

1.5 software release of 18.05.2009

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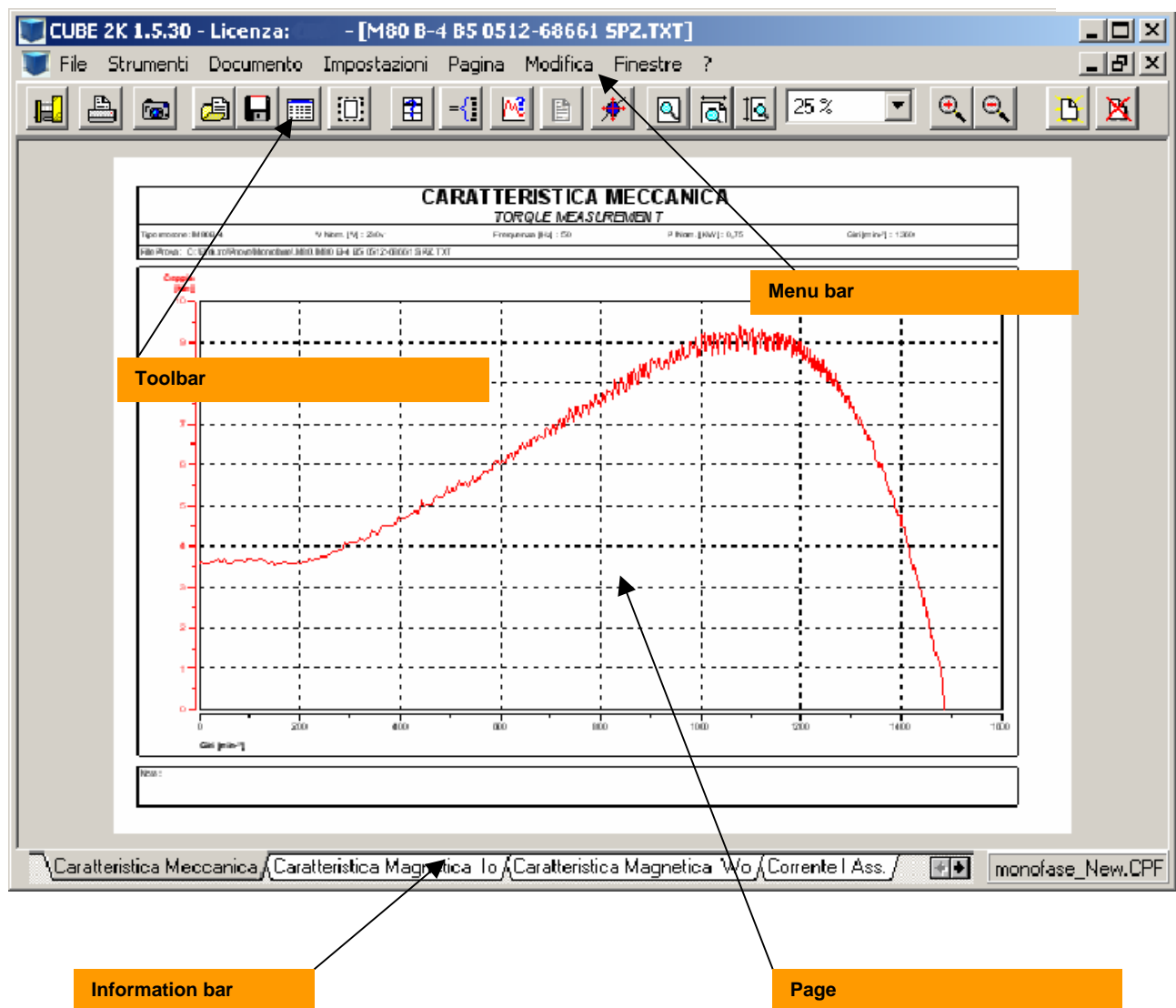
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# 1. Work area

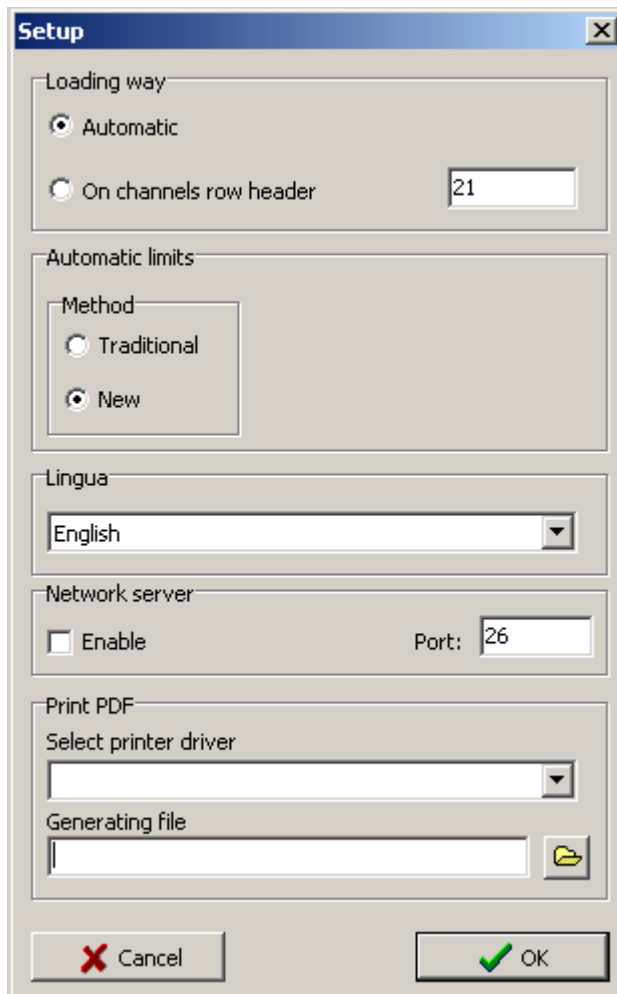
The main window of the program is divided into four sections:

- the *Menu bar* includes all options listed in all menus.
- the *Toolbar* includes the most used functions.
- the *Page* displays the layout of the selected page.
- the *Information bar* includes different tools useful to browse through the document pages.

Fig. 2.1



## 1.1 Main settings



This window is used to configure the main program settings and can be opened from *File/Setup* menu.

**Loading way:** automatic or on row loading is possible. The second is only used when the test files can not be used with the automatic loading way<sup>1</sup>

**Automatic limits:** two different algorithms are available to calculate limits in the graph axes. Generally the method called *New* is used.

**Language:** the language to be used can be chosen.

**Network server:** Cube2K can be used to print tests. This function can only be used combined to a program expansion not included.

**Print PDF:** the PDF print driver can be selected among those available.

<sup>1</sup> In case of doubts about the method to be used contact Testline.

## 1.2 Documents and tests

Two different types of data files can be loaded with Cube 2000:

- Tab-delimited text files – they need to be associated to a configuration
- C2K proprietary binary files – resulting from the union of a tab-delimited text file and a display configuration.

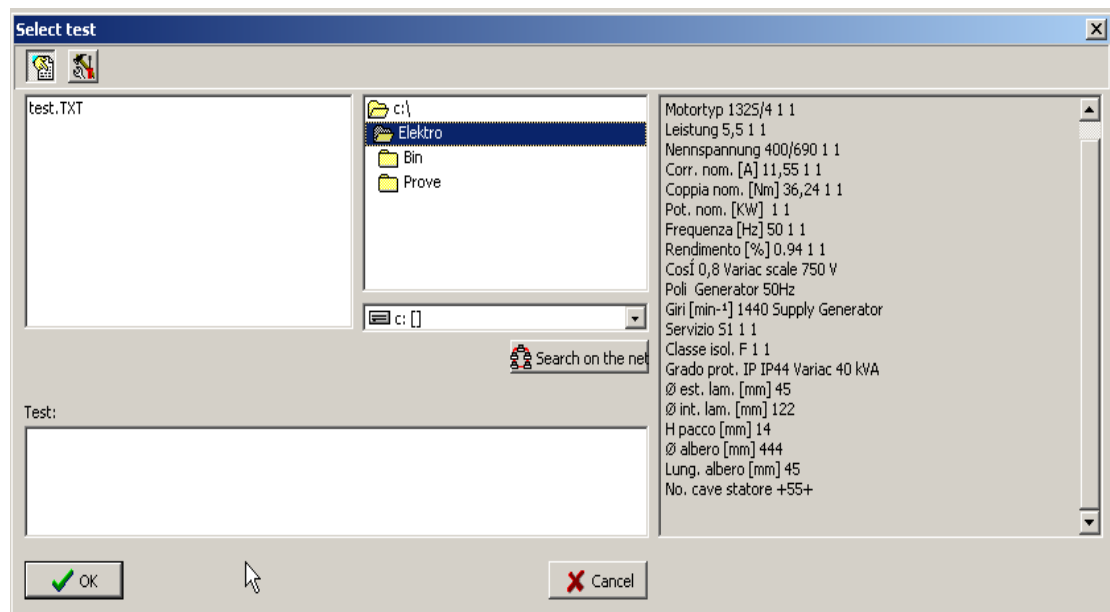
Two different procedures to open the two different types of file are available.

### 1.2.1 Open a text file

Select *Open Tests* in *File* menu and double click to select the desired test.  
Use *CANC* to delete one or more tests from the list.



Up to ten tests can be selected at a time.

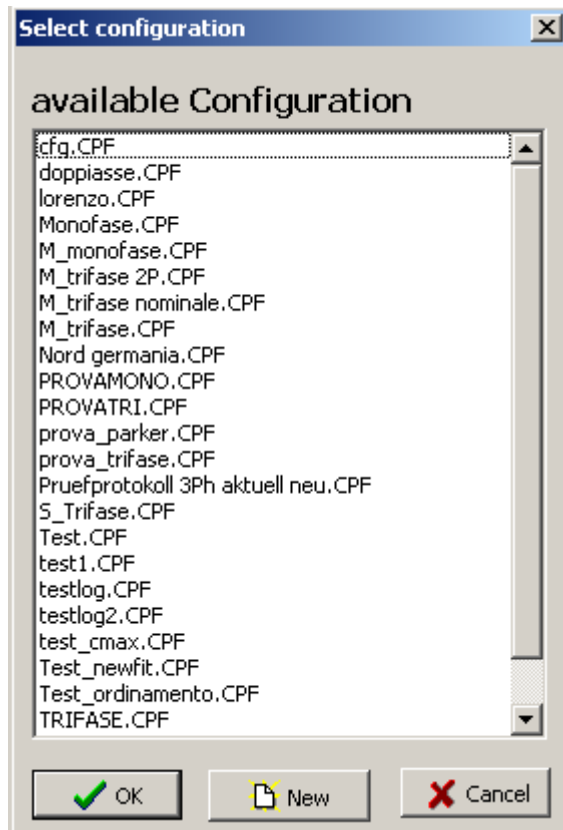


This key is used to preview the selected file.



This key is used to indicate the number of lines to be displayed in the preview.

When you click **OK** the program asks to select the configuration to be used, if a new configuration must be created click **New**, otherwise choose among the configurations available.



Configuration files are stored in the subfolder program CONFIGURATIONS and have **CPF** extension.

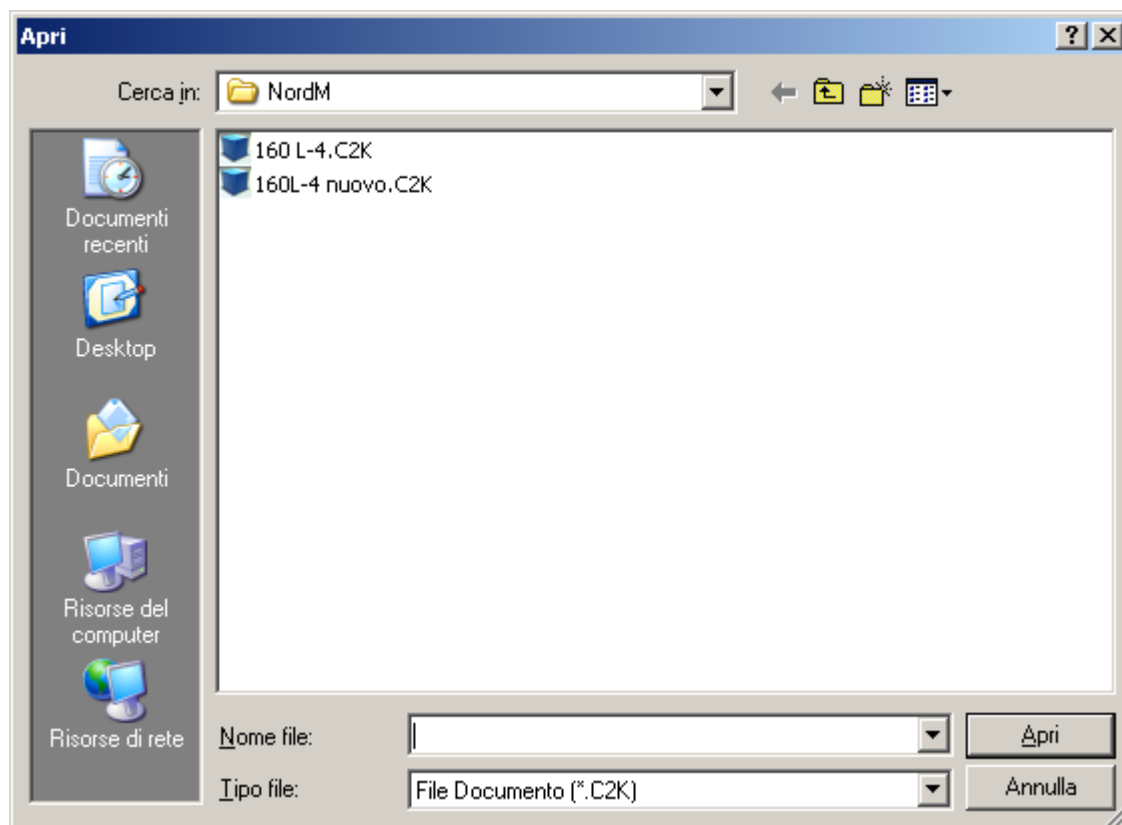
### 1.2.2 Open a C2K document file

A document file is generated from one or more tests combined with a configuration file.

## TXT + CPF = C2K

To open a document file click on *Open document* in *File* menu, and select the desired file.

Fig. 2.3



## 2. Main commands

The documents generated by Cube are made up of pages.

Each page can be a GRAPHIC or a REPORT page.

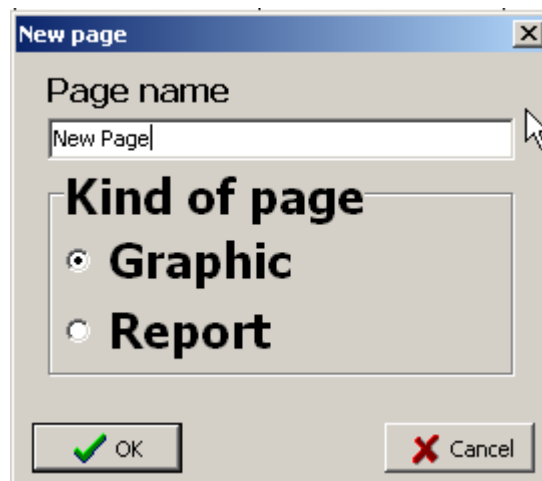
A graphic page is used to display graphs, while a report page is used to create tables to sum up the data included in the document.

### 2.1 Document pages

To create a new page in a document select **New page** in **Document** menu, or click on the  icon in the toolbar.

To create a new page, name and type must be defined in the window.

Fig. 3.1



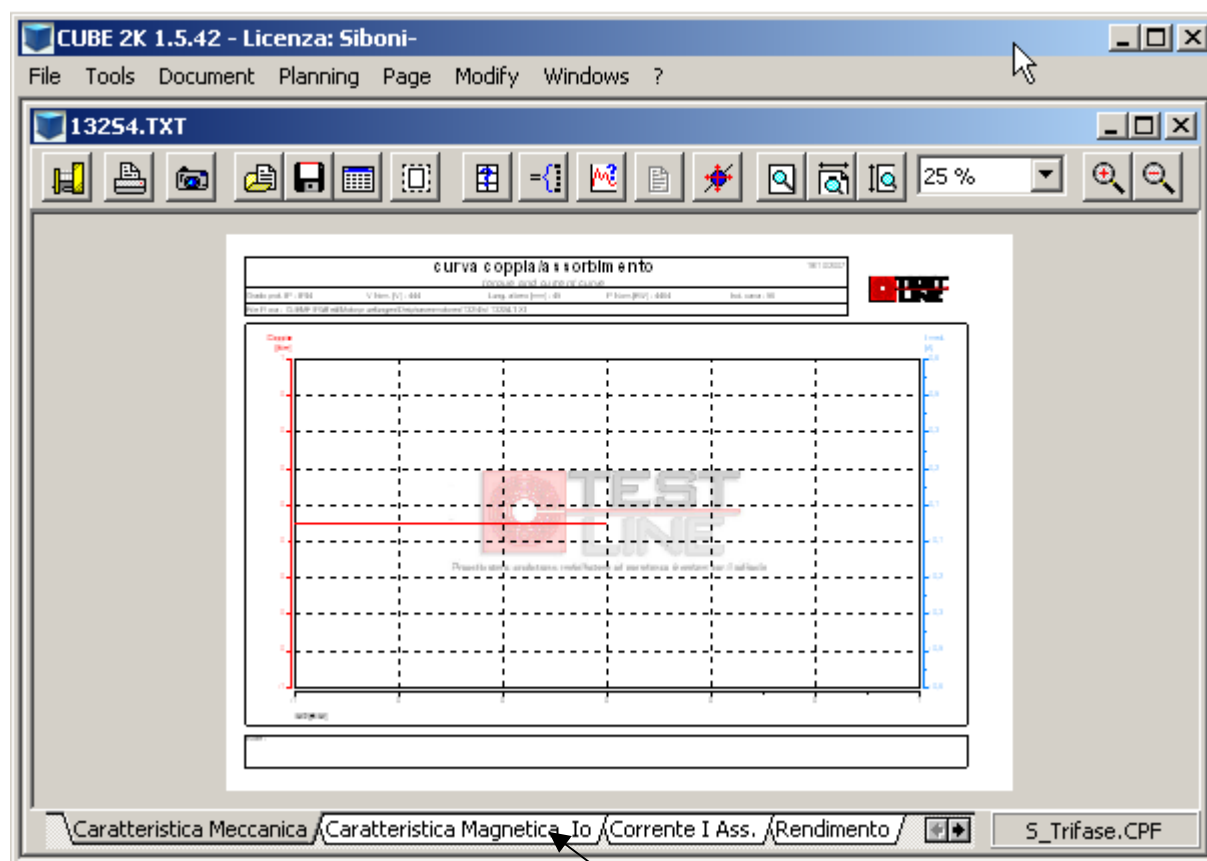
To delete a page from the document click on **Cancel Page** in menu **Document**, or click on the  icon in the toolbar.



Important: once cancelled a page cannot be recovered.



Fig. 3.2



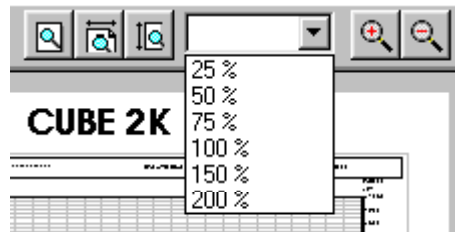
Page browser



To rename a document page right click on the box in the page browser, or click *Rename Page* in *Page* menu.

## 2.2 Zoom functions

Display size changes according to the zoom used.  
The keys used for these functions can be easily found in the toolbar.



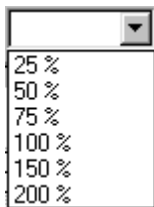
This key is used to display the full page in the window.



This key is used to adapt the image in order to display max horizontal limits.



This key is used to adapt the image in order to display max vertical limits.



This box is used to adapt the size according to the % chosen.



These keys are used to zoom in and out.

## 2.3 Toolbar additional functions



This key is used to save the test in C2K document file format. The same operation can also be carried out using the key **Save document** in **Document** menu.



This key is used to reach the print dialog window. The same operation can also be carried out using the key **Print** in **File** menu.



This key is used to save the page displayed in Windows metafile format. This format is generally used when graphs are exported in other applications, or e-mailed to users working with Cube.

This operation can also be carried out using the key **Save image** in **Document** menu.



This key is used to save/load a configuration.

The same operation can also be carried out using the keys **Save configuration** and **Open configuration** in **Document** menu.



This key is used to open a window displaying document data. The same operation can also be carried out using the key **Display data matrix** in **Document** menu.

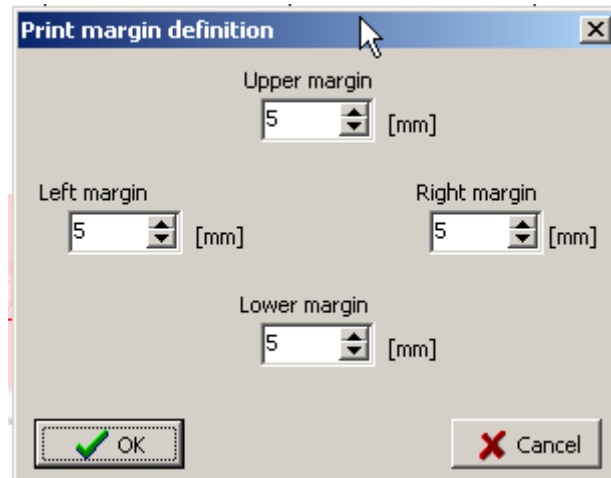
When the document includes more than one test, also a selector will be displayed.

Valori Prove						
	COPPIA [Nm]	TEMP.1 [°C]	TEMP.2 [°C]	T.Amb. [°C]	Vrs [VOLT]	Vst [V]
1	3,5	11,4	4,6	5,8	397,6557	398,2
2	4,89	11,78	4,7	6,12	397,0696	397,5
3	6,28	12,16	4,8	6,44	396,9231	397,9
4	7,67	12,54	4,9	6,76	396,1905	397,2
5	9,06	12,92	5	7,08	395,7509	396,6
6	10,45	13,3	5,1	7,4	395,4579	396,6
7	11,84	13,68	5,2	7,72	395,6044	396,7
8	13,23	14,06	5,3	8,04	395,4579	396,4

Test selector



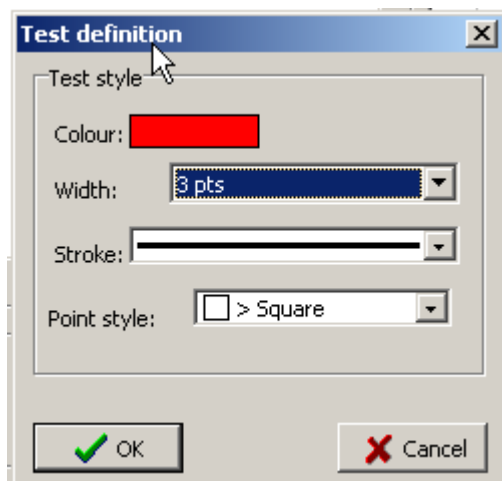
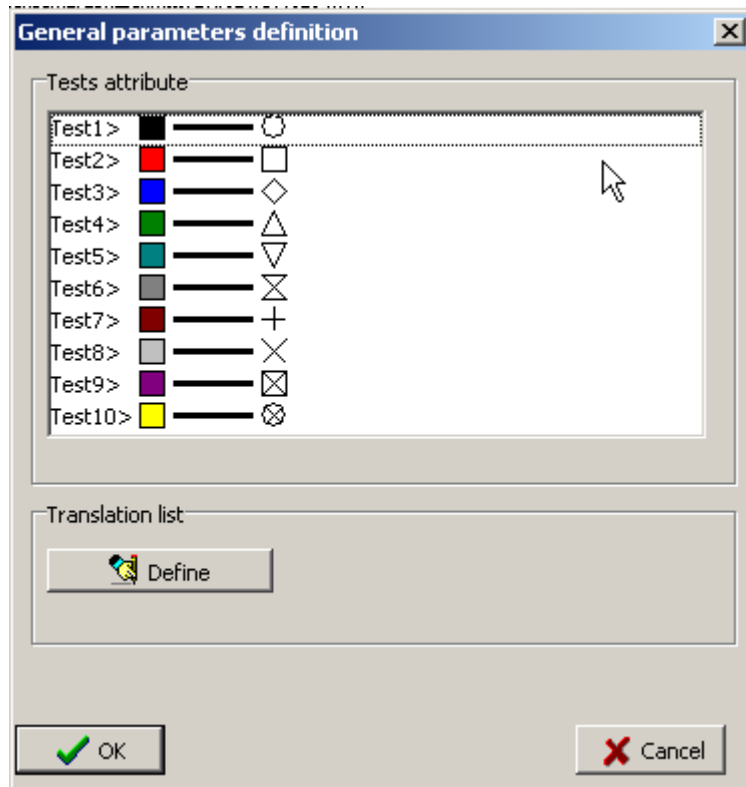
This key is used to open the print margin definition window.



This function is present twice in Cube2K menu, once in **Page** menu and once in **Document** menu. In Page menu only the margins of the page displayed are modified while in the Document menu all pages will be updated.

## 2.4 Preferences

The *Setup/Preferences* menu bring you to the general parameters definition window used to select the style for multi-test graphs, and the table used to translate labels.



To define the test style, double click on the desired row and indicate in the window the desired features.

Click *Define* to reach the window where the translation table can be defined, and that is used to replace the names of the fields loaded from the file.



This key is used to copy labels from the test file, the other two keys are used to load and save translation files.

**Define labels**


Captured labels	Name	Measure unit
N°[]	N°	
Test[]	Test	
Coppia[Nm]	Coppia	Nm
T1[°C]	T1	°C
T2[°C]	T2	°C
T3[°C]	T3	°C
TAmb.[°C]	TAmb.	°C
Vu[V]	Vu	V
Vv[V]	Vv	V
Vw[V]	Vw	V
Iu[A]	Iu	A
Iv[A]	Iv	A
Iw[A]	Iw	A
w1[W]	w1	W
w2[W]	w2	W


OK Cancel

## 3. The graph

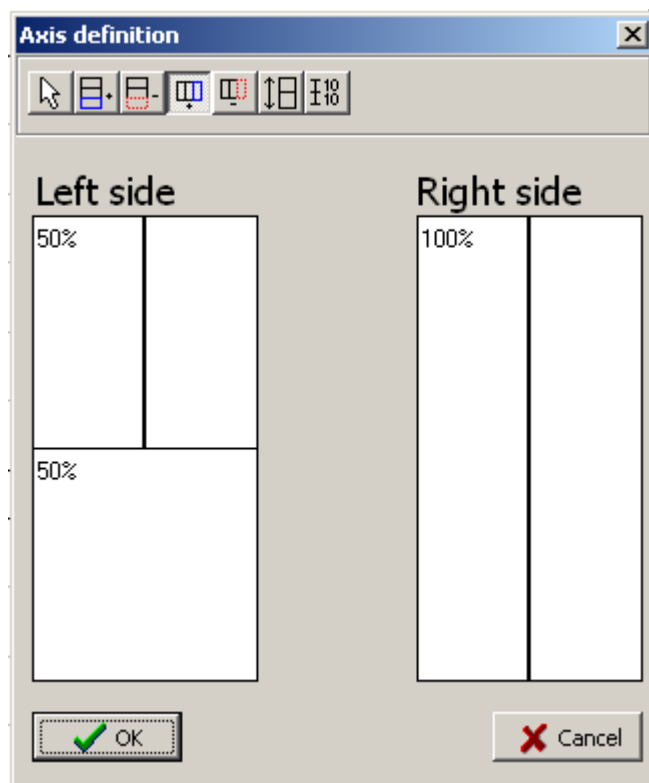
### 3.1 Axes definition


Cube2K can be used to create graphs having one X axis and many Y axes.


To modify number and position of axes click on  the icon in the toolbar, or click on *Sections and Axes* in *Modify* menu.


 The keys are only available in GRAPH pages.


Click **Section and Axes** to enable the window (figure 3.1.1) where the number of sections<sup>2</sup> and axes can be defined.




To create a section select the  icon and click on the boxes indicating the two sides of the graph. The sections are always vertically aligned and can include a different number of axes.

When a new section is created it only includes one axis, to add more axes use the  icon and click on the desired section.



To delete an axis from a section use the  icon and click on the axis to be deleted.

To delete a section use the icon  and click on the section to be deleted.

 Each side includes up to eight sections, and each section includes up to eight axes, that is 64 axes for each side!

<sup>2</sup> A section is an area including more axes that are horizontally aligned.

It is possible to modify height of sections in two ways:

- Rapid method: click on the icon , drag the mouse pointer on the horizontal lines limiting the section.
- Precision method: click on the icon  to reach the window to define the section size.

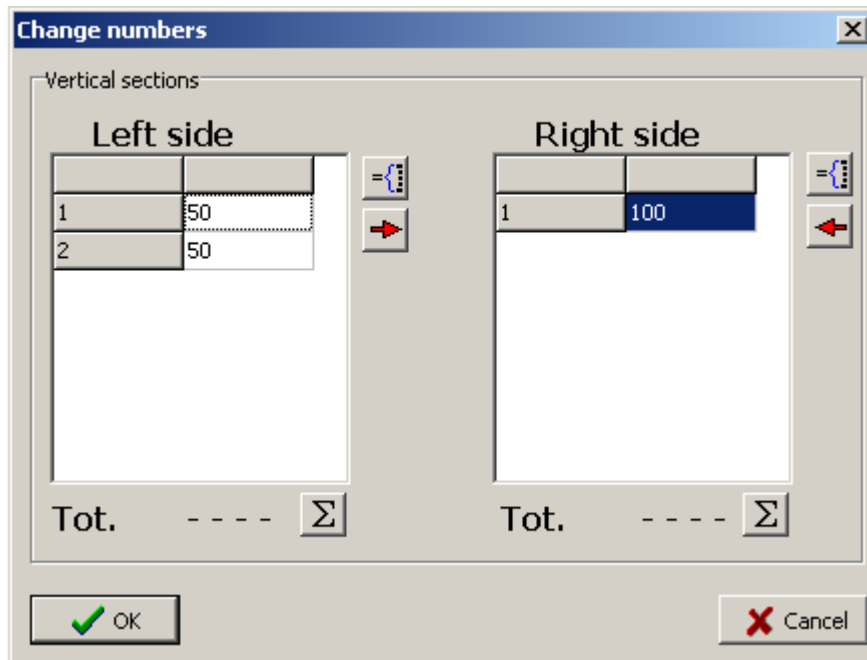





Fig. 3.1.2

This window is used to define with precision vertical dimensions of set sections. The values are considered as percentage of the space available in the graph, and must be whole numbers.

 This key is used to assign the same value to all sections (please note that the space remaining from the percentage division - when present - is assigned to the last section).

 This key is used to copy the dimensions set for one side for the other side.

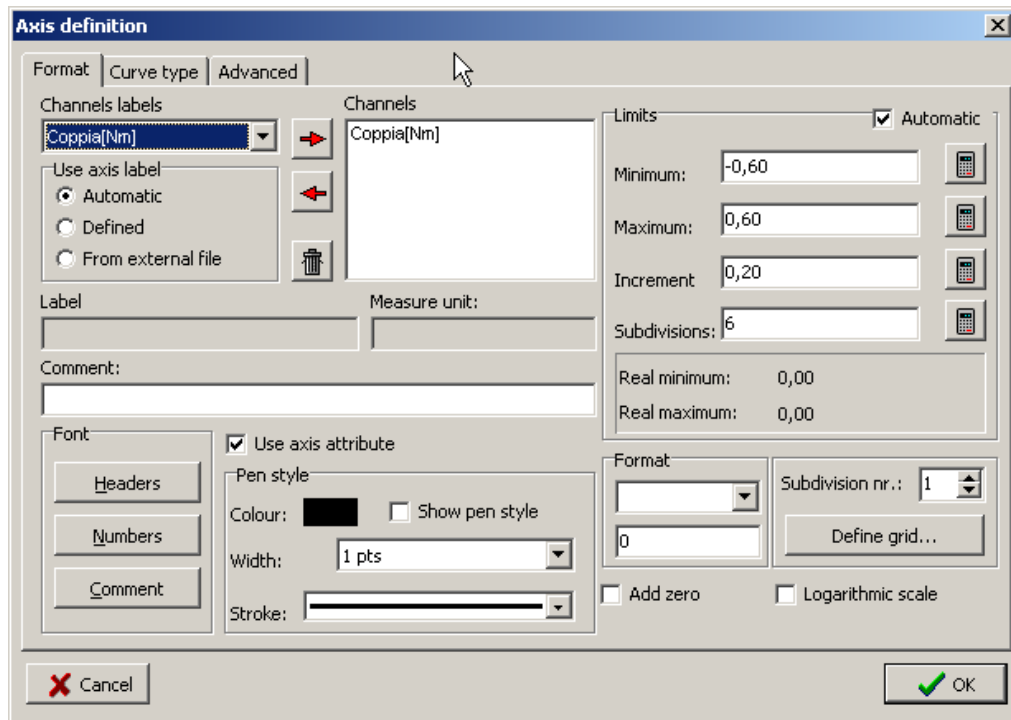
The summation  icon is used to calculate the total sum of set dimensions for the different sections.

The program does not accept structures exceeding the sum of 100 for each side.



## 3.2 Customizing axes

To reach the window to customize axes double click on the desired axis.




The configuration window is divided into three different pages:

- *format* : groups all main axis settings
- *curve type*: includes all functions concerning the display of values
- *advanced*: includes special functions


### 3.2.1 Format

#### Channel label

The list includes all test channels, use the icon  to assign a channel to the axis.



One Y axis can include n channels, X axis only includes one channel.

Use the icon  to delete the selected channel from the list.

Use the icon  to delete all labels in the list.

The **use axis label** box is used to indicate how to display labels.  
Three options are available:


- *Automatic*: the program uses headers and measure units present in the test file.
- *Defined*: the program uses the labels present in **Label** and **Measure Units**.
- *From external file*: Test labels are replaced with those present in an auxiliary file.  
This option is very useful when strings are to be translated in other languages.

### Limits

This box is used to set numerical limits of the selected axis.

With the **automatic mode**, the program looks for the ideal interval.

With the manual mode it is possible to set the limits according to the following procedure:

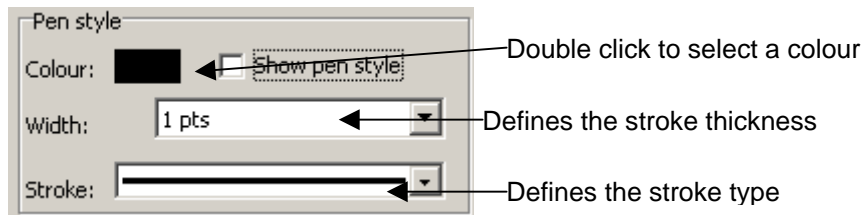
type the values in three of the four input cells available, and click the icon  concerning the label to be calculated.

### Fonts

Three fonts are available, respectively for:

- Headers : axis label and measure unit
- Numbers: numbers in the axis
- Comment: comment string

### Pen style



The **use axis attribute** box is used to choose between standard settings or in case of multi-test graph special settings according to main preferences<sup>3</sup>.

### Format

It is used to set the numerical format to be used to display axis values.

### Subdivision nr.

It is used to set the number of subdivisions desired between graduations.

### Grid

It is used to reach the define grid window.

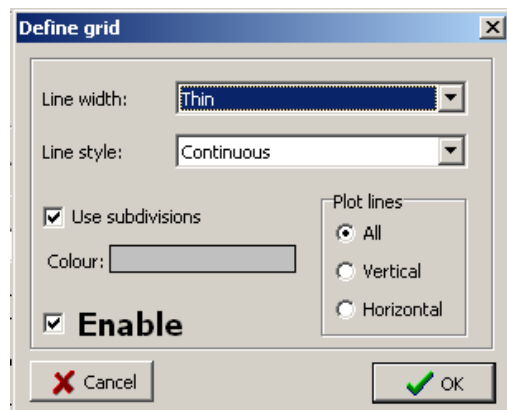


Fig. 3.3

The two boxes on the top page define thickness and style of grid lines.

The **Use subdivisions** checkbox is used to generate grids considering and tracing the set axis subdivisions.

<sup>3</sup> See Preferences on page 13

The colour of grid lines can be modified with a double click in the **Colour** box.

The section **Plot lines** is used to define the lines to be traced.

The **Enable** checkbox is used to enable or disable the grid.

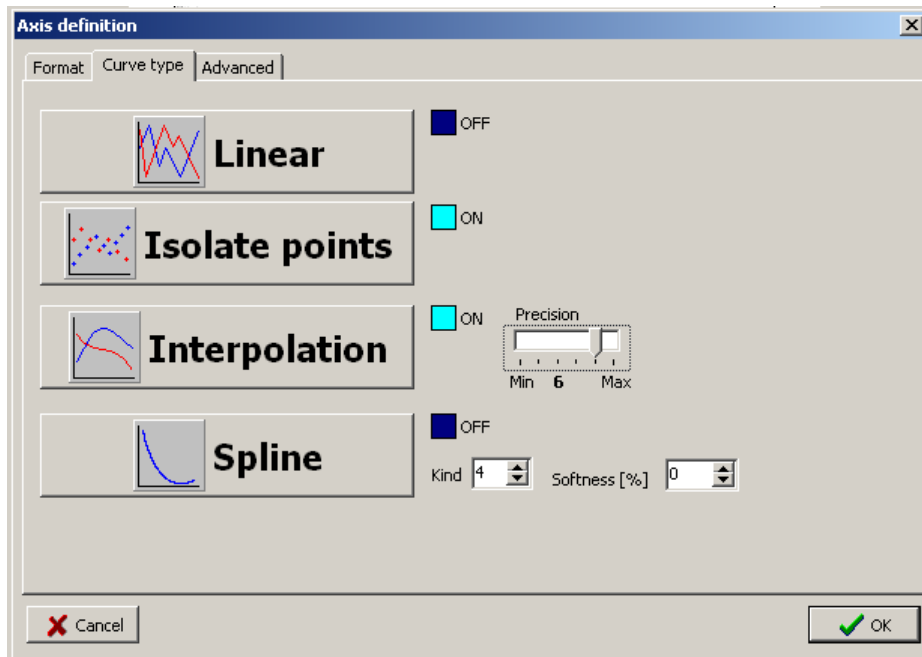
**Add zero**

It is used to force the presence of the zero in axis limits.

**Logarithmic scale**

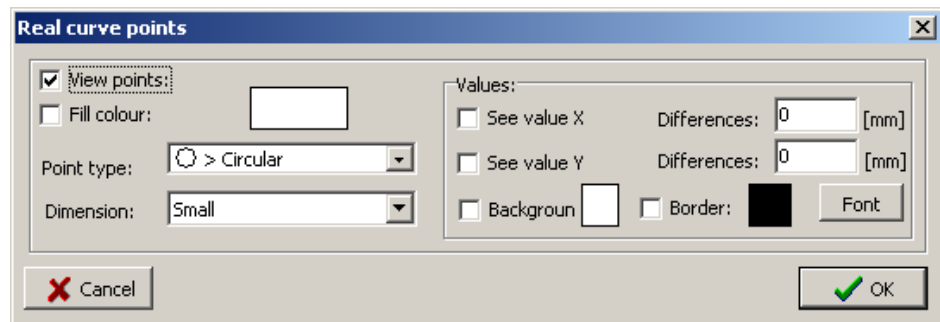
It is used to enable the logarithmic axis scale.

### 3.2.2 Curve types



Four types of curve are available, more types can be used at the same time.

- **Linear:** the curve results from the simple union of the acquired values.
- **Isolate points:** the acquired values are represented by graphic symbols that can be customized in the following dialog window.



- **Interpolation:** soft curves tending to approximate data distribution are generated. The selector on the right is used to indicate the interpolation level to be used.
- **Spline:** a different interpolation method than the one just seen is used. It is possible to set 6 different interpolation types (0..5) and a percentage value defining the softness (the more the softness increases, the less the curve passes from the actual points).

### 3.2.3 Advanced functions

The screenshot shows the 'Axis definition' dialog box with the 'Advanced' tab selected. The 'Values filter' section includes a 'Filter channel' dropdown set to 'Test()', a 'Value' dropdown set to 'Cooling\_test\_FINAL\_', and a 'Type' section with 'Numeric' and 'String' radio buttons, where 'String' is selected. A 'tolerance threshold' field with '+' and '-' signs is also present. The 'Double axis' section has an 'Enable' checkbox checked, a 'Conversion' text box containing 'X\*2+3', and a 'Meas u.' text box containing 'u.'. A note below the conversion box states 'Use 'X' for self channel ref. ex: X\*2+3'. The dialog has 'Cancel' and 'OK' buttons at the bottom.

#### Values filter

The filter is used to reduce the number of data to be represented on one axis. It is necessary to indicate:

1. the channel to be used as filter
2. the type: **Numeric** to use a tolerance threshold, **String** to group similar elements.
3. the value: the filter object deciding the selection criteria.

#### Double axis

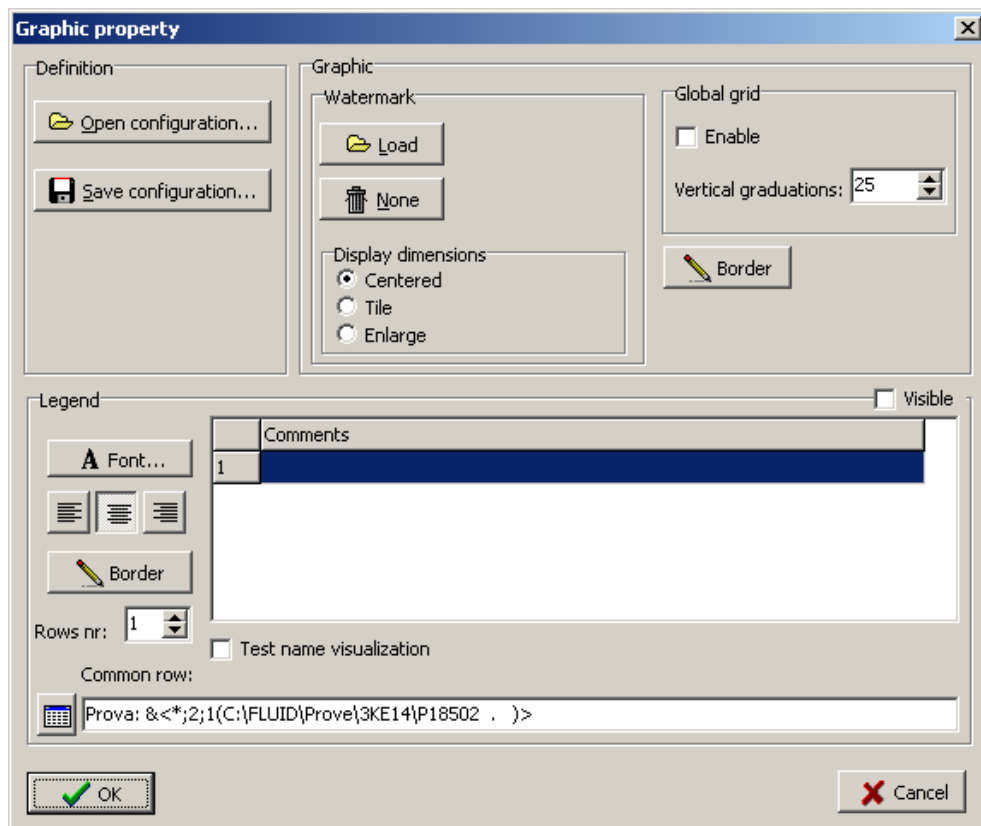
One axis can have a second scale. The conversion box is used to add a formula to pass from the main scale data to the secondary scale data. To refer to the channel value use 'X' symbol.

x.:  $X*2$  creates a second scale with double values than the first.

The **meas u.** box is used to indicate the measure unit represented by the new scale.

## 3.3 Graph property

Select *Graph property* in *Modify* menu to enable this window.




This window is divided into three sections: Definition, Graph and Legend.

### 3.3.1 Graph

1. *Watermark*: it is possible to set an image to be used as graph background. A BMP or JPG image can be used. Three different display modes are available: the first called *Centered* respects the image size, the second called *Tiled* repeats the image in order to full the screen while the one called *Enlarge* resizes the image in order to full the screen.
2. *Global Grid*: it is used to activate a grid where all graph axes will be aligned and modified in order to align all subdivisions. It is important to note that the number of subdivisions set for the axes will be modified, and the space between graduations will be recalculated.  
When this function is enabled the number of subdivisions can not be modified in axes configuration.
3. *Border*: it is used to define the type of border to be used for the graph.

### 3.3.2 Legend

This object is used to differentiate the tests loaded in the graph.

- **Font:** it is used to set the font to be used.
- **Alignment:** the three keys are used to set the text alignment (left, right, center).
- **Border:** it is used to select the type of border to be used.
- **Rows nr.:** it is used to set the number of rows for the text. Using for instance, the value 1, the text will be aligned in a row, using a value equal to the number of tests a new row will be created for each test loaded.
- **Comments:** it is used to add a text comment after the test name and style.
- **Common row:** this row is used to add details present in the different test files. Click the  to reach the grid including the test details, the details can be copied from a cell in a text box just dragging them. For each test loaded a text row will be created including the details concerning the test.
- **Test name visualization:** when this function is enabled, the program adds in each row the name and the path of the test files loaded.

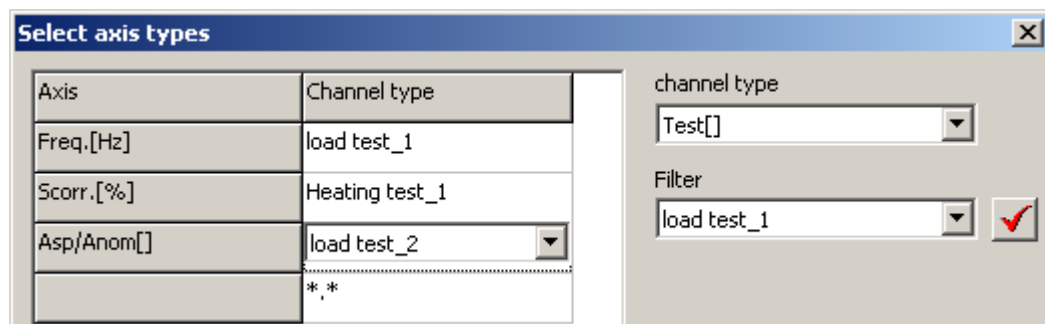
### 3.3.3 Definition

Configurations of graphs can be saved and loaded. Files with “**.CGF**” extension are stored in the *Configurations* folder. This function is very useful to import graphs in a document.

## 3.4 Channel type setting

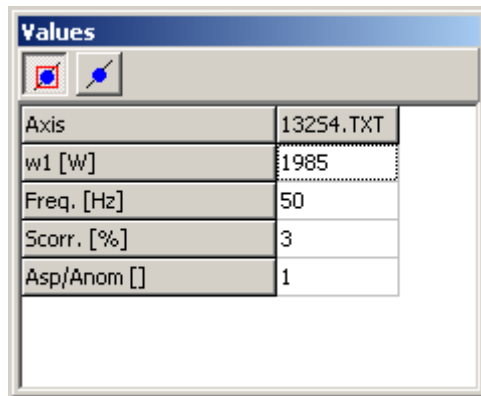
The type setting of axes is a very important function. It has already been explained how to set a filter in the section devoted to axes properties, however a window is available for this function.

The window can be activated through the *Modify/Channel types* menu or directly using the icon 




In this window the axes set in the graph are displayed in a grid, click on **Channel Type** box to select filter elements from the list. These elements concern the channel selected in the list **Channel type**. If the same filter is to be used for all channels, select the type in the **filter** box and confirm.

### 3.5 Dynamic reading of values





Axis	13254.TXT
w1 [W]	1985
Freq. [Hz]	50
Scorr. [%]	3
Asp/Anom []	1

It is sometimes useful to check the value of some points acquired directly just moving the pointer in the graph. This

icon  activates the following window, where the value for each axis according to the mouse pointer position is displayed.

Two options to display values can be enabled alternatively through two keys:

 actual value: this mode displays the value acquired nearer to the mouse pointer (the value displayed is always existent).

 position value: this mode displays the value concerning the position of the mouse pointer in the axis (the value displayed probably does not exist).



The data numerical display is the same used on the axis.



## 4. Report

To obtain a new report a page must be created (see page 8), this page can be customized through *Report Properties* command in *Modify* menu.

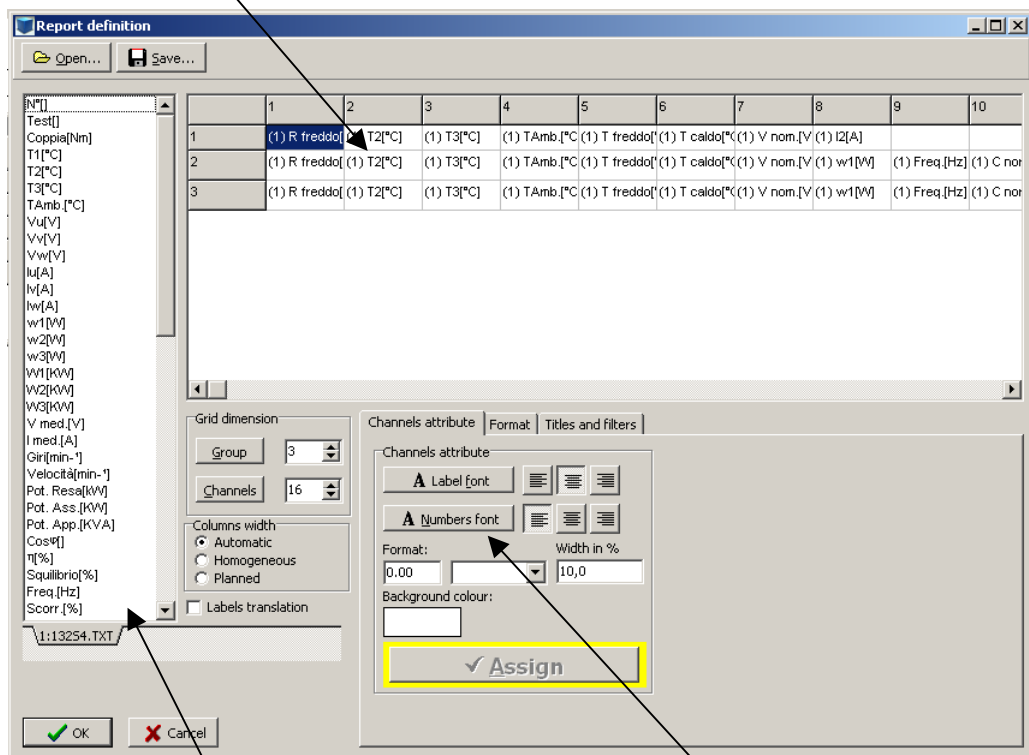
### 4.1 Creating a report

The windows concerning report definition can be ideally divided into three sections:

1. *list of channels*: on the left, it includes the list of all labels loaded in the test.
2. *definition grid*: in the upper part of the window, it includes the groups and channels to define the report.
3. *tools to customize the report*: in the bottom part they are used to set the report attributes.

Definition grid

Fig. 5.1



List of channels

Tools to customize the report

### 4.1.1 Entering data in a report

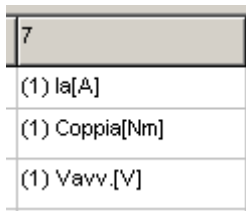
#### Definition of Groups and channels

Cube 2K can be used to subdivide data in different groups, each group is identified by a row in the grid visible in the features window, each cell identifies a channel.

A dialog box titled "Grid dimension" with two input fields. The first field is labeled "Group" and contains the value "3". The second field is labeled "Channels" and contains the value "16". Both fields have up and down arrow buttons for adjustment.

Use the keys in this section to set the number of groups and the number of channels in each group. It is possible to add new groups or channels even when the report has already been created.

To add a channel in a cell just drag it directly from the list into the desired cell.

A list of channels with a selection bar at the top. The selection bar contains the number "7". Below it, the list contains three items: "(1) Ia[A]", "(1) Coppia[Nm]", and "(1) Vavv.[V]".

When the mouse button is released the name of the channel assigned is displayed in the cell, the number before the name indicates the test, to avoid confusion in case more than one test are included in the project.

A window showing a list of channels on the left: "Ia[A]", "C nom[Nm]", and "A spunto[A]". On the right, there are two radio buttons: "Impostata" (selected) and "Traduci etichette". Below the list, there are two tabs: "1:Prova 1.TXT" and "2:Prova2.TXT".

The selector to set the test the channel must be referred to is under the list of channels.

Select one or more cells and use CANC to delete the text present.



Empty cells are displayed in the report as columns without data, their size is set in the section *attributes*.

## Cell attributes

---

Each cell can be customized acting in the section *Channels attribute*.

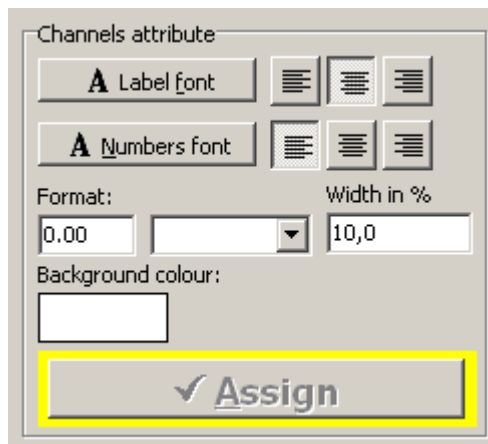


Fig. 5.2

To set attributes first select the cell or cells to be modified in the grid, then set the desired attributes and click **ASSIGN**.

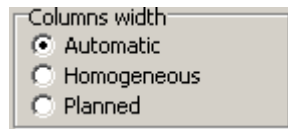
Here is a short explanation of attributes:

- **Label Font**: it is used to set the font used to display the label and the channel unit of measure.
- **Data font**: it is used to set the font used to display the values.
- **Alignment keys**: 2 groups are available, the first group acts on the channel alignment, the second acts on the data alignment.
- **Display format**: it is used to set the format used for the channel numerical display.
- **Background colour**: click on the cell to set the background colour.
- **Width in %**: This cell is used to add a value to set cell width, the value is expressed in percentage on the total space available for the report. This parameter is only considered when *Planned* mode is used to determine report columns width (see following sections).

## Report main settings

The following sections to customize the report affects the whole report, not only one or more channels.

The Columns width section is used to define the mode to divide the space. Three modes are available:



Columns width

☒ Automatic

☐ Homogeneous

☐ Planned

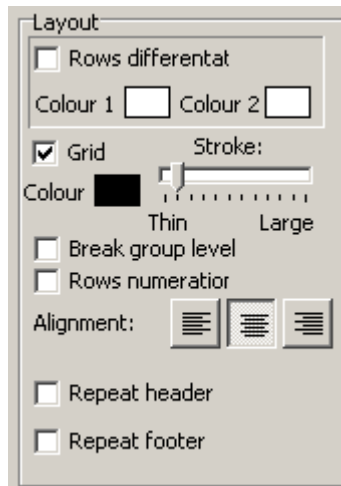
**Automatic:** the program sets columns width according to the space necessary to display the data.

**Homogeneous:** the space available is divided into the report number of channels.

**Planned:** each column is sized according to the width in percentage set in the channels attributes section.



If you are not using the homogeneous mode (in this case in the worst conditions columns could be narrower than necessary), a special attention must be paid as the columns could exceed the max right limit. In this case the space used must be reduced (for instance reducing the font size), or the group must be divided in two groups.



Layout

☐ Rows differentiat

Colour 1  Colour 2

☒ Grid Stroke:

Colour  Thin Large

☐ Break group level

☐ Rows numeration

Alignment:

☐ Repeat header

☐ Repeat footer

The section *Lay-out* is used to set some main features of the report layout:

**Rows differentiate:** it is used to underline rows in the report alternating two different colour tones that can be adjusted in the boxes below as rows background.

**Grid:** it is used to enable a grid around the document. The trackbar on the right is used to set the thickness of the grid lines.

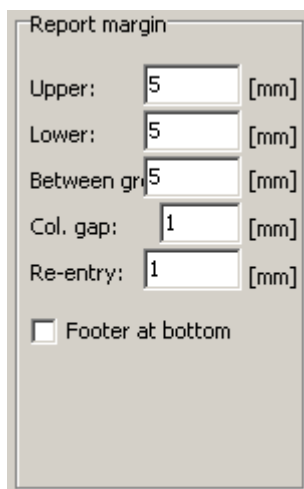
**Break group level:** it is used to force the page break at the beginning of each new group.

**Rows numeration:** it is used to add an automatic counting column.

**Alignment:** it is used to indicate the report aligning in the page.

**Repeat header** and **Repeat footer** are used to print footer and header in all pages instead of limiting header to the first page and footer to the last page.

The section **Report margin** is used to set special differences.



Report margin

Upper:  5 [mm]

Lower:  5 [mm]

Between groups:  5 [mm]

Col. gap:  1 [mm]

Re-entry:  1 [mm]

☐ Footer at bottom

**Upper:** it is used to create a distance between the report beginning and the upper margin.

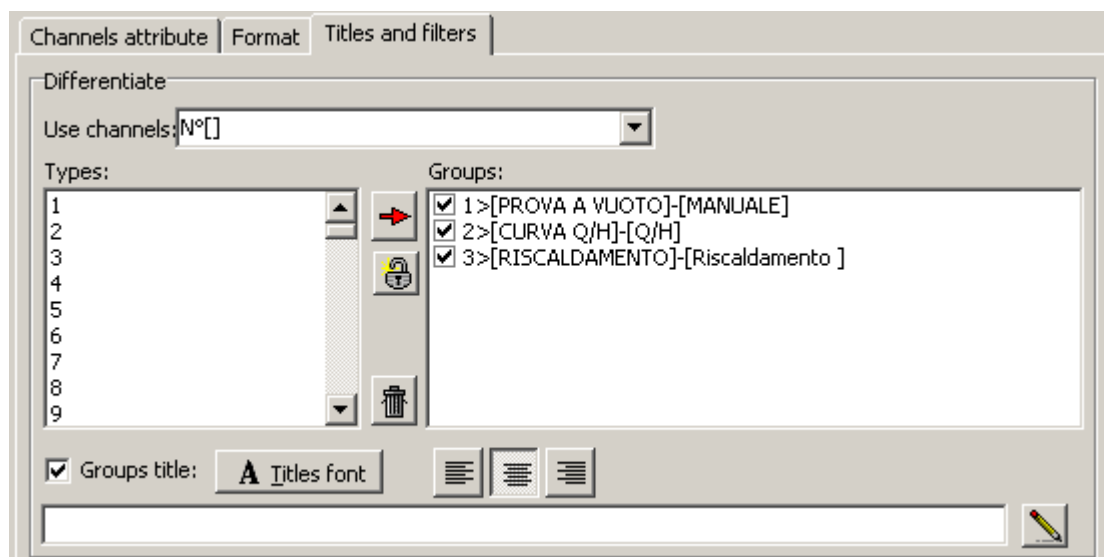
**Lower:** it is used to create a distance between the report and the lower margin.

**Between groups:** it is used to leave a space between one group and the other.

**Column gap:** it is used to increase the space of each column when the *automatic mode* is set.


**Re-entry:** it is used to set an additional margin to the left side of the document.


**Footer at bottom:** it is used to indicate where the footer needs to be printed. When enabled the footer is always printed at the bottom page, on the contrary a space set as lower margin will be left between the footer and the last report row.




The section **Titles and Filters** is used to differentiate the groups created with reference to a preset channel.

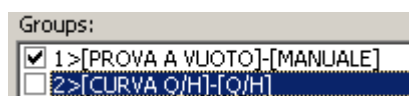
Once the channel to be used as discriminant has been selected (Use channels box), the list of all different elements present in the selected channel will be displayed in *Types* box (up to 100).

The right cell includes the list of set groups. To assign a channel type to a group first select the desired channel type, then select the group and click the icon .

If you want to delete the channel type from the group select the group and click the icon .

The  icon is used to delete a whole group, that is both the row in the channel grid and the row in the list representing it.

To temporarily disable a group display, disable the cell near each element of the list, ex.:



in this case 2 groups are displayed, the first is enabled (and visible in the following printout) while the second is disabled (and will not be displayed in the printout).

It is also possible to assign titles to the different groups, write the text in the box on the bottom page, select the group to title and click .

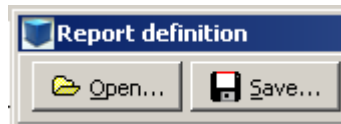
To print titles activate the box **Groups title** and choose type of aligning and font.

## Load and save a report model

It is possible to save the report configuration.

This function is very useful to import reports already created in new documents.

All report configuration files have **CRF** extension, configurations can be loaded and saved using the two keys in the left upper corner of the configuration window.



BOLLETTINO DI COLLAUDO - TEST CERTIFICATE											
Tipo motore KLB12						Data : 23/02/2007					
<b>DATI MOTORE</b>											
Alimentazione : Monofase		Matricola : 123456		Forma : B5		C Norm. [Nm] : 5		Cliente : - - - -			
V Nom. [V] : 230v		Frequenza [Hz] : 50		P Nom. [KW] : 0.75		C Norm. [Nm] : 5		Giri [min <sup>-1</sup> ] : 1360			
I Nom. [A] : 5.05		P ass. [KW] :		η [%] :		Cos φ : 0.95		Poli : 4			
Condensatore [μF] : 30		Grado Protezione : IP55		Classe isolamento : F		Servizio : S1					
<b>DATI COSTRUTTIVI</b>											
Ø est. lam. [mm] :		Ø int. lam. [mm] :		H pacco [mm] :		Ø albero [mm] :		Lung. albero [mm] :			
No. cave statore :		No. cave rotore :									
<b>DATI AVVOLGIMENTO MARCIA</b>											
Fili cava :		Passo cava :		Ø filo [mm] :		Isol. cava :		Treccia [mm <sup>2</sup> ] :			
<b>DATI AVVOLGIMENTO AVVIAMENTO</b>											
Fili cava :		Passo cava :		Ø filo [mm] :		Isol. cava :		Treccia [mm <sup>2</sup> ] :			
FILE DATI : C:\Elektro\Prove\Monofase\M80\M80 B-4 B5 0512-68661 SP2.TXT											
NOTE :											

Caratteristica magnetica - Magnetic characterisc											
Freq. Hz	Cond. μF	Vlinea V	Vavv. V	Vcond. V	Im A	Ia A	IL A	Pot. Ass. KW	Cosφ	Giri min <sup>-1</sup>	
50	30.0	136	202	249	1.24	2.34	1.14	0.13	0.858	1484	
50	30.0	148	217	270	1.50	2.53	1.13	0.15	0.904	1485	
50	30.0	159	231	290	1.82	2.72	1.13	0.17	0.949	1485	
50	30.0	171	243	309	2.22	2.90	1.18	0.19	0.958	1486	
50	30.0	182	254	327	2.72	3.07	1.35	0.22	0.885	1486	
50	30.0	195	265	347	3.52	3.26	1.81	0.25	0.719	1487	
50	30.0	205	273	363	4.30	3.41	2.42	0.30	0.599	1487	
50	30.0	219	281	383	5.52	3.60	3.48	0.38	0.498	1488	
50	30.0	229	287	398	6.66	3.76	4.53	0.48	0.460	1487	
50	30.0	241	294	418	8.29	3.97	6.08	0.65	0.444	1486	
50	30.0	254	300	438	10.00	4.18	7.74	0.90	0.459	1485	

Coppia massima - Max torque											
Freq. Hz	Cond. μF	Vlinea V	IL A	Pot. Ass. KW	Cosφ	Coppia Nm	V nom V	I rapp. A	C rapp. Nm	Cmax/Cnom	
50	30.0	228	9.02	1.99	0.968	9.1	230	9.08	9.3	1.9	

Rendimento ai vari carichi - Efficiency at the different loads													
Freq. Hz	Cond. μF	Vlinea V	Vavv. V	Vcond. V	Im A	Ia A	IL A	Pot. Ass. KW	Giri min <sup>-1</sup>	Coppia Nm	Pot. Rea kW	η %	Cosφ
50	30.0	229	279	381	5.44	3.59	4.39	0.74	1441	2.4	0.37	50.0	0.731
50	30.0	230	279	380	5.43	3.58	4.58	0.80	1433	2.9	0.43	53.9	0.763
50	30.0	228	275	372	5.02	3.50	4.57	0.86	1419	3.5	0.52	59.8	0.829
50	30.0	229	274	370	5.02	3.49	4.77	0.93	1409	3.9	0.58	62.3	0.854
50	30.0	230	271	367	5.03	3.45	5.06	1.03	1394	4.6	0.67	64.9	0.884
50	30.0	230	269	362	5.00	3.41	5.30	1.11	1380	5.1	0.74	66.7	0.909
50	30.0	230	265	357	5.08	3.36	5.62	1.20	1363	5.7	0.81	67.6	0.928
50	30.0	230	260	351	5.24	3.31	6.01	1.31	1342	6.3	0.89	67.9	0.944

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Example of report obtained by the program.

## 5. Header and footer

Sometimes additional details or comments need to be included, the program offers an object to obtain a high configuration of the sections header and footer.

These objects can be displayed using commands *Header* and *Footer* in the *Page* menu.

BOLLETTINO DI COLLAUDO - TEST CERTIFICATE				
Tipo motore KLB12    Data : 23/02/2007				
<b>DATI MOTORE</b>				
Alimentazione : Monofase	Matricola : 123456	Forma : B5	Cliente : - - - -	
V Nom. [V] : 230v	Frequenza [Hz] : 50	P Nom. [KW] : 0,75	C Nom. [Nm] : 5	Giri [min-] : 1360
I Nom. [A] : 5,05	P ass. [KW] :	$\eta$ [%] :	Cos $\varphi$ : 0,95	Poli : 4
Condensatore [µF] : 30	Grado Protezione : IP55	Classe isolamento : F	Servizio : S1	
<b>DATI COSTRUTTIVI</b>				
Ø est. lam. [mm] :	Ø int. lam. [mm] :	H pacco [mm] :	Ø albero [mm] :	Lung. albero [mm] :
No. cave statore :	No. cave rotore :			
<b>DATI AVVOLGIMENTO MARCIA</b>				
Fili cava :	Passo cava :	Ø filo [mm] :	Isol. cava :	Treccia [mm²] :
<b>DATI AVVOLGIMENTO AVVIAMENTO</b>				
Fili cava :	Passo cava :	Ø filo [mm] :	Isol. cava :	Treccia [mm²] :
FILE DATI : C:\Elektro\Prove\Monofase\M80\M80 B-4 B5 0512-68661 SPZ.TXT				
NOTE :				

Header

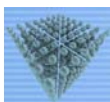
Caratteristica magnetica - Magnetic characterisc

Freq. Hz	Cond. µF	Vlinea V	Vavv. V	Vcond. V	Im A	Ia A	IL A	Pot. Ass. KW	Cosφ	Giri min-¹
50	30,0	136	202	249	1,24	2,34	1,14	0,13	0,858	1484
50	30,0	148	217	270	1,50	2,53	1,13	0,15	0,904	1485
50	30,0	159	231	290	1,82	2,72	1,13	0,17	0,949	1485
50	30,0	171	243	309	2,22	2,90	1,18	0,19	0,958	1486
50	30,0	182	254	327	2,72	3,07	1,35	0,22	0,885	1486
50	30,0	195	265	347	3,52	3,26	1,81	0,25	0,719	1487
50	30,0	205	273	363	4,30	3,41	2,42	0,30	0,599	1487
50	30,0	219	281	383	5,52	3,60	3,48	0,38	0,498	1488
50	30,0	229	287	398	6,68	3,76	4,53	0,48	0,460	1487
50	30,0	241	294	418	8,29	3,97	6,08	0,65	0,444	1488
50	30,0	254	300	438	10,00	4,18	7,74	0,90	0,459	1485

Footer

<b>Note di costruzione:</b>			

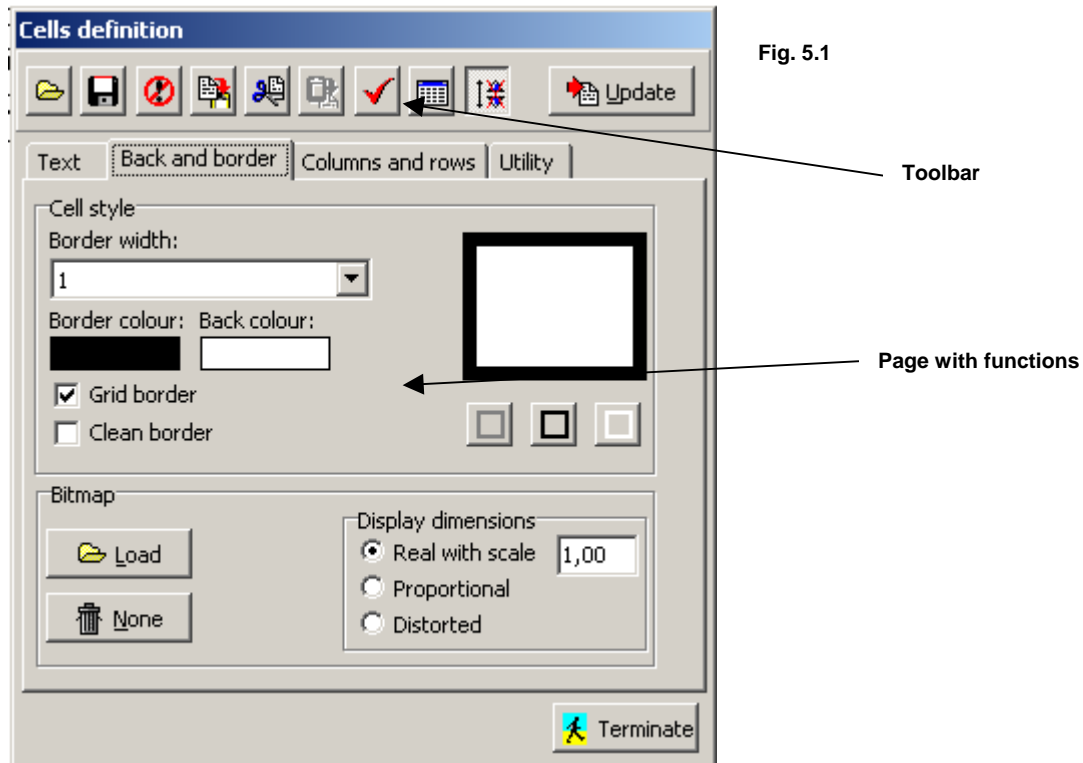
pag. 1 di 1



## 5.1 Modify Header or Footer

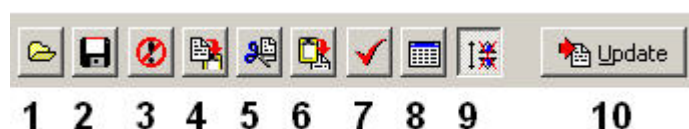
**objects**

Double click on a header/footer object to reach the window to customize the object.



The window includes an upper bar, including the keys, and a page divided into four sections: **Text**, **Back and border**, **Columns and rows** and **Utility**.

### 5.1.1 Toolbar



Important functions are included in this bar:

- The first 2 keys (1 and 2) are used to respectively load and save a header/footer file. These files have **CIF** extension.
- Key 3 is used to undo the last action.
- Keys 4, 5 and 6 are used respectively to Copy, Cut and Paste the text in selected cells.
- Key 7 is used to select all grid cells.
- Key 8 opens a window including all details loaded by the program during test opening.



This window includes a grid with all details stored in the starting test file, and a lower bar used to select the desired test.

Test informations					
Drag informations inside cells					
	1	2	3	4	5
1	43				
2	Date:	18/10/2007	Nominal voltage	400	Note:
3	Time:	16.02.59	Nominal current	11,55	provare
4	Path:	G:\EMF\Prüffeld	Nominal torque	36	seriamente e
5	File:	13254.TXT	Nominal power	[15,5	speriamo
6	Emplacement:	Banco_Middle	Poles	4	il bene
7	...	...	...	...	...
c:\Abulafia\LavoriTL\Elektro\32Bit\NordGer\13254.TXT					

A detail can be dragged from the information grid to the header: select the detail in the information cell, click left and keep it down and then move the pointer inside the header cell where the detail needs to be added.



The information window can only be closed clicking on the key **information (8)** already used to enable it.

The key **9** is used to disable the manual resizing of grid cells. This function is very useful and prevents unwanted changes in the cell size.

The key **Update (10)** is used to assign the changes made in the cell to the selected object.

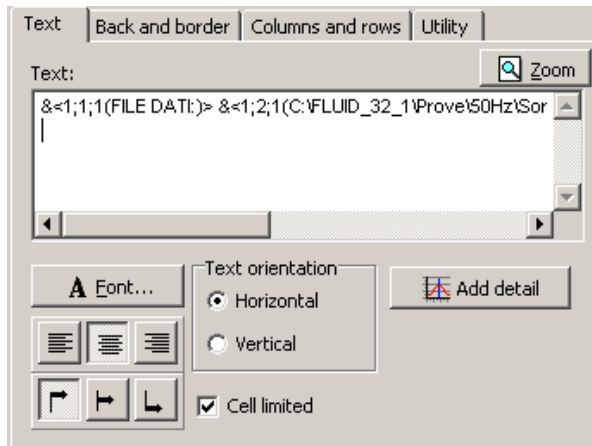


Important: setting changes will not be assigned if not confirmed using the key



## 5.1.2 Text

To enter some text in a cell select the cell and reach the text section of the customize page.



In the box on the top the text to be added in the selected cell can be entered.

The font to be used can be set using the key **Font**.

The program includes the possibility to set the text horizontal aligning using the

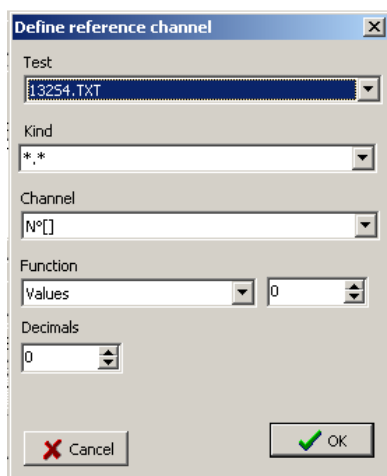
three keys,    or the vertical one using the keys



The cell **Text orientation** is used to indicate whether a vertical or horizontal text orientation is desired.

The box **Cell limited** is used to indicate whether the added text must be included in the cell or can exceed the limits.

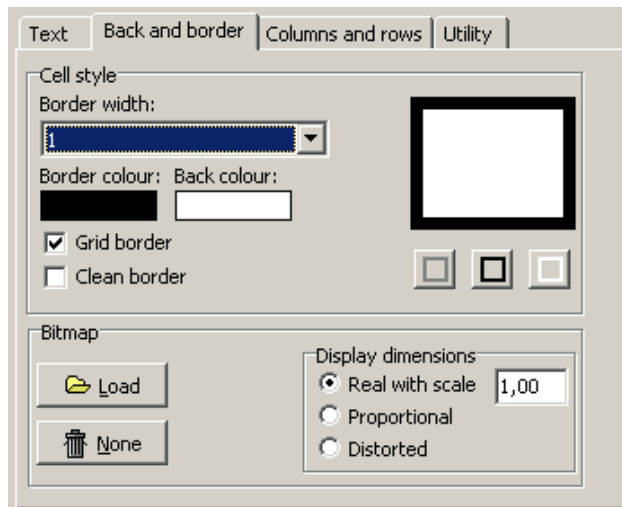
The key **Add details** is used to include a value in the test data matrix. Use this key to reach the following window.



First set the **test** to extrapolate the value from among those loaded and the **channel**. Then some functions can be used to choose the value:

- **Value:** it is used to set in the box on the right the index for the value to display (0 stays for the first value)
- **Min:** it is used to set min. value for the channel
- **Max:** it is used to set max value for the channel
- **First:** it is used to add the first value acquired (corresponds to the function Value with index 0)
- **Last:** it is used to add the last value acquired.
- The box **Decimals** is used to set the number of decimals to be used to represent the value.

### 5.1.3 Back and border



This section is used to modify some features of grid cells.

Click on the 4 boxes representing the cell borders to enable alternatively three different options:

**Grey:** to keep the border as it is.

**Black:** to make the border visible.

**White:** to make the border invisible.



These three keys force the solutions described on all four borders at a time.

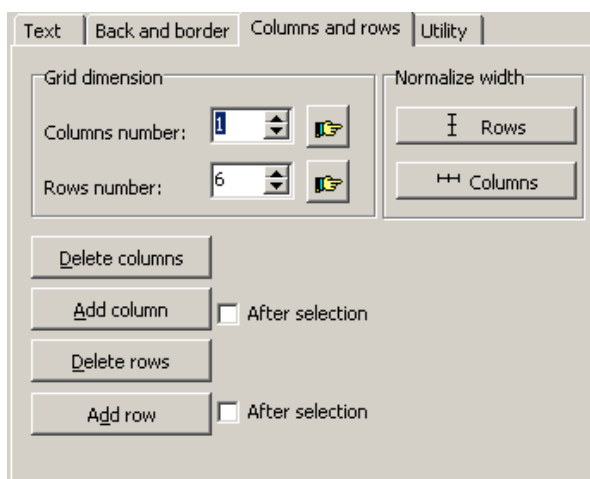
Contrary to the border box acting only on external borders of the

selection, the **Grid border** checkbox is used to activate all borders of the selected cells, including the borders inside the selection. In the same way **Clean border** deletes all borders.

The section **Bitmap** is used to load images in Bmp/Jpg format to be included in the selected cells, positioning of these images is carried out according to three different modes:

- Real with scale mode: the image is displayed using the file original dimensions according to a scale parameter including values from 0 to 1. For instance when this parameter is set to 1 the image original dimensions are displayed, while when it is set at 0.5 the image dimensions will be halved.
- Proportional mode: the image is resized uniformly on the two axes in order to be contained in the selected cell.
- Distorted mode: the image is resized according to the cell dimensions in order to fill the cell.

### 5.1.4 Columns and rows



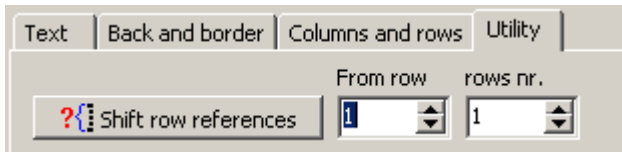
This section is used to define the number of columns and rows in the header. In the cell **Grid dimension** the desired values can be entered.

The four keys in the lower left corner are used to add/remove new rows or columns according to the selected position.

Normalize keys are used to equally divide the space in the selected rows or columns.

### 5.1.5 Utility

This function is used to automatically modify the references of the fields in the cells.



A data field is a special code referring to a set position present in the test file. As already seen it is possible to add a data field in the text box cell using the selection window (see par. 5.1.1 key nr° 8). This field has the following format:

&<1;1;5(Code)>

where:

**&<** : is the tag indicating the beginning of reference data field, concluded by **)>**.

The three following numbers, separated by a semicolon, identify respectively the test number (from 1 to 10), the column index and the row index. The text included in the cell is indicated in brackets.

The shift function is used to shift row references present in the data fields, that is to modify the third number indicated in the reference field.

The procedure asks to indicate the row to start with and the number of offset rows (when negative values are put, references will be shifted backward)

In short, if the value 5 is entered in the field **From row** and the value 1 is entered in the field **rows nr.** after clicking on **shift row references** all fields including row references from 5 on will be increased by 1.

The field &<1;1;5(Code)> will pass to &<1;1;6(Code)>

In case the field were &<1;1;4(Code)> it would have remained unchanged.



**Important: this function is always applied to all header cells and not only to the selected ones.**

## 6. Tools

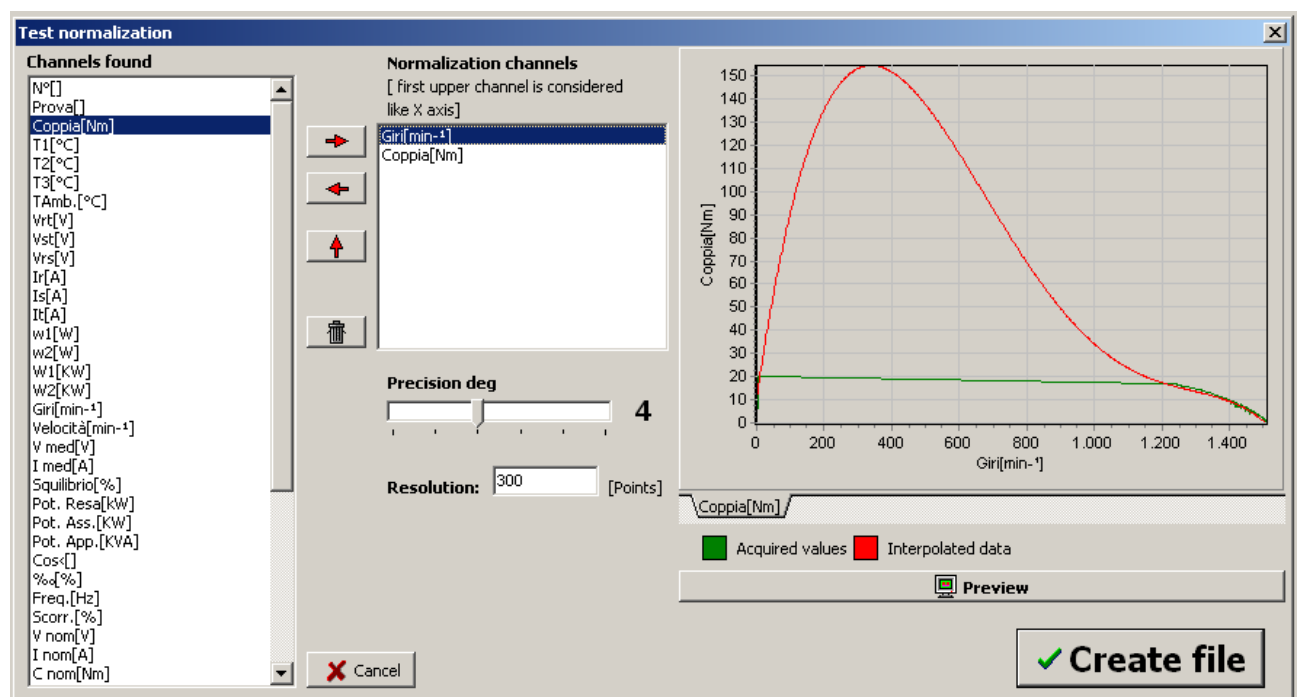
In the tools menu some functions are present that are not strictly linked to the creation of graphs and reports, but can be useful for many requirements.

### 6.1 Tests normalization

The command *Test normalization* in the *Tools* menu is used to create a new file starting from a test file including values calculated through interpolation of actual values.

In short a test can be used to create a new file including data obtained by the program applying the functional interpolation algorithm to round curves instead of starting data.

When the test to be normalized is selected, the following window is displayed.



On the left the list of channels loaded from the test is displayed. Select the channels to be included in the new file from this list using the following keys:



It is used to add the selected channel in the list of normalization channels



It is used to delete the selected channel from the normalization list



It is used to move the channel selected in the position above into the normalization list



It is used to remove the list with normalization channels

When a list is created always consider that the program needs a channel to be considered as an independent variable to carry out the operation, that is a channel that in the graph would be traced

on the abscissas axis. The program uses as independent variable the first channel present in the normalization list.

When the desired channels have been included in the normalization list the precision degree must be chosen. A higher degree results in an interpolation reproducing a more similar representation of the points distribution supplied; in general the interpolation degree is inversely proportional to the number of values present. With few vales it is suggested to use a high degree while with many values it is better to use a low degree to better represent the points distribution.

The program also required to enter a resolution, representing the min. number of points that will be calculated by the algorithm and included in the new file.

To have an idea about the result strike the key Preview to display the calculated values in the graph, the green curve represents the data present in the starting file while the red one represents the data after interpolation.

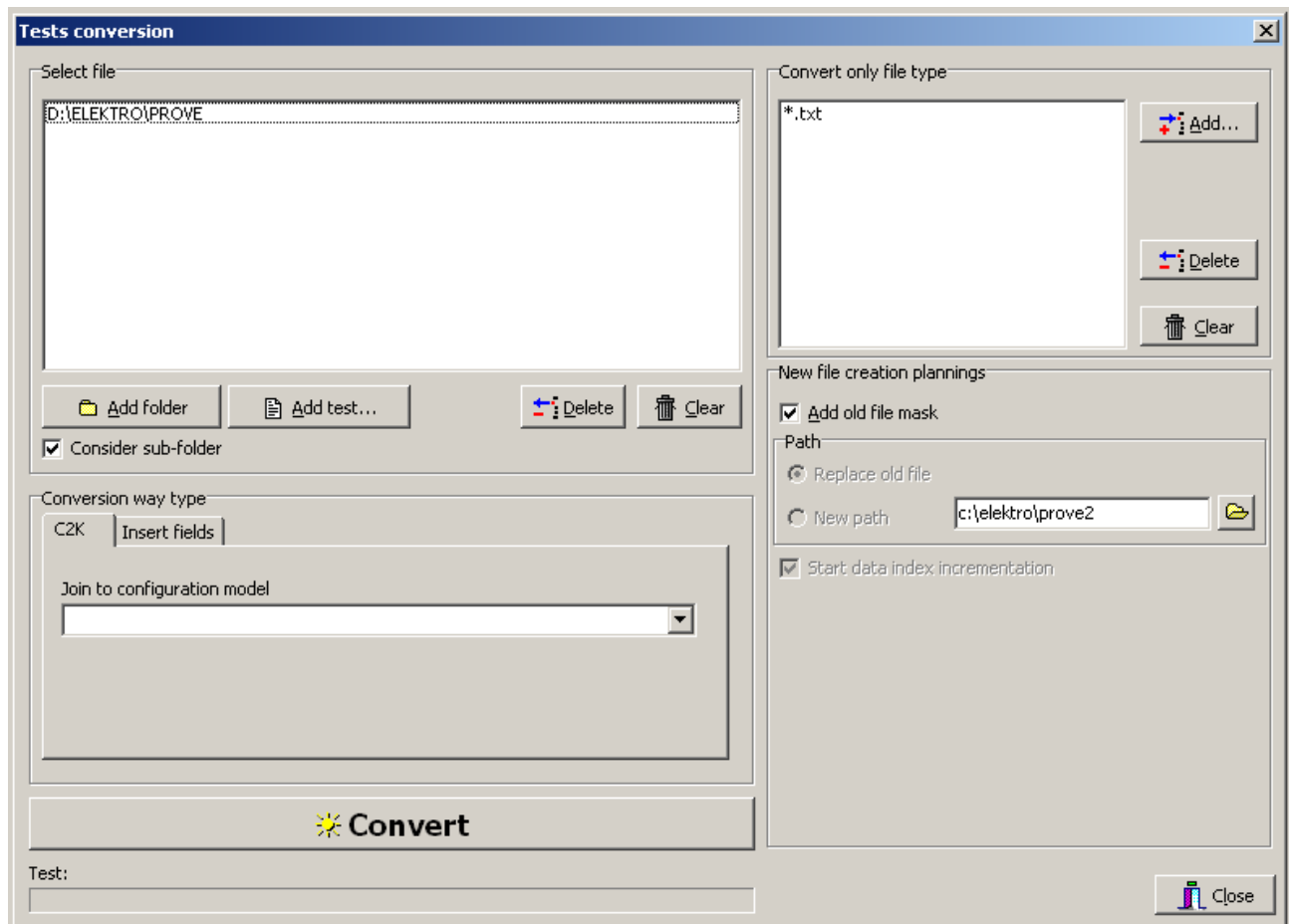
When the desired result has been obtained the procedure can be terminated using the key **Create file**.

## 6.2 Tests conversion

The program includes a section dedicated to some conversion procedures that can be applied to tests. Two conversion types are available:

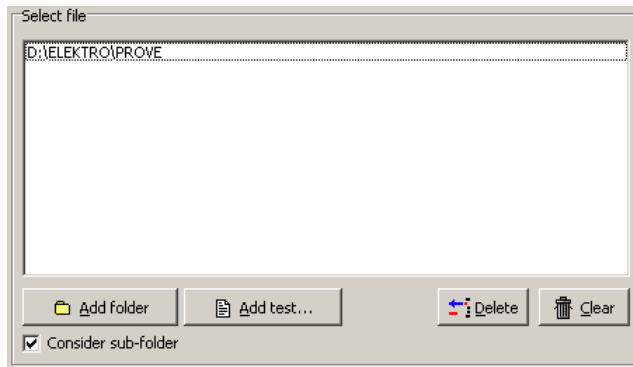
1. Test conversion in C2K format
2. Insert data fields

To reach conversion window choose *Tests conversion* in *Tools* Menu.  
The following window is displayed:



The window is articulated in different sections, some are common to both conversion types others are only valid for one of the two.

### 6.2.1 Select test



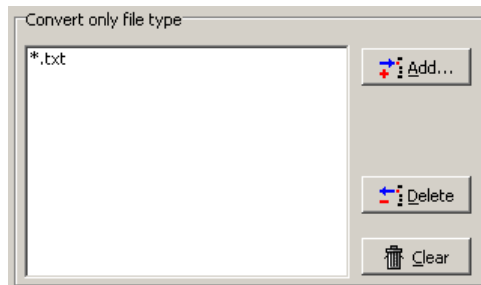
This section is used to select the tests to be converted.

To add a test file use the key *Add test* and select the desired file, while to add the text of a folder use the key *Add folder*.

The cell *Consider sub-folder* is used to activate conversion of all files in the selected folders.

The key *Delete* deletes the selected item from the conversion list, while the key *Clear* eliminates all items in the list.

### 6.2.2 Filters



In order to select the tests included in one or more folders a filter can be created to convert only the files having the required features.

The key *Add* is used to add a new filter, for instance it is possible to tell the program to convert only TXT files typing \*.TXT.

This function uses the Windows wild cards concerning the following characters:

"\*" (star): meaning "all", very useful to select a group of files:

\*.txt = all files with txt extension

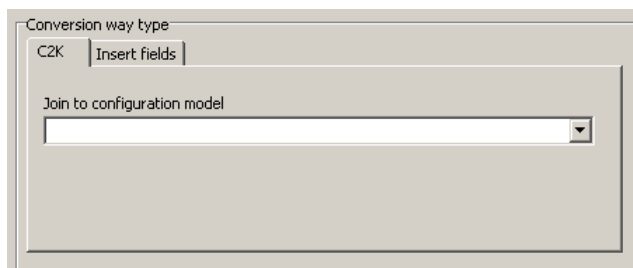
\*test.\* = all files ending with test with all extensions

test\*.txt= all files starting with test and having txt extension

"?": meaning all fonts, acts as the \* but is only valid for a character:

test?.txt= all files starting with "test" and including a different character and having "txt" extension, for instance the filter would include a file called test1.txt while it would exclude a file called test10.txt, that in order to be included would need a filter like *test???.txt* or more simply *test\*.txt*.

### 6.2.3 Test conversion in C2K format



This function is very important. It is used to change a test or a test file into C2K format (for further details see paragraph 2.1.2 Open a document file).

Select the *C2K* folder from the conversion window in the section *Conversion way type*.

Before launching the conversion procedure select the configuration model to be associated to all files to be converted. The models available are included in the list "Join to configuration model". It is not possible to convert tests without having selected the configuration model.



During conversion, all files created will be included in the same starting folder, replacing the old extension with C2K. If the old extension of tests is not to be cancelled it is possible to add it after the file name, enabling the function *Add old file mask*. In short this function converts the file as shown below:

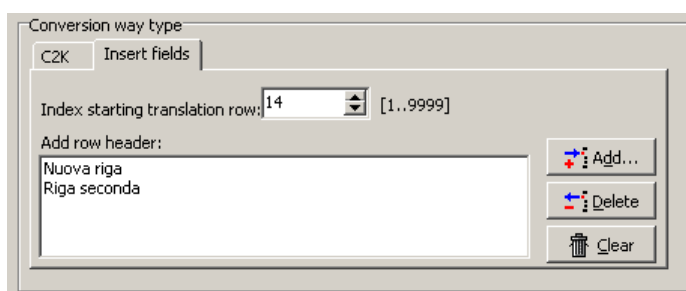
Starting file: Test1.txt  
Converted file: Test1txt.C2K

Use *Convert* to start the procedure and convert in C2K the selected files.



**A C2K file can be opened directly without a display configuration, and in addition can be opened directly using C2K Reader.**

## 6.2.4 Insert fields



This function is used to add some data fields in test files already created. According to the acquisition program used it is necessary to add one or more motor data. In order to obtain new test files compatible with files already created the missing data can be added.

The row where new fields will start to be added can be set in the Index starting translation box. The key **Add** is used to add a row, the key **Delete** is used to delete the selected row in the list, and the key **Clear** is used to eliminate all text.

In the section New file creation settings it is possible to set whether the new file should replace the old one or it should be included in a new path.

When tests are created with automatic loading way format (in the test file the first field is a value indicating the row where the acquisition data matrix starts), the reference value can be automatically corrected enabling the box **Start data index incrementation**.

The key **Convert** enables the selected conversion procedure.

## 7. Tests editor

The program includes an editor to be used to work with tab-delimited text files, and to read test files created using all Testline acquisition programs. Use the key *Edit test* in *File* menu to reach this function.

Once the test has been loaded in the file the following functions will be available



These keys are used to open a new test file and to save a modified test file.



This key is used to copy the text in the selected cells (shortcut keys CTRL + C)



This key is used to cut the text in the selected cells (shortcut keys CTRL + X)



This key is used to paste the text copied (shortcut keys CTRL + V)



This key is used to lock the column of the selected cells, in order to scroll the others keeping a part locked.



This key is used for the same function just described but is referred to rows.

# A.1 File formats

The program uses many types of file, the following list should help to identify them:

1. **CPF** : the project configuration format (Cube Project File) includes all project configurations, graphs, header reports. The file includes only display details, data are loaded apart. These files can be saved or loaded in *Documents* menu, using the commands *Save project* or *Load project*.
2. **CRF**: the report configuration format (Cube Report File) includes the report configuration. It is very useful to load a report already made and then modify it. This file can be loaded using the keys inside the report configuration window.
3. **CGF**: the graph configuration format (Cube Graph File) includes all graph features. This file is used to exchange graphs between different projects. To load/save these files use the commands **Save Graph** and **Load Graph** in **Page** menu (only visible in graphic pages).
4. **CIF**: the header/footer configuration format (Cube Header File) includes all header/footer features.  
To save or load these files reach the header/footer configuration window and use the first two keys on the left.
5. **C2K**: this document file, differently from all other files including only details to display a test file, also includes the test data. In short it combines a **CPF** file and a test file created by the acquisition program.  
Reach *Load Document* in *File* menu to load this file, while *Save Document* in *Document* menu can be used to save the file.

Chart:

