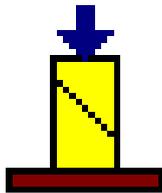


Evaluation and visualisation of uniaxial compression tests to DIN 18136

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# GGU-UNIAXIAL

VERSION 4



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

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## 1 Preface

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The **GGU-UNIAXIAL** program allows evaluation and visualisation of uniaxial tests to DIN 18136.

The program is designed to allow simple data input. The system is permanently displayed on the screen. Every alteration to the data is shown on the screen, so that optimum control of input data is guaranteed. 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 thoroughly tested on numerous examples from the literature and in engineering practice. 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.

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## 2 Licence protection and installation

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

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### 3 Language selection

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**GGU-UNIAXIAL** 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

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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**" you select in a dialog box whether the output table is displayed on a second sheet. If the "**Display output table in main graphics**" check box is activated an empty A3 format page is displayed on the screen when the dialog box is closed, otherwise an A4 format output sheet is displayed with an empty form to DIN 18136. The menu bar will then 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-UNIAXIAL** 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.

---

## 5 Description of menu items

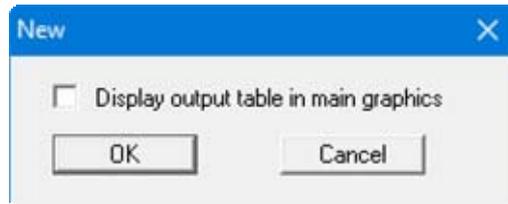
---

### 5.1 File menu

---

#### 5.1.1 "New" menu item

All data entered will be deleted after a confirmation prompt. You can then define new tests. A dialog box opens asking for the sheet for the output table graphics.



If the check box is activated and the diagram positions subsequently redefined, an A3 format sheet is displayed. The output table is visible at the left of the output sheet; the stress-compression diagram is visible at the right.

If the "**Display output table in main graphics**" is deactivated the output table and the diagram are displayed separately on two A4 format sheets. Move quickly between the output table and the graphics visualisation by clicking the  icon in the Smart icon bar (also see Section 5.3.1).

#### 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

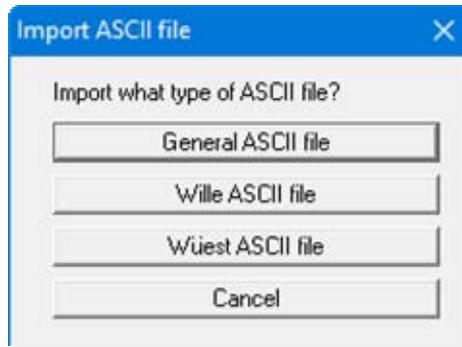
You can save data entered or edited during program use to a file, in order to have them available at a later date, or to archive them. The data is saved without prompting with the name of the current file.

#### 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 ".**1ax**" 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, ".**1ax**" will be used automatically.

### 5.1.5 "Import ASCII file" menu item

Using this menu item the measured data can be imported from a file in standard ASCII format. In addition, ASCII data in the file formats of the apparatus manufacturers Wüest and Wille can be imported.

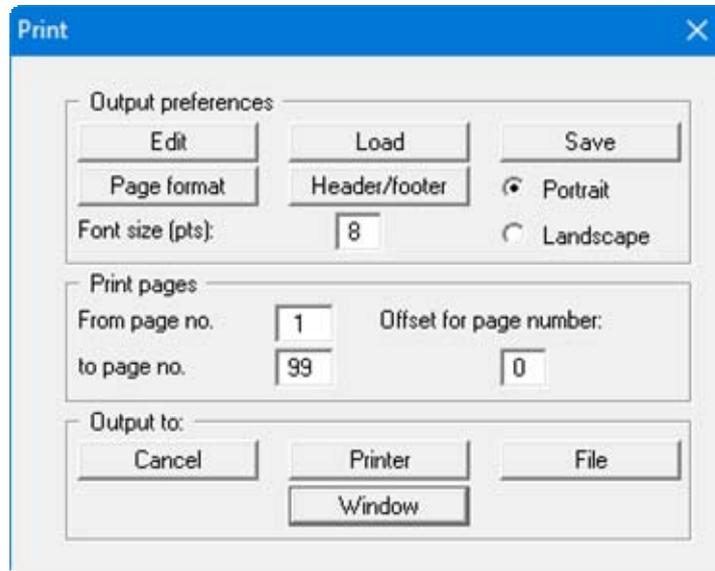


Once you have selected the company the corresponding data can be automatically imported. If you need to read data in a format provided by a different company, please contact **CIVILSERVE** ([info@civilserve.com](mailto:info@civilserve.com)).

After importing a generic file a dialog box appears. The current row of the ASCII file is shown at the top. You can navigate through the file using the arrow buttons on the right. If all the information is correct, the result for the row is shown in the box below the column. Otherwise, "**Error**" appears. You may need to change the column delimiter. If the file contains invalid as well as valid rows, these will simply be skipped during the subsequent import. If the measured values are not in the correct units, you can enter a correction factor under "**Compression factor**" and/or "**Force factor**". Finally, select the "**Import data**" button. You can then further process the test or evaluate it.

### 5.1.6 "Print 'simple' output table" menu item

You can have a results output table of the current test data sent to the printer or save it to a file for further processing using a different program, e.g. a word processing application. You will see the following dialog box for specifying the simple table output:



- "Output preferences" group box  
Using the "Edit" button the current output preferences can be changed or a different printer selected. Using the "Save" button, all preferences from this dialog box can be saved to a file in order to have them available for a later session. If you select "GGU-UNIAXIAL.drk" as file name and save the file in the program folder (default), the file will be automatically loaded the next time you start the program.

Using the "Page format" button you can define, amongst other things, the size of the left margin and the number of rows per page. The "Header/footer" button allows you to enter a header and footer text for each page. If the "#" symbol appears within the text, the current page number will be entered during printing (e.g. "Page #"). The text size is given in "Pts". You can also change between "Portrait" and "Landscape" formats.

- "Print pages" group box  
If you do not wish pagination to begin with "1" you can add an *offset number* to the check box. This offset will be added to the current page number. The output range is defined using "From page no." "to page no.".
- "Output to:" group box  
Start output by clicking on "Printer" or "File". The file name can then be selected from or entered into the box. You can view the data in an editor window as well.

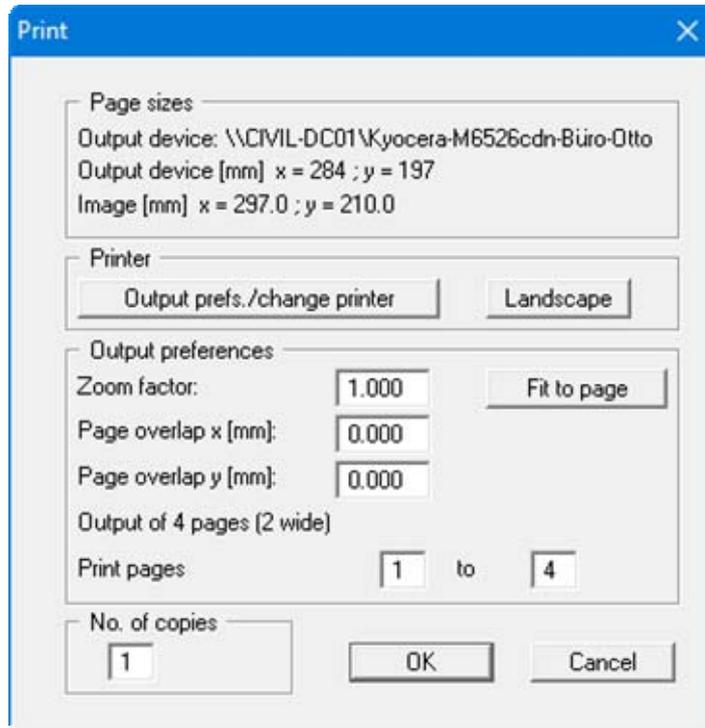
### 5.1.7 "Output preferences" menu item

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

### 5.1.8 "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.

- **"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.

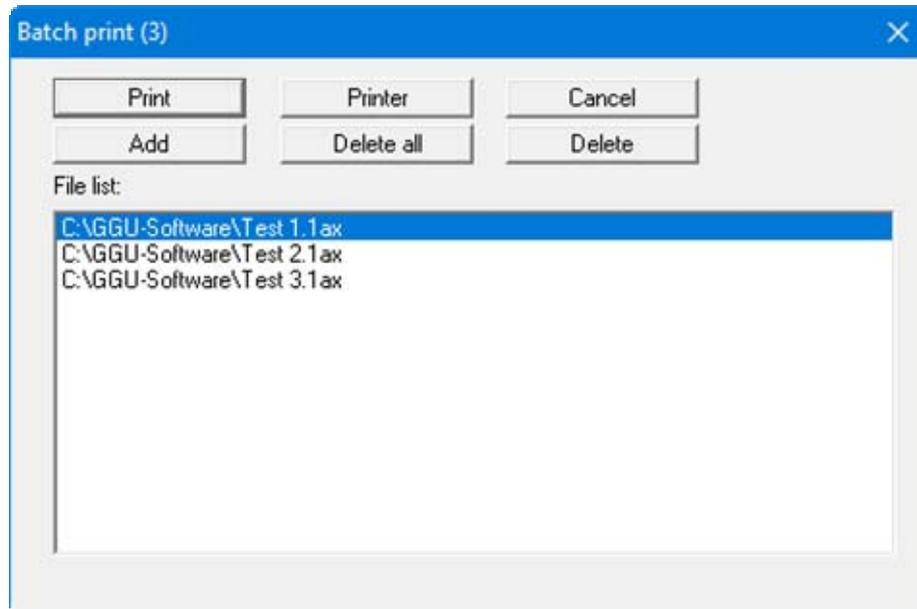
If you select the **"Copy/print area"** tool  from the toolbar, you can copy parts of the graphics to the clipboard or save them to an EMF file. Alternatively you can send the marked area directly to your printer (see **"Tips and tricks"**, Section 6.3).

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.

### 5.1.9 "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 files required. The number of files is displayed in the dialog box header. You can mark and delete selected individual files from the list using the "**Delete**" button. You can compile a new list after selecting the "**Delete all**" button. The printer and output preferences are selected 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, for example, the number of copies. These preferences will be applied to all files in the list.

### 5.1.10 "Exit" menu item

After a confirmation prompt, you can quit the program.

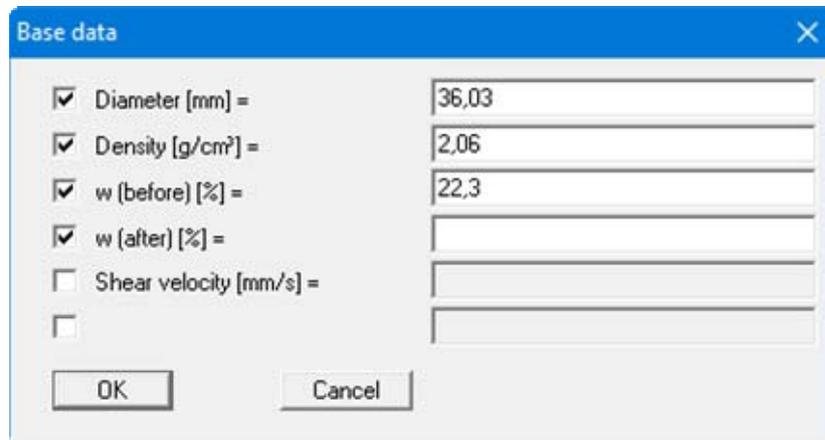
### 5.1.11 "1, 2, 3, 4" menu items

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 "Base data" menu item

After selecting this menu item, the following dialog box appears:

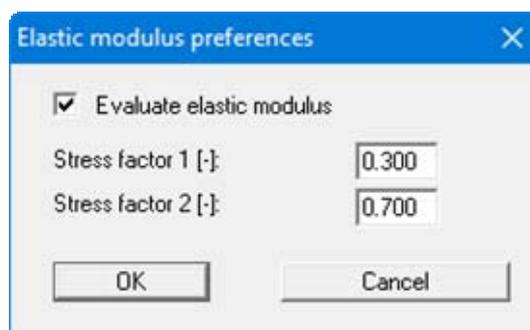


Parameter	Value
<input checked="" type="checkbox"/> Diameter [mm] =	36,03
<input checked="" type="checkbox"/> Density [g/cm³] =	2,06
<input checked="" type="checkbox"/> w (before) [%] =	22,3
<input checked="" type="checkbox"/> w (after) [%] =	
<input type="checkbox"/> Shear velocity [mm/s] =	
<input type="checkbox"/>	

The sample diameter, density and water content before and after the test, and more, can be entered in the input boxes. This data is displayed on the output sheet, but serves no purpose in the evaluation. It is therefore possible to display completely different information. If input boxes are deactivated in the dialog box above, the texts are not displayed in the table on the output sheet. The texts of the input boxes can be altered by going to the menu item "**Output preferences/Texts**" button "**Base data table**" (see Section 5.4.3).

### 5.2.2 "Elastic modulus" menu item

After selecting this menu item, the following dialog box appears:

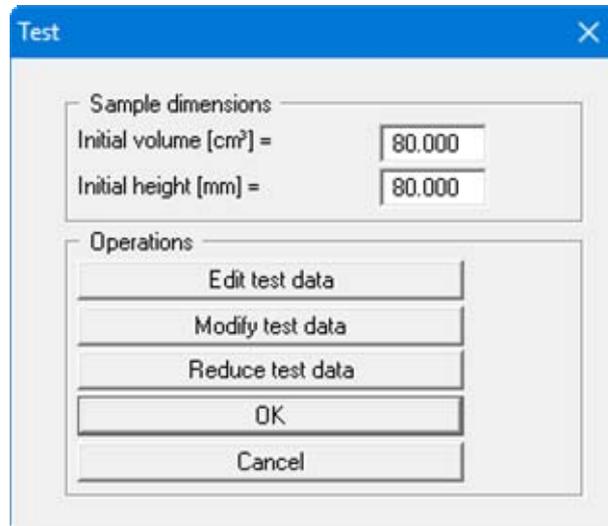


Parameter	Value
<input checked="" type="checkbox"/> Evaluate elastic modulus	
Stress factor 1 [-]:	0.300
Stress factor 2 [-]:	0.700

By activating the "**Evaluate elastic modulus**" check box you can specify whether the elastic modulus with the corresponding stress factors is calculated. The results are displayed in the test results table on the output sheet.

### 5.2.3 "Tests" menu item

This represents the program's central menu item. After clicking this menu item the following dialog box opens:



Initial volume and initial height of the sample are entered into the first two boxes. This data are required for test evaluation. Furthermore, the following actions can be carried out:

- "Edit test data"  
The following dialog box opens:

The '17 Test data' dialog box is titled '17 Test data' and has a close button (X) in the top right corner. It contains four buttons at the top: 'OK', 'Cancel', 'Sort', and 'Edit no. of values'. Below the buttons is a table with the following data:

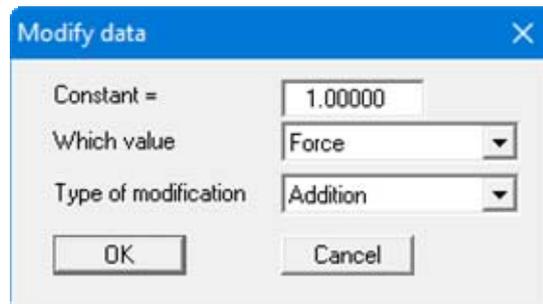
Nr.	Hours	Minutes	Seconds	Force [N]	Compression [mm]
1	0	0	30	89.0000	0.0400
2	0	1	0	309.0000	0.8000
3	0	1	30	387.0000	1.2000
4	0	2	0	433.0000	1.6000
5	0	2	30	472.0000	2.0000
6	0	3	0	497.0000	2.4000
7	0	3	30	529.0000	2.8000
8	0	4	0	552.0000	3.2000
9	0	4	30	575.0000	3.5900
10	0	5	0	594.0000	3.9900
11	0	5	30	611.0000	4.3900
12	0	6	0	622.0000	4.7900

The test results relevant to the evaluation are entered in the dialog box. In the example used here 17 value pairs have already been entered. By pressing the **"Edit no. of values"** button you arrive at a further dialog box for editing the number of value pairs. If no values have been entered (= new test), the box will contain a **0**. Value pairs are added by increasing the number, and existing value pairs deleted at the end of the table by decreasing the number.

If you have forgotten an intermediate value during data input you can enter this value at the end of the table. Then select the **"Sort"** button. The measured values are then sorted according to date and time. You can also remove test values from the table using this button by assigning a *large* time to the appropriate values. After sorting, this value is located at the end of the table. The value is then removed from the table by subsequently reducing the number of test values in the table.

- **"Modify test data"**

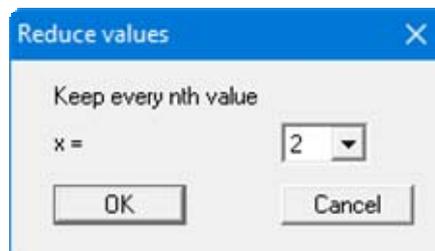
Existing test data can be edited by pressing this button. The following dialog box appears:



In the pull-down menus, decide whether force or compression shall be added to or multiplied by the given constant.

- **"Reduce test data"**

You can use this button to delete test data if you have very large data volumes. Enter the data to be retained in the subsequent dialog box.



- **"OK"/"Cancel"**

You return to the previous dialog box. All entered data will be accepted with **"OK"** and rejected by clicking **"Cancel"**.

#### 5.2.4 "Show test data" menu item

A dialog box opens showing the test data entered and the calculated values.

You can navigate through the list using **"Forw."** and **"Back"**. You can move directly to a test number by entering the corresponding number and clicking **"Go to no.:"**.

The test data and results can also be shown as output table on the sheet if the corresponding element is activated (see menu item **"Output preferences/Output table"**, Section 5.4.13).

### 5.2.5 "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 (see Section 5.2.3).

### 5.2.6 "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.

Label	Value
Project (1st line):	GGU-UNIAXIAL
Project (2nd line):	Example
Project (3rd line):	
Edited by:	Otto
Edit date:	13.02.18
Test number:	
Sampling location:	B1
Depth:	0.2 - 0.5 m
Soil type:	T, u
Sampling method:	undisturbed
Sample taken on:	01.02.18
Report:	9999 / 18
Annex:	1

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" (see Section 5.4.3).

### 5.2.7 "Company" menu item

You can enter your company address in four rows. These rows will be entered at the top left of the output sheet.

### 5.3 Graphics preferences menu

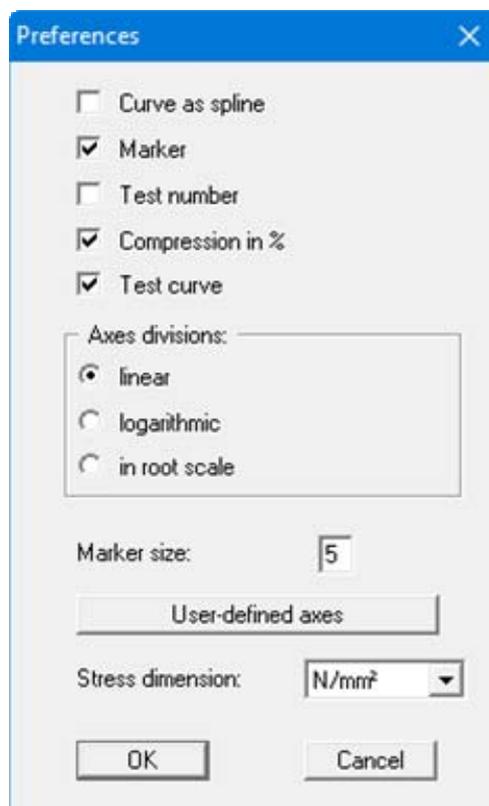
---

#### 5.3.1 "View output table"/"View diagram" menu items

If the output table is not displayed in the main graphics, switch to visualisation of the output table using this menu item. If you are viewing the output table and want to return to the diagram, click on the now active menu item "**View diagram**" or simply on the  tool in the Smart icon bar. You can move between the output table and the diagram using this tool.

#### 5.3.2 "Preferences" menu item

After selecting this menu item a dialog box opens allowing preferences for the graphical visualisation to be defined:



The use of markers or test numbers for the data points is specified by activating the appropriate check box. The marker size or font size of the test numbers is user-defined. If neither of these check boxes are selected the measured data will not be marked.

Activate the "**Test graph**" check box to get a graph. The graph can be displayed as a spline, the compression in either [mm] or in [%].

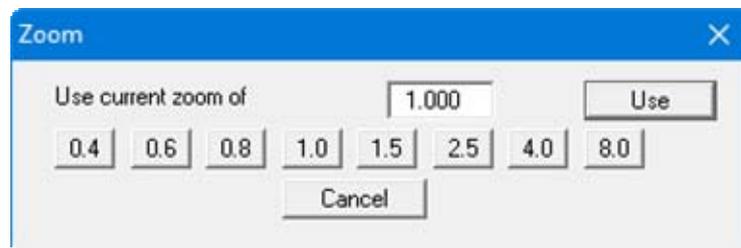
Select between linear, logarithmic or root scale axes divisions for visualisation of the uniaxial compressive stress.

The program automatically selects a sensible axes scale for the graphical visualisation of the stress-compression diagram. If the "User-defined axes" button is clicked a dialog box opens allowing the "Use the following axes values" check box to be activated. The required value for the maximum compressive stress and the maximum compression can then be entered.

### 5.3.3 "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.

### 5.3.4 "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.

### 5.3.5 "Legend font selection" menu item

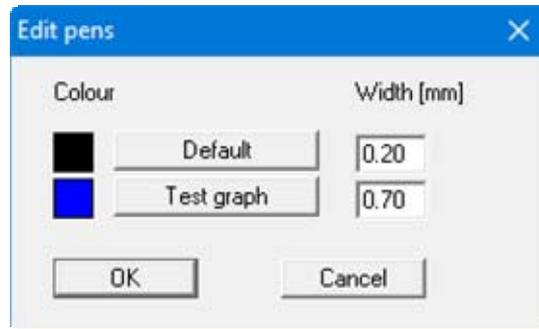
With this menu item you can switch to a different true-type font. All available true-type fonts are displayed in the dialog box.

### 5.3.6 "Font size selection" menu item

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

### 5.3.7 "Pen colour and width" menu item

In this menu item's dialog box it is possible to change the colour and thickness of the pengraph used to draw the test graphs in the stress-compression graph.



All other form elements are drawn in the user-defined "**Default**" colour.

### 5.3.8 "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. A pop-up menu opens, the icons and functions used are described in more detail in the **Mini-CAD** manual provided.

### 5.3.9 "Toolbar preferences" menu item

After starting the program a horizontal toolbar appears below the program menu bar. If you would rather work with a pop-up 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-UNIAXIAL.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 change with this tool.



#### "Restore move object"

If you have previously undone a change, 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", Section 6.3).

### 5.3.10 "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.

### 5.3.11 "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-UNIAXIAL.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

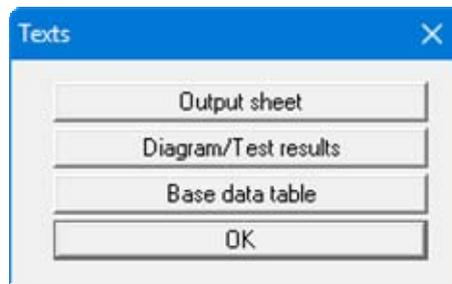
You can edit the page size in the dialog box of this menu item to your personal requirements.

### 5.4.2 "Output table where?" menu item

Use this menu item to specify whether the output table and the diagram are shown together on a single A3 format sheet. If the **"Display output table in main graphics"** is deactivated the output table and the diagram are displayed separately on two A4 format sheets.

### 5.4.3 "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. An option box opens in which the various fields can be selected for editing using the correspondingly labelled buttons.



After clicking "**Output sheet**" the following dialog box opens:

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

Heading 1:	Uniaxial test
Heading 2:	to DIN 18136
Report:	Report:
Annex:	Annex:
<input type="checkbox"/> Row 1:	Test number:
<input checked="" type="checkbox"/> Row 2:	Sampling point:
<input checked="" type="checkbox"/> Row 3:	Depth:
<input checked="" type="checkbox"/> Row 4:	Soil type:
<input checked="" type="checkbox"/> Row 5:	Type of sampling:
<input checked="" type="checkbox"/> 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 (see Section 5.2.6).

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.

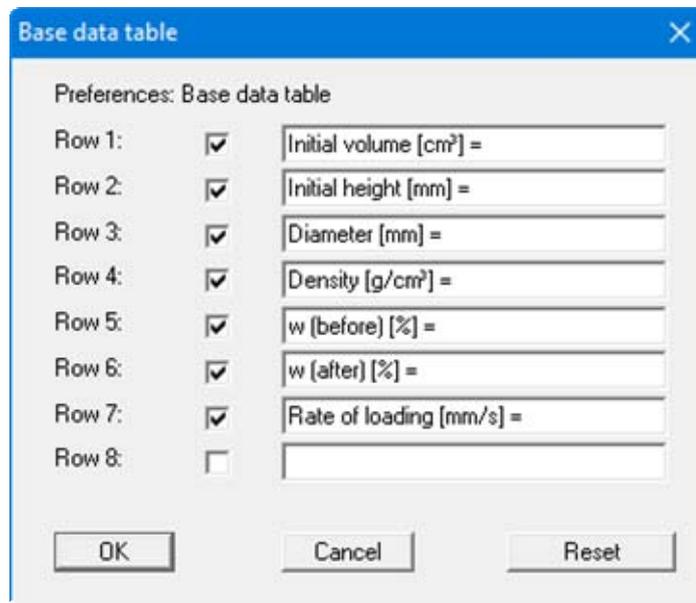
If the "**Diagram/Test results**" command button is clicked in the above box the following dialog box opens, allowing editing of the diagram axes labelling and the results table texts in the output sheet table:

The 'Diagram/Test results' dialog box is shown with the following content:

Preferences	
Row 1:	Compression [%]
Row 2:	Compression [mm]
Row 3:	Uniaxial pressure
Row 4:	Uniaxial compressive strength

Buttons: OK, Cancel, Reset

If the "**Base data table**" button is clicked in the above option box the following dialog box opens, allowing editing of the base data input box labelling and the display of the test data in the output sheet table:

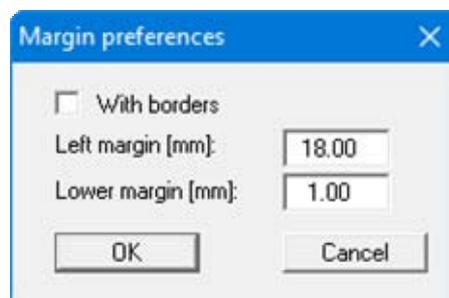


If rows are deactivated in the above dialog box, the corresponding input boxes in the "**Edit/Base data**" menu item dialog box are also deactivated (see Section 5.2.1). As well, the deactivated texts are not displayed in the base data table on the output sheet. In order to hide the table completely the element must be deactivated using the menu item "**Output preferences/Base data table**" (see Section 5.4.11).

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.

#### 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.



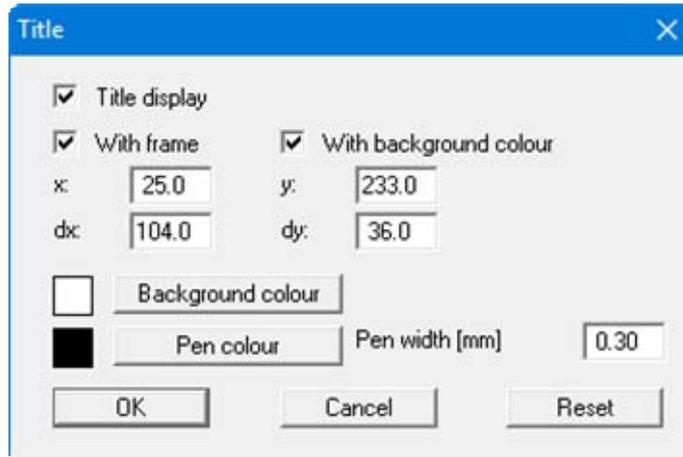
By deactivating the "**With borders**" check box and with an appropriate choice of left and lower margins, it is generally possible to create a non-reduced printer output. It is necessary to also adapt the page height and width (see Section 5.4.1).

#### 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 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 5.4.15).

The heading "Uniaxial test to DIN 18136" shown in the title element can be edited in the menu item "Output preferences/Texts" (see Section 5.4.3). The texts "Project (1<sup>st</sup> line)" to "Project (3<sup>rd</sup> line)" are entered immediately after double-clicking the element or using the menu item "Edit/General" (see Section 5.2.6).

#### 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 5.2.7).

#### 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 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 5.2.6). 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 5.4.3).

#### 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 5.2.6). 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 5.4.3).

#### 5.4.10 "Stress-compression graph" 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). Proceed as described there to alter the position or layout of the "**Stress-compression graph**" element.

#### 5.4.11 "Base data 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). Proceed as described there to alter the position or layout of the element "**Base data table**" element.

The inputs for this element can be edited via the menu items "**Edit/Base data**" and "**Edit/Tests**" (see Sections 5.2.1 and 5.2.3). 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**" button "**Base data table**" (see Section 5.4.3).

#### 5.4.12 "Results 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). Proceed as described there to alter the position or layout of the "**Results table**" element.

#### 5.4.13 "Output 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). Proceed as described there to alter the position or layout of the "**Output table**" element.

#### 5.4.14 "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.

#### 5.4.15 "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 [Back] or by clicking the  icon.

## 5.5 Info menu

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### 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-UNIAXIAL**.

### 5.5.2 "Maxima" menu item

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

### 5.5.3 "Help" menu item

The **GGU-UNIAXIAL** 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](http://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](http://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 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.

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## 6 Tips and tricks

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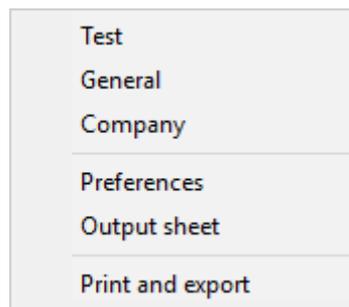
### 6.1 Keyboard and mouse

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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 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.

### 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 bac back to the given format (A4/A3). 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

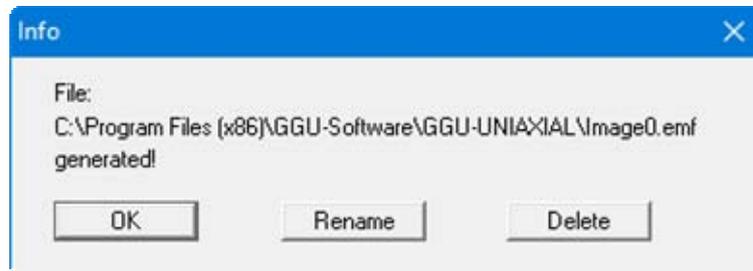
---

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.

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