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.

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 space-saving console with a smaller footprint design.

Tinius Olsen developed a 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 +/- 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.

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.
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.

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

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° to 1,000°F (–185° to 535°C)
• Furnaces for temperatures to 2200°F (1200°C)
### MACHINE SPECIFICATIONS

<table>
<thead>
<tr>
<th>LOAD FRAME DIMENSIONS</th>
<th>MODEL 30</th>
<th>60</th>
<th>120</th>
<th>200</th>
<th>300</th>
<th>400</th>
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<tr>
<td>CAPACITY</td>
<td>lbf</td>
<td>30,000</td>
<td>60,000</td>
<td>120,000</td>
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<td>kN</td>
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<td></td>
<td>kgf</td>
<td>15,000</td>
<td>30,000</td>
<td>60,000</td>
<td>100,000</td>
<td>150,000</td>
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<tr>
<td>MACHINE SPECIFICATIONS</td>
<td>Stroke</td>
<td>in</td>
<td>6</td>
<td>6</td>
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<td>9</td>
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<tr>
<td></td>
<td></td>
<td>mm</td>
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<td>152</td>
<td>229</td>
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<td></td>
<td>Testing Speeds</td>
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<tr>
<td></td>
<td></td>
<td>mm/min</td>
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<td>0-76</td>
<td>0-76</td>
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<tr>
<td></td>
<td>Adjustable Crosshead Speed</td>
<td>in/min</td>
<td>20</td>
<td>20</td>
<td>12</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>mm/min</td>
<td>508</td>
<td>508</td>
<td>305</td>
<td>305</td>
</tr>
</tbody>
</table>

### LOAD FRAME DIMENSIONS

- **A** Clearance Between Screws:
  - in | mm | 14 | 356 |
- **B** Standard Opening:
  - in | 29 | 737 |
- **C** Crosshead Thickness:
  - in | 3.5 | 89 |
  - mm | 5.5 | 140 |
  - mm | 8 | 203 |
  - mm | 8.5 | 216 |
- **D** Grip Guard Thickness:
  - in | 1 | 25 |
  - mm | 2.75 | 70 |
  - mm | 4.5 | 114 |
- **E** Lever Height:
  - in | —— | —— |
  - mm | 8.75 | 222 |
  - mm | 8.75 | 222 |
- **F** Width:
  - in | 29 | 737 |
  - mm | 30 | 762 |
  - mm | 34 | 864 |
  - mm | 37 | 940 |
- **G** Depth:
  - in | 19 | 483 |
  - mm | 25 | 635 |
  - mm | 26 | 660 |
  - mm | 33.5 | 851 |
  - mm | 33.5 | 851 |
- **H** Height:
  - in | 72.5 | 1842 |
  - mm | 77 | 1016 |
  - mm | 90.125 | 2229 |
  - mm | 96.25 | 2445 |
  - mm | 96.25 | 2445 |

### MACHINE WEIGHT

- **Net**
  - lbs | 2600 |
  - kg | 1180 |
  - lbs | 3100 |
  - kg | 1406 |
- **Gross**
  - lbs | 2600 |
  - kg | 1180 |
  - lbs | 3100 |
  - kg | 1406 |

### NOMINAL MAXIMUM SPECIMEN SIZES

- **Max.-TL Rack & Pinion**
  - in | 24 |
  - mm | 610 |
  - in | 32 |
  - mm | 813 |
  - in | 34 |
  - mm | 837 |
  - in | 38 |
  - mm | 965 |
  - in | 38 |
  - mm | 965 |
- **Max.-TL Lever Grips**
  - in | —— |
  - mm | —— |
  - in | —— |
  - mm | —— |
  - in | 30 |
  - mm | 762 |
  - in | 36 |
  - mm | 914 |
  - in | 36 |
  - mm | 914 |
- **Max.-CH Rack & Pinion**
  - in | 22 |
  - mm | 559 |
  - in | 24 |
  - mm | 610 |
  - in | 28 |
  - mm | 711 |
  - in | 32 |
  - mm | 813 |
  - in | 32 |
  - mm | 813 |
- **Max.-CH Lever Grips**
  - in | —— |
  - mm | —— |
  - in | —— |
  - mm | —— |
  - in | 30 |
  - mm | 762 |
  - in | 36 |
  - mm | 914 |
  - in | 36 |
  - mm | 914 |

### Standard Super “L” UTMs

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
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<tbody>
<tr>
<td>30</td>
<td>36</td>
<td>915</td>
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</tr>
<tr>
<td>400</td>
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<td>40</td>
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</tr>
</tbody>
</table>

### 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
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. Horizon provides a library of standard, specific, and application-focused test routines that have been developed in close cooperation with our 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 also includes the following:

- Generation of user customized reports
- Standard SPC programs for X-bar, R, and frequency distributions/histograms
- Ability to recall, replot and rescale test curves
- Recall of data that spans different test modules
- User-configurable machine parameter and control settings
- Multilingual capabilities

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 to create an intuitive user experience. Built-in tutorials, on-line help, and help desk access provide additional user support.
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.
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.

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.

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/NCSL Z540-1-1994. Calibrations can be performed to the following ASTM & ISO specifications: E4, E10, E23, E83, E384, E1012, D256, D648, D747, D1239, D1525, D2240, and ISO 75, 179, 180, 306, 1133, and 7500. 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. Calibrations can be performed to the following standards: for force: ISO 75001:1 and ASTM E4; for extensometry: BS EN ISO 9513 and ISO 5893.

We also calibrate a variety of other manufacturers’ tension and compression equipment, as well as their extensometry and other instruments, which translates into one source for all your certification needs.