

It is important to read through this manual carefully in order to ensure the function and useful life of the pool equipment. This manual can also be found at [www.pahlen.com](http://www.pahlen.com). Pahlén AB is not responsible for product warranties or for damages that occur as a result of faulty installation, improper use or poor maintenance:

## WARNING

- This device must not be used to heat drinking water.
- This apparatus must not be used in aggressive water, salt water or pools/hot tubs with chlorine machines/salt chlorinators, see the recommended values regarding the water quality.
- The water inlet on this device must not be connected to the water from any other water heating system.
- The heater must be installed in accordance with the applicable national legal statutes and directives, and the electrical installation must only be performed by a qualified electrician.
- Do not begin the installation of the product before you have read and understood the installation instructions and warnings in this manual. If you have any questions about the installation instructions or warnings, contact your local retailer.
- Under no circumstances may this device be started before it is completely filled with water.
- This device must not be covered, placed in the vicinity of inflammable material or in direct sunshine.
- This device must not be used by very small children (0-3 years old).
- This device must not be used by small children (3-8 years old) and persons with highly comprehensive and complex functional disabilities unless they are constantly supervised by a person responsible for their safety.
- This device may be used by children over 8 years of age, and by persons with impaired physical, sensory or mental capacity or with a lack of experience or knowledge, provided they have received guidance on how to use the device safely and that they have been made to understand the risks that may occur by a person responsible for their safety.
- Children may not play with the device.
- This device must not be cleaned or maintained by children without supervision.
- If the installation instructions are not followed, the product guarantee is null and void.

## Product description

The electric heater comes in three different effects: 1.5kW, 2kW and 3kW.

The heater comes with an adjustable thermostat with a temperature range of 0–45 °C, overheating protection with a maximum breaking temperature of 60 °C and a flow switch that breaks the voltage when the water flow is below 90 L/ min.

The mantel is made of plastic, the electrical cartridge of Incoloy 825 and the connections are made of PVC.

Included as standard are connections for internal bonding to Ø50 mm PVC pipe.

Option A: connections for internal bonding to Ø1½" PVC pipe.

Option B: connections with 1½" internal thread.

The heater must NOT be used in aggressive water, salt water or in pools with chlorine/salt chlorinator.

## Technical data

Maximum flow:	300 L/min
Maximum flow:	90 L/min
Voltage:	220-240V, 1-phase
Max. pressure:	1 bar
Max. temperature:	45°C

## General information

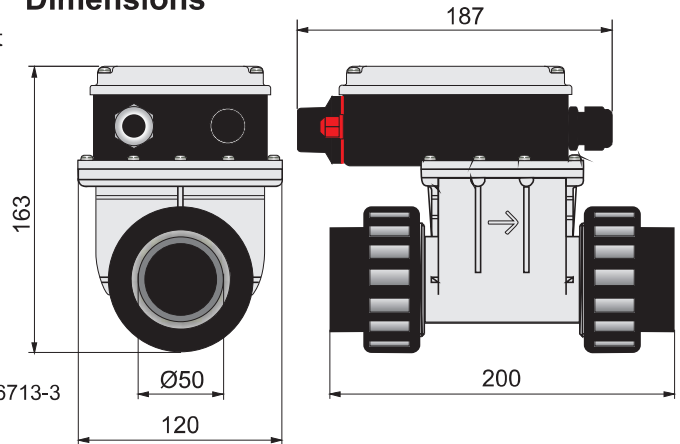
To ensure good function and long life of the heater, it is important to follow the recommended values for water quality below.

Total chlorine content:	max 3,5 mg/l (ppm)
Chloride (salt) content:	max 250 mg/l (ppm)
pH-value:	7,2 - 7,6
Alkalinity:	60-120 mg/l (ppm)
Calcium hardness:	100-300 mg/l (ppm)
Iron:	max 0,1 mg/l *
Copper:	max 0,2 mg/l *
Manganese:	max 0,05 mg/l *
Phosphorus:	max 0,01 mg/l *
Nitrate:	max 50 mg/l *

\* Complies with EN 16713-3

Outside these values the product warranty does not apply.

## Dimensions



## Installation in Circulation System

### WARNING

- The water inlet on this device must not be connected to the inlet water from any other heating system.
- This apparatus must ALWAYS be installed at least 200 mm below normal water level, see the installation example.
- Valves must not be installed so that the water flow through the heater can be inadvertently shut off completely.
- The installation must be designed in such a way that the heater cannot be self-drained in the absence of pool water circulation and air pockets cannot be formed.
- The heater must be installed on the return conduit to the pool AFTER any filter.
- Any dosing of chlorine, acid or similar must be done AFTER the heater in the direction of the flow.
- Marking of flow direction on the heater shows which connection applies to inlet and outlet.

### NOTE! The heater connection box must be facing upwards.

- Pipe connection is performed before electrical installation.
- The heater should be installed on the return line to the pool AFTER any filters
- **Connection must be made with at least 200 mm straight length before and after the heater.**  
The standard version's connection is glued on PVC pipe with an outer 50 mm diameter (inner diameter minimum 42 mm).  
Connection A: glued to PVC pipes with outer diameter Ø1½" (inner diameter min 42 mm).
- Connection B: hose with inner diameter minimum 35 mm is connected and should be clamped to ensure 200 mm straight length before and after the heater.
- Do not install shut-off valve between heater and pool. If a valve is required here, this should be a non-return valve.
- If the heater is placed against combustible material, a fireproof disc or the like must be placed between the heater and combustible material. The disc should cover 10 cm outside the outer dimensions of the heater.
- The heater must be mounted in a non-weathered position and be protected against water ingress.
- The heater must not be covered.
- If the location of the heater is such that there is a risk of freezing, the installation must be so designed such that the heater can be emptied of all water.

If the installation instructions are not followed, the product warranty does not apply.

## Start

Under no circumstances should the heater be started without it being completely filled with water.

1. Fill water in the pool to the correct level.
2. Start the pump for the pool water circulation.
3. Check that the water circulates normally in the system and that all air is drained from the system.  
The heater must be completely water-filled before switching on the power. The heater can only be switched on when all air is drained out of the system.
4. Test the heater by turning the thermostat knob back and forth. Make sure the thermostat contactor turns on and off.  
Check the flow switch by closing the flow through the heater. The contactor should then switch off. Switch on the water again.  
The contactor should then switch off.
5. Set the desired pool temperature with the thermostat knob.
6. The water is now heated to the set temperature.

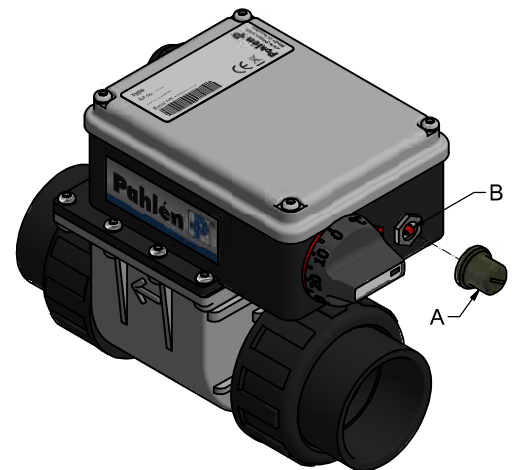
## Operation

When rewinding the filter, switch off the power to the heater.

If there is a risk of freezing, the power must be switched off and the heater must be emptied of all water.

## Troubleshooting

1. Check the fuses.
2. Check that the system has the required flow through the heater.
3. For safety reasons, the heater's overheating protection is triggered in the absence of water or poor circulation. This is the most common reason why the heater has "stopped working".  
Check if the overheating protection has tripped and investigate the cause.  
After the cause has been clarified and rectified, the overheating protection is restored by:
  - Unscrewing the protective cap (A).
  - Pressing the reset button (B) on the junction box.
  - Screw the protective cap back on.
4. Checking the heater function, see item 4 under "Start".
5. Adjusting the thermostat to a higher temperature.
6. If the problem persists: contact the installer.



## Waste management and recycling

You must dispose of this product according to local laws and regulations.

Since this product contains electronic components, it must be disposed of separately from household waste. When this product reaches the end of its life cycle, contact local authorities to find out more about waste management and recycling.

## Electrical scheme of heater connection

