Mikrosize®

UTM-E100/E200/E300

Computer Controlled Electronic Universal Testing Machine

Video

Contact us

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Features and Applications

Product Features

- The main machine adopts a rigid floor-standing gantry frame structure, which is composed of an upper crossbeam, a movable crossbeam and a workbench connected by columns and ball screws, ensuring stability and reliability.
- The movable crossbeam is processed from a single casting, which ensures it can bear sufficient force without deformation.
- It can conduct both tensile and compression tests simultaneously, with the upper part serving as the tensile test space and the lower part as the compression test space.
- Driven by a servo motor, it is equipped with a high-precision sensor, a dedicated independent controller and measurement and control software, enabling precise control of the equipment.
- Equipped with a magnetic handheld control box, facilitating users to operate the equipment from a distance.
- The dedicated software has multiple functions to meet the needs of different users. It also features a modular and open design. In addition to providing common standards such as GB, ASTM, DIN, ISO and JIS, users can design calculation formulas according to their own requirements.
- The software can generate real-time curves in multiple modes, including force-time, stress-time, strain-time, displacement-time, etc.
- The software can automatically calculate parameters such as maximum force, average force, maximum deformation, tensile strength and yield strength.
- It provides customizable test report templates for users, supporting report export in multiple formats: Word, PDF and Excel.
- The software is compatible with multiple Windows operating systems: Windows 7, Windows 10 and Windows 11.
- Maximum test force: 100kN.
- Test speed range: 0.001 - 500mm/min.
- Multiple units are available.
- Force units：KN、N、kgf、lbf.
- Displacement units：mm、cm、dm、m、in、ft、mil.
- It can automatically return to the initial position after the test is completed.
- Equipped with multiple protection devices, including mechanical travel switches, emergency stop switches and overload protection.
- Standard tensile and compression fixtures are provided, and custom fixtures can be made according to user needs.
- It complies with the following execution standards: GB/T 2611, GB/T 16491, GB/T 16825, GB/T 228, ISO 527, ASTM D3574, DIN 53357, JIS K6854, etc.

Features and Applications

Product Applications

- Metal materials field
- Raw material quality control
- Processing technology verification
- Finished product performance testing
- Non-metallic materials field
- Testing of plastic and rubber products
- Testing of textiles and leather products
- Testing of paper and packaging materials
- Construction and building materials field
- Building materials testing
- Scientific research and education field
- Scientific research experiments
- Teaching demonstrations

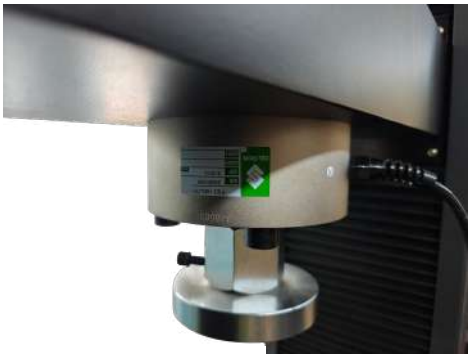
Product Details

- The equipment is equipped with upper and lower limit devices to prevent the equipment from overshooting and damaging the fixtures.
- When the crossbeam moves to the limit position, the limit device will be triggered, and the equipment will stop running immediately.
- The position of the limit device can be adjusted by users according to their needs.

- An emergency stop button is installed at the bottom of the equipment, with an indicator light next to it to show the equipment's status, which is very eye-catching.

- Standard tensile fixtures are provided for testing plates. Jaw openings of other sizes and V-shaped jaws for rods are optional.
- Due to the large experimental force, a rotating locking method is adopted to ensure stable clamping.
- The fixture can be quickly replaced by pulling out the lower pin. All fixtures have the same pin size, making fixture replacement convenient.
- Optional fixtures include bending fixtures, peeling fixtures, puncture fixtures, etc. Custom fixtures of other models are also available according to user needs

- The accuracy class of the testing machine is Class 1 (Class 0.5 is optional), and it uses a high-precision spoke-type sensor.



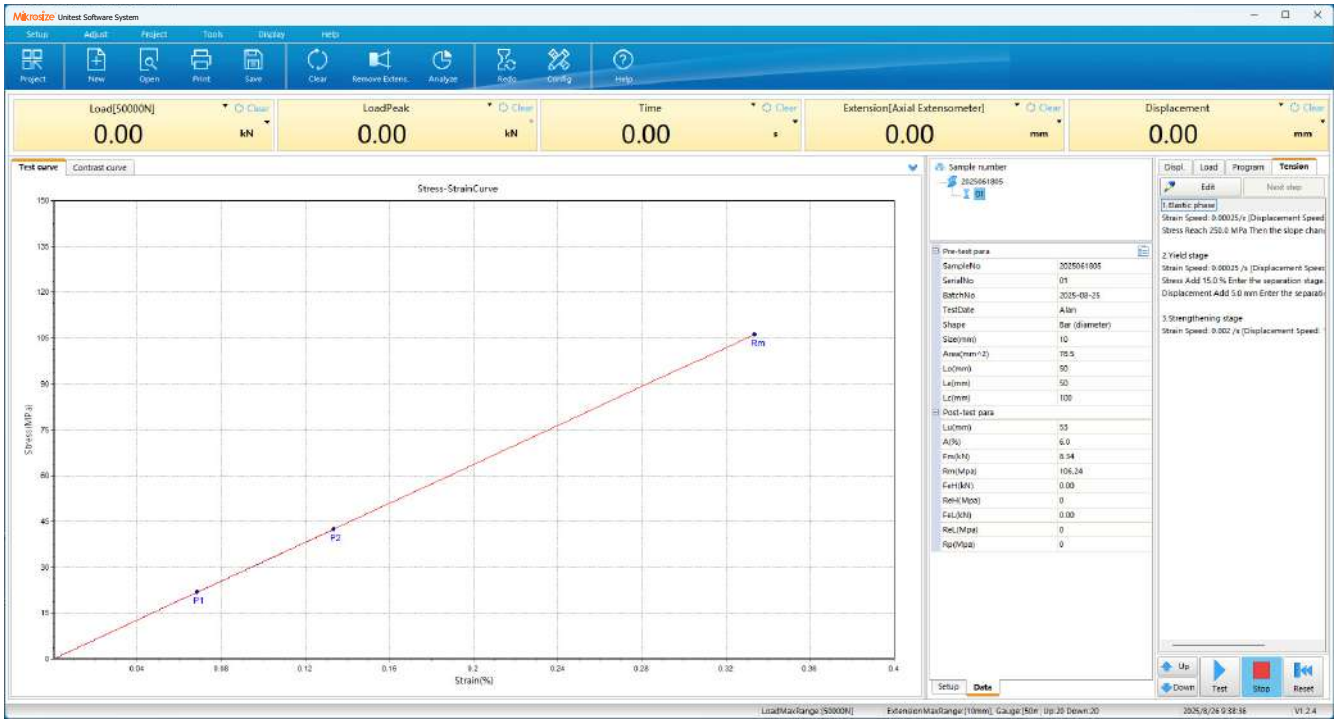
Product Details

1. Upper Limit Device
2. Force Sensor
3. Movable Crossbeam
4. Fixture
5. Lower Limit Device
6. Emergency Stop Button
7. Indicator Light
8. Computer

1. Power Cable Interface
2. Computer Interface

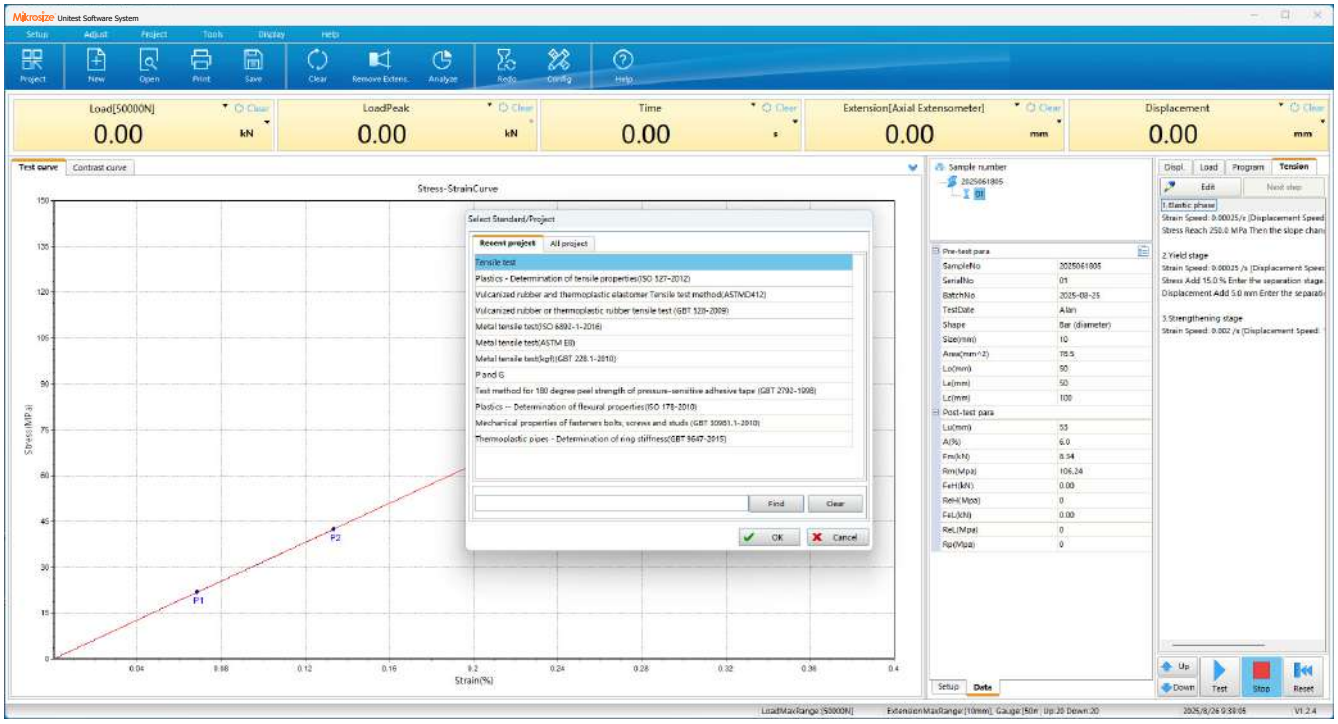
Operation Interface

Software Interface



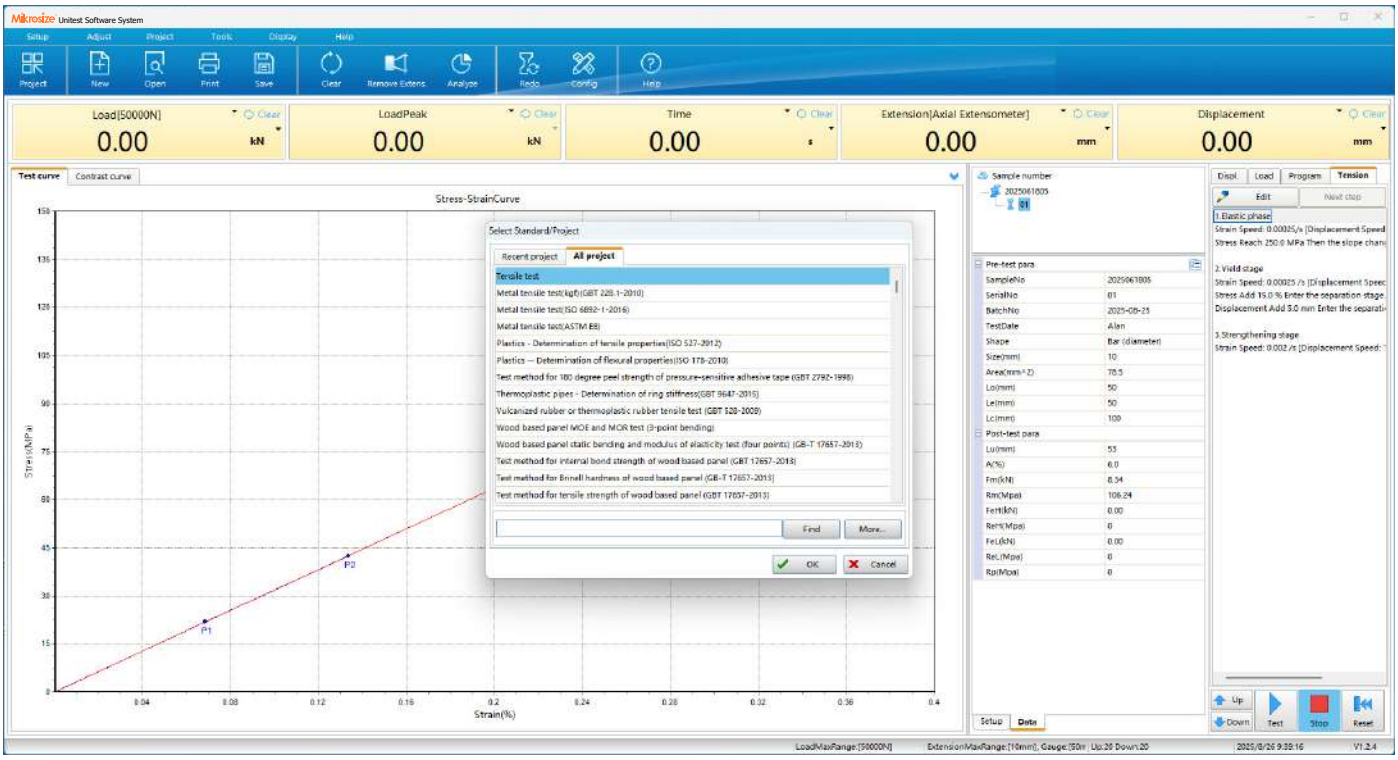
The independently developed software used with the testing machine has rich functions to meet various user needs. Its interface layout is reasonable and the operation logic is clear, making it easy for users to understand and operate.

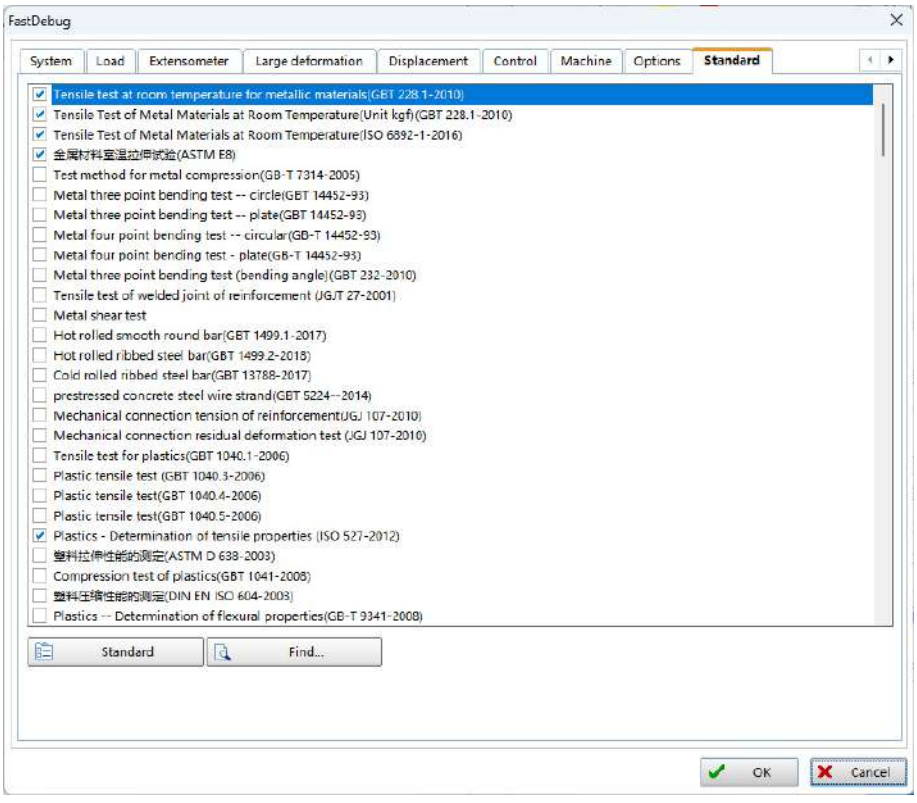
Experimental Standards



Operation Interface

Experimental Standards

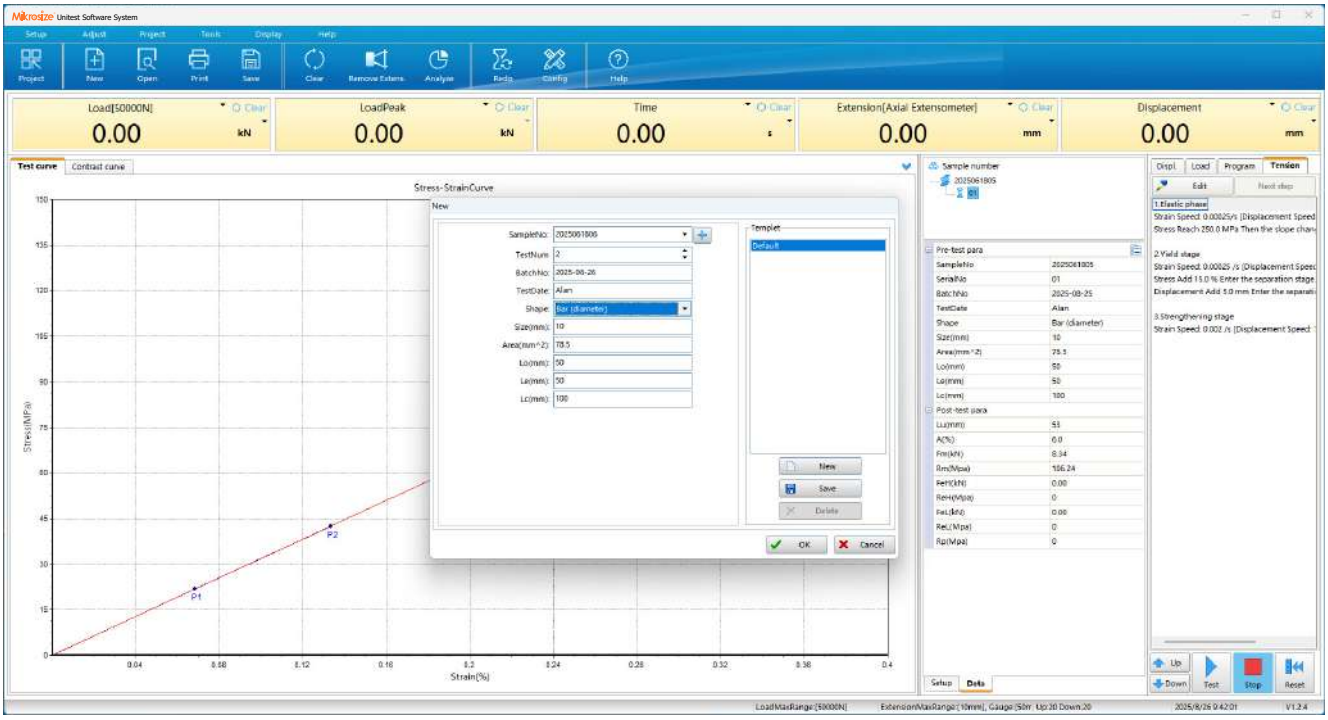


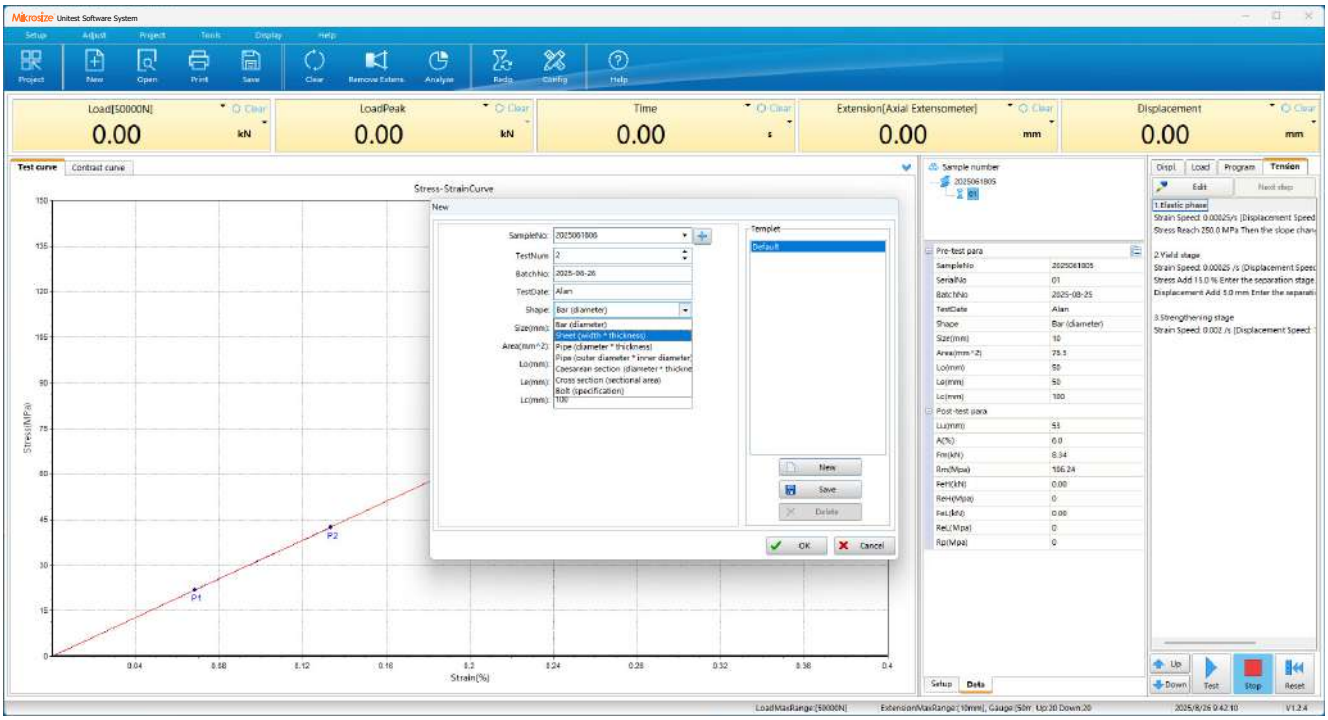


- It has a multi-level test standard library, including common international standards such as ISO and ASTM. Users can add the required standards to the common standard library by themselves, and can also add or delete standards.
- Before starting the test, it is necessary to select the appropriate experimental standard first.

Operation Interface

Sample Information

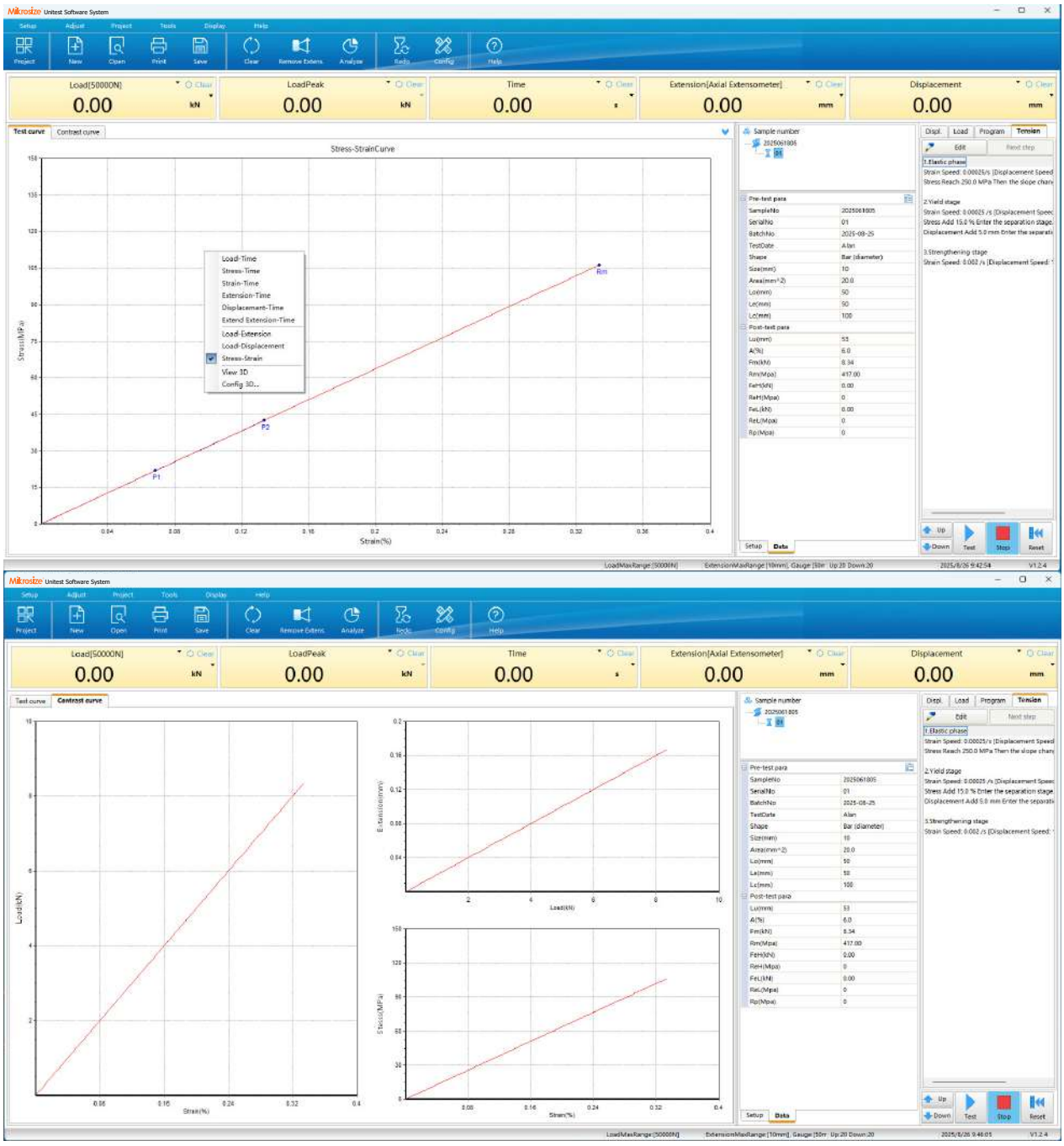




- After selecting the experimental standard, users need to input the test sample information, including sample shape, size, serial number, quantity, etc.
- The software provides multiple sample shapes for selection, such as rods, plates, pipes, bolts, etc., which can fully meet user needs.

Operation Interface

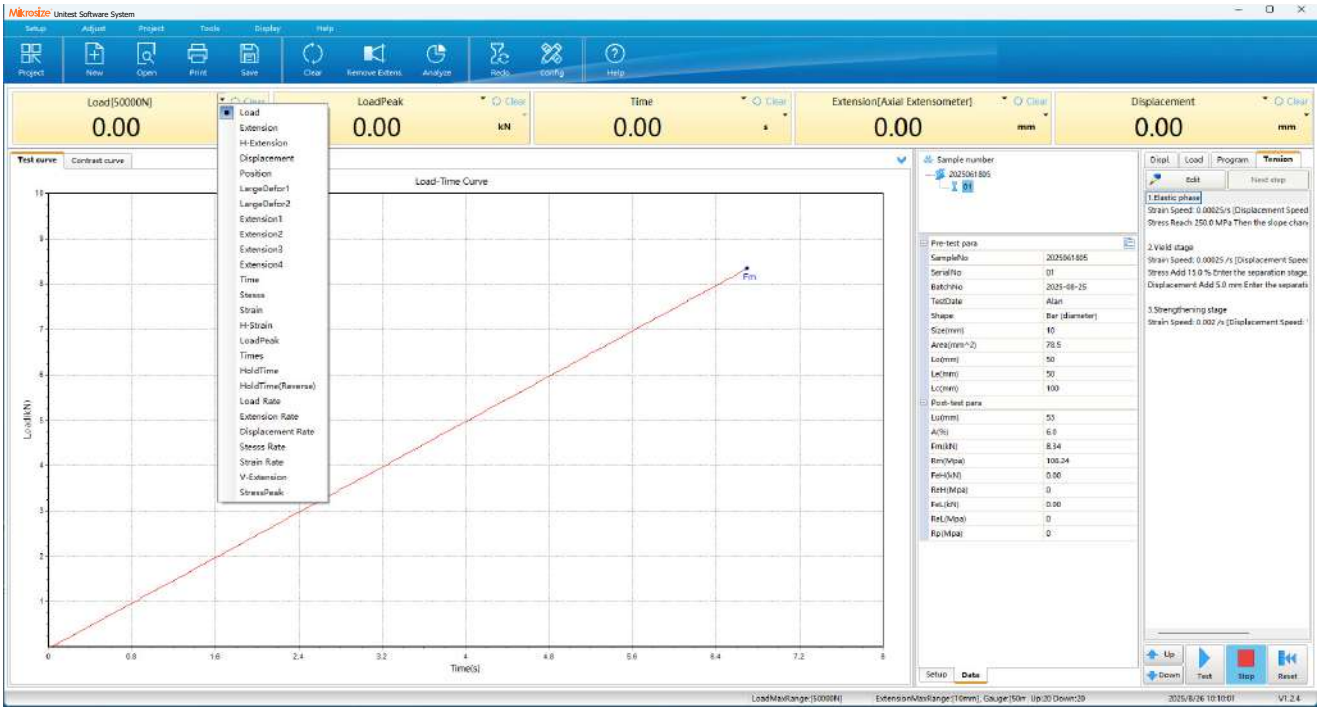
Test Curves



- During the experiment, the software will generate real-time curves. Multiple types of curves with different parameters are available for selection, including Load-Time, Stress-Time, Strain-Time, Extension-Time, Stress-Strain, etc.
- The software has a multi-curve mode, which can display multiple types of curves with different parameter modes at the same time, facilitating users to observe and avoiding frequent switching of curve parameters.

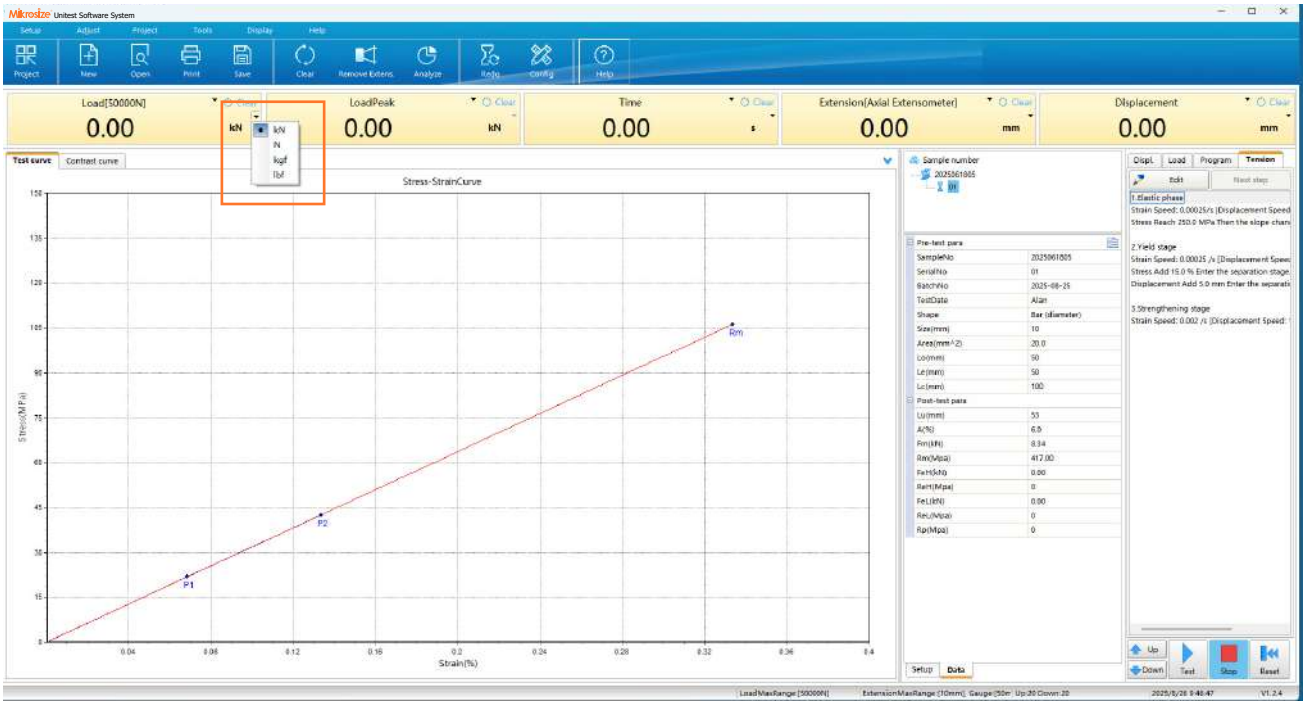
Operation Interface

Common Parameters



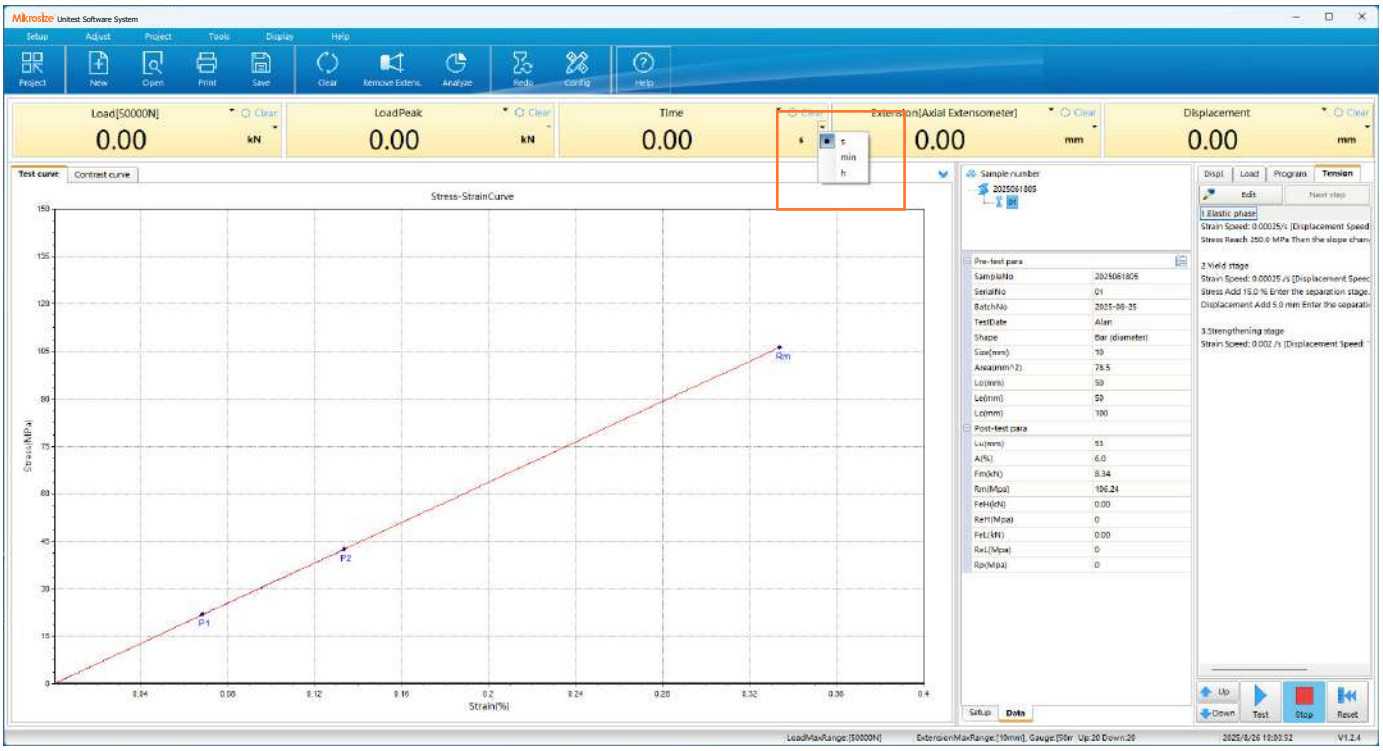
- The software displays 5 common parameters by default: Load, Load Peak, Time, Extension and Displacement.
- Users can modify the common parameters according to their needs.

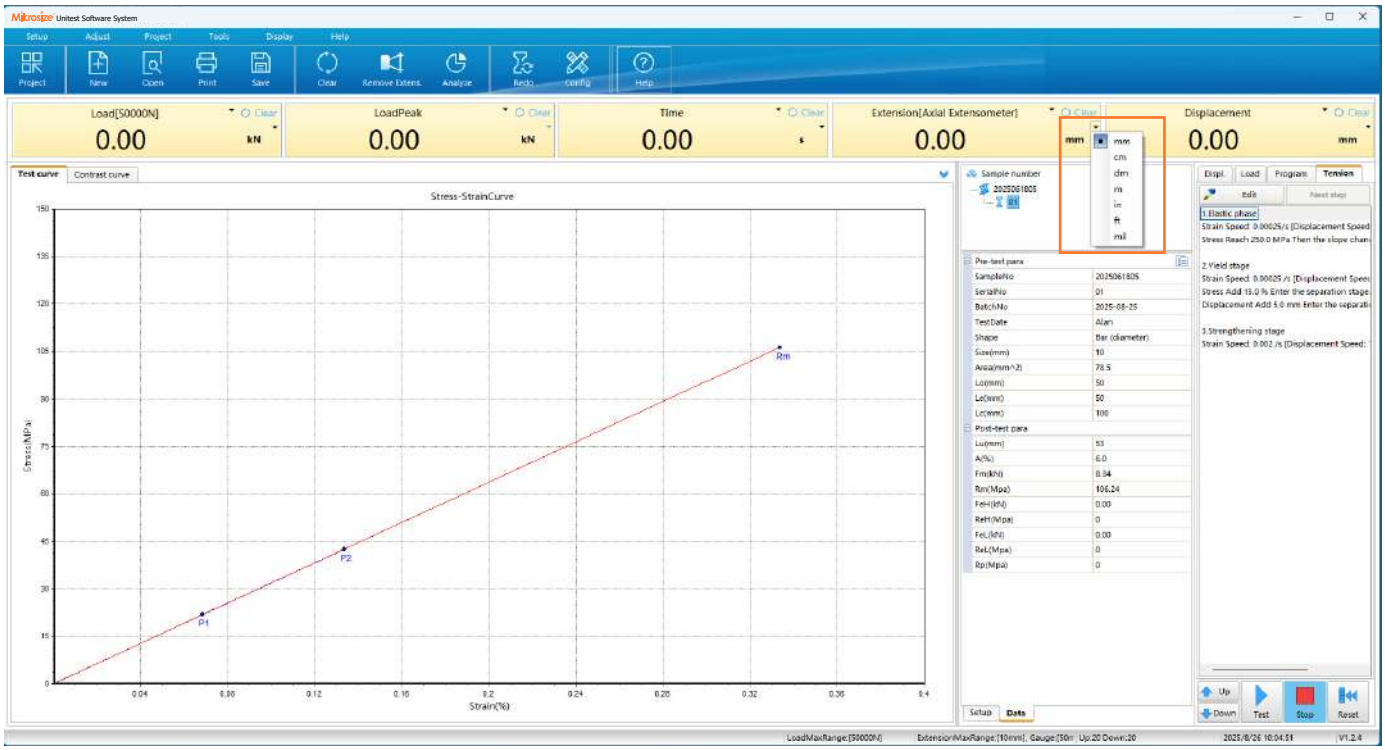
Units



Operation Interface

Units

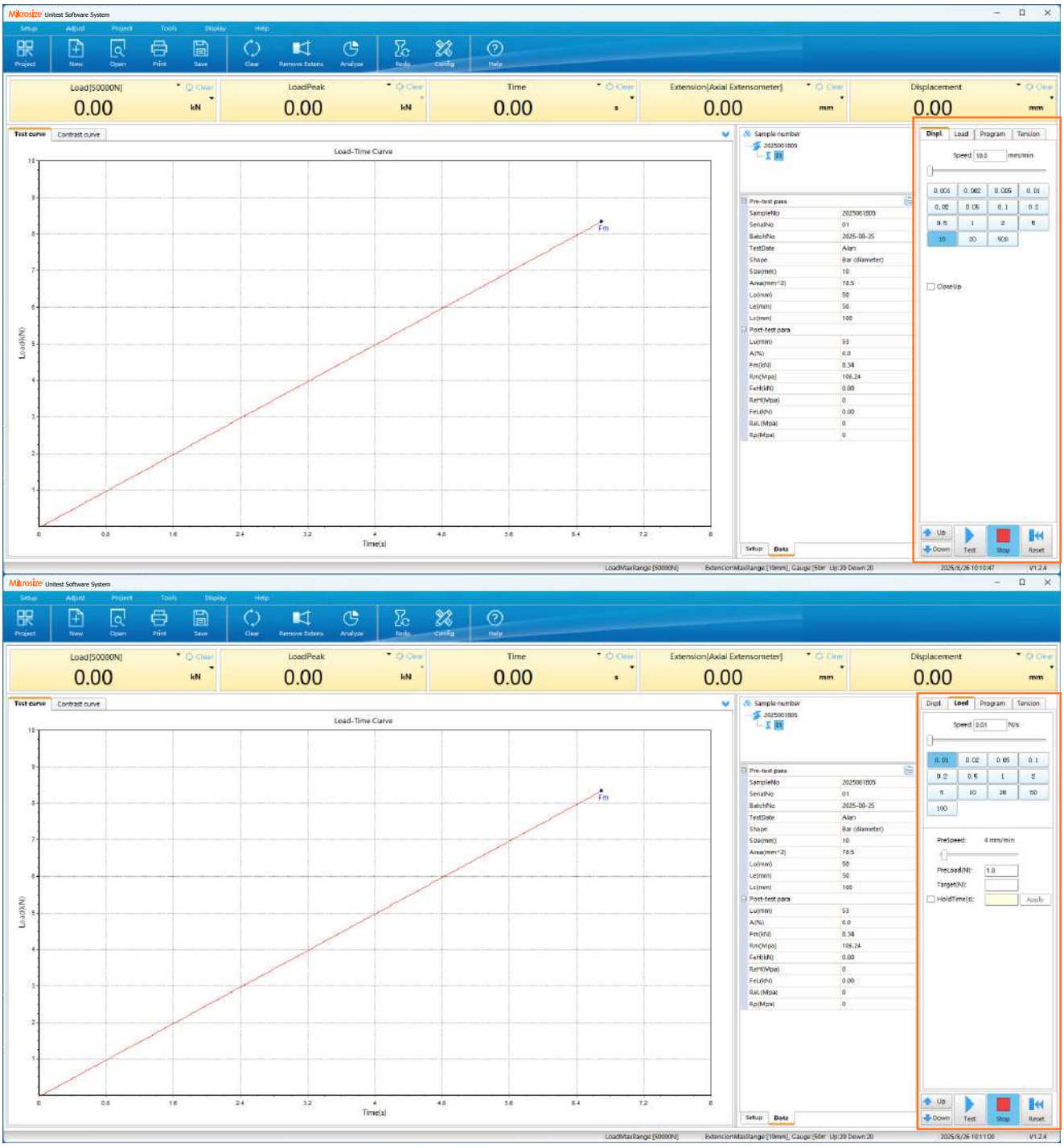




- Multiple units are available for selection: Force units: kN、N、kgf、lbf
  Time units: s、min、h, Displacement units: mm、cm、dm、m、in、flt、mil

Operation Interface

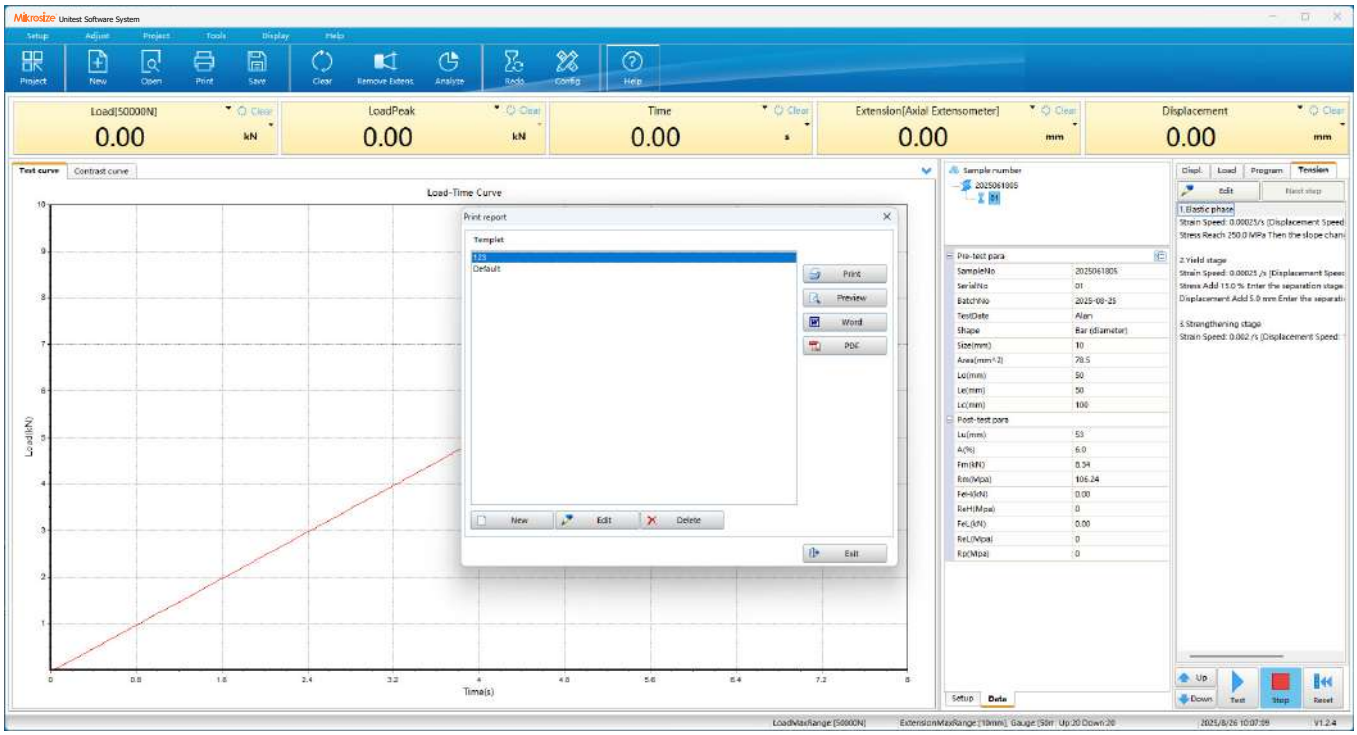
Experimental Parameters

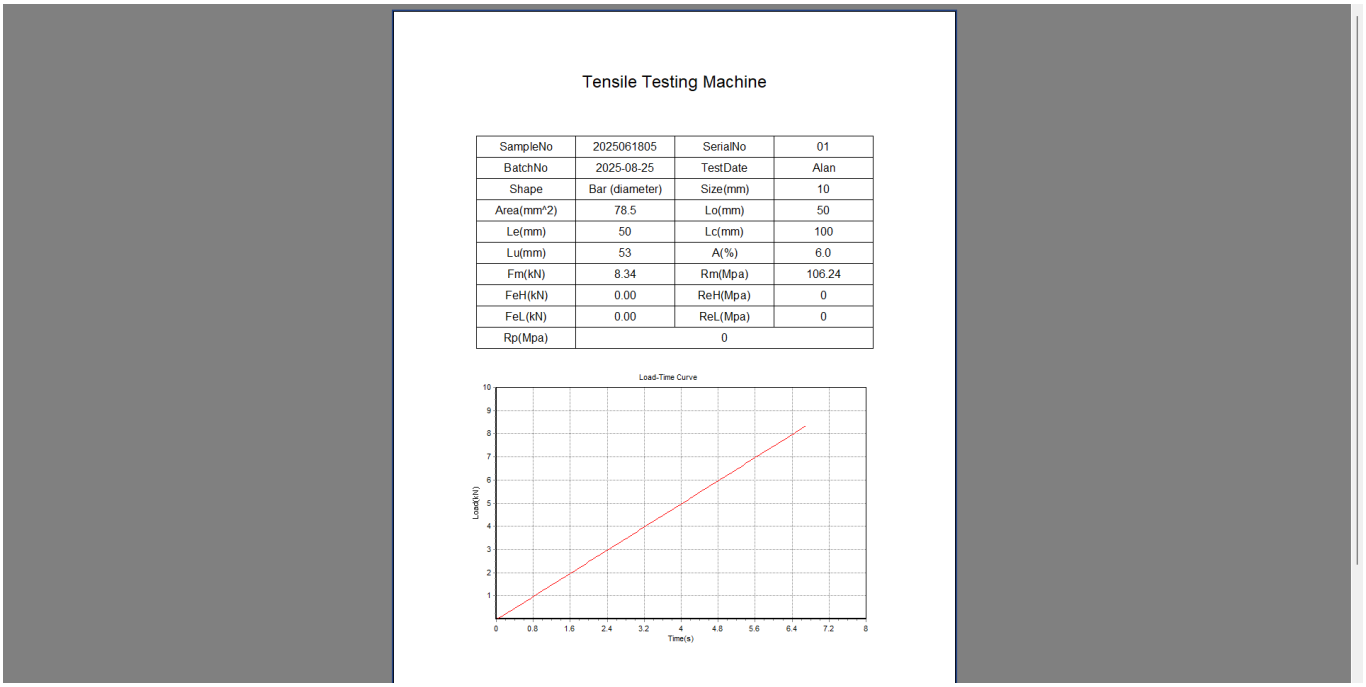


- The parameter toolbar on the right side of the software can be used to adjust the parameters of the testing machine, including test speed and loading speed.
- Test speed adjustment range: 0.001 - 500mm/min (a maximum of 1000mm/min is optional, which depends on the specific force value).
- Loading speed adjustment range: 0.01 - 100N/s

Operation Interface

Experimental Data Output





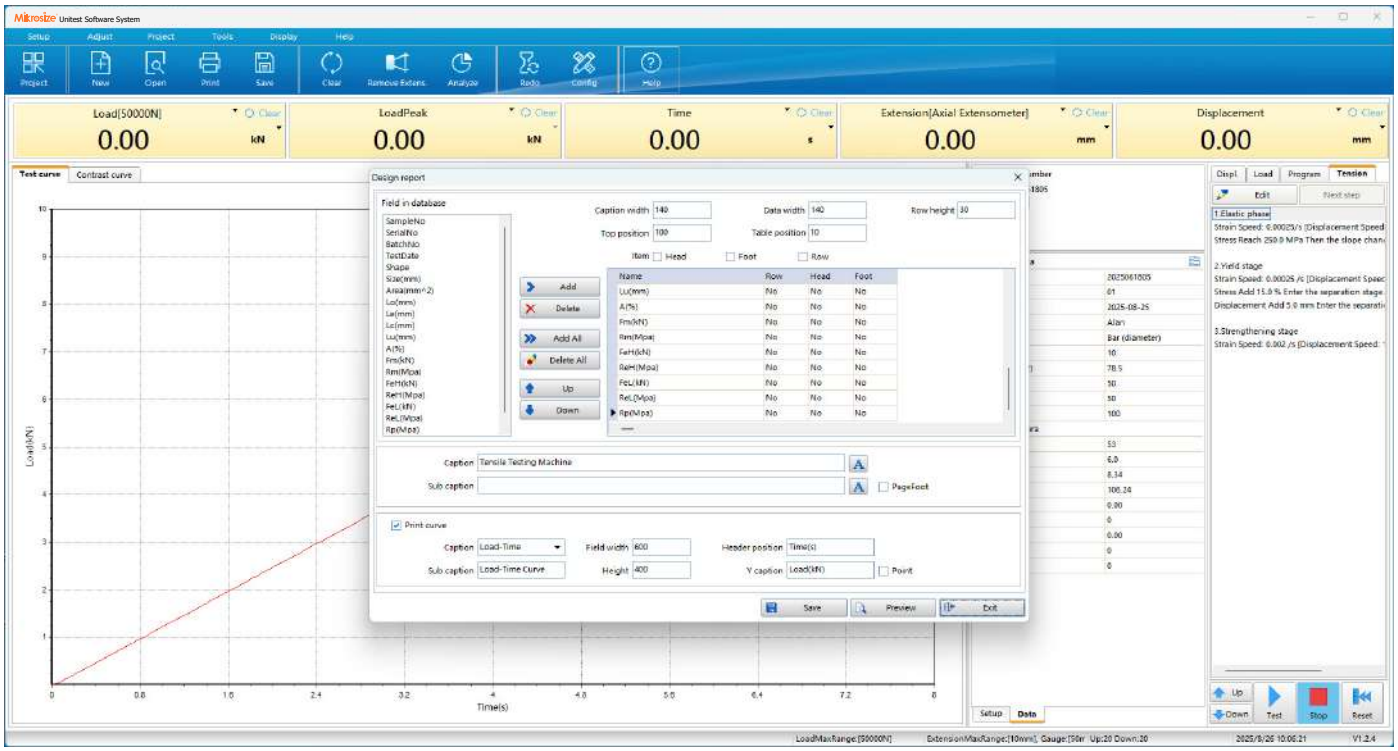
Tensile Testing Machine

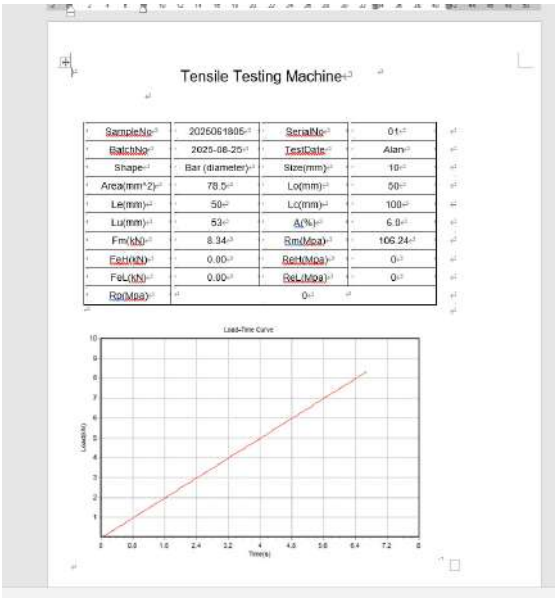
SampleNo	2025061805	SerialNo	01
BatchNo	2025-08-25	TestDate	Alan
Shape	Bar (diameter)	Size(mm)	10
Area(mm^2)	78.5	Lo(mm)	50
Le(mm)	50	Lc(mm)	100
Lu(mm)	53	A(%)	6.0
Fm(kN)	8.34	Rm(Mpa)	106.24
FeH(kN)	0.00	ReH(Mpa)	0
FeL(kN)	0.00	ReL(Mpa)	0
Rp(Mpa)	0		

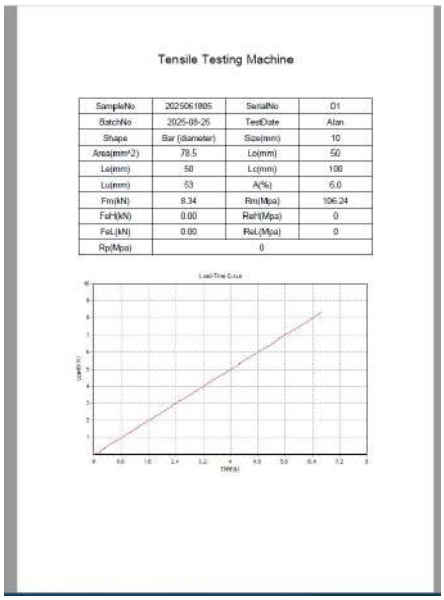
- After the test is completed, the obtained data and charts can be printed directly. The right side of the above figure shows the print report preview.
- In addition to direct printing, the data can also be generated into reports, which support Word, PDF and Excel formats.

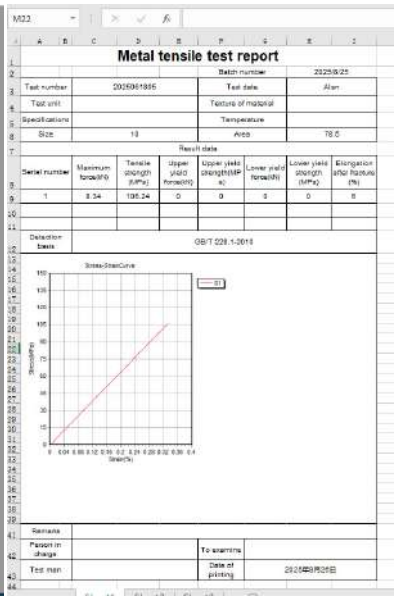
Operation Interface

Output Reports





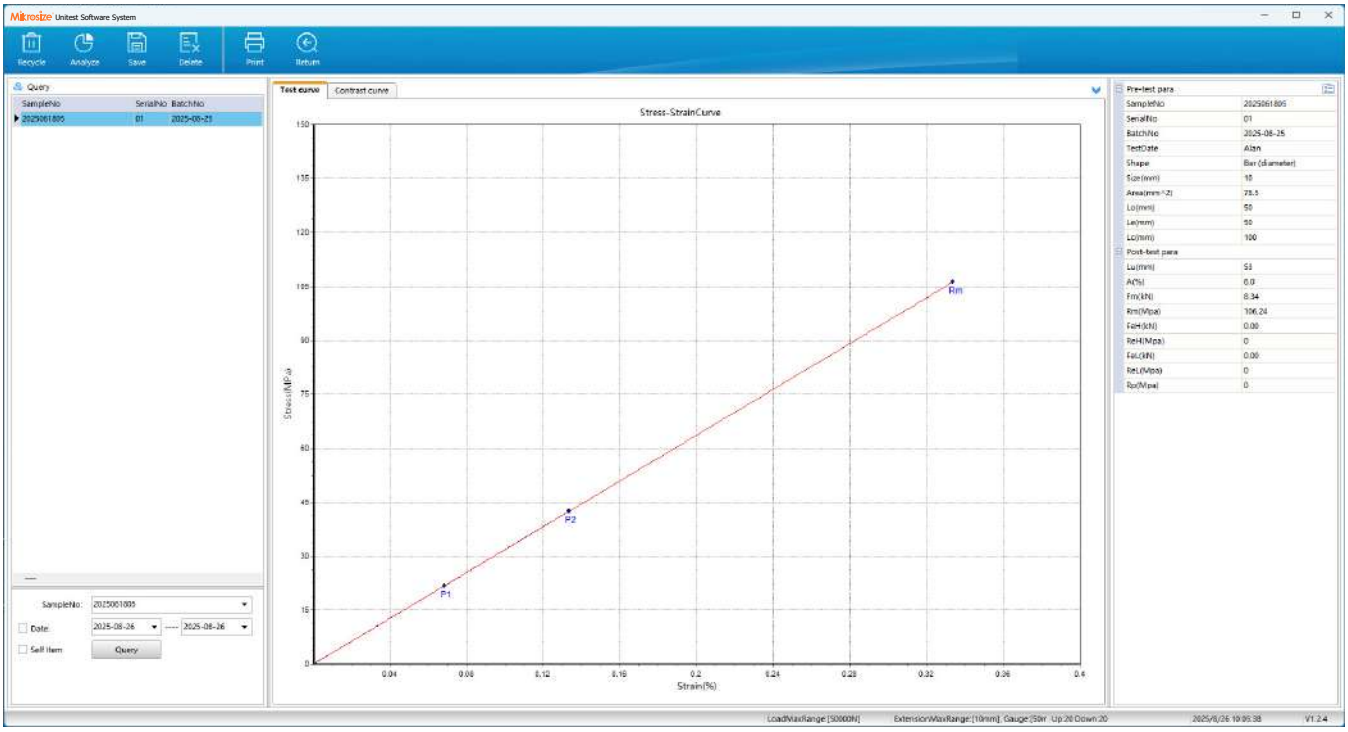




- Users can edit report templates by themselves, and can add or delete the parameters displayed in the report according to their needs.
- The report formats support three types: Word, Excel and PDF

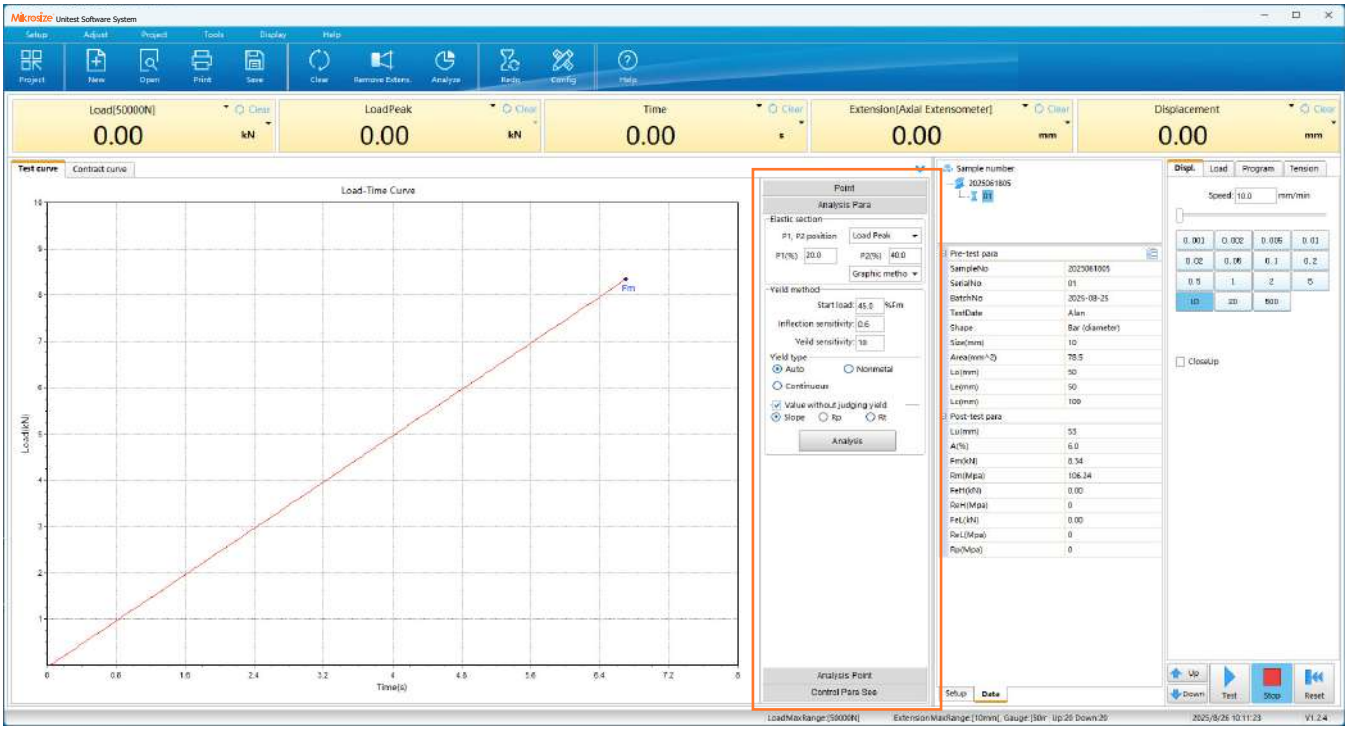
Operation Interface

Historical Data



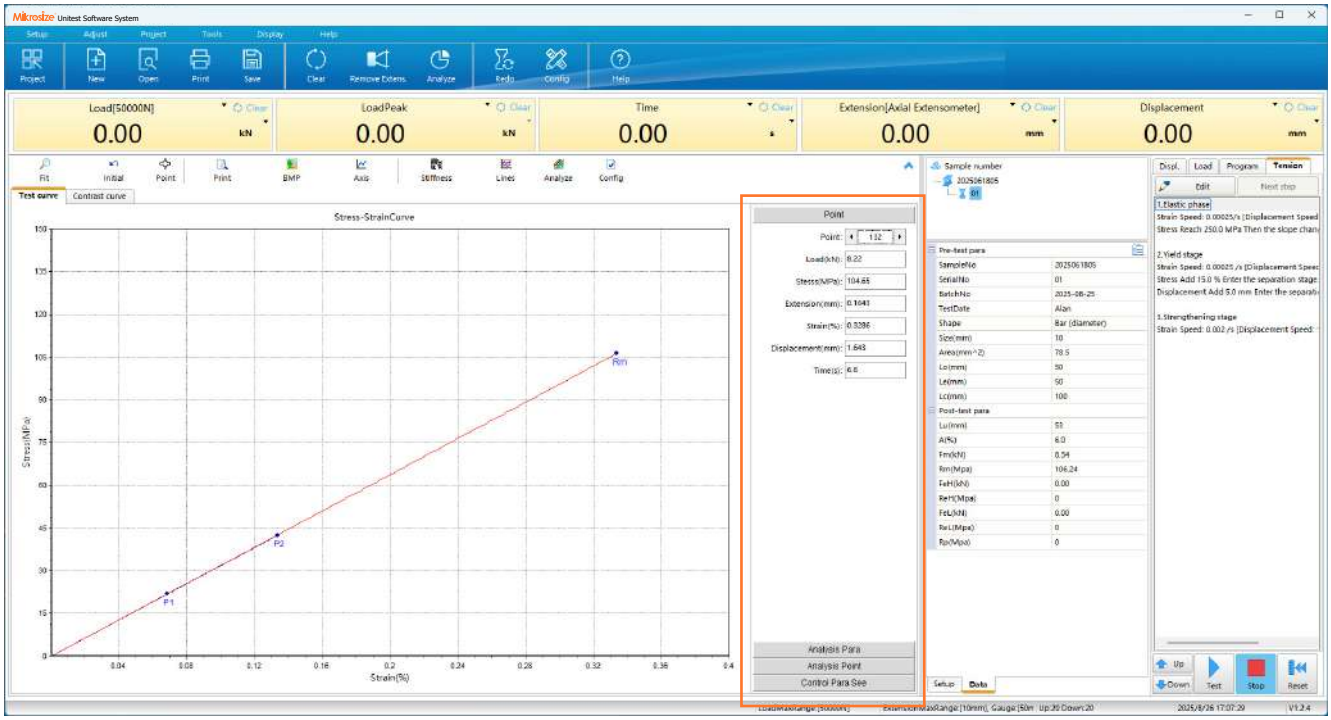
- The software supports the historical data query function.
- Queries can be made by date or serial number.

Data Analysis



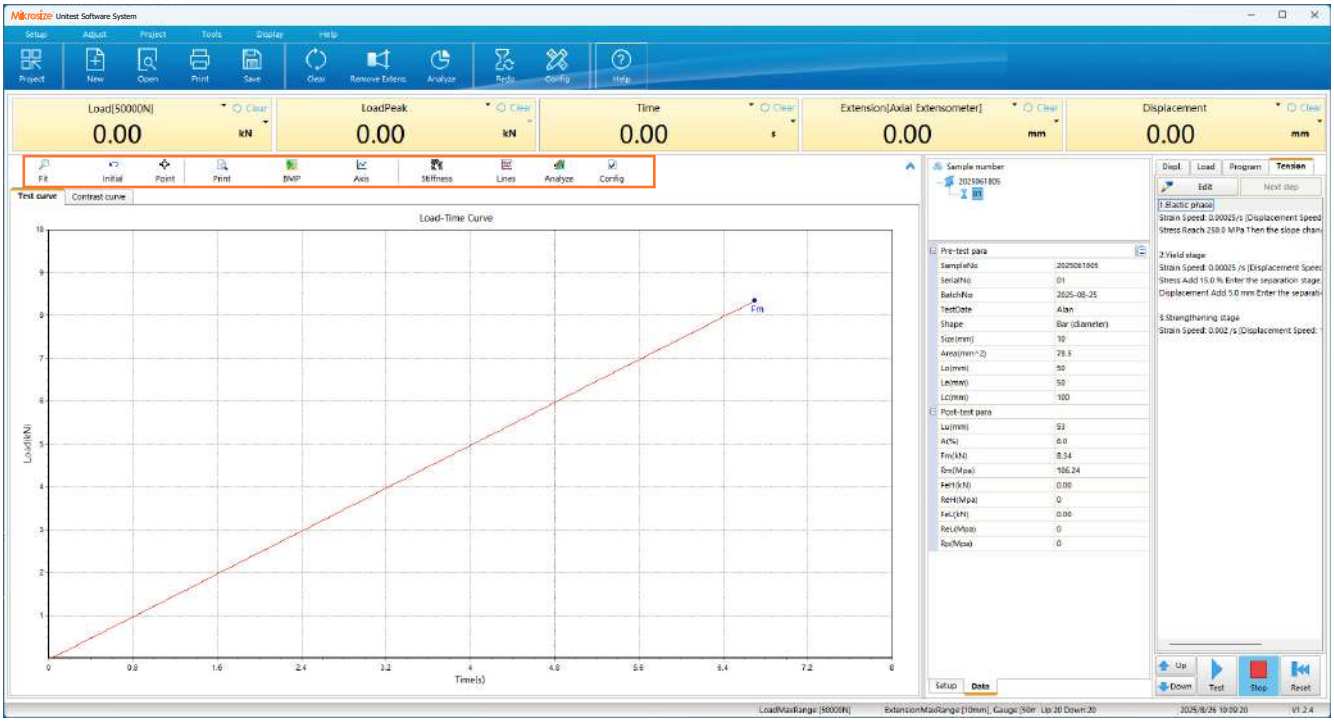
Operation Interface

Data Analysis



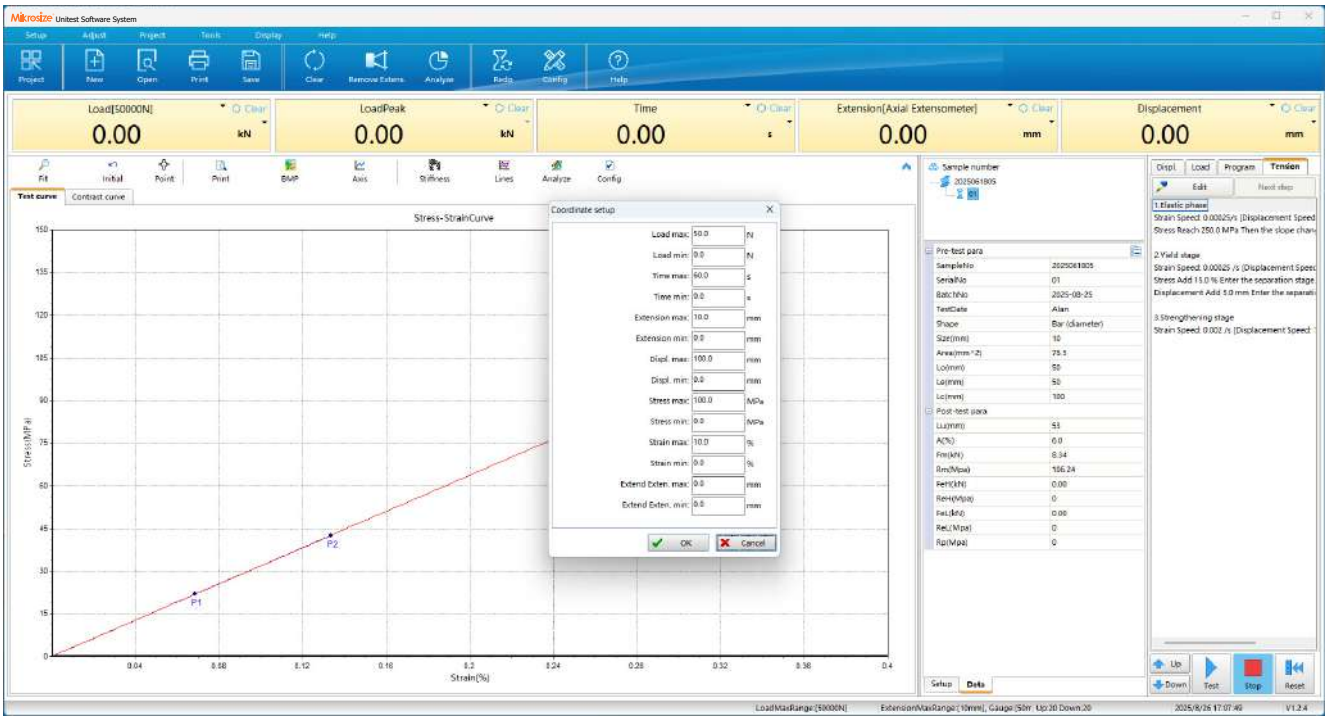
- It can analyze the characteristic points and parameters of the curve, including yield points, inflection points, etc.
- It can analyze the curve parameters point by point, including the test force, stress, strain, deformation, displacement, time and other parameters at each point.

Curve Toolbar



Operation Interface

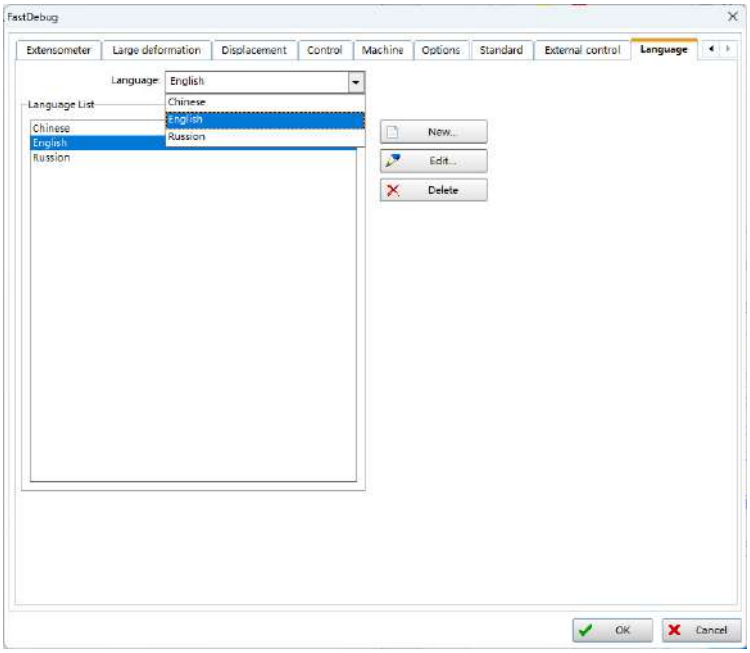
Curve Toolbar



- The software supports curve scaling, allowing users to zoom in on local characteristic points for observation.
- After scaling, a one-click restoration function is supported.
- It can print the curve, change the curve coordinate range, and select points directly on the curve.

Language

- Multiple languages are supported, with three default languages: Chinese, English and Russian. Custom languages can be provided according to customer requirements.

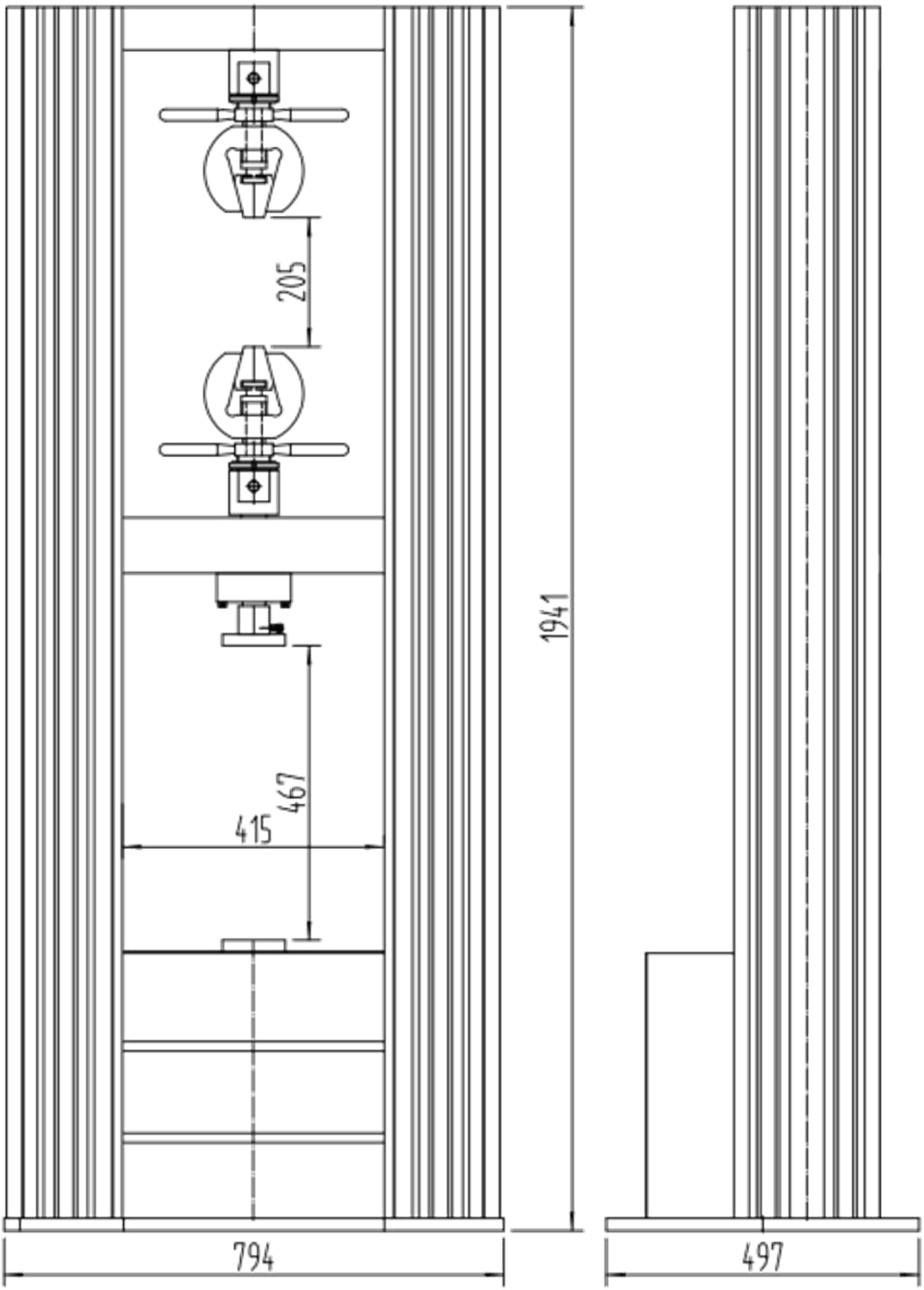


Mikrosize®

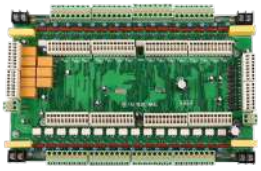
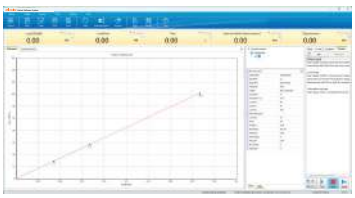
Technical Specification

Name	Computer Controlled Electronic Universal Testing Machine		
Model	UTM-E100	UTM-E200	UTM-E300
Max Load	100KN	200KN	300KN
Load Accuracy	Grade 1（Optional Grade 0.5）		
Testing Range	2%～100%F.S （Optional 0.4%～100%F.S）		
Load Resolution	1/500000FS		
Test Control Mode	3 closed loop control, stress, strain and displacement		
Deformation Measuring Range	0.2%～100%FS		
Deformation Accuracy	≤±0.5%	≤±1%	
Displacement Accuracy	≤±0.5%	≤±1%	
Displacement Resolution	0.01mm		
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		
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		
Deformation Control Controls Speed Range	0.001%~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		
Max. Tensile Testing Space	650mm	550mm	
Max. Compression Testing Space	550mm		
Test Width	400mm	600mm	500mm
Crosshead Speed Range	0.001-500mm/min	0.001～180mm/min	
Overall Dimensions (L*W*H)	800*500*1941mm	1045*650*2300mm	1050*650*2300mm
Power Supply	1P 220V±10%, 50-60HZ,1KW	1P 220V±10%, 50-60HZ,2.5KW	1P 220V±10%, 50-60HZ,2.5KW
N.W.	About 500kg	About 1500kg	

Machine Dimension



Standard Delivery

Name	Qty	Photo
Host Frame	1 set	
AC Servo Control System	1 set	
Ball Screw	1 set	
Synchronous Pulley	1 set	
Synchro Belt	1 set	
100kN Load Cell	1 set	
Control System	1 set	
English Operation Software	1 set	

Standard Delivery

Name	Qty	Photo
Handheld Unit Controller	1 set	
HP Computer	1 set	
HP Printer	1 set	
Manual Wedge Tensile Grip	1 set	
Flat Jaw :0-7mm	1 set	
Round Jaw :Φ4-9mm; Φ9-14mm	1 set	
Φ100mm Compression Test Grip	1 set	
Instruction Manual	1 copy	
Certificate of Qualification	1 copy	
Calibration Certificate	1 copy	
Warranty Card	1 copy	

Optional Delivery

Name	Qty	Photo
3-point Bending Fixture	1 set	
Electronic Extensometer	1 set	
USA Epsilon Extensometer	1 set	
Large Deformation Extensometer	1 set	
Fixtures Of Other Models	1 set	

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