

Mecmesin

testing to perfection



Force & Torque
Test Solutions for

medical devices

Across the globe major manufacturers of medical devices use Mecmesin test equipment to:

Maintain consistently high quality manufacturing...

Can you easily run product quality tests on the factory floor every few minutes? Can you provide your customers with clear evidence of best-in-class quality assurance practice?

Manufacture your devices to a consistently superior quality with Mecmesin

Minimise costs, reduce waste, and improve yields...

Could you reduce the material usage on your medical device without compromising it's performance?

Improve efficiency and effectiveness, and achieve your lean manufacturing goals with Mecmesin

Optimise design ...

Do you know the precise force required to actuate your syringe plunger, insert and extract your hypodermic needle, remove your inhaler's cap, calibrate your infusion pump, crack your polycarbonate blood filter or peel open your device's packaging?

Qualify the usability and fitness-for-purpose of your devices with Mecmesin

Conform to all relevant standards...

Can you guarantee every one of your products meets all of the stringent AAMI, ASTM, BSI, EN, IEC, ISO and FDA standards applicable?

Consistently achieve regulatory compliance with Mecmesin

Quality Testing Solutions for the Medical Device Industry

Proven throughout industry, Mecmesin force and torque testing systems offer exceptional quality, design, practicality and versatility at an attractive price.



push



peel



stretch



extract

quality, efficiency, design, conformance

Needles & Syringes, Scalpels & Blades

Mecmesin systems are widely used in the development and manufacture of needles, syringes and blades to characterise their physical and material properties.

Typical Applications Include

- Insertion, penetration and extraction force testing to assess point sharpness and friction encountered along the shaft of hypodermic and surgical needles
- 3-point bend testing of needles [DIN 13097 part 3, ISO 7864]
- Tensile testing to ascertain needle-hub retention strength on lancets, syringes, winged infusion sets and catheters [ISO 7864]
- Torque assessment of hub luer connectors [EN 1707, ISO 594-2, BS EN 20594-1]
- Syringe plunger actuation and 'travel' force assessment [ISO 7886-1]
- Scalpel blade sharpness testing

Tubing

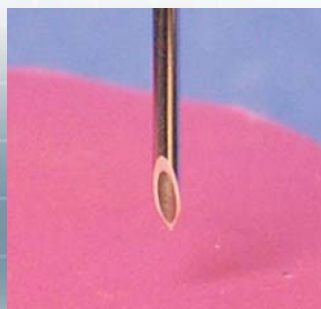
Whether it is being used to feed a stent through arteries to the heart, or to supply oxygen to an intensive care patient, the reliable performance of surgical and medical tubing is paramount. Extensive physical testing in manufacturing and development is therefore an absolute necessity.

Typical Applications Include

- Tensile strength and elongation at break testing
- Flexibility testing
- Trackability testing of stent delivery systems- critical to simulate frictional forces encountered during catheter use in order to assess device performance, and risk of damage to blood vessel walls
- Joint strength testing of connector fittings
- Torque assessment of rotary luer connectors, taps, valves and stopcocks



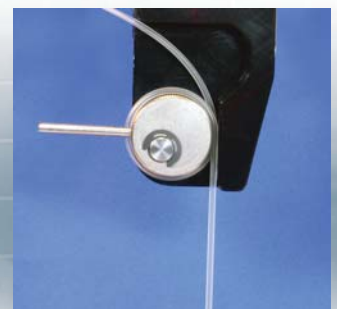
detach



insert



twist



pull

"We have been using Mecmesin equipment to perform retention tests on our range of lancet needles for over 8 years. We find the system easy to use for regular in-process checks, and generally reliable with prompt servicing from Mecmesin when required."

John Potter, Quality Systems Engineer, Owen Mumford Ltd

Polycarbonate Devices

Mecmesin systems are used in critical tensile/compressive load resistance testing, joint strength testing, mechanical functioning assessment and material quality testing of:

- Blood oxygenators, reservoirs, filters and centrifugal filter bowls used in cardiac surgery
- IV-component connections including cannulae, check valves, injection sites, luer connectors and stopcocks (torque test)
- Renal dialysis filter cartridges
- Trocars and catheter inflators

Electrical & Electronic Devices

From complex patient monitoring systems to small handheld devices, manufacturers of medical electronic systems must be able to guarantee the accuracy, reliability and longevity of their products. As a result there are a great number of force testing applications in the development and manufacture of medical electronics catered for by Mecmesin.

Typical Applications Include

- Actuation force/torque and tactile feedback of controls
- Retention force of reusable and disposable push-pull electrical and fibre-optic connectors
- Component-to-PCB joint strength assessment
- Destructive quality testing of device housing
- Calibration of syringe pump occlusion monitoring
- Hearing aid component quality testing

twist



break



calibrate



turn



“A precise, repeatable and reliable 'occlusion' force calibration tool [for syringe pumps] is essential for our customers, service personnel and production use. Mecmesin Ltd. have provided expert design advice, equipment samples and test strategies to ensure Cardinal Health have been able to achieve these aims.”

Justin Gyer, Instruments Engineering Manager, Cardinal Health

Bandages, Dressings, Tapes & Sutures

Mecmesin offer a comprehensive range of dedicated fixturing for tensile testing of bandages, dressings and sutures, such as the Spring-Loaded Roller Grips that spread loading evenly across the jaw face to avoid sample slippage or premature failure.

Typical Applications Include

- Tensile strength and elongation at break of bandages and dressings
- Tear strength of tapes
- 90° and 180° peel testing of adhesive dressing and tape samples of fixed width (normally 10, 15 or 25mm), in accordance with FINAT test standards and methodologies
- Tensile strength and strain assessment of suture material to ensure surgical performance and post-surgical endurance
- Tensile strength of suture knotting techniques
- Crimp pull-out test of suture from drilled-end and rolled-end surgical needles
- Peel strength and tensile strength of ostomy bags (deadweight test)

Gloves & Facemasks

- Mecmesin test systems may be used to assess the tensile properties of examination and surgical gloves in order to conform to the following international test standards,

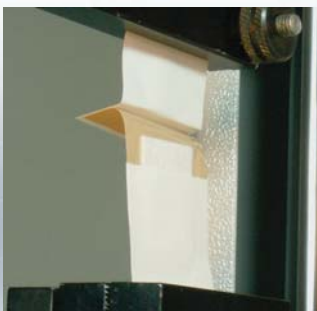
Examination Gloves

- ASTM D3578
- ASTM D6319
- MS 1155
- AS/NZS 4011
- EN 455-2

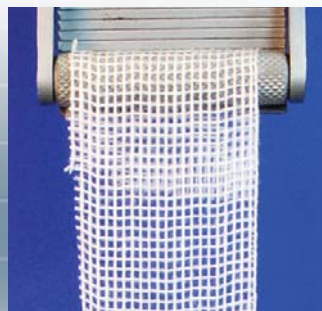
Surgical Gloves

- ASTM D3577-01ae2
- MS 1291
- AS/NZS 4179
- ISO 10282
- EN 455-2

- Mecmesin Pneumatic Grips will tightly, yet delicately hold the substrate material avoiding slippage or premature failure at the gripping face
- Other applications include, material elongation, joint strength and mechanical quality testing of anaesthesia and respiratory masks



peel



stretch



pull



elongate

"The MultiTest 1-i has been purchased to test the physical properties of our ostomy and wound care hydrocolloid products, as well as the raw materials from which they are fabricated. The 10N loadcell is able to measure to two decimal places, which gives a very sensitive and accurate reading, and this test works very well. The MultiTest 1-i meets our needs and with time has proved user friendly."

A Jamesova, Salts Healthcare

Over-the-Counter Devices

Force and torque tests play a critical role in the development and production of over-the-counter medical devices to guarantee reliable performance and ease-of-use for the consumer.

Typical Applications Include

- Removal force and twist-off torque assessment of inhaler caps
- Penetration force of spring-loaded lancets in blood glucose monitoring systems
- Retention force of lancet needles within plastic hubs [ISO 11608-2]
- Torque assessment of twist on/off needles for pen-injectors [ISO 11608-2]
- Torque measurement of dosage selection on pen-injectors
- Tablets and capsules crush/pierce force testing

Surgical Implants

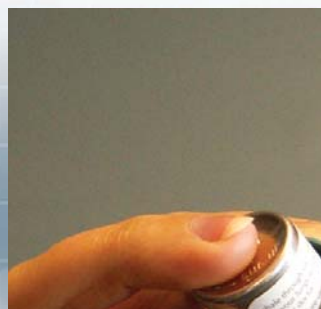
Typical Applications Include

- Fatigue testing and failure analysis of orthopaedic implants to characterise resistance to expected physiological loads [ISO 16428:2005]
- Mechanical assessment of implant components, fabricated in titanium, and cobalt chromium molybdenum alloys
- Characterisation of material and mechanical properties of plastic implant components
- Joint strength assessment of interlocking implant component parts
- Implant-bone joint strength assessment (e.g. axial pull-out of medical bone screws) [ASTM F1691-96, ISO 6475]
- Cardiac pacemakers, quality assessment of device (and packaging) construction [ISO 14708-1]

push



detach



rotate



compress



“The Vortex-*i* system has enabled us to eliminate the variability of results experienced with our previous manually-operated testing systems, allowing accurate and consistent testing of the conformance of our drug delivery systems to our stringent in-house standards.”

Stephen Byrne, BD Medical - Pharmaceutical Systems

Packaging

Mecmesin offer a broad range of dedicated systems used by manufacturers and processors to optimise the design of medical packaging and produce a consistently superior level of quality. This ensures ease-of-use for the medical professional, whilst guaranteeing the pack contents will remain sterile, secure and undamaged throughout transportation and storage.

Typical Applications Include

- Tensile strength, elongation and tear testing of flexible packaging material, including IV-infusion bags [ISO 11607, EN 869-1]
- Peel strength of adhesive seals [ASTM D903, ASTM F88]
- Pierce testing of films and foils
- Removal/reseal torque of screw closures
- Bridge torque of tamper-evident closures
- Characteristic compressive and rotational forces of child-resistant closures
- Open/closure force of pop-up caps
- Packaging material coefficient of friction testing to optimise mass production process

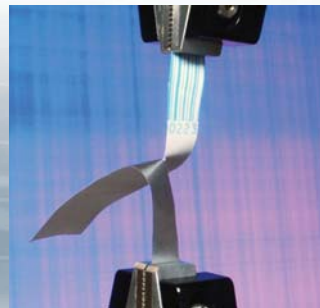
peel



twist



tear



slide



“We purchase Mecmesin products because of their versatility, and the excellent local support we always receive in Mexico. This particular system works extremely well on our [infusion bag tensile strength] application.”

Ernesto Romero, Fresenius Kabi

Mecmesin

testing to perfection

Over 30 years experience in force & torque technology

Formed in 1977, Mecmesin Ltd 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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Wherever you are in the world Mecmesin can help you through its global distribution network.

covering a number of sectors including



safety



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plastics



medical



packaging



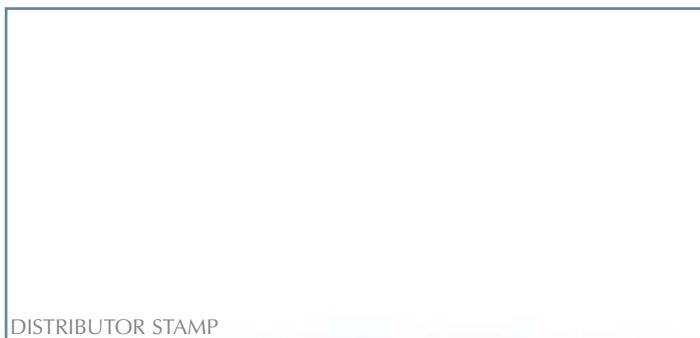
textiles



pharmaceutical



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