

Meemesin

testing to perfection



Force & Torque Test Solutions for the

Wineries Industry

Champagne & Sparkling Wines

Within the Champagne and sparkling wine sectors, natural corks need to perform a number of functions to ensure the quality of the drink and meet consumer expectations. As new innovations and pressure from alternative closure manufacturers increases, it is more important than ever for cork and wine producers to guarantee cork quality and seal integrity, whilst maintaining reasonable accessibility to the bottle.

Mecmesin's force and torque testers enable you to quantify cork performance by quickly and easily measuring the extraction force.

“Combi” Cork Extraction Tester

A single system that allows you to test cork in order to reduce the difficulties of poor cork quality. The “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

Benefits

- Constant speed guarantees high accuracy and reproducible results
- Easy set-up and simple operation via intuitive controls
- Quickly identify out of tolerance results through audible and visual alarms
- Ideal for use in the production environment with built-in safeguards to protect system from spillage
- Rapid, efficient testing through effective grips



Natural corks



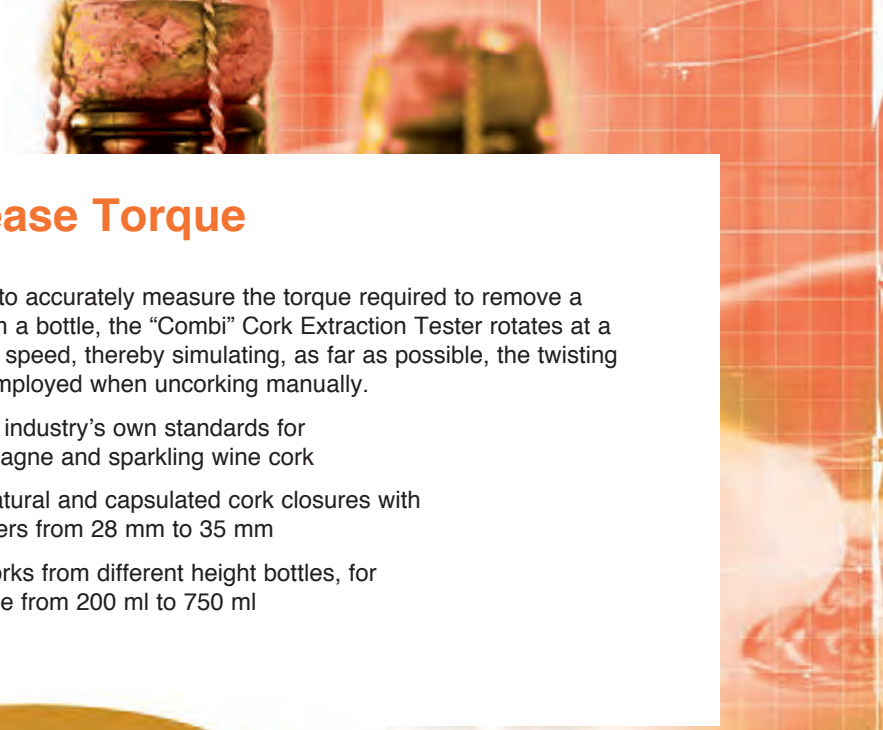
Test 'twist-torque' of

Spirit 'stoppers'



Test extraction force of natural and synthetic corks

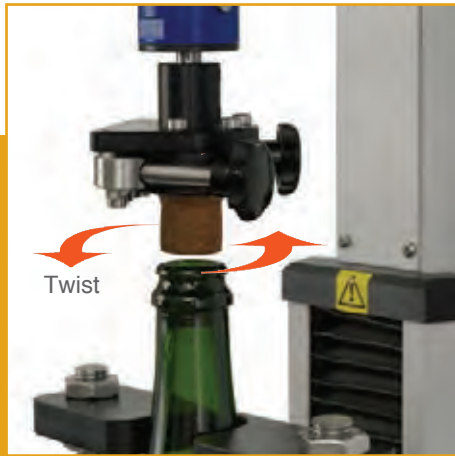




Release Torque

In order to accurately measure the torque required to remove a cork from a bottle, the “Combi” Cork Extraction Tester rotates at a constant speed, thereby simulating, as far as possible, the twisting action employed when uncorking manually.

- Test to industry’s own standards for Champagne and sparkling wine cork
- Test natural and capsulated cork closures with diameters from 28 mm to 35 mm
- Test corks from different height bottles, for example from 200 ml to 750 ml



Extraction Force

For maximum versatility, the “Combi” Cork Extraction Tester also fulfills the cork testing requirements for still wine. With a simple adaptation, cork and wine producers can also measure the pull-out forces of still-wine corks to ensure a consistently high quality product.

- Test to recognised international standard ISO 9727-5:2007
- Test natural and synthetic corks
- Accommodates different sized bottles, for example from 200 ml to 750 ml



System converted to cork extraction tester



Manual Torque Tester

This simple, affordable, handheld instrument is perfect for performing quick, routine spot checks of **cork extraction forces** for Champagnes and sparkling wines.

Using a Mecmesin ‘Smart’ torque sensor and dedicated cork gripping accessory, a manual twist-action is applied to safely release the cork. This enables the sensor to measure the torque required to begin rotation of the cork, which is displayed and recorded by Mecmesin’s digital display.

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.”

*Frédéric Junge, Oenologist- Quality Manager
Sibel SA - Oeneo Subsidiary, France*

Still Wines

Motorised cork extraction tester

Ideal for performing straightforward **cork extraction tests** on both natural and synthetic still-wine stopper corks, Mecmesin's motorised cork extraction tester is a highly affordable and accurate force measurement system to meet the requirements of ISO 9727.



- Monitor cork seal integrity
- Optimise cork design to ensure ease of opening
- Test to ISO 9727 & NFB 57-100 standards

The system incorporates a cork extraction test rig, which accommodates different bottle heights, ensuring they are firmly held during the test.

To perform the test, a tensile load is applied at a steady rate of 300 mm/min, until a sudden drop in resistance occurs, or the cork is removed entirely from the bottle. The peak extraction force is clearly displayed on Mecmesin's digital force gauge and can be printed for further evaluation.

Benefits

- Constant speed guarantees high accuracy and reproducible results according to ISO standards
- Easy operation - Carry out a test with a single button push
- Quickly identifies whether there is likely to be a problem in the cork/bottle configuration

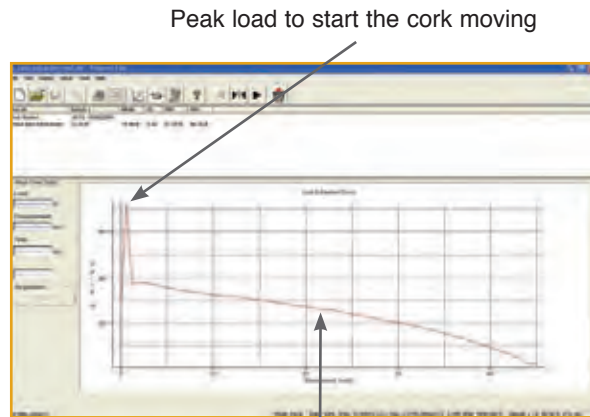


Evaluate Results Further

Cork and wine producers can gain even more information regarding cork test performance and identify critical measurement values using Mecmesin's [data acquisition software](#).

Emperor™ Lite software enables a graphical trace of each test to be displayed, ready for in-depth evaluation of results.

- View test 'live' on PC screen
- Perform multiple calculations to quantify performance
- Colour-coded results give clear indication of pass/fail scenarios
- Print test reports or export results for further analysis



This portion of the curve shows the force as the cork slides out of the bottle

ISO 9727 Standard

This international standard specifies the reference methods for determining, among other aspects, the extraction force of cylindrical stoppers. The following is an excerpt from the standard regarding the test procedure.

“

- Fix the bottle with the corkscrew to the moveable base of the press, using the fixing device.
- With the connecting device, connect the triangular handle of the corkscrew to the sensor of the press.
- Start the press, with its moveable base, at a speed of 30 cm/min.
- Read the extraction strength on the measure and control unit.

”

Fixtures

Mecmesin offers dedicated cork extraction fixtures, enabling easy set-up and test operation.

Cork Extraction Test Rig

- Test stopper corks from 28mm to 35mm in diameter
- Bottle cradle with anti-slip surface is easily adjusted to accommodate different bottle heights e.g. 200 ml to 750 ml

Corkscrew Test Accessories

- Profile of corkscrew supplied suits testing of natural or synthetic cork



Metal Screw Closures

Over the last few years, wine bottle closures have gone through major transformations. Winemakers and bottlers no longer always opt for cork as the closure of choice, and are increasingly embracing the convenience of the aluminium screw-on cap, such as the 'Stelvin'.

Mecmesin's range of test equipment can assess screw cap application and release torque to:

- Measure consistency of release torque straight from the production line
- Ensure the capping machine is set correctly to avoid damage to closures
- Minimise risk of oxidation and leakage due to poorly fitted screw caps



Manual Closure Torque Tester

The Orbis is a simple, affordable manually-operated closure torque tester. It enables fast and effective in-line assessment of screw closures, checking that the capping heads are consistently applying **correct levels of torque** to ensure closures retain a **hermetic seal**.



Orbis

Benefits

- Simple operation with large-digit display to show maximum opening torque value
- Accommodates bottle diameters from 10 to 190 mm
- Lockable to N.m and lbf.in
- Lightweight and portable
- Water-resistant design rated to IP54
- RS232 output for sending result to printer or PC

Rated to **6 N.m (50 lbf.in)**, the Orbis is extremely easy to set-up and operate. Four gripping pegs securely hold the base of bottles, ready for manual torque application. Featuring a fast sampling rate, the Orbis delivers accurate release torque measurements and is rugged enough to use directly within the wine production environment.



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"

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



Vortex-d

Motorised Closure Torque Tester

A motorised torque testing solution, the Vortex-d provides a cost-effective test platform for measuring both the **application** and **release torque** of **screw closures** to guarantee easy openability and verify correct levels of torque are being applied.

Since it is motor-driven, the Vortex-d eliminates the variability in results often associated with manually-operated testers and is available in a range of capacities from 1.5 N.m to 10 N.m (12 lbf.in to 90 lbf.in).

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 the bridge torque. The Mecmesin Vortex is a great instrument for us.”

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

Split Mandrel Stelvin Grip

Purpose-built for performing motorised torque tests on Stelvin closures, this grip uses a split mandrel design.

The grip is easily mounted to a motorised torque test system for fixing around the closure and provides the added reassurance of securely holding it in place without the risk of pinching or slipping.

Benefits

- Maximum surface contact with closure ensures optimum accuracy
- Anti-slip rubber-lining enables consistent test measurement



Check the Spring Rollers on your Capping Head



Setting the spring-loaded rollers on the capping head is vital to ensure that metal closures are correctly applied. Excessive force will damage the closure and insufficient force will result in a poor fit.

Mecmesin's 200 N **Compact Force Gauge+ (CFG+)** is an affordable handy tool for making a quick check of the rollers on a routine basis.



Benefits

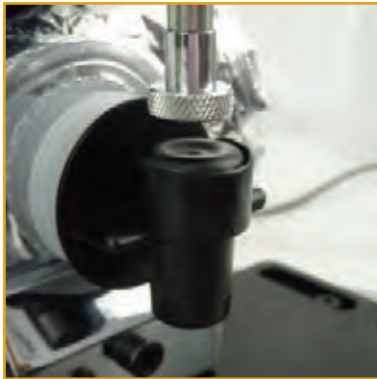
- Simple to operate
- Portable
- Peak force frozen on the display



Innovations in Wine Packaging

Good packaging is an integral part of preserving the condition of the final product. Wine and spirits are increasingly becoming available in a range of innovative packaging including cans, plastic bottles, pouches and cartons.

Mecmesin's force and torque test equipment has the flexibility to perform a number of different application tests on a vast array of packaging.



Actuation force of tap dispenser

Bag-in-Box

Components of bag-in-box wines perform a number of functions. The packaging itself must resist crushing when stored, stacked and shipped. The tap dispenser, commonly referred to as Flextap, Vitop or Presstop, must be sufficiently sealed to the foil pouch to stop leakage and enable a user to dispense the contents by pressing the tap button.

A compression test performed on the tap button will evaluate:

- The force used to activate the dispenser
- The ease and smoothness of activation, ensuring correct functionality of mechanism

To check the quality and strength of the adhesive bond between the bag and dispenser fitting, a tensile test is performed. This will enable:

- Assessment of adhesive application
- Ability to retain correct seal and minimise risk of leakage



Tensile strength of sealed joint



Ring Pull Closures on Cans

Ring-pulls must be able to withstand a sufficient level of tensile loading to open the container, 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.



PET, Tetra Paks & Cans

Top-Load Testing

Top-load testing is vital for maintaining and guaranteeing product packaging integrity in the manufacturing process, during stacking and storage and finally, in shipment.

Top-load, otherwise known as crush testing, measures a samples resistance to a compressive load. It's primary value is ensuring that containers can withstand the axial load applied during the capping process. Mecmesin's top-load testing systems enable you to measure:

- **The maximum compressive load, which a container can withstand**
- **Container free height**

Benefits

- Optimise package design to maximise production efficiency and volume
- Reduce material usage - downgauge for cost savings, whilst maintaining product strength
- Meet environmental standards

Plastic Screw Cap Closures

Used mainly on plastic wine bottles, Tetra Paks and pouches, the plastic screw cap must provide an impermeable seal to stop oxidation, thereby maintaining the quality of the wine, yet still allowing users to open the product without difficulty.

Mecmesin torque testers serve to:

- **Ensure a consistent level of torque is applied by the capping machine, to minimise damaged closures**
- **Determine the peak torque required to open a screw closure**
- **Measure slip-torque and bridge-torque of tamper-evident closures to ascertain effective closure performance**



What our customers say...

"The Mecmesin Orbis has helped us immensely with the introduction of screw cap closures. We love this unit because it is robust and easy to read on the large LCD display. This unit has been an integral part in testing screw cap closures; it has several times travelled with me to all corners of Australia. We chose the Mecmesin Orbis because of its reliability and robustness. It is great value for money especially compared to the old analogue units."

*Andrew Wright, Operations & Logistics Manager
CSA Australia, supplier of all kinds of wine closures*



Gift Packaging

Luxury wines and, in particular, spirits are presented in gift packs comprising a cardboard tube with metal lids as stoppers.

Ensuring that the metal lid fits sufficiently tight to the cardboard tube to prevent the bottle falling out, but not too tight that the consumer cannot gain access is an important measure of quality.

Mecmesin's highly-effective "lid-removal tester" operates by penetrating the metal lid and measuring the peak tension force to pull it off.



Lid removal test

Wine Labels, Container Seals & Adhesive Bonds

Peel Testing

Peel testing is used to determine the behaviour and strength of glued or heat-sealed seams on foil or plastic packaging. It provides a quantifiable assessment whether a package can be easily opened by a consumer, without tearing completely so that the contents spill out.

A tensile testing system from Mecmesin enables routine measurement of labels and seals to ascertain the force required to initiate and propagate a peel on container seals and adhesive bonds.



Peel test of induction-sealed foil tab

Benefits

- Optimise machine settings and production procedures to ensure correct and adequate application of adhesives
- Guarantee easy opening by end-user without compromising quality and usability of seals

Packaging Materials Used Within Form-Fill-Seal Converting Machinery



Static and Kinetic
Coefficient of Friction test

Coefficient Of Friction Testing

As the winery industry utilises a number of different packaging materials, it is vital to optimise processes in order to maintain effective production.

Form-fill-seal converting machinery needs to move, feed, shape, stretch, cut, weld and apply tensile load to raw packaging materials at high speeds. Coefficient of friction tests the slip properties or surface roughness of these materials to ensure each action can be undertaken with ease to maintain the efficiency of the converting process.

Benefits

- Optimise equipment running speeds to streamline production
- Reduce risk of damaged materials or products of sub-standard quality being manufactured
- Test to standards - ASTM D 1894, BS EN ISO 8295

More information...

To view any of our comprehensive range of literature:

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Mecmesin - 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.

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