

UTM-FDC

Computerized Dual-column Servo Tensile Testing Machine



Contact us

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Features and Applications

Product Feature

- Fully computer-controlled testing machines, international speed control technology.
- International brands components, making the machine with long-term high reliability, stability, and precision, as well as smooth operation and a long lifespan.
- Used for material testing with loads below 50 KN and covers a wide range of testing functions for most products, making it an ideal mechanical testing instrument for factories, research institutes, and quality inspection agencies.
- Fully digital, closed-loop (force, deformation, displacement) control system with adaptive PID algorithms achieves fully digital closed-loop control of force and displacement, allowing automatic switching between control loops and ensuring smooth transitions without impact when switching between different modes.

Product Application

- Suitable for mechanical performance tests and analysis such as tension, compression, peel, tear, and shear; suitable for Medium-strength Metal, Sintered product, friction material, rubber, plastic, thin film, fiber and fine thread, adhesive, foam material, adhesive tape, elastomer, connector, bio-material, wood products and paper products, metal foil, wire, oil bearing, ceramics, parts and components, fastener, composite material.

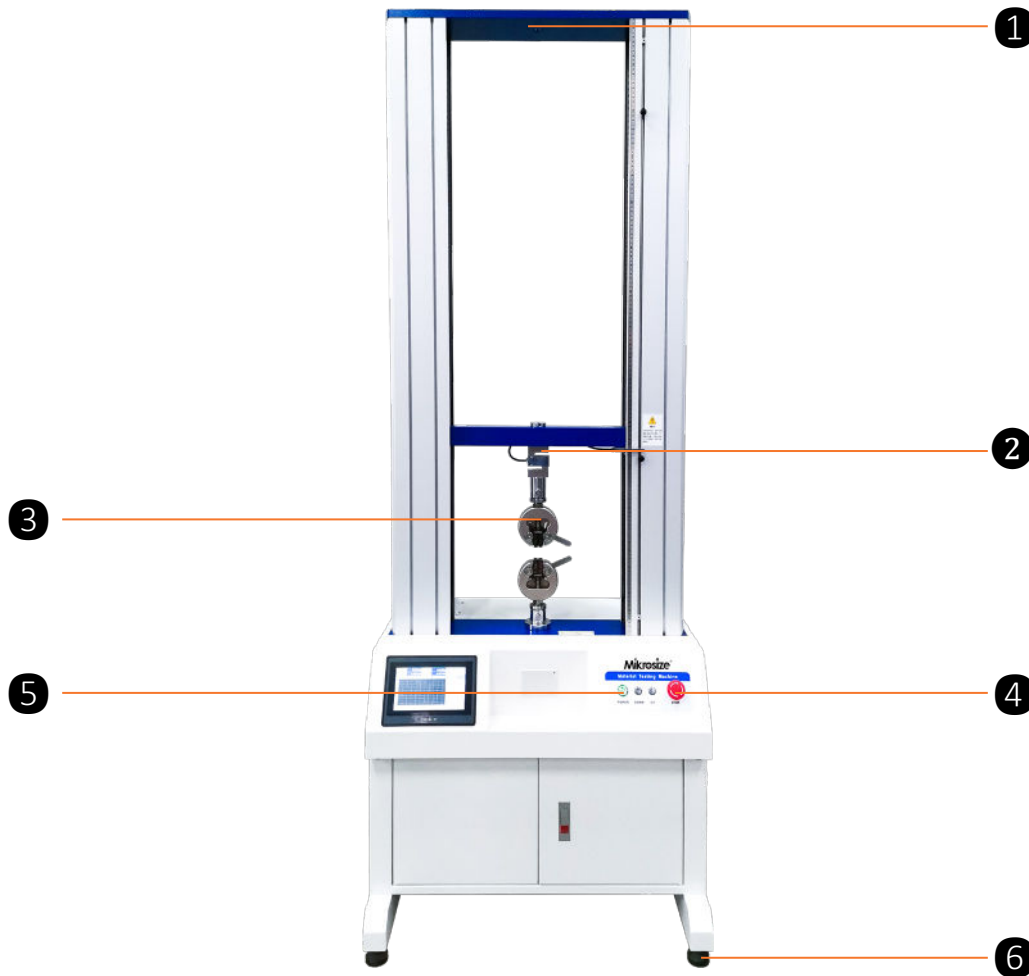


Without Working Cupboard



With Working Cupboard

Product Details



1.Limit Device

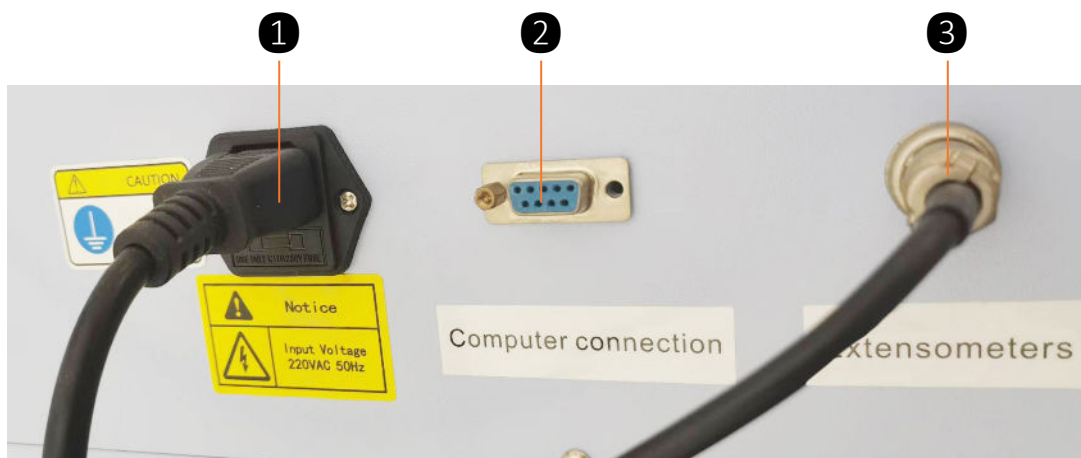
2.Force Sensor

3.Fixture

4.Emergency Stop Button

5.Power Switch

6.Leveling Feet



1.Power cord socket

2.Socket for computer connection (optional)

3.Socket for the extension meter (optional)

Product Details

Detailed Display



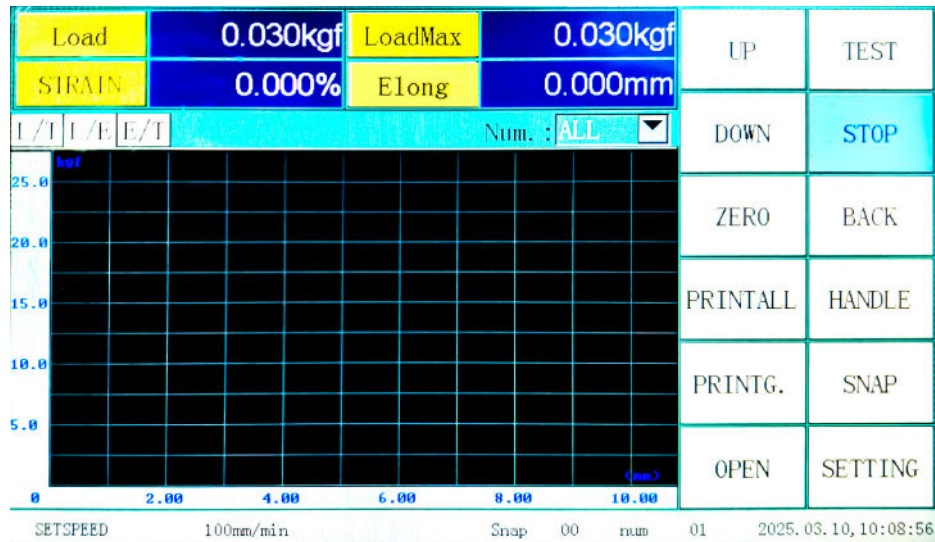
- This equipment adopts high-precision force value sensor to ensure the accuracy of experimental data;
- The fixture can be quickly loaded and unloaded, loosen the fixture lock nut, pull out the fixture pin, you can remove the fixture, installation is installed in the reverse order;
- This equipment can be adapted to a variety of fixtures to meet the requirements of different experiments.

- Extensometer(optional)
- Extensometer with double encoder up and down extension axial structure, with rotating device, can be quickly loaded and unloaded, clamping strength tight, smooth operation, no inertia hysteresis, rugged, accurate measurements.



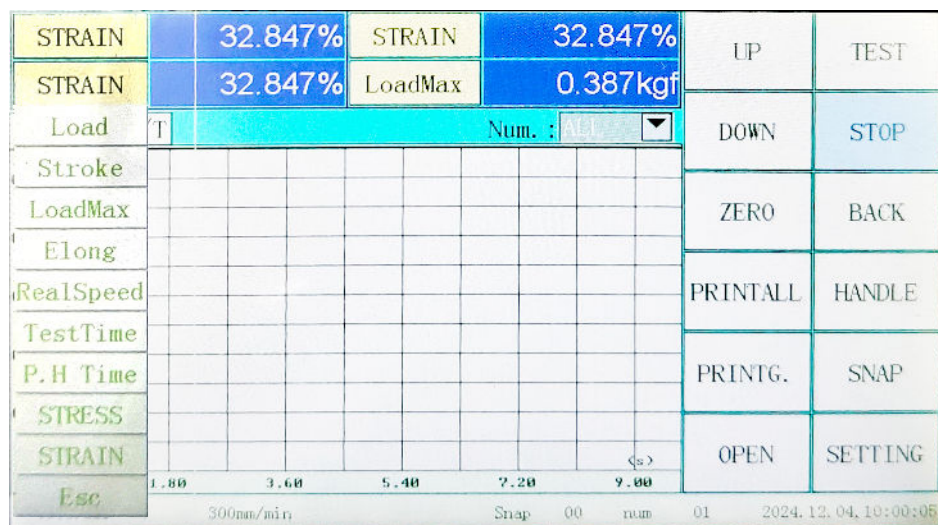
Operation Interface

Main Interface



- Touch screen control method, simple and convenient to operate. On this interface, users can:
- Control moving of machine and start or stop test.
- Zero the test data and return the machine to its original position.
- View and print out the test results.

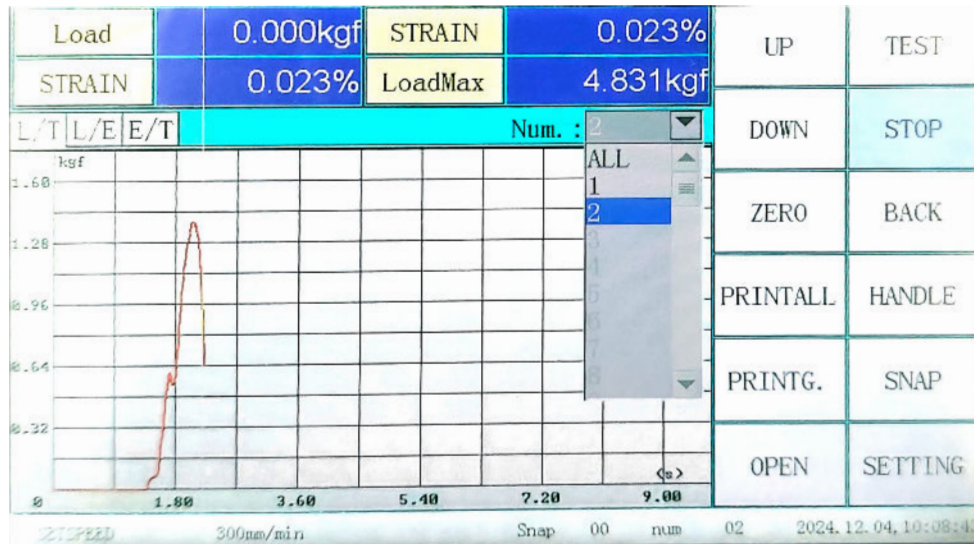
Select Display Parameters



- Users could select display parameters: Load; Stroke; Load Max; Elong; Real Speed; Test Time; P.H Time; STRESS; SIRAIN

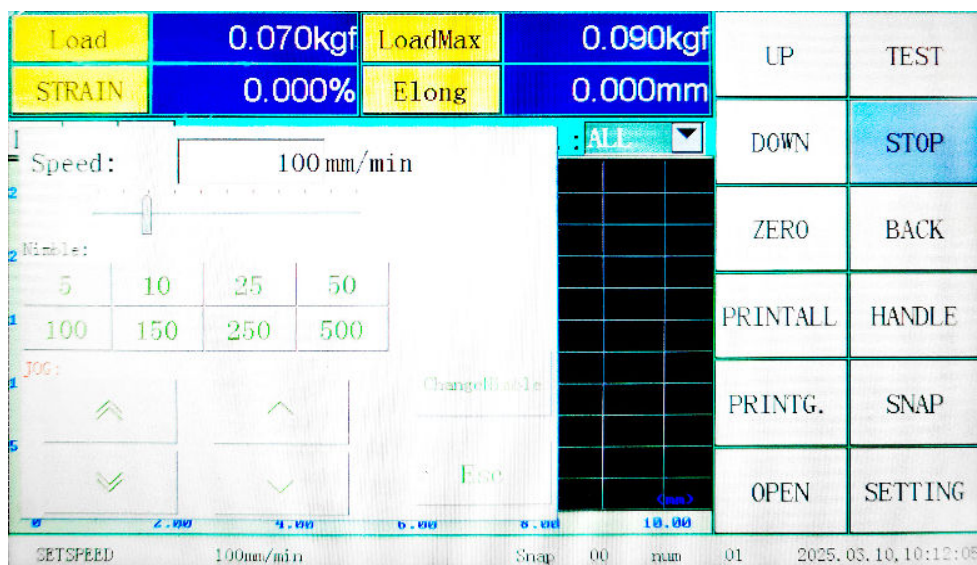
Operation Interface

Select Group and Curve Coordinates



- After multiple groups of tests , click "Num" to select and view the curve chart corresponding to the according test group.
- 3 types of curve charts with coordinates, Force - Time (L/T); Force - Displacement (L/E); Displacement-Time (E/T). Click the corresponding button to switch.

Manual Control Parameters Setting



- On this interface, users can adjust the lifting speed of manual control. Users can directly and quickly select the required speed in the "Nimble" option, or adjust the speed by sliding the block.

Operation Interface

Sample Information

1. Sample Num:	<input type="text" value="1"/>			Sample
2. Sample Shape:	<input type="text" value="Square"/> <input type="text" value="Circular"/> <input type="text" value="Square"/>			Scheme
No.	Gauge (mm)	1 (mm)	Thickness (mm)	Result
1	10.000	5.000	3.000	CurveSet
				Unit
				About
				CALI.
				TEST_INF

- Set the number and shape of samples to be tested

Test Scheme

1. TestSpssd:	<input type="text" value="50"/> mm/min	<input type="checkbox"/> Use PreSpeed	Sample
2. Test Dir.:	<input type="text" value="UP"/>	<input type="text" value="10"/> mm/min	Scheme
3. A. StopTest:	<input type="text" value="Break Judge"/>	PreLoad:	Result
Break S.:	<input type="text" value="LoadReach"/> <input type="text" value="ElongReach"/> <input type="text" value="Break Judge"/>	<input type="text" value="0.1"/> % 0.500kgf	CurveSet
			Unit
<input checked="" type="checkbox"/> AutoStopAtBreak	Break S. <input type="text" value="0"/> %		Method
4. Break Judge:	<input type="text" value="0.1"/> %Range		About
5. Cal. Elong:	<input type="text" value="0.1"/> kgf		Supply1
			Supply2
			TEST_INF

- Set the test speed.
- Select the test direction, upward or downward.
- Set shutdown conditions.
- Set breakpoint judgment.
- Set the conditions for starting the deformation measurement.

Operation Interface

Parameter Control

1. FilterCo:	<input type="text" value="1"/>	Sample
2. BreakClearN. :	<input type="text" value="0"/>	Scheme
3. Zero:	<input type="text" value="ZeroAll"/> ▼	Result
4. LoadDir:	<input type="text" value="Abs."/> ▼	CurveSet
5. ElongDir. :	<input type="text" value="Abs."/> ▼	Unit
6. StrokeDir:	<input type="text" value="Abs."/> ▼	Method
7. ElongSensor:	<input type="text" value="Stroke"/> ▼	About
8. LoadSensor:	<input type="text" value="500.00kgf"/> ▼	Supply1
		Supply2
		TEST_INF

- Select the mode of the "Zero Reset" button on the main testing interface. Options include "Full Zero Reset" and "Force Zero Reset".
- For the directions of deformation, force value and displacement, options such as "Reverse", "No Reverse" and "Absolute Value" are available.
- Select the deformation sensor. Options include "Displacement", "Rubber Extensometer (Optional)" and "Metal Extensometer (Optional)".
- Select the force sensor.

Operation Interface

Parameter Control

1. LoadProtect:	100	%Range	<input checked="" type="checkbox"/> BeepOn	Sample
2. ElongProtect:	99999	mm	<input checked="" type="checkbox"/> BeepON_Limited	Scheme
3. HighSpeed:	60	%MaxSpeed	<input type="checkbox"/> AutoReturn	Result
4. LowSpeed:	10	%MaxSpeed	<input type="checkbox"/> AutoZeroForce	CurveSet
5. ReturnSpeed:	200	mm/min	<input type="checkbox"/> AutoZeroElong	Unit
6. ReturnDecCoe.:	10		<input type="checkbox"/> AutoZeroStroke	Method
7. ReturnDelay:	1.2	s	<input type="checkbox"/> ClosedloopS.	Supply1
8. ScreenSaver:	0	min	<input type="checkbox"/> ShowMaxload onPCmode	Supply2
9. Language:	English			CALI.
10. Return Mode:	Zero			TEST_INF

- Protection settings include force value protection and deformation protection.
- Set the return speed, waiting time, and deceleration coefficient. The function of the deceleration coefficient is to prevent displacement overshoot.
- Set the number of digits displayed after the decimal point of the force value.
- Switch the language display. Options such as "English" and other languages can be customized.
- Select the return mode, with options of "Displacement Zero Point" and "Limit Position".
- The buzzer will sound when the screen is touched or the limit is triggered.
- The displacement, force value, and deformation will automatically return to zero before the test, and the machine will automatically return to its original position after the test is completed.

Operation Interface

Test Result Selection

<input type="checkbox"/> LoadMax	<input type="checkbox"/> Max Strip	<input type="checkbox"/> Print Curve	Sample
<input checked="" type="checkbox"/> Elong of MaxL	<input type="checkbox"/> Min Strip		Scheme
<input type="checkbox"/> MaxElong	<input type="checkbox"/> Avg Strip		Result
<input type="checkbox"/> ElongRate_Max	<input type="checkbox"/> Str. Strip		CurveSet
<input type="checkbox"/> MaxElongRate			Unit
<input type="checkbox"/> Fracture. L			About
<input type="checkbox"/> Str.			CALI.
<input type="checkbox"/> Glue St.		<input type="checkbox"/> ResultC.	TEST_INF
<input type="checkbox"/> Tear St.		<input type="checkbox"/> AutoSnap	
<input type="checkbox"/> Elastic Coe.			

- Select the required test results. The items that are ticked will be displayed in the report.

Curve Settings

1. LoadStart:	<input type="text" value="5"/>	% (25.00kgf)	Sample
2. ElongStart	<input type="text" value="10"/>	mm	Scheme
3. TimeStart:	<input type="text" value="9"/>	s	Result
4. StressStart:	<input type="text" value="10"/>	MPa	CurveSet
5. StressStart:	<input type="text" value="10"/>	%	Unit
<input type="checkbox"/> Show Stress/Strain			About
			CALI.
			TEST_INF

- Set the starting parameters of the curve.

Operation Interface

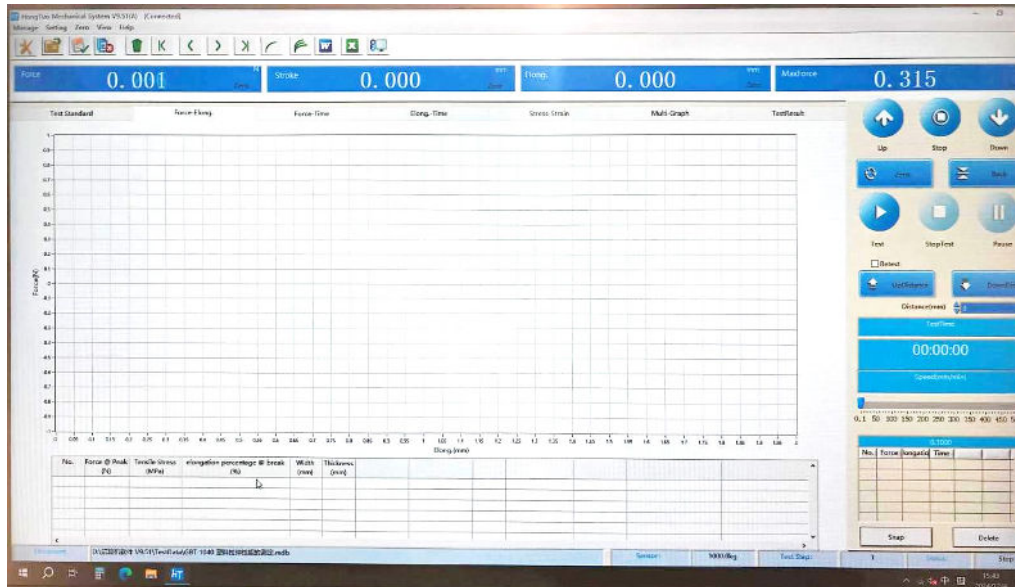
Units Setting

	Unit	Accuracy	
1. Load:	kgf ▼	3 ▼	Sample
2. Elong:	mm ▼	3 ▼	Scheme
3. Time:	s ▼	0 ▼	Result
4. Speed:	mm/min ▼	1 ▼	CurveSet
5. Str. :	MPa ▼	2 ▼	Unit
6. Tear&StripStr:	N/mm ▼	2 ▼	About
			CALI.
			TEST_INF

- Force unit: "kgf", "N", "lbf", "gf", "KN", "t".
- Deformation unit, "mm", "cm", "in".
- Tensile strength unit: MPa; kPa; kgf/mm²; kgf/cm²; N/mm²; N/cm²; N/m²; gf/mm²; gf/cm²; psi; lbf/in².
- Tear and peel strength unit: N/mm; N/cm; N/m; kN/m; kgf/mm; kgf/cm; kgf/m; gf/mm; gf/cm; lbf/in; klf/in.
- Time unit: "s", "min", "H".

Mikrosize Software Interface

Operation Interface



- Mainly includes standard modification, file creation, report output, curve display, test result display, image pickup point setting, instrument movement speed, and the right instrument operation button.

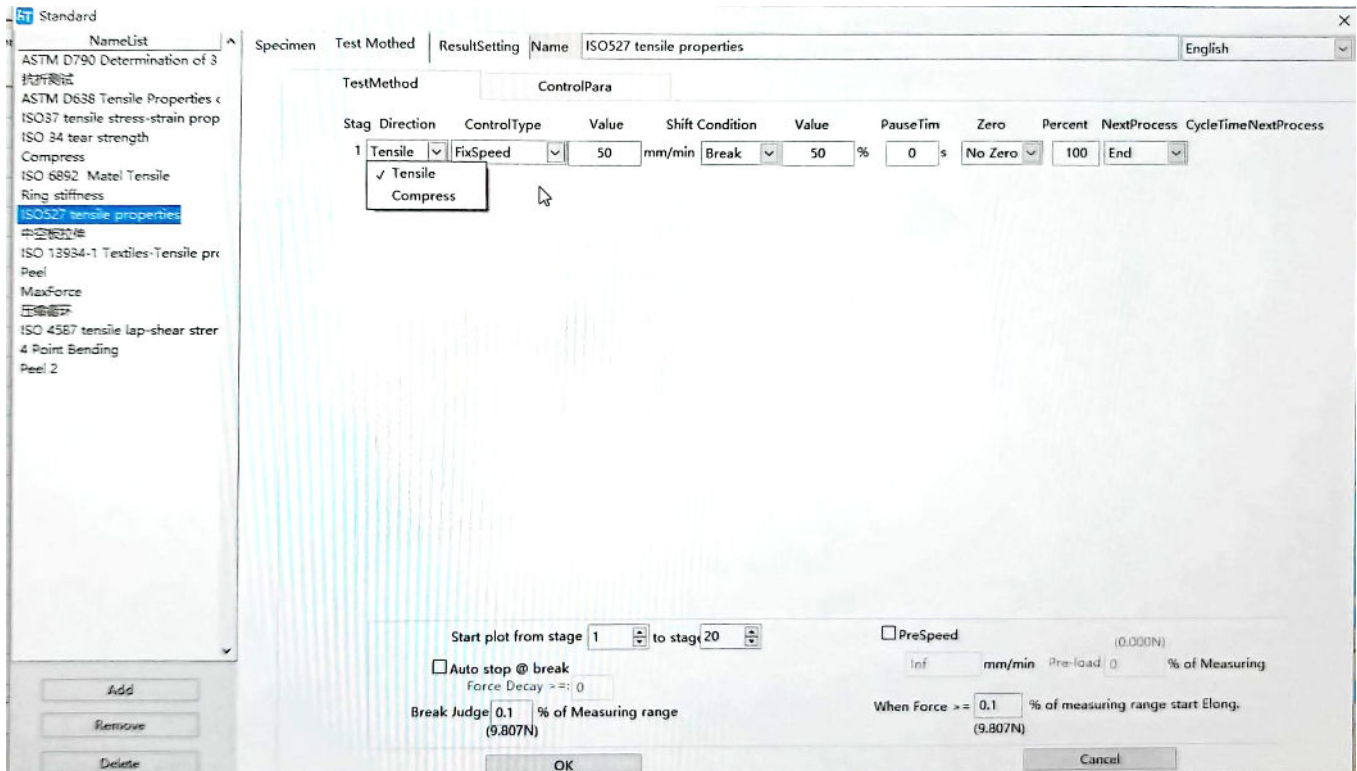
Curve Settings



- Specimen Data Interface: Specimen data viewing and editing, specimen parameter copying.

Mikrosize Software Interface

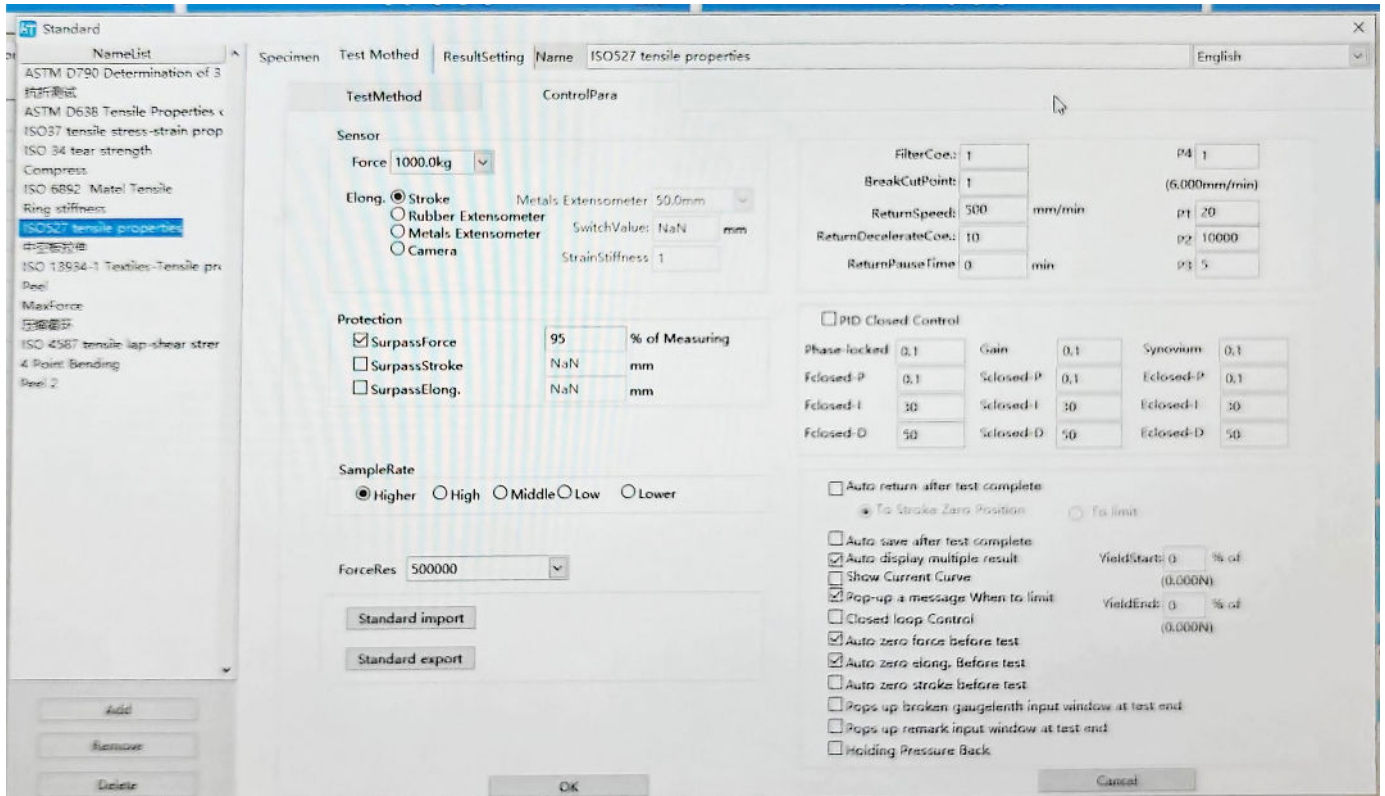
Test Program Interface



- Test Method Interface: 1. Control of test direction including tension and compression.
- Control mode selection includes constant speed, constant deformation, constant force rate, constant force, constant stress rate, constant stress, constant strain rate, constant strain.
- Setting the corresponding control values and switching conditions.
- Control the condition value, pause time and control parameters.
- Whether to clear when the switching condition is reached includes not clearing, force clearing, displacement clearing, deformation clearing, force and displacement clearing, force and deformation clearing, displacement and deformation clearing, and all clearing.
- Control of subsequent processing.

Mikrosize Software Interface

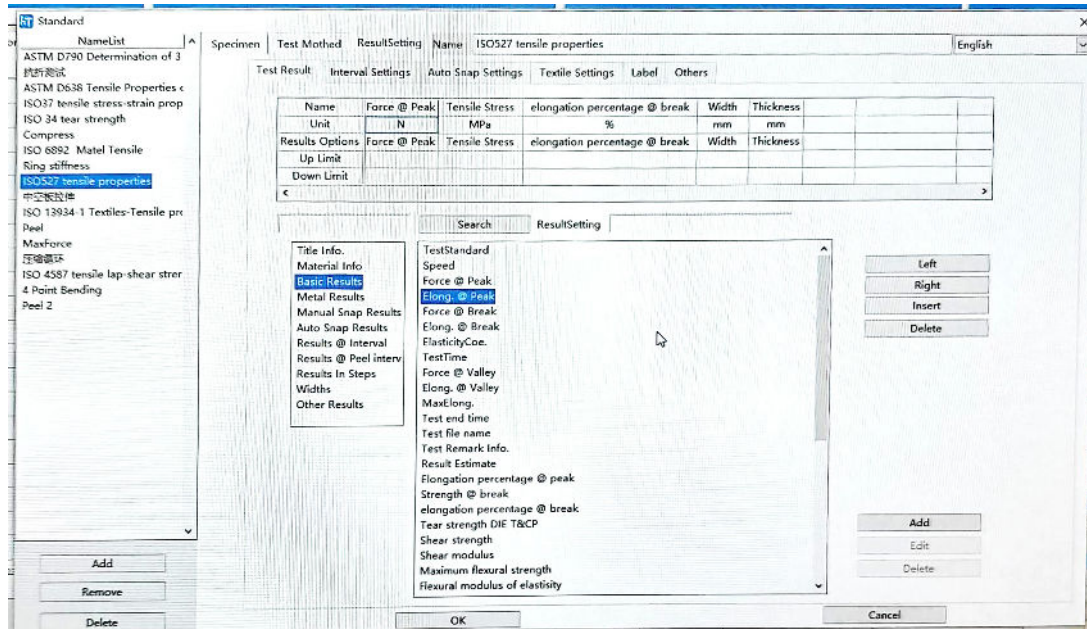
Test Program Interface



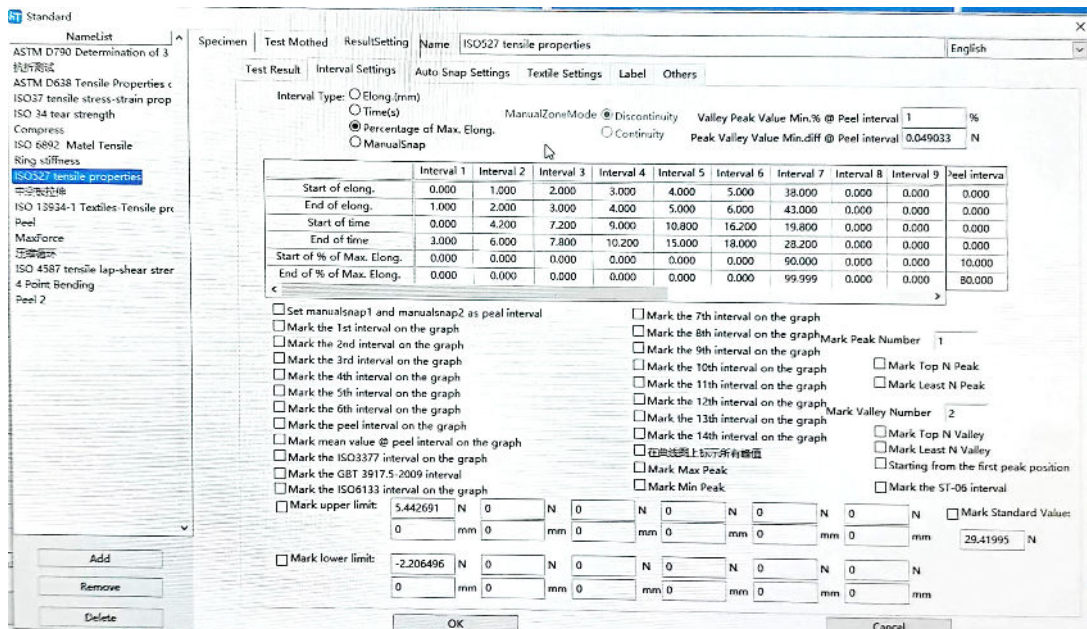
- Control Parameter Interface: Control of sensors, protection, sampling rate, power resolution, filter coefficients, break removal points, return speed, return deceleration coefficient, return wait time, etc.

Mikrosize Software Interface

Results Setting Screen



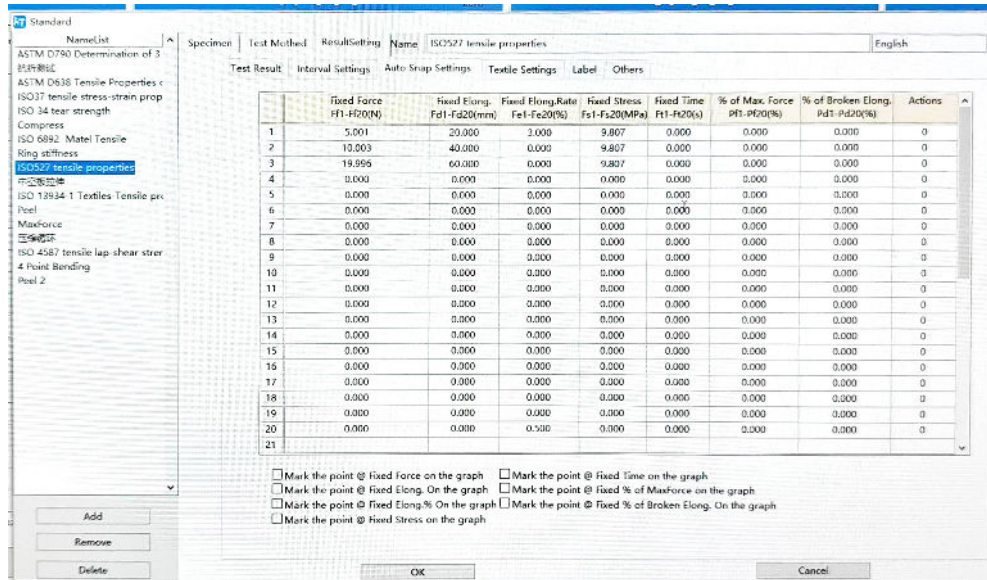
- Test results screen: Display, find and edit the desired output in the report.



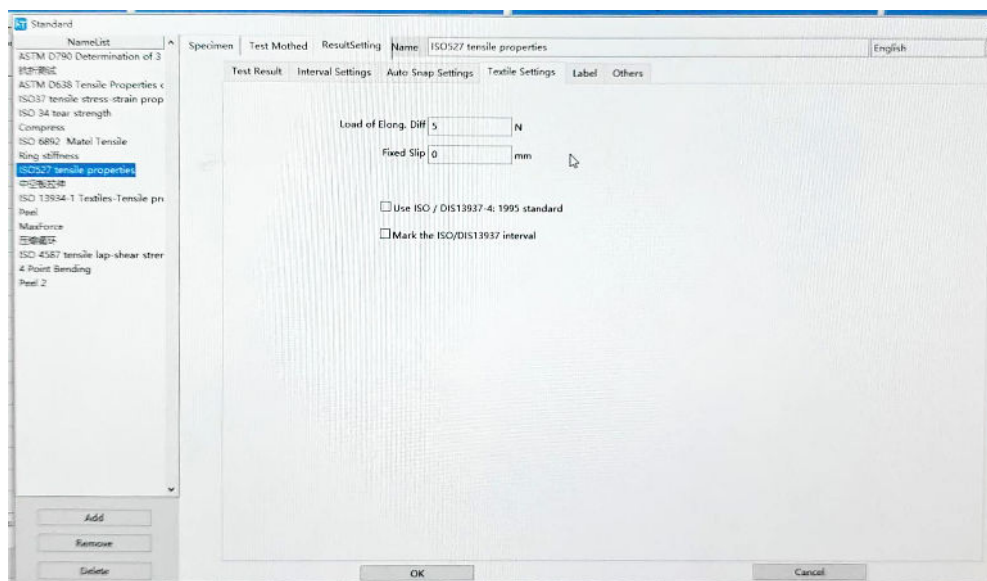
- Interval setting interface: the main functions include the selection of interval mode, the display of curve marking force, manual selection of the desired stripping interval, and the peak-to-valley ratio and minimum drop force of the stripping interval.

Mikrosize Software Interface

Results Setting Screen



- Auto Picking Points Setting Interface: The main functions include auto picking points setting and supporting picking points on the back and forth curves. An action of 0 indicates that points are taken on the whole curve. An action of 1 indicates that the point is taken at the first test step.



- Textile test setup interface: the main functions include 1) elongation difference load: calculating the setup parameters of elongation difference; 2) specified slip: calculating the setup parameters of slip resistance.

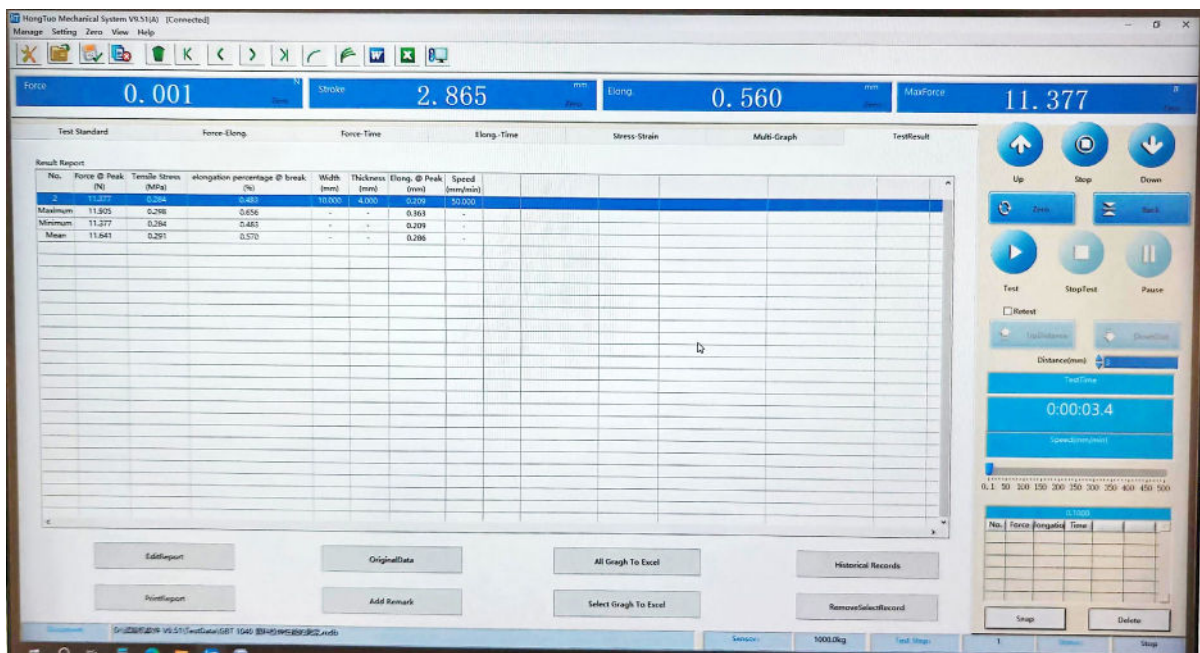
Mikrosize Software Interface

Multi-image Interface



- Force-deformation, force-time deformation, and deformation-time graphs can be observed.

Test Results Screen



- Edit report, print report, output original data to excel, add note information, output all curves to excel, output selected curves to excel, view historical data, remove selected records.

Technical Specification

Model		UTM-TDC											
Name		Dual-Column Universal Material Testing Machine(Bench Type)											
Subdivision Model		UTM-FDC-002	UTM-FDC-005	UTM-FDC-01	UTM-FDC-02	UTM-FDC-05	UTM-FDC-1	UTM-FDC-2	UTM-FDC-5	UTM-FDC-10	UTM-FDC-20	UTM-FDC-30	UTM-FDC-50
Capacity	KN	0.02	0.05	0.1	0.2	0.5	1	2	5	10	20	30	50
	KG	2	5	10	20	50	100	200	500	1000	2000	3000	5000
	lb	4	11	22	44	110	220	440	1102	2204	4409	6613	11023
Test Force Unit Switch		G、Kg、 lb、 N、 KN											
Displacement Unit Switch		Inch cm mm											
Test Level		Level 1											
Effective Force Range		0.4% ~ 100%FS											
Test Force Precision		Within $\pm 1\%$ of Indicated Value											
Test Force Resolution		1/500000											

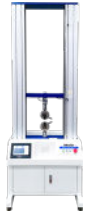

Technical Specification

Displacement Resolution	≤0.05μm
Displacement Precision	Within ±1% of Indicated Value
Deformation Test Range	0.2% ~ 100%FS
Deformation Precision	Within ±1% of Indicated Value
Large Deformation Test Range	1000mm (Optional)
Large Deformation Resolution	0.01mm (Optional)
Large Deformation Error	Within ±1% of Indicated Value(Optional)
Max Test Speed	500mm/min; Optional 1000mm/min
Min Test Speed	0.1mm/min
Speed precision	Within ±1% of Indicated Value
Standard Test Height	Without Clamp: 1330mm; With Clamp: 800mm
Test Width(Standard)	420mm




Technical Specification

Test Width(Optional)	650mm
Clamps	A Set of Tensile Clamps, Other Clamps Optional
Return Mode	Manual/Auto
Shutdown Mode	Automatic Shutdown at the Maximum Breaking Value.
	Shutdown due to Upper and Lower Limit Safety Settings
Safety Device	Mechanical Travel Protection
	Emergency Stop Button
Overloading Protection	Automatically Protect If loading exceeds the Maximum Load by 10%
Power Supply	220VAC/ 50Hz
Mainframe Dimension/Weight	Without Working Cupboard: L*W*H:750mm*500mm*1650mm / 165KG
	With Working Cupboard: L*W*H:750mm*500mm*2050mm / 185KG
Package Dimension/Weight	Without Working Cupboard: L*W*H:850mm*600mm*1800mm / 200KG
	With Working Cupboard: L*W*H:850mm*600mm*2250mm / 210KG

Standard Delivery

Name	Qty	Photo
Machine Mainframe	1pc	
Power Cord	1pc	/
Test Software Program CD 1	1pc	/
Data Cable	1pc	/
Fixture	1pc	
Anti-flight Excitation Device (Protective Door)	1pc	/
Computer	1pc	/

Standard Delivery

Name	Qty	Photo
Printer	1pc	/
3 Point Bending Fixture	1pc	/
4 Point Bending Fixture	1pc	/
Instruction Manual	1copy	
Product Certificate	1copy	
Product Warranty	1copy	

Optional Delivery

Optional

Small Deformation Metal Extensometer

Large Deformation Extensometer(1000mm,0.01mm)

Other Fixtures

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