

## JINAN TESTING EQUIPMENT IE CORPORATION

Headquarters: Floor 10<sup>th</sup> Tower A Century Fortune Plaza High Tech. Zone Jinan 250101, China.

Tel: +86-531-86510531(Ext.9) Fax: +86-531-86510535 [www.testingequipmentie.com](http://www.testingequipmentie.com)

### WAW-F series Computer Control Hydraulic Servo Universal Testing Machine

#### Application:

WAW-F series Computer Control Hydraulic Servo Universal Testing Machine is suitable to test various metallic & non-metallic materials for tension, compression, bending and shearing strength. It can be capable of testing the characters of materials on physical & technology properties. It is simple, easy to operate and widely used in works, laboratories and high schools for material properties research and quality control. Equipped with the computer & Software & printer, it can control the test procedures as the set programs, and also can display, record, process and print the test results and can draw test curves automatically in real time. The machine complies with ISO, ASTM, DIN standards etc.

#### Applied Standard:

- ISO6892: DIN EN 10002-1, JIS Z2241, BS-18, ASTM E8: Metallic Material -Tensile Testing at Ambient Temperature.
- ASTM A370: Standard Test Methods and Definitions for Mechanical Testing of Steel Products
- ASTM E4: Standard Practices for Force Verification of Testing Machines
- EN 10002-4: Tensile Testing Of Metallic Materials - Verification of Extensometers Used In Uniaxial Testing
- ISO7500-1: Verification of Tension/Compression Testing Machines

#### Load Frame:

- Rigid four-column construction & compact design
- One workspace design, it can also do the compression, bending and shearing tests.
- Accurate force measurement through accurate load cell
- High actuator stroke which is suitable for standard, or more length specimen and high elongation test
- Load cells can be changed according to different load ranges for making the measurement more accurate.
- With open front hydraulic wedge grips for easy change of inserts and specimen loading
- Integrated displacement photoelectric encoder
- Cylinder mounted at the bottom of the machine



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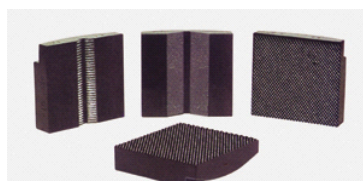
## Specifications:

Model	WAW-300F	WAW-500/600F	WAW-1000F	WAW-1500F/2000F
Max. load capacity(kN)	300	500/600	1000	1500/2000
Accuracy of testing force	$\pm 0.5\%/\pm 1\%$			
Max. Tensile space(mm)	600	600	700	800
Max. Compression space(mm)	300	300	450	500
Actuator stroke(mm)	500	500	500	600
Max. Loading speed(mm/min)	100	100	75	50
Distance between columns(mm)	520	600x350	660x400	800x450
Round insert(mm)	$\Phi 10-32$	$\Phi 13-40$	$\Phi 13-60$	$\Phi 15-70$
Flat insert(mm)	0-15	0-30	0-40	0-60
Compression platens(mm)	$\Phi 120$	$\Phi 150$	$\Phi 150/204 \times 204$	$\Phi 200/204 \times 204$
Accuracy of deformation	$\pm 0.5\%/\pm 1\%$			
Dimensions of load frame(mm)	880x630x2980	880x630x2980	980x720x3530	1220x880x4180
Weight(kg)	2500	3000	5000	8000

## Standard Accessories:

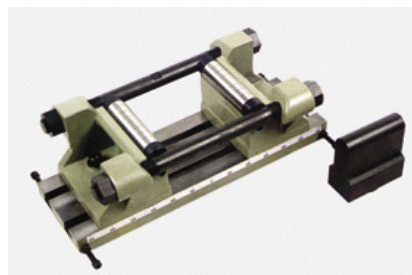
### 1. Hydraulic wedge tensile test fixture

Grips for round specimen / Grips for flat specimen



### 2. Bending test fixture

1 set



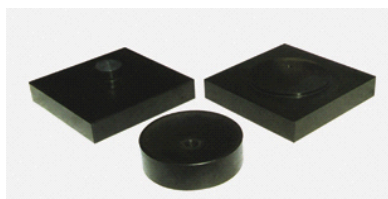
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## 3. Compression plate

1 set



## 4. Load cell

1 set

Flat load cell, Tensile & Compression type



## 5. Electronic extensometer

1 pc

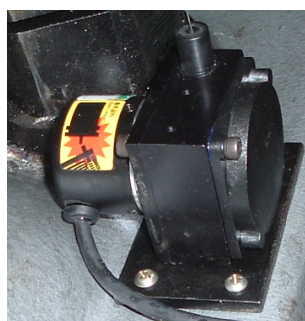
Generally offer gauge length 50mm, travel 25 mm.



## 6. High precision photoelectric encoder

1 set

Measuring the displacement



## 7. High pressure hydraulic pack

Hydraulic pack is for loading and clamping specimen hydraulically.

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### 8. Computer system with English version software

Printer: HP Color DeskJet

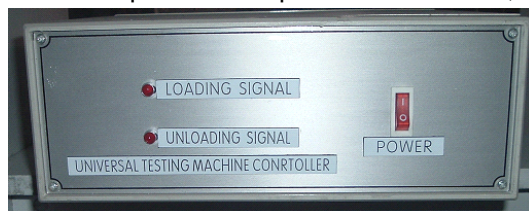
Software (For details, Please see Annex-1)

Windows XP/Vista operating system English, compatible test software give standards, specification and test date under database management, the software can display tensile strength, upper and lower yield load, modulus of elasticity, proof strength, elongation after fracture, Max. load. Other parameters can be measured and calculated automatically by software which can display test curves of Load-deformation, Load - time, Load-Displacement, Stress-Strain, Deformation-Time, Displacement-Time, Load-strain, etc Test report can be edited as customer's request.



### 9. Measuring control unit

It is the important core part of the machine, and do data acquisition, measure and control, etc.



### 10. Hand control box

It sticks on the column of the machine by magnet, and can move up and down freely along the column. It can control up-and-down of crosshead and clamp the specimen hydraulically.

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### Product Photo:



### ANNEX-1: Software Introduction

#### Features of Measuring & Control Software

##### 1. Application & Features:

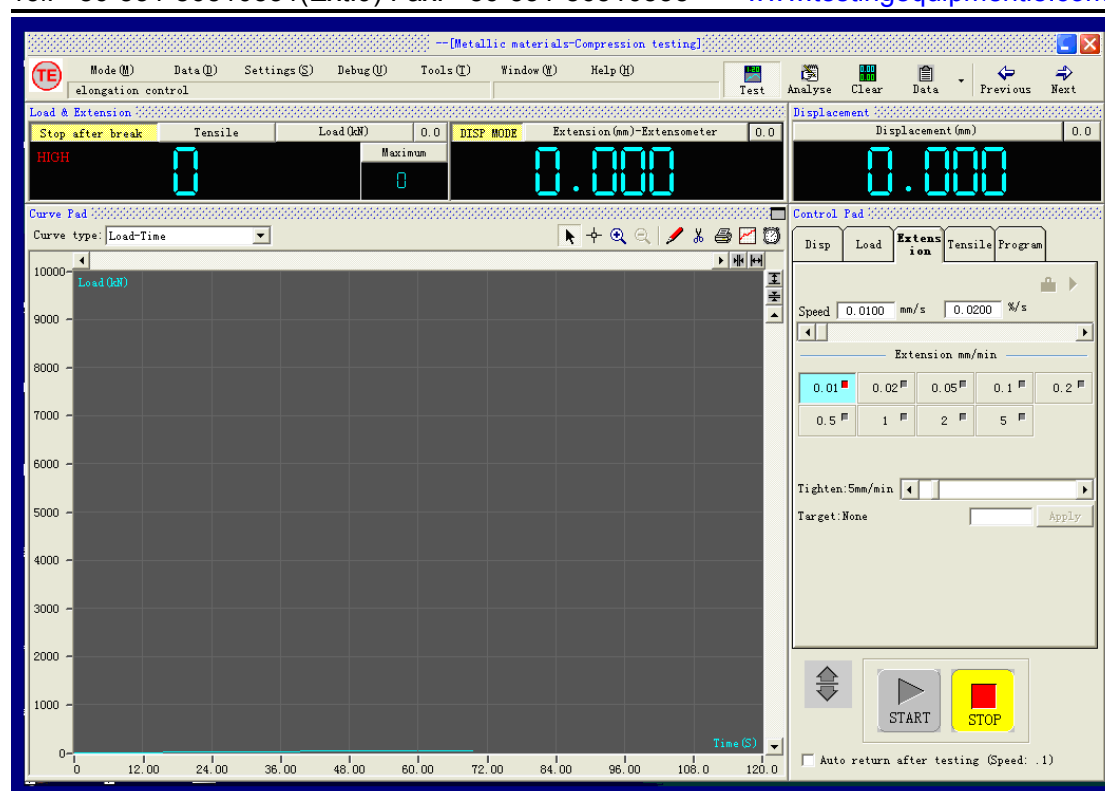
TE software refers to the software characteristics of the top manufacturers of testing machine in the world and proposals of various testing requirements from the end users, and combines all the advantages of former versions of software with lots of new features as following. Optimized software structure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

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- ✧ Integrated full digital electro-hydraulic servo close-loop control, data processing with data analysis
- ✧ Possess multi kinds of full digital close-loop control modes, such as test load, displacement, stress and strain. Different control modes can be switched each other freely and smoothly.
- ✧ Enjoy strong “programming” function of integrated test procedures, programmable steps can be up to 100 steps, and it can be also extended to complete the compilation of arbitrary complicated and control mode switch test procedures.
- ✧ Software design aims to rapidity and convenience of test operation. Also adopt special design method to meet batch technology tests.
- ✧ Software is managed by multi levels, and expert user can use all system parameters, which combined the flexibility of software usage and safety & reliability of the system.
- ✧ Automatic data processing, processing method complies with multi international standards, such as ISO6892-1998, EN10002-1:2001 and ASTM
- ✧ Multi international units are adopted, such as SI, metric system unit and British measurement, etc.
- ✧ Maintain multi language conversion interface, so the system can be applied under conditions of various kinds of languages conveniently (Customized)
- ✧ Possess function of manual data processing, which fits to various kinds of complicated data processing for customer.
- ✧ Offer test reports, which can be stored, printed and re-analyzed.
- ✧ Test data is stored as the form of “text mode”, and any general commercial data processing software can reprocess test data.
- ✧ Rich & perfect assorted test curves



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- ✧ Possess the function of integrated document operating system, for example, test report, test parameter, system parameters can be stored as the form of “text mode”.
- ✧ Compatible with different commercial printers
- ✧ Control system is based on software system, so upgrade is easy.

## 2. Software & hardware configuration

This software is used along with special PCI/ISA electro-hydraulic servo measuring & control card.

Computer:

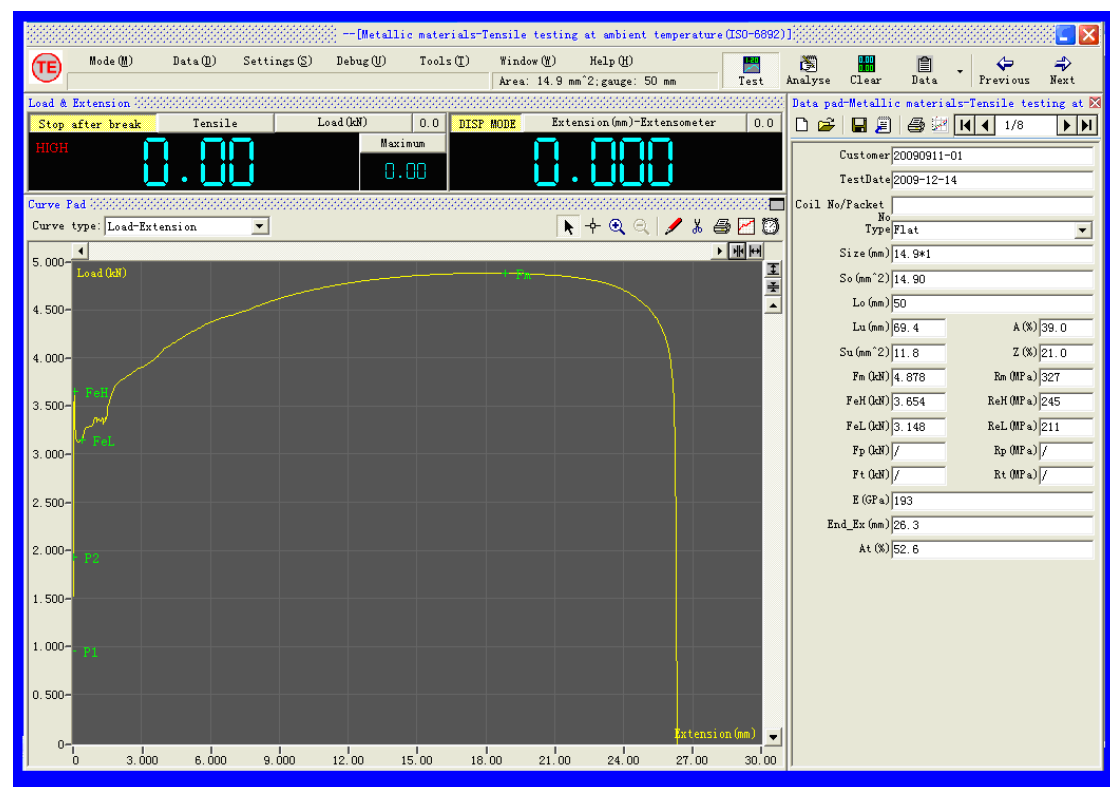
- 1). Exceed 586 CPU
- 2). Surpass 1G memory
- 3). Over 160G hard disc
- 4). Display should be set at pixel of 1024\*768

Operation system: Windows Vista/XP/2000, Support Windows98 (customized)

## Various kinds of commercial printer and driving programs

### 3. Interfaces of software:

### Various kinds of hydraulic universal testing machine

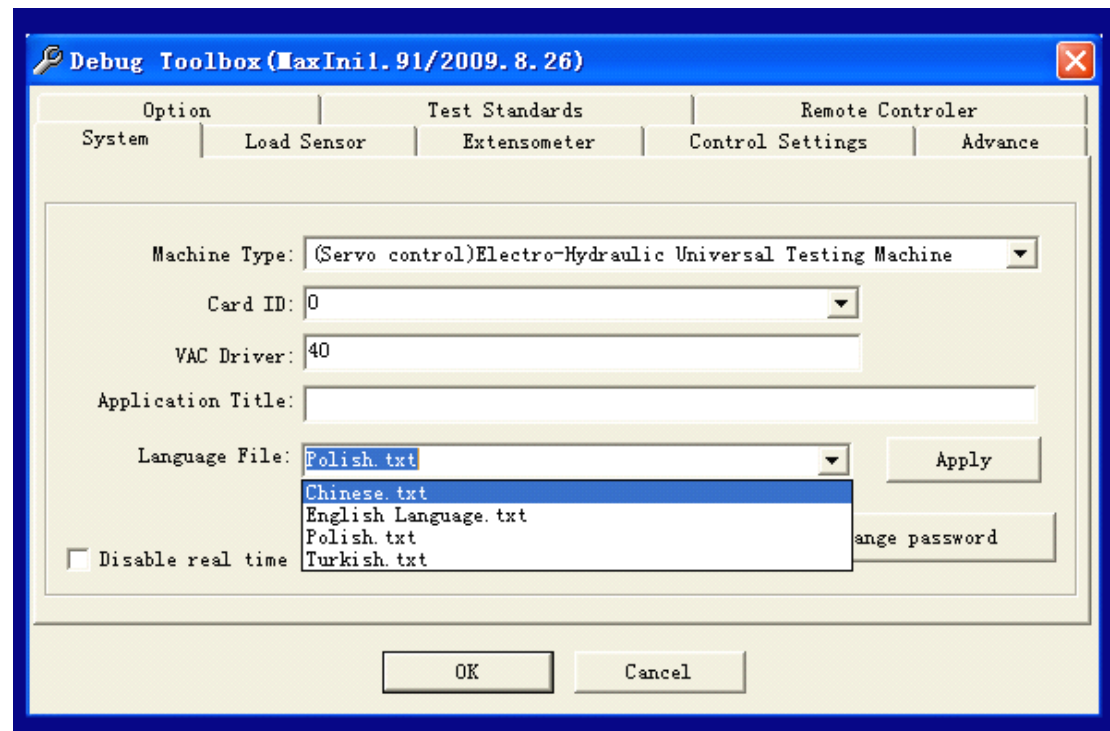


The control modes, test data and curves can be displayed in real time in the main interface and can be shifted at any time.

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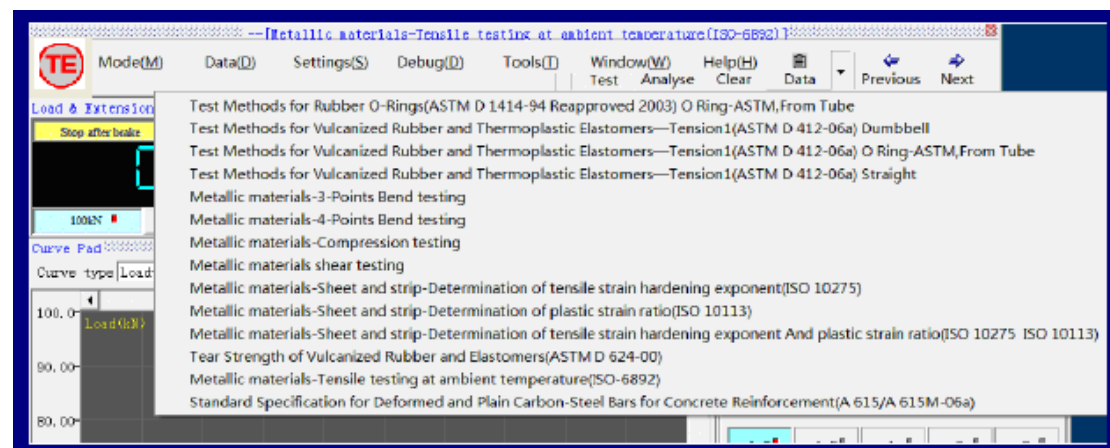
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The deep-seated parameters of software are contained in Debug Toolbox

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.



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.

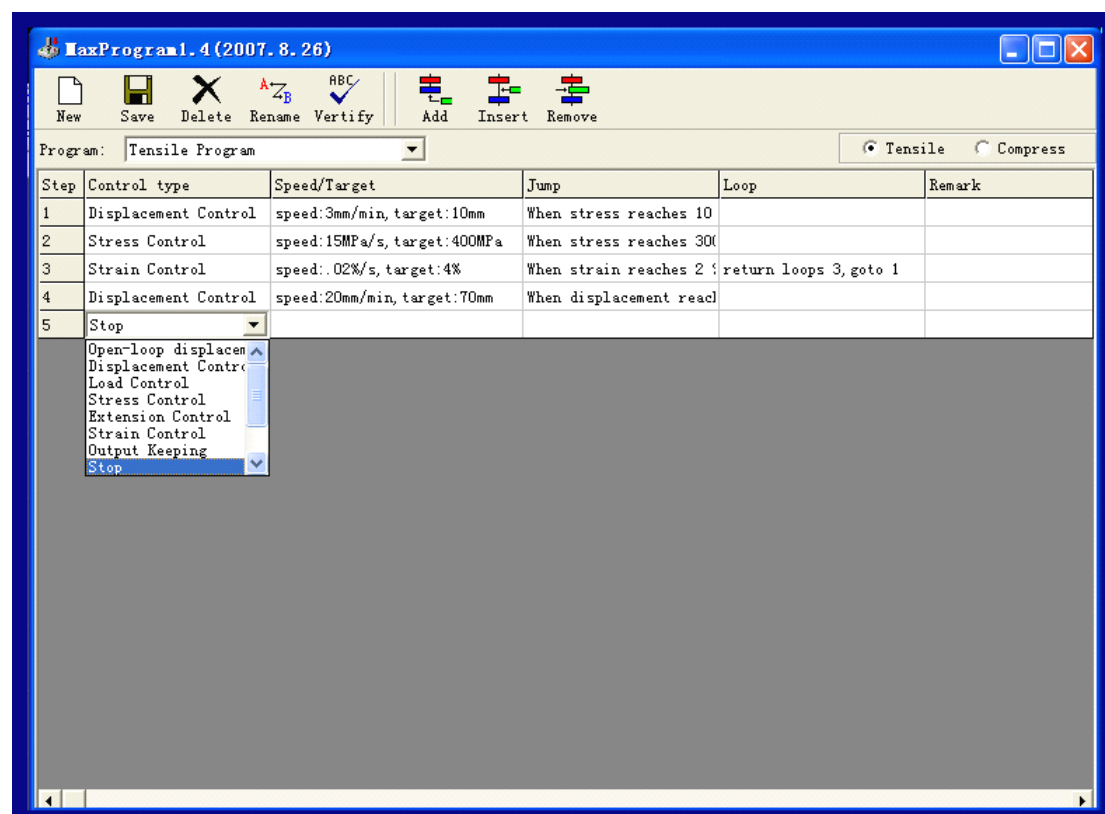
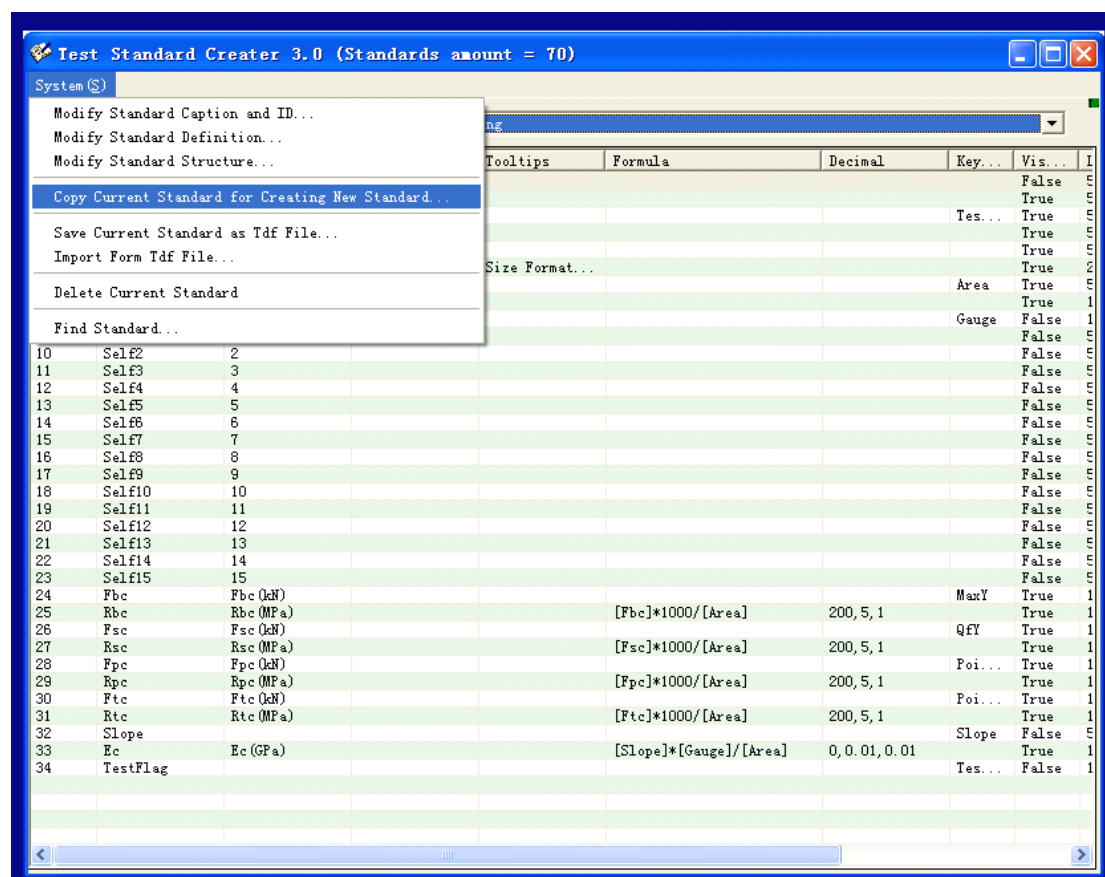


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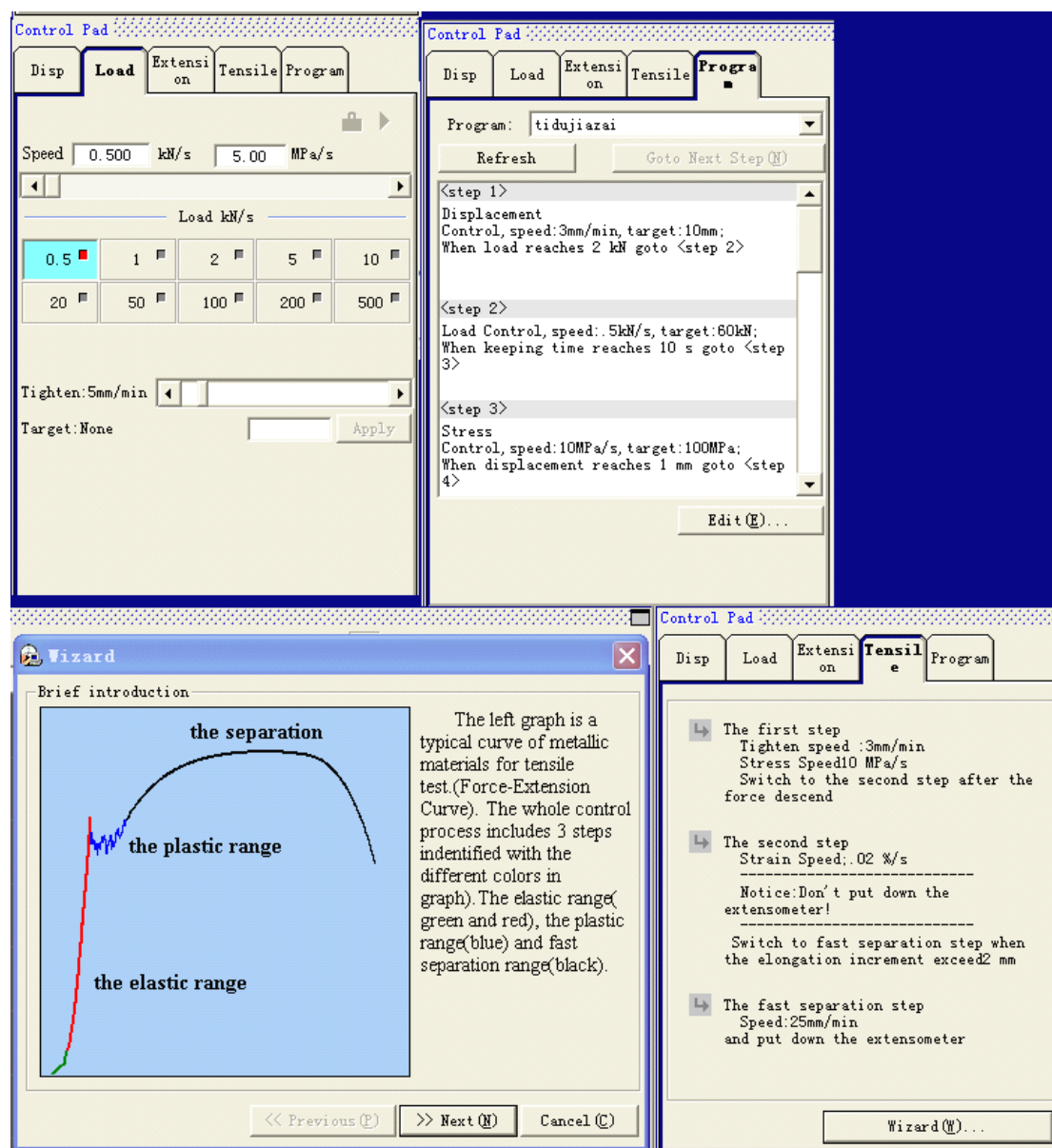
MaxProgram Editor possesses of multiple full digital control modes, i.e Displacement control,

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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.



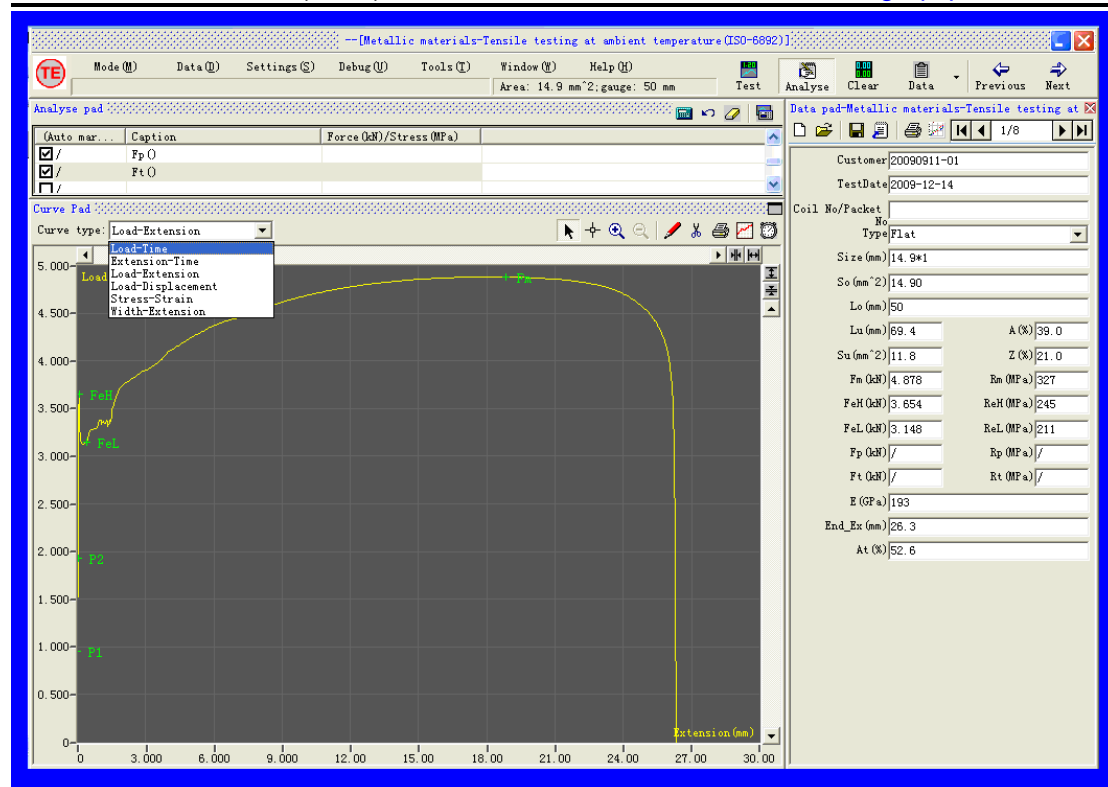
Through the Tensile Program Editor, user can setup test steps according to the requirements of standards.

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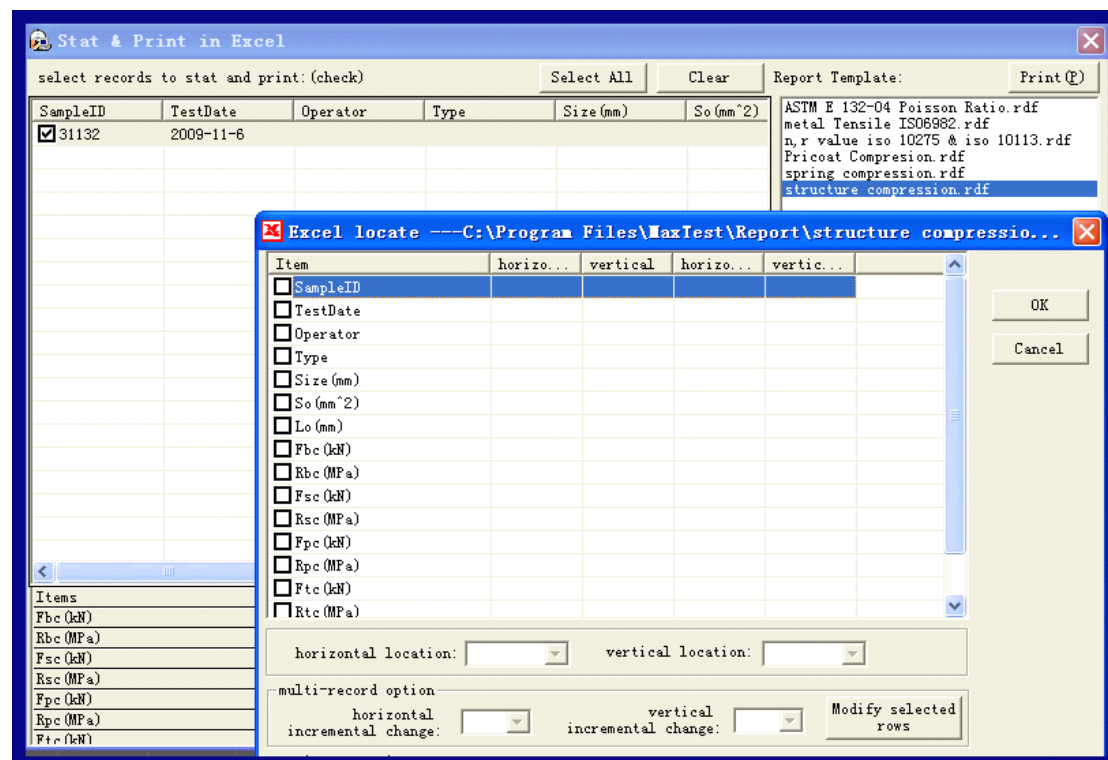
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Multiple curves function in real time display including Load-Extension, Load-Displacement, Stress-Strain, Load-Time, Extension-Time, and Width-Extension.

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.



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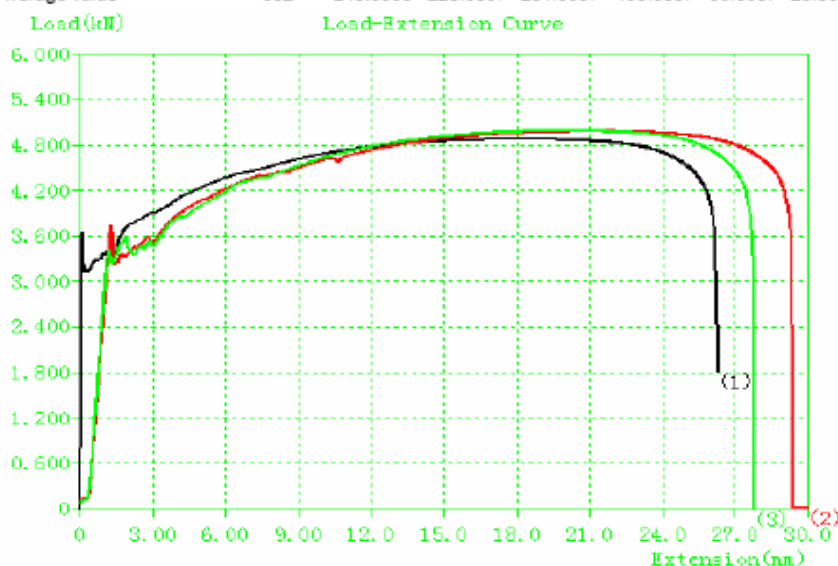
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TE software contains all kinds of Report Templates. Customer can design various testing reports according to the requirements. Test result and curve can be printed in Excel or the auto-creating report template.

## 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



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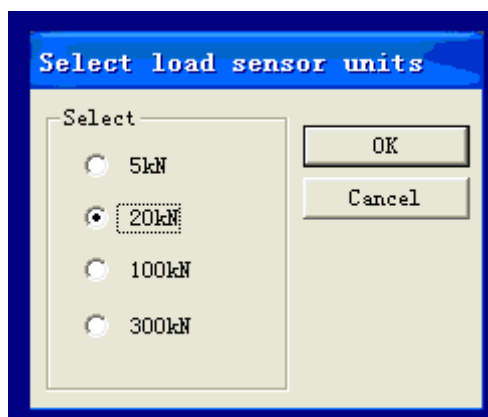
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Except the clip-on Extensometer, TE software supports Long Travel Extensometer, Full Automatic Extensometer, video Extensometer, laser Extensometer, and it can be added eight Extensometers at most.



TE software supports four load cells.