Materials Test System
Rated 4500, 5500, 6700 and 11,250 Pounds
Dual Column Tabletop Electromechanical

KM Material Test Systems perform tensile and compression tests throughout a wide range of force and speed ranges. Load frame configurations match requirements. The robust load frame features long and short travel options and both standard and wide width column spacing.

Three levels of machine control, data acquisition and analysis are available for different needs:

- Basic Controller
- Add M software for data acquisition & standard tests
- Add R software with servocontrols for full flexibility

11KM with Wedge Action Grips & Extensometer performing tensile test on composite test sample.

TESTRESOURCES

System Attributes	Force Capacity		Travel	
Model	Pounds	kN	Inches	mm
4kM700	4400 LB	20 kN	28 inches	700 mm
4kM1200	4400 LB	20 kN	48 inches	1200 mm
5kM700	5500 LB	25 kN	28 inches	700 mm
5kM1200	5500 LB	25 kN	48 inches	1200mm
7kM700	6700 LB	30 kN	28 inches	700 mm
7kM1200	6700 LB	30 kN	48 inches	1200mm
11kM700	11,250 LB	50 kN	28 inches	700 mm
11kM1200	11,250 LB	50 kN	48 inches	1200mm

Performance Notes:

1) All machines feature adjustable speed to 40 inches per minute (1000 mm / min)
2) Standard column spacing is 16.7 inches (428 mm)

Load Frame Dimensions
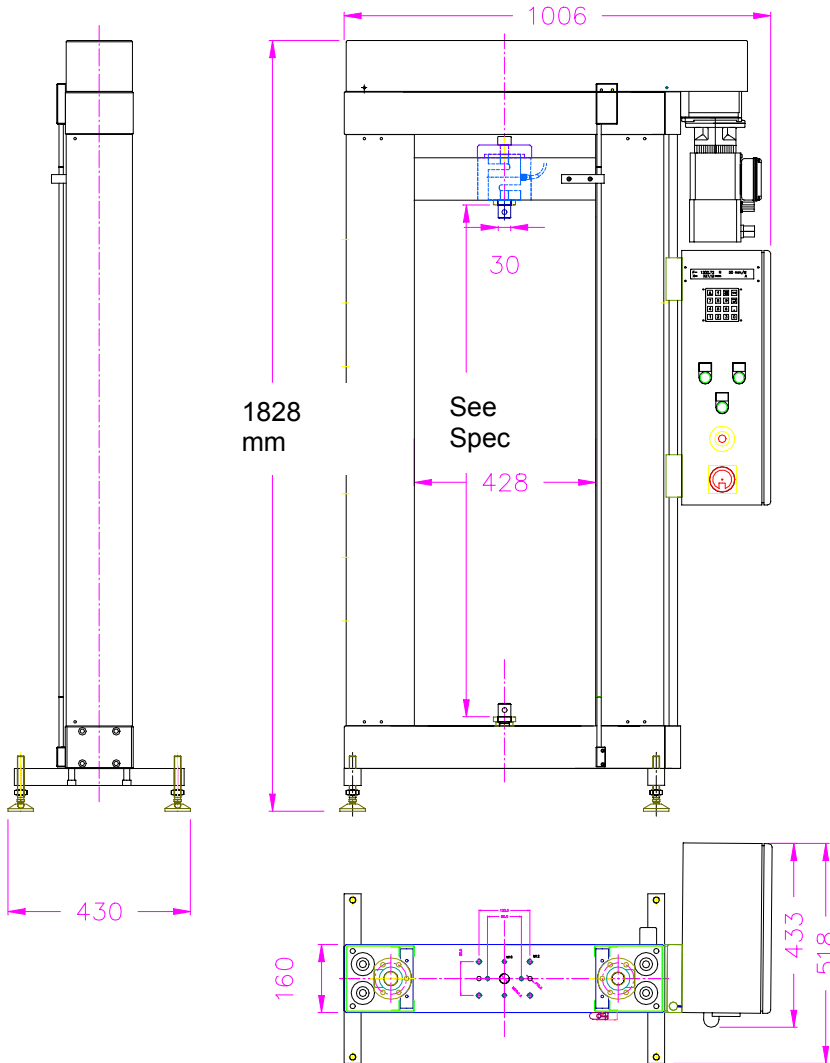
Note – dimensions are shown for standard load frame with 428 mm column clearance.

Options are available for wide width load frames –

STANDARD CLEARANCE

W = 16.7 inches (428 mm)

WIDE WIDTH FRAME

W = 22.4 inches (568 mm)

Attribute	Specification
Drive Technology	Servocontrolled Electromechanical Ball Screw
Test Speed Maximum	40 inches per minute
Dimensions	66"H x 40"W x 17"D
Weight	350 -600 Pounds
Power	240VAC to 480 VAC
Position Limits	Adjustable Upper and Lower Mechanical limits
Load Cell	
Optional Load Cells	Many sizes available from full scale rating to 0.1 Pound
Load Accuracy	+/- 0.5% of reading from full scale to 0.5% of load cell capacity (per ASTM E4)

M Controller

The M Controller is digital 16 bit controller for constant speed and constant load tests. It features easy to use display and keypad input and load cell signal conditioning, machine output and data acquisition. Test results may be sent to software to be printed, stored or sent to Excel for further analysis.
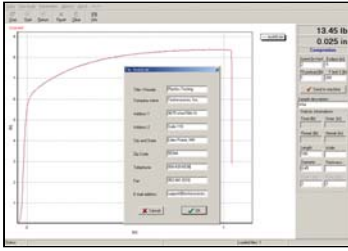

Features

- Capable of either standalone operation or controlled via PC
- Easy to use
- Customizable

General Attributes	Specification
Model	M Controller
PC requirements	PC not required ; Optional software would require PC with serial port ; MS Windows 98 or later
Operator Interface	
Machine Controls	Keypad Input
	Emergency Stop
	Jog Up & Down Keys
	Start/Stop Preset Program Key
	Return Home Key
Data Display	Liquid Crystal Display – test parameters that can be displayed include
	▪ Live Load
	▪ Peak Load & Peak Load Position
	▪ Live Position
	▪ Displacement at Break

Local Display Resolution	0.01 mm or inch
Selectable Units	▪ Load -- Pounds, Newtons ▪ Position - Inches, mm
Channels	
Channels	▪ LOAD - Strain gage signal conditioner and data acquisition included for system load cell ▪ POSITION - Controller converts output of encoder to position ▪ STRAIN – CH 2 Extensometer or Load signal conditioner and data acquisition optional
Control Modes	▪ SPEED - operator adjustable from 1 to 1000 mm per minute (+/- 128 bits) ▪ POSITION – ramp to position and hold. ▪ LOAD - ramp to a user adjustable load and holds for time. Returns home at completion.
Return to Home	Adjustable speed to 1000 mm per minute (40 ipm)
Control	Adjustable gain (10 steps) for load control.
Load Limit	Adjustable software load limit
Data Capture	
Test Results	Peak load and displacement at break values available at conclusion of each test
Position Resolution	0.0001 mm (or 0.0001 inch) via software capture
Standard Load Resolution	+/- 1 part in 100 000 at 50 samples per second
High Resolution Load	+/- 1 part in 2 000 000 at 6.2 samples per second
Data Storage	
Test Setup	Speed, load limits, control mode and internal information saved from test to test.
Data Transfer	
ASCII Data	Machine control settings and test data are ASCII format and able to captured or input to and from controller. See MS Series Software.
Analog Output	Optional 12 or 16 bit analog output
User Programmable	
Speed Settings	Test, Jog/ Return Home variables are programmable.
Keypad Language	English, Spanish or German
Test Direction	Tension or Compression
Calibration	
Password	Calibration data is supervisor password protected.

M Software Products

Options consist of MStat, XY Curve Software, Excel Analysis Packages, and Upgrades to R Series

Software packages are available to acquire, display, save and export test data from the M controller. Multiple software products are available for different analyses and purposes.

Features

- Compatible with Windows Operating Systems
- Graphical plotting of load – displacement curves
- Archive raw test data for future analysis

MStat Batch Test	Description
Description	Optional – MStat enables downloading of peak load and displacement at break tensile and compression test results at the conclusion of each test from a buffer of data stored within the M Controller. The program gathers multiple test results to generate test reports and includes statistical summaries of the results.
Test Data	Handles up to 50 test records including date and time stamp, sample ID, Peak load, displacement at break
Statistical Results	Summarizes results reporting minimum, maximum, average, standard deviation and number of samples.
Data Export	Exports data to MS Excel and other spreadsheet programs
Test Reports	Customizable test reports with 10 customizable data fields
Test Control	Operator may control machine through software. Stores machine settings.
Cable	Standard Serial Port cable – length 8 feet
ZPM Curve Software	**Description**
Description	Optional – MS Curve software captures, displays, stores and exports raw load and displacement test data from a tensile or compression test. The data is presented in real time in a load – displacement curve format.
Export & Analysis	Exports data to Excel and other spreadsheet and analysis programs.
Cable	Standard Serial Port cable – length 8 feet ; 100 feet cable optional.
XY Plotting (Curve)	Real Time Display of load versus displacement, load - elongation and stress - elongation % ; includes automatic scaling of plot at conclusion, Grid ON/OFF, Autoscaling & Autozoom.
Test Control	Operator may control machine through software. Stores machine settings.
Test Reports	Customizable reports
R Controller	**Description**
Upgrade	Optional - upgrade to R Series