



Tesla Immersion Heaters

Approved by BEAB to EN 60335-2-73

BEAB Certificate Number : 21089



Thank you for purchasing this Tesla Immersion Heater. This unit is guaranteed for a period of 12 months from the date of receipted purchase provided that it has been installed correctly by a suitably qualified person. The installer must also ensure it is fully immersed in water and is only subjected to 'normal operating conditions' in a domestic hot water system which conforms to BS699, BS1566 or BS3198 and in which the system temperature is no more than 75°C. No warranty is hereby given or implied in other uses except domestic.

This unit must not be modified in any way. BEAB approval for all models is dependent upon the fitting of the appropriate Dual Safety Thermostat that is listed in these instructions.

General Fitting Information

Most domestic cylinders come with a 2-1/4" BSP threaded female socket into which the boss (head) on this heater, is screwed. Some sealed system units may have a 1-3/4" BSP thread for which a more specialized element is required (please see table on reverse). If this unit has been bought as a replacement, installation should be made after removing the old heater and the old sealing washer/compound and ensuring that the thread in the boss and the sealing surface are clean. Take care when cleaning the old sealing washer as some old washers may contain small traces of asbestos. Please consult the correct regulations relating to this situation.

The following are size recommendations only:

Combination Cylinders - Use 11" 14" or 18" models.

36" x 18" Cylinders - Use 23" or 27" models.

42" x 18" Cylinders - Use 27", 30" or 36" models.

Always use the largest size of element that your cylinder will accommodate which will then ensure a more efficient heat cycle and enhance the life of the product.

Limescale is the biggest cause of element failure : select the correct type of element for your water hardness. Use titanium models for hard to aggressive water areas. Failure to install the correct model will cause early failure and may invalidate your guarantee.

Heaters generally 14" (355mm) long or shorter are designed to be fitted horizontally. Heaters over this size are designed to be installed vertically ie, top entry. Allow approximately 60mm clearance between the end of the element and the side or bottom of the cylinder. Only install these heaters where the element is always below the water level.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Safety

The heater must be fitted and fully immersed in water before switching on.

It must be fitted in accordance with current IEE wiring regulations and must be wired through a double pole Isolator or suitable controller which must have a contact separation of at least 3mm in all poles. It is essential that the immersion heater cap is never covered as this will potentially cause major problems with the working of the unit and can be very dangerous.

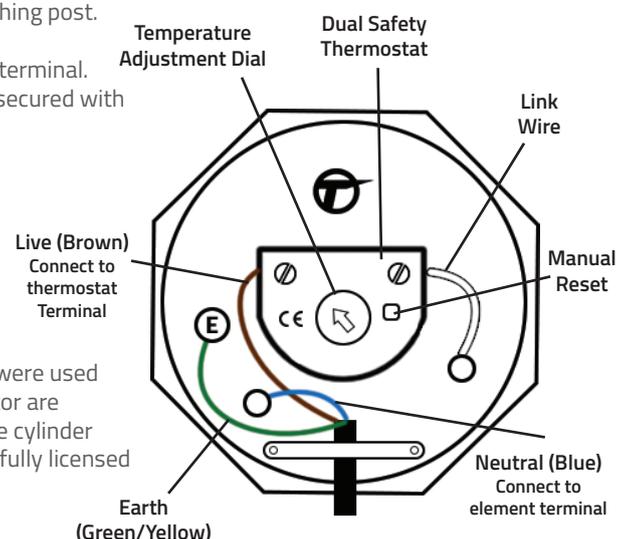
Wiring

This appliance must be earthed.

- Connect the Earth wire (Green and Yellow) securely to the M5 thread on the earthing post.
- Connect the Live wire (Brown) securely to the dual safety thermostat.
- Connect the Neutral wire (Blue) securely to the clamp on the top of the element terminal.
- The main cable (heat resistant, minimum 1.5mm² cross section) should then be secured with the cable clamp.
- **Check wires are clamped securely with no stray strands or trapped insulation. Poor connection could result in overheating and the possibility of fire.**
- After installing an immersion heater, the wiring must be tested by a registered electrician or an installer that is part of the registered competent person scheme (Part P).

Asbestos

Before the asbestos regulations were introduced in 1999, many sealing washers were used which contained asbestos fibres. It is essential that you as a homeowner/contractor are suitably briefed and competent regarding the removal of any old washers from the cylinder before attempting to fit a new unit. If there is any doubt whatsoever, please call a fully licensed asbestos specialist or refer to the HSE website for further information.



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Immersion Heater Range

| Nominal Length | Boss Size | kW @ 240v | Thermostat length | All Copper | Incoloy w/ Copper Pocket | Incoloy w/ Incoloy Pocket | Titanium w/ Incoloy Pocket | Comments |
|----------------|------------|-----------|-------------------|------------|--------------------------|---------------------------|----------------------------|---------------------------------------------------------------------------------|
| 11" | 2 1/4" BSP | 3 | 7" | TIH505 | TIH540 | TIH640 | TIH565 | |
| 11" | 2 1/4" BSP | 1 | 7" | | | TIH641 | | Recommended for solar |
| 14" | 2 1/4" BSP | 3 | 7" | TIH510 | TIH545 | TIH645 | TIH570 | |
| 14" | 1 3/4" BSP | 3 | | | | TIH476PI | TIH572PI | |
| 14" | 1 3/4" BSP | 2 | 7" | | | TIH644 | | |
| 14" | 1 1/2" BSP | 3 | 7" | | | TIH475 | | |
| 14"DB | 2 1/4" BSP | 3 | 11" | | TIH546 | TIH646 | | Recommend for Economy 7 systems. 14" double bend (equivalent to a 30" element). |
| 18" | 2 1/4" BSP | 3 | 11" | TIH515 | TIH547 | TIH647 | | |
| 23" | 2 1/4" BSP | 3 | 11" | TIH520 | TIH548 | TIH648 | | |
| 24" / 11" | 2 1/4" BSP | 3kW/2kW | | TIH460 | | TIH481 | | Dual element with 1m or 2m cable |
| 27" | 2 1/4" BSP | 3 | 18" | TIH525 | TIH550 | TIH650 | TIH585 | |
| 27" | 2 1/4" BSP | 2 | 18" | | | TIH651 | | |
| 27" | 2 1/4" BSP | 1 | 18" | | | TIH642 | | Recommended for solar |
| 27" / 11" | 2 1/4" BSP | 3kW/2kW | 18" | TIH465 | | TIH486 | | Dual element with 1m or 2m cable |
| 30" | 2 1/4" BSP | 3 | 18" | TIH530 | TIH555 | TIH655 | | |
| 36" | 2 1/4" BSP | 3 | 18" | TIH535 | TIH560 | TIH660 | | |
| 36"/11" | 2 1/4" BSP | 3kW/2kW | 18" | TIH467 | | TIH498 | | Dual element with 1m or 2m cable |

*NB - We reserve the right to supply a suitable equivalent material for the thermostat pocket such as SS304, subject to production demand and availability.

Thermostat Range

| Code | Stem Length | Range °C | Pre-set °C | Cut-out | Current Rating | Type |
|--------|-------------|----------|------------|---------|----------------|---------|
| TS220 | 7" | 10-70°C | 60°C | 85°C | 15A | Rod |
| TS225 | 11" | 25-70°C | 60°C | 85°C | 15A | Rod |
| TS230 | 18" | 20-70°C | 60°C | 85°C | 15A | Rod |
| TPS300 | 11" | 10-65°C | N/A | 75°C | 20A | Plug-in |

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Technical Helpline
+44 (0)121 686 8733

The Dual Safety Thermostat fitted to this appliance

The temperature control on this unit is variable between the temperatures shown on cap of the thermostat.

The new EN standard states that secondary protection should be incorporated within the rod thermostat. The Tesla secondary protection acts by means of a snap disc (a bi-metallic disc) located beneath the head of the thermostat which is normally 'at rest' in the convex position. In the unlikely event that the system overheats, the snap disc will sense abnormal temperatures and will activate itself pushing the small square reset button flush with the top of the thermostat face, shutting off the electrical circuit. Reset can only be made by depressing the reset button again.

Nuisance Trip-outs: There are many causes of nuisance trip-outs, but they can often be cured simply by reducing the temperature setting on the thermostat. If this does not produce satisfactory results, please see the FAQs on our website or contact our technical helpline above.

Noisy Cylinders ('Kettling')

Some people experience a 'noisy cylinder' when the element is operating. As there is nothing mechanical in an element, this invariably relates to a different issue where a replacement element has been fitted but not exactly the same as the one being replaced. Some cylinders are fitted with side mounted elements incorporating a 'Double Bend'. Please see our TIH646 above for further information.

Stainless Steel Cylinders

Manufacturers of Stainless Steel Cylinders are now advocating that only Incoloy or Titanium elements with an Incoloy or Stainless Steel thermostat pocket are fitted, with some saying that if this is not done then the cylinder warranty will become invalid. If you fit an element with a copper thermostat pocket there may be galvanic corrosion of the copper which may eventually become perforated causing water to leak from the pocket. Because of this we recommend that elements with copper pockets are not fitted to stainless steel cylinders.

A full list of Frequently Asked Questions (with answers) may be found together with these instructions at www.teslauk.com

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