



MultiTest-dV

Motorised test stand

Sales brochure



PHYSICAL
PROPERTIES
TESTERS
GROUP

mecmesin.com

Explore the full potential of the MultiTest-dV

The MultiTest-dV provides outstanding value as a superior motorised force tester up to 2.5 kN. Designed for precision compression and tension testing, its simple controls, backed by sophisticated electronics, make it the ideal choice as the central platform of your test solution.

Combine the MultiTest-dV with a digital force gauge (Touchscreen VFG or AFG) for routine testing or a precision loadcell (ELS) for more advanced materials testing.

Choose from an extensive range of grips and fixtures from Mecmesin to deliver an affordable solution which doesn't break your budget.



3 models

Choose from 3 different load ratings: 0.5 kN, 1 kN and 2.5 kN designed for compression and tension testing.



4 test modes

Manual up/down control. Move between target displacements. Move between pre-set load limits. Move until sample break.



Versatile and precise

Crosshead speed from 0.1 to 1200 mm/min. Positional resolution to 0.001 mm for precise testing and highly accurate results.



USB connection

Connect to PC and use with VectorPro Lite software for setting test parameters, streaming data to create graphs, performing calculations and issuing test reports

Configure your MultiTest-dV

Option 1 | Digital Force Gauge

AFG and VFG Digital Force Gauges interact with the MultiTest-dV to enable controlled testing to a load limit or break.

Configuration A: An AFG/VFG digital force gauge for stand-alone peak load tests

Configuration B: An AFG/VFG + VectorPro Lite software to plot data graphically, perform calculations and issue test reports

Touchscreen ►
Force Gauge (VFG)



Option 2 | Enhanced Load Sensor

The ELS communicates with the MultiTest-dV for precision testing of materials when combined with VectorPro MT software*.

*Order separately

Enhanced Load ►
Sensor (ELS)



MultiTest-dV controls

The MultiTest-dV has been designed specifically for ease-of-use and precision when selecting test parameters. Based on the tried and tested MultiTest frame, it has completely new control electronics to deliver superior performance at an affordable price.



▲ Colour display of speed, displacement and load



▲ Four multifunction buttons for all settings and operation. Multi-language display



▲ Lights indicate stand status



MultiTest-dV

Option 1 | Digital Force Gauge

The MultiTest-dV range integrates perfectly with Mecmesin's leading range of digital force gauges - the Touchscreen VFG & the AFG. Both gauges are available in 10 load capacities from 2.5 N to 2.5 kN with an outstanding accuracy of $\pm 0.1\%$ of full scale. Tests can run to a pre-defined load or crosshead displacement limit or until a sample break is detected. In its most popular configuration, the combination of MultiTest-dV and VFG are ideal for stand-alone applications requiring the capture on a display of a peak load value. The VFG provides the added benefit of displaying test data both as numbers and in graphical format.

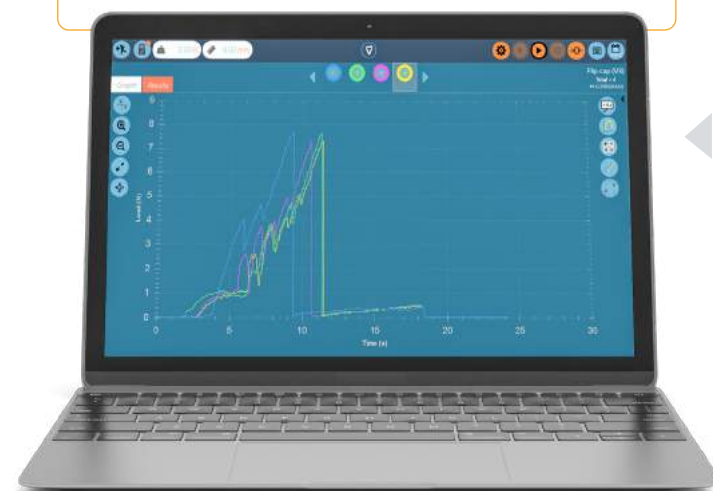
VectorPro® Lite software

Data can be streamed from the VFG and AFG via the MultiTest-dV to VectorPro Lite - Mecmesin's data-acquisition software for collecting and plotting the values of load, displacement and time.

It is ideal for applications where the true physical characteristics of the specimen cannot be detected by peak-load only and require a graphical presentation to highlight specific events during the test.

Configuration A
Touchscreen Force Gauge (VFG) with MultiTest-dV

Configuration B
Touchscreen Force Gauge (VFG) with VectorPro® Lite software



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Digital Force Gauges

Measure the tensile and compressive strength of components and assemblies with the Mecmesin range of digital force gauges. The VFG is a versatile touchscreen instrument built for tough environments that delivers accuracy and reliability. The Advanced Force Gauge (AFG) is operated by a membrane keypad. Both models can be used hand-held or fixed to a motorised test stand to allow testing under controlled speed conditions.



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Top load



Push in



Tensile strength



Pull off



Peel



▲ Testing compressive resistance of cosmetic container



▲ Testing glide force of syringe plunger

MultiTest-dV

Option 2 | Enhanced Load Sensor

By selecting an Enhanced Load Sensor (ELS) coupled with VectorPro® MT software and optional extensometer, the MultiTest-dV range is transformed into a basic Materials Tester. The ELS is available in 10 load capacities from 2.5 N to 2.5 kN. Featuring exceptional accuracy of $\pm 0.5\%$ of displayed reading it gives an extra level of precision for the more demanding materials testing applications.

VectorPro® MT software

The full power of VectorPro software comes to the fore in the MT (Materials Testing) version. Its additional ability to connect extensometers for elongation measurement directly on the specimen allows true measurement of strain.

It is the ideal choice for quality assurance checks in the QC lab or, for more in-depth analysis of material properties, in the R&D laboratory.



Powered by Vector



ELS (Enhanced Load Sensors)

A precision loadcell which connects directly to the MultiTest-dV stand and communicates with VectorPro MT software to allow sophisticated test routines for materials testing applications. Fully interchangeable - simply select the appropriate loadcell capacity to use your MultiTest-dV as an entry-level materials tester.



Configure your MultiTest-dV
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Elongation at break



Compression



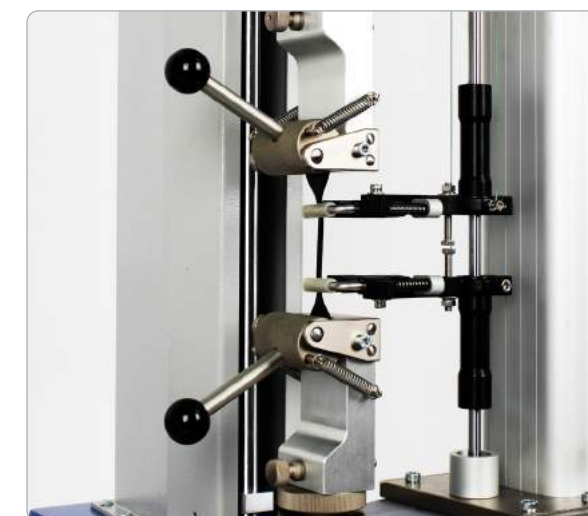
Bend / flexure



Stress



Lap shear



▲ Stress/strain measurement on rubber dumbbell specimen



▲ Tensile strength measurement of plastic tubing

VectorPro®

Software core functionality

VectorPro® is dedicated software for use with compatible Mecmesin force test systems. It builds and stores test routines, acquires data from force sensors and instrumentation, performs calculations and passes data and results to export.

By connecting the MultiTest-dV to a PC running in a VectorPro® environment you can take advantage of these features to create a more sophisticated test system. Your configuration is automatically detected and the software guides you through the whole process with only the relevant parameters presented.



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User access

VectorPro utilises separate user accounts for individuals, enabling personalised workspaces, in the language of choice. Set the access-level for each user as required by your business. This provides security for the organisation and simplicity for the user.



▲ User login to a clean, customised workspace



▲ Drag and drop – test calculations

Control

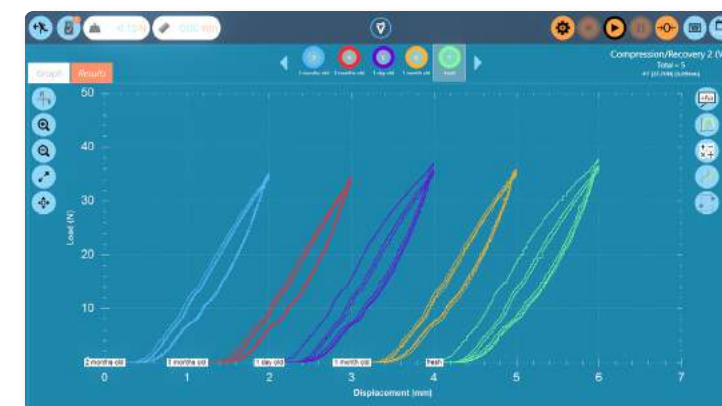
There is no need to go through multiple menus and dropdown selections. VectorPro has a drag and drop approach to test building, to enable rapid and intuitive creation of:

- Operation sequences to meet requirements of test standards
- Calculations with pass/fail criteria for assessing test data
- Reports for presenting test data in the way that suits you best

Analysis

View data in real-time with simultaneous plotting of graphs to identify key events. Receive instant results from pre-configured calculations.

- Zoom in
- Label specific data points
- Offset test curves



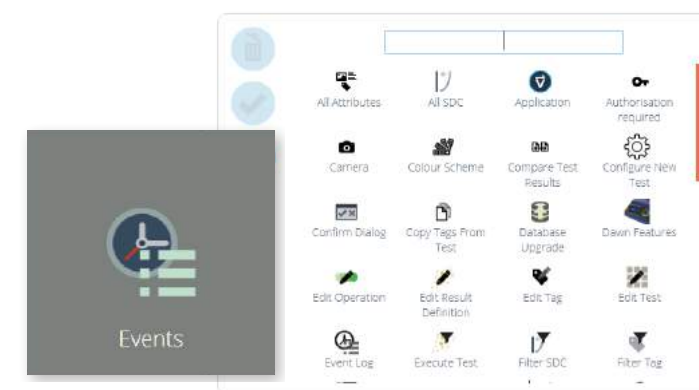
▲ Graphical output with tagged curves

Recall

A complete version history of all test profiles is retained. Test programmes can be edited, uploaded and performed either by all users or only by selected users from specific teams.

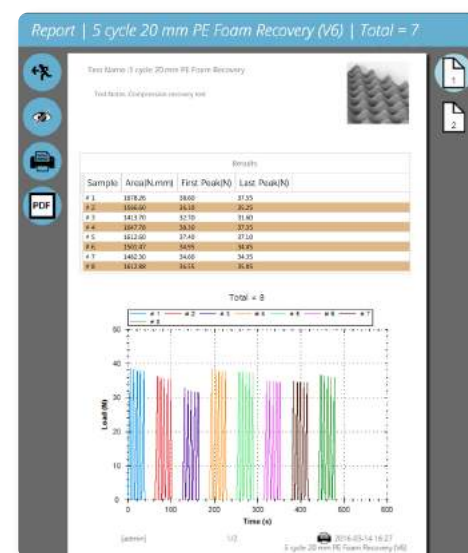


▲ User-specific test available for recall



Report generation

Export raw data or results to Excel and other data-collection packages. Create a report of results, graphs and notes to print immediately or save as PDF.



Audit trail

An event-log of all operations by users allows full traceability of activities relating to programme creation and tests performed. The powerful SQL database architecture provides extensive audit trail functionality – particularly useful to facilitate meeting FDA 21 CFR Part 11 requirements in the medical and pharmaceutical industry.



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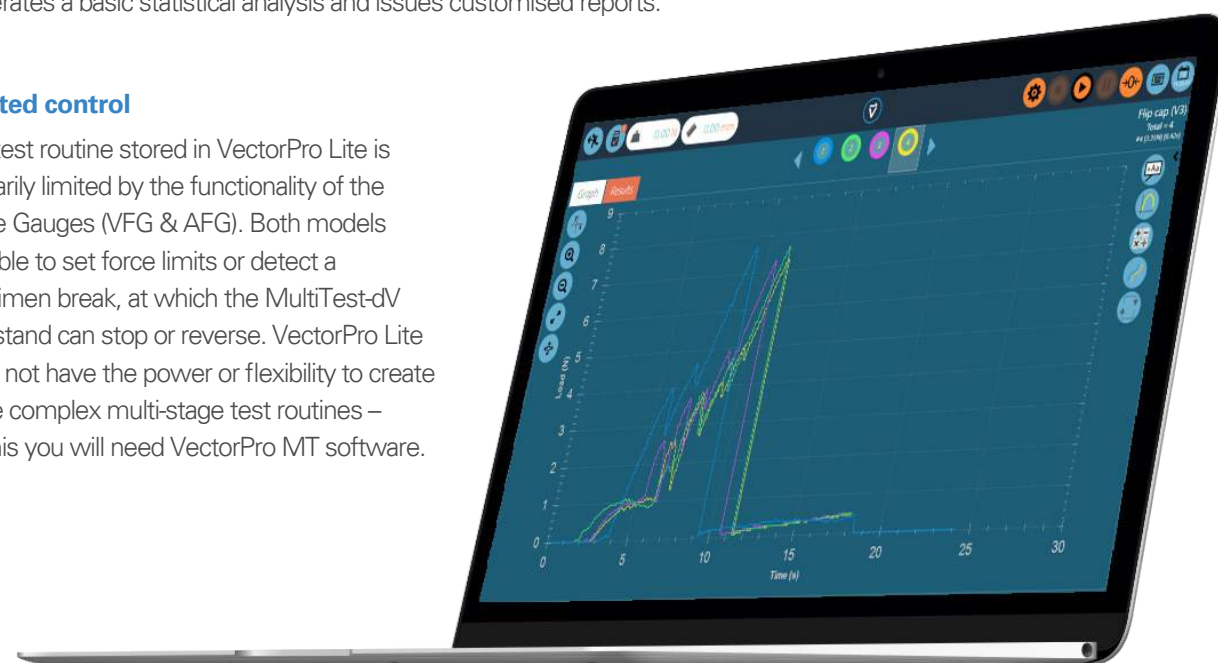
VectorPro® Lite

Specific functionality

When the MultiTest-dV stand is fitted with a digital force gauge (VFG or AFG) it captures load, displacement and time data for streaming to a PC running VectorPro Lite software. Data is plotted live in a graph making it ideal for applications where you need to know more than just the peak load shown on the force gauge display. From the collected data VectorPro Lite provides test results from pre-defined calculations, generates a basic statistical analysis and issues customised reports.

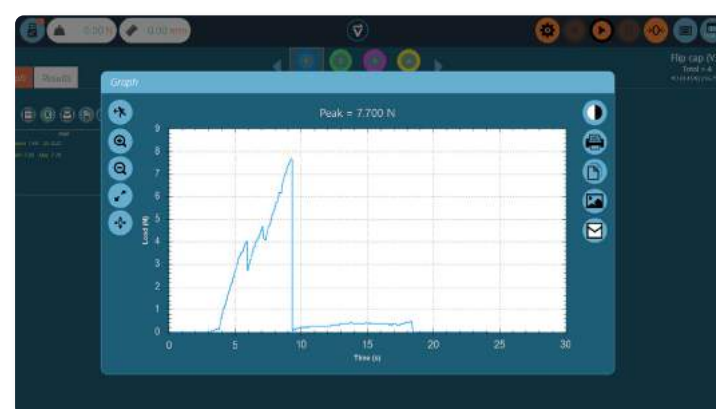
Limited control

The test routine stored in VectorPro Lite is primarily limited by the functionality of the Force Gauges (VFG & AFG). Both models are able to set force limits or detect a specimen break, at which the MultiTest-dV test stand can stop or reverse. VectorPro Lite does not have the power or flexibility to create more complex multi-stage test routines – for this you will need VectorPro MT software.



Key Features

- Real-time graph plotting
- Immediate display of results
- Full data export
- Customised report generation
- Drag and drop interface
- Personalised workspace
- Secure user accounts



▲ Real-time graph plotting of tests



Powered by Vector

VectorPro® MT

Specific functionality

When the MultiTest-dV stand is fitted with an ELS loadcell it can be combined with VectorPro MT software to unlock a wide range of additional functionality. It adds a comprehensive array of materials testing calculations and sophisticated programmed control to the data acquisition and reporting features found in VectorPro Lite. This makes VectorPro MT software ideal for applications requiring extensive load and positional control of the test stand plus the analysis capability only delivered by materials testing calculations. Also compatible for use with extensometers and deflectometers.



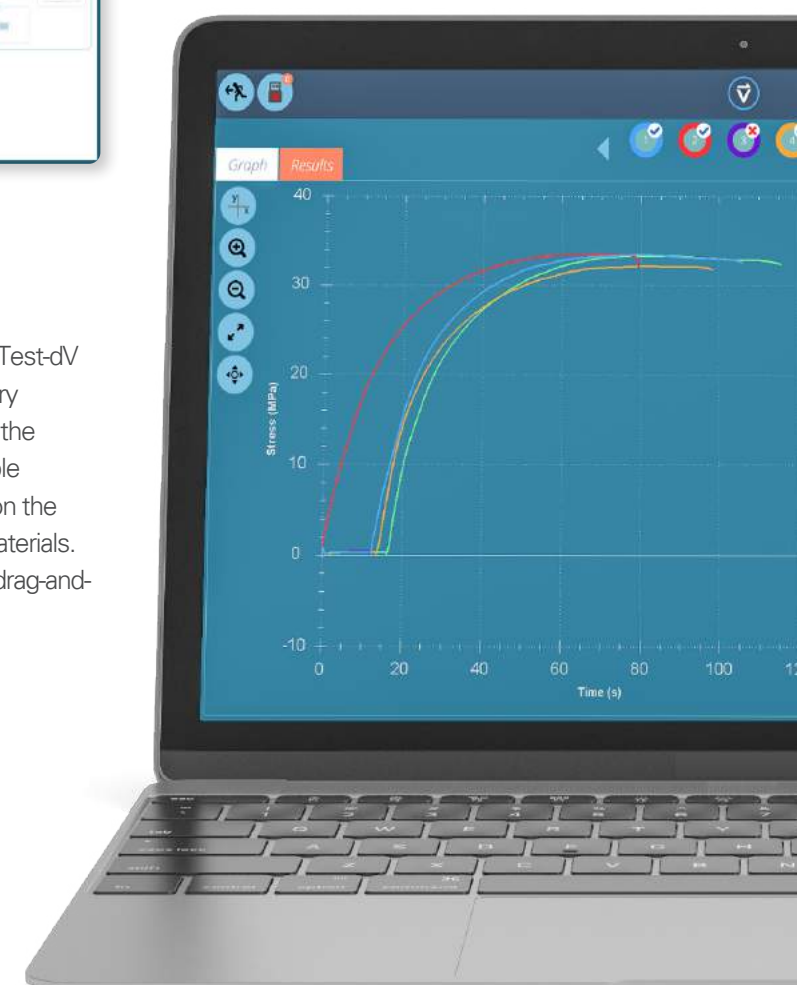
▲ Select the appropriate form of your specimen and the extensometer setting

Multi-stage control

Vector Pro MT continuously acquires data from the MultiTest-dV stand and ELS loadcell to send control commands at every stage of the test. This allows total flexibility when testing the strength of products and components. It is also compatible with extensometers for measuring deformation directly on the specimen to enable stress-strain testing of a variety of materials. Multi-stage test routines are easily constructed by using drag-and-drop icons in a simple step-by-step approach.



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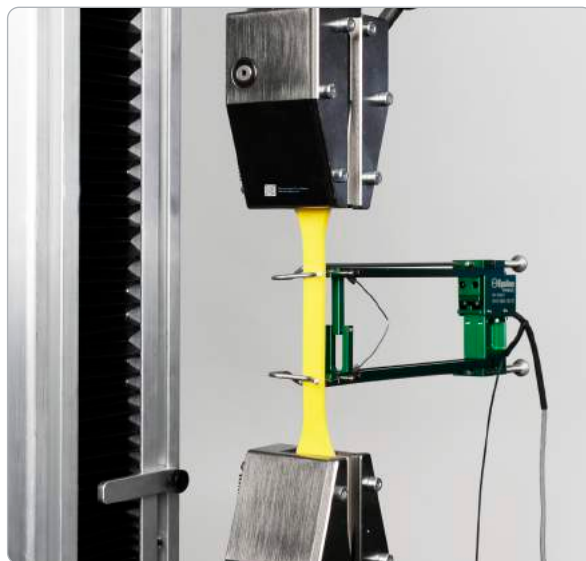
Accessories

Extensometers

The MultiTest-dV stand uses as standard an internal displacement encoder to measure crosshead movement. To measure tensile strain more accurately an extensometer can be connected directly to the test specimen to enable the precise calculation of material properties.

Short-travel clip-on extensometers are available for stiff materials like metals, reinforced composites and rigid plastics.

Long-travel clip-on extensometers are best suited for highly extensible materials such as elastomers, semi-rigid plastics and films.



▲ Short-travel axial extensometer



▲ Long-travel axial extensometers

Deflectometers

For the precise measurement of compressive deformation, particularly in 3- and 4-point bend tests, a contact deflectometer is widely used. A magnetic base is supplied to aid mounting of the deflectometer on the MultiTest-dV stand.



Grips and fixtures

An extensive range of tensile grips and compression jigs are available for use with all models of the MultiTest-dV test stand.

For ease-of-use grips can be connected to the test stand and force gauge / loadcell via threaded or quick-change adaptors.



Discover more accessories
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The MultiTest-dV range

The MultiTest-dV range comprises three superior motorised force testers representing outstanding value for money. Each employs a single ballscrew for precision linear motion, an internal displacement encoder plus upper and lower limit switches.

They can be mounted with a VFG or AFG force gauge as an ideal solution for routine Quality Control tests. Alternatively they can be used with an ELS load cell and VectorPro MT software to become a more powerful yet affordable Materials Tester. They offer an ideal solution for routine Quality Control tests with the possibility to upgrade to become a more powerful yet affordable Materials Tester.



Specifications

MultiTest-dV		0.5	1	2.5
Rated capacities	kN	0.5	1	2.5
	kgf	50	100	250
	lbf	110	220	550
Displacement				
Crosshead travel*		1186 mm (46.7")	986 mm (38.8")	507 mm (20")
Maximum headroom*		1205 mm (47.4")	1005 mm (39.6")	526 mm (20.7")
Displacement resolution	mm	0.001	0.001	0.001
	in	0.000025	0.000025	0.000025
Positional accuracy		±0.130/300 mm (±0.005/11.81")	±0.130/300 mm (±0.005/11.81")	±0.130/300 mm (±0.005/11.81")
Speed				
Speed range†	mm/min	0.1 to 1200	0.1 to 1200	0.1 to 1200 ††
	in/min	0.004 to 47.2	0.004 to 47.2	0.004 to 47.2
Speed accuracy		±2% of indicated speed or ±20 µ/min, whichever is greater****		
Speed resolution	mm/min	0.1	0.1	0.1
	in/min	0.004	0.004	0.004
Maximum no. of cycles per test		9999		
Dimensions				
Height		1616 mm (64")	1416 mm (56")	941 mm (37")
Width		290 mm (11.4")	290 mm (11.4")	290 mm (11.4")
Depth		414 mm (16.3")	414 mm (16.3")	414 mm (16.3")
Vertical daylight		1267 mm (49.9")	1067 mm (42")	588 mm (23.1")
Throat depth**		70.5 mm (2.8")	70.5 mm (2.8")	70.5 mm (2.8")
Weight		31 kg (68 lbs)	27.5 kg (61 lbs)	24 kg (53 lbs)
Electrical supply				
Voltage		230 V AC 50 Hz / 110 V AC 60 Hz	230 V AC 50 Hz / 110 V AC 60 Hz	230 V AC 50 Hz / 110 V AC 60 Hz
Maximum power requirements		120 W	200 W	250 W
Touchscreen Force Gauge (VFG) and Advanced Force Gauge (AFG), 10 models from 2.5 N to 2500 N				
Accuracy***		±0.1% of full-scale		
Enhanced Load Sensors (ELS), 13 models from 2.5 N to 2500 N				
Accuracy***		±0.5% of displayed reading		

* Measured with force gauge and short extension rod fitted. ** Measured on centreline of gauge/sensor.

*** As the device is used in varying environmental conditions, the uncertainty of measurement could be as much as 0.1% of full scale.

**** See help.mecmesin.com for additional info

† Where mains voltage is reliable. †† 2.5 kN: recommended maximum speed = 750 mm/min (30 in/min) above 2 kN.

Common Specifications	
Operating temperature	10°C - 35°C (50°F - 95°F)
Digital display of Load/Position/Speed	Yes
Output of test results to PC/Printer	Yes, via USB

Interface Cables	
Part no.	Description
351-092	Interface cable – 2 m long. AFG Force Gauge (15-way socket), to MultiTest-dV stands (RJ11) made between 2015-2020
351-103	Interface cable – 2 m long. AFG Force Gauge (15-way socket), to MultiTest-dV stands (15-way plug) made from May 2020
351-110	Interface cable – 2 m long. VFG Force Gauge (10-way Hirose socket), to MultiTest-dV stands (RJ11) made between 2015-2020
351-112	Interface cable – 2 m long. VFG Force Gauge (10-way Hirose socket), to MultiTest-dV stands (15-way plug) made from May 2020
352-275-V01	Interface cable – 1.2 m long. ELS (Hirose 6-way plug) to MultiTest 0.5-dV and MultiTest 1-dV stand (Hirose 12-way plug)
352-275	Interface cable – 0.6m long. ELS (Hirose 6-way plug) to MultiTest 2.5-dV stand (Hirose 12-way plug)
351-093	Interface cable – 2 m long. MultiTest-dV test stands (USB B) to PC (USB A)

Software and communications	
PC requirements (recommended)	Intel Core i5 processor, 8 GB RAM, one USB 2.0 or 3.0 port, SSD hard drive with 10 GB free space, screen resolution 1920x1080 full HD
PC requirements (minimum)	Intel/AMD dual core processor with 2 GHz or faster clock speed, 4 GB RAM, one USB 2.0 or 3.0 port, hard drive with 10 GB free space, screen resolution 1080x720



Configure your MultiTest-dV online:
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Mecmesin reserves the right to alter equipment
specifications without prior notice. E&OE.

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