High Force Electromechanical Materials Testing Machines
The Tinius Olsen LoCap gives you the ultimate in durability, speed, convenience, accuracy and ease-of-use. Its precision interchangeable strain-gage load cells let you quickly change the machine capability from as little as 0.02 lbf up to the maximum of the frame capacity.

The heavy duty, rugged structure of the LoCap load frame and screws make it unlike any comparable capacity testing machine. Even at full capacity, the LoCap frame provides excellent rigidity, with minimal frame deflection. What’s more, a durable movable crosshead is designed with built-in backlash eliminators.

For optimum testing convenience, tension tests are conducted in the upper test area, compression and transverse tests in the lower area — without the need to change tooling.

For added safety, an adjustable mechanism protects the testing machine against crosshead over-travel. This feature allows the operator to quickly set upper and lower crosshead travel limits at any point within the frame’s vertical clearance using built-in electromechanical limit switches.

Two speed ranges are available within the 15 in (of horizontal clearance) frame: 0.005 to 5 in/min (0.125 to 125 mm/min) for loads up to full capacity; and 5 to 20 in/min (125 to 500 mm/min) for fast crosshead positioning and loads up to 3,000 lbf. A larger selection of speeds is provided with the wider 22 in load frame: 0.002 to 2 in/min (0.05 to 50 mm/min) for loads up to full capacity; and 2 to 20 in/min (50 to 500 mm/min) for crosshead positioning and loads up to 3,000 lbf or more, depending on machine capacity.

The LoCap series of machines and the Electomatic series of machines share the same handheld display and controller as well as the same control electronics.

### Common Specifications:

| Load measurement accuracy: +/- 0.5% of indicated load from 0.2% to 100% capacity |
| Position measurement accuracy: +/- 0.1% of reading |
| Speed accuracy: +/- 0.1% of set speed |
| Operating temperature range: 50 to 100 degrees F (10 to 40 degrees C) |
| Power: Power must be free of spikes and surges exceeding 10% of the nominal voltage |
| Humidity range: 10% to 90% non-condensing |

**Notes:**
1. Load weighing system meets or exceeds the requirements of the following standards: ASTM E4, EN 10002-2, BS 1610, DIN 51221, ISO 7500-1. Tinius Olsen recommends that systems are verified at installation in accordance with ASTM E4 and ISO 75001. 2. Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, EN 10002-4, BS 3846 and ISO 9513. 3. Extra wide and/or extra height frames are available. Contact your representative for details. 4. The LoCap series of machines conform to all relevant European CE Health and Safety Directives, EN 50081-1, 50081-1, 73/23/EEC, EN 61010-1. 5. Specifications are subject to change without notice.
Electomatic IV Series

Unlike conventional testing machines that provide maximum weighing and indicating accuracy only when loads are centrally applied, the Electomatic IV series provides exceptional accuracy even with eccentric loading. One of the keys to its unique off-center loading is Tinius Olsen’s exclusive QuadraSensor weighing system. It incorporates four Olsen strain gage force columns—one at each corner of the load frame table—whose combined signals produce an extremely accurate indication of the load being applied to the specimen. Electomatic IV machines will accurately indicate off-center loads applied within the loading area of the screws and rated capacity of the bearing points at the four corners of the weighing table.

These rugged electromechanical test machines are available in two screw or four screw load frame designs. As standard, all new Electomatic IV machines include a four quadrant motor drive for closed-loop control and can be linked with Tinius Olsen’s Windows-based Horizon software for complete data acquisition, data analysis and sophisticated machine control from a pc.

Fig. 5. Typical 30,000 lbf (150 kN) two-screw Electromatic load frame.

Fig. 6. Typical 120,000 lbf (600 kN) capacity four screw Electromatic system, shown with optional tee slotted table.

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Position measurement accuracy: +/ - 0.1% of reading
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Operating temperature range: 50 to 100 degrees F (10 to 40 degrees C)
Power: Power must be free of spikes and surges exceeding 10% of the nominal voltage
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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.

Contact Your Local Representative: