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Torsion Testers

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Torsion Testers

For maximum versatility and capability, Tinius Olsen offers a full range of torsion testing machines in capacities from 10,000 to 300,000in.lbf or kg.cm (1,000 to 30,000N.m). Higher capacity and other longer length models are available upon request.

These uniquely superior torsion testers provide loading and weighing capabilities in both directions of rotation. This feature makes it possible to conveniently determine not only the ultimate torque of a specimen, but also how that specimen behaves under conditions of continuous or intermittent torque loading in both directions.

Essentially, each torsion tester comprises a variable speed drive loading system, and a digital control and indicating system in a fixed section of the machine. The weighing head with its strain gage torque sensor is mounted on a movable section that can be positioned on rails to accommodate specimens of varying lengths.

Our 10,000in.lbf (1,000N.m) torsion tester is bench mountable and the moveable section slides on a guide rail.

All other models are floor based and are furnished with heavy duty slotted steel bed rails that are normally embedded in, or secured to, a concrete foundation to assure maximum rigidity and accessibility. The moveable section on these higher capacity machines is mounted on four rollers that glide along these slotted rails and allow rapid positioning. Additionally, these rollers allow the moveable unit to compensate for any changes in specimen length during loading. The standard maximum distance between chucks is 7ft (approximately 2.1m); however, other lengths can be provided.

All torsion testers feature our patented bidirectional grips, which ensure slip-free specimen clamping regardless of the twist direction. With these precision machined



universal grips, loads can be applied in both directions without changing grips.

The rugged, electromechanical loading system employs a gear reduction system coupled directly to a variable speed drive motor. This reversible loading system provides positive, infinitely variable testing speeds from 5-180° per minute in either direction (the 10,000in.lbf model has a testing speed range from 5-360° per minute in either direction). As the load increases, more power is delivered to the twisting head to apply increasing torque to the specimen to maintain the preselected twisting rate.

No system would be complete without controlling software and data analysis of the resultant data. The addition of a torsion test module to our Horizon software allows complete machine control along with capture and analysis of the resultant torsional test data, showing the material behaviour throughout the test.

Torsion tester for testing samples up to 7ft/2.1m long and 5in/125mm diameter. The machine is shown with the optional PC-based software.





TECHNICAL SPECIFICATIONS

Capacity	in.lbf or kgf.cm	10,000	60,000	120,000	300,000
	N.m	1000	6000	12,000	30,000
Mounting		Bench	Floor	Floor	Floor
Maximum specimen diameter	in	1.5	3	3	5
	mm	38	76	76	127
Maximum specimen length	in	18	72	60	90
	mm	457	1829	1524	2286
Test speed	degrees per min	5-360	5-180	5-180	5-180
Weight (net)	lb	1100	6200	7625	13,500
	kg	500	2800	3500	6130
Dimensions (LxDxH)	in	62 x 25 x 29	148 x 36 x 78	176 x 45 x 78	220 x 64 x 84
	mm	1570 x 630 x 730	3760 x 900 x 1980	4470 x 1140 x 1980	5590 x 1620 x 2130

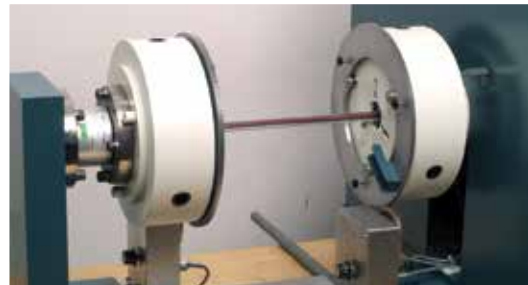
SPECIFICATIONS

Torque measurement accuracy	+/- 0.5% of indicated torque from 0.2% to 100% capacity
Position measurement accuracy	+/- 0.1% of reading or 0.05°, whichever is greater
Speed accuracy	+/- 0.1% of set speed
Operating temperature range	32-100°F (0-38°C)
Storage temperature range	14-115°F (-10-45°C)
Humidity range	10% to 90% non-condensing, wet bulb method
Power	Standard optional voltages 220/240VAC, 50-60Hz; power must be free of spikes and surges exceeding 10% of the nominal voltage

Specifications subject to change without notice

OPTIONAL FEATURES

- Torsional pickups can be fitted directly to the sample for exact measurement of the angle of twist.



Top to bottom: A test in progress on the 10,000in.lbf model with a painted sample rod of steel.



Samples are easily mounted in the patented bidirectional grips.



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