

INSTRUCTION MANUAL

Heating elements for oil heating

series 14070, 14211

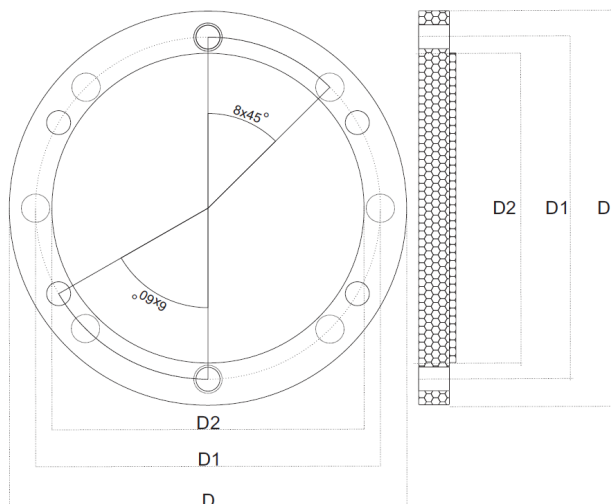


Description and use

Heating elements designed for oil and other carbonizing liquids heating, where low W/cm² load is required. Application in hydraulic systems, transport technology, points, for oil heating in transducers and others.

Type: 14211

Heating element flange

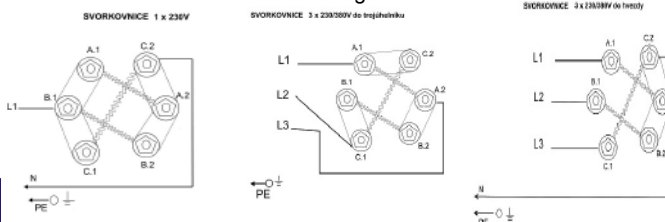


Heating element designed for direct oil heating. Power load surface is selected in order to prevent oil carbonization. Heating rods are made of steel, placed in nickel-coated steel flange. IP protection 42. The flange can be designed for pressures of 0,6; 1,0; 2,5; or 6,4 MPa. Versions of other performance, dimension and extras optimal (no cover, tropical, etc.).

Design: - 1 x 230V, 3 x 230V, 1 x 400V, 3 x 400V, 1 x 500V, 3 x 500V

Type: 14070, 14011

Heating element designed for direct oil heating. Power load surface is selected in order to prevent oil carbonization. Heating rods are made of steel, placed in a brass flange. IP protection 54. Working pressure 0,6 MPa. Design: 1 rod (14070) 1x230V and 3 rod (14011) -1x230V, 3x230V, 1x400V. Electric connexion according to attached scheme.



Installation

Installation and connection of heating element can only be performed by a qualified person in compliance with regulation no. 50/1978 min. §6 or an employee of expert technical service.

Storing conditions

Storing can be done in closed and aired rooms within temperature range 0–40 °C with relative max. humidity 80 %. Storing and transfer must not cause a mechanical damage of the device. Thermostats must be treated

with care, with no major shocks or vibrations.

Disposal

Disposal should be performed as follows: Hand into 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 heating element 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 heating element,
- paid invoice of the heating element,
- the conditions and requirements of operating manual were met

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

APLIKACE	BODY MATERIAL			
	copper	steel	Stainless steel	NEREZ Incolly 800
backwater	10		10	
flowing water	14		14	
water heater in the flow	25		25	
water vapor	6		6	
light oils		3,5	3,5	
oil		1,2	1,2	
heating oil		12	12	
no flow air		1,7	5	6
flow air v = 2 m/s		2	5,5	6,5
flow air v = 10 m/s		5	10	10

FORMULA FOR CALCULATING THE POWER OF ELEMENTS

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

P = power of element
k = specific heat capacity
 ΔT = difference between starting and ending temperature
kg = weight
S = heating time

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

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

14211

Prov	U (V)	P (W)	L ± 10	D	D2	D1	S	x ø d	T (MPa)	Větve topné v.č.
1	3x500	12500	1250	182	143	158	18	6x11	0,6	1421101010
2	3x400	2500	400	182	143	158	14	6x11	0,6	1421101020
3	3x400	6000	700	182	143	158	14	6x11	0,6	1421101030
4	3x400	10000	1000	182	143	158	14	6x11	0,6	1421101040
5	3x400	12500	1250	182	143	158	14	6x11	0,6	1421101050
6	3x400	4000	600	182	143	158	14	6x11	0,6	1421101060
7	3x400	3500	400	182	143	158	14	6x11	0,6	1421101070
8	3x400	8000	1075	182	143	158	14	6x11	0,6	1421101080
9	3x400	5500	800	182	143	158	14	6x11	0,6	1421101090
10	3x230	9600	1250	295	175	240	30	8x30	6	1421101100
11	3x400	15000	1400	182	143	158	14	6x11	0,6	1421101110
12	3x400	3500	400	270	175	220	22	8x26	2,5	1421101120
13	3x400	6000	700	182	143	158	14	8x13	1	1421101130
14	3x400	6500	1550	182	143	158	14	6x11	0,6	1421101140
15	3x400	7500	900	182	143	158	14	6x11	0,6	1421101150
16	3x400	12500	1250	182	143	158	14	8x13	1	1421101050
17	3x400	12000	700	182	143	158	14	6x11	0,6	1421101160