



**SUPER "L"™**  
**Hydraulic universal testing machines for  
critical materials testing up to 3,000 kN.**



# THE SUPER "L"

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



**Fig. 1.** Typical 60,000 lbf (300 kN) Super "L".



**Fig. 2.** Typical 60,000 lbf (300 kN) Super "L" with handheld controller and optional computer system.

For more than a century, Tinius Olsen has been setting the standards by which testing machinery is measured.

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

Now more than ever before, the Super "L" 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 new space-saving console with a smaller footprint design.

Tinius Olsen recently developed a new portable controller and display for basic manual testing and convenience for handheld operation at the load frame.

Super "L" systems are guaranteed to meet ASTM, ISO, and other national and international specifications for accuracy. Accuracy is within  $\pm 0.5\%$  of the indicated load from 0.2% to 100% of capacity. All equipment used to calibrate the weighing and indicating systems of the Super "L" is traceable to the National Institute of Standards and Technology (NIST).

For consistent accuracy and rugged reliability in testing at capacities from 30,000 to 600,000 lbf (150 to 3,000 kN) or more, the Tinius Olsen enhanced Super "L" is still the standard of excellence.

### **Rugged load frame.**

Four-column construction provides exceptional load frame rigidity.

### **Modular design.**

All Super "L"s are furnished with our handheld display terminal for manual control and optionally with closed loop servo control via a variety of software/hardware options.

### **Versatile.**

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

### **Easy-to-use testing software.**

Tinius Olsen has a wide variety of software that can be added to the Super "L" for data acquisition and for computer-assisted control of the testing machine (for machines equipped with the optional servo control).

### **Testing and crosshead remote control with handheld controller.**

For manual control and convenient operation, each Super "L" includes as standard a remote handheld controller with an LCD and an extended cord. It allows positioning of the adjustable crosshead, prior to the test, and opening and closing of the optional hydraulically actuated grips. A portion of the 3-line LCD reads force in either lbf, N, or kgf in 10 mm high numbers. In addition to displaying load, it can be optionally equipped with appropriate instrumentation and signal conditioners to display position and strain values. If the position instrumentation (high resolution encoder) and signal conditioning module are ordered, the speed will be displayed.

### **Optional servo control.**

As dependable as the basic manually-controlled Super "L" is, the rate at which load is applied is determined by the operator. Therefore, as an option, the Super "L" can be supplied with closed-loop servo control capability. This closed-loop control system constantly monitors the test in progress and regulates the testing rate to maintain the preset conditions. This option enables you to conduct tensile, compression, flexure, and other tests automatically and ensures consistent testing control free from operator variability. Proof tests can also be performed automatically as can tests requiring different control modes (e.g. crosshead speed to start, strain rate through yield, and back to crosshead speed to failure). Also, this valuable closed-loop servo control upgrade can be added easily to the machine at a later date.

This servo capability can be accomplished by adding hardware and software options.

**Fig. 3.** Handheld controller supplied with every Super "L".



**Fig. 4.** Super "L" console with handheld controller and optional computer.



## CAPACITIES AND CONFIGURATIONS



**Fig. 5.** Typical 60,000 lbf (300 kN) Super "L" with handheld controller.



**Fig. 6.** Typical 60,000 lbf (300 kN) Super "L" with optional computer running Tinius Olsen's Test Navigator software.



**Fig. 7.** Typical 120,000 lbf (600 kN) Super "L" with closed crossheads and rack and pinion grips.

**Fig. 8.** Typical 400,000 lbf (2,000 kN) standard Super "L" load frame with semi-open front crossheads.

**For most users, the standard Super "L" line:**  
30,000 to 400,000 lbf (150 to 2,000 kN)

**For rapid sequence production testing, Super "L" Models A and AF:**  
30,000 to 200,000 lbf (150 to 1,000 kN); open-front crossheads

**For extraordinary testing, high capacity and special purpose Super "L"s:**  
600,000 lbf (3,000 kN) and beyond

### Options for all Super "L" models:

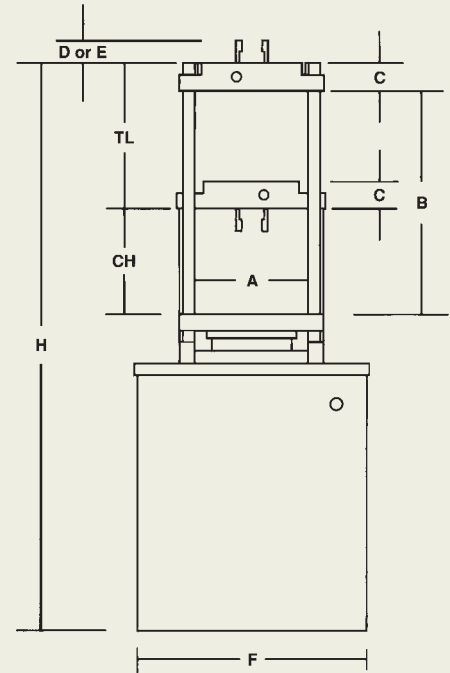
- Extra-length screws and columns, with or without an adjustable upper crosshead, to increase the available test space for longer test samples
- Semi-open front crossheads for easier loading of samples
- Hydraulically actuated lever grips to allow rapid loading and unloading of samples
- Accordion-type, 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  $-300^{\circ}$  to  $1,000^{\circ}\text{F}$  ( $-185^{\circ}$  to  $535^{\circ}\text{C}$ )
- Furnaces for temperatures to  $2200^{\circ}\text{F}$  ( $1200^{\circ}\text{C}$ )



MODEL		30	60	120	200 <sub>6</sub>	300 <sub>6</sub>	400 <sub>6</sub>
<b>CAPACITY</b>	lbf	30,000	60,000	120,000	200,000	300,000	400,000
	kN	150	300	600	1,000	1,500	2,000
	kgf	15,000	30,000	60,000	100,000	150,000	200,000
<b>MACHINE SPECIFICATIONS</b>	<b>Stroke</b>						
	in	6	6	6	9	9	9
	mm	152	152	152	229	229	229
<b>Testing Speeds</b>	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
<b>Adjustable Crosshead Speed</b>	in/min	20	20	12	12	12	12
	mm/min	508	508	305	305	305	305
<b>LOAD FRAME DIMENSIONS<sub>1</sub></b>	<b>(A) Clearance Between Screws<sub>7</sub></b>						
	in	14	14	20	22	24	24
	mm	356	356	508	556	610	610
	<b>(B) Standard Opening</b>						
	in	29	29	36	42	46.25	46.25
	mm	737	737	914	1067	1175	1175
	<b>(C) Crosshead Thickness</b>						
	in	3.5	3.5	5.5	8	8.5	8.5
	mm	89	89	140	203	216	216
	<b>(D) Grip Guard Thickness</b>						
	in	1	1	2.75	2.75	4.5	4.5
mm	25	25	70	70	114	114	
<b>(E) Lever Height</b>							
in	—	—	—	8.75	8.75	8.75	
mm	—	—	—	222	222	222	
<b>(F) Width<sub>3</sub></b>							
in	29	29	30	34	37	37	
mm	737	737	762	864	940	940	
<b>(G) Depth<sub>3</sub></b>							
in	19	19	25	26	33.5	33.5	
mm	483	483	635	660	851	851	
<b>(H) Height<sub>2, 4</sub></b>							
in	72.5	72.5	77	90.125	96.25	96.25	
mm	1842	1842	1956	2289	2445	2445	
<b>MACHINE WEIGHT<sub>1</sub></b>	<b>Net</b>						
	lbs	2600	2600	4700	9000	12,000	12,000
	kg	1180	1180	2132	4082	5444	5444
	<b>Gross</b>						
	lbs	3100	3100	5700	9900	13,300	13,300
	kg	1406	1406	2586	4490	6034	6034
<b>NOMINAL MAXIMUM SPECIMEN SIZES<sub>2</sub></b>	<b>Max. -TL Rack &amp; Pinion</b>						
	in	24	24	32	34	38	38
	mm	610	610	813	837	965	965
	<b>Max. -TL Lever Grips</b>						
	in	—	—	—	30	32	32
mm	—	—	—	762	813	813	
<b>Tension Length<sub>5</sub></b>	<b>Width</b>						
	in	2	2	2.5	3	3.5	3.5
	mm	51	51	64	76	89	89
<b>Thickness</b>							
in	1	1	1.75	2.125	2.125	2.125	
mm	25	25	44	54	54	54	
<b>Diameter</b>							
in	1.125	1.125	2.25	2.375	2.625	2.625	
mm	29	29	57	60	67	67	
<b>Compression Height</b>	<b>Max. -CH Rack &amp; Pinion</b>						
	in	22	22	24	28	32	32
	mm	559	559	610	711	813	813
<b>Max. -CH Lever Grips</b>							
in	—	—	—	30	36	36	
mm	—	—	—	762	914	914	

### Standard Super "L" UTM's Console Dimensions

MODEL	30	60	120	200	300	400
Width	in	36	48			
	mm	915	1219			
Depth	in	31	31			
	mm	788	788			
Height	in	40	40			
	mm	1016	1016			



**Fig. 9.** Schematic of load frame. Refer to table at left for actual dimensions.

#### 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 to meet customer testing requirements; pit mounting may require additional components
7. If wider clearance is required, please consult factory
8. Load measurement meets or surpasses the following standards: ASTM E4, BS 1610, DIN 51221, EN 10002-2 and ISO 7500-1
9. Strain measurement meets or surpasses the following standards: ASTM E83, BS 3846, ISO 10002-4 and ISO 9513
10. These systems conform to all relevant European directives and carry a CE mark
11. Specifications subject to change without notice

# CONTROL

**A complete family of Tinius Olsen testing software that moves monitoring, control, and reporting to your desktop.**

To further enhance the data acquisition and analysis capabilities of the Super "L" and to add optional closed-loop servo control, Tinius Olsen offers a variety of Windows-based software packages. Each version features multiple levels of functionality and extensive flexibility — you can customize the parameters you use to collect and document data, as well as control your machine. A built-in Wizard simplifies tasks by serving as an intuitive guide for the creation and modification of test settings.

From the simplicity of plotting a curve to the sophisticated creation of test results using your own formulas, Tinius Olsen has a Super "L" software package that can address your needs.

Windows is a registered trademark of Microsoft Corporation.



Fig. 10.



Fig. 11.



Fig. 12.

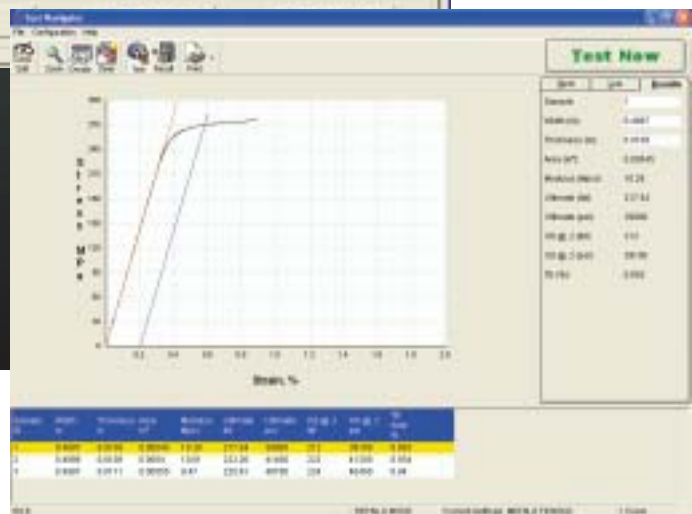


Fig. 13.

## TAILORED TESTING



**Fig. 14.** Standard 60,000 lbf (300 kN) Super "L".

**Tinius Olsen has grips, fixtures, frames, crossheads, columns, and special purpose Super "L"s for most requirements.**

Tinius Olsen can supply a Super "L" 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.

### Grips

- Crank-operated rack and pinion type wedge grips with flat and/or vee gripping faces for all closed crosshead Super "L"s
- Manually operated lever-type grips for standard or deluxe Super "L"s (1,000 kN/200,000 lbf to 2,000 kN/400,000 lbf) with optional semi-open front crossheads
- Hydraulically operated lever type grips for semi-open and fully-open front crossheads
- Additional external grips for testing flats, rounds, headed and threaded specimens, fasteners, and many other types of products and materials

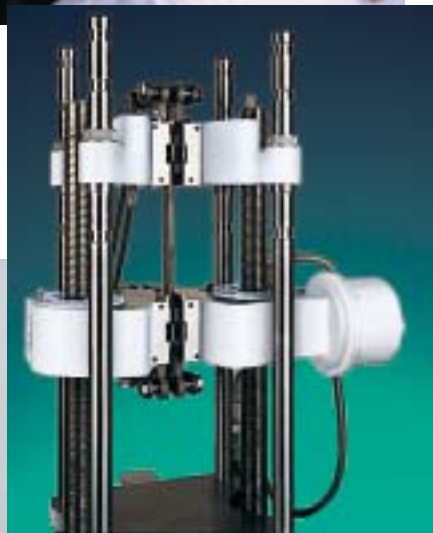
### Crosshead Options

- Adjustable
- Closed
- Semi-open front
- Fully-open front

### Columns and Screws

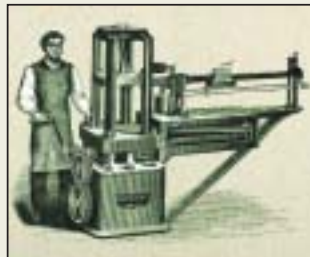
Columns and screws can be lengthened and crossheads can be made adjustable to meet your specific requirements. If we don't have an existing design that meets your testing needs (very unlikely given that we've been developing solutions since 1880), we will develop a custom configuration that addresses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

**Fig. 15.** Typical semi-open front crossheads with manual lever grips.



**Fig. 16.** 120,000 lbf (600 kN) Super "L" with fully open crosshead, hydraulically actuated grips and adjustable crosshead and columns.

## SERVICE/SUPPORT



### TIME TESTED

The first universal testing machine was the inspiration of Tinius Olsen, an inventor passionate about finding new ways to test the limits of materials. By 1880, he had proven and patented enough of his revolutionary

ideas and designs to create an entire line of testing machines and launch his own company.

Today, Tinius Olsen is still family-owned but has long since emerged as a global leader in the manufacture of materials testing equipment. With the emergence and growth of new materials, from engineered plastics to advanced composites, our product line has expanded concurrently. Likewise our A2LA and UKAS accredited technical teams that support an ever-growing worldwide customer base. Tinius Olsen is an essential resource for anyone with materials to test.



Contact Your Local Representative:

### SERVICE/SUPPORT

Every testing machine we make comes with responsive customer service and expert technical support made possible by our industry leadership extending back to 1880. You're not just getting a piece of equipment, you're leveraging an unrivaled materials testing knowledge base and committed service team.



Tinius Olsen's calibration service is A2LA accredited as meeting the requirements of ISO/IEC 17025 (equivalent to the relevant requirements of ISO 9002-1994) and ANSI/NCCL Z540-1-1994. Calibrations can be performed to the following ASTM & ISO specifications: E4, E10, E18, E23, E384, E1012, D256, D648, D747, D1238, D1525, and ISO 75, 179, 180, 306, and 1133. Also Olsen Displacement Verification on Universal Testing Machines (Crosshead Position), Rate Verification — Load, Strain, Position, or Crosshead.

The calibration service of Tinius Olsen's European division is UKAS accredited as meeting the requirements of: ISO/IEC 17025; European Standards EN 45011, EN 45012, and EN 45013; ISO/IEC Guide 66: 1999; EN 45012; EU Council Regulation No. 761/2001; ISO/IEC 17020 and EN 45004; European Standard EN 45503: 1996; and ISO/IEC Guide 43-1: 1997.

We are also able to verify a variety of other manufacturers' tensile, compression, and hardness equipment, which translates into one source for all your certification needs.



**Tinius  Olsen**

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