



Lochinvar Products and PVC/CPVC Vent Pipe

Venting with Non-Metallic Material

For over a decade, high-efficiency, condensing boilers have employed Non-Metallic material or PVC/CPVC pipe for the exhaust vent. In fact, PVC has been used as a vent material in Power Vent Water Heaters since the early 1990's.

Constructed with innovative combustion systems and super efficient stainless steel heat exchangers, many of Lochinvar's condensing products are design certified for installation with PVC/CPVC vent pipe per the requirements of the harmonized North American standards governing gas fired appliances.

How Appliances are Certified

Gas fired boilers and water heaters are required to be safety certified by a third party testing agency according to the American National Standards/CSA Standards. Boilers are design certified to ANSI Z21.13/CSA 4.9 and commercial water heaters are design certified to ANSI Z21.10.3/CSA 4.3.

As a part of this certification, the appliance must undergo tests to assure the specified venting system is appropriate for use with the appliance. Each standard includes specific test procedures for Non-metallic venting like PVC/CPVC. The appliance is placed in a closet and the water temperatures are raised to the highest permissible level. This generates the highest flue gas temperatures. Under these conditions, data is collected to verify the vent material's temperature limitations are not exceeded.

In Brief:

Product:

Armor[®] Condensing Gas Fired Water Heater

Knight[®] Residential Condensing Gas Fired Boiler

Knight XL[®] Commercial Condensing Gas Fired Boiler

Shield[®] Light Commercial Condensing Gas Fired Water Heater

SYNC[®] Commercial Condensing Gas Fired Boiler

Topic Sections:

- Venting with Non-Metallic Material
- How Appliances are Certified
- ASTM Standard References



Product Features:

- Up To 98% Thermal Efficiency
- Boilers and Water Heaters
- Limescale Free Performance
- Inputs up to 1,600,000
- Quiet Operation
- SMART SYSTEM or SMART TOUCH controls
- PVC or CPVC up to 100 Equivalent Feet
- Various vent configurations for Horizontal and Direct Vent

About Lochinvar

Lochinvar Corporation is a leading manufacturer of high-efficiency water heaters, boilers, pool heaters and storage tanks. Based in Lebanon, TN with facilities in Detroit, Orlando, Tampa, Pompano Beach, Phoenix, and Dallas, Lochinvar stocks all products in all locations.

For more information regarding Lochinvar's line of high-efficiency water heaters, boilers and pool heaters, contact:

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The vent tests measure the actual pipe material temperature, not the flue gas temperature to determine the effect of hot flue gases on the vent material. ANSI test procedures are under constant review by the ANSI standards committees to assure the test conditions are appropriate and up to date.

Lochinvar has conducted these tests in coordination with CSA International, a third-party testing agency which validates the PVC/CPVC vent materials recommended in our Installation & Operation manuals.

In addition to meeting the Standard's vent material requirements, all Lochinvar condensing products utilize a Flue Temperature Sensor mounted in the flue pipe connection. Wired to the main control board, the sensor and the control monitor and limit flue gas temperatures in the vent pipe.

ASTM Standard References

The Lochinvar Installation & Operation manual identifies the specific ASTM standards of the vent material to ensure that the proper PVC/CPVC pipe is installed. Since the ASTM standard is clearly printed on the pipe it provides a quick and easy visual check. The ASTM standard itself does not qualify the material for use for venting. That is done through the ANSI boiler and water heater test procedures previously described. Reference to the ASTM number simply offers a means to ensure that the material that was qualified during the testing process is used in the installation. For additional information see Lochinvar Technical Service Bulletin Number 2011-03-T.

These elements combine to produce appliances that safely use PVC/CPVC pipe to vent flue products.

Important Reminders:

- Closet installations require CPVC pipe because the ambient air temperature will be higher in the enclosed space.
- Check local codes. Local codes may not allow the use of plastic pipe for venting.
- Do not insulate the vent pipe because the ambient air helps remove heat and reduce vent material temperatures.
- Do not use Cellular Core PVC/CPVC materials. Cellular Core is insufficiently resilient to flue gas temperatures.
- Read the installation manual thoroughly before installing any vent material.
- Appliances and vent systems must be checked annually.

For further details, please contact Lochinvar Technical Support at 1-800-722-2102.

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