



SENTRY™ 1000-300

Automated Exhaust Pressure Control System

For 300mm WAFER TRACKS

Hardware

SENTRY™ 1000-300: Process Pressure Control for 300mm Processes

The advent of 300mm processing requirements and continued reduction in geometries pose many challenges to both equipment and chip manufacturers. Accurate, repeatable and reliable process parameter control continues to lead the solution to high yield production. Process pressure control is one of the several critical parameters that challenge chip and equipment manufacturers alike. Today's tools are designed and fine-tuned to provide maximum performance under stable process conditions. The tools' and processes' susceptibility to environmental conditions demand a perfect pressure environment. At Brooks Automation, we design our SENTRY™ line of pressure controllers to provide the best process condition in the world....so that *you* have one less parameter to worry about!

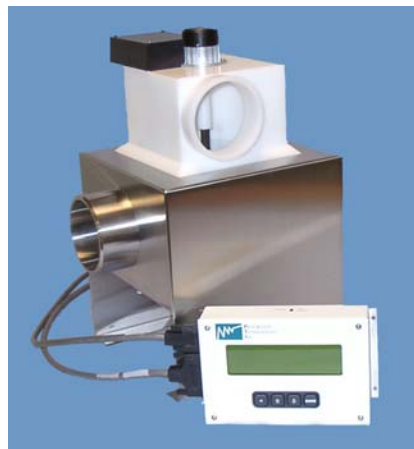
Piston Technology: Proven and Advanced for 300mm Requirements

Our patented technology guarantees the world's fastest and most accurate response to exhaust pressure fluctuations. The fast response, 50 milliseconds, of the system guards against cross-talk between process modules and tools as well as back-streaming. The result is a tightly controlled and repeatable process pressure parameter, which is essential for process repeatability. The use of our Piston technology provides precise process control, inherent reliability and safety, while eliminating the need for facility balancing. The result of all these factors maximizes tool up-time and reduced cost of ownership. Our SENTRY systems have been customer proven for over 10 years. The new SENTRY 1000-300 utilizes this process proven technology with additional enhancements to further enable new 300mm processes and tools.

Tool Interface Module (TIM-100): Intelligence and Speed

While proactive control of exhaust is accomplished mechanically by the piston, the TIM allows process recipes (or the user) to directly command process pressure set-points of the SENTRY 1000-300. The microprocessor based SENTRY TIM has now been enhanced with the Universal Fast Set-Point (UFSP) algorithm. UFSP in combination with piston technology creates a faster response to process set-point change commands. TIM communications protocols have been designed for simple integration and serial communications interface.

SENTRY™ 1000-300
Automated Exhaust
Control System



Process Advantage

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

Competitive Advantage

- > Fastest Response: 50 milliseconds
- > Most Accurate: +/-3% of Set point
- > UFSP Software delivers sub-second Set-Point change between recipe steps
- > Designed specifically for 300mm process tools
- > Eliminate facilities rebalancing – set it and forget it
- > Mechanical design allows for safest operation available
- > Energy conservation strategies can be safely implemented
- > TIM allows for integration with Process Tool and recipe driven control
- > TIM allows collection of real time pressure data via digital serial interface
- > One complete system. No additional components required
- > Lower house exhaust requirements

Primary Application

- > Coat
- > Develop
- > Hot Plate

Human interface is also made possible by the real-time pressure display on the numerical/graphical LCD screen. The new advances include all surface mount technology for reliability and self-diagnosis for fast and easy troubleshooting. The SENTRY 1000-300 system includes the TIM-100 UFSP as a stand-alone component with interface cables to allow for flexibility during installation.

Additional Exhaust Solutions:

300mm Wafer Tracks require higher flow rates and exhaust pressures than past generation tools. The optional booster fan available on the SENTRY 1000-300 provides the perfect solution to facilities where low exhaust pressure is a concern. The SENTRY 1000-300 can be integrated to the SENTRY Booster Fan to provide additional exhaust pressure at the point of use. By providing an independent power source, the booster fan ensures proper functionality of the unit protecting the process without challenging the facility exhaust system.

Automated SENTRY™ 1000-300 specifications:

Process operating range:	-0.1" to -1.8" of water column (-25 to -450 Pa)		
Transducer range:	0 to -2.0" of water column (0 to -500 Pa)		
Accuracy to set point:	The greater of ± 3% or ±0.02" of water column (±5 Pa)		
Response time to exhaust fluctuation:	50 milliseconds		
Response to set point change:	< 1 second (typical)		
Materials (wetted):	Stainless steel, Polyethylene, Epoxy, and Ryton		
Power requirements:	Power supply:	90-260 VAC, 47 – 63 Hz, 12 W nominal	
	Booster fan (optional):	115 V, 60 Hz, 1.8 A, single phase, or 230 V, 50 Hz, 1.3 A, single phase	
Set Point Control:	RS422/RS485 at 9600 baud or 0-5 Volt analog or Stand Alone Operator Keypad		
Facility Exhaust Requirement:	Minimum 2.0" of water column (500 Pa)* without booster fan Maximum 5.0" of water column (1250Pa)		
	*Minimum requirement may increase based on actual line resistance, flow and process pressure requirements.		

Mounting: Horizontal

Flow range:	Input/Output (O.D.)	Dimensions (L x W x H)	Weight
10-120 CFM (280-3400 LPM)	4.0" / 4.0" (100 mm / 100 mm)	10" x 12.3" x 17.3" (254 x 312 x 439 mm)	28 lbs. (13 kg)
10-120 CFM (with 115V booster fan)	4.0" / 4/0" (100 mm / 100 mm)	10" x 21.1" x 17.3" (254 x 535 x 439 mm)	45 lbs. (20 kg)
10-120 CFM (with 230V booster fan)	4.0" / 4/0" (100 mm / 100 mm)	10" x 21.9" x 17.3" (254 x 555 x 439 mm)	45 lbs. (20 kg)

