



Mecmesin

testing to perfection

Force & Torque Testing 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



Cardboard boxes



Cosmetic packaging



Blister packs



PET Containers

Tensile Testing

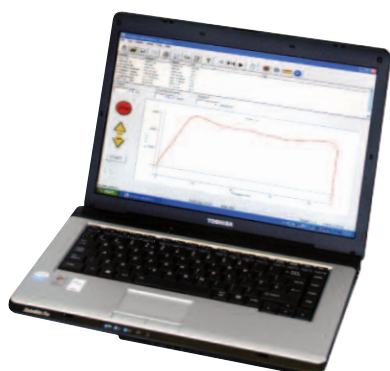
A simple tensile test is invaluable in determining a broad variety of packaging material properties and evaluating the dissociation strength of jointed components.

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 to show if packaging can be easily opened by consumers, while at the same time not tearing completely so that the contents spill out.



MultiTest 2.5-i



Standards

- ISO 1798:2008
- BS EN 10002-1:2001
- BS EN ISO 527-3:1996
- BS EN ISO 6383-1:2004
- BS EN ISO 11897:2001
- BS EN ISO 13934:1999
- TAPPI Test Methods

Typical Tensile Testing System

- MultiTest 2.5-i
- 1000N Intelligent Loadcell
- Large Single Action Vice Grips

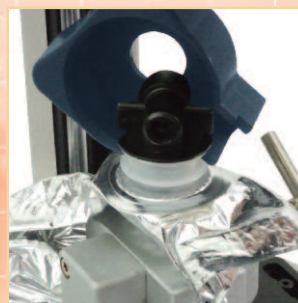
optimise design conformance



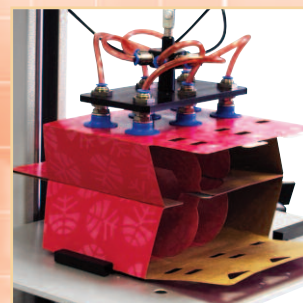
Lid removal test



Tear test on
packaging material



Tensile strength of
sealed joint



Tensile test on
basket carrier

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 D2659-11
- ASTM D4169-05
- DIN 55440
- TAPPI Test Methods
- ASTM D642-00
- BS EN ISO 12048:2001
- DIN 55526
- ISO 3037
- ASTM D4577-05
- ISO 8113:2004
- DIN 53757
- ISBT Plastic Bottle Test Method 2004

Typical Top-load Testing System

- MultiTest 5-xt
- 2500N Intelligent Loadcell
- 50mm Vented Compression Plate

Top-load & free height in one test!

What our customers say...

"Our investment in the MultiTest 5-xt top-load test unit has paid for itself time and time again. The unit is so easy to use that no outside training was needed at start-up and training new operators was very minimal. This has resulted in no misjudgments from equipment set-up. The displayed graph makes it very easy to understand what is occurring during the test and aids in troubleshooting and correcting issues. The touch screen/computer combination reduces the footprint to less than half the size of our older unit. Overall the unit gives great performance at a very competitive price."

Dan McMillin: Quality Manager at Silgan Plastics, Kentucky, USA



PET bottles



Crush test on cardboard box



Top-load test using a vented compression plate



MultiTest 5-xt

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.

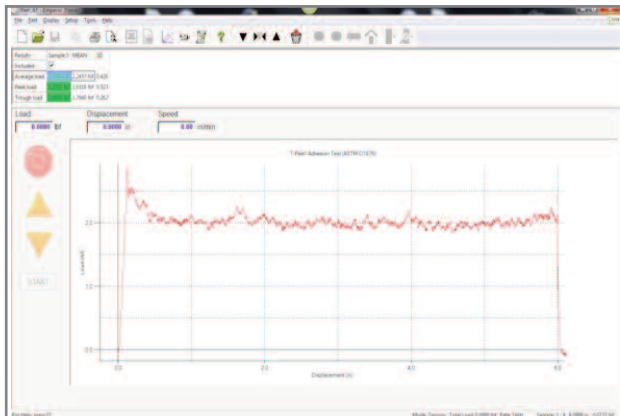
Standards

- ASTM D1876-08
- BS EN 868-5:2009
- BS EN 1895:2001
- FINAT Test Methods
- ASTM F88/F88M-09
- BS EN 1719:1999
- ISO 11339:2003
- ISO 11607

Typical Peel Testing System

- MultiTest 2.5-*i*
- 50N Intelligent Loadcell
- Specialised Fixtures

MultiTest 2.5-*i*



Peel test

openability
seal strength



Peel test on retort film



Medical packaging
peel test



Induction sealed
foil tab test



Food packaging peel test

Coefficient 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. Coefficient of Friction (COF) is a useful parameter for characterising the surface roughness of the material.

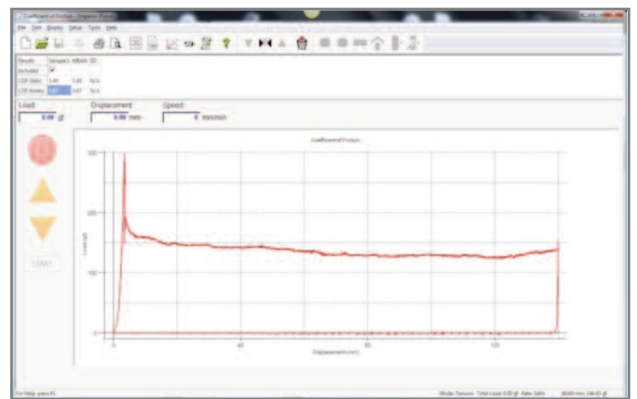
Mecmesin's COF testing system pulls a small sled across a horizontal test plate, over a specified distance. Either the test plate or sled may be coated in the test material, or both, to replicate the converting process. The sled is connected via a pulley to a 10N loadcell, which is raised at a constant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

Standards

- ASTM D1894
- BS EN ISO 8295:2004
- TAPPI T816

Typical Coefficient of Friction Testing System

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

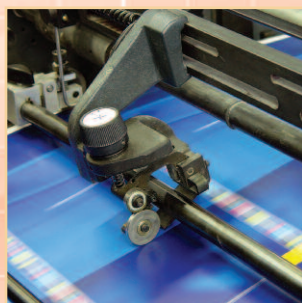


Coefficient of friction test

speed, efficiency
reliability



Coefficient of friction test



Production of
packaging material



Carton production line



Foils and films

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 'Combi' Cork Extraction Tester determines both the release twist torque of a champagne/sparkling wine cork or spirit bottle stopper, and also the extraction pull-out force of a classic still-wine cork.

Designed in partnership with and endorsed by Oeneo Bouchage, one of the world's leading cork manufacturers, the 'Combi' Cork Extraction Tester enables you to:

- Evaluate cork seal integrity to minimise cork taint
- Establish a consistent standard of product quality
- Optimise cork design whilst still enabling easy opening

Standards

- ISO 9727
- NFB 57-100

Typical Cork Extraction Testing System

- Combi Cork Extraction Tester
- Cam-operated Fixture
- Bottle Cradle

What our customers say...

"As a responsible supplier we are committed to ensuring safety within our products. The solution provided by Mecmesin means we can monitor the extraction force of our corks to guarantee our customers receive a consistent end product"

**Frederic Junge, Oenologist - Quality Manager
Sibel SA - Oeneo subsidiary, France**



Combi Cork
Extraction Tester

openability extraction force

Mecmesin also offers a Combi Cork-*i* 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.



Cork extraction test



Synthetic corks



Extraction testing of
whisky stoppers



Natural corks

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 2.5-xt
- 250N Intelligent Loadcell
- 12mm Compression Plate



MultiTest 2.5-xt

usability
consistency



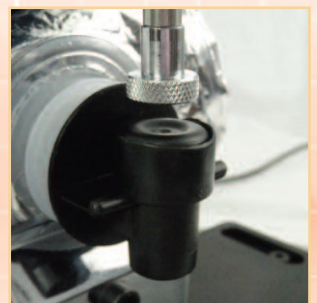
Dispensing pumps



Actuation force test



Spray cans



Actuation force of
tap dispenser

Ring-Pulls and 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 and Snap-cap Testing System

- MultiTest 2.5-xt
- 250N Intelligent Loadcell
- Test Hook & Flip-Cap Accessory

quality
fitness for purpose



Ring-pull test



Snap-cap test



Ring-pulls



Sports closures

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.

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.

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.

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.

What our customers say...

"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**



Stelvin closures



Child-resistant closures



PET bottle cap test on a
Tornado digital torque tester



Child-resistant closure test

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/D2063M
- 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-d
- Motorised, touch screen controlled system
Vortex-xt
- Motorised, computer-controlled system
Vortex-i

What our customers say...

"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



Cosmetic packaging



Torque test on a stelvin closure



Cosmetic packaging test



Plastic screw cap closure test

Mecmesin

testing to perfection

Mecmesin Ltd - a world leader in affordable force and torque testing solutions

Since 1977, Mecmesin has assisted thousands of companies achieve enhanced quality control in design and production. The Mecmesin brand represents excellence in accuracy, build, service, and value. In production centres and research labs worldwide, designers, engineers, operators, and quality managers endorse Mecmesin force and torque testing systems for their high performance across countless applications.

www.mecmesin.com



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

The Mecmesin global distribution network guarantees your testing solution is rapidly delivered and efficiently serviced, wherever you are.



aerospace



automotive



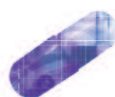
electrical



medical



packaging



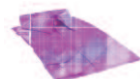
pharmaceutical



plastics



safety



textiles



Certificate No. FS 58553

DISTRIBUTOR STAMP

Head Office

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

North America

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

Asia

Mecmesin Asia Co. Ltd

308 Soi Rohitsuk,
Ratchadapisek 14 Road,
Huaykwang, Bangkok, 10310,
Thailand.

e: sales@mecmesinasia.com
t: +66 2 275 2920 1
f: +66 2 275 2922

China

Mecmesin (Shanghai) Pte Ltd

Room 302, No. 172,
Daxue Lu - University Avenue,
Yangpu District, Shanghai, 200433,
People's Republic of China.

e: sales@mecmesin.cn
t: +86 21 5566 1037 / 3377 1733
f: +86 21 5566 1036