

ST0000EN02

# ST Series

Electromechanical  
Universal Testing Machines

ST

# ST Series

The ST Series of electromechanical testing machines from Tinius Olsen is 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 handheld 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 standardized 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.

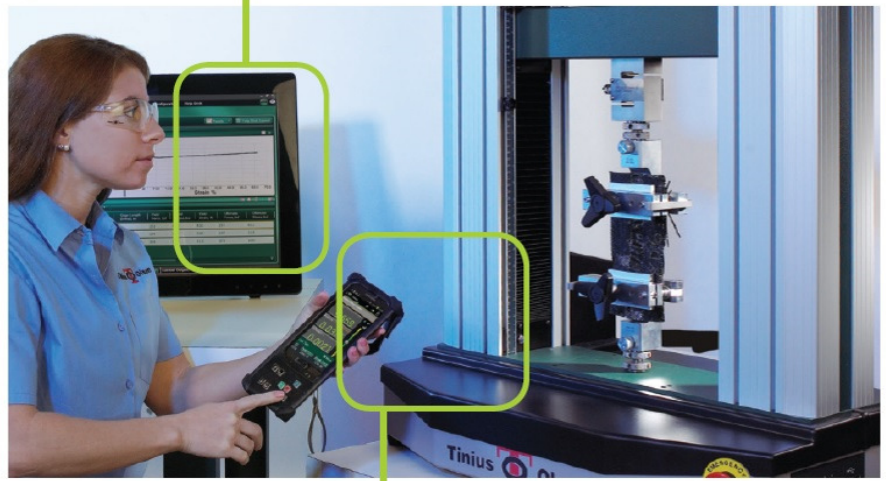
A comprehensive selection of self-identifying load cells, grips and fixtures hold the simplest to most complex specimen profiles, strain measurement instruments employ different technologies, temperature

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



## CONTROLLER INTERFACES

ST systems can be operated by a choice of different interface panels. Choose from tethered, wireless or a virtual interface running on a connected PC.

This **virtual 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 interfaces allows complex tests to be created and recalled, along with sophisticated data analysis of all graphical data.



The **Bluetooth connected interface** features easy to operate tactile buttons and a high resolution touchscreen to set up and monitor tests where parameters and results are shown numerically. The interface also features an 8MP camera and has WiFi connectivity.



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

# KEY FEATURES



## T SLOTS

To keep the testing area as open, uncluttered and flexible as possible, each test system features T slots in the columns. These T slots can be used to attach the handheld interface, a video camera stand, automatic extensometer support and 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.

## 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 0.2-100% of the load cell 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 four connections can be made with the test frame via a 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 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 features both single and dual column frames. The single column models have frame capacities of 1kN (100kgf/200lbf) and 5kN (500kgf/1,100lbf), while dual column models are available in capacities of 10kN (1,000kgf/2,200lbf), 25kN (2,500kgf/5,000lbf) and 50kN (5,000kgf/11,000lbf), 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 provide the ultimate in durability, speed, accuracy and convenience and feature high precision, interchangeable strain gage 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 load cell 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.

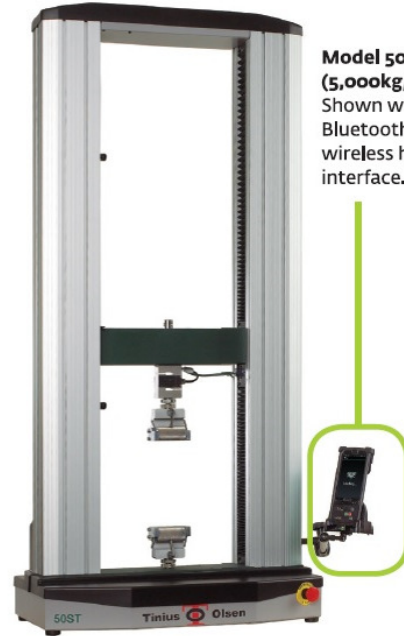
The machines can be operated at speeds ranging from a minimum of 0.001mm/min (0.04 thousandths of an inch per minute) to a maximum of up to 1000mm/min (40 inches per minute), depending on frame size, which accommodates a wide range of materials and specimens.

Frame flexibility is further extended by a wide array of accessories including various optical and electronic extensometers, compressometers and defectometers, 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.

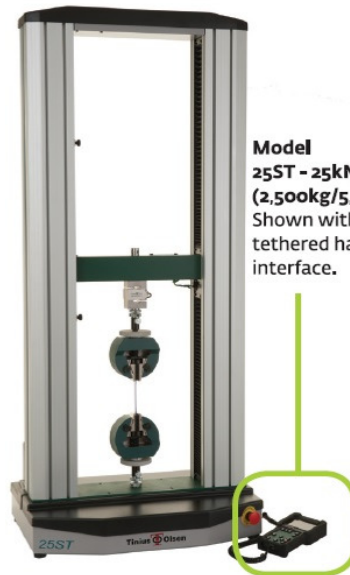
These test frames can be modified by adding extra height to the test area by up to an additional 400mm. Contact your sales representative for further details.



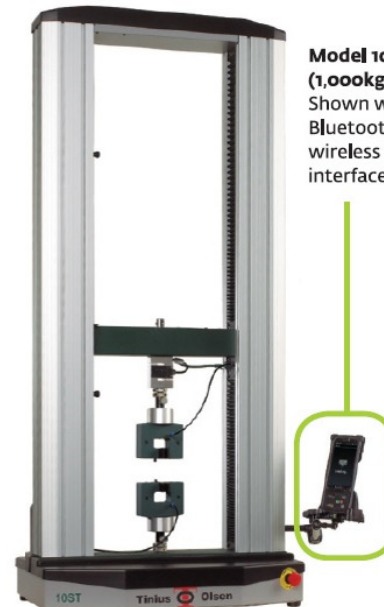
**Model 5ST - 5kN (500kg/1,000lbf)** Shown with Bluetooth-enabled handheld interface.



**Model 50ST - 50kN (5,000kg/11,000lbf)** Shown with Bluetooth-enabled, wireless handheld interface.



**Model 25ST - 25kN (2,500kg/5,000lbf)** Shown with tethered handheld interface.



**Model 10ST - 10kN (1,000kg/2,000lbf)** Shown with Bluetooth-enabled, wireless handheld interface.



**Model 1ST - 1kN (100kg/200lbf)** Shown with tethered handheld interface and Horizon software.

# 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	0.001-1000	0.001-1000	0.001-1000	0.001-1000	0.001-500
	in/min	0.00004-40	0.00004-40	0.00004-40	0.00004-40	0.00004-20
Clearance between columns	mm	-	-	410	410	410
	in	-	-	16	16	16
Throat depth	mm	100	100	-	-	-
	in	4	4	-	-	-
Max crosshead travel	mm	755	755	1090	1090	1065
	in	30	30	43	43	42
Dimensions (HxWxD)	mm	1168 x 511 x 467	1168 x 511 x 467	1625 x 729 x 506	1625 x 729 x 506	1655 x 729 x 506
	in	46 x 20 x 18	46 x 20 x 18	64 x 29 x 20	64 x 29 x 20	65 x 29 x 20
Weight	kg	46	46	130	130	163
	lb	101	101	287	287	359

MODEL		100ST	150ST	300ST
Capacity	kN	100	150	300
	lbf	20,000	30,000	60,000
Test speed range	mm/min	0.001-500	0.001-500	0.001-500
	in/min	0.0004-20	0.0004-20	0.0004-20
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	2323 x 1205 x 700	2323 x 1205 x 700	2323 x 1205 x 700
	in	91 x 47 x 28	91 x 47 x 28	91 x 47 x 28
Weight	kg	778	954	1125
	lb	1715	2103	2480

## NOTES

- 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.
- Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, ISO 9513 and EN 10002-4.
- Specifications are subject to change without notice.



# FLOOR MACHINE OPTIONS

These Tinius Olsen floor standing ST models have frame capacities of 100kN, 150kN, and 300kN (20,000lbf, 30,000lbf, and 60,000lbf 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 gage 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 load cell to the maximum frame capacity in a very simple process.

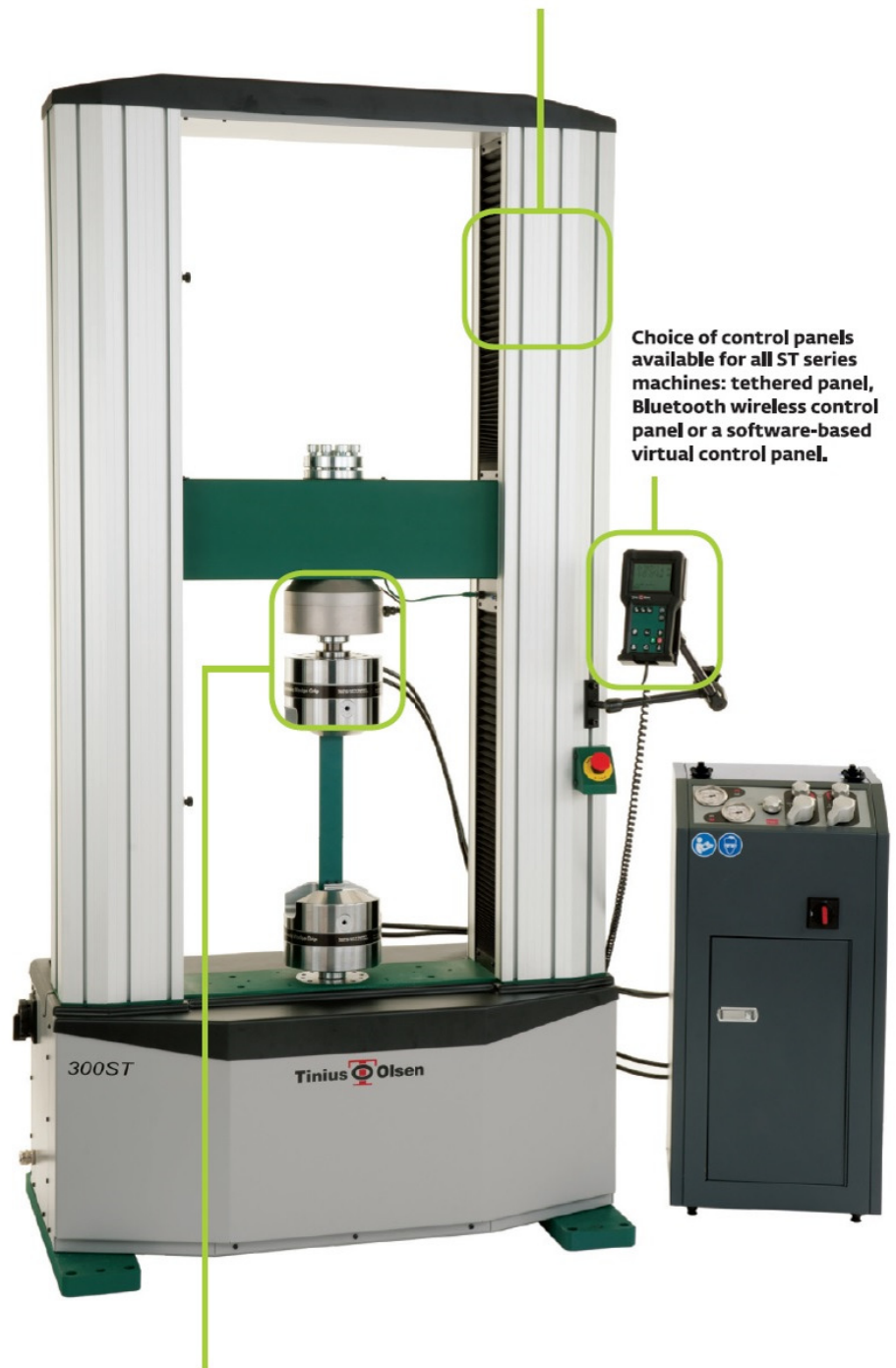
The construction of the machine frame and drive system make them unique. Even at full capacity, these frames have excellent rigidity with negligible frame deflection.

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 0.001mm/min (0.4 thousandths of an inch per minute) to a maximum of 500mm/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 defectometers, 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.

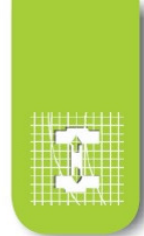
To keep the testing area as open, uncluttered and flexible as possible, each test system features T slots in the columns. These T slots can be used to attach the handheld controller, a video camera stand, automatic extensometer support, an strain gage or LVDT extensometer support and swing-away guards 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: tethered panel, Bluetooth wireless control panel or a software-based virtual control panel.

The ST Series accommodates a wide range of test accessories and facilitates changes in minutes.

# 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 automate 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 customized 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 co-operation with customers around the world and to the standards they are using.

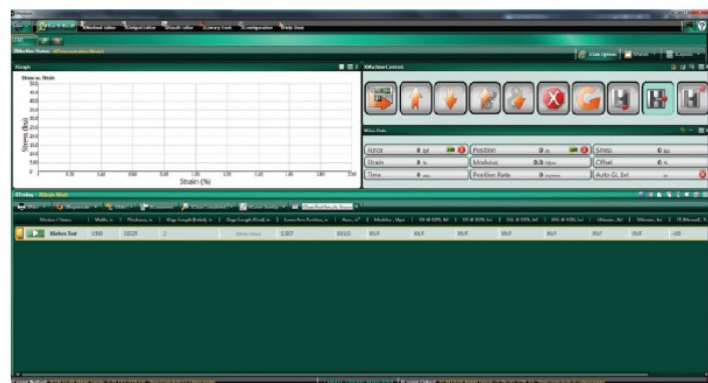
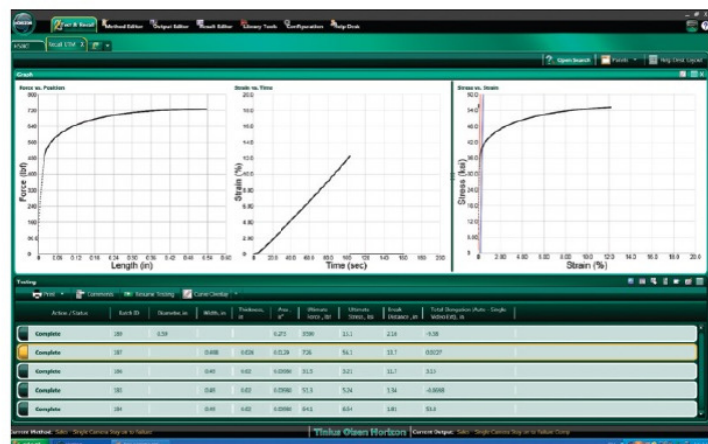
Among the many valuable features offered by Horizon are: a test routine library; simultaneous multiple machine control; test, output, method and result editors; and multilayered security. This software is designed for data acquisition, data analysis, and closed loop control of nearly all Tinius Olsen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

“Horizon makes testing simple, precise and efficient”





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