



## DESCRIPTION

GranuFlow is an improved laboratory silo compared to the ancient Hall Flow Meter (ASTM B213, ISO4490) and compared to the “Flow Through An Orifice” method described in the Pharmacopeia (USP1174). GranuFlow combines a Stainless-Steel cell of 500 ml capacity and a rotating plate with 7 different holes with diameters from 1 to 38 mm. Holes diameters are manually increased while the measurement takes place. A dedicated electronic balance measures automatically powder mass flowrate without user dependency.

## PRINCIPLE

The mass flowrate is computed automatically from the slope of the mass temporal evolution measured with the balance. The aperture size is modified quickly and easily with an original rotating system. The measurement and the result analysis are assisted by software. The flowrate is measured for a set of aperture sizes to obtain a flow curve. Finally, the whole flow curve is fitted with the well-known Beverloo theoretical model to obtain a flowability index ( $C_b$ , related to the powder flowability) and the minimum aperture size to obtain a flow ( $D_{min}$ ). The whole measurement is performed easily, quickly and precisely.

## KEY BENEFITS

- › The measurement of mass flow through the various holes doesn't require any disassembling and cleaning of the instrument.
- › The configuration of the GranuFlow can be adapted to meet a wide range of cell capacities.

## DIFFERENTIATORS

- › The only automatic funnel flowmeter on the market.
- › Able to measure precisely the flowability of powders through a full range of holes at once.
- › Fast (less than 5min for the full Beverloo curve calculation [1]), accurate and highly reproducible results (2% of accuracy, without user dependency).
- › Intuitive results interpretation. Robust and easy to maintain.
- › Delivered with intuitive software which allows the comparison of results. All data are automatically collected and stored for post processing. Easy data transfer and automatic report generation.
- › Accurate estimation of the minimum drain diameter of the tested material.

## APPLICATIONS

- › Powders flowability measurements in a silo-funnel geometry.
- › Powders flowability classification for the galenic formulation.
- › Fast and accurate test for production line, able to detect problematic samples before their introduction inside the silo.

## OPTIONS

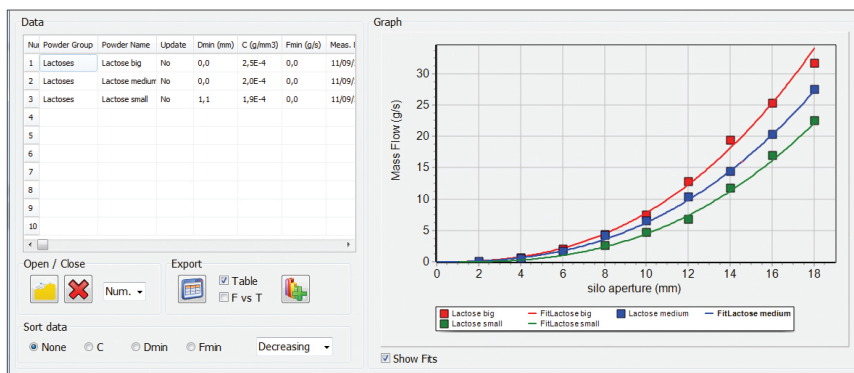
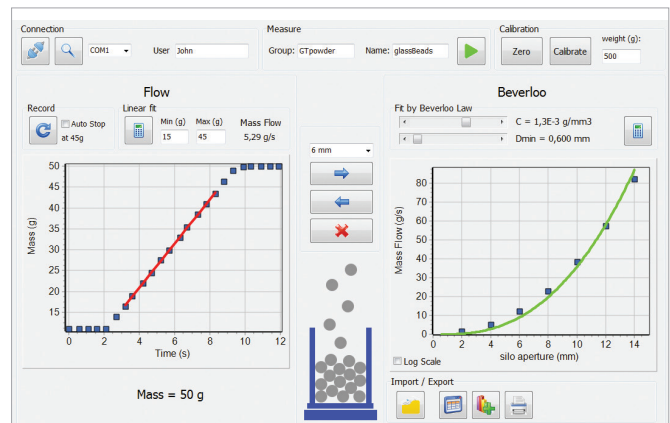
- › Extra rotating plates for high and low cohesion powders.
- › Standalone version including ultrasonic sensor and electronic display for heavy duty environments.
- › Calibration kit.

[1] So-called cup tests take around 30 min, and impossible to obtain the Beverloo Law with the Hall flowmeter.



## GRANUFLOW SPECIFICATIONS

DIMENSIONS L X W X H (mm)	400 x 400 x 600
WEIGHT (kg)	6.3
MAXIMUM CELL SIZE (ml)	500
MINIMAL SAMPLE VOLUME (ml)	50
COMPUTER REQUIREMENTS	Dual core with 2.0GHz, 4Go RAM, Windows XP to 10 with up to date Service Packs
CONNEXION	USB 2.0 port



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