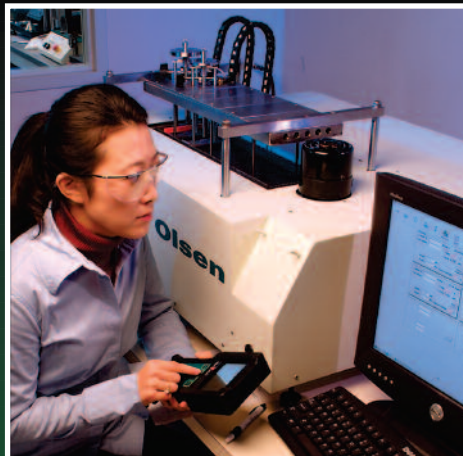




Solutions for Plastic Testing

Machines • Software • Calibration • Service



Tensile Strength



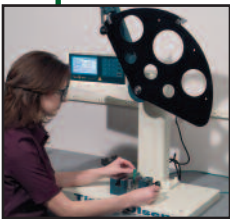
Tinius Olsen's versatile benchtop polymer testing machines can perform many materials test routines that meet ASTM, ISO and other international specifications, including tensile, compressive, tear, peel, flexural, puncture, shear and frictional resistance tests. Several different machines are available at five load tier points, namely, 1 kN (225 lbf), 5 kN (1,125 lbf), 10 kN (2,250 lbf), 25 kN (5,625 lbf), and 50 kN (11,250 lbf).

These machines are available with a wide selection of quick change load cells, tools and grips, extensometers, hi-res position transducers, and environmental chambers. No system is complete without data acquisition and analysis software. Choose from several software platforms — whether you need complex, sophisticated, scalable machine and test control, the ability to generate unique results, or the means to select from a database of over 1,400 commonly used standards, we have the right software.

Folding Endurance

A pliable specimen is placed under a constant tension load, then folded to an angle of 135° in either direction, at a rate of 175 double folds per minute, until the specimen is severed at the crease. A variable folding rate option allows the operator to vary the rate between 20 and 175 double folds per minute.

Impact Strength



Our IT503 and IT504 Impact Testers feature heavy-duty construction with an aerodynamic compound pendulum, ensuring maximum rigidity in the direction of impact. This unique construction virtually eliminates windage losses yet allows simple and rapid changes in capacity by adding or removing weights on the pendulum. The proper accessories allow these machines to operate in accordance with ASTM D 256, D 6110, D 4812, D 4508, D 950, ISO

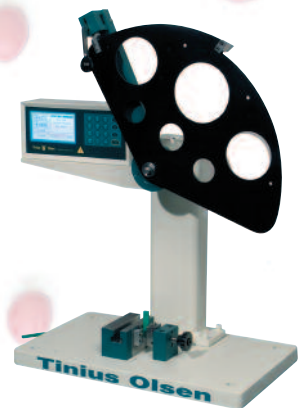
179, 180 and other similar standards. These machines feature a microprocessor-based display for conducting the test, obtaining test results, calibration, and configuring the system.

These machines can be supplied with an optional hot and cold conditioning chamber for testing specimens from +150°C down to -70°C. Additionally, the compound pendulum can be replaced with individual Charpy pendulums for higher, up to 50J, available energy levels and lower available energy levels to meet the specific requirements of ISO 179. The system can also be supplied with an instrumentation system that can collect and analyze up to 1 million data points per test so that an extremely detailed graphical representation of the impact curve can be analyzed. The required notches for test specimens can be produced on our Model 899 Sample Notcher.

Tinius Olsen also manufactures simple drop dart testers for plastic film, which can be used either as stand-alone machines or in conjunction with a benchtop tensile tester to meet ASTM and ISO standards.



Tinius Olsen is one of the world's foremost manufacturers of materials testing machines and has been designing and manufacturing these machines for Quality Control, education, and R&D use since 1880.

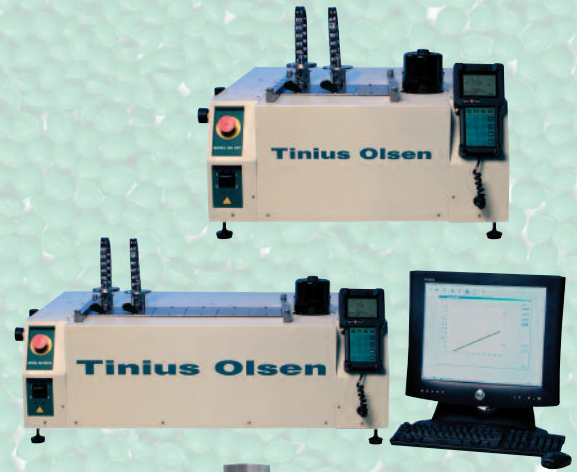


Heat Distortion

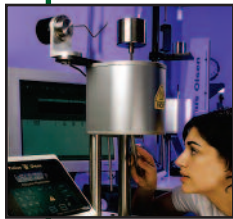


We manufacture two models that perform Deflection Temperature Under Load (DTUL, also called Heat Distortion) and Vicat penetration tests, with six and three test stations respectively. The larger machine can test up to six different specimens simultaneously, with an automated test sequence that proceeds according to user programmed control and configuration parameters.

Unique features to these machines include air bearing supports on loading arms to ensure ultra-smooth operation for precision displacement measurement accuracy; specimen basket to catch samples that fall off their test station at high oil flow rates; pneumatic lift and lowering of test station gantry to start and end the test; and cooling options to increase the number of tests that can be performed per day.



Melt Flow



We are a leading manufacturer of melt index testers for resin flow verification. There are now two models to choose from that are fully compliant with the requirements of ASTM D1238, ISO 1133, and other international standards. The MP200 is ideal for budget conscious organizations in need of an economical, Procedure A only machine.

The versatile MP600 features a modular design for easy upgrading from its basic Procedure A (Cut & Weigh) configuration. For Procedure B testing, the MP600 can be equipped with an optional PPDT-600 automatic timing switch. This switch uses a precision optical encoder to measure the piston position to better than 0.025 mm (0.001 in). Among its capabilities are: calculation and display of Capture Time, Flow Rate, and Volume Rate for each capture; calculation of Apparent Shear Stress, Shear Rate, and Viscosity; calculation of Melt Density using a cut-off weight; and automatic selection of piston travel distance.

Other optional features, such as a programmable motorized weight platform, Flow Rate Ratio attachment, and a pneumatic purge and cleaning fixture, allow for more automated testing.

Again, the MP600 is complemented by software. EP600 software can control up to 10 individual melt indexers from one PC, take multiple readings from each indexer, and perform data analysis with powerful SPC for each indexer or for the group.



Stiffness



Tinus Olsen Stiffness Testers are ideal for determining the stiffness properties of a wide range of materials and products. Operation is simple; a specimen is clamped at one end and a controlled load applied at the free end. The load is applied steadily by a motor drive, and an accurate indication of load and resulting angle of bend are shown simultaneously on analog scales.

Cantilever bending is probably one of the earliest methods of testing, dating back to Galileo in the 16th century, but is brought completely up to date with Tinus Olsen's three standard machines with capacities of 50 in.lb, 6 in.lb, and 1 in.lb.

Popular Test Methods

TYPE OF TEST	DESCRIPTION	ASTM	ISO
TENSION	Tensile Properties Of Plastics	D638	527
	Test Methods For Vulcanized Rubber And Thermoplastic Elastomers	D412	37
	Test Methods For Rubber Property	D413	
	Test Methods For Rubber Property - Adhesion To Rigid Substrates	D429	
	Test Methods For Tear Strength Of Conventional Vulcanized Rubber And Thermoplastic Elastomers	D624	
	Test Method For Shear Strength Of Plastics	D732	
	Tensile Properties Of Plastic Sheeting	D882	527-3
	Test Method For Bond Or Cohesive Strength Of Sheet Plastics And Electrical Insulating Materials	D952	
	In-Plane Shear Strength Of Reinforced Plastics	D3846	4585
	Test Methods For Rubber O Rings	D1414	
	Tensile And Tensile Adhesion Properties Of Rigid Cellular Plastics	D1623	1926
	Tensile Properties Of Plastics By Use Of Microtensile Specimens	D1708	6239
	Test Method For Climbing Drum Peel For Adhesives	D1781	
	Test Method For The Tensile Properties Of Polymer Matrix Composite Materials	D3039	
	Test Methods For Flexible Cellular Materials	D3574	3386
	Tear Propagation Resistance Of Plastic Film And Thin Sheeting By A Single Tear Method	D1938	6383-1
	Tensile Properties Of Reinforced Thermosetting Plastics Using Straight Sided Specimens	D5083	3268
COMPRESSION	Compressive Properties Of Rigid Plastics	D695	604
	Test Method For Rubber Properties In Compression	D575	
	Flexural Properties Of Unreinforced And Reinforced Plastics And Electrical Insulating Materials	D790	178
	Compressive Properties Of Rigid Cellular Plastics	D1621	844
	Test Method For Column Crush Properties Of Blown Thermoplastic Containers	D2659	
	Tensile, Comprehensive And Flexural Creep And Creep Rupture Of Plastics	D2990	899-1, -2
	Test Method For In-Plane Shear Strength For Reinforced Plastics	D3846	
	Test Method For Apparent Horizontal Shear Strength Of Fiber Reinforced Pultruded Plastic Rods	D4475	
	Test Method For Flexural Properties Of Fiber Reinforced Pultruded Plastic Rods	D4476	
	MELT FLOW	Flow Rates Of Thermoplastics By Extrusion Plastometer	D1238
Specification For FEP-Fluorocarbon Molding, And Extrusion Materials		D2116	286
Polybutylene Plastics Molding And Extrusion Materials		D2581	
Specification Of Modified ETFE Fluoropolymer Molding, And Extrusion Materials		D3159	12086
Classification Of E-CTFE Fluoroplastic Molding, Extrusion, And Coating Materials		D3275	
Test Method For Flow Rates For Polyvinyl Chloride With Molecular Structural Implications		D3364	
IMPACT	Determining The Pendulum Impact Resistance Of Notched Specimens Of Plastics	D256	179 / 180
	Test Method For The Impact Strength Of Adhesive Bonds	D950	
	Tensile Impact Energy To Break Plastics And Electrical Insulating Materials	D1822	
	Test Method For The Chip Impact Strength Of Plastics	D4508	
	Test Method For Determining The Charpy Impact Resistance Of Notched Specimens Of Plastic	D6110	
HEAT DEFLECTION UNDER LOAD	Deflection Temperature Of Plastics Under Load	D648	75
	Vicat Softening Temperature Of Plastics	D1525	306
STIFFNESS	Test Method For The Apparent Bending Modulus Of Plastics By Means Of A Cantilever Beam	D747	
FOLDING ENDURANCE	Test Method For Folding Endurance Of Paper By MIT Tester	D2176	

Please note that this is a very brief summary of some of our most popular requests for standards compliance; it is by no means a complete list of the thousands of ASTM, DIN, EN, ISO, CNS, JIS, GOST, BIS, and other international and industrial standards we comply with.



1065 Easton Road
 Horsham, PA 19044 USA
 (215) 675-7100
 Fax (215) 441-0899

6 Perrywood Business Park
 Honeycrock Lane, Salfords
 Redhill, Surrey RH1 5DZ England
 +44 (0) 1737 765001
 Fax +44 (0) 1737 764768

www.TiniusOlsen.com
 info@TiniusOlsen.com

Contact Your Local Representative: