

The background of the page is a light blue, semi-transparent CAD software interface. It shows various geometric shapes and lines, including a large, complex shape that resembles a stylized letter 'G' or a similar symbol. There are several smaller shapes and lines scattered around, some with small arrows pointing to them, suggesting a design or editing process. The overall aesthetic is clean and technical.

CAD software

Textbook Part 1

The logo for GRAFIS features a thick, dark red curved line that starts on the left and sweeps upwards and to the right, ending under the letter 'S'. The word "GRAFIS" is written in a bold, dark red, sans-serif font, with the letters 'G', 'R', 'A', and 'F' being slightly larger and more prominent than the 'I' and 'S'.

GRAFIS
The New Generation...

The compilation of texts and pictures has ensued with the greatest amount of care. Nevertheless, mistakes cannot be ruled out completely. The authors cannot accept any liability for incorrect instructions and their consequences.

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5th revised edition of chapters 1 to 10

for Grafis version 9

October 2003

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5th edition 2003

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Introduction

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The Grafis system

The CAD system Grafis has been used in education since 1991 and has been employed in trade and industry since 1993. The Grafis system includes first pattern development, grading and an industry standard layplanning system. Patterns can be graded by application of the construction system or using grade rules.

During the styling process Grafis internally creates a record of the modification steps. The record can then be re-called to create other sizes automatically thus, eliminating incremental grading.

Grafis also records how patterns are derived from one another, capturing the interdependence of the pieces. Alterations made to one piece are automatically applied to all interdependent pieces.

Construction parameters can be applied during pattern development. This enables the user to comfortably modify already finished patterns by simply changing the construction parameters.

Prerequisites

Prerequisites for learning Grafis are

- basic knowledge in the use of computers, in particular the use of keyboard and mouse as well as working with files and folders and
- good knowledge of garment pattern cutting.

The application of Grafis can also be learned without knowledge of garment pattern cutting for example for use in the upholstery industry. Grafis replaces the user's pencil, ruler and set-square but not the pattern cutters' knowledge.

The Textbook the training courses

This textbook is designed to allow for an autodidactic introduction to Grafis and/or can be used as teaching support material during Grafis training courses.

Training courses Grafis I, Grafis II and Grafis III are offered in Viersen/ Germany. Content of these courses are the following Textbook Chapters:

Grafis I

- Chapters 1 to 10 of Grafis Textbook Part I

Grafis II

- Chapters 11 to 14 of Grafis Textbook Part 2
- Chapter 15 „Grade Rule Grading“; Training will be given in particular in digitizing of a style or a nest and its processing.
- Chapter 16 „Layplanning“; Special application options of layplanning (Chapter 17) are not discussed in detail.
- Chapter 20 „GrafisPDM- Product Data Management“ and Chapter 21 „Various special functions“, in extracts.

Grafis III

Training course III is suitable for users who wish to

- generate individual constructions or construction modules using the Grafis programming language,
- create an individual construction system or
- obtain comprehensive knowledge of system installation and system maintenance. This knowledge is helpful in particular for those responsible for CAD in larger clothing companies.

Outlook

Grafis can only be used at its optimum if the user is comprehensively trained. To further training, the Grafis Team continue to make available a free training version. A textbook in CD format with videos on the respective topics and exercises is in development. Topical information and downloads are published under www.grafis.de.

Viersen, October 2003

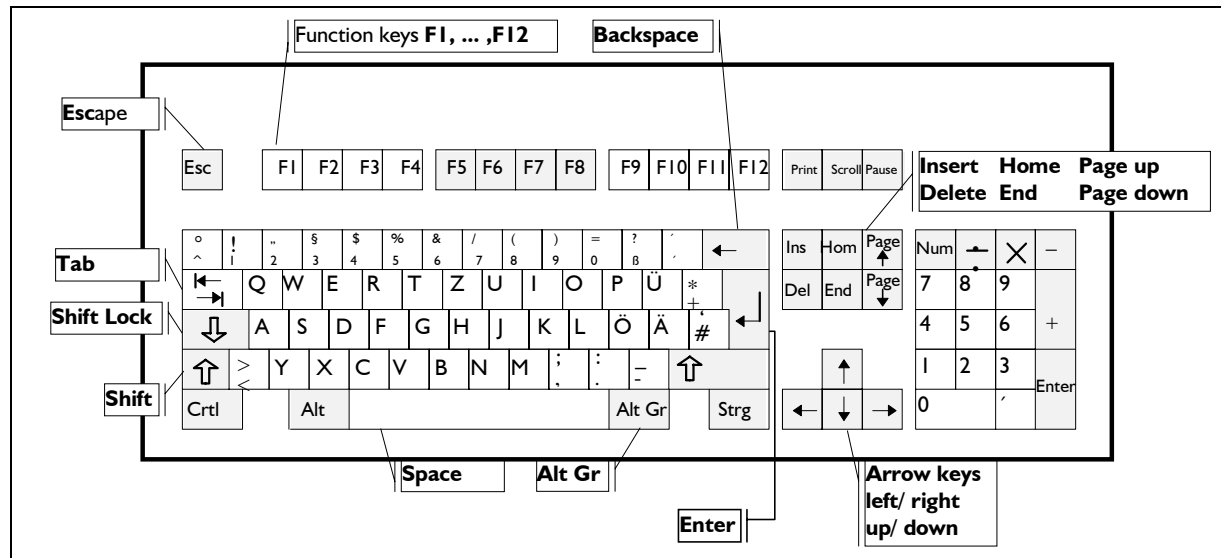
Chapter I „Basic rules for working with Grafis, calling basic blocks“

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This chapter first explains important rules for work with Grafis. Then, you learn how to start and quit the Grafis system and the organisation of the Grafis screen.

1.1 Important rules for work with Grafis



Picture I-1

The Grafis keyboard

The keys (picture I-1) have the following meaning:

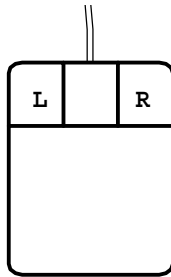
Escape	End, step backwards, abort
Tab	Tab, only used during digitising
Shift	Capitalisation/ upper keys
Shift Lock, Caps Lock	Switch on capitalisation/ upper keys (switch off with Shift)
Space(bar)	Space
Alt Gr (alternate group)	Activate third key function (bottom right of the key), e.g. for symbol „ \ „, on German keyboard
Enter, Return	Confirmation, selection, start of the program, line feed and new line

Backspace	Delete digits to the left of the cursor position
Function keys F1, ...	Call reserved functions (see paragraph 1.3)
Insert	Toggle between overwrite and insert mode
Delete	Delete digit at insert position
Pos1, Home	Move cursor to home position (mostly beginning of line)
End	Move cursor to end position (mostly end of line)
Page Up	Page up
Page Down	Page down
Arrow keys	Move screen and entry position

Mouse keys in Grafis



Left mouse key:

- Selection
- Click
- Activate



Right mouse key:

- Abort
- Return
- End

In all texts of this book the symbols  and  are used for the left and right mouse button.

The **left mouse button** is the "do-key" in Grafis and is used for selection, click and activating (picture 1-2). The mouse is moved until the cursor (arrow or crosshair) is on the position required and the left mouse button is clicked.

The **right mouse button** is the "retreat key" and is used for abort / end of a function or return to the next higher level menu. The position of the cursor is of no consequence.

Grafis measurements

Grafis works with the following measurements:

length distance radius	mm (millimetres)
body measures	mm (millimetres)
angle direction	degrees (right angle = 90°)
area	cm ² (square centimetres)
per cent	0-100%
relative length	0-100%

Please note that all length and distance values are displayed and entered in millimetres.

Further important rules

The decimal symbol is the point (.) not the comma (,).

e.g.: 10.4 45.2° 67.9% 12.7cm²

Text and value entries are to be completed with <ENTER>.

To abort a text or value entry press <ESC>.

The data base is explained in detail in chapter 4.1. It is organised in Grafis as follows:

drives	according to hard and software A:,...,Z:
collections	saved as directories
styles	saved as files
parts	max. 500 parts per style
objects	points, lines, texts, hatching, construction record, construction parameter etc.

Function key assignment

The function keys F1 to F12 are assigned special functions in Grafis. Here, an overview of the functions with reference to the chapter where they are explained in more detail:

	Function	chapter
F1	call on-line help and information	3.2
F2	zoom screen content in / out	3.1
F3	move / rotate / flip parts	3.6
F4	refresh screen	3.1
F5	part positioning	3.6
F6	centre screen content	3.1
F7	Show / hide measurements	7.5
F8	Toggle between pieces in their original position and their position after dragging with <F3>	3.6
F11	calculator function for calculation of z values	12.2
F12	Display of called interactive constructions in the style	2.4


1.2 Starting Grafis

Step-by-step guide to starting Grafis

- ⇒ Click the relevant icon on the desktop or use Windows-Explorer and double-click on **Grafis.exe** in the folder \Grafis
- ⇒ Select the required construction system
- ⇒ Select the drive and the collection
- ⇒ Enter the name for the new style in the "file name" field and press <Enter> or click on *Open* or double-click on an existing style.

The 'Select construction system' dialogue

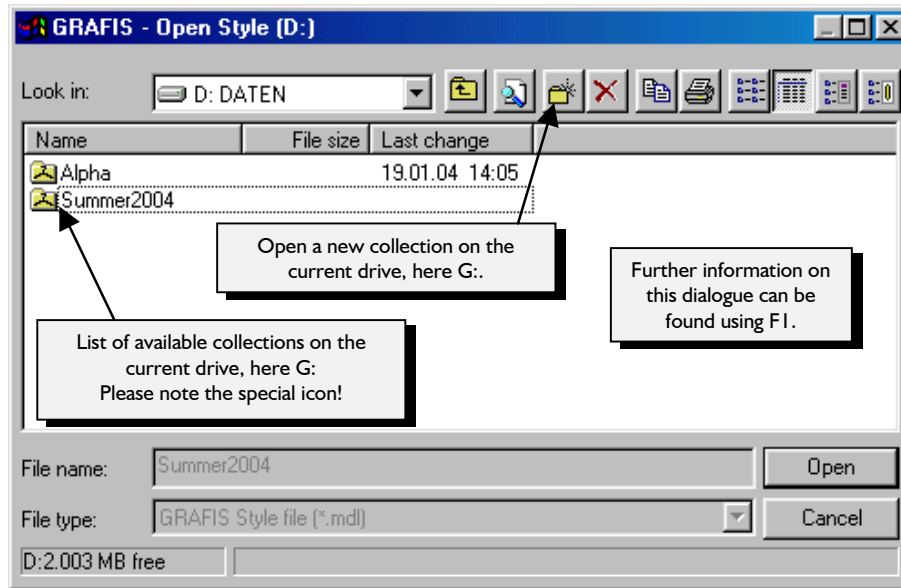
After having started Grafis the dialogue for selection of a construction system appears. The examples and exercises relate to the system „Hohenstein Women (Damen_5)“. The information also applies to all other construction systems.

As soon as you have selected a construction system, more information about it is displayed in the right part of the screen. The selected construction system is started by pressing <ENTER> or double click with  on the respective line or clicking *Start Patternmaking System*.

After having started a construction system the dialogue 'Open style' appears (Picture 1-3).

The ,Open style’ dialogue

In the ,Open style’ dialogue first select the drive and



Picture I-3

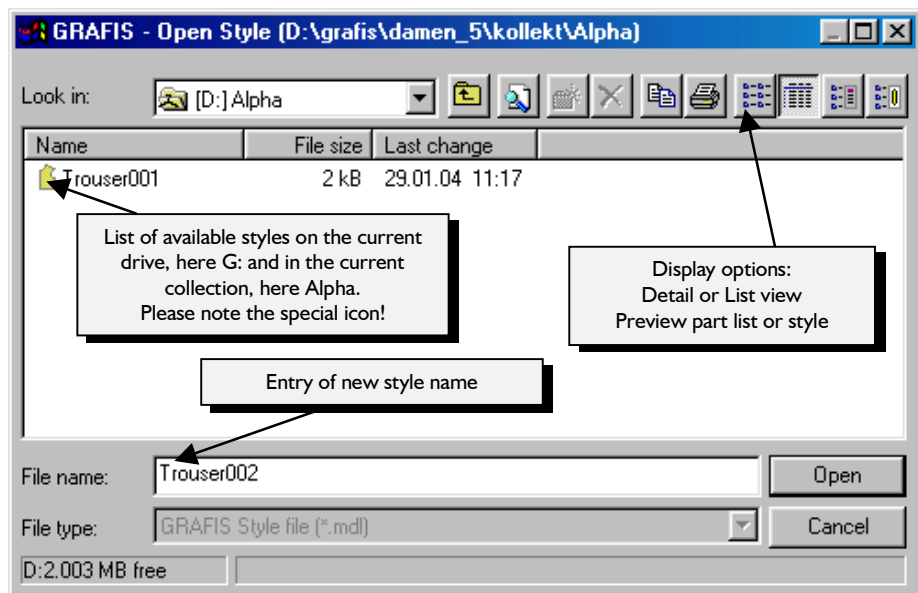
then the required collection. You can recognise collections at the icon depicting a folder and a clothes hanger. As styles can only be generated within a collection, the ,File name’ field in Picture I-3 remains locked. Once a collection has been selected with double-click a new file or style name can be entered (Picture I-4).

Note: The collection directory can be structured with up to 7 levels. In the collection Alpha a sub-collection Alpha1, a sub-sub-collection Alpha2 and so on can be created. The number of levels is set in the file \GRAFIS\GRAFIS.INI in the section [OPTIONS] via the value for MDL_FOLDERS. The default setting for MDL_FOLDERS is 0. This means that initially no sub-collections can be generated.

Naming a new style

The name for a style or a collection may consist of the numbers 0...9, the letters A...Z and the special characters „-“ [hyphen] and „_“ [underscore]. The style name A03HGTRD would be correct. Nevertheless, you should apply content relevant and systematic names as it is difficult to keep track of your styles, otherwise. Open the new style ,Start’ in the collection ,Alpha’. Double-click on the collection ,Alpha’ and enter the style name ,Start’. After having clicked on

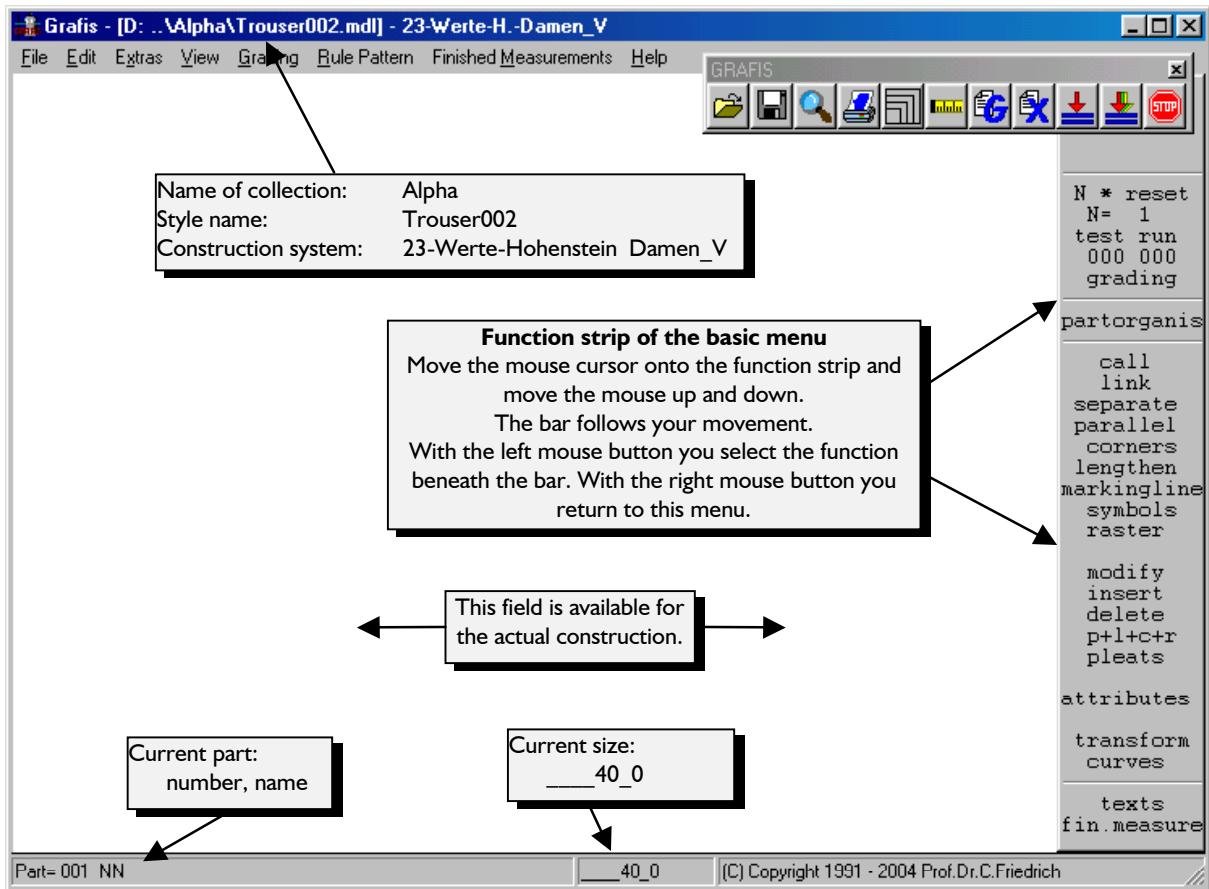
After having clicked on *Open* or pressing <ENTER> the style is generated and can be edited.



Picture I-4

The Grafis basic menu

The Grafis basic menu appears on screen (picture I-5). Please look at picture I-5 closely and compare it with your screen.



Picture I-5

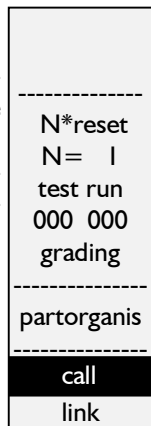
I.3 Calling basic blocks

Step-by-step guide

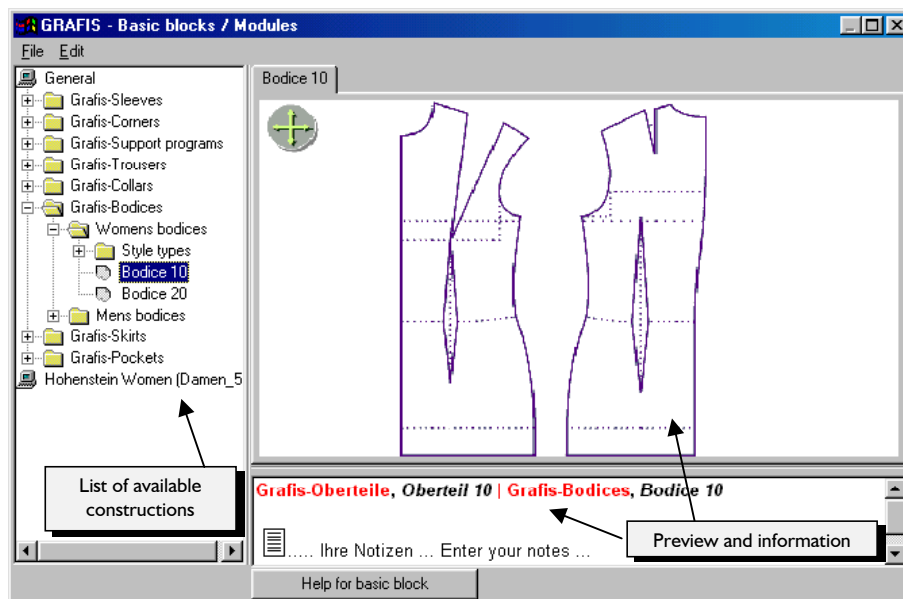
- ⇒ in the basic menu: click *call*
- ⇒ Selection of the required basic block opens a preview window and explanatory texts
- ⇒ Double-click the required construction to start it

The function call

All basic blocks available in the selected construction system can be started with the function *call*. Under „General“ you can find constructions that can be called in a num-



ber of construction systems. The section „Hohenstein Women (Damen_5)“ contains constructions that can only be called in the current construction system.



Picture I-6

Starting a basic block

A selected basic block (picture I-6) is called by double-click.

Start „Grafis Bodice 10“. Your first basic block is displayed on screen. Before calling a different basic block click on *N*reset* in the basic menu and then click on *test run*. The previously called basic block is thus reset.

I.4 Quit Grafis

Step-by-step guide

⇒ in the basic menu: open the pull-down menu *File* and click on *Save*, *Save As...* or *Close*

To quit Grafis select between the following in the pull-down menu *File*:

1. *save*:
saves the current state of the style under the current name
2. *save as*:
saves the current state of the style under a new name and/or a new drive (disk) and/or a new collection.
3. *close*:
if the style has not been saved a security question appears.

I.5 Exercises

1st Exercise

Start the construction system „Hohenstein Women (Damen_5)“ and create the style ‚Test1‘ in the collection ‚Alpha‘. Quit working on the style ‚Test1‘ via *File | Close*. Open the ‚Open style‘ dialogue with *File | Open*. When opening a new style Grafis creates an “empty” style which remains existent after closing, see style ‚Test1‘.

Open the styles ‚Test2‘, ‚Test3‘ und ‚Test4‘ in the same way. In the ‚Open style‘ dialogue delete the

styles no longer required by clicking on .

2nd Exercise

Call the style ‚Test4‘ from Exercise 1. Use the *call* function from the basic menu. Select different constructions and study the explanation for the constructions on the corresponding file cards.

3rd Exercise

In the construction system „Hohenstein Women (Damen_5)“ create the new style ‚Start‘ and call different basic blocks (skirt, trouser, bodice) from the ‚General‘ section. After each call reset the record by clicking *N*reset*.