

GGU-GRAIN-DENSITY manual

Determination of particle density

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Theorie. Und Praxis.

Geotechnische Softwarelösungen können so einfach sein. Denn Theorie und Praxis lassen sich mit **GGU-Software** und den neuen Angeboten der **civilserve Academy** prima kombinieren: Knackige theoretische Aufgaben lösen und als Sahnehäubchen Ihr

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vertiefen!**

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1 GGU-GRAIN-DENSITY: Preface

The **GGU-GRAIN-DENSITY** program system allows determination of grain density (particle density) using the DIN 18124 method with a capillary pycnometer (CP) and subsequent tabulated visualisation of test data.

The program includes convenient data input. The system is permanently displayed on the screen. Every change to the data is displayed on the screen, so that optimum control of the input data is guaranteed.

There are "?" and "Info" buttons in the dialog boxes for many technical and program-specific questions. Click on the "?" buttons or "Info" buttons to obtain the necessary information.

The graphic output supports the true type fonts provided by WINDOWS, so that an excellent layout is guaranteed. Colour output and numerous graphic formats (BMP, TIF, JPG etc.) are supported. PDF and DXF files can also be imported via the integrated **Mini-CAD** system (see "**Mini-CAD**" manual).

The program has been extensively tested. No errors have been found. Nevertheless, liability for completeness and correctness of the program and the manual, and for any damage resulting from incompleteness or incorrectness, cannot be accepted.

2 GGU-GRAIN-DENSITY: Licence protection

To protect the GGU software from unauthorised access, each GGU program is equipped with the **CodeMeter software protection system** from WIBU-Systems. Each GGU program is bound to a so-called **CmContainer** via a licence with the corresponding product code.

To be able to use the GGU licences in a CmContainer, a runtime environment, the **CodeMeter Runtime Kit**, must be installed on your computer via driver software. You can obtain the current version from [Software for Users - Wibu-Systems](#) (CodeMeter User Runtime for Windows).

You can work with the following CmContainer types on your PC with the CodeMeter Runtime Kit installed (= **CodeMeter licence server**):

- **CmStick**
The licence for your GGU program is stored in a USB dongle.
- **CmActLicense** (soft licence, not for virtual PC/servers)
The licence for your GGU program is stored in a licence file that is linked to the hardware of a computer.
- **CmCloudContainer**
The licence is located on a CmCloud server of WIBU-Systems and is mirrored to your CodeMeter licence server. The advantages of this type of licence binding are described on the following website: [Licence binding | GGU Software](#).

The GGU programs check at start-up and during runtime whether a corresponding license is available in a CmContainer.

3 GGU-GRAIN-DENSITY: Language selection

The GGU programs can be used in German and English. The program always starts with the language in which it was terminated.

The language preferences can be changed at any time in the "**Info**" menu, using the menu item "**Spracheinstellung**" (for German) or "**Language preferences**" (for English).

4 GGU-GRAIN-DENSITY: Starting the program

After starting the program, you will see two menus at the top of the window:

File

Info

After clicking on the "**File**" menu, a previously entered test can be loaded by means of the "**Load**" menu item, or a new one created using "**New**".

After clicking on "File/New" an empty form is shown on the screen. Five menus now appear at the top of the window:

- File
- Edit
- Graphics preferences
- Output preferences
- Info

After clicking one of these menus, the so-called menu items roll down, allowing you access to all program functions.

The program works on the principle of ***What you see is what you get***. This means that the screen presentation represents, overall, what you will see on your printer. In the last consequence, this would mean that the screen presentation would have to be refreshed after every alteration you make. For reasons of efficiency and as this can take several seconds for complex screen contents, the screen is not refreshed after every alteration.

If you would like to refresh the screen contents, press either [F2] or [Esc]. The [Esc] key also resets the screen display to your current image zoom, which is usually preset to 1.0, which corresponds to an A3 or A4 sheet in most GGU programs (see menu item "**Graphics preferences/Refresh and zoom**").

5 Tips and tricks

5.1 GGU-GRAIN-DENSITY: Keyboard and mouse

By double-clicking the left mouse button on legends or **Mini-CAD** objects, the editor for the selected element immediately opens, allowing it to be edited.

If you double-click in the system graphics with the left mouse button you will see a message box with the results at the selected depth. This gives you a quick overview of the results for any desired depth.

In most dialog boxes, the buttons for leaving the box or buttons for decisive functions are marked thickly and can be reached by clicking the **[Enter]/[Return]** key.

In dialog boxes in which you have to make entries, e.g. change soil properties, the quickest way to jump to the next input box is to use the **[Tab]** key. The previous value is marked and can be overwritten directly with the new entry. You do not have to move to the box with the mouse and delete the old entry in advance.

In input boxes with numerical values, you can use the calculation operations listed in “**Tips and tricks: Mathematical functions in input boxes with numbers**” to change them.

You can scroll the screen with the keyboard using the cursor keys and the **[Page up]** and **[Page down]** keys. After activating the zoom functions, click on an area of the screen to enlarge or reduce the display by a factor of 2. Alternatively, by clicking and dragging the mouse while holding down the **[Ctrl]** key, you define a window section which is then displayed in full screen. By clicking and dragging the mouse while holding down the **[Shift]** and **[Ctrl]** keys, you zoom into your system graphic, i.e. you change the scale of your system representation.

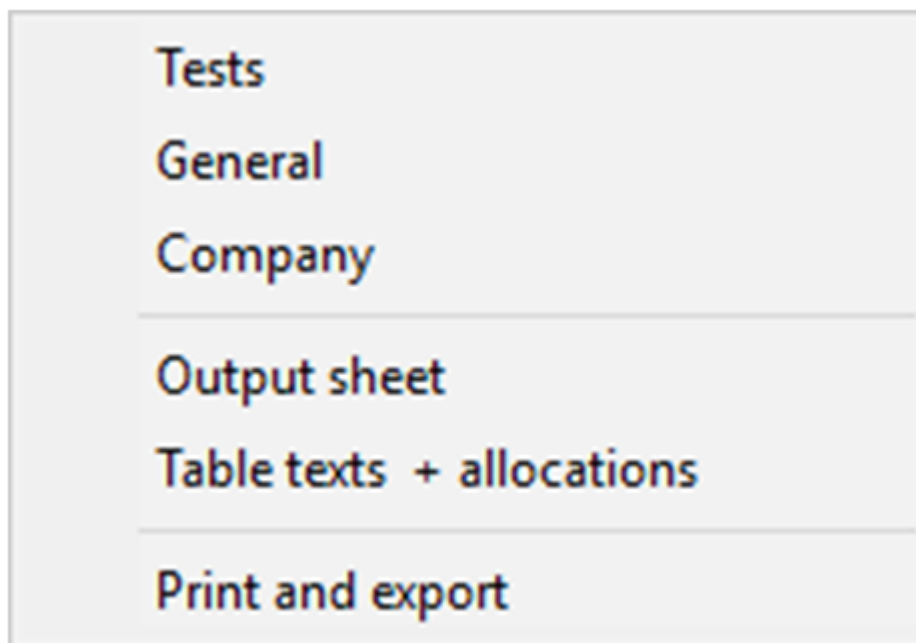
You can also use the mouse wheel to zoom in or out or to move the screen display. When the program is started for the first time, the default setting for mouse wheel operation is activated according to Windows conventions:

- Mouse wheel up = move screen image up
- Mouse wheel down = move screen image down
- **[Shift]** + mouse wheel up = move screen image right
- **[Shift]** + mouse wheel down = move screen image left
- **[Strg]** + mouse wheel up = enlarge screen image (zoom in)

[Strg] + mouse wheel down = reduce screen image (zoom out)

From a zoomed representation you return to the full screen with **[Esc]**.

If you click the right mouse button anywhere on the screen a context menu containing the principal menu items opens.



By double-clicking the left mouse button on output sheet elements or Mini-CAD objects, the editor for the selected object immediately opens, allowing it to be edited. By double-clicking output sheet elements while holding the [Shift] key, the preferences for the position, size and appearance of the element open for editing in the editor.

5.2 GGU-GRAIN-DENSITY: Function keys

Some of the function keys are assigned program functions. The allocations are noted after the corresponding menu items. The individual function key allocations are:

- **[Esc]** refreshes the screen content and resets the screen section to your current image zoom, which is preset to 1.0. This is useful, for example, if you have used the magnifying glass function to display sections of the drawing on the screen and want to quickly return to the overall view.
- **[F1]** opens the manual file.
- **[F2]** refreshes the screen without altering the current magnification.
- **[F11]** activates the menu item "**Move objects**", which appears in the GGU programs under various menu titles, e.g. "**Page size + margins**", "**Graphics preferences**" or "**Output preferences**".

In this GGU program, the following function keys are also assigned to program functions:

6 File menu

6.1 GGU-GRAIN-DENSITY: "New" menu item

All data entered will be deleted. You can then define new tests.

6.2 GGU-GRAIN-DENSITY: "Load" menu item

You can load a file with test data, which was created and saved at a previous sitting, and then edit the test data.

6.3 GGU-GRAIN-DENSITY: "Save" menu item

You can save data entered or edited during program use to a file, to have them available at a later date, or to archive them. The data is saved without prompting with the name of the current file.

6.4 GGU-GRAIN-DENSITY: "Save as" menu item

You can save data entered during program use to an existing file or to a new file, i.e. using a new file name. For reasons of clarity, it makes sense to use ".**ggu_kdi**" as file suffix, as this is the suffix used in the file requester box for the menu item "**File/Load**". If you choose not to enter an extension when saving, ".**ggu_kdi**" will be used automatically.

6.5 GGU-GRAIN-DENSITY: "Output preferences" menu item

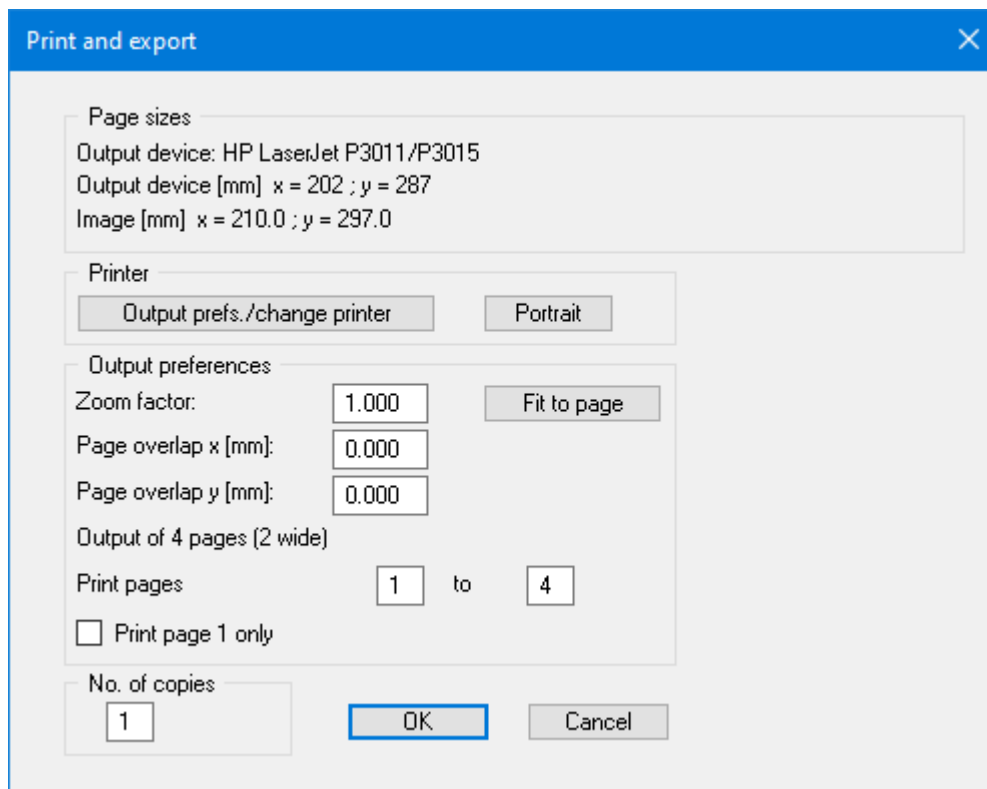
You can edit output preferences (e.g. swap between portrait and landscape) or change the printer in accordance with WINDOWS conventions.

6.6 GGU-GRAIN-DENSITY: "Print and export" menu item

You can select your output format in a dialog box. You have the following possibilities:

- **"Printer"**

allows graphic output of the current screen contents (*graphical representation*) to the WINDOWS standard printer or to any other printer selected using the menu item **"File/Output preferences"**. But you may also select a different printer in the following dialog box by pressing the **"Output prefs./change printer"** button.



In the upper group box, the maximum dimensions which the printer can accept are given. Below this, the dimensions of the image to be printed are given. If the image is larger than the output format of the printer, the image will be printed to several pages (in the above example, 4). To facilitate better re-connection of the images, the possibility of entering an overlap for each page, in x and y direction, is given.

Alternatively, you also have the possibility of selecting a smaller zoom factor, ensuring output to one page (**"Fit to page"** button). Following this, you can enlarge to the original format on a copying machine, to ensure true scaling. You can also print only the 1st page with zoom factor = 1.0, in which case the bottom left-hand area is printed. Furthermore, you may enter the number of copies to be printed.

- **"DXF file"**

allows output of the graphics to a DXF file. DXF is a common file format for transferring graphics between a variety of applications.

- **"GGU-CAD file"**

allows output of the graphics to a file, in order to enable further processing with the **GGU-CAD** program. Compared to output as a DXF file this has the advantage that no loss of colour quality occurs during export.

- **"Clipboard"**

The graphics are copied to the WINDOWS clipboard. From there, they can be imported into other WINDOWS programs for further processing, e.g. into a word processor. In order to import into any other WINDOWS program, you must generally use the *"Edit/Paste"* function of the respective application.

- **"Metafile"**

allows output of the graphics to a file in order to be further processed with third party software. Output is in the standardised EMF format (Enhanced Metafile format). Use of the Metafile format guarantees the best possible quality when transferring graphics.

If you select the **"Copy/print area"** tool



from the toolbar, you can copy parts of the graphics to the clipboard or save them to an EMF file. Alternatively you can send the marked area directly to your printer (see **"Tips and tricks"**).

Using the **"Mini-CAD"** program module you can also import EMF files generated using other GGU applications into your graphics (see menu item **"Graphics preferences/Mini-CAD"**).

- **"Mini-CAD"**

allows export of the graphics to a file in order to enable importing to different GGU applications with the **Mini-CAD** module.

- **"GGUMiniCAD"**

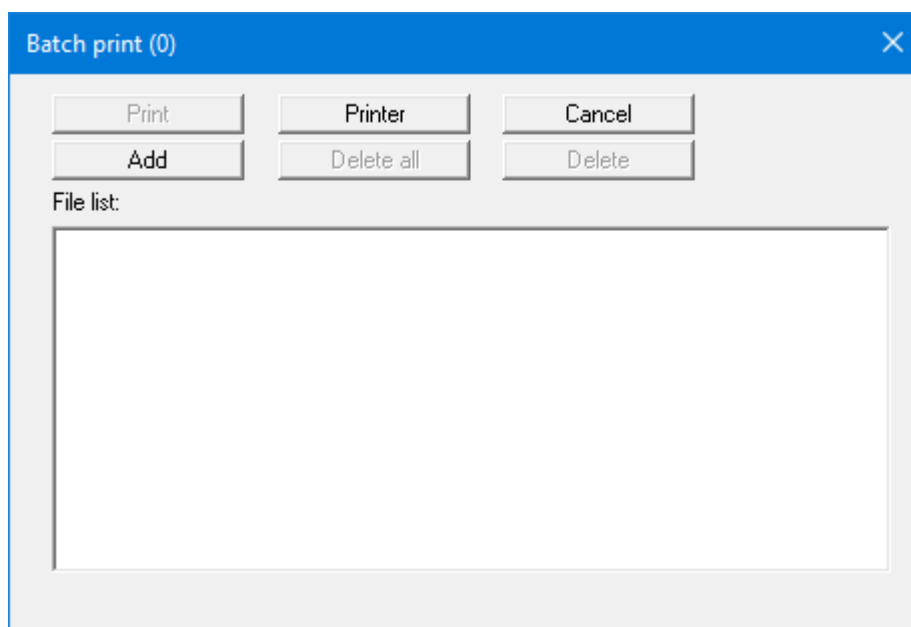
allows export of the graphics to a file in order to enable processing in the **GGUMiniCAD** program.

- **"Cancel"**

Printing is cancelled.

6.7 GGU-GRAIN-DENSITY: "Batch print" menu item

If you would like to print several appendices at once, select this menu item. You will see the following dialog box:



Create a list of files for printing using "**Add**" and selecting the desired files. The number of files is displayed in the dialog box header. Using "**Delete**" you can mark and delete selected individual files from the list. After selecting the "**Delete all**" button, you can compile a new list. Selection of the desired printer and printer preferences is achieved by pressing the "**Printer**" button.

You then start printing by using the "**Print**" button. In the dialog box which then appears you can select further preferences for printer output such as, e.g., the number of copies. These preferences will be applied to all files in the list.

6.8 GGU-GRAIN-DENSITY: "Exit" menu item

After a confirmation prompt, you can quit the program.

6.9 GGU-GRAIN-DENSITY: "1, 2, 3, 4" menu items

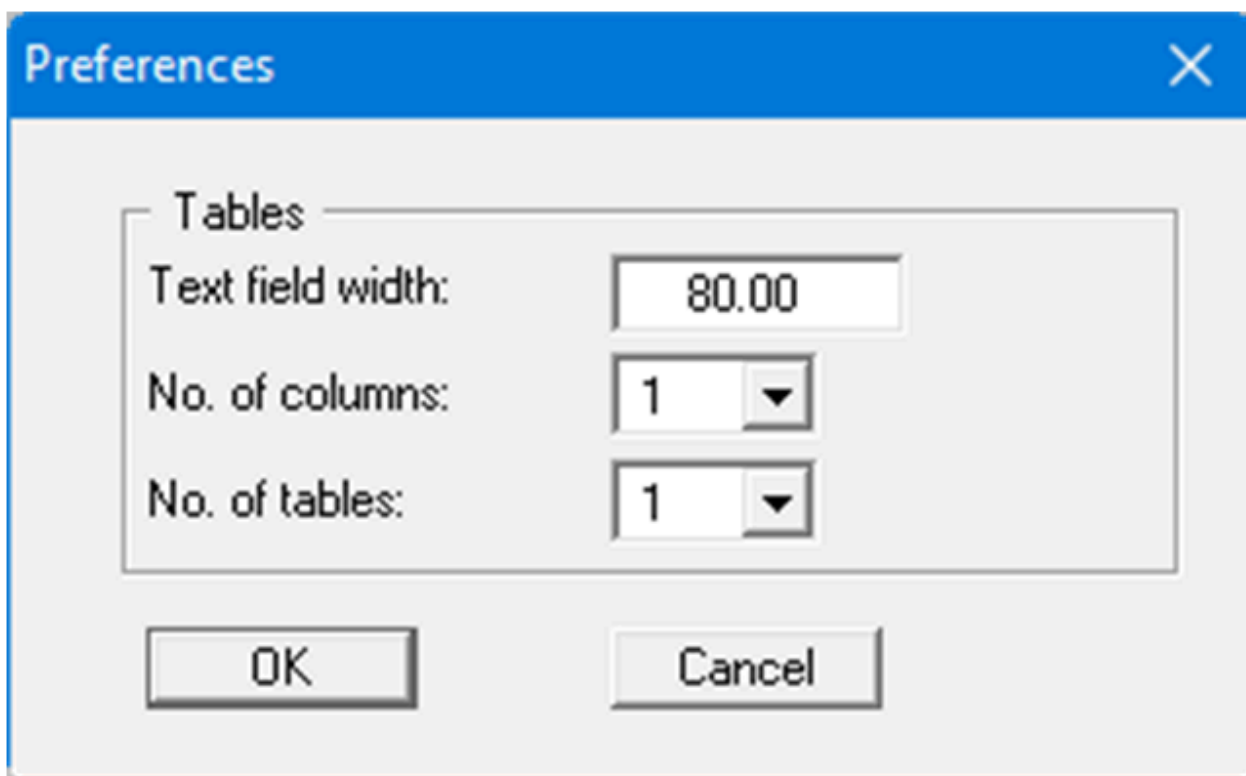
If you have not stored a working directory for the program icon, the program jumps to the program directory after starting to load or save a file.

Under the menu items of the File menu, the most recently edited files are listed with the respective storage path ("**1, 2, 3, ...**"). Selecting one of these files loads the selected file. The next time the "**File/Load**" or "**File/Save**" menu items are called up in the same program session, the program automatically jumps to the directory of the last file loaded.

7 Edit menu

7.1 GGU-GRAIN-DENSITY: "Preferences" menu item

It is possible to specify settings for the results table to suit user requirements.



The width of the left table column with the labelling is specified in the "**Text field width**" input box; the width is given in [mm]. The number of columns (maximum 6) and the number of tables (maximum 4) can be specified using the two drop-down list boxes in the dialog box. Further changes to the table visualisation are possible using the menu item "**Output preferences/Table**".

7.2 GGU-GRAIN-DENSITY: "Tests" menu item

This represents the program's central menu item. All the basic data involved in the determination of grain density is entered here. After clicking this menu item or double-clicking in the result table the following dialog box opens (example):

The 'Tests' dialog box contains an 'Operations' section with buttons for 'Done', 'Cancel', 'Sort', '3 Tests to edit', and 'Delete single test'. Below this is a 'Data' section with a table of test results.

No.	Designation	Pyknometer no.	Mass of Pyknometer mp [g]	Dry sample + Pyknometer m1 [g]	Sample + pyknometer + water m2 [g]	Temperature of water T [°C]	Volume [cm³] of Pyknometer V(pT)
1	Test 1	82	43.720	64.266	155.742	24.500	99.965
2	Test 2	83	43.286	63.418	155.102	24.400	99.974
3	Test 3	109	43.309	63.801	155.326	24.400	100.004

This example contains three single tests, each represented by an input row. The automatic numbering of the tests defines the sequence in the table. You define the number of input rows needed using the "**x Tests to edit**" button.

Enter the obligatory data in the input boxes shown in the dialog box to determine the grain density.

After clicking the "**Delete single test**" button, you can select one of the current single tests to be deleted in an option box.

Further input boxes for entering additional information (e.g. soil type) can be defined using the menu item "**Output preferences/Table texts + allocations**". If you have used this option you will no longer see the test input dialog box shown above. Each individual test is opened separately via a button with the automatically allocated test number:

The 'Tests editor' dialog box features a 'To menu bar' button and a 'New' button. Below these is a 'Show test data' button and three numbered buttons (1, 2, 3) for selecting specific tests.

Using the "**Show test data**" button the input data and test results corresponding to all entered single tests are displayed in a message box. The data are subsequently displayed in the results table on the output sheet. For example, you will see the following dialog box for the first test:

Test no. 1

Test no. 1

Sample designation: Test 1

Pyknometer no. 82

Mass of pyknometer mp [g] 43.720

Dry sample + pyknometer m1 [g] 64.266

Sample + pyknometer + water m2 [g] 155.742

Temperature of water T [°C] 24.500

Volume of pyknometer V(pT) [cm³] 99.965

Free texts

Soil type Sand

Delete test Duplicate test

Done Cancel

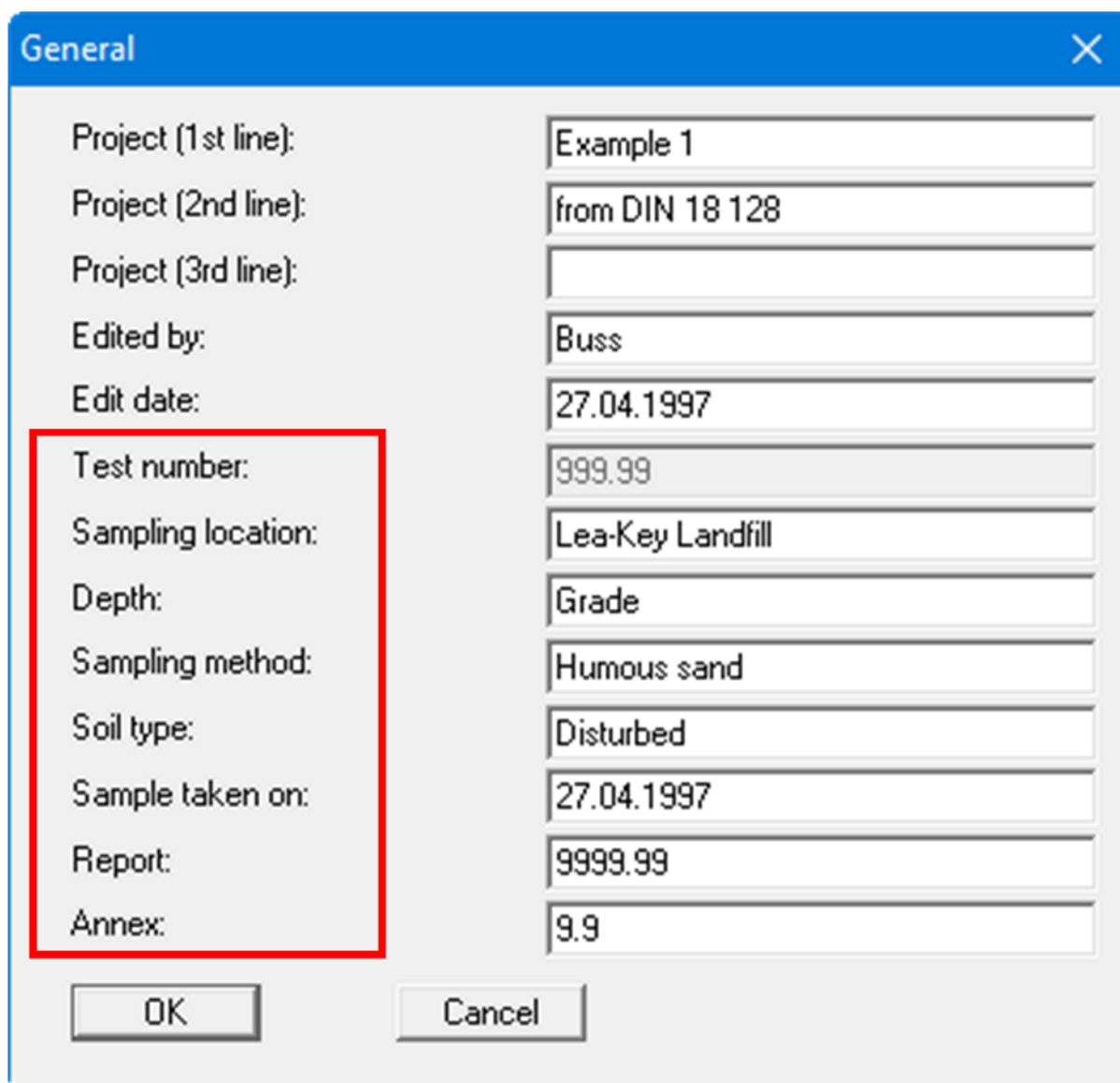
The additional input boxes are shown at the bottom of the dialog box; for soil type input in this example.

7.3 GGU-GRAIN-DENSITY: "Delete test" menu item

After a security request, all tests will be deleted. After this, you can enter a new test using the **"Edit/Tests"** menu item.

7.4 GGU-GRAIN-DENSITY: "General" menu item

Go to this menu item to enter general data such as the project identification, report number, annex number, etc. This data is displayed in the correct elements of the output sheet.



General	
Project (1st line):	Example 1
Project (2nd line):	from DIN 18 128
Project (3rd line):	
Edited by:	Buss
Edit date:	27.04.1997
Test number:	999.99
Sampling location:	Lea-Key Landfill
Depth:	Grade
Sampling method:	Humous sand
Soil type:	Disturbed
Sample taken on:	27.04.1997
Report:	9999.99
Annex:	9.9

OK Cancel

The marked texts in the dialog box also appear in the output sheet. Input boxes can be altered or switched off such as "Test number:" as shown in the above dialog box by going to the menu item "Output preferences/Texts" button "Output sheet".

7.5 GGU-GRAIN-DENSITY: "Company" menu item

You can enter your company address in four lines. These lines will be entered at the top left of the form.

8 Graphics preferences menu

8.1 GGU-GRAIN-DENSITY: "Refresh and zoom" menu item

The program works on the principle of ***What you see is what you get***. This means that the screen presentation represents, overall, what you will see on your printer. In the last consequence, this would mean that the screen presentation would have to be refreshed after every alteration you make. For reasons of efficiency and as this can take several seconds for complex screen contents, the screen is not refreshed after every alteration. If, e.g., after using the zoom function (see below), only part of the image is visible, you can achieve a complete view using this menu item. image-20240920-121835.png A zoom factor between 0.4 and 8.0 can be entered in the input box. By then clicking on "Use" to exit the box the current factor is accepted. By clicking on the "0.4", "0.6", etc. buttons, the selected factor is used directly, and the dialog box closed. It is much simpler, however, to get a complete overview using [Esc]. Pressing [Esc] allows a complete screen presentation using the zoom factor specified in this menu item. The [F2] key allows screen refreshing without altering the coordinates and zoom factor.

8.2 GGU-GRAIN-DENSITY: "Zoom info" menu item

An info box informs you about the activation and options of the zoom function.

The quickest way to enlarge a specific section of the screen is to open a zoom window by holding down the [Ctrl] key and the mouse button.

8.3 GGU-GRAIN-DENSITY: "Legend font selection" menu item

With this menu item you can switch to a different true-type font. All available true-type fonts are displayed in the dialog box.

8.4 GGU-GRAIN-DENSITY: "Font size selection" menu item

You can edit font sizes of texts [in mm] within the various input areas.

8.5 GGU-GRAIN-DENSITY: "Mini-CAD toolbar" menu item

Using this menu item you can add free text, lines, circles, polygons and images (e.g. files in formats BMP, JPG, PSP, TIF, etc.) to the main program graphics. PDF files can also be imported as images. A pop-up menu opens, the icons and functions used are described in more detail in the Mini-CAD manual saved in the 'C:\Program Files (x86)\GGU-Software\Manuals' folder during installation..

8.6 GGU-GRAIN-DENSITY: "Toolbar preferences" menu item

By clicking on the tools (smart icons) for the menu items you can directly reach most of the program functions. The meaning of the smart icons appears as a text box if you hover with the mouse pointer over the tools. Some of the tool functions cannot be called up via normal menu titles and menu entries.

Not all of the icons described below are available in all GGU programs.



"Next page"/"Previous page"

You can use these icons to scroll forwards and backwards between individual pages. In many GGU programs, you can use this in the **output table representation**.



"Select page" or "Diagram/Output table"

If you are in the **output table representation**, you can use this symbol to jump to a specific page or switch back to the normal display, i.e. your graphic display.



"Zoom out"

If you have previously zoomed in, this tool returns to a full screen display.

**"Zoom (-)"/"Zoom (+)"**

With the zoom functions you can zoom in or out of parts of the image, by clicking the left mouse button.

**"Copy/print area"**

Use this tool to copy only parts of the graphics in order to paste them, e.g. to a report. You will see information on this function and can then mark an area, which is copied to the clipboard or can be saved in a file. Alternatively, you can send the marked area directly to your printer (see **"Tips and tricks"**).

**"Colour on/off" or "Colour/hatching"**

If you want to remove the colour from the system display, e.g. to create a black and white printout, you can do this using this on/off switch.

In several GGU programs, 4 colour and hatching settings are possible via this icon, which you can click through in sequence. A colour filled representation is the default setting, the next click shows the hatching, then coloured and hatched. The fourth click shows a representation with neither colour nor hatching. The next click starts again.

**"Move object"**

Use this icon to position legends and diagrams at the desired position on the output sheet.

**"Undo move object"**

By clicking this icon the last performed movement of graphical elements made using the [F11] function key or the menu item **"Output preferences/Move objects"** can be undone.

**"Restore move object"**

By clicking this symbol, the last object movement undo carried out using "Undo move object" can be restored.

**"Construction phase back"/"Construction phase forward"**

If you are in the display of construction phases, you can use these icons to scroll back and forth between the individual construction phases.

8.7 GGU-GRAIN-DENSITY: "Load graphics preferences" menu item

You can reload a graphics preferences file into the program, which was saved using the "**Graphics preferences/Save graphics preferences**" menu item. Only the corresponding data will be refreshed.

8.8 GGU-GRAIN-DENSITY: "Save graphics preferences" menu item

Some of the preferences you made with the menu items of the "**Graphics preferences**" menu as well as the inputs using the "**Edit/Company**" menu item can be saved to a file. If you select "**GGU-GRAIN-DENSITY.kdi_alg**" as file name, and save the file on the same level as the program, the data will be automatically loaded the next time the program is started and need not be entered again.

If you do not go to "**File/New**" upon starting the program, but open a previously saved file instead, the preferences used at the time of saving are shown. If subsequent changes in the general preferences are to be used for existing files, these preferences must be imported using the menu item "**Graphics preferences/Load graphics preferences**" (see Section above).

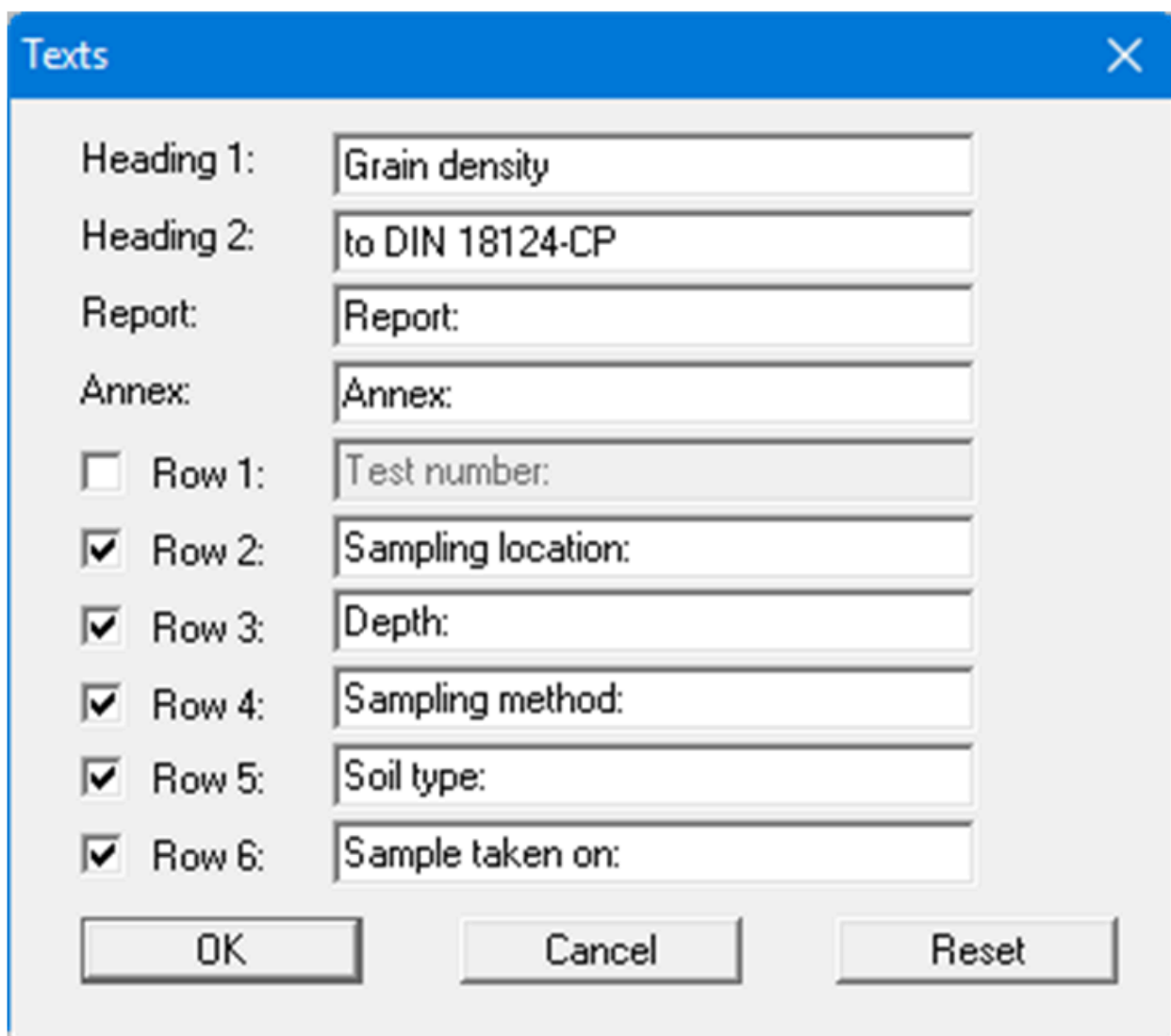
9 Output preferences menu

9.1 GGU-GRAIN-DENSITY: "Page size" menu item

The default page set-up is A4 (portrait) when the program is started. You can edit the page size in the dialog box.

9.2 GGU-GRAIN-DENSITY: "Texts" menu item

The default labelling of some output sheet elements can be edited in this menu item's dialog box. Among other things, the name of the output sheet can be specified here.



The 'Texts' dialog box is shown with the following content:

Label	Text
Heading 1:	Grain density
Heading 2:	to DIN 18124-CP
Report:	Report:
Annex:	Annex:
☐ Row 1:	Test number:
☒ Row 2:	Sampling location:
☒ Row 3:	Depth:
☒ Row 4:	Sampling method:
☒ Row 5:	Soil type:
☒ Row 6:	Sample taken on:

Buttons: OK, Cancel, Reset

Your input in rows 1 to 6 of the above dialog box, as well as the input for "**Report:**" and "**Annex:**" also represent the designations for the input boxes in the "**Edit/General**" menu item dialog box. If rows are deactivated in the above dialog box, the corresponding input boxes in the "**Edit/General**" menu item dialog box are also deactivated.

Use "**Reset**" to restore the default labelling settings. If you have retroactively changed the language you will see the internal program translations in the input boxes.

9.3 GGU-GRAIN-DENSITY: "Table texts + allocations" menu item

The labelling and arrangement of the table elements can be edited using this menu item.

Row	Heading	Enter what?
1	Sample designation	Sample designation
2	Pyknometer no.	Pyknometer no.
3	Mass of pyknometer mp [g]	Mass of pyknometer mp [g]
4	Dry sample + pyknometer m1 [g]	Dry sample + pyknometer m1 [g]
5	Sample + pyknometer + water m2 [g]	Sample + pyknometer + water m2 [g]
6	Temperature of water T [°C]	Temperature of water T [°C]
7	Volume of pyknometer V(pT) [cm³]	Volume of pyknometer V(pT) [cm³]
8	Density of water at T rho(wT) [g/cm³]	Density of water at T rho(wT)
9	Mass of water m(wT) [g]	Mass of water m(wT) [g]
10	Volume of water V(wT) [cm³]	Volume of water V(wT) [cm³]
11	Volume of grain Vk [cm³]	Volume of grain Vk [cm³]
12	Dry sample md [g]	Dry sample md [g]
13	Grain density rhos [g/cm³]	Grain density rhos [g/cm³]
14	Mean [g/cm³]	Mean [g/cm³]
15	Soil type	Free text
16	Nr. 16	None
17	Nr. 17	None
18	Nr. 18	None
19	Nr. 19	None
20	Nr. 20	None

Buttons: OK, Cancel, Reset, Means info

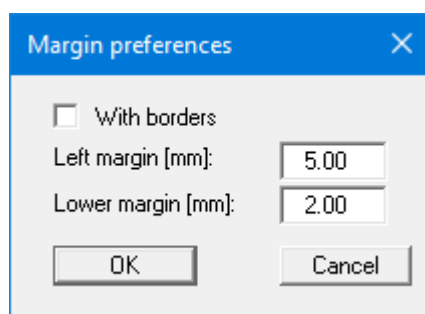
Enter texts by hand in the "**Heading**" boxes, which are later used as a label. After clicking the arrows in the "**Enter what?**" column the data or text in the drop-down list entered by hand or determined by the program can be allocated to the rows of the results table.

Rows with a "**None**" allocation are not displayed. If information that is not found in the table default texts needs to be added to the results table a "**Free text**" can be used. This row then appears in the test data input box with the user-defined labelling.

The "**Reset**" button resets the labelling and allocations of the results table to the defaults. A dialog box opens, in which the texts can be supplemented by the corresponding relationships by activating the "**With relationships**" check box. If you have retroactively changed the language to English you will see the internal program translations. The "**Means info**" button opens a message box with a description of the "**Mean value**" row.

9.4 GGU-GRAIN-DENSITY: "Margins" menu item

In the default program preferences, the form is shown with cutting borders. For output to an A4 printer, a reduction of the printer output is generally necessary, as proprietary printers cannot fully cover an A4 page. The margin preferences can be defined in the following dialog box.



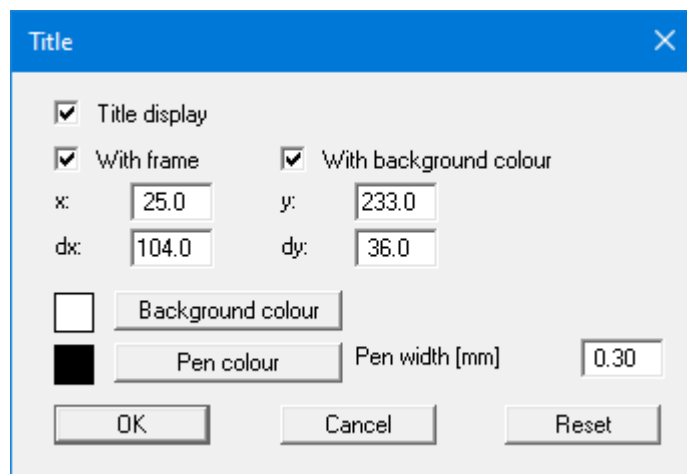
By deactivating the "**With borders**" check box and with an appropriate choice of left and lower margins, it is generally possible to create a non-reduced printer output. It is necessary to also adapt the page height and width .

9.5 GGU-GRAIN-DENSITY: "Position info" menu item

The positions and layout of the individual elements on the output sheet can be altered using the following menu items. This menu item provides information on the options for altering the position and layout more quickly using the mouse.

9.6 GGU-GRAIN-DENSITY: "Title (change position)" menu item

The position and layout of the title element can be altered via the dialog box for this menu item, if the **"Title display"** check box is activated.



The position of the element on the output sheet and its size can be defined or edited by means of the variables **"x"** and **"y"**, **"dx"** and **"dy"**. The element can be provided with a frame and a background colour to suit your personal requirements. If the element needs to be returned to its original condition, this can be done using the **"Reset"** button. Alternatively, you can alter the size and shape of the element using the mouse (see menu item **"Output preferences/Move objects"**).

The heading **"Uniaxial test to DIN 18136"** shown in the title element can be edited in the menu item **"Output preferences/Texts"**. The texts **"Project (1st line)"** to **"Project (3rd line)"** are entered immediately after double-clicking the element or using the menu item **"Edit/General"**.

9.7 GGU-GRAIN-DENSITY: "Company" menu item (output)

You will see an almost identical dialog box with the same settings options as described in the menu item **"Output preferences/Title (change position)"**. Proceed as described there if you want to make changes to the position or layout of the element in this menu item.

The input for this element can be edited immediately after double-clicking on the element or via the menu item **"Edit/Company"**.

9.8 GGU-GRAIN-DENSITY: "Test number etc." menu item

You will see an almost identical dialog box with the same settings options as described in the menu item **"Output preferences/Title (change position)"**. Proceed as described there if you want to make changes to the position or layout of the element in this menu item.

The input for this element can be edited immediately after double-clicking on the element or via the menu item **"Edit/General"**. For this element you also have the option of adapting the texts in front of the input boxes to suit your needs. Go to the menu item **"Output preferences/Texts"**.

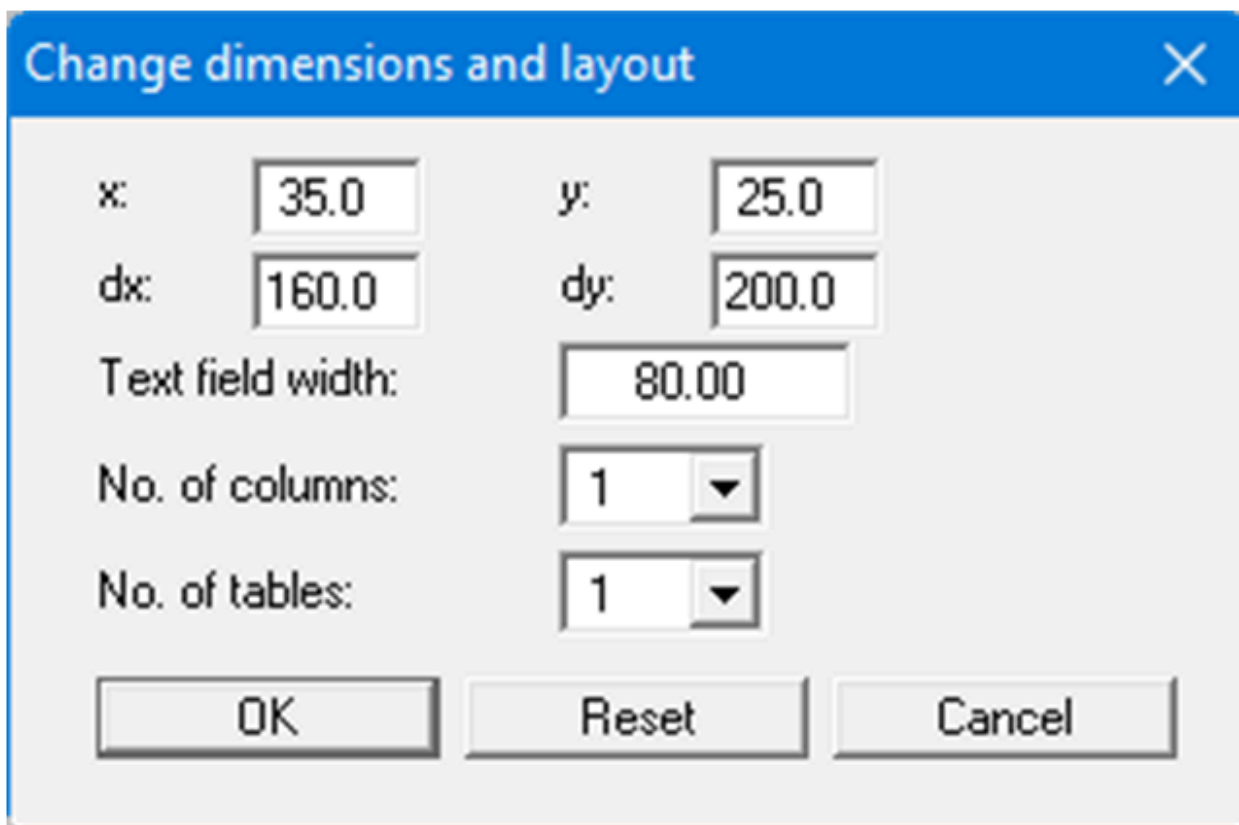
9.9 GGU-GRAIN-DENSITY: "Annex and report" menu item

You will see an almost identical dialog box with the same settings options as described in the menu item **"Output preferences/Title (change position)"**. Proceed as described there if you want to make changes to the position or layout of the element in this menu item.

The input for this element can be edited immediately after double-clicking on the element or via the menu item **"Edit/General"**. For this element you also have the option of adapting the texts in front of the input boxes to suit your needs. Go to the menu item **"Output preferences/Texts"**.

9.10 GGU-GRAIN-DENSITY: "Table" menu item

Using this menu item, not only the size and position of the table elements can be varied, but also the structure of the results table: The number of columns to be included in the table can be specified in the dialog box, together with the number of any tables to be created. The overall size of the table is given by **"dx"** and **"dy"**.



The dialog box titled "Change dimensions and layout" contains the following controls:

- x:** Input field with value 35.0
- y:** Input field with value 25.0
- dx:** Input field with value 160.0
- dy:** Input field with value 200.0
- Text field width:** Input field with value 80.00
- No. of columns:** Drop-down menu showing 1
- No. of tables:** Drop-down menu showing 1
- Buttons:** OK, Reset, and Cancel

The width of the left table column with the labelling is specified in the "**Text field width**" input box; the width is given in [mm]. The number of tests (= columns) to be visualised in a results table can be specified using the "**No. of columns**" drop-down list box. The columns are divided equally across the remaining table width. The font size of the table texts can be edited using the "**Graphics preferences/Font size selection**" menu item. If there is not enough space in the boxes a line break is first inserted and then the font size automatically adjusted.

The number of rows in a results table and the labelling of the first row can be adapted to suit user-requirements using the menu item "**Output preferences/Table texts + allocations**".

9.11 GGU-GRAIN-DENSITY: "Reset all" menu item

With this button, all preferences for the aforementioned elements, which may have been edited with the previous menu item, will be reset to the program defaults.

9.12 GGU-GRAIN-DENSITY: "Move objects" menu item

If you select this entry, you can then use the mouse to move the various objects and legends. Move the mouse over the object of your choice. If you are over a movable object, the mouse pointer will take on the shape of a cross. Now press the left mouse button and drag the object to the desired position while holding down the button.

After going to this menu item **only one object** at a time can be moved using the mouse or its size be altered.

If you want to edit several objects, you can also activate the function more quickly by pressing the [F11] key or the symbol



. An info box will then no longer appear.

In many GGU programs you can also alter the size of an object using this menu item or the [F11] function key. If you are positioned over the frame of a resizable object after activating the function, the mouse takes on the shape of a double arrow. Hold down the left mouse button and drag the frame until the object has reached the desired size. Drag a corner to maintain the aspect ratio of the sides. If you drag on one side, the object becomes taller or wider.

Using the [Back] key or by clicking on the icon



you can undo the last change to the position or size of an object.

In programs in which you can position the diagrams yourself (menu item "**System/Graph positioning preferences**"), the result diagrams can also be moved using this function if you have switched to "**Manual graph positioning**".

10 Info menu

10.1 GGU-GRAIN-DENSITY: "Copyright" menu item

You will see a copyright message and information on the program version number.

The "**System**" button shows information on your computer configuration and the folders used by the GGU program.

10.2 GGU-GRAIN-DENSITY: "Maxima" menu item

Here you can check the defaults for maximum values of the program.

10.3 GGU-GRAIN-DENSITY: "Help" menu item

The manual is opened as a PDF document. The help function can also be accessed using the **[F1]** function key.

10.4 GGU-GRAIN-DENSITY: "GGU on the web" menu item

Using this menu item, you can access the [GGU Software website](#).

Check the page of your program module at regular intervals for information about updates and changes. On the "**Changelogs**" subpage, you can also subscribe to an e-mail notification that informs you of all changes on a monthly basis.

10.5 GGU-GRAIN-DENSITY: "GGU support" menu item

This menu takes you directly to the [GGU Software Support Portal](#).

Here you can enter your support request directly and upload your edited GGU program file.

10.6 GGU-GRAIN-DENSITY: "What's new?" menu item

You will see information on program improvements in comparison to older versions.

10.7 GGU-GRAIN-DENSITY: "Language preferences" menu item

This menu item allows you to switch the menus and the graphics from German to English and vice versa. To work in German, deactivate the two check boxes "**Dialoge + Menüs übersetzen (translate dialogues, menus)**" und "**Graphiktexte übersetzen (translate graphics)**".

Alternatively, you can work bilingually, e.g. with German dialog boxes but with graphic output in English. The program always starts with the language setting applicable when it was last ended.