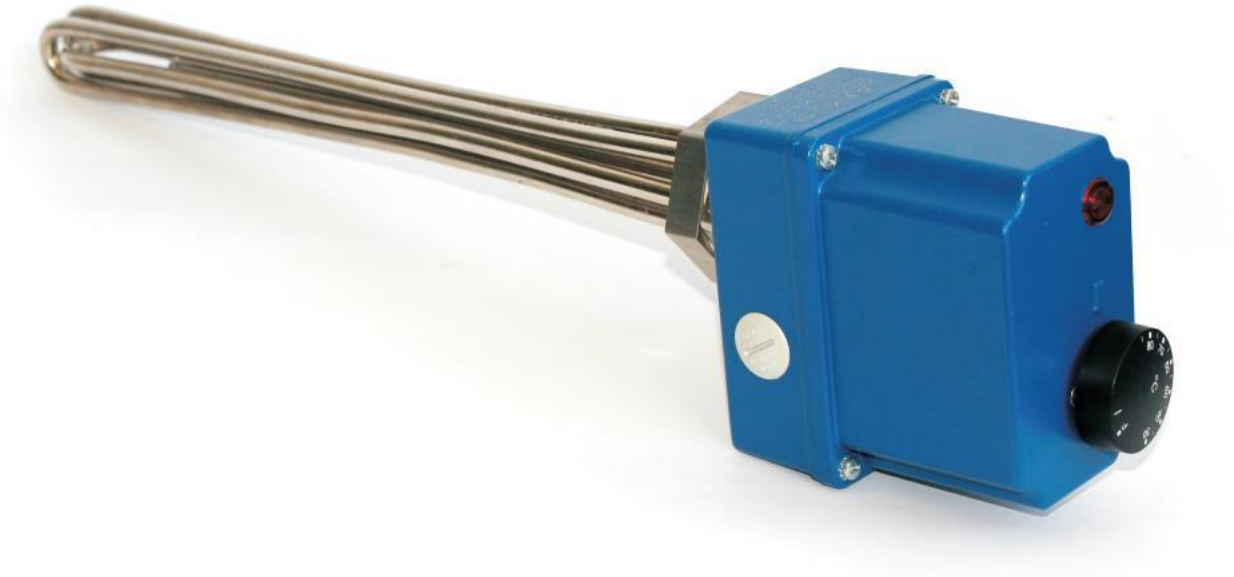
INSTRUCTIONS AND GUIDE

for immersion heater

ETK



CONTENT

DESCRIPTION

Immersion heater ETK is used for heating of water in a different appliances, for example in boilers, thermal stores, buffer tanks, accumulators etc. Immersion heater must be immersed constantly in liquid during the operation.

Tubular heating elements consist of two parts:

1. Heating part

The heating part consists of 3 heating branches made of brass or stainless steel with a very strong insulation material, which incorporates a heating spiral. The materials of these parts ensure maximum corrosion protection. The heating element and the head are connected by a thread G1 ½ "or M48x2, made of stainless steel or brass.

2. Terminal block

The cover is made from aluminum sheet casting with IP30. Part of the terminal block is a three-phase regulating thermostat with a range of 7 to 77 ° C, overheating protection in the form of a thermal fuse, status indication (heating / not-heating) and a control button.

The heating element is installed using the G1 ½ "or M48x2 threaded head. The electrical supply can be installed via the OBO-VTEC cable gland.

Electrical connection: Electric. leads are installed directly on the temperature control terminals. The heater must be earthed according to the requirements of the relevant standards. The desired temperature is set by the control knob, and the indicator shows the status heating / not heating.

The immersion heater must be installed by a qualified person, ensuring compliance with the relevant standards and regulations. The user is required to check the functionality of the new device.

RECOMMENDED USE

The following table lists the recommended minimum fluid volumes according to the output of the heater. Exceptions are possible depending on usage. The heating part of immersion heater must be immersed in the specified amount of liquid all the time of use.

Power rate [W]	Min. amount of liquid [in litres]	Approximate amount of liquids [in litres]
2400	6	120
3000	8	150
4500	12	225
6000	16	300
7500	20	375
9000	24	450
12000	28	525

Formula for calculating required power rate of immersion heater:

$$P = \frac{k \cdot \Delta T \cdot m}{s}$$

P = Heat output
k = coefficient of specific heat capacity (see table)
ΔT = the difference between the start and end temperatures
m = weight of the medium
s = heating time

Calculation example:

$$1500W = \frac{4180 \cdot (50°C - 5°C) \cdot 28kg}{3600}$$

To heat 28 liters water from 5 °C to 50 °C in 1 hour a 1500 W immersion heater is required.

IMPORTANT NOTICES

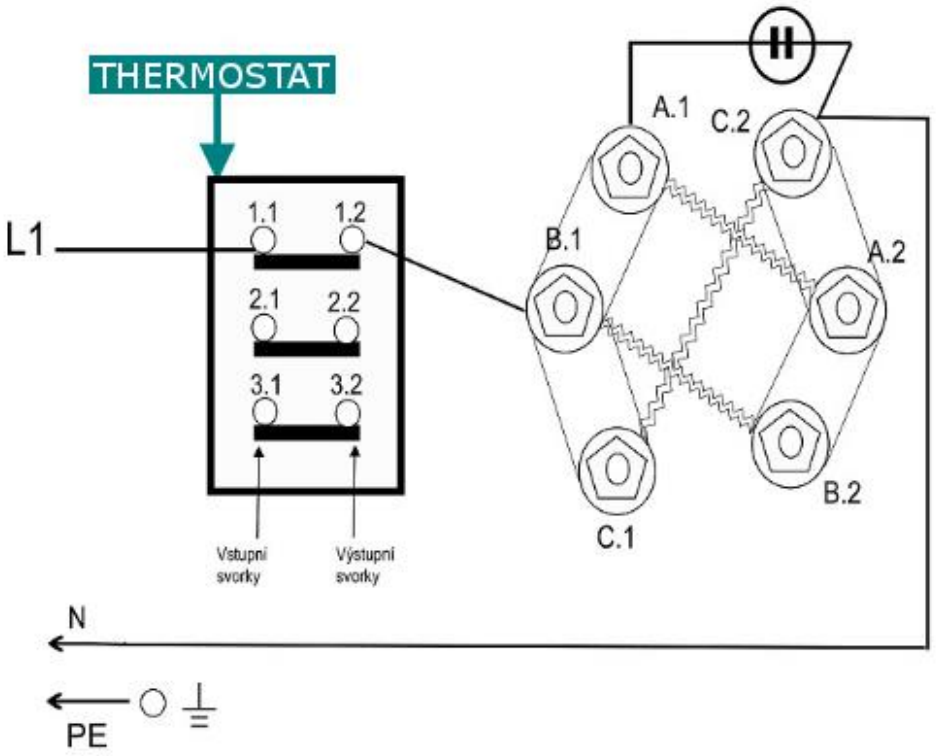
The thermal fuse is only sufficient to protect against excessive temperature, assuming that the heater is fully immersed in the liquid. Otherwise, other protective systems need to be installed, such as a fluid level control system, etc.

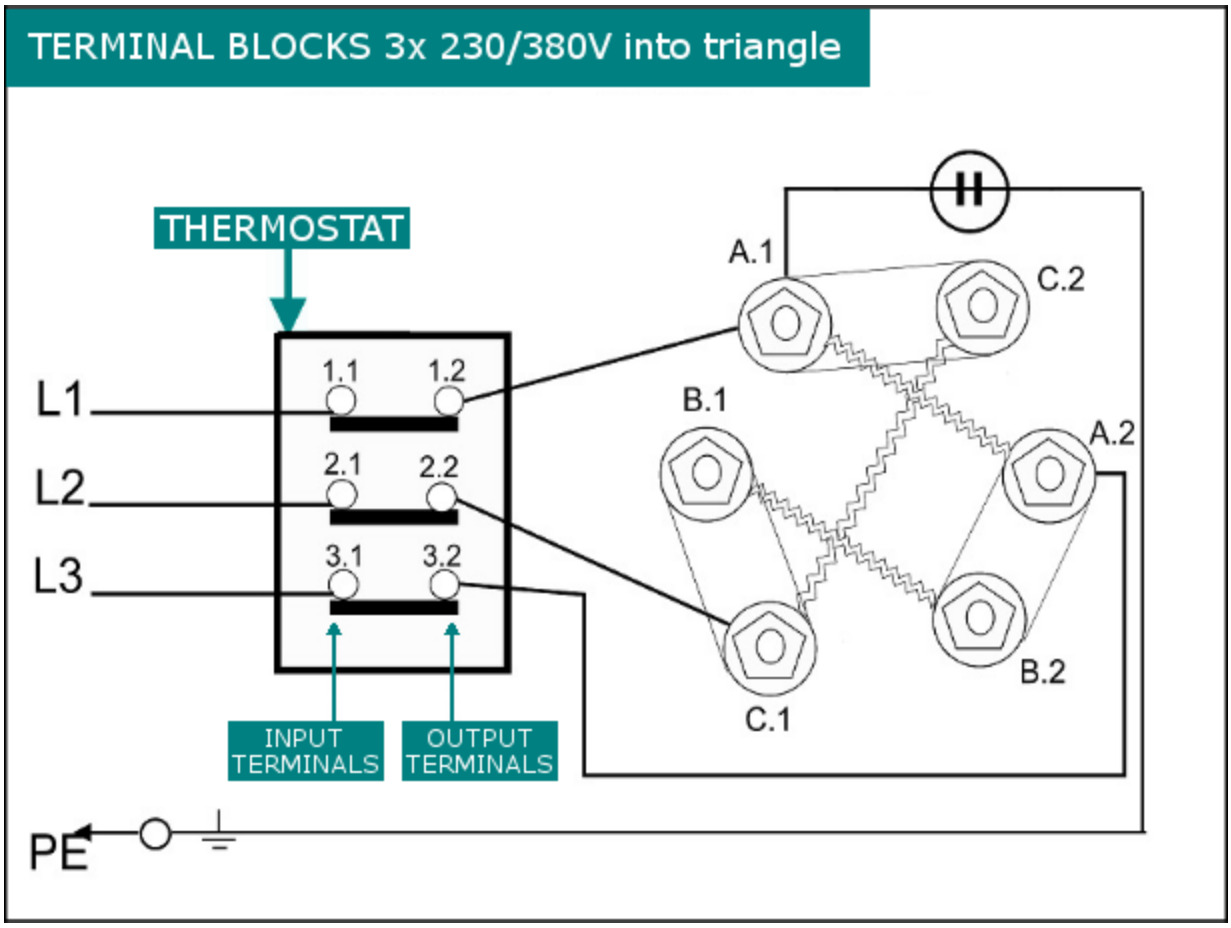
Safety precautions

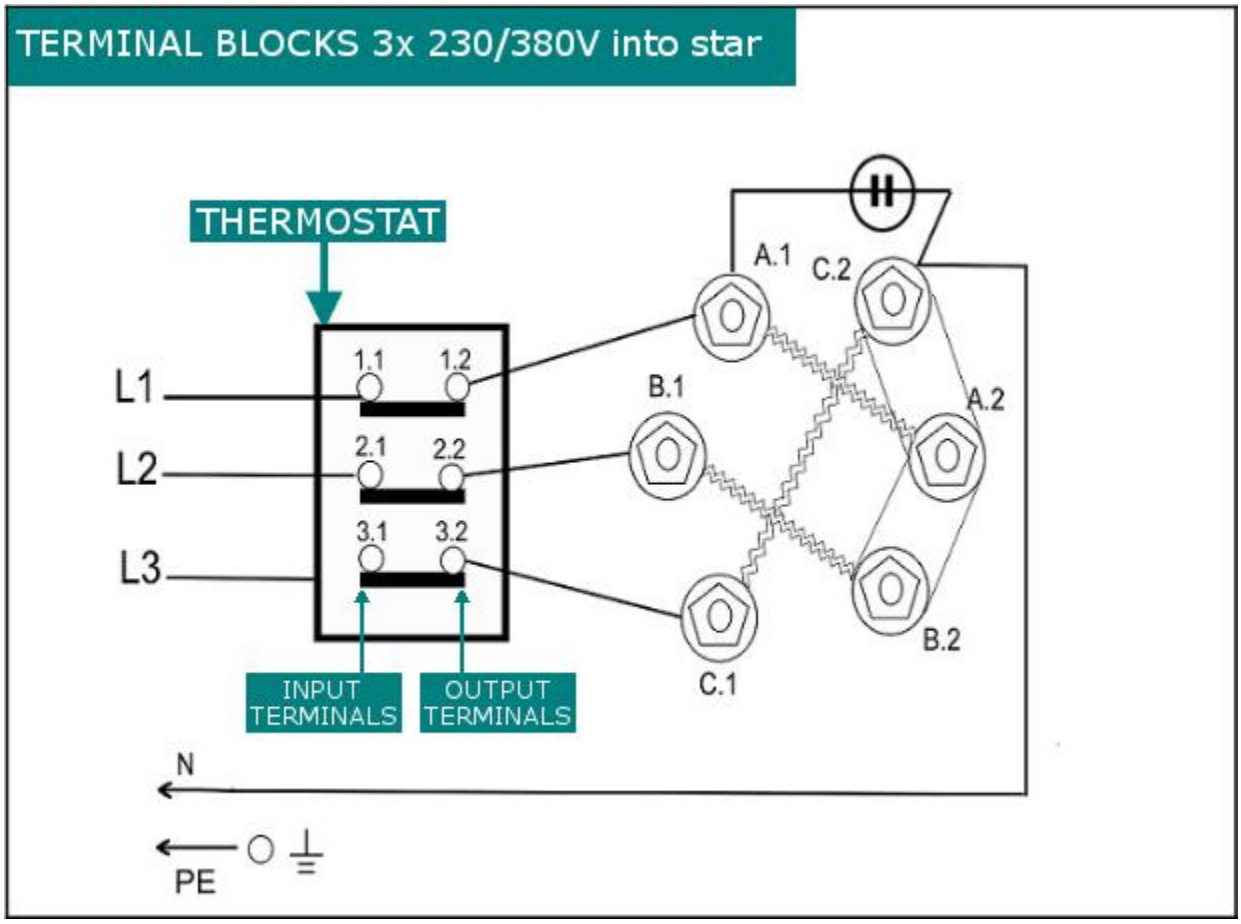
- The safety valves must always be set so that the pressure in the tank does not exceed a nominal value of more than 1 bar.
- In closed heating system, the components and protection devices must be placed.
- In the case of an open water tank, the outlets must be set so that the pressure in the vessel does not exceed the nominal pressure.
- Immersion heater is installed always in horizontally.
- When installing the immersion heater, disconnect all poles from the mains by opening the contacts by at least 3 mm per pole. This can be done, for example, with an electric switch.
- It is necessary to check whether there is a water (or other liquid) in the tank before the first opeartion.
- The immersion heater must always be immersed in the fluid during operation.
- The immersion heater has been tested for resistance to static pressure of 10 bar.

CONNECTION DIAGRAMS

TERMINAL BLOCKS 1x 230V




TERMINAL BLOCKS 3x 230/380V into triangle
THERMOSTAT
L1
L2
L3
1.1
1.2
2.1
2.2
3.1
3.2
INPUT TERMINALS
OUTPUT TERMINALS
PE
A.1
C.2
B.1
A.2
B.2
C.1


TERMINAL BLOCKS 3x 230/380V into star
THERMOSTAT
L1
L2
L3
1.1
1.2
2.1
2.2
3.1
3.2
INPUT TERMINALS
OUTPUT TERMINALS
A.1
C.2
B.1
A.2
B.2
C.1
N
PE