

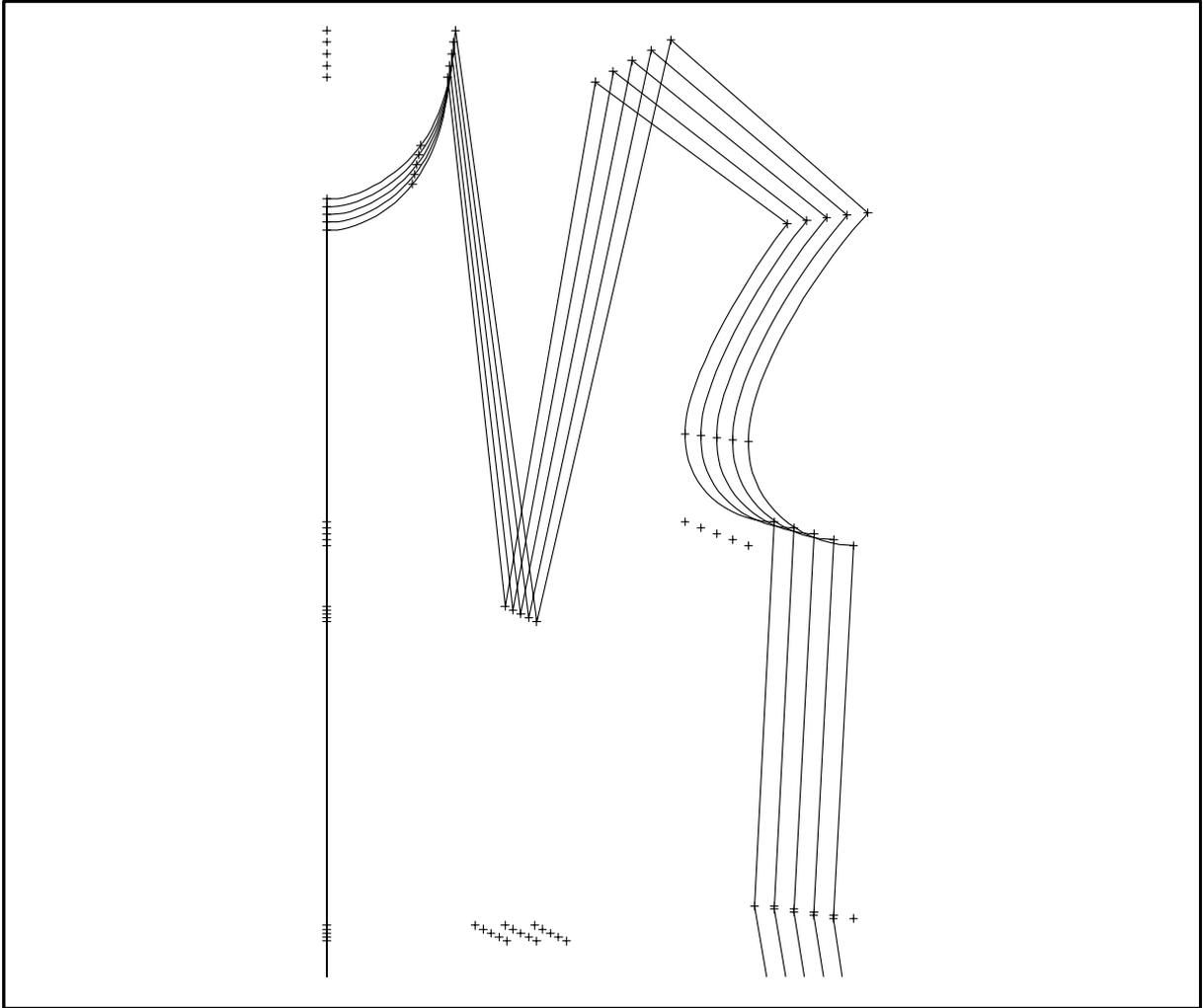
Chapter 2 “Grading”

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In GRAFIS, first patterns are originally developed in the base size. All construction and modification steps are registered by imperceptibly creating a record. This construction record can be recalled with other sizes, thus creating the patterns in the respective size automatically. The creation and editing of meas-

urement charts is subject of the first part of this chapter. The second part deals with calling basic blocks. Automatic construction of various sizes, also called grading in GRAFIS, is subject of the third part of the chapter. In the following chapters you will learn about the modification functions in GRAFIS. Please use the detailed exercises at the end of this chapter to consolidate the acquired knowledge. If you follow the instructions in this chapter your screen will display the graded basic block shown in this picture.



2.1 Work with measurement charts

The construction principle and the generation of measurements

GRAFIS works according to the same principle described in textbooks for pattern construction, using the computer. First patterns are created in three stages.

At the beginning of the pattern construction the measurements are drawn up. These measurements include the body measurements of the person to be dressed, either measured on the person according to given measuring rules or taken from a size table.

During the **second stage** a basic block is drafted on the basis of these measurements, applying set construction rules incorporating ease, posture, technological aspects etc.

During the **third** and most time consuming **stage** the first pattern is derived from the basic block.

Thus, the construction principle does not require grading increments. The basis for generating the first pattern in the different sizes are measurements, given in GRAFIS in form of **measurement charts**.

Measurement charts in GRAFIS

Measurement charts can be generated for standard sizes and individuals. They are accessible at all times.

Measurement charts are valid for one specific construction/measurement system (e.g. measurement system for men, women or children). GRAFIS con-

tains amongst others the following measurement systems:

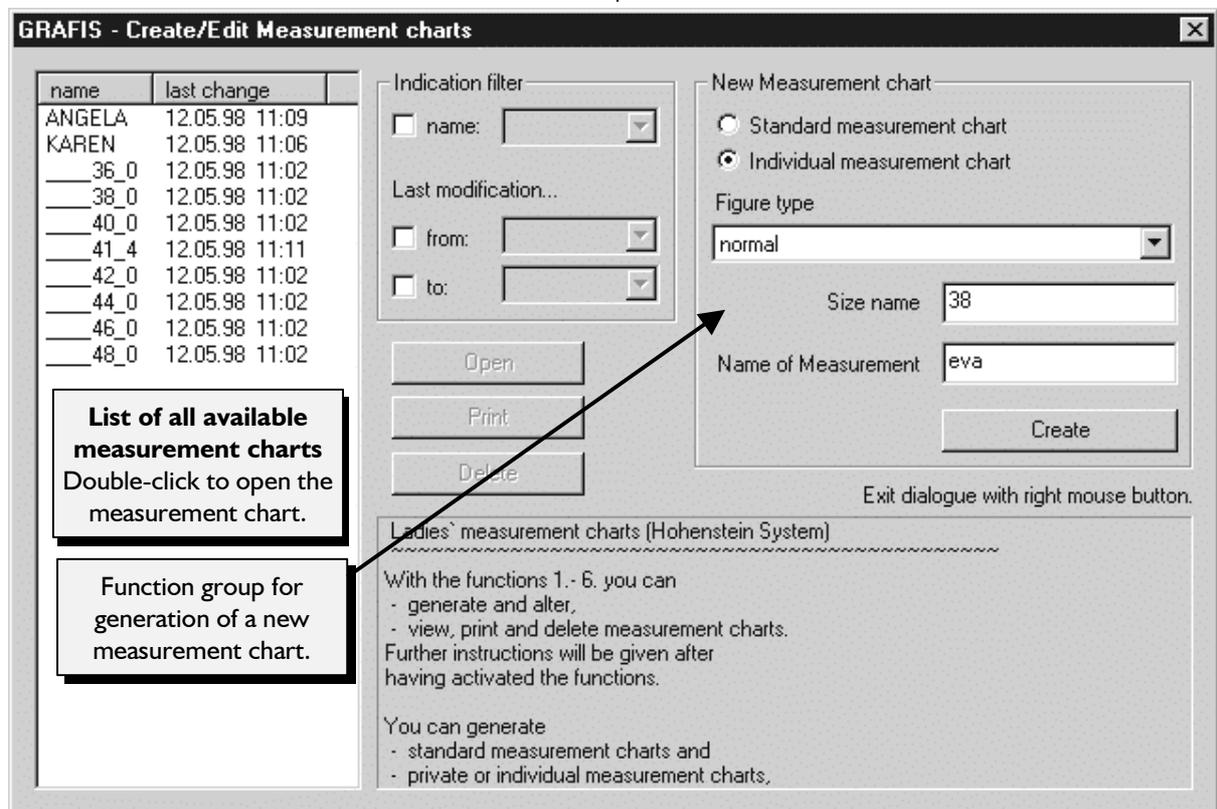
- Hohenstein women’s measurement system, identical with Optikon women’s measurement system
- Women’s and men’s measurement system Müller & Sohn,
- Optikon men’s measurement system identical with Hohenstein men’s measurement system
- Girl’s construction system after Hohenstein

It is also possible to implement own measurement systems into GRAFIS. This feature is especially used by the industry.

Selection of the construction system ensues when starting GRAFIS, already (see paragraph 1.2).

GRAFIS distinguishes between **standard measurement charts** and **individual measurement charts**. Standard measurement charts contain the measurements for standard sizes. The values in these charts cannot be altered, they are given by the standard sizes. Individual measurement charts contain taken body measurements or company specific measurements which can be altered at any time. This applies to the names of the measurement charts, also. For standard measurement charts the name is set, for individual measurement charts it can be selected.

Opening and processing measurement charts ensues via the pull-down menu *Extras | Edit Measurement Charts*.



Picture 2-1

Generate standard measurement charts

Step-by-step guide

- ⇒ *Extras* | *Edit Measurement Charts*
- ⇒ From the option Standard measurement chart / Individual measurement chart select ‘Standard measurement chart’
- ⇒ Select the figure type required (in Hohenstein women: normal, broad or narrow hips)
- ⇒ Enter the required size in the dialogue box ‘Size name’; half-sizes are also possible

GRAFIS is installed with one size, only (size 40 in the women’s construction systems). Any other size has to be generated.

As well as standard sizes “half-sizes” can be generated, e.g. 39 or 38.7. GRAFIS calculates the half-sizes through interpolation. When entering half-sizes the point (.) is the decimal point, e.g. 38.5.

Generate the standard sizes 36 and 38.5. Open the measurement charts menu and select “Standard measurement chart” below “New Measurement Chart”. The figure types available in the construction system are displayed in the “Figure type” box. In the construction system „23-Werte-Hohenstein Damen“ you can choose between normal, slim or broad hips. Select “normal” and enter the required size into the “Size name” dialogue box, first 36 and then 38.5 for the second measurement chart. Terminate each entry with <ENTER> or click on “Create”. GRAFIS generates the measurement charts.

The measurement charts are listed alphabetically or according to the date of generation in ascending or descending order. To change the listing click on “Name” or “Date”.

In the list of available measurement charts (picture 2-1), the name ___36_0 defines the measurement chart of size 36; ___38_5 stands for the half-size 38.5. A preceding “0” indicates the slim hip figure type, a preceding “5” broad hips, see also table 2-1.

	size 38	size 41
normal	___38_0	___41_0
short	___19_0	___20_5
long	___76_0	___82_0
broad hips	___538_0	___541_0
narrow hips	___038_0	___041_0
short, narrow	___019_0	___020_5
long, broad	___576_0	___582_0

table 2-1

View measurement charts

Step-by-step guide

- ⇒ *Extras* | *Edit Measurements*
- ⇒ Double-click on the required measurement chart or select the chart and click on “Open”

After having double-clicked on the required measurement chart in the list of available measurement charts (picture 2-1), e.g. ___36_0, the measurement chart of the standard size 36 is displayed. Check the entries and compare them with picture 2-2. Quit viewing measurement charts with “Close”.

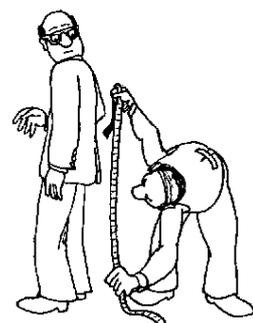
Now generate a new standard measurement chart for a short, broad hip 36 by selecting figure type “broad hips” and entering size 18. The measurement chart will be entered into the list as size ___518_0. Compare the values of the charts ___36_0 and ___518_0.

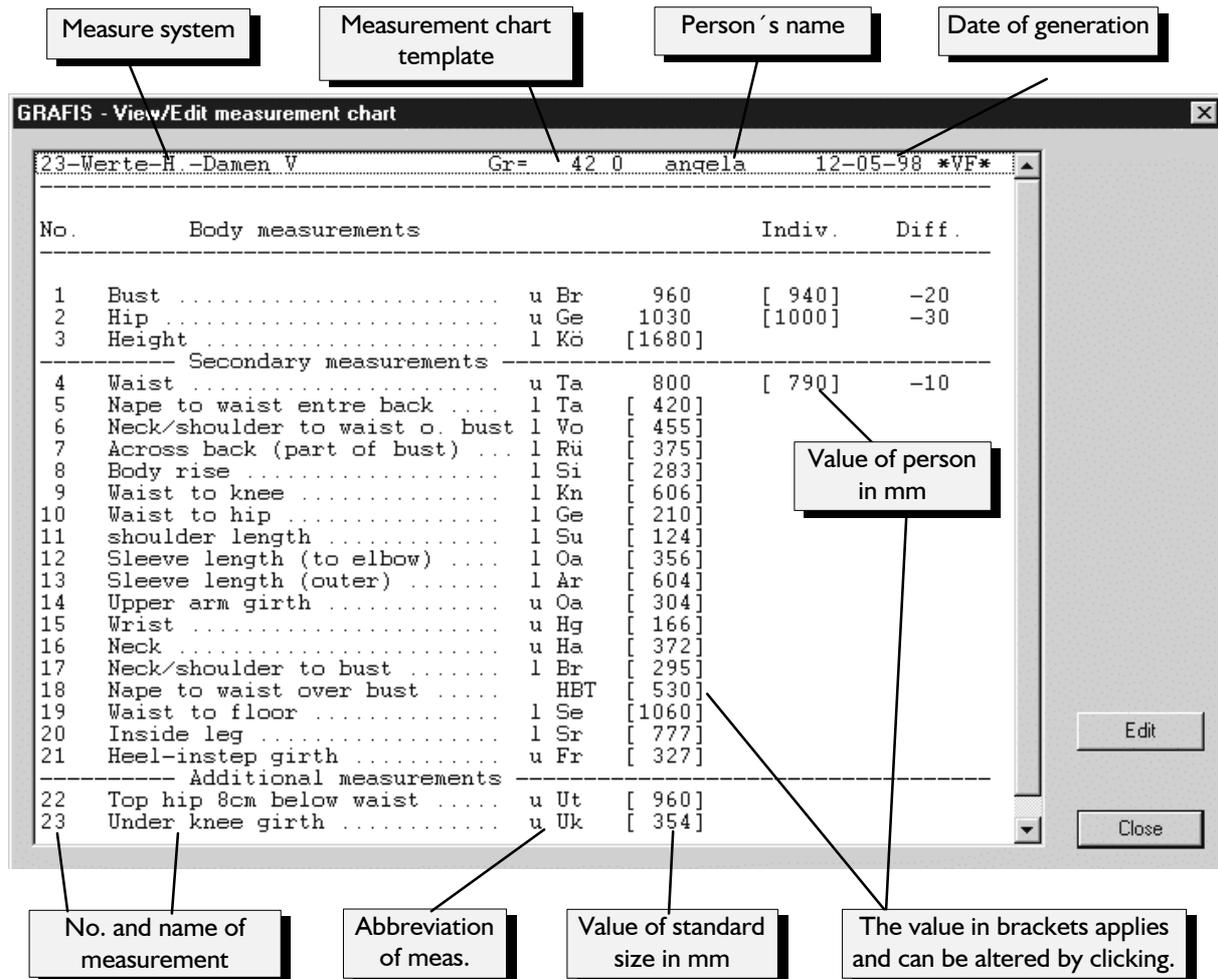
Generate individual measurement charts

Step-by-step guide

- ⇒ *Extras* | *Edit Measurement Charts*
- ⇒ Select “Individual measurement chart” from the option Standard measurement chart / Individual measurement chart
- ⇒ Select the figure type of the person and the best fitting standard size to select the measurement chart template
- ⇒ Enter the name for the individual measurement chart (e.g. name of the person) in the “Name” dialogue box.
- ⇒ Edit the individual measurement chart by entering the measurements taken on the person into the table

Select “Individual measurement chart” in the measurement chart window. Select the figure type and enter the best fitting standard size for the person for which you are generating the measurement chart. GRAFIS determines a measurement chart template to save you time and allow for control over the measuring results. Now enter the name of the measurement chart into the “Name” dialogue box, e.g. the person’s name or a customer number (max. 8 characters). The provisional individual measurement chart is generated. Now, the person is to be measured.





Picture 2-2

Alter individual measurement charts

Step-by-step guide

- ⇒ "Extras | Edit Measurement Charts"
- ⇒ Double-click on the measurement chart to be altered
- ⇒ Double-click on the value of the measurement to be altered or select it and click on "Edit"
- ⇒ Enter new value
- ⇒ Continue with steps 3 and 4; quit with "Close"
- ⇒ Decide whether or not to save the alterations to the measurement chart

Values can be entered or altered in an individual measurement chart at any time. Double-click on the measurement chart to be altered in the list of available measurement charts (picture 2-1) will display the chart as shown in picture 2-2. The heading shows the date of generation, the name of the measurement chart and the size of the template.

To alter a body measurement double-click on the respective line and enter the new value. Note: all values must be entered in mm ! The values in brackets [] apply !

The column "Diff." displays the difference between the current value and the template value. Quit the function with "Close". You then have to decide whether or not you want to save the changes. takes you back to the basic menu.

Alterations are applied to the pattern only after recalculation of the construction. This ensues with clicking on *test run* or *grading*.

Print measurement charts

Step-by-step guide

- ⇒ Click the required measurement chart
- ⇒ Click "Print"

To print standard or individual measurement charts select the measurement chart to be printed and click on "Print" (picture 2-1).

Delete measurement charts

Step-by-step guide

- ⇒ Click the measurement chart to be deleted
- ⇒ Click on "Delete"

To delete a measurement chart select the measurement chart to be deleted and click on “Delete”. We recommend removing measurement charts no longer required from the list.

Export/ Import of measurement charts

Step-by-step guide

- ⇒ *Extras* | *Export/Import Measurement charts*
- ⇒ in the left window: select drive and collection **from where** (=source) the measurement charts are to be copied
- ⇒ in the right window: select drive and collection **to where** (=target) the measurement charts are to be copied
- ⇒ in the left window: mark the measurement charts to be copied
- ⇒ Click *copy*

Exercise

Generate the following measurement charts:

- normal 34, 36, 38, 42, 44 and 46,
- short and long 38 (in GRAFIS: ___19_0 and ___76_0),
- slim and broad hip 38 (in GRAFIS: ___038_0 and ___538_0),
- broad hip, long 38 (in GRAFIS: ___576_0),
- slim hip, short 38 (in GRAFIS: ___019_0).

Note: the preceding digits are not to be entered. GRAFIS enters the preceding number automatically. For the broad hip, long 38 click *broad hip* and enter 76 as the size name.

Generate an individual measurement chart for Mrs. BERBER. Mrs. BERBER has a “normal” figure and standard size 40 to 42. Alter the following measurements as measured on Mrs. BERBER:

- Bust: 925mm
- Hip: 960mm
- Waist: 710mm.

Generate individual measurement charts for Mrs. MEIER and Mrs. SCHULZE and alter various values such as bust, hip, shoulder.

Delete the measurement charts of Mrs. MEIER and Mrs. SCHULZE.

Generate your own measurement chart and save it on a disk via *Extras* | *Export/Import Measurement Charts*.

2.2 Basic blocks and size table

Calling the size table

Calling this menu ensues via *Extras* | *Size Table*. Open the size table and read the explanations in picture 2-3.

The contents of the size table

With each style a size table is saved. Position 01 in the table shows the measurement chart for the pattern development (base size). In the women-swear systems size 40 is entered automatically. The user can enter a different measurement chart as base size (also individual measurement chart) at any time. The other positions can contain all generated measurement charts, e.g. standard sizes (38.0), “half-sizes” (41.4), short/long or slim/broad hip defined standard or “half-sizes” as well as individual measurement charts of persons (EVA).

Pattern development ensues on the base size. Grading means automatic application of the registered construction record to the activated measurement charts contained in the size table. Automatic reconstruction is possible because GRAFIS has registered all construction steps and repeats those with other measurement charts.

Entry and alteration in the size table

To **enter a measurement chart** move the cursor to the required position in the measurement chart column and click with the left mouse button. To the right of the size table a list with all available measurement charts appears. Move the cursor to the required measurement chart and click . The measurement chart is entered in the size table. A grey bar highlights the current line in the size table. After having entered a chart it moves down by one line so that entry can ensue with the next position without interruption. Click the right mouse button  to terminate entry.

If the required measurement chart is not displayed in the list quit this menu with  and “Close”. Generate the measurement chart as learned in section 2.1.

Some construction systems and basic blocks work with graded **ease**, called proportion classes. Hohenstein basic blocks apply proportion classes a to u. Which ease is applied per proportion class depends on the selected basic block and must be checked in its description. The basic bodice block by Hohenstein applies 2 cm ease per proportion class step for example.

The following classification applies in the Hohenstein measurement system (“j” is not permitted as name and proportion class a00 is the same as “no ease”).

a	00	h	07	p	14
b	01	i	08	q	15
c	02	k	09	r	16
d	03	l	10	s	17
e	04	m	11	t	18
f	05	n	12	u	19
g	06	o	13		

To **enter a proportion class** move the cursor to the required position in the proportion class column of the size table and click with the left mouse button . To the right of the size table a window with all proportion classes appears (a00, b01,... and u19). All other steps are the same as if entering a measurement chart.

To **delete a measurement chart or a proportion class** from the size table move the cursor to the respective measurement chart/proportion class, click and then immediately . The measurement chart/proportion class is deleted from the size table but not from the list of available measurement charts/proportion classes. With new entry in the size table the measurement chart is again available for grading.

As not all measurement charts in the size table are to be graded each time, a simple **selection option** is integrated in GRAFIS. The measurement charts to be graded are marked with “>” (activated). To switch between activated and deactivated move the cursor to the respective position number and click .

A **simple operation** is offered by dragging the mouse with pressed left mouse button. Thus, entries in the size table can be copied quickly to the next position. This applies to the symbol ‘<’, the proportion classes and the measurement charts. Consecutive measurement charts and proportion classes from the temporarily displayed lists can be copied to the size table in the same way. Explore these options by trial and experimenting.

„>„ active
 „ „ inactive for automatic construction

Consecutive number
 Automatic construction ensues in this order

GRAFIS - Size Table

```

> 01          40_0
02 b01       38_0
> 03 d03     41_4
04
> 05 ANGELA => 42_0
06
07
08
09
10
11
12
13
14
15
16
17
18
19
                
```

```

36_0
38_0
40_0
41_4
42_0
44_0
46_0
48_0
038_0
040_0
042_0
044_0
046_0
538_0
540_0
542_0
544_0
546_0
                
```

		x-value reference
		size
		amount of ease
		number
		activated with '>'

Picture 2-3

Exercise

In this exercise the size table displayed on the previous page is to be generated.

After having opened a new style the size table contains size 40.0 as base size. Enter size 38.0 with proportion class “b01” onto the second position. Click the second position in the measurement chart column. The window with all available measurement charts opens to the right. Move the cursor to “__38_0” and click . The measurement chart appears in the second position of the size table. Click  to terminate the process.

To assign the proportion class click the second position in the proportion class column and select “b01” from the window to the right of the size table. Click  to terminate the process.

Click  on the second position in the position number column or the ‘>’ (activation) column and size 38.0 with proportion class b01 is active for grading. The activation is confirmed with “>”.

Switch between active and inactive by clicking position number 02 repetitively. Deactivate the measurement chart.

Now enter the other displayed measurement charts into the size table in the manner just learned. In position 05 enter your own measurement chart you created in chapter 2.1.

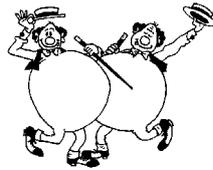
Delete the measurement chart on position 03 by moving the cursor onto the measurement chart in the 3rd line, click  and then .

Re-enter size 41.4 with proportion class “d03” and activate the measurement chart.

2.3 Grading

Grading in GRAFIS

In GRAFIS grading is an **automatic similar construction**. All construction steps of the base size are repeated with the measurement charts to be graded. During construction the succeeding similar construction is to be considered, already. Construction with GRAFIS thus does not become more difficult but more elegant and more interesting.



Start grading

Grading is started with:

Basic menu --> *grading*

Only measurement charts entered into the size table and activated will be graded. Refer also to section 2.2. *Start grading*.

If you have followed all exercises so far your screen will display the basic block “bodice with normal darts after Hohenstein” in the sizes

40.0 no proportion class

41.4 prop. class d=3

in your own size without proportion class.

The base size is always displayed in yellow!

Activate another measurement chart in the size table and deactivate the measurement charts already graded. Start *grading* and your screen displays all previously graded measurement charts plus the newly activated measurement chart. Alteration in the size table lead to grading of further measurement charts but not to deleting already graded measurement charts. To refresh the screen *test run* or a different record function from the basic menu must be started. Then you can grade anew.

Exercise

Activate all measurement charts in the size table and grade.

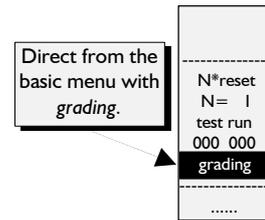
Activate the base size and your size only in the size table and grade. Start *test run* from the basic menu and then *grading* again. On the screen you can see the basic block in the base size and your own measurement chart.

Start other basic blocks and grade them. Reject the graded basic blocks by clicking *N*reset* in the basic menu. Change the size table also.

Note

It is to be recommended to use grading from time to time during construction as a test. A number of extreme measurement charts should be activated in the size table, e.g. 36, 46 and 54 with the proportion class of the base size.

This allows you to check the construction steps as you go and avoids having to reset at a later date.

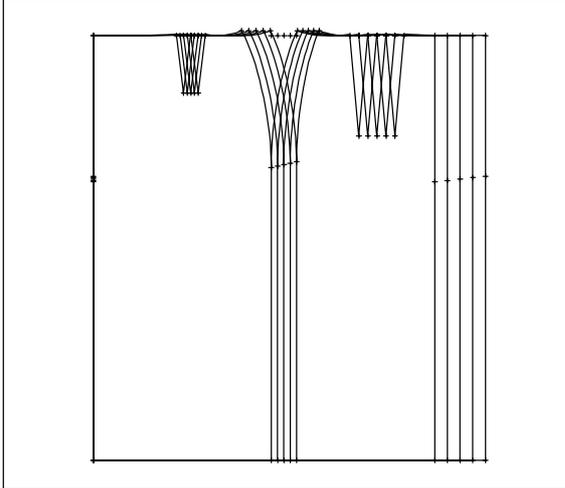


2.4 Exercises

Complete all of the following exercises so you can concentrate on the new functions in the next chapters.

1st Exercise

Grade the basic block 017 “skirt after Hohenstein” in the sizes 38, 40, 42, 44 and 46.



call

Extras | Edit Measurement Charts

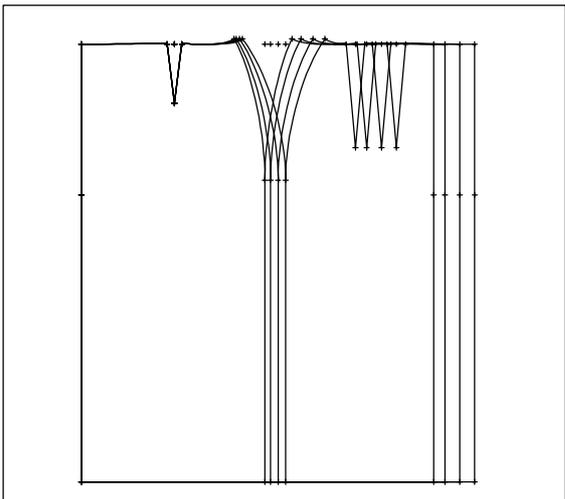
Extras | Size Table

grading

test run

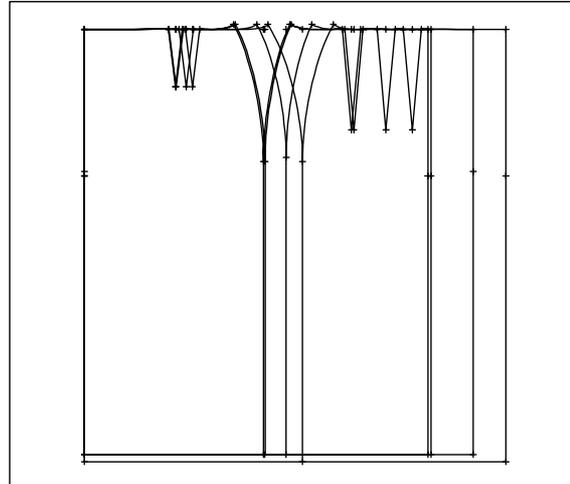
2nd Exercise

Grade the basic block 017 “skirt after Hohenstein” in size 38 with the proportion classes a, d, h and m.



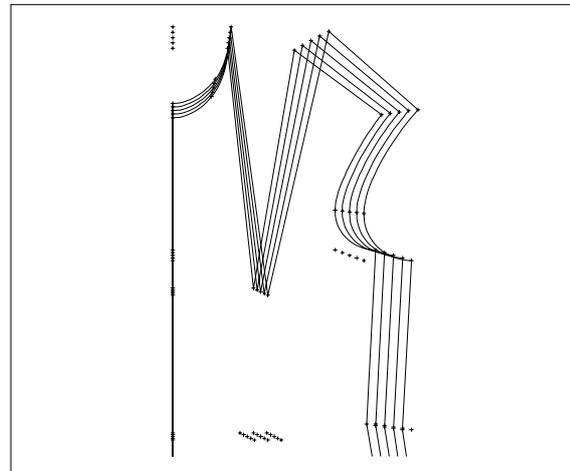
3rd Exercise

Grade the basic block 017 “skirt after Hohenstein” in the sizes 38.5, 44.0 with proportion class c and the measurement chart for Mrs. Müller (broad hip, standard size: 46.0, height: 1750mm, hip= 1160mm, etc.).



4th Exercise

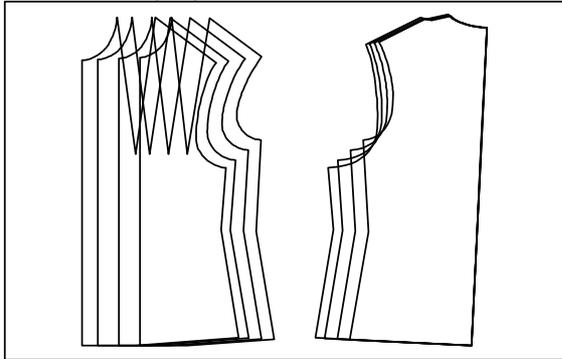
Call the basic block “bodice after Hohenstein” and grade in the sizes 38, 40, 42, 44 and 46.



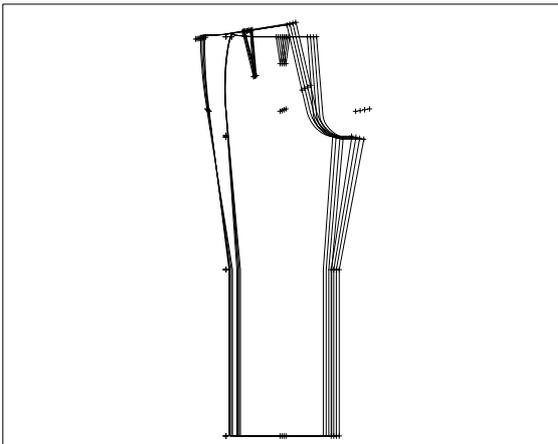
5th Exercise

Call the basic block “bodice after Hohenstein“, enter size 38.0 in the positions 01-05 and enter the following proportion classes:

Pos01 prop. class a
 Pos02 prop. class d
 Pos03 prop. class h
 Pos04 prop. class m

6th Exercise

Call the basic block “trousers after Hohenstein“, grade with the measurement charts from the 2nd exercise and then with five measurement charts of your choice.



Further Exercises:

Call other basic blocks, read the notes of the constructor and grade with measurement charts of your choice. The grading procedure must become a second nature.