



Mecmesin

testing to perfection

Force & Torque
Test Solutions for the

**packaging
industry**

Across the globe Mecmesin's force and torque testing systems enable packaging and packaging material manufacturers to:

Guarantee production quality...

Can you easily determine the strength and integrity of your packaging? Can you provide your customers with irrefutable evidence of production quality? Can you guarantee your packaging will perform under storage and transportation conditions?

Manufacture your products to a consistently superior quality with Mecmesin

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

Could you reduce the wall thickness of your PET bottle, and lightweight it without compromising its strength? Could you reduce the surface roughness of your packaging material to decrease processing cycle time?

Reduce material costs and achieve your lean manufacturing and environmental goals with Mecmesin

Optimise design...

Do you know the precise force required to twist open a cap, tear a packet, peel a seam, pierce a foil, remove a cork or actuate a pump on your packaging product? Does your packaging protect the product but remain easy to open by the customer?

Qualify the usability of your packaging with Mecmesin

Conform to standards...

Can you guarantee your products meet all relevant national and international standards, as well as in-house specifications?

Consistently achieve regulatory compliance with Mecmesin

Quality Testing Solutions

Mecmesin's force and torque testing systems are ideal for testing a wide range of packaging materials

- Corrugated cardboard
- Metals e.g. cans and foils
- Paper e.g. bags and sacks
- Plastics e.g. bottles, containers, plastic sheets and closures
- Textiles e.g. bags and sacks
- Wood e.g. crates and pallets

Industry Testing Solutions

Mecmesin's complete packaging testing solutions span a broad variety of industry sectors, including:

- Cosmetics
- Food and drink
- Household chemicals
- Medical devices
- Pharmaceuticals
- Transport and logistics



quality, efficiency cost reduction



Tensile Testing

A simple tensile test is invaluable in determining a broad variety of packaging material properties and evaluating the dissociation strength of jointed components.

Typical tests include tensile strength, elasticity, elongation, tear, peel and joint strength.

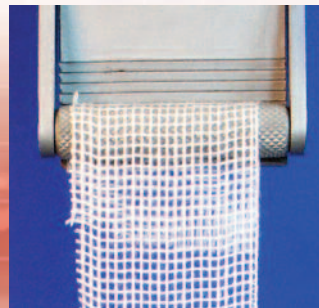
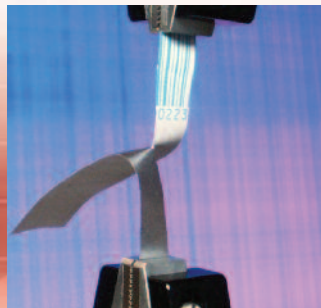
For example, tensile tests are used to determine the behaviour and strength of glued or heat-sealed seams on foil or plastic packaging. As such they provide a quantifiable assessment whether a package can be easily opened by a consumer but will not tear completely so that the contents will spill out.

Standards

- ISO 1798:2008
- BS EN 10002-1:2001
- BS EN ISO 1937:2000
- BS EN ISO 527-3:1996
- BS EN ISO 6383-1:2004
- BS EN ISO 11897:2001
- BS EN ISO 1934:1999
- BS EN ISO 1935:1999
- TAPPI Test Methods

Typical Tensile Testing System

- MultiTest 1-i
- 1000N Intelligent Loadcell
- Large Single Action Vice Grips



optimise design, conformance



Top-load Testing

Resistance to top-loading is one of the most critical parameters in quantifying the design and quality of any container, from plastic bottles and drums to bevcans, food tins and cardboard boxes.

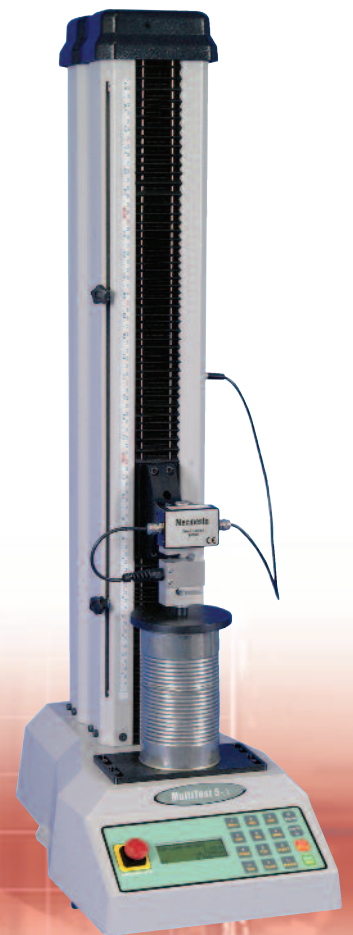
Mecmesin's robust and compact top-load testing systems are able to measure both maximum compressive load and container free height with the push of a single button. Accurate top-load assessment enables manufacturers to reduce material usage, to decrease costs and meet environmental standards, without compromising the compressive strength of the container.

Standards

- ASTM D2659-95 (2005)
- ASTM D4577-05
- BS EN ISO 12048:2001
- DIN 55440
- DIN 53757
- ISO 3037
- ISBT Plastic Bottle Test Method 2004
- ASTM D642-00 (2005)
- ASTM D4169-05
- ISO 8113:2004
- DIN 55526
- TAPPI Test Methods

Typical Top-load Testing System

- MultiTest 5-x
- 5kN Intelligent Loadcell
- 50mm Vented Compression Plate



"The Mecmesin MultiTest 1-x enables us to ensure the consistently high manufacturing quality of our PET bottles. The system conveniently allows us to perform top-load testing and confirm free height and integrates easily with our data collection system, increasing our analytical efficiency."

Mr Phil Hipkiss, Esterform Packaging



Peel Testing

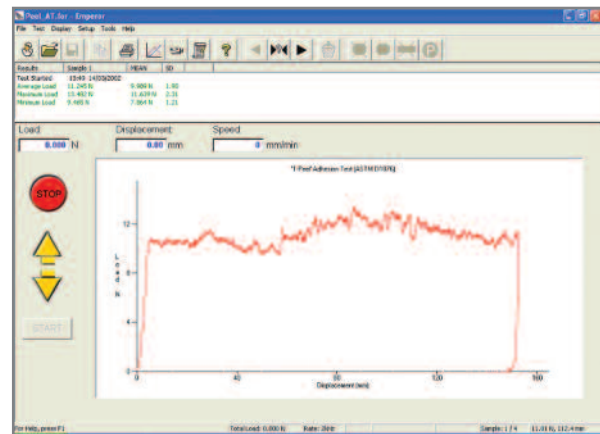
Adhesive or heat-sealed joints and seams must be tightly formed to ensure pack contents are secure and sterile, but at the same time remain easy to open by the end user. A peel testing system from Mecmesin provides a fast, repeatable and accurate method of assessing the force required to initiate and propagate a peel on container seals and adhesive bonds.

Standards

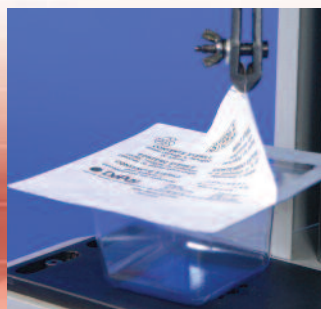
- ASTM D1876-01
- BS EN 868-5:1999
- BS EN 1895:2001
- FINAT Test Methods
- ASTM F88-079
- BS EN 1719:1999
- ISO 11339:2003
- ISO 11607

Typical Peel Testing System

- MultiTest 1-i
- 25N Intelligent Loadcell
- Specialised grips



Peel Test



openability
security



Co-efficient of Friction Testing

Form-fill-seal converting machinery needs to move, feed, shape, stretch, cut, weld and apply tensile load to raw packaging materials at high speeds.

The material's surface roughness has a critical impact on the ease with which this may occur and hence the efficiency of the converting process. Co-efficient of friction (COF) is a useful parameter for characterising the surface roughness of the material.

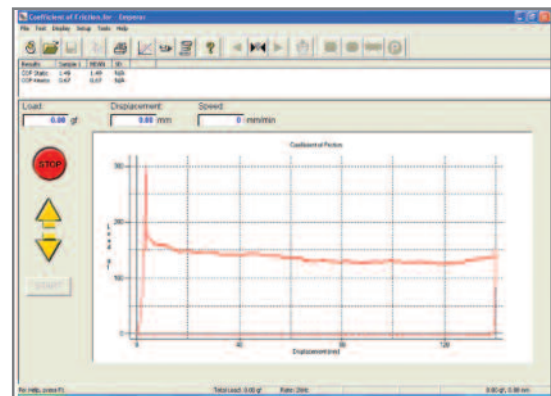
Mecmesin's COF testing system pulls a small sled across a horizontal test plate, over a specified distance. Either the test plate or sled may be coated in the test material, or both, to replicate the converting process. The sled is connected via a pulley to a 10N loadcell, which is raised at a constant speed to drag the sled across the test plate and measure the frictional resistance experienced.

Standards

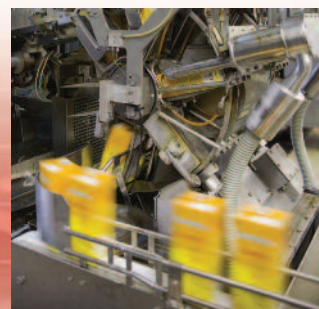
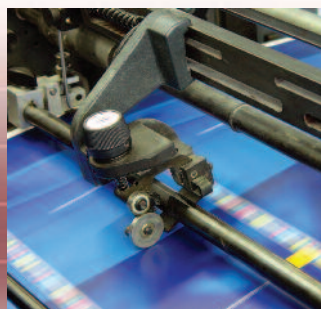
- ASTM D 1894
- BS EN ISO 8295:2004
- TAPPI T816

Typical Co-efficient of Friction Testing System

- MultiTest 1-i
- 10N Intelligent Loadcell
- Co-efficient of Sliding Friction Fixture



Co-efficient of Friction Test



speed, efficiency
reliability

Cork Extraction Testing

A bottle cork must create a tight enough seal to ensure the contents are not spoiled, whilst remaining easy to remove when required. Mecmesin's specialised cork extraction system positions the bottle within a height-adjustable jig, and applies a tensile load to the cork at a steady rate until either a sudden drop in resistance occurs, or the cork is removed entirely from the bottle. Peak load results are automatically registered for reporting purposes.



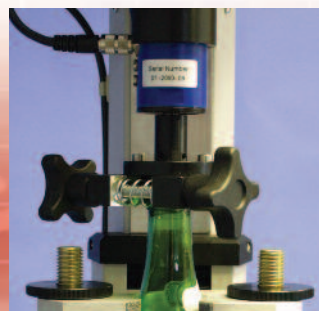
Standards

- ISO 9727
- NFB 57-100

Typical Cork Extraction Testing System

- MultiTest 1-d
- AFG 2500N
- Cork Extraction Test Jig

Mecmesin also offers a cork testing system, capable of simultaneously measuring the extraction force and torque required to pull and twist a cork from a sparkling wine or spirits bottle.



openability seal strength



Pump Actuation Force Testing

A simple compression test may be performed upon aerosols or hand pumps, such as those found on liquid soap bottles, to perfect the design of the device and to ensure consistency in manufacture.

To perform the test, the container is placed beneath the crosshead/loadcell of a motorised compression testing machine and a small compression plate is brought down over the central axis of the pump. This is compressed to a pre-determined displacement and the maximum force recorded is the pump actuation force.

Standards

- ASTM D6534-05

Typical Pump Actuation Force Testing System

- MultiTest 1-x
- 250N Xtra Loadcell
- 12mm Compression Plate



usability
consistency



Ring-Pulls & Snap-Caps Testing

Ring-pulls, such as those found on beverage cans, food tins and tennis ball tubes, must be able to withstand a sufficient level of tensile loading to open the pack, without breaking away from the lid. A simple tensile test on a ring pull will assess the quality and fitness-for-purpose of the ring-pull mechanism.

Snap-caps must close tightly with a positive click on engagement, whilst remaining sufficiently easy to open. A motorised force testing system from Mecmesin can easily test both the compressive force required to click shut a snap-cap and the tensile force required to open it.



Standards

- ISBT Sports Closure Test Methods
- ISBT Plastic Flat Top Closure Test Methods

Typical Ring-Pull & Snap-Cap Testing System

- MultiTest 2.5-x
- 250N Xtra Loadcell
- Test Hook & Flip-Cap Accessory



quality
fitness-for-purpose



Torque Testing

Torque measurement is a crucial process in the production of well-designed and consistently manufactured screw closures. Mecmesin's comprehensive range of torque testing equipment caters for almost any closure torque testing application, from tamper-evident beverage bottles to child-resistant pharmaceutical containers.

Closure Torque

When processing screw closures, sufficient torque must be applied to ensure a hermetic seal within the lid, but not too much torque as to damage the closure lining. A rugged Mecmesin torque tester placed at the point of production, allows simple in-line checks to be performed easily. This ensures capping heads consistently apply correct torque levels.

Tamper-evident Closures

Mecmesin's Tornado Digital Torque Tester has been designed to measure the two critical torque peaks associated with tamper-evident closures. The 'slip torque' - the effort required to initiate movement of the cap and the 'bridge torque' - the smaller, secondary effort required to break the plastic bridges between the cap and security ring.

Child-resistant Closures

In designing child-resistant closures (CRCs), a fine balance must be struck between security and accessibility. The Mecmesin CRC Tester enables simultaneous measurement of compressive force and torque to characterise the 'push and twist' action employed in opening a CRC. The CRC Tester may also be used to assess the reverse ratchet torque of CRC closures.



"The success of the introduction of screw cap closures in the wine industry can be attributed to the successful application of the closure itself. In order to determine a good application you require reliable, accurate and consistent testing equipment. The Mecmesin closure torque testers have fulfilled all the criteria and have given us great confidence in our application of the screw cap closures."

Mr Dean Zeunert - R&D Technical Manager of Orlando Wyndham group, producers of Jacob's Creek wine in the Barossa Valley.



Any Size or Shape

Awkwardly shaped containers are easily accommodated in the versatile mounting table featured on all Mecmesin torque testing equipment. Moveable gripping pegs may be simply repositioned to align the closure over the central axis of the mounting table. Mecmesin are also able to offer custom-engineered gripping accessories. Please contact your local sales representative for more information.

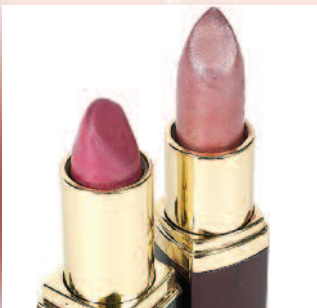
Standards

- ASTM D2063-91
- ASTM D3810-97
- ASTM D3469-97
- ASTM D3198-97
- ASTM D3968-97
- ASTM D3472-97



Torque Testing Systems

- Manually-controlled, Digital Testers
 - Orbis
 - Tornado
 - CRC Tester
- Motorised, Semi-automated System
 - Vortex
- Motorised, Computer-controlled System
 - Vortex-i



"The Mecmesin Vortex gives us peace of mind that our process is in control on screw cap application. Our production line does half hourly checks for measuring the seal torque and bridge break torque. The Mecmesin Vortex is a great instrument for us."

Mr Ian Scrivener, Technical Manager Packaging, Hardy's Wine Company



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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



aerospace



automotive



electrical



medical



packaging



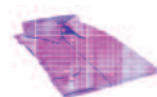
pharmaceutical



plastics



safety



textiles



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