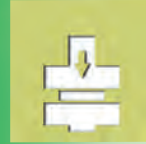


SL SERIES HYDRAULIC UNIVERSAL TESTING MACHINES



Tinius Olsen

THE FIRST NAME
IN MATERIALS TESTING

THE SL SERIES

Up to 3,000 kN of force applied by advanced digital control.

Tinius Olsen's hydraulic testers have long been recognized as the standard for accuracy, dependability, and versatility in universal testing machines. The many thousands of testers currently in use throughout the world attest to this fact.

Now more than ever, the SL series represents the highest standard in hydraulically powered universal testing machines.

It features a patented dual-pressure hydraulic loading system and a rugged four-column construction for exceptional load frame rigidity. In addition, it has a space-saving console with a smaller footprint and comfortable working height design.

A range of user interface options are available, including Bluetooth and/or tethered interfaces, to enable basic tests, comprehensive tests and everything in between, though Tinius Olsen's Horizon materials testing software.

SL systems are guaranteed to meet ASTM, ISO, and other national and international specifications for accuracy. Accuracy is within $\pm 0.1\%$ of the indicated load from 0.2% to 100% of frame capacity. All equipment used to calibrate the weighing and indicating systems of the SL testers is traceable to the National Institute of Standards and Technology (NIST).

For consistent accuracy, robustness, and unparalleled reliability, the Tinius Olsen SL series still sets the standard of excellence.

TOOLING

A wide variety of tooling is available on the SL series, including in-head pocket wedge grips, external grips, flexural / transverse tooling, compression platens, special application grips, and alignment assemblies to ensure accurate and repeatable testing.

ACCESSORIES

Many kinds of accessories are available for accurate and repeatable testing, including LVDT extensometers, strain gage extensometers, position encoders, video extensometers, deflectometers, temperature cabinets, furnaces etc

HORIZON DATA ANALYSIS SOFTWARE

Our Horizon software sets new standards of data analysis by adding a host of report writing for 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.



FEATURES & BENEFITS



VERSATILE

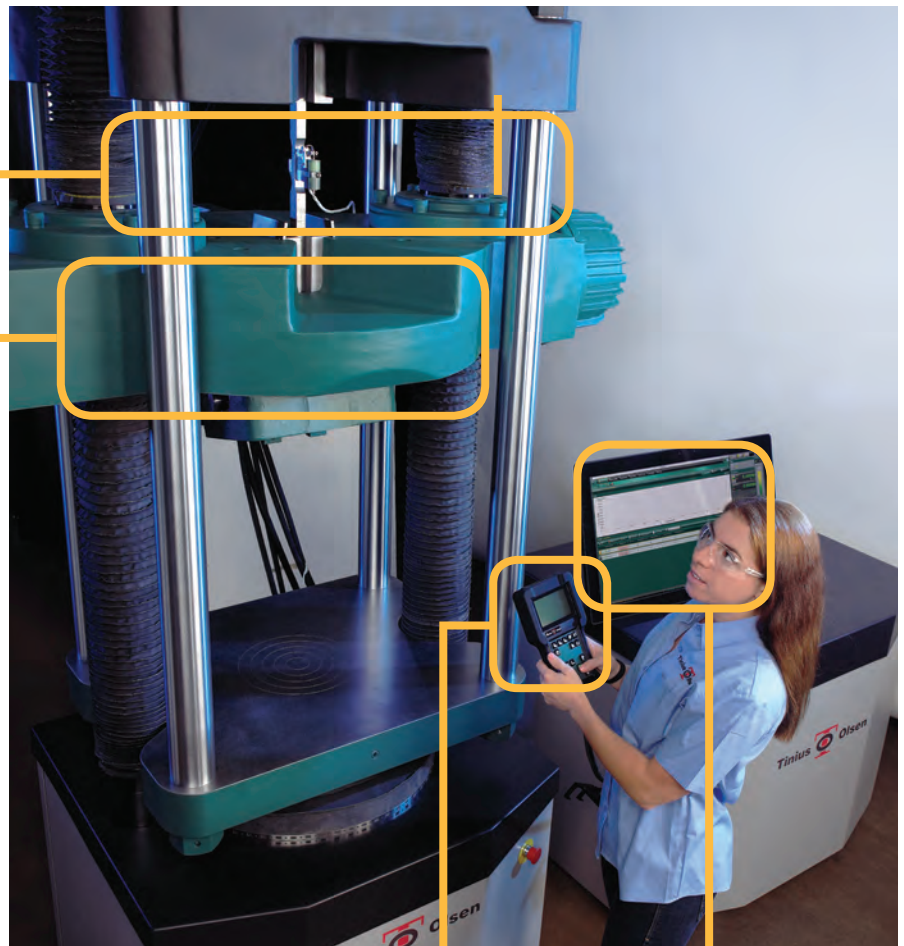
Suitable for tension, compression, transverse, and other tests on materials and assemblies.

RUGGED LOAD FRAME

Four-column construction provides exceptional load frame rigidity.

CONFIGURABLE LOAD FRAME

The SL loadframes can be configured according to your application needs. These options include closed, semi open, or fully open crossheads, which can be either motorised or fixed (the top crosshead can also be made "adjustable" meaning it can be raised or lowered on notched support columns). Additionally, the columns and drive screws can be lengthened in increments of 305 mm by up to an additional 914 mm.



HANDHELD INTERFACE

Two types of handheld machine controller interface are available. The first option is a wireless Bluetooth interface controller.



VIRTUAL INTERFACE

The third type of controller interface is a virtual one and is depicted graphically on a computer screen. This application runs independently of our Horizon software, but if connected, works seamlessly with the software.

HANDHELD INTERFACE

The second controller interface is the tethered option, above, with larger buttons for machine and test control. This controller interface is better suited for operators who wear gloves as part of their testing protocol.



SPECIFICATIONS

FOR MOST USERS, THE STANDARD SL LINE:

For Most Users the standard SL line:

Model 150SL - 150kN

(15,000 kgf / 30,000 lbf)

Model 300SL - 300kN

(30,000 kgf / 60,000 lbf)

Model 600SL - 600kN

(60,000 kgf / 120,000 lbf)

Model 1,000SL - 1,000kN

(100,000 kgf / 200,000 lbf)

Model 1,500SL - 1,500kN

(150,000 kgf / 300,000 lbf)

Model 2,000SL - 2,000kN

(200,000kgf / 400,000 lbf)

Typical 150 kN (30,000 lbf)
SL with handheld controller.



FOR RAPID SEQUENCE PRODUCTION TESTING, SL MODELS A AND AF:

150 to 1,000 kN (30,000 to
200,000 lbf); open-front crossheads
and/or fixed position crossheads.



Typical 300 kN (60,000 lbf) SL
with optional computer running
Tinus Olsen's Horizon software.

FOR EXTRAORDINARY TESTING, HIGH CAPACITY AND SPECIAL PURPOSE SL's:

3,000 kN (600,000 lbf) and beyond

OPTIONS FOR ALL SL MODELS:

- Extra-length screws and columns, with or without an adjustable upper crosshead, to increase the available test space for longer test samples
- Semi-open front crossheads for easier loading of samples
- Hydraulically actuated lever grips to allow rapid loading and unloading of samples
- Accordion-type, non-metallic screw covers to protect the screws and increase the life of your system
- Tooling for tension, compression, shear, flexure, and other tests
- Broad range of instrumentation
- Low capacity load cells
- Tee-slotted table for locating and securing customized tooling
- Controlled temperature cabinets for temperatures from -185° to 535°C (-300° to 1,000°F)
- Furnaces for temperatures to 1200°C (2200°F)

Typical 600 kN (120,000 lbf)
SL with closed crossheads and
rack and pinion grips and a
furnace.



Typical 2,000 kN (400,000 lbf)
standard SL load frame with
semi-open front crossheads.



CUSTOMIZATION

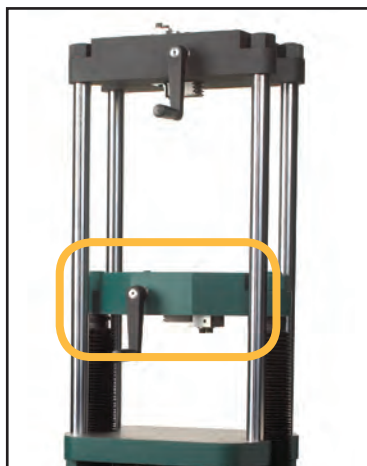


Tinius Olsen can supply an SL structured to handle nearly any sample. The keys are grips and fixtures properly fitted to hold your sample, as well as accessible crosshead and column designs that enable easy sample loading.

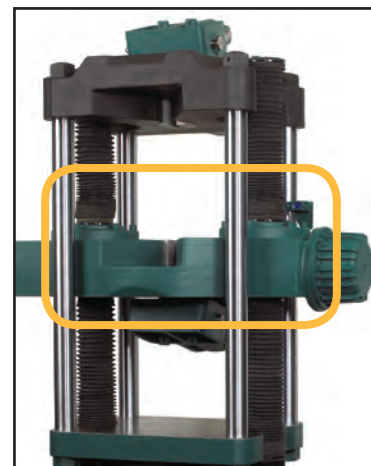
CROSSHEAD OPTIONS

A number of options are available to best suit the needs of your application, including:

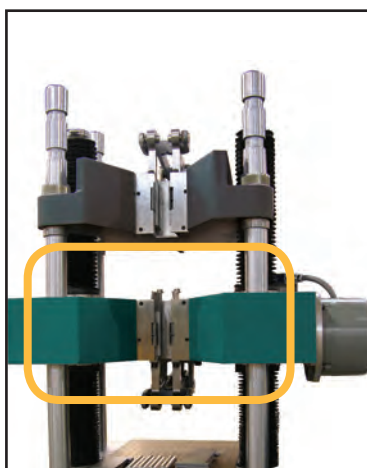
- Closed—This is the most common option on lower capacity frames and requires the most amount of effort to get the specimen in the grips.
- Semi-open front—Here the crossheads are partially “opened” to allow easy access for loading specimens.
- Fully-open front—Here the crossheads have full openings to allow specimens to be directly inserted into the grips.
- Adjustable—Testers with adjustable columns allow smaller or larger test areas to be accessible; when the tester has these, an adjustable crosshead is required so it can be raised or lowered.
- Fixed—Testers with fixed, non-motorised crossheads allow fast specimen insertion and removal and are primarily used for repetitive testing of the same product.



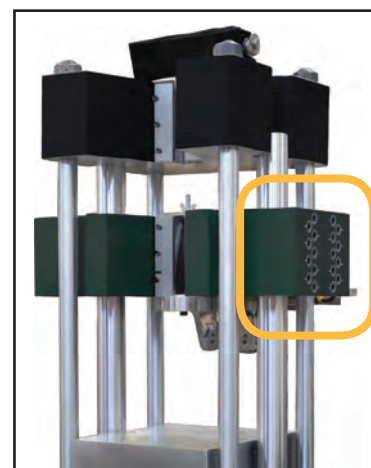
Closed crosshead.



Semi-open front crosshead.



Full-open front crosshead.

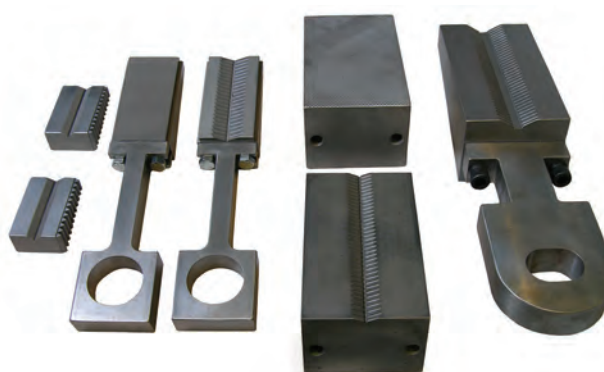


Fixed crosshead.

Tinius Olsen has grips, fixtures, frames, crossheads, columns, and special purpose SL frames for most all requirements.

GRIPS

- Crank-operated rack and pinion type wedge grips with flat and/or vee gripping faces for all closed crosshead SL frames
- Hydraulically actuated wedge style grips for semi-open and fully-open front crossheads. Whenever hydraulically actuated grips are selected, an operational pendant grip opener is supplied with the test frame.
- Additional external grips for testing flats, rounds, headed and threaded specimens, fasteners, and many other types of products and materials



CUSTOMIZATION

COLUMNS AND SCREWS

Columns and screws can be lengthened and crossheads can be made adjustable to meet your specific requirements. If we don't have an existing design that meets your testing needs (very unlikely given that we've been developing solutions since 1880), we will develop a custom configuration that addresses them precisely.



On this 150SL frame the columns have been extended to accommodate large test specimens.



On this 600SL frame the columns have been extended while the screws for the adjustable crosshead are standard length. Additionally, the columns are notched to accommodate the adjustable top crosshead and the whole machine is surrounded by a fragmentation guard.

CONTROLLER INTERFACES

SL systems can be operated by a choice of different interface panels. Choose from a tethered interface, a wireless interface, 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.



This Bluetooth connected interface 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. The counterface also features an 8MP camera and has 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.



MODEL		150SL	300SL	600SL	1000 SL	1500 SL	2000 SL	3000SL
Capacity	kN	150	300	600	1000	1500	2000	3000
	kgf	15,000	30,000	60,000	100,000	150,000	200,000	300,000
	lbf	30,000	60,000	120,000	200,000	300,000	400,000	600,000
Stroke	mm	152	152	152	229	229	229	229
	in	6	6	6	9	9	9	9
Testing Speeds	mm/min	0-76	0-76	0-76	0-76	0-76	0-76	0-76
	in/min	0-3	0-3	0-3	0-3	0-3	0-3	0-3
Adjustable Crosshead Speed	mm/min	508	508	305	305	305	305	305
	in/min	20	20	12	12	12	12	12
Clearance Between Screws	mm	356	356	508	556	610	610	660
	in	14	14	20	22	24	24	26
Standard Opening	mm	737	737	914	1,067	1,175	1,175	2,083
	in	29	29	36	42	46.25	46.25	82
Crosshead Thickness	mm	89	89	140	203	216	216	356
	in	3.5	3.5	5.5	8	8.5	8.5	14
Width	mm	737	737	762	864	940	940	1,092
	in	29	29	30	34	37	37	43
Depth	mm	483	483	635	660	851	851	863
	in	19	19	25	26	33.5	33.5	34
Height	mm	1,842	1,842	1,956	2,289	2,445	2,445	2,692
	in	72.5	72.5	77	90.125	96.25	96.25	106
Net Weight	kg	1,180	1,180	2,132	4,082	5,444	5,444	10,433
	lb	2,600	2,600	4,700	9,000	12,000	12,000	23,000

NOTES:

1. These machines can be floor or pit-mounted to meet customer testing requirements; pit mounting may require additional components
2. If wider clearance is required, please consult factory
3. Load measurement meets or surpasses the following standards: ASTM E4, ISO 7500-1, and EN 10002-2.
4. Strain measurement meets or surpasses the following standards: ASTM E83, ISO 10002-4 and ISO 9513
5. Specifications subject to change without notice

STANDARD SL CONSOLE DIMENSIONS

MODEL		150 to 600	1,000 to 3,000
Width	mm	750	1010
	in	29.5	40
Depth	mm	699	835
	in	27.5	33
Height	mm	865	865
	in	34	34



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 all 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.

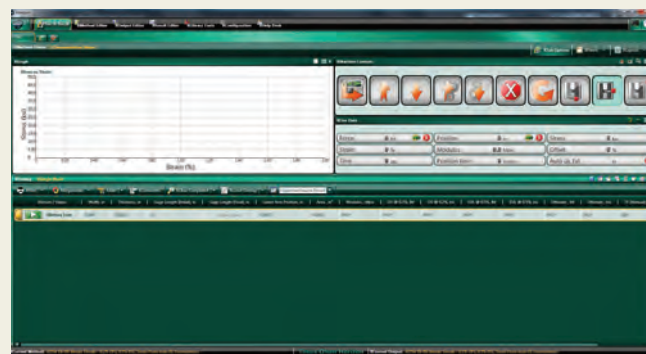
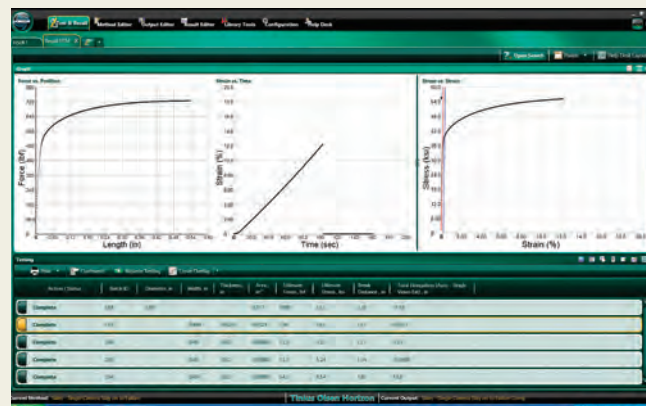
In addition to powerful reports, Horizon Materials Testing software is networkable and scalable so operators and managers can operate equipment and review test results from multiple sources and locations. Horizon provides a library of standard, specific, and application-focused test routines that have 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.



CONTACT YOUR LOCAL REPRESENTATIVE:

Horsham, PA, USA • Redhill, Surrey, UK • Noida, UP, India
www.TiniusOlsen.com • info@TiniusOlsen.com