

Anti-legionella recommendations (European standard CEN/TR 16355)

Information

Legionella is a small bacterium, of stick-like form, and is found naturally in fresh water.

Legionnaire's disease is a serious pulmonary infection caused by inhalation of the *Legionella pneumophila* bacterium and other species of *Legionella*. The bacterium is frequently to be found in the plumbing of houses, hotels and water used in A/C and air cooling systems. The most effective measure against infection is to prevent the bacterium proliferating in water circuits.

European standard CEN/TR 16355 provides guidelines for preventing the proliferation of Legionella in drinking water systems, without substituting applicable local legislation.

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General recommendations

"Conditions favourable to the proliferation of Legionella". The following conditions are favourable to the proliferation of Legionella:

- Water temperature in the range 25 - 50 °C. To reduce the proliferation of Legionella, the water temperature be kept with these limits to prevent them growing or reduce their growth to a minimum. If this is not possible, the drinking water system must be sanitised thermally;
- Stagnant water. To prevent water stagnating for a long time, the drinking water system must be flushed or made to run abundantly at least once a week;
- Nutrients, biofilms and sediment in the circuit, including boilers, etc. Sediment may promote the proliferation of Legionella and should be regularly eliminated from water storage devices, boilers and expansion/holding tanks (for instance, once a year).

As regards storage heater like the present, if:

- 1) the appliance is switched off for several months at a time or
- 2) the water temperature is kept constant in the range 25 - 50°C,

the Legionella bacterium may grow inside the tank. If such circumstances, to reduce the proliferation of the bacterium, one must run a thermal sanitisation cycle.

This cycle is suited to use in domestic hot water systems and complies with the guidelines for the prevention of Legionella given in Table 2 of standard CEN/TR 16355 (see below).

Table 2 - Types of hot water system

| | Separate hot and cold water | | | | Mixed hot and cold water | | | | | |
|---|-----------------------------|--------------------------|--------------------------------|----------------------------|---------------------------------------|-----------------------------------|------------------------------------|---|---------------------------------------|-----------------------------------|
| | No storage | | Storage | | No storage upline of the mixer valves | | Storage upline of the mixer valves | | No storage upline of the mixer valves | |
| | No circulation of hot water | Circulation of hot water | No circulation of mixed water | Circulation of mixed water | No circulation of mixed water | Circulation of mixed water | No circulation of mixed water | Circulation of mixed water | No circulation of mixed water | Circulation of mixed water |
| Ref. in Enclosure C | C.1 | C.2 | C.3 | C.4 | C.5 | C.6 | C.7 | C.8 | C.9 | C.10 |
| Temperature | - | ≥ 50 °C ^e | in storage heater ^a | ≥ 50 °C ^e | Thermal disinfection ^d | Thermal disinfection ^d | in storage heater ^a | ≥ 50 °C ^e Thermal disinfection ^d | Thermal disinfection ^d | Thermal disinfection ^d |
| Stagnation | - | ≥ 3 l ^b | - | ≥ 3 l ^b | - | ≥ 3 l ^b | - | ≥ 3 l ^b | - | ≥ 3 l ^b |
| Sediment | - | - | remove ^c | remove ^c | - | - | remove ^c | remove ^c | - | - |
| <p>a Temperature ≥ 55°C all day or at least 1h a day ≥ 60°C.</p> <p>b Volume of water contained in the pipes between the circulation system and the most distant tap.</p> <p>c Remove the sediment from the storage heater as required by local conditions, but no less frequently than once a year.</p> <p>d Thermal disinfection for 20 minutes at 60°C, for 10 minutes at 65°C or 5 minutes at 70 °C at all delivery points at least once a week.</p> <p>e The water temperature in the circulation circuit may not fall below 50°C.</p> <p>- Not required</p> | | | | | | | | | | |

| Vertical Installation | | | | | | | | | | |
|-----------------------------|-------------------------|-------------------|-------------|------------------|-----------|---------|-------|-------------------------------------|--------------------------------|-----------|
| Model | Capacity [L] | Product range | Qelec [kWh] | Charging profile | Supply | V40 [L] | ηwh | **Static losses Qpr [kW/m² at 65°C] | **Water production at 40°C [L] | L wa [dB] |
| Ø470 VERT | 50 | THER | 6,665 | M | energized | 65 | 36,1% | 0,79 | nc | 15 |
| | | STEAT / ACC | 6,679 | M | | 65 | 36,0% | 0,72 | nc | |
| | 75 | THER | 6,688 | M | energized | 90 | 36,0% | 0,99 | 136 | |
| | | STEAT / ACC | 6,550 | M | | 85 | 36,6% | 0,96 | 129 | |
| Ø505 VERT | 100 | THER | 12,883 | L | energized | 143 | 37,0% | 1,31 | 176 | |
| | | STEAT | 12,883 | L | | 140 | 37,0% | 1,31 | 180 | |
| | 150 | THER | 6,689 | M | Off Peak | 222 | 36,0% | 1,75 | 276 | |
| | | STEAT | 6,689 | M | | 237 | 36,0% | 1,75 | 277 | |
| | 200 | THER | 12,883 | L | Off Peak | 251 | 37,0% | 2,15 | 359 | |
| | | STEAT | 12,883 | L | | 336 | 37,0% | 2,15 | 372 | |
| Ø530 VERT | 100 | THER | 12,502 | L | energized | 143 | 37,9% | 1,06 | 176 | |
| | | HPC/ZEN/STEAT/ACC | 12,442 | L | | 148 | 38,0% | 1,06 | 180 | |
| | 150 | THER | 6,601 | M | Off Peak | 237 | 36,4% | 1,35 | 276 | |
| | | HPC/ZEN/STEAT | 6,578 | M | | 222 | 36,5% | 1,35 | 277 | |
| | 200 | THER | 12,612 | L | | 351 | 37,6% | 1,76 | 359 | |
| | | HPC/ZEN/STEAT | 12,506 | L | | 336 | 37,9% | 1,76 | 372 | |
| Ø560 VERT | 100 | THER | 12,840 | L | energized | 145 | 37,1% | 1,03 | 177 | |
| | | HPC/QUIE/STEAT | 12,792 | L | | 140 | 37,2% | 1,05/1,03* | 176/172* | |
| | 150 | THER | 6,681 | M | Off Peak | 220 | 36,0% | 1,48 | 276 | |
| | | HPC/QUIE/STEAT | 6,669 | M | | 230 | 36,1% | 1,48/1,41* | 271 | |
| | 200 | THER | 12,865 | L | | 334 | 37,0% | 1,73 | 370 | |
| | | HPC/QUIE/STEAT | 12,766 | L | | 332 | 37,3% | 1,73 | 372 | |
| | 250 | STEAT | 12,821 | L | Off Peak | 317 | 37,1% | 1,97 | 455 | |
| | Horizontal Installation | | | | | | | | | |
| Ø505 HORB | 75 | THER | 6,683 | M | energized | 69 | 36,0% | nc | nc | 15 |
| Ø560 HORB | 100 | STEAT | 6,353 | M | energized | 121 | 37,5% | 1,65 | 165 | |
| | | THER | 6,246 | M | | 108 | 38,0% | 1,65 | 165 | |
| | 150 | STEAT | 12,798 | L | | 196 | 37,2% | 2,25 | 231 | |
| | | THER | 12,552 | L | | 177 | 37,8% | 2,25 | 231 | |
| | 200 | STEAT | 13,126 | L | | 231 | 37,0% | 2,68 | 318 | |
| | | THER | 13,126 | L | | 197 | 37,0% | 2,68 | 318 | |
| Ø505 HORD | 75 | THER | 6,531 | M | energized | 96 | 36,7% | nc | nc | |
| Ø530 HORD | 100 | THER | 6,687 | M | | 158 | 36,0% | 1,33 | 178 | |
| | 150 | THER | 12,882 | L | | 222 | 37,0% | 1,65 | 279 | |
| | 200 | THER | 12,882 | L | | 301 | 37,0% | 1,97 | 365 | |
| Ø570 HORD | 100 | THER | 6,687 | M | energized | 160 | 36,0% | 1,32 | 187 | |
| | 150 | THER | 12,882 | L | | 263 | 37,0% | 1,68 | 281 | |
| | 200 | THER | 12,882 | L | | 303 | 37,0% | 2,02 | 367 | |
| Floor Standing Installation | | | | | | | | | | |
| Ø570 STABLE | 200 | THER | 12,883 | L | Off Peak | 330 | 37,1% | 1,98 | 356 | 15 |
| | | HPC/STEAT | 12,883 | L | | 333 | 37,0% | 1,98 | 349 | |
| | 250 | THER | 12,883 | L | | 373 | 37,0% | 2,36 | 469 | |
| | | STEAT | 12,883 | L | | 370 | 37,0% | 2,36 | 460 | |
| | 300 | THER | 12,883 | L | | 473 | 37,0% | 2,61 | 525 | |
| | | STEAT | 12,883 | L | | 473 | 37,0% | 2,61 | 515 | |
| | 250 | HPC | 12,879 | L | Off Peak | 423 | 37,0% | 2,17 | 458 | |
| | 270 | HPC | 12,667 | L | | 430 | 37,5% | 2,3 | 505 | |
| | 300 | HPC | 12,808 | L | | 524 | 37,2% | 2,45 | 563 | |
| | 300 | QUIE/ZEN | 12,883 | L | | 473 | 37,0% | 2,61 | 525 | |

* value for the range HPC/PTEC (d560)

** value according to the specifications LCIE 103-14D'

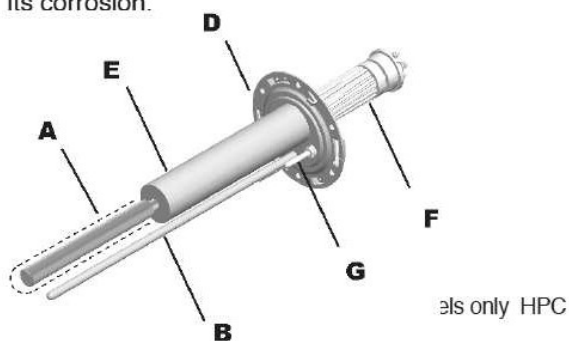
nc = not concerned

1.5. PROfessional TECH PTEC steatite range - HPC - QUIETIS - ZEN

1.5.a. Definition of the range

Heating element: Steatite heating element located inside a bush

Anti-corrosion protection: Enamelled boiler + PROfessional TECH anode - HPC - QUIETIS - ZEN
The exclusive PROfessional TECH system solution is an anodic anti-corrosion electronic protection system with a modulated current. It ensures maximum durability in terms of the boiler used in the water heater, regardless of whether more or less aggressive water is used. The electronic circuit creates a difference in potential between the boiler and the titanium electrode, so that optimal boiler protection is guaranteed, thereby preventing its corrosion.



Picture 3- Steatite heating element + PROfessional TECH anode

1.5.b. Technical features

See page 6.

INSTALLATION

1. Legal obligations and recommendations relating to product installation

Before installing this appliance, please read the instructions contained in this manual carefully. Failure to observe these instructions may lead to the guarantee becoming void.

1. All product installation and maintenance work must only be performed by qualified professionals. Current national legislation must be observed. In particular, all regulations relating to water heaters must be fully observed.

2. The manufacturer shall not be held liable for any damage caused by unprofessional or improper installation, or by failure to comply with the instructions contained in the user manual.

4. If the appliance is installed in a room which is just above an inhabited space (a loft, attic, false ceiling, etc.), insulate the piping and fit a retention tank with water drainage. Connection

A : Magnesium anode / B : Spike / C : Immersion heating element / D : Plate / E : Bush / F : Steatite heating element / G : PROfessional TECH anode.

1 «This regulation applies in France and the installer must keep up to date with all subsequent modifications. For installation in other countries, please refer to applicable local regulations.».

to the sewage system is compulsory in all instances.

Advice

To avoid excessive energy consumption, we recommend that the water heater is positioned as close as possible to the hot water drawing points (recommended distance: no greater than 8 metres).

Recommendation when installing in the bathroom:

The water heater installation in the bathroom must be adapted in accordance with national rules and standards in force (NFC 15-100, RGIE, etc.).

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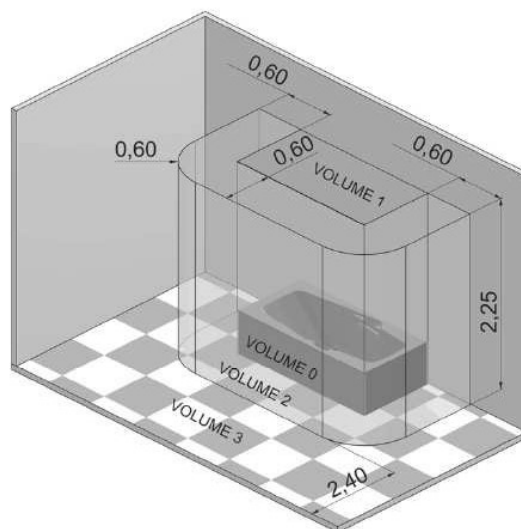
Volume classifications:

> **Volume 0:** This is the interior volume of the bathtub or shower tray.

> **Volume 1:** This is the volume outside that bathtub or shower tray and is limited on the one side by the vertical cylindrical surface circumscribed to the edge of the bathtub or shower tray, and on the other by the horizontal plane at 2.25 m from the bottom of the bath or shower base.

> **Volume 2:** This is the volume external to **volume 1**. It is limited by the vertical cylindrical surface 0.60m from the edge of the bathtub or shower tray and limited by a horizontal plane at 2.25 m above the bottom of the bathtub or shower tray.

> **Volume 3:** This is the volume external to **volume 2**. It is limited by the vertical cylindrical surface 2.40m from **volume 2** and limited by a horizontal plane at 2.25 m above the bottom of the bathtub or shower tray.



Authorised water heater fixing zones:

Fixed, low voltage water heaters are permitted in **volume 1** as long as they have maximum protection level (IPX4). Please note: horizontal type water heaters, installed as high up as possible in **volume 1** are permitted for France only.

Only fixed water heaters which have a protection degree of at least IP 24 are permitted within the **protection volume (B)**.

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2. Installing the product

2.1. Material required

2.1.a. Tools and materials which should be provided

- If the wall cannot withstand the weight of the water heater ⇒ a support or a ceiling fixing kit.
- If you wish to fix a horizontal model to a wall or to a ceiling ⇒ a set of fixing straps.
- For the seal : hemp/tow and sealing paste or a seal for connections to be screwed in, depending on the model.
- Spirit level.

If the water heater is fitted with fixing brackets:

- **For each fixing bracket** ⇒ 2 rawlplugs and 2 bichromate concrete screws, Fischer M10, M12 or M14 type.
- Material necessary for drilling with M10, M12 or M14 diameter.
- Dynamometric spanner.
- Nuts with M10, M12 or M14 diameter.
- Washer with M10, M12 or M14 diameter.

2.1.b. Accessories

Indispensable accessories:

- Safety assembly (suited to the model).
- Dielectric connection(s).
- If the water pressure is greater than 4.5 bar ⇒ a pressure reducer.

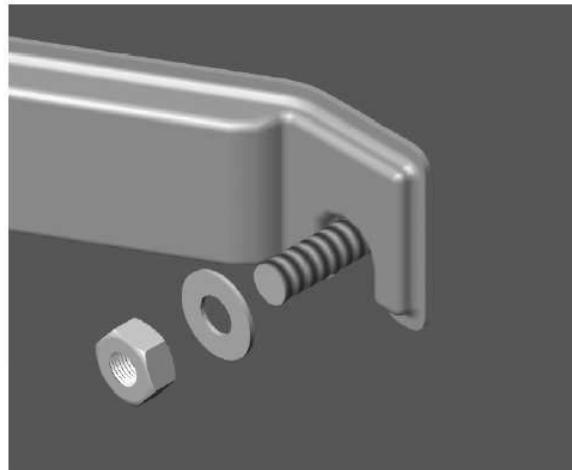
Others:

- Cut-off valve.
- Domestic hot water expansion vessel.
- Mixer which helps to prevent the risk of burns, as the temperature does not exceed 50°C at the drawing points and 60°C in the kitchen (this is a legal obligation in France).

2.2. Assembly

2.2.a. General instructions for the fixing brackets
Fix the support bracket(s) to a load-bearing wall using suitable **fastening bolts** measuring **10 mm in diameter** and **flat steel washers** measuring a **minimum of 24 mm** and a **maximum of 30 mm in (external) diameter**.

IMPORTANT: MAKE SURE THAT THE NUT IS WELL TIGHTENED



Picture 5 - Fitting the fixing bracket

2.2.b. VERT Vertical wall-fitted model

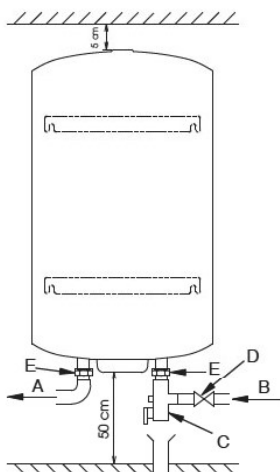
Position the appliance at least 50 cm from the floor and at least 5 cm from the ceiling to facilitate maintenance work. (Picture 6)

This model can also be installed on a support (optional), but **it absolutely must be fixed to a load-bearing wall** with the upper fixing bracket.

Make sure that the installed support is suitable for the model of water heater and diameter in question, and that it is correctly assembled and installed.

Advice *We recommend the use of a support which is compatible with the products designed by this manufacturer.*

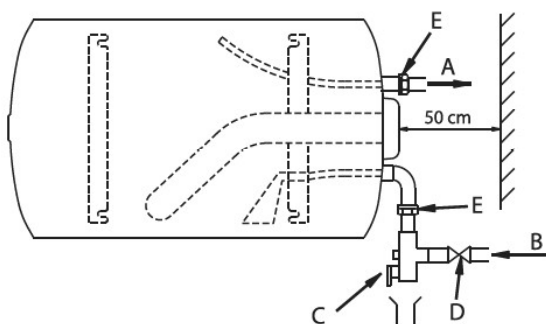
Advice *Use the installation template printed on the packaging of the water heater.*



Picture 6 - Installation values

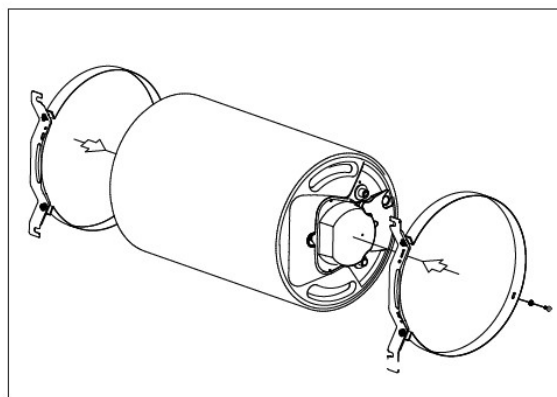
2.2.c. HORD horizontal model

The model is already prepared at the company so that it can be installed horizontally onto a wall; the supply pipes are located on the **right-hand side** of the appliance (Picture 7).

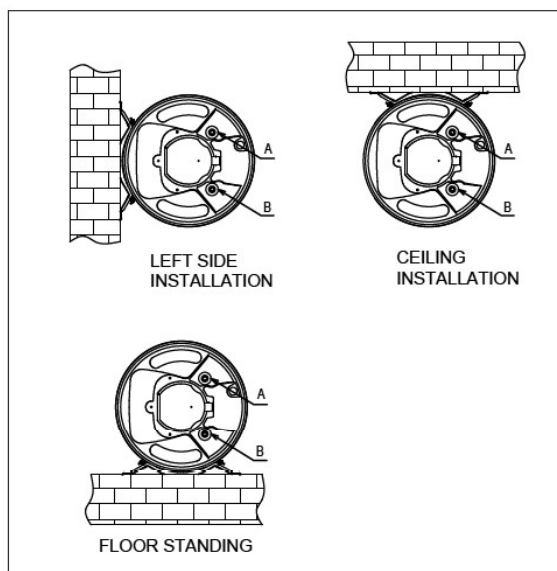


Picture 7 - Horizontal element on the protection element
- supply pipes on the right-hand side

It can also be installed on the floor or the ceiling if necessary, using a set of straps (optional, Picture 8). The orientation of the tubes must imperatively remain on the vertical plane with cold water inlet (blue) at the bottom as shown in FIG. 9. In this situation, please consult the installation instructions supplied with the set of straps.



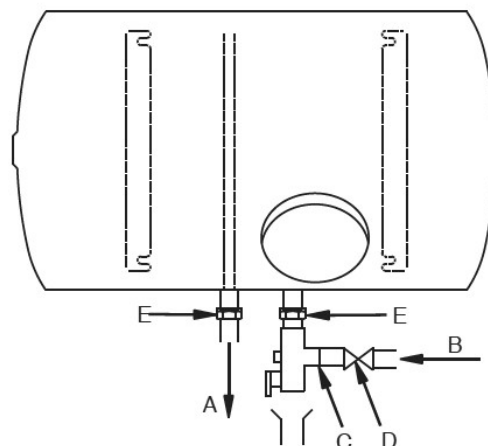
Picture 8



Picture 9

HORBas HORB version with water inlet and outlet pipes on the bodywork ring nut

This appliance is designed to be fitted to the wall horizontally; the supply pipes are located at the base (Picture 10).

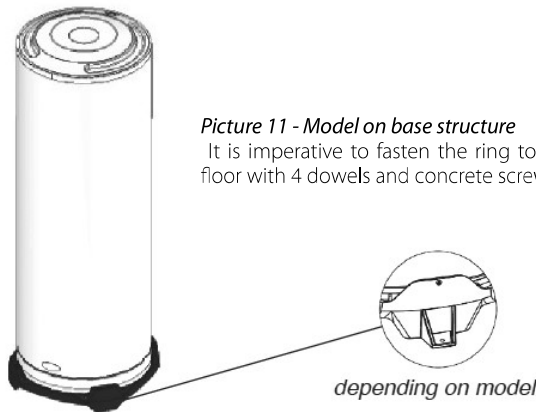


Picture 10 - Horizontal model on ring nut

A : Hot water / B : Cold water / C : Safety assembly / D : Shut-off valve / E : Dielectric connection

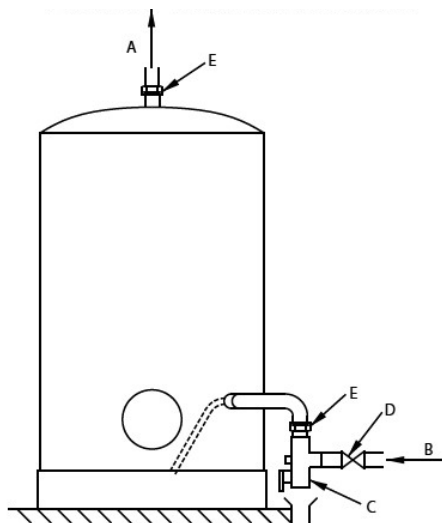
2.2.d. STAB models on base structures

This appliance is fitted with a base structure which is fixed to the product while it is still at the company. Position the appliance on a perfectly flat and level surface.



Picture 11 - Model on base structure


It is imperative to fasten the ring to the floor with 4 dowels and concrete screws



Picture 12 - Model on base structure

3. Water connection

1. The operating pressure is indicated on the data plate of the water heater (see water heater).

2.  **Connection with materials synthesis PER are prohibit: flood risk**

To connect the tank on plastic pipe "PER" installation existent, intercalate on the out-let (hot water) a copper pipe with minimum longer 50 cm to avoid any damage.

The connection of a water heater to copper piping must be performed using a **dielectric connection**. These dielectric connections are available as an optional extra or as standard, depending on the model purchased.

If you only have one dielectric connector, you must fit it to the hot water outlet!

3. When the input pressure of the network is greater than 4.5 bar, a pressure reducer must be

installed upstream of the safety assembly.

4. If the water systems have the following features:

- > small pipes;
 - > taps with ceramic plates / mixer taps;
- a "ram stabilising" device or a domestic hot water expansion vessel suited to the system must be installed as close as possible to the taps.

Advice We recommend that a shut-off valve is installed upstream from the safety assembly.

See pictures 6, 7, 8, 9, 10, and 12.

4. Electrical connection

4.1. Important considerations

THE WIRING DIAGRAM IS STUK ONTO THE APPLIANCE: USE IT AS A REFERENCE GUIDE.

4.2. The models with TM and TR designation are three-phase versions (TRI):

These three-phase devices are wired in 400 V TRI by the manufacturer. They can be connected 230V TRI or 230V single-phase (see wiring diagram on the device).

4.3. The models with MT designation are three-phase devices:

These devices are wired 230V single phase by the manufacturer and can be connected to 230V TRI or 400V TRI (See wiring diagram on the device) **The 500 liters floor standing model is wired 400V TRI by the manufacturer. The electrical connection of the device is made exclusively on the thermostat's terminals or on the device's terminal board.**

ANY DIRECT CONNECTION TO THE HEATING ELEMENT IS HAZARDOUS AND IS STRICTLY PROHIBITED.

A : Hot water / B : Cold water / C : Safety assembly / D : Shut-off valve / E : Dielectric connection

4.4.1 PROfessional TECH (PTEC) and QUIETIS

The boiler protection anode is controlled by an electronic device powered at the network current or using a battery designed for systems operating in day/night mode, in order to keep the boiler protected during the day. Correct operation of the protection system **REQUIRES A PERMANENT POWER SUPPLY** (network or batteries). The appliance cannot, in fact, be left without a power supply for more than 48 hours.

4.4.2 HPC and ZEN

The boiler protection anode is controlled by an electronic device powered at the network current.

In case of system operating in day/night mode, during the night the protection is guaranteed by the PROfessional TECH anode, while during the day the protection is guaranteed by the magnesium anode.

ATTENTION: The anti-corrosion system cannot stay without power supply more than 1 week.

4.5 Day/night or permanent power supply: operating principle

4.5.1 Products PROfessional TECH (PTEC) and QUIETIS

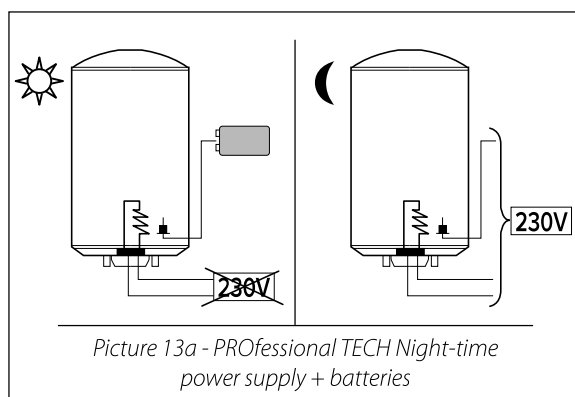
① Night-time power supply + batteries

- > Heating element ↔ Night-time power supply (exclusive or dual timer schedule) (Picture 13a).
- > Anode PROfessional TECH ↔ Night-time power supply + day-time operation with batteries.*

* Electric water heaters, designed for a night-time power supply, are fitted with Ni-MH batteries which are charged every night, thereby protecting the boiler during the day.

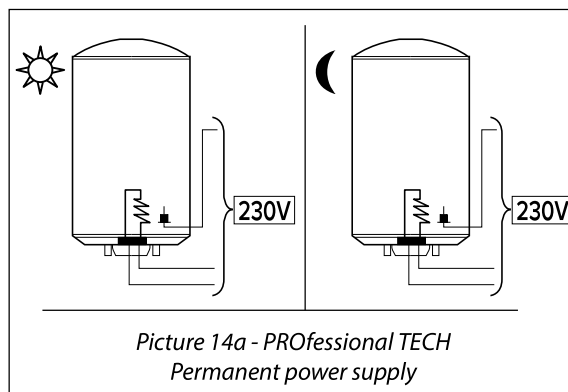
CAUTION: The batteries do not have an indefinite lifespan: it makes good sense to replace them once they have been used for one or two years.

In order to guarantee full boiler protection, any faulty batteries must be replaced. If the batteries are not replaced, the guarantee will become void.



② Permanent power supply

- > Heating element and anode PROfessional TECH ↔ Continuous power supply (Picture 14a).
- > Operation without battery.

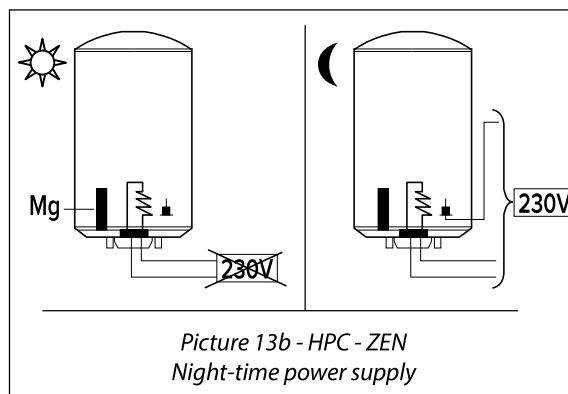


4.5.2 Products HPC and ZEN

① Night-time power supply

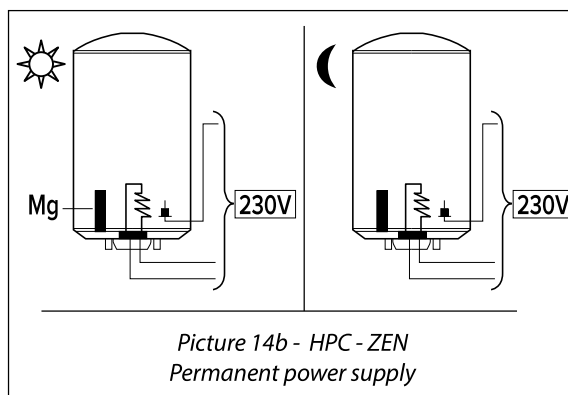
- > Heating element ↔ Night-time power supply (exclusive or dual timer schedule) (Picture 13b).
- > Anode PROfessional TECH ↔ Night-time power supply.*

* In products HPC and ZEN, the protection is however guaranteed during the day by the magnesium anode.



② Permanent power supply

- > Heating element and anode PROfessional TECH => Continuous power supply (Picture 14b).



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