



## Powder Testing Workstation™ PTW and Powder Testing Assistant™ PTA 100i

Powders are a critical component in industries ranging from pharmaceuticals and cosmetics to food production and battery manufacturing. In pharmaceuticals specifically, they are the foundation of products such as tablets, capsules, and certain inhalable formulations, as well as primary ingredients in creams and ointments. Ensuring reliable manufacturing processes and consistent final product performance requires an understanding of how these constituent powders behave.

The Powder Testing Workstation PTW is a compact, user-friendly solution designed to meet the standards set by USP, Ph. Eur., ASTM and ISO for powder testing. By integrating six established methods into a single, cost-effective unit, the PTW enhances compliance and efficiency.

Complemented by the Powder Testing Assistant™ PTA 100i, which guides users through standardised methods, automates calculations, and reduces transcription errors, this combination provides a comprehensive and reliable approach to powder flow analysis, streamlining workflows and ensuring accurate results.

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# Powder Testing Workstation™ PTW Modules



**Angle of Repose** – provides a simple method for assessing the frictional characteristics of powders, making it ideal for predicting manufacturing issues associated with gravitational flow. Incorporating a 100 mm diameter circular test platform, powder cone heights up to 145 mm can be easily read from the digital height gauge display. The Angle of Repose ( $\theta$ ) is determined by measuring the powder cone's height in millimetres, dividing it by 50, and calculating the inverse tangent to obtain the angle in degrees.

**Flow Through an Orifice via Cylinder** – records the time taken for a known quantity of powder to pass through a cylinder with an outlet orifice of a given diameter. Featuring interchangeable stainless-steel disks (ranging from 4 to 36 mm), it provides key insights into flow rate and behaviour. Optional Balance and Timer attachments further enhance accuracy by simplifying mass vs. time tests.



**Flow Through an Orifice via Funnel** – records the time taken for a fixed quantity of powder to pass through a funnel of known outlet diameter. Supplied with quick-change nozzles (5, 7, 10, 15, and 25 mm), it simulates flow in hoppers or similar equipment. Made from pharmaceutical-grade 316 stainless steel, the funnel features a simple shutter system for easy testing.

**Bulk Density via Scott Volumeter** – determined using a Scott Volumeter in accordance with USP and Ph. Eur. standards. Comparisons of bulk and tapped density can be used to derive metrics such as Carr's Index and Hausner Ratio, providing information on powder behaviour during handling and storage.



**Shear Cell** – evaluates how consolidated powders transition into flow, providing a valuable insight into powder behaviour in hoppers, bins, and feeders. This simple, cost-effective method helps understand the incipient flow properties of bulk solids.

**Metal Powder Testing** – evaluate flowability using Hall, Gustavsson, and Carney Flowmeter methods, in accordance with ISO and ASTM standards, to gain insights into powder behaviour in processes such as filling, spreading, and compaction, crucial for advanced manufacturing methods.



Angle of Repose	
100 mm	● Excellent
28.67 mm	Good
29.8°	Fair - aid not needed
	Passable - may hang up
	Poor - must agitate, vibrate
	Very poor
	Very, very poor

- PTW enables six established test methods including Angle of Repose, Flow Through an Orifice via Cylinder and Funnel, Bulk Density via Scott Volumeter, and Shear Cell, plus Flowability and Bulk Density of Metal Powders (Hall, Gustavsson and Carney Flowmeter) - all within a single unit
- The complementary PTA 100i ensures data integrity by incorporating automated timings and weight measurements, integrated calculations and a variety of data export options
- Compliant with USP, Ph. Eur., ASTM, and ISO standards
- Intuitive interface for easy operation
- Precision engineered from lightweight and durable materials ensuring long-life and easy maintenance

**All PTW modules are compatible with the PTA 100i**

# Powder Testing Assistant™ PTA 100i



Bringing a new level of precision and reliability to your powder testing routines

Introducing the Powder Testing Assistant PTA 100i, a unique smart companion designed to optimise powder flow testing. Combined with the Powder Testing Workstation™ PTW, it guides users through each test method, ensuring precision and consistency at every step.

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real-time weight capture from a connected balance, and versatile reporting options, the PTA 100i ensures accurate workflows, minimises user errors and enhances data integrity making it the ultimate tool for reliable powder testing across diverse applications.

## PTA 100i User Interface



A: Angle of Repose    B: Bulk Density    C: Flow Through an Orifice via Cylinder - Fixed Time Density    D: Flow Through an Orifice via Funnel - Fixed Mass

### Key Features:

- Designed for use with all PTW modules: Angle of Repose, Flow Through an Orifice via Cylinder and Funnel, Bulk Density via Scott Volumeter and Shear Cell, plus Flowability and Bulk Density of Metal Powders
- Compliant with USP, Ph. Eur., ASTM, and ISO standards
- Step-by-step method walk-through
- Integrated timer
- Automated calculations
- Intuitive interface
- Export reports via RS-232 and USB, or direct to a printer



# Accessories

## PTW and PTA 100i Accessories



Kern Balance with PTW and PTA 100i



Kern Balance



Ohaus Balance with PTW and PTA 100i



Ohaus Balance



Timer for PTW



Cylinder Rack



Funnel Rack



Anti-Static Grounding Kit



Stirrer Attachment



## Powder Testing Workstation™ PTW

Cat. No.	Description
1670	Powder Testing Workstation PTW
1674	Angle of Repose Module for PTW
1671	Cylinder Module for PTW
1672	Funnel Module for PTW
1675	Shear Cell Module for PTW
6310	Scott Volumeter – PTW
1681	Metal Powder Testing Apparatus - PTW

## Powder Testing Assistant™ PTA 100i

Cat. No.	Description
1680	Powder Testing Assistant™ PTA 100i
9765	Label Printer

## Optional Accessories

Cat. No.	Description
1678	Timer for PTW
1677	Anti-Static Grounding Kit for PTW
1676	Stirrer Attachment for PTW
1673	Kern Balance (1 D.P readable, 1000g max)
1664	Kern Balance (2 D.P readable, 400g max)
1665	Ohaus Balance (3 D.P readable, 440g max)
6302	Filter Insert with 10-Mesh Screen for Scott Volumeter
6303	Volume Certification of the Density Cup
6305	Spare Density Cup
6306	Spare Set of Glassware for Scott Volumeter



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