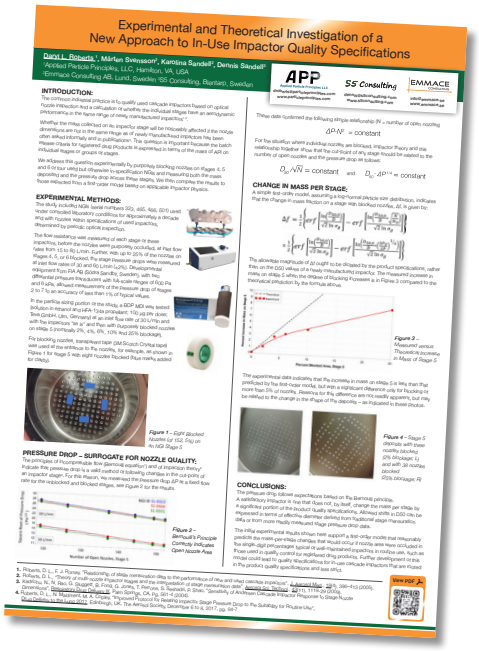
All-in-One Flow Controller TrB III Trigger Box

Inhaler Testing – No Assumptions

The TrB III Trigger Box ensures compliance with standard pharmacopeial methods, both recording and storing key system parameters, including the actual flow rate and run duration. Many inhaler test methods rely on critical flow conditions across the flow control valve, aiming to ensure the same flow rate on each test. But the TrB III does more – actually measures the flow of each test – so, there are no assumptions.

A calibrated laminar flow element (LFE) internal to each TrB III enables the user to set the flow rate at the beginning of a test sequence; with this LFE, the TrB III then records the flow rate of each test, ensuring against drift, leaks, and other non-ideal behavior that may introduce variability in test results. The TrB III also records the other more traditional run-time parameters, such as the test duration, the pressure drop across the inhaler device (P1), and the flow control pressure ratio (P3/P2, critical flow if ≤ 0.5). To measure pressure drop over, e.g., individual impactor stages to detect blockage, additional internal sensors are used (refer to the article to the right).

Additional user-friendly functions are leak checking and device actuation. Device actuation enables the flow to start simultaneously with dose actuation of a metered-dose inhaler, allowing a user-defined, fixed flow volume for MDI total dose testing. Query i@fia.se for details of actuator options.


Experimental and Theoretical Investigation of a New Approach to In-Use Impactor Quality Specifications

Prototype TrB III Trigger Box assisted in study entitled *Experimental and Theoretical Investigation of a New Approach to In-Use Impactor Quality Specifications,* presented at Drug Delivery to the Lungs, DDL2018, Poster number 34.

The TrB III Measures and Reports

- Run Duration (flow time)
- P3/P2; flow control pressure ratio (critical flow confirmation)
- P1; device pressure drop
- Q; volumetric flow
- Number of actuations
- Pressure drop

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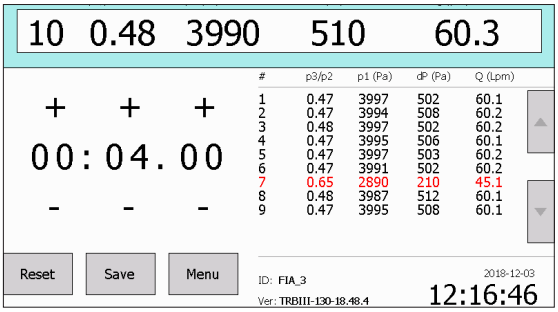
User-Friendly

With a large-handle flow control valve and easy-to-read display, the TrB III can quickly be set to go. Just press the start button (or foot pedal) and each run clicks off like clock-work – a resettable run counter helps ensure that the correct number of actuations are made.

The TrB III has a 7" touch-screen that allows the system to be set up and measured values to be presented; this screen can be operated with or without gloves.



GMP-Friendly and Quality-Friendly

Need a data record from your testing – no problem; the equipment stores the data from each actuation, and at the end of each test the Print sign can be pressed. The TrB III readily connects to many standard laboratory dot-matrix printers; **print, sign, done**. Enquire for more information. Printing eliminates the uncertainties of how many doses have been taken and under what conditions! It fits equally well within your R&D as in your GMP QC department. For the latter and if desired, simplified versions with less data ports of the TrBIII are available.

In-house calibration – **YES** – no need to send to FIA for periodic calibration (ask our representative for suggested methods).

Specifications

High-quality pressure sensors – for device pressure drop, critical flow control, flow measurement, and stage pressure drop.

Function	Full-Scale	Total Error Band over Entire Temperature Range (1% of Full-Scale)	Accuracy in Typical Laboratory (0.25% of Full-Scale)
Device Pressure Drop, P1	16 kPa	0.16 kPa	0.04 kPa
Pressure upstream of flow control valve, P2	160 kPa	1.6 kPa	0.4 kPa
Pressure downstream of flow control valve, P3	160 kPa	1.6 kPa	0.4 kPa
Pressure Drop of Laminar Flow Element	250 Pa	2.5 Pa	0.6 Pa
Stage Pressure Drop Sensor, dP*	0-600 Pa 600-6000 Pa	6 Pa 60 Pa	1.5 Pa 15 Pa

0.46 ms response time, 0°C to 50°C operating temperature, temperature-compensated output.
*additional equipment needed for stage pressure drop measurements; i@fia.se

For contact and more information

Kjell Fransson
AB FIA
Managing Director
kjell.fransson@fia.se
Mobile: +46 701 45 54 83

AB FIA Vinkelhaken 1 D
SE-247 32 Södra Sandby, Sweden
+46 46 13 90 00
i@fia.se • **www.fia.se**