

Operating, Installation & Maintenance Instructions For Flameproof Immersion Heaters Cert. No. Basefa03ATEX0119X

Installation

BEFORE INSTALLATION, REFERENCE SHOULD BE MADE TO THE FOLLOWING STANDARDS

BS EN 60079-14
BS EN 60079-10

THIS EQUIPMENT CARRIES A NAMEPLATE (Fig 1) INDICATING THE GAS & TEMPERATURE CLASS GROUPS FOR WHICH IT IS CERTIFIED. PLEASE ENSURE THAT THIS CORRESPONDS WITH THE CLASSIFICATION OF THE ZONE INTO WHICH THE EQUIPMENT IS TO BE INSTALLED.

This heater has been manufactured with great care from the highest quality materials and thoroughly inspected before leaving the works.

It must be handled with great care and stored in dry conditions, not exposed to a wet or damp atmosphere, as befits any electrical apparatus

It is supplied ready for operation and prior to start up requires only the connection of supply cabling via a suitable Exd flameproof certified cable gland (not supplied). For cable entry sizes see General Assembly Drawing As supplied.

ALL TESTING, CHECKING OF THE HEATER ELEMENTS AND SETTING OF THERMOSTATS INVOLVING THE USE OF ELECTRICAL EQUIPMENT, WHICH MAY PRODUCE SPARKS, MUST BE CARRIED OUT IN A SAFE AREA BY SUITABLY QUALIFIED PERSONNEL.

When handling the terminal box flanges, adequate precautions should be taken not to damage the mating flanges and threads on the main enclosure body.

Special Conditions for Safe Use

1. The temperature classification is based on the mounting flange temperature. This certificate does not cover the temperature of any part of the heating element inside the vessel itself. Safety with regard to ignition risks due to hot surfaces inside and outside the vessel is the responsibility for the installer and/or the user as appropriate.
2. The heaters are only to be used for heating non-flammable and non-explosive liquids and gasses. It is the responsibility of the installer and/or the user to ensure that an explosive atmosphere as defined in EN60079-0 does not occur inside the vessel.
3. It is the installer and/or user's responsibility to ensure that the integral non self-resetting temperature sensor is connected into a control circuit with a second temperature controlling device, such that should either operate, the electrical circuit supplying power to the heating elements is de-energised and cannot be re-energised without manual operation.

4. Immersion heaters are designed to operate ONLY when the heating elements are totally immersed in the medium and MUST NOT be switched on when the heating elements are exposed to air.

5. Air / Gas heaters may be rated for No Air / gas flow or With Air / Gas flow. Installer / User Must ensure the element surface temperature does not invalidate the temperature classification.

Air flow sensors and / or element surface temperature sensors may be required where appropriate.

Mechanical Installation Instructions

- The heater is supplied with a gasket, ready to be bolted or screwed to the appropriate attachment on the vessel. It is not recommended that sealing compounds be used.
- After fitting the heater into the vessel, the system should be filled with the medium to be heated and a check made for leaks around the joint. The Vessel should be filled according to your standard procedure ensuring that all air pockets are purged from the system.
- It is the USERS responsibility to check that correct Master & Control thermostats are fitted, bearing in mind the operational temperature & 'T' class rating. The Control thermostat is provided to regulate the temperature to the desired setting and preferably be set in it's mid range. The master thermostat should be set approximately 15°-20°C above the control thermostat setting.
- If thermostats are not fitted in the heater THEN separately mounted Master and Control thermostats in certified enclosures MUST be supplied and fitted.
- Alternatively capillary thermostats may be fitted.
Note: Scald temperature of water is 66°C.
- If any cleaning or sterilising solutions are to be 'flushed' through the system prior to commissioning, a check should be made to ensure that the solution would not damage the heater.
- **Where the heater is supplied with a threaded gland, the heater must be tightened using a spanner on the octagon. In no circumstance should a pipe wrench or stilsons be applied to the terminal enclosure.**

Warning: Do not cover the heater terminal enclosure.

Electrical Installation Instructions

Before removing the terminal box cover, the heater should be electrically isolated.

All electrical wiring must be carried out by a qualified person and must be compliant with the current I.E.E Regulations to B.S.7671.

Before connection ensure that the supply available corresponds with that of the rating plate.

We recommend that the insulation of each circuit within the heater be checked prior to installation. The minimum insulation reading between live and earth should not fall below 2MΩ. (B.S.7799: 1998)

If there is an unacceptably low insulation reading on any of the elements, this will have been caused by dampness due to storage in a moist atmosphere. It will be necessary to dry them out. The

heater should be disconnected and returned to Ormandy Electric Heaters, Bradford.

Checks for continuity, i.e., the ohms/ph are approximately equal. See fig 2 for typical wiring diagrams.

The immersion heater must be connected to electrical supply, via suitable flameproof certified cable gland (not supplied). For cable entry sizes see General Assembly Drawing As supplied.

NOTE: ALL UNUSED CABLE ENTRIES MUST BE PLUGGED USING A FLAMEPROOF CERTIFIED PLUG. FAILURE TO DO SO WILL INVALIDATE THE HEATER CERTIFICATE.

- Ensure the sizes and type of cables and contactors are adequate for the load current they will carry. Also for temperature environment
- Check that all electrical connections are tight.
- When all electrical connections have been made replace the heater terminal enclosure.
- Ensure that the mating surfaces on the terminal enclosure and cover are free from swarf, and coated with Hylomar Universal Joint Compound. Assemble the components, tightening the screws in a diametrically opposite sequence and NOT consecutively around the flange, ensuring that a proper seal is made. The screws should be tightened without using undue force.
- After assembly, the joint surfaces should be examined by feeler gauge when the gap **should not exceed 0.15mm.**
- Should the vessel be drained at any time and the heater removed, this installation procedure must be repeated before proceeding to switch on the heater.

WARNING: THIS APPLIANCE MUST BE EARTHED

Operational Faults

Before removing the terminal box cover, the heater should be electrically isolated.

Heater Not Operating

Checks to be made by suitably qualified personnel only:

- a) Main Fuses.
- b) Main Electrical Supply.
- c) The control and/or high limit thermostat (if fitted) have been correctly set.
- d) Control Thermostat (if fitted) for failure in 'open' position.
- e) Wiring to heater (No loose connections).
- f) Element continuity (resistance) - If faulty order a replacement heater (See spare parts section).
- g) Check operation of thermocouples (if fitted.)

Maintenance

Very little maintenance of the heater is required.

However, if the unit is to be fitted in an area with hard or aggressive water conditions, the life & operation could be adversely affected.

Failure of this heater due to the accumulation of solid material & lime deposits is not covered by Warranty. If water conditions warrant a properly maintained lime inhibitor or water softener should be installed with this heater.

It is the responsibility of the owner to ensure that the heater is properly maintained

Periodically

(Every 6 months for instance) check the elements for continuity and insulation resistance. Ensure termination soundness.

Before removing the terminal box cover, the heater should be electrically isolated.

In the case of major repair or element replacement the heater should be returned to

Ormandy Electric Heaters, Duncombe Road, Bradford, BD8 9TB

Spare Parts and Replacements

All spare parts are to be ordered from Ormandy Electric Heaters quoting the heater list number and serial number.

Spare Parts List

- High Limit Thermostat (if fitted)
- Control Thermostat (if fitted)
- Main Gasket
- Thermocouples (if fitted)

Equipment Warranty

The manufacturer will make good, by repair or at his option by the supply of a replacement, defects which, after proper installation, appear in the goods, within a period of twelve calendar months after the goods have been delivered and arise solely from faulty design, materials or workmanship. Provided always that defective parts are promptly returned by the user free to the manufacturer's works, unless otherwise arranged, the repaired or new parts will be repaired or new parts will be delivered by the manufacturer free of charge.

The policy of Ormandy Electric Heaters is that of continuous improvement and development, the right is therefore reserved to change specifications without notice.



Heating equipment for commerce and industry

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These instructions are given without prejudice and may from time to time be amended as considered necessary. We cannot be held responsible for any claims out of incorrect interpretation of these recommendations.

FIG. 1.



Ex II 2 G

Ormandy
ELECTRIC HEATERS



1180

BRADFORD, ENGLAND. BD8 9TB

EN 60079-0&1 Exd IIB T. Tamb -40°C to +45°C TYPE FP-EN-1

CERT. No. Baseefa03ATEX0119X. DRAWING No.

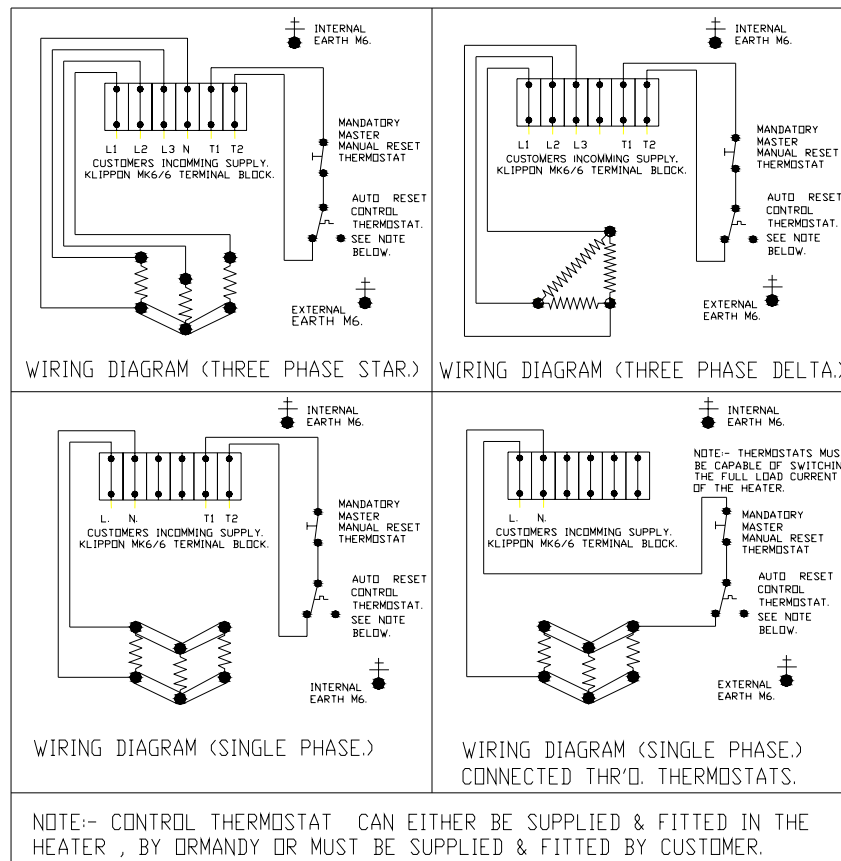
SERIAL No. RATING kW VOLTAGE V.

YEAR OF MAN'F. MAX. WORKING PRESSURE BAR G.

WARNING:-DO NOT OPEN WHEN AN EXPLOSIVE GAS ATMOSPHERE IS PRESENT

FOR CABLE ENTRY SEE GENERAL ASSY. DRAWING AS SUPPLIED.
IF THE PROCESS TEMP. IS T5 RATING OR BELOW USE 70°C MIN. RATED CABLE. IF ABOVE THIS USE 150°C MIN. RATED CABLE.
COVER FASTENERS MINIMUM GRADE 8.8 STEEL.
BASEPLATE FASTENERS MINIMUM GRADE 12.9 STEEL.

FIG. 2.



Procedure Front Sheet

OPERATING, INSTALLATION & MAINTENANCE INSTRUCTION

Revisions

STATUS	DATE	APPROVED	REVISION SUMMARY
Revision 1	28-11-07	Quality Manager	New to reflect actual practise
Revision 2	30-09-09	Quality Manager	New to reflect actual practise

Comments