VRV-2000™

for Wet Benches

Hardware

Instant Control

The VRV-2000 Vacuum Regulation Valve is designed to maintain a constant pre-set pressure differential between a wet bench and the clean room, replacing outmoded manual damper and electronic butterfly valves. Mechanical forces provide the required balance and act directly on the control mechanism which respond instantaneously to changes in house exhaust pressure.

Improve Operator Safety

Improperly exhausted wet benches may allow fumes to escape into the clean room, putting personnel at risk. Therefore, airflow past an operator must be sufficient to draw fumes away but must not create turbulence. By maintaining constant process pressure, the VRV-2000 maintains a constant velocity of air through any opening, ensuring operator safety (even with widely fluctuating house exhaust).

Improve Product Quality

Traditional damper and butterfly valves are typically adjusted for a worst-case safety scenario: 30% higher than the required flow rate with the doors open and house exhaust at a minimum. This can compromise product within the wet bench with the detrimental effects of crosscontamination and airborne droplets deposited on the product surfaces. With instant compensation, the VRV-2000 allows flow rates to be capped at the minimum required for safety, reducing air low and inhibiting evaporation and condensation of contaminated vapor
on the product. By controlling the pressure at point-of-use, the VRV-2000 prevents cross-talk from one wet bench to another, and assures repeatability from wafer to wafer and from batch to batch.

Air-flow Management Reduces Waste and Costs

Over 21% of all clean room air exhausts through a wet bench. The VRV-2000 compensates for house exhaust fluctuations, allowing a much lower set point and providing up to a 10% reduction in exhaust air. A reduction in the overall volume of air lowers the costs associated with decontaminating the air, from clean room entry, through wet bench processes to the exit stacks. The results are measurable and substantial savings in clean air production, effluent removal and air handling.

FEATURES:

- PVC or stainless steel construction for process compatibility
- Bypass throttle to ensure minimum air flow level
- Only one moving component for fail-safe operation

BENEFITS:

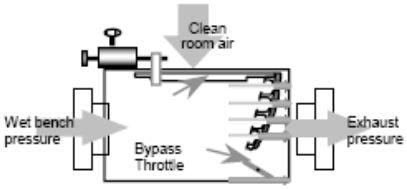
- Safer operating environment
- Improved product quality
- Reduced clean room air usage
- Drastically reduced exhaust handling costs

The VRV-2000 reacts instantly to change in exhaust pressure.

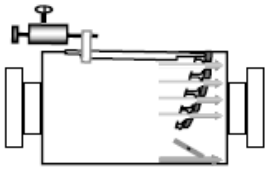
VRV-2000 for Wet Benches “The Grate Valve”

VRV-2000™

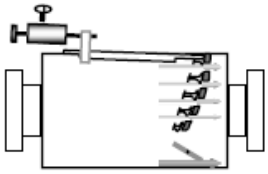
The VRV-2000 reacts instantly to changes in house exhaust or door position



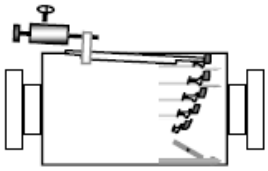
Position 1: Minimal house exhaust or wet station access ports all open, grate fully open.



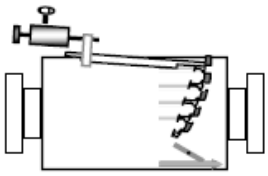
Position 2: Less than normal house exhaust, grate mostly open.



Position 3: Normal house exhaust, grate at midpoint between fully closed and fully open.



Position 4: More than normal house exhaust, grate nearly closed.



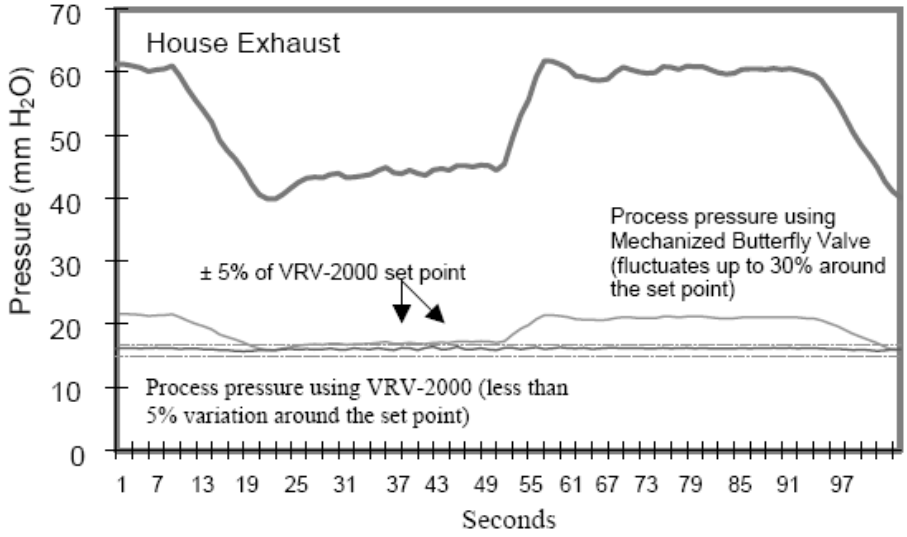
Position 5: Very high house exhaust or wet bench fully sealed, grate closed. (The bypass flow remains constant.)

The VRV-2000 "Grate Valve" for Fail-Safe Operation

With the sliding weight attached to the leaf piston, the pressure differential may be counterbalanced. This is accomplished as the grates overlap reacting to changes in vacuum, while maintaining the set pressure to ± 5%. The reaction to any change is instant, allowing the VRV-2000 to maintain set point even with a ± 30% change in house exhaust, reducing over dilution requirements and resulting in thousands of dollars in savings. A built-in bypass throttle ensures a minimum level of air flow at all times. Installation is straightforward: only a single vacuum regulation valve is required in the exhaust line.

Response to House Exhaust Fluctuations

The process set point can be set 25% lower with the VRV-2000



VRV-2000 Specifications

Accuracy to Setpoint: ± 5%

Exhaust required: The VRV-2000 requires 2" water column (498 Pa) of house exhaust pressure for nominal flow rates listed below:

Contact PTI for flow rates at lower house exhaust pressures.

Type	530 CFM (15 m³/min)	350 CFM (10 m³/min)	150 CFM (4 m³/min)
Material	PVC	PVC	Stainless Steel
Nominal Flow Rate	530 CFM (15 m³/min)	350 CFM (10 m³/min)	150 CFM (4 m³/min)
Input & Output	8" round (203.2 mm) Van Stone style flange	6" round (152.4 mm) Van Stone style flange	6" round (152.4 mm) Van Stone style flange
Length	18" (457.2 mm)	18" (457.2 mm)	18" (457.2 mm)
Diameter	13.50" (342.9 mm)	11.00" (279.4 mm)	4.00" (177.8 mm)
External set point Control	Manual Stainless Steel	Manual Stainless Steel	Manual Stainless Steel
Weight	35lbs. (16 kg)	25lbs. (11 kg)	25lbs (11 kg)

CE

ISO 9001 CERTIFIED

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