Universal Testing Machine

Model **MSETM103WESWISS** | Brand **Master Science**



Universal Testing Machine

The Master Science series electromechanical testing machines offer force, displacement, or deformation closed-loop testing in tension, compression, flexure, shear, tear, and peel, among others. The machine can be equipped with various accessories, including grips, fixtures, compression frames, thermal cabinets, and extensometers.

Request a Quotation
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Overview

It is suitable for testing a wide range of materials such as rubber, plastics, foils, films, textiles, adhesives, paper, foods, foams, timber, wires, metallic or non-metallic specimens, and components in medical, electronic, and other industries. The load frames are rigidly constructed to provide superior axial and lateral stiffness.

Technical Specifications

PARAMETER	SPECIFICATION
Strain Measurement StandardsMeets or exceeds ASTM E83, ISO 9513, BS 3846, EN 10002-4.	
Certificates (from Offer)CE & ISO.	
ParameterSpecification	
Load Capacity1000 N	
Calibration StandardClass 0.5 according to ISO 7500-1; Meets ASTM E-4	
Testing Load Accuracy±0.5%	
Testing Load Range0.4%–100% FS	
Load Resolution1/500,000 FS	
Deformation Measuring Range0.2%–100% FS	
Deformation Accuracy≤ ±0.5%	
Deformation Resolution1/±500,000 FS of max deformation	
Test Control ModeThree closed-loop controls	stress, strain, and displacement
Position AccuracyWithin ±0.5% of the value	
Displacement Resolution0.01 mm	

PARAMETER	SPECIFICATION
Crosshead Speed Range	0.001–500 mm/min
Crosshead Speed Accuracy	≤ ±0.2%
Constant Force Control Range	0.001%–5% FS/s
Constant Deformation Control Range	0.005–5% FS/s
Crosshead Travel	800 mm
Max. Tensile Testing Space	600 mm / 800 mm (height model)
Max. Compression Testing Space	600 mm / 800 mm (height model)
Compression Platen	Ø100 mm
Power Supply	1 ph, AC 220 V ±10%, 50 Hz / 60 Hz
Overall Dimensions (L × W × H)	520 × 400 × 1340 mm (or 425 × 400 × 1315 mm as per dimension table)
Weight	110 kg
Load Standards	Meets or exceeds ASTM E4, ISO 7500-1, EN 10002-2, BS 1610, DIN 51221, DIN-51223, DIN-51227, DIN-51228, UNE-7-474-92.
Safety Standards	Conforms to European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1.
Constant Force Control Accuracy	<0.05% FS/s **within ±2% of set value; ≥0.05% FS/s: within ±0.5% of set value**
Constant Deformation Control Accuracy	<0.05% FS/s **within ±2% of set value; ≥0.05% FS/s: within ±0.5% of set value**
Note	Master Science reserves the right to modify specifications without prior notice.
Performance and Characteristics	

Mechanical Structure

- Single column structure with lower tensile and upper compression spaces; beam is step-less lifting, light yet rigid.
- Ball screw drive for precise control of test force and deformation speed.
- Limit mechanism on shield plate to prevent sensor damage from excessive movement.
- High-quality precision machined steel plate for table and beams to reduce vibration from specimen fracture and improve stiffness.
- Upward motor placement above work surface for better heat dissipation and electrical component longevity.
- Three columns for mandatory orientation, enhancing rigidity and measurement repeatability.
- Bolt-type grip installation for easy replacement.

Control and Measurement System

- Enables special displacement, deformation, and speed closed-loop control; flexible speed and method changes during testing.
- High-speed 24-bit A/D channels with resolution up to ±1/300,000 (invariable grade throughout).
- Three pulse signal channels with quadruple frequency technology for enhanced resolution.
- Hand-Held Remote Unit: Displays load, displacement, speed; buttons for fast/slow up/down, clear, reset, run, stop.
- Software Instructions
- Full digital control with easy zero-point and gain adjustment for load, deformation, and displacement.
- Parameter storage, setting, and loading for multiple transducers.
- Close-loop parameter adjustment with reference curve display.
- Graphic functions: Curve reappearance, amplification, reduction, self-adaptation, lapping, coordinate display, and printing.
- Automatic and manual data processing for result comparison.
- Multilevel identity management for security and quick operation.
- Database-based storage in text files for easy querying and reporting.
- Multi-channel controls: Displacement, force, deformation, stress, strain, constant stress/strain, etc.
- Test Standards Support: GB, ASTM, DIN, JIS, BS, and others.
- Report Output: Excel, Word, customizable templates with test info, curves, max load; editable with company logo/name.
- Language: English (other languages optional).

Standard Accessories Included

- 1: Part Name: Electronic Universal Testing Machine Host
- Description: Single column frame structure; double space (down tensile, up compression)
- Quantity: 1 set
- 2: Part Name: Stepper Motor System
- Description: Optional: Servo Control system
- Quantity: 1 set
- 3: Part Name: Rubber Shock-Absorbing Pad
- Description: Adjusts equipment level, reduces vibration
- Quantity: 4 sets
- 4: Part Name: Handheld Unit Controller
- Description: Magnetic/hand-held for crosshead positioning
- Quantity: 1 set
- 5: Part Name: Positioning Ruler
- Description: Visual ruler along the frame
- Quantity: 1 set
- 6: Part Name: S Type Load Cell
- Description: Calibration within 0.5% accuracy (ASTM E4, ISO 7500-1, etc.)
- Quantity: 1 set
- 7: Part Name: Corrugated Tensile Grip (Code: 801)
- Description: For plastic, textile, etc.; Jaw width: 50 mm, thickness: 10 mm (or 8 mm from offer), height: 25 mm
- Quantity: 1 set
- 8: Part Name: 90° Peeling Test
- Description: For tape, adhesive, composites; 90-degree peel strength
- Quantity: 1 set
- 9: Part Name: 180° Peeling Test
- Description: For tape, adhesive, composites; 180-degree peel strength
- Quantity: 1 set
- 10: Part Name: Compression Test Grip (Code: 1087 / Model YG100 from offer)
- Description: Ø100 mm
- Quantity: 1 set
- 11: Part Name: Control System
- Description: Force, displacement, deformation closed-loop control
- Quantity: 1 set
- 12: Part Name: Test Software
- Description: English (changeable); Includes Model KS550 Test Controller (from offer)
- Quantity: 1 set
- 13: Part Name: Computer and Printer
- Description: HP computer (English OS); HP color ink-jet A4 printer
- Quantity: 1 set each

Optional Accessories

- Calibration Tool: 1 KN
- Other Test Grips: Various optional grips are available.