

# SMALL-SCALE POWDER DISPERSER MODEL 3433

RUGGED, RELIABLE INSTRUMENTS FOR POWDER  
DEAGGLOMERATION AND DISPERSION



TSI's Small-Scale Powder Disperser Model 3433 is used mainly for powder sizing. The operator gently brushes the powder to be dispersed across one of three annular rings of abrasive paper glued to the top of a turntable. One end of a stainless-steel capillary is positioned just above the turntable, the other in a venturi throat. A suction transmitted through the capillary tube removes the powder from the surface of the turntable. Because the air velocity in the venturi throat greatly exceeds that in the capillary tube, shear forces are created where the two flows meet, causing the powder to deagglomerate. The powder then enters an expansion cone, from which it exhausts from the unit.

## Applications

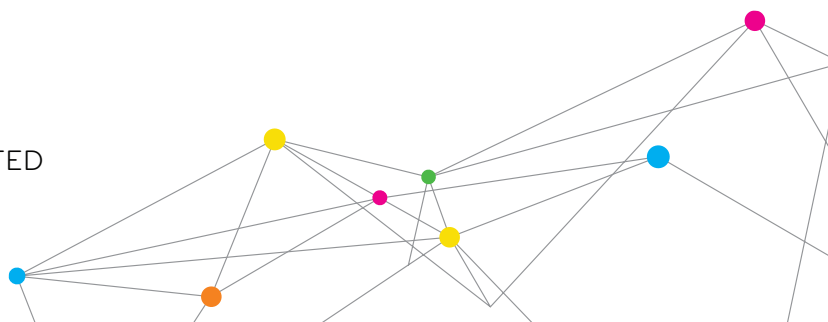
- + Generating aerosol for introducing powder into particle sizing systems such as TSI's Aerodynamic Particle Sizer® (APS™) Spectrometer Model 3321
- + Dispersing dry polystyrene latex spheres (PSLs) for use in calibrating measurement instruments
- + Redispersing airborne material collected on 25 and 37 mm diameter membrane filters used in environmental monitoring
- + Inhalation toxicology studies, particularly in the pharmaceutical industry

## Features and Benefits

- + Deagglomerates most dry particles in the range from 0.5 to 50  $\mu\text{m}$
- + Selection of turntables available to meet specific dispersion needs
- + Use as an APS spectrometer accessory for particle-size-distribution measurements



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## SPECIFICATIONS

### SMALL-SCALE POWDER DISPERSER MODEL 3433

#### Output Concentration Range

0.3 to 4 mg/m<sup>3</sup> with standard motor; 3 to 40 mg/m<sup>3</sup> with alternate motor

#### Powder Feed Rate Range

3 to 90 mg/hr

#### Carrier Gas Flow Rate Range

12 to 21 liters/min at 138 KPa (20 psi)

#### Particle Size Range

Related to size of powder to be dispersed. Maximum size is approximately 50- $\mu$ m aerodynamic diameter; particles smaller than 1  $\mu$ m do not deagglomerate efficiently.

#### Turntable Rotation

Clockwise or counterclockwise, between 0.25 and 3.3 rev/hour; 2.5 to 33.3 rev/hour with optional high-speed motor

#### Power Requirements

100, 120, 220, 240 VAC; 50 to 60 Hz; 20 W

#### Dimensions (L x W x H)

386 x 432 x 343 mm (15.2 x 17 x 13.5 in.)

#### Weight

18 kg (39 lbs)

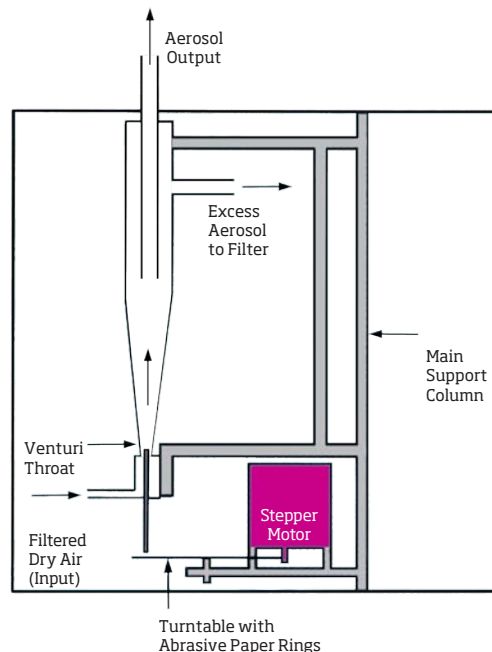
It is recommended that the powder dispersers described in this brochure be used with the TSI's Air Supply System Model 3074B.

**Warning:** Dispersed dusts may be toxic and hazardous.

TSI assumes no responsibility for personal injury or property damage due to inappropriate use of these instruments.



Supplied (lower right) and optional turntables.



#### TO ORDER

##### Small-Scale Powder Disperser

Specify	Description
3433	Small-Scale Powder Disperser

##### Optional Accessories

Specify	Description
1030779	Alternate motor to provide 2.5 to 33.3 revolutions per hour
1030737	Additional turntable (127-mm diameter) with three concentric rings of abrasive paper (one is supplied with the instrument)
1030770	Turntable with abrasive rings preloaded with a range (5, 7, 10, 15, 20, and 30 $\mu$ m) of monosized dry PSL spheres
1030772	Turntable with three concentric V-shaped grooves
1030771	Turntable with porous plastic membrane filter supports at 25- and 37-mm diameters



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TSI Incorporated - Visit our website [www.tsi.com](http://www.tsi.com) for more information.

<b>USA</b>	<b>Tel:</b> +1 800 874 2811	<b>India</b>	<b>Tel:</b> +91 80 67877200
<b>UK</b>	<b>Tel:</b> +44 149 4 459200	<b>China</b>	<b>Tel:</b> +86 10 8251 6588
<b>France</b>	<b>Tel:</b> +33 4 91 11 87 64	<b>Singapore</b>	<b>Tel:</b> +65 6595 6388
<b>Germany</b>	<b>Tel:</b> +49 241 523030		



Distributed by:

Kenelec Scientific Pty Ltd  
1300 73 22 33  
sales@kenelec.com.au  
[www.kenelec.com.au](http://www.kenelec.com.au)