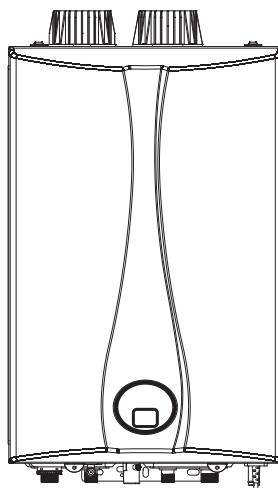


# Installation Manual

## Condensing Combi-Boilers

Model | VC 100 (LP) COMBI  
VC 120 (LP) COMBI  
VC 140 (LP) COMBI



Keep this manual near this boiler for future reference whenever maintenance or service is required.



### WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result, causing property damage, 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 qualified installer, service agency or the gas supplier.**
- **The installation must conform with local codes or, in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CSA B149.1, Natural Gas and Propane Installation Code.**
- **When applicable, the installation must conform with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 and/or CAN/CSA Z240 MH Series, Mobile Homes.**

## Requirements for the State of Massachusetts

### NOTICE BEFORE INSTALLATION

This appliance must be installed by a licensed plumber or gas fitter in accordance with the Massachusetts Plumbing and Fuel Gas Code 248 CMR Sections 2.00 and 5.00.

IMPORTANT: In the State of Massachusetts (248 CMR 4.00 & 5.00)

For all side wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the side wall exhaust vent termination is less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

1. **INSTALLATION OF CARBON MONOXIDE DETECTORS.** At the time of installation of the side wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professionals for the installation of hard wired carbon monoxide detectors
  - a. In the event that the side wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.
  - b. In the event that the requirements of this subdivision cannot be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.
2. **APPROVED CARBON MONOXIDE DETECTORS.** Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/UL 2034 listed and IAS certified.
3. **SIGNAGE.** A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, **"GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS"**
4. **INSPECTION.** The state or local gas inspector of the side wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08(2)(a)1 through 4.




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# Safety Information

- The cautions issued by this installation manual include critical information for the safety while using the product. When the user fails to adhere to the following requirements can cause death, serious damages, and a great property loss.
- For safety, according to the level of danger, we have indicated by "DANGER", "WARNING", "CAUTION" and the definitions for these terms are as follow

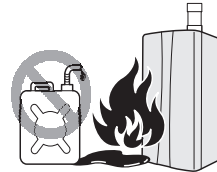
 <b>DANGER</b>	When the required terms are not followed, it indicates an urgent danger that may cause death or serious bodily injury
 <b>WARNING</b>	When the required terms are not followed, it indicates latent danger that may cause death or serious bodily injury
 <b>CAUTION</b>	When the required are not followed, it indicates latent danger that may cause light injury or semi-serious injuries

- The definitions of the symbols indicated on the product and installation manual are as follows

	This symbol indicates a "Must" follow sign
	This symbol indicates a "No touch allowed" sign
	This symbol indicates a "General prohibition" sign.
	This symbol indicates a "No Fire" sign
	This symbol indicates "Grounding for prevention of electric shock"
	This symbol indicates "Caution for electric shock"

## **WARNING**

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.



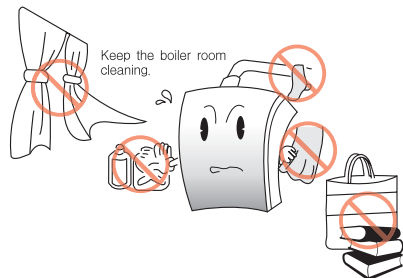
- This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- **BEFORE OPERATING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric 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.
- Do not return to your home until authorized by your gas supplier or the fire department.
- Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.



## WARNING



- **Do not store or use gasoline or other flammable liquids near this boiler.**  
Doing so may result in fire or explosion.
- **Do not place combustibles, such as newspapers or laundry, near the boiler or venting system.**  
Doing so may result in a fire.
- **Do not place or use hair sprays, spray paints, or any other compressed gases near the boiler or venting system, including the vent termination.**  
Doing so may result in fire or explosion.
- **Do not operate the boiler with the front cover opened.**  
Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage, personal injury, or death.
- **Do not operate this boiler without proper venting.**  
Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage, personal injury, or death.
- **Do not touch the power cord or internal components of the boiler with wet hands.**  
Doing so may result in electric shock.



## CAUTION

- **Do not turn on the boiler unless the water and gas supplies are fully opened.**  
Doing so may damage the boiler.
- **Do not turn on the water if the cold water supply shut-off valve is closed.**  
Doing so may damage the boiler.
- **Do not use this boiler for anything other than its intended purpose, as described in this manual.**
- **Do not remove the front cover unless the power to the boiler is turned off or disconnected.**  
Failure to do so may result in electric shock.
- **When servicing the controls, label all wires prior to disconnecting them.**  
Failure to do so may result in wiring errors, which can lead to improper or dangerous operation. Verify proper operation after servicing.
- **Do not use unapproved replacement or accessory parts.**  
Doing so may result in improper or dangerous operation and will void the manufacturer's warranty.
- **Do not place anything in or around the vent terminals, such as a clothes line, that could obstruct the air flow in or out of the boiler.**
- **This boiler has been approved for use in the USA and Canada only.**  
Using the boiler in any other country will void the manufacturer's warranty.

 **DANGER**



**To prevent burns:**

- Use the lowest operating temperature setting necessary to provide comfortably-hot water.
- If your household has children or elderly or disabled residents, consider using a lower temperature setting.
- Read all the instructions in this manual carefully before changing the temperature setting.
- Feel the water before using it on children, the elderly, or the disabled.
- If it is necessary to set the water temperature above 120 °F (52 °C), consider installing a thermostatically-controlled mixing valve or temperature-limiting valve. Contact a licensed plumber or your local plumbing authority for more information.

 **DANGER**

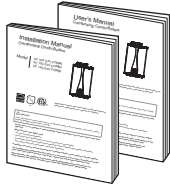
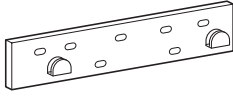

This boiler's water temperature is set to 120 °F (49 °C) at the factory for your safety and comfort. Increasing the temperature increases the risk of accidental scalding. Water temperatures at or above 125 °F (52 °C) can cause instant scalding, severe burns, or death. Before you decide to change the temperature setting, read the following charts carefully.

Water Temperature	Time in which a young child can suffer a full thickness (3rd degree) burn
160 °F (70 °C)	Less than 1 second
140 °F (60 °C)	1 second
130 °F (55 °C)	10 seconds
120 °F (49 °C)	10 minutes
100 °F (37 °C)	very low scald risk

# 1. About the Boiler

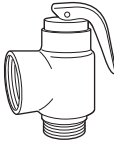
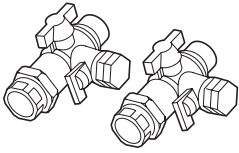
## 1.1 Items Included

When you open the box, you will find the following items with the boiler. Check the box for each of the following items before installing the boiler.

	
Installation Manual, User's Manual	Wall Mounting Bracket
	
Tapping screws & anchors	

## 1.2 Accessories

The following optional accessories are available for the boiler

	
Pressure Relief Valve, Heating	Plumb Easy Valve Set

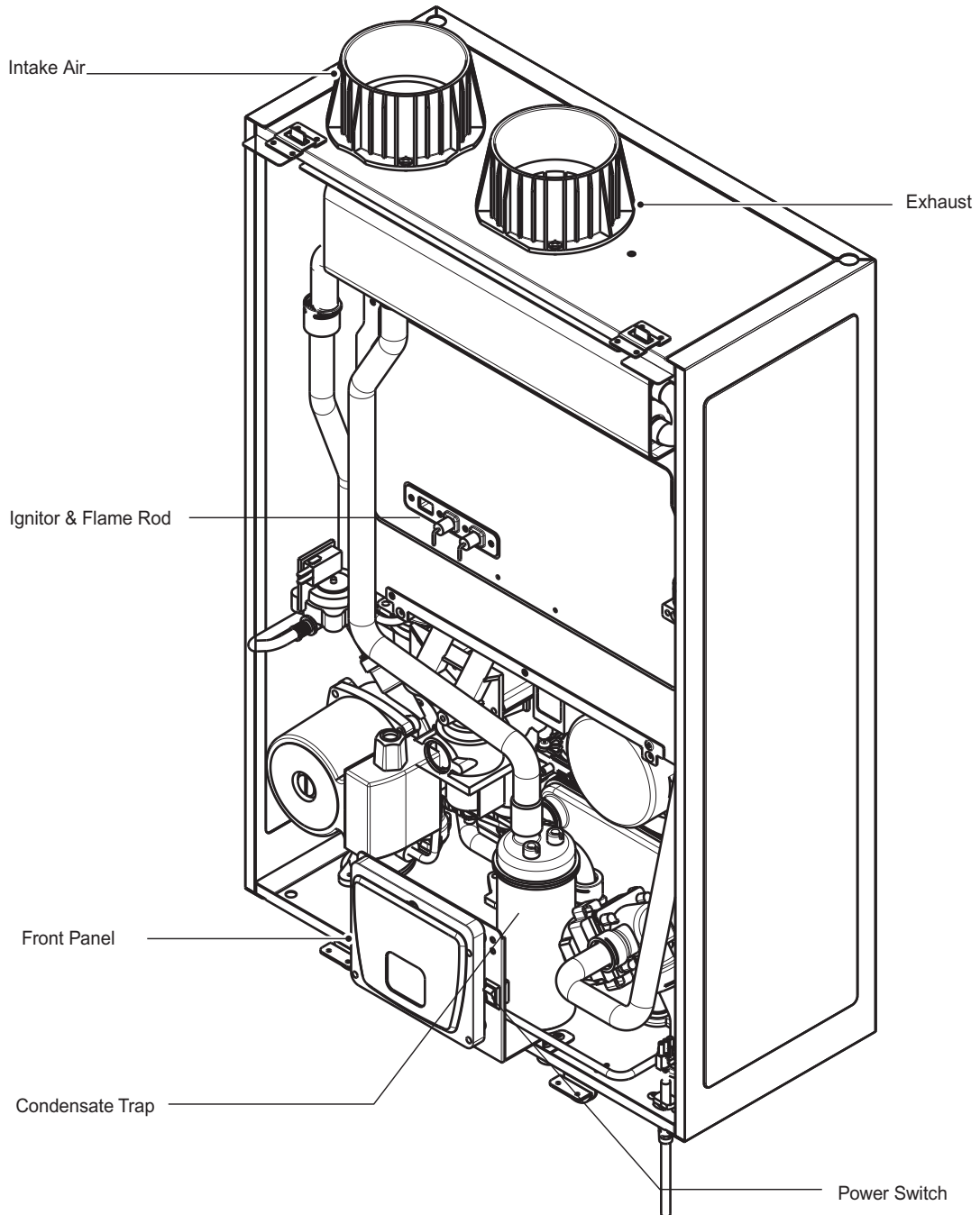
### 1.3 Specifications

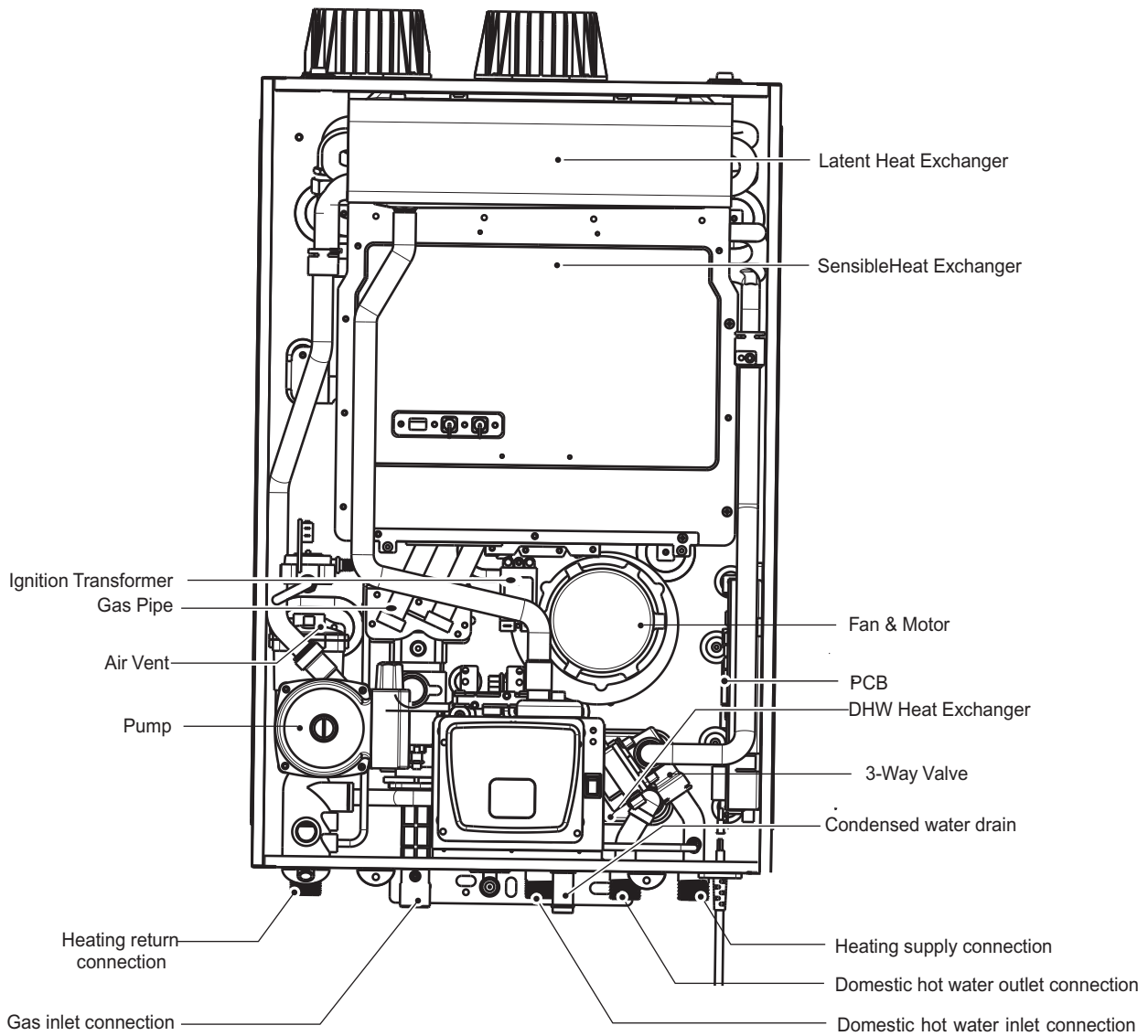
Model		VC 100 COMBI	VC 120 COMBI	VC 140 COMBI
Installation Type		Indoor Wall-Hung		
Weight		60lb	72lb	72lb
Dimension (H x W x D)		31.5" x 18.2" x 8.8"	31.5" x 18.2" x 9.4"	31.5" x 18.2" x 9.4"
Heat Input	Space Heating (Min/max)	22,000 Btu/h / 100,000 Btu/h	30,000 Btu/h / 120,000 Btu/h	30,000 Btu/h / 140,000 Btu/h
	Domestic Hot water (Min/Max)	22,000 Btu/h / 130,000 Btu/h	30,000 Btu/h / 180,000 Btu/h	30,000 Btu/h / 190,000 Btu/h
Gas Supply Pressure	N G	3.5 ~ 10.5" W.C		
	L P	8.0 ~ 13.5" W.C		
Power Supply	Main Supply	120Volts 60Hz Use less than 5 Amp		
	Power Combution	145W	190W	210W
Ignition System		Electric Ignition		
Gas Valve System		Combination Modulating		
Water Pressure		30 psi		
Connection	Gas	NPT 3/4"	NPT 3/4"	NPT 3/4"
	Space Heating	NPT 3/4"	NPT 3/4"	NPT 3/4"
	Domestic Hot Water	NPT 1/2"	NPT 3/4"	NPT 3/4"
Flue System		Direct Vent		
Venting		PVC, C-PVC, Polypropylene 3inch / 50ft		
Safety Device		Flame Rod, APS, Temperature sensor, condensate water level sensor, Temperature limit Device etc		



## 1.4 Components

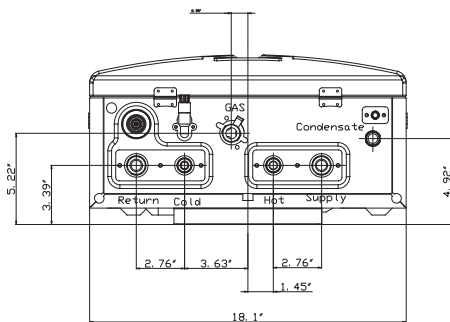
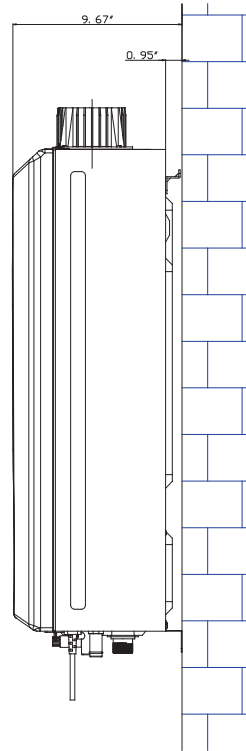
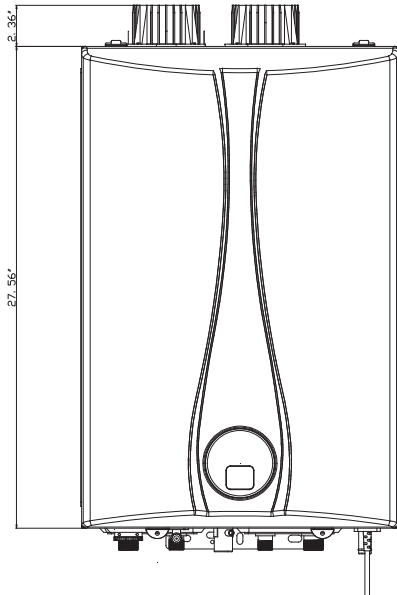
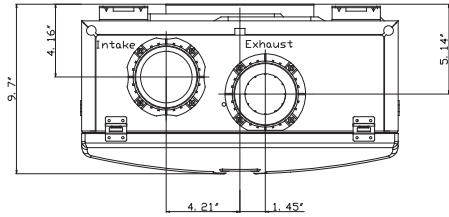
The following diagram shows the key components of the boiler. Component assembly diagrams and particular parts lists are included in the Appendixes.



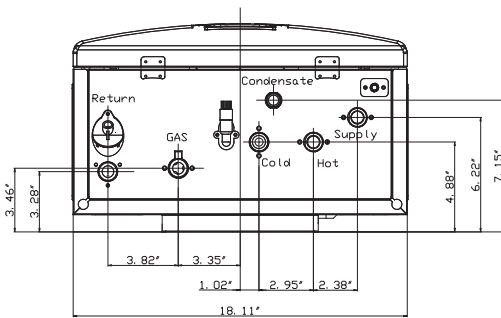
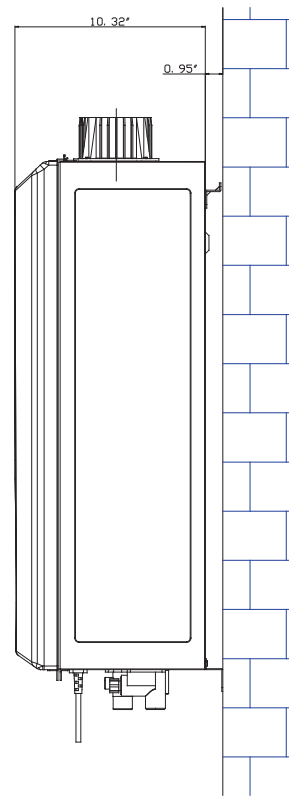
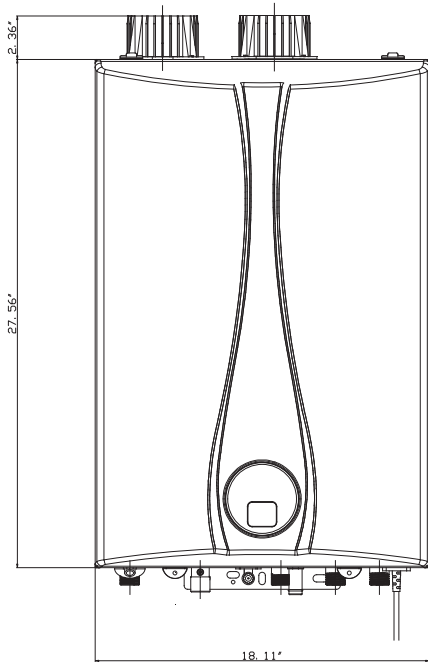
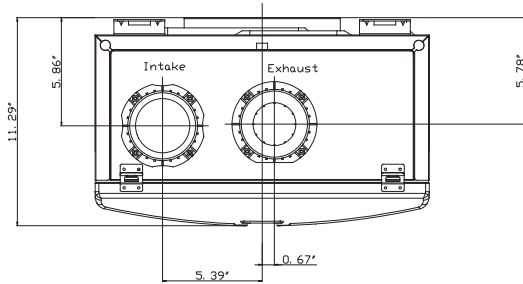


## 1.5 Dimensions

### VC 100 COMBI



# VC 120, 140 COMBI




## 1.6 Rating Plate

The VESTA VC boilers come from the factory configured for use with Natural Gas (NG). **Before starting 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.**

### Rating Plate, \*Plaque Signalétique

Combination Boiler / Chaudière combinaison  
 VESTA DS, INC  
 2711 LBJ Freeway, Suite 150, Farmers Branch, Texas  
 Tel: +1-800-761-0953  
 Direct vent boiler / Évacuation directe chaudière  
 For installation on combustible flooring / Pour une installation sur un plancher combustible



Model No * Numéro de modèle	VC 100 COMBI	Type of Gas * Type de gaz	NG
Max. Input Rating (Space Heating) * Max. Entrée Note (espace de chauffage)	100,000 Btu/h	Min. Input Rating (Space Heating) * Min. Note d'entrée (Espace chauffage)	22,000 Btu/h
Max. Input Rating (Hot Water) * Max. Entrée Note (eau chaude)	130,000 Btu/h	Min. Input Rating (Hot Water) * Max. Entrée Note (eau chaude)	22,000 Btu/h
Category of boiler * Catégorie de chaudière	Category IV	Electrical Rating * Régime nominal électrique	AC 120 Volts 60Hz Use less than 5 Amp
Max. Inlet Gas Pressure, * Pression max. de gaz d'entrée	10.5 Inch W.C.	Manifold Pressure, * Pression d'admission	3.4 inch W.C.
Min. Inlet Gas Pressure, * Pression min. de gaz d'entrée	3.5 Inch W.C.	Minimum relief valve capacity, * Capacité minimum soupape	189 lbs/hr

\* Edition of the standard: ANSI Z21.13b-2014 - CSA 4.9 Low Press. Boiler.

INSTALLATION CLEARANCES (DEGAGEMENTS D'INSTALLATION)	
Indoor Installation (Installation intérieure)	
Clearance (déplacement)	Indoor Installation (Installation intérieure)
Top of boiler (Haut de la chaudière)	Min 9 inches (228.6mm)
Back of boiler (Retour de la chaudière)	Max 0.5 inches (12.7mm)
Front of boiler (Façade de la chaudière)	Min 4 inches (101.6mm)
Side of boiler (Côté de la chaudière)	Min 3 inches (76.2mm)
Bottom of boiler (Bas de la chaudière)	Min 12 inches (304.8mm)

\* The pressure relief valve provided by the manufacturer shall be installed at the time of installation of the boiler in the location specified by the manufacturer.  
 (La soupape de décharge de pression fournie par le fabricant doit être installée au moment de l'installation de la Chaudière l'emplacement spécifié par le fabricant.)  
 \* For safe operation of the boiler, the relief valve must not be removed or plugged.  
 (Pour un fonctionnement sûr de la chaudière, la soupape de décharge ne doit pas être enlevé ou branché)  
 \* No valve shall be placed of in suitable place where it will cause no damage.  
 (Aucune vanne doit être placée dans endroit approprié où il ne causera pas de dommages.)  
 \* Also there shall be no other reducing coupling or other restrictions installed on the discharge line to restrict flow.  
 (Aussi il n'y aura pas d'autre raccord de réduction ou d'autres restrictions installées sur la ligne de décharge pour limiter l'écoulement.)  
 \* See Installation Manual Heading "PRESSURE RELIEF VALVES" for installation and maintenance of relief valve discharge line and safety precaution.  
 (Voir Installation Manuel "SOUPAPES DE DÉCHARGE" pour l'installation et l'entretien de la ligne d'évacuation de la soupape de décharge et de précaution de sécurité.)

**This Combination boiler is made for one type of gas only.**  
\* Cette chaudière de combinaison est faite pour un type de gaz seulement

**Failure to use the correct gas can cause problems which can result in death, serious injury or property damage.**  
\* Le fait de ne pas utiliser le bon gaz peut causer des problèmes qui peuvent mener à la mort, causer des blessures graves ou endommager la propriété.

**Consult your installation manual for more information.**  
\* Consultez votre manuel d'installation pour plus d'information.

**This appliance is certified for use at altitudes up to 2,000 ft (610 m) in accordance to the latest CAN/CSA 2.17 High Altitude Installation procedures at normal manifold pressure. For installation instructions at altitudes higher than 2,000 ft, please contact VESTA.**  
\* Cet appareil est certifié pour une utilisation à des altitudes de 0 à 2,000 pieds (610 m) conformément aux toutes les procédures d'installation à haute altitude CAN/CSA 2.17 à une pression normale. Pour les installations à élévations en hauteur 2,000 pieds, appeler le bureau de VESTA.

**This appliance must be installed in accordance with local codes or in the absence of local codes, the most recent edition of National Fuel Gas Code, ANSI Z223.1, in Canada use CAN/CSA B149.1 or 2 installation codes for Gas Burning Appliances.**  
\* Cet appareil doit être installé conformément aux codes locaux, ou s'il n'y a pas de codes locaux, la plus récente version du National Fuel Gas Code des E.-U., ANSI Z223.1, au Canada utilisez les codes d'installation CAN/CSA B149.1 ou 2 pour les appareils à gaz.

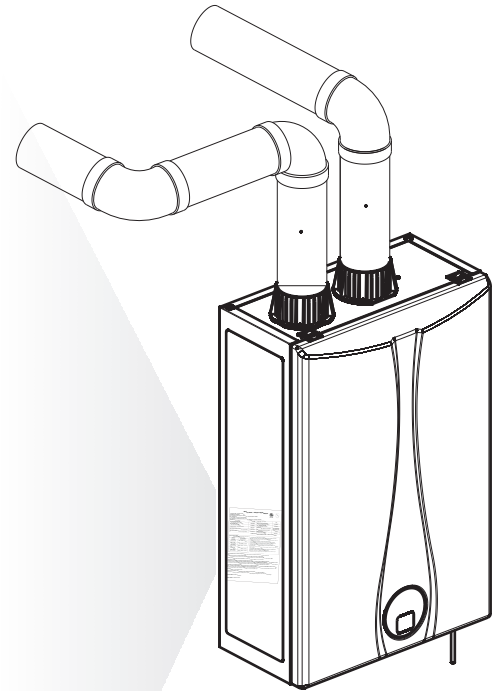
**This appliance requires a special venting system. Refer to installation instruction for parts list and method installation**  
\* Cet appareil nécessite un système de ventilation spécial. Reportez-vous à l'instruction d'installation pour la liste des pièces et de l'installation de la méthode

**FOR YOUR SAFETY \* POUR VOTRE SÉCURITÉ**

**Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other gas appliances.**  
\* Ne rangez pas et n'utilisez pas d'essence ou d'autres liquides ou vapeurs inflammables près de cet appareil ou de tout autre appareil électroménager.

**PRODUCT NUMBER \* NUMÉRO DE PRODUIT**

**SERIAL NUMBER \* NUMÉRO DE SÉRIE**



## WARNING

Ensure that the gas type and power source specifications match what is listed on the rating plate. Using a different gas type will cause abnormal combustion and boiler malfunction. Using abnormally high or low AC voltage may cause abnormal operation, and may reduce the life expectancy of the product.

## 2. Installing the Boiler

### 2.1 Choosing an Installation Location

When choosing an installation location, you must ensure that the location provides adequate clearance for the boiler, adequate venting and drainage options, and sufficient access to gas, water, and electrical supplies. Carefully consider the following factors when choosing an installation location:

#### Compliance Requirements

- Local, state, provincial, and national codes, laws, regulations, and ordinances.
- National Fuel Gas Code, ANSI Z223.1-latest edition.
- Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, when required.
- National Electrical Code.
- For Canada only: B149.1 Installation Code, CSA C22.1 Canadian Electrical Code Part 1 and any local codes.

#### Access to Utilities

- Water – the installation location should be near where the domestic water supply enters the building.
- Gas – the installation location should be near where the gas supply enters the building.
- Electricity – the installation location should be near where the electrical supply enters the building.

#### Humidity and Contact with Water

When installing the boiler, avoid places with excessive humidity. The boiler has electric gas ignition components. Water spray or droppings can get inside the boiler and damage the ignition system. The boiler must be installed in a way to ensure that the gas ignition system components are protected from water (dripping, spraying, rain, etc.) during operation and service.

#### Adequate Drainage

The boiler produces a significant amount of condensate during operation. The boiler should be located near a suitable drain and where damage from a possible leak will be minimal. Installing the boiler in a location without a drain will void the warranty and VESTA will not be responsible for water damages that occur as a result. For more information about condensate drainage, refer to “3.3 Condensate Discharge” on page 20.

The boiler must be located in an area where leakage of the unit or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be found, installation of an adequately drained drain pan under the boiler is highly recommended. When installing the drain pan, ensure that the installation does not restrict combustion air flow.

#### Adequate Venting and Ventilation

Select a location that requires minimal venting. Consider venting restrictions caused by windows, doors, air intakes, gas meters, foliage, and other buildings. For more information about venting, refer to “5. Venting the Boiler” on page 24.

To ensure adequate venting and ventilation, follow these guidelines:

- Maintain proper clearances from any openings in the building.
- Install the boiler with a minimum clearance of 12 in (300 mm) above an exterior grade or as required by local codes.
- Maintain a minimum clearance of 4 ft (1.2 m) from heating and cooling vents.
- Do not enclose the vent termination.
- Install the exhaust vent in an area that is free from any obstructions, where the exhaust will not accumulate.
- Do not install the boiler where moisture from the exhaust may discolor or damage walls.
- Do not install the boiler in bathrooms, bedrooms, or any other occupied rooms that are normally kept closed or not adequately ventilated.

#### Proximity to Fixtures and Appliances

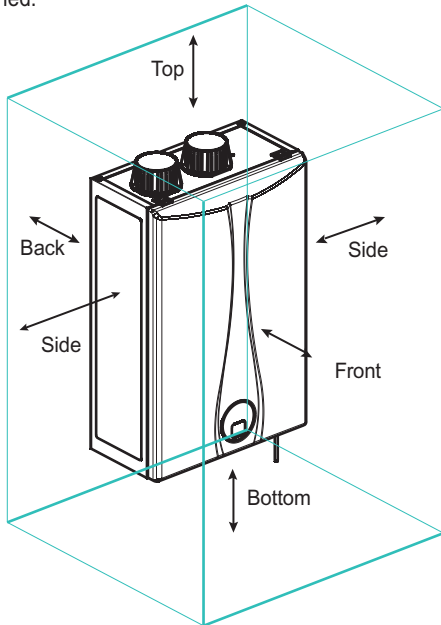
Install the boiler near fixtures that deliver or use hot water, such as bathroom, kitchen, and laundry room faucets. Select a location that minimizes the water piping required between major fixtures. If the distances are long or if the user requires “instant” hot water, installation of a recirculation line which circulates domestic hot water back to the boiler from the furthest fixture is recommended. Insulate as much of the hot water supply and recirculation lines as possible. For more information about the water supply, refer to “3.2 Installing a Domestic Hot Water (DHW) System” on page 18.

### Adequate installation clearances

#### CAUTION

Do not install the boiler on carpeting.

Install the boiler in an area that allows for service and maintenance access to utility connections, piping, filters, and traps. Based on the installation location, ensure that the following clearances are maintained:



Clearance from:	Indoor Installation
Top	9 in (229 mm) minimum
Back	0.5 in (13 mm) minimum
Front	4 in (100 mm) minimum
Sides	3 in (76 mm) minimum
Bottom	12 in (300 mm) minimum

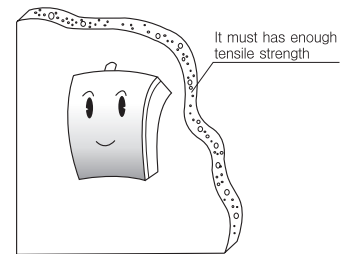
### Clean, debris and chemical-free combustion air

- Do not install the boiler in areas where dust and debris may accumulate or where hair sprays, spray detergents, chlorine, or similar chemicals are used.
- Do not install the boiler in areas where gasoline or other flammables are used or stored.
- Ensure that combustibles materials are stored away from the boiler and that hanging laundry or similar items do not obstruct access to the boiler or its venting.

## 2.2 How to install

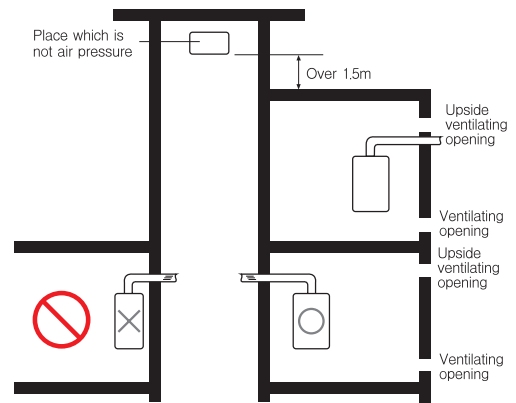
### Please install on a durable wall.

- When install the product, about 66 lb(31kg) is added in a wall. So if it is not installed on solid wall, it may cause damages, submersion, gas leak and a fire by falling the product
- If there is not enough strength to preserve the product, please do reinforcement work.
- The weight of the product is marked on 8page of this manual.
- Make sure the unit is mounted on a non-combustible material.



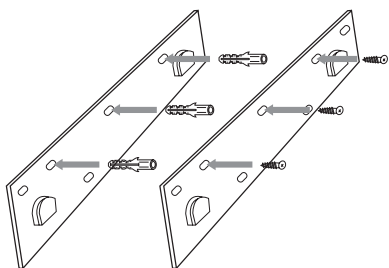
### Please don't install on a group exhaust port wall.

- It may cause mounting screw corrosion and result in failure.
- It may cause damages, submersion, gas leak and a fire from unit falling.



Please fix the mounting plate securely

- If the mounting bracket is not strong enough, the appliance can fall.
- It may cause damages, submersion, gas leak and a fire from unit falling.



### 3. Installing the System Piping

Prior to connecting plumbing to the boiler, flush the entire system to ensure it is free of sediment, flux, solder, scale, debris or other impurities that may be harmful to the system and boiler. During the assembly of the heating system, it is important to keep the inside of the piping free of any debris including construction and copper dust, sand and dirt.

For retrofits, all system piping including radiators, must be cleaned of all build-up including sludge and scale. All systems, old and new, must be cleaned to remove flux, grease and carbon residue. VESTA recommends cleaning the boiler system with cleaning products specially formulated for boiler systems. For retrofit applications with heavy limescale and sludge deposits, a heavier duty cleaner may be required. For information on performing the cleaning, follow the instructions included with the boiler system cleaner products.

#### WARNING

Failure to rid the heating system of the contaminants listed above will void your warranty and may result in premature heat exchanger failure and property damage.

### 3.1 Installing a Space Heating System

The primary and secondary heat exchangers of the VESTA VC boiler are designed to attain the highest level of heat transfer in a compact design. To accomplish this, the heating water flows through a series of tubes (secondary heat exchanger) and finned tubes (primary heat exchanger), designed to maximize the heat transfer area. To maintain the efficient and reliable operation of the heat exchangers, and to avoid heat exchanger failure, it is critical to ensure the rules and guidelines in this section are followed.

#### CAUTION

Failure to follow the instructions provided in this section will void the warranty and may result in property damage, fire, serious injury or death.

#### 3.1.1 Guidelines for a Space Heating Installation

Read and follow the guidelines listed below to ensure safe and proper installation of a boiler heating system.

##### Freeze Protection for a Space Heating System

- Freeze protection products may be used for the space heating system. Freeze protection for new or existing systems requires specially formulated glycol, which contains inhibitors to prevent the glycol from attacking the metallic system components.
- Before using freeze protection products, ensure that system fluid contains proper glycol concentration and the inhibitor level is appropriate. Navien recommends against exceeding a 35% concentration of glycol.
- When using the freeze protection products, the system must be tested at least once a year, and as recommended by the manufacturer of the glycol solution.
- When using the freeze protection products, allowance should be made for expansion of the glycol solution.
- Freeze damage is not covered by the warranty.

#### WARNING

For systems requiring freeze protection, use only inhibited propylene glycol, specially formulated for hydronic heating systems; use of other types of antifreeze may be harmful to the system and will void the warranty.



### 3.1.2 Essential Elements in a Space Heating System

#### Backflow Preventer

Install a backflow preventer valve in the make-up water supply to the unit as required by local codes.

#### Expansion Tank

An expansion tank must be installed in the space heating piping to prevent excessive pressure from building in the system. See the examples of system application at the end of this section for the installation location. Refer to the expansion tank manufacturer's instructions for additional details.

Follow the guidelines below when installing an expansion tank.

- Connect an air separator to the expansion tank only if the air separator is located on the suction side of the system circulator.
- VESTA VC boiler is equipped with a water connection and differential pressure feeding valve. Therefore, installation of additional system water fill connection is not necessary in most cases.
- If an additional water fill connection is required for a specific use, install the water fill connection at the same location as the expansion tank's connection to the system.
- When replacing an expansion tank, consult the expansion tank manufacturer's literature for proper sizing.
- For diaphragm expansion tanks, always install an automatic air vent on the top side of the air separator to remove residual air from the system.

#### Isolation Valves and Unions

- Full port ball valves are required for the boiler system. Failure to use full port ball valves could result in a restricted flow rate through the boiler.
- Check valves are recommended for installation. Failure to install check valves could result in a reverse flow condition during pump(s) off cycle.
- Unions are recommended for unit serviceability.

#### Pressure Relief Valve

To complete the space heating system installation, you must install a  $\frac{3}{4}$  in, maximum 30 psi pressure relief valve to the pressure relief valve adapter located on the top side of the VC boiler. An ASME approved HV pressure relief valve for space heating system is supplied with the boiler.

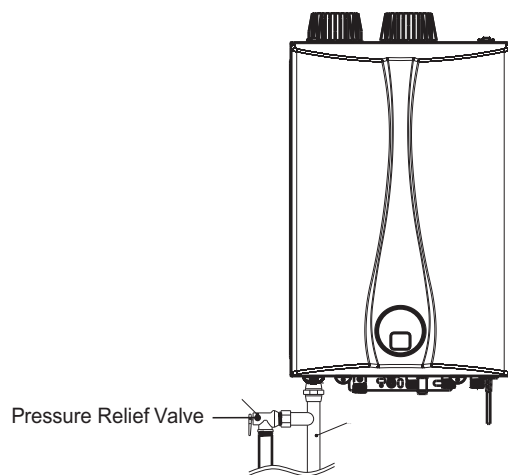
#### **WARNING**

- Installing the pressure relief valve improperly may result in property damage, personal injury, or death. Follow all instructions and guidelines when installing the pressure relief valve. The valve should be installed only by a licensed professional.
- The pressure relief valve must be installed vertically to the pressure relief valve adapter on the top side of the boiler, as shown in the example below, with the drain pipe outlet exiting the side of the pressure relief valve horizontally and elbowing down.

#### **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.

Refer to the following illustration and install a pressure relief valve to the pressure relief valve adapter located on the top corner of the VC boiler.



When installing the pressure relief valve, follow these guidelines:

- Ensure that the valve's discharge capacity is equal to or greater than the maximum pressure rating of the boiler's space heating system.
- Ensure that the maximum BTU/H rating on the pressure relief valve is equal to or greater than the maximum input BTU/H rating of the boiler.
- Direct the discharge piping of the pressure relief valve so that hot water does not splash on operator, or any nearby equipment.
- Attach the discharge line to the pressure relief valve and run the end of the line to within 6-12 in (150-300 mm) of the floor.
- Ensure that the discharge line allows for free and complete drainage without restriction. Do not install a reducing coupling or other restrictions on the discharge line.

If the relief valve discharges periodically, this may be due to thermal expansion caused by expansion tank waterlogging or undersizing. Do not plug the relief valve.

### 3.2 Installing a Domestic Hot Water (DHW) System

The VESTA VC boiler provides domestic hot water continuously when flow is sensed by the flow sensor. This method is the most efficient means of heating water by allowing the boiler to operate at a lower return water temperature by minimizing standby losses, thus increasing combustion efficiency.

#### 3.2.1 Guidelines for a DHW System

With its multi-purpose design, the VESTA VC boiler provides hot water on demand. This means that the boiler produces DHW only when the user demands it.

The boiler recognizes a DHW demand when the flow sensor detects a DHW flow of approximately 0.7 GPM or greater. Once the flow sensor detects the flow, the boiler immediately goes into DHW mode regardless of the status of the space heating system.

Read and follow the guidelines listed below to ensure safe and proper installation of a boiler heating system.

##### Scald Hazard

Hotter water increases the risk of scald injury. There is a hot water scald potential if the DHW temperature is set too high. Be sure to follow the adjustment instructions in the boiler's operation manual.

#### Pressure Relief Valve for DHW

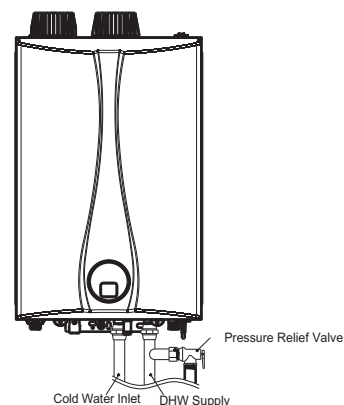
To complete the installation of the DHW system, you must install an approved 3/4 in, maximum 150 psi pressure relief valve on the hot water outlet. The VESTA VC boiler has a built-in high temperature shut off switch, so install a "pressure only" relief valve.

#### WARNING

- Installing the pressure relief valve improperly may result in property damage, personal injury, or death. Follow all instructions and guidelines when installing the pressure relief valve. The valve should be installed only by a licensed professional.
- The pressure relief valve must be installed at the boiler outlet and in the vertical position, as shown in the example below, with the drain pipe outlet exiting the side of the pressure relief valve horizontally and elbowing down.

**The DHW pressure relief valve is not supplied, but is required.** The following examples are pressure relief valves approved for use with the boiler:

- Wilkins P-1000A (Zurn Industries)
- Conbraco 17-402-04
- Watts Industries 3L (M7)
- Cash Acme FWL-2, 3/4 in



#### 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.

When installing pressure relief valve, follow these guidelines:

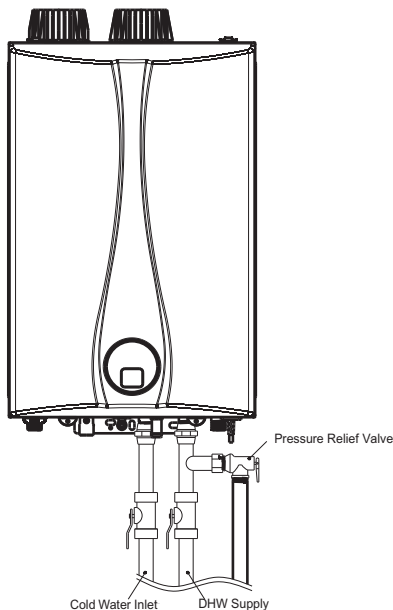
- Ensure that the valve's discharge capacity is equal to or greater than the maximum pressure rating of the boiler's DHW system.
- Ensure that the maximum BTU/H rating on the pressure relief valve is equal to or greater than the maximum input BTU/H rating of the boiler.
- Direct the discharge piping of the pressure relief valve so that hot water does not splash on operator, or any nearby equipment.
- Attach the discharge line to the pressure relief valve and run the end of the line to within 6-12 in (150-300 mm) of the floor.
- Ensure that the discharge line allows for free and complete drainage without restriction. Do not install a reducing coupling or other restrictions on the discharge line.
- If the relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct the situation. Do not plug the relief valve.

### 3.2.3 DHW System Piping

#### CAUTION

To comply with ASME or CRN requirements, an additional high temperature limitation device may be needed. Consult your local code requirements to determine if this device is required.

Refer to the following illustration for a typical DHW piping example for the boiler.



When installing the DHW system, follow these guidelines:

- Use only pipes, fittings, valves, and other components (such as solder), that are approved for use in potable water systems.
- Tighten the connection valves with care to avoid damage.
- VESTA recommends using unions and manual shut-off valves on the cold water inlet and DHW outlet.
- Keep the hot water piping system as short as possible, to deliver hot water to the fixtures more quickly.
- To conserve water and energy, insulate the DHW supply and DHW recirculation lines (if applicable). Do not cover the drains or pressure relief valves.
- After installing the boiler, clean the cold water inlet filter. Then, test the boiler for proper DHW supply and inspect for leaks. Instruct the boiler owner that the filter must be cleaned periodically to maintain proper DHW flow.

#### CAUTION

The boiler, when used in conjunction with a refrigeration system, must be installed so that the chilled medium is piped in parallel with the heating boiler. Appropriate valves must be used to prevent the chilled medium from entering the boiler.

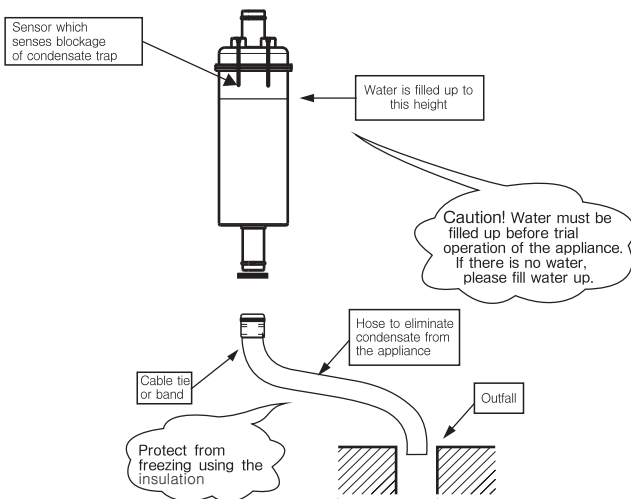
If the boiler is connected to heating coils located in air handling units where they can be exposed to refrigerated air, use flow control valves or other automatic means to prevent gravity circulation of the boiler water during the cooling cycle.

### 3.3 Condensate Discharge

- Condensing gas water for dual purpose needs discharge in the appliance due to condensed water.
- Please connect in reserve condensed water discharge hose to condensed water trap and please tie them with cable tie or hose band
- Please put the end of hose into sewers or discharge.
- Condensed water trap in the appliance always should be full of water. Please check it is full or not when operate again after not using for a while.
- Please supply water in a condensed water trap through pipe connection or condensed water rubber pipe
- Please don't use condensed water as drinking water.
- Please clean condensed water trap more than once in a year.
- Please untie a fixing screw and hose band when clean and please clean a rubber hose separately
- Please take necessary action to prevent freezing when install condensed water discharge hose.

#### CAUTION

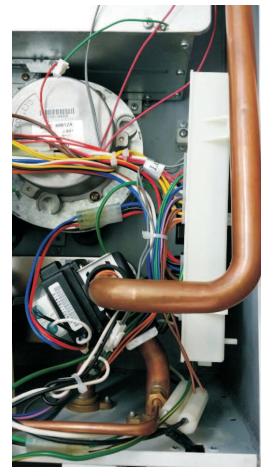
Please connect condensed water rubber pipe as it was when supply through this pipe.  
Please be careful not to splash to other parts when supply water.



### 3.4 Installing a Space Heating System

#### Zone control of VC unit

- Zone control of the VC unit is performed by a zero voltage or X-X contact from a relay or zone control panel closing when unit operation is required.
- You will find one brown wire looped to the upper Molex connector of the main PC board. This wire can be cut and extended with 18 gauge thermostat wire and only connected to dry contacts from your zone control panel end switch. See example wire diagrams on the last four pages of this manual.



#### Pump Curves & Primary - Secondary Piping

- The boiler units include a pump assembly that is used to provide the flow through the unit heat exchangers, and has a nominal flow of heating water for external piping arrangements.
- This pump is not designed to be the system pump providing flow to radiant loops or baseboard.
- Therefore VESTA insists on using a Primary-Secondary pumping arrangement, the recommended method uses the traditional large diameter Primary loop.
- The main circulation pump or the zone pumps will then provide circulation into the zones or the heating system.
- The only exception to this Primary-Secondary rule is for Air Handling units with a hot water coil where the Air handling unit is located less than 10ft from the VC unit.

## 4. Connecting the Gas Supply

### WARNING

- Before connecting the gas supply, determine the gas type and pressure for the boiler by referring to the rating plate. Use only the same gas type indicated on the rating plate. Using a different gas type will result in abnormal combustion and malfunction of the boiler. Gas supplies should be connected by a licensed professional only.
- The appliance and its gas connection must be leak tested before placing the appliance in operation.

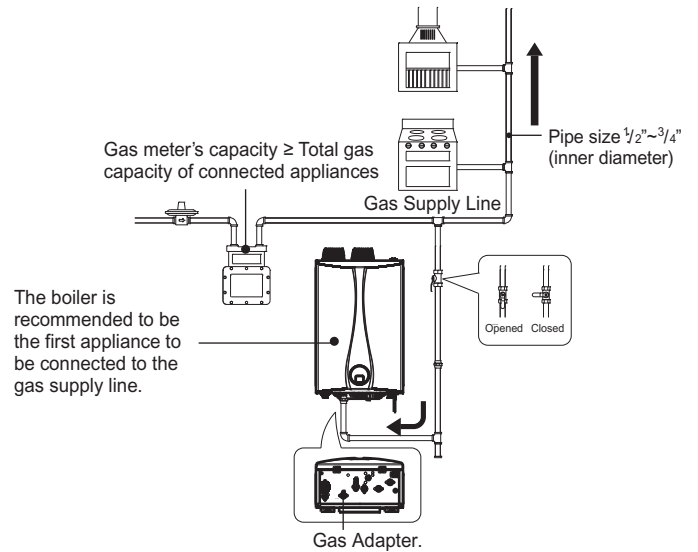
VESTA recommends connecting the boiler as the first device downstream of the gas meter, to ensure a sufficient gas supply.

To connect the gas supply:

1. Determine the gas type and pressure for the boiler by referring to the rating plate.
2. Perform a pressure test on the main gas supply line.
3. Purge the gas line of any debris.
4. Determine the proper size and type for the gas line. Refer to the tables that follow.
5. Install full port valves on the gas supply line and boiler.
6. Connect the gas supply line.
7. Test the supply line, all connection points, and the boiler for gas leaks.

### CAUTION

- Install a manual gas shut-off valve between the gas supply line and the boiler.
- A sediment trap must be provided upstream of the gas controls.



### 4.1 Gas Pipe Sizing Tables

This table below is for Natural Gas piping supply straight to the appliance without any tabs to other gas appliances.

Recommended Gas Pipe Size for VC combi boiler for dual purpose (Example for NG)	
Distance from Gas Meter	Pipe Size
0'-20'	3/4"
30'-80'	1"
90'-200'	1-1/4"

#### Natural Gas Supply Piping

Maximum Capacity of Natural Gas Based on a 0.60 specific gravity at a 0.5" WC pressure drop

Pipe Size	kBTU of Natural Gas															
	Length	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	125'	150'	200'		
3/4"	372	255	205	175	156	142	130	121	114	107	95	86	74			
1"	702	482	387	331	293	266	245	228	213	202	179	162	139			
1 1/4"	1441	990	795	680	603	546	503	468	439	415	367	332	285			
1 1/2"	2158	1483	1191	1019	903	819	753	701	658	621	550	499	427			
2"	4155	2856	2293	1963	1740	1576	1450	1349	1266	1195	1060	960	822			

#### Propane(LP) Gas Supply Piping

Maximum Capacity of propane(LP) Gas Based on 11" WC supply pressure at a 1.0" WC pressure drop

Pipe Size	kBTU of Natural Gas															
	Length	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	125'	150'	200'		
3/4"	567	393	315	267	237	217	196	185	173	162	146	132	112			
1"	1071	732	590	504	448	409	378	346	322	307	275	252	213			
1 1/4"	2205	1496	1212	1039	913	834	771	724	677	630	567	511	440			
1 1/2"	3307	2299	1858	1559	1417	1275	1181	1086	1023	976	866	787	675			
2"	6221	4331	3465	2992	2646	2394	2205	2047	1921	1811	1606	1496	1260			

To turn off gas to appliance

- Turn off all electric power to the appliance if service is to be Performed.
- Turn the manual gas valve located on the outside of the unit clockwise to the off position. (This unit has a switch (gas cut-off device) on front panel in the appliance, locate the switch button to off position)

For your safety, read before operating

- This appliance does not have a pilot. It is equipped with an electronic ignition device that automatically lights the burner. Do not try to light the burner manually
- Before operating, check all around the appliance area for gas leaks. Be sure to check next to the floor as some gases are heavier than air and will settle on the floor.
- Use only your hand to turn the gas valve knob. Never use tools. If the knob will not turn by hand, do not attempt to repair it. Call a qualified service technician. For or attempted repair may result in a fire or explosion
- Check that the type of gas matches the rating plate located on the cover if your appliance.
- The minimum and maximum inlet gas pressure are :

Natural Gas	Min. 3.5" WC ~ Max. 10.5" WC
Propane Gas	Min. 8.0" WC ~ Max. 13.0" WC

- Gas pressure below this specified range for the VC models and/or insufficient gas volume will adversely affect performance. Inlet gas pressure must not exceed the above maximum values; gas pressure above the specified range will cause dangerous operating conditions and damage to the unit. Until testing of the main gas line supply pressure is completed, ensure the gas line to the VC models is disconnected to avoid any damage to the appliance.
- Size the gas pipe appropriately to supply the necessary volume of gas required for the VC models using ANSI Z223.1/NFPA 54 in the USA or CAN/CSA B149.1 in Canada or local codes. Install a manual gas shut-off valve between the VC models and the gas supply line. When the gas connections are completed, it is necessary to perform a gas leak test either by applying soapy water to all gas fittings and observing for bubbles or by using a gas leak detection device. Always purge the gas line of any debris before connecting to the appliance gas inlet.

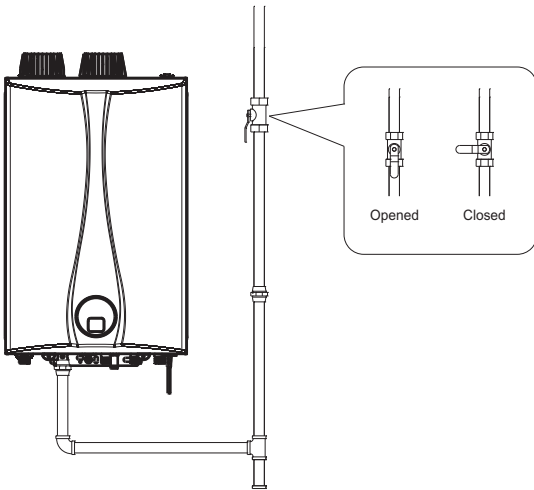
## 4.2 Measuring the Inlet Gas Pressure

### WARNING

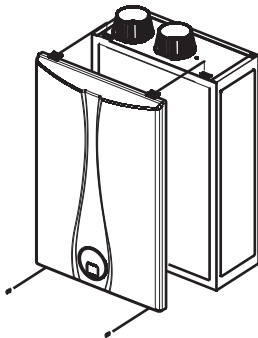
- The boiler cannot function without sufficient inlet gas pressure. Measuring the inlet gas pressure should be performed by a licensed professional only.
- The inlet gas pressure must be maintained between 3.5 in and 10.5 in W.C for natural gas and between 8.0 in and 13.5 in W.C propane.
- The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressure in excess of 1/2psi(3.5 kPa).
- The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressure equal to or less than 1/2 psi(3.5kPa).

To measure the inlet gas pressure:

1. Shut off the manual gas valve on the gas supply line.



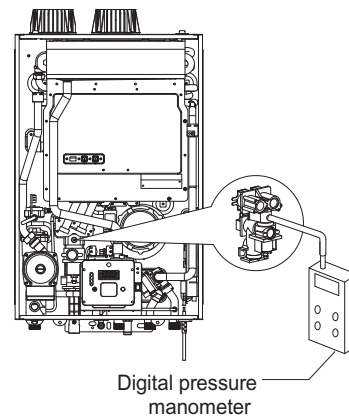
2. Open a hot water faucet. The boiler should turn on and the gas in the gas supply line will be purged.
3. Leave the faucet on until the boiler shuts down due to a lack of gas supply, and then turn off the hot water faucet.
4. Remove the front cover by loosening the 2 Phillips head screws securing it to the case.



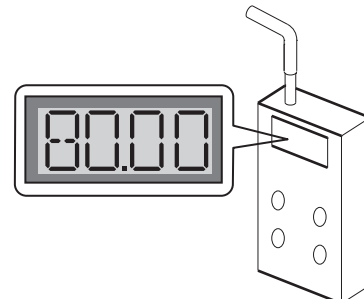
### CAUTION

Ensure that no cables are in the way before folding down the PCB assembly. If the assembly is stuck, do not force it. Doing so may damage the cables and result in serious malfunctions. Check again to ensure that no cables or any other parts are in the way before you proceed.

5. Loosen the screws indicated in the figure below and connect a manometer to the pressure port. Reset the manometer to zero before use.



6. Re-open the manual gas valve and check for leaks.
7. Open multiple fixtures that have high flow rates, such as bathtub and shower faucets, to ramp the boiler up to its maximum firing rate.
8. When the boiler reaches its maximum firing rate, check the inlet gas pressure reading on the manometer. The gas pressure must fall within the ranges specified on page 8.



## 5. Venting the Boiler



### WARNING

Improper venting of the boiler can result in excessive levels of carbon monoxide, which can lead to severe personal injury or death. **This boiler must be vented in accordance with the “Venting of Equipment” section of the latest edition of the ANSI Z223.1/NFPA 54 Natural Fuel Gas Code in the USA and/or the “Venting systems and air supply for boilers” section of the latest version of the CAN/CGA B149.1 Natural Gas and Propane Installation Code in Canada, as well as all applicable local building codes and regulations.** Follow all instructions and guidelines when venting the boiler. Venting should be performed only by a licensed professional.

The boiler must be properly vented to ensure a constant supply of clean intake air and to ensure that exhaust air is properly removed from living areas. When venting the boiler, follow these guidelines:

- Do not install the boiler in areas with contaminated air (containing a high level of dust, sawdust, sand, flour, aerosols, or any other such airborne contaminants), as contaminants can cause operational problems. The warranty does not cover damage caused by contaminants in the installation area. If you must install the boiler in an area with contaminated air, use direct venting to supply air from outside the building. We recommend regular filter cleaning and maintenance in these areas.
- For best results, keep the venting system as short and straight as possible.
- Locate the boiler as close as possible to the vent termination.
- Do not connect the boiler vent to a vent for any other gas boiler or vent stack.
- For horizontal runs, slope the horizontal section upward toward the vent termination at a rate of 1/4 in per foot (2% slope).
- Create an airtight seal at each joint in the exhaust and intake air pipes from the boiler collar to the vent termination.
- To avoid moisture and frost build-up and to maintain clearances to openings on adjacent homes, 45° elbows, 90° elbows, or tees may be attached to the end of the termination vent pipe to direct the exhaust plumes away from buildings, as long as the total allowable vent lengths, maximum number of elbows, and distances to air intake restrictions are observed.

- Do not store hazardous or flammable substances near the vent termination.
- If this boiler will be installed in areas where snow is known to accumulate, protect the vent termination from blockage.
- Provide a minimum of 1 foot clearance from the bottom of the exhaust above the expected snow accumulation level. Snow removal may be necessary to maintain clearance.
- Ensure that the vent termination is at least 12 in (305 mm) above ground, or as required by local codes.
- Support the vent pipe with hangers at regular intervals or as required by local codes.
- Exhaust and intake air pipes must be glued and properly supported at least every 4 ft (1.2 m).
- The vent for this appliance shall not terminate over public walkways; or near soffit vents or crawl space vents or where condensate or vapor could create a nuisance or hazard or cause property damage; or where condensate or vapor could cause damage or could be detrimental to the operation of regulators, relief valves, or other equipment.

### 5.1 Selecting a Vent Type

All boilers are prepared at the factory to be direct vented (sealed combustion). VESTA recommends direct air vent installations whenever possible to avoid back drafting cold air through the boiler unit. If you cannot use a direct vent, ensure that an ample supply of make-up air is available in the installation location.

VESTA also recommends installing a new vent system with this appliance. If reusing an existing vent system, thoroughly inspect it for punctures, cracks, or blockages prior to connecting it to the boiler.

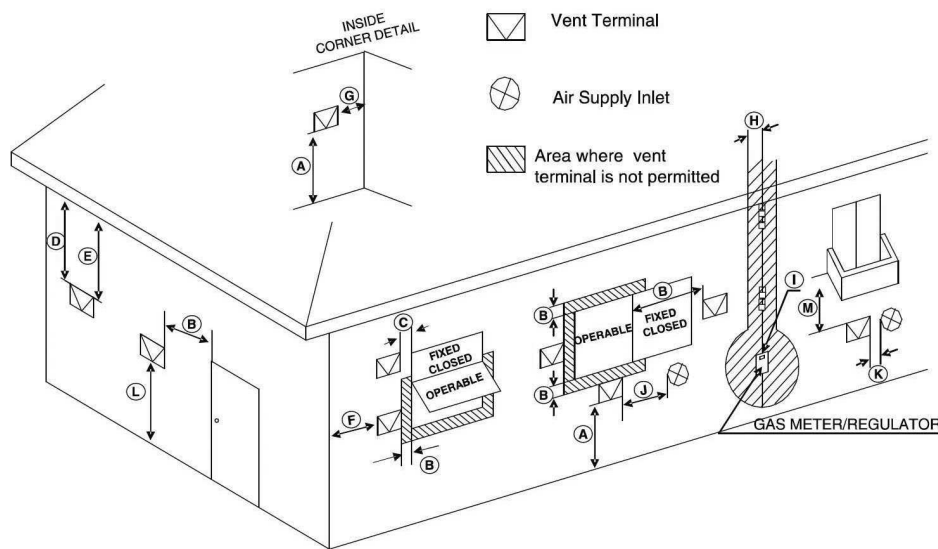
#### Direct Venting

The boiler uses 3 in diameter exhaust and 3 in diameter intake air ducts. To ensure the draw of air directly from and exhaust of air directly to the outside of the building, create an airtight seal from the boiler collar to the vent termination.

Intake materials can be made of ABS, PVC, CPVC, PP, galvanized steel, corrugated aluminum or any other such materials. If you use a corrugated material, ensure that there is not inadvertent crimping of, or damage to, the intake air pipe.

When using direct venting, maintain the following venting clearances, as required by **ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1/NFPA 54, and CAN/CGA B149.1 Natural Gas and Propane Installation Code:**





Ref	Description	Canadian Direct Vent Installations <sup>1</sup>	US Direct Vent Installations <sup>2</sup>
A	Clearance above grade, veranda, porch, deck, or balcony	12 in (30 cm)	12 in (30 cm)
B	Clearance to window or door that may be opened	36 in (91 cm)	12 in (30 cm)
C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 ft (61 cm) from the center line of the terminal	*	*
E	Clearance to unventilated soffit	*	*
F	Clearance to outside corner	*	*
G	Clearance to inside corner	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	3 ft (91 cm) within a height 15 ft above the meter/regulator assembly	*
I	Clearance to service regulator vent outlet	3 ft (91 cm)	*
J	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	36 in (91 cm)	12 in (30 cm)
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m†)	*
M	Clearance under veranda, porch deck, or balcony	12 in (30 cm‡)	*

<sup>1</sup> In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code

<sup>2</sup> In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code

† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

\* Clearance in accordance with local installation codes and the requirements of the gas supplier.

**Non-Direct Venting (Single Pipe)**

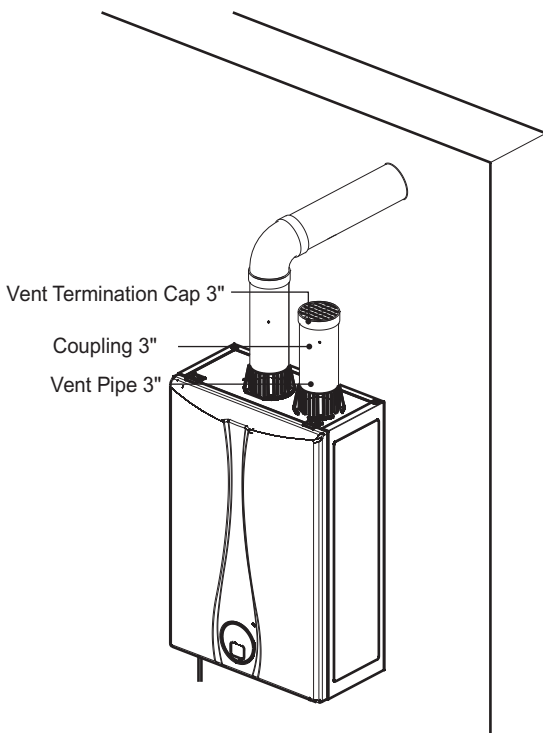
If, at any time, the installation location could experience negative pressure, there is a possibility of back drafting cold air through the boiler's heat exchanger. This situation could lead to the freezing of the heat exchanger and malfunction of the boiler.

However, building codes in most jurisdictions disallow negative pressures in residences. In a home with a well-balanced air supply, the heat exchanger should not be in danger of freezing. Because the cause of back drafting is not considered a manufacturing problem, any freezing damage which occurs from back drafting will not be covered by the VESTA warranty. If there is any question about the possibility of back drafting in the installation location, use a direct venting system for the boiler.

When using non-direct venting, maintain non-direct vent clearances shown on page 43 as required by **ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1/NFPA 54, and CAN/CSA B149.1 Natural Gas And Propane Installation Code.**

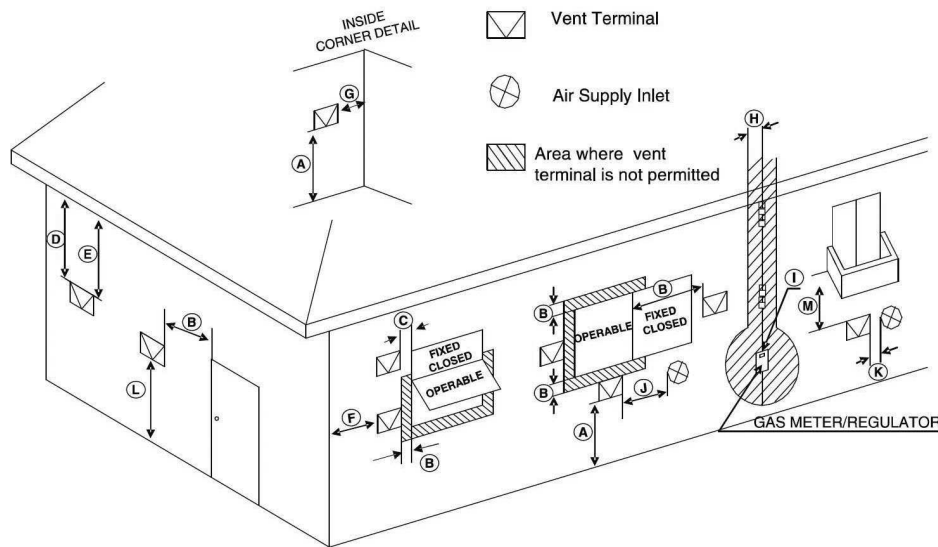
To use non-direct venting for the boiler:

1. Insert the termination end cap into the intake air duct. Do not glue the end cap, to allow for easy removal and cleaning of the cap.



2. Provide two openings to allow for circulation of combustion air as specified by ANSI Z223.1/NFPA 54 or CAN/CGA B-149.1:

	Maximum Input (BTU/H)	Indoor make up air is provided, a minimum free area of 1 in <sup>2</sup> , per 1,000 BTU/H
VC 100 COMBI	130,000	126 in <sup>2</sup> 11 1/4 in (W) X 11 1/4 in (H)
VC 120 COMBI	180,000	175 in <sup>2</sup> 13 1/4 in (W) X 13 1/4 in (H)
VC 140 COMBI	190,000	190 in <sup>2</sup> 13 3/4 in (W) X 13 3/4 in (H)



Ref	Description	Canadian Non-Direct Vent Installations <sup>1</sup>	US Non-Direct Vent Installations <sup>2</sup>
A	Clearance above grade, veranda, porch, deck, or balcony	12 in (30 cm)	12 in (30 cm)
B	Clearance to window or door that may be opened	36 in (91 cm)	48 in (120 cm) below or to side of opening; 12 in (30 cm) above opening
C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E	Clearance to unventilated soffit	*	*
F	Clearance to outside corner	*	*
G	Clearance to inside corner	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	36 in (91 cm) within a height 15 ft (4.57 m) above the meter/regulator assembly	*
I	Clearance to service regulator vent outlet	36 in (91 cm)	*
J	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	36 in (91 cm)	48 in (120 cm) below or to side of opening; 12 in (30 cm) above opening
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	36 in (91 cm) above if within 10 ft (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)	*
M	Clearance under veranda, porch deck, or balcony	12 in (30 cm)†	*

1 In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code

2 In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code

† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

\* Clearance in accordance with local installation codes and the requirements of the gas supplier.

## 5.2 Selecting Vent Pipe Materials

Venting requirements differ in the US and Canada. Consult the following chart or the most recent edition of ANSI Z223.1/NFPA 54 or CAN/CGA B149.1, as well as all applicable local codes and regulations when selecting vent pipe materials. Do not use cellular core based pipe materials for the exhaust vent.

Locale	Recommended Vent Materials
USA	<ul style="list-style-type: none"> <li>PVC Schedule 40 (Solid Core)</li> <li>CPVC Schedule 40 or 80 (Solid Core)</li> <li>Approved Polypropylene*</li> </ul>
Canada**	<ul style="list-style-type: none"> <li>Type BH Special Gas Vent Class IIA (PVC)</li> <li>Type BH Special Gas Vent Class IIB (CPVC)</li> <li>Type BH Special Gas Vent Class IIC (Polypropylene)</li> </ul>

\* Approved polypropylene systems include:  
 Durevent Polypro (Single Wall): 2PPS-xxx (2"), 3PPS-xxx (3")  
 Centrotherm Innoflue SW: ISxx02xx (2"), ISxx03xx (3")  
 Refer to manufacturer's literature for detailed information.

\*\* For installation in Canada, field-supplied plastic vent piping must comply with CAN/CGA B149.1 (latest edition) and be certified to the Standard For Type BH Gas Venting Systems, ULC-S636. Components of this listed system must not be interchanged with other vent systems or unlisted pipes or fittings. All plastic components and specified primers and glues of the certified vent system must be from a single system manufacturer and must not be intermixed with another system manufacturer's parts. The supplied vent connector and vent termination are certified as part of the boiler.

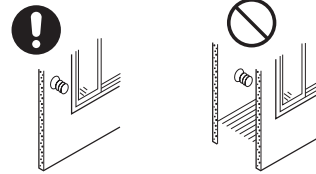
### CAUTION

- This boiler has a built-in control to limit the exhaust temperature to 149 F (65 C). As a result, the boiler can be vented with Schedule 40 PVC.
- In high temperature applications, the exhaust temperature can exceed 149 F (65 C). In that case, you must use Schedule 40 or 80 CPVC or Approved Polypropylene in the USA or Type BH Special Gas Vent Class IIB (CPVC) or Class IC (Polypropylene) that conforms to ULC-S636 in Canada.

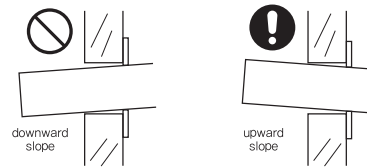
## 5.3 Venst Terminal Installation Precautions

Note the following vent terminal installation requirements

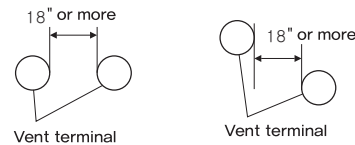
- Do not install the vent terminal indoors.



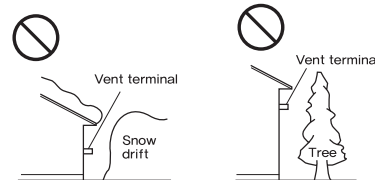
- Install the vent terminal with an upward slope (2~3°)



- If multiple units are installed, terminals must be separated by 18" or more in a plain view regardless of the vertical clearance.



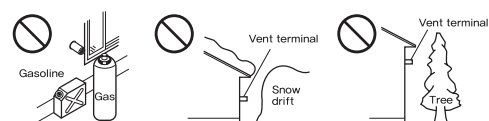
- Avoid installing the terminal where obstacles will block it.



- Do not install the vent terminals vertically in-line. Do not cover the vent terminal with any type of protective screen or enclosure. In-line or blocked terminals can cause abnormal combustion resulting in undesired performance from the appliance.



- Avoid storing hazardous objects near the terminal.



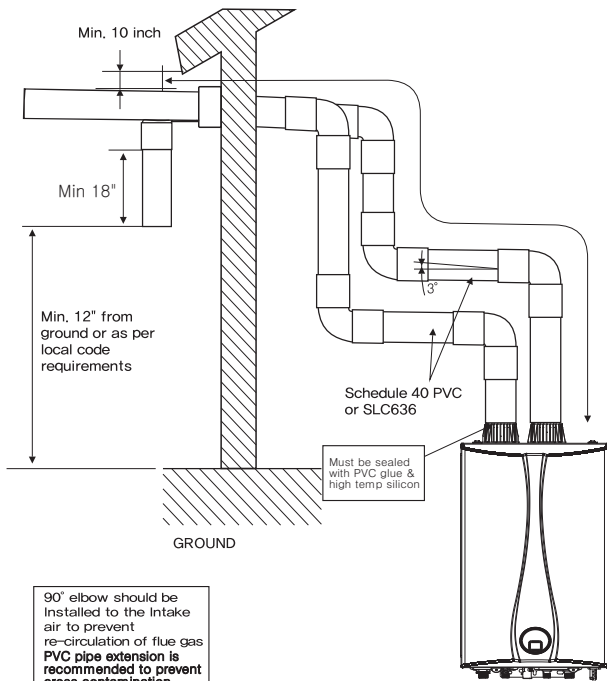
## 5.4 Terminating the Vents

### CAUTION

- In cold climate, freezing air can enter into the vent and cause freeze damage to unit. See Freeze Protection page in manual for appropriate precautions.

#### Typical Venting Design

- VC : 3" Schedule 40 PVC
- Maximum Three 90° Elbows.(one elbow is equal to 5ft length)
- Maximum Vent Length : See table below.
- Sloping 1" in 10" - 1" in 12"

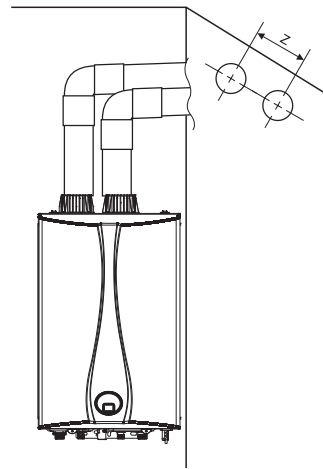


90° elbow should be installed to the Intake air to prevent re-circulation of flue gas  
**PVC pipe extension is recommended to prevent cross contamination.**  
 Bird screen should be installed.

#### Vent Termination Installation Procedure(3" PVC)

1. Drill 2 holes.(Air intake hole and flue gas outlet hole)
2. The length, Z, is as following

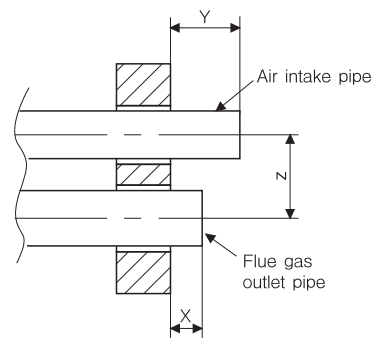
Model	Z
VC	115mm (4.53 inch)



3. Insert the air intake and flue gas outlet PVC pipe.

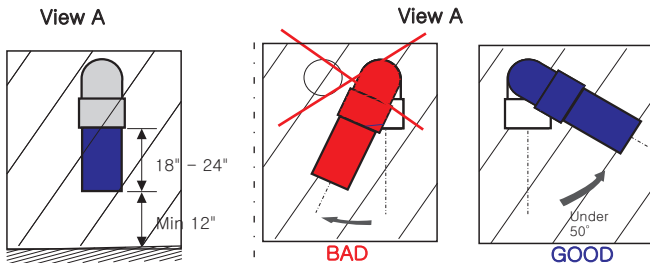
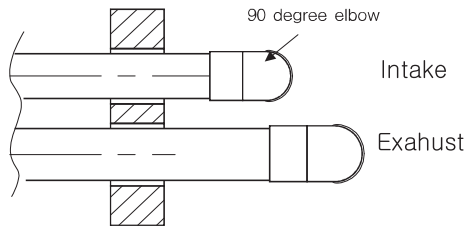
The length of PVC pipe from the wall is as following

Model	X	Y
VC	50 ~ 60mm (1.97 ~ 2.36 inch)	120 ~ 130mm (4.72 ~ 5.12 inch)



- Insert the 90° PVC elbow field supplied to the air intake pipe. The 90° PVC elbow must have a bird screen(field supplied)  
The 90° PVC elbow must face in downward position to prevent intake of water or snow

<Top view>



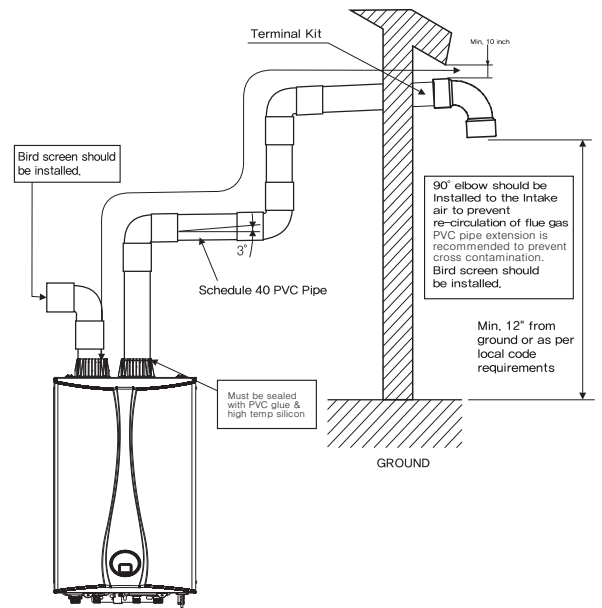
MIN 18" of PVC extension pipe is required to eliminate cross contamination.  
MIN 12" of clearance from ground or as per local code requirements is required.

**Warning**

- When using PVC elbows or fittings, please make sure to use silicon gel or PVC glue around the connecting area to prevent the exhaust gas or condensate leakage.
- Appliance must be vented in accordance with the "Venting of Equipment" section of the latest edition of the ANSI Z223.1/NFPA 54 Natural Fuel Gas Code in the USA and/or the "Venting systems and air supply for water heaters" section of the latest version of the CAN/CGA B149.1 Natural Gas and Propane Installation Code in Canada, as well as all applicable local building codes and regulations.

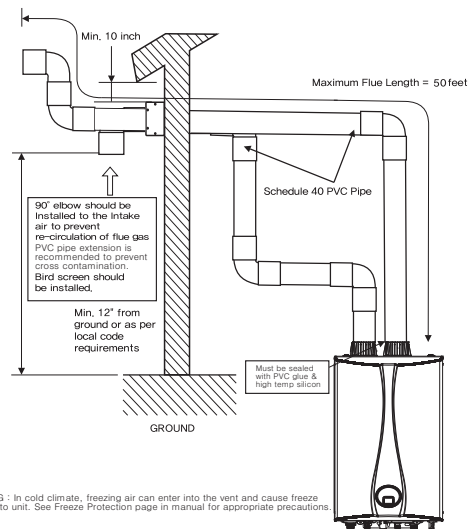
Other Venting Design(Single pipe venting)

- VC : 3" Schedule 40 PVC
- Maximum Three 90° Elbows. (Each 90° elbow is equivalent to 5ft linear vent pipe)
- Maximum Vent Length : 50ft
- Sloping 1" in 10" - 1" in 12"



Other Venting Design(Snorkel flue)

- VC : 3" Schedule 40 PVC
- Maximum Three 90° Elbows. (Each 90° elbow is equivalent to 5ft linear vent pipe)
- Maximum Vent Length : 50ft
- Sloping up 2 ~ 3°

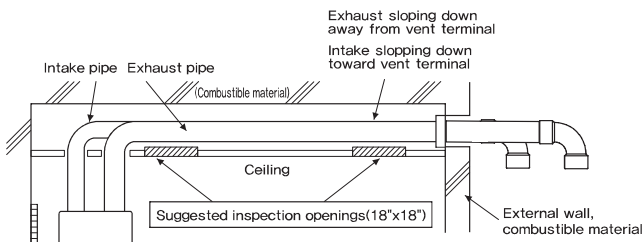


WARNING : In cold climate, freezing air can enter into the vent and cause freeze damage to unit. See Freeze Protection page in manual for appropriate precautions.

Vent Piping through an enclosed space

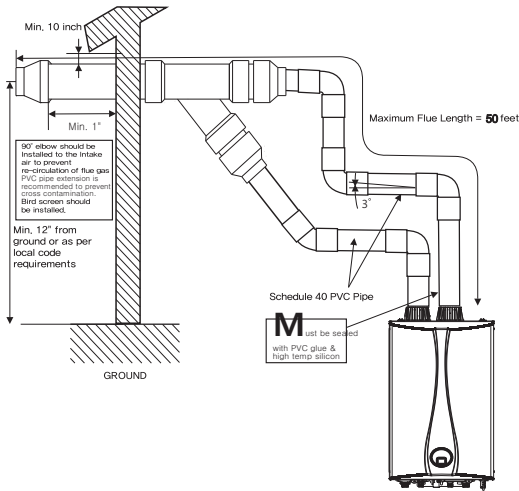
When the intake /exhaust pipes pass through an enclosed space:

- Inspection openings are suggested for the vent intake and exhaust pipes if they are installed in and enclosure. Those openings should be near the entrance and exit of the vent into the enclosure.



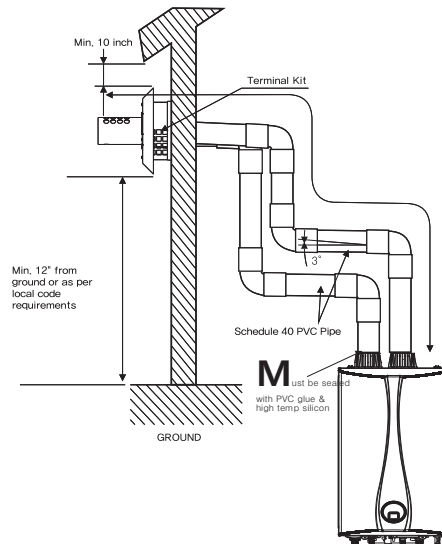
### Other Venting Design(Concentric Vent Termination)

- VC : 3" Schedule 40 PVC
- Maximum Three 90 ° Elbows.  
(Each 90° elbow is equivalent to 5ft linear vent pipe)
- Maximum Vent Length : 50ft
- Sloping 1" in 10" - 1" in 12"



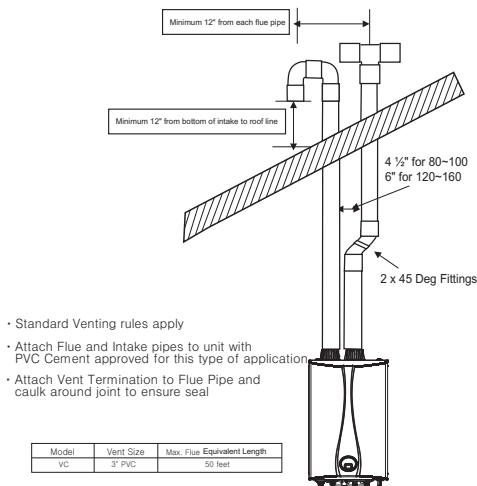
### Other Venting Design(Side Wall)

- VC : 3" Schedule 40 PVC
- Maximum Three 90 ° Elbows.  
(One elbow is equal to 5ft length)
- Maximum Vent Length : See table below



### Other Venting Design

- VC : 3" Schedule 40 PVC
- Maximum Three 90 ° Elbows.  
(One elbow is equal to 5ft length)
- Maximum Vent Length : See table 1 below.



### Venting Precautions

- Maximum vent length of Typical Venting, Single pipe Venting, Snorkel Venting, Side wall, Single, Concentric

Number of 90 degree elbows	Maximum straight pipe distance (Vertical and Horizontal)	Maximum total equivalent feet(meters) of vent pipe
0	50	50(15.2meter)
1	45	50(15.2meter)
2	40	50(15.2meter)
3	35	50(15.2meter)

Each 90 degree elbow is equivalent to 5 feet in straight vent pipe length. Each 45 degree elbow is equivalent to 1.5 feet(0.46m) in straight pipe length. The total maximum equivalent vent pipe distance cannot 45 feet(13.7meters) for horizontal & vertical venting distance.

- Exceeding the maximum vent length is dangerous and may result in bad combustion.
- If possible, don't install the vent pipe through enclosed area. If necessary, consult the pipe manufacture's instructions for clearances.
- Install the vent terminal so that all exhaust is directed to and all intake air is taken from outdoors.
- Do not store hazardous or flammable substances near the vent terminal.
- For VC models, slop the intake pipe at 2~3° down towards the termination and slop the exhaust pipe at 2~3° up towards the termination.
- Connects the vent pipe firmly so that it will prevent exhaust gases from leaking.
- Steam or condensed water may drip out of the vent terminal. Dispose of this condensed water according to local codes and in order to prevent injury or property damage.
- If this product will be installed in an area where snow is known to accumulate, protect the vent termination from blockage by snow drifts or damage from snow falling off of roofs.
- Support the vent pipe with hangers at 3ft intervals.
- Install the vent terminal so that it is easily accessible for maintenance both from the indoors and the outdoors.
- Make the vertical pipe as short as possible.

## 6. Setting the DIP Switches

### Removing a boiler from a common vent system

- When removing an existing boiler, the following steps must be followed
  - Seal any unused openings in the common venting system.
  - Visually inspect the venting system for proper size and horizontal pitch to determine if there is blockage, leakage, corrosion or other deficiencies that could cause an unsafe condition.
  - If practical, close all building doors, windows and all doors between the common venting system and other spaces in the building. Turn on clothes dryers and any boilers not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhaust, at maximum speed. Do not operate a summer exhaust fan. Close all fireplace dampers.
  - Place in operation the boiler being inspected. Follow the lighting instructions. Adjust the thermostat so the boiler will operate continuously.
  - Test for spillage at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle or smoke from a cigarette.
  - After it has been determined that each boiler remaining connected to common venting system properly vents when tested as outlined, return doors, windows, exhaust fans, fireplace dampers and any other gas burning boiler to their previous condition of use.
  - Any improper operation of the common venting system should be corrected so the installation conforms to the National Fuel Gas Code, ANSI Z223.1. When resizing any portion of the common venting system, the common venting system should be resized to approach the minimum size as determined using the appropriate tables in Appendix G in the National Fuel Code, ANSI Z223.1.



### CAUTION

**Do not remove the front cover unless the power to the boiler is turned off or disconnected.** Failure to do so may result in electric shock.

pending on the application of the VC unit it may be necessary to alter the Dip Switch settings from the standard positions

The unit has 5 Dip Switches located on the Microprocessor

Dip Switch	Standard Setting	Controls
1	ON	Fuel Gas Type
2	OFF	Fuel Gas Type
3	OFF	Unit Options
4	OFF	Forced Maximum Firing rate
5	OFF	Forced Minimum Firing rate

#### Setting for Natural Gas Operation

Dip Switch	Setting for NG
1	ON
2	OFF

#### Setting for LP Gas Operation

Dip Switch	Setting for LP
1	OFF
2	ON

### Unit Option

- Switch Dip switch #3 to ON
- On front panel press the "+" and "-" buttons simultaneously for 5 seconds. This will allow unit to enter the programming mode.
- Temperature display can be changed between °F and °C by pressing the Timer button 3 times until Lc is display in the top RH corner of the unit display, and f is displayed in the center of the screen.
- Press the Up temperature arrow and the °F will change to a °C
- Hit the Power On/Off button to exit and switch Dip switch #3 to OFF, the unit will now display in °C



## 7. 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 the VESTA VC boilers 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 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 2A.
- 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 will 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.



### CAUTION

Label all wires before disconnecting them when you work on the controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

## 8. Installation Check list

After installing the boiler, review the following checklist. You should be able to answer “Yes” to all of the items in the checklist. If not, review the appropriate sections to complete the installation. To troubleshoot any operational problems refer to “Troubleshooting” in the User’s Manual.

If you have additional questions or need assistance with installation, contact Technical Support at 1-800-761-0053 or refer to the technical support section of VESTA’s website ([www.vesta.com](http://www.vesta.com)).

Installing the boiler	Yes	No
Have you maintained the required clearances from building openings and intake air vents?		
Have you minimized the distance between the boiler and the vent termination?		
Have you minimized the distance between the boiler and major fixtures?		
Have you maintained the proper service and maintenance clearances?		
Is the make-up air supply sufficient for proper operation?		
Is the make-up air supply free from dust, dirt, corrosive elements, and flammable vapors?		
Is the boiler and vent piping clear of combustible materials, including clothing, cleaning materials, and rags?		

Connecting the Gas Supply	Yes	No
Does the gas supply match the type specified on the boiler’s rating plate?		
Is the gas line at least 1/2 or 3/4 in ID (Inner Diameter)?		
Is the gas supply line sufficient in length and diameter to deliver the required BTUs?		
Have you measured the pressure of the gas supply line?		
Is the gas supply pressure within the recommended ranges specified in this manual?		
Is the gas supply line equipped with a manual shut-off valve?		
Have you tested the gas line pressure and all fittings for leaks?		
Has the gas company inspected the installation, if required?		

Connecting the Domestic Water Supply	Yes	No
Is the water supply pressure sufficient (greater than 40 psi)?		
Have you installed shut off valves on the inlet and outlet to facilitate cleaning of the inlet water filter?		
Have you bled the air out at each fixture?		
Have you checked each fixture to ensure hot water is being supplied?		
Have you cleaned the inlet water filter?		
If you installed a recirculation line, have you insulated the hot water pipes and the return line?		

Connecting the Space Heating Piping	Yes	No
Has the system been filled (less than 30 psi) and purged of air?		
Does the piping incorporate means for air removal (scoop, separator, etc.)?		
Is there an expansion tank installed and set to the proper system pressure?		
If antifreeze has been used, is it the proper type and is the concentration appropriate?		

Connecting a Pressure Relief Valve	Yes	No
Have you installed an approved pressure relief valve on the boiler?		
Does the rating of the pressure relief valve match or exceed the maximum BTU rating of the boiler?		
Is the pressure relief valve 1/2 in on the hot water outlet and 3/4 in at the pressure relief valve adapter?		
Have you installed the pressure relief valve on the space heating and hot water outlet pipe near the boiler?		
Have you installed a discharge drain tube from the pressure relief valve to within 6-12 in (150-300 mm) of the floor?		

Connecting the Condensate Drain	Yes	No
Have you installed a condensate drain line from the boiler to a drain or laundry tub?		

Venting the boiler	Yes	No
Have you vented the boiler with 3 in PVC, CPVC, Polypropylene, Type BH Special Gas Vent (ULC-S636) for Category IV boilers (Canada), or in accordance with all local codes and the guidelines in this manual?		
Have you ensured that ABS or PVC cellular core pipe has not been used as venting for the boiler?		
Is the vent sloped upward toward the vent termination at a rate of 1/4 in per foot (2% grade)?		
Are all vent runs properly supported?		
Have you properly supported the vent termination?		
Have you properly sealed all air intake and exhaust joints, from the flue collar to the vent termination?		
Have you installed end caps on the exhaust and intake pipes?		
Have you checked the venting for leaks?		
Is the vent termination at least 12 in (300mm) above the exterior grade?		
Have you ensured that sufficient make-up air is available?		
Is the total vent length within the maximum vent length restriction?		

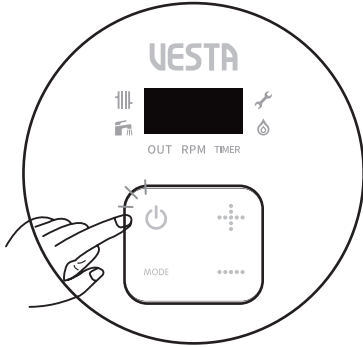
Connecting the Power Supply	Yes	No
Is the supplied voltage 110-120V AC?		
Is the boiler plugged into a properly grounded outlet?		
If you have made a direct power supply connection, have you installed a power switch to facilitate end-user maintenance?		
Have you checked the polarity of the electrical connection?		

Operating the boiler	Yes	No
Have you shown the owner how to clean the inlet water filter?		
Have you given the Installation Manual and User's Manual to the owner for future reference?		
Have you shown the owner how to shut off the gas in case of an emergency?		

## 9. Operating the Boiler

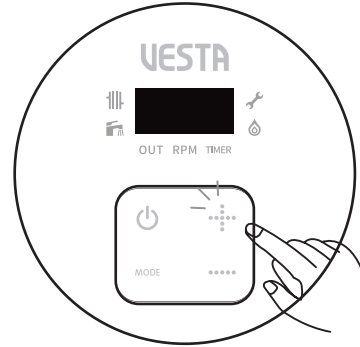
### 9.1 Turning the Boiler On or Off

1. To turn the boiler on or off, press the Power button



When power is ON, the boiler appear the '||||' mode and CH Temperature. If the boiler is not operating for 30 seconds, "A6" Error will appear I on the Front panel.

2. Press the + (Up) or – (Down) buttons until the desired temperature appears on the display.



You can adjust the temperature while the display is blink for 5 seconds. Once the display stops flashing, the temperature setting is stored.

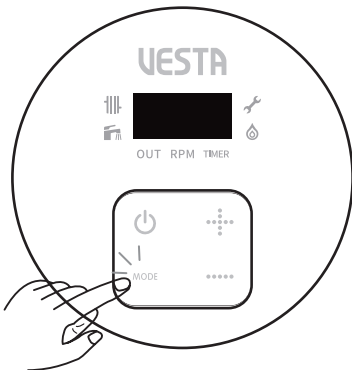
If don't press the + (Up) or – (Down) buttons, appear the setting temperature value after blank for 5 seconds.

### 9.2 Adjusting the CH(Space Heating) Temperature

#### 9.2.1 Adjusting the Space Heating Temperature

To adjust the heating temperature:

1. Press the Mode button once. The '||||' (space heating display) is blink for 5 seconds and appear the space Heating outlet temperature.



Temperature range	Adjusting the water temperature
86 °F, 120-180 °F (Fahrenheit mode) 30 °C, 50-80 °C (Celsius mode)	2 °F or 1 °C increments

## 9.2.2 Adjusting the DHW (Domestic Hot Water) Temperature



### WARNING

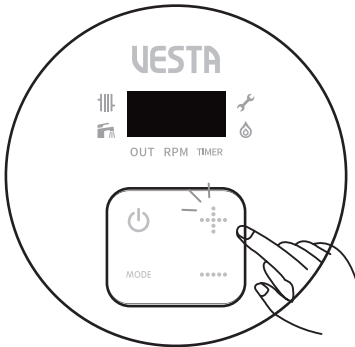
Before adjusting the water temperature, read “To prevent burns:” on page 6 carefully. Water above 120 °F(52 °C) can cause instant scalding, severe burns, or death.

To adjust the water temperature:

1. Press the Mode button. The ‘**OUT**’ (DHW display) is blink for 5 seconds and appear the DHW temperature.



2. Press + (Up) or – (Down) buttons until the desired temperature appears on the display.



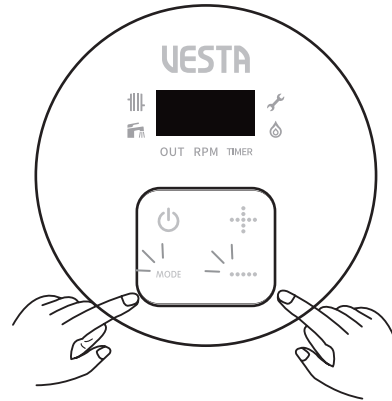
You can adjust the temperature while the display is blink for 5 seconds. Once the display stops flashing, the temperature setting is stored.

If don't press the + (Up) or – (Down) buttons, appear the setting temperature value after blank for 5 seconds.

Temperature range	Adjusting the water temperature
98-120 °F (Fahrenheit mode) 37-49 °C (Celsius mode)	2 °F or 1 °C increments
120-140 °F (Fahrenheit mode) 49-60 °C (Celsius mode)	Press for 2 seconds to adjust in 5 °F or 2 °F increments

## 9.3 Setting DHW Outlet Temperature mode

1. This mode is to see the DHW outlet temperature
2. Press the ‘**MODE**’ + ‘**\*\*\*\*\***’ button for 5 seconds.  
The ‘**RPM**’ (DHW outlet temperature) is blink.



3. Pressing the ‘**MODE**’ button once more changed the ‘**OUT**’ mode.
4. And DHW outlet temperature appears on the display.

## 9.4 Setting FAN revolutions per minute (RPM)

1. This mode is to see FAN revolutions per minute.
2. Press the ‘**MODE**’ + ‘**\*\*\*\*\***’ button for 5 seconds.  
The ‘**RPM**’ (DHW outlet temperature) is blink.
3. And FAN revolutions per minute (RPM) on the display.

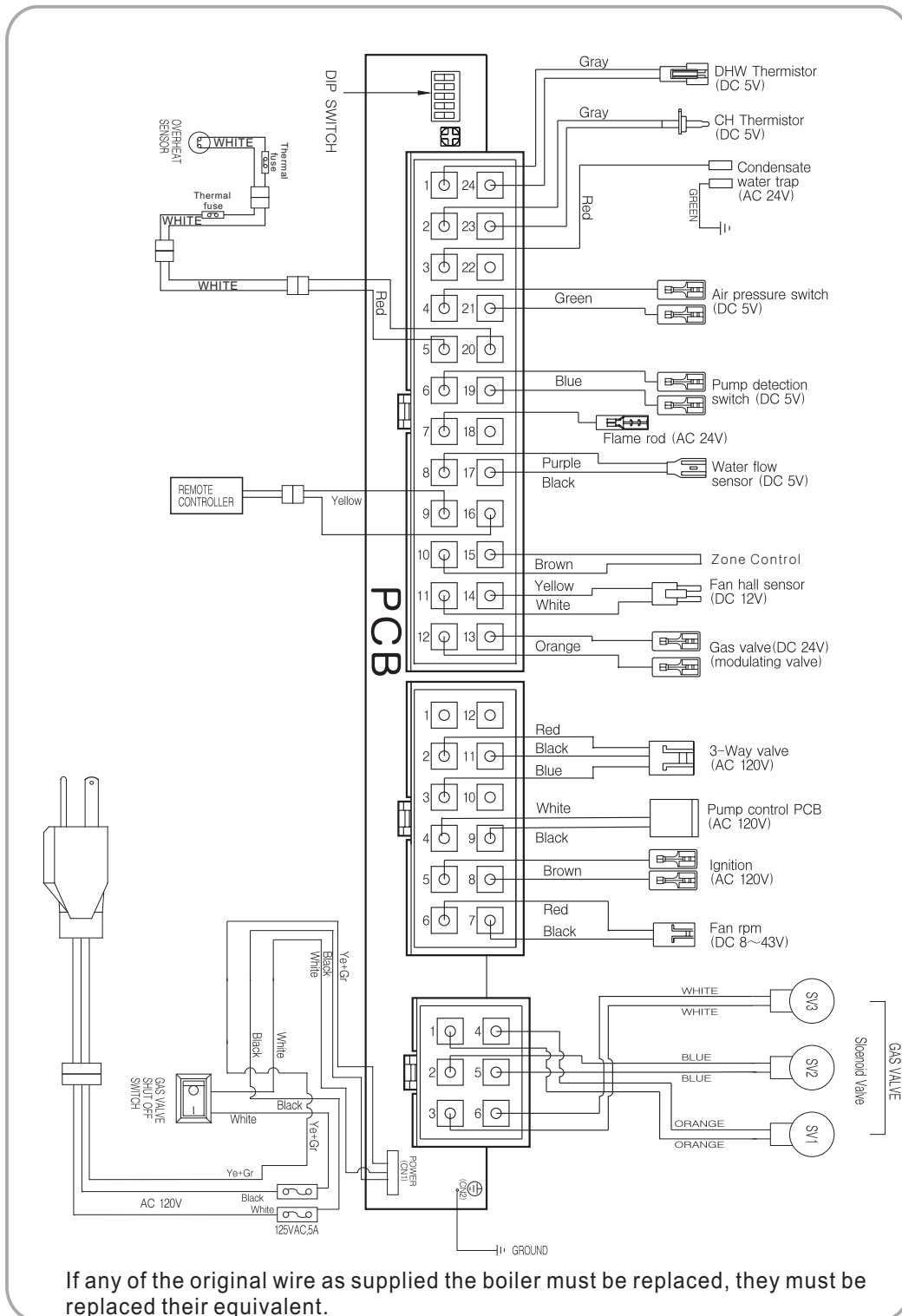
## 9.5 Check the Hmode value

1. This mode is to check Hmode value
2. You can check Hmode state, Press the ‘**MODE**’ + ‘**\*\*\*\*\***’ button for 5 seconds.
3. Pressing the ‘**MODE**’ button check the Hmode value in regular sequence.

Display	Description	Division	
H0	Fan output data	BYTE	0
H1	Gasvalve output data	BYTE	1
H2	FAN revolution	BYTE	2
H3	Flow meter revolution data	BYTE	3
H4	Program version number	BYTE	4
H5	Check the Error gistory	BYTE	5
H6	Multiple Error Code	BYTE	6
H7	Input Sstatus Code	BYTE	7

# 10. Appendixes

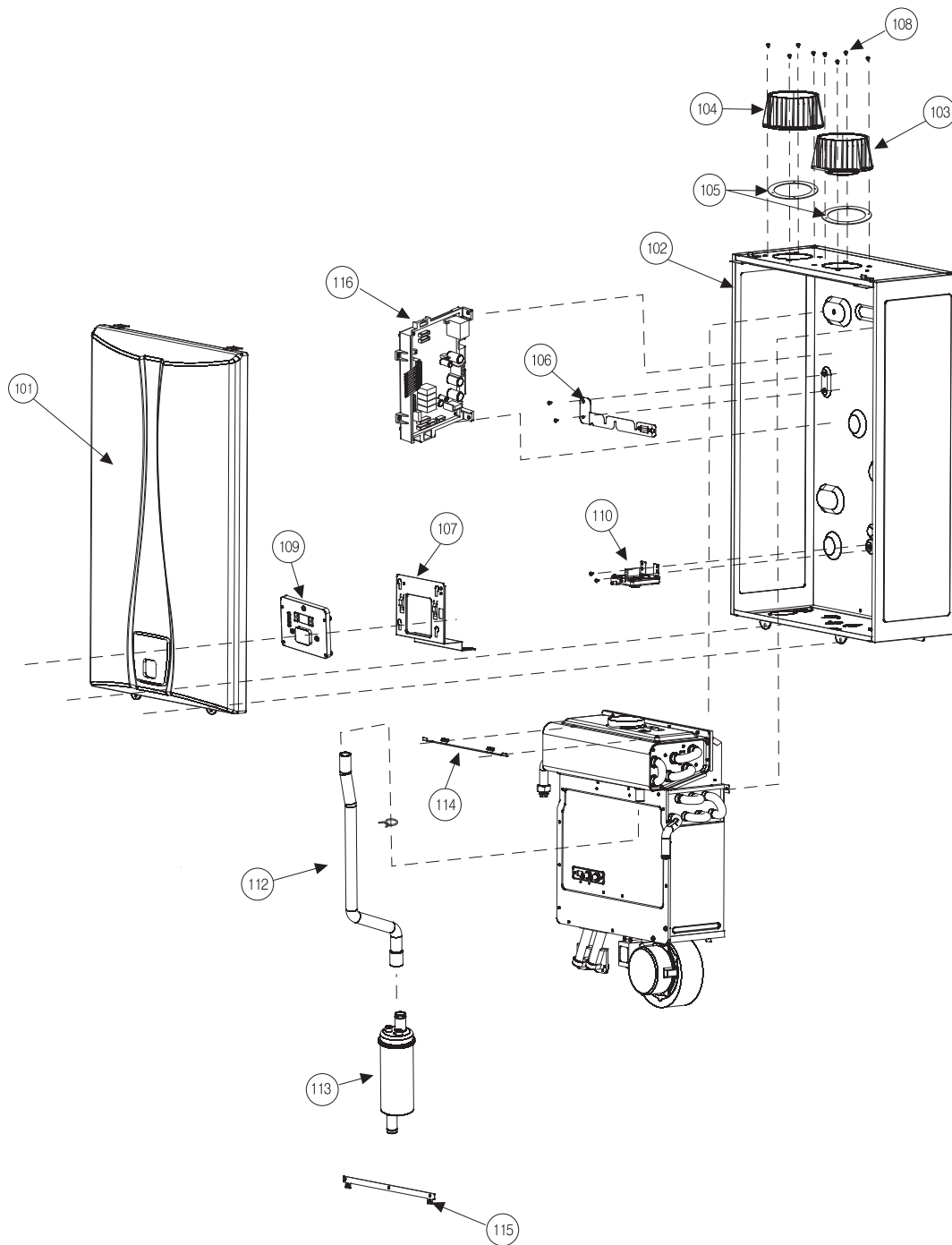
## 10.1 Wiring Diagram



If any of the original wire as supplied the boiler must be replaced, they must be replaced their equivalent.

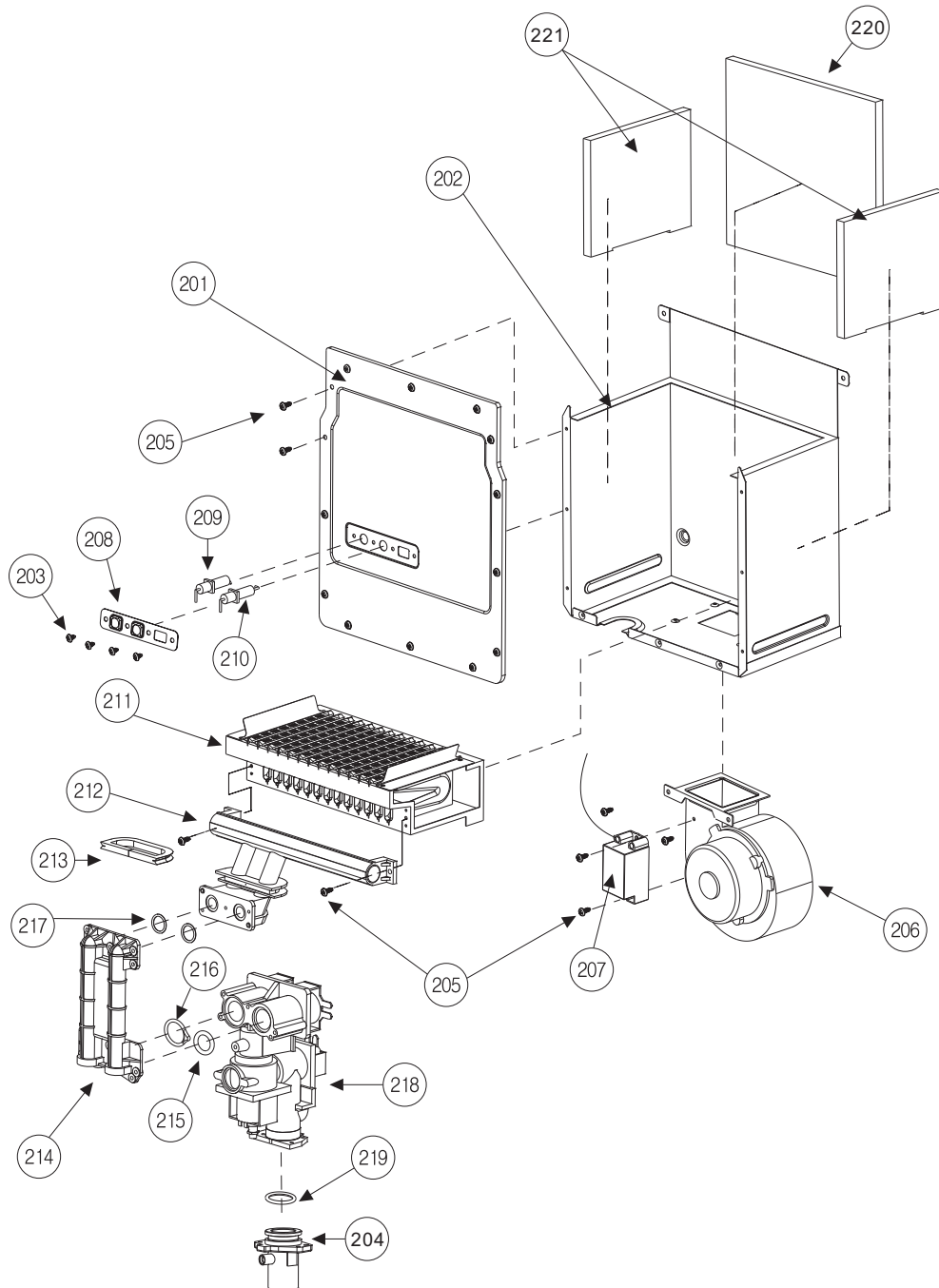
## 10.2 Component Assembly Diagrams and Parts Lists [VC 100 COMBI]

### 10.2.1 Case Assembly

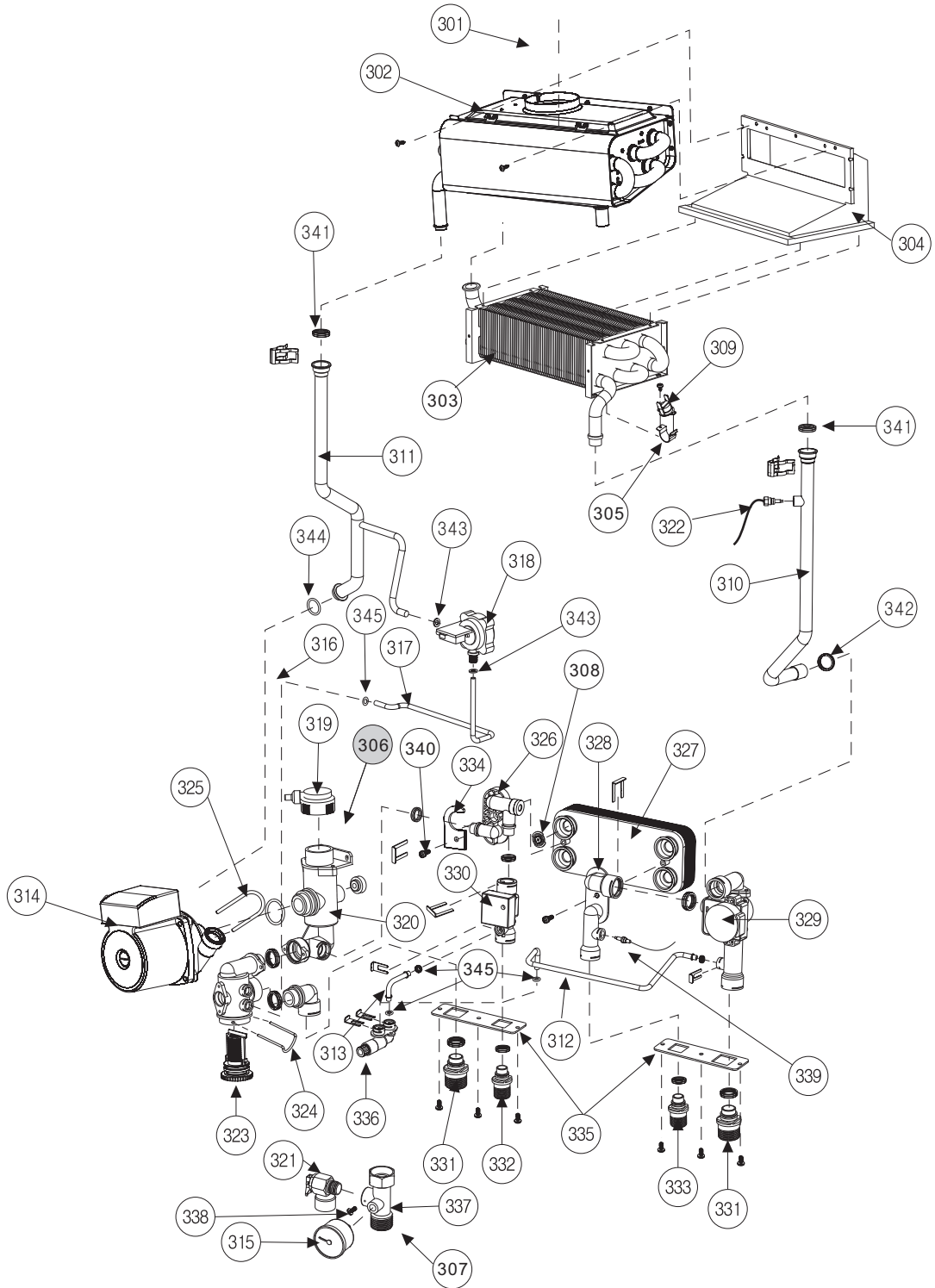




## 10.2.2 Burner Assembly



### 10.2.3 Waterway Assembly



## Part List

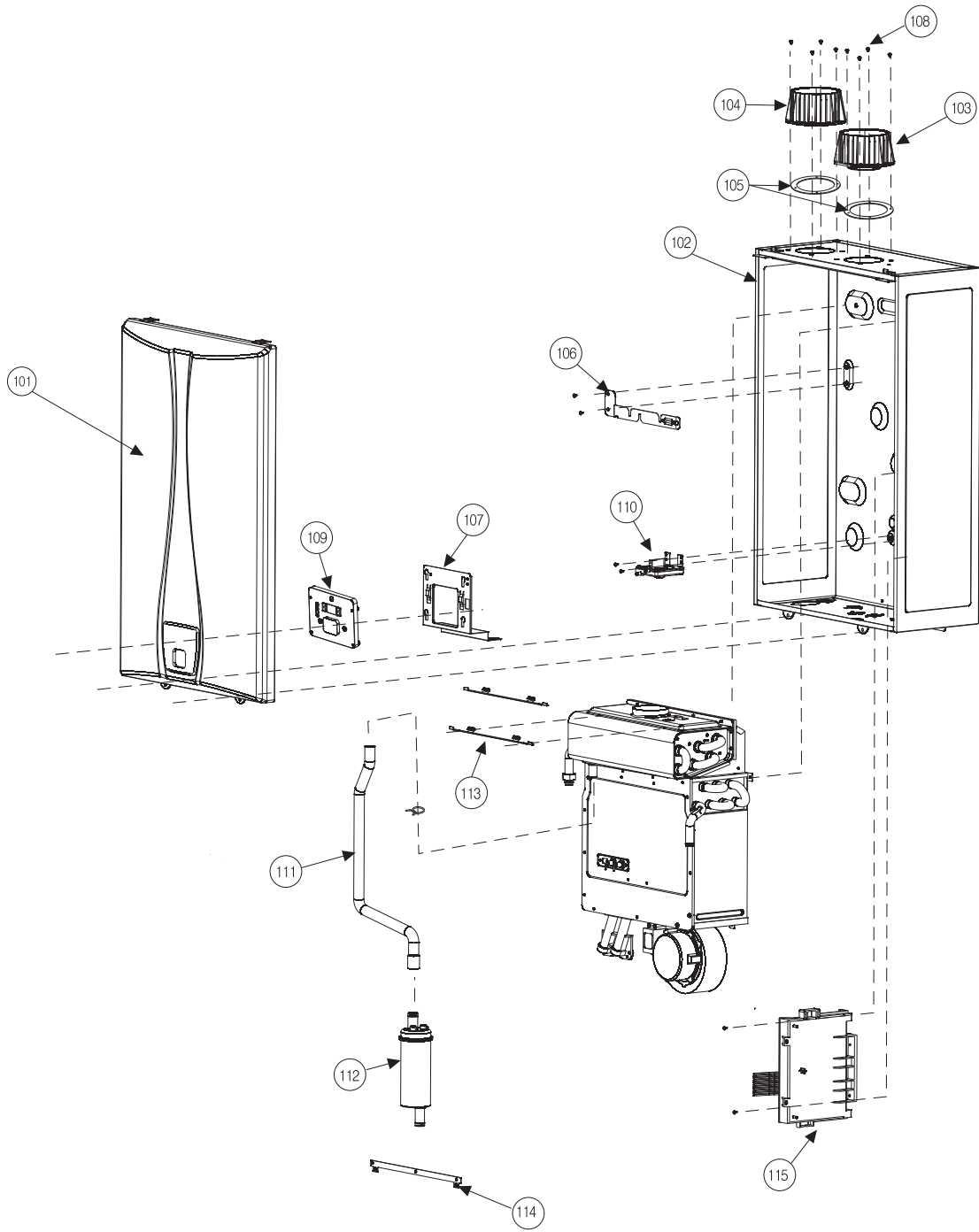
No	Part No	Part Name	No	Part No	Part Name
101	2010570	Case Assembly	201	2010373	Combustion Chamber Front assembly
102	2070645	Chassis Assembly	202	2010316	Combustion Chamber Surround assembly
103	3040379	Flue collar(3")	203	3100033	4X8 tapping screw
104	3040378	Air Intake Connector(3")	204	3050089	Gas valve connection Nipple (Gas pressure point)
105	3090260	Flue collar sealing packing	205	3100051	4X10 tapping screw
106	3011567	Thermal fuse bracket	206	2100262	Combustion Fan
107	3011565	RC Bracket	207	2080830S	Ignitor + Wire
108	3100051	4X10 tapping screw	208	3011107	Spark plug bracket
109	2080732	RC Assy"	209	2020359	Spark plug
110	2100356	Air pressure switch	210	2020360	Flame sensing Rod
111	3080259	Condensate hose	211	2020362	Burner assembly
112	2060365	Condensate trap	212	2020358	Manifolder assembly(LNG)
113	3011567	Thermal Fuse BK(TOP)		2020353	Manifolder assembly(LPG)
114	3011646	Deco fix Bracket	213	3080150	Manifolder sealing packing
115	2080730	PCB Assembly	214	3020071	Gas adaptor
			215	3080159	Gas Valve packing
			216	3080160	O-ring(22A)
			217	3080164	Gas apator O-ring
			218	2030278	Gas valve(UP34-42)
			219	3080115	Gas valve O-ring
			220	3090094	Side of Ceramic
			221	3090195	Behind of Ceramic

## Part List

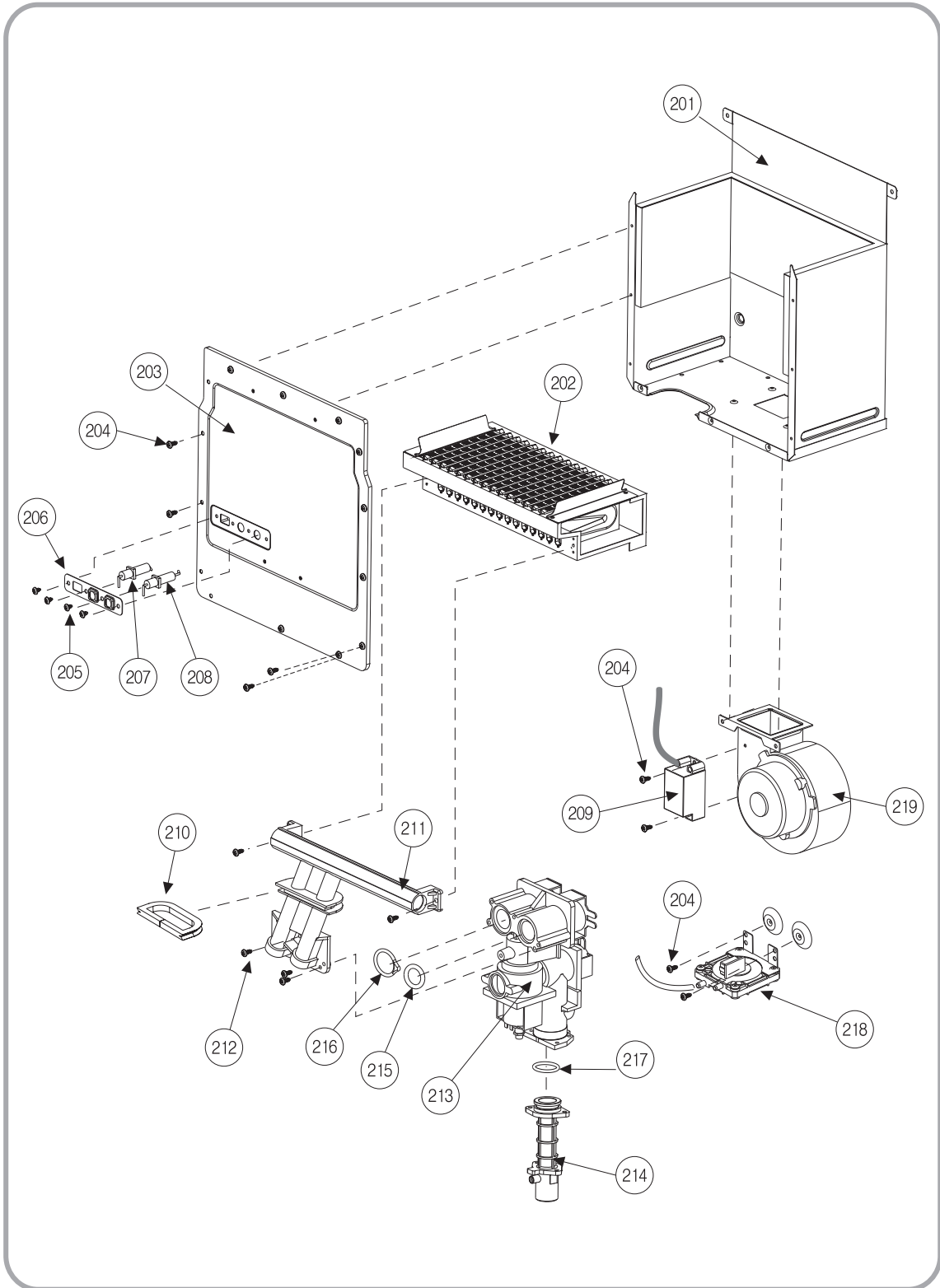
No	Part No	Part Name	No	Part No	Part Name
301	3080136A	Flue connector packing	329	2040119	3-Way Motor
302	2130441	Latent Heat Exchanger Assembly	330	2060229	Flow Switch
303	2070358	Sensible Heat Exchanger Assembly	331	3030180	Return/Supply Connection Nipple
304	2130038	Duct Assembly	332	3030193	Cold Water Inlet Connection Nipple
305	3010933	Overheat Thermostat Fixing Clip	333	3030181	Hot Water Outlet Connection Nipple
306	2060277	Return Block + Airvent Assy'	334	3011288	RW + CW Bracket
307	2110184S	CH Return Connector Assembly	335	3010944	Nipple Fixing Bracket
308	2060220	DHW Regulator	336	2060228	Water Supplementation Device
309	2080390	Overheat Thermostat	337	3030198	CHW Return Connector
310	2090887	Supply Pipe	338	3100133	M4 X 6(0.7p)
311	2090001	Return Pipe	339	3130346A	Condensate trap+DHW Temp. Sensor(STS)
312	2090877	Water Supply Outlet Pipe	340	3100109	SEMS Screw(M5X25)
313	2090857	Water Supply Inlet Pipe	341	3080142	P16 Backup ring
314	2050135	Pump	342	3080133	P18 Backup ring
315	2080621	Pressure Gauge	343	3090120	Pump Detection Switch Packing
316	3080161	Expansion Vessel Connection Pipe	344	3080104	P16 O-ring
317	2090914	Pump Detection Switch Connection Pipe	345	3080147	P6 Backup ring
318	2060146A	Pump Detection Switch	346	2080957	Overheat Thermostat(Parallel)
319	2060258	Air Vent Assembly	347	3011456	Overheat Thermostat Bracket
320	3040292	Pump Fixing Bracket	348	3130687	Overheat connction line
321	2060274	Pressure Relief Valve			
322	3130688	Closed loop Temperature Sensor			
323	2060307	Return Filter(A/S Set)			
324	3120100	Return Filter Fixing Clip			
325	3120030	Pump Fixing Clip			
326	2060239	RW + CW Block Body			
327	2060185A	Plate to plate Heat Exchanger (VC-100)			
	2060186A	Plate to plate Heat Exchanger (VC-120,140)			
328	2060245	SW + HW Block Body			

## 10.3 Component Assembly Diagrams and Parts Lists [VC 120, 140 COMBI]

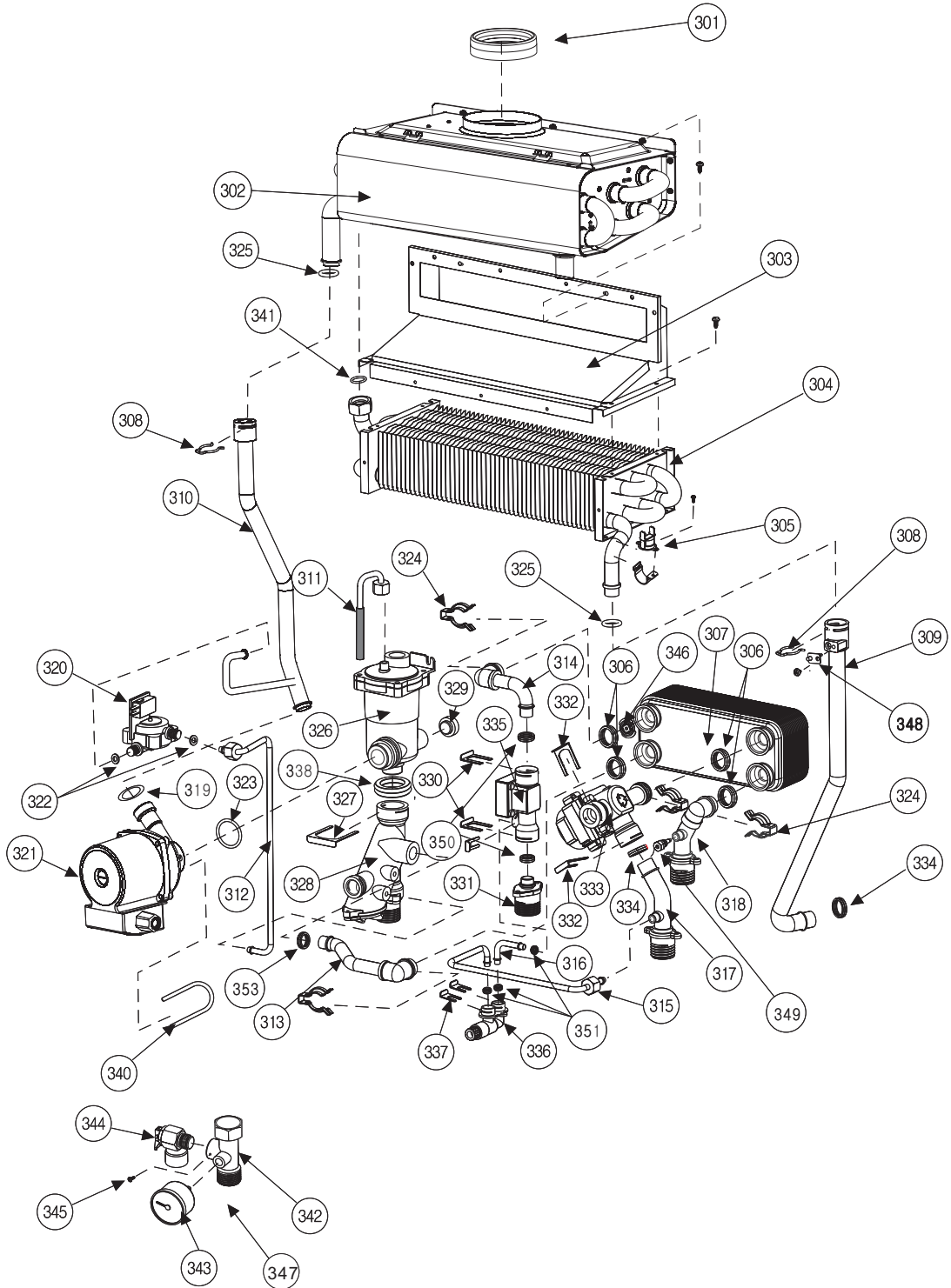
### 10.3.1 Case Assembly



### 10.3.2 Burner Assembly



### 10.3.3 Water Line Assembly



## Part List

No	Part No	Part Name	No	Part No	Part Name
101	2010570	Case Assembly	201	2010362	Combustion Chamber surround assembly
102	2070644	Chassis Assembly	202	2020356	Burner assembly
103	3040379	Flue collar(3")	203	2010377	Combustion Chamber Front assembly
104	3040378	Air Intake Connector(3")	204	3100051	4X10 tapping screw
105	3090260	Flue collar sealing packing	205	3100033	4X8 tapping screw
106	3011566	Thermal fuse bracket(Fire room)	206	3011107	Spark plug bracket
107	3011565	RC Bracket	207	2020359	Spark plug
108	3100051	4X10 tapping screw	208	2020361	Flames sensing rod
109	2080732	RC	209	2080830S	Ignitor + wire
110	2100356	Air pressure switch	210	3080150	Manifolder sealing packing
111	3040637	Front deco cover	211	2020355	Manifolder assembly(LNG)
112	3080257	Condensate hose		2020357	Manifolder assembly(LPG)
113	2060365	Condensate trap	212	3100108	M4 X 12 Screw
114	3011567	Thermal fuse bk	213	2030278	Gas Valve (UP34-42)
115	3011559	Deco fix bracket	214	3050092	Gas connection pipe (Gas Pressure Point)
116	2080730	PCB Assembly	215	3080159	Gas Valve packing
117	2080611	RC assembly	216	3080160	O-ring(22A)
			217	3080115	Gas valve O-ring
			218	2100280	Air pressure switch
			219	2100320	Combustion fan assembly



## Part List

No	Part No	Part Name	No	Part No	Part Name
301	3080136	Flue connector packing	335	2060229	Flow switch
302	2130	Latent heat exchanger assembly	336	2060228	Water supplementation device
303	2130052	Duct assembly	337	3010925	Fixing clip(P6)
304	2070469	Sensible heat exchanger assembly	338	3080143	Backup ring ( 22)
305	2080390	Overheat thermostat	339	3080181	Packing(P14.5)
306	3080144	Backup Ring(P18.8)	340	3120030	Pump fixing clip
307	2060281	Plate to plate heat exchanger	341	3080103	O-ring(P14)
308	3120060	Fixing clip	342	3030198	CHW return connector
309	2090911	Supply pipe	343	2080621	Preesure gauge
310	2091002	Return pipe	344	2060274	Pressure relief valve
311	2090649	Airvent outlet pipe	345	3100133	M4X6 (0.7p)
312	2090907	Pump detection switch connection pipe	346	2060220	DHW regulator
313	2090	Circulation pipe	347	2110184S	CH Return Connector Assembly
314	2090910	Cold water inlet pipe	348	3130689	Close Loop Temperature Sensor
315	2090915	Water supplementation outlet pipe	349	3130448A	Hot Water Temperature Sensor
316	2090818	Water supplementation inlet pipe	350	3080141	Backup ring ( 14)
317	2090909	Supply outlet pipe	351	3080147	Backup ring ( 6)
318	2090908	Hot water outlet pipe			
319	3080104	O-ring( 16)			
320	2060146A	Pump detection switch			
321	2050136	Pump			
322	3090120	Packing(1/4")			
323	3080016	O-ring(pump)			
324	3010829	Fixing clip			
325	3080112	O-ring(P15.8)			
326	2050107	Airvent assembly			
327	3010783	Fixing clip(P22)			
328	2060204A	Return filter set			
329	3080109	Pump shock-absorbing rubber			
330	3010660	Fixing clip(P14)			
331	3030201	Cold water connection nipple			
332	3010622	Fixing clip(P18)			
333	2040124	3way motor			
334	3080140	Backup ring(P18)			

Condensing Combi Boiler

# Installation Manual

Version: 1.0 (May 30, 2016)

## Getting Service

If your VC boiler requires service, you have several options for getting service:

- Contact Technical Support at 1-800-761-0053 or on the website: [www.vestahws.com](http://www.vestahws.com)  
For warranty service, always contact Technical Support first.
- Contact the technician or professional who installed your boiler.
- Contact a licensed professional for the affected system (for example, a plumber or electrician).

When you contact Technical Support, please have the following information at hand:

- Model number
- Serial number
- Date purchased
- Installation location and type
- Error code, if any appears on the front panel display.