

Technical drawing of a wheel with a cross-section view. The front view shows a wheel with a central hub and spokes. Dimensions include: outer diameter  $\varnothing 180$ , inner diameter  $\varnothing 140$ , spoke width  $\varnothing 60$ , central hole diameter  $\varnothing 20$ , hub diameter  $\varnothing 40$ , overall width  $\varnothing 160$ , and total diameter  $\varnothing 174$ . The cross-section view shows a hub with a width of 54, a central hole of diameter 34, and a thickness of 10. The spokes are labeled R 2. The hub is labeled R 5. The cross-section view also shows a 3x45° chamfer on the outer edge.

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# INTRODUCTION

## How to use this course unit

This course unit is not a manual but a combination of theory and workshops with which to learn the programme on a 1-to-1 basis. Every mouse-click and every entry is described in detail, providing you with a teaching resource that lets you learn the basics of the programme by yourself. Each chapter provides explanations, information, and a workshop to practise the functions. To enable the workshops to be completed smoothly, the explanations should be read through very carefully. The order of the chapters should not be changed because each workshop is based on the previous one. The ELITECAD installation media contains examples stored as an ELITECAD file, enabling problematic places to be reviewed on the finished project.

## Conventions used in this course unit

The start and end of a workshop are marked as follows:

▼ ▼ ▼ ▼ **WORKSHOP**

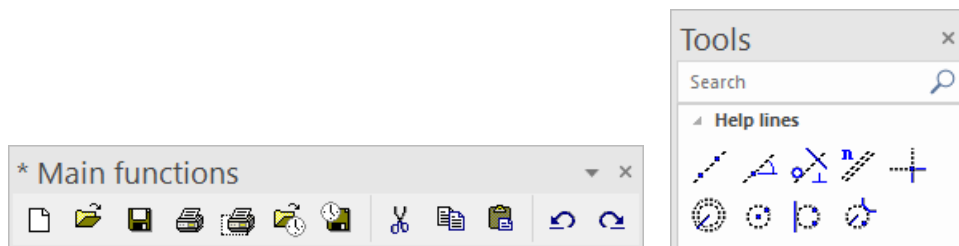
**WORKSHOP END**

Functions are written in block capitals. The corresponding icon also appears for new functions.

FUNCTIONS (BLOCK CAPITALS)



Functions can be accessed directly using icons (buttons). The functions are grouped together in tool bars or under tool management.



**[Enter]**

Function keys on the keyboard appear within square brackets.

**Input values (bold)**

Input values must be entered using the keyboard. When the text is entered in the input line, it must be confirmed with the [Enter] key.

## Launch programme

### ▼ ▼ ▼ ▼ WORKSHOP

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1. Launch the programme.  
ELITECAD ME15 icon is located on the Desktop.



Double-click on the icon.

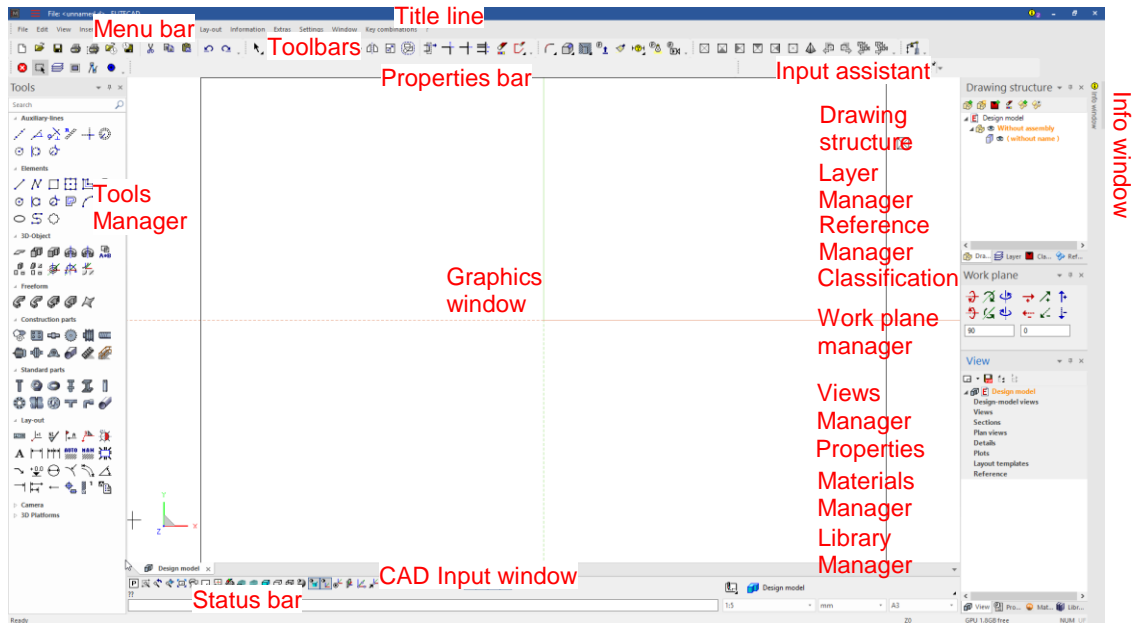
2. ELITECAD launches and initializes the different components.



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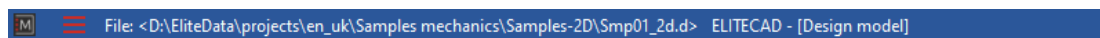
**WORKSHOP END**

# USER INTERFACE



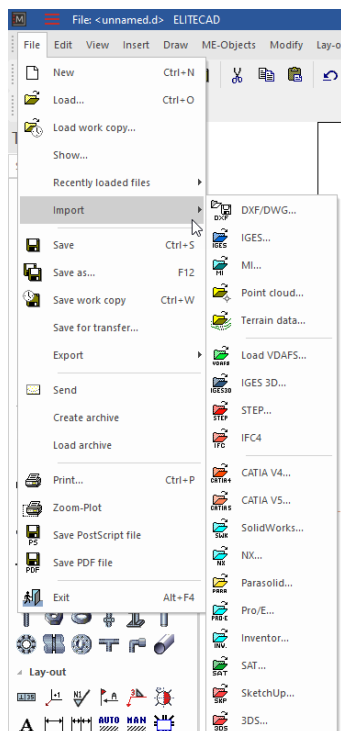
The appearance of the user interface can vary, depending on the installation and screen resolution.

## Title line



The title line of the programme shows, which file from which path is opened.

## Menu bar



The menu bar with opened and extended "File" menu. Here the submenu "import" is opened.

## Toolbar

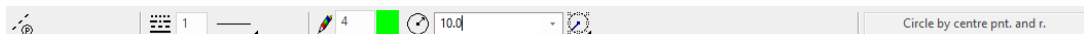


Toolbars offer rapid access to the most important commands. Many of the symbols or icons can also be found with the same meaning in the relevant menu entries.

## Tool management

In tool management, you will find a number of different toolbars combined. These can be opened and closed to suit your requirements, enabling you to bring together a number of functions in a small space. The order in which the bars appear can be changed and you may also add your own new bars.

## Property bar



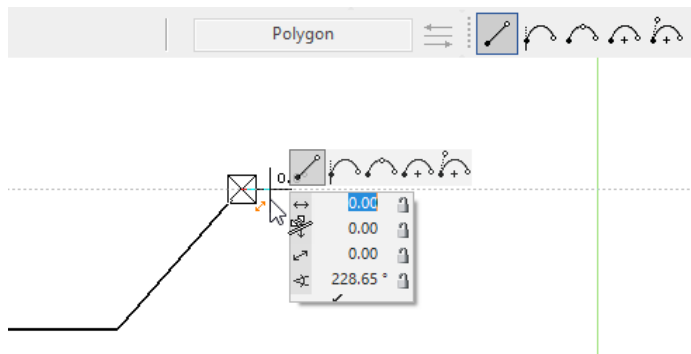
The property bar displays the properties of the active part or for a manipulation to be performed. There are properties bars for manipulations, elements, hatch patterns, dimensions, text, 3D solids, and components. The example shows the properties bar of the wall.

## Input assistant

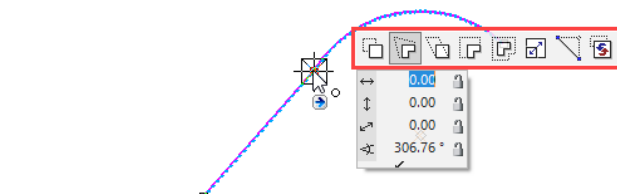
The input assistant consists of additional functions that vary according to the function selected. The functions for input assistant can also be displayed on the cursor using the [Tab] key.

Not every function has these extended functions. In principle these are the create functions and the manipulations on the handle.

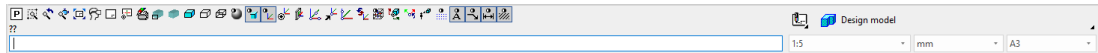
Example of the polygon drawing function with the additional functions for drawing a polygon:



Example of manipulation on the handle of a polygon:



## CAD input window



The input window contains the image properties, the information line, the input line and the status.

## Screen properties



These commands are fixed. They control how the data is displayed on screen. Zoom factor, cut-out, imaging, etc.

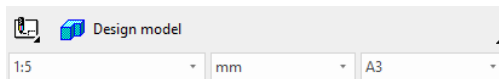
## Information line

This line contains commands as to what you must enter or determine within a function.

## Input line

You use the input line to forward information to the program. This information could be texts, coordinates or, in event of prompts, confirmations.

## Status



Here you can select representation mode, scale, units and the page format.

## Status line

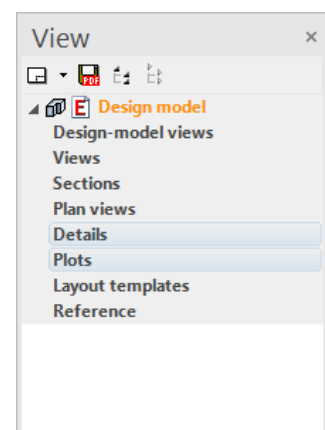


The status line is the lowest line of the program. The left-hand area shows confirmations that e.g. the work copy was saved successfully.

The current position of the working plane is shown on the right. If no changes have yet been made, the value "Z0" is displayed. "Z" stands for the axis, "0" indicates the height on this axis.

## View management

In complex projects, managing the various drawings and views is a key issue. This administration becomes even more interesting if it should also include dependencies. Thanks to the drag & drop technology in ELITECAD, it is possible to handle almost any number of views with their dependencies very intuitively.



### Layer management

ELITECAD uses the very powerful and extensive classification with patterns, groups, classes and levels. This arrangement can be used extremely productively, but requires intensive discussion on the part of the user.

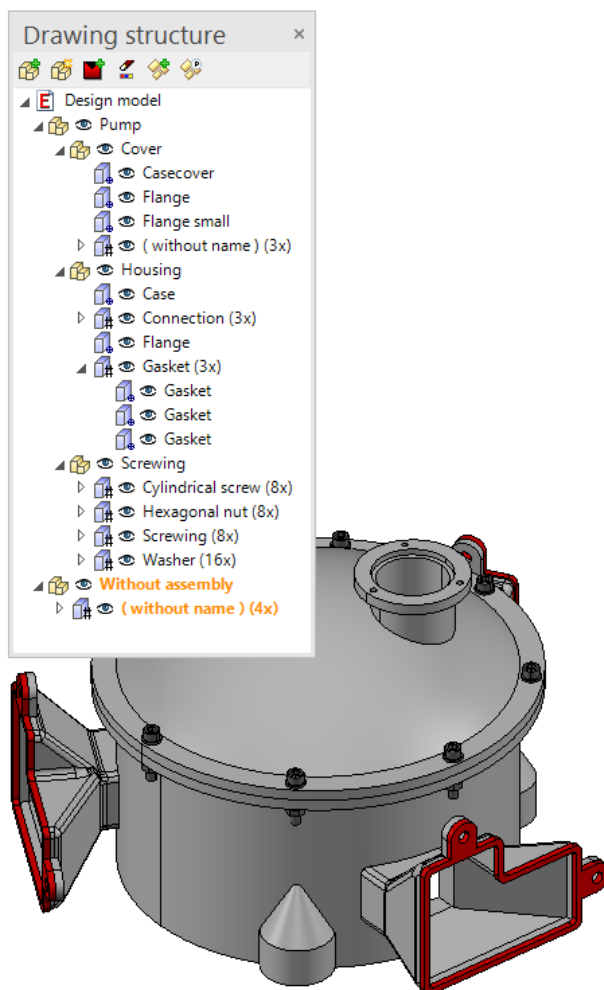
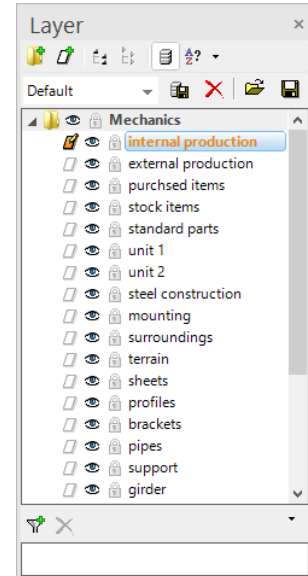
The layers are an additional simple linear structure.

Projects can now be processed with both structures in parallel, so that users can choose either one or the other structure.

### Drawing structure

In addition to the layer and classification, an ELITECAD drawing can also be structured hierarchically with the help of assemblies. An assembly defines a combination of ELITECAD components (pattern and objects) into a logical unit.

A component can be a single pattern or an object that is composed of several patterns. Objects are especially 3D objects that are created using several patterns (e.g. : 2 view bodies, Boolean operations).



An assembly can also have sub-assemblies. Thus, a structure tree can be formed, the depth of which is arbitrary.

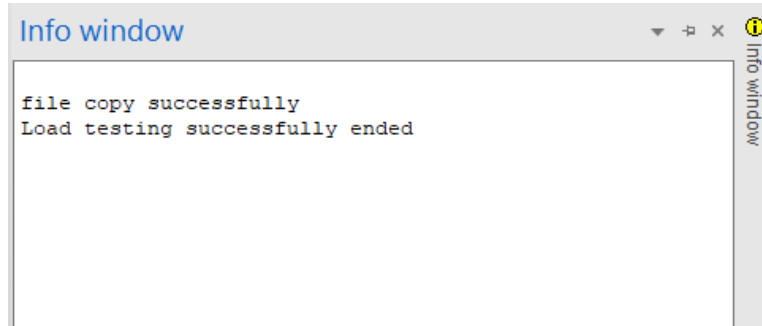
The top assemblies are also known as main assemblies.

If a new assembly is created, it must be assigned a unique name. If this is not the case, a number is automatically added to the name at the end.



## Infofenster

Im Infofenster werden Ihnen Informationen angezeigt, wie z.B. Auflistungen von Elementwerten, Größen, Strukturen oder Informationen beim Einlesen von Daten. Mit einem Doppelklick ins Infofenster wird es in den Vordergrund geschaltet.

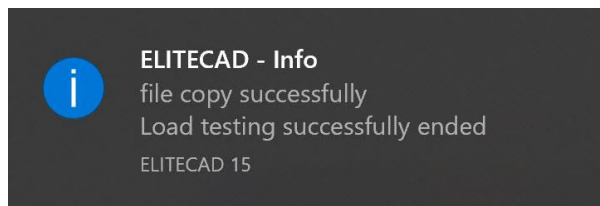


## Info balloon

The messages of the info window can also be displayed in the info area (task bar) of the operating system.

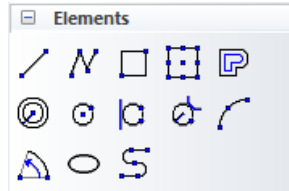
Pre-condition:

Activated option "Show notifications as info balloon" in ELITECAD  
Settings> Options> System> User interface



## DRAWING LINES

The basic functions for drawing lines are the individual line, the polygon, and the rectangle.



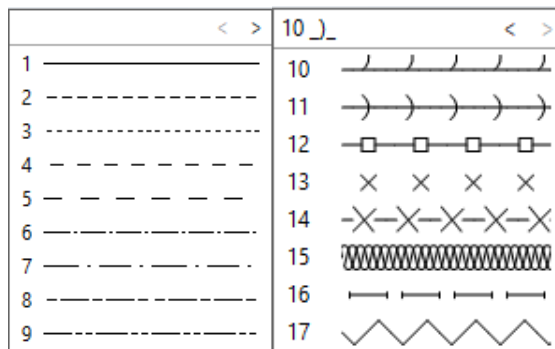
When you select one of these functions, the properties bar of the elements appears.



The line is composed of the line and pen type.

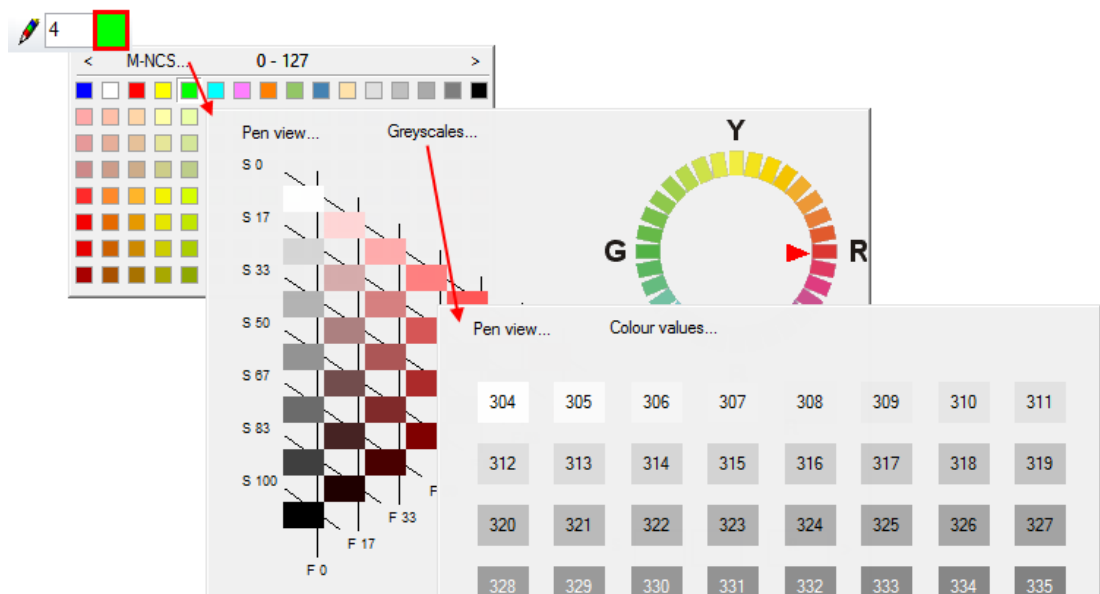
### Line types

There are 9 "fixed" line types available. Other additional line types can also be defined.



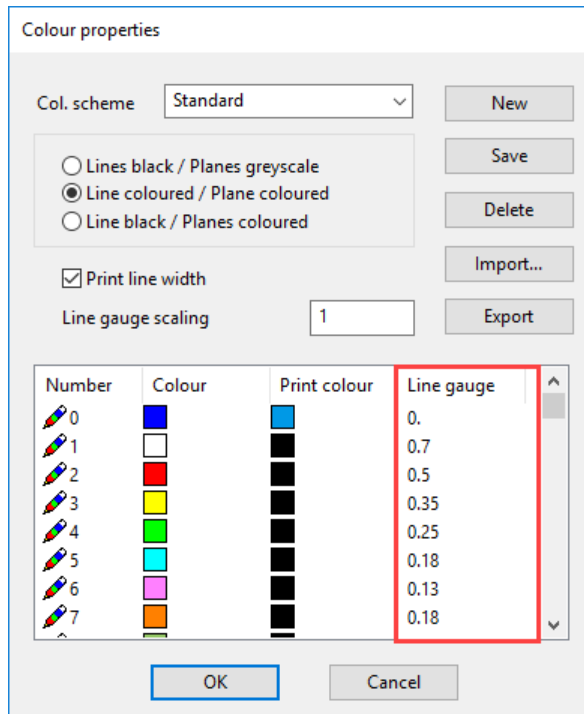
### Pen types

You can choose from 1024 differently coloured pen types. The selection opens with a single click on the colour square. There are different colour squares sorted by pen number, colour values or grey values.



The line appears in the relevant colour on the screen. A pen thickness is assigned to every pen colour.

In the colour properties the screen colour, print colour and pen thickness per pen number can be adjusted. If you are not yet familiar with the pen numbers and the corresponding pen thickness, you open the screen by selecting **SETTINGS > COLOUR PROPERTIES** from the menu.

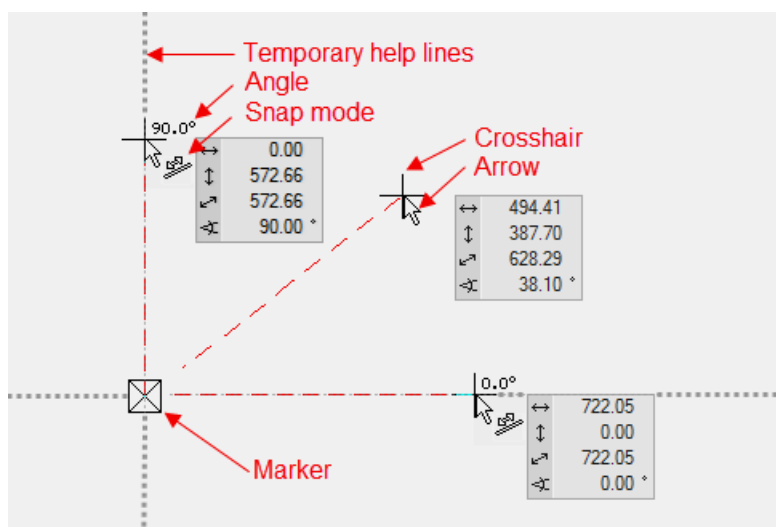


## NOTE

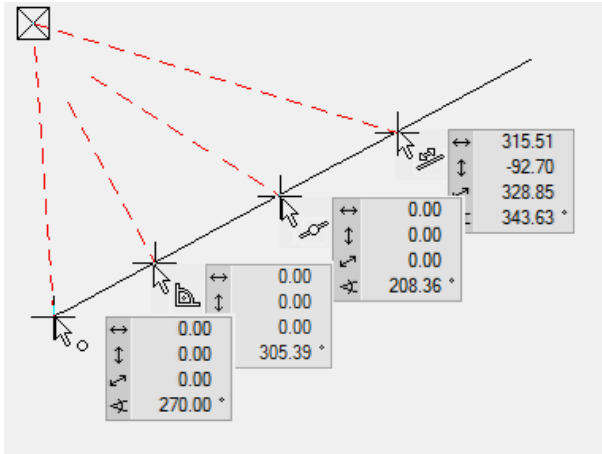
Pen 0 is only displayed on the screen; these lines do not appear on the printout.

## Cursor

The cursor consists of the marker, the crosshair, the arrow and, if a point is entered, the value field. The marker always specifies the last position. As soon as the cursor is at right angles to the last position, temporary reference lines appear with a display of the angle. This means you can check whether you are drawing at right angles.



The cursor responds as soon as it is positioned near a capture point and indicates the type of capture point by means of a symbol.



### Temporary reference points and lines

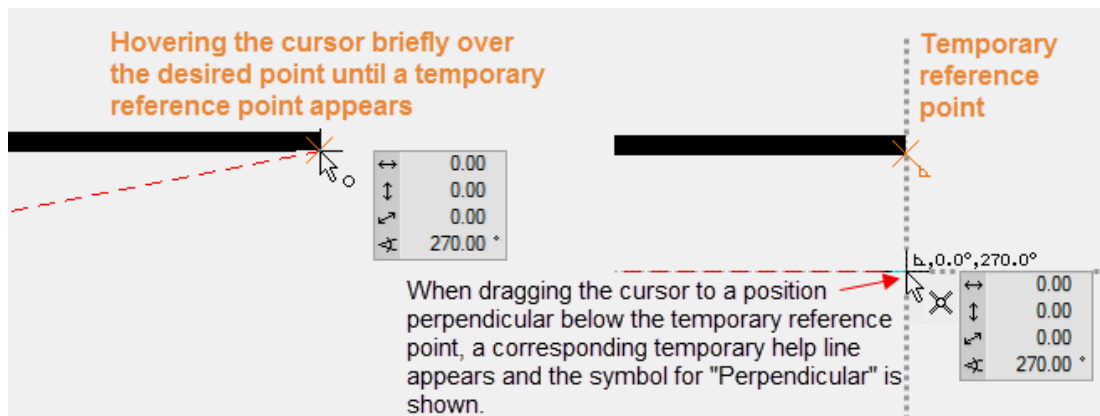
When drawing, references to a geometry already created often need to be made.

You create a reference point by hovering the cursor briefly over the desired point; the programme displays the reference point as an orange cross.

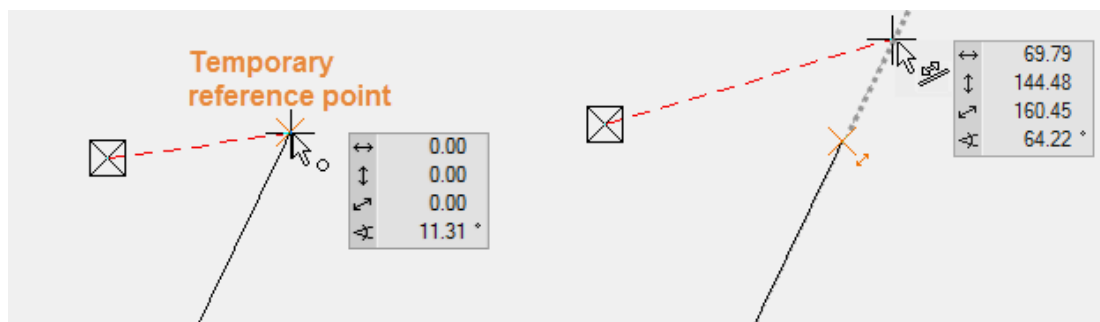
Instead of hovering over the point you can press the [Shift] key.

The temporary reference points are deleted again after every click. The points can be deleted manually the same way they were created.

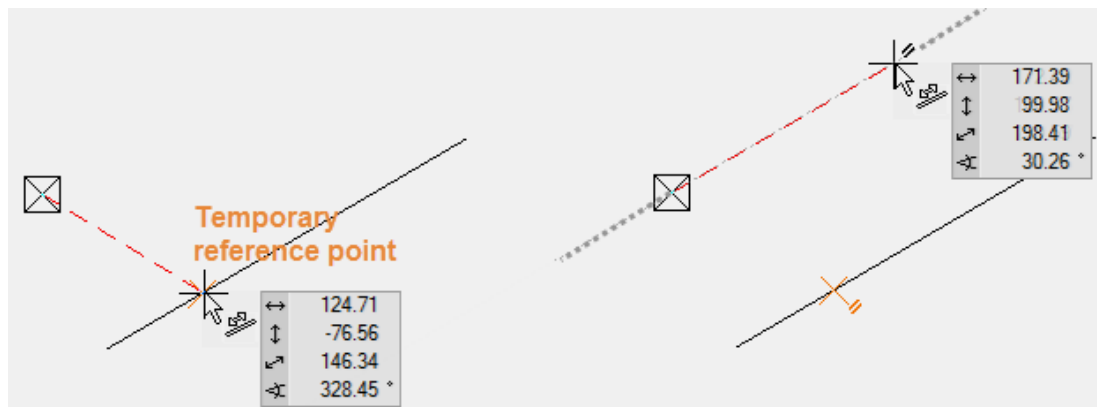
Drag the line until it is perpendicular below a corner



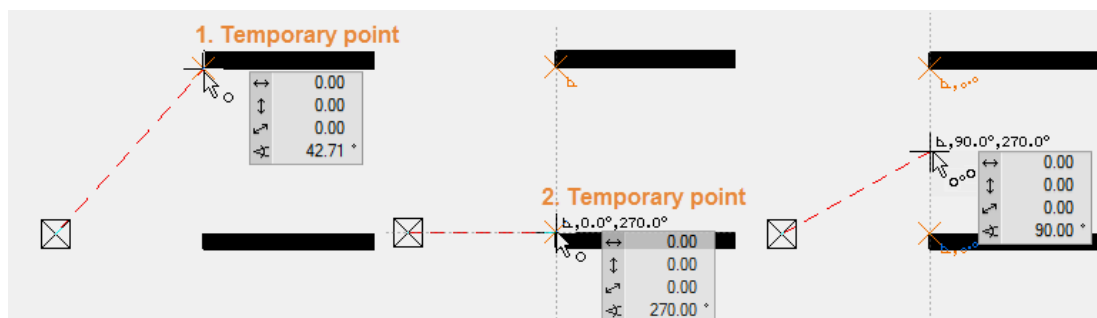
Drag line into the extension of an existing line



A new line must lie parallel to an existing line.



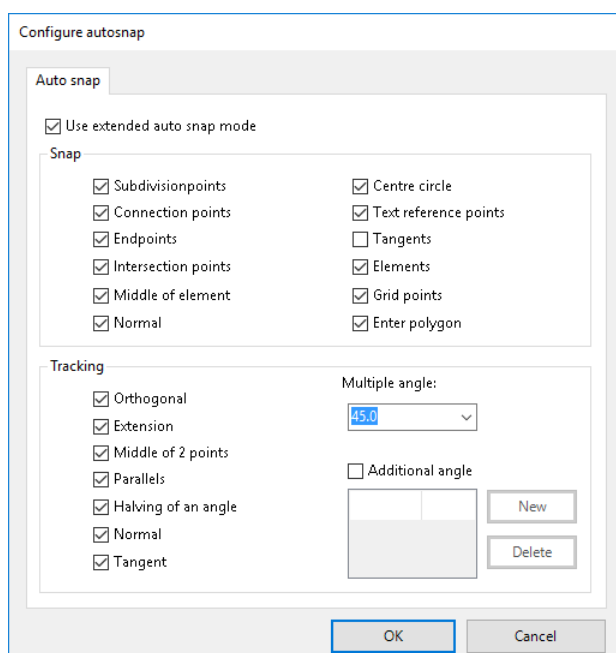
Draw a line in the middle of two points.



## NOTE

If, when drawing, no temporary help lines or reference points appear, this means the functionality has been deactivated or changed in the configuration settings of the autosnap mode.

Configuration of autosnap mode:  
Right-click > Configure autosnap

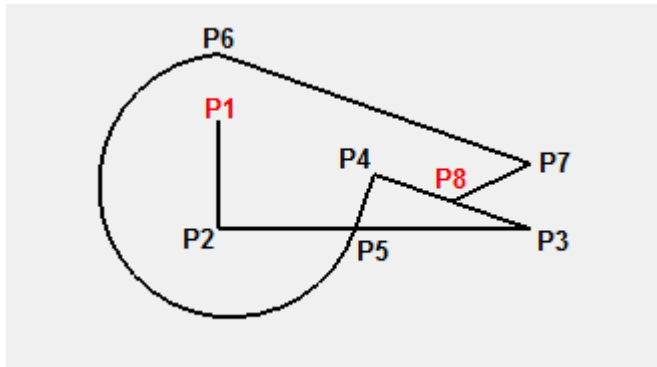


## DRAWING A POLYGON

A polygon consists of interrelated lines that can be selected together with a single click, including subsequently. When drawing, ensure that you only ever draw interrelated lines in a polygon.

### ▼ ▼ ▼ ▼ WORKSHOP

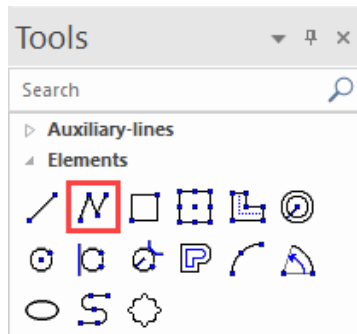
Draw the following polygon:



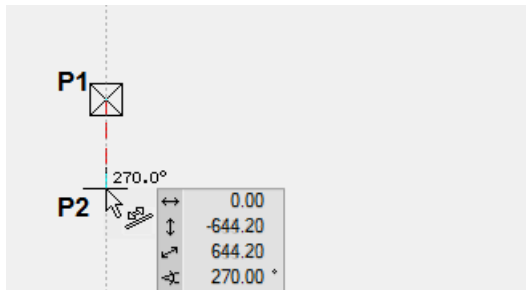
1. Start with the DRAW function.



This function is found under Tools > Elements.

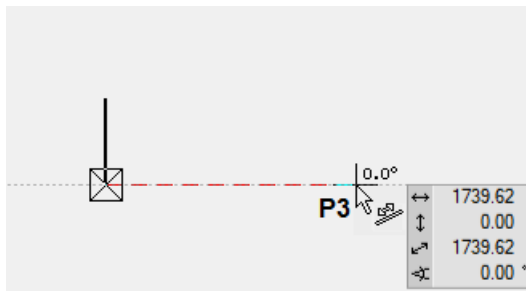


2. Start with the perpendicular line. Move the cursor into the upper left of the screen and left-click on the start point **P1**.
3. Move your cursor down (no need to keep **either** mouse button pressed). As soon as you move the cursor vertically to below the starting point, a temporary help line and the angle will appear.

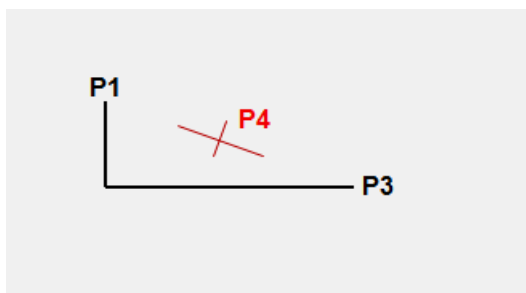


Once you are at roughly the correct distance, left-click on the location **P2** to confirm it.

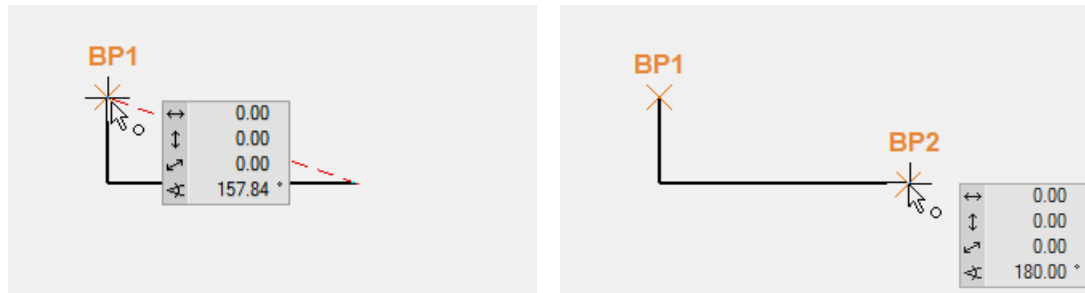
4. The next element is horizontal. Move your cursor to the right. Once again, the temporary help line and the angle tell you whether you are orthogonal. When you have reached the correct distance, confirm the location **P3** by left clicking.



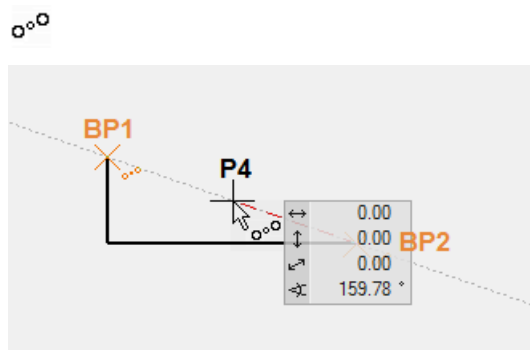
5. The next point, P4, is located in the middle of the two points P1 and P3. You cannot snap this point directly. Instead, you require help points known as temporary reference points.



Set the two reference points **BP1** and **BP2** positioning your cursor briefly over points P1 and P3 until an orange cross appears.



The middle point can be caught between two temporary reference points. Move the cursor towards the centre until the catch symbol appears, indicating the centre of 2 points. **P4**

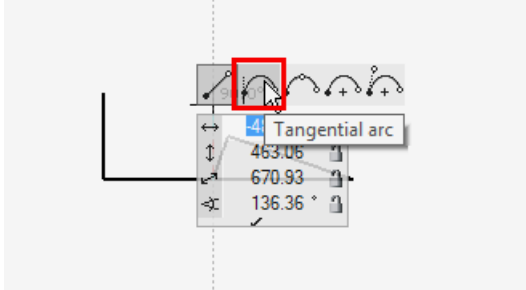


6. The next element is perpendicular to the slanting line and ends on the base line. This time you need to add a temporary reference point **BP1** to the starting point. Move the cursor to the intersection point of the temporary help line and the base line. The symbol for perpendicular and for intersection point **P5** appears on the cursor.

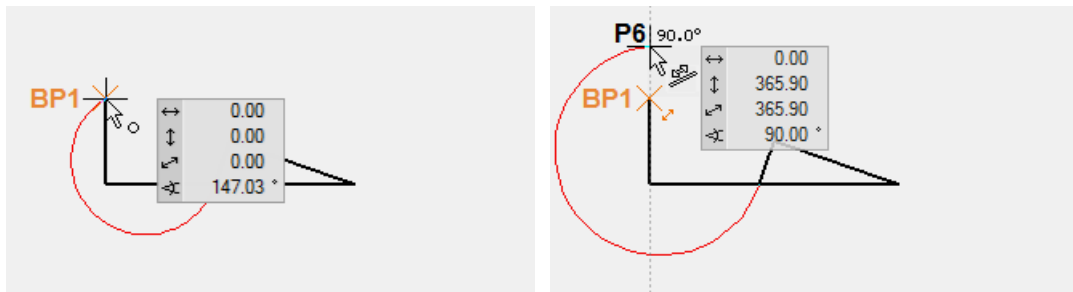




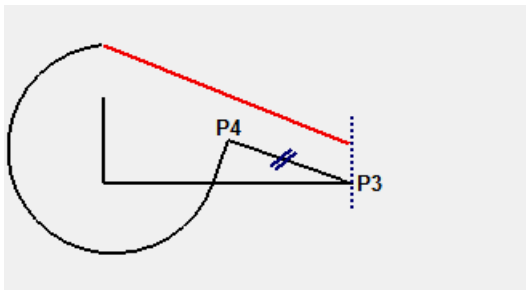
7. The next element is a curve. In the input assistant, additional drawing functions such as tangential arc, curve through 3 points, etc. are available. For the input assistant to appear above the value field, the [Tab] key must be pressed. Select the function TANGENTIAL ARC.



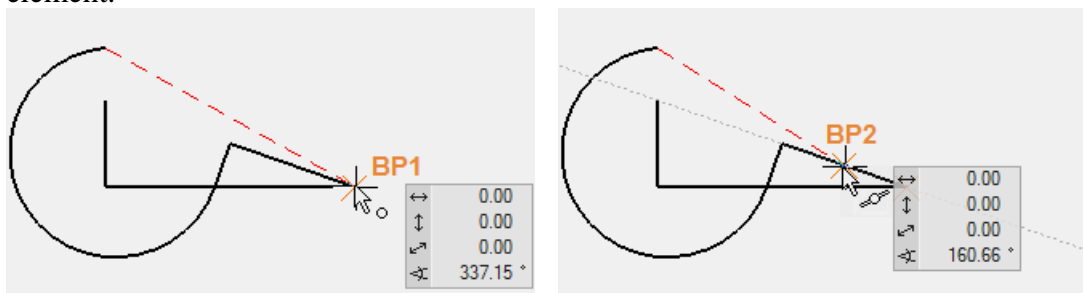
Set the temporary reference point **BP1** and the end point of the circle vertically above it. **P6**



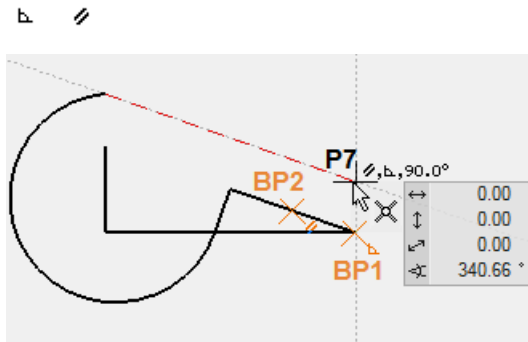
8. The next element is parallel to the existing slanted line and ends vertically above P3.



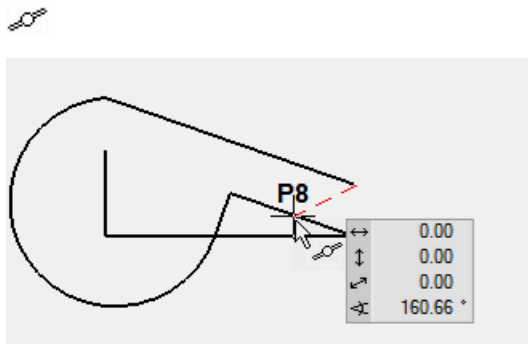
The one reference point **BP1** is located on P3, the other **BP2** somewhere on the slanted element.



Set **P7** parallel to BP2 and vertical to BP1. The symbols for perpendicular and parallel should appear on the cursor.



9. The last element ends in the middle of the slanted line. You can set this point directly without reference points. When doing so, make sure that the symbol for centre of element appears on the cursor. **P8**

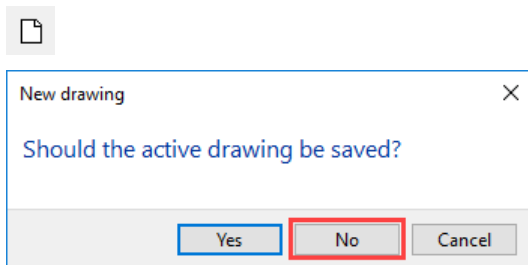


10. To finish the polygon, click again on **P8**.

### TIP

To finish a polygon, close it by clicking on the start point, double-clicking on the final point or by cancelling the function > [Esc] key or another function.

11. To remove the lines from the screen, open a new file.



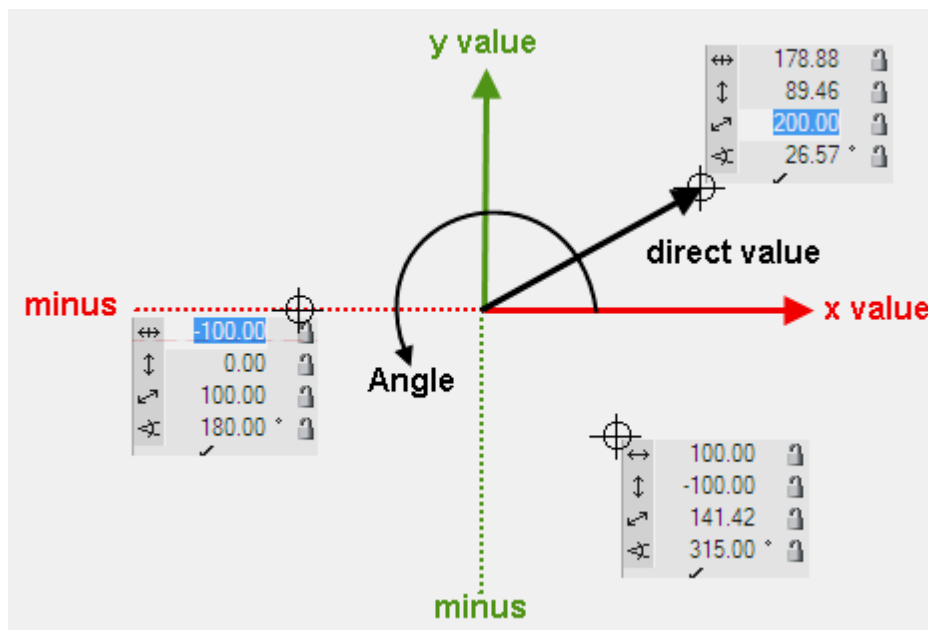
WORKSHOP END

## POLYGON VIA ENTRY OF COORDINATES

Very often it is not possible to catch a point, rather a certain line length is predefined. These lines can of course be constructed with help lines. It is much easier and more efficient to enter a polygon using coordinates.

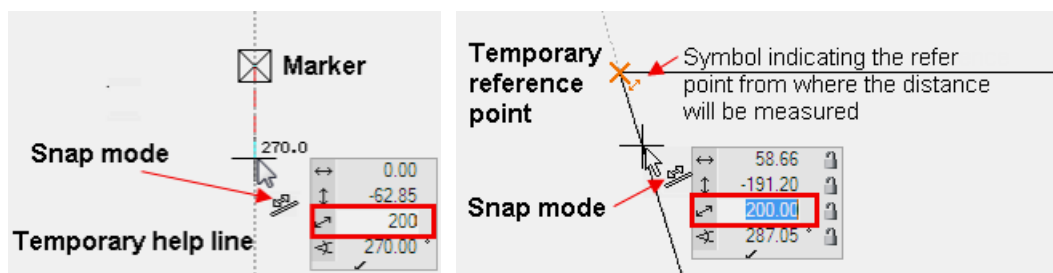
### Values field

Lengths can be entered directly in the values field. To move to the values field, press the [Tab] key. In the values field the x value (horizontal), the y value (vertical), the direct value or the angle can be entered.



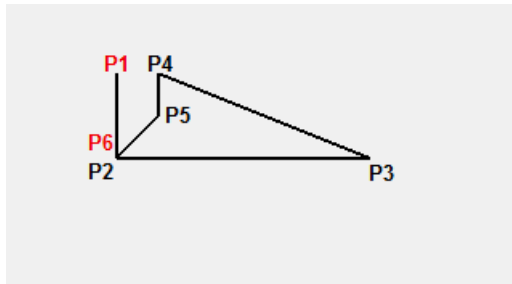
### Value on element or help line

If, when a value is entered, the cursor is on an element or a help line that passes through the marker or a temporary reference point, the entry switches to the direct value and you need only enter the distance, without worrying about the angle or the minus range.



## ▼ ▼ ▼ ▼ WORKSHOP

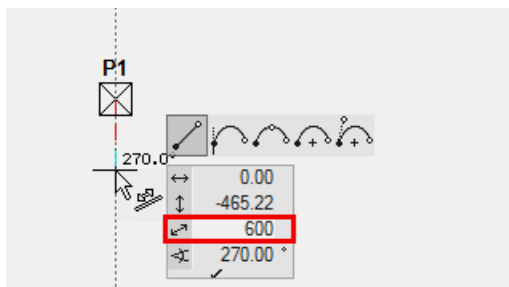
This sequence of lines must be created by entering coordinates.



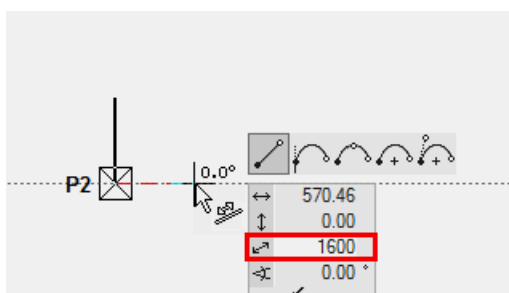
1. Start with the DRAW function.



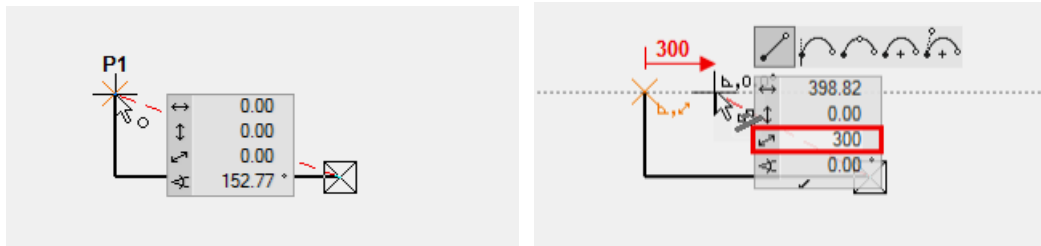
2. Move the cursor on any random point and left-click on **P1**.
3. Move your cursor below P1 until the temporary help line 270° appears, press the [Tab] key to access the values from the value field, enter **600** as direct measurement and confirm with [Enter] > **P2**. Provided the cursor is located on a temporary help line, the direct mass will be transferred to the help line in the direction of the cursor.



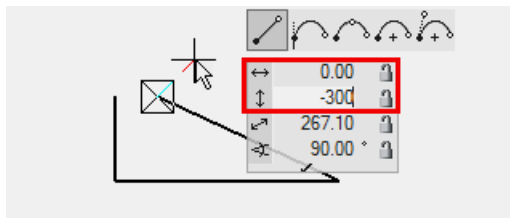
4. To create the next point you proceed in exactly the same way except that you move the cursor onto the temporary 0° help line. For the direct dimension you enter **1600** > **P3**.



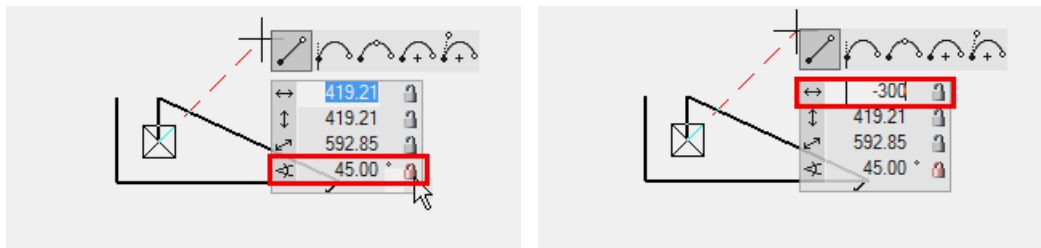
5. Entry of coordinates also works from a temporary reference point. Set a reference point on P1, then move the cursor to the right until the 0° help line appears, press the [Tab] key, enter **300** as direct measurement and confirm with the [Enter] key > **P4**.



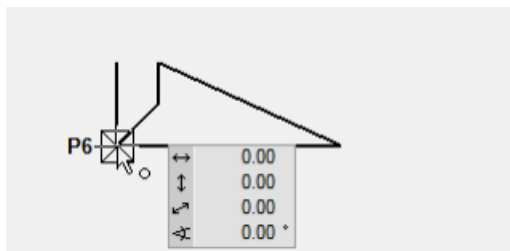
6. Instead of using the temporary help lines, the location of the new point can be determined by entering an x and a y value. Ensure that the cursor is not positioned over a temporary help line, press the [Tab] key and enter **0** as x value and **-300** as y value > **P5**.



7. Enter the angle **45°** into the value field and lock it by clicking on the padlock. The colour of the padlock changes to red. The cursor is now fixed on the 45° ray. Also set the x value to **-300** and confirm > **P6**.



8. Finish the polygon by clicking again on **P6**.



9. To remove the lines from the screen, open a new file.



**WORKSHOP END**

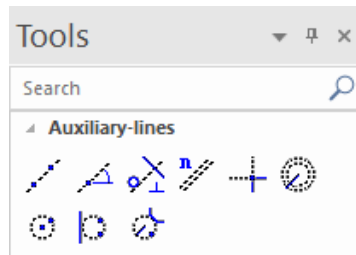
## AUXILIARY LINES

The auxiliary lines in ELITECAD are a tool to create an auxiliary drawing with help lines of which you can later on draw a geometry.

The auxiliary lines remain with the temporary help lines that you have already learned, until you delete them.

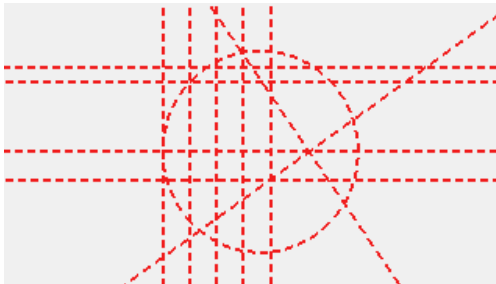
The auxiliary lines are consisting of lines and circles and are created using the following tool bar:

### Straights/circles



## ▼ ▼ ▼ ▼ WORKSHOP

Create the following auxiliary structure with the auxiliary lines.



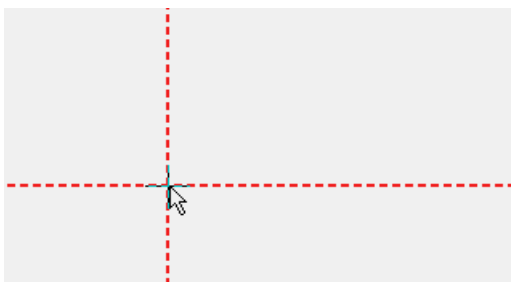
1. For one horizontal and one vertical help line as starting point use the function STRAIGHT WITH PRESET ANGLE THROUGH POINT.



You can enter multiple angles, separated by a comma.



Click in the centre of the working area.



2. The vertical help lines have 4 times the gap of 200 cm. Select the function PARALLEL STRAIGHTS.



Set distance **200** and **4** copies.



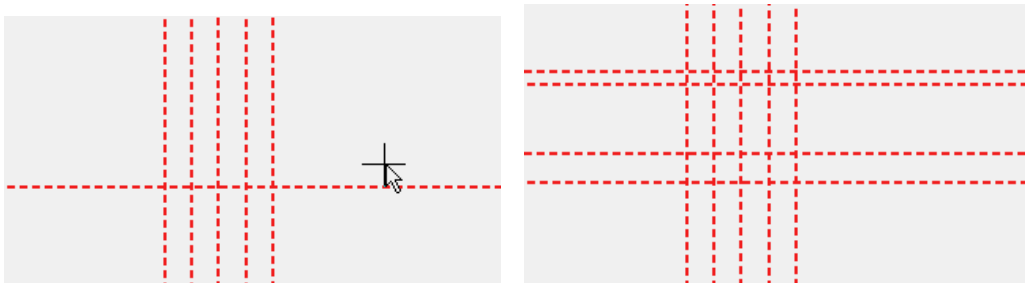
Click NEXT to the line to which the help lines are to be created. Depending on whether the vertical or the horizontal help line is closer when you click, the lines will be created accordingly.



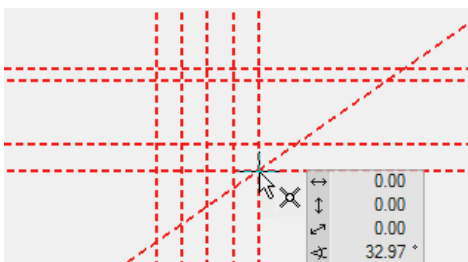
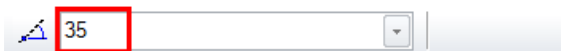
3. The horizontal help lines have different gaps. They can be created one after the other or all gaps can be created together at once, separated by a comma. Do not forget to reset the number to 1.



Click above the horizontal help line, which can lie quite a bit outside, so that a vertical help line is not suddenly closer when you click.



4. The next help line has an angle of 35°. Access the function STRAIGHT WITH PRESET ANGLE THROUGH A POINT and set the angle.

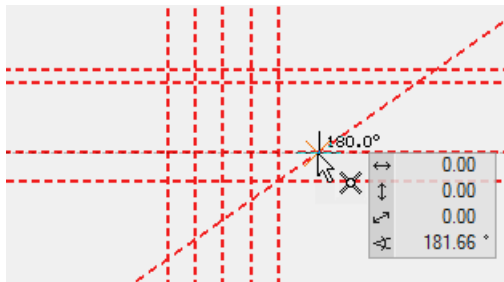


5. The next help line is perpendicular to the 35° slanting help line just created. Access the function TANGENT NORMAL ON LINE.

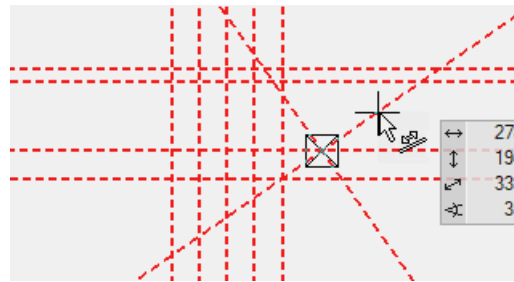


First, determine through which point the auxiliary line is to pass and then to which line it should be perpendicular.

Through which point?



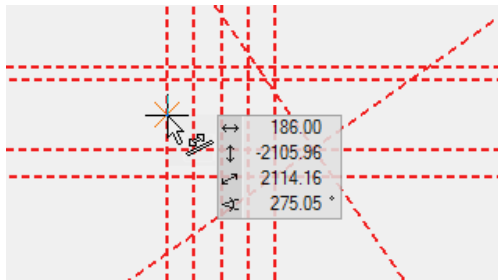
Perpendicular to which line?



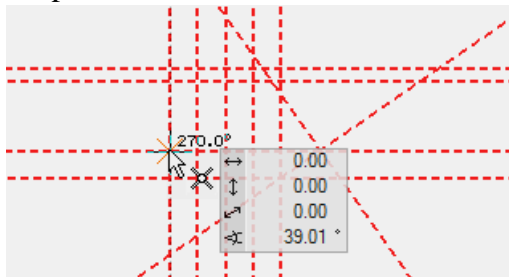
6. The final auxiliary line is a help circle. The circle must be at a tangent to a straight and pass through two additional points. Start the function CIRCLE BY 3 POINTS OR TANGENTS.



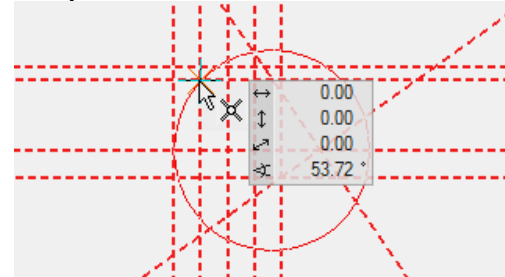
Tangential to the first vertical auxiliary line



1st point



2nd point



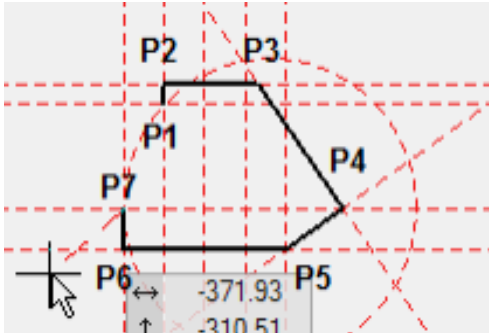


7. In the help geometry draw a polygon. The intersection points of the auxiliary construction can now be captured easily.

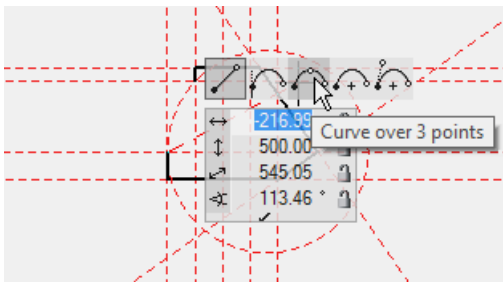
DRAW function



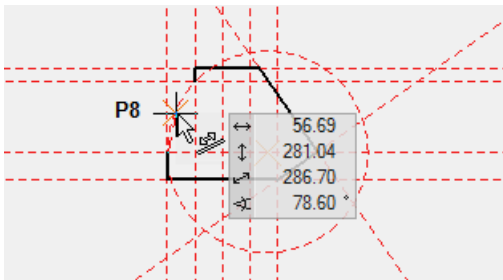
Start at point P1 and draw until point P7.



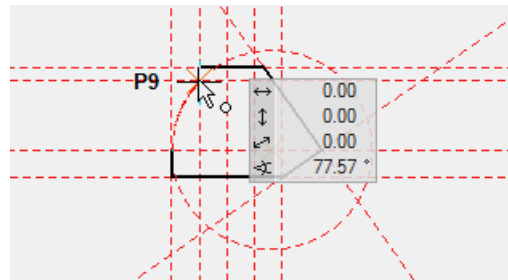
The curve is next: Use the [Tab] key to show the input assistant and select the function CURVE OVER 3 POINTS.



Set P8 on the help line



P9 on the end point



An external wall, a ceiling or a structure could now be created from this polygon.

8. To delete all help lines, select the function DELETE ALL HELP GEOMETRY.



9. To remove the lines from the screen, open a new file.



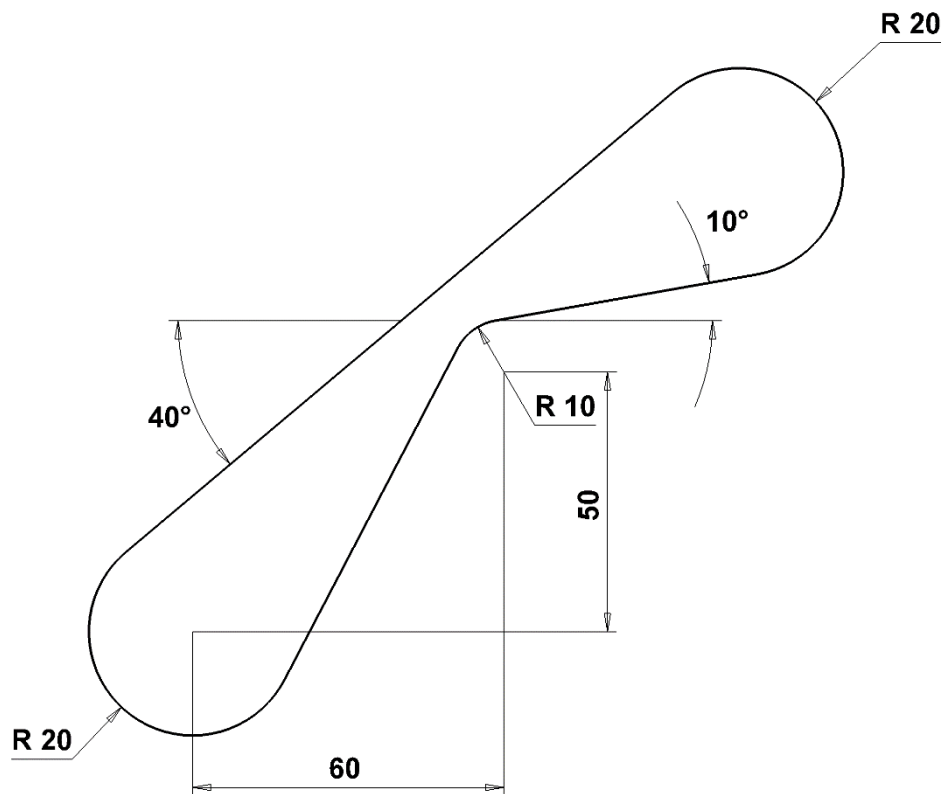
**WORKSHOP END**

## AUXILIARY LINES 2

Now the following example is to be constructed in which all functions from the first part of the course unit are used.

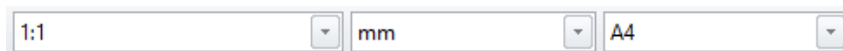
Draw auxiliary lines to define the outline of the belt.

With the PARALLEL STRAIGHTS function, a vertical and horizontal auxiliary line is always automatically placed through the origin of the CAD 0 point.



Before starting to draw, various settings are made.

Scale 1: 1, units *mm* and format A4

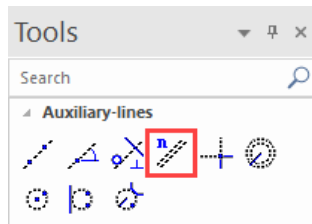


### TIPP

ATTENTION: If auxiliary lines or auxiliary circles are already available, NO lines are placed through the CAD 0 point.

## ▼ ▼ ▼ ▼ WORKSHOP

1. Create vertical guides with distance **60**.

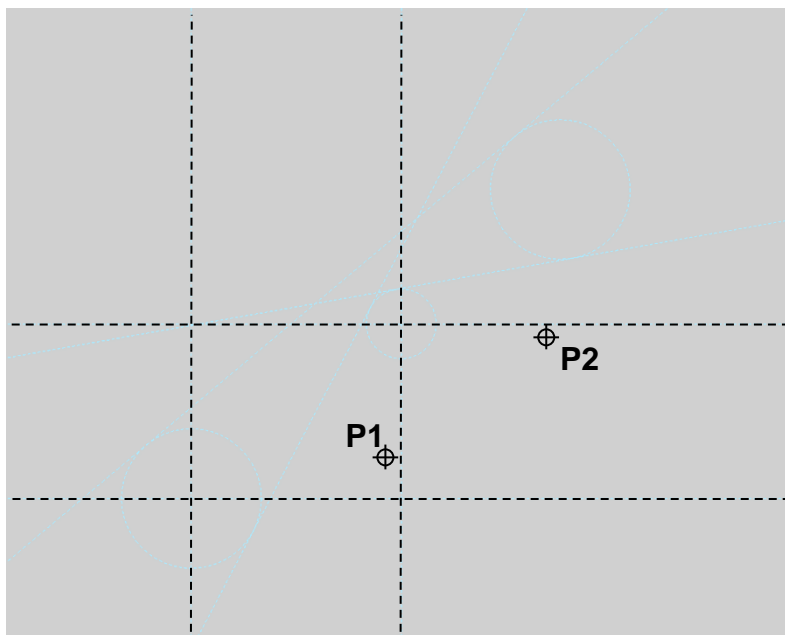
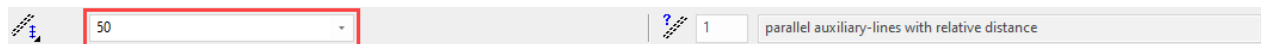


2. Eigenschaftsleiste ergänzen mit dem Abstand **60** und der Wiederholungen **1**



3. Specify the point **P1** to create the vertical parallel.

4. Now enter the distance 50 for the horizontal auxiliary line in the property bar and set the point **P2**.

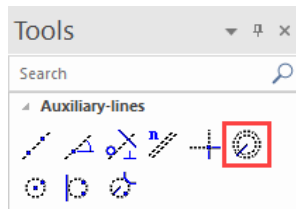


## WORKSHOP ENDE

# AUXILIARY CIRCLES AND LINES

## ▼ ▼ ▼ ▼ WORKSHOP

1. Erstellen der Hilfskreise mit Radius **20** und **10**.

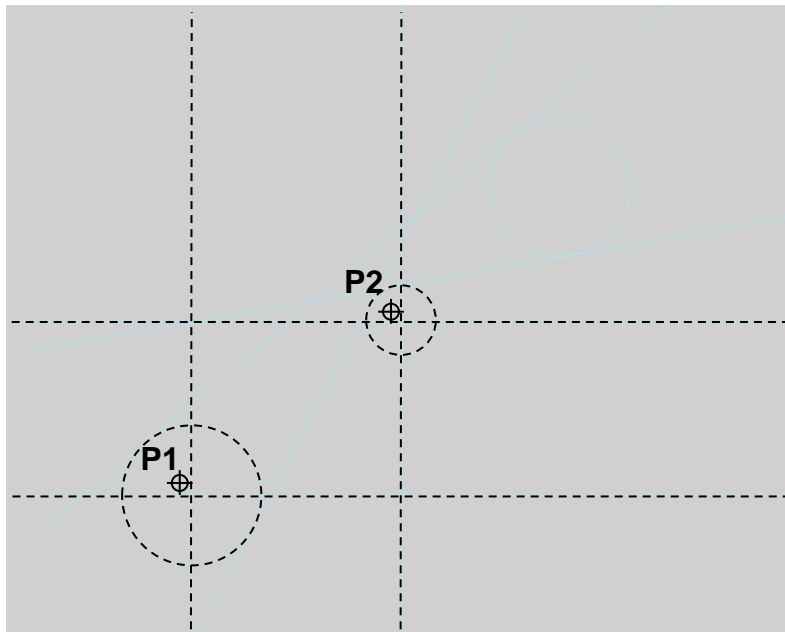


2. Add the property bar with the radius **20**



2. Set the snap mode to AUTO SNAP and set the point **P1**.  Auto snap

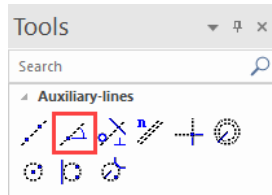
3. Change the value for Radius on the property bar to **10** and set the point **P2**.



### TIPP

The intersection of the auxiliary line is automatically recognized by the AUTO SNAP function. Just tap near the intersection point so that you can see that the snap point is searched for automatically.

4. Create the auxiliary line by specifying the angle.

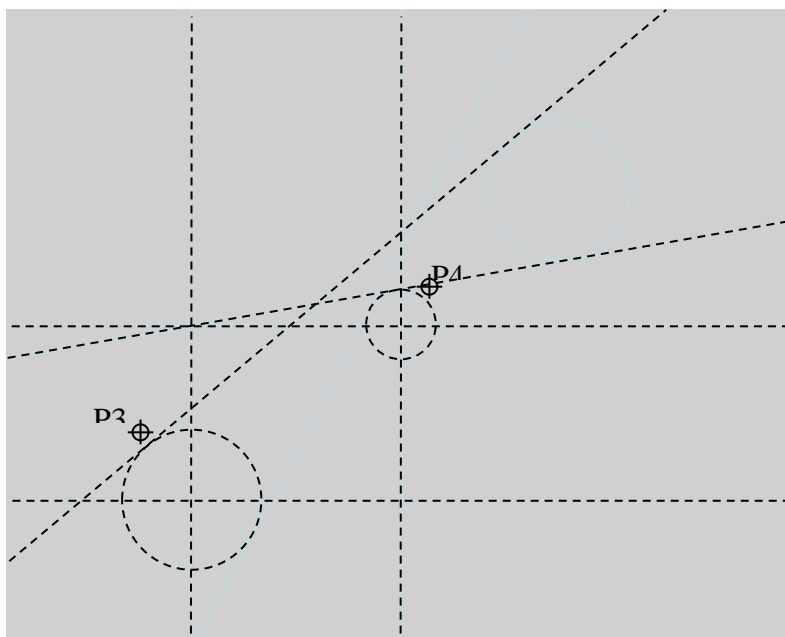


5. Add an angle value **40** to the property bar.

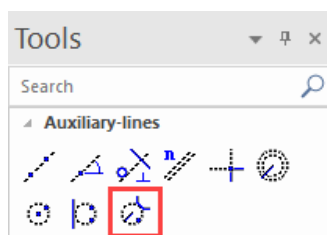


6. Place the line on point **P3**.

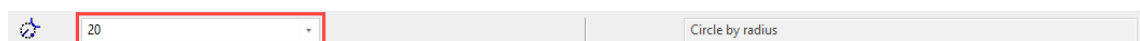
7. Change the value for Angle on the property bar to **10** and set the point **P4**.



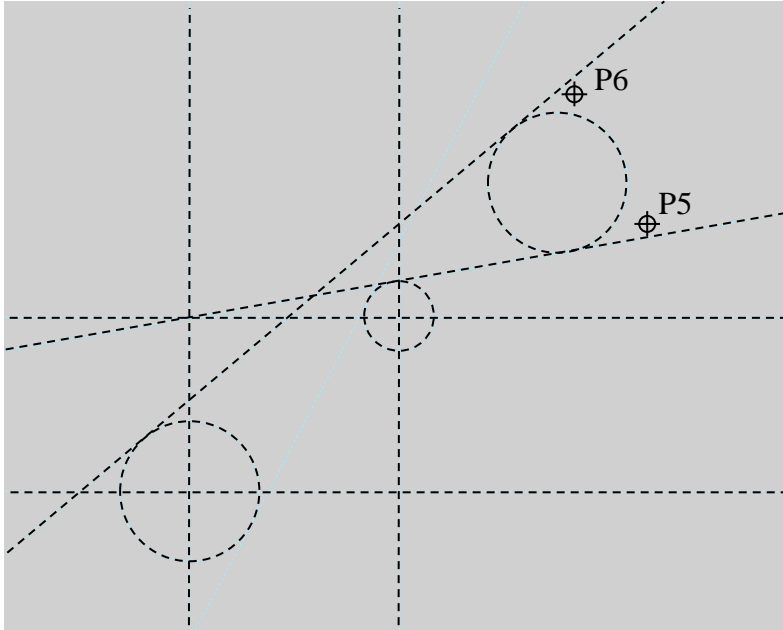
8. Now enter an auxiliary circle again, but this time with the CIRCLE BY RADIUS function.



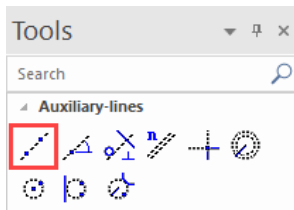
9. Add a radius 20 to the property bar.



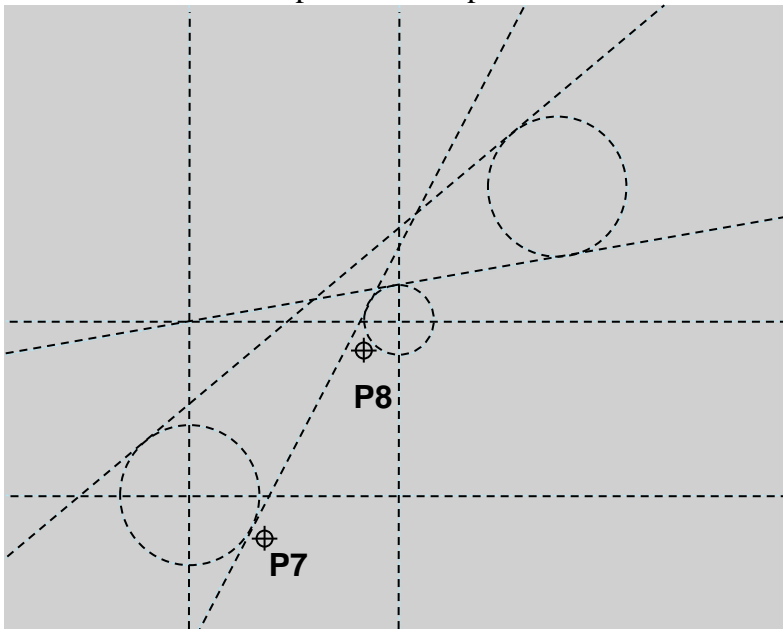
10. Place the auxiliary circle by entering points **P5** and **P6**.



10. Now the tangent between the two circles is determined.



11. Place the cursor at point **P7** and point **P8**.



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**WORKSHOP END**

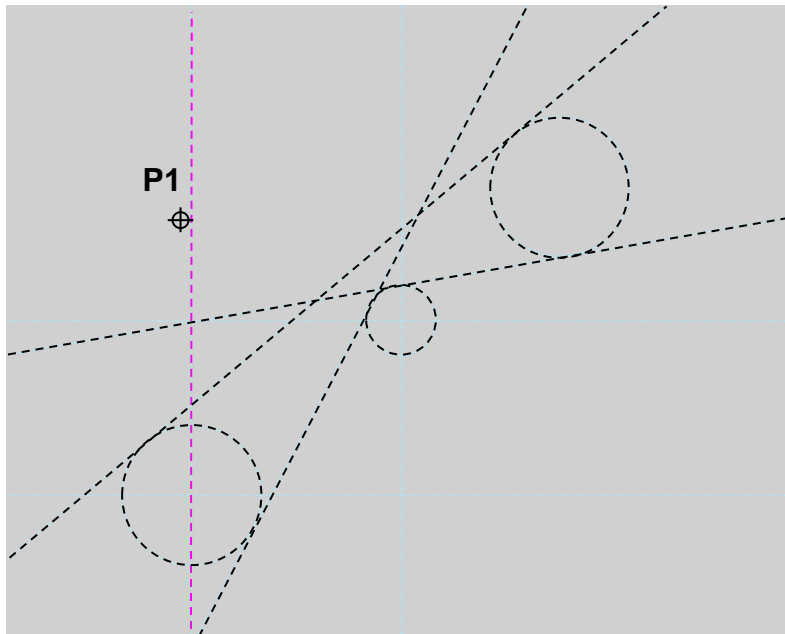
## DELETE

For a better overview, now delete the auxiliary lines that are not required.

### ▼ ▼ ▼ ▼ WORKSHOP

---

1. Click on the desired auxiliary line (it will turn purple) point P1, and remove it with the [Del] key or with the icon  (delete). (With the [Shift] key a selection of several auxiliary lines is possible). Now the dialog box appears with the query, *Delete selection?* This is confirmed with **Yes**.

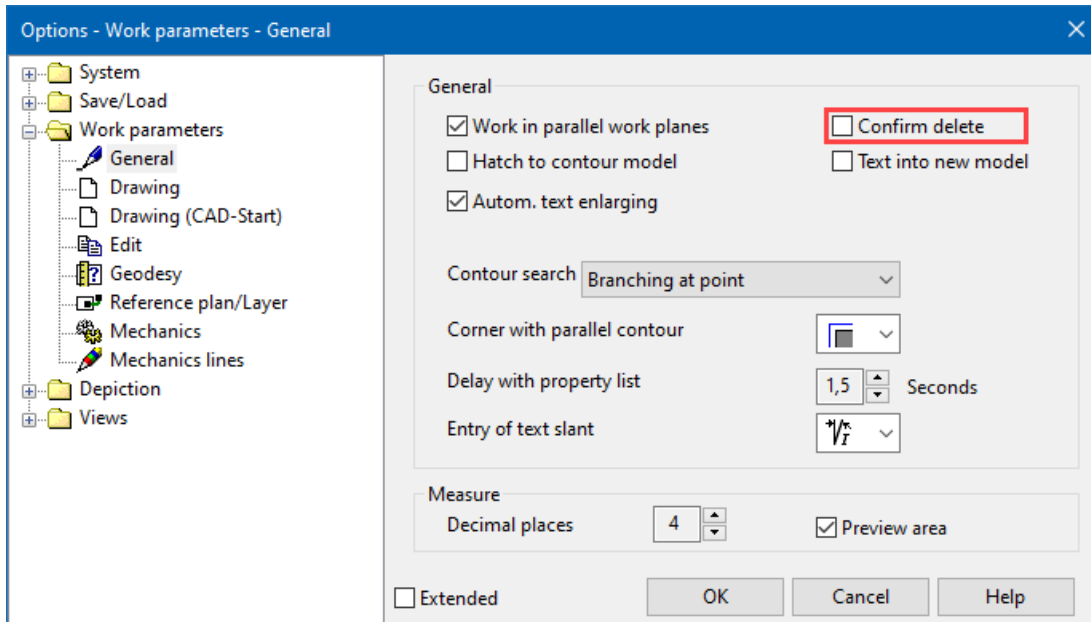


2. For the remaining auxiliary lines that are not required, proceed as described in point.

**TIPP**

So that when deleting the query Delete selection? does not appear and you can therefore work more quickly, the following can be set.

SETTINGS → OPTIONS → WORK PARAMETERS → GENERAL  
and then deactivate the button CONFIRM DELETE.

**WORKSHOP END**

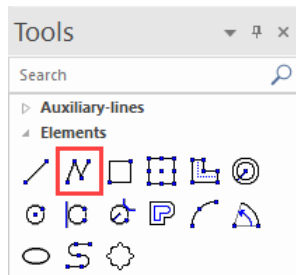


## DRAW

In the next step you will learn to draw out the auxiliary lines.

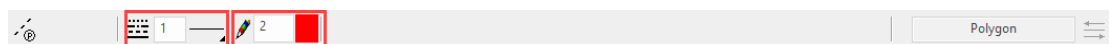
### ▼ ▼ ▼ ▼ WORKSHOP

1. Select the function DRAW.

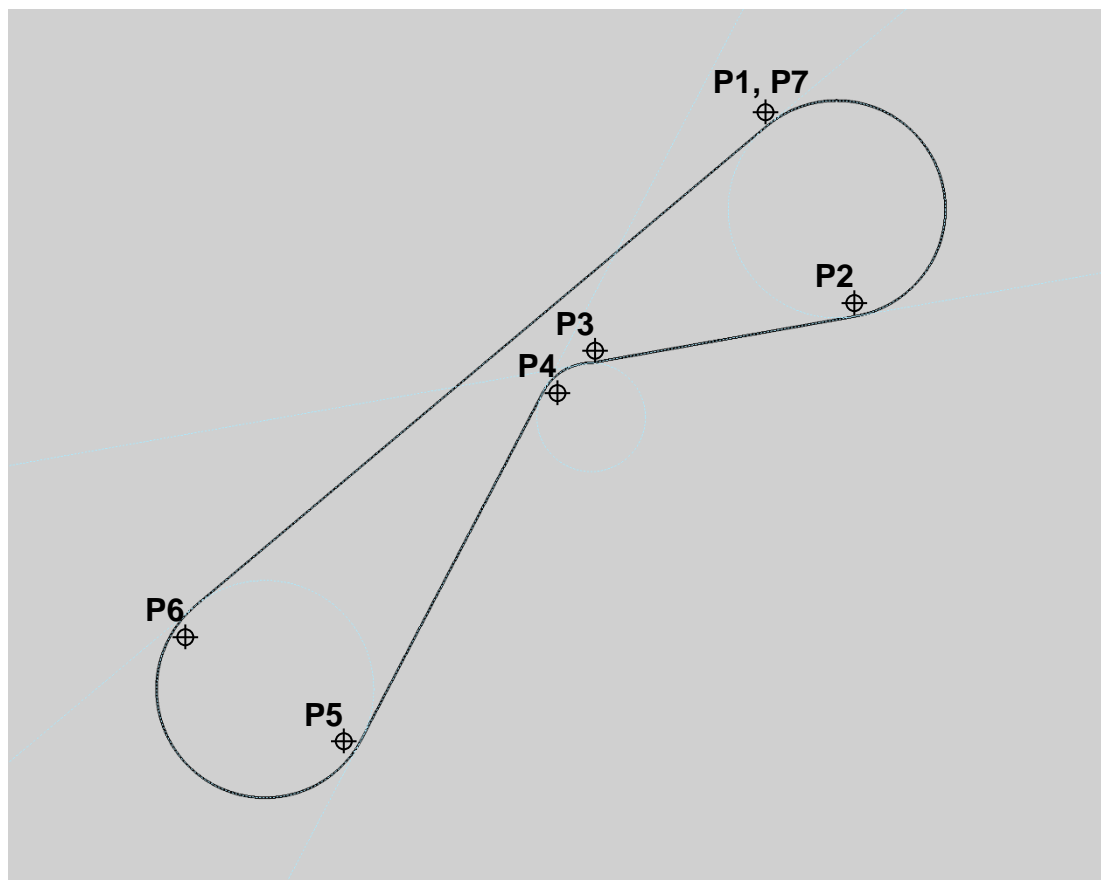


Die Eigenschaftsleiste wird angezeigt.

2. Wählen Sie den Linientyp "durchgehend" und die Farbauswahl „2“ (rot) aus.




3. Enter points **P1** - **P8** using the auto snap. Pay attention to the correct cursor arrow position for the circular arcs.



### TIPP

At the beginning you can use the zoom command to enlarge situations in order to better recognize the snap points. Later, when there is more routine, this is no longer necessary.

4. To end the line sequence, press the [Esc] key or select the CANCEL function .
5. Save work copy!

---

**WORKSHOP END**

## ROTATE, ZOOM AND MOVE THE SCREEN

### Move the screen

Simultaneously hold down [Ctrl] + middle mouse button and move the mouse or, while holding down the [Ctrl] key, use the arrow keys on the keyboard [←→↑↓].

### Rotate the screen

If you just keep the middle mouse button pressed and move the mouse, you will turn into 3D. In the 2D version this is not possible in the standard settings.

Moving the mouse causes the following movements on the screen.

### Reset camera



or [Ctrl] + [Space]

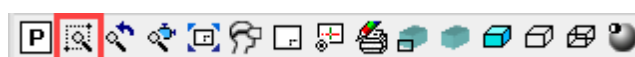
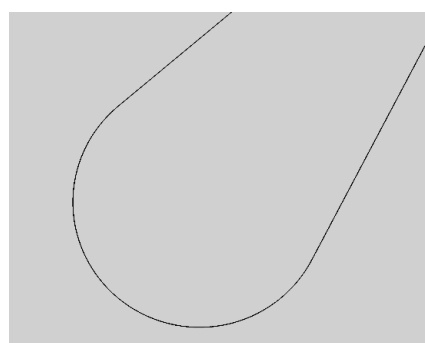
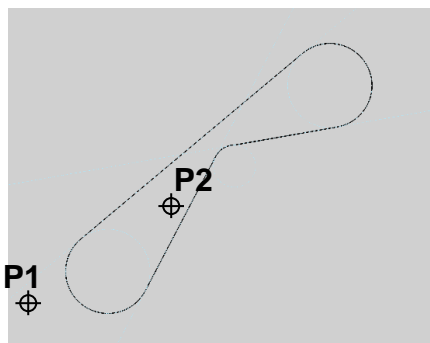
Select this function to return a rotated screen to its original position. Starting position means "view normal to the work plane" and "sheet format centered on screen".

### Zoom screen

Simultaneously hold down [↑Shift] + middle mouse button and move the mouse up and down. The picture is enlarged towards the top and reduced towards the bottom. If you have a mouse with a scroll wheel, this wheel can be used to zoom. If you only want to zoom in on the format (e.g. : A3), you can do this using the function ZOOM ON FORMAT.



Or ZOOM bz 2 POINTS, here you specify two points (P1, P2) over a diagonal. This area is then zoomed and displayed on the screen.



## WORK COPY

The current stage of work is saved to a temporary directory. A work copy is stored under the name "woco". A certain number of work copies can be made whereby the oldest one in each case is removed and the new one becomes "woco\_0".

A work copy is **not** to be used to save the final version of a project!

### Save work copy



or with the key combination [Ctrl]+[W]

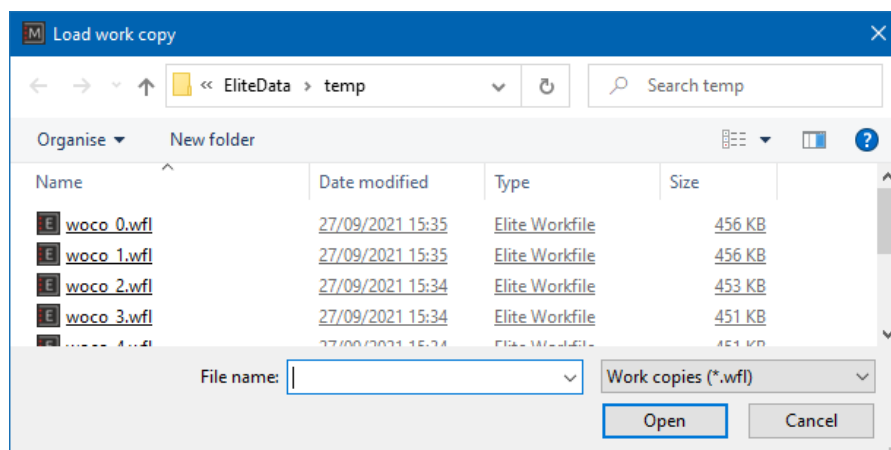
### Load work copy



Opens the last work copy (woco\_0).

To load the penultimate work copy or even older ones, select the function LOAD WORK COPY in the FILE menu.

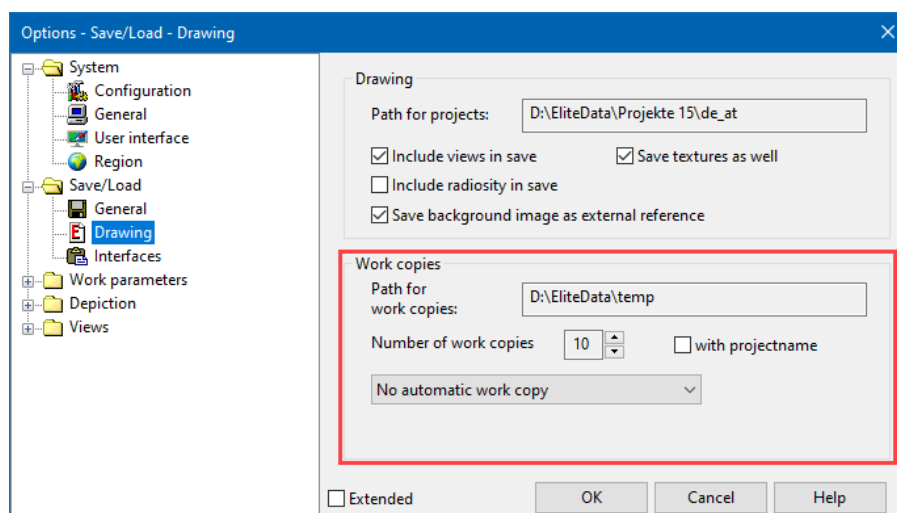
Menu FILE > LOAD WORK COPY



Select the desired **woco** and click OPEN to import it into the CAD.

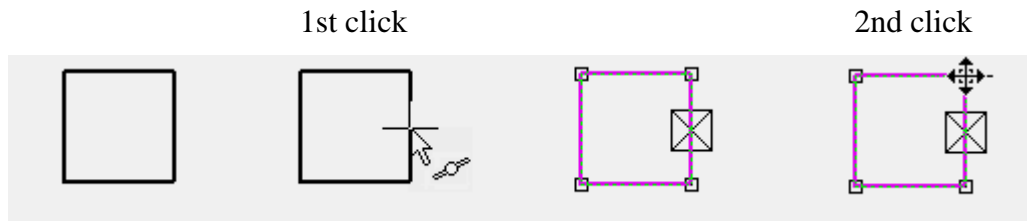
All of the settings in connection with work copies can be found in the options.

Menu SETTINGS > OPTIONS > SAVE/LOAD > DRAWING



## MANIPULATE POLYGON

A created polygon can be modified. The 1st click on the polygon selects it and the corners receive handles.



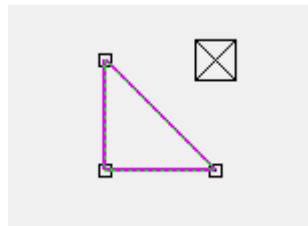
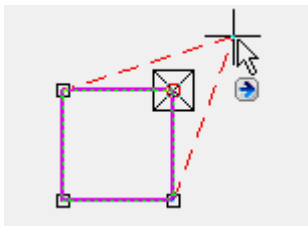
The 2nd click decides which corner or which edge is modified. So that you can tell that the cursor is over a changeable element, it changes its appearance to a quadruple arrow.

Other manipulation functions appear depending on whether a line, a curve, a corner or an end point was clicked. The function last selected is immediately active.

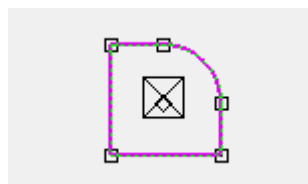
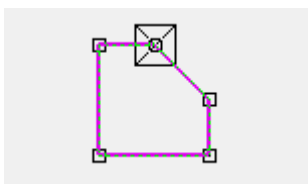
The available manipulation options appear in the *Input assistant* tool bar or on the cursor with the [Tab] key.

### Manipulation options on a corner

Stretch point   Delete point

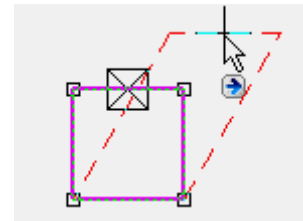
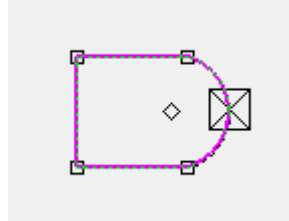
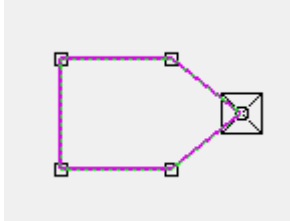


Chamfer   Fillet



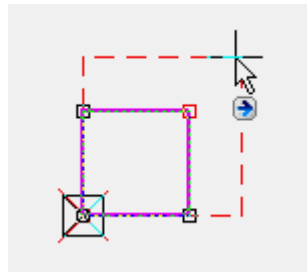
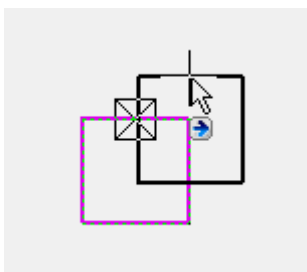
## Manipulation options on an edge

Insert point    Round edge    Stretch element



## Manipulation options for a corner or edge

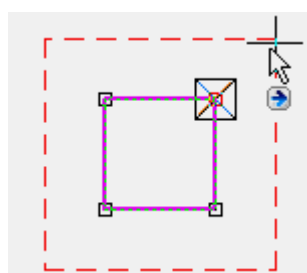
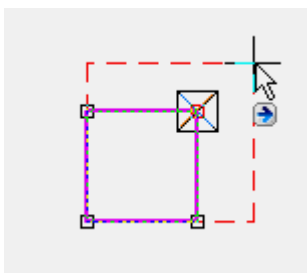
Move selection    Scale element



By pressing the [Ctrl] key at the same time, the selection can be copied when moved.  
When scaling, a reference point must be set as the starting point for scaling.

Move elements parallel

Move all edges parallel



### Change polygon

A distinction is made between whether a closed or an open polygon is to be modified. After you select the change function, the drawing functions with which the change can be drawn appear in the *Input assistant*.

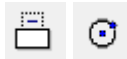
Expand/reduce closed polygon by one circle:

First select the *Expand or reduce polygon* function followed by the drawing function *Circle*.

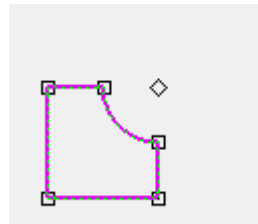
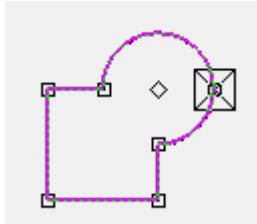
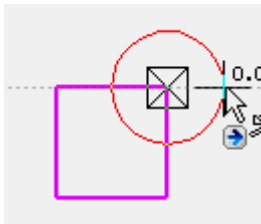
Drawing function



Extend circle polygon



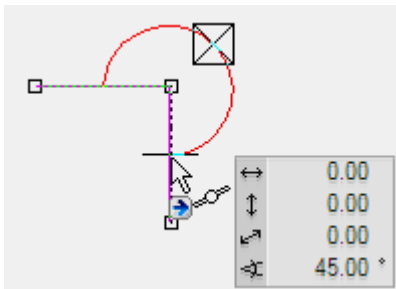
Reduce polygon



Open polygon:



For the open polygon, the extension polygon must be started on the geometry and ended by double-clicking on the geometry. An exception is when you start on an end point. If the polygon cannot be closed properly, the change is not carried out.

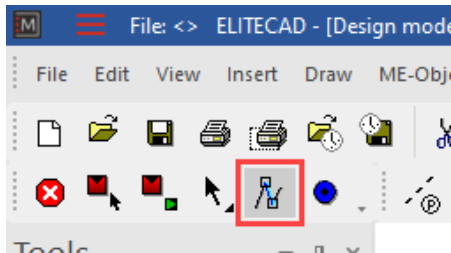


## STRUCTURE / SELECTION

### Selection of element part

For certain manipulations such as move selection or extend elements/move in parallel, it makes sense to perform the manipulation not on the entire polygon but only on certain elements.

To enable individual elements to be selected, the selection mode must be switched to "Selection element part".

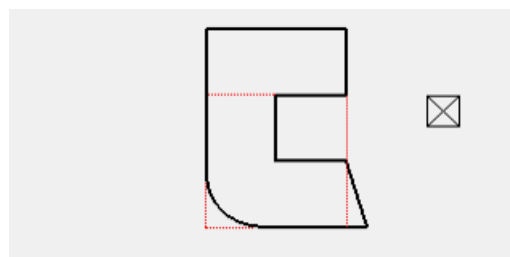
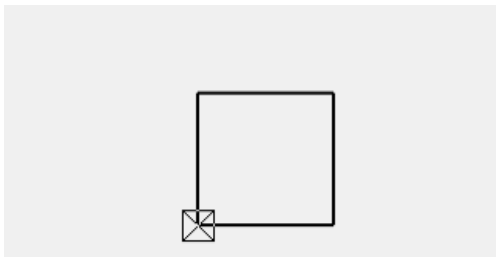


Alternatively, press the [Alt] key.

Multiple selection [Shift] key

## ▼ ▼ ▼ ▼ WORKSHOP

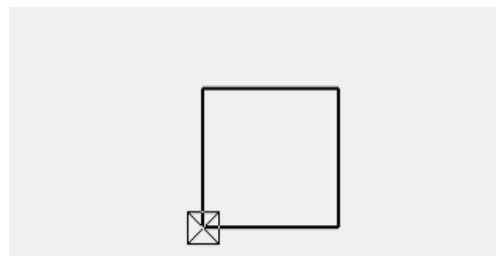
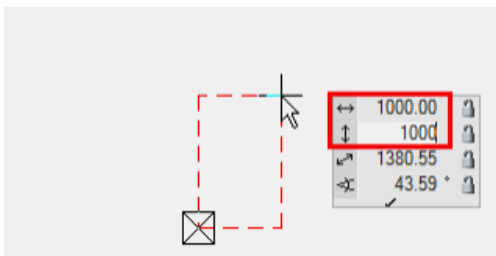
Edit a rectangle until you receive the following result:



1. Begin with entry of the rectangle. Function RECTANGLE



Set the first point of the rectangle at any point on the screen. For the second point, press the [Tab] key and enter in the value field the x value **1000** and the y value **1000** and confirm your entry.



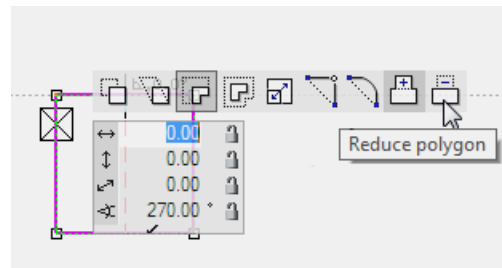
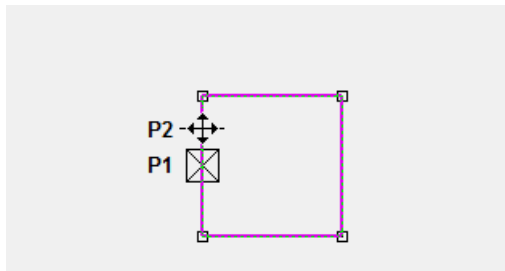
End the drawing function by pressing [Esc] or CANCEL.



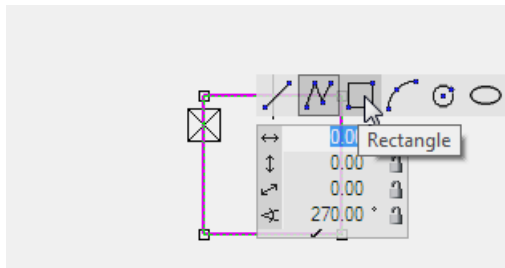
2. The first manipulation function is the extension of a polygon.



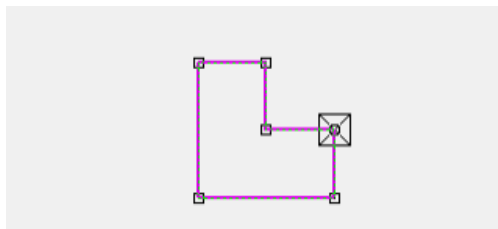
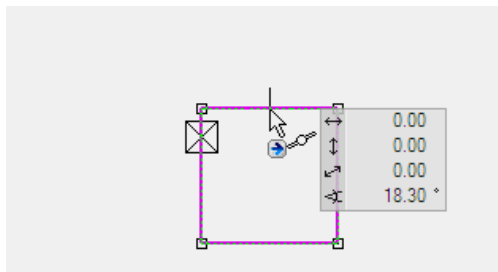
Select the rectangle **P1**. Move the cursor to an element of the polygon until the quadruple arrow appears. With one click **P2** you activate the current manipulation function in the input assistant. To display the selection of the function, press the [Tab] key. Select the function **REDUCE POLYGON**.



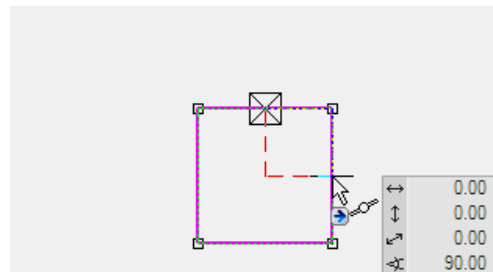
RECTANGLE drawing function



Start point lies on the middle of the element

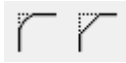


End point lies on the middle of the element

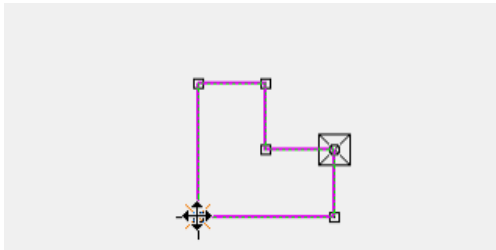




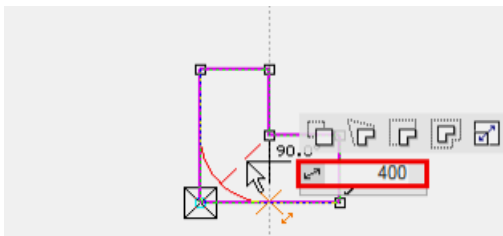
3. Another manipulation option is the filleting or chamfering of a corner. In the example the lower left corner is to be filleted.



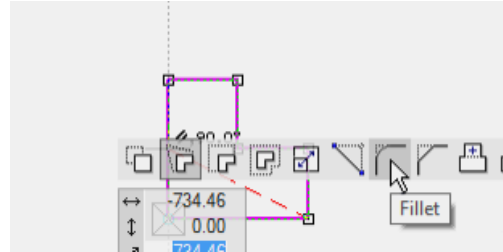
Click in the corner



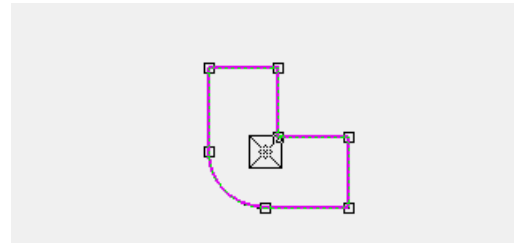
Enter radius 400



[Tab] key, FILLET

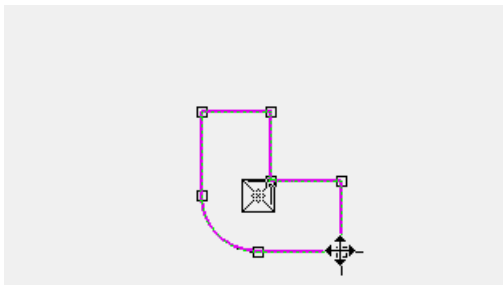


Confirm

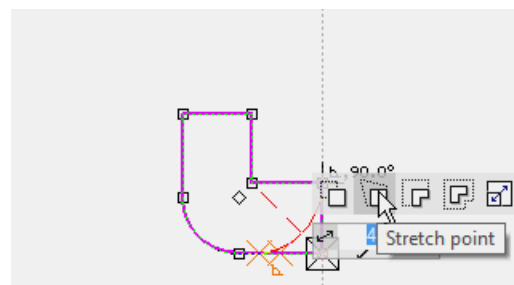


4. The next manipulation is stretching a point. The right lower point is to be moved 150 cm to the right.

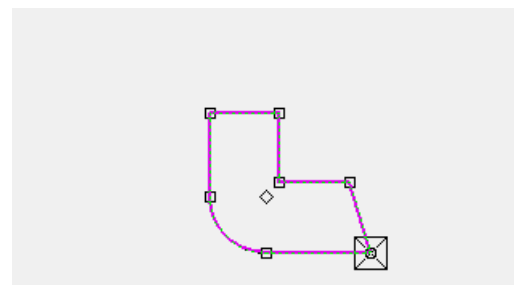
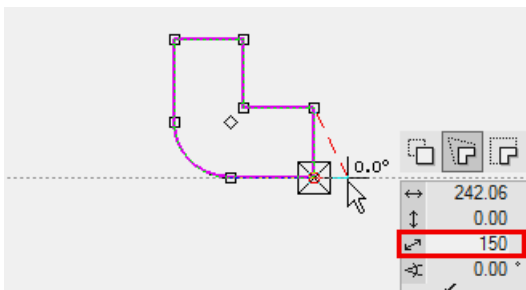
Click in the corner



[Tab] key, STRETCH POINT



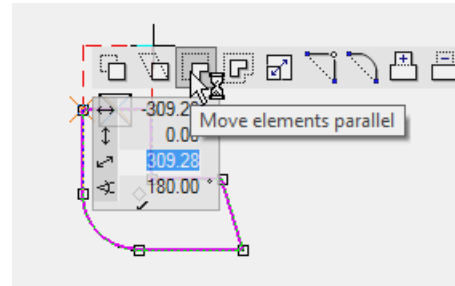
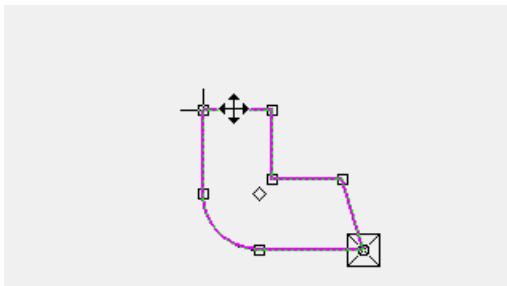
Distance to element, **150**



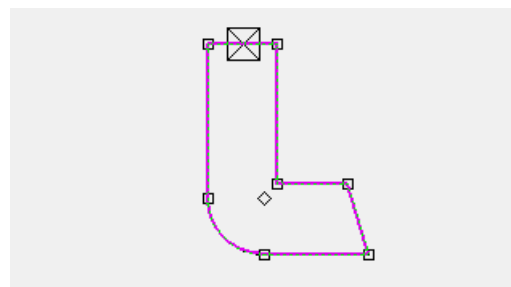
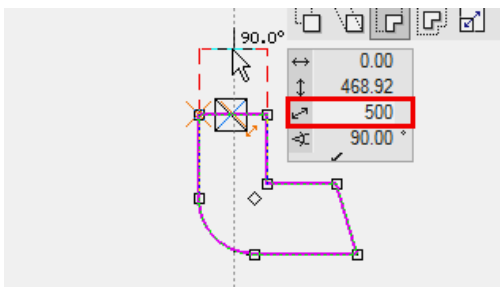
5. The upper edge must be stretched upwards by 500 cm.

Click on the edge

[Tab] key, MOVE ELEMENTS PARALLEL



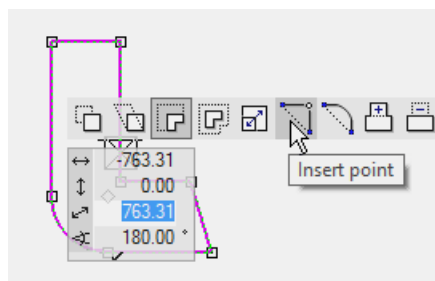
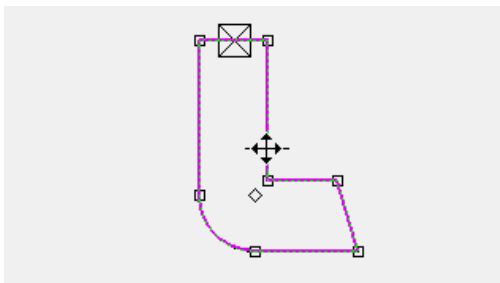
Move cursor to the perpendicular help line and enter the direct value **500** in the value field.



6. The INSERT POINT function splits an element and enters a point that can be set at the desired position straight away.

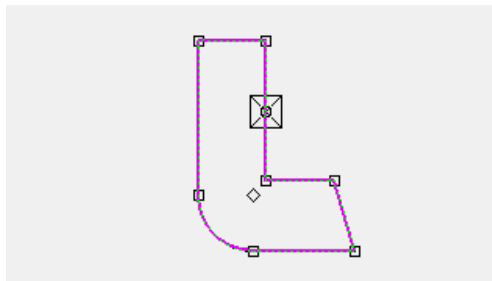
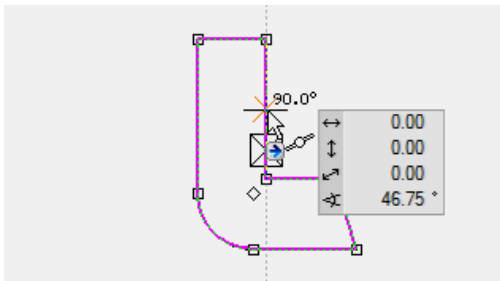
Click on the element

Function INSERT POINT



Set point to middle of element

New point with handle

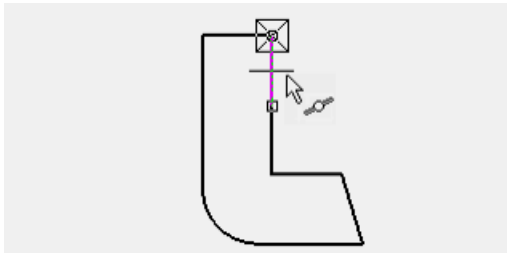


7. Until now the manipulations were performed on the entire polygon; now however only one element can be selected. Before the element is selected, you must switch to the selection mode element part.

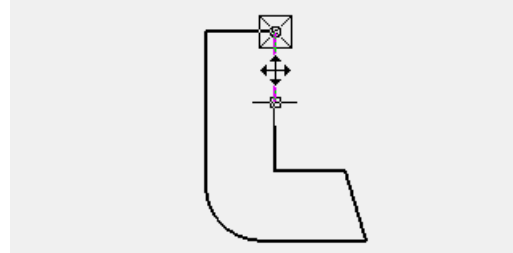


Remove existing selection with the [Esc] key or by left-clicking into an empty space.

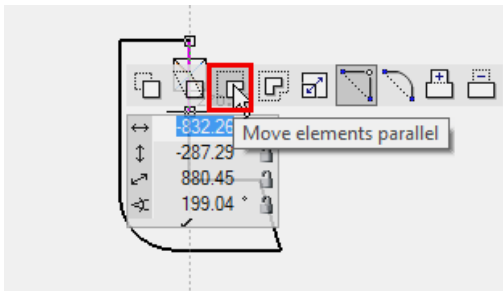
Mark element



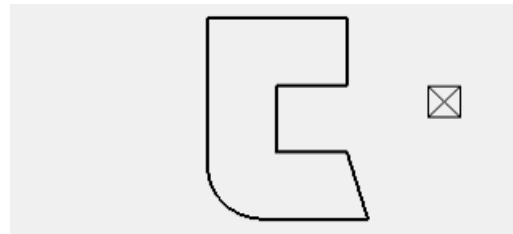
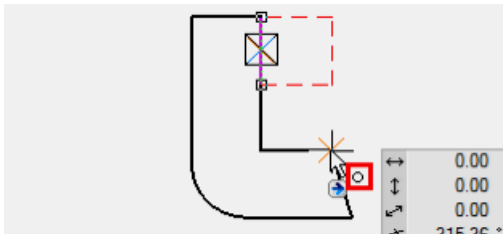
Click for manipulation mode



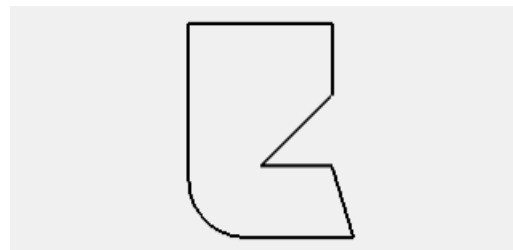
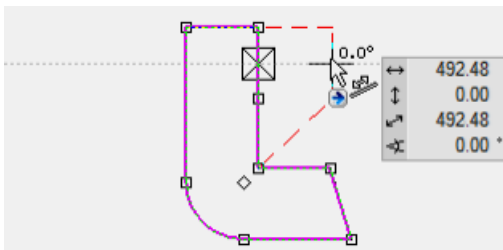
Function MOVE ELEMENTS PARALLEL



Move the element out and move the cursor to the lower point until the catch symbol point on the cursor appears. You can then be sure that the element is located perpendicular above the point.



The same manipulation, but across the entire polygon, has the following result:



8. Open a new file and deactivate the selection mode element part.



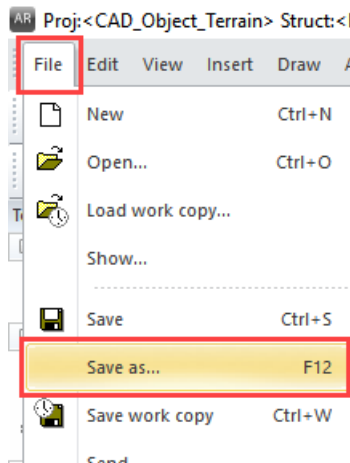
WORKSHOP END

## SAVE

The first time you will save the drawing select the function SAVE AS under the FILE menu.

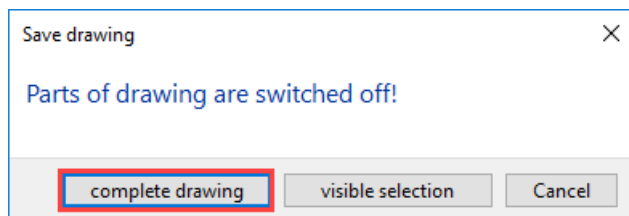
### ▼ ▼ ▼ ▼ WORKSHOP

#### 1. Menu FILE > SAVE AS



### TIP

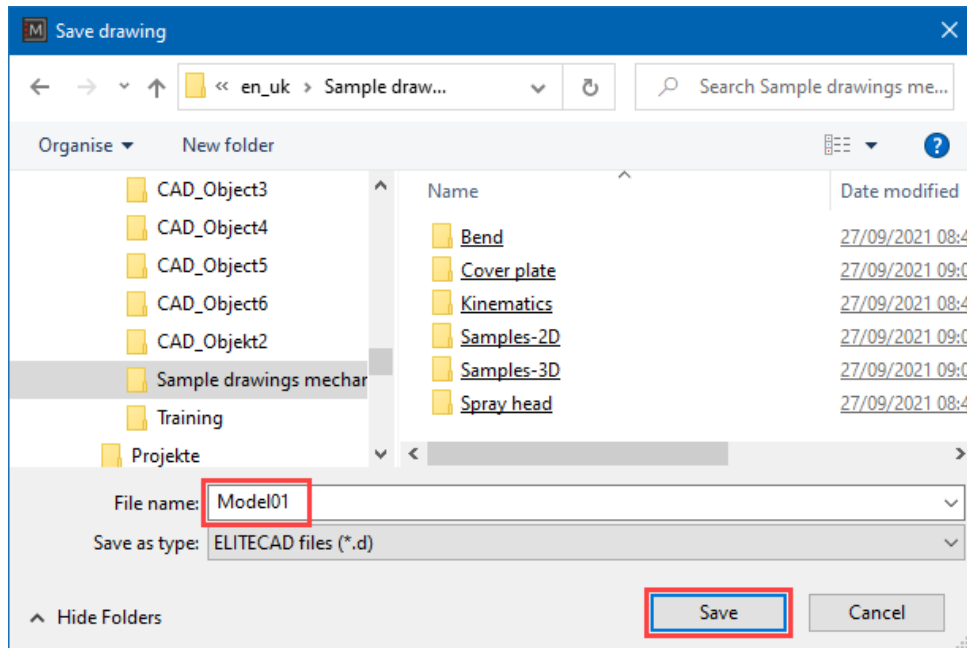
With this save function, it is possible to save only the currently displayed content. If the drawing is not fully displayed, the following message appears.



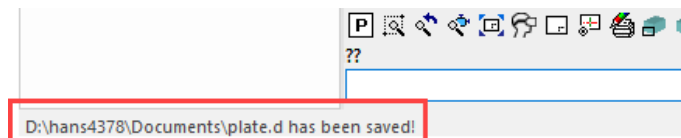
With these options you can choose to save either the "complete drawing" or only the "visible selection". In most cases, however you will want to save everything and not just the visible parts.

If the message appears in your example, select the option "Complete drawing".

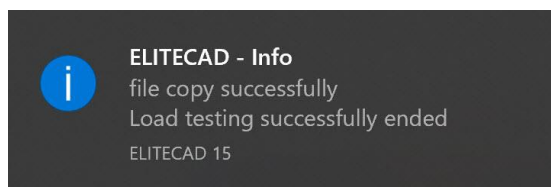
2. In the field *File name* enter the name **Model01** and save the model.



3. To check whether the file is saved, you quickly see a control text in the status line (bottom left of the screen edge).



and the info balloon appears if it is activated.



4. End the program by selecting FILE > END from the menu

5. The program closes by itself.

## TIP

When you end the program, the current setting on the complete drawing is saved. The assignment of toolbars is then identical to the current one when you switch on again.

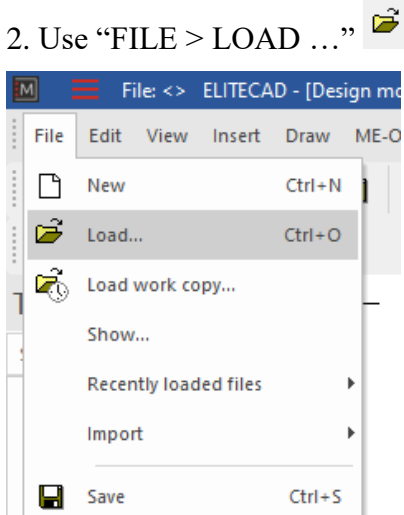
WORKSHOP END

# OPEN

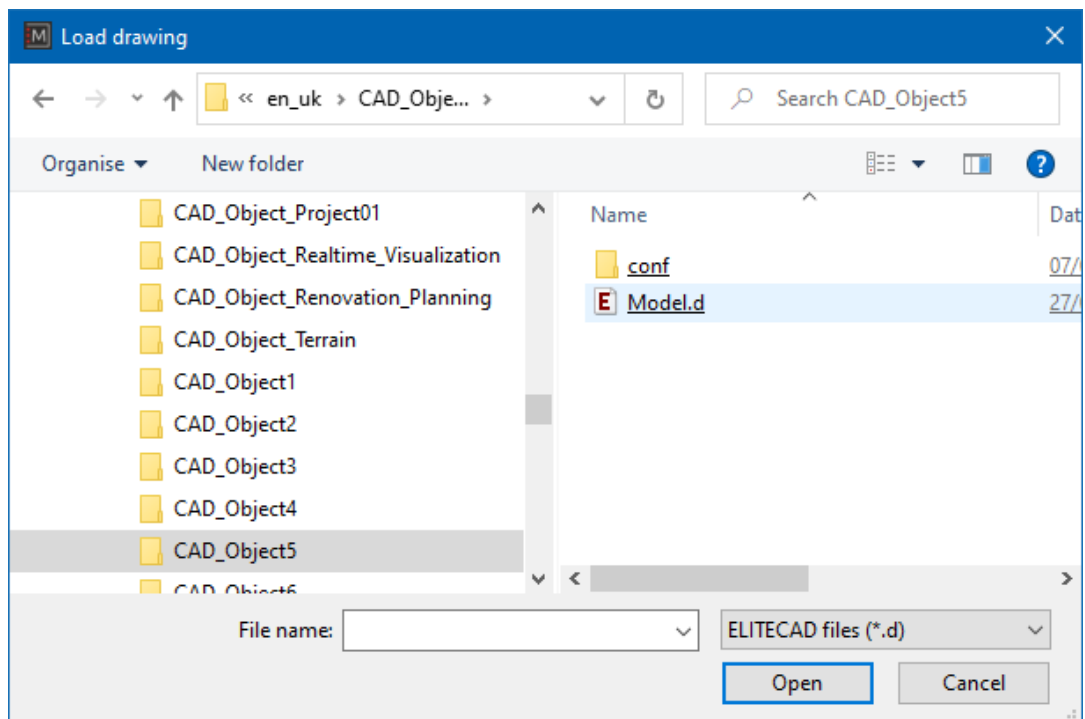
## ▼ ▼ ▼ ▼ WORKSHOP

1. Start ELITECAD.

2. Use “FILE > LOAD ...”



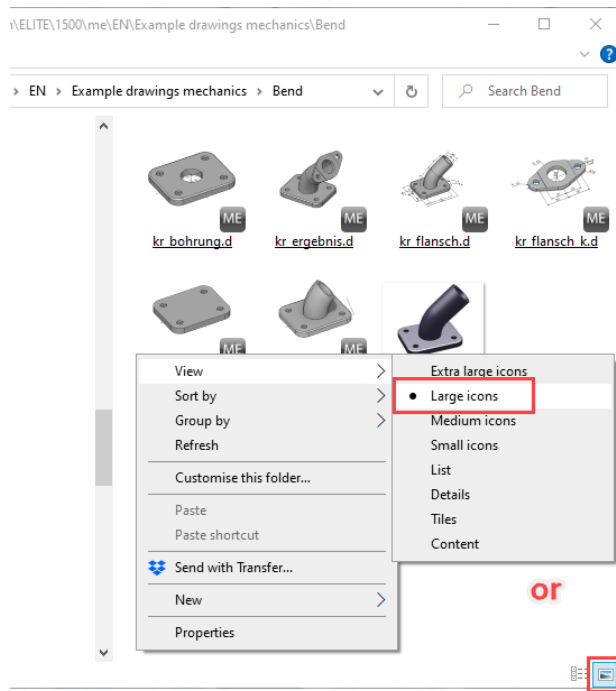
3. Switch to your specified directory and open the drawing file.

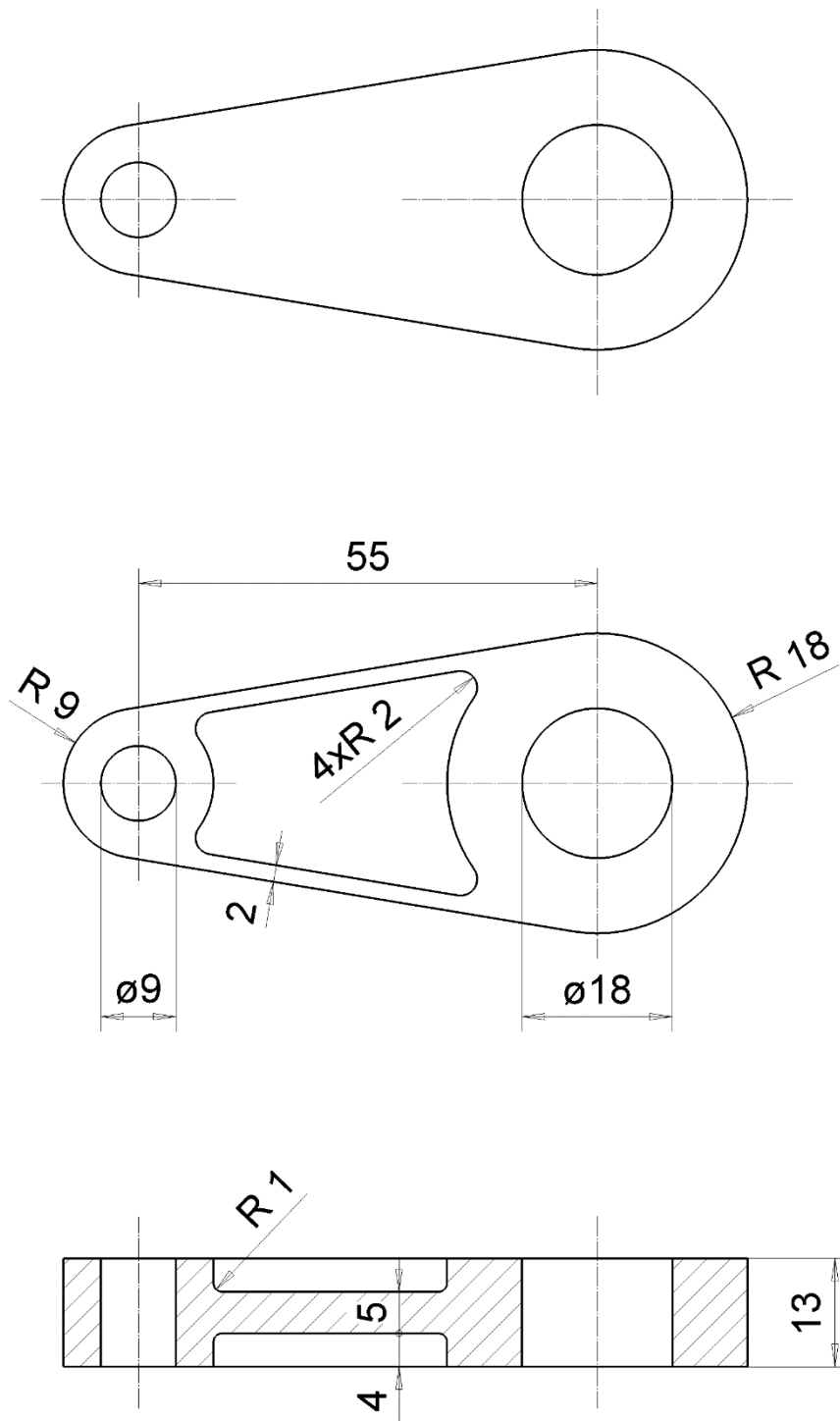


## WORKSHOP END

## TIP

To view the contents of a file before open the drawing you can change to large icons using the context menu or the icon right down.



**TRAINING EXAMPLES**

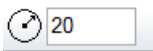


**TIPP**

A corner can be rounded using the FILLET function (Modify menu → Elements → Fillet).

**Fillet**

Indicates that the Fillet function is active. It is also possible to switch to the functions NOTCH and CHAMFER.

**Radius**

The radius with which a corner is rounded is specified in this field.

**Modify**

With this function you can change or remove already existing fillets. If a fillet is to be deleted, the value 0 must be entered in the radius field. \_\_\_\_\_

