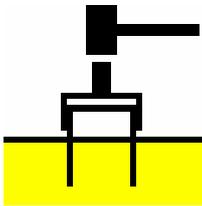


Determination and visualisation of soil density
according to DIN 18125, Part 2

GGU-DENSITY

VERSION 5



Last revision: June 2018
Copyright: Prof. Dr. Johann Buß
Technical implementation and sales: Civilserve GmbH, Steinfeld

Contents:

- 1 Preface 4**
- 2 Licence protection and installation 4**
- 3 Language selection 5**
- 4 Starting the program 5**
- 5 Description of menu items 6**
 - 5.1 File menu 6
 - 5.1.1 "New" menu item 6
 - 5.1.2 "Load" menu item 6
 - 5.1.3 "Save" menu item 6
 - 5.1.4 "Save as" menu item 6
 - 5.1.5 "Output preferences" menu item 7
 - 5.1.6 "Print and export" menu item 7
 - 5.1.7 "Batch print" menu item 9
 - 5.1.8 "Exit" menu item 9
 - 5.1.9 "1, 2, 3, 4" menu items 9
 - 5.2 Edit menu 10
 - 5.2.1 "Preferences" menu item 10
 - 5.2.2 "Tests" menu item 10
 - 5.2.3 "Delete all tests" menu item 12
 - 5.2.4 "General" menu item 12
 - 5.2.5 "Company" menu item 13
 - 5.2.6 "Container database" menu item 13
 - 5.3 Graphics preferences menu 14
 - 5.3.1 "Refresh and zoom" menu item 14
 - 5.3.2 "Zoom info" menu item 14
 - 5.3.3 "Legend font selection" menu item 14
 - 5.3.4 "Font size selection" menu item 14
 - 5.3.5 "Mini-CAD toolbar" menu item 14
 - 5.3.6 "Toolbar preferences" menu item 15
 - 5.3.7 "Load graphics preferences" menu item 16
 - 5.3.8 "Save graphics preferences" menu item 16
 - 5.4 Output preferences menu 16
 - 5.4.1 "Page size" menu item 16
 - 5.4.2 "Texts" menu item 16
 - 5.4.3 "Rows, columns, etc." menu item 18
 - 5.4.4 "Margins" menu item 18
 - 5.4.5 "Position info" menu item 18
 - 5.4.6 "Title (change position)" menu item 19
 - 5.4.7 "Company" menu item 19
 - 5.4.8 "Test no., etc." menu item 19
 - 5.4.9 "Annex and report" menu item 20
 - 5.4.10 "Table" menu item 20
 - 5.4.11 "Reset all" menu item 20
 - 5.4.12 "Move objects" menu item 20

5.5	Info menu	21
5.5.1	"Copyright" menu item	21
5.5.2	"Maxima" menu item	21
5.5.3	"Help" menu item	21
5.5.4	"GGU on the web" menu item	21
5.5.5	"GGU support" menu item.....	21
5.5.6	"What's new?" menu item.....	21
5.5.7	"Language preferences" menu item	21
6	Tips and tricks.....	22
6.1	Keyboard and mouse	22
6.2	Function keys	22
6.3	"Copy/print area" icon.....	23
7	Index.....	24

1 Preface

The **GGU-DENSITY** program system allows determination and visualisation of soil density to German Standards DIN 18125, Part 2. The program provides three different methods of density determination. These are the four field methods:

- densitometer method (balloon method, Test DIN 18125 - 2 B);
- sand replacement method (Test DIN 18125 - 2 S);
- cylinder (proctor) method (Test DIN 18125 - 2 A);
- cylinder (derived values) method.

All three examples from DIN 18125, Part 2 can be found in the files "**Densito-e.dct**", "**Sand-e.dct**" and "**Cylinder-e.dct**".

Data input is in accordance with conventional WINDOWS operations and can therefore be learned almost entirely without the use of a manual. Graphic output supports the true-type fonts supplied with WINDOWS, so that excellent layout is guaranteed. Colour output and any graphics (e.g. files in formats BMP, JPG, PSP, TIF, etc.) are supported. DXF files can also be imported by means of the integrated Mini-CAD module (see the "**Mini-CAD**" manual).

The program has been successfully used in a large number of projects by renowned consultancies and institutes, and has been thoroughly tested. The program system has been thoroughly tested. No faults 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 Licence protection and installation

In order to guarantee a high degree of quality, a hardware-based copy protection system is used for the **GGU-DENSITY** program.

The GGU software protected by the *CodeMeter* copy protection system is only available in conjunction with the *CodeMeter stick* copy protection component (hardware for connection to the PC, "*CM stick*"). Because of the way the system is configured, the protected software can only be operated with the corresponding CM stick. This creates a fixed link between the software licence and the CM stick copy protection hardware; the licence as such is thus represented by the CM stick. The correct Runtime Kit for the CodeMeter stick must be installed on your PC.

Upon start-up and during running, the **GGU-DENSITY** program checks that a CM stick is connected. If it has been removed, the program can no longer be executed.

For installation of GGU software and the CodeMeter software please refer to the information in the *Installation notes for GGU Software International*, which are supplied with the program.

3 Language selection

GGU-DENSITY is a bilingual program. The program always starts with the language setting applicable when it was last ended.

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 Starting the program

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

- File
- Info

After clicking the "**File**" menu, either an existing file can be loaded by means of the "**Load**" menu item, or new tests can be entered using "**New**". After clicking "**File/New**" the type of test must be selected from a dialog box. An empty form according to DIN 18125 is then displayed on the screen with the designation of the selected test type. Then, the menu bar will show five menus:

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

After clicking one of these menus, the 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 **GGU-DENSITY** screen is not refreshed after every alteration.

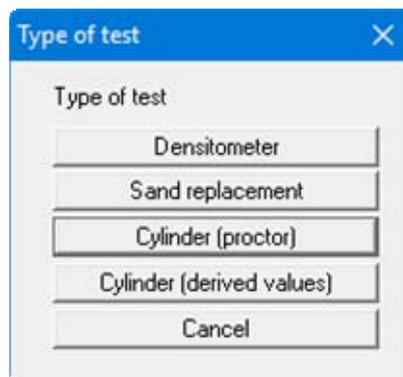
If you would like to refresh the screen contents, press either [F2] or [Esc]. The [Esc] key additionally sets the screen presentation back to your current zoom, which has the default value 1.0, corresponding to an A4 format sheet.

5 Description of menu items

5.1 File menu

5.1.1 "New" menu item

All data entered is deleted and the following dialog box is displayed, which also appears when the program is started.



One of four methods of density determination can be selected. An empty form according to DIN 18125, Part 2 appears when the button for the required method is clicked.

5.1.2 "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.

5.1.3 "Save" menu item

You can save data entered or edited during program use to a file, in order 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.

5.1.4 "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 ".dct" 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, ".dct" will be used automatically.

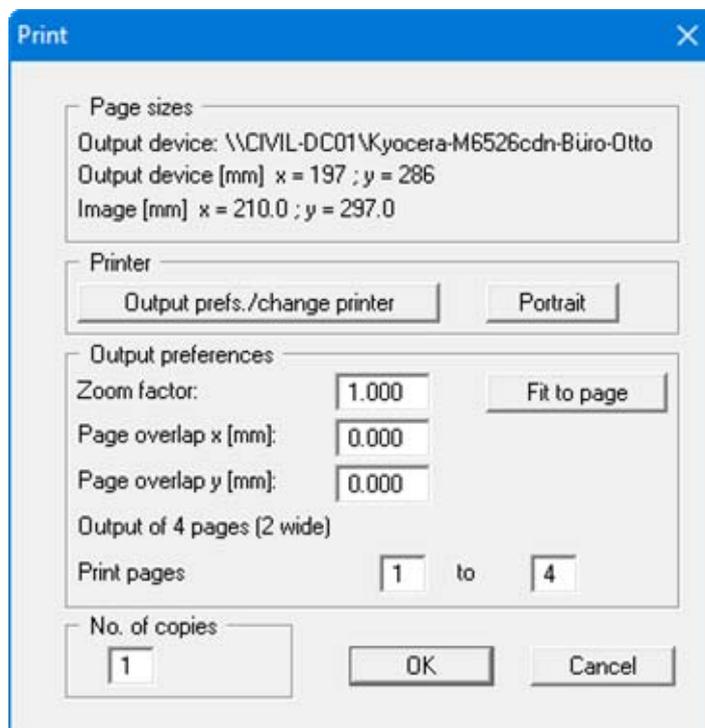
5.1.5 "Output preferences" menu item

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

5.1.6 "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 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). In order 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. 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.

- **"GGUCAD file"**
allows output of the graphics to a file, in order to enable further processing with the GGUCAD 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.

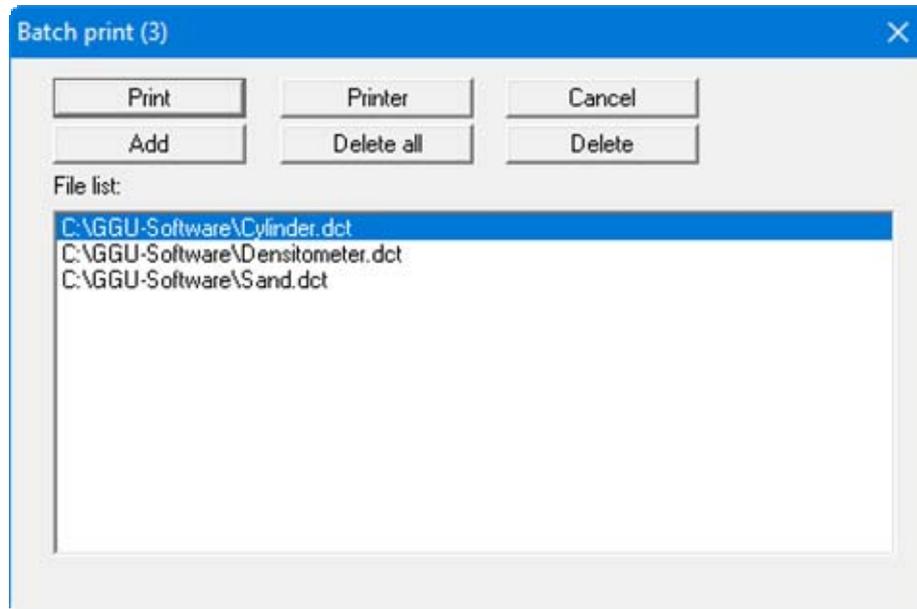
If you select the **"Copy/print area"** tool  from the toolbar, you can copy parts of the graphics to the clipboard or save them to an EMF file. Alternatively you can send the marked area directly to your printer (see **"Tips and tricks"** in Section 6.3).

Using the **"Mini-CAD"** program module you can also import EMF files generated using other GGU applications into your graphics.

- **"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.

5.1.7 "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 output 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.

5.1.8 "Exit" menu item

After a confirmation prompt, you can quit the program.

5.1.9 "1, 2, 3, 4" menu items

The "**1, 2, 3, 4**" menu items show the last four files worked on. By selecting one of these menu items the listed file will be loaded. If you have saved files in any other folder than the program folder, you can save yourself the occasionally onerous *rummaging* through various sub-folders.

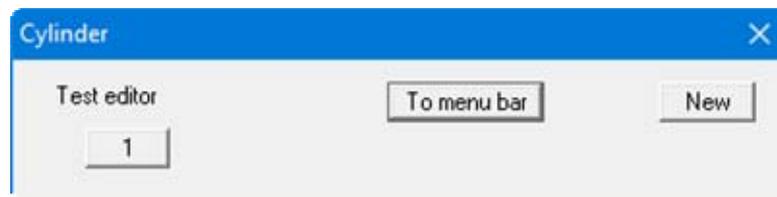
5.2 Edit menu

5.2.1 "Preferences" menu item

The water content is given in percent in the **GGU-DENSITY** program default setting. This preference can be deactivated in the dialog box for this menu item.

5.2.2 "Tests" menu item

This is the program's central menu item. After selecting a density determination method in the menu item **"File/New"** (see Section 5.1.1), all the base data for determining the soil density is entered here. After clicking this menu item or double-clicking in the table area the following dialog box opens (example):



Only one test is present in this example. The tests are automatically numbered and the test numbers ("1, 2, 3, ...") shown on the respective buttons. The following actions are possible:

- **"To menu bar"**
You return to the original menu bar.
- **"New"**
You can now enter data for a new test.
- **"1", "2", ...**
By clicking the buttons labelled with the test numbers you can open and edit the data for the corresponding test.

After clicking on "New" or on the button of an existing test a dialog box opens for entering or editing test data. The dialog that appears when the "Cylinder (proctor)" method is selected is shown below:

Test 1			
Wet density			
Sample designation	1		
Wet sample + cylinder [g]	1769.00		
Cylinder [g]	78.00		
Cylinder volume [cm³]	850.00		
Water content			
Wet sample + container [g]	1769.00		
Dry sample + container [g]	1526.00		
Container [g]	0.00		
Proctor densities + water content			
100 % [g/cm³]	2.000	Required [%]:	97.5
Min w [%]	10.00	Max w [%]:	20.00
<input type="button" value="Done"/> <input type="button" value="Delete"/> <input type="button" value="Duplicate"/> <input type="button" value="Cancel"/>			

Enter the unit weights and volumes for density determination using cylinder tests. It is also possible to enter the weight of the test container manually. However, if you use containers with standard weights for your tests it is recommended to store the weights of the respective containers in a database. This saves repeated input by hand. The database can be stored using the menu item "Edit/Container database" (see Section 5.2.6).

In the place of the input box "Container [g]" an extended group box is shown in the dialog box. After activating the "Database" option button the containers used can be selected from the drop-down combo box.

Container weight	
<input type="radio"/> Individually [g]	0.00
<input checked="" type="radio"/> Database	mb = 84.65 g (Nr. 1)

The container database can also be accessed when using other GGU laboratory programs.

The following actions are also possible from the above dialog box:

- **"Done"**
You will arrive back at the previous dialog box. All values entered will be accepted.
- **"Delete"**
The currently displayed test will be deleted.
- **"Duplicate"**
The currently displayed test will be duplicated. You will automatically find yourself in the next test.

5.2.3 "Delete all tests" 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.

5.2.4 "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.

The image shows a 'General' dialog box with the following fields and values:

Field	Value
Project (1st line):	Example city
Project (2nd line):	Example street
Project (3rd line):	
Edited by:	Buß
Edit date:	12.02.2017
Test number:	12345
Sampling point:	House pond
Depth:	base
Type of sampling:	wet
Soil type:	ooze
Date of sampling:	11.02.2017
Report:	2017
Annex:	1.11

Buttons: OK, Cancel

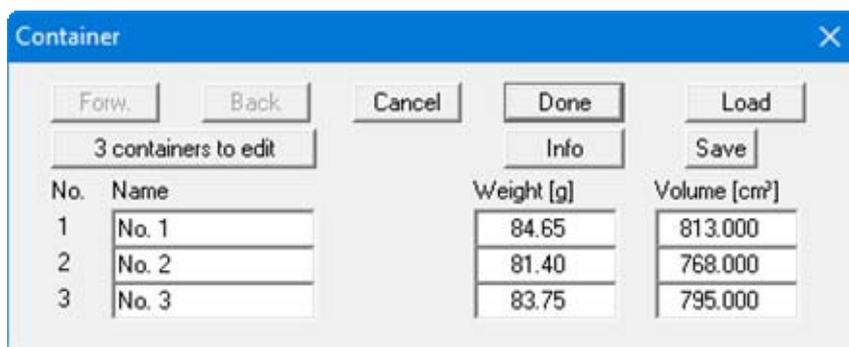
The marked texts in the dialog box also appear in the output sheet. Input boxes can be altered or switched off such as "Test number:" as shown in the above dialog box by going to the "Output preferences/Texts" menu item "Output sheet texts" button (see Section 5.4).

5.2.5 "Company" menu item

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

5.2.6 "Container database" menu item

If you use containers with standard weights for your tests, their weights can be stored in a container database using the dialog box in this menu item.



The screenshot shows a dialog box titled "Container" with a close button (X) in the top right corner. At the top, there are buttons for "Forw.", "Back", "Cancel", "Done", and "Load". Below these is a button labeled "3 containers to edit". Underneath is a table with three columns: "No.", "Name", "Weight [g]", and "Volume [cm³]". The table contains three rows of data. To the right of the table are buttons for "Info" and "Save".

No.	Name	Weight [g]	Volume [cm³]
1	No. 1	84.65	813.000
2	No. 2	81.40	768.000
3	No. 3	83.75	795.000

Enter the number of containers to be defined via the "**x containers to edit**" button. The corresponding number of rows for input will then be shown. If more than 8 containers are defined you can navigate through the list using the "**Forw.**" and "**Back**" buttons.

If you work with several databases you can save the containers to a database or load a different database using the appropriate buttons. The database file is first searched for in the program folder, then at the working level and finally in the Windows folder. It is generally practical to store the container database in the Windows folder if it is also to be accessed by other GGU laboratory programs. If the database file is saved using the default name of "**GGU-Database.bh_**" it is automatically loaded when the program starts. This information is also stored behind the "**Info**" button.

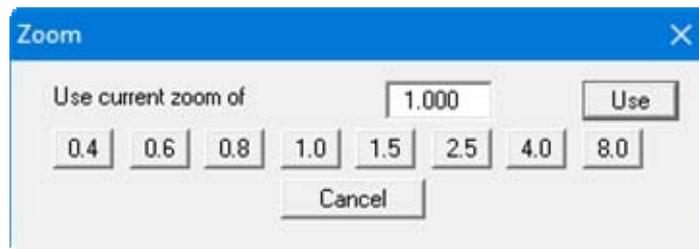
The containers stored in the database can be accessed in a drop-down combo box in the menu item "**Edit/Tests**" (see Page 11).

5.3 Graphics preferences menu

5.3.1 "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.



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.

5.3.2 "Zoom info" menu item

By clicking two diametrically opposed points you can enlarge a section of the screen in order to view details better. An information box provides information on activating the zoom function and on available options.

5.3.3 "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.

5.3.4 "Font size selection" menu item

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

5.3.5 "Mini-CAD toolbar" menu item

Using this menu item you can add free text to the graphics and add lines, circles, polygons and images (e.g. files in formats BMP, JPG, PSP, TIF, etc.). A pop-up menu opens; the icons and functions used are described in more detail in the "Mini-CAD" manual provided.

5.3.6 "Toolbar preferences" menu item

After starting the program a horizontal toolbar for menu items appears below the program menu bar. If you would rather work with a popup window with several columns, you can specify your preferences using this menu item. The smart icons can also be switched off.

At the bottom of the program window you find a status bar with further information. You can also activate or switch off the status bar here. The preferences will be saved in the "GGU-DENSITY.alg" file (see menu item "Graphics preferences/Save graphics preferences") and will be active at the next time the program is started.

By clicking on the tools (smart icons) 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 can be activated from the normal menu items.



"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.



"Undo move object"

If you have previously edited the position or size of an element on the output sheet ([F11] or used "Output preferences/Move objects"), you can undo the last modification with this tool.



"Restore move object"

If you have previously undone a modification, you can restore with this tool.



"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" in Section 6.3).

5.3.7 "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.

5.3.8 "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-DENSITY.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**".

5.4 *Output preferences menu*

5.4.1 "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.

5.4.2 "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. Depending on the method selected for density determination in the menu item "**Edit/New**", the text boxes in the output sheet applicable to the selected method are displayed in the individual dialog boxes of this menu item and can then be adapted.

An option box opens for each method in which the various fields can be selected for editing using the correspondingly labelled buttons. For example, the following dialog box appears if the "**Cylinder (Proctor)**" density determination method is selected:



After clicking the "Output sheet texts" button, the following dialog box opens:

The 'Texts' dialog box contains the following fields and options:

- Heading 1: Density determination (cylinder)
- Heading 2: (DIN 18125-2)
- Report: Report:
- Annex: Annex:
- Row 1: Test number:
- Row 2: Sampling point:
- Row 3: Depth:
- Row 4: Type of sampling:
- Row 5: Soil type:
- Row 6: Date of sampling:

Buttons: OK, Reset, Cancel

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 lines are deactivated in the above dialog box, the corresponding input boxes in the "Edit/General" menu item dialog box are also deactivated (see Section 5.2.4).

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.

If the button "Table texts 1" in the above dialog is pressed, the following dialog box opens in which the annotation of the upper section of the table in the output sheet can be edited:

The 'Cylinder' dialog box contains the following fields:

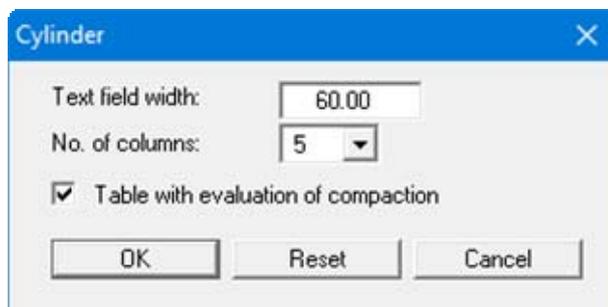
- Table row 1: Wet density #
- Table row 2: Sample designation:
- Table row 3: Wet sample + cylinder [g]:
- Table row 4: Cylinder [g]:
- Table row 5: Wet sample [g]:
- Table row 6: Cylinder volume [cm³]:
- Table row 7: Wet density # [g/cm³]:
- Table row 8: Water content by drying

Buttons: OK, Reset, Cancel

The "#" sign is a placeholder for the Greek letter rho.

5.4.3 "Rows, columns, etc." menu item

The structure of the table element is defined using this menu item. The number of columns and rows and their widths can be defined in the following dialog box. The overall size of the table can only be altered using the menu item "**Output preferences/Table**" (see Section 5.4.4).

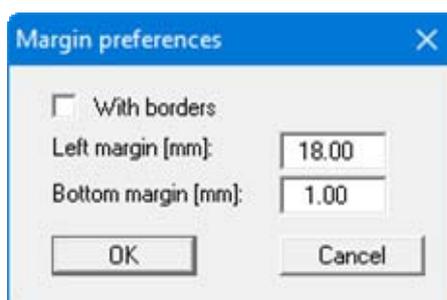


The width of the left table column with the labelling is specified in the "**Text field width**" input box. The width is given in [mm], the labelling font size is automatically adjusted to the available space. The number of tests (= columns) to be visualised on an output sheet can be specified using the "**No. of columns**" drop-down list box. The columns are divided equally across the remaining table width, the font size in the cells is also adjusted to the available space.

If the compaction evaluation is also to be shown in the table, activate the corresponding check box. If the check box is deactivated, the rows containing the remaining test data will be distributed across the entire table height. The table rows will then be very wide

5.4.4 "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.



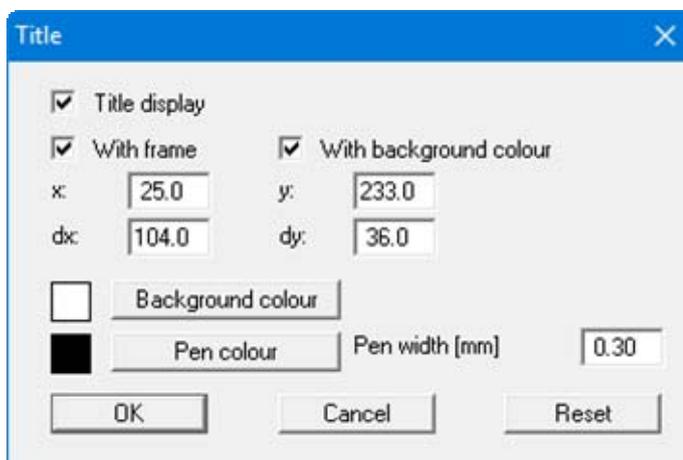
By deactivating the "**With borders**" check box and with an appropriate choice of left and lower margins, it is generally possible to create a non-reduced printer output. It is necessary to also adapt the page height and width (see Section 5.4.1).

5.4.5 "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.

5.4.6 "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", Section 5.4.12).

The heading "Density determination (cylinder)" shown in the title element can be edited in the menu item "Output preferences/Texts" (see Section 5.4.2). The texts "Project (1st line)" and "Project (2nd line)" are entered immediately after double-clicking the element or using the menu item "Edit/General" (see Section 5.2.4).

5.4.7 "Company" menu item

Almost exactly the same dialog box opens with the same preference options as that described in the "Output preferences/Title (change position)" menu item (see Section 5.4.6). Simply proceed as described there to edit the "Company" element.

The input for this element can be edited immediately after double-clicking on the element or via the menu item "Edit/Company" (see Section 5.2.3).

5.4.8 "Test no., etc." menu item

Almost exactly the same dialog box opens with the same preference options as that described in the "Output preferences/Title (change position)" menu item (see Section 5.4.6). To edit the "Test no., etc.", element, simply proceed as is described there.

The input for this element can be edited immediately after double-clicking on the element or via the menu item "Edit/General" (see Section 5.2.4). 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" (see Section 5.4.2).

5.4.9 "Annex and report" menu item

Almost exactly the same dialog box opens with the same preference options as that described in the "**Output preferences/Title (change position)**" menu item (see Section 5.4.6). To edit the "**Annex and report**" element, simply proceed as described there.

The input for this element can be edited immediately after double-clicking on the element or via the menu item "**Edit/General**" (see Section 5.2.4). 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**" (see Section 5.4.2).

5.4.10 "Table" menu item

Almost exactly the same dialog box opens with the same preference options as that described in the "**Output preferences/Title (change position)**" menu item (see Section 5.4.6). Simply proceed as described there to edit the element or change the table size.

The sizes of the columns and rows can be edited using the menu item "**Output preferences/Rows, columns, etc.**" (see Section 5.4.3). The row labelling can be adapted using the menu item "**Output preferences/Texts**" (see Section 5.4.2).

5.4.11 "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.

5.4.12 "Move objects" menu item

When you go to this item you can move the various objects with the aid of the mouse. Move the mouse over the object to be moved. When you are located above a moveable object the mouse pointer appears in the shape of a cross. You can now press and hold the left mouse button and drag the object to the required position.

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

In order to move or edit several objects, this function can be more quickly activated by pressing [F11] or the  icon.

The size of an object can also be altered using this menu item or the [F11] key. If you move over the frame of a changeable object after activating this function the mouse assumed the shape of a double-headed arrow. Hold the left mouse button and move the frame until the object has reached the required size. To retain the ratio of the sides, pull at one corner only. If on one side only is pulled the object will become higher or wider.

The last change made in the position or size of an object can be undone using [Backspace] or by clicking the  icon.

5.5 Info menu

5.5.1 "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 **GGU-DENSITY**.

5.5.2 "Maxima" menu item

Information on the maximum number of tests possible is displayed in a message box.

5.5.3 "Help" menu item

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

5.5.4 "GGU on the web" menu item

Using this menu item you can access the GGU Software website: www.ggu-software.com. Keep in touch with new program versions and the regular *download* offers.

If you would like to be automatically notified about program innovations, please register for the Newsletter in our Knowledge Base. Go to the following website: <http://kbase.civilserve.com>.

5.5.5 "GGU support" menu item

This menu item takes to the GGU-Software Support area at www.ggu-software.com.

5.5.6 "What's new?" menu item

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

5.5.7 "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 switches "**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.

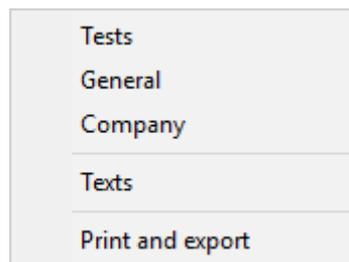
6 Tips and tricks

6.1 Keyboard and mouse

You can scroll the screen with the keyboard using the cursor keys and the [**Page up**] and [**Page down**] keys. By clicking and pulling with the mouse, with [**Ctrl**] pressed, you activate the zoom function, i.e. the selected section will fill the screen. Furthermore you can use the mouse wheel to zoom in/out or scrolling the screen presentation. The following mouse wheel functions are available:

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

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 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.

6.2 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 contents and sets the screen back to the given format (A4). This is useful if, for example, you have used the zoom function to display parts of the screen and would like to quickly return to a complete overview.
- [**F1**] opens the manual file.
- [**F2**] refreshes the screen without altering the current magnification.
- [**F11**] activates the menu item "**Output preferences/Move objects**".

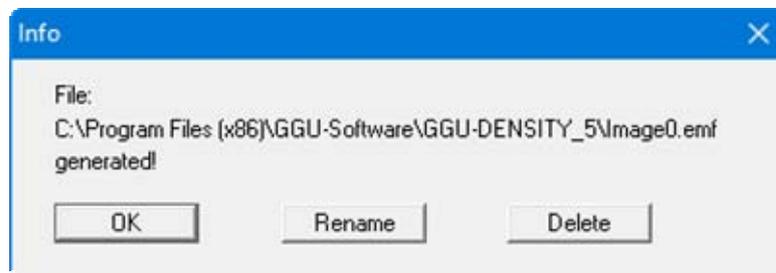
6.3 "Copy/print area" icon

A dialog box opens when the "Copy/print area" icon  in the menu toolbar is clicked, describing the options available for this function. For example, using this icon it is possible to either copy areas of the screen graphics and paste them into the report, or send them directly to a printer.

In the dialog box, first select where the copied area should be transferred to: "Clipboard", "File" or "Printer". The cursor is displayed as a cross after leaving the dialog box and, keeping the left mouse button pressed, the required area may be enclosed. If the marked area does not suit your requirements, abort the subsequent boxes and restart the function by clicking the icon again.

If "Clipboard" was selected, move to the MS Word document (for example) after marking the area and paste the copied graphics using "Edit/Paste".

If "File" was selected, the following dialog box opens once the area has been defined:



The default location of the file is the folder from which the program is started and, if several files are created, the file is given the file name "Image0.emf" with sequential numbering. If the "Rename" button in the dialog box is clicked, a file selector box opens and the copied area can be saved under a different name in a user-defined folder. Saving can be aborted by pressing the "Delete" button.

If the "Printer" button was pressed in the first dialog box, a dialog box for defining the printer settings opens after marking the area. Following this, a dialog box for defining the image output settings opens. After confirming the settings the defined area is output to the selected printer.

7 Index

A		K	
Annex number,		Knowledge Base, access.....	21
edit element.....	20		
enter.....	12		
B		L	
Borders, turn on/off.....	18	Language preferences.....	5, 21
		Layout, define for output sheet.....	16
		Licence protection.....	4
C		M	
Clipboard.....	8	Manual, open as PDF file.....	21
CodeMeter stick.....	4	Margins, define.....	18
Compaction, activate visualisation.....	18	Metafile, export.....	8
Company,		Mini-CAD,	
edit element.....	19	export file.....	8
enter address.....	13	use.....	14
Container database,		Mouse click functions.....	22
edit.....	13	Mouse wheel functions.....	22
use.....	11		
Context menu, open.....	22		
Copy/print area.....	8, 15, 23		
Cylinder (derived values) method.....	4		
Cylinder (proctor) method.....	4		
D		O	
Densitometer method.....	4	Output preferences.....	7
Density determination,		Output sheet,	
applicable methods.....	4	alter position or size of individual	
select method.....	6	elements using the mouse.....	18, 20
DXF file,		change name.....	16
export.....	7	edit title element.....	19
import.....	4	reset all elements to defaults.....	20
		reset individual elements to defaults.....	19
E		P	
EMF format.....	8	Page,	
		copy/print section.....	15, 23
		define margins.....	18
		define size.....	16
F		Print,	
File, load/save.....	6	graphics.....	7
Font selection.....	14	section.....	8, 15, 23
Font size, define.....	14	several files.....	9
Function keys.....	22	Program,	
		save/load preferences.....	16
		show improvements.....	21
		show information.....	21
G		Project data,	
GGUCAD file, export.....	8	edit element.....	19
GGUMiniCAD file, export.....	8	enter.....	12
Graphics, integrate using Mini-CAD.....	14		
I		R	
Installation.....	4	Report number,	
		edit element.....	20
		enter.....	12

S

Sample data,	
edit element	19
edit input box texts	17
enter	12
Sand replacement method.....	4
Scroll the screen	22
Single test, delete/duplicate	12
Smart icons, for menu items	15
Status bar main program, activate	15
System, show information	21

T

Table,	
edit annotation texts	17
edit column/row size	18
edit element/size.....	20
Test numbers, for sequence of display.....	10

Tests,	
delete all	12
delete/duplicate single test	12
enter/edit single test.....	11
show default maximum number	21
Toolbar, edit for menu items	15
Translation,	
activate	21
display retroactively for output sheet texts...	17
True-type font.....	14

V

Version number, display in a message box.....	21
---	----

W

Water content, deactivate percentage display...	10
What you see is what you get	14

Z

Zoom factor, define for full-screen display	14
Zoom function, activate.....	14, 15, 22