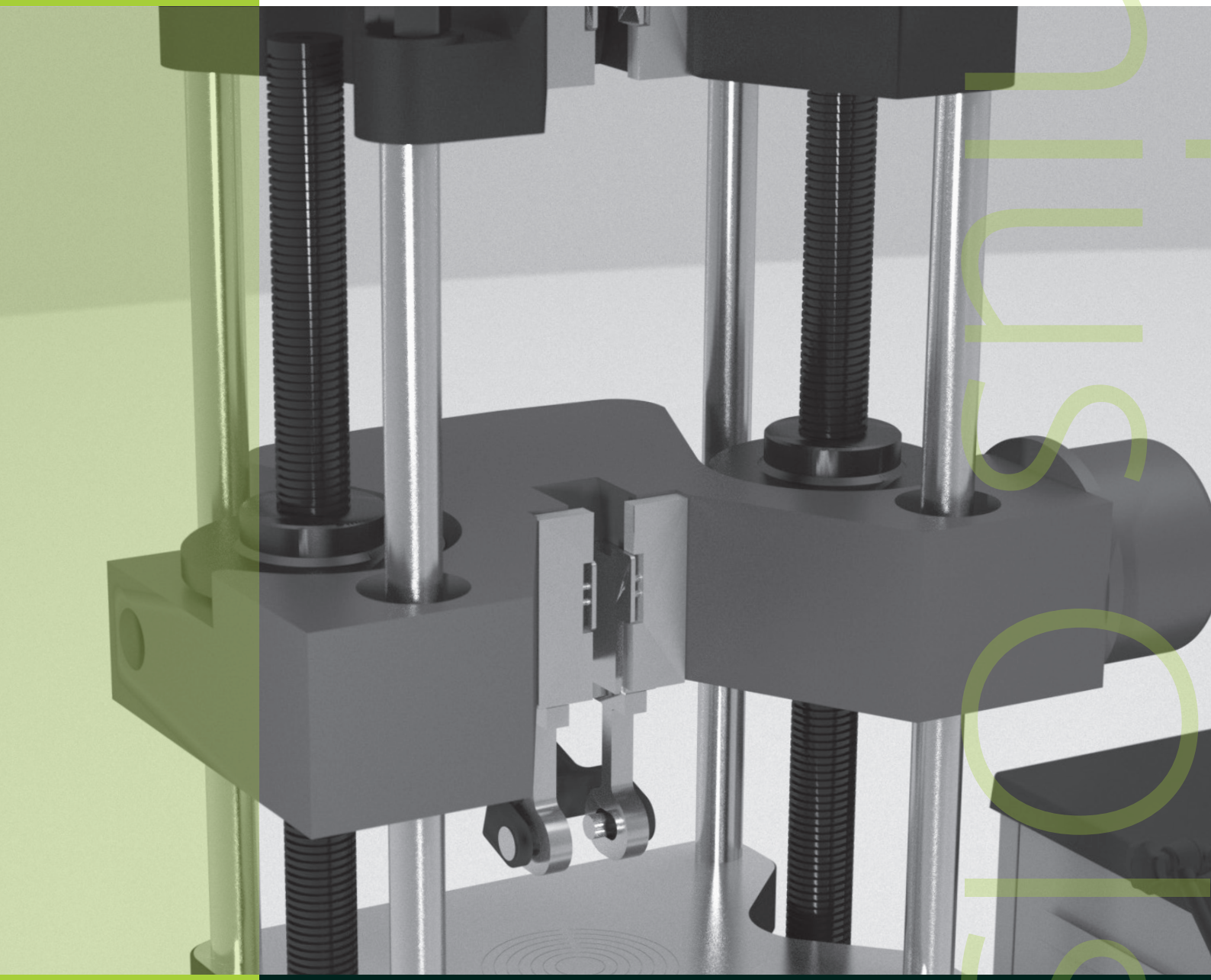
Tinius Olsen



SL Series

Hydraulic Universal Testing Machines

SLOOOOENO4

Tinius Olsen

SL Series

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, through 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 +/- 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 gauge 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 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.

KEY FEATURES

VERSATILE

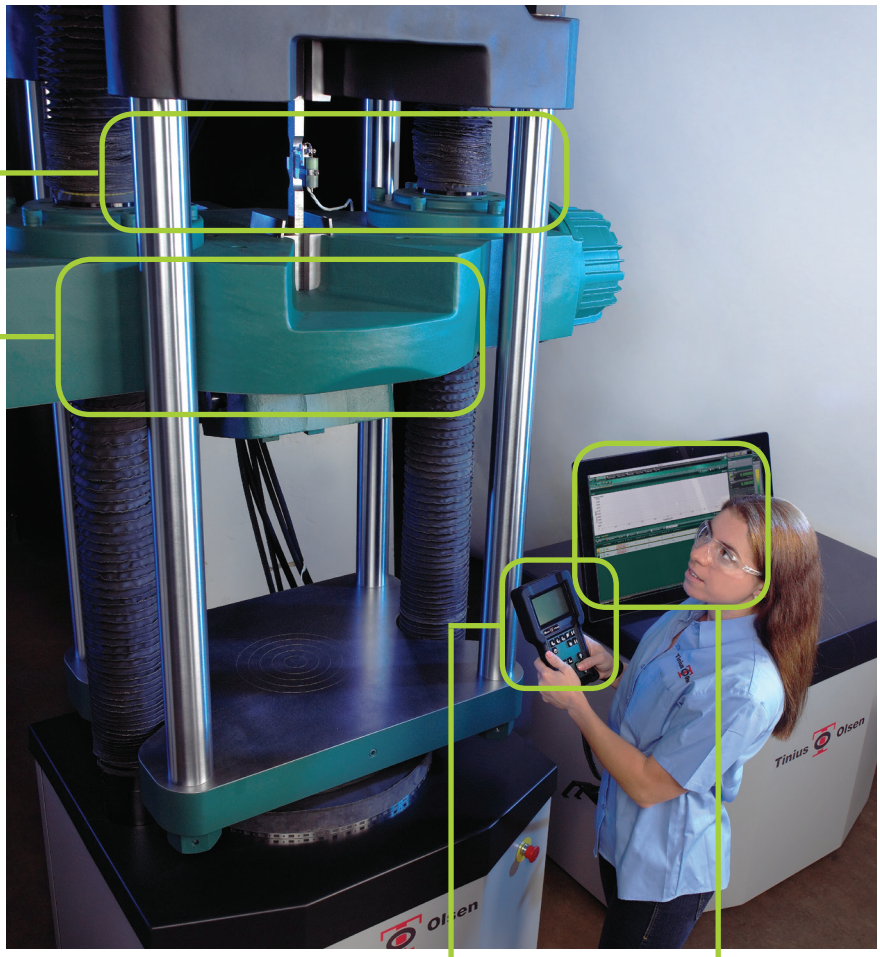
Suitable for tension, compression, transverse, and other tests on materials and assemblies.

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 motorized 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 305mm (12in) by up to an additional 914mm (36in).



HANDHELD WIRELESS 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 TETHERED INTERFACE

The second controller interface is the tethered option, right, 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

- **Model 150SL – 150kN**
  15,000kgf/30,000lbf
- **Model 300SL – 300kN**
  30,000kgf/60,000lbf
- **Model 600SL – 600kN**
  60,000kgf/120,000lbf
- **Model 1,000SL – 1,000kN**
  100,000kgf/200,000lbf
- **Model 1,500SL – 1,500kN**
  150,000kgf/300,000lbf
- **Model 2,000SL – 2,000kN**
  200,000kgf/400,000lbf

FOR RAPID SEQUENCE PRODUCTION TESTING: SL MODELS A AND AF

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

FOR EXTRAORDINARY TESTING, HIGH CAPACITY AND SPECIAL PURPOSE: SL MODELS

- 3,000kN (600,000lbf) and above

OPTIONS FOR ALL SL MODELS

- Extra-length screws and columns, with or without an adjustable upper crosshead, to increase 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 system life
- 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 -185-535°C (-300-1000°F)
- Furnaces for temperatures to 1200°C (2200°F)

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

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

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

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

Tinius Olsen

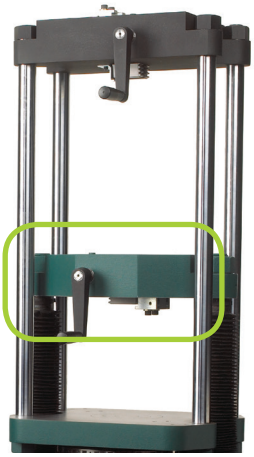
CUSTOMIZATION

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.

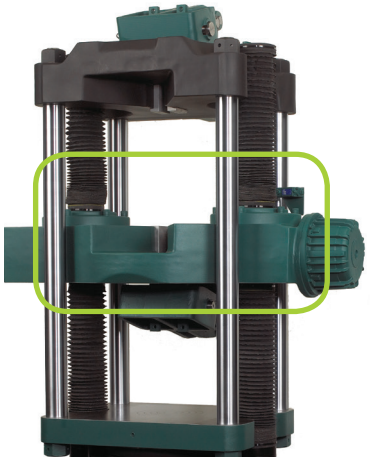
CROSSHEAD OPTIONS

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

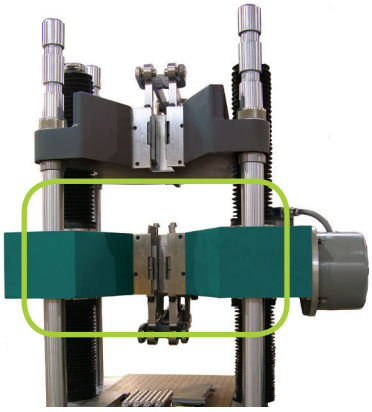
- Closed – This is the most common, and simplest, option on lower capacity frames.
- Semi-open front – The crossheads are partially 'opened' to allow easy access for loading specimens.
- Fully-open front – The crossheads have full openings to allow specimens to be directly inserted into the grips.
- Adjustable – Frames 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 – Frames with fixed, non-motorized crossheads allow fast specimen insertion and removal and are primarily used for repetitive testing of the same product.



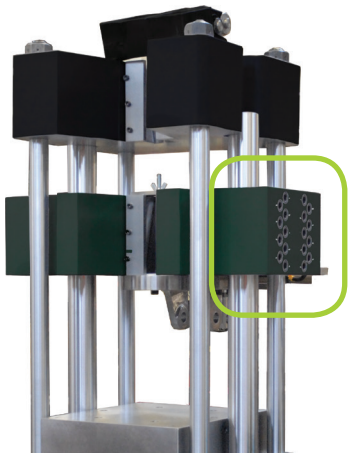
Closed crosshead.



Semi-open front crosshead.



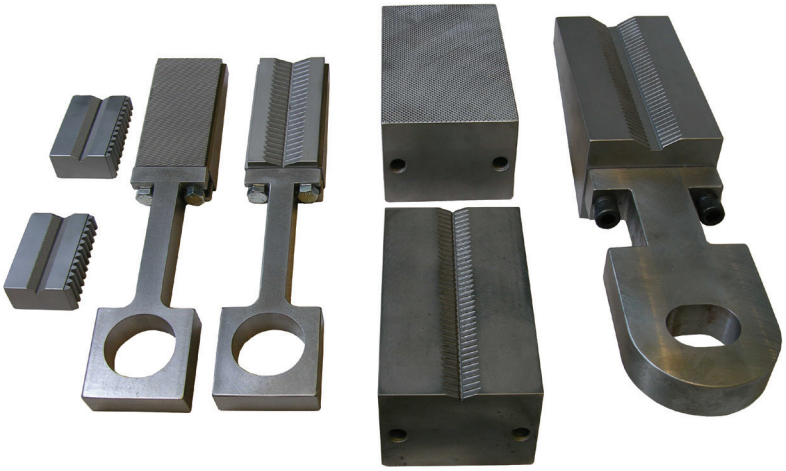
Fully-open front crosshead. This also shows notched columns to locate the adjustable top crosshead at different heights.



Fixed crosshead.

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.

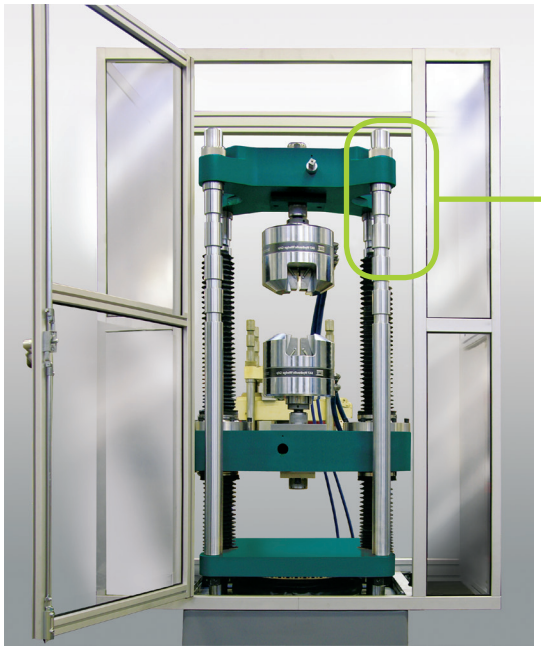


CUSTOMIZATION

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

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 simple numerical display of individual channels used on the testing machine.

SPECIFICATIONS

MODELS		150SL	300SL	600SL	1000SL[6]	1500SL[6]	2000SL[6]
Capacity	lbf	30,000	60,000	120,000	200,000	300,000	400,000
	kN	150	300	600	1000	1500	2000
	kgf	15,000	30,000	60,000	100,000	150,000	200,000
Machine specifications	Stroke						
	in	6	6	6	9	9	9
	mm	152	152	152	229	229	229
	Testing speeds						
	in/min	0-3	0-3	0-3	0-3	0-3	0-3
	mm/min	0-76	0-76	0-76	0-76	0-76	0-76
	Adjustable crosshead speed						
	in/min	20	20	12	12	12	12
	mm/min	508	508	305	305	305	305
Load frame dimensions[1] (A)	Clearance between screws[7]						
	in	12.5	12.5	18	19.5	22.25	22.25
	mm	317.5	317.5	457	495	565	565
(B)	Standard opening						
	in	29	29	36	42	46.25	46.25
	mm	737	737	914	1067	1175	1175
(C)	Crosshead thickness						
	in	3.5	3.5	5.5	8	8.5	8.5
	mm	89	89	140	203	216	216
(D)	Grip guard thickness						
	in	1	1	2.75	2.75	4.5	4.5
	mm	25	25	70	70	114	114
(E)	Lever height						
	in	—	—	—	8.75	8.75	8.75
	mm	—	—	—	222	222	222
(F)	Width[3]						
	in	29	29	30	34	37	37
	mm	737	737	762	864	940	940
(G)	Depth[3]						
	in	19	19	25	26	33.5	33.5
	mm	483	483	635	660	851	851
(H)	Height[2, 4]						
	in	72.5	72.5	77	90.125	96.25	96.25
	mm	1842	1842	1956	2289	2445	2445
Machine weight[1]	Net						
	lbs	2600	2600	4700	9000	12,000	12,000
	kg	1180	1180	2132	4082	5444	5444
	Gross						
	lbs	3100	3100	5700	9900	13,300	13,300
	kg	1406	1406	2586	4490	6034	6034

Continued

SPECIFICATIONS

MODELS		150SL	300SL	600SL	1000SL[6]	1500SL[6]	2000SL[6]
Nominal maximum specimen sizes[2]	Max.-TL Rack & pinion						
	in	24	24	32	34	38	38
	mm	610	610	813	837	965	965
	Max.-TL Lever grips						
	in	—	—	—	30	32	32
	mm	—	—	—	762	813	813
Tension length[5]	Width						
	in	2	2	2.5	3	3.5	3.5
	mm	51	51	64	76	89	89
	Thickness						
	in	1	1	1.75	2.125	2.125	2.125
	mm	25	25	44	54	54	54
	Diameter						
	in	1.125	1.125	2.25	2.375	2.625	2.625
	mm	29	29	57	60	67	67
Compression height	Max.-CH Rack & pinion						
	in	22	22	24	28	32	32
	mm	559	559	610	711	813	813
	Max.-CH Lever grips						
	in	—	—	—	30	36	36
	mm	—	—	—	762	914	914

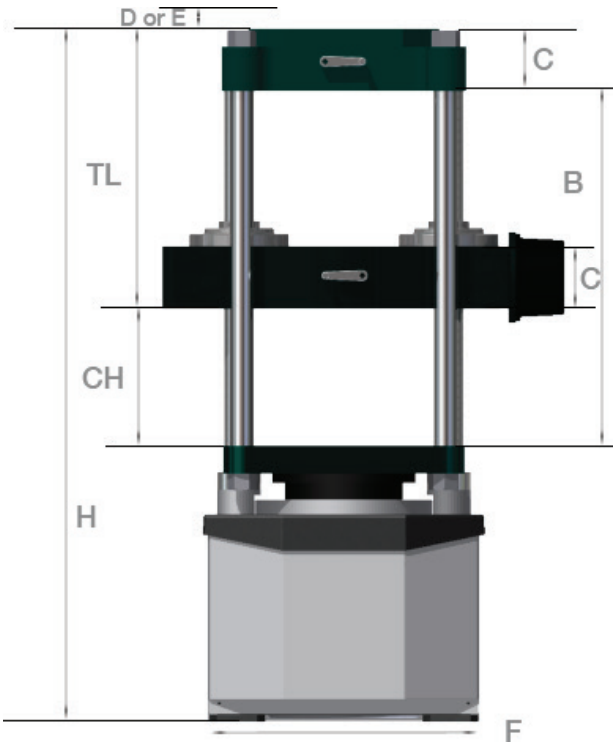
NOTES

1. **Approximate.**
2. **Additional height clearances can be provided.**
3. **Dimension of footprint base; overall dimensions will depend on options selected.**
4. **Add D or E as applicable and add stroke.**
5. **With full stroke remaining.**
6. **These machines can be floor- or pit-mounted according to test requirements; pit mounting may require additional components.**
7. **If wider clearance is required, please consult factory.**

- **Load measurement meets or surpasses the following standards: ASTM E4, BS 1610, DIN 51221, EN 10002-2 and ISO 7500-1.**
- **Strain measurement meets or surpasses the following standards: ASTM E83, BS 3846, ISO 10002-4 and ISO 9513.**
- **These systems conform to all relevant European directives and carry a CE mark.**
- **Specifications subject to change without notice.**

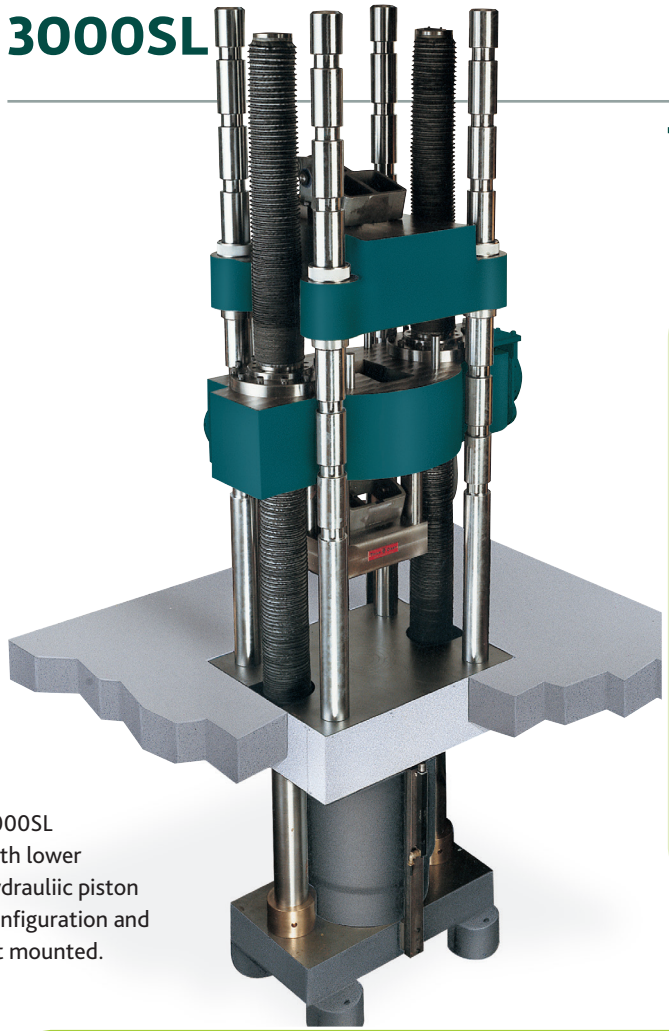
STANDARD CONSOLE DIMENSIONS

SL MODEL		150 TO 600	1000 TO 2000
Width	in	36	48
	mm	915	1219
Depth	in	31	31
	mm	788	788
Height	in	40	40
	mm	1016	1016



Schematic of load frame. See table above for actual dimensions.

3000SL



3000SL with lower hydrauliic piston configuration and pit mounted.

The Model 3000SL is designed for tension, compression, flexure and shear strength testing on materials, assemblies and Components. The robust design, quality materials and precision engineering ensures a testing capability, even at full load, day in day.

Features and benefits

- Suitable for tension, compression, transverse, shear and other tests to a maximum force of 300okN / 600,000lbf.
- Four column rugged design underpins the frame stiffness and power.
- The unique friction-free piston operation gives exacting control of movement be it under constant speed, stress or strain.
- Two types of frame hydraulic piston configuration; standard lower in base or upper above testing area.
- Optional user interfaces are available in support of test productivity; Tethered handheld, wireless and/or virtual through the test, control and reporting software.

OPTIONS

- In-head pocket grips to accomodate flat or round tensile specimens.
- External grips and fixtures.
- Standard or extended height columns.
- Standard or extended height crosshead movement for positioning.
- Base unit above or below ground (pit mounted).
- Standard or L shape workstation configuration.

ACCESSORIES

- Full range of precision extensometers and deflectometers using video, laser, encoder, strain gauge and/or LVDT technologies.
- Furnaces and environmental chambers for tests at high or low tempperatures
- Safety enclosures with interlocks to protect operators from violent specimen breaks.
- Tinius Olsen's Horizon control, analysis and reporting software on a single PC station and/or a PC station in network deployment.

3000SL with upper hydrauliic piston configuration.

What our customers say about the SL Hydraulic UTM

"My 3000SL testing machine is more than reliable, it is built to never ever go wrong."

Tinius Olsen

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.

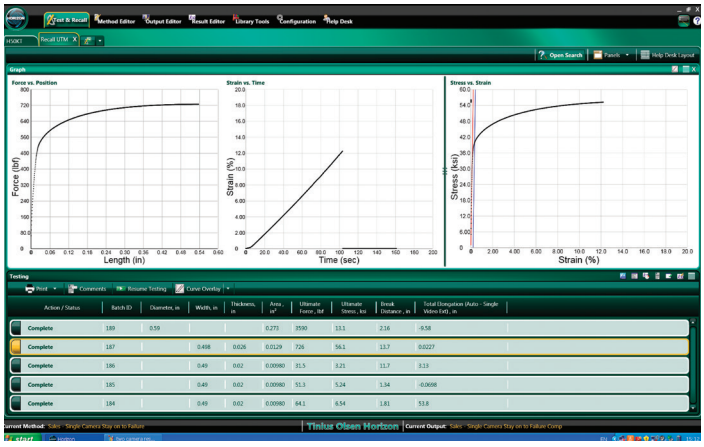
Our Horizon software sets new standards of data analysis by adding a host of report writing and data manipulation capabilities that will make easy work of your materials testing programs. As with most features of Horizon, flexibility is key; reports can be customized by operators in any way they wish,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

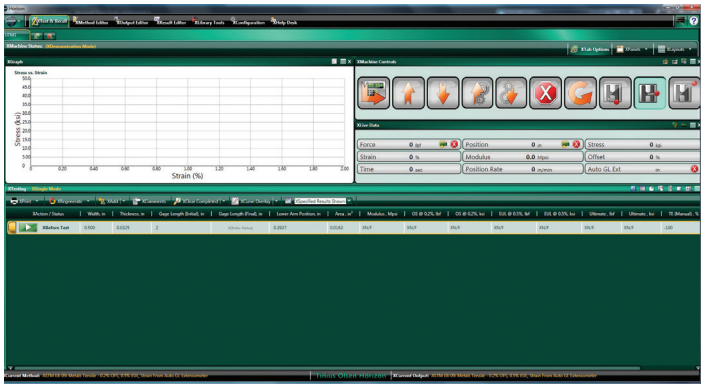
In addition to powerful reports, Horizon Materials Testing software is networkable and scalable so operators and managers can operate equipment and review test results from multiple sources and locations. Horizon provides a library of standard, specific and application-focused test routines that have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





Tinius Olsen

Tinius Olsen Automated Testing Systems

PRODUCTIVITY

More tests with increased accuracy

FLEXIBILITY

Complete automated testing solutions

REPEATABILITY

Automated systems that run all day and all night

CONTACT US

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Tinius Olsen

The first name in materials testing

Tinius Olsen

SL Series

Hydraulic Universal Testing Machines

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