Installation Instructions

for use by heating contractor

Vitodens 200
WB2 Series
Wall-mounted, gas-fired condensing boiler

For natural gas and liquid propane
Heating input NG 55 to 230 MBH
16 to 67 kW
Heating input LP 55 to 214 MBH
16 to 63 kW

Please file in Service Binder

VITODENS 200

Vitodens 200, WB2-44/60
(with preinstalled vent pipe adaptor)

IMPORTANT

Read and save these instructions for future reference.

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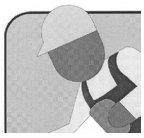
Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause **product/property damage**, **severe personal injury**, and/or **loss of life**. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

■ **Licensed professional heating contractor**
The installation, service, and maintenance of this equipment *must be* performed by a licensed professional heating contractor.



► *Please see section entitled "Important Regulatory and Installation Requirements" in the Installation Instructions.*

■ **Carbon monoxide**
Improper installation, service and/or maintenance can cause flue products to flow into living space. Flue products contain *poisonous* carbon monoxide gas.

► *For information pertaining to the proper installation, service and maintenance of this equipment to avoid formation of carbon monoxide, please see the Installation Instructions of the Vitodens 200 Direct Vent System.*

■ **Equipment venting**
Never operate boiler without an *installed venting system*. An improper venting system can cause carbon monoxide poisoning.

■ **Warranty**
Information contained in this and related product documentation must be read and followed. *Failure to do so renders warranty null and void.*

■ **Product documentation**
Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

► *For a listing of applicable literature, please see section entitled "Important Regulatory and Installation Requirements" in the Installation Instructions.*

⚠ WARNING

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow manufacturer's maintenance schedule of boiler.

■ **Advice to owner**
Once the installation work is complete, the heating contractor must familiarize the system operator/ultimate owner with all equipment, as well as safety precautions/requirements, shut-down procedure, and the need for professional service annually before the heating season begins.

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Control Connections

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Important Regulatory and Installation Requirements

Codes
The installation of this unit shall be in accordance with local codes or, in the absence of local codes, use CAN/CSA-B149.1 or .2 Installation Codes for Gas Burning Appliances for Canada. For U.S. installations use the National Fuel Gas Code ANSI Z223.1. Always use latest editions of codes.

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, and the Installation Code for Hydronic Heating Systems, CSA B214-01, where required by the authority having jurisdiction.

→ *Leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.*

→ *This product comes with several safety instruction labels attached. Do not remove!*
Contact Viessmann immediately if replacement labels are required.

For installations in the Commonwealth of Massachusetts, the following local requirements apply in addition to all other applicable NFPA requirements:

1) For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment, where the bottom of the vent terminal and the air intake is installed below four feet above grade the following requirements must be satisfied.

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).

2. A carbon monoxide detector shall be located in the room that houses the appliance or equipment and shall:

    a. Be powered by the same electrical circuit as the appliance or equipment such that only one service switch services both the appliance and the carbon monoxide detector;
    b. Have battery back-up power;
    c. Meet ANSI/UL 2034 Standards and comply with NFPA 720 (2005 Edition); and
    d. Have been approved and listed by a Nationally Recognized Testing Laboratory as recognized under 527 CMR.

3. A product-approved vent terminal must be used, and if applicable, a product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.
4. A metal or plastic identification plate shall be mounted at the exterior of the building, four feet directly above the location of vent terminal. The plate shall be of sufficient size to be easily read from a distance of eight feet away, and read **"Gas Vent Directly Below"**.

Continued on following page.

Important Regulatory and Installation Requirements (continued)

For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment where the bottom of the vent terminal and the air intake is installed above four feet above grade the following requirements must be satisfied:

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).

2. A carbon monoxide detector shall:

   a. Be located in the room that houses the appliance or equipment;
   b. Be either hard-wired or battery powered or both; and
   c. Shall comply with NFPA 720 (2005 Edition).

3. A product-approved vent terminal must be used, and if applicable, a product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.

Working on the equipment
The installation, adjustment, service, and maintenance of this boiler must be done by a **licensed professional heating contractor** who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, burners, or control.

Ensure **main power** supply to equipment, the heating system, and all external controls has been **deactivated**. **Close** main **gas supply valve**. Take precautions in all instances to avoid accidental activation of power during service work.

→ *The completeness and functionality of field supplied electrical controls and components must be verified by the heating contractor. These include low water cut-offs, flow switches (if used), staging controls, pumps, motorized valves, air vents, thermostats, etc.*

Technical literature
Literature for the Vitodens boiler:
- Technical Data Manual
- Installation Instructions
- Start-up/Service Instructions
- Operating Instructions and User's Information Manual
- System Design Guidelines
- Instructions of other Viessmann products utilized and installed
- Installation codes mentioned in this manual

→ *Leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.*

→ *This product comes with several safety instruction labels attached. Do not remove!*
Contact Viessmann immediately if replacement labels are required.

About these Installation Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.

WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial product/property damage.

→ *Warnings draw your attention to the presence of potential hazards or important product information.*

CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/property damage.

→ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

→ *Helpful hints for installation, operation or maintenance which pertain to the product.*

→

→ *This symbol indicates that additional, pertinent information is to be found in column three.*

→ *This symbol indicates that other instructions must be referenced.*

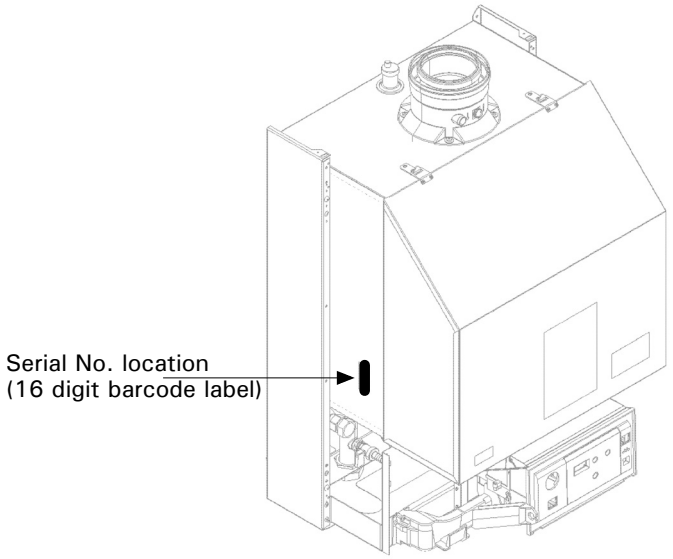
Applicability

⚠ CAUTION

Boiler serial number must be provided when ordering replacement parts. Some replacement parts are not reverse compatible with previous versions of the Vitodens 200 boiler.

Vitodens 200, WB2 44/60

Model No.	Serial No.
WB2 11-44	7188578□□□□□□□□□
and	
WB2 15-60	7188577□□□□□□□□□



Product Information

Gas-fired hot water heating boiler for space heating and domestic hot water production with a stand-alone DHW tank (tank must be ordered separately).

For operation with modulating boiler water temperatures in closed loop, forced circulation hot water heating circuits.

The Vitodens 200 comes factory set for operation with natural gas, with the option of conversion to liquid propane using a field conversion kit.
(When planning on fuel converting the Vitodens 200 boiler, contact Viessmann to order the required conversion kit.)

Boiler model must be selected based on an accurate heat loss calculation of the building. Ensure boiler model is compatible with connected radiation.

Mechanical Room

During the early stages of new home design, we recommend that proper consideration be given to constructing a separate mechanical room dedicated to gas- or oil-fired equipment including domestic hot water storage tanks.

The boiler must be located in a heated indoor space, near a floor drain, and as close as possible to the wall.

Whenever possible, install boiler near an outside wall so that it is easy to duct the venting system to the boiler.

Locate boiler on walls capable of supporting the weight of the boiler filled with water (see section entitled "Technical Data" on page 47 for information required for total boiler weight calculation). Ensure that boiler location does not interfere with proper circulation of combustion and ventilation air of other fuel burning equipment (if applicable) within the mechanical room.

The maximum room temperature of the mechanical room where the boiler is located must not exceed 104°F/40°C.

Before Set-up

Before placing boiler in its installation location, ensure all necessary accessories are installed.

⚠ CAUTION

The boiler must be installed in such a way that gas ignition system components are protected from water (spraying, splashing, etc.) during boiler operation and service.

Minimum Clearances

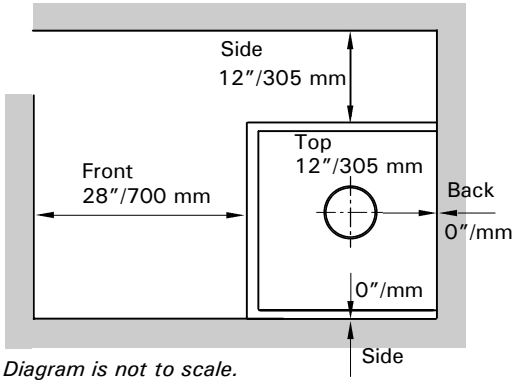


Diagram is not to scale.

Recommended minimum service clearances

For typical Vitodens installations, Viessmann recommends installing the boiler with the clearances shown in the illustration on the left.

Recommended clearances to combustibles

The Vitodens 200 boiler is approved for closet and alcove installation with the following clearances to combustibles.

Top	Front	Rear	Left	Right	Vent pipe*1
0	0 AL, CL	0	0	0	0

AL = Alcove
CL = Closet
**1 Refer to the Installation Instructions of the Vitodens 200 Venting System for details.*

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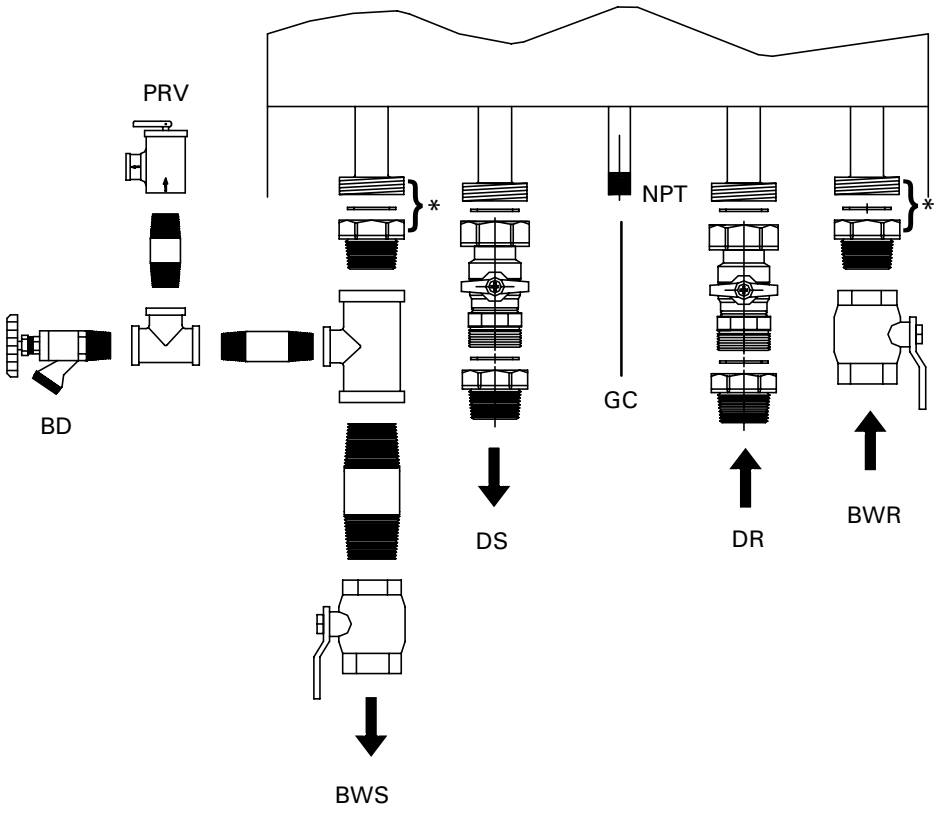
Preparing the Connections

Use an approved pipe sealant or teflon tape when connecting the following installation fittings.

Connections overview

This section constitutes an overview only! Refer to subsequent sections for detailed information on individual piping connections.



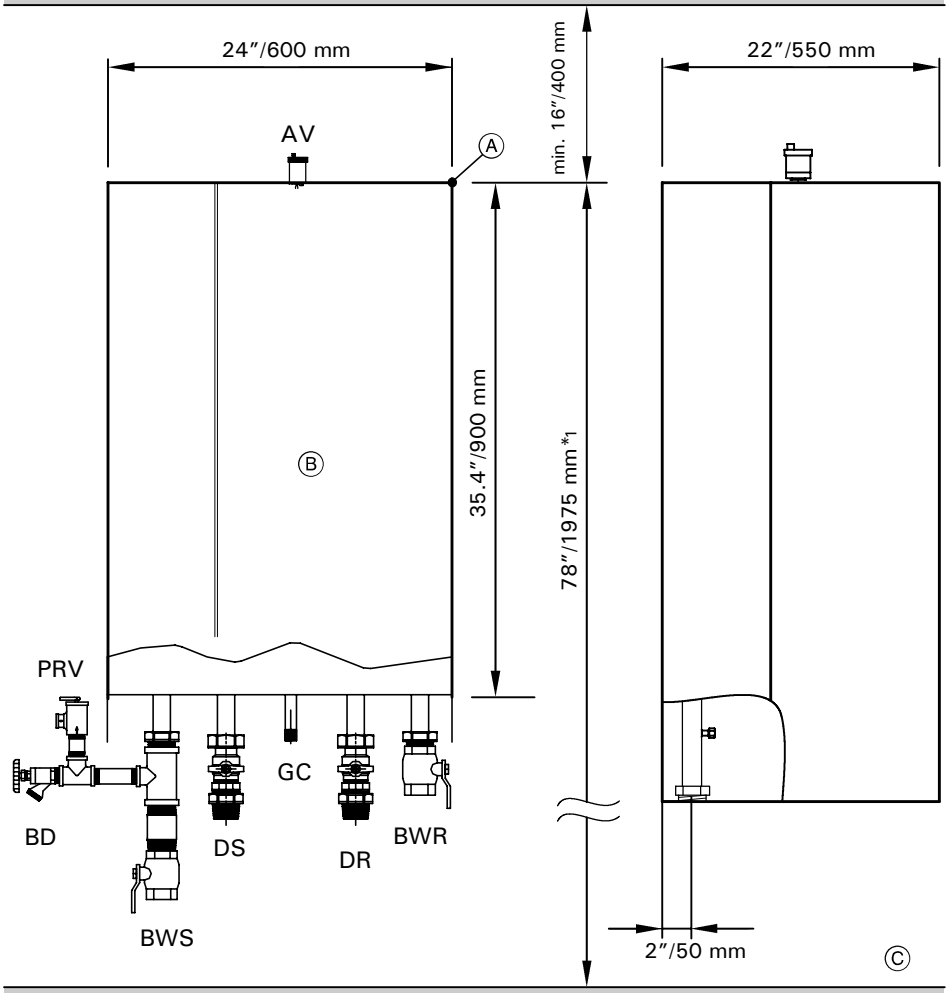
Piping connections for Vitodens 200, WB2 11-44 and 15-60

***These adapters are factory supplied.**

Legend

BWR	Boiler water return, 1¼" NPTF
BWS	Boiler water supply, 1¼" NPTF
BD	Boiler drain
DR	Boiler heating return for domestic hot water production, 1¼" NPTM
DS	Boiler heating supply for domestic hot water production, 1¼" NPTM
GC	Gas connection, ¾" NPTM
PRV	Pressure relif valve
NPT	National Pipe Thread

Preparing the Connections



When preparing gas, water and electrical connections in the field, see section entitled "Wall Mounting" on page 12 of this manual for information regarding the installation of the wall mounting bracket.

IMPORTANT

The maximum ambient temperature must not exceed 95 °F/35 °C.

- Heating water connections and gas connection to be made in the field. See illustration to the left and connection-specific section for details.
- See subsection entitled "Power supply connection" for details regarding power supply to the Vitodens 200 boiler.

Connections Vitodens 200, WB2 11-44/15-60

Legend

AV	Air vent
BWR	Boiler water return, 1¼″ NPTF
BWS	Boiler water supply, 1¼″ NPTF
BD	Boiler drain
DR	Domestic hot water return, 1¼″ NPTM
DS	Domestic hot water supply, 1¼″ NPTM
GC	Gas connection, ¾″ NPTM
PRV	Pressure relief valve, ¾″

*1 *Recommendation*

Vitodens 200, WB2 side view

Ⓐ Reference point for top of boiler
Ⓑ Vitodens 200 boiler
Ⓒ Finished floor level

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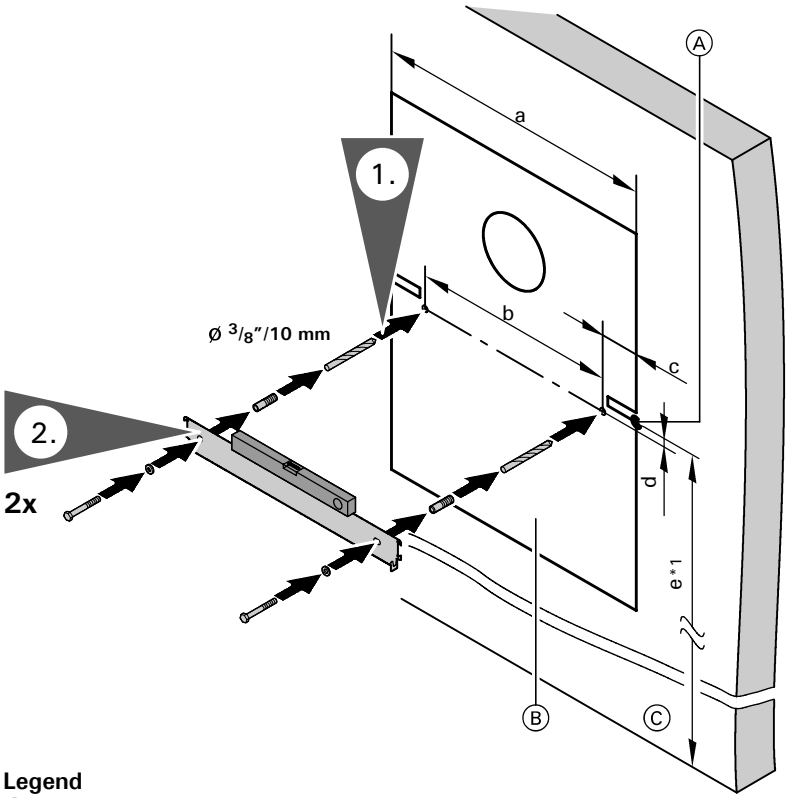
Wall Mounting

Wall mounting bracket installation



Legend
Ⓐ Reference point for top of boiler
Ⓑ Mounting template
Ⓒ Finished floor level

Dimensions
a 23.6"/600 mm
b 16"/407 mm
c 3.7"/95 mm
d 0.7"/18 mm
e 78"/1975 mm

*1 *Recommendation*

The Vitodens 200 can be wall-mounted on
- a brick/concrete wall
- wood studs
- metal studs

Following are the installation instructions for the mounting bracket on each material. Skip to the installation instructions applicable to your installation requirements.

CAUTION

Whichever mounting method is used, ensure that the bracket is tightly and securely fastened to wall. Failure to secure boiler properly could cause boiler to loosen, posing a severe safety hazard.

Installation of mounting bracket on brick/concrete wall:

1. Drill holes (Ø 3/8"/10 mm), using mounting template supplied with the boiler.

2. Align wall mounting bracket and attach to wall with the screws and bolts supplied.

Wall Mounting (continued)

Mounting bracket installation (continued)

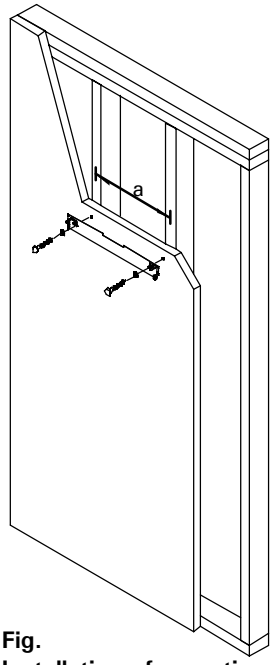


Fig.
Installation of mounting bracket

Installation of mounting bracket on wood and metal studs

To mount the Vitodens 200 boiler on wood or metal studs, install mounting bracket on wall as shown in Fig. . Refer to Figs. and below for more detailed installation information.

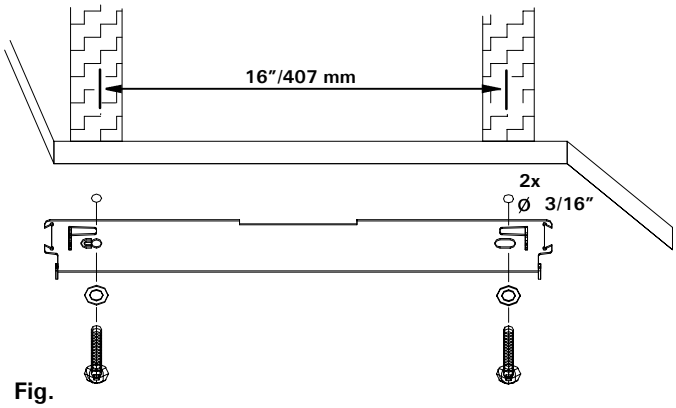


Fig.
Installation of mounting bracket on wood studs

Install mounting bracket on wood studs as per illustration.
Drill $^{3}/_{16}$” pilot holes to insert mounting bolts.
Ensure that holes are located in the center of each wood stud.

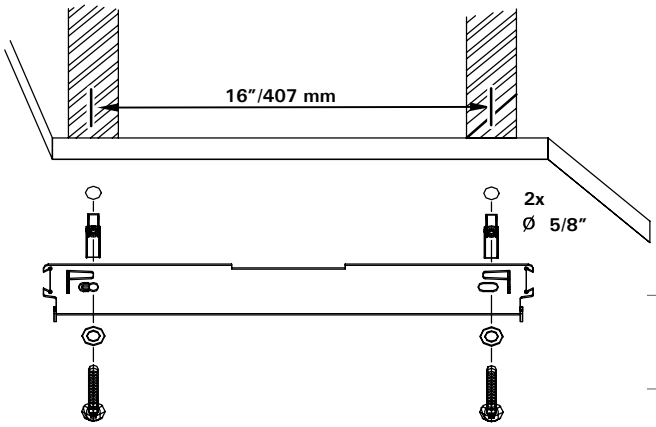
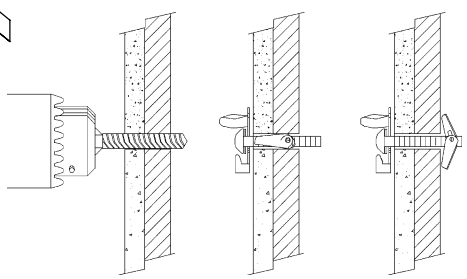


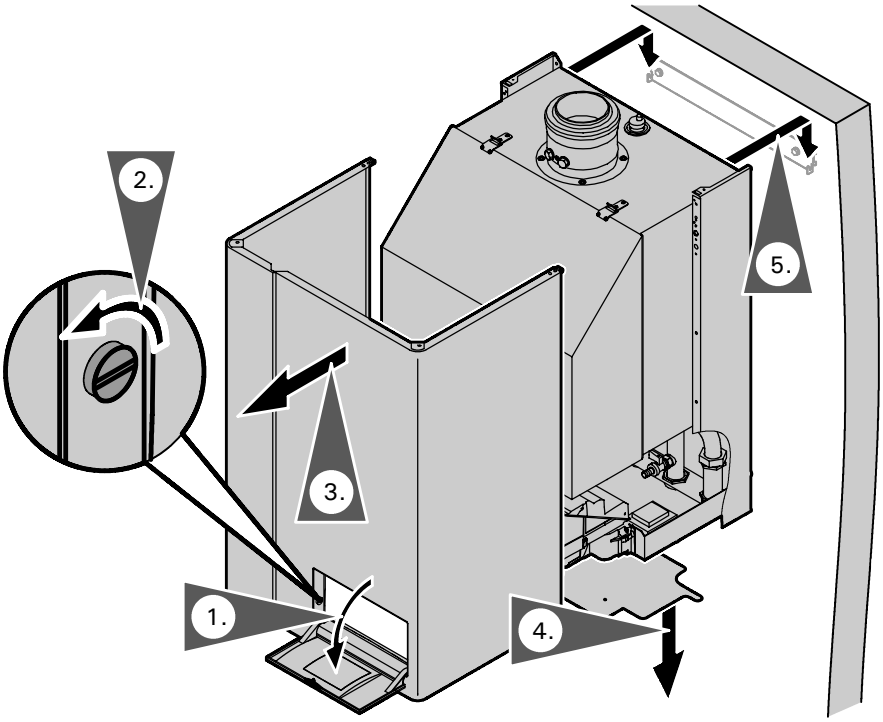
Fig.
Installation of mounting bracket on metal studs

Install mounting bracket on metal studs as per illustration.
Drill $^{5}/_{8}$” pilot holes to insert mounting bolts.
Ensure that holes are located in the center of each metal stud.
Secure mounting bracket with bolts to metal studs as shown.



Wall Mounting (continued)

Mounting Vitodens 200 boiler



1. Open hinged cover of the control unit (by exerting slight pressure with fingertip).
2. Unlock enclosure panel by loosening screw as illustrated.
3. Remove front enclosure panel (lift up and pull towards you).
4. Loosen the two screws holding base panel in place and remove base panel (if still installed) towards you.
5. Mount boiler onto the mounting bracket.

For installation of the mounting bracket, see subsection entitled "Wall mounting bracket installation" on page 12 of this manual.

6. Connect boiler to the installation fittings.

Connections

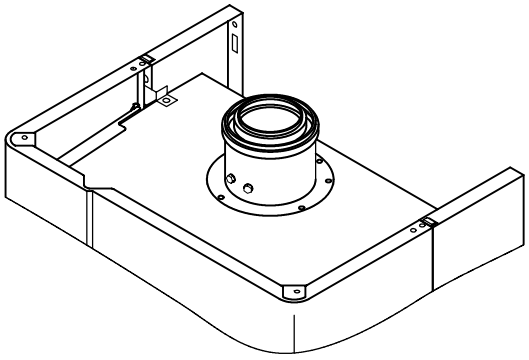
Power supply connection

Installation Instructions Power/Pump Module

The Vitodens 200 boiler is shipped with a Power/Pump Module, which requires a 120 VAC power supply from a wall receptacle.

The module contains a 120/230 VAC step-up transformer to power the Vitodens 200 with 230 VAC. Refer to the Installation Instructions shipped with the module or those contained in this manual for wiring details.

Flue gas connection



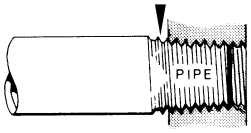
The Vitodens 200 boiler comes with a preinstalled vent pipe adaptor (as shown).
Run venting system, single-wall or coaxial, through the side wall or the roof, taking the shortest possible route and at a rising angle (min. 3°).

See Installation Instructions Vitodens 200 Venting System for details.

Connections (continued)

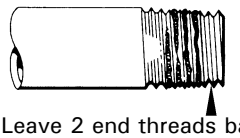
Proper piping practice

2 imperfect threads



Thread pipe right length

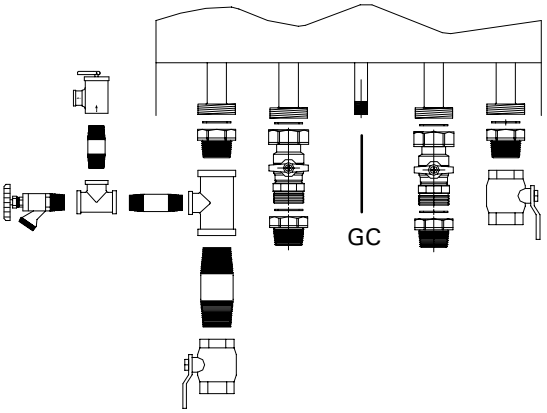
Use moderate amount of dope



Leave 2 end threads bare

Support piping by proper suspension method. Piping must not rest on or be supported by boiler.

Gas connection and piping



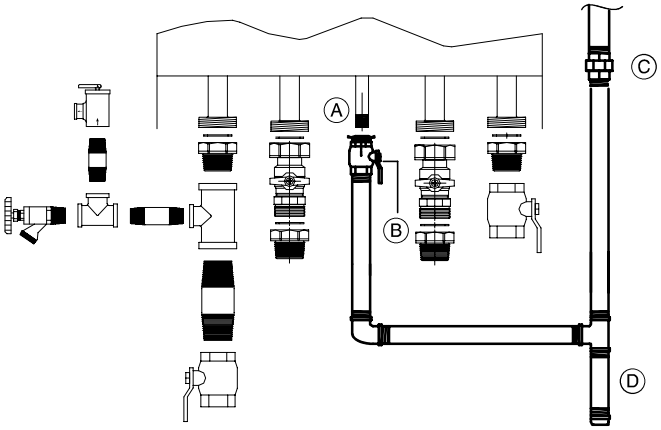
GC Gas connection

1. Make gas connection in accordance with codes CAN/CSA B149.1 and .2 or National Fuel Gas Code ANSI Z223.1/NFPA 54, as well as local codes.
2. Close gas shutoff valve (field supplied) on boiler.
3. Perform leak test.
4. Bleed air from gas supply pipe.

See following page for details on gas connection and piping.

Connections (continued)

Gas connection and piping (continued)



Ⓐ Gas connection
Ⓑ Accessible manual gas shutoff valve (field supplied)
Ⓒ Ground joint union
Ⓓ Drip leg

IMPORTANT

Max. gas supply pressure: 14 "w.c.

WARNING

The gas supply piping must be leak tested before placing the boiler in operation.

CAUTION

Ensure that gas piping is large enough for all appliances in the residence. No noticeable gas pressure drop in the gas line must occur when any unit (or combination of units) lights or runs.

1. Refer to current CAN/CSA B149.1 and .2 or National Fuel Gas Code ANSI Z223.1/NFPA 54, as well as local codes for gas piping requirements and sizing. Pipe size to the boiler must be determined based on:
   – pipe length
   – number of fittings
   – type of gas
   – maximum input requirements of all gas appliances in the residence.

IMPORTANT

Design piping layout in such a way that piping does not interfere with serviceable components.

2. Before connecting boiler to gas line, install ground joint union, capped drip leg and a manual equipment shutoff valve as shown. Valves must be listed by a nationally recognized testing agency. Make boiler gas connection as shown on the left.

   Gas connection (NPT) ..... ∅ ¾"

3. Perform gas piping pressure test as described in the following subsection.

4. Identify shutoff valves as such with a tab and familiarize operator/ultimate owner of boiler with these valves.

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Connections (continued)

Gas piping pressure test

When performing the gas piping pressure test, ensure the following requirements are met.

WARNING

Never check for gas leaks with an open flame.

WARNING

Exposing boiler gas pressure regulator and gas valve to extreme pressures renders warranty null and void.

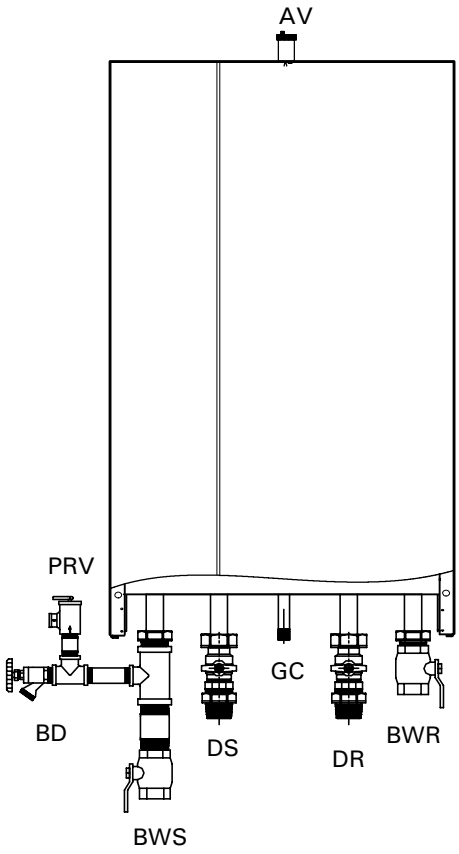
IMPORTANT

½ psig = 14 "w.c.

1. Isolate the boiler from the gas supply piping system using the individual manual shutoff valve during pressure tests equal to or less than ½ psig/ 14 "w.c.
2. The boiler and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig/14 "w.c.
3. Perform leak test.
   Use approved liquid spray solution for bubble test. Ensure that no liquid is sprayed on any electrical components, wires or connectors. Do **not** allow leak detection fluid to contact gas valve regulator or regulator vent opening.
4. Correct any and all deficiencies.
5. Remove air from gas line.

Connections (continued)

Heating water connections



1. Thoroughly flush heating system (particularly before connecting the boiler to an existing system).

2. Connect boiler to the heating system.

Max. operating pressure ..... 3 bar/ ..... 45 psig
Test pressure ..... 4 bar/ ..... 60 psig

IMPORTANT

Damage resulting from pressure exceeding those values stated is not covered by Viessmann warranty.

AV Air vent
BD Boiler Drain
BWR Boiler water return
BWS Boiler water supply
DR Boiler heating return for domestic hot water production
DS Boiler heating supply for domestic hot water production
PRV Pressure relief valve

DHW Production Kit Installation

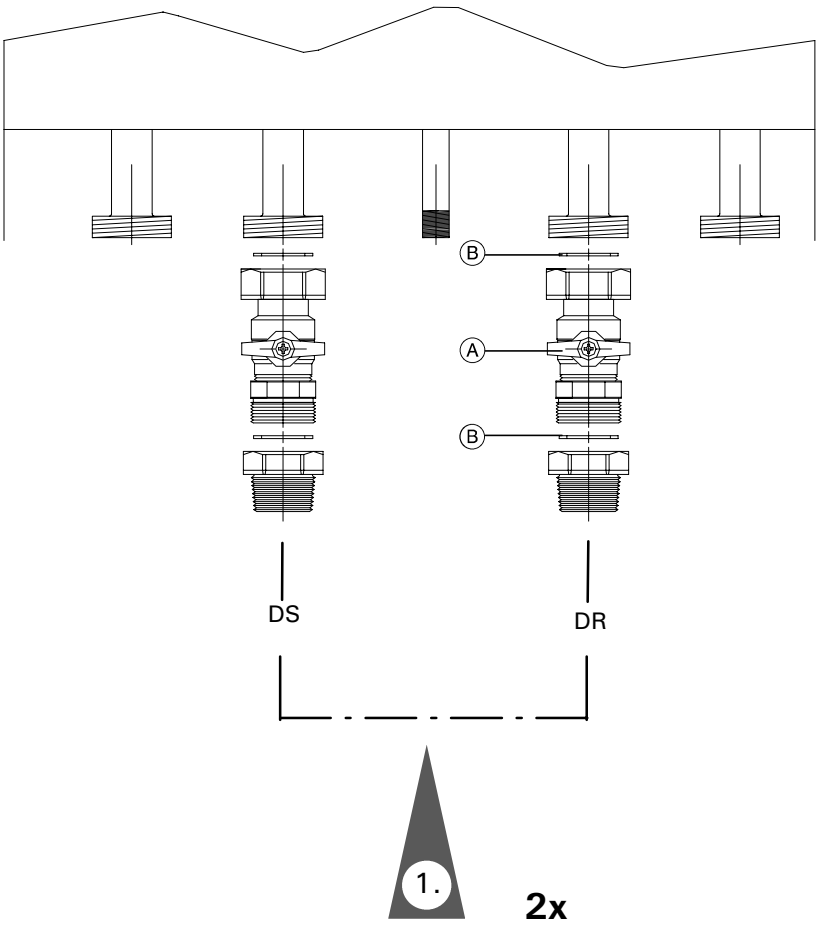
Product information

The DHW Production Kit is required when using a stand-alone DHW storage tank with the Vitodens 200 heating boiler. It comprises all components required for the connection of a stand-alone tank.

See Vitodens 200 Start-up/Service Instructions for applicable system coding information.

See Installation Instructions for DHW Production Kit for standard equipment.

Making the DHW connections



1. Connect isolation valve and brass adaptor to both the DHW supply and return connections.

IMPORTANT

Apply sufficient amount of thread sealant (supplied) when making the connections.

Ⓐ Isolation valve
Ⓑ Gasket

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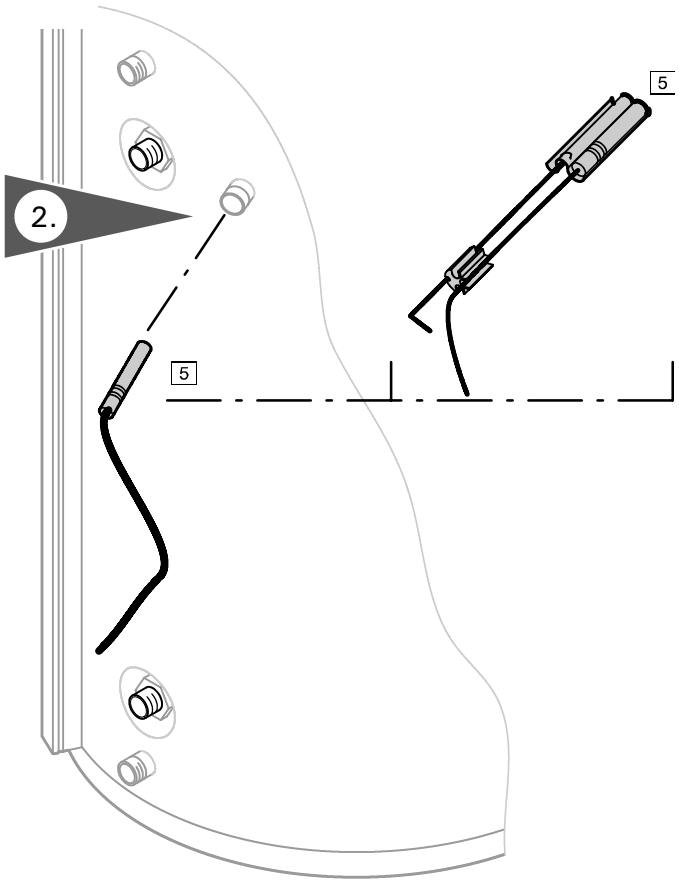
DHW Production Kit Installation (continued)

Making the DHW connections (continued)



Vitocell-H 100 DHW storage tank shown

2. *With a Vitocell 100 DHW storage tank:*
Insert DHW tank temperature sensor 5 into sensor well as shown.
With a Vitocell 300 DHW storage tank:
Refer to the Vitocell 300 Installation Instructions shipped with the DHW storage tank for details.

IMPORTANT

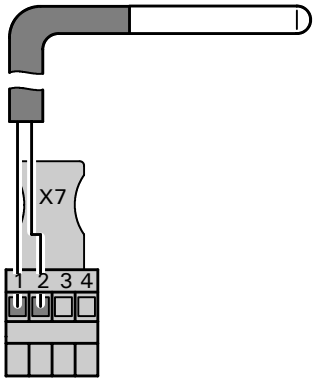
Follow the Installation Instructions supplied with the Viessmann DHW storage tank when mounting and securing DHW tank temperature sensor 5.

WARNING

IF A DHW STORAGE TANK OTHER THAN A VIESSMANN VITOCELL 100 OR 300 TANK IS USED, THE INSTALLER MUST VERIFY PROPER OPERATION OF THE VIESSMANN DHW TANK TEMPERATURE SENSOR WITH ORIGINAL MANUFACTURER OF THE TANK. VIESSMANN STRONGLY RECOMMENDS THE INSTALLATION OF A TEMPERATURE TEMPERING VALVE IN THE DHW SUPPLY LINE.

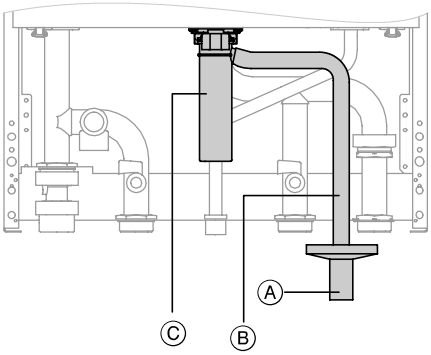
DHW Production Kit Installation (continued)

Electrical connection



1. Insert plug "X7" of the DHW tank temperature sensor into terminal "X7" of the control unit.

Condensate connection



Ⓐ Discharge tubing
Ⓑ Flexible discharge tubing
Ⓒ Siphon trap

The Vitodens 200 boiler comes with a built-in condensate trap. An external trap is not required when connecting the field drain to flexible discharge tubing. Discharge tubing (field supplied) must be of 1" diameter. Use CPVC, PVC or other material approved by codes listed below.
The drain pipe and fittings must conform to ANSI standards and ASTM D1785 or D2846. CPVC or PVC cement and primer must conform to ASTM D2564 or F493. In Canada use CSA or ULC listed schedule 40 CPVC or PVC drain pipe, fittings and cement.
If the condensate outlet of the Vitodens 200 boiler is lower than the drain, a condensate pump must be installed. Select a pump which is approved for condensing boiler applications. To avoid condensate spillage, select a pump with an overflow switch. The drain connection must terminate into an open or vented drain as close to the boiler as possible to prevent siphoning of the boiler drain.

1. Install the condensate drain pipe with a suitable gradient.

2. Discharge condensate from the boiler into the drainage system, either directly or (if required) via a neutralization unit (accessory).

Installation Instructions of Neutralization Unit (if applicable)

IMPORTANT

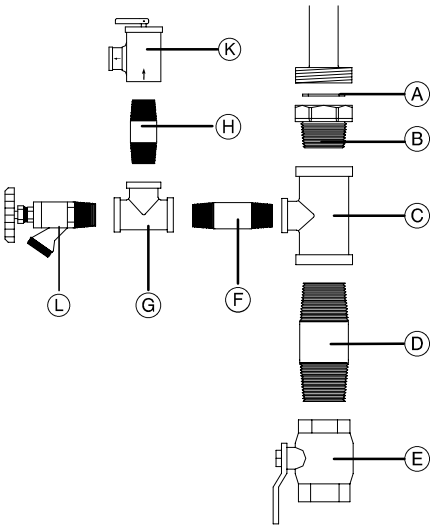
Pipe ventilation must take place between the siphon trap and the neutralization unit (if applicable).

IMPORTANT

Do not connect the drain pipe from any other appliance, such as water softener backwash pipe, to Vitodens condensate drain pipe.

Safety Connections and Pressure Testing

Installing safety devices on the boiler



Legend

Ⓐ Gasket, Ø 1½"
Ⓑ Conversion union, (G > BSPT)
Ⓒ Reducing tee, 1¼" x ¾" x 1¼"
Ⓓ Brass nipple, length 2½" x 1¼"
Ⓔ Isolation valve, 1¼"
Ⓕ Brass nipple, length 3" x ¾
Ⓖ Tee
Ⓗ Brass nipple, length 2" x ¾
Ⓚ Pressure relief valve, ¾" NPT
Ⓛ Drain valve connection, ¾"

1. Remove loosely preassembled combination pressure relief valve and drain valve assembly.

2. Apply sufficient amount of pipe sealant to both ends of all pipe fittings Ⓑ, Ⓓ, Ⓕ and Ⓗ, and install onto tees Ⓒ and Ⓖ.

3. Install pressure relief valve Ⓚ and tighten.

4. Install discharge pipe on pressure relief valve in such a way that...
   - the end of the pipe is not threaded.
   - the pressure relief discharge pipe extends to a floor drain and ends approximately 6"/150 mm above the drain.

   Ensure that...
   - there is no shutoff valve installed in the discharge pipe.
   - discharge pipe diameter is not reduced.
   - discharge is not piped to outdoors.

Minimum connection diameters:

Pressure relief valve	¾"
Discharge pipe	¾"
Piping to precharged expansion tank	¾"

IMPORTANT

Install the (approved) factory supplied pressure relief valve.

Removal of air from the system must occur via use of air vent(s) in the system supply. To ensure the boiler can be purged of all air, ensure supply/return water lines do not contain restrictive piping where air could be trapped.

⚠ WARNING

Do not install an isolation valve between boiler and pressure relief valve.
The discharge pipe for the pressure relief valve must be oriented to prevent scalding of attendants.
Pipe pressure relief valve discharge pipe close to floor drain. Never pipe discharge pipe to the outdoors.

Low water cut-off
A low water cut-off may be required by local codes. If boiler is installed above radiation level, a low water cut-off device of approved type (field supplied) must be installed in all instances. Do not install an isolation valve between boiler and low water cut-off (see subsection entitled "Boiler with low water cut-off" on page 34 in these instructions).

Safety Connections and Pressure Testing (continued)

Performing pressure test on the boiler

The boiler must be leak tested before being placed in operation. Before boiler is connected to piping or electrical power supply, it must be hydrostatically pressure tested.

1. After installing safety devices (see previous page), install temporary cap on ¾" x 2" nipple.

2. Cap supply and return connections.

3. Connect ½" garden hose to boiler drain valve at the bottom of the boiler and fill boiler slowly until pressure gage indicates max. 4 bar/60 psig.

4. Maintain pressure for 15 minutes. During time of pressure testing, do not leave boiler unattended.

5. Inspect all pipe joint connections and safety devices with a flashlight for leaks.
   A lower manometer reading than 4 bar/60 psig usually indicates loss of water due to leakage. All leaks must be repaired.

6. After 15 minutes, release water pressure from boiler by opening boiler drain valve slowly, remove caps from supply and return connections as well as ¾" cap from 2" nipple, and install pressure relief valve immediately instead of ¾" cap.

   After boiler has passed pressure test, proceed with the installation.

Max. operating pressure ..... 3 bar/45 psig
Testing pressure ..... 4 bar/60 psig
Max. boiler water temperature ..... 210 °F/99 °C

⚠ WARNING

Exposing the boiler to pressures and temperatures in excess of those listed will result in damages, and will render warranty null and void.

Installation Examples

General
The schematics on the following pages are to be seen as guidelines only. They further do not display all system varieties, safety devices, or concepts possible. Specific system layouts may be further discussed with the local Viessmann sales representative office.

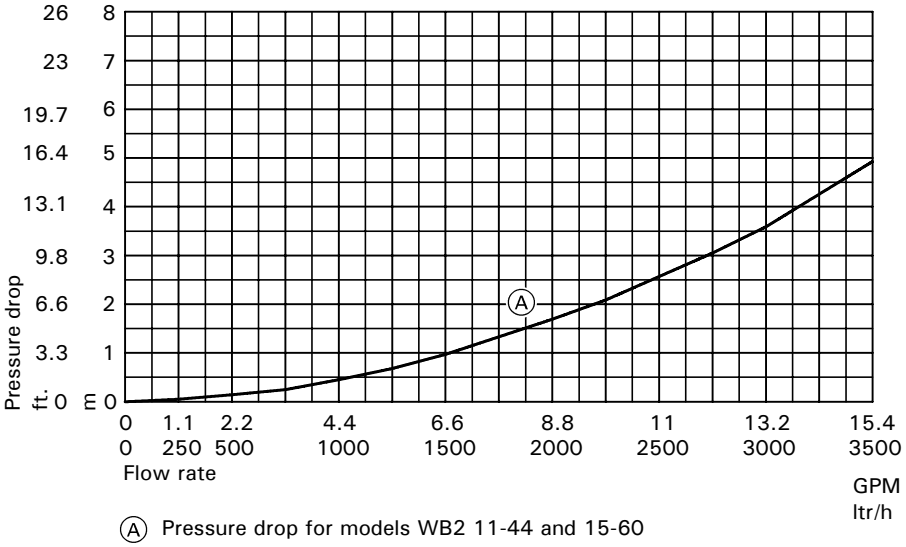
Clearances
A minimum of 2"/51 mm circumferential clearance from non-insulated hot water pipes to combustible construction must be maintained. In cases where the pipes are insulated with pipe insulation of appropriate and sufficient thickness and insulation values, the above clearance may be reduced to 0" (refer to local gas codes).

⚠ CAUTION

For underfloor heating applications, an additional immersion or strap-on aquastat must be installed in the low temperature underfloor loop (downstream of the mixing valve) to de-energize the pump and/or boiler to prevent overheating. High water temperatures can damage concrete slabs.

Installation Examples (continued)

Waterside flow



Ⓐ Pressure drop for models WB2 11-44 and 15-60

Typical system flow rates

Model WB2	11-44	15-60
Δ t for NG		
Output (NG) Btu/h	153 000	205 000
20 °F rise (GPM)	15.3	20.5
25 °F rise (GPM)	12.2	16.4
30 °F rise (GPM)	10.2	13.7
Δ t for LP		
Output (LG) Btu/h	138 000	191 000
20 °F rise (GPM)	13.8	19.1
25 °F rise (GPM)	11.0	15.3
30 °F rise (GPM)	9.2	12.7

Use standard friction loss method for pipe sizing.
Observe boiler maximum flow rate limitations. If system flow rate exceeds boiler maximum flow rate or if system flow rate is unknown, Viessmann strongly recommends the installation of a low-loss header. See low-loss header Installation Instructions for details.

Please note!
Low-loss header pressure drop is negligible.

WARNING

If a DHW storage tank other than a Viessmann Vitocell 100 or 300 tank is used, the installer must verify proper operation of the Viessmann 5 DHW sensor with the original manufacturer of the tank. Viessmann strongly recommends the installation of a temperature tempering valve in the DHW supply line.

Important!
The following examples depict possible piping layouts of the Vitodens 200 boiler equipped with Viessmann System Technology.
For boiler and tank combinations, please install only feasible combinations listed in the Viessmann Price List.
Please note that the examples below are simplified conceptual drawings only! Piping and necessary componentry must be field verified.
A low water cut-off (LWCO) must be installed where required by local codes.
Proper installation and functionality in the field is the responsibility of the heating contractor.

The following examples and the corresponding plug-in connection examples do not follow the same alphabetical designation of components. Please take this into consideration when cross-referencing between an installation example and the corresponding plug-in connection example.

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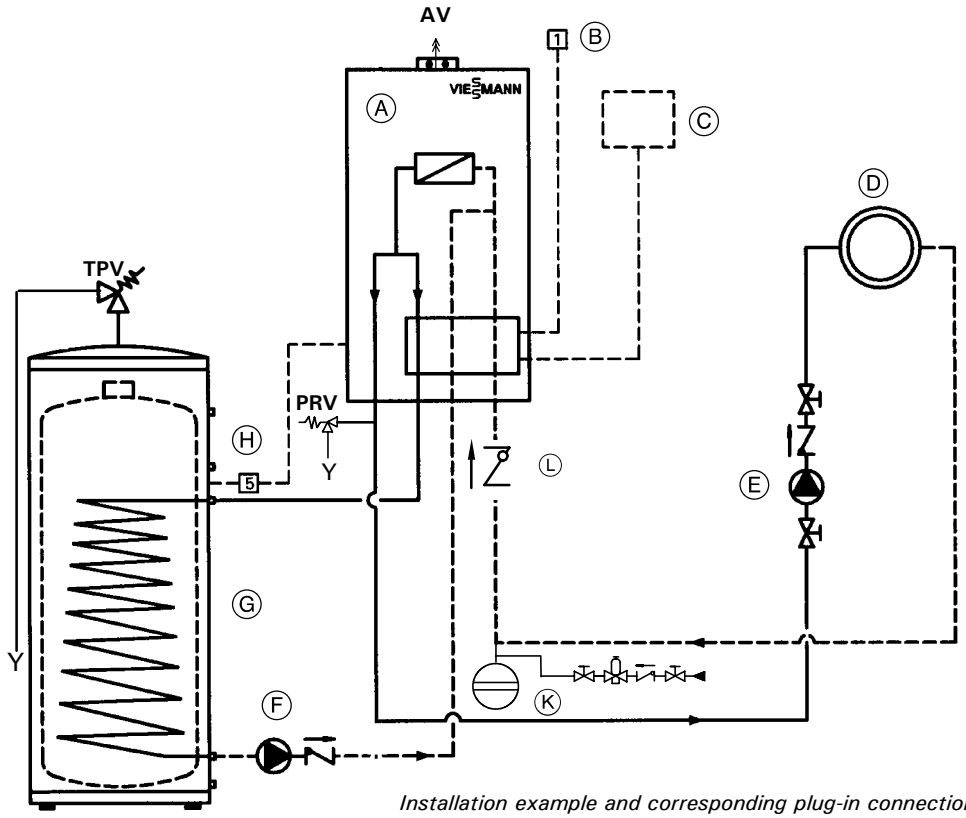
Installation Examples (continued)

Vitodens 200 (model WB2 11-44 and up) with DHW storage tank and one direct-connected heating circuit



Installation example and corresponding plug-in connection example do not follow same alphabetical designation of components.

AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve

Ⓐ Vitodens 200 gas-fired condensing boiler with programming unit for weather-responsive operation
Ⓑ Outdoor temperature sensor of control unit for weather-responsive operation 1
Ⓒ Remote control
Ⓓ Heating circuit
Ⓔ Heating circuit pump (field supplied)
Ⓕ DHW circulating pump (field supplied)
Ⓖ DHW storage tank
Ⓗ DHW tank temperature sensor 5
Ⓚ Expansion tank
Important!
Please note location of expansion tank Ⓚ and flow check valve Ⓛ.
Ⓛ Flow check valve

Installation of ...
- radiator heating circuit (high temperature circuit)
- DHW production

...with the following flow conditions
1. The flow rate of the heating circuit is **less** than the maximum possible water flow rate of the Vitodens 200 boiler (see following table).

Model No. Vitodens 200,	Max. flow rate (GPM/ltr/h)
WB2 11-44	15.4/3500
WB2 15-60	15.4/3500

The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the values shown in the table above, or if the system flow rates are unknown.

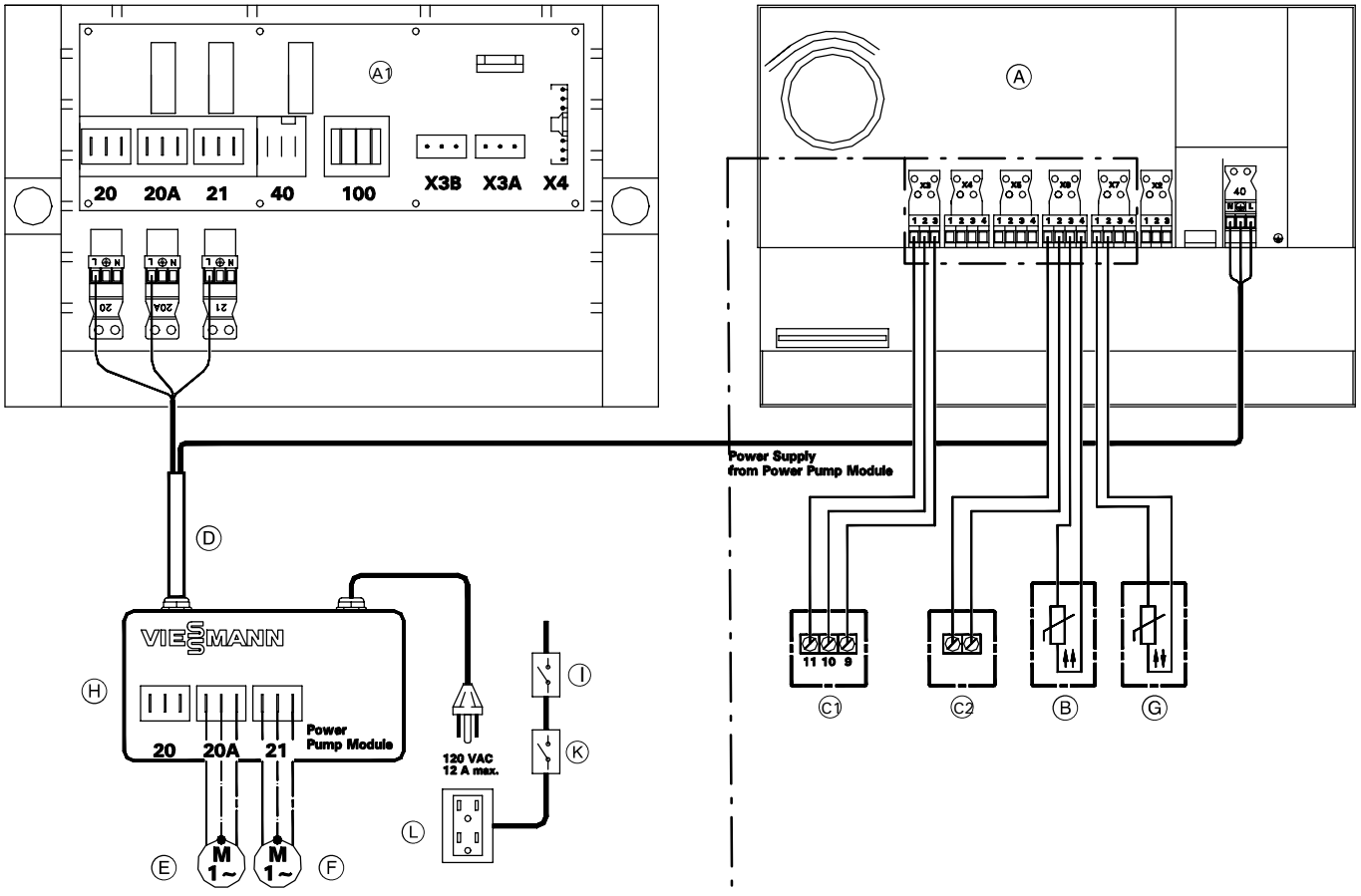
The low-loss header is available as accessory part.
See following pages for installation examples with a low-loss header.

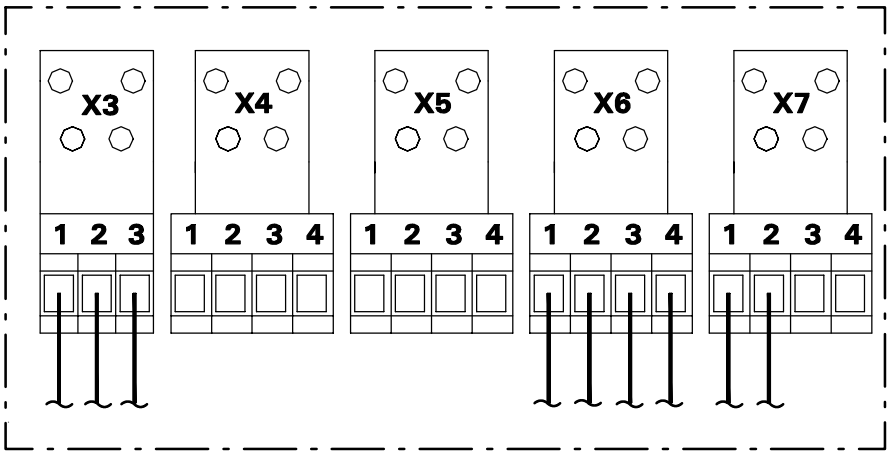
IMPORTANT

DHW circulating pump Ⓕ must pump *into* the Vitodens 200 boiler (as illustrated).

Installation Examples (continued)

Plug-in connections Vitodens 200 (model WB2 11-44 and up) with DHW storage tank and one direct-connected heating circuit





Ⓐ Vitodens 200 plug-in connections
Ⓐ1 Vitodens 200 pump junction box
Ⓑ Outdoor temperature sensor [1]
Ⓒ1 Remote control WS/RS (optional)
Ⓒ2 Wall-mount base when using the programming unit as remote control (optional)
Ⓓ Power connection cable to Vitodens 200
Ⓔ Heating circuit pump
Ⓕ DHW pump
Ⓖ DHW tank temperature sensor [5]
Ⓗ Power/Pump module
Ⓘ Main disconnect switch
Ⓚ Low water cut-off (if applicable)
Ⓛ Wall receptacle (main power supply)

Installation Instructions Power/Pump Module

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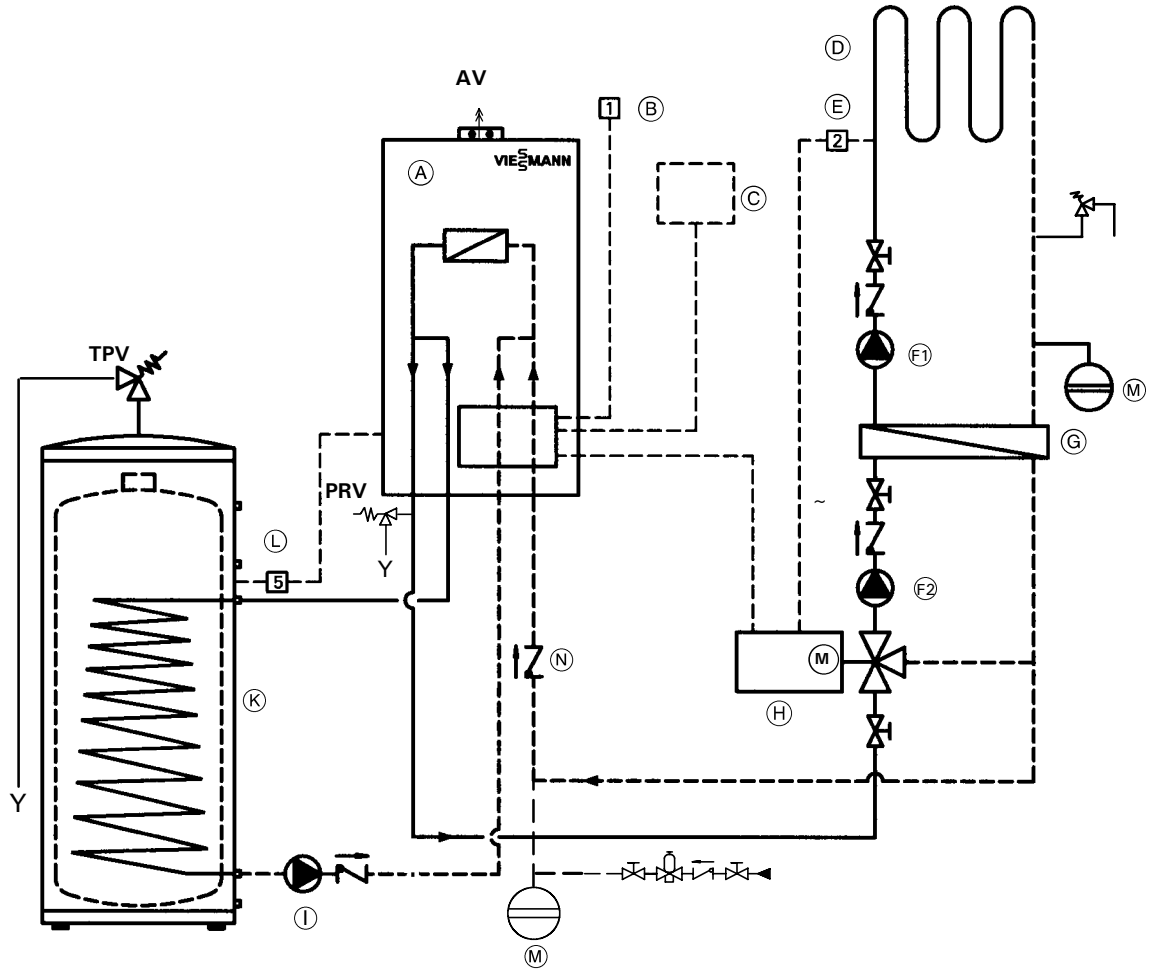
Installation Examples (continued)

Vitodens 200 (model WB2 11-44 and up) with DHW storage tank, one heating circuit with mixing valve and system separation



AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve
Ⓐ Vitodens 200 gas-fired condensing boiler with programming unit for weather-responsive operation
Ⓑ Outdoor temperature sensor of control unit for weather-responsive operation 1
Ⓒ Remote control
Ⓓ Underfloor heating circuit
Ⓔ Mixing valve temperature sensor 2
Ⓕ1 Heating circuit pump (field supplied), located downstream of heat exchanger
Ⓕ2 Heating circuit pump (field supplied), located upstream of heat exchanger
Ⓖ Plate heat exchanger for system separation
Ⓗ Extension kit for heating circuit with mixing valve
Ⓘ DHW circulating pump (field supplied)
Ⓚ DHW storage tank
Ⓛ DHW tank temperature sensor 5
Ⓜ Expansion tank
Important!
Please note location of expansion tank Ⓜ and flow check valve Ⓝ.
Ⓝ Flow check valve

Installation of ...
- underfloor heating circuit with 3-way mixing valve and system separation (low temperature circuit)
- DHW production

...with the following flow conditions

1. The flow rate of the heating circuit is **less** than the maximum possible water flow rate of the Vitodens 200 boiler (see following table).

Model No. Vitodens 200,	**Max. flow rate (GPM/ltr/h)**
WB2 11-44	15.4/3500
WB2 15-60	15.4/3500

The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the values shown in the preceding table, or if the system flow rates are unknown.
The low-loss header is available as accessory part.
See following pages for installation examples with a low-loss header.

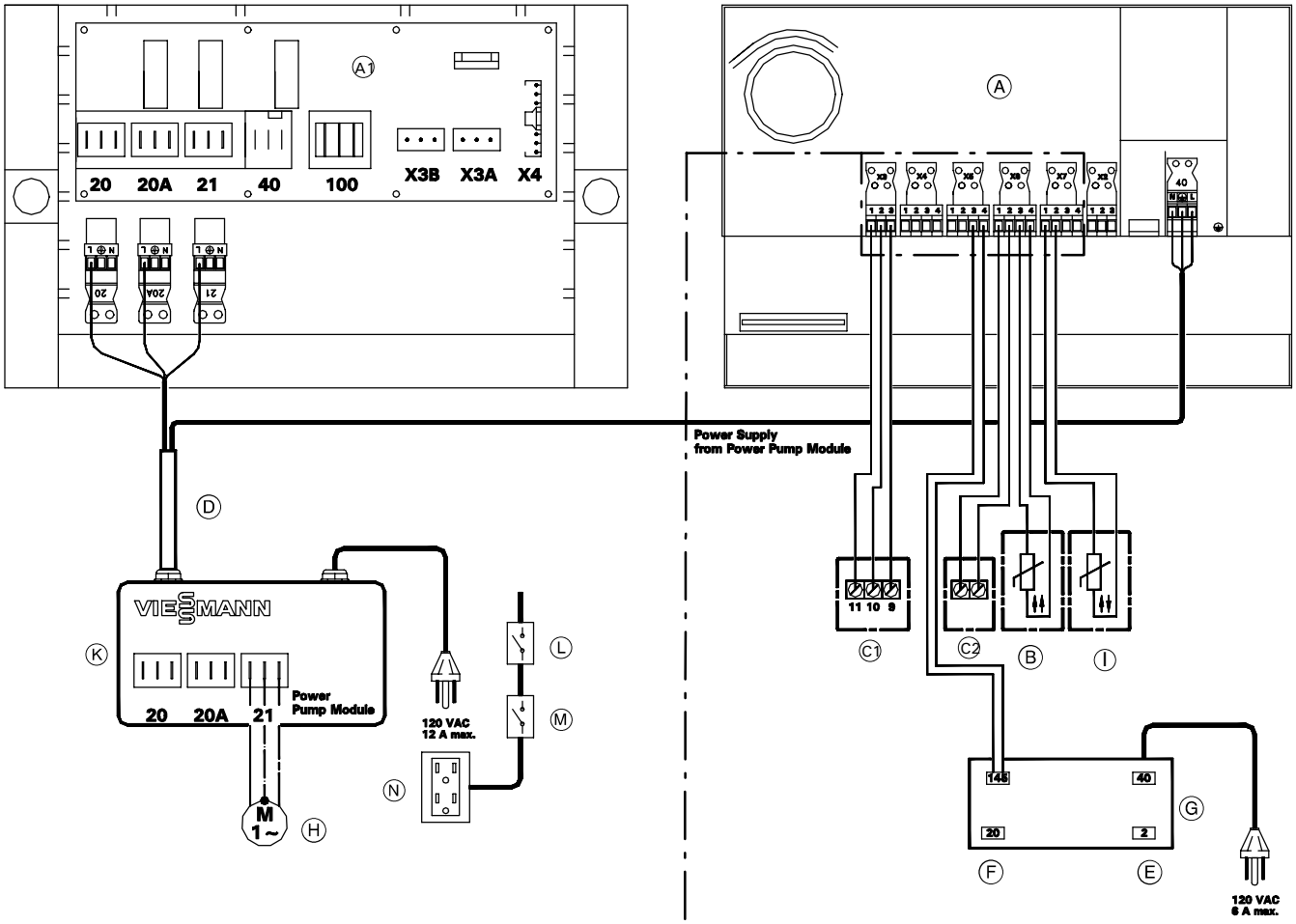
Please note!
System separation is required for underfloor heating systems employing non-oxygen diffusion barrier tubing.
All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

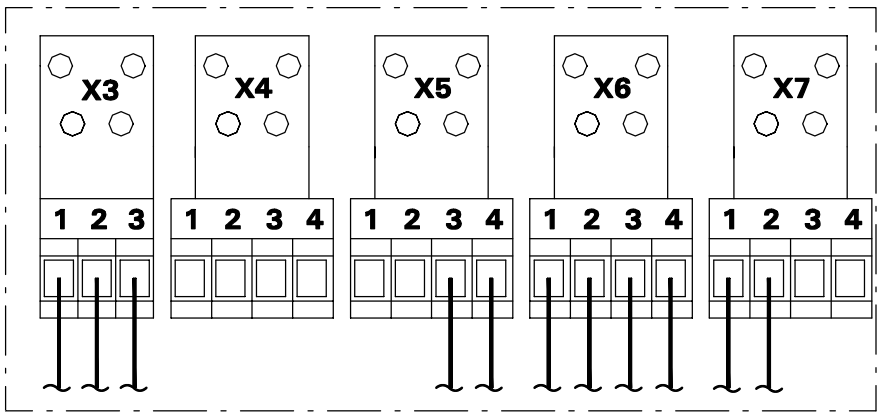
IMPORTANT

DHW circulation pump Ⓘ must pump *into* the Vitodens 200 boiler (as illustrated).

Installation Examples (continued)

Plug-in connections Vitodens 200 (model WB2 11-44 and up) with DHW storage tank, one heating circuit with mixing valve and system separation





- (A) Vitodens 200 plug-in connections
- (A1) Vitodens 200 pump junction box
- (B) Outdoor temperature sensor [1]
- (C1) Remote control WS/RS (optional)
- (C2) Wall-mount base when using the programming unit as remote control (optional)
- (D) Power connection cable to Vitodens 200
- (E) Plug-in connector [2] for supply temperature sensor
- (F) Plug-in connector [20] for heating circuit pump of heating circuit with mixing valve
- (G) Extension kit for a heating circuit with a mixing valve
- (H) DHW pump
- (I) DHW tank temperature sensor [5]
- (K) Power/Pump module
- (L) Main disconnect switch
- (M) Low water cut-off (if applicable)
- (N) Wall receptacle (main power supply)

Installation Instructions Power/Pump Module

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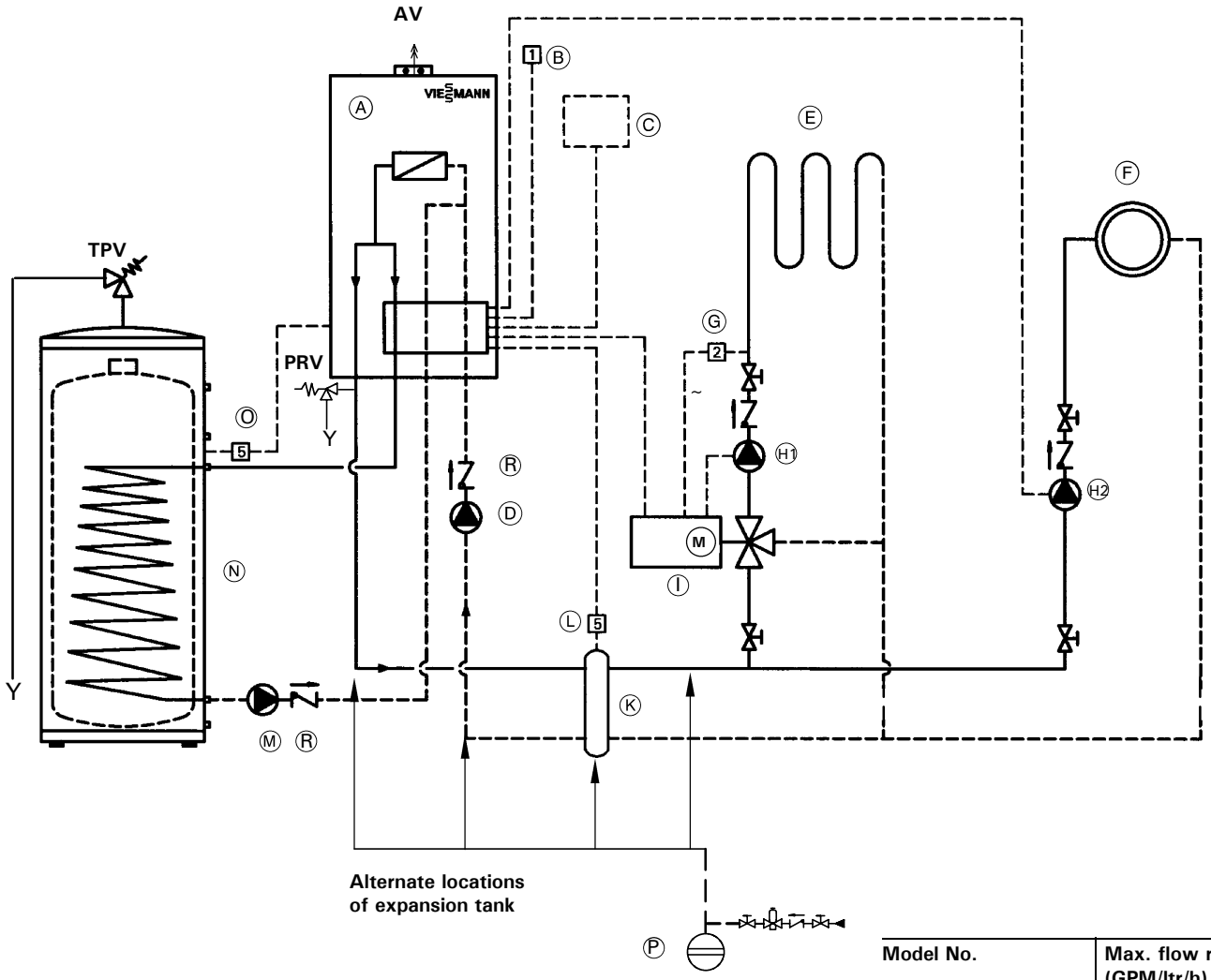
Installation Examples (continued)

Vitodens 200 (model WB2 11-44 and up) with DHW storage tank, low-loss header, one heating circuit with mixing valve and one heating circuit without mixing valve



AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve
Ⓐ Vitodens 200 gas-fired condensing boiler with programming unit for weather-responsive operation
Ⓑ Outdoor temperature sensor of control unit for weather-responsive operation 1
Ⓒ Remote control
Ⓓ Primary pump (boiler circuit, field supplied) *with low-loss header only*
Ⓔ Underfloor heating circuit
Ⓕ Radiator heating circuit
Ⓖ Mixing valve temperature sensor 2
Ⓗ1 Heating circuit pump (field supplied)
Ⓗ2 Heating circuit pump (field supplied)
Ⓘ Extension kit for heating circuit with mixing valve
Ⓚ Low-loss header
Ⓛ Temperature sensor for low-loss header 5
Ⓜ DHW circulating pump (field supplied)
Ⓝ DHW storage tank
Ⓞ DHW tank temperature sensor 5
Ⓟ Expansion tank
Important!
Please note location of expansion tank Ⓟ and flow check valve Ⓡ.
Ⓡ Flow check valve

Installation of different heating circuits...
- radiator heating circuit (high temperature circuit)
- underfloor heating circuit with 3-way mixing valve (low temperature circuit)
- DHW production

...with the following flow conditions
1. The flow rate of the heating circuits is **greater** than the maximum possible water flow rate of the Vitodens 200 boiler (see following table).

Model No. Vitodens 200,	Max. flow rate (GPM/ltr/h)
WB2 11-44	15.4/3500
WB2 15-60	15.4/3500

The use of a low-loss header is therefore recommended.
A low-loss header is available as accessory part.

The radiator heating circuit is supplied by a circulation pump (field supplied).
The underfloor heating circuit is supplied by a circulation pump installed on site which is controlled by the extension kit.
The DHW circulation pump is field supplied.

IMPORTANT

Pumps Ⓓ and Ⓜ must pump *into* the Vitodens 200 boiler (as illustrated).

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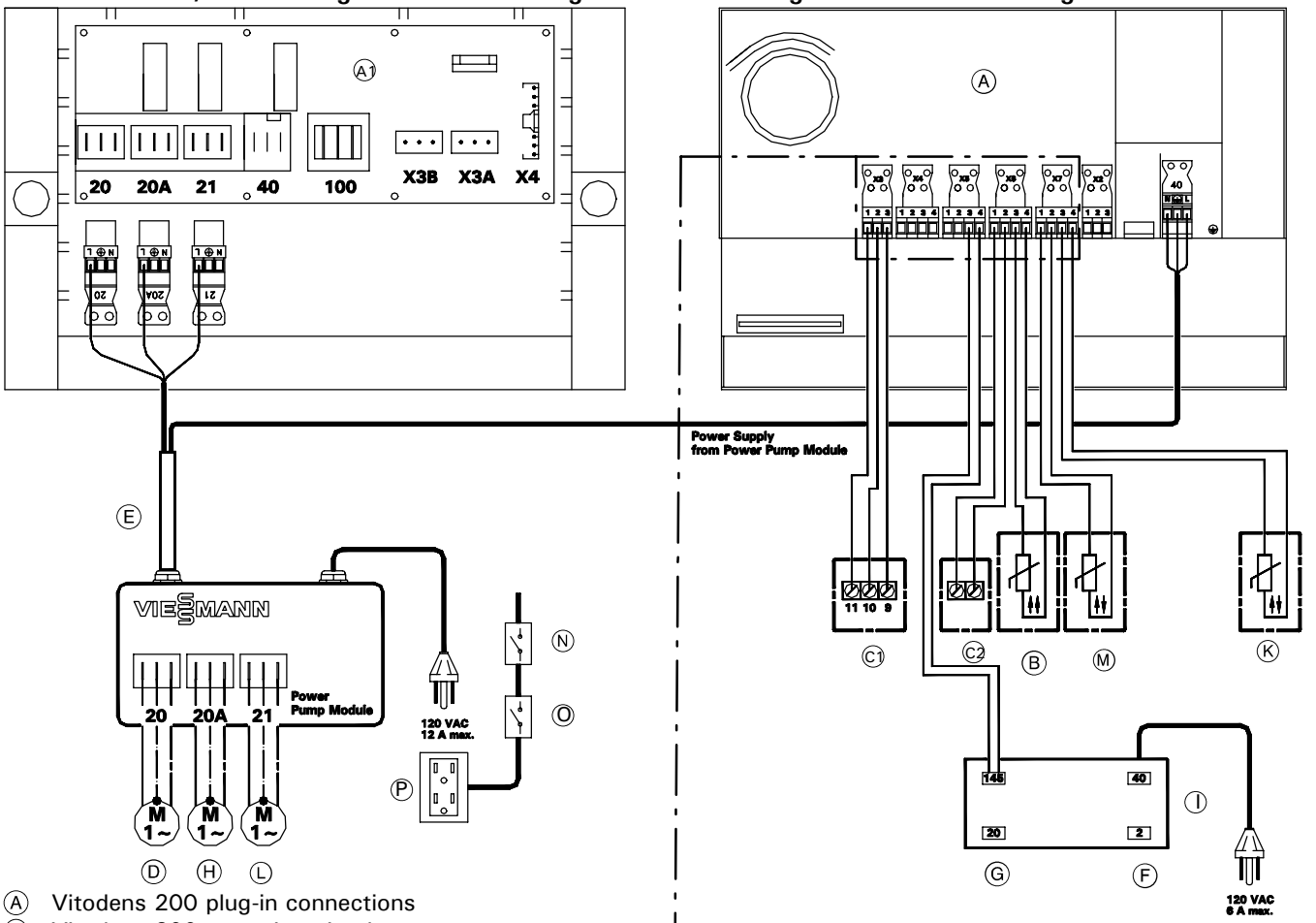
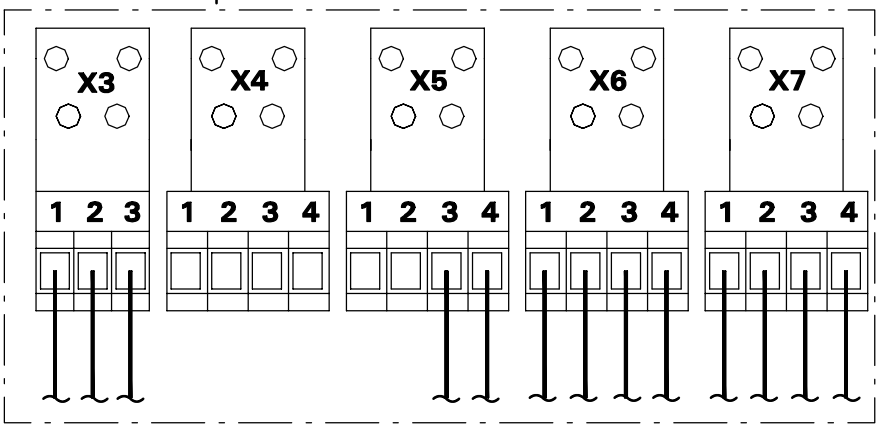
Installation Examples (continued)

Plug-in connections Vitodens 200 (model WB2 11-44 and up) with DHW storage tank, low-loss header, one heating circuit with mixing valve and heating circuit without mixing valve



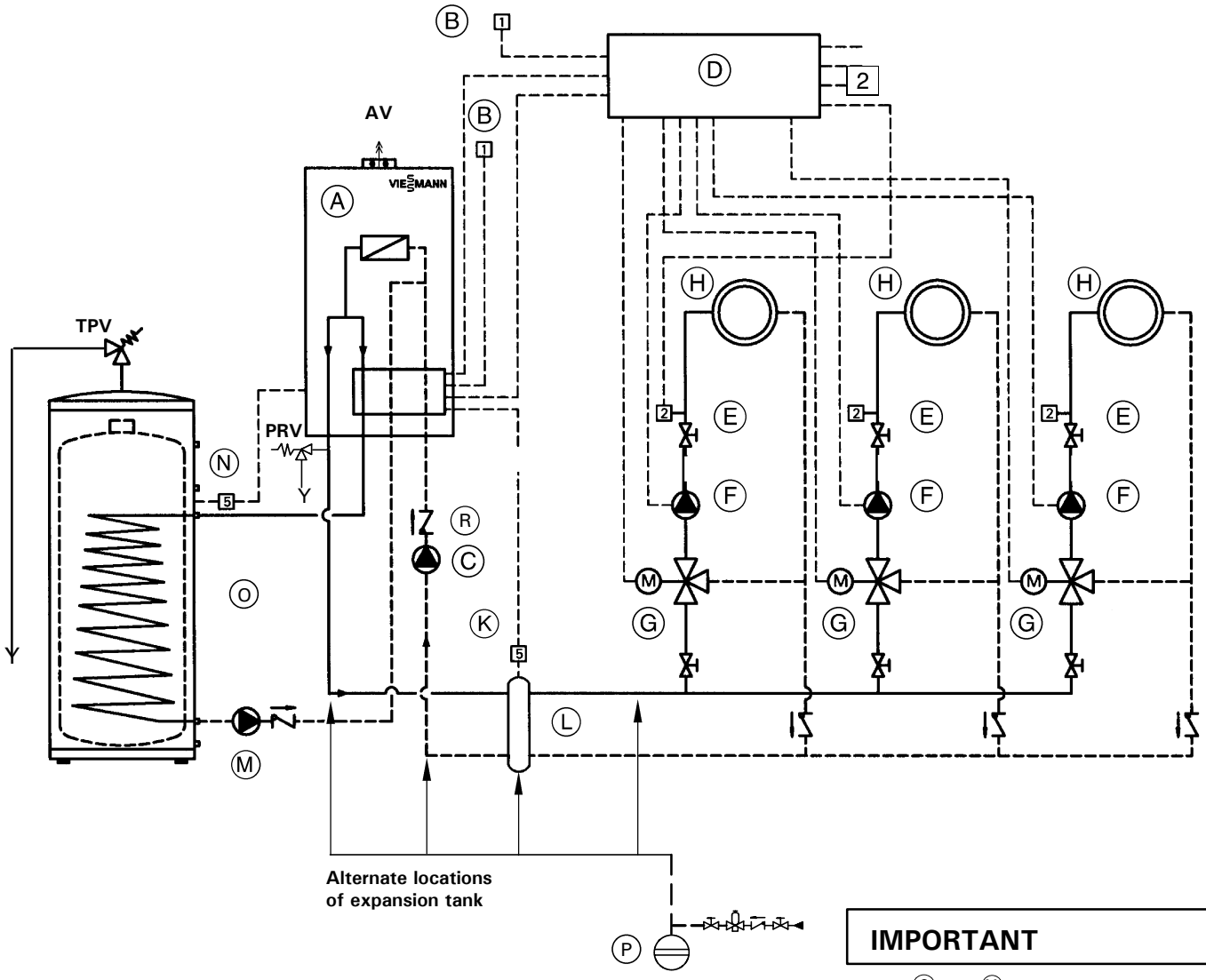


- Ⓐ Vitodens 200 plug-in connections
- Ⓐ1 Vitodens 200 pump junction box
- Ⓑ Outdoor temperature sensor 1
- Ⓒ1 Remote control WS/RS (optional)
- Ⓒ2 Wall-mount base when using the programming unit as remote control (optional)
- Ⓓ Boiler pump *with low-loss header only*
- Ⓔ Power connection cable to Vitodens 200 (230 V, 60 Hz)
- Ⓕ Plug-in connector 2 for supply temperature sensor
- Ⓖ Plug-in connector 20 for heating circuit pump of heating circuit with mixing valve
- Ⓗ Heating circuit pump
- Ⓘ Extension kit for a heating circuit with a mixing valve
- Ⓚ Temperature sensor for low-loss header 5
- Ⓛ DHW pump
- Ⓜ DHW tank temperature sensor 5
- Ⓝ Main disconnect switch
- Ⓞ Low water cut-off (if applicable)
- Ⓟ Wall receptacle (main power supply)

Installation Instructions Power/Pump Module

Installation Examples (continued)

Vitodens 200 (model WB2 11-44) with DHW storage tank, low-loss header and multiple heating circuits with a mixing valve



AV Air vent
PRV Pressure relief valve
TPV Temperature and pressure relief valve

Ⓐ Vitodens 200 gas-fired condensing boiler with programming unit for weather-responsive operation and Viessmann 2-wire BUS extension module
Ⓑ Outdoor temperature sensor of control unit for weather-responsive operation 1
Ⓒ Primary pump (boiler circuit, field supplied) *with low-loss header only*
Ⓓ Vitocontrol *1
Ⓔ Mixing valve temperature sensor 2

*1 *Contact your local Sales Representative for details.*

Ⓕ Heating circuit pump (field supplied)
Ⓖ Extension kit for heating circuit with mixing valve
Ⓗ Heating circuit with mixing valve
Ⓘ Extension kit for heating circuit with mixing valve
Ⓚ Temperature sensor for low-loss header 5
Ⓛ Low-loss header
Ⓜ DHW circulating pump (field supplied)
Ⓝ DHW tank temperature sensor 5
Ⓞ DHW storage tank
Ⓟ Expansion tank
Important!
Please note location of expansion tank Ⓟ and flow check valve Ⓡ.
Ⓡ Flow check valve

IMPORTANT

Pumps Ⓒ and Ⓜ must pump *into* the Vitodens 200 boiler (as illustrated).

Installation of multiple heating circuits with DHW production and the following flow conditions

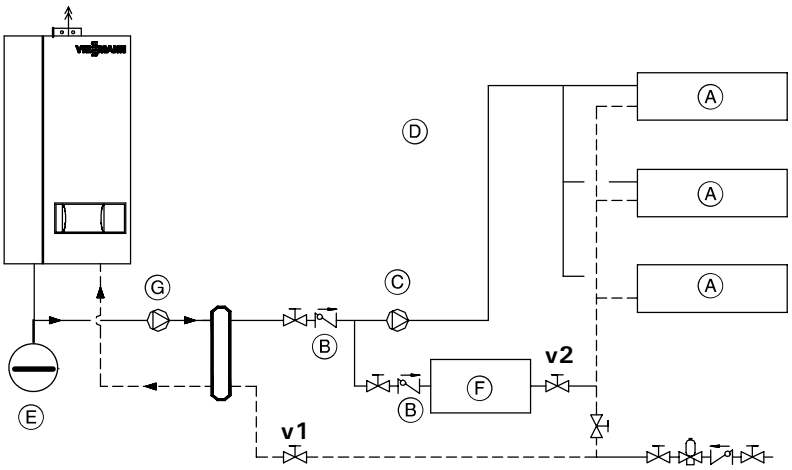
1. The flow rate of the heating circuits is **greater** than the maximum possible water flow rate of the Vitodens 200 boiler (see following table).

Model No. Vitodens 200,	Max. flow rate (GPM/ltr/h)
WB2 11-44	15.4/3500
WB2 15-60	15.4/3500

The use of a low-loss header is therefore recommended.
A low-loss header is available as accessory part.

Installation Examples (continued)

Boiler in heating/cooling application



Ⓐ Heating/Cooling unit
Ⓑ Spring-loaded flow check valve
Ⓒ Circulation pump
Ⓓ Safety header with automatic air vent and pressure relief valve
Ⓔ Expansion tank
Ⓕ Water chiller
Ⓖ Boiler circuit pump (field supplied)

IMPORTANT

Viessmann strongly suggests that the valves pictured above be labelled "v1" and "v2".

IMPORTANT

In the above system, the circulating pump must be operated from a separate on/off switch, not from the pump aquastat on the boiler control.

The boiler, when used in connection with a refrigeration system, must be installed ensuring the chilled medium is piped in parallel to the boiler with appropriate valves to prevent the chilled medium from entering the boiler. See illustration on the left.

The boiler piping system of a hot water heating boiler connected to heating coils located in air handling units where they may be exposed to refrigerated air circulation must be equipped with flow control valves or other automatic means to prevent gravity circulation of the boiler water during the cooling cycle.

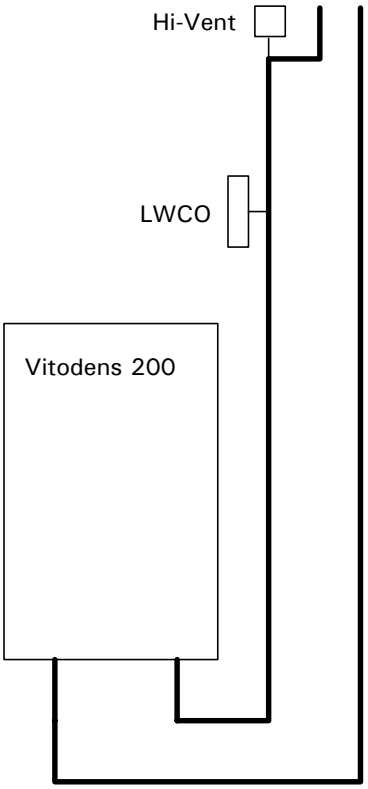
Check installation instructions of the chiller manufacturer carefully for additional requirements.

Cooling season starts:
Close valve v1 and open valve v2.

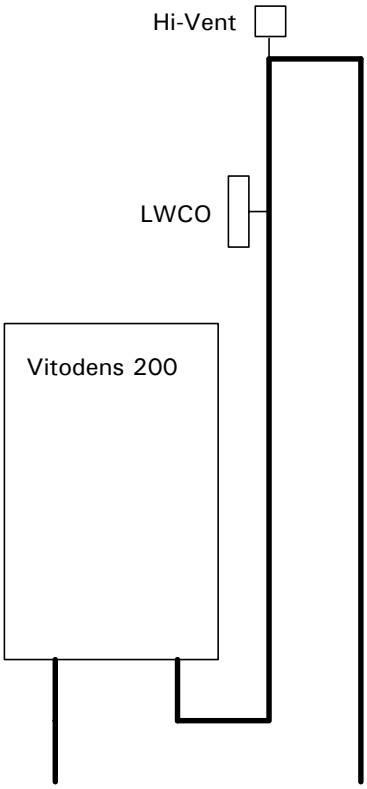
Heating season starts:
Close valve v2 and open valve v1.

Installation Examples (continued)

Boiler with low water cut-off (remote-mounted, field supplied)



Boiler below radiation



Boiler above radiation

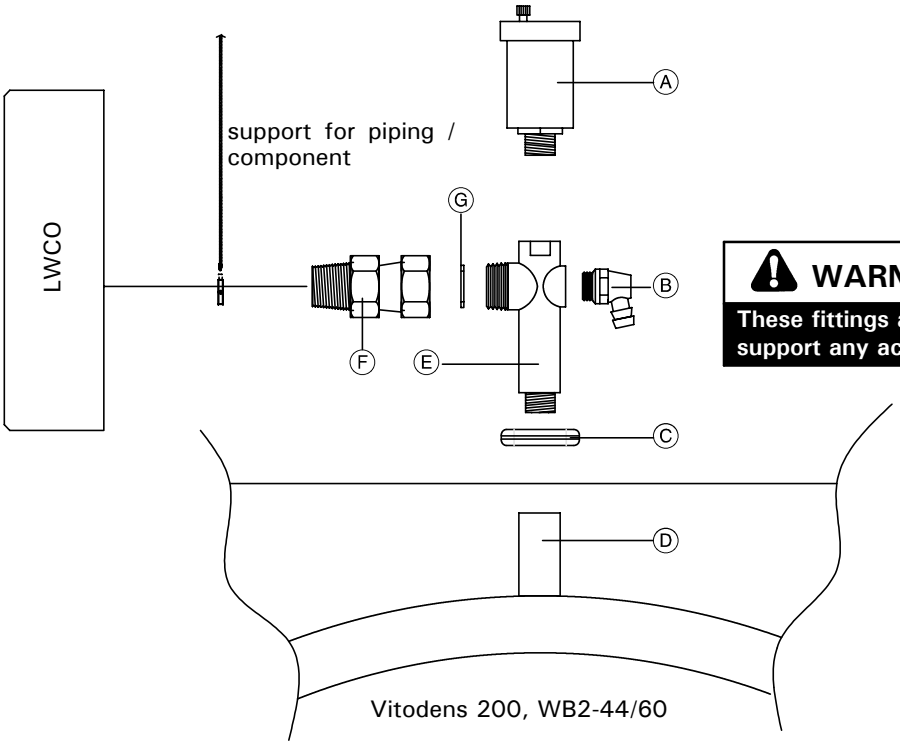
A low water cut-off may be required by local codes. If boiler is installed above radiation level, a low water cut-off device of approved type (field supplied) must be installed in all instances at the highest point of the piping system. Do **not** install an isolation valve between boiler and low water cut-off.

Follow the installation instructions of the low water cut-off manufacturer.

For low water cut-off wiring information specific to your application, refer to applicable wiring diagram on the boiler enclosure panel.

Installation Examples (continued)

Boiler with optional low water cut-off (boiler-mounted, factory supplied)



Viessmann offers an optional boiler mounted low water cut-off (LWCO) connection kit, Part No.: 7134609.

WARNING

These fittings are not designed to support any accessories installed.

Legend

- Ⓐ Air vent
- Ⓑ Air bleed valve
- Ⓒ Rubber grommet
- Ⓓ Boiler heat exchanger connection
- Ⓔ Extension adaptor
- Ⓕ Adaptor, G ¾" to NPTM ¾"
- Ⓖ Gasket, ¾"

Venting Connection

For detailed installation information and specific venting requirements, reference the Vitodens 200 Venting System Installation Instructions supplied with the boiler.

Installation Instructions Vitodens 200 Venting System

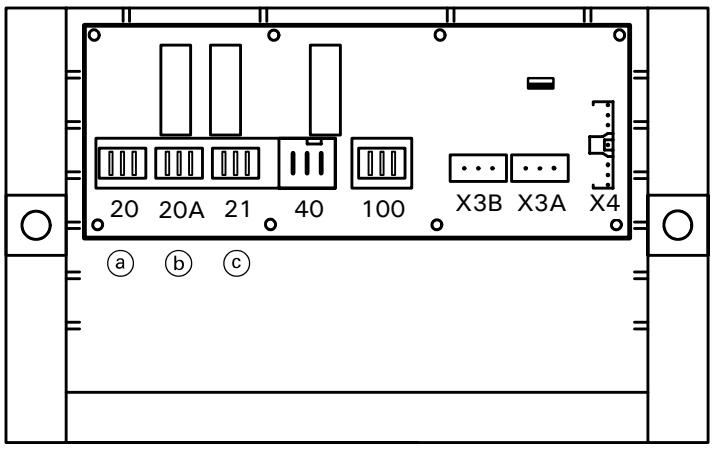
CAUTION

Under certain climatic conditions some building materials may be affected by flue products expelled in close proximity to unprotected surfaces. Sealing or shielding of the exposed surfaces with a corrosion resistant material (e.g. aluminum sheeting) may be required to prevent staining or deterioration. The protective material should be attached and sealed (if necessary) to the building before attaching the vent termination. It is strongly recommended to install the vent termination on the leeward side of the building.

Electrical Connections

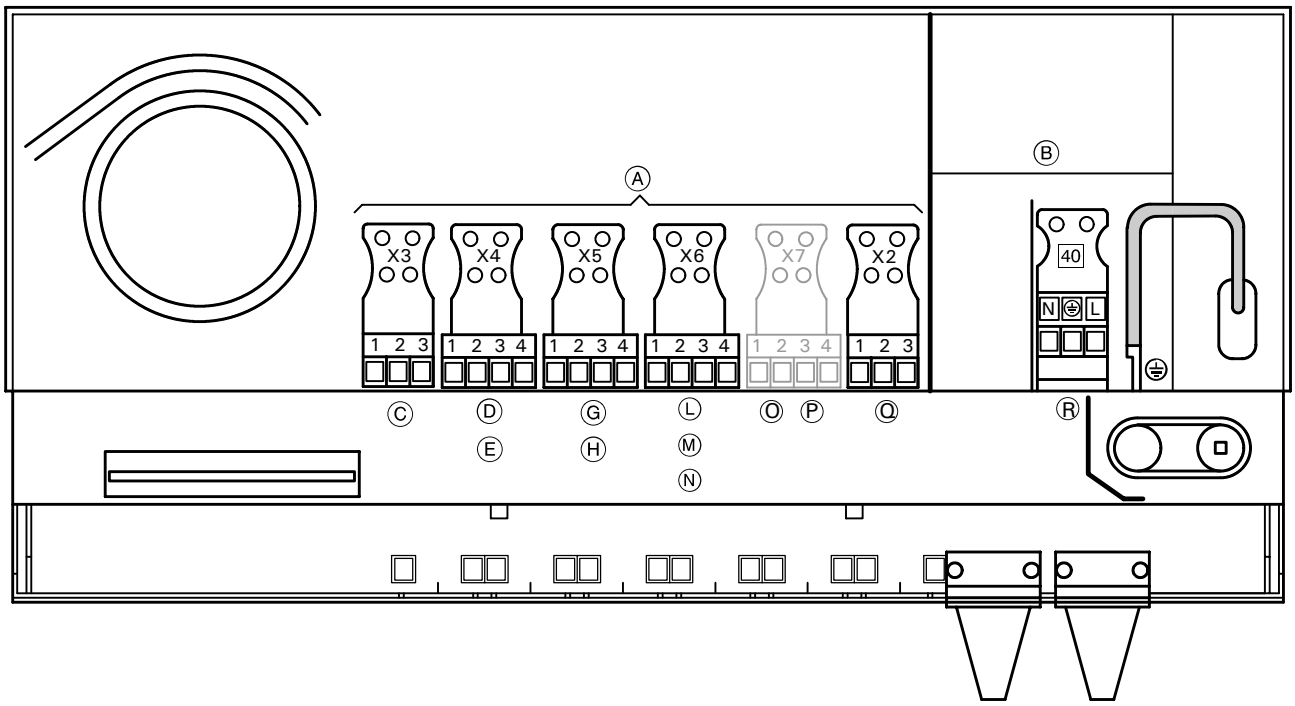
Overview of electrical connections and plug-in connectors

Vitodens built-in junction box for circulation pumps



ⓐ Boiler circuit pump
ⓑ Heating circuit pump
ⓒ Circulation pump for DHW tank heating

Control unit



Ⓐ Low voltage connections
Ⓑ Line voltage connections (230, 60 Hz) from Power/Pump Module
Ⓒ Remote control WS/RS
Ⓓ External switching of heating program/External heat demand
Ⓔ Alarm output *1
Ⓖ Extension kit for heating circuit with mixing valve
Ⓗ Vitotronic 050/Dekamatik-HK1 control unit
Ⓛ Wall-mount base
Ⓜ External burner disable
Ⓝ Outdoor temperature sensor [1]
Ⓞ DHW tank temperature sensor [5]
Ⓟ Low-loss header temp. sensor [5]
Ⓡ Power supply connection from Power/Pump Module (230 VAC, 60 Hz)
Ⓠ Not used

*1 *An expansion board is required for connection purposes. Direct connection is not permitted. Please contact Viessmann to order an expansion board (optional).*

Electrical Connections (continued)

Overview of electrical connections and plug-in connectors (continued)

Power supply connection of accessories

The power supply connection of accessories can be made directly at the control. The connection is activated and deactivated with the system on/off switch.

The Vitotronic 050/Dekamatik-HK1 control, the mixing valve extension kit and the Solartrol control require a separate 120 VAC power supply from the wall receptacle.

2-wire cabling required for:
- outdoor temperature sensor
- Vitotronic 050/Dekamatik-HK1
- extension kit for heating circuit with mixing valve
- remote switching of operating mode
- remote disable
- alarm output
- wall-mount base

3-wire cabling required for:
- remote control WS/RS
- circulating pump

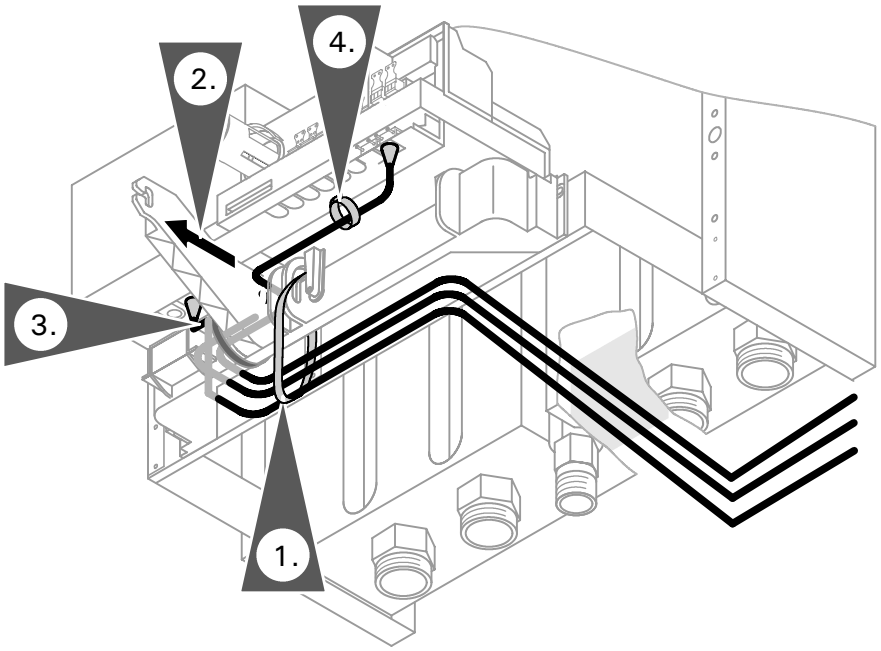
Note on connection of accessories

For details regarding other installation steps required, please reference the Installation Instructions supplied with the respective accessory part.

Only one accessory part or switch contact can be connected to the contacts of a plug at a time.

Electrical Connections (continued)

Routing of connecting cables



CAUTION

When running and securing connecting cables on site, ensure that the maximum permissible temperatures of the cables are not exceeded.

1. Secure cables coming from the power/pump module to the control mounting bracket with cable ties. Cables must not be secured underneath mounting bracket, as this will obstruct the installation of the base panel (if necessary, cut flexible conduit to required length).

2. Pull cables between the support arm and control unit towards you.

IMPORTANT

It is essential to route cables as illustrated to ensure freedom of movement of control unit.
Do not kink the capillaries of the manometer.

3. Run cables above the control mounting bracket directly to the junction box (circulating pumps).

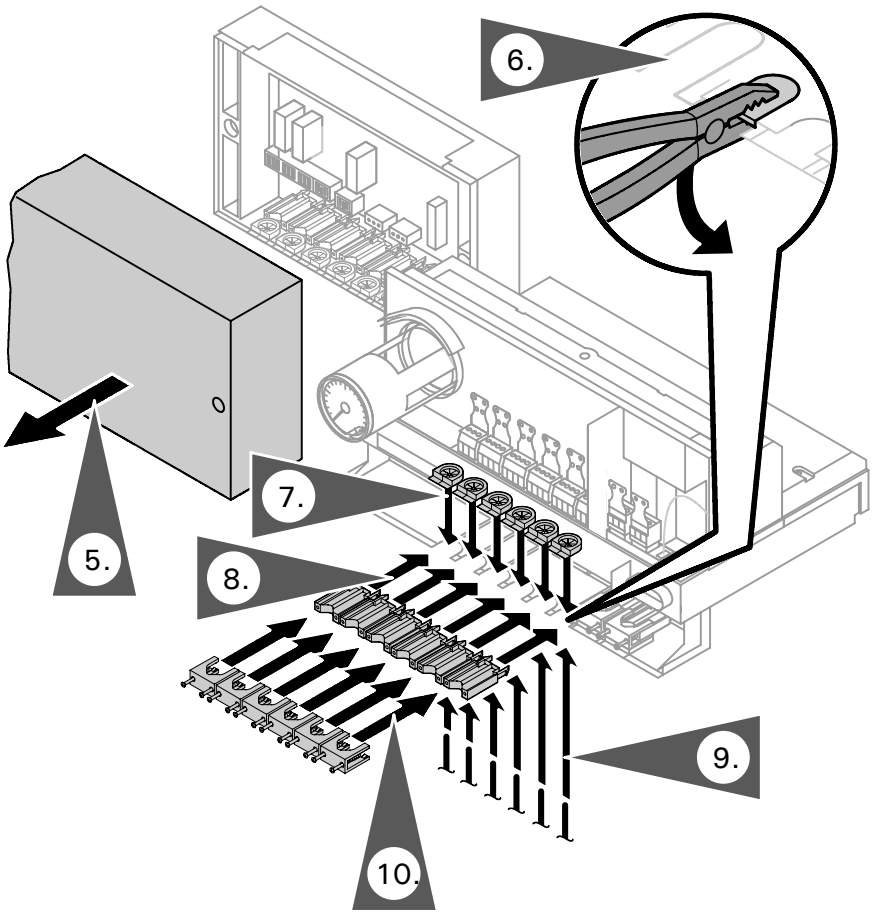
4. Secure cables below the control unit with cable ties.

IMPORTANT

Cables in the vicinity of the control unit must not be secured to the control unit bracket.

Electrical Connections (continued)

Routing of connecting cables (continued)



5. Loosen and remove junction box cover.

Installation Instructions Power/Pump Module

6. Break off required number of tabs for external cables to be connected (see page 35).

7. Insert necessary bushings.

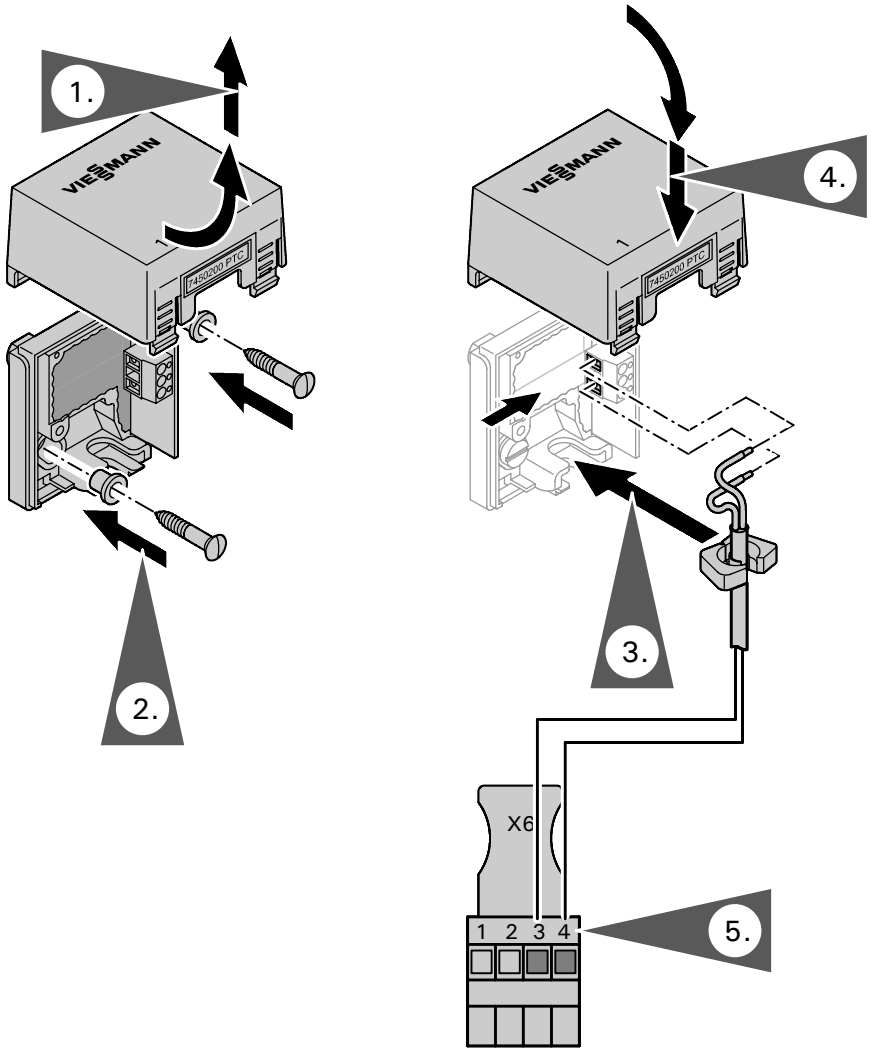
8. Slide in bottom portion of the strain relief clamps at the corresponding bushings (create openings by using a screwdriver).

9. Run cables through corresponding bushings into the control case or junction box.

10. Attach top portion of strain relief clamps.

Electrical Connections (continued)

Outdoor temperature sensor



1. Remove cover of outdoor temperature sensor.

2. Mount wall-mount base (cable entry must point downward).

IMPORTANT

The outdoor temperature sensor should be mounted 6.6 to 8.2 ft./ 2 to 2.5 m above ground level on the north or northwest wall of the building. In case of a multi-storey building, mount outdoor temperature sensor in the upper half of the second floor.
Ensure that sensor is not located above windows, doors and air vents, or immediately underneath a balcony or gutter.
The outdoor temperature sensor must not be covered by plaster. If mounting on an unplastered wall, make allowances for thickness of plaster or remove sensor before plastering wall.

3. Connect cable to terminals (wires are interchangeable).
Cable specifications:
2-wire cable, max. cable length 95 ft./35 m with a wire size of min. AWG 16 copper.

IMPORTANT

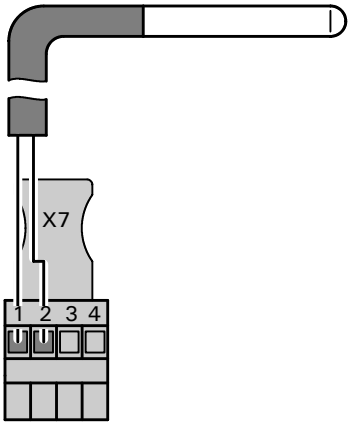
Cable to the outdoor sensor must not be laid near line voltage wiring (120/240 V).

4. Place cover on base and snap into place.

5. Connect the outdoor temperature sensor to terminals "X6.3" and "X6.4" (wires are interchangeable).

Electrical Connections (continued)

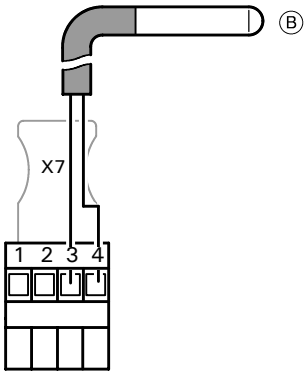
DHW tank temperature sensor — Accessory

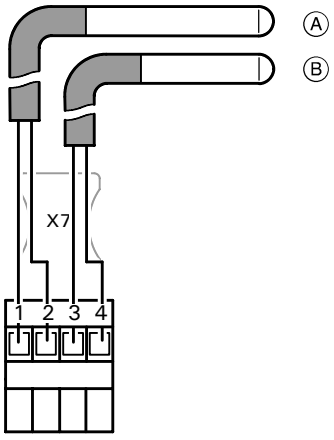


Install DHW tank temperature sensor 5 *as described in the Vitocell Installation Instructions supplied with the DHW storage tank.*

1. Insert plug-in connector "X7" of the DHW tank temperature sensor into terminal "X7".

Low-loss header sensor



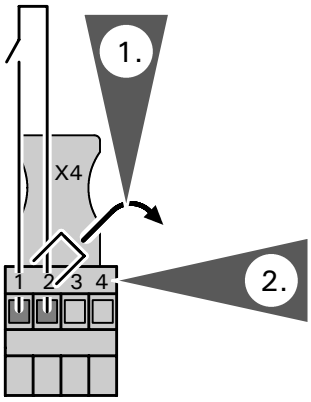


When Vitodens 200 boiler is connected to a DHW storage tank (optional), the DHW tank temperature sensor 5 comes prewired to terminals 1 and 2 on connector "X7".
Remove and discard connector "X7" from the low-loss header sensor, and rewire low-loss header sensor wires to terminals 3 and 4 on connector "X7" of the DHW tank temperature sensor 5.

Ⓐ DHW sensor 5
Ⓑ Low-loss header sensor

Electrical Connections (continued)

External switching of heating program/External heat demand



IMPORTANT

Load capacity of the connection is 10 mA at 24 V–.

For external call for heat function:

See Start-up/Service Instructions with regard to changing the coding addresses.

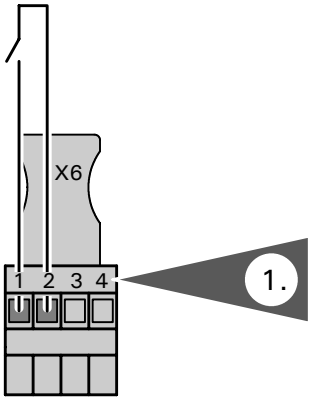
1. Remove jumper between "X4.1" and "X4.2".

2. Connect switch contact to connector "X4".

3. Set coding addresses 011, 027, and 0A2.

See Start-up/Service Instructions with regard to setting coding addresses.

External burner disable



1. Connect switch contact to connector "X6".

IMPORTANT

The potential-free contact must be field supplied.

See Start-up/Service Instructions regarding changes to the plug-in jumper "X6" and coding addresses.

Power/Pump Module Installation

Conduit holding clips

1. Remove cover of power/pump module. Using the four screws supplied, mount power module base as shown next to Vitodens boiler.

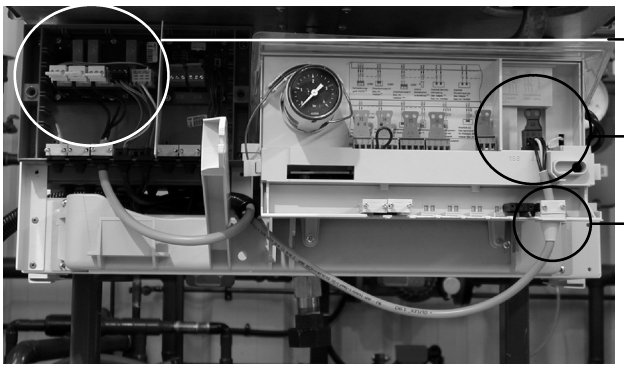
IMPORTANT

Mount power/pump module in vertical or horizontal position only. DO NOT mount module on the ceiling or where it can be exposed to splashing water.

IMPORTANT

When installing, note length of plastic conduit and ensure that conduit and cable are not under tension after the installation.

2. Run conduit alongside or underneath enclosure of Vitodens 200 boiler.



Plug-in connections 20, 20A, 21

Plug-in connection 40

Strain relief

3. Make plug-in connections 40, 20, 20A, 21 and apply strain relief to cables.
   Conduit must enter bottom of Vitodens enclosure in the same location as piping connections.

   - If conduit is routed alongside boiler, secure to wall, using the supplied conduit holding clips.
   - If required, coil conduit underneath boiler enclosure and secure to boiler frame, using the supplied wire ties.

Power/Pump Module Installation (continued)

Power supply connection

1. Install power supply receptacle in range of module power cord. Ensure the installation is in compliance with the regulations of the national and/or local authorities having jurisdiction.

2. Connect 120 VAC power supply to receptacle through low water cut-off safety device, if so required by authorities having jurisdiction.

IMPORTANT

Viessmann recommends the installation of a disconnect switch to the 120 VAC power supply outside the boiler room.

3. Plug power/pump module cord into installed receptacle.

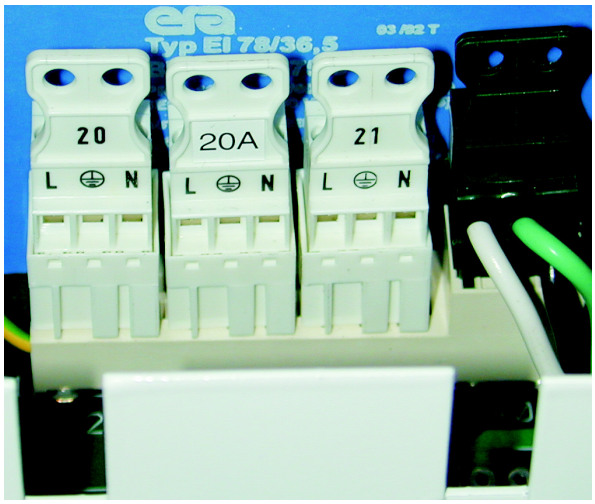
See boiler wiring diagram on the inside of the boiler enclosure panel.

Technical data

Power supply
- Rated voltage: ..... 120 VAC, 1 PH
- Rated frequency: ..... 60 Hz
- Rated current: ..... 12 A

Pump outputs
- Rated voltage: ..... 120 VAC, 1 PH
- Rated frequency: ..... 60 Hz
- Rated current: ..... 10 A total

Pump connections



1. Remove required number of breakouts from power/pump module. Install box connectors designed as strain relief for pump connecting cable.

2. Run cables through box connectors and secure by tightening connector screw.

3. Make connections to plugs 20, 20A, 21 in the power/pump module.

20 ..... DHW recirculation boiler pump *with (low-loss header only)*
20A ..... Heating circuit pump
21 ..... DHW pump
- L ..... Line
- ⏚ ..... Ground
- N ..... Neutral

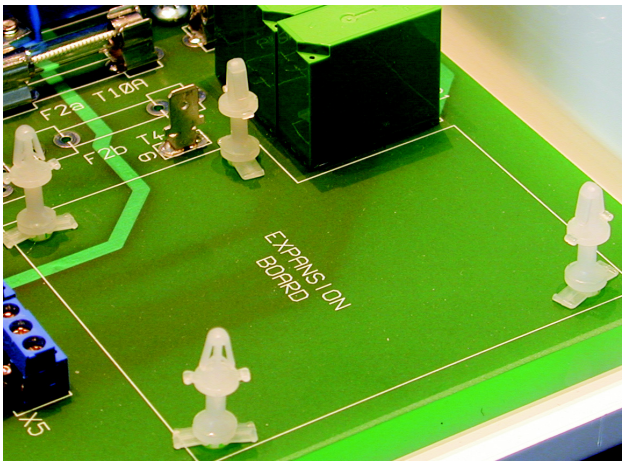
See boiler wiring diagram on the inside of the boiler enclosure panel.

Power/Pump Module Installation (continued)

Product information (expansion board)

The installation of an expansion board allows for failure alarm output.

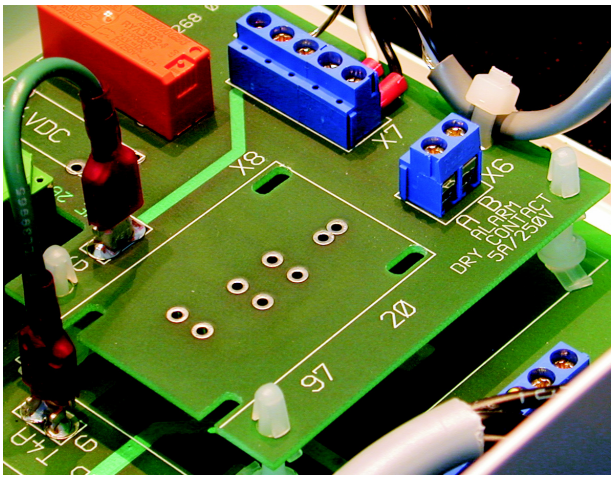
Expansion board installation (optional)



1. Remove cover of power/pump module by loosening the two Philips screws on either side, and insert the four standoffs into provided holes located within the marked boundaries of the expansion board.

2. Install expansion board on the four standoffs and ensure that the expansion board is locked in place on all four standoff barbs.

See boiler wiring diagram on the inside of the boiler enclosure panel.



3. Connect green wire from expansion board to quick-connect terminal on power/pump module board marked “G”.

4. Using flat pliers, remove breakout tab from module and remove nut from cable gland. Slide cable through opening to the mounting hole. Secure cable gland by tightening nut.

5. Run expansion board cable alongside the plastic conduit to the bottom of the Vitodens. Secure cable to Vitodens frame with wire ties.

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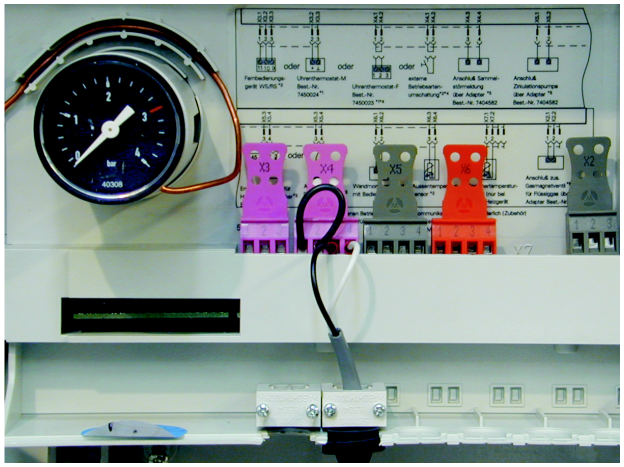
Power/Pump Module Installation (continued)

Expansion board installation (continued)



6. Remove and discard plug X4 (pink) from boiler control console and insert cable plug X4 into corresponding socket.

IMPORTANT

Move all wires connected to plug X4 (if previously installed) to cable plug X4.

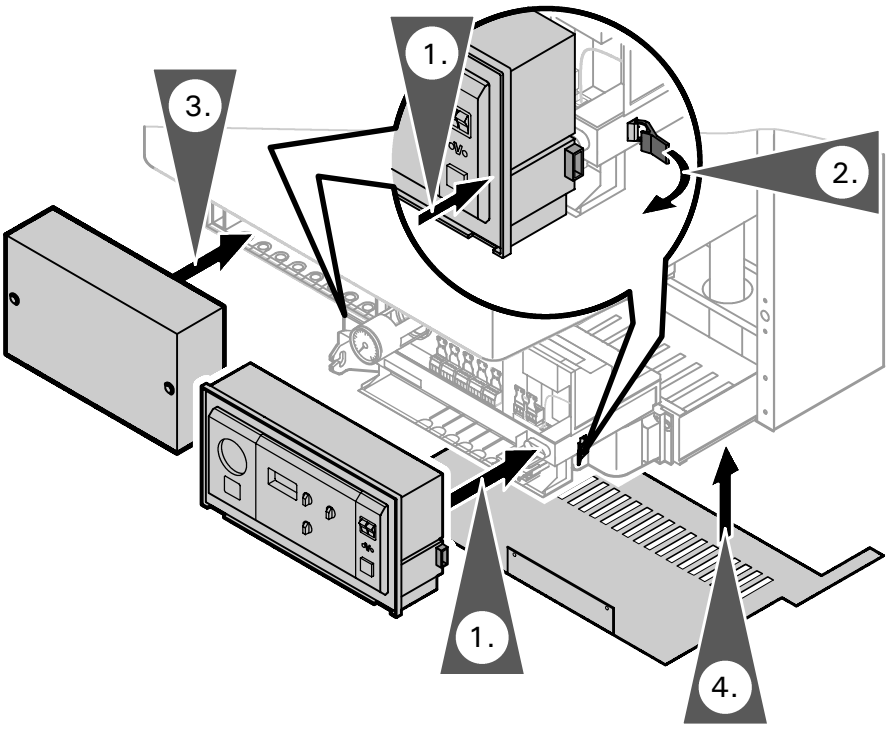
7. Apply strain relief to cable.

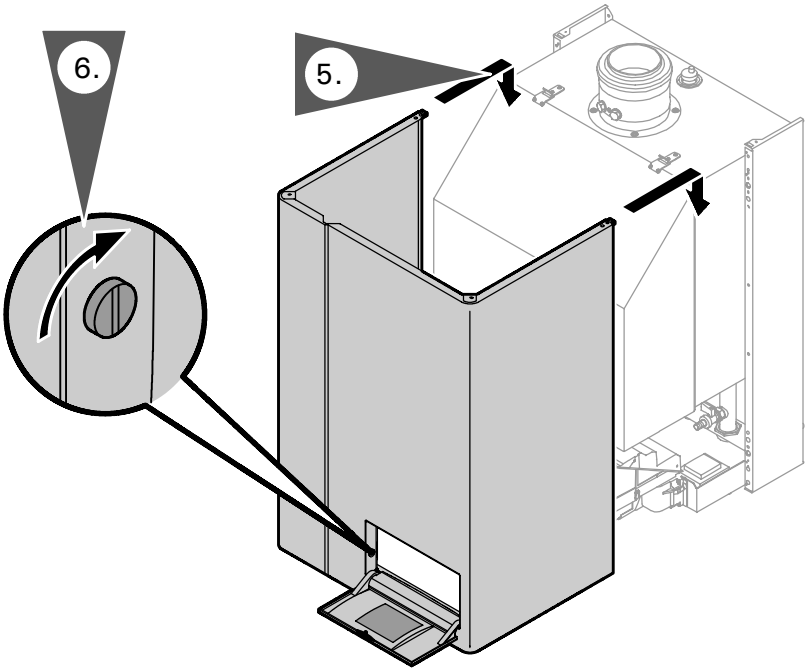
8. Reinstall Vitodens control console cover and cover of power/pump module.

Technical data

- Control voltage: ..... 24 VDC, 0.05 A
- Alarm output: ..... Dry contact
  Rating: ..... 24/250 V, 5 A max.

Installing the Programming Unit of the Control Unit





Please note:
The control unit comes packaged separately.

1. Slide control unit onto rails on both sides of the electrical connections unit and snap into place.

IMPORTANT

Electrical connections of individual components of the programming unit are made automatically upon insertion of the programming unit into the control base.
Do not kink the capillaries of manometer.

2. Lock hinges on each side.

3. Attach junction box cover (circulation pumps).

4. Attach base panel.

5. Attach front enclosure panel.

6. Secure in place by rotating slotted screw.

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Start-up Information

Start-up and adjustments

See Vitodens 200 Start-up/Service Instructions for details on start-up, adjustments and service.

1. File all Parts Lists, Operating and Service Instructions in the Service Binder.
2. Install a protective hanging case near the boiler and store the Service Binder in this location.

Technical Data

Boiler Model	Model No.	WB2 11-44	WB2 15-60
Natural gas			
CSA input	MBH	55-172	80-230
	kW	16-50	23-67
Propane gas			
CSA input	MBH	55-155	80-214
	kW	16-45	23-63
Min. gas supply pressure			
Natural gas	"w.c.	4	7
Propane gas	"w.c.	11	11
Max. gas supply pressure *1			
Natural gas	"w.c.	14	14
Propane gas	"w.c.	14	14
Max. operating pressure	psig	45	45
at 210 °F/99 °C	bar	3	3
Boiler connections			
Boiler heating supply and return	NPTF "	1¼	1¼
Pressure relief valve	NPTF "	¾	¾
Drain valve	(male thread)	¾	¾
Boiler supply/return for indirect-fired DHW storage tank	NPTM "	1¼	1¼
Gas supply connection	NPTM"	¾	¾
Flue gas *2			
Temperature (at boiler return water temp. of 86 °F/30 °C)			
– at rated full load	°F/°C	95/35	104/40
– at rated partial load	°F/°C	91/33	95/35
Temperature (at boiler water return temp. of 140 °F/60 °C)	°F/°C	149/65	158/70
Boiler max. flow rate *3	GPM	15.4	15.4
	ltr/h	3500	3500
Weight	lbs	198	198
	kg	90	90
Boiler water content	USG	4.3	4.3
	ltr	16.45	16.45
Boiler flue gas connection *4	∅		
	in/mm	4¼/110	4¼/110
Combustion air supply connection *4	outer ∅ in/mm	6/150	6/150

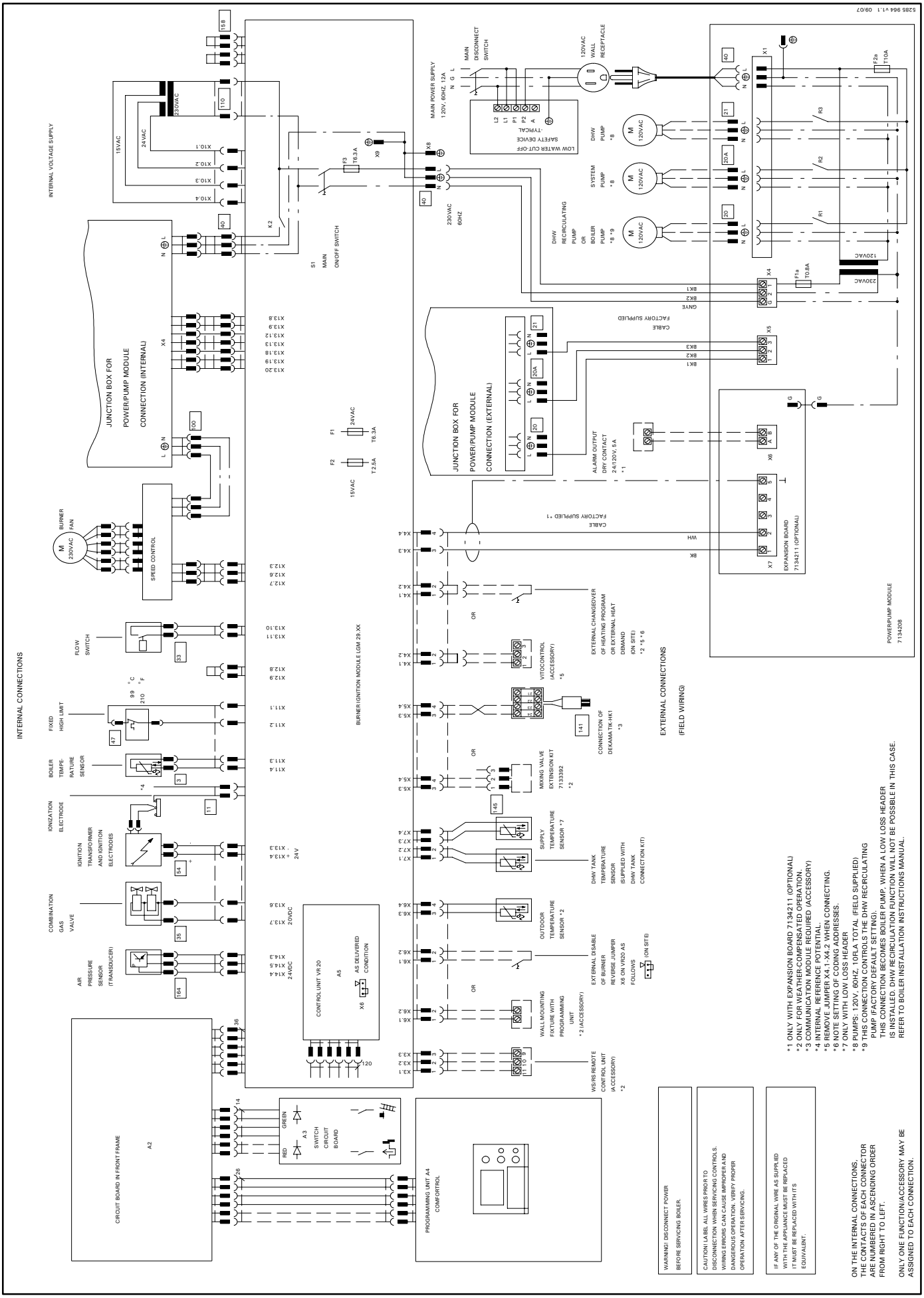
*1 *If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.*

*2 *Measured flue gas temperature with combustion air temperature of 68 °F/20 °C.*

*3 *See "Typical flow rates" on page 24 in these instructions.*

*4 *See Installation Instructions of Vitodens 200 Venting System for details.*

Wiring Diagram



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Lighting and Operating Instructions

FOR YOUR SAFETY READ BEFORE OPERATING

W A R N I N G: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. 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.

B. 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

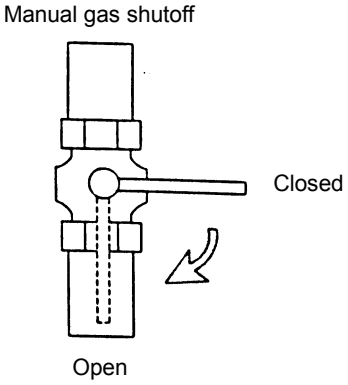
- **Do not try to light any appliance.**
- **Do not touch any electric switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

C. 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.

D. 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.

OPERATING INSTRUCTIONS

1. **STOP! Read the safety information above on this label.**
2. **Set thermostat or other operating control to lowest setting.**
3. **Turn off all electric power to the appliance.**
4. **This device is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.**

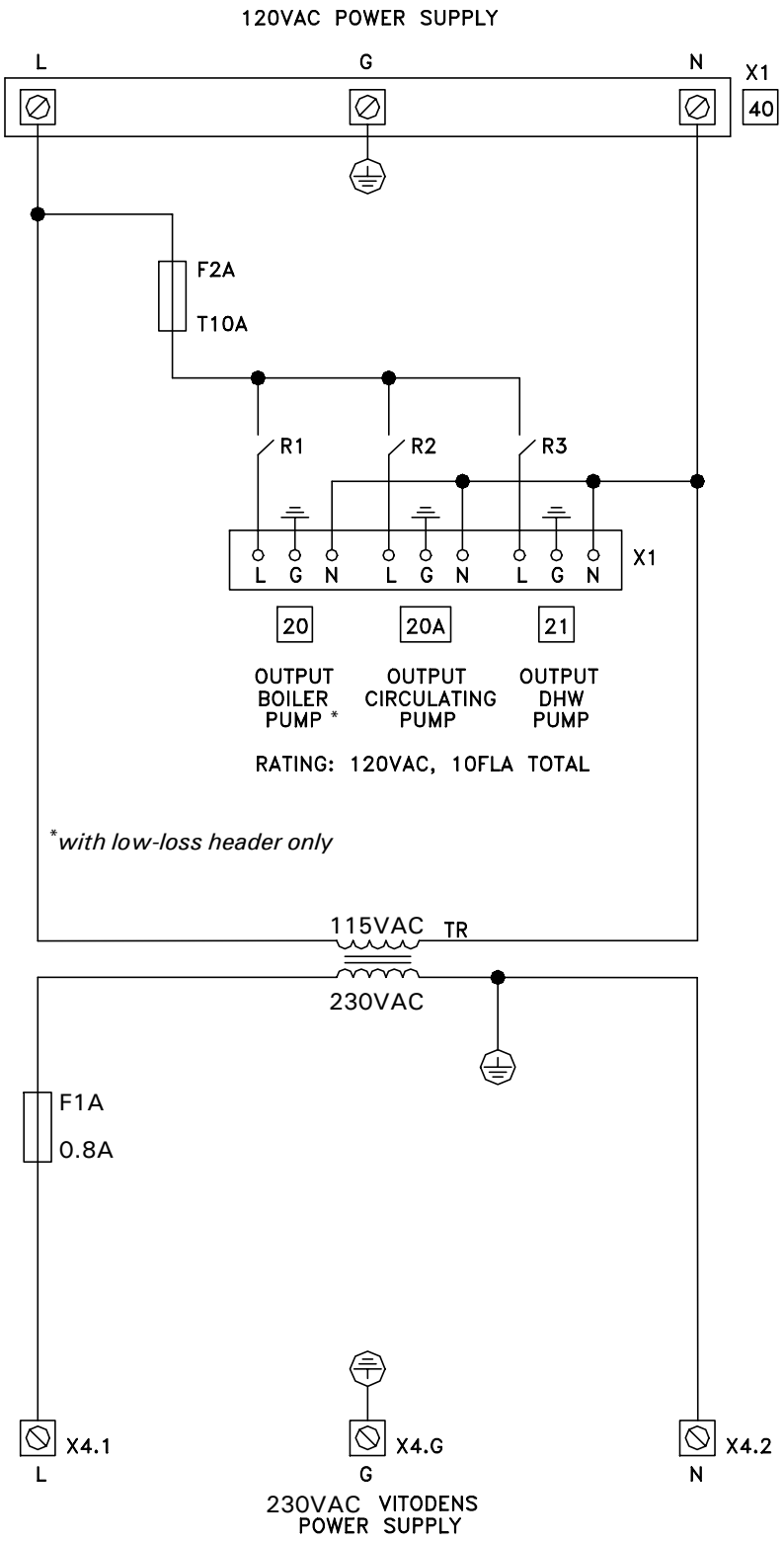


5. **Close main gas shut-off valve.**
6. **Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.**
7. **Open main gas shutoff valve.**
8. **Turn on all electric power to the appliance.**
9. **Set thermostat or other operating control to desired setting.**
10. **If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.**

TO TURN OFF GAS TO BOILER

1. **Set thermostat or other operating control to lowest setting.**
2. **Turn off all electric power to the appliance if service is to be performed.**
3. **Close main gas shut-off valve.**

Ladder Diagram



Legend

X1 40	Rast-5 terminal, power supply 120 VAC
X1 20, 20A , 21	Rast-5 terminal, power supply for pumps 120 VAC, 10 FLA total
X4.1, .G, .2	Rast-5 terminal, power supply for pumps 120 VAC, 10 FLA total
F1, F2A	Fuses (slow blow)
R1, R2, R3	Operating contacts
TR	Transformer 115/230 VAC, 150 VA

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5285 960 v1.2

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