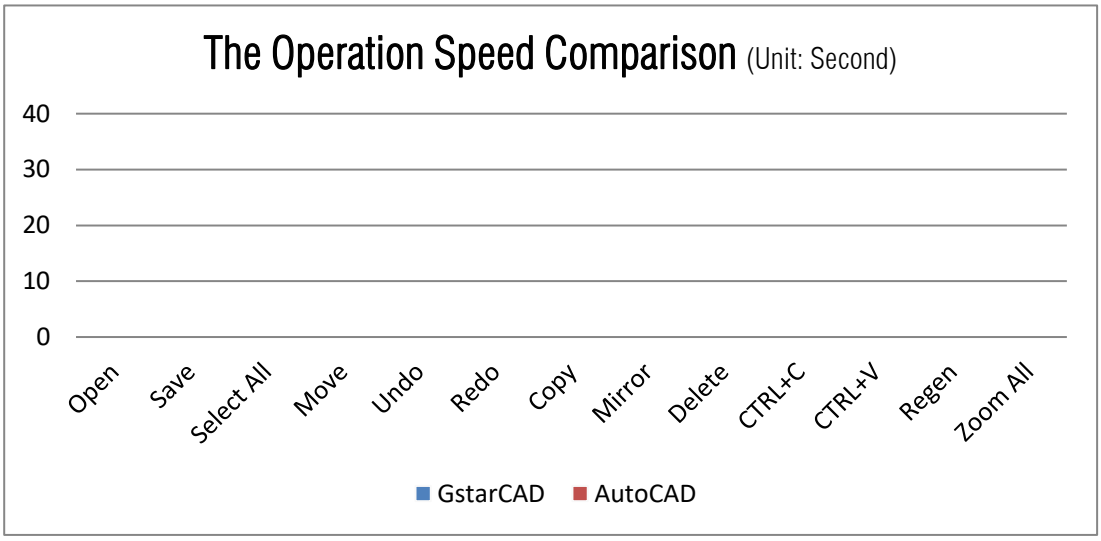
Operation Time Comparison between GstarCAD 2023 and AutoCAD 2023 (Unit: Second)

Testing environment:

WIN11 64bit; 16G storage; 64bit installation package; CPU: 12th Gen Intel(R) Core (TM) i5-12500 3.00 GHz;

Drawing size:

- We tested the OPEN command with more than 10,000 drawings ranging from 20KB to 475MB, and got the average OPEN time.
- We tested other operations with two 48MB and 114MB drawings, and got the average time.



It’s obvious that GstarCAD 2023 is faster than AutoCAD for most of the regular operations. Overall, GstarCAD provides the perfect performance to enhance your working speed.

4. GstarCAD Innovative Features

Comparing the two programs from function aspects, in addition to supporting all the common functions of AutoCAD, GstarCAD also customizes a large number of unique functions according to user needs. Currently, only the parametric constraints, mark sets, and 3D rendering are not available. The overall richness of functions is comparable to that of AutoCAD;

The innovative features of GstarCAD:

GstarCAD Innovative Features

Features	Description
Align Tool (ALIGNTOOL)	Allows you to align the selected objects along the X or Y axis coordinates.
ACAD Tool Palettes Import Tool	Import AutoCAD© customized Tool palettes in the WINDOWS Start menu easily.
Area Sum (AREASUM)	Displays the current closed region value and area sum sequence in command line.
Area Table (AREATABLE)	Dimensions and counts the area of an enclosed object and exports the result to a table in the current drawing area.
Arrange Tool (ARRANGETOOL)	Aligns multiple objects left, right, top, bottom, center, vertical or laterally.
Attribute Increment (ATTINC)	Attributes values increment automatically or manually according to specified method.
Auto Layer (AUTOLAYER)	Customizes and predefines the associated layer of a command to streamline drafting workflow.
AUTOXLSTABLE	Allows to insert excel, and static block quantity, area and length and auto update the data according to the changes of the object.
Barcode (BARCODE)	Allows inserting the barcode to objects to corresponding paper documents and electronic drawing file.
Batch Print(BP)	Batch prints the drawing frames by pages.
Batch Purge (BATPURGE)	Batch purges the redundant blocks, layers, linetype, dimensions and text, etc in drawings.
Block Break (BLOCKBREAK)	Allows you to wipeout or break an object that is overlapped by a reference block.
Break Object (BREAKOBJECT)	Breaks the intersected lines and allows you to set the gap value.
CAD table to EXCEL (GC_CTE)	Converts sheets, composed by line/Spline and text/Mtext in CAD, to EXCEL.
Change Base (CHANGEBASE)	Modifies the base point position of the block.

Change Text (CHANGETEXT)	Modifies several texts simultaneously.
CIRCLE(C) Parameter	CIRCLE(C) parameter; Draws multiple concentric circles with one radius.
Collaboration	The GstarCAD Collaboration Tool is an embedded plugin available for GstarCAD platform aimed to help CAD designers work together among a single referenced drawing file at the same time, control drawing revisions and manage medium, big or complex projects with ease and reliability, reducing communication barriers across different industries.
Define Layout Viewport from Model Space(M2LVPORT)	Creates a viewport on layout space by selecting objects in the model space.
Dimension Coordinate (DIMCORD)	Marks X, Y coordinate values of the point.
Distance from Endpoint Snap	Allows to sap a certain distance from any endpoint of objects and the distance value can be modified at status bar at any time.
Divide Segments Snap	Allows snap the divided segment points of objects and the divided segment number can be modified at any time.
Export Coordinate (COEXPORT)	Exports the coordinate of the picking point to txt or xls files.
FILLET(I) Invert Parameter	Creates a reverse fillet by this option.
Frame Automatically (FRAMEAR)	Automatically searches for the frame, calculates according to the frame size, and arranges multiple drawings on a large-format drawing reasonably.
Free Scale (FREESCALE)	Scales an object without restrictions under three modes; Non-Uniform, Rectangle and Free.
Freeze Other Layer (LAYFRZOTHER)	Freezes other layers except the layer where the selected object is located.
Graphic Compare (OCMP)	Compares graphic of two groups of objects or two files.
GstarCAD tools (12 functions)	Allows you to quickly draw the industry drawings with GstarCAD tools
Import HPGL/2 (IMPORTHPGL)	Imports a PLT files.
Get Selection by Block Name (GETBLKSEL)	Multi-selects objects with the same name in specified area.
Get Selection by Object Type (GETENTSEL)	Multi-selects objects with the same entity type in specified area.
Get Selection by Layer (GETLAYSEL)	Selects all the objects in specified layer and specified region at one time.
Get Selection by Color (GETCOLSEL)	Quick selects the objects with the same color.
Get Selection by Object/Layer (GETENTLAYSEL)	Selects entities by entity type and layer.

Get Selection by Object/Color (GETENTCOLSEL)	Selects entities by entity type and color.
Get Selection by Layer/Color (GETLAYCOLSEL)	Selects entities by color and layer.
Dimension Coordinate Position (HCZZBD)	Dimensions the coordinate position.
Layer Draw Order (LAYDRAWORDER)	Changes the order of the layers by bringing to front or sending to back.
Lock Other Layers (LAYLCKOTHER)	Locks other layers except the layer where the selected object is located.
Layer Unlock All (LAYULKALL)	Unlocks all layers.
Off Other Layers (LAYOFFOTHER)	Turns off other layers except the layer where the selected object is located.
Magnifier (MAGNIFIER)	Views a specific area of your drawing as a magnifier with the capability of snaping points without performing zoom in/out on big drawings.
OFFSET(B) Both Sides	Offsets to both side, no need to operate twice.
Outline (OUTLINE)	Generates the outline by clicking the closed region.
Pline Boolean (GC_BOOLOP)	Operates the closed pline with union, intersection and subtraction.
Print PLT(PRINTPLT)	Prints the generated PLT file.
QR Code(QRCODE)	Extracts data or inputs data to generate QRcode which can be scanned by mobile device to obtain data.
Rapid Distance (RAPIDDIST)	Measures distance and angle between 2D objects along X, Y axis rapidly by moving mouse.
RECTANGLE(O) Parameter	RECTANGLE(O) parameter, Draws an rotate rectangle with (O)option
Region Scale (REGSCALE)	Selects a region of a drawing to be cut and copied to a new location.
ROTATE(Multiple)Parameter	Copies many objects with different rotate angles, or draw circles array.
Shortcut Customization (CUSTACC)	Customizes the shortcut key.
Spline to Pline (Sptpl)	Converts spline to polyline according to the accuracy (number of segments of the arc) that the user assigns.
Statistics Summation (KLL01)	Sums up the selected text or Mtext.
Symmetric Draw	Directly draws symmetrical shapes, it can omit the operation of the mirror.
Text Incremental Copy (GC_dztext)	Accomplishes kinds of incremental methods for text.

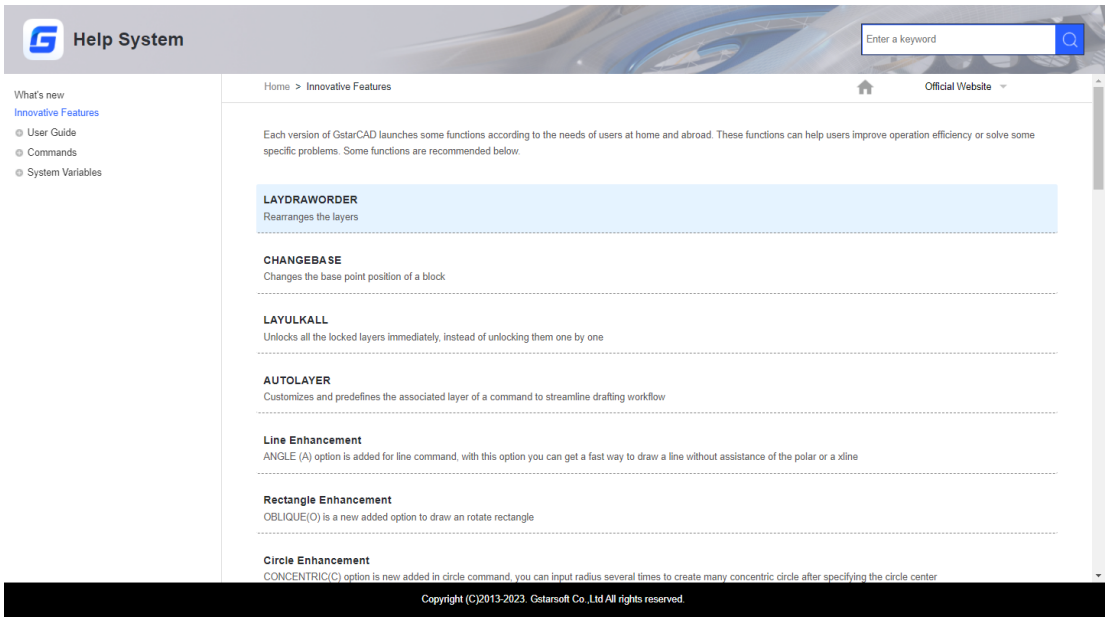
Text Align (TEXTALIGN)	Aligns text along X or Y coordinates, or along a line of specific direction.
Text Match (TEXTMATCH)	Matches both text and Mtext attributes in the current drawing, avoiding select and edit text attributes one by one.
Text Online (TEXTONLINE)	Distributes the text uniformly along a selected spline, polyline or arc. It can also create text online quickly for multiple curves.
Total Length (MEASUREGEOM)	Inquire total length of the selected lines.
WIPEOUT (supports circle and arc)	Generates wipeout by clicking circle or a pline object contains arcs.
……	

Besides developing plenty of innovative features, GstarCAD has improved the basic operations in order to simplify the operation steps. For example, Adds the angle parameter to line and spline, when drawing an object, you can not only set the value between object and X axis, but also set the angle parameter between the selected line and the previous line; Adds the concentric circle and rotated rectangle; Adds multiple copies in rotate command, realize the copy rotate and circle array; Adds divided by segment and distance from endpoint, layout by path, etc. to accomplish the liner array. As well as supports invert fillet option in fillet command.

Although GstarCAD lacks some features that AutoCAD supports， the total number of features are as rich as AutoCAD, especially for the regular features. GstarCAD is excellent to enhance your drawing efficiency.

5. GstarCAD Innovative Features Brief Introduction

From the list comparison table above, we know GstarCAD has a lot of advantages compared with AutoCAD. For detailed introduction you can click Help tab or press F1 and find "Innovative Features" from GstarCAD online help, as shown below.



Introduction for several main innovative features below:

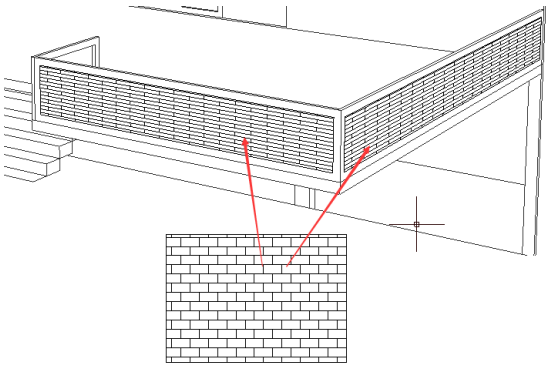
- FREESCALE

FREESCALE command scales an object without restrictions under three modes; Non-Uniform, Rectangle and Free.

✓ The Non-uniform scale allows scaling X and Y coordinate axis separately.

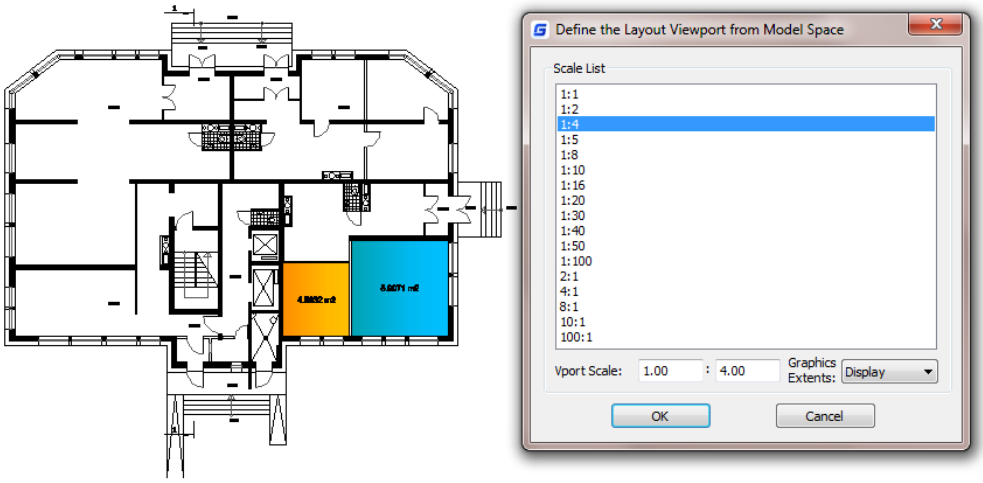
✓ The RectScale allows scaling an object to match a rectangle frame. The rectangle does not need to be drawn, just specify two diagonal points.

✓ The FreeScale allows moving or copy and scale objects in a closed quadrilateral frame to another closed quadrilateral frame, which can be used to generate a tilting hatch pattern or perspective distortion graphic.



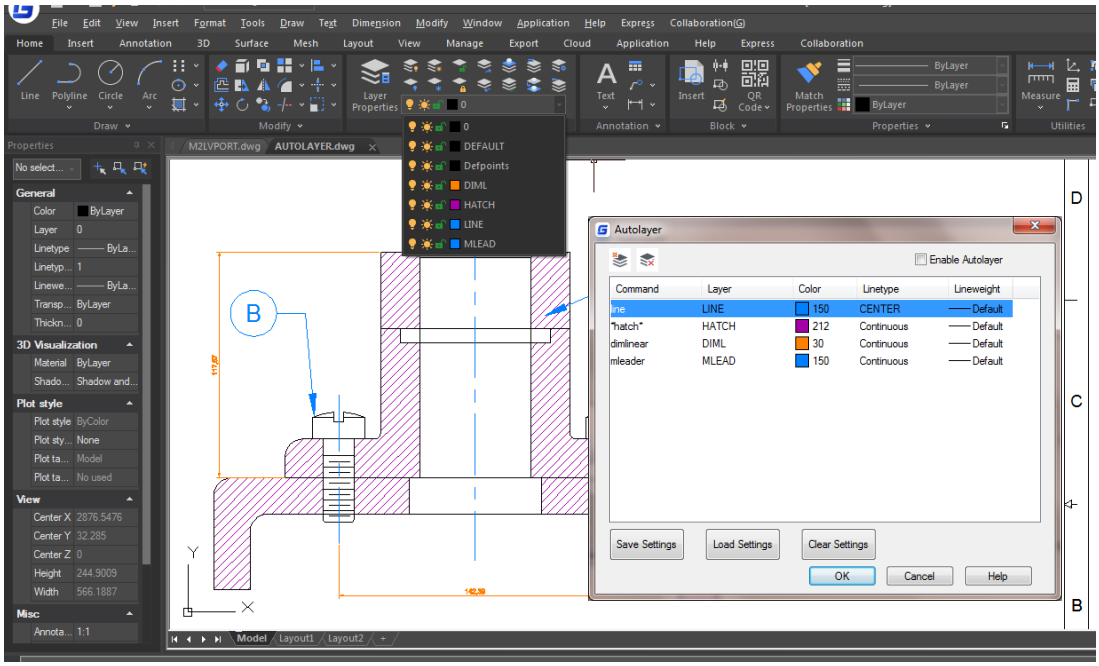
- Define Layout Viewport from Model Space (M2LVPORT)

M2LVPORT command creates a viewport on layout space by selecting objects in the model space. And then calculate the viewport size according to the set scale and locate the viewport in the layout space. You can quickly create and set a viewport of the current drawing. This command can be quickly invoked on the right-click menu of the model/layout tab.



- Auto Layer (AUTOLAYER)

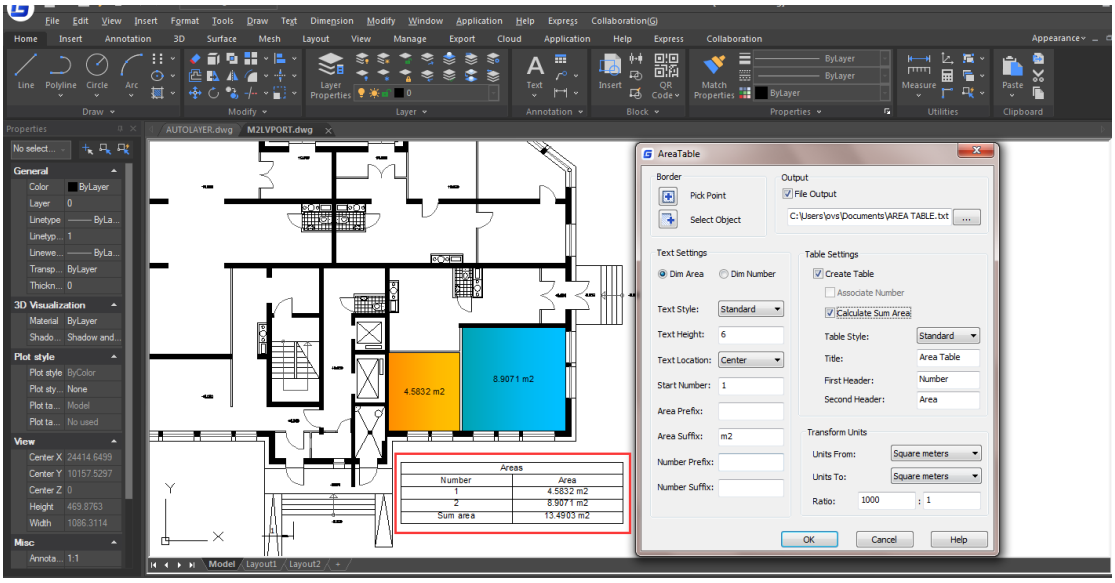
AUTOLAYER command allows you to customize and predefine the associated layer of a command to streamline drafting workflow. You can create as many layers as you want. Each layer created must be a predefined command, which you can name its layer, select layer color, linetype and lineweight. After you execute the predefined command, its layer will be generated automatically. You can save, load and clear all layer settings from the AUTOLAYER dialog box. You can enable or disable the AUTOLAYER option from the status bar.



- ## Area Table (AREATABLE)

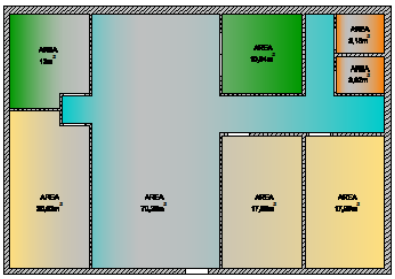
AREATABLE command can automatically dimension and count the area of an enclosed object and export the result to a table in the current drawing area.

- The enclosed area or object can be marked with a number or area symbol, and the area table data can be generated at the same time.
- The area data can be exported to a text or table file.
- The values in the table change automatically when the number or area size is changed.

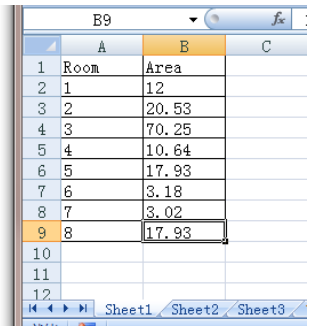


- ## AutoXLS Table Tools

AutoXLS Table Tools can not only create and edit Excel table and insert to GstarCAD but also update table whose original Excel spreadsheet was modified and manage the link relation between a table object and an external EXCEL file.

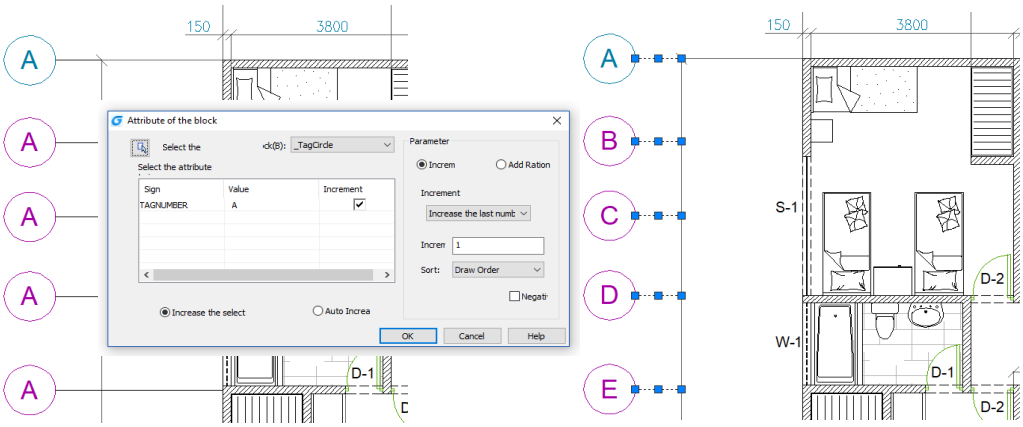


Room	Area
1	12
2	20.53
3	70.25
4	10.64
5	17.93
6	3.18
7	3.02
8	17.93



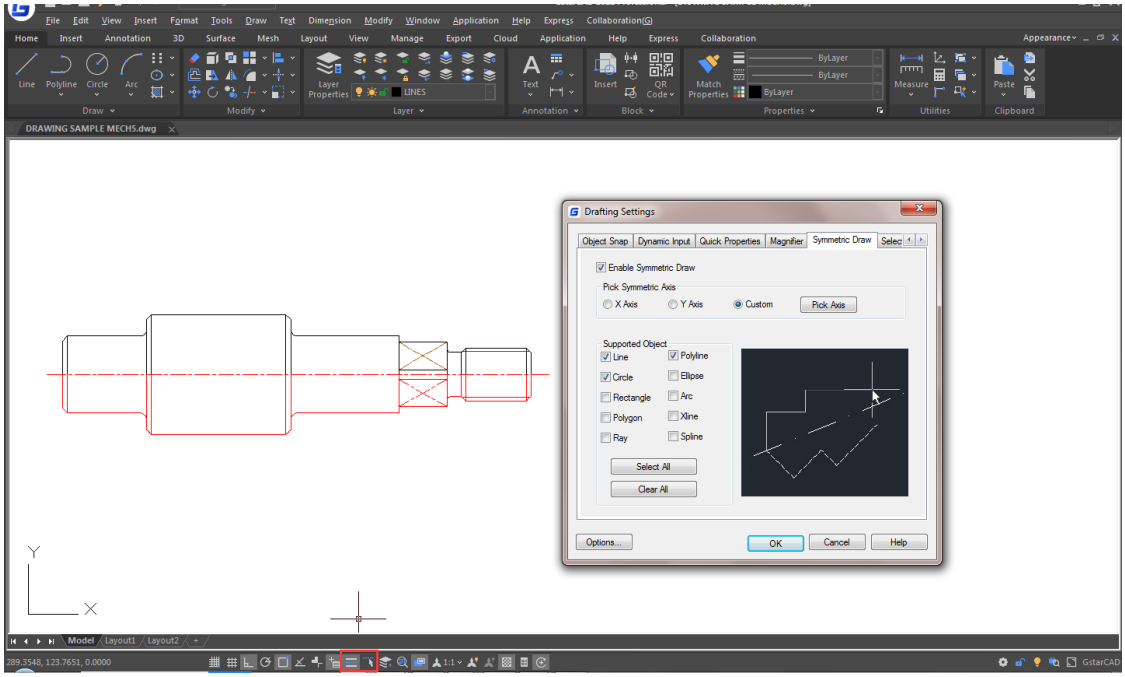
- ## Attribute Increment (ATTINC)

ATTINC command helps to specify attribute of blocks with incremental value, and to modify attribute value of blocks according to the sort method. This command can increase block attribute value that contains a number or letter. When ATTINC command is on, as long as the drawing is not closed, when copying, inserting and deleting a block attribute in the drawing, the property number or letter can be updated automatically.



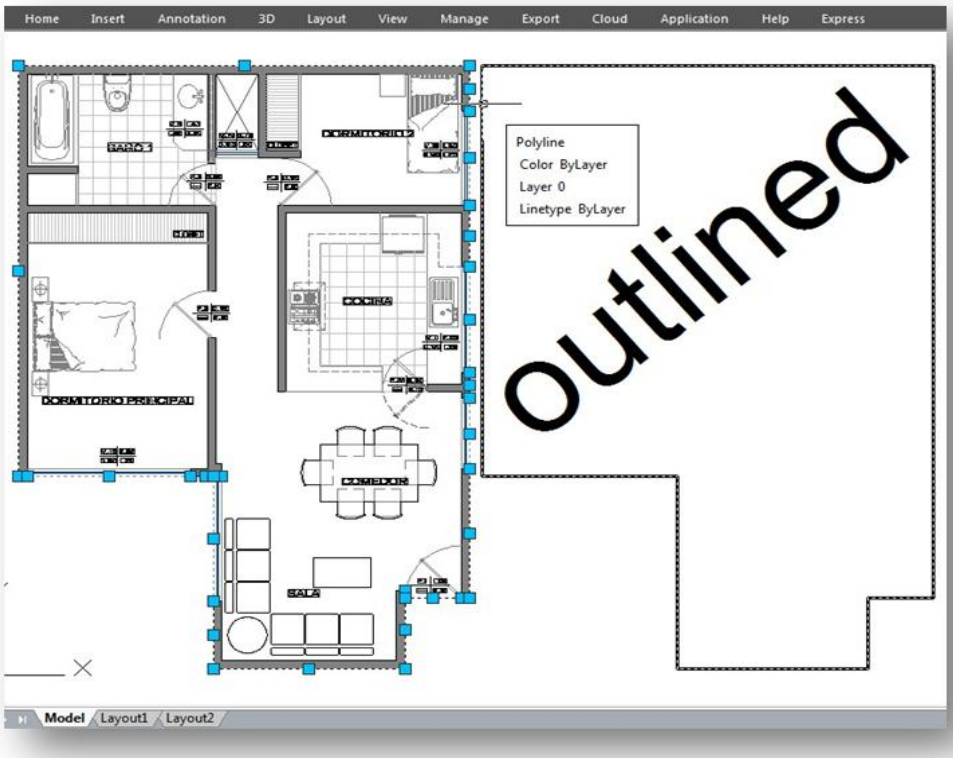
- ## Symmetric Draw

No matter it is AEC or MFG industry, there are many symmetric drawing shapes. The usual way to make a symmetric shape is to draw the first half of the shape and then get another symmetric half by copy or mirror.



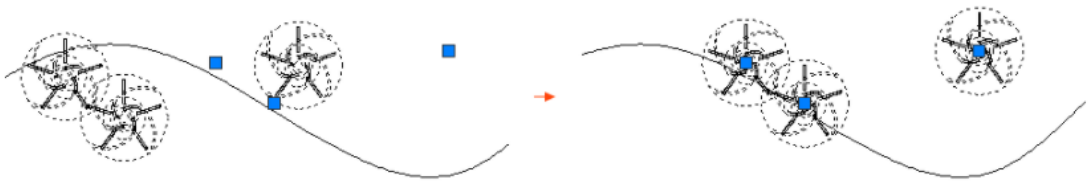
- Outline Objects (OUTLINE)

Outline Objects tool allows you to extract the outline shape of selected closed objects in a window selection method. This outlined shape is in fact a polyline object created on the current layer that you are working with. For example, use this tool to extract the outline shape of a floor plant of a house to later calculate its total area or to reference draw the roof of it.



- Change Base (CHANGEBASE)

Move the base point and keep objects staying in same position, or move objects and keep base point staying in same position.



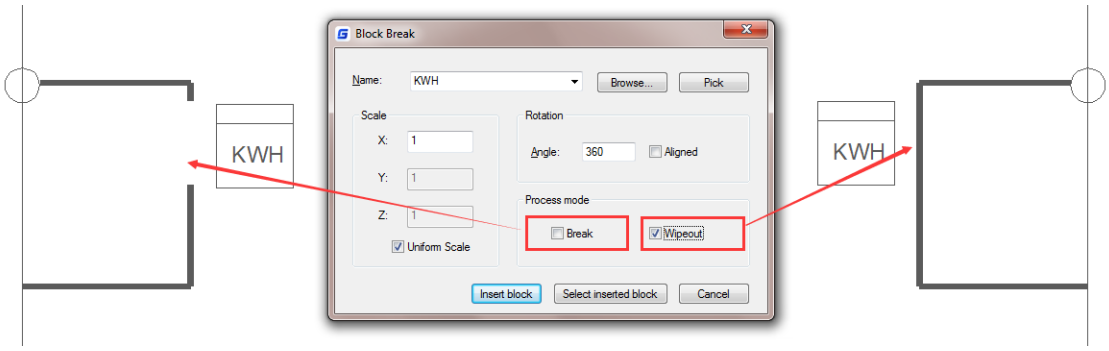
- Block Break (BLOCKBREAK)

Working with block references that represent symbols are essential in some industrial application drawings like electrical schematics, piping, etc.

But a headache comes when trying to place these blocks accurately overlapping or even breaking other objects on your drawing.

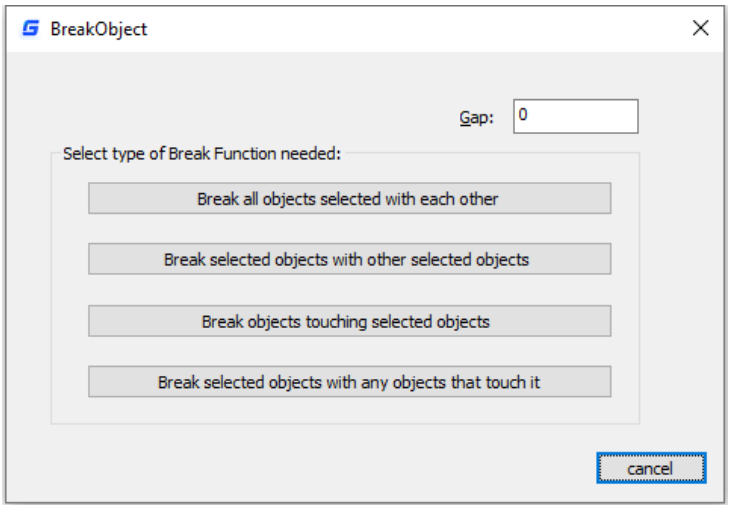
Now get rid of this headache with BLOCKBREAK command. This innovative tool is able to wipeout or break an object that is overlapped by a reference block.

For example, in some cases we may need to insert block symbols into a cable line in electrical schematic. And normally the cable line is required to be broken by the symbols where the symbols are inserted. Similar request also exists in other application designs.



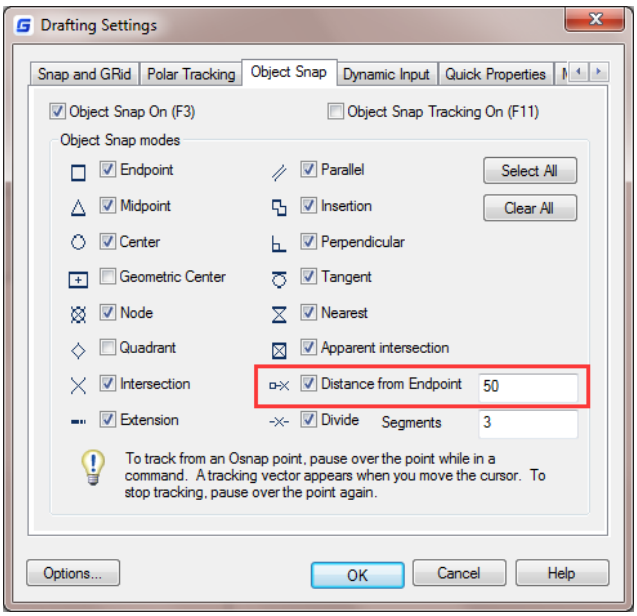
- Break Object (BREAKOBJECT)

In some industrial application designs, sometimes we need to break pipes or cable lines in our schematic drawing to indicate their spatial relationship. Sometimes we also need to break lines at crossing point to make it convenient for the later edit. The BREAKOBJECT tool came from this kind of needs.



- Object Snap Options

Within Object Snap tab, you can find the option called *Distance from Endpoint*. This option allows snap a certain distance from any endpoint of objects like line, arc, spline, pline, ellipse arc, mline and any other lines. As long as you pass the cursor over an object from its endpoints, you will see a green snap point at accurate distance.

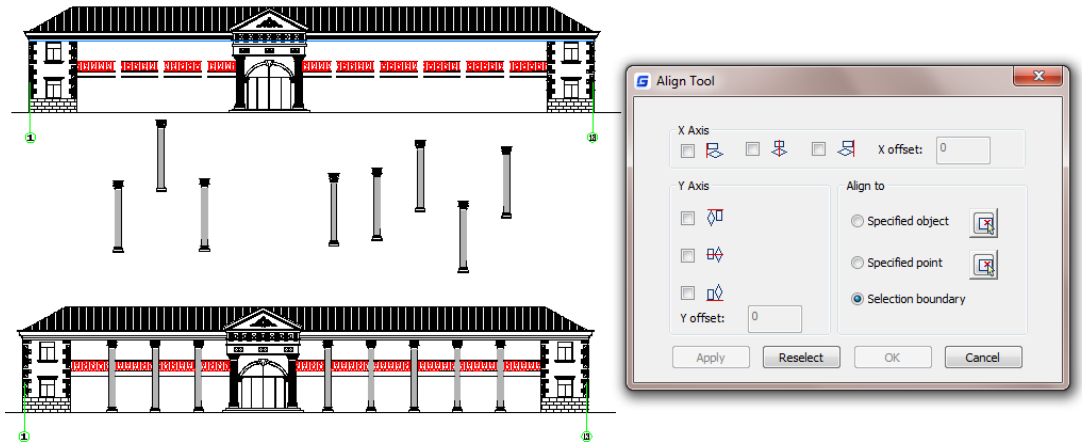


- Divide Segments

Divide Segments allows snap the divided segment points of objects like line, arc, spline, pline, ellipse arc, mline and any other lines. Before, if you want to find the divide point, first you need to generate the divided points object, then snap those points to draw. Now as long as you pass the cursor over an object mentioned above, you will see a green snap point at accurate distance.

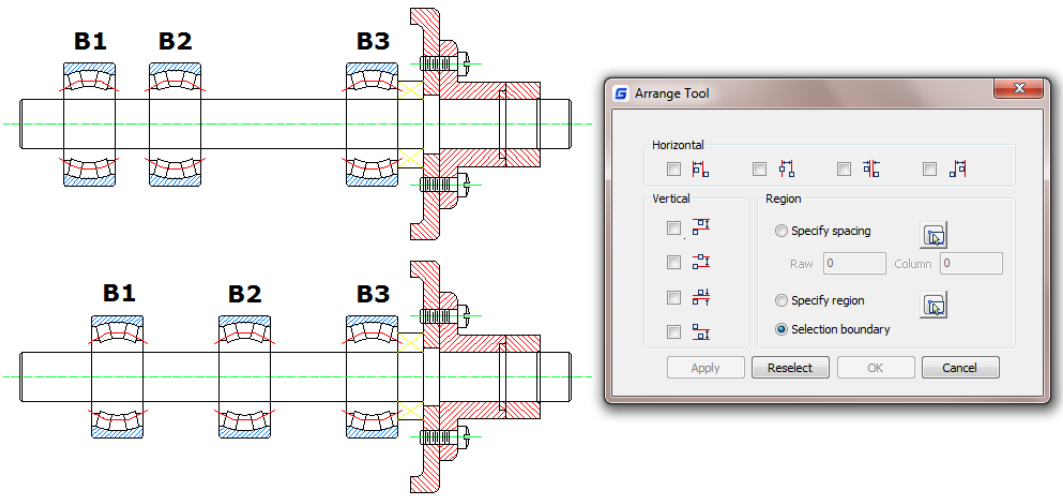
- Align Tool (ALIGNTOOL)

Simple and practical tool, allows to align selected objects such as: rectangle, circle, line, spline, arc, pline, block and even 3D model objects along the X or Y axis coordinates, avoiding performing select and move commands. This tool has different alignment methods, including an offset option for each axis and can be combined as well.



- Arrange Tool (ARRANGETOOL)

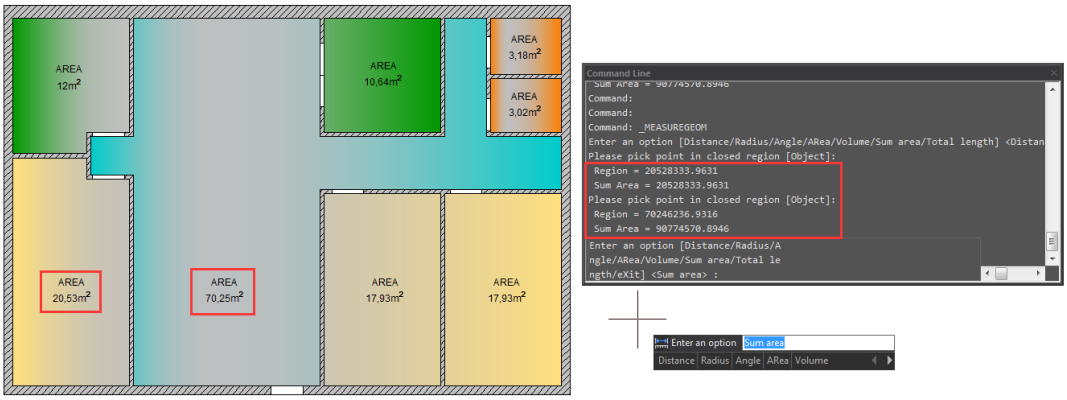
Arrange Tool can quickly adjust the arrangement of multiple objects. It can align multiple objects left, right, top, bottom and center and can also arrange them vertically or laterally.



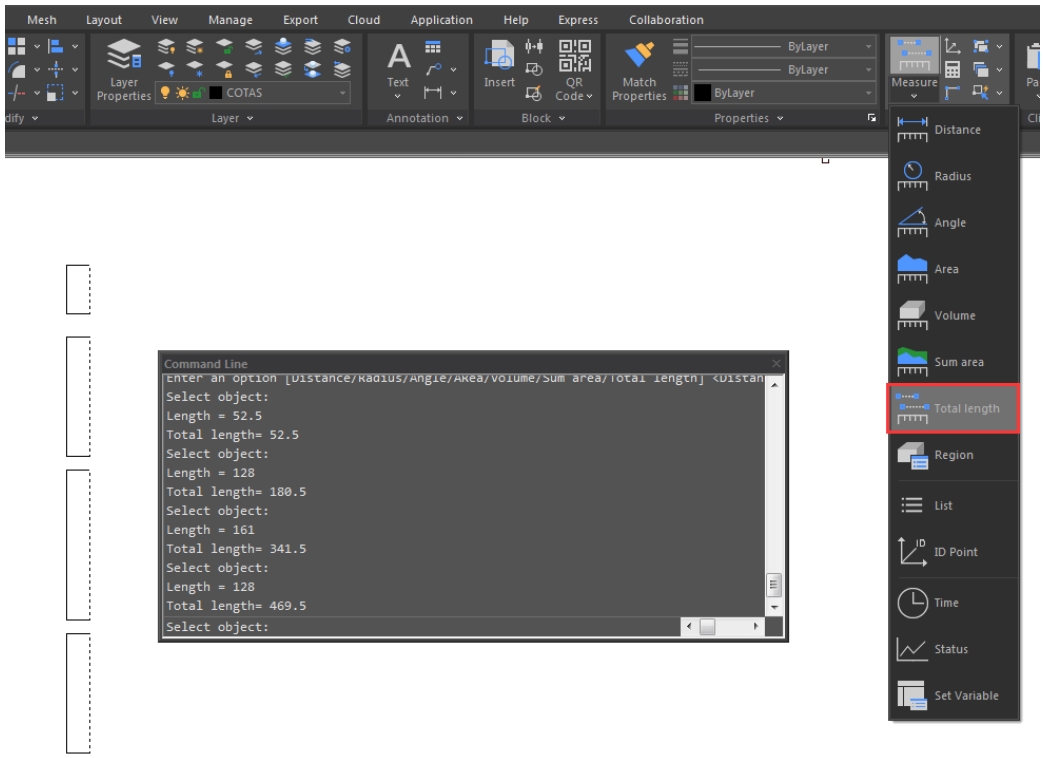
- Sum Area and Total Length (MEASUREGEOM)

Measuregeom command is more powerful in GstarCAD, not only adds measure radius, measure angle, and measure volume, but also sum area and total length.

Sum area: Not only can calculate the area of a closed object but also can calculate a closed region area. If there are multiple objects need to be selected, window selection is available.

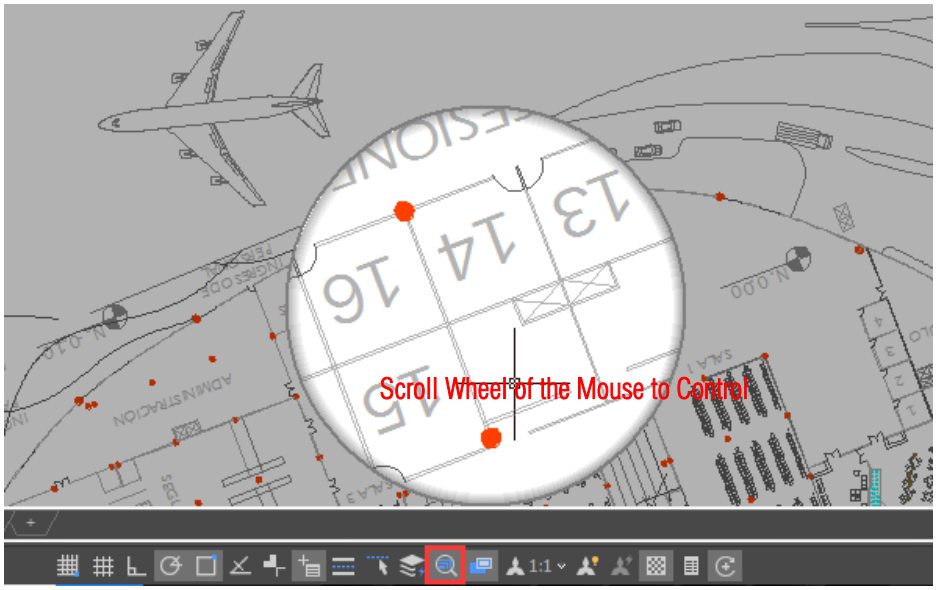


Total length: Calculates the object length and total length associated with selected arc, circle, polyline segments or line objects. You can either select the single object by clicking or selecting multiple objects with window selection.



- Magnifier

MAGNIFIER (a real alternative to change the habit of viewing details and drafting over the most complex drawing at glance). This tool helps to view a specific area of your drawing as a magnifier with the capability of snapping points without performing zoom in/out on big drawings like map or survey and also is practical to use and customize. Save time on exploring small details of your drawing or even drafting in a jungle of intersected objects easily and quickly.

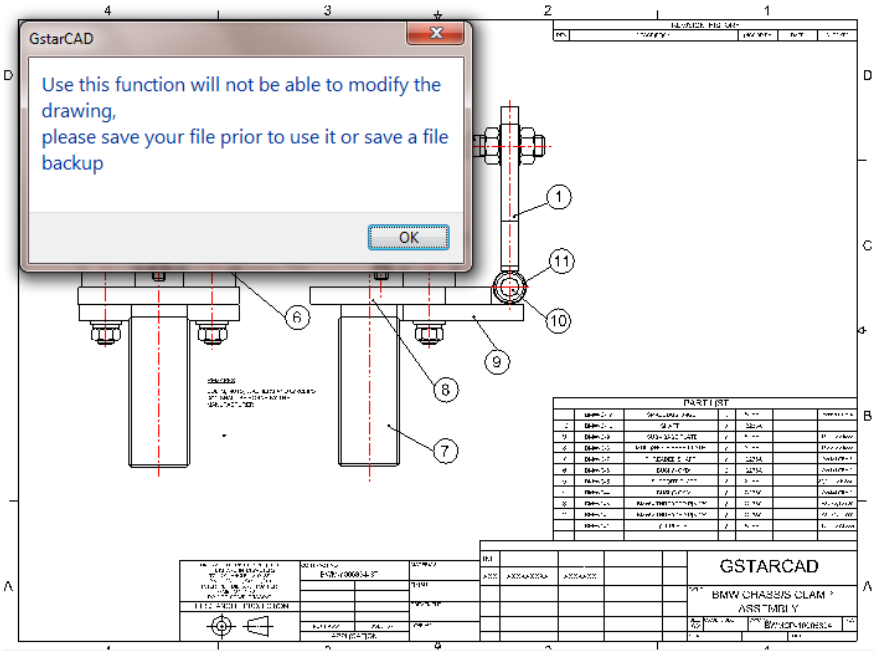


- CAD Table to EXCEL (_GC_CTE)

This command will convert sheets, composed by line/Spline and text/Mtext in CAD, to EXCEL.

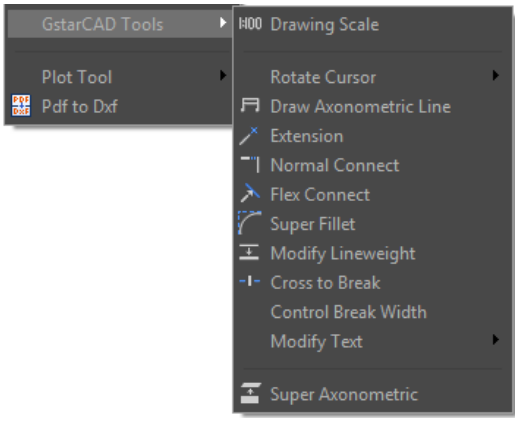
- Drawing Lock (LOCKUP)

Sometimes a designer sends drawings to other people, but doesn't want others to modify the drawings. The "Drawing Lock" function can turn the drawing into a whole block. You can't explode it or modify the objects of the original drawing. It is a good way to prevent others from modifying the drawing.



- GstarCAD Tools

GstarCAD Tools provides more practical functions for industry designers.



The following introduces some practical GstarCAD tools:

Drawing Scale: You can set the drawing scale before drawing, when you are using other tools (for example "Draw Axonometric line" and "Modify Line width"), GstarCAD will adjust the scale automatically.

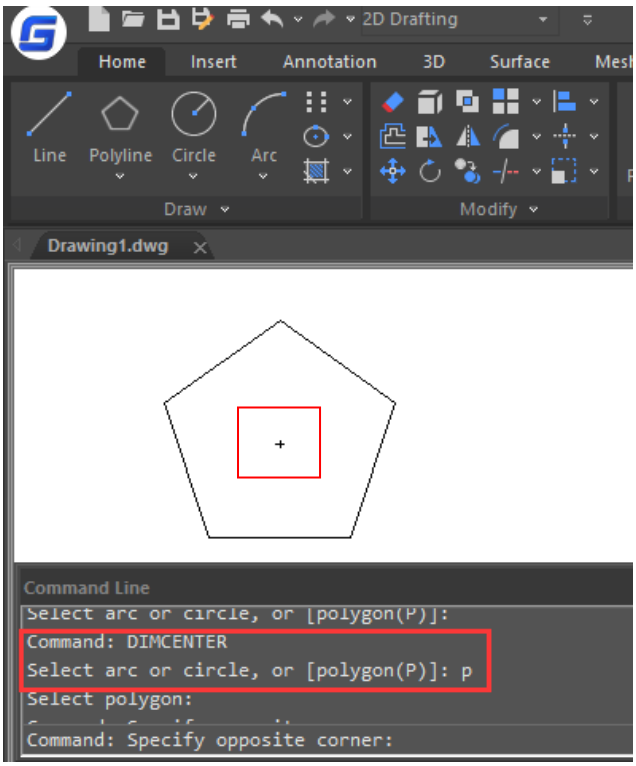
Extension: Normally after extension, the extension effect will be displayed, but Visual Extension can display the effect in real time until you confirm the position.

Cross to Break: In engineering drawings, many places need to break the cross line. If we do this in the original way, it will be very complex. Using this function to break lines can be easily done.

Super Axonometric: It is a quintessential function that can easily convert a plan drawing to an axonometric drawing.

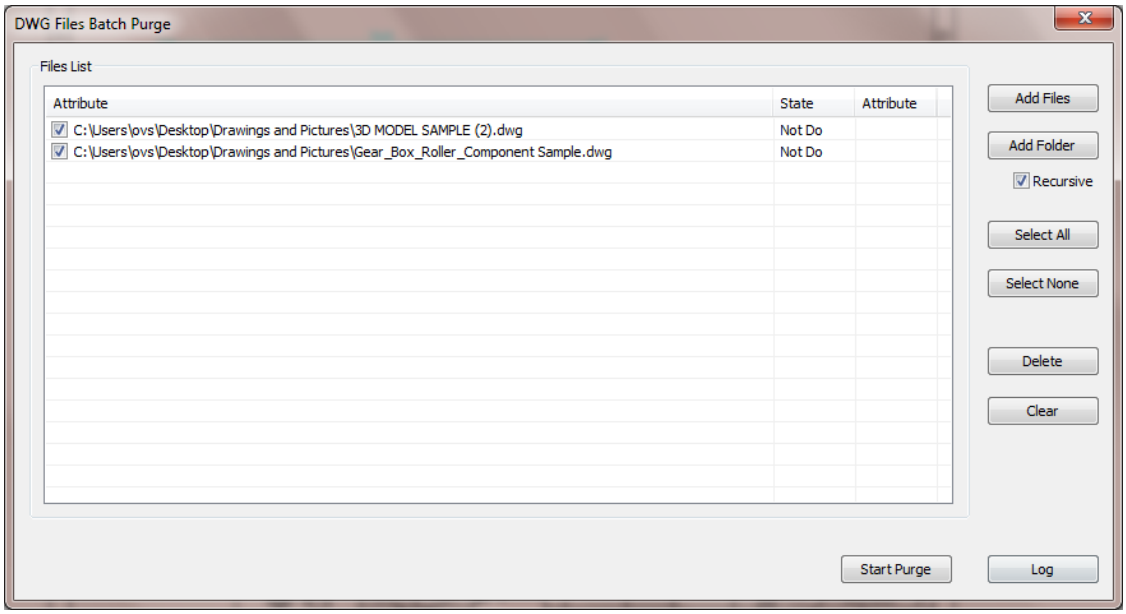
- Dimension Polygon Center

GstarCAD supports the option Polygon(P) in DIMCENTER command to mark the center of polygons.



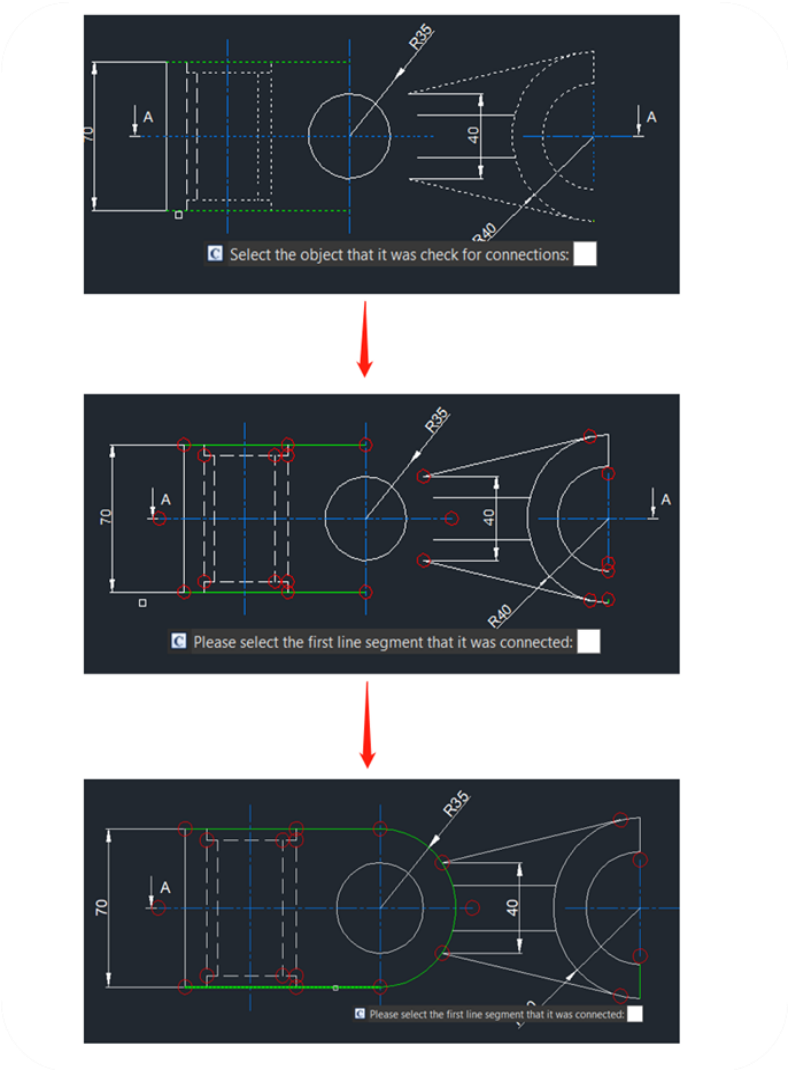
- Batch Purge (BATPURGE)

This new function allows to batch purge the excess objects such as blocks, layers, line type, dimension style or text style on several DWG files. The Batpurge tool doesn't need to open files. It executes the command of purge directly, which makes it run with very high efficiency.



- Break Point Check (CLOSELINE)

You can enter the CLOSELINE command to immediately mark unclosed endpoints among selected lines, polylines or arcs, and close them conveniently.



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