HEATING GROUP International
WHEN RELIABILITY MATTERS!

INSTALLATION & MAINTENANCE IMMERSION HEATERS

General information
Immersion heaters are for heating water, oil and all sorts of other liquids and gaseous substances. The immersion heaters can be supplied with or without temperature control and safety thermostat in the terminal box. Some applications are: solar water heaters, climate systems, gas and oil pre-heaters, humidifiers, industrial dishwashers, cleaning baths, steam generators, cooking vessels.
The immersion heaters are manufactured in compliance with the Low Voltage Directive EN 60-335-2 and the directive “Safety of household and similar electrical appliances” EN 60-335-2-21.

Installation and operation

- Installation has to be carried out by a recognized installer in conformity with the local valid rules.
- The heater must be inserted horizontally. And positioned according to the technical drawing.
- When the immersion length is 1500mm or longer the elements must be supported by a support bracket.
- The thread or flange must be packed with a suitable packing material.
- The electrical connection must be made according to the wiring diagram on the drawing.
- The earth wire must be connected to the earth clamp at the base of the connection box or on the flange.
- Before closing the box, make sure that the gasket is in position.
- After the cover has been locked, the heater can be energized (in case of circulating medium, insure that the medium is circulating before energizing).
- The immersion heaters must be fully submerged when energized.
- The heater can only operate within the design specification mentioned in the technical datasheet or drawing.

Maintenance

Storage
The circulation heater (and spare parts if applicable) shall be stored in areas which are suitable for the storage of electrical products and shall be protected from humidity. The sealing caps located on the couplings prevent entrance of humidity and shall be removed only when preforming the electrical connection of the heater.

Electrical resistance control
Remove power supply and disconnect power supply harness. Measure electrical resistance at room temperature with a Ohm-meter class 0,5, making sure that is has been properly calibrated. Check connection type (star = measure between phase and earth, triangle = measure between phase and phase) and verify the measured values.

Connections control
Verify the tightness of all electrical connectors, electrical bridges and screw at least once every 6 months. If the contact box is subject to cyclic oscillations of the temperature, this verification shall be performed at least every 3 months. In addition it shall be verified that power supply harness and its insulation is in perfect condition, exchanging it in case of questionable adequacy.

Safety devices (if present)
Disconnect electrical connection cables and the thermostat connections from the power relais, verifying the electrical continuity with a tester. Should the thermocouples require substitution, they can be removed extracting from their seats. In case the thermostat shall be substituted, it can be removed extracting the sensing element from its seat and dismounting the thermostat head from the terminal block.

Heating elements shell verification
Perform a periodic visual inspection of the heating elements shell and remove timely potential deposits, causing a bad thermal heat exchange and corrosion, accumulated during the normal operation of the plant. The removal shall be executed making use of not-abrasive devices.

Comments

- Avoid any malfunction of the immersion heater like too low level, dry running or flow drop, etc. Therefor level- or flow protection will be advised.
- In case of a failure deenergize the heater, check for damages, check the supply voltage, test for earth fault, measure the resistance of the heating elements and check the thermostat(s) (if present) for correct operation.

Specific cautions directive 97/23/CE

- Never use the material apart from the limits mentioned on the manufacturer tag plate.
- The user has to verify as often as necessary the operation conditions as well as the equipment itself to make sure that the main safety devices are not deteriorated. Should it be the case, the installation must be deenergized.