



flowpac compact[®]

SE Pump Manual

OPERATION AND MAINTENANCE MANUAL

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General

Information

These instructions are to assist in the installation of the flowpac compact SE 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 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! - 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.

This document is to be used in conjunction with a tank and inverter operating and maintenance manual, if you require replacement documents please contact us.

Warranty

The guarantee is rendered null and void if the instructions given in this booklet are not adhered to and/or if anyone other than personnel from our service centres intervenes on the motor-driven pump. In these cases, the manufacturer is relieved from all responsibility regarding injury to people and subsequent damage to adjacent items and/or the motor driven pump itself.

Once you have received the motor-driven pump, make sure that the packaging is not broken or seriously damaged. If it is, immediately inform the person who delivered it. After extracting the motor pump from its packaging, make sure that it was not damaged during transportation. If it has been, inform Flowtech within 8 days from delivery. Check the motor-driven pump plate to ensure that the indicated characteristics are those requested by you.

The following parts, being normally subject to wear, have a limited guarantee:

- bearings
- mechanical seals
- grommets
- capacitors

If a fault that is not listed in the “TROUBLESHOOTING” table occurs, please contact Flowtech.

Residual risks for surface pumps

a) The possibility of coming into contact (even if not accidentally) with the motor’s cooling fan by inserting thin objects (e.g. screwdrivers, sticks and similar) through the fan cover holes.

b) For single-phase pumps, possible start-up without notice due to automatic rearm of the motor protection device, following the latter’s intervention due to motor overheating.

Technical-production characteristics

The motor-driven pump you have purchased has been designed and manufactured in compliance with the following directives:

- MECHANICAL HAZARDS (Annex I Machinery Directive):
 - UNI EN ISO 12100
- ELECTRICAL HAZARDS (Annex I Machinery Directive):
 - UNI EN ISO 12100
 - CEI EN 60204-1
- VARIOUS RISKS (Enclosure I Machines Directive):
 - 2006/42/EC – Enclosure I

The electrical components and relative circuits installed on the motor-driven pumps are in accordance with the CEI EN 60204-1 Directive.

Installation and dismantling, transport and storage

Installation must be carried out by a qualified engineer.

General installation precautions

- a) Use metal or rigid plastic pipes in order to avoid their yielding because of the depression created at suction;
- b) Support and align pipes so that they do not put any stress on the pump;
- c) Avoid throttlings caused by bending suction and delivery hoses;
- d) Seal any piping connections: air infiltration in the suction pipe negatively affects pump operation;
- e) We recommend that a non-return valve and a gate are installed on the delivery pipe at the motor-driven pump outlet;
- f) Fix the piping to the reservoir or to any fixed parts so that it is not supported by the pump;
- g) Do not use a lot of bends (goosenecks) and valves;
- h) on SURFACE PUMPS installed above head, the suction pipe should be fitted with a foot valve and filter in order to prevent foreign matter from entering and its end should be immersed at a depth that is at least twice

the diameter of the pipe; its distance from the bottom of the reservoir should also be one and a half times its diameter.

For suctions longer than 4 metres use an oversized pipe (1/4" wider at suction for improved efficiency).

Installation

- a) Position the pump on a flat surface that is as close as possible to the water source. Leave enough space around the pump to allow safe use and maintenance. A free space of at least 100 mm must be kept in front of the cooling fan of surface pumps in all cases;
- b) Lower submersible pumps using a rope fixed to the handle and hooks provided;
- c) Use pipes of suitable diameters (see PART 2) fitted with threaded sleeves that must be screwed onto the pump suction and delivery unions or its threaded counterflanges;
- d) SURFACE PUMPS cannot be moved or used in the open

Dismantling

The following must be done when moving or dismantling the motor pump:

- a) Disconnect the electric supply;
- b) Remove the delivery and suction pipes (where present) if too long or bulky;
- c) If present, unscrew the screws that secure the motor-driven pump to its supporting surface;
- d) If present, hold the power cable;
- e) Lift the motor-driven pump using equipment suitable to the pump weight and dimensions (refer to the plate).

Transportation

The motor-driven pump is packed in a carton or can be fixed to a wooden pallet, if pump weight and dimensions allow it. Transportation should not, in any case, present any particular problems.

Verify the total weight stamped on the box.

Storage

- a) The product must be stored in a covered and dry place, far away from heat sources and protected against dirt and vibrations.
- b) Protect the product against damp conditions, heat sources and mechanical damage.
- c) Do not place heavy objects on the packaging.
- d) The product must be stored at an ambient temperature between +5°C and +40°C with a relative humidity of 60%.

Electrical connection

- Electrical connection must be carried out by a qualified engineer.
- It is advisable to install a high intensity differential switch (0.03 A) on both the threephase and single phase versions.

Motor-driven pumps not equipped with a plug must be powered by connecting them permanently to the electrical cabinet equipped with a switch, fuses and thermal cut-out calibrated to the pump's absorbed current.

The mains must be reliably earthed, according to the electrical regulations in force in the user's country: this is the installer's responsibility.

If the motor-driven pump is supplied without a power cable, use a cable that complies with the regulations in force and the necessary section according to length, power and mains voltage.

If present, the plug of the single phase version must be connected to the mains far from sprays, water jets or rain and it must be accessible.

The three phase version does not have an internal motor protector, therefore overload protection must be provided by the user.

Submersible motor-driven pumps

- In single phase versions, plug the unit into the socket.
- For three phase versions (FIG. 5), check that the motor turns in a clockwise direction looking at the pump from the top, proceed as follows: with the motor-driven pump not yet secured to the system, connect the power cable to the terminal board and switch on briefly; the pump shall start with a kick in an anti-clockwise direction, seen from the top of the pump. If the direction is wrong (clockwise), invert two of the three wires in the terminal board of the electrical panel.

FIG. 7 shows the standard voltages shown on the plate with their respective tolerances.

Adjustments and recordings

In pumps fitted with a float, adjust the length of the float cable with regards to the minimum and maximum value of the water (see PART 2).

Check that the system automatisms do not require a number of start-ups higher than the number shown in FIG. 8 for surface pumps and in PART 2 for submersible pumps.

Use and starting

Never allow the motor-driven pump to operate without water. Doing so can seriously damage the internal components.

General warnings

- a) Our surface pumps are designed to operate at a temperature no higher than 40°C and a level no higher than 1000 metres;
- b) Our motor-driven pumps cannot be used in swimming pools or similar plants;
- c) Prolonged motor pump operation with the delivery pipe closed can cause damage;
- d) Avoid switching the motor pump on and off too frequently (check the maximum number in FIG. 8);
- e) During power cuts, it is advisable to disconnect the power to the pump.

Starting

- a) Start the pump two or three times to check system conditions;
- b) Restrict the delivery to cause a rapid pressure increase for a few times;
- c) Make sure that the noise, vibration, pressure and electrical voltage levels are normal.

Stopping

- a) Gradually interrupt water circulation in the delivery section to avoid overpressure in the piping and pump caused by water hammering;
- b) Cut off the power supply.

Maintenance and repairs

We recommend periodically checking that the pump is working correctly; pay particular attention to any abnormal noise or vibration and, for surface pumps, any mechanical seal leaks.

The main and most common special maintenance operations are generally as follows:

- Replacement of mechanical seals
- Replacement of grommets
- Replacement of bearings
- Replacement of capacitors.

When the SURFACE pump remains inactive for a long period, it should be emptied completely, removing the discharge and filling caps, washed carefully with clean water then emptied. Do not leave water deposits inside. This operation must always be carried out whenever there is a chance of frost in order to avoid the breakdown of the pump components.

If the power cord needs changing on submersible pumps, this must be done by an assistance centre only.

Troubleshooting

DISPLAYED FAULT	CAUSE	SOLUTION
	Float sticking	Check that the float reaches the level ON
	Thermal protection activated (single phase)	It reactivates automatically (single phase only)
	Incorrect electrical connection	Check the terminal board and the electrical panel
	Automatic switch triggered or fuses blown	Reset the switch or replace the fuses and verify the cause
	No electricity	Check the electrical supply meter
	Plug not inserted	Check the connection to the power supply
THE PUMP DOES NOT WORK The motor turns	Decrease in the line voltage	Wait for voltage to return to normal
	Suction filter / hole blocked	Clean the filter / hole
	Foot valve blocked	Clean the valve and check its operation
	Pump not primed	Prime the pump Check any delivery non-return valves Check the liquid level
	Pressure too low	Restrict the delivery gate
THE PUMP WORKS with a reduced flow rate	System undersized	Re-examine the system
	System dirty	Clean the piping, valves, filters
	Water level too low	Switch off the pump or immerse the foot valve
	Incorrect rotational direction (three phase only)	Invert the two phases
	Incorrect supply voltage	Supply the pump with the voltage indicated on the ate
	Leaks from piping	Check the joints
	Pressure too high	Recheck the system

DISPLAYED FAULT	CAUSE	SOLUTION
THE PUMP STOPS AFTER WORKING FOR BRIEF PERIODS Thermal protection intervention	Liquid temperature too high	The temperature exceeds the technical limits of the pump
	Internal fault	Contact the nearest retailer
THE PUMP STOPS AFTER WORKING FOR BRIEF PERIODS Pressure applications	The difference between maximum and minimum pressure is minimal	Increase the difference between the two pressures
THE PUMP DOES NOT STOP Pressure applications	Maximum pressure too high	Set maximum pressure at a lower value
THE PUMP VIBRATES Or is too noisy during operation	Flow rate too high	Reduce the flow rate
	Cavitation	Contact the nearest retailer
	Irregular piping	Fix in a better way
	Noisy bearing	Contact the nearest retailer
	Foreign bodies sliding along the motor fan	Remove the foreign bodies
	Incorrect priming	Bleed the pump and/or fill it again

Disposal

When disposing of the pump, please comply rigorously with the regulations in force in your country, making sure that residues of the treated liquid are not left inside the pump. Most of our pumps do not contain hazardous polluting material. Specific cases are, however, indicated in the “DISPOSAL” chapter in PART 2.

This symbol on the pump means that it cannot be disposed of with household waste.



This provision only concerns the disposal of equipment within the European Union (2012/19/EU). The user is responsible for disposing of the equipment by taking it to a collection and recycling facility authorized to dispose of electrical waste.

For further information on equipment collection points, contact your local waste disposal authority or the store that you purchased the product from.

Supplied technical documentation

12.1. Drawing showing the electrical connections of a single phase motor-driven pump

See fig. 1-2

12.2. Drawings showing the electrical connections of a threephase pump

See fig. 3-4-5

12.3. Example of a plate

See fig. 6:1-6.2 (The manufacturer reserves the right to modify it).

Fig. 1

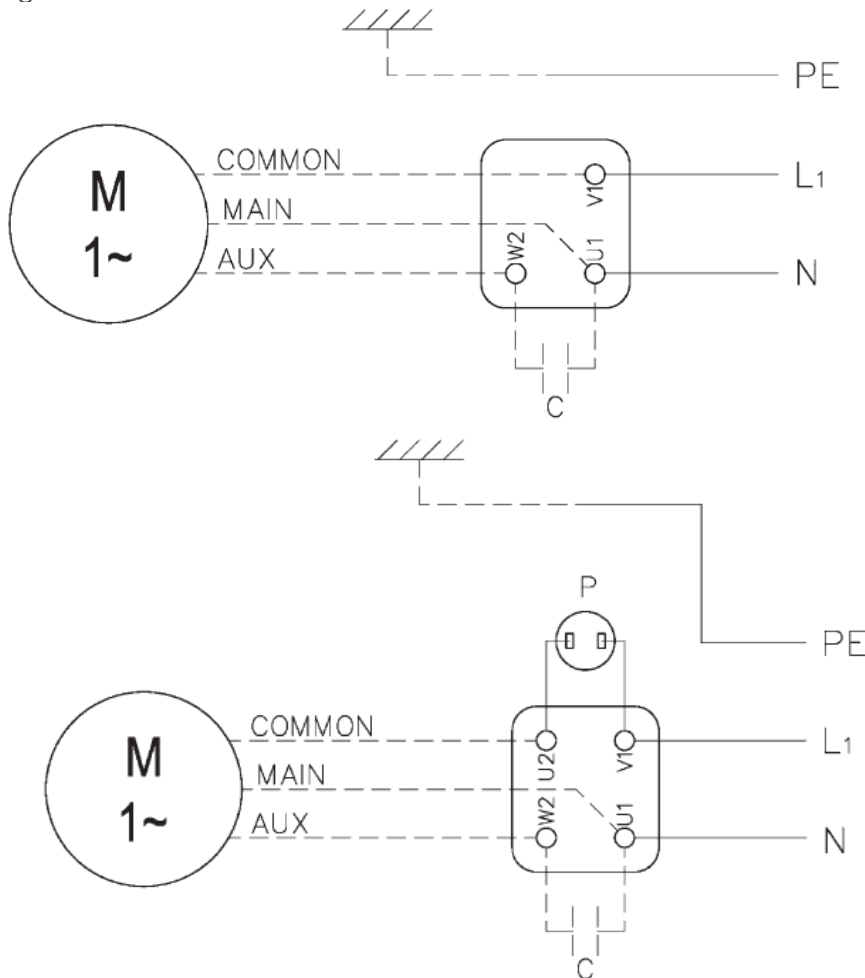


FIG. 2

FIG. 3

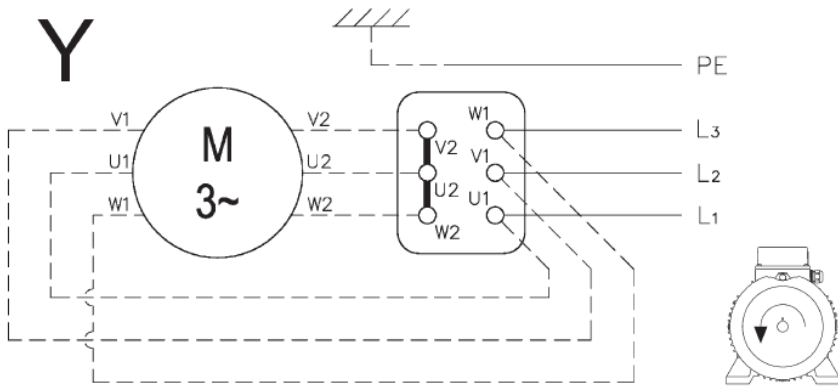


FIG. 4

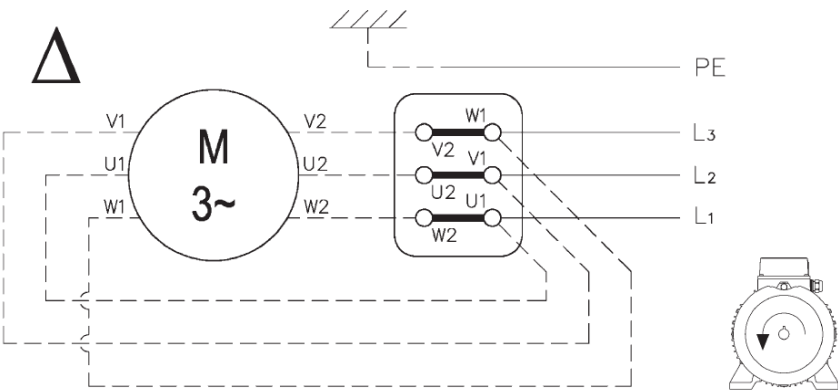
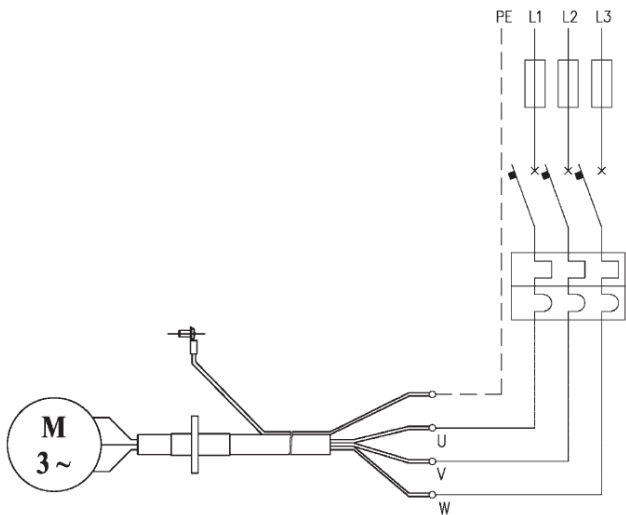
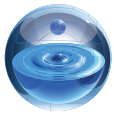


FIG. 5





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WATER SOLUTIONS

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MEMBERS AREA

This section of the **flowtech**[®] 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[®]

AFTER SALES SERVICE

At **flowtech**[®] 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

SERVICE & MAINTENANCE

TELEPHONE : 0333 200 1813

EMAIL: service@flowtech.org.uk

WEBSITE: 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