THSSD Software User Manual

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Getting Started

System requirements

Hardware Requirements:
1. USB 2.0 communication port.
2. CPU: Dual Core 1.6 GHz or higher
3. RAM: 2 GB or higher
4. 1024x768 screen resolution or higher
5. Mouse or touch-pad (notebooks)
6. Keyboard

Software Requirements:
Operating system: Win XP (32-bit version only), Vista, Win 7, Win 8, Win 10
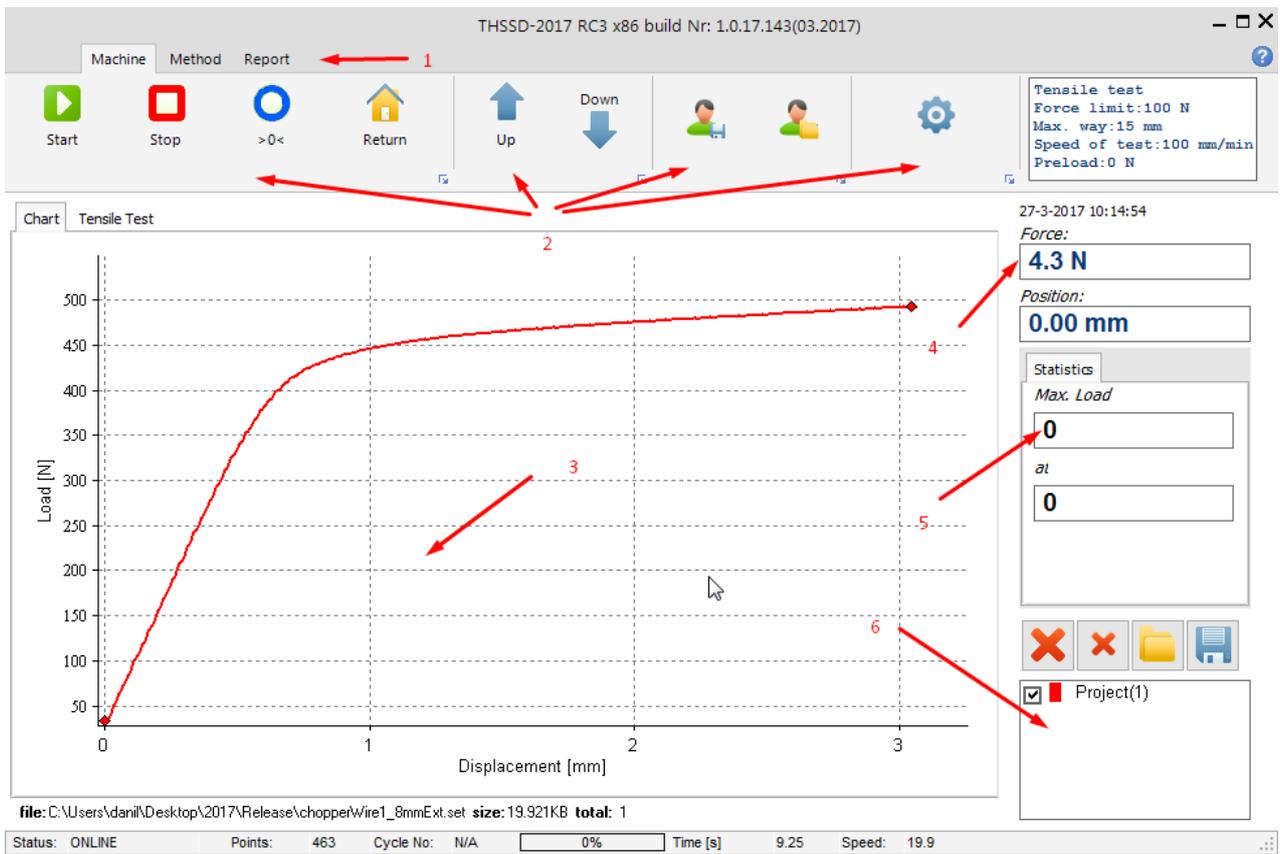
USB Communications

Hardware requirements:

1. Before you use this software you need to install FTDI drivers for Tensile Tester.
   You can find driver in programs folder or download from FTDI chip site:
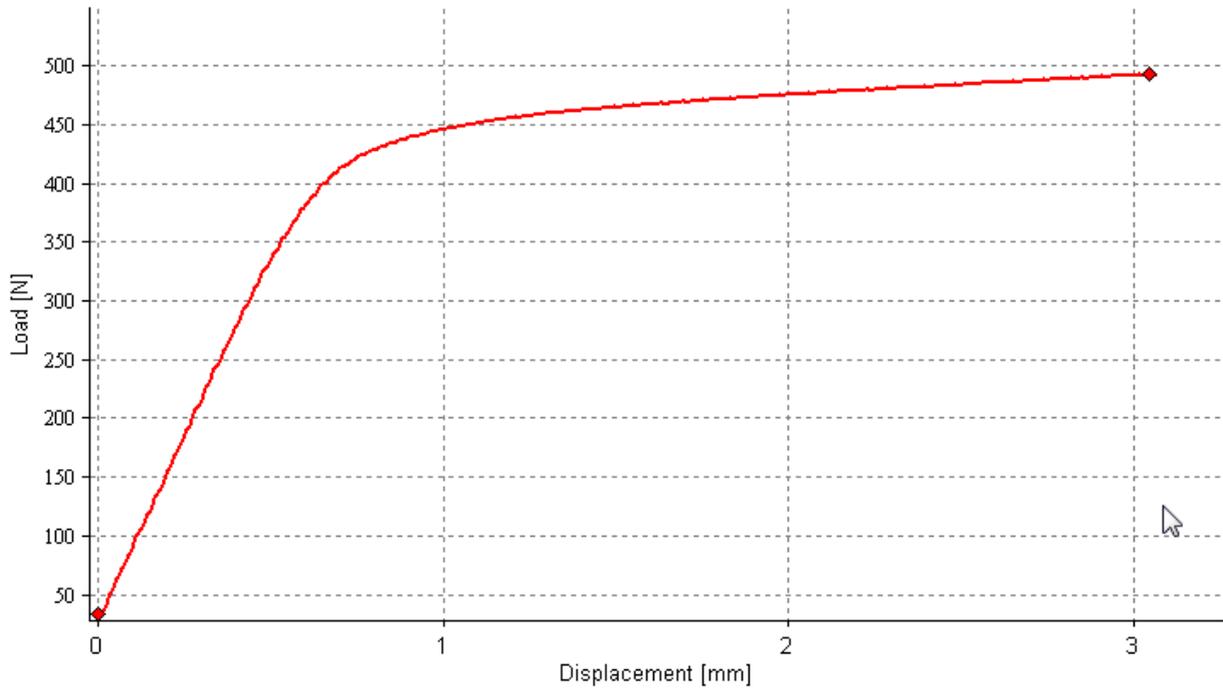
http://www.ftdichip.com/Drivers/D2XX.htm

2. Unpack files from distribution archive. (you can use 7-zip or winrar to manipulate archeves)
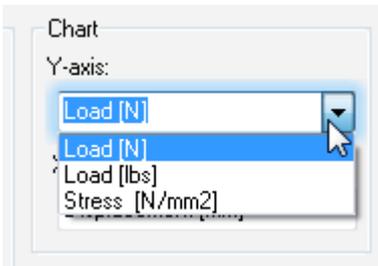3. Run .exe file

Software Overview

1. Main Menu
2. Sub-menu items
3. Chart
4. Actual force and position
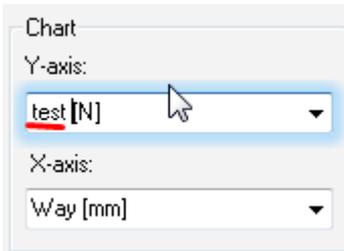5. Maximum force and position
6. Chart control panel

Chart

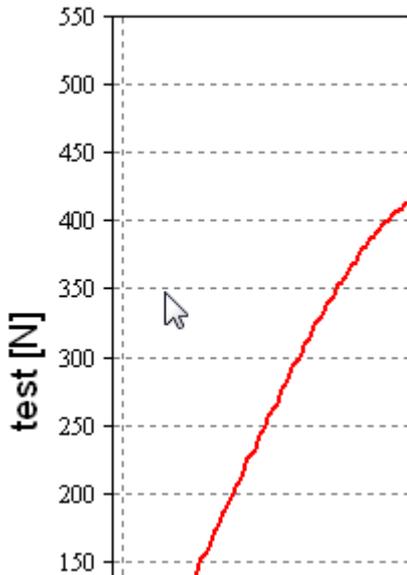X coordinate - Way in mm
Y coordinate - Force in Newton

Note: X and Y units can be changed

User can also rename axis

Result:

User can zoom specific area by making rectangular selection.
Press & hold mouse right button and move cursor to navigate through chart.
To zoom out make rectangular selection from right to left.
Coordinate values will change according to zoom level.
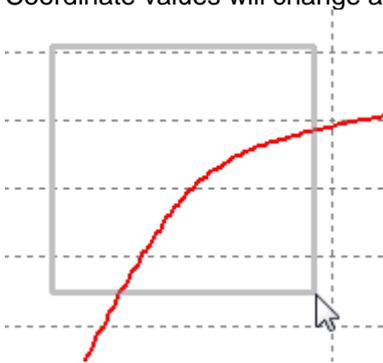
Hovering mouse over curves will display Way and Force at specific points

.
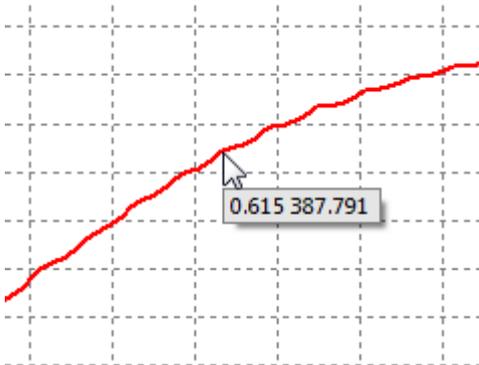
Scale chart via pop-up menu
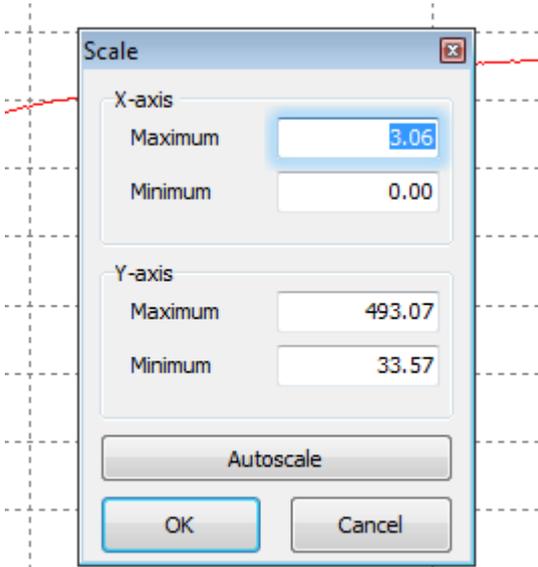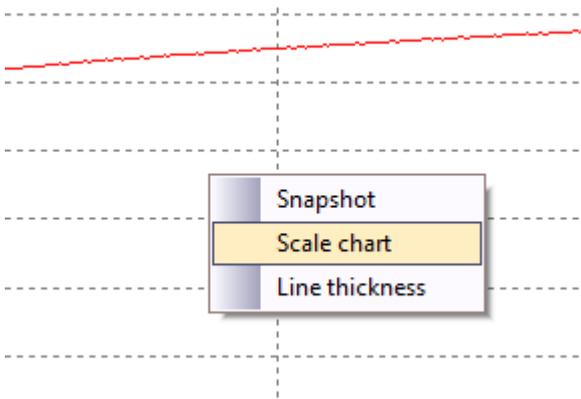
setting line thickness via pop-up menu.
valid range: 0...9 pixel

snapshot via pop-up menu

Snapshot
Scale chart
Line thickness

Export Dialog

Picture | Native | Data

Format
- as Bitmap
- as GIF
- as JPEG
- as Metafile
- as PNG
- as SVG

Options | Size

Colors: Default

☐ Monochrome

Filters...   DPI: 0

Preview:

Copy   Save...   Send...   Preview...   Close
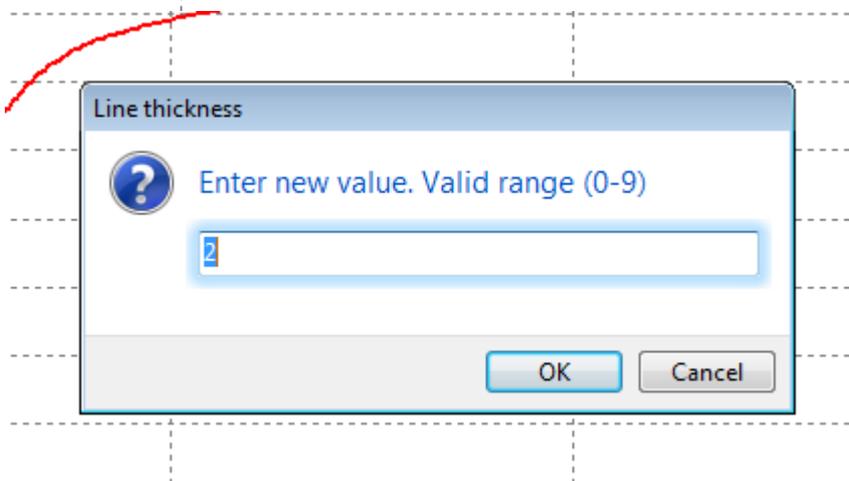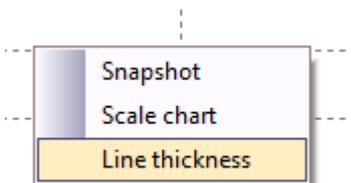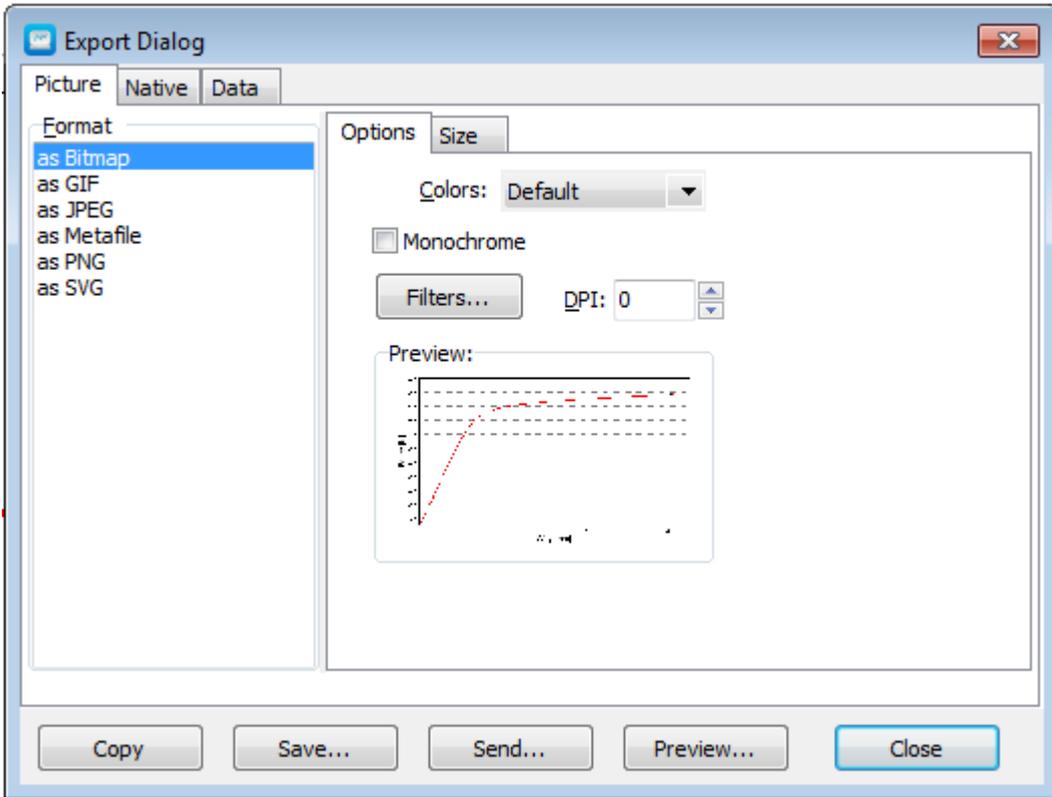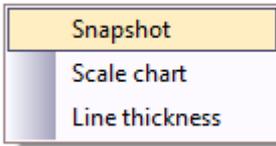
Actual Force and Position

27-3-2017 10:13:15

Force:

4.3 N

Position:

0.00 mm

Statistics

Max. Load

0

at

0

User can select precision of current force display.
User should make right click and from pop-up menu choose the resolution.

Force:

-32.8 N

| • | 0.0 |
| | 0.00 |

Position:

0.00 mm

| | 0.000 |
| | 0.0000 |

Statistics

On the right panel actual Force and Position is shown.
Their values change dynamically when the test runs.
To reset their values double click each of them or reset both values from main menu (>0<)

Max. Force and Position

Force:

-32.8 N

Position:

0.00 mm

Statistics

Max. Force

0

at

0

After the test is completed, Max. Force and Position is displayed on the right hand side.
If multiple curves are shown, select/hide them as shown on the picture above.

select position source:

Position:

0.00 mm

Encoder
Extensometer

Statisti

Max. Force

Manage Curves

☑ ▮ Project(1)

User can manage multiple curves from this area.
Previous test results can be imported or actual test results exported.
Individual curves can be hidden/deleted/exported etc...

Status Bar

| Status: OFFLINE | Points: 463 | Cycle No: None | 0% | Time [s] 9.25 | Speed: 19.9 | .::|

Status - shows current status of software. See [software modes](#);
Points count - show count of data points in latest test curve;
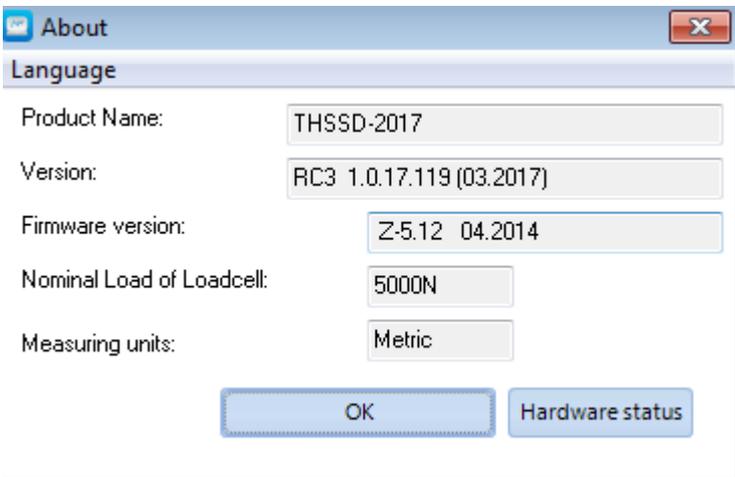**COM port** - shows current communication port;
Cycle No - shows cycle number;
Progress bar - shows progress of current test;
Time [s]: - time interval from start of test;
**Speed [mm/min]**: - speed of test;

About window

| About		
Language		
Product Name:	THSSD-2017	
Version:	RC3 1.0.17.119 (03.2017)	
Firmware version:	Z-5.12 04.2014	
Nominal Load of Loadcell:	5000N	
Measuring units:	Metric	
	OK	Hardware status

About window shows:

• Name of software
• Version of software
• Firmware version (only in ONLINE mode)
• Nominal load of load cell (only in ONLINE mode)
• Measuring units (English/Metric)

Main Menu
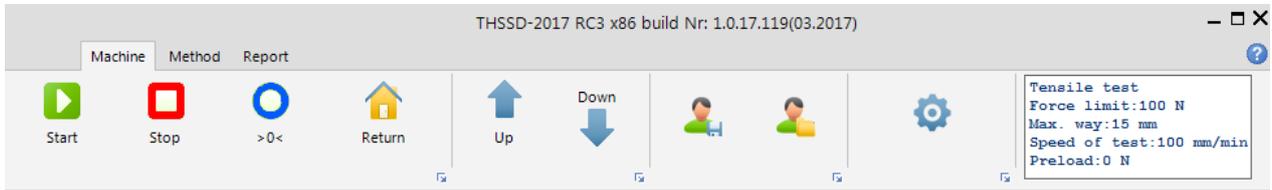
From Main Menu user has options to start/stop tests, select testing methods, export reports and diagnose machine.

Machine
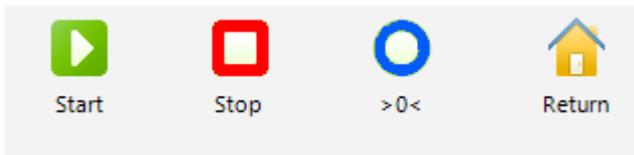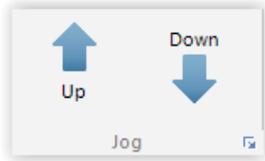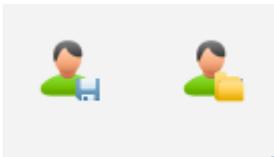

Start - Start the test
Stop - Stop the test
>0<- Reset load cell and position (set both to 0)
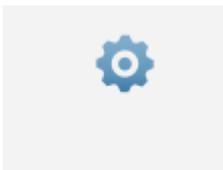**Return** - Return crosshead to starting position

Up - Move crosshead up
Down - Move crosshead down

1. Save user settings in *.ini file
2. Restore user settings from *.ini file

Options - Setting user options (automatic crosshead return, curve saving modes, autosave default folder, etc...)

Options   ✕

Return to start position
☑ Automatic return   Vo [mm/min]   300
☐ Fast return (400 mm/min)

Saving mode
◯ *.set files. Multiple curves in one file (example.set)
◯ *.bin files. Single curve in one file (example.bin)
◉ *.setx files. Multiple curves in one file (recommended)

User Settings
☐ Show input window before start   ☐ Open XLSX export file
☐ Lock testing settins   ☐ Open XLSX report file
☐ Show Chat FPS   ☐ Show Legend

Autosave
☐ Automatic saving
Folder:
C:\Users\█████\Documents

☐ Auto Export Stats to XLSX   ☐ Auto open Stats XLSX File
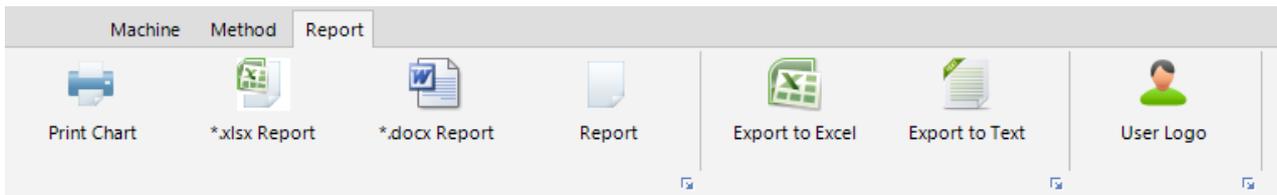
Units
◉ Metric   ◯ English

Method

From this section user can select testing method.

Report

From this section user can generate and export reports.

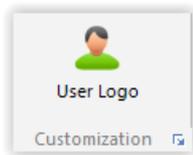**Print Chart** - Prints actual chart
*.xlsx Report – generates report based on *.xlsx template
*.docx Report – generates report based on *.docx template
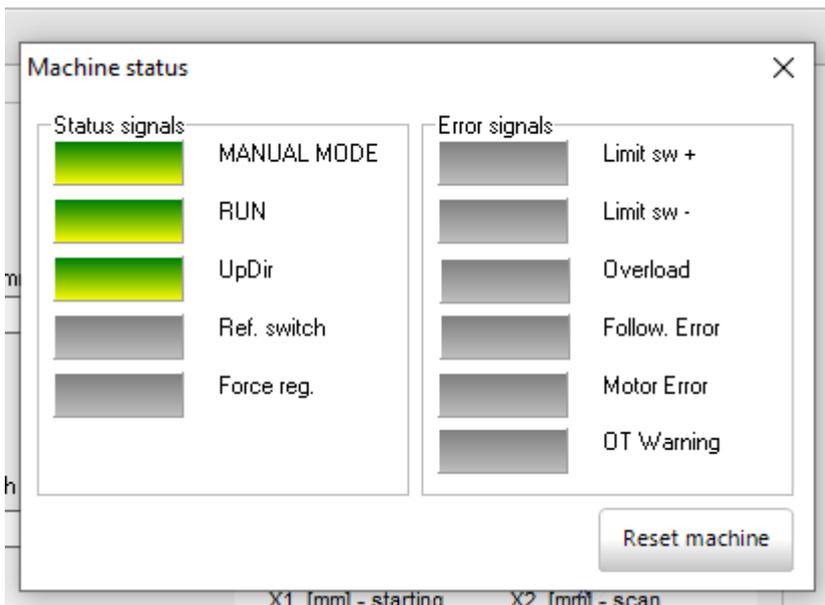**Report** - generates standard based on internal template system. Possible to export in *.pdf file format
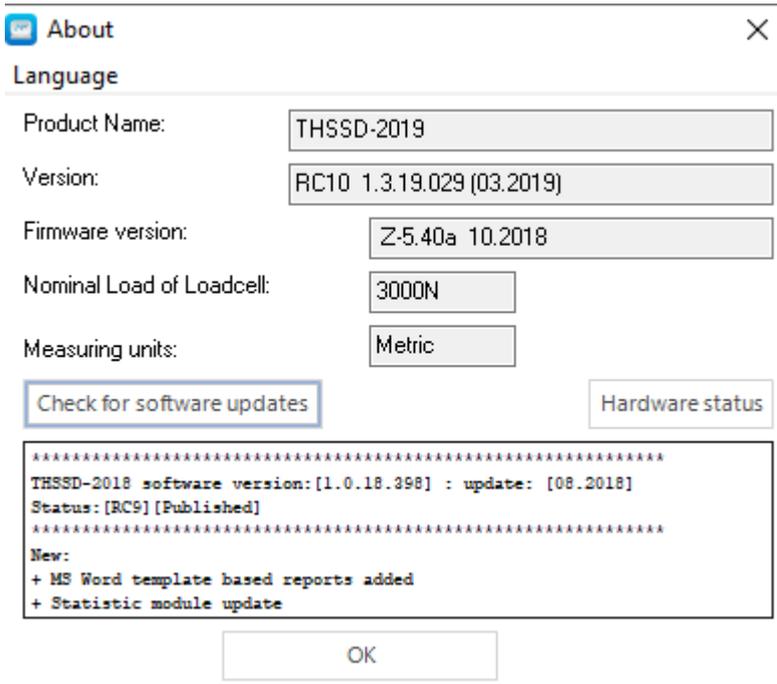
Export to Excel - Exports report to excel file
**Export to Text** - Exports report to text file

User Logo - User can select company logo or custom image (used in standard **Report**)

Diagnose

HW diagnostic section shows current state of machine. If an error occurs during the test - motor error, limit switches, etc, corresponding indicators will be highlighted.
on the right panel user can reset machine, apply/remove compensation and start stiffness compensation tool.

Language
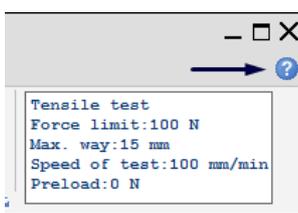
To change language, click on question mark icon on right hand side and choose your language from menu.
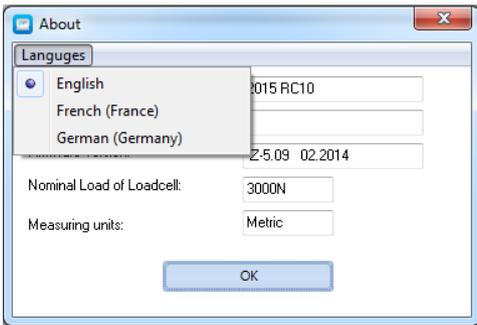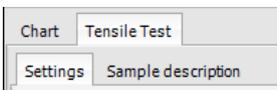
Testing Methods

There are 7 different testing methods implemented in software:

- Tensile test
- Compression test
- Hysteresis
- Force regulation
- Friction test
- Peeling test
- 3-point Bending test

User can select testing methods from main menu under the 'Method' tab.
When user selects method, method settings and parameters will be shown next to the 'Chart' tab:

Tensile test

Parameter description:

Machine Settings:
- Speed [mm/min] - Machine speed during the test.
- Displacement [mm] - Maximal travel distance. When maximal distance is reached, test is stopped.
- Maximal Load FI [N] - Maximal load during test. When maximal load is reached, test is stopped.
- Preload [N] - Software starts chart plotting, when this value is reached. Default value is 0.
- Breaking Force (dF) [N] - Allowed force to be dropped during the test. if force dropping is more than given value, machine detects braking and test is finished.

Note: Before starting the test, user should click on 'Update' to send given values to machine.

Chart Settings:
User can set left and bottom axis units.
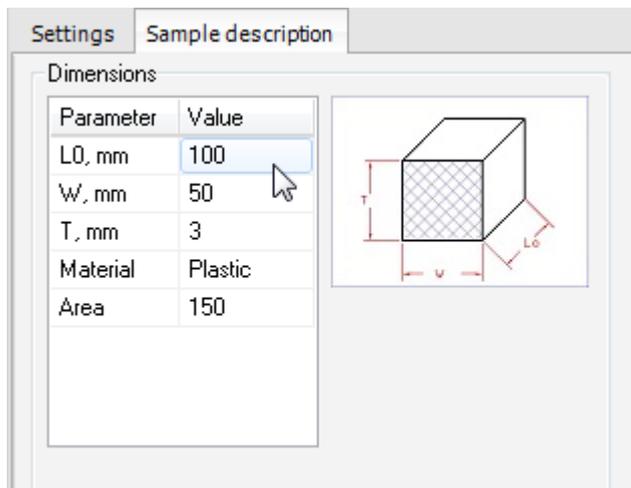
Elastic modulus:
Set scan limits in [%]
Select Extensometer data for usage in E-modulus calculation.
Click on 'Set scan limits'
These limits will be used for multiple E-modulus calculation.
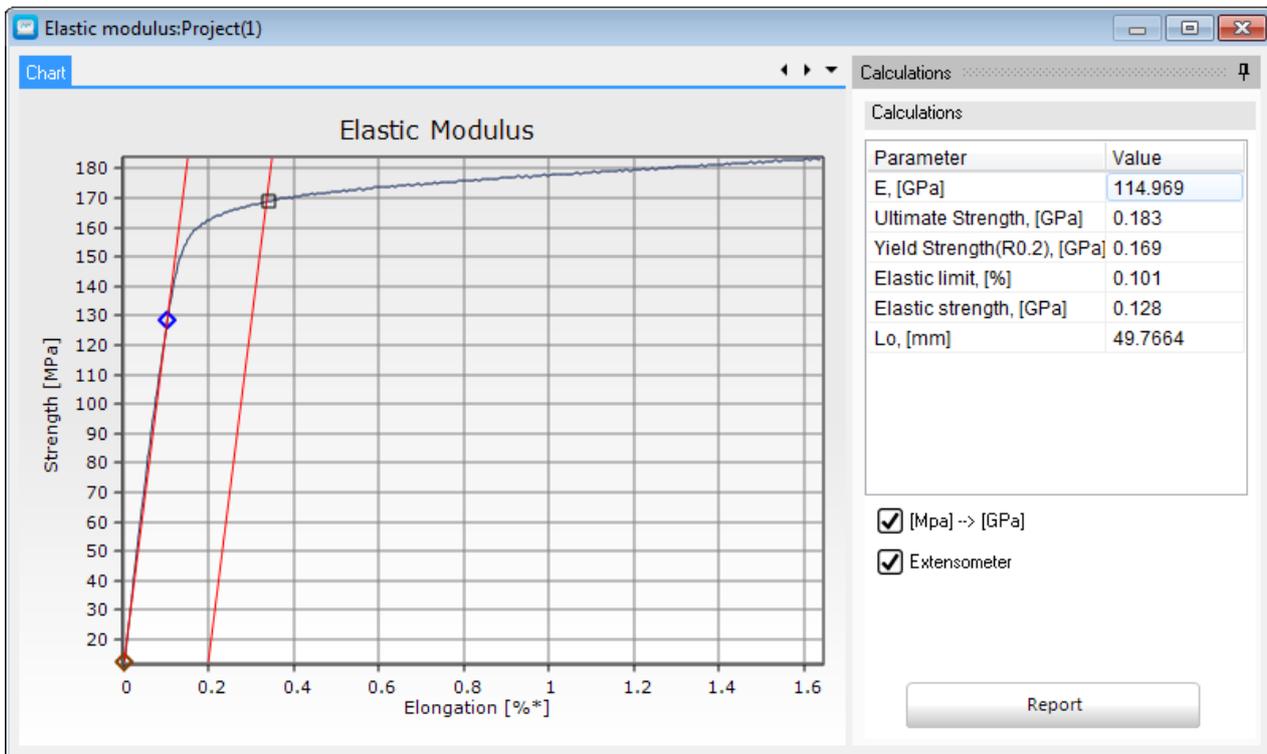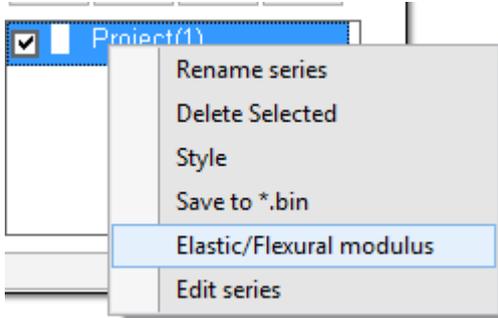
Project Settings:
Additional project information.

In 'Sample description' tab, user will enter sample data: width, thickness, length, cross-section, material, shape, etc...

E-modulus Calculation

Right click on curve name -> 'Elastic / Flexural modulus' .

Compression Test

Parameter description:

Machine Settings:
- Speed [mm/min] - Machine speed during the test.
- Displacement [mm] - Maximal travel distance. When maximal distance is reached, test is stopped.
- Maximal Load [N] - Maximal load during test. When maximal load is reached, test is stopped.
- Preload [N] - Software starts chart plotting, when this value is reached. Default value is 0.
- Breaking Force [N] - Allowed force to be dropped during the test. if force dropping is more than given value, machine detects braking and test is finished.

Note: Before starting the test, user should click on 'Update' to send given values to machine.

Chart Settings:
User can set left and bottom axis units.

Project Settings:
Additional project information.

In 'Sample description' tab, user will enter sample data: width, thickness, length, cross-section, material, shape, etc...

Hysteresis

Parameter description:

Machine Settings:
- Speed [mm/min] - Machine speed during the test.
- Displacement [mm] - Maximal travel distance. When maximal distance is reached, test is stopped.
- Maximal Load [N] - Maximal force during test. When maximal force is reached, test is stopped.
- Preloading [N] - Software starts chart plotting, when this value is reached. Default value is 0.
- Fhys [N]- hystesis mode limited by given force. Fhys should be less then Max. Load [N].
- Cycles count - Number of test iterations.
- Holding Time [sec] - Time interval machine holds, when max. distance is reached.
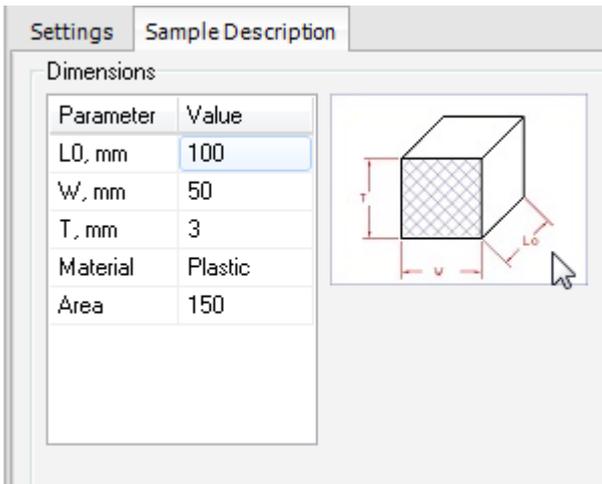
Note: Before starting the test, user should click on 'Update' to send given values to machine.

Chart Settings:
User can set left and bottom axis units.

Project Settings:
Additional project information.

In 'Sample description' tab, user will enter sample data: width, thickness, length, cross-section, material, shape, etc...

Force Regulation

Parameter Description:

Machine Settings:
- Load [N] - When regulation force is reached, machine keeps force for specified time interval.
- Displacement [mm] - Maximal distance machine will travel.
- Holding Time [sec] - Time interval machine holds, when regulated force is reached.

Note: Before starting the test, user should click on 'Update' to send given values to machine.

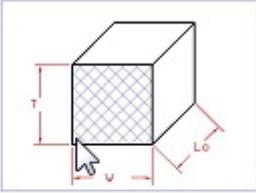**Chart Settings:**
User can set left and bottom axis units.

Project Settings:
Additional project information.

In 'Sample description' tab, user will enter sample data: width, thickness, length, cross-section, material, shape, etc...

Dimensions

Parameter	Value
L0, mm	100
W, mm	50
T, mm	3
Material	Plastic
Area	150

Friction Test

Parameter description:

Machine Settings:
- Speed [mm/min] - Machine speed during the test.
- Displacement [mm] - Maximal travel distance. When maximal distance is reached, test is stopped.
- Maximal Load FI [N] - Maximal load during test. When maximal load is reached, test is stopped.
- Preload [N] - Software starts chart plotting, when this value is reached. Default value is 0.
- Breaking Force [N] - Allowed force to be dropped during the test. if force dropping is more than given value, machine stops and test is finished.

Note: Before starting the test, user should click on 'Update' to send given values to machine.

Chart Settings:
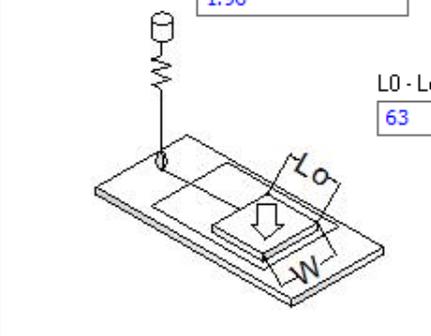User can set left and bottom axis units.

Project Settings:
Additional project information.
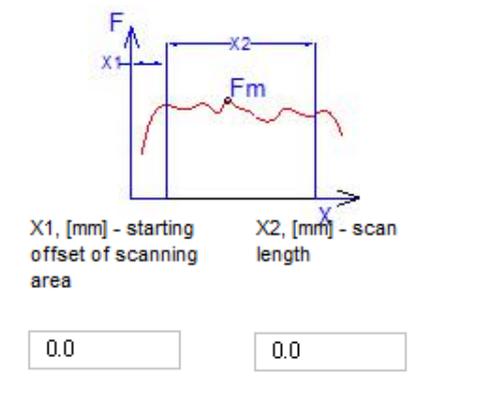
In 'Sample description' tab, user will enter sample data: Nominal load, length, width, sledge weight, etc...

Software special functions

Software modes

In software exist 3 modes:

- **OFFLINE mode**- in this mode you can work without machine. Also this mode automatically activates, when software suddenly loses connection with machine.
- **ONLINE mode**- this mode is used for setting up machine and preparing for test.
- **RUNNING mode**- this mode automatically activates when machine starts test.

OFFLINE mode

We use this mode, when software loses connection with machine, or you want use program without machine (for example: user wants analyze test results in different office, where ZPM machines not present).
In this mode you can load saved curves, make reports etc.

ONLINE mode

In this mode, software is connected with machine and ready to transmit data to machine and receive data back from the machine.
You can control machine, prepare for test etc...

RUNNING mode

In this mode software is connected with machine and receives test data from machine.
In this mode machine controls buttons locked, expect "Stop" button.
Chart control tool is locked too.

Automatic reconnect

When connection with machine is lost, software automatically tries to reconnect. If within 10 attempts communication is not restored, software automatically switches to OFFLINE mode.

Revision history:
26.03.2019 – D.