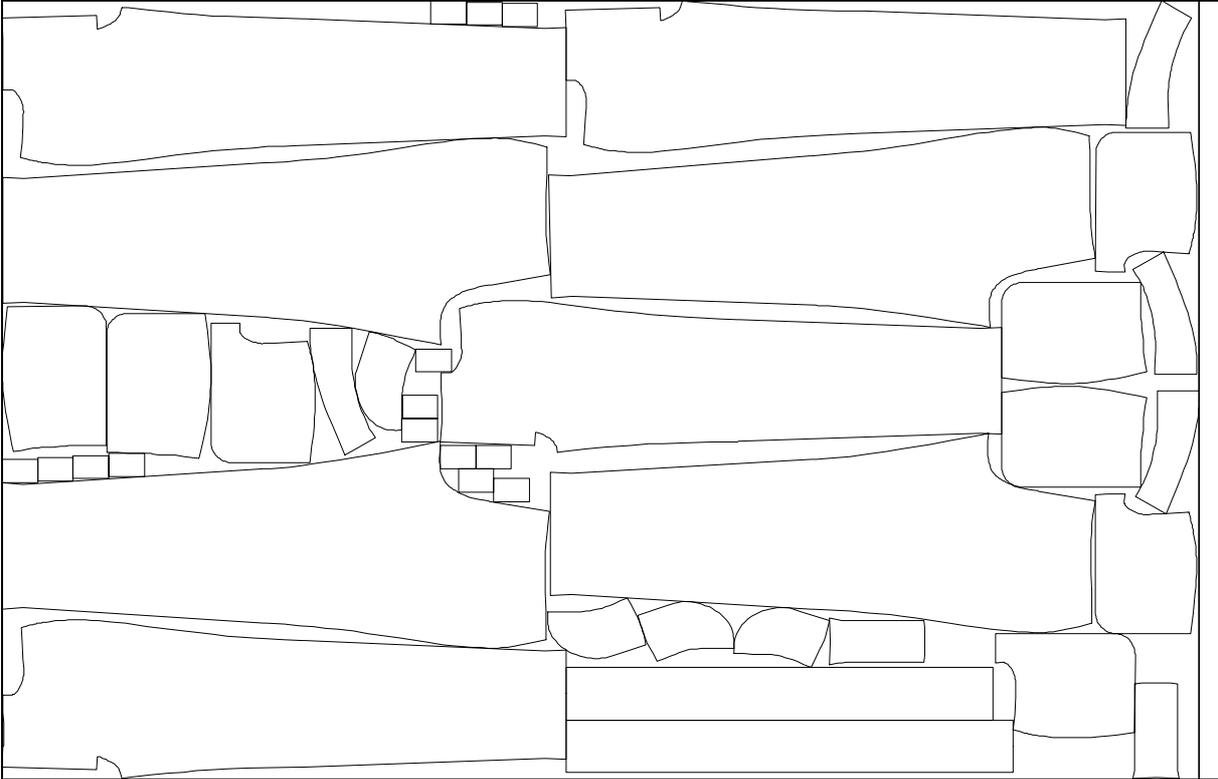


Chapter 17 „Layplanning II“

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Not every user will require all the options available for application in the layplan. The special application options are summed up in this chapter. The optimum way of working is often found, only in a direct dialogue between the expert in the company or the user and a GRAFIS expert, as company-specific requirements can often be fulfilled with a number of functions and procedures. The aim is to find the fastest and safest method of working.



17.1 Alterations to the production style

Layplan - alteration service for production styles

When opening a layplan which has been created from a production style without connection parts, i.e. created directly from a style of the GRAFIS Construction, GRAFIS checks whether the original style has been altered and offers updating of the style, if necessary.

Layplan - alteration service for production styles of connection parts

When opening a layplan which has been created from a production style of connection parts, GRAFIS checks for each connection part whether the source style is still available and the piece in the source style is unchanged. If this is not the case, the user is informed and asked whether the altered pieces are to be updated, if necessary.

Alteration service for connection parts

Connection parts are parts inserted into the style in the part organisation via *insert connection*. They are marked with the character „>“ in the part list (*Production Style | Part List*) (Picture 17-1). The part

connection		number	visible	text	normal/mirrored	material
*		001		basic		-
		002	x	skirt bk	1 1	O
		003	x	skirt centre ft	1 1	S
		004	x	skirt side ft	1 1	S
!>		005	x	waistband	1 0	O
		006	x	skirt ft lining	1 0	L
!>		007	x	skirt ft lining	1 1	L
?>		008	x	inlay	1 0	O
		009	x	NN		-

Picture 17-1

parameter of the selected piece appear with *+part par*. For each connection part, date / time of last edit and the source style and path are saved (Picture 17-2).

GRAFIS - Piece Parameter

Piece type
 Draft piece (not to be cut)
 Production piece

Material: S self

Amount: 1 normal, 0 mirrored
 total: 1 per style

Piece category: []

last edit: 16.05.2001 17:18:22

Source style: C:\... \basis_d... \alpha\rockt1.mdl

Picture 17-2

When loading a production style, layplan and opening the part organisation, GRAFIS checks for each connection part whether the source style is still available and whether the source part is unchanged. If a question mark „?“ appears in addition to the connection part mark „>“, it indicates that the source style or the source part are no longer available. The exclamation mark „!“ indicates that the source part has been altered. A layplan can continue to be layed with the already loaded pieces and sizes, irrespective of this. This also applies if the construction style is no longer available.

A new connection can be set by clicking the button



on the right of the path to the source style in the part parameter window. Select the new source style and the new connection part.

Update single part / all parts (for connection parts, only)

To update single connection parts, open the *Part Organisation* from the pull-down menu *Production Style*, select the respective part and click on *update connection*. Depending on the setting of the *+/-part info* switch, the part parameters are also updated. The text box is always updated. The function *update connection* should be applied, especially if only individual pieces of the part organisation are marked with „!“ or if some parts are to remain in their unchanged state.

Updating all connection parts of the production style is started from the pull-down menu *Production Style* with *Update All Parts* or *Update All Parts (with part info)*.

After having updated the pieces, the already placed layplan remains existent. If overlapping or gaps occur, the layplan must be reprocessed.

Add pieces

Individual pieces can be added in *Production Style | Part Organisation* as follows: First, a new empty part is created with *open* or *insert*. The piece is inserted with *insert connection*, provided all required sizes are available.

Add style

With *Production Style | Add Style* the part list is extended by the parts of a complete style. All parts of the selected style are added to the end of the part list. Prerequisite for adding a style is that all required sizes are available in the style.

Replace style

Production Style | *Replace Style* replaces the complete production style with a new production style to be selected. The part parameter and the content of the text box are replaced, also. The layplan information and the layout data of the layplan remain intact. Prerequisite for replacing a style is that all required sizes are available and the assignment of the pieces is identical.

Add sizes

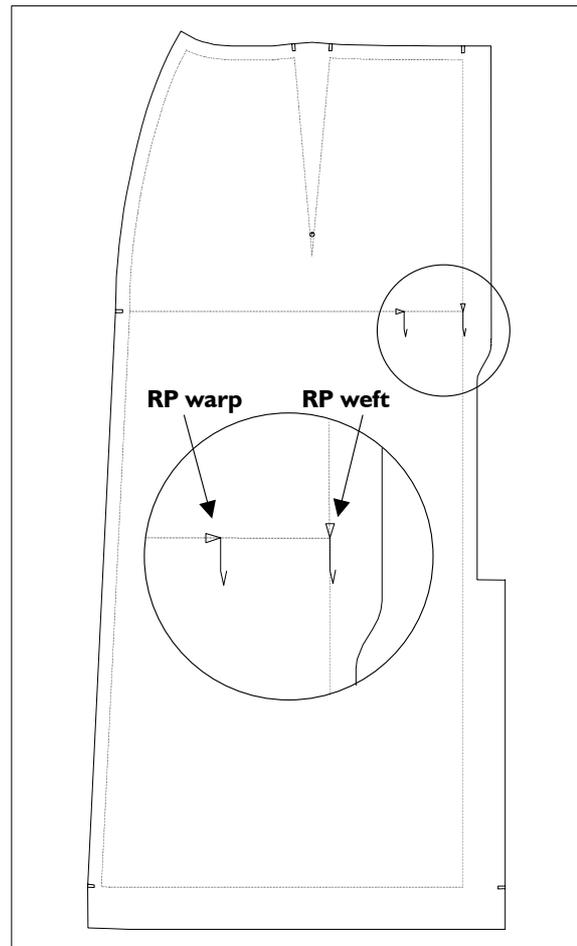
Before adding one or more sizes, check in the GRAFIS Construction that the parts have been graded in the respective sizes in the source style. If not, grade all parts in all sizes of the layplan and re-save the construction style under the same name. In the GRAFIS Layplan, click on *Size Table* in the pull-down menu *Production Style* and add the missing sizes. However, the size table can only be opened if no layplan information has been entered and no layplan is available. The outlines of the added sizes are only transferred after having updated the pieces with *Production Style* | *Update All Parts*.

17.2 Repeat

Set symbols in the construction style

If a pattern piece is to be matched in warp and/or weft, the symbols „RP warp“ (for repeat point warp) and „RP weft“ (for repeat point weft) are to be set (Picture 17-3). The long line of both symbols indicates the grain / warp direction in which the symbols are to be aligned. The peak of the triangle points in the direction of the repeat line: for „RP warp“ in direction of the grain line; for „RP weft“ vertical to the grain. Thus, the significance of the symbol can be seen by its shape.

If you are working with an adjusted SYMBOLE.SYS which does not correspond with the GRAFIS delivery, the symbol number must be adjusted in the GRAFIS.INI file. In the section [SYMBOL], the numbers of the symbols for grain line (GRAINLINE=13), for repeat point warp (RAPPORTX=17) and for repeat point weft (RAPPORTY=16) can be set. It is advisable to work with the standard settings as otherwise, when sending your styles to other GRAFIS users, the styles have to be reprocessed.



Picture 17-3

Repeat in the layplan

In the file card *Material* under *Layplan information*, it is determined whether the material has a repeat in „warp“ (repeat lines in direction grain line) or/and in „weft“ (repeat lines vertical to the grain). The fields for „distance“ and „offset“ of the repeat are only active when the check mark for „warp“ and/or „weft“ has been set. „Distance“ gives the distance between the repeat lines. „Offset“ shows the distance of the first repeat line from the edge of the material (from the left or bottom).

In all pieces to be matched, the repeat symbols must be set.

During layplanning, the repeat lines are only displayed if they have been switched on under *Layplan* | *Options*. Output of repeat lines for plot / print is set in the „plot layplan“ dialogue (Picture 16-14). For plot output, the repeat lines can be set to appear as short lines, only at the edge of the material with *Edit* | *Settings*.

17.3 Shrinkage

Shrinkage values (global)

Many materials shrink after being steamed or washed. As the patterns are developed for the finished garment, the shrinkage of the material must be considered before cutting.

Enter the shrinkage values in warp or weft in the layplan information on the *Material* file card in the „shrinkage values (global)“ area after having set the respective check mark. Negative values are permitted, also if the material is stretched during processing. The pieces are placed in stretched / shrunk form. Changing the shrinkage values for already placed pieces results in overlapping / gaps. Placed pieces have to be repositioned.

Shrinkage values for the piece

Also during fusing with interlining the material may undergo changes. As not all pieces are fused, shrinkage must also be adjustable for individual pieces.

If the values for shrinkage have been set on the *Material* file card, one of the following piece-specific options can be selected on the *Pieces* file card:

- for piece and buffer
The shrinkage values relate to the piece outline and the buffer line.
- for buffer line, only
The shrinkage values apply to the buffer line, only. In this case, the original outline remains unchanged.
- do not apply
The shrinkage values are not applied to this piece.

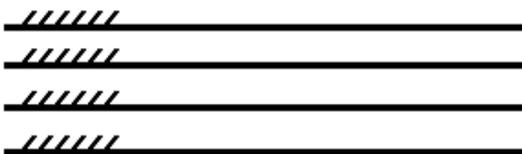
17.4 Laying up type

In the file card *Material* in section „laying up type“, the spread type for the material and the bundle direction is selected.

Laying up types

The following *laying up types* are available for the *material*:

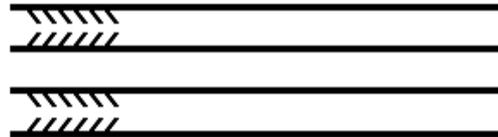
- **right-left** or „**open**“ is used for single-ply and multiple-ply cutting. This is the most common spread type (Picture 17-4). The individual layers of fabric lie in the same direction with the same



Picture 17-4

side facing upwards. Automatic spreaders lay one ply, cut off at the end, return to the beginning and lay the next ply in the same way on top. Patterns or a possible pile face upwards in all layers.

- **right-right** is used for multiple-ply cutting (Picture 17-5). The individual layers of fabric all face the same direction but with the other side upwards. Automatic spreaders lay one ply, cut

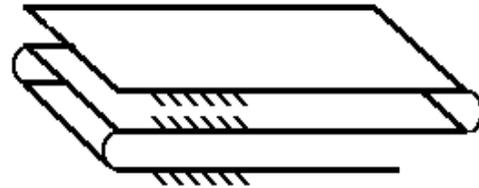


Picture 17-5

off at the end, return to the beginning and lay the next ply turned over (with the right side facing down). Patterns or possible pile face alternatively up or down (see sketch).

The pieces are placed unflipped as the flipped piece is taken from the turned ply. With the laying up type right-right, layplans can be created for **zig-zag** lays, also (Picture 17-6).

As opposed to the laying up type right-right, the ply is not cut off at the end. A right-right layer is



Picture 17-6

followed by a left-left layer. Zig-zag laying is unsuitable for materials with a sheen or pile.

- **Folded** laying up means a material of 1,50 m width is folded along its length (Picture 17-7). The layplan is only 0,75 m wide and has a fold. Symmetrical pieces can be placed at the fold.



Picture 17-7

Symmetrical pieces must be marked with a check mark on the *Pieces* file card in the *Layplan information*. This check mark can only be set for pieces which are not flipped.

In GRAFIS, the material appears unfolded but the pieces can only be placed on the lower half of the material. Flipped pieces automatically appear in the upper half of the material. Symmetrical

pieces have to be dragged to the fold, only. They will then appear placed on the fold.

- **Tubular fabric** is material in tubular form of half width (Picture 17-8). As opposed to the laying



Picture 17-8

up type folded, the layplan has two folds. Everything else is identical.

Bundle direction

For each of the laying up A _____ 38_0
types mentioned, three B _____ 38_0
bundle directions can be C _____ 40_0
selected. The individual sizes, D _____ 40_0
which may appear more than E _____ 40_0
once, are arranged in bundles. Picture 17-9

All pattern pieces of one garment are given one bundle letter (Picture 17-9). The options for the bundle direction relate to the question „Where does the hem of the bundle lie?“.

- **different bundles - different direction (two-way)** is used for material without sheen/pile, without check and without a directional pattern. Bundle A has the hem on the left, bundle B on the right, bundle C has the hem on the left and so on.
- **all bundles – same direction (one-way)** is used for directional patterns (e.g. a face) which cannot be rotated.
- **same sizes – same direction** is used for material with sheen/pile but without directional pattern. This option ensures that pieces, accidentally picked from another bundle of the same size still have identical sheen direction. All bundles of size 38 would have the hem on the left, for example; all sizes 40 would have the hem on the right etc.

17.5 Fault areas

For faulty material, up to three (also regular) fault areas can be defined and considered during layplanning. The respective settings are made in the layplan information on the *Material* file card. After having checked „consider material fault“, the button „set values“ is active and can be clicked. The

Fault areas	No.1	No.2	No.3	
at weft (y)	500			mm
width (dy)	20			mm
at warp (x)		300		mm
Length (dx)		15		mm
Repeat (in x)				mm
	X	X	X	

Show fault areas only (placing allowed)

Selvedge

Width (dy)	top	5	mm
	bottom	5	mm

Close

Picture 17-10

following is to be entered in the next window for each fault area (Picture 17-10):

- at warp (y) start from lower edge
- width (dy) width of fault area
- at weft (x) start from left edge
- length (dx) length of fault area
- repeat (in x) distance between the starting points of regular fault areas

The entered fault areas are indicated. With the check mark „display fault areas only“ determines whether pieces can be placed in the fault areas (check mark set) or whether they are excluded from layplanning (check mark not set).

The width of the **selvedge** can also be entered in this window. It appears as a dashed line in the layplan and serves as an additional anchor line.

The settings for fault areas and selvedge remain ineffective, if the check mark for „consider material fault“ on the *Material* file card is not set.

17.6 Categories

With categories, piece-specific layout parameters, especially buffer can be categorised. Prerequisite for the use of categories is the existence of company-specific rules for buffers, e.g. in particular for sleeves, collars, cuffs loops etc. For each category, the parameter on the *Pieces* file card of the layplan information can be set. These are:

- fixed settings: rotation angle, flip about x, flip about y
- allowances during layplanning: tolerance angle, flip about x or y, rotate through $180^\circ/\pm 90^\circ/\pm 45^\circ$
- buffer at top/ bottom/ right/ left
- application of the buffer: as invisible safety margin, buffer line as cut line or reduce piece by the buffer amount
- apply shrinkage values of the material to the piece and the material, to the buffer, only or not at all.

Set up categories

The category names are saved as measure group 999 in the file MASSCODE.DAT (directory \GRAFIS). Before possible use of the MassCode Managers, at least the name for group „999.000.044“ must be assigned with Notepad. The name of the category can contain letters and numbers. Below, an extract from a MASSCODE.DAT as example:

```
!----- Group 999
999.000.044      categories

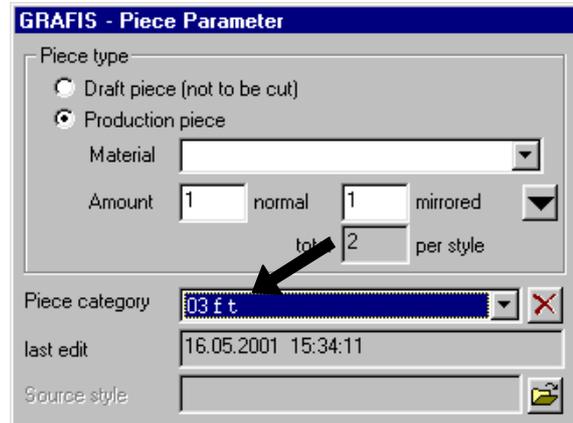
999.001.044      01 ft
999.002.044      02 ft
...
999.010.044      10 bk
999.011.044      11 bk
...
999.020.044      20 one-piece sl.
999.021.044      21 top sleeve
999.022.044      22 under sleeve
999.023.044      23 cuff
999.024.044      24 cuff
```

Alternatively, without consecutive numbers in the category name:

```
!----- Group 999
999.000.044      categories

999.001.044      --
999.002.044      -B
...
999.010.044      SB
999.011.044      L-
```

After having saved the MassCode.dat, the categories can be assigned to pieces. Assigning ensues in the part organisation in the part parameter window (Picture 17-11), in construction style or in the production style.



Picture 17-11

Assign categories with piece-specific parameters

The procedure for assigning categories, for in GRAFIS Construction:

- Open new style.
- Construct a rectangle of any length in part 001.
- Duplicate part 001 until the part number is identical with the required number of categories.
- Set the attribute „production pattern“ for each part in the part organisation and assign consecutive piece categories (part 001 becomes the first category, part 002 the second category etc.).
- Save the style.

Now, the steps in GRAFIS Layplan follow:

- Open the new style.
- *Layplan Information | Pieces*
- Set all parameters to apply to the first category for part 001. For part 002, set all parameters to apply to the second category etc. until the last part.
- Button „Continue“, button „Close“
- Save this link between piece-specific parameters and the categories as a *.sbi file with *Layplan Information | Save As*
- If the parameters are also dependant on the material type, a number of these files can be set up.

In the *.sbi files, not all categories must be assigned. Later, the pieces are assigned with only the categories which have been set up in the *.sbi file. A *.sbi file is basically an empty layplan with an empty part list, similar to a format template for word-processing.

Load piece-specific parameter from a *.sbi file

To use pre-set layplan information / categories, the file card *Pieces* is to be opened for a loaded production style. The parameters can be transferred from the *.sbi file in two different variations:

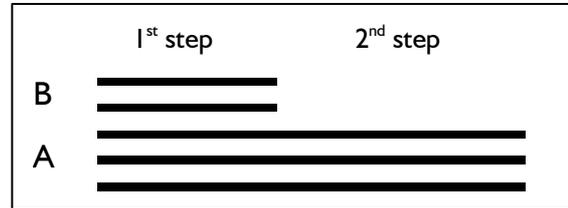
- A) All pieces of a production style which are assigned a category, are assigned with the parameters in the „buffer“ section, only (buffer at ri/le/top/bottom with two options). In this case, select the *.sbi file in the list or with the button „from file“ directly below pre-set buffer.
- B) All pieces of a production style which are assigned with a category, are assigned with all parameters in the sections „buffer“, „fixed settings“, „Allowance“ and „shrinkage values for the piece. In this case, select the *.sbi file in the list or with the button „from file“ directly below „pre-set (all)“.

Edit *.sbi file

To edit a *.sbi file, load the file via *Layplan Information | Open* and save after editing with *Layplan Information | Save*. Alterations only become effective after re-loading the piece-specific parameter of the edited *.sbi file.

17.8 Step lay (free mode)

The layplan type *step lay* is selected under *Layplan Information | Sizes*. In a step lay with two materials (Picture 17-12), the following sizes are to be layed:



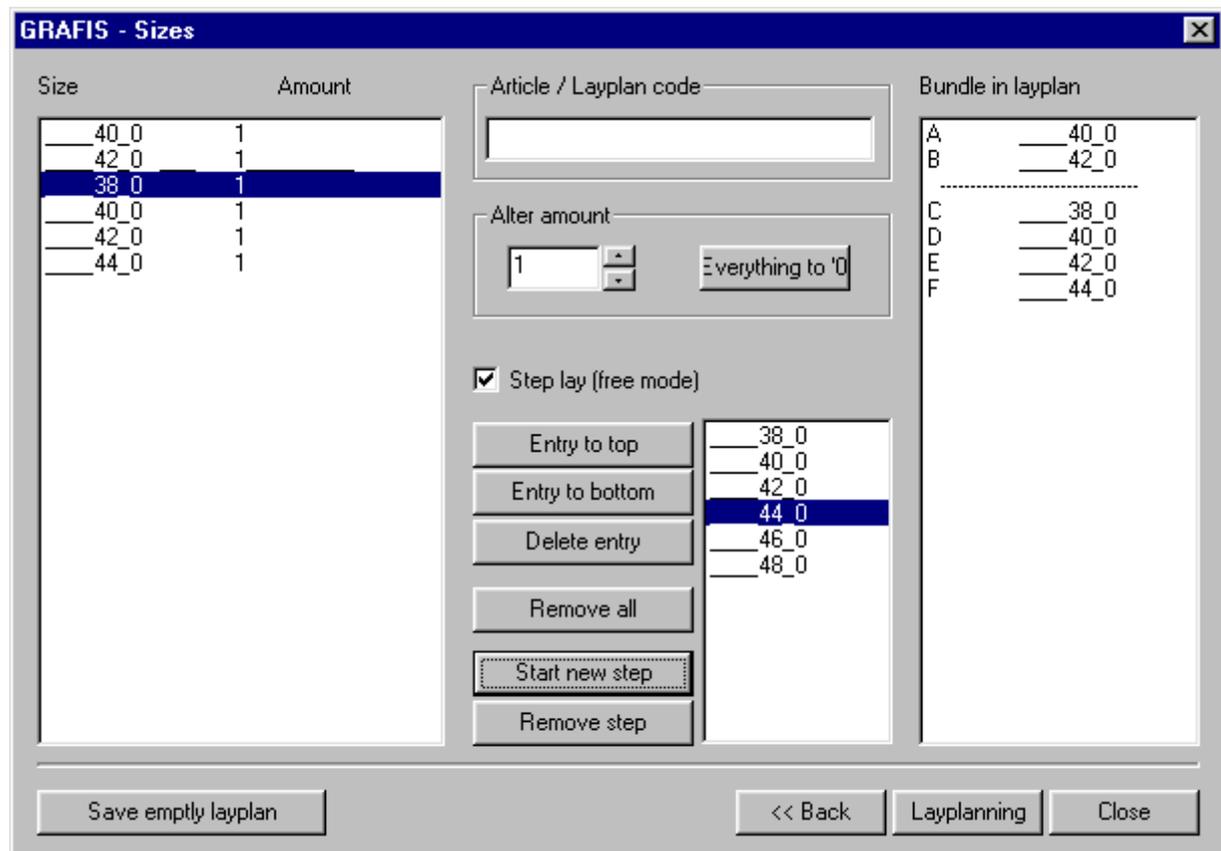
Picture 17-12

	Material A	Material B
size 38	1x	
size 40	2x	1x
size 42	2x	1x
size 44	1x	

The distribution of the sizes onto the different steps is to be optimised by the user. The example plan can be realised as follows:

	1 st step	2 nd step
size 38		1x
size 40	1x	1x
size 42	1x	1x
size 44		1x

After having checked „step lay (free mode)“ on the *Sizes* file card, additional buttons appear (Picture 17-13).



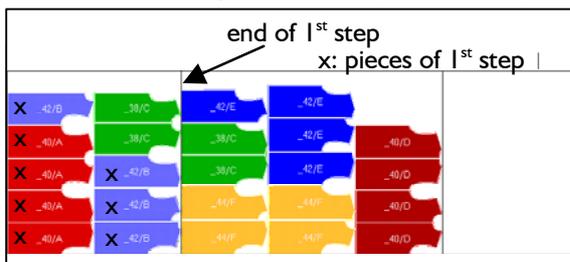
Picture 17-13

After „remove all“, first transfer the sizes for the first step and then, the sizes for the second step with double-click from the size list in the middle of the window. Then, select the first size of the second step (here: 38) and click on „start new step“. After entry of the required amount, the bundles appear on the right. A continuous line in the left and right window marks the start of the new step. All pieces of bundles A and B belong to the first step, all other pieces to the second.

40_0	A	1	1	1	1
42_0	B	1	1	1	1
38_0	C	1	1	1	1
40_0	D	1	1	1	1
42_0	E	1	1	1	1
44_0	F	1	1	1	1

Picture 17-14

During layplanning, the sizes are offered, separately for the different steps in the rack (Picture 17-14).



Picture 17-15

The end of the first step is marked, automatically in

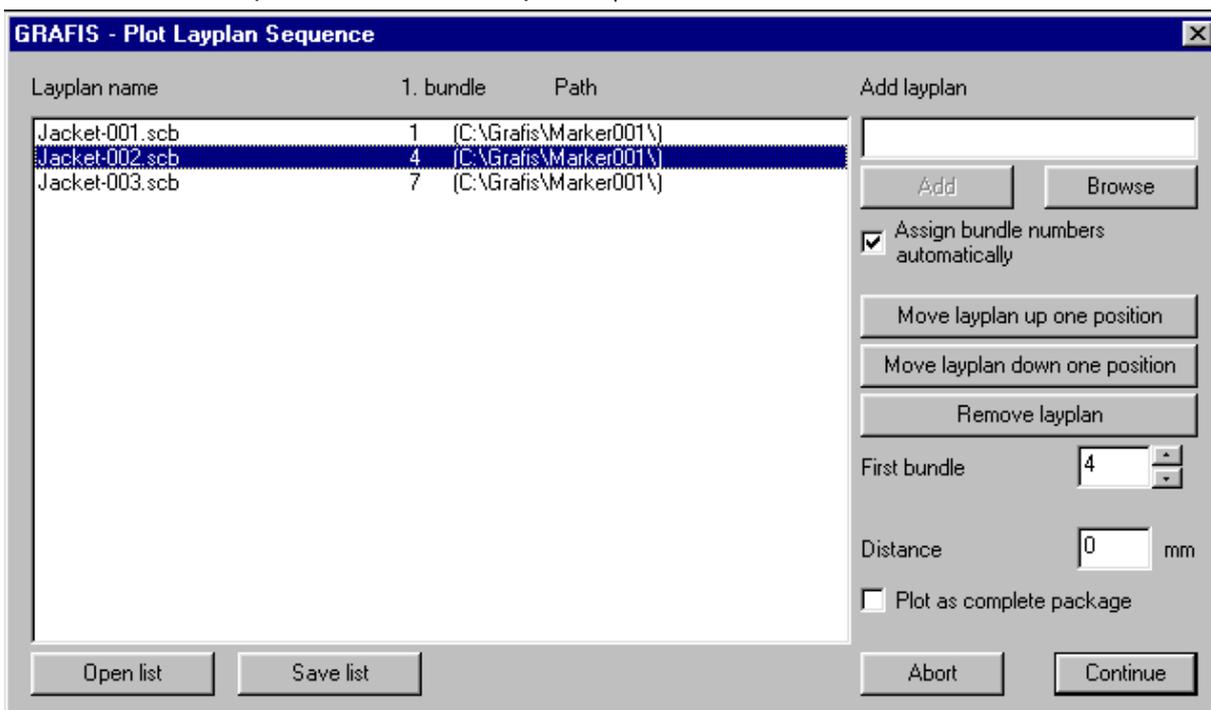
the layplan. It is situated at the right edge of the piece furthestmost to the right of the first step (Picture 17-15). The layplan can be interlocked. The end of the step(s) are marked at the edge when plotting.

17.7 Layplan sequence

A number of layplans can be plotted in sequence. This function is required for plotting multiple size layplans as a layplan sequence, but also for quick output of „mini markers“ for control purposes. The individual layplans are to be prepared in GRAFIS and are to be saved as layplan. Then, the layplan sequence is assembled via *File | Plot Layplan Sequence* and can be output, immediately if required. The function *File | Plot Layplan Sequence* is only active if no layplan and no production style are open. If *File | Plot Layplan Sequence* is inactive, the production style or the layplan must be closed via *File | Close*.

The individual layplans are loaded and arranged in the „plot layplan sequence“ window (Picture 17-16). For each layplan, the number of the first bundle is to be determined. An optional distance between the individual layplans can also be entered.

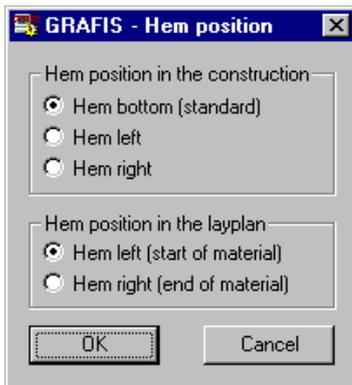
If required, a layplan sequence can be saved, temporarily with „save list“ and send for plotting, later.



Picture 17-16

17.9 Hem position

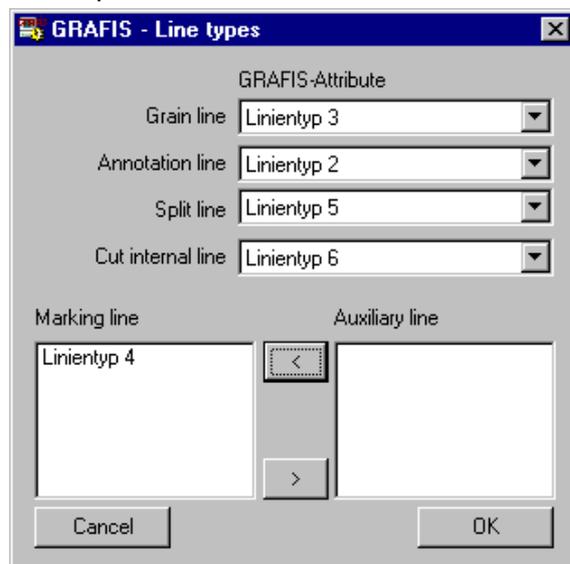
In the GRAFIS Setup, the hem position can be aligned between construction and layplan. Click on „Hem position“ on the *Other* file card in setup. The window shown in Picture 17-17 is opened. The piece is aligned according to the setting under „hem position in the construction“, only if no grain line symbol or grain line indicate the grain. The „hem position in the layplan“ always applies.



Picture 17-17

17.10 Line types

In the GRAFIS Setup, the five line types of the construction function *attributes* can be assigned a specific purpose which will be applied in the layplan. Click the button „line types“ on the *Other* file card in the setup.



Picture 17-18

It is possible to define one of the five line types as grain line. The grain line symbol takes precedence over a grain line. If the grain line is to apply for a piece, no grain line symbol must be set.

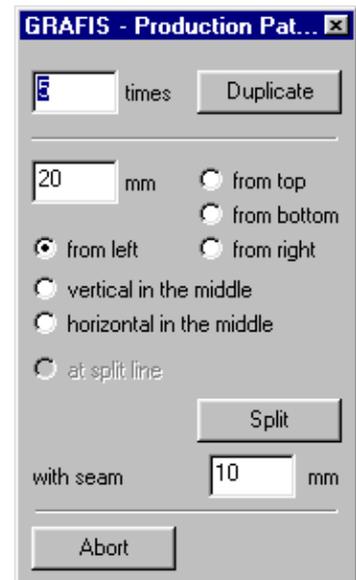
The optional **annotation line** is used to attach and centre the piece text, align it and - if necessary - reduce to the length of the line.

The optional **split line** can be used to split a piece in the layplan. During layplanning, activate „split piece“ from the right menu and click the piece with the right mouse button.

In the following dialogue (Picture 17-19), the split line can be selected as the cut line. The seam allowance can also be set.

The optional **cut internal lines** are cut during cutting and are always plotted.

During plot/print from the layplan, **marking lines** and/or **auxiliary lines** can be selected, additionally for output. Which line types are to be read as marking lines or auxiliary lines must be determined in the „line type“ window (Picture 17-18).



Picture 17-19

17.11 Material catalogue/ material pre-selection

A material catalogue for use in the *Material* file card of the layplan information can be set up. The material catalogue is saved as Material.dba under \GRAFIS. A separate programme for data entry is being created. Until then, the file can be edited with the editor Notepad.exe according to the following principle: In each line, the following information is to be entered, separated by Tab:

- consecutive number
- name of the material
- width in mm
- material type code
- repeat in warp in mm
- repeat in weft in mm
- offset for warp in mm
- offset for weft in mm

If the value for repeat in warp or weft is 0, no repeat is applied. In the future, the shrinkage values will also be included in the material catalogue.

17.12 Toolbox

The toolbox contains the most commonly used functions. It can be turned on/off in the *View* pull-down menu. The content of the toolbox is determined via entries in the GRAFIS.INI file. Further explanation can be found in the GRAFIS documentation and in GRAFIS Help.