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OWNER'S MANUAL

REMOVABLE VERTICAL AND HORIZONTAL IMMERSION

HEATERS

WITH SHEATED ELEMENTS

1 - DESCRIPTION

These removable immersion heaters consist of heating elements (maximum 3), which are assembled by being soldered or welded onto:

- either a threaded plug receiving a bakelite handle (with a PE tip): this is for one single metal-clad element per immersion heater,
- or a stainless steel mechanism plate, to which is fixed an impervious polyamide 6/6 glass-loaded housing, with a PE.

All heating elements of each immersion heater are usually identical (power, voltage, length, heating length, shape, material, diameter, surface treatment etc.).

2 - TECHNICAL SPECIFICATIONS

Consult our "*Removable vertical and horizontal immersion heaters with metal-clad elements*" guide and the relevant drawing (where the appliance has been specially manufactured).

3 - FITTING AND ELECTRICAL CONNECTION

3 - 1 - **Prior to installation** : Check that:

- the materials of which the immersion heater is made and its load (W/cm^2) are compatible with the fluids to be heated, in accordance with the operating conditions, and that there is no risk of galvanic coupling.
- the heating level (H_c) will still be submerged at the minimum level of the bath.
- the lower end of the immersion heater leaves a minimum area of 50 mm free at the bottom of the tank (in case there is a risk of deposition within the bath).
- the supply voltage corresponds to the voltage for which the immersion heater is designed (see § 3 -3 for details of how to connect it).

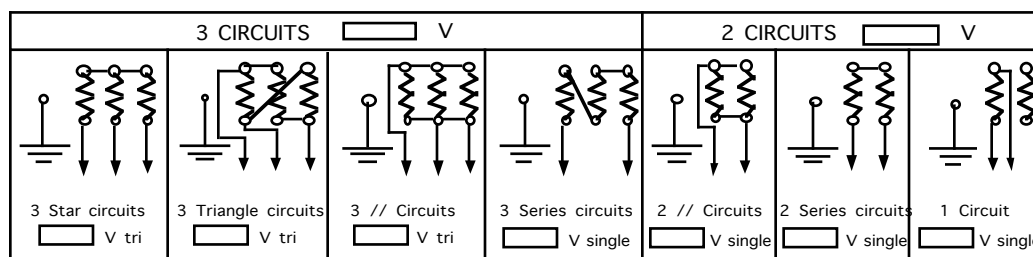
3 - 2 - **Fitting** :

- Using the (optional) fixing bracket will facilitate fitting the immersion heater.
- Ensure that the body of the immersion heater is not in contact with the vertical wall of the tank.

- The heating section of the immersion heater must be completely submerged, and must not be coated with deposits or buried in sludge (particularly at the bottom of the tank, for instance).
- The composition and the temperature of the bath are of paramount importance as regards the service life of the casing: the composition of the bath should therefore be checked regularly if necessary, and care should be taken to ensure that it is properly heat-regulated.

3 - 3 - Connection

- Standardised immersion heaters are usually supplied uncoupled. Use one of the following diagrams when coupling them :



- To prevent any risk of error, check the position of the circuits prior to coupling in accordance with the above diagram, and the voltage for each pin and the network voltage.
- Connect the earth terminal to the installation earth.
- Ensure that the connections to the heating elements are properly tightened.
- When choosing a connecting cable, take into account the fact that the temperature within the housing may be around 20°C to 50°C higher than the external atmosphere.

We strongly recommend that you install a safety thermostat or regulator, which is separate from the main regulation device, and which irreversibly cuts off the electrical supply where overheating is detected.

4 - COMMISSIONING PROCEDURE

4 - 1 - Precautions to be taken prior to commissioning:

- The immersion heater must not under any circumstances be switched on without the heating section being completely submerged (it is strongly recommended that a level-monitoring device is fitted).
- The safety thermostat or regulator of the installation has been set at a reference temperature value which is slightly higher than the temperature of use.

4 - 2 - Commissioning

- Switch on the immersion heater. Check immediately that the on-line intensity conforms to that for which it is designed, and set the regulation devices.
- After stabilisation at the nominal temperature of use : manually cut off the safety thermostat (or regulator) and set it approximately 20 °C above this value.

5 - MAINTENANCE

After 50 hours operating:

Check that all connections are tight.

Every six months:

Same operation as in the previous paragraph.

At least once every year, and more frequently if required:

Dismantle the immersion heater and clean the heating elements, without damaging them, if sludge or limescale have built up on them (there is a risk that these will considerably shorten the service life of heating elements by obstructing heat exchange with the liquid).

Remove any sludge which may have formed in the bottom of the tank.

After the immersion heater has been reassembled, follow the commissioning instructions in § 3-2, 3-3 and 4.

6 - GUARANTEE

The guarantee conforms to inter-union electrical construction agreements.

In view of the large number of tests conducted by our quality control department during the course of manufacture, and prior to the appliance being supplied, the probability of our equipment being defective is minute.

We guarantee that materials and surface treatments supplied will be in conformity with the definition given in our documents.

On the other hand, we cannot be held liable for any deterioration caused by:

- using the appliance above 10% over the nominal voltage intended,
- wear and tear caused by lack of maintenance, impacts, rough handling or inexperience on the part of the user,
- phenomena of corrosion (including in mains water) or boiler scale deposits.

on account of the variety of parameters which can cause these, and which are beyond our control.