

# Heat<sup>®</sup> Form

## HeatForm



### **Swimming Pool Filtration Pumps Installation, Use and Servicing Manual**

**Covers all models:**

HF Alphaflo 0.5hp, 0.75hp, 1.0hp, 1.5hp, 2hp single speed pumps

1ph and 3ph variants

This equipment must be installed and serviced by a qualified technician.

Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.

**Notice to Installer:**

This manual contains important information about the installation, operation, and safe use of the product. Once the product has been installed, **this manual must be given to the owner/operator of this equipment.**

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## General Safety Rules

The machines mentioned in this manual are specially designed for the pre-filtering and recirculation of water in swimming pools.

1. They are designed to work with clean water at a temperature not exceeding 45° Celsius (113°F).
2. The installation should be carried out in accordance with the safety instructions of swimming pools, **especially Standard HD 60364-7-702**, and the specific instructions for each facility.
3. The rules relating to accident prevention should be carefully followed,
4. Any modification of the pump requires the prior consent of the manufacturer. Original replacement parts and accessories authorised by the manufacturer ensure a high level of safety. The manufacturer of the pump assumes no liability for damage and injuries caused by unauthorised replacement parts and accessories.
5. During operation, some parts of the pump are subject to dangerous electric voltage. Work may only be performed on each pump or on the equipment connected to it after **disconnecting them from mains power**, and after disconnecting the starting device.
6. The user should make sure that assembly and maintenance tasks are carried out by **qualified authorised persons** and that these persons have first carefully read the instructions for service and installation.
7. The operating safety of the pump is only guaranteed if the installation and service instructions are correctly followed.
8. The limit values stated in the technical table should not be exceeded **under any circumstances**.
9. In the event of defective operation or fault, contact the technical support department of the manufacturer or its nearest authorised agents: Lighthouse Pools, Plymouth O1752 253525
10. If the supply cord is damaged, it must be replaced by an authorised service agent.
11. The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety, and only if they understand the hazards involved.
12. The appliance is not intended for use by young children. Young children should be supervised to ensure they do not play with the appliance. Cleaning and user maintenance should not be performed by children.

13. All wiring and electrical work must be carried out by qualified electricians and must be installed in accordance with local codes and regulations.
14. If the pump is installed on a swimming pool or pond situation, it is mandatory that an **earth leakage circuit breaker with a rated tripping current of not more than 30mA be installed.**
15. **Always disconnect the appliance from the mains power supply before assembling, disassembling, or cleaning.**
16. In freezing conditions water must be drained out completely from the pump housing by opening the drain plugs on the pump housing.

### **Important Electrical Notice**

The electrical installation must be done by a qualified electrician.

Each pump requires a circuit breaker to separate the pump from the electrical supply.

The contact separation must provide full disconnection on all poles under overvoltage category III conditions.

If the pump is installed on a swimming pool or pond situation, it is mandatory that an **earth leakage circuit breaker with a rated tripping current of not more than 30mA be installed.**

Check the pump's name plate for the following: Voltage, amperage draw and cycle.

The power cord, including earth wire, shall have a quality of **H07RN-F** for models greater than 1kW power input.

For models less than 1kW input, the quality shall be of **H05RN-F**.

All installations must comply with local codes, based on **IEC 60364-7-702** requirements.

## Location

The pump must be located as close as practical to the pool. The pump must also be in a position that enables easy access for periodic servicing.

Care must also be taken to position the pump in an area that is free from flooding in a well ventilated and dry area. **The pump cooling fan must have a minimum clearance of 150mm.**

## Installation

We use the latest technology when designing and manufacturing out pumps. A few simple precautions during installation will ensure years of trouble-free operation.

1. The pump suction line should be no smaller than 40mm in diameter (1 ½").
2. The suction line is to have as few bends or elbows as possible. There must not be an air trap on the suction line.
3. Use only the barrel unions supplied with the pump.
4. Bolt the pump to the required position to prevent movement.
5. The pump electrical cable must be rated for the correct voltage and duty in accordance with local wiring regulations.
6. All wiring and electrical work should be carried out by qualified electricians in accordance with local regulations.
7. The pump motor must be earthed.
8. The weight of the plumbing, pipework and fittings must be independently supported and not carried by the pump or unions alone.
9. The pump motor cooling fan must have a minimum clearance of 150mm.

## Electrical Connection

Check that the information on the nameplate corresponds to the power supply.

Employ a competent electrician to ensure wiring installation is made in accordance with any local/national rules in the country where the pump is installed.

The national wiring guidelines in the United Kingdom is BS7671:2018+A2:2022.

**Three phase motor variations** do not come with an internal thermal protector and require a **fused disconnect switch or circuit breaker**.

Install and set the safety devices according to the current stated on the nameplate.

Single phase motor variations have a built-in thermal overload switch.

## Three Phase Motor

**Three-phase motors** require a starter switch or magnetic starter with correctly sized overload protection in addition to the fused disconnect switch.

**Check the rotation direction of three phase motors.**

The motor is only suitable for clockwise operation when viewed from the motor end (the end with the fan).

**Three-phase motors could rotate in either direction.** Changing any 2 of the wires of the cable on a three-phase motor will reverse the direction of rotation. To check the direction, turn the pump on briefly (one second). If it is running in the wrong direction, turn off the power, interchange any two wires at the supply terminals, and repeat the above step to check once more.

When installation three phase pumps, a separate device must be available for permanent installation. This is so that the pump can be completely isolated from the mains power. **A contact distance of 3mm per pole is required for both three-phase and single-phase models.**

Motor protection **MUST** be installed corresponding to the nominal current of the motor – **SEE VALUE ON RATING PLATE.**

It is the **responsibility of the installer** to ensure adequate protection between the motor and the power supply.

The installer must protect all three phases on the supply of the motor so that the pump cannot run on 1 or 2 phases only.

### **Warning:**

Before disconnecting electrical connections, shut off the electricity at its source.

## Wiring diagram

Single phase



Blue = Neutral  
Brown = Live  
Green/Yellow = Earth

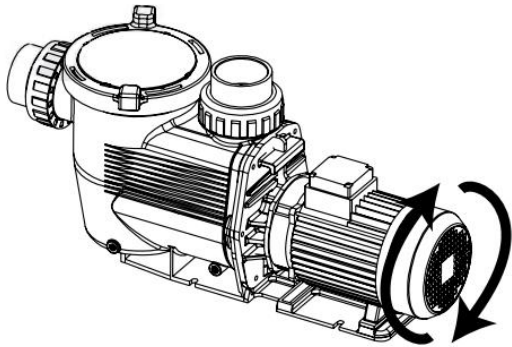
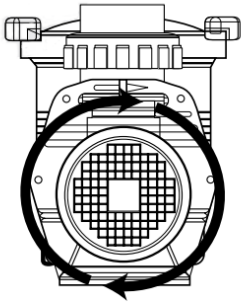
Three phase



Black = L3  
Blue = L2  
Brown = L1  
Green/Yellow = Earth

Note: Electrical wiring configuration may vary in different countries and installers should ensure compliance to these regulations and standards.

## Rotation of a three-phase pump



Clockwise rotation



## Priming

The pump will self-prime providing that the strainer basket bowl is full of water and there is sufficient supply from the suction point.

If you lose water from the filter bowl, it will be necessary to prime before starting:

1. Remove the clear lid and fill the strainer bowl with water.
2. Replace the lid ensuring the o-ring is correctly seated to prevent leaks and re-start the pump.
3. Allow a few minutes for the pump to start delivering water.

### **⚠ Warning:**

High suction lift or long suction lines will require additional time to prime and can severely affect the performance of the pump. If the pump will not prime, repeat steps 1 and 2 above.

### **⚠ Warning:**

Mechanical seals, if allowed to run dry, can be damaged rapidly and may need to be replaced.

**Do not allow the pump to run dry.**

**Ensure there is always water in the strainer bowl** before starting the pump.

If you are unable to prime the pump, please see the trouble-shooting guide.

**Ensure all suction and discharge valves are open** before you start the pump. Operating the pump with valves shut can damage the pump.

## Maintenance

The strainer basket should be inspected and cleaned at regular intervals.

1. Remove the lid and lift out the strainer basket.
2. Remove debris. Hose off with clean water if necessary.
3. Inspect the lid gasket. Replace it if damaged. Lubricate lightly with silicon grease if needed.
4. Replace the strainer.
5. Re-prime the pump.
6. Correctly locate the lid o-ring.
7. Replace the lid – hand tighten only.
8. Switch on pump.

## Cold Temperatures

### **Warning:**

In climates where the pump may be exposed to frost or freezing temperatures, care must be taken to ensure the pump is protected from damage.

If the pump is not used during this winter period, we recommend that it is drained completely. Drain plugs are supplied for this purpose – leave them out over winter. Store the drain plugs in a safe place until they are required again – for example inside the strainer basket.

If possible, remove the pump and store in a dry place for winter.

When you re-activate the pump, ensure all seals and o-rings are in operation condition and lubricate if necessary. Replace if unsure of condition.

Check that the motor shaft turns freely before restarting the pump.

## Fluid temperature

The permissible fluid temperature is greater than 0°C and less than 45°C. The pump should never be operated outside of these temperatures or damage will occur.

# Servicing

If the need arises, or you are unable to service your pump, contact your authorised dealer or service agent for advice or infield service. Always use genuine replacement parts when carrying out pump maintenance.

## Warnings for installation and assembly tasks:

1. When connecting electric cables to the motor of the pump, be careful to correctly arrange them inside the connection box. Verify that no strands of cable or other debris are left inside the box before closing it.
2. Check that the earth wire is properly connected.
3. When connecting the motor, follow the supplied wiring diagram.
4. Be especially careful that no water enters the motor or other electrical parts of the pump.
5. In the event that the planned use is not as specified, adaptations and supplementary technical rules may be necessary.

## Warning for start-up:

Before starting the pump, verify the calibration of the electrical protection devices for the motor and that the protections against electrical and mechanical contacts are correctly positioned and attached.

## Warnings for assembly and maintenance tasks:

1. Be especially careful that no water enters the motor or other electrical parts of the pump.
2. Avoid all contact with moving parts of the pump.
3. Wait until the pump has stopped completely before handling it in any way.
4. **Before carrying out electrical or mechanical maintenance tasks, make sure that the machine has been disconnected from the mains and that starting devices have been locked.**
5. It is advisable to follow the steps listed below before handling the pump in any way:
  - Turn off the voltage to the pump
  - Lock starting devices
  - Verify that there is no voltage in the circuits, including ancillary devices and auxiliary circuits

- Wait until the motor stops completely

**The above list should be considered indicative and not binding for the purpose of safety; specific safety rules may exist in particular situations.**

**Regularly verify:**

1. The correct attachments of the mechanical parts and of the support screws of the pump.
2. The correct position, attachment and condition of the supply cables and of the insulating parts.
3. The temperature of the motor. In the event of any irregularity, stop the machine immediately and have it repaired.
4. The vibration of the pump. In the event of any irregularity, stop the machine immediately and have it repaired.

Owing to the complexity of the cases covered, the instructions for use, installation and maintenance contained in this manual do not attempt to examine all possible and imaginable cases of service and maintenance. If supplementary instructions are required or if special problems arise, do not hesitate to contact the authorised dealer or distributor for advice.

# Troubleshooting

Symptoms	Probable Cause	Action
1. Pump will not prime	<p>Suction air leak</p> <p>No water in pump</p> <p>Closed valves or blocked lines</p>	<p>Make sure water level is correct through suction points. Ensure baskets and strainers are free of debris. Tighten all fittings/unions on the suction side of the pump. Remove, inspect and replace mechanical seal if necessary.</p> <p>Make sure strainer basket bowl is fully primed with water.</p> <p>Open all valves in system, clean skimmer and pump basket, and check pump impeller is free of blockages.</p>
2. Motor will not run	<p>No power to motor</p> <p>Pump jammed</p>	<p>Check that all electrical switches are on. Ensure circuit breakers are properly set. Check if timers are set properly. Check motor wiring at terminals.</p> <p>With power off, check pump shaft turns freely. If not, contact dealer or distributor.</p>
3. Low flow	<p>Dirty filter</p> <p>Dirty skimmer and pump strainer</p> <p>Suction air leak</p> <p>Closed valve or blocked line</p>	<p>Backwash or clean cartridge</p> <p>Clean skimmer and pump strainer</p> <p>See 1</p> <p>See 1</p>
4. Motor runs hot	<p>Low or incorrect voltage</p> <p>Poor ventilation</p> <p>Installed in direct sunlight</p>	<p>Supply to be corrected by electrician. It is normal for motors to run hot to touch. A thermal overload protector will activate if there is an overload or cooling problem.</p> <p>The motor cooling fan must have 150mm clearance</p> <p>Shield from the weather.</p> <p>Do not tightly cover or enclose the motor.</p>
5. Pump is noisy	<p>Bad bearing</p> <p>Air leaking in suction</p> <p>Suction blockage</p> <p>Foreign matter in impeller</p> <p>Cavitation</p>	<p>Arrange for replacement</p> <p>See 1</p> <p>Locate and clear blockage</p> <p>Dismantle pump and clean impeller</p> <p>Improve suction, reduce suction lift, reduce number of fittings, increase pipe size, increase discharge pressure and reduce</p>

		flow by throttling discharge valve
6. Motor overload cuts out	Motor not connected properly  Low incoming voltage  Overload due to binding in pump or wrong size impeller	Have electrician check wiring  Have electrician check voltage. Ensure pump not running on an extension cord. Report low supply voltage to network operator.  Contact authorised dealer or distributor for service.

## Warranty:

Warranty period is for 1 year from the date of installation and covers parts only.

Should you experience faults, always contact your supplier/installer in the first instance. Failure to do this may void your warranty.

All electrical work is to be carried out by a qualified electrician. Under no circumstances should you attempt repairs on the electrical components of the pump unless you are suitably qualified.



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