TENSION COMPRESSION FLEXURE

ST SERIES
ELECTROMECHANICAL
UNIVERSAL TESTING MACHINES

Tinius Olsen

THE FIRST NAME
IN MATERIALS TESTING

THE ST SERIES

Up to 300 kN of force applied by advanced digital control.

The ST series of electromechanical testing machines from Tinius Olsen are designed to test a wide range of materials, including, but not limited to: plastics, films, paper, packaging materials, filter material, adhesives, foils, food, toys, medical devices and components, in tension, compression, flexure, shear, and peel.

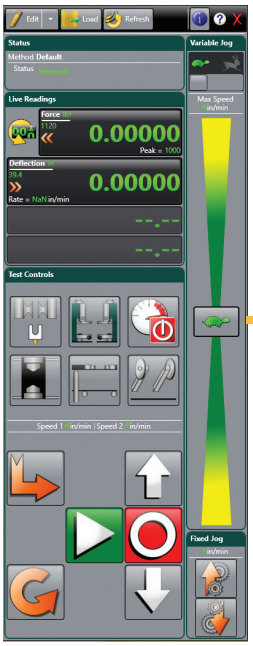
All ST series machines can be used with selection of hand held interfaces or a virtual machine interface running on a connected PC. Powerful data analysis and machine control software (our Horizon Materials Testing software) can be added to your system to provide a library of standardised test routines, generate a complete graphical result of your test, and perform sophisticated powerful analyses on the test data to produce the test report you need.

A comprehensive selection of self identifying loadcells, grips and fixtures to hold the simplest to most complex specimen profile, strain measurement instruments that employ several different technologies, temperature chambers, and more can be used in conjunction with these test frames and Horizon software to ensure you have one of the best, most accurate, most repeatable, flexible and easy-to-use systems on the market today.

HORIZON SOFTWARE

Our Horizon software sets new standards of data analysis by adding a host of report writing and data manipulation capabilities that will make easy work of your materials testing programs, whether they're designed for the demanding rigors of R&D or the charting and analysis functions of QC testing.

In addition to powerful reports, Horizon Materials Testing software is networkable and scalable so operators and managers can operate equipment and review test results from multiple sources and locations.



This virtual machine interface runs on a connected PC and can be used to set up and run a test to provide a quick numerical result. The addition of Horizon software with any of these interface panels allows complex tests to be created and recalled, along with sophisticated data analysis of all graphical data.

HANDHELD USER INTERFACES

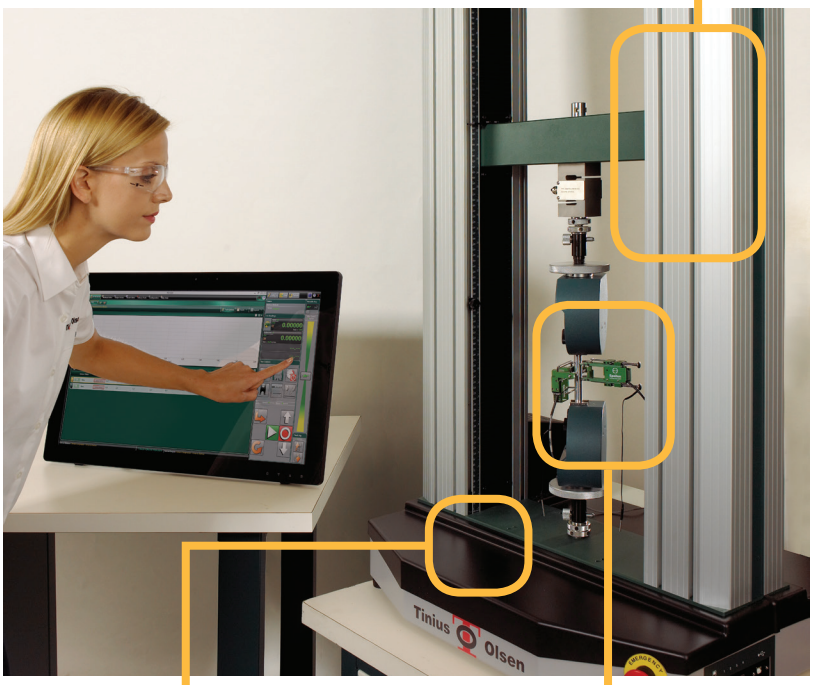
Two types of handheld machine control interface panels are available. This Bluetooth connected panel features easy-to-operate tactile buttons and a high resolution touch screen to set-up and monitor tests where parameters and results are shown numerically. This panel also features an 8MP camera and has optional wifi internet connectivity.

This tethered interface option features larger tactile feedback buttons for the operation of the testing frame; these make it ideal for users who need to wear protective gloves while operating the machine. The display provides simple numerical display of individual channels used on the testing machine.

FEATURES & BENEFITS

T SLOTS

To keep the testing area as open and uncluttered, and flexible, as possible, each test system features T slots in the columns. These T slots can be used to attach the hand held interface, a video camera stand, automatic extensometer support, and strain gauge or LVDT extensometer support and swing away, guards and shields etc, using vibration-free articulating arms. By keeping the test area as uncluttered as possible, unrestricted access to chambers and test tanks is maintained.



ACCURACY

We have the most robust, reliable and accurate load measuring systems available in the machine. This system allows us to achieve an accuracy of better than 0.2% of the reading from 0.2% to 100% of the loadcell capacity.

DATA RATE

Internal sample and update frequency can be up to 2.73k samples per second per channel while the data transfer rate to a computer running Horizon software via USB2 connection is restricted to 1kHz. to ensure data is free of noise and spikes and prevents erroneous results being reported.

ACCESSORY CONNECTIVITY

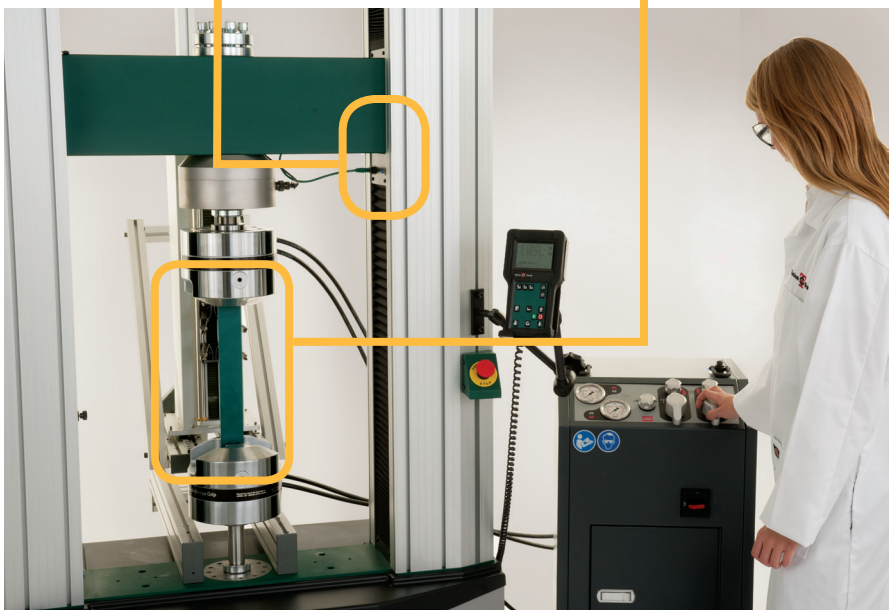
Up to a maximum of 4 connections can be made with the test frame via built-in accessory connection panel on the machine.

BUILT IN PNEUMATIC SUPPLY

Connections for compressed air built into the machine (a compressed air inlet is supplied on the rear of the machine). This allows operation of pneumatic grips without having long air supply lines obstructing the test area.

EXTENSOMETERS

Full complement of video, automatic, encoder, laser, strain gage, and LVDT extensometers are available for the determination of specimen strain.



BENCH MACHINE OPTIONS

The Tinius Olsen benchtop range of ST models feature both single and dual column frames. The single column models have frame capacities of 1 kN (100 kgf, 200 lbf) and 5 kN (500 kgf, 1,100 lbf), while dual column models are availble in capacities of 10 kN (1,000 kgf, 2,200 lbf), 25 kN (2,500 kgf, 5,000 lbf) and 50kN (5,000 kgf, 11,000 lbf), and are designed to test a vast range of materials and finished products for strength properties in tension, compression, flexure, shear, tear, and peel.

They give you the ultimate in durability, speed, accuracy, and convenience and feature high precision, interchangeable strain gauge load cells for capturing applied load data. This design allows rapid change of machine capacity from as little as 0.2% of the capacity of the smallest loadcell to the maximum frame capacity in a very simple process.

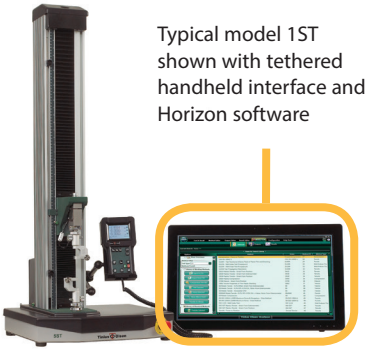
The construction of the machine frame, leadscrews, and drive system make them unique. Even at full capacity, these frames have excellent rigidity with negligible frame deflection.

The machines can be operated at speeds ranging from a minimum of 0.001 mm/min (0.04 thousandths of an inch per minute) to a maximum of up to 1000 mm/min (40 inches per minute), depending on frame size, which accommodates a wide range of materials and specimens.

Frame flexibility is further extended by a wide array of accessories including various optical and electronic extensometers, compressometers and deflectometers, hot and cold temperature test chambers for sample conditioning and testing, high temperature furnaces (with high temperature capable extensometers), as well as grips, holders, jigs, and platens for holding the test specimens.

These test frames can be modified by adding extra height to the test area by up to an additional 400 mm (contact your sales representative for further details).

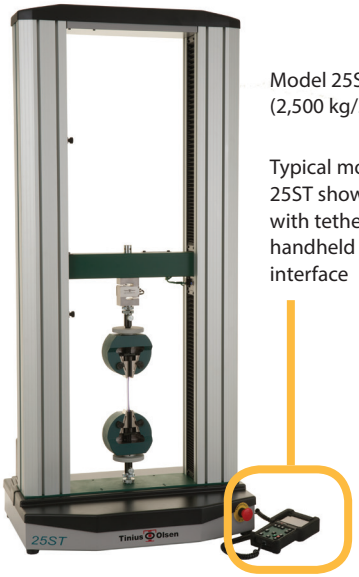
Model 1ST - 1 kN (100 kg/200 lbf)



Typical model 1ST shown with tethered handheld interface and Horizon software

Model 5ST - 5 kN (500 kg/1,000 lbf)

Typical model 5ST shown with Bluetooth enabled handheld interface



Model 25ST - 25 kN (2,500 kg/5,000 lbf)

Typical model 25ST shown with tethered handheld interface

Model 10ST - 10 kN (1,000 kg/2,000 lbf)

Typical model 10ST shown with Bluetooth enabled, wireless handheld interface

Model 50ST - 50 kN (5,000 kg/11,000 lbf)

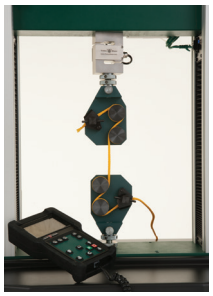
Typical model 50ST shown with Bluetooth enabled, wireless handheld interface

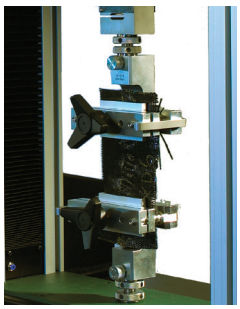
SPECIFICATIONS

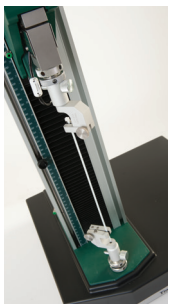
MODEL		1ST	5ST	10ST	25ST	50ST
Capacity	kN	1	5	10	25	50
	lbf	200	1,000	2,000	5,000	11,000
Test Speed Range	mm/min	0.001 to 1000	0.001 to 1000	0.001 to 1000	0.001 to 1000	0.001 to 500
	in/min	0.00004 to 40	0.00004 to 40	0.00004 to 40	0.00004 to 40	0.00004 to 20
Clearance Between Columns	mm	n/a	n/a	410	410	410
	in	n/a	n/a	16	16	16
Throat Depth	mm	100	100	n/a	n/a	n/a
	in	4	4	n/a	n/a	n/a
Max Crosshead Travel	mm	755	755	1090	1090	1065
	in	30	30	43	43	42
Dimensions (HxWxD)	mm	1168x511x467	1168x511x467	1265x729x506	1265x729x506	1655x729x506
	in	46x20x18	46x20x18	64x29x20	64x29x20	65x29x20
Weight	kg	46	46	130	130	163
	lb	101	101	287	287	359

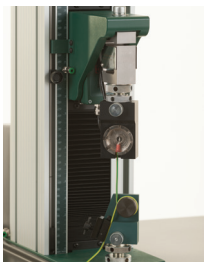
NOTES:

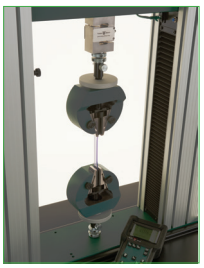
1. Load weighing system meets or exceeds the requirements of the following standards: ASTM E4, ISO 7500-1, and EN 10002-2. Tinius Olsen recommends that systems are verified at installation in accordance with ASTM E4 and ISO 75001.
2. Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, ISO 9513 and EN 10002-4.
3. Specifications are subject to change without notice











FLOOR MACHINE OPTIONS

These Tinius Olsen floor standing ST models have frame capacities of 100 kN, 150 kN, and 300 kN (20,000 lbf, 30,000 lbf, and 60,000 lbf respectively) and are designed to test a vast range of materials, including, but not limited to: rigid and reinforced plastics, composites, geotextiles, sheet metal, welded specimens, adhesives, and medical products and components, in tension, compression, flexure, shear, tear, and peel.

These frames feature high precision, interchangeable strain gauge load cells for capturing applied load data. This design allows rapid change of machine capacity from as little as 0.2% of the capacity of the smallest loadcell to the maximum frame capacity in a very simple process.

The construction of the machine frame and drive system make them unique. Even at full capacity, these frames have excellent rigidity with negligible frame deflection.

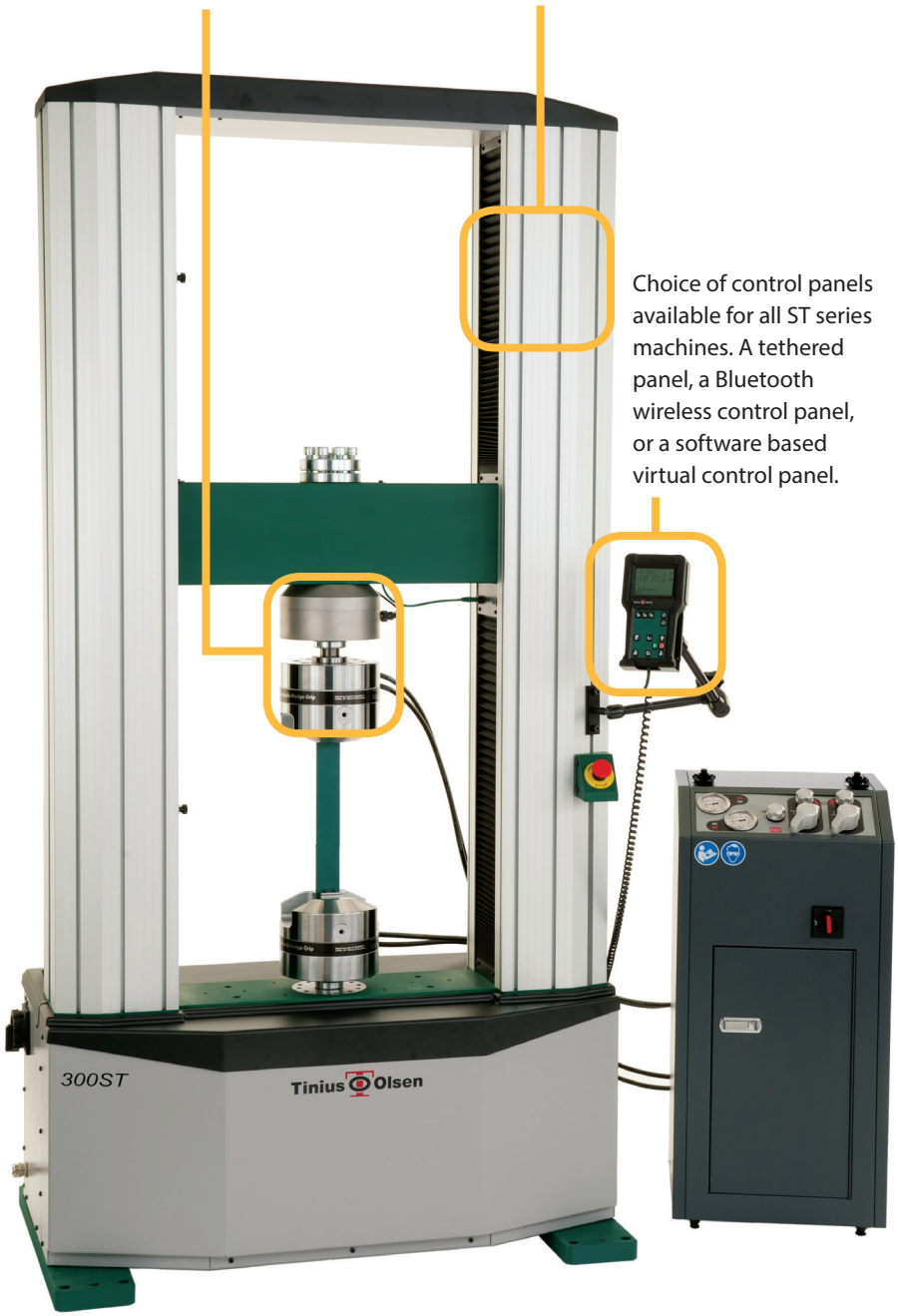
This design allows frame flexibility for both tension and compression tests. Users can load heavy specimens with minimal effort. This feature is further enhanced by a programmable switch mechanism that allows rapid setting of the upper and lower crosshead limits at any point within the frame's clearance.

The machines can be operated at speeds ranging from a minimum of 0.001 mm/min (0.4 thousandths of an inch per minute) to a maximum of 500 mm/min (20 inches per minute), which accommodates a wide range of materials and specimens.

Frame flexibility is further extended by a wide array of accessories including various optical and electronic extensometers, compressometers and deflectometers, hot and cold temperature test chambers for sample conditioning and testing, high temperature furnaces (with high temperature capable extensometers), as well as grips, holders, jigs, and platens for holding the test specimens.

The ST series accomodates a wide range of test accessories and facilitates changes in minutes.

To keep the testing area as open and uncluttered, and flexible, as possible, each test system features T slots in the columns. These T slots can be used to attach the hand held controller, a video camera stand, automatic extensometer support, an strain gage or LVDT extensometer support and swing away, guards and shields etc, using vibration-free articulating arms. By keeping the test area as uncluttered as possible, unrestricted access to chambers and test tanks is maintained.



Choice of control panels available for all ST series machines. A tethered panel, a Bluetooth wireless control panel, or a software based virtual control panel.

SPECIFICATIONS

MODEL		100ST	150ST	300ST
Capacity	kN	100	150	300
	lbf	20,000	30,000	60,000
Test Speed Range	mm/min	0.001 to 500	0.001 to 500	0.001 to 500
	in/min	0.0004 to 20	0.0004 to 20	0.0004 to 20
Clearance Between Columns	mm	656	656	656
	in	26	26	26
Max Crosshead Travel	mm	1198	1173	1173
	in	47	46	46
Dimensions (HxWxD)	mm	2323x1205x700	2323x1205x700	2323x1205x700
	in	91x47x28	91x47x28	91x47x28
Weight	kg	778	954	1125
	lb	1715	2103	2480

NOTES:
1. Load weighing system meets or exceeds the requirements of the following standards: ASTM E4, ISO 7500-1, and EN 10002-2. Tinius Olsen recommends that systems are verified at installation in accordance with ASTM E4 and ISO 75001.
2. Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, ISO 9513 and EN 10002-4.
3. Specifications are subject to change without notice

SOFTWARE

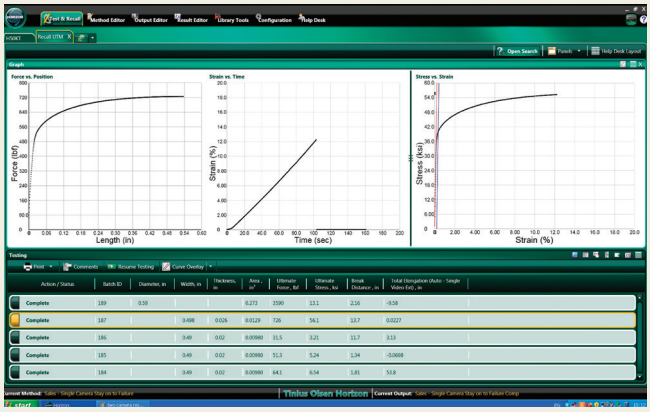
Tinius Olsen has built upon its long history of providing solutions to an enormous variety of testing problems to develop Horizon, a comprehensive software program that makes testing simple, precise, and efficient. Whether the test sample is metal, paper, composite, polymer, rubber, textile, or a micro component, Tinius Olsen's Horizon software goes far beyond data collection and presentation. It will help you automate your operations, from R&D to the charting and analysis of QC testing.

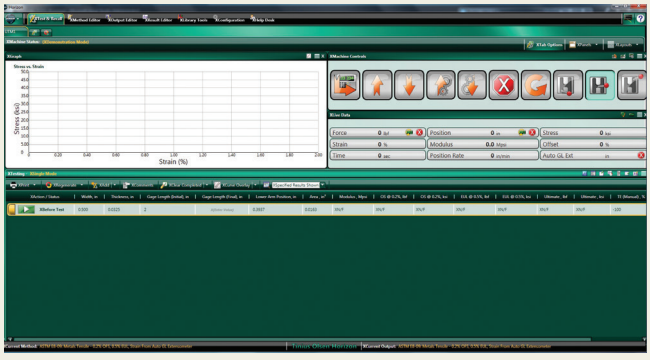
Our Horizon software sets new standards of data analysis by adding a host of report writing and data manipulation capabilities that will make easy work of your materials testing programs. As with most features of Horizon, flexibility is key; reports can be customised by operators in any way they wish, as can all user screens allowing operators to focus on features that are most important to them.

In addition to powerful reports, Horizon Materials Testing software is networkable and scalable so operators and managers can operate equipment and review test results from multiple sources and locations. Horizon provides a library of standard, specific, and application-focused test routines that have been developed in close cooperation with customers around the world and to the standards they are using.

Among the many valuable features offered by Horizon are: a test routine library; simultaneous multiple machine control; test, output, method, and result editors; and multilayered security. This software is designed for data acquisition, data analysis, and closed loop control of nearly all Tinius Olsen testing machines.

Horizon is rich with capabilities that improve productivity and enable you to build, access, and use a modern, powerful materials testing database. It employs the latest Windows environments, running on touchscreen enabled monitors, to create an intuitive user experience. Built-in tutorials, on-line help, and help desk access provide additional user support.





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