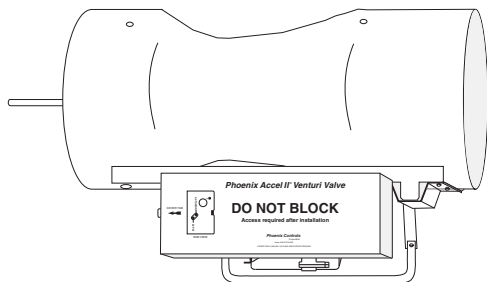


Phoenix Controls Accel® II Venturi Valves combine a mechanical, pressure-independent regulator with a high-speed position/airflow controller to meet the unique requirements of airflow control. These valves can be used in constant volume, two-position, or VAV applications—all designed to maximize flow performance while reducing related noise. Valves for VAV applications may be either electrically or pneumatically actuated.



Accel® II valve VAV pneumatic unit

- **Pressure-independent operation** - All valve types include an immediate response mechanical assembly to maintain airflow set point as duct static pressure varies.
- **Airflow control** - By positioning the flow rate controller assembly, the airflow can be adjusted.

Accel II valves are available in:

- **VAV** - EXV/MAV series, Theris, and Tracel with VAV closed-loop feedback control; high-speed electric or pneumatic actuation for fume hood applications or low-speed electric actuation for tracking pair applications.
- **Constant volume** - CEV/CSV series for maintaining an airflow set point under variable static pressure conditions
- **Two-position** - PEV/PSV series for high/low flow control (pneumatic only).
- **Base upgradable** - BEV/BSV series for pneumatic or fixed flow control with feedback option and upgradability to VAV (pneumatic only).

OPERATION

Airflow Volume Controller Types

Variable Air Volume (EXV/MAV series, Theris and Tracel)

For VAV closed-loop feedback control of fume hood and modulating airflow applications. Available with Celeris, Theris, Tracel, and analog systems.

- **Celeris** - The Celeris LonWorks based valve controller (LVC) utilizes distributed control architecture to perform all critical room control functions. This LVC offers the power and flexibility of a conventional room control system but in a more streamlined, cost-effective manner. Celeris can operate as either a standalone or fully integrated control system. Available in pneumatic, high-speed or low-speed electric actuation.

- **Theris** - Low maintenance, energy saving ventilation for critical spaces in healthcare facilities. Constant volume (CV) and variable air volume (VAV) solutions for directional airflow, climate control, and overall ventilation balance.
- **Tracel** - A unique ventilation control solution providing zone control, energy savings, and reduced maintenance for life sciences labs with open spaces or fume hood alcoves. Airflow turndown and configuration options make this valve ideal for modular and mixed-use facilities.
- **Analog** - The analog-based valve controller provides the conventional control solution for critical environments. Available with either pneumatic or high-speed electric actuation.

Constant Volume, Two-Position, and Base Upgradable

For two-position and fixed, field adjustable flow controls. Base upgradable includes optional electric flow verification and upgrading to VAV type valve.

- **Constant volume** - The valve's shaft/cone assembly is locked into the specific position required to provide the scheduled airflow via factory calibration.
- **Pneumatic** - Switched pneumatic air is applied to the valve's actuator. This positions the shaft/cone assembly to two distinct airflows. Mechanical clamps assure precise minimum and maximum airflows via factory calibration.
- **Base upgradable/pneumatic** - Switched or varying pneumatic air is applied to the valve's actuator. A feedback potentiometer linked to the shaft is provided for optional flow verification and upgrading to a VAV-type valve.

OSHDP Certified

These devices are certified for OSHDP Seismic Certification Preapproval per 2013 CBC, 2012 IBC, ASCE 7-10, and IEC-ES-AC-156. OSHDP 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).

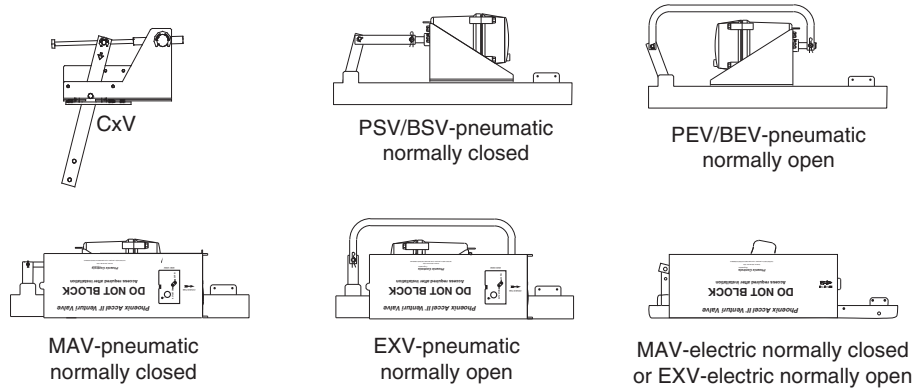
ISO

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 9001:2008.

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 monitors, and equipment supplied but not manufactured by Phoenix Controls is covered by a 3 year warranty.

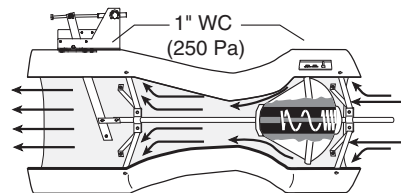
VALVE FAMILY CONTROL TYPES



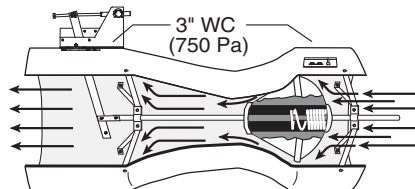
PRESSURE INDEPENDENT CONTROLLER

All valves maintain a fixed flow of air by adjusting to changes in static pressure. Each valve has a cone assembly with a spring designed to compensate for changes in duct pressure.

When there is low static pressure, less force is applied to the cone, which causes the spring within the cone to expand.



As static pressure increases force on the cone, the spring compresses and the cone moves into the venturi to maintain set flow.

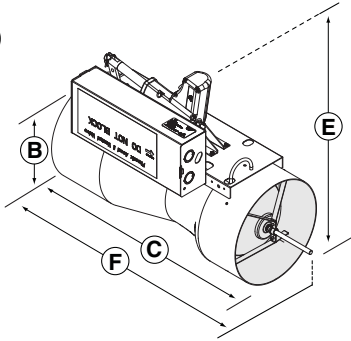


MAINTENANCE

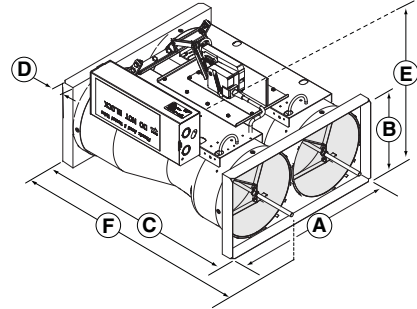
Accel II valves require no ongoing preventive maintenance. Once the field engineer has completed the field startup, the valves will provide years of continuous operation.

DIMENSIONS AND WEIGHTS

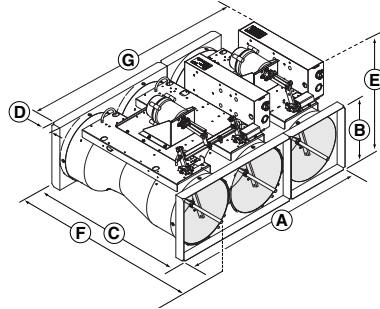
Single
(EXV-electric)



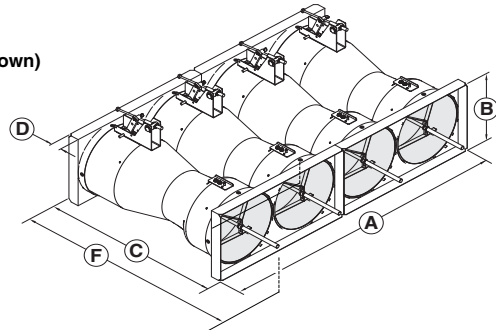
Dual
(MAV-pneumatic
normally closed
shown)



Triple
(MAV-pneumatic
normally closed
shown)



Quad
(CEV shown)



	A*		B*		C		D		E**		F		G		Weight (CxV valves)		Weight (all others)	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg	lbs	kg
8	—	—	7.88	200	23.50	597	—	—	14.56	370	27.77	705	10.3	262	7	3.2	12	5.5
10	—	—	9.88	251	21.75	552	—	—	16.56	420	26.20	665	11.20	284	7	3.2	13	6.0
12	—	—	11.88	302	26.81	681	—	—	18.56	471	32.67	830	12.04	306	9	4.1	16	7.3
14	—	—	13.88	353	30.00	762	—	—	21.43	544	36.59	930	13.52	343	13	6.0	20	9.1
2-10	20.13	511	10.13	257	24.75	629	1.5	38	16.77	426	27.70	704	21.47	545	18	8.2	30	13.6
2-12	24.13	613	12.13	308	29.81	757	1.5	38	18.75	476	34.60	879	24.47	622	23	10.4	36	16.3
3-12	37.06	941	12.13	308	29.81	757	1.5	38	18.75	476	34.60	879	36.77	934	32	14.5	52	23.6
4-12	48.26	1226	12.13	308	29.81	757	1.5	38	18.75	476	34.60	879	48.65	1236	46	20.9	72	32.7
2-14	30.00	762	15.00	381	33.00	838	1.5	38	21.43	544	38.09	968	28.90	734	37	16.8	50	22.7
3-14*	45.00	1143	15.00	381	33.00	838	1.5	38	21.43	544	38.09	874	42.27	1074	50	18.2	70	31.8
4-14*	60.00	1524	15.00	381	33.00	838	1.5	38	21.43	544	38.09	874	57.13	1452	74	33.6	100	45.4

*outer dimension **maximum of all valve types (some configurations may be smaller)

NOTES:

1. Leave 14" (356 mm) access space to all electronic controls.
2. Single valve circular flange dimensions can be found in the *Flanges for Single Body Valves* Product Data Sheet.
3. Dimensions given are accurate to $\pm 0.13"$ (3 mm).
4. Triple and quad valve units are shipped as single and dual valves. Field assembly is required.
5. Slip type flange material is 20 ga. galvaneal with powder coating.
6. Valves need no additional straight runs before or after valve. However, as identified by dimension F above, the shaft needs up to 6.75" (171 mm) of unobstructed space in the duct on the inlet side of the valve in the maximum flow position.
7. Weights given are approximate and listed for reference only. For shipping, add 6 lbs. (2.7 kg) for singles and duals; 12 lbs. (5.4 kg) for triples and quads.
8. Linkages for NO valves and some NC valves must be connected by installer (pneumatic valves).
9. E clip supplied for CxV adjustment mechanism. Must be inserted by installer (see Figure 2 on the next page).
10. Dimensions do not account for valves with 3/8" (9.5 mm) insulation.
11. Refer to the installation instructions on the next page for additional details.
12. The 14-inch valve is not available with a pneumatic actuator at this time.

INSTALLATION

1. Read all instructions completely before installing the valves.
2. Check that tag number on valve label matches HVAC schedule.
3. Verify correct airflow direction and orientation of the valve in the ductwork (e.g., horizontal). NOTE: Valves mounted out of horizontal or vertical position (as determined by a level) will affect valve performance.
4. Allow a minimum of 14 in. (356 mm) of free unobstructed space around the valve for access. In general, the valve may be installed in a 360° rotation. However, single body horizontal hood valves should be installed so that the pivot arm (see Fig. 1 and 4) is located between 8 and 4 o'clock (not within 4 to 8 o'clock).
5. Allow 6.75" (171 mm) of unobstructed space in the duct on the valve's inlet side for the shaft to reach the maximum flow position.
6. Linkage Connection—Many valves require field connection of pivot arm (see Figs. 1 and 2).
7. For multiple valves, assemble the valve sets on the floor using duct sealant and fasteners (see Fig. 3). Slip L style mating piece onto valve flange.
8. Use duct sealant on all valve/duct connections (or flange gaskets for circular flanges).
9. Install a hanger stock to support the ductwork within 12 in. (305 mm) of the valve connection. Install valve into duct after hanger stock is in place. Install the valve by sleeving it into the duct after the hanger stock is in place.
10. Follow the appropriate installation diagram (see Fig. 5). NOTE: Screws, fasteners, duct sealant, hanger stocks, companion flanges, and gaskets are not provided by Phoenix Controls.
11. Duct work should be free of construction debris so as not to damage valve internals.

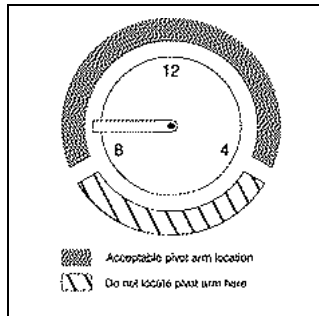


Fig. 4 Pivot arm orientation installed.

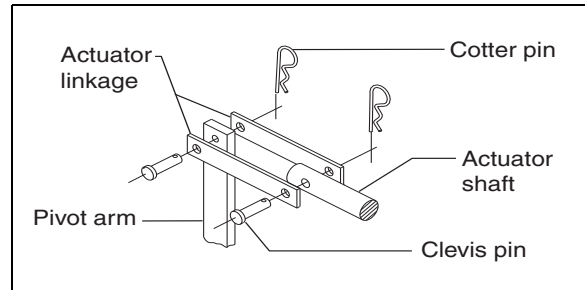


Fig. 1 Linkage connection for normally closed pneumatic valves (normally open valves similar).

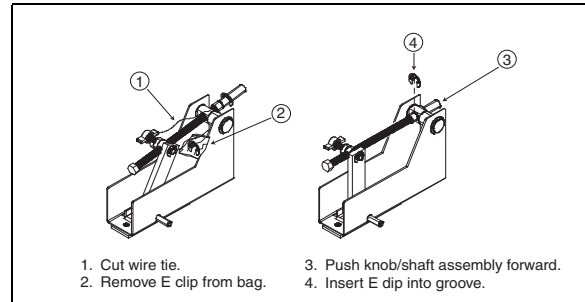


Fig. 2 Constant volume valves.

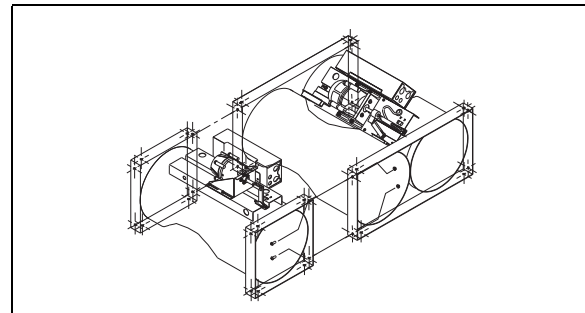


Fig. 3 Points for fastening multiple assemblies.

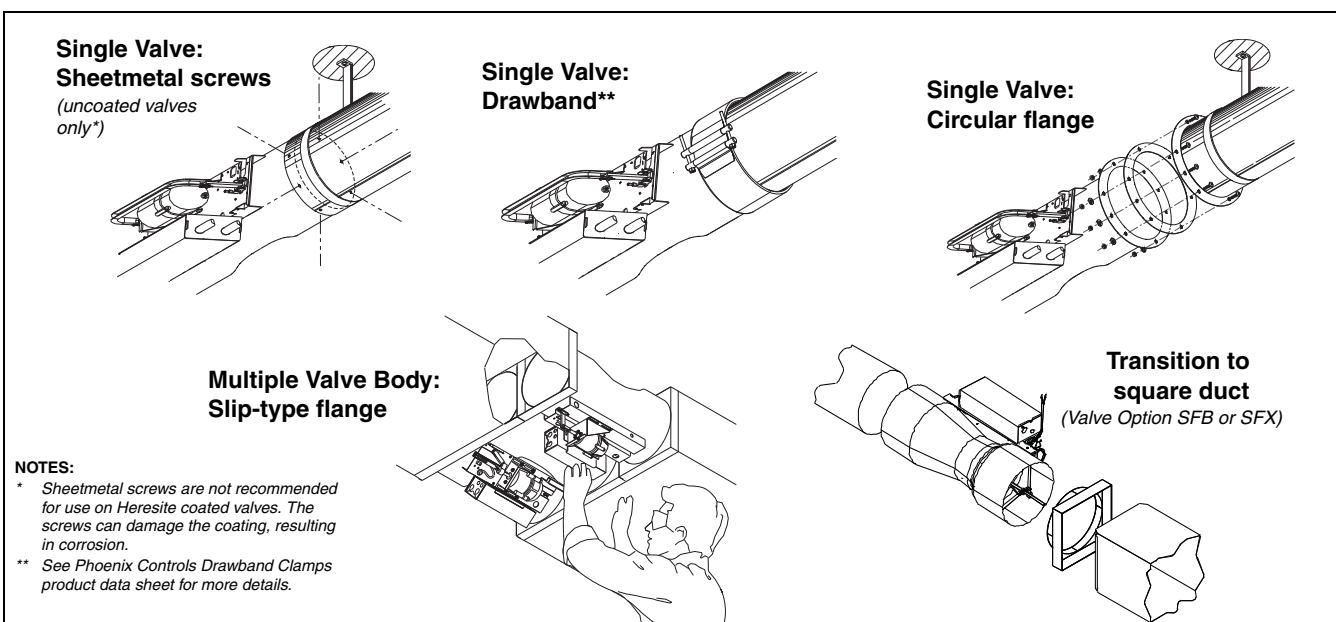


Fig. 5 Valve installation methods.