Universal Testing Machine

Master Science MSETM103WESWISS Single Column Computer Control Electromechanical Universal Testing Machine

General Description

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. 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.

Model: MSETM103WESWISS

Compliance Standards

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- **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.
- **Strain Measurement Standards:** Meets or exceeds ASTM E83, ISO 9513, BS 3846, EN 10002-4.
- **Safety Standards:** Conforms to European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1.
- **Certificates (from Offer):** CE & ISO.

Main Technical Parameters

Parameter	Specification
Load Capacity	1000 N
Calibration Standard	Class 0.5 according to ISO 7500-1; Meets ASTM E-4
Testing Load Accuracy	±0.5%
Testing Load Range	0.4%–100% FS
Load Resolution	1/500,000 FS
Deformation Measuring Range	0.2%–100% FS
Deformation Accuracy	? ±0.5%
Deformation Resolution	1/±500,000 FS of max deformation
Test Control Mode	Three closed-loop controls: stress, strain, and displacement
Position Accuracy	Within ±0.5% of the value
Displacement Resolution	0.01 mm
Crosshead Speed Range	0.001–500 mm/min
Crosshead Speed Accuracy	? ±0.2%
Constant Force Control Range	0.001%–5% FS/s
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 Range	0.005–5% FS/s
Constant Deformation Control Accuracy	<0.05% FS/s: within ±2% of set value; ?0.05% FS/s: within ±0.5% of set value
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

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Parameter	Specification
	mm as per dimension table)
Weight	110 kg

Note: Master Science reserves the right to modify specifications without prior notice.

Performance and Characteristics

Mechanical Structure:

1. Single column structure with lower tensile and upper compression spaces; beam is step-less lifting, light yet rigid.
2. Ball screw drive for precise control of test force and deformation speed.
3. Limit mechanism on shield plate to prevent sensor damage from excessive movement.
4. High-quality precision machined steel plate for table and beams to reduce vibration from specimen fracture and improve stiffness.
5. Upward motor placement above work surface for better heat dissipation and electrical component longevity.
6. Three columns for mandatory orientation, enhancing rigidity and measurement repeatability.
7. 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,

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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

No.	Part Name	Description	Quantity
1	Electronic Universal Testing Machine Host	Single column frame structure; double space (down tensile, up compression)	1 set
2	Stepper Motor System	Optional: Servo Control system	1 set
3	Rubber Shock-Absorbing Pad	Adjusts equipment level, reduces vibration	4 sets
4	Handheld Unit Controller	Magnetic/hand-held for crosshead positioning	1 set
5	Positioning Ruler	Visual ruler along the frame	1 set
6	S Type Load Cell	Calibration within 0.5% accuracy (ASTM E4, ISO 7500-1, etc.)	1 set
7	Corrugated Tensile Grip (Code: 801)	For plastic, textile, etc.; Jaw width: 50 mm, thickness: 10 mm (or 8 mm from offer), height: 25 mm	1 set
8	90° Peeling Test	For tape, adhesive,	1 set

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No.	Part Name	Description	Quantity
		composites; 90-degree peel strength	
9	180° Peeling Test	For tape, adhesive, composites; 180-degree peel strength	1 set
10	Compression Test Grip (Code: 1087 / Model YG100 from offer)	Ø100 mm	1 set
11	Control System	Force, displacement, deformation closed-loop control	1 set
12	Test Software	English (changeable); Includes Model KS550 Test Controller (from offer)	1 set
13	Computer and Printer	HP computer (English OS); HP color ink-jet A4 printer	1 set each

Optional Accessories (from Catalogue and Offer)

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

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