BOUNDY METACADY

Easy drawing editor

Reference Manual

A reference to every tool · symbol · file format

Software version v 1.17

This manual is based on **BOUNDY METACADY v 1.17** (2026.10).
Click the logo at the top-left of the program to check the version you are running. If your version differs, the screens and features may look slightly different.

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About This Manual

Reference Manual · Target software: BOUNDY METACADY **v 1.17** · Manual status: **Preview edition** (to be revised when the full installable version is released)

All screenshots were captured automatically from the actual program (v 1.17). The red circled numbers (①②③…) match the numbered explanations in the text. The length unit in all drawings is mm.

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Conventions

Notation	Meaning
[Move]	A button name on the screen
Ctrl + Z	A key on the keyboard
Tip …	Something handy to know
Note …	A spot where mistakes are easy
For AutoCAD users …	A note for people who have used AutoCAD (command-line entry)

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Part 1

Overview

BOUNDY METACADY v 1.17 is a 2D drafting editor that runs in the browser. This reference manual organizes **every tool · panel · symbol · file format** of the program so you can look things up like a dictionary. If you are new, read the "Basic Manual" first.

1.1 Main Features

- Draw: line · polyline (including arc segments) · circle · arc · rectangle (rounded corners) · polygon · ellipse · point · hatch · block arrow
- Modify: move · copy · duplicate · rotate · mirror · scale · stretch · array · align · group · offset · trim · extend · fillet/chamfer · join · explode · match properties · drag to move (magnet)
- Dimensions · text · tables: 5 dimension types · leader · centerline · text (paragraph width) · tables (paste from Excel · merge · split) · Windows font linking
- P&ID: 143 symbols (valves · equipment · ISA S5.1 / ISO 10628 · 14617 · single-line diagram) · instrument tags · signal lines · pipe numbers · connector labels · balloons · crossing marks · tag list · legend · drawing border
- Trace: underlay · auto-trace (no AI / Gemini AI) · magnet cleanup
- Files: .mcd · DWG open (2004–2018) · DXF open/save · PDF · JPG · PNG · transparent PNG · SVG · print (A0–A4, B1–B4) · overlay up to 8 drawings · My References (.rfdt)

1.2 The Screen

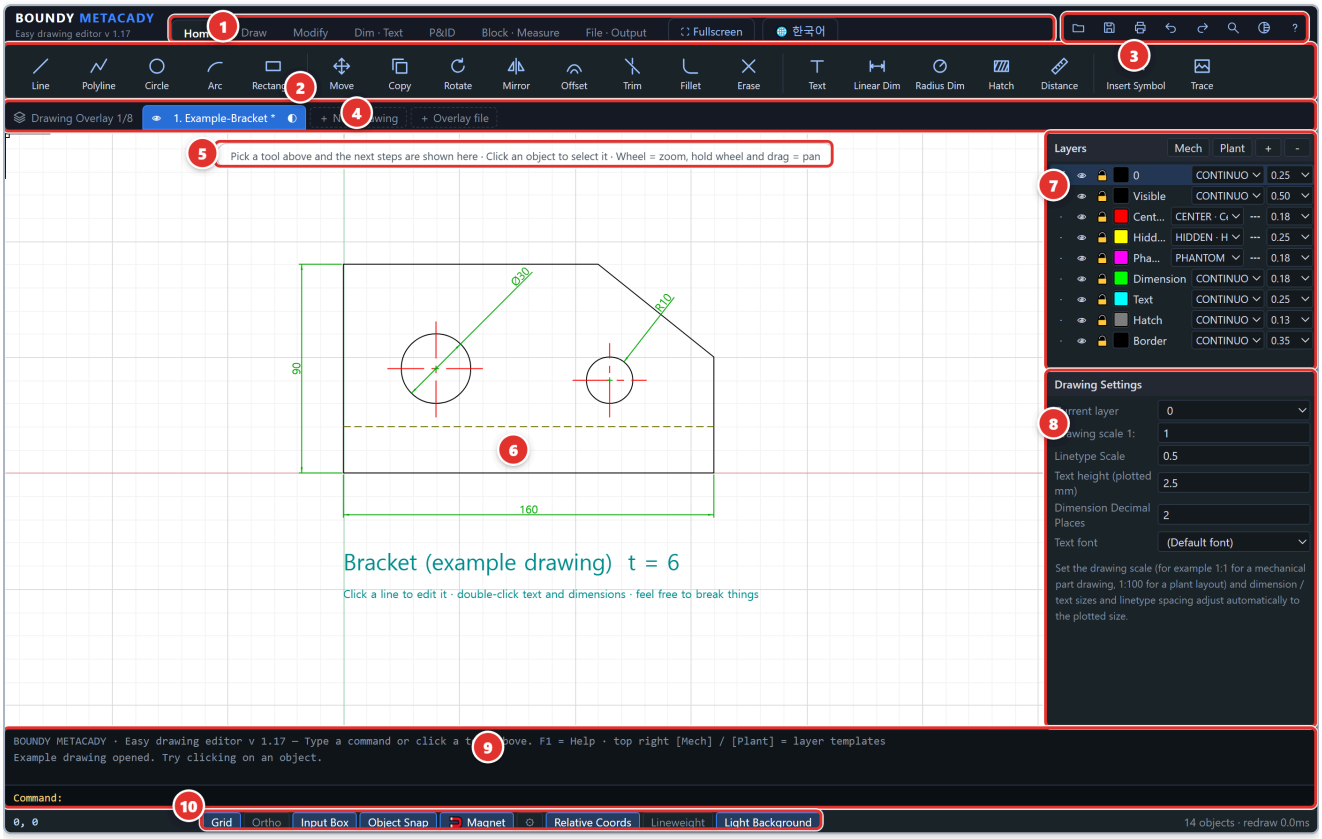
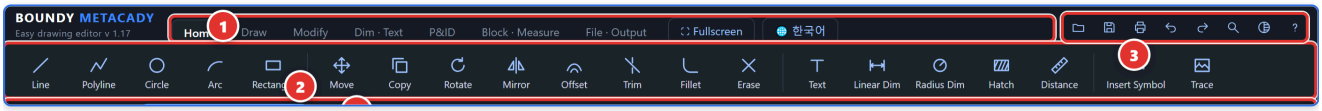


Figure 1. The whole screen (for the names of each part, see section 1.2 of the Basic Manual)



▲ The top toolbar ① ② ③ enlarged — click a tab (Home · Draw · Modify …) to switch its set of big buttons



▲ The bottom command & status bar ⑨ ⑩ enlarged — type in the command box · toggle Grid · Ortho · Object Snap · Magnet

1.3 Two Ways to Work

Press a button and an **input box** appears; type a command at the command line and it runs **ask-and-answer** style, like AutoCAD. Turn off [Input Box] on the status bar and the buttons become ask-and-answer too. The "Command · aliases" in the tool reference below are the names you can type at the command line.

Part 2 — 1

Tool Reference: the [Draw] Tab

Line

Command: **LINE** · aliases: L

Click two points to draw a straight line. Keep clicking to continue the line.

How to use ① Click the start point → ② Click the next point (keep clicking to continue) → ③ [Done] or Enter. To set a length, aim with the mouse, type a number and press Enter.

Polyline

Command: **PLINE** · aliases: PL

Draw a line made of several connected segments. You can include rounded arc segments in between.

How to use ① Click the start point → ② Click the next points in turn → for a rounded bend press [Arc], and [Line] to go straight again → ③ Join to the first point with [Close] or press [Done].

Circle

Command: **CIRCLE** · aliases: C

Click the center and set the radius to draw a circle.

How to use ① Press [Circle] and a small window appears → ② Enter the size basis (diameter / radius) and the size (mm) (5 · 10 · 20 … buttons) → ③ [Place in drawing] → ④ Click where the center should go in the drawing (keep clicking = several of the same circle) → finish with Enter. To draw with three points or two points, press [Draw with mouse] in the window and then [3 points] / [2 points].

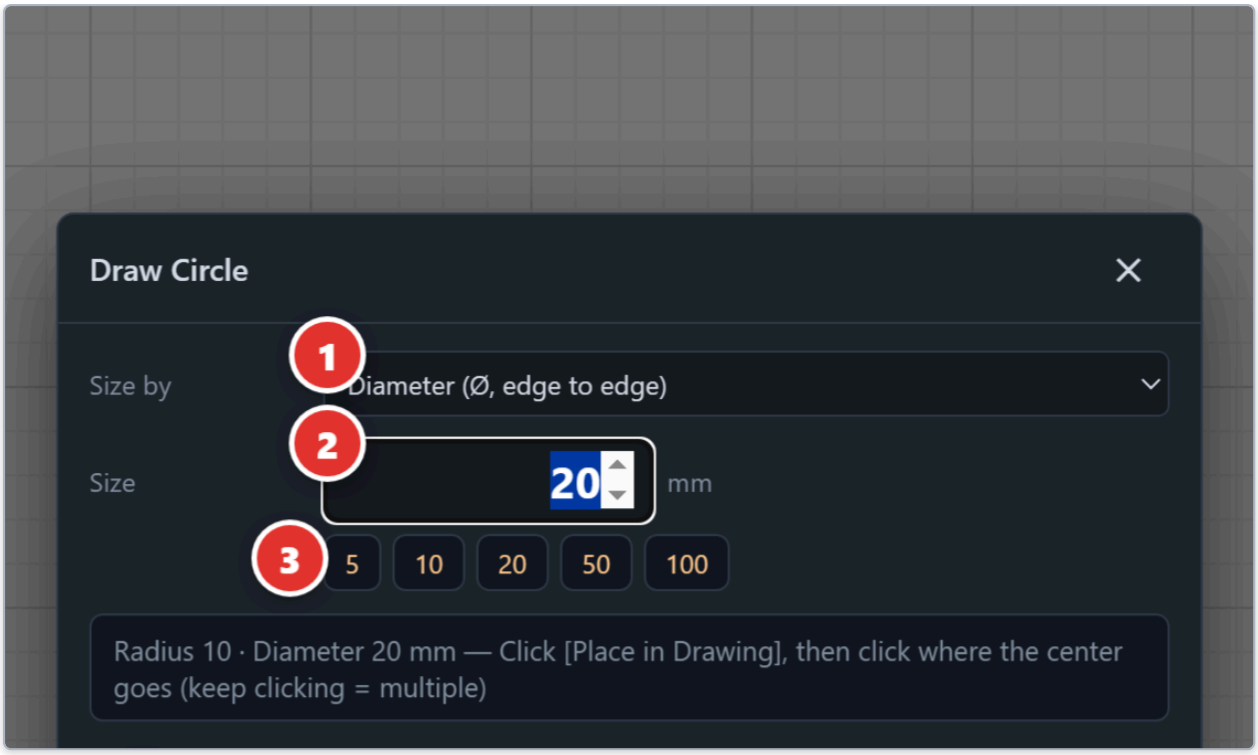


Figure 2. Circle dialog

Arc

Command: **ARC** · aliases: A

Click three points to draw an arc (part of a circle).

How to use ① Click the start point → ② a middle point the arc passes through → ③ the end point, in that order. Press [Center] to draw in the order center-start-end.

Rectangle

Command: **RECTANG** · aliases: REC · RECTANGLE

Click two opposite corners to draw a rectangle. For the second point you can also type width,height such as 100,50.

How to use ① Press [Rectangle] and a small window appears → ② Set the width · height (mm), rounded corners (0 = sharp corners), and the click position (bottom-left corner / center / top-left corner) → ③ [Place in drawing] → ④ Click where to place it. To draw by picking two corners, use [Draw with mouse].

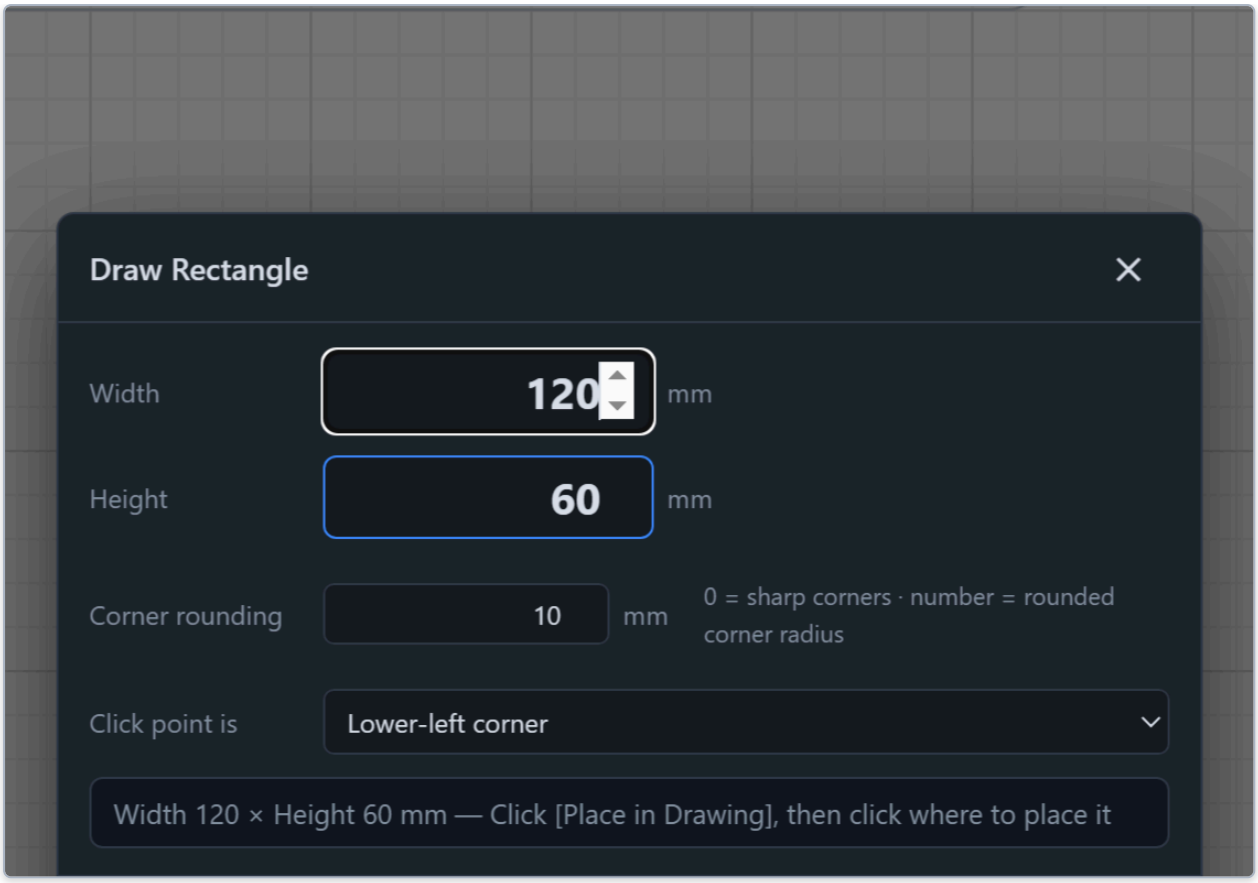


Figure 3. Rectangle dialog

Polygon

Command: **POLYGON** · aliases: POL

Draw a regular polygon such as an equilateral triangle or a regular hexagon. In the small box set the number of sides, size (side length / to vertex / across flats) and rotation, then just click where to place it in the drawing.

How to use ① Press [Polygon] and a small window appears → ② Enter the number of sides (triangle ~ 12-gon buttons, or a number), the size basis ([Side length] · [Center to vertex] · [Across flats]), the size (mm) and the rotation (°) — the picture on the right and the converted values below (side · vertex diameter · across flats) update instantly → ③ [Place in drawing] or Enter → ④ Click where the center should go in the drawing (as many times as you like) → finish with Enter. For bolt heads and nuts, entering [Across flats] is convenient. To work the old way, use [Draw with mouse].

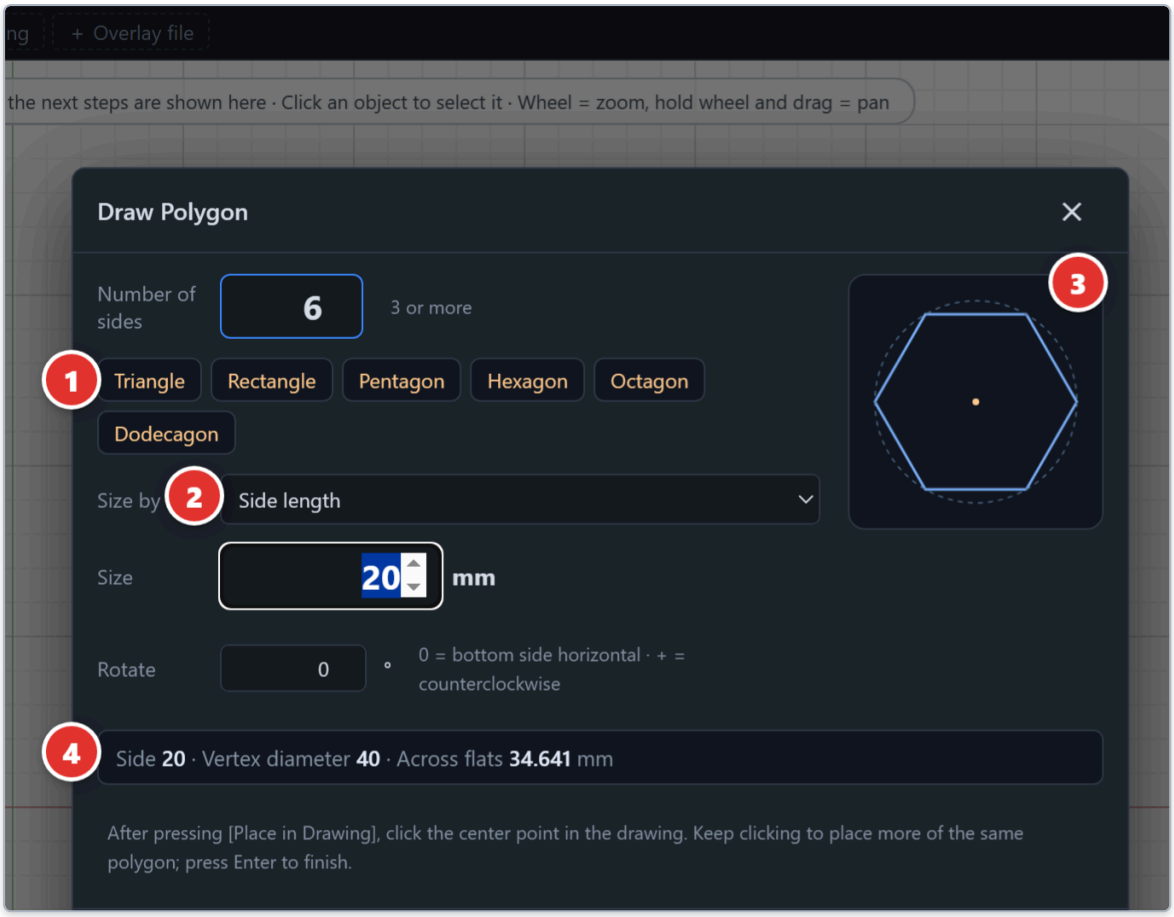


Figure 4. Polygon dialog

Ellipse

Command: **ELLIPSE** · aliases: EL

Draw an ellipse. In the small box set the horizontal diameter · vertical diameter · rotation, then just click the center point in the drawing.

How to use ① Press [Ellipse] and a small window appears → ② Enter the horizontal diameter and vertical diameter (end to end, mm) and the rotation (°) — the picture on the right updates instantly → ③ [Place in drawing] or Enter → ④ Click where the center should go in the drawing (as many times as you like) → finish with Enter. To work the old way, use [Draw with mouse].

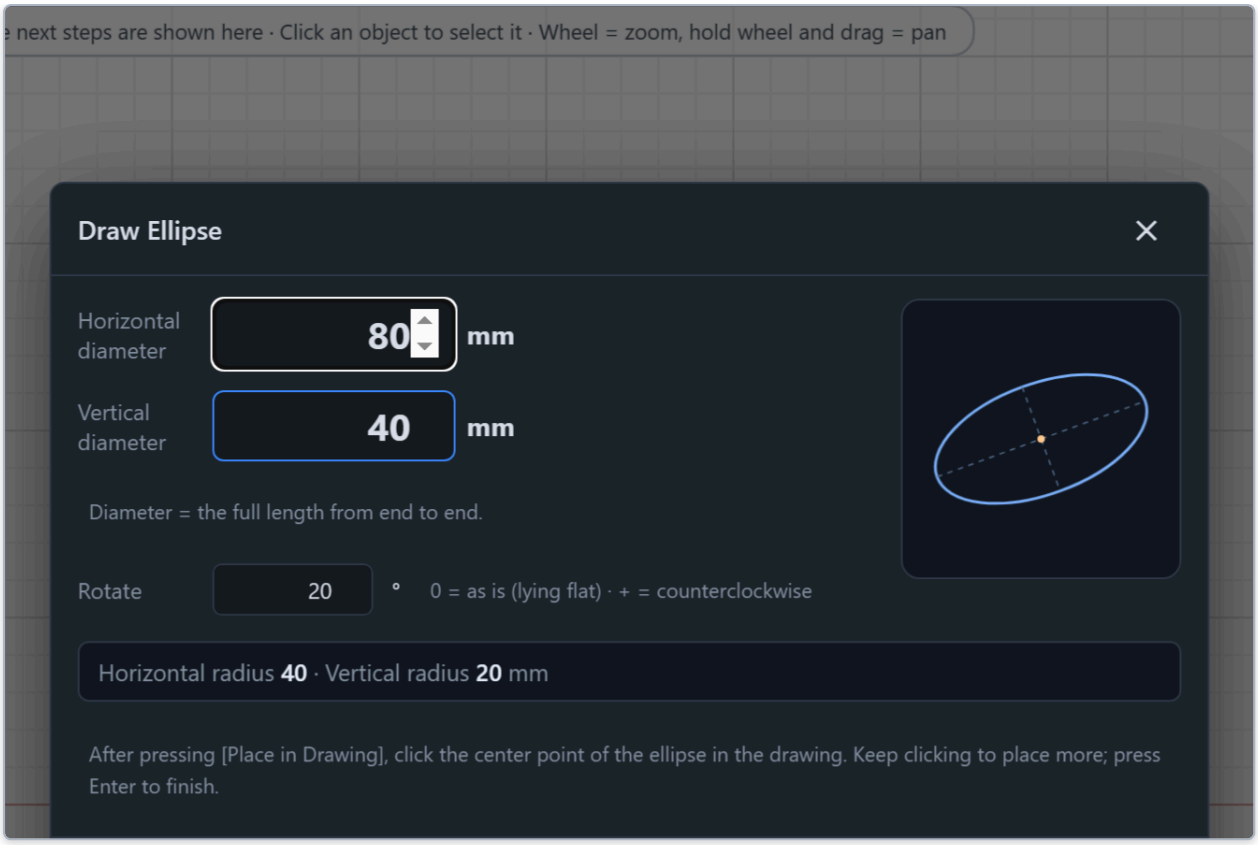


Figure 5. Ellipse dialog

Point

Command: **POINT** · aliases: PO

Place a point.

How to use Click where to place the point. You can keep placing several; finish with [Done].

Hatch

Command: **HATCH** · aliases: H · BH

Fill the inside of a closed shape with hatching (section marks) or a color.

How to use ① Select the shape to fill (a closed rectangle or circle, or lines whose ends meet) → [Finish selection] → ② Choose the pattern [Diagonal] / [Grid] / [Solid] → ③ Enter the spacing and angle.

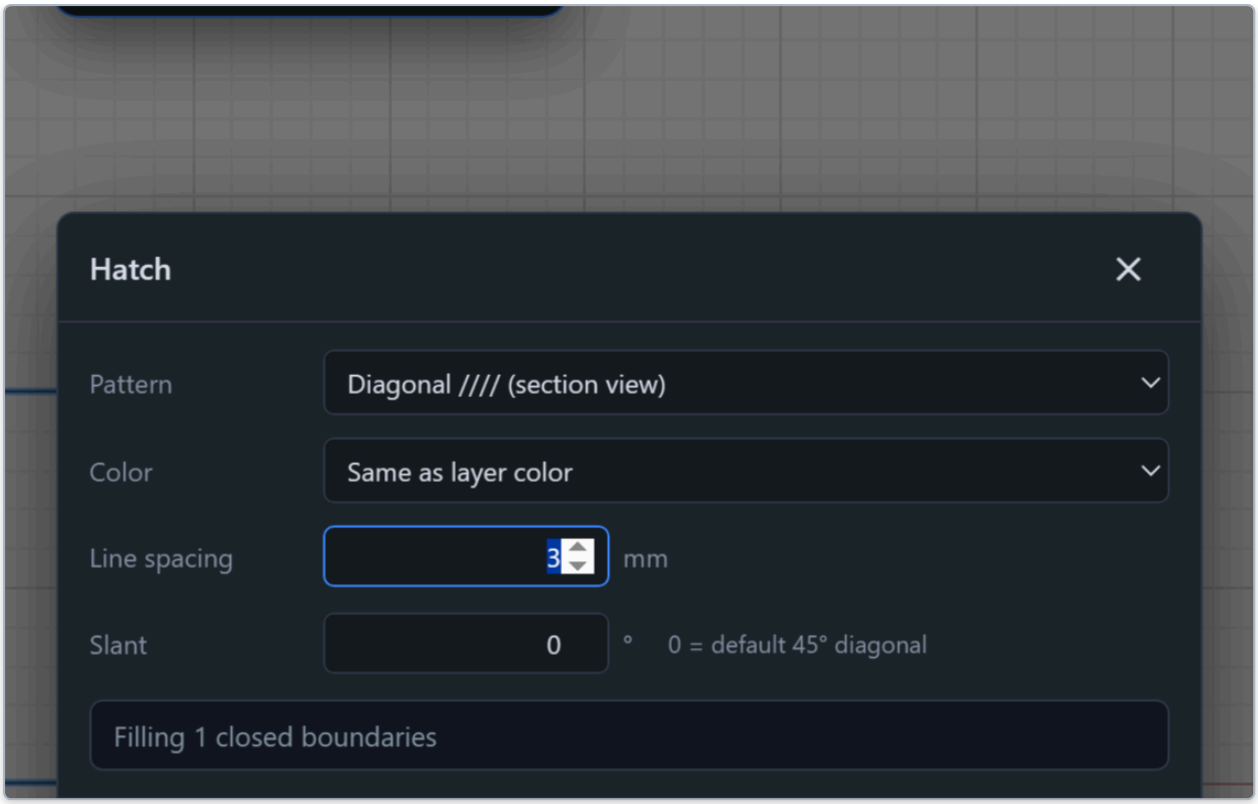


Figure 6. Hatch dialog

Block Arrow

Command: **ARROW** · aliases: BARROW

Draw a large hollow (or filled) arrow used for flow direction · explanation. Click two points to set the length and direction.

How to use ① Set the body thickness, head width, head length and fill, then press [Place in drawing] → ② Click the start point → ③ Click the end point (the pointed side). You can keep drawing; finish with Enter.

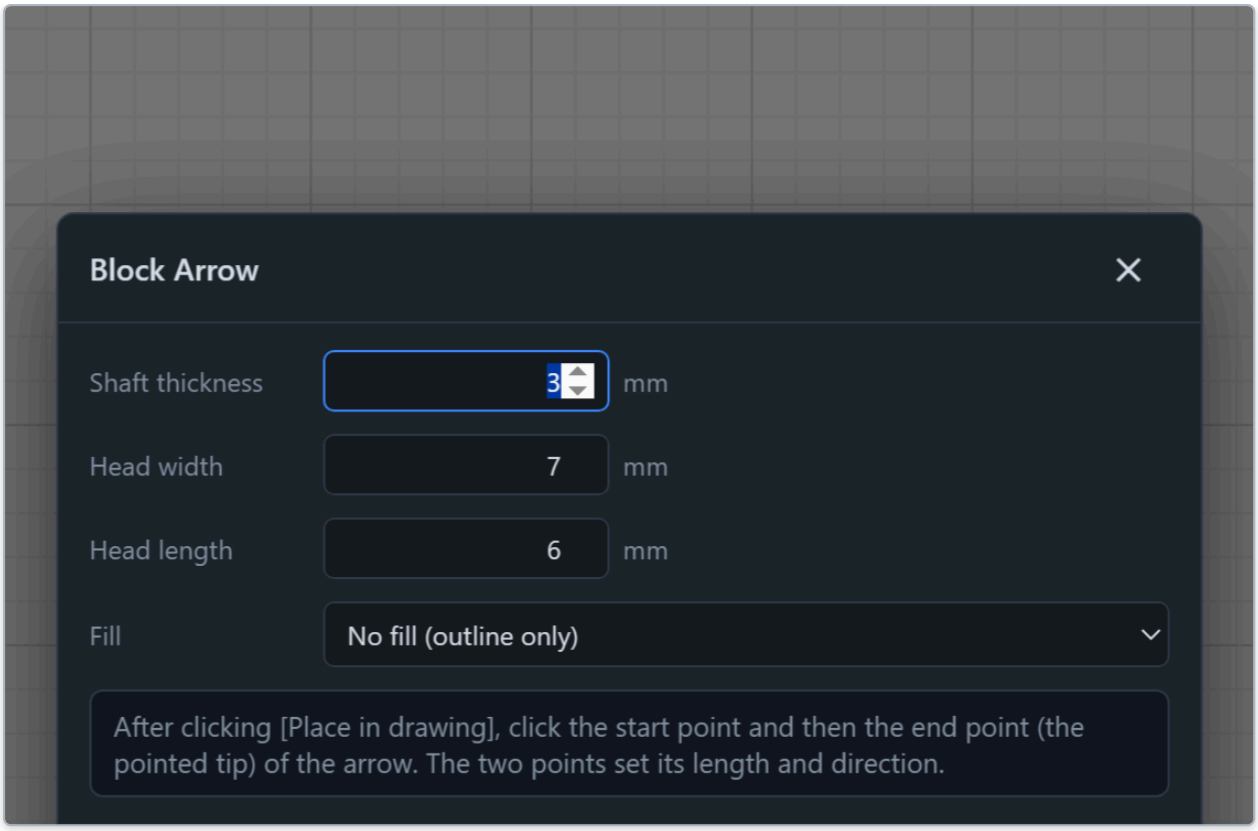


Figure 7. Block Arrow dialog

Center Mark

Command: **CENTERMARK** · aliases: CM

Draw a cross-shaped center line at the center of a circle.

How to use Select a circle or arc → [Finish selection]. Red dash-dot cross centerlines are drawn on the "Centerline" layer.

Trace

Command: **TRACE**

Place a photo, scan or screenshot (JPG/PNG) of a paper drawing as a semi-transparent underlay and trace over it. You can draw by hand, let this program trace automatically (no AI), or have AI trace it. You can also take a screenshot and paste it with Ctrl+V.

How to use ① Press the button and choose a JPG · PNG picture (or copy · capture a picture and press Ctrl+V, or drag and drop the file onto the screen) → ② Choose [Trace by hand] or [Auto trace (AI)] → ③ By hand: set the size with [Match real length] on the trace bar below, then trace with the tools / Auto: the AI draws lines · circles · arcs · dimensions · text and uses the dimension numbers written in the picture to match the real size, straight line lengths and circle sizes accurately → ④ When finished, [Remove trace].

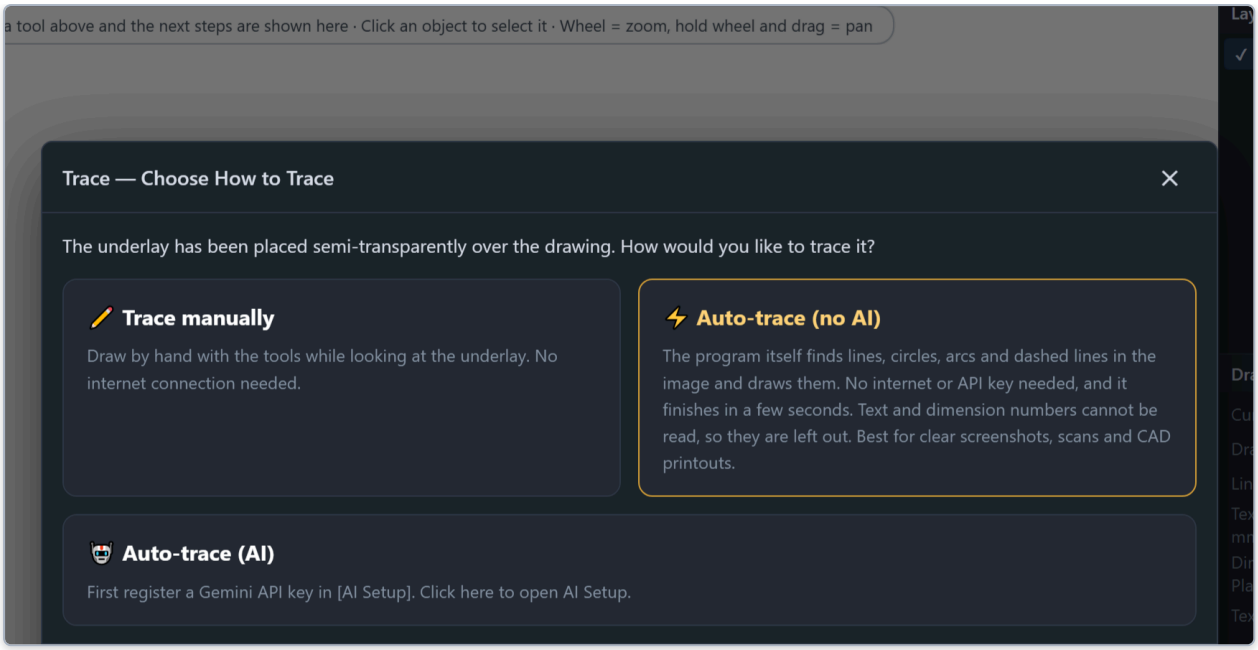


Figure 8. Trace dialog

AI Setup

Command: **AISET**

Register or delete the paid Gemini API key used for automatic tracing (AI). A sky-blue button means the key is OK; red means a problem.

How to use ① Paste the Gemini API key issued from Google AI Studio → ② [Save for a week] (after checking that the key actually works, it is saved on this PC only and deleted automatically after 7 days) → to erase it, press [Delete key].

Tool Reference: the [Modify] Tab

Move

Command: **MOVE** · aliases: M

Move the selected objects. In the small box enter how many mm to move horizontally and vertically (+ = right · up, − = left · down). Arrow buttons and distance + angle input also work. To move with the mouse, press and drag the object or press [Move with Mouse] in the box.

How to use ① Select the objects to move → [Move] → ② In the small window, enter horizontal · vertical mm (e.g. horizontal 50, vertical −20), or use the arrow buttons (each press moves by the [Step] value), or enter distance + angle — a text line shows right away which way and how far it goes → ③ [Apply] or Enter. Turn on [Keep the original and make a copy] to make a copy instead. To attach exactly to the endpoint of another shape, press [Move with mouse] (base point → destination, magnet active), or just press and drag the object with the mouse without any window.

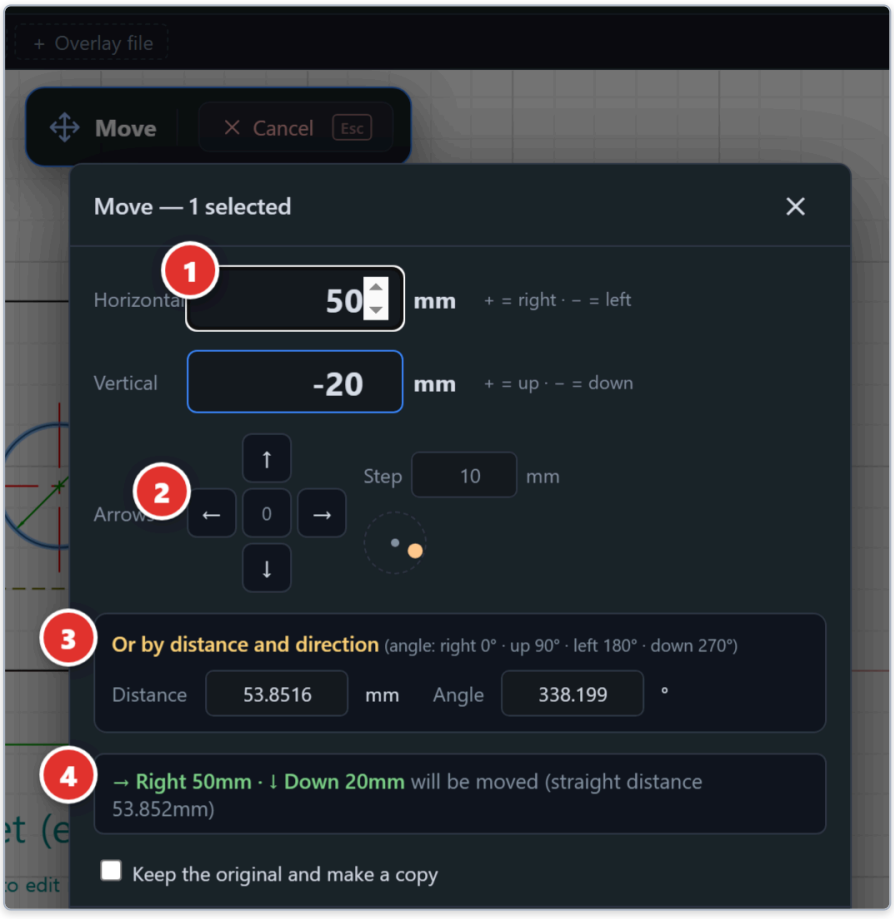


Figure 9. Move dialog

Copy

Command: **COPY** · aliases: CO · CP

Copy the selected objects and paste them in several places.

How to use ① Select the objects to copy → [Finish selection] → ② Click the base point → ③ Click the places to paste as many times as you want → [Done].

Duplicate

Command: **DUPLICATE** · aliases: DUP

Make one more copy of the selected objects right next to them. (Ctrl+D) The copy is left selected, so drag it or use the arrow keys to put it in place.

How to use Select an object and press [Duplicate] or Ctrl+D. A copy appears slightly down and to the right and is selected → position it by dragging or with the arrow keys (1mm, Shift = 10mm).

Rotate

Command: **ROTATE** · aliases: RO

Rotate objects. In the small box enter the angle in degrees (+ = left · counterclockwise, − = right · clockwise). It has quick buttons such as 90° · 45° and a choice of rotation center.

How to use ① Select the objects to rotate → [Rotate] → ② Enter the angle (°) in the small window, or press buttons like ↺ 90° · ↻ 90° · 180° · 45° — the small "F" letter beside it previews the rotation → ③ Choose the center point (center · corner · middle of a side · pick in the drawing) and press [Apply] or Enter. A + value turns left (counter-clockwise), a − value turns right (clockwise). Turn on [Keep the original and make a copy] to leave the original in place. To rotate with the mouse as before, press [Rotate with mouse].

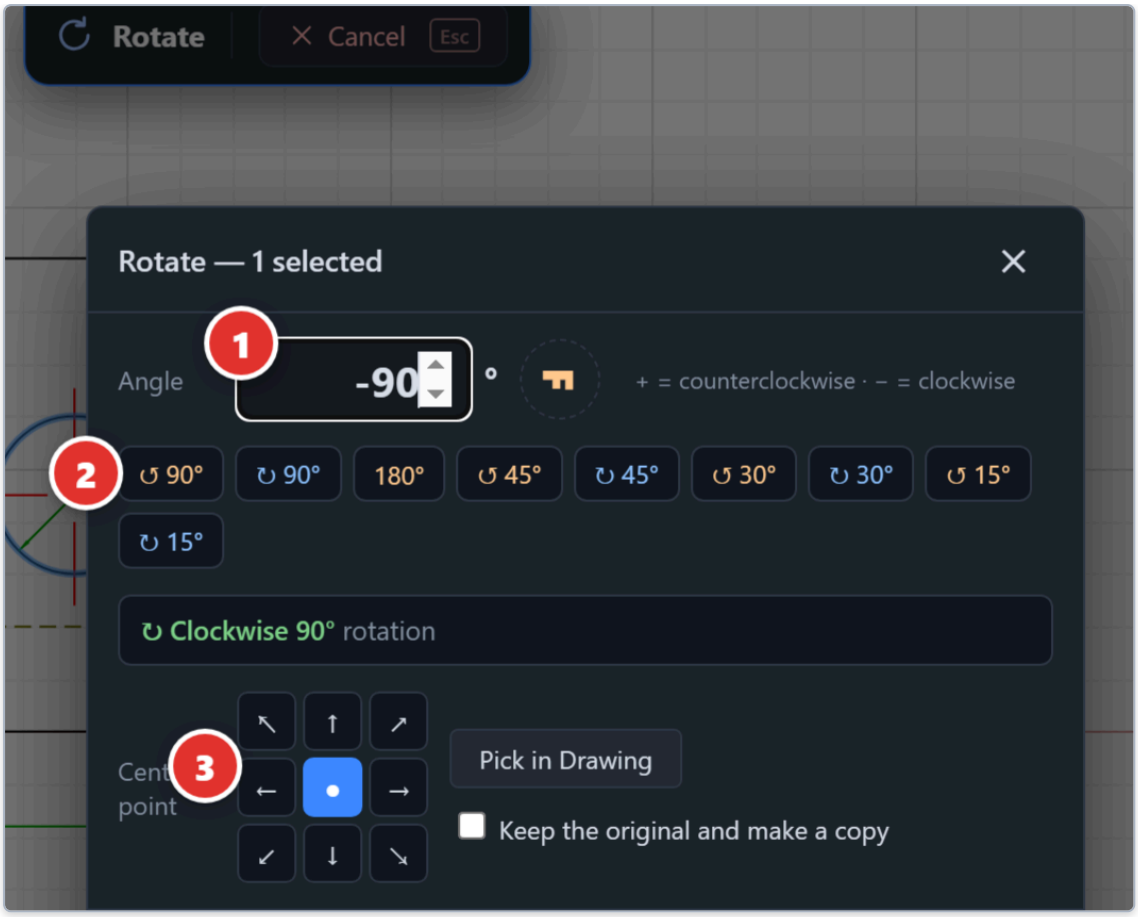


Figure 10. Rotate dialog

Mirror

Command: **MIRROR** · aliases: MI

Create a mirror image about a mirror line.

How to use ① Select the objects → ② Click the first point of the mirror line → ③ Click the second point → ④ Choose whether to delete the original: [Yes]/[No].

Scale

Command: **SCALE** · aliases: SC

Enlarge or reduce objects. In the small box enter the percentage (100 = unchanged, 50 = half, 200 = double). Handy for matching the size of tables · symbols · groups of shapes.

How to use ① Select the objects to resize (for a table, select all of it with a window) → [Scale] → ② Enter a % number in the small window or press the 25% ~ 300% buttons — the current size and the new size (mm) are shown instantly → When only text is selected, the window also shows [Width mm] · [Height (text height) mm] fields so you can set the actual length of the text numerically (they change together with %; turn off [Keep proportions] to adjust only the width) → ③ Choose the base point (the point that stays in place: center · corner · middle of a side · pick in the drawing) and press [Apply]

or Enter. Turn on [Keep the original and make a copy] to leave the original in place. To scale with the mouse as before, press [Scale with mouse].

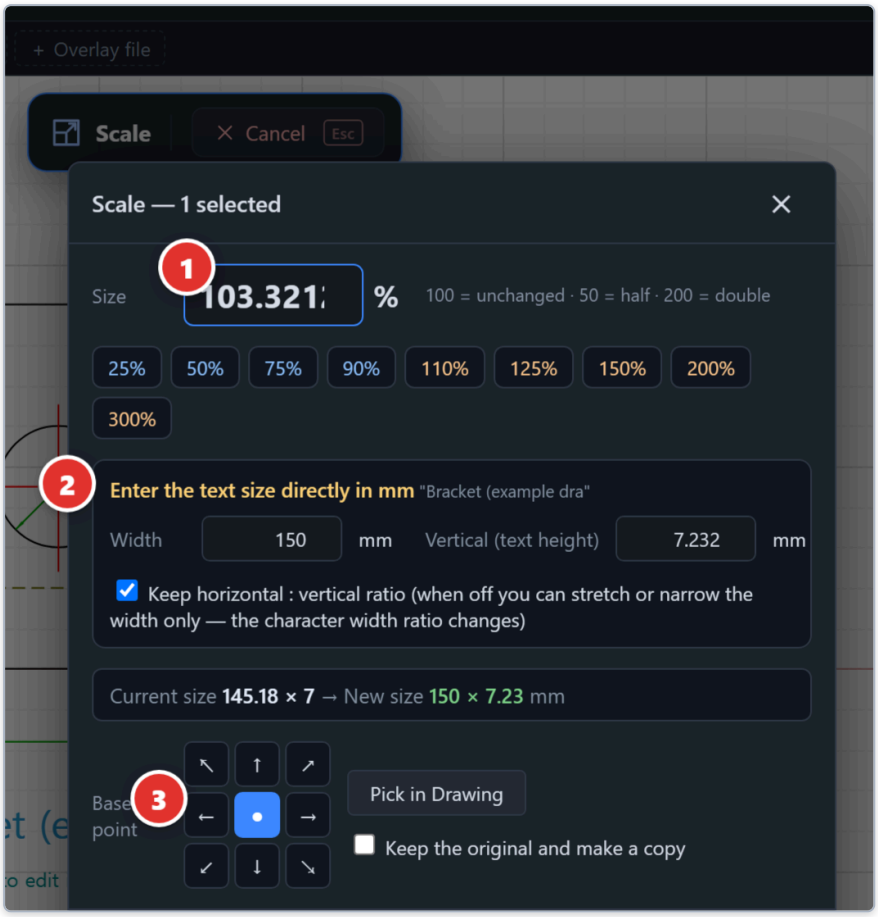


Figure 11. Scale dialog

Stretch

Command: **STRETCH** · aliases: S

Stretch or shrink only the part enclosed by a selection window.

How to use ① Surround the part to stretch with a window (click two corners) → ② Click the base point → ③ Click the place to stretch to, or enter a distance. Only the endpoints inside the window move.

Array

Command: **ARRAY** · aliases: AR

Copy objects in a grid or circular pattern.

How to use ① Select the objects → [Array] → ② Choose the pattern in the small window — [Rectangular]: number of columns · rows and spacing (− value = to the left · downward) / [Circular]: number of items (including the original) and the angle to fill → ③ [Apply]. For circular, you then click the center point in the drawing.

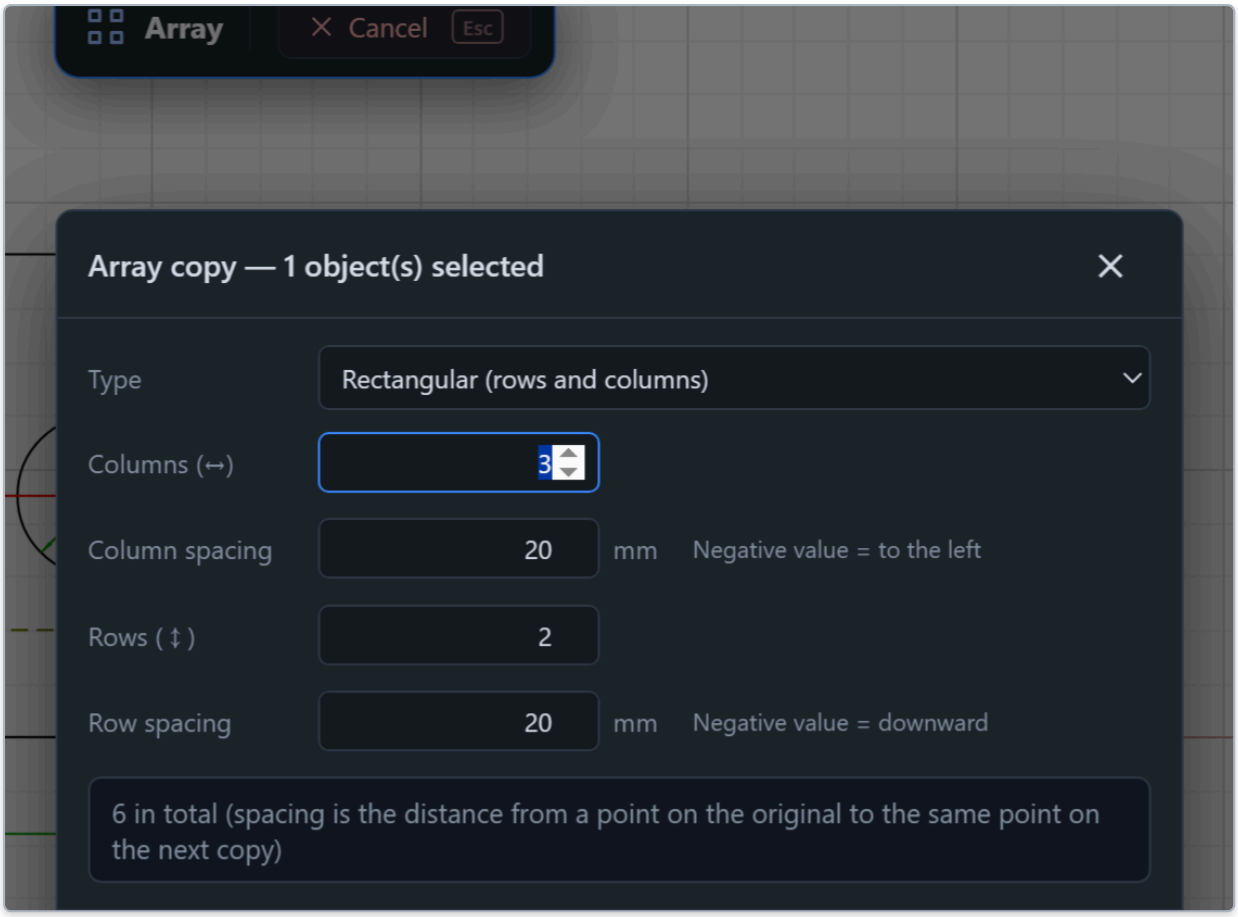


Figure 12. Array dialog

Align · Space

Command: **ALIGN** · aliases: AL

Align several objects neatly to the left · center · right · top · bottom, or make the spacing between them equal. (Same as "Align" in PowerPoint)

How to use ① Select 2 or more objects (3 or more for equal spacing) → [Align · Space] → ② Press one of the picture buttons: align Left / Horizontal center / Right / Top / Vertical center / Bottom, Equal horizontal spacing / Equal vertical spacing. The reference is the bounding box of everything you selected.

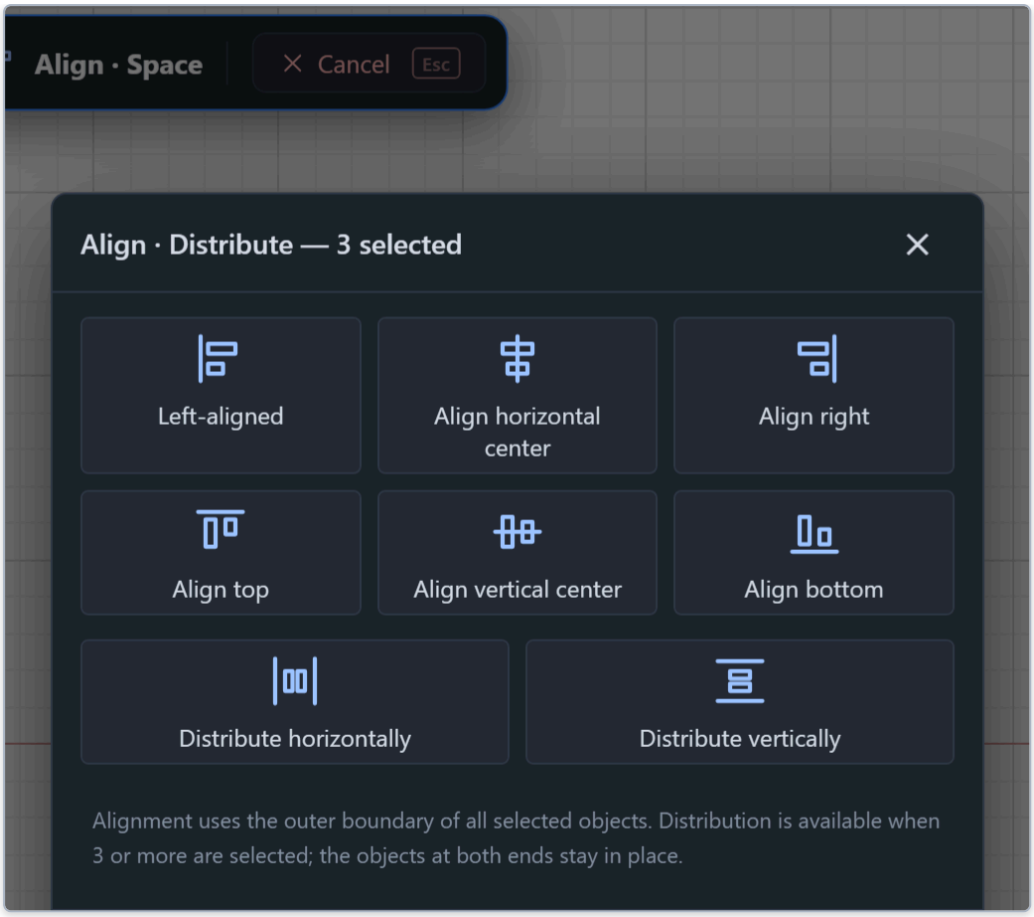


Figure 13. Align · Space dialog

Group

Command: **GROUP** · aliases: G

Group several objects into one. A group is selected with one click and moves together. (Ctrl+G)

How to use ① Select the objects to group → [Group] or Ctrl+G. To edit text inside a group, first [Ungroup] it (Ctrl+Shift+G).

Ungroup

Command: **UNGROUP** · aliases: UG

Break a group back into separate objects. (Ctrl+Shift+G)

How to use Select the group and press [Ungroup] or Ctrl+Shift+G.

Offset

Command: **OFFSET** · aliases: O

Copy a line, circle or shape in parallel at a set distance. (wall thickness, pipe width, etc.)

How to use ① Enter the distance (mm) in the small window (1 · 2 · 5 · 10 … buttons) → [OK] → ② Click the line, circle or shape to copy in parallel → ③ Click the side to copy to (inside/outside, above/below). Repeat as needed and finish with [Done].



Figure 14. Offset dialog

Trim

Command: **TRIM** · aliases: TR

Click the unwanted part to cut it away, using the intersections with other lines as boundaries.

How to use After pressing the tool, click the part you want to remove from an object that crosses another line. You can keep clicking; finish with [Done].

Extend

Command: **EXTEND** · aliases: EX

Extend a line to the nearest other line.

How to use After pressing the tool, click near the end of the line you want to lengthen and it extends to the nearest boundary.

Fillet

Command: **FILLET** · aliases: F

Round the corner where two lines meet.

How to use ① Enter the radius (mm) in the small window → [OK] → ② Click the two lines that form the corner, one after the other. Radius 0 = the two lines meet at a sharp corner.

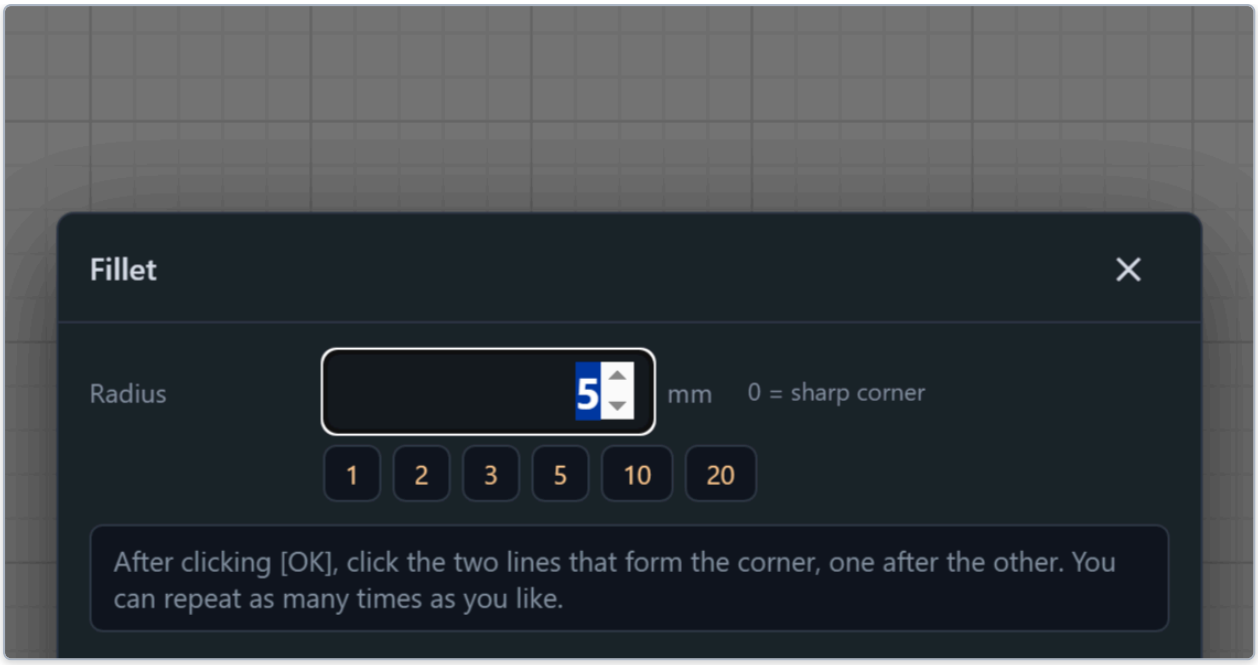


Figure 15. Fillet dialog

Chamfer

Command: **CHAMFER** · aliases: CHA

Cut the corner where two lines meet at an angle.

How to use ① Enter the distance (mm) to cut from each of the two lines in the small window → [OK] → ② Click the two lines in turn.

Join

Command: **JOIN** · aliases: J · PEDIT · PE

Merge lines and arcs whose ends touch into a single polyline.

How to use Select lines · arcs whose ends meet → [Finish selection]. They become a single connected line, which makes parallel copy · hatch fill easier.

Explode

Command: **EXPLODE** · aliases: X

Break blocks, polylines and dimensions into separate objects.

How to use Select the blocks · connected lines · dimensions to explode → [Finish selection].

Match Props

Command: **MATCHPROP** · aliases: MA

Apply one object's layer · color · linetype to other objects as is.

How to use ① Click the source object → ② Select the objects to change → [Finish selection].



Erase

Command: **ERASE** · aliases: E · DEL

Erase the selected objects. (Same as the Delete key)

How to use Select the objects to erase → [Finish selection]. (You can also select first and press the Delete key.)

Tool Reference: the [Dim · Text] Tab

Text

Command: **TEXT** · aliases: T · DT · MT · MTEXT · DTEXT

Write text in the drawing. If you choose [Center], the point you click becomes the exact center of the text, which is handy inside symbols and tables.

How to use ① Click the text start position → ② Enter the text height → ③ Rotation angle (usually 0) → ④ Type the text in the command box below and press Enter. Finish by pressing Enter on an empty line.

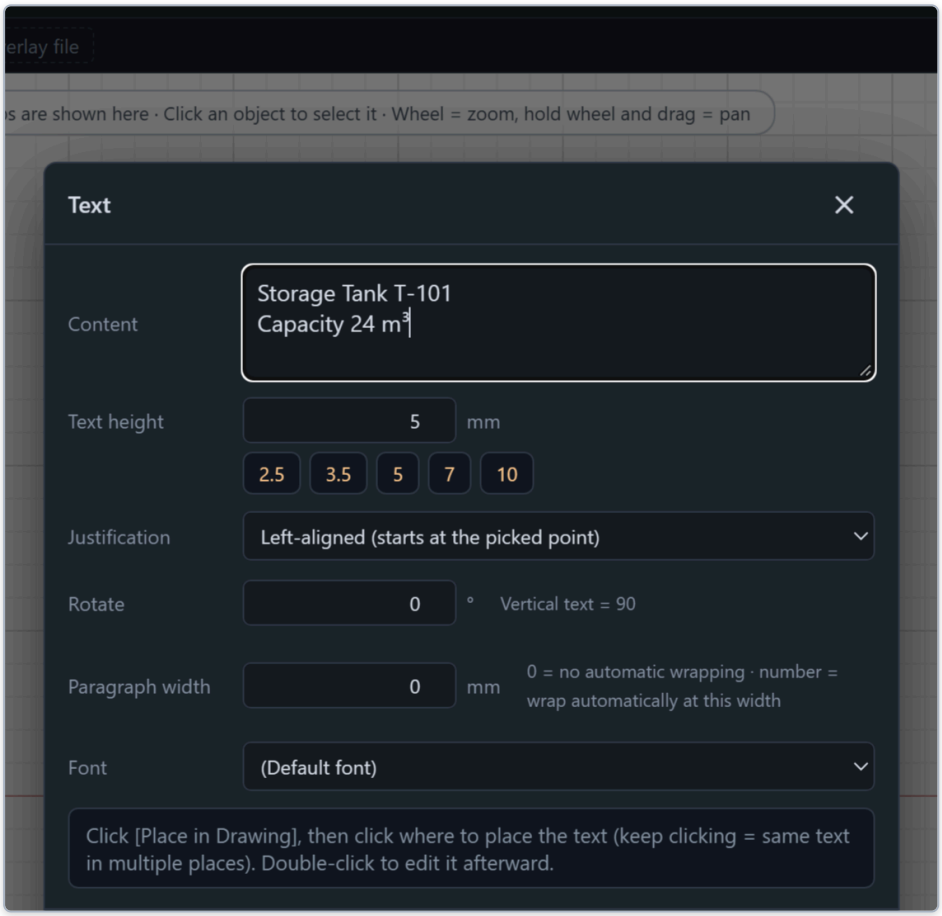


Figure 16. Text dialog

Edit Text

Command: **DDEDIT** · aliases: ED · TEXTEDIT

Edit text you have already written or a dimension value. (You can also double-click the text)

How to use Click the text or dimension to edit → type the new content in the command box below and press Enter. In a dimension, <> stands for the automatic measured value (e.g. <> ±0.1).

Table

Command: **TABLE** · aliases: TBL

Set the number of rows · columns and type text in each cell to create a table. You can paste content copied from Excel as is, and column widths are set automatically to fit the text. Use it for equipment spec tables · parts lists · legends · revision history, etc.

How to use ① Set the number of rows and columns → ② Click a cell and type text (Tab = next cell, Enter = cell below). If you copy a range from Excel and press Ctrl+V in any cell of the table, it fills in everything from that cell, and rows/columns are added automatically if there are too few. To write several lines in one cell, insert ₩n. [Merge cells]: click the first cell, hold Shift and click the last cell to select the range, then press it. [Split cell (left-right/top-bottom)]: splits only one selected cell in two; pressing it on a merged cell undoes the merge → ③ Choose the text height · row height · minimum column width (mm, as printed) · alignment · [First row as title] · [Auto-fit column width] → ④ [Insert in drawing] → click the top-left corner of the table. A table is made of lines and text, so edit text by double-clicking and lines like ordinary objects. Lines go on the current layer, and text goes on the "Text" layer.

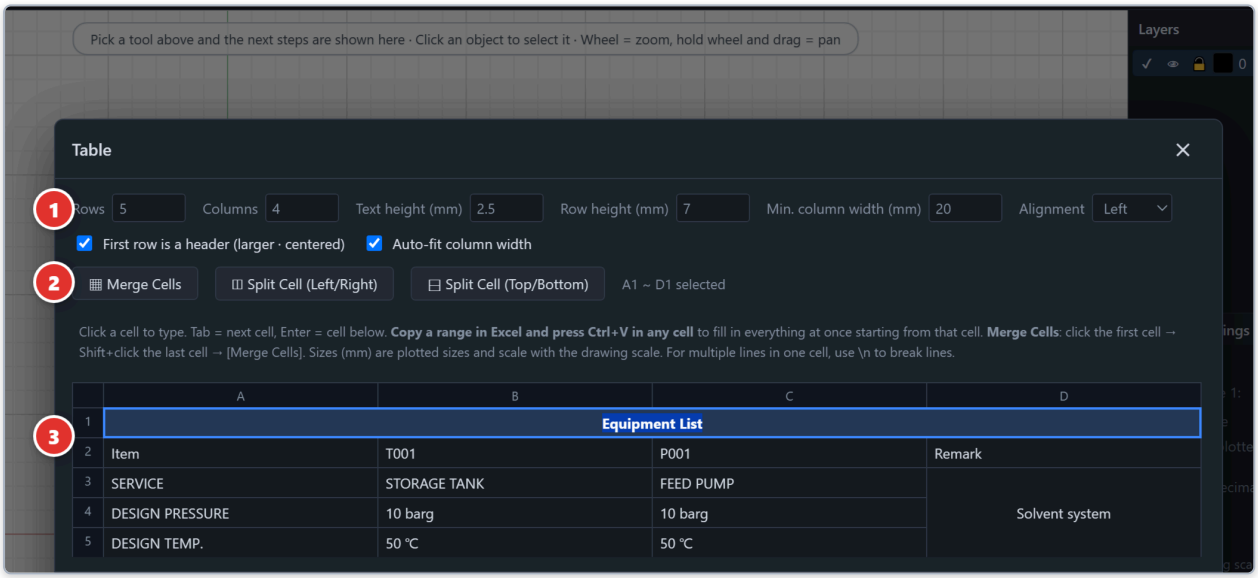


Figure 17. Table dialog

Leader

Command: **LEADER** · aliases: LE · QLEADER · MLEADER · MLD

Add a line with an arrow and a note.

How to use ① Click the arrow tip position → ② Click the bend point → [Done] → ③ Type the note text and press Enter.

Linear Dim

Command: **DIMLINEAR** · aliases: DLI · DIMLIN

Show the horizontal or vertical length between two points.

How to use ① Click the first point to measure → ② Click the second point → ③ Click where to place the dimension line. Pulling the mouse up or down gives a horizontal dimension; pulling it left or right gives a vertical dimension.

Aligned Dim

Command: **DIMALIGNED** · aliases: DAL · DIMALI

Show the true length between two points at an angle.

How to use ① First point → ② Second point → ③ Click the dimension line position. It shows the actual length along the direction connecting the two points.

Radius Dim

Command: **DIMRADIUS** · aliases: DRA · DIMRAD

Show the radius (R) of a circle or arc.

How to use ① Click a circle or arc → ② Click where to place the dimension text. The R symbol is added automatically.

Diameter Dim

Command: **DIMDIAMETER** · aliases: DDI · DIMDIA

Show the diameter (Ø) of a circle.

How to use ① Click a circle → ② Click where to place the dimension text. The Ø symbol is added automatically.

Angular Dim

Command: **DIMANGULAR** · aliases: DAN · DIMANG

Show the angle between two lines.

How to use ① Click the first line → ② Click the second line → ③ Click where to place the angle mark.

Dim Settings

Command: **DIMSTYLE** · aliases: D · DST

Set the drawing scale · dimension text height · decimal places · font in one window. You can also apply them to dimensions already drawn, all at once.

How to use Set the drawing scale (1:n), text height (mm as printed), decimal places and font, then press [Apply]. If you choose [Apply to existing dimensions too], every dimension in the drawing

changes together.

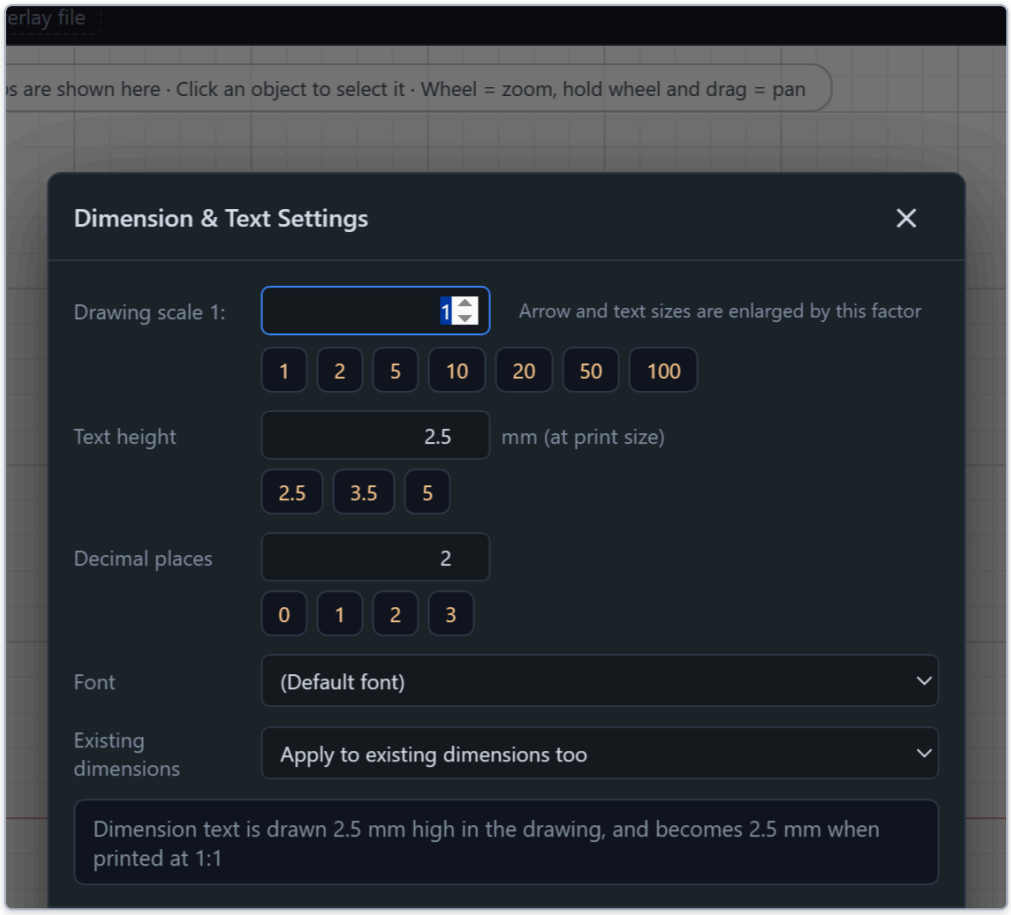


Figure 18. Dim Settings dialog

Center Mark

Command: **CENTERMARK** · aliases: CM

Draw a cross-shaped center line at the center of a circle.

How to use Select a circle or arc → [Finish selection]. Red dash-dot cross centerlines are drawn on the "Centerline" layer.

Fonts

Command: **FONT**

The Windows fonts on this PC are linked automatically, so you can pick them directly from the text [Font] list. Press [+ Load All Windows Fonts...] at the bottom of the list once (the browser asks for permission) to bring in all installed fonts; after that it is automatic. In this window you can ★ register frequently used fonts to keep them at the top of the list.

How to use ① Click [Load all Windows fonts] (allow it if the browser asks) → ② Click [Register] on the font you picked using search · preview → ③ Click a font in the registered list at the top to set it as the current font.

Tool Reference: the [P&ID] Tab

Insert Symbol

Command: **SYMBOL** · aliases: SYM · PID

Pick process piping (P&ID) symbols such as valves · actuators · instruments · pumps from a picture list and place them directly in the drawing. It also works as a reference for looking up symbol names and shapes.

How to use ① Press the button and the symbol list opens (you can search by name) → ② Click a symbol picture → ③ Click where to place it in the drawing. If you click on a straight line drawn as piping, the symbol rotates to match the line direction and the line is cut automatically by the width of the symbol. Keep clicking to place several, then [Done]. You can use the [Rotate 90°] · [Size] · [Other symbol] buttons. The size is set automatically to match the drawing scale (1:100 etc.), and a placed symbol is a block, so it can be moved · rotated · copied · mirrored, and [Explode into pieces] lets you break it apart to edit.

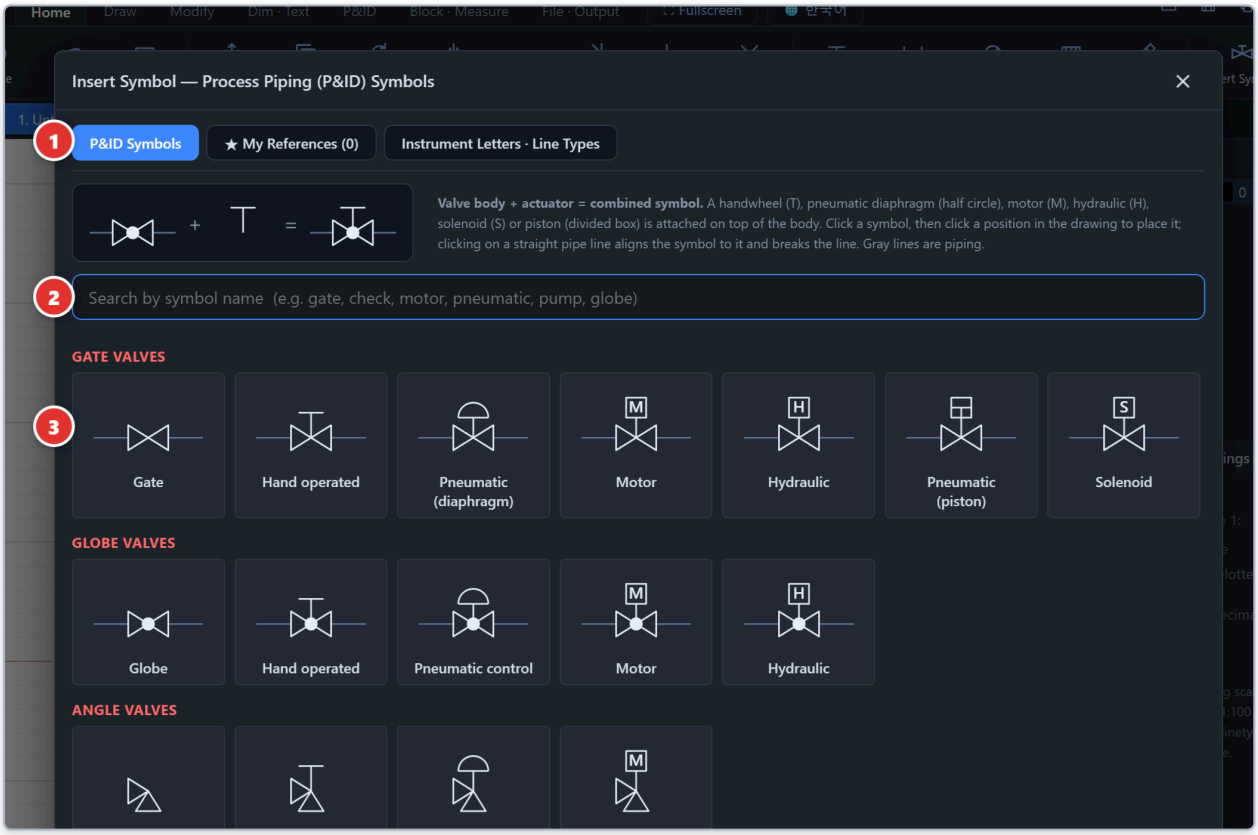


Figure 19. Insert Symbol dialog

Instrument Tag

Command: **INSTRUMENT** · aliases: INST · TAG

Create an instrument symbol (circle + function letters + number) in one step. Example: PI-101, FIC-203. You can choose field instrument · control room instrument · field panel · DCS display · PLC shape, and when you place several, the number increases by 1.

How to use ① Enter the function letters (e.g. PIC) → ② Enter the number (e.g. 101) → ③ Choose the type (Field / Control room / Field panel / DCS / PLC) → ④ Click where to place it (keep clicking and the number increases: 102, 103 ...) → [Done]. You can double-click the text to edit it. The meaning of function letters is in the [Instrument letter table] tab of the [Insert symbol] window.

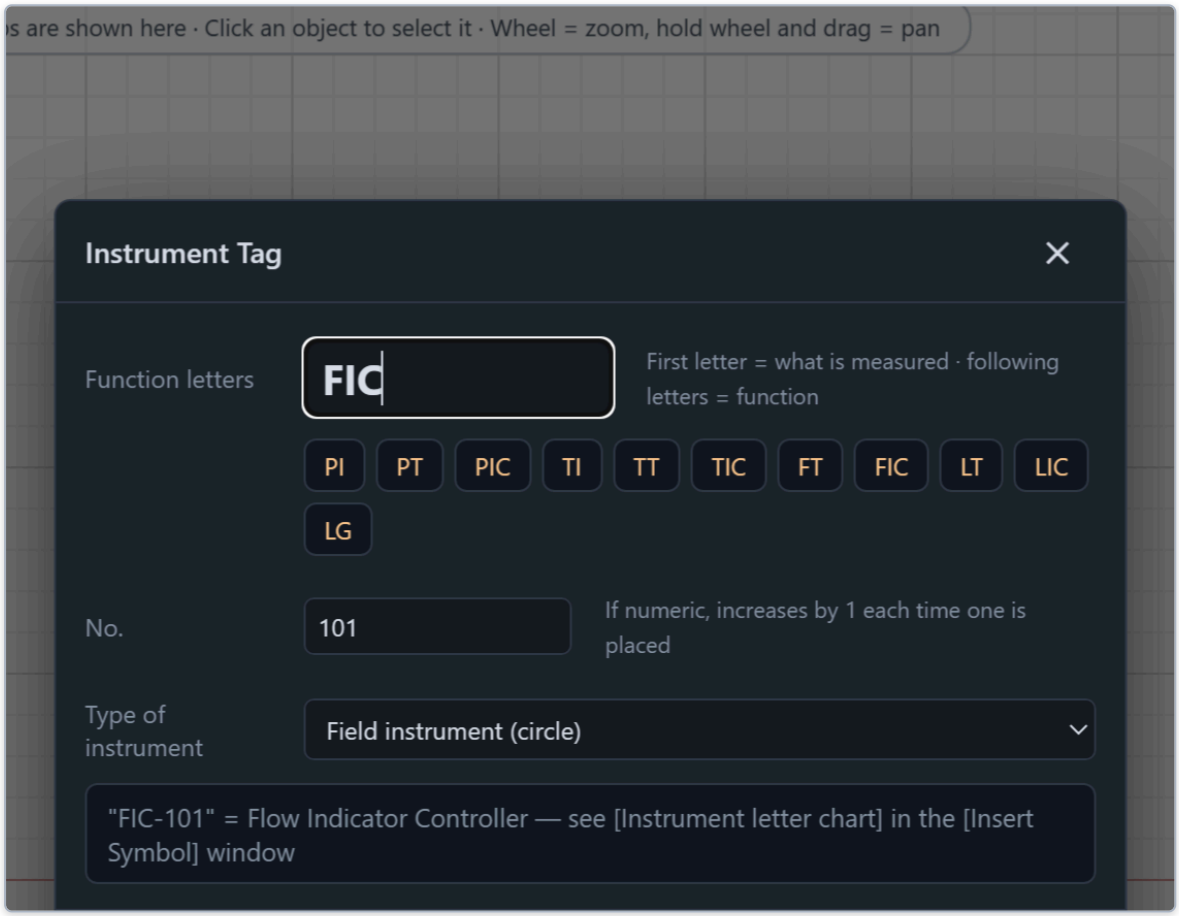


Figure 20. Instrument Tag dialog

Signal Line

Command: **SIGLINE** · aliases: SIG

Draw signal lines that connect instruments with valves · controllers in a P&ID. Type marks are added automatically: pneumatic (//) · electrical (dashed) · capillary (X) · hydraulic (L) · data link (○) · mechanical link (●).

How to use ① Choose the type (pneumatic · electric · capillary · hydraulic · data link · mechanical link) → ② Click the start point → ③ Click the bend points in turn → ④ [Done]. With [Ortho] (F8) on, lines are drawn perfectly horizontal and vertical. The "Instrument-Signal line" layer is created automatically.

Line Number

Command: **LINENO** · aliases: LN

Write the line number along a pipe line, above it. Example: 4"-P-1001-A1A (nominal size - fluid - serial number - piping class).

How to use ① Enter the piping number → ② Click on a straight pipe, and the number is written right above the line, following the line direction. You can keep adding it in many places; finish with [Done].

Connector Tag

Command: **PIDTAG** · aliases: FLOWTAG

Create a pentagonal tag (for example OIL OUTLET ▷) that says where a pipe comes from and goes to. The box size is set automatically to fit the text length.

How to use ① Type the text for the tag → ② Choose the pointed side (right ▷ / left ◁) → ③ Choose the side the piping connects to (flat side / pointed tip) → ④ Click the end point of the piping. The box size is set automatically to fit the text length, and you can double-click the text to edit it.

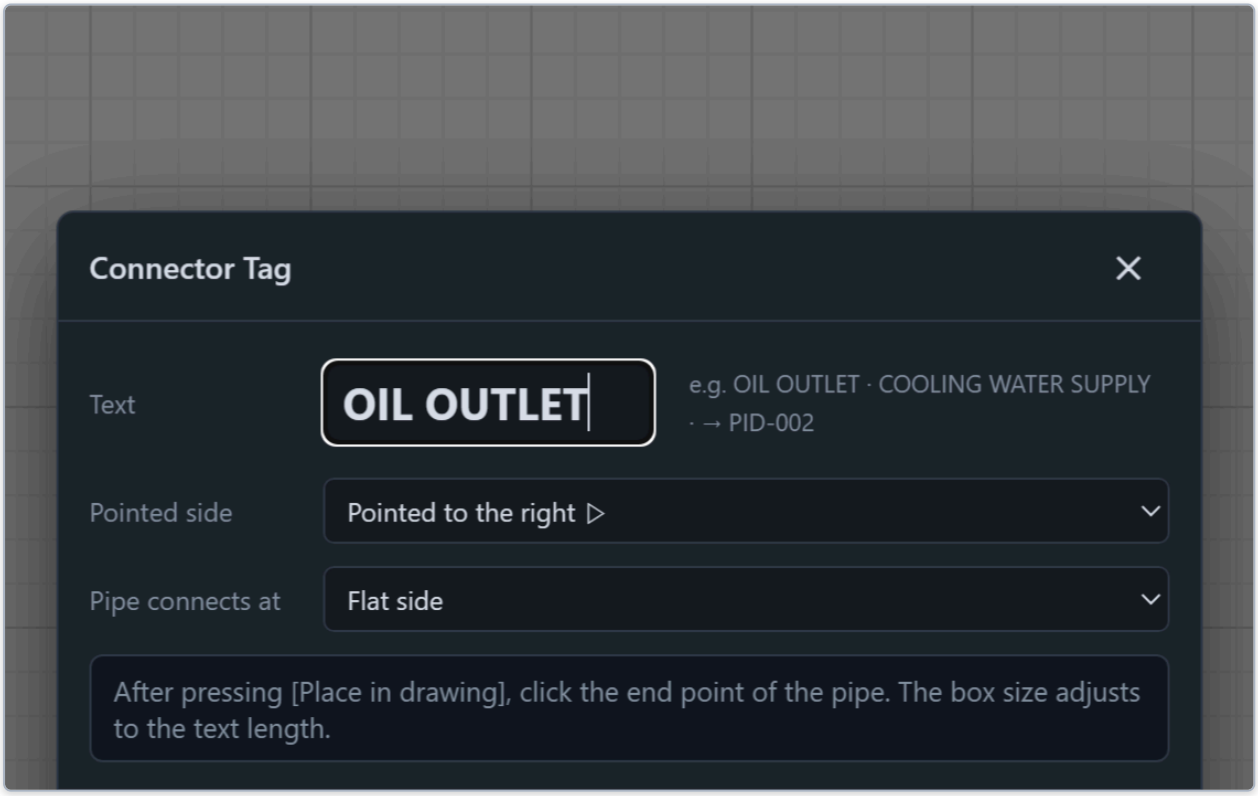


Figure 21. Connector Tag dialog

Balloon

Command: **BALLOON** · aliases: BAL

Create a mark with a number inside a circle · diamond · rectangle · hexagon. Use it for flow numbers on a process flow diagram (PFD), part numbers and revision marks. The number increases by 1 each time you place one.

How to use ① Set the start number, shape (circle / diamond / square / hexagon) and size, then press [Place in drawing] → ② Click each spot in turn (numbers go up automatically: 1, 2, 3 ...) → finish with Enter. Use it to add the stream numbers that pair with the material balance table on a process flow diagram (make the table with [Create table]).

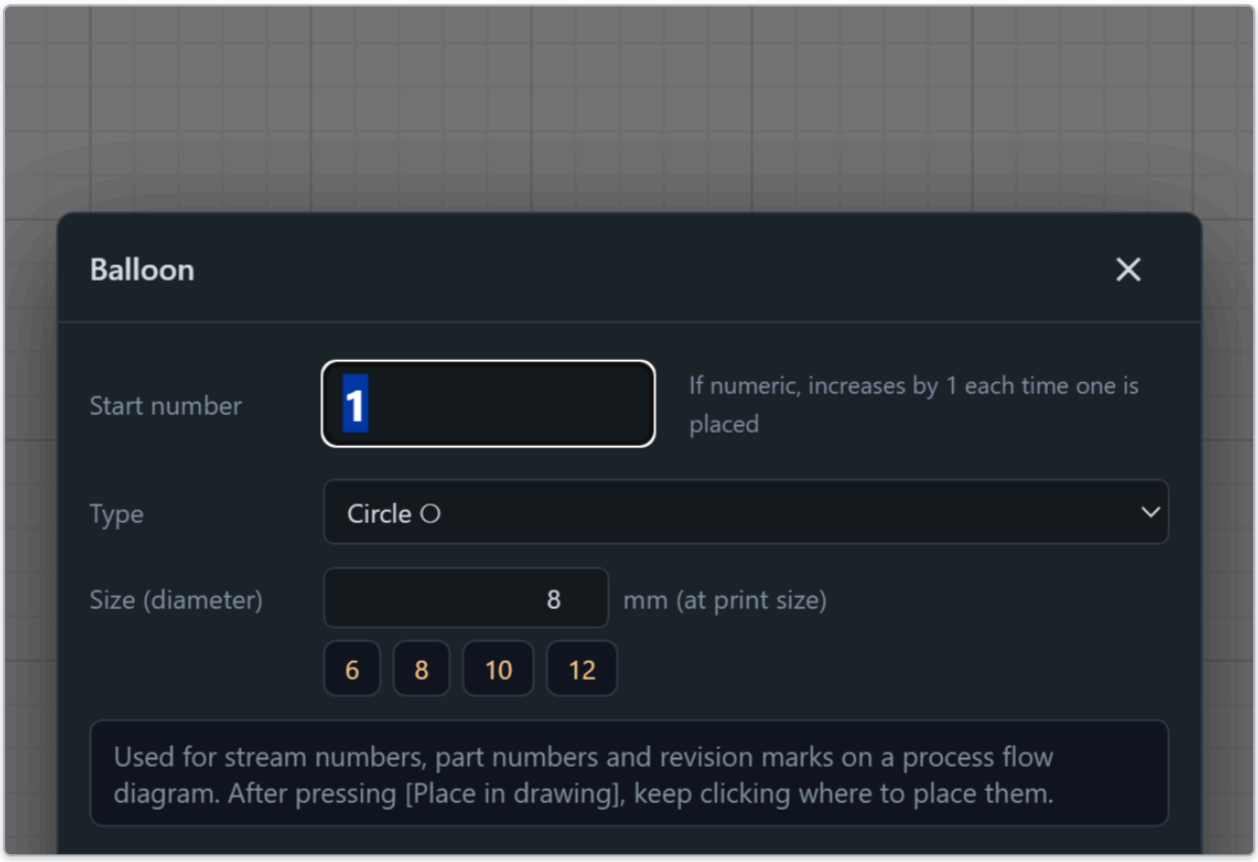


Figure 22. Balloon dialog

Pipe Jump

Command: **PIPEJUMP** · aliases: JUMP

Find pipes · signal lines that cross each other and mark them as not connected by breaking one line (gap) or bridging it with a half circle. The thick line (main pipe) is left as is and the thinner line is broken; if the thickness is the same, the vertical line is broken.

How to use ① Select the lines to mark crossings on (just press Enter to use every line in the drawing) → ② Choose [Break (gap)] or [Hop over with a half-circle]. Places where ends meet (T-junctions · corners) are treated as connected and are left alone. It is best to run this once at the very end, after all piping is drawn.

Line

Command: **LINE** · aliases: L

Click two points to draw a straight line. Keep clicking to continue the line.

How to use ① Click the start point → ② Click the next point (keep clicking to continue) → ③ [Done] or Enter. To set a length, aim with the mouse, type a number and press Enter.

Polyline

Command: **PLINE** · aliases: PL

Draw a line made of several connected segments. You can include rounded arc segments in between.

How to use ① Click the start point → ② Click the next points in turn → for a rounded bend press [Arc], and [Line] to go straight again → ③ Join to the first point with [Close] or press [Done].

Text

Command: **TEXT** · aliases: T · DT · MT · MTEXT · DTEXT

Write text in the drawing. If you choose [Center], the point you click becomes the exact center of the text, which is handy inside symbols and tables.

How to use ① Click the text start position → ② Enter the text height → ③ Rotation angle (usually 0) → ④ Type the text in the command box below and press Enter. Finish by pressing Enter on an empty line.

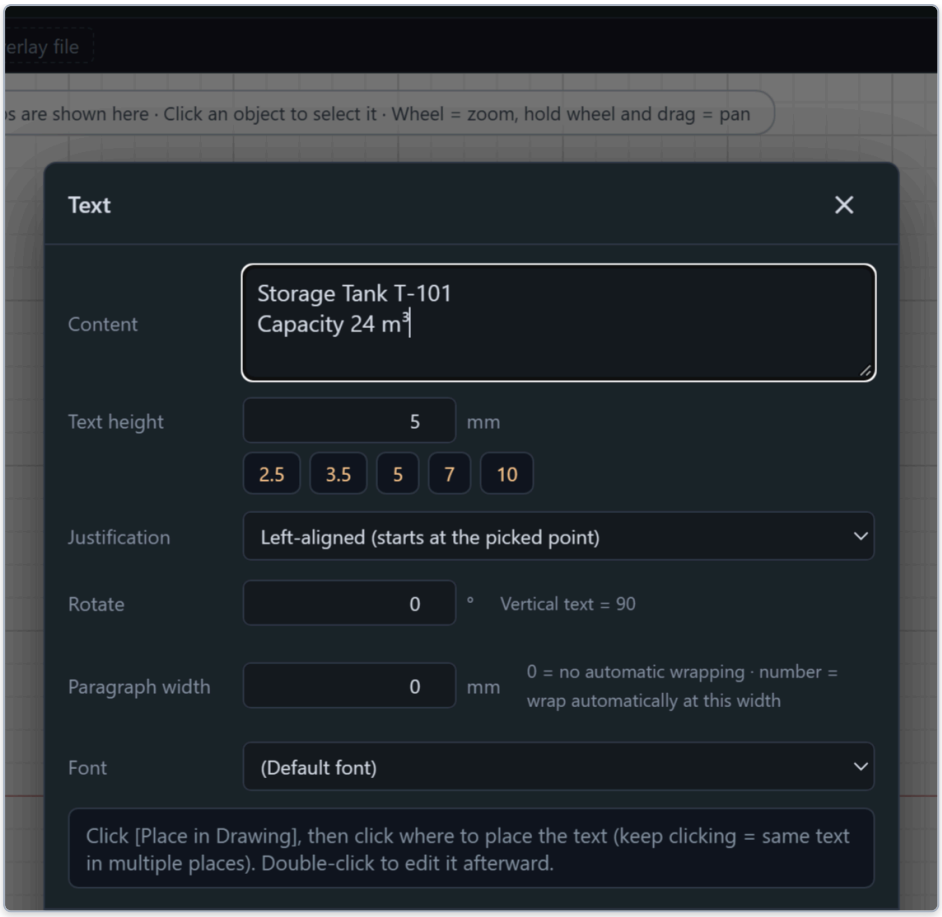


Figure 23. Text dialog

Table

Command: **TABLE** · aliases: TBL

Set the number of rows · columns and type text in each cell to create a table. You can paste content copied from Excel as is, and column widths are set automatically to fit the text. Use it for equipment spec tables · parts lists · legends · revision history, etc.

How to use ① Set the number of rows and columns → ② Click a cell and type text (Tab = next cell, Enter = cell below). If you copy a range from Excel and press Ctrl+V in any cell of the table, it fills in everything from that cell, and rows/columns are added automatically if there are too few. To write several lines in one cell, insert ₩n. [Merge cells]: click the first cell, hold Shift and click the last cell to select the range, then press it. [Split cell (left-right/top-bottom)]: splits only one selected cell in two; pressing it on a merged cell undoes the merge → ③ Choose the text height · row height · minimum column width (mm, as printed) · alignment · [First row as title] · [Auto-fit column width] → ④ [Insert in drawing] → click the top-left corner of the table. A table is made of lines and text, so edit text by double-clicking and lines like ordinary objects. Lines go on the current layer, and text goes on the "Text" layer.

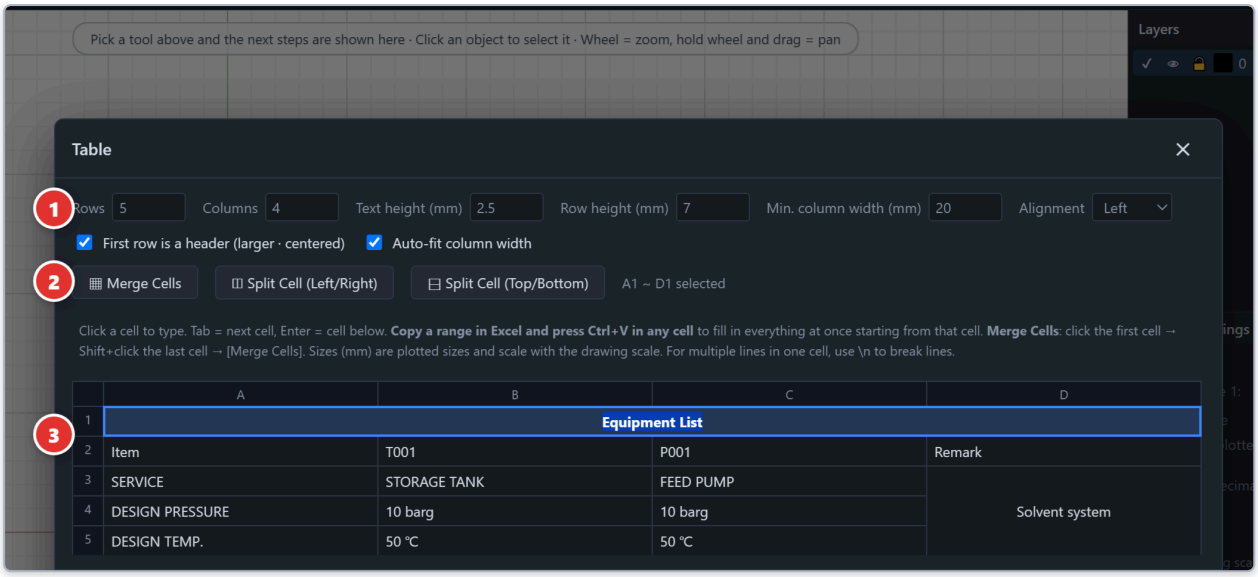


Figure 24. Table dialog

Leader

Command: **LEADER** · aliases: LE · QLEADER · MLEADER · MLD

Add a line with an arrow and a note.

How to use ① Click the arrow tip position → ② Click the bend point → [Done] → ③ Type the note text and press Enter.

Tag List

Command: **TAGLIST** · aliases: TL

Collect the instrument tags (PI-101 ...) and symbol quantities of the drawing into a list. You can insert it in the drawing as a table or save it as a CSV file for Excel.

How to use Press the button and the instrument list and symbol quantity table appear in a window. [Insert as table in drawing]: click where to place it. [Save CSV]: saves a file you can open in Excel. Even if you edited an instrument tag by double-clicking its text, the list is collected with your edited content.

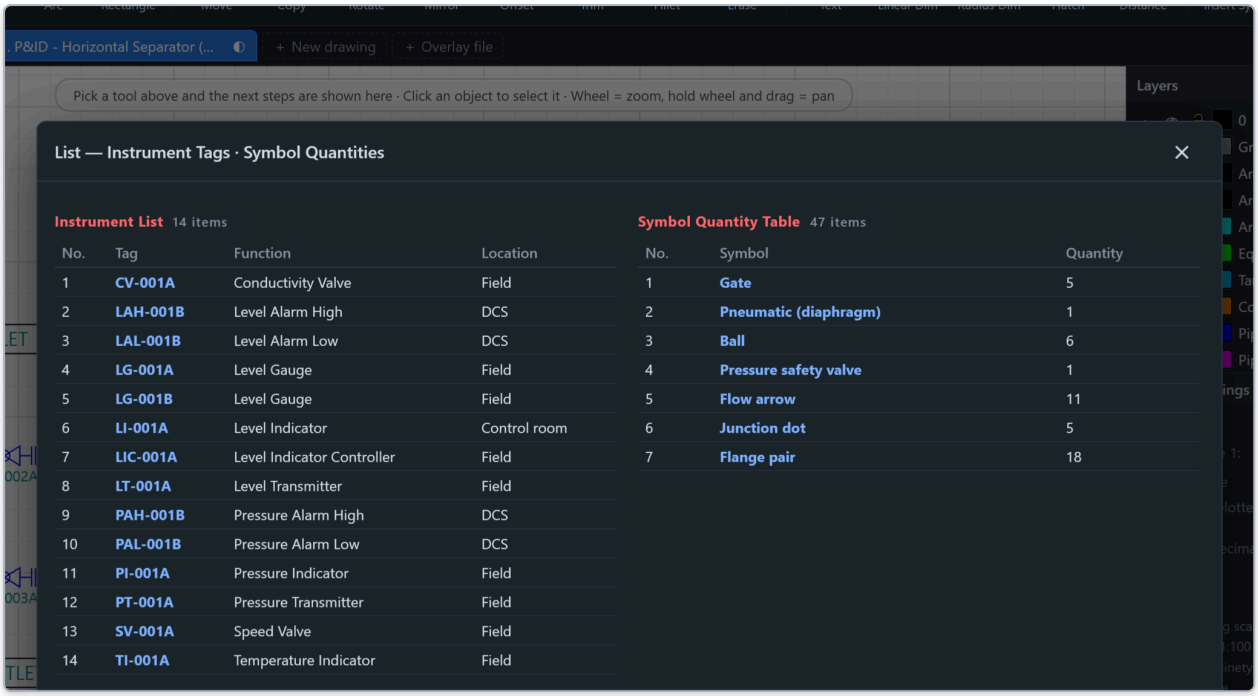


Figure 25. Tag List dialog

Legend

Command: **LEGEND** · aliases: LEG

Automatically create a legend table with only the symbols and signal line types actually used in this drawing.

How to use Press the button and click where to place the legend table (its top-left corner). Only the symbols and signal lines actually used in the drawing are collected automatically.

Title Block

Command: **TITLEBLOCK** · aliases: TB · FRAME

Draw a drawing frame (border · center marks) and title block (drawing name · drawing number · scale · drawn · checked · approved · date) for A0–A4 · B1–B4 paper at the drawing scale.

How to use ① Choose the paper (A3 etc.) and orientation → ② Enter the drawing name · drawing number · author → ③ Click the bottom-left corner of the frame (Enter = origin). The size follows the drawing scale ("Drawing scale 1:n" on the right), so when you print, choosing the same paper and the same scale makes it fit the sheet exactly. Double-click the title block text to edit it.

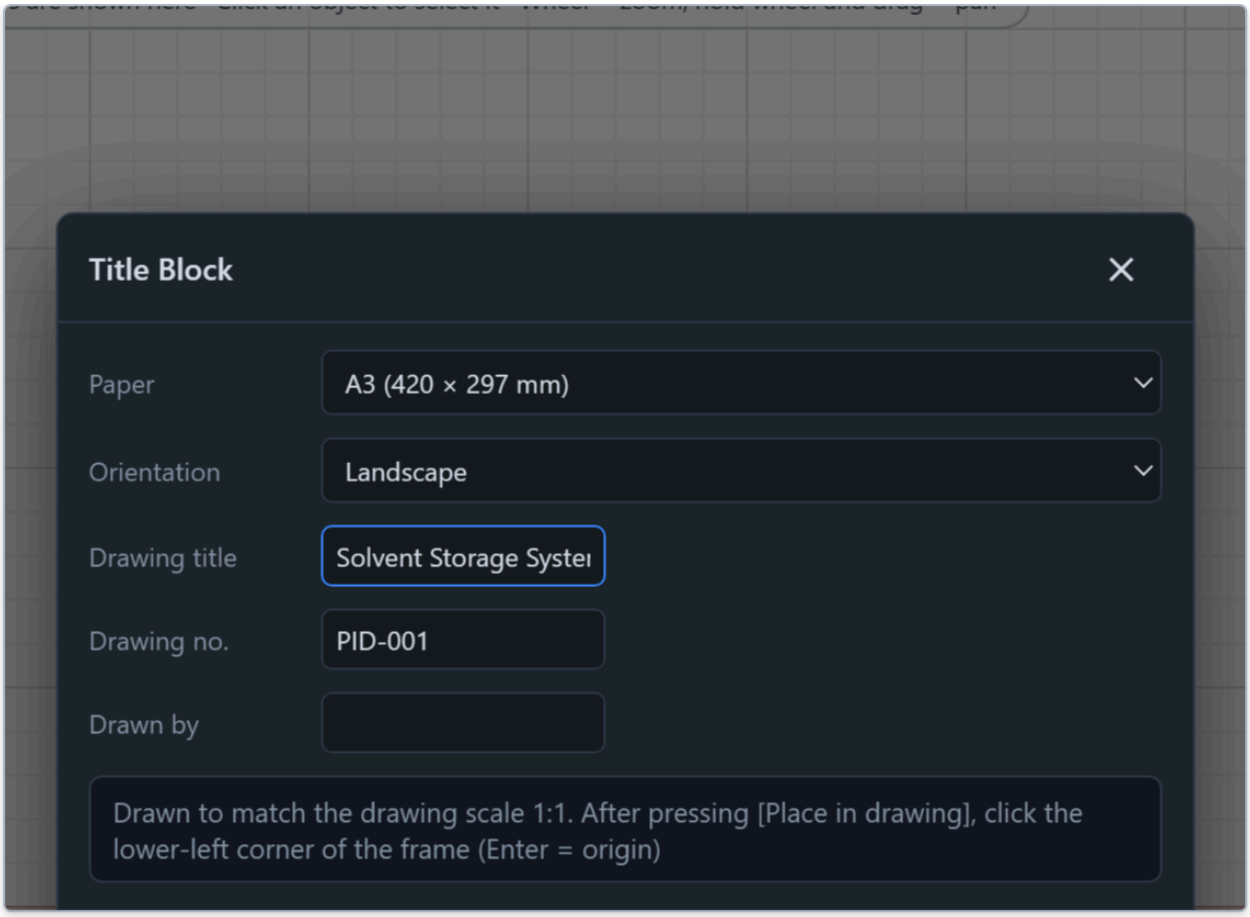


Figure 26. Title Block dialog

My References

Command: **REFOPEN** · aliases: RFDT

Open your registered reference list to insert into the drawing, delete, or save / load as an .rfdt file.

How to use Click a picture in the list → click where to place it in the drawing (as many times as you like) → [Done]. It goes in at the actual size it was registered at, and you can use [Rotate 90°] · [Size]. The × on a card deletes it, [Save as .rfdt] stores all registered references in one file, and [Load .rfdt] adds the references in a file to the list (duplicates are skipped). You can also drag and drop an .rfdt file onto the screen.

Save Reference

Command: **REFSAVE** · aliases: RS

Name the objects you drew (equipment · symbols · title blocks · frequently used parts, etc.) and register them as "My References". They are kept on this PC so you can use them in any drawing, and you can save them as an .rfdt file to move to another PC or share with colleagues.

How to use ① Select the objects to register → [Finish selection] → ② Enter a name → ③ Enter a category name (press Enter if none) → ④ Click the base point (the point that sticks to the mouse

when placing; press Enter for the center). You can also select the objects first and then press the button. The layers · colors · linetypes · blocks used are stored along with them.

Part 2 — 5

Tool Reference: the [Block · Measure] Tab

Insert Symbol

Command: **SYMBOL** · aliases: SYM · PID

Pick process piping (P&ID) symbols such as valves · actuators · instruments · pumps from a picture list and place them directly in the drawing. It also works as a reference for looking up symbol names and shapes.

How to use ① Press the button and the symbol list opens (you can search by name) → ② Click a symbol picture → ③ Click where to place it in the drawing. If you click on a straight line drawn as piping, the symbol rotates to match the line direction and the line is cut automatically by the width of the symbol. Keep clicking to place several, then [Done]. You can use the [Rotate 90°] · [Size] · [Other symbol] buttons. The size is set automatically to match the drawing scale (1:100 etc.), and a placed symbol is a block, so it can be moved · rotated · copied · mirrored, and [Explode into pieces] lets you break it apart to edit.

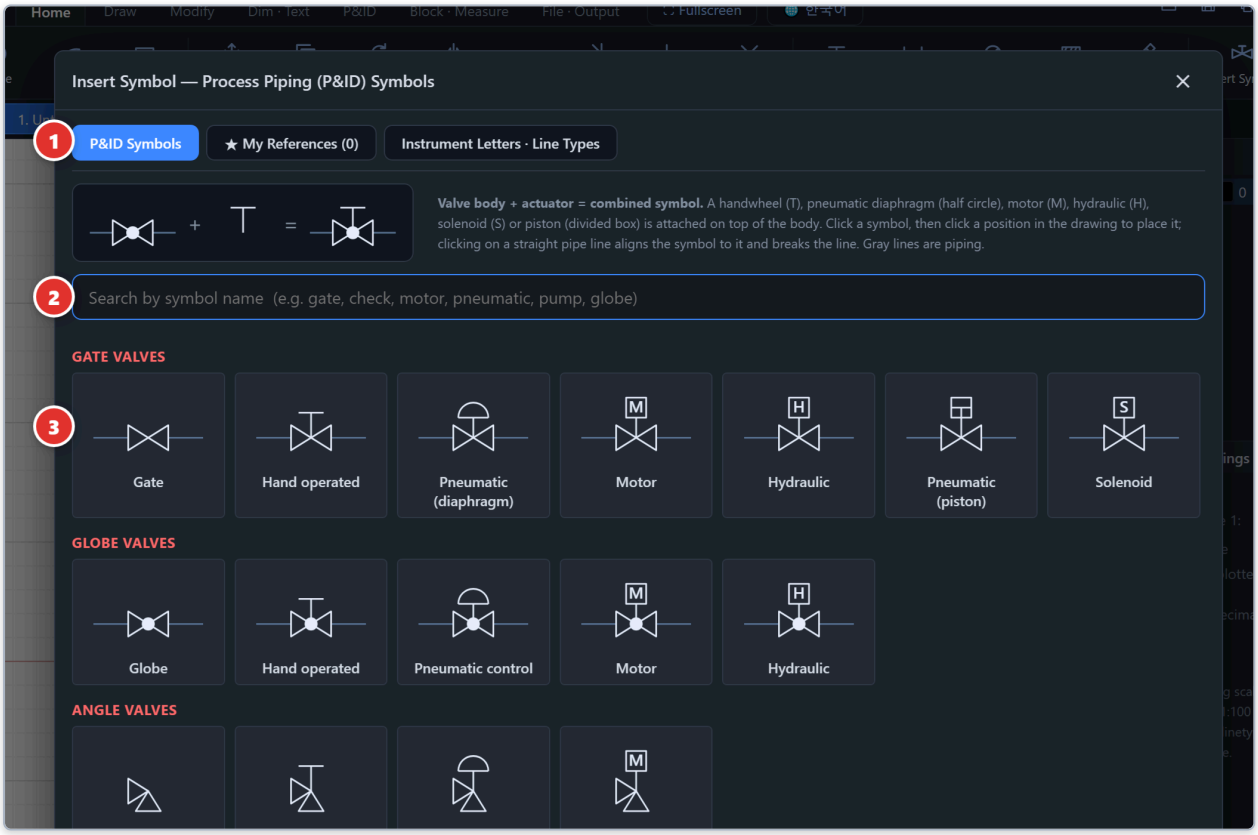


Figure 27. Insert Symbol dialog

My References

Command: **REFOPEN** · aliases: RFDT

Open your registered reference list to insert into the drawing, delete, or save / load as an .rfdt file.

How to use Click a picture in the list → click where to place it in the drawing (as many times as you like) → [Done]. It goes in at the actual size it was registered at, and you can use [Rotate 90°] · [Size]. The × on a card deletes it, [Save as .rfdt] stores all registered references in one file, and [Load .rfdt] adds the references in a file to the list (duplicates are skipped). You can also drag and drop an .rfdt file onto the screen.

Save Reference

Command: **REFSAVE** · aliases: RS

Name the objects you drew (equipment · symbols · title blocks · frequently used parts, etc.) and register them as "My References". They are kept on this PC so you can use them in any drawing, and you can save them as an .rfdt file to move to another PC or share with colleagues.

How to use ① Select the objects to register → [Finish selection] → ② Enter a name → ③ Enter a category name (press Enter if none) → ④ Click the base point (the point that sticks to the mouse when placing; press Enter for the center). You can also select the objects first and then press the button. The layers · colors · linetypes · blocks used are stored along with them.

Create Block

Command: **BLOCK** · aliases: B

Group frequently used shapes (equipment · part symbols) into a block and register it.

How to use ① Select the objects to group → ② Enter the block name → ③ Click the insertion base point.

Insert Block

Command: **INSERT** · aliases: I

Place a registered block in the drawing.

How to use ① Enter the block name → ② Click where to place it → ③ Scale (usually 1) → ④ Rotation angle (usually 0).

Distance

Command: **DIST** · aliases: DI

Measure the distance and angle between two points.

How to use ① Click the first point → ② Click the second point. The result (distance · angle · horizontal/vertical difference) appears in the log box below.

Area

Command: **AREA** · aliases: AA

Click points to measure the enclosed area and perimeter.

How to use Click the corners of the area to measure in order → [Done]. Press [Object] to click a circle or closed shape and measure it directly. The result is given in mm² and m².

Object Info

Command: **LIST** · aliases: LI

See information such as length and radius of the selected objects.

How to use Select objects → [Finish selection]. Length · radius · area and so on appear in the log box below.

Layer Template

Command: **TEMPLATE** · aliases: TPL

Create a set of layers for mechanical part drawings / plant drawings in one step.

How to use Choose [Mechanical part drawing] or [Plant · process facility] and the layers and drawing scale suited to that use are prepared in one step.

Tool Reference: the [File · Output] Tab

New

Command: **NEW**

Start fresh with a blank drawing.

Open

Command: **OPEN**

Open a saved drawing (.mcd) or an AutoCAD DWG / DXF file. DWG files are read-only (AutoCAD 2004 – 2018 formats); after editing, save as .mcd or DXF.

How to use In the file chooser, pick a .mcd · .dwg · .dxf file. You can also open a file by dragging and dropping it onto the drawing screen.

Save

Command: **SAVE**

Save the current drawing in this program's native format (.mcd). Overlaid drawings are saved together.

How to use The first time it asks for a save location and name; after that it overwrites the same file directly. (Ctrl+S)

Save As

Command: **SAVEAS**

Save as a new file with a different name.

Title Block

Command: **TITLEBLOCK** · aliases: TB · FRAME

Draw a drawing frame (border · center marks) and title block (drawing name · drawing number · scale · drawn · checked · approved · date) for A0–A4 · B1–B4 paper at the drawing scale.

How to use ① Choose the paper (A3 etc.) and orientation → ② Enter the drawing name · drawing number · author → ③ Click the bottom-left corner of the frame (Enter = origin). The size follows the drawing scale ("Drawing scale 1:n" on the right), so when you print, choosing the same paper and the same scale makes it fit the sheet exactly. Double-click the title block text to edit it.

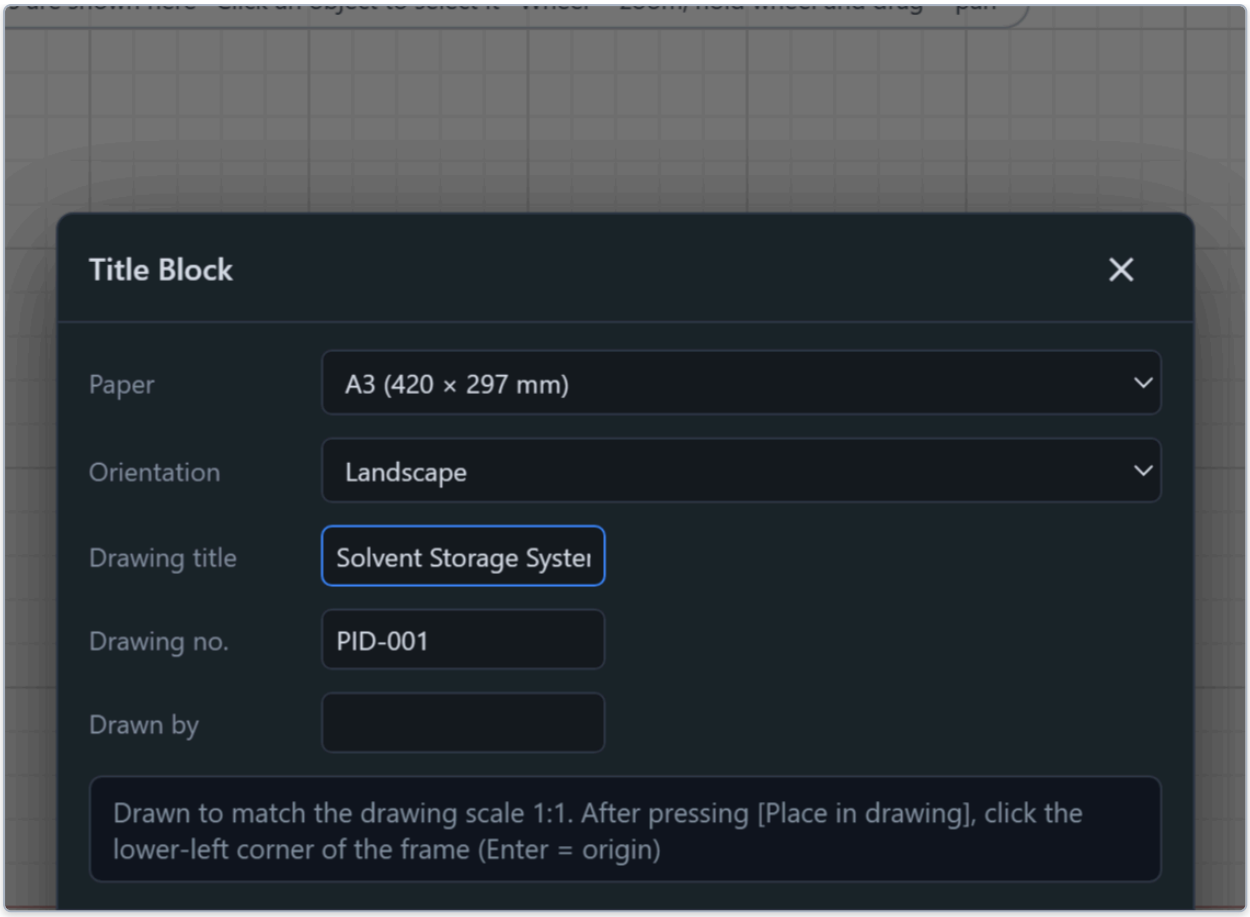


Figure 28. Title Block dialog

Export

Command: **EXPORT**

Save as PDF · JPG · PNG · transparent PNG · SVG · DXF · MCD. For PDF and images you can set the paper (A0–A4, B1–B4) · orientation · scale · resolution.

How to use ① Choose the format (MCD · DXF · PDF · PNG · PNG transparent · JPG · SVG) → ② For DXF, choose the version (AutoCAD 2000 recommended / R12 for old CAD) → ② For PDF · images, choose the paper (A0~A4, B1~B4 / for images "No paper" is also possible) · orientation · output area · scale (fit to paper or 1:n) · resolution → ③ Press [Save] and set where to save and the name.

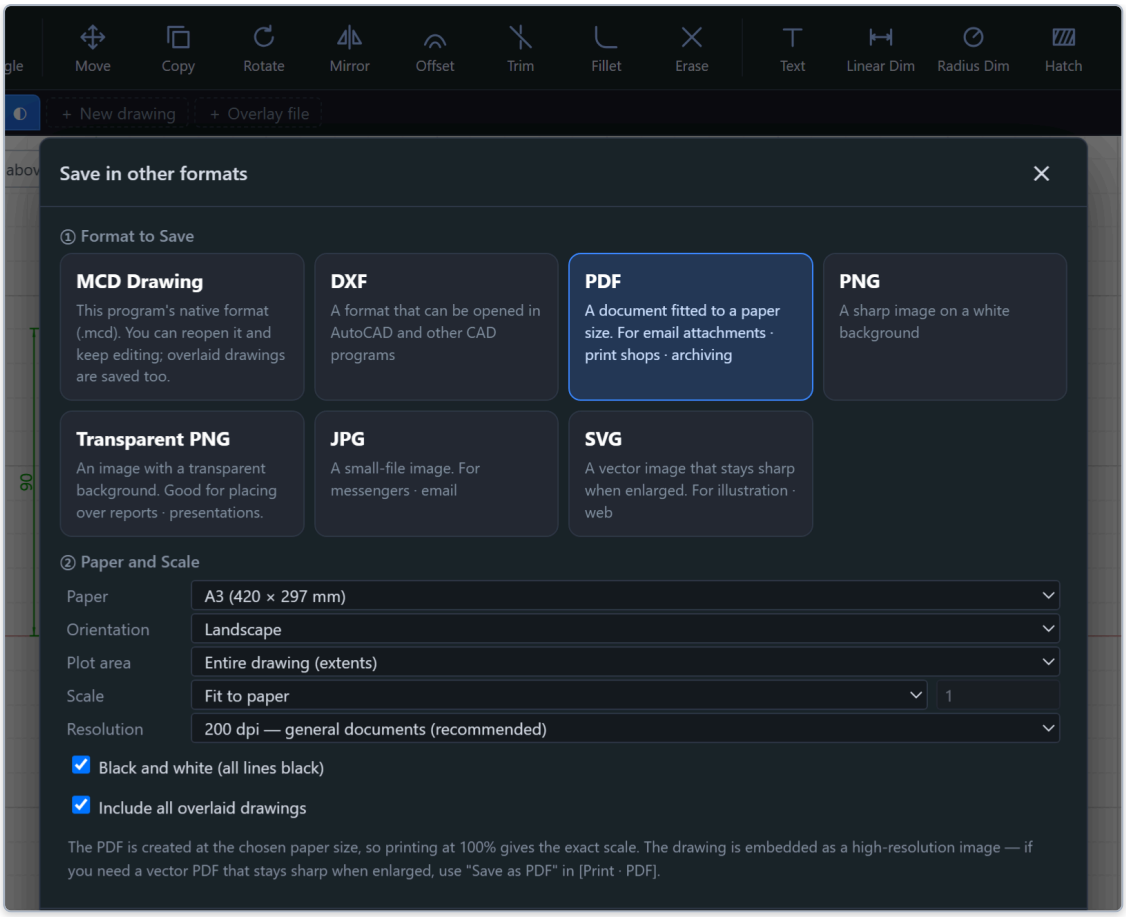


Figure 29. Export dialog

Save DXF

Command: **DXFOUT**

Export a DXF file (AutoCAD 2000 format) that can be opened in AutoCAD and other CAD programs. Hatch patterns · multiline text · ellipses · dimensions · lineweights are preserved.

How to use Choose a save location and the current active drawing is made into a DXF (R12) file. You can open it in AutoCAD.

Print · PDF

Command: **PLOT**

Print on A0–A4 or B1–B4 paper at the chosen scale, or save as PDF.

How to use ① Choose the paper (A0~A4, B1~B4) and orientation → ② Scale: [Fit to paper] or specify 1:n → ③ [Open print preview] → choose a printer or "Save as PDF".

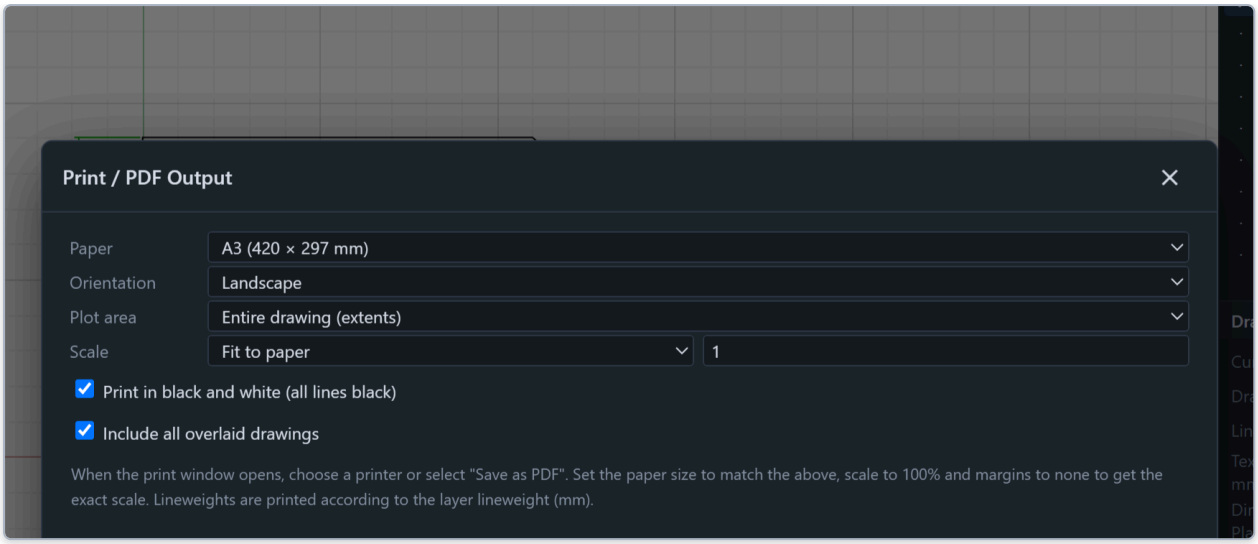


Figure 30. Print · PDF dialog

Sample

Command: **SAMPLE**

Open a practice sample drawing (bracket part drawing). Feel free to edit it and get used to the tools.

Welcome

Command: **WELCOME**

Reopen the guide window that appears the first time you run the program.

Help

Command: **HELP**

See how to operate the program and the full command list.

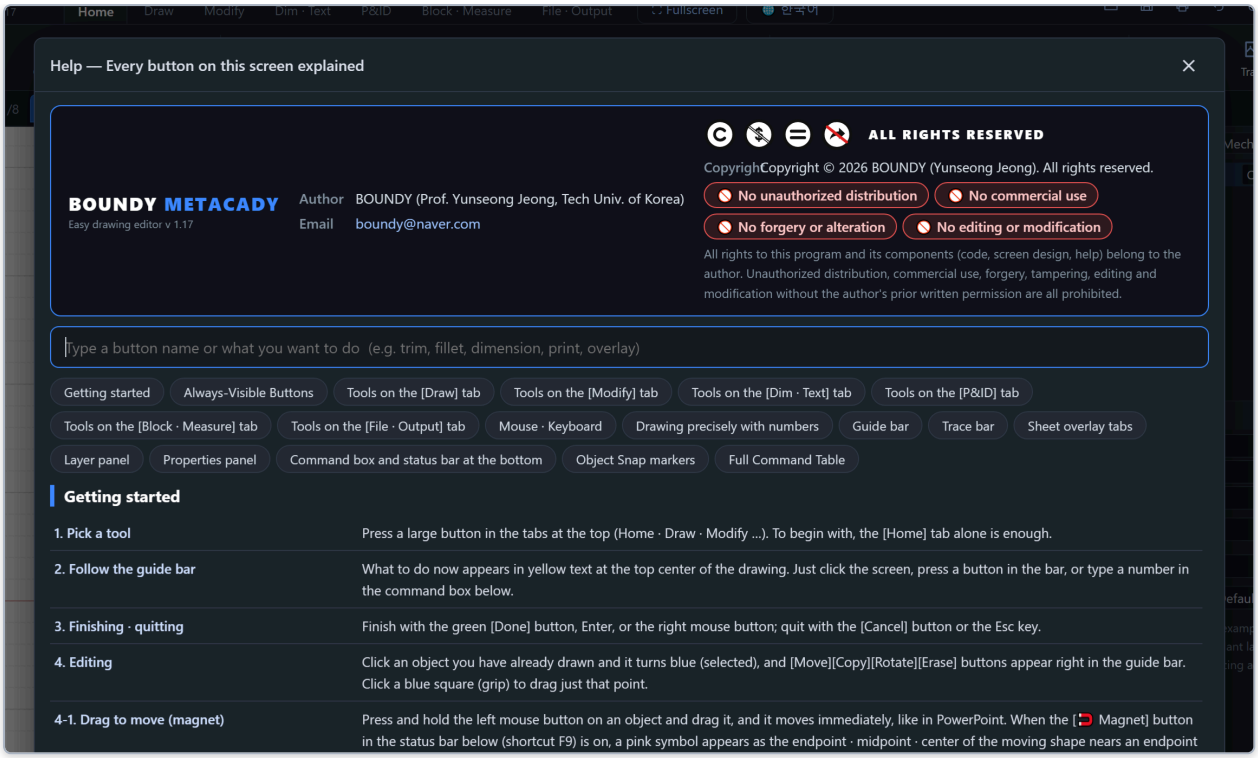


Figure 31. Help dialog

Part 2 — end

Tool Reference: Always-Visible Buttons

Open

Command: **OPEN**

Open a saved drawing (.mcd) or an AutoCAD DWG / DXF file. DWG files are read-only (AutoCAD 2004 – 2018 formats); after editing, save as .mcd or DXF.

How to use In the file chooser, pick a .mcd · .dwg · .dxf file. You can also open a file by dragging and dropping it onto the drawing screen.

Save

Command: **SAVE**

Save the current drawing in this program's native format (.mcd). Overlaid drawings are saved together.

How to use The first time it asks for a save location and name; after that it overwrites the same file directly. (Ctrl+S)

Print · PDF

Command: **PLOT**

Print on A0–A4 or B1–B4 paper at the chosen scale, or save as PDF.

How to use ① Choose the paper (A0~A4, B1~B4) and orientation → ② Scale: [Fit to paper] or specify 1:n → ③ [Open print preview] → choose a printer or "Save as PDF".

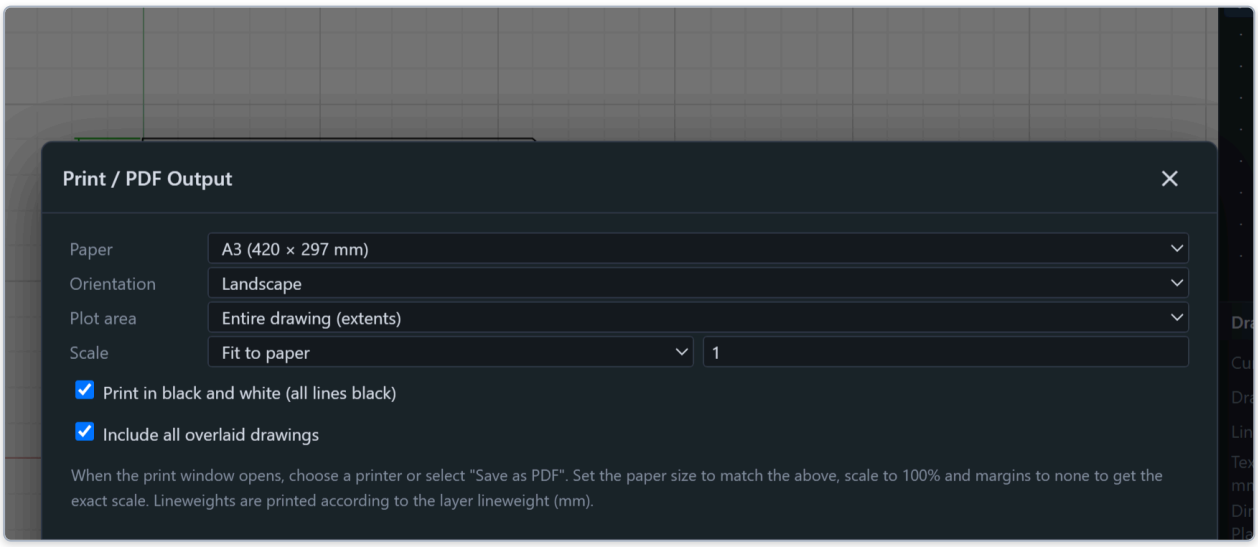


Figure 32. Print · PDF dialog

Undo

Command: **UNDO**

Undo the last action. (Ctrl+Z)

Redo

Command: **REDO**

Redo an action you undid. (Ctrl+Y)

Zoom Extents

Command: **ZOOM** · aliases: Z

Fit the whole drawing to the screen. (Same as double-clicking the wheel)

Dark background

Command: **THEME**

Switch the drawing background between black and white. On a white background, light lines such as yellow and cyan are automatically shown darker so they stay visible. The chosen background is kept for the next run.

Help

Command: **HELP**

See how to operate the program and the full command list.

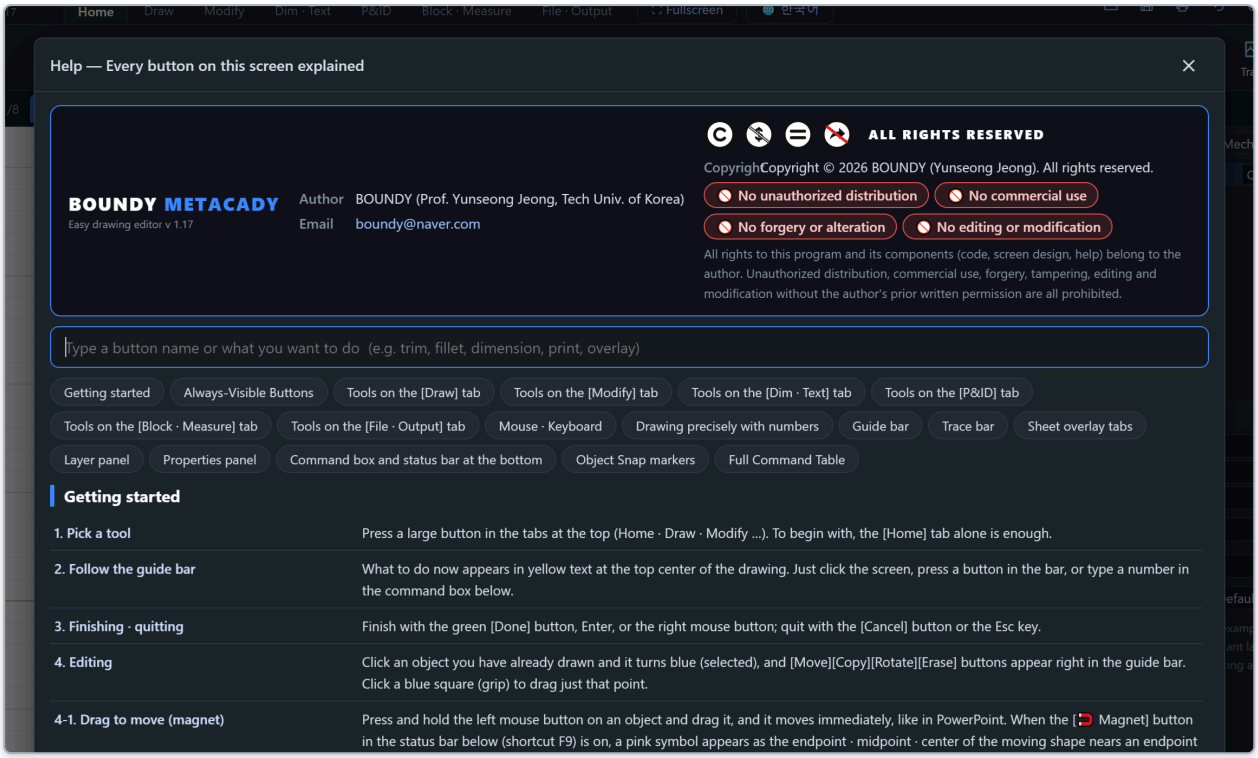


Figure 33. Help dialog

Part 3

Panels and the Status Bar

Mouse · Keyboard

Item	Description
Left mouse click	Place a point · select an object · press a button
Right mouse click (while using a tool)	Same as Enter (done)
Wheel scroll	Zoom in · out centered on the mouse position
Hold wheel and drag	Pan the view
Wheel double-click	Zoom extents of the whole drawing
Click empty area → move right → click	Blue area: selects only objects completely inside the area
Click empty area → move left → click	Green dashed area: selects every object touched even slightly
Press and drag an object	Move the selected objects right away — with [Magnet] on, they snap exactly to other shapes; with Shift, only horizontally · vertically
Shift + click	Remove from the selection
Double-click text · dimension	Edit the content
Enter / Space	Confirm input · done · with nothing in progress, re-run the tool you just used
Esc	Cancel · deselect · close window
Delete	Erase the selected objects
Ctrl+Z / Ctrl+Y	Undo / Redo
Ctrl+S / Ctrl+O / Ctrl+N / Ctrl+P	Save / Open / New drawing / Print
Ctrl+A / Ctrl+C / Ctrl+V	Select all / Copy / Paste
Ctrl+D	Duplicate (one more right next to it)
Ctrl+G / Ctrl+Shift+G	Group / Ungroup
Arrow keys ← ↑ → ↓	Move the selected objects by 1mm (Shift = 10mm, proportional to the drawing scale)

Right mouse click (when not using a tool)	Shortcut menu — with a selection: Move · Copy · Rotate · Align · Group · Change layer · Erase; with none: Repeat last tool · Paste · Select all · Zoom extents
F1 · F3 · F7 · F8 · F9 · F12	Toggle Help · Object Snap · Grid · Ortho · Magnet · Relative coordinates
F9	Toggle Magnet — a feature that makes shapes stick like a magnet to the endpoints · centers · lines of other shapes while you move them

Drawing precisely with numbers

Item	Description
Type just a number (e.g. 150)	That length in the direction the mouse is pointing. With [Ortho] (F8) on, it is drawn exactly horizontal · vertical. This is the most commonly used method.
100,50	For the first point, the absolute position in the drawing (X=100, Y=50). From the second point on, a spot 100 across and 50 up from the previous point.
#100,50	Always the absolute position in the drawing
@100,50	Always a position relative to the previous point
100<45	Distance 100 from the previous point at an angle of 45° (angles are 0° to the right, + counter-clockwise)
Units	In the drawing, 1 equals 1mm. Even plant drawings are drawn at actual size (mm), and adjusted with the "Drawing scale" on the right and the print scale.

Guide bar (top center of the drawing)

Item	Description
Yellow text	What you need to do now. The gray text below it explains how to enter it.
Gray option buttons (e.g. Diameter · Close · Copy · Radius)	Other ways you can choose at this step. Pressing one applies it right away.
Buttons like [Same 20]	Reuse the value you used last time as is.
Green [Done] / [Finish selection]	Ends this step. Shortcuts: Enter · Space (spacebar) · right mouse click (while typing text, Space is a space character, so use Enter)
Red [Cancel] / [Deselect]	Quit using the tool or clear the selection. Shortcut: Esc
Small letters inside a button (Enter · Esc · C · M ...)	The shortcut for that button. For letter shortcuts, type that letter in the command box below and press Enter.
When an object is selected	The [Move][Copy][Rotate][Mirror][Scale][Array][Erase][Deselect] buttons appear.

Trace bar (appears at the bottom of the drawing when tracing)

Item	Description
Opacity · Size	Make the trace fainter/darker, larger/smaller.
📏 Match real length	Pick two points on the trace where you know the length and enter the real length (mm), and the trace becomes real size. If you then trace over it, dimensions come out as real values.
✣ Move position	Move the trace to another position.
⚡ Auto (no AI)	This program itself finds lines · circles · arcs · dashed lines in the trace and draws them. No internet or API key is needed, and the picture is not sent anywhere. It automatically tells the background color (white background · black background) and line colors apart, leaves out small shapes that look like text, rejoins straight lines broken at junctions into one line, and even straightens to horizontal · vertical and snaps with the magnet. It cannot read text · dimension numbers — it works best on clear captures · scans · CAD output pictures.
Choose method	Pick the tracing method again. Auto (AI) requires a key registered in [AI Settings]. After the AI draws, [Magnet fit] runs automatically and joins touching endpoints · ends that reach onto a line · rounded corners with no error, and the log box tells you how many places were fitted.
Remove trace	Removes only the trace. The drawing you made stays as it is. The trace is not saved in the drawing file.

Sheet overlay tabs (row below the tools)

Item	Description
Drawing name tab	Click it and that drawing becomes active (the one being edited). The others appear faded as an underlay, and snaps still work. Double-click to rename.
👁	Show / hide that drawing
◐ / ●	Show faded / solid when it is an underlay
×	Remove that drawing from the overlay
+ New drawing	Overlay one more blank drawing (up to 8).
+ Overlay file	Load a DWG · DXF · MCD file and overlay it on the current work. Use it to view equipment · piping drawings overlaid on an architectural drawing.

Layer panel (top right)

Item	Description

[Mechanical] / [Plant]	Creates layers at once for mechanical part drawings (outline · centerline · hidden line · dimension …) / plant drawings (architecture · equipment · piping · duct · electrical …).
[+] / [-]	Add a new layer / delete the current layer (only when it has no objects)
✓ / ·	Set the current layer — newly drawn objects go on this layer.
👁 / —	Turn the layer on / off (when off, it is hidden on screen and in print)
🔒 / 🔓	Lock — visible but cannot be selected or modified.
Color cell	Choose the layer color
Double-click the name	Rename the layer
Linetype list	Continuous (CONTINUOUS) · Center (CENTER) · Hidden (HIDDEN) · Phantom (PHANTOM) · Dashed (DASHED) and so on. All lines drawn on this layer take that shape.
[┅] (appears only on dashed · dotted layers)	Set directly, in mm (as printed), the length of one dash and the gap between dashes for that layer. Press [Reset to default] to return to the original.
Number list (0.13 ~ 1.00)	Line width when printing (mm)

Properties panel (bottom right)

Item	Description
When nothing is selected	Drawing settings: current layer · drawing scale · linetype scale · text height (mm as output) · dimension decimal places · text font
Drawing scale 1:n	Set it to 1 for mechanical part drawings and 100 for plant layouts, and dimension arrows · text size · dash spacing adjust automatically to the output scale.
Layer (when an object is selected)	Moves only the selected objects to another layer. Pick just some of several objects on the same layer (by clicking or window selection) and choose a layer from the list. If you choose [+ Create new layer and move…] at the bottom of the list, it asks for a name, creates the new layer and moves them right away (the color · linetype start the same as the original layer).
Dash length · Dash gap	Appears when you select a dashed · dotted · center line. Changes the length of one dash and the gap between dashes of that line, in mm (as printed). For center lines · dash-dot lines, the long-line length and the gap change. [Reset dashes to default] returns to the original. To change the spacing of the whole drawing at once, select nothing and change the "Linetype scale".
When an object is selected	You can directly edit the layer · color · linetype, and values such as coordinates · radius · text content · font. Information such as length · area is also shown.

Command box and status bar at the bottom

Item	Description
Log box · Command box	The tool progress log and measurement results appear here, and you type numbers · coordinates · text. Like AutoCAD, you can also type short commands such as L, C, M directly. The ↑ key recalls previous input.
Coordinate display	X, Y of the mouse position (mm)
[Input window]	When on, pressing the [Circle] · [Rectangle] · [Polygon] · [Ellipse] · [Write text] · [Move] · [Rotate] · [Scale] · [Array] · [Hatch fill] · [Instrument tag] · [Connection tag] · [Title block] buttons opens a small window to enter the needed values all at once. If you are used to the AutoCAD way, turn it off or type commands such as L · C · M directly in the command line — directly typed commands are always question-and-answer. The [Draw with mouse ...] / [Type in command line] buttons in the window also switch you to the old way.
[Grid] F7	Show / hide the background grid
[Ortho] F8	Draw only in horizontal · vertical directions
[Object Snap] F3	The mouse sticks like a magnet to endpoints · midpoints · centers and so on. The key feature for accurate drawings.
[⚙]	Choose which points to snap to
[🧲 Magnet] F9	Works only when moving shapes · lines · curves (drag to move, [Move], [Copy]). When the endpoint · midpoint · center · quadrant of the moving shape gets close to a key point or a line of another shape, it snaps exactly, with a pink symbol. Handy for matching the end of one line to the end of another with no error. Turn it off when you do not need it.
[Relative coords] F12	When on, entering 100,50 from the second point on is relative to the previous point.
[Line width]	Also show the layer line widths on screen
[Dark background / Light background]	Change the drawing background color

Object Snap markers (green symbols)

Item	Description
□ Endpoint	The end of a line · arc
△ Midpoint	The exact middle of a line · arc
○ Center	The center of a circle · arc

◇ Quadrant	The 0° · 90° · 180° · 270° points of a circle
× Intersection	Where two objects meet
⊾ Perpendicular	The point that meets that line at a right angle from the previous point
⊗ Insertion point · Node	The base point of text · blocks, point objects

Part 4

Symbol Catalog (143 symbols)

These are the built-in symbols in the [Insert Symbol] window. Symbols with a gray line attached **orient themselves and break the line when placed on a pipe or circuit line**. Their size is set automatically to the drawing scale (valve width = 8 mm at print scale), and once placed they are blocks, so they can be moved · rotated · mirrored · scaled and broken apart with [Explode].

GATE VALVES 7 symbols


Gate


Hand operated

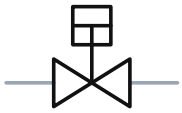

Pneumatic (diaphragm)



Motor



Hydraulic


Pneumatic (piston)



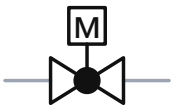
Solenoid

GLOBE VALVES 5 symbols

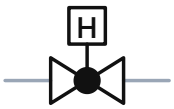

Globe


Hand operated


Pneumatic control



Motor



Hydraulic

ANGLE VALVES 4 symbols


Angle


Hand operated


Pneumatic



Motor

BALL · PLUG · BUTTERFLY 7 symbols

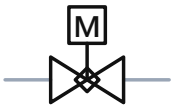

Ball



Ball, hydraulic


Ball, pneumatic


Plug



Plug, motor



Butterfly



Butterfly, pneumatic

CHECK · DIAPHRAGM · OTHER 7 symbols



Check



Stop check



Diaphragm



Diaphragm, motor



Needle



Knife gate

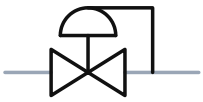


Three-way

SAFETY · REGULATOR 3 symbols



Pressure safety valve



Pressure regulator



Back pressure regulator

FAIL-SAFE POSITION 2 symbols



Fail closed



Fail open

END CONNECTION 3 symbols



Flanged



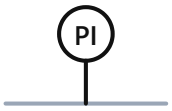
Welded



Socket weld

EQUIPMENT 9 symbols


Rotameter



Pressure gauge

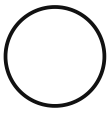

Orifice

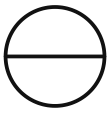

Reducer


Flow arrow

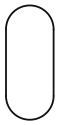

Junction dot

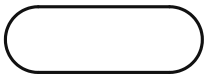

Centrifugal pump

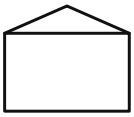

Instrument, field


Instrument, control room

PROCESS EQUIPMENT 15 symbols

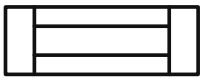

Vertical vessel

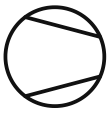

Horizontal vessel

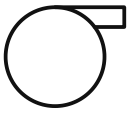

Storage tank


Column / tower


Heat exchanger


Shell & tube exchanger

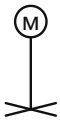

Compressor


Blower / fan


Positive displacement pump



Motor



Agitator / mixer



Steam trap


Y-strainer

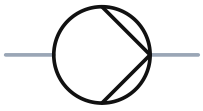

Flexible hose


Sight glass

ISO 10628 STYLE 9 symbols


Valve, ISO box

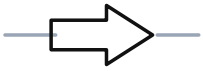

Check valve, ISO box


Pump, ISO


Reducer, ISO


Flange pair


Nozzle flange

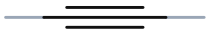

Battery limit arrow

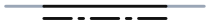

Vent cap


Safety valve, spring

ANSI/ISA S5.1 · ISO 14617-6 30 symbols


Thermally insulated pipe

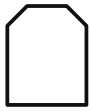

Jacketed pipe

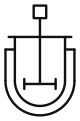

Cooled or heated pipe

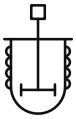

Flexible connection


Hydraulic pump


Fan · axial · radial


Dryer


Jacketed mixing vessel

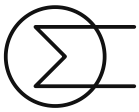

Half pipe mixing vessel


Packed column


Plate column

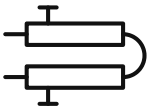

Furnace

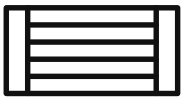

Cooling tower

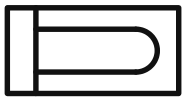

Coil heat exchanger


Cooler


Plate & frame heat exchanger

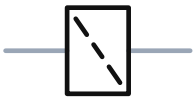

Double pipe heat exchanger


Fixed straight tubes heat exchanger


U shaped tubes heat exchanger


Spiral heat exchanger

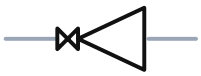

Curved gas vent


(Air) filter


Funnel or tundish


Steam trap

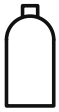

Viewing glass


Pressure reducing valve


Back draft damper


Butterfly valve, box

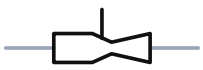

Bag


Gas bottle

PFD · WATER TREATMENT 8 symbols

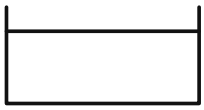

Ton container


Scrubber / neutralization tower


Ejector / injector


Line (static) mixer


Liquid level mark



Open basin / tank



Vaporizer



Weighing scale

SINGLE LINE DIAGRAM 24 symbols



Transformer



Molded case circuit breaker



Air circuit breaker, draw-out



Vacuum circuit breaker



Disconnecting switch



Fuse



Power fuse



Current transformer



Potential transformer



Static capacitor



Lightning arrester



Earth / ground



Voltmeter



Ammeter



Wattmeter



Watt-hour meter



Generator



Motor



Battery



Rectifier



UPS



Relay

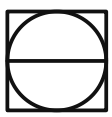


Incoming feeder

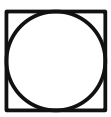


Outgoing to load

INSTRUMENT · CONNECTOR 10 symbols



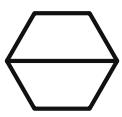
Shared display, control room



Shared display, field



Programmable logic control



Computer function



Interlock



Off-page connector, to



Off-page connector, from



Tie-in point



Vent to atmosphere



Drain

Part 5

Instrument Letter Table & Line Types

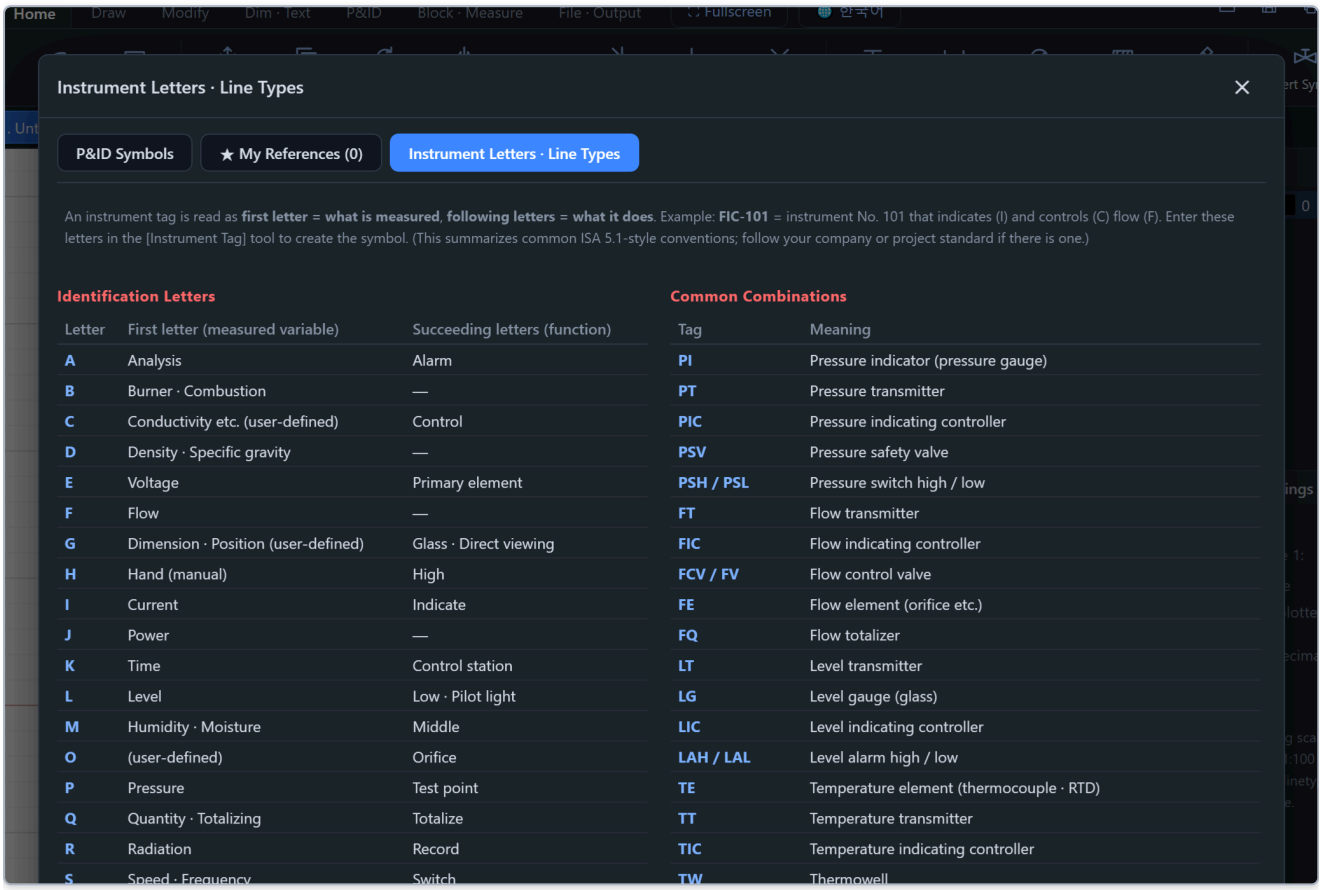


Figure 34. The [Instrument Letter Table · Line Types] tab of the [Insert Symbol] window

Read an instrument tag as **first letter = what is measured**, **following letters = what it does**. Example: FIC-101 = instrument 101 that indicates (I) and controls (C) flow (F). If your company or project has a standard, follow it.

First letter	Meaning	Following letter	Meaning
A	Analysis	A	Alarm
F	Flow	C	Control
L	Level	E	Element (sensor)
P	Pressure	G	Gauge (direct view)
T	Temperature	I	Indicate
W	Weight	R	Record
S	Speed	S	Switch
H	Hand (manual)	T	Transmit

Z	Position	V	Valve
Q	Quantity	H / L	High / Low

Line · symbol style	**Meaning**
Heavy solid line	Main process piping
Thin solid line	Secondary piping · instrument connection piping
Solid line + //	Pneumatic signal
Dashed line	Electric signal
Solid line + ✕ / L / ○ / ●	Capillary / hydraulic / data link / mechanical link
Circle (no line / solid / dashed)	Field instrument / control-room instrument / local panel
Circle in a square · diamond	DCS shared display · PLC

Part 6

File Formats & Compatibility

Format	Open	Save	Notes
.mcd (formerly .mcad)	○	○	Native format. Preserves overlaid sheets · layers · blocks · settings
DWG	○	×	AutoCAD 2004 · 2007 · 2010 · 2013 · 2018 formats. Lines · circles · arcs · ellipses · polylines · text · multiline text · blocks · dimensions · leaders · hatches (pattern reproduced) · splines · multiline (MLINE) · layers · linetypes. Not supported: pre-2000 formats, paper space (layouts) · viewports, 3D, and custom objects such as images · OLE
DXF	○	○	Open: all ASCII versions (Korean encoding auto-detected). Save: AutoCAD 2000 format — hatch patterns · multiline text · ellipses · dimensions (dimension object + shape block) · line weight preserved. R12 for older CAD is also available (dimensions · hatches are broken into individual objects)
PDF	×	○	A raster PDF at exact paper size. For a sharp vector PDF, use [Print · PDF] → set the printer to "Save as PDF"
JPG · PNG · transparent PNG	as underlay	○	150–600 dpi, no paper (drawing extents only) available
SVG	×	○	A vector image that stays crisp at any zoom
.rfdt	○	○	A My References bundle
CSV	×	○	The tag list (for Excel)

Paper Sizes

Paper	Size (mm)
A4	297 × 210
A3	420 × 297
A2	594 × 420
A1	841 × 594
A0	1189 × 841
B4	364 × 257
B3	515 × 364

B2	728 × 515
B1	1030 × 728

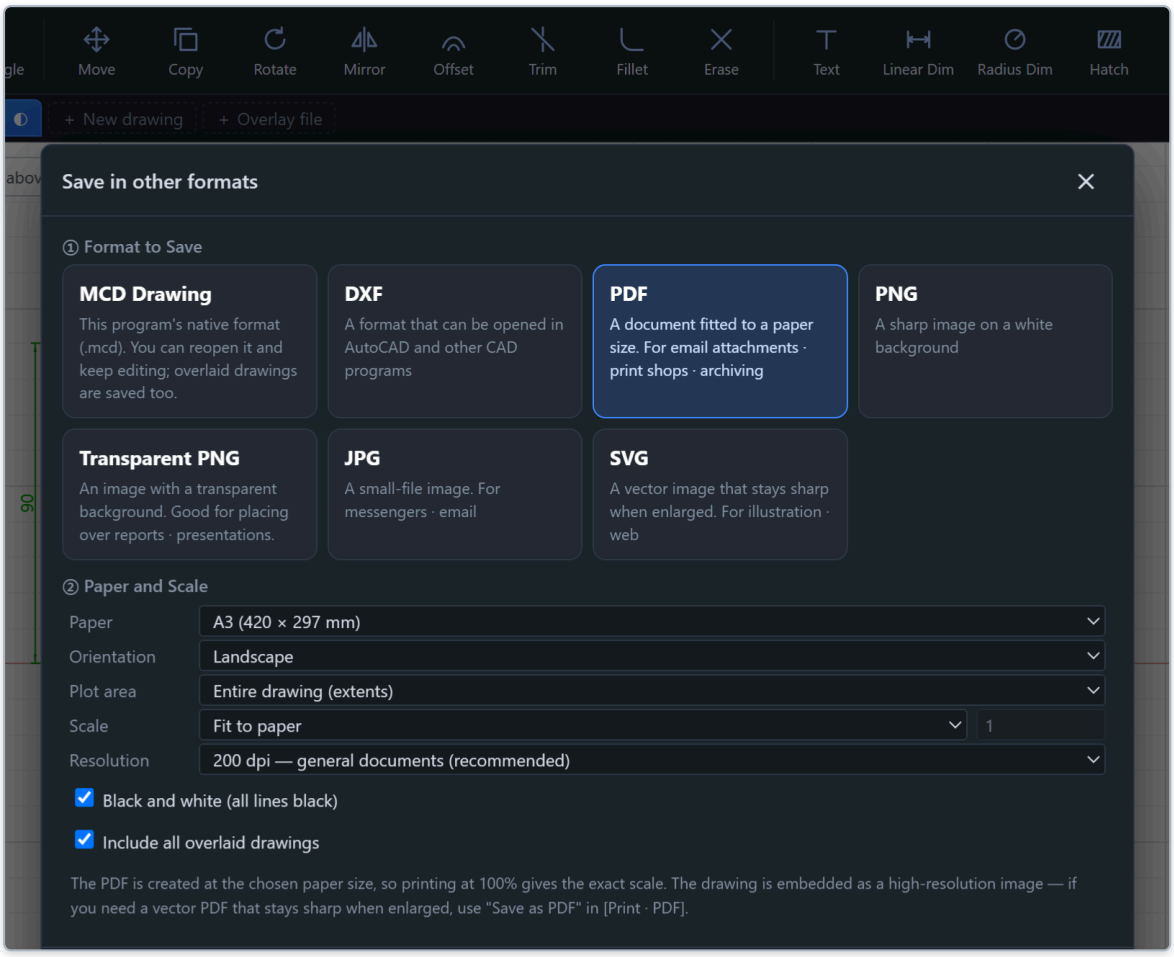


Figure 35. The [Export] window

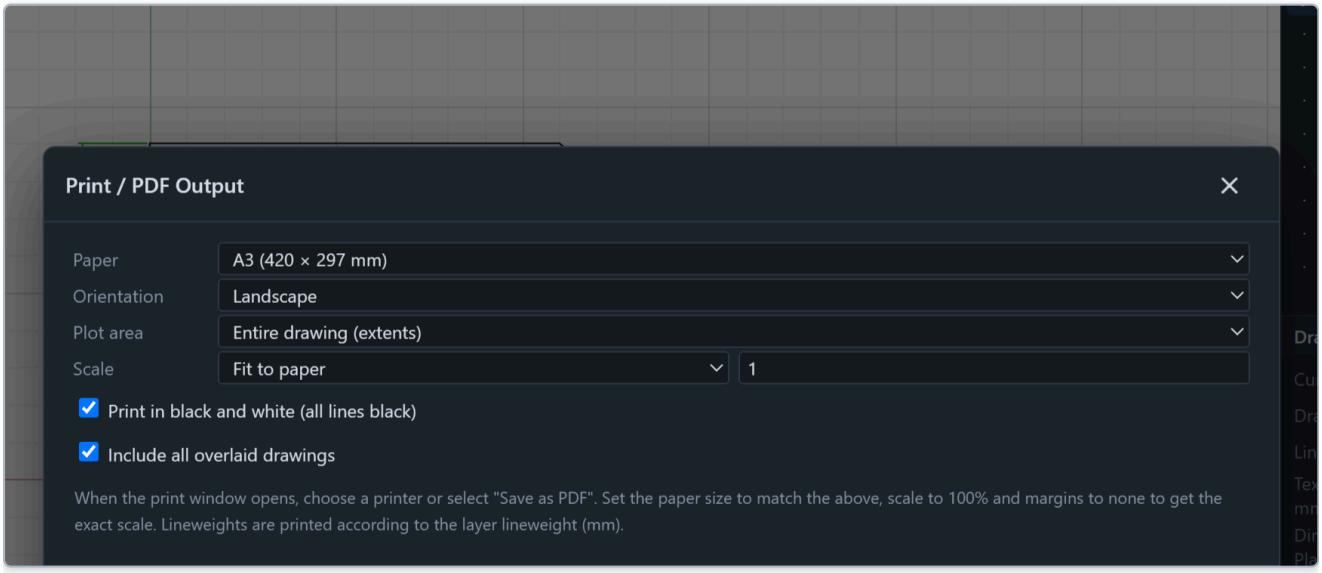


Figure 36. The [Print · PDF] window

Part 7

Command & Shortcut Reference

Type the name or alias below at the command line and press Enter to run that tool in ask-and-answer style.

Command	Aliases	Tool
ALIGN	AL	Align · Space
ARC	A	Arc
AREA	AA	Area
ARRAY	AR	Array
ARROW	BARROW	Block Arrow
BALLOON	BAL	Balloon
BLOCK	B	Create Block
CENTERMARK	CM	Center Mark
CHAMFER	CHA	Chamfer
CIRCLE	C	Circle
COPY	CO · CP	Copy
DDEDIT	ED · TEXTEDIT	Edit Text
DIMALIGNED	DAL · DIMALI	Aligned Dim
DIMANGULAR	DAN · DIMANG	Angular Dim
DIMDEC		Dimension Decimal Places
DIMDIAMETER	DDI · DIMDIA	Diameter Dim
DIMLINEAR	DLI · DIMLIN	Linear Dim
DIMRADIUS	DRA · DIMRAD	Radius Dim
DIMSCALE	DSC	Dimension Scale
DIMSTYLE	D · DST	Dim Settings
DIST	DI	Distance
DUPLICATE	DUP	Duplicate
ELLIPSE	EL	Ellipse
ERASE	E · DEL	Erase

EXPLODE	X	Explode
EXTEND	EX	Extend
FILLET	F	Fillet
GROUP	G	Group
HATCH	H · BH	Hatch
ID		ID Point
INSERT	I	Insert Block
INSTRUMENT	INST · TAG	Instrument Tag
JOIN	J · PEDIT · PE	Join
LEADER	LE · QLEADER · MLEADER · MLD	Leader
LEGEND	LEG	Legend
LINE	L	Line
LINENO	LN	Line Number
LIST	LI	Object Info
LTSCALE	LTS	Linetype Scale
MATCHPROP	MA	Match Props
MIRROR	MI	Mirror
MOVE	M	Move
OFFSET	O	Offset
PAN	P	Pan the view
PIDTAG	FLOWTAG	Connector Tag
PIPEJUMP	JUMP	Pipe Jump
PLINE	PL	Polyline
POINT	PO	Point
POLYGON	POL	Polygon
RECTANG	REC · RECTANGLE	Rectangle
REFOPEN	RFDT	My References
REFSAVE	RS	Save Reference
REGEN	RE	Regen
ROTATE	RO	Rotate

SAMPLE		Sample
SCALE	SC	Scale
SIGLINE	SIG	Signal Line
STRETCH	S	Stretch
SYMBOL	SYM · PID	Insert Symbol
TABLE	TBL	Table
TAGLIST	TL	Tag List
TEMPLATE	TPL	Layer Template
TEXT	T · DT · MT · MTEXT · DTEXT	Text
TITLEBLOCK	TB · FRAME	Title Block
TRIM	TR	Trim
UNGROUP	UG	Ungroup
WELCOME		Welcome
ZOOM	Z	Zoom Extents

Coordinate Entry

Input	Meaning
150	Distance 150 in the mouse direction
100,50 / #100,50 / @100,50	Relative (from the second point on) / absolute / always relative
100<45	Distance 100, angle 45°

Part 8

Troubleshooting & FAQ

Question	Answer
Does it need to be installed?	No. Open a single HTML file in Chrome · Edge. (An installable version is planned.)
Where are drawings saved?	Press [Save] and it saves a .mcd file to the folder you choose. Separately, there is an auto-save in the browser that recovers your work when you reopen.
Can I open my drawing in AutoCAD?	Export with [Save as DXF] (AutoCAD 2000 format) and it opens in AutoCAD and most other CAD programs. For very old CAD, choose [Export] → DXF → R12.
Can I save as DWG?	DWG is open-only. Save as DXF or .mcd.
The text looks different from the original	CAD-only fonts (SHX) are shown using a Windows font instead. Adjust with the text [Font] · [Width ratio].
What about large drawings like plant drawings?	Draw at actual size (mm) and set [Drawing scale 1:100]; the text · symbols · dashed lines then grow to print scale.
Is the AI key safe?	The key is stored only in this PC's browser and is deleted automatically after 7 days. The image is sent to Google's servers only when you use AI auto-trace. ⚡ Auto (no AI) sends nothing.
Auto-trace (no AI) can't read text	It does not recognize text or dimension numbers. It extracts only lines · circles · arcs; add text with [Text].

Part 9

Revision History

v 1.17 2026.10

Korean / English switch (English support)	The [🌐 한국어] button at the top right instantly switches the whole UI between Korean and English (your choice is remembered next time). The ribbon, tools, dialogs, command guidance, status bar, object info, help, and even symbol names are fully translated so English speakers can use everything without hitting Korean (ko→en dictionary of ~1,700 entries). Layer names are translated for display only; the stored value stays Korean so existing .mcd files remain compatible.
English manual & sample drawings	Separate Basic and Detail manuals (English) were created for English-speaking users — English screenshots, English text, and English sample drawings (P&ID · PFD · single-line diagram). Both the Korean and English manuals can be downloaded from the metacady.com landing page.
Untitled drawing name	In English mode, the tab and window title of a blank drawing that used to remain "제목없음" are now translated to "Untitled" (the saved name is unchanged, so .mcd file compatibility is preserved).

v 1.16 2026.9

Fullscreen button	Added a [⛶ Fullscreen] button to the right of the [File · Output] tab row (F11 does the same). When on, the drawing area fills the whole browser window; Esc is locked (Keyboard Lock) so it stays on until you press the button again, and it re-enters automatically if forced out. When embedding in a blog via iframe, the iframe tag needs allowfullscreen
Web landing page improvements	Scales the whole page to the screen size so it looks the same on any monitor · resolution (1280px base-width scaling), bright white theme (BOUNDY gray · pink feature cards · mint guide box), compact one-screen layout — published on GitHub Pages + blog (metacady.blogspot.com)
Removed top vertical scrollbar	Removed the tiny vertical scrollbar that appeared on the tab row (left of the [Open] button) · toolbar · sheet row — only horizontal scroll (overflow-x) was specified, so vertical scroll (overflow-y) came along automatically; fixed with overflow-y: hidden

v 1.15 2026.9

AutoCAD 2000 DXF export completed — verified to open in AutoCAD	Matched the AutoCAD file skeleton (header variable order · class table · material/multiline/multileader dictionaries · layouts · all dimension style entries) exactly to real AutoCAD output. Confirmed that bracket drawings · PFD · layout plans all open correctly in the Autodesk viewer and ODA converter (the previous version was rejected by the viewer)
Toolbar display fix	Fixed a long help text mistakenly placed in the [Text] button's name slot, which made toolbar labels overlap, and help text placed in the [Hatch] button's icon slot, which caused a console error (audited the entire icon · name · description table)
Web release (obfuscated) build	dev/build-web.js — merges all code into one file and obfuscates it to produce dist/web/index.html (for publishing on GitHub Pages + blog iframe, protecting the original source)

v 1.14 2026.9

DXF export in AutoCAD 2000 format	DXF export upgraded from R12 to AutoCAD 2000 (AC1015) format — hatch patterns (as line definitions) · multiline text (MTEXT) · ellipses · polylines (LWPOLYLINE) · layer lineweights · per-font text styles are preserved, and dimensions are saved as AutoCAD-style dimension objects + geometry blocks (*D). Korean · special characters are stored as U+ codes so they display correctly in any AutoCAD version
DXF version selection	[Export] → choose AutoCAD 2000 (recommended) / R12 (for very old CAD) for DXF. The [Save DXF] button uses the 2000 format
Verification	Confirmed 0 structural errors with an independent checker (ezdxf audit), drew with another renderer to verify, and re-read with this program to confirm object counts match (viewer opening was completed in v1.15)

v 1.13 2026.9

DWG reading improvements (AutoCAD 2018 format verified)	Verified with process-flow · overall layout DWGs made in the latest AutoCAD — fixed the problem where the insertion point of an empty block (a logo block containing only a picture) was included in the drawing extents, making the view thousands of times too wide
Dimension text height	Applies the text-height code inside multiline text (₩H200x; scale · ₩H2.5; absolute) to the actual height — fixes dimension text that looked as small as a dot (both DWG · DXF)
Reading multilines (MLINE)	MLINE used for walls · arrow marks, etc. is now read by expanding each element into a polyline (no more skipped objects)

v 1.12 2026.9

Support for Process Safety Management (PSM) drawings	Verified by redrawing the process flow diagram (PFD) · electrical single-line diagram from the PSM report example collection (chlorine) using only this program's tools, and filled in missing features
23 electrical single-line diagram symbols	Transformer · MCCB · ACB (draw-out) · VCB · disconnect switch · fuse · power fuse · CT · PT · power capacitor · surge arrester · ground · voltmeter · ammeter · power meter · watt-hour meter · generator · motor · battery · rectifier · UPS · relay · incoming / load arrows — placed on a vertical circuit line, they align direction and break the line
8 process flow diagram (PFD) · water treatment symbols	Ton container · scrubber · ejector (chlorine injector) · line mixer · level indicator · water tank · vaporizer · weighing scale (about 140 built-in symbols)
Balloon	Numbers inside circles · diamonds · squares · hexagons (increment by 1 with each placement) — for PFD stream numbers · part numbers · revision marks. Create material balance tables with [Table] (cell merging)
Help · Manual	Added descriptions for new tools; wrote trial editions of the basic · detailed manuals

v 1.11 2026.9

Align & Distribute	Align multiple objects left · center · right · top · bottom or equalize the spacing between them (picture-button window)
Group · Ungroup	Ctrl+G / Ctrl+Shift+G — select · move tables · instrument tags · symbol sets as a single unit
Duplicate · arrow-key move	Ctrl+D duplicates right beside the original; arrow keys move selected objects by 1 mm (Shift = 10 mm, proportional to drawing scale)
Right-click menu	When no tool is active, right-click = shortcut menu (Move · Copy · Duplicate · Rotate · Scale · Align · Group · Change Layer · Erase / Repeat last tool · Paste · Select All · Zoom Extents). While a tool is active, it acts as Enter as before
More input boxes	[Offset] (distance) · [Fillet] (radius) · [Chamfer] (two distances) also get numeric input boxes with quick-value buttons
Paragraph text · fill color · block arrow	[Text] gets paragraph width (auto wrap), [Hatch] gets color selection (fills are sent to back so they don't cover lines · text), and a two-point [Block Arrow] (thickness · head size · fill)
Symbol favorites · recently used	The [Insert Symbol] window now shows ★ favorites and recently used symbols at the top; mark favorites with the ☆ on a card
Dimension settings window	Set drawing scale · text height · decimal places · font in one window and apply them to already-drawn dimensions at once
First-run guide · sample drawing	On first launch, a welcome window (open sample drawing / 3-minute guide / start right away), plus [Sample] · [Welcome] on the [File · Output] tab
Screen	Fixed tab names overlapping the top-right buttons on narrow screens
Help	Added descriptions for new tools · shortcuts · right-click menu

v 1.10 2026.9

Polygon · ellipse drawing windows	[Polygon]: enter number of sides (triangle ~ dodecagon buttons) · size basis (side length / to vertex / across flats) · size · rotation numerically in one window, with preview and converted values. [Ellipse]: enter horizontal diameter · vertical diameter · rotation in one window. For both, just click the placement point (center) in the drawing; multiple can be placed in succession. The old way is [Draw with mouse]

Input boxes extended	[Circle] (diameter / radius) · [Rectangle] (width × height · rounded corners · click reference) · [Text] (multiline content · height · justification · rotation · font) · [Array] (grid / polar) · [Hatch] · [Instrument Tag] · [Connector Tag] · [Title Block] also take the values they need in one window when you click their buttons
AutoCAD-style input kept	Commands typed directly in the command line (L · C · M · POL ...) always use the classic question · answer style. Turning off [Input Box] in the status bar makes the buttons use the classic way too; you can also switch with [Use mouse directly ...] · [Type in command line] in each window
More built-in symbols (ISA S5.1 · ISO 14617-6)	30 built-in references: insulated · jacketed · traced piping, flexible connection, hydraulic pump, fan, dryer, jacketed / half-pipe coil agitated vessel, packed tower · tray tower, fired heater, cooling tower, coil · plate · double-pipe · straight-tube · U-tube · spiral heat exchangers, cooler, pipe bend vent, filter, funnel, round steam trap, sight glass, pressure-reducing valve, damper, box butterfly, sack, gas cylinder, etc. (about 110 built-in symbols)
Help	Added descriptions of the input box · polygon · ellipse · circle · rectangle · text windows and of turning [Input Box] on and off

v 1.09 2026.9

Move window	Clicking [Move] opens a small window to enter how many mm to move horizontally · vertically (+ right · up / − left · down), arrow buttons (set the amount per click), distance + angle input, direction preview, and make copies. The old way is [Move with mouse] (magnet active)
Process diagram improvements (gaps found in redraw tests)	Connector tag tool (pentagon tag ▷ ◁ that auto-sizes to text length), instrument tag text auto-fits width so it doesn't spill outside the circle, [Width factor] added to text properties, connection dot (●) symbol added

Full Windows font integration	The text font list now shows ★ registered fonts + all Windows fonts on this PC — allow [+ Load all Windows fonts...] in the list once and it syncs automatically afterwards; before permission, installed fonts among common ones are detected automatically
Auto-trace (no AI) improvements	Fixed instrument circles · boxes placed side by side being mistaken for text lines and disappearing (text height is estimated, and things much larger than that are not treated as text)
Help	Added descriptions of the move window · connector tag · font integration

v 1.08 2026.9

Auto-trace (no AI)	Added a third method to Trace — this program finds lines · circles · arcs · dashed lines in the underlay by itself (no internet · API key needed, the image never leaves your PC, a few seconds). Auto-detects background · line colors (including black-background CAD captures), excludes small text-like shapes · text lines, restores circles cut by other lines, rejoins lines broken at branch points, merges dashes → hidden · center lines, straightens horizontal · vertical and magnet snapping. Text · dimension numbers cannot be read
Text scaling	When only text is selected in [Scale], you can enter the text's width · height (letter height) directly in mm — linked with %, and with [Keep ratio] off, only the width is adjusted separately (character width ratio)
Zoom limits	Prevents drawing at coordinates billions of mm out caused by spinning the wheel too far on an empty drawing
Rotate window	Clicking [Rotate] opens a small window to enter degrees numerically (↺ 90° · ↻ 90° · 180° · 45° · 30° · 15° quick buttons, rotation direction preview, 9 center points or pick directly, make copies). The old way is [Rotate with mouse]
Auto-fit table text	If text in title blocks · schedules · legends · tables is longer than the cell, it is automatically shrunk to fit the cell width
Help	Added descriptions of auto-trace (no AI) · rotate window · text size mm input

v 1.07 2026.9

Table	A [Table] tool where you set rows · columns and type into each cell — paste ranges copied from Excel (rows · columns grow automatically), merge cells (select a range with Shift+click) · split cells (left-right / top-bottom, unmerge merged cells), auto-fit column width, multiline cells, first-row header, alignment, text · row height (mm, reflects drawing scale)

Trace magnet snapping	Post-processes AI-traced results as if a person drew them with object snaps — nearby endpoints merged into one point (lines meet at their intersection while keeping direction), lines ending on other lines · circles extended or trimmed exactly onto them, quarter arcs joining horizontal · vertical lines turned into exactly tangent fillets, concentric circles · equal-size circles matched. The AI prompt also strongly requires "touching endpoints share the same coordinates"
Scale window	Clicking [Scale] opens a small window to enter the percentage numerically (25% ~ 300% quick buttons, shows current size → new size in mm, 9 base points or pick directly, make copies). The old way is [Scale with mouse]
Help	Added descriptions of create table (merge · split) · scale window · trace magnet snapping

v 1.06 2026.9

Pipe Jump	Automatically finds pipes · signal lines crossing each other and breaks one (gap) or bridges it with a semicircle — thick main pipes are left as they are, thin lines · vertical lines are handled, T-junctions · corner connections are untouched, tables · drawing borders are excluded
Title Block	Automatically creates the border · center marks · title block (drawing name · drawing number · scale · drawn by · checked by · approved by · date · paper) for A0~A4 · B1~B4, landscape/portrait paper, matched to the drawing scale
Legend · schedules	Auto-creates a legend table from only the symbols · signal lines used in the drawing; the instrument schedule (tag · function description · installation location) and symbol quantity table can be viewed in a window · inserted into the drawing as a table · saved as CSV for Excel
Polyline piping support	Even when a symbol is placed on piping drawn with [Polyline], direction is aligned automatically + the line is auto-broken; pipe numbers also align along the polyline
ISO 10628 style symbols · instruments	Added box-type valve · check valve, ISO pump, triangular reducer, flange joint · nozzle, drawing connection arrow, vent cap, spring safety valve (about 80 built-in symbols), and an ISO long circle (field / control room) shape for instrument tags
Text center alignment	Added a [Center] option to [Text] (the clicked point is the exact center of the text); horizontal · vertical alignment can be changed in the Properties window
Verification	Recreated the reference process diagram (storage tank T001 — pump P001 system) using only this program's commands to verify (samples/pid-test-replica.mcd)

Help	Added descriptions of pipe crossing marks · drawing border · legend · schedules · text alignment

v 1.05 2026.9

Shortcut keys shown on buttons	Small shortcut keys shown on the guide bar's [Done] · [Done selecting] · [As is] (Enter), [Cancel] · [Deselect] (Esc), option buttons (C · R ...), and on [Move] (M) · [Copy] (CO) · [Erase] (Del) etc. when selected; hover for a detailed explanation
Insert Symbol (P&ID symbol library)	About 70 symbols to pick from a picture list and place right away: gate · globe · angle · ball · plug · butterfly · check · diaphragm valves with actuator combinations (manual · pneumatic · electric · hydraulic · solenoid · piston), safety valve · pressure-reducing valve, fail position (FC/FO), end connection type, rotameter · pressure gauge · orifice · reducer · pump · instrument · vessel · tank · tower · heat exchanger · compressor · steam trap · drawing connection symbols, etc. — placed on a straight pipe, they auto-align direction + auto-break the line; sized to the drawing scale, name search, viewable as reference material
My References (.rfdt)	Register objects you drew as references with a name · category (including layers · colors · linetypes · blocks), pick them from the picture list under [★ My References] in the [Insert Symbol] window and place them in any drawing, delete them, and save · load them as .rfdt files (drag and drop supported)
P&ID tools	New [P&ID] tab — instrument tags (circle + function letters + number; field · control room · field panel · DCS · PLC; number auto-increment), instrument signal lines (pneumatic // · electric dashed · capillary ✕ · hydraulic L · data link ○ · mechanical link ●), pipe numbers (auto-aligned along the line), instrument letter table · line type reference table
Help	Added descriptions of insert symbol · my references · instrument tag · instrument signal line · pipe number · button shortcut keys

v 1.04 2026.9

Drag to move · magnet	Press and drag an object with the mouse to move it right away (Esc cancels, Shift constrains horizontal · vertical). Turn on [Magnet] (F9) in the status bar and, when the moved shape's endpoints · midpoints · centers · quadrants come near another shape's key points or lines, they snap on exactly with a pink marker — works in drag-to-move · [Move] · [Copy]

Dash length · gap adjustment	Directly specify the length of each dash and the gap between dashes of dashed · dotted · center lines in mm (print basis) — adjust individually in the Properties window by selecting a line, adjust a whole layer with the [---] button in the layer panel, and restore with [Defaults]. Reflected as is in save · print · PDF · DXF export
Move only selected objects to a new layer	After selecting several objects, choosing another layer in the Properties window's layer list moves only the selected objects to that layer; choosing [+ Create new layer and move...] at the bottom creates a new layer and moves them right away (undone with a single undo)
Help	Added descriptions of drag to move · magnet (F9) · dash length/gap · moving layers

v 1.03 2026.9

Open DWG (read-only)	Open · overlay AutoCAD DWG files directly — supports AutoCAD 2004 · 2007 · 2010 · 2013 · 2018 formats. Lines · circles · arcs · ellipses · polylines · text · multiline text · blocks · dimensions · leaders · hatches · fills · splines, layers (color · linetype · lineweight · on · lock). Save as .mcd or DXF
Faithful hatch pattern reproduction	Reads pattern definitions (angle · spacing · dashes) stored in DWG · DXF as they are, so complex patterns like concrete (AR-CONC) display like the original; shown as a light fill when too dense
Faithful linetype reproduction	Reads linetype definitions stored in the drawing, per-object linetype scales and the global linetype scale (LTSCALE), so dashed · chain lines display at their original spacing, and also reflects them when saving DXF
Text	Multiline text in imported drawings wraps automatically to the original width; text width factor supported
Help	Changed the open description to be DWG-based

v 1.02 2026.9

Own file extension .mcd	Save · open drawings in this program's own .mcd format (old .mcad files still open)
Save in other formats	Choose PDF · JPG · PNG · transparent PNG · SVG · DXF · MCD in one window — for PDF and images, choose paper (A0~A4, B1~B4) · landscape/portrait · output area · scale (fit paper / 1:n) · resolution (150~600dpi) · monochrome; images can also be "No paper (drawing extents only)"

Save PDF file	Saves a PDF file at the exact paper size directly, without going through the print window
AI auto-trace fine correction	Corrects line lengths exactly to the values written in horizontal · vertical dimensions, straightens nearly horizontal · vertical lines, aligns misaligned endpoints, and tidies remaining coordinates to clean units
Help	Added a description of saving in other formats; changed save · open descriptions to be .mcd-based

v 1.01 2026.9

Trace	Lay a photo · scan · capture (JPG/PNG) of a paper drawing as a translucent underlay and trace over it — file selection · Ctrl+V paste · drag and drop, underlay bar (opacity · size · set real length · move · remove)
AI auto-trace	Gemini AI analyzes the underlay and automatically draws lines · circles · arcs · polylines · hatches · text · dimensions — automatic layer sorting by line type, automatic real-size fitting from dimension numbers, circles with diameter · radius dimensions are fitted exactly to the written values, entire result undone with a single undo
AI Setup	Register · delete a Gemini paid API key (saved only on this PC after verification, auto-deleted after 7 days), key status shown by button color (sky blue = OK / red = problem)
Save Image (PNG)	Saves the whole drawing as a PNG image file on a white background
Help	Added descriptions of trace · AI settings · save picture · underlay bar

v 1.00 2026.9

Draw	Line · polyline (including arc segments) · circle (center/2-point/3-point) · arc · rectangle · polygon · ellipse · point · hatch fill (diagonal/grid/solid)
Modify	Move · copy · rotate · mirror · scale · stretch · array (rectangular/polar) · offset · trim · extend · fillet · chamfer · join · explode · match properties · grip editing · undo/redo
Dim · Text	Horizontal·vertical / aligned / radius / diameter / angle dimensions · leader · center mark · text creation and editing (double-click)
Precise input	Coordinates (100,50 · #absolute · @relative · distance<angle) · direction + distance numeric input · Ortho (F8) · object snap (endpoint · midpoint · center · quadrant · intersection · perpendicular, etc.) · type commands without switching Korean/English (ㅣ → L)
Layer · Scale	Layers (color · linetype · lineweight · on · lock) · [Mechanical] part drawing / [Plant] process facility templates · dimensions · text · dash spacing adjust automatically to the drawing scale
Overlaid drawings	Overlay up to 8 drawings (show · dim · remove), snap also works on overlaid drawings

Block · Measure	Create · insert blocks · distance · area · object info
File	.mcad save · open (including overlaid drawings) · DXF open (blocks · hatches · splines · automatic Korean encoding detection) · DXF save (R12) · SVG save · file drag and drop · autosave and recovery
Output	A0~A4 · B1~B4 paper, landscape/portrait, fit to paper or 1:n scale, monochrome/color, vector printing and PDF save
Font	Search and preview fonts installed on Windows, register them, then use them for text · dimensions
Screen · Operation	Large tabbed button menu (frequently used tools on the [Home] tab) · step-by-step guide bar (choices as buttons, [Done]/[Cancel]) · action buttons that pop up when objects are selected · button tooltips · white / black background switch (bright colors are auto-corrected on white)
Help · About	Help explaining every button (usage order · [Try it] · search) · author · copyright notice and international marks (© · NC · ND) · logo click for version info · development history