VRC-80, 100, 120, 140

Quick Installation Guide

Ver. 1.1

Safety Information

The following safety symbols are used in this manual for user's safety. Read this manual carefully and follow all instructions to avoid property damage, fire, explosion, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- What to do if you smell gas
  - Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a licensed professional.
- Follow all local codes and/or the most recent edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54) in the USA, or the Natural Gas and Propane Installation Code in Canada (CAN/CGA B149.1).

Before Installation

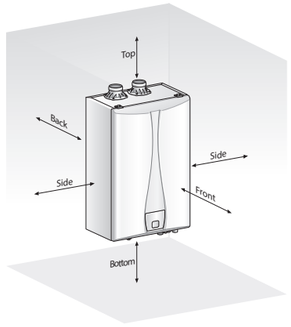
Choosing an Installation Location

When considering a location for installation, read "Installing the Boiler " in the Installation Manual.

Checking the Clearances

Clearances

The boiler should be installed in an area that allows for service and maintenance access to utility connections, piping, filters, and traps. Ensure the following clearances are maintained:



Clearance From	Wall Mounting
Top	12 inches (305 mm) min.
Back	0.6 inches (15 mm) min.
Front	6 inches (152 mm) min.
Sides	3 inches (76 mm) min.
Bottom	12 inches (300 mm) min.

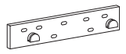
Installation

Opening the Box

The following items are included with the boiler . Check each of the following items before installation.


VST boiler


Spare parts


Wall mounting bracket

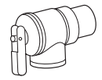

Tapping screws & anchors


Installation and User manual


Gas conversion kit


Vent clip

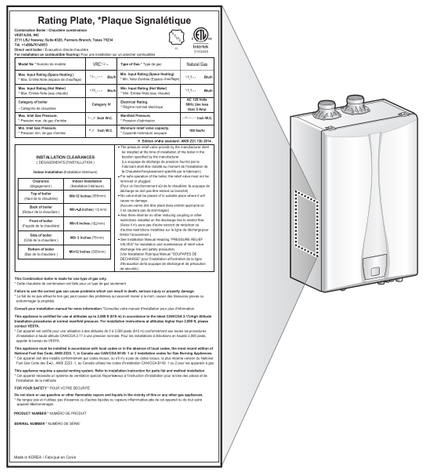

Quick installation manual


Pressure reilef valve


2"Vent termination cap & Wall flange

Checking the Rating Plate

Before the installation, check the rating plate located on the side of the boiler to ensure that the boiler matches the gas type, gas pressure, water pressure, and electrical supply available in the installation location. If the boiler does not match each of these ratings, do not install the boiler . If the gas conversion is required, the included gas conversion kit must be used.

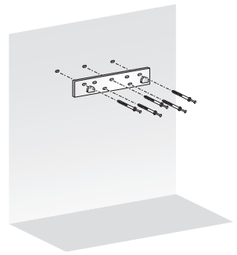

Rating Plate, *Plaque Signalétique

Mounting the Boiler

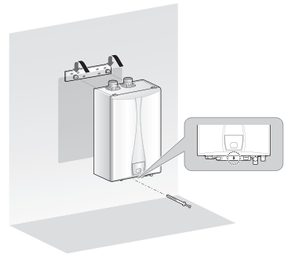
Mounting to the wall

To mount the boiler to the wall:

1. Check that the wall is level and can support the weight of the boiler .
2. Affix the mounting bracket securely to the wall.

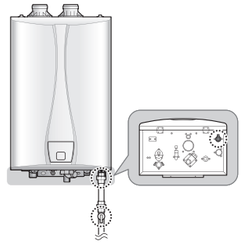


3. Align the grooves on the back of the boiler with the tongues on the mounting bracket and hang the boiler from the bracket.



Connecting the Gas Supply

1. Connect the gas supply line.



2. Check for gas leaks at all joints.

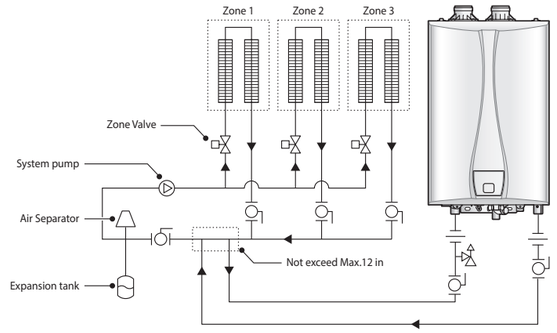
Notice

- Tighten the boiler connection valves with care to avoid damage.
- Apply gas leak detection solution to all gas fittings.
- The minimum internal diameter required for any appliance connector is ¾ ".
- When using flexible gas lines, ensure that the pipe's inner diameter and connector is sufficient to supply the required BTUs. Also, ensure that the flexible line has no crimps or tight bends in it, as this will restrict gas flow.
- To facilitate any future maintenance or service, the installation of a union on the gas supply line close to the boiler is recommended.

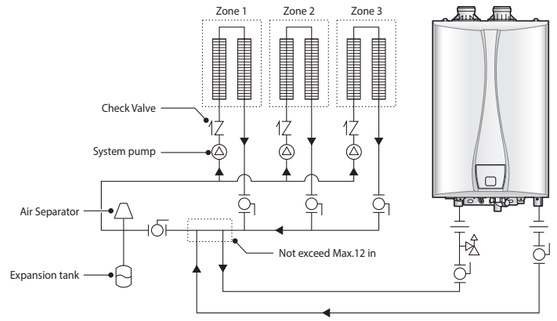
Example of System Applications

Refer to the following examples to properly implement a system for space heating. These example are provided to suggest basic guidelines when you install the boiler system. However, the actual installation may vary depending on the circumstances, local building codes, or state regulations. Check the local building codes and state regulations thoroughly before installation, and comply with them fully.

Zone System with Zone Valves



Zone System with Circulators

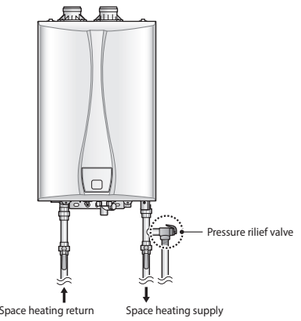


Pressure Relief Valve

This boiler comes with an ASME-approved pressure relief valve to install space heating. To complete the installation of the boiler, you must install an approved 3/4", maximum 30 PSI (for space heating).

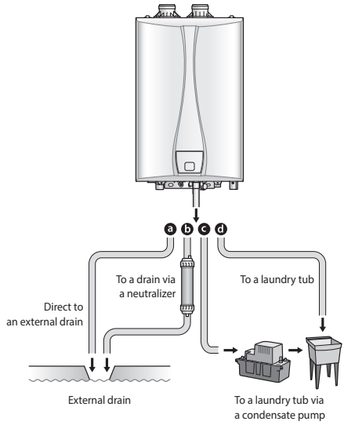
Warning Improper installation of the pressure relief valve may result in property damage, personal injury, or death. Follow all instructions and guidelines wlen installing the pressure relief valve. Only a licensed professional should install the valve.

Caution Install the pressure relief valve as close to the boiler as possible. No other valve should be installed between the pressure relief valve and boiler.



If the pressure relief valve discharges hot water periodically, thermal expansion may occur due to an expansion tank problem or small expansion tank size. Do not plug the pressure relief valve.

Connecting the Condensate Drain



(a) From the boiler directly into an external drain.
(b) From the boiler , through a neutralizing agent, and then into an external drain.
(c) From the boiler into a condensate pump, and then into a laundry tub.
(d) From the boiler into a laundry tub.

Condensate Trap

Before operating the boiler , fill the condensate trap with water through the flue connector. The boiler may be severely damaged unless filled with water prior to operation. Pour 0.1 gallon (400 ml) of water into the exhaust duct. Deflate air sufficiently or equip the air vent with an outlet pipe prior to filling the condensate trap with water (there must be no air inside the heat exchanger).

Installing a Vent

Vent Lengt

Vent Size	Maximum Length	Maximum # of Elbows	Equivalent Lengths
2"	60' (18 m)	6	Reduce the maximum vent length accordingly for each elbow used: • Each 90° elbow equates to 8 linear feet (2.4 m) of vent • Each 45° elbow equates to 4 linear feet (1.2 m) of vent
3"	150' (45 m)	8	Reduce the maximum vent length accordingly for each elbow used: • Each 90° elbow equates to 5 linear feet (1.5 m) of vent • Each 45° elbow equates to 3 linear feet (0.9 m) of vent

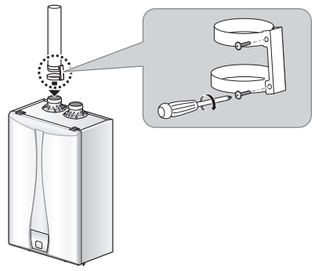
Connecting the Vent Clip

Caution | To connect the exhaust vent firmly, must use the vent clip included with boiler .

To connect the vent clip:

1 Connect the vent clip to the exhaust vent.

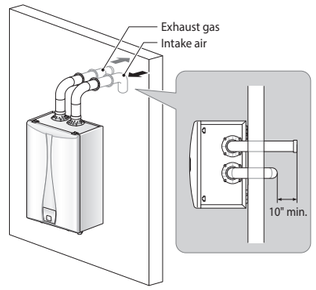
2 Connect the exhaust vent and the vent clip to the flue connector.



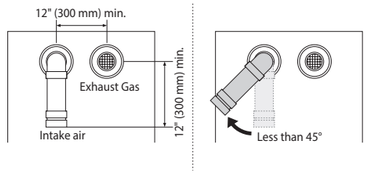
Notice
Tighten the screws and fix the vent clip.

Two-pipe sidewall venting

Internal view



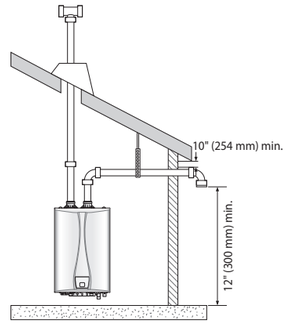
External view



Caution
- Maintain 12" (300 mm) min. (18" (450 mm) min. for Canada) clearance above highest-anticipated snow level. Maximum of 24" (600 mm) above roof.
- Install a bird screen at the end of the intake air pipe and exhaust pipe.

Notice
It is recommended to install the intake air vent terminal as far from the exhaust gas vent terminal as possible.

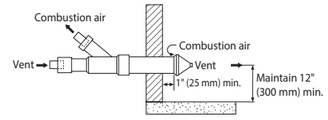
Non-concentric sidewall venting



Caution
- Maintain 12" (300 mm) min. (18" (450 mm) min. for Canada) clearance above highest-anticipated snow level. Maximum of 24" (600 mm) above roof.
- Install a bird screen at the end of the intake air pipe and exhaust pipe.

Notice
Air is drawn from a different location at a minimum of 12" (300mm) from the exhaust termination. Try to minimize the length of the intake air pipe with this venting.

Concentric sidewall venting



Caution | Maintain 12" (300 mm) min. (18" (450 mm) min. for Canada) clearance above highest-anticipated snow level. Maximum of 24" (600 mm) above roof.

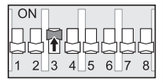
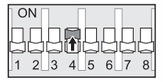
Connecting the Power Supply

Warning | Improperly connecting the power supply can result in electrical shock and electrocution. Follow all applicable electrical codes of the local authority having jurisdiction. In the absence of such requirements, follow the latest edition of the National Electrical Code (NFPA 70) in the USA or the latest edition of CSA C22.1 Canadian Electrical Code Part 1 in Canada. Connecting the power supply should be performed only by a licensed professional.

When connecting the power supply, follow these guidelines:
- Do not connect the electric supply until all plumbing and gas piping is complete and the boiler has been filled with water.
- Do not connect the boiler to a 220-240V AC power supply. Doing so will damage the boiler and void the warranty.
- All boiler s come with a factory-installed, 3-pronged (grounded) plug. The boiler can be plugged into any grounded electrical outlet nearby, as it requires only 2-4 Amps. It is not necessary to run a dedicated electrical line to the boiler .
- If local codes require the boiler to be wired directly, remove and discard the factory-installed plug. Install a power switch between the breaker and the boiler to facilitate end-user maintenance and servicing. Connect the boiler to a 110-120V AC at 60 Hz with a maximum of 5A rating electrical supply.
- The boiler must be electrically grounded. If using the power plug, ensure that the electrical outlet you connect the boiler to is properly grounded. If wiring the boiler directly to a power supply, do not attach the ground wire to either the gas or the water piping as plastic pipe or dielectric unions may prevent proper grounding.
- We recommend using a surge protector to protect the boiler from power surges.
- If there is a power failure in cold weather areas, the freeze prevention system in the boiler will not operate and may result in freezing of the heat exchanger. In cold weather areas where power failures are common, you must completely drain the boiler to prevent damage if the power is expected to be off for any extended period of time. A battery back-up (available at most computer retailers) may be used to supply hot water during periods of power outages. Damage caused by freezing is not covered under warranty.

Setting the Long Flue

Set the DIP switch appropriately, depending on the installation environment.

Switch	Function	DIP S/W #3	DIP S/W #4	FLUE LENGTH 2" PVC	FLUE LENGTH 3" PVC
	Long flue Length 1	OFF	OFF	Up to 15'	Up to 150'
		OFF	ON	Up to 30'	N/A
	Long flue Length 2	ON	OFF	Up to 45'	
		ON	ON	Up to 60'	

Operating the Boiler

Turning the Boiler On or Off

To turn the boiler on or off, press the ⏻ button.

When the boiler is on, the water temperature which has been set recently will appear on the digital display.

Setting the Space Heating Temperature.

Danger | If your household includes children, or elderly or disabled individuals, consider using a lower temperature setting.

To set the space heating water temperature.

1 Press the MODE button until the icon turns on.
2 Press the ···· or ····· buttons until the desired temperature appears on the digital display.

Setting the DHW Temperature

Caution | Water above 120°F (50°C) can cause instant scalding, severe burns, or death.

To adjust the water temperature:

1 Press the Mode button until the icon turns on.
2 Press the ···· or ····· buttons until the desired temperature appears on the display.