

## MT MicroTorsion Series | Low-Capacity Torsion Testing Systems

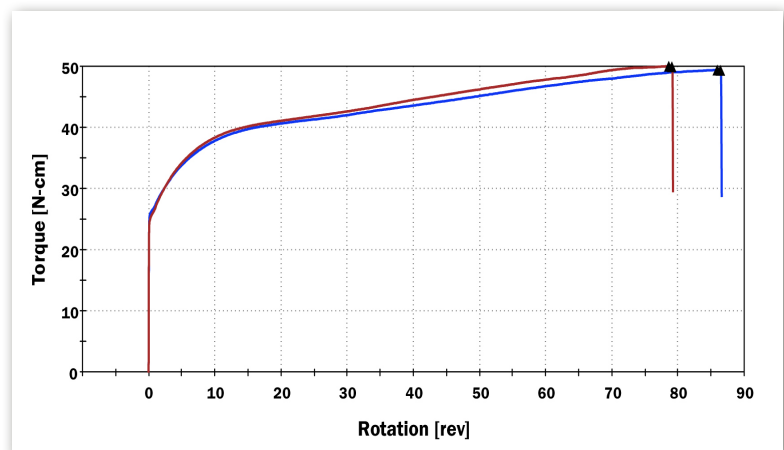
The preferred solution for low-force torsion testing and component in-service simulation, the MT MicroTorsion systems are available in two standard models with force capacities up to 225 N-m (2,000 lbf-in). The compact design requires minimal lab space and offers superior frame stiffness and alignment. Packaged with Instron high-performance control electronics, the MT Series provides highly accurate test data and control for testing a product portfolio that includes wire, fasteners, switches, and springs used in the biomedical, automotive, and aerospace industries. The system includes an integrated guard and safety control system that meets the stringent requirements for the European CE mark.

### Features and Benefits

- Dual linear slide design offers high-torsional stiffness and low-axial friction
- Adjustable crosshead locking system allows crosshead to be free-floating or fixed
- Torque cells available from 0.225 - 225 N-m (2 - 2,000 lbf-in) provide superior accuracy and zeroing capability
- Comprehensive torsion testing software provides graphical data plots and performs a wide range of calculations on torque and angle data
- Productivity panel with multiple function keys and displays allows the operator to perform common testing functions and view key test information without returning to the computer
- Torque cell protection device prevents damage to low-capacity torque cells during test setup
- Safety features:
  - Interlocked enclosure protects the operator from the rotating drive by preventing testing when the guard is open
  - When in manual adjustment mode, speed is limited to 5 rpm
- Optional preload assembly provides constant axial force in compression or tension

### Application Range

- Biomedical
- Bone screws, syringes, needles, luer locks, fine wire, tools, insulin pens, and tubing
- Automotive/Aerospace
- Switches, torsion springs, wire, components, and fasteners



Plot of Torque vs. Rotation when testing to ASTM A938

### Standards

- ASTM: A938, F543 (except Annex A4)
- ISO: 594, 7864, 7886-1, 6475
- CE Compliant

## Specifications

		MT1		MT2	
Torque Capacity		N-m lbf-in	22.5 200	225 2,000	
Maximum Test Opening	E1	mm in	470 18.5	419 16.5	
	E3	mm in	775 30.5	720 28.5	
Maximum Test Speed		RPM	120	60	
Maximum Rotations		CW or CCW	15,000	15,000	
Rotation Resolution		arc-min	0.171	0.168	
Maximum Frame Deflection		arc-min	1	1	
Load Weighing Accuracy			±0.5% of Reading Down to 1/250th of Torque Cell Capacity	±0.5% of Reading Down to 1/250th of Torque Cell Capacity	
Maximum Backlash		arc-min	6	10	
Axial Preload <sup>1</sup>		N lbf	Up to 44.5 10	Up to 44.5 10	
Voltage Options		D1 D2 D4	100-120 VAC, 1 Ph, 50/60 Hz, 10 Amp 200-240 VAC, 1 Ph, 50/60 Hz, 10 Amp	200-230 VAC, 3 Ph, 50/60 Hz, 20 Amp 380-460 VAC, 3 Ph, 50/60 Hz, 15 Amp	
Machine Dimensions <sup>2</sup>	E1	mm in	819 × 650 × 650 32.25 × 25.625 × 25.625	1130 × 764 × 711 44.5 × 30 × 28	
	E3	mm in	1124 × 650 × 650 44.25 × 25.625 × 25.625	1435 × 764 × 711 56.5 × 30 × 28	
Weight (Machine Only)	E1	kgs lbs	90 198	181 400	
	E3	kgs lbs	110 243	220 485	

### Notes:

1. Weight supplied is 4.54 kg (10 lbs). Actual tension or compression load on specimen does not correspond to the weight used due to linear guide and pulley friction.
2. Includes clearance above and behind the frame to open guard door. Also includes feet height. Does not include clearance to mount optional axial preload assembly.

## Frame Options

		MT1		MT2	
Axial Alignment Fixture		IP-MT1-G1		NA	
Torque Cell Protection Device		Included		IP-MT2-G1	
Linear Guide Covers	E1	IP-MT1-H2A <sup>1</sup>		IP-MT2-HTA <sup>3</sup>	
	E3	IP-MT1-H2C <sup>2</sup>		IP-MT2-H2C <sup>4</sup>	
Axial Preload Assembly		IP-MT1-J1		IP-MT2-J1	

### Notes:

1. Reduces horizontal opening by 65 mm (2.5 in)
2. Reduces horizontal opening by 90 mm (3.5 in)
3. Reduces horizontal opening by 40 mm (1.5 in)
4. Reduces horizontal opening by 65 mm (2.5 in)

## Torque Cells



	MT1	MT2
225 N-m (2,000 lbf-in)	-	W-5510-T1
22.5 N-m (200 lbf-in)	W-5510-T2	W-5510-T2 <sup>1</sup>
2.25 N-m (20 lbf-in)	W-5510-T3	W-5510-T3 <sup>1</sup>
0.225 N-m (2 lbf-in)	W-5510-T4	W-5510-T4 <sup>1</sup>

### Notes:

1. Requires IP-MT2-G1 (purchase separately)

## Drill Chucks

Universal drill-type chuck assembly.



		W-MT01	W-MT01-B
Description		Keyless	Keyed
Specimen Range	mm in	1.6 - 12.77 0.063 - 0.5	0.5 - 9.5 0.02 - 0.374
Capacity	N-m in-lb	22.5 200	22.5 200
Machine Interface		M12 x 1.75 m	M12 x 1.75 m
Effective Length (each)	mm in	89 3.5	75 2.95

## Collet Chucks

Collet grip assembly, ideal for smooth, round specimens.



		W-MT02	W-MT02-B
Description		Small	Large
Specimen Range	mm in	1.19 - 6.3 0.046 - 0.25	6.3 - 14.25 0.25 - 0.5625
Capacity	N-m in-lb	57 500	57 500
Machine Interface		M12 x 1.75 m	M12 x 1.75 m
Effective Length (each)	mm in	83 3.27	83 3.27

## Socket Drives

For gripping specimens with hex shapes. Provides 1/2-inch drive with adapters for motor and torque cell mounting.



		W-MT03	W-MT03-M	W-MT04	W-MT04-M
Description		Includes two complete (11 pieces) 6 Point US Customary socket sets	Includes two complete (15 pieces) 12 Point Metric socket sets	Includes two complete (11 pieces) 6 Point US Customary socket sets	Includes two complete (15 pieces) 12 Point Metric socket sets
Compatible Torsion Model		MT1	MT1	MT2	MT2
Capacity	N-m in-lb	57 500	57 500	225 2000	225 2000
Specimen Range		3/8 to 1 inch (1/16 inch increments)	10 to 24 mm (1 mm increments)	3/8 to 1 inch (1/16 inch increments)	10 to 24 mm (1 mm increments)
Machine Interface		Adapting thread M12 x 1.75m	Adapting thread M12 x 1.75m	Bolt on mounting plate	Bolt on mounting plate

## Spare Part Kits

W-1398-A	Basic	Includes Fuses and External Cables
W-1398-B	Recommended	Includes Fuses, External Cables, DSP Circuit Board, and Ethernet Frame Interface
W-1398-C	Comprehensive	Includes Fuses, External Cables, DSP Circuit Board, Ethernet Frame Interface, and other Circuit Boards

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