AERO **M**

Routine particle size analysis for bulk dry powder samples

PARTICLE SIZE

Key benefits

- Measures dry powder particle size distributions over a wide 0.1-1000µm range
- Fast, reproducible measurements achieved without the need for liquid dispersants
- Large sample masses can be measured, ensuring good sampling is achieved
- Measurement reproducibility is maintained through software verification of the sample dispersion settings during measurements
- Can be configured for different applications through the purchase of additional sample trays and powder hoppers
- Abrasive samples can be measured through the use of ceramic venturi dispersers

The Aero M is designed to enable particle size and size distributions to be measured for bulk dry powder samples. Its modular design enables it to be configured to achieve robust particle size measurements in different applications and also ensures it is easy to maintain during routine use.

The use of dry powder dispersion for particle size and size distribution measurements is advantageous when measuring bulk materials, as a large mass of powder can be measured. This helps with the sampling of materials which are polydisperse, improving the result reproducibility and also making it more likely that out-of-specification materials will be detected. In addition, dry powder dispersion avoids the need for liquid dispersants, reducing the cost of measurement and increasing sample through-put.

The Aero M disperses materials by accelerating dry powder particles through a venturi using compressed air. Dispersion is achieved through the shearing of agglomerates as well as through particle-particle collisions and particle-wall collisions. This ensures that agglomerated materials are dispersed to a primary particle size prior to measurement using the Mastersizer 3000E laser diffraction particle size analysis system. The energy associated with each dispersion mechanism can be controlled by the user by setting the air pressure drop across the venturi, enabling dispersion to be achieved without particle break-up.

The sample feed rate through the Aero M is controlled using a vibrating powder feeder, which maintains a suitable sample concentration for measurement. This ensures that reproducible, rapid measurements can be made. A range of sample trays are available to aid the routine measurement of different powder types and sample masses.

Specifications

Sample requirement	
Measurement Size range	0.1 - 1000 µm *
Dispersion Pressure Range	0 - 4 bar
Pressure setting precision	+/- 0.1 bar
Pressure setting accuracy	+/- 0.03 bar
Materials in contact with sample	410 hardened stainless Borosilicate glass EPDM PTFE Polyurethane Carbon filled acetal Aluminium Neoprene
Minimum time between measurements	less than 60 sec *
Dimensions	260 mm x 180 mm x 380 mm (L x W x H)
Mass	10.5 kg
Power Supply	Supplied via the Mastersizer 3000E optical unit
† Sample dependent. Relates to the use of the unit with the Mastersizer 3000E, which also has a upper size limit of 1000 µm.	

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