Mikrosize®

UTM-H2000/H3000

Computerized Electro-Hydraulic Servo Hydraulic Universal Testing Machine

Contact us

Mikrosize Precision Instrument Co.,Ltd
A-4035 RuiFeng Business Expo, Wuhu City, China , 241000.
Web:www.mikrosize.com
Email: mikrosize@mikrosize.com

Features and Applications

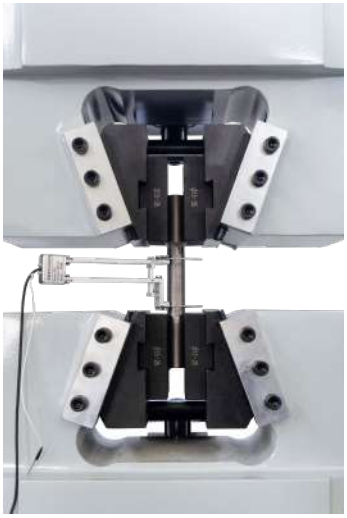
Product Features

- Suitable for tension, compression, bending and shear tests of metals and non-metals (including composite materials)
- Adopts electro-hydraulic servo closed-loop control, which can accurately control the flow of hydraulic oil through the servo valve and apply load through the oil cylinder
- Oil cylinder lower-mounted main machine, with tension test space on the upper part and compression/bending test space on the lower part
- The motor drives the lead screw to rotate to control the lifting of the crossbeam, so as to adjust the tension and compression space
- Equipped with a special electro-hydraulic servo oil source control cabinet, with indicating instruments, control buttons and emergency stop buttons
- Built-in controller, which can realize constant speed test force, constant speed displacement, constant speed strain, constant speed load cycle and other tests
- Equipped with a wired remote control box, which can control the opening and closing of the fixture to clamp the sample
- Four-column and two-lead screw design, with stable structure and high rigidity, which can meet high-strength testing requirements
- Equipped with a metal wire protective cover to prevent splashes from causing harm to experimenters when the sample breaks
- It has multiple protection functions such as overload and overpressure emergency stop protection, as well as mechanical limit devices
- Cooperating with special measurement and control software, it can realize real-time measurement and display of experiments, real-time control, data processing, result output and other functions
- The software supports multiple operating systems such as Win7, Win10 and Win11
- The software has the function of automatically judging sample breakage and will stop automatically
- The report template is editable and supports multiple output formats
- After the test, it can return to the initial position manually or automatically at high speed
- A variety of optional fixtures are available. In addition to the standard tension and compression fixtures, fixtures can be customized according to user needs
- Supports the use with extensometers (optional)
- The design meets the standards: ASTM E4, ISO 7500-1, EN 10002-2, BS 1610, DIN 51221, etc.

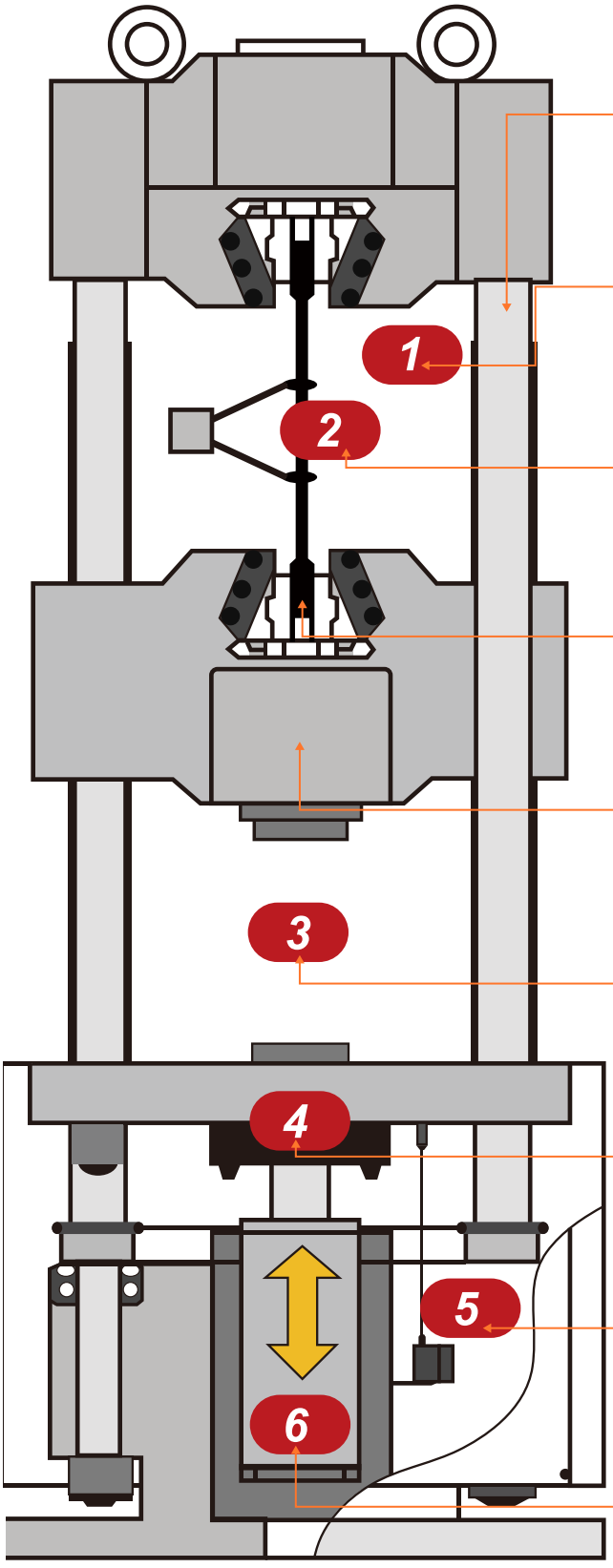
Features and Applications

Product Applications

- Basic mechanical property testing of metal materials
- Performance and structure verification of composite materials
- Quality inspection of construction and civil engineering materials
- Reliability and failure analysis of auto parts
- Ultimate performance verification of aerospace and high-end equipment



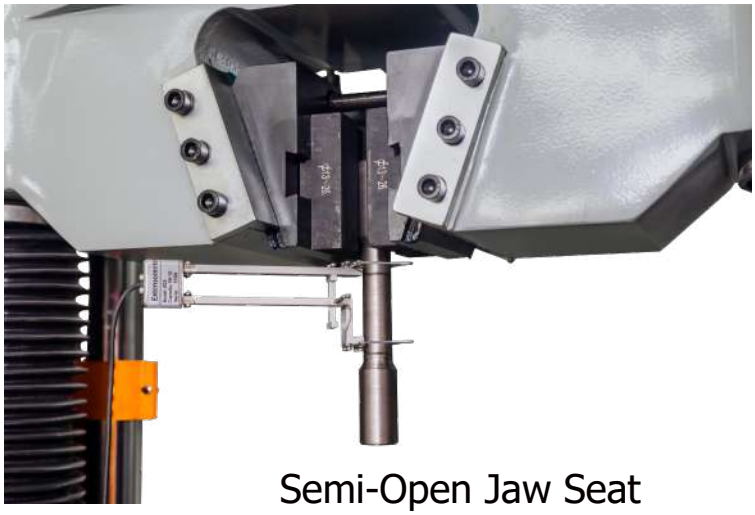
Instrument Appearance



1. 4 Columns High Stiffness Host: To Assure Rigidity, Optimum Load Sharing And Axiality
2. Space For Tension Test:Double Acting Cross-beam Quickly Accommodates Specimens Of Varying Lengths
3. Metal Extensometer (Optional)
4. Hydraulic Automatic Clamp:With Semi-Open Front Grip
5. Mobile Crosshead: Allows To Adapt Testing Space To Sample Length
6. Space For Compression/ Bend/ Shear
7. Equipment Base
8. Displacement Sensor
9. Oil Cylinder (Piston)

Product Details

- Equipped with a special electro-hydraulic servo oil source control system, installed with indicating instruments to monitor the equipment parameters in real time, including clamping pressure, system pressure and oil temperature
- The button on the right can control the on/off of the oil pump, with an electro-hydraulic indicator light to prompt the user of the current state of the equipment, and an emergency stop switch is also installed

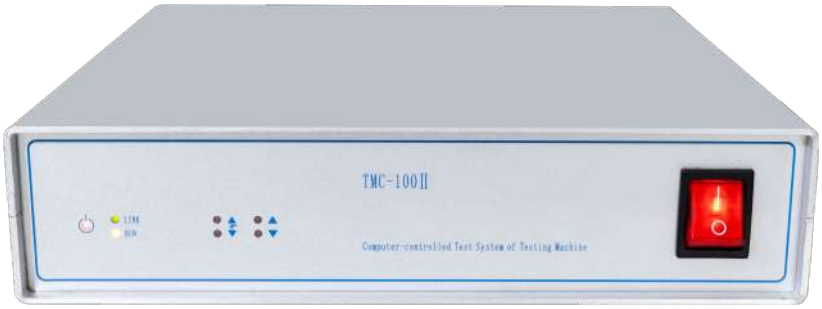


Semi-Open Jaw Seat

Remote Control

- Adopts a semi-open jaw seat, and a backing plate is set between the jaw clamp plate and the jaw seat to prevent the jaw seat from being worn
- The wired remote control box cooperates with the jaws to realize the clamping of samples and the adjustment of the experimental space

Product Details



- Professional microcomputer control measurement and control system, used to connect the computer and the testing machine, and realize the control of the testing machine on the computer through the measurement and control system.
- Each part has a special interface, which is on the back of the measurement and control box, and the types are different to avoid control failure caused by wrong connection.

- The oil pump drives the bottom piston as the power source to generate load.
- The maximum piston stroke is 250mm, and the piston moving speed is 0-80mm/min.

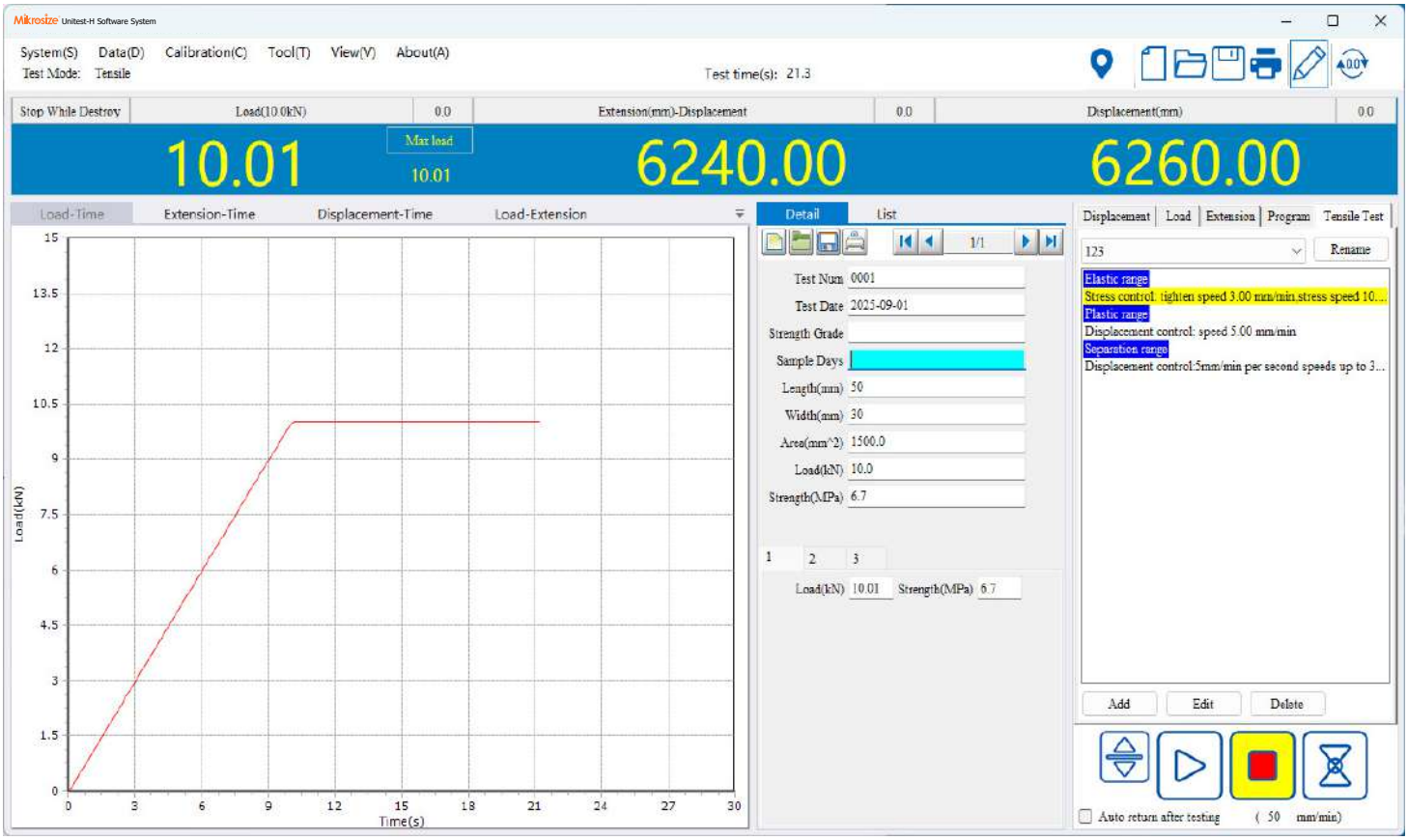
Product Details

- The oil cylinder is installed at the lower part, making full use of the space of the control cabinet
- An oil level indicating device is installed on the front to prompt the user to add hydraulic oil to the appropriate position and indicate the remaining hydraulic oil capacity in the oil tank

- Standardly equipped with a metal protective cover to prevent splashes from causing harm to personnel during the experiment

Software Interface

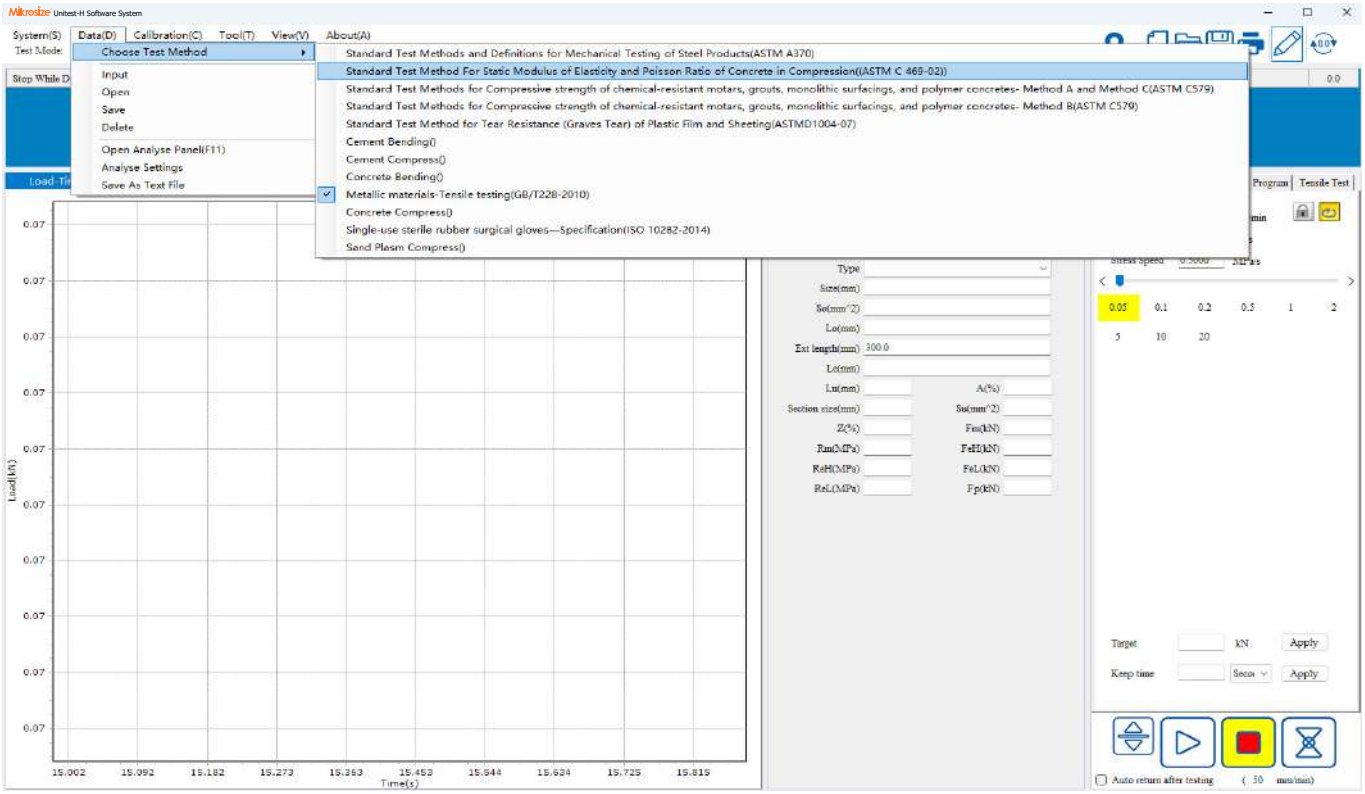
Main Interface

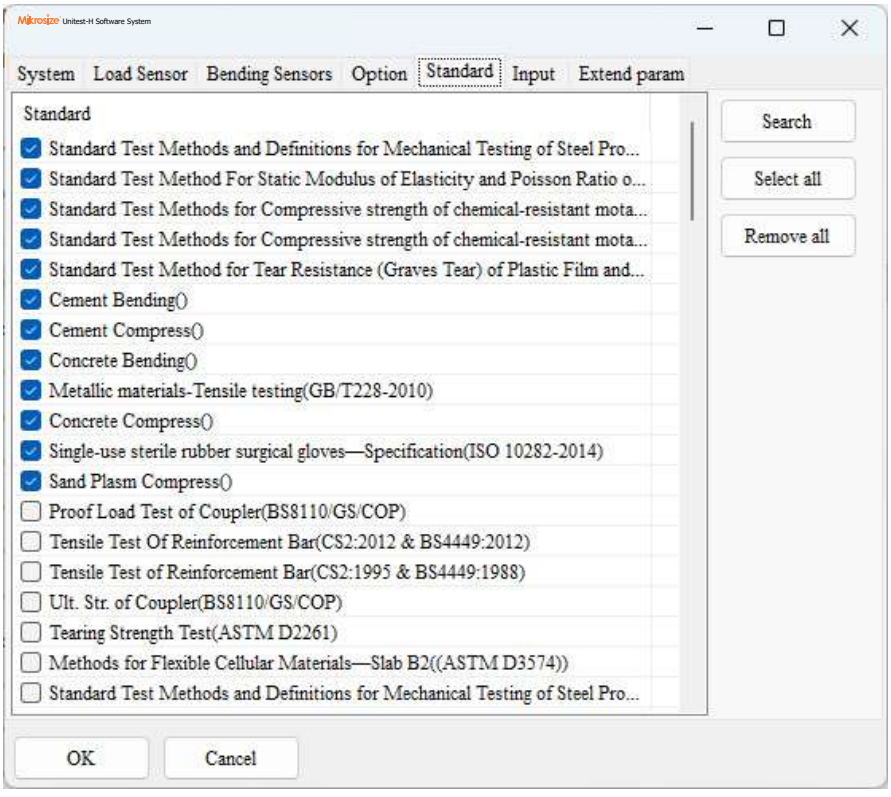


- The software has rich functions and adopts a shortcut module design. Common functions are directly displayed on the home page, avoiding the need to enter the secondary menu interface every time, saving user time and improving experimental efficiency.

Software Interface

Select Test Standard

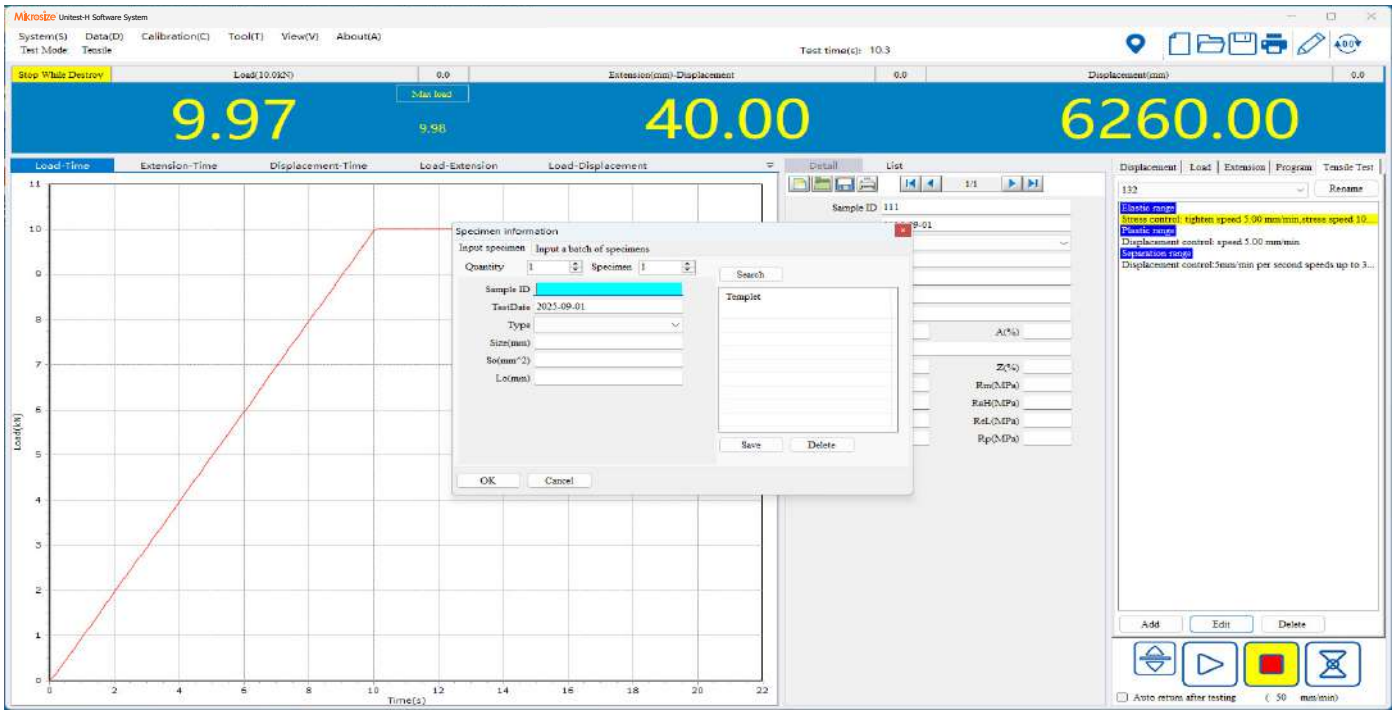


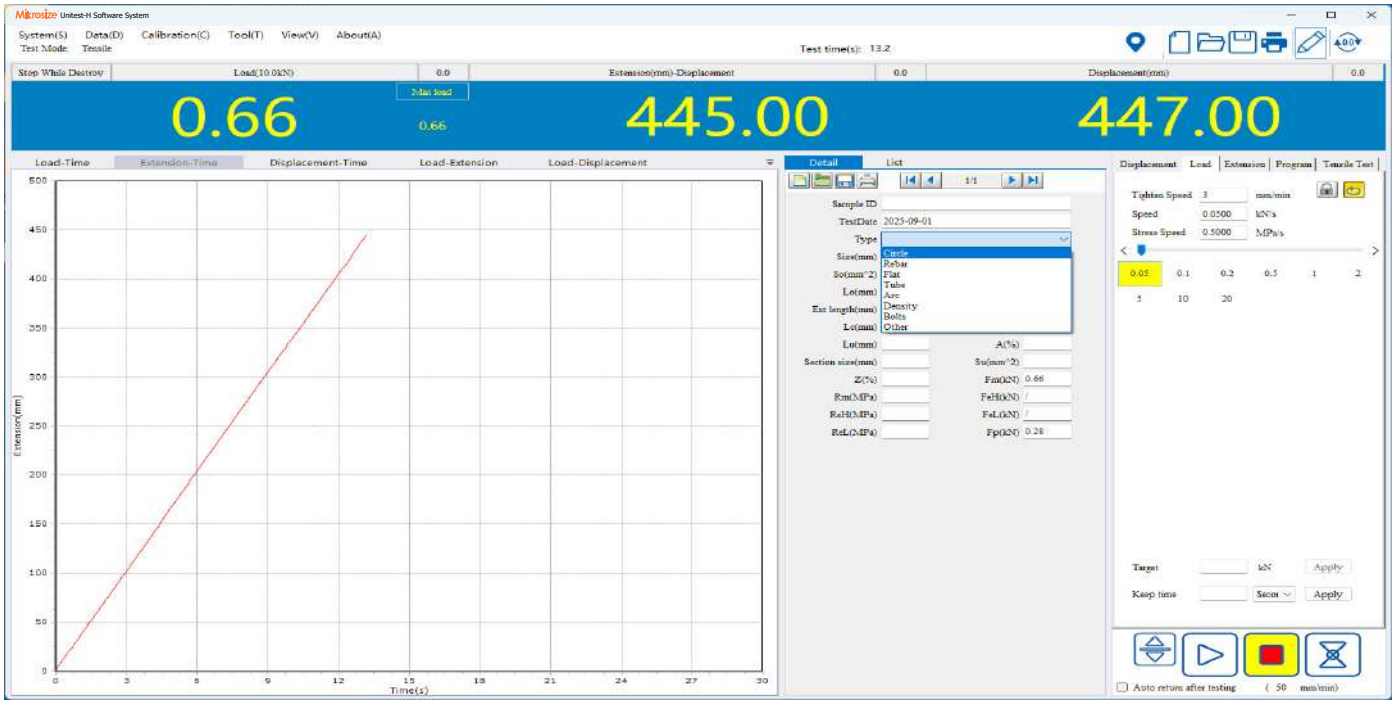


- First, you need to select the appropriate test standard. Users can add commonly used standards from the standard library to the software, and just check them in the standard library to add

Software Interface

Create New Sample

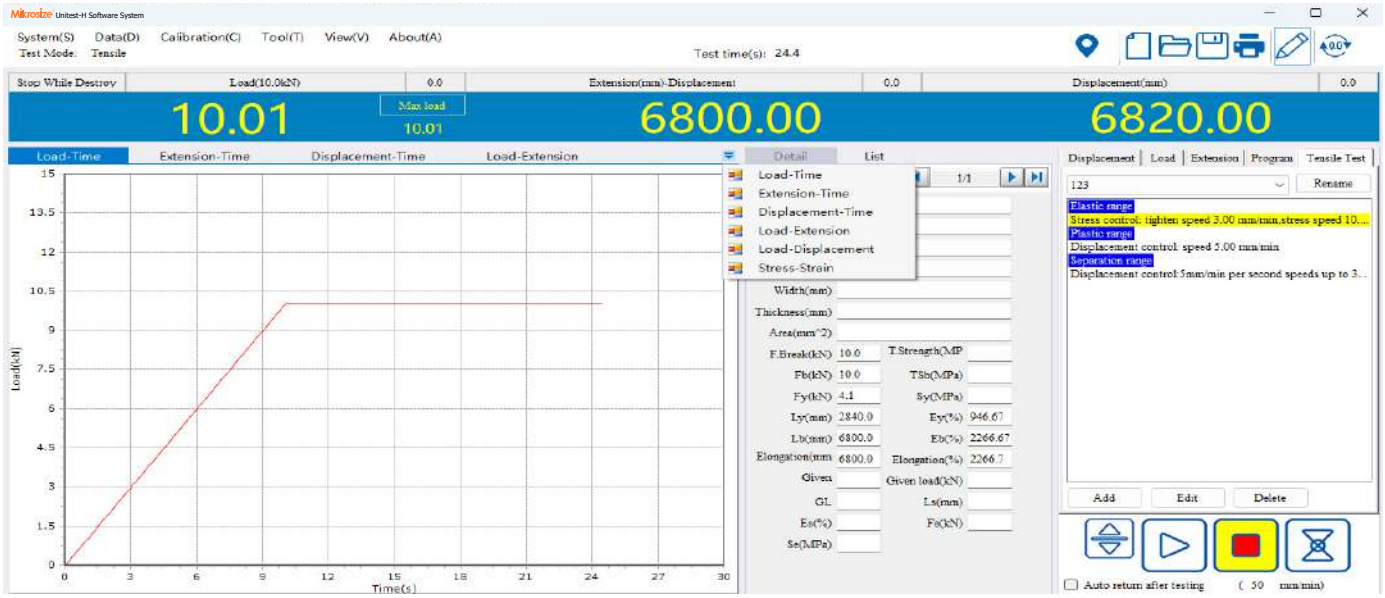




- After selecting the appropriate test standard, you need to create new sample information, including: sample name, test date, sample type, sample size, etc.
- The software has built-in multiple sample shapes, including bars, plates, pipes, bolts, etc., which can meet user needs.

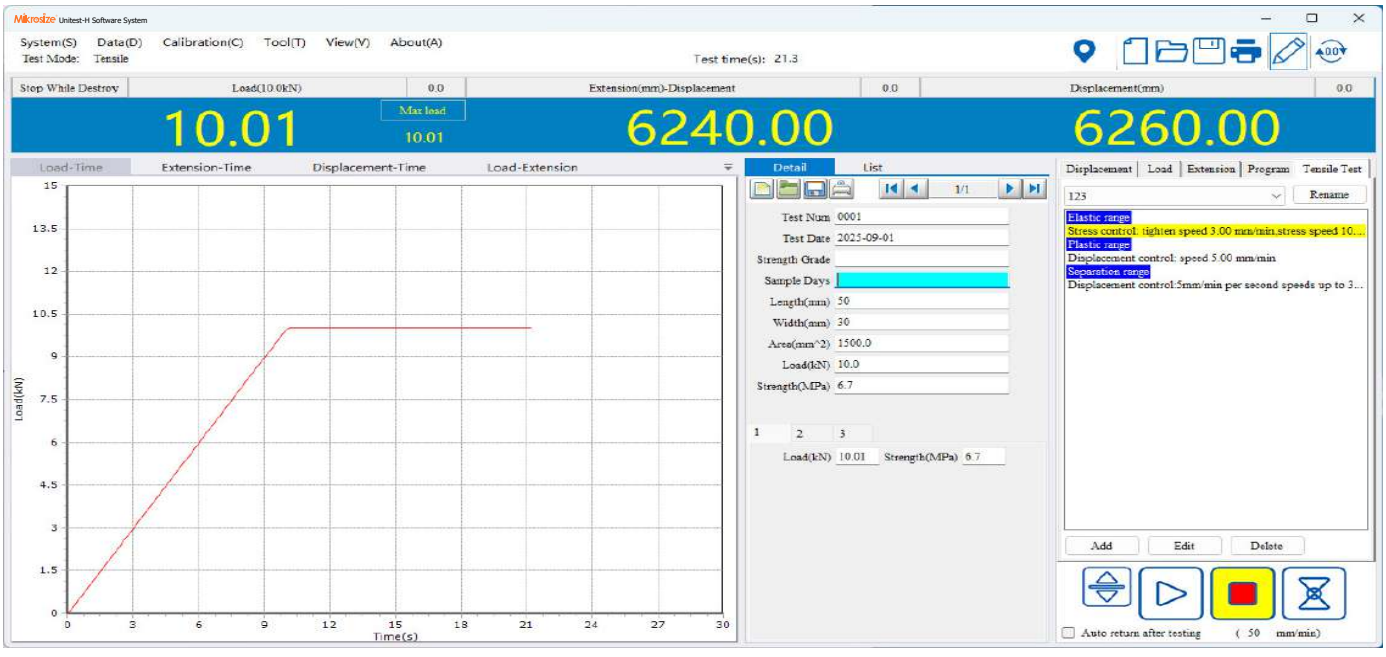
Software Interface

Curves



- The software can generate curves in real time. The software has four default types of curves: Load-Time; Extension-Time; Displacement-Time; Load-Extension
- Curve coordinate parameters are optional.

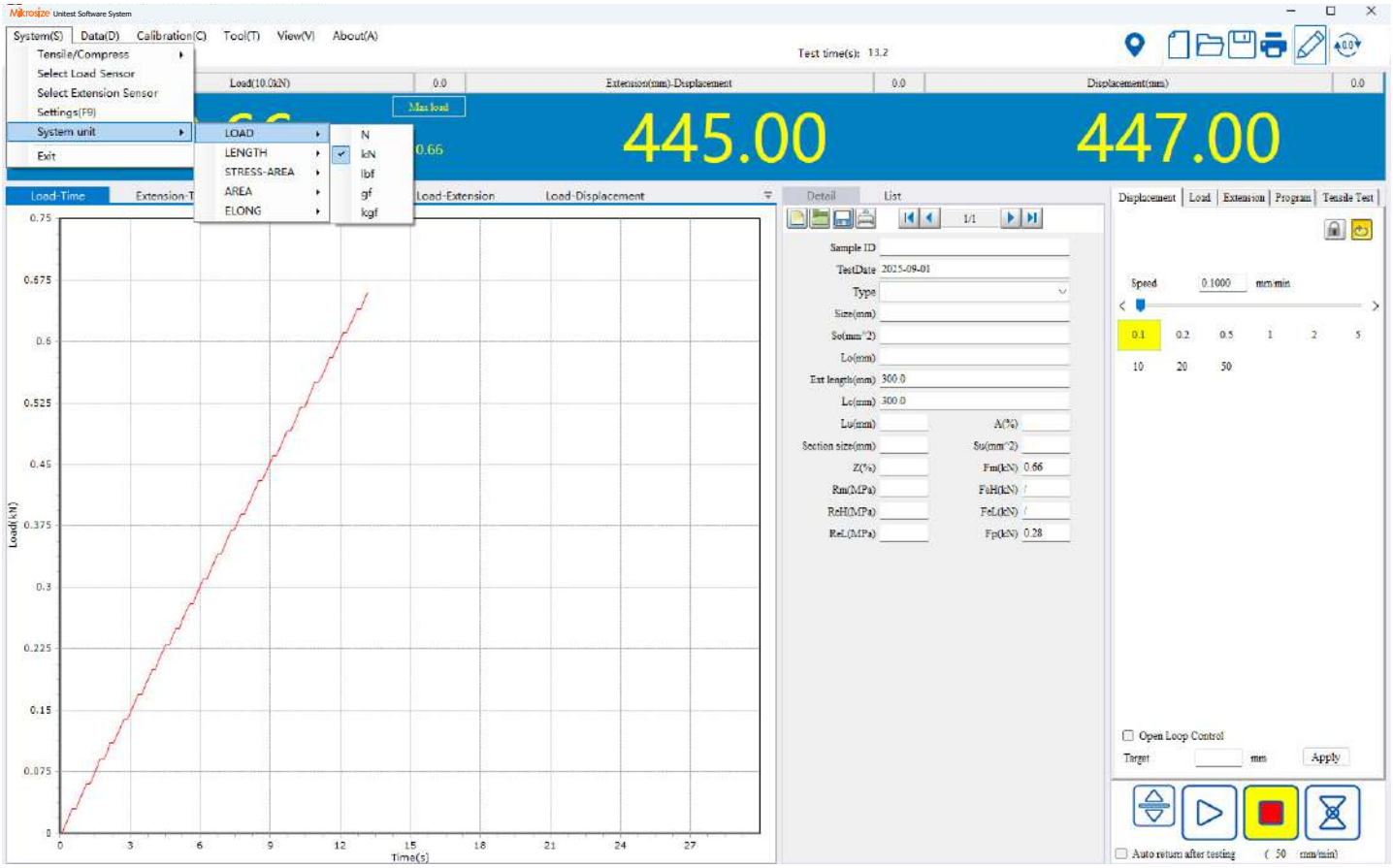
Common Parameters



- The top of the software displays three most commonly used experimental parameters in eye-catching colors, which is convenient for users to obtain information in time.
- Load； Extension； Displacent.

Software Interface

Common Parameters



- Each parameter has multiple units optional

  Load: N; KN; lbf; gf; kgf

  Length: mm; m; in

  Stress-area: MPa; PSI

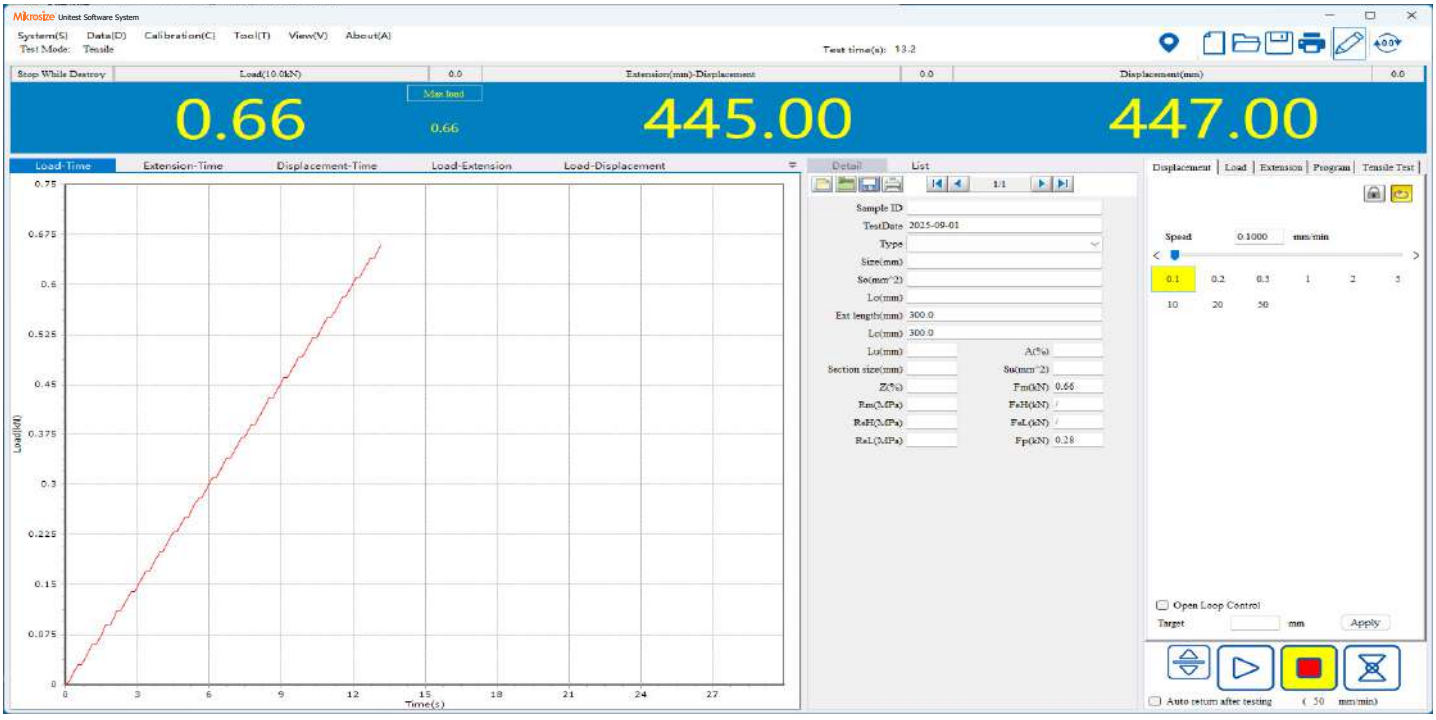
  Area: mm2; in2

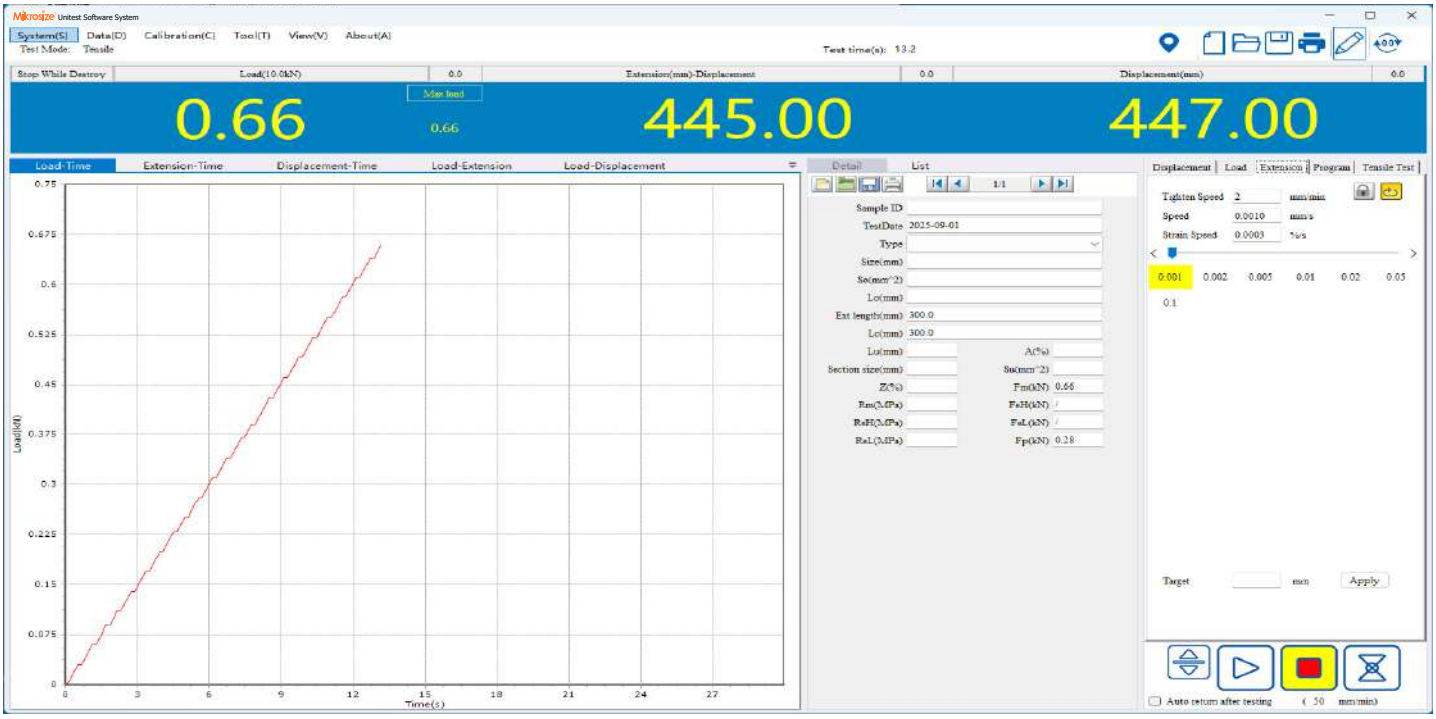
  Elong: mm; m; in

Software Interface

Control Modes

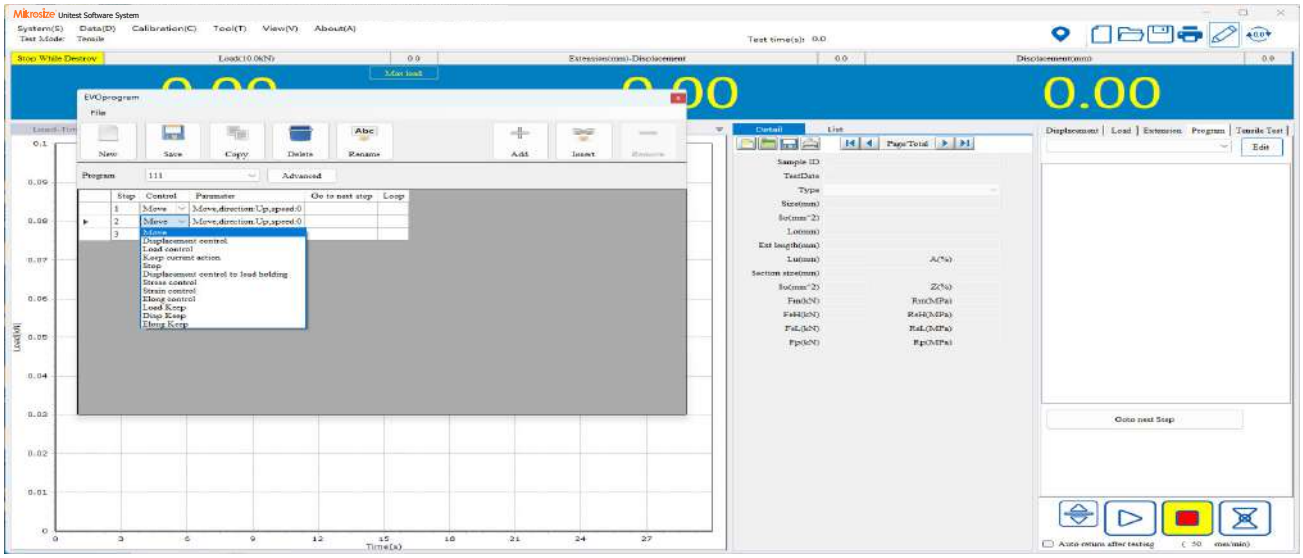
- The software includes five control modes: force value, displacement, deformation, program control, and tension scheme
- For simple experiments, constant displacement and constant force control can be selected; for multi-step complex experiments, users can edit the experimental steps by themselves

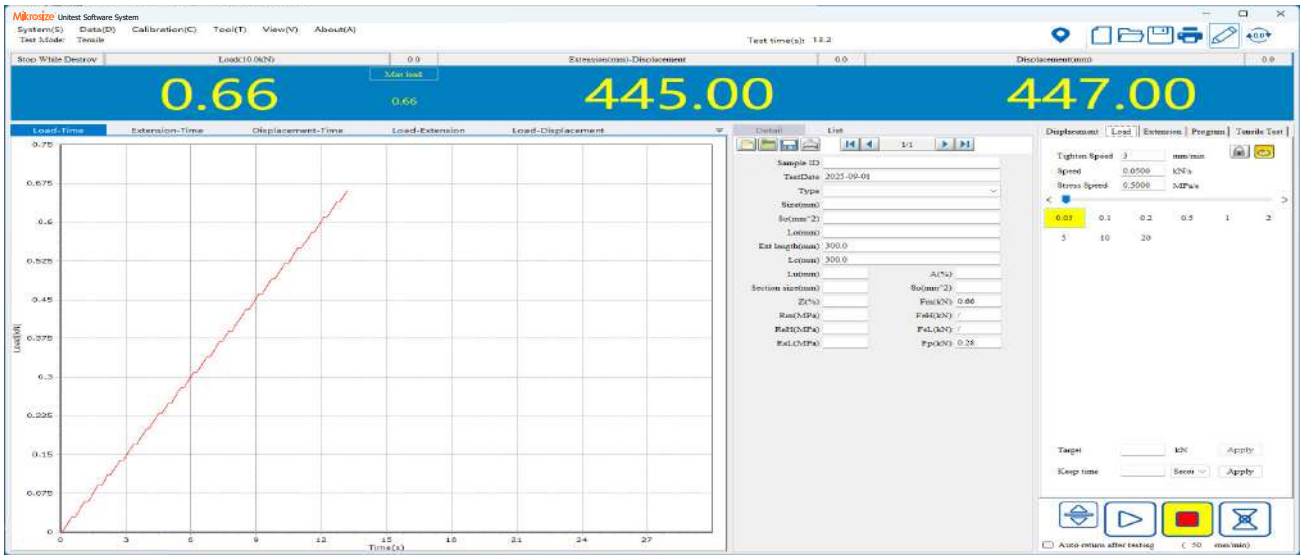


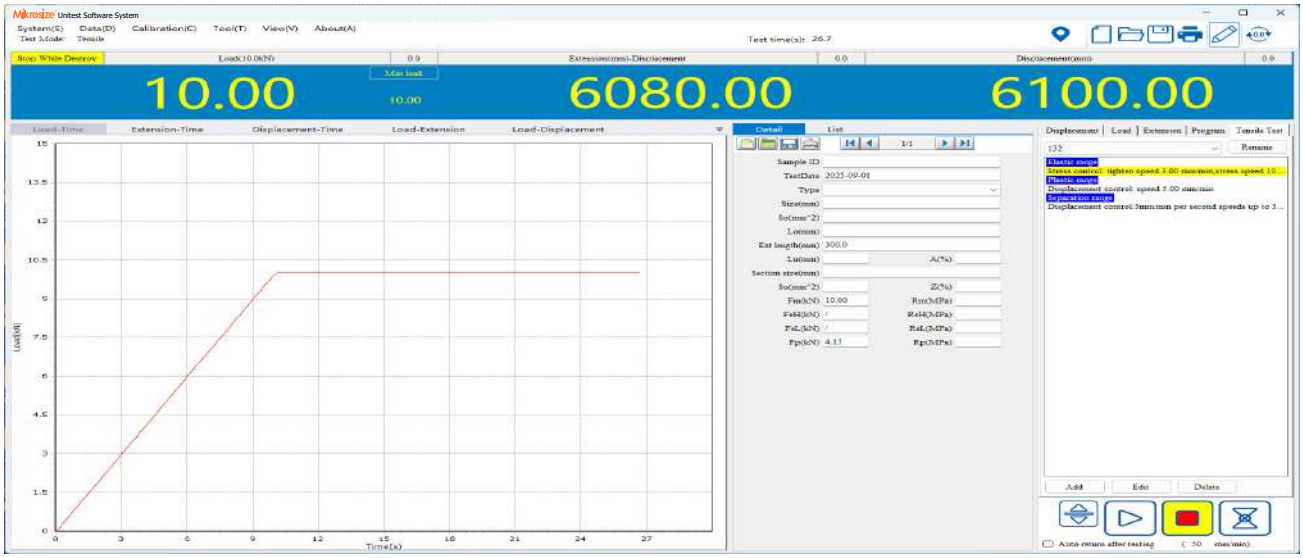


Software Interface

Control Modes

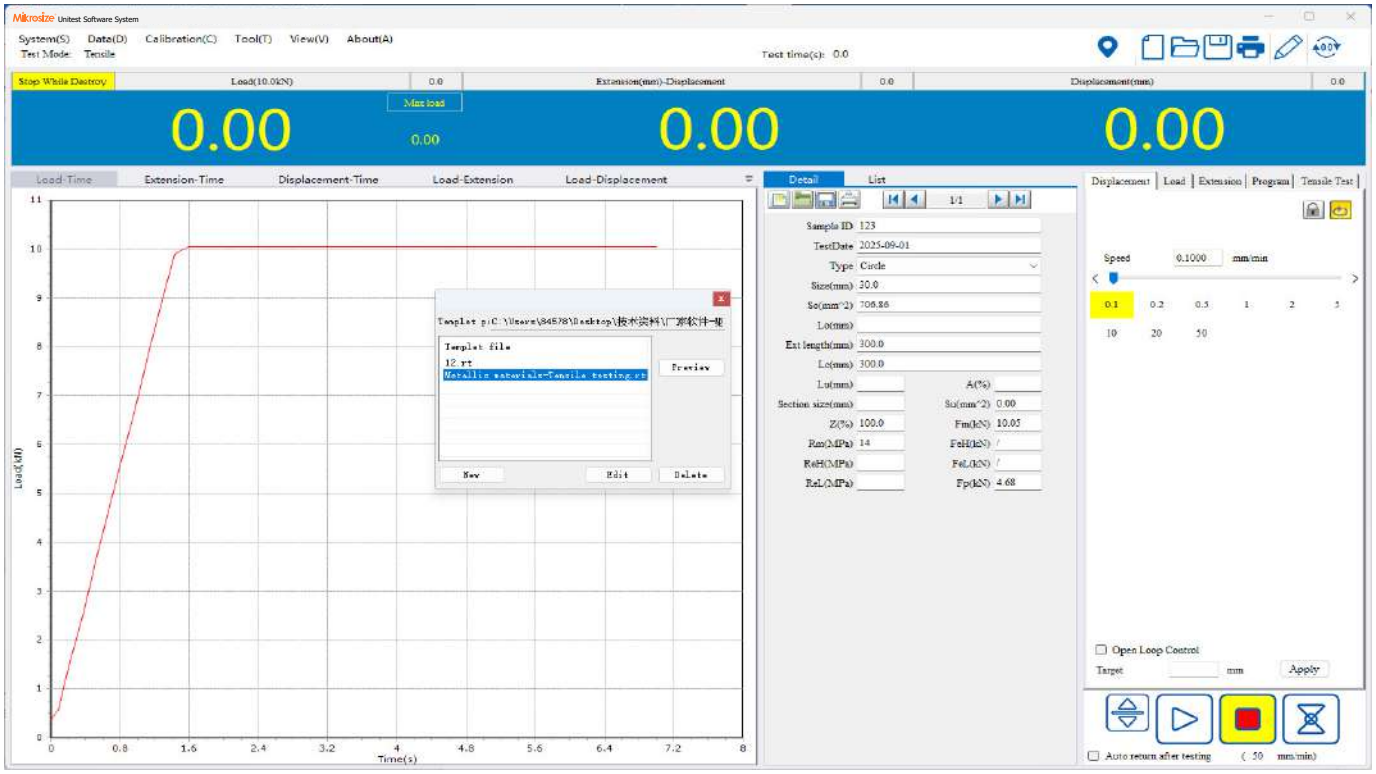


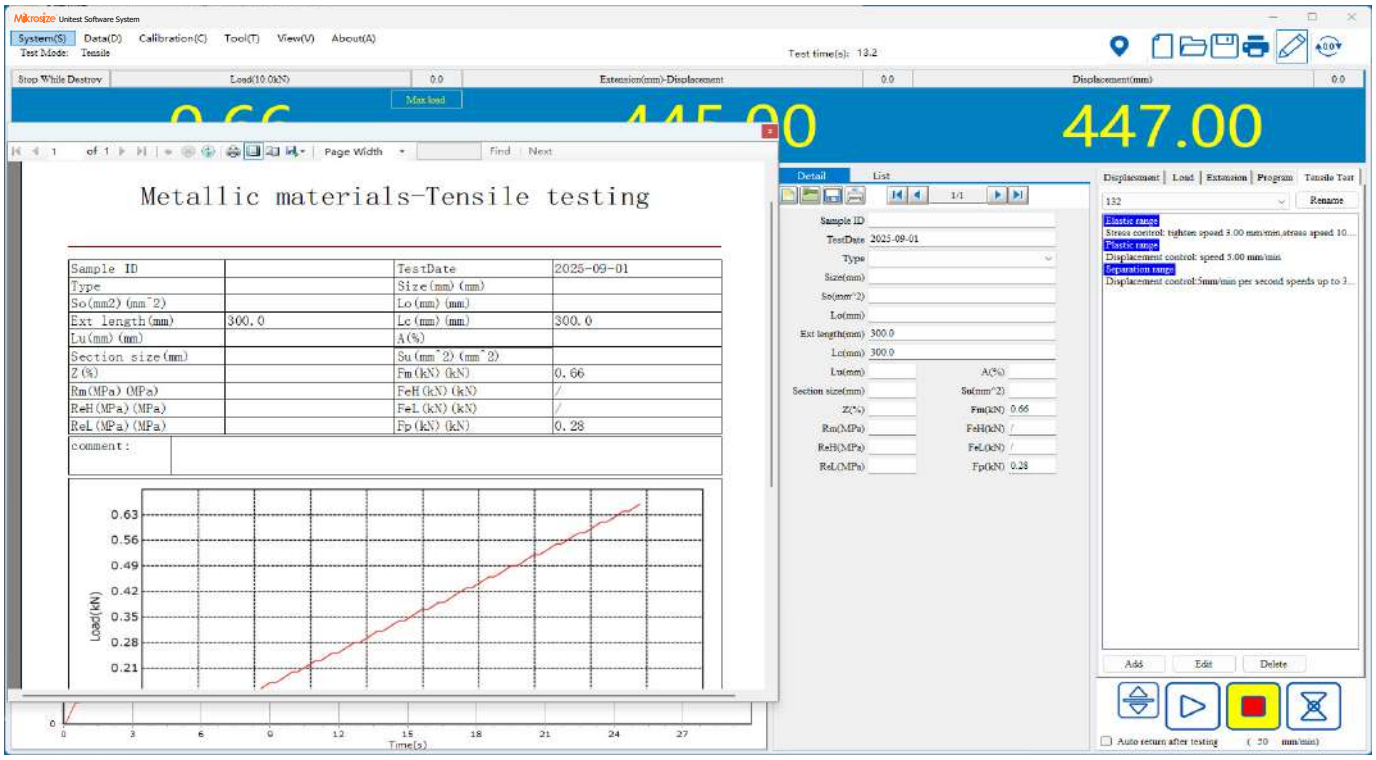




Software Interface

Data Printing and Output





- The data and curve graphs obtained after the experiment can be directly printed out by the printer

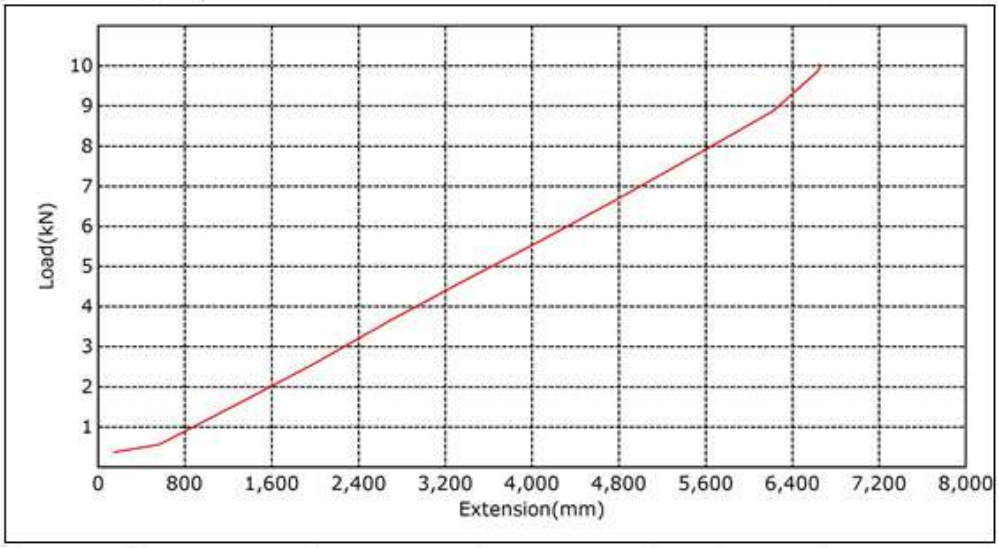
Software Interface

Experimental Report

Metallic materials-Tensile testing

Sample ID	123	TestDate	2025-09-01
Type	Circle	Size(mm) (mm)	30.0
So(mm2) (mm^2)	706.86	Lo(mm) (mm)	
Ext length(mm)	300.0	Lc(mm) (mm)	300.0
Lu(mm) (mm)		A(%)	
Section size(mm)		Su(mm^2) (mm^2)	0.00
Z(%)	100.0	Fm(kN) (kN)	10.05
Rm(MPa) (MPa)	14	FeH(kN) (kN)	/
ReH(MPa) (MPa)		FeL(kN) (kN)	/
ReL(MPa) (MPa)		Fp(kN) (kN)	4.68

comment:



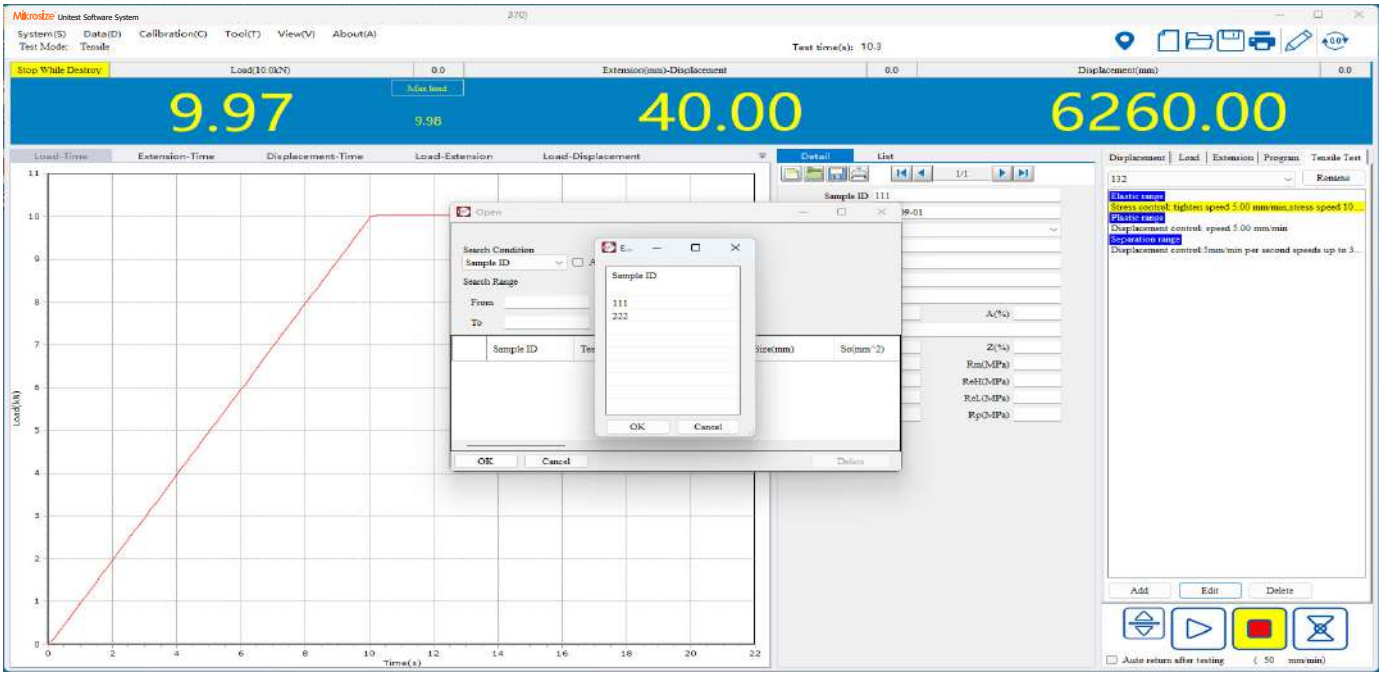
Checker: Approver: Tester:

Printed in:2025-09-01

- Experimental data can also generate reports, and the reports have three output formats: Word, Excel, PDF.

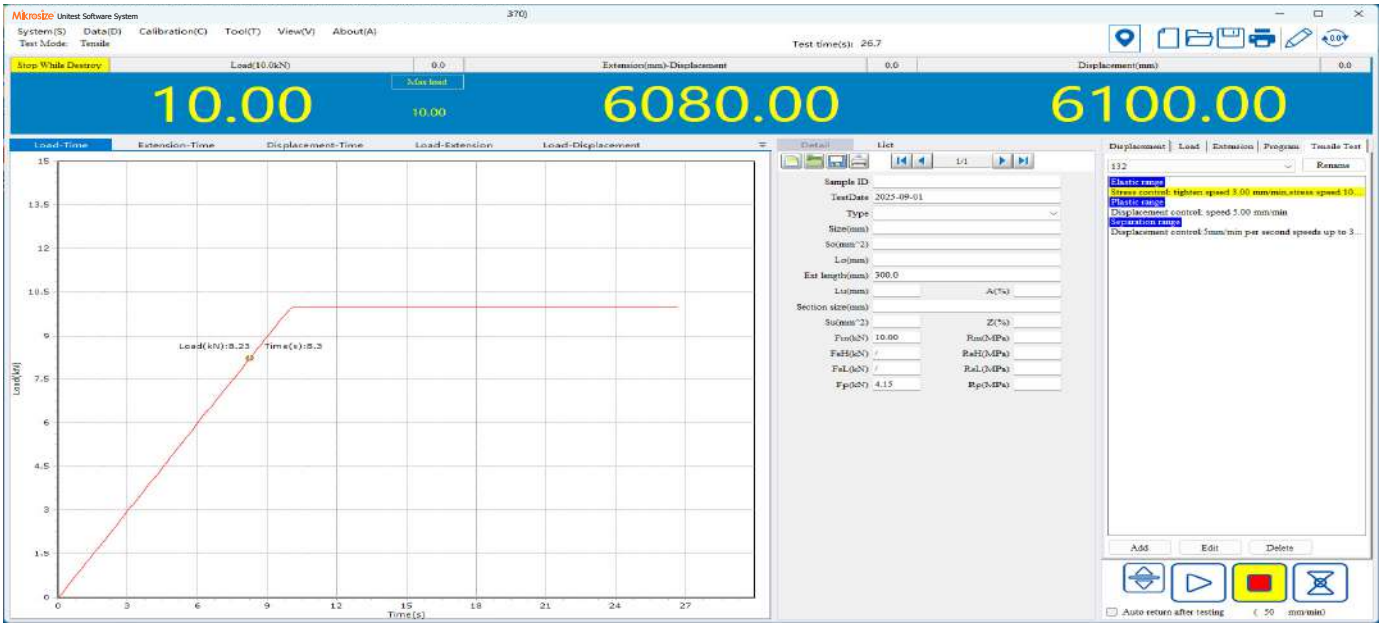
Software Interface

Search Historical Data



- It has the function of searching historical data, supporting search by different parameters such as sample name and test time

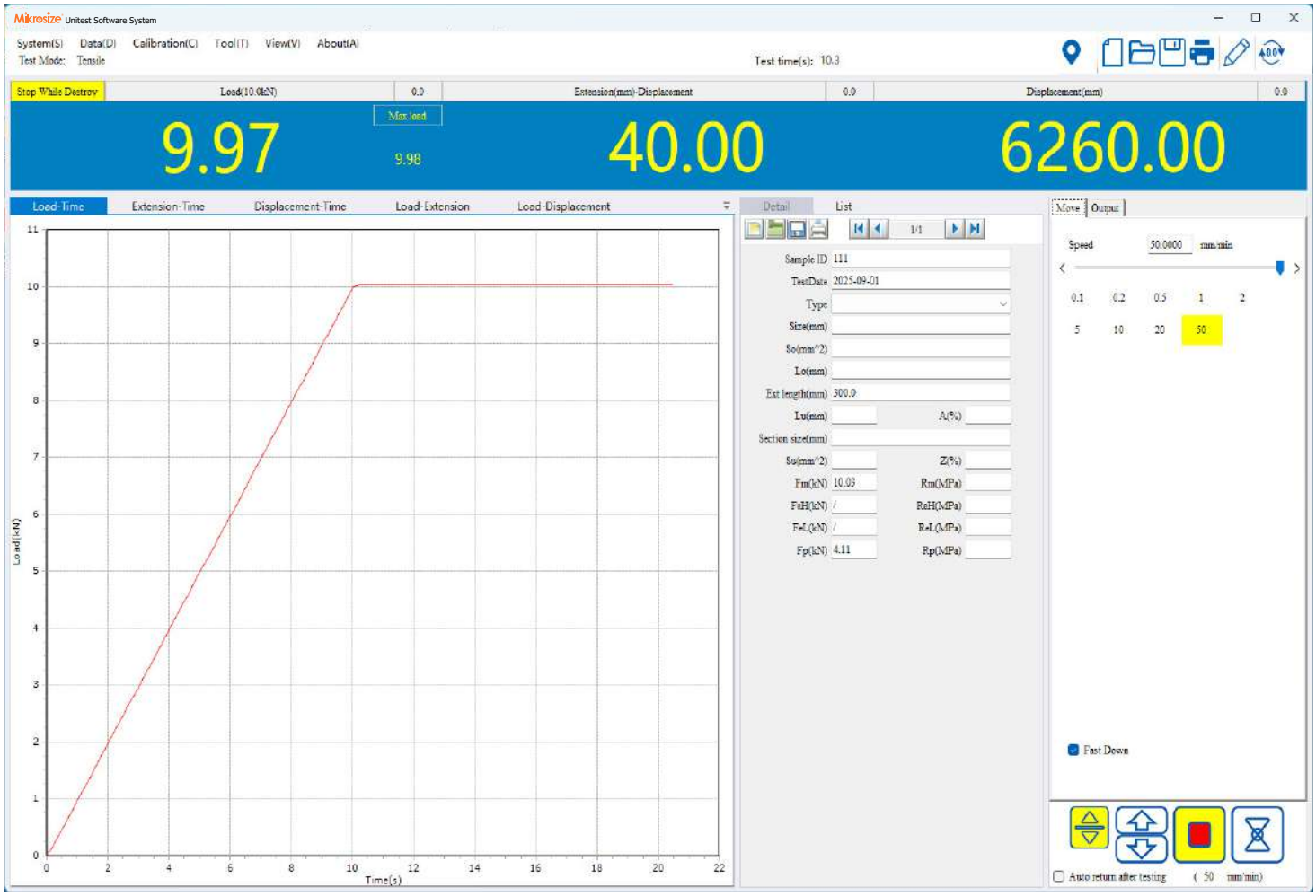
Display Coordinates



- Supports the coordinate display function. After opening, click any point on the curve graph to display the coordinate value of that point, and the specific parameter value can be obtained according to the curve XY axis parameters

Software Interface

Crossbeam Control



- Click the leftmost button in the red box. After the button lights up, enter the crossbeam control interface
- The experimental space can be changed by controlling the lifting of the crossbeam, which can be used to clamp the sample
- Supports the function of automatically returning to the initial position after the test is completed, which needs to be manually checked.

Ordering Information

UTM-H2000 Computerized Electro-Hydraulic Servo Hydraulic Universal Testing Machine

UTM-H3000 Computerized Electro-Hydraulic Servo Hydraulic Universal Testing Machine

Technical Specification

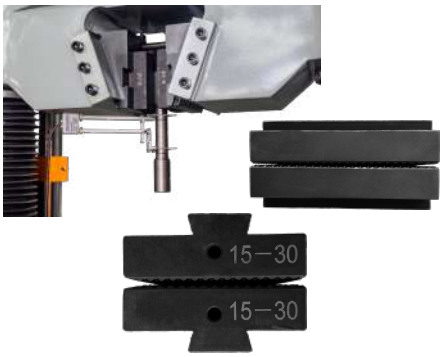
Name	Computerized electro-hydraulic Servo hydraulic universal testing machine	
Model	UTM-H2000	UTM-H3000
Number of Columns	6 (4 columns and 2 screws)	
Load Capacity	2000KN/200000kgf	3000KN/300000kgf
Calibration Standard	Class 1	
Testing load Accuracy	±1%	
Load Measuring Range	1%～100%F.S	
Load Resolution	1/500,000 of FSof FS	
Displacement Resolution	0.01mm	
Displacement Accuracy	≤±1% of Indicating Value	
Deformation Measuring Range	1%~100%FS	
Deformation Resolution	1/±500000FS of the max deformation	
Deformation Accuracy	≤±1% of Indicating Value	
Overload Protection	≥5% of Full Range	
Max. Tensile Testing Space	800mm	900mm
Max. Compression Testing Space	750mm	900mm
Distance Between Two Columns	600mm	720mm
Max. Piston Stroke	250mm	

Mikrosize®

Technical Specification

Testing Speeds	0-50mm/min	
Cross Beam Adjustment for Max Speed	About 120 mm/min	
Control Mode	Force closed loop control, deformation closed loop control, displacement closed loop control	
Force Control Controls The Speed Range	0.001%~5%FS/s	
Deformation Control Controls Speed Range	0.001%~5%FS/s	
Clamping Mode	Built-in wedge type hydraulic automatic clamping	
Overall Dimensions of The Jaws	120*120mm	
Round Specimen Clamping Dia. Range	Φ30-Φ55mm (Optional:Φ15-30mm; Φ55-70mm)	Φ45-Φ80mm
Flat Specimen Clamping Thickness Range	10-40mm (Optional:40–70mm)	10-40mm
Compression Plate Dimensions	Φ200mm	Φ200mm
Load Frame Dimension (L*W*H)	1120*920*3000mm	1200*950*3150mm
Oil Power Dimension (L*W*H)	1250*1000*1000mm	1250*1100*1100mm
Power Supply	3P 380V±10%,50-60HZ,3.2kW	3P 380V±10%,50-60HZ,5kW
N.W.	7500kg	9000kg
Operating Temperature	0 to +38° C (+32 to +100° F)	
Humidity Range	10% to 90% non-condensing	

Standard Delivery

Name	Qty	Photo
Host Frame	1 set	
Hydraulic Automatic Wedge Tensile Grip	1 set/each	
Φ160mm Compression Fixture	1 set	
3-Point Bending Fixture	1 set	
Safety Screening	1 set	
Control Cabinet	1 set	
Oil Box	1 set	

Standard Delivery

Name	Qty	Photo
Servo Motor And Drive System	1 set	
Plunger Pump	1 set	
Hydraulic Integrated Valve Block	1 set	
Pressure Gage	1 set	
High-Pressure Oil Pipe	1 set	
Magnetic Exchange Valve	1 set	
Measure and Control Software	1 set	
Control System	1 copy	

Standard Delivery

Name	Qty	Photo
Load Cell	1 set	
Hand-Held Controller	1 set	
Displacement Sensor	1 set	
HP Computer	1 set	
HP Printer	1 set	
Instruction Manual	1 copy	
Warranty Card	1 copy	
Product Certificate	1 copy	
Calibration Certificate	1 copy	

Optional Delivery

Name	Qty	Photo
Electronic Extensometer	1 set	
Other Force Sensors with Different Ranges	1 set	
Other Fixtures of Various Models	1 set	

Mikrosize Precision Instrument Co.,Ltd

Add: A-4035 RuiFeng Business Expo , Wuhu City, China , 241000.

Tel: 0553-2836939 Fax:0553-2836938 Web: www.mikrosize.com