

VENTURI FX

VFX Series



VENTURI FX

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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.

VENTURI FX

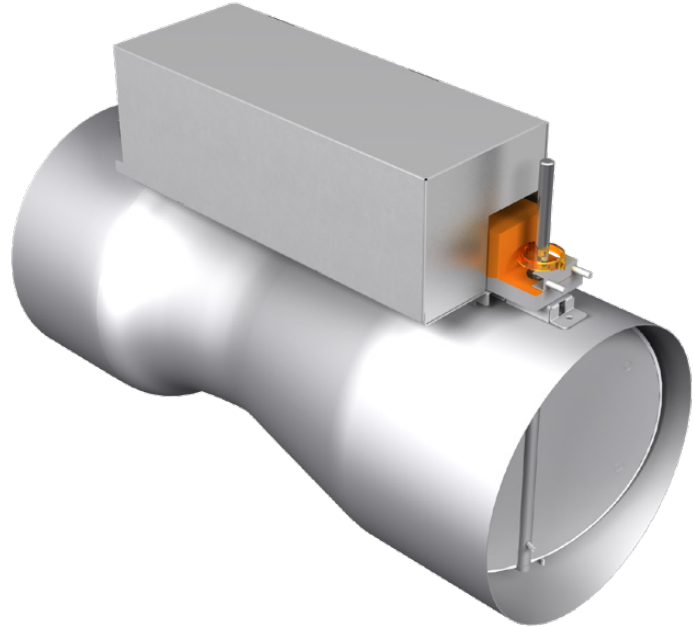
PRODUCT OVERVIEW

Receiving Inspection

After unpacking the assembly, check carefully for shipping damage. If any damage is found, report it immediately to the delivering carrier. Damage may result from improper handling. Do not tamper with actuator positioning as it is shipped factory calibrated.

- Never carry or lift the valve by the damper shaft, flow measuring station, or the control box.

VENTURI FX ▼



Flow Data

Unit Size	Airflow Range		K-factor	Weight (lbs)
	Min Flow (CFM)	Max Flow (CFM)		
108	80	800	600	19
110	120	1300	975	20
112	180	1800	1400	22
114	250	2500	1985	24
212	360	3600	2800	40
214	500	5000	4000	45

Flow Calculation

The VFX valve requires a 0-2 in.w.c. transducer to calculate flow. Using the differential pressure reading (dP), the flow is calculated using the following equation:

$$Q = \text{K-factor} * \sqrt{dP}$$

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. Please refer to VFX submittals for all dimensional data.
3. Weights are +/- 5 lbs depending on options
4. Valves are rated to operate between 32-120°F within 10-95% RH non-condensing.

VENTURI FX

INSTALLATION & MOUNTING INSTRUCTIONS

Installing the Venturi FX Unit

Before Installation

1. Visually inspect the valve for damage
 - Damage to the flow measuring stations in the valve can be detrimental to performance
 - Damage to the coating on fume hood valves can lead to corrosion
2. Inspect the tamper proof paint to ensure it has not been removed. Tamper proof paint can be found on:
 - Actuator
3. Ensure the Specification label for the valve matches the intended installation location. See **Figure 1**.

General Installation

1. Ductwork to be supported within eighteen inches (18") of the Venturi FX unless otherwise specified.
2. Ensure airflow is travelling through the Venturi FX as described on the Airflow Direction label. See **Figure 2**
3. During operation, the blade damper of the Venturi FX may extend past the discharge of the valve. Ensure that a minimum of three inches (3") of duct space is clear of obstacles from the valve discharge.
4. Leave eight inches (8") of free space in all directions of the controls enclosure to facilitate future access to the controls.
5. 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 +/- 90 degrees from straight down. See **Figure 3**.
6. Do not screw into Phenolic coated valves. Screws will compromise the venturi valve body and its resistance to corrosion.

Warranty will be void if screws are used.

FIGURE 1 ▼

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SPECIFICATIONS

ORDER NO:	_____
JOB NAME:	_____
UNIT TAG:	_____
LINE:	_____
SERIAL NO:	_____
UNIT SIZE:	_____
FLOW RANGE:	_____
PRESSURE RANGE:	_____
ORIENTATION:	_____

CFM @ 70°F, 0 FT ELEV. - PLEASE REFER TO MANUAL FOR ELEV. CORRECTION

TESTED:	QA:	DATE:
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FIGURE 2 ▼

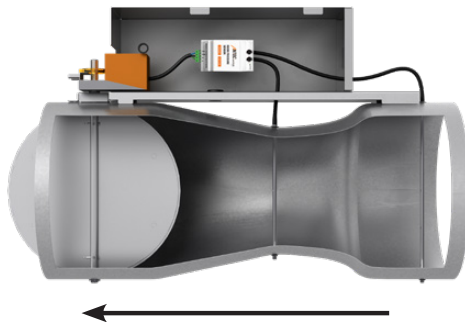
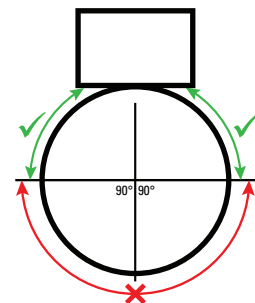


FIGURE 3 ▼



VENTURI FX

INSTALLATION & MOUNTING INSTRUCTIONS

Slip-Connection Venturi FX

1. Mount the Venturi FX by slipping both the inlet and the discharge one inch (1 in.) 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 FX with Drawband Clamps

1. Slide drawband clamps completely onto the inlet and discharge ductwork as shown in **Figure 6**.
2. Mount the Venturi FX by slipping both the inlet and the discharge one inch (1 in.) 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 Venturi FX ensuring that at least one and a half inches (1.5 in.) 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 Venturi FX and duct work. Neither the Venturi FX nor the band clamp should shift after fastening.
6. Do not screw through the bandclamp into the Venturi FX 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 FX

1. Align the duct flange holes with the Venturi FX 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 FX 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 FX to complete installation.

! 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.

FIGURE 4 ▼

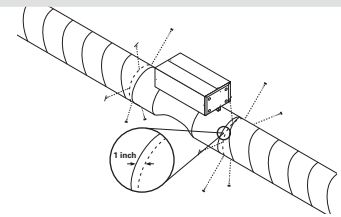


FIGURE 5 ▼

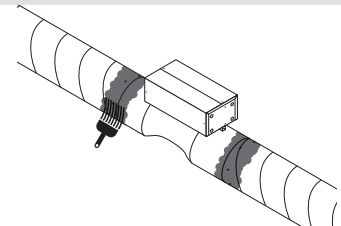


FIGURE 6 ▼

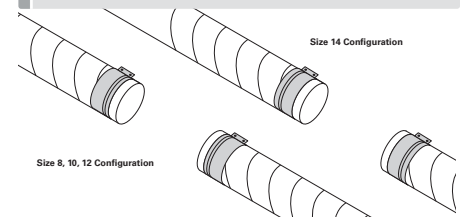


FIGURE 7 ▼

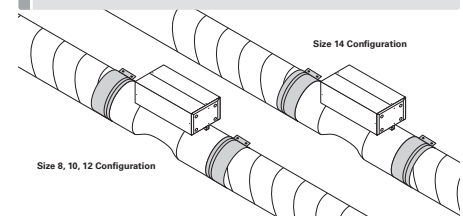


FIGURE 8 ▼

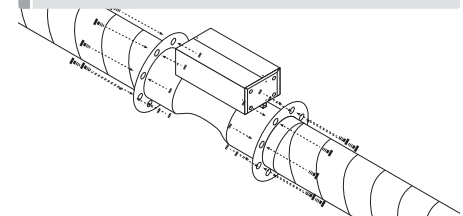
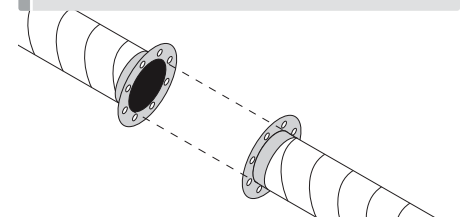


FIGURE 9 ▼



VENTURI FX

INSTALLATION & MOUNTING INSTRUCTIONS

Venturi FX with Silencer

1. Position silencer before the inlet of the Venturi FX when the Venturi FX is operating as an Exhaust valve. Position silencer on the discharge of the Venturi FX when the Venturi FX 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 FX.
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 in.) to ensure a proper fit as shown in **Figure 11**.
5. Mount the Venturi FX 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 in.) 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.

NOTE: Access doors are not required when installing the Venturi FX.

CAUTION ▼

Maximum screw lengths when installing the Venturi FX are below. If this screw length is exceeded, it may impede the rotation of the damper shaft.

Valve Size	Maximum Screw Length
108	1/2 in.
110	3/8 in.
112	3/8 in.
114	3/8 in.

NOTE: Maximum screw length is based on screw distance of 1/2 in. from end of the VFX slip connection.

FIGURE 10 ▼

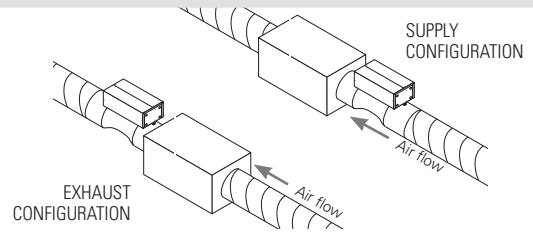


FIGURE 11 ▼

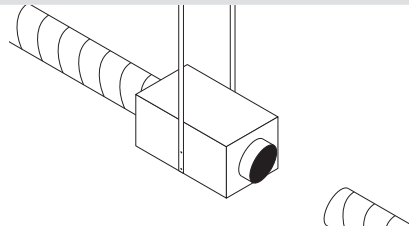


FIGURE 12 ▼

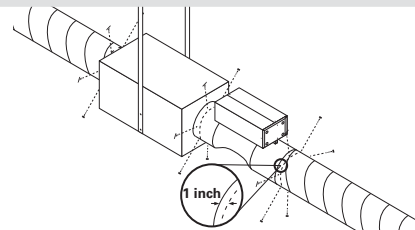


FIGURE 13 ▼

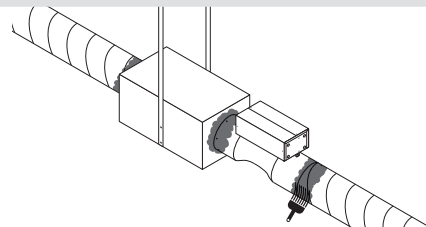
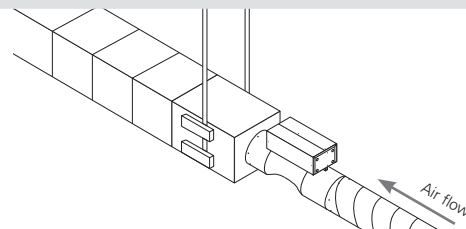


FIGURE 14 ▼



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

Symptom	Possible Cause
Noise	<ol style="list-style-type: none">1. Foreign material in valve2. Vibrating duct work
Actuator Does Not Operate	<ol style="list-style-type: none">1. Confirm that power is being delivered to the unit2. Verify control signal3. Verify that the disconnect switch (where available) is not open4. Verify that the fuse (where available) is not blown5. Verify that actuator control signal is connected to the correct analog output as per the submittals
Actual airflow does not match airflow feedback	<ol style="list-style-type: none">1. Confirm that there is no blockage inside the duct or valve2. Confirm that there is no damage to any tamper proof paint3. Verify that there are no ductwork leaks before or after the valve4. Verify that the valve is installed in the correct orientation5. Verify the tubing has not been kinked, damaged, and that the red tube is connected to the high port and the green tubing is connected to the low port

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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