



Vertus® III Range

*Flexible Benchtop Shake, Fire and Flow Control for MDIs,
Nasal Sprays & Nasal Aerosols*

Vertus® III Range

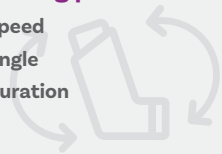
Offering precisely controlled and repeatable delivery for Delivered Dose Uniformity (DDU) testing and Aerodynamic Particle Size Distribution (APSD) measurement, the Vertus III and Vertus III+ automate all aspects of MDI, nasal spray and nasal aerosol dose testing.

Compatible with over 40 different collection device combinations including DUSA, Next Generation Impactor (NGI), Alberta Idealised Throat and Nasal Inlets, and Spray Force Tester, the Vertus III range offers total control over the test technique, but the flexibility to apply any industry-standard shake and fire test method.

The Vertus III range offers complete control over all test parameters, including:

Shaking profile

- Speed
- Angle
- Duration

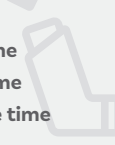


Time between shake and fire



Firing profile

- Force
- Rise time
- Hold time
- Release time



Air flow through the system



As the Vertus III range is fully compatible with DecaVertus® III, methods can be easily transferred between systems, with DecaVertus III used to alleviate the burden of through-life testing.



Key Benefits



Ph. Eur., EMA, USP, FDA, ChP and NMPA compliant



21 CFR Part 11 compliant



Precise control over all test parameters



Compatible with all standard collection devices



Suitable for a wide range of MDIs, nasal sprays and nasal aerosols



Integrated air flow



Ideal for both DDU and APSD



Suitable for both R&D and QC applications



In situ impactor leak testing capability



Extensive reporting options



Stores and recalls methods



Broad shake and fire parameters accommodate a wide scope of methods

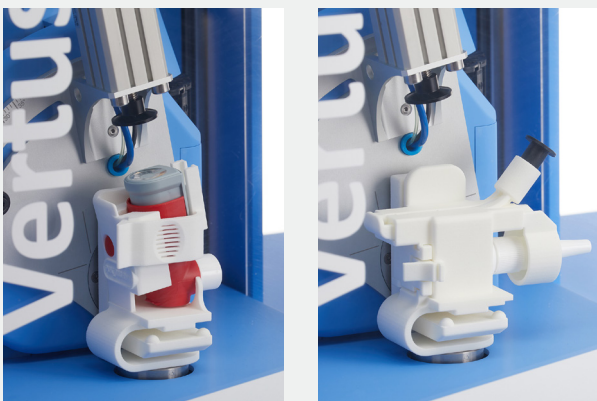
Key Features



Shot Weight Measurement

The Vertus III+ has the additional capability of measuring shot weight (the weight of the dose released during a single actuation) via an integrated analytical balance. Useful for assessing the consistency of drug release from the device, shot weight is an efficient way to detect misfiring and more broadly, for analytical troubleshooting.

Ph. Eur. (monograph 0676) requires the monitoring of Uniformity of Delivered Mass by collecting shot weights of nasal sprays through life. Automation significantly streamlines the testing process when shot weight information is required.



Exhaust Port

The exhaust port supports the efficient extraction of flammable propellants or high potency drugs where additional safety measures are required.



Interface Plates

The Vertus III range is compatible with collection devices for all compendial testing, plus other standard tests for MDIs, nasal sprays and nasal aerosols.

Interface Plates for MDIs



Priming & Waste Module

The new Priming & Waste Module integrates firing-to-waste into automated test methods, enabling compendial entire contents testing with minimal manual input.

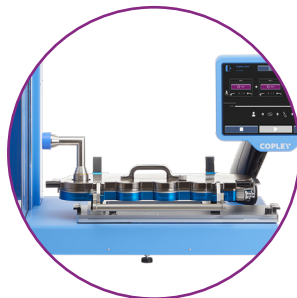
Each interface plate can be placed directly on top of the Priming & Waste Module. Vertus III and Vertus III+ can switch automatically between priming and test levels, firing-to-waste or to dose collection as required, without operator intervention. This enables highly efficient testing procedures, most notably to meet through-life test requirements for DDU and APSD. Additionally, the Priming & Waste Module can be used as a standalone interface for waste shot collection.

↑ Vertus III shown here with **DUSA Stack** and **Priming & Waste Module**

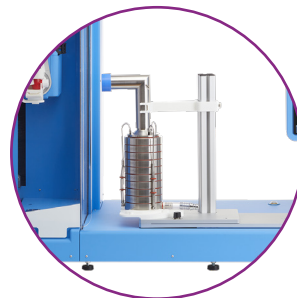
Compatible Test Interfaces



Priming & Waste Module only



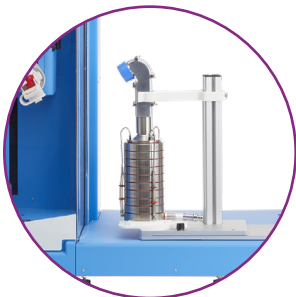
Next Generation Impactor NGI with Induction Port



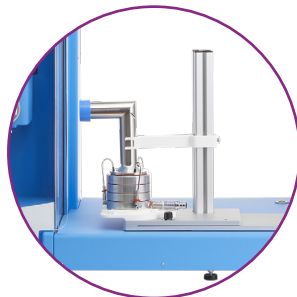
Andersen Cascade Impactor ACI with Induction Port



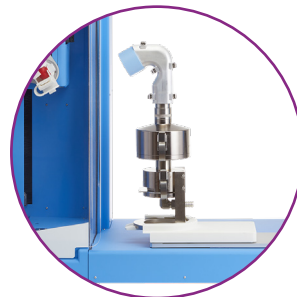
Next Generation Impactor NGI with Adult Alberta Idealised Throat



Andersen Cascade Impactor ACI with Child Alberta Idealised Throat



Fast Screening Andersen FSA with Induction Port



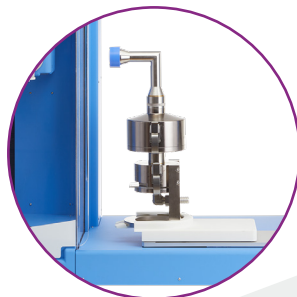
Fast Screening Impactor FSI with Adult Alberta Idealised Throat



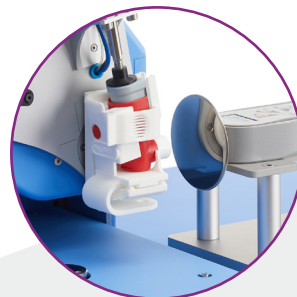
Glass Twin Impinger GTI



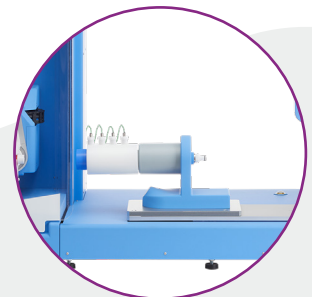
Thin Layer Chromatography (TLC) Plate



Fast Screening Impactor FSI with Induction Port

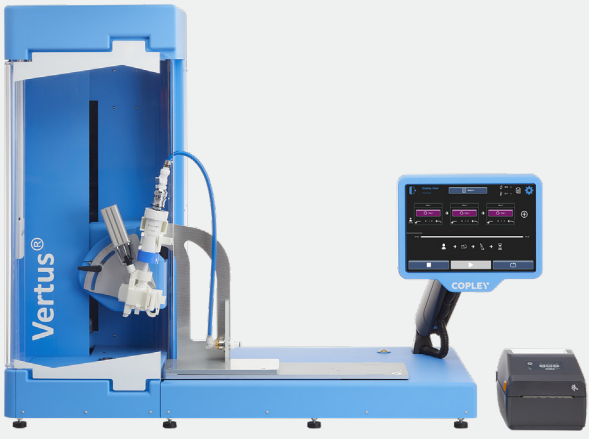


Spray Force Tester SFT



Plume Temperature Tester PTT

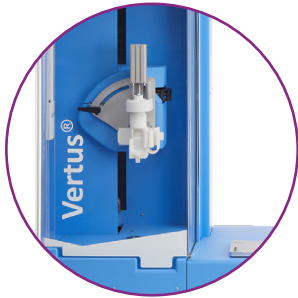
Interface Plates for Nasal Sprays & Nasal Aerosols



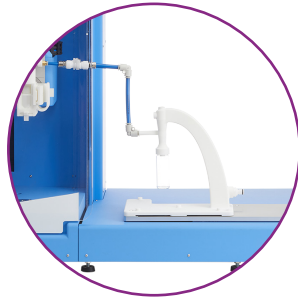
For DDU testing of nasal sprays and nasal aerosols, USP <601> recommends a 'mechanical actuation procedure' to control actuation force, speed, stroke length and for units to be 'thoroughly shaken' prior to firing the dose. In addition to this, the 2003 FDA guidance on Bioavailability and Bioequivalence recommends automated actuation systems for BE assessments to decrease variability in drug delivery.

← Vertus III shown here with **DUSA Interface Plate**

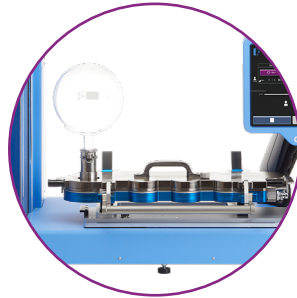
Compatible Test Interfaces



Nasal Spray Dose Collector
NSDC



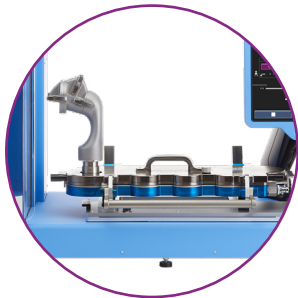
Nasal Spray Waste Collector
NSWC



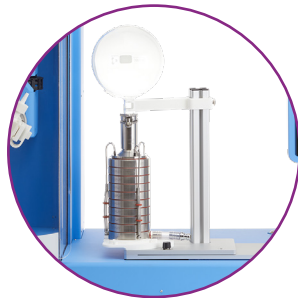
Next Generation Impactor NGI
with 2L Glass Expansion Chamber



Andersen Cascade Impactor
ACI with Alberta Idealised Nasal
Inlet AINI



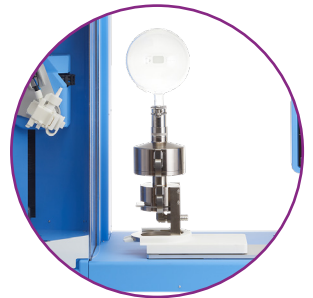
Next Generation Impactor NGI
with Alberta Idealised Nasal
Inlet AINI



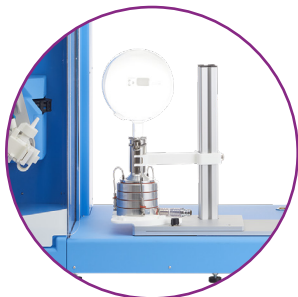
Andersen Cascade Impactor
ACI with 2L Glass Expansion
Chamber



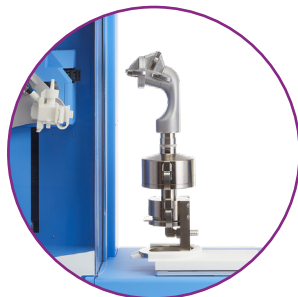
Fast Screening Andersen FSA
with Alberta Idealised Nasal Inlet
AINI



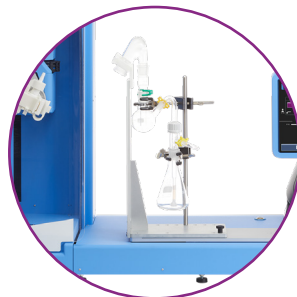
Fast Screening Impactor
FSI with 2L Glass Expansion
Chamber



Fast Screening Andersen FSA with
2L Glass Expansion Chamber



Fast Screening Impactor FSI
with Alberta Idealised Nasal
Inlet AINI



Glass Twin Impinger with
Nasal Adapter



Thin Layer Chromatography
(TLC) Plate

Technical Specifications: Vertus III & Vertus III+

Shaking parameter control includes:

Shake starting angle	✓	Shake speed	✓
Shake angle	✓	Shake duration	✓

Firing parameter control includes:

Fire force	✓	Force release time	✓
Fire rise time	✓	Firing angle	✓

Air flow parameter control includes:

Air flow rate	✓	Air flow measurement	✓
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Shot weight measurement (Vertus III+ only)

Weight range:	0.01 mg to 200 g
	Resolution: 0.01 mg

Device compatibility

MDIs:	✓	Nasal aerosols:	✓
Nasal sprays:	✓		

User interface:

10.1" colour touchscreen

Dimensions (w x d x h):

1020 x 510 x 920 mm

Connectivity:

- Ethernet x 4
- USB x 3
- Run Out digital output
- Run In digital input
- RS-232
- Balance for shot weight collection
- Temperature & Relative Humidity probe
- Label Printer

Qualification & Maintenance

- Comprehensive IQ/OQ documentation
- Qualification kit available
- Extended warranty available
- Remote support and field servicing available

Vertus III & Vertus III+: Reporting

Extensive data output options are available as standard:



Reports:

- Run report
- Audit report
- Method report

Vertus III & Vertus III+

Cat. No.	Description
9770	Vertus III Shake and Fire System
9790	Vertus III + Shake and Fire System
9765	Label printer

For a full list of catalogue numbers and pricing information, please contact sales@copleyscientific.co.uk



Copley Scientific Limited
Colwick Quays Business Park, Road No.2
Nottingham, NG4 2JY
United Kingdom

+44 (0)115 961 6229
+44 (0)115 961 7637
sales@copleyscientific.co.uk
copleyscientific.com