

Single-Column Electromechanical Testing Machines Series LFM-L up to 25 kN

The LFM-L Single-Column Models are compact and ergonomically tabletop systems designed for reliable testing of a variety of different materials, specimens, or components where load requirements are low.

These low force test systems are compatible with a wide range of accessories, grips and fixtures covering all relevant applications as testing of rubber, plastics, foils, films, textiles, adhesives, paper, foods, foams, timber, wires or other metallic or non-metallic specimens as well medical, electronic and other components.

These table-top, state-of-the-art testing systems using the latest technology, as all of our testing machines, providing uncompromising quality and therefore representing a range of accurate and reliable testing machines.

The LFM-L Test Systems are well suited for digital closed-loop testing in force, stress, displacement, strain, and any other control modes including calculated, virtual channels.

Compatible with a wide range of grips & fixtures, extensometers, and other accessories these testing machines perform tensile, compression, flex/bend, shear, peel and other mechanical tests at ambient and non-ambient temperatures.



- Rigid machine frame with high stiffness providing superior axial and lateral stiffness and guarantees robust, durable and long-term operation
- Precise, backlash-free ball screw assembly provides high load capacity, high positioning accuracy and repeatability
- Extruded aluminium profiles with T-slots allow the easy mounting of any accessory.
- Controlled by a brush-less high responsive, maintenance-free AC servomotor to drive the mobile traverse (crosshead) providing faster starts and stops, best control, and
- highest accuracy at a extremely low noise level
- AC servomotor provides continuous high test speed up to nominal force for continuously operation
- Additional guiding columns for increased lateral stiffness
- Spindles (ball-screws) with flange double-nut, sealed and greased for long maintenance intervals
- Spindle, flange double-nut and ball-screw shaft grinded pairwise for reduced pitch error
- On-point, in-service lubrication

- Spindle and column protection over full travel
- Precision strain gauge load cell mounted on (moveable) crosshead
- Digital movable crosshead encoder for high resolution, high accurate crosshead measurement and closed loop control
- Adjustable end-stops in both (UP/DOWN) directions for the optimal protection of operator, test sample and machine
- End-stops for maximum travel protection
- Durable structured coating (or paint)
- Use of high quality components and assemblies of reputable companies
- Bolts for machine lifting
- Adjustable feet for levelling the testing machine
- The machine is free-standing on shock absorbers, requiring no special foundations

Reliable & Durable

w+b LFM-L Series combines proven load-frame design available in two high-stiffness configurations using high quality components and assemblies coupled with a generous dimensioning.

Unique Ball Screw Assembly with Carriage

The Load Frames combines high rigidity with high stiffness that guarantees robust, durable long-term operation. The precise, backlash-free ball screw assembly that is integrated in an extruded aluminium profile with T-slots provides high load capacity, high positioning accuracy and repeatability.

The load frame features exceptional guidance with additional unique carriage for increased flexural stiffness with minimum inclination angle of the crosshead under load of the C-frame design for better alignment.

Optimized Test Space

The upper crosshead can be fixed on three (3) positions in order the vertical test space can be optimized according to installed grips or fixtures. It assures the maximum crosshead travel can be used with different accessories attached.

Flexible Mounting of Accessories

The extruded aluminium profile with T-slots allows an easy mounting of accessories and mounting brackets for high temperature furnace, extensometer and other tools.

Versatile

The LFM-L series can be configured with a variety of grips & fixtures, extensometers, environmental simulation accessories and other components to meet the exacting test needs from quality control to research and development.

Latest Control Technology

The LFM-L testing machines are closed loop controlled through the latest high-resolution, high-speed digital control system **PCS8000**. The **PCS8000** ultra-high-speed closed loop control and data acquisition rate on all channels combined with 24 bit high resolution transducer conditioning rate is achieved by a 64 bit processor running at 1 GHz.

Advanced Closed-Loop Control

As control channel available are any connected inputs as well as virtual (calculated) channels that might open many new opportunities to your application. The versatile concept of the **PCS8000** is based on latest technology and supports applications with virtually no limits.

Powerful & Silent Drive System

The load frames are equipped with belt drive system with powerful, lifetime lubricated servo-gearbox providing low belt speed for silent and long-term operation combined with exceptional low minimum speeds control and best stability when operating the machine at high speed. The machine is controlled by a brush-less high responsive, maintenance-free AC servomotor to drive the mobile traverse (crosshead) providing faster starts and stops, best control, and highest accuracy at extremely low noise level. The machine provides continuous high-test speed up to nominal force for continuously operation.

Vertical or Horizontal Installation:

The LFM-L Testing Machines can be installed in vertical and horizontal position suiting your requirements and accessories.

Operator Safety

Our LFM-L series of test systems fully comply with the safety requirements of the EC Machinery Directive and are supplied with the related EC Declaration.

Specimen Safety

Specimen Protect function prevents your specimen from being damaged during setup and gripping. The LFM-L Test Systems are protected against overload and provide the ability to set limits for load, crosshead travel, strain or any other connected transducer preventing damage to your system, load cell and grip or fixtures. Mechanical end-stops and adjustable travel limits stop the crosshead at set points.

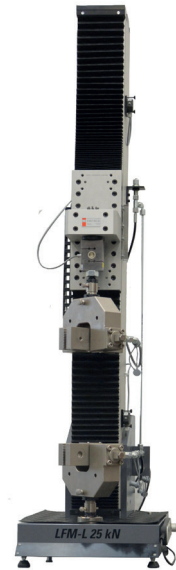
Machine Safety

The LFM-L provides highest level of machine safety including overload protection of the frame, overload protection of the load cell, maximum and minimum crosshead travel switches, two-channel safety circuit according to the machinery directive including emergency stop, resolver and thermal winding protection (PTC), motor maximum current protection, constantly monitoring of the temperature of the amplifiers(s) with protection function, integrated PFC (Power Factor Corrector) to suppress circuit feedbacks and more.

Expandable

With the LFM-L Testing Machine powered by PCS8000 you will be ready for your test demands of today & tomorrow.

These test systems can be equipped with up to 13 amplifier cards for control or data-acquisition and up to 20 virtual channels operating at full rate. All physical and virtual channels can be used as data-acquisition as well as control channels. Available in standard are additional 12 digital outputs and 8 digital inputs to control external devices.



Configurable & Extendable

Covering the force range up to 25 kN with only two mechanical designs the frames can be configured to meet your unique needs of today and extended in the future when your test needs would change.

Everything from a Single Source

Thanks to our decades of experience in testing machine construction, maintenance and calibration, we can offer you an all-round service for your testing machines and systems. This minimizes failures and ensures compliance with standards. We offer preventive maintenance, on-site repairs, overhauls and repairs in our factory, machine relocations and recommissioning, spare parts, software updates & upgrades, training and modernizations.

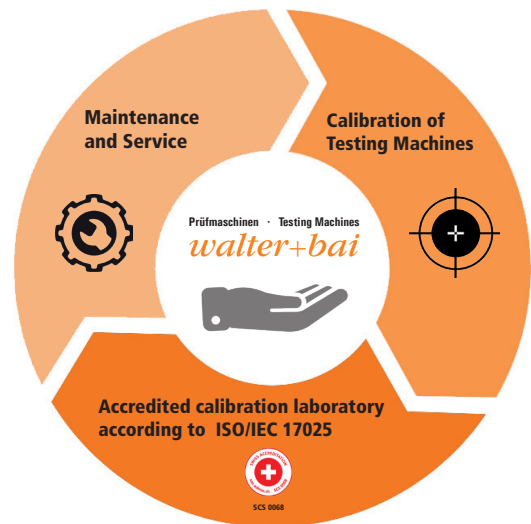
More than 45 Years Experience

Owing to over 45 years of experience in the production of electromechanical test systems our servohydraulic test systems includes a numerous of features and achievements guaranteeing operational efficiency, safety and reliable testing with minimum down-time.

Modular & Flexible

The modular design enables us to adapt these tests systems to virtually any of your requirements. Common customizations include:

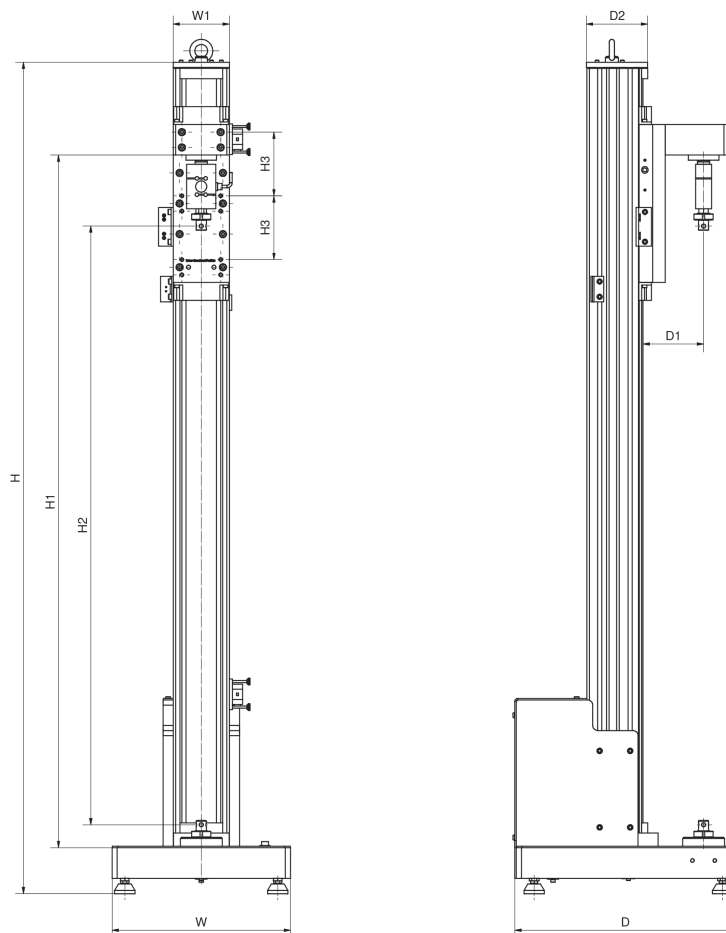
- Other test speeds
- Extended vertical or horizontal test spaces
- Multifunctional T-slot base platen to clamp grips or fixtures, components or finished goods
- Additional second working space
- Extending to fully automatic robotic system



Single-Column Testing Machine		LFM-L 10 kN
Configurable to	kN	0.5, 1, 2, 2.5, 5 and 10
Force Measuring Resolution	Bit	24 (± 8 388 608 Points)
Force Measurement Accuracy*	ISO 7500-1	
From to	Grade 0.5	1/100 to 100%
From to	Grade 1	1/200 to 1/100
Test Speed Range**	mm/min.	0.005 to 1050
Closed Loop Control Rate	Hz	Adjustable up to 8000
Data Acquisition Rate	Hz	Adjustable up to 14400
Crosshead Travel**	mm	1000
Crosshead Travel Resolution	μm	0.0190735
Crosshead Travel Accuracy	ISO 9513	Grade 0.5
Test Area Height H1**	mm	110 to 1350
Distance between Mounting Studs H2**	mm	0 to 1160
Mountable Crosshead Positions	No.	3
Distance between Mountable Crosshead Positions H3	mm	125
Test Area Depth D1**	mm	118
Frame Height H	mm	1635
Frame Width W	mm	350
Frame Depth D	mm	450
Frame Weight	Kg	82
Frame Stiffness	kN/mm	≥ 20
Power Requirements	kW	0.75 kW
Standard Mounting Stud	mm	$\varnothing 20 \times \text{PIN } \varnothing 8$
Operating Temp. Range	$^{\circ}\text{C}$	5°C to 40°C
Humidity Range	%	20-92% Non-condensing

*Calibration to lower levels as option available

**Any others available



Single-Column Testing Machine		LFM-L 25 kN
Configurable to	kN	0.5, 1, 2, 2.5, 5, 10, 15, 20 and 25
Force Measuring Resolution	Bit	24 ($\pm 8 \times 388 \times 608$ Points)
Force Measurement Accuracy*	ISO 7500-1 Grade 0.5 Grade 1	1/100 to 100% 1/200 to 1/100
Test Speed Range**	mm/min.	0.005 to 1150
Closed Loop Control Rate	Hz	Adjustable up to 8000
Data Acquisition Rate	Hz	Adjustable up to 14400
Crosshead Travel**	mm	1000
Crosshead Travel Resolution	μm	0.0207218
Crosshead Travel Accuracy	ISO 9513	Grade 0.5
Test Area Height H1**	mm	170 to 1485
Distance between Mounting Studs H2**	mm	0 to 1200
Mountable Crosshead Positions	No.	3
Distance between Mountable Crosshead Positions H3	mm	160
Test Area Depth D1**	mm	108
Frame Height H	mm	1873
Frame Width W	mm	450
Frame Depth D	mm	584
Frame Weight	Kg	181
Frame Stiffness	kN/mm	≥ 50
Power Requirements	kW	1.5 kW
Standard Mounting Stud	mm	$\varnothing 20 \times \text{PIN } \varnothing 8$
Operating Temp. Range	$^{\circ}\text{C}$	5°C to 40°C
Humidity Range	%	20-92% Non-condensing

*Calibration to lower levels as option available

**Any others available

