

Closure Mandrels

The challenge posed to hold an ever-increasing variety of shapes and sizes of closures and containers is significant. Mecmesin has over 25 years of experience in working with a diverse group of customers to develop gripping solutions for torque testing. Whilst many closures and containers can be held by 'standard' grips it is frequently the case that 'customised' grips are required to secure the more unusual and odd-shaped specimens - these can be designed and made by Mecmesin engineers to suit your exact requirements.

Fixing Table

A common 'standard' gripping solution features a Fixing Table with 4 rubber-coated pegs. These can be positioned within the table to accommodate closures between 10-78mm in diameter. The pegs are tightened manually around the closure by the operator — although this provides a versatile method of tightening a wide span of closures it should be noted that it is not a perfect solution. It is not suitable for testing large batches as it takes time to load/unload the samples with consequential operator fatigue to the wrist. In addition, overtightening of the pegs can cause distortion to closures which may affect the repeatability of results.

It is often preferable to use a customised mandrel which has been specifically tailored to meet the size and form of your unique closure.

Mandrels

There are two versions of mandrels available to grip closures for torque testing.

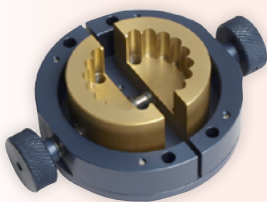
a) 'Split Mandrel' – this comprises 2 mandrel halves which have been machined to suit a narrow span of closure diameters and profiles. The jaws of the mandrel have either a rubber coating or a serrated finish depending on the application requirements. The closure is located between the mandrel halves and is gripped by lightly tightening the mandrels using either a leadscrew or a pneumatic chuck.



◀ Fixing Table with rubber pegs – part no: 432-32

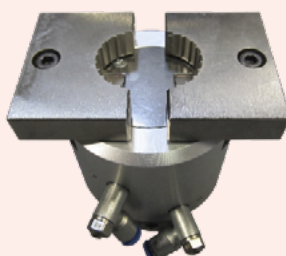


◀ Split mandrel with leadscrew to tighten jaws



▲ Split mandrel with serrated jaws designed for champagne corks

▼ Split mandrel with pneumatic chuck to tighten serrated jaws



▲ Split mandrels to suit differing closure sizes

b) 'Single-form mandrel' – machined specifically as an exact, dedicated, fit to match the profile of a single closure type and recommended for optimal repeatability of testing. The gently-tapered mandrel is placed upon the closure and the mandrel is then 'driven' by a Mandrel Peg Drive to apply the required torque. The mandrel can then move vertically which is essential for testing screw-type closures. Single-form mandrels are made to the user's specific design requirement.



▲ Single-form mandrels to suit closure size and knurl pattern



▲ Selection of single-form mandrels to suit various closure types and forms.



▲ Single-form mandrel with Peg Drive PDV15094-A to test TE bridge torque

The choice of mandrel is determined by the size and shape of the closure, its knurl pattern and the maximum torque expected. If you are not sure which mandrel is best suited to your application simply send some sample closures to our engineers for evaluation and receive a free quotation.

Suitable for various closure types (e.g. CT, ROPP, CR) when testing:

- Application Torque
- Removal Torque
- Incremental Torque
- Tamper Evidence
- Bridge Torque
- Strip Torque
- Re-application Torque

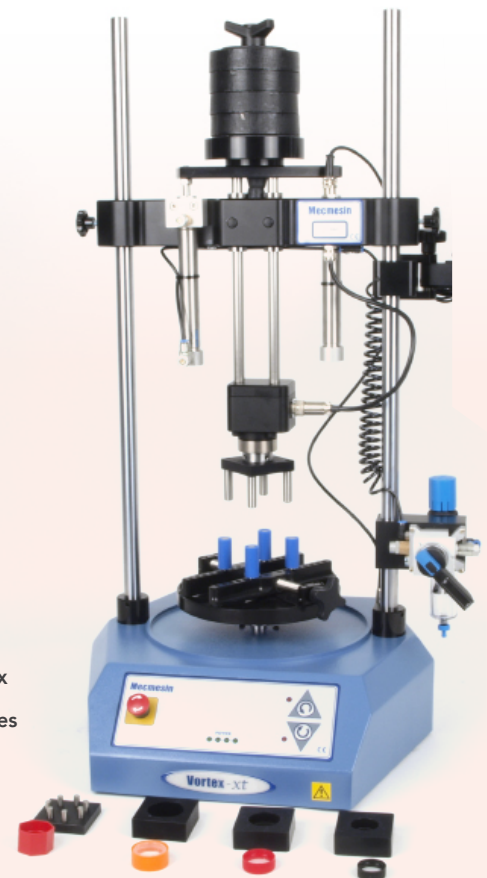
CRC (Child-Resistant Closures)

To actuate the CR mechanism of a closure it is often required to apply an axial load when testing. The Vortex range of Motorised Torque Testers are equipped with a 'top load' tray into which masses can be placed to simulate the axial load. To make this process easy for the operator a Pneumatic Lift Mechanism is available for use with the Vortex range. It only needs the control lever to be turned to apply or release the masses thereby saving time and eliminating fatigue for the operator.

The Vortex Pneumatic Lift can be used in combination with split or single-form mandrels.

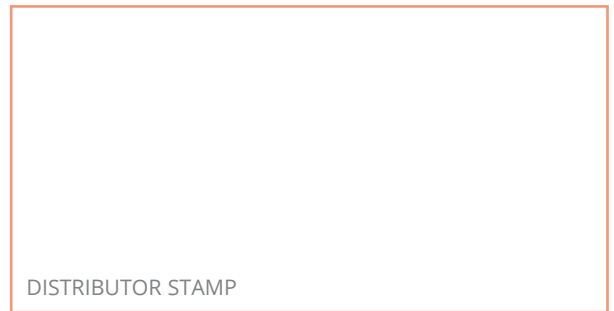
Contact Mecmesin for advice on the most suitable gripping solution for your closures and containers.

- ▶ Pneumatic lift attached to Vortex for applying and removing masses to CRC closures – shown with selection of single-form mandrels.





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