

Pump and Sprayer Grippers

Using Mesa Labs' automated torque analyzer testers can improve the ergonomics and cycle time when compared to other automatic and manual torque testers. One of the ergonomic benefits of using the SureTorque line of torque equipment is the automated and controlled (validatable) closure and bottling gripping process.

In order to make the closure gripping process as easy and repeatable as possible, Mesa Labs engineers have developed a variety of tooling to allow the automatic removal and application torque analysis of continuous thread (CT), child-resistant (CR), finger-tip sprayer, trigger sprayer and other types of pump dispenser caps.

In the section below, we will show examples of the different types of pump closures and the recommended gripping solutions for the SureTorque line of automated torque analyzers.

Non Child-Resistant "Eye Dropper" Closure

To accommodate the flow controller tip, "eye dropper" closures are typically "taller" than those bottles without the flow controller insert. Due to its height and the conical construction, most of these closures are compatible with our standard collet design.



Various Non Child-Resistant "eye dropper" designs, Compatible grippers: Chuck (Standard, Floating or Topload) + Collet (Standard or Deep) OR the "Two-arm" gripper.

Child-Resistant "Eye Dropper" Closure

In 2013, the Consumer Product Safety Commission (USCPSC) issued a rule to require child-resistant (CR) packaging for eye-drops containing imidazoline. In order to engage the outer shell of the CR cap assembly, an adjustable "hold-down" insert is added to the collet. When this collet is used with our topload chuck, the "hold-down" insert can be utilized to increase/decrease the cap engagement depth and to allow the fine-tuning of the topload force.



*Child-Resistant "eye dropper" Outer shell
Compatible grippers: Topload Chuck + Collet with Adjustable Hold-down Feature*

"Finger Tip" Spray Cap

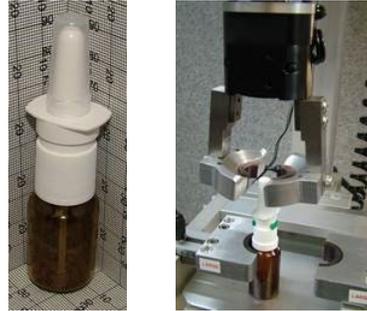
These spray caps are typically so "tall" that it is not possible to grip them with the "standard" SureTorque collet design. In order to accommodate these elongated closure assemblies, the "Deep" collet design or the "Two-arm" gripper must be used.



Various Non-Child Resistant finger tip sprayers
Compatible grippers: Chuck (Standard, floating or topload) + Deep collet or the "Two-arm" gripper.

"Finger Tip" Pump Closure

This closure type is most often used in the pharmaceutical industry, more specifically for nasal spray applications. While typically we recommend the "Two-arm" gripper, when the client's SOP and the pump design allow, the operator can quickly remove the conical/top part of the closure and test the remaining, serrated closure with a standard or a deep collet.



Typical "Finger tip" pump closure
Recommended gripper: "Two-arm" gripper.

Lotion Pump, Foamer and Trigger Spray

These closure designs are typically used for packaging household chemicals and cosmetics. Due to the geometry of these closure designs, the only way to test them is the "Two-arm" gripper assembly.



Lotion pump and trigger spray
Compatible gripper: "Two-arm" gripper.

If you have any questions about which gripping solution is right for you, please contact a Mesa representative.