

**GT-100E 100KN Computer control
Electromechanical universal testing machine**



1. Introduction

GT series electromechanical testing machines offer force, displacement or deformation closed loop testing in tension, compression, flexure, shear, tear and peel etc. The machine can be equipped with a variety of accessories including: grips, fixtures, compression frames, thermal cabinets and extensometers covering all relevant applications as testing of rubber, plastics, foils, films, textiles, adhesives, paper, foods, foams, timber, wires or other metallic or non-metallic specimens and medical, electronic and other components. The load frames are rigid constructed, providing superior axial and lateral stiffness.

2. Application range

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

Strain measurement meets or exceeds the following standards: ASTM E83, ISO 9513, BS 3846, EN 10002-4.

Safety: This machine shall conform to all relevant European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1

2.1 Rigid and reinforced Plastics/ Composites:

EN ISO 6259 - parts 1/2/3 Determination of tensile properties of thermoplastic pipes;

EN ISO 527-1 - parts 1/2/3 Determination of tensile properties on plastics;

ASTM D638 Standard Test Method for Tensile Properties of Plastics

ISO 604 Plastics - determination of compressive properties

ASTM D695- Plastics -- Standard Test Method for Compressive Properties of Rigid Plastics

EN ISO 9969 Determination of ring stiffness on thermoplastic pipes;

ISO 14125 Flexural Properties of Fiber-Reinforced Plastic Composites

ASTM D3846 Standard Test Method for In-Plane Shear Strength of Reinforced Plastics;

EN ISO 13968 Plastics piping and ducting systems -Thermoplastics pipes-Determination of ring flexibility;

EN ISO 844 Determination of compression properties;

2.2 Geo-textiles:

BS EN ISO 10319 Geotextiles —Wide-width tensile test;

ASTM D3950 Standard Specification for Strapping, Nonmetallic (and Joining Methods);

JBT 8521(EN 1492-2): Textile slings. Safety. Round slings, made of man-made fibers, for general purpose use;

ASTM D 6775-02 Standard Test Method for Breaking Strength and Elongation of Textile Webbing, Tape and Braided Material;

2.3 Metal:

ASTM E8 Standard Test Methods for Tension Testing of Metallic Materials;

ISO 6892 Metallic materials — Tensile testing — Method of test at ambient temperature;

BS EN 10002-1Determination of tensile properties on metals;

BS EN 10002-5: Metallic materials —Part 5: Method of test at elevated temperatures;

ASTM E21: Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials;

ISO 783: Metallic materials -Tensile testing at elevated temperature;

EN ISO 7438 Determination of flexure tests on metals

ASTM F606: Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets;

ISO 14589: Blind rivets - Mechanical testing;

SAE J429: Mechanical and Material Requirements for Externally Threaded Fastener;

3. Mechanical Features

3.1 Load Frame:

The frames all incorporate human factor considerations in the design to ensure safety, reduce operator fatigue, and provide the highest level of flexibility. Extremely robust crosshead guidance is incorporated in all frame designs providing the highest level of lateral crosshead stiffness.

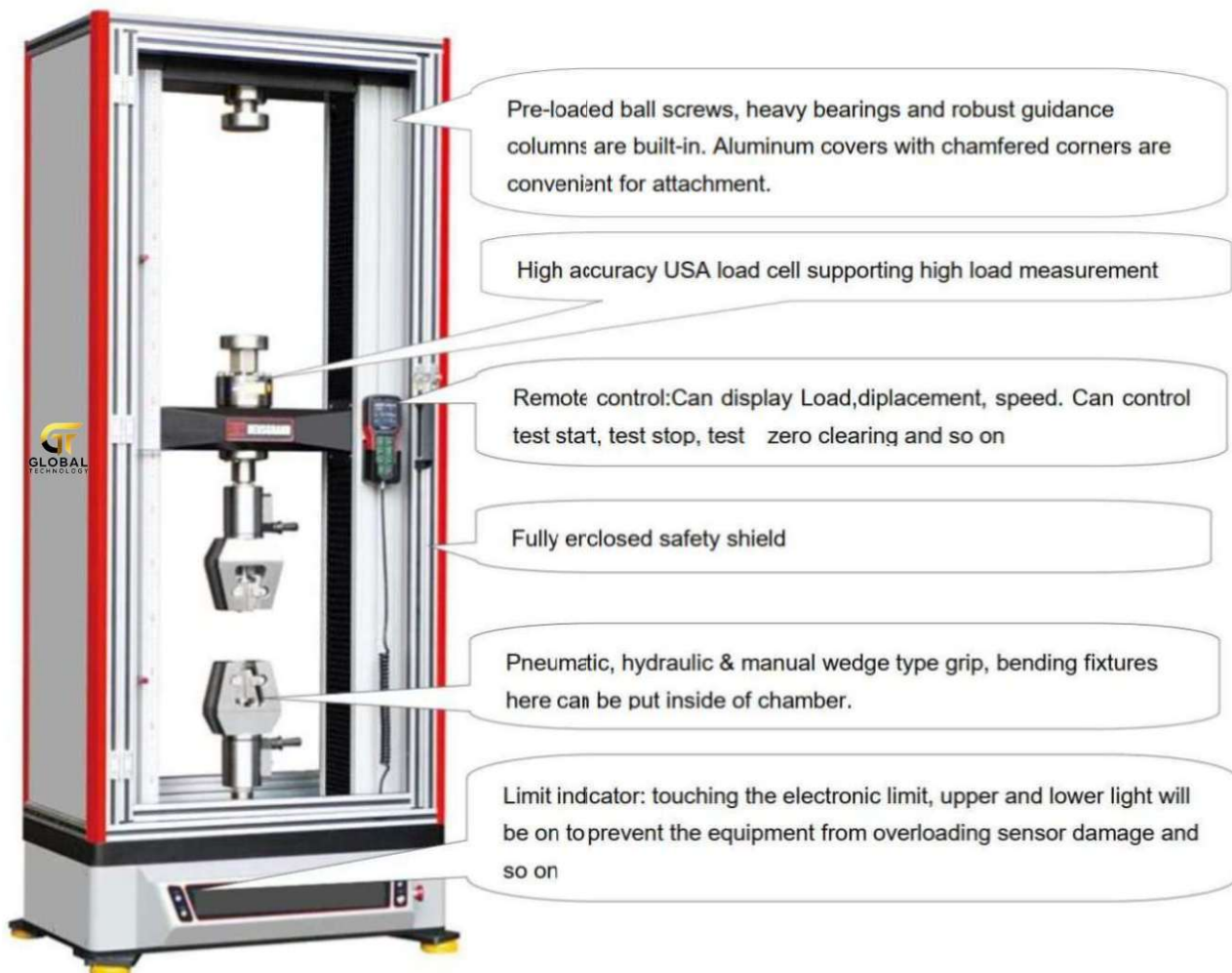
3.2 High accuracy: The preloaded precision ball-screw with high speed & low noise ensures high speed and position measurement accuracy and less noise.

3.3 High stiffness frame: The load frame is with 4 columns and heavy duty pre-loaded bearings. Preloaded ball screws, precision guidance columns, and a symmetrical drive system improve frame stiffness and alignment

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

3.5 Over-Travel Limits




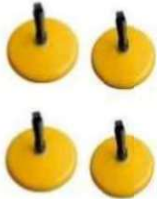


Dual over-travel limits, located on the front console, help prevent crosshead overshooting and sensor overloads. A graduated rule along the column can be used to preset these limits to specific distances.










4. Specifications:

MODEL	GT-100E
Load Capacity	100kN
Calibration standard	Class 0.5 according to ISO 7500-1 - Meets ASTM E-4
Testing Load Accuracy	±0.5%
Testing Load Range	0.4%~100%FS
Load Resolution	1/500000FS
Deformation measuring range	0.2%~100%FS
Deformation accuracy	≤±0.5%
Deformation resolution	1/500000FS of the max deformation
Test control mode	Three closed loop control, stress, strain and displacement
Displacement accuracy	Within ±0.5% of the value
Displacement resolution	0.04μm
Controls parameter	
Constant force control range	0.001%~5%FS/s
Constant force control accuracy	When the rate is < 0.05%FS/s, it is within ±2% of the set value; when the rate is ≥0.05%FS/s, it is within ±0.5% of the set value;
Constant deformation control range	0.005~5%FS/s
Constant deformation control accuracy	When the rate is < 0.05%FS/s, it is within ±2% of the set value; when the rate is ≥0.05%FS/s, it is within ±0.5% of the set value;
Crosshead speed range	0.001~500mm/min
Crosshead speed accuracy	Within ±0.5% of the value
Mainframe parameters	
Testing space (Crosshead Travel)	1100mm
Max. Tensile Testing Space	650mm
Test width	550mm
Overall Dimensions	948x660x1978mm
Weight	about 680kg
Power supply	1kW,AC220V±10%, 50Hz/60Hz
<p>Note:</p> <p>*Extra wide and/or extra height frames are available.</p> <p>*Power supply system is completely customizable.</p> <p>*Tensile space, test width, and speed is completely customizable.</p>	

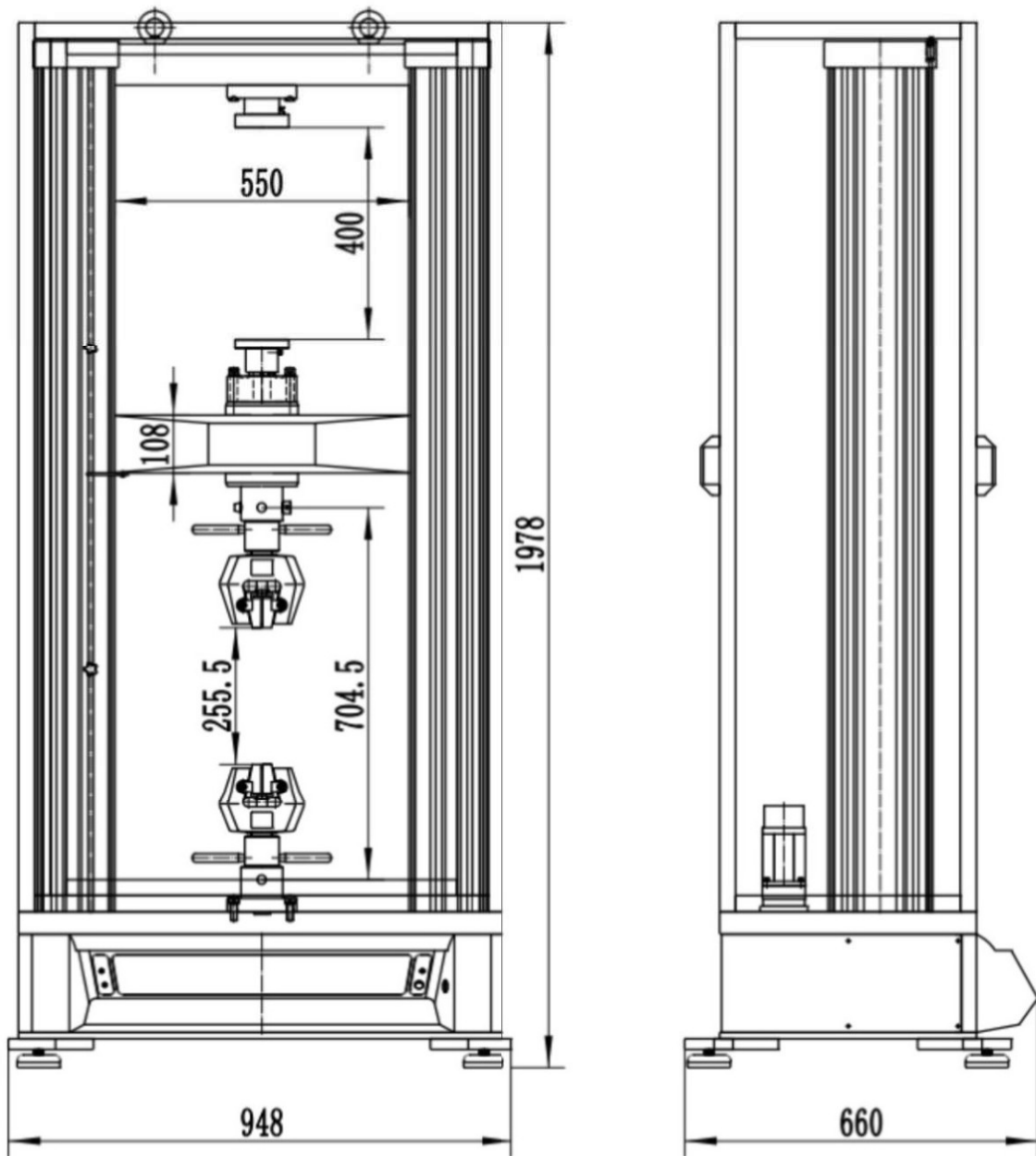
5. Standard Accessories:

NO.	Part Name	Picture	Part Name	Qty.
1. Machine Host				
1.1	Electronic universal testing machine host		100KN, 4 column 2 ball screw frame structure Double space (up tensile, down compression)	1set
1.2	AC Servo Control system		Taiwan DELTA	1set
1.3	Reducer gear		Japan BEITTO	1set
1.4	Rubber shock-absorbing Pad		Effectively adjust the level of the equipment, reduce the vibration of the equipment during the test	4 set
2. Testing machine control system				
2.1	100KN Load cell		Calibration within 0.5% accuracy can be carried out as per ASTM E4, ISO7500-1, EN 10002-2, BS1610, DIN 51221 standards.	1set
2.2	Control system		Force, displacement and deformation closed loop control ,By USB contact computer	1set

2.3	English operation software		Language supports:English, Other optional	1set
2.4	Handheld Unit controller		320 x 240 LED display: Can display Load, displacement, speed. Can control test start, test stop, test zero clearing and so on	1set
2.5	Computer and printer		HP	1set
3. Testing grips(Selected according to customer's sample)				
3.1	Manual Wedge tensile grip (Code:945)		Used for metal and non metal material; Adopt inclined self-locking and rotating handle clamping	1set
	Round Jaw		Round specimen standard: $\Phi 4\text{-}\Phi 9\text{mm}$	Each 1set
	Flat Jaw		Flat specimen Thick:0-7mm;	Each 1set
3.2	Compression test grip (Code:1087)		$\Phi 100\text{mm}$	1set

6. Machine Dimension:

Model	E-Test space	Size	F- Crosshead travel	D- Test width	Weight
GT-100E	650mm	948x660x1978mm	1100mm	550mm	About 680kg



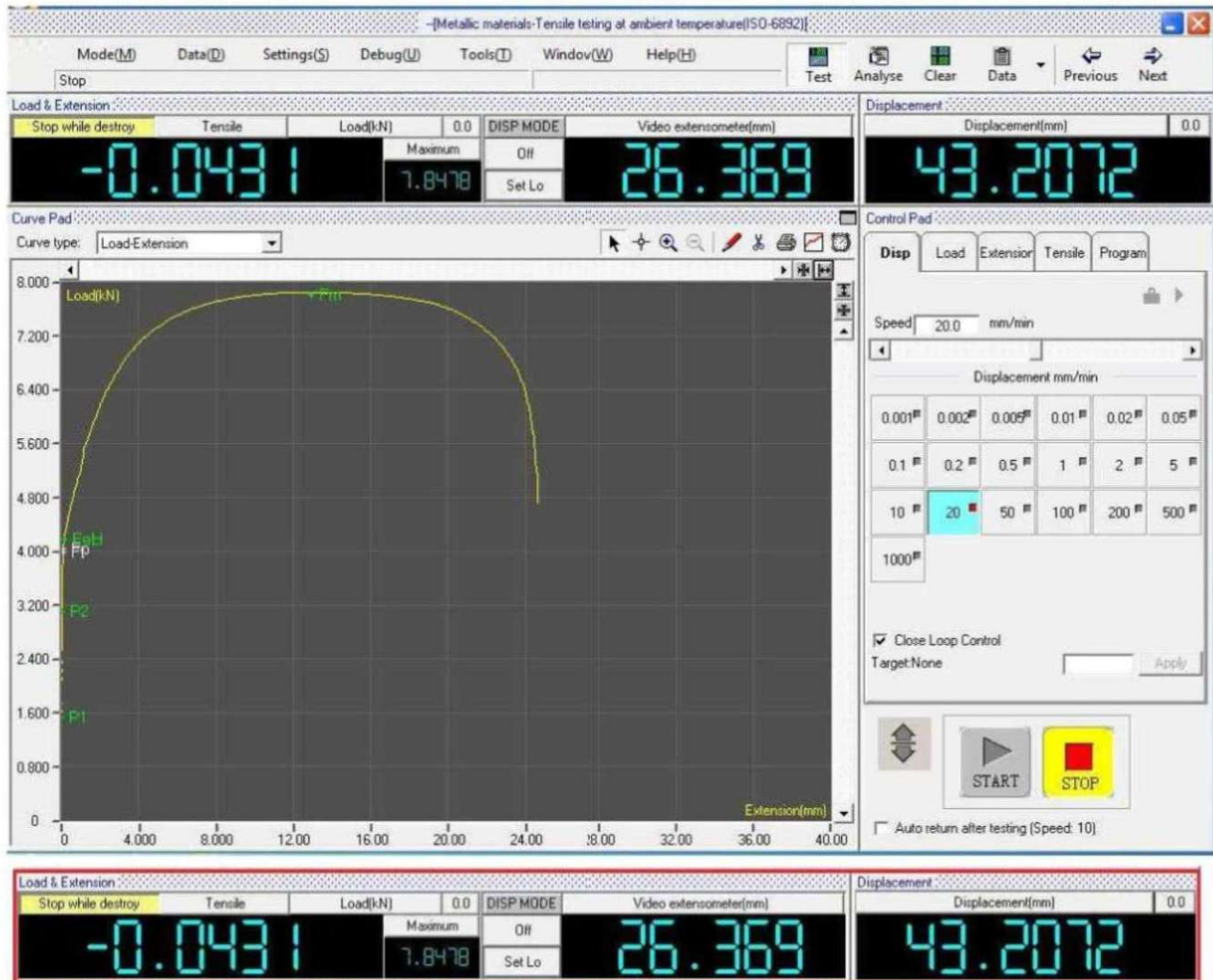
8. Test Controller feature

- Three closed loop (force, deformation, displacement) control, each control ring can be automatically switched, and in each mode of switching to achieve smooth transition without impact;
- Adopts up to 3 channels of 24-bit high-precision A/D converter
- The digital output interface can output 0 ~ 2MHz pulse signal, and the analog output interface can output 16-bit precision -10V ~ +10V voltage signal, which can be used for the control of servo motors, servo valves and other actuators
- Support USB interface mode, the transmission rate is greatly increased to support higher sampling frequency.
- Equipped with sensor self-recognition system, correction parameter memory function, can realize a variety of sensors quickly replacement;
- Equipped with LCD display hand control box, beautiful appearance, easy to operate;
- With limit, overload protection, emergency stop and other safety protection functions.

9. Software Instruction

GT 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 as following, Computer software interface, display test data, setup method, sample size



5-digit display for load, peak value and displacement values at least, 4-digit display for extension value at

Features:

1. Full digital control The whole measuring and control system adopts the special controller, which can achieve the digital adjustment of zero point and gain of load, deformation and displacement, and it's easy to operate and possesses the high reliability.
2. Possess the functions of storage, setting and loading for various kinds of parameters, which make it convenient to connect multiple transducers with one load frame.
3. Realize the close-loop control, and show the reference curve during the executive operator adjusting the close-loop parameters, so the user can observe the close-loop effect caused by the parameters.
4. Perfect graphic function to complete the functions of the reappearance, amplification, reduction, self-adaptation, lapping of the curves, display and print the curve at the appointed range, observe the coordinate of the test point.
5. Data processing supports automatic analysis and graphic man-machine mutual processing, which is convenient to check and compare the test results.
6. Multilevel identity management

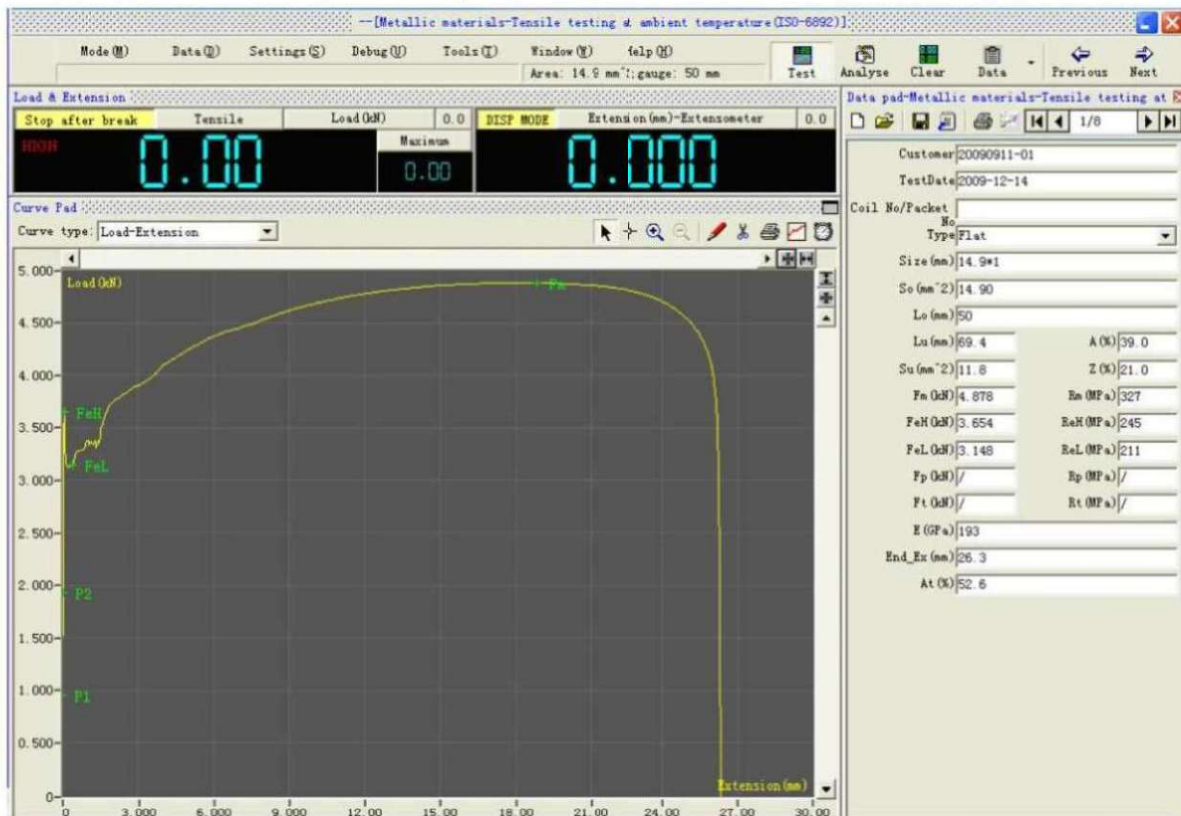
Multilevel identity management, different identity has different functions, which not only makes the operation quick by ordinary operator, but also protect the system effectively.

1. Based on the database, test data is stored by form of text file, which is convenient for the user to inquire about and utilize the various kinds of commercial report forms to reprocess the test data, meanwhile transfer the data to the internet conveniently.

Multi controlling channels

Displacement control, force control, deformation control, stress control, strain control, constant stress, constant strain etc.

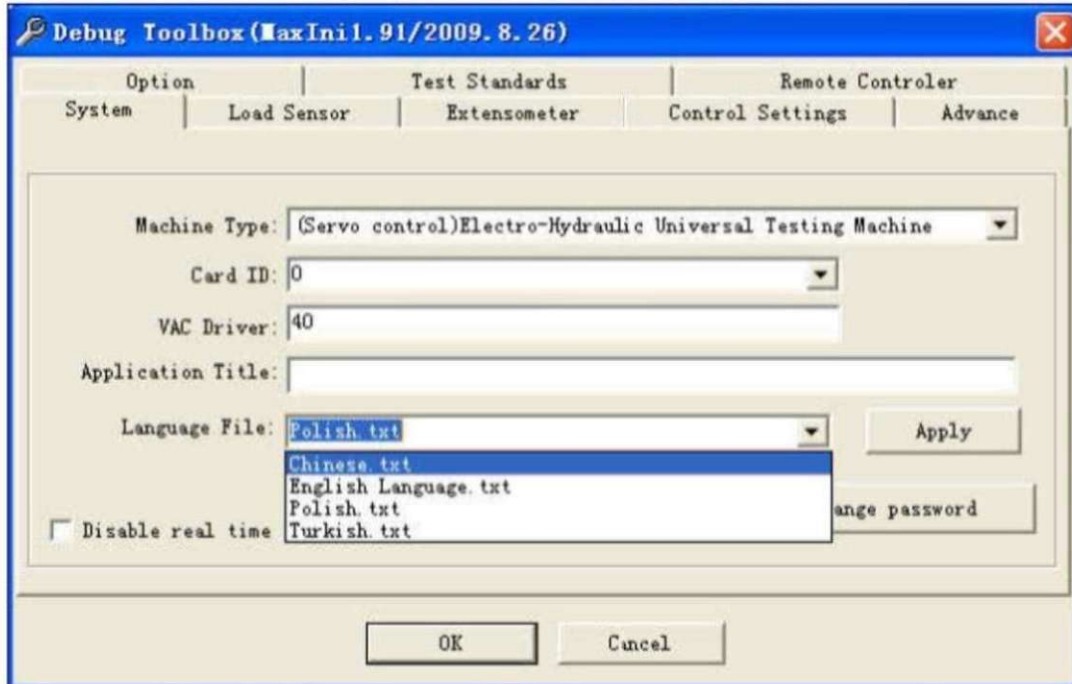
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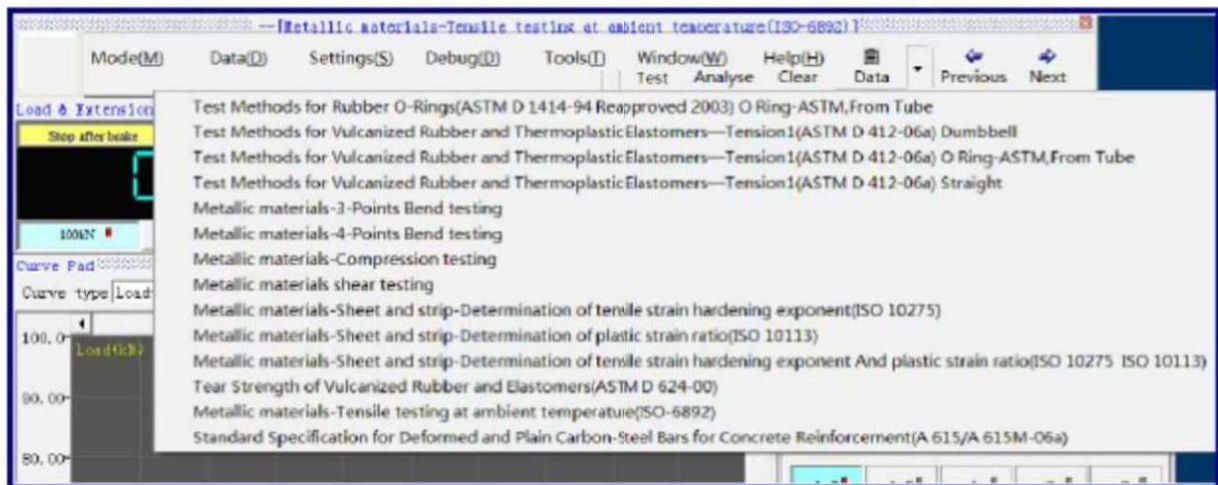
The deep-seated parameters of software are contained in Debug Toolbox

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.

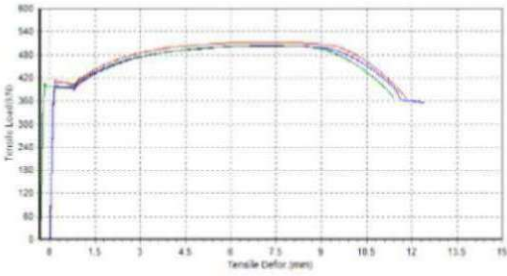


Test standard: provide users with the necessary applications to the test, covering GB, ASTM, DIN, JIS, BS ... and other testing standard specification



Report

Output and print report: Excel, word, template test report, can be edited customize To show test information, including test person, test standard, test curve, test max load etccan add your company LOGO and company name,easy to edit.

TENSION REPORT							
BatchNo:		2018090101		TestDate:		2018-9-8 11:28	
Unit:				Texture:			
Norm:				Temp:			
Size(mm)				Area(mm²)		804.25	
Result Data							
No.	MaxLoad (kN)	tensile strength (MPa)	Upper yield strength (kN)	Upper yield strength (MPa)	Lower yield strength (kN)	Lower yield strength (MPa)	Elongation (%)
1	511.89	637	414.88	516	398.5	496	24
2	502.43	625	406.16	505	389.12	493	24.9
3	503.75	628	407.07	506	394.87	491	25
Testing base		ASTM B4					
							
Remark							
principal		Review					
Tester		HBT GROUP		Print date		2021-6-24 10:25	

