



# flowvess<sup>®</sup>

HWG Expansion Vessel

## OPERATION AND MAINTENANCE MANUAL

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# OPERATION & MAINTENANCE

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# General Information

These instructions are to assist in the installation of the flowvess HWG Expansion Vessels please follow them carefully.

If, having read this Operation & Maintenance Manual, there is any doubt about any aspect of the installation please don't hesitate to contact our technical team.

## Definitions of Safety Warnings and Precautions



### **WARNING!**

**Indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.**



### **CAUTION!**

**Indicates a potentially hazardous situation which, if not avoided. Can result in minor to moderate injury, or serious damage to the product.**

# Safety

## Information

It is essential that correct and safe working practices are adhered to at all times when installing, operating and/or maintaining any piece of equipment. Always consult safety data sheets, operating and maintenance manuals, Health & Safety legislation and recommendations and specific requirements of any equipment manufacturer, site controller, building manager or any other persons or organisation relating to the procurement, installation, operation and/or maintenance of any piece of equipment associated or in conjunction with any product provided by **flowtech** Water Solutions.

This document is intended for ALL installers, operators, users and persons carrying out maintenance of this equipment and must be kept with the equipment, for the life of the equipment and made available to all persons at all times. Prior to carrying out any work associated with the set it is essential that the following sheets are read, fully understood and adhered to at all times.

Equipment must only be installed, operated, used, and/or maintained by a competent person. A competent person is someone who is technically competent and familiar with all safety practices and all of the hazards involved.

Any damage caused to any equipment by misapplication, mishandling or misuse could lead to risk of Electrocutation, Burns, Fire, Flooding, death or injury to people and/or damage to property dependent upon the circumstances involved. **flowtech** Water Solutions accepts no responsibility or liability for any damage, losses, injury, fatalities or consequences of any kind due to misapplication, mishandling or misuse of any equipment, or as a result of failure to comply with this manual.

Failure to install, operate, use or maintain the equipment in accordance with the information contained within this document could cause damage to the equipment and any other equipment subsequently connected to it, invalidating any warranties provided by **flowtech** Water Solutions to the buyer.

# Safety Warnings &

## Precautions

These instructions should be read and clearly understood before working on the system. Please read this manual carefully and all of the warning signs attached before installing or operating the equipment keep this manual handy for your reference. This equipment should be installed, adjusted and serviced by trained and qualified personnel. Failure to observe this precaution could result in bodily injury.



**WARNING!** - It is strongly recommended that the system is protected by a suitable pressure relief valve set at or below the maximum tank pressure rating. Failure to install a relief valve may result in tank explosion in the event of a system malfunction or over pressurization, resulting in property damage, serious personal injury or death.



**WARNING!** - If the pressure tank leaks or shows signs of corrosion or damage do not use it.



**CAUTION!** - It is strongly recommended that all electrical equipment conforms to National Electrical Codes and local regulations. Only qualified personnel should perform installation, alignment and maintenance. The manufacturer reserves the right to alter the technical data in order to make improvements or update information.



**CAUTION!** - Failure to observe these rules will render the guarantee invalid. The same applies to repair jobs and/or replacement. Your legal rights are not affected.



**CAUTION!** - The manufacturer declines all responsibility in the event of damage or injury caused as a result of tampering with the equipment.



**CAUTION!** - To prevent personal injury, ensure all water pressure is released from the pressure system prior to work being performed. Ensure pumps are disconnected and / or electrically isolated.

## Customer / Contractor Responsibilities

It is the responsibility of the customer and/or the contractor:

- To ensure that anyone working on the equipment is wearing all necessary protective gear and/or clothing.
- Is aware of appropriate health & safety warnings.
- Has read the information in this section of the manual.

The Flowvess HWG-V are long-life pressure tanks ideally suited for controlling the pressure in domestic as well as industrial applications.

Flowvess HWG-V for use in cooling or heating systems.

### Nameplate

Pos.	Description
1	Product Number
2	Type Designation
3	Serial Number
4	Model Number
5	Production Code (year and week)
6	Maximum System Pressure (Bar)
7	Production Company
8	Notified Body
9	Marking
10	Total Tank Volume
11	Effective Tank Volume
12	Precharge Pressure (Bar)
13	Maximum Operating Temperature
14	Minimum Operating Temperature

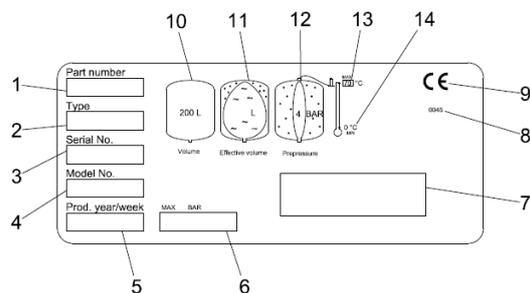


Fig. 2 Nameplate

### Installation

**Warning - Installation and operation must comply with local regulations and accepted codes of good practice.**

Before installation, check the following:

- Do the specifications of the Flowvess HWG-V tank correspond to the order?
- Are all visible parts intact?
- Is the maximum system pressure lower or equal to the maximum operating pressure for the Flowvess HWG-V tank? See tank nameplate.

### Lifting the tank

If the Flowvess HWG-V tank incorporates lifting eyes, all lifting eyes must be used.

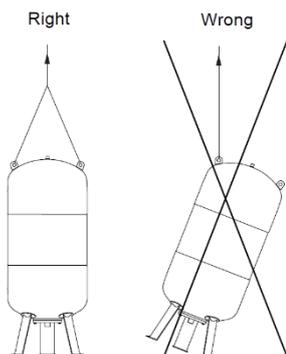


Fig. 3 Lifting the tank

## Location

Always install the Flowvess HWG-V tank in the discharge pipe as close to the pump as possible. Install the Flowvess HWG-V tank in a frost-free room. It must be possible to inspect the Flowvess HWG-V tank from all sides.

The gas-filling valve, water shut-off and discharge must be accessible, and the nameplate must be visible.

Install the Flowvess HWG-V tank so that it is not stressed by the pipework. If vibrations are likely to occur, we recommend that the Flowvess HWG-V tank is installed so that vibrations are absorbed.

We recommend to follow these steps:

1. Lift and position the Flowvess HWG-V tank.
2. Level as required (horizontally and vertically).
3. Secure the Flowvess HWG-V tank.
4. Connect the pipes and fittings.
5. Check/adjust the pre-charge pressure.
6. Start the pump or application.

No additional loads from the piping system or equipment are allowed.

## Floor installation

Large Flowvess HWG-V tanks must be secured to the floor by means of bolts. Use bolts, washers and nuts that are suitable for the surface of the floor or base frame. Use all bolt holes in the frame when securing the GT tank.

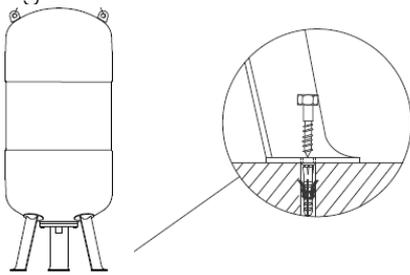


Fig. 4 Example of floor installation

## Precharge pressure

The Flowvess HWG-V tanks are supplied from factory with a pre-charge pressure. See tank nameplate.

The pre-charge pressure must be adjusted according to the actual application and the installed pump.

The pre-charge pressure should be slightly below the pump cut-in setting.

Recommended pre-charge pressures:

- 0.9 x setpoint for fixed-speed pumps
- 0.7 x setpoint for variable-speed pumps.

## Adjustment of pre-charge pressure

If the pre-charge pressure is not suitable for the application, it should be adjusted according to these recommendations:

1. Use a suitable pressure gauge to check the pre-charge pressure.
2. Release or add nitrogen as required to make the pre-charge pressure equal to the recommended pre-charge pressure.

## System check

The Flowvess HWG-V tank must be by-passed if the system pressure exceeds the maximum operating pressure of the Flowvess HWG-V tank during a system check.

## Isolating valves

We recommend to install an isolating valve on either side of the Flowvess HWG-V tank.

## Maximum operating pressure

The maximum operating pressure of the pump (P2) plus the actual inlet pressure (P1) must not exceed the maximum operating pressure of the Flowvess HWG-V tank (P3).

See pump and tank nameplates.

## Relief valve

Install a relief valve. Set the relief valve to open at the maximum operating pressure. This will protect the Flowvess HWG-V tank and other system components.

The relief valve should be installed at the connection of the Flowvess HWG-V tank to the pipe system and have a discharge equal to the pump capacity at maximum operating pressure.

## Maintenance

Check the pre-charge pressure annually.

Before checking the pressure, make sure that there is no water in the Flowvess HWG-V tank (switch off the pump, and open a tap). If water escapes during the pre-charge pressure check, the bladder is defective. The bladder in Flowvess HWG-V tanks with a volume larger than 80 litres can be replaced.

Check the Flowvess HWG-V tank for damage:

- Is corrosion visible?
- Are scratches, dents, etc. visible?

In case of serious damage, contact Flowtech.

## Technical data

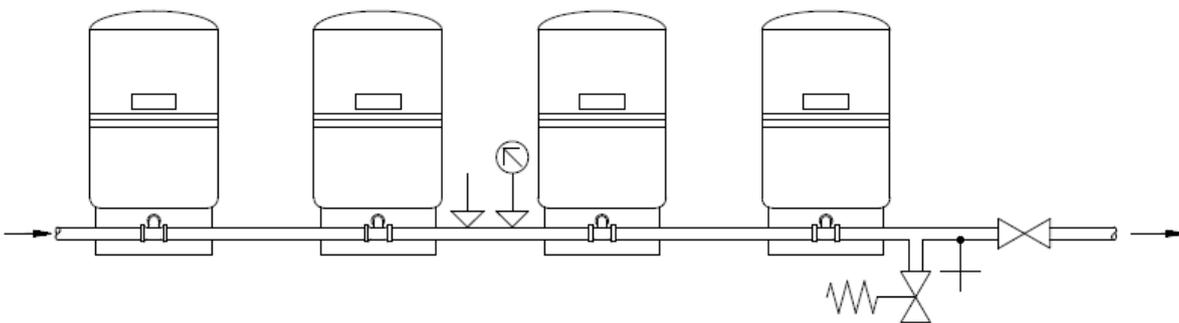
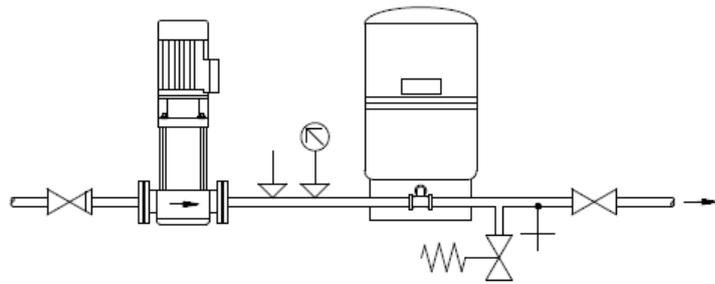
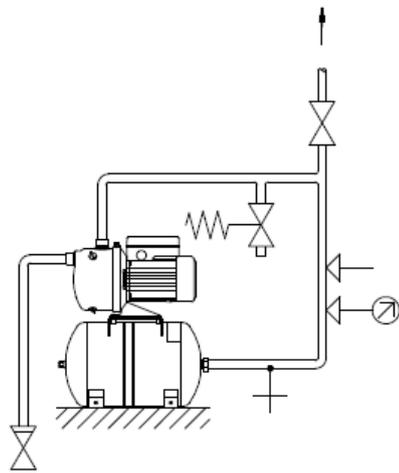
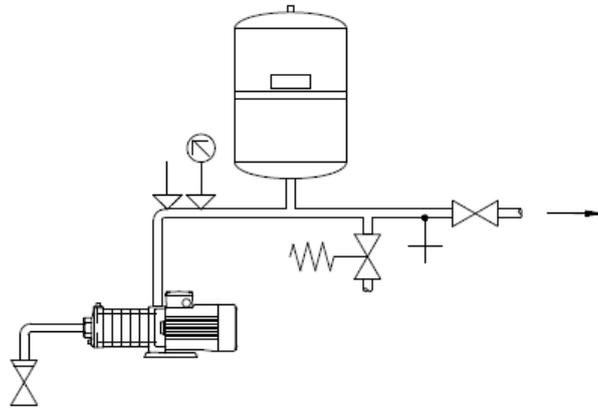
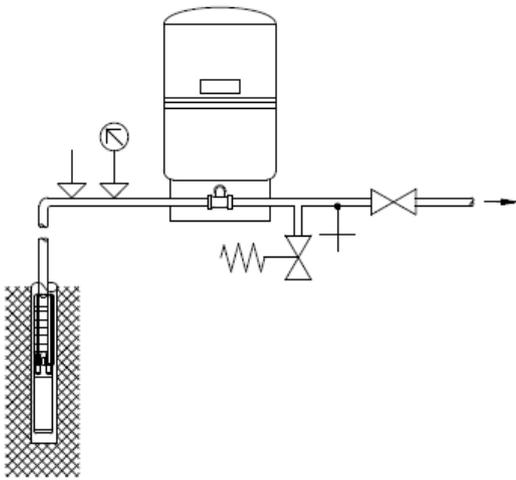
See tank nameplate.

## Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact Flowtech.

## Installation examples





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WATER SOLUTIONS

# flowzone<sup>®</sup>

MEMBERS AREA

This section of the **flowtech**<sup>®</sup> website holds information exclusively for members. Members will need to log in to gain access to these pages.

Our member's will be granted exclusive access to our technical resource library. Within this resource is a wide range of product information including data sheets, technical drawings, O&M Manuals and training videos



# flowcare<sup>®</sup>

AFTER SALES SERVICE

At **flowtech**<sup>®</sup> we operate a network of Service Engineers located throughout the UK who are supported by our offices located in and Greater Manchester. The distribution of engineers means that in the majority of cases we are less than 4 hours away from attending a customer call out.

We place great emphasis on providing technical back up to support our Service Engineers in resolving some difficult operational and technical issues. We pride ourselves on completing a project on time, within budget and never leaving a problem unresolved, or a customer waiting. This quality of service has made us the first choice for our customers.

FOR FURTHER INFORMATION OR ASSISTANCE

## contact us

Flowtech Water Solutions are experts in water services and water booster sets. We have continuously supplied a wide range of standard and custom products since being founded in 1996.

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