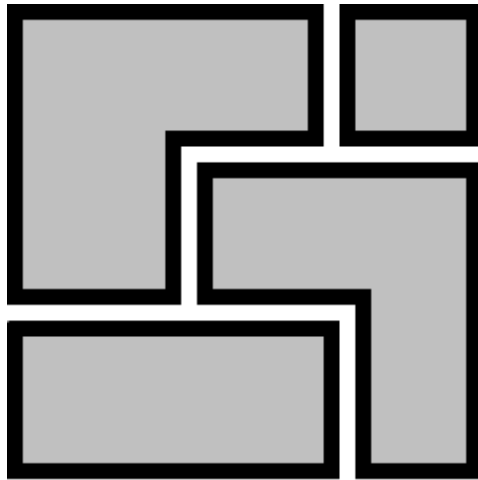




ncNest



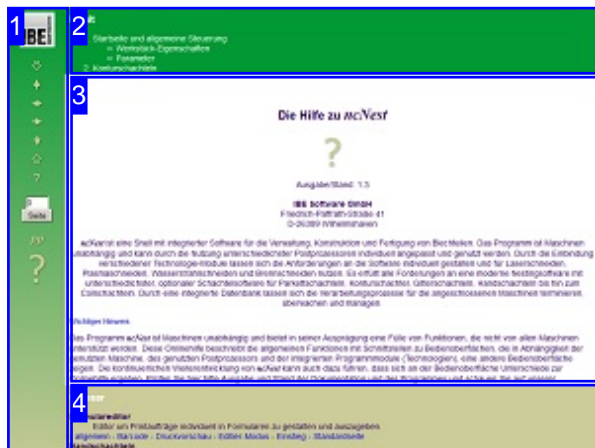
Online help

Nesting software ncNest



Welcome to the help for ncNest

General Notes on Navigation



Select Navigation Method

There are two methods to navigate *ncNest* '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

ncNest 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 *ncNest* 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

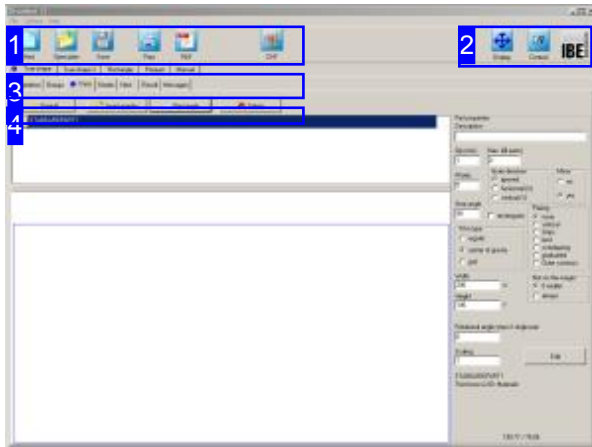
or

Consecutive



The Start Screen and Navigation in General

The Nesting Editor and its Functions.



ncNest is a program for creating nesting plans with the possibility to combine automatic nesting with the manual change. This makes it possible to get efficient nesting by setting parameters and nesting requirements in combination with manual nesting and last changes in nesting results to specific needs of work processes.

Various methods are available for automatic nesting, which results in different nesting plans, depending on parameter settings. The results can often be improved by skillfully selection of these limits. Note also, that the calculation time greatly increases when tight parameters are used for nesting, because there are simply more runs for calculation and thereby more arithmetic operations.

All types of nesting are options of the program. The use must be enabled in the dongle.

You are directly on the program's workspace after it has started. Save the window's settings with a simple click of a button [2] to retain these for the next use of the program and connect to your previous work.

Menu items are offered in the menu bar at the top of the window, where you can open menus to the following topics:

- o 'Data' .
- o 'Options' .
- o 'Help' .

The main functions are assigned to Quick Start buttons [1] to simplify operation.

You can access the individual types of nesting via the tabs in the header [3] directly. 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.

The general workflow will then move to the following steps:

1. Define a sheet
2. Select parts
3. Set parameters
4. Nest parts and possibly by changing the settings optimize the results.

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

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



1



The header panel contains Quick Start buttons for the general control.

- o The left button starts a new nesting plan.
- o Chose the second button if you want to import an existing nesting plan. Nesting plans have the extension '.spl'.
- o The third button is the counterpart, it lets you store nesting plans for further use.
- o 'Print' calls a dialog with the form editor. This function is context sensitive. More about this in the 'Form Editor' chapter.
- o You can create a PDF document as documentation of your work with a simple mouse click on the PDF button. The specifications in the form editor under 'Print' are used to write the document.
- o Use the symbol 'DXF' on the right, to write all nesting plans to a DXF file.

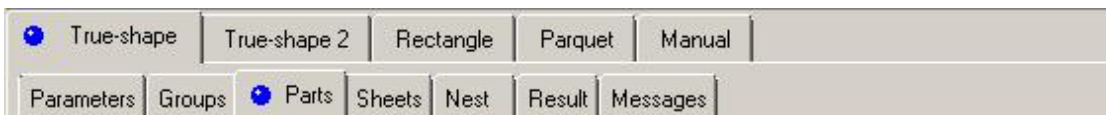
2



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



Use the upper tab row for selecting the desired type of nesting.

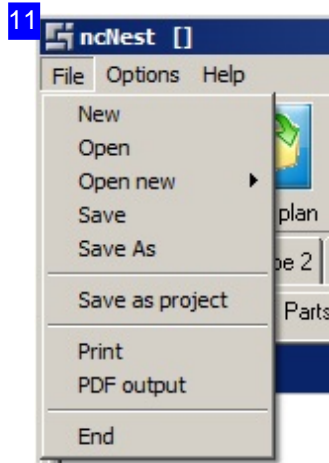
ncNest offers many methods of organizing or 'nesting' your parts onto sheets. From fully automated nesting according to your settings to computer-aided manual nesting; the program allows you to decide your level of control.

Efficiently nesting varied parts to a single sheet places a large demand on a nesting algorithm. *ncNest* 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

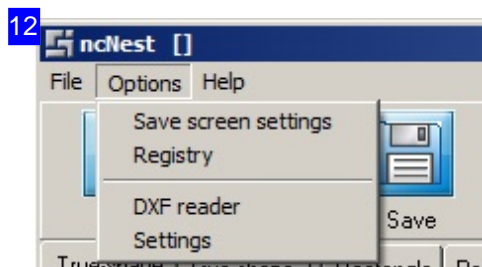


must be enabled centrally by IBE Software GmbH.

A second tab row in each type of nesting allows you to select the individual working fields and functions for the nesting directly.

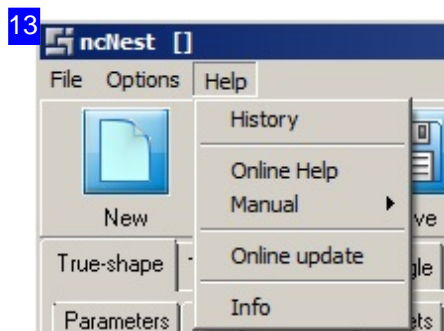


The 'File' menu offers the functions that you can also access via the Quick Launch Buttons [3]. You exit *ncNest* using the last menu item.



Use 'Options' to save the program settings for Windows, configure the DXF Reader or make settings for program execution.

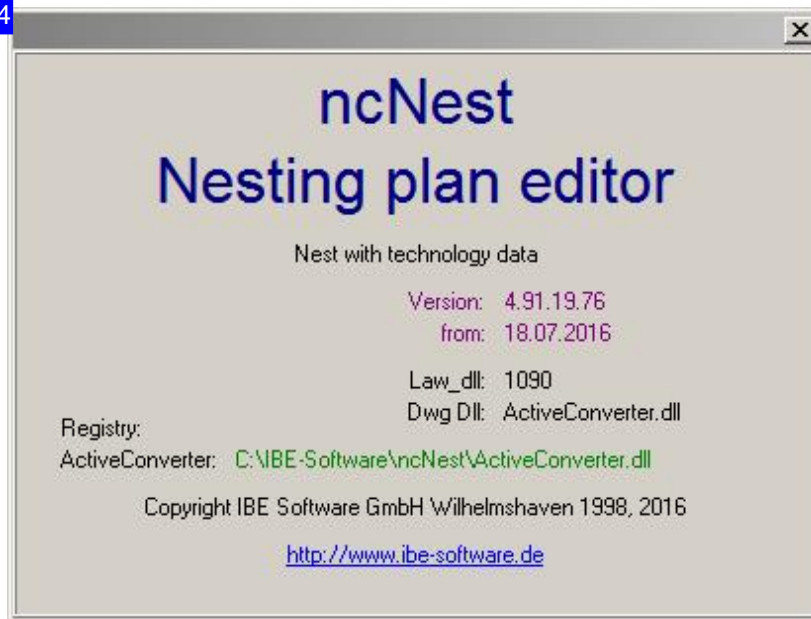
If you have selected optimizing nesting plans with batch processing, you can get an additional debug-window, to trace the nesting process. Select 'Batch-Debugger' and the debug-window will appear automatically when nesting.



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



14



This is the info window for the program. Here you can see the version number of the program and can access the website of IBE directly using the link below.

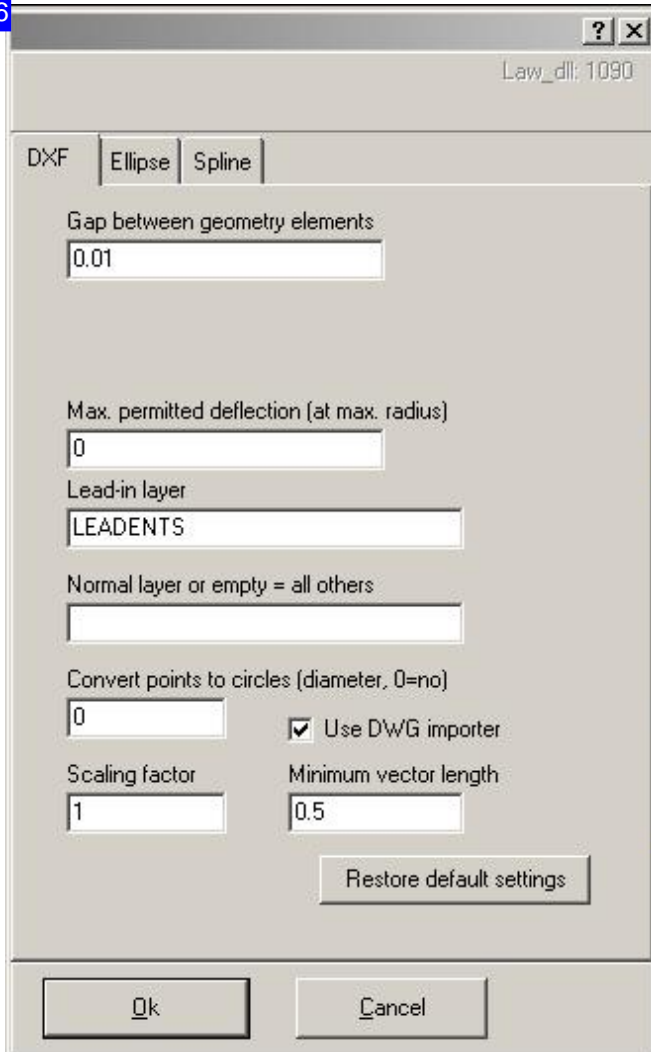
15



Program Settings are stored in the Windows® registry. Here you have the possibility to overwrite or to reload it.

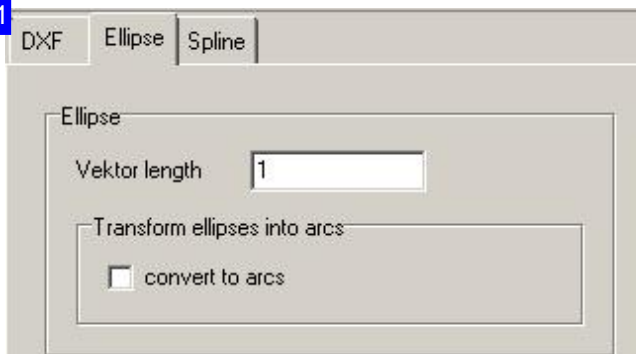


16



Specify parameters for manipulation or reduction of the values when reading DXF/DWG-files in this dialog. Gaps can be closed in order to obtain closed contours and vector lengths can be adjusted for use on a practicable, minimum length. Separate tabs are available for the processing of ellipses and splines to manipulate and simplify the characteristics of these contours.

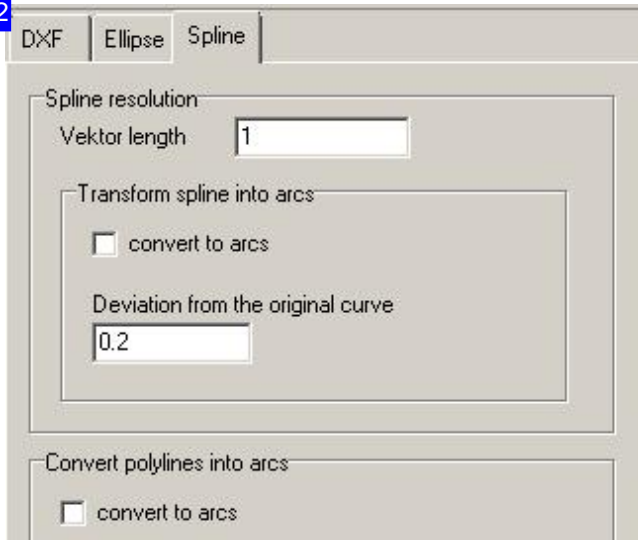
61



Separate ellipses into vectors or arcs in the tab 'Ellipse'. The splitting value can be adjusted manually in the 'Vector length' cell. The smaller this value, the finer the ellipse's resolution remains. Smaller values increase processing time for ellipses in your drawing correspondingly. For this reason you should not set too small a value if your ellipse is physically large. Small ellipses will require a small resolution, else they will not appear round when cut.



62

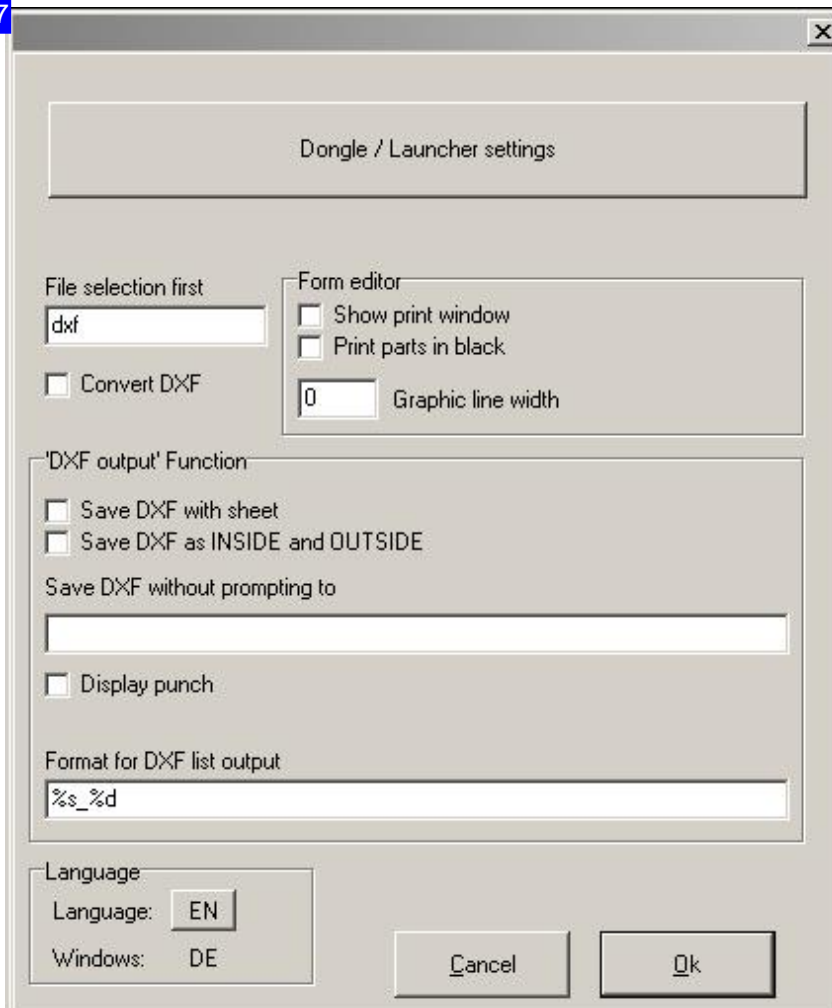


Splines can be dissolved into vectors and arcs. To dissolve into vectors, enter the maximum length. The default value is 1.

The dissolution of splines into arcs requires entry of the maximum deviation of the new curve from the original curve. The default value is 0.2. Mark the corresponding checkbox to convert the spline to arcs.

If the drawing has polylines, you can reduce the number of elements by converting them to arcs here. Mark the checkbox and refresh the display.

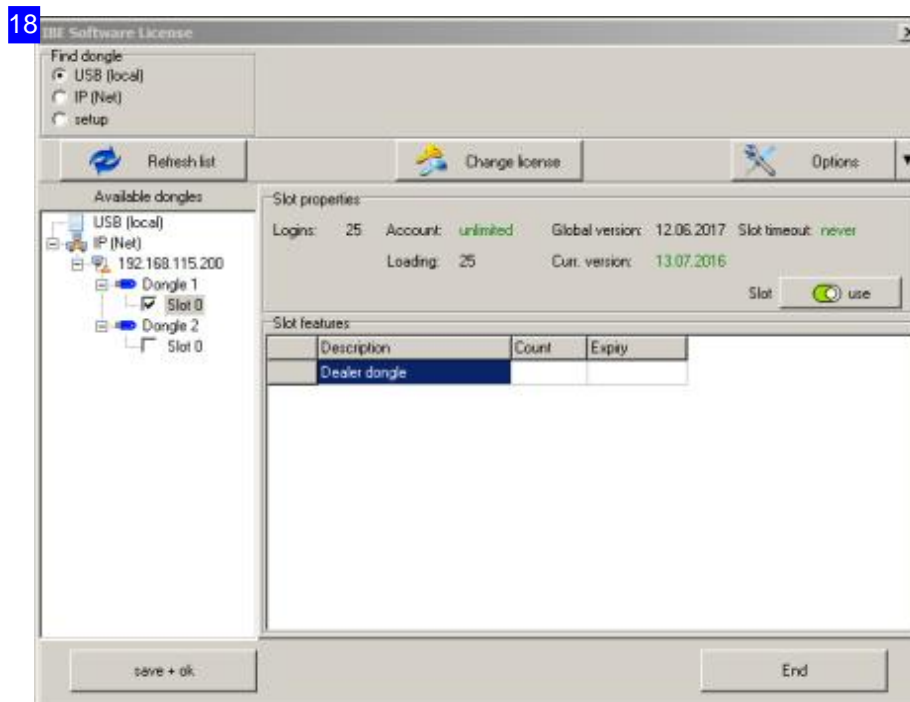
17



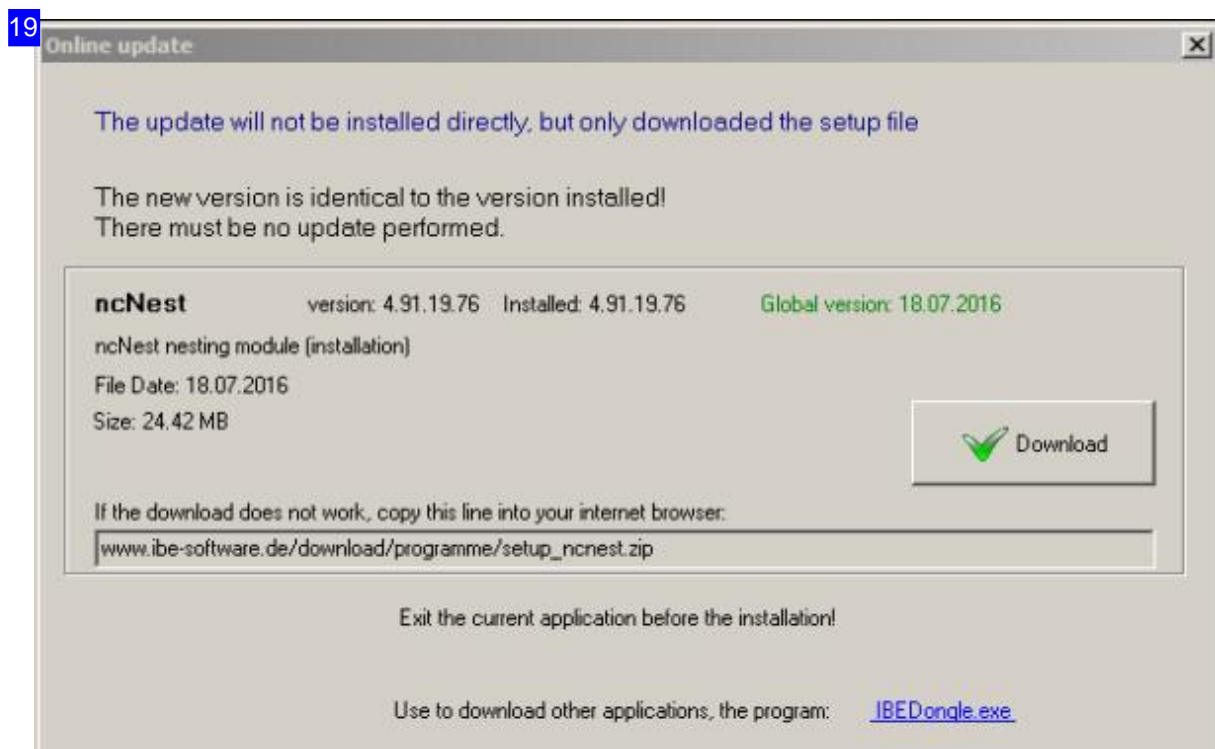
The Preferences dialog let you control the dongle-access. The top button takes you to a separate dialog to control the IBE dongle.

Another setting affects the form editor. You will find more details in chapter 'Form editor'.

Make presets for the issuance of DXF files in the bottom frame.



You can manage the IBE dongle in this dialog. There is a own help for this program. If your computer has a connection to the internet, you can check the license this way. By clicking on 'Change License' top center, you will access a frame in which a button 'Check Internet' appears.



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.

4

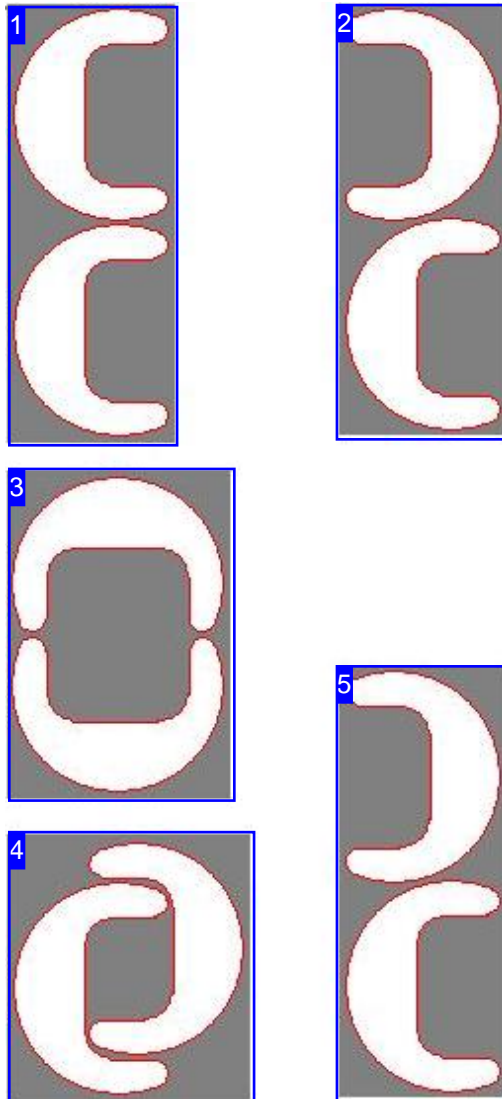


You can load drawings or generate a rectangle with a simple click on a button in the foot area in the tab 'Parts' at all types of nesting. Click on 'Insert Picture' and a dialog opens for selecting drawings in various formats. Possible formats are '.dxf', '.dwg', '.law', '.str' and '.zew'.

The material properties are stored by clicking on 'Default'. A new workpiece gets the set default values first if it is inserted new.



Workpiece Properties



Select 'Best' and *ncNest* 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.

ncNest 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. *ncNest*'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**

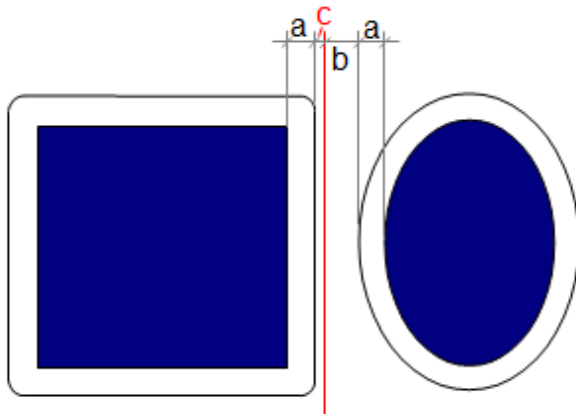
The fitting type sets the location of the first workpiece on the sheet. 'Normal' uses the first available space, 'Center of Gravity' sets *ncNest* to try to find the best possible location. 'Grid' places the part or pair in an imaginary rectangular box and arranges all subsequent parts around this.

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.

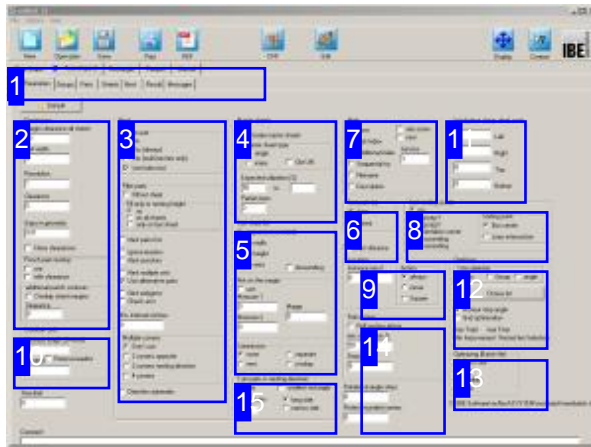
The available settings vary in type and scope corresponding to the selected nesting type. Here are the most important common settings:

- 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.



Nesting Plans

Nesting Parts of Different Shapes.



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.



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 group selection, if present.
- 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

Kerf width

Resolution

Clearance

Gaps in geometry

Show clearances

Punch part nesting

use
 with clearance

additional punch contours

Overlap sheet margins

Clearance

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 (%)
 to

Partial steps

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 multiple sets

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 corner, 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.

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

For nesting, a priority can be assigned to the parts, for the correct order. You can select the sequence as additional distinguishing feature for items with the same priority in the frame 'Sequence of parts'. The sorting is then done by area or size in descending order.

The distance between two nested parts can deviate from the settings and the resolution. Select the checkbox, and the distance between two parts is exactly the same as the results from the kerf and grating pitch. The parts are pushed together after nesting.

7

Mark

none also zoom

Part Index nest

Additional index Service

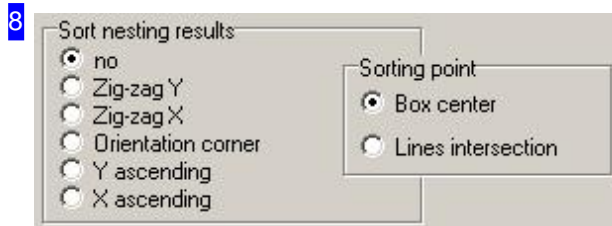
Sequential no.

Filename

Description

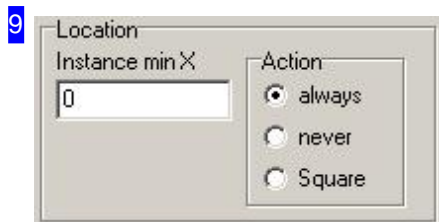
If a 'Marking' has been selected, then each part will be labelled with a number upon display and printout.

- 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.



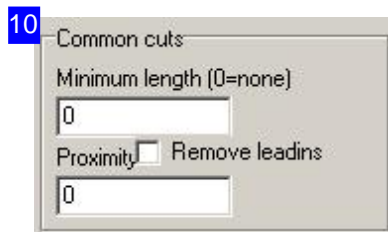
There are certain production processes where cut parts need to be removed in order to create a gap that allows free access to the next cutting row. You can specify the appropriate sort order for the nesting result here. Select 'Meander' to sort alternately from top to bottom (Y) or from left to right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

You determine which point of order shall prevail under 'Sorting point'. Marking 'Box center' the center of a rectangular box enclosing to the (possibly rotated) part is taken and selecting 'Line intersection' the first two dashed lines in the part are sought, and these are brought to intersect.

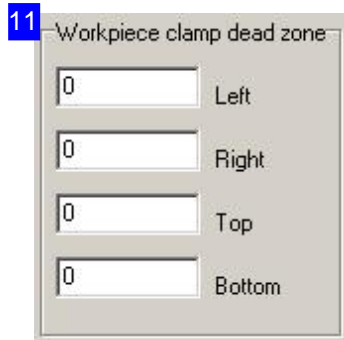


In the frame 'Location' enter the minimum width of the part in the field 'Instance min X'. Determine in the 'Action' field how to proceed with the part when this value is less.

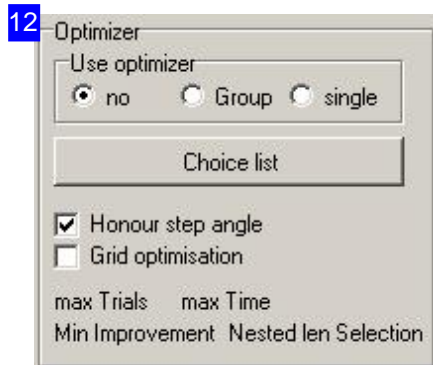
- o always: The parts are always nested normally.
- o never: The parts are never nested.
- o Square: The parts are nested as squares, with an edge length that corresponds to the long edge of the part. This then results to an empty space where the part could be rotated by 90°.



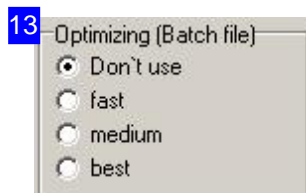
You can nest the parts with common cuts. For that, enter a minimum length and mark the parts that can have common cuts with others, under the tab 'Parts'. Enter a minimum distance for parts that do not have common cuts in the field 'Proximity'.



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

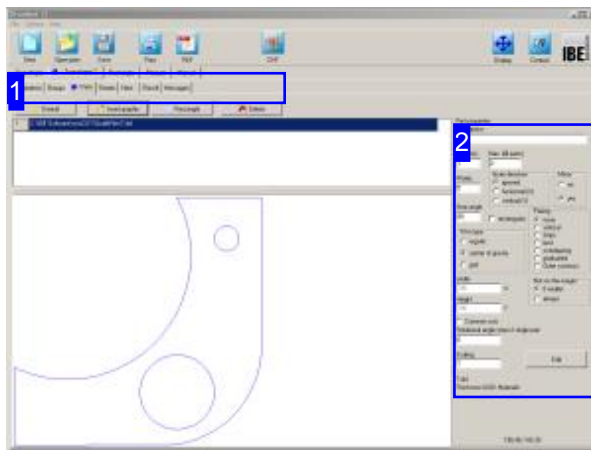
Aspect ratio

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

Description

Qty (min) Max. (fill parts)

Priority

Grain direction
 ignored
 horizontal (X)
 vertical (Y)

Mirror
 no
 yes

Step angle rectangular

Pairing
 none
 vertical
 Strips
 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

Scaling

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.

If the part is marked as filler parts, it is used to replenish the free surfaces of the sheet. Here the filler can be used if required. If a minimum number should be made, enter the number in the field 'Number'.

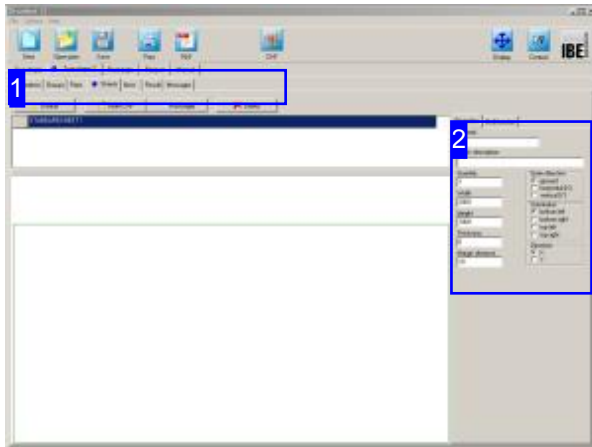
The 'Not on edge' frame is where you can exclude parts targetedly from nesting on the edge of the sheet. For this to be possible, a 'forbidden' edge must be defined under the 'Parameters' tab.

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.

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.

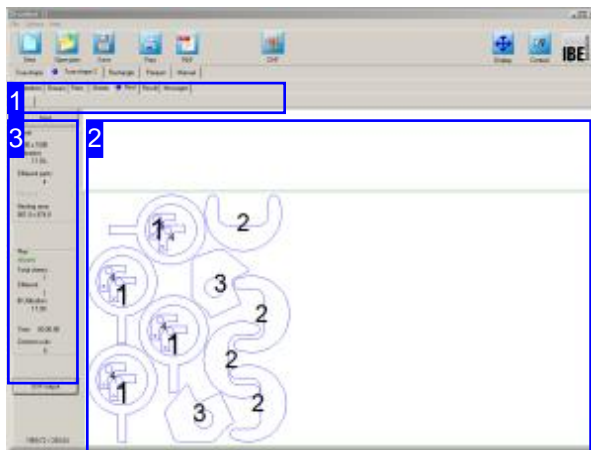
The rounding factor sets the precision required for discovering the torch offset. The final discovered value will always be rounded to this factor. Values more than 1 multiply the offset.

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.

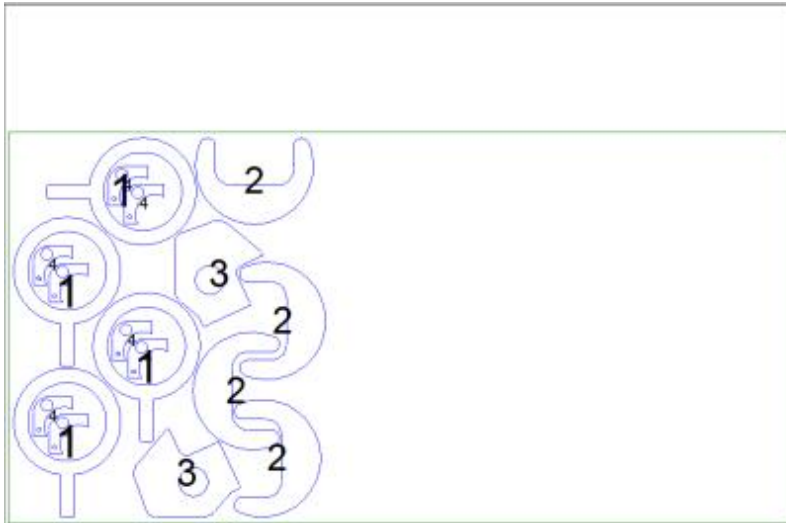
Small steps and angles give a more refined result, but increase calculation time. If you have large parts which are more or less rectangular, it can be best to set a large nesting angle step, even 90 degrees.



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	C:\BE-Software\ncDUT\Grafik\File\2.dxf	4	4	
2	C:\BE-Software\ncDUT\Grafik\File\5.dxf	4	4	
3	C:\BE-Software\ncDUT\Grafik\File\6.dxf	2	2	
4	C:\BE-Software\ncDUT\Grafik\File\7.dxf	8	8	

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 1000	
Utilization:	17.9%
Different parts:	4
Records:	
Nesting area:	801.0 x 974.8
Plan	
all parts	
Total sheets:	1
Different:	1
Utilization:	17.9%
Time: 00:00:00	

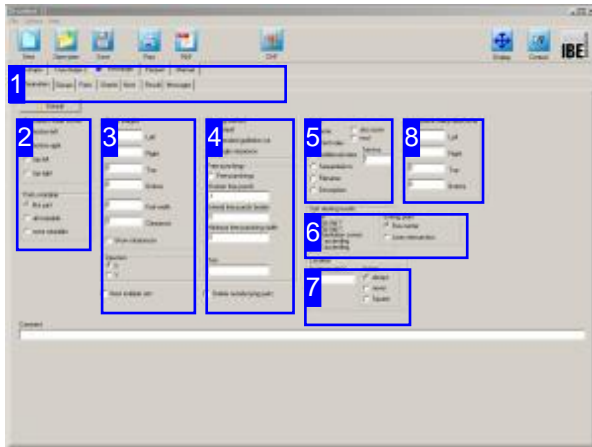
Click the 'Nest' button to begin nesting. Under the button you will see information about the utilization of the sheet shown in the preview.

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



Grid Nesting

Nesting Parts in Rectangular Boxes.



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.



Select the required field from the second tab panel:

- o Parameters, settings for offsets, nesting presets and inputs relating to stamping.
- o Groups, for group selection, if present.
- 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

Nest multiple sets

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.

All parts in the workpieces list are taken as a set, when 'Nest multiple sets' is selected. The number of the workpiece is used as a number in a set. An attempt is made to nest as many sets as possible. For more information, refer to the context help of *ncNest* .



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
- Description

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
- Zig-zag 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.



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

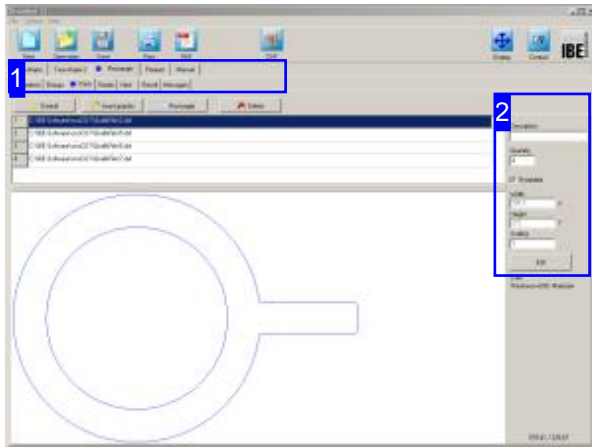
0 Top

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

Description

Quantity

Rotatable

Width
 X

Height
 Y

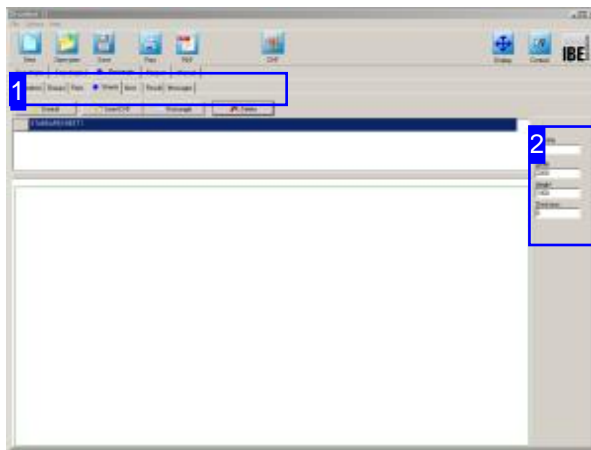
Scaling

2.dxf
Thickness=0.00 Material=

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.



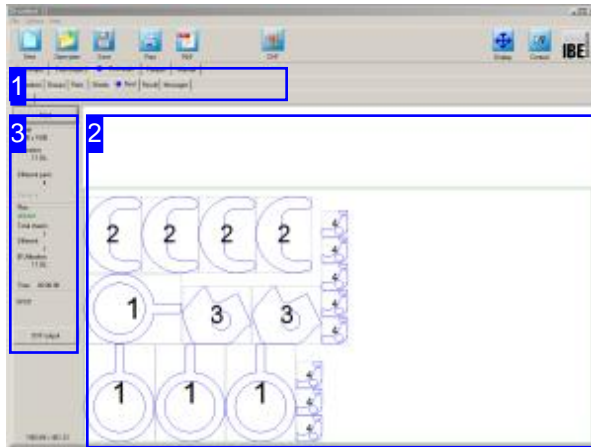
2

Quantity	<input type="text" value="1"/>
Width	<input type="text" value="2000"/>
Height	<input type="text" value="1000"/>
Thickness	<input type="text" value="0"/>

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.

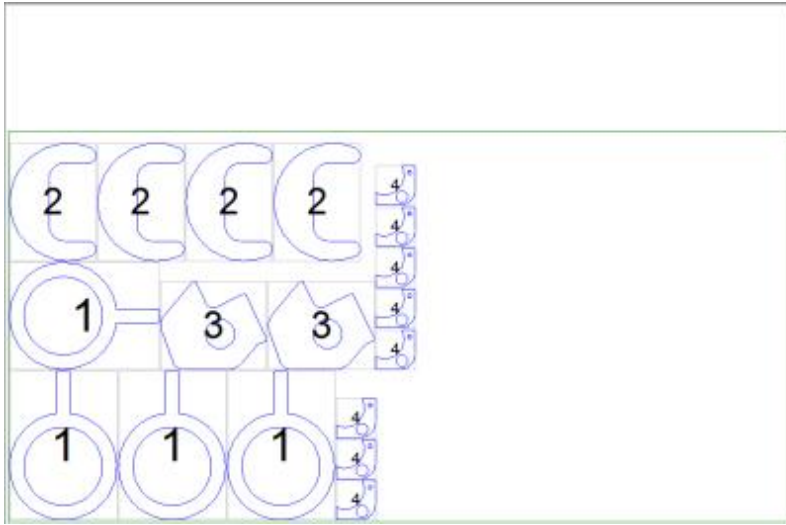
Grid nesting places parts on your sheets according to your settings for sheets and parts. Our guillotine nesting routine is a special feature which aligns parts such that they can be separated using one simple long cut, e.g. with a guillotine / shear.



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	C:\NBE-Software\ncnc\DJT\Gratik\File\2.dxf	4	4	
2	C:\NBE-Software\ncnc\DJT\Gratik\File\5.dxf	4	4	
3	C:\NBE-Software\ncnc\DJT\Gratik\File\6.dxf	2	-2	
4	C:\NBE-Software\ncnc\DJT\Gratik\File\7.dxf	0	0	

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

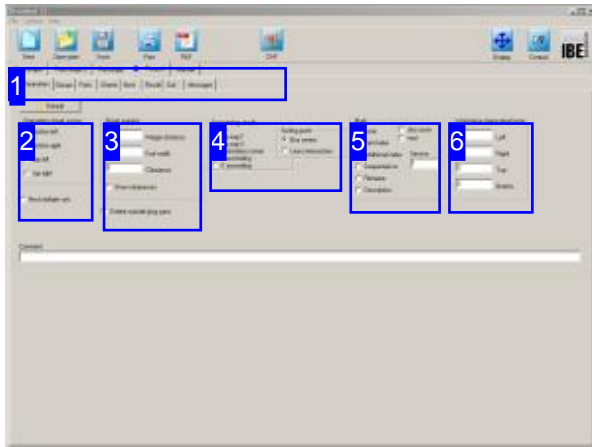
Nest
Sheet 2000 x 1000 Utilization: 17.9% Different parts: 4 Records:
Plan all parts Total sheets: 1 Different: 1 Utilization: 17.9% Time: 00:00:00

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.



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.

The parquett nesting offers itself as a basis for the coil nesting where a design is brought to an endless belt. See chapter 'Coil nesting' for more information. First, check all settings and parameters and modify them to your needs. Start with nesting then.



Select the required field from the second tab panel:

- o Parameters, settings for offsets, nesting presets.
- o Groups, for group selection, if present.
- 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.

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



2

Orientation sheet corner

bottom left

bottom right

top left

top right

Nest multiple sets

The orientation sets from which corner to begin nesting.

3

Sheet margins

Margin distance

Kerf width

Clearance

Show clearances

Delete outside lying parts

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.

4

Sort nesting results

no

Zig-zag Y

Zig-zag X

Orientation corner

Y ascending

X ascending

Sorting point

Box center

Lines intersection

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 'Orientation corner' to sort by the corner specified for nesting. See at shape nesting for sorting box.



5

Mark

none also zoom
 Part Index nest
 Additional index Service
 Sequential no.
 Filename
 Description

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

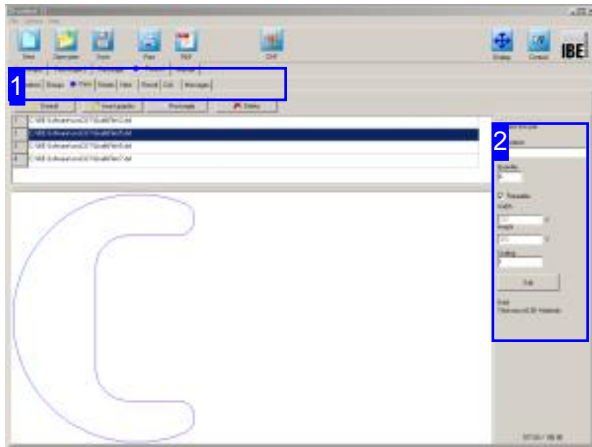
Workpiece clamp dead zone

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

Description

Quantity

Rotatable

Width
 X

Height
 Y

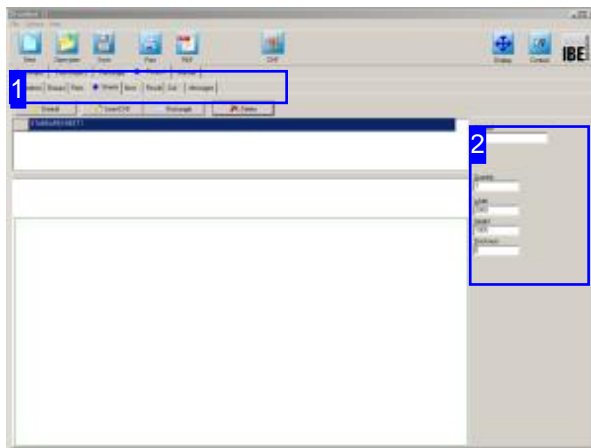
Scaling

5.dxf
Thickness=0.00 Material=

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

Quantity

Width

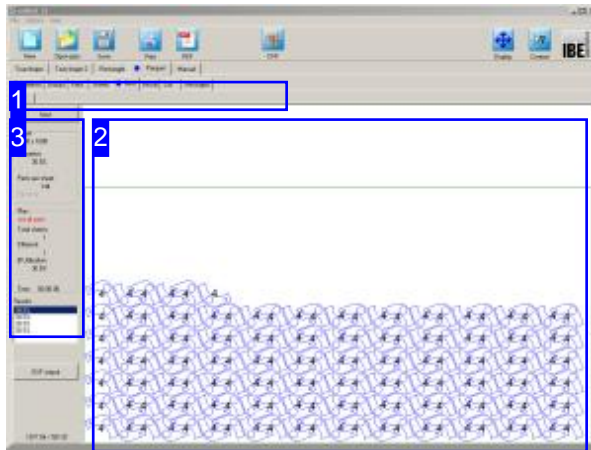
Height

Thickness

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.

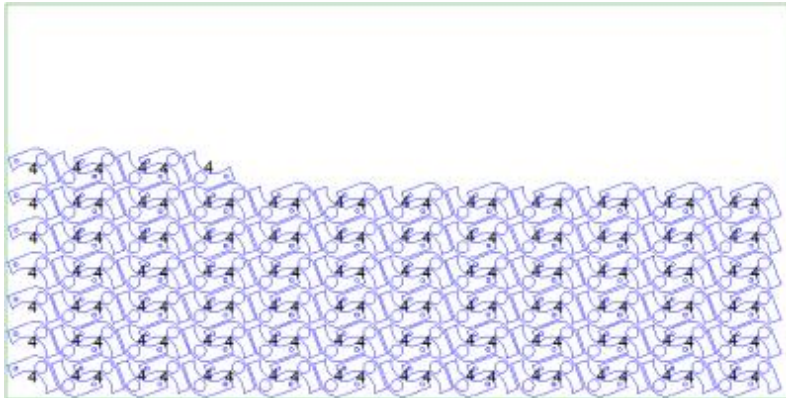
Parquet nesting nests according to your settings for sheets and parts. Parts are laid out in multiple varying parquet patterns for you to choose from, and produce.



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

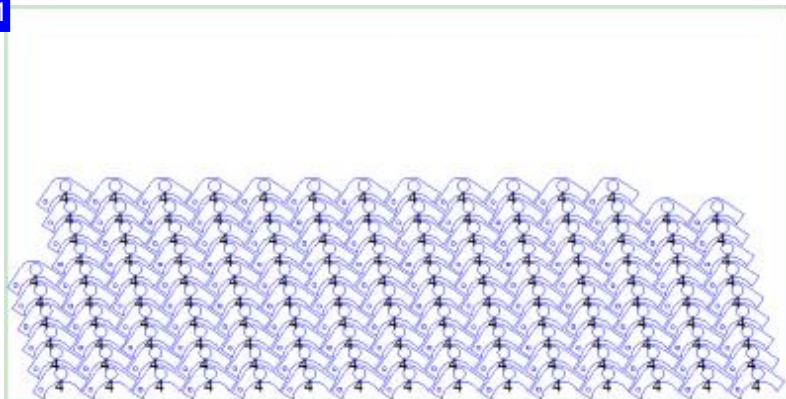


This frame shows the sheet with nested parts. Use the mouse wheel to zoom in for a closer look. Each different sheet is shown in a separate tab which can be selected by clicking.

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	C:\IBE-Software\cncCUT\GisrikFile\2.dxf	4	0	-4
2	C:\IBE-Software\cncCUT\GisrikFile\5.dxf	4	0	-4
3	C:\IBE-Software\cncCUT\GisrikFile\6.dxf	2	0	-2
4	C:\IBE-Software\cncCUT\GisrikFile\7.dxf	144	144	

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 1000
Utilization:	30.5%
Parts per sheet:	144
Records:	
Plan	
not all parts	
Total sheets:	1
Different:	1
∅ Utilization:	30.5%
Time:	00:00:00
Results	
	30.5%
	30.5%
	30.5%
	30.5%

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].

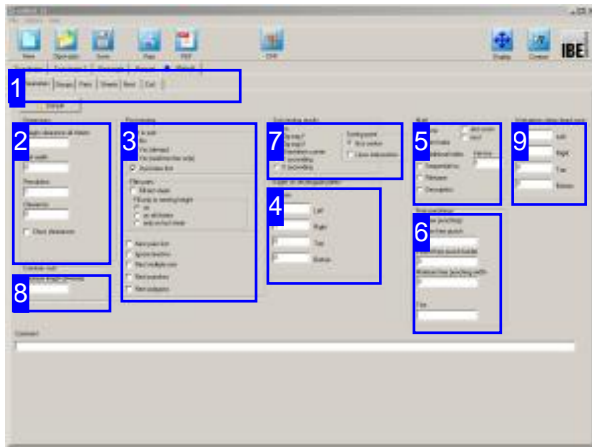
Im Rahmen 'Plan' erhalten Sie eine Übersicht der erzeugten Platten mit der Angabe der Gesamtausnutzung.

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.



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.



Select the required field from the second tab panel:

- o Parameters, settings for offsets and finishing-up nesting.
- o Groups, for group selection, if present.
- 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.

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 multiple sets

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

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

Description

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
- Zig-zag 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. See at shape nesting for sorting box.

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 field 'Proximity'.

9

Workpiece clamp dead zone

Left

Right

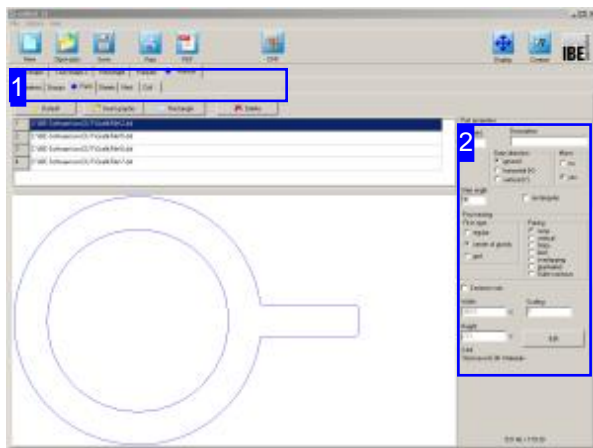
Top

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.



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) Description

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
- Strips
- best
- overlapping
- graduated
- Outer contours

Common cuts

Width X Scaling

Height Y

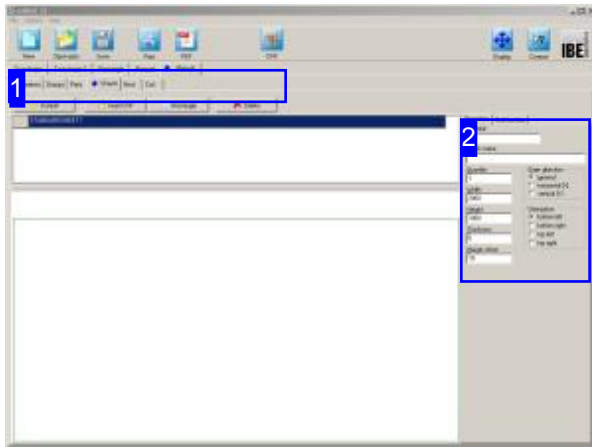
2.dxf
Thickness=0.00 Material=

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 in chapter 'Workpiece properties'. You can also still change the required quantity of parts here.

Mark the checkbox if the part can have common cuts with others.



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

Stock name

Quantity

Width

Height

Thickness

Margin offset

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

Min. torch offset

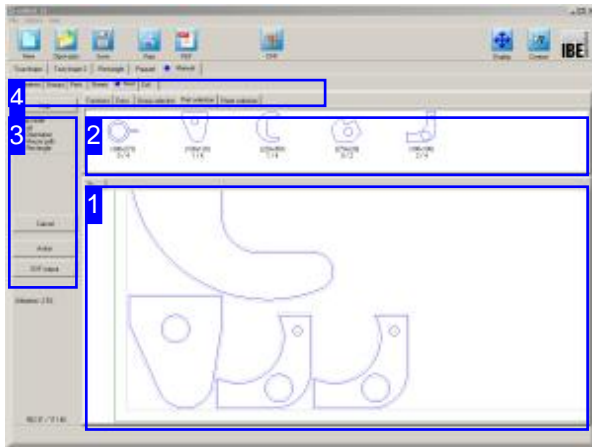
Rounding factor (0.0, 0.01, 0.1 .. 1.0)

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.



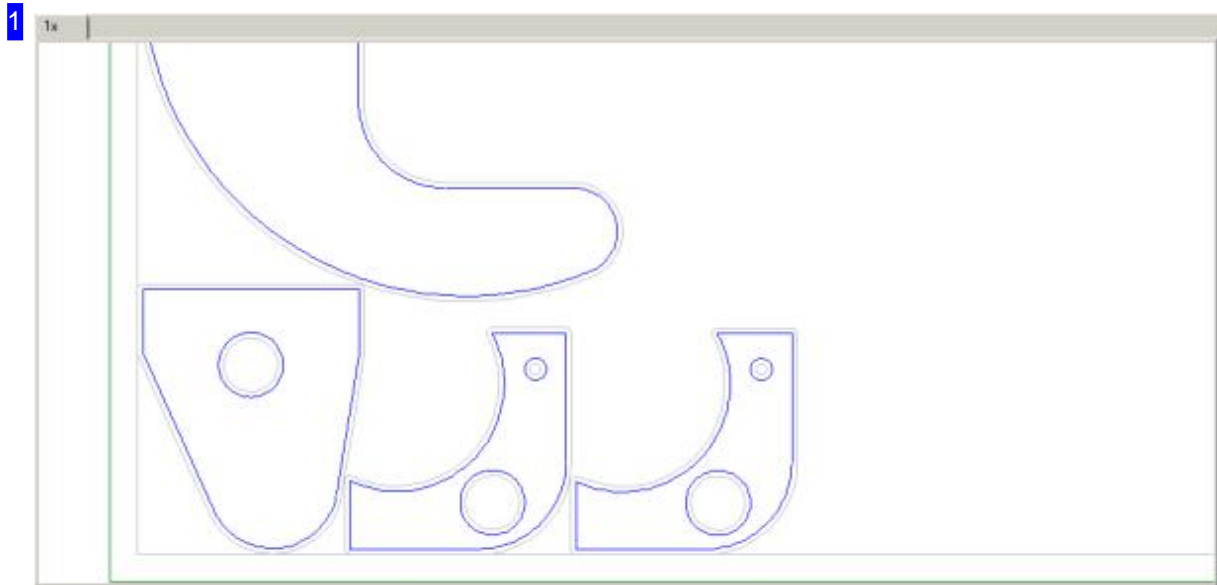
The top frame [2] shows all parts which you have selected for nesting. You can now place these parts on the sheet [1], positioning them individually or in groups. Select a snap-mode [3] to tell the program how to position parts relative to one another.

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.

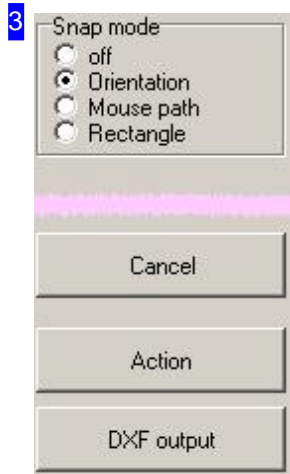
You can move parts by simply dragging and dropping. When you release the mouse button, the part will be positioned according to the rules of the current snap-mode.

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.



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.



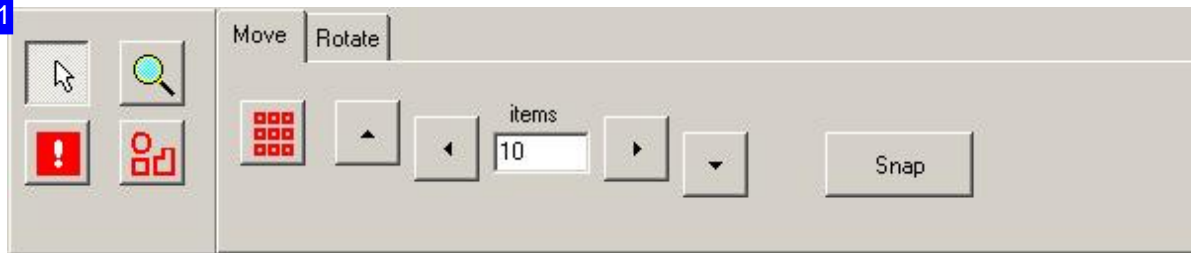
The tabs lead to the following individual work areas:

- 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 Select groups.
 - o Select Sheets .

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



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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.



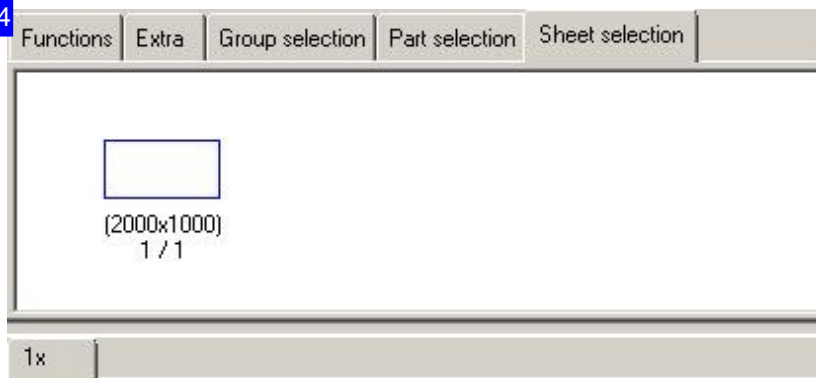
43



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.

44



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.



5

Cut out CTRL + Del	
Copy	CTRL + Insert
Delete	Del
Rotate	+/- CTRL + scrollwheel
Mirror part	M
Align 2 lines	A
Stretch area	▶
Multi-torches	▶
Ungroup	
Delete sheet	
Sheet quantity	▶
Delete outside lying parts	
Let sag	
True-shape nest remaining parts	

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.

'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>.

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.

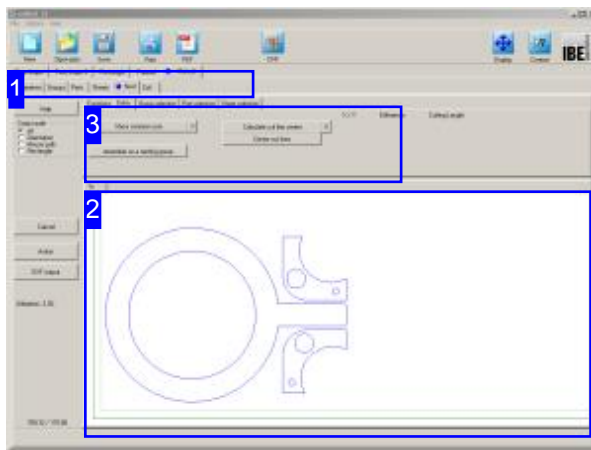
You can subsequently optimize a manual nesting with the 'Let sag' function. The parts are pushed together to a minimum and spaces are compressed by the function. The setting values for the distances are taken into account.

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

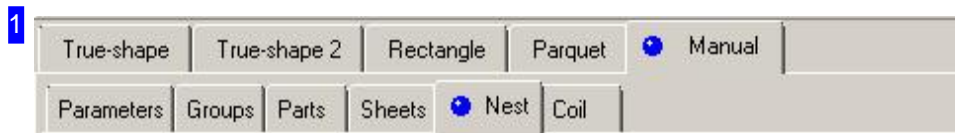
Parts partially nest in a group.



Put parts together to groups in manual nesting. Create a group arbitrarily by the rules of manual nesting and memorise it under the tab 'extra' [3]. The groups must be released in the 'Group properties' when used in regular nesting; mark the checkbox.

You can put different parts in manual nesting and group them to partial nesting plans.

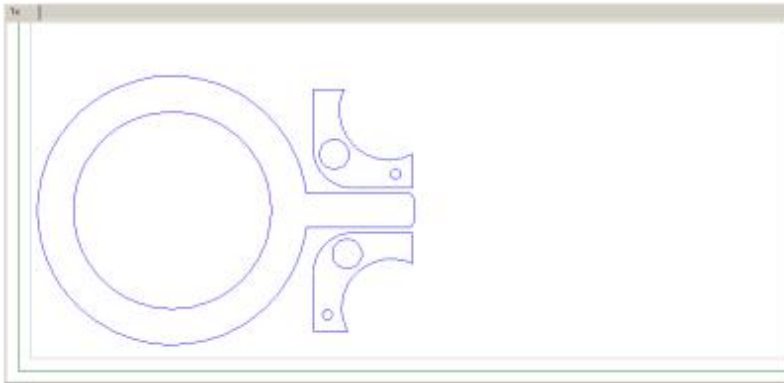
The parts then can fully be nested in these groups when covered by these groups, when creating nesting plans in regular operation. The groups can be used in shape nesting, in rectangular box nesting and in manual nesting. The permitted groups are automatically found by the program and offered under the 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.



Select manual nesting for creating a nesting group. Take all parts of your choice and any sheet as working field and use all the features of manual nesting for adjusting a group.

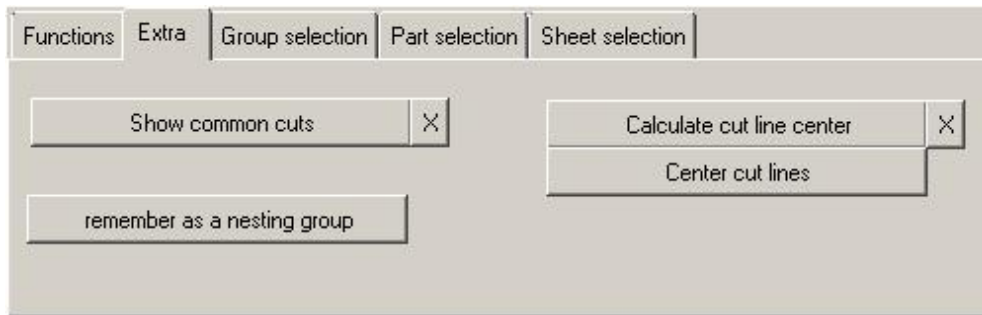


2



The preview shows the nested group. Select 'Extra' [3] when the layout is what you want.

3

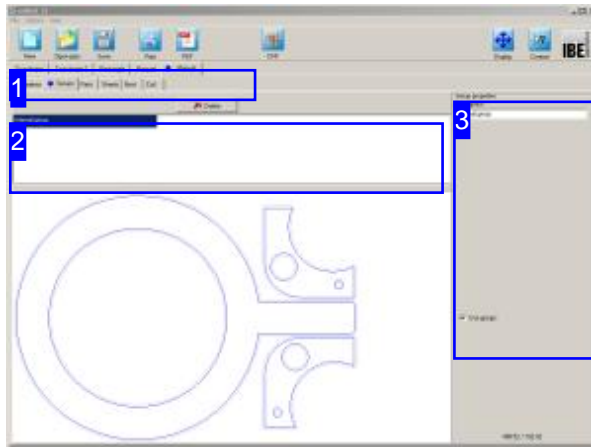


Clicking on 'Remember as a nesting group' on the left, the partial nesting plan will be saved and can be used as a group in regular nesting.

You get information about 'centroid of lines' in shape nesting.



Group Properties.



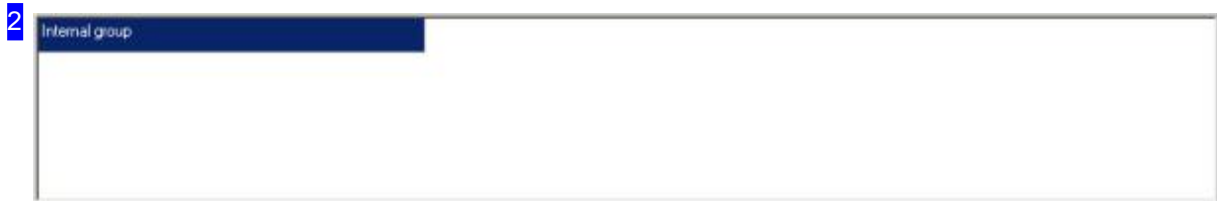
All relevant groups are displayed in the upper frame [2]. Select a group and the properties for the group are displayed in the right frame [3].

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

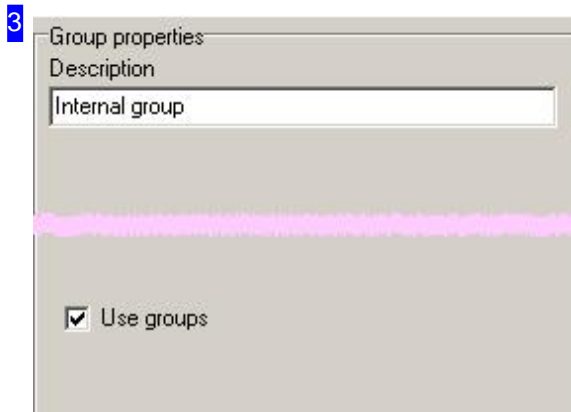
This window displays all groups that are covered by the selection of the workpieces and the number of parts to produce. Groups can be used under the shape nesting, the rectangular nesting and the manual nesting, if the use is enabled in the common settings. The field is equal in all nesting types.



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. You create the groups themselves in manual nesting.



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].

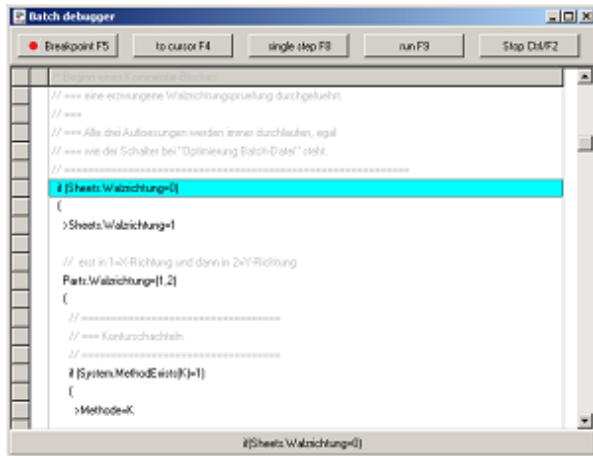


The properties of a group. Above the group name and in midfield a selection for the use of the group. If the group is taken into account during nesting, mark the selection. You have the opportunity to operate each single group individually.

It is recommended to choose a name with a reference to the content of the group to associate them better in the later use.

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.

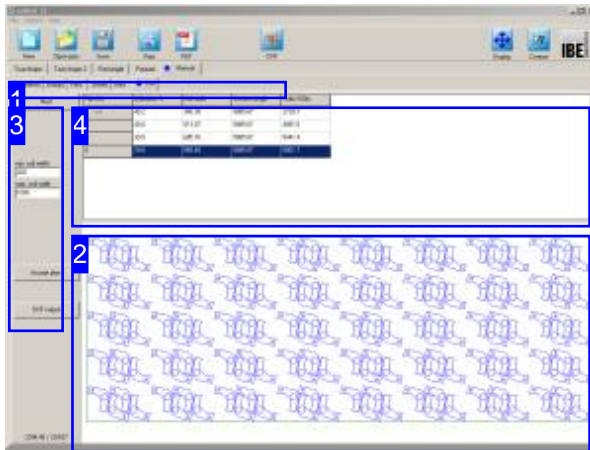
Conditions can be processed by blocks of 'if-', 'elseif'- and 'else'. You can retrieve system data like System, Sheets and Parts, also system functions like MethodExists (), where you can check the existance of a valid nesting method, i.e. a valid license is present and enabled by the dongle.

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.



Coil nesting

Parts nested as a long band.



'Coils' are rolls of metal sheet beaten out as a long band - imagine the paper used in a printing press. These are used in many industrial processes. As a rule these bands are very large and heavy, and whole coils can only be delivered by special trucks. These are then cut down to more manageable sizes for resale as strips or rings, which customers can order to their own dimensions as required.

ncNest offers a special nesting type which allows you to determine the optimal width of a strip to order. This process lays parts out on a virtual sheet with a pre-determined length (required to keep the mathematics possible). From this nest, the software calculates the optimum strip width, and displays the utilization across this width. The software calculates the number of parts which can fit on a length from 100 meters of material, and seeks the optimum. There are several pattern of different widths as result, from which one pattern can be selected.

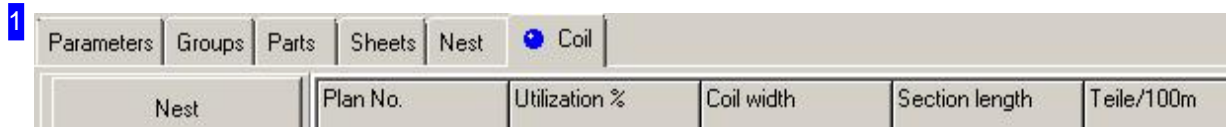
Coil nesting will usually use parquet or manual nesting as the basis for it algorithms. These methods allow for pair-building, and pairs can then be laid out optimally for coil nesting in strips across the material's width.

Parquet nesting always offers more pair-building options, but due to the nesting method these will always have a diagonal alignment. These pairs are well-suited as a basis for modifying to individual requirements using the manual nesting routine. Pairs from parquet nesting can be readily split in the manual nesting routine, edited and re-paired ready for endless processing from a coil.

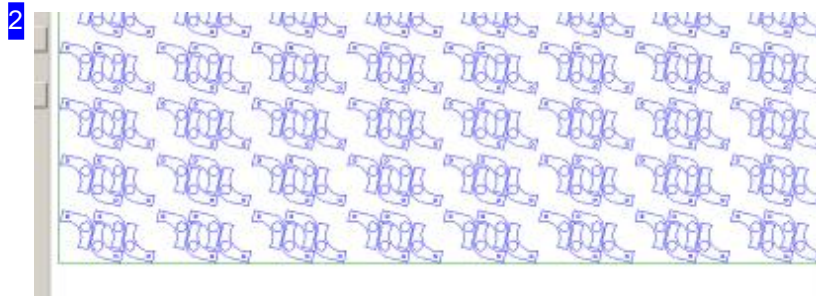
Try out the 'stretch area' function. This can help you layout a part or parts group across a width, with a good level grouping line suitable for coil nesting.

When nesting you can also use a parallelogram. This can lead to better nesting results. Try nesting with both conditions to see which works best in any given case.

The preview [2] shows the nesting result. All pattern are shown in the list above [4] including the data for nesting.



You will find a tab 'coil' in the tab parquet nesting and manual nesting. Use it to access the coil nesting workspace.



This frame shows the sheet with nested parts. Use the mouse wheel to zoom in for a closer look. You will always be offered multiple possible parquets. Select one of these options from the results list [4] to view a preview of it.



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]. You can define a range for the coils in the input fields under which a parquett is to be calculated.



4

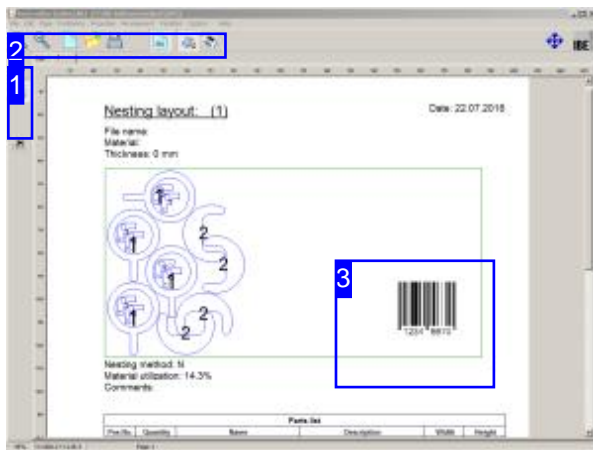
Plan No.	Utilization %	Coil width	Section length	Teile/100m
1 -->>	40.2	340.38	5885.87	2720.7
2	40.0	513.07	5885.87	4081.0
3	39.9	685.76	5885.87	5441.4
4	39.8	858.45	5885.87	6801.7

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



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.

ncNest'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.

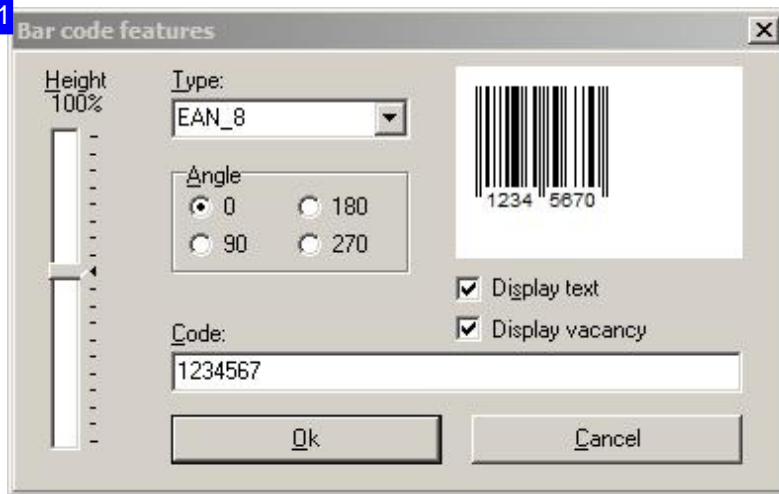
3



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.



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