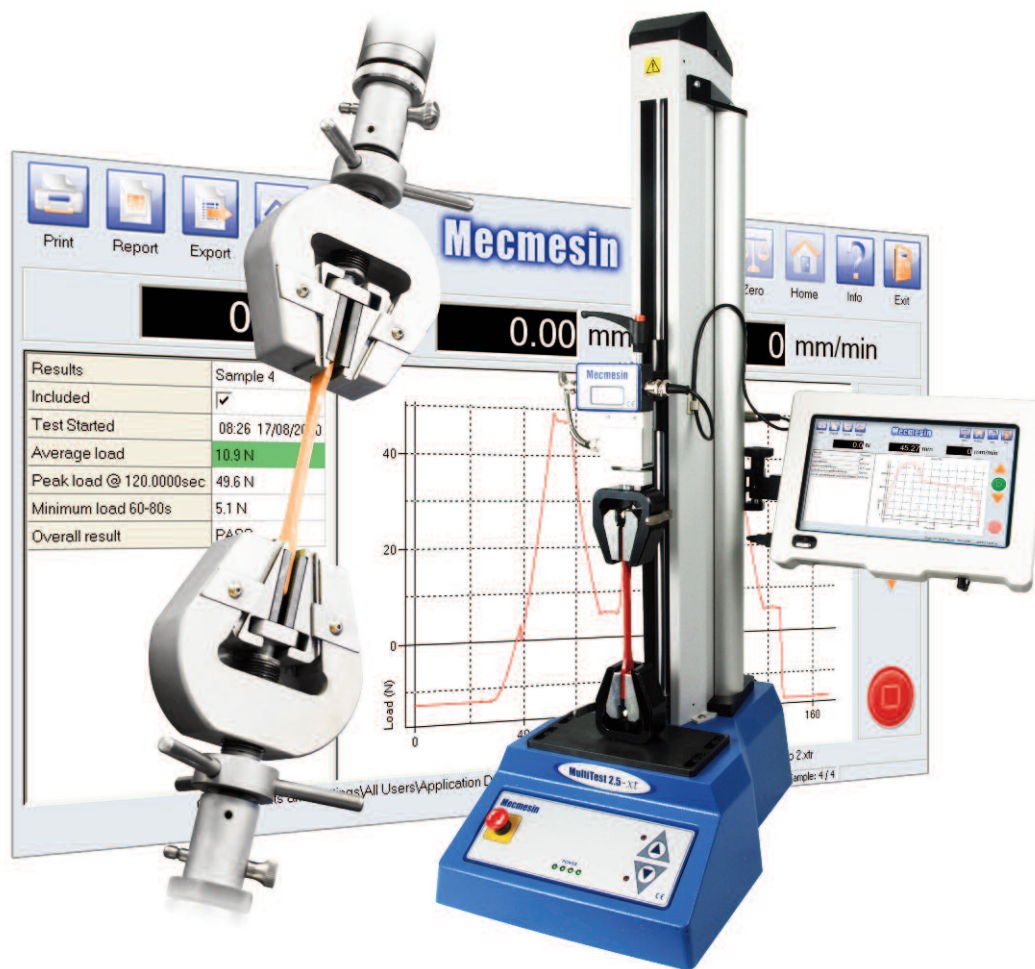# Mecmesin

testing to perfection

MultiTest-xt

Tension & Compression Testing System
Easy-to-use Touch Screen Console

MultiTest-*xt* Overview

Quality managers needing an easy-to-use force testing system for the production area should look no further than Mecmesin's range of MultiTest-*xt* test frames.

With the MultiTest-*xt*, tension & compression tests are performed at the push of a button, making it ideal for routine quality control of a wide array of products, materials & components.

It is specifically designed for environments where throughput, productivity and minimal training are vital and where the use of a computer is not always suitable.
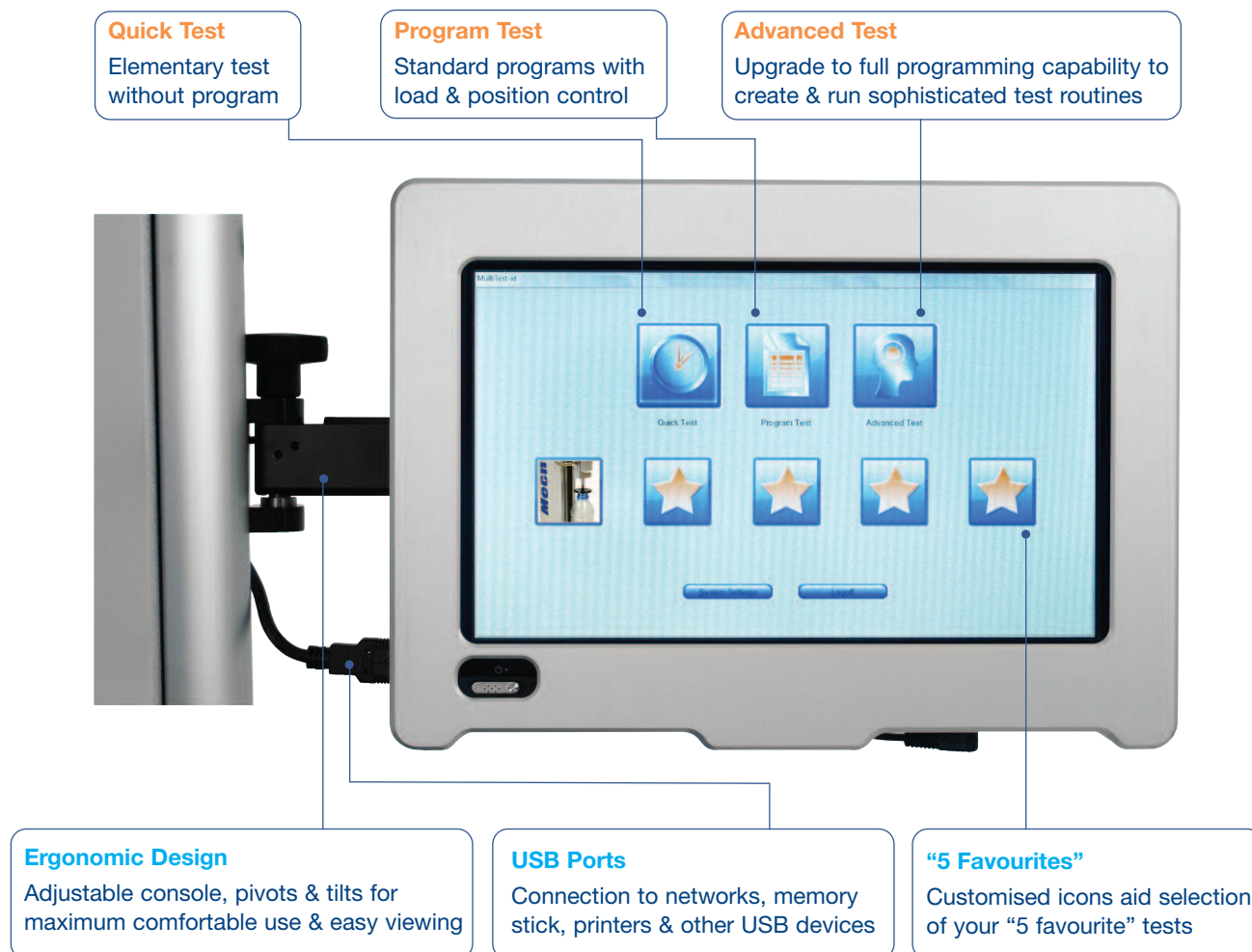
Key Features

Operators

- **Password protected log-in** - identifies operator for full traceability
- **Fast access to 5 favourite tests** - customised icons ensure instant test selection
- **Unlimited library storage of test methods** - minimises set-up time
- **Easy-to-use with minimal training** - "Simplicity itself" one button launches the test
- **Large, easy-to-read touch screen display** - clearly shows Test Results and Graph
- **Colour-coded indication of "Pass" or "Fail"** - immediately alerts the operator
- **Test Report** - print a comprehensive report of results tailored to your needs

Administrators

- **Easy programming** - intuitive menus guide you through creation of test routines
- **Customised reports** - create your own tailored report
- **Choice of 3 program modes:**

    - **"Quick Test"** for basic force testing
    - **"Program Test"** for standard test routines
    - **"Advanced Test"** for sophisticated test routines

- **Rugged construction** - ideal for Production and QC Lab Environments
- **Simple touch screen interface** - no separate computer required
- **1000Hz data sampling rate** - ensures accurate capture of peak loads
- **USB output** - save test routines and results to a memory stick or network
- **Flexible** - "plug & play" for easy interchange of loadcells
- **Wide range of test stands** - capacities from 500N to 50kN

Easy-to-use Touch Screen Console

Quick Test

Elementary test without program

Program Test

Standard programs with load & position control

Advanced Test

Upgrade to full programming capability to create & run sophisticated test routines

Ergonomic Design

Adjustable console, pivots & tilts for maximum comfortable use & easy viewing

USB Ports

Connection to networks, memory stick, printers & other USB devices

"5 Favourites"

Customised icons aid selection of your "5 favourite" tests

Secure Access

The MultiTest-*xt* features multiple levels of password-protected access. "Master" users have full access to all the test set-up and reporting functions. Pre-defined "read-only" tests can be used by "operators" preventing inadvertent changes to the test parameters. Operators can be granted additional access rights (e.g. sample deletion) according to their privileges.

As an extra level of security each test sample and set of results can be tagged with the name of the operator and the date and time of the test. This traceability is designed to assist manufacturers wishing to comply with regulatory requirements for the storage of test results.

easy-to-use
touch screen operation
robust, stand-alone system

Flexible - Choice of 3 Program Modes

Quick Test

- Save time no need to create a full program
- Run a basic tensile or compression test on one screen
- Ideal for occasional one-off testing

Couldn't be simpler...

1. Select Quick Test

Test Type
Select test type

Speed & Load
Define parameters such as speed, load & extension

Calculations
Choose which pre-defined calculations are required by simply ticking a check box

2.

Quick Test

Test

- ◉ Tension
- ○ Compression

Speed: `50` mm/min

- ◉ Run to load
- ○ Run to extension

Load: `20.00` N

- ☑ Break detection

Break %: `75`

- ☑ Pre-test Tare Load
- ☑ Pre-test Tare Extension

Calculations

- ☑ Load @ break
- ☑ Extension @ break
- ☑ Extension @ target load
- ☐ Load @ target extension
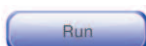- ☑ Load @ maximum load
- ☑ Extension @ maximum load

Graph Settings

- ◉ Load/Displacement
- ○ Load/Time
- ○ Displacement/Time
- ○ Others

Y-Axis: [▼]   X-Axis: [▼]

[Run]   [Cancel]

3. Press [Run]

Program Test

- Ideal for hosting established tests
- Create multi-stage test routines to run to load, displacement or break
- Frequently used tests can be assigned to 5 "Favourite" buttons
- Save unlimited number of tests in a library for easy storage and access

Tests Library

Choose from a library of pre-loaded templates to get you started

Or...

Established Tests Library

Choose from an unlimited library of your own established tests

Test Select

Program Test

○ Test Library   ○ Results Files

General Compression
General Cyclic
General Tensile

Pt JLM1 Tension
Pt JLM2 Tension
Pt LCZ1 Friction
Pt LCZ1 Peel
Pt LCZ2 Friction
Pt LCZ2 Peel
Pt NMG1 Compression
Pt NMG2 Compression
Pt ZYZ1 Top-Load
Pt ZYZ2 Top-Load
Pt ZYZ3 Top-Load

Run   View   Edit   Save as Favourite   Cancel

Test Set-up

Tabs

Tab format allows intuitive creation of test routines

Calculations

Use the drop-down box to select & add as many calculations as you need for your test

Program Test

Test   Data Handling   Calculations   Test Settings   Report Set-up   Export Set-up

Available Calculations

PEAK

AREA
AVERAGE
BREAK
FREE HEIGHT
PEAK
PRINT-WHEN
SLOPE
TIME-STAMP
TROUGH
VALUE

Add   Remove

PEAK Parameters

Result Title: Maximum Load

Y: Load   X: Displacement

Start: Initial Value   mm   Final Value   mm

✔ Verify Result

Minimum: 10   N   Maximum: 40   N

OK   Cancel

Parameters

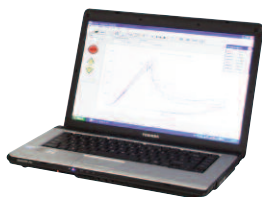Define the parameters for the calculation & set your Pass/Fail criteria

Flexible - Choice of 3 Program Modes

Advanced Test

If your application requires more sophisticated control of the test machine the MultiTest-*xt* can be upgraded by purchasing the optional Advanced Program Builder Software to enable the Advanced Test functionality.

transfer

or

Use a separate PC to create multi-stage programs using the Advanced Program Builder Software

Load and run a program on the MultiTest-*xt* via the Advanced Test button

With this option you have dedicated access to Emperor™, Mecmesin's powerful premium force testing software. Emperor™ has an open-architecture structure allowing access to a comprehensive library of calculations, which can be tailored to suit your requirements plus a suite of machine-control commands allowing you to create more complex multi-stage programs.

Once created these programs can then be uploaded via a network or memory stick onto the MultiTest-*xt* and run by simply pressing the Advanced Test button and choosing the program from the list of available tests.

Live Test Screen

When a test routine has been selected and the test performed, the operator can view the results in 2 selectable formats:
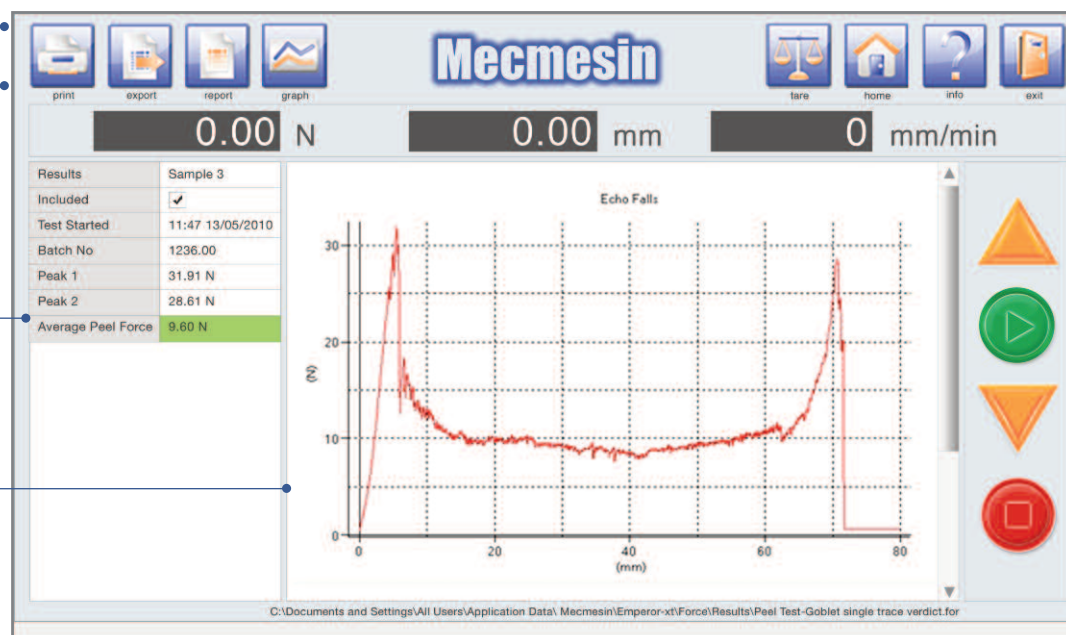
Either...

Results & Graph

print	export	report	graph

Mecmesin

tare | home | info | exit

0.00 N   0.00 mm   0 mm/min

Icons
"Touch icons" for quick navigation to printing, reporting & exporting functions

Results for the last sample tested are displayed

Test is displayed graphically as a "live event"

Results	Sample 3
Included	✓
Test Started	11:47 13/05/2010
Batch No	1236.00
Peak 1	31.91 N
Peak 2	28.61 N
Average Peel Force	9.60 N

Echo Falls

C:\Documents and Settings\All Users\Application Data\ Mecmesin\Emperor-xt\Force\Results\Peel Test-Goblet single trace verdict.for
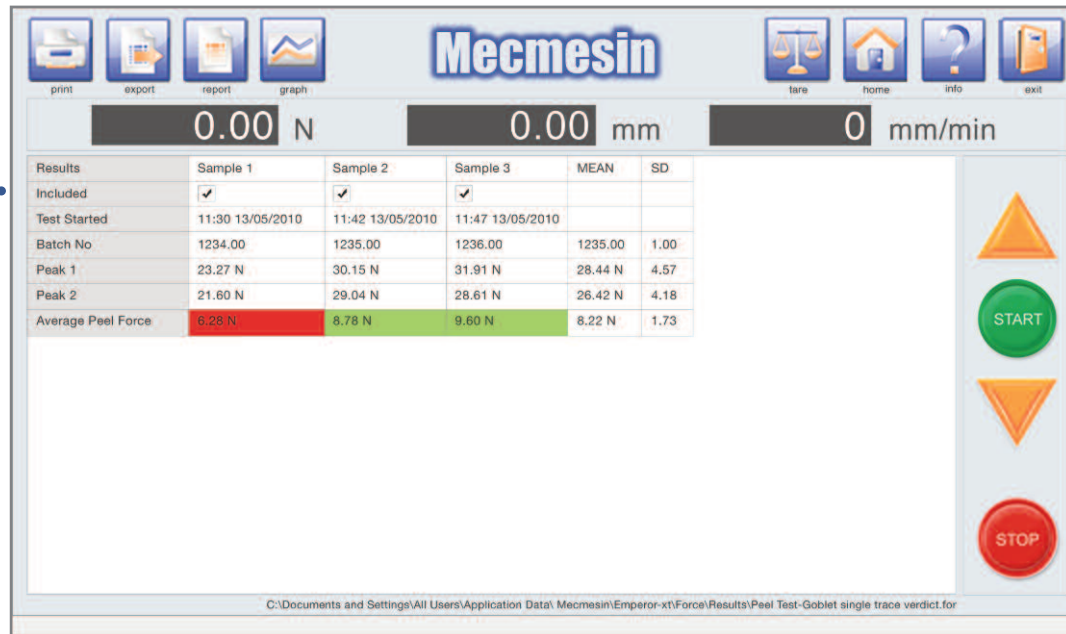
Live Test Screen

Results Only

- Easy-to-read, comprehensive display of test results
- Results for each sample are clearly tabulated
- Colour-coded "Pass" or "Fail" notifications for quick & easy interpretation of results
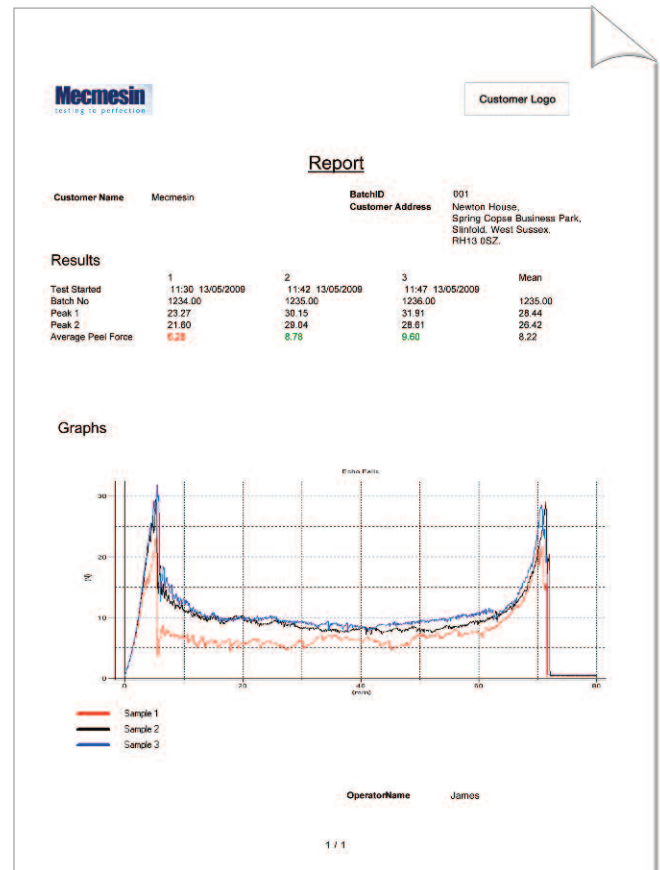

Results
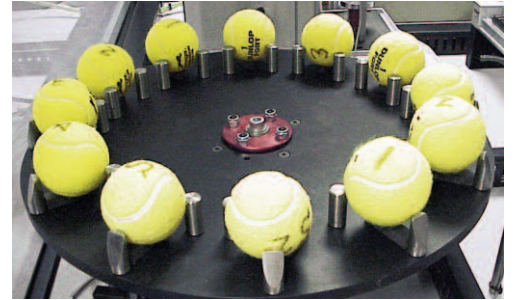Results for all samples tested are displayed

Reports & Exporting

- Select standard reports or customise your own using built-in templates

- Save test set-up and results via memory stick or network

- Automatic export of data to Microsoft Excel® and SPC packages

- Collect data at 1000 times per second for detailed recording of results from every sample and accurate capture of peak loads
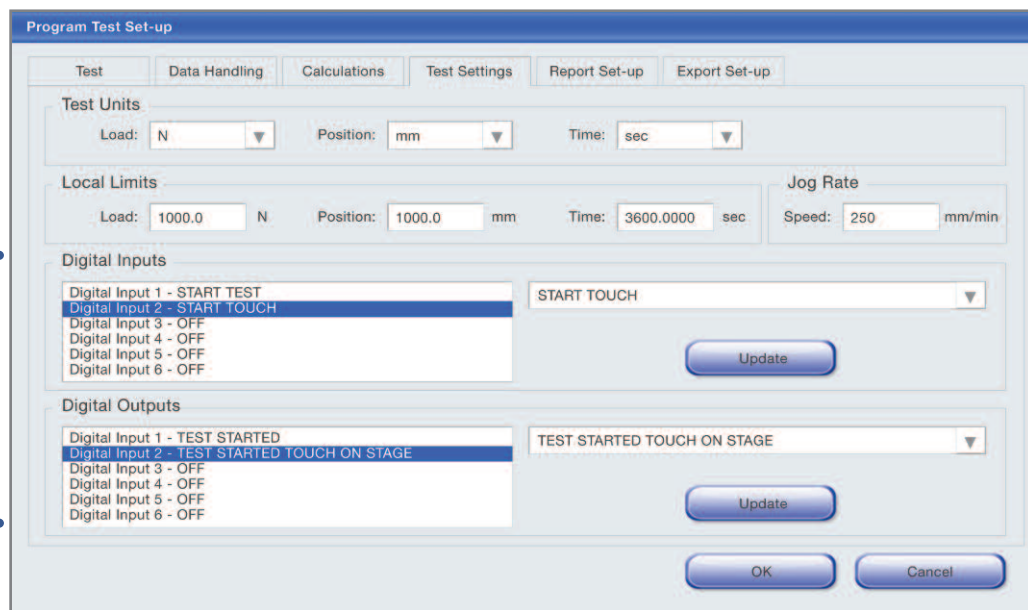
Expandable to your Changing Needs

PLC/Digital Control Interface

The MultiTest-*xt* is fitted with a Digital Control Interface to facilitate communication with external devices such as a PLC (Programmable Logic Controller) or simply a remote footswitch to start the test. The use of a PLC allows you to automate your test routine through loading multiple specimens onto a feeder-carousel thereby increasing productivity and reducing the time spent by an operator on testing.

Tennis ball carousel used with a Mecmesin tester

Configure the MultiTest-*xt* to communicate with a PLC

Wide Range of Capacities from 500N to 50kN

The MultiTest-*xt* is available in a range of capacities to meet your exact testing requirement. Select from single column machines through to advanced twin-column test frames, which have been specifically designed to test large or high-load samples and products.

MultiTest 2.5-*xt*

MultiTest 5-*xt*

MultiTest 10-*xt*
MultiTest 25-*xt*
MultiTest 50-*xt*

"Plug and Play" Loadcells

All Mecmesin loadcells are quickly and easily interchangeable with instant recognition of capacity and calibration data - just "plug-and-play".

A complete range of fixing adaptors are available to connect any loadcell to Mecmesin's grips and fixtures.

A MultiTest-*xt* can be easily and economically enhanced by using a different loadcell. You can select an Intelligent Loadcell (ILC) to cover the working range best suited to your tests.

Grips & Fixtures

Grips and fixtures are key elements of our force testing systems, designed for holding a vast range of materials and products such as adhesives, composites, glass, plastics, rubber, textiles and wood. Dedicated grips are specially designed to suit components such as crimped terminals, keypads, PCBs, springs and switches.

If you have a specimen, which cannot be held with a standard grip, Mecmesin engineers have many years experience in designing and manufacturing custom-built fixtures and can provide you with a bespoke solution.

Safety

Mecmesin's MultiTest-*xt* has intrinsic overload protection provided by the software during normal operation.

Furthermore, each MultiTest-*xt* is fitted with mechanical limit switches that prevent damage to accessories and loadcells plus an emergency stop button on the front panel to halt the movement of the crosshead at any time.

Machine guards are available on request if your application requires additional protection for the operator.

Mecmesin also offer column gaiters, which shield the test frame against ingress from small components, dust etc.

Twin-column test frame
fitted with safety guard

Specifications

MultiTest-*xt*		0.5	1	2.5	5	10	25	50
TEST FRAME								
Rated capacity	N	500	1000	2500	5000	10000	25000	50000
	kgf	50	100	250	500	1000	2500	5000
	lbf	110	220	550	1100	2200	5500	11000
Number of ballscrews		1	1	1	1	2	2	2
Speed range	mm/min	1 - 1000	1 - 1000	1 - 1000*	1 - 500	1 - 1000	1 - 1000**	1 - 400***
	in/min	0.04 - 40	0.04 - 40	0.04 - 40	0.04 - 20	0.04 - 40	0.04 - 40	0.04 - 15
Crosshead speed accuracy		±0.1% of indicated speed						
Distance between columns		-	-	-	-	400mm (15.7")	400mm (15.7")	420mm (16.5")
Throat depth****		67mm (2.6")	67mm (2.6")	67mm (2.6")	95mm (3.7")	-	-	-
Vertical daylight*****		1359mm (53.5")	1159mm (45.6")	590mm (23.2")	710mm (28.0")	1180mm (46.5")	1140mm (44.9")	1330mm (52.4")
Height		1710mm (67.3")	1510mm (59.4")	941mm (37")	1082mm (42.6")	1500mm (59.1")	1500mm (59.1")	1931mm (76")
Width (test frame only)		290mm (11.4")	290mm (11.4")	290mm (11.4")	328mm (12.9")	826mm (32.5")	826mm (32.5")	864mm (34")
Max width (with console fitted)		546mm (21.5")	546mm (21.5")	546mm (21.5")	615mm (24.2")	1061mm (41.8")	1061mm (41.8")	1099mm (43.3")
Depth		414mm (16.3")	414mm (16.3")	414mm (16.3")	526mm (20.7")	512mm (20.2")	542mm (21.3")	572mm (22.5")
Weight		43kg (95lbs)	41kg (90lbs)	27kg (60lbs)	43kg (95lbs)	115kg (254lbs)	145kg (320lbs)	290kg (639lbs)
Maximum power requirement		120 watts	200 watts	250 watts	150 watts	400 watts	450 watts	450 watts
Voltage		230V AC 50Hz or 110V AC 60Hz						
LOAD MEASUREMENT								
Available loadcell ranges	N	2 to 50000 (14 models)						
	kgf	0.2 to 5000 (14 models)						
	lbf	0.45 to 11000 (14 models)						
Loadcell measurement accuracy		±0.1% of full scale for loadcells from 2 to 2500N						
		±0.2% of full scale for loadcells from 5000 to 50000N						
Loadcell measurement resolution		1:6500						
DISPLACEMENT								
Crosshead travel*****		1200mm (47.3")	1000mm (39.4")	500mm (19.7")	590mm (23.2")	960mm (37.8")	950mm (37.4")	1100mm (43.3")
Position control resolution		±0.01mm (±0.0004")						

* 2.5kN - recommended maximum speed = 750mm/min (30in/min) above 2000N
** 25kN - recommended maximum speed = 500mm/min (20in/min) above 10000N
*** 50kN - recommended maximum speed = 250mm/min (10in/min) above 25kN
**** measured on centre line of loadcell
***** measured without loadcell or grips

Note: See Technical Datasheet 431-390 for dimension drawings

Common Specifications

Operating temperature	10C - 35C (50F - 95F)
Humidity range	Normal industry and laboratory conditions
Sampling rate (Hz)	Selectable from 1000, 500, 100, 50, 10
Compensation for system movement	Yes
Loadholding	Yes
Digital display of Load/Position/Speed	Yes
Output of test results to PC/Printer/Datalogger	Yes, via USB/Network Ports or Wireless Network RS232 via USB/Network converter in ASCII Format
Communication with PLC/Digital Control Interface	Yes, via programmable digital ports 6 Inputs + 6 Outputs

Options

Column gaiter
Safety guard

available upon request

Support and Services

• Comprehensive international network of distributors

• 24 month warranty   • Application support

• Grips & accessories   • On-site installation & training

• Calibration & service centre   • Website support

Mecmesin reserves the right to alter equipment specifications without prior notice.
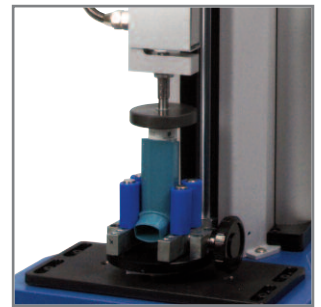E&OE

Applications

The flexibility and ease-of-use of the MultiTest-*xt* make it ideal for applications ranging from testing common springs right through to sophisticated medical devices.

It is ideal for routine testing where a number of different tests are made by different operators. For example, a Quality Manager might set up a simple "Accept" or "Reject" test for use by Goods-in staff. This would be performed with merely a few touches on the console screen and require minimal operator training.
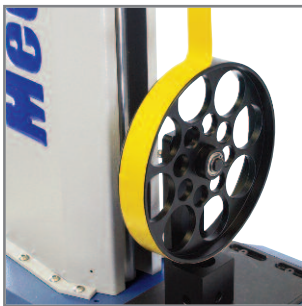
Alternatively, with the Advanced Program Builder, sophisticated multi-stage programs can be created and imported to run on the MultiTest-*xt* - but the operator still only needs to push a few buttons to perform the test.
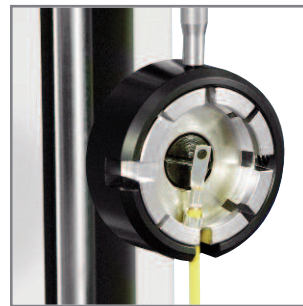
Medical device test

Top-load test

Peel test

Tennis ball compression test

Crimp terminal tensile test

Keypad compression test

Industry sectors

aerospace

automotive

beverage

construction
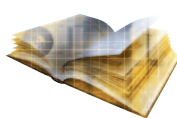
cosmetics

electrical & electronics
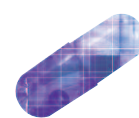
engineering

food & drink
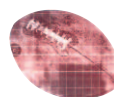
medical devices

paper & board
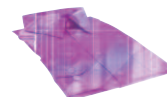
packaging

pharmaceuticals

plastics & rubber

safety

sports

textiles

Mecmesin
testing to perfection

Over 30 Years Experience in Force & Torque Technology

Formed in 1977, Mecmesin Limited is today widely regarded as a leader in force and torque technology for quality control testing in design and production. The Mecmesin brand stands for excellent levels of performance and reliability, guaranteeing high quality results. Quality control managers, designers and engineers working on production lines and in research laboratories worldwide rely upon Mecmesin force & torque measurement systems for a range of quality control testing applications, which is almost limitless.

Visit us on the web at:
www.mecmesin.com

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MANAGEMENT
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