

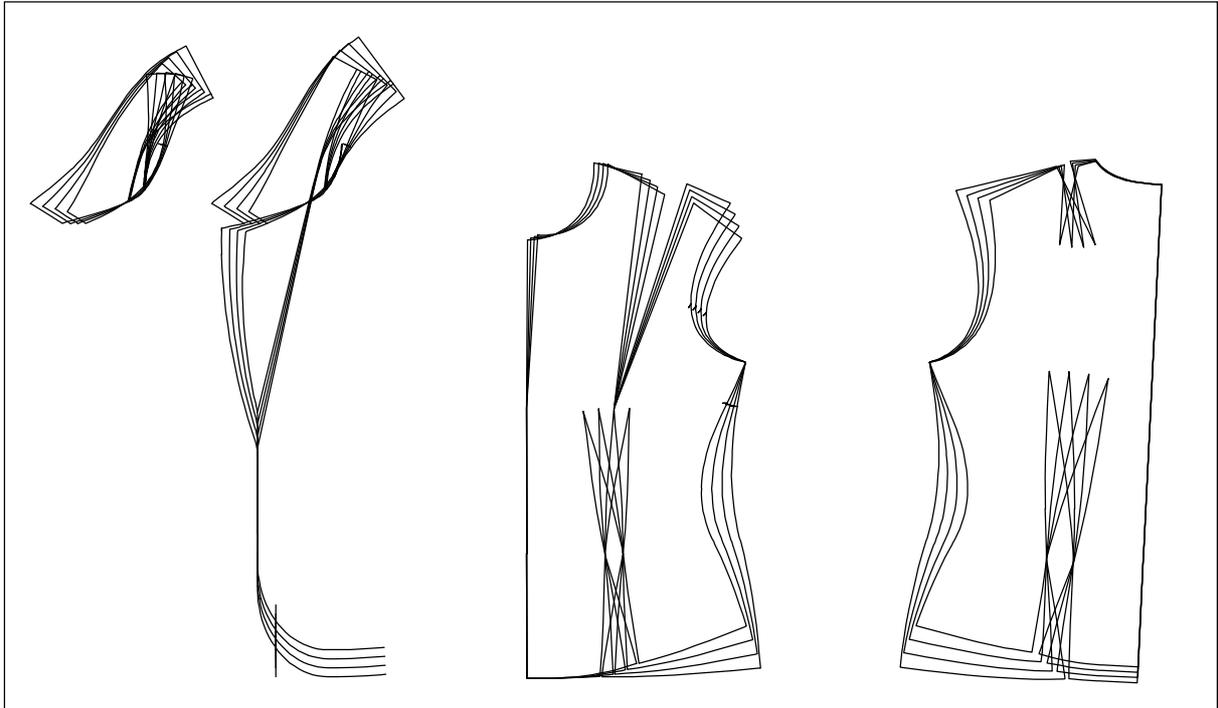
Chapter 13 „Interactive Constructions“

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From Version 9 Grafis is delivered with interactive constructions. These constructions are very flexible and can be called in a number of measurement systems. Content of this chapter is the handling and application of the interactive constructions.



13.1 Adjust interactive constructions

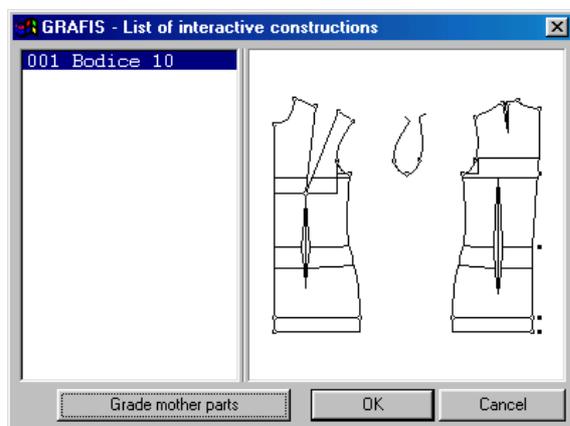
Step-by-step guide

- ⇒ Call construction (see section 1.3)
- ⇒ Activate construction with double-click or from the overview with <F12>
- ⇒ Set options for the construction
- ⇒ Activate drag areas and adjust the construction; use *raster* and also *compare*.

Activate construction

All constructions loaded into the style can be activated with either

- double-click on the respective construction or
- <F12> in the list of interactive constructions (Picture 13-1).



Picture 13-1

The list of interactive constructions (Picture 13-1) contains all constructions called into the style and the number of the part into which they were called.

They are listed according to part numbers. The window on the right contains a preview of the selected construction. A construction is activated with double-click or selection and *OK*.

Set options

After having activated a construction the menu displayed on the right of this page appears.

There are a greater or smaller number of options available for each construction. The list of options (Picture 13-2) opens by switching to *+options* in the right menu. The options window can be resized as required. A scroll bar appears at the edge of the window if not all options are visible. The active option is highlighted. Using the arrow keys, the mouse wheel or altering the slider to the left of the image alters the active option. A different option is selected by clicking.

The alteration of an option is immediately applied to the construction behind. We recommend working with a reduced option window so that you can follow the alterations to the construction.

Exercise

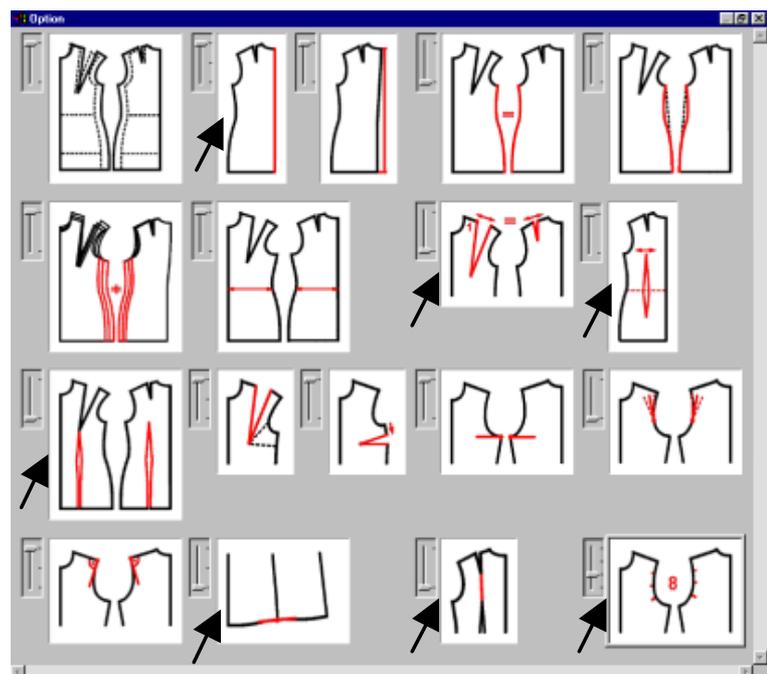
Open a new style and call the basic block „Grafis Bodice 10“ into part 001. Activate the construction. Set the following options (Picture 13-2):

- Centre back fold
- Position shoulder dart as bust dart: yes
- Position waist dart back relative to waist
- Length waist dart to hem: yes
- Hem direction at side seam linked
- Panel seam in the back: yes
- Armhole divided into 8 segments

Drag areas

Each construction has one or more drag areas. The drag areas are selected via the context menu which opens with right mouse click. The drag areas were introduced to give greater control so that not too many points can be altered at the same time. After having activated an interactive construction the first drag area is active. It is indicated by a tick mark in the context menu (Picture 13-3).

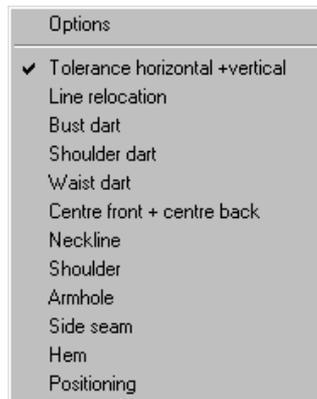
shape: load save
break size
raster: *00 01 05 10 25 50
- magnet
- ruler
display: +values
- comments
- options
- measmnt set
- compare set
- stack set
00 ← 0 →
abort
end



Picture 13-2

Drag points

In the drag area small red points appear at the construction. With these so-called drag points the construction can be altered interactively. Close to a drag point a symbol at the cursor indicates how this drag point can alter the construction. The following symbols may appear:

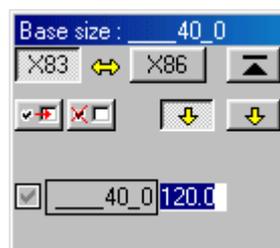


Picture 13-3

The drag point is moved ...	
	free
	in x direction only
	in y direction only
	free, symmetrical
	in x direction only, symmetrical
	in y direction only, symmetrical
	free, asymmetrical
	in x direction only, asymmetrical
	in y direction only, asymmetrical
The curve is altered ...	
	free
	symmetrical
	asymmetrical
The angle is altered ...	
	free
	symmetrical
	asymmetrical
	The point slides along a line.

A drag point is activated by clicking. The point additionally marked with a green rectangle is the **active drag point**.

The **value window** (Picture 13-4) contains the values for the active drag point. Only one or two size-dependent values can exist per drag point. Two values exist only if the point can be moved free in x and y direction with .



Picture 13-4

Dragging a point

Each drag point can be altered

- interactively by dragging the point or
- by entering a value directly into the value window.

When dragging a point interactively the **raster** can be switched on. Click on one of the numbers 00 01 05 10 25 50 in the menu on the right. The active grid is indicated with a * in front of the number. The value attached to the drag point behaves according to the selected grid. To deactivate the grid set it to *00.

With **+values** (after clicking this line in the menu on the right) the value is displayed at the cursor during dragging.

By clicking or at the end of the display: section you can **undo alteration steps** or **redo** them. „0“ corresponds with the original state.

Use of the comparison part

Switch to **+compare** displays a comparison part. This is either the construction at the state of change during the last click on **set** (below **+/-compare**) or the original state.

The comparison part is a separate part which is deleted only after quitting the drag menu. It can be positioned with <F3> or <F5>. If, for example you want to check the side seam contour, click on **compare set** and thus, generate a copy of the current state. With <F3> you can move, turn or flip the comparison part so that you can check the contour and adjust it at the same time.

Save/ load shape

Clicking shape: **save** saves the current adjustments of the construction as a shape. Clicking shape: **load** opens the list of available shapes for the construction. Shapes are saved with date, time, computer name and user name. Double-click opens a different shape from the list.

Exercise

For "Grafis Bodice 10", for which you have already set the options on page 2, adjust the following tolerances in the „Tolerance horizontal +vertical“ modification area:

- Bust: +60mm
- Waist: +55mm
- Hip: +60mm
- Across bust: +10mm
- Across back: +10mm
- Shoulder width front/back: +10mm

In the modification area „Line relocation“ set the style length to 750mm.

In the „Bust dart“ modification area, set the dart to 50% on the shoulder and add 5mm ease to the armhole.

Save the adjusted shape.

Carry out further modifications to the construction and save these again as a shape. Then, load the originally saved shape.

13.2 Size-dependent adjustment of interactive constructions

Step-by-step guide

- ⇒ assign size table with at least the sizes to be adjusted
- ⇒ activate construction with double-click or from the overview with <F12>
- ⇒ select the drag area in which drag points are to be adjusted size-dependently
- ⇒ open the „break sizes“ window by clicking on *break sizes* in the menu on the right
- ⇒ transfer break sizes
- ⇒ make size-dependent adjustments to individual drag points either
 - in each size or
 - in one size, maintaining the set increments.

The aids *stack* and *ruler* can be used during dragging.

How does drag work?

Each interactive construction is variably adjustable via a multitude of x values. As opposed to the x values of the construction record, the x values of the interactive construction are „visible“ through drag cursors. Moving a drag cursor alters one or two x values. You can see the value of the current x value and its number in the value window (Picture 13-4).

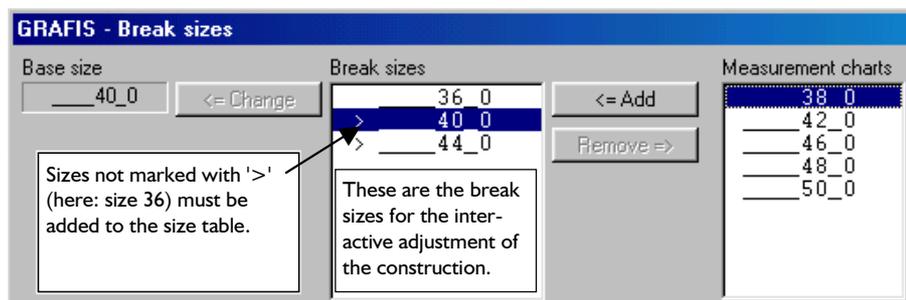
The construction is recalculated after each alteration of the value. The effect on the complete construction is immediately visible. As the logic of a construction, for example of a bodice, can be extensive, powerful computers should be used. Otherwise, the construction changes in jumps. If this is the case for you check whether a raster is active. If not, you should continue working on a computer with higher clock speed.

Size-dependent adjustment of an interactive construction means adjusting the x values of the construction depending on size, see Chapter 11.

Select break sizes

First, assign the size table with at least the sizes you probably need as break sizes. Then, activate the construction with double-click or with <F12> and select the drag area in which the drag points are to be adjusted size-dependently. Click on *break sizes* in the menu on the right. The „break sizes“ window opens (Picture 13-5).

Transfer the required break sizes from the list of available standard measurement charts on the right to the list of break sizes in the centre of the window. Sizes not marked with '>' (in Picture 13-5: size 36) must be added to the size table. Otherwise, the construction cannot be adjusted for these sizes.



Picture 13-5

Set new base size

The base size of the interactive construction is the size adjusted interactively if no further break size is activated. Originally, this is the base size of the construction system which is placed in the first position of the size table when opening a new style.

If a different size is placed in the first position of the size table and the base size of the construction system is not entered in the size table and activated, the first size in the size table is entered as base size when calling the construction.

The base size in the system Hohenstein Damen_5 is size 40. If you work with base size 42 for example for trousers only, it is sensible to enter the base size 42 for the interactive trouser construction. This is achieved by having only size 42 entered in the first position of the size table and active when calling the trouser construction. Or you set size 42 as base size in the „break sizes“ window after having called the construction. This setting applies to the respective interactive construction.

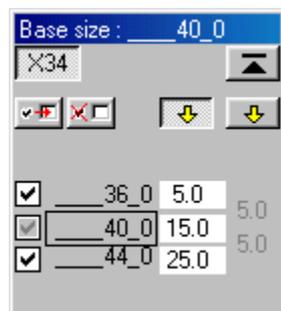
For example, if you keep size 40 as the base size for the interactive construction and develop the style with size 42 as base size you would always have to adjust both sizes during dragging.

Note: The base size is set globally in the third line in the file „grafis_s.kon“ of the respective construction system. This setting should only be changed if you always work with a different base size. Please note that this setting is reversed during updates.

The value window

<input checked="" type="checkbox"/> X34	With this drag point exactly one x value is adjusted.
<input checked="" type="checkbox"/> X58 <input checked="" type="checkbox"/> X59	With this drag point exactly two x values are adjusted, e.g. the x and y co-ordinate of a free moving point. The settings for only one x value are visible at a time.
<input type="checkbox"/> <input checked="" type="checkbox"/>	Minimise/ maximise the window
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Show all sizes.
<input checked="" type="checkbox"/> <input type="checkbox"/>	Hide all sizes except the active size.
<input checked="" type="checkbox"/> 40_0	Base size of the construction
<input type="checkbox"/> 36_0	This size is hidden. Clicking on the tick box in front of the size shows the size again.
<input checked="" type="checkbox"/> 36_0	The size is shown. Clicking the tick hides the size.

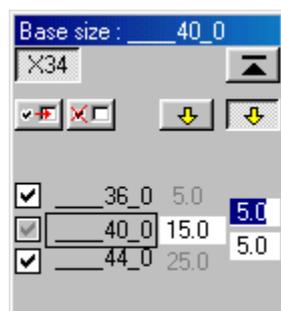
Click on the left of the two buttons . A value window according to Picture 13-6 appears. Each **size** can now be dragged **individually** or adjusted with values. Use this display option while no grade has been determined for this drag point.



Picture 13-6

After clicking on the right of the two buttons  the value window according to Picture 13-7 appears. In this display option you can

- edit the increments with numeric values or
- adjust one of the offered sizes interactively, maintaining the increments. The other sizes are altered respectively after release of the mouse button.



Picture 13-7

Use of set stack

The *stack* function can be used during interactive adjustment of a graded nest. After clicking on *set* immediately below *+/-stack* the stack point is determined. Clicking on the line *+/-stack* activates or deactivates the nest. All drag points can be adjusted on a stacked nest. Grafis takes into account the shift caused by stacking.

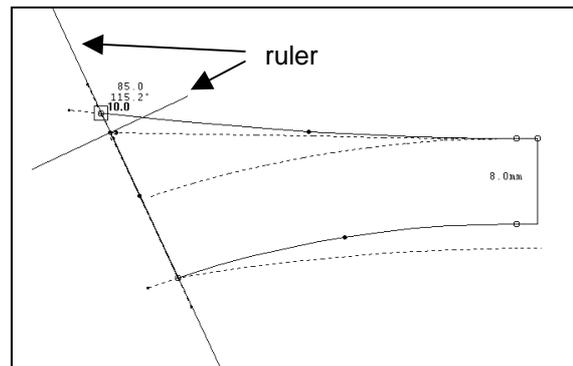
Use of ruler

Toggle to *+ruler* displays the ruler. It consists of two lines at a right angle, one line is very long and the other considerably shorter.

Clicking with pressed down mouse button...

- at the short line moves the ruler,
- at the long line rotates the ruler.

When moving and rotating the ruler it is automatically attracted by neighbouring lines and points. You can set the ruler onto a point and adjust it along a line.



Picture 13-8

With active ruler, a drag point can only be moved in the direction of the ruler.

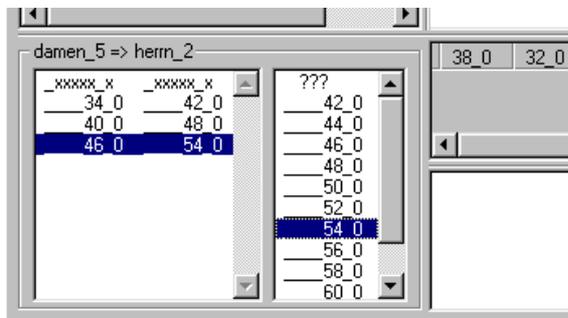
In Picture 13-8 the ruler was set onto the collar point and adjusted. The drag point collar point can now only be moved along the ruler. In Picture 13-8 the ruler was used to lengthen the collar point by 10mm without altering the collar angle.

The ruler is only useful for dragging free moving points .

13.3 Load and save shapes

The adjustments of an interactive construction are saved in the corresponding x value list. This list is invisible for the user, it is updated automatically by Grafis. Clicking on *shape: save* saves this x value list together with a preview, the comments and the ID measurements (Section 13.4). The name of the shape is created from the date, the time as well as the computer and user names. They are saved as single XWF files under \Grafis\Forms\[name of construction].

Clicking on *shape: load* opens the list of available shapes of the construction. All shapes stored as XWF files under \Grafis\Forms\[name of construction] are offered. Clicking onto a shape with the right mouse button opens the context menu with the functions **rename and delete**. Use the rename function in particular to organise your list of shapes.



Picture 13-9

Shapes can also be loaded into styles of other construction systems. There, you may have to **re-assign the break sizes of the shape**. If, for example, you want to load a pocket shape from Damen_5 into the system Herrn_2 you can re-assign the break sizes, see partial image in Picture 13-9. The pocket in Herrn_2 in size 48 will be graded as size 40 originally in Damen_5.

ID measurements set according to section 13.4 and **comments** are also saved with the shape. The entry window for comments is opened by clicking on *-comments* in the menu on the right.

For new developments, first load the basic construction and then, one of your prepared shapes.

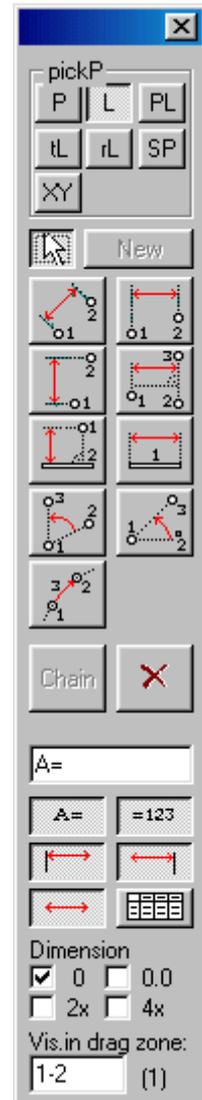
13.4 Setting measurements in an interactive construction

Step-by-step guide

- ⇒ click on *measmnt: set*
- ⇒ select the measurement type and click the objects
- ⇒ set/ enter a measurement text, the dimensions and the visibility in the drag areas
- ⇒ set display options: measurement text, value, measurement lines, auxiliary lines
- ⇒ possibly adding measurements to chain measurements
- ⇒ possibly set ID measurements
- ⇒ quit the measurement dialogue with right mouse click
- ⇒ set *+measmnt*

With the measurement function you can set your own measurements which are altered immediately during dragging.

A number of measurements are already shown on an interactive construction. In practice however, other special company-specific measurements are required. Therefore, Grafis offer the option to set your own measurements which are altered immediately during interactive modification of the construction.



Picture 13-10

The menu for setting measurements in an interactive construction

Clicking on *measmnt: set* opens the icon menu according to Picture 13-10. It contains the following functions:

	This is the point construction submenu required for constructing the individual measurements.
	activate a measurement
	abort an incomplete measurement

Measurement types:	
	direct distance
	horizontal distance
	vertical distance
	distance out of three points as a perpendicular from the first point onto an imaginary line between the second and the third point
	distance from a point to a line
	line length
	angle out of three points
	angle out of a direction and two points
	distance along a line
Chain measurement, Delete:	
	set a chain measurement. With this function measurements can be added together to form a chain measurement.
	delete active measurement
Display options:	
	text for measurement
	show/ hide text
	show/ hide value
	show/ hide left auxiliary line
	show/ hide right auxiliary line
	show/ hide measurement line
	clicking turns measurement into ID measurement . ID measurements are saved with the shape.
	display measured value with/ without decimal and if required doubled or quadrupled.
	in which drag areas are the measurements to be shown?

Set measurements

The various measurement types are indicated clearly by the icons. The numbers indicate the order of clicking. Use the point construction submenu for clicking. It is situated at the top of the menu. If you have set an incorrect point, click on „New“.

The **active measurement** to which the display options apply is highlighted with a red rectangle. Different display options can be set for the active measurement or it can be deleted.

Pressing down the <Ctrl> key allows you to select a number of measurements at the same time. Only now the „chain“ icon has become active. Clicking on „chain“ sets a new measurement as a sum of the selected measurements. Display options can also be set for a **chain measurement**.

The „**ID measurement**“ icon ensures that a measurement is automatically entered into the comments of the construction and saved as a measurement table when saving the shape. This table appears in the preview window when loading a shape. The „ID measurement“ icon remains inactive if the measurement has been attached to points which are not part of the interactive construction. For example, if you are interactively adjusting a pocket you can set measurements for the underlying bodice construction. These measurements for the bodice cannot be entered as an ID measurement as they do not describe the pocket shape and may be changed when loading a different shape.

Measurements can also be set for a comparison part. For example, if you want to make a modification during which a measurement is not to be altered, proceed as follows: first, set a comparison and switch to *+compare*. Position the comparison part suitably with <F3> and <F5>. Set measurements for the comparison part and the original part. Carry out the modifications. Measurements for the comparison part are reset when quitting the drag menu.

Measurements can be printed via Edit | Copy to the clipboard.

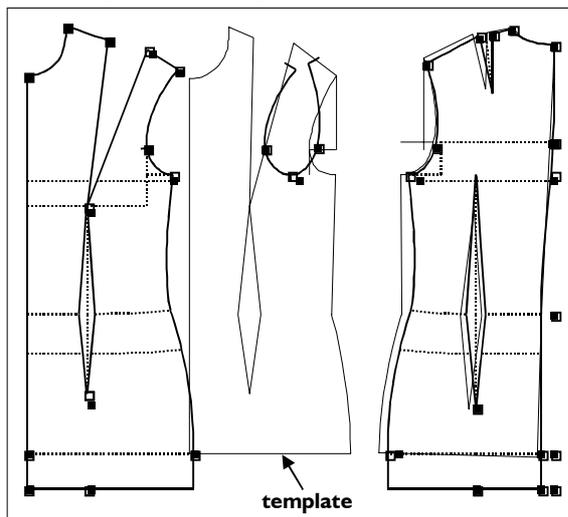
13.5 Reconstruct a digitized template pattern with an interactive construction

Step-by-step guide

- ⇒ call the digitised template pattern and the interactive construction into different parts
- ⇒ position the parts to one another with <F3>, e.g. at the zero point of the interactive construction
- ⇒ activate the interactive construction
- ⇒ adjust the most important options
- ⇒ for front/ back constructions: activate the drag area positioning and move the front and back to one another. Use the magnet function.
- ⇒ roughly adjust the most important drag areas, e.g. in the bodice constructions „Tolerance horizontal+vertical“ and „Line relocation“. Start with the symmetrically movable drag points.
- ⇒ carry out the fine adjustment systematically and step-by-step. Save significant stages as shapes and rename the shape if required. Click on ← or → in the menu on the right to undo or redo step-by-step.

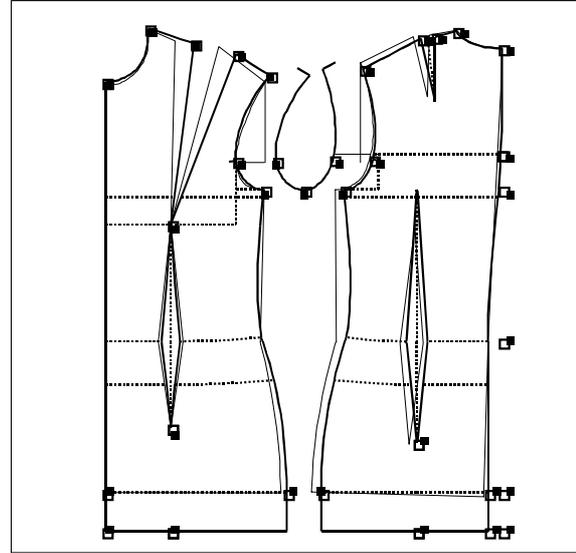
Reconstruct a proven bodice construction

Load the proven bodice construction and the interactive bodice construction you want to adjust into different parts. Position the parts to one another with <F3>, e.g. at the zero point of the interactive construction. Activate the interactive construction and adjust the most important options having clicked on *+options*, e.g. the position of bust dart and shoulder dart (Picture 13-11).



Picture 13-11

For front/ back constructions activate the drag area „Positioning“ and move the front and back towards one another (Picture 13-12).



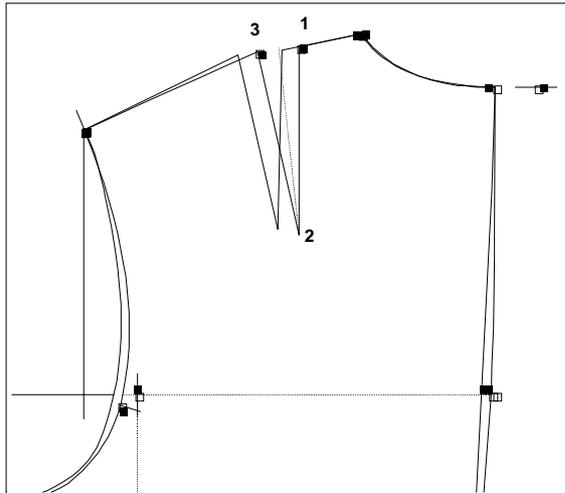
Picture 13-12

Use the **magnet function** by switching to *+magnet*. The magnet function applies to move points which will attach to existing points and lines of the construction in the background. The magnet function does not make sense for angle or percentage alter

First, adjust the most important drag areas. In the bodice constructions this is first of all the area „Tolerance horizontal+vertical“. Reconstruct the tolerances for bust, waist and hip area. Then, switch to the „Line relocation“ area and reconstruct the position of bust line, waist line, high hip and hip line. Then, switch to the „Side seam“ area and relocate the armhole point. This drag point is situated at the armhole/ side seam corner in the back. The same point in the front relocates the side seam.

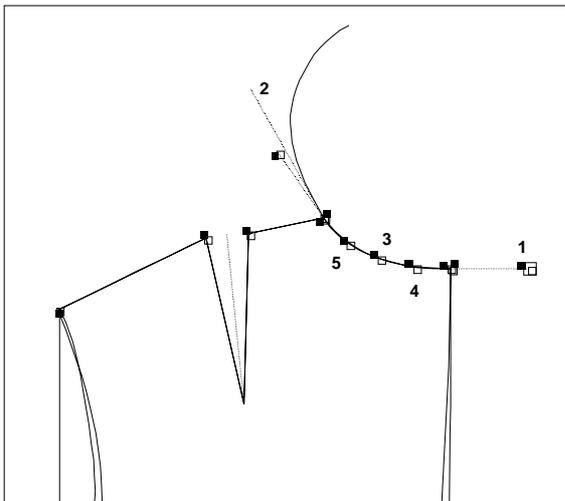
Adjust step-by-step:

- in the „Tolerance horizontal+vertical“ area the neck point in front and back
 - in the „Bust dart“ area the position of the bust point with *+magnet*, the position of the left dart line and the suppression angle
 - in the „Shoulder“ area the shoulder angle in front and back
 - in the „Tolerance horizontal+vertical“ area the tolerance for shoulder width in front and back.
- ... with a result according to Picture 13-13.



Picture 13-13

The back dart is adjusted in the „Shoulder dart“ area (Picture 13-13). First, move the back dart with point „1“, if required using *+magnet* then, point „2“ and then the suppression angle with point „3“. If required, readjust the shoulder angle in the „Shoulder“ area with a result according to Picture 13-14.

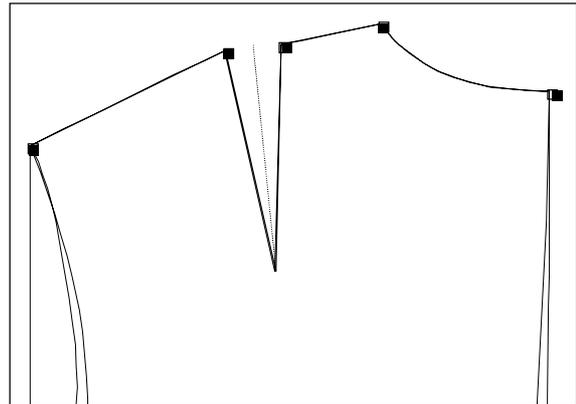


Picture 13-14

To adjust the neckline switch to the „Neckline“ area and zoom into the back neck. In this area you can adjust dropped and widened necklines. Adjust the

neckline shape by first adjusting the directions with points „1“ and „2“ then, reconstruct the superior central shape point „3“ with *+magnet* and then, adjust the inferior auxiliary points „4“ and „5“.

If you adjust interactive curves *again* first reset all shape points (points 3 to 5 in Picture 13-14) to 0 by e.g. selecting raster 10 and clicking on the points. Then, readjust the directions at the beginning and end of the curve, set the raster to 0, activate magnet and readjust the shape points 3 to 5.



Picture 13-15

The result of these adjustments can be seen in Picture 13-15, where the side seam, the waist dart and finally the armhole are still to be adjusted.

Please note that after having adjusted the base size, the grading in the break sizes also has to be reconstructed from the template..

Grafis users of Versions 8 and earlier can reconstruct existing proven constructions in this way and save them as shapes.

Chapter 21 explains how an interactive construction together with a new shape can be stored in the call list.