

Compression/Tensile



mrc

MATERIAL TESTING 30ton, 20ton, 10ton, Tensile Testing Machine



UTM-503B1

UTM-501B1/502B1/503B1, Computerized Universal Testing Machine

UTM-501B1 serial, apply to metal rod, concrete, fabric etc. Floor type, is more stable and convenient for operating. Strong structural & small volume, transmission efficiency more than 70%, less energy loss and high precision, operate easily, 501B1 & 502B1 could connect to computer.

Specifications:

- The seal plates are treated by anode hardening, and the ball screws are equipped with dust-proof cover to extend its lifetime and precision. Hardware protection: Up/down limit, emergency stop button.
- Servo-motor driven, precise decelerators and ball screws is used to reduce the noisy, loss of transmission.
- LCD display screen can use to operate the machine without connecting with computer.
- Load Cell comply with ASTM-E4 standard which accuracy is limited within 1.0 % and adopt bridge circuit to sense the load force and export data. Load cell also includes memory lock to memorize various parameters. Machine can detects the parameter automatically when switching different load cells.
- With external I/O junction to expand functions
- Inching control.
- Various grips and extensometers are available.

Function of Software:

- Data sampling rate: Max. 60Hz.
- Full-computerized control to run the test or Jog button control
- Compatible with Window XP or Vista system, but the memory requires 512MB.
- USB interface for bidirectional transmission
- Multi-curves display and real-time plot
- various unit of measurement are available
- Flexible form to manage database.
- Free to name the data file.
- Testing screen is selective to display data, graph or for both at the same time.
- Data processing: file saving, setting loading, report printing and data comparing.
- Graph display: strain v.s. elongation, strain v.s. time and so on.
- tensile test, compression test, bending test, peel test, adhesive test...
- Deformation of machine is revised automatically to ensure test data closing to the precise value.
- Software protection: Overload, over-displacement protection.



SoftWare For UTM-501B1 UTM-502B1

Model	UTM-501B1	UTM-502B1	UTM-503B1
Max. Capacity	300 KN (30,000 kgf)	200 KN (20,000 kgf)	100 KN (10,000 kgf)
Force resolution	1/10000	1/10000	1/10000
Travel resolution	0.005 mm	0.005 mm	0.005 mm
Speed	0.2~300 mm/min	0.2~300 mm/min	0.3~350 mm/min
Motor power	3.0kw	2.0kw	1.0kw
Speed accuracy	±0.5%	±0.5%	±0.5%
Motor style	AC servo motor	AC servo motor	AC servo motor
Testing Space	550 mm	550 mm	550 mm
Dimension	124x68x220(H) cm	120x65x220(H) cm	115x65x220(H) cm
Weight	950 kg	900 kg	800 kg
Power supply	3Ø200~240 V AC, 15A	3Ø200~240 V AC, 15A	1Ø200~240 V AC, 15A
PC-Port	USB	USB	USB
Data Sampling Rate	5K Hz	5K Hz	5K Hz
Optional accessories	UTM-TECH B1 Software Grips Extensometer UTM-515, UTM-558 PC	UTM-TECH software Grips Extensometer PC	-
Stroke(w/o grips)	1000 mm	1000 mm	1000 mm



UTM-505B1

UTM-505B1, Universal Material Testing Machine

Universal material testing machine are mainly applied to testing the physical features of raw materials, finished-products, and semi-products. Universal material tester can perform tensile testing, compression testing, bending testing and acquire testing data like elongation, extension rate, stress and strain...etc. Universal material testing machine can go with various testing accessories like grips, ovens, extensometers and load cells to perform various measuring & testing. This tensile tester can be operated individually or by computer to control the tester.

It's new floor type Universal Material Testing Machine which applied by latest design and producing skill to have strong structure, saving transmission power and electric current without specific power system. Undoubtedly we still keep the advantage for testing precision, simply operation, expand strong. It's the best choice for material testing machine.

UTM-506B1, Material Testing Machine

Material testing machines can analysis the whole testing result including elongation, stress, strain, break value and average value. It can also fit to different specimen shape or be required to destroy the specimen and record the entire testing process and analysis the physical features of the specimen like tension force, bending strength, wear-resisting, impact, torque force, abrasion, fatigue, hardness, peeling force, viscosity...etc. We also supply the specimen maker equipment like pneumatic specimen press, hardness specimen cutting device, electrical forming machine. These equipment can make the standard specimen to get precise result during test.

This is a new tabletop Material Testing Machine which applied by latest design and producing skill to have strong structure and lightweight. Undoubtedly we still keep the advantage for testing precision, simply operation, expand strong. It's the best choice for material testing machine. We have a Series B1 type: 503B1/505B1/508B1/513B1. The specification and function of them are the same expect external different.



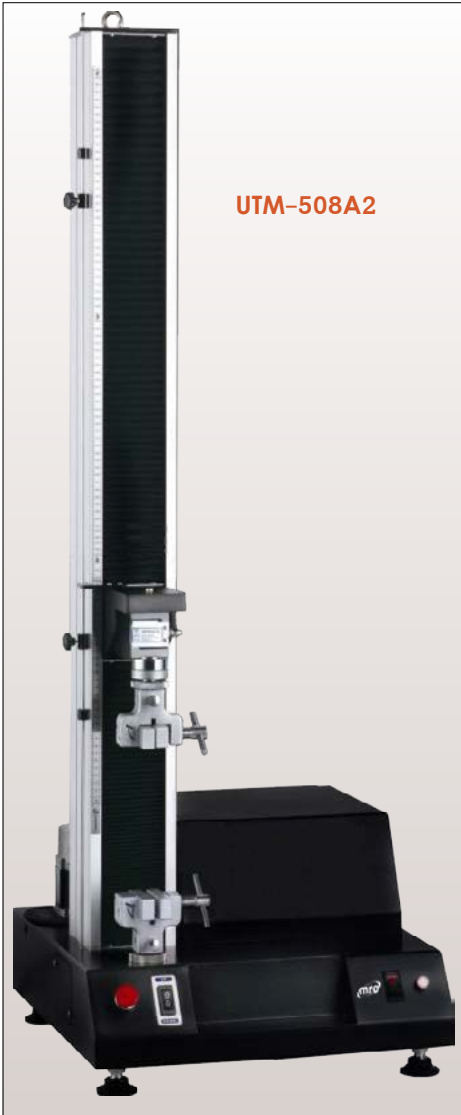
UTM-506B1 (Extend)



UTM-506B1

Model	UTM-505B1	UTM-506B1	UTM-506B1 (Extend)
Max. Capacity	50 KN (5,000 kgf)	10 KN (1,000 kgf)	10 KN (1,000 kgf)
Force resolution	1/10000	1/10000	1/10000
Travel resolution	0.005 mm	0.005 mm	0.005 mm
Speed	0.5~500 mm/min	1~1000 mm/min	1~1000 mm/min
Motor power	750w	400w	400w
Speed accuracy	±0.5%	±0.5%	±0.5%
Motor style	AC servo motor	AC servo motor	AC servo motor
Testing Space	420 mm	350 mm	350 mm
Dimension	88x58x193(H) cm	72x51x132(H) cm	72x51x172(H) cm
Weight	356 kg	120 kg	140 kg
Power supply	1Ø200~240 V AC	1Ø200~240 V AC	1Ø200~240 V AC
PC-Port	USB	USB	1/10000
Data Sampling Rate	5K Hz	5K Hz	5K Hz
Stroke(w/o grips)	1100 mm	700 mm	1200 mm

MATERIAL TESTING 5kN, Tensile Testing Machine



UTM-508A2

UTM-508A2/513A2, Material Testing Machines

Single column machine on volume & operation all have good configuration, suitable for below 5KN small section material to proceed with tests, this machine can use in environment with limit space.

With exclusive test software, tensile, compression, bending and multi-function tests can be done. Software is easy to operate & also with multinational languages, various metric and imperial units selection, instant diagram showing and offer complete test analysis data that user can analyze various materials after tests.

Standard:

ISO 7500-1 , ASTM E4 , ASTM D-76, DIN5122 , JIS B7721/B7733 , EN 1002-2, BS1610,GB T228.

Industry:

Rubber, Plastic, Paper, Textile, Tape, Electron, Package, Architecture.

Features:

- The seal plates are treated by anode hardening, and the ball screws are equipped with dust -proof cover to extend its lifetime and precision.
- Hardware protection Up/down limit, emergency stop button.
- Servo-motor driven, precise decelerators and ball screws is used to reduce the noisy, loss of transmission.
- Load Cell comply with ASTM-E4 standard which accuracy is limited within 1.0% and adopt bridge circuit to sense the load force and export data. Load cell also includes memory lock to memorize various parameters. Machine can detects the parameter automatically when switching different load cells.
- With external I/O junction to expand functions Inching control.
- Various grips & extensometers are available.



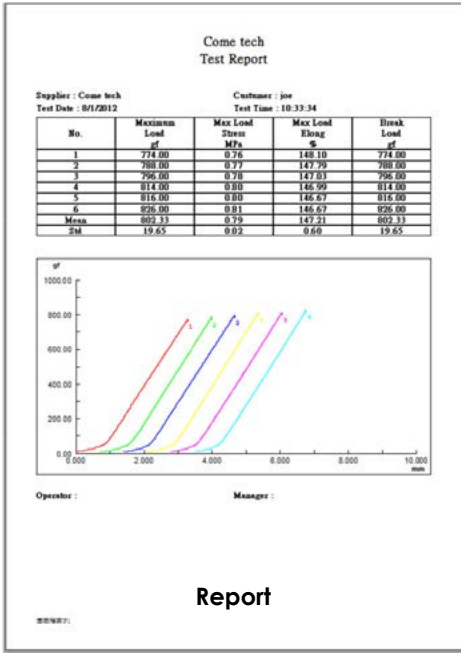
UTM-513A2

Optional Accessories:

Each test will require different test grip and accessories for application industry in plastic, metal, biomedical, composites, elastomer, components, automotive, aerospace, textiles...

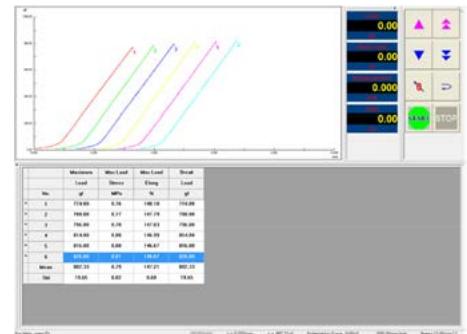
- Tensile grip
- Compression grip
- Flexure fixture
- Peel/tear fixture
- Film COF test fixture
- Load cell
- Extensometer.





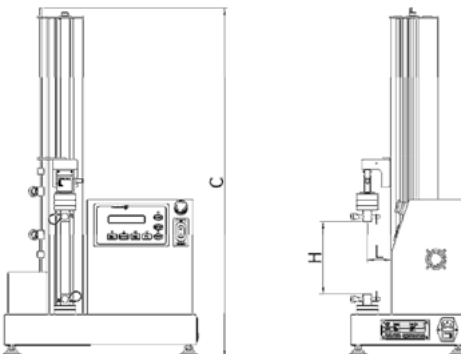
Software:

- Data sampling rate: Max. 60 Hz.
- Full-computerized control to run the test or Jog button control
- Compatible with Window XP, Vista, WIN. 7 or WIN. 8 system, but the memory requires 512 MB.
- Software has Chinese & English version.
- USB interface for bidirectional transmission
- Multi-curves display and real-time plot
- Various units of measurement are available
- Flexible form to manage database.
- Free to name the data file.
- Testing screen is selective to display data, graph or for both at the same time.
- Data processing: file saving, setting loading, report printing and data comparing.
- Graph display: strain v.s. elongation, strain v.s. time and so on.
- Tensile test, compression test, bending test, peel test, adhesive test...
- Deformation of machine is revised automatically to ensure test data closing to the precise value.
- Software protection: Overload, over displacement protection.



Software interface

Machine dimensions:



Model	Width x Depth x Height A x B x C (mm)	Crosshead travel H (mm)	Front opening space L (mm)
UTM-508A2	500x530x1450	800	80
UTM-513A2	500x530x1000	400	80

Model	UTM-508A2	UTM-513A2
Max. Capacity	5 KN	
Force resolution	1/20000	
Test stroke	800 mm (w/o grip)	400 mm (w/o grip)
Stroke resolution	0.0001 mm	
Speed	1~1000 mm/min	1~1000 mm/min
Test space	Φ140 mm	
Speed range	0.1 ~ 1000 mm/min can self-setting (By PC digital setting)	
Speed precision	0.1 ~ 10 mm/min ± 2% 10 ~ 1000 mm/min ±1%	
PC-port	USB	
Data sample rate	Faster 100 Hz	
Hardware safety protection	Up/down limit, emergency stop button	
Motor type	Servo motor	
Stiffness Slop	284 kgf/mm	
Feature	* Load cell includes memory lock to memorize various parameters. When switching different load cells, it will automatically change parameter and no need for other setting. * With inching up/down button, easy to operate	
Power Supply	Single phase 200 ~ 240 VAC5 A	
Dimension / Weight	50x53x145cm / 80kg	50x53x100cm / 65kg



UTM-508M1

UTM-508M1/513M1, Material Testing Machines

Single column machine has good configuration in machine of volume and operation. It is suitable for under 5KN of small section of material test. The machine can base on specimen length and elongation to choose different model and grips.

This model is using special testing software which is use Windows 7/8 of Person computer. It can do tensile test, compression test, bending test, bending test and all kind of test. The software with multi-languages is very easy to operation. It also has all kind of metric units, real-time graphs and also provides complete analysis test data which finish test can do variety of material analysis.

Standard:

ISO 7500-1 , ASTM E4 , ASTM D-76, DIN5122 , JIS B7721/B7733 , EN 1002-2, BS1610,GB T228

Industry:

Rubber, Plastic, Paper, Textile, metal, wood, tape, electron, package, Medical, Architecture.



UTM-513M1

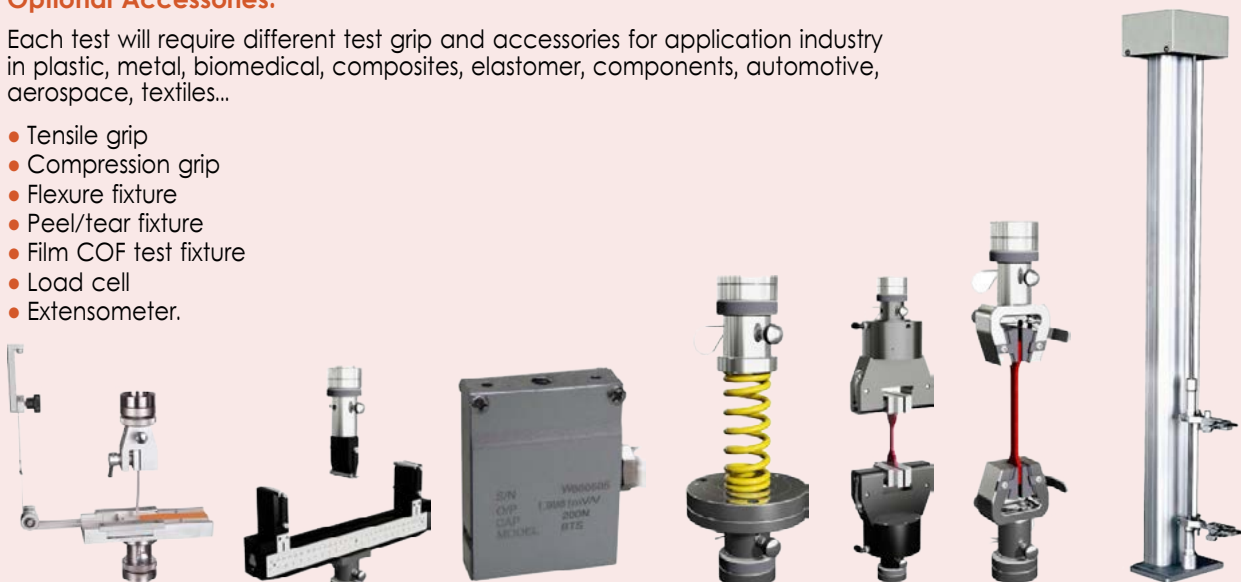
Features:

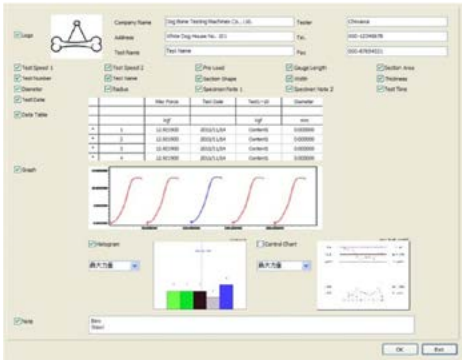
- The seal plates are treated by anode hardening, and the ball screws are equipped with dust –proof cover to extend its lifetime and precision.
- Hardware protectionUp/down limit, emergency stop button.
- Servo-motor driven, precise decelerators and ball screws is used to reduce the noisy, loss of transmission.
- Load Cell comply with ASTM-E4 standard which accuracy is limited within 1.0% and adopt bridge circuit to sense the load force and export data. Load cell also includes memory lock to memorize various parameters. Machine can detects the parameter automatically when switching different load cells.
- With external I/O junction to expand functions Inching control.
- Various grips & extensometers are available.

Optional Accessories:

Each test will require different test grip and accessories for application industry in plastic, metal, biomedical, composites, elastomer, components, automotive, aerospace, textiles...

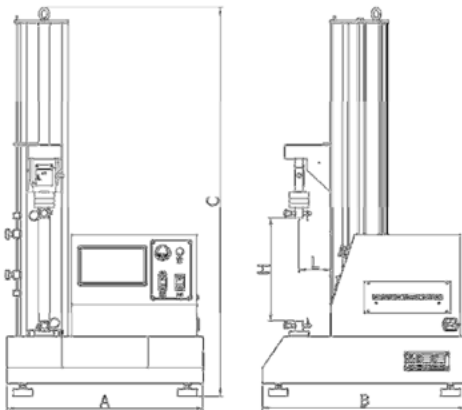
- Tensile grip
- Compression grip
- Flexure fixture
- Peel/tear fixture
- Film COF test fixture
- Load cell
- Extensometer.





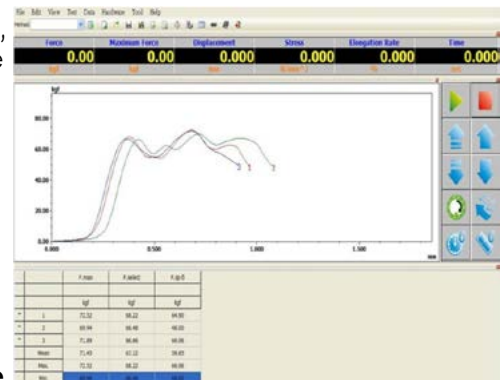
Report

Machine dimensions:



Software:

- Data sampling rate: 100Hz, depending on computer efficiency
- Full-computerized control to run the test or Jog button control
- Compatible with Window 7 system
- Software has multi-languages.
- USB interface for TCP/IP
- Multi-curves display and real-time plot
- Various units of measurement are available
- Flexible form to manage database.
- Free to name the data file.
- Testing screen is selective to display data, graph at the same time.
- Data processing: file saving, setting loading, report printing and data comparing.
- Graph display: strain v.s. elongation, strain v.s. time and so on.
- Tensile test, compression test, bending test, peel test...
- Deformation of machine is revised automatically to ensure test data closing to the precise value.
- Software protection: Overload, over -displacement, over-time protection.



Software interface

Model	Width x Depth x Height A x B x C (mm)	Crosshead travel H (mm)	Front opening space L (mm)
UTM-508M1	500x530x1450	800	80
UTM-513M1-2L4	500x530x1750	1100	80
UTM-513M1	500x530x1000	400	80

Model	UTM-508M1	UTM-513M1
Max. Capacity	5 KN	
Force resolution	1/10,000	
Test stroke	800 mm (w/o grip)	400 mm (w/o grip)
Stroke resolution	0.0001 mm	
Cantilever distance	70 mm	
Speed range	0.03 ~ 1000 mm/min adjustable (Set up by computerized)	
Speed precision	0.03 ~ 10 mm/min ± 2%	10 ~ 1000 mm/min ±1%
PC-port	TCP/IP	
Data sample rate	Faster 100 Hz	
Hardware safety protection	Up/down limit, emergency stop button	
Motor type	Servo motor	
Stiffness Slop	284 kgf/mm	
Feature	* Unique accessories with auto identification system, it does not have other complicated setting when use it. * Use inching with precision hand wheel to control machine up and down which can speed up adjust machine of position. * Standard model have keep multi-input signal and fixation. It can provide user to add more function in the future.	
Power Supply	Single phase 200 ~ 240 VAC5 A	
Dimension / Weight	50x53x145cm / 80kg	50x53x100cm / 65kg

MATERIAL TESTING 500kg, 50kg, Tensile Testing Machine



UTM-508B1

Material testing machines can analyze the whole testing result including elongation, stress, strain, break value and average value. It can also fit to different specimen shape or be required to destroy the specimen and record the entire testing process and analyze the physical features of the specimen like tension force, bending strength, wear-resisting, impact, torque force, abrasion, fatigue, hardness, peeling force, viscosity...etc. We also supply the specimen maker equipment like pneumatic specimen press, hardness specimen cutting device, electrical forming machine. These equipment can make the standard specimen to get precise result during test.

UTM-508B1, Material Testing Machine

It's a light type Material Testing Machine which applied by latest design and producing skill to have strong structure and lightweight. Undoubtedly we still keep the advantage for testing precision, simply operation, expand strong. It's the best choice for material testing machine. We have a Series B1 type: 503B1/505B1/506B1/513B1/. The specification and function of them are the same except external different.



UTM-513B1

UTM-513B1, Universal Testing Machines

This is a new light type device which adopts latest design & skill to have strong but smaller & lighter structure. Still keep the advantages of testing precision, simply operation, extend strong. It is the best choice for small capacity.



UTM-508E

UTM-508E, Material Testing Machine

This light type Material Testing Machine which takes newest designed concept and technology to be the smallest and lightweight. It has lots of advantage, such as test exactly, operated simply, strong expand, etc. It's the best choice for small capacity testing.

Model	UTM-508B1	UTM-513B1	UTM-508E
Max. Capacity	5 KN (500 kgf)	5 KN (500 kgf)	500 N (50 kgf)
Force resolution	1/10000	1/10000	1/10000
Travel resolution	0.005 mm	0.005 mm	0.005 mm
Speed	1~1000 mm/min	1~1000 mm/min	6~600 mm/min
Motor power	400w	400w	-
Speed accuracy	±0.5%	±0.5%	±0.75%
Throat depth	70mm	70mm	50mm
Motor style	AC servo motor	AC servo motor	Step motor
Testing Space	140 mm	140 mm	100 mm
Dimension	50x53x145 cm	50x53x100 cm	42x28x88 cm
Weight	80 kg	65 kg	27 kg
Power supply	220 V AC	220 V AC	100~240 V AC, 3A
PC-Port	USB	USB	USB
Data Sampling Rate	5K Hz	5K Hz	2K Hz
Stroke(w/o grips)	800 mm	400 mm	350 mm



UTM-528K4, Electronic Test Stand

UTM-528K4 test stand is designed to be available to mount with different brand/type of force gauge. The test stand is provided with displacement display, test speed is digital setting up, for small specimen, is the best choice as it is light and small without take space. You can manually operate the test stand to test automatically, or connect with computer to control the stand for going multi-functional material test and analyze.

Model	UTM-528K4
Max. Capacity	500 N (50 kgf)
Force resolution	According to the specification of force gauge
Travel resolution	0.05 mm
Speed	3~600 mm/min
Speed accuracy	±0.75%
Motor style	Step motor
Testing Space	55 mm
Dimension	42x28x88(H) cm
Weight	27 kg
Power supply	100~240 V AC, 3A
Stroke(w/o grips)	400 mm



UTM-513B2/508B2, Universal Testing Machine Single column (2KN)

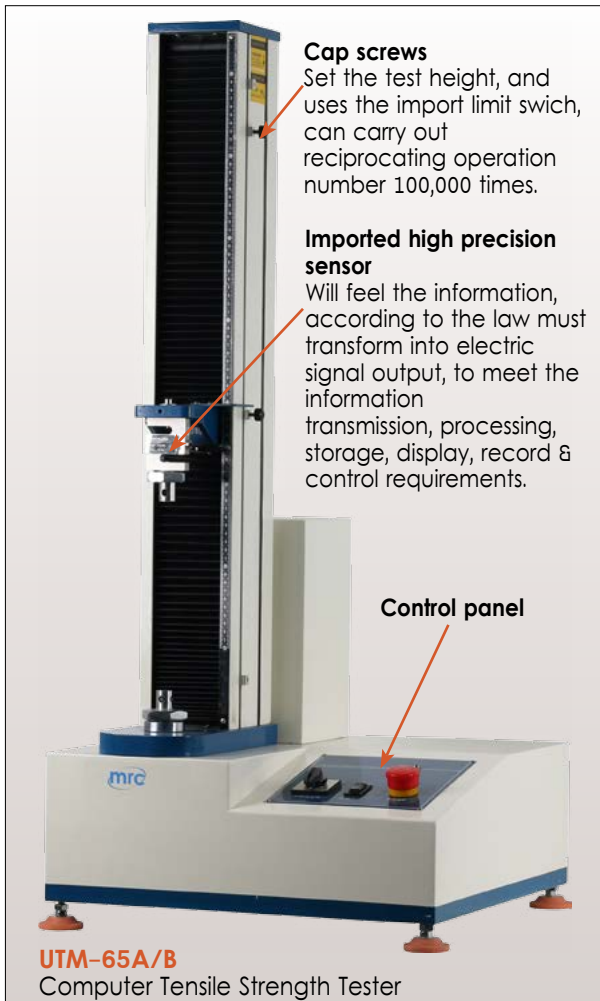
UTM-513B2 & UTM-508B2 type; B2 controller serial is simplest type, controller and machine movement operate independently, provided with output signal of stop machine, collocate with different type flexible. Provided with data output function, can connect to computer and do analyses, statistics, save data with special software. Single column types include various stroke models and capacity for choosing, and apply to metal, rubber, plastic, fabric, leather, paper, component material etc. This can provide more economic solution for testing and satisfy testing requirement of finished product and semi-finished product.

UTM-506B2/506B2(extend), Testing Machine (5KN)

UTM-506B2 include standard, extend length type, and conform with various testing request to providing best test state for the different between specification of specimen, testing environment, testing force etc. This type is suitable for testing within 5KN capacity. Table type, convenient to operate, small volume and strong structure won't occupy space, transmission efficiency more than 85%, less energy loss and high precision, operate easily, could connect to computer.



Model	UTM-513B2	UTM-508B2	UTM-506B2	UTM-506B2 (Extend)
Max. Capacity	2 KN (200 kgf)	2 KN (200 kgf)	5 KN (500 kgf)	5 KN (500 kgf)
Force resolution	1/10000	1/10000	1/10000	1/10000
Travel resolution	0.005 mm	0.005 mm	0.005 mm	0.005 mm
Speed	25~500 mm/min	25~500 mm/min	25~500 mm/min	25~500 mm/min
Speed of force 200kg	15~500 mm/min	12~500 mm/min	-	-
Speed of force 500kg	25~500 mm/min	-	15~500 mm/min	15~500 mm/min
Speed of force 1000kg	-	-	50~500 mm/min	50~500 mm/min
Throat depth	70 mm	70 mm	-	-
Testing Space	-	-	420 mm	420 mm
Motor power	120w	120w	120w	120w
Motor style	DC motor	DC motor	DC motor	DC motor
Effective width	Ø140 mm	Ø140 mm	Ø420 mm	Ø420 mm
Dimension	55x55x104(H) cm	55x55x150(H) cm	97x58x150(H) cm	97x58x184(H) cm
Weight	65 kg	80 kg	150 kg	175 kg
Power supply	200~240 V AC	200~240 V AC	200~240 V AC	200~240 V AC
PC-Port	USB	USB	USB	USB
Data Sampling Rate	1K Hz	1K Hz	1K Hz	1K Hz
Stroke(w/o grips)	400 mm	800 mm	800 mm	1000 mm
Optional Accessories	UTM-TECH Software Grips Extensometer PC	UTM-TECH B2 Software Grips Extensometer UTM-515/UTM-558 PC	-	-FF



UTM-65A/B
Computer Tensile Strength Tester

UTM-65A/B, Material Testing Machines

Uses:

This machine is designed for quick and reliable tensile, compression, bending, shear, peel, loop tack and fatigue cycling on metals, tape, composites, alloys, rigid plastics & films, elastomers, textiles, paper, board & finished products.

Character:

- Using the computer as the main control machine plus the special testing software of our company can conduct all of testing parameter, work state, collecting data & analysis, result display and printing output.
- Have steady performance, high accuracy, powerful software function and easy operation.
- Use the USA high-precision load cell. Machine accuracy is $\pm 0.5\%$.

Accessories:

- Suitable Grips that meet customer sample need.
- Special peeling tools for peel test in tape & film industry.
- Software for test control, data acquisition and report.
- English operation teach video.
- Tabel, computer is selectable.

Electric machinery

An important part of the instrument.

Socket interface



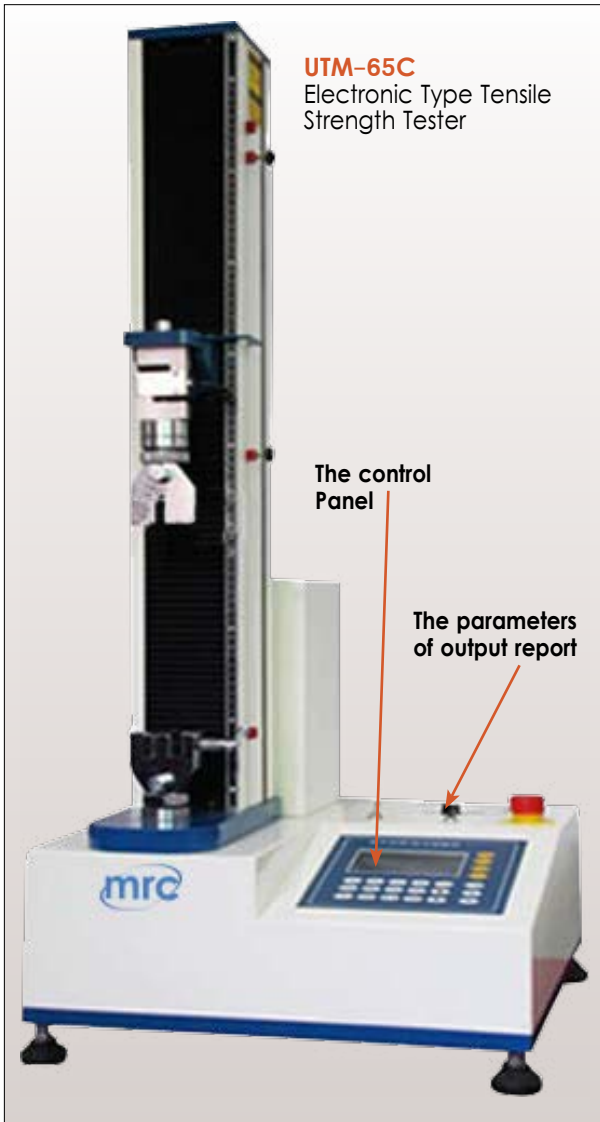
BESTE Software functions:

- TUse windows working platform, set all parameter with dialog forms and operate easy
- Using a single screen operation, do not need to change the screen
- Have simplified Chinese, traditional Chinese and English three languages, switch conveniently
- Plan test sheet mode freely
- Test data can be directly appeared in the screen
- Compare multiple curve data through translation or contrast ways
- With many units of measurement, the metric system and british system can switch
- Have automatic calibration function
- Have user-defined test method function
- Have test data arithmetic analysis function
- Have the function of automatic magnification, to achieve the most appropriate size of graphics.

Model	UTM-65A	UTM-65B
Range of speed	0.5-1000mm/min	50-500mm/min
Motor	Japan Panasonic Servo Motor	AC Motor
Capacity Choice	1/2/5/10/20/50/100/200/500kg optional	
Resolution	1/250, 000	1/150, 000
Effective Testing spec.	120mmMAX	
Accuracy	$\pm 0.5\%$	
Operation Method	Windows operation	
Accessories Optional accessories	computer, printer, system operation manual stretcher, air clamp	
Weight	80Kg	
Dimention (WxDxH)	580x580x1250mm	
Power	1PH, AC220V, 50/60Hz	
Stroke Protection	Upper & lower protection, prevent over preset	
Force Protection	System setting	
Emergency stop device	Handling emergencies	

Safety Device:

- **Travel protection:** machinery, computer double protection, prevent exceeds the preset stroke
- **Force protection:** system settings
- **The emergency stop device:** it can deal with emergencies.



UTM-65C, Electronic Type Tensile Strength Tester

Uses:

This machine is designed for quick and reliable tensile, compression, bending, shear, peel, loop tack and fatigue cycling on metals, tape, composites, alloys, rigid plastics and films, elastomers, textiles, paper, board and finished products.

Character:

Have steady performance, high accuracy, & easy operation.

Accessories:

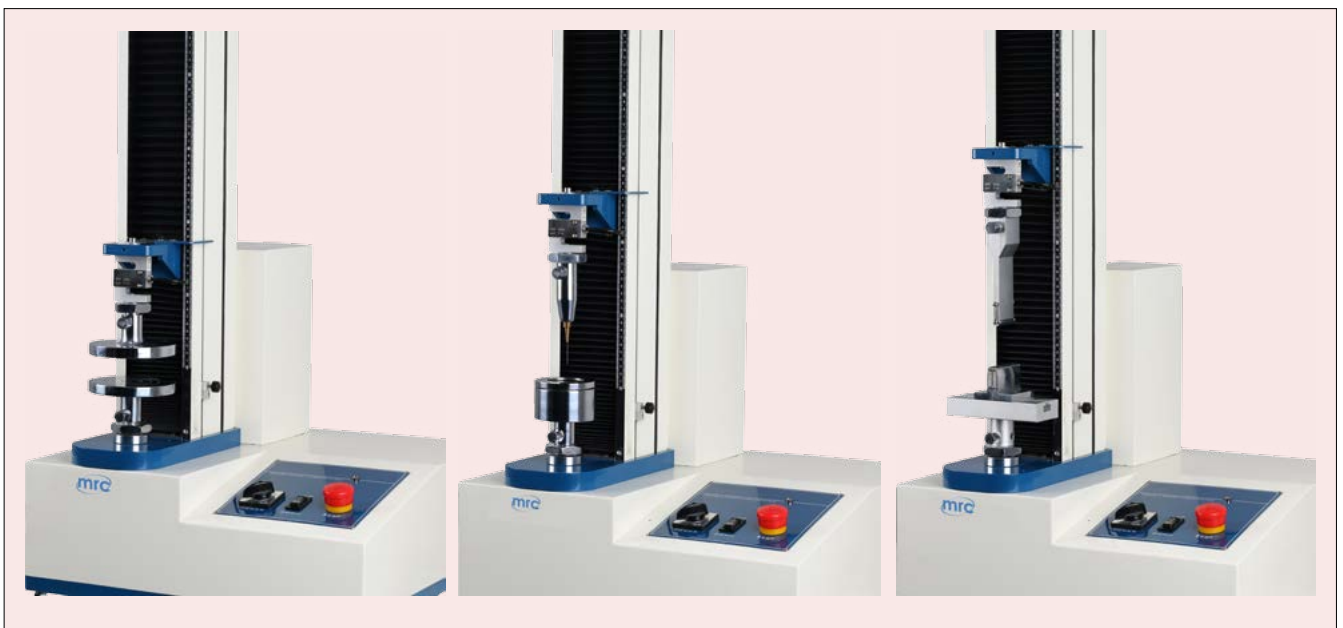
- Suitable Grips that meet customer sample need.
- Special peeling tools for peel test in tape&film industry.
- English operation teach video.

Model	UTM-65C
Range of speed	50-400mm/min adjustable, constant speed 300mm/min
Motor	adjustable speed Motor
Capacity Choice	1/2/5/10/20/50/100/200kg optional
Resolution	1/50,000
Stroke	650mm
Test space	120mmMAX
Accuracy	±1.0%
Display	Force & elongation display
Dimintions (WxDxH)	500×500×1200mm
Optional accessories	Strecher, air clamp
Weight	60Kg
Power	1PH, AC220V, 50/60Hz

Safety Device:

- **Stroke protection:** machinery, computer double protection, prevent over preset
- **Emergency stop device:** handling emergencies.

According to testing different products to choose different fixtures (for all models A/B/C):

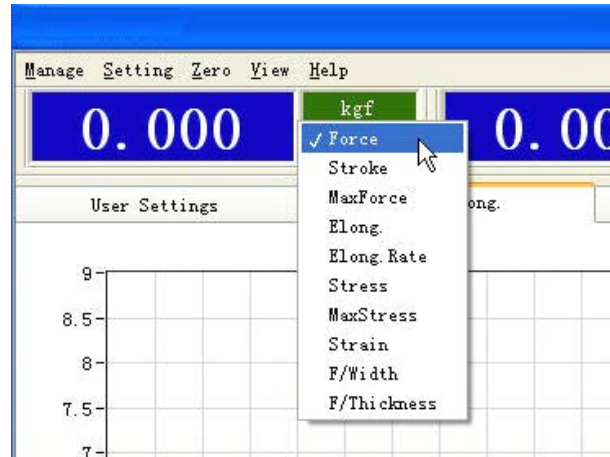


Peel strength • Puncture • Compressive • Tensile • Strength • Bending • Shear strength • Tear strength • Molulus of Elasticity

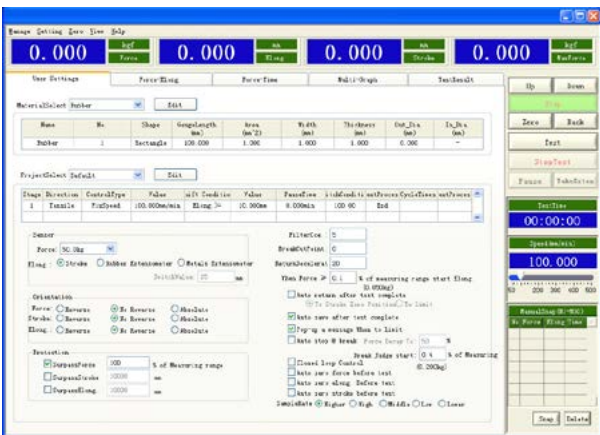


Quick start

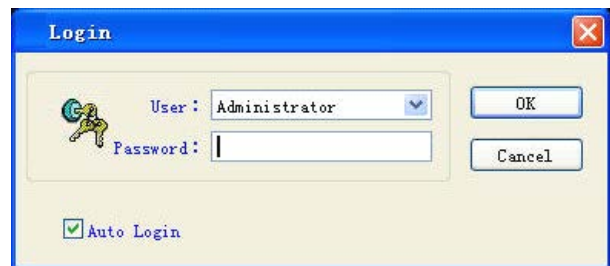
A complete testing process includes three steps: Setting before test; execute test and get test results.



Control Panel: Control the machine up and down and testing execution operation and so on. Rising and falling speed of machine: Adjust lifting & falling speed of machine.

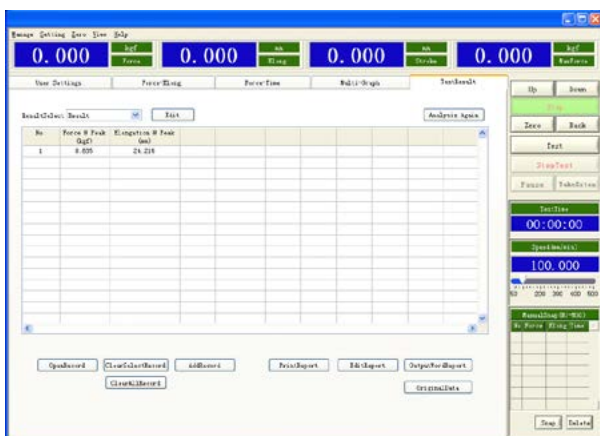


Main Interface Introduction: A Main interface show.

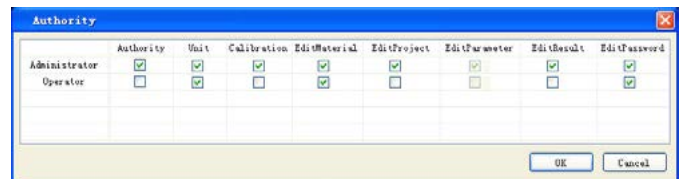


Log-in

Click Menu "Management" -> "Log in", or press composite key Ctrl+L(3.5 Shortcut Key lists) to enter Login interface, as shown.



Software include title bar, menu bar, current volume displaying bar, control panel, testing time displaying, lifting speed of machine, manual check point, material selection and modification, testing methods' selection and modification, control parameters' selection and modification, results' selection and modification, results displaying form, history record operation, report forms operation, force - displacement curve display and so on. Title bar: software name, version information, etc.



Authority Management



Modify Password

Click menu "Management" -> "Modify login password" to enter Modify Login Password Interface.



UTM-66A

UTM-66A/66B, Tensile Testing Machine

This machine also known as a materials testing machine, is applicable to testing tensile, compression, bending, peel, shearing force, peeling force, modulus of elasticity, and elongation of materials, components, and finished product for metal, plastic, rubber, textile, synthetic chemicals, wire & cable, leather, package, tape, film, solar cell, ect.

Character:

- The structure is made of the paint-coated aluminium blanking plate. The interior is used the high-accuracy, low-resistance and zero clearance of two ball screw and oriented pole which improve loading efficiency & structure rigidity.
- Use Panasonic servo motor which ensure high efficiency, steady transmission & low noise. The accuracy of speed can be controlled in 0.5%.
- That using the business computer as the main control machine plus the special testing software of our company can conduct all of testing parameter, work state, collecting data&analysis, result display and printing output.

Software functions:

- Use windows working platform, set all parameter with dialog forms and operate easy;
- Using a single screen operation, do not need to change the screen;
- Have simplified Chinese, traditional Chinese and English 3 languages, switch conveniently;
- Plan test sheet mode freely;
- Test data can be directly appeared in the screen;
- Compare multiple curve data through translation or contrast ways;
- With many units of measurement, the metric system and british system can switch;
- Have automatic calibration function;
- Have user-defined test method function
- Have test data arithmetic analysis function
- Have the function of automatic magnification, to achieve the most appropriate size of graphics.

Accessories:

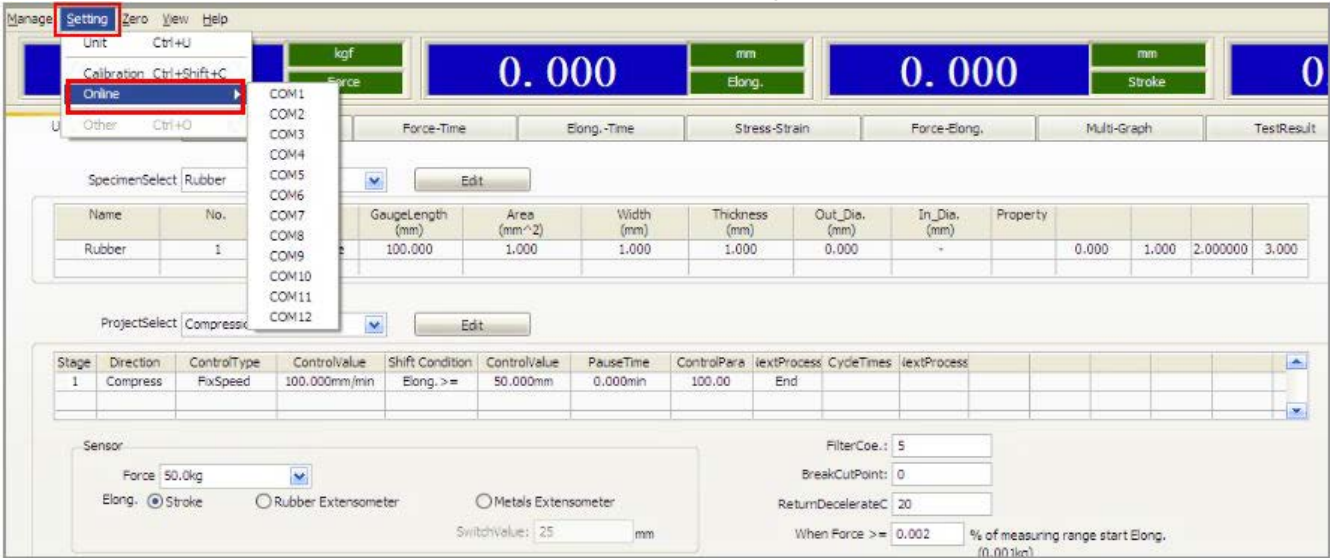
- Suitable Grips that meet customer sample need.
- Software for test control, data acquisition and report.
- English operation teach video.
- Tabel,computer is selectable.
- Extensometer as customer need.

Model	UTM-66A	UTM-66B
Range of speed	0.1-1000mm/min	50-500mm/min
Motor	Japan Panasonic Servo Motor	Taiwan Chengbang AC motor
Capacity choice	5, 10, 50, 100, 200, 500, 1000, 2000 kG	
Resolution	1/250, 000	1/150, 000
Effective testing space	400mm Max.	
Test Stroke	1200mm Max.	
Accuracy	±0.5%	
Operation method	Windows XP, Win7 operation, computer control	
Optional accessories	customized clamps by appointed, force sensors, printer, and operation manual	
Weight	250KG	
Dimention	W800xD500xH1500mm	
Power	1PH, AC220V, 50/60Hz	
Stroke protection	Upper and lower protection, prevent over preset	
Force protection	System setting	
Emergency stop	Handling emergencies	

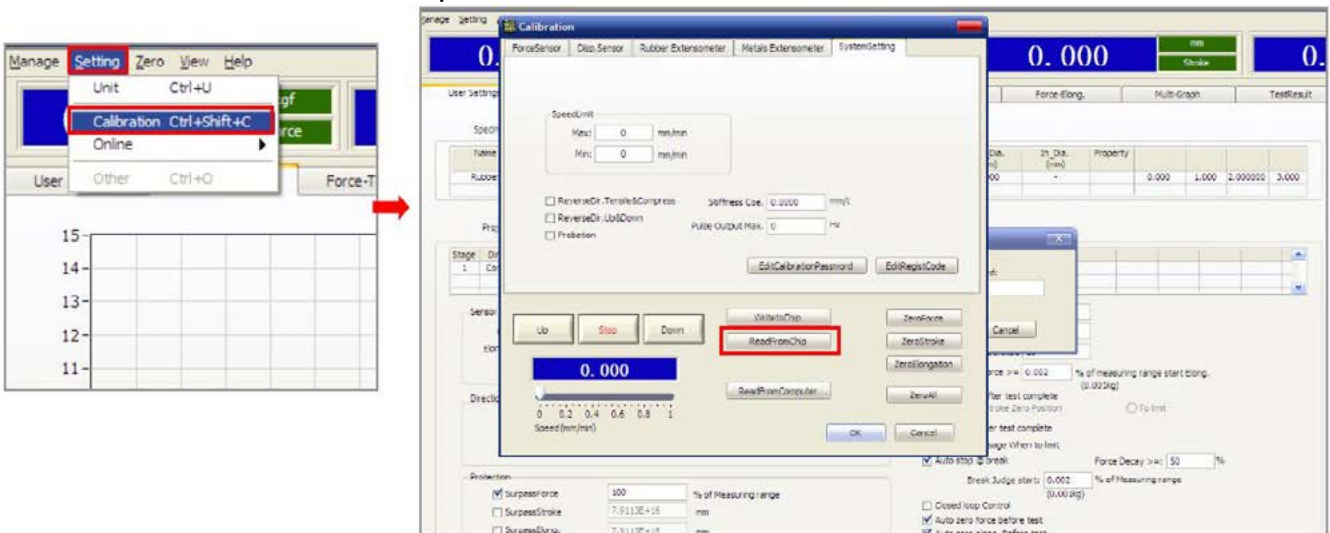
Design Standards: GB16491-2008, HGT 3844-2008, QBT 11130-1991, GB 13022-1991, HGT 3849-2008, GB6349-1986, GB/T 1040.2-2006 2411, ISO 4587, ISO/TS 11405, ISO 527, ASTM E4, BS1610, DIN 51221, ISO 7500, EN 10002, ASTM D628, ASTM D638, ASTM D412

Software Introduction:

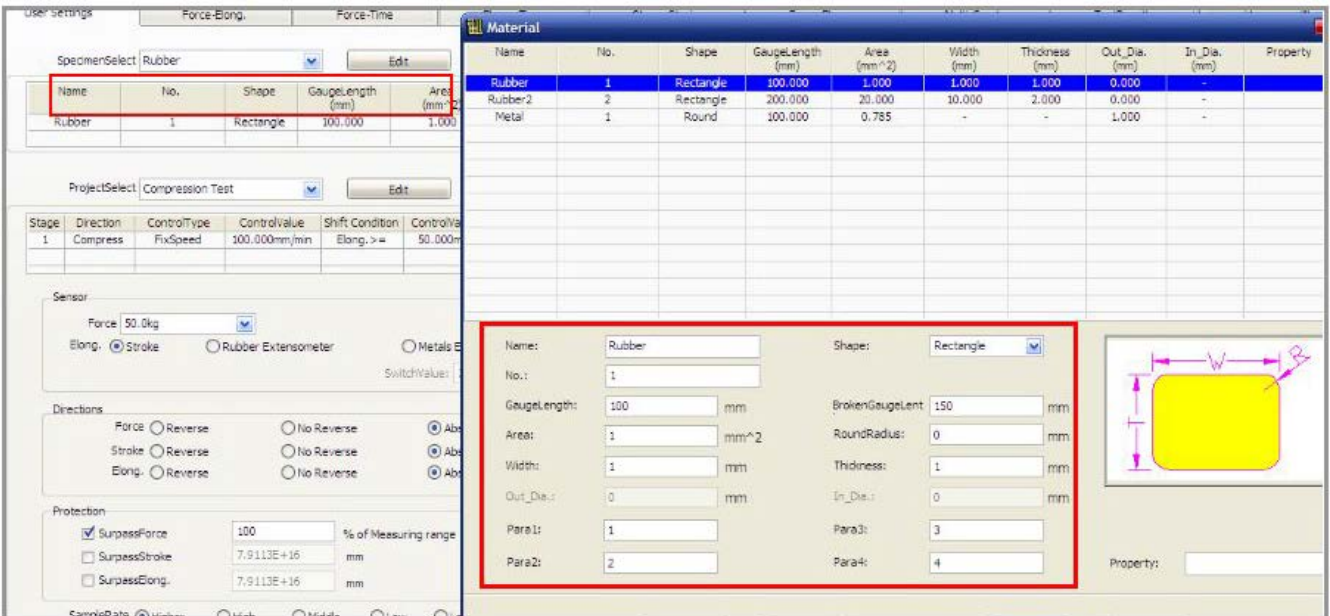
Connect tensile tester with computer well, open software, press setting-online-COM1...



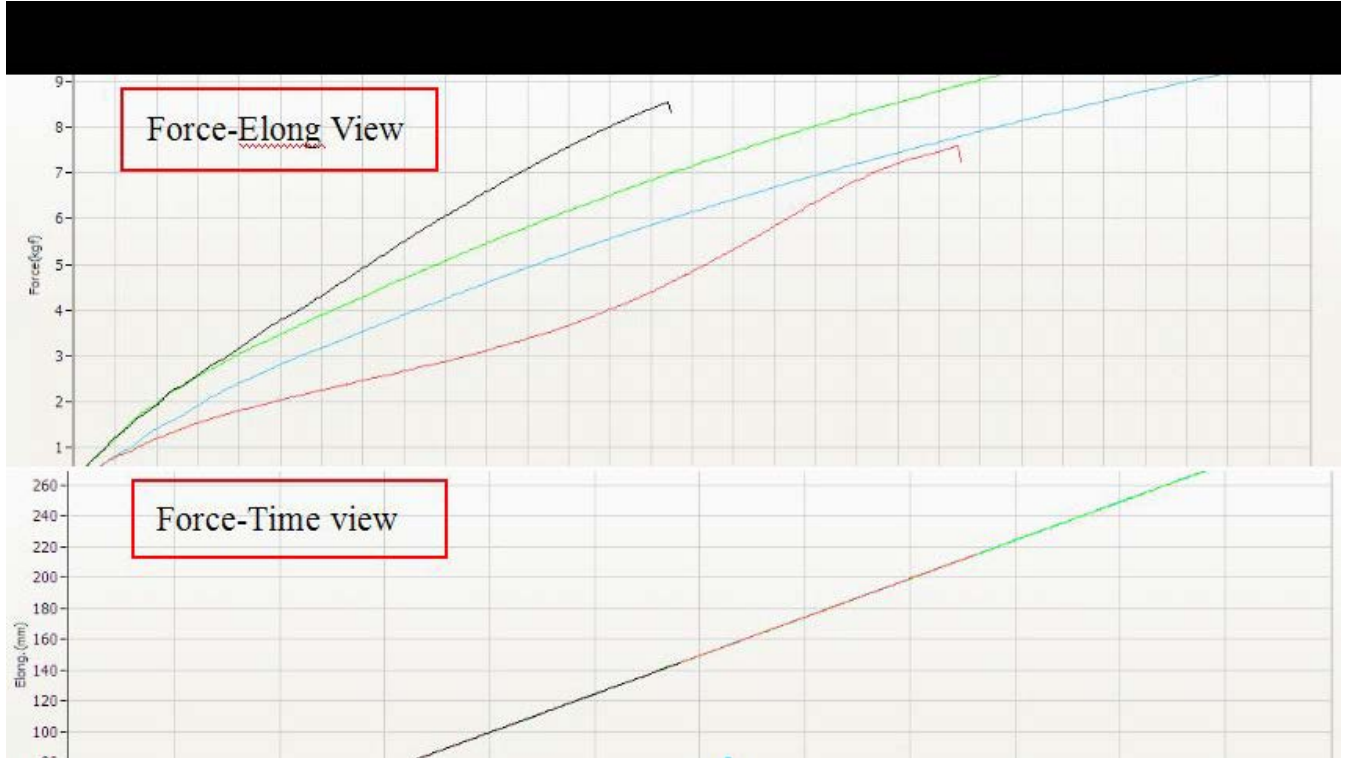
Calibration, press setting-calibration, input password, & enter calibration menu, press read from chip, press OK, the software will read from tensile tester chip



Input the specimen shape, size...



In softWare, you can see different testing views, like force-elong (displacement), force-time, multi-graph...



Set unit

If you need to add test items of testing, or need to add formula, please choose edit. Choose the test items you need, press insert-OK, save it or press edit to add formulas:

No.	Max Force (kgf)	Tensile Strength (kPa)	Elongation percenta (%)
1	8.550	352297.721	577.057
2	7.585	312535.463	859.065
3	9.985	411426.051	1062.848
4	9.220	379904.676	1140.539
Maximum	9.985	411426.051	1140.539
Minimum	7.585	312535.463	577.057



QC-503/505/506/508/513A1, Universal Tensile Test Machines

Description:

- QC-A1 series is a completely computer controlled material testing machine with AC server motor, ball screws & timing belt for a high precision testing result.
- Test for various material such as rubber/ plastic / tape / textile/ electrical product...etc in Tensile/ Compression / Peel/ Fatigue / bending /shear test with different clamps.
- Special test with universal testing machine is also available to discussion such as oven type & Temperature & Humidity type testing environment.

Machine:

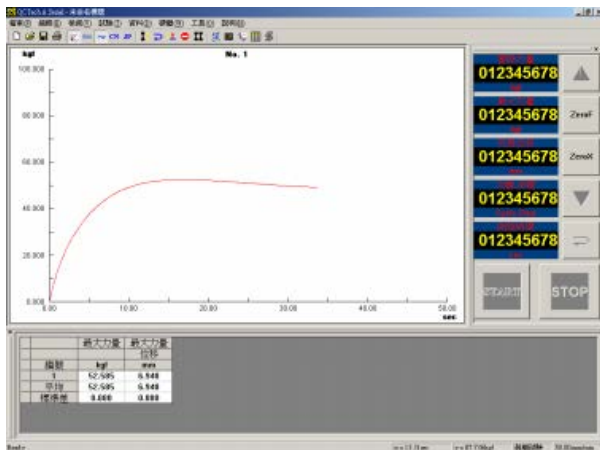
- Strong frame to assure high static and semi-dynamic resistance
- Ball Screws for high smooth and accurate linear motion during test.
- Timing Belt provides a high transmission power and smooth meshing results in a long-life belt which is reliable more than ever.
- AC Server Motor provides a precision speed, programmable control
- Include Up, Down, Stop Button to control machine.
- Include Up, Down limit device and Emergency Stop Button.
- Auto-Stop when the testing is completed.
- Easy assembly of grips or fixture by pin adaptor.

Software Function:

- Operation method: By keyboard, mouse
- Environment: Windows
- Color screen with Chinese/ English version or specified
- RS232 interface
- Unit changeable (for Force, Displacement, Area, Stress ...)
- Table formable by user
- Column Nameable by user
- Data & curve can display separately or in the same time
- Data: Save, Open, Print, export to excel or word file
- Live Curve and Data: Force-Displacement, Force-Time, Stress-Strain...etc.
- Used for Tensile, Compression, Bending, Peeling , Cycles,
- Create Custom Test...etc. Two different testing speed setup in one testing period.
- Travel Limited and load capacity protection setup.

Statistics:

- Resolution: 1/100,000. (1/1000 to 1/200,000 adjustable)
- Load Cell: Conform to ASTM-E4, difference within 1.0%
- Precision of Force: 5~100% within $\pm 0.5\%$, 1~5% within $\pm 1\%$
- Precision of speed: 1~500mm/min $\pm 1\%$.



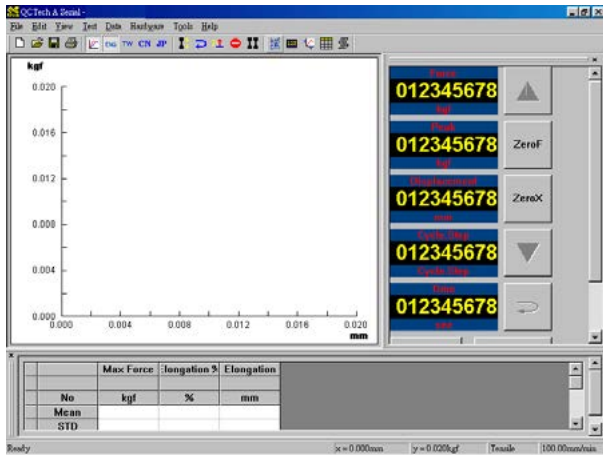
Hardware for PC:

CPU: P4 2.0GHZ
 Hardware Capacity: 40GB DISK compact
 Soft DISK compact
 Screen: CRT 15" color screen Standard Keyboard
 Standard Mouse

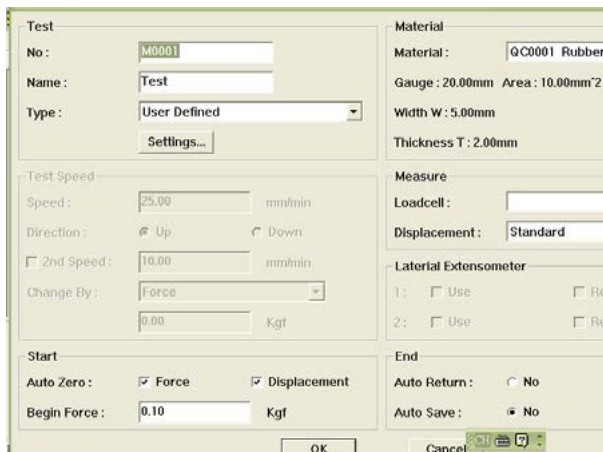
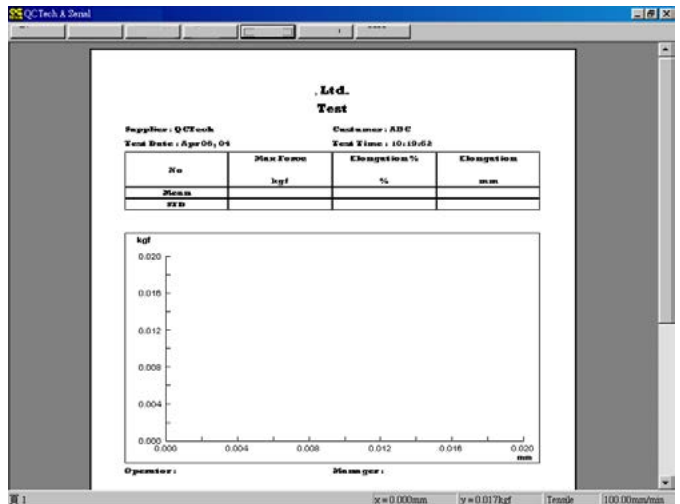
Model	QC-503A1	QC-505A1	QC-506A1	QC-508A1	QC-513A1
Max Capacity	100kN	50kN	10kN	5kN	5kN
Max Speed (mm/min.)	0.5~350	0.5~500		1~1000	
Travel (mm)	800	1000	800	8/00	450
Space (mm)	W550	W420	W400	Ø140	
Machine Dimensions (mm)	1090X570X2100	900x600x1950	840x580x1510	500X520X1500	680x430x950
Type/Column	Floor/Two		Bench/Two	Bench/Single	

Program:

Below is QC-A1 software operation environment. The item or unit in the table report or curve can be changed with the one you need. Software has two version. One is Chinese and the other is English or custom version is available, and there is no problem to connect with printer.



Print preview is as below. Name can be changed such as company, testin g, customer, and supplier name ...etc..



Below is one of the setting manual for:

- Test No, Name, type includes:
 - Tensile
 - Compression Peel
 - Shear
 - Tear
 - 3 or 4 point Bending
 - Creep
 - Friction
 - User's Defined
- Setting for Circles Test includes times, force, displacement...etc.
- Test speed, Direction, two speeds period selections.
- Material specific-Name, Dimension, Thickness, Length.
- Others.

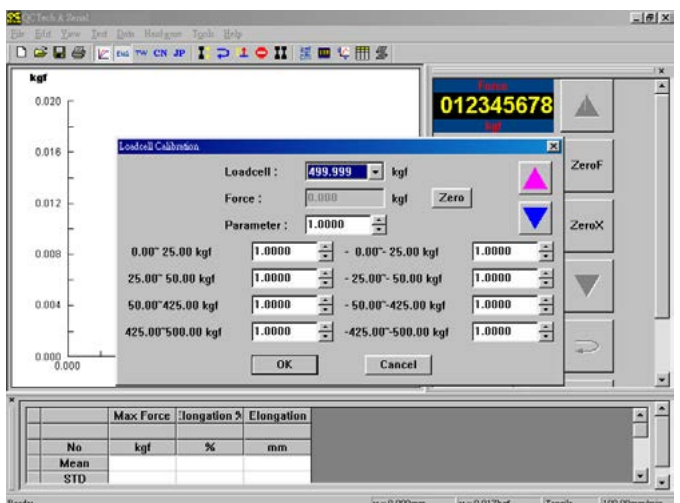
Others:

Accessory: Load Cell X1, Instruction Manual in English or Chinese.
 Warranty: 1 year under normal operation
 Voltage: Single phase, AC 100~ 240V, 50 or 60HZ

Option:

Various Grips, Fixtures, plates or Custom Item
 Extensometer
 Additional Load Cell
 Custom Testing Method in program Temperature and humidity Chambers.

Load Cell Calibrates in software with numbers sections to enlarge every small force deviation for precision correction.



MATERIAL TESTING 10kg, Horizontal Tensile Testing Machine

UTM-507E Horizontal Tensile Tester



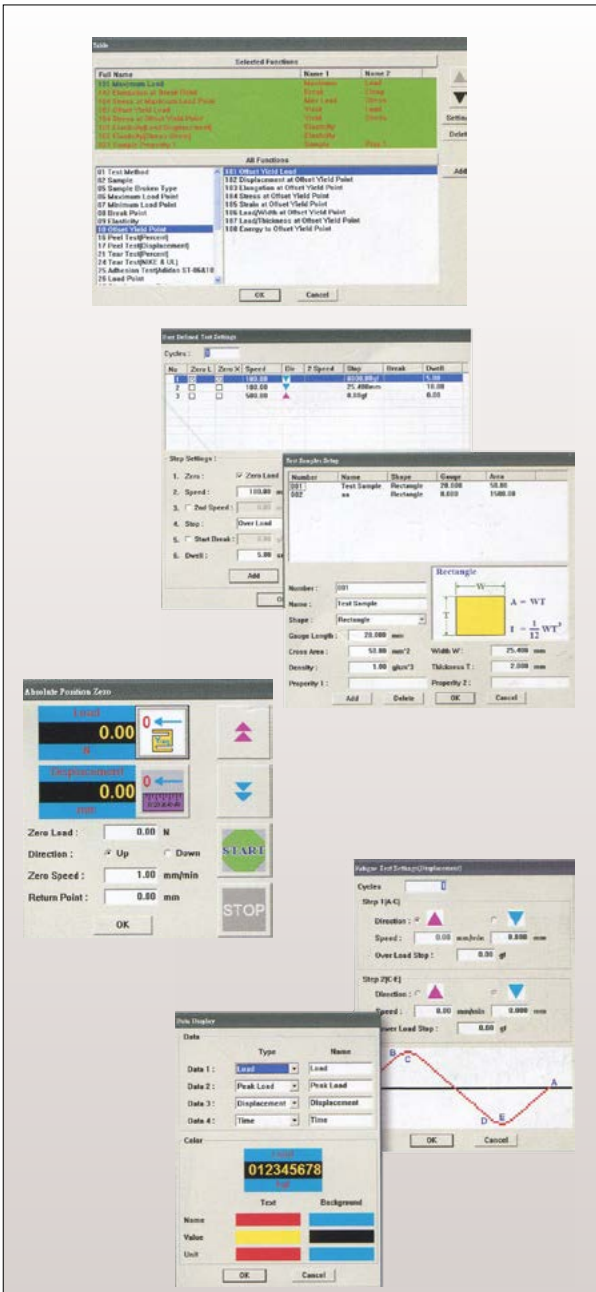
UTM-507E

This machine is suitable for 180 degree peel test of tape and electronic packing belt.

It can perform friction test and tensile test of small force as well.

The horizontal type tester offers a better solution for some special requirements that a vertical type tester can not do.

Model No.	UTM-507E
Load Capacity	100N (10kgf)
Stroke (w/o Grips)	300mm
Position Control Resolution	0.005mm
Max. Speed	500mm/min
Min. Speed	5mm/min
Speed Accuracy	±0.75%
Motor Style	Step Motor
Language	Chinese / English Selectable
Pc-Port	USB
Data Sampling Rate	2KHZ
Resolution Of Force	1/10,000
Load Cell Accuracy	±1.0%
Dimension	92x30x38 cm
Weight	36kg
Power Supply	100~240VAC, 3A



Software:

Software of computerized serial

- Setting testing condition and operate directly through computer.
- Setting various testing mould, e.g. tension test, compression test, bending test, peel test, creep test, test, spring test, foam test, user defined test etc.
- Various unit selectable: Unit is interchangeable between Metric system and English system, also can set the decimal place of each unit.

- Force (kN, N, tonf [SI, long, short], kgf, gf, lbf, ozf)
- Length (m, cm, mm, ft, in)
- Stress (GPa, MPa, kPa, Pa, kN/m², N/m², N/cm², N/mm², kgf/mm², gf/cm², gf/mm², lbf/ft², lbf/in, kpsi, psi)
- Time (min, sec, msec)
- Speed (cm/min, cm/sec, mm/min, mm/sec, in/min, in/sec).

- Protection mode: Over load protection, over displacement protection.
- Display X-Y, X-T, Stress-Strain curve and data synchronously.
- Analyze data, statistics, save data by computer.
- Connect with computer by USB.

Software of Electronic serial

- Connect with computer by USB.
- Setting various testing mould, e.g. tensile, compression, bending, peel test etc.
- Display X-Y, X-T, Stress-Strain curve and data synchronous.
- Analyze data, statistics, save data by computer.

Model	UTM-GR-A010	UTM-GR-A020	UTM-GR-A030	UTM-GR-B010
Image				
Max. Capacity	2KN	2KN	2KN	200KN
Specimen Width	40mm	44mm	52mm	30mm
Specimen Thickness	1~12mm	0.1~5mm	0.1~5mm	0.1~5mm
Grip Weight	984g	687g	876g	212g
Grip Material	Steel	Steel	Steel	Aluminium Alloy
Temperature Limits	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C	-10°C~+100°C
Min Load Cell	200N	200N	200N	20N
Applicable Adapter	GR-02	GR-02	GR-02	GR-02
Application	Rubber / Plastic / Fabric	Ductile Rubber / Ductile Plastic	Ductile Rubber / Ductile Plastic	Tapes, Films / Paper
Diagram				


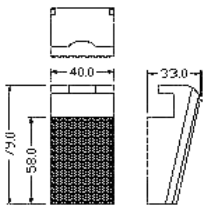
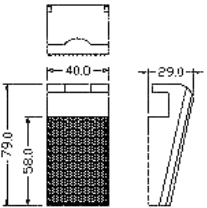
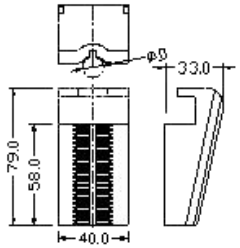
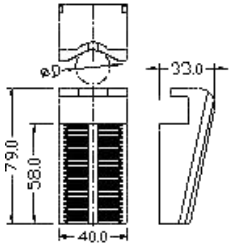
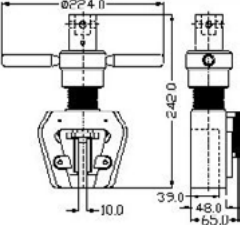

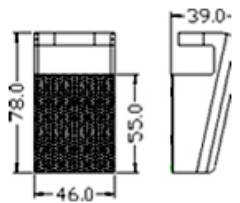
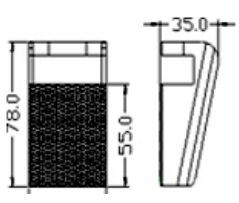
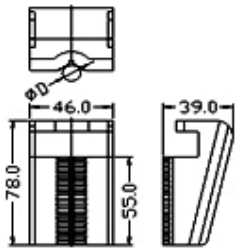
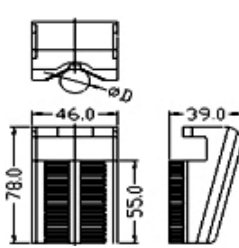
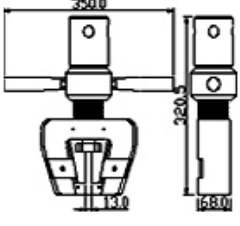
Model	UTM-GR-B020	UTM-GR-B030	UTM-GR-C010	UTM-GR-C020
Image				
Max. Capacity	200N	200N	5KN	10KN
Specimen Width	25.4mm	32mm	40mm	58mm
Specimen Thickness	0.1~3mm	0.01~3mm	-	-
Specimen Distance	-	-	22~260mm	24~300mm
Grip Weight	949g	1110g	up 901g / down 5342g	up 1960 / down 11510g
Grip Material	Aluminum Alloy	Steel	Steel	Steel
Temperature Limits	-10°C~+100°C	-10°C~+100°C	-30°C~+200°C	-30°C~+200°C
Min Load Cell	-	-	200N	500N
Applicable Adapter	GR-02	GR-02	GR-02 / GR-03	GR-02 / GR-03
Application	Tapes / Films / Ductile Circuit Board	Tapes / Films / Ductile Circuit Board	Metal / Wood / glasses / Rigid Plastic	Metal / Wood / glasses / Rigid Plastic
Anvil Radius	-	-	R=5mm (adjustable)	R=5mm (adjustable)
Diagram				

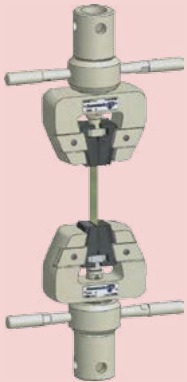
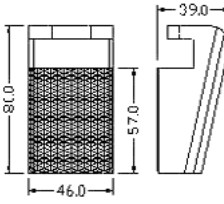
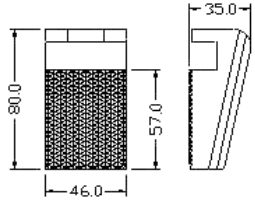
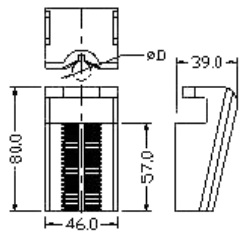
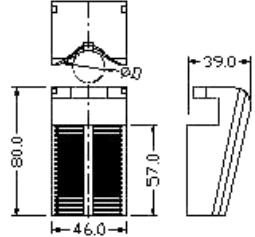
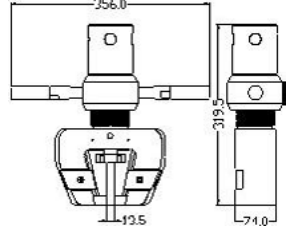
Model	UTM-GR-D01A	UTM-GR-D01D	UTM-GR-D01G	UTM-GR-D020
Image				
Max. Capacity	2KN	2KN	2KN	2KN
Specimen Width	78mm	78mm	78mm	60mm
Specimen Thickness	0.2~5mm	0.2~5mm	0.2~5mm	0.2~5mm
Grip Weight	1600g	1600g	1600g	2142g
Grip Material	Steel	Steel	Steel	Steel
Jaw Face	Crosshatch	Rubber Faced	Waved	-
Temperature Limits	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C	0°C~+200°C
Min Load Cell	200N	200N	200N	200N
Applicable Adapter	GR-02	GR-02	GR-02	GR-02
Application	Textile / Rubber / Plastic	Paper / Textile / Rubber / Plastic	Textile	Textile / Plastic
Other Spec.	GR-D01B: A=50.8mm GR-D01C: A=25.4mm	GR-D01E: A=50.8mm GR-D01F: A=25.4mm	GR-D01H: A=20.8mm GR-D01I: A=25.4mm	-
Diagram				





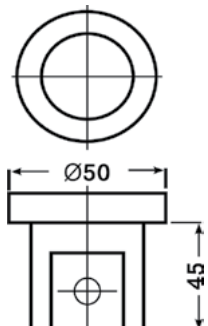
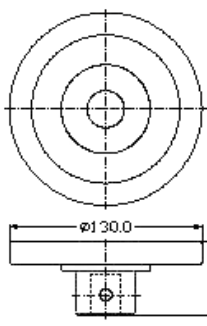
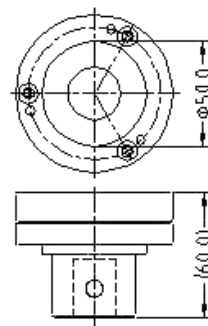
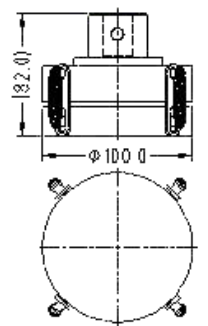
Model	UTM-GR-D030	UTM-GR-D040	UTM-GR-E010
Image			
Max. Capacity	5KN	1KN	200KN
Specimen Width	50mm	78mm	-
Specimen Thickness	0.5~25mm	1~45mm	-
Grip Weight	2800g	2100g	432g
Grip Material	Steel	Steel	Steel
Temperature Limits	0°C~+100°C	0°C~+200°C	0°C~+100°C
Min Load Cell	500N	200N	20N
Applicable Adapter	GR-02	GR-02	GR-02
Application	Textile / Plastic	Big Size Specimen	Yarn
Diagram			

Model	UTM-GR-E020	UTM-GR-E030	UTM-GR-E040	UTM-GR-E050
Image				
Max. Capacity	2KN	500KN	100KN	2KN
Specimen Width	51mm	26mm	-	-
Specimen Thickness	0.2~3mm	0.1~2mm	-	-
Grip Weight	1120g	585g	245g	1400g
Grip Material	Steel	Steel	Aluminum Alloy	Steel
Temperature Limits	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C
Min Load Cell	200N	50N	20N	100N
Applicable Adapter	GR-02	GR-02	GR-02	GR-02 / M12
Application	Webbing / Packing belt	Yarn / Wire / Film	Yarn	Wire / Nylon line
Specimen Diameter	-	-	Ø0.5~Ø1mm	Ø0.5~Ø2mm
Diagram				

Model	UTM-GR-F010	UTM-GR-F01A TYPE JAW	UTM-GR-F01B TYPE JAW
Image			
		<p>Standard Specimen Specimen Thickness: 0.2~10mm A: Interchangeable Jaw Face B: Jaw Face Support</p>	<p>Thickened Specimen Specimen Thickness: 9~18mm</p>
Application: metal Sheet / Wire / Plastic			
Max. Capacity	100KN	UTM-GR-F01F TYPE JAW	UTM-GR-F01G TYPE JAW
Specimen Width	30mm		
Specimen Thickness	1~12mm		
Grip Weight	5246g	Application: Metal Rod / Plastic Rod / Rod or Tube Shape Materials	
Grip Material	Steel		
Temperature Limits	-30°C~+200°C		
Min Load	1KN		
Applicable Adapter	GR-02 / GR-03		
Diagram			

Model	UTM-GR-F020	UTM-GR-F02A TYPE JAW	UTM-GR-F02B TYPE JAW
Image		 <p>Standard Specimen Specimen thickness: 0.2~11mm</p>	 <p>Thickened Specimen Specimen Thickness: 10~21mm</p>
		Application: Wire / Rigid Plastic / Plate Material	
Max. Capacity	50KN	UTM-GR-F02F TYPE JAW	UTM-GR-F02G TYPE JAW
Specimen Width	40mm	 <p>Rod Specimen Specimen: Dia. \varnothing7~17\varnothingmm</p>	 <p>Rod Specimen Specimen: Dia. \varnothing16~\varnothing26mm</p>
Specimen Thickness	0.1~5mm		
Grip Weight	10163g	Application: Metal Rod / Plastic Rod / Rod or Tube Materials	
Grip Material	Steel		
Temperature Limits	-30 $^{\circ}$ C~+200 $^{\circ}$ C		
Min Load	1KN		
Applicable Adapter	GR-03		
Diagram			
Model	UTM-GR-F030	UTM-GR-F03A TYPE JAW	UTM-GR-F03B TYPE JAW
Image		 <p>Standard Specimen Specimen Thickness: 1~11mm</p>	 <p>Thickened Specimen Specimen Thickness: 10~19mm</p>
		Application: Wire / Plastic Material	
Max. Capacity	100KN	UTM-GR-F03F TYPE JAW	UTM-GR-F03G TYPE JAW
Specimen Width	46mm	 <p>Rod Specimen: Dia.(D) \varnothing8~17\varnothingmm</p>	 <p>Rod Specimen: Dia.(D) \varnothing16~\varnothing25mm</p>
Grip Weight	17522g		
Grip Material	Steel	Application: Metal Rod / Plastic Rod / Rod or Tube Materials	
Temperature Limits	-30 $^{\circ}$ C~+200 $^{\circ}$ C		
Min Load	2KN		
Applicable Adapter	GR-04		
Diagram			

Model	UTM-GR-F040	UTM-GR-F04A TYPE JAW	UTM-GR-F04B TYPE JAW
Image		 <p>Standard Specimen Specimen Thickness: 1~11mm</p>	 <p>Thickened Specimen Specimen Thickness: 10~19mm</p>
		Application: Wire / Metal Sheet	
Max. Capacity	200KN	UTM-GR-F04F TYPE JAW	UTM-GR-F04G TYPE JAW
Specimen Width	46mm	 <p>Rod Specimen: Dia.(D) Ø9~17Ømm</p>	 <p>Rod Specimen: Dia.(D) Ø6~Ø25mm</p>
Grip Weight	19150g		
Grip Material	Steel		
Temperature Limits	-30°C~+200°C		
Min. Load	5KN		
Applicable Adapter	GR-04		
Diagram		Application: Metal Rod / Plastic Rod	

Model	UTM-GR-G010	UTM-GR-G01A	UTM-GR-G020	UTM-GR-G030
Image				
Max. Capacity	5KN	10KN	5KN	20KN
Max. Diameter	50mm	130mm	90mm	100mm
Grip Weight	400g	1700g	1518g	3269g
Grip Material	Steel	Steel	Steel	Steel
Temperature Limits	-70°C~+200°C	-70°C~+200°C	-70°C~+200°C	-30°C~+200°C
Min. Load Cell	50N	200N	100N	500N
Applicable Adapter	GR-02 / GR-01	GR-02 / GR-03 / GR-04	GR-02	GR-02 / GR-03
Application	Can / Brittle Material	Can / Brittle Material	Spring / Foam	Concrete Material
Diagram				

MATERIAL TESTING

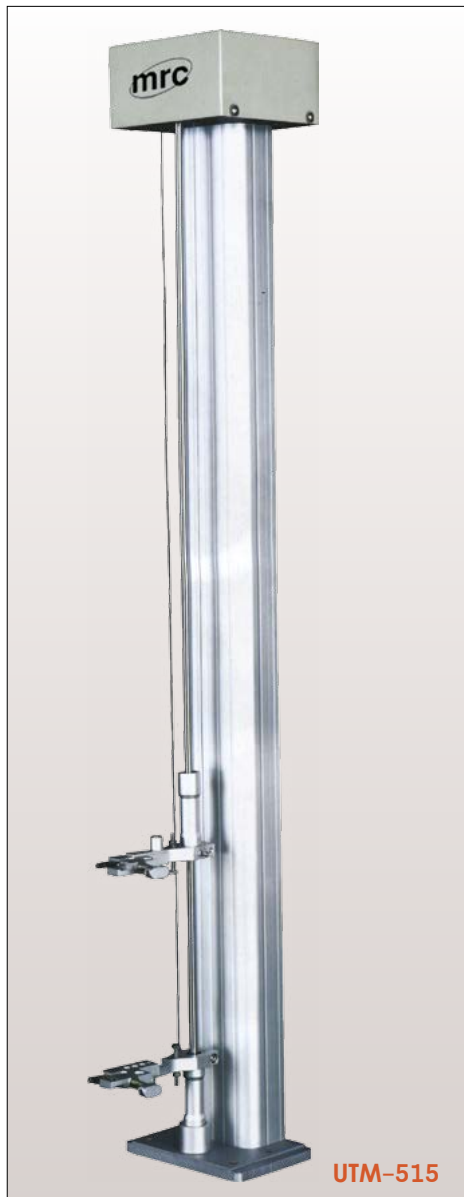
Grips

Model	UTM-GR-G040	UTM-GR-G050	UTM-GR-H010	UTM-GR-H020
Image				
Max. Capacity	500N	5KN	200N	20N
Specimen Width	-	-	30mm	16mm
Specimen Thickness	-	0.28~0.55mm	0.1~3mm	0.1~3mm
Grip Weight	1320g	7442g	480g	190g
Grip Material	Steel	Steel	Aluminum Alloy	Aluminum Alloy
Temperature Limits	-30°C~+200°C	0°C~+100°C	0°C~+40°C	0°C~+40°C
Min Load Cell	-	500N	20N	10N
Applicable Adapter	GR-02	GR-02	GR-02	GR-02
Application	Spring / Foam	Tappi T818 Paper Ring Crush	Plastic / Rubber Sheet / Wire / Paper	Plastic Sheet / Wire
Air Supply	-	-	40~80Psi	40~80Psi
Max. Diameter	Ø55mm	-	-	-
Specimen Size	-	12.7 x 152.4mm	-	-
Diagram				
Model	UTM-GR-I010	UTM-GR-H030	UTM-GR-H040	UTM-GR-H050
Image				
Max. Capacity	500N	1KN	1KN	5KN
Specimen Width	-	51mm	-	50mm
Specimen Thickness	-	0.1~12mm	0.1~4mm	0.5~12mm
Grip Weight	1320g	2250g	2503g	9337g
Grip Material	Steel	Aluminum Alloy	Aluminum Alloy	Steel
Temperature Limits	-30°C~+200°C	0°C~+40°C	0°C~+40°C	0°C~+40°C
Min Load Cell	-	200N	200N	1KN
Applicable Adapter	GR-02	GR-02	GR-02	GR-02
Application	Spring / Foam	Fabric / Paper / Leather / Plastic / Rubber	Nylon Line	Plastic / Rubber
Air Supply	-	40~80Psi	40~80Psi	40~80Psi
Test Area	60 x60mm	-	-	-
Diagram				

Model	UTM-GR-I030	UTM-GR-J010	UTM-GR-J020
Image			
Max. Capacity	500N	10KN	20KN
Specimen Width	-	50mm	81mm
Specimen Thickness	-	0.5~3mm	0.5~3mm
Specimen Diameter	1~9mm	-	-
Grip Weight	782g	4900g	11522g
Grip Material	Steel	Steel	Steel
Temperature Limits	0°C~+100°C	-30°C~+200°C	-30°C~+200°C
Min Load Cell	100N	2KN	2KN
Applicable Adapter	GR-02 / GR-03	GR-02 / GR-03	GR-02 / GR-03
Application	Rod Material	Webbing / High-Tension Material	Webbing / High-Tension Material
Diagram			

Model	UTM-GR-K010	UTM-GR-K020	UTM-GR-K030	UTM-GR-K03B	UTM-GR-L030
Image					
Max. Capacity	1KN	200N	500N	100N	-
Specimen Diameter	-	Ø0.5~Ø2.5mm	-	-	-
Button Dia.	-	-	-	-	Ø5~Ø15mm
Specimen Width	50mm	-	-	-	-
Jaw Face Width	-	-	25.4mm	12mm	-
Specimen Thickness	0.5~4mm	-	0.2~5mm	0.2~3mm	-
Grip Weight	1727g	Up 470g / Down 1748g	710g	253g	Up 925g / Down 3648g
Grip Material	Steel	Steel	Steel	Steel	Steel
Temperature Limits	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C	-30°C~+200°C	0°C~+200°C
Min Load Cell	50N	20N	50N	10N	20N
Applicable Adapter	GR-02	GR-02 / MB+GR-02	M12 / GR-02	M6 / GR-02	M6 / GR-02
Application	Zipper / Specimen-Fix One Side and Pull up	Spring	Smaller Specimen / Ductile Sheet Material	Smaller Specimen / Ductile Sheet Material	Button
Diagram					

Model	UTM-GR01	UTM-GR02	UTM-GR03	UTM-GR04
Image				
Max. Capacity	1000N	20KN	50KN	200KN
Adapter Material	Steel	Steel	Steel	Steel
Application	QC-528 / QC-508E	QC-528 / QC-508E / QC-513 / QC-508 / QC-506 / QC-505	QC-505 Series	QC-503 / QC-502 Series
Diagram				



UTM-515, Extensometer

Extensometer is the essential equipment for measuring the elongation of specimen. It used in tensile test and sense the elongation when testing is processing. Extensometer is helpful to analysis test data at the same time, including force, elongation, time and so on.

MRC supply long extensometer and short extensometer according to different test materials. Long extensometer applies on rubber and plastic material. Short extensometer applies on metal and brittle material.

How To Install On The Machine



Long Extensometer

Model	UTM-515	
Type (Length)	A: Standard	B: Extended
Accuracy	0.1mm	
Resolution	0.025mm	
Drag Fore	Max/0.25N	
Stroke	700mm	1100mm
Gauge Length	15~50mm	
Output Signal	AB Phase	
Mounting Way	Fixed Holder / Revolvable Holder (option)	

Short Extensometer



Model	UTM-556	UTM-558
Gauge Length	50mm	25mm / 50mm
Elongation	50%	100% / 50%
Length Resolution	0.001mm	0.01mm
Output Signal	2 mV/V	AB Phase Differential Motion Output
Max. Output Frequency	-	64KHZ
Power Supply	DC 5-10V	DC 5V±5%
Application	A Series Controller	B1-A Series Controller
Weight	-	175g

Chamber For Environmental Test



Temperature and humidity can make great impact on physical properties of the test material. Therefore, materials which are used in specific condition need even more to pass through specific environmental test.

MRC offer various acquirments for environmental test, including high temperature test, low temperature test and humidity test. These chambers can be installed on universal testing machine to preform test under certain environmental conditions. These serial almost adapt double column type, it can also be used on single column type to meet special request.

Oven

- Inner size: Standard type 200x200x500mm.
- Temperature range: +50°C ~ +200°C.
- Attached stand with track to connect with universal testing machine.
- Attached extend shaft of thermal discharge type to reduce the effect of temperature to tester.

Note: Temperature and inner size could be specified by customer.

Freezing Chamber

- Inner size: Standard type 200x200x500mm.
- Temperature range: low temperature range: 0°C ~ -60°C, high temperate range: up to +150°C.
- Attached stand with track to connect with universal testing machine.
- Attached extend shaft of thermal discharge type to reduce the effect of temperature to tester.

Note: Temperature and inner size could be specified by customer.

Humidity And Temperature Chamber

- Inner size: Standard type 300x300x500mm.
- Temperature range: low temperature range: 0°C ~ -60°C, high temperature range: up to +150°C.
- Humidity range: 25-90%
- Attached stand with track to connect with universal testing machine.
- Attached extend shaft of thermal discharge type to reduce the effect of temperature to tester.

Note: Temperature and inner size could be specified by customer.