



AV32



Online help SHEET METAL CENTER Plus

Order management AV32



Welcome to the help for AV32

General Notes on Navigation



Select Navigation Method

There are two methods to navigate AV32's help files:

1. Interactive Navigation.

This allows you to control which texts you view by hovering the mouse over the relevant hotspots in the illustrations.

2. Consecutive Navigation.

This mode leads you sequentially through each help page. All available details are shown one after the other. Click the 'Next page' button (right arrow) in the left navigation panel [1] to move one step onwards.

Important Note

AV32 is machine-independent software. It offers a multitude of functions, some of which may not be supported by your machine. This online help document describes the general functions of the program using illustration which - dependent on your machine, post-processor and purchased options - may vary from the display on your system. The continuous development of AV32 can also cause differences between the screenshots shown, and what is shown on your workstation. Please first compare the revision number of your help documentation to that of your software, and check our [Website](#) to see if there is a newer version available.

The screen is divided into four areas: the menu to the left with navigation buttons and the page number, which you can type in to jump to a specific side.

The content list is at the top, divided into chapters. The glossary is at the bottom, with key words and phrases linked throughout the help files. You can swap the glossary for an index list, as preferred. Simple click a keyword in either case to link straight through to a relevant help page.

The middle frame shows the current document. There are two methods to navigate the help files:

Interactive

or

Consecutive

The Start Screen

Launch and Exit the Program; Navigate the Program.



This is AV32's homepage. You can come back to this page from any other by clicking the 'Home' button.

Clicking the IBE logo [4] will open the IBE Software GmbH website.

You must have an active internet connection for this to work.

Close the program by clicking [File][Exit] [3].

Important Note

You must allocate material groups to your machines to avoid errors during your parts' production. Material groups are given properties which relate to their technical possibilities. You can work on the material groups by clicking [Edit][Material-/Machine Data Management]. The help page for this item is in the Admin's help pages.

To successfully use the program, the goal is the creation of a nesting plan. All steps lead to the creation and use of this nesting plan. Sheets and parts are picked and reserved from the relevant databases and moved back and forth between the database and nesting plan. Nesting plan reservations are managed internally until ready for production - these reservations are only finalized and a production number assigned once a nesting plan becomes a production plan.

The program's workflow is very flexible in its scope. The program can be anything from a powerful engine for managing complex projects to simple application for creation of a nesting plan. The only thing you need for this program to be useful is an order for creating a part.

The steps of a typical workflow would look like this:

- o Entering a customer.
- o Creating a part in the parts bin.
- o Entering an order.
- o Entering a new sheet.
- o Creating a nesting plan.
- o Creating production plans..

You can of course utilize each program module individually. For the most comprehensive administration, you can return to and add to existing projects, and add extra articles to an article database. Parts and sheets can be assigned the relevant machine data from the technology module.

Before using the program you must first enter the basic settings [3] to match your workstation in order to use the program properly.



You can utilize each program module individually.

- o Use the 'Repeat Data' [1] tab to manage data about your customers, parts, sheet stock, additional articles and cost centers.
- o Enter and edit your orders through the 'Orders' tab.
- o You can nest an order's parts in various ways by selecting 'Nesting Plans'.
- o Nested sheets are combined into production plans which can be efficiently managed to meet your deadlines. Click 'Production Plans' to work with your production plans.
- o Complete offers can be combined into projects and managed - select 'Projects' to do so.



Finished parts are saved to a store to allow a final check before delivery. Click this button to switch into that store. This button must be activated in the user's settings.

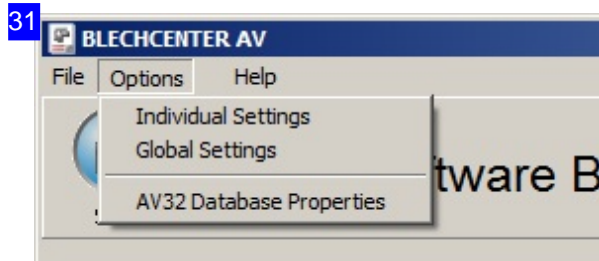


The 'Home' button always brings you back to this page.

The menu panel offers shortcuts to various program modules. Close the program using the corresponding option under [File].

To make basic settings for your workstation and to see properties of the database, click [Options]. This screen allows you to make your personal user settings as well as change some preferences which will affect everybody.

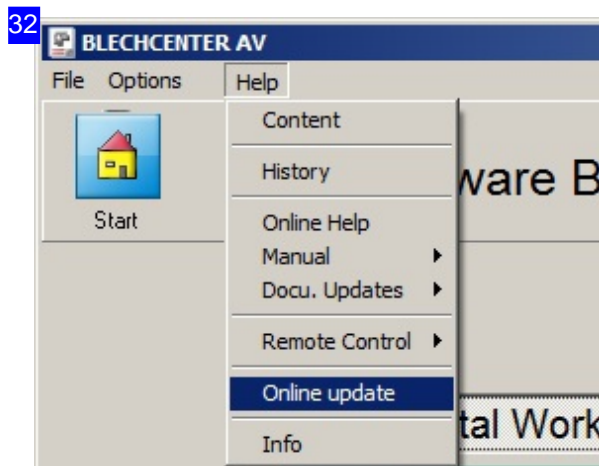
To get help with the current step, click [Help].



To make settings for individual users, click [User Settings]. The settings available include which screens and forms are available to each user. It is important here to preselect the data display. For a large volume of data, the loading times for constructing stock lists can lead to undesirable program delays. These delays can be prevented by making custom settings, and list creation can be optimized to your needs by targetedly searching for specific records. All newly created records are always displayed.

If you wish to change settings which affect everybody, click [General Settings]. All users working across the network will be affected by settings and preferences you enter here.

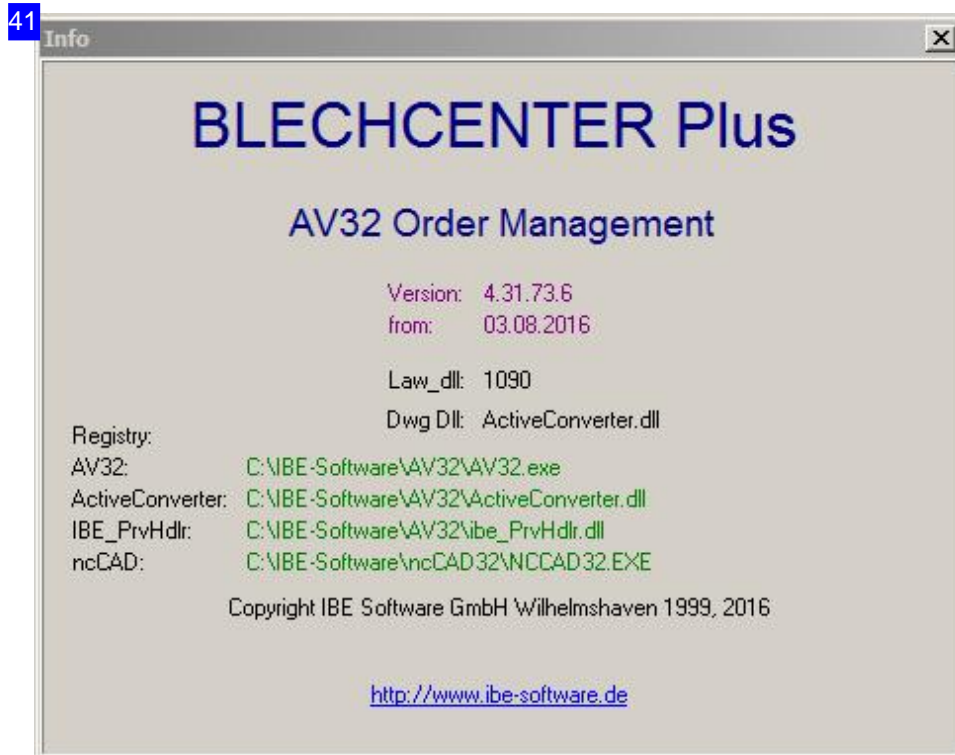
To access information about the database, click [Database Properties AV32] to open a dialog with your database's connection data.



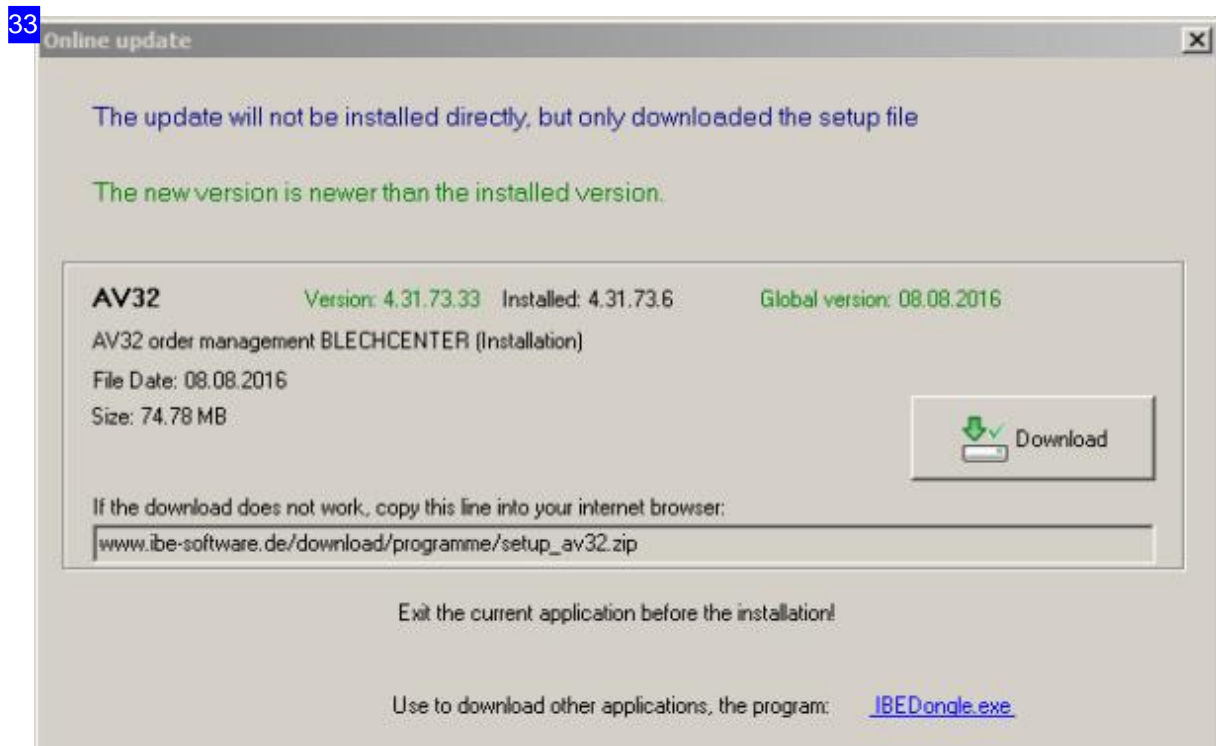
In the Help menu, you can check whether you have the latest available version of the software. For this to work, you must have an active connection to the Internet, where IBE Software GmbH provides the latest version for downloading. Select [Online Update] to open a dialog with the appropriate information.



Click this icon to open a dialog with information about the program, and a link to IBE Software GmbH's homepage.



Info dialog about AV32 . Use the link below to access IBE Software GmbH's internet page - we look forward to your visit!



This dialog shows you the results of comparing your software version with the latest version available



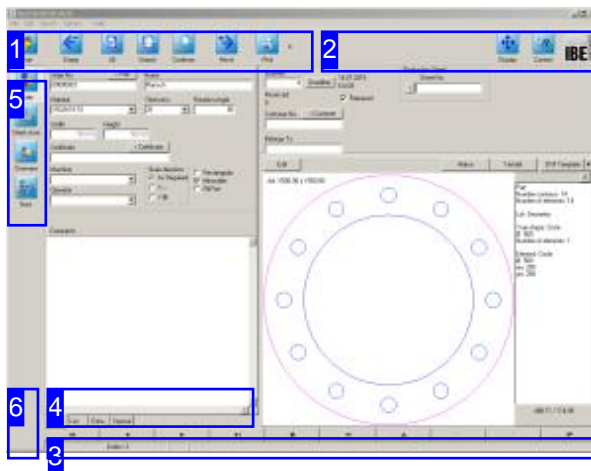
for downloading from the Internet. Note that the software is protected by a dongle and that only a licensed version can be successfully updated. Do not perform the update if you do not have a valid global version!

Clicking 'Download' takes you to a browser window with the corresponding download instructions. Save the ZIP file onto your computer and run the setup as usual. Note that the download version is a general version without special program adaptations!

From the link at the bottom right, you can download a dongle manager that lets you control all dongles you have purchased from IBE Software GmbH.

Forms and Navigation in General

Navigating the Program and the Layout of Forms.



Each screen is constructed of forms which can be used for data display, entry and search functions. The relevant fields when using a form to search will be highlighted in yellow. Enter data to use as search terms in these yellow cells, and click the on-screen 'Enter' button to execute the search. You will find further help on this topic under 'Search'.

The appearance of each window can vary from the description, as context-sensitive entries are also dependent on the optional components installed on your system and activated in your dongle, and by the settings made by each user. More on that in the Admin Handbook.

The various forms share a similar construction.

In the left part of the window you will see the selected data entry, a list of all entries, or additional information on the currently selected entry. Select the corresponding tab under the window to bring up the next display.

On the right you will see those items which can be edited from this screen.

Important Note

Certain criteria must be met in order to enable correct use of the technology modules. If AV32 gives an error message and wants you to close a function, this indicates that the current forms are not yet sufficiently fully completed. Dismiss the error message and check the inputs in the current form.



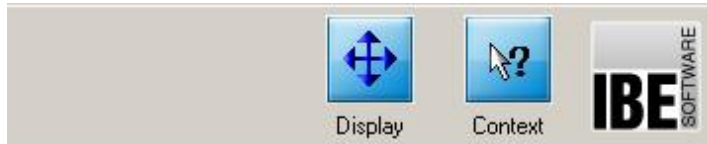
The header panel contains the program's general navigation buttons. Those buttons from left to right:

- o This button always returns to the homepage, from where you can select any other module.
- o The 'Empty' button starts a new nesting plan - the current plan is discarded.
- o Clicking 'All' shows all elements in a list.
- o 'Search' begins a new search. You must re-enter any search terms.
- o 'Advanced Search' allows additional or more detailed search terms.
- o Click 'Forward' to transfer the current screen's contents to the next step in processing. This button's purpose is context sensitive.



- o 'Print' calls a dialog with the form editor. This function is context sensitive. More about this in the 'Form Editor' chapter.
- o The down-arrow to the right opens a drop-down menu for printing all data entries, or printing labels for all entries.

2



These two buttons and the icon help you use the program.

- o The 'Display' button saves the layout options for the current form. These will be used next time you start the program.
- o The 'Context' button helps with each individual form. Click 'Context', then click any part of the form you would like to know more about. If a description is available, it will open in a dialog. This contextual help often gives you hints about how to correctly complete a field.
- o Click the icon in the top corner to view data 'About' the program.

3



The buttons in the footer panel allow navigation of the current form. You can also add new entries, and delete old data.

The buttons from left to right:

- o Show first entry.
- o Show previous entry.
- o Show next entry.
- o Show last entry.
- o Add a new entry.
- o Delete an entry.
- o Edit current entry.
- o Confirm entry. It is important to click here to save your changes, or they will be lost!
- o Undo.
- o Refresh the display.

If you have entered 'PostBus Pdf' as 'Registered file', this file is created from the corresponding form every time you save a record. This function can be used from all tables.



The tab list on the left shows the respective tab sheets.

- o 'Fields' tab - display the current data entry.
- o 'Lists' tab - display the list of all entries.
- o 'Extra' tab - display additional information.
- o 'Special' tab - display special information.

The tab [Extra] und [Special] shows you information about the database-entries. You set layout of the forms with an assistant; see also the online help for Admin-AV32.

41

Order No.	Quantity	Reserved	Material	Thickne	Machin
00000003	0	4	X5CrNi18-10	20	
00000012	1	0	X6CrNiMoTi17-12-2		
00000002	5	0	X5CrNi18-10	20	NCDEF
00000005	100	0	X5CrNi18-10	3	
00000006	100	0	X5CrNi18-10	3	

You can sort a column by clicking on the title bar. Repeatedly clicking sorts ascending or descending. The sort fields are marked with a small icon (up, down) and the text is displayed in bold. In addition, you can turned on or off other fields to sort using the shift key. With it, the sort order is determined by the order of column selection. If you click first on 'material' so the column is sorted after material names. If you now click <Shift> 'sheet thickness', the sheet thickness for each material portion is sorted. The sort direction reverses clicking again on a marked title bar. Clicking an unsorted column in the title bar without <Shift>, only this column turns on and all other columns turn off (beginning of a new sort order).



5



The left navigation panel shows context-sensitive buttons leading to related forms. Click a button to jump to the corresponding form.

6

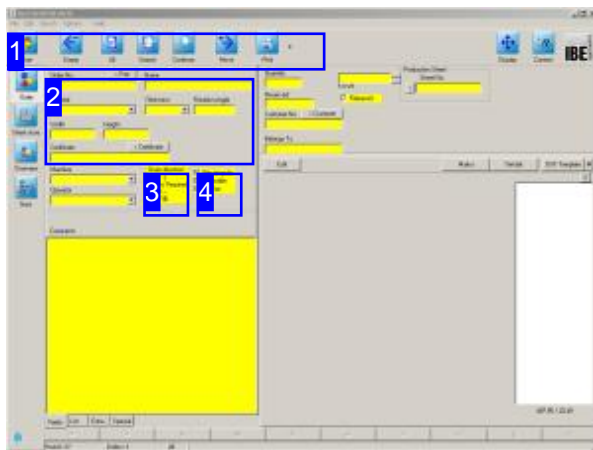


The footer panel shows up to two context-sensitive buttons which allow you to return to forms you have previously looked at. As you work, the program retains a 'history' of what you've been doing, so that you can flick back and forth between pages like a web browser.



Search

The Search Form - General.



You can use jokers and logical operators to help you search for content in your database. Recognised logical operators are as follows: >, <, >=, <=, =, <>, & and |; and the jokers used are * and %. There is a more detailed help page in the direct help. Select [Help], [Content], [Database], [Search].

Since AV32 helps you manage lots of important data, its database has lots of entries. The Search facility embedded in each form helps you narrow the data you need, on the tab 'List'.



Click the 'Search' button to open a search mask in the current form, and begin a new search.

Click 'Continue' to begin the search based on the criteria entered.



2

All search fields are highlighted in yellow.

3

You may also exclude terms [-] on forms with option groups.

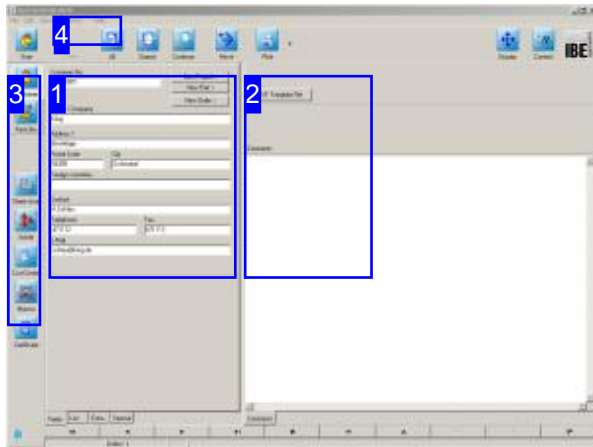
4

Where there are checkboxes, you have three search options:

- o Search and select
- o Search and don't select
- o Don't search

Customer Form - Maintaining Your Customers' Data

Enter New Customers or Maintain Existing Customers.



The natural first step in entering an order is the creation of your customer's database entry. As your order list grows, it can be very useful to search the list by customer number for orders yet to be processed, helping you to deliver your promises on time. You can however continue without customer numbers, if your workload does not call for them.

Customers' details are saved in your database's 'Customers' table. Use the 'Customer' form to navigate this table, and view or edit your customers' data.

Select 'Edit customer data' from the homepage . You will jump to the 'Customer' form, where you can add new customers' data, maintain existing customers' data and delete data which are no longer required. Enter your customer data in the relevant fields and, as always, remember to confirm your inputs. The customer will be automatically allocated a new customer number. You can always access the customer page with by clicking the 'Customer' button in the navigation panel [3].

Entering your customer's information is optional; you can also continue working without doing so.

The next step is entering a part for this customer, so click 'Forward' to access your parts bin.



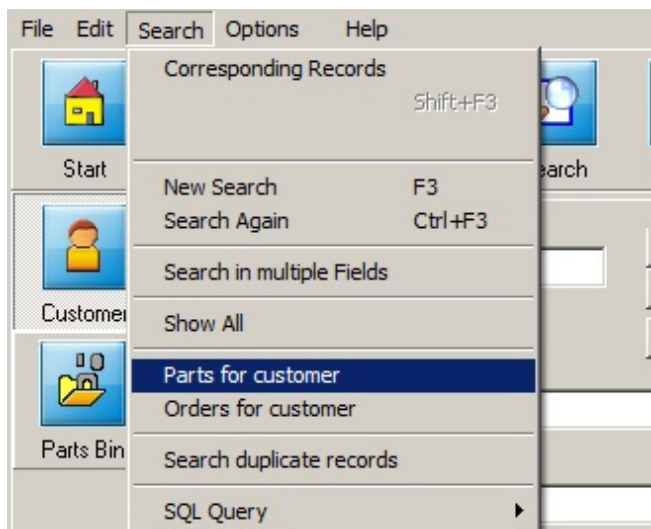
1

The 'Customer' form with input fields for your customer's data. Your customer will automatically be allocated a customer number.

To enter a new customer, click 'Add new entry' in the footer panel . To maintain an entry, click 'Edit existing entry'. Remember to confirm your inputs!

The buttons at the top right allow you to begin a new project, part or order for a customer.

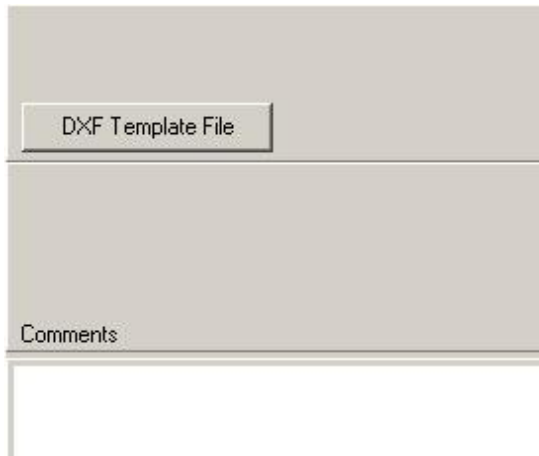
4



Two menu items are inserted in the customer form under 'Search' which performs a specific filtering of parts and orders for customers. The functions 'parts for customer' and 'customer orders' search for all parts or orders pertaining to the registered customer number and turn on the appropriate form.



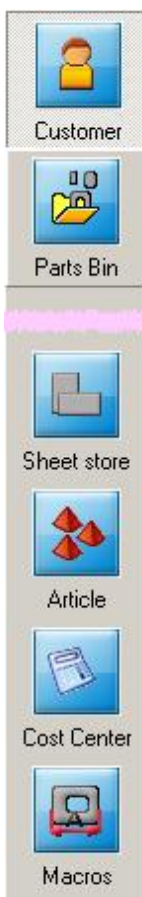
2



Use the 'DXF templates folder' button to create a folder for this customer's parts. This makes it easier for you to find parts which the customer might regularly order.

The 'Notes' field allows you to add a freehand note, e.g. customer special requests or which machine is to be used.

3

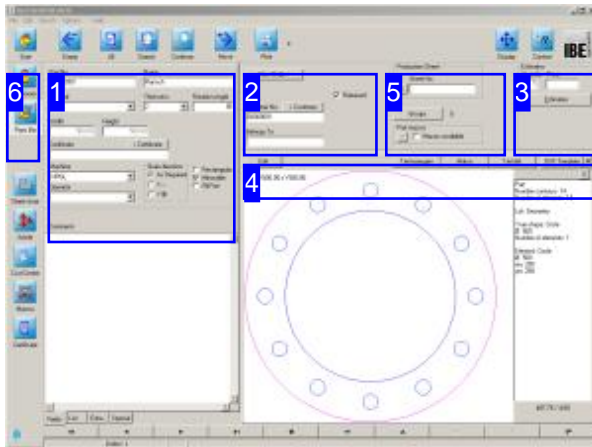


The buttons in the navigation panel switch direct to the various databases.

- o Customer database
- o Parts bin.
- o Sheet stock.
- o Article bin. This database contains articles which are not required for sheet production, yet are essential for completion of the order.
- o Cost center management.
- o Go to (optional) parts creation.

Parts Form - Maintain Parts in the Parts Bin

Enter New Parts and Maintain Existing Parts Data.



You must have parts present as either macros or drawings in order to create your order. These parts are collated in and maintained from your 'Parts Bin'. It is not absolutely necessary to have a 'Parts Bin', as you may also import parts from external media such as USB sticks, or from the local net. For importing data several options are available in the 'File' menu to choose from. If the data import comes from a CSV or TXT file, rectangles can be generated directly as a DXF file. You got detailed information about the structure of a CSV file in the help dialog. Click the help button in the import dialog to open the help.

A parts bin is useful when collating parts into assemblies and projects, particularly if you wish to ensure all parts of an assembly are produced together!

With the program option *PartCreator*, you can in turn assemble complex components from predefined macros onto a basis macro.

All parts are saved to the "Parts" table in your database. Use the "Parts" form to navigate this table, and view or edit your parts' data. Select 'Edit Customer Data' or 'Orders' from the homepage. The 'Parts' table is accessed by clicking the 'Parts Bin' button. You will jump to the 'Parts' form, where you can add new parts' data, maintain existing parts' data and delete data which are no longer required.

Enter all part data in the relevant field, remembering to confirm your entries by clicking the "Enter" button. The part will automatically be allocated a new part number. If a part is assigned to a customer at creation then it will always be linked to that customer; the customer number will be applied automatically.

Parts can be allocated technology data; switch to the Machine settings module [4].

To cut a part, you must enter an order, so click 'Forward' to do so.

You can create simple rectangles directly from the forms by entering height and width. In this case, enter the dimensions into the form [1] and send the part forwards. The part will then become an order directly from the current form.



1

Enter all part data in the relevant field, remembering to confirm your entries by clicking the "Enter" button. The part will automatically be allocated a new part number.

You can already enter production information at this stage. You will only achieve the correct end product if all settings for machine and material have been entered fully and correctly!

If a part is assigned to a customer it will always be linked to that customer; the customer number will be applied automatically.

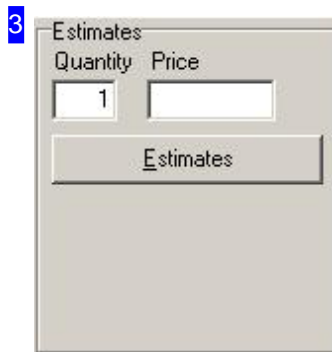
Switch to the Machine Data window [4] to set technology data for this part. To cut a part, you must enter an order, so click 'forward' to do so.

You can create a part directly by entering values for height and width. Clicking the button then creates the part without technologies and converts it into an order.

2

The 'New Order' button allows you to take a part and turn it directly into an order. If the part is allocated to a customer then you can switch direct to the customer form.

The 'Allowed' box sets whether parts may be nested. If you wish to exclude a part from nesting (e.g. purchased part for an estimate), clear this checkbox.



If machine settings like prices and times are present for a part, then you can create a price estimate for it. More details on that in the help page for estimates.

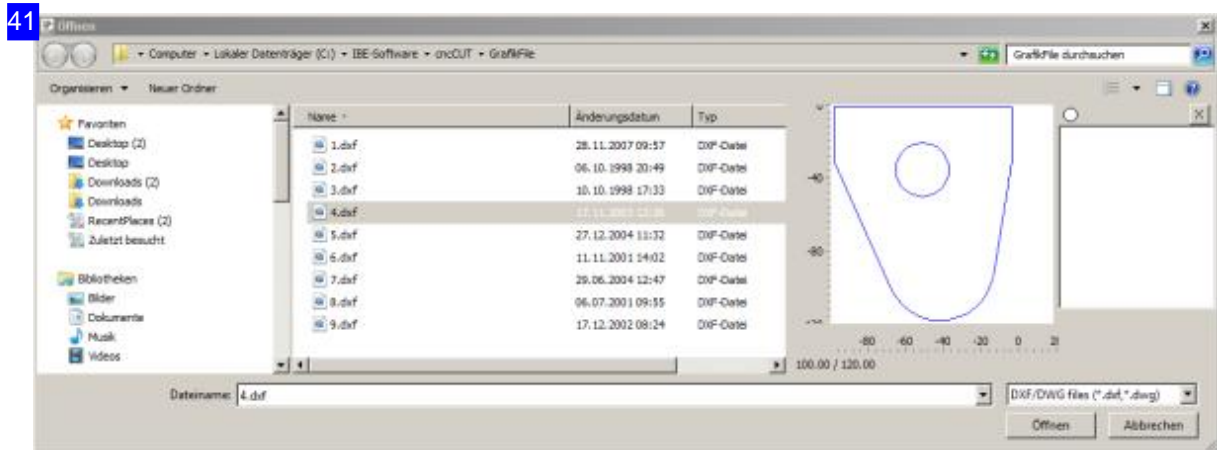
A calculation for part can be deleted in the menu, select 'Edit'.



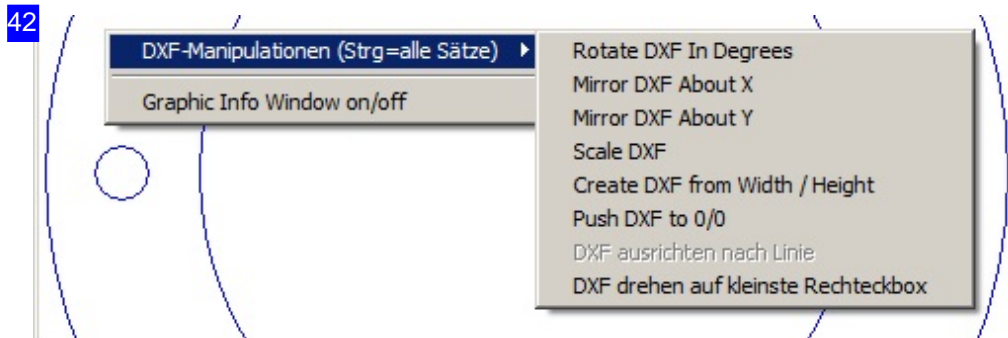
The buttons on the right allow you to import various part templates.

- o DXF drawing (name on the filter selection see below):
 Templates for new parts can come from a variety of sources, including existing DXF, DIN, DWG, ESSI, DST and ZEW files. ZEW files are IBE's proprietary format and contain certain special data about the drawing. The formats on offer can be seen in the pull-down menu above the preview display. Importing particular formats may require a converter. These can be purchased as optional extras from IBE Software GmbH. The selection on offer is limited to the converters purchased with your copy of the software. A here selected filter appears in button [Dxf template] for any use as the favorite file type. By clicking on this button, a file selection dialog will then open with the selected file type as a filter. By default, DXF and DWG files will be filtered and listed in the selection window.
- o Parts def.:
 IBE's optional construction module can be used to create your own parts from predefined geometric elements.
- o Macro:
 AV32 also offers a selection of predefined macros which you can dimension as required to to create your own parts which can then be saved to the parts list.
- o Create part:
 This button takes you to the optional *PartCreator*. With this program, you can assemble individual macros into one component, working from a basis macro.

By clicking the right mouse click in the graphics window you open a menu for manipulating DXF outputs. Once you have decided on a part, the lead-ins and so forth can be allocated to the it in the technology window. Switch there by clicking Edit. With *cncCUT* installed as your technology module, you can use the *Sketcher* to create individual parts.



File selection dialog with the default filter depending on the application process.



You can align a drawing on a line using this menu clicking the right mouse button in the graphics window. Click on the menu item [Align DXF to Line] and the Drawing rotates so that the indicated line is horizontally or vertically. This Feature is only available when the graphic info window is switched on. Via the menu item [DXF turn to the smallest rectangular box] the drawing is rotated, that the enclosing box has the smallest possible area (orientation of the part). The accuracy of this function is about 0.5 degrees. The Function applied to all records in the display if <Ctrl> key is pressed.



In the 'Production Sheet' frame, you can assign a part directly to a sheet from the sheet stock and forward it to production. Clicking the button to the left of the input field takes you directly to the corresponding sheet in the sheet stock, where you can return to the Parts form by clicking 'back'. Next, forward the order directly to production.

The part can also be assigned to a group and integrated in a group nesting plan. Clicking on 'Groups', the dialogue for the group nesting opens. Read more about the group nesting in respective chapters. The 'Group' button only appears, if group-nesting is released in the common settings.

The 'Part-macros' frame relates to *PartCreator*. If any Part-macros exist there, this will be indicated here.

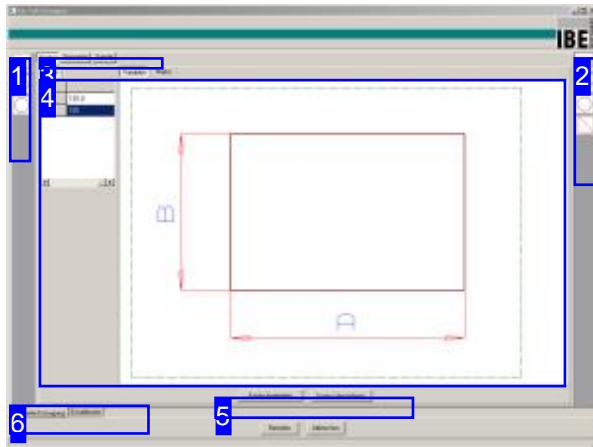
6



The buttons in the navigation panel lead directly to the relevant database. The 'Parts Bin' button always leads to the parts form.

Definition of Parts

Manual Creation of Parts.



The screen shows you all available contour templates in a selection list. If this list is empty for both internal [1] and external contours [2], please access the settings [6] and enter the location of your macros.

AV32 's 'Definition of Parts' allows you to create your own parts using predefined geometric elements.

Begin by creating an external contour; this can be expanded with internal contours or holes. Every contour (in- or external) can be expanded with further elements and the form can be modified. A contour created here can then be used as a workpiece for cutting.

The result of your work can be seen under 'Geometry' [3].

- o Select a configurable base contour from the list of external contours [1]. You can add contour elements to the external contour under 'Edit contour' [5] beneath the preview. 'Transfer Contour' [5] finalizes a contour. The buttons 'Geometry' and 'Table' appear in the header panel [3].
- o You can expand an existing external form with internal forms from the selection list [2]. Internal contours are edited in the same way as external contours, and also inserted by clicking 'Transfer Contour' [5].
- o Double click on the internal contour to move it to the correct location relative to the external contour.

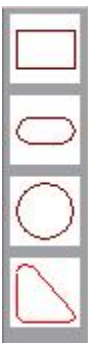


1



This frame shows you the external contours available on your computer. This list offers the forms upon which you can base your workpiece.
Click a contour to select it as your foundation stone.

2



This frame shows you the internal contours available on your computer for expanding your basic workpiece. These are not necessarily the same as the external contours.
Click a contour to select it as an extension of your foundation stone.

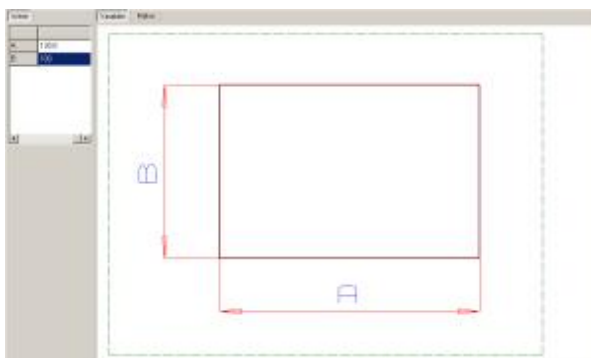
3



These buttons allow you to switch to the various displays:

- o 'Contour' shows the internal or external contour you are currently editing.
- o 'Geometry' shows the current state of the workpiece you are creating.
- o 'Table' shows detailed information for all contours.

4



This frame shows content relevant to the selected display type:

- o Display Contours
- o Display Geometry
- o Display Table



5



Click the 'Edit Contour' button to switch to the editing screen and add contour elements to your workpiece.

'Transfer Contour' confirms your contour. If this is the external contour then you now have a foundation for making a more complex workpiece. If this is an internal contour then you can now place it on your external contour.

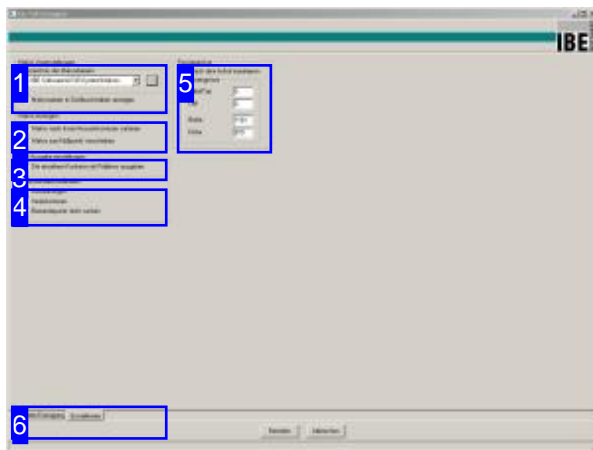
6



The 'Create Geometry' tab contains the options for part construction. You can make program settings under Settings .



Configuring Your Software.

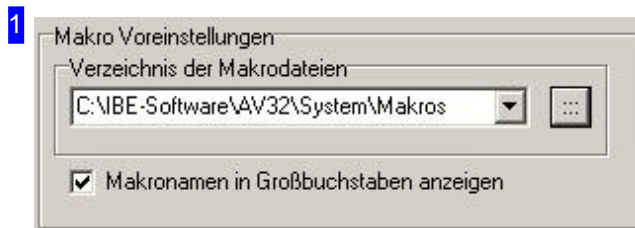


Set presets for your macros and DXF outputs here.

The 'Settings' frame allows you to set presets for your software:

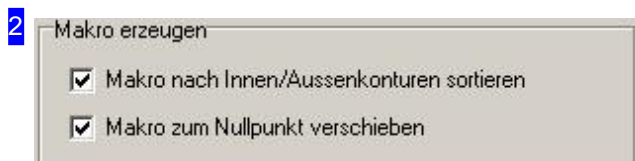
- o Settings for macros and entering the macros' paths.
- o DXF output as polygons.

The macros for internal and external contours are usually located under '..\AV32\System\Makros'. If you have your own macros in a different folder, enter it here. Be careful to finish your input with a backslash!

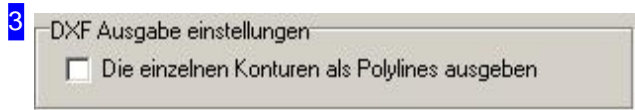


Enter the path where AV32 can find your macros for internal and external contours.

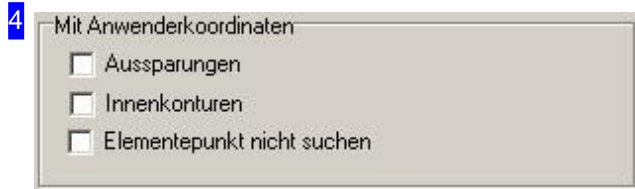
If you are not shown any macro previews when you select 'Part Def.', the most likely reason is that this path is wrong, missing or missing the closing backslash.



Set how your macro should be constructed here.



Select whether to save your contour as built from geometric elements (lines, curves), or as polygons.



Set where the user co-ordinates should be employed here.



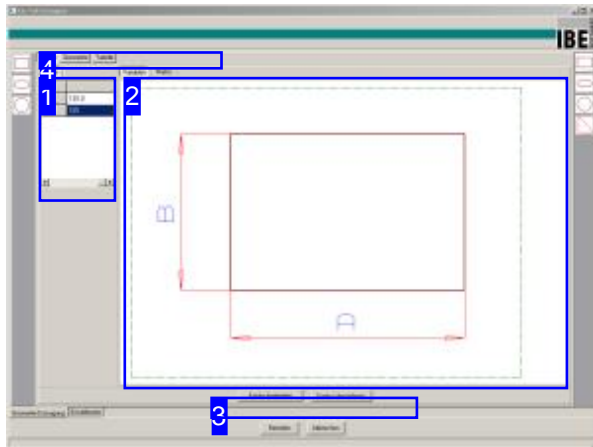
Set the size and orientation of the window here.



Switch to 'Create Geometry' to construct your workpiece.



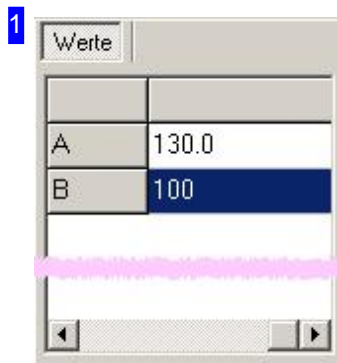
Create an Internal or External Contour.



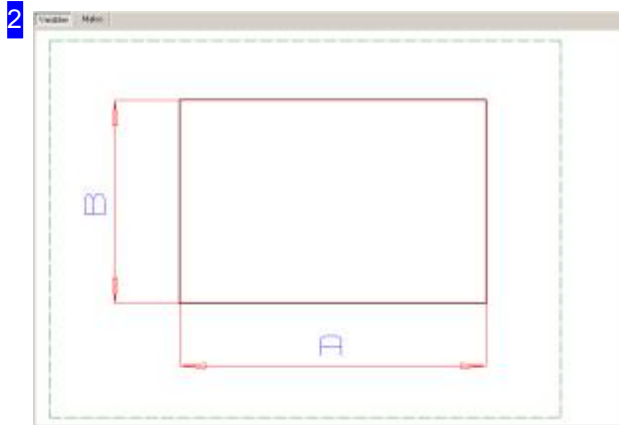
Modify your contour to meet your requirements here.

Make settings for your macro in the 'Contour' section, and add detail by adding contour elements.

- o The left window [1] shows the part's values. Switch the right window [2] to 'Variables' to change individual values from the list [1].
- o The selected macro is shown to the right [2]. Use the 'Variables' and 'Macro' tabs to switch between display with and without dimensions. Select 'Variables' to adjust the values in the list [1].
- o Many geometric elements are available if you wish to change the part's contours. Switch to contour editing by clicking the 'Edit Contour' button [3].
- o Once the contour meets your requirements, click 'Transfer Contour' [3], to fix the contour ready for further editing.



This table allows you to adjust your macro's values, bringing it into the shape and size you require.



This frame shows a preview of the selected workpiece. Switch between displays with or without dimensions using the 'Variables' and 'Macros' tabs. Use the 'Variables' tab to adjust values.



Switch to contour editing by clicking the 'Edit Contour' button, or confirm your contour by clicking 'Transfer Contour'.

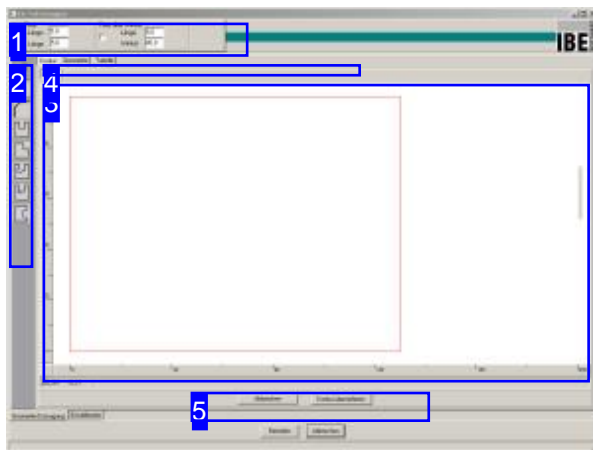


These buttons allow you to switch to the various displays:

- o 'Contour' shows the internal or external contour you are currently editing.
- o 'Geometry' shows the current state of the workpiece you are creating.
- o 'Table' shows detailed information for all contours.



Constructing your Geometric Part.



Define the geometric shapes of your contours here.

The 'Construct Geometry' screen allows you to change the geometry of a contour. The contour's basic form can be expanded:

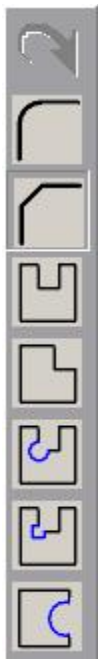
- o The middle frame shows a preview of the contour.
- o The left frame [2] offers a selection of elements for expanding you contour.
- o Once you have selected a contour element, an input field will appear in the top frame [1] for defining it. Enter the required parameters.
- o Move the cursor over the position the element is to be placed in the preview frame [3]. Double click to place the element.
- o You can change the display in the preview frame to show either the contour, geometry or a table of contours. Click the corresponding button [4] to switch.
- o Once the contour has the required form, click 'Transfer Contour' [5] to fix it ready for further editing.



This frame shows the available parameters depending on the selected contour element. Enter parameters corresponding to the forms you require.



2



Select an element to edit from this list of contour elements. The buttons from top to bottom:

- o Undo
- o Rounding of corners
- o Bevel
- o Cut-out
- o Notch
- o Corner - Round drilling
- o Corner - Rectangular drilling
- o Round cut-out

3



Here you see a preview of your contour. To place a contour element, double-click the position on the contour where you would like to add the element. The cursor position decides the direction the element is placed in relative to the contour. This can be used for both internal and external cut-outs. Right-click to change the part display.

31



This menu allows you to change the display. Depending on context you may also see 'Rotate' and 'Mirror' as menu items here.

4



These buttons allow you to switch to the various displays:



- o 'Contour' shows the internal or external contour you are currently editing.
- o 'Geometry' shows the current state of the workpiece you are creating.
- o 'Table' shows detailed information for all contours.

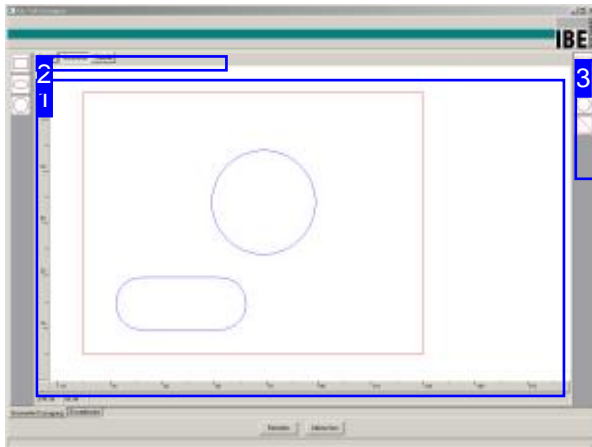
5



Once your contour has the required form, click 'Transfer Contour' to fix it for further editing. An external contour becomes a basic form, an internal contour can be added to the current part.



The Workpiece Under Construction.



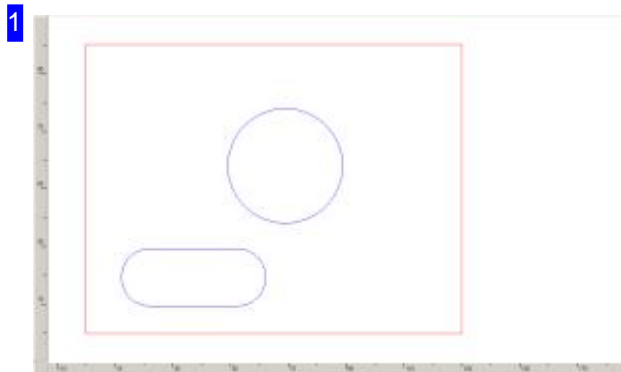
Your workpiece is shown here in its current form.

The 'Geometry' screen shows the workpiece as it stands at the current point of editing.

To insert internal contours, choose from the selection to the right [3], edit in the contour screen and finally add to the current geometry.

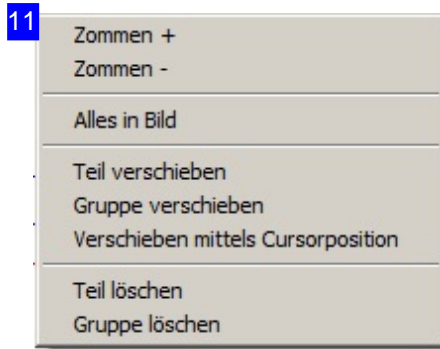
Right-click in the display [1] to open a menu with the following edit functions:

- o Change view (zoom)
- o Fix or change positions
- o Delete groups or elements



This frame shows your workpiece in its current form. To add internal contours, choose from the selection list to the right [3], edit in the contour screen and finally add to the current geometry. The contour will be added to the preview.

Right-click in the display [1] to open a menu if you wish to e.g. delete or change the positions of contours.



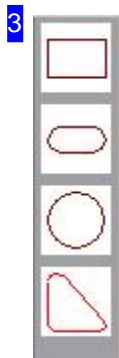
This menu allows you to change the display of your part (zoom) and use this detailed view to move or delete contour elements.

- o Zoom - zoom in or out and pan across your drawing.
- o Move - move individual parts around on your drawing board (no editing).
To move a part which consists of multiple elements, click 'Move Group' to define a group to move.
- o If you wish to enter an exact position, select 'Move using Cursor Position'. An input dialog will appear where you can enter the X and Y location of the contour.
- o Delete - remove contours or contour groups from your workpiece.



These buttons allow you to switch to the various displays:

- o 'Contour' shows the internal or external contour you are currently editing.
- o 'Geometry' shows the current state of the workpiece you are creating.
- o 'Table' shows detailed information for all contours.

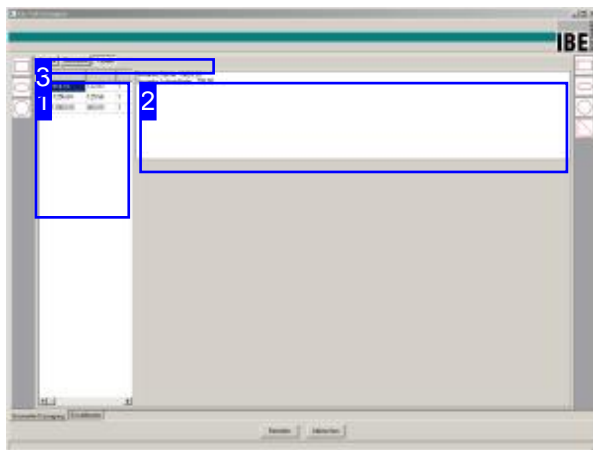


This frame shows you the internal contours available on your system. This list contains the contours you can use to expand your basic parts.

- o Click a contour to select your expansion block.
- o Define the contour in the contour screen.
- o Transfer the contour on the contour screen.



An Overview of the Values.



The 'Table' screen shows a list to the left [1] of all contours and calculated values for:

- o Area
- o Cut length
- o Quantity

To the right a summary is shown as a text field [2].

Here all contours are shown listed in a table.

1

1	-914.16	122.83	1
2	-1256.64	125.66	1
3	13000.00	460.00	1

The 'Table' shows a list of all contours and calculated values for:

- o Area
- o Cut length
- o Quantity

Areas of internal contours (holes) are given as negative values (-).



2

Gesamte Fläche	10829.20
Gesamte Schneidbahn	708.50

Here is an overview of the layout of the surfaces and cutting paths.

3

Kontur	Geometrie	Tabelle
--------	-----------	---------

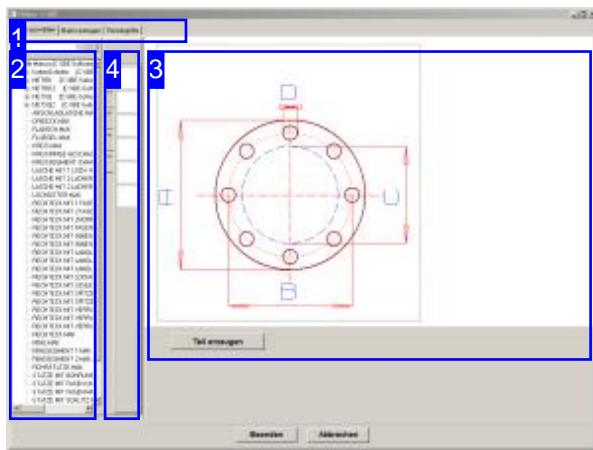
These buttons allow you to switch to the various displays:

- o 'Contour' shows the internal or external contour you are currently editing.
- o 'Geometry' shows the current state of the workpiece you are creating.
- o 'Table' shows detailed information for all contours.



Macro Selection

Manual Creation of Parts.



AV32 's macro list offers various predefined macros for creating simple standard parts, and optionally offers HTML macros for creation of your air-conditioning and ventilation shaft components.

The macro selection page offers the ability to create a part to your specifications using predefined macros.

Select a macro from the list [1] or your quick-list [3]; it will be previewed for you [2]. Depending on macro type, a tab for further editing will be shown in the header panel. For standard macros this is the 'Create Macro' tab, or 'HTML Macros' for HTML macros.

Select the appropriate tab for the next step.

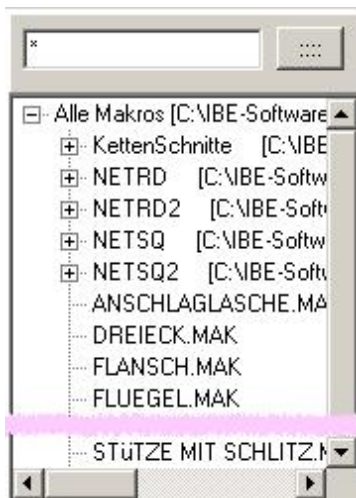
You can populate the quick-list with your own favorite macros.



- The tabs in this tab panel vary according to macro selection.
- Use the left tab to access the macro selection page.
- The second tab gives access to the context-sensitive macro editing screen.
- The third tab contains the Settings for macros.



2

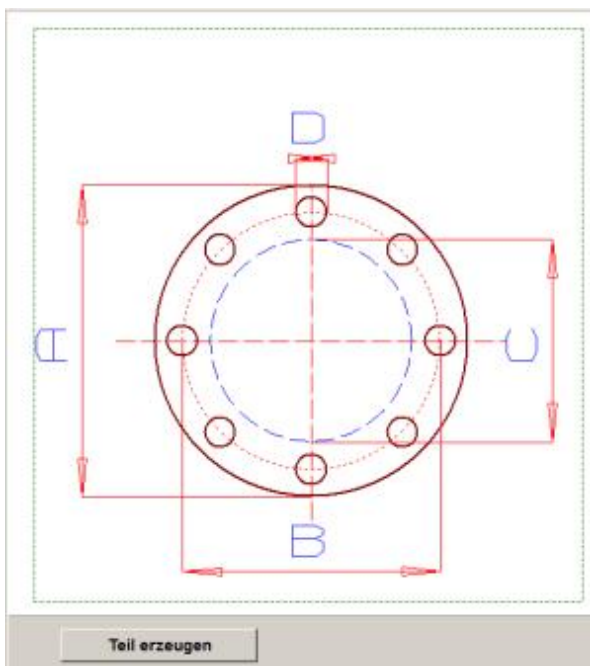


This frame shows all macros found in the correct macro path. These are split into:

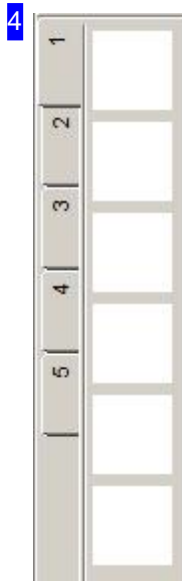
- o Standard macros with the file extension '.MAK'
- o HTML macros with the file extension '.MHT' (Option)

Open the corresponding folder by clicking the knot symbol, and highlight the required macro. The macro will be previewed [3] and a tab added to the header panel for the next processing step.

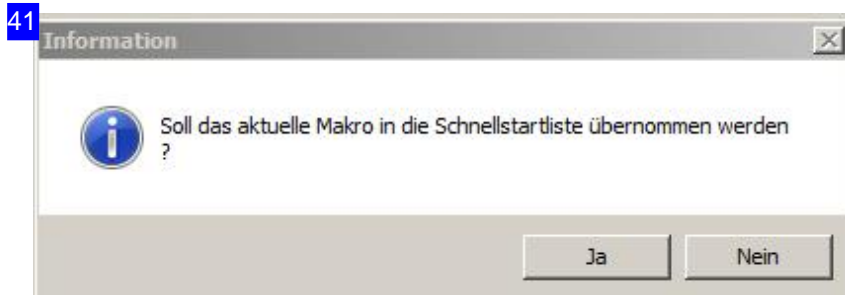
3



This frame shows the selected macro. Confirm the selection to continue to macro creation under 'Create Macro' or 'HTML Macro'. Click 'Create Part' (bottom) to access the corresponding window.



The quick-list offers a selection of tabs with buttons which you can populate with your favorite macros organized e.g. by theme. To populate a button with a macro, highlight a macro in the main selection list [1], then either click an unpopulated button, or <Ctrl>-click a populated button. This first opens a dialog to confirm your action.



Confirm the transfer of this macro to the quick-list [4].



11

Makro auswählen | Makro erzeugen | Fenstergröße

Makro Voreinstellungen

Verzeichnis der Makrodateien
 ...

Makronamen in Großbuchstaben anzeigen

Makro erzeugen

Makro nach Innen/Aussenkonturen sortieren

Makro zum Nullpunkt verschieben

Fenstergröße

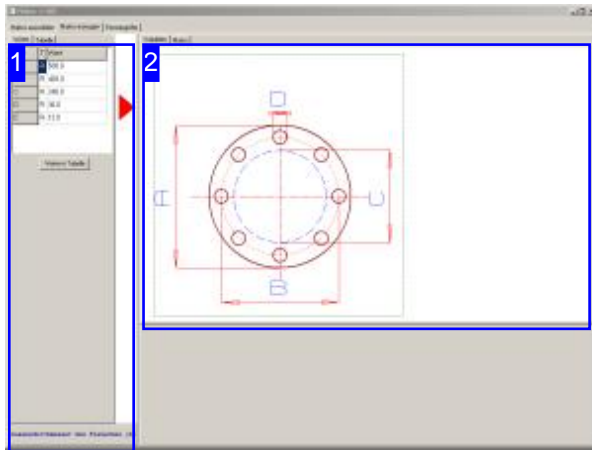
Top Breite

Left Hoehe

The 'Window Size' tab contains options for macro selection, macro creation and the display of this window.



Editing a Standard Macro.



This window allows you to define a macro's dimensions, developing it into your required part. You can also use previously defined macro parts.

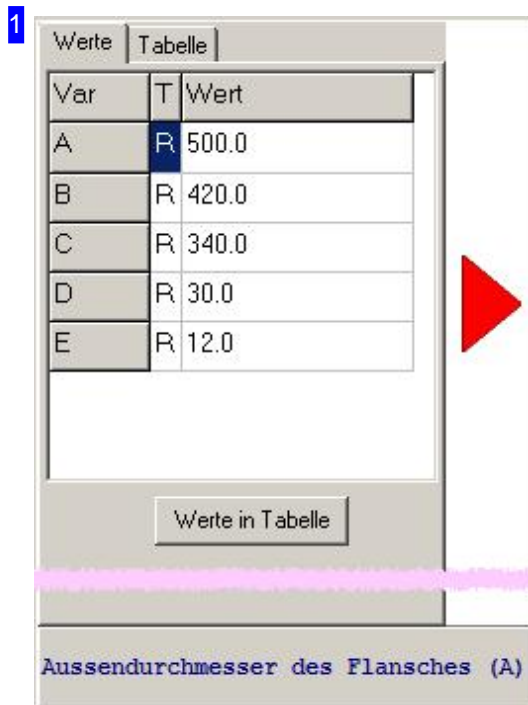
The 'Create Macro' screen allows you to enter a macro's variables, giving your part the required form. You may also select a part you have previously made and saved.

Set the variables in the left frame [1] to give your part the required form.

The 'Table' tab contains a 'rack' of parts previously created using this macro as a base. The table can be saved ready for next time.

The workpiece is previewed to the right [2] with its variables shown.

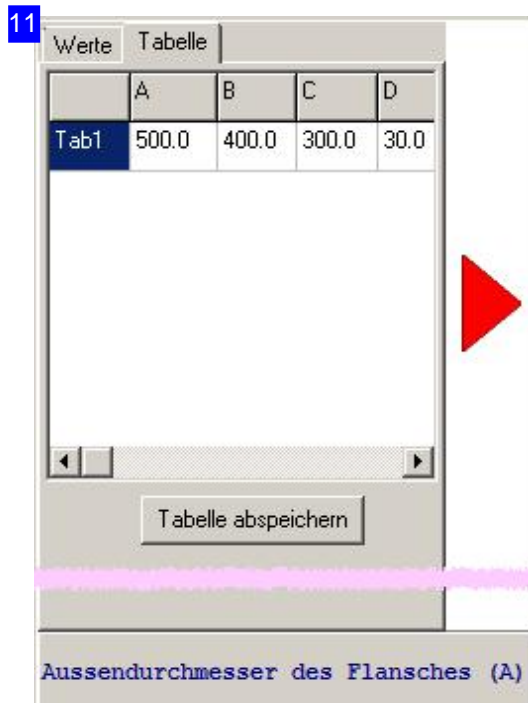
You can use the buttons in the header panel [2] to switch to a preview of the workpiece as it is being defined. From this preview you can move on to the editing screen.



This frame shows a list of the variables. The preview shows the variable currently selected in the list.

If you have made changes to the macro which should be made available next time you use the program, click the button below the values to copy them to the 'rack' (table). Switch to the Table to save these settings to disc.

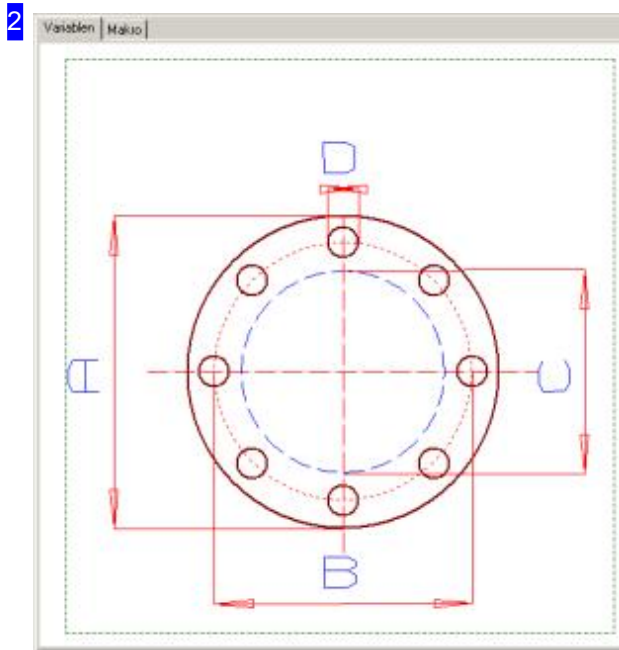
Once the part is setup as required, click the red arrow to the right to create your macro part.



The 'Table' tab represents a 'parts rack' for multiple variant parts made based on the same macro. You can save this list ready to use next time you start the program.

Click the bottom button to save the values.

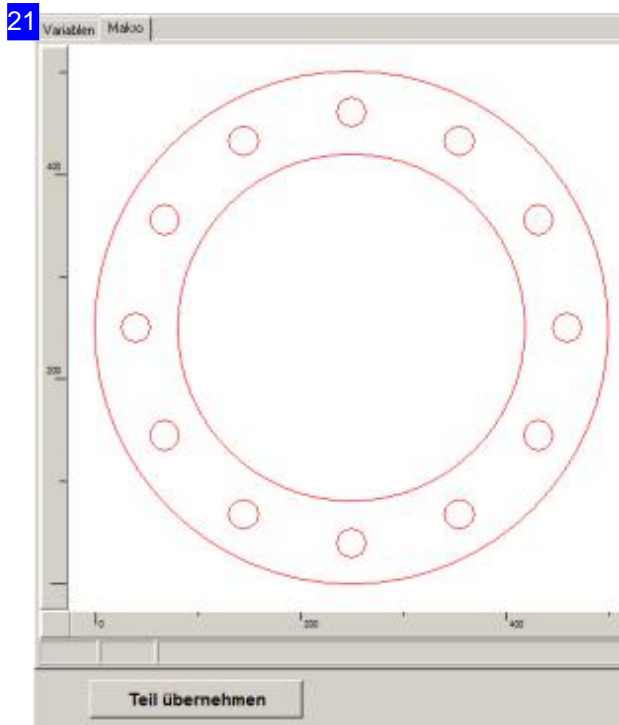
Highlight the part in the table and click the red arrow to the right to create your macro part.



This frame shows the macro with its variables. The variable which is currently being edited will be shown in the preview.

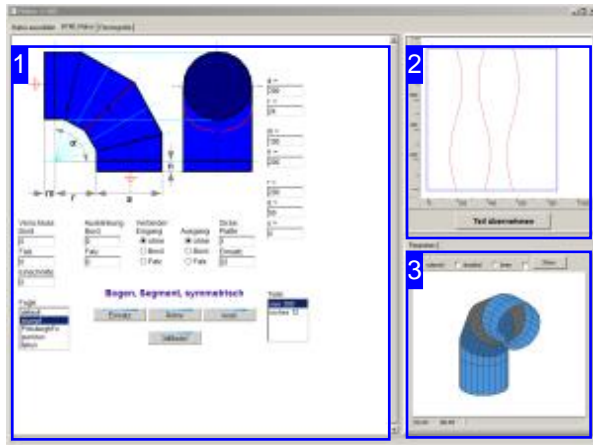
Change the value in the list to the left [1].

The part is shown in its current state in the 'macro' tab.



This frame shows the selected, completed macro. If this is correct, click 'Transfer Part' (bottom) to make the part ready for further processing.

Defining HTML Macros (Nets).



Nets are an optional feature which AV32 creates using HTML macros.

This screen allows you to define your parts as required, or use a predefined part from the list.

With HTML macros, complex components can be created, which then can be executed directly in the project form and can dissolve completely to an assembly unit.

Nets are transmitted using your computer's TCP/IP interface or using an ActiveX object. The transfer method is given in the template file - default is ActiveX.

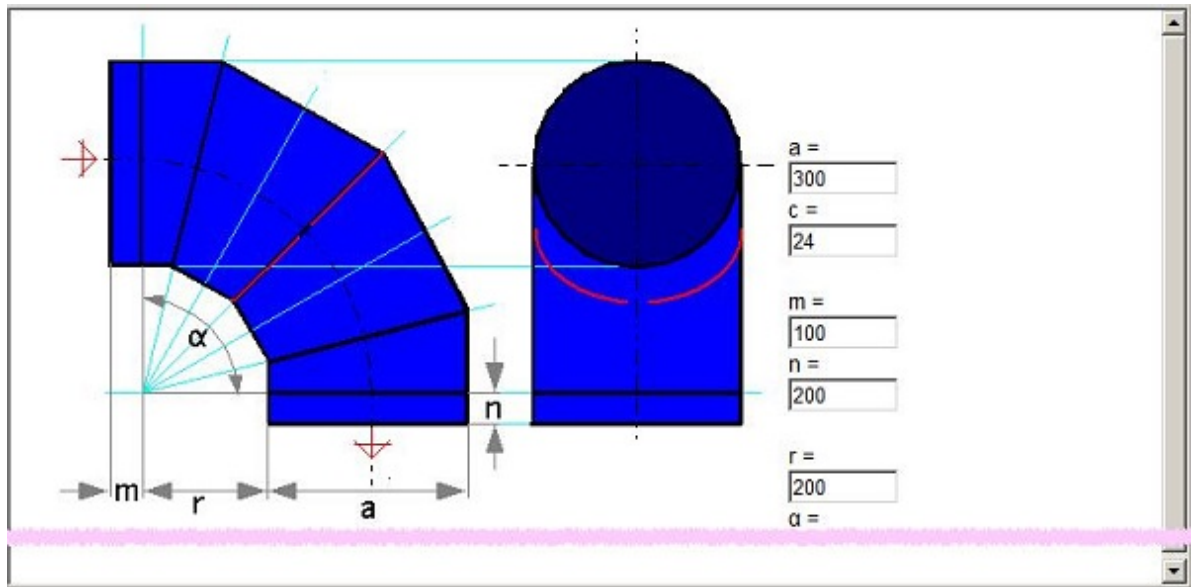
You must first start the server [3] in order to receive a net via TCP/IP. Next, enter the data for the net and click the middle button in the macro window [1] to transfer the data. The component will be generated with the given values and previewed in the preview window [2].

Note: to ensure safe transfer of larger files, the server is set to 'POST' transfer mode. When sending a form, please ensure it uses the same method!

Cookies must be allowed on your computer to be able to use HTML macros for nets.



1

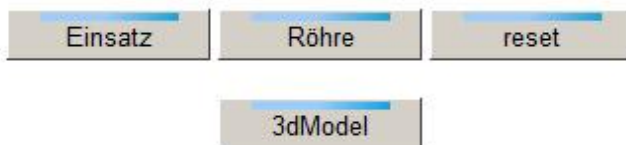


This frame shows the basic shape of the workpiece with its variables. Select a workpiece from the list or enter the required values in the input fields and click the button for data transfer.
 Note: dimensions are external dimensions.

The content of this frame is defined by the macro. Every macro has its own form with fields for the variables required to define it fully.

11

Bogen, Segment, symmetrisch

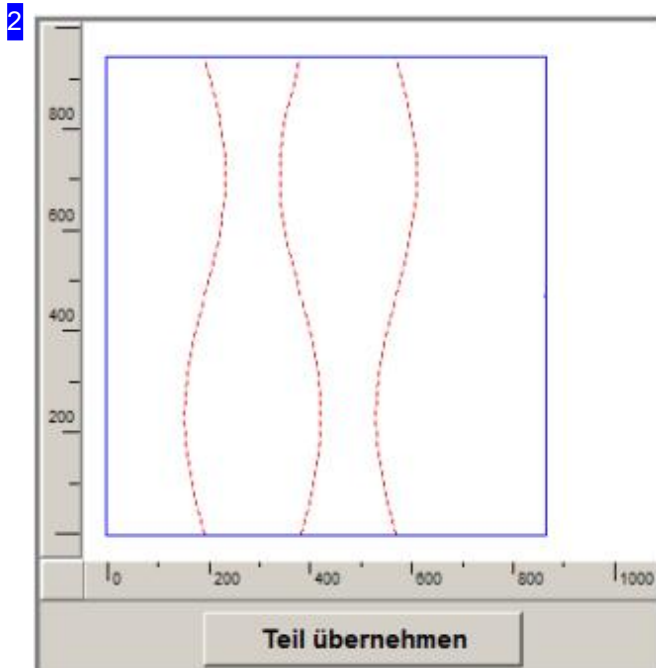


Teile:



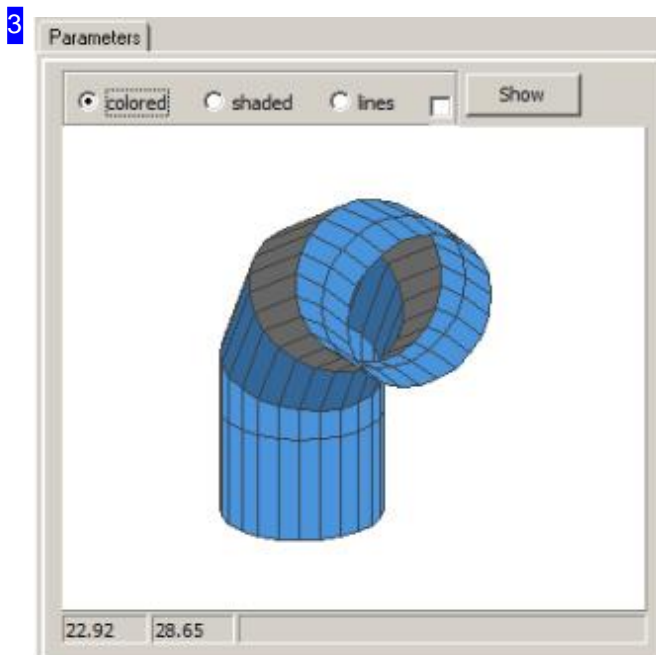
The list to the right shows the predefined workpieces from the XML file. Select a part from this list or enter the values for an individual construction and press the middle button to send the macro back to AV32 .

The left button generates an insert for the part, e.g. an insulation or facing. The insert will be cut with material thicknesses taken into account so that it fits inside the main part, as required.



This is the preview of the workpiece's net, as defined by your inputs in the macro screen [1].

To transfer the parts for further editing, click the bottom button 'Transfer Part'.



The content in this frame is dependent on an extension HTML file which is identified as 'PART' in the macro control file. This file is always re-created by clicking on the '3dModel' button as a result of a model calculation with the values entered.

The frame receives the mouse control when clicking in and you can rotate the model with the MB. Using the mouse wheel allows you to zoom in or out and you can move the image in the frame with a right mouse click.

You can choose between different colors for shaded display and the grid view. Click the right MB on the respective identifier, a selection menu opens for color selection.

Select the checkbox below the Settings tab for the representation of the part.

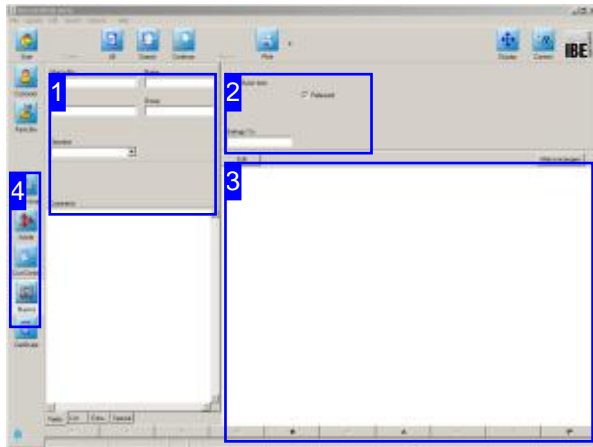


A net can be sent to AV32 as an ActiveX object (default), or via the TCP/IP interface. When using the TCP/IP protocol, mark the top checkbox and set the parameter <xmit> in the file 'MakroTemplate.xml' to 'TCP'.
To send a net in HTML form via the TCP/IP interface, a server which can process the macro must be made available.

If you have defined an extended display of the part in the macro control file (MHT) then a tab will be offered here where the part is shown.

Macro archive

Creating individual macros for components.



To create a macro for components, select 'Master Data' on the Start screen and switch to the Macros form.

Select a macro from the list [1]. The macro will be displayed in the preview [3]. To edit the macro, switch to the text editor [3].

If you have *PartCreator* integrated, you can switch to the creation program by clicking 'Create Macro'.

If you require more detailed information about the structure of a macro, please contact IBE Software GmbH.

This screen allows you to create individual macros that can later be combined into one component. The individual macros refer to reference points of a basis macro, which is the framework for the entire component. Changes to the basis part are taken into account in the assembled macros, allowing you to create different variants of specific components. To run them, you need an optional program DLL called *PartCreator*.

You put the actual individual components together in the Parts form. In turn, the components can then be easily combined into an assembly by the project management.



1

Macro No. <input type="text"/>	Name <input type="text"/>
Type <input type="text"/>	Group <input type="text"/>
Operator <input type="text"/>	
Comments 	

This is the Macros form with the input fields for a macro. New macros are automatically assigned a macro number.

Give the macro a name, enter the type and group, and confirm the entries.

2

<input checked="" type="checkbox"/> Basic form	<input checked="" type="checkbox"/> Released
Belongs To <input type="text"/>	

This is where you specify details of a macro relating to the part. If the macro is a basis macro, check the box on the top left. If it is a macro to be assembled, enter the basis macro that it refers to as a reference in the field below.

Check the 'Allowed' box to enable the macro.

3

Edit	Makro erzeugen

The macro is displayed in this frame. Click the 'Edit' button to switch to the text editor for creating or editing a macro. Another quicker way to create a macro is to use the optional program DLL, which allows you to assemble predefined program components into a macro. Switch to the creation program by clicking 'Create Macro'.



4

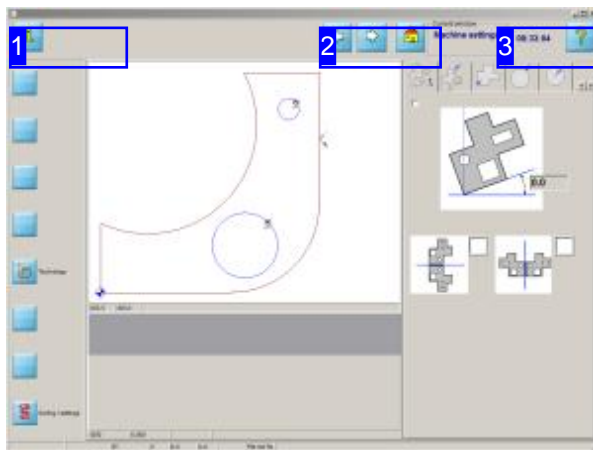


The buttons in the navigation panel lead directly to the respective screens. The Macros button always leads to the Macros form.



Machine Data

Allocate Machine Data in the Technology Module.



You can set your parts' technology values such as lead-ins, qualities, etc.. Click the 'Edit' button in the middle of the parts or orders form to switch to the technology window.

The choice of which technology window to use is set in the general settings page. You can add optional elements from 'ncCAD32' or 'cncCUT'. The window shown here is from 'cncCUT'. 'cncCUT' has its own Online help .

The entry route to the technology module is drawing-type sensitive. Drawings saved with their machine data (e.g. ZEW files) will open directly into the machine data window.

If you are using DXF files you may still wish to make changes in the Sketcher or Checker modules.

The technology data you can allocate to your part is dependent on the selected post-processor. Depending on the post processor selection the technology module shows other edit fields and selections. Each post-processor allows different options - a water-jet cutting machine offers different options than a plasma-torch cutting machine, and these are of course reflected in the software. AV32 will always pull default settings from the post-processor, guiding you to the right decisions.



Here you can see the currently loaded post-processor. The post-processor decides which options are available in this screen.

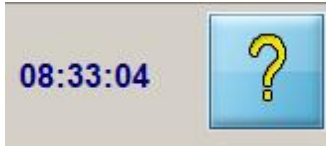


2



These buttons navigate the program. The left button goes back one step back, the middle button goes forwards to the next step, and the right-hand button goes back to AV32 .

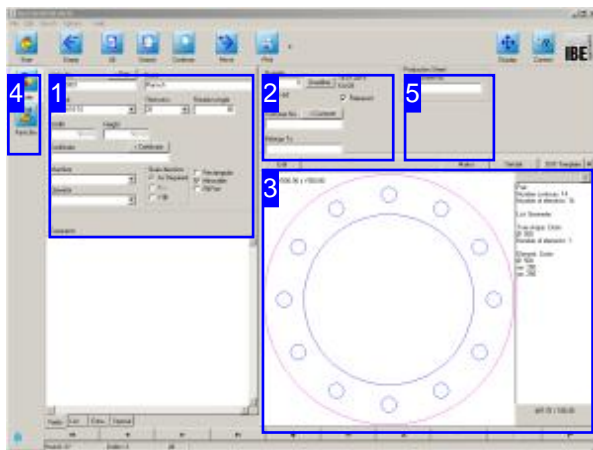
3



In the '*cncCUT*' machine settings module, press this button to open the corresponding help page from *cncCUT* .

Order Form - Managing Orders

Entering a New Order and Maintaining Orders.



You must have an order to create a nesting plan und zu einem Fertigungsplan zu gelangen benötigen Sie immer einen Auftrag.

All orders are saved to the 'Orders' table in your database. Use the 'Orders' form to navigate this table, and view or edit your orders' data.

Select 'Order' from the homepage or start a new order from the Parts Bin. . You will jump to the 'Order' form, where you can enter the data for a new order. You can always access the order page by clicking the 'Order' button. Entering this section opens the 'Order' form, where you can enter a new order, maintain your order database and delete old order entries.

Enter all relevant data about your order in the corresponding fields and remember to confirm your entries. The order will automatically be allocated an order number.

If you allocate an order to a customer, the customer number will be associated automatically.

If you create an order originating from the 'Parts Bin', the part number will automatically be added.

You can assign machine data values to your parts - switch to the technology module [3].

You must allocate the order a sheet for nesting to and cutting from. To do this, simply continue forwards .



1

Enter the order data in the relevant fields of this form, and confirm your entries. The order will automatically be allocated an order number.

You can already enter production information at this stage. You will only achieve the correct end product if all settings for machine and material have been entered fully and correctly!

The 'Fill Part' option is taken for nesting if an order has this setting. Fillpieces will be used to fill metal sheets through the nesting process. The forwarded number of parts is the max. number of the parts for nesting. The min. number is initially set to 0.

2

Enter the required part count for this order under 'Quantity'.

Entering your deadlines helps to use your machines optimally. Use the 'Deadline' button to open a dialog for entering your deadline.

If the part is allocated to a customer then you can switch to the customer's database entry.

The 'Released' box sets whether parts may be nested. If you wish to exclude a part from nesting (e.g. purchased part for an estimate), clear this checkbox.

21

	Mo	Di	Mi	Do	Fr	Sa	So
27	29	30	1	2	3	4	5
28	6	7	8	9	10	11	12
29	13	14	15	16	17	18	19
30	20	21	22	23	24	25	26
31	27	28	29	30	31	1	2
32	3	4	5	6	7	8	9

Today: 15.08.2016

Enter the production deadline for your order in this dialog. The program will slide the order into the optimal gap in the production queue.



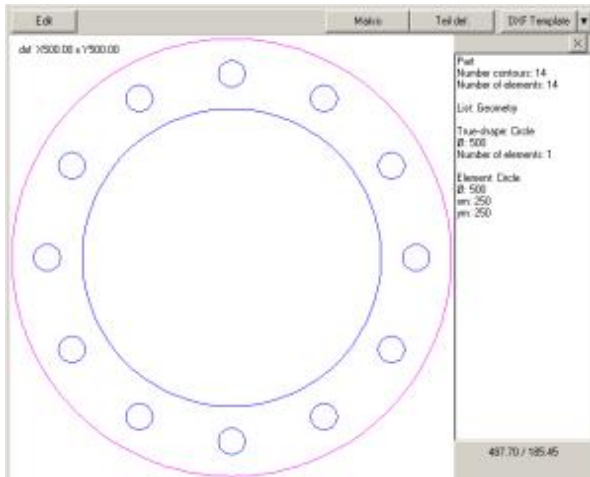
5

Production Sheet
Sheet No.

<

You can directly assign a sheet to an order (see Parts form).

3



This frame shows the selected component. Click 'Edit' to enter the technology module and add machine data such as lead-ins and qualities.

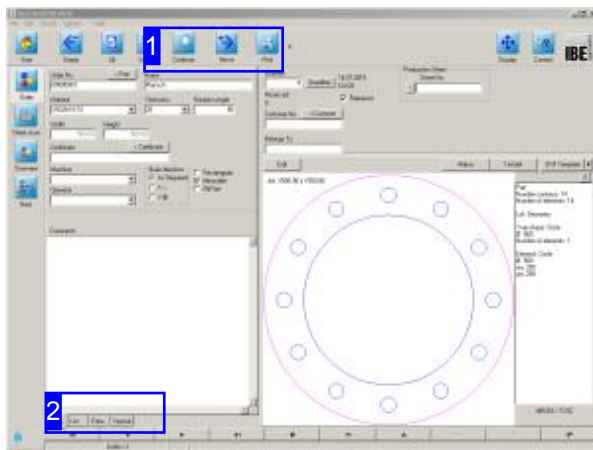
To add another part, return to the 'Parts' form.

4



The navigation buttons lead to the various database tables. Clicking the 'Order' button always brings you to this page.

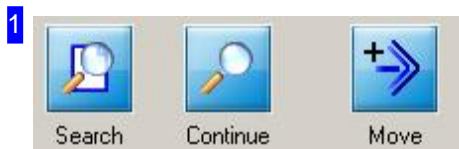
Collate Orders into Work Packets.



Use the 'Order' form to navigate the orders in your database. To collate your orders into a work packet, select 'Nesting Plan' from the home page, then 'Search'. Enter the search criteria and press 'Search'; select the 'List' tab [2].

To nest the parts ready for production, just send the orders forwards as a complete packet.

You can search for and collate specific cut parts which should be formed into work packets ready to be made into a production plan. Using the correct search operators will allow you to create economically optimal workplans for your machines - focus on machine type, material type and material thickness. There is more detailed help on searching under 'Search'. You can use various jokers and logical operators to optimize your search.



Click 'Search' to open the search form. Set the search terms and click 'Search', then select the 'List' tab [2].



2

Order No.	Quantity	Reserved	Material	Thickne	Machin
00000003	4	0	X5CrNi18-10	20	
00000012	1	0	X6CrNiMoTi17-12-2		
00000002	5	0	X5CrNi18-10	20	NCDEF
00000005	100	0	X5CrNi18-10	3	
00000006	100	0	X5CrNi18-10	3	
00000007	2	0	X5CrNi18-10	3	
00000013	3	0	St37	2	Ncdeff
00000015	3	0	St37	2	
00000016	44	0	St37	2	Ncdeff
00000017	444	0	St37	2	

The list displays all parts which match your search terms. Forward parts to the nesting plan by clicking 'Forward' in the header panel [1]. You may then enter the required quantity of each part in a dialog, or click once to transfer all parts.

To avoid duplication, these parts will be marked as 'reserved' by you, should anyone else look in the overview screen in the meantime.

If you want to do different orders together, mark all the items in the list (<Ctrl>) and push them forward.

21

Adopt Orders Into The Plan [X]

Quantity: Adopt Single Data Record >>

Adopt all data records >> [27]

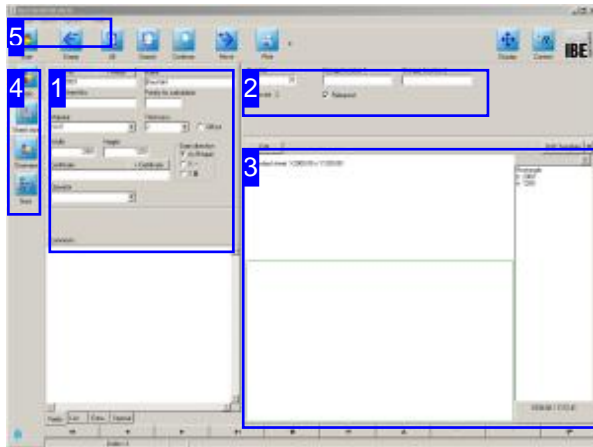
Adopt marked data records >> [0]

If parts are pushed into the nesting plan, you also can select several parts in the list and push together in the nesting plan, besides the possibility that individual or all parts have to apply. The number the parts you marked will be displayed in the dialog. This functionality also applies to parts of the archive parts. In this case orders from all parts will be created which are marked in the list.



Sheets Form - Managing Sheets

Entering a New Sheet and Managing your Sheet Stock.



You will need a sheet to nest your parts to. Create and/or select one from the sheet database.

Sheets can be added in the article list for calculation. You can assign an individually price to an existing 'Sheet article' for further processing.

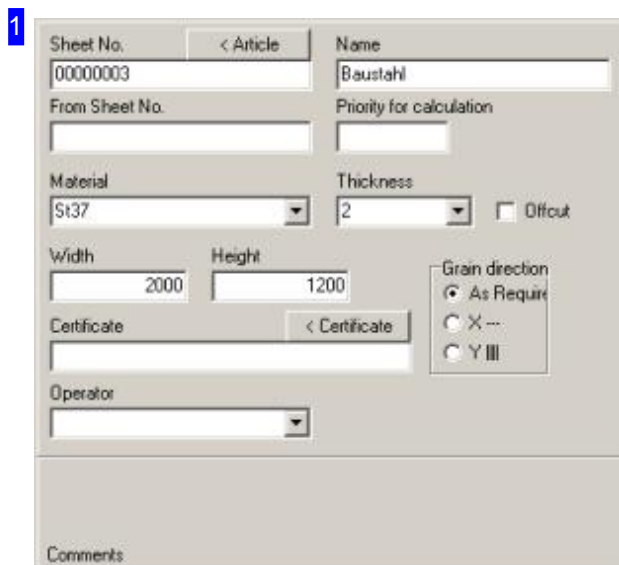
All sheets are saved to the 'Sheets' table in your database. Use the 'Sheets' form to navigate this table, and view or edit your sheets' data.

Select 'Nesting Plans' from the homepage.

You can always access the sheets page by clicking the 'Sheet Database' button. This opens the 'Sheets' form, where you can add data about a new sheet, manage data on existing sheets, and delete obsolete stock.

Enter all sheet data into the relevant fields of this form and confirm your entries with the 'Enter' button. The sheet is automatically allocated a sheet number.

Switch to the technology module [3] if you need to change any of your drawing's properties. You must have enough suitable material sheets with the right dimensions in stock to complete your order. Once you have selected a suitable material, switch Forward to the nesting window.



Enter the sheet data in the corresponding field and confirm your input. The sheet is automatically allocated a sheet number.

You will only achieve the correct end product if all settings for machine and material have been entered fully and correctly! Make the necessary basic settings for the material under 'Common Settings' before.

For the calculation can be a metal sheet an article. Click on the button '>Article' in the header to meet the allocation and to generate a 'sheet article'. Sheet number and article number must be the same. Change the sheet number in a non-assigned number



if the article number already exists. Give the sheet a priority (> 0) to maintain the sheet prices for the calculation in the appropriate tables.

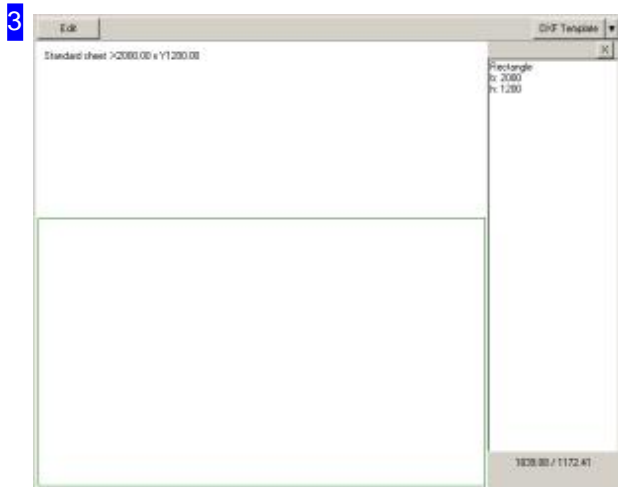
2

Quantity	Storage location 1	Storage location 2
<input type="text" value="33"/>	<input type="text"/>	<input type="text"/>
Reserved: 2	<input checked="" type="checkbox"/> Released	

Enter the number of sheets to be reserved for this job under 'Quantity'.

You can determine the storage location in the fields 'storage 1' and 'storage 2'. The location can also be entered for each remaining sheet in the completion window. It will then put in the completion message for the sheet storage.

The 'Allowed' box sets whether parts may be nested to this sheet. If you wish to exclude a sheet from nesting (e.g. dummy sheet), clear this checkbox.

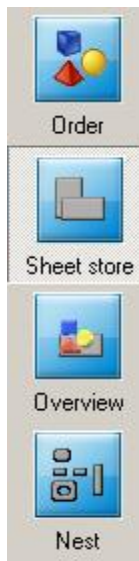


This frame shows the entered / selected sheet. Switch to the technology module [3] if you need to change any of your drawing's properties.

Selecting a sheet from a template is similar to selecting a part in the Parts form .

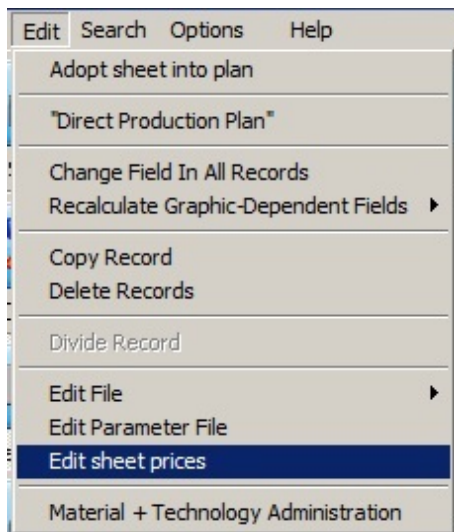


4



The navigation buttons lead to the various database tables. Clicking the 'Sheet database' button always brings you to this page.

5



For all sheets having a sheet article and a priority > 0, the price can be adjusted for calculation. Click on 'Edit sheet prices' and a dialogue will open with the sheet table.

You can forward a sheet via the 2nd menu item directly from the sheet store into the production for further processing. Parts will not be cut, only the sheet is processed e.g. as a blank. The number of sheets and the machine will be retrieved for processing when forwarding.



51

Edit sheet prices

Help

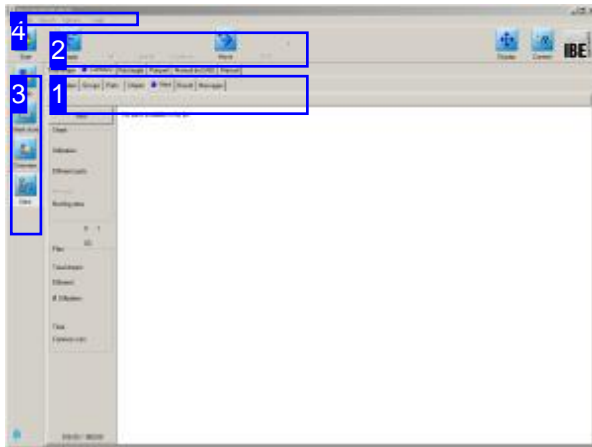
Name	Selection Tab	Material	Thickness	Width	Height	ME	Price	Stock (pcs)
Baustahl	00000003	S137	2	2000	1200	Stück	0.55	33
Baustahl	00000005	S137	10			Stück	5.15	1
	00000004	X5CrNi18-10	20	2000	1000	Stück	0.12	19

Navigation icons: F1, Home, Left Arrow, Right Arrow, Up Arrow, Refresh, Close, Undo

This dialog can be accessed via the menu item 'Edit', 'Edit sheet prices' in the header. All sheets will be listed, which are associated with a sheet article and have a priority > 0. You can put the prices up to date and adjust them for the calculation in the formular.

Creating a Nesting Plan

Organizing your Parts onto Sheets.



Once you have selected all required parts and have enough available sheets for fulfilling your order you may begin nesting the parts to the sheets. Select 'Nesting Plans' from the homepage to switch to the nesting form.

The optional nesting methods available to you are shown in the top tab panel [1]. The full selection consists of:

- o True-Shape nesting
- o Grid nesting
- o Parquet nesting
- o Manual nesting

AV32 offers many methods of organizing or 'nesting' your parts onto sheets. From fully automated nesting according to your settings to computer-aided manual nesting; the program allows you to decide your level of control.

The program gives you the possibility of an integrated batch processing, where you can use different methods and settings, independent from time.

You can run several nesting methods with different values in a batch-file, for finding the best nesting result.

The tabs with option relevant to your selected method will be shown in the second tab panel. Use these tabs to access the many options and settings for each nesting type.

You can change the sheet selection and delete or add parts to make optimal use of your materials. You can also have the program search your order list for small parts from other orders which you could "gap-fill" with.

You must re-nest after each change which affects the nesting results in order to keep your plan current. Your completed sheets go from here to the production module - just click Forwards.



Efficiently nesting varied parts to a single sheet places a large demand on a nesting algorithm. AV32 offers particularly well-developed solutions, and for this reason most are optional extras to the program. Because of the value of these modules, these are license-protected by our USB dongles and must be enabled centrally by IBE Software GmbH.

The optional nesting methods installed with your copy of AV32 are shown in the top tab panel.

The tabs in the second tab panel are context-sensitive and will be updated when you select a nesting method.

2

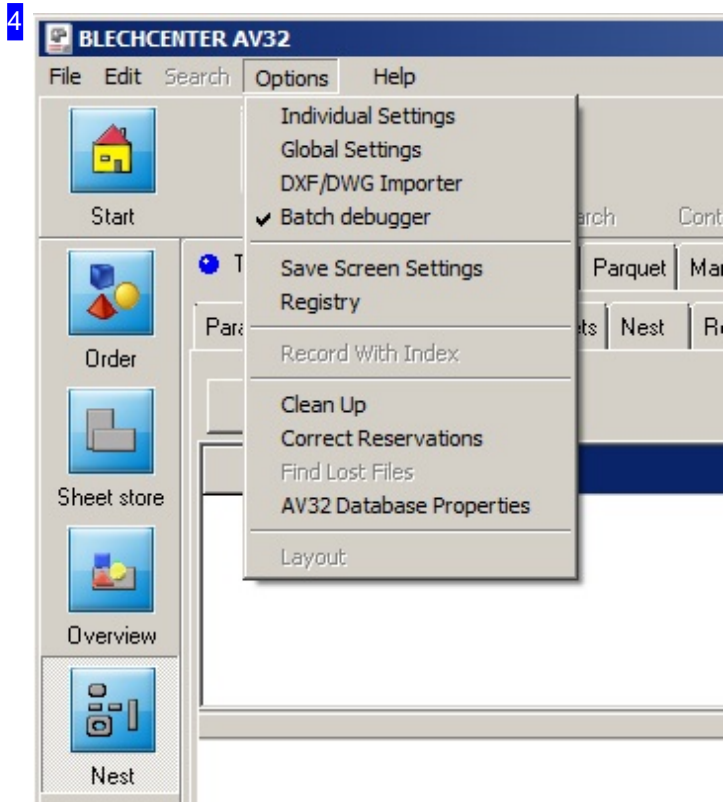


The finished sheets can go for production. Press the right-hand button. Click the left button to completely empty the nesting plan, and begin anew.

3



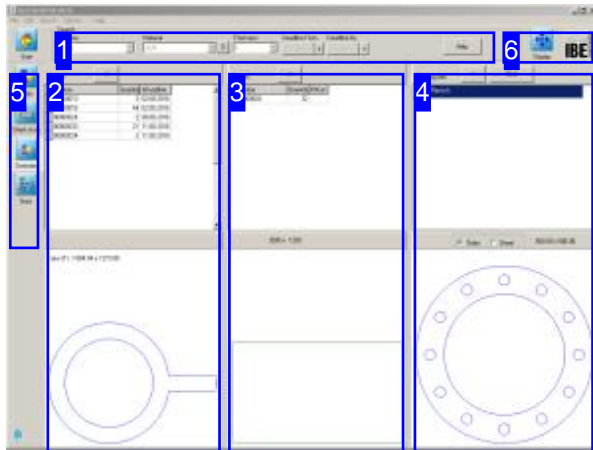
The navigation buttons lead to the various database tables. Clicking the 'Nesting' button always brings you to this page.



If you have selected optimizing nesting plans with batch processing, you can get an additional debug-window, to trace the nesting process. Select 'Batch-Debugger' and the debug-window will appear automatically when nesting.



Managing Resources from the Overview.



Switch to the Overview [3]. Drag and drop orders and sheets as required to form nesting plans.

There are interdependencies between orders, sheets and nesting plans which are defined by material, sheet thickness and machine type.

All orders are listed in the left frame, and corresponding sheets in the middle frame.

The right hand frame shows the elements of the nesting plan. Use the options in the middle of the frame to switch the display. Finally, continue to 'Nesting' [5].

The foundations of a nesting plan are a sheet and an order. The overview shows the interdependencies at a glance, allowing you to allocate items as required.



The 'Search' frame offers all machines the materials and thicknesses allocated to each of them through material groups.

Select the required machine to reveal the context sensitive selection list.

The contents for 'Orders' [2], 'Sheets' [3] and 'Nesting plan' [4] will be refreshed when you select a machine, material and thickness. When you first open the program, the list is sorted by deadline.

If you wish to see only orders for a specific time period, enter the limiting dates using the buttons on the right hand side.



2

Orders ->>

Number	Quantity	&Deadline
00000013	3	02.08.2016
00000016	44	02.08.2016
00000024	2	08.08.2016

zew (T) X384.04 x Y273.00

Here you see all orders with their order numbers and production deadlines. Select an entry from the list and the part will be shown in the preview.

To move an order into the nesting plan, click the button in the header panel.

Please note you will only be presented with orders which can be cut using the currently selected machine.



3

Sheets

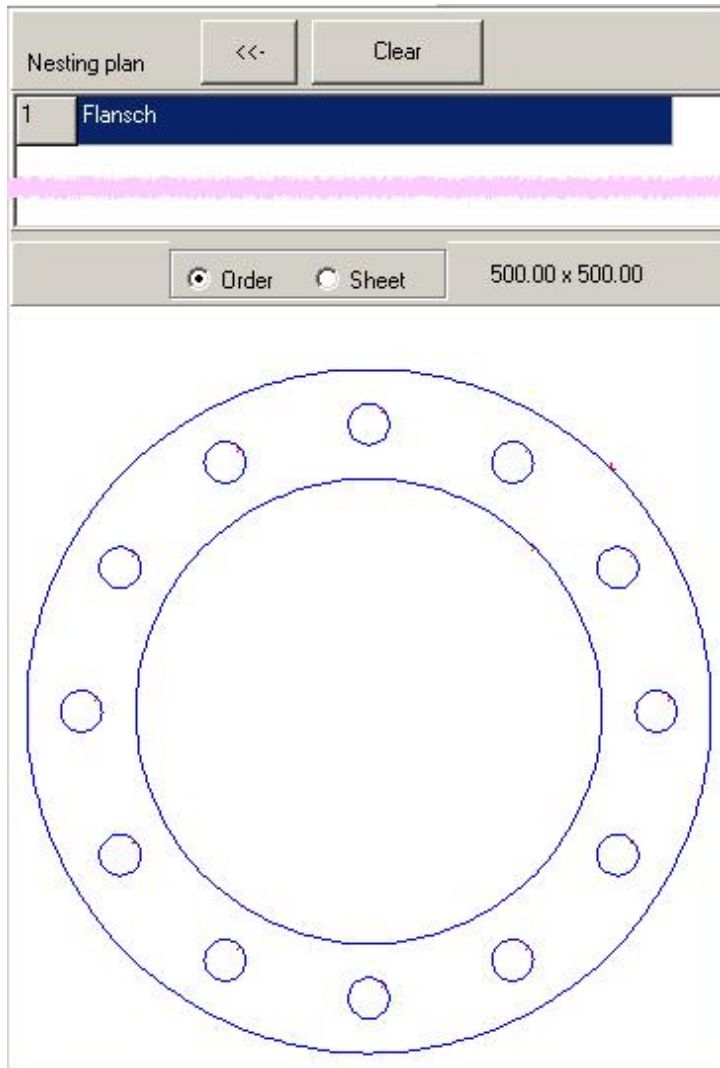
Number	Quantity	Offcut
▶ 00000003	32	

2000 x 1200

Those sheets which can be worked by the selected machine are shown dependent on the selected thickness. To select a sheet for nesting, click the button in the header panel to move it to the nesting plan.



4



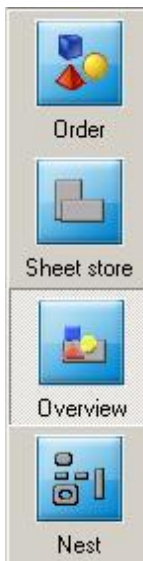
The nesting plan unites orders and sheets, allowing you to nest your required parts to the available material.

This frame show the orders to nest and the allocated sheets. The selection in the middle of the frame toggles displays.

You can return individual orders or sheets, or you can delete the whole nesting plan by clicking 'Empty' in the header panel.



5



The navigation buttons lead to the various database tables. Clicking the 'Overview' button always brings you to this page.

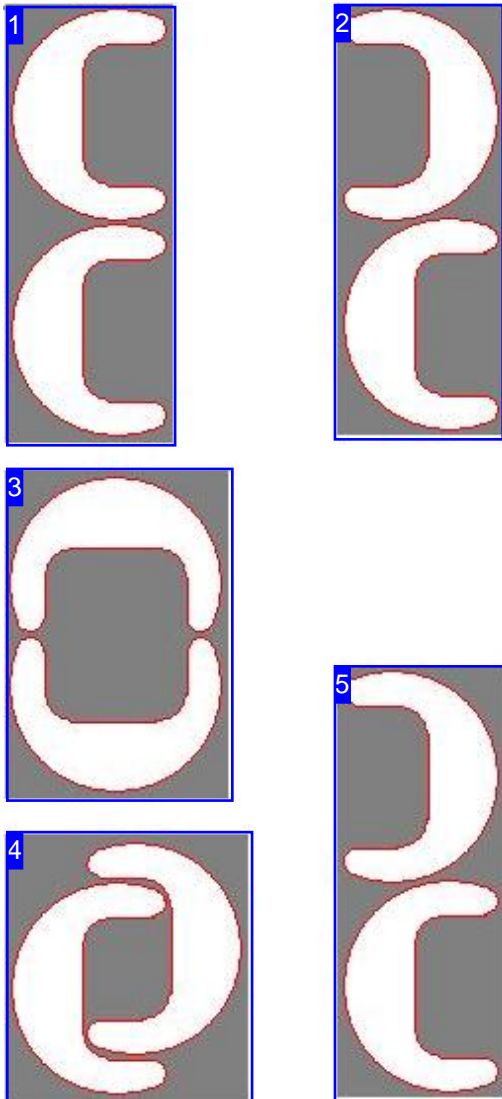
6



The sections of the overview can be change with the mouse in size. When crossing the form separator, the cursor changes to a 'Resize' cursor whereby the sections are changeable. The settings can be saved with the button 'Display'. By default the areas are divided into equal parts.



Workpiece Properties



Select 'Best' and AV32 will automatically find the tightest pair possible.

Available workpiece property settings are determined by the selected nesting type. All settings are described here, although not all are relevant to all nesting types:

- o Pair-building
- o Priority
- o Step angle
- o Fitting type
- o Grain direction

Pair-building

Allows you to make settings for combining two parts into a pair. Pairs can be nested with a higher priority.

AV32 offers 5 ways to make pairs. The goal is always to fit two parts together into the smallest possible box. The program's 'Best' option will usually find this for you, but there are four other settings if you wish to try them:

1. No alignment of parts.
2. Align parts vertically - the tiles are nested against each other in vertical steps.
3. Align parts horizontally - the tiles are nested against each other in horizontal steps.
4. Overlapping pair.
5. AV32's 'Best' option will usually find the best option for you automatically.

**6****Priority**

Sets the order in which parts should be placed onto the sheets. Parts with higher priority will be nested first.

7**Step angle**

The step angle sets the angle to turn parts by when fitting. A larger value means more steps, so a better fit, and more efficient use of materials, but requires increased computation time.

While small values will always give you the tightest pairs, they may not always lead to the best result on your whole sheet.

8**Fitting type**

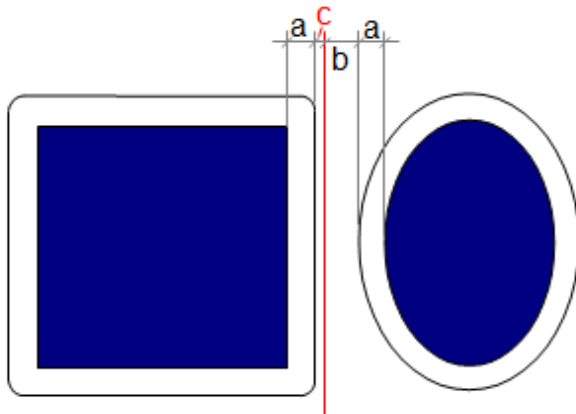
The fitting type sets the location of the first workpiece on the sheet. 'Normal' uses the first available space, 'Center of Gravity' sets AV32 to try to find the best possible location. 'Grid' places the part or pair in an imaginary rectangular box and arranges all subsequent parts around this.

9**Grain direction**

Sometimes it is necessary to place parts in a particular orientation relative to the rolled or 'grain' direction of your materials. In such cases, if you wish to use a nesting method which rotates your parts you must enter the grain direction. You must enter the grain direction for the sheet and the part, so that these can be compared when nesting.



Settings



You must set certain conditions regarding parts' offsets to each other and to the edge of your sheet in order to nest. These parameters can be viewed and modified in the 'Settings' frame.

Use the contextual help for more detailed tips on the individual settings.

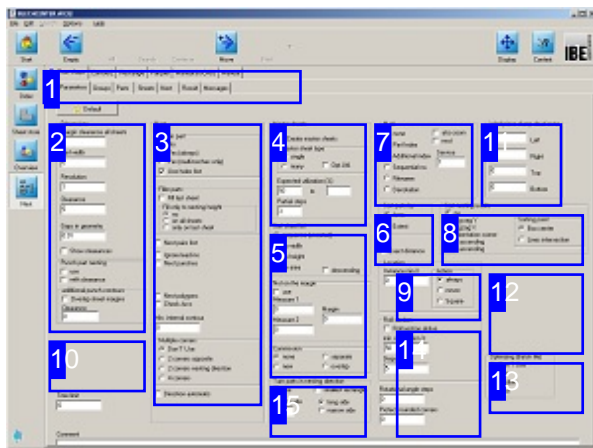
The available settings vary in type and scope corresponding to the selected nesting type. Here are the most important common settings:

- o Margin offset: This is the offset which must be maintained between the nominal edge of the sheet and all parts.
- o Cutting Gap (a): The cutting gap is the width of your cutting tool (double the cutting offset).
The cutting offset is half the width of the cutting beam. The cutting beam moves around a contour at a clearance of one cutting offset, which defines the cutting path.
- o Grid dimension (b): The grid dimension sets the offset (cutting gap included) between parts when nesting.
- o Resolution (c): The resolution sets the step size (mm) for sliding each part up to the adjacent one when nesting. Caution! entering a small value will increase not only material utilization, but also calculation time, sometimes by a lot.



True-Shape Nesting

Nesting Parts of Different Shapes.



Once you have selected all required parts and have enough available sheets for fulfilling your order you may begin nesting the parts to the sheets. Select 'Nesting Plans' from the homepage to switch to the 'nesting form'.

The optional nesting types are shown in the top tab panel [1] - select 'True-shape'.

The second tab panel shows the settings to be made:

- o Settings
- o Components
- o Sheets
- o Nest
- o Results
- o Messages

True-shape nesting allows you to nest many different parts on one sheet. Parts can nestle inside each other, and smaller parts can be nested onto holes within bigger parts. You have many options to increase efficiency (Pair building, priorities, etc.) and ensure optimal usage of materials and machine time.

To make the very best use of your materials you can also have the program search your order folder for smaller parts that might fill any spare material.

Your completed sheets go from here to the production module - just click Forwards.



Select the required field from the second tab panel:

- o Parameters, settings for offsets, nesting and sorting presets, setting the main-sheet.
- o Groups for the use of pre-defined partial nesting plans.
- o Components, for quantities and properties of your cut parts.
- o Sheets, for sheet selection, properties and multi-torch settings.
- o Nest, to place your parts on the sheet.
- o Result, for checking your nest output.
- o Messages, to let you know when something's not right.



2

Dimensions

Margin clearance all sheets
0

Kerf width
0

Resolution
1

Clearance
0

Gaps in geometry
0.01

Show clearances

Punch part nesting

use
 with clearance

additional punch contours

Overlap sheet margins

Clearance
0

Enter all nesting offsets and clearances under 'Dimensions'. The sheet margin set here is applied to all sheets in the sheet list.

There is more detail in the Settings help page.

To display part offsets, mark the checkbox at the bottom.

In the 'Nest punched part' frame, you can nest parts such as punched parts for the sake of better material utilization. In doing so, the contours will be partially 'overlapped' at the cutting gap in order to use common cuts.

If you want the grid dimension to be taken into account when nesting, then check the corresponding box.

4

Master sheets

Create master sheets

Master sheet type

single
 many Opt.Util.

Expected utilization (%)
50 to

Partial steps
3

Nesting 'Main sheets' means creating as many identical sheets as possible. The results are generated as smaller NC programs, but this can result in lower material usage. You can enter the minimum acceptable material usage. It is not often possible to use main sheets if the required value is >80%.



3 Nest

Part in part

No

Yes (always)

Yes (multi-torches only)

Use holes first

Filler parts

Fill last sheet

Fill only to nesting height

no

on all sheets

only on last sheet

Nest pairs first

Ignore lead-ins

Nest punches

Nest polygons

Check Arcs

Min. internal contour

Multiple corners

Don'T Use

2 corners opposite

2 corners nesting direction

4 corners

Direction automatic

The 'Part in Part' frame allows you to set whether to nest small parts on the waste material inside holes of larger parts. If you are using multiple cutting torches, you will only be able to use this option when compatible, i.e. all torches can cut simultaneously.

Mark the corresponding checkboxes if:

- o The remainder of the last sheet should be filled with small parts.
- o The last sheet should only be filled in this manner up to the nest height. This leaves you with a usable rectangular offcut above the nest height.
- o Any pairs you have built should be nested first.
- o Existing lead-ins should be ignored, for cases where you wish to add them later.
- o Stamps should be considered. Use this where you are stamping parts using tooling which is larger, and may collide with another part.
- o All contours should be converted into polygons. Sometimes high resolutions, small radii and arc lengths make it impossibly slow to nest, use this option in such cases.
- o All internal contours (holes) smaller than this value should be ignored when nesting. This can reduce nesting time of parts with many small holes.

31

For certain parts, it is advantageous to put them for nesting in several corners.

- o 2 corners opposite: In the orientation area, and opposite corner, perpendicular to the nesting direction.
- o 2 corners in nesting direction: In the orientation corner and the corner in nesting direction.
- o 4 corners: It is nested in four corners.

In 'direction automatically' the nesting direction is automatically (in X or Y) determined. The direction can from now not be entered in the sheet form.



5

Sort sheet list

sequence (unsorted)

by width

by height

by area descending

Forbidden margin

Part area Margin

Commission

none separate

new overlap

The 'Sort sheet list' frame allows you to set whether to sort sheets as they are forwarded to the nesting plan.

There are certain production processes where small parts may not lie close to the edge. If this is the case then, in the 'Forbidden edge' frame, you can specify the part size up to which parts will be evaluated as small parts. Enter the part area in mm² and the forbidden edge in mm. You can also individually exclude specific parts from nesting at the edge. You then make the settings on the workpiece.

The 'Commission' frame is where you specify whether entire assemblies shall be nested. In each case, a commission can either start on a new sheet or continue on directly from the previous commission. In this case, the existing sheet will first be fully nested and then the rest of the commission fitted onto the following sheet.

6

Sort parts by

Area

Extent

Exact distance

You can define a priority to decide the part order in parts nesting.

In the 'Part order method' frame, you can select an additional criterion for deciding the order of parts of the same priority. These will then be sorted either by area or size in descending order.

The distance of two nested parts can be different from the settings about the resolution value. Marking the checkbox, the distance from each other will be exact the same as the sum of offset and grid dimension. The parts are moved together after nesting.

7

Mark

none also zoom

Part Index nest

Additional index Service

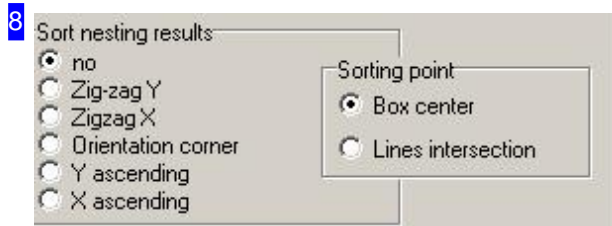
Sequential no.

Filename

Denotation

If a 'Marking' has been selected, then each part will be labelled with a number upon display and printout.

- o Part index (default): Outputs the position in the workpiece list.
- o Add. index: Outputs the index from the part definition (order index).
- o Seq. No: Outputs a sequential number; Any existing freehand stamps will also be numbered.



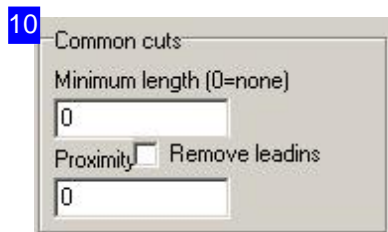
There are certain production processes where cut parts need to be removed in order to create a gap that allows free access to the next cutting row. You can specify the appropriate sort order for the nesting result here. Select 'Meander' to sort alternately from top to bottom (Y) or from left to right (X). Select 'Orientation corner' to sort by the corner specified for nesting.

You chose the point of interest for sorting in the frame 'Sorting point'. The center of a closed, rectangle box is taken by 'Box center' and, the first two dotted lines are searched and the intersection Point is taken by 'Lines intersection'.

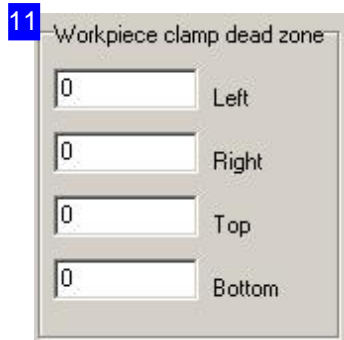


In the frame 'Location' enter the minimum width of the part in the field 'Instance min X'. Determine in the 'Action' field how to proceed with the part when this value is less.

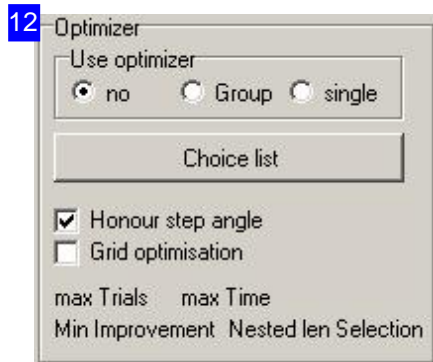
- o always: The parts are always nested normally.
- o never: The parts are never nested.
- o Square: The parts are nested as squares, with an edge length that corresponds to the long edge of the part. This then results to an empty space where the part could be rotated by 90°.



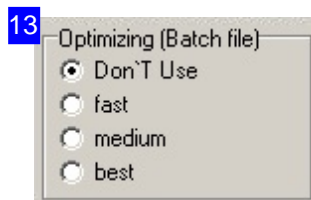
You can nest the parts with common cuts. For that, enter a minimum length and mark the parts that can have common cuts with others, under the tab 'Parts'. Enter a minimum distance for parts that do not have common cuts in the field 'Proximity'.



The 'Workpiece clamp dead zone' frame is where you can preset additional margins for nesting that must stay free. The nesting section is treated as a downsized part of the sheet. These settings are only valid for rectangular sheets.



The frame 'Optimizer' provides controls for the treatment of parts and groups that require special specifications when nesting.



If you have build a batch file for default or especially for a machine, you can use batch processing to optimize the nesting result.

If you have elected the option 'Batch debugger', the debug-window will appear automatically when nesting.



14 Roll section

Roll section aktive

min. roll section %

Steps

Rotational angle steps

Protect rounded corners

You set the minimum size of an section in percent of the sheet size in the frame 'Roll section'. This setting will only be used, if the option 'Roll setting' is elected.

Several nestings will be done (steps) to find a ideally head-line with best use of material in this section. This is an advantage, if several sections should be cut off from a roll or a sheet. Thereby, the result may be less good as by nesting on the whole sheet.

15 Turn parts in nesting direction

use smallest rectangle

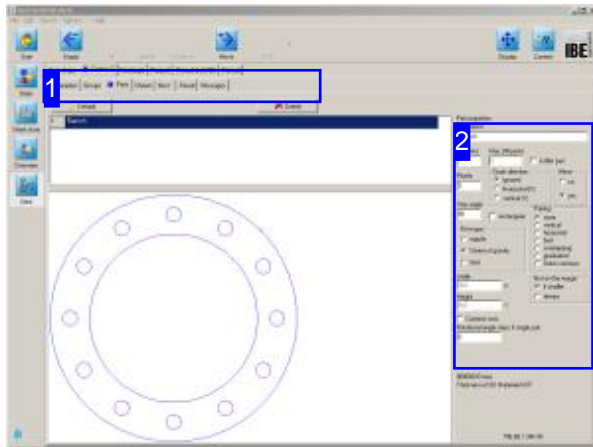
Aspect ratio

long side
 narrow side

You can select a side to turn parts in a nesting direction, independent from the elected cutting angle, in the frame 'Turn parts in nesting direction'. The parts will then turned so, that the appropriate side directs in nesting direction. The option 'Direction automatically' for nesting has to be switched off because parts could be turned back when nesting.



Part Properties



The top frame shows a list of all parts selected for nesting. Select a part to see a preview of it and set the nesting properties for it [2].

This window shows a list of all parts you have selected for production. You can set the properties of individual parts here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets .
- o Nesting .

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2 Part properties

Denotation

Qty (min) Max. (fill parts) is filler part

Priority

Grain direction
 ignored
 Horizontal (X)
 vertical (Y)

Mirror
 no
 yes

Step angle rectangular

Pairing
 none
 vertical
 horizontal
 best
 overlapping
 graduated
 Outer contours

Fit-in type
 regular
 Center of gravity
 Grid

Width X
 Height Y

Common cuts

Rotational angle steps if single part

Not on the margin
 if smaller
 always

You can make various nesting settings for your parts here.

Set the grain direction for a part and set the fitting type for nesting. More details on the options can be found under Workpiece properties.

The 'Not on edge' frame is where you can exclude parts targetedly from nesting on the edge of the sheet. For this to be possible, a 'forbidden' edge must be defined under the 'Parameters' tab.

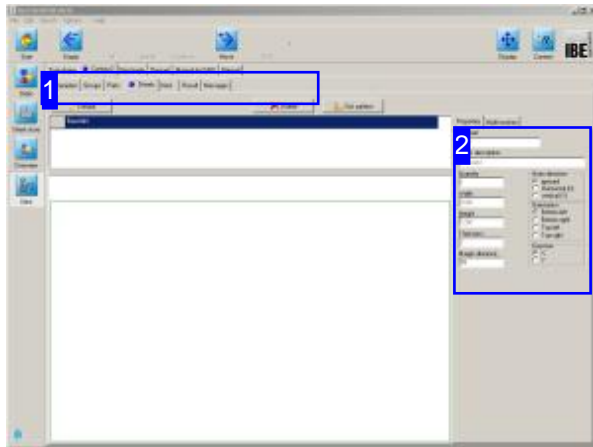
If the part is marked as filler parts, it is used to replenish the free surfaces of the sheet. The number shifted from orders into the nesting is the max. number of parts to be nested. If a minimum number should be made, enter the number in the field 'Number'. Deselect the 'filler' here if it is not needed.

Other setting options for filling parts are in 'Parameters' Tab available. Mark the checkbox if the part can have common cuts with others.

The field 'Rotational angle steps if single part' is where you can specify the size of a single step going through a step angle when nesting. If, for example, the step angle is 90° and angle steps 2°, then $90/2 = 45$ nestings will be done. This only applies if only 1 part is in the workpieces list and 1 sheet in the sheets list.



Sheet Properties



The top frame shows sheets in list form. Select the sheet which you would like to preview.

The preview shows you this sheet with dimensions. The frame to the right [2] shows the sheet's properties.

You can also use standard sheets from the sheet references for calculation when these are applied. If a project content is nested, the 'Calculation sheets' button appears in the footer right. You can select the sheets via this button.

This window shows your stock sheets in the sheet selection window. You can set sheet properties from here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2

You can set variables for sheets here.

Set the sheet's grain direction , and set the orientation for nesting.

The dimensions of the sheet (width x height x depth) are shown for checking.

Enter multi-torch settings in the 'multi-torch' tab.

21

You can make settings for multi-torch machines here.

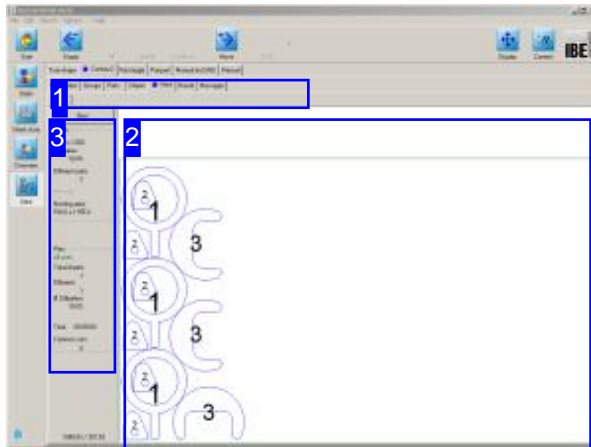
The rounding factor sets the precision required for discovering the torch offset. The final discovered value will always be rounded to this factor. Values more than 1 multiply the offset.

Use the 'expected utilization' field to enter the minimum amount of material you expect to nest profitably. If this percentage cannot be achieved with multiple torches, the program will nest for single-torch production.

If you wish to switch the torch sequence, i.e. set torch 1 to the top in the y-axis, then mark the corresponding check-box.



Nest Your Parts Automatically.



The preview [2] shows your nesting results. Changing the parameters and workpiece properties allows you to influence the program's outputs. Change the settings and re-nest until you arrive at a satisfactory result. The individual sheets are shown in the tab panel and can be selected from the same.

True-shape nesting uses a complex algorithm to arrange your parts on your sheets according to settings made by you. The resolution of steps and angles used in these algorithms is decisive for both the computing time required, and the quality of nesting result.

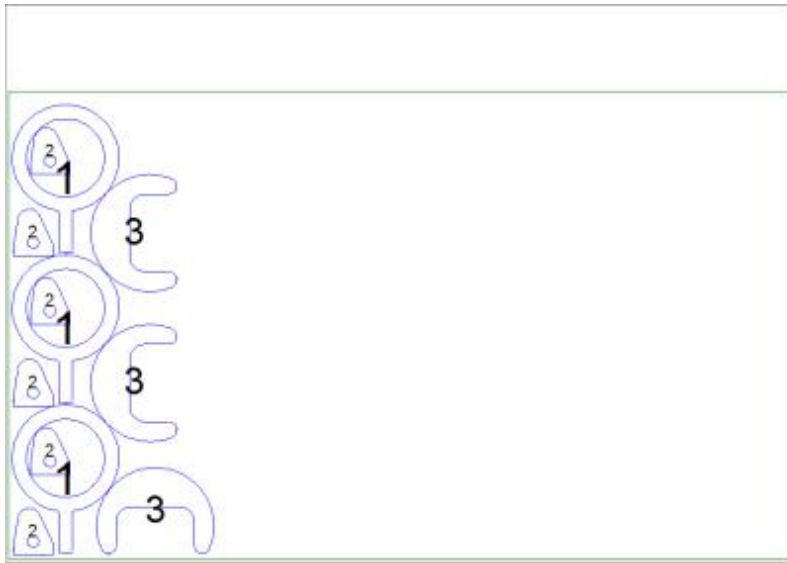
Small steps and angles give a more refined result, but increase calculation time. If you have large parts which are more or less rectangular, it can be best to set a large nesting angle step, even 90 degrees.



This tab panel gives access to the individual work areas for making nesting settings. Once settings are made and checked, switch to the 'Nesting' tab to arrange parts on your sheets. Once nested, each different sheet will be displayed in a separate preview tab with the required quantity of that template displayed.



2



This frame shows the sheet with nested parts. Use the mouse wheel to zoom in for a closer look. Each different sheet is shown in its own separate tab which can be selected by clicking. You can also see the result as a table in the 'results' tab.

21

No.	Part	Expected qty	Actual qty	Difference
1	2.def	3	3	
2	4.def	6	6	
3	5.def	3	3	

The results of nesting are shown in this table. This offers an overview of how many of which parts were nested. If there are leftover parts you may need to allocate more sheets to the nest.



3

Nest	
Sheet	
2000 x 1200	
Utilization:	10.0%
Different parts:	3
Records:	
Nesting area:	516.0 x 1155.0
Plan	
All parts	
Total sheets:	1
Different:	1
∅ Utilization:	10.0%
Time:	00:00:00
Common cuts:	0

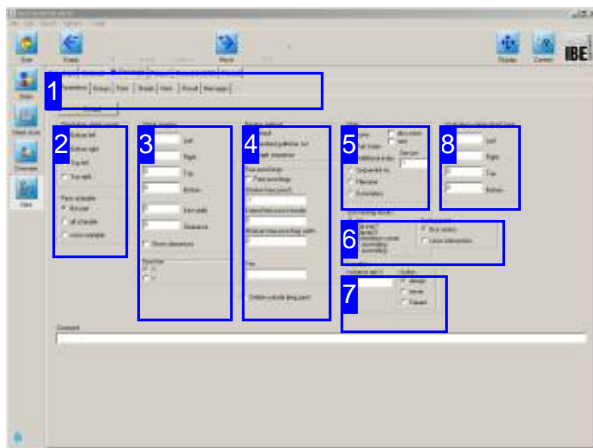
Click the 'Nest' button to begin nesting. Under the button you will see information about the utilization of the sheet shown in the preview.

The 'Plan' frame gives you an overview of the sheets produced, plus the total utilization.



Grid Nesting

Nesting Parts in Rectangular Boxes.



Once you have selected all required parts and have enough available sheets for fulfilling your order you may begin nesting the parts to the sheets. Select 'Nesting Plans' from the homepage to switch to the 'nesting form' .

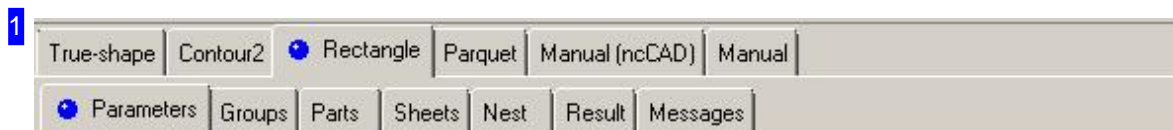
The optional nesting types are shown in the top tab panel [1] - select 'Grid'.

The second tab panel shows the settings to be made:

- o Settings
- o Components
- o Sheets
- o Nest
- o Results

Grid-nesting draws an imaginary rectangular box around your parts, and nests based on that. A special feature here is 'Guillotine' nesting, whereby the rectangular boxes are aligned such that single long cuts are created which could be made using a shearing machine. Offcuts can also be shredded if required.

Your completed sheets go from here to the production module - just click Forwards.



Select the required field from the second tab panel:

- o Parameters, settings for offsets, nesting presets and inputs relating to stamping.
- o Groups for the use of pre-defined partial nesting plans.
- o Components, for quantities and selection of your cut parts.
- o Sheets, for sheet selection, and quantity.
- o Nest, to place your parts on the sheet.
- o Result, for checking your nest output.



2

Orientation sheet corner

Bottom left

Bottom right

Top left

Top right

Parts rotatable

like part

all rotatable

none rotatable

The orientation sets from which corner to begin nesting.

You can set whether a part is rotatable on an individual basis. Set this in the bottom frame, independent of any presets.

3

Sheet margins

Left

Right

Top

Bottom

Kerf width

Clearance

Show clearances

Direction

X

Y

The sheet margin set here is applied to all sheets in the sheet list.

There is more detail in the Settings help page.

To display part offsets, mark the checkbox at the bottom.

In the bottom frame, you specify the direction in which the sheet shall be nested.

- o X: The parts lie above one another and fill up the sheet horizontally.
- o Y: The parts lie side-by-side and fill up the sheet vertically.



4

Nesting method

- Default
- Standard guillotine cut
- Single sequence

Free punchings

Free punchings

Shorten free punch

Extend free punch border

Minimum free punching width

Trim

Delete outside lying parts

Grid-nesting allows the following nesting strategies:

- o Standard: parts are nested in 'strips', turned as required.
- o Standard Guillotine Cut: like standard but with no overlapping of parts. All parts can be extracted from the sheet with simple separating cuts, e.g. using a shearing machine.
- o One at a time: this is important for stamping! Parts are laid up individually, with no turning permitted. Free gaps are filled with freehand stamps so that leftovers can also be disposed of individually.

Enter settings for these freehand stamps in the bottom frame.

The 'Trim' field, when sawing parts, lets you define a border that will be cut off from the top and left of the sheet. This is important for always having free access to the material, since a (band) saw cannot be offset and must always cut from the edge.

5

Mark

- none
- Part Index
- Additional index
- Sequential no.
- Filename
- Denotation

also zoom

nest

Service

If a 'Marking' has been selected, then each part will be labelled with a number upon display and printout.

- o Part index (default): Outputs the position in the workpiece list.
- o Add. index: Outputs the index from the part definition (order index).
- o Seq. No: Outputs a sequential number; Any existing freehand stamps will also be numbered.

6

Sort nesting results

- no
- Zig-zag Y
- Zigzag X
- Orientation corner
- Y ascending
- X ascending

Sorting point

- Box center
- Lines intersection

In this frame, you can define a sort order for the nesting result. Select 'Meander' to sort alternately from top to bottom (Y) or from left to right (X). Select 'Orientation corner' to sort by the corner specified for nesting. Sorting box see True shape nesting.



7

Location

Instance min X

0

Action

always

never

Square

In the frame 'Location' enter the minimum width of the part in the field 'Instance min X' . Determine in the 'Action' field how to proceed with the part when this value is less.

- o always: The parts are always nested normally.
- o never: The parts are never nested.
- o Square: The parts are nested as squares, with an edge length that corresponds to the long edge of the part. This then results to an empty space where the part by 90° could be rotated.

8

Workpiece clamp dead zone

0 Left

0 Right

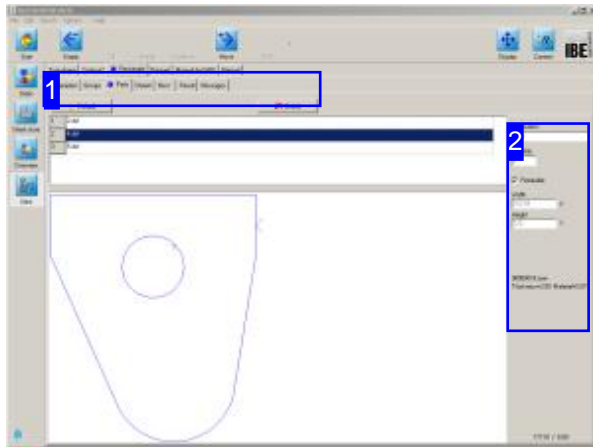
0 Top

0 Bottom

The 'Workpiece clamp dead zone' frame is where you can preset additional margins for nesting that must stay free. The nesting section is treated as a downsized part of the sheet. These settings are only valid for rectangular sheets.



Part Properties



The top frame shows a list of all parts selected for nesting. Select a part to see a preview of it and set its nesting properties [2].

This window shows a list of all parts you have selected for production. You can set the properties of individual parts here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2

Denotation
4.dxf

Quantity
6

Rotatable

Width
103.54 X

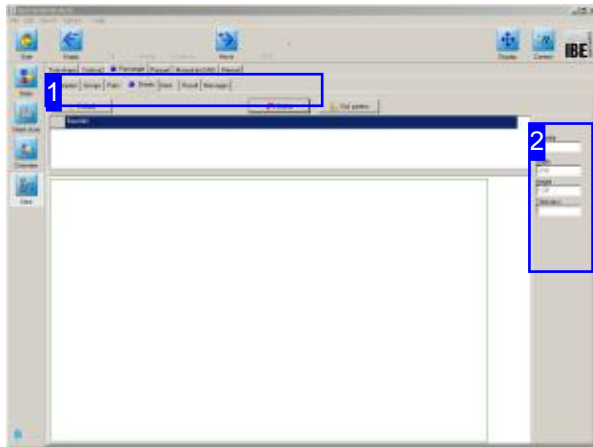
Height
120 Y

00000016.zew
Thickness=2.00 Material=St37

You can make various nesting settings for your parts here.
Mark the checkbox if the part may be rotated during nesting.



Sheet Properties



The top frame shows your sheets in list form. Select the sheet which you would like to preview.

The preview shows you this sheet with dimensions, and the frame to the right [2] shows the sheet's properties.

This window shows information on the sheets you selected in the sheet selection window.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.



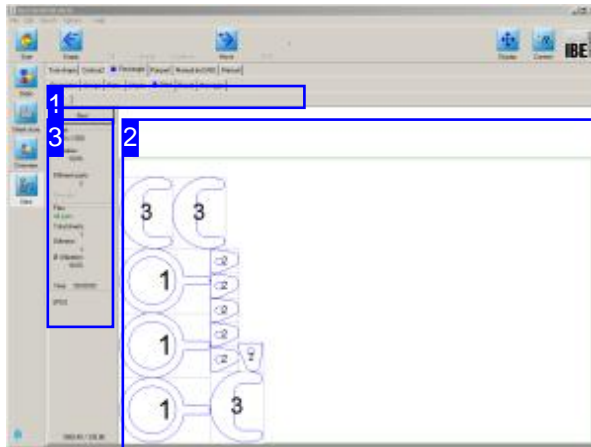
2

Quantity	<input type="text" value="2"/>
Width	<input type="text" value="2000"/>
Height	<input type="text" value="1200"/>
Thickness	<input type="text" value="2"/>

Details about the selected sheet are shown here.



Nesting Parts in Straight Lines.



The preview [2] shows your nesting result. Changing the nesting settings and workpiece properties allows you to influence the nests the program outputs. Change the settings and re-nest until you arrive at a satisfactory result. The individual sheets are shown in the tab panel and can be selected from the same.

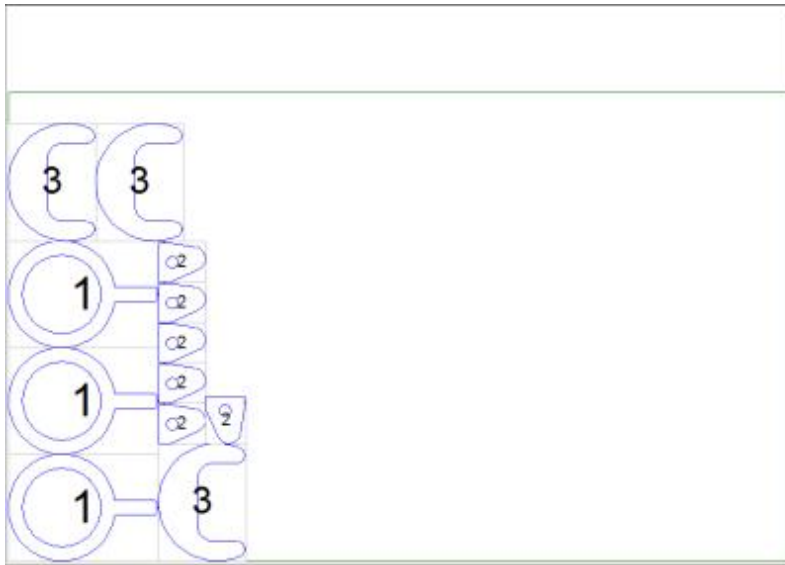
Grid nesting places parts on your sheets according to your settings for sheets and parts. Our guillotine nesting routine is a special feature which aligns parts such that they can be separated using one simple long cut, e.g. with a guillotine / shear.



This tab panel gives access to the individual work areas for making nesting settings. Once settings are made and checked, switch to the 'Nesting' tab to arrange parts on your sheets. Once nested, each different sheet will be displayed in a separate preview tab with the required quantity of that template displayed.



2



This frame shows the sheet with nested parts. Use the mouse wheel to zoom in for a closer look. Each different sheet is shown in a separate tab [1] which can be selected by clicking. You can also see the result as a table in the 'results' tab.

21

No.	Part	Expected qty	Actual qty	Difference
1	2.del	3	3	
2	4.del	6	6	
3	5.del	3	3	

The results of nesting are shown in this table. This offers an overview of how many of which parts have been nested. If there are leftover parts you will need to allocate more sheets to the nest.



3

Nest	
Sheet	2000 x 1200
Utilization:	10.0%
Different parts:	3
Records:	
Plan	
All parts	
Total sheets:	1
Different:	1
Utilization:	10.0%
Time:	00:00:00
SPU0	

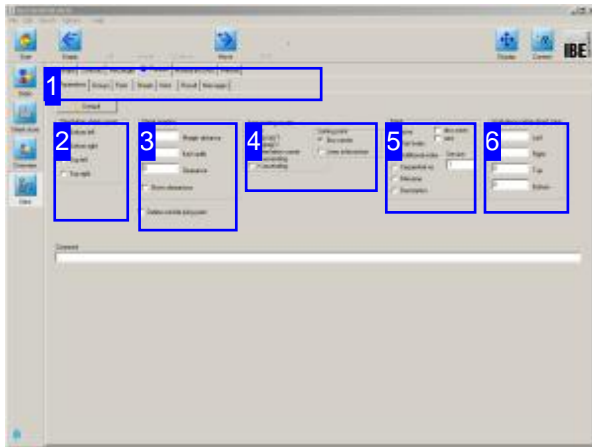
Click the 'Nest' button to begin nesting. Under the button you will see information about the utilization of the sheet shown in the preview [2].

Im Rahmen 'Plan' erhalten Sie eine Übersicht der erzeugten Platten mit der Angabe der Gesamtausnutzung.



Parquet Nesting

Efficient Nesting in a Parquet Pattern.



Once you have selected all required parts and have enough available sheets for fulfilling your order you may begin nesting the parts to the sheets. Select 'Nesting Plans' from the homepage to switch to the 'nesting form'.

The optional nesting types are shown in the top tab panel [1] - select 'Parquet'.

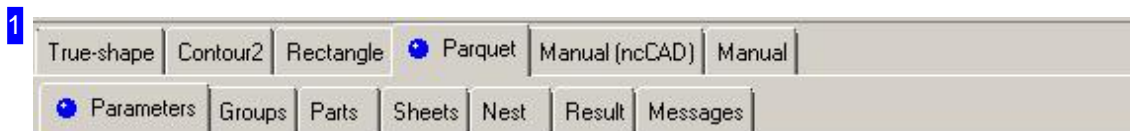
The second tab panel shows the settings to be made:

- o Settings
- o Components
- o Sheets
- o Nest
- o Result

Parquet nesting is a more efficient way of nesting a single more complex part type. Parts can then be nested on space which adjacent parts' grid 'boxes' would normally occupy. You will be offered a selection of possibilities and shown the percentage of material which is utilized by each. Parquet nesting allows nesting of only one type of part, so if you often need to cut more than one type of part from a sheet, you should choose true-shape nesting.

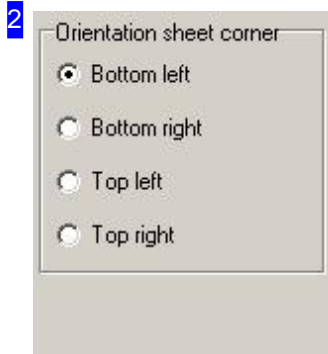
Your completed sheets go from here to the production module - just click Forwards.

Before you begin nesting, check all settings and parameters and adjust them to your requirements.

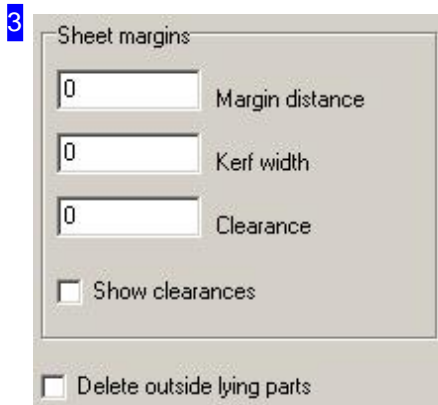


Select the required field from the second tab panel:

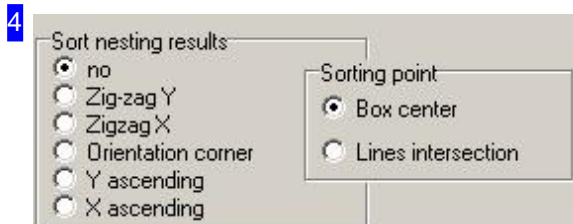
- o Parameters, settings for offsets, nesting presets.
- o Components, for quantities and selection of your cut parts.
- o Sheets, for sheet selection, and quantity.
- o Nest, to place your parts on the sheet.
- o Result, for checking your nest output.



The orientation sets from which corner to begin nesting.



Set all relevant nesting offsets/clearances here. The sheet margin set here is applied to all sheets in the sheet list. There is more detail in the Settings help page. To display part offsets, mark the checkbox at the bottom.



You can specify a sort order for the nesting result here. Select 'Meander' to sort alternately from top to bottom (Y) or from left to right (X). Select 'Meander' to sort alternately from top to bottom (Y) or from left to right (X). Select 'Orientation corner' to sort by the corner specified for nesting. Sorting point see true-shape nesting.



5

Mark

none also zoom

Part Index nest

Additional index Service

Sequential no.

Filename

Denotation

If a 'Marking' has been selected, then each part will be labelled with a number upon display and printout.

- o Part index (default): Outputs the position in the workpiece list.
- o Add. index: Outputs the index from the part definition (order index).
- o Seq. No: Outputs a sequential number; Any existing freehand stamps will also be numbered.

6

Workpiece clamp dead zone

Left

Right

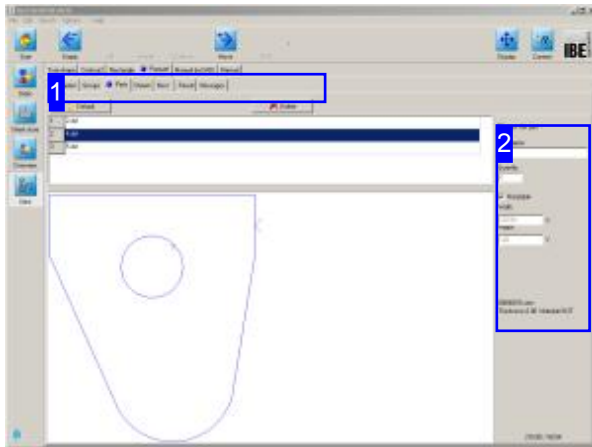
Top

Bottom

The 'Workpiece clamp dead zone' frame is where you can preset additional margins for nesting that must stay free. The nesting section is treated as a downsized part of the sheet. These settings are only valid for rectangular sheets.



Parts Properties



The top frame shows a list of all parts selected for nesting. Select a part to see a preview of it and set the nesting properties for it [2].

This window shows a list of all parts you have selected for production. You can set the individual parts' properties here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets .
- o Nesting .

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2

nest this part

Denotation
4.dxf

Quantity
6

Rotatable

Width
103.54 X

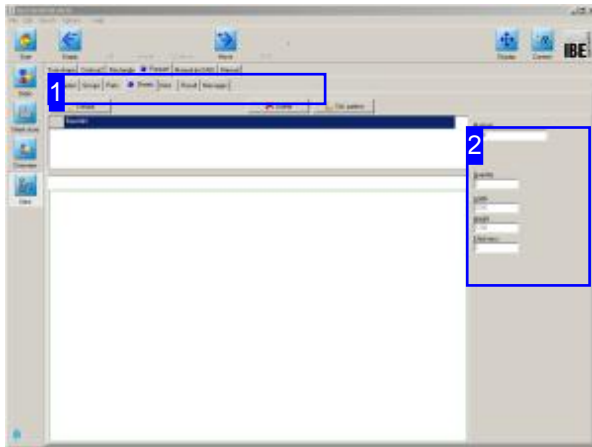
Height
120 Y

00000016.zew
Thickness=2.00 Material=St37

You can make various nesting settings for your parts here.
Mark the checkbox if the part may be rotated during nesting.



Sheet Properties



The top frame shows your sheets in list form. Select the sheet which you would like to preview.

The preview shows you this sheet with dimensions, and the frame to the right [2] shows the sheet's properties.

This window shows information on the sheets you selected in the sheet selection window.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.

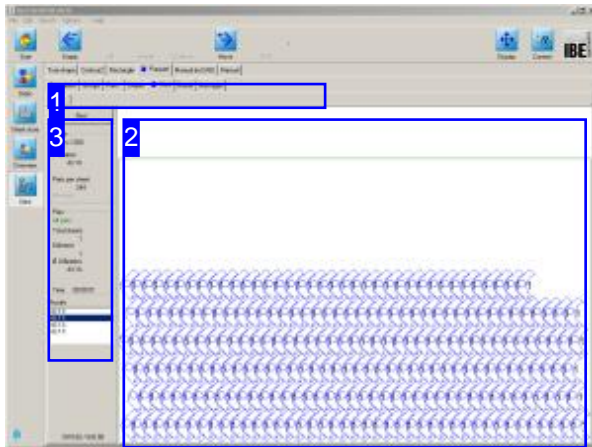


2

Material	<input type="text" value="St37"/>
Quantity	<input type="text" value="2"/>
Width	<input type="text" value="2000"/>
Height	<input type="text" value="1200"/>
Thickness	<input type="text" value="2"/>

Details about the selected sheet are shown here.

Arranging Parts in Parquet Patterns.



The preview [2] shows your nesting result. Changing the nesting settings and workpiece properties allows you to influence the nests the program outputs. Change the settings and re-nest until you arrive at a satisfactory result. The individual sheets are shown in the tab panel and can be selected from the same.

Parquet nesting nests according to your settings for sheets and parts. Parts are laid out in multiple varying parquet patterns for you to choose from, and produce.



This tab panel gives access to the individual work areas for making nesting settings. Once settings are made and checked, switch to the 'Nesting' tab to arrange parts on your sheets. Once nested, each different sheet will be displayed in a separate preview tab with the required quantity of that template displayed.

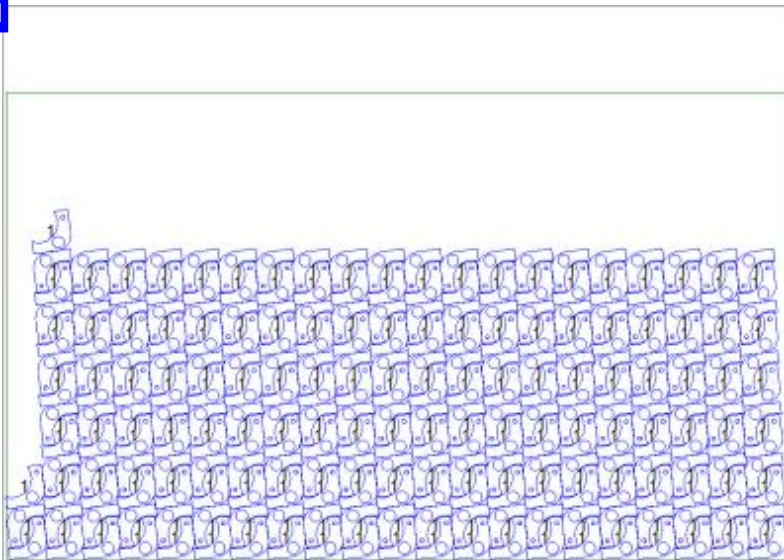


2



This frame shows the sheet with nested parts. Use the mouse wheel to zoom in for a closer look. Each different sheet is shown in a separate tab which can be selected by clicking. You will always be offered multiple possible parquets. Select one of these options from the results list [3] to view a preview of it. You can also see the result as a table in the 'Results' tab.

21



This is a different parquet pattern. The options are listed in the results list [3], simply select one to preview it.

22

No.	Part	Expected qty	Actual qty	Difference
1	7.dnf	244	244	

The results of nesting are shown in this table. This offers an overview of how many of which parts have been nested. If there are leftover parts you will need to allocate more sheets to the nest.



3

Nest

Sheet
 2000 x 1200

 Utilization:
 43.1%

 Parts per sheet:
 244

 Records:

Plan
All parts
 Total sheets:
 1
 Different:
 1
 ∅ Utilization:
 43.1%

 Time: 00:00:01

Results

43.1%
43.1%
43.1%
43.1%

Click the 'Nest' button to begin nesting. Under the button you will see information about the utilization of the sheet shown in the previewed parquet [2].

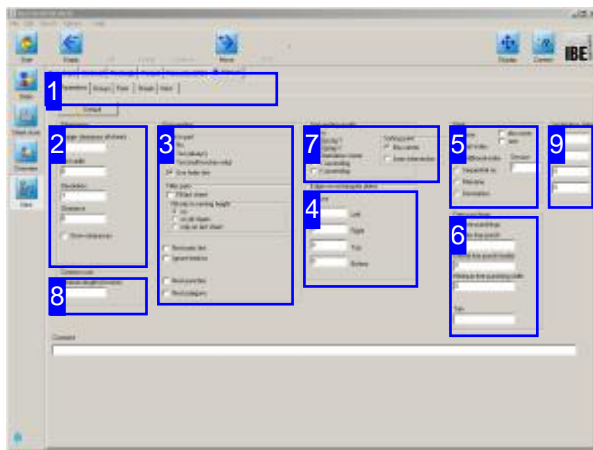
The frame 'Plan' provides an overview of the sheets produced with the indication of the total utilization.

The list below shows the offered parquets with statistics on the material utilization achieved. Select your preferred option from the list for a new preview [2].



Manual Nesting

Nesting Different Parts Freehand.



Once you have selected all required parts and have enough available sheets for fulfilling your order you may begin nesting the parts to the sheets. Select 'Nesting Plans' from the homepage to switch to the 'nesting form' .

The optional nesting types are shown in the top tab panel [1] - select 'Manual'.

The second tab panel shows the settings to be made:

- o Settings
- o Components
- o Sheets
- o Nest

Manual nesting allows you to place varied parts on a single sheet. The program will help you maintain the necessary clearances between parts using a snap mode which takes these offsets into consideration so you don't waste material or time worrying about wasted pixels / material.

Your completed sheets go from here to the production module - just click Forwards .



Select the required field from the second tab panel:

- o Parameters, settings for offsets and finishing-up nesting.
- o Components, for quantities and properties of your cut parts.
- o Sheets, for sheet selection, quantity, and multi-torch settings.
- o Nest, to place your parts manually on the sheet.



2

Dimensions

Margin clearance all sheets

Kerf width

Resolution

Clearance

Show clearances

Enter all offsets in the 'Dimensions' frame. The sheet margin set here is applied to all sheets in the sheet list.

There is more detail in the Settings help page.

To display part offsets, mark the checkbox at the bottom.

The parts can be nested with common cuts. Enter a minimum length in [Parameters] for this purpose and mark the parts in [Workpieces] the common cuts are to form with others.

3

Post-nesting

Part in part

No

Yes (always)

Yes (multi-torches only)

Use holes first

Filler parts

Fill last sheet

Fill only to nesting height

no

on all sheets

only on last sheet

Nest pairs first

Ignore lead-ins

Nest punches

Nest polygons

The 'Part in Part' frame allows you to set whether to nest small parts on the waste material inside holes of larger parts. If you are using multiple cutting torches, you will only be able to use this option when compatible, ie all torches can cut simultaneously.

Mark the checkboxes if:

- o The remainder of the last sheet should be filled with small parts.
- o The last sheet should only be filled in this manner up to the nest height. This leaves you with a usable rectangular offcut above the nest height.
- o Any pairs you have built should be nested first.
- o Existing lead-ins should be ignored, for cases where you wish to add them later.
- o Stamps should be considered. Use this where you are stamping parts, using tooling which is larger, and may cross over, colliding with another part.
- o All contours should be converted into polygons. Sometimes high resolutions, small radii and arc lengths make it impossibly slow to nest, use this option in such cases.



4 Edges on rectangular plates

use

Left

Right

Top

Bottom

In the top frame, you can define a sort order for the nesting result. To do so, see the frame of the same name under 'True-Shape Nesting'.

The frame 'Edges for square sheets' is where you specify all offsets for nesting parts on the sheet. Entering a sheet margin sets this for all sheets in the sheets list. To make this apply check the corresponding box.

5 Mark

none also zoom

Part Index nest

Additional index Service

Sequential no.

Filename

Denotation

If a 'Marking' has been selected, then each part will be labelled with a number upon display and printout. See the frame of the same name under 'True-Shape Nesting'.

6 Free punchings

Free punchings

Shorten free punch

Extend free punch border

Minimum free punching width

Trim

Free gaps can be filled with freehand stamps so that the parts can also be disposed of individually. Mark the corresponding check box and enter the freehand stamp settings.



7 Sort nesting results

- no
- Zig-zag Y
- Zigzag X
- Orientation corner
- Y ascending
- X ascending

Sorting point

- Box center
- Lines intersection

In this frame, you can define a sort order for the nesting result. Select 'Meander' to sort alternately from top to bottom (Y) or from left to right (X). Select 'Orientation corner' to sort by the corner specified for nesting. Sorting point see true-shape nesting.

8 Common cuts

Minimum length (0=none)

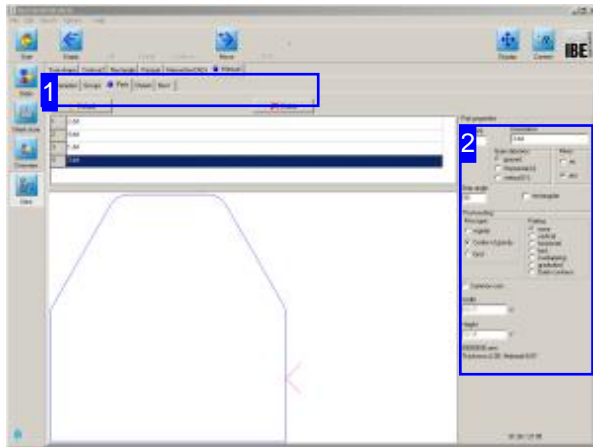
You can nest the parts with common cuts. For that, enter a minimum length and mark the parts that can have common cuts with others, under the tab 'Parts'. Enter a minimum distance for parts with no common cuts in the 'Proximity' field.

9 Workpiece clamp

The 'Workpiece clamp dead zone' frame is where you can preset additional margins for nesting that must stay free. The nesting section is treated as a downsized part of the sheet. These settings are only valid for rectangular sheets.



Part Properties



The top frame shows a list of all parts selected for nesting. Select a part to see a preview of it and set its nesting properties [2].

This window shows a list of all parts you have selected for production. You can set the properties of individual parts here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2 Part properties

Qty (min) Denotation

Grain direction: ignored, Horizontal (X), vertical (Y)

Mirror: no, yes

Step angle rectangular

Post-nesting

Fit-in type: regular, Center of gravity, Grid

Pairing: none, vertical, horizontal, best, overlapping, graduated, Outer contours

Common cuts

Width X

Height Y

00000036.zew
Thickness=2.00 Material=St37

You can make various nesting settings for your parts here. Set the grain direction for a part and the fitting type for nesting. More details on these options can be found under Workpiece properties.

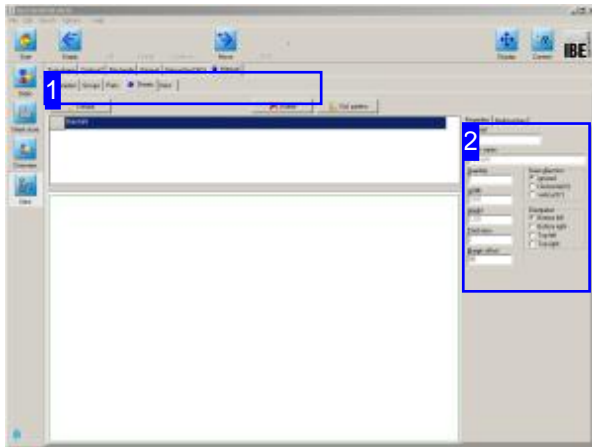
You can also still change the required quantity of parts here.

The lead ins maybe overlap other parts and are ignored if necessary when separating with common cuts. This must be in accordance with the technology and be taken into account.

Highlight the part for a common cut; note the parameter settings



Sheet Properties



The top frame shows stock sheets in list form. Select the sheet which you would like to preview.

The preview shows you this sheet with its dimensions. The frame to the right [2] shows the sheet's properties.

This window shows your stock sheets in the sheet selection window. You can set sheet properties from here.



The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Settings for individual parts.
- o Settings for sheets.
- o Nesting.

To avoid errors, check and adjust all settings and parameters before you begin nesting.



2

Properties | Multi-torches

Material
St37

Stock name
Baustahl

Quantity
1

Width
2000

Height
1200

Thickness
2

Margin offset
10

Grain direction
 ignored
 Horizontal (X)
 vertical (Y)

Orientation
 Bottom left
 Bottom right
 Top left
 Top right

You can set sheets' variables here.

Set the sheet's grain direction, and set the orientation for nesting.

The dimensions of the sheet (width x height x depth) are shown for checking.

Enter multi-torch settings in the 'multi-torch' tab.

21

Properties | Multi-torches

Max. torch count
1

Min. torch offset
300

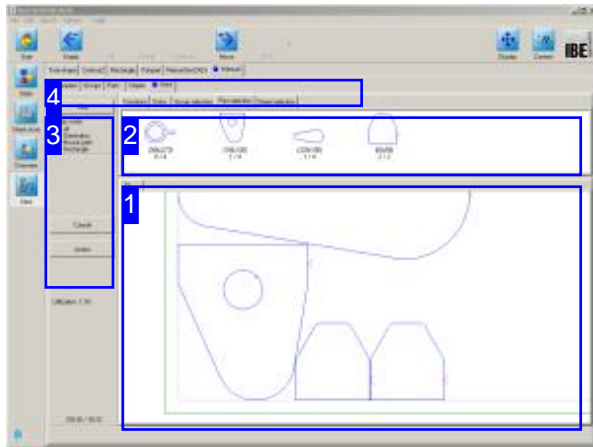
Rounding factor (0.0, 0.01, 0.1 .. 1.0)
1

You can make settings for multi-torch machines here.

The rounding factor sets the precision required for discovering the torch offset. The final discovered value will always be rounded to this factor. Values more than 1 multiply the offset.



Select and Position Parts.



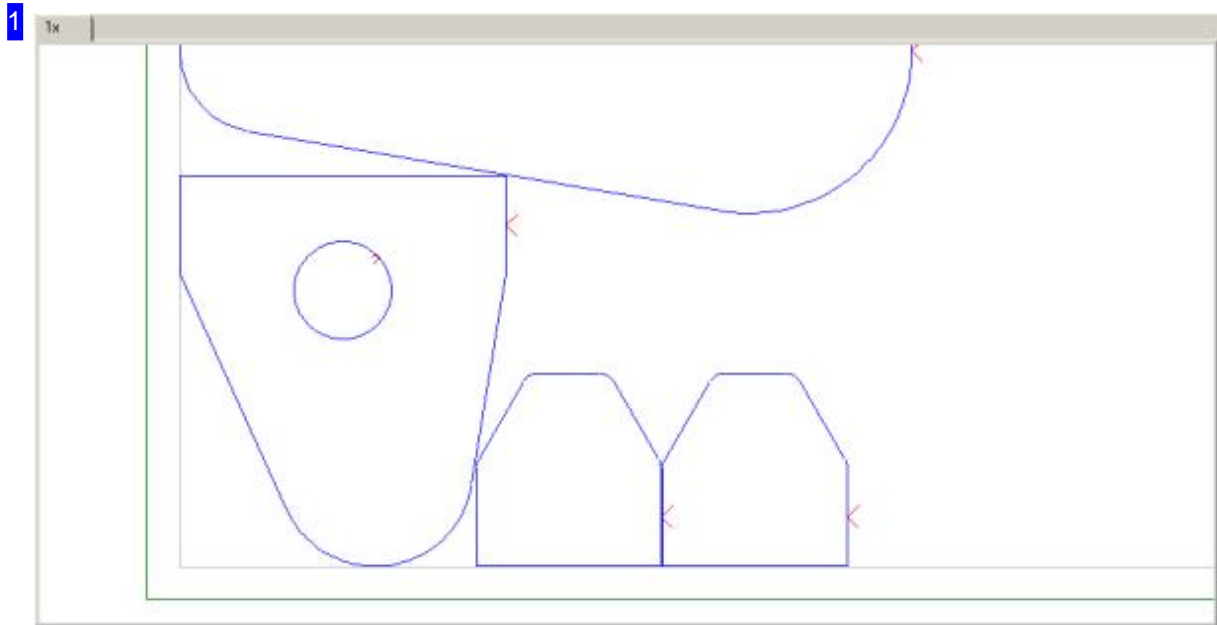
The top frame [2] shows all parts which you have selected for nesting. You can now place these parts on the sheet [1], positioning them individually or in groups. Select a snap-mode [3] to tell the program how to position parts relative to one another.

Select the second tab 'Sheet selection' [4] to show the available stock in the top frame [2]. Click the sheet to select it for nesting to. The individual sheets are shown in the bottom frame, click on the previews to select.

When using computer-aided manual nesting, you take manual control of sheets and parts within given dependencies. Shift parts between your stock and sheets as required.

Parts which you nest will be removed from the parts list, but can still be deleted from the sheet and returned to the parts list.

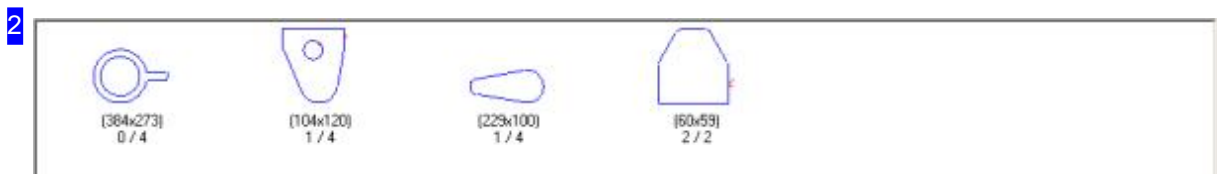
Sheets are controlled in the same way; pick one from your stock and use it, or delete to put it back.



This frame shows the sheet with nested parts. You can zoom in and out for a detailed view using your mouse's scroll wheel.

You can move parts by simply dragging and dropping. When you release the mouse button, the part will be positioned according to the rules of the current snap-mode.

The right mouse button calls a menu for editing a part or sheet, depending where you clicked.

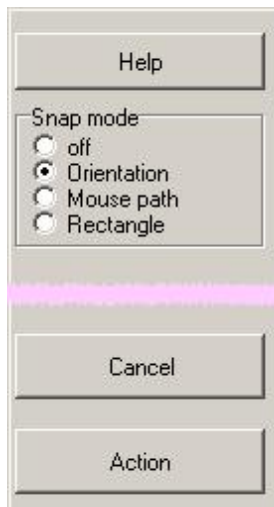


This frame shows you all parts you have selected for nesting. The required part quantity is shown together with the quantity you have already nested underneath the part symbol. For example, 0/4 means you have nested "0" from "4" parts required.

Select a part to place it on the sheet, then click on the sheet where you would like it placed. The part will be placed as near as possible, according to the rules of the selected snap-mode.



3



The top frame allows you to set the snap-mode the program will use when determining where to place your parts.

'Orientation' allows you to set the point of origin. Parts will advance towards the nest in the direction of the origin.

The 'Mouse direction' mode uses the mouse direction to slide newly-placed parts up to nested parts.

The 'Action' button calls a menu for editing your part or sheet, depending where you clicked.

4



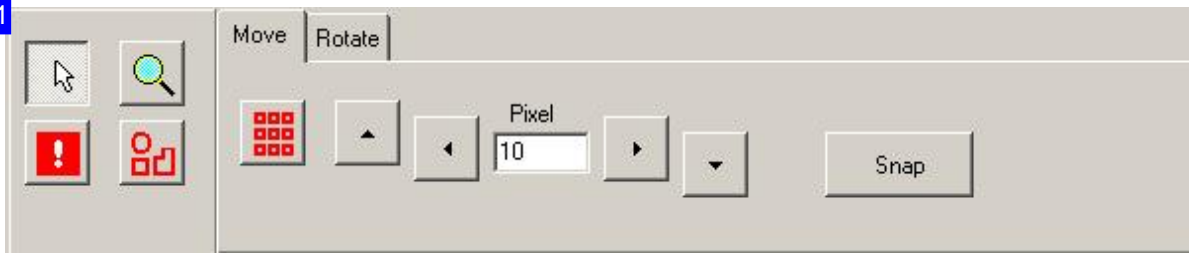
The tabs lead to the following individual work areas:

- o General settings for nesting.
- o Using groups as predefined nesting-plans.
- o Settings for individual parts .
- o Settings for sheets and multi-torches.
- o Nesting including:
 - o Functions for editing .
 - o Select single parts.
 - o Additional fuctions : Common cuts and centre of gravity.
 - o Select Sheets .

To avoid errors, check and adjust all settings and parameters before you begin nesting.



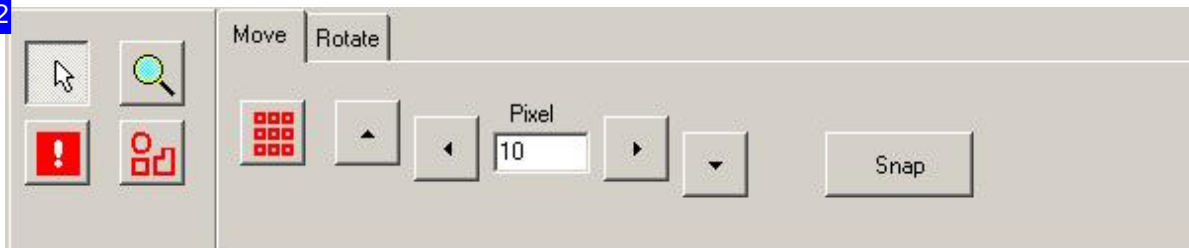
41



The four buttons on the left give access to these edit functions:

- o Cursor: Switches the cursor back to the normal cursor for editing, selecting and zooming. Double-click the drawing at any time to return to this mode.
 - o Zoom: Like 'Cursor', but you cannot use this mode to select parts.
 - o Allow overlaps: Allows you to place a part on top of another part. This allows you to alter nested areas with single parts.
 - o Grouping: Combine parts in a part group so that you can edit multiple parts at the same time. The 'Action' menu [3] allows you to subsequently dissolve groups.
- Select the corresponding tab on the right hand side to move or rotate parts or part groups.

42

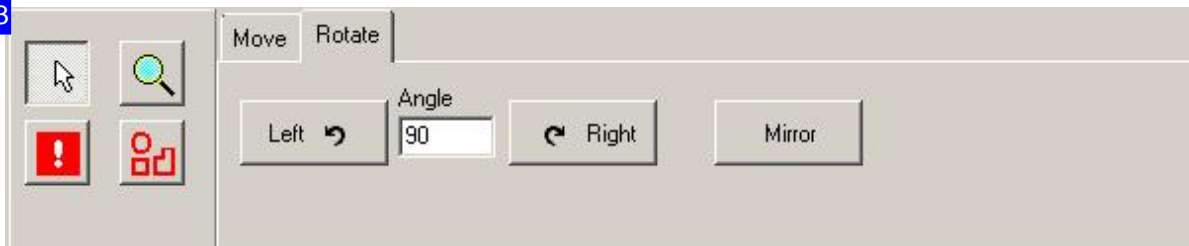


To move parts, mark a part or part group, enter the number of pixels in each step, and click the direction to move in. If you wish to move a part 'over' other parts, activate the 'allow overlapping' function .

Click 'catch' to snap the part to its optimal position as defined in the snap-mode rules.

The second tab on the right hand side allows you to rotate parts or part groups.

43



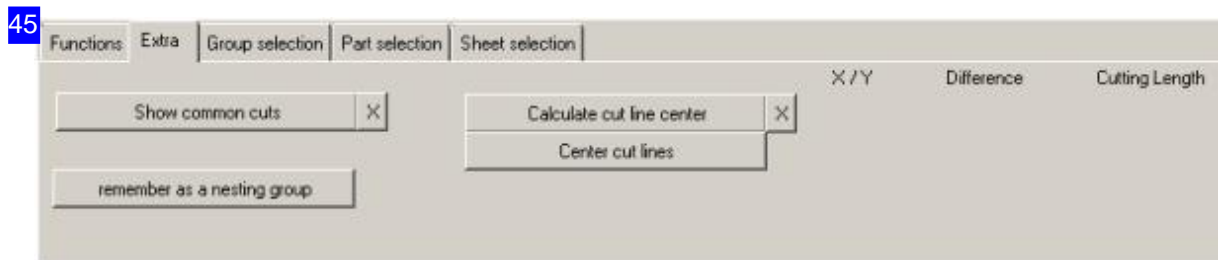
To rotate a part or part group, enter the angle for each step, and click the button for the required rotation direction.

The first tab on the right hand side allows you to move parts or part groups.



The top frame shows the sheet stock. The quantity of sheets in stock is shown below the sheet symbol, together with a display of how many of those sheets are currently being used. For example, 3/50 means that "3" out of "50" sheets in stock are currently spoken for. Each sheet which is being used can be viewed using the tabs above the bottom frame.

Click a stock sheet to open a new tab and start nesting on it. The 'Action' menu allows you to delete sheets, sending them back to your stock.



The 'Memorice as a nesting group' button on the left allows you to save a partial nesting plan local and use it when regular nesting. The group will not saved permanent; in such case nest the group in 'Parts bin'.

You can initiate display commen cuts here.

You get information about cut line center in 'True shape nesting'.



5



This menu allows you to copy, cut, and delete parts, moving them between your sheets and parts lists. If you attempt an action which is not possible due to e.g. too few parts in list or not enough space, click 'Abort' to leave that function.

The menu item 'rotate' allows you to use the '+' and '-' keys or <Ctrl> + mouse wheel to turn parts by a user-defined step angle.

When aligning the parts you must first enable the function (<A>) and then mark the line of the one part and then the line of the other part. The one part is then rotated so that it is parallel to the other and the position is bumped.

'Stretchbox' allows you to use the mouse to define an area you would like populated with a part or part group. To use this elegant solution for quickly laying out rows or columns of like parts or part groups, use the mouse to gesture slowly in the direction parts should be laid out. Leave this function by clicking the mouse, or pressing <x>.

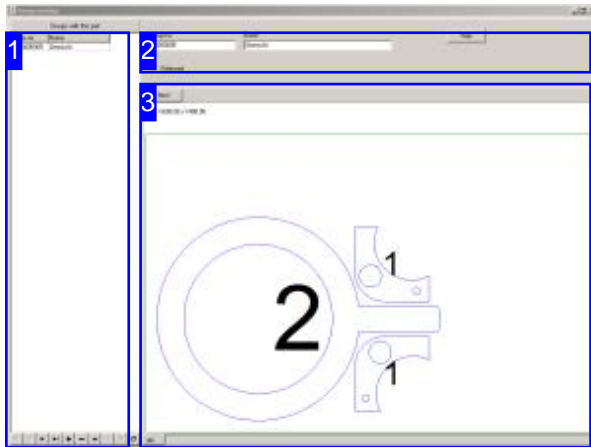
You can subsequently optimize a manual nesting with the 'Let sag' function. The parts are pushed together to a minimum and spaces are compressed by the function. The setting values for the distances are taken into account.

The last item 'True-shape nest remaining parts' offers a one-click method of allowing the program to automatically finish the job for you using true-shape nesting, where this option is installed.



Group Nesting

Parts partially nest in a group.



A group is always initiated with the current part from the part-archive. Other parts of the archive can then be added in group nesting.

All groups are listed where the current part is involved in the list on the left [1]. Select an entry in the list and the group information will be displayed in the upper frame [2] and the group itself in the preview [3].

The group must be released for use in regular nesting; mark the selection box.

Note also the fundamental release for the group nesting in the 'Common Settings'.

Different parts from parts-archive can be merged in partial nesting plans to groups. These groups are made in the desired layout due to group nesting. The parts then can fully be nested in these groups when covered by these groups, when creating nesting plans in regular operation. The groups can be used in shape nesting, in rectangular box nesting and in manual nesting. The permitted groups are automatically found by the program and offered under the tab 'Groups', for all parts and their ordered numbers. When shape nesting, groups are nested with individual parts in order to fully exploit the predetermined nesting areas by the automatic.



1

Groups with this part	
grp-no.	Name
▶ 00000005	Gemischt

Below the table is a horizontal pink bar and a row of navigation buttons: left arrow, right arrow, left arrow, right arrow, plus, minus, up arrow, checkmark, X, and refresh.

This list shows all groups in which the current part is involved. Select an entry in the list to edit the appropriate group. You can use the buttons among the list, to create a new group [+] or to delete a group [-].

2

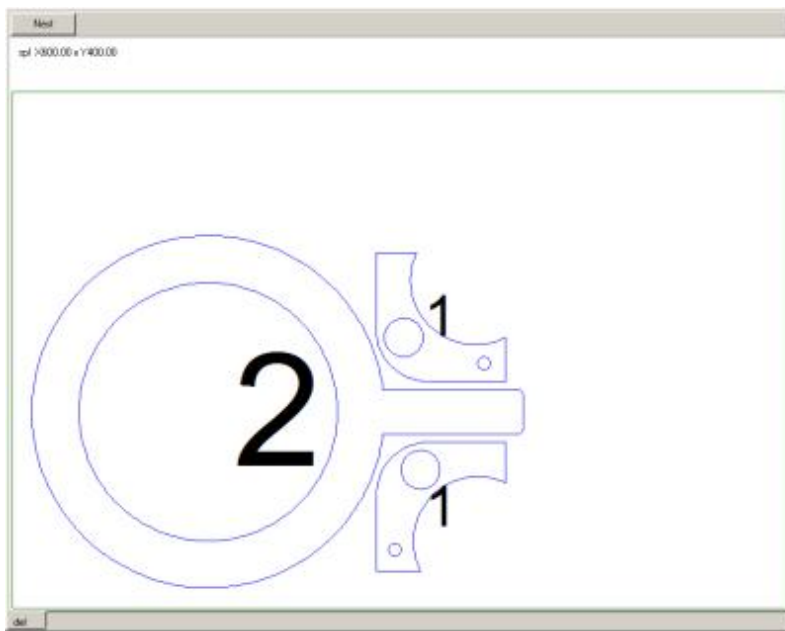
group-no.	Name
00000005	Gemischt
<input checked="" type="checkbox"/> Released	

Each group is identified by a group number. This number is assigned automatically, but you can also enter any unique identifier. In the 'name' field is recommended an indication of the contents of the group, to make it easier assigning in later use.

Each group has to be released for use. Mark the check box.



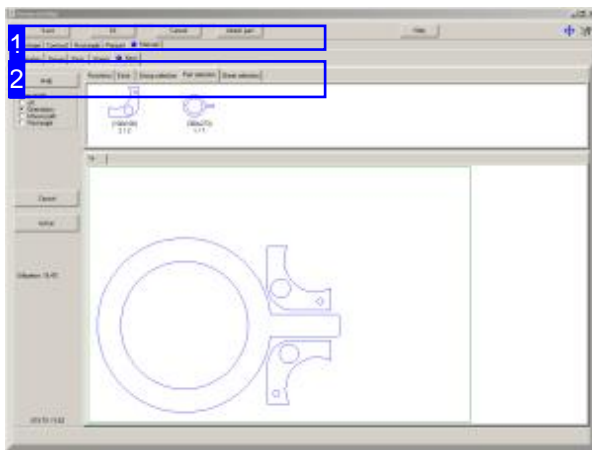
3



You will see the marked group from the list in the preview. If a new group is created, the field is empty. Clicking on 'Nest' leads you to the nesting window.



Nesting a Group Partially.



The part of the parts archive is taken over first, of which the group nesting has been called. You can add other parts with the 'Additional part' button [1].

Nest the parts according to your ideas to get maybe selected pattern.

Then use 'ok' to save the nesting plan as a group for later use.

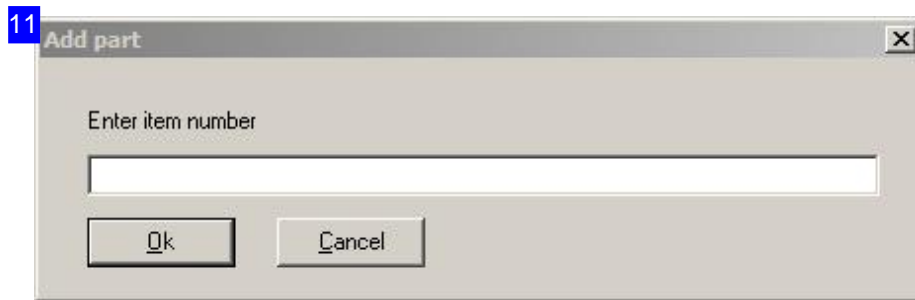
The workflow is in group nesting like any other nesting types with the difference, that here a nesting plan is created that is saved as a group. These groups can be used as partial layout under the 'Group selection' tab when regular nesting.

Groups can be used under the shape nesting, the rectangular nesting and manual nesting when the use is enabled in the common settings. When shape nesting, the items from a group will be nested single, in order to exploit the sheet optimally.



The current workpiece is taken first as part for new groups. Other parts can be added with the 'Additional part' button on the right to build a group. A dialog opens where you can enter the item number of the new part.

Click on 'OK' to save the group when it's finished.



You can enter the item number of the new part in this dialog. It is advisable to copy the item number from the parts form before, to prevent incorrect entries.

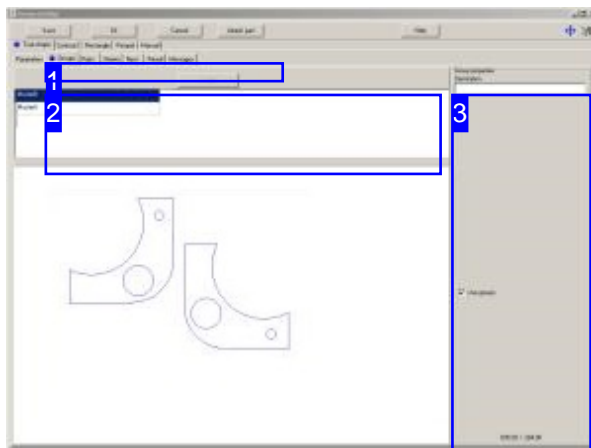


All the features of regular nesting are used for nesting. Selecting a sheet here is only to see as a working field and can be adjusted to any group layout. The manual nesting is the best choice to create a special pattern, because here you can fully control the parts.

Groups are displayed on the 'Groups' tab when regular nesting, if the involved parts are covered by the group. The laid-out parts in the group are then credited to the sum of the parts to be produced.



Group Properties.



All relevant groups are displayed in the upper frame [2]. Select a group and the properties for the group are displayed in the right frame [3].

A group needs to be released here for the use with regular nesting.

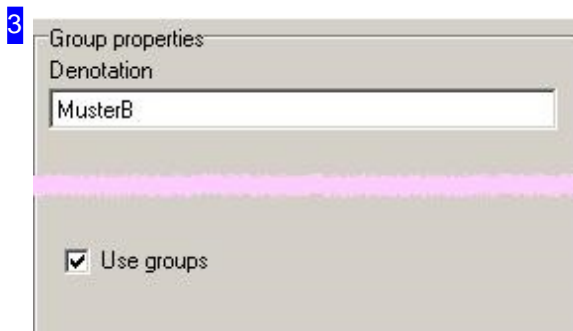
This window displays all groups that are covered by the selection of the workpieces and the number of parts to produce. Groups can be used under the shape nesting, the rectangular nesting and the manual nesting, if the use is enabled in the common settings. The field is equal in all nesting types.



The Tabs leads you to the individual fields of work. The 'Groups' tab is available in shape nesting, in rectangular nesting and manual nesting for group selection.



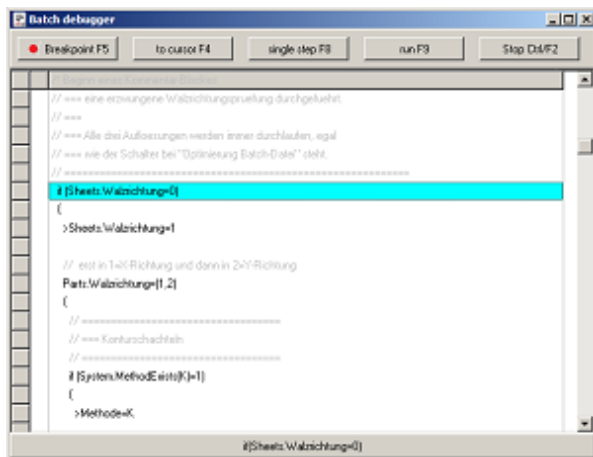
All groups are shown that are covered by the workpieces, and the number of parts to produce, in this frame. Select a group and it is shown in the preview and the properties are displayed in the right frame [3].



The properties of a group. Above the group name and in midfield a selection for the use of the group. If the group is taken into account during nesting, mark the selection. You have the opportunity to operate each single group individually.

Nesting by batch processing

Optimizing nesting results by batch processing.



You take significant influence over a nesting result or the time needed for nesting, with your choice of a nesting method and the elected settings. The program gives you the possibility of an integrated batch processing, where you can use different methods and settings, independent from time. You can run several nesting methods with different values in a batch-file, for finding the best nesting result.

Time is your investment, to find the best nesting result with batch processing. You can trace the batch process in a debug-window, if you have elected Optimizing (Batch file). Select [Batch debugger] in the main-menu for displaying the debug-window.

Commands for nesting are conditioned in a batch-file and processed automatically structural in brackets. Brackets can be processed vertical and also horizontal, whereby vertical brackets has to be worked out as a block with curly brackets, and all commands in the block will be processed with all bracket-values, i.e., invokes a nesting process.

A Command with horizontal brackets will be processed with all values in the bracket. Brackets can contain enumerations like (10,20,30,40), ranges like (10..40) or ranges with step widths (10..40|5).

A Command can also be a simple assignment of values, whereby a '>' is prefixed; a nesting is not invoked.

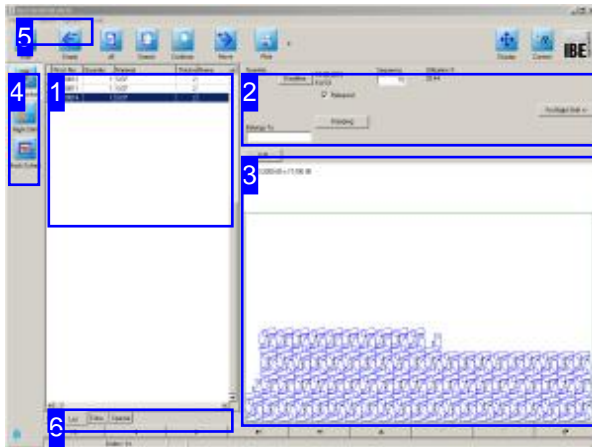
Conditions can be processed by blocks of 'if-', 'elseif'- and 'else'. You can retrieve system data like System, Sheets and Parts, also system functions like MethodExists (), where you can check the existance of a valid nesting method, i.e. a valid license is present and enabled by the dongle.

You can run the lines step by step in the debug-window. All settings and passes are displayed in the nesting-window on the right.



Production Plans

Creating Production Plans.



All sheets from a nesting plan can be forwarded to a production plan. You can then execute your production as a whole or in parts by creating individual production plans which can be placed in your machines' allocation plans. This option allows AV32 to help you make optimal use of your tooling and time.

All sheets from a nesting plan can be forwarded to a production plan. Select 'Production Plan' from the homepage to open the relevant form. Ensure that the cutting sequence is set using a suitable sorting order.

The machine data module allows you to manually correct nesting plans and create the corresponding NC code.

Production plans can be printed for use as set-up plans. When you send a print job, you will switch to a Form Editor which will allow you to print your job, e.g. for use as a set-up plan.

If you have 'BDEStationAutoPdf' entered as 'registered File', a PDF file is written automatically containing a label for each single part when you create a production plan and when you change the number of parts. These may be printed and adhered to the parts if needed.

1

Prod No	Quantity	Material	Thickne	Name
00000012	1	St37	2	
00000011	1	St37	2	
▶ 00000014	1	St37	2	

Enter the production data in the corresponding fields of this form, and confirm your inputs. The production plan will automatically be issued a production plan number.

You will only achieve the correct end product if all settings for machine and material have been entered fully and correctly! Make the appropriate basic settings for the material in the 'Common Settings' before.

You can send completion notification for several plans in list view. If you select multiple list entries, you get a simplified completion message window where these records can be deleted or reported as finished.



2

Enter the production deadline for this job.

The 'Allowed' box sets whether parts may be nested to this sheet. If you wish to exclude a sheet from nesting (e.g. dummy sheet), clear this checkbox.

If you run a night shift, there is a button in the right side of the frame to push the production to the night shift.

Clicking 'Stamping' opens a dialog for stamping parts in the nesting plan. This function is optional and depends on the technical capabilities of the machine.

Top right, the exploitation of a sheet is displayed. This value is purely up calculated from the sum of the areas of all parts, based on the sheet's surface that is equal to 100%.

21

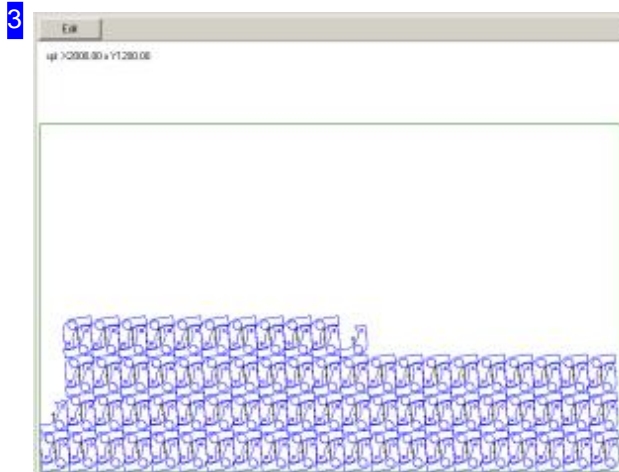
Index	Order No.	Quantity	Name
37	00000037	144	7.dxf

This dialog is where you can define stamps for the individual parts in the list (optional). An example of a stamp could be text applied to a part in a defined 'text box'. The stamp could also be a logo previously created as a symbol in the construction module.

The list to the left shows all parts that bear a 'text box'. Select a part in the list and then enter the desired marking text in the 'Text lines' frame on the right. The stamp text can also be created as a preset under 'Common settings', 'Production'. If text is entered there, then it will be shown here and can be modified individually for a specific part. The text can also contain wildcards that are replaced by the appropriate content when executed. Wildcards are marked by a tag (<>) with the desired parameter label (e.g. %LOGO,1).



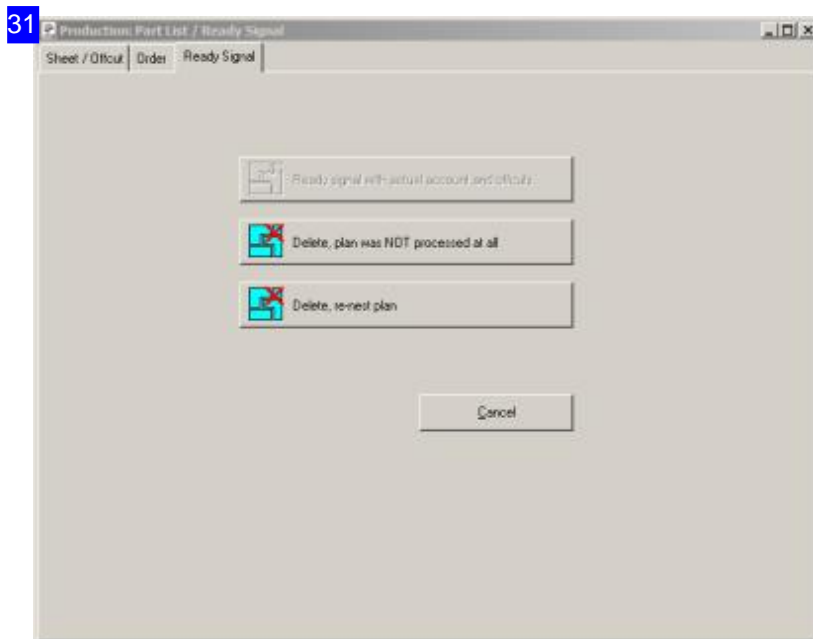
If a part will be produced in a large quantity and you do not wish for all parts to be marked, then you can specify the quantity of parts you do wish to be marked in the bottom right field.



This frame shows the sheet to be produced. Use the 'Edit' button to switch to the technologies module for producing your NC code.

The finalized NC code will then be sent to the selected machine, and be visible in its allocation plan.

After production a completion note should be created to close the order. Simply forward the production plan. A dialog will open to complete the production.



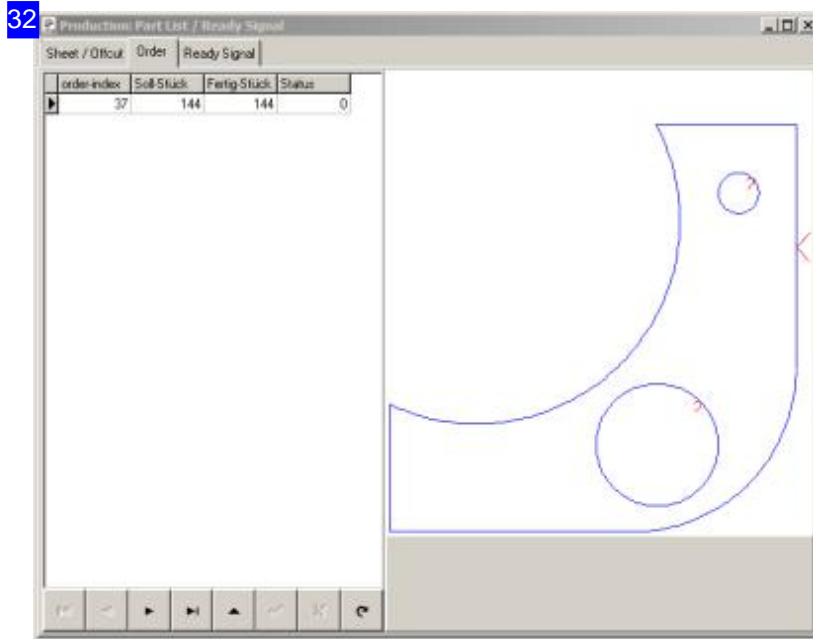
Close production by clicking the top button in this dialog. Remaining offcuts will be returned to the sheet stock, remaining orders to the order list.

Click the second button to abort production unworked.

The third button deletes the plan, allowing you to begin re-nesting.

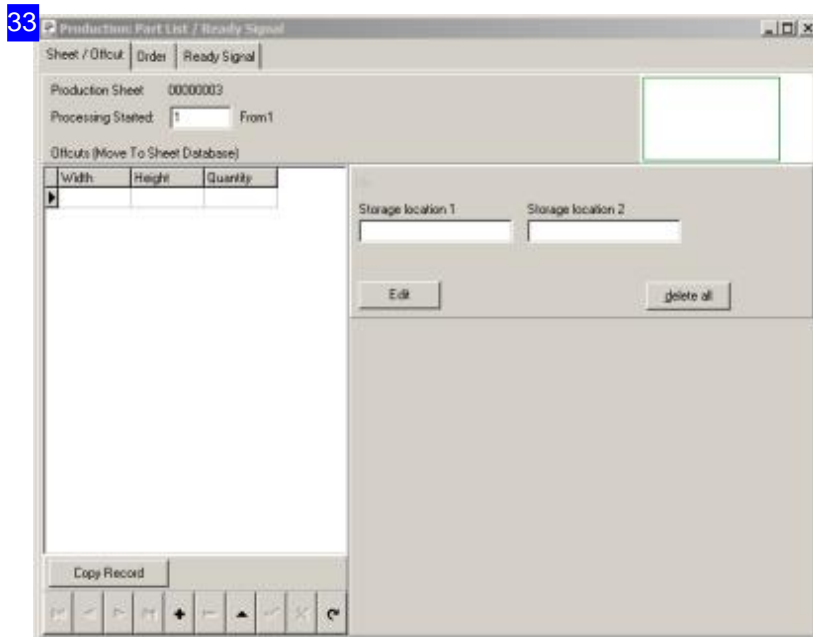
You can check the parts from the order tab.

Manage sheets and offcuts from the corresponding tab.



An order contains a number of parts to be cut from sheets. You can correct for any problems which occurred when cutting, e.g. faulty cuts spoiling parts, by adjusting the final parts quantity down by the number which were spoiled. The remaining parts are put back into the order list for re-production.

Manage sheets and offcuts from the corresponding tab.



You will not always completely fill every sheet you lay up, so there will be offcuts, which you may be large enough to re-use or split. Click 'Edit' to switch to a module for working with your offcuts. Click 'Copy entry' to copy the plan so you can split the remaining offcut into however many pieces you require, and return it to the sheet stock.

You can check the parts from the order tab.



4

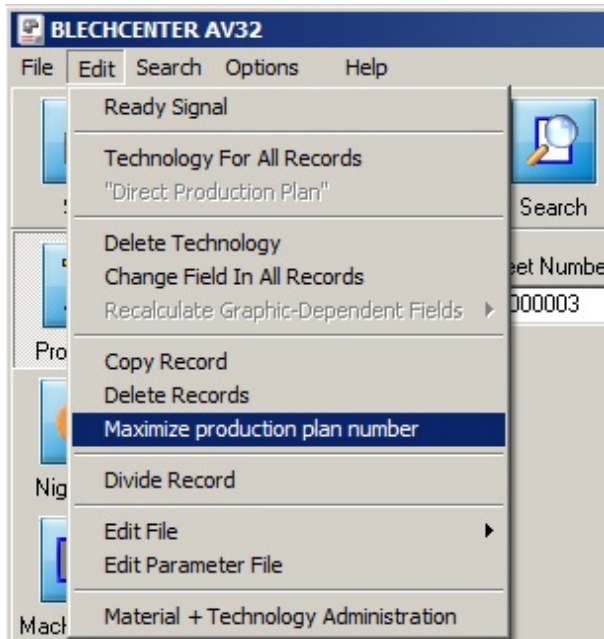


The navigation buttons lead to the various database tables. Clicking the 'Production' button always brings you to this page.

The 'Night Shift' button is context-sensitive and only appears when activated in the program settings.

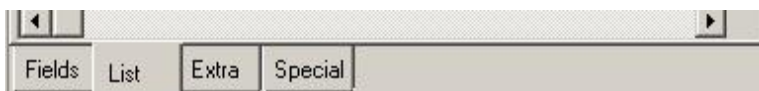
Click the bottom button to switch to the Machine Allocation window.

5



Click the menu item 'Maximize Number of Production Plans' to check whether there are enough machines and sheets in order to increase the number in production plans. The orders and sheets are booked thereby.

6



You can select an other sheet on the tab 'Extra'.



61

Qty (Auto) Sheet Number (Auto)

Technology Created (Auto)


Check Technology! (Auto)

Click the 'Other Sheet' button and a dialog opens, where you can determine the settings.


62

Select Another Sheet

Select another sheet which should be used for this production plan

Number 

only sheets of the same size only sheets of the same material

Width (X) from - to Height (Y) from - to 

Number	Width	Height	Thickness	Material
▶				

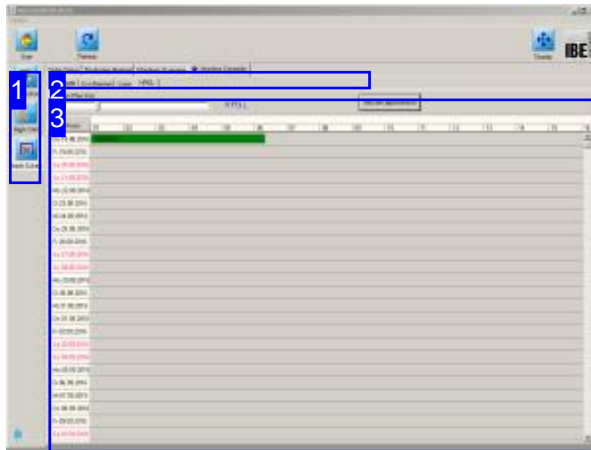
You can search for a new sheet in the dialog. The search happens in size and/or material.

Important note!

There is no check for a match between the nesting plan and the sheet. The nesting plan is not changed! It's the operator's responsibility to ensure that all parts will be cut.

Machine Allocation

Optimal Control of your Machines' Allocations.



Productions or part productions which you send to your machines can be organized in their allocation plans optimally, giving you an easy overview of what your machines are doing, and at what capacity they are running.

Deadlines can be pushed back, or production sequences shuffled about quickly as required, if you notice something is not going to plan. This feature can also be useful e.g. if you suffer material shortages, a machine breaks down, a rush order comes in, etc.

As an optional extra, manufacturing plans can be allocated to various machines' allocation plans. This optional feature makes AV32 a serious tool for optimizing planning and utilization of multiple machines.



The navigation buttons lead to the various database tables. Clicking the 'Machine Allocation' button always brings you to this page.

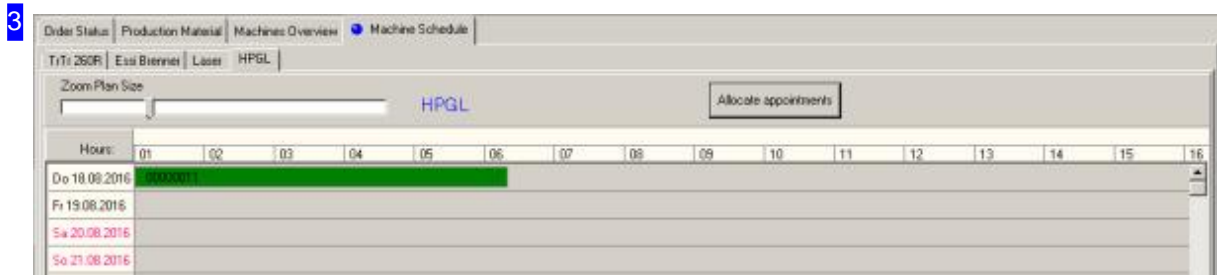
The 'Night Shift' button is context-sensitive and only appears when activated from the program settings.

Click the top button to switch to the Production window.



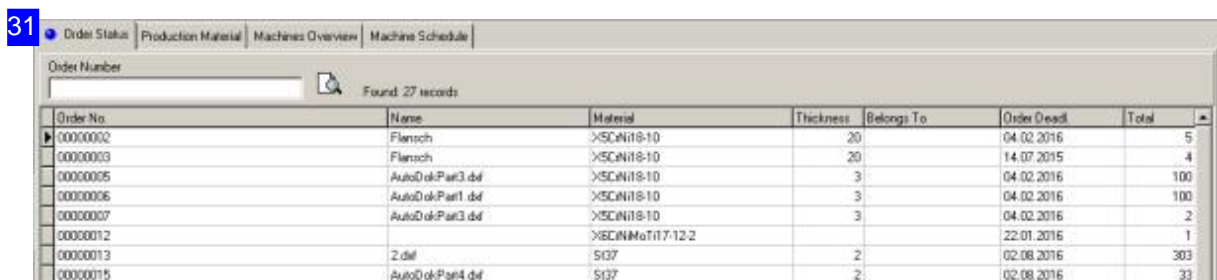
The tabs in the header panel lead to the following functions:

- o Machine Allocation with an overview of all production numbers and the possibility to display the contents of a production plan.
- o Order Status , with a list of all orders.
- o Production Material , with a display of all cutting machines.
- o Machine Overview , with production deadlines and the option to display the contents of a production plan.



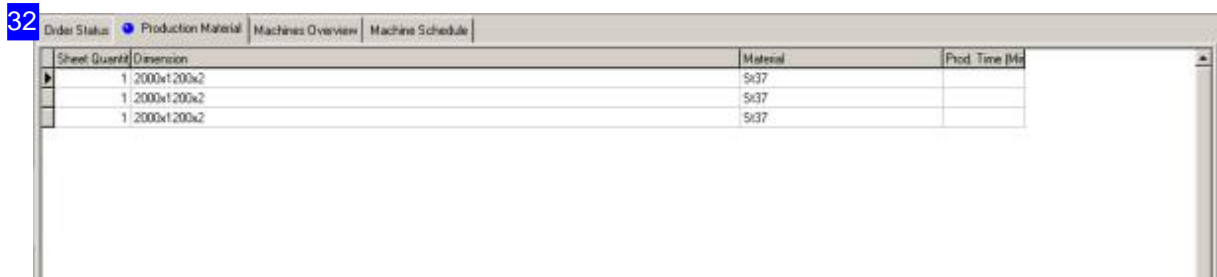
The machine allocation frame shows a deadline plan for a machine with exact production times for the selected orders. Use the slider bar at the top-left to adjust the display as required.

You can still change production times and shuffle the production sequence. Click a deadline to open a menu with options to open the relevant screens.

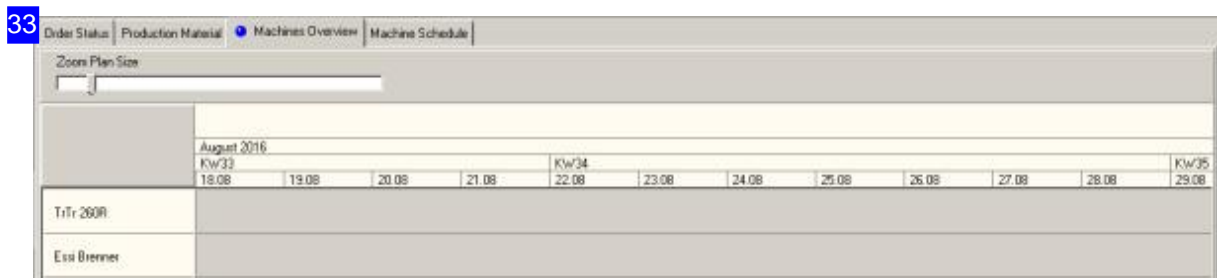


If the search field at the top left is empty, then by default the 'Order Status' overview shows all orders. To help you find the order you're looking for, type the order number in this box and click 'New Search'.

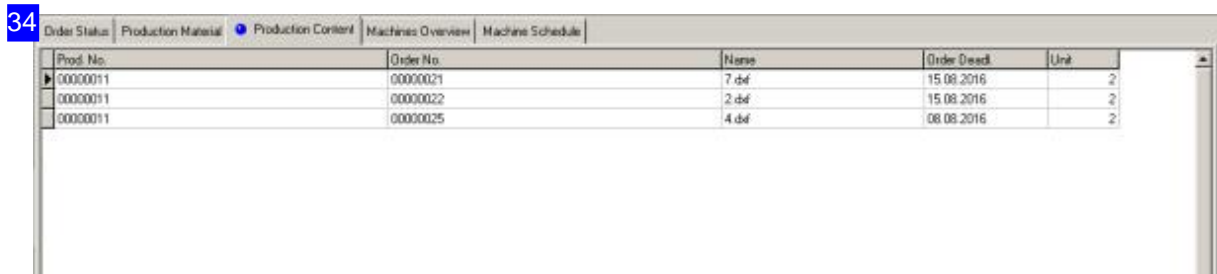
You can still change production times and shuffle the production sequence. Click a deadline to open a menu with options to open the relevant screens.



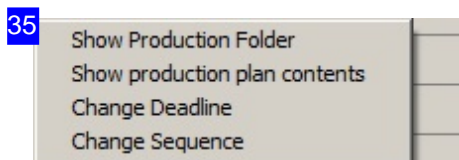
The 'Production Material' tab shows a list of all sheets which are required for your production plans. This overview is helpful when preparing and setting sheets ready for cutting.



The machine list shows all machines and their production capacities in a quick overview.



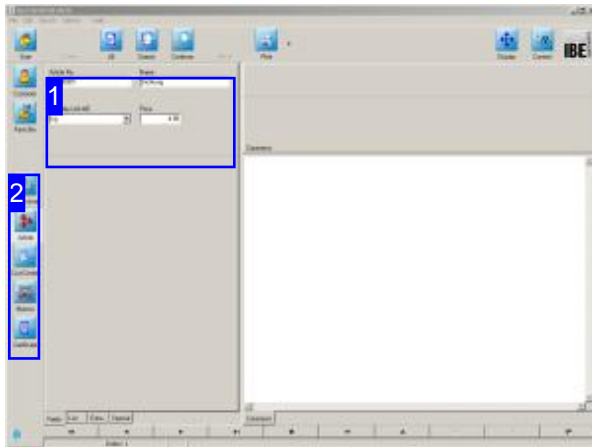
The production contents gives a summary of all production data for a production plan: production number, order number with corresponding components and deadlines, total parts quantity.



This menu still allows you to influence the production. You can change the production deadline and the production sequence. Select the corresponding menu item to switch to the relevant field. The second menu item activates a new tab in the header panel [2], which allows you to change production content. This menu is available from the Order Status window as well as the Machine Allocation window.

Article Bin

Managing Bought Components.



Select 'Recurring Data' from the home page and switch to the article form to enter article data in your database.

Bought-in components such as screws will be included in many of your projects' assemblies. These components can be entered into your article database, allowing you to give a comprehensive price estimation for the complete assembly.

A sheet article is created from the sheet form and is the basis for the calculation of parts. A sheet article has the same item-number as the associated sheet! Click the '<Article' button in the sheet form to create a 'sheet article'.

Tip: Install a sheet article for all standard sheets you use as a basis for calculation. The 'sheet article' is a particular form of articles.

1

Article No.	Name
00000001	Dichtung
Quantity Unit ME	Price
kg	4.95

The article form with input fields for data pertaining to an article. The article number is allocated automatically by the program.

Enter an article name and price, and confirm your entry. The price is important, as it is pulled by the system when making price estimations for an entire assembly.

2

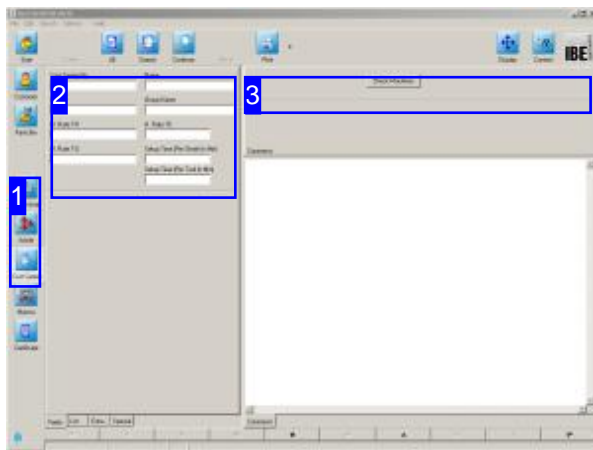


The navigation buttons lead to the various database tables. Clicking the 'Article' button always brings you to this page.



Cost Centers

Including Overheads in your Pricing Estimates.



To enter cost center data, select 'Repeat Data' from the homepage and switch to the 'Cost Center' form.

The cost center is tied to a machine and must have the same number. Set the cost center for the machine in the 'Machine' and 'Estimate' tabs in the General Settings window.

You can then allocate costs and times to this cost center in the 'Cost center' form.

When you make an estimate, the appropriate values will be pulled and your calculation will be complete.

You can make more-precise price estimates for your orders and assemblies by including setup, overhead and marginal production costs for your machine.



The buttons in the navigation panel lead to the corresponding work screens. The 'Cost Center' button always leads to this page.



2

Cost Center No. <input type="text"/>	Name <input type="text"/>
Group <input type="text"/>	Group Name <input type="text"/>
H. Rate TR <input type="text"/>	H. Rate TE <input type="text"/>
H. Rate TG <input type="text"/>	Setup Time (Per Sheet In Min) <input type="text"/>
	Setup Time (Per Tool In Min) <input type="text"/>

Enter the cost center of the machine for which you will make settings.

Enter the hourly rate for:

- o Setup time - h. rate TR
- o Utilized time (cutting time) - h. rate TE
- o Marginal costs - h. rate TG

Enter the setup time for sheets and tooling.

The cost center must match the cost center of the cutting machine. Set this under [General Settings], [Machine], [Estimate].

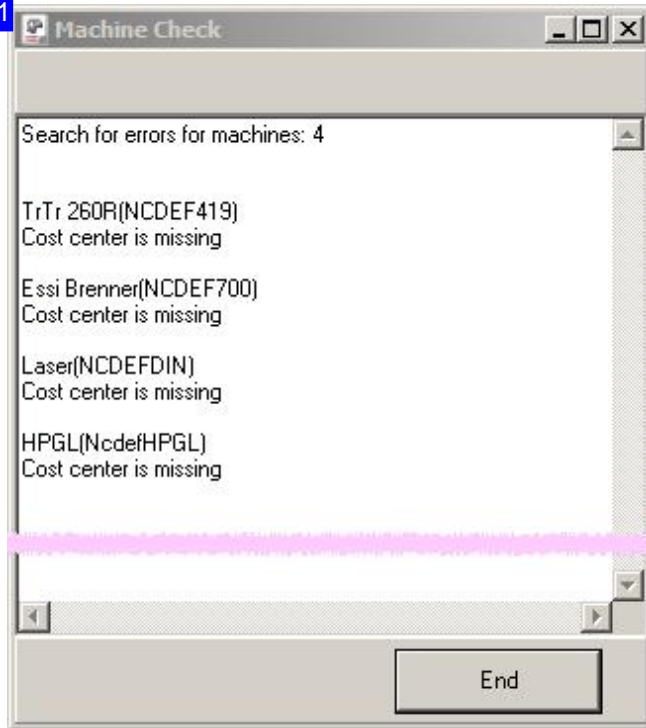
When making an estimate of the price for all parts, these settings add overheads to material costs, so you can make an accurate complete estimate.

3

The cost center entered in the form [2] can be checked against your machines. The program searches for missing entries and presents the results in a dialog .



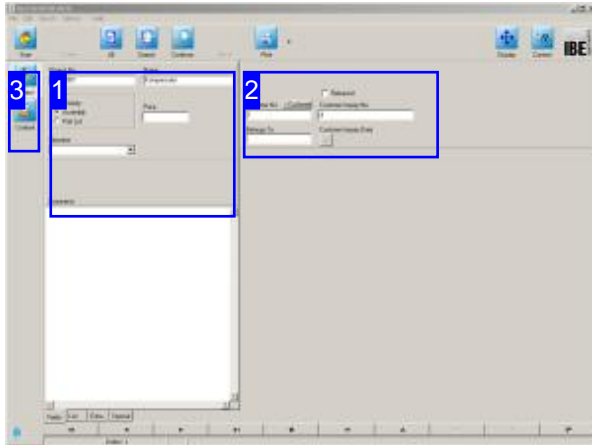
31



The results of a check of the cost center entered in the form [2] are shown after the machine check [3].

Projects

Projects Create Order.



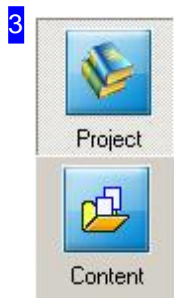
Creating a project allows you to gather all items involved in a customer's project and group them together for ease of creating price quotations.

AV32 allows you to create assemblies for ease of generating price estimates and managing component lists. Select 'Projects' from the home page to switch to the projects form.

These are the steps when creating an assembly:

- o Create all parts required for the assembly from whichever sources you have (macro, DXF, etc.) and save them to the Parts Bin . You will also need costing information for each part in order to correctly price the assembly.
- o Put all non-production Articles in the article bin, remembering to specify their cost!
- o Create the assembly from its various items using the Contents form. Use the project wizard to unite items and articles into an assembly.

AV32 's project creation and management facilities make it a strong project management tool. You can create assemblies or parts lists to help you create cost estimates which can later be used for production. These assemblies can then be 'dissolved' to create orders for the cut parts. The parts can then be nested according to your requirements, ready for production. You can maintain an overview of production times from the machine allocation screen.



The buttons in the navigation panel switch between the various modules' screens.

- o The 'Project' button always leads to this screen.
- o Switch to Content. Group your projects and change them into production plans here.



1

The project form with relevant input fields for your projects. Projects will be allocated a project number automatically.

To enter a new project, select 'Create New Entry' from the footer panel . To maintain an existing entry, select 'Modify Existing Entry'. Remember to confirm your inputs!

Set the type of project in the 'Type' frame:

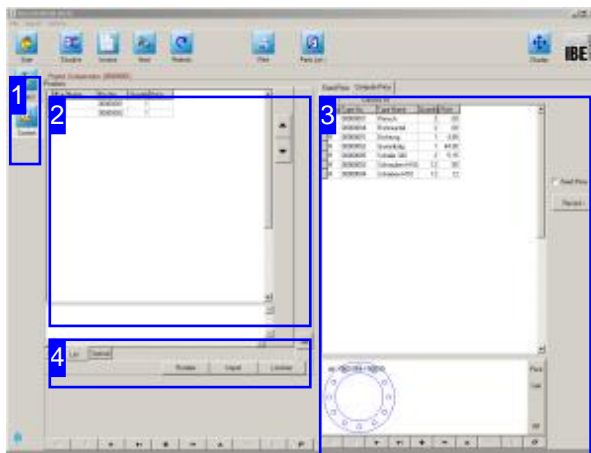
- o Inquiry
- o Assembly
- o Parts list

The price will be displayed at the end, based on the variables you enter. You may also enter a fixed price and mark an item as 'Fixed Price' to use it.

2

If a project is created from the customer form and allocated to a customer, the customer data will be pulled automatically. You can make more detailed entries about the project here.

Creating Assemblies.



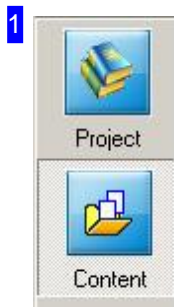
Take the following steps to create an assembly:

- o Select 'Content' from the project screen.
- o First, create a new position in the left frame [2], and then select it.
- o Then create a new position in the right frame [3]. You will jump to the Parts Bin or the Article Bin , where the Project Wizard will help you to transfer an item into the group.

Select the button 'Import' to generate and integrate an assembly with a macro. You go directly to the macro selection.

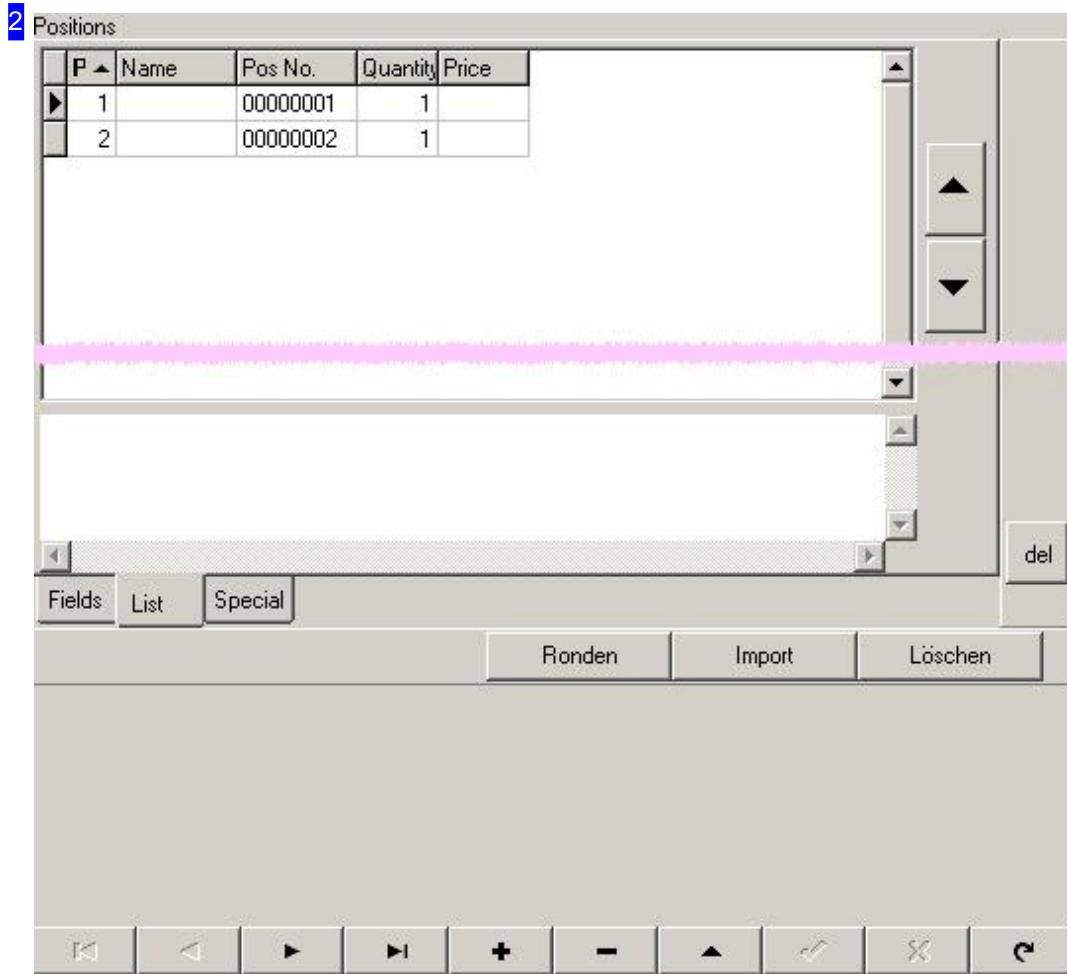
You can use the Project Wizard to quickly and easily create assemblies or parts lists to help with your price estimations. The wizard helps you take items from your part and article archives and unite them into groups.

Quickstart buttons allows integrating complex parts lists from macros directly into a project.



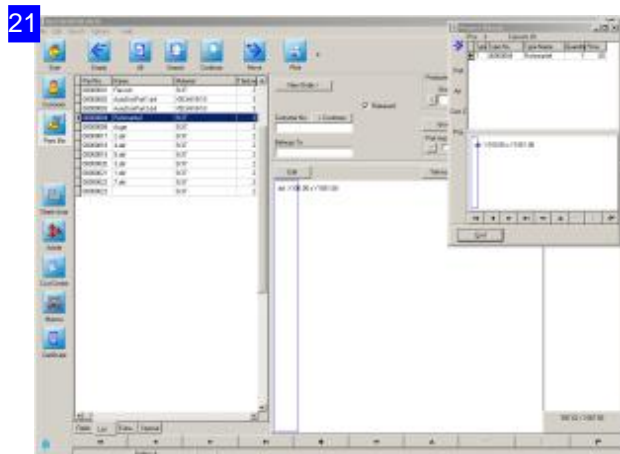
The buttons in the navigation panel switch between the various modules' screens.

- o The 'Project' button always leads to project screen.
- o Switch to 'Content' to view a project's contents.



This frame shows all of a project's components. Mark a position to show its details in the frame to the right [3].

To add a new item to the group, first create a new position using the controls at the bottom, then create a new position in the right frame to switch to the Project Wizard , which will help you transfer items from your archives.

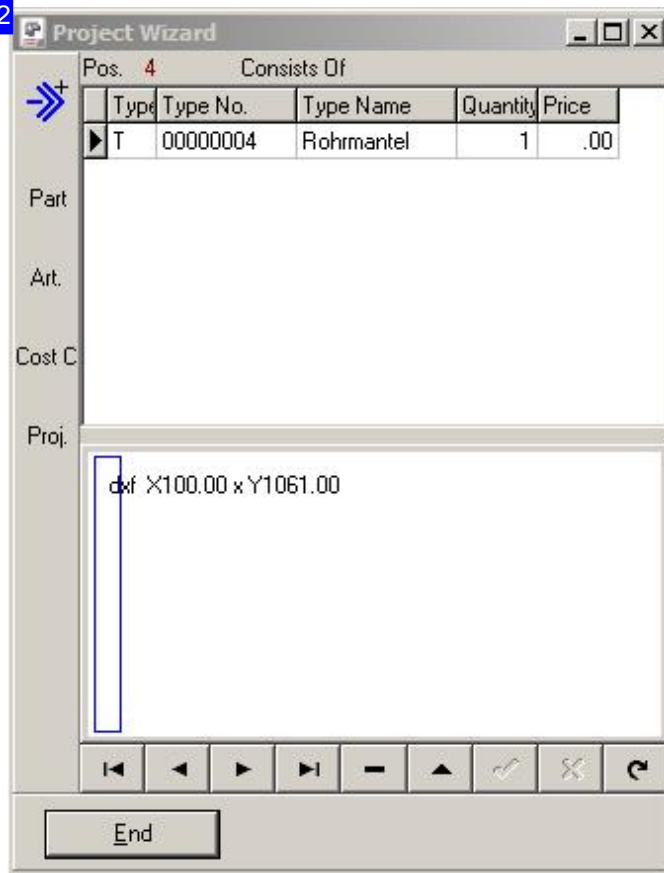


To transfer an item from an archive, first select the relevant archive from the left navigation panel, then select the relevant part or item.

Now use the Project Wizard to transfer the the selected item to your project.



22



The Project Wizard has its own pop-out dialog box, allowing you to use the part bins independently. Click 'Forward' at the top left to transfer an item once you have selected it from an archive.

You can also add a cost center to a project. This allows you to enter all overhead costs involved in completing the job (e.g. hourly rates). Select the 'Cost' button on the left side of the wizard dialog.

AV32 also allows you to add assemblies as sub-assemblies to projects for the purposes of price estimation. This allows you to create quotes for more complex jobs.

Once you have collated all items for your group, click the wizard's 'Exit' button. Assuming you have entered any relevant fixed costs (e.g. bought in parts) and all relevant data for cut parts, you will now be shown the complete cost for the assembly.



3

Fixed Price
Compute Price

Pos. 1 Consists Of

Type	Type No.	Type Name	Quantity	Price
▶ T	00000001	Flansch	2	.00
▶ T	00000004	Rohrmantel	2	.00
▶ R	00000001	Dichtung	1	4.95
▶ R	00000002	Gummibalg	1	44.95
▶ R	00000005	Schelle 340	2	5.15
▶ R	00000003	Schrauben M10:	12	.55
▶ R	00000004	Scheiben M10	12	.12

Fixed Price
Record >

dx: X500.00 Y500.00

Price

Calc

del

◀
◁
▷
▶
+
-
▲
✓
✕
↻

The component parts of a project are collated in this list with the Project Wizard's help, so that you can give comprehensive costings.

If you have created and/or selected a position in the left frame [2] then you can add a new position using the control panel at the bottom. This new position can be populated with parts and articles using the Project Wizard. If you have entered a price for an article, this can be locked in by marking the checkbox to the right.

Use the 'Data Entry' button to the right to switch straight to the editor window for the selected item. From the editor window, use the navigation buttons at the bottom to return to this page.

Has a position of a project several parts, a single component may be dissolved into an order. Click the right mouse button on a list entry and select the menu item 'Part to resolve' below. The procedure is the same as clicking on 'New order' in part archive, with the difference that the project number and the part number are forwarded to the order.



31

Fixed Price | Compute Price

Enter Unit Price
For Pos: 1

Enter a price for an article in the input field.

4

Fields | List | Special

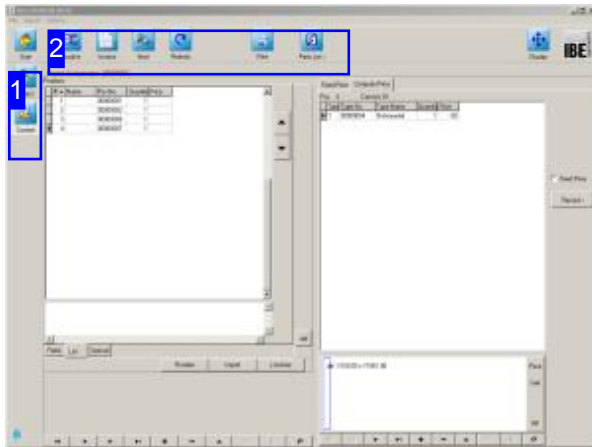
Ronden | Import | Löschen

del

You can create complete assemblies in the project form via macros directly. Generates a macro several parts, these are then set as project content and the parts are created in the part archive. Click the button 'Import' and the dialog will open for macro selection. The design is then carried out according to the requirements of the molded part, similar to the description in the chapter 'Defining HTML Macros'. After the execution the parts are written in the parts list [3]. An also created data sheet is shown in the lower part of the frame.



Dissolving Assemblies for Production.

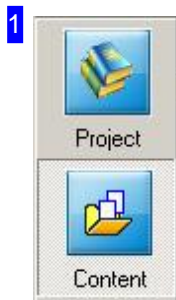


To dissolve an assembly and transfer the cut parts for production, select 'Projects' from the home page and then 'Content' from the project form. An overview of the items in the project is shown in a table. Since not all items in a positions are cut parts, you can 'dissolve' groups to separate cut parts from articles.

The individual components can then be nested as required, and transferred to orders.

You can quickly transfer cut parts from an assembly to orders ready for production.

To do this you must first separate the assembly's cut parts from the bought articles by dissolving the assembly.



The buttons in the navigation panel switch directly to the various work screens:

- o Select 'Content' to dissolve a project's contents.



2

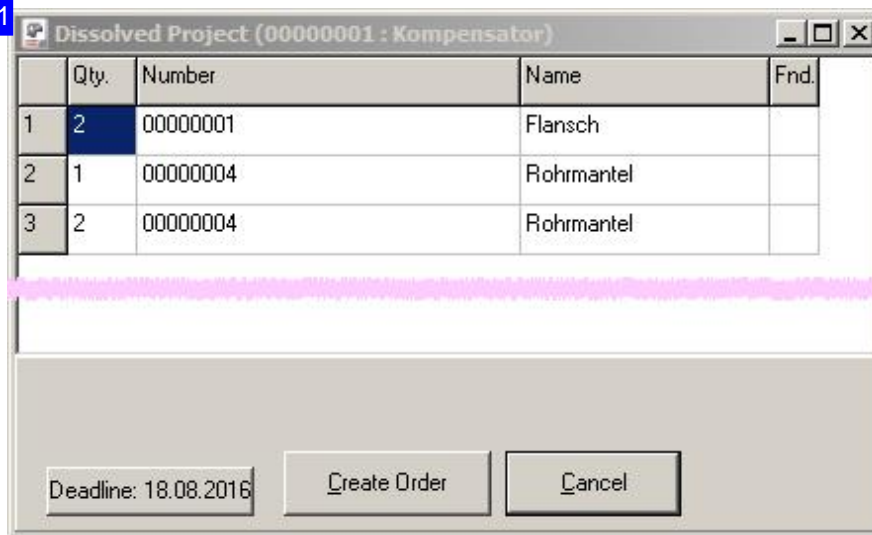


Click the 'Dissolve' button: a dialog will appear where you can enter the number of this part required to be cut. Next, another dialog with a list of all cut parts will open.

Click 'Nest' to open a dialog to nest all parts.

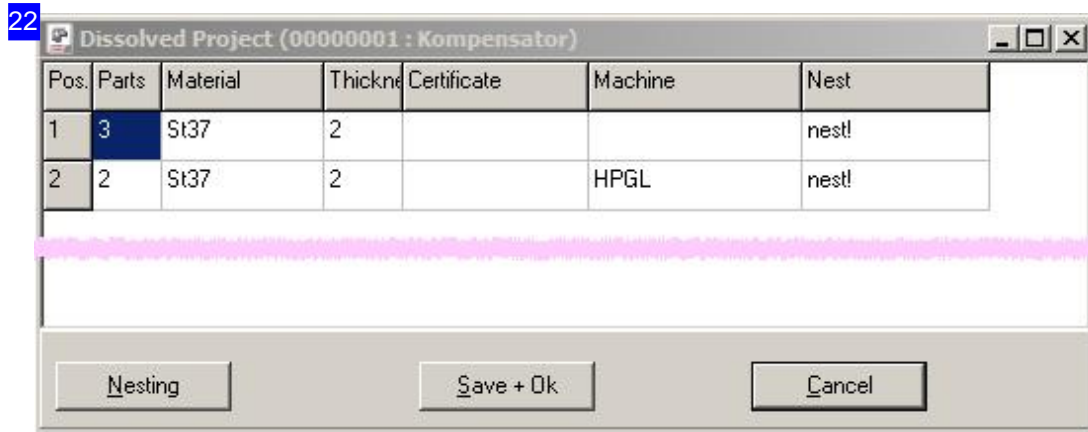
Click 'Parts List' to transfer all cut parts to the parts form, where you can further edit them.

21



To transfer the parts into orders, select 'Create Orders'. The production deadline is shown on the button at the bottom-left. If you wish to change the production deadline, click this button to open a calendar which you can use to set a new date.

You will be shown the creation of the orders, close the dialog when this is finished. The orders can then be allocated technology data if this was not saved with the part. Once this is done, you can nest the parts and forward them for production.



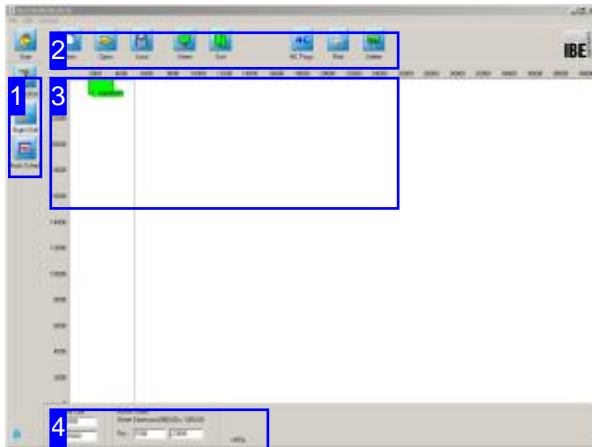
This dialog allows you to nest all parts. Mark the elements in the list and click 'Nest'. A nesting window opens offering nesting by any of the options installed on your machine. These nesting methods are described in detail in their own help pages.

Once all parts are nested, click 'Save and OK'.



Night Shift

Setup Single Sheets for the Night Shift.



This screen allows you to take the individual sheets you have prepared for the night shift and use the mouse to position them across the entire machine table. Once done, you can create a single NC program which will cut all sheets, one after the other. You can set the cutting sequence as required.

Nested sheets which are ready for production can be allocated to the night shift. There you can make one NC program to cut multiple sheets laid out across the entire machine table through the night.



The navigation buttons lead to the various database tables. Clicking the 'Night Shift' button always brings you to this page.



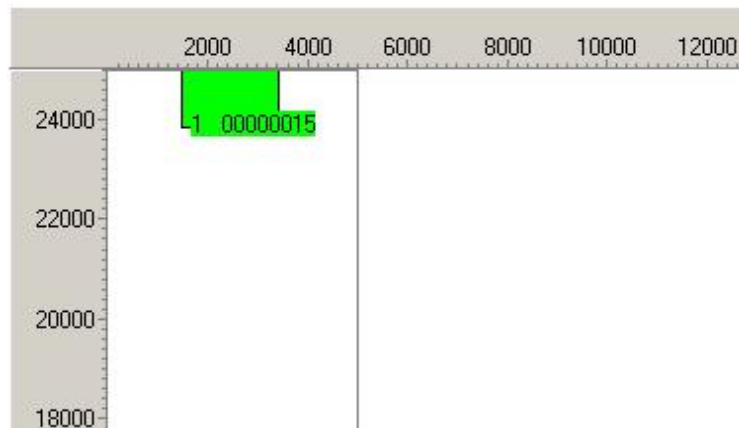
2



These buttons give you control over the night shift's operations:

- o New - start a new plan.
- o Open - start from a previously saved plan.
- o Save - saves the plan for use later.
- o Sheet - back to the production window.
- o Sort - allows control over the sheet cutting sequence.
- o NC program - creates the code for cutting all sheets on the machine table.
- o Print - switches to the Form Editor .
- o Delete - removes the highlighted sheet from the machine table.

3



The preview shows the dimensions of the machine table and each sheet. Click on a sheet to identify and mark it. This sheet can then be moved about the machine table and integrated into a night shift plan using the mouse.

The individual sheets have a number which shows the cutting sequence which can be manually adjusted. Click 'Sort' in the header panel [2], then set the order as required.



4

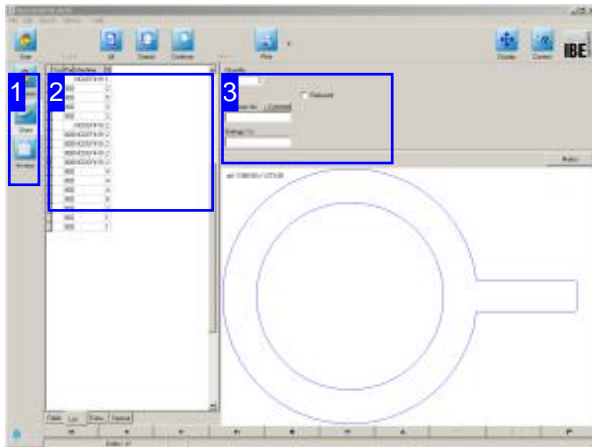
Machine Size		Active Sheet		HPGL
X	<input type="text" value="5000"/>	Sheet Dimension 2000.00 x 1200.00		
Y	<input type="text" value="25000"/>	Pos.: <input type="text" value="1500"/>	<input type="text" value="23800"/>	

The left frame shows the dimensions of the machine table. The right frame contains information (dimensions and position) about the highlighted sheet. The machine is displayed at the bottom-right.



The Store

Manage Finished Parts in the Store.



Completed parts can be sought out in the store and listed with the search function for a last check before they are delivered to a customer. Adjust the parts count to the delivery quantity to maintain your overview of progress with an order until completion.

Orders which have been notified as complete are passed to the store for a final check. You can check the individual parts here before delivering to the customer.



The buttons in the navigation panel lead to the various modules. The 'Store' button always leads to this screen.



2

Cus	Par	Machine	Q
		NCDEF419	1
	000		2
	000		5
	000		2
	000		2
		NCDEF419	2
	000	NCDEF419	2
	000	NCDEF419	2
	000	NCDEF419	2
	000	NCDEF419	2
	000		4
	000		4

The store form shows all data about a part. Navigate the parts list using the footer panel .

The parts list can be filtered effectively using the search functions .

3

Quantity

Released

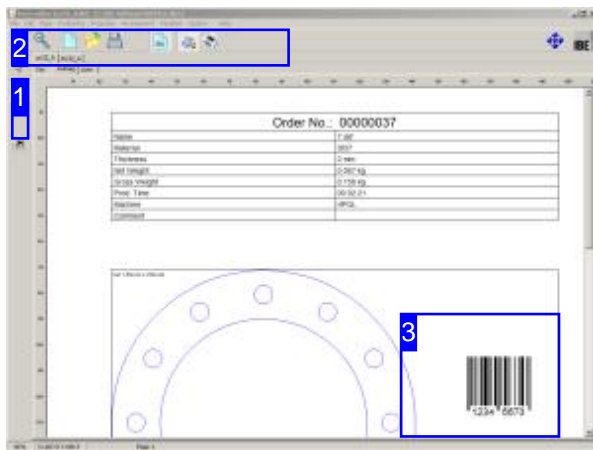
Customer No. < Customer

Belongs To

You can correct the 'Quantity' in the corresponding field to maintain control over the order right up to delivery. Then delete the part from the stock.

The Form Editor

Printing Your Work.



You can send a nesting result directly to your printer using the form editor.

You can use the form editor to create a standard sheet with your company name, logo and other attributes. This can be used like headed or watermarked paper, with your nesting results printed over the top.

AV32 's form editor allows you to service 'obsolete' interfaces to other programs. While these interfaces (DDL and COM) are no longer required in applications running on modern computers, they are retained for reasons of compatibility with older systems, but receive no further documentation.

You may need to pay attention to the variables. Dynamic values from various sources (system, database, etc.) can be included in your print. A variable is defined by a bracket-tag <> with one or more terms. The most important term is 'VAR', which allows access to system variables. For example the tag <Var=DATUM> gives the current system date. The menu item 'Variables' allows you to copy these variables into the clipboard. Place them on the page using menu item [Position], [Text], then pasting into the text box and placing the text on the page as required.

You should also note that variable terms can be defined using aliases and used in the tags.

You can also enter a barcode for production parts, e.g. a product number or EAN code.

You can also use this editor to create a PDF output of your work. Any changes you have made with the form editor will appear on the PDF the same as on a printed sheet.



These buttons switch between editor mode (top) and print preview (bottom).



All options for formatting individual sheets are listed in the top menu panel. To insert a barcode, select [Position],[Barcode] and set the location using the mouse.

The function panel includes buttons for:

- o Zooming in and out on the form.
- o Starting new forms, saving and loading forms.
- o Activating and de-activating the standard sheet (Std).
- o Viewing the print preview.
- o Printing.

You can select between the standard sheet (Std), graphics and production list from the tab panel. If for example you would like to place your company logo on every page, switch to standard sheet, select [Position],[Graphic] and place your logo with the mouse. Remember to activate the standard sheet in the function panel.

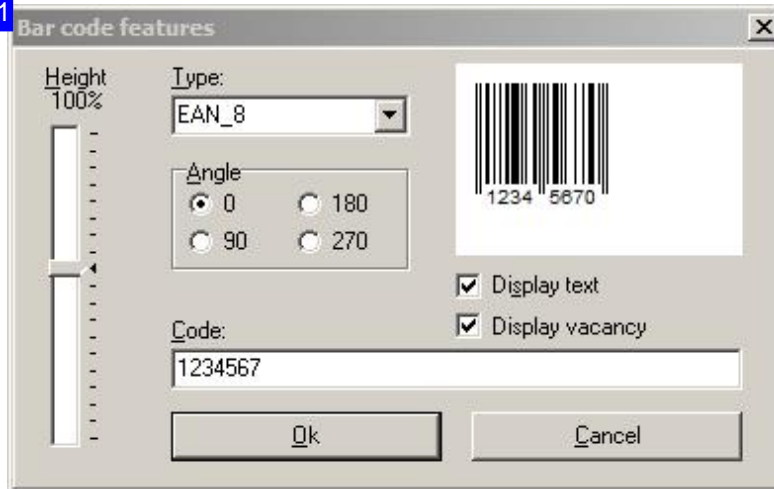
3



The preview shows you a barcode, as here. Right-click here to open a dialog to set the appearance and content of the barcode.



31

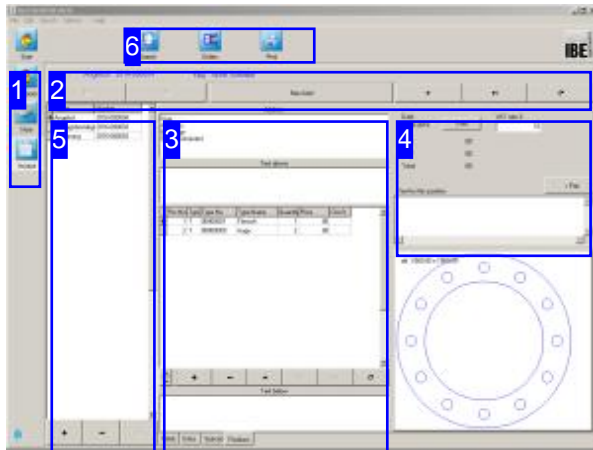


This dialog allows you to set the code (e.g. EAN number) of the barcode, its height and alignment.



Writings

From the offer to delivery with automatic invoicing.



First enter the customer in the customer form, if you dont have it already done.

Select the customer with the top button [1]. All customer data are taken from the database and put in the invoice form.

The bottom button [1] gives you access to the invoice form.

Get a new document with a simple click on the center button and select 'Offer'[2].

- o Fill all text fields [3] for preface and ending text.
- o Select all parts of interest from the parts bin [4].
- o Print your offer. Take the Forms-Editor to that end (take a look at the previous chapter).

You can create the following documents in the invoice form:

- o Offer
- o Order confirmation
- o Delivery note
- o Invoice and
- o credits

Produce an order confirmation from an offer after an incoming order and create all system orders [6]. You can check the process by a colored highlighting in the parts-list [3] directly. The highlighting is red after an order confirmation.

comfortable with AV32 and in the countermove generate system orders from an offer and, after production, a delivery note and an invoice.

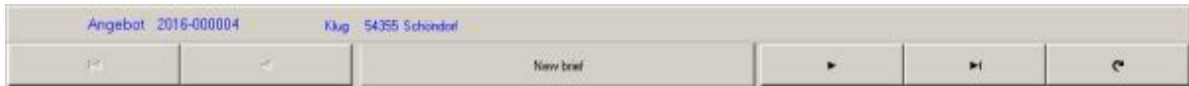
It will become green after production and completion notification. Create an invoice as a new document and print it out.



The navigation buttons lead to the various forms. Clicking the 'Customer' button always brings you to the customer archive to select a customer for the various documents. Use the 'Invoice' button to create these documents.

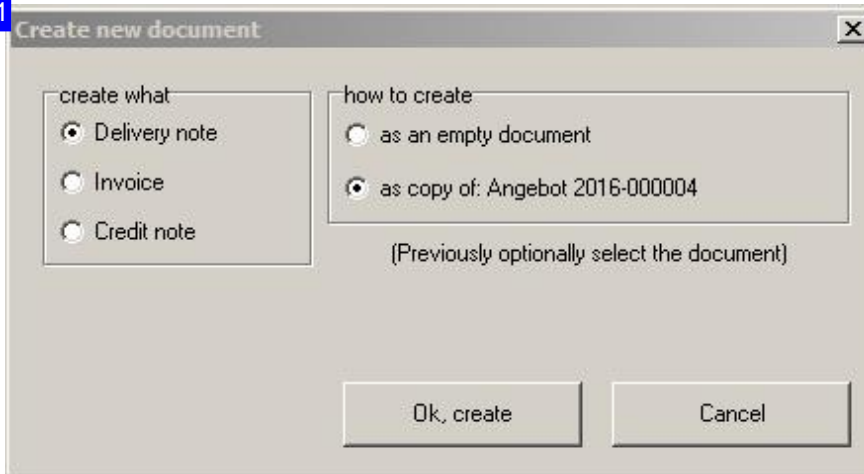


2



The invoice-form offers you all templates for an ERP system. Creating a document, click on the center button. A dialog appears for selecting a template.

21



You select the kind of document in this dialog. The document can be a new one, or progressive from an offer.



3

Address

Klug
A. Schlau
Bestellege
54355 Schöndorf

Text above

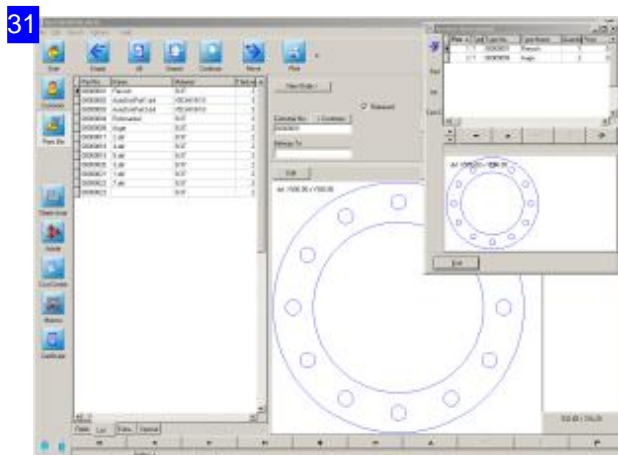
Pos No.	Type	Type No.	Type Name	Quantity	Price	Disc%
1	T	00000001	Flansch	1	.00	
2	T	00000009	Auge	2	.00	

Text below

Fields Extra Special Positions

This form allows you to set your document. The address of the customer is entered already above. Enter the title and the prefacing text in the second field and the ending text with salutation in the bottom frame.

Assemble the list of parts you want to offer, in the middle frame. The invoice items assistant will be helpful thereby.



You can select the different parts from the stock with the invoice items assistant, similar to the project assistant.



32

Pos No.	Type	Type No.	Type Name	Quantity	Price	Disc%
1	T	00000001	Flansch	1	.00	
2	T	00000009	Auge	2	.00	

All the parts that you have added to a document are listed in this frame. You can see directly the state of process at the highlighting in the Type-No column. The highlighting changes to red after an order confirmation. It changes to yellow, if system orders are generated. And finally, it changes to green after production and completion notification.

4

Date	11.08.2016	Date		VAT rate %	19
Sum:	.00				
VAT:	.00				
Total:	.00				
Text for this position					< Part
<div style="border: 1px solid gray; height: 40px;"></div>					

You get a overview of sums here, if the parts in the offer are estimated in price. You can change the value added tax rate here.

The bottom text field allows you to enter an distinct text e.g. surface making.

Two buttons will appear in the right bottom frame depending on the processing stage, the 'Parts' button and the 'Order' button, that leads you directly to the relevant form.

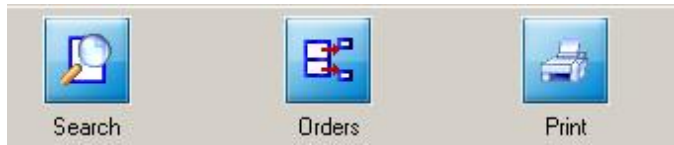
5

Name	Number
Angebot	2016-000004
Auftragsbestätig	2016-000003
Rechnung	2016-000003

All documents are listed here. You can manage the list with the bottom buttons. Clicking on <+> generates a new document. A selection dialog appears.



6

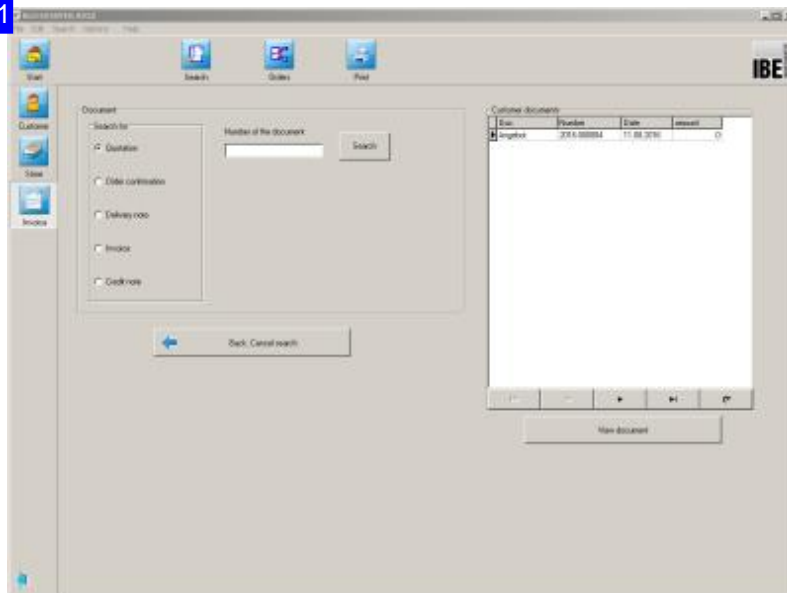


These buttons are very helpful. The left button leads you to a special form, where you can search for specific, different documents.

Clicking on the middle button produces system orders directly from an order confirmation.

The right button leads you to the form-editor, where you can print your documents.

61



The search form for documents. Select the type of a documents in the left frame and all documents of interest will be listed in the right frame for selection.

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An article is a thing which belongs to a project, but does not lead to an order.

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