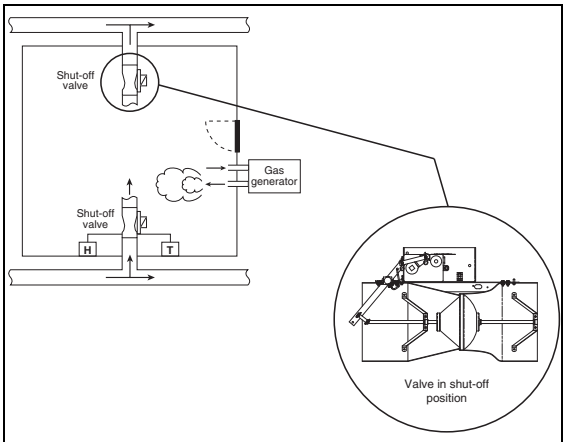
Valve controllers for Phoenix Conrols low-pressure shut-off venturi valves are determined by the Control Type:

- **Celeris®** valve controllers for low-speed electric applications.
- **Celeris®** valve controller for high-speed electric applications only.

All low-pressure shut-off valves are available in a standard (Design S) design intended for use in critical airflow applications where isolating the HVAC system from the room is necessary or imperative.

Under normal operation, a shut-off valve provides the critical airflow control performance demanded by a modern research facility. In the shut-off mode, it provides isolation of the HVAC system from the room. A typical application example is a laboratory research building using gaseous biodecontamination.



Typical room setup for biodecontamination.

FEATURES

- All valves include a pressure-independent assembly, factory-calibrated position controller.
- The shut-off sequence can be initiated either locally through a universal input or remotely via the Celeris network.
- The valve can function as a standalone device or in a fully integrated system.
- Celeris valve controllers provide room pressurization, temperature, humidity, occupancy, and emergency control functions.
- Precise airflow control - the factory-calibrated flow rate controller performs accurately throughout its operating range.
- Self-balancing pressure-independent operation - the valve maintains the airflow set point by compensating automatically for static pressure fluctuations in the system.

OSHPD Certified
This device is certified for OSHPD Seismic Certification Preapproval per 2013 CBC, 2012 IBC, ASCE 7-10, and IEC-ES-AC-156. OSHPD Special Certification number OSP-0290-10.

NVLAP Accreditation
All venturi valves are characterized on NVLAP Accredited Airstations, Lab Code 200992-0. NVLAP is administered by the National Institute of Standards and Technology (NIST).

ISO
Phoenix Controls Designs, Develops, Manufactures, and sells products, systems, and service to control the environment and airflow of critical spaces. Phoenix Controls is registered to ISO 9001:2015.

Warranty
Phoenix Controls Warrants all venturi valves against defects in material and workmanship for a period of 5 years. In addition, all other equipment manufactured by Phoenix Controls, such as sash sensors, fume hood displays, and equipment supplied but not manufacturered by Phoenix Controls is covered by a 3 year warranty.

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 MKT-0273 MPC-2639

Phoenix Controls

FEATURES

FEATURE	Control Type			
	H	I	L	M
Actuator type	Low-speed electric	Low-speed electric	Low-speed electric	High-speed electric
Response Time	< 1.5 min	< 1.5 min*	< 50 sec	< 1 sec
Flow feedback signal	✔	✔	✔	✔
Fail-Safe	Last Position	Last Position	Last Position	NO/NC/Last Position
Shut-off function	✔	✔	✔	✔
Shut-off mode activation	Local UI or remote via Celeris network	Local UI or remote via Celeris network	Local UI or remote via Celeris network	Local UI or remote via Celeris network
Factory-insulated valve body (supply)	✔	✔	✔	✔
Field-adjustable flow	✔	✔	✔	✔
Flow alarm via feedback circuit	✔	✔	✔	✔
Flow alarm via pressure switch	Option	Option	Option	Option**
Low noise diffuser construction†	†✔	†✔	†✔	†✔

All valves include a pressure-independent assembly and factory-calibrated position controller.
†Phoenix Controls venturi valves are designed to reduce sound over all frequencies, but significantly target the lower bands (125-500 Hz) to help eliminate the need for silencers.
*Except dual 14": 120 seconds.
**Mandatory for fume hood applications.

SPECIFICATIONS

Construction
- 16 ga. spun aluminum valve body with continuous welded seam
- Valve bodies available as uncoated aluminum or with corrosion-resistant baked phenolic coating
- Composite Teflon® shaft bearings
- Spring grade stainless steel spring and polyester or PPS slider assembly
- Supply valves insulated with 3/8 (9.5 mm) flexible closed-cell polymer-based foam:
  - Flame/smoke rating 25/50.
  - Density 1.5 lb/ft^3 (24.0 kg/m^3).

Operating Range
- 32-122 °F (0-50 °C) ambient
- 10-90% non-condensing RH

Performance
- Pressure independent over a 0.3" - 3.0" WC (75 - 750 Pa) drop across valve.
- Volume control accurate to ±5%, 5 CFM of airflow command signal throughout normal operating range.
- No additional straight duct runs needed before or after valve.
- Available in flows from 35 - 2000 CFM (60 - 3398 m^3/hr).
- Response time to change in command signal:
  - < 1 second: Control Type M
  - < 50 seconds: Control Type L
  - < 1.5 minute: Control Type H (with 60 Hz power) and I (except dual 14")
  - </= 2.5 minutes: Control Type I on dual 14"
- Response time to change in duct static pressure: <1 second.
- Shut-off leakage: See charts on pages 3 through 4.

Power
- 24 Vac (±15%) @ 50/60 Hz

Power Consumption

Singles/Duals *per valve.* All power consumption VA ratings are based on fully-loaded I/O.
- Low-speed Electric (Control Type H, I, and L): 10 VA
- High-speed Electric (Control Type M): 70 VA

VAV Controller
I/O:
- 3 universal inputs accepts volt, mA, ohms or NTC 2 or 3 thermistor signals
- 1 digital input
- 2 analog outputs provide volt or mA signals
- 1 digital output (Type C, 1 amp @ 24 Vac/Vdc)
- Input accuracy
  - Voltage, current, resistance: ±1% full scale
- Output accuracy:
  - 0 to 10 Vdc: ±1% full scale into 10 kΩ minimum
  - 4 to 20 mA: ±1% full scale into 500 Ω +0/-50 Ω

Room-Level Communications
FTT-10, 78 KB, bus topology, LonTalk™ network

Building-Level Communications

TP-1250, 1.2 MB, bus or tiered topology, LonTalk™ network

Regulatory Compliance
- RoHS
- FCC
  This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
  1. This device may not cause harmful interference.
  2. This device must accept any interference received, including interference that may cause undesired operation.
- EU Contact Address:
  Pittway Tecnologica Srl
  Via Caboto 19/3
  34147 Trieste TS
  Italy

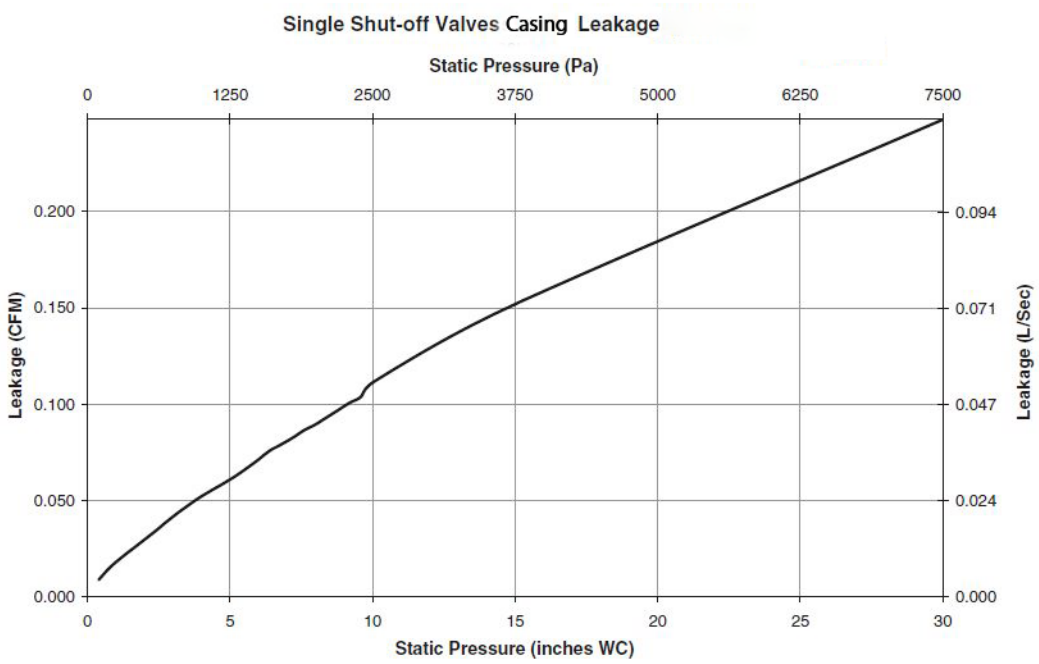
SHUT-OFF LEAKAGE PERFORMANCE

In the following graphs, the term *shut-off leakage* refers to the expected airflow through the valve in the shut-off position. The term *casing leakage* refers to the expected airflow through the penetrations of the valve body.

Note:

- Leakage data has been provided for pressures of 5", 10" and 30". These pressures are for reference only and were recorded during leak rate testing. For details, see the following graphs.
- System pressure for valve operation shall be as specified in the Ordering Guide > Flow/Pressure Operating Range Table, 0.3"- 3.0" WC.

Casing Leakage: Shut-off Valves (Design S)



Note:

- Leakage rates shown in this graph are for all four valve sizes: 8-, 10-, 12-, and 14-inch.
- Exceeds Eurovent Class A, B, C and D specifications (Eurovent Committee of Air Handling and Equipment Manufacturers) when valve duct surface areas are taken into account.
- Design S leakage rates are for all four valve sizes (8", 10", 12", 14").

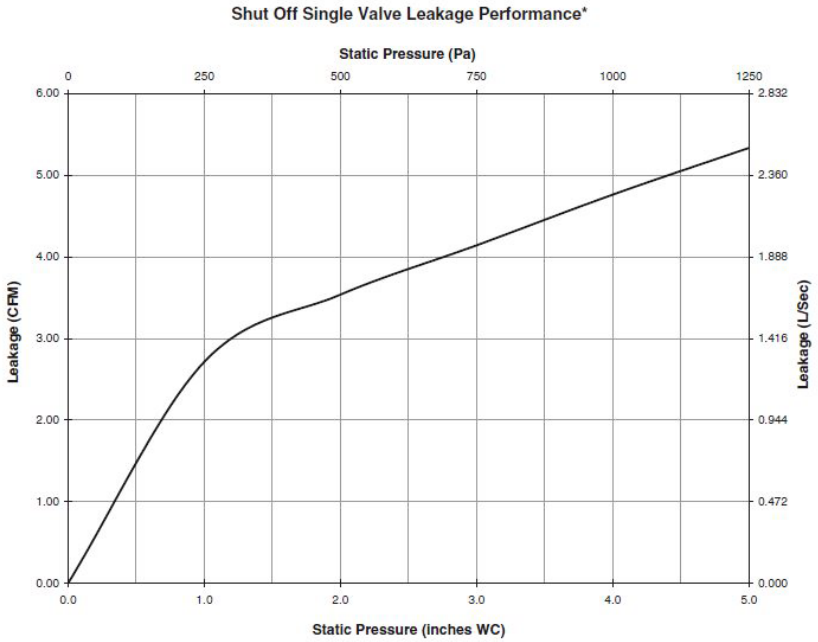
To calculate leakage areas that take into account valve and duct area, use the *Casing Leakage* graph above and the *Valve Area Specifications* table below. Select the valve leakage at the appropriate design pressure and the related valve area from the table and perform the calculation as in the following example:

Leakage Specification = Leakage/Valve Area = 0.150 CFM/3.60 ft^2 = 0.42 CFM per ft^2

Valve Area Specifications

Valve Size	Area (ft^2)	Area (m^2)
8-inch	3.60	0.33
10-inch	4.26	0.40
12-inch	6.28	0.58
14-inch	8.52	0.79

Shut-off Leakage: Standard Shut-off Valve (Design S)



Note: Leakage rates shown in this graph are for all four valve sizes: 8, 10, 12, and 14-inch.

RECOMMENDED VALVE CONSTRUCTION FOR DECONTAMINATION

Gaseous Decontamination Agent	Recommended Valve Construction
Hydrogen peroxide vapor	A
Ethylene oxide	B
Ammonium chloride	A
Chlorine dioxide	A**
Paraformaldehyde	A

Note:
-See Ordering Guide > Valve Construction for details about these construction codes.
-Chemical resistance data acquired from Compass Corrosion Guide.
-**For concentrations up to 800 ppm. To achieve higher concentrations during decontamination use Construction B valves.

ORDERING GUIDE

MAV A 1 12 L - S ME H O - PSL

VALVE FAMILY
EXV = Celeris exhaust valve
MAV = Celeris supply valve (comes standard with insulation)

VALVE CONSTRUCTION
A = Body and cone uncoated aluminum; uncoated 316 stainless steel shaft
B = Body and cone with baked-on phenolic coating; PFA-coated 316 stainless steel shaft
C = Body and cone with baked-on phenolic coating; hardware with titanium or baked-on epoxy phenolic coating; PFA-coated 316 stainless steel shaft

NUMBER OF VALVE BODIES
F = Single valve body with welded circular flanges
1 = One valve body no flange
2 = Two valve bodies as one unit (dual); *10", 12", and 14" valves only*

VALVE SIZE
08 = 8" valve (7.88"/200 mm actual diameter); *see Note 1*
10 = 10" valve (9.67"/246 mm actual diameter)
12 = 12" valve (11.84"/301 mm actual diameter)
14 = 14" valve (13.88"/353mm actual diameter)

FLOW/PRESSURE OPERATING RANGE
L = Low pressure operation; pressure independent over a range of 0.3 to 3.0" WC (75 to 750 Pa), associated pressure switch trips at 0.2" WC; *see Note 5*
See the *Flow/Pressure Operating Range for Shut-off Valves* table below

VALVE DESIGN
S = Sandard shut-off valve (metal-on-metal seal); *see Notes 1, 5*

VALVE OPTIONS
EVI = Exhaust valve with insulation blocks and insulation
IBO = Insulation blocks only, no insulation
PSL = Pressure switch, low limit
REI = Remote electronics; indoor applications only; *see Note 4*
WRE = Weather resistant electronics; outdoor applications, electric actuation; *see Note 3*
SFB = Square flanges on both ends of bodies = 1
SFD = Single square flange on discharge of bodies = 1 (supply or exhaust)
SFI = Single square flange on inlet of bodies = 1 (supply or exhaust)

FAIL-SAFE POSITION
C = Normally closed
O = Normally opened
Z = Fails to last position

VALVE ORIENTATION
H = Horizontal
U = Vertical upflow; *see Note 5*
D = Vertical downflow

VALVE CONTROLLER DESIGNATION
E = Electronic controller
H = Hood exhaust valve with pressure switch; *see Note 2*

CONTROL TYPE
Pneumatic actuation is not available on standard or low-leakage shut-off valves
H = Rotary, low-speed electric actuator; NEMA 1; *single 8", 10", and 12" only*
I = Rotary, low-speed electric actuator; IP54
L = Linear, low-speed electric actuator; IP56
M = Linear, high-speed electric actuator; IP56

FLOW/PRESSURE OPERATING RANGE FOR SHUT-OFF VALVE DESIGN S

Designation	Size	Operating Range in CFM (m3/hr) Single	Dual	Pressure Drop Across Valve
L = Low Pressure	**08"**	35-400 (60-675)	—	0.3-3.0" WC (75-750 Pa)
	10"	50-450 (85-760)	100-900 (170-1520)	
	12"	90-900 (155-1525)	180-1800 (310-3050)	
	14"	200-1000 (340-1695)	400-2000 (680-3390)	

NOTES:
1. 8-inch shut-off valves (Design = S or L) are only available as uncoated (Construction = A).
2. Low-pressure standard shut-off (Design = S) valves are not available in Orientation = U (vertical upflow).
3. Celeris Hood valves cannot have low-speed actuators (Control Type = H, I, or L).
4. Option REI: Remote Electronics, Indoor installations ONLY. The distance to the valve controller is limited to:
- 40 inches (1 meter) of 18 gauge cable for high-speed electric actuators (Control Type = M).
- 150 feet (45.7 meters) of 22 gauge cable for low-speed electric actuators (Control Type = H, I, or L).

5. Option WRE: Weather Resistant Electronics, outdoor installations. Applies to ELECTRICALLY actuated valves with sufficient IP ratings only. HORIZONTAL orientation ONLY.
- Must be ordered with IP54 or IP56 rated actuators: Control Types I or M, or L, respectively.
- Includes sealed Vpot and large weather-resistant IP65 box mounted on base channel that houses the controller and all electric connections to/from it.
- REQUIRES use of a dog house enclosure, provided by others, to protect valve from the elements and maintain temperature and humidity conditions within Phoenix specifications.