Automated Cap Torque Testing

Ensuring seal integrity, operator safety, opening convenience and regulatory compliance through automated torque testing, custom tooling, field service and support.

Going Beyond the Standard

As a global leader in automated cap torque testing, Mesa understands that not all closures are created equal. A wide variety of cap designs require specialized tooling to accommodate application specific test requirements.

Going beyond the traditional, manually operated four-post bottle and cap gripping approach, we can automate testing of all closure styles from the basic, continuous thread caps through thin wall light weight plastic or ROPP (Roll on pilfer proof) and smooth surface TEB (tamper evident band) pouch caps to trigger spray, pump dispenser and child-resistant caps using our floating, topload or pump dispenser chucks. Furthermore, we have the capability to accommodate the most unique and unusual containers from tiny vials to extra wide/tall bottles.

Compliance

With the vast variety of cap/container combinations and a growing list of ASTM/ISBT/CETIE/ISO and customer specific test methods, Mesa has gone to great lengths to be able to customize its units for any cap testing situation. We have developed test methods to evaluate the application, release, strip, bridge-break torque of caps while also offering options to measure the application/release angle, the thread break torque of pressurized bottles (while maintaining the seal), the top-load and ratchet torque of child resistant caps and the gripping pressure sensitivity of lightweight caps and bottles.

Documenting your production and securing the integrity of your data can be as important as preserving the quality of your products. We understand electronic record keeping requirements as defined by FDA 21 CFR Part 11 and we support our customers to achieve compliance by providing a defensible audit trail, data security, and the ability to track corrective actions and user activities. Mesa makes data collection flexible with RS-232, USB or Ethernet connectivity. Results can be automatically transferred to an industry standard SPC (Statistical Process Control) software such as Mesa's WinSPC based TorqueIQ, or InfinityQS and Zontec - in both stand-alone or published (Citrix/Windows Terminal Server) environments.

Protect Your Most Valuable Assets

While testing seal integrity and opening convenience, operators can be exposed to safety hazards such as pinch-points, broken glass projectiles, splashing of high temperature or corrosive liquids, and repetitive motion injuries. Mesa helps prevent injuries from spills using a full machine guard and mitigate repetitive motion injuries by automating the torque testing process and offering a series of options to ensure that your technicians are protected while operating our torque analyzers. Moving to automation also provides more consistency - taking the unpredictable human factor out of the equation. The controlled gripping pressure of light weight closures, the consistent topload on child resistant caps and the repeatable angular velocity and torque ramp all ensure the accuracy of torque measurement.

MesaLabs

12100 W. 6th Avenue | Lakewood, CO 80228 | mesalabs.com | ph: 303.987.8000

Rev. 11.2022

Automated Cap Torque Testing

Service & Calibration

Regular calibration ensures that you're getting the most accurate results which can greatly improve your ROI and avoid production loss and costly recalls. Unlike 3rd party calibration labs that may lack familiarity with our testers, Mesa's certified technicians have the most intimate understanding of proper calibration and service techniques. This means we can ensure that your torque tester will be optimized for the best possible performance and most accurate data. Whether a validation or calibration is performed in our ISO 17025 certified lab or on-site at your facility, you can be confident in your results and prepared for audits.

Our national distributed field services team will complete all the necessary paperwork providing you with convenient service as well as a NIST-traceable calibration certificate for your records. We can develop a service contract to better help you manage your equipment fleet and to ensure the proper performance of your torque analyzer through the installation and operational qualification (IOQ) of the equipment. Training classes can be schedule on-site or at Mesa Labs, Lakewood, CO.Compliance

Above and Beyond

Whether it is through supporting world wide manufacturing principles through automating test recipe selection, tool-less changeover or providing solutions for child-resistant caps, Mesa continually introduces innovative features to improve accuracy, expand capabilities, and limit downtime.

Automatic Product Detection - Manual closure torque testing has poor ergonomics and has been plagued with errors from operator-induced variation such as: angular speed, topload, cap gripping pressure, etc. While automated torque testers eliminate the ergonomic concerns, they often require a trained mechanic to adjust the hardware and software configuration when changing over from one product to another. To overcome the complexity of the mechanical setup, Mesa Labs is now offering magnetically-coded locator bases which, in addition to being corrosion resistant, eliminate the need for mechanical and software setup adjustments.

Multi-Speed - The multi-speed option is useful for customers testing the application of closures in addition to performing common industry torque tests which need to be evaluated at a higher rate of speed. Customers testing ROPP style closures may utilize the multi-speed function to check closures at a faster rate to obtain a peak removal value, bridge break value, and finally complete stripping of the closure.

Testing the application angle also requires rotating the closure multiple turns. Turning the cap at a slower speed in the beginning and end of the test will result in accurate measurement, while faster rotation in between will reduce cycle times.

Top Load Control and Monitoring - Topload or, in other words, the push-down force on the outer shell of a child resistant (CR) closure, can create excessive and varying friction between the closure and bottle threads. With CR testing, there are several pitfalls. Varying friction translates to varying torque readout; therefore it is critical to apply repeatable topload. The higher the application torque is, the more topload will be required to open the closure without the outer shell ratcheting on the inner cap. Ratcheting may be incorrectly triggering the automatic detection of a torque peak (false torque result). High topload may not allow the "loose" cap torque to fall enough, not allowing the system to automatically detect the torque peak. Mesa's topload control and digital topload monitoring option allows cap manufacturers and brand owners to better understand the CR engagement transients during the removal of the cap.

Mesa's durable, sophisticated cap torque analyzers are setting the industry standard for ease of use, range of testing, and precise results. Offering everything from digital, hand-operated units to automated benchtop testers, Mesa has the perfect cap torque analyzer for your needs.

MesaLabs

12100 W. 6th Avenue | Lakewood, CO 80228 | mesalabs.com | ph: 303.987.8000