

nuvalore

Force Measurement Services for Drug Delivery Devices

Pharmaceutical products succeed when their delivery systems work flawlessly. Small variations in forces can impact dose accuracy, usability, stability, and regulatory acceptance. **nuvalore** delivers precise force measurement and mechanical profiling for combination products with full GMP execution and ISO-aligned methods, giving development teams the data they need to ensure safe, reliable performance across key phases of drug product development, verification, and commercial readiness.

Our scientists perform Combination Product Mechanical Testing using universal testing systems, including the **ZwickiLine 0.5**, to capture precise force profiles, evaluate device usability, and generate data suitable for regulatory use.



The result: Defensible insight into mechanical performance that reduces device-related risk, enables smoother and more predictable injections, and supports regulatory submissions and safe patient administration.

Our Force Measurement Capabilities

Prefilled Syringe Force Testing

Quantitative measurement of plunger forces to ensure smooth, controlled drug delivery while identifying variability that can affect dose accuracy, injection comfort, and device usability prior to scale-up and submission.

- Glass and polymer prefilled syringes
- Plunger–stopper systems
- Needle shield assemblies

Autoinjector & Pen Injector Testing

End-to-end force profiling of automated injection systems under realistic use conditions to confirm reliable activation, consistent injection performance, and reproducible dose delivery.

- Autoinjectors
- Pen injectors
- Emergency injection devices

Needle Shield & Safety System Testing

Measurement of breakout, removal, and re-engagement forces for needle safety components to ensure secure handling while maintaining intuitive, compliant user interaction.

- Rigid and soft needle shields
- Passive and active safety systems

Closure & Container Force Testing

Mechanical testing of container closure systems to evaluate opening, removal, and sealing forces, balancing container integrity with usability to support both patient handling and regulatory expectations.

- Vials and stoppers
- Flip-off caps
- Crimped and snap-fit closures

Primary Packaging Force Evaluation

Assessment of mechanical strength and opening behavior of pharmaceutical packaging components to verify packaging protection while maintaining consistent ease of use across clinical and commercial formats.

- Blister packs
- Pouches and sachets
- Foil and peelable seals

Why Leading Pharma Choose nuvalore

Regulatory-Ready Data

Clear, defensible outputs and documentation designed to support submissions, audits, and lifecycle decisions.

Tailored Support

Development strategies adapted to your product, device, and program stage.

Trusted Expertise

GMP-compliant analytical and mechanical testing grounded in regulatory expectations for combination products.

GET IN TOUCH

nuvalore GmbH
Paul-Ehrlich-Str. 1
D-69181 Leimen
Germany

Dr. Anamarija Curic
anamarija.curic@nuvalore.com
+49 (6224) 179 966 1
www.nuvalore.com