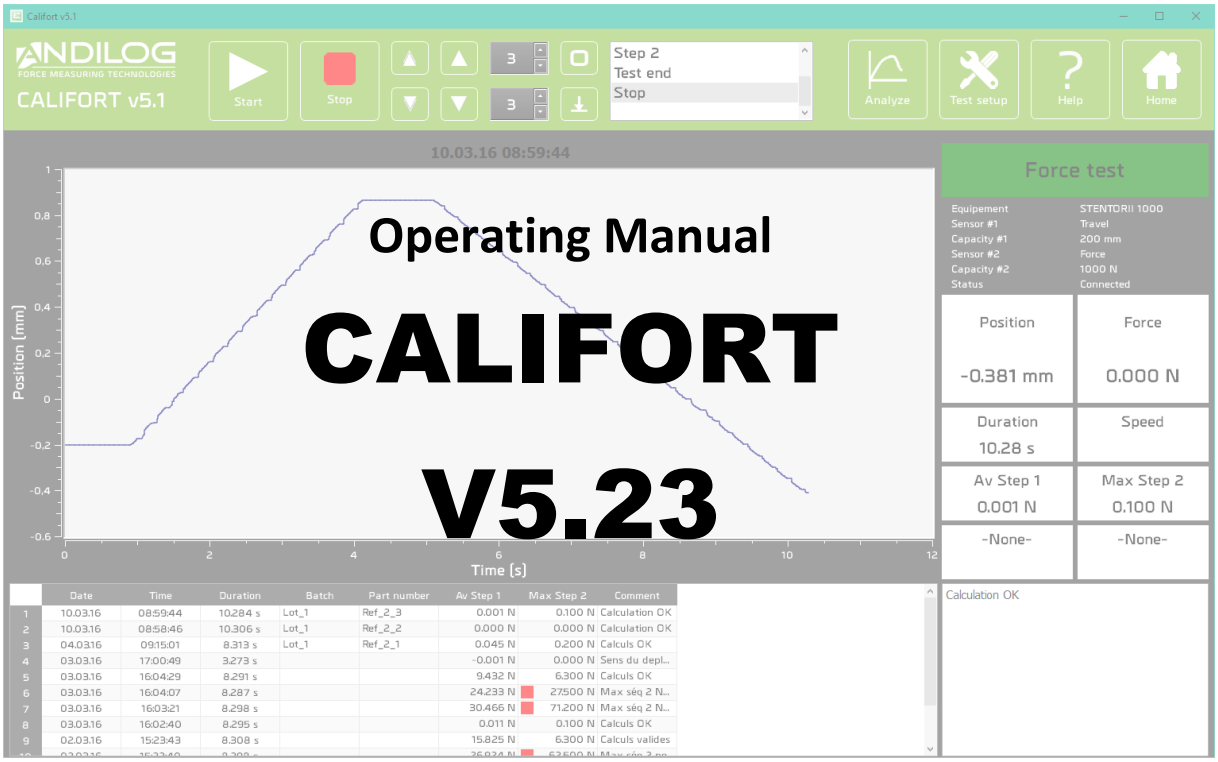
ANDILOG

FORCE MEASURING TECHNOLOGIES



Operating Manual

CALIFORT

V5.23

ANDILOG Technologies

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Rev	Date	Description
5.1	March 2016	§ 2.5.1 § 3 § 4 § 5 § 6 § 7.2, 7.3, 7.4 § 8
5.4	June 2016	§ 3.2 § 6.1, 6.8, 6.10 § 7.2, 7.4
5.7	June 2017	§ 2.5.2 § 3, 3.8 § 4, 4.5, 4.8 § 5, 5.3, 5.5, 5.6, 5.7, 5.8 § 6, 6.1, 6.6, 6.8, 6.11, 6.12, 6.13 § 7.2, 7.4
5.8	August 2017	§ 3.3 § 4.3 § 5.3 § 6.4, 6.7, 6.10
5.15	June 2018	§ 3.2, 3.4, 3.10 § 5.3, 5.5, 5.7 § 6.2, 6.5, 6.6, 6.7, 6.8, 6.10, 6.12 § 7.5
5.16 & 5.17	March 2019	§ 4.4, 4.6 § 5.4, 5.5, 5.7 § 6.6, 6.7, 6.10 § 7.4
5.23	Mach 2021	§ 2.5.1 § 4.2 § 5.2 § 6.4, 6.10

1. Introduction

COMPUTER REQUIREMENTS

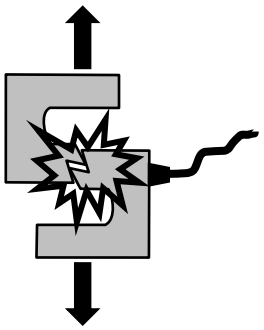
Califort software will need access to certain folders. Before installing the program, please make sure that read and write access is granted. If the computer is part of a centrally controlled Windows Domain system, it may be necessary to consult your IT department to allow correct access. Computer running Windows XP, Vista, Seven or Ten and two USB ports are required.

EMERGENCY STOP

Within the Califort Software, any of the following will stop the crosshead moving, but the use of the emergency button on your test stand is the most secure action:

- Clicking on the STOP button on Califort software
- Pressing any button of the Motor control command on your test stand
- Pressing the control panel EMERGENCY Stop button
- Opening the door of the safety guard (for tester equipped with this option)

SENSOR BREAKAGE



It is important that test readings do not exceed 90% of the capacity of the sensor. Operating the sensor above 90% of capacity may result in permanent damage to the sensor. When operating at speeds above fifty (50) millimeters per minute care should be taken not to exceed 75% of Sensor Capacity. Should this occur, the over force protection system may not react quickly enough, and you will break the S-Block sensor. Ideally sensor capacity should be chosen such that, for most of the time, with most specimens, the load is between 10% and 75% of the total sensor capacity.

2. Startup

2.1. Received items

The following items must have been received to install your software Califort. Make sure you have:

- Setup CD
- 1 Cable: USB to 15 pins connector
- 1 cable: USB to 26 pins connector

2.2. Software installation

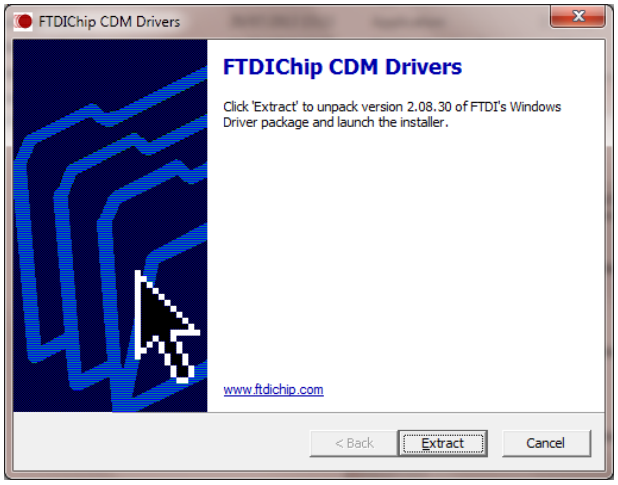
Remark: Please make sure to not connect cables before the complete installation of your software. Follow the below step by step:

1. Insert the installation CD into the computer's CD-room drive
2. Navigate to the CD-Rom drive
3. Double-click the file "Setup Califort V4.17.exe "
4. Follow the prompts on the screen to install the software

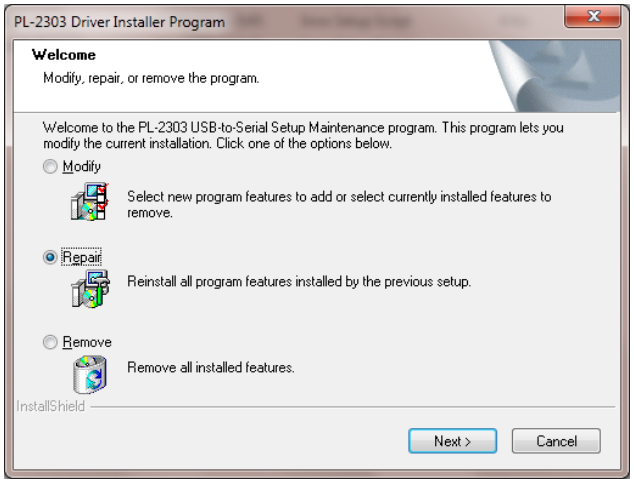
Califort software will began the process of installing the program onto your hard-drive.
By default, Califort software will be located under "C:\Program Files\Andilog\Califort", and the file "Andilog" will be automatically created.

At the end of the software installation, a pop-up windows ask you if you want to run the driver's installation. Keep the two boxes checked checked and press "Finish".

Follow the prompts on the screen, and click successively on “Extract”, “next” and “Finish”.

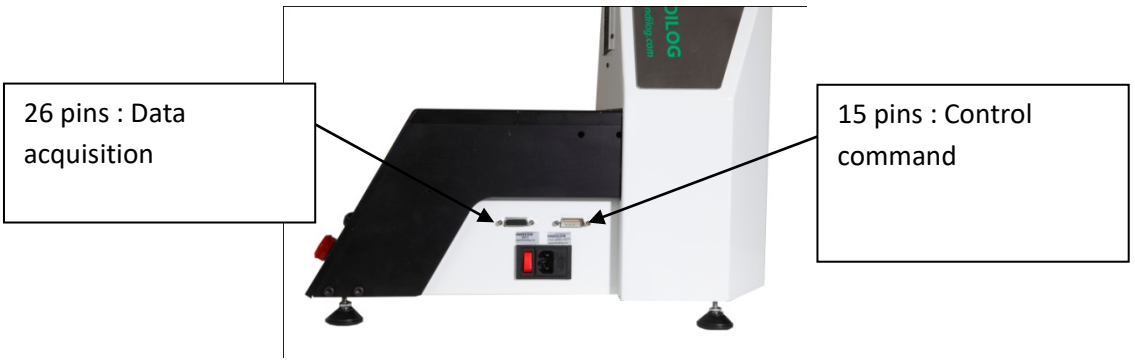


If the following pop up windows appears, press on “Repair”:



2.3. Cables installation

1. Plug the 2 USB cables into two different available USB serial connectors on your computer and let Windows do the installation.
2. Plug the 26pins connector of the cable and 15pins connector of the cable into the connector adjacent to the power plug on the test stand or controller as show on the figure below.
3. Connect the power plug.
4. Start your test stand by pushing the red button adjacent to the power plug connector and unsecure the emergency stop button.



2.4. Centor Touch Settings

If your testing equipment has been delivered along with the software, it has been configured at the factory to operate the software. However, before using Califort, you must enable the USB connection in the "Communication" menu Centor Touch and set the following values

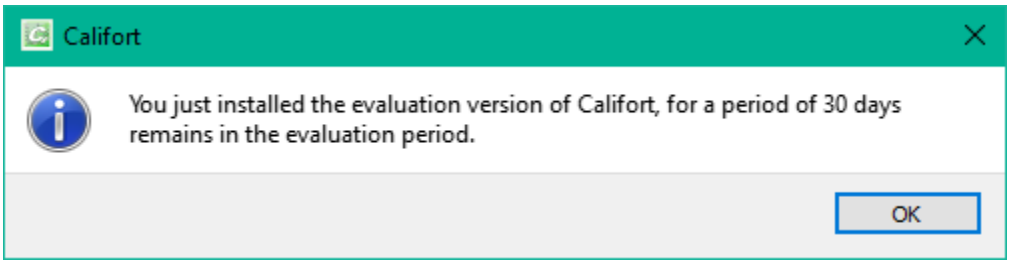
- Mode: Continuous1, Continuous2 or Continuous (according to the used channel)
- Frequency: 10 to 1000Hz

Remark: To ensure proper functioning of Califort software, no others COM Port should be used and connected, then the two used to connect your Test equipments and your computer. By default, some computers have serial COM port and Bluetooth connection enabled. Make sure to disabled them through START Menu -> Control Panel -> System and security -> Device Manager.

2.5. First Run

2.5.1. License

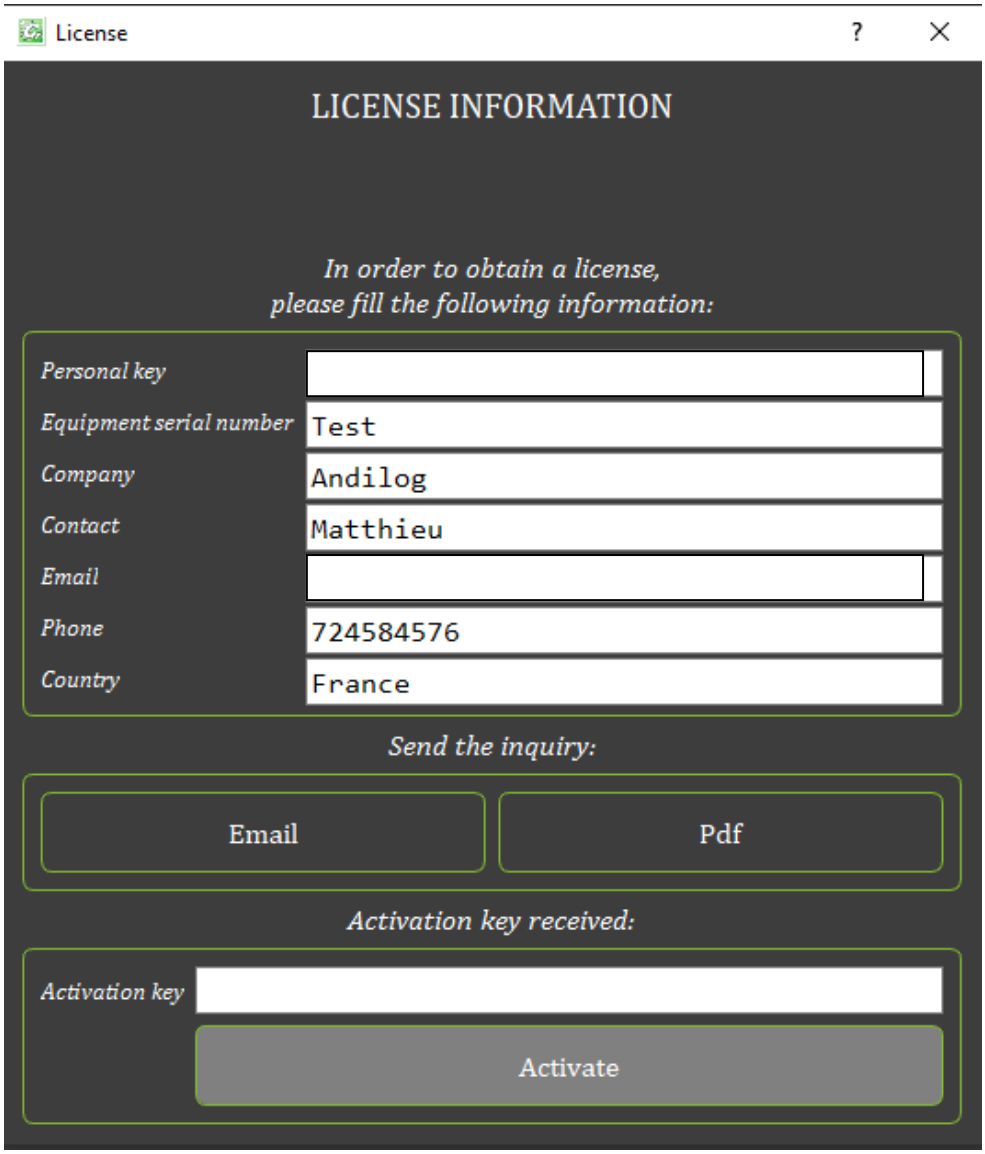
Run Califort by clicking the icon button “Califort” located on your desktop. For the first run, the software will display a dialog box containing information on your license validity period.



Then the following day, at the first launch of the day, you can contact us and ask for your activation software key, to switch from the “trial” to “final” license software.

If the trial has not expired, you can click on the button “LATER” to close this window. You can also ask for your activation key from the “Tools” menu.

If you choose to ask your activation key, the following windows pop up asking to fill the empty field:



You can ask for your activation key by:

INTERNET	Califort is checking automatically if your activation key is available and auto-updating the license information directly thru the Internet.
EMAIL	Califort will automatically prepare an e-mail with the necessary information to obtain the activation key. You just must email it. Once you received an email back, copy and paste the required information.
MAIL OR FAX	If you have no internet connection and don't have access to an email box from your computer, you can print the required information and send this copy to our attention at info@andilog.com. We will provide you the activation keys.

2.5.2. File location

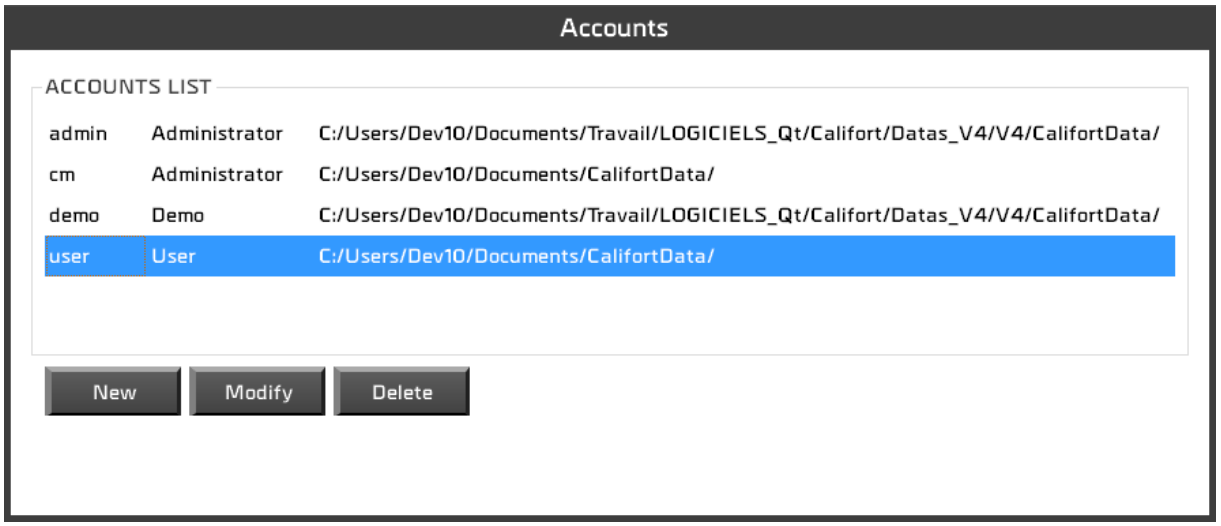
When Califort is started the first time, a dialog box is displayed requiring choosing the location of the "CalifortData" file. This folder will contain all the data saved for each of your tests and test setup you create. We **DON'T** recommend using "Program File" folder location or one of its sub-folder; as it may cause interaction issues with the software Califort, even if you are administrator on your computer.

Then the Califort software will require you to enter a user login and password.

Remark: Default login is: "admin" and let the password blank. Please refer to the next paragraph to create or modify a user account.

2.5.3. User/Administrator accounts

Under "Tools" option from the Home Window menu, select "Accounts". Here is a snapshot of the dialog box:



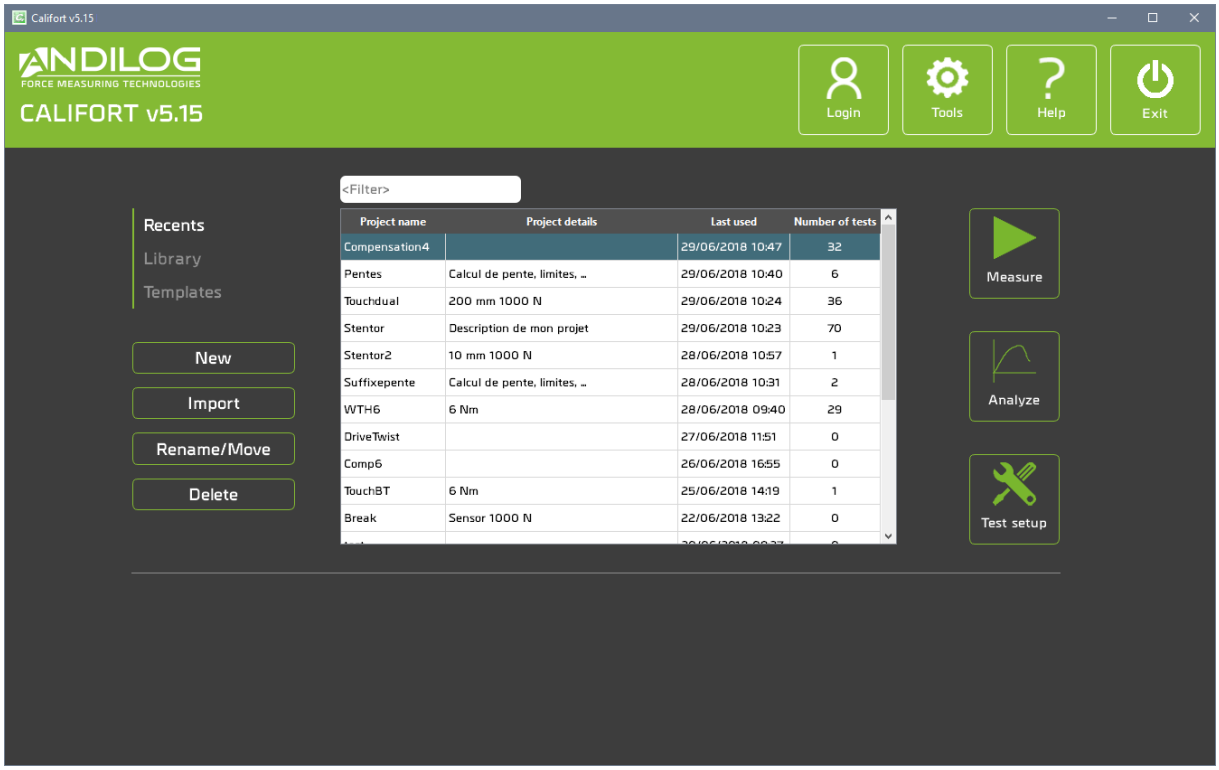
Califort software has two levels of account: "user" (restricted access) and "Administrator" (unlimited access). An operator login saved as "user" will be not able to access to the following options:

“Create/modify a project”, “import”, “delete a curve” and “delete a test”. In Tools, he can only access the Maintenance tab.
An “administrator” login has full access to all menu of the Califort software.

The accounts dialog box displays all accounts, users and administrators. You can modify the account level, name and password.
You are also able to display the account, with which you are currently connected, but due to security reason you can’t delete it or either changes its level.

3. Home window

Once identified, you access the main menu of Califort software:



3.1. Project type

Using the 3 tabs on the left « Recent », « Library » and «Templates », you can select the projects displayed in the list. You can also look for a specific project using the top filter.

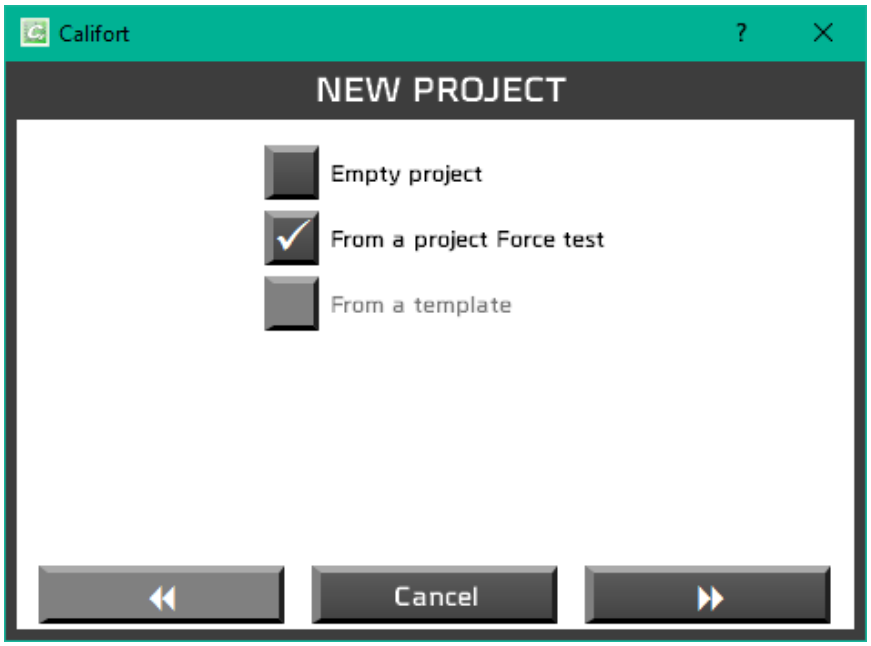
RECENTS	Latest projects opened
LIBRARY	All your projects
TEMPLATES	Project templates. It contains a list of projects in read-only mode. It is only available for Administrators account

3.2. New

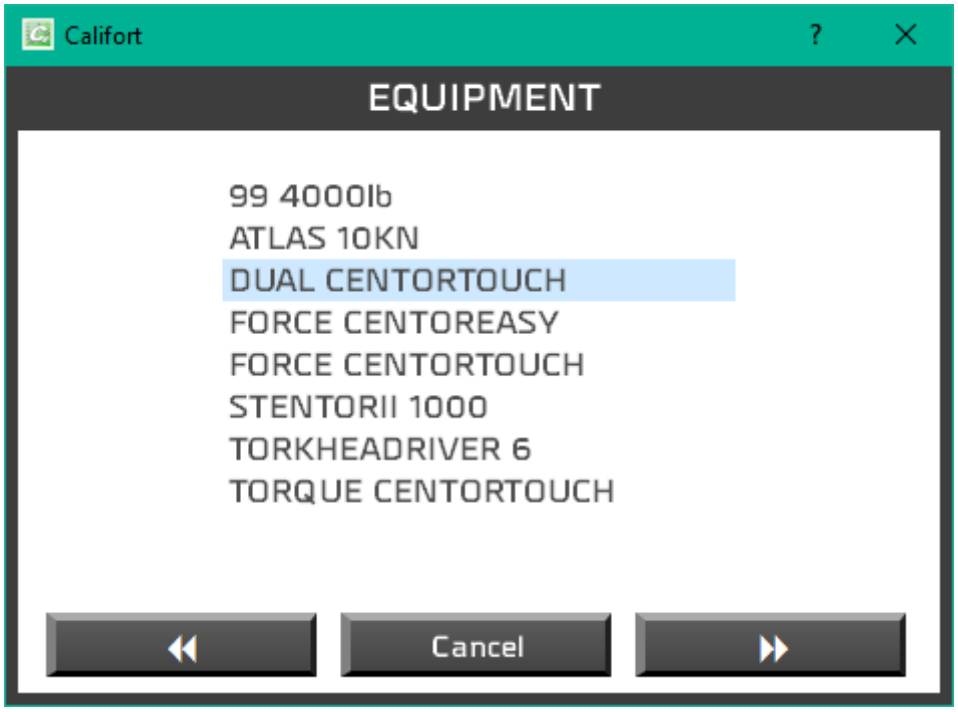
This button allows to create a new project; only administrators can create new projects. Depending on the tab selected, you can create different types of projects:

RECENTS LIBRARY	Create a blank project or a project based on the selected project from the list
TEMPLATES	Create a blank project or a project based on the selected template from the list

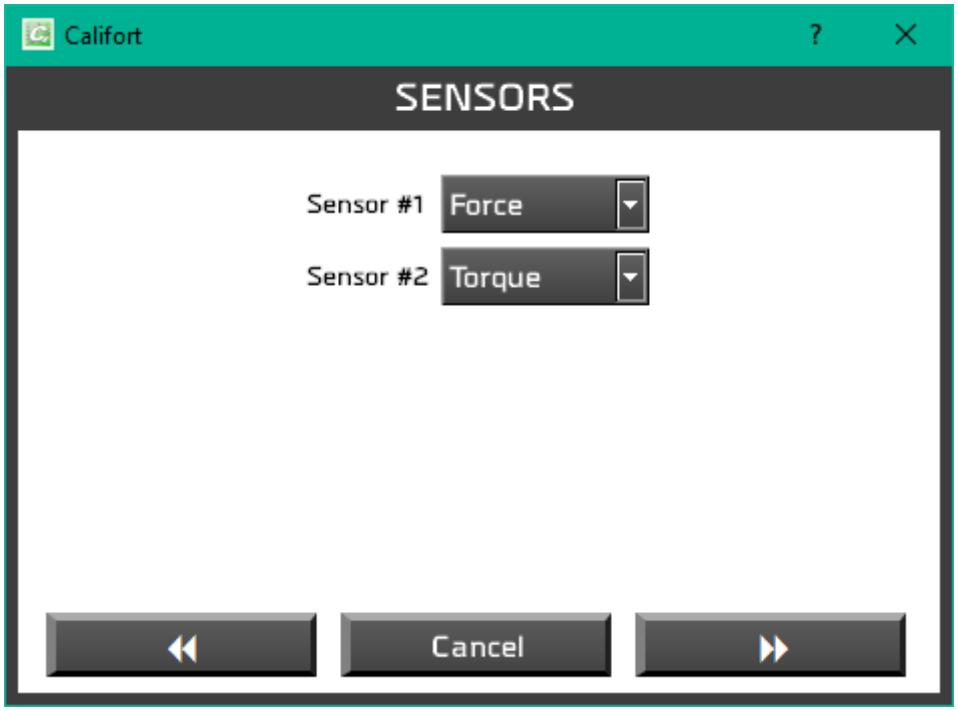
New project assistant:



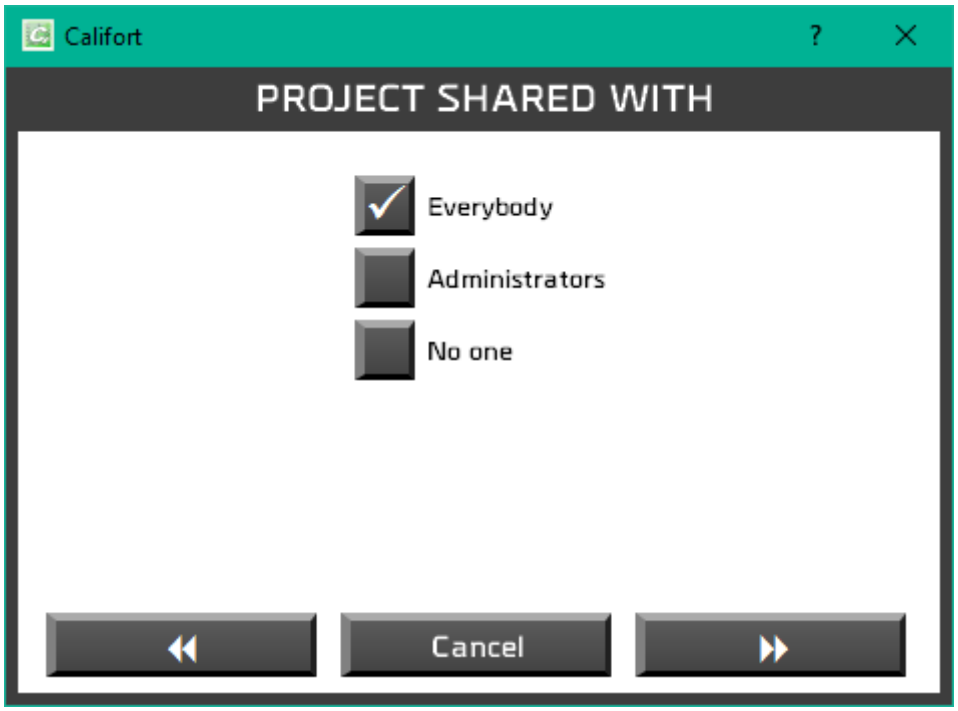
Using the right arrow, you will be able to select the testing equipment for your project:



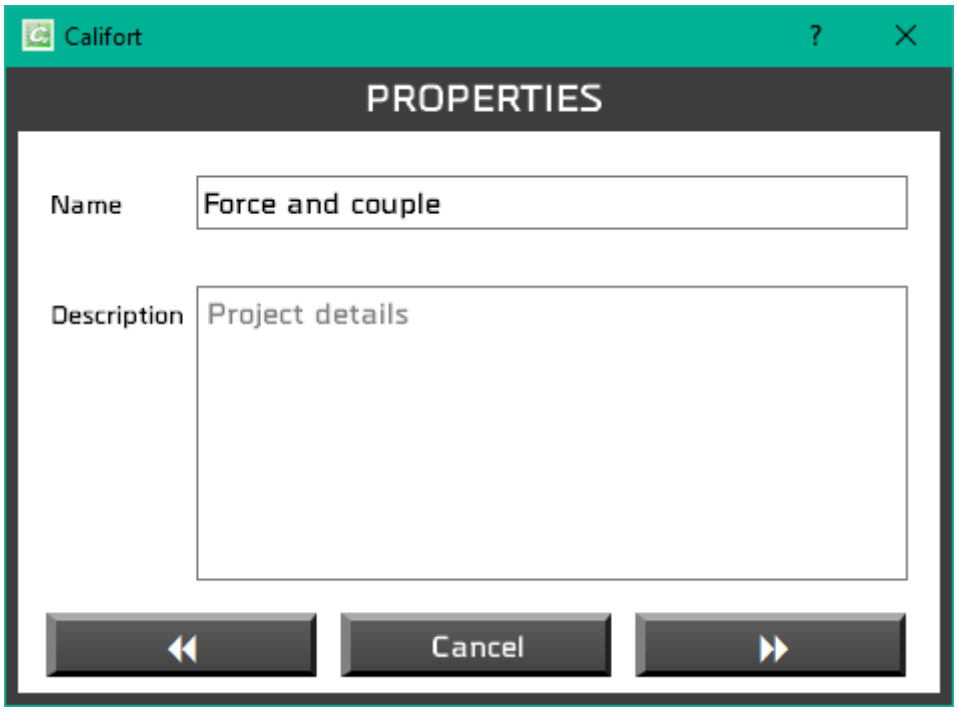
And depending on your equipment, you can also choose the type of sensors:



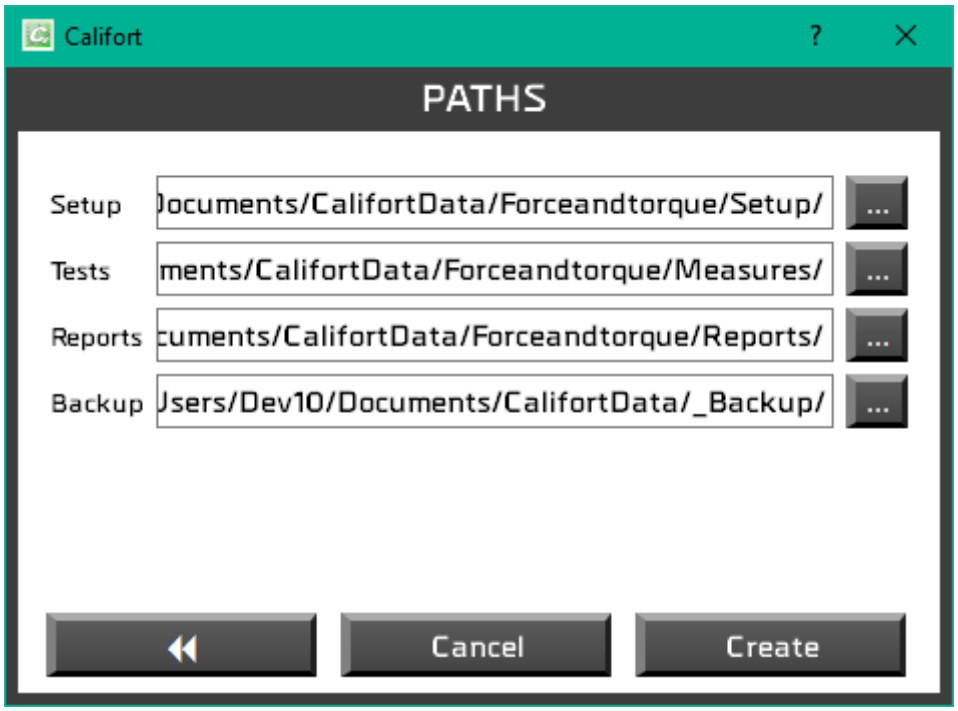
Then, you can define the access rights to this project (all users, administrator accounts or only you):



Finally, you can specify the name and give a short description of your project:



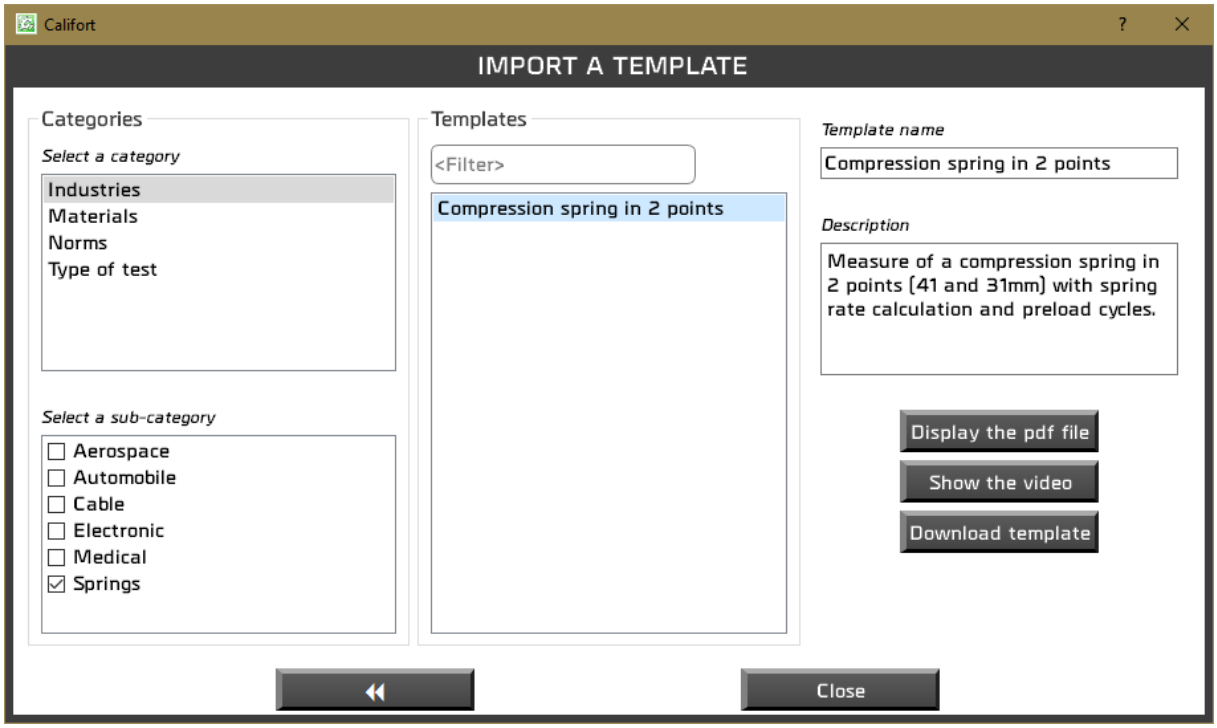
And the path to save the different files:



3.3. Import

Import features are only available for Administrator accounts. It allows to import your previous test setting or to import new templates.

RECENTS ***LIBRARY***	If you have upgraded your Califort software from an older version (prior version V5.1) you can import your former projects: A windows will list all available projects. Projects from version 4.15 or prior cannot be imported.
TEMPLATES	Import a new template from your computer or from Andilog online database.

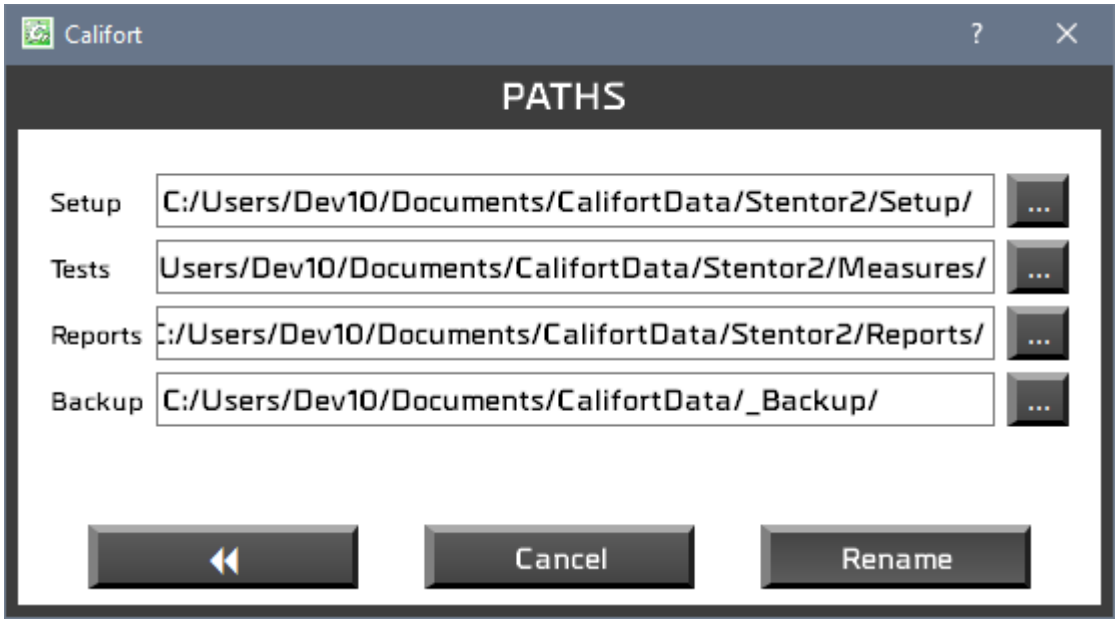


3.4. Rename / Move

Available only for Administrators, this feature allows you to rename a project or to move it into a new folder.

RECENTS	Rename and / or move a project
LIBRARY	Rename and/or move a project
TEMPLATES	Rename a project

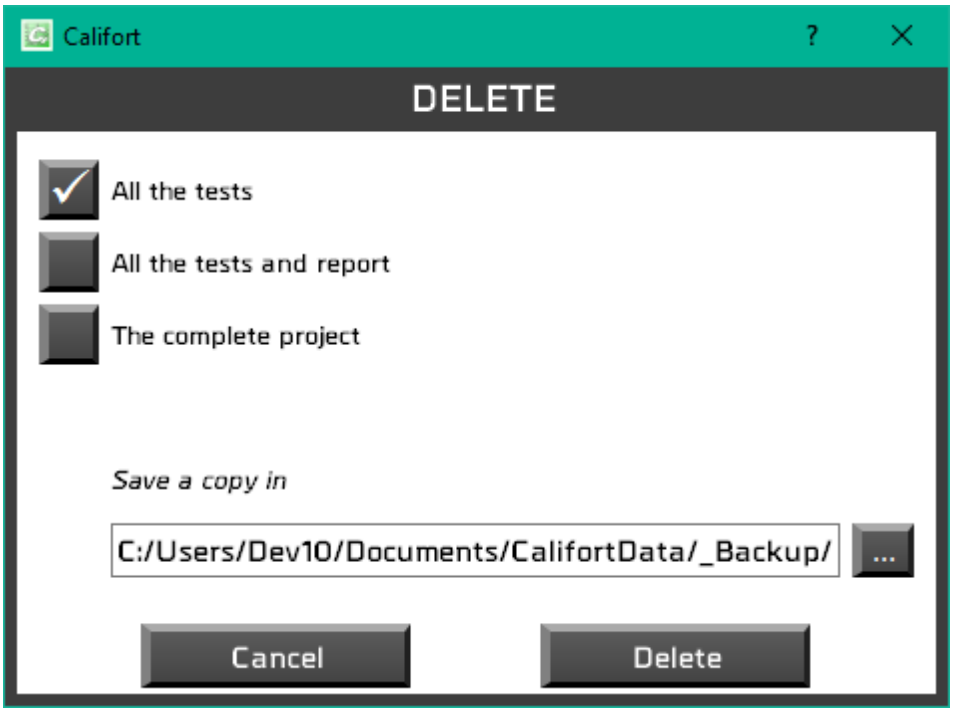
On the first window, you change the name of the project and on the second one you can change the path.



3.5. Delete

Delete features are only available for Administrator accounts.

RECENTS	Delete a project from the “Recent” list. The project itself is not deleted
LIBRARY	Partial or permanent removal of a project.



TEMPLATES	Permanent removal of a template

3.6. Measure

From this window, you can run/execute tests on an AutoRun mode or single acquisition mode depending on the selected configuration.

3.7. Analyze

Display results, curves and tests that have been saved and edit your reports.

3.8. Test setup

Create your test configurations, if you are logged with an administrator account.

3.9. Login

To change the current user.

3.10. Tools

This menu includes six topics:

ACTIVATE	This menu is available if your license has not been enabled.

GENERAL SETTINGS	Language, logo, list of available equipments, files path
ACCOUNTS	User accounts settings.
MAINTENANCE	Understand and troubleshoot connection issues.
DEFLECTION COMPENSATION	This feature allows you to setup the deflection compensation feature.
UPDATES	Allows searching for updates – you must be connected to an administrator account and your computer must have an internet connection. Once a month Califort searches if any updates are available.

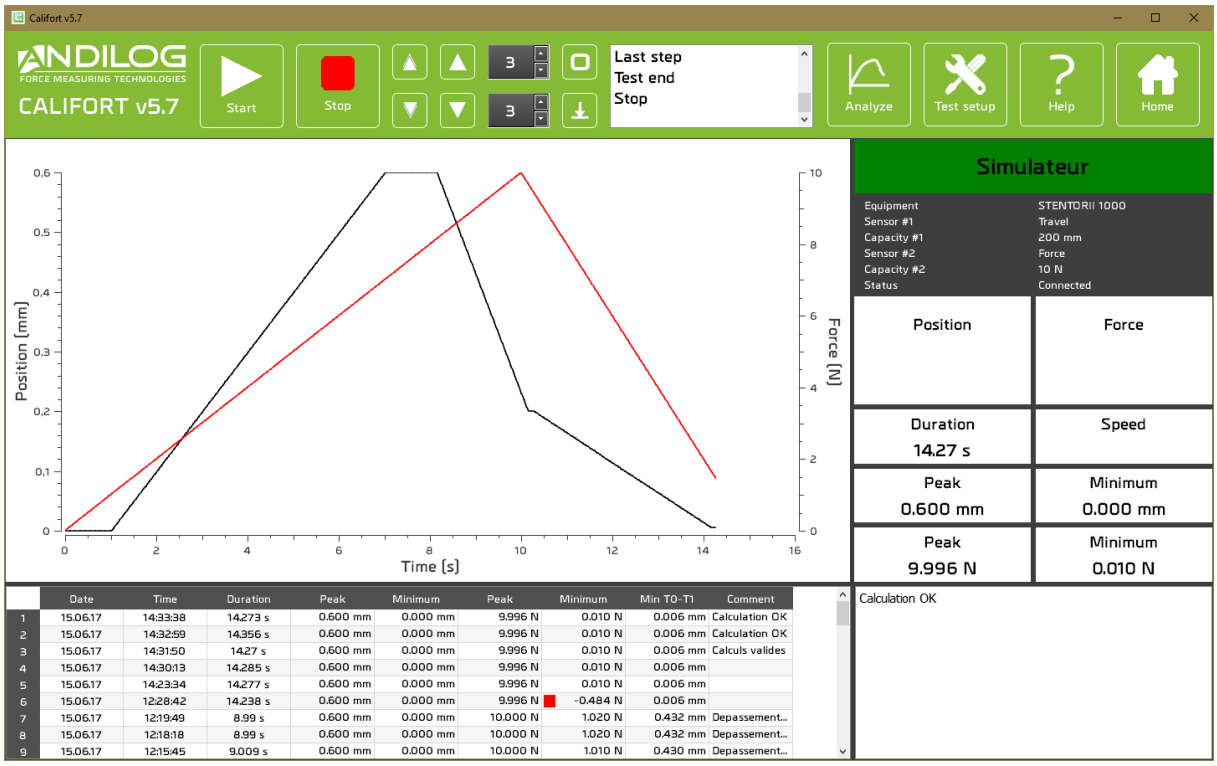
3.11. Help

Open the operating manual.

3.12. Exit

Close Califort.

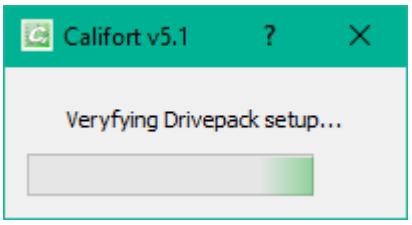
4. Measure



	Date	Time	Duration	Peak	Minimum	Peak	Minimum	Min T0-T1	Comment
1	15.06.17	14:33:38	14.273 s	0.600 mm	0.000 mm	9.996 N	0.010 N	0.006 mm	Calculation OK
2	15.06.17	14:32:59	14.356 s	0.600 mm	0.000 mm	9.996 N	0.010 N	0.006 mm	Calculation OK
3	15.06.17	14:31:50	14.27 s	0.600 mm	0.000 mm	9.996 N	0.010 N	0.006 mm	Calculs valides
4	15.06.17	14:30:13	14.285 s	0.600 mm	0.000 mm	9.996 N	0.010 N	0.006 mm	
5	15.06.17	14:23:34	14.277 s	0.600 mm	0.000 mm	9.996 N	0.010 N	0.006 mm	
6	15.06.17	12:28:42	14.238 s	0.600 mm	0.000 mm	9.996 N	-0.484 N	0.006 mm	
7	15.06.17	12:19:49	8.99 s	0.600 mm	0.000 mm	10.000 N	1.020 N	0.432 mm	Depassement...
8	15.06.17	12:18:18	8.99 s	0.600 mm	0.000 mm	10.000 N	1.020 N	0.432 mm	Depassement...
9	15.06.17	12:15:45	9.009 s	0.600 mm	0.000 mm	10.000 N	1.010 N	0.430 mm	Depassement...

4.1. Connection

If it is not done already, the software establishes the connection with your test equipment:



4.2. Shortcuts

ANALYZE	Go to Analyze tab. In this section, you can display the results, curves, tests, reports…
TEST SETUP	If you are using an administrator account, you can use this button to navigate directly to the test settings window.
HELP	Open the operating manual.
HOME	Back to the Home Window.

4.3. Commands

START

Start the test. Readings from the gauge are captured when the start condition is met. Start can be configured for the following conditions:

- ***Auto Run Configuration***: Start the test program sequence. This mode means that Califort controls your motorized test stand, according to predefined steps. Click on the Start button in Califort or on your test stand to start your test and plot the graph.
- ***Acquisition only***: when this mode is activated, readings are taken from the gauge at a continuous rate. The control of your motorized measuring device can be done manually through Califort software (arrow buttons) or with the displacement buttons from the motor command.

The START button is available if the connection with the Centor Touch is activated and if no test program is running.

STOP

Stops the cross-head movement and ends any test program being executed. This button is available only during a run under AutoRun configuration mode.

HIGH SPEED DISPLACEMENT

Double Arrows buttons allow to initiate movement in the Up and Down at high speed. They become green to indicate the travel direction. Buttons are disabled in case of: communication failures with the test equipment or if a test program is being executed. These buttons can be disactivated from the test steup.

SPEED SETTINGS	Simple arrow buttons allow to initiate movement in the up and down at predefined speed of the cross head. They become green to indicate the travel direction. Independent speeds can be set for both directions of movement: increment/decrement. Buttons are disabled in case of: communication failures with the test equipment or if a test program is being executed.
TARE	According to the established connections, it sends a command to zero the displacement value of the test equipment, the force/torque and displacement values of the Centor Touch display.
AUTOMATIC TARE	This button is dedicated to motorized test stands type: Stentor II and Atlas. Perform the zero displacement automatically using the Automatic tare button; this option is using the support table of your test equipment as level 0 of your test. Within the Califort Software clicking on the Automatic tare button will initiate movement of the crosshead, at 10mm/min (or the minimum speed if greater). The crosshead moves in down direction until it meets an obstacle (load increase up to 1% of the full capacity of the sensor), it tares the displacement origin. Then the crosshead moves in up direction for approximately 1 second. This button is disabled in case of: test program being executed, communication failures or if the option “define origin point” is not ticked (see chapter Tab “Test Start/End”).

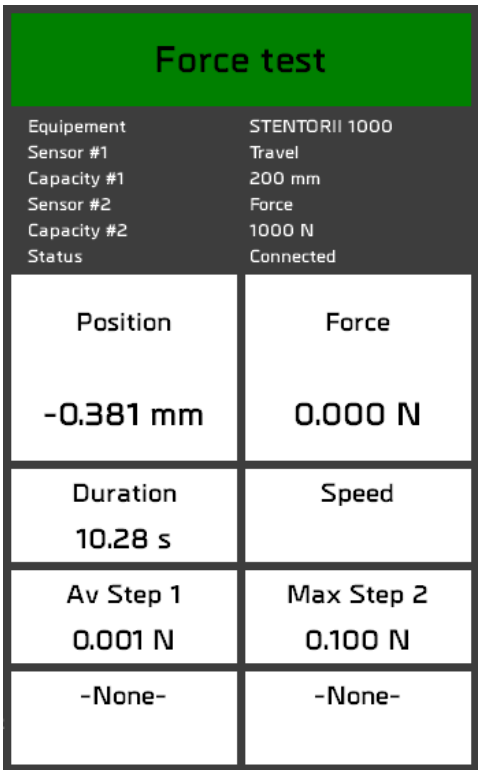
INFORMATION AREA	• Under AutoRun mode: follow step by step the executed program.
	• Under Acquisition only mode: it displays the start and end parameters.
	• Communication failures with the Centor Touch are displayed.
	• Unexpected events during a run:
	  ○ Load cell overload
	  ○ Running direction is not consistent
	  ○ Running time overlaps the set time

In case of connection failures or unexpected events, the test stopped, the START button changes and a tooltip shows the anomaly.

To discharge anomalies, click on the START button.

The library of all unexpected events can be found under the menu Tools / Maintenance.

4.4. Results



TEST SETUP NAME It will change color at the end of the test:

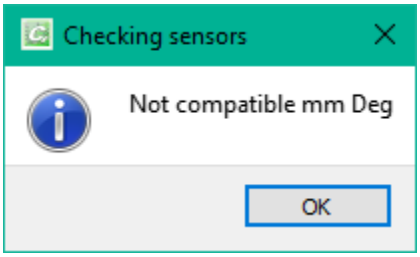
- ***Red***: The curve is out of the template or at least one calculation is out of range
- ***Orange***: at least one calculation is out of range
- ***Green***: The curve is in the template and all the calculations are Okay

- ***White***: No template defined and no threshold on calculations

EQUIPMENT INFORMATION

Equipment: Machine defined in the test setup configuration

Sensor and capacity: Data are read from the Centor Touch display and must be consistent with the test setup configuration. If the units are not compatible an error message is displayed:



Status: This field defines in which state the Califort software detects your motorized measuring device. Five options are available:

- ***"No connection"***: Communication failure with the Centor Touch.
- "**Connection in progress"**: This transient state appears during the detection phase of the COM ports.
- ***"Connected"***: Communication success with the Centor Touch – if you are running under AutoRun mode the test equipment is successfully connected.
- ***"Connection lost"***: The Centor Touch failed sending data for a period. The device will automatically re-connect itself.
- ***"Error"***: Califort Software was not able to communication with the Centor Touch, the test equipment is not connecter and it set under AutoRun configuration mode.

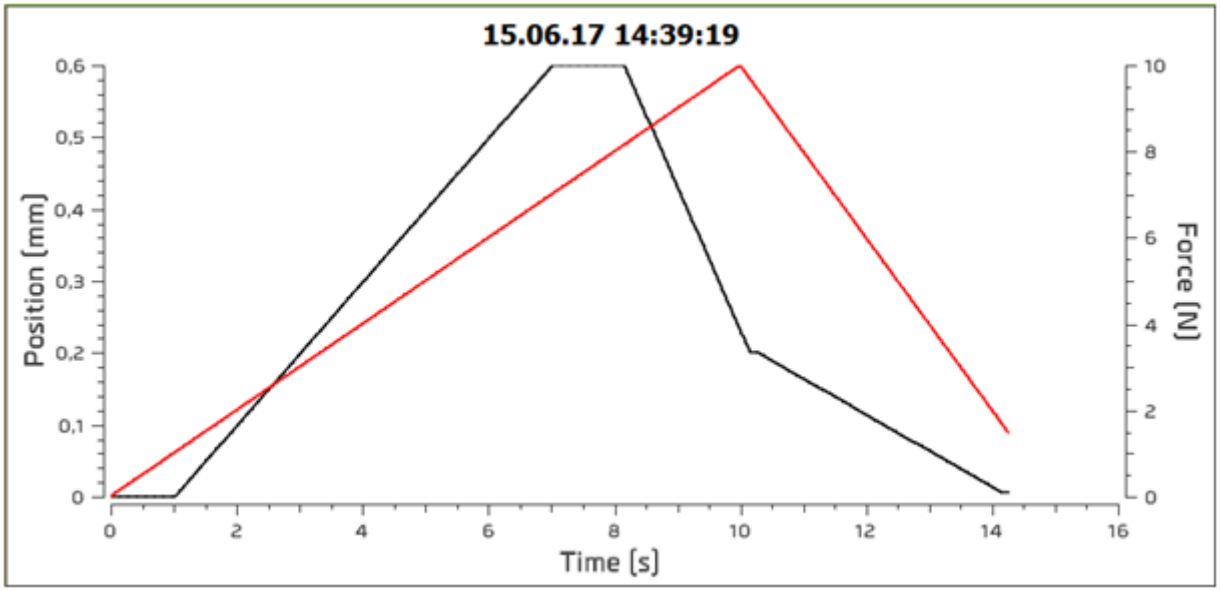
For the connection issues, you can either:

- Go back to the Home Window and re open the Measure interface (it will restart the communication process).
- Go back to the Home Window, choose Tool Menu and Maintenance to find out more about the connection issues.

CALCULATIONS AND MEASUREMENTS

- Current values (used to plot the graph, can be either: load, displacement or time).
- Test duration.
- Speed
- Up to 4 calculations according to the test setup configuration.

4.5. Curve area



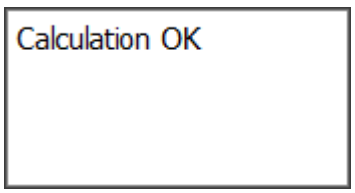
The curve is plotted in real time in this area with the units defined in the setup.

4.6. Historic from previous tests

	Date	Heure	Duree	Moy séq 1	Max séq 2	Commentaire
1	03.03.16	16:04:29	8.291 s	9.432 N	6.300 N	Calculs OK
2	03.03.16	16:04:07	8.287 s	24.233 N	27.500 N	Max séq 2 NOK
3	03.03.16	16:03:21	8.298 s	30.466 N	71.200 N	Max séq 2 NOK
4	03.03.16	16:02:40	8.295 s	0.011 N	0.100 N	Calculs OK
5	02.03.16	15:23:43	8.308 s	15.825 N	6.300 N	Calculs valides
6	02.03.16	15:22:40	8.298 s	26.924 N	62.500 N	Max séq 2 non valide
7	02.03.16	15:21:12	8.303 s	26.881 N	40.600 N	Max séq 2 non valide
8	02.03.16	15:20:56	8.298 s	0.006 N	0.100 N	Calculs valides

A red or orange square appears in front of calculations out of tolerance

4.7. Comments

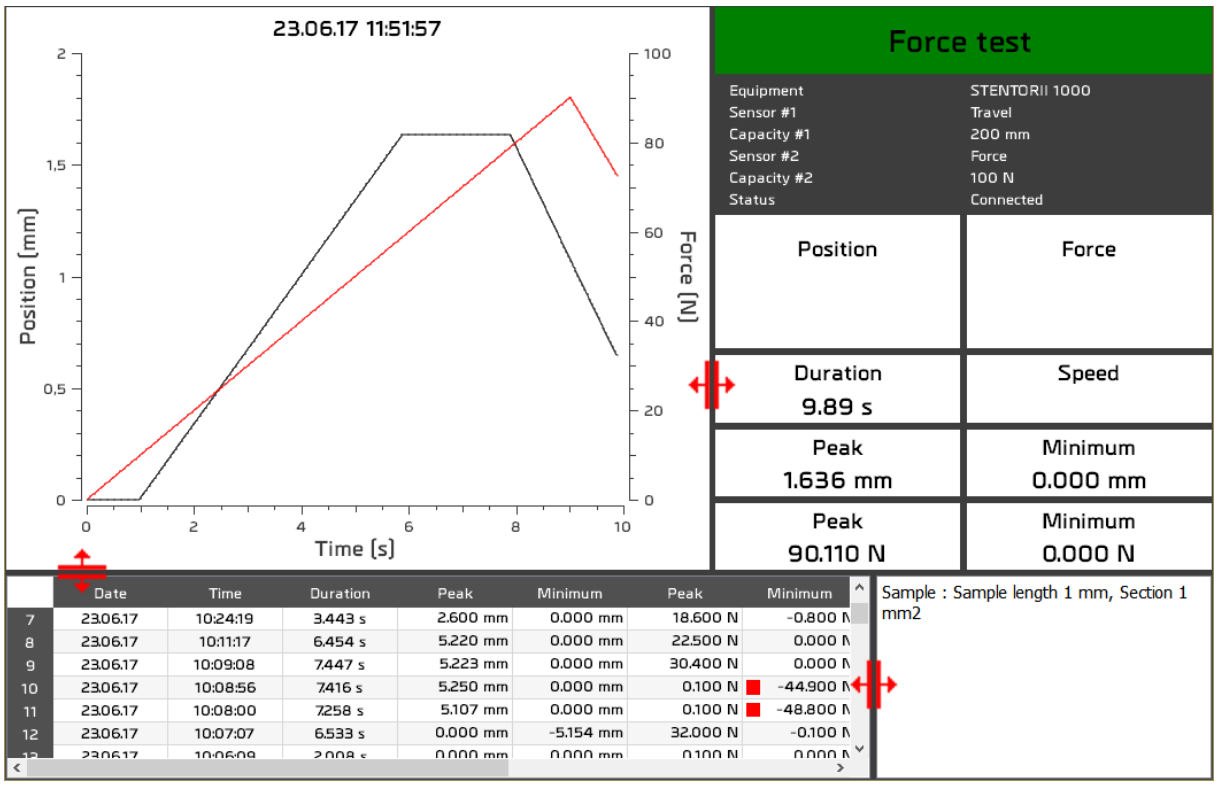


This dialog box is available for all notes and comments. It saves automatically. Some information will be automatically added:

- Anomalies occurred during the test
- Curve out of defined template

- Invalid calculations

4.8. Splitters



You can adjust the size of the different area with the splitters indicated in red on the above print screen.

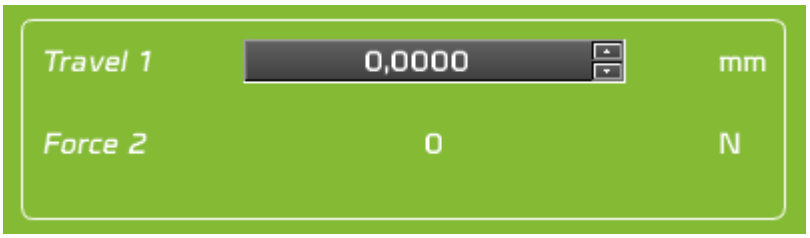
5. Result Analyze

Visualization of measurement data
It is not compulsory to be connected to the test equipment to access to the Analyze Menu.

5.1. Ruler

This window gives the distance between the two markers.
You can hide this part with the following button From the left tool bar.

5.2. Force at travel tool



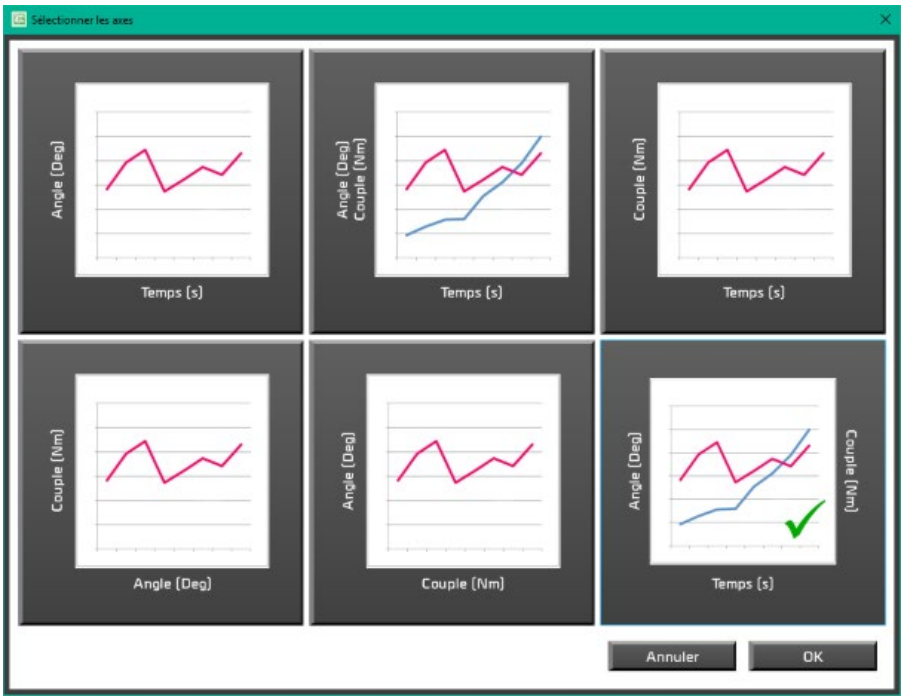
This tool is only available if only one curve is selected. It allows you to quickly have the value of a force at a specific travel. Enter the position you are interested in and Califort will automatically give you the load value of the nearest point measured. Califort can give you up to 2 measurement points.

5.3. Shortcuts

FOLDER	Open the folder with the raw files
MEASURE	Direct access to measure mode
TEST SETUP	If you are using an administrator account, you can use this button to navigate directly to the test settings window.
HELP	Open the operating manual.
HOME	Back to the Home Window.

5.4. Tools bar

CURVE THICKNESS		Thickness of the curve can be adjusted from 1 to 5 pixels.
DISPLAY PLOTS		Display or nor each plot of the curve with a cross symbol, which make the use of the marker easier.
CHANGE AXIS		If your equipment has two sensors (load cell, torque, travel or angle), you can choose which sensors you want to display on the curve.

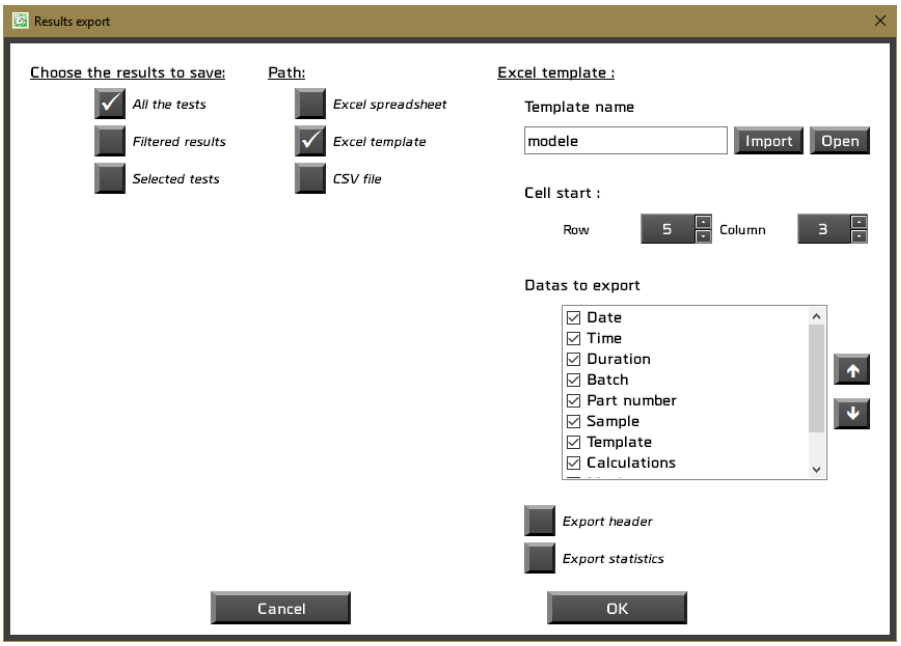


DISPLAY GRID		Display the grid
GRID		Display or hide the grid
GRID THICKNESS		Thickness of the line on the grid
DISPLAY RULER		Display the ruler
DISPLAY CURSORS		Displays or hide up to five position cursors.
SAVE CURSORS		Save the marker positions
RENAME CURSORS		You can use up to 5 markers and customize their names. If you check Background, the curve will be displayed in front of the marker.

STATISTICS		Show or hide statistics in the results chart

EXPORT RESULTS

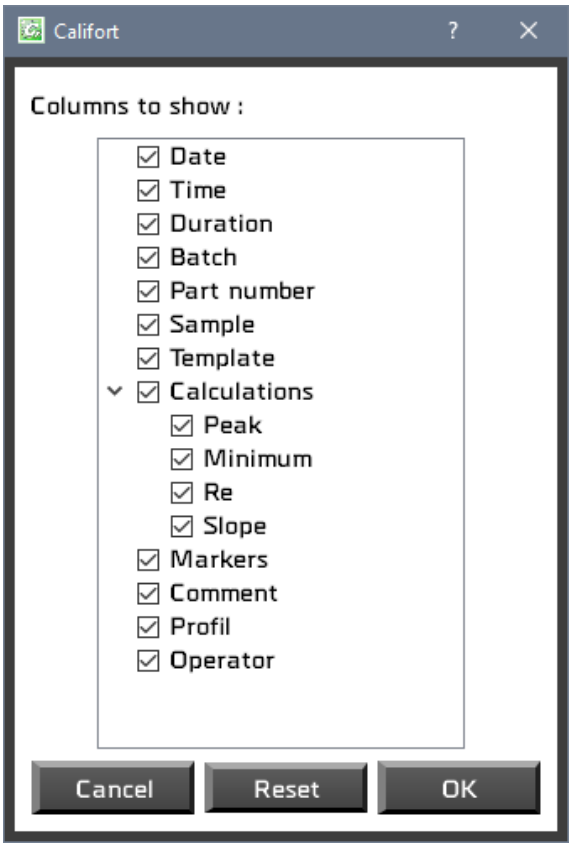
Export results to a csv files or Excel spreadsheet



Excel spreadsheet will export all the colums in a new spreadsheet.

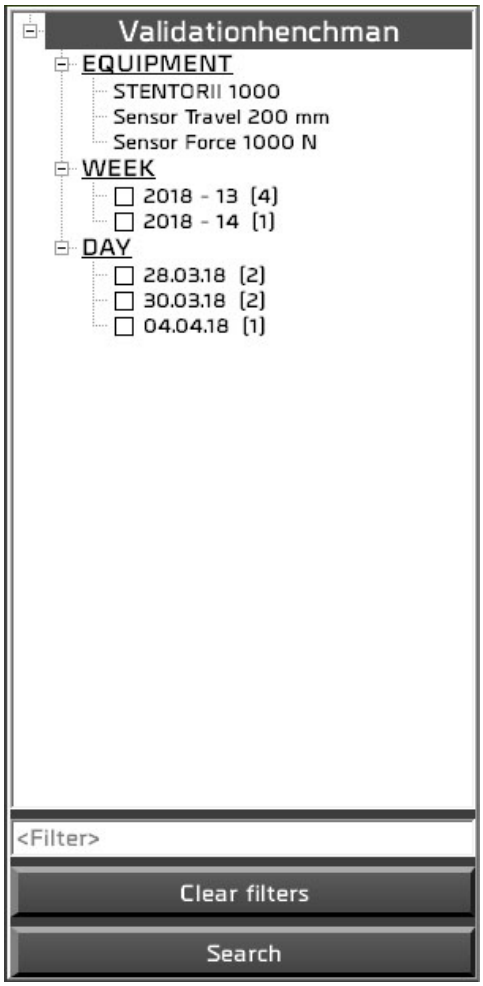
Excel template will allow you to choose a template file to export your results. You can also choose the columns to export.

COLUMNS Choose here the columns you want to display in Analyze and in the reports. The button Reset check all the rows.



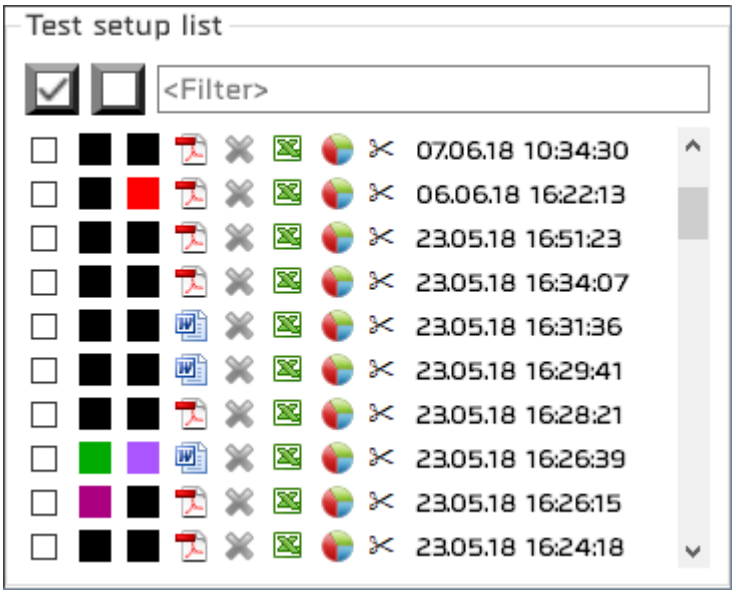
ZOOM INITIAL Go back to the initial view of the curve. If you are using the zoom option several times, return to the original view by clicking this button.

5.5. Filters



EQUIPEMENT	Test equipment and sensor specifications used during the test.
WEEK ***DAY*** ***BATCH*** ***<Filter>***	You can filter the tests results using one of these three fields: specific week, specific day or batch (if defined in your project setup). Use the button Search to start searching.

5.6. List of tests



A list of the results organized by chronological or reverse chronological order (according to the specification saved under: Tools/general settings).

SELECT ALL		Select all the tests
UNSELECT ALL		Uncheck all the tests
FILTER		Filter will look for the text in reference or comments.

Each test sample includes:

DISPLAY		A check box allowing to display or not the curve of the samples.
COLOR		A colored box defining the color of each curve – you can change the color: right click on it.
REPORT		An icon specifying the format of the report, if it has been generated. Click on this icon to open the report : WinWord Open Office Document PDF

GENERATE A REPORT

A button to generate or delete the report – The report includes results of the ticked check box.

Create a report with an automatically generated format based on the test setup configuration.

Report can't be created as the sample is not ticked.

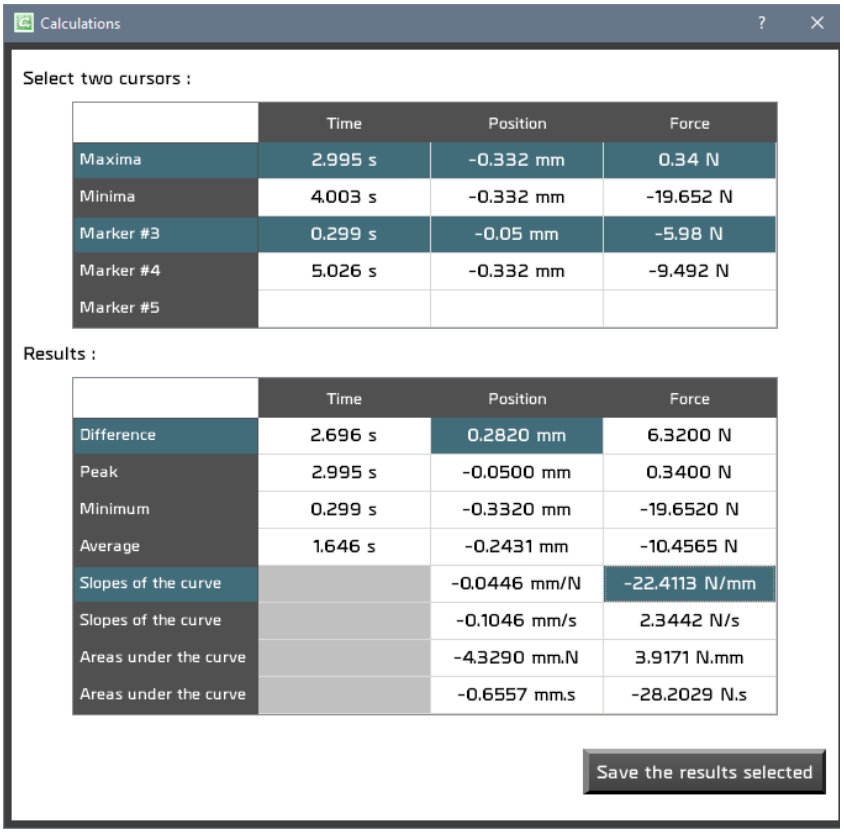
Delete the report.

RAW DATA

An icon to open the raw data in an Excel file.

CALCULATIONS

It displays a chart with some calculations between 2 markers. To be available you first need to put at least 2 markers on the curve and save them. Then I the chart, choose the markers you want and click on the calculations you want to save.



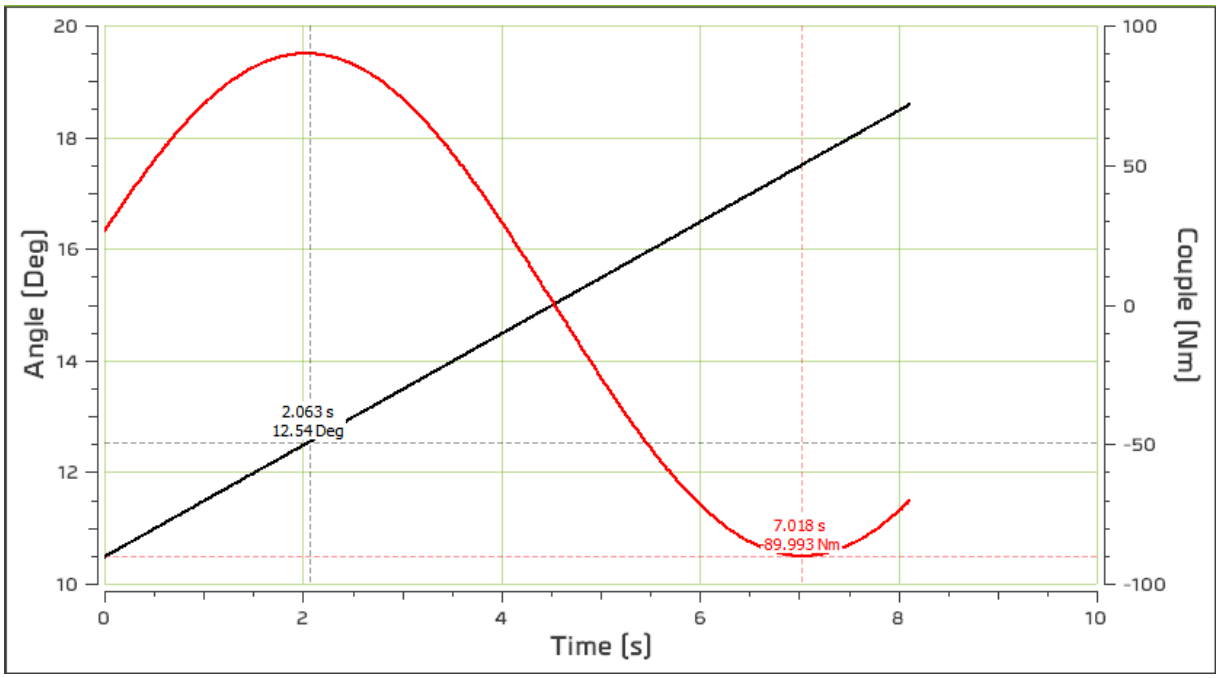
DELETE

To remove samples from the list, click on the scissor icon – available for administrator account only.

FILENAME 19.03.15

The Filename is automatically generated, based on the date and time of the test.

5.7. Graph area

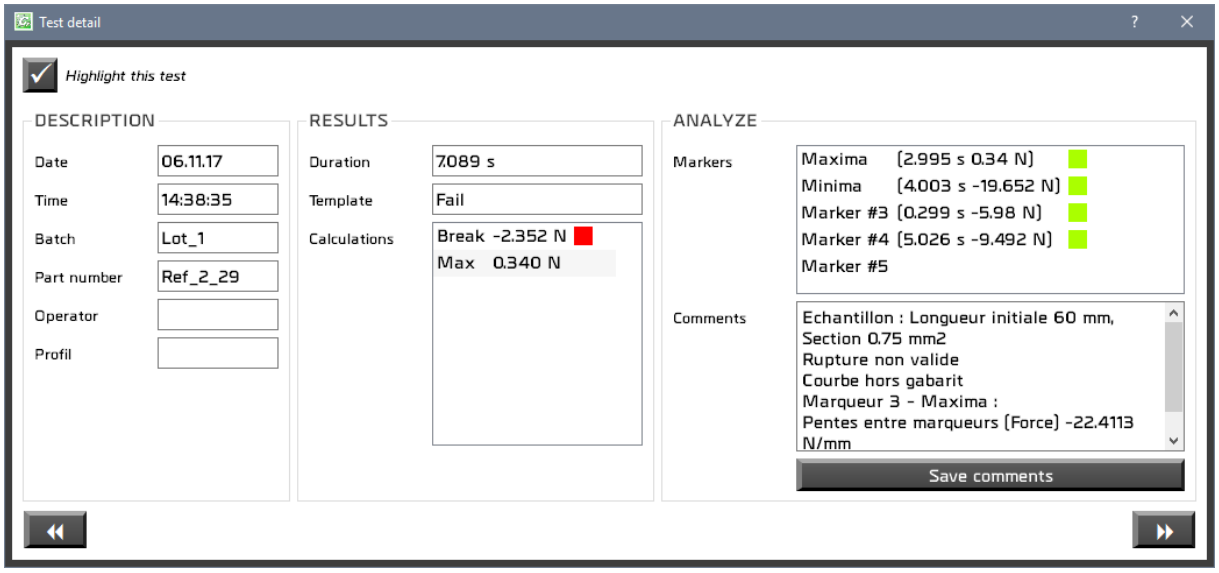


- To zoom, draw a rectangular with the mouse (right click to disable it).
- Crtl + left click: move the graph area (right click to come back to the original view).
- You can move the two cursors on the curve. They will automatically follow the closest curve.

5.8. Library of tests

			Date	Time	Duration	Part number	Min T0-T1	Max T0-T1	Force at T	Break	Max Break	Minimum	Peak
Average					7.607 s		-	-	47.595 Nm	-	-	-83.020 Nm	67.643 Nm
Deviation					5.583 s		-	-	43.981 Nm	-	-	9.288 Nm	38.723 Nm
9			19.03.15	17:15:04	8.109 s	Réf. : 123	-90.000 Nm	90.000 Nm	-26.193 Nm				
10			19.03.15	10:56:04	1.913 s	Réf. :			0.000 Nm			-72.478 Nm	22.929 Nm
11			18.03.15	16:58:16	7.836 s	Réf. : 2345			86.735 Nm			-86.582 Nm	90.000 Nm
12			18.03.15	16:53:25	13.071 s	Réf. : 1234			56.051 Nm			-90.000 Nm	90.000 Nm
13			18.03.15	14:49:13	14.458 s				12.840 Nm			7.850 Nm	22.280 Nm
14			18.03.15	14:48:19	12.465 s				5.004 Nm			0.000 Nm	12.465 Nm

- The two first rows are statistics (average and standard deviation) calculated on selected tests.
- Selecting a test from this table will select the test from the list of tests without displaying the curve in the graph area.
- A red square marked faulty calculations.
- Double click on a line will open details about the selected test.
- You can choose the columns to display with the button

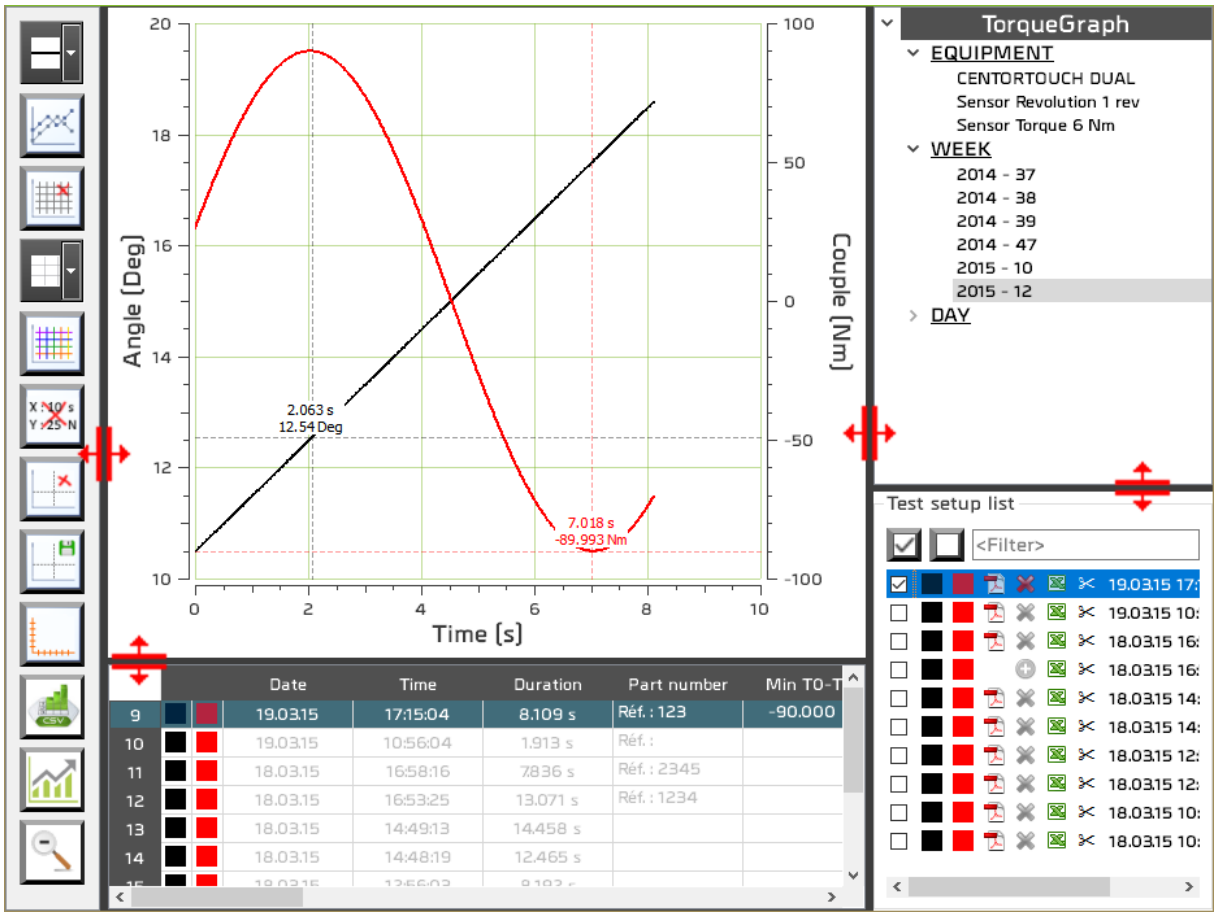


You can add notes and save it. You can also choose to highlight this test in the results.

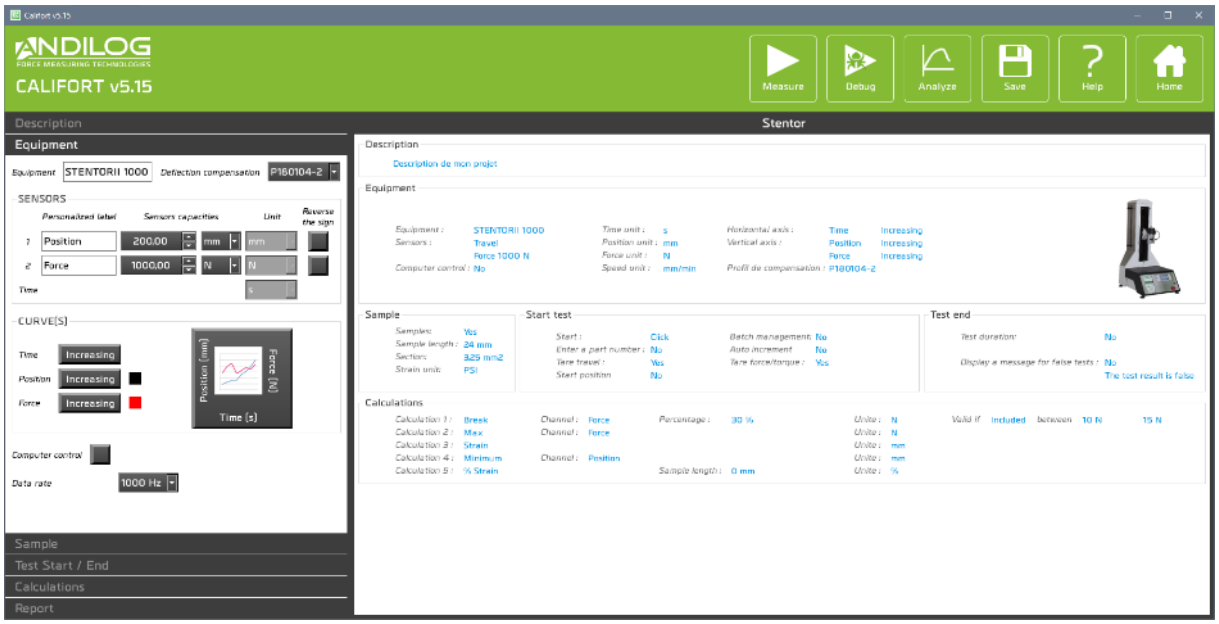
Use these buttons and to navigate the selected test.

5.9. Splitters

You can adjust the size of each area using the splitters.



6. Create a Test setup



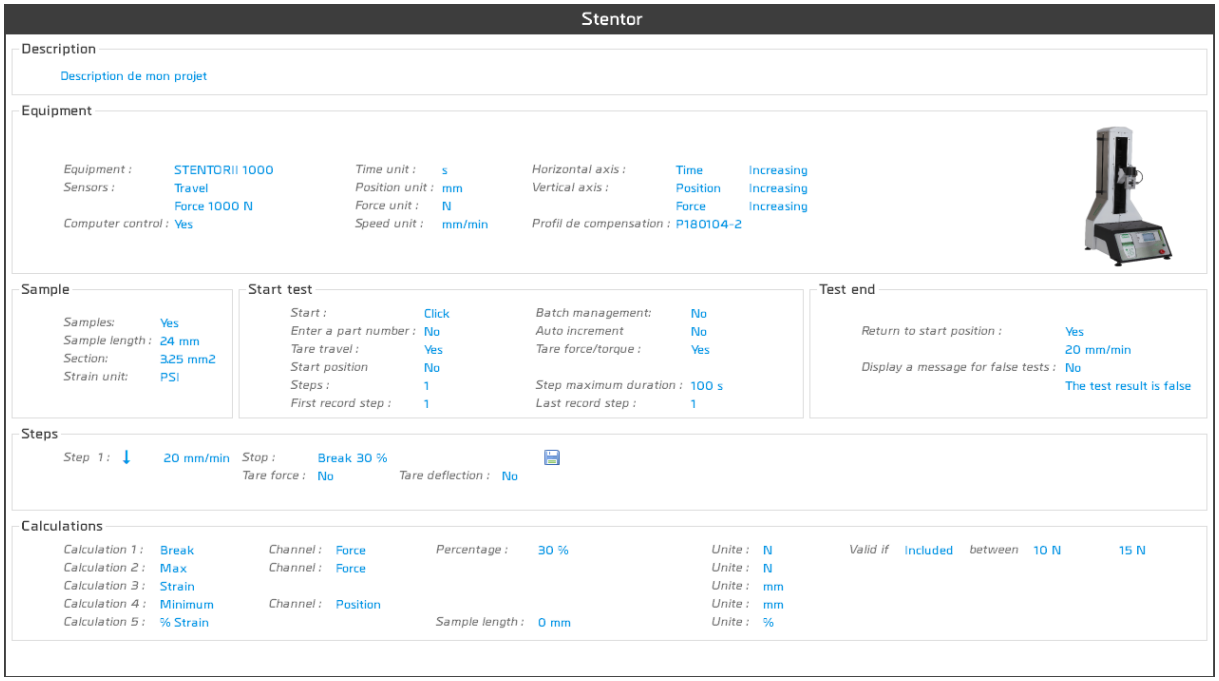
6.1. Shortcuts

MEASURE	Direct access to the measurements window. Your test setup will be saved.
DEBUG	Direct access to the measurements window. Your test setup will be saved. Test results perform under the DEBUG mode can't be saved.
ANALYSE	Direct access to the Analyze window.
SAVE	Save configuration button. The Save button will be available as soon as an argument is modified. You can also use the shortcut Ctrl + S to save your setup.
HELP	Open the operating manual.

HOME Back to the Home Window menu.

6.2. Summary

General view of the all test setup.

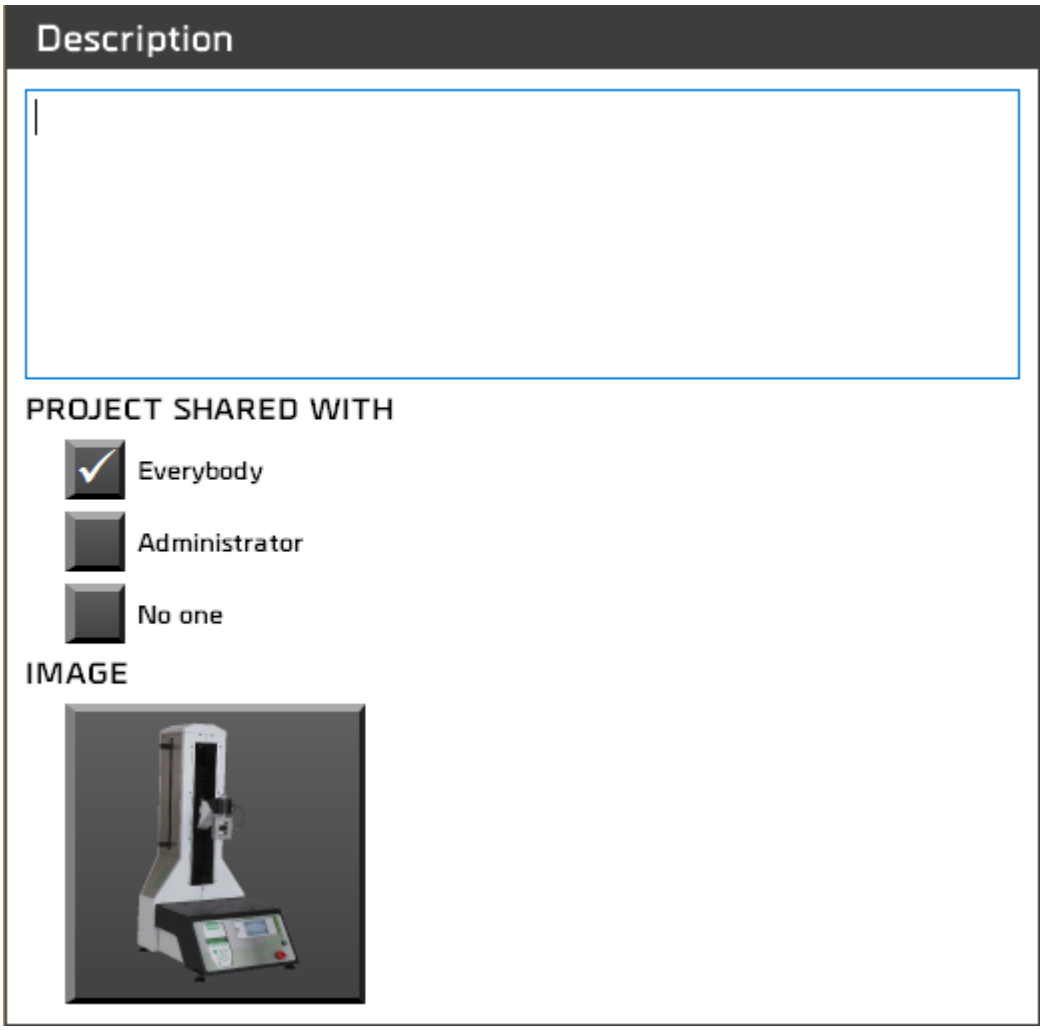


6.3. Components

A test configuration is defined by 8 components:

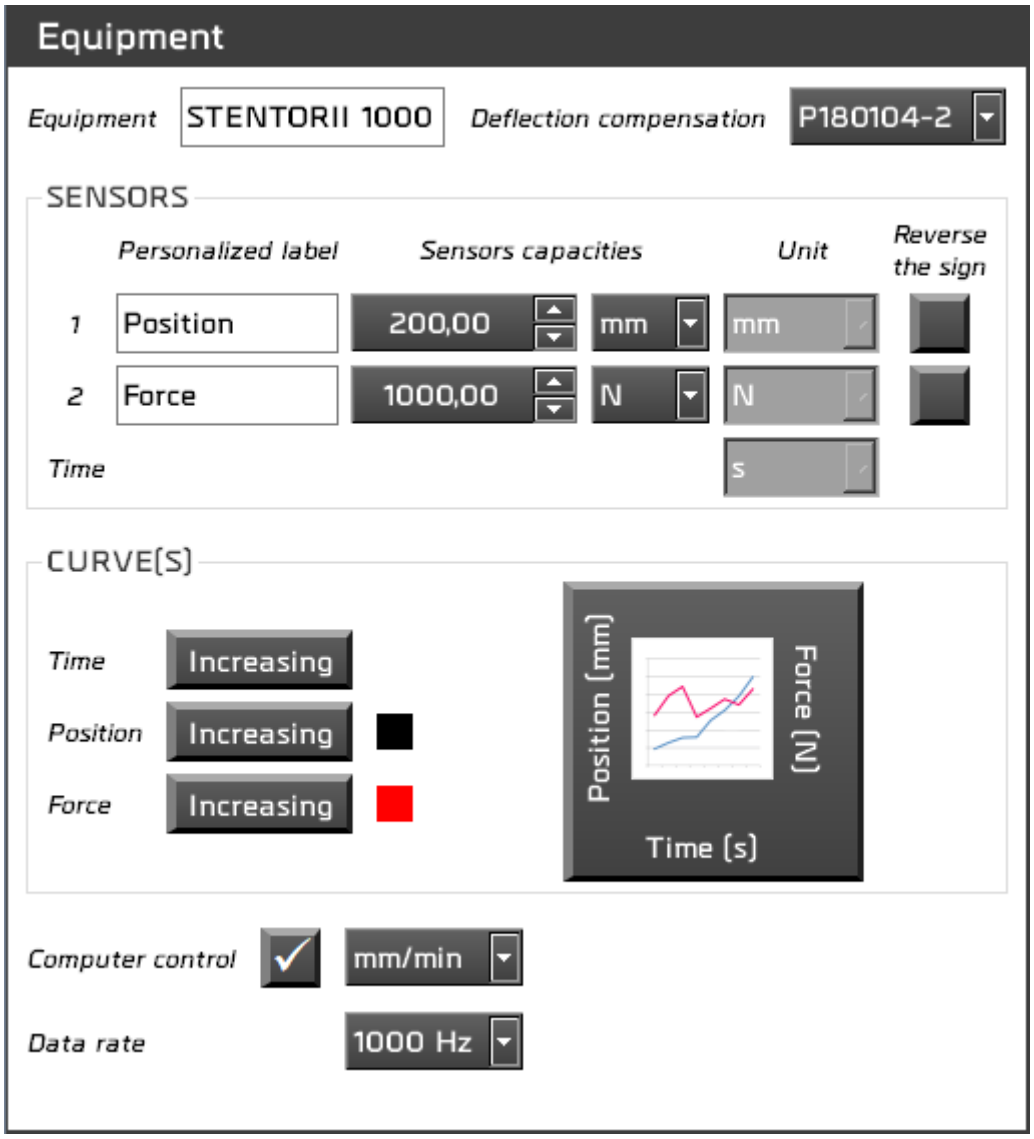
- Description: general information
- Equipment: equipment used
- Sample: information on the sample's dimension when they needed in calculations
- Test Start / Ends: start and end conditions
- Steps: define the condition of each sequence
- Cycle: define the cycle conditions
- Calculations: calculations to be made during the test
- Report: report settings (format, name,)

6.4. Tab “Description”

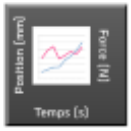


- Description of your tests. This can be added to the report.
- Share rights (all users, administrators account only, only you)
- Choose a picture for your test. This picture will be displayed on the measuring screen.

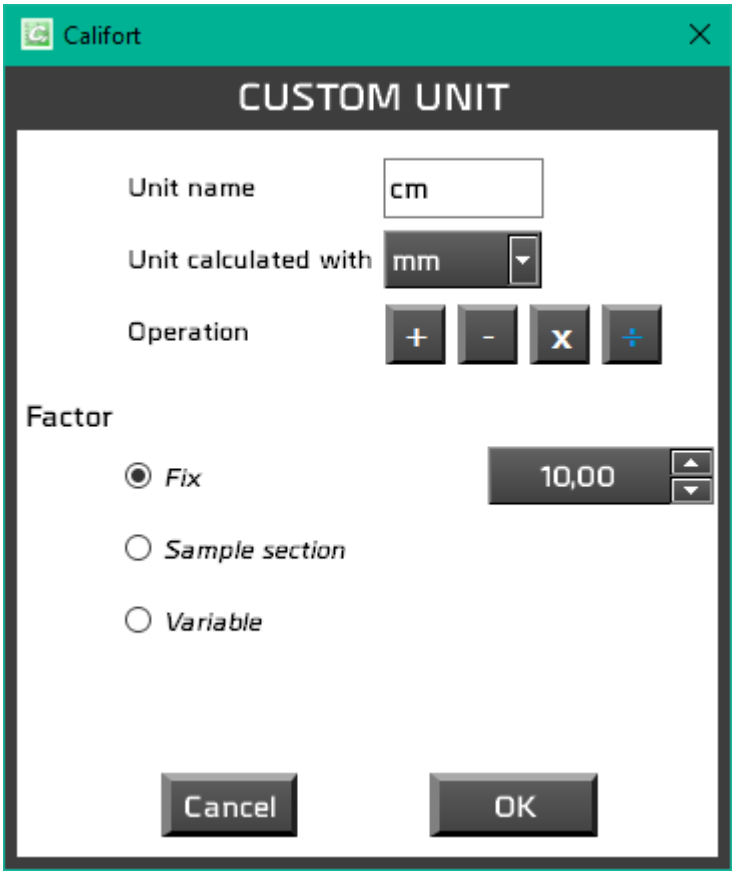
6.5. Tab “Equipment”



EQUIPMENT	STENTORII 1000	Name of the test equipment. It can’t be changed.
DEFLECTION COMPENSATION	P14b3-5	You can choose a deflection compensation profile. More details in the chapter Tools -> Deflection compensation.
SENSORS	Position	You can change each sensor name
SENSOR CAPACITY	500,00 N	Must be the same as the sensor you will use on your testing equipment.

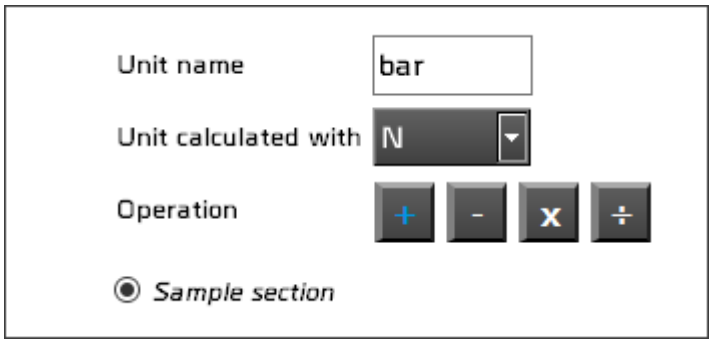
UNIT		Define the units you want to display in your results or curve. It would be different from the sensor unit or custom. (You can select “Others” for your customized units – see next chapter)
REVERSE THE SIGN		The sign convention for load (i.e. ‘tension’ or ‘compression’) is set in your Centor Touch display device, but you may want to inverse the sign of the collected data in Califort by checking the button.
CURVE(S)		Axis sign
COLOR		Curve color for each sensor
AXIS		Choose what you want to display on each axis of the curve.
COMPUTER CONTROL		Activated this option will allow you to access to the next tab “Steps” and “Cycles” and to drive your equipment from your computer.
DATA RATE		You can choose the data rate between your equipment and the computer.

6.5.1. Custom units

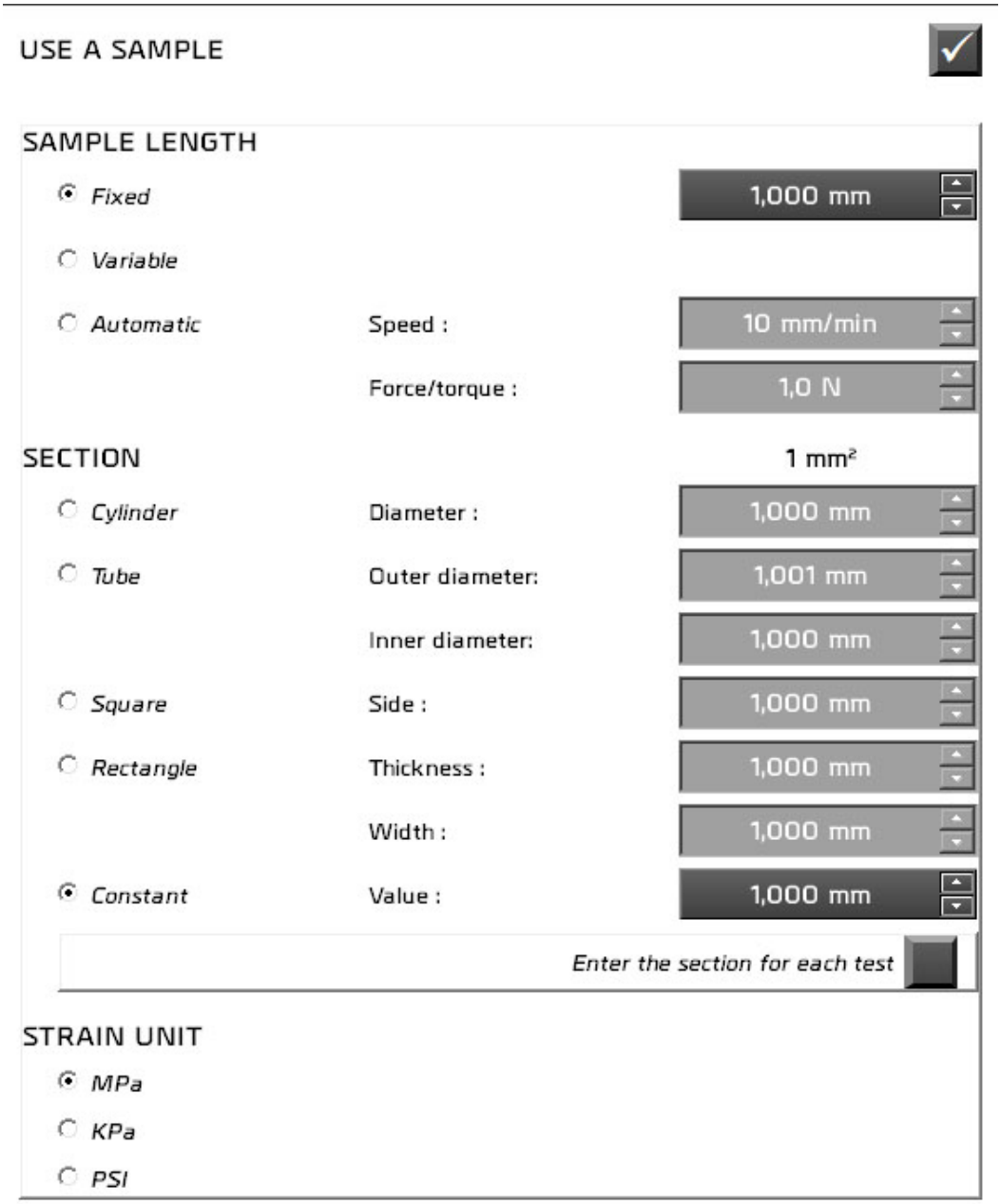


UNIT NAME	cm	Name of the unit
UNIT CALCULATED WITH	mm	Base unit.
OPERATION	÷	Operator.
COEFFICIENT		• Fixed value – when it depends on a fixed value • Sample section (defined in the next tab) – when it depends of the sample's dimensions • Variable: before each test Califort will ask you to enter this Factor. It is useful if you measure each sample before testing it.

Example: Measure the pressure on a cylindrical sample



6.6. Tab “Sample”



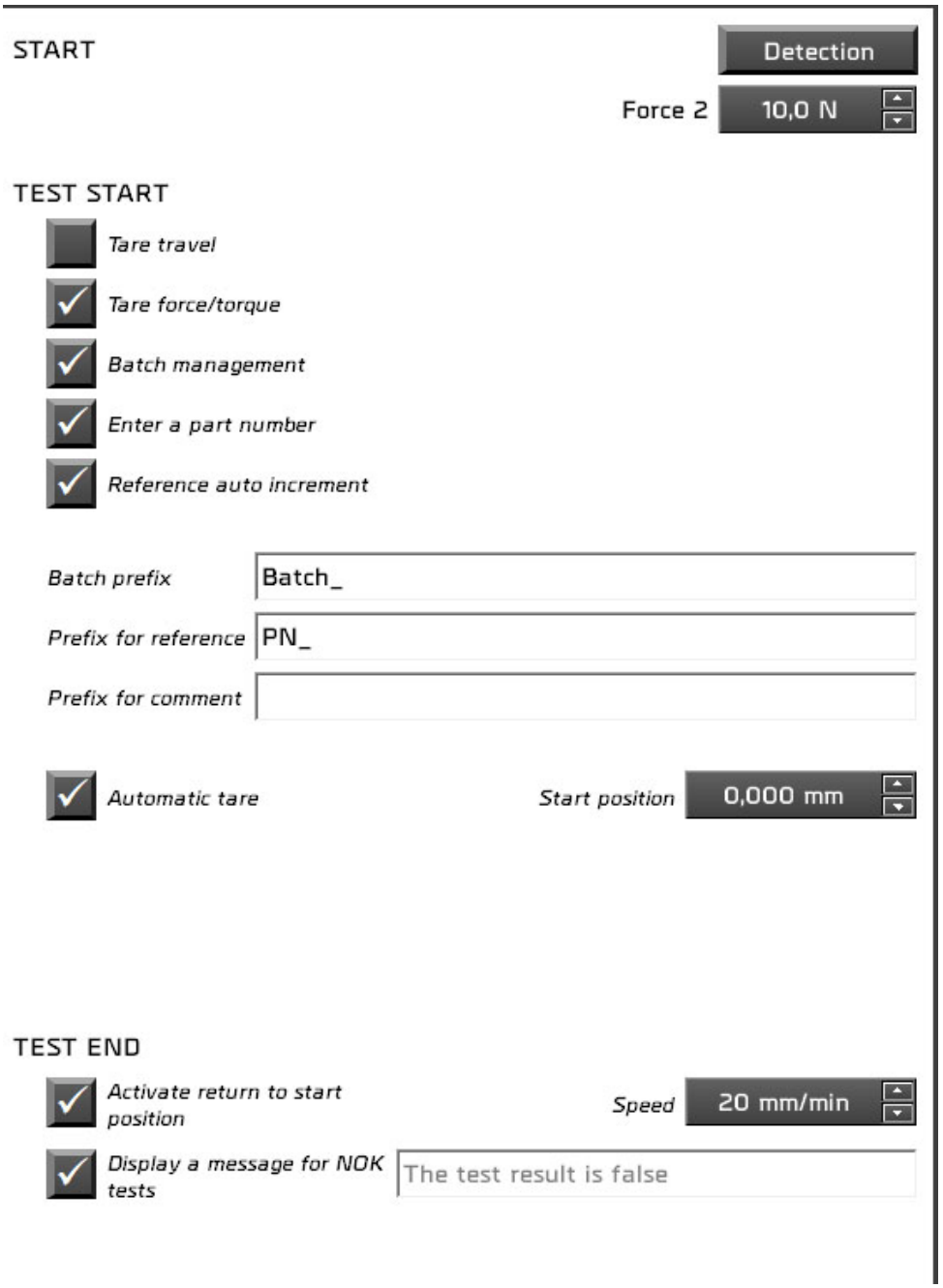
USE A SAMPLE You can define here your sample dimensions. This is required in the following cases:

- You want to use a custom unit based on your sample
- You want to display strain
- A calculation which needs sample dimensions (Young modulus…)
- If you want to have some results in Strain or Elongation

SAMPLE Sample original length. Il can be:

LENGTH	• Fixed in the setup • Variable: before each test the operator will have to write the value in a text box • Automatic: Califort will measure automatically the height of the sample. This works only in compression. In this case, before each test, Califort runs a sequence which measures the height of the sample based on the 0 position. You have to setup at which speed you want to do this and the threshold for the load.
SECTION	Sample section, it can be fixed or defined by the operator before each test.
STRAIN UNIT	Strain unit, depending on your choice, the unit of the sample can change. -MPA or kPA -> mm, PSI->in)

6.7. Tab “Test Start / End”



START Select an option as start test condition:

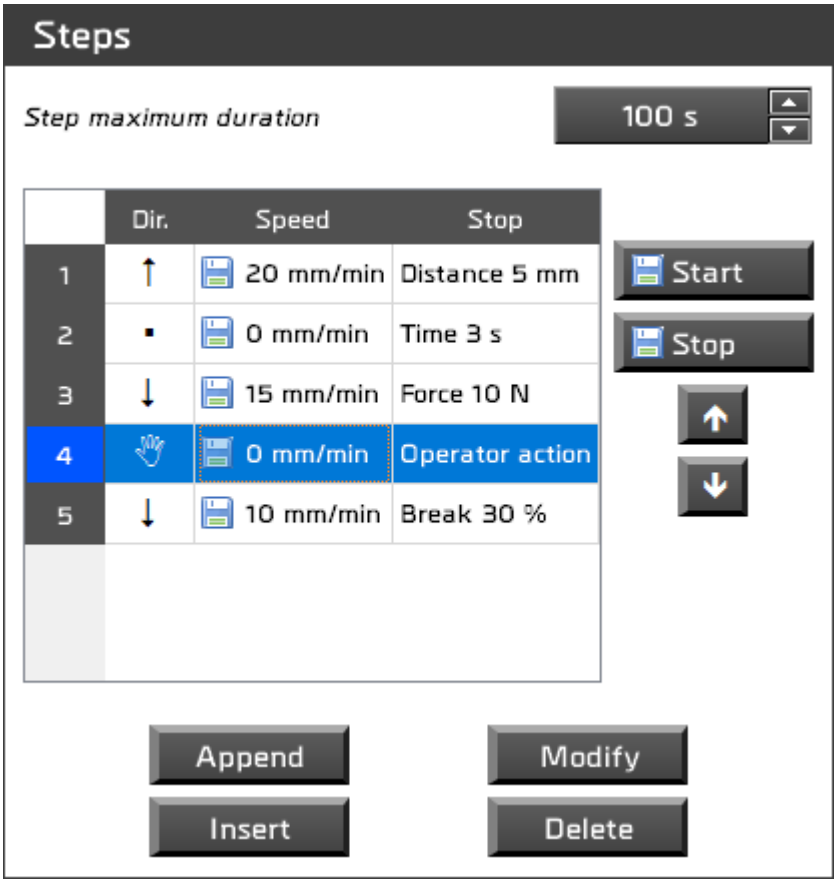
- ***Click***: Start the test once you click on the START button.
- ***Load detection***: After a click on the “START” button, it sets a load threshold to begin the test acquisition.

TARE	It may be necessary to zero (either with the console and software) the load and displacement values, so you can choose to automatically zeroed-out at the beginning of each run. Select Tare Force/torque and the value appearing in the Load display will change to zero. Select Tare Travel and the value appearing will change to zero.
BATCH MANAGEMENT	You can activate batch management. Califort will ask you the batch number before each test.
ENTER A PART NUMBER	Enable the systematic entry of a reference/name at the beginning of a new test.
REFERENCE AUTO INCREMENT	Activate auto increment for the part number
BATCH PREFIX	Prefix for batch number
PREFIX FOR REFERENCE	You can enter a prefix for the reference you will enter at the beginning of each test.
PREFIX FOR COMMENTAIRE	You can enter a default message here for the comment of each test.
START POSITION	After the automatic Tare, the stand goes in the opposite direction on this distance. For example, if you want to test a spring with a free length of 50mm, entre 55mm here to have the stand going up 55mm above the table after the automatic tare. Like that you can put your spring freely.
ACTIVATE RETURN TO START POSITION	By selection this option, the test equipment will return the crosshead to its start position. Choose the speed.
DISPLAY A MESSAGE FOR NOK TESTS	At the end of the test, it is possible to display a text box with a custom message if the test is not ok.

6.8. Tab “Steps”

Note: the option “Computer Control“ must be selected under the tab “Equipment“ to display this tab.

The lists of steps displayed the crosshead direction, speed and condition to stop the sequence. A saved step is represented with a diskette icon.



Maximum duration of each step – this argument is a security in case your step doesn’t stop as defined.

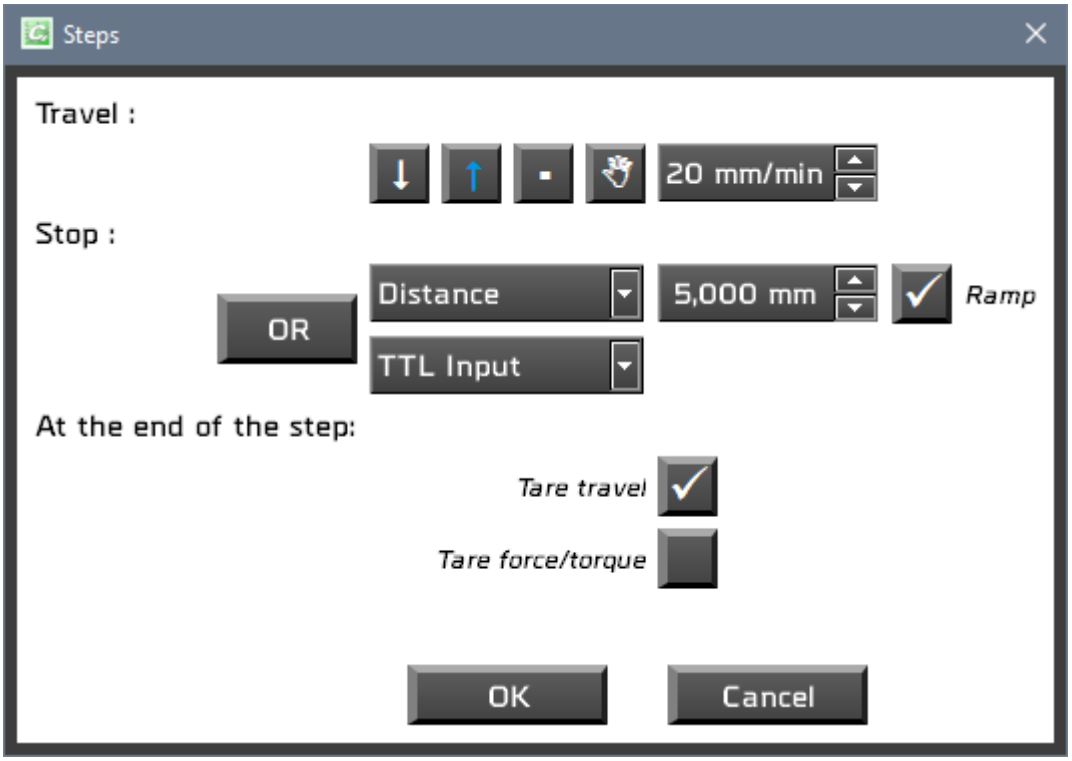
You can either:

APPEND	Add a new step after the selected one.
INSERT	Insert a step before the selected one.
MODIFY	Modify the existing selected step.
DELETE	Remove permanently the selected step.
START	The test will start to be recorded when it reaches this step (this will ensure

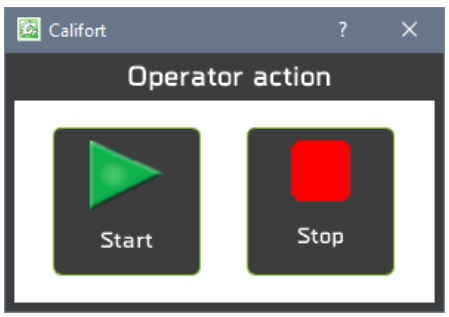
	that you record the events of interest without acquiring a large amount of unnecessary data).
STOP	The selected step is the latest recorded step.
TOP AND BOTTOM ARROW	Move up and down the selected step on the list.

Only consecutive steps can be recorded.

By adding, modifying or inserting a new step, you access to the following dialog box:

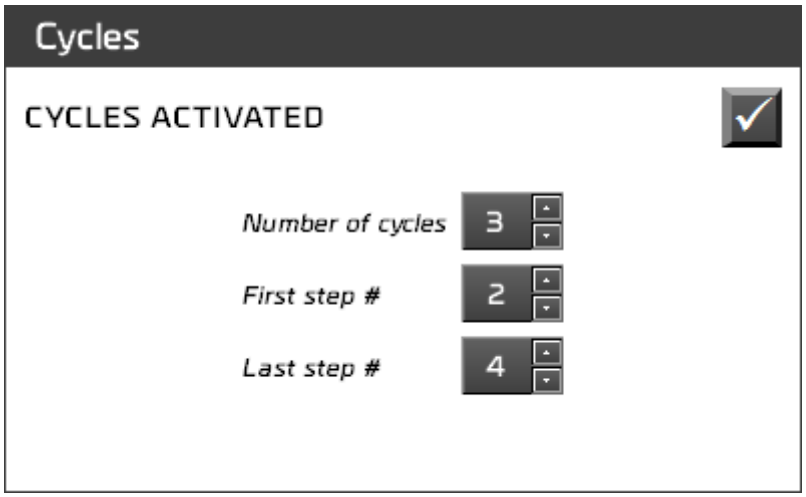


TRAVEL Up or Down direction of the crosshead or choose “O” for a step without movement. In this case, the step will stop during a predefined time. The button with a hand is used to define an Operator Action. You can customize the message and the test will stop until the operator presses Play.



SPEED	Specify the speed the cross head is moving at. The minimum and maximum speeds depend specifically of your testing equipment.
STOP	Up to two conditions can be programmed to stop the sequence: • ***Time***: Stop on duration time value. • ***Position***: Stop at a position value. • ***Load***: Stop on load value. • ***Break***: Stop the test when the load decreases to a specified percentage. • ***TTL input***: Available with Drivepack version >3.00, you can stop a step using one of the two TTL input of the Drivepack for example to stop when a switch is closed. • ***Distance***: The equipment stops after a travel value which start at the current position.
AND/OR	The buttons And/Or are available only if two conditions are applied and allow you to identify if both conditions need to be met to stop the run or if only one condition is enough.
TARE	Zeroes the value(s) of load and/or displacement at the end of the sequence. A zero command will set the new position as origin.

6.9. Tab “Cycles”

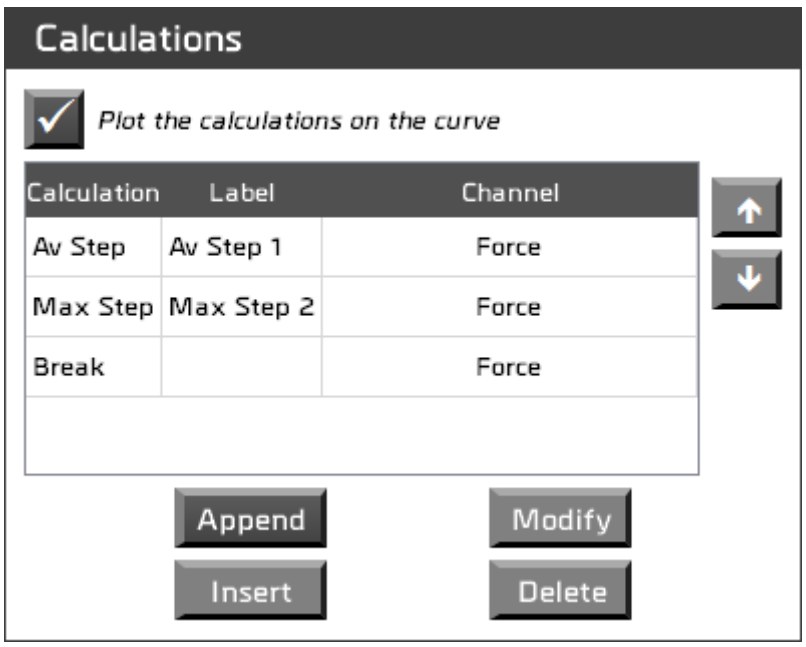


You can define a cycle including steps that are repeated. A cycle is defined by three parameters: the number of repetitions, the first sequence and the last sequence:

NUMBER OF CYCLES	This is the number of repeat sequences; it is limited at 255.
FIRST STEP	This is the first sequence of the cycle.
LAST STEP	This is the last sequence of the cycle.

6.10. Tab “Calculations”

This tab displays the list of calculation and actions available.

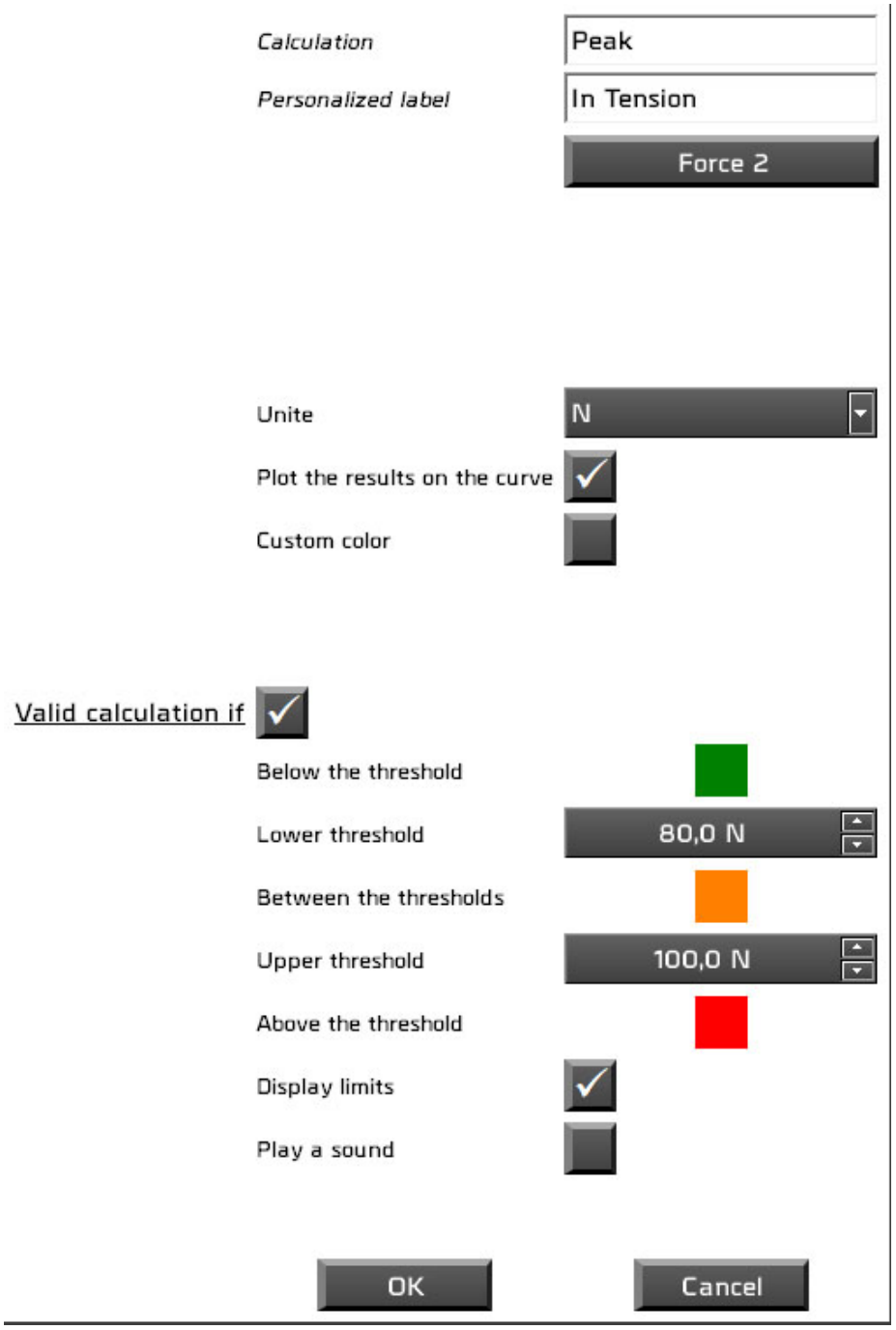


You can choose to have a mark on the curve when a calculation is done (displayed on the ANALYZE tab only). This feature can be modified for each calculation.

You can either:

APPEND	Add a new calculation after the selected one.
INSERT	Insert a calculation before the selected one.
MODIFY	Modify the existing selected calculation.
DELETE	Remove permanently the selected calculation.
TOP AND BOTTOM ARROW	Move up and down the selected calculation on the list.

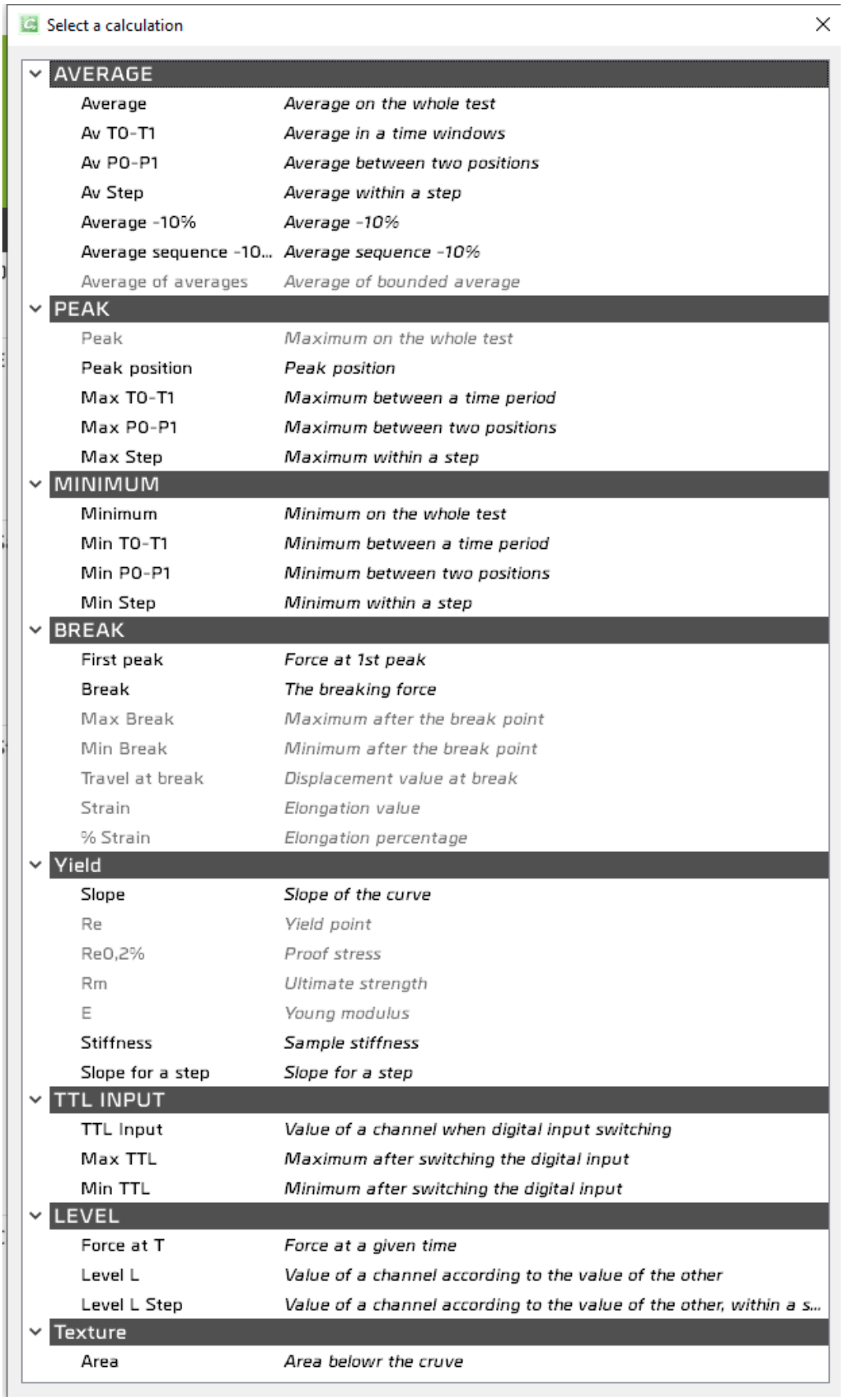
You can choose several calculations per test. For each calculation, you will have to setup different parameters. For example:



You can choose:

- The unit to display
- Display a mark on the curve for this calculation and the color
- Display the limit on the graph
- Have a sound if the calculation is out of range.
- Choose the color to display depending on the result and thresholds

Available calculations:



If you choose Break for one of your calculation, you will also have the following calculations available:

- Maximum after break
- Minimum after break
- Travel at break
- Elongation
- % Elongation

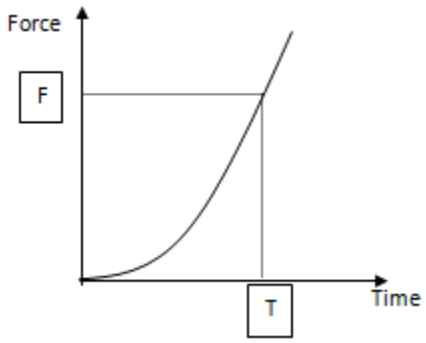
If you choose Slope, the following calculations will be available:

- Yield point Re
- Proof stress Re0.2%
- Ultimate strength Rm
- Young modulus E

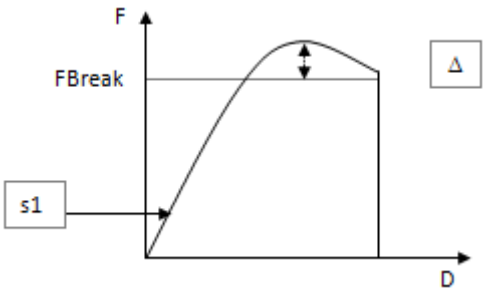
You can also setup calculation for a specific Step of the test using the following calculations:

- Average value during a sequence
- Maximum during a sequence
- Minimum during a sequence
- Slope of the curve during a sequence
- Area under the curve

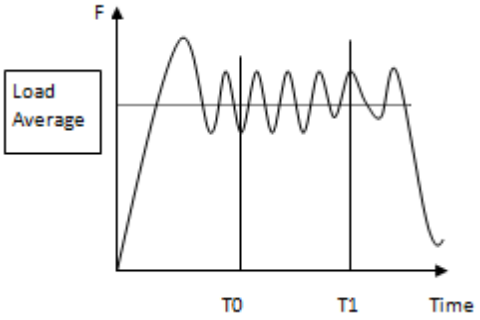
AVERAGE	Calculation of the average value (load or displacement) over the total range of the test duration.
FORCE AT T	Measure the value of load, at a preset time value.



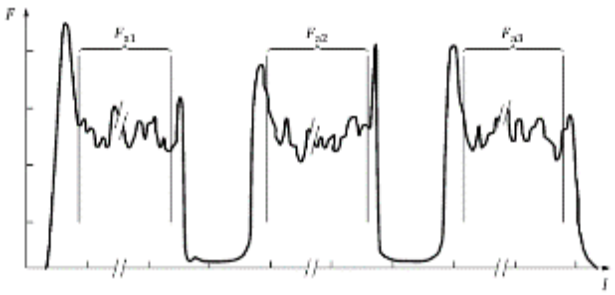
BREAK ***FIRST PEAK***	Measure the maximum load when the load decreases to a specified percentage (typically selected when a sudden fracture or break occurs instantaneously). Break is detected when the Force F, greater than a given threshold S1, drop with a change factor Δf is greater than a threshold x% of the full-scale capacity of the load sensor. (Default x = 1%).



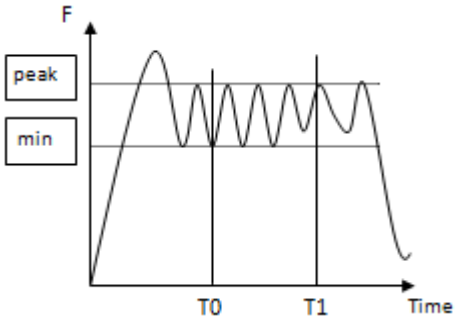
AVERAGE T0-T1 OR P0-P1	Calculation of the average value (load or displacement), in between a time interval [T0 – T1] or between two positions.



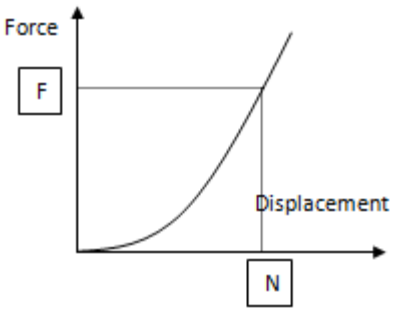
AVERAGE - 10%	Calculate the average force over the complete test without the first 10% and last 10% of the curve.
Average of average	Automatically averages sequence averaging calculations. Example if you have 3 sequences with the calculation of the average forces Fa1, Fa2, Fa3, this calculation will be (Fa1+Fa2+Fa3)/3.



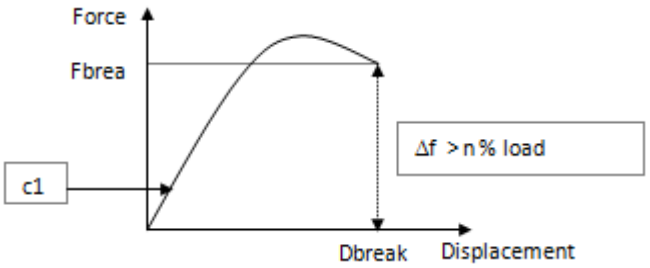
MINIMUM PEAK	Maximum or Minimum in a windows time frame T0 and T1. Can be applied of force and displacement values.



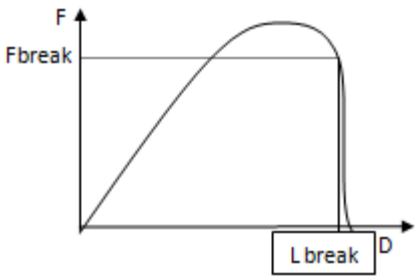
LEVEL L Measure the value of one channel when the other channel reaches a preset value.



DISPL BREAK Measure the deflection after break detection. **This calculation is available only if Calcul1 = Break**.



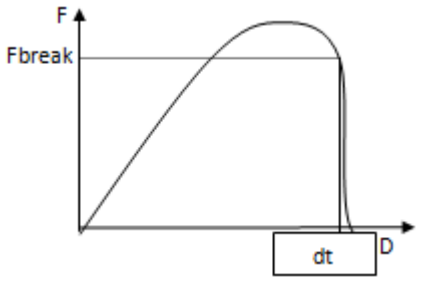
STRAIN Measure the length at break of the sample in between 1% of the sensor capacity and the break. **This calculation is available only if Calcul1 = Break**.



% STRAIN Measure the percentage of elongation of your sample from the original length. **This calculation is available only if Calcul1 = Break**.

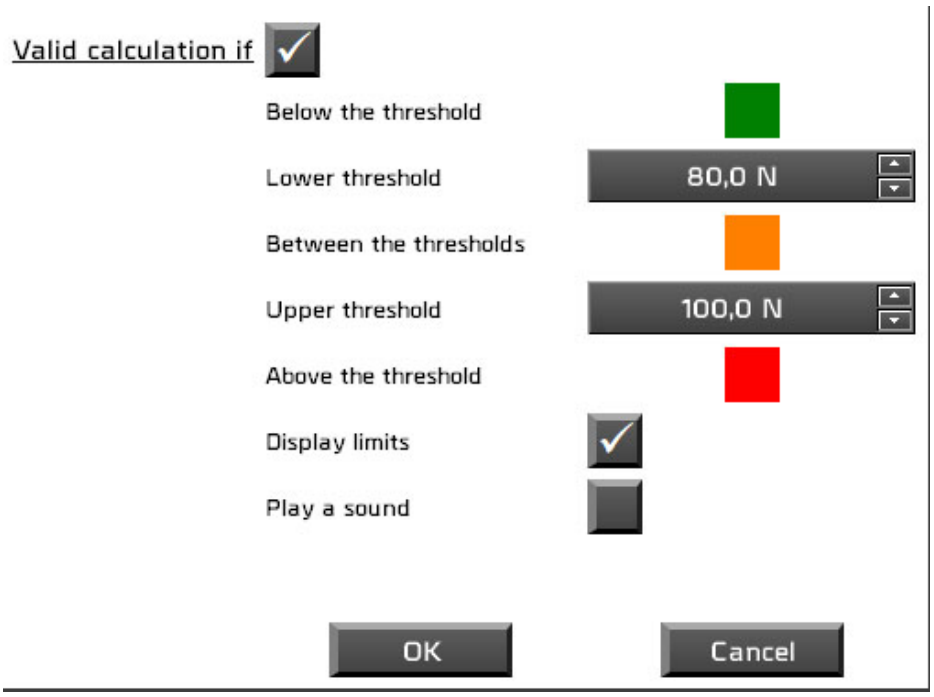
%strain = dt / L0*100

L0 = Sample length at the origin



INPUT TTL If your tester is set with at least the 3.00 version, you can configure an input on 'RS232' to send the data to CALIFORT software. It will measure the displacement value or load when the signal is received.

You can define conditions of Pass/Fail for each calculation:



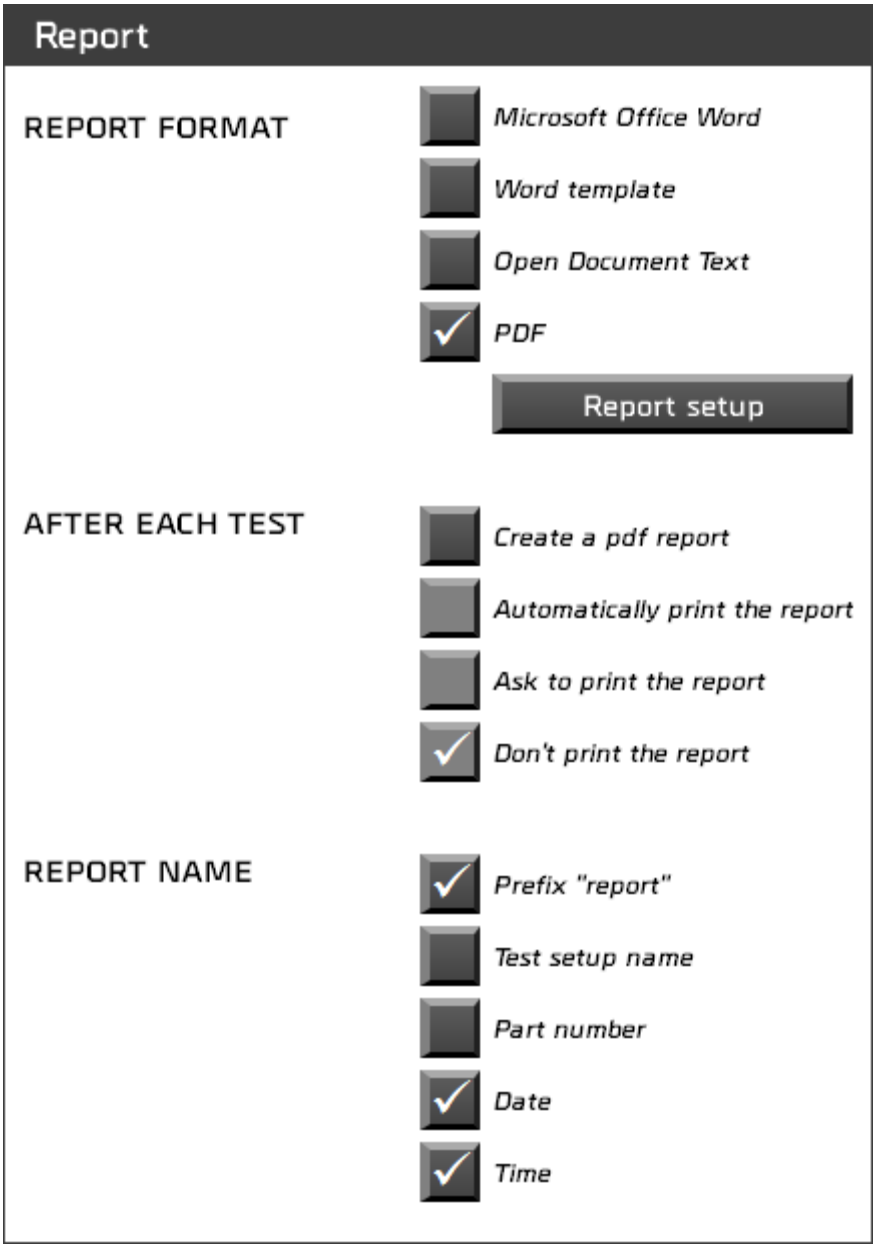
Depending on the results and thresholds, the following parameters will be marked as green, orange or red:

- A red square on the historical list
- In the measure windows, the area displaying the configuration name
- A note will be automatically added to the comments area
- Play a sound if the calculation if out of the thresholds

6.11. Tab “Report”

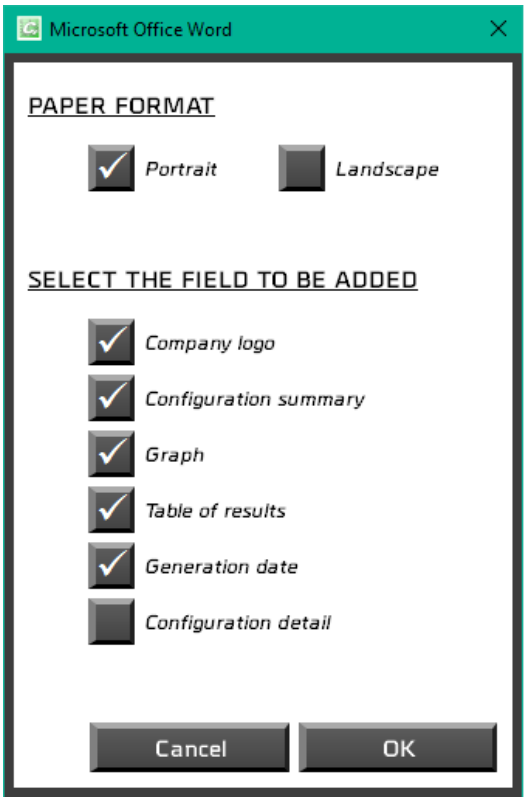
You can define a different report for each test, these reports are created in the Analyze mode of Califort. Four different formats are available:

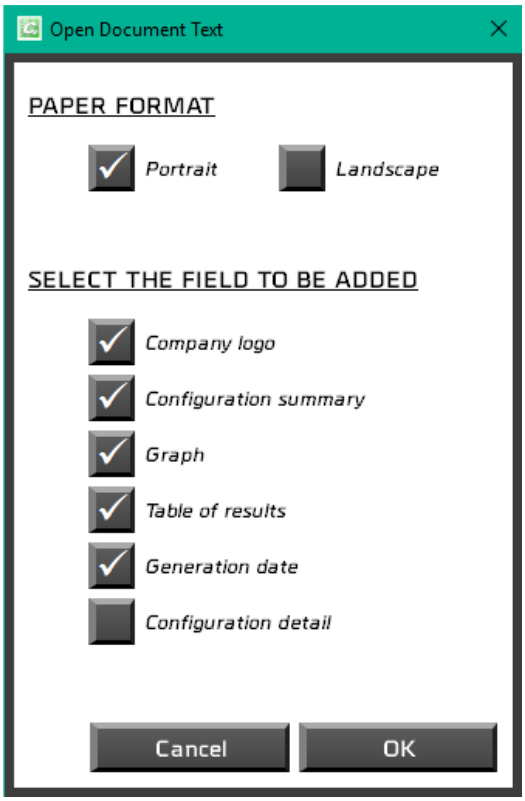
- Blank Microsoft Word document
- A Template Microsoft Word document
- Blank Open Document text
- A pdf file



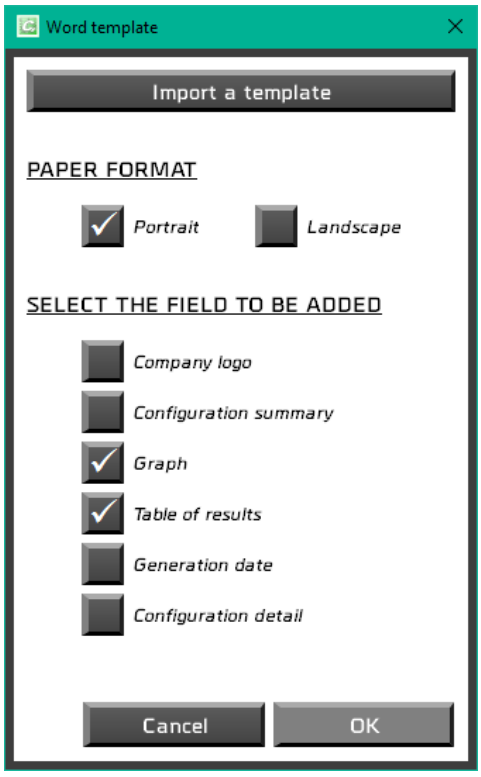
At the end of each test, you can also automatically generate a pdf report. So, for example you can choose to generate an automatic pdf report at the end of each test and use the Word report during analyzing.

In each type of report, you can choose to display the following information:

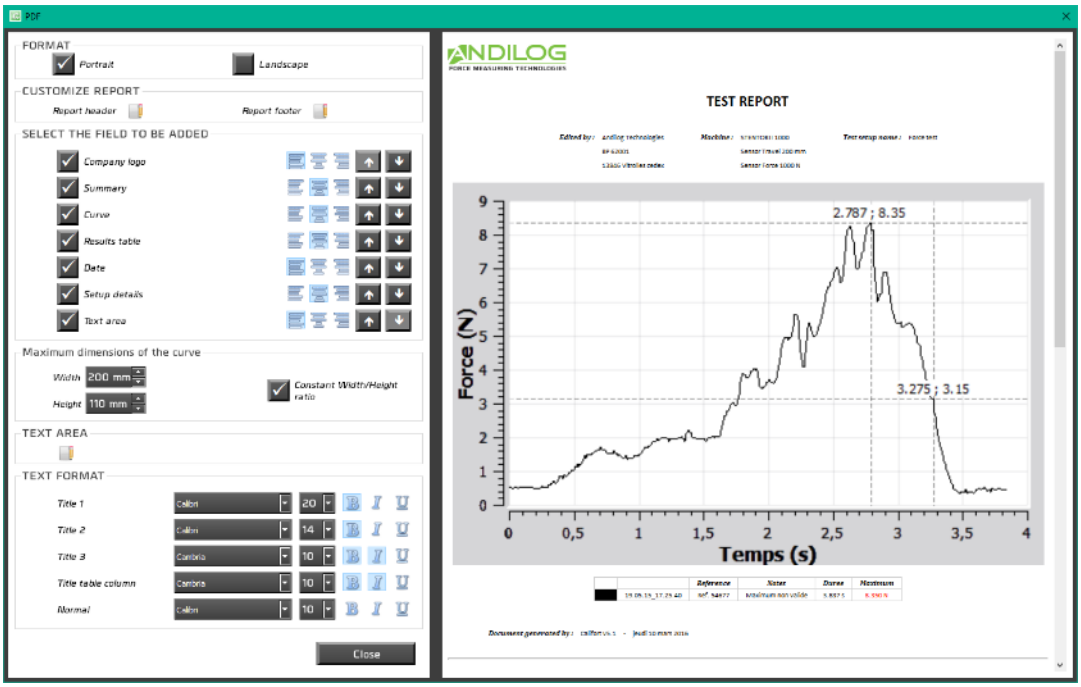




If you choose a Word template, you will have to select your Microsoft Word template file (.dot or .dotx file). A copy of your file will be imported in your folder CalifortData.

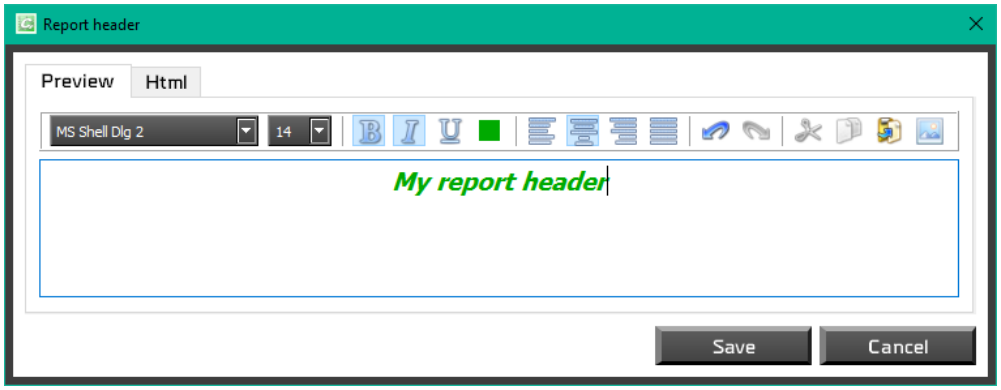


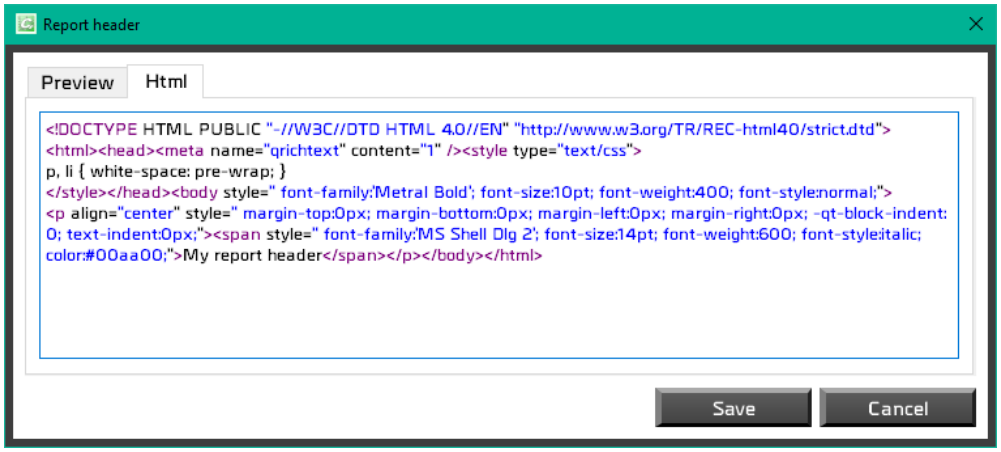
You can also customize the different element of your report using the report editor:



For a PDF report, you can customize all the parameters of the reports: font, font size, curve area size…

You will be able to customize the header, footer and a text area of your report using an HTML editor:





6.12. Curve template

In Debug mode, you can draw a template curve for your tests, by defining your tolerances on the graph area directly.

	Date	Time	Duration [s]	Sample length [mm]	Sample section [mm2]
1	29.06.18	12:18:37	1.708	100	1
2	29.06.18	10:24:34	8.528	100	1
3	28.06.18	15:03:50	10.372	100	1
4	28.06.18	15:01:00	8.988	1	1
5	28.06.18	14:59:31	19.675	1	1
6	04.01.18	16:27:25	12.105	0	0
7	04.01.18	15:23:10	1.525	0	0
8	04.01.18	15:20:18	1.689	0	0
9	04.01.18	15:20:04	4.457	0	0
10	02.01.18	11:30:46	31.141	0	0

	Top template		Bottom template	
	Travel 1	Force 2	Travel 1	Force 2
1	0.010 mm	20.565 N	0.010 mm	-19.435 N
2	1.400 mm	89.346 N	1.400 mm	49.346 N
3	2.780 mm	108.611 N	2.780 mm	68.611 N
4	4.170 mm	64.837 N	4.170 mm	24.837 N
5	5.530 mm	-11.959 N	5.550 mm	-50.486 N
6	6.940 mm	-64.486 N	6.940 mm	-104.486 N
7	8.320 mm	-58.316 N	8.320 mm	-98.316 N
8	9.710 mm	3.692 N	9.710 mm	-36.308 N
9	11.090 mm	76.492 N	11.090 mm	36.492 N
10	12.470 mm	109.972 N	12.470 mm	69.972 N

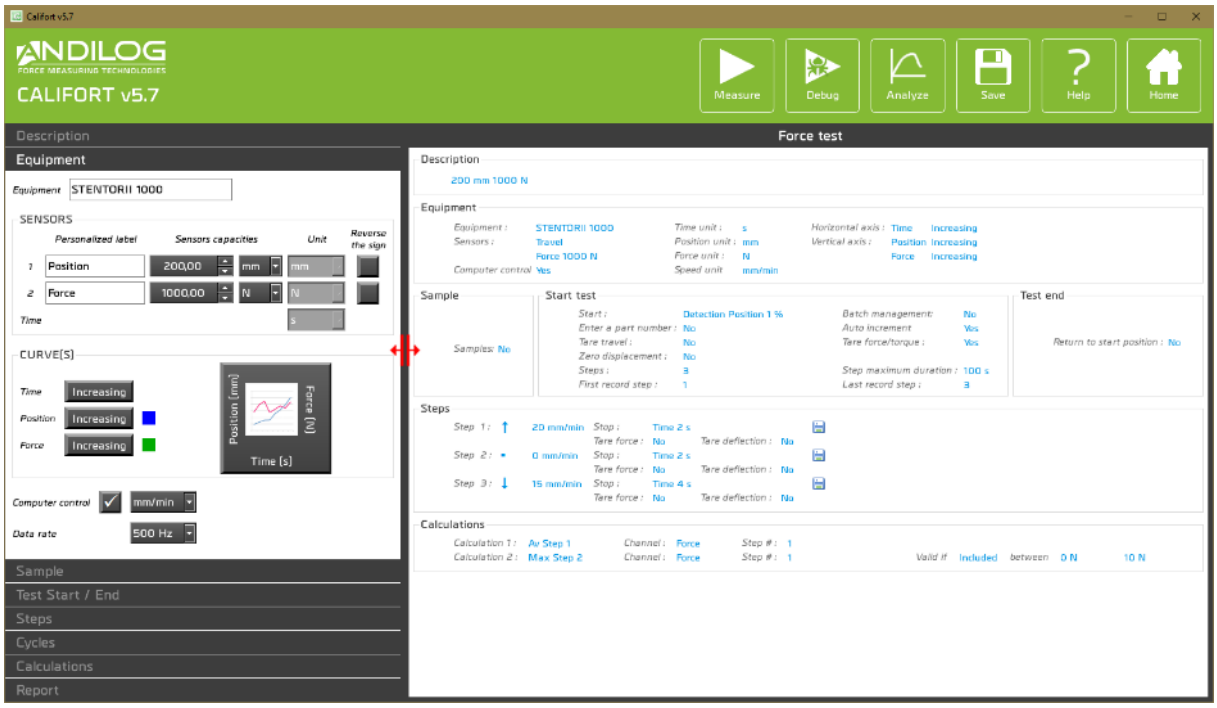
CREATE A TEMPLATE		Automatically draw two curves for your template (10 points per curve).
SAVE THE TEMPLATE		Save your template.
DELETE THE TEMPLATE		Delete your template.

You can move the different points of the template using your mouse or keyboard or from the chart at the bottom right:

The points can be moved with the left button of the mouse or with the keys:

Up / Down arrows: Curve change
Right/+: Next point
Left/-: Previous point
- 7, 8, 9, 4, 6, 1, 2, 3: Move the current point

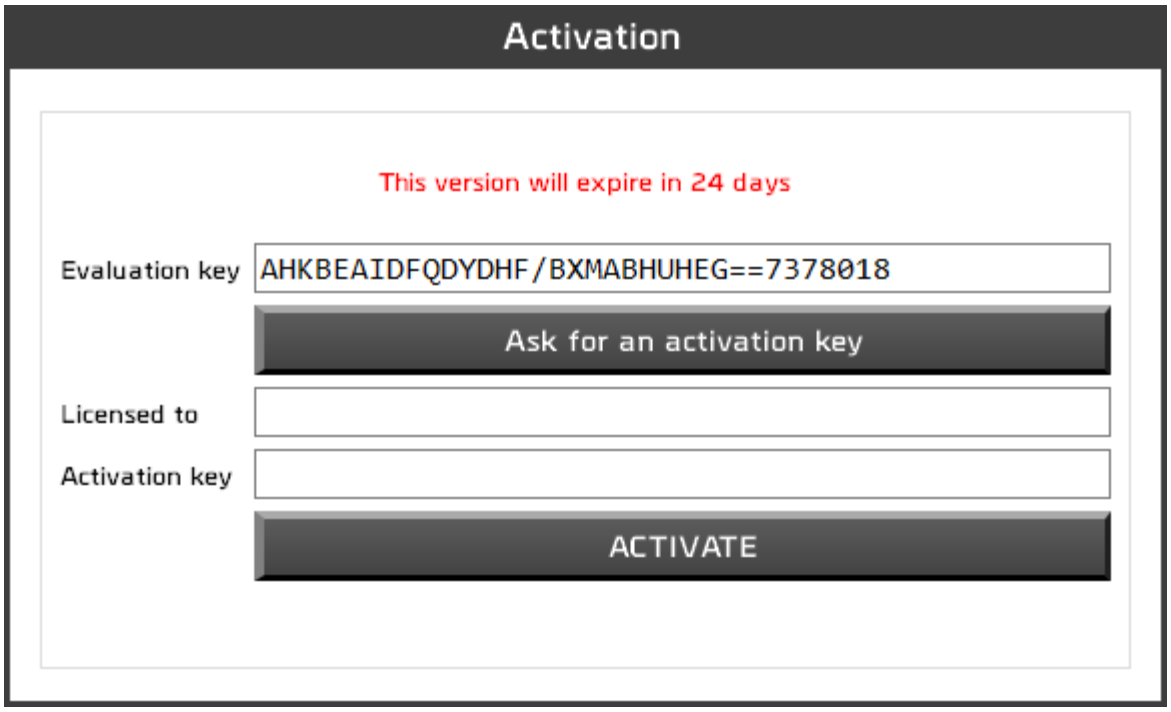
6.13. Splitter



You can use one splitter to adjust the size of the different parts.

7. Tools

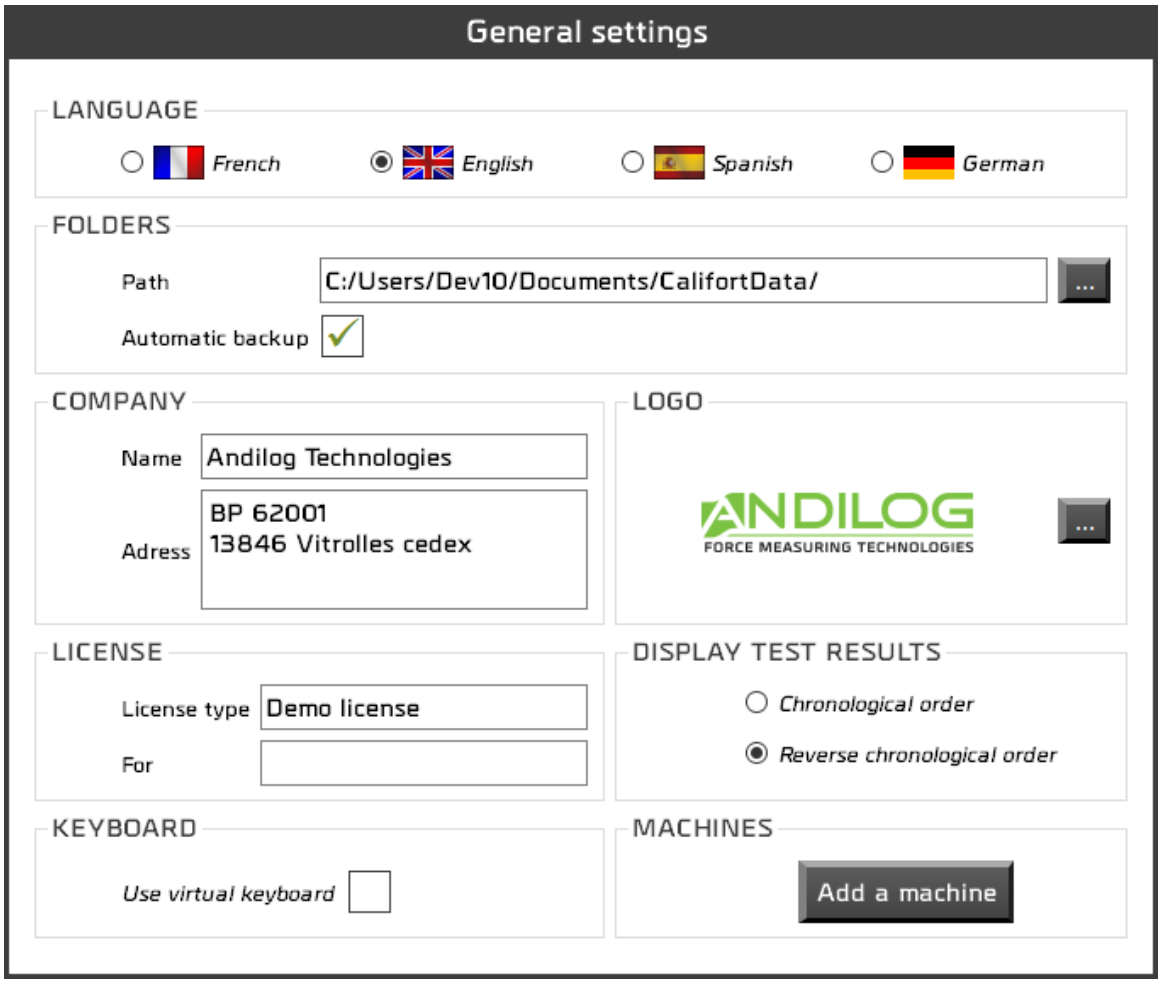
7.1. License activation



Access to this sub menu is available if the demonstration license is valid and not expired. From this window you can choose to activate (by filling the license and activation key number) your license or ask for an activation key.

7.2. General settings

This part is only available for Administrators.

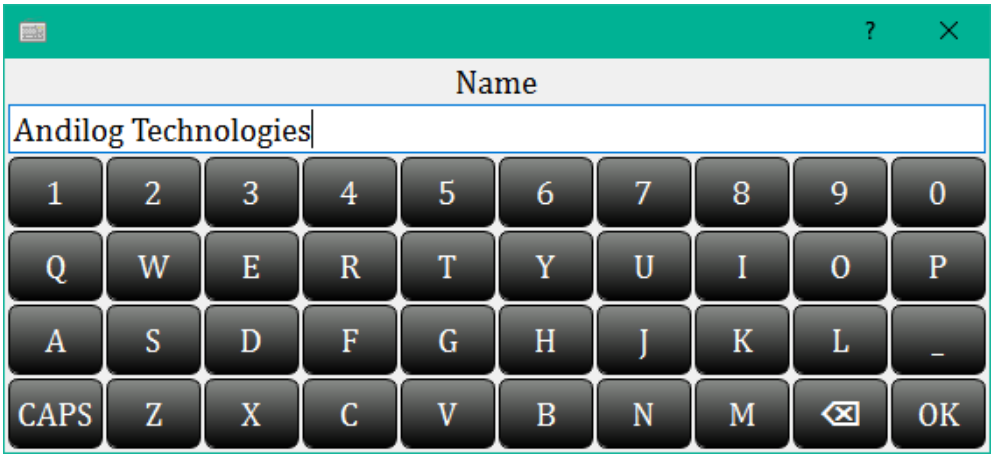


LANGUAGE	You can choose which language is used.
FOLDERS	This field recalls the location of the directory for report files (including results and saved test setup). Each test results are saved automatically, unless you the check box is not ticked and so after each test, Califort will ask you if you want to save it or not.
COMPANY	Your company details.
LOGO	Logo displayed on the reports.

LICENSE Information regarding your Califort software license. It can be “Evaluation” or “Final” and so it is linked to a person or a company.

DISPLAY TEST RESULTS Choose either you want to organize the library of results by chronological order or reverse chronological order.

KEYBOARD Display a virtual keyboard.

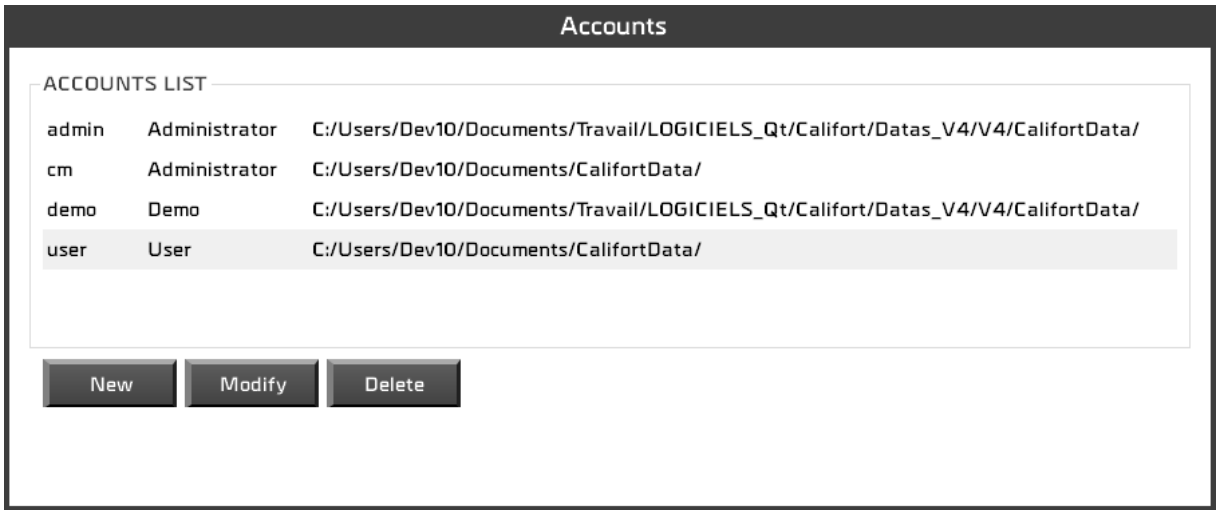


MACHINES You can add or remove here equipment to your list:

Each change on this dialog box saves automatically.

7.3. User accounts

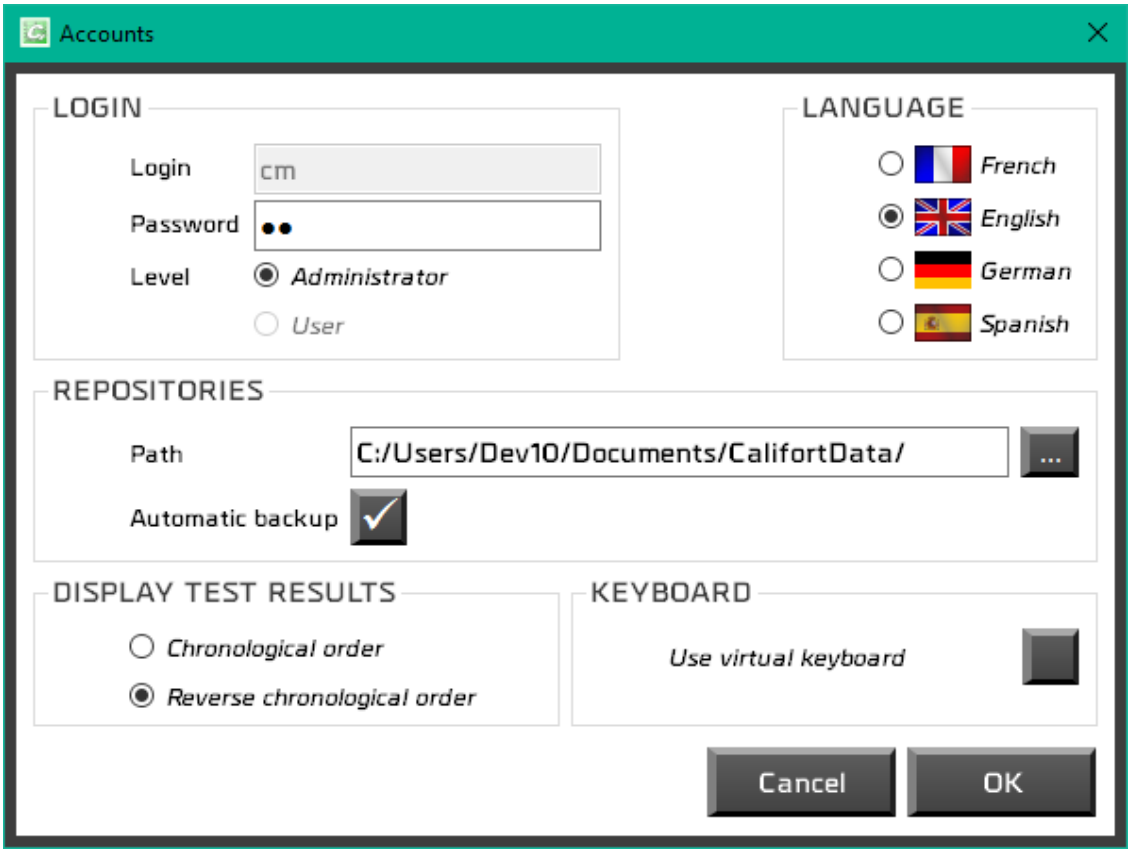
This part is only available for Administrators.



You can:

NEW	Create a new user.
MODIFY	Change user details.
DELETE	Remove a user account.

You cannot delete your account or change your access level.

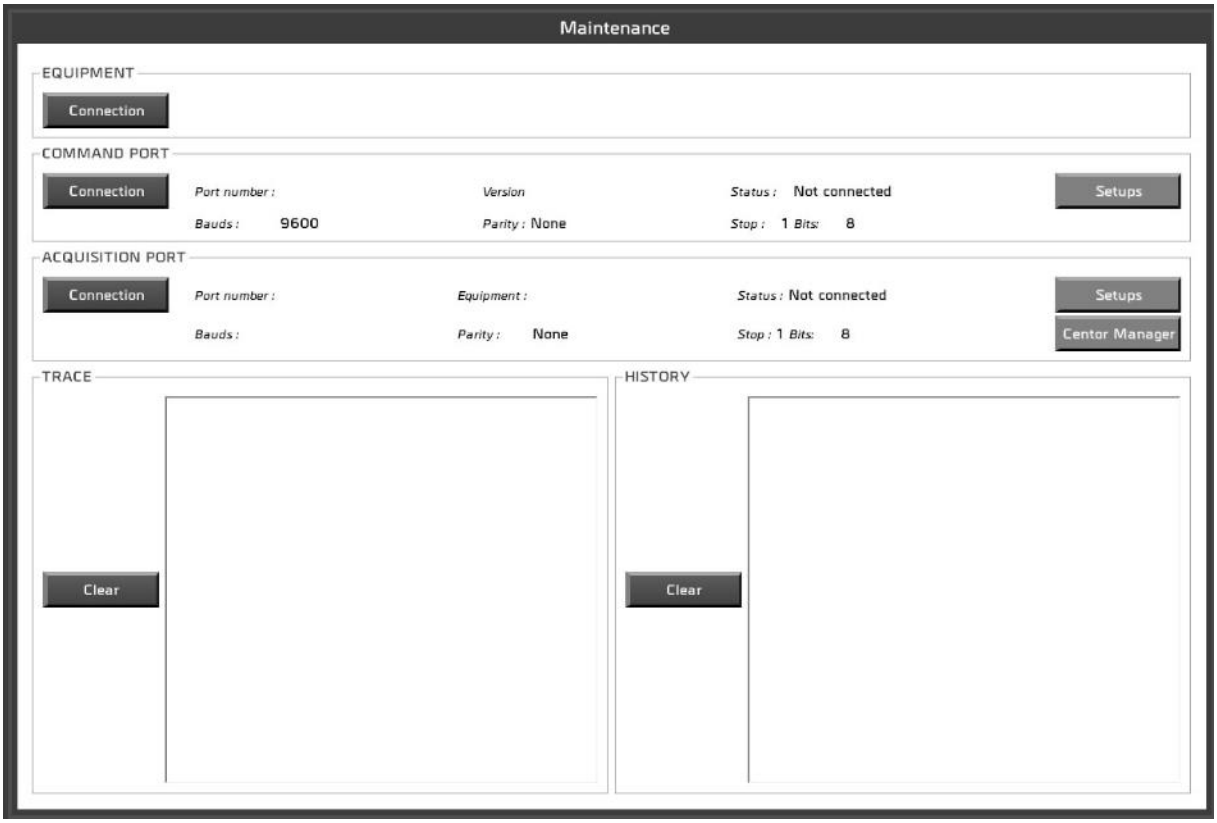


For each user, you can define the following parameters:

LOGIN	Login
REPOSITORIES	Path to the storage location of the files (test setup and results). Choose to enable the automatic backup of the tests or not.
DISPLAY TEST RESULTS	Select the order of display of the results
KEYBOARD	Virtual keyboard
LANGUAGE	Language

7.4. Maintenance

This dialog box will give you more information on the communication status with your test equipment.



EQUIPMENT	Capacity information from the CENTOR TOUCH since the latest connection.
Connection	Look for an instrument or an equipment connected to the computer.
COMMANDE PORT	COM port used for your motorized test equipment, and its settings (bauds, parity…). The version software and its connection status. Version is either “ready” or “not available”. Status can be: • Not connected • Connection in progress • Connected • Failure: it is the case for “not available” version.
Connection test	Before the first connection in between your motorized test equipment and the Califort software, this button display “connection”. The connection action will look for all the available COM ports on your computer; while “test connection” used the set COM port selected at the time of the latest connection. Then for

both actions, Califort software is checking the parameters, and in case of error will advise you for a change.

Setups

You can save or load a setup for your equipment using this button.

ACQUISITION PORT

COM Port used by the CENTOR TOUCH, and its settings (bauds, parity…). The version software of the CENTOR TOUCH and its connection status. The minimum required version to be used to run Califort software is the version V5.2.

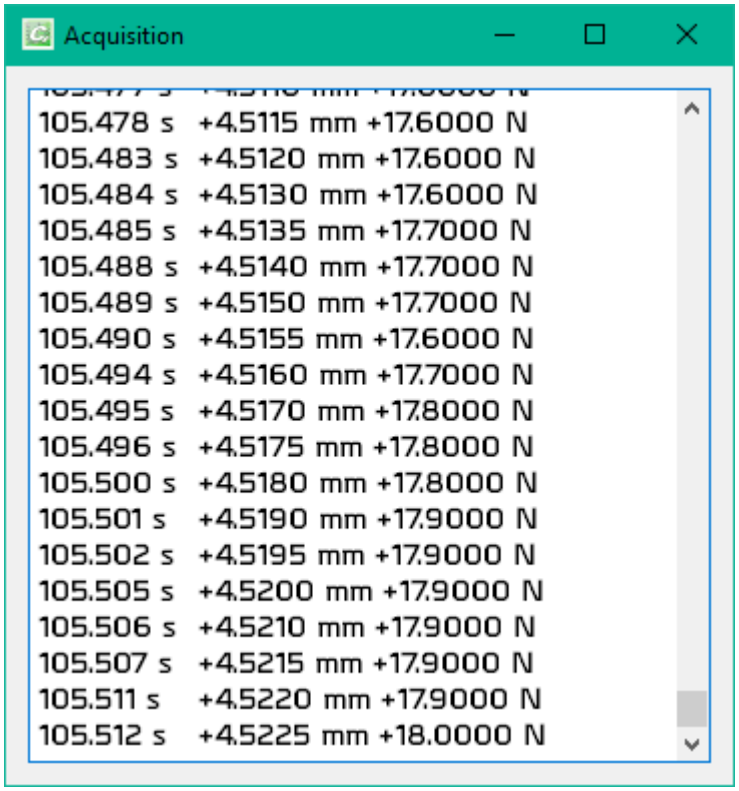
Trace view

According to the connection status, the button will display different available action:

- Status « Not connected »: action « Connection »
- Status « Connection in progress»: no action available.
- Status « Connected »: action « Trace view »
- Status « Failure »: action « Re connection »

The difference in between “connection” and “re connection” status is linked to the COM port argument. The “re connection” action will use the set COM port as selected at the time of the first connection, while the “connection” action will look for all available COM ports on your computer. Then for both actions, Califort software is checking the parameters of the CENTOR TOUCH, and in case of error will advise you for a change. The AutoRun mode is not available until parameters are not set properly.

Here is an example of the “trace view” acquisition dialog box.



Menus	Once the connection is set with the CENTOR TOUCH, Califort disables access to this menu. If you need to, you can still reactivate them with a right click, or by turning OFF and ON the Centor Touch.
TRACE	Follow the connection status.
Effacer	Remove history from the window.
HISTORY	Library of all error/failure messages and status.
Effacer	Remove history from the window (only available for administrator account).
Centor Manager	You can access to the maintenance of your equipment to change: the next calibration date and reset the overload counter. When you change something in these parameters, your equipment will automatically restart.

Remark:

Alternative connection problems can happen sometimes (loosing connection and immediate re-connection, by example) – unplug your USB cable from one port to another available one can solve this issue.

7.5. Deflection compensation

When measuring deflection during tests, measuring errors can be introduced by the load applied to the equipment. On testing machine, we measure the travel of the equipment and not the actual deflection of the samples. Many parts of the equipment can introduce errors in deflection measurement: load cell, test stand, fixture deformation…

One solution, to improve this measure is to compensate the deformation of the testing equipment with the software. For this, the most accurate way to do it is to applies a load versus deflection compensation of your complete test system.

Califort software offers this feature with an automatic deflection compensation system. This feature is divided in 2 steps:

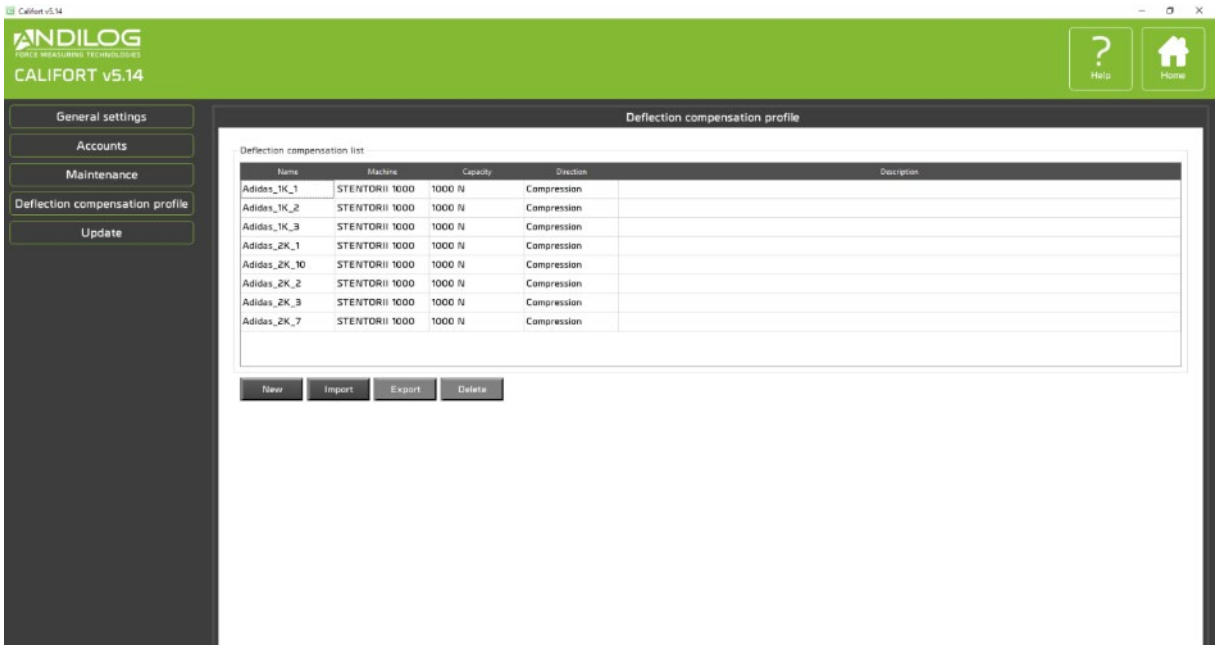
1. Save the force vs deflection curve of your equipment
2. Apply the curve on your test

In Califort, you can save unlimited compensation profiles for all your tests. For example, it could be interested to have one profile for compression tests and another for tensile test or if you are using different types of accessories depending on your samples.

7.5.1. Save and calculate the force vs deflection of your equipment

First you must define your test in Test Setup. Then, when it is ready, on the main screen of Califort, at the top right go to Tools and then on the left “Deflection Compensation Profile”

You have a screen like this:

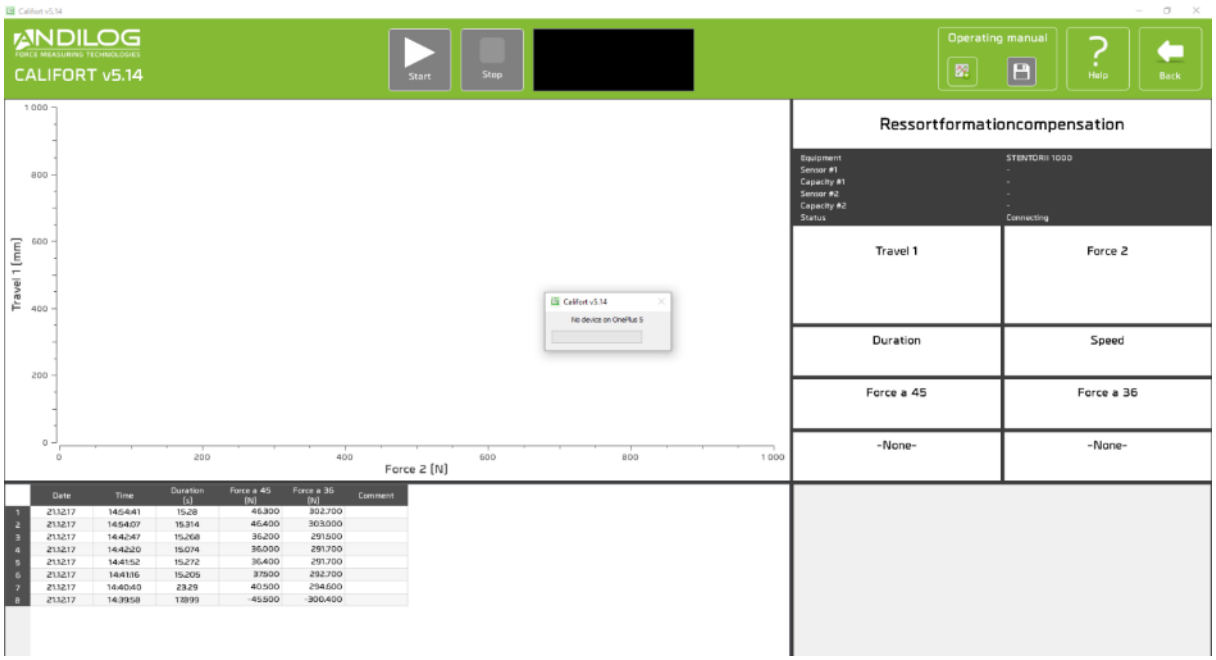


Press “New”, You will have the following window:

First, name your compensation profile and choose between Compression or Tension depending on your test.

Then choose in the list the Test setup you want to compensate. Your compensation profile won't be definitively associated to this test, it could be used on other ones too. Press OK.

Califort will connect to your equipment:

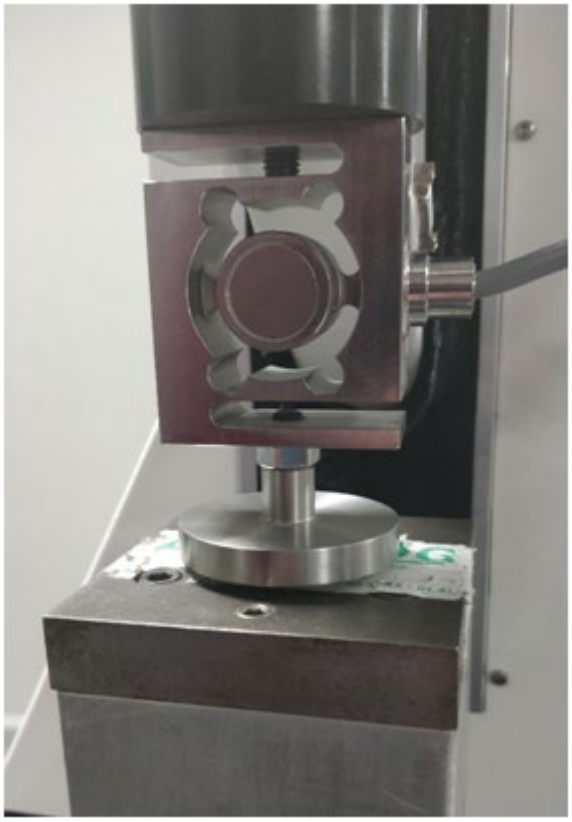


Once connected, if you press the Start button, your test equipment will start to move and go down (if compression). Califort will command your equipment until it reaches 95% of the capacity of the load cell and it will record the force vs deflection curve. It means that if you have a 1000N load cell, the stand will go down until the load is 950N. This is necessary to compensate accurately the force on the

full range of the load cell. If you manually stop the stand before 95%, the deflection will only be partially compensated.

Before pressing Start, do down with your equipment without sample to have the bottom and top fixture very close. Make sure that your fixtures can support the full scale of the load cell.

Press Start, your stand will go down at the minimum speed until it reaches 95% of the capacity. Then it will go back to the start position.



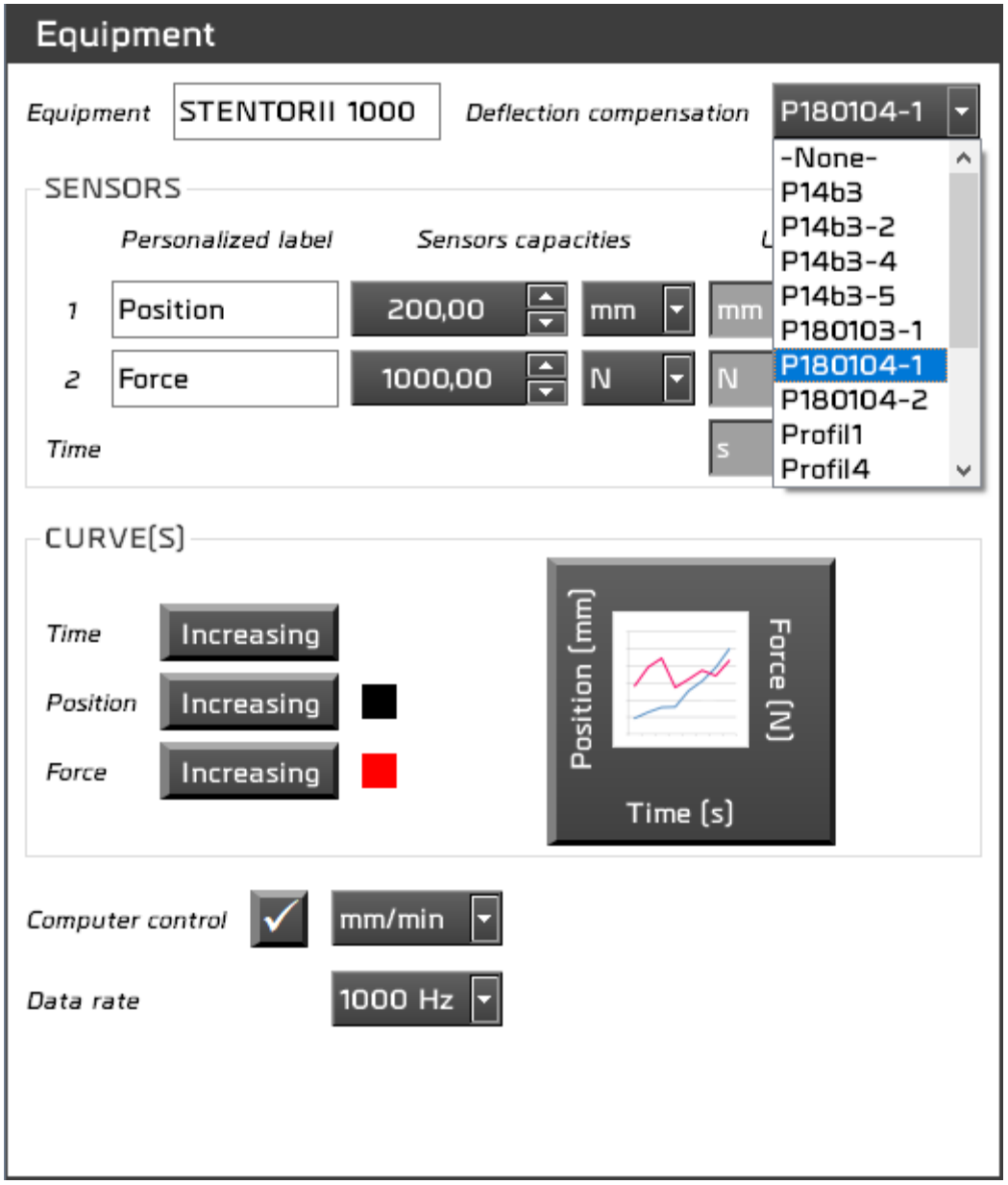
At the end of the test, Califort will display the curve and ask if you want to save this profile or not. If not, you can start a new profile by pressing Start.

Once, your profile is saved, go back to the previous page (arrow at the top right).

If you select one of the profile you can display the curve.

CALIFORT v5.14
General settings
Accounts
Maintenance
Deflection compensation profile
Update
Deflection compensation profile
Force [N]

7.5.2. Apply the curve on your test



Choose in this list the deflection compensation profile to apply.

Once your profile is selected, you can press Measure and start your tests as usual. Now Califort, will automatically compensate the deflection measured based on the profile you are using.

7.6. Update

If your computer is connected to Internet, you can update your software to the latest available version. Only Administrators accounts can access this feature.

8. Save your data

In the folder « CalifortData », you can find all the raw data, reports and test results of your projects.

_BACKUP	Copy of the deleted files and project
_BACKUPV4	Copy of the files of the old version of Califort.
_TEMPLATES	Imported templates

Each project contains 3 folders:

SETUP	Califort saves the test setups with a filename “configuration name.ini”. For security purpose, a backup is saving your test setup every ten launch of the software and saved under “C:\Califort configuration”
MEASURES	Raw data (curve)
REPORTS	Reports