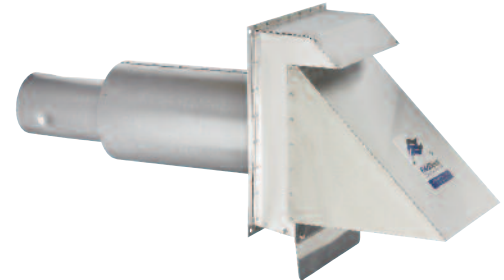


EUTECTIC EC-10DV Series

DIRECT VENT OIL-FIRED WATER BOILER/NO. 2 OIL

VENTING INSTALLATION INSTRUCTIONS

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Slant/Fin EC-10DV SERIES, models DV are approved for installation as a direct vent system. The following basic guidelines should be observed according to the venting system in use. In addition, it is strongly recommended that the applicable precautions for Natural Draft Applications be used.

**DO NOT DESTROY
THESE INSTRUCTIONS MUST
REMAIN WITH EQUIPMENT**

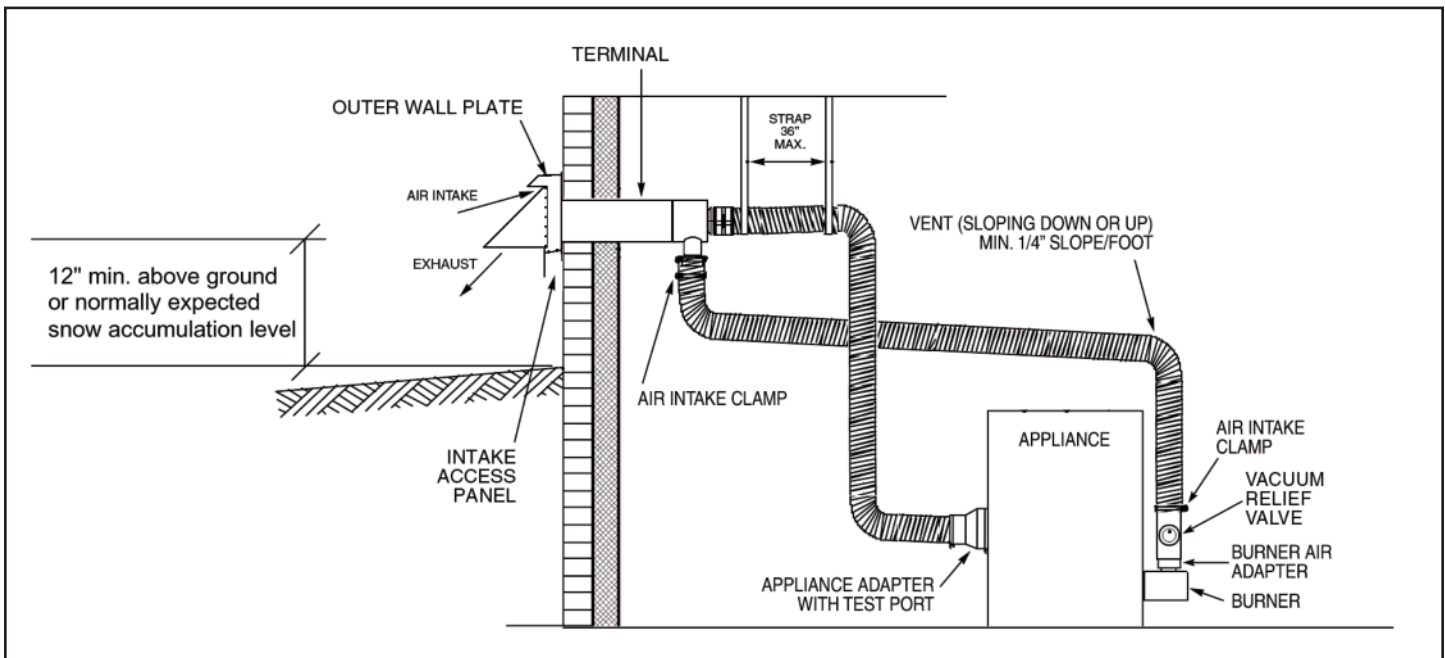
Installation Considerations

In addition to all the pertinent information regarding Natural Draft Applications whenever a Mechanical Draft Application is used it should be installed using the following instructions and Figures 2 and 3 (on pages 4 and 5) as reference.

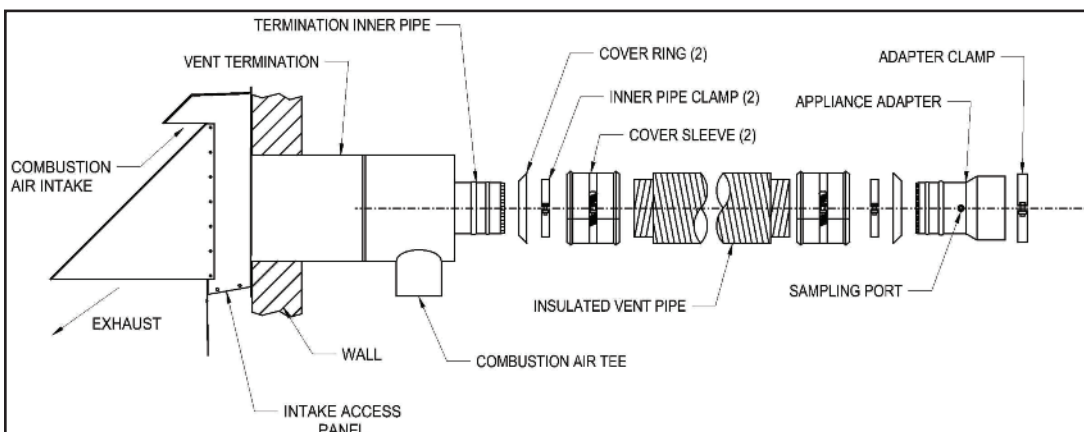
- The terminating vent hood, and the inlet air hood are on the same wall surface, and are on the wall opposite from the prevailing wind wall.
- All of the air for combustion to the burner is supplied directly from the outside of the building or structure.
- Not less than 305 mm (12 in.) above the total accumulated snow and level grade.
- Not less than 1219 mm (4 ft.) horizontally or below any window, and door or air inlet and also not less than 305 mm (1 ft.) above any of these openings.
- Not less than 914 mm (3 ft.) above a powered air inlet device that is within 3048 mm (10 ft.).
- Not less than 609 mm (2 ft.) from any other building.
- At least 914 mm (3 ft.) from any inside corner of a building
- At least 305 mm (1 ft.) from any roof soffit or ridge vent.
- At least 2134 mm (7 ft.) above any public walkway.
- All of the vent construction consists of approved materials, and terminates at an approved stainless steel hood.
- All of the vent piping must be sealed from air leaks.
- The vent pipe bend radius is 305 mm (12 in.)
- Brace metal strapping every 914 mm (36 in.) to support vent pipe and prevent it from sagging.
- Follow the national codes for the installation of oil burning equipment in USA-NFPA 31, in Canada CAN/CSA - B139 and local regulations.

Do not install vent terminals on prevailing wind wall side of structure. Moisture and ice may form around terminal. Make sure the surface is in good repair and protected from damage.

Only Slant/Fin models EC10DV boilers can be installed on sealed or direct vented systems. They must be ordered from the factory with an approved Direct Vent System.



Typical installation



Vent Terminal

ITEMS INCLUDED IN KIT:
 FDVS Direct Vent Termination
 VRV-4 Vacuum Relief Valve
 Backing Plate
 Installation Instruction
 Sheet
 **Bagged Hardware
 **Cover Ring
 **Cover Sleeve
 **Appliance Adapter
 **Adapter Clamp

**Included with FOVP (Flex Oil Vent Pipe)
 for some models

FIELD DIRECT VENT SYSTEM



Model: FDVS

The Field Direct Vent System (FDVS) is a non-powered positive pressure side wall vent termination system for use only with specifically listed oil fired appliances. The system provides an outlet for exhaust gases and an intake for combustion air in a single concentric terminal. The FDVS termination is designed to direct the hot exhaust gases away from the structure using the static pressure generated by a special oil burner. All of the internal parts in contact with the flue gases are made from corrosion resistant 316L stainless steel. The FDVS, with its built-in combustion air tee, allows connecting standard galvanized pipe from the FDVS termination to the air intake of a special oil burner or by use of a Field Controls Airboot, depending on the model of the oil burner.



WARNING:

This system MUST be installed by a qualified agency in accordance with the manufacturer's installation instructions. The definition of a qualified agency is: any individual, firm, corporation or company which either in person or through a representative is engaged in, and is responsible for, the installation and operation of oil appliances, who is experienced in such work, familiar with all the precautions required, and has complied with all the requirements of the authority having jurisdiction.



WARNING:

- Read the installation instructions carefully and completely before proceeding with the installation.
- For continued safe operation, the appliance vent system combination is required to be inspected and maintained annually by a qualified agency. Failure to properly maintain the appliance vent system combination can lead to Death, Personal Injury and or Property Damage



WARNING:

1. Safety inspection of a venting system should be performed before and after installing a venting system on an existing or new appliance. Procedures to follow are the latest version of those recommended by the National Fuel Gas Code, ANSI Z223.1, UL-726, NFPA31, CSA B139, CSA B140.0.03 appliance manufacturer's recommendations, or refer to the General Installation Inspection section of this manual.
2. Plan the vent system layout before installation to avoid the possibility of accidental contact with concealed wiring or plumbing inside walls.

INSTALLATION OF FDVS DIRECT VENT SYSTEM

Installation of the Vent Termination

- Remove vent system components from box and inspect for damage. If the carton has been crushed or mutilated, check components very carefully for damage. DO NOT install if any damage is apparent.
- Remove the combustion air tee assembly from the vent termination. Set the tee aside for later use.
- The location of the vent termination must be installed according to all local codes that are applicable. In the USA according to the latest version of the National Fire Protection Association NFPA-31, National Fuel Gas Code ANSI Z223.1. Where requirements for venting standards differ the most stringent standard shall apply. In Canada according to the latest version of CSA B140 and the CSA B139 Installation Code. Refer to the following requirements or See Diagram A for typical locations.
 - The exit termination of mechanical draft systems shall not be less than 7' above grade when located adjacent to public walkways.
 - A venting system shall terminate at least 3' above any forced air inlet located within 10'.
 - The venting system of other than a direct vent appliance shall terminate at least 4' below, 4' horizontally from, or 1' above any door, window or gravity air inlet into the building.
 - The vent termination of a direct vent appliance with an input of 50,000 BTU's per hour or less, shall be located at least 9" from any opening through which vented gases could enter the building. With input over 50,000 BTU's per hour, a 12" termination clearance shall be required.
 - The vent termination point shall not be installed closer than 3' from an inside corner of an L-shaped structure.
 - The vent termination should not be mounted directly above, or within 3' horizontally from an oil tank vent or gas meter.
 - The bottom of the vent terminal shall be located at least 12" above finished grade or expected snow line, whichever is greater.
- After determining the location of the venting system termination (See Diagram A), cut a hole in the wall sized according to "L" dimension in Table 1. (See Figure 1)
- Seal the back side of the base plate around the outer pipe of the vent termination with a bead of high temperature silicone sealant. (See Figure 2) Mount the vent termination through the wall, keeping the outer pipe centered in the hole. (See Figure 1) Fasten the vent termination to the outside wall with appropriate fasteners. Seal the edges of the vent termination base plate to the wall with a high-temperature silicone sealant.
- Mount the backing plate over the outer pipe. Fasten the backing plate to the inside wall with appropriate fasteners. (See Figure 2) DO NOT BLOCK the intake or exhaust openings, or the intake access panel on the vent termination body. Wood or vinyl siding should be cut so that the unit mounts directly on the wallboard to provide a stable support. If the siding is greater than 1/2" thick use a spacer plate or board behind the vent termination mounting plate. (See Figure 2)

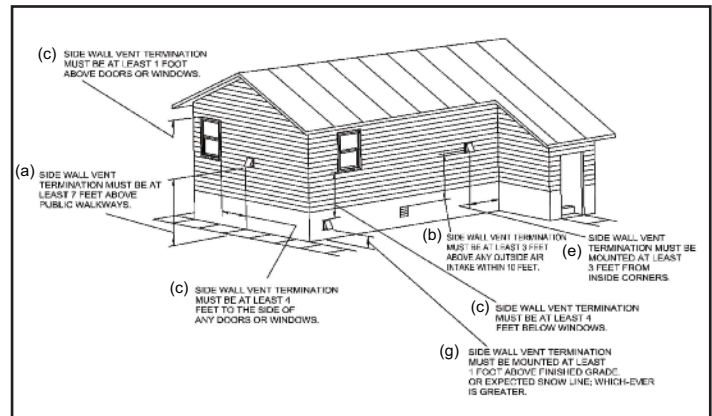


Diagram A

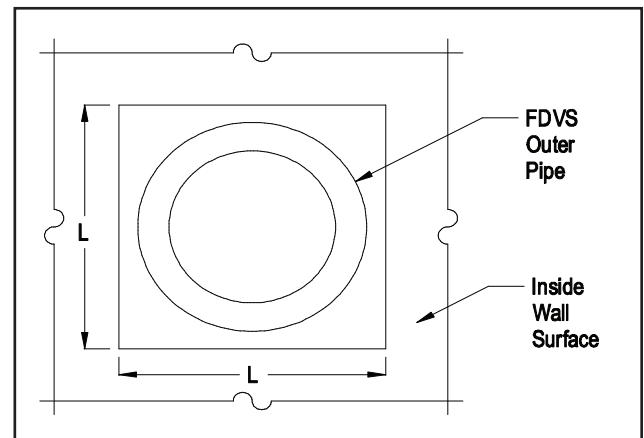


Figure 1. End View

Model	"L"
FDVS-4	7-1/4"

Table 1.

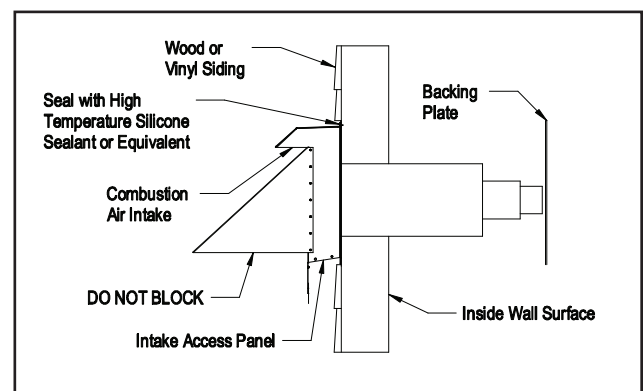


Figure 2. Side View

INSTALLATION OF THE VENT TERMINATION COMBUSTION AIR TEE

1. Assemble the combustion air tee assembly body to the vent termination outer pipe, and rotate to the desired position. Attach the tee assembly body to the vent termination outer pipe with at least 3 sheet metal screws evenly spaced apart (not included).

2. After completing assembly of the vent pipe to the termination inner pipe (Fig. 4), apply the supplied high temperature sealant to the cover pan around the inner pipe, around the joint between the collar and the Tee assembly, and seal or tape the joint from the FDVS Termination to the Tee assembly.

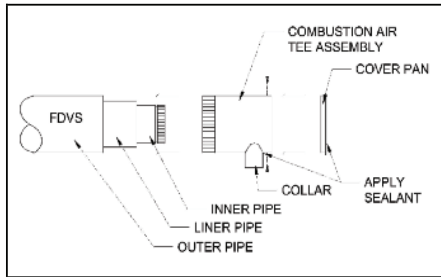


Figure 3 – Top View

NOTE: The tee may be rotated into any position so that the collar is in a convenient orientation.

CLEARANCE TO COMBUSTIBLES: FDVS Termination: 0", FOVP Flexible Oil Vent Pipe: 1". These clearances are to be maintained unless superseded by National and/or local codes (see Step 3).

CONNECTING THE VENT PIPE FROM THE FDVS TO THE APPLIANCE

1. The venting system should be installed and supported in accordance with the latest version in the USA of the National Fuel Gas Code ANSI Z223.1, UL-726, National Fire Protection Association NFPA31, and in Canada CSA B140, CSA B139 Installation Code or in accordance with any other local codes or the authority having jurisdiction. Where requirements for venting differ the most stringent standard requirements shall apply. A vent pipe connector, designed for positive pressure venting, shall be supported for the design and weight of the material employed, to maintain clearances, prevent physical damage and separation of joints. All joints **MUST** be sealed, for positive vent pressure, to prevent flue gas leakage into the structure.
2. Route the vent pipe from the appliance to the vent termination using the minimum number of bends as possible. The last horizontal section of the vent pipe should have a slight downward slope from the appliance to the vent termination. For clearances to combustible materials and other installation requirements, refer to the National Fuel Gas Code ANSI Z223.1, UL-726, NFPA31, CSA B140, CSA B139 and/or any applicable local codes.
3. The maximum length of vent pipe run for the EC-10DV boiler series is 15 feet. The minimum diameter of the approved vent pipe is 4" for the EC-10DV boiler series. Use a reducer or increaser, if necessary, at the vent termination to connect the vent pipe.
4. Support the Flexible Oil Vent Pipe (FOVP) at regular intervals of maximum 36" spacing with appropriate strapping or hangers, per National and local code requirements. Do not install screws into or otherwise penetrate any part of the vent pipe under any circumstances.

CONNECTING THE COMBUSTION AIR INTAKE PIPE FROM THE FDVS TO THE APPLIANCE

1. Use 4" galvanized steel pipe or stainless steel pipe from the FDVS terminal combustion air tee collar to the appliance oil burner combustion air inlet (or Air boot, if applicable.) Use a reducer or increaser, if necessary at the burner combustion air inlet to connect the combustion air intake pipe.
2. The VRV should be installed close to the air inlet of the burner, see fig. 11 on page 7.

GENERAL INSTALLATION INSPECTION

Recommended procedures for safety inspection of an appliance should be in accordance with the latest version of the National Fuel Gas Code ANSI Z 223.1, UL 726, and the National Fire Protection Association NFPA 31 in the USA, CSA B140 and CSA B139 Installation Code in Canada. The following procedure will help evaluate the venting system. It is intended as a guide to aid in determining that the venting system is properly installed and is in a safe condition for continuous use. This procedure should be recognized as a generalized procedure which cannot anticipate all situations. Accordingly, in some cases, deviation from this procedure may be necessary to determine safe operation of the equipment. If it is determined that a condition exists which could result in unsafe operation, the appliance should be shut off and the owner advised of the unsafe condition. Corrections must be made before the appliance is put into continuous operation. The following steps should be followed in making a safety inspection.

1. Visually inspect the venting system for proper size and determine that there is no flue gas spillage, blockage, restriction, leakage, corrosion, or other deficiency which could cause an unsafe operation.
2. Place in operation the appliance being inspected. Follow the lighting instructions and adjust thermostat so appliance will operate continuously.
3. Determine that the burner is operating properly and that the burner ignition operates satisfactorily by interrupting and reestablishing the electrical power of the appliance in any convenient manner. Test the burner safety device to determine if it is operating properly by disconnecting the flame safety circuit.
4. Test for spillage at the burner inlet air location around the VRV after 5 minutes of operation. Use a draft gauge, flame of a match or candle, or smoke from a cigarette, cigar or pipe. Shut off appliance thermostat and check for spillage around the VRV. If a flow reversal is noticed, house depressurization is occurring and make up air is required.

MAINTENANCE

Inspect all vent connections annually for looseness, evidence of corrosion, or flue gas leakage. Replace, seal, or tighten pipe connections if necessary. As part of the yearly maintenance schedule, remove the Intake Access Panel on the exterior of the FDVS vent termination (See Figure 2) and remove any debris or foreign material. Be sure to properly replace the panel.

APPLIANCE ADAPTER INSTALLATION:

1. Apply a bead of sealant to appliance collar approx. 1" from end of collar (Figure 5).
2. Remove all oil and grease from the inside of the appliance adapter, and apply a bead of sealant to inside of adapter ?" from end (Figure 5).
3. With a twisting motion, assemble the appliance adapter onto the appliance collar.
4. Using a mallet and block of wood, drive the adapter onto the appliance collar, using care to avoid damaging the appliance collar or the adapter (Figure 6).
5. Assemble adapter clamp halves using the supplied 5/16" bolts and square nuts, and install the appliance clamp onto the adapter and tighten securely (Figure 5).
6. Install the supplied self-drilling, self-tapping anchoring screws through the 4 holes in the appliance clamp into the appliance collar (Figure 6). No pilot hole is required.
7. Apply sealant to the end of the adapter and anchoring screws. (Figure 6).
8. After testing and burner adjustments have been made, apply sealant to the supplied 3/8" sampling port plug screw and install the screw in the sampling port (Figure 6).
9. Maintain the following clearances to combustibles. If the appliance collar is within 18" of combustible material, wrap minimum 1-1/2" ceramic insulation (installer-supplied) around the exposed portion of the termination inner pipe and appliance adapter (Figure 10).

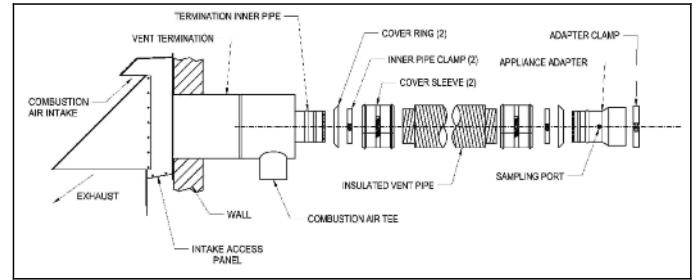


Figure 4

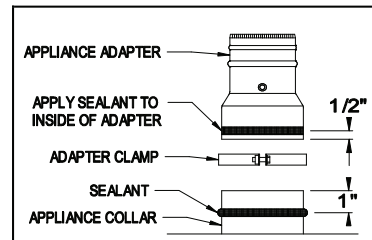


Figure 5

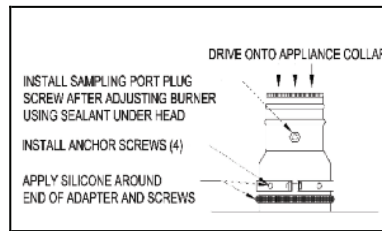


Figure 6

JOINT ASSEMBLY: VENT PIPE TO TERMINATION AND APPLIANCE ADAPTER

If necessary, the vent pipe may be cut to length with a hacksaw or cut off saw.

CAUTION: Use safety glasses and other appropriate safety gear.

1. Pull outer vent pipe back 1"-2" from inner vent pipe end and remove insulation (Figure 7).
2. Slide Cover Sleeve onto end of vent pipe a few inches back from end of outer vent pipe (Figure 7).
3. Slide Cover Ring over stop bead on termination inner pipe or appliance adapter (Figure 7).
4. Assemble inner pipe clamp halves using the supplied ?" bolts and square nuts, and position inner pipe clamp ?" from end of inner pipe (Figure 7).
5. Remove all oil and grease from end of termination inner pipe or appliance adapter, and apply a bead of sealant to between the stop bead and retainer bead (Figure 8).
6. Apply a thick bead of sealant to inside of inner vent pipe ?" from the end of pipe, working the sealant into the corrugations (Figure 8).
7. Push the inner vent pipe onto the termination inner pipe or appliance adapter all the way up to the stop bead.
8. Tighten the inner pipe clamp bolts until both clamp halves are within 1/8" of each other at each end (Figure 9).
9. Slide the cover sleeve and cover ring together to engage the ring in the groove of the sleeve, and tighten the cover sleeve clamp (Figure 10).
10. To maintain 1" clearance to combustibles, wrap minimum 1-1/2" thick ceramic insulation (installer-supplied) around the exposed portion of the termination inner pipe (Figure 10), and secure with foil tape (installer supplied).

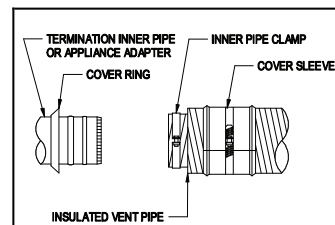


Figure 7

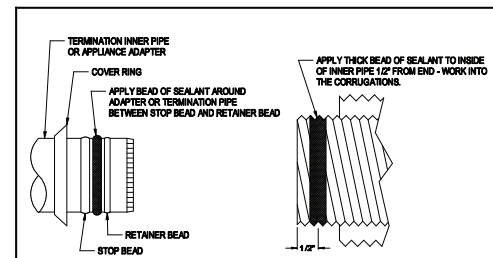


Figure 8

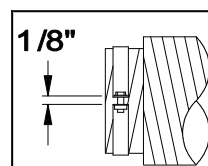


Figure 9

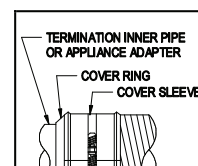


Figure 10

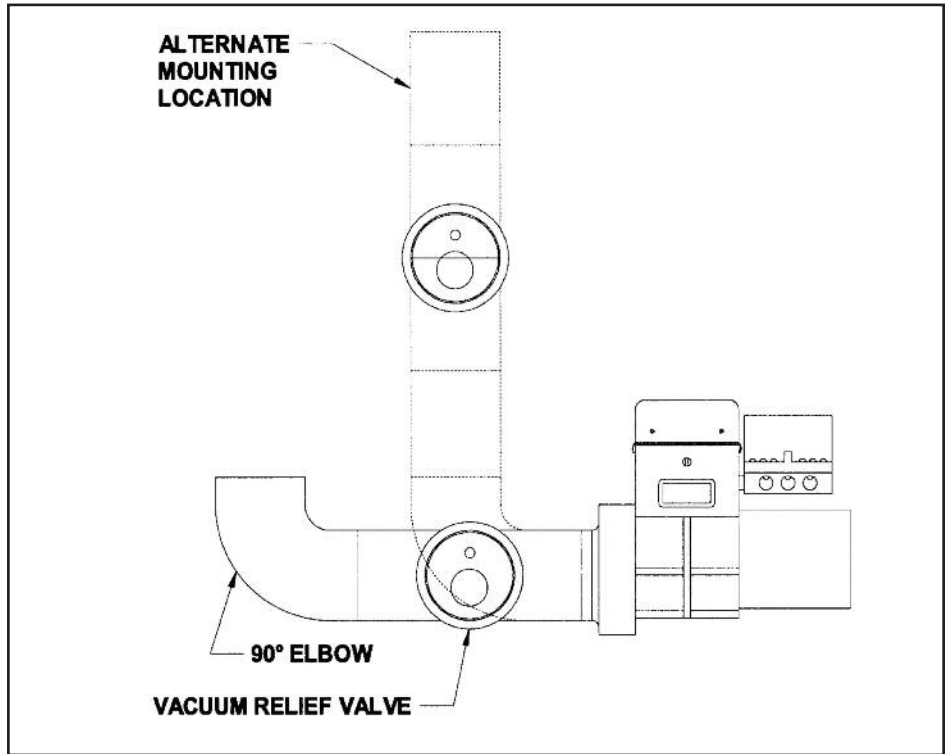


FIGURE 11: Connection of vacuum relief valve

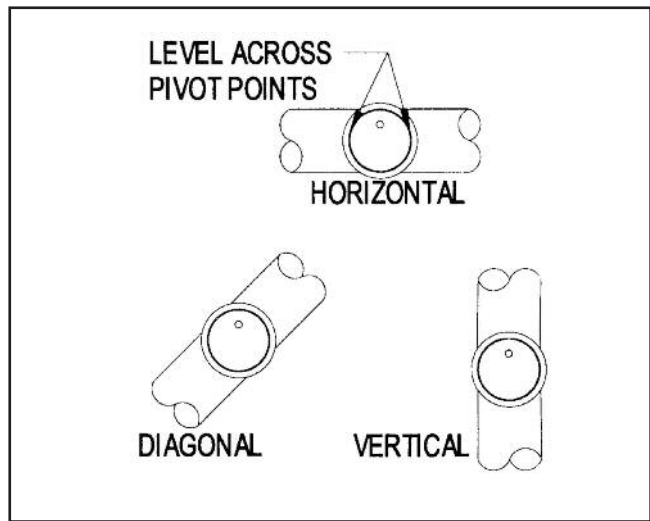


FIGURE 12: Vacuum relief valve



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