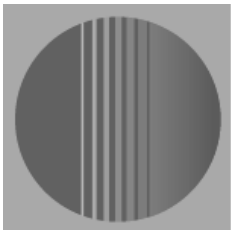
Installation Instructions

VIESMANN

Vitocell 100
CHA Series
Enameled indirect-fired domestic hot water storage tank
42 and 53 USG / 160 and 200 ltr capacities

Please file in Service Binder



Vitocell 100

CAUTION

THE HEAT TRANSFER MEDIUM MUST BE WATER OR OTHER NON-TOXIC FLUID HAVING A TOXICITY RATING OR CLASS OF 1, AS LISTED IN CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS, 5TH EDITION.

THE PRESSURE OF THE HEAT TRANSFER MEDIUM MUST BE LIMITED TO A MAXIMUM OF 30 PSIG BY AN APPROVED SAFETY OR RELIEF VALVE (SEE PAGE 2).

IMPORTANT

Read and save these instructions for future reference.

Product may not be exactly as shown

NSF/ANSI 372

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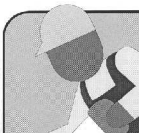
Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in these instructions 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, adjustment, service, and maintenance of this equipment *must be* performed by a licensed professional heating contractor.

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



■ **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.

■ **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".*

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

CAUTION

THE HEAT TRANSFER MEDIUM MUST EITHER BE POTABLE WATER OR CONTAIN ONLY SUBSTANCES WHICH ARE RECOGNIZED AS SAFE BY THE U.S. FOOD AND DRUG ADMINISTRATION.

THE PRESSURE OF THE HEAT TRANSFER MEDIUM MUST BE MAINTAINED LESS THAN THE NORMAL MINIMUM OPERATING PRESSURE OF THE POTABLE WATER SYSTEM.

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Important Regulatory and Installation Requirements

Codes
The installation of indirect-fired hot water storage tanks might be governed by individual local rules and regulations for this type of product and such rules and regulations must be observed. The installation of this unit shall be in accordance with local codes. Always use latest editions of codes.

→ *Please carefully read this manual prior to attempting installation. Any warranty will be null and void if these instructions are not followed.*

This product must be installed observing not only the necessary product literature (see list below), but also all local, provincial/state plumbing and building codes as they apply to this product and all periphery equipment.

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please inquire.

Mechanical room
Ensure the mechanical room complies with the requirements of the system design guideline and/or technical data manual.
The tank must be installed in a mechanical room which is never subject to freezing temperatures.
If not in use and danger of freezing exists in the mechanical room, ensure water is drained from tank.

⚠ WARNING

If the heating system itself is to be filled with Glycol or any other antifreeze, the system fill must be of non-toxic or food grade antifreeze. In any circumstance, a non-toxic fluid must be used. Ensure a copy of the Material Safety Data Sheet (MSDS) is supplied to the operator/ultimate owner of the system.

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

→ *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, temperature controls, etc.*

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

Technical literature
Literature applicable to all aspects of the Vitocell:
- Technical Data Manual
- Installation Instructions
- Start-up/Service Instructions
- Operating Instructions and User's Information 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.*

About these 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.

The following symbols and flag words may be utilized in these Installation Instructions:

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.*

→

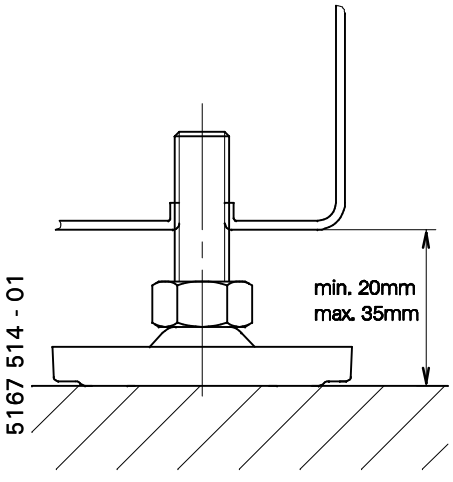
→ *This symbol indicates that additional, pertinent information is to be found in column three.*

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

Product Information

42 and 53 USG / 160 and 200 ltr capacities
Enameled indirect-fired domestic hot water storage tank with one heat exchanger coil for use with hot water heating boilers.

Tank Set-up



- For narrow passageways, remove lower portion of crating and carry DHW tank to its final installation site by means of crating boards which are mounted on the tank lengthwise.

See Installation Instructions of the "Transport Handles" (Accessory) to move the tank into the mechanical room.

- The tank does not require a special foundation and can be placed directly on the floor. If, for cleanliness purposes, the tank is to be kept off the floor, a foundation can be used for each tank.
- Level tank using leveling bolts on tank frame.

Tank Set-up (continued)

Recommended installation clearances for service access

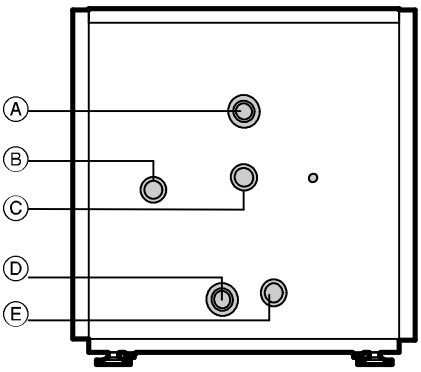
Storage capacity		USG ltr	42 160	53 200
Rear		inches mm	18 460	18 460
Sides	May be reduced if rear pipe connections can be reached with less clearance	inches mm	12 300	12 300
Top		inches mm	36 900	36 900
Front		inches mm	24 600	24 600

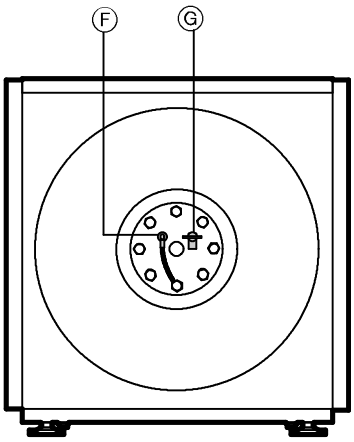
Minimum clearances to combustibles

Storage capacity	USG ltr	42 160	53 200
All sides	inches mm	0 0	0 0

Orientation and Dimensions

Connections		
Boiler supply and return	ø	1″
DCW, DHW and TPV	ø	$^3/_4$″
Sensor well for DHW tank temperature sensor/aquastat	ø	1″





Ⓐ Domestic hot water and TPV
Ⓑ Boiler water supply
Ⓒ Sensor well for DHW tank temperature sensor/aquastat
Ⓓ Domestic cold water
Ⓔ Boiler water return
Ⓕ Consumable anode with grounding cable
Ⓖ Connection of thermometric sensor

See Installation Instruction Supplement for fittings supplied with tank.

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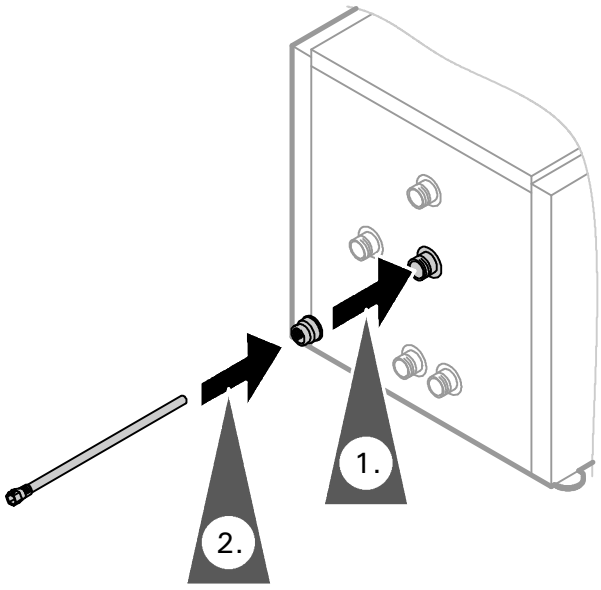
Installation of Tank Temperature Sensor and/or Aquastat



1. Install reducing coupling (included in Connection Fitting Package). Use approved pipe sealant.

2. Install sensor well using sealant.

Where Vitotronic 200 or 300 is utilized to control DHW production:

3. Insert DHW tank temperature sensor (supplied with Vitotronic 200 or 300) fully and completely into sensor well.

IMPORTANT

Due to the length of the stainless steel well (8.7" / 220 mm), care must be taken to ensure that the sensing bulb of the aquastat limit is inserted and pushed to the end of the stainless steel well.

WARNING

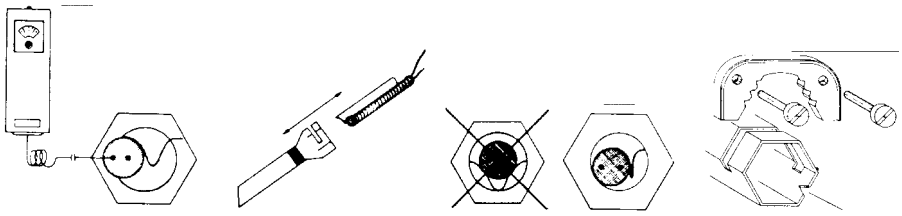
To ensure optimum, safe operation, the supplied stainless steel well must be installed. The well diameter is large enough to accommodate a wide variety of sensing bulbs.

Always use spring clip to ensure proper contact of capillary bulb against the stainless steel well for proper sensing/heat transfer!

Where a Vitotronic 100 and a Viessmann Power/Pump Control Module are utilized to control DHW production:

3. Insert the extended capillary of the aquastat (supplied with Viessmann Power/Pump Control Module, not illustrated) fully and completely into sensor well. Mount aquastat inconspicuously on tank panelling. Follow instructions below with regard to sensor and spring clip installation.

... if aquastat is to be mounted remote from the aquastat well:



4. Align sensor bulb with spring clip.

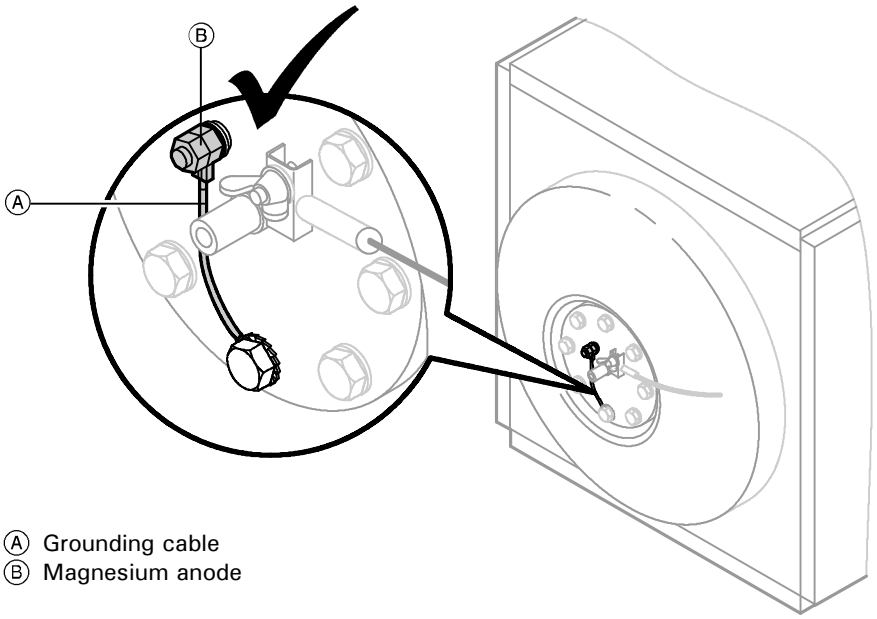
5. Slide assembly into well.

6. The retention spring clip must press the bulb properly to ensure surface contact with the well.

... if aquastat is to be mounted directly on the tank well:

7. Mount aquastat with holding clip supplied directly onto well. Bend capillary tube into groove opening to allow for mounting of aquastat.

Verification of Anode Connection



Check proper connection of grounding cable at magnesium anode.

Ⓐ Grounding cable
Ⓑ Magnesium anode

Boiler Water Connections

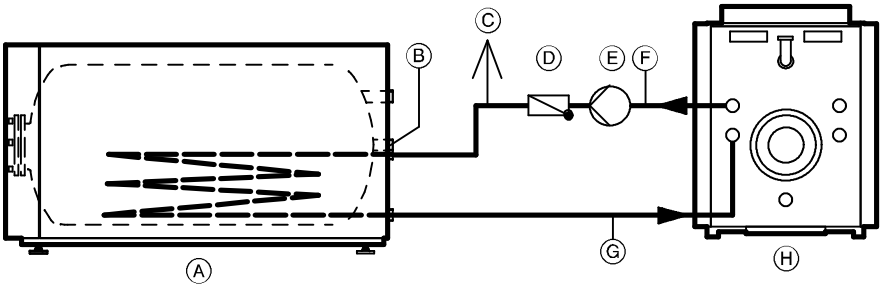
WARNING

The operating aquastat and any secondary high limit aquastat of the tank must be set such that the DHW temperature inside the tank never exceeds 203 °F / 95 °C.

Max. DHW temp. ..... 150 °F / 65.6 °C
Max. tank operating pressure
- *heating water side ..... 150 psig*
- *DHW side ..... 150 psig*

Max. tank testing pressure
- *heating water side (primary) 480 psig*
- *DHW side (secondary) ..... 300 psig*

Ⓐ Vitocell 100
Ⓑ DHW tank temperature sensor and/or aquastat
Ⓒ Air vent
Ⓓ Flow check valve, spring-loaded
Ⓔ DHW recirculation pump
Ⓕ Boiler water supply
Ⓖ Boiler water return
Ⓗ Hot water heating boiler



1. Connect heating water side (primary) connections using supplied adaptors.

See Installation Instruction Supplement for fittings supplied with tank.

2. Control heat supply to the tank according to illustration on the left.

3. Pipe supply connections with upward slopes and install an air vent valve at highest point.

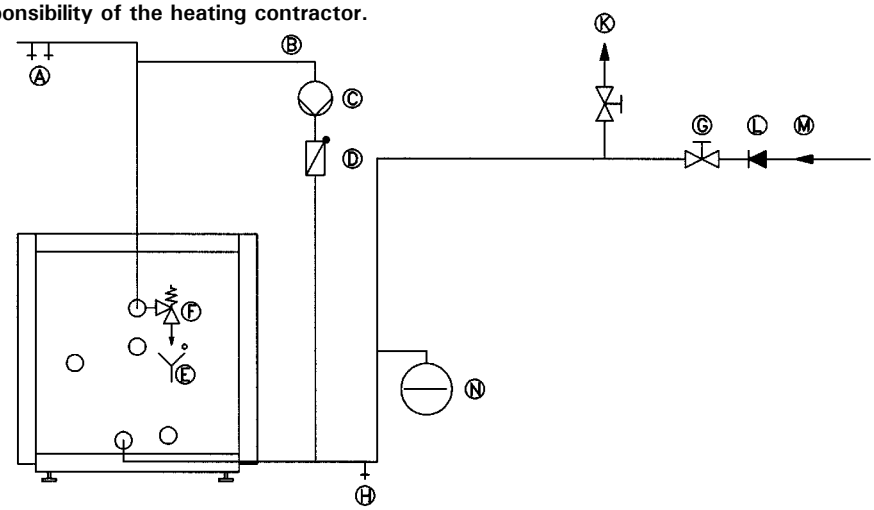
4. Install supplied tank temperature sensor into sensor well (see page 7).

5. Insulate pipe connections.

Domestic Hot Water Connection

IMPORTANT

This is a simplified conceptual drawing only! Piping and necessary componentry must be field verified. Proper installation and functionality in the field is the responsibility of the heating contractor.



Ⓐ Domestic hot water
Ⓑ DHW recirculation line
Ⓒ DHW recirculation pump
Ⓓ Spring loaded check valve
Ⓔ Discharge pipe
Ⓕ Pressure and temperature relief valve
Ⓖ Shut-off valve
Ⓗ Drain
Ⓚ Domestic cold water supply lines
Ⓛ Back-flow preventer
Ⓜ Domestic cold water inlet
Ⓝ Precharged expansion tank (required where back-flow preventer is installed; check local plumbing codes and requirements)

WARNING

The pressure and temperature relief valve discharge must always point toward the floor!

1. Connect DHW connections using supplied adaptors.

See Installation Instruction Supplement supplied with tank.

2. Insulate DHW pipe connections.

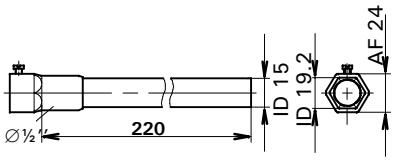
IMPORTANT

Dishwashers and washing machines can be connected to central domestic hot water supply. Washing machines must be supplied with a separate domestic cold and hot water connection. Through water supply directly from the DHW tank, heat-up time for water in the dishwasher or washing machine is reduced.
This saves time, energy and reduces costs.
Please note recommendations by the manufacturer.

Domestic Hot Water Connection (continued)

Sensor Well

Vitocell-H 100,
with 42 and 53 USG / 160 and 200 ltr capacities



⚠ WARNING

To ensure optimum, safe operation, the supplied stainless steel well must be installed. The well diameter is large enough to accommodate a wide variety of sensing bulbs.

Always use spring clip to ensure proper contact of capillary bulb against the stainless steel well for proper sensing/heat transfer!

Vitocell-H 100 domestic hot water tank positioned under the boiler

Please note that only the boiler/tank combinations stated in the Price List are possible.

Backflow preventers

Where backflow preventers are required, a domestic water expansion tank installation is recommended in the cold water inlet piping before the cold water enters the Vitocell. For the backflow device, observe local plumbing codes and regulations.

Temperature and pressure relief valve

A temperature and pressure relief valve (T&P relief valve) is supplied with the tank. The heating contractor must install the valve on each tank in a method meeting code requirements.
If local codes require a different relief valve, consult Viessmann Manufacturing for a substitute valve. The tank is approved for 150 psig. Maximum operating pressure is 150 psig.

The T&P relief valve supplied with the tank is manufactured by Watts Industries (Model 40XL-8), set to 150 psig for US and Canadian installations. The valve is ASME pressure steam rated for 998 MBH and CSA temperature steam rated for 200 MBH. It is tested under ANSI Z21.22 code for Relief Valves and Automatic Gas Shut-off Devices for Hot Water Supply Systems. The relief temperature is set at 210°F / 99°C. The valve has a male threaded inlet and female threaded outlet, both ¾" sizes.

IMPORTANT

Since the heat exchanger coil allows for high MBH input (see Vitocell flow charts), confirmation that the appropriate and correct size pressure and temperature relief valve is used and installed, is necessary.

⚠ WARNING

The heating contractor must ensure the T&P relief valve is sized correctly. If the factory supplied T&P relief valve is too small, it must be upgraded in the field by installing an adequately sized valve.

Warranty

Our warranty for domestic hot water tanks states that the water heated must be of drinking water quality and that any water treatment equipment in use must function correctly.

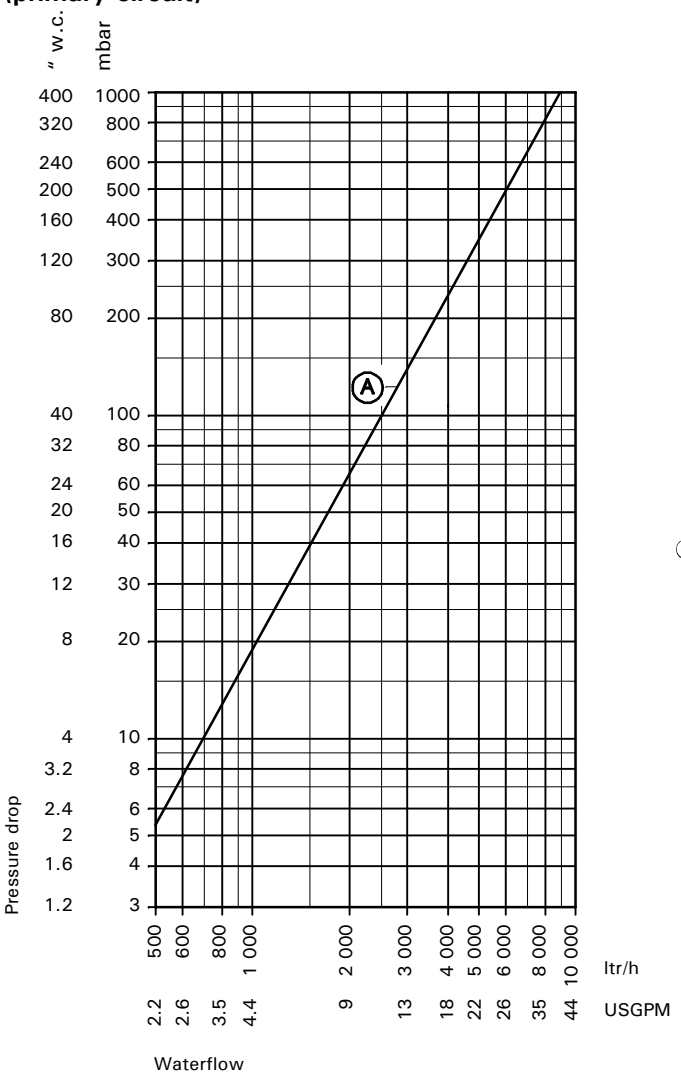
Viessmann accepts no responsibility for damage howsoever caused and reserves the right to withdraw the product warranty if the product has been improperly installed or misapplied by the installer, contractor or final user. In order to qualify for product warranty, strict adherence to the installation and service manuals must be observed. In the event that Viessmann non-approved components are utilized, Viessmann reserves the right to withdraw all expressed or implied warranties without written notice.

The water to be heated with the Vitocell must be drinking (potable) water quality. If the tank is used to heat other media, the warranty will be null and void. Damage resulting from excessive pressure or temperature is clearly not the responsibility of Viessmann.

The amount of chloride and sulfate acceptable to the tank is limited. In areas where high concentrations of chloride and sulfate are present in drinking water, please consult Viessmann for directions.

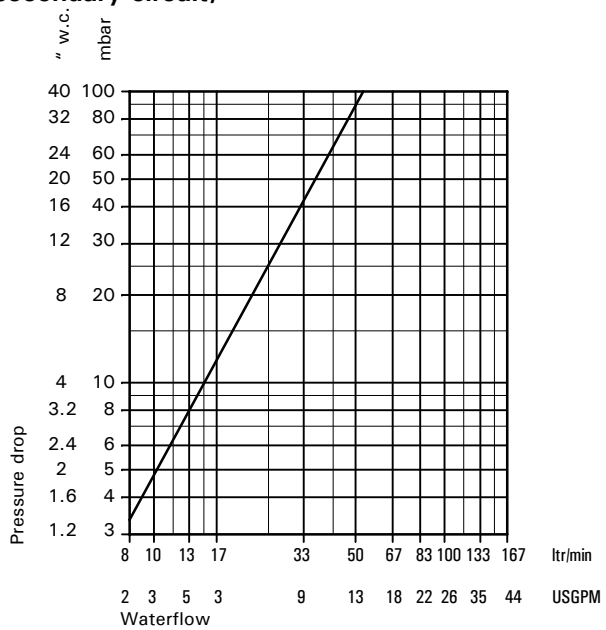
Pressure Drop Information

Pressure drop on heating water side (primary circuit)



Ⓐ 42 and 53 USG / 160 and 200 ltr storage capacities

Pressure drop on domestic hot water side (secondary circuit)



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Post Installation ....

Start-up information

Start-up/Service Instructions DHW Tank

Service Binder

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.

For a listing of applicable Viessmann literature, please see Important Regulatory and Installation Requirements.

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