# VENTURI VALVE

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VENTURI VALVE

PRODUCT OVERVIEW

Safety Precautions

1. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
2. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
3. Use this unit only in the manner intended by the manufacturer.
4. Before servicing or cleaning unit, switch power off at service panel and lock service panel to prevent power from being switched on accidentally.
5. Protect flammable materials nearby when brazing, use flame and heat protection barriers where needed. Always have a fire extinguisher ready.
6. The manufacturer assumes no responsibility for personal injury or property damage resulting from improper handling, installation, service or operation of the product.

Caution to Contractors

Venturi Valves are not intended for use as temporary heat or ventilation sources during building construction. The units are not designed nor equipped to operate in a dusty construction environment. Internal parts can become coated in construction dust, resulting in loss of calibration and excess wear on the product which in turn can contribute to reduced life.
Receiving Inspection
After unpacking the assembly, check carefully for shipping damage. If any damage is found, report it immediately to the delivering carrier. During unpacking and installation, do not handle valve by the inlet plunger shaft or plunger shaft brace. Damage may result from improper handling.

- Do not tamper with the linkage assembly as the valve is shipped factory calibrated.
- Never carry or lift the valve by the linkage assembly support brackets, or control box.
Flow and Pressure Data

### Standard Venturi Valve

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### Shutoff Venturi Valve

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**NOTES:**

1. Factory calibrated controls must be selected within the above flow range limits. When setting the flow, the value must be greater than the minimum setting and within the range limits. Selection of air flow below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits.
2. Pressure ranges are as measured across valve static pressure ports.
3. Please refer to VV submittals for all dimensional data.
4. Weights are ± 3 lbs for single sizes and ± 5 lbs for multibody sizes depending on options.
5. Valves are rated to operate between 32-120°F within 10-95% RH non-condensing.
7. Shutoff Venturi Valves are not available in Vertical Up or Vertical Down orientations.
8. Size 114, 214, 314, and 414 Shutoff Venturi Valves are not available in Low Pressure.
VENTURI VALVE

INSTALLATION & MOUNTING INSTRUCTIONS

Installing the Venturi Valve Unit

Before Installation
1. Visually inspect the valve for damage
   · Damage on the inlet of the valve can be detrimental to performance
   · Damage to the coating on fume hood valves can lead to corrosion
2. Ensure that packing material has been removed from the inside of the valve body.
3. Inspect the tamper proof paint to ensure it has not be removed. Tamper proof paint can be found on:
   · Mechanical linkage for constant volume and variable volume valves
   · Actuator for variable volume valves
   · Potentiometer for variable volume valves
4. Ensure the Specification label for the valve match the intended installation location. See Figure 1

General Installation
1. Ductwork to be supported within eighteen inches (18”) of the venturi valve unless otherwise specified.
2. Orient the venturi valve as described on the Airflow Direction label. See Figure 2
3. Mount valve ensuring airflow is travelling in the same direction as the Airflow Direction Label. See Figure 2
4. Leave eight inches (8”) of free space in all directions of the controls enclosure to facilitate future access to the controls.
5. During operation, the center shaft of the venturi valve may extend past the inlet or discharge of the valve. Ensure that a minimum of six inches (6”) of duct is clear of any obstructions or obstacles (i.e. duct stiffeners) from the valve inlet and discharge.
6. The controls enclosure may be rotated 360 degrees around the ductwork.
   NOTE: In fume hood applications, or in conditions that may cause condensation inside the ductwork, the enclosure should not be mounted within +/- 30 degrees from straight down. See Figure 3
7. Do not screw into Phenolic or Kynar coated valves. Screws will compromise the venturi valve body and its resistance to corrosion.

Warranty will be void if screws are used.

For optimal performance, the valve should be mounted with +/- 10 degrees of the specified orientation.
VENTURI VALVE

INSTALLATION & MOUNTING INSTRUCTIONS

Slip-Connection Venturi Valves
1. Mount the venturi valve by slipping both the inlet and the discharge one inch (1”) into the appropriate sized ductwork.
2. Fasten the venturi valve to the ductwork using six (6) sheet metal screws per a slip connection as shown in Figure 4.
3. Seal the ductwork using duct sealer as shown in Figure 5.

Slip-Connection Venturi Valve with Drawband Clamps
1. Slide drawband clamps completely onto the inlet and discharge ductwork as shown in Figure 6.
2. Mount the venturi valve by slipping both the inlet and the discharge one inch (1”) into the appropriate sized ductwork.
3. Apply appropriate duct tape to seal valve to duct work if required. Two full wraps around the connection of appropriate duct tape is recommended.
4. Slide the drawband clamps onto the valve ensuring that at least one and a half inches (1.5”) of the drawband clamps are in contact with the valve body as shown in Figure 7.
5. Tighten both nuts to ensure that the drawband clamp is tightly fastened to the valve body and duct work. Neither the valve nor the band clamp should shift after fastening.
6. Do not screw through the bandclamp into the venturi valve body.

CAUTION

Ensure location of bead is correct. For Size 8, 10, and 12 valves, the bead should be on the valve. For Size 14 valves, the bead should be on the ductwork. Refer to torque rating on the bandclamp label.

Flange-Connection Venturi Valves
1. Align the duct flange holes with the venturi flange holes and fasten using a bolt, lock washer and nut. Fasten every hole to reduce airflow leakage as shown in Figure 8.

Flange-Connection Venturi Valve with Companion Flanges
1. Slide companion flanges completely onto the inlet and discharge ductwork with the flanged end of the companion flanges toward the free space.
2. Align hole pattern to match opposing companion flange as shown in Figure 9.
3. Continuously weld companion flange to duct work to ensure zero leakage.
4. Follow Installation of Flange-Connection Venturi Valves to complete installation of Venturi Valve.

CAUTION

To minimize airflow leakage, use a gasket between the ductwork flange and the venturi flange or seal with duct sealant once connecting bolts are tightened.
VENTURI VALVE

INSTALLATION & MOUNTING INSTRUCTIONS

Venturi Valves with Silencer

1. Position silencer before the inlet of the venturi valve when the venturi valve is operating as an Exhaust valve. Position silencer on the discharge of the venturi valve when the venturi valve is operating as a Supply valve. Configurations shown in Figure 10.

2. It is recommended that the silencer be installed prior to installing the venturi valve.

3. Use the support method prescribed for the duct work in the job specifications.

4. Mount the silencer to the duct. The slip connection should overlap a minimum of one inch (1”) to ensure a proper fit as shown in Figure 11.

5. Mount the venturi valve by slipping the appropriate end into the available duct work and the other into the free slip connection of the silencer. Each slip connection should overlap a minimum one inch (1”) to ensure a proper fit.

6. Fasten all connections using six (6) sheet metal screws per a slip connection as shown in Figure 12.

7. Seal slip connections using duct sealer as shown in Figure 13.

Venturi Valves with Heating Coil

1. Water coils are only available in supply orientation and should always be located down stream of the supply venturi valve.

2. Configuration as shown in Figure 14.

3. Use the support method prescribed for the duct work in the job specifications.
**VENTURI VALVE**

**CONSTANT VOLUME**

**Constant Volume Flow Adjustment**

Constant volume valves are factory calibrated for a selected air flow and can be installed in the field without adjustment for maintenance free operation.

The valve can be adjusted in the field if changes to the air flow are required. The control arm is held in place with two locking nuts.

![Diagram](image)  

**CAUTION**

Ensure the air flow is shut off prior to adjusting to prevent possible injury from crank arm.

Loosen Nut A, to provide more threaded bar length to adjust Nut B. Turning Nut B clockwise (as viewed from the inlet) will adjust the control to decrease the flow rate. To increase the flow rate, adjust Nut B counterclockwise.

Once the correct airflow has been achieved, Nut A should be re-tightened.

**NOTE:** Constant Volume Valves for duals and triples are shipped with an assembly on each valve. Make sure each assembly is moved by roughly the same amount when making adjustments to the airflow.

**Constant Volume Valve Reassembly**

1. Cut cable tie and remove instruction tag from the valve as shown in Figure 15. For a multi-body valve there will be more than one cable tie.

2. Remove the clevis pin from the location shown in Figure 16. The hair pin must be taken out first. Keep both the clevis pin and hair pin for Step 4.

3. Move the control arm to line up the holes as seen in Figure 17.

4. Re-insert clevis and hair pin, as shown in Figure 18.
VENTURI VALVE

OPERATION & MAINTENANCE

Start Up and Operation

Before start up operation, familiarize yourself with the unit, options, accessories and controls so you understand proper system operation. All personnel should have a good working knowledge of general start-up procedures and have the appropriate start-up and balancing guides available for consultation.

The manufacturer assumes no responsibility for undesirable system operation due to improper design, equipment or component selection, and/or installation of ductwork, grilles, and other field supplied components.

Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
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<tbody>
<tr>
<td>Noise</td>
<td>1. Foreign material in valve</td>
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<td></td>
<td>2. Vibrating duct work</td>
</tr>
<tr>
<td>Actuator does not operate for Variable Volume valves</td>
<td>1. Confirm that power is being delivered to the unit</td>
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<td>2. Verify control signal</td>
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<td>3. Verify that the disconnect switch (where available) is not open</td>
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<td>4. Verify that the fuse (where available) is not blown</td>
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<td>5. Verify there are no ductwork obstructions.</td>
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<tr>
<td>Actual airflow does not match airflow feedback</td>
<td>1. Confirm static pressure is within specified range</td>
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<td>2. Confirm that there is no blockage inside the duct or valve</td>
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<td>3. Confirm that there is no damage to any tamper proof paint</td>
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<td>4. Verify that there are no ductwork leaks before or after the valve</td>
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<td>5. Verify that the valve is installed in the correct orientation</td>
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<td></td>
<td>6. Verify that the valve is installed in the correct airflow direction</td>
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<tr>
<td>Pressure is in alarm on module, but airflow is present</td>
<td>1. Measure static pressure across valve on available brass tees to confirm pressure reading</td>
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<td>2. Ensure that red tubing runs from the valve inlet to the high (red) port and the green tubing runs from the valve discharge to the low (green) port</td>
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<tr>
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<td>3. Verify that the valve in installed in the correct airflow direction</td>
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<td></td>
<td>4. Ensure the tubing is not clogged with liquid or foreign debris</td>
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Replacement Parts

Replacement parts are available. Please contact your local Antec Controls Representative.

Technical Support

If further technical support is required, please contact FieldSupport@AntecControls.com.
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