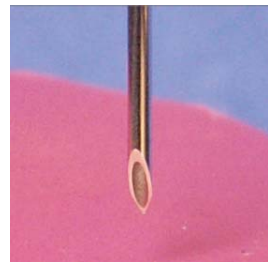# Mecmesin

testing to perfection

MultiTest-*i*

computer-controlled test frames

Tension and Compression
Test Solutions

MultiTest-*i* Range

The Mecmesin MultiTest-*i* range of test frames sets the standard in computer-controlled testing, operating through the power of Emperor™; easy-to-use yet powerful force testing and analysis software.

Spring testing

KEY FEATURES:

- Complete range from 2N to 25,000N
- High speed data collection - 2000 readings per second
- Auto-loadcell recognition/configuration
- Extremely quiet operation
- IP splashproof membrane control panel with emergency stop button
- Auxiliary 'event' input allows the software to recognise when switch contact is made or broken

Range of capacities

The MultiTest-*i* is available in a range of capacities to meet your exact testing requirement, from the entry-level single-column MultiTest 1-*i*, through to advanced twin-column test frames, which have been specifically designed to test large or high load samples and products.

powerful
flexible
easy-to-use

1kN capacity

2.5kN capacity

5kN capacity

MultiTest 1-*i*

MultiTest 2.5-*i*

MultiTest 5-*i*

Mecmesin

Flexibility

Intelligent loadcells mounted on the MultiTest-*i* test frame download test data synchronously at a rate of up to 2000 times a second, directly to a PC via the serial port. This ensures high accuracy of testing particularly where peak loads are being recorded.

Should your testing requirements change, a MultiTest-*i* can be easily and economically enhanced by using a different loadcell. All Mecmesin-*i* loadcells are quickly and easily interchangeable - just 'plug-and-play'.

Mecmesin also offer a wide range of standard grips and fixtures, to hold your specimen. Alternatively, a custom-built fixture can be designed for your specific application.

10kN *or* 25kN capacity

MultiTest 10-*i*
MultiTest 25-*i*

Intelligent loadcell

KEY FEATURES: Machine Control

Run to load, displacement, time or break detection •
Cyclic testing •
Repeat sections of a program •
Intelligent command functions provide limitless test flexibility •
Operator prompt / delay / resume test facility •
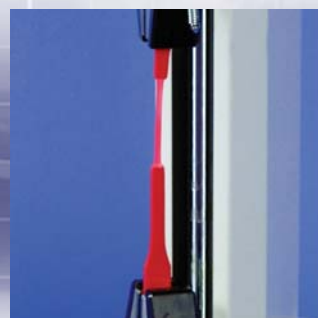Auto-return of crosshead at end of test •

intelligent command functions

KEY FEATURES: Data Acquisition

Extensive suite of calculations e.g. peak, average, minimum and area •
Real-time graphs with zoom and label function •
Comprehensive Pass / Fail analyses •
Variable arguments for programs and calculations •
Loadcell deflection compensation •
Automatic export to Excel and SPC packages •

If you have a tension or compression test, which demands any of these machine control or data acquisition features, one of the easy-to-use MultiTest-*i* test frames is the ideal cost-effective solution.

Tensile testing

Crush testing

Mecmesin

The Power of Emperor™

Emperor™ software has been specifically designed to work with the MultiTest-*i* range of test frames for ultimate test performance. It combines ease-of-use with powerful programming tools making it ideal for simple, routine analysis on the factory floor and sophisticated test routines in the laboratory.

Tests

- Tension
- Flexure
- Tear

- Compression
- Stiffness
- Friction

Applications

- Elastomers
- Medical devices
- Plastics
- Springs
- Textiles

- Adhesion
- Packaging
- Rubber
- Switches
- Fasteners
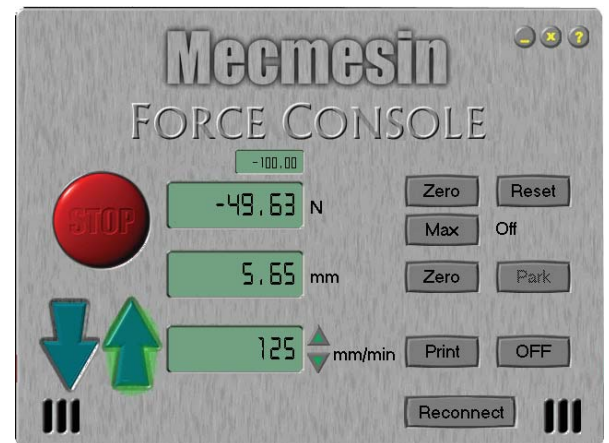
There are two powerful but distinct modules within Emperor™. The **Gauge Emulator Module** (shown above) is a user-friendly interface, resembling a traditional force gauge. Suitable for simple test stand control and reporting, the Gauge Emulator Module tests tension or compression at a fixed speed in one direction without the need to create a test program.

Using the **Programmed Testing Module**, the true power of Emperor™ software becomes evident. With Emperor™ software's comprehensive programming and calculation commands, it becomes a simple task to create customised test programs to evaluate the mechanical strength of components, products and materials.

Creating a program

The module has an intuitive interface, which makes the whole test process easy to manage:

- Setting-up test method
- Running the test
- Making test report
- Storing & exporting data

Test screen with operator prompt message

Toolbars simplify testing by helping operators navigate efficiently to key features.
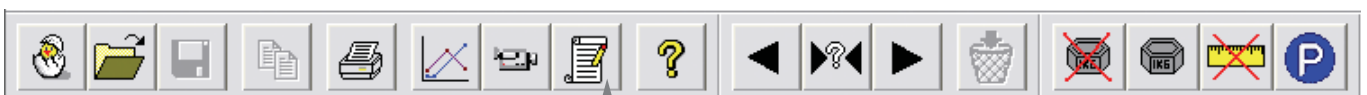
'Report' button

Mecmesin

Performing a test

Emperor™ is supplied with a suite of library test programs for many typical test procedures. Within each test procedure the critical parameters, which determine whether a sample passes or fails, can be automatically detected e.g. peak load, average load, load at a certain displacement.

Test procedures can be initiated by selecting an existing library program or by choosing *your* own particular program from the Test menu. The library programs can be easily customised and tailored to meet specific testing needs and then saved in the testing library and recalled as needed - very useful for multiple sampling testing.

Emperor™ allows development of test procedures that are best-suited to individual testing needs. An operator can be prompted at any stage of the program to perform a specific action, so that step-by-step test routines become easy for semi-skilled users.

Another useful function is tolerance alerting. By setting up tolerance bands the option exists for detecting any data that do not fall within specification. In this case a 'tolerance alert' warning will be flagged up on the results screen. There is also an additional facility for detecting when *any particular* result does not fall within predefined upper and lower limits.

Tolerance band facility

A 'video replay' facility is included. A toolbar allows the accumulation of test data to be re-displayed in real time. 'Fast-forward' and 'return-to-start' buttons are provided. A timeline slider can be dragged to a suitable point, thus allowing critical parts of a test to be replayed as many times as necessary.

'Video' replay screen

Mecmesin

Reporting dialog box
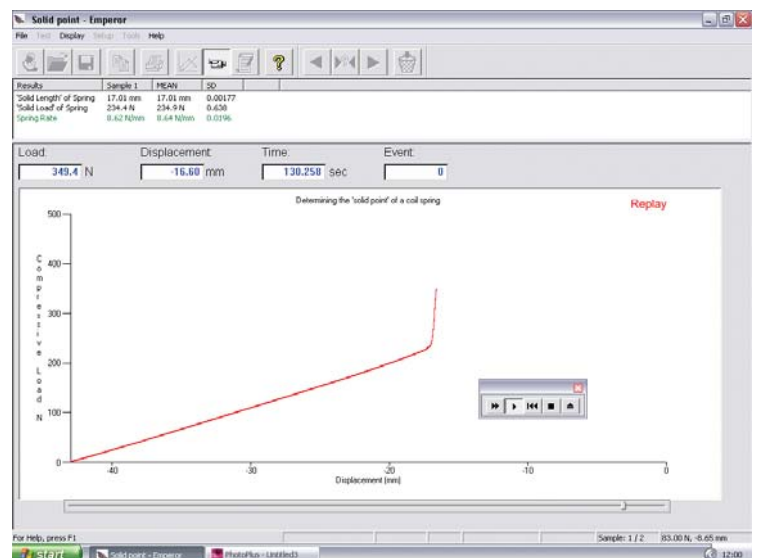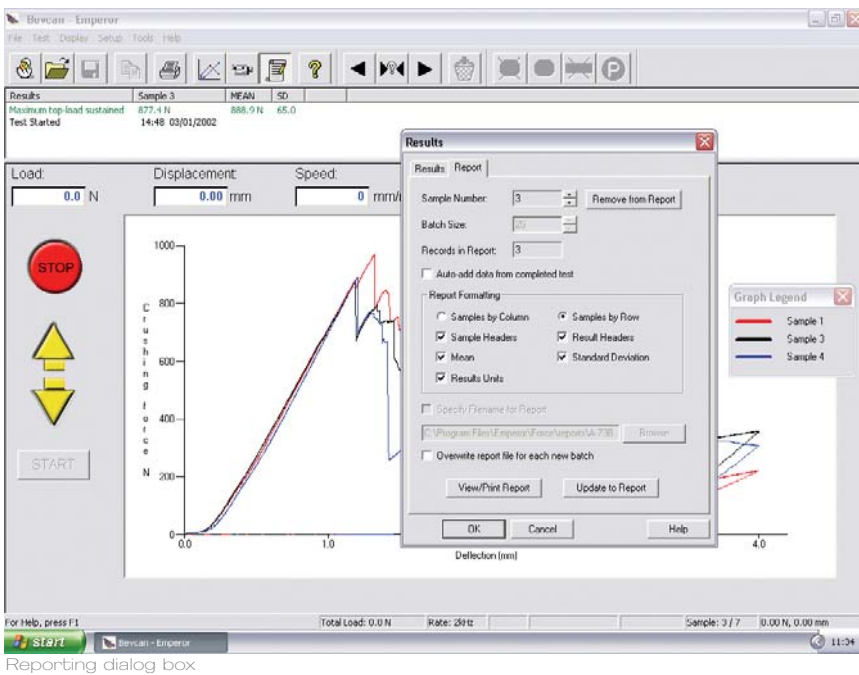
Data analysis

Emperors™ software capabilities are exceptional;

- reporting, archiving and exporting of data
- fast accurate display & analysis of tension/compression data
- option to display test results graphically
- graphical interrogation enables calculations to be reviewed and changed

Results can be easily manipulated, stored and exported to other software packages such as Microsoft® Excel for trend analysis and reporting, if required.

Emperor™ also benefits from a multi-level zooming facility, with timeline function allowing you to home-in on a portion of the curve which is of particular interest.

Signals from external devices can also be incorporated into Emperor™ via an 'event' input facility. A switch can, for example, be connected to this port and the state ('open' or 'closed') of this switch can be monitored - ideal for quantifying the 'feel' of buttons, control levers and other switches.
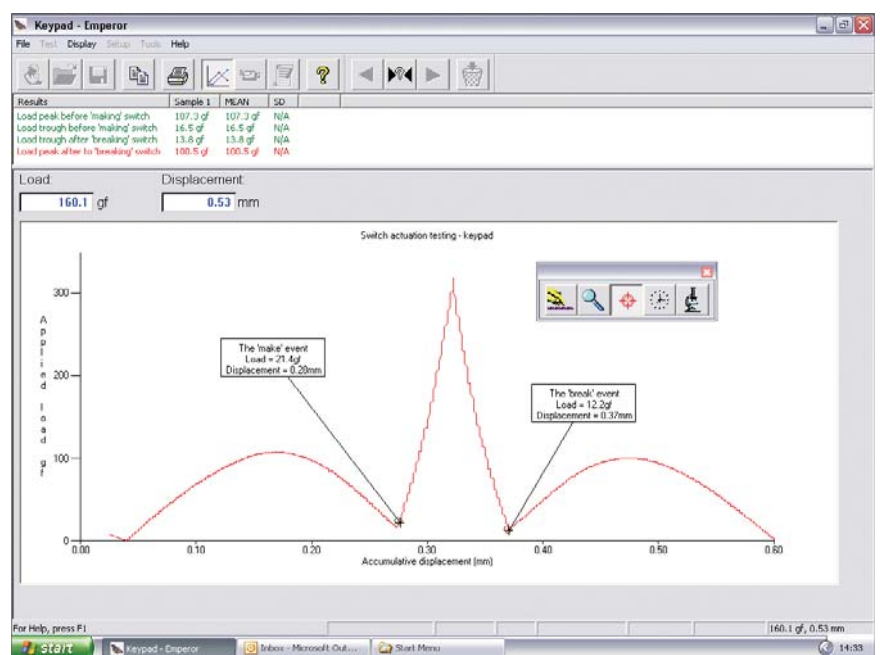
Cursor drop facility

Ease-of-use

Emperor™ software is easy and intuitive to use. However, if required, there is a comprehensive Help system built into all aspects of the software and this is never more than a few clicks away. Once the Help system is opened, information can be found using a comprehensive index, a table of contents, text search facility and glossary of terms.
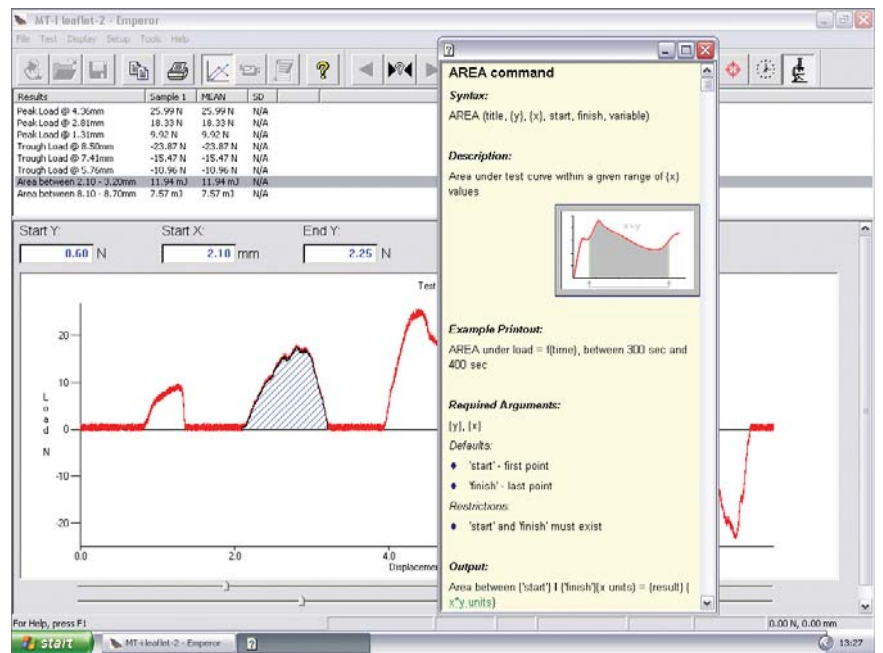
Review and 'fine-tune' calculations screen (+ Help facility)

The software sets new standards for flexibility and user-friendliness. For example, a comprehensive de-bugging facility enables messages, variables and graphs to be viewed on a real-time or step-by-step basis, so that the test process can be easily refined. Emperor™ also has an electronic notes function to enable test identification, user ID, batch, date and time information to be recorded.

High-capacity load testing

The MultiTest-*i* range of test frames combined with the power of Emperor™, offers a comprehensive solution to product, component or materials testing needs. The twin-column MultiTest 10-*i* and MultiTest 25-*i* enables significantly larger-sized or high-load samples and products to be tested, while still fulfilling the requirements for ease-of-use in a production or quality laboratory environment.

Mecmesin

Specifications

MultiTest		1-*i*	2.5-*i*	5-*i*	10-*i*	25-*i*
TEST FRAME						
Rated capacity	N kgf lbf	1000 100 225	2500 250 550	5000 500 1100	10,000 1000 2200	25,000 2500 5500
Number of ballscrews		One	One	One	Two	Two
Columns spacing		-	-	-	400mm (15.7″)	400mm (15.7″)
Speed range	mm/min in/min	1 - 500 (0.04 - 20)	1 - 500 (0.04 - 20)	1 - 500 (0.04 - 20)	1 - 1000 (0.04 - 39.4)	1 - 500^{25kN}/1000^{10kN} (0.04 - 20^{25kN}/39.4^{10kN})
Crosshead speed accuracy		< - - - - - - - ±1% of indicated speed - - - - - - - >				
Throat depth		67mm (2.6″)	67mm (2.6″)	100mm (3.9″)	-	-
Vertical daylight*		590mm (23.2″)	410mm (16.1″)	675mm (26.6″)	1180mm (46.5″)	1140mm (44.9″)
Height		940mm (37″)	750mm (29.5″)	1082mm (42.6″)	1500mm (59.1″)	1500mm (59.1″)
Width		290mm (11.4″)	290mm (11.4″)	328mm (12.9″)	826mm (32.5″)	826mm (32.5″)
Depth		414mm (16.3″)	414mm (16.3″)	526mm (20.7″)	512mm (20.2″)	542mm (21.3″)
Weight		19kg (42lbs)	18kg (40lbs)	38kg (84lbs)	110kg (243lbs)	140kg (309lbs)
Maximum power requirement		60 Watts	125 Watts	150 Watts	400 Watts	450 Watts
Voltage		230V AC 50Hz 110V AC 60Hz	230V AC 50Hz 110V AC 60Hz	230V AC 50Hz 110V AC 60Hz	230V AC 50Hz 110V AC 60Hz	230V AC 50Hz 110V AC 60Hz
LOAD MEASUREMENT						
Available loadcell ranges	N kgf lbf	2 - 1000 (9 models) 0.2 - 100 " 0.45 - 225 "	2 - 2500 (10 models) 0.2 - 250 " 0.45 - 563 "	2 - 5000 (11 models) 0.2 - 500 " 0.45 - 1125 "	50 - 10,000 (8 models) 0.5 - 1000 " 11.25 - 2250 "	50 - 25,000 (9 models) 0.5 - 2500 " 11.25 - 5625 "
Load measurement accuracy ±% fsd		< - - - - - - - Either 0.1% or 0.2% - - - - - - - > (See technical datasheet**)				
Load measurement resolution		1:6500	1:6500	1:6500	1:6500	1:6500
DISPLACEMENT						
Crosshead travel*		500mm (19.7″)	330mm (13″)	675mm (26.6″)	960mm (37.8″)	950mm (37.4″)
Position control resolution		±0.01mm (±0.0004″)	±0.01mm (±0.0004″)	±0.01mm (±0.0004″)	±0.01mm (±0.0004″)	±0.01mm (±0.0004″)
Positional accuracy		±0.105/500mm (±0.0041/20″)	±0.070/300mm (±0.0028/11.8″)	±0.120/600mm (0.0047/23.6″)	±0.050/800mm (±0.0020/31.2″)	±0.050/800mm (±0.0020/31.2″)
SOFTWARE						
Digital display of load/length/speed		Yes	Yes	Yes	Yes	Yes
Communication with test stand		Via RS232 port or USB port (converter supplied)				
Computer required		100Mb available HD, CD-ROM plus available RS232 port / USB port				
Operating system		Windows® 98/2000/NT/ME/XP				
Data acquisition speed		2000Hz				
Secondary input		Event Input (switch)				
Data output		LPT1 (Printer port) ASCII file (Export to spreadsheet, SPC package etc...)				

* measured without loadcell or grips   ** See technical datasheet 431-343 for dimension drawings

Common Specifications

Operating temperature	10-35°C / 50-95°F
Humidity range	Normal industry and laboratory conditions
Compensation for system movement	Yes
Loadholding	No
Graphical representation	External software
Output of test results to PC/Printer/Datalogger	Yes - includes auto-export to Microsoft Excel™

Options

Alternative speed ranges
Column gaiter
Extended columns
Extended throat depth

available upon request

Mecmesin

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

E&OE

Mecmesin Motorised Test Frames Overview

| Load Rating	Potentiometer-Controlled	Console-Controlled	Computer-Controlled
1kN	Speed Range: 2.5-1000mm/min Throat Depth: 70.5mm Travel: 500mm	Speed Range: 0.1-500mm/min Throat Depth: 67mm Travel: 500mm	Speed Range: 1-500mm/min Throat Depth: 67mm Travel: 500mm
2.5kN	Speed Range: 2.5-750mm/min Throat Depth: 70.5mm Travel: 330mm	Speed Range: 0.1-500mm/min Throat Depth: 67mm Travel: 330mm	Speed Range: 1-500mm/min Throat Depth: 67mm Travel: 330mm
5kN	—	Speed Range: 0.1-500mm/min Throat Depth: 100mm Travel: 675mm	Speed Range: 1-500mm/min Throat Depth: 100mm Travel: 675mm
10kN	—	Speed Range: 1-500mm/min Columns Spacing: 400mm Travel: 960mm	Speed Range: 1-1000mm/min Columns Spacing: 400mm Travel: 960mm
25kN	—	Speed Range: 1-500mm/min Columns Spacing: 400mm Travel: 950mm	Speed Range: 1-1000mm/min (10kN) 1-500mm/min (25kN) Columns Spacing: 400mm Travel: 950mm

E&OE

Mecmesin

Applications

The MultiTest-*i* range of motorised test stands can be used for a number of applications:
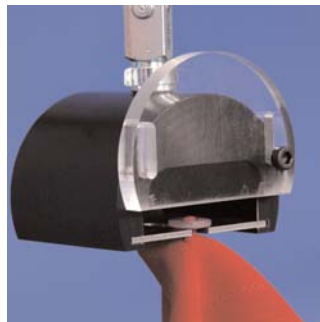

Compressive testing
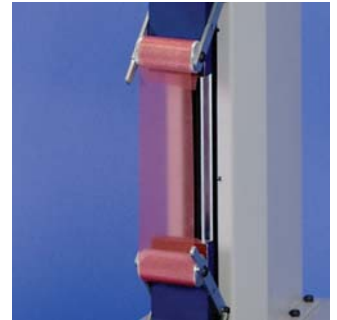
Extension testing

- Compressive testing
- Deformation testing
- Extension testing
- Materials testing
- Medical device testing

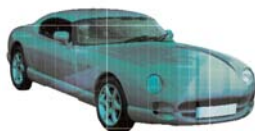Materials testing

Packaging testing

Packaging testing •
Spring testing •
Tensile testing •
Textile testing •
Top-load testing •

Spring testing

Textile testing

Mecmesin's range of testing equipment has been successfully used in a number of different industry sectors including;

aerospace

automotive

electrical

medical

packaging

pharmaceutical

plastics

safety

textiles

For further information and case studies regarding applications or products please visit our website; www.mecmesin.com or call; +44 (0) 1403 799979

Mecmesin

Testimonials

'We purchased the MultiTest 10-*i* to test 80% of the springs, which we have in our railcars. The system is very easy-to-use and the program is convenient to test. Also the support of A&D Korea was very positive.'

S C Yoon
Seoul Metropolitan Railway Transit Corporation

'In the absence of an 'industry standard' measurement for the performance of our product, it was necessary to develop our own. It was only by modifying 'off the shelf' equipment that we were able to arrive at the perfect solution. Mecmesin offered total, cost-effective support throughout this process. I have, and will continue to recommend them to others.'

S. Checkley
e-Medix - Precision Medical Engineering

Calibration, Service & Repair

Offering a prompt service, our calibration, service & repair centre is able to deal with all your force & torque testing equipment and gauges from Mecmesin and other manufacturers. All gauges and loadcells are supplied with calibration certificates traceable to UK National Standards to meet ISO requirements.
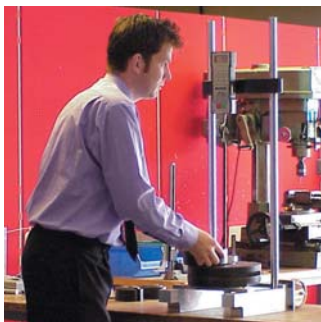
On-site calibration

In-house calibration

Support Services

Comprehensive network of international distributors •
24 month warranty •
Website support •
Calibration, service & repair centre •
On-site installation and training •
Accessories •
Application support •

Mecmesin

Mecmesin

testing to perfection

Over 25 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

Argentina	India	Saudi Arabia
Australia	Indonesia	Singapore
Austria	Iran	South Africa
Bangladesh	Ireland	Slovenia
Belgium	Israel	Slovakia
Brazil	Italy	Spain
Canada	Japan	Sri Lanka
Chile	Korea	Syria
China	Malaysia	Sweden
Colombia	Mexico	Switzerland
Czech Republic	Netherlands	Taiwan
Denmark	New Zealand	Tunisia
Finland	Norway	Thailand
France	Philippines	Turkey
Germany	Poland	USA
Greece	Portugal	Venezuela
Hong Kong	Romania	Vietnam
Hungary	Russia	

Wherever you are in the world Mecmesin can help you through its global distribution network.

BSI REGISTERED
UKAS QUALITY MANAGEMENT 003
ISO 9001 CERTIFICATE NUMBER **FS 58553**

DISTRIBUTOR STAMP

Mecmesin Limited
Newton House, Spring Copse Business Park,
Slinfold, West Sussex,
RH13 0SZ, United Kingdom,
e. sales@mecmesin.com
t. +44 (0) 1403 799979
f. +44 (0) 1403 799975

Mecmesin Corporation
45921 Maries Road,
Suite 120, Sterling
Virginia 20166, U.S.A.
e. info@mecmesincorp.com
t. +1 703 433 9247
f. +1 703 444 9860

Mecmesin Asia Co. Ltd
91/1 Chaiyo Building, 11th Floor,
Room 1103, Rama 9 Road, Huaykwang,
Bangkok, 10310, Thailand
e. sales@mecmesinasia.com
t. +66 2 247 46 81
f. +66 2 247 46 82