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ST Series

Electromechanical Universal Testing Systems

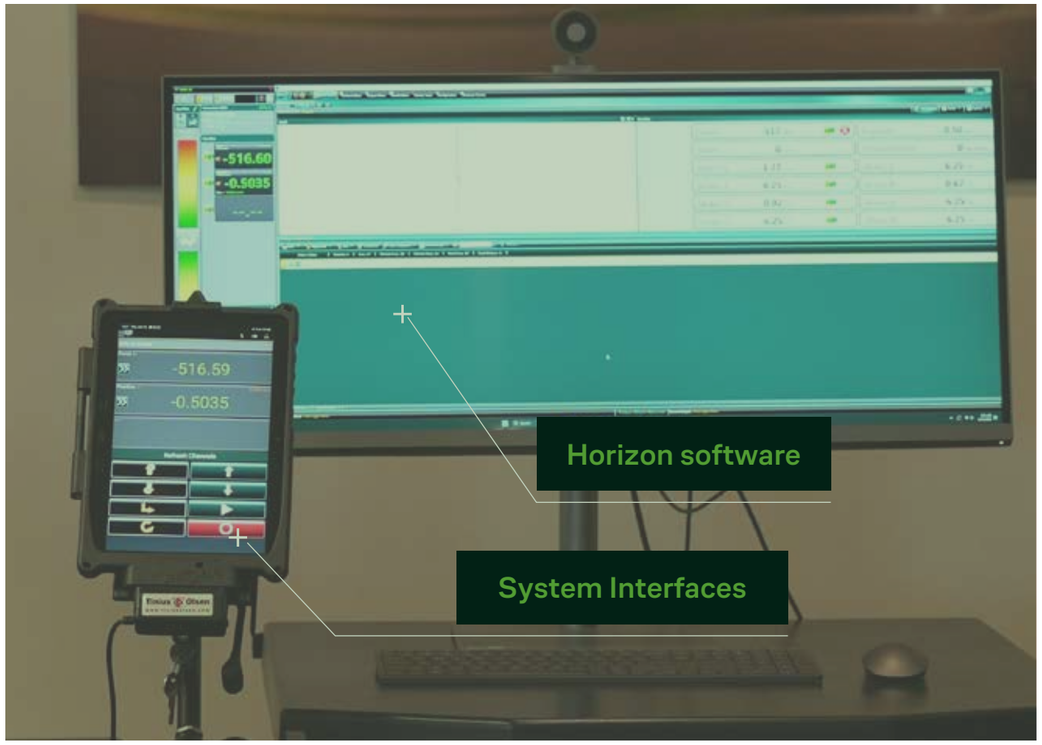
Tinius Olsen

ST Series

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

All ST Series systems can be used with a selection of handheld interfaces or a virtual machine interface running on a connected PC. Powerful data analysis and system 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. Furthermore ST systems offer:

+ A comprehensive selection of self-identifying load cells.
+ Grips and fixtures to hold the widest range of specimen profiles.
+ Strain measurement instruments with different technologies.
+ Temperature chambers and furnaces, and
+ Horizon software to ensure you have the best, most accurate repeatable, flexible and easy-to-use systems.



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.

System Interfaces

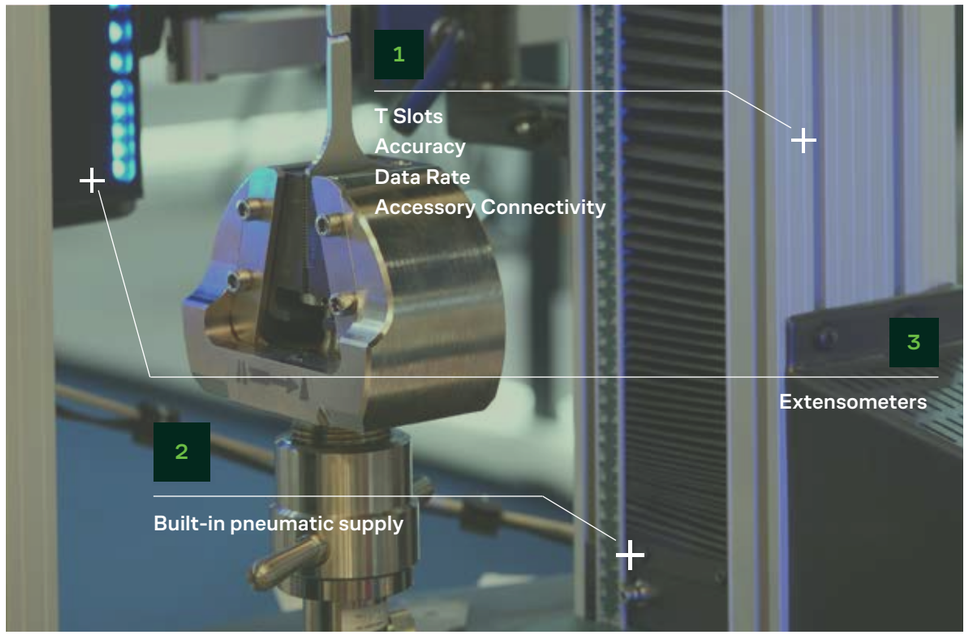
ST systems can be operated by a choice of different interface panels. Choose from tethered, wireless or a virtual interface running on a connected PC.

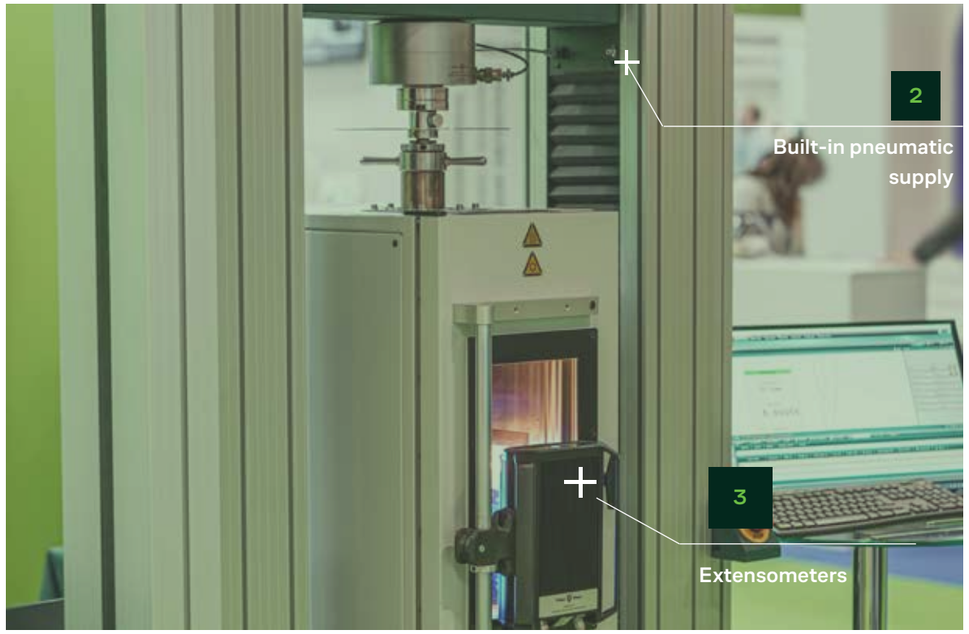
This **virtual interface** (VMC) runs on a connected PC and can be used to set up and run a test to provide a quick numerical result. The addition of Horizon software with any of these interfaces allows complex tests to be created and recalled, along with sophisticated data analysis of all graphical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

The **bluetooth connected interface** (HMC3.0) features easy to operate tactile buttons and a high resolution touchscreen to set up and monitor tests where parameters and results are shown numerically. This interface also features a 13MP camera and has WiFi connectivity.

The **tethered Proterm 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 system. The display provides simple numerical display of individual channels used on the testing system.

Key Features





1

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, extensometer mounting bracket safety guards and shields etc

Accuracy

The ST series has the most robust, reliable and accurate load measuring systems available. This system allows it 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 of up to 2.73k samples per second per channel. 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 directly via a built-in accessory connection panel on the frame.

2

Built-in pneumatic supply

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

3

Extensometers

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

Benchtop Frame 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 gauge load cells for capturing applied load data. This design allows rapid change of frame capacity from as little as 0.2% of the capacity of the smallest load cell (exception in 5N & 10N) to the maximum frame capacity in a very simple process.

The frame construction is optimized for maximum stiffness.

The systems can be operated at speeds ranging from a minimum of 0.0001mm/min (0.004 thousandths of an inch per minute) to a maximum of up to 2500mm/min (98 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 400mm (+254mm for single column frames).

1. **Model 1ST – 1kN (100kg/200lbf)** *[99-991-1001/10]*
   with Bluetooth-enabled handheld interface*[99-991-9000/03]*
2. **Model 5ST – 5kN (500kg/1,000lbf)** *[99-991-1005/10]*
   with tethered handheld interface *[03070246]* Horizon software *[21001197]*
3. **Model 10ST – 10kN (1,000kg/2,000lbf)** *[99-991-1010/10]*
   with Horizon software *[21001197]*, U200 Vector *[99-993-0000/A0]*
4. **Model 25ST – 25kN (2,500kg/5,000lbf)** *[99-991-1025/10]*
   with Proterm interface. *[03070246]*
   [Horizon will be required to run tests]
5. **Model 50ST – 50kN (5,000kg/11,000lbf)** *[99-991-1050/10]*
   with Horizon software *[21001197]*, B80 Vector *[99-993-0002/B0]*

Specifications

Model		1ST	5ST	10ST	25ST	50ST	100ST	150ST	300ST
Capacity	kN	1	5	10	25	50	100	150	300
	lbf	200	1,000	2,000	5,000	11,000	20,000	30,000	60,000
Test speed range	mm/min	0.0001-1000	0.0001-1000	0.0001-1000	0.0001-1000	0.0001-500	0.0001-500	0.0001-500	0.0001-500
	in/min	0.000004-40	0.000004-40	0.000004-40	0.000004-40	0.000004-20	0.000004-20	0.000004-20	0.000004-20
Clearance between columns	mm	–	–	410	410	405	656	656	656
	in	–	–	16	16	16	26	26	26
Throat depth	mm	100	100	–	–	–	–	–	–
	in	4	4	–	–	–	–	–	–
Max crosshead travel	mm	755	755	1090	1090	1065	1198	1198	1173
	in	30	30	43	43	42	47	47	46
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	2323 x 1160 x 700	2323 x 1160 x 700	2323 x 1160 x 700
	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	91 x 46 x 28	91 x 46 x 28	91 x 46 x 28
Weight	kg	58	58	129	129	192	750	970	1050
	lb	128	128	284	284	423	1653	2138	2315

99-1001216

99-1002330

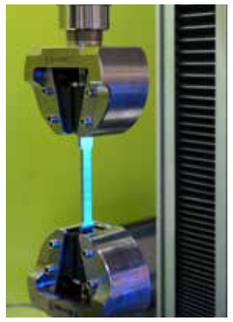
99-1001111

99-SP-S616(U) & 99-SP-S442(L)

CA-001-0001

99-020-0000

99-1001216



CA-001-0044

CA-001-0002

CA wedge grips on 5ST frame with U200 Vector Extensometer

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 System Options

Tinius Olsen floor standing ST models have frame capacities of 100kN, 150kN, and 300kN (20,000lbf, 30,000lbf, and 60,000lbf respectively). They 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 components, in tension, compression, flexure, shear, tear and peel.

100ST *[99-991-1100/10]* frame with 100kN compression platens *[99-1002469]*, HMC3.0 *[99-991-9000/03]* and webcam *[99-1009283]* mounted on T-slot.

Floor standing ST Models feature high precision, interchangeable strain gauge load cells for capturing applied load data. This design allows rapid change of frame 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 frame construction is optimized for maximum stiffness.

The 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 systems can be operated at speeds ranging from a minimum of 0.0001mm/min (0.04 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.

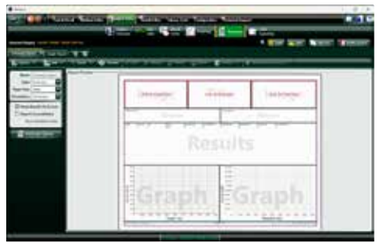
Frame flexibility is further extended by a wide array of accessories including various optical and electronic extensometers, compressometers and deflectometers, hot and cold temperature test chambers for sample conditioning and testing, high temperature furnaces (with high temperature capable extensometers),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

1 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, extensometer mounting bracket safety guards and shields etc.

2 Choice of control panels available for all ST series systems: Proterm tethered panel, Bluetooth wireless control panel (HMC3.0) or a software-based virtual control panel (VMC).

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

Software



Horizon makes testing **simple, precise and efficient.**

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 automates system operation and data analysis from R&D to QC testing.

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, 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 and international standards. 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 systems.

Horizon is rich with capabilities that improve productivity and enable the operator 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.

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