

## WDW-150S Computer Control Electromechanical Universal Testing Machine

("S" denotes Special configuration/design with higher performances compared with our WDW series)

### Application:

Model **WDW-150S** computer control electromechanical universal testing machine is designed and manufactured according to ASTM, ISO, DIN etc standards. It is computer-controlled precision testing machine, suitable for wide range of material for tension, compression, bending, shearing test etc. It has high stability as well as high precision, equipped with PC system & printer for graph, test result display, printing & data processing. Complete with modulus for metal, spring, textile, rubber, plastic and other material testing. It is widely used in many fields such as industry factories, mineral enterprise, universities and research institutes.

### Main Specifications:

- Max. Load (kN): 150KN
- Effective measuring range of load: 1-100% of F.S.
- Load accuracy:  $\leq \pm 0.5\%$
- Deformation accuracy:  $\leq \pm 0.5\%$
- Displacement resolution: 0.001mm (encoder resolution: 2000 pulse/turn)
- Frame rigidity:  $> 6.5 \times 10^{-6}$  N/mm
- Test speed: 0.001mm/min ~ 800mm/min
- Test speed accuracy:  $\leq \pm 0.1\%$
- Spacing of grip to grip: 700 mm
- Total crosshead travel: 1275 mm
- Space between columns: 650 mm
- Power: 380V, 3phs, 50Hz
- Special drive system provides a displacement resolution of less than 10 um by **PANASONIC** HPLN-150 AC Driver System (High Precision Low Noise Driver System)
- Low noise: < 70dB at 1m distance
- Dimensions: 1320×840×2500mm
- Weight: 2500kgs

### Standards:

Load meets or exceeds the following standards: ASTM E4, ISO7500-1, ISO-379, EN 10002-2, BS1610, DIN 51221.

Strain measurement meets or exceeds the following standards: ASTM E83, ISO 9513, EN 3846 and EN 1002-4.

Tensile test at room temperature, ISO 6892, ASTM A370, ASTM E 8, DIN EN 10002-1

Tensile test on reinforced steel: ISO 10606, EN 10080

Compression test DIN 50106, ASTM E9.

CE Conformity Certifications for WDW-: Test Control System, Safety Operating, Electrical Interference

### Load Frame:

The floor type load frame is frequently the choice of those in the composites and metals industries where



specimen size and strength require higher load capacity with the features as follows.

**High accuracy:**

The preloaded precision ball-screw ensures high speed and position measurement accuracy.

**Safety features:**

The testing machine stops automatically when the change in the test force exceeds a specified value during operations.

**Large space in the working area**

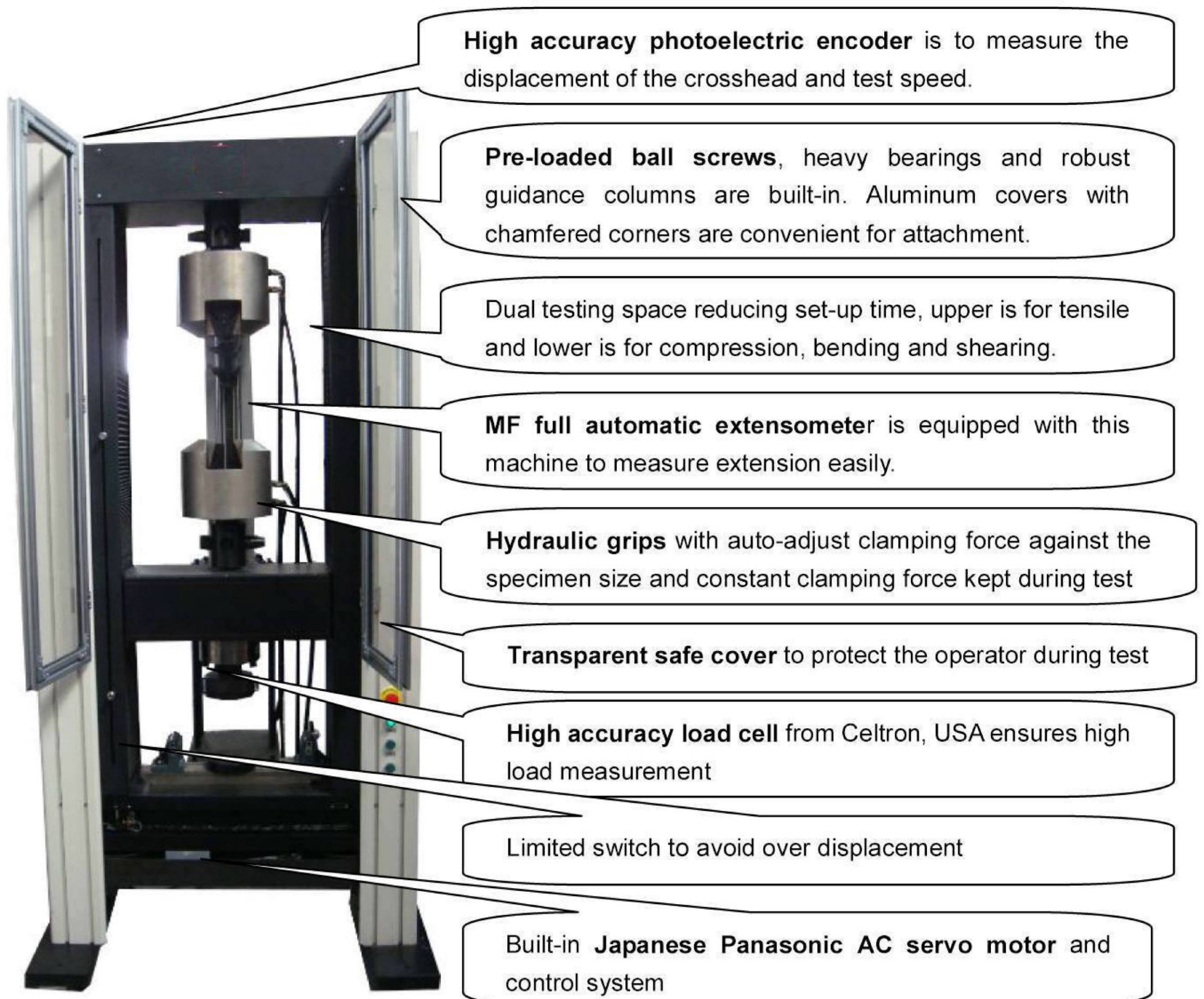
The insides of columns provide wide space for the operator.

**Over-stroke limiter**

The range of the crosshead movement mechanically limited.

**Comfortable working area**

The wide legroom under the load unit provides a comfortable working area for attaching and removing jigs.



**The following configurations make this machine to be top level.**



### 1. Model MFL-300 Full automatic extensometer from Ms. MF Germany

It is suitable for almost all samples of an initial gauge length ( $L_0$ ) from 10 mm (variable gauge length up to 300mm). Its low clamping forces combined with high measurement accuracy makes it highly suitable even for small, notch sensitive test samples. The MFL can be connected to partly or fully automatic testing machines with hydraulic grips. The strain can be measured from the elastic range to fracture for almost all types of samples. Some advantages of the MFL are as following,

- ✧ Two-sided measurement by means of 4 measuring sensors.
- ✧ Very high resolution up to  $0.01 \mu\text{m}$  is possible over the complete measuring range.
- ✧ Very low (2.5cN) clamping forces even allow testing of foils and thin wires
- ✧ The  $L_0$  position (symmetrically placed measuring arms with respect to the sample centre) and  $L_0$  value can be exactly set under computer control.
- ✧ The round knife edges can be utilized along their entire perimeter by turning them when necessary.



### 2. High Precision Spoke Load Cell Model 98001 made by Celtron, USA

Capacity: 150kN, tensile & compression type

Connections between High precision spoke load cell 98001 and our fully automatic testing machines with hydraulic controlled force grips and Maxtest Software is done by our hardware & software engineers in our factory.



### 3. Hydraulic controlled forcing clamping grips:

The clamping force in our Hydraulic controlled forcing clamping grips can be automatic adjusted by forcing increasing when testing. Also clamping pressure can be adjusted according to size of specimens or clamping force. Adjusting clamping force can be done through our software. It has inserts for round specimens up to 25mm diameter and for flat specimens having max 35 mm width.

The following is hydraulic power pack for this grip, which is consist of oil tank, oil pump motor, oil filter, servo valves, directional valve, pressure gauge and functional buttons etc.





#### 4. Low and Medium Temperature Environmental Chamber LMTEC-150C

##### Applications:

This series of environmental chambers are specially used for universal testing machine, and according to the needed temperature to equip with corresponding Load frames to complete very low temperature and medium high temperature test for kinds of metallic or for other special materials.

The chamber consists of chamber body, controller, high & low temperature grips, LN2 Dewar Tank and moving chart. The temperature can be controlled automatically by a Camera PID Controller with high accuracy. Also it can make data communications with the computer. It is the ideal attachment for material test equipment used for university, research institution and enterprises.



Environmental Chamber

##### Main features of LMTEC-150C:

Low temperature section adopts box type structure; Cooling by liquid Nitrogen; Control the temperature by controlling the spraying quantity.

High temperature section is heated by resistance wire.

The temperature control adopts the advanced fuzzy control mode, and the temperature can not overshoot with little fluctuation.

Equipped with a moving chart to move in or remove the chamber from the WDW-150 Machine Frame Test

Chamber LMTEC-150C includes LN2 Dewar Tank, Fixtures (Pull rods and grips) for low temperature tests, 1 set



LN2 Dewar Tank

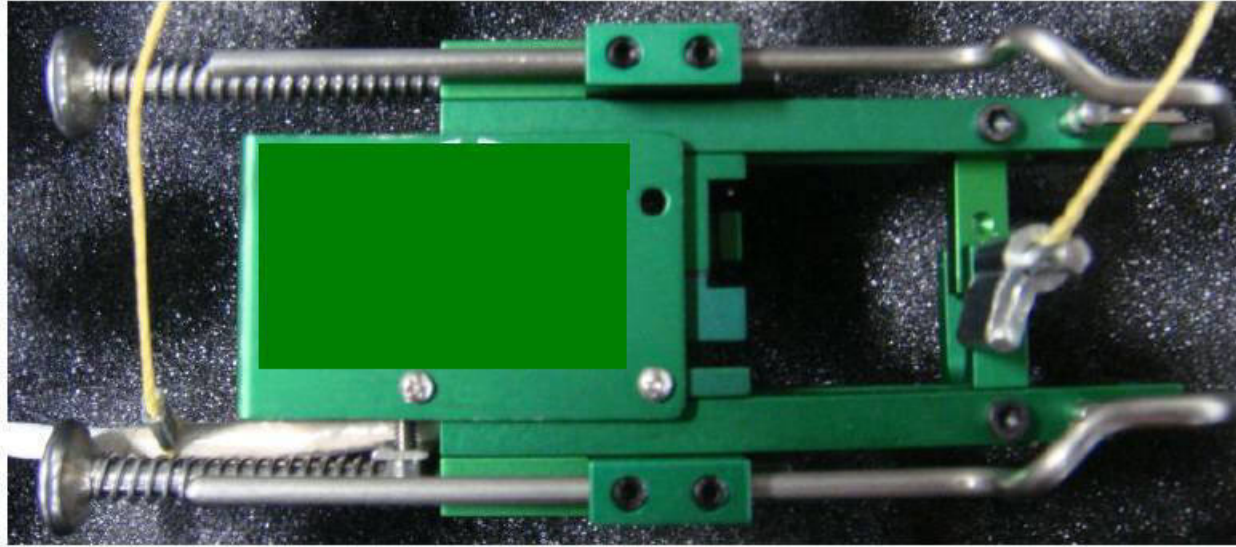
##### Main Specifications of the LMTEC-150

Name	Specifications		Remarks
Chamber	Temp. Range	-150℃ to +150℃	Including the corresponding pull rod
	Temp. Fluctuation	±2℃	
	Temp. Grads	3℃	
	Effective space	300×270×450mm	
	External dimensions	460 ×430×610mm	
Moving Chart	Equipped according to the dimension of the load frame		Adjusting height 100mm

LMTEC-150 is equipped with one Epsilon Technology 3542 LHT Extensometer

3542 LHT Extensometer, Model No.: 3542-025M-010-LHT





- Temperature Range: -150C up to +200C
- Gage Length, L0: 10mm or 25 mm
- Class: 0.5 as per ISO 9513
- Linearity: 0.15% FS
- Resolution: 0.001% from FS
- Measuring Range: +25%/-10%

## 5. SF1200 High Temperature Split Furnace for Universal Testing Machine

### Applications:

This series of environmental chambers are specially used for universal testing machine, and according to the needed temperature to equip with corresponding Load frames to complete high temperature test for kinds of metallic materials.

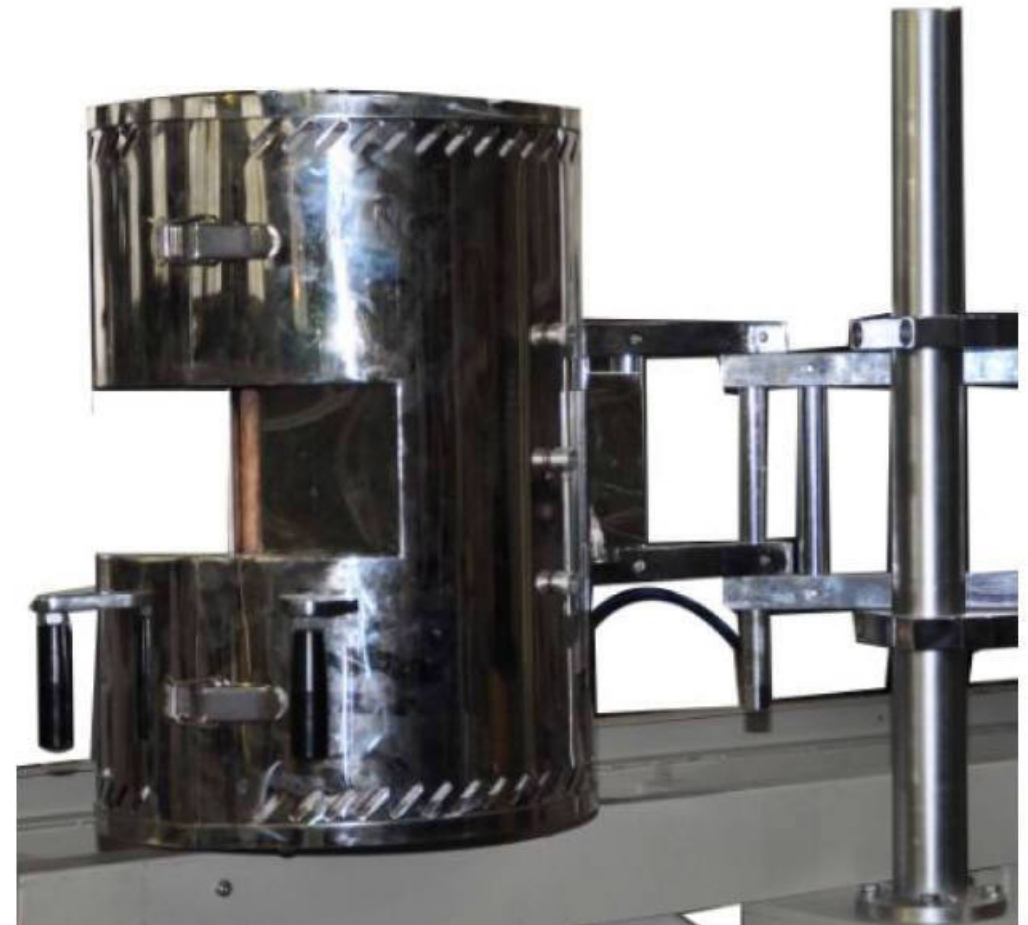
The chamber usually consists of chamber body, controller, high temperature grips and moving chart. The temperature can be controlled automatically by PID Controller with high accuracy. Also it can make data communications with the computer. It is the ideal material test equipment used for university, research institution and enterprises.

### Main Specifications

- Working Temp. range: 100°C~1200°C
- Length of effective soaking zone: 450mm
- Furnace pipe & electric furnace size:  
Furnace pipe:  $\phi 90\text{mm}$  (Inner Dia.) $\times 700\text{mm}$  (L),  
Furnace:  $\phi 500\text{mm}$  (outer Dia.) $\times 700\text{mm}$  (L);
- Furnace Temperature accuracy (°C):

Test Temperature	Temperature fluctuation	Temperature gradient
$\leq 600$	$\pm 2$	2
$> 600 \sim 900$	$\pm 3$	3
$> 900 \sim 1200$	$\pm 4$	4

- Measure & Control temperature meter: digital display, sensitivity: 0.1°C;
- Auto compensation error of cold end:  $\leq 0.5^\circ\text{C}$ ;
- To be matched freely with thermocouple.
- Moving speed of lower grip holder





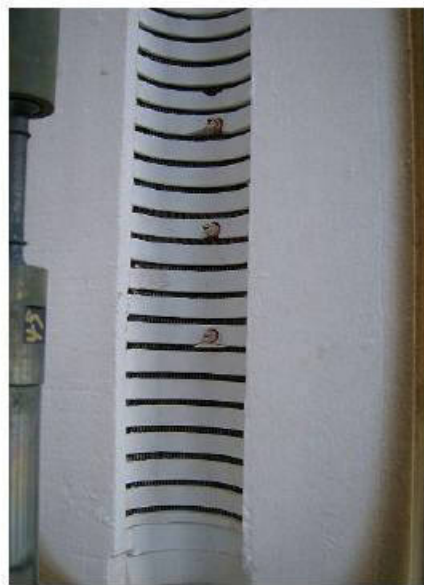
Speed range: 0.1~50mm/min;

Error:  $\pm 0.5\%$

- Timing error:  $\pm 0.2\%$
- High temperature tensile grip for specimen dia.  $\Phi 16\text{mm}$ . (grips of  $\Phi 8$ ,  $\Phi 12$  &  $\Phi 20$  are optional for end user)



Furnace



Thermocouple



water-cooling system



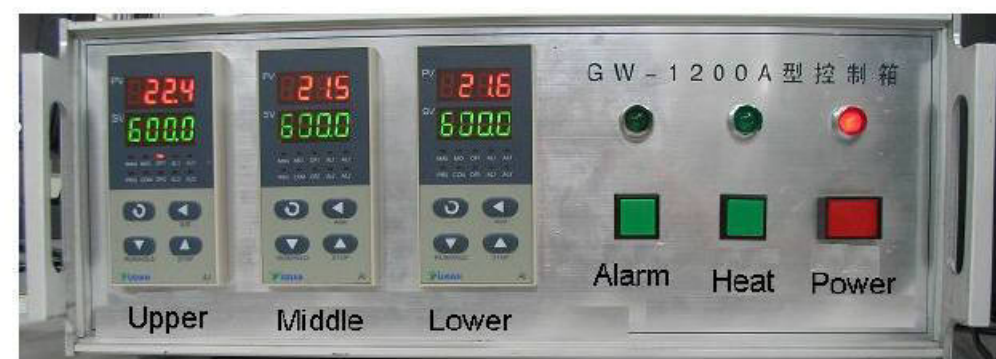
High Temp. Grip for round specimen



For Flat specimen



Upper and lower pull rod

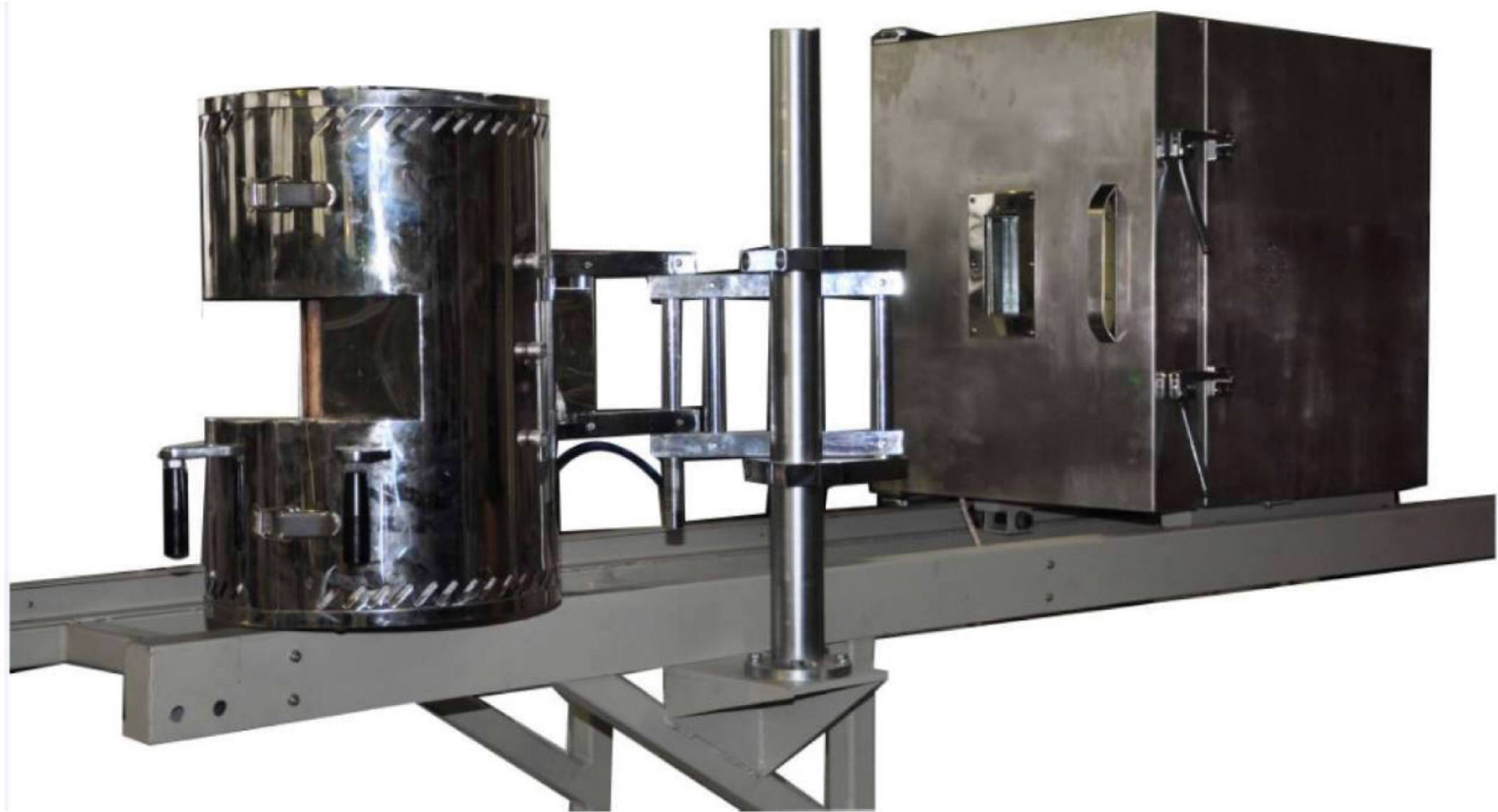


PID temperature controllers with RS-232 port



High temperature extensometer Model 3548HI-025M-050-ST from Ms. Epsilon, USA

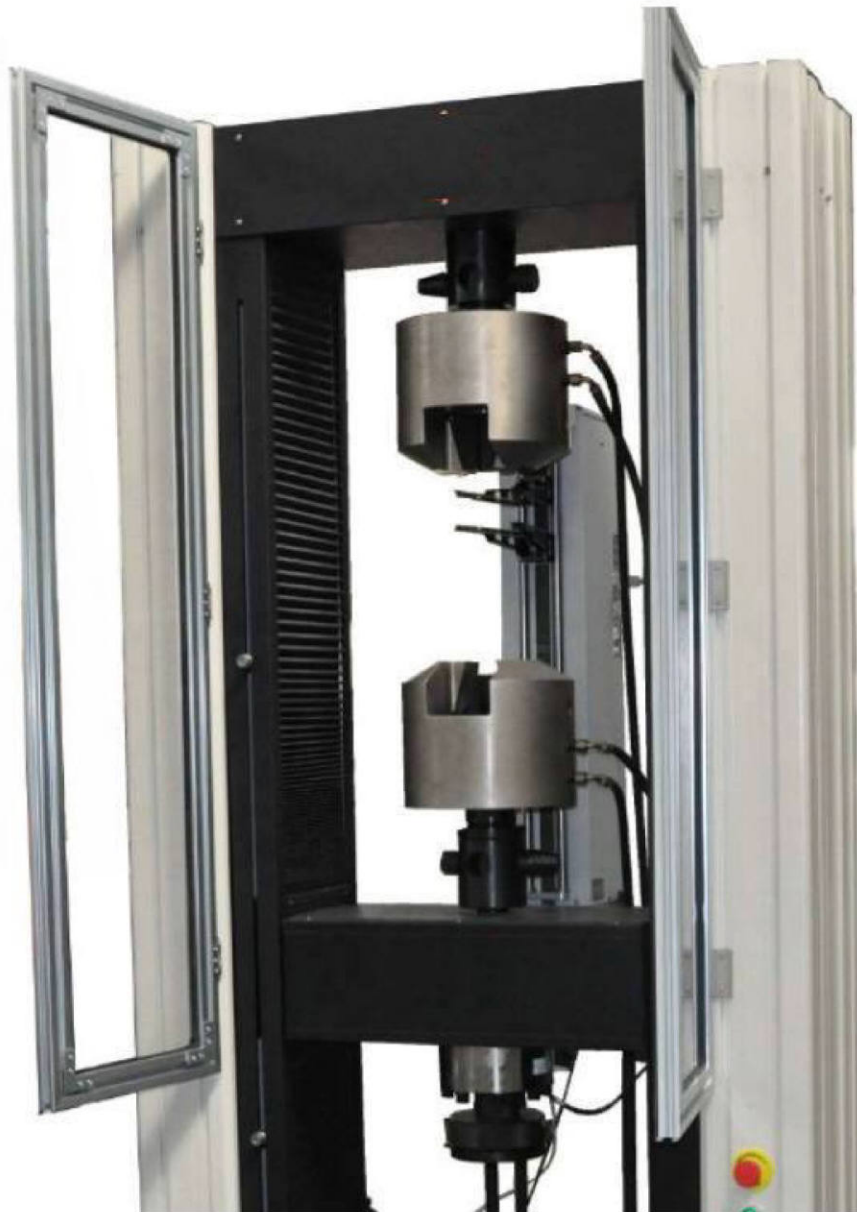




Environmental Chamber and Furnace are mounted in one moving cart

#### 6. Transparent safety door

Our Transparent safety door attachment included on WDW-150S meets CE safety requirements.



#### ● Other accessories:

1. Photoelectric encoder  
Measure the displacement

1 set





2. Computer & printer & software 1 set

Computer: Dell, Printer: Hp

Software: English Version (For details, please refer to ANNEX-1)



3. Servo Control system 1 set

Maker: Panasonic, Model: HPLN-150 AC Driver System (High Precision Low Noise Driver System)

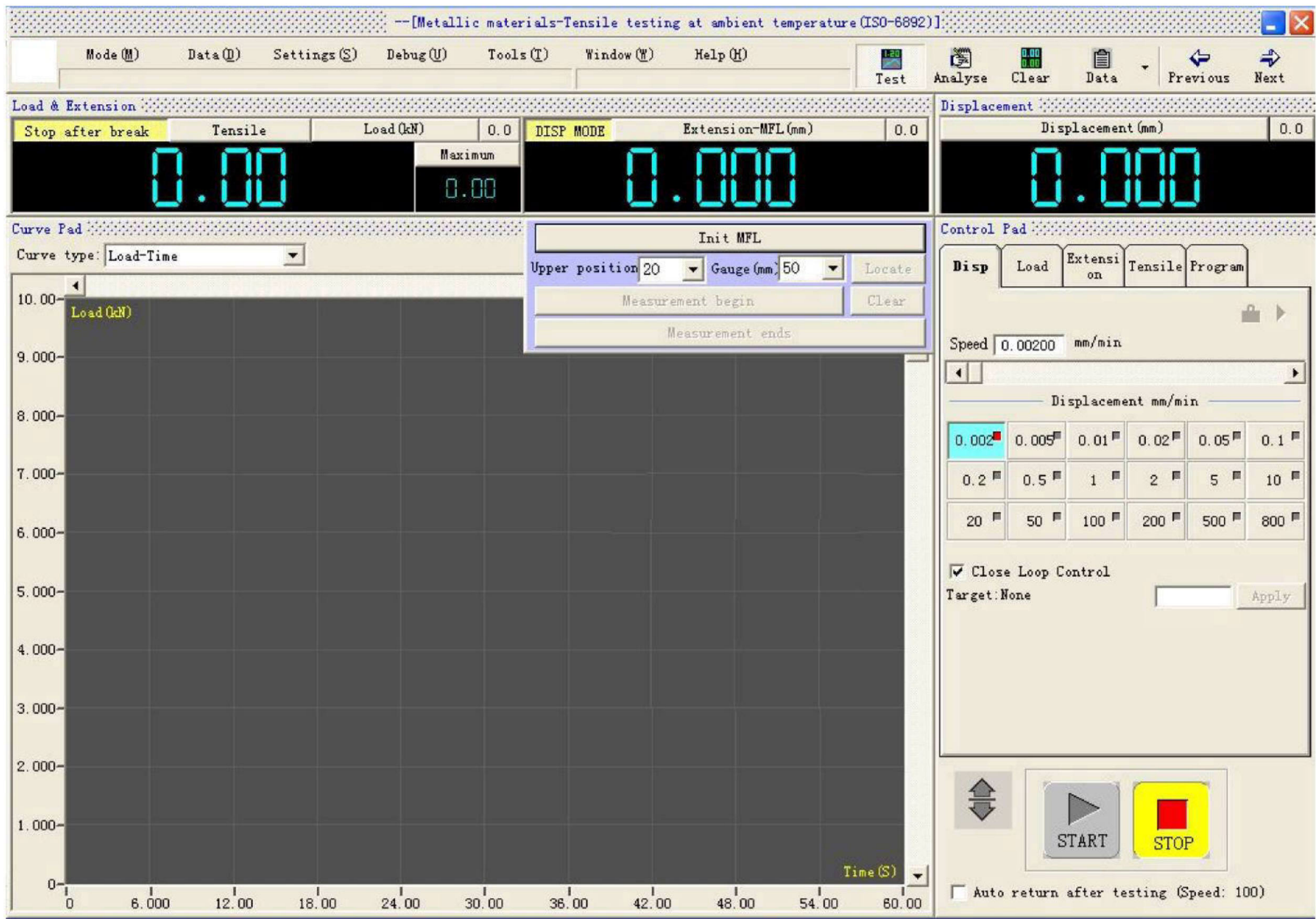


**Annex-1**

**Features of Measuring & Control software**

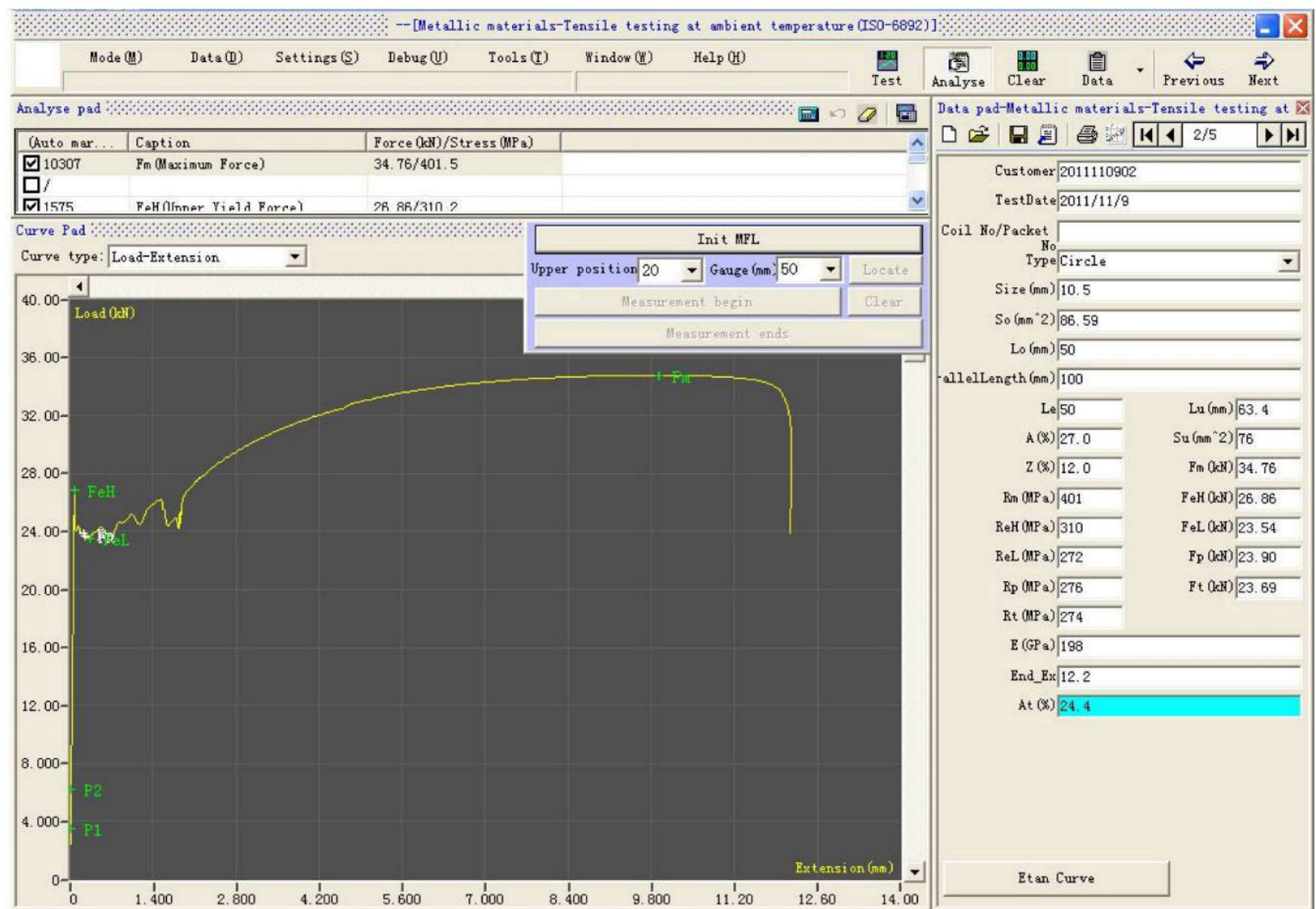


software refers to the software characteristics of the top manufacturers of testing machine in the world and proposals of various testing requirements from the end users, and combines all the advantages of former versions of software with lots of new features. Optimized software structure makes the testing operation easy, convenient and powerful.



Main Interface of WDW-150S with MF extensometer options





The control modes, test data and curves can be displayed in real time in the main interface and can be shifted at any time.

**Debug Toolbox (MaxIni 1.91/2009.8.26)**

Option | Test Standards | Remote Controller

System | Load Sensor | Extensometer | Control Settings | Advance

Machine Type: (Servo control)Electro-Hydraulic Universal Testing Machine

Card ID: 0

VAC Driver: 40

Application Title:

Language File: Polish.txt

☐ Disable real time

Apply

Change password

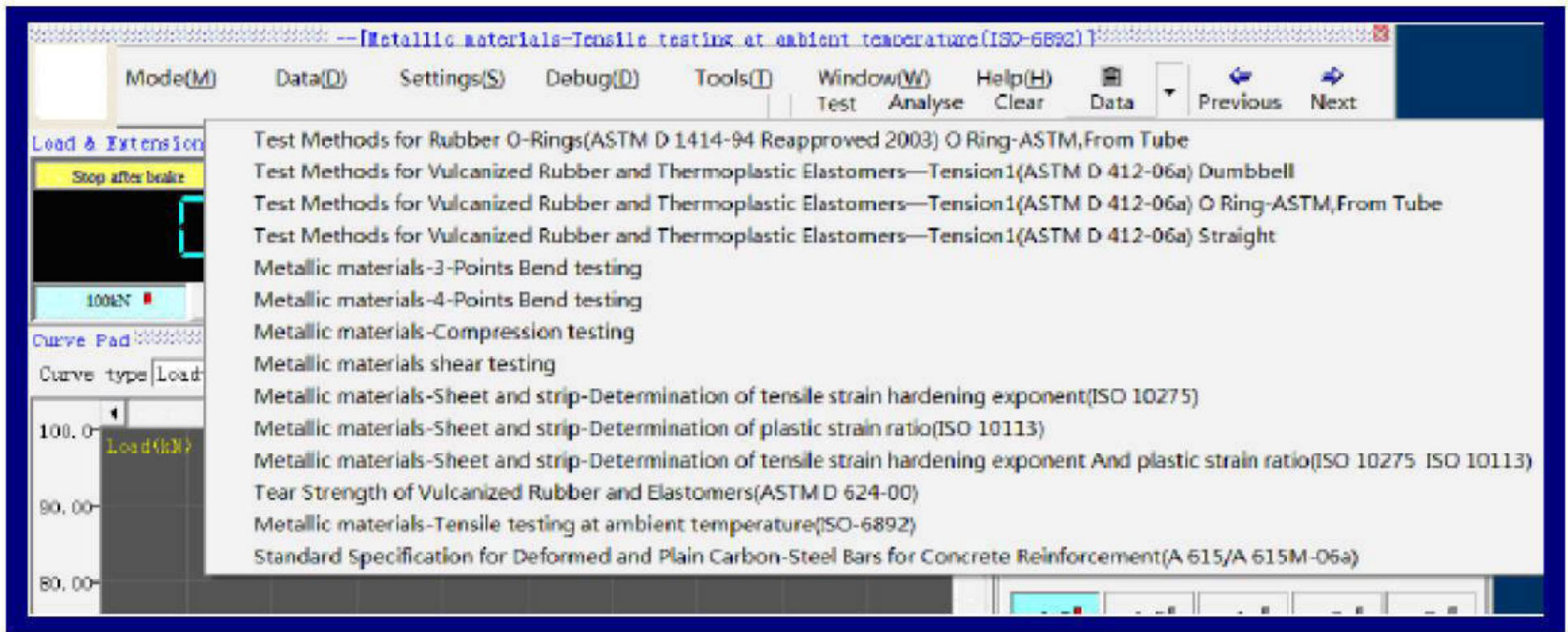
OK Cancel



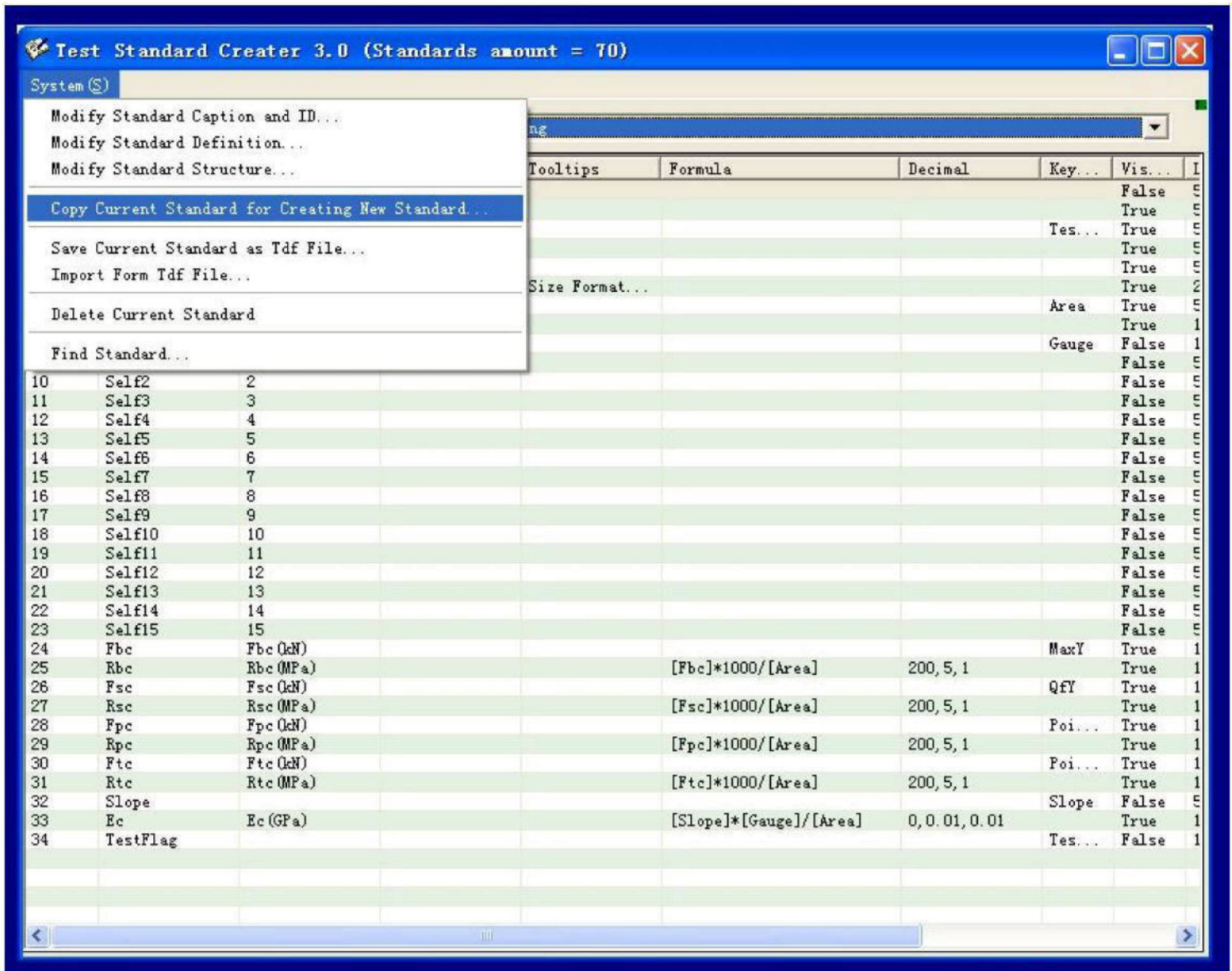
The deep-seated parameters of software are contained in Debug Toolbox

Multi-language function:

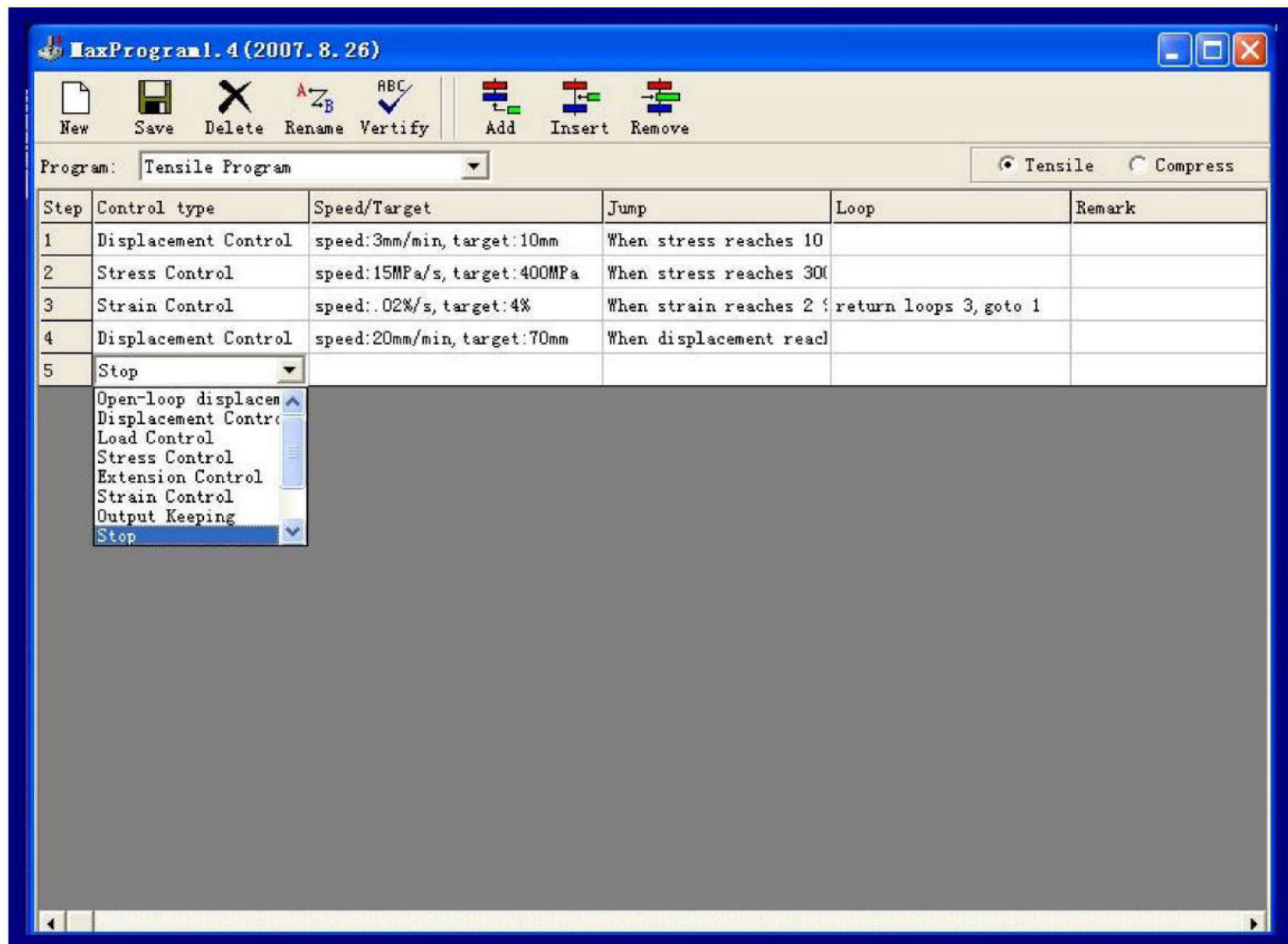
With the flexible language edited function, it can support multi-language such as English, Chinese etc. and you can translate the software language into the native language by yourself.



Software supports all kinds of popular testing standards i.e. ISO, ASTM, BS EN, DIN, JIS, GB etc. Users can modify and add own testing standards and methods.

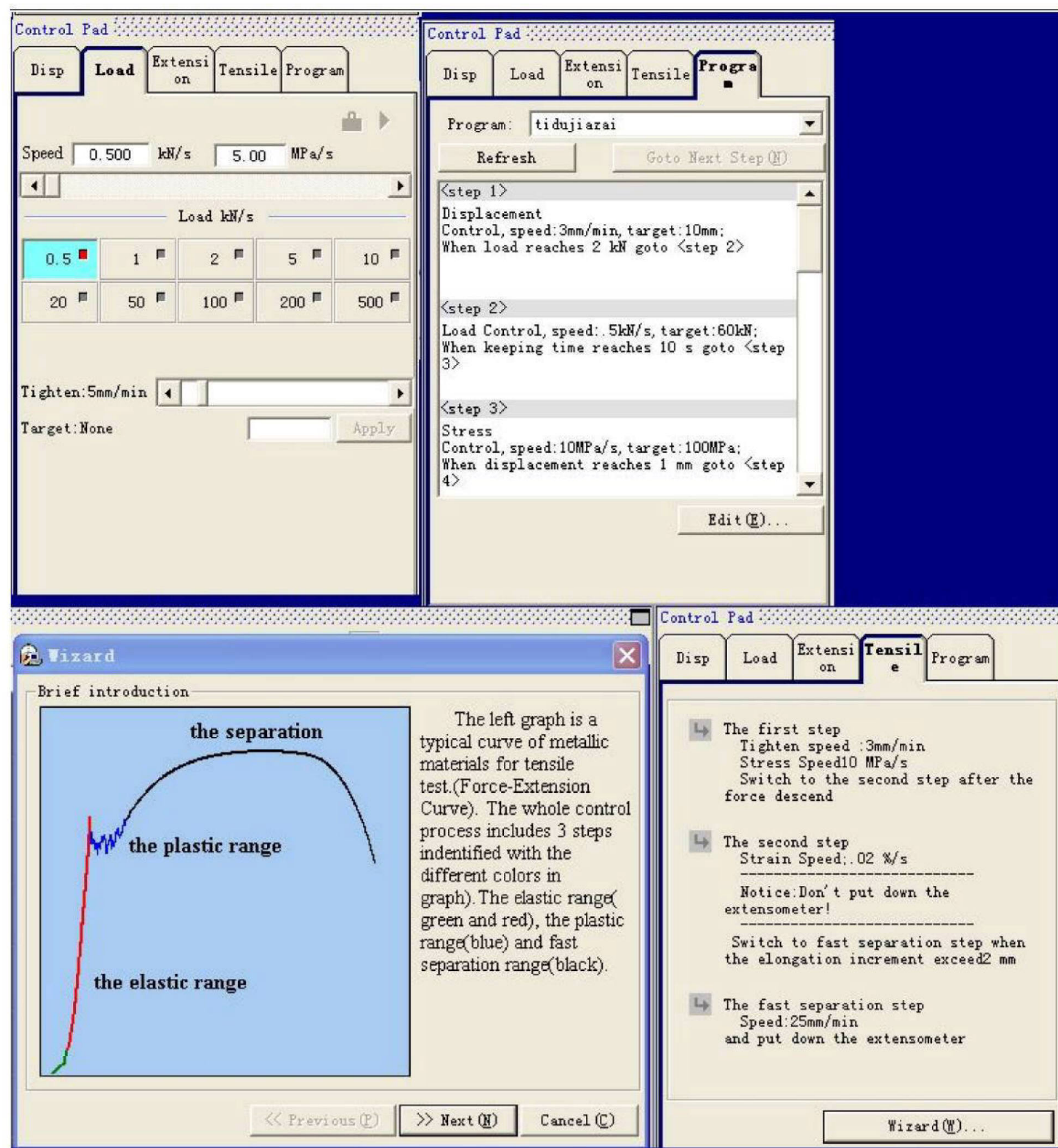






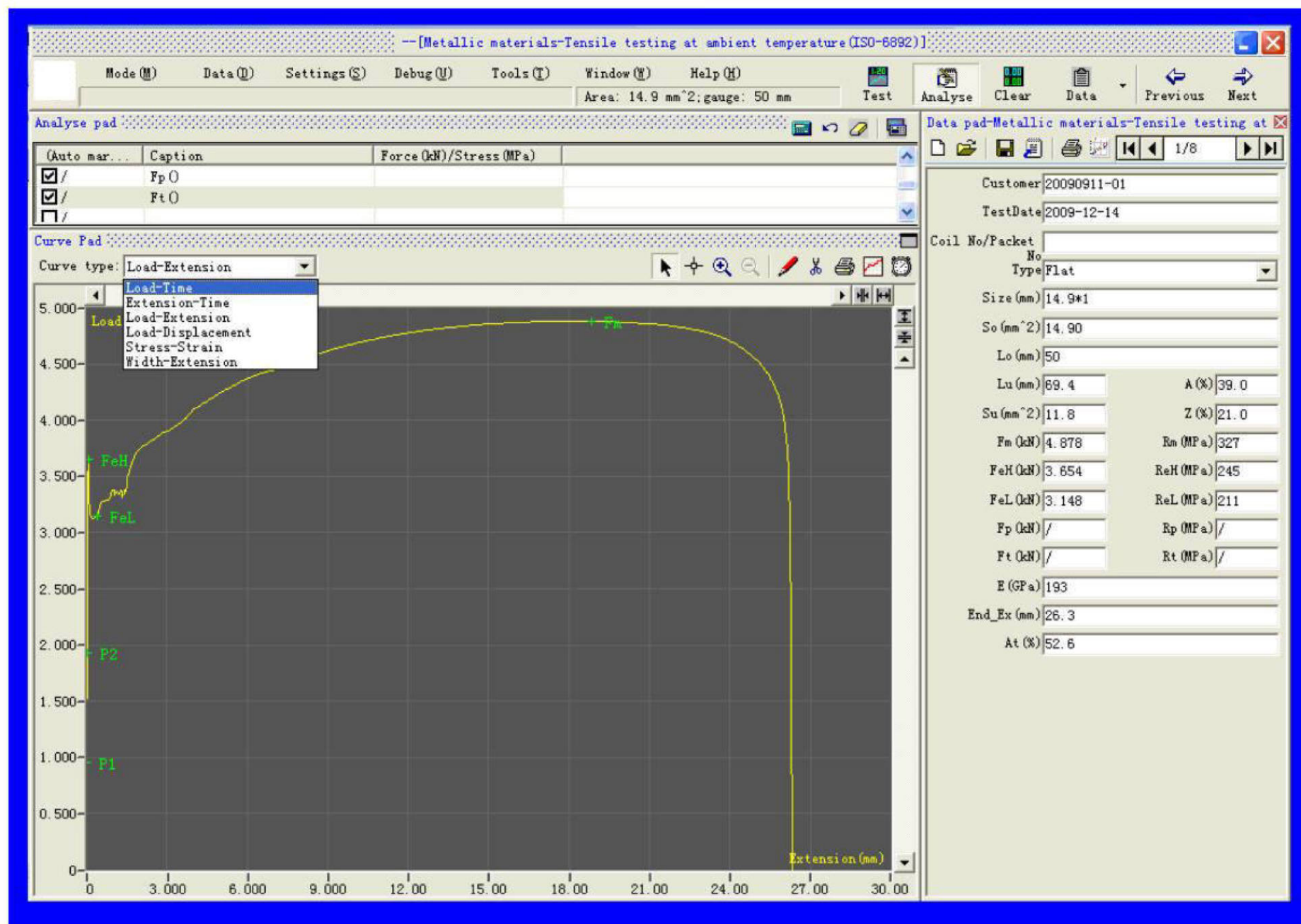
MaxProgram Editor possesses of multiple full digital control modes, i.e Displacement control, Stress (Load) control, Strain (Deformation) control, Low cycle control. User can edit the most complex and logical procedure by MaxProgram Editor. The combination of above functions can meet all kinds of routine test purpose.





Through the Tensile Program Editor, user can setup test steps according to the requirements of standards.

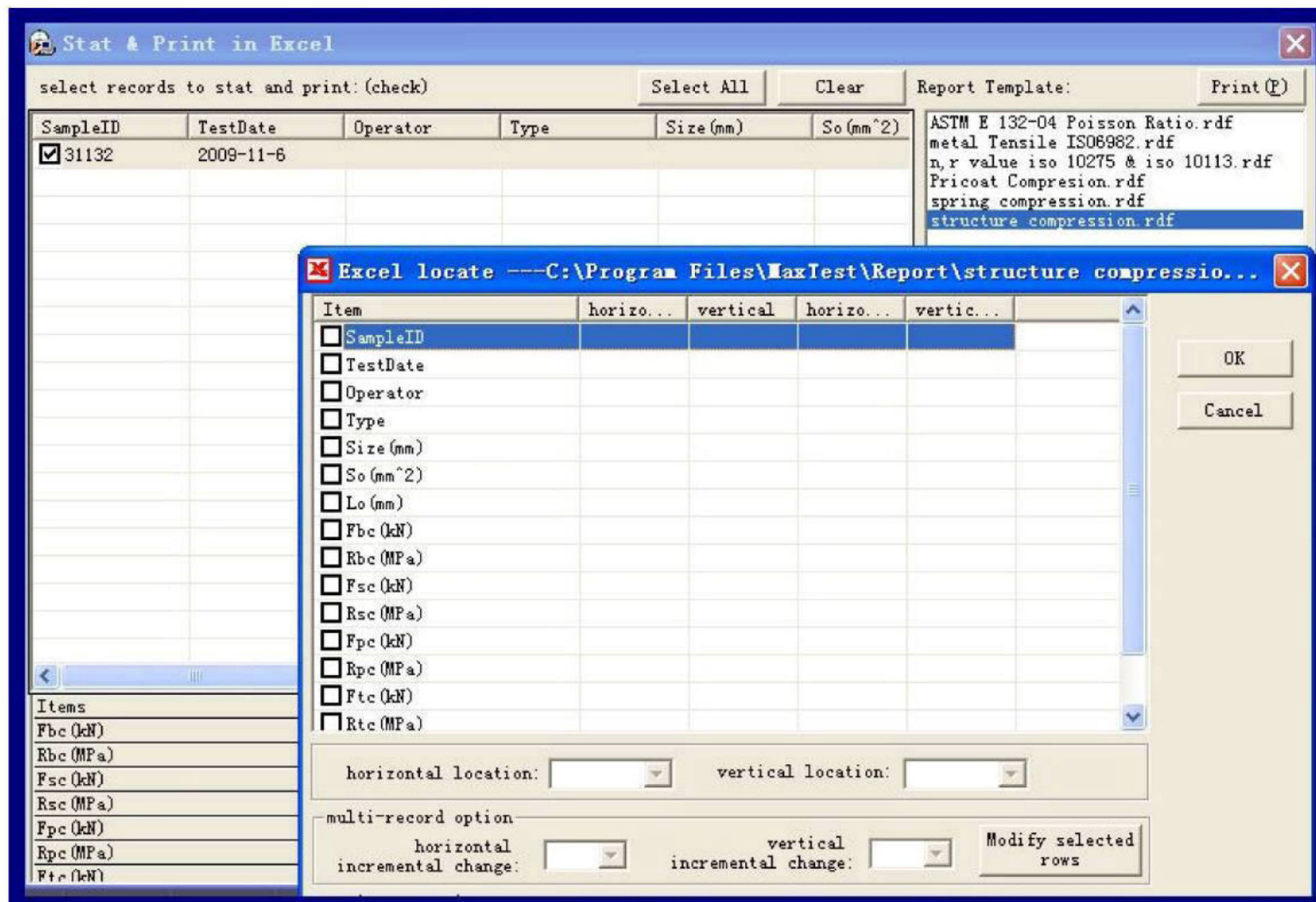




Multiple curves function in real time display including Load-Extension, Load-Displacement, Stress-Strain, Load-Time, Extension-Time, and Width-Extension.

Characteristic points such as Elastic Modulus, Yield points, Rp, Rm etc. can be marked on the curves, for a highlighted and visual observation.

Test result can be obtained automatically and also it can be got from the test curves manually.

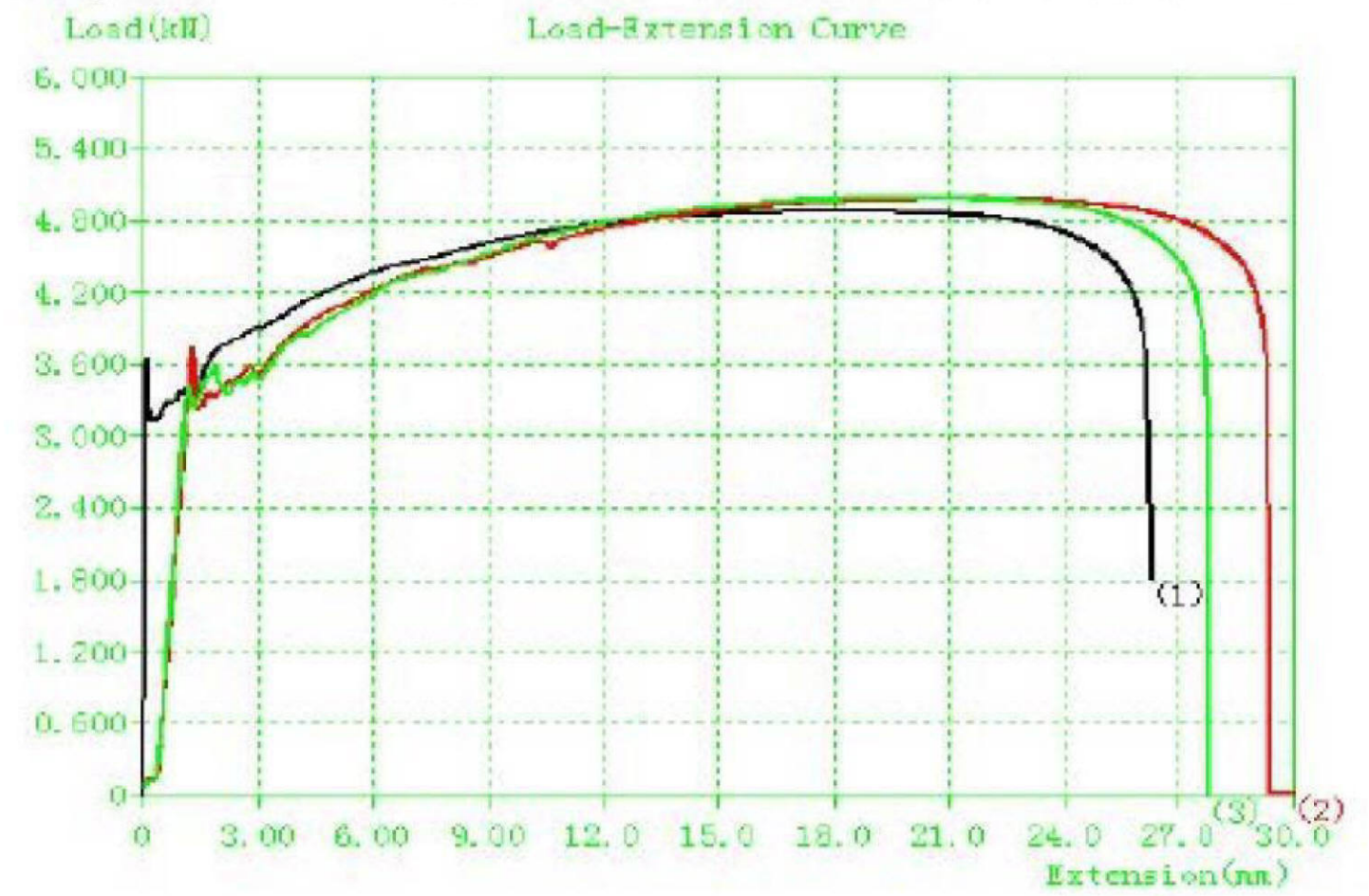




software contains all kinds of Report Templates. Customer can design various testing reports according to the requirements. Test result and curve can be printed in Excel or the auto-creating report template.

Metallic materials -- Tensile testing at ambient temperature  
ISO 6892 : 1998

TestDate	2008-9-11		Operator	LW				
Temperature	20℃		Size(mm)	14.9*1				
Lo(mm)	50		So(mm^2)	14.9				
PrintID	SampleID	Rm(MPa)	ReH(Mpa)	ReL(MPa)	Rp(MPa)	E(GPa)	A(%)	Z(%)
1	QD01	327	245	210	233	193	39	21
2	QD02	334	251	223	234	198	42	23
3	QD03	335	240	229	228	205	38	27
4								
Max value		335	251	229	234	205	42	27
Min value		327	240	210	228	193	38	21
Average value		332	245.3333	220.6667	231.6667	198.6667	39.6667	23.667





DISP MODE	Extension (mm)-Extensometer	0.0
<div>0.000</div>		
DISP MODE	Large Extension (mm)	0.0
<div>0.000</div>		
DISP MODE	Extension-MFL (mm)	0.0
<div>0.000</div>		
Init MFL		
Upper position	50	Gauge (mm) 40
		Locate
Measurement begin		Clear
Measurement ends		

Except the clip-on Extensometer, software supports Long Travel Extensometer, Full Automatic Extensometer, video Extensometer, laser Extensometer, and it can be added eight Extensometers at most.

Select load sensor units

Select

☐ 5kN

☒ 20kN

☐ 100kN

☐ 300kN

OK

Cancel

software supports four load cells.