

Installation Instructions for Texture Accessory Part TA-MDI

TA-MDI – Metered Dose Inhaler Fixture

The Metered Dose Inhaler is a medical/pharmaceutical device used by consumers to administer a precisely measured amount of prescription drug to the lungs. The end user mechanically actuates the metering valve incorporated into the MDI with a press of the finger or thumb. The actuation force for the valve must be within defined limits set by the engineering team responsible for the design. The MDI Fixture provides a test setup for evaluating the mechanical performance of the metering valve.

The MDI Fixture consists of the MDI Holder, which secures the test sample in position for evaluation of its performance, and a cylindrical Finger Probe, which attaches to the CT3 Texture Analyzer. The MDI Holder is on a platform that fits into the opening on the Fixture Base Table; remove the Base Table Insert and replace with the MDI Holder. The MDI test sample is aligned vertically in the Holder and fixed in position using two adjustable nuts, which tighten the clamping bar. The actuation plunger on the MDI faces upwards. This allows the Holder to accommodate MDIs of variable size.

The Finger Probe is brought into position approximately 1 cm above the Actuation Plunger on the MDI. Probe speed for the actual test can be set from a fraction of 1 mm/sec up to 10 mm/sec. Various speeds should be tested to ensure acceptable performance of the MDI. The test technician also sets the distance for the Probe movement. This value is determined by the design specification for the total travel distance of the Plunger.

When the test begins, the Probe moves downward, makes contact with the Plunger, and applies increasing force until the metering valve actuates. The CT3 measures the force applied to the Actuation Plunger and reports the Peak Load, which is the maximum force needed to actuate the metering valve in the MDI.

This test method allows the engineering team to evaluate the overall performance of the mechanical components in the metering valve, as well as the propellant system that expels the medication. This test can also be used by QC to verify performance of production MDIs.

