

Heating elements and control panels

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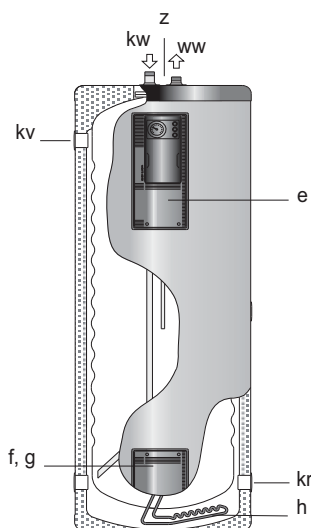
CERTIFIED PRODUCT

All our products comply with the 97/23/CE European Directive on Pressure Equipment (art. 3.3). Furthermore all the models with the possibility of electrical heating are designed and manufactured to comply with the EN 60335 European regulation on safety in household and similar electrical appliances, in accordance with the 2006/95/CE Low Voltage Directive.

The CE Mark means that the product complies with all relevant European Directives, such as the 2004/108/CE Electromagnetic Compatibility Directive.

The fact that our products bear the CE mark indicates that they are apt for marketing in any EU country will full guarantees as to their safety.

For GX-D-I tanks



kw: cold water inlet
ww: DHW outlet
kv: primary circuit feed
kr: primary circuit return
e: control panel
f: Cover for electric heating element
g: Aperture for electric heating element
h: Heating element
z: Recirculation

"D-I" Models can be supplied in option with the control panel and electrical element factory fitted.

The optional heating elements (5 KW for GX-600-D-I) is supplied in separate packaging. The direct connection with the control panel is suitable for electric elements of up to 2.5 kW. For greater power ratings an external contactor, according to EN 60947, must be used to control the electric element.

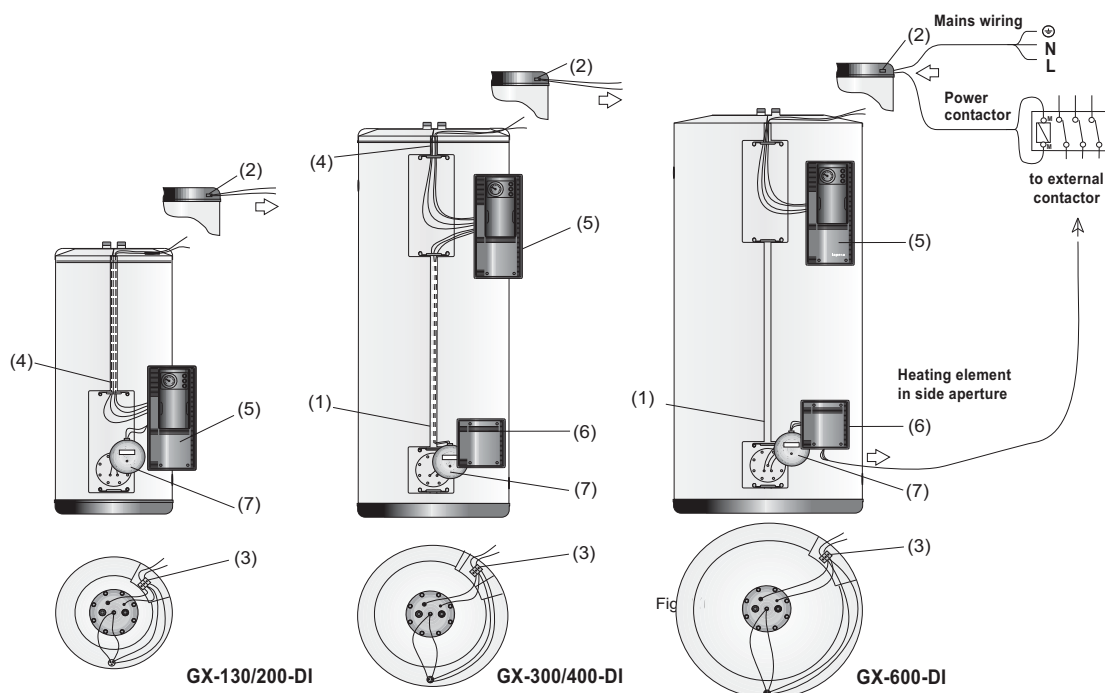
Electric element models	Power (kW)	Rated voltage (V)	Lowest cable section (mm)	Installation (Tank)
RC 16/22 D	2,2	~230	1.5	GX-130-D-I
RC 17/22 D	2,2	~230	1.5	GX-200-D-I
RC 18/25 D	2,5	~230	2.5	GX-300/400-D-I
RC 08/45 D	4,5	~230	4.0	GX-600-D-I
RC 50 D (in option)	5,0	~400	2.5	GX-600-D-I

As a factory fitted option, a 5 KW 3 phase, 400 V immersion heater is available to provide enhanced electrically heated operation for the model GX-600-D-I.

NOTE: This option is NOT available on models GX-130/200/300/400-D-I. These heaters are not available for GX-D-I (1) tanks.

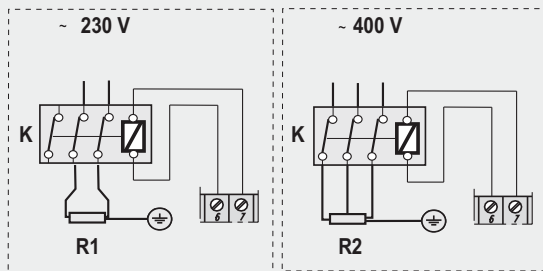
Wiring

Wiring of electric elements – control panel – mains. GX-D-I tanks

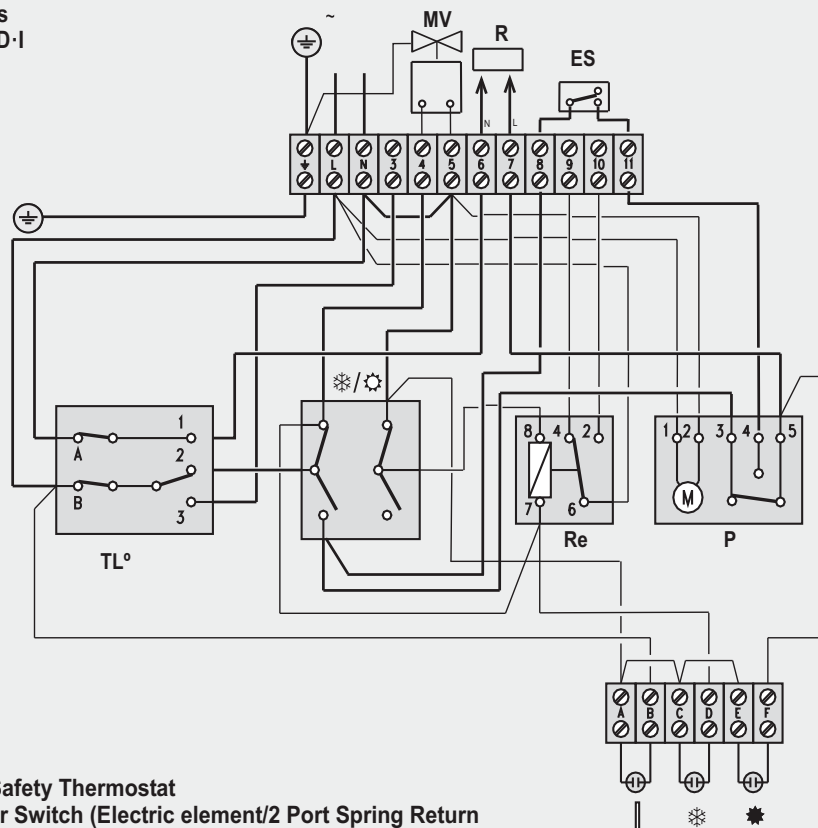


Attention!!!
All the connection circuit must be disconnected, before working on connections.
Do not under any circumstances switch on the immersion heater before the primary tank is filled.

(Control Panel Type KP1)



* 3 phase supply only
required where 5 KW
immersion heater element is
supplied on model GX-600-D-I



- TL° ~ - Regulating & Safety Thermostat
- ⊗/⊙ - Summer/Winter Switch (Electric element/2 Port Spring Return Motorised Valve)
- Re - Relay
- Ⓢ - Light indicator (Electric Element "ON" / 2 Port Spring Return Motorised Valve "ON")
- MV - 2 Port Spring Return Motorised Valve
- ES - External Sensor
- R1 - Optional monophasic Immersion Heater
- R2 - Optional 3 ph Immersion Heater (5 KW)
- K - 3 ph Contactor (not supplied)
- P - Programmer



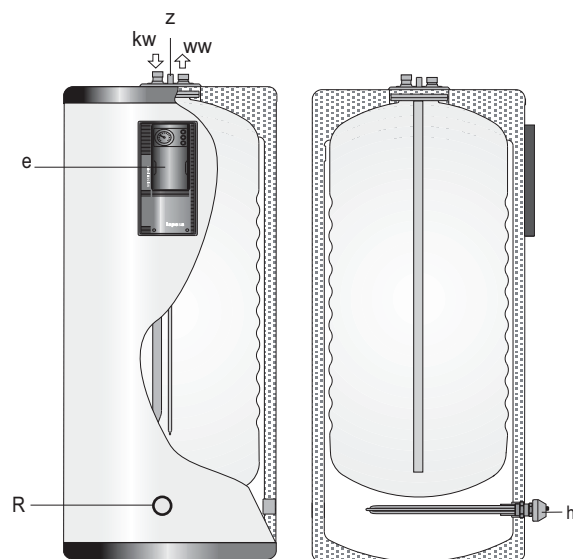
Important Note: Any auxillary component connected to the calorifier (eg. motorised valve or pump) will need to be fuse protected as appropriate when the electrical supply into the calorifier is fuse rated for immersion heater usage

To reset limit thermostat (GX-D-I tanks)

1. Electrically isolate the calorifier
2. Remove control panel (remove 4 no. fixing screws retaining control panel and carefully rotate the control panel to expose electrical connections and thermostat).
3. Remove thermostat knob by pulling off from control thermostat spindle.
4. Remove thermostat fixing screws and allow thermostat to move away from inside face of the control panel.
5. Press reset pin marked "S" on thermostat body (adjacent to control spindle)
6. Reassemble control panel using reverse of the above procedure.

Electrical heating.

For GX-D-I1, GX-D-I2, GX-P-I, GX-PAC-I



kw: Cold water inlet
ww: DHW outlet
e: control panel
R: Electric heating 2" connection
h: Threaded heating element in R connection
z: Recirculation

In option, an electric heater can be supplied with the GX-D-I1 tanks. There are **3, 6 or 9 KW ~230 or 400 V INCOLOY 2"** heater with its own safety and regulation thermostat (self-controlled heating element). See table.

The control panel has its own control (30 - 75 °C) and safety (90 °C) thermostat in order to control an external pump, motorised valve, boiler, etc... and can not control the heating element.

The thermostat is triggered and starts up the pump which circulates the heating water. This water circulates around the double wall tank and heats up the domestic water. When the required temperature is reached, the thermostat stops the primary circulation pump.

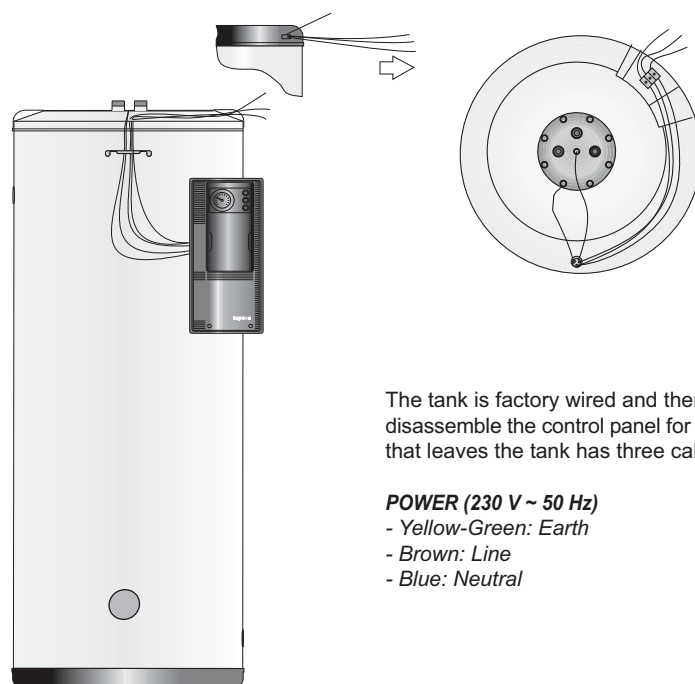
To avoid all risk of corrosion, connect the sanitary tank directly in the earth.

POWER (KW)	RATED VOLTAGE (V)	INSTALLATION (TANK)
3	~230	All the tanks, except GX-D-I models
6	~230 / 400	All the tanks, except GX-D-I, GX-130-D-I1, GX-300-P-I and GX-300-PAC-I models
9	~400	All the tanks, except GX-D-I, GX-130-D-I1, GX-300-P-I and GX-300-PAC-I models

NOTE: all the 6 and 9KW heaters need to have the thermostats wired to switch the heaters via a relay as they can only switch 15 A

Wiring

Wiring of electric elements – control panel – mains. GX-D-I1 / GX-D-I2 / P-I / PAC-I



The tank is factory wired and there is no need to disassemble the control panel for connection. The hose that leaves the tank has three cables:

POWER (230 V ~ 50 Hz)
- Yellow-Green: Earth
- Brown: Line
- Blue: Neutral



Attention!!!

All the connection circuit must be disconnected, before working on connections.
Do not under any circumstances switch on the immersion heater before the primary tank is filled.

Wiring diagram (Control Panel Type LP GX/UK)

Electrical connection

Remove 4 no. fixing screws (1) retaining control panel (2). Carefully rotate control panel (2) to expose electrical connection terminal rail (3).

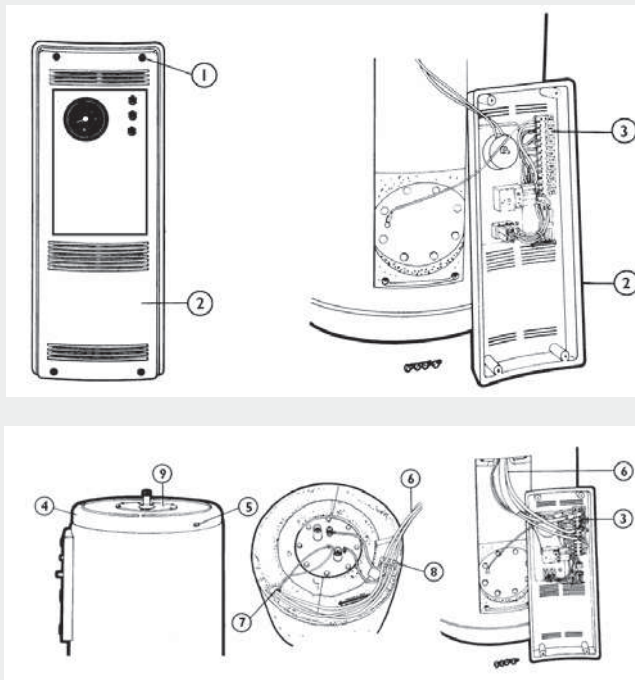
Carefully cut out cable entry aperture (5) on tank top cover (4). Lift up the top cover (4) removing first the cleaning access cover panel (9).

Route appropriately sized cables (multi strand flex only) (6) through aperture (5), through cable clamp (8) and guide cables carefully down through the cable tube (7) to terminate at the control panel rear.

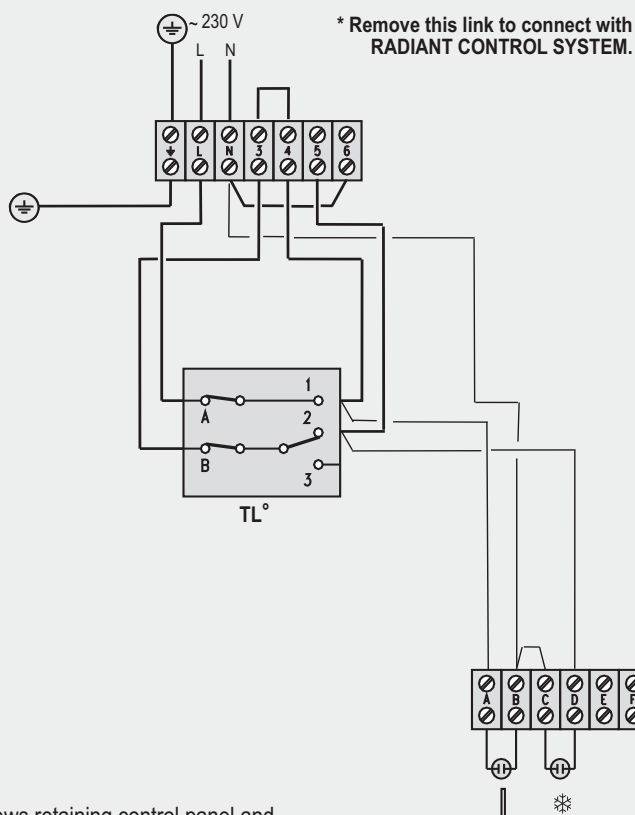
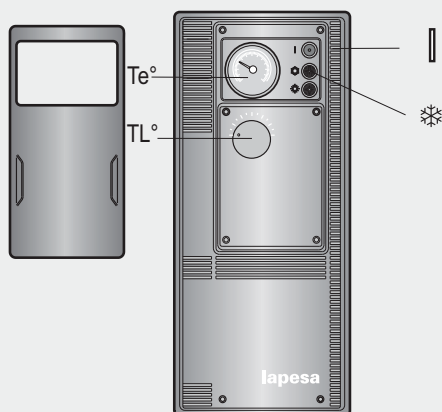
Make necessary electrical connections to terminal rail (3). See electrical connection diagram next page.

Refit the control panel (2) to tank using screws (1). Ensure cables (6) are routed correctly with enough slack to allow future easy access to rear of control panel (2) and securely retain the cables under clamp (8).

Refit the top cover (4) and cleaning access cover panel (9).



- - Green light ON
- ⊗ - Orange light external device ON
- Te° - Thermometer 0-120 °C
- TL° - Regulating and safety thermostat



To reset limit thermostat

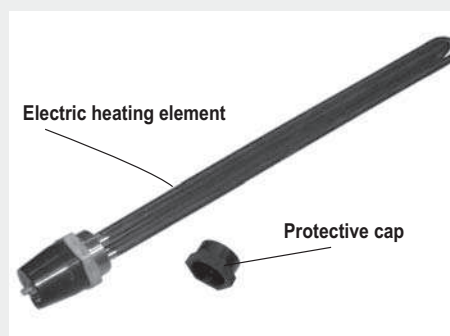
1. Electrically isolate the calorifier
2. Remove control panel (remove 4 no. fixing screws retaining control panel and carefully rotate the control panel to expose electrical connections and thermostat).
3. Remove thermostat knob by pulling off from control thermostat spindle.
4. Remove thermostat fixing screws and allow thermostat to move away from inside face of the control panel.
5. Press reset pin marked "S" on thermostat body (adjacent to control spindle)
6. Reassemble control panel using reverse of the above procedure.

Electric heating elements for secondary circuit

Electric immersion elements, not included in tank supply, can be mounted in all of the Master DHW storage and production tank installations, either directly for the production of DHW or to backup other heating systems.

Produced in compliance with the European Low Voltage Directive 2006/95/CE, with low specific charge density to avoid lime deposits.

It basically comprises an electric heating element which has to be mounted with an insulating bushing at the 2" GAS/M connections of the storage tank. The electric wiring of the element to the mains socket is by means of conductor wires (not included) or by a delta (230 V III) or star (400 V III) connection.



Technical characteristics		RA4/2-60	RA4/2-90	RA4/2-120
Power	kW	6	9	12
Voltage	V	230/400	230/400	230/400
Connection	"GAS/M	2	2	2
Recommended production electric heating element for tanks	litres	1500...2500	3000...5000	4000...5000
Recommended backup electric heating element for tanks	litres	1500...5000	1500...5000	4000...5000

* Recommended cable: H05SJ-K according to UNE 21027 standard

Electrical heating Inertia tanks. MV-I, MV-IS, G-I/F, G-IS tanks

Electric heating elements for primary circuit

Armoured electric immersion elements, with tight head (IP40 protection) and screwed connection, not included in tank supply. They can be mounted in all tanks for closed circuit installations.

Made of stainless steel and conforming to the European Low Voltage Directive 2006/95/CE.

The electrical wiring of the heating element to the mains socket will be by means of conductor cables (not included in the supply).



Electrical Heater	Power (KW)	Electrical Connection		Tank Connection	Inertia tank application
RI 4/2-22	2,2	230 V, 3F A	400 V, 3F Y	2"	G-80 to 600-IF; G-IS; MV-I; MV-IS
RI 4/2-54	5,4	230 V, 3F A	400 V, 3F Y	2"	G-80 to 600-IF; G-IS; MV-I; MV-IS
RI 4/2-72	7,2	230 V, 3F A	400 V, 3F Y	2"	G-200 to 1000-IF; G-IS; MV-I; MV-IS
RI 4/2-90	9,0	230 V, 3F A	400 V, 3F Y	2"	G-200 to 1000-IF; G-IS; MV-I; MV-IS
RI 4/2-120	12,0	230 V, 3F A	400 V, 3F Y	2"	G-600 to 1000-IF; G-IS; MV-I; MV-IS

* Recommended cable: H05SJ-K according to UNE 21027 standard.

Recommendations for handling electrical equipment:

- Before touching the connection means, ensure that all connection circuits are totally disconnected from the mains power supply.
- Installation, configuration, start-up and maintenance of the heating elements must only be carried out by an authorised electrical fitter. All current rules, standards and regulations must be complied with.
- The tanks must be equipped with a DHW temperature control thermostat (maximum 80 °C) and an all-pole limiting thermostat. The sensors must be positioned higher than the electric heating element.
- Inertia models must be equipped with a temperature control thermostat (maximum 85 °C) and an all-pole limiting thermostat.
- Suitable safety devices should be installed (temperature safety, level safety for heating liquids by natural convection, flow safety in the case of fluids in circulation, etc.).
- The elements must be connected to the mains by means of a power contactor, never directly.
- The installation should be protected by means of an automatic all-pole switch, with a separation of 3 mm or more between contacts, as well as automatic electric protection systems.
- It is the user's responsibility to ensure that the basic requirements of the European Low Voltage Directive are complied with.
- Electric heating elements generate high temperatures. It is advisable to take precautions to ensure the protection of goods and persons against the risk of fire or accidental burns during operation and following the disconnection of the equipment or installation.