



# flowboost<sup>®</sup>

## G.V Pump Manual

### OPERATION AND MAINTENANCE MANUAL

First Publication Date: 01/09/2020

Revision:

Revision Date:

## General Information

These instructions are to assist in the installation of the flowboost G.V Pump 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 Electrocution, 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!** - Install an emergency stop key separately from the isolator. Rotating shafts can be hazardous.



**WARNING!** - This equipment has a high leakage current and must be permanently fixed to earth.



**WARNING!** - Do not attach or remove wiring or connectors when the power is applied. Do not check signals during operation. When the power is turned on and the running command is on, the motor will start rotating. The stop key is only effective when the function is set. If there is a power failure and an operation instruction is given the unit may start automatically when the power is reinstated.



**WARNING!** - Make sure that the input voltage is correct. Be sure to install the unit in a room that is not exposed to direct sunlight and is well ventilated.

Avoid environments which have a high ambient temperature, high humidity or excessive condensation. Avoid dust. Corrosive gas, explosive gas, inflammable gas, grinding-fluid mist and salt damage, etc.



**WARNING!** - Do not connect the power source to any terminals except power connectors.



**WARNING!** - Motor control equipment and electronic controllers are connected to hazardous line voltages. When servicing drives and electronic controllers, you may be exposed to components at or above the line potential. Extreme care should be taken to protect against shock. Dangerous voltage may exist after the power light is off.

*Wait more than 5 minutes after turning off the power supply before performing maintenance or inspection. Hazard of electric shock. Disconnect incoming power before working on this unit.*



**WARNING!** - The inverter should be protected separately against ground fault.

*Observe the regional regulations for electrical installation!*



**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!** - Do not switch on/off power supply to run/stop the motor/system! Start the unit only by using run button or external run command.

## 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.

## Protecting the environment

- Observe the local regulations and codes regarding:
- Reporting of emissions to the appropriate authorities.
- Sorting, recycling and disposal of solid or liquid waste.
- Clean-up of spills.
- Exceptional sites

### Radiation Hazard

Do NOT send the product to Flowtech Water Solutions if it has been exposed to nuclear radiation, unless Flowtech Water Solutions has been informed and appropriate actions have been agreed upon.

### Recycling guidelines

- Always follow local laws and regulations regarding recycling.
- Waste and emissions guidelines



Do not dispose of equipment containing electrical components together with domestic waste. Collect it separately in accordance with local and currently valid legislation.

### Warranty

For information about warranty, see the sales contract

### Spare parts

Only use original spare parts to replace any worn or faulty components. The use of unsuitable spare parts may cause malfunctions, damage, and injuries as well as void the guarantee.

For more information about the product's spare parts, refer to the Sales and Service department.

## Storage and Transportation

- Inspect the package
- Inspect the package for damaged or missing items upon delivery.
- Note any damaged or missing items on the receipt and freight bill.
- File a claim with the shipping company if anything is out of order.
- If the product has been picked up at a distributor, make a claim directly to the distributor.

### Storage location

- The product must be stored in a covered and dry location free from heat, dirt, and vibrations.
- Protect the product against humidity, heat sources, and mechanical damage.
- Do not place heavy weights on the packed product.
- Refer also to par. 3.5 for storage limits.

## Inspect the unit

Remove packing materials from the product.

Dispose of all packing materials in accordance with local regulations.

Inspect the product to determine if any parts have been damaged or are missing.

If applicable, unfasten the product by removing any screws, bolts, or straps. For your personal safety, be careful when you handle nails and straps.

## Transportation guidelines

Stay clear of suspended loads.

Observe accident prevention regulations in force.

Do not damage the cables during transport; do not squeeze, bend or drag the cable.

Always keep the cable ends dry.

Secure the unit against tipping over and slipping until it is mounted and fixed in its final location.

Lift and handle the product carefully, using suitable lifting equipment (stacker, crane, crane mounting device, lifting blocks, sling ropes, etc.).

Always lift the unit by its lifting handle.

## System lifting

Assembled units and their components are heavy. Failure to properly lift and support this equipment can result in serious physical injury and/or equipment damage. Lift equipment only at the specifically identified lifting points. Lifting devices such as eyebolts, slings, and spreaders must be rated, selected, and used for the entire load being lifted.

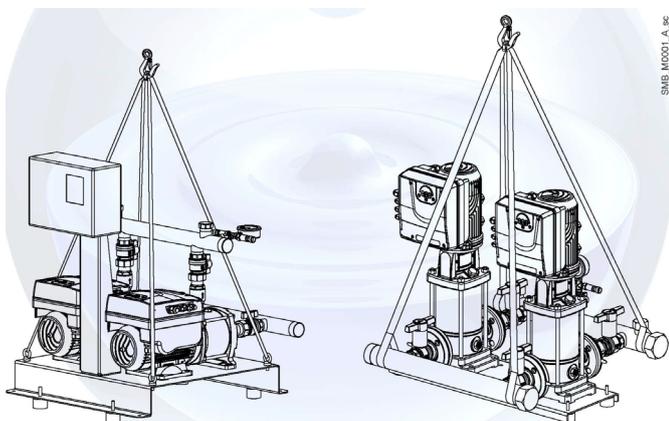
Select the lifting points depending on model (see Figure 1).

Always lift the unit by its lifting points.

Use suitable lifting equipment and ensure that the product is properly harnessed.

Wear personal protective equipment.

Stay clear of cables and suspended loads.

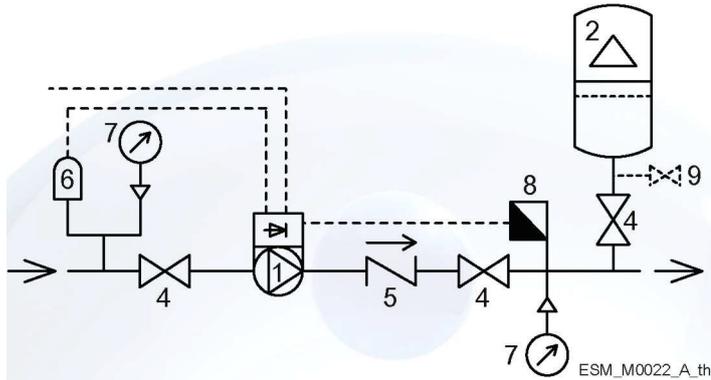


Lifting diagrams

Figure 1: Lifting

## Product Description

Figure 2 and Figure 3 show a typical single-pump and multi-pump system using the unit.



When the system is connected directly to the water supply use a low-pressure switch on the suction side.

Figure 2: Single-pump system

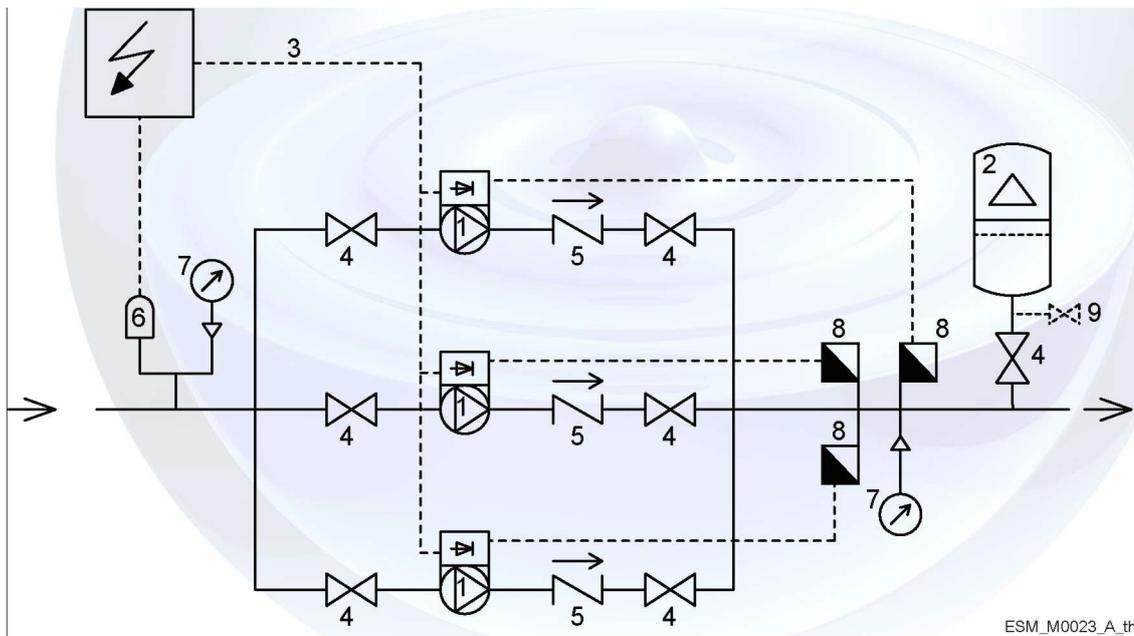


Figure 3: Multi-pump system

Pump with e-SM Motor Drive

Diaphragm pressure tank

Distribution panel

On-off valve

Non-return valve

Low water control

Pressure gauge

Pressure sensor

Drain tap

## Pressure tank

A diaphragm pressure tank is used on the discharge side of the pump to maintain pressure in the pipes when there is no water demand. The unit stops the pump from continuing to run at zero demand and reduce the size of the tank that is required for supply purposes.

The tank must be permitted and suitable for systems pressure.

## Tank selection

Variable speed pressure booster sets can operate with smaller tanks compared to traditional systems. As a rule, a tank with a capacity in liters amounting to about 10% of the flow rate of a single pump expressed in liters per minute is sufficient. The required water volume may be distributed among multiple tanks.

## Product function and use

In its standard version, the product is a booster unit set which consists of identical variable speed electric pumps that are connected in parallel. The pumps are mounted on a common stand, suction and delivery manifolds, on-off valves, non-return valves, pressure gauge, pressure transmitters, and a single-phase or three-phase control panel.

The system must be equipped with a membrane tank. The delivery manifold is fitted with couplings that are designed for the installation of 24 L tanks with an on-off valve. Along with the tanks, provide a applicable manifold support.

Extra floor-standing tanks may be installed and connected to the manifold. Intended use

The product can be used to pump:

Cold water

Refer to the standard Installation, Operation and Maintenance Manual for pump design specification. The variable speed booster sets are made for the following applications:

Default, pressure regulation (open loop systems)

Level and flow regulation (open loop systems)

Irrigation applications with single or multiple pumps. Improper use

The product must not be used for closed loop systems.

## Applications

The application alternatives for the product are the following:

### Actuator (constant speed)

The unit operates as an actuator according to speed set point; this is done through user interface, the corresponding analog input or the communication bus.

### Controller (constant pressure)

This mode is set as the default operating mode and is used for a unit in a single pump operation.

### Cascade serial / Cascade synchronous

The units are connected via the RS485 interface and communicate via the provided protocol.

The combination of the different units which are used in a multi-pump system depends on the system requirements.

It is possible to run all pumps in cascade serial mode and cascade synchronous mode as well. If one unit fails, then each pump of the system can become the lead pump and can take control.

This mode is set as the default operating mode and is used for a booster set unit in a multipump operation. Cascade serial mode is the standard configuration.

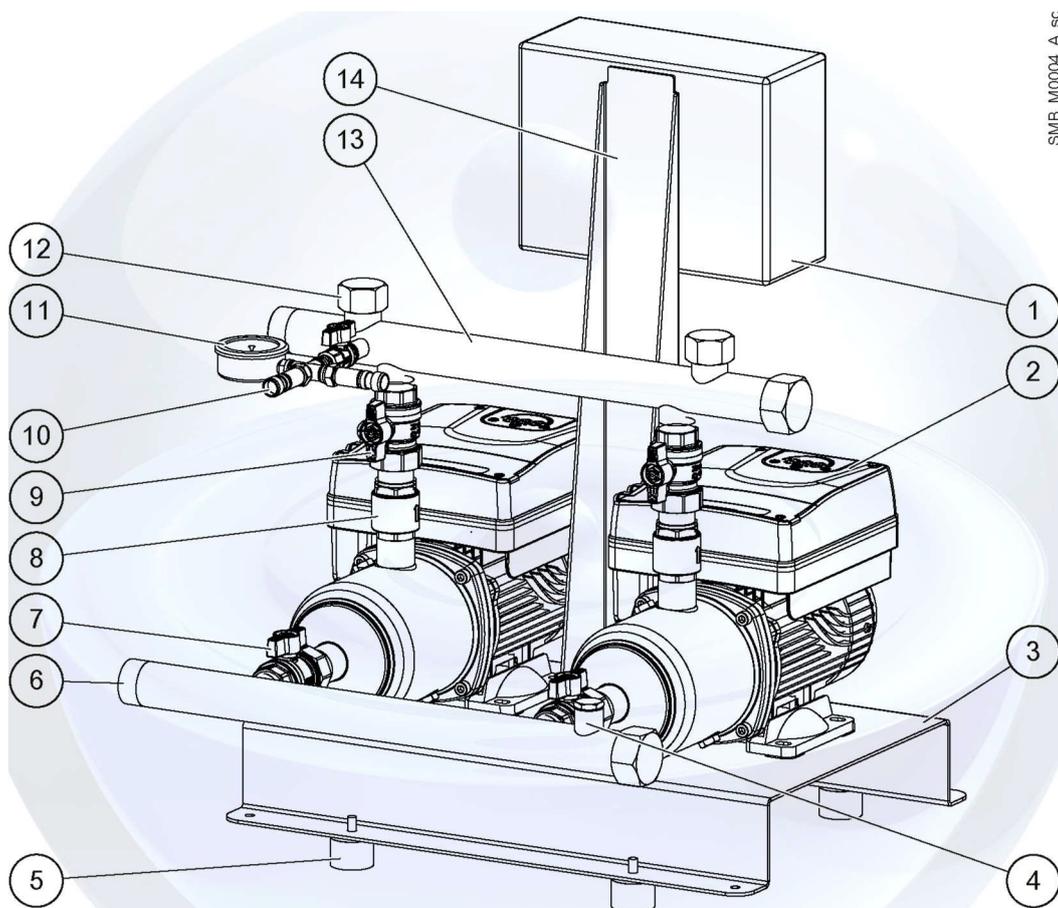
## Booster unit technical data

Table 1: Electrical, Environmental and Installation specifications

|  | Booster model   |              |              |
|--|---|--------------|--------------|
| Control panel supply<br>(see to identification code)                 | M2  | T3           | T4           |
| <b>Input</b>   |   |              |              |
| Input frequency [Hz]   | 50/60 ± 2   |              |              |
| Main supply  | LN  | L1 L2<br>L3  |              |
| Nominal input voltage [V]  | 230 ±<br>10%  | 230 ±<br>10% | 400 ±<br>10% |
| Max. input current continuous [A]                                    | See rating plate on electric panel  |              |              |
| Max control panel power [kW]   | See rating plate on electric panel  |              |              |
| <b>Output</b>  |   |              |              |
| Enclosure rate   | IP 55 - Protect the product from direct sunlight and rainfall   |              |              |
| Liquid temperature [°C] / [°F]                                       | 0÷80 / 32÷176 (SMB..SVE, SMB..VME)<br>0÷60 / 32÷140 (SMB..HME..S)   |              |              |
| Relative humidity RH related to<br>operating temperature [°C] / [°F] | min 5% to max 50% RH @40 / 104<br>min 5% to max 90% RH @20 / 68   |              |              |
| Storage relative humidity  | 5%÷95% RH   |              |              |
| Storage temperature [°C] / [°F]                                      | -25÷65 / -13÷149  |              |              |
| Operating temperature [°C]<br>/ [°F]                                 | -20÷50 / -4÷122   |              |              |
| Altitude [m] / [ft]  | Max. 1000 / 3280 above sea level<br>For installation over 1000 / 3280 above sea level, de-rating may occur  |              |              |
| Sound pressure LpA [dB(A)]   | <62 @3000 rpm<br><66 @3600 rpm  |              |              |
| Maximum operating pressure [bar]                                     | 8 or 10 or 16, depending on the type of pump<br>see Installation, Operation, and Maintenance Manual of the pump   |              |              |
| Minimum suction pressure   | According to NPSH curve with a margin of at least 0.5 m for air-free water  |              |              |
| Maximum suction pressure   | Make sure the inlet pressure plus the closed delivery pressure does<br>not exceed the maximum operating pressure  |              |              |
| Pumps general data   | See the Installation, Operation, and Maintenance Manual of the pumps  |              |              |
| Diaphragm pressure tanks [bar]                                       | See the Installation, Use, and Maintenance Instructions Manual of the tank<br>If installed, tanks may limit the operating temperature and pressure of the<br>SMB booster unit |              |              |

# Dimensions and weights

Design and layout



Booster unit parts and description as standards configuration

Figure 6: Booster unit

| Position number | Description                         |
|-----------------|-------------------------------------|
| 1.              | Control Panel                       |
| 2.              | Electric pump E (e-SM drive) series |
| 3.              | Baseplate                           |
| 4.              | Priming connection                  |
| 5.              | Damper                              |
| 6.              | Suction manifold                    |
| 7.              | Suction on-off valve                |
| 8.              | Non-return valve                    |
| 9.              | Delivery on-off valve               |
| 10.             | Pressure transmitter                |
| 11.             | Pressure gauge                      |
| 12.             | Tank connection                     |
| 13.             | Delivery manifold                   |
| 14.             | Bracket support                     |

## Mechanical Installation

Installation site checklist

Never install the unit in an explosive or flammable environment.

Always refer to the local and national regulations, legislation, and codes in force regarding selection of installation site, and water and power connections.

Keep the manual, drawings, and diagrams accessible for detailed installation and operation instructions. It is important that the manual is available for equipment operators.

Ensure that the ingress protection rating of the Unit (IP 55, Type 1) is suitable for the installation environment.

Ingress protection. IP55 (type 1) rating can only be guaranteed if the unit is properly closed.

Make sure that there is no liquid on the unit before opening the control panel and plastic cover of the frequency converter unit.

Ensure all cable glands and unused holes for glands are properly sealed.

Make sure that the panel and plastic cover of the frequency converter unit is correctly closed.

Device damage through contamination. Do not leave unit without the terminal box cover.

Remove scraps, dirty and solid parts from inside control panel and the frequency converter unit.

## Unit installation

Install the unit according to the systems liquid flow.

Usually arrows on the pump housing show flow and rotating direction.

The standard rotating direction for the unit is clockwise (seen from fan cover). For more information contact Service.

The unit must be installed according to Figure 7.

Always install a backflow-prevention device on the suction side.

Install the unit in a well-ventilated room, allowing sufficient clearance (0.5 m) on all sides and front for maintenance. Guarantee 0.5 m in height above the highest part.

Position the set on a level and sturdy surface.

It is recommended to install a closing valve immediately after the unit.

It is recommended to install a drain valve for testing if no tap has been provided near the unit.

## Piping

The pipes that are connected to the set must be adequately sized (if possible, according to manifold diameter). You can use either end of the manifold, but do not forget to plug the unused end.

Suction pipe and foot valve must be of sufficient size to prevent excessive flow resistance and the consequent cavitation phenomena.

To prevent undue stress, expansion joints and suitable pipe supports should be provided (Figure 7). The weight of the pipes and tanks increases when they are filled with water.

Before starting the set, make sure you have closed and tightened all the unused couplings.

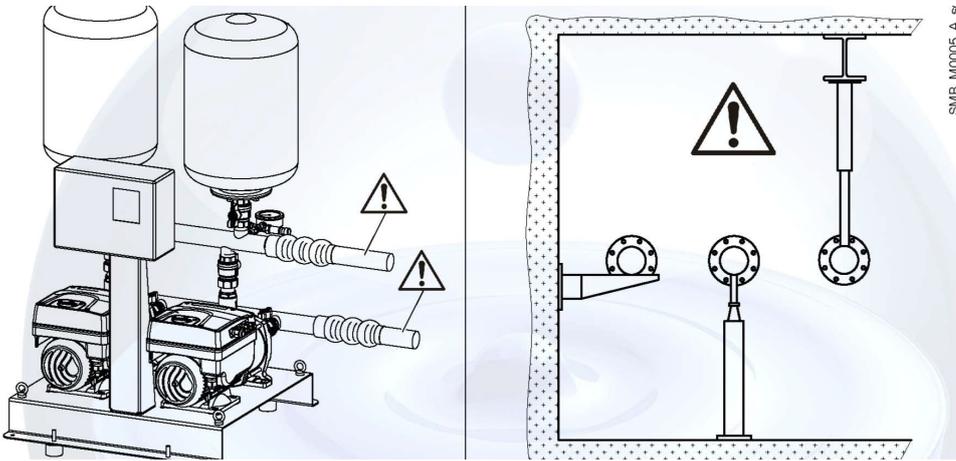


Figure 7: Unit installation

### Protection against dry running

The standard electric panel is ready for connection of a common float switch applicable for open tanks or a minimum pressure switch on the suction side (recommended value 0.2÷0.4 bar). When the minimum pressure conditions are restored, the pumps start up automatically. If protection against dry running is considered superfluous, do not remove the jumper on the terminal in electrical panel. The correct terminal numbers are specified in wiring terminal that is found inside the panels.

Factory setting: the electric pump e-SM drive comes from the factory with the software protection enabled.

No dry running control: the booster unit comes from factory with jumper already installed, which disabled the control.

With the optional electronic level kit, control by electric probes is possible.

Put the three electric probes that are supplied with the kit inside the storage tank and connect them to the terminal in the electric panel.

The correct terminal numbers are specified in the wiring diagram inside the panel:

Probe Max (A) determines the unit activation level during the filling of storage tank.

Probe Min (B) determines the unit deactivation level.

Probe (C) must be put at a lower level than that of the bottom probe (B).

### Outdoor installation

When the unit is installed outdoors a suitable cover must be provided. See Figure 8.

The cover must be sized to ensure that the booster unit is not exposed to snow, rain, or direct sunlight.

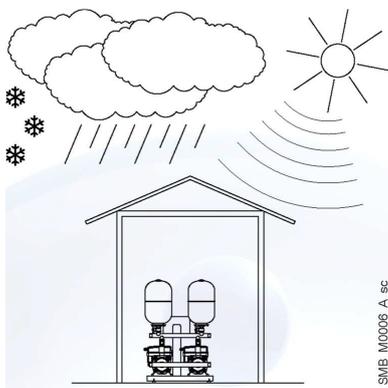


Figure 8: Outdoor unit installation

## Electrical Installation

EQUIPMENT HAZARD. Rotating shafts and electrical equipment can be hazardous. All electrical work must conform to national and local electrical codes. Installation, start-up, and maintenance must be performed by trained and qualified personnel. Failure to follow these guidelines could result in death or serious injury.

All electrical wiring must be carried out by an authorized electrician, in accordance with the electrical regulations locally in force.

See the wiring diagram that is located inside the control panel for electrical connections.

### Electrical requirements

The local regulations in force overrule specified requirements listed below.

### Electrical connection checklist

Check that the following requirements are met:

The electrical leads are protected from high temperature, vibrations, and collisions.

The current type and voltage of mains connection must correspond to the specifications on the data plate on the control panel.

Make sure that the supply cable can handle the rated current of the booster unit, and connect it to the corresponding terminals in the electric panel. The wiring diagram and the labels on the panel provide the necessary information for connection and the required power supply values.

Connect the power supply cable:

Single phase version to the L - N terminals, PE to grounding terminal

Three phases version to L1, L2, L3 terminals, PE to grounding terminal.

Cables, when visible, must be suitably protected

The power supply line is provided with:

A high-sensitivity differential switch (30 mA) [residual current device RCD] suitable for earth fault currents with DC or pulsating DC content (a type B RCD is suggested)

A mains isolator switch with a contact gap of at least 3 mm. The electrical control panel checklist

In its standard version, booster unit is shipped with control panel.

When booster unit is sold without control panel, to secure that the control panel must match the ratings of the electric pump.

Incorrect combinations could fail to guarantee the protection of the unit.

Check that the following requirements are met:

The control panel must protect the pump against short-circuit. A time lag fuse or a circuit breaker (type C model is suggested) can be used to protect the pump.

The pump has built in overload and thermal protection, no additional overload protection is required. Electrical Hazard:

Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized.

## **Grounding (earthing)**

Always connect the external protection conductor to ground (earth) terminal before making other electrical connections.

All electrical equipment must be ground (earth) connected. This applies to the pump unit and related equipment. Verify the pump ground terminal is earthed.

Keep the ground wire connections as short as possible.

Use high-strand wire to reduce electrical noise is recommended.

## **Wire type and ratings**

In its standard version, the booster set comes with motor power cables and control cables.

If the motor power cable or control cable, or both, must be replaced or added.

## **Power supply connection**

Do not make any connection in the pump control box unless the power supply has been switched off for at least 4 min.

In its standard version, the booster set comes with motor power cables. If the power cable of the motor must be replaced or added, fit a new one of a cross-section that is suited to the maximum current consumption of the electric motor.

## **Control panel connection**

See the wiring diagram inside the control panel.

## **Operation**

In case of co-existence of two or more of the following conditions:

high ambient temperature

high liquid temperature

duty points insisting on unit maximum power

persisting undervoltage of mains, life expectancy of the unit may be affected and/or derating may occur: contact your Sales and Service Department for more information.

## **Discharge time**

Disconnect and lock out electrical power and wait for the minimum waiting time specified below. Failure to wait the specified time after power has been removed before performing service or repair could result in death or serious injury.

Frequency converters contain DC-link capacitors that can remain charged even when the frequency converter is not powered. To avoid electrical hazards, disconnect:

## **AC mains**

Any permanent magnet type motors

Any remote DC-link power supplies, including battery backups, ups and DC-link connections to other frequency converters.

Wait for the capacitors to discharge completely before performing any service or repair work. Refer to the table 2 for wait times.

Table 2: Wait times

| e-SM Drive model             | Minimum waiting times [min] |
|------------------------------|-----------------------------|
| 103, 105, 107, 111, 115      | 4                           |
| 303, 305, 307, 311, 315, 322 |                             |

## Start or stop the unit

The starting and stopping of the pumps are determined based on the unit to be controlled (pressure, level) settings of the controller. Each frequency converter is connected to a sensor. The frequency converters share all the information and provide for cyclic changeover.

Disconnect the power supply before making any adjustments.

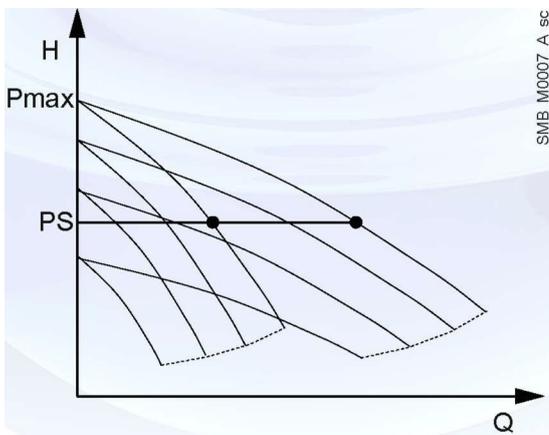
Figure 9 shows the operating method with the curves for two pumps, pressure regulation mode.

The tank supplies water upon demand by a end-user.

When the pressure drops below the PS value, the first pump is started; the speed is adjusted to maintain a constant pressure as the demand increases.

When the demand decreases the speed is decreased until minimum speed is reached; at this point one of the pumps is deactivated.

If the demand keeps increasing and the pump reaches maximum speed, the second pump is started and the speed is adjusted to maintain a constant pressure.



If the demand decreases further the pump slows down, fills the tank and then stops when the PS value is reached.

Figure 9: Operating method

|   |      |      |                        |
|---|------|------|------------------------|
| H | Head | Pmax | Max. pressure          |
| Q | Flow | PS   | Pressure setting value |

## Frequency converter adjustments

Modifying the settings, see Installation, Operation, and Maintenance Manual for Smart Drive Electropumps. Use the frequency converter keypad to set a new pressure adjustment value, select the time ramps, check the latest alarms, or access all the adjustment settings.

Make sure that the new selected value is in the head range that is specified in the pump rating plate. Tank precharge

To ensure its proper operation, the diaphragm pressure tank must be precharged to 0.9 x adjustment pressure value. The precharge operation must be performed with the tank empty.

## Startup

To start the set, proceed as follows:

Connect the water supply.

Connect the power supply.

Check the tank precharge value.

Close the pump delivery valves.

Prime the set (see pump Instructions Manual) and suction manifold.

To supply power and set the converter to manual mode operation, operate the switch on the panel.

Start the first pump.

Slowly open the pump delivery valve and bleed the air.

Repeat the preceding operations for the other pumps.

Set the converters to automatic mode operation. How to modify the settings

After the set has been started, proceed as follows to modify the settings within the maximum pressure limits of the pumps or system, or both:

Determine the required pressure value.

Set the new value on the control panel of one of the converters; the setting is modified automatically on the other converter also.

## Maintenance

Before any service or maintenance disconnect the system from the power supply and wait at least 4 min before starting work on or in the unit (the capacitors in the intermediate circuit are discharged by the internal discharge resistors).

The booster unit does not require any special maintenance.

Check list

Make sure that the cooling fan and the vents are free from dust.

Make sure that the ambient temperature is correct according to the limits of the booster unit.

Make sure that qualified personal perform all modifications of the booster unit.

Make sure that the unit is disconnected from the power supply before any work is carried out. Always consider the pump and motor Instruction.

The electric panels and frequency converters do not require any maintenance.

Diaphragm pressure tank maintenance: see the Installation, Use, and Maintenance Instructions. Check the precharge at least once a year.

Check the functions and parameters

If the hydraulic system is changed then follow this procedure:

Make sure that all functions and parameters are correct.

Adjust the functions and parameters if necessary.

## Troubleshooting

The maintenance and repair operations must be performed by qualified personnel.

Before servicing the set, disconnect the power supply and make sure there is no pressure in the hydraulic components.

Wait at least 4 min before starting work on or in the unit. The capacitors in the intermediate circuit are discharged by the internal discharge resistors.

The frequency converter memorizes the last alarms triggered. Refer to the frequency converter operating instructions for the types of malfunctions and directions on how to check the last alarms triggered.

Set is off

| Cause                     | Solution             |
|---------------------------|----------------------|
| Power supply disconnected | Connect power supply |
| Switch in OFF position    | Set switch to ON     |

Motor does not start

| Cause                                 | Solution                                   |
|---------------------------------------|--|
| Power supply disconnected             | Connect power supply                       |
| Triggering of motor thermal protector | Eliminate malfunction and reset the switch |
| Defective motor                       | Repair or replace the motor                |

Frequent startups and stops

| Cause                           | Solution  |
|---------------------------------|---|
| Defective tank                  | Repair or replace the tank  |
| Tank Precharge wrongs           | Set new pressure precharge value in according to pump and set point |
| Precharge pressure tank is zero | The tank must be precharged   |

The pump speed increases and decreases without stop, and with no water consumption (user closed)

| Cause                                    | Solution                                       |
|--|--|
| Water leaks through the non-return valve | Check the hydraulic system and check the valve |
| Tank damaged or undersized               | Repair or replace the tank                     |

The motor runs but no water is delivered

| Cause                                   | Solution  |
|---|---|
| No water on suction side or inside pump | <ol style="list-style-type: none"> <li>1. Fill (prime) the pump or suction piping</li> <li>2. Open the on-off valves</li> </ol> |
| Air in suction piping or pump           | Bleed the pump, check the suction connections   |
| Loss of pressure on suction side        | Check the NPSH and, if necessary, modify the system   |
| Check valve blocked                     | Clean the valve   |
| Clogged pipe                            | Clean the pipe  |

### Pump leaks water

| Cause                           | Solution                    |
|---------------------------------|-----------------------------|
| Defective mechanical seal       | Replace the mechanical seal |
| Undue mechanical stress on pump | Support the pipes           |

### Too noisy

| Cause                        | Solution                                  |
|------------------------------|---|
| Water return when pumps stop | Check the non-return valve                |
| Cavitation                   | Check suction                             |
| Pump rotation hindered       | Check for undue mechanical stress on pump |

### The unit does not generate the desiderate pressure

| Cause   | Solution   |
|---|--|
| The pumps rotate in wrong direction                           | Check the correct connection to the motor by exchanging two leads                                  |
| On-off valves closed  | Open the valves  |
| Air in the suction pipe                                       | <ol style="list-style-type: none"> <li>1. Eliminate the air</li> <li>2. Prime the pumps</li> </ol> |
| Excessive suction lift  | Reduce the suction lift  |
| Excessive flow resistance on suction side                     | Increase the diameter of the pipes   |
| Foot valve damaged  | Replace the foot valve   |
| Excessive flow resistance in delivery pipes or valve, or both | Reduce water leaks   |

### Triggering of general system protection (fuses)

| Cause         | Solution  |
|---------------|---|
| Short circuit | <ol style="list-style-type: none"> <li>1. Check the connection cable</li> <li>2. Check the motor</li> </ol> |

### Triggering of differential protection

| Cause   | Solution  |
|---|---|
| The motor is damaged                                      | Replace the motor   |
| The power cable of the motor is faulty or worn            | Replace the cable   |
| The residual circuit breaker is not compliant to specific | Replace the residual circuit breaker                                |
| Residual current too high                                 | Contact technicians qualified to modify the electrical installation |

Pump runs at maximum speed without stops

| Cause   | Solution  |
|---|---|
| Pressure set point not suitable for the system (the value is higher than the pump is able to deliver) | Set new set point in according to pump performance      |
| Sensor is not connected or damaged  | Check the hydraulic and electrical connection of sensor |

Only one pump is operating

| Cause                        | Solution                          |
|------------------------------|-----------------------------------|
| Pumps have different setting | Check frequency converter setting |

There is water demand but pump does not start

| Cause                    | Solution   |
|--------------------------|--|
| Set point is set to zero | <ol style="list-style-type: none"> <li>1. Check frequency converter setting</li> <li>2. Set the set point</li> </ol> |



**flowtech**<sup>®</sup>  
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.

### MANUFACTURE & SUPPLY

TELEPHONE : 0333 200 1756

EMAIL: [info@flowtech.org.uk](mailto:info@flowtech.org.uk)

### SERVICE & MAINTENANCE

TELEPHONE : 0333 200 1813

EMAIL: [service@flowtech.org.uk](mailto:service@flowtech.org.uk)

WEBSITE: [www.flowtech.org.uk](http://www.flowtech.org.uk)

ADDRESS : Unit 1 Lock Flight Buildings, Wheatlea Industrial Estate,  
Wigan, Greater Manchester WN3 6XP United Kingdom



Membership No. 700106



Certificate No. 185352020