



SENTRY™ 1000

PNEUMATIC Exhaust Controller For 200mm Wafer Tracks

Hardware

Unique Air-Flow Solutions

Brooks Automation offers the tightest control possible over house exhaust flow in a unique package that allows switching remotely from one flow rate to another. Ideally suited for coating applications, the Pneumatic SENTRY 1000 incorporates a simple mechanism (a pneumatic throttle) that switches between two customer-controlled set points for low flow during the coating period and high flow during the edge bead removal process. The SENTRY 1000 is the worldwide standard for exhaust control on coat and develop tracks.

Breakthrough Technology

The heart of the SENTRY 1000 control system is a “floating” piston. Three forces work on the piston to maintain a constant process pressure/flow: gravity, clean room pressure and process pressure itself. The “floating” piston reacts within 50 milliseconds to changes in house exhaust, effectively providing a consistent environment for every wafer processed.

Two Set Point Process Control

When configured with pneumatic set point control, the Pneumatic SENTRY 1000 can be switched from a high flow set point to a low flow set point through standard pneumatic actuation. By applying compressed air or nitrogen, the throttle closes down to its low flow set point. A spring return on the actuator restores the valve to the high flow set point when pressure is removed.

Fail-Safe Operation

In the event of a facilities failure, where pressure is removed from the actuator (due to loss of compressed gas to the controlling solenoid), the valve goes to the open position, high flow

Features

- > Simplicity – single moving part
- > Control for two-stage processes
- > Response time measured in milliseconds
- > Improved process repeatability

Process Benefit

- > Pressure control yields improved coating, CD control and particle performance
- > 50 millisecond response time eliminates:
 - o Cross-Talk
 - o Back-Streaming
- > Accurate process pressure control, +/-3% of actual set point
- > Reliable: Simple design powered by airflow. Eliminates reliance on electrical supply

Primary Application

- > Coat
- > Develop

- > SENTRY™ 1000
Pneumatic Exhaust
Controller



Pneumatic 60CFM



Pneumatic 100CFM

rate mode, allowing for maximum flow and removal of hazards from the work area.

Local Exhaust Flow Protection

Any configuration of the SENTRY 1000 is available with a booster fan. The exhaust pressure generated by the booster fan creates a localized pressure zone to power the SENTRY 1000. By providing an independent power source, the booster fan ensures proper functionality of the unit, protecting the process without challenging the facility exhaust system.

Materials Compatibility

Process environments often involve high temperatures, abrasives, solvent and corrosive exhaust. Brooks Automation manufactures the SENTRY 1000 only utilizing materials that are both process compatible and economical.

Pneumatic SENTRY 1000 Specifications

Operating range:	-0.1" to -1.8" of water column (-25 to -448 Pa)
Pneumatic actuation:	25-90 psi of clean dry air or Nitrogen (275 KPa – 620 KPa)
Accuracy to set point:	The greater of $\pm 3\%$ or ± 0.02 " of water column (± 5 Pa)
Response time:	50 milliseconds to fluctuations of 100%
Materials (wetted):	Stainless Steel, Teflon, Polyethylene, and Epoxy
Power requirements:	115 V, 60 Hz, 1.8 A, single phase, or
Booster fan (option):	235 V, 50 Hz, 1.3 A, single phase
Set point control:	Dual set point (High/Low)

Facilities requirements

Facility exhaust:	Minimum 2.5" of water column (622 Pa) without booster fan Maximum 5.0" of water column (1244 Pa)
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Minimum requirement may increase based on actual line resistance, flow and process pressure requirements

Mounting:	Horizontal
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Flow Range	Input OD / Output OD	Dimensions (L x W x H)	Weight
6-60 CFM (170-1700 LPM)	3.0" / 4.0" (76 mm / 102 mm)	11" x 8" x 12.5" (297 x 203 x 318 mm)	22 lbs. (10 kg)
6-60 CFM (with booster fan)	3.0" / 3.0" (76 mm / 76 mm)	13.25" x 18.25" x 12.5" (337 x 464 x 318 mm)	36 lbs. (16 kg)
10-100 CFM (280-2800 LPM)	4.0" / 4.0" (102 mm / 102 mm)	10" x 12.3" x 19.75" (254 x 312 x 502 mm)	27 lbs. (13 kg)
10-100 CFM (with booster fan)	4.0" / 4.0" (102 mm / 102 mm)	14.25" x 21.25" x 17.25" (362 x 540 x 438 mm)	45 lbs. (20 kg)

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