



flowpac compact[®]

1F.BD Pump Manual

OPERATION AND MAINTENANCE MANUAL

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General

Information

These instructions are to assist in the installation of the flowpac compact 1F.BD 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.

Introduction

This booklet contains instructions for the use and maintenance of the D and D HF series water pumps, both single phase and three phase. The D and D HF electro pump has been designed to pump clean water not containing abrasive particles it can be used in wells with a minimum diameter of 125 mm (5"), as well as in containers or cisterns. The use of the pump for irrigation, gardening, and in the residential and household field is subject to local legislation. Before installing and using the pump, read the following instructions carefully.

Read this manual carefully before installing and using the product.

The manufacturer declines any responsibility in case of accidents or damages caused by improper use of the water pump or due to negligence or lack of observance of the instructions described in this booklet or use of the pump under conditions that differ from the ratings on the nameplate.

Description of the pump

The electro pump D and D HF is supplied in a solid carton box, with its instruction booklet, ready for installation, complete with electric cable.

These data below:

1 phase pumps								
	Power	I	Capacitor	Fatt. Pot.	Capacity L/min		Head m.c.a.	
Model	W	Max. Amp.	mF	Cos.Fi	min	max	min	max
75M	850	4,6	16	0,89	5	80	5	36
100M	1100	5,9	20	0,89	5	80	10	48
150M	1600	7,8	30	0,89	5	80	13	72
200M	2300	10	35	0,89	5	80	16	96
100M HF	1100	6,2	20	0,89	25	200	10	28
150M HF	1690	8,1	30	0,89	25	200	10	42
200M HF	2140	10	35	0,97	25	200	10	56

3 phase pumps							
	Power	I max.	Fatt. Pot.	Capacity L/min		Head m.c.a.	
Model	W	Amp.	Cos.Fi	min	max	min	max
75T	800	1,7	0,78	10	80	5	36
100T	1190	2,4	0,78	10	80	10	48
150T	1590	3,3	0,80	10	80	13	72
200T	2150	4,9	0,80	10	80	16	96
100T HF	1200	2,5	0,80	25	200	10	28
150T HF	1800	3,5	0,79	25	200	12	42
200T HF	2100	4,9	0,82	25	200	16	56

Stocking and handling

The pump should be stocked in vertical position, in a clean and dry place and inside its original packing. When storing do not put weights or other boxes on top.

Never lift or transport the pump by its electric cable.

Preliminary inspection

Unpack the pump and check its integrity in all its components.

Check that the data on the nameplate are according to your needs. In particular the electrical data (voltage, phase number, frequency, rated power and amps) have to correspond with those of the power supply where you want to connect the pump.

Check, in the case of a preinstalled control box and of a single phase pump that the value of the capacitor is according to the one stamped on the nameplate.

In case of anomalies or any doubt please immediately contact your supplier or service point signaling the facts.

Never use the pump in case of doubts about its safety or its use.

Conditions of use

- The following conditions must be observed when using the water pump:
- Temperature of pumping liquid between: Min. +0°C – Max. +35°C
- Max. depth: 70 mt
- Voltage variation allowed: +/- 5%
- Starts for hour: Max. 40
- Minimum positive head level: 150mm
- The pump is not suitable for pumping inflammable liquids or for operating in places with danger of explosion.
- The pump cannot be used in swimming pools or garden Ponds.

Installation

The installation is safety relevant, therefore it must be carried out by an expert and authorized installer.

CAUTION: during installation apply all the safety regulations issued by the competent authorities and dictated by experience and common sense.

- Make sure that the well is free from sand and other dirt, and that its dimensions are sufficient to fit the pump.
- Install a non-return valve on the delivery pipe to avoid the backflow of water.
- Install an anti dry rotation system, (or check an already installed one)
- The pump may be installed with either a metallic pipe (which can be used for sustaining the pump) or with a flexible pipe. In the latter case use a stainless steel cable to sustain the pump. The cable should be anchored in the hole on the discharge head of the pump.
- For no reason whatsoever lift or support the pump with the electric cable.

The pump should not touch the well bottom, keep it suspended (with the help of a support) at a height of at least 150 mm.

- Fasten the electric cable to the delivery pipe to prevent it from getting damaged. Do not pull the cable too tight, so that the possible heat expansion of the pipe is compensated for.
- Make the eventual extension or the cable exclusively with a suitable cable and with a rating according to the necessary length as per our table in paragraph 10.
- Extension junctions should only be made with a safe and waterproof system.
- The ground cable connection must be physically separated from the power cable junction.
- The pump (both single phase or three phase) should be installed with an electric switchboard guaranteeing the following functions: overload protection, short circuit protection, anti dry rotation protection.
- We strongly request the installation of a around fault interrupter / RCCD-protector, whose current differential operation must not exceed 30mA
- For the connection of the single phase pump follow the wiring diagram shown in paragraph 9.
- In case of a three phase pump check also the right sense of rotation. It should be clockwise for DIVER and counterclockwise for DIVER HF looking the arrow on nameplate.
- For no reason, even for only a few seconds, the pump can run dry (without water)
- Be sure, before connecting the power, of the good insulation of the installation (min. 100 Mohm) and of a correct ground connection.
- The pumps DIVER and DIVER HF single phase versions equipped with a build in thermal overload protector. It disconnects the pump when overheated and automatically starts it again once the temperature has gone down to normal.

Maintenance and hydraulic inspection.

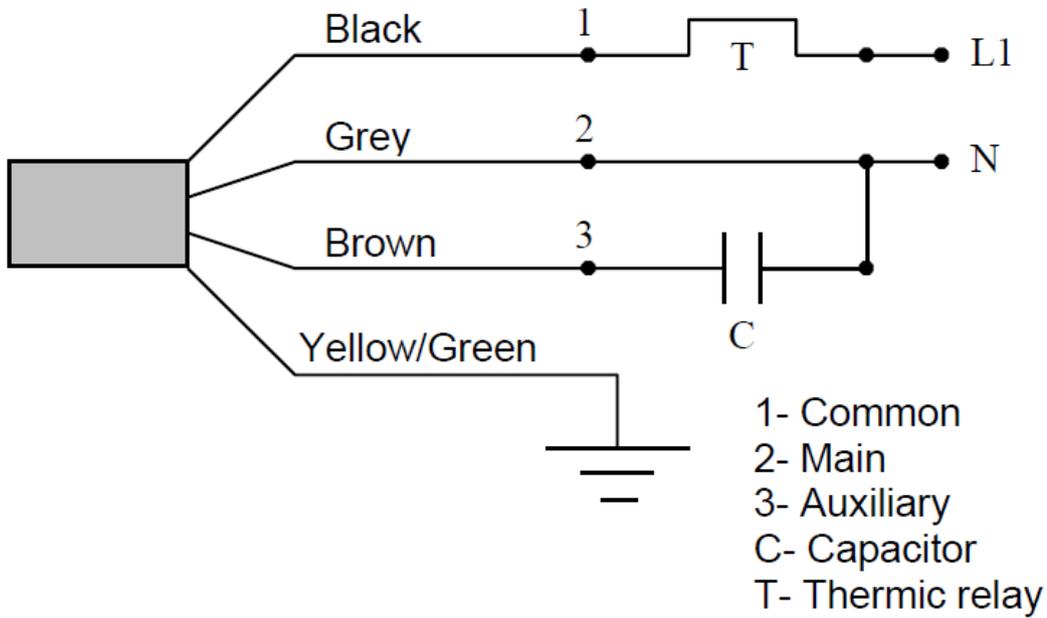
- Before proceeding with any kind of inspection or maintenance, make sure that the pump is disconnected from the power fine without any chance of accidental reconnection.
- Normally the pump does not need any maintenance. It may happen that impellers get blocked by small rocks, seaweed or fibers.
- To clean these or other components unscrew the screen counterclockwise clamping the shroud.
 - The mechanical seal is oil lubricated with 6 cm of WHITE OIL 300 inside a chamber in the lower bearing body . After disassembling the pump, it must be carefully filled up again with the same volume.
 - We strongly suggest to replace all seals every time you disassemble the pump. The manufacturer will supply these seals in one complete Kit.
 - If you disconnect the cable-connector, do clean the male connector pins (in the stator) and the female part (on the cable) before reconnect, preferably using dry compressed air.
 - The liquid can be polluted from loss of mechanical seal lubricating liquid.
 - If the power supply cable is damaged, must be changed by the manufacturer or by any service.
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For any requirements, please contact our Service Department.

Troubleshooting

Issue	Cause	Remedial action
The pump starts and stops.	Incorrect voltage or voltage drop.	Check the voltage during starting; if the cable cross-section is too small, the voltage drop may be such that the motor cannot function normally.
	Open circuit in motor power cord.	Measure the resistance between phases. Refit the pump if necessary and check the cable.
	The motor protection trips out.	Check the current settings on the thermal relay and compare it to the indicated value. Important: do not insist if the relay trips out repeatedly (try to locate the cause); forced operation of the unit could damage the motor (by overheating) in a very short time.
The pump fails to deliver, or the discharge flow is too small,	Voltage low.	Check the supply voltage at the box.
	Suction strainer clogged.	Refit the pump: unclog and clean.
	Wrong direction of rotation (three- phase motor).	Interchange two phase wires at the box.
	No water in borehole, or level too low.	Check the level; it must be at least 150 mm above the pump strainer (with pump running).
Pump starting too often.	Differential on pressure-sensitive switch too small.	Increase the Stop/Start difference.
	Float or electrodes (PMS) incorrectly placed.	Adjust the distance between them so that the time between the stopping and starting of the pump reasonable.
	The bladder tank is too small or is insufficiently pressurized.	Check and adjust the pressures (On/Off). Check the pressure in the tank. Add a tank to increase capacity or change the tank.

Single phase wiring connection



Cable Length

Model	Sect. mmq	1	1.5	2.5
75	Max Length	40	60	100
100		30	45	70
150		20	35	55
200		10	25	40



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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



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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



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