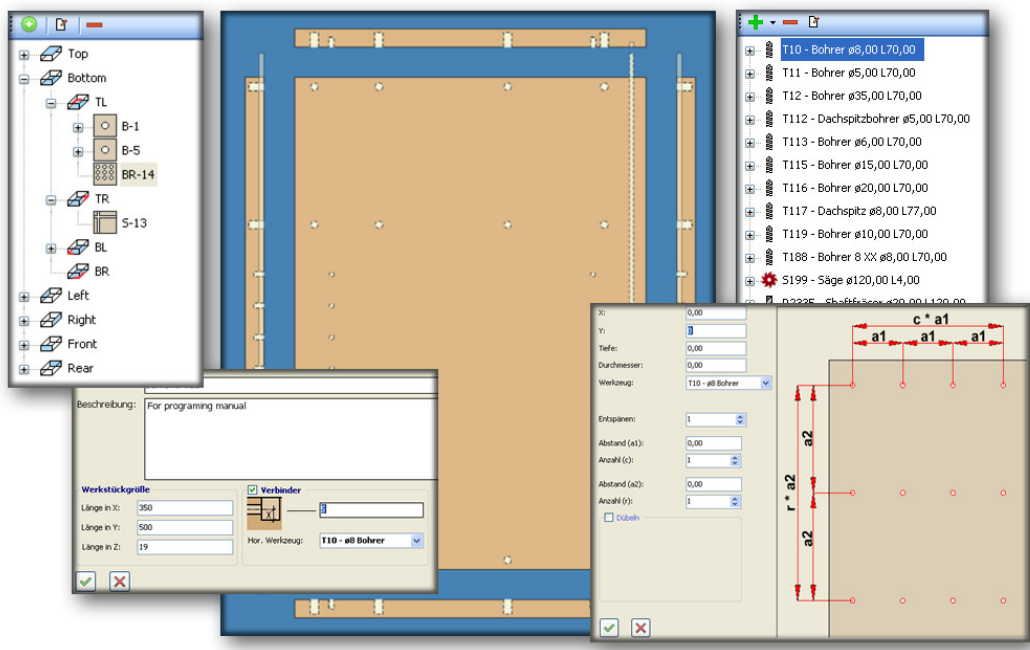


Programming Instructions

GANNOMat

Editor



Software for Programming Furniture Components

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Year: _____

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1 Introduction

1.1 General Information

System start and workstation

- The programming software is already installed on the machine PC. After switching the machine on (see operating manual, Chapter: <Commissioning>, Section: <Switching on the Machine>), the software starts at the main menu.
- For installation of a workstation, an activation code must be requested, for which a fee applies. The software can be used in test mode without limitation for 60 days after installation without an activation code.



Note

System requirements for a workstation:

- Processor with at least 1.0 GHz
- Microsoft Windows XP Professional, SP2
- 256 MB RAM (512 MB recommended)
- 500 MB free hard drive space

General programming information

- All tool dimensions are to be entered in mm.
- All time specifications are to be entered in milliseconds.
- The reduction of the feed rate is specified in per cent. 100% corresponds to the values set in the menu <Feed Reduction>.
- Workpiece size and programming positions are entered in mm.

1.2 Information on the Software



Fig.1- Information Field

Retrieving the version number

1. Click on the <?> menu in the menu bar and select the <Info> option.
 - The version number is to be included with all queries.
2. Any installed add-ons will also be displayed in the information field.
 - ✓ Close information field with <OK>.

Software update

1. Click on the <?> menu in the menu bar and select the <Update> option.
 - This option is no longer active, since there are now too many different control variants, which frequently caused this function to result in errors.

1.3 System Info

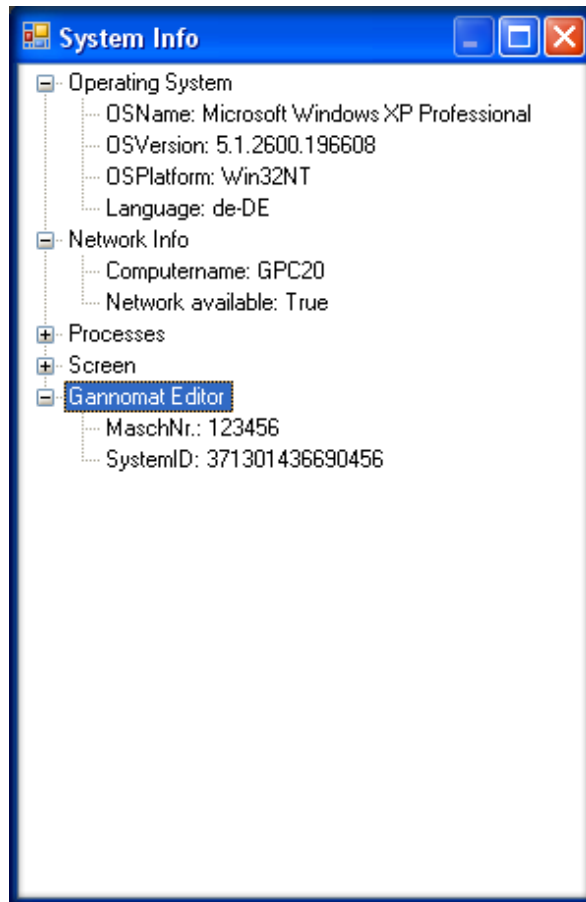


Fig.2- System Info

Retrieving system info

1. Click on the <?> menu in the menu bar and select the <System Info> option.
 - More system information is available.
2. The machine number and the system ID for the activation of the software can be found in the <Gannomat Editor> category.
 - ✓ This information is required for activation of a new installation of the Gannomat Editor.

1.4 Start Screen

The Ganner Editor is designed for programming furniture components. The available processes are:

- Holes on all six sides of a workpiece.
- Front side holes with dowels.
- Grooves with a saw in the flat side of a workpiece.
- Routing objects in the flat side of a workpiece.

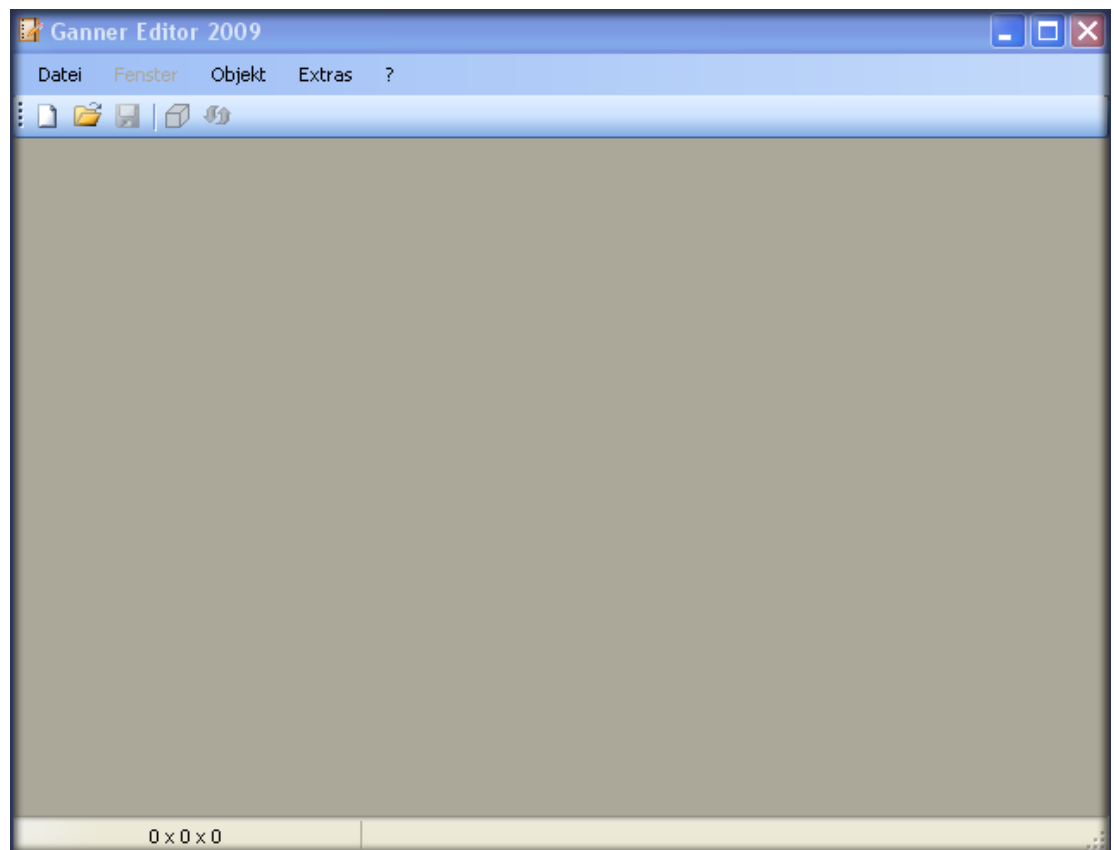


Fig.3- Start Screen

Layout of the start screen

1. The menu bar consists of the following menus:
 - File, Window, Object, Extras and ? (Information).
2. The toolbar consists of the following icons:
 - New program, Open program, Save changes, Workpiece settings and Refresh screen.
3. The top title bar shows the file name after opening a workpiece.
4. The workpiece size of the current file is shown in the bottom left corner.

1.5 Basic Settings

1.5.1 Extras – Paths Menu

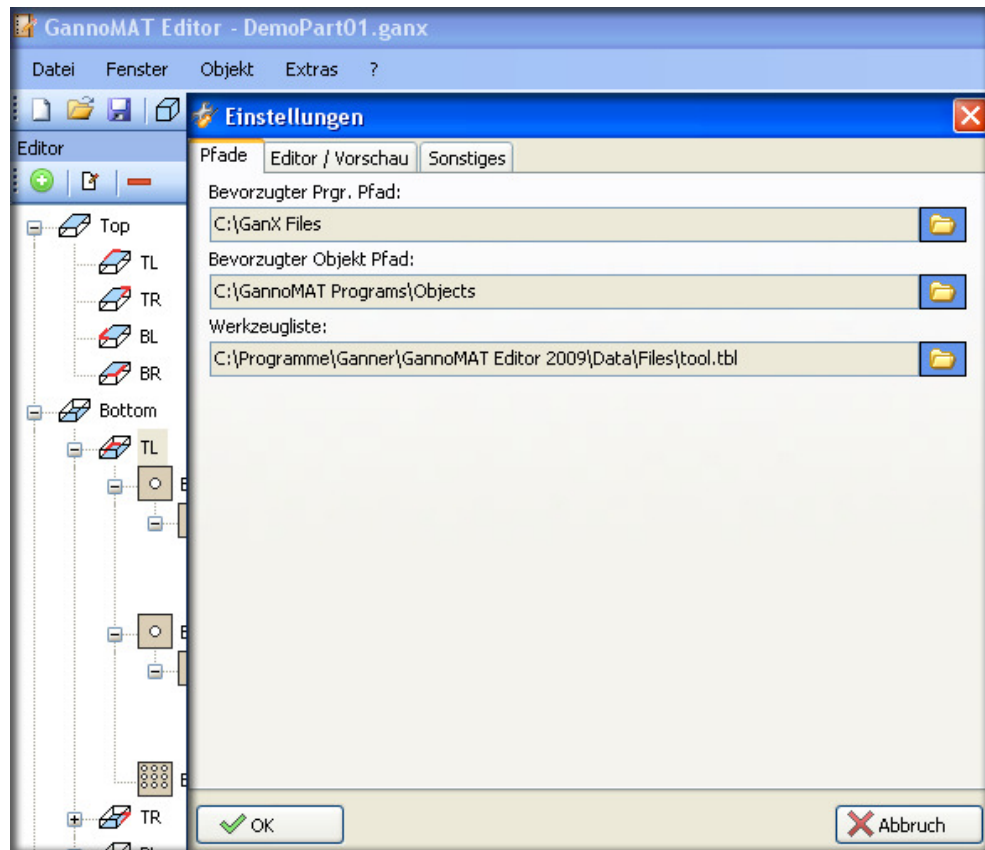


Fig.4- Paths Settings Menu

Paths settings

1. The <Software Settings> submenu in the <Extras> menu will open.
2. The directories for the programs, the objects and the tool list can be configured in the <Paths> tab.
 - If the machine software and an office workstation are operated on a network, the paths of the objects and tool list are to be stored on a server directory so that the machines and the office workstation can access the same database.
 - ✓ All settings are saved with the >OK< button.

1.5.2 Extras – Preview Menu

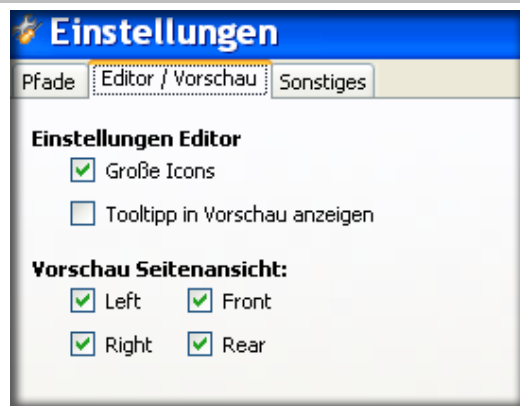


Fig.5- Editor / Preview Settings Menu

Editor / Preview Settings

1. <Large Icons> option field
 - Enlarges the reference edge icons when the cursor hovers over them.

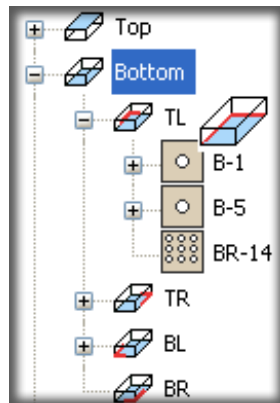
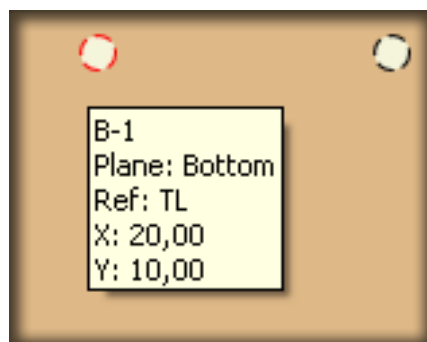


Fig.6- Large Icons

Editor / Preview Settings

1. <Tooltip in Preview> option field (old: <Holes Quick View>)
 - Displays an information field on the process when selecting a process with the left mouse button.



Editor / Preview Settings

1. <Side View Preview> option field (old: <Path Settings>)
 - Displays the workpiece preview (flat side view) when selecting the corresponding side view (front side view).

1.5.3 Extras – Other Menu

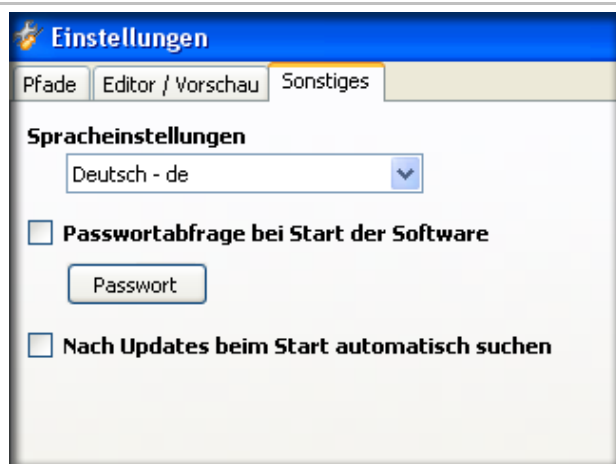


Fig.7- Other Settings Menu

Other Settings Menu

1. Drop-down menu of the available menu languages.
 - Restart the <Ganner Editor> after changing this setting for the selected language to be active.
2. Option field for requesting a password when starting the software.
 - Set the password with the Password button.
3. Option field to check for updates.
 - This option field is no longer active for newer software versions. With older software versions, the connection to the WEB server is no longer permitted for security reasons.

1.6 Other Settings

1.6.1 Settings on the Programming Screen



Note

More settings on the programming screen.

- To be able to configure the window settings on the programming screen, a program must be open.

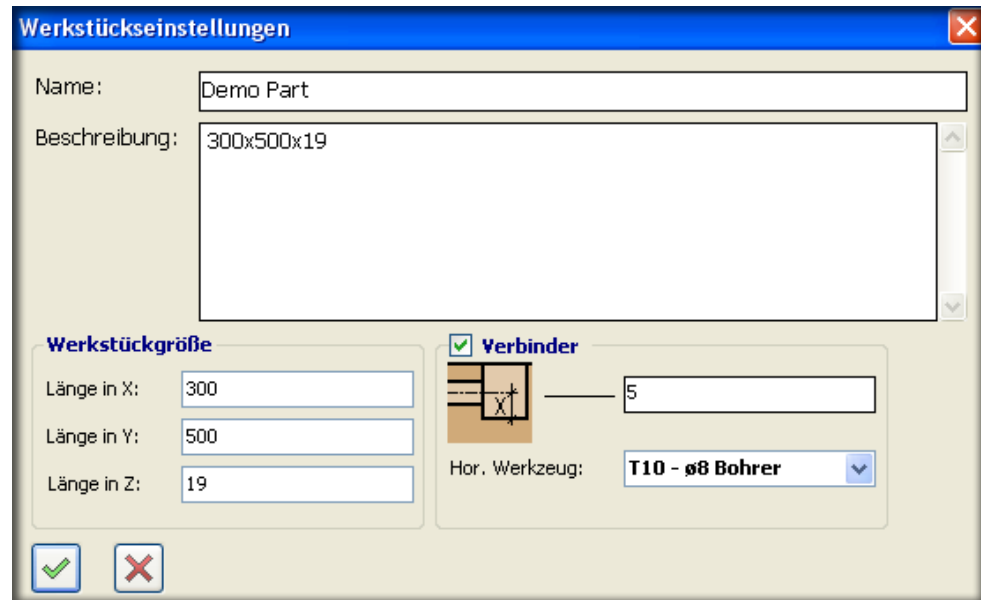


Fig.8- Open or Create New Workpiece

Open or Create New Workpiece

- Add a new workpiece.
 - Add a new workpiece in the menu bar under <File> and <New>, or
 - in the toolbar with the <New> icon, or
 - with the key combination >Ctrl + N<
- or open an existing workpiece.
 - Open a new workpiece in the menu bar under <File> and <Open>, or
 - in the toolbar with the <Open> icon, or
 - with the key combination >Ctrl + O<
- Enter the corresponding details in the <Workpiece Settings> menu.
 - Name: The program name should also be used as the file name.
 - Description: This field allows a more precise description of the workpiece, but it is not required.
 - Workpiece size: details on the workpiece dimensions, the orientation of the view does not matter, since the workpiece can be rotated as necessary in the machine.
 - Connector (Minifix) option field: This function is helpful if the Connector (Minifix) programming function is used. It allows the Z-position of the front hole to be automatically based on the corresponding drilling depth of the flat side hole.
 - ✓ If the details for the workpiece settings need to be modified subsequently, the <Tool Settings> icon in the toolbar must be used to open the input field of the open program.

1.6.2 Window Settings

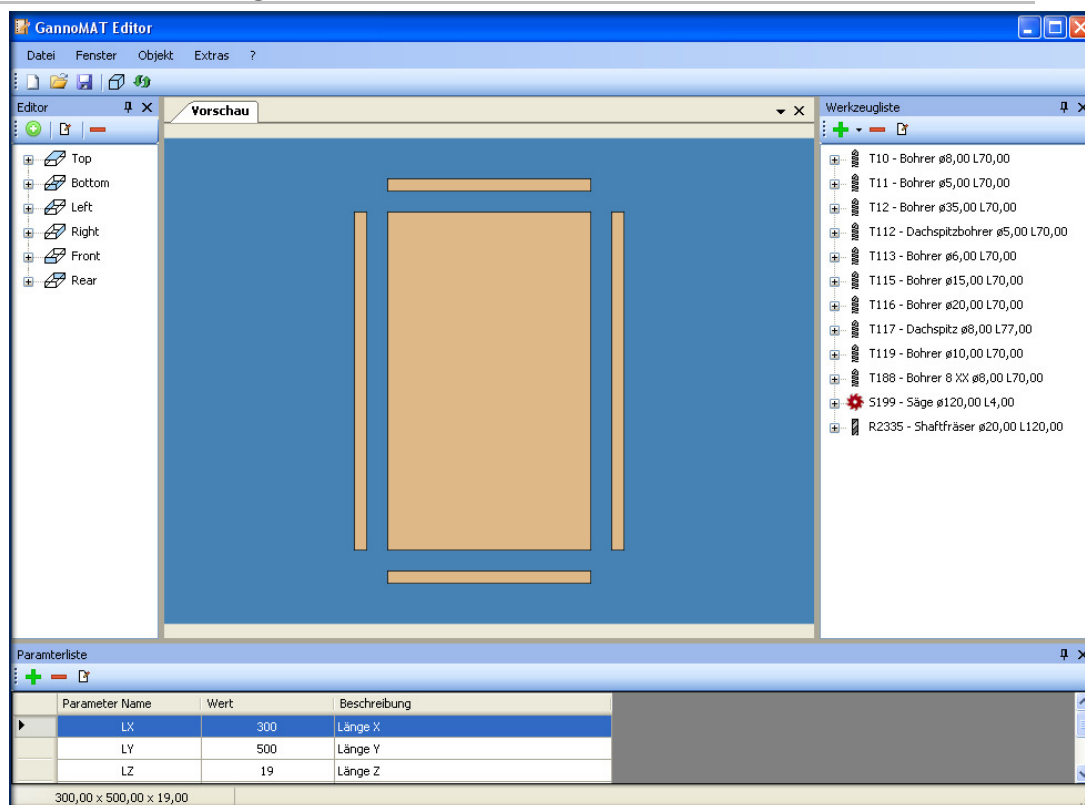


Fig.9- Window Settings

Window settings on the main programming screen

- With a workpiece open, the four processing sections can be enabled or disabled via the menu bar with the <Window> option.
 - Editor section: Left editing panel for the creation and the assignment of reference surfaces for processes on the workpiece.
 - Preview section: Center section for the visual preview of a specified process on the workpiece.
 - Tool table section: Right editing panel for entering the necessary tools for the creation of a process on the workpiece.
 - Parameter monitor section: Bottom editing panel for the administration of standard and user-defined parameters.
- ✓ All processing fields can be deactivated in the top-right corner with the >X<, or set to 'always visible' with the pin.

1.7 Define Tools

1.7.1 Tool List



Fig.10- Edit Tool List

Edit Tool List

1. A corresponding tool must be defined for every process on the workpiece. When adding a new tool, an available tool option can be selected with the green >+< button.
 - It should be noted that different tool configurations are possible with different machine types. When opening a program on a machine, only the permitted tool configurations will be used.
2. A selected tool in the list can be deleted from the tool list with the red >-< button.
3. The setting field for editing a selected tool from the tool list can be opened with the Edit button.

1.7.2 Drilling Tool

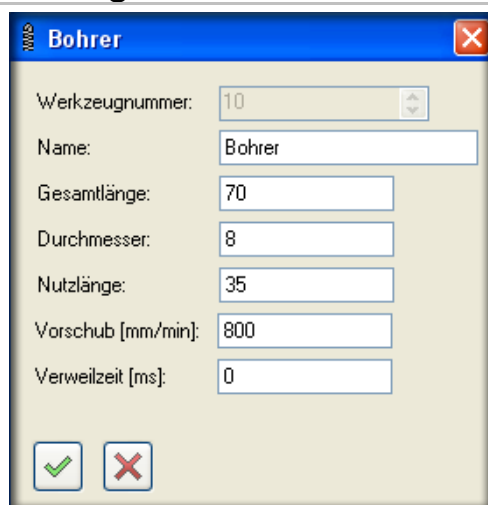


Fig.11- Drill Input Field

Define drill

1. The tool number determines the order in the tool list.
 - Once a tool is added, this number can no longer be modified.
2. Name: Designation or note about the tool type.
 - The diameter and the total tool length are automatically included in the description in the tool list.
3. Total length of the tool.
 - It should be noted that different tool lengths are possible for different machine types. When opening a program on a machine, only the permitted tool lengths are used. The permitted tool lengths are specified in the operating instructions for the respective machine type.
4. Diameter of the tool.
 - If the diameter is the same, but the cutting type is different, the processing details for the desired tool must be selected from the list of matching tools.
5. The nominal length indicates the maximum processing depth.
6. Possible feed values are specified in the operating instructions for the respective machine type.
7. The dwell time indicates how long a tool remains in the end position after reaching it, until the return stroke is initiated.
 - ✓ Save the entries with the green <OK> button. The input can be cancelled without saving via the red <X>.

1.7.3 Dowel Tool

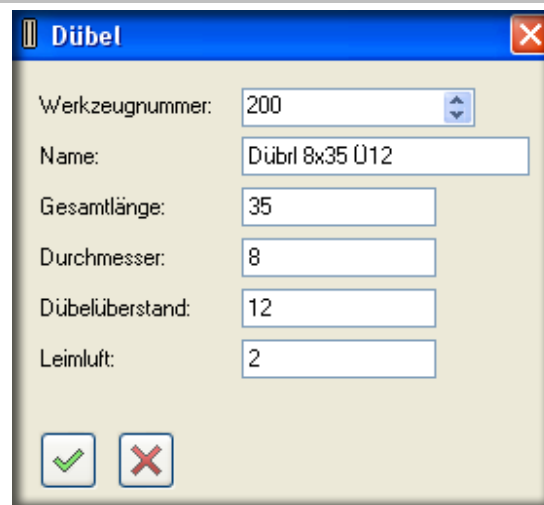


Fig.12- Dowel Input Field

Define dowel

1. The tool number controls the order in the tool list.
 - Once a tool or dowel is added, this number can no longer be modified.
2. Name: Designation or note about the dowel type.
 - The diameter and the total length are automatically included in the description in the tool list.
3. Total length of the dowel.
 - It should be noted that different dowel lengths are possible for different machine types. When opening a program on a machine, only the permitted lengths are used. The permitted lengths are specified in the operating instructions for the respective machine type.
4. Diameter of the dowel.
5. The dowel overhang or dowel protrusion is used to calculate the drilling depths for the front side.
6. The glue space is for the calculation of the drilling depth and as tolerance compensation for the dowel lengths and glue quantities. 2 mm is usual.
 - ✓ Save the entries with the green <OK> button. The input can be cancelled without saving via the red <X>.

1.7.4 Saw Tool



Fig.13- Saw Blade Input Field

Define saw blade

1. The tool number controls the order in the tool list.
 - Once a tool is added, this number can no longer be modified.
2. Name: Designation or note about the tool type.
 - The diameter and the saw blade length are automatically included in the description in the tool list.
3. Diameter of the tool.
4. Saw blade thickness based on the cutting width.
 - It should be noted that different diameters and saw blade thicknesses are possible for different machine types. When opening a program on a machine, only the permitted tool lengths are used. The permitted tool lengths are specified in the operating instructions for the respective machine type.
5. The maximum nominal depth is indicated by the maximum processing depth of the saw blade.
 - ✓ Save the entries with the green <OK> button. The input can be cancelled without saving via the red <X>.

1.7.5 Routing Tool

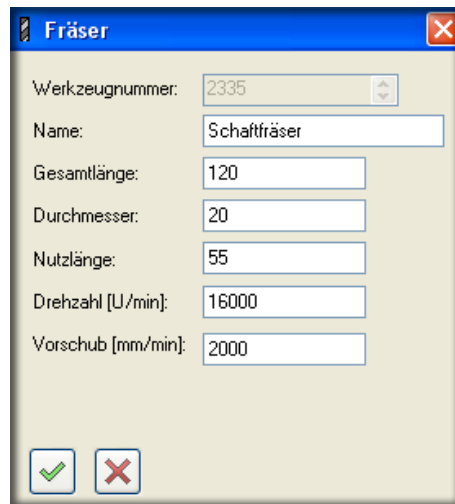


Fig.14- Router Input Field

Define router

1. The tool number controls the order in the tool list.
 - Once a tool is added, this number can no longer be modified.
2. Name: Designation or note about the tool type.
 - The diameter and the total tool length are automatically included in the description in the tool list.
3. Total length of the tool.
 - It should be noted that different tool lengths are possible for different machine types. When opening a program on a machine, only the permitted tool lengths are used. The permitted tool lengths are specified in the operating instructions for the respective machine type.
4. Diameter of the tool.
 - The diameter of the tool shaft can differ from the nominal diameter.
5. The nominal length indicates the maximum processing depth.
6. Possible speed values are specified in the operating instructions for the respective machine type.
7. Possible feed values are specified in the operating instructions for the respective machine type.
 - ✓ Save the entries with the green <OK> button. The input can be cancelled without saving via the red <X>.

2 Create Workpiece Program

2.1 Open or create new workpiece.

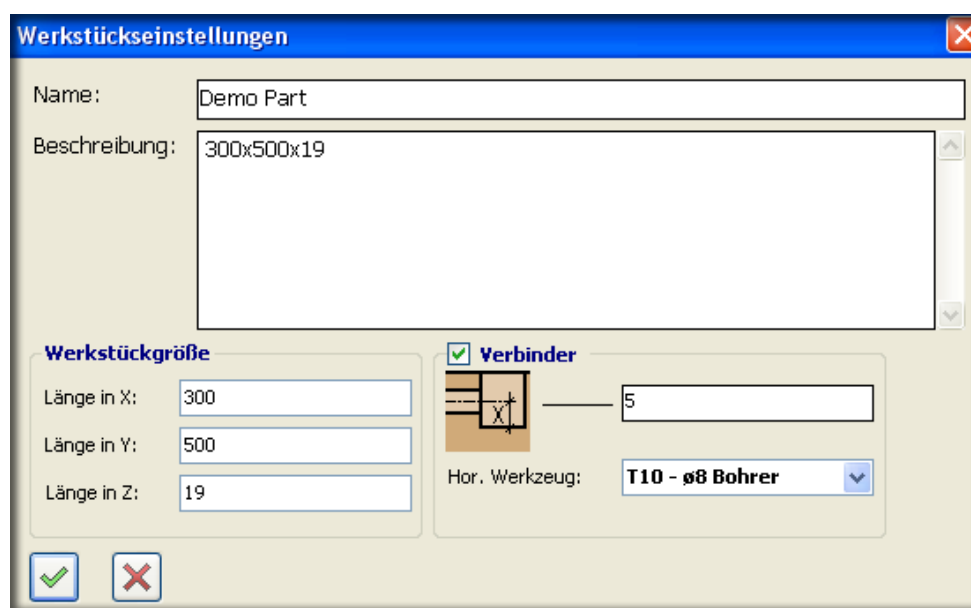


Fig.15- Open or Create New Workpiece

Open or Create New Workpiece

1. Add a new workpiece.
 - Add a new workpiece in the menu bar under <File> and <New>, or
 - in the toolbar with the <New> icon, or
 - with the key combination >Ctrl + N<
2. or open an existing workpiece.
 - Open a new workpiece in the menu bar under <File> and <Open>, or
 - in the toolbar with the <Open> icon, or
 - with the key combination >Ctrl + O<
3. Enter the corresponding details in the <Workpiece Settings> menu.
 - Name: The program name should also be used as the file name.
 - Description: This field allows a more precise description of the workpiece, but it is not required.
 - Workpiece size: details on the workpiece dimensions, the orientation of the view does not matter, since the workpiece can be rotated as necessary in the machine.
 - Connector (Minifix) option field: This function is helpful if the Connector (Minifix) programming function is used. It allows the Z-position of the front hole to be automatically based on the corresponding drilling depth of the flat side hole.
 - ✓ If the details for the workpiece settings need to be modified subsequently, the <Tool Settings> icon in the toolbar must be used to open the input field of the open program.

2.2 Select the processing references

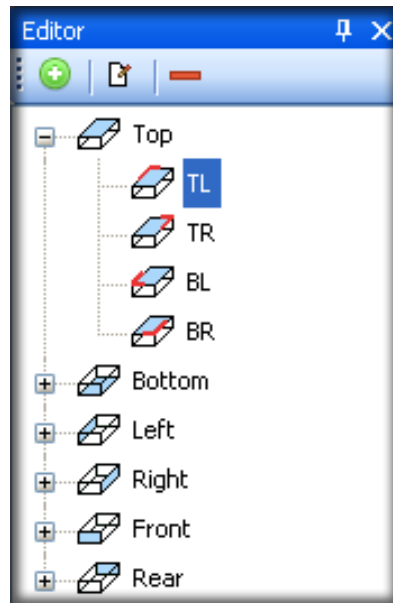


Fig.16- Select the References

1. The reference surfaces for the required processing can be selected in the <Editor> field.
2. Select the reference edges for the required processing.
 - The processing menu can then be opened with the <+ or Add> button.
 - An existing process can be deleted with the <- or Remove> button.
 - An existing process can be edited with the <Edit> button.

2.3 Drilling Object

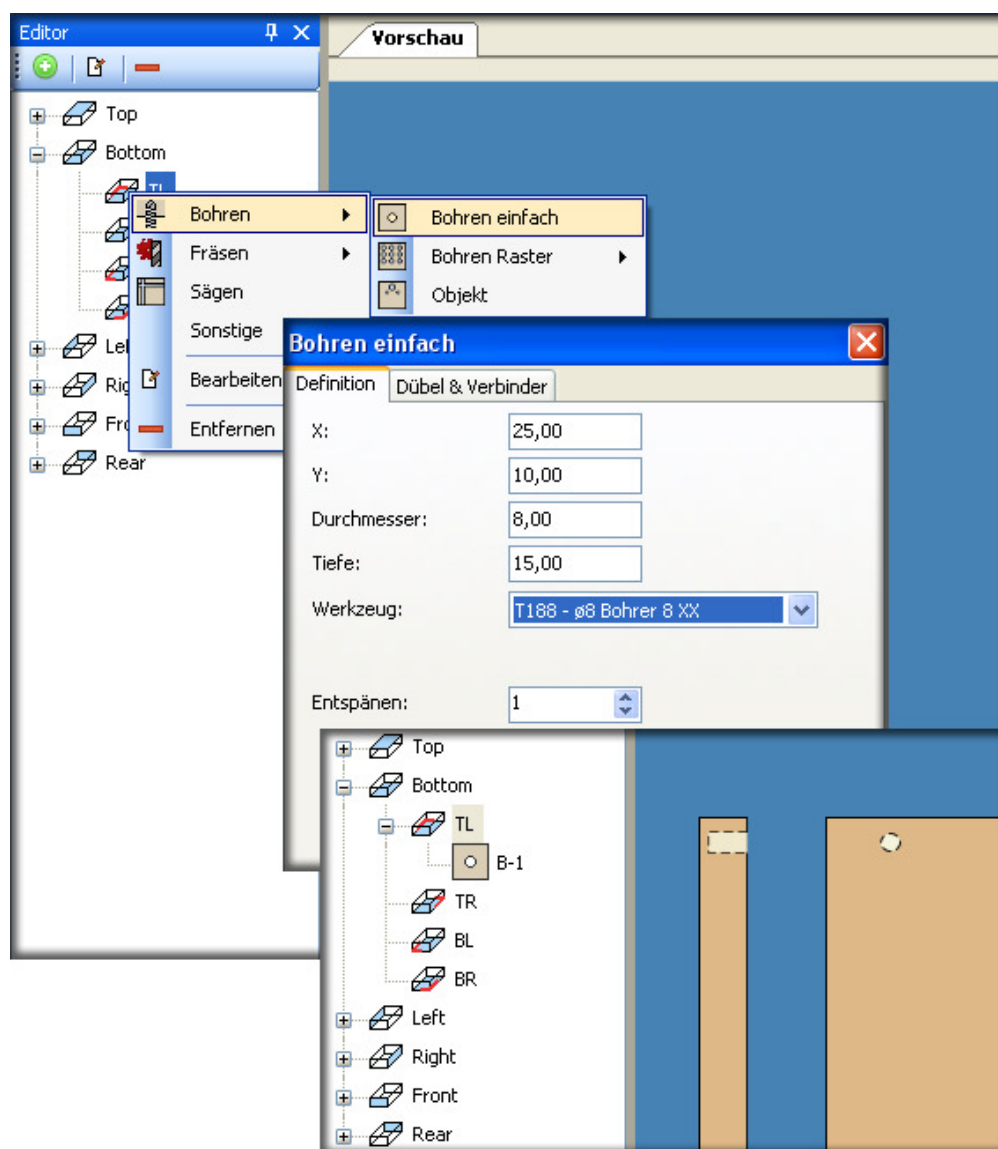


Fig.17- Simple Drilling

Simple drilling object

1. When the reference edges are determined, open the object menu with the <+> button, or the right mouse button.
2. Select the objects <Drilling> then <Simple Hole>.
 - The input menu for >Simple Drilling< will open.
3. Under the <Definition> tab, the selection references can be entered for the positions in the X-direction (25 mm), in the Y-direction (10 mm), for the diameter of the hole (8 mm) and a depth of the hole in the Z-direction (14 mm). If multiple 8 mm drilling tools have been defined, this must be selected from the <Tool> list.
4. The <Chip Removal> input field can be used to specify the number of drilling cycles, up to the programmed drilling depth.
 - ✓ Confirm entries and check in the preview.



Note!

The inputs used in the description, in parentheses, are only examples.

2.4 Copy Existing Object

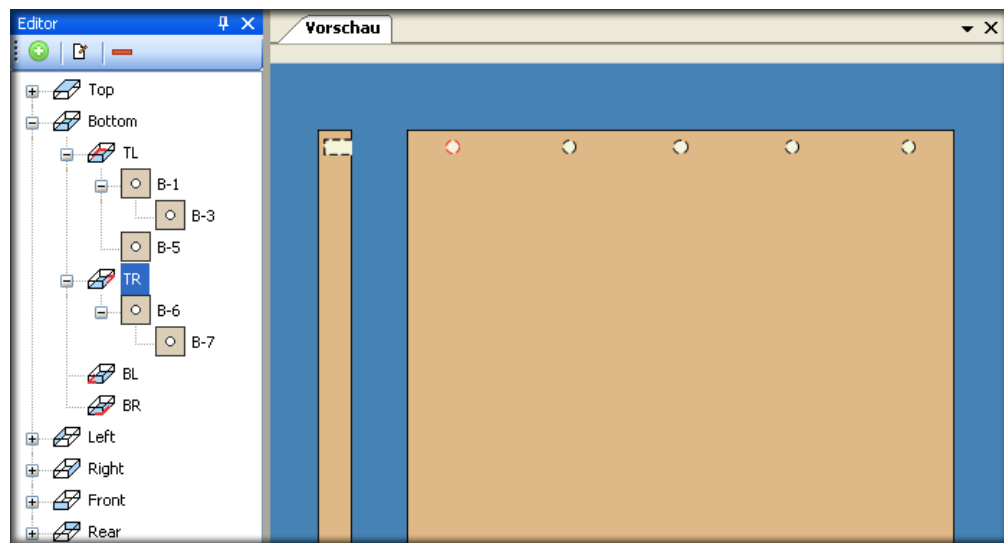


Fig. 18- Copy Object

Copying an existing object

1. Place the cursor above the object to be copied. Drag the object by holding down the right mouse button and releasing it once the cursor is over the new reference position.
 - E.g.: Copy the object B-1 to Bottom-TL. The result is the object B-5. Change Y-position (150 mm or CLX parameter). The other entries remain the same (absolute positioning).
 - Copy the object B-1 to B-1. The result is the object B-3. Change Y-position to (64 mm). Change X-position to 0 mm. The other entries remain the same (relative positioning).
 - Copy the object B-1 to Bottom-TR. The result is the object B-6 with B-7. All entries remain the same (absolute positioning).
 - ✓ Objects and nested objects can also be copied to all of the other reference surfaces and reference edges. The axis assignment must be noted in the process. However, copying always works for opposing reference surfaces.

2.5 Drilling Grid Object

2.5.1 Drilling Grid, Variant 1

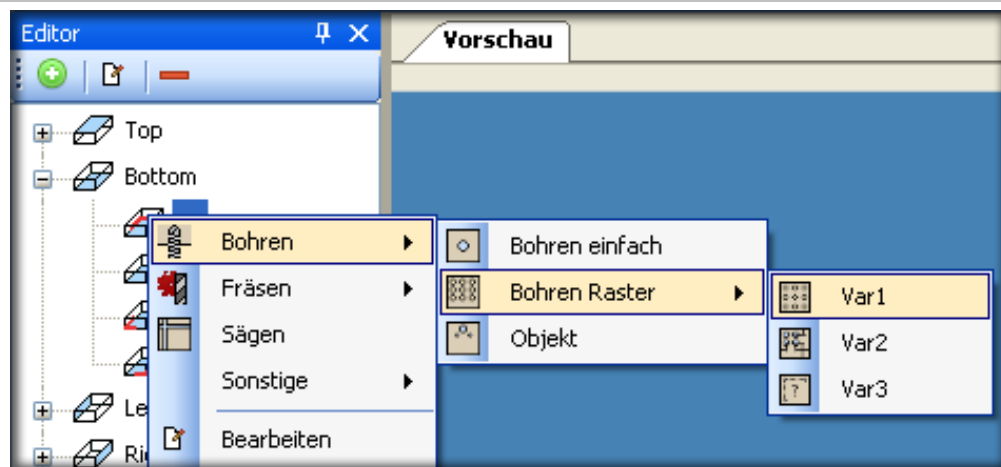


Fig.19- Drilling Grid VAR 1 Object Selection

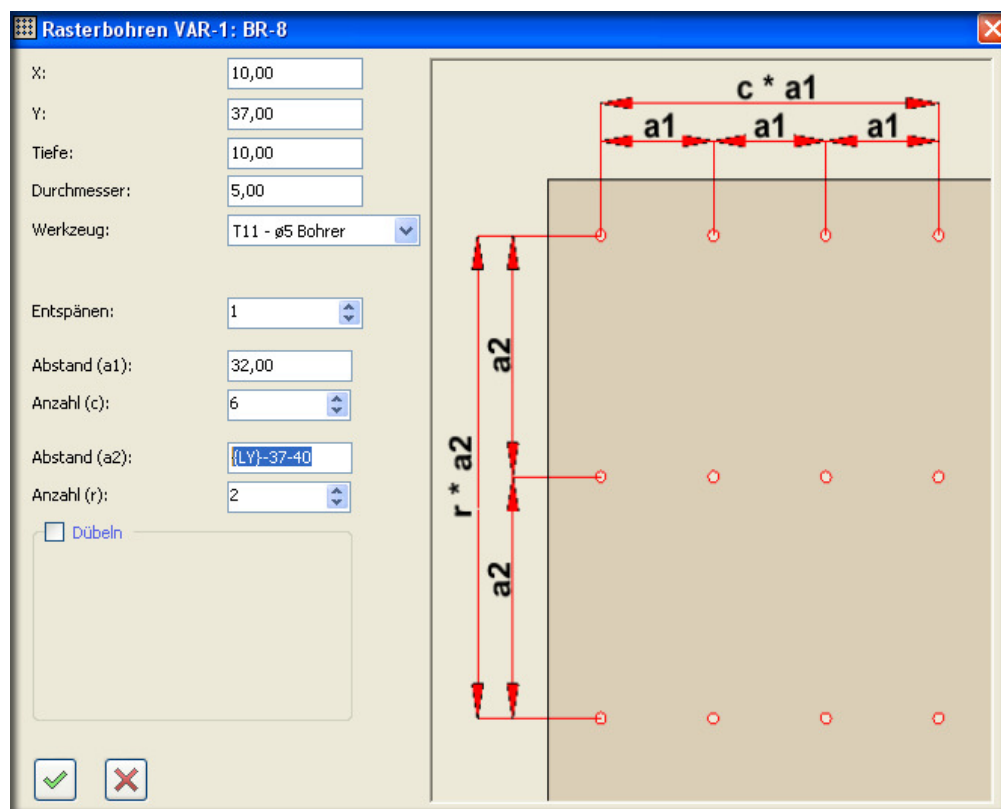


Fig.20- Drilling Grid VAR 1 Object Menu

Define grid dimensions, define number of rows and columns

1. After selecting the processing references, the <Drilling Grid VAR 1> object menu opens.
2. The selection references are then entered for the positions in the X-direction (10 mm), in the Y-direction (37 mm), the drilling depth in the Z-direction (10 mm) and the diameter of the hole (5 mm). If multiple 5 mm drilling tools have been defined, this must be selected from the <Tool> list.
3. The <Chip Removal> input field can be used to specify the number of drilling cycles, up to the programmed drilling depth.
4. Enter a row in the grid 32 mm (spacing (a1)) with 6 holes (number (c)) and a second row (number (r)) 223 mm (spacing (a2))

5. Any number of rows and columns can be defined in the X- and Y-directions.
 - The result should be checked in the preview.

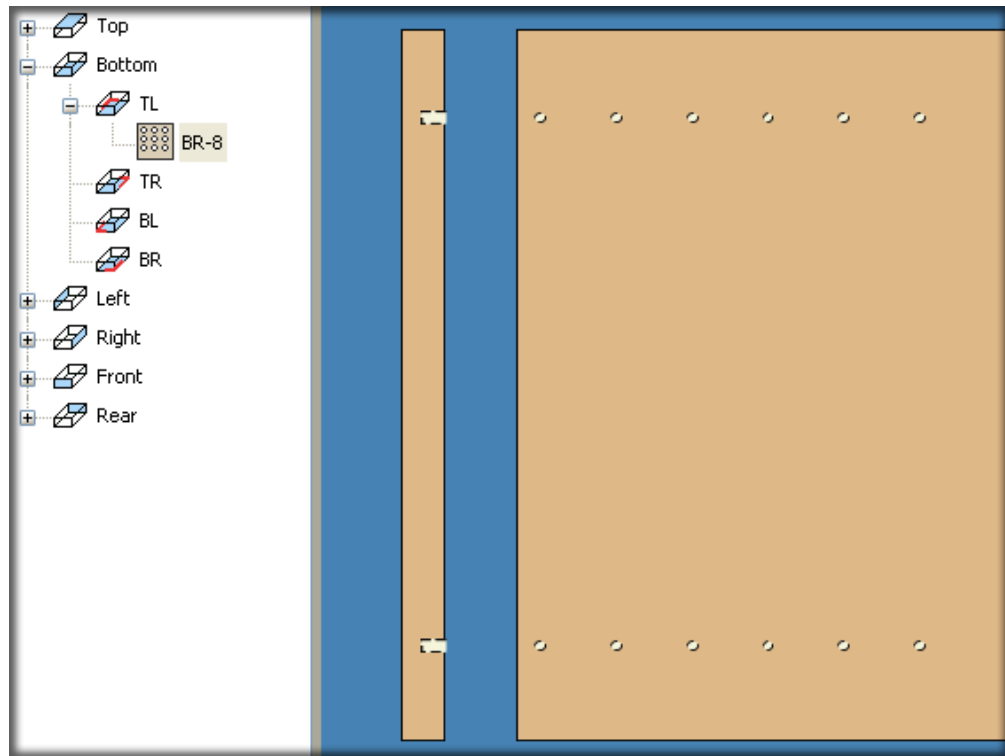


Fig.21- Drilling Grid VAR 1 Result



Important Note

It is also possible to enter mathematical functions in the input fields. (E.g.: for the row spacing, the workpiece width of 600 mm, the front Y-dimension 37 mm, the rear Y-dimension 40 mm, the input is $600-37-40$) After confirming, the calculated value of 523 is displayed.

2.5.2 Drilling Grid, Variant 2

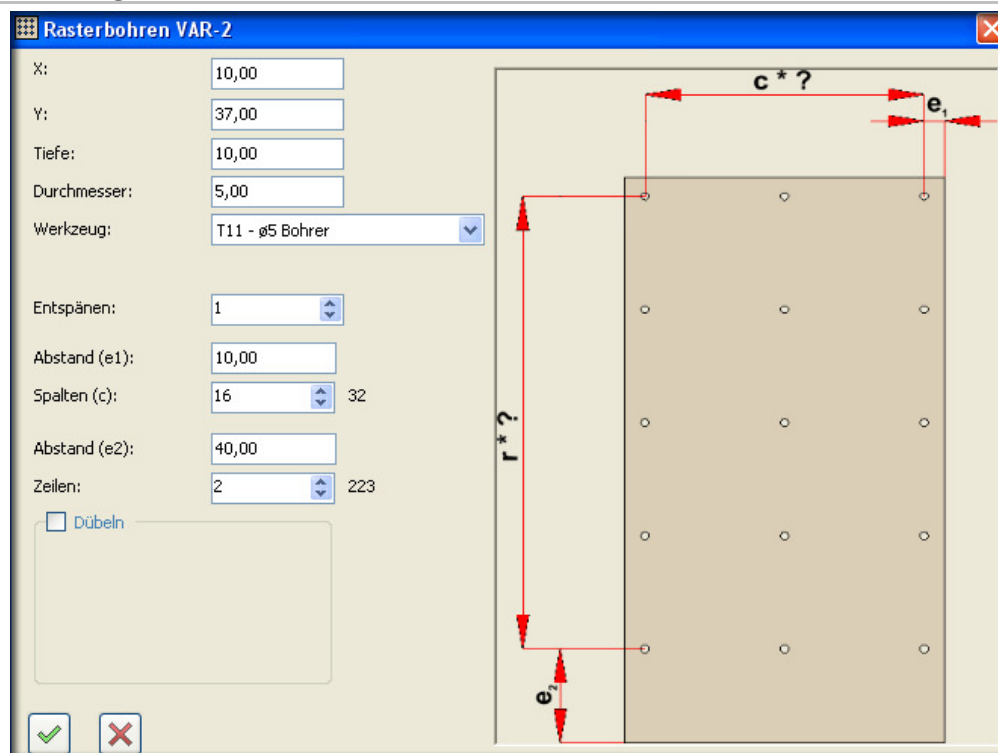


Fig.22- Drilling Grid VAR 2 Object Menu

Define grid dimensions, define number of rows and columns

1. After selecting the processing references, the <Drilling Grid VAR 2> object menu opens.
2. The selection references are then entered for the positions in the X-direction (10 mm), in the Y-direction (37 mm), the drilling depth in the Z-direction (10 mm) and the diameter of the hole (5 mm). If multiple 5 mm drilling tools have been defined, this must be selected from the <Tool> list.
3. The <Chip Removal> input field can be used to specify the number of drilling cycles, up to the programmed drilling depth.
4. After defining the starting hole, the spacing (e1) or (e2) will be used to specify the dimension of the previous hole. The number of columns or rows then define the grid dimension.
5. Any number of rows and columns can be defined in the X- and Y-directions.
 - The result should be checked in the preview.

2.5.3 Drilling Grid, Variant 3

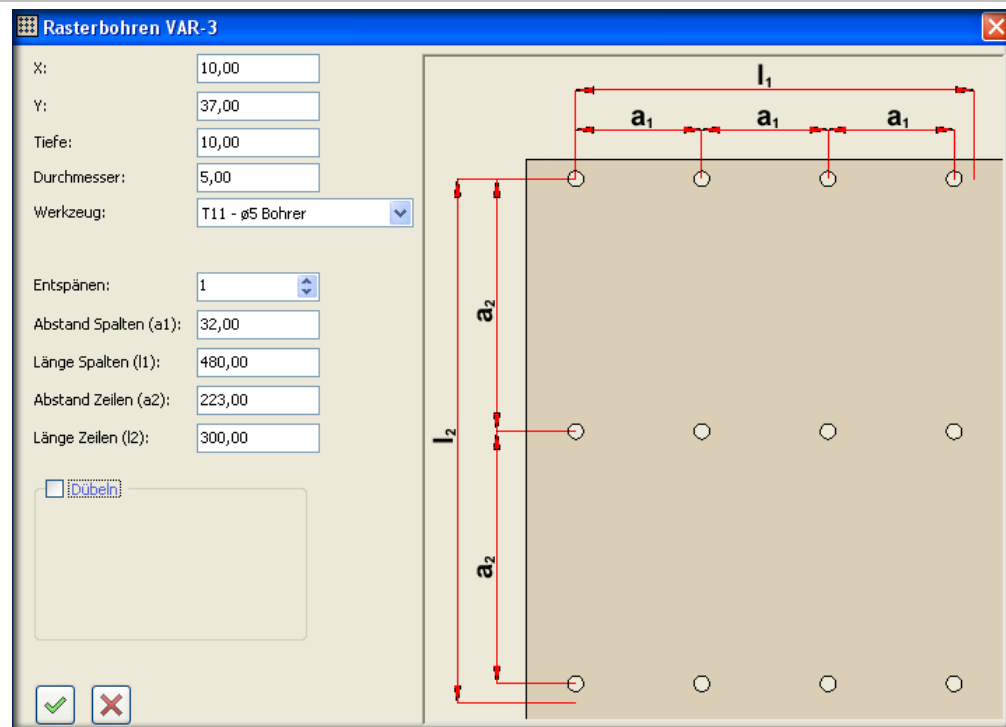


Fig.23- Drilling Grid VAR 3 Object Menu

Define grid dimensions, define number of rows and columns

1. After selecting the processing references, the <Drilling Grid VAR 3> object menu opens.
2. The selection references are then entered for the positions in the X-direction (10 mm), in the Y-direction (37 mm), the drilling depth in the Z-direction (10 mm) and the diameter of the hole (5 mm). If multiple 5 mm drilling tools have been defined, this must be selected from the <Tool> list.
3. The <Chip Removal> input field can be used to specify the number of drilling cycles, up to the programmed drilling depth.
4. The grid is defined with the column dimension (a_1), which is then added as many times as possible within the length dimension of the column (l_1). The same procedure is used for the lines.
5. Any number of rows and columns can be defined in the X- and Y-directions.
 - The result should be checked in the preview.

2.6 Sawing Object (Grooving)

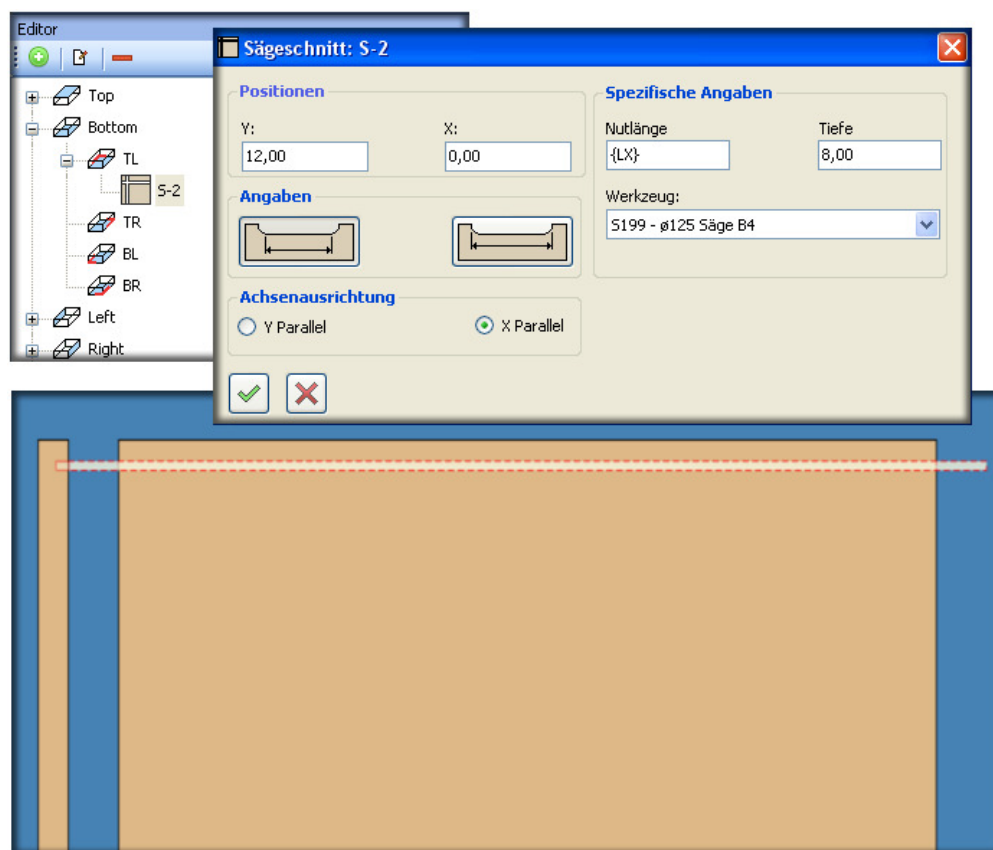


Fig.24- Sawing

Define sawing object (groove saw)

1. Select the object <Sawing>.
 - The <Saw Cut> input menu will open.
2. Then, based on the selection references, the position in the Y-direction (12 mm) is entered. This dimension always corresponds to the center of the groove saw. With a tool width of (4 mm), the remaining dimension should therefore be (10 mm).
3. Then the starting point of the groove in the X-direction is entered. In the example shown, a continuous groove should be created. Input dimension is (0 mm).
4. With a continuous groove, the workpiece dimension or even the length parameter (queried with function key F8, then select LX) can be entered.
5. The depth of the groove and the tool type are also to be specified.
6. For a continuous groove, the function of the nominal length of a groove is selected in the <Specific Details>. In contrast, with a discontinuous groove, the function of the actual length of the groove is used.
7. The axis orientation of the groove on the workpiece is also to be defined.
 - ✓ The result should be checked in the preview.

2.7 Routing Object

2.7.1 Routing Circular Pocket

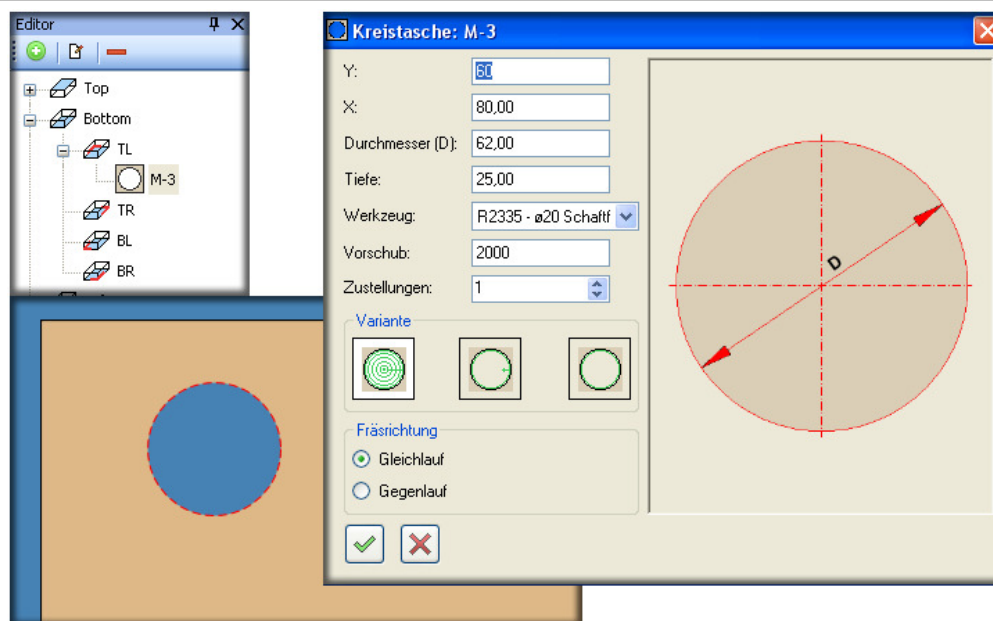


Fig.25- Routing Circular Pocket

Define circular pocket object

1. Select the <Routing> object, then <Circular Pocket>.
 - The <Circular Pocket> input menu will open.
2. Then, based on the selection references, the positions in the Y- and X-directions (60 mm) will be entered. This dimension always corresponds to the center of the circle.
3. The diameter of the circular pocket (62 mm) will also be specified.
4. The depth of the circular pocket (25 mm) must be fixed. If the workpiece should be routed through, an additional 5 mm must be added to the workpiece thickness.
5. If multiple routing tools have been defined, this must be selected from the <Tool> list.
6. The feed speed is taken from the tool definition, but it can also be overwritten in the input menu.
7. The number of feed cycles up to the programmed processing depth is specified in the <Feeds> input field.
8. There are three processing variants. In the example, the first variant <Clearing> was used. This means that the inner section of the object is completely chipped away. With the second variant <Finishing>, a smaller feed can be defined to finish the circular pocket. For the third variant, <Outer Contour>, only the outer contour is run again.
9. The routing spindle rotates clockwise. The <Routing Direction> selection field can be used to choose whether the routing should take place with co-rotation or counter-rotation.
 - ✓ The result should be checked in the preview.

2.7.2 Routing Rectangular Pocket

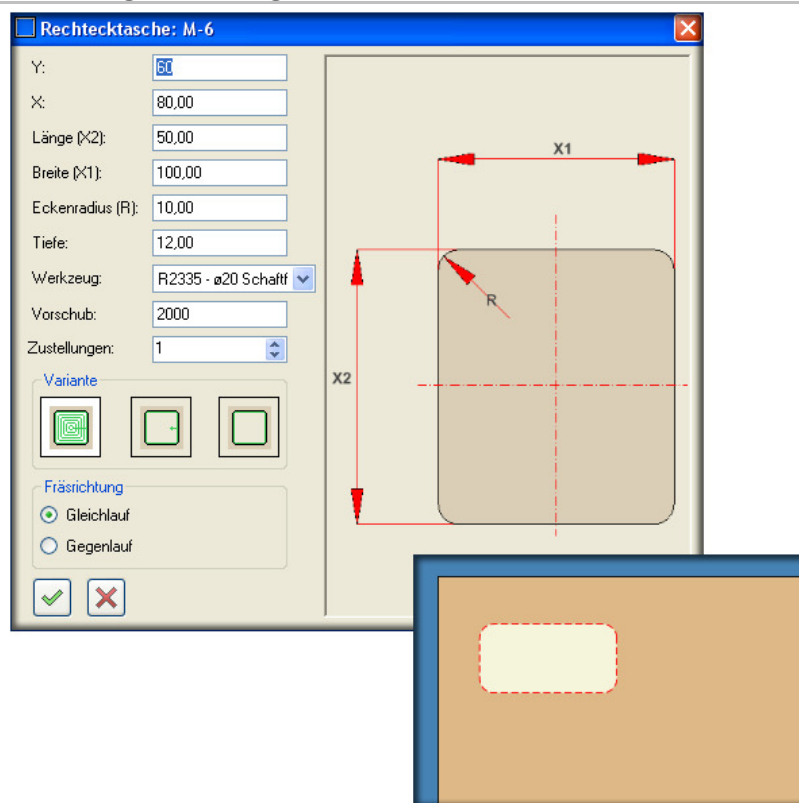


Fig.26- Routing Rectangular Pocket

Define rectangular pocket object

1. Select the <Routing> object, then <Rectangular Pocket>.
 - The <Rectangular Pocket> input menu will open.
2. Then, based on the selection references, the position in the Y-direction (60 mm) will be entered. This dimension always corresponds to the center of the rectangle.
3. The starting point is then entered in the X-direction (80 mm).
4. The length X1 (100 mm) and width X2 (50 mm) of the rectangular pocket is also specified.
5. The corner radius (R 10 mm) may not be smaller than the tool radius.
6. The depth of the rectangular pocket (12 mm) must be fixed. If the workpiece should be routed through, an additional 5 mm must be added to the workpiece thickness.
7. If multiple routing tools have been defined, this must be selected from the <Tool> list.
8. The feed speed is taken from the tool definition, but it can also be overwritten in the input menu.
9. The number of feed cycles up to the programmed processing depth is specified in the <Feeds> input field.
10. There are three processing variants. In the example, the first variant <Clearing> was used. This means that the inner section of the object is completely chipped away. With the second variant <Finishing>, a smaller feed can be defined to finish the rectangular pocket. For the third variant, <Outer Contour>, only the outer contour is run again.
11. The routing spindle rotates clockwise. The <Routing Direction> selection field can be used to choose whether the routing should take place with co-rotation or counter-rotation.
 - ✓ The result should be checked in the preview.

2.7.3 Routing Plinth Feet

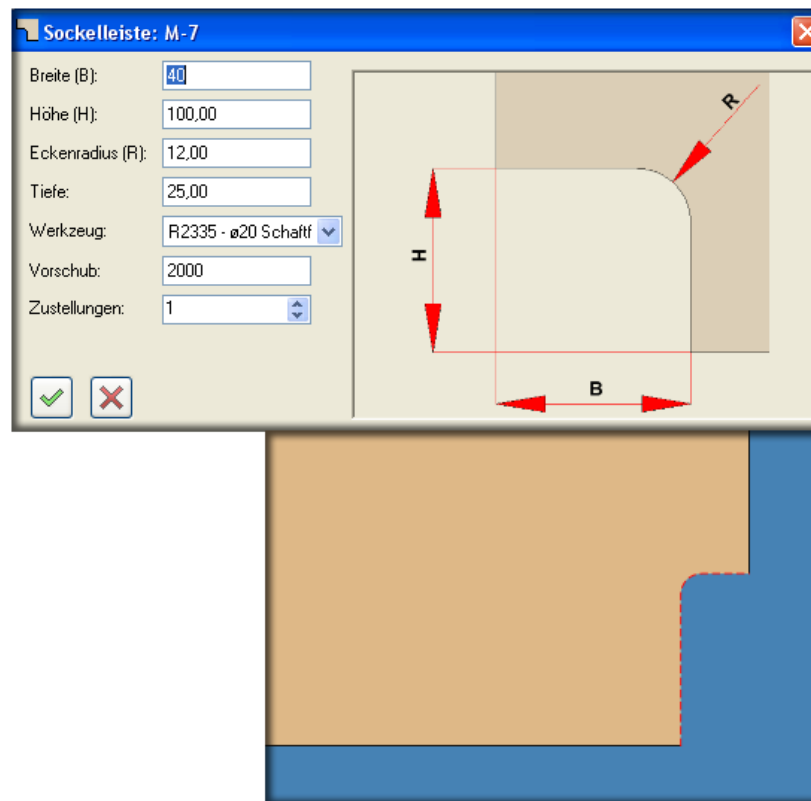


Fig.27- Routing Plinth

Define plinth object

1. Select the <Routing> object, then <Plinth>.
 - The <Plinth> input menu will open.
2. Now the width (B) (40 mm) is entered based on the selection references.
3. Now the height (H) (100 mm) is entered based on the selection references.
4. The corner radius (R 12 mm) may not be smaller than the tool radius.
5. The depth of the circular pocket (25 mm) must be fixed. If the workpiece should be routed through, an additional 5 mm must be added to the workpiece thickness.
6. If multiple routing tools have been defined, this must be selected from the <Tool> list.
7. The feed speed is taken from the tool definition, but it can also be overwritten in the input menu.
8. The routed edge of a plinth is always created in the <Clearing> processing mode, which means that the inner section of the object is completely chipped away.
 - ✓ The result should be checked in the preview.

2.7.4 Routing Line

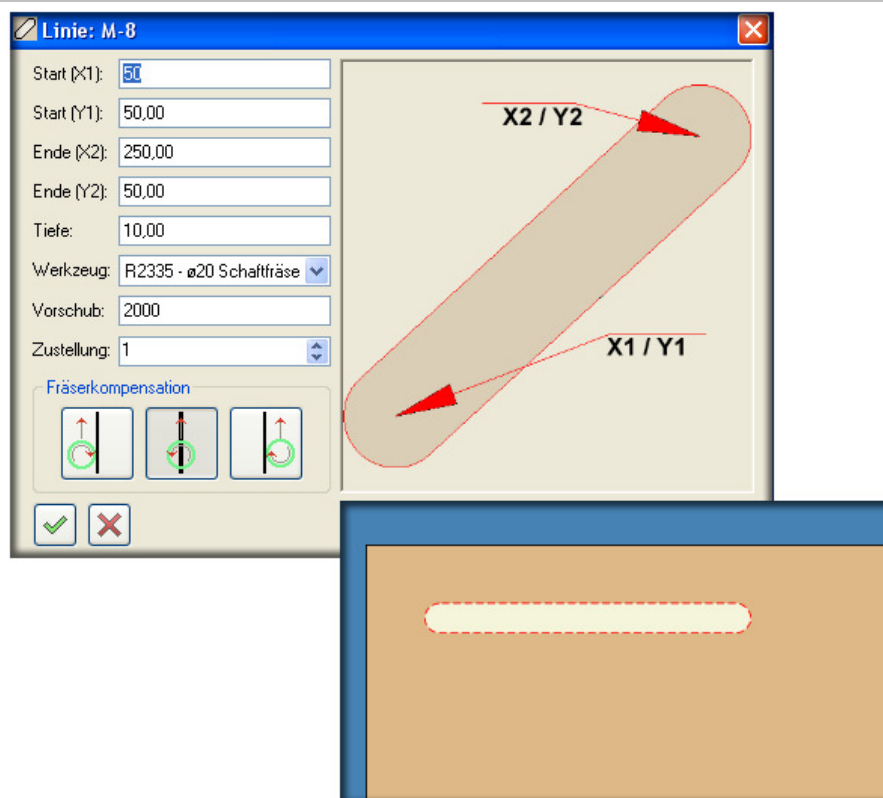


Fig.28- Routing Line

Define line object

1. Select the <Routing> object, then <Line>.
 - The <Line> input menu will open.
2. Then, based on the selection references, the starting point X1 (50 mm) and the starting point Y1 (50 mm) are entered.
3. Then, based on the selection references, the stopping point X2 (250 mm) and the stopping point Y2 (50 mm) are entered.
4. The depth of the line (10 mm) must be fixed. If the workpiece should be routed through, an additional 5 mm must be added to the workpiece thickness.
5. If multiple routing tools have been defined, this must be selected from the <Tool> list.
6. The feed speed is taken from the tool definition, but it can also be overwritten in the input menu.
7. The number of feed cycles up to the programmed processing depth is specified in the <Feeds> input field.
8. There are three types of routing compensation. The standard setting is always in the middle of the programmed line. However, the routing tool can always be shifted to the left or right from the perspective of the feed direction at a distance equivalent to the tool diameter.
 - ✓ The result should be checked in the preview.

2.7.5 Routing Circular Segment

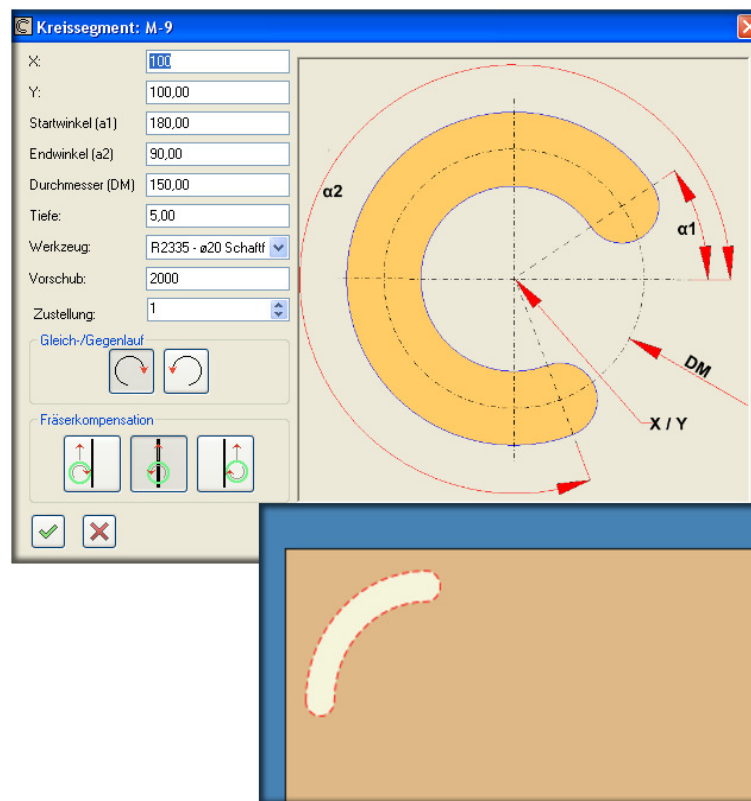


Fig.29- Routing Circular Segment

Define circular segment object

1. Select the <Routing> object, then <Circular Segment>.
 - The <Circular Segment> input menu will open.
2. Then, based on the selection references, the position in the X-direction (100 mm) and in the Y-direction will be entered. This dimension always corresponds to the center of the circular segment.
3. The starting angle (a1) is then entered (180). The reference angle 0 is always to the right of the circle center on the X-axis. (See diagram)
4. Then define the stopping angle (a2) (90).
5. Specify the diameter (DM) (150 mm).
6. The depth of the circular segment (5 mm) must be fixed. If the workpiece should be routed through, an additional 5 mm must be added to the workpiece thickness.
7. If multiple routing tools have been defined, this must be selected from the <Tool> list.
8. The feed speed is taken from the tool definition, but it can also be overwritten in the input menu.
9. The number of feed cycles up to the programmed processing depth is specified in the <Feeds> input field.
10. The co-/counter-rotation option specifies the routing direction from the starting point to the stopping point.
11. There are three types of routing compensation. The standard setting is always in the middle of the programmed line. However, the routing tool can always be shifted to the left or right from the perspective of the feed direction at a distance equivalent to the tool diameter.
 - ✓ The result should be checked in the preview.

2.8 Subprogram Object

2.8.1 Create Object

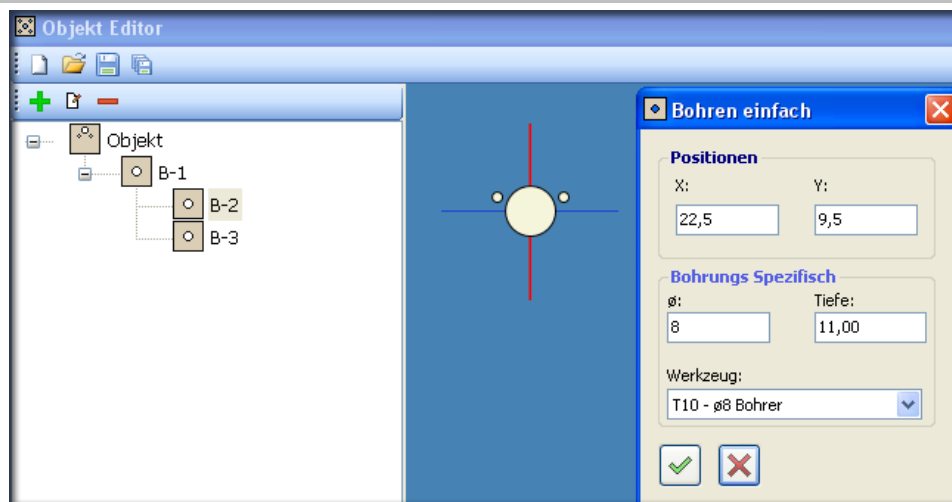


Fig.30- Object Editor

The object editor is used to create subprograms. These are combinations of various different holes. A typical example would be the hole arrangement for a fitting.

Create subprogram with the object editor.

1. Select the <Object> menu in the menu bar and activate the <Object Editor> option.
 - In the toolbar, the functions New, Open, Save and Save As are available.
2. A hole can be added with the green <+> button. The position value in X and Y is based on the reference crosshairs in the preview screen.
 - ✓ After creating the object or subprogram, save it in the object path with Save.

2.8.2 Add Object

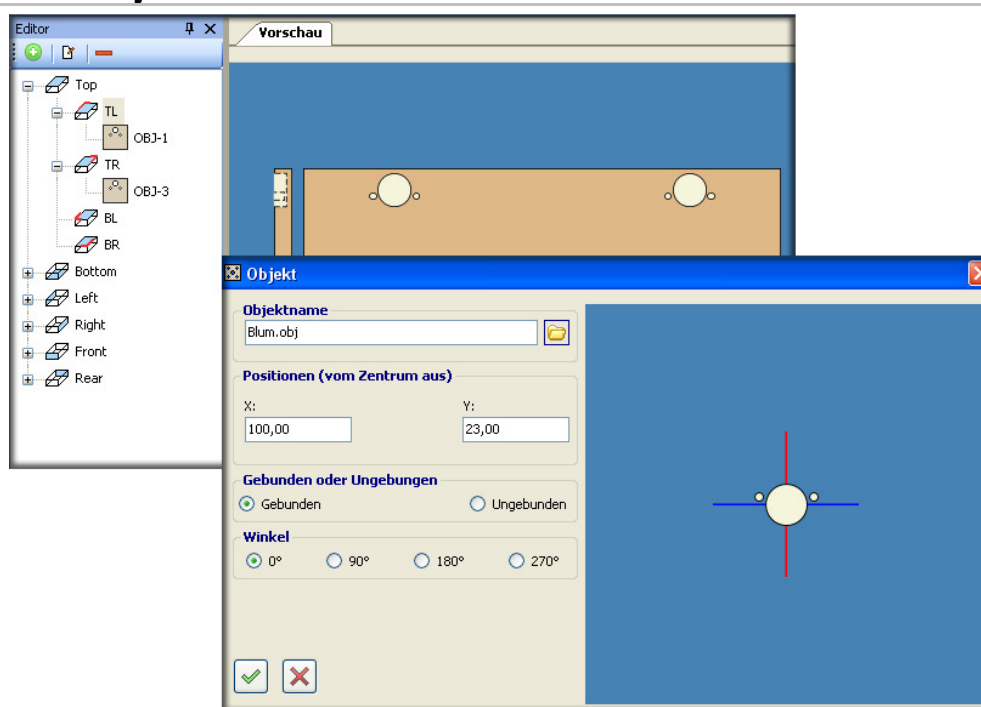


Fig.31- Add Object

Add object (subprogram) to a workpiece program.

1. When the reference edges are determined, open the object menu with the <+> button, or the right mouse button.
2. Select the objects <Drilling> then <Object>.
 - The <Object> input menu will open.
3. Select an object file in the <Object Name> selection field. The type and location of the object can be seen in the preview field.
4. The positions (in the X-direction 100 mm, in the Y-direction 23 mm) are then entered on the selection references.
5. Selection for bound and unbound.
 - If the object is added bound, the link to the master object will remain. Changes to the master object will affect the machine program.
 - When mirroring a workpiece, the insertion angle remains the same and must be changed manually.
 - If the object is added unbound, there is no link to the master object. All holes will be listed as <Simple Hole> in the program editor.
6. The <Angle> radio button can be used to change the position of the object on the workpiece.
 - ✓ Confirm entries and check in the preview.

2.9 Additional Functions

2.9.1 Minifix Function

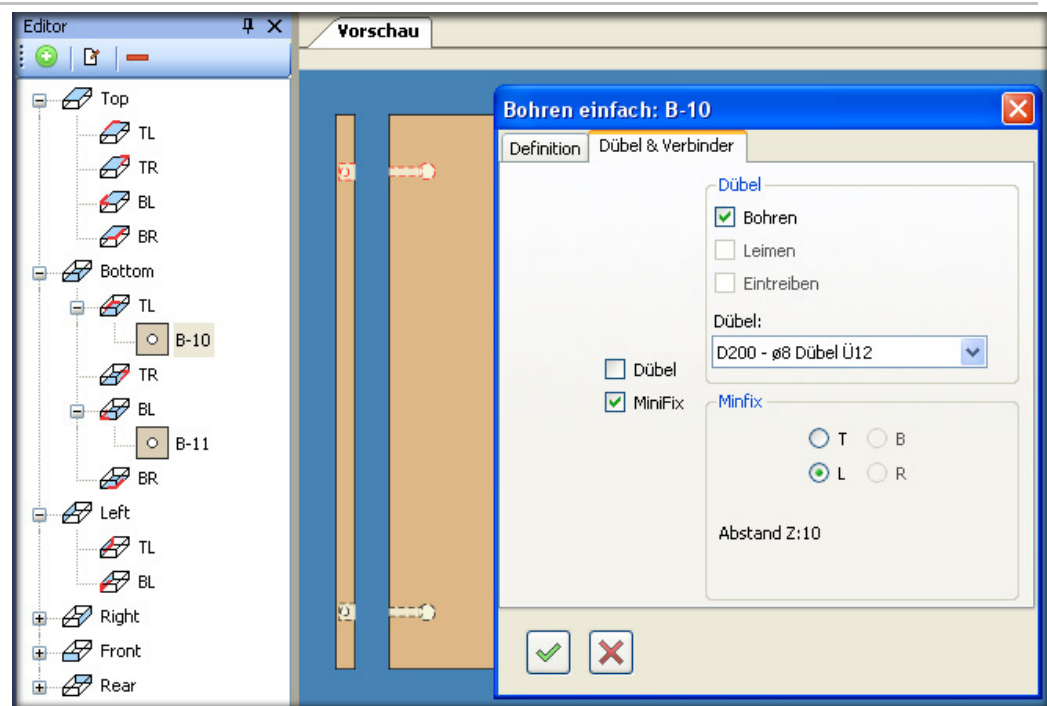


Fig.32- Minifix Function

Connector function (Minifix)

1. In order to use the connection function (Minifix), it must be activated and defined in the workpiece system. (See page 16 - Fig. 15 - Open or Create New Workpiece)
2. Select the objects <Drilling> then <Simple Hole>.
 - The input menu for >Simple Drilling< will open.
 - The flat side hole for the connector is defined. The front side hole is then calculated automatically.
3. Then switch to the <Dowel & Connector> tab and activate the <Minifix> function.

4. The direction of the front side hole must be defined under the <Minifix> options.
 - ✓ Confirm entries and check in the preview.

2.9.2 Dowel Function

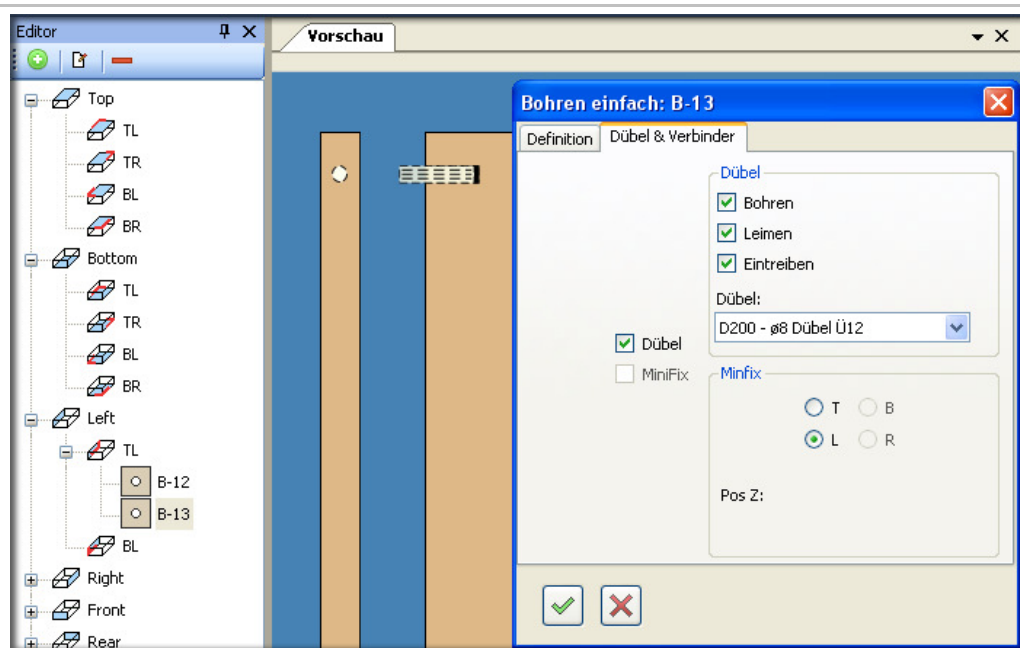


Fig.33- Dowel Function

Dowel Function

1. First, a hole is created on the front side, but without depth details. The drilling depth is determined from the dowel data. (See page18-Fig.17- Simple Drilling)
2. Then switch to the <Dowel & Connector> tab and activate the <Dowel> function.
3. Specify the processing of the hole under the <Dowel> options
4. Select the required dowel from the <Dowel> tool list.
 - ✓ Confirm entries and check in the preview.

2.9.3 Parameter Function

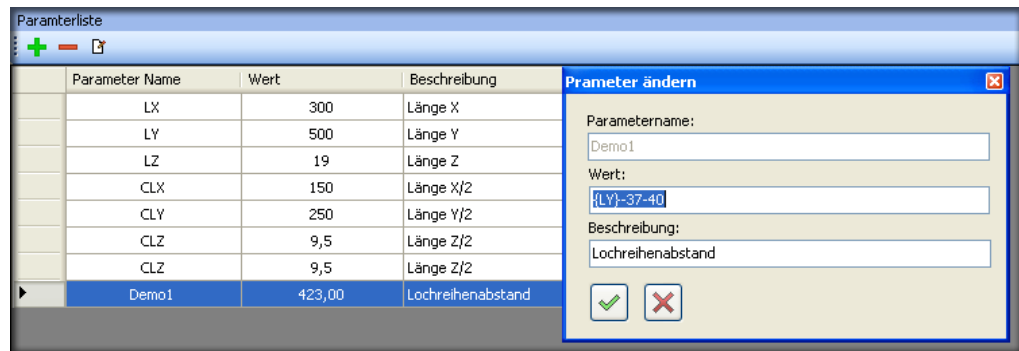


Fig.34- Parameter List Function

Parameter list function

1. The standard parameters are available in every workpiece. However, user-defined parameters can also be created.
2. Open the parameter list and create a user-defined parameter with the green <+> button. All of the basic mathematical functions can be combined with the available parameters.
 - {LY}-37-40 This entry corresponds to the length LY (e.g. 500 mm) minus 37 mm and minus another 40 mm (e.g. hole row spacing). The result depends on the length LY.
 - The parameter list is called up with the function key F8 or with the right mouse button via the input field.
 - ✓ Confirm entries and check in the preview.

2.9.4 Zero Offset Function

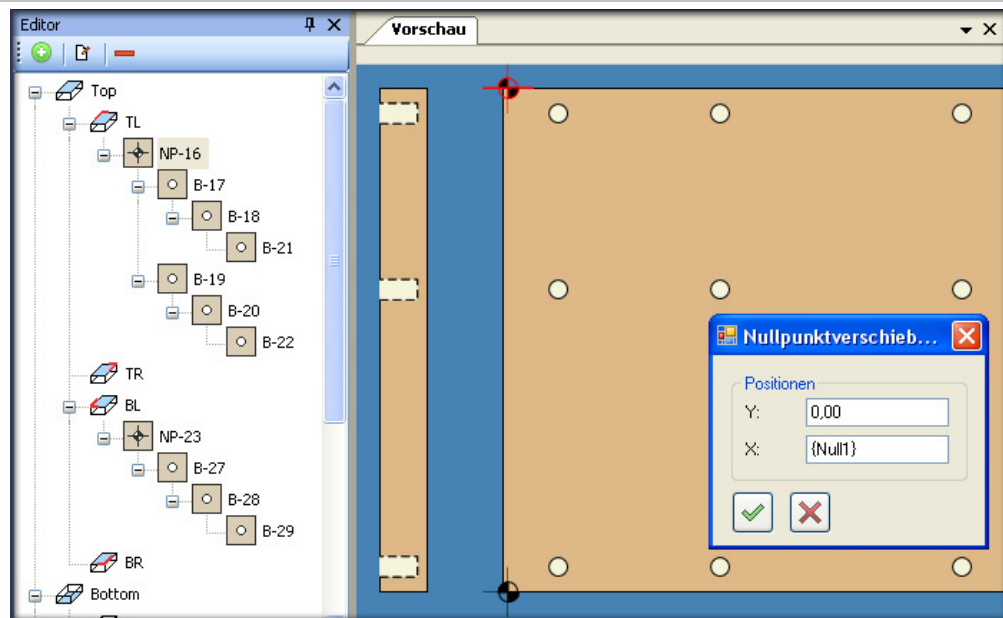


Fig.35- Zero Offset Function

Zero Offset Function

1. The zero offset can be used, for example, to compensate for a subsequently glued on edge without having to change all of the positions.
2. Select the object <Other> then <Zero Offset>.
3. Define the required value in the <Zero Offset> input field.

- The object to be offset must be subordinate to the offset point.
- ✓ Confirm entries and check in the preview.

**Tip****Zero offset**

If a parameter is defined for the offset value, all of the defined zero points can be offset with a change in dimension.

2.9.5 Save Mirrored Function

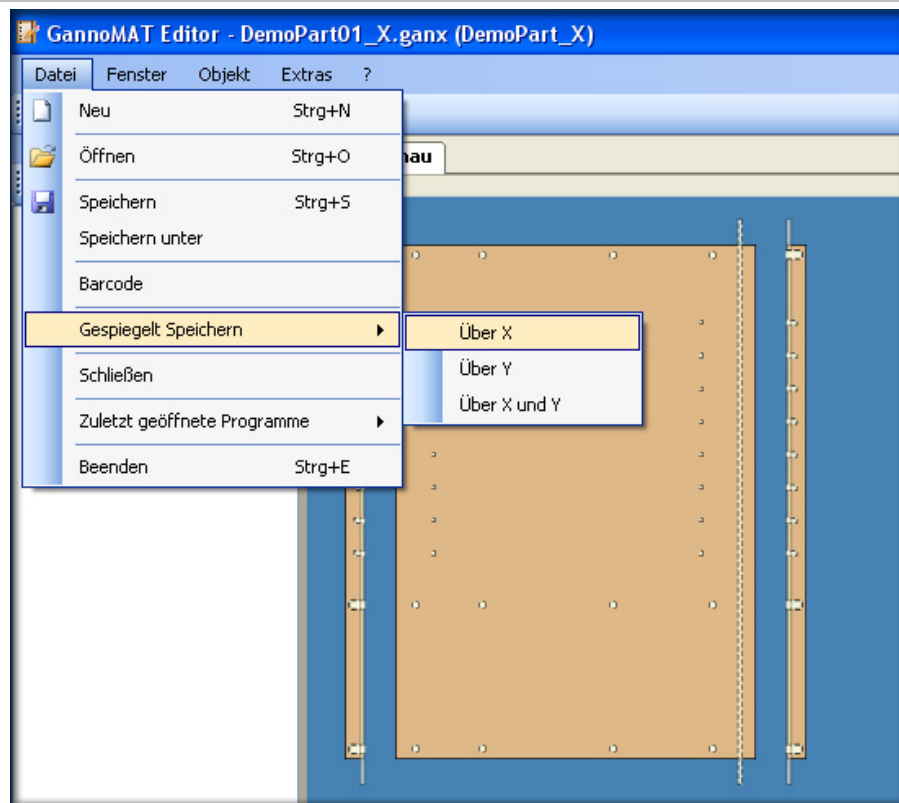


Fig.36- Save Mirrored Function

Save Mirrored Function

1. With the <Save Mirrored> function, an open workpiece program can be mirrored along the selected axis and then saved and opened under a new file name with <_Achsenwahl> appended to it.
 - Save any changes to the source workpiece before mirroring.
 - ✓ Confirm entries and check in the preview.

**Attention**

The mirroring is not carried out with bound objects and routing functions.