

# INSTRUCTION MANUAL

## heating elements

### for water heating



#### Description and use

Heating elements designed for water and similar liquids heating without the threat of medium carbonisation on the body surface.

#### Type: 5101/5102

Heating element consists of one heating rod, attached to the brass head( M48x2 / G6/4 ). Heating branch has got connecting terminals with M4

**Max. surface load of the heating element according to working environment**

screws, that serve for cable inlet connection. Suitable for direct water and similar liquid heating (boilers), must be immersed to the head during all operations.

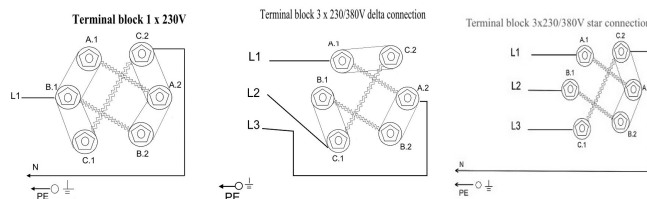
**Type: 5107** Heating element consists of heating rod attached to the flange. Outlets are equipped with flat pins. Suitable for direct water heating in el. water heaters, must be immersed to the flange during all operations.

**Type: 5144** Heating element consists of three U-shaped heating rods, which are attached to the brass head with a cover (IP 54). Designed for direct water and similar liquids heating in water heaters, electroboilers etc., must be immersed to the head during all operations.

**Type: 14089** Heating element designed for direct water heating in washing machines. Installation is performed using flat oval hole 18x70, sealing is performed using one nut M8. Heating rods is made of stainless steel. Must be immersed during all operations.

**Type: 14071** Heating element designed for direct water and similar liquids heating. Working pressure max 1,0 MPa. Heating rods are made of copper-nickel or stainless steel, nickel-steel flange. IP protection 42.

Electric connexion according to attached scheme.



#### Installation

Installation and connection of the heating element can only be performed by

a qualified personnel in compliance with regulation no.50/1978 min. §6 or an employee of expert technical service.

#### Storing conditions

Storing can be done in closed aired rooms with temperature range 0–40 °C with relative humidity max. 80 %. Storing and transfer must not cause mechanical damage to the device. Heating elements must be treated with care, with no major shocks or vibrations.

#### Disposal

Disposal should be performed as follows: Hand into a recycling collection point.

#### Possible minor failures and their elimination

Any failures of the heating element must be rectified by the manufacturer only.

#### Warranty

Provided, that the product has been placed and used according to the instruction manual, the manufacturer provides with warranty in compliance with a valid code, unless agreed otherwise.

The manufacturer will reject warranty repair, in case the product has been damaged:

- during transport and storage of the purchaser, or his customers,
- during installation or disassembly of device of the purchaser or his customer

#### Warranty and post-warranty repairs

Warranty and post-warranty repairs are provided by the manufacturer. Warranty claim of a faulty product should be done at the seller. The warranty claim will be accepted in case, that following requirements are met:

- submitted warranty list of the given product,
- paid invoice of the product,
- the conditions and requirements of operating manual were met.

#### FORMULA FOR CALCULATING THE POWER OF ELEMENTS

$$P = \frac{k \cdot \Delta T \cdot kg}{s}$$

**P** = power of element

**k** = specific heat capacity

**Δ T** = difference between starting and ending temperature

**kg** = weight

**S** = heating time

$$1500W = \frac{4180 \cdot (50^{\circ}C - 5^{\circ}C) \cdot 28kg}{3600s}$$

Substance	k
water	4180
ethanol	2460
ice	2090
oil	2000
air	1003
aluminum	896
iron	450
Cu	383