



LIQUID HEATING



**ELECTRICAL HEATING AND COOLING
SOLUTIONS
FOR THE INDUSTRY**



VULCANIC

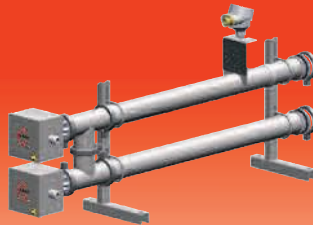
The Vulcanic group has been designing and manufacturing electrical process heating and temperature control solutions since 1973. Employing 550 people across 8 manufacturing locations, Vulcanic currently services 30 000 customers in 100 different countries across the globe and is an ISO 9001 v 2008 accredited company.



**You have an issue... let us solve it !
Vulcanic your worldwide local partner !**



Advice

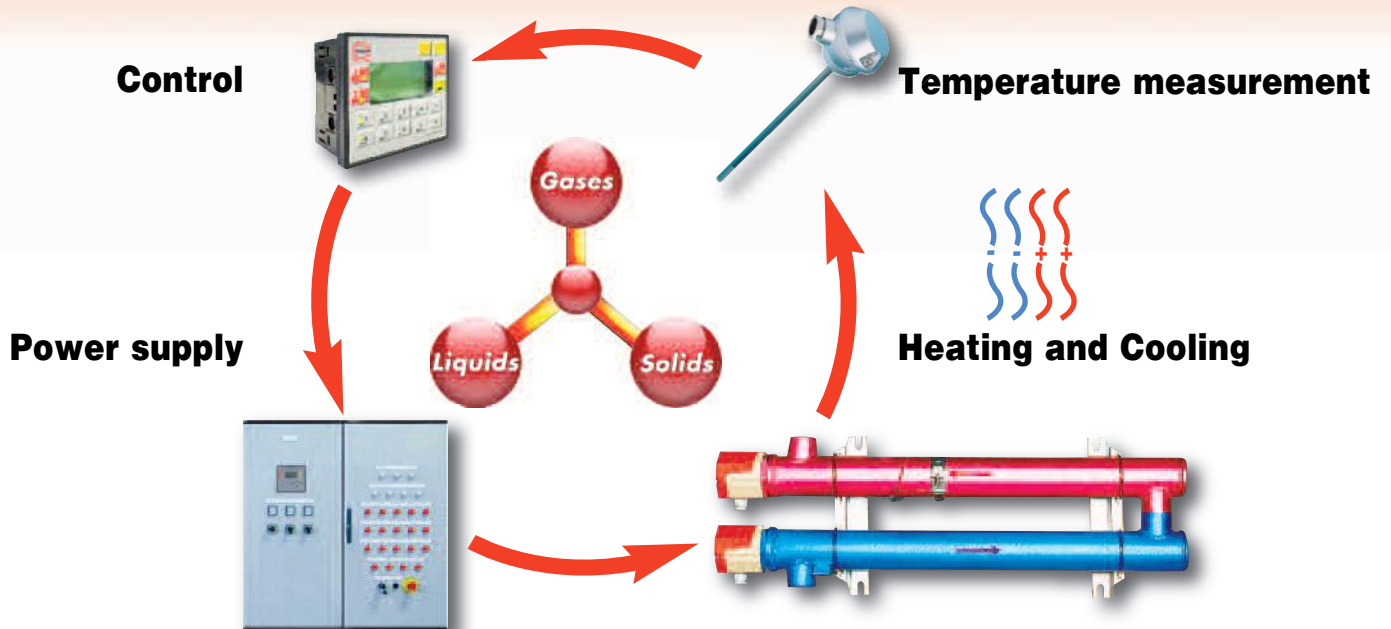


Design



Manufacturing

All in One Solutions





SERVED MARKETS



DESIGN EXPERTISE AND CODES

Vulcanic design teams support our partners from conceptual design and feasibility study throughout the life of the equipment. Our design capabilities include:

- Electrical design
- Mechanical design
- Thermal design
- Electronic design (hardware and software)
- Hydraulic design
- Automation
- Communication protocols
- Hazardous area certification



- AD 2000
- ASME
- CODAP
- EN 286

- PD 5500
- RCC-M / RCC-E
- STOOMWEZEN
- GOST



MANUFACTURING

Vulcanic offers the benefits of integrated "in house" manufacturing processes, using "state of the art" equipment to manufacture almost all components utilised within our product ranges. With only minimal dependance upon subcontractors, we remain in full control of Quality and Production schedules while maintaining a high level of know how in house.



Heating element manufacturing



CNC machining



Sensor manufacturing



Welding



Wiring

CERTIFICATION



- ISO 9001: 2008
- PED 97/23/EC cat I-IV
- ATEX 94/9/EC
- IECEx
- TR CU
- CCOE
- VDE
- UL
- DNV
- INMETRO





VULCANIC GROUP

VULCANIC SAS
ZI des Chanoux
48, rue Louis Ampère
F-93330 Neuilly sur Marne
France
Tel. : +33 1 49 44 49 20



VULCANIC SAS
ZI la Saunière
F-89600 Saint Florentin
France
Tel. : +33 1 49 44 49 20



VULCANIC UK Ltd
South Green Park
Entreprise Centre, Mattishall
NR20 3JY, Dereham Norfolk
United Kingdom
Tel. : +44 1603 340015



LOREME SAS
12, rue des Potiers d'Etain
Actipôle Borny
F-57071 Metz
France
Tel. : +33 3 87 76 32 51



VULCANIC SA
Heilig Hartstraat, 14
B-2600 Berchem
Belgium
Tel. : +32 3 286 70 30



RS ISOLSEC SAS
45, avenue des acacias
F-45120 Cepoy
France
Tel. : +33 2 38 85 62 62



VULCANIC TERMOELÉCTRICA SLU
Ctra. a Viérnoles, 32
E-39300 Torrelavega
Spain
Tel. : +34 942 80 35 35



VULCANIC GmbH
Donaustraße 21
D-63542 Hanau
Germany
Tel. : +49 6181 9503 0



RS ISOLSEC SLU
Ave Riu Mogent, 5
E-08170 Montornès del Valles
Spain
Tel. : +34 93 568 73 10



VULCANIC Russia
105005 Moscow
radio street
house 24 building 1
Russia
Tel. : + 7 (903) 967-95-68



VULCANIC TRIATHERM GmbH
Flurstraße 9
D-96515 Sonneberg
Germany
Tel. : +49 3675 4083-0



FLUIDS HEATING

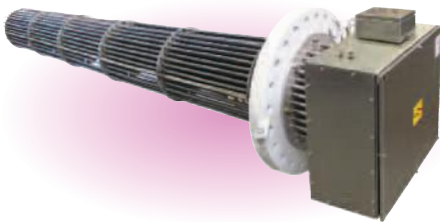
Screw plug immersion heaters



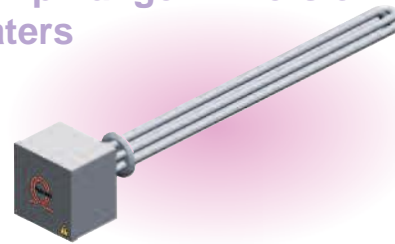
VULCALOY flange immersion heaters



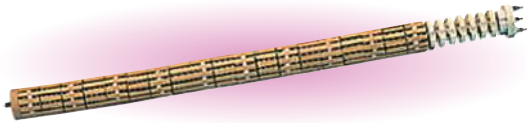
Flange immersion heaters



Clamp flange immersion heaters



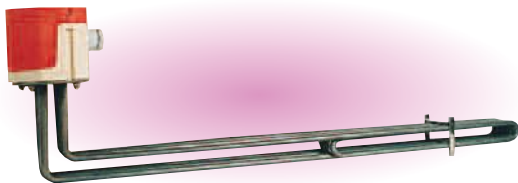
Ceramic core elements



ATEX screw plug and flange immersion heaters



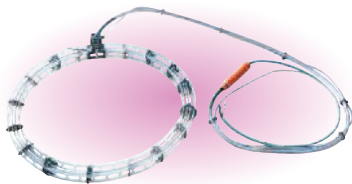
Removable immersion heaters



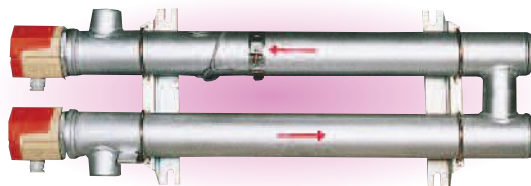
Drum heaters



Fluorated tank bottom heaters



Fluid circulation heaters



Heating hoses

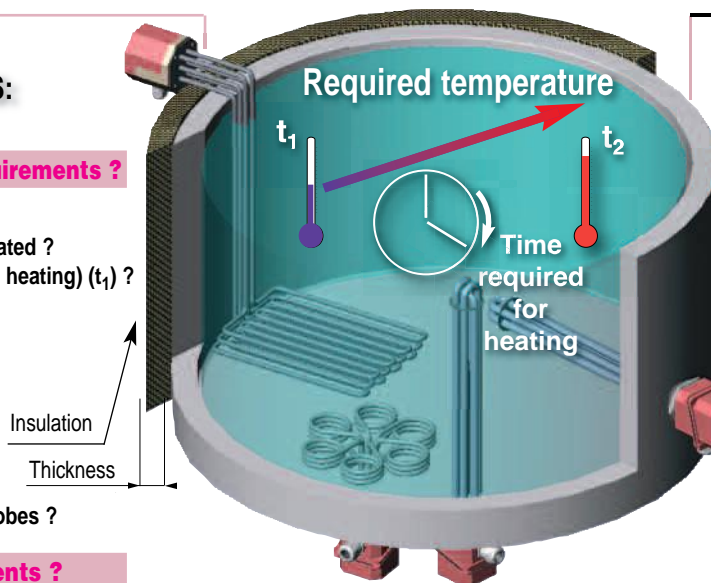


APPLICATION: Electric immersion heaters are suited to heat up fluids (liquids and gas) by natural (static fluids) or forced convection (fluids in circulation). They are designed to heat up trough heating elements (pins, monotubes or ceramic cores) in direct contact with the fluid to be heated. Heating elements layout enables the optimization of heat transfers.

REQUIREMENTS:

Immersion heater requirements ?

- Type of fluid ?
- Volume of liquid to be heated ?
- Start temperature (before heating) (t_1) ?
- Target temperature. (t_2) ?
- Heating time ?
- Pressure ?
- Available space (Internal and external)
- Mounting interface
- With or without control
- With or without safety probes ?



SOLUTIONS :

See table page 13

- Suitable materials (Heating elements, flanges...)
- Specific load

Liquid (Static)	Specific load
Water	10 W/cm ² Max
Oil	2 W/cm ² Max
Other liquids contact us.	

- Power of the immersion heater
- Type of immersion heater

Pressure	Type of immersion heaters
Atmospheric	Removable, screw plug or flange
15 bar Max	Screw plug or flange
50 bar Max	Flange
Over 50 bar	Contact us

Power requirements ?

$$P_{ch} \text{ (power to heat)} + P_{th} \text{ (thermal losses)} = P \text{ total power requirements (kW)}$$

Power requirements?

- Weight of liquid : m (kg)
- Specific heat : C_p (kcal/kg x °C)
- Start temperature : t_1 (°C)
- Target temperature: t_2 (°C)
- Heating time : T (hour)

$$P_{ch} \text{ (kW)} = \frac{m \times C_p \times (t_2 - t_1) \times 1,2}{860 \times T}$$

$$m = V \times \rho$$

V

Volume (dm³)

Density (kg/dm³)

ρ

C_p

Specific heat (kcal/kg°C)



$$V = \pi \times \frac{\varnothing^2}{4} \times H$$

\varnothing = Internal diameter (dm)
 H = Height of liquid (dm)



$$V = l \times L \times H$$

l = length (dm)
 L = Width (dm)
 H = Height of liquid (dm)

	ρ	C_p
Paraffins	0,88	0,52
Mineral oil	0,9	0,5
Water	1	1
Glycol	1,1	0,67
Acetic acid	1,1	0,51
Formic acid	1,2	0,39
Hydrochloric acid	1,2	0,60
Sulphuric acid	1,8	0,33

Thermal losses ?

- Vessel surface area: S (m²)
- Room temperature : t_a (°C)
- Target temperature : t_2 (°C)
- Exchange coefficient : K (kcal/h x m² x °C)
- Thickness of insulation : (mm)

$$P_{th} = \frac{S \times (t_2 - t_a) \times K}{860}$$

S Exchange surface (m²)

K Exchange factor (kcal/h x m² x °C)



$$S = (\pi \times \varnothing \times H) + (\pi \times \frac{\varnothing^2}{4})$$

\varnothing = External diameter (m)
 H = Height of tank (m)



$$S = [2 \times H \times (l + L)] + (l \times L)$$

l = Tank's length (m)
 L = Tank's width (m)
 H = Tank's height (m)

Thickness of insulation

	without	25 mm	50 mm	100 mm
External underground tank	9	1,7	1	0,55
External sheltered tank - wind ≤ 10 km/h	30	2,1	1,1	0,59
External underground tank - wind ≤ 45 km/h	30	2,3	1,2	0,61
External underground tank - wind ≤ 90 km/h	45	2,9	2,5	1

CAUTION: An inappropriate immersion heater may result in :

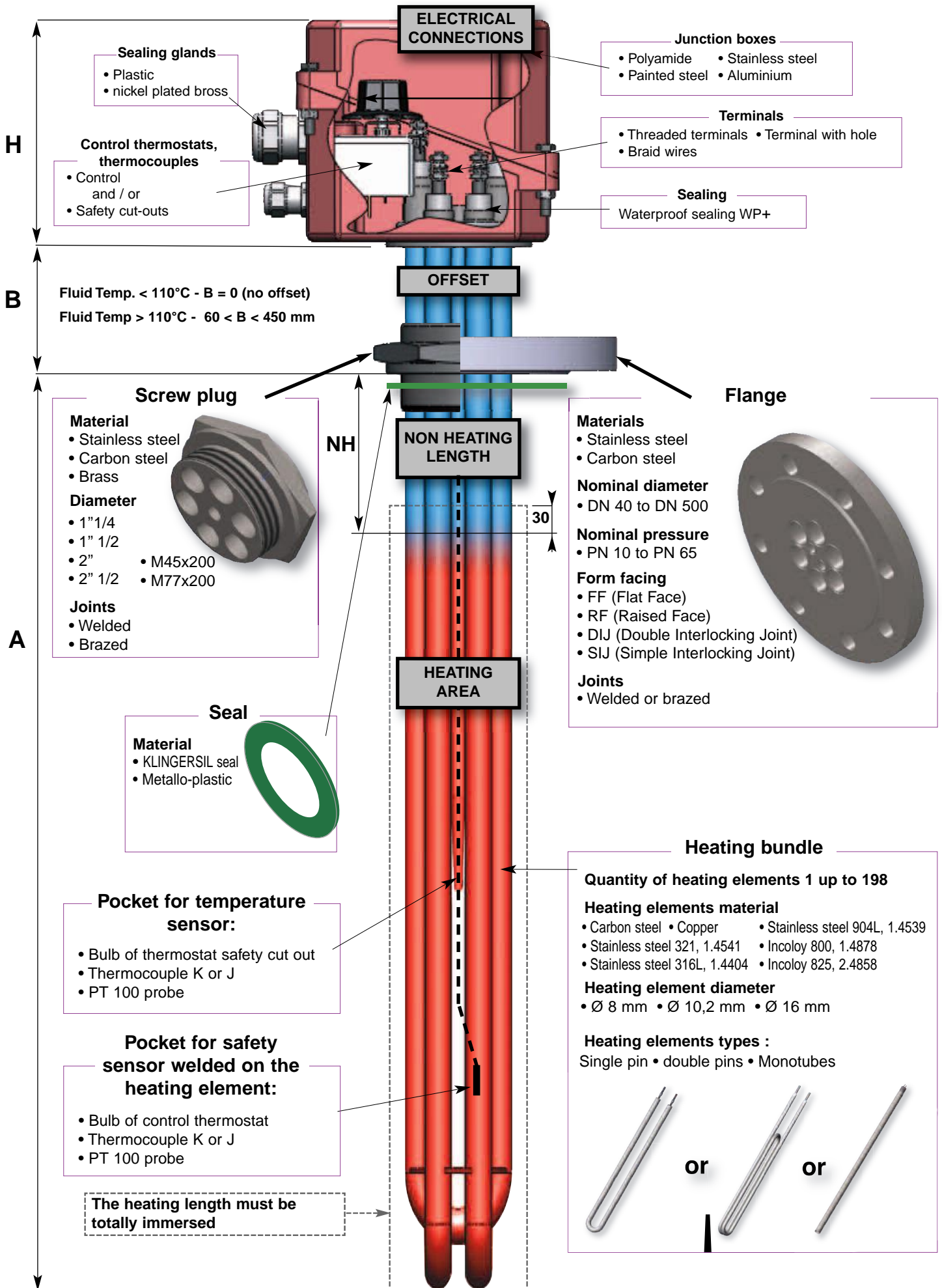
- Excessive Heating time : too low power. **Too short heating time** : electric installation over dimensioned.
- Alteration or even destruction of the fluid to be heated : The fluid doesn't withstand the power load of the heater (W/cm²).
- Destruction of the immersion heater : The material of the heater doesn't fit with the fluid to be heated. The heater gets quickly corroded.

SELECTING SUITABLE SHEATHED MATERIALS

• The recommendations in this table are only indicative and do not involve the responsibility of Vulcanic.
The customer must verify the suitability of the material chosen with the thermal process.

x = not suitable < = Possible under certain conditions << = recommended

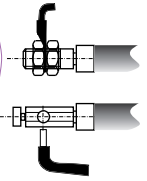
Fluids to be heated	Soldering	Welding	Carbon Steel	Scoured copper	Stainless steel 321	Stainless steel 316	904L Vulcaloy	Incoloy 800	Incoloy 825	PTFE
DIN number (For food and beverage applications, contact us)			E235+N	SFCu	1.4541	1.4404	1.4539	1.4876	2.4858	
WATER										
Softened water	<<	<<	x	x	<	<<	<<	<<	<<	<<
Boric water	x	<<	x	x	<	<<	<<	<	<<	<<
Desalinated water	x	<<	x	x	<	<<	<<	<	<<	<<
Deionised water	x	<<	x	x	<	<<	<<	<	<<	<<
Distilled water	x	<<	x	x	x	<<	<<	x	<<	<<
Hydrochloric sodium	<<	<	x	x	x	x	x	x	x	<<
Seawater	<<	<<	x	<	x	<	<<	<	<<	<<
Swimming-bath water	<<	<<	x	<	x	x	<<	x	x	<<
Treated water	<<	<<	x	<<	<<	<<	<<	<<	x	x
Process water TH ≤ 10	<<	<<	x	<<	<	<<	<<	<	<<	x
Process water 10 < TH < 25	<<	<<	x	<<	x	<	<<	x	<<	x
Process water	<<	<<	x	<<	x	<	<<	x	<<	x
OILS										
Animal oil	<<	<<	<<	<	<<	<<	<<	<<	<<	<<
Lubricant	<<	<<	<<	<	<<	<<	<<	<<	<<	<<
Mineral oil (max. 90°C)	<<	<<	<<	<	<<	<<	<<	<<	<<	<<
Plant oil(200°C)	<<	<<	<<	x	<<	<<	<<	<<	<<	<<
Drilling oil	<<	<<	<	x	<<	<<	<<	<<	<<	<<
ACIDS										
Acetic acid										
5 to 20% < 20°C	x	<<	x	x	x	<<	<<	x	<<	<<
20 to 100% < 20°C	x	<<	x	x	x	<<	<<	x	<<	<<
5 to 50% < 100°C	x	<<	x	x	x	<<	<<	x	<<	<<
5 to 50% and boiling 120°C	x	<<	x	x	x	<<	x	x	<<	x
Hydrochloric acid (HCl)	x	<<	x	x	x	x	x	x	x	<<
Citric acid										
< 50% < 40°C	x	<<	x	x	<<	<<	<<	<<	<<	<<
< 50% and boiling	x	<<	x	x	x	<<	<<	x	<<	<<
Formic acid										
< 25% < 90°C	x	<<	x	<	x	<<	<<	x	<<	<<
10 to 90% < 90°C	x	<<	x	<	x	<	<	x	<<	<<
Oxalic acid										
< 40% < 75°C	x	<<	x	<	x	<<	<<	x	<<	<<
< 90% < 100°C	x	<<	x	x	x	x	x	x	x	<<
Phosphoric acid										
< 45% < 100°C	x	<<	x	<	x	<<	<<	x	<<	<<
≤ 100°C and boiling	x	<<	x	x	x	x	x	x	x	<<
Sulphuric acid										
< 3% < 20°C	x	<<	x	x	x	<<	<<	x	<<	<<
≥ 3% < 20% < 50°C	x	<<	x	x	x	<<	<<	x	<<	<<
> 10% < 50°C	x	<<	x	x	x	<	<	x	<<	<<
< 40% < 20°C	x	<<	x	x	x	<<	<<	x	<<	<<
≥ 50% ≤ 70% All Temp.	x	<<	x	x	x	x	<	x	x	<<
≤ 80% ≤ 20°C	x	<<	x	x	x	<<	<<	x	<<	<<
ALKALINE BATHS										
Bath lubrication										
Alcali or Anodic	x	<<	<<	x	x	x	x	x	x	x
Electrolytic	x	<<	<<	x	<	<<	<<	<	<<	x
Phosphoric baths	x	<<	<<	x	x	<<	<<	x	<<	x
Paint	x	<<	<<	<<	<<	<<	<<	<<	<<	x
Soap + water (In solution)	x	<<	<<	<	<<	<<	<<	<<	<<	<<
Caustic soda										
< 50% < 50°C	x	<<	<<	x	<	<<	<<	<	<<	<<
< 70% < 60°C	x	<<	<<	x	<	<<	<<	<	<<	<<
< 50% < 110°C	x	<<	<<	x	<	<<	<<	<	<<	<<
> 50% > 100°C	x	<<	<<	x	x	<	<	x	<	x
HIGH VISCOSITY LIQUIDS										
Asphalt	<<	<	<<	x	<<	<<	<<	<<	<<	x
Wax (Hot water bath)	<<	<	<<	x	<<	<<	<<	<<	<<	x
Heavy fuel	<<	<	<<	<<	<<	<<	x	<<	<<	<



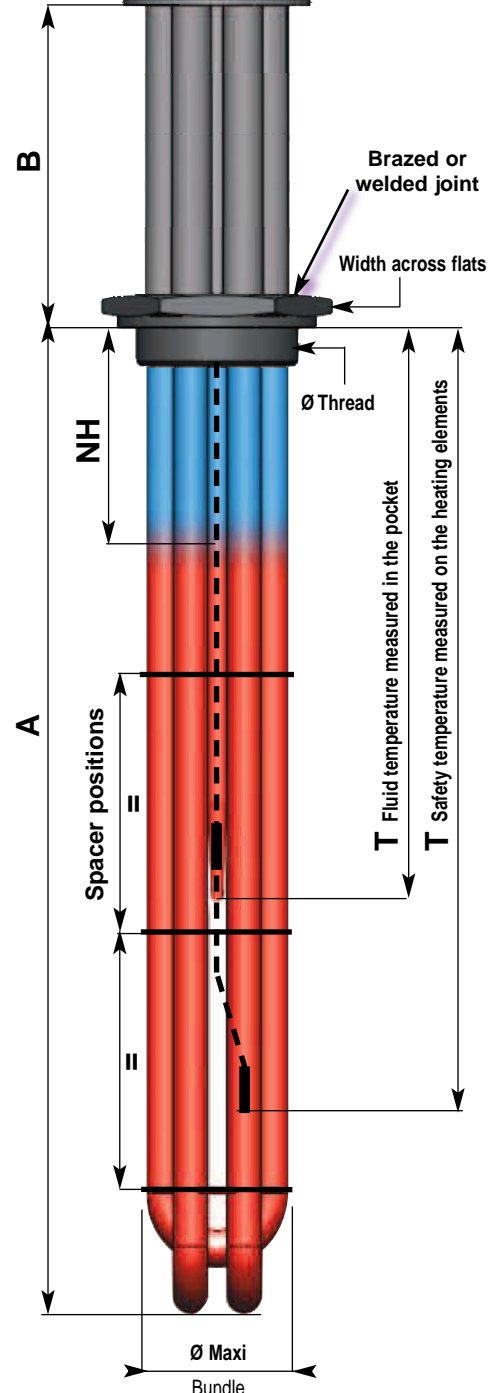
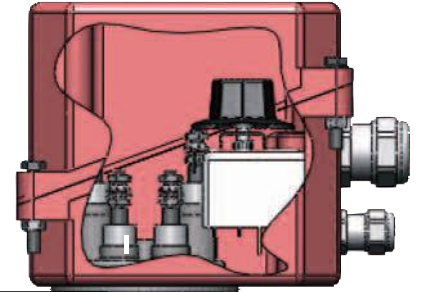
1 1/4 BSPP - 1 1/2 BSPP - ISO M45X200 SCREW PLUG HEATER SPECIFICATIONS

TYPE		2300						
SCREW PLUG		Ø Thread	1 1/4	1 1/2 or M45x200	M45x200			
MAXIMUM PRESSURE								
	Brazed joint		15 bar	15 bar	15 bar			
	Welded joint		20 bar	20 bar	20 bar			
JUNCTION BOX								
	Without control thermostat		H1 A1	Q1 G1	H1 A1			
	With control thermostat		-	Q2 K2 G2	-			
CONNECTIONS - COUPLING								
	Sealing		Resin WP+	Resin WP+	Resin WP+			
Ø Heating elements	6,8 mm		M4 M6 BW	-	-			
	8 mm		M4 M6 BW	M4 BW	M4 BW			
	10,2 mm		-	M4 M5 BW	M4 M5 BW			
	Coupling		Single phase (Parallel, Series), 3 phases (Star, Delta)					
OFFSET - MAXI TEMPERATURE								
	Without offset B = 0		110°C	110°C	110°C			
	Offset B = 60 mm		200°C	200°C	200°C			
	Offset B = 120 mm Brazed joint		250°C	250°C	250°C			
	Offset B = 120 mm Welded joint		300°C	300°C	300°C			
SCREW PLUG								
	Ø Thread		1 1/4	1 1/2 or M45x200	M45x200			
	Width across flats (mm)		60	60	60			
	Material		Carbon steel - Stainless steel - Copper brass					
HEATING ELEMENTS								
	Ø (mm)		6,8	8	8	10,2	8	10,2
	Qty		1 to 3		1 to 3		1 to 3	
Material	Z2 316L/DIN 1.4404		X	X	X	X	X	X
	Z6 321/DIN 1.4541		X	X	X	X	X	X
	Incoloy 800/DIN 1.4876		X	X	X	X	X	X
	Incoloy 825/DIN 2.4858		X	X	X	X	X	X
	Copper		X	X	X	X	X	X
	Carbon steel				X			X
	Sheath treatment		Without - Scoured - Scoured passivated - Electropolished					
Dimensions (mm)	A Maxi		1900	1900	1900	3000	1900	3000
	A Mini without thermowell		80	80	80	100	80	100
	A Mini with thermowell		150	150	150	200	150	200
	Tolerance on dimensions A		-2% +0 with mini -10 mm					
	LC Mini (Heating length)		40	40	40	60	40	60
	NC Mini (Non heating length)		40	40	40	40	40	40
	Ø Maxi bundle		37	37	42	42	42	42
Electrical parameters	Specific load - W/cm ²		Depending on customer application					
	Maximum current - A		16	16	16	26 / 45	16	26 / 45
	Maximum voltage - V		400	400	400	500	400	500
POCKET (Option)								
	Dimensions (mm)		Stainless steel					
	Ø Thermostat temperature sensor		6 or 8					
	T Maxi (Thermostat or temperature sensor)		A - 30					
	T Mini (Thermostat)		NH +10 + Bulb length					
	T Mini (Temperature sensor)		NH + 30					
	Temperature measurement device (Fluid)		Sensor PT100	Thermostat	Sensor PT100			
	Safety sensor on heating element		Thermocouple TC J or TC K					

Connections
M4 - Threaded terminal M4
M5 - Threaded terminal M5
M6 - Threaded terminal M6
BW - Threaded terminal



See range of junction boxes pages 42-43



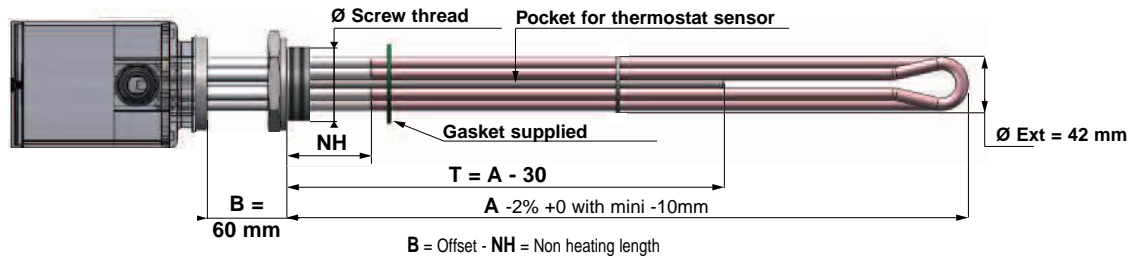
1 1/2 BSPP AND ISO M45x200 SCREW PLUG HEATERS WITH OFFSET FOR WATER AND OIL FROST PROTECTION



Q2 IP44
P/n. 2216-xx
P/n. 3216-xx
Control thermostat -20/+40°C P/n. 9030-71
External setting button



Q2 IP54
P/n. 2217-xx
P/n. 3217-xx
Control thermostat -20/+40°C P/n. 9030-71
Internal setting button



Junction box (See on pages 42-43)	Type	Q2	Q2
	IP	44	54
	Thermostat setting	External	Internal
	Material	Polyamide	
	Cable gland	P ≤ 3kW 1 CG ISO20 P > 3kW 1 CG ISO20 + 1 CG ISO25	
	Control thermostat	-20/+40°C 1 Change over contact - 16A / 230V	

WATER FROST PROTECTION

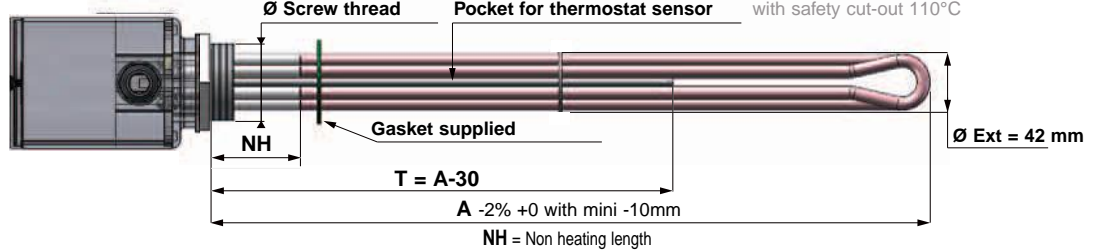
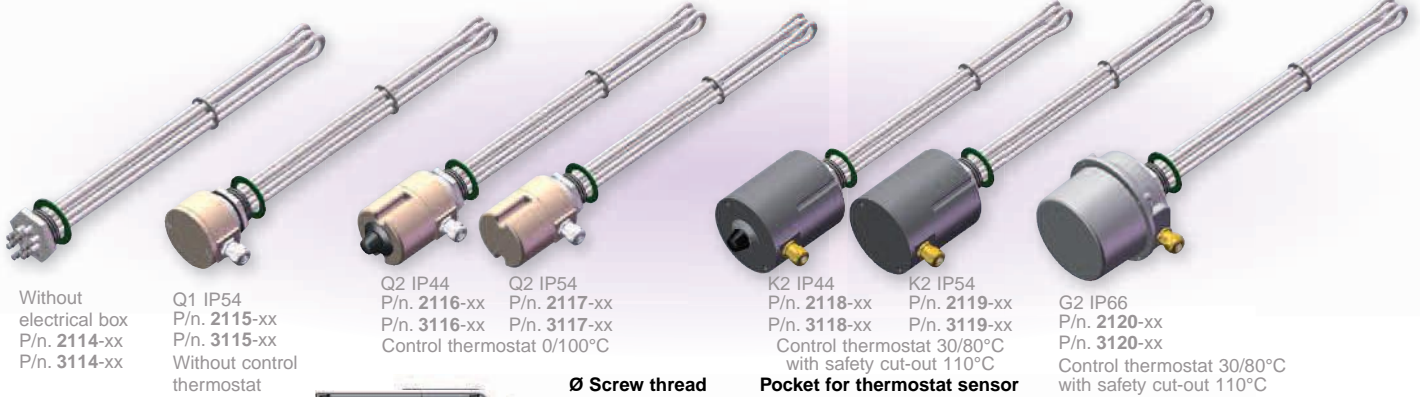
3 Heating elements						$\varnothing 8$ - Incoloy 825 - Without treatment	
Screw plug						Copper brass - Without treatment - Brazed	
\varnothing Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.
1 1/2 BSPP	2	230-1P	5	300	40	2216-50	2217-50
	3	230-1P	5	480	40	2216-51	2217-51
	4,5	400-3P	5	670	40	2216-52	2217-52
	6	400-3P	5	960	40	2216-53	2217-53
M45 x 200	2	230-1p	5	300	40	3216-50	3217-50
	3	230-1P	5	480	40	3216-51	3217-51
	4,5	400-3P	5	670	40	3216-52	3217-52
	6	400-3P	5	960	40	3216-53	3217-53

OIL FROST PROTECTION

3 Heating elements						$\varnothing 8$ - Stainless steel 316L - Without treatment	
Screw plug						Carbon steel - Without treatment - Brazed	
\varnothing Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.
1 1/2 BSPP	2	230-1P	1	1160	40	2216-60	2217-60
	3	230-1P	1,7	1160	40	2216-61	2217-61
M45 x 200	2	230-1p	1	1160	40	3216-60	3217-60
	3	230-1P	1,7	1160	40	3216-61	3217-61

• See optional accessories on page 56

1 1/2" BSPP AND ISO M45x200 SCREW PLUG TO HEAT OIL UP TO 95°C



Junction box (See on pages 42-43)	Type	Without	Q1	Q2	Q2	K2	K2	G2	
	IP	Without	54	44	54	44	54	66	
	Thermostat setting	Without	Without	External	Internal	External	Internal	Internal	
	Material	Without	Polyamide						Alu.
	Cable gland	Without	P ≤ 3kW 1 CG ISO20		P > 3kW 1CG ISO20 + 1 CG ISO25				
	Control thermostat	Without	0/100°C 1 Change over contact 16A / 230 V			30/80°C 3 Contacts - 20A / 400V Safety 110°C reset manual			

STATIC OIL

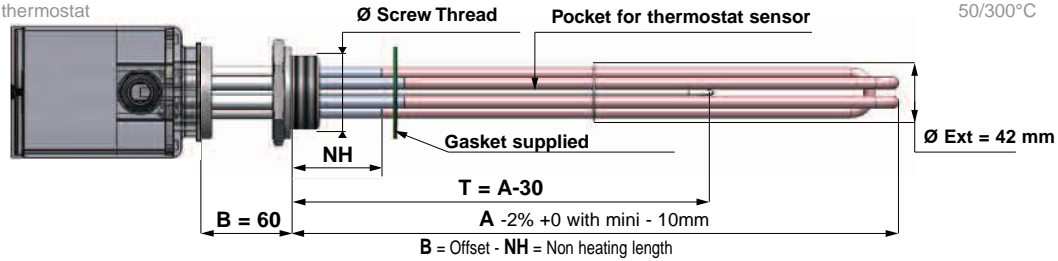
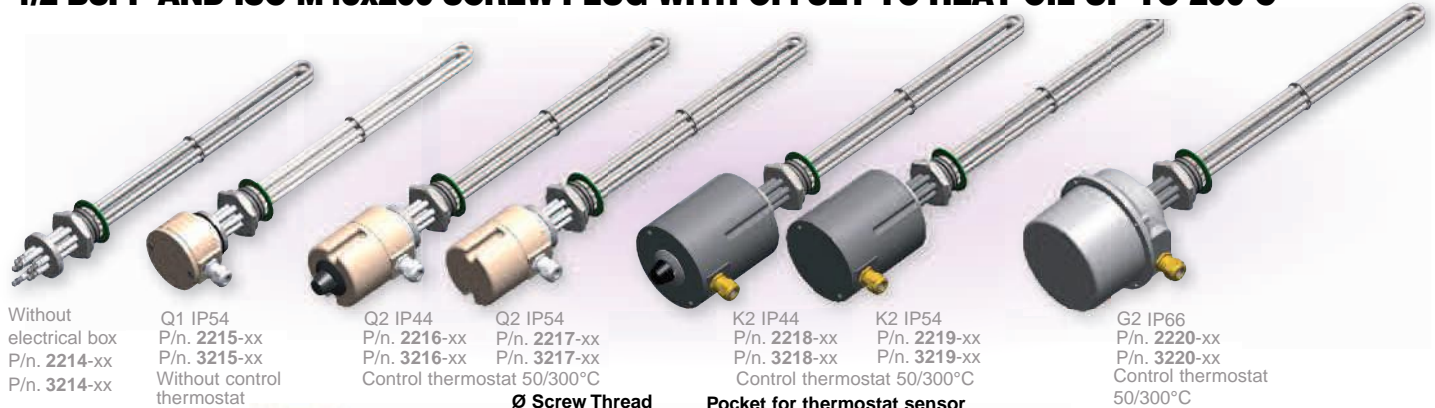
3 Heating elements						Ø8 - Stainless steel 316L - Without treatment						
Screw plug						Carbon steel - Without treatment - Brazed						
Ø Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2" BSPP	1	230-1P	2	370	40	2114-01	2115-01	2116-01	2117-01	2118-01	2119-01	2120-01
	1,5	230-1P	2	540	40	2114-02	2115-02	2116-02	2117-02	2118-02	2119-02	2120-02
	2	230-1P	2	700	40	2114-03	2115-03	2116-03	2117-03	2118-03	2119-03	2120-03
	3	230-1P	2	1040	40	2114-04	2115-04	2116-04	2117-04	2118-04	2119-04	2120-04
M45 X200	1	230-1P	2	370	40	3114-01	3115-01	3116-01	3117-01	3118-01	3119-01	3120-01
	1,5	230-1P	2	540	40	3114-02	3115-02	3116-02	3117-02	3118-02	3119-02	3120-02
	2	230-1P	2	700	40	3114-03	3115-03	3116-03	3117-03	3118-03	3119-03	3120-03
	3	230-1P	2	1040	40	3114-04	3115-04	3116-04	3117-04	3118-04	3119-04	3120-04

CIRCULATING OIL (speed mini = 2m/s)

3 Heating elements						Ø8 - Stainless steel 316L - Without treatment						
Screw plug						Carbon steel - Without treatment - Brazed						
Ø Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2" BSPP	2	230-1P	5	300	40	2114-06	2115-06	2116-06	2117-06	2118-06	2119-06	2120-06
	3	230-1P	5	480	40	2114-07	2115-07	2116-07	2117-07	2118-07	2119-07	2120-07
	4,5	400-3P	5	670	40	2114-08	2115-08	2116-08	2117-08	2118-08	2119-08	2120-08
	6	400-3P	5	960	40	2114-09	2115-09	2116-09	2117-09	2118-09	2119-09	2120-09
M45 X 200	2	230-1P	5	300	40	3114-06	3115-06	3116-06	3117-06	3118-06	3119-06	3120-06
	3	230-1P	5	480	40	3114-07	3115-07	3116-07	3117-07	3118-07	3119-07	3120-07
	4,5	400-3P	5	670	40	3114-08	3115-08	3116-08	3117-08	3118-08	3119-08	3120-08
	6	400-3P	5	960	40	3114-09	3115-09	3116-09	3117-09	3118-09	3119-09	3120-09

• See optional accessories on page 56

1 1/2 BSPP AND ISO M45x200 SCREW PLUG WITH OFFSET TO HEAT OIL UP TO 200°C



Junction box (See on pages 42-43)	Type	Without	Q1	Q2	Q2	K2	K2	G2	
	IP	Without	54	44	54	44	54	66	
	Thermostat setting	Without	Without	External	Internal	External	Internal	Internal	
	Material	Without	Polyamide						Alu.
	Cable gland	Without	P ≤ 3kW 1 CG ISO20 P > 3kW 1CG ISO20 + 1 CG ISO25						
	Control thermostat	Without	50/300°C 1 Change over contact 16A / 230V						

STATIC OIL

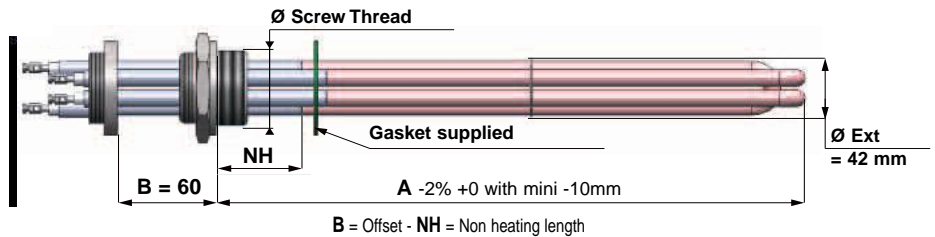
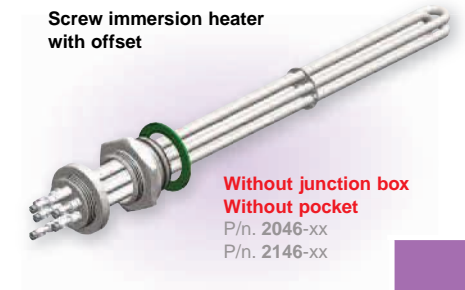
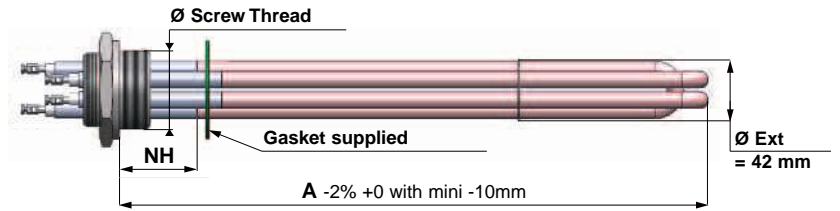
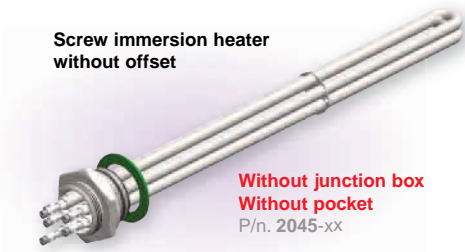
3 Heating elements						Ø8 - Stainless steel 316L - Without treatment						
Screw plug						Carbon steel - Without treatment - Welded						
Ø Screw Thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2 BSPP	1	230-1P	2	370	40	2214-01	2215-01	2216-01	2217-01	2218-01	2219-01	2220-01
	1,5	230-1P	2	540	40	2214-02	2215-02	2216-02	2217-02	2218-02	2219-02	2220-02
	2	230-1P	2	700	40	2214-03	2215-03	2216-03	2217-03	2218-03	2219-03	2220-03
	3	230-1P	2	1040	40	2214-04	2215-04	2216-04	2217-04	2218-04	2219-04	2220-04
M45 X 200	1	230-1P	2	370	40	3214-01	3215-01	3216-01	3217-01	3218-01	3219-01	3220-01
	1,5	230-1P	2	540	40	3214-02	3215-02	3216-02	3217-02	3218-02	3219-02	3220-02
	2	230-1P	2	700	40	3214-03	3215-03	3216-03	3217-03	3218-03	3219-03	3220-03
	3	230-1P	2	1040	40	3214-04	3215-04	3216-04	3217-04	3218-04	3219-04	3220-04

CIRCULATING OIL SPEED MINI = 2m/s

3 Heating elements						Ø8 - Stainless steel 316L - Without treatment						
Screw plug						Carbon steel - Without treatment - Welded						
Ø Screw Thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2 BSPP	2	230-1P	5	300	40	2214-06	2215-06	2216-06	2217-06	2218-06	2219-06	2220-06
	3	230-1P	5	480	40	2214-07	2215-07	2216-07	2217-07	2218-07	2219-07	2220-07
	4,5	400-3P	5	670	40	2214-08	2215-08	2216-08	2217-08	2218-08	2219-08	2220-08
	6	400-3P	5	960	40	2214-09	2215-09	2216-09	2217-09	2218-09	2219-09	2220-09
M45 X 200	2	230-1P	5	300	40	3214-06	3215-06	3216-06	3217-06	3218-06	3219-06	3220-06
	3	230-1P	5	480	40	3214-07	3215-07	3216-07	3217-07	3218-07	3219-07	3220-07
	4,5	400-3P	5	670	40	3214-08	3215-08	3216-08	3217-08	3218-08	3219-08	3220-08
	6	400-3P	5	960	40	3214-09	3215-09	3216-09	3217-09	3218-09	3219-09	3220-09

• See optional accessories on page 56

ISO M45X200 SCREW PLUG TO HEAT OIL FROM 110°C UP TO 200°C



3 Heating elements	\varnothing 10,2 - Coated carbon steel
Screw plug	Coated carbon steel - Brazed

STATIC OIL UP TO 110°C (screw immersion heater without offset)

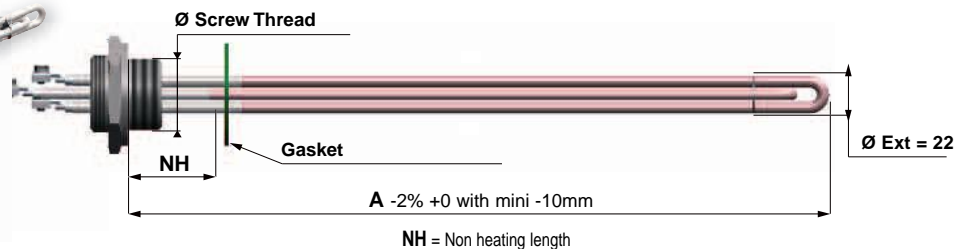
\varnothing Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	1	230/400	2	315	30	2045-01
	1,5	230/400	2	450	30	2045-02
	2	230/400	2	590	30	2045-03
	3	230/400	2	860	30	2045-04

STATIC OIL UP TO 200°C (screw immersion heater with offset B = 60)

\varnothing Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	1,5	230/400	2	450	30	2046-02
	2	230/400	2	590	30	2046-03
	1,5	230/400	2	460	70	2146-01
	3	230/400	2	865	85	2146-02
	4,5	230/400	2	1260	85	2146-03

• Junction box on option, see on pages 42-43 • See optional accessories on page 56

1"1/4 BSPP SCREW PLUG TO HEAT AQUEOUS LIQUIDS UP TO 95°C

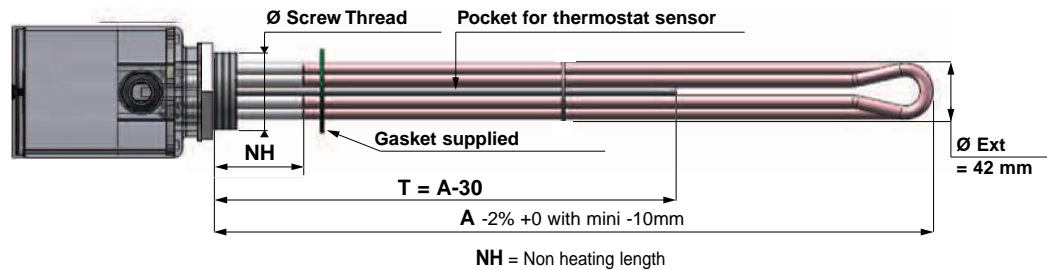


2 Heating elements	\varnothing 6,8 - Stainless steel 321 - Without treatment
Screw plug	Coated carbon steel - Brazed

\varnothing Thread screw	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
1"1/4 BSPP	0,75	230-1P	5	205	30	2041-01
	1	230-1P	5	250	30	2041-02
	1,5	230-1P	5	400	30	2041-03
	2	230-1P	5	500	30	2041-04
	3	230-1P	5	750	30	2041-05

• Junction box option, see P/N 9621-02 and P/N 9621-10 pages 43 • See optional accessories on page 56

1 1/2 BSPP AND ISO M45x200 SCREW PLUG TO HEAT AQUEOUS LIQUIDS UP TO 95°C



WATER

Junction box (See on pages 42-43)		Type	Without	Q1	Q2	Q2	K2	K2	G2			
		IP	Without	54	44	54	44	54	66			
		Thermostat setting	Without	Without	External	Internal	External	Internal	Internal			
		Material	Without	Polyamide						Alu.		
		Cable gland	Without	P ≤ 3kW 1 CG ISO20			P > 3kW 1CG ISO20 + 1 CG ISO25					
		Control thermostat	Without	0/100°C 1 change over contact 16A / 230V			30/80°C 3 Contacts - 20A / 400V Safety cut-out 110°C (manual reset)					
3 Heating elements			Ø8 - Stainless steel 316L - Without treatment									
Screw plug			Copper brass - Without treatment - Brazed									
Ø Screw Thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2 BSPP	2	230-1P	10	170	40	2114-10	2115-10	2116-10	2117-10	2118-10	2119-10	2120-10
	3	230-1P	10	230	40	2114-11	2115-11	2116-11	2117-11	2118-11	2119-11	2120-11
	4,5	400-3P	10	330	40	2114-12	2115-12	2116-12	2117-12	2118-12	2119-12	2120-12
	6	400-3P	10	430	40	2114-13	2115-13	2116-13	2117-13	2118-13	2119-13	2120-13
	7,5	400-3P	9	600	40	2114-14	2115-14	2116-14	2117-14	2118-14	2119-14	2120-14
	9	400-3P	9	750	40	2114-15	2115-15	2116-15	2117-15	2118-15	2119-15	2120-15
M45 x 200	2	230-1P	10	170	40	3114-10	3115-10	3116-10	3117-10	3118-10	3119-10	3120-10
	3	230-1P	10	230	40	3114-11	3115-11	3116-11	3117-11	3118-11	3119-11	3120-11
	4,5	400-3P	10	330	40	3114-12	3115-12	3116-12	3117-12	3118-12	3119-12	3120-12
	6	400-3P	10	430	40	3114-13	3115-13	3116-13	3117-13	3118-13	3119-13	3120-13
	7,5	400-3P	9	600	40	3114-14	3115-14	3116-14	3117-14	3118-14	3119-14	3120-14
	9	400-3P	9	750	40	3114-15	3115-15	3116-15	3117-15	3118-15	3119-15	3120-15

• See optional accessories on page 56

1 1/2 BSPP AND ISO M45x200 SCREW PLUG TO HEAT AQUEOUS LIQUIDS UP TO 95°C

POTABLE WATER CONTAINED IN A METAL TANK

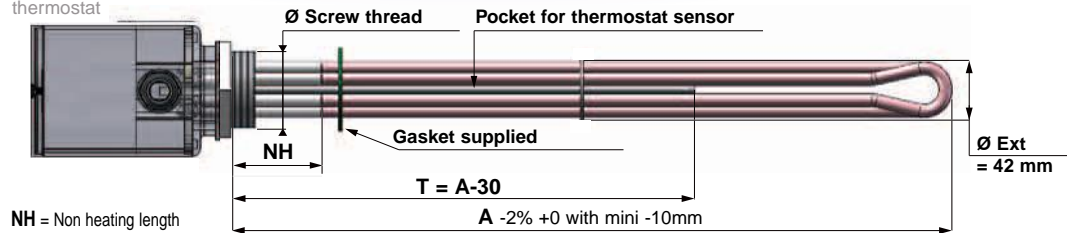
Junction box (See on pages 42-43)						Type	Without	Q1	Q2	Q2	K2	K2	G2	
						IP	Without	54	44	54	44	54	66	
						Thermostat setting	Without	Without	External	Internal	External	Internal	Internal	
						Material	Without	Polyamide						Alu.
						Cable gland	Without	P ≤ 3kW 1 CG ISO20			P > 3kW 1CG ISO20 + 1 CG ISO25			
						Control thermostat	Without	0/100°C 1 change over contact 16A / 230V			30/80°C 3 Contacts - 20A / 400V Safety cut-out 110°C (manual reset)			
3 Heating elements						Ø8 - Incoloy 825 - Without treatment								
Screw plug						Copper brass - Without treatment - Brazed								
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.		
1 1/2 BSPP	2	230-1P	6	470	100	2114-16	2115-16	2116-16	2117-16	2118-16	2119-16	2120-16		
	3	230-1P	7	380	100	2114-17	2115-17	2116-17	2117-17	2118-17	2119-17	2120-17		
	4,5	400-3P	8	470	100	2114-18	2115-18	2116-18	2117-18	2118-18	2119-18	2120-18		
	6	400-3P	11	470	100	2114-19	2115-19	2116-19	2117-19	2118-19	2119-19	2120-19		
	7,5	400-3P	10	600	100	2114-20	2115-20	2116-20	2117-20	2118-20	2119-20	2120-20		
	9	400-3P	10	690	100	2114-21	2115-21	2116-21	2117-21	2118-21	2119-21	2120-21		
M45 x 200	2	230-1P	6	470	100	3114-16	3115-16	3116-16	3117-16	3118-16	3119-16	3120-16		
	3	230-1P	7	380	100	3114-17	3115-17	3116-17	3117-17	3118-17	3119-17	3120-17		
	4,5	400-3P	8	470	100	3114-18	3115-18	3116-18	3117-18	3118-18	3119-18	3120-18		
	6	400-3P	11	470	100	3114-19	3115-19	3116-19	3117-19	3118-19	3119-19	3120-19		
	7,5	400-3P	10	600	100	3114-20	3115-20	3116-20	3117-20	3118-20	3119-20	3120-20		
	9	400-3P	10	690	100	3114-21	3115-21	3116-21	3117-21	3118-21	3119-21	3120-21		

POTABLE WATER CONTAINED IN AN ENAMELLED TANK (heating elements insulated from the screw)

Junction box (See on pages 42-43)						Type	Without	Q1	Q2	Q2	K2	K2	G2	
						IP	Without	54	44	54	44	54	66	
						Thermostat setting	Without	Without	External	Internal	External	Internal	Internal	
						Material	Without	Polyamide						Alu.
						Cable gland	Without	P ≤ 3kW 1 CG ISO20			P > 3kW 1CG ISO20 + 1 CG ISO25			
						Control thermostat	Sans	0/100°C 1 change over contact 16A / 230V			30/80°C 3 Contacts - 20A / 400V Safety cut-out 110°C (manual reset)			
3 Heating elements						Ø8 - Incoloy 825 - Without treatment								
Screw plug						Copper brass - Without treatment - Brazed								
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.		
1 1/2 BSPP	2	230-1P	6	470	100	-	2115-35	2116-35	2117-35	2118-35	2119-35	2120-35		
	3	230-1P	7	380	100	-	2115-36	2116-36	2117-36	2118-36	2119-36	2120-36		
	4,5	400-3P	8	470	100	-	2115-37	2116-37	2117-37	2118-37	2119-37	2120-37		
	6	400-3P	11	470	100	-	2115-38	2116-38	2117-38	2118-38	2119-38	2120-38		
	7,5	400-3P	10	600	100	-	2115-39	2116-39	2117-39	2118-39	2119-39	2120-39		
	9	400-3P	10	690	100	-	2115-40	2116-40	2117-40	2118-40	2119-40	2120-40		
M45 x 200	2	230-1P	6	470	100	-	3115-35	3116-35	3117-35	3118-35	3119-35	3120-35		
	3	230-1P	7	380	100	-	3115-36	3116-36	3117-36	3118-36	3119-36	3120-36		
	4,5	400-3P	8	470	100	-	3115-37	3116-37	3117-37	3118-37	3119-37	3120-37		
	6	400-3P	11	470	100	-	3115-38	3116-38	3117-38	3118-38	3119-38	3120-38		
	7,5	400-3P	10	600	100	-	3115-39	3116-39	3117-39	3118-39	3119-39	3120-39		
	9	400-3P	10	690	100	-	3115-40	3116-40	3117-40	3118-40	3119-40	3120-40		

• See optional accessories on page 56

1 1/2 BSPP AND ISO M45x200 SCREW PLUG TO HEAT AGGRESSIVE LIQUIDS UP TO 95°C



Junction box (See on pages 42-43)	Type	Without	Q1	Q2	Q2	K2	K2	G2
	IP	Without	54	44	54	44	54	66
	Thermostat setting	Without	Without	External	Internal	External	Internal	Internal
	Material	Without	Polyamide					Alu.
	Cable gland	Without	P ≤ 3kW 1 CG ISO20		P > 3kW 1CG ISO20 + 1 CG ISO25			
	Control thermostat	Without	0/100°C 1 change over contact 16A / 230V			30/80°C 3 Contacts - 20A / 400V Safety cut out 110°C manual reset		

AGGRESSIVE AQUEOUS LIQUIDS (chlorinated water)

3 Heating elements						Ø8 - Incoloy 825 - Without treatment						
Screw plug						Stainless steel - Without treatment - Welded						
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2 BSPP	3	230-1P	6	380	40	2114-28	2115-28	2116-28	2117-28	2118-28	2119-28	2120-28
	4,5	230-1P	7	470	40	2114-29	2115-29	2116-29	2117-29	2118-29	2119-29	2120-29
	6	400-3P	10	470	40	2114-30	2115-30	2116-30	2117-30	2118-30	2119-30	2120-30
	7,5	400-3P	10	600	40	2114-31	2115-31	2116-31	2117-31	2118-31	2119-31	2120-31
	9	400-3P	10	690	40	2114-32	2115-32	2116-32	2117-32	2118-32	2119-32	2120-32
M45 x 200	3	230-1P	6	380	40	3114-28	3115-28	3116-28	3117-28	3118-28	3119-28	3120-28
	4,5	230-1P	7	470	40	3114-29	3115-29	3116-29	3117-29	3118-29	3119-29	3120-29
	6	400-3P	10	470	40	3114-30	3115-30	3116-30	3117-30	3118-30	3119-30	3120-30
	7,5	400-3P	10	600	40	3114-31	3115-31	3116-31	3117-31	3118-31	3119-31	3120-31
	9	400-3P	10	690	40	3114-32	3115-32	3116-32	3117-32	3118-32	3119-32	3120-32

DEMINERALIZED LIQUIDS

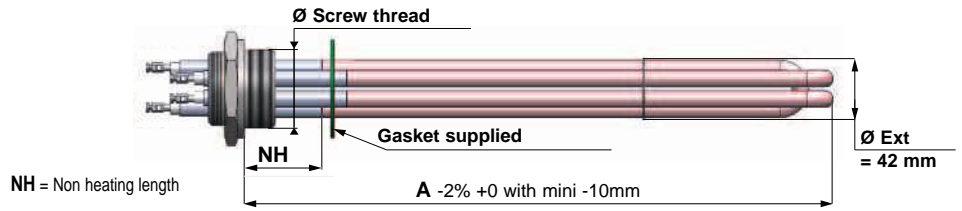
3 Heating elements						Ø8 - Stainless steel 316L - Without treatment						
Screw plug						Stainless steel - Without treatment - Welded						
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Specific load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.	P/N.
1 1/2 BSPP	0,75	230-1P	4	230	40	2114-22	2115-22	2116-22	2117-22	2118-22	2119-22	2120-22
	3	230-1P	10	230	40	2114-23	2115-23	2116-23	2117-23	2118-23	2119-23	2120-23
	4,5	400-3P	11	330	40	2114-24	2115-24	2116-24	2117-24	2118-24	2119-24	2120-24
	6	400-3P	11	430	40	2114-25	2115-25	2116-25	2117-25	2118-25	2119-25	2120-25
	7,5	400-3P	10	600	40	2114-26	2115-26	2116-26	2117-26	2118-26	2119-26	2120-26
M45 x 200	0,75	230-1P	4	230	40	3114-22	3115-22	3116-22	3117-22	3118-22	3119-22	3120-22
	3	230-1P	10	230	40	3114-23	3115-23	3116-23	3117-23	3118-23	3119-23	3120-23
	4,5	400-3P	11	330	40	3114-24	3115-24	3116-24	3117-24	3118-24	3119-24	3120-24
	6	400-3P	11	430	40	3114-25	3115-25	3116-25	3117-25	3118-25	3119-25	3120-25
	7,5	400-3P	10	600	40	3114-26	3115-26	3116-26	3117-26	3118-26	3119-26	3120-26
9	400-3P	9	750	40	3114-27	3115-27	3116-27	3117-27	3118-27	3119-27	3120-27	

• See optional accessories on page 56

ISO M45x200 SCREW PLUG TO HEAT AQUEOUS LIQUIDS UP TO 110°C



Without junction box
Without pocket
P/n. 2045-xx
P/n. 2145-xx



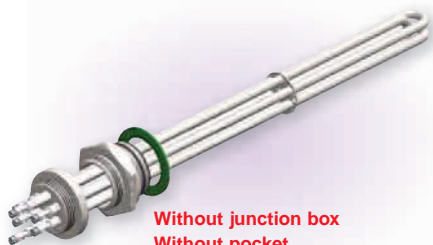
3 Heating elements						Ø10,2 - Stainless steel 316L - Scoured passivated
Screw plug						Coated carbon steel - Brazed
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	1	230/400	4	180	30	2045-11
	2	230/400	4	320	30	2045-12
	3	230/400	4	450	30	2045-13
	3	230/400	4	460	70	2145-11
	4,5	230/400	4	660	30	2045-14
	6	230/400	4	860	30	2045-15
	6	230/400	4	865	85	2145-12
	9	230/400	4	1260	85	2145-13
	12	230/400	4	1650	85	2145-14

3 Heating elements						Ø8 - Stainless steel 316L - Scoured passivated
Screw plug						Copper brass - Without treatment - Brazed
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	1	230/400	5	170	30	2045-71
	2	230/400	5	300	30	2045-72
	3	230/400	5	440	40	2045-73
	4	230/400	5	600	60	2045-74
	6	230/400	5	860	70	2045-75

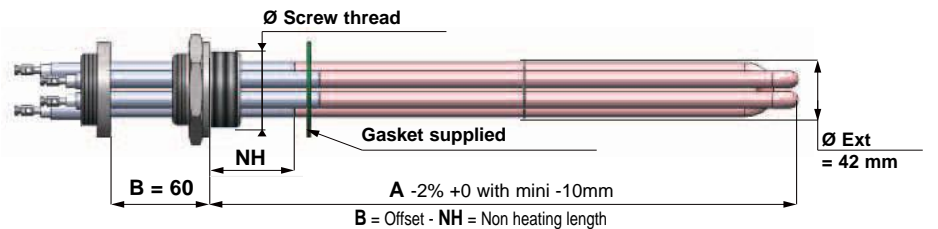
3 Heating elements						Ø8 - Copper - Scoured passivated
Screw plug						Copper brass - Without treatment - Brazed
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	1	230/400	8	130	30	2045-20
	2	230/400	8	215	30	2045-21
	3	230/400	8	300	30	2045-22
	4,5	230/400	8	425	30	2045-23
	6	230/400	8	550	30	2045-24

• Junction box option, see on pages 42-43 • See optional accessories on page 56

ISO M45x200 SCREW PLUG WITH OFFSET TO HEAT AQUEOUS LIQUIDS UP TO 200°C



Without junction box
Without pocket
P/n. 2046-xx



3 Heating elements						Ø10,2 - Stainless steel 316L - Scoured passivated
Screw plug						Coated carbon steel - Brazed
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M45 x 200	2	230/400	4	320	30	2046-12
	3	230/400	4	450	30	2046-13
	4,5	230/400	4	680	30	2046-14

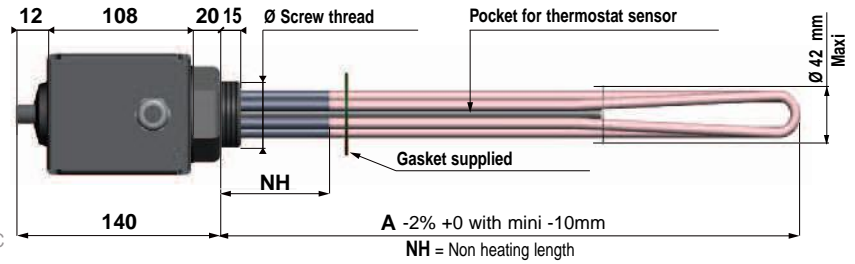
• Junction box option, see on pages 42-43 • See optional accessories on page 56

1 1/2 BSPP AND ISO M45x200 SCREW PLUG TO HEAT POTABLE WATER OR HEAT PUMP



Capot IP44

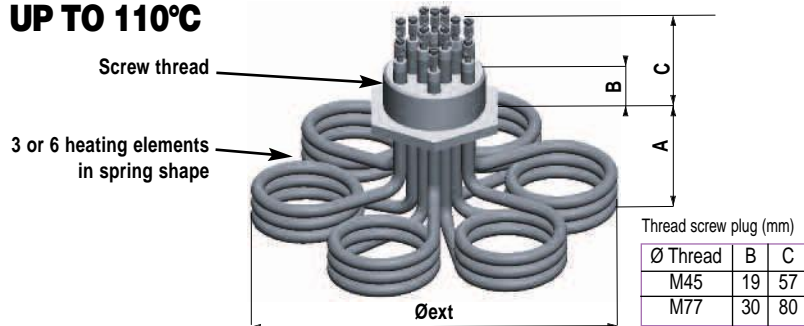
P/n. 2048-xx Control thermostat 30/75°C with safety cut out 98°C
 P/n. 2049-xx Control thermostat 30/85°C with safety cut out 110°C



Junction box (See pages 42-43)		IP		44				
		Material		Polyamide				
		Cable gland		1 CG ISO20				
		Control thermostat		30/75°C 3 Contacts - 20A / 400V Safety cut out 98°C manual reset	30/80°C 3 Contacts - 20A / 400V Safety cut out 110°C manual reset			
3 Heating elements		Ø8,5 - Incoloy 825 - Without treatment						
Screw plug		Stainless steel - Without treatment - Brazed						
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Coupling	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.
1 1/2 BSPP	2	230/400	Star	6,2	250	50	2048-01	2049-01
	3	230/400	Star	9,4	250	50	2048-02	2049-02
	4,5	230/400	Star	11	350	100	2048-03	2049-03
	6	230/400	Star	10,7	450	100	2048-04	2049-04
	7,5	230/400	Star	10,4	550	100	2048-05	2049-05
	9	230/400	Star	10,2	650	100	2048-06	2049-06
	12	400-3P	Delta	11,5	750	100	2048-07	2049-07
M45 x 200	2	230/400	Star	6,2	250	50	2048-11	2049-11
	3	230/400	Star	9,4	250	50	2048-12	2049-12
	4,5	230/400	Star	11	350	100	2048-13	2049-13
	6	230/400	Star	10,7	450	100	2048-14	2049-14
	7,5	230/400	Star	10,4	550	100	2048-15	2049-15
	9	230/400	Star	10,2	650	100	2048-16	2049-16
	12	400-3P	Delta	11,5	750	100	2048-17	2049-17

• See optional accessories on page 56

TANK BOTTOM IMMERSION HEATERS ISO M45 AND M77X200 TO HEAT AQUEOUS LIQUIDS UP TO 110°C



3 Heating elements		Ø8 - Stainless steel 316L Scoured passivated				
Screw plug		Stainless steel - Brazed				
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	Øext (mm)	P/N.
M45 x 200	2	230/400	2	55	270	4300-11
M45 x 200	3	230/400	2	55	340	4300-12
6 Heating elements		Ø10,2 - Stainless steel 316L Scoured passivated				
Screw plug		Stainless steel - Brazed				
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	Øext (mm)	P/N.
M77x 200	4	230/400	2	55	280	4300-51
M77x 200	6	230/400	2	100	300	4300-52

3 Heating elements		Ø8 - Copper - Scoured				
Screw plug		Copper brass - Brazed				
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	Øext (mm)	P/N.
M45 x 200	2	230/400	8	60	132	4300-01
	4,5	230/400	8	72	180	4300-02
	3	230/400	8	65	140	4300-03
	6	230/400	8	75	180	4300-04
	7,5	230/400	8	90	240	4300-05
	9	230/400	8	110	240	4300-06
	12	230/400	8	180	240	4300-07

6 Heating elements		Ø10,2 - Copper - Scoured				
Screw plug		Copper brass - Brazed				
Ø Screw thread	Power(kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	Øext (mm)	P/N.
M77x 200	15	230/400	8	100	300	4300-61
	18	230/400	8	120	300	4300-62
	24	230/400	8	140	300	4300-63

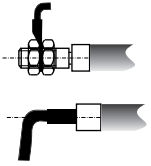
• Junction box option, see on pages 42-43
 • See optional accessories on page 56

2" BSPP - 2"1/2 BSPP - ISO M77x200 SCREW IMMERSION HEATER SPECIFICATIONS

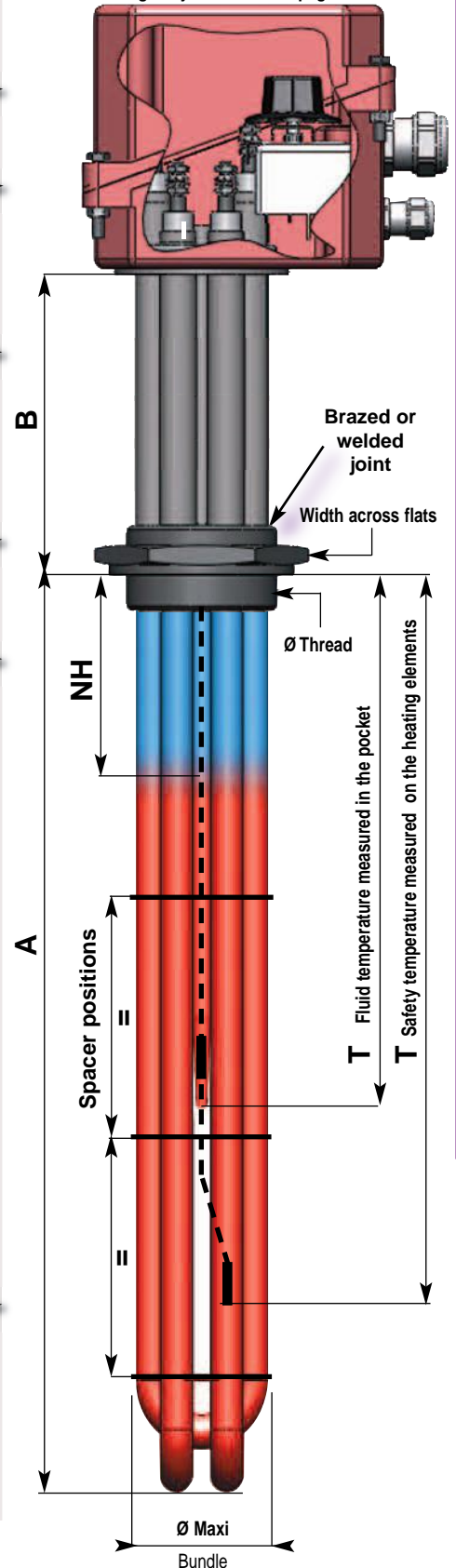
TYPE		2300								
SCREW PLUG	Ø Thread	2"			2"1/2			M77		
MAXIMUM PRESSURE										
Brazed joint (up to 200°C)		15 bar			15 bar			15 bar		
Welded joint (up to 300°C)		25 bar			25 bar			25 bar		
JUNCTION BOX										
Without control thermostat		H1 - A2			H1 - A2 - A3					
With control thermostat		G2 - K2			G2					
CONNECTION COUPLING										
Ø Heating elements		8	10,2	8	10,2	16	8	10,2	16	
Sealing		Resine WP+160								
Connections		M4	M5	M4	M5	M6	M4	M5	M6	
Coupling		FIL	-	FIL	FIL	-	FIL	FIL	-	
		Single phase (Parallel, Series), 3 phases (Star, Delta)								
OFFSET - MAXI TEMPERATURE										
Ø Heating elements		8	10,2	8	10,2	16	8	10,2	16	
Without offset B = 0mm		110°C			110°C			110°C		
With offset B = 60mm		200°C			200°C			200°C		
Offset B = 120mm Brazed joint		250°C			250°C			250°C		
Offset B = 120mm Welded joint		300°C			300°C			300°C		
Offset B = 225mm Welded joint		-			-			400°C		
SCREW PLUG										
Ø Thread		2"			2"1/2			M77		
Across flats		95			95			95		
Material		Carbon steel - Stainless steel - Copper brass								
HEATING ELEMENTS										
Ø		8	10,2	8	10,2	16	8	10,2	16	
Qty		1 to 6	1 to 3	1 to 6	1 to 6	1 to 3	1 to 6	1 to 6	1 to 3	
Material										
Z2 316L/DIN 1.4404		X	X	X	X	X	X	X	X	
Z6 321/DIN 1.4541		X	X	X	X	X	X	X	X	
Incoloy 800/DIN 1.4876		X		X			X			
Incoloy 825/DIN 2.4858		X		X			X			
Stainless steel			X		X			X		X
Vulcaloy 904L/DIN 1.4539			X		X			X		
Copper		X	X	X	X	X	X	X	X	
Sheath Treatment		Without - Scoured - Scoured passivated - Electropolished								
Dimensions (mm)										
A Maxi		1900	3000	1900	3000	3000	1900	3000	3000	
A Mini without pocket		80	100	80	100	150	80	100	150	
A Mini with pocket		150	200	150	200	200	150	200	200	
Width across flats A		-2% +0 with mini -10mm								
LC Mini (Heating length)		40	60	40	60	90	40	60	90	
NC Mini (Non heating length)		40	40	40	40	60	40	40	60	
Ø Maxi bundle		55	55	70	70	70	70	70	70	
Distance between spacers :		400	650	400	650	1000	400	650	1000	
Electrical parameters										
Specific load - W/cm ²		Depending on customer application								
Maximum current - A		16	26 / 45	16	26 / 45	60	16	26 / 45	60	
Maximum voltage - V		400	500	400	500	750	400	500	750	
POCKET (Option)										
Dimensions (mm)		Material								
Ø Thermostat temperature sensor		Stainless steel								
T Maxi (Thermostat or temperature sensor)		Ø6 or Ø8 central position - Ø6 peripheral position								
T Mini (Thermostat)		A - 30								
T Mini (Temperature sensor)		NH + 10 + Bulb length								
Temperature measurement device (Fluid)		NH + 30								
Safety sensor on heating element		Thermostat or sensor PT100 Thermocouple TC J or TC K								

Connections

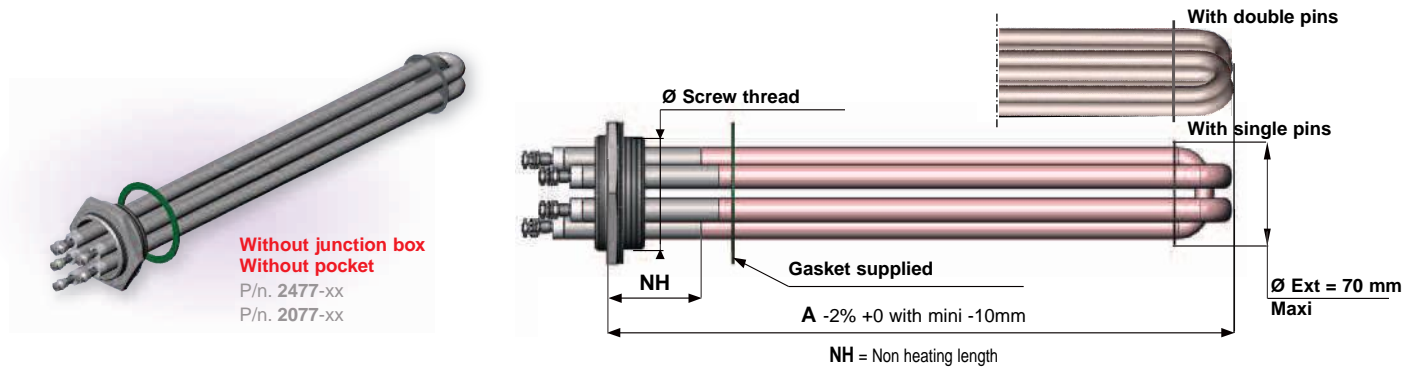
- M4 - Threaded terminal M4
- M5 - Threaded terminal M5
- M6 - Threaded terminal M6
- FIL - Threaded terminal



See range of junction boxes pages 42-43



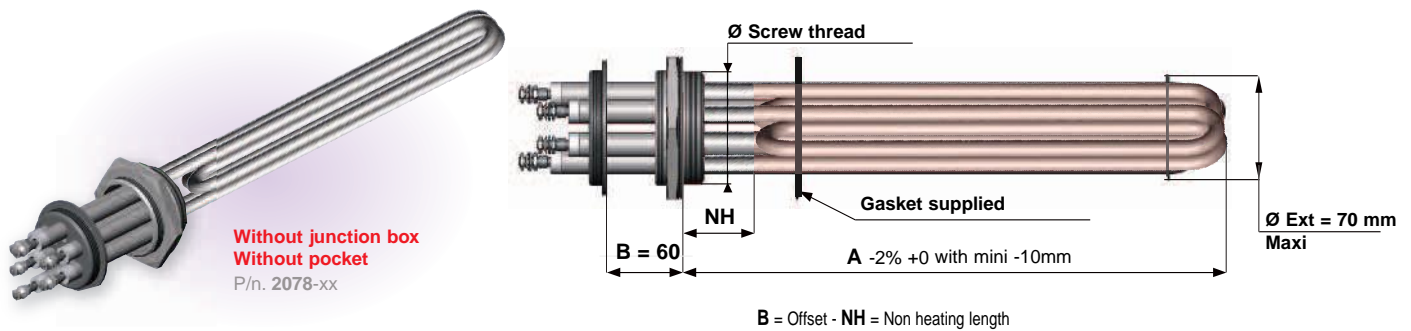
ISO M77x200 SCREW PLUG TO HEAT OIL UP TO 110°C



3 Heating elements						Ø10,2 - Coated Carbon steel	
Screw plug						Coated carbon steel - Brazed	
Ø Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	
With single heating pins	M77 x 200	0,33	400-1P	0,7	315	30	2477-51
		0,5	400-1P	0,7	445	30	2477-52
		0,66	400-1P	0,7	580	30	2477-53
		1	400-1P	0,7	860	30	2477-54
With single heating pins	M77 x 200	1	230/400	2	180	50	2077-00
		2	230/400	2	305	50	2077-01
		3	230/400	2	460	50	2077-02
		4,5	230/400	2	670	50	2077-03
		6	230/400	2	870	50	2077-04
		9	230/400	2	1250	50	2077-05
12	230/400	2	1650	50	2077-06		

•Junction box option, see on pages 42-43 • See optional accessories on page 56

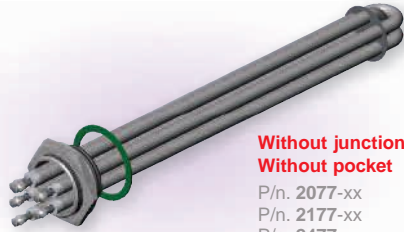
ISO M77x200 SCREW PLUG TO HEAT OIL UP TO 200°C



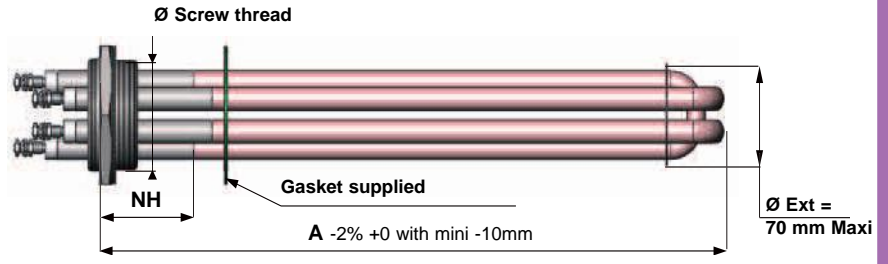
3 Heating elements in double pin						Ø10,2 - Coated Carbon steel
Screw plug						Coated carbon steel - Brazed
Ø Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M77 x 200	2	230/400	2	315	50	2078-01
	3	230/400	2	460	50	2078-02
	4,5	230/400	2	670	50	2078-03
	6	230/400	2	870	50	2078-04
	9	230/400	2	1250	50	2078-05
	12	230/400	2	1650	50	2078-06

•Junction box option, see on pages 42-43 • See optional accessories on page 56

ISO M77x200 AND 2 1/2 BSPP SCREW PLUG TO HEAT WATER OR AQUEOUS LIQUIDS UP TO 110°C



Without junction box
Without pocket
P/n. 2077-xx
P/n. 2177-xx
P/n. 2477-xx



4 W/cm²

3 Heating elements			Ø16 - Stainless steel 316L Scoured passivated		
Screw plug			Copper brass - Without treatment - Brazed		
Ø Screw thread			M77 x 200		
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
3	230/400	4	300	50	2177-71
4,5	230/400	4	430	50	2177-72
6	230/400	4	550	50	2177-73
9	230/400	4	800	50	2177-74
12	230/400	4	1050	50	2177-75

5 W/cm²

3 Heating elements			Ø16 - Stainless steel 316L - Scoured passivated				
Screw plug			Coated carbon steel - Brazed				
Ø Screw thread			M77 x 200		2 1/2 BSPP		
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	NH (mm)	P/N.
3	230/400	5	250	70	2077-11	50	2077-51
4,5	230/400	5	360	70	2077-12	50	2077-52
6	230/400	5	460	70	2077-13	50	2077-53
9	230/400	5	670	70	2077-14	50	2077-54
12	230/400	5	870	70	2077-15	50	2077-55

NH = Non heating length

8 W/cm²

3 Heating elements			Ø16 - Incoloy 825 - Without treatment			
Screw plug			Copper brass - Without treatment - Brazed			
Ø Screw thread			M77 x 200		2 1/2 BSPP	
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	P/N.
3	230/400	8	170	50	2077-77	-
4,5	230/400	8	225	50	2077-78	-
6	230/400	8	295	50	2077-79	2077-88
8	230/400	8	385	50	2077-80	-
9	230/400	8	420	50	2077-81	2077-89
12	230/400	8	545	50	2077-82	2077-90
15	230/400	8	670	50	2077-83	-
18	230/400	8	850	50	2077-84	2077-91
20	230/400	8	880	50	2077-85	-
24	230/400	8	1100	50	2077-86	2077-92
30	400-3P	8	1305	50	2077-87	-

10 W/cm²

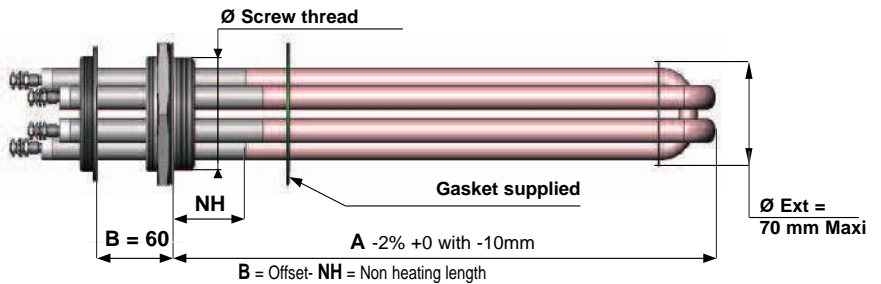
3 Heating elements			Ø16 - Incoloy 825			
Screw plug			Copper brass - Without treatment - Brazed			
Ø Screw thread			M77 x 200			
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.	
4	230/400	10	200	50	2477-60	
6	230/400	10	260	50	2477-61	
8	230/400	10	330	50	2477-62	
10	230/400	10	400	50	2477-63	
12	230/400	10	460	50	2477-64	
15	230/400	10	560	50	2477-65	
18	230/400	10	660	50	2477-66	
20	230/400	10	750	50	2477-67	
24	230/400	10	880	50	2477-68	
30	400-3P	10	1070	50	2477-69	
35	400-3P	10	1240	50	2477-70	

•Junction box option, see on pages 42-43 • See optional accessories on page 56

ISO M77x200 SCREW PLUG WITH OFFSET TO HEAT WATER OR AQUEOUS LIQUIDS UP TO 200°C



Without junction box
Without pocket
P/n. 2078-xx



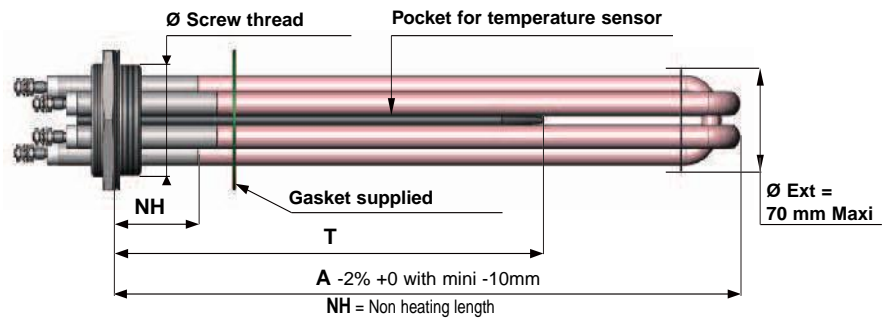
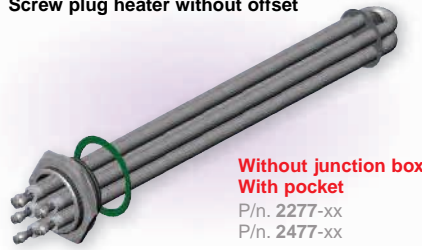
B = Offset- NH = Non heating length

3 Heating elements			Ø16 - Stainless steel 316L - Scoured passivated			
Screw plug			Coated carbon steel - Brazed			
Ø Screw Thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
M77 x 200	3	230/400	5	250	70	2078-11
	4,5	230/400	5	360	70	2078-12
	6	230/400	5	460	70	2078-13
	9	230/400	5	670	70	2078-14
	12	230/400	5	870	70	2078-15

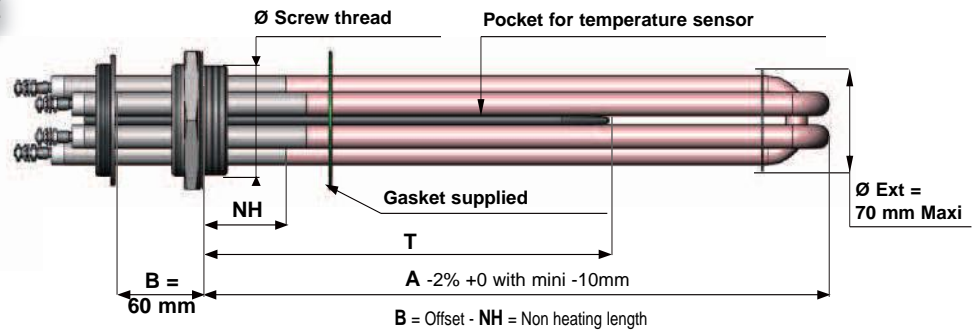
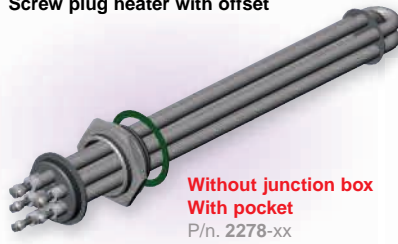
•Junction box option, see on pages 42-43 • See optional accessories on page 56

ISO M77x200 SCREW PLUG WITH POCKET TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C

Screw plug heater without offset



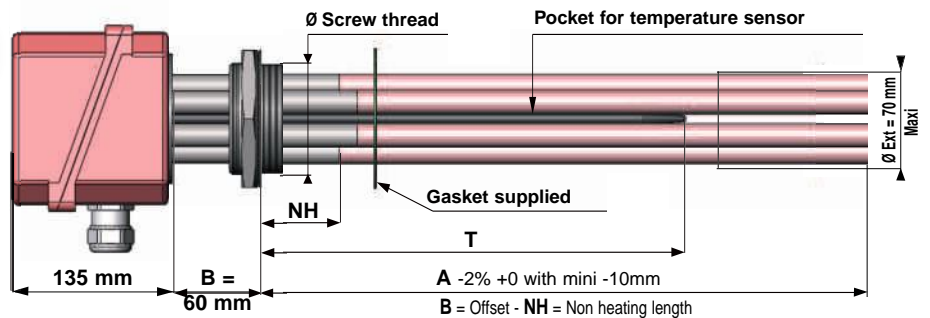
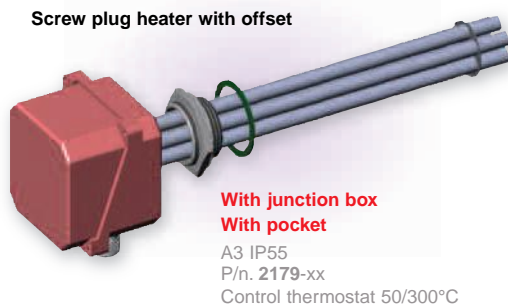
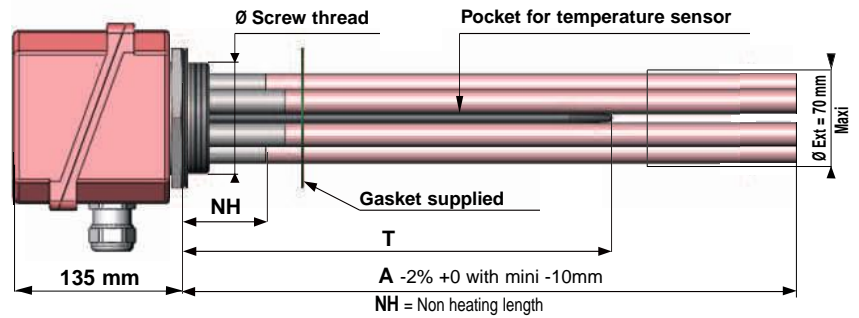
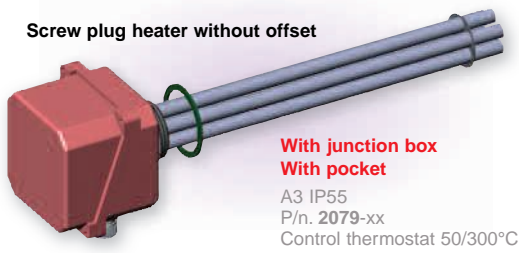
Screw plug heater with offset



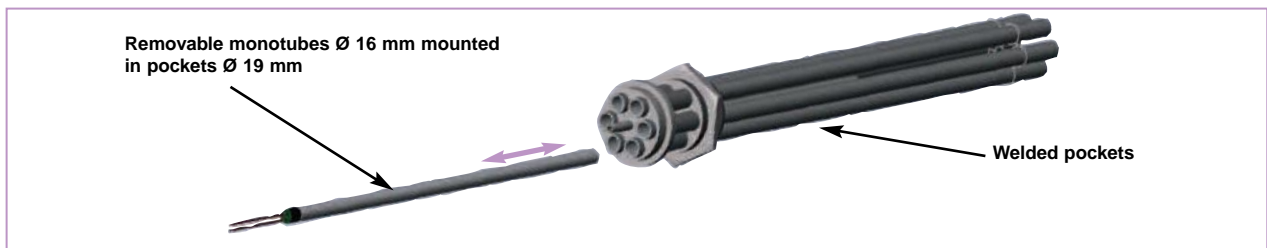
Liquid temperature							< 110°C			< 200°C		
Screw plug heater							Without offset			Offset B = 60		
3 Heating elements							Ø16 - Stainless steel 316L Scoured passivated		Ø16 - Incoloy 825 Without treatment		Ø16 - Stainless steel 316L Scoured passivated	
Screw plug							Stainless steel - Welded Without treatment		Copper brass - Brazed Without treatment	Stainless steel - Welded Without treatment		Stainless steel - Welded Without treatment
Pocket (center of bundle)							Internal Ø = 8,5 mm					
Ø Screw Thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm²)	A (mm)	NH (mm)	T (mm)	P/N.	P/N.	P/N.	T (mm)	P/N.	
OIL HEATING												
M77 x 200	1	230/400	2	220	50	145	2277-11			150	2278-11	
	2	230/400	2	400	50	145	2277-12			300	2278-12	
	3	230/400	2	570	50	355	2277-13			300	2278-13	
	4,5	230/400	2	820	50	355	2277-14			410	2278-14	
	6	230/400	2	1070	50	355	2277-15			530	2278-15	
	7,5	230/400	2	1320	50	505	2277-16			660	2278-16	
	9	230/400	2	1570	50	505	2277-17			780	2278-17	
AQUEOUS LIQUIDS HEATING												
M77 x 200	3	230/400	4	300	50	145	2277-31			230	2278-31	
	4,5	230/400	4	450	50	145	2277-32			300	2278-32	
	6	230/400	4	560	50	355	2277-33			300	2278-33	
	9	230/400	4	820	50	355	2277-34			410	2278-34	
	12	230/400	4	1200	50	505	2277-35			600	2278-35	
	15	230/400	4	1320	50	505	2277-36			660	2278-36	
	18	230/400	4	1520	50	505	2277-37			760	2278-37	
	6	230/400	8	295	50	145	2277-80	2278-85		145	2278-80	
	9	230/400	8	420	50	145	2277-81	2278-86		145	2278-81	
	12	230/400	8	545	50	355	2277-82	2278-87		355	2278-82	
	15	230/400	8	670	50	355	2277-83	2278-88		355	2278-83	
	18	230/400	8	850	50	355	2277-84	2278-89		355	2278-84	
	4	230/400	12	210	70	140			2477-11			
	6	230/400	12	260	70	190			2477-12			
	9	230/400	12	350	70	280			2477-13			
	12	230/400	12	440	70	300			2477-14			
	15	230/400	12	520	70	300			2477-15			
	20	230/400	12	670	70	335			2477-16			
	24	230/400	12	780	70	400			2477-17			
	30	400 - 3P	12	960	70	480			2477-18			
	35	400 - 3P	12	1100	70	550			2477-19			

• Junction box option, see on pages 42-43 • See optional accessories on page 56

ISO M77x200 AND 2"1/2 BSPP SCREW PLUG WITH REMOVABLE MONOTUBES AND CONTROL TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C



The junction boxes of screw plug heaters with heating power > 3kW, are equipped with 2 cables glands and one additional relay.



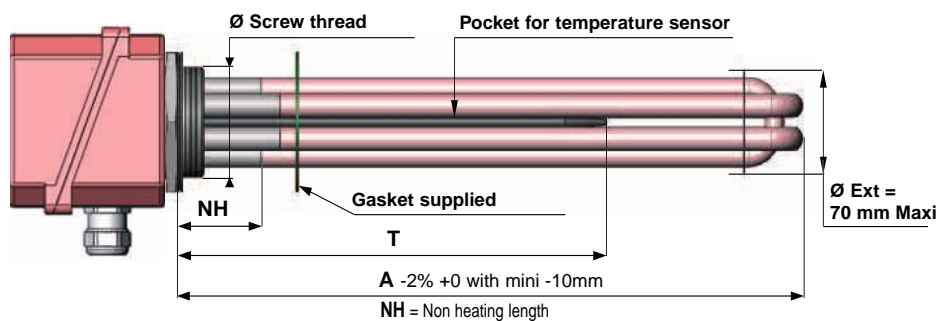
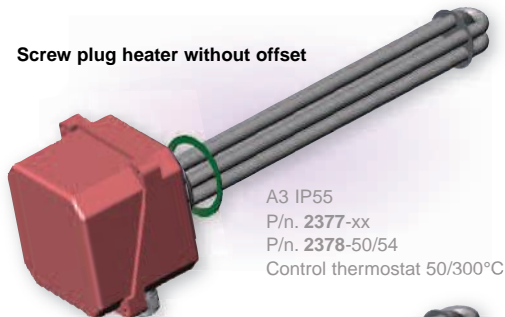
AQUEOUS LIQUIDS OR OIL HEATING

Junction box (see on pages 42-43)		Type	A3							
		IP	55							
		Material	Aluminium							
Cable gland		P ≤ 3kW 1 CG ISO20		P > 3kW 1 CG ISO20 + 1 CG ISO25						
Control thermostat		50/300°C - 1 Change over contact - 16A / 230V								
Ø Screw Thread		M77x200		2"1/2 BSPP						
Liquid temperature		<110°C	<200°C	<110°C	<200°C					
Screw plug heaters		Without offset	Offset B = 60	Without offset	Offset B = 60					
Screw plug material		Stainless steel - Without treatment - Welded		Stainless steel - Without treatment - Welded						
Removable monotubes mounted in pockets		Ø19 - Stainless steel 316L - Scoured passivated		Ø19 - Stainless steel 316L - Scoured passivated						
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	T (mm)	P/N.	P/N.	P/N.	P/N.	
3 Monotubes	1	230-1P	2	345	50	100	2079-31	2179-31	2079-51	2179-51
	2	230-1P	2	640	50	350	2079-32	2179-32	2079-52	2179-52
	3	230-1P	2	950	50	500	2079-33	2179-33	2079-53	2179-53
6 Monotubes	3	230-1P	2	490	50	270	2079-34	2179-34	2079-63	2179-63
	6	400-3P	2	950	50	500	2079-35	2179-35	2079-64	2179-64
	9	400-3P	2	1370	50	710	2079-36	2179-36	2079-65	2179-65
	12	400-3P	2	1870	50	960	2079-37	2179-37	2079-66	2179-66
	15	400-3P	2	2250	50	1150	2079-38	2179-38	2079-67	2179-67

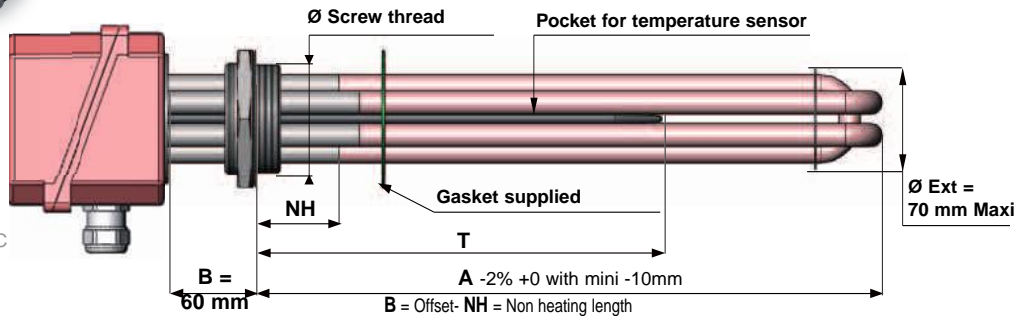
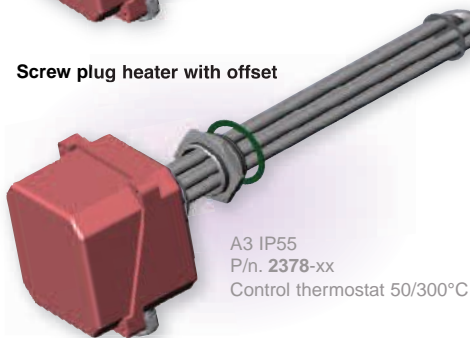
• See optional accessories on page 56

ISO M77x200 SCREW PLUG WITH CONTROL THERMOSTAT TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C

Screw plug heater without offset



Screw plug heater with offset

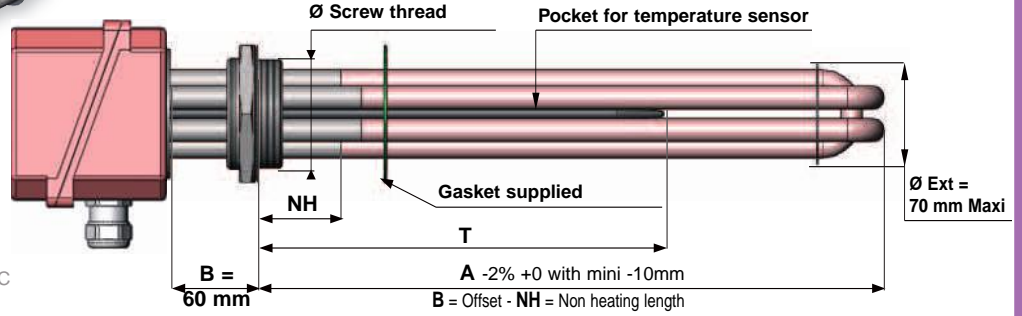
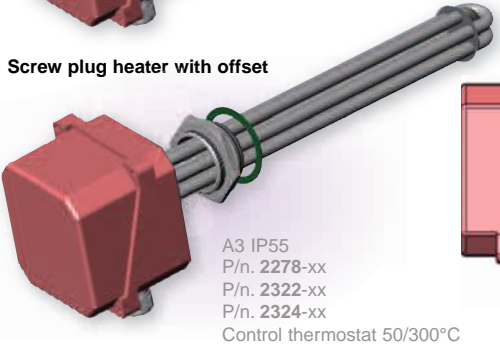
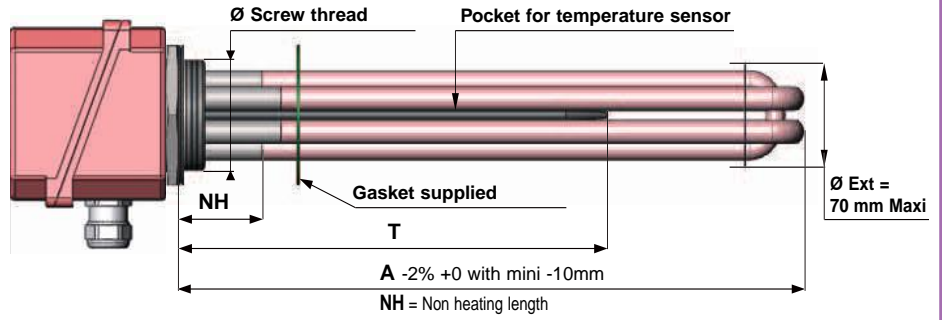
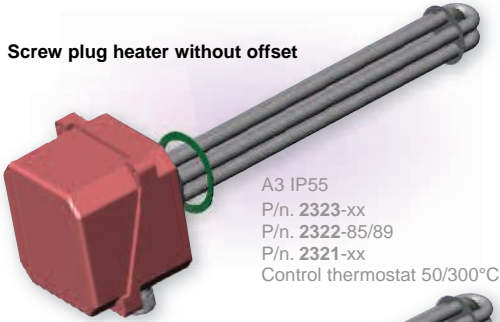


Junction box	Type A3 - IP55 - Aluminium			
Control thermostat	50/300°C - 1 Change over contact - 20A / 230V			
Liquid temperature	< 110°C		< 200°C	
Screw plug heater	Without offset		Offset B = 60	
3 Heating elements	Ø16 - Stainless steel 316L Scoured passivated	Ø16 - Incoloy 825 Without treatment	Ø16 - Stainless steel 316L Scoured passivated	
	Stainless steel - Welded Without treatment	Copper brass - Brazed Without treatment	Stainless steel - Welded Without treatment	Stainless steel - Welded Without treatment

Screw plug		Stainless steel - Welded Without treatment	Copper brass - Brazed Without treatment	Stainless steel - Welded Without treatment	Stainless steel - Welded Without treatment						
Ø Screw Thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	T (mm)	P/N.	P/N.	P/N.	T (mm)	P/N.
OIL HEATING											
M77 x 200	1	230-1P	2	220	50	145	2377-31			150	2378-11
	2	230-1P	2	400	50	145	2377-32			300	2378-12
	3	230-1P	2	570	50	355	2377-33			300	2378-13
	4,5	400-3P	2	820	50	355	2377-34			410	2378-14
	6	400-3P	2	1070	50	355	2377-35			530	2378-15
	7,5	400-3P	2	1320	50	505	2377-36			660	2378-16
	9	400-3P	2	1570	50	505	2377-37			780	2378-17
AQUEOUS LIQUIDS HEATING											
M77 x 200	3	230-1P	4	300	50	145	2377-41			230	2378-31
	4,5	400-3P	4	450	50	145	2377-42			300	2378-32
	6	400-3P	4	560	50	355	2377-43			300	2378-33
	9	400-3P	4	820	50	355	2377-44			410	2378-34
	12	400-3P	4	1200	50	505	2377-45			600	2378-35
	15	400-3P	4	1320	50	505	2377-46			660	2378-36
	18	400-3P	4	1520	50	505	2377-47			760	2378-37
	6	400-3P	8	295	50	145	2377-80	2378-50		145	2378-40
	9	400-3P	8	420	50	145	2377-81	2378-51		145	2378-41
	12	400-3P	8	545	50	355	2377-82	2378-52		355	2378-42
	15	400-3P	8	670	50	355	2377-83	2378-53		355	2378-43
	18	400-3P	8	850	50	355	2377-84	2378-54		355	2378-44
	4	400-3P	12	210	70	140			2377-91		
	6	400-3P	12	260	70	190			2377-92		
	9	400-3P	12	350	70	280			2377-93		
	12	400-3P	12	440	70	300			2377-94		
	15	400-3P	12	520	70	300			2377-95		
	20	400-3P	12	670	70	335			2377-96		
	24	400-3P	12	780	70	400			2377-97		
30	400-3P	12	960	70	480			2377-98			
35	400-3P	12	1100	70	550			2377-99			

• See optional accessories on page 56

2" 1/2 SCREW PLUG WITH CONTROL THERMOSTAT TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C



Junction box		Type A3 - IP55 - Aluminium			
Control thermostat		Without			
Liquid temperature		< 110°C		< 200°C	
Screw plug heater		Without offset		Offset B = 60	
3 Heating elements		Ø16 - Stainless steel 316L Scoured passivated		Ø16 - Incoloy 825 Without treatment	
Screw plug		Stainless steel - Welded Without treatment		Copper brass - Brazed Without treatment	
		Stainless steel - Welded Without treatment		Stainless steel - Welded Without treatment	

Ø Screw thread	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	T (mm)	P/N.	P/N.	P/N.	P/N.	T (mm)	P/N.	P/N.
OIL HEATING													
2" 1/2	1	230-1P	2	220	50	145	2323-01	2321-01			150	2322-11	2324-11
	2	230-1P	2	400	50	145	2323-02	2321-02			300	2322-12	2324-12
	3	230-1P	2	570	50	355	2323-03	2321-03			300	2322-13	2324-13
	4,5	400-3P	2	820	50	355	2323-04	2321-04			410	2322-14	2324-14
	6	400-3P	2	1070	50	355	2323-05	2321-05			530	2322-15	2324-15
	7,5	400-3P	2	1320	50	505	2323-06	2321-06			660	2322-16	2324-16
	9	400-3P	2	1570	50	505	2323-07	2321-07			780	2322-17	2324-17
AQUEOUS LIQUIDS HEATING													
2" 1/2	3	230-1P	4	300	50	145	2323-31	2321-31			230	2322-31	2324-31
	4,5	400-3P	4	450	50	145	2323-32	2321-32			300	2322-32	2324-32
	6	400-3P	4	560	50	355	2323-33	2321-33			300	2322-33	2324-33
	9	400-3P	4	820	50	355	2323-34	2321-34			410	2322-34	2324-34
	12	400-3P	4	1200	50	505	2323-35	2321-35			600	2322-35	2324-35
	15	400-3P	4	1320	50	505	2323-36	2321-36			660	2322-36	2324-36
	18	400-3P	4	1520	50	505	2323-37	2321-37			760	2322-37	2324-37
	6	400-3P	8	295	50	145	2323-80	2321-80	2322-85		145	2322-80	2324-80
	9	400-3P	8	420	50	145	2323-81	2321-81	2322-86		145	2322-81	2324-81
	12	400-3P	8	545	50	355	2323-82	2321-82	2322-87		355	2322-82	2324-82
	15	400-3P	8	670	50	355	2323-83	2321-83	2322-88		355	2322-83	2324-83
	18	400-3P	8	850	50	355	2323-84	2321-84	2322-89		355	2322-84	2324-84
	4	400-3P	12	210	70	140				2321-11			
	6	400-3P	12	260	70	190				2321-12			
	9	400-3P	12	350	70	280				2321-13			
	12	400-3P	12	440	70	300				2321-14			
	15	400-3P	12	520	70	300				2321-15			
	20	400-3P	12	670	70	335				2321-16			
	24	400-3P	12	780	70	400				2321-17			
30	400-3P	12	960	70	480				2321-18				
35	400-3P	12	1100	70	550				2321-19				

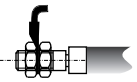
• See optional accessories on page 56

DN 32 TO DN 65 FLANGE IMMERSION HEATERS SPECIFICATIONS

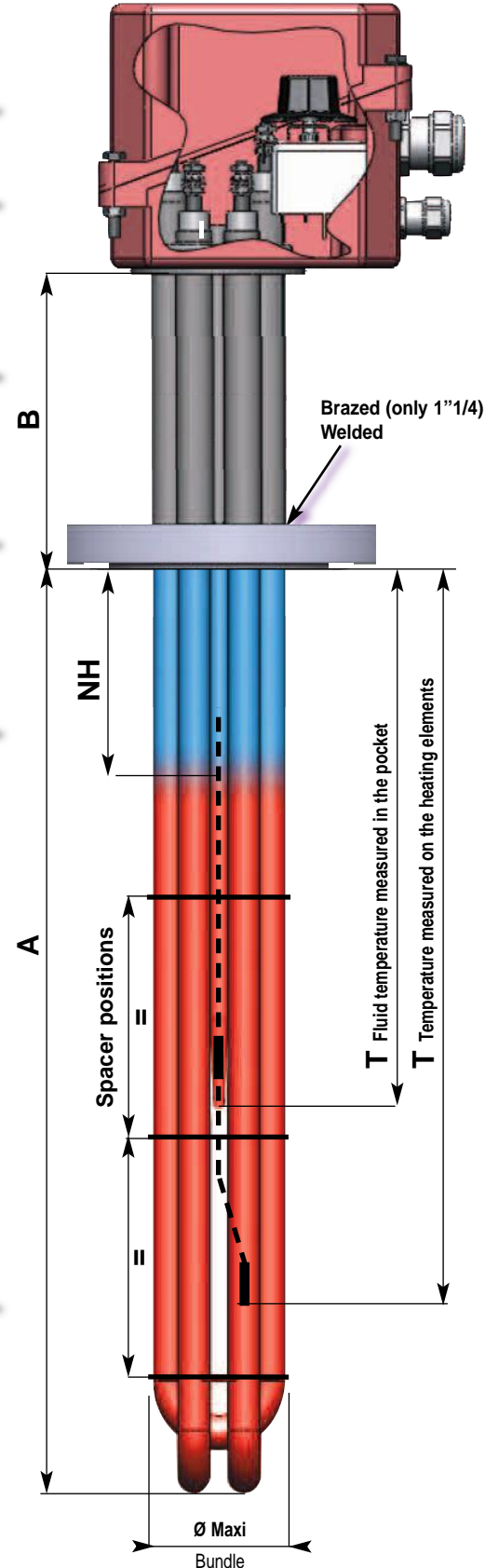
TYPE		2400							
FLANGE	Norms 1092-1 DN Standard B16.5 NPS	32 1"1/4	40 1"1/2	50 2"	65 2"1/2				
MAXIMUM PRESSURE		Depending on operating temperature and pressure							
JUNCTION BOX		Without control thermostat With control thermostat							
		H1-A1	Q1-H1-A1 Q2-G2-K2	H1-A2 G2-K2	H1 - A2 - A3 G2 - K2 - A3				
CONNECTION COUPLING		Ø Heating elements Connections							
		8 M4	8 M4	10,2 M5	8 M4	10,2 M5	8 M4	10,2 M5	16 M6
OFFSET - MAXI TEMPERATURE		Sealing Coupling Resin WP+160 Single phase (Parallel, Series), 3 phases (Star, Delta)							
		8	8	10,2	8	10,2	8	10,2	16
		Without offset B = 0mm With offset B = 60mm Offset B = 120mm Offset B = 245mm	110°C 200°C 250°C -	110°C 200°C 300°C 400°C	110°C 200°C 300°C 400°C	110°C 200°C 300°C 400°C	110°C 200°C 300°C 400°C	110°C 200°C 300°C 400°C	110°C 200°C 300°C 400°C
FLANGE		According norms 1092-1 DN NP (Nominal pressure) Bar According standard B16.5 NPS Class lbs Form facing Material							
		32 1"1/4	40 1"1/2	50 2"		65 2"1/2			
		16 - 20 - 25 - 40 - 63 150 - 300 - 400 FF (Flat face) - RF (raised face) SIJ - DIJ Carbon steel - Stainless steel 304L - 316L							
HEATING ELEMENTS		Ø							
		8	8	10,2	8	10,2	8	10,2	16
		Joint Qty Maxi	Brazed 1, 2, 3	Brazed - Welded 1, 2, 3	Welded 3, 6	Welded 3	Welded 3, 6	Welded 3	Welded 3
Material		Z2 316L/DIN 1.4404 Z6 321/DIN 1.4541 Incoloy 825/DIN 2.4858 Incoloy 800/DIN 1.4876 Carbon steel Vulcaloy 904L/DIN 1.4539	X X X X X	X X X X X	X X X X X	X X X X X	X X X X X	X X X X X	X X X X X
Sheath treatment		Without - Scoured - Scoured passivated - Electropolished							
Dimensions (mm)		A Maxi A Mini without pocket A Mini with pocket Tolerance on length A							
		1900 80 150	1900 80 150	3000 100 200	1900 80 150	3000 100 200	1900 80 150	3000 100 200	3000 150 200
		-2% +0 with mini -10mm							
		Ø Maxi bundle	37	37	42	52	52	67	67
Electrical parameters		Specific load - W/cm ² Maximum current - A Maximum voltage - V							
		16 400	16 400	26 / 45 500	16 400	26 / 45 500	16 400	26 / 45 500	60 750
POCKET (Option)		Material Ø Thermostat temperature sensor T Maxi (Thermostat or temperature sensor) T Mini (Thermostat) T Mini (Temperature sensor) Temperature measurement device Temperature measurement on heating element							
		Stainless steel Ø6 or Ø8 central position - Ø6 peripheral position A - 30 NH + 10 + Bulb length NH + 30 Thermostat or sensor PT100 Thermocouple TC J or TC K							

Connections

- M4 - Threaded terminal M4
- M5 - Threaded terminal M5
- M6 - Threaded terminal M6



See range of junction boxes on pages 42-43



DIJ: Double interlocking joint - SIJ: Simple interlocking joint

DN 80 AND DN 100 FLANGE IMMERSION HEATERS SPECIFICATIONS

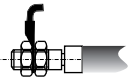
TYPE		2400					
FLANGE	Norms 1092-1 DN	80			100		
	Standard B16.5 NPS	3"			4"		
MAXIMUM PRESSURE		Depending on operating temperature and pressure					
JUNCTION BOX		<div style="display: flex; justify-content: space-between;"> Without control thermostat H1 - A2 - A3 H1 - A2 - A3 </div> <div style="display: flex; justify-content: space-between;"> With control thermostat G2 - K2 - A3 C2 </div>					
CONNECTION COUPLING		<div style="display: flex; justify-content: space-between;"> Ø Heating elements 8 10,2 16 8 10,2 16 </div> <div style="display: flex; justify-content: space-between;"> Connections M4 M5 M6 M4 M5 M6 </div>					
Sealing Coupling		Resin WP+160					
OFFSET - MAXI TEMPERATURE		Single phase (Parallel, Series), 3 phases (Star, Delta)					
Ø Heating elements		8	10,2	16	8	10,2	16
Without offset B = 0mm		110°C			110°C		
With offset B = 60mm		200°C			200°C		
Offset B = 120mm		300°C			300°C		
Offset B = 245mm		400°C			400°C		
FLANGE		<div style="display: flex; justify-content: space-between;"> According norms 1092-1 DN 80 100 </div> <div style="display: flex; justify-content: space-between;"> NP (Nominal pressure) Bar 16 - 20 - 25 - 40 - 50 - 63 16 - 20 - 25 - 40 - 50 - 63 </div> <div style="display: flex; justify-content: space-between;"> According standard B16.5 NPS 3" 4" </div> <div style="display: flex; justify-content: space-between;"> Class lbs 150 - 300 150 - 300 </div> <div style="display: flex; justify-content: space-between;"> Form facing FF (Flat face) - RF (raised face) SIJ - DIJ </div> <div style="display: flex; justify-content: space-between;"> Material Carbon steel - Stainless steel 304L - 316L </div>					
HEATING ELEMENTS		<div style="display: flex; justify-content: space-between;"> Ø 8 10,2 16 8 10,2 16 </div> <div style="display: flex; justify-content: space-between;"> Joint Welded Welded </div> <div style="display: flex; justify-content: space-between;"> Qty maxi 3, 6, 9 3, 6 3 3, 6, 9 3, 6, 9 3, 6 </div>					
Material		<div style="display: flex; justify-content: space-between;"> Z2 316L/DIN 1.4404 X X X X X X </div> <div style="display: flex; justify-content: space-between;"> Z6 321/DIN 1.4541 X X X X X X </div> <div style="display: flex; justify-content: space-between;"> Incoloy 825/DIN 2.4858 X X X </div> <div style="display: flex; justify-content: space-between;"> Incoloy 800/DIN 1.4876 X X X </div> <div style="display: flex; justify-content: space-between;"> Stainless steel X X X </div> <div style="display: flex; justify-content: space-between;"> Vulcaloy 904L/DIN 1.4539 X X </div>					
Sheath Treatment		Without - Scoured - Scoured passivated - Electropolished					
Dimensions (mm)		<div style="display: flex; justify-content: space-between;"> A Maxi 1900 3000 3000 1900 3000 3000 </div> <div style="display: flex; justify-content: space-between;"> A Mini without pocket 80 100 150 80 100 150 </div> <div style="display: flex; justify-content: space-between;"> A Mini with pocket 150 200 200 150 200 200 </div> <div style="display: flex; justify-content: space-between;"> Tolerance on length A -2% +0 with mini -10mm </div> <div style="display: flex; justify-content: space-between;"> Ø Maxi bundle 78 78 78 102 102 102 </div>					
Electrical parameters		<div style="display: flex; justify-content: space-between;"> Specific load - W/cm² Depending on customer application </div> <div style="display: flex; justify-content: space-between;"> Maximum current - A 16 45 60 16 45 60 </div> <div style="display: flex; justify-content: space-between;"> Maximum voltage - V 400 500 750 400 500 750 </div>					
POCKET (Option)		<div style="display: flex; justify-content: space-between;"> Material Stainless steel </div> <div style="display: flex; justify-content: space-between;"> Ø Thermostat temperature sensor Ø6 or Ø8 central position - Ø6 peripheral position </div> <div style="display: flex; justify-content: space-between;"> T Maxi (Thermostat or temperature sensor) A - 30 </div> <div style="display: flex; justify-content: space-between;"> T Mini (Thermostat) NH + 10 + Bulb length </div> <div style="display: flex; justify-content: space-between;"> T Mini (Temperature sensor) NH + 150 </div> <div style="display: flex; justify-content: space-between;"> Temperature measurement device Thermostat or sensor PT100 </div> <div style="display: flex; justify-content: space-between;"> Temperature measurement on heating element Thermocouple TC J or TC K </div>					

Connections

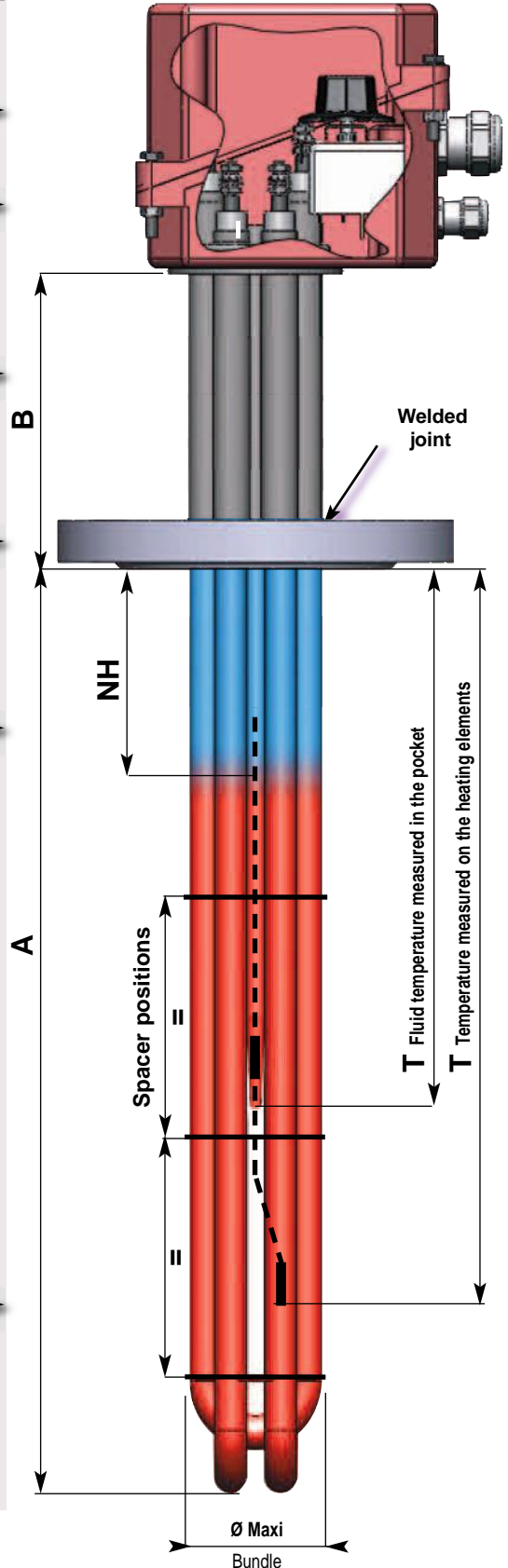
M4 - Threaded terminal M4

M5 - Threaded terminal M5

M6 - Threaded terminal M6



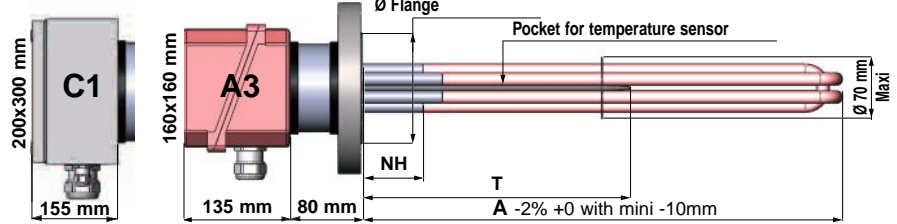
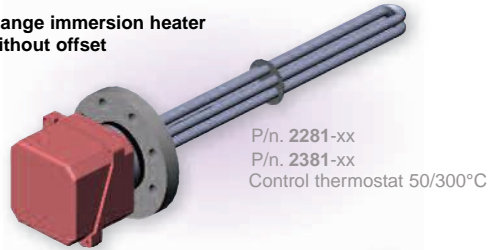
See range of junction boxes on pages 42-43



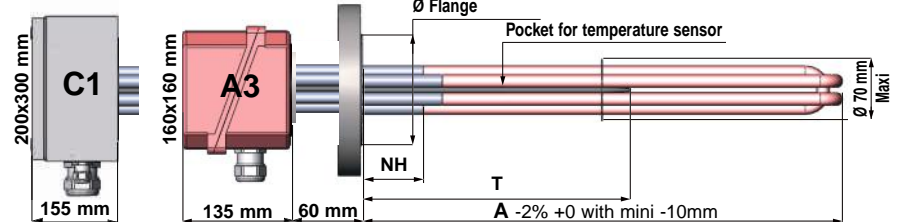
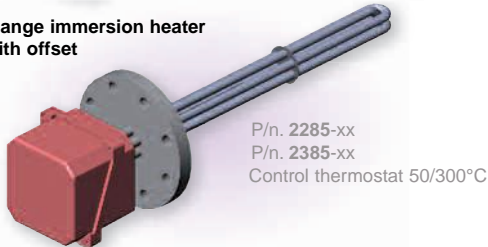
DIJ: Double interlocking joint - SIJ: Simple interlocking joint

DN 80 - 3"- FLANGE WITH CONTROL THERMOSTAT TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C

Flange immersion heater without offset



Flange immersion heater with offset



B = Offset - NH = Non heating length

Junction box (see on pages 42-43)	Type	A3 or C1 according to the power		
	IP	without offset A3 / C1 IP44 - with offset A3 IP55 / C1 IP66		
	Material	A3 Aluminium or C1 Coated carbon steel		
Cable glands (CG)	P ≤ 3kW 1 CG ISO20 - P > 3kW 1 CG ISO20 + 1 CG according to the heating power			
Control thermostat	50/300°C - 1 Change over contact - 16A / 230V			

OIL HEATING

3 heating elements						Ø16 - Coated Carbon steel			
Flange						Coated carbon steel - Welded			
Liquid temperature						DN80 NP16 FS (EN 1092-1)		3" 150 lbs RF (Standard B16.5)	
Offset B						<110°C	<200°C	<110°C	<110°C
Power (kW)						Without	B = 60	Without	B = 60
Voltage (V)						P/N.	P/N.	P/N.	P/N.
Load (W/cm²)						2281-11	2285-11	2381-11	2385-11
A (mm)						2281-12	2285-12	2381-12	2385-12
NH (mm)						2281-03	2285-03	2381-03	2385-03
T (mm)						2281-04	2285-04	2381-04	2385-04
						2281-14	2285-14	2381-14	2385-14
						2281-05	2285-05	2381-05	2385-05
						2281-15	2285-15	2381-15	2385-15

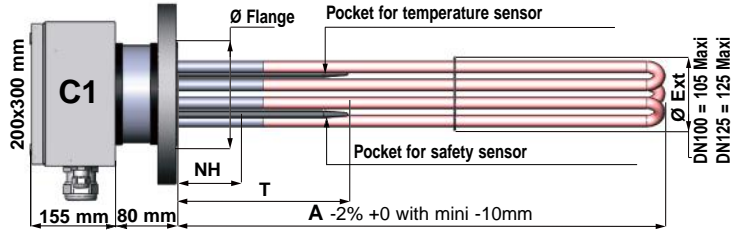
AQUEOUS LIQUIDS HEATING

3 Heating elements						Ø16 - Stainless steel 316L - Scoured passivated			
Flange						Stainless steel 304L - Without treatment - Welded			
Liquid temperature						DN80 NP16 FS (EN 1092-1)		3" 150 lbs RF (Standard B16.5)	
Offset B						<110°C	<200°C	<110°C	<200°C
Power (kW)						Without	B = 60	Without	B = 60
Voltage (V)						P/N.	P/N.	P/N.	P/N.
Load (W/cm²)						2281-51	2285-51	2381-51	2385-51
A (mm)						2281-52	2285-52	2381-52	2385-52
NH (mm)						2281-53	2285-53	2381-53	2385-53
T (mm)						2281-54	2285-54	2381-54	2385-54
						2281-55	2285-55	2381-55	2385-55
						2281-56	2285-56	2381-56	2385-56
						2281-57	2285-57	2381-57	2385-57
Junction box C1						2281-58	2285-58	2381-58	2385-58
						2281-59	2285-59	2381-59	2385-59

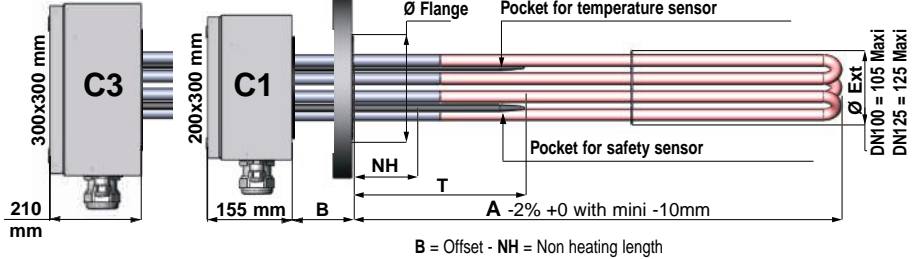
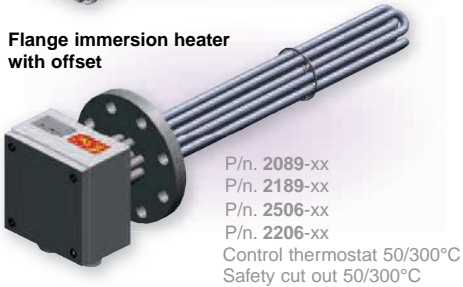
3						2281-76	2285-76	2381-76	2385-76
4,5						2281-77	2285-77	2381-77	2385-77
6						2281-78	2285-78	2381-78	2385-78
9						2281-79	2285-79	2381-79	2385-79
12						2281-80	2285-80	2381-80	2385-80
15						2281-81	2285-81	2381-81	2385-81
18						2281-82	2285-82	2381-82	2385-82
21						2281-83	2285-83	2381-83	2385-83
24						2281-84	2285-84	2381-84	2385-84
30						2281-85	2285-85	2381-85	2385-85
36						2281-86	2285-86	2381-86	2385-86
45						2281-87	2285-87	2381-87	2385-87

DN 100 - 4" AND DN 125 - 5" FLANGE WITH CONTROL THERMOSTAT TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 200°C

Flange immersion heater without offset



Flange immersion heater with offset



Junction box (See on pages 42-43)	Type	C1, C3 according to the power			
	IP	IP44 (without offset) IP66 (with offset)			
	Material	Coated carbon steel			
Cable glands (CG)	1 CG ISO20 t + 1 CG according selection on page 43				
2 Thermostats	Control : 50/300°C - 1 Change over contact - 16A / 230V + Safety cut out : 50/300°C - 16A / 230V manual reset				
Flange	DN100 NP16 FS (EN1092-1) or 4" 150lbs RF (standard B16.5)		Flange DN125 NP16 FS (EN1092-1) or 5" 150lbs RF (standard B16.5)		
Liquid temperature	<110°C	<200°C	Liquid temperature	<110°C	<200°C
Offset B	Without	B = 60	Offset B	Without	B = 60

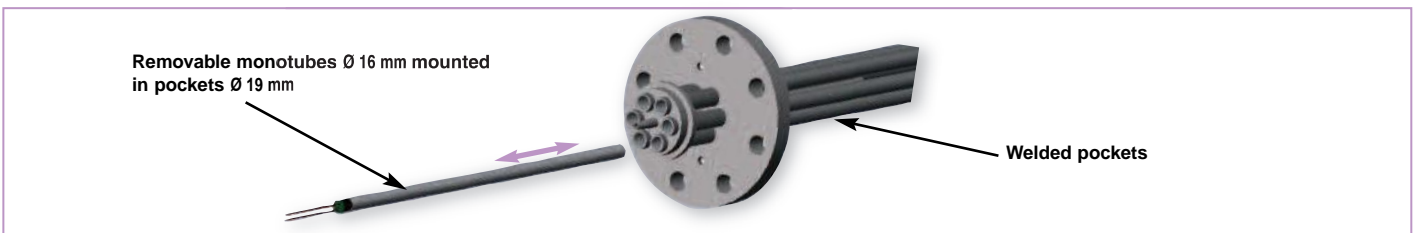
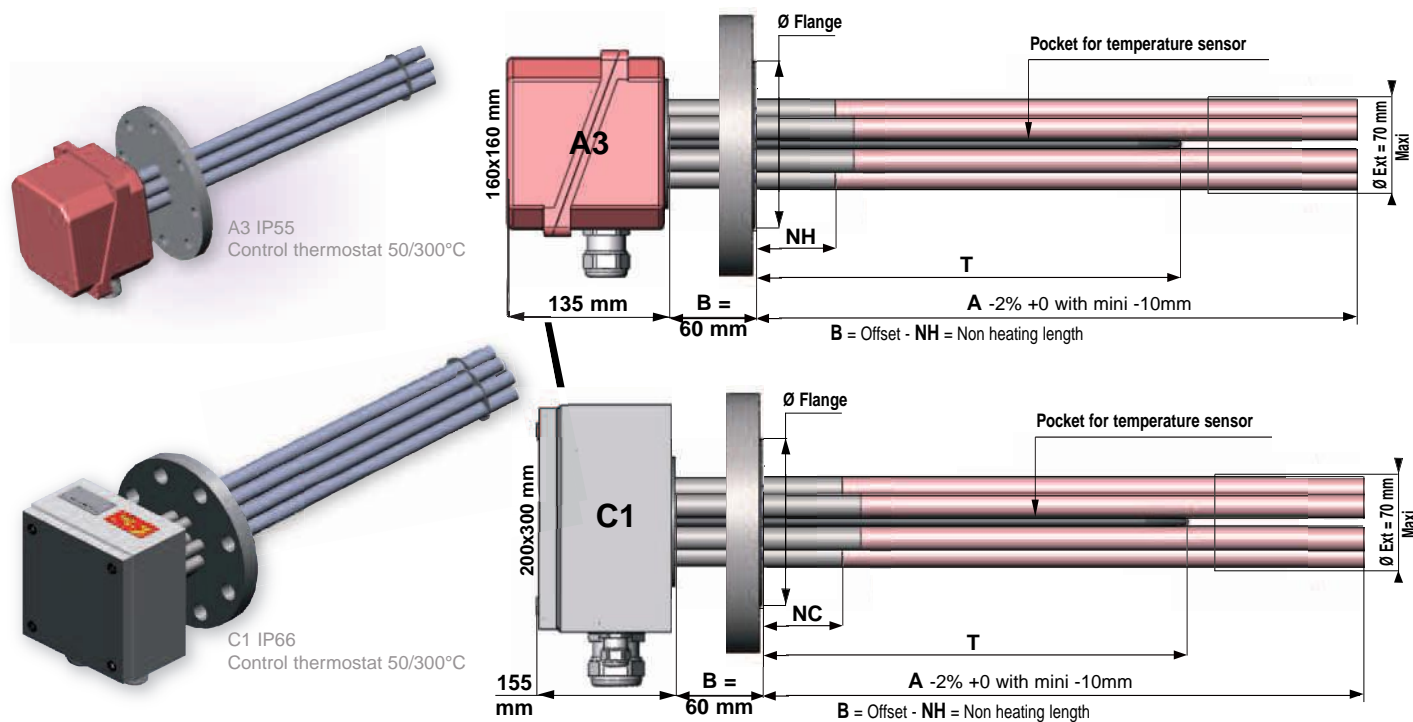
OIL HEATING

Flange		Coated carbon steel - Welded								Flange		Coated carbon steel - Welded							
6 Heating elements		Ø16 - Coated carbon steel								6 Heating elements		Ø16 - Coated carbon steel							
Power (kW) +5/-10%	Voltage (V)	Load (W/cm²)	A (mm)	NH (mm)	T (mm)	P/N. DN100	P/N. 4"	P/N. DN100	P/N. 4"	Power (kW) +5/-10%	Voltage (V)	Load (W/cm²)	A (mm)	NH (mm)	T (mm)	P/N. DN125	P/N. 5"	P/N. DN125	P/N. 5"
6	400-3P	2	650	150	400	2088-11	2388-11	2089-11	2389-11	6	400-3P	2	650	150	400	2106-01	2406-01	2206-01	2506-01
10	400-3P	2	950	150	550	2088-12	2388-12	2089-12	2389-12	10	400-3P	2	950	150	550	2106-02	2406-02	2206-02	2506-02
12	400-3P	2	1150	150	650	2088-03	2388-03	2089-03	2389-03	12	400-3P	2	1150	150	650	2106-03	2406-03	2206-03	2506-03
16	400-3P	2	1500	150	825	2088-04	2388-04	2089-04	2389-04	16	400-3P	2	1500	150	825	2106-04	2406-04	2206-04	2506-04
18	400-3P	2	1650	150	900	2088-14	2388-14	2089-14	2389-14	18	400-3P	2	1650	150	900	2106-05	2406-05	2206-05	2506-05
21	400-3P	2	1900	150	1025	2088-05	2388-05	2089-05	2389-05	21	400-3P	2	1900	150	1025	2106-06	2406-06	2206-06	2506-06
24	400-3P	2	2150	150	1150	2088-15	2388-15	2089-15	2389-15	24	400-3P	2	2150	150	1150	2106-07	2406-07	2206-07	2506-07
27	400-3P	2	2400	150	1275	2088-06	2388-06	2089-06	2389-06	27	400-3P	2	2400	150	1275	2106-08	2406-08	2206-08	2506-08

AQUEOUS LIQUIDS HEATING

Flange		304L - Without treatment - Welded								Flange		304L - Without treatment - Welded							
6 Heating elements		Ø16 - Stainless steel 316L - Scoured passivated								6 Heating elements		Ø16 - Stainless steel 316L - Scoured passivated							
Power (kW) +5/-10%	Voltage (V)	Load (W/cm²)	A (mm)	NH (mm)	T (mm)	P/N. DN100	P/N. 4"	P/N. DN100	P/N. 4"	Power (kW) +5/-10%	Voltage (V)	Load (W/cm²)	A (mm)	NH (mm)	T (mm)	P/N. DN125	P/N. 5"	P/N. DN125	P/N. 5"
6	400-3P	4	460	150	275	2188-51	2388-51	2189-51	2389-51	6	400-3P	4	460	150	275	2106-51	2406-51	2206-51	2506-51
9	400-3P	4	550	150	335	2188-52	2388-52	2189-52	2389-52	9	400-3P	4	550	150	335	2106-52	2406-52	2206-52	2506-52
12	400-3P	4	650	150	400	2188-53	2388-53	2189-53	2389-53	12	400-3P	4	650	150	400	2106-53	2406-53	2206-53	2506-53
18	400-3P	4	950	150	525	2188-54	2388-54	2189-54	2389-54	18	400-3P	4	950	150	525	2106-54	2406-54	2206-54	2506-54
24	400-3P	4	1150	150	650	2188-55	2388-55	2189-55	2389-55	24	400-3P	4	1150	150	650	2106-55	2406-55	2206-55	2506-55
30	400-3P	4	1400	150	775	2188-56	2388-56	2189-56	2389-56	30	400-3P	4	1400	150	775	2106-56	2406-56	2206-56	2506-56
36	400-3P	4	1650	150	900	2188-57	2388-57	2189-57	2389-57	36	400-3P	4	1650	150	900	2106-57	2406-57	2206-57	2506-57
42	400-3P	4	1900	150	1010	2188-58	2388-58	2189-58	2389-58	42	400-3P	4	1900	150	1010	2106-58	2406-58	2206-58	2506-58
48	400-3P	4	2150	150	1150	2188-59	2388-59	2189-59	2389-59	48	400-3P	4	2150	150	1150	2106-59	2406-59	2206-59	2506-59
6	400-3P	8	275	150	215	2188-76	2388-76	2189-76	2389-76	6	400-3P	8	275	150	215	2106-76	2406-76	2206-76	2506-76
9	400-3P	8	335	150	245	2188-77	2388-77	2189-77	2389-77	9	400-3P	8	335	150	245	2106-77	2406-77	2206-77	2506-77
12	400-3P	8	400	150	275	2188-78	2388-78	2189-78	2389-78	12	400-3P	8	400	150	275	2106-78	2406-78	2206-78	2506-78
18	400-3P	8	525	150	335	2188-79	2388-79	2189-79	2389-79	18	400-3P	8	525	150	335	2106-79	2406-79	2206-79	2506-79
24	400-3P	8	650	150	400	2188-80	2388-80	2189-80	2389-80	24	400-3P	8	650	150	400	2106-80	2406-80	2206-80	2506-80
30	400-3P	8	775	150	465	2188-81	2388-81	2189-81	2389-81	30	400-3P	8	775	150	465	2106-81	2406-81	2206-81	2506-81
36	400-3P	8	900	150	525	2188-82	2388-82	2189-82	2389-82	36	400-3P	8	900	150	525	2106-82	2406-82	2206-82	2506-82
42	400-3P	8	1020	150	585	2188-83	2388-83	2189-83	2389-83	42	400-3P	8	1020	150	585	2106-83	2406-83	2206-83	2506-83
48	400-3P	8	1150	150	650	2188-84	2388-84	2189-84	2389-84	48	400-3P	8	1150	150	650	2106-84	2406-84	2206-84	2506-84
60	400-3P	8	1390	150	770	2188-85	2388-85	2189-85	2389-85	60	400-3P	8	1390	150	770	2106-85	2406-85	2206-85	2506-85

DN 80 - 3"- DN100 - 4"- DN 125 - 5"- FLANGE WITH OFFSET AND REMOVABLE MONOTUBES TO HEAT WATER OR OIL UP TO 200°C



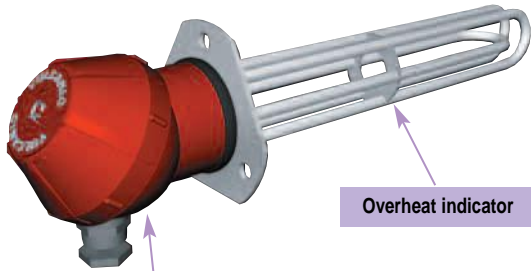
OIL OR AQUEOUS LIQUIDS HEATING UP TO 200°C

Junction box (See on pages 42-43)		Type	A3		C1										
		IP	55		66										
		Material	Aluminium		Coated carbon steel										
Cable gland		P ≤ 3kW 1 PE ISO20		P > 3kW 1PE ISO20 + 1 PE ISO25											
Control thermostat		50/300°C - 1 Change over contact - 16A / 230V (See optional safety cut out on page 44)													
Heating elements		Qty	6 Monotubes in pocket Ø19		9 Monotubes in pocket Ø19		12 Monotubes in pocket Ø19								
		Material	Sainless steel 316L		Sainless steel 316L		Sainless steel 316L								
Flange		Stainless steel - Without treatment - Welded		Stainless steel - Without treatment - Welded		Stainless steel - Without treatment - Welded									
		EN (1092-1) Standard B16.5		EN (1092-1) Standard B16.5		EN (1092-1) Standard B16.5									
		DN80 PN16 FS 3" 150lbs RF		DN100 PN16 FS 4" 150lbs RF		DN125 PN16 FS 5" 150lbs RF									
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	NH (mm)	A (mm)	T (mm)	P/N.	P/N.	A (mm)	T (mm)	P/N.	P/N.	A (mm)	T (mm)	P/N.	P/N.
3	400-3P	2	50	490	300	2279-01	2279-41								
6	400-3P	2	50	930	500	2279-02	2279-42								
9	400-3P	2	50	1370	800	2279-03	2279-43	1050	930	2279-10	2279-51				
12	400-3P	2	50	1870	1000	2279-04	2279-44	1400	1160	2279-12	2279-52	1050	930	2279-22	2279-61
15	400-3P	2	50					1750	1450	2279-13	2279-53	1300	1160	2279-23	2279-62
18	400-3P	2	50					2000	1870	2279-14	2279-54	1550	1370	2279-24	2279-63
20	400-3P	2	50					2300	1950	2279-15	2279-55	1700	1450	2279-25	2279-64
22	400-3P	2	50									1850	1640	2279-26	2279-65
25	400-3P	2	50									2100	1870	2279-27	2279-66

VULCALOY® : 3 POINT DELTA FLANGE TO HEAT SANITARY WATER UP TO 110°C

P/n. 1789-xx

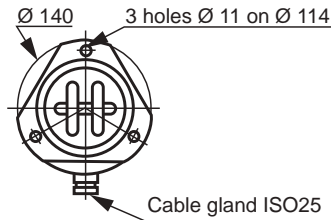
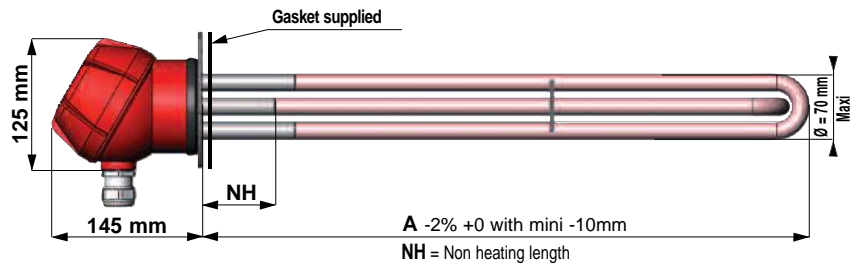
Without control thermostat



Overheat indicator

Quick electrical coupling :

- Star/Delta connector
- Easy connection
- Quick voltage adaptator for heating power up to 24 kW



CIRCULATING OR STAGNANT WATER UP TO 110°C/10 bar

12 W/cm²

3 POINT DELTA FLANGE					Stainless steel 304L - without treatment
3 removable Heating elements					Ø10,2 - Stainless steel 904L Without treatment
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
3	230/400	12	240	95	1789-01
4,5	230/400	12	305	95	1789-02
6	230/400	12	370	95	1789-03
9	230/400	12	500	95	1789-05
12	230/400	12	630	95	1789-06
15	230/400	12	760	95	1789-07
18	230/400	12	900	95	1789-08
21	230/400	12	1000	95	1789-09
24	230/400	12	1150	95	1789-10
30	400 - 3P	12	1400	95	1789-12
36	400 - 3P	12	1650	95	1789-14
45	400 - 3P	12	2050	95	1789-17

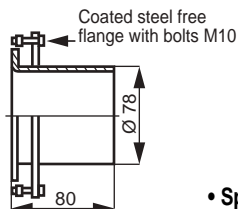
8 W/cm²

3 POINT DELTA FLANGE					Stainless steel 304L - without treatment
3 welded Heating elements					Ø16 - Incoloy 825 Without treatment
Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	P/N.
3	230/400	8	240	120	1789-51
4,5	230/400	8	305	120	1789-52
6	230/400	8	370	120	1789-53
9	230/400	8	500	120	1789-55
12	230/400	8	630	120	1789-56
15	230/400	8	760	120	1789-57
18	230/400	8	900	120	1789-58
21	230/400	8	1000	120	1789-59
24	230/400	8	1150	120	1789-60
30	400 - 3P	8	1400	120	1789-62
36	400 - 3P	8	1650	120	1789-64
45	400 - 3P	8	2050	120	1789-67

ACCESSORIES :

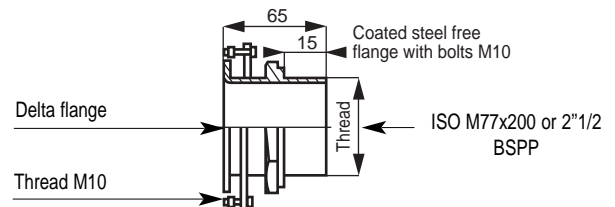
• Welding type swivelling adaptor

Ø Screw thread (mm)	Material	P/N.
Ø78 mm	Stainless steel	1789-96
Ø78 mm	Coated Carbon steel	1789-97



• Screw type swivelling adaptor

Ø Screw thread	Material	P/N.
M77x200	Coated Carbon steel	1789-98
2"1/2 BSPP	Coated Carbon steel	1789-99
M77x200	Stainless steel	1789-88
2"1/2 BSPP	Stainless steel	1789-89



• Spare parts

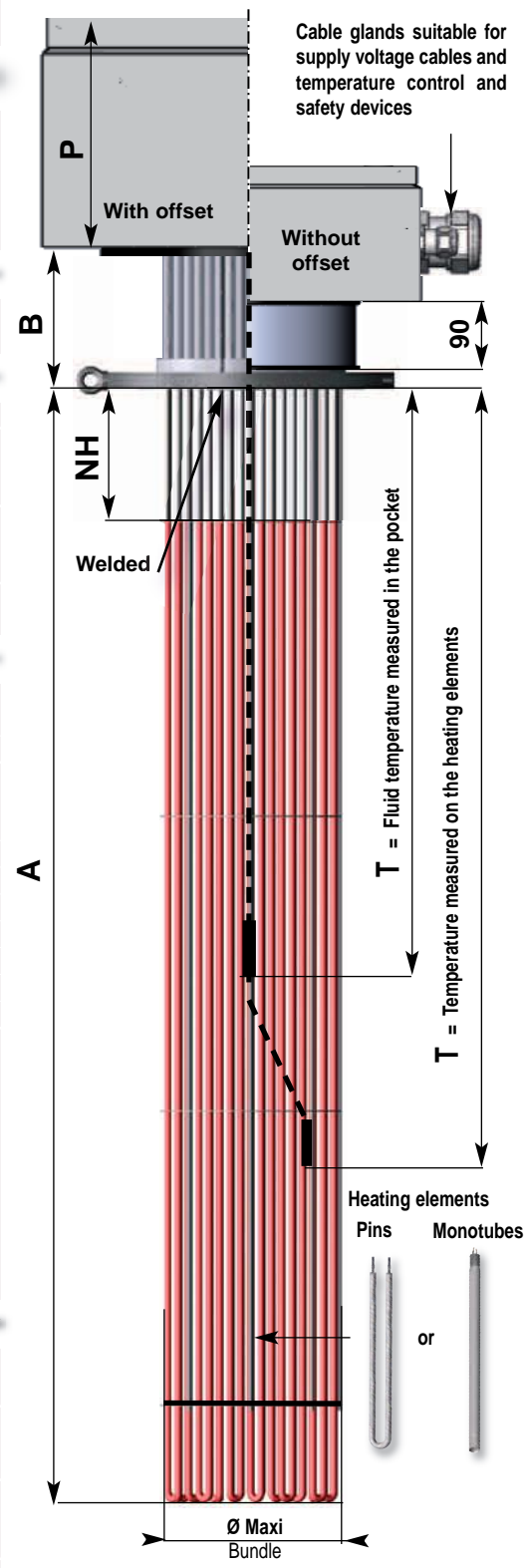
Description	Material	P/N.
Reversible Star/delta connector	Pa6	1789-94
Set of 10 EPDM Gaskets	EPDM	1789-93
Spare Junction box with cable gland ISO 25	Polyamide	1789-90



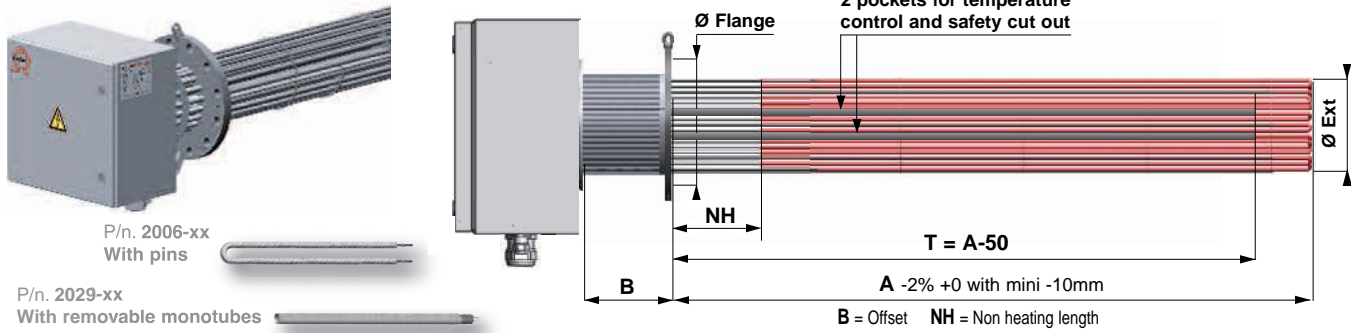
DN 125 UP TO DN 500 FLANGE IMMERSION HEATERS SPECIFICATIONS

TYPE	2006									
FLANGE	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"	DN450 18"	DN500 20"	
MAXIMUM PRESSURE	Depending on operating temperature and pressure									
JUNCTION BOX	→									
Coated Carbon steel without offset B = 0	C2		C5			C6		C8		C9
Coated Carbon steel with Offset B > 0	C3		C6			C7		C8		C9
Stainless steel	C3		C7			C7		C8		C9
Protection	IP66									
CONNECTION COUPLING	→									
Heating elements										
Pins Ø10,2 mm	Threaded M5 M6									
Pins Ø16 mm	Threaded M6									
Monotubes Ø16 mm	Wire									
Sealing	Resin WP+160									
Connections	3 phases (Star, Delta)									
Wiring	Connection 4mm ² to 70mm ² - Copper bar 100mm ² to 250mm ²									
OFFSET B	→									
	100 mm < B < 450 mm									
	Depending on liquids, heating temperature, and operating conditions and whether the flange immersion heater is mounted horizontally or vertically,									
FLANGE	→									
Material	Carbon steel - Stainless steel 304L - 316L - 316Ti									
Flange norm 1092-1 NP Bar	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
	NP10 to NP63									
Flange Standard B16.5 NPS Class lbs	5"	6"	8"	10"	12"	14"	16"	18"	20"	
	150 - 300 - 400 - 600									
Facing flange	FF (Flat Face) RF (Raised Face) GF (Groove face) MF (Male face) FM (Female face)									
HEATING ELEMENTS	→									
Maxi Qty	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
Pins Ø10,2	9	15	27	45	66	78	102	165	174	
Pins Ø16	6	9	18	27	39	51	57	90	99	
Monotubes Ø16	12	18	36	54	78	102	114	180	198	
Ø Maxi(Bundle)	122	151	197	245	290	317	362	416	460	
Material										
DN 150 to 500	Pins Ø10,2		Pins Ø16			Monotubes Ø16				
Z2 Stainless steel 316L/DIN 1.4404	X		X			X				
Z6 Stainless steel 321/DIN 1.4541	X		X			X				
Incoloy 800/DIN 1.4876	X		X			X				
Incoloy 825/DIN 2.4858	X		X			X				
Carbon steel	X		X			X				
Stainless steel 904L/DIN 1.4539	X		X			X				
Treatment	Without - Scoured - Scoured passivated - Electropolished									
Dimension (mm)	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
Tolerance on dimensions A	-2% +0 with mini -10mm									
Maxi length = A + B (mm)	3200mm (Pins Ø10,2 - Ø16) - 2500mm (Monotubes Ø16) (Others length on request)									
A Mini	300	375	500	625	750	875	1000	1125	1250	
NH Mini	60	75	100	125	150	175	200	225	250	
Specific load - W/cm ²	Depending on customer application									
Maxi Voltage	500 V (Pin Ø10,2 and monotube Ø16) - 750 V (Pin Ø16)									
TEMPERATURE CONTROL AND SAFETY DEVICES	→									
Sensor	Mounting		Tmini (mm)			Tmaxi (mm)				
RTD PT100	Mounted in pocket		NH + 30			A - 30				
RTD PT100	Welded on heating element		NH + 50			A - 30				
Thermocouple	Mounted in pocket		NH + 30			A - 30				
Thermocouple	Welded on heating element		NH + 50			A - 30				
Control Thermostat	Mounted in pocket		NH + 50 + Lg bulb			T maxi = capillary length - 100 - B				
Control Thermostat	Welded on heating element		NH + 50 + Lg bulb			T maxi = capillary length - 100 - B				
	Caution : For gas heating, a thermocouple welded on the heating element is highly recommended									

Junction box dimensions L x H x P	
C2 = 300x300x120	C6 = 500x500x210
C3 = 300x300x210	C7 = 500x500x300
C4 = 380x380x210	C8 = 600x600x210
C5 = 400x400x120	C9 = 760x760x300



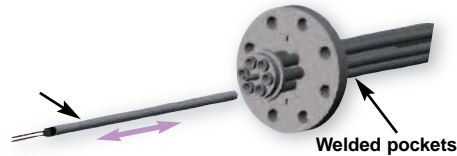
DN 150 UP TO DN 500 FLANGE TO HEAT OIL AND ACQUEOUS LIQUIDS UP TO 200°C



P/n. 2006-xx
With pins

P/n. 2029-xx
With removable monotubes

Removable monotubes Ø 16 mm mounted in pockets Ø 19 mm



Liquid temperature	≤ 200°C
Flange	Stainless steel - Scoured passivated - welded
Pins Ø16 or monotubes in pockets Ø19 mm	Stainless steel 316L - Scoured passivated
Safety cut out	Thermocouple K in a pocket
Control thermostat	50/300°C - 1 Change over contact - 10A / 230V

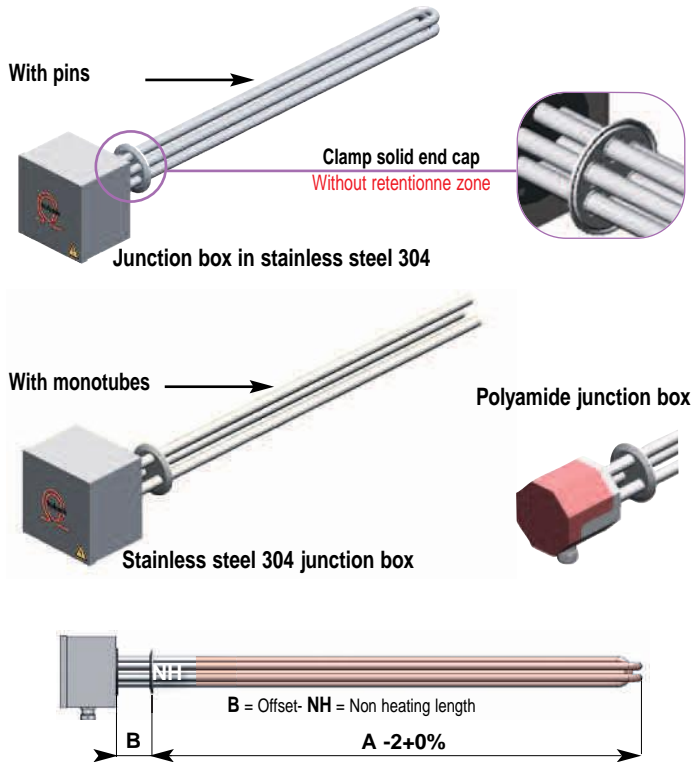
Qty Heating elements	Liquid	Junction box	Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	A (mm)	NH (mm)	B (mm)	ØExt Maxi (mm)	Ø FLANGE NP16 FS EN1092-1	P/N.	Ø FLANGE 150lbs RF Standard B16.5	P/N.
Pins 9 pins	Oil	C3	43	400	1,9	2600	150	250	151	150	2006-01	6"	2006-31
	Water		90	400	4	2600	150	250	151		2006-02		2006-32
	Water		135	400	6	2600	150	250	151		2006-03		2006-33
18 pins	Oil	C3	90	400	1,9	2600	150	250	197	200	2006-04	8"	2006-34
	Water		170	400	4	2600	150	250	197		2006-05		2006-35
	Water		180	400	6	1900	150	250	197		2006-06		2006-36
27 pins	Oil	C6	130	400	1,9	2600	150	250	245	250	2006-07	10"	2006-37
	Water		260	400	4	2600	150	250	245		2006-08		2006-38
	Water		290	400	6	2000	150	250	245		2006-09		2006-39
39 pins	Oil	C6	190	400	1,9	2600	150	250	290	300	2006-11	12"	2006-40
	Water		290	400	4	2100	150	250	290		2006-12		2006-41
	Water		290	400	6	1500	150	250	290		2006-13		2006-42
51 pins	Oil	C7	245	400	1,9	2600	200	250	317	350	2006-14	14"	2006-70
	Water		435	400	4	2300	200	250	317		2006-15		2006-71
	Water		435	400	6	1700	200	250	317		2006-16		2006-72
57 pins	Oil	C7	290	400	1,9	2600	200	250	362	400	2006-17	16"	2006-73
	Water		435	400	4	2100	200	250	362		2006-18		2006-74
	Water		435	400	6	1500	200	250	362		2006-19		2006-76
99 pins	Oil	C9	490	400	1,9	2600	250	250	460	500	2006-20	20"	2006-77
	Water		700	400	4	2000	250	250	460		2006-21		2006-78
	Water		700	400	6	1400	250	250	460		2006-22		2006-79
Removable monotubes 18 monotubes	Oil	C3	6,5	400	1	750	150	250	151	150	2029-01	6"	2029-31
			10	400	1	1050	150	250	151		2029-02		2029-32
			13	400	1	1350	150	250	151		2029-03		2029-33
			19	400	1	1950	150	250	151		2029-04		2029-34
			24,5	400	1	2450	150	250	151		2029-05		2029-35
			30	400	1	2950	150	250	151		2029-06		2029-36
36 monotubes	Oil	C3	19	400	1	1050	150	250	197	200	2029-07	8"	2029-37
			25	400	1	1350	150	250	197		2029-08		2029-38
			38	400	1	1950	150	250	197		2029-09		2029-39
			49	400	1	2450	150	250	197		2029-10		2029-40
			60	400	1	2950	150	250	197		2029-11		2029-41
			54 monotubes	Oil	C6	38	400	1	1350		150		250
57	400	1	1950			150	250	245	2029-13	2029-43			
74	400	1	2450			150	250	245	2029-14	2029-44			
90	400	1	2950			150	250	245	2029-15	2029-45			
78 monotubes	Oil	C6	55	400	1	1350	150	250	290	300	2029-16	12"	2029-46
			83	400	1	1950	150	250	290		2029-17		2029-47
			106	400	1	2450	150	250	290		2029-18		2029-48
			130	400	1	2950	150	250	290		2029-19		2029-49
102 monotubes	Oil	C7	105	400	1	1950	200	250	317	350	2029-20	14"	2029-50
			136	400	1	2450	200	250	317		2029-21		2029-51
			166	400	1	2950	200	250	317		2029-22		2029-52
114 monotubes	Oil	C7	118	400	1	1950	200	250	362	400	2029-23	16"	2029-53
			152	400	1	2450	200	250	362		2029-24		2029-54
			186	400	1	2950	200	250	362		2029-25		2029-55
198 monotubes	Oil	C9	258	400	1	2450	250	250	460	500	2029-28	20"	2029-58
			317	400	1	2950	250	250	460		2029-29		2029-59

Pharmaceutical, Chemical and Food & Beverage industries favour the installation of stations called **Cleaning in Place (CIP)** or **Sterilization in place (SIP)** for their **Aseptic production** line. These cleaning processes for fixed or mobiles stations need a heating system in compliance with applicable requirements.

Main requirements:

- **NO RETENTION ZONE** through the fluid flow (interface connection with tri-clamps...)
- **MATERIALS QUALITY** in contact with the fluid (stainless steel 316L, gasket approved by FDA/USP class VI, ...)
- **SURFACE QUALITY** of components in contact with the fluid $0,6 \leq Ra \leq 0,8$ (Heating pin or monotube according the value of Ra expected)
- **FULL TRACEABILITY** of the product with 3.1 certificate - Components **COMPLY WITH CUSTOMER'S STANDARD** (ASME BPE, SMS, ISO, ...)

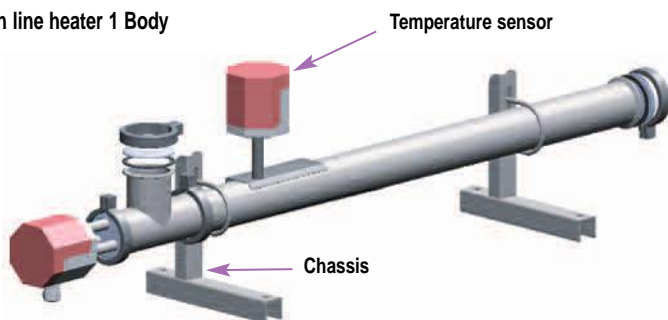
FLANGE IMMERSION HEATERS



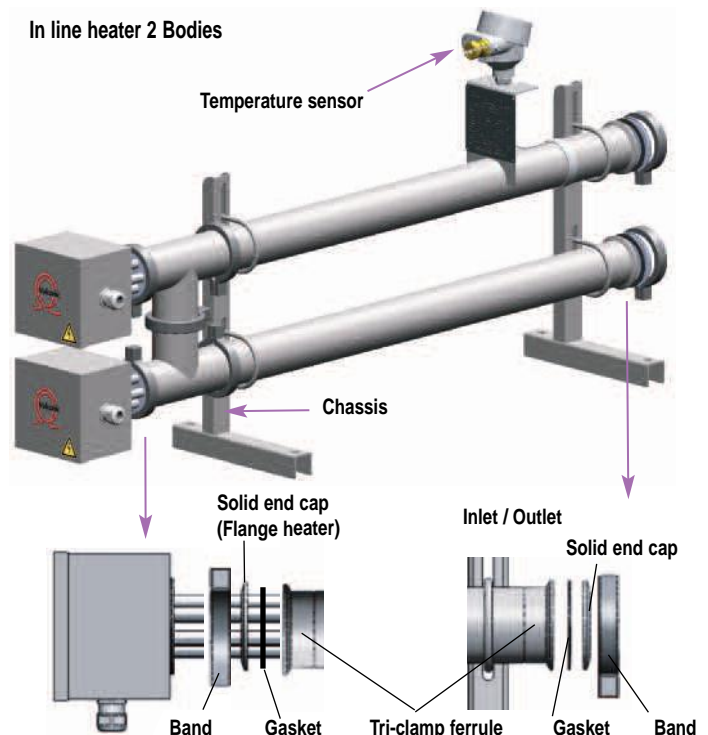
Specifications		
Heating power	≤ 25 kW	
Supply voltage	single or 3 phase	
Process temperature	70 up to 90°C	
Flange	Type	Clamp
	∅	maxi 6"
	Material	Stainless steel 316L
	Joint	Welded
	Surface quality	Ra ≤ 0,6 or Ra ≤ 0,8
Norms	Customer standards (SMS, ASME, BPE, ISO ...)	
Gasket	Material	EPDM, Silicone, Viton
	Compliance	FDA, USP ClassVI (other on request)
Heating Elements	Material	Inox 316L
	Type	Pins (surface quality Ra ≤ 0,8) Monotubes (surface quality Ra ≤ 0,6)
Specific load	up to 10W/cm ²	
Surface treatment	Mechanical polishing and electrolytic, passivated	
Junction box	Stainless steel 304 or Polyamide	
	IP	55
Cable gland on request	Polyamide	
	Stainless steel cable gland (suitable to junction box)	
Dimensions	A maxi	1100 mm
	B maxi	80 mm

LIQUIDS CIRCULATION HEATERS

In line heater 1 Body

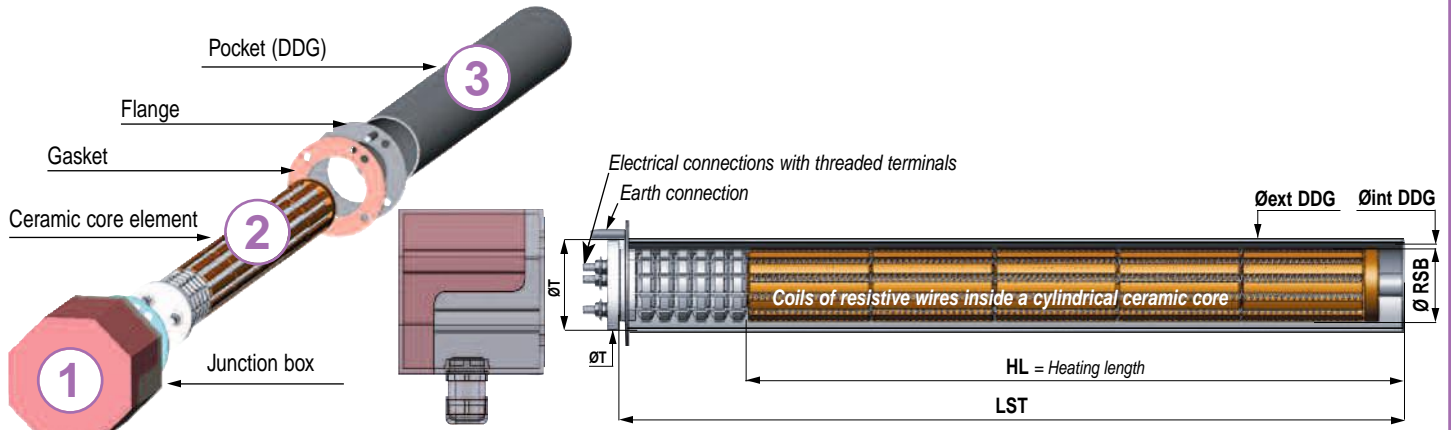


In line heater 2 Bodies



Heating power	≤ 50 kW	
Process temperature	70 up to 90°C	
Length max.	1200 mm	
Vessel	Pressure	NP16
	∅ Vessel	up to 3"
	Material	Stainless steel 316L
	Inlet/Outlet	Tri-clamp ferrule
	Norms	Customer standards (SMS, ASME BPE, ISO ...)
Support	Material	Stainless steel 304
Vessel temperature safety device	RTD PT100, control thermostat, thermocouple with stainless steel or polyamide junction box	

FLANGE IMMERSION HEATERS WITH CERAMIC CORE ELEMENTS TO HEAT LIQUIDS



CERAMIC CORE ELEMENTS

Power (kW) +5/-10%	Voltage (V)	Load (W/cm ²)	Ø Cer. core (mm)	Ø int ddg (mm)	Ø T (mm)	LST (mm)	HL (mm)	P/N.
1	230 - 1P	2,5	47	48	57	440	300	1103-11
2	230 - 1P	2,5	47	48	57	690	550	1103-12
3	230 - 1P	2,5	47	48	57	890	700	1103-13
2	230 - 1P	4	47	48	57	440	300	1103-14
3	230 - 1P	4	47	48	57	690	500	1103-15
4	230 - 3P	4	47	48	57	890	650	1103-16
4	400 - 3P	4	47	48	57	890	650	1103-17
2	230 - 1P	4	58	60	67	451	280	1101-01
3	230 - 1P	4	58	60	67	691	400	1101-02
4	230 - 3P	4,5	58	60	67	891	520	1101-03
4	400 - 3P	4,5	58	60	67	891	520	1101-05
6	400 - 3P	4	58	60	67	971	800	1101-04

Junction box in polyamide 6/6

Including:
1 Junction box
1 Cable gland in polyamide
1 Gasket

Suitable Cer. core Ø (mm)	IP	Cable Gland	P/N.
47	55	ISO 20 Bis	1199-00
58	55	ISO 25 Bis	2081-99

Set of pocket in stainless steel 304 L

Including:
1 Pocket,
1 Flange
1 Gasket

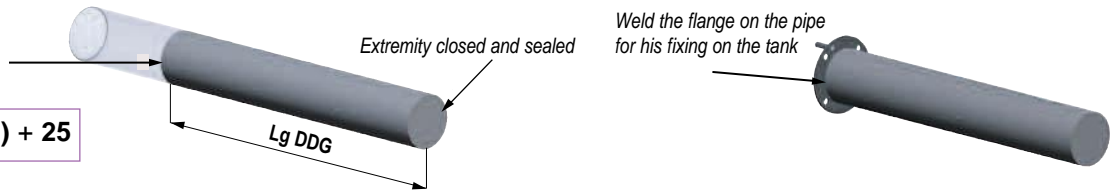
Pocket Øint (mm)	Pocket Øext (mm)	L (mm)	Ø Flange (mm)	P/N.
48	51	920	85	5711-00
60	63,5	990	101	5710-00
60	63,5	1015	101	5710-01

Caution : All the parts are supplied separately, the customer has to cut the pocket at the length required, weld the flange and join the parts together.

Preparing and assembling parts

Cut the pipe at the right length Lg DDG

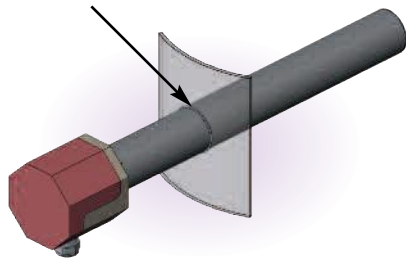
$$LgDDG = (LST \times 1,02) + 25$$



Available installations

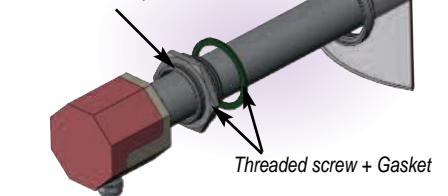
Welded on the vessel:

The pocket is welded directly on the tank



Screw plug ISO M77x200 and BSPP 2"1/2 :

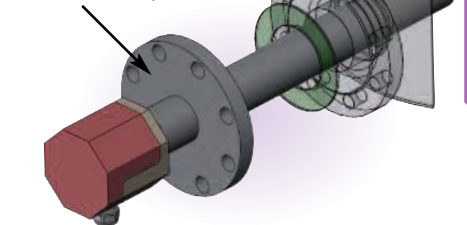
A stainless steel ISO M77 screw plug is welded on the pocket



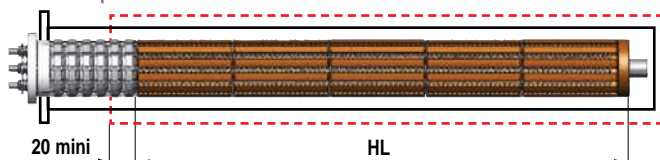
Description	Material	P/N.
Screw plug M77x200 + Gasket Ø78 (Klingerite)	Inox. 316L	9624-06
Screw plug 2" 1/2 BSPP + Gasket Ø 2" 1/2 (Klingerite)	Klingerite	9624-07
Sleeve for welding M77	Inox. 316L	9624-04
Sleeve for welding 2" 1/2 BSPP	Inox. 316L	9624-05

Flange DN80 :

A stainless steel DN 80 Flange is welded on the pocket



Description	Material	P/N.
Flange ND80 NP16 RF	S. Steel 316L	9624-08

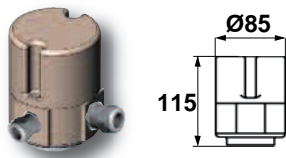
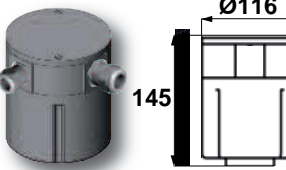
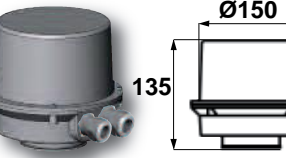
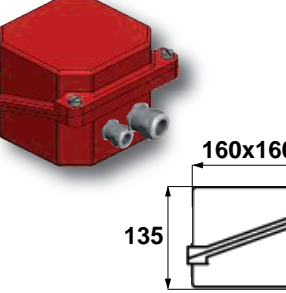
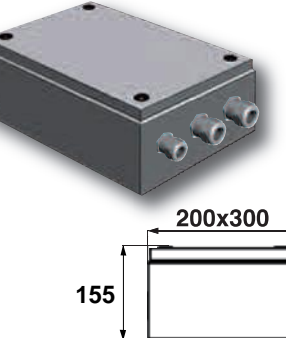
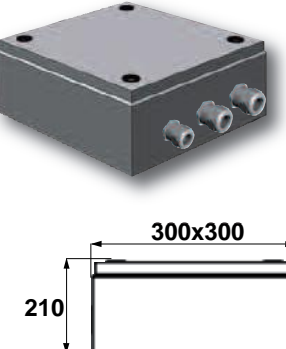


← This part must be totally immersed in the liquid

JUNCTION BOXES FOR SCREW PLUG AND FLANGE IMMERSION HEATERS UP TO DN 125

SPECIFICATIONS : **WITH CONTROL THERMOSTAT** (A cable gland ISO 16 is recommended on junction box from a heating power > 3kW)
 WITH THERMOCOUPLE PROBE OR RTD PT100 (An additional cable gland ISO 16 is recommended on the junction box)


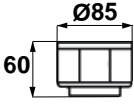

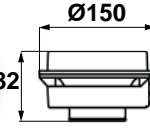

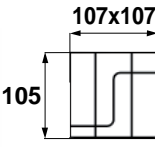

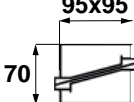

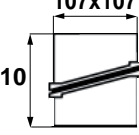
Cable gland, gasket and fixing parts are supplied with each junction box.

Type	Material IP	Screw plug heater Ø	Flange immersion heater DN	Mounting	Cable gland	P/N.
Q2 	Plastic IP54**	maxi 1 control thermostat with bulb				
		1"1/4 - 1"1/2 - M45	1"1/4 - 1"1/2 DN32 - DN40	With or without offset	ISO 20 + ISO 25	9643-01
K2 	Plastic IP54**	maxi 1 control thermostat with maxi 2 bulbs or maxi 2 control thermostats with 1 bulb				
		M45 - 1" 1/2	1"1/4 - 1"1/2	With or without offset	ISO 20 + ISO 20	9645-01
		2"	DN32-DN40-DN50	With or without offset	ISO 20 + ISO 25	9645-02
				With offset	ISO 20 + ISO 20	9645-11
		ISO 20 + ISO 25	9645-12			
G2 	Aluminium IP66	maxi 1 control thermostat with maxi 2 bulbs or maxi 2 control thermostats with 1 bulb				
		1"1/4 - 1"1/2 - M45	1"1/4 - 1"1/2 - 2" - 2"1/2	With or without offset	ISO 20 + ISO 20	9644-01
		2" - 2"1/2 - M77	1"1/4 - 1"1/2 - 2" - 2"1/2	With or without offset	ISO 20 + ISO 25	9644-02
			DN32-DN40-DN50 DN65-DN80	With offset	ISO 20 + ISO 20	9644-11
					ISO 20 + ISO 25	9644-12
		ISO 25	9644-13			
A3 	Aluminium IP55	maxi 1 control thermostat with maxi 2 bulbs or maxi 2 control thermostats with 1 bulb				
		2"1/2 M77		With or without offset	ISO 25	9631-01
					ISO 32	9631-02
					ISO 20 + ISO 25	9631-14
					ISO 20 + ISO 32	9631-15
					ISO 20 + ISO 40	9631-20
			DN65 DN80	With offset	ISO 25	9631-10
					ISO 32	9631-11
					ISO 20 + ISO 25	9631-12
					ISO 20 + ISO 32	9631-13
ISO 20 + ISO 40	9631-21					
C1 	Painted Carbon steel IP66	1 thermostat maxi à 2 bulbes ou 2 thermostats maxi à 1 bulbe				
		DN80 - DN100 DN125	With offset	ISO 25	9646-01	
				ISO 32	9646-02	
				ISO 20 + ISO 25	9646-03	
				ISO 20 + ISO 32	9646-04	
	ISO 20 + ISO 40			9646-20		
	Stainless steel IP66	DN80 - DN100 DN125	With offset	2 x ISO 25	9646-05	
				ISO 20 + 2 x ISO 25	9646-06	
				ISO 25	9646-11	
				ISO 32	9646-12	
ISO 20 + ISO 25				9646-13		
		ISO 20 + ISO 32	9646-14			
		ISO 20 + ISO 40	9646-21			
C3 	Painted Carbon steel IP66	1 thermostat maxi à 2 bulbes ou 2 thermostats maxi à 1 bulbe				
		DN100 DN125	With offset	2 x ISO 25	9646-15	
				ISO 20 + 2 x ISO 25	9646-16	
				ISO 50	9746-01	
				ISO 63	9746-02	
				ISO 20 + ISO 50	9746-03	
	ISO 20 + ISO 63			9746-04		
	Stainless steel IP66	DN100 DN125	With offset	2 x ISO 20 + ISO 50	9746-05	
				2 x ISO 20 + ISO 63	9746-06	
				ISO 50	9746-11	
				ISO 63	9746-12	
				ISO 20 + ISO 50	9746-13	
				ISO 20 + ISO 63	9746-14	
2 x ISO 20 + ISO 50				9746-15		
2 x ISO 20 + ISO 63	9746-16					

JUNCTION BOXES FOR SCREW PLUG AND FLANGE IMMERSION HEATERS UP TO DN 125

SPECIFICATIONS : **WITHOUT CONTROL THERMOSTAT**
WITH THERMOCOUPLE PROBE OR RTD PT100 (An additional cable gland ISO 16 is recommended on the junction box)

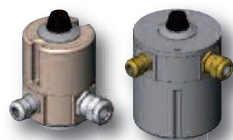
Cable gland, gasket and fixing parts are supplied with each junction box.

Type	Material IP	Screw plug heater Ø	Flange immersion heater DN	Mounting	Cable gland	P/N.		
Q1  	Plastic IP54	1"1/4 - 1"1/2 - M45		With or without offset	ISO 20	9641-01		
			ND32 - ND40 1"1/4 - 1"1/2	With offset	ISO 20 ISO 25	9641-01 9641-02		
G1  	Aluminium IP66	1"1/2 - M45	DN32 - DN40 1"1/4 - 1"1/2	With or without offset	ISO 20 ISO 25	9642-01 9642-02		
			DN32 - DN40 - DN50 1"1/4 - 1"1/2 - 2"	With offset	ISO 20 ISO 25	9642-10 9642-11		
H1  	Polyamide IP55	M45		With or without offset	ISO 25	2045-99		
				With or without offset	ISO 16 BIS + ISO 25 ISO 32	2077-97 2077-98		
		M77	DN80	Without offset	ISO 25	2081-99		
				With offset	ISO 16 BIS + ISO 25 ISO 16 + ISO 25 ISO 32 ISO 25	2081-97 2077-97 2077-98 2077-99		
		A1  	Aluminium IP55	1"1/4 M45		With or without offset	ISO 20 ISO 25	9621-02 9621-10
A2  	Aluminium IP55	2" - 2"1/2 - M77	DN65 / 2"1/2	With or without offset	ISO 25	9622-01		
				With offset	ISO 25	9622-10		

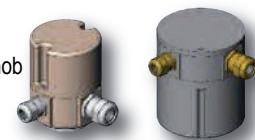
** Q2 and K2 specifications : Junction boxes with control thermostats

Protection IP depending on external or internal temperature setting

Junction box IP44 with external adjustable knob



Junction box IP54 with internal adjustable knob



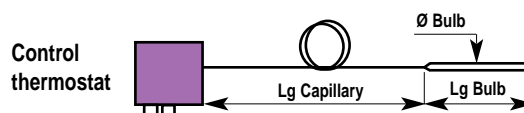
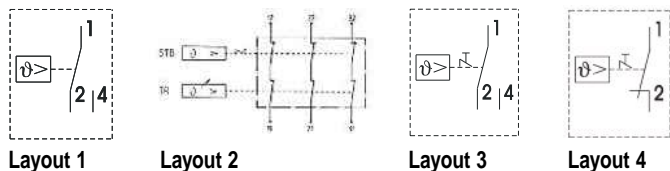
SELECTING A CABLE GLAND

Polyamide cable glands									
Maxi Ø cable clamping (mm)	8	10	13	15	19	25	32	38	44
Size Ø	ISO 16	ISO 16bis	ISO 20	ISO 20bis	ISO 25	ISO 32	ISO 40	ISO 50	ISO 63
P/N.	9671-01	9671-02	9671-03	9671-04	9671-05	9671-06	9671-07	9671-08	9671-09



Cable gland supplied with gaskets

CONTROL THERMOSTATS & SAFETY CUT-OUTS



CONTROL THERMOSTAT WITH AUTOMATIC RESET TYPE TR (layout 1)

P/N.	Range	Ø Bulb	Length Bulb(Lg)	Lg Capillary	I (A)	Contacts	Junction boxes suitable with control thermostats					
							Q2	K2	G2	A3	C1	C3
9030-02	0 / +100°C	Ø6	160 mm	1000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•
9031-12	0 / +100°C	Ø6	160 mm	2000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•
9030-03	+50 / +300°C	Ø6	90 mm	1000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•
9031-13	+50 / +300°C	Ø6	87 mm	2000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•
9030-01	0 / +70°C	Ø6	130 mm	1000 mm	10A / 230V	1 Change over contact	•	•	•	•	•	•
9031-11	0 / +70°C	Ø6	130 mm	2000 mm	10A / 230V	1 Change over contact	•	•	•	•	•	•
9030-71	-20 / +40°C	Ø8	150 mm	2000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•

SAFETY CUT-OUT WITH MANUAL RESET TYPE TB (layout 3)

P/N.	Range	Ø Bulbe	Lg Bulbe	Lg Capillary	I (A)	Contacts	Q2	K2	G2	A3	C1	C3
9031-08	0 / +200°C	Ø6	100 mm	1000 mm	16A / 230V	1 Change over contact	•	•	•	•	•	•

SAFETY CUT-OUT WITH MANUAL RESET TYPE TB (layout 4)

P/N.	Range	Ø Bulbe	Lg Bulbe	Lg Capillary	I (A)	Contacts	Q2	K2	G2	A3	C1	C3
9030-05	+50 / +300°C	Ø6	88 mm	1000 mm	16A / 230V	1 Single pole normally closed contact	•	•	•	•	•	•

CONTROL THERMOSTAT WITH SAFETY CUT OUT WITH MANUAL RESET TYPE TR + STB (layout 2)

P/N.	Range	Cut out temp	2 Bulbs Ø	Length Bulb(Lg)	Lg Capillary	I (A)	Contacts	Q2	K2	G2	A3	C1	C3
9014-13	+30 / +80°C	110°C	Ø6 Control Ø6 Safety	130 mm 100 mm	800 mm 800 mm	20A / 400V	Triple pole normally closed contact	•	•	•	•	•	•
9014-15	+30 / +75°C	98°C	Ø6 Control Ø4 Safety	130 mm 110 mm	520 mm 400 mm	20A / 400V	Triple pole normally closed contact	•	•	•	•	•	•

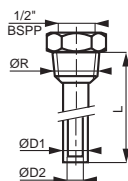
SET WITH POCKET, TEMPERATURE PROBE, COUPLING AND CABLE

It allows fast disassembly of the probe or thermocouple without needing to drain the customers piping or tank.

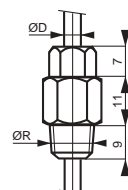
1 SET =



+



+



+



Temperature probe ØD = 6 mm

Pocket

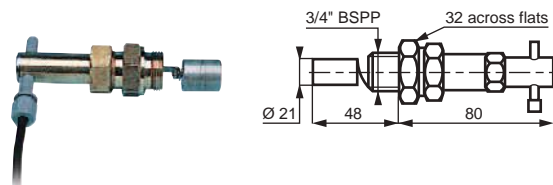
Bicone union

Extension cable

KIT P/N.	Probe	Temp maxi. measured (°C)	Temp maxi. junction (°C)	Length (mm)	Length (mm)	Ø (mm)	Thread ØR	Thread ØR	P/N.	P/N.
2062-01	PT100	350	80	200	100	8	1/2" BSPT	1/2" BSPP	31672-00	31452-10
2062-03	PT 100	350	80	250	200	8	1/2" BSPT	1/2" BSPP	31672-00	31452-10
2062-05	PT 100	350	80	200	150	8	3/8" BSPT	1/2" BSPP	31672-00	31452-10
2062-06	TC J	450	80	200	150	8	3/8" BSPT	1/2" BSPP	31672-00	31621-10
2062-07	TC K	450	80	200	150	8	3/8" BSPT	1/2" BSPP	31672-00	31620-10

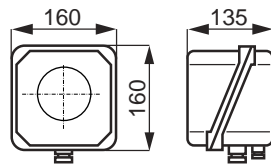
LEVEL INDICATOR

Float type magnetic level sensor for horizontal installation in liquids of relative density ≥ 0,8 output on 2 A/250 VAC configurable for opening or closing. PVC cable 1,5 m length. Brass body and stainless steel float. Maxi working temperature : + 110°C. Maxi working pressure : 16 bar. Protection : IP 65

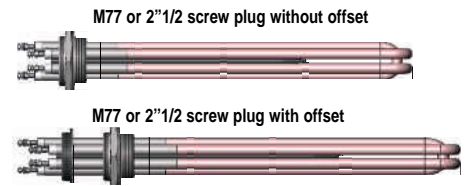


Description	P/N.
Magnetic level indicator	32020-01

CONTROL UNITS FOR SCREW PLUG IMMERSION HEATERS - IP 55



ONLY SUITABLE TO SCREW PLUG HEATERS WITH POCKET



Material: painted aluminium

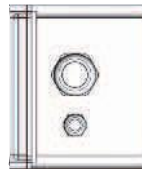
These control units are designed to simplify the installation of ISO M77 or 2"1/2 immersion heaters with pocket. Heating is switched on/off by an integrated control thermostat. Comprises a sealed aluminium IP 55 junction box fitted with a thermostat and/or a temperature safety cut out. The solution for small and medium-sized installations.

Maxi Power (kW)	Voltage (V)	Junction IP	Control thermostat				P/N.
			Rang	Safety	Qty Contact	Reset.	
13	400 - 3P	55	30/85°C	110°C	3	manual	9027-51
8	400 - 3P	55	0/300°C	-	2	-	9027-52
8	400 - 3P	55	0/100°C	-	2	-	9027-53
8	400 - 3P	55	50/200°C	-	2	-	9027-54
2	230 - 1P	55	110/550°C	-	1	-	9027-55
3	230 - 1P	55	-	90/110°C	1	manual	9027-61
5	400 - 3P	55	-	50/300°C	1	manual	9027-62
5	400 - 3P	55	-	20/500°C	1	manual	9027-63

CONTROL UNIT WITH SAFETY CUT OUT AND RELAY UP TO 30 kW - IP 55



Dimensions (mm) :
160 x 240 x 170



ONLY SUITABLE TO IMMERSION HEATERS WITH POCKET

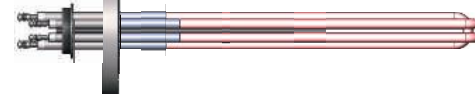
2", M77, 2"1/2 screw plug heaters without offset



2", M77, 2"1/2 screw plug heaters with offset



DN80 Flange immersion heaters without offset



These control units are designed to simplify the installation of ISO M77, 2", 2"1/2 ou ND80 immersion heaters with pocket. Comprise a sealed plastic IP 55 junction box fitted with a control thermostat and a temperature safety cut out, a remote control and an electromechanical relay suitable up to 30 kW. Thermostat temperature range : 0-100°C. Adjustment of thermostat by interior knob. Cut-out temperature range 50 up to 300°C. ON/OFF pilot ligh under a transparent cover. Box equipped with 2 sealing glands.ISO 40 and ISO 20

Material: plastic

Maxi Power 400V tri	IP	Control thermostat		Safety cut out		Cable Gland 1	Cable Gland 2	P/N.
		Range	Contact	Range	Contact	ISO 40	ISO 20	
30kW	55	0/+100°C	2	+50/+300°C	2	ISO 40	ISO 20	9027-10

On request : READY TO USE

Vulcanic provides also the control unit directly mounted and cabled on your immersion heaters from the P/N: 9027-11



Option	P/N.
Assembly on screw plug	9027-11

DIGITAL CONTROL UNIT WITH WATERPROOF JUNCTION BOX IP 66

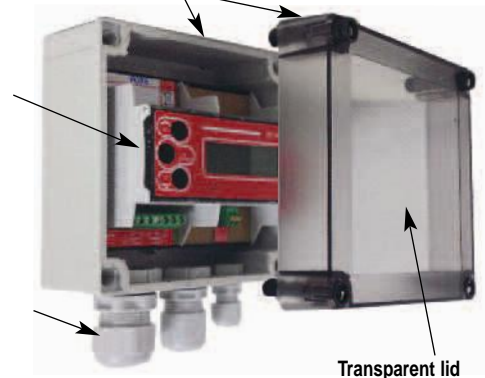
Description	P/N.
Digital temperature controller under waterproof junction box	9028-01
Sensor PT100 Ohms Ø 4 mm lg= 50 mm Cable lg = 5 m	9028-02

Waterproof polycarbonate junction box IP66

Temperature controller « On/Off », compact, easy to use, suitable to control immersions heaters, heating cables, or silicone heating panels up to 3,5 kW. Controlling an heating power over 3,5 kW requires an installation with an electromechanical relay.

Dimensions
200 x 160 x 110 (mm)

Polyamide cable glands



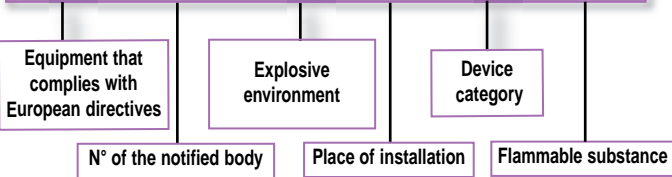
Transparent lid

Main specifications :

- Temperature measured, setting point, relay output position are indicated by digits.
- Input temperature PT100 2 wires (-50°C.....+250°C), with long length compensation integrated.
- Message « Err LO/Hi » in case of temperature sensor broken or in short circuit .
- Very easy to configurate with push button **temp +/temp-**; setting of hysteresis and short cycle protection.
- Relay output with close contact when temperature measured is lower the set temperature. Breaking capacity 16A/230V single phase.
- Waterproof and transparent casing IP 66. Resistant against shock and vibration.
- Cable glands suitable to supply voltage cables from Ø6 up to 13 mm.



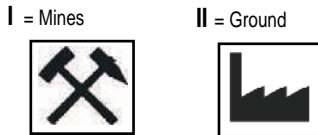
CE 0080 **II 2 G**



• N° of the notified body

0081	France	LCIE
0080	France	INERIS
0102	Germany	IBExU
0722	Spain	LOM

• Place of installation



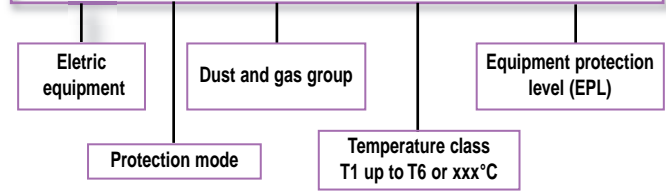
• Device category

		Risk of explosion		Time
1	Zones 0	Gas	HIGH	Continuously present
	Zones 20	Dust		
2	Zones 1	Gas	MEDIUM	Often present
	Zones 21	Dust		
3	Zones 2	Gas	LOW	Accidentally present
	Zones 22	Dust		

• Flammable substance

G = Gas
D = Dust

Ex d IIC T4 Gb



• Protection mode

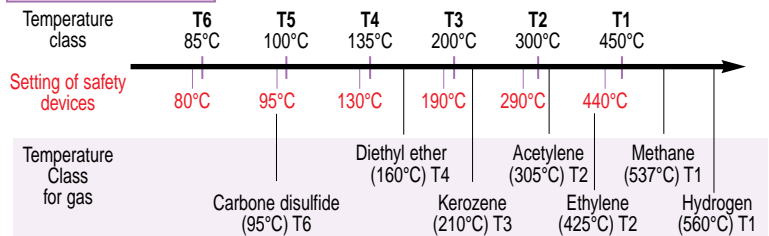
d	Explosion-proof		Prevent the transmission of the explosion to the environment
e	Increased safety		Prevent excessive temperature and sparks from electrical equipment
de	Explosion-proof and increased safety		Prevent both transmission of the explosion and electric spark
ia	Intrinsic safety		Limited electrical energy

• Dust and gas group

Gas group	Place of installation	Typical gas	Energy of self ignition
I	Mines	Methane	E ≥ 300 μJ
IIA	Ground	Propane, butane, benzene, acetone, alcohol, kerosene, Gasoline, Petrol	E ≥ 240 μJ
IIB		Ethylene, diethyl ether	E ≥ 70 μJ
IIC		Hydrogen, acetylene	E ≥ 17 μJ

Dust group	Place of installation	Hazard	Size	Resistivity
IIIA	Ground	Combustible flyings	∅ ≥ 0,5 mm	
IIIB		None-conductive dust	∅ < 0,5 mm	R > 1000Ωm
IIIC		Conductive dust	∅ < 0,5 mm	R < 1000Ωm

• Temperature class

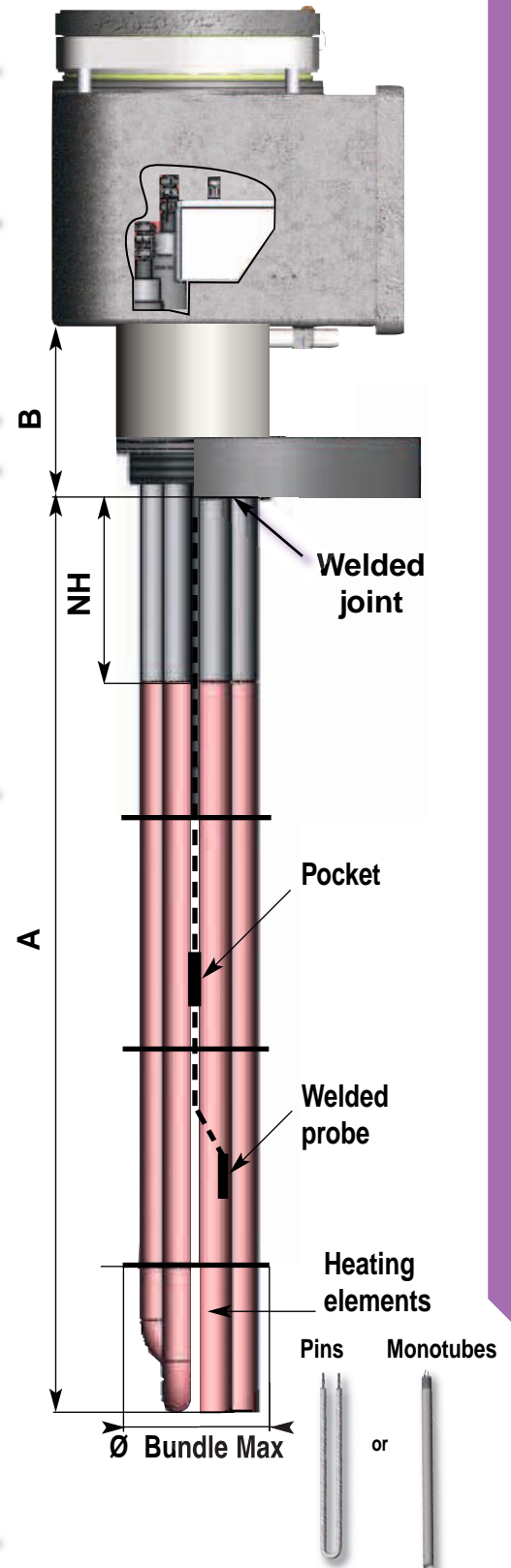


• Equipment protection level (EPL)

Group II - Gas area			Group II - Dust area		
Catégorie	Zone	EPL	Catégorie	Zone	EPL
II 1 G	0	Ga	II 1 D	20	Da
II 2 G	1	Gb	II 2 D	21	Db
II 3 G	2	Gc	II 3 D	22	Dc

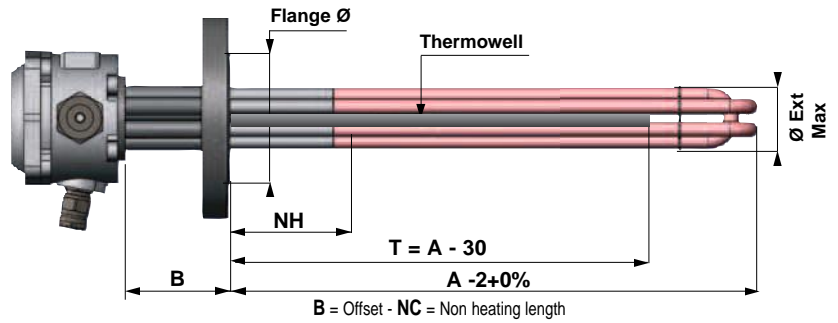
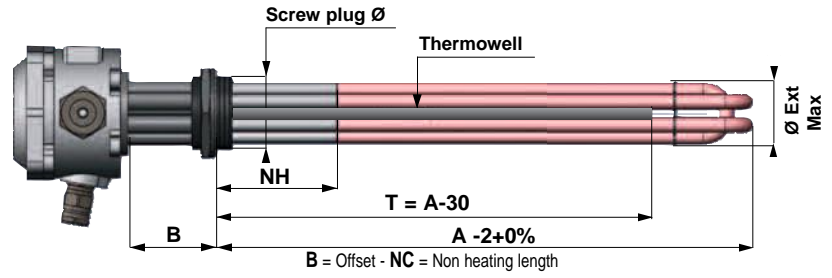
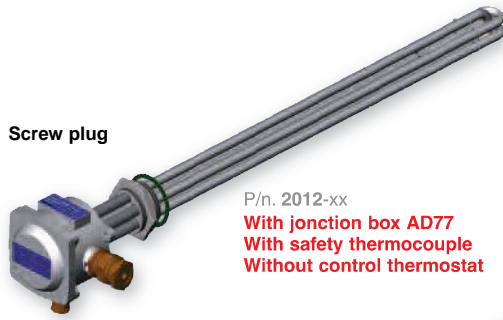
SPECIFICATIONS : DN40 (1 1/2") UP TO DN125 (5")

Screw plug immersion heater	1 1/2 - M45 - 2"	2 1/2 - M77						
	2011 - 2012	2011 - 2012						
Flange immersion heaters	DN40 - DN50	DN65 - DN80		DN100		DN125		
	1 1/2 - 2"	2 1/2 - 3"		4"		5"		
	2015 - 2016	2015 - 2016		2015 - 2016		2010		
JUNCTION BOX								
Protection modes	Ex	d	d	e	de	d	e	de
Cast-iron		•	•		•	•	•	•
Aluminium		•	•		•	•	•	•
Carbon steel				•		•	•	•
Sainless steel				•		•	•	•
TERMINALS								
Pins Ø8 or 8,5 mm	M4	M4		M4		M4		
Pins Ø10,2 mm	M5	M5		M5		M5		
Pins Ø16 mm		M6		M6		M6		
Rod Ø16 mm		Wire		Wire		Wire		
Sealing	WP+160	WP+160		WP+160		WP+160		
Coupling		1P (Parallel, Serial), 3P (Delta or star)						
OFFSET B								
	Offset mini B = 100 mm.							
SCREW PLUG OR FLANGE								
Material	Carbon steel - Stainless steel 304L - 316L							
Screw plug	Ø	1 1/2	M45	2"	2 1/2	M77		
Flange : EN 1092-1	Ø	DN40	DN50	DN65	DN80	DN100	DN125	
	NP bar	NP10 to NP63		NP10 to NP63		NP10 to NP63		
Flange : ASME B16.5	Ø	1 1/2	2"	2 1/2	3"	4"	5"	
	Class lbs	150 to 600		150 to 600		150 to 600		
End flange facings								
	Flate face - Raised face Male face - Female face - Groove face							
HEATING ELEMENTS								
	1 1/2	M45	2"	2 1/2	M77	DN100		DN125
	DN40		DN50	DN65	DN80			
Quantity								
Pins Ø8 or 8,5 mm	3	3	6	6	9	9		12
Pins Ø10,2 mm	3	3	3	3	6	9		9
Pins Ø16 mm				3	3	6		6
Monotubes Ø16 mm				6	6	12		12
Ø Max of the bundle	42	42	52	67	78	78	102	102
Material	Pins Ø8 - 8,5		Pins Ø10,2		Pins Ø16		Monotubes Ø16	
Z2 316L/DIN 1.4404	X		X		X		X	
Z6 321/DIN 1.4541	X		X		X		X	
Incoloy 800/DIN 1.4876					X			
Incoloy 825/DIN 2.4858					X			
Carbon steel			X		X		X	
Vulcaloy 904L/DIN 1.4539			X					
Treatment	Without - scoured - scoured and passivated - Electro polished							
Sizes (mm)	1 1/2	M45	2"	2 1/2	M77	DN100		DN125
	DN40		DN50	DN65	DN80			
Max length = A + B (mm)	1800mm (Pins Ø8) - 3200mm (Pins Ø10,2 - Ø16) - 2500mm (monotubes Ø16)							
Tolerance on A	-2% +0 with mini -10							
A Min	200mm (pins) - 300mm (monotubes)						250mm	
NH Min	75mm						75mm	
Maxi specif.load - W/cm ²	12	12	12	12	12	12		12
Max voltage	400 V (Pins Ø8-8,5)		500 V (Pins Ø10,2 and monotubes Ø16) - 750 V (Pins Ø16)					
SAFETY DEVICES								
Fluid	Class	Probe			Assembly			
Liquid	T1 or T2	Thermocouple			mounted in a pocket			
		Thermocouple			welded on heating element			
		Fuse probe			mounted in a pocket			
		Thermocouple			mounted in a pocket			
		Thermocouple			welded on heating element			
		Thermostat 50/300°C			mounted in a pocket			
		Thermostat 50/300°C			welded on heating element			
Gas	T1 to T6	Thermocouple			welded on heating element			





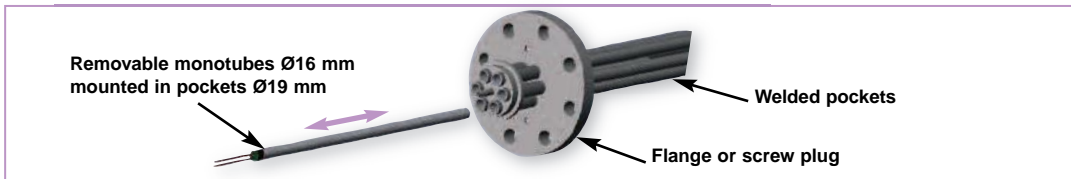
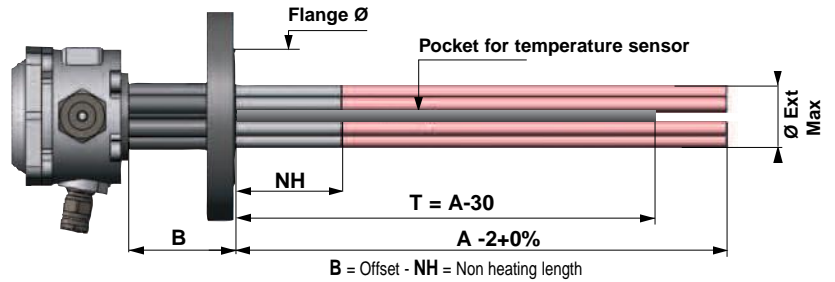
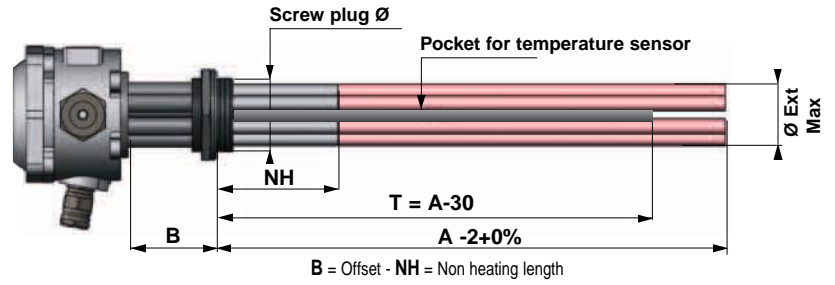
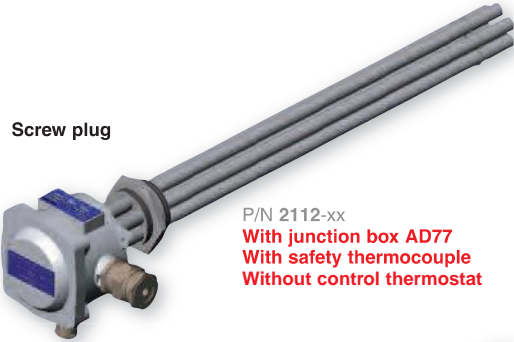
SCREW PLUG 1 1/2 BSPP, M77x200, 2 1/2 BSPP AND FLANGE DN80 II 2 G Ex d IIC TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 65°C



Junction box	AD77 IP 54 (option IP66) Aluminium (available in cast-iron)
Marking	II 2 G Ex d IIC T (1,2,3... see the table)
Room temperature	-20°C up to 40°C (Other on request)
Relative humidity	95% Max
Screw plug or flange material	Stainless steel - scoured and passivated - welded
Heating elements	Stainless steel 316L - scoured and passivated
Safety temperature cut out	Thermocouple (B)

	Qty	Ø screw plug Ø Flange	Power (kW) +5/-10%	Voltage (V)	Marking Temp.	Load (W/cm²)	A (mm)	NH (mm)	B (mm)	Pins Ø (mm)	ØExt Max (mm)	Fluid	P/N.			
Screw plug	3 pins	1 1/2 BSPP	0,5	230	T4	1	400	100	100	10,2	42	Oil	2012-01			
			0,9	230	T6	1,5	400	100	100	10,2	42	Oil	2012-02			
			1,1	230	T6	1,9	400	100	100	10,2	42	Oil	2012-03			
			3,45	230	T6	6	400	100	100	10,2	42	Oil	2012-04			
			0,75	230	T4	1	500	100	100	10,2	42	Oil	2012-05			
			1,15	230	T6	1,5	500	100	100	10,2	42	Oil	2012-06			
			1,45	230	T6	1,9	500	100	100	10,2	42	Oil	2012-07			
			4,6	230	T6	6	500	100	100	10,2	42	Oil	2012-08			
	3 pins	2" BSPP	1,05	230	T4	1	650	100	100	10,2	42	Oil	2012-10			
			1,6	230	T6	1,5	650	100	100	10,2	42	Oil	2012-11			
			2	400	T4	1,9	650	100	100	10,2	42	Oil	2012-12			
			6,4	400	T3	6	650	100	100	10,2	42	Water	2012-13			
	3 pins	2 1/2 BSPP	1,6	400	T6	1	650	100	100	16	72	Oil	2012-20			
			2,5	400	T6	1,5	650	100	100	16	72	Oil	2012-21			
			3,2	400	T4	1,9	650	100	100	16	72	Oil	2012-22			
			10	400	T4	6	650	100	100	16	72	Water	2012-23			
3 pins	M77 x 200	1,6	400	T6	1	650	100	100	16	72	Oil	2012-30				
		2,5	400	T6	1,5	650	100	100	16	72	Oil	2012-31				
		3,2	400	T4	1,9	650	100	100	16	72	Oil	2012-32				
		10	400	T4	6	650	100	100	16	72	Water	2012-33				
Flange	3 pins	DN80 3"	2,5	400	T6	1	950	100	100	16	72	Oil	Flange DN80	P/N. 2016-01	Flange Ø 3"	P/N. 2017-01
			3,9	400	T6	1,5	950	100	100	16	72	Oil	PN16 FS	2016-02	150lbs RF	2017-02
			4,9	400	T4	1,9	950	100	100	16	72	Oil	EN1092-1	2016-03	Standard B16.5	2017-03
			15,3	400	T4	6	950	100	100	16	72	Water		2016-04		2017-04

1 1/2 BSPP, M77x200, 2 1/2 BSPP SCREW PLUG AND DN 80 FLANGE II 2 G Ex d IIC WITH REMOVABLE MONOTUBES TO HEAT OIL UP TO 65°C



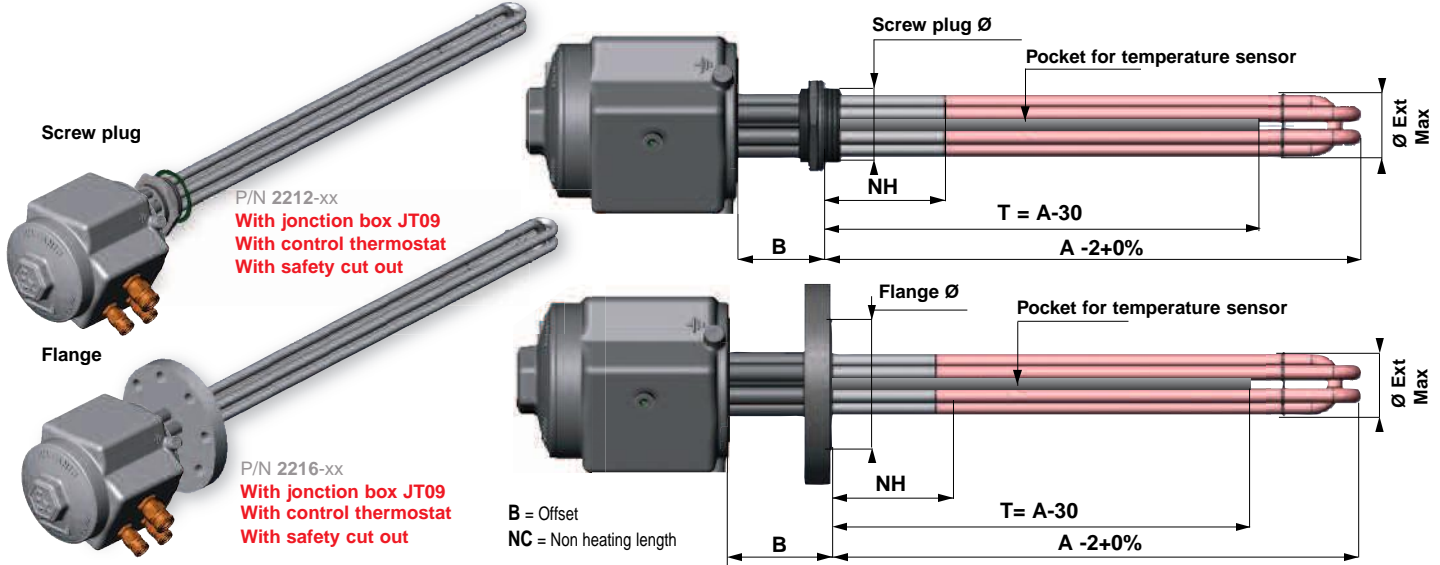
Junction box	AD77 IP 54 Aluminium (available in cast-iron)
Marking	II 2 G Ex d IIC T6
Room temperature	-20°C up to 40°C (Other on request)
Relative humidity	95% Max
Screw plug or flange material	Stainless steel - scoured and passivated - welded
Removable monotubes mounted in pockets	Stainless steel 316L - scoured and passivated
Safety cut out	Thermocouple (B)

	Qty	Ø screw plug Ø Flange	Power (kW) +5/-10%	Voltage (V)	Marking Temp.	Load (W/cm ²)	A (mm)	NH (mm)	B (mm)	ØExt Max (mm)	Fluid	P/N.		
Screw plug	6 monotubes	2 1/2 BSPP	2	400	T6	1	650	100	100	72	Oil	3002-06		
			3	400	T6	1	950	100	100	72	Oil	3002-07		
			4	400	T6	1	1200	100	100	72	Oil	3002-08		
			5	400	T6	1	1450	100	100	72	Oil	3002-09		
			6	400	T6	1	1850	100	100	72	Oil	3002-10		
			6 monotubes	M77 x 200	2	400	T6	1	650	100	100	72	Oil	3002-11
	3	400			T6	1	950	100	100	72	Oil	3002-12		
	4	400			T6	1	1200	100	100	72	Oil	3002-13		
	5	400			T6	1	1450	100	100	72	Oil	3002-14		
	6	400			T6	1	1850	100	100	72	Oil	3002-15		
	Flange	6 monotubes			DN80 3"	2	400	T6	1	650	100	100	72	Oil
			3	400		T6	1	950	100	100	72	Oil	DN80 3002-18	Ø 3" 3003-18
4			400	T6		1	1200	100	100	72	Oil	PN16 FS 3002-19	150lbs RF 3003-19	
5			400	T6		1	1450	100	100	72	Oil	EN1092-1 3002-20	Standard B16.3 3003-20	
6			400	T6		1	1850	100	100	72	Oil	3002-21	3003-21	

EC type examination certificate : LCIE 03 ATEX 6283X



SCREW PLUG 1 1/2 BSPP, M77x200, 2 1/2 BSPP AND FLANGE ND80, ND100 II 2 G Ex d IIC TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 65°C

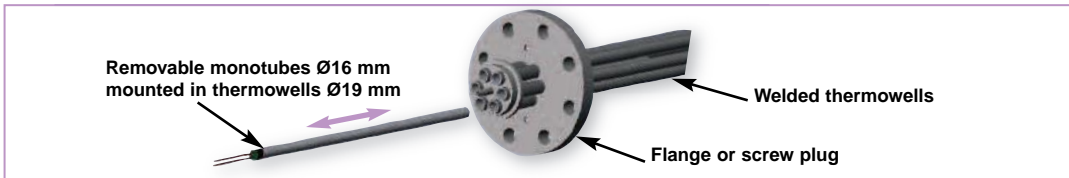
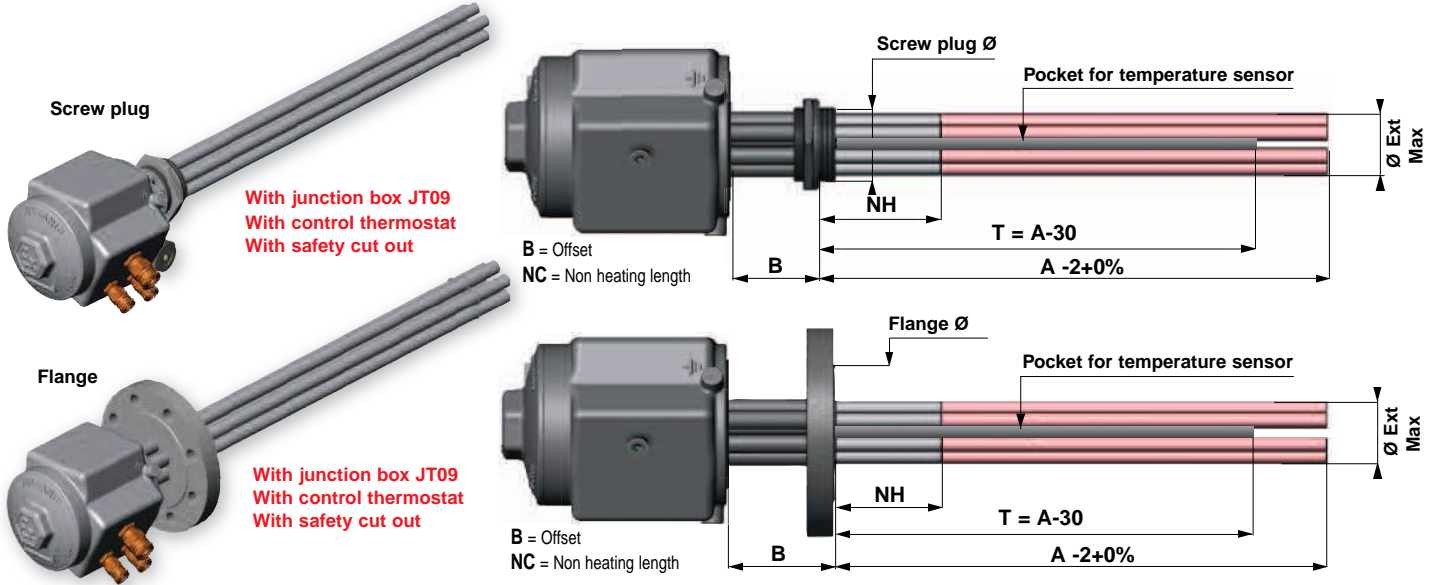


Junction box	JT09 IP 54 (option IP 66) Aluminium (available in cast-iron)
Marking	II 2 G Ex d IIC T (1,2,3... see the table)
Room temperature	-20°C up to 40°C (Other on request)
Relative humidity	95% Max
Screw plug or flange material	Stainless steel - scoured and passivated - welded
Heating elements	Stainless steel 316L - scoured and passivated
Control thermostat	0/70°C - Single pole double-throw contacts - 10A / 230V
Safety cut out (manual reset)	50/300°C - Single pole double-throw contacts - 16A / 230V

	Qty	Ø Screw plug Ø Flange	Power (kW) +5/-10%	Voltage (V)	Marking Temp.	Load (W/cm²)	A (mm)	NH (mm)	B (mm)	Pins Ø (mm)	ØExt Max (mm)	Fluid	P/N.		
Screw plug	3 pins	1 1/2 BSPP	0,5	230	T4	1	400	100	100	10,2	42	Oil	2012-40		
			0,9	230	T6	1,5	400	100	100	10,2	42	Oil	2012-41		
			1,1	230	T6	1,9	400	100	100	10,2	42	Oil	2012-42		
			3,45	230	T6	6	400	100	100	10,2	42	Oil	2012-43		
	6 pins	2" BSPP	1,65	230	T4	1	650	100	100	8	52	Oil	2012-50		
			2,5	230	T6	1,5	650	100	100	8	52	Oil	2012-51		
			3,15	400	T4	1,9	650	100	100	8	52	Oil	2012-52		
			10	400	T3	6	650	100	100	8	52	Water	2012-53		
	6 pins	2 1/2 BSPP	2,15	400	T6	1	650	100	100	10,2	78	Oil	2012-55		
			3,15	400	T6	1,5	650	100	100	10,2	78	Oil	2012-56		
			4	400	T4	1,9	650	100	100	10,2	78	Oil	2012-57		
	6 pins	M77 x 200	2,15	400	T6	1	650	100	100	10,2	78	Oil	2012-60		
3,15			400	T6	1,5	650	100	100	10,2	78	Oil	2012-61			
4			400	T4	1,9	650	100	100	10,2	78	Oil	2012-62			
12,7			400	T4	6	650	100	100	10,2	78	Water	2012-63			
Flange	6 pins	DN80 3"	3,25	400	T6	1	950	100	100	10,2	78	Oil	Flange 2016-10	Flange 2017-10	
			4,9	400	T6	1,5	950	100	100	10,2	78	Oil	DN80 2016-11	Ø 3" 2017-11	
			6,2	400	T4	1,9	950	100	100	10,2	78	Oil	PN16 FS 2016-12	150lbs RF 2017-12	
			19,6	400	T4	6	950	100	100	10,2	78	Water	EN1092-1 2016-13	Standard B16.5 2017-13	
	6 pins	DN100 4"	5,1	400	T4	1	950	100	100	16	102	Oil	2016-15	2017-15	
			7,7	400	T6	1,5	950	100	100	16	102	Oil	DN100 2016-16	Ø 4" 2017-16	
			9,75	400	T4	1,9	950	100	100	16	102	Oil	PN16 FS 2016-17	150lbs RF 2017-17	
			30,75	400	T3	6	950	100	100	16	102	Water	EN1092-1 2016-18	Standard B16.5 2017-18	
	6 pins	DN125 5"	5,1	400	T4	1	950	100	100	16	122	Oil	2016-20	2017-20	
			7,7	400	T6	1,5	950	100	100	16	122	Oil	DN125 2016-21	Ø 5" 2017-21	
			9,75	400	T4	1,9	950	100	100	16	122	Oil	PN16 FS 2016-22	150lbs RF 2017-22	
			30,75	400	T3	6	950	100	100	16	122	Water	EN1092-1 2016-23	Standard B16.5 2017-23	

EC type examination certificate : LCIE 03 ATEX 6283X

1 1/2 BSPP, M77x200, 2 1/2 BSPP SCREW PLUG AND DN 80 FLANGE II 2 G Ex d IIC WITH REMOVABLE MONOTUBES TO HEAT OIL UP TO 65°C



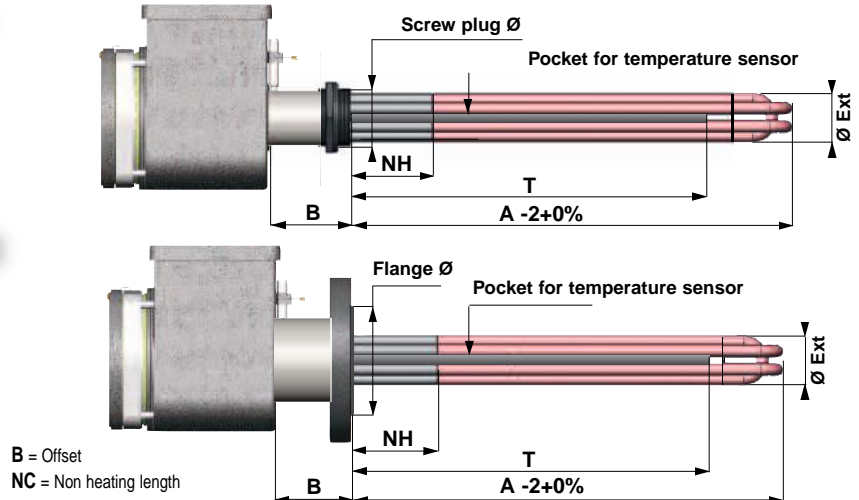
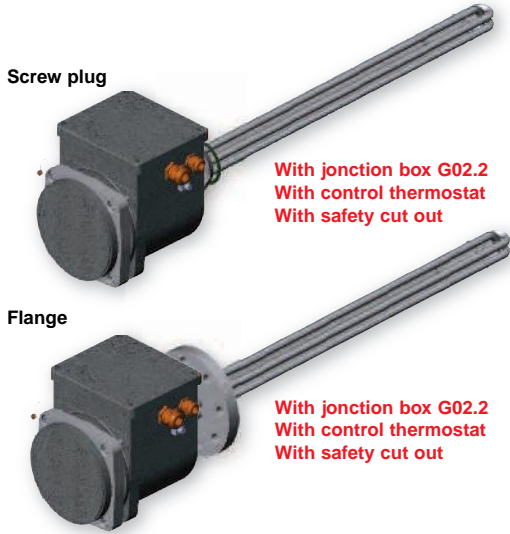
Junction box	JT09 IP 54 (option IP66) Aluminium (available in cast-iron)
Marking	II 2 G Ex d IIC T6
Room temperature	-20°C up to 40°C (Other on request)
Relative humidity	95% Max
Screw plug or flange material	stainless steel - scoured and passivated - welded
Removable monotubes mounted in pockets	316L - scoured and passivated
Control thermostat	0/70°C - Single pole double-throw contacts - 10A / 230V
Safety cut out (manual reset)	50/300°C - Single pole double-throw contacts - 16A / 230V

Qty	Ø Screw plug Ø Flange	Power (kW) +5/-10%	Voltage (V)	Marking Temp.	Load (W/cm ²)	A (mm)	NH (mm)	B (mm)	ØExt Max (mm)	Fluid	P/N.	
Screw plug	2 1/2 BSPP	2	400	T6	1	650	100	100	72	Oil	3002-34	
		3	400	T6	1	950	100	100	72	Oil	3002-35	
		4	400	T6	1	1200	100	100	72	Oil	3002-36	
		5	400	T6	1	1450	100	100	72	Oil	3002-37	
		6	400	T6	1	1850	100	100	72	Oil	3002-38	
		M77 x 200	2	400	T6	1	650	100	100	72	Oil	3002-40
	3		400	T6	1	950	100	100	72	Oil	3002-41	
	4		400	T6	1	1200	100	100	72	Oil	3002-42	
	5		400	T6	1	1450	100	100	72	Oil	3002-43	
	6		400	T6	1	1850	100	100	72	Oil	3002-44	
	Flange		DN80 3"	2	400	T6	1	650	100	100	72	Oil
		3		400	T6	1	950	100	100	72	Oil	DN80 3002-47
4		400		T6	1	1200	100	100	72	Oil	PN16 FS 3002-48	
5		400		T6	1	1450	100	100	72	Oil	EN1092-1 3002-49	
6		400		T6	1	1850	100	100	72	Oil	3002-50	
DN100 4"		5		400	T6	1	800	100	100	102	Oil	DN100 3002-52
		6	400	T6	1	1220	100	100	102	Oil	PN16 FS 3002-53	
		9	400	T6	1	1770	100	100	102	Oil	EN1092-1 3002-54	
		DN125 5"	5	400	T6	1	800	100	100	122	Oil	DN125 3002-56
			6	400	T6	1	1220	100	100	122	Oil	PN16 FS 3002-57
			9	400	T6	1	1770	100	100	122	Oil	EN1092-1 3002-58

EC type examination certificate : LUIE 03 ATEX 6283X



SCREW PLUG 1 1/2 BSPP, M77x200, 2 1/2 BSPP AND FLANGE ND80, ND100, ND125 II 2 G Ex de IIC TO HEAT OIL OR AQUEOUS LIQUIDS UP TO 65°C

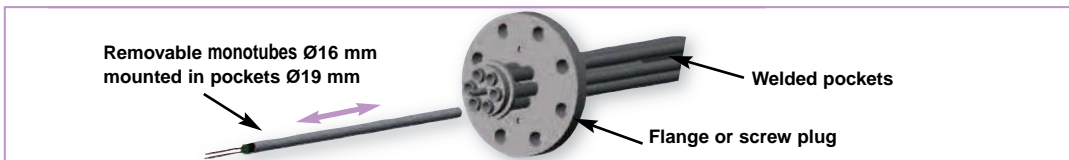
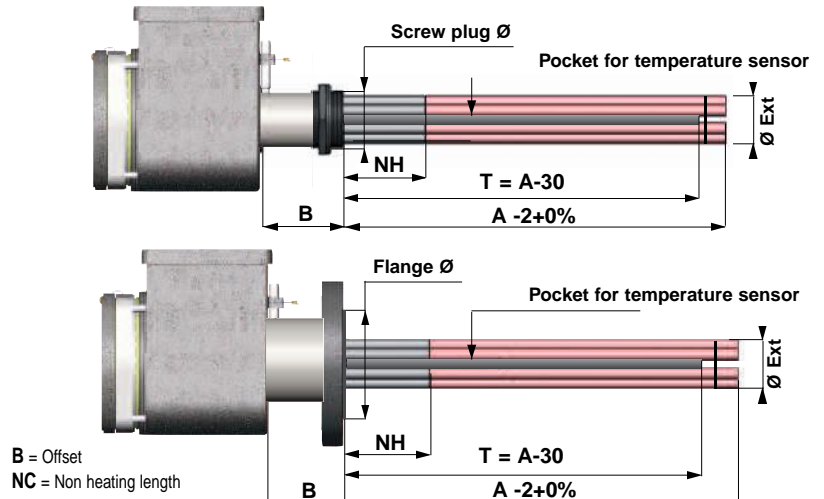


Junction box	G02.2 IP 66 Cast-iron
Marking	II 2 G Ex de IIC T (1,2,3... see the table)
Room temperature	-20°C up to 40°C (Others on request)
Relative humidity	95% Max
Screw plug or flange material	Stainless steel - scoured and passivated - welded
Heating elements	Stainless steel 316L - scoured and passivated
Control thermostat	0/70°C - Single pole double-throw contacts - 10A / 230V
Safety cut out (manual reset)	50/300°C - Single pole double-throw contacts - 16A / 230V

	Qty	Ø Screw plug Ø Flange	Power (kW) +5/-10%	Voltage (V)	Marking. Temp.	Load (W/cm ²)	A (mm)	NH (mm)	B (mm)	Pins Ø (mm)	ØExt Max (mm)	Fluid	P/N.	
													Flange	Flange
Screw plug	3 pins	1 1/2 BSPP	0,5	230	T4	1	400	100	100	10,2	42	Oil	2012-70	
			0,9	230	T6	1,5	400	100	100	10,2	42	Oil	2012-71	
			1,1	230	T6	1,9	400	100	100	10,2	42	Oil	2012-72	
			3,45	230	T6	6	400	100	100	10,2	42	Oil	2012-73	
			0,75	230	T4	1	500	100	100	10,2	42	Oil	2012-74	
			1,15	230	T6	1,5	500	100	100	10,2	42	Oil	2012-75	
			1,45	230	T6	1,9	500	100	100	10,2	42	Oil	2012-76	
	4,6	230	T6	6	500	100	100	10,2	42	Oil	2012-77			
	6 pins	2" BSPP	1,65	230	T4	1	650	100	100	8	52	Oil	2012-80	
			2,5	230	T6	1,5	650	100	100	8	52	Oil	2012-81	
			3,15	400	T4	1,9	650	100	100	8	52	Oil	2012-82	
			10	400	T3	6	650	100	100	8	52	Water	2012-83	
6 pins	2 1/2 BSPP	2,15	400	T6	1	650	100	100	10,2	78	Oil	2012-85		
		3,15	400	T6	1,5	650	100	100	10,2	78	Oil	2012-86		
		4	400	T4	1,9	650	100	100	10,2	78	Oil	2012-87		
		12,7	400	T4	6	650	100	100	10,2	78	Water	2012-88		
6 pins	M77 x 200	2,15	400	T6	1	650	100	100	10,2	78	Oil	2012-90		
		3,15	400	T6	1,5	650	100	100	10,2	78	Oil	2012-91		
		4	400	T4	1,9	650	100	100	10,2	78	Oil	2012-92		
		12,7	400	T4	6	650	100	100	10,2	78	Water	2012-93		
Flange	6 pins	DN80 3"	3,25	400	T6	1	950	100	100	10,2	78	Oil	Flange 2016-30	Flange 2017-30
			4,9	400	T6	1,5	950	100	100	10,2	78	Oil	DN80 2016-31	Ø 3" 2017-31
			6,2	400	T4	1,9	950	100	100	10,2	78	Oil	PN16 FS 2016-32	150lbs RF 2017-32
			19,6	400	T4	6	950	100	100	10,2	78	Water	EN1092-1 2016-33	Standard B16.5 2017-33
	6 pins	DN100 4"	5,1	400	T4	1	950	100	100	16	102	Oil	2016-40	2017-40
			7,7	400	T6	1,5	950	100	100	16	102	Oil	DN100 2016-41	Ø 4" 2017-41
			9,75	400	T4	1,9	950	100	100	16	102	Oil	PN16 FS 2016-42	150lbs RF 2017-42
			30,75	400	T3	6	950	100	100	16	102	Water	EN1092-1 2016-43	Standard B16.5 2017-43
	6 pins	DN125 5"	5,1	400	T4	1	950	100	100	16	122	Oil	2016-50	2017-50
			7,7	400	T6	1,5	950	100	100	16	122	Oil	DN125 2016-51	Ø 5" 2017-51
			9,75	400	T4	1,9	950	100	100	16	122	Oil	PN16 FS 2016-52	150lbs RF 2017-52
			30,75	400	T3	6	950	100	100	16	122	Water	EN1092-1 2016-53	Standard B16.5 2017-53

EC type examination certificate : IBExU 07 ATEX 1164X

1 1/2 BSPP, M77x200, 2 1/2 BSPP SCREW PLUG AND DN 80, DN100, DN125 FLANGE II 2 G Ex de IIC WITH REMOVABLE MONOTUBES TO HEAT OIL UP TO 65°C



Junction box	G02.2 IP 66 Cast-iron
Marking	II 2 G Ex de IIC T (1,2,3... see the table)
Room temperature	-20°C up to 40°C (Others on request)
Relative humidity	95% Max
Screw plug or flange material	Stainless steel - scoured and passivated - welded
Removable monotubes mounted in pockets	Stainless steel 316L - scoured and passivated
Control thermostat	0/70°C - Single pole double-throw contacts - 10A / 230V
Safety cut out (manual reset)	50/300°C - Single pole double-throw contacts - 16A / 230V

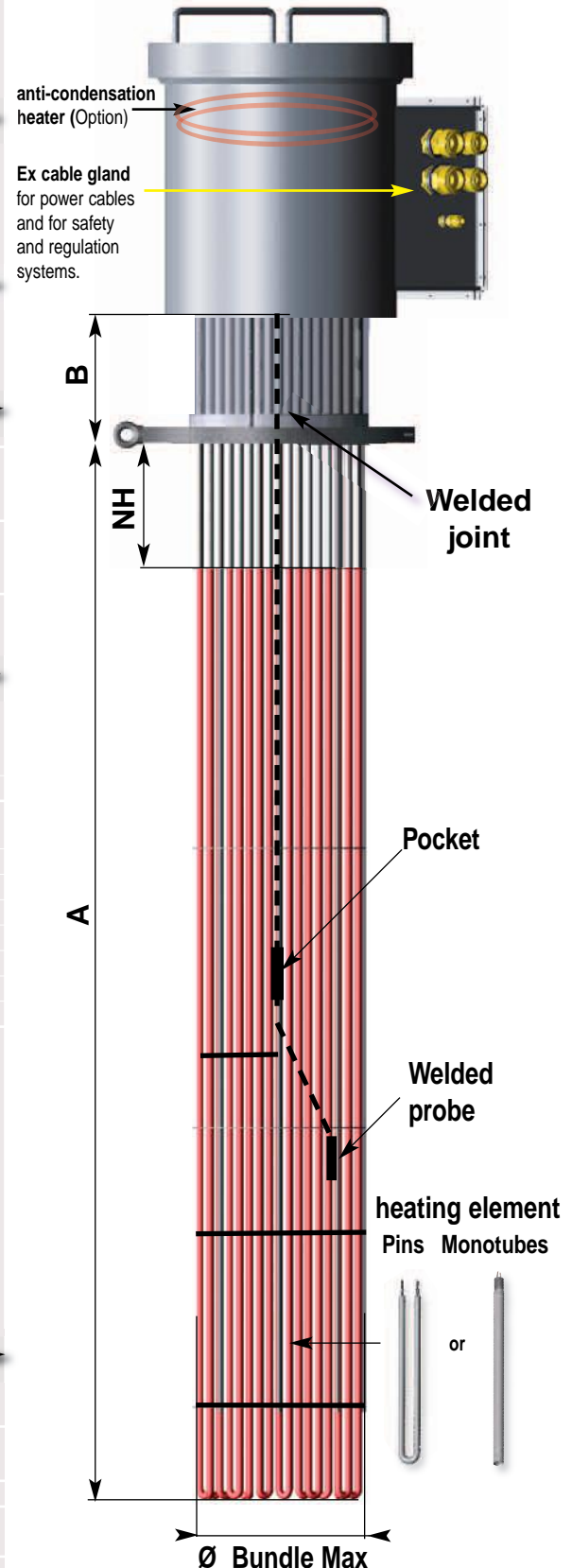
	Qty	Ø screw plug Ø flange	Power (kW) +5/-10%	Voltage (V)	Marking. Marquage	Load (W/cm²)	A (mm)	NH (mm)	B (mm)	ØExt Max (mm)	Liquid	P/N.		
Screw plug	6 monotubes	2 1/2 BSPP	2	400	T6	1	650	100	100	72	Oil	3002-54		
			3	400	T6	1	950	100	100	72	Oil	3002-55		
			4	400	T6	1	1200	100	100	72	Oil	3002-56		
			5	400	T6	1	1450	100	100	72	Oil	3002-57		
			6	400	T6	1	1850	100	100	72	Oil	3002-58		
			6	M77 x 200	2	400	T6	1	650	100	100	72	Oil	3002-60
				3	400	T6	1	950	100	100	72	Oil	3002-61	
				4	400	T6	1	1200	100	100	72	Oil	3002-62	
				5	400	T6	1	1450	100	100	72	Oil	3002-63	
				6	400	T6	1	1850	100	100	72	Oil	3002-64	
	Flange	6 monotubes	DN80 3"	2	400	T6	1	650	100	100	72	Oil	Flange 3002-66	Flange 3003-66
				3	400	T6	1	950	100	100	72	Oil	Flange 3002-67	Flange 3003-67
4				400	T6	1	1200	100	100	72	Oil	Flange 3002-68	Flange 3003-68	
5				400	T6	1	1450	100	100	72	Oil	PN16 FS 3002-69	150lbs RF 3003-69	
6				400	T6	1	1850	100	100	72	Oil	EN1092-1 3002-70	Standard B16.5 3003-70	
5				400	T6	1	800	100	100	102	Oil	DN100 3002-72	Ø 4" 3003-72	
6 monotubes		DN100 4"	6	400	T6	1	1220	100	100	102	Oil	PN16 FS 3002-73	150lbs RF 3003-73	
			9	400	T6	1	1770	100	100	102	Oil	EN1092-1 3002-74	Standard B16.5 3003-74	
			5	400	T6	1	800	100	100	122	Oil	DN125 3002-76	Ø 5" 3003-76	
		DN125 5"	6	400	T6	1	1220	100	100	122	Oil	PN16 FS 3002-77	150lbs RF 3003-77	
			9	400	T6	1	1770	100	100	122	Oil	EN1092-1 3002-78	Standard B16.5 3003-78	

EC type examination certificate : IBExU 07 ATEX 1164X



SPECIFICATIONS: DN150 (6") UP TO DN500 (20")

FLANGE		DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
		6"	8"	10"	12"	14"	16"	18"	20"	
Type		2010								
JUNCTION BOX										
Protection modes Ex		d	e	de	d	e	de	d	e	de
Cast iron										
Aluminium										
Steel										
Stainless steel										
TERMINALS										
Heating elements										
Pins Ø10,2 mm		M5		M5		M5				
Pins Ø16 mm		M6		M6		M6				
Monotubes Ø16 mm		Wire		Wire		Wire		Wire		
Sealing		WP+160		WP+160		WP+160		WP+160		
Coupling		3P (Delta or star)								
OFFSET B										
B = 250 (mm)		Horizontal immersion heater - Temperature class T6 up to T3								
B = 450 (mm)		Horizontal immersion heater - Temperature class T1 à T2								
		In the case of an immersion heater has vertical or inclined mounting, contact us.								
FLANGE										
Material		Carbon steel - Stainless steel 304L - 316L - 316Ti								
Flange: EN 1092-1 NP bar		DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
		NP10 to NP63								
Flange: ASME B16.5 ND Class lbs		6"	8"	10"	12"	14"	16"	18"	20"	
		150 - 300 - 400 - 600								
End flange facings		Flate face - Raised face Male face - Female face - Groove face								
HEATING ELEMENTS										
Quantity		DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
Pins Ø10,2 mm		15	27	45	66	78	102	165	174	
Pins Ø16 mm		9	18	27	39	51	57	90	99	
Monotubes Ø16 mm		18	36	54	78	102	114	180	198	
Ø Max of the bundle (mm)		151	197	245	290	317	362	416	460	
Material DN 150 to 500		Pins 10,2		Pins 16		Monotubes 16				
Z2 316L/DIN 1.4404		X		X		X				
Z6 321/DIN 1.4541		X		X		X				
Incoloy 800/DIN 1.4876				X						
Incoloy 825/DIN 2.4858				X						
Steel		X		X		X				
904L/DIN 1.4539		X								
Treatment		Without - scoured - scoured and passivated - Electro polished								
Dimensions (mm)		DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	
Tolerance on A length Max = A + B		-2% +0 with mini -10								
		3200mm (Pins Ø10,2 - Ø16) - 2500mm (Monotubes Ø16) (Other leght contact us)								
A Min		450	550	650	750	900	1000	1150	1250	
NC Min		150	150	150	150	200	200	250	250	
Specific load Max - W/Cm ²		Depending on customers application								
Voltage Max		500 V (Pins Ø10,2 and monotubes Ø16) - 750 V (Pins Ø16)								
SAFETY DEVICES										
Fluid	Class	Probe			Assembly					
Liquid	T1 or T2	Thermocouple			mounted in a pocket					
		Thermocouple			welded on heating element					
Liquid	T3 to T6	Fuse probe			mounted in a pocket					
		Thermocouple			mounted in a pocket					
		Thermocouple			welded on heating element					
		Thermostat 50/300°C			mounted in a pocket					
Gas	T1 to T6	Thermostat 50/300°C			welded on heating element					
		Thermocouple			welded on heating element					

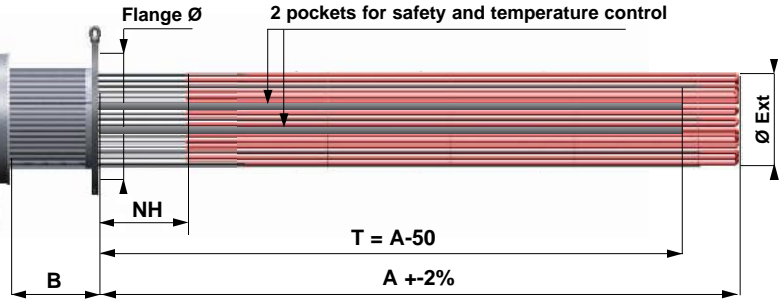


DN 150 UP TO DN 500 FLANGE TO HEAT OIL UP TO 65°C II 2 G Ex de IIC

P/N 2010-xx with pins
 P/N 2019-xx with removable monotubes
Junction box Ex de with control thermostat and safety cut out



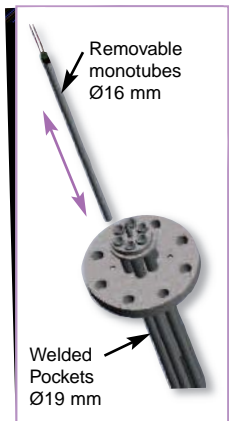
B = Offset NH = Non heating length



Flange DN150 up to DN500
 NP16 RF (EN1092-1)
 Flange DN6" to DN20"
 150lbs RF (Standard B16.5)

Marking	II 2 G Ex de IIC T (1,2,3... see table)
Room temperature - Relative humidity (Hr)	-20°C up to 40°C (other on request) - Hr = 95% Max
Flange	Stainless steel - scoured and passivated - welded
Pins Ø16 or monotubes mounted in pockets Ø19	Stainless steel 316L - scoured and passivated
Control thermostat	0/70°C - Single pole double-throw contacts - 10A / 230V
Safety cut out (manual reset)	50/300°C - Single pole double-throw contacts - 16A / 230V

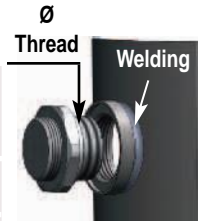
Quantity of heating elements	Liquid	Power (kW) +5/-10%	Voltage (V)	Marking	Load (W/cm ²)	A (mm)	NH (mm)	B (mm)	ØExt Max (mm)	Ø flange	P/N.	Ø flange	P/N.
Pins	Oil	10	400	T6	1,9	750	150	250	151	DN150	2010-05	6"	2010-55
		15	400	T6	1,9	1050	150	250	151		2010-06		2010-56
		20	400	T6	1,9	1350	150	250	151		2010-07		2010-57
		31	400	T6	1,9	1950	150	250	151		2010-08		2010-58
		39	400	T6	1,9	2450	150	250	151		2010-09		2010-59
		48	400	T6	1,9	2950	150	250	151		2010-10		2010-60
	Oil	31	400	T6	1,9	1050	150	250	197	DN200	2010-11	8"	2010-61
		41	400	T6	1,9	1350	150	250	197		2010-12		2010-62
		61	400	T6	1,9	1950	150	250	197		2010-13		2010-63
		79	400	T6	1,9	2450	150	250	197		2010-14		2010-64
		96	400	T6	1,9	2950	150	250	197		2010-15		2010-65
		62	400	T6	1,9	1350	150	250	245		DN250		2010-16
	93	400	T6	1,9	1950	150	250	245	2010-17	2010-67			
	118	400	T6	1,9	2450	150	250	245	2010-18	2010-68			
	144	400	T6	1,9	2950	150	250	245	2010-19	2010-69			
	Oil	89	400	T6	1,9	1350	150	250	290	DN300	2010-20	12"	2010-70
		134	400	T6	1,9	1950	150	250	290		2010-21		2010-71
		171	400	T6	1,9	2450	150	250	290		2010-22		2010-72
208		400	T6	1,9	2950	150	250	290	2010-23		2010-73		
Oil	170	400	T6	1,9	1950	200	250	317	DN350	2010-24	14"	2010-74	
	219	400	T6	1,9	2450	200	250	317		2010-25		2010-75	
	268	400	T6	1,9	2950	200	250	317		2010-26		2010-76	
Oil	190	400	T6	1,9	1950	200	250	362	DN400	2010-27	16"	2010-77	
	245	400	T6	1,9	2450	200	250	362		2010-28		2010-78	
	299	400	T6	1,9	2950	200	250	362		2010-29		2010-79	
Oil	416	400	T6	1,9	2450	250	250	460	DN500	2010-30	20"	2010-80	
	510	400	T6	1,9	2950	250	250	460		2010-31		2010-81	
Removable monotubes	Oil	6,5	400	T6	1	750	150	250	151	DN150	2019-01	6"	2019-51
		10	400	T6	1	1050	150	250	151		2019-02		2019-52
		13	400	T6	1	1350	150	250	151		2019-03		2019-53
		19	400	T6	1	1950	150	250	151		2019-04		2019-54
		24,5	400	T6	1	2450	150	250	151		2019-05		2019-55
		30	400	T6	1	2950	150	250	151		2019-06		2019-56
	Oil	19	400	T6	1	1050	150	250	197	DN200	2019-07	8"	2019-57
		25	400	T6	1	1350	150	250	197		2019-08		2019-58
		38	400	T6	1	1950	150	250	197		2019-09		2019-59
		49	400	T6	1	2450	150	250	197		2019-10		2019-60
		60	400	T6	1	2950	150	250	197		2019-11		2019-61
		Oil	38	400	T6	1	1350	150	250		245		DN250
	57		400	T6	1	1950	150	250	245	2019-13	2019-63		
	74		400	T6	1	2450	150	250	245	2019-14	2019-64		
	90		400	T6	1	2950	150	250	245	2019-15	2019-65		
	Oil	55	400	T6	1	1350	150	250	290	DN300	2019-16	12"	2019-66
		83	400	T6	1	1950	150	250	290		2019-17		2019-67
		106	400	T6	1	2450	150	250	290		2019-18		2019-68
130		400	T6	1	2950	150	250	290	2019-19		2019-69		
Oil	105	400	T6	1	1950	200	250	317	DN350	2019-20	14"	2019-70	
	136	400	T6	1	2450	200	250	317		2019-21		2019-71	
	166	400	T6	1	2950	200	250	317		2019-22		2019-72	
Oil	118	400	T6	1	1950	200	250	362	DN400	2019-23	16"	2019-73	
	152	400	T6	1	2450	200	250	362		2019-24		2019-74	
	186	400	T6	1	2950	200	250	362		2019-25		2019-75	
Oil	258	400	T6	1	2450	250	250	460	DN500	2019-28	20"	2019-76	
	317	400	T6	1	2950	250	250	460		2019-29		2019-77	



ACCESSORIES FOR SCREW PLUG AND FLANGE IMMERSION HEATERS

Wave stop LID
Avoid the distortion due to the welding assembly
Screw the wave stop LID before welding

Ø Thread	P/N.	Description
M45 x200	9639-00	Carbon steel lid
	9639-01	304L lid
M77 x200	9640-00	Carbon steel lid
	9640-01	316L lid

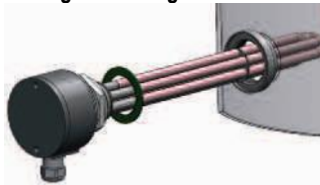


SPANNER WIDTH	
P/N.	Description
M77 2"1/2	4510-99 96 Pipe wrench
1"1/2 - 2" M45	4509-99 62 Pipe wrench
M77 2"1/2	4511-99 96 Pipe wrench
1"1/2 - 2" M45	4512-99 62 openend spanner

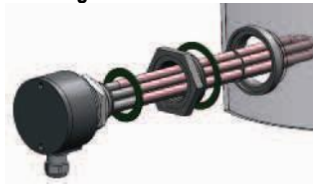
Only for screw plug without junction box



Mounting on welding sleeve

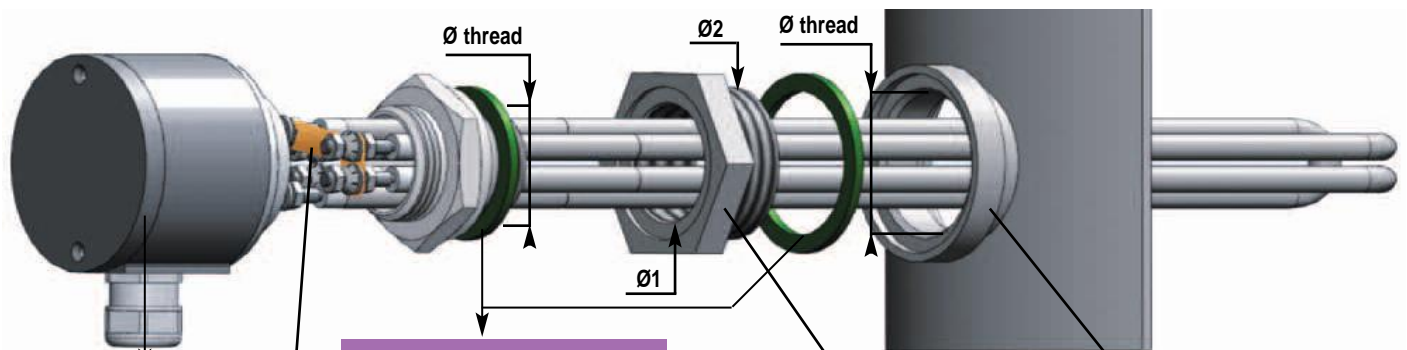
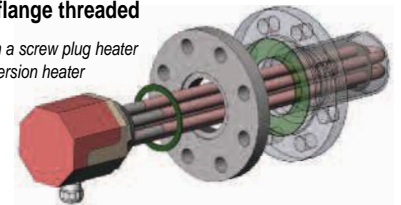


Mounting with reduction sleeve



Mounting on flange threaded

Allows to transform a screw plug heater M77 in flange immersion heater



JUNCTION BOX CONTROL THERMOSTAT CABLE GLAND
SEE ON PAGES 41-42-43

GASKET		
Ø Thread	P/N.	Description
1/4" BSPP	51931-10	Set of 10 Metalo Plastic gasket
	52073-01	1 Copper gasket
1"1/2 BSPP	51935-10	Set 10 Metalo plastic gasket
	52074-01	1 Copper gasket
2" BSPP	51937-10	Set of 10 Klingersil gasket
	51939-10	Set of 10 Klingersil gasket
2"1/2 BSPP	51934-10	Set of 10 Klingersil gasket
	51954-10	Set of 10 Metalo plastic gasket
M45 x200	51938-10	Set of 10 Klingersil gasket
	51958-10	Set of 10 Metalo plastic gasket

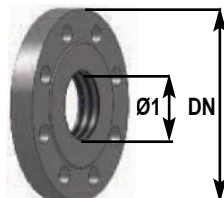
REDUCTION SLEEVE THREADED			
Ø1	P/N.	Material	Ø2
1"1/2 BSPP	52078-01	Copper brass	2" BSPP
M45 x200	4527-01	Carbon steel	M77 x200
	4527-08	Stainless steel	

REDUCTION FLANGE THREADED			
Transform a screw plug in flange imm. heater			
Ø1	P/N.	Description	DN
M77 x200	2081-89	Flange NP16 FS Carbon steel A37	DN80
	2081-88	Flange NP16 FS 316L	DN80
	2081-87	Flange NP16 FS 316L	DN100

WELDING SLEEVE		
Ø Thread	P/N.	Description
1"1/2 BSPP	52079-01	Sleeve 304L
	52080-01	Sleeve 316L
	52081-01	Sleeve Carbon steel
M45 x200	9623-01	Sleeve Carbon steel
	9623-03	Sleeve 304L
M77 x200	9624-01	Sleeve Carbon steel
	9624-03	Sleeve 304L
	9624-04	Sleeve 316L

Copper connections clips	
52732-01	3 heating elements
52732-02	6 heating elements
52732-03	9 heating elements
Ø8 mm with threaded terminals M4	
52732-10	3 heating elements
52732-11	6 heating elements
52732-12	9 heating elements
Ø10,2 mm with threaded terminals M5	
52732-23	3 heating elements
52732-26	6 heating elements
Ø16 mm with threaded terminals M6	

Each set contains right-angled connection clips for cross pattern circuits in single or triple phases with delta, star or parallell coupling according the instruction manual supplied with the immersion heater.



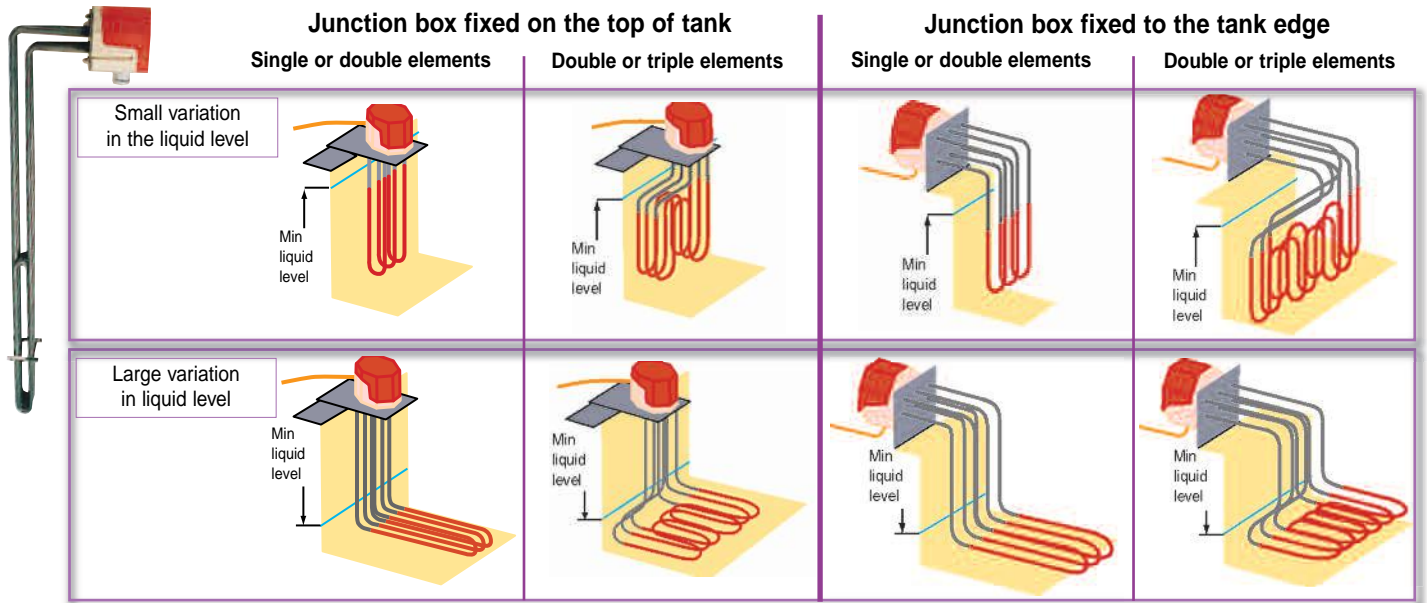
SELECTING YOUR REMOVABLE IMMERSION HEATER

Removable immersion heaters are the best way to heat up liquids in open containers.

The application of an immersion heater determines its shape and dimensions.

Therefore, it is necessary to know the properties of the liquid to be heated, the volume of the tank, the time required for the rise in temperature, and the minimum depth of liquid in the tank. On the basis of this information your Vulcanic expert will be able to select you the right immersion heater.

The diagrams opposite, show a selection of VULCANIC products range and shapes.

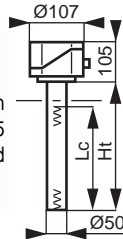


CARBON STEEL WITH ALUMINIUM COATING



For Oil (2 W/cm²), water and alkaline baths.

Consists of a ceramic core element in an aluminium plated steel tube, with IP 55 IK5 junction box in fiberglass reinforced polyamide and cable gland Iso 20 bis.



P/N.	Power. +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
5005-01	1000 W	230V mono	2	450	350	2
5005-07	2000 W	230V mono.	4	450	350	2
5005-02	2000 W	230V mono	2	700	600	3
5005-08	3000 W	230V mono	4	700	550	3
5005-03	3000 W	230V mono	2	900	750	3,5
5005-09	4000 W	230V Tri	4	900	700	3,5

Accessories for types 5005 and 5150 :

- Stainless steel fixing bracket for horizontal tank edge fitting. P/N. 5090-01 (weight 0,04 Kg)

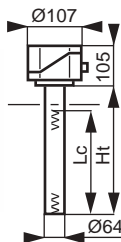


STAINLESS STEEL 304L/DIN 1.4306



For water and very dilute acids.

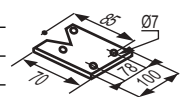
Consists of a ceramic core element in a stainless steel tube with IP 55 IK5 junction box in fiberglass reinforced polyamide 6/6 and cable gland ISO 20 bis.



P/N.	Power. +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
5150-01	1000 W	230V mono	2	450	350	2
5150-04	2000 W	230V mono	4	450	350	2
5150-02	2000 W	230V mono	2	700	600	3
5150-05	3000 W	230V mono	4	700	500	3
5150-03	3000 W	230V mono	2	900	750	3,5
5150-06	4000 W	230V Tri	4	900	600	3,5

Stainless steel fixing bracket for horizontal tank edge fitting. P/N.5145-01

- (weight 0,04 Kg)

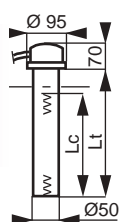


TITANIUM



For chrome baths.

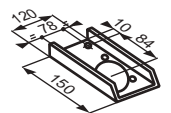
Consists of a ceramic core element in a titanium tube with sealed neoprene junction box. Connection by cable, length approx.1,5 m.



P/N.	Power. +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
5126-01	1000 W	230V mono	1,8	450	350	2,2
5126-04	2000 W	230V mono	3,6	450	350	2,2
5126-02	2000 W	230V mono	1,8	700	600	2,9
5126-05	3000 W	230V mono	3,6	700	550	2,9
5126-03	3000 W	230V mono	1,8	900	750	3,6
5126-06	4000 W	230V Tri	3,6	900	700	3,6
5126-07	4000 W	400V Tri	3,6	900	700	3,6

Accessories for types 5126-5019 :

- Stainless steel fixingbracket P/N. 9652-01 (weight 0,135 kg)



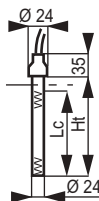
QUARTZ



For laboratory acid baths

Consists of a small-diameter ceramic core element in a quartz tube with acid-resistant rubber box.

Connection by cable, length approx. 1,5 m

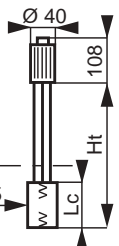


P/N.	Power. +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
5019-04	300 W	230V mono	3	250	150	0,4

SCOURED AND PASSIVATED STAINLESS STEEL 316L / Din 1.4404

For oil use 2 W/cm² maxi, water and aqueous solutions

Consists of a sheathed tube wound into a vertical coil, with bakelite handle and gland Iso 20.



P/N.	Power +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)	P/N.	Power +5 -10%	Voltage	Specific load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
4536-01	500 W	230V mono	2	265	60	0,9	4536-07	1500 W	230V mono	2	1150	190	2
4536-05	500 W	230V mono	2	665	60	1,2	4536-11	2000 W	230V mono	4	550	140	1,3
4536-02	1000 W	230V mono	2	400	140	1,2	4536-04	2000 W	230V mono	2	700	250	1,9
4536-10	1000 W	230V mono	4	415	60	1	4536-14	2000 W	230V mono	4	950	140	1,6
4536-13	1000 W	230V mono	4	715	60	1,2	4536-08	2000 W	230V mono	2	1000	250	2,2
4536-06	1000 W	230V mono	2	900	140	1,6	4536-12	3000 W	230V mono	4	700	190	1,7
4536-03	1500 W	230V mono	2	550	190	1,6	4536-15	3000 W	230V mono	4	1200	190	2

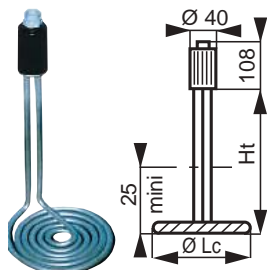
SCOURED AND PASSIVATED STAINLESS STEEL 316L / Din 1.4404

For oil (2 W/cm²), water and aqueous solutions

Consists of a sheathed tube wound into a horizontal coil, with bakelite handle and gland Iso 20.

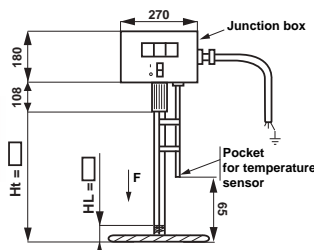
To order a model with integral probe and temperature controllers, replace '4544' with '4548'.

P/N.	Power +5 -10%	Voltage	Load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)	P/N.	Power +5 -10%	Voltage	Load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
4544-01	500 W	230V mono	2	220	120	0,9	4544-07	1500 W	230V mono	2	1020	210	2
4544-05	500 W	230V mono	2	620	120	1,2	4544-11	2000 W	230V mono	4	470	170	1,3
4544-02	1000 W	230V mono	2	320	170	1,2	4544-04	2000 W	230V mono	2	520	230	1,9
4544-10	1000 W	230V mono	4	370	120	1	4544-14	2000 W	230V mono	4	870	170	1,6
4544-13	1000 W	230V mono	4	670	120	1,2	4544-08	2000 W	230V mono	2	820	230	2,2
4544-06	1000 W	230V mono	2	820	170	1,6	4544-12	3000 W	230V mono	4	570	210	1,7
4544-03	1500 W	230V mono	2	420	210	1,6	4544-15	3000 W	230V mono	4	1070	210	2

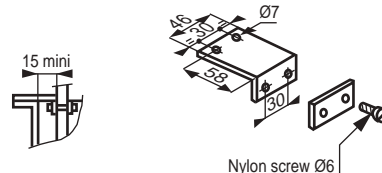


Model with temperature sensor and digital control thermostat.

To order a model with temperature sensor and integrated digital controller thermostat, replace '4544' with '4548'



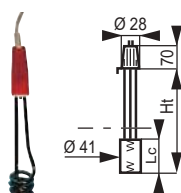
Accessories : • Stainless steel fixing bracket for horizontal tank edge fitting (weight 0,07 kg). P/N. 5144-01



NICKEL-PLATED COPPER

For water and laboratory aqueous solutions

Consists of a sheathed tube wound into a vertical coil, with premould polyamid handle, hook to attach to container edge and connecting cable, length 1m.



P/N.	Power +5 -10%	Voltage	Load (W/cm ²)	Ht (mm)	Lc (mm)	Weight (kg)
4536-16	600 W	230V mono	6	150	55	0,185
4536-17	1000 W	230V mono	6	190	90	0,230

REMOVABLE IMMERSION HEATERS FOR LARGE HEIGHTS

Immersion heater designed to heat liquids in tall open containers. Special features of these immersion heaters are the method of fixing the heating elements and the rising tube.

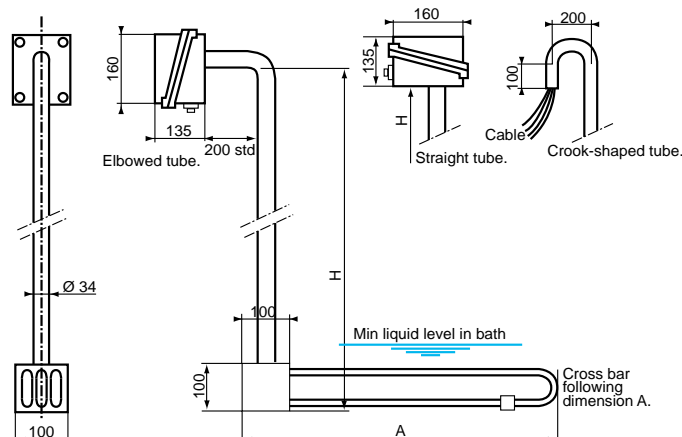
The heating elements are welded into a sealed box. The electric cables between the elements and the connecting box are protected by a large diameter rising tube.

Powers available :

- 3 kW up to 13,5 kW : for fuel
- 3 kW up to 30 kW : for water
- 18 kW up to 40 kW : for circulating water.

Gland Iso 25 up to 18kW.

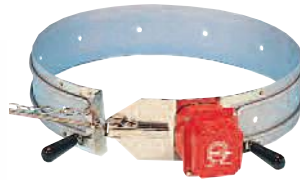
Gland Iso 40 up to 36kW.



Different electrical output .

HEATING BELTS FOR DRUMS

Leakproof models allowing the heating of viscous products in drums, such as wax, grease, pomade, gelatin, organic acids, tar, asphalt, coal-tar... Light, easy to install, robust, these heating belts avoid all carbonization of the product because of its large surface (load 1w/cm²). To be installed on the bottom. Male and female plugs supplied. Voltage : 230V 1P. Height 120mm. For drums 50 to 500 litres up to 200°C Supply voltage : 230 VAC. 1P
On request : Supply voltage 110 VAC, Other thermostat -5 to 40 °C



Option: Thermostat range 0 / + 200°C, controls the temperature of the product to be heated.

P/N. without Thermostat	P/N. with Thermostat	Power. +5 -10%	Ø Range (mm)	Weight (kg)
7507-01	7507-02	2500 W	570-615	6,3
7507-15	7507-16	1000 W	350-370	4,2
7507-13	7507-14	1000 W	370-395	4,4
7507-11	7507-12	1250 W	395-420	4,8
7507-09	7507-10	1250 W	420-445	5,1
7507-07	7507-08	1500 W	445-490	5,4
7507-05	7507-06	1750 W	490-530	6,0
7507-03	7507-04	2000 W	530-570	6,4
7507-17	7507-18	2500 W	610-650	7,3
7507-19	7507-20	2500 W	650-710	7,8

FLEXIBLE HEATING BELTS FOR DRUMS

Flexible models with high mechanical strength fitted with an adjustable thermostat 20/120°C. Designed to heat drums from 25 to 200 litres according to the model, these belts consist of a heating element embedded in a flexible silicone panel. Power supply cable length : 2m.
Voltage : 230V 1P. Electrical box : 115 x 70 x 60 - Protection class : IP 43

Spare part : Female connector P/N. 9565-01 (weight 0,04 kg).
Control thermostat (IP 42 IK 7) : 7507-99.



P/N.	Ø range (mm)	Height (mm)	Capacity (l)	Power. +5-10%	Weight (kg)
7531-01	577/605	125	200	1000 W	2,2
7531-02	463/490	125	120	800 W	2
7531-03	320/330	125	55	500 W	1,5
7531-04	275/285	125	25	300 W	2,2
7531-05	350/360	125	60	600 W	1,5
7531-10	577/605	180	200	1000 W	2,2
7531-15	577/605	180	200	1500 W	2,2

DRUM HEATERS FOR PLASTIC DRUMS

The heaters are specifically designed to melt or reduce the viscosity of soap, fats, varnishes and oil based type of products. This drum heater is stitched into an insulated jacket made from a water-resistant Teflon/Polyester material, insulated with glass filament complete, with quick release buckles for ease of installation and removal. The heating elements are made of double insulated construction for safety. Each heater is fitted with a control thermostat (0/90°C). Flexible tough rubber sheathed supply cable, length 3 m.
Supply voltage : 230 VAC. 1P
On request : Supply voltage 110 VAC, Other thermostat -5 to 40 °C



P/N.	Circumference (mm)	Height (mm)	Capacity (l)	Power +5-10%
7535-05	1020	400	25	200 W
7535-07	1250	460	50	250 W
7535-08	1650	370	105	400 W
7535-06	1950	450	200	450 W

GAS BOTTLE HEATER

This gas bottle heater is designed with a flexible heating red face and an insulated blue face. Temperature maintenance up to 55°C max, by compensating the bottle cooling down due to the gas expansion, and thus to avoid the pressure fall which prevents gas from flowing out the bottle.
• 2 heating sections which are regulated separately.
• Protection : IP54.
• Main supply length : 3000 mm.



REF.	Ø (mm)	Height (mm)	Voltage (V)	Power +5-10%
7535-10	220 up to 260	1450	230	400 W

CONTAINER HEATERS

The container heaters are designed to heat products stored in 1000 litre intermediate bulk containers. Two types of heaters are available.
• The 7540-01/ 02 is a silicone mat heater for placement **below** the container liner before filling. An insulation jacket covering four sides and the lid is also available to aid warming up time.
Performance : - water temp. from 15°C to 70°C in 42 hours (without insulated jacket)
- water temp. from 15°C to 70°C in 30 hours (with insulated jacket)
• The 7540-03/ 04, an insulated nylon heater jacket, which covers all four sides and has an optional insulated lid.
Performance : - water temp. from 15°C to 55°C in 56 hours (without insulated lid)
- water temp. from 15°C to 80°C in 56 hours (with insulated lid)
On request (7540-03/04) : - supply voltage 110 VAC
- other thermostat -5 / + 40 °C

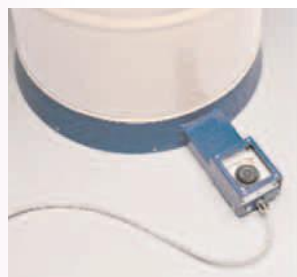


P/N.	Power. +5-10%	Voltage (V)	Thermostat	Jacket Insulated
7540-01	2700 W	230	0/90°C	no
7540-02	2700 W	230	0/90°C	yes

P/N.	Power. +5-10%	Voltage (V)	Thermostat	Jacket Insulated	Lid Insulated
7540-03	2x1000 W	240	0/90°C	yes	no
7540-04	2x1000 W	240	0/90°C	yes	yes

DRUM WRAPPING HEATERS

These wrapping heating systems are especially designed to heat drums, allow to liquefy products such as asphalt, grease, resin... Composed of a metal base plate, protected by a high temperature coating with a diameter of 600 mm, this heater especially designed for the 200 litre drums. The heated plate is equipped with a thermostat 0 / 150 ° C
Supply cable length = 2 m
Dimensions plate: Ø = 600mm H = 70mm
Overall dimensions L = 880mm s = 600 mm H = 105 mm



P/N.	Power +5-10%	Voltage (V)	Weight (kg)	Description
7535-55	900 W	230 mono	20	base

CIRCULAR PTFE TANK BOTTOM HEATERS

Especially suited for frost protection and made of fluoropolymer, the circular heaters allows heating or maintenance of temperature of corrosive chemical baths in storage tanks.

The flexible heating element is fixed to a flexible circular support. This form allows insertion into a tank through a 'manhole'.

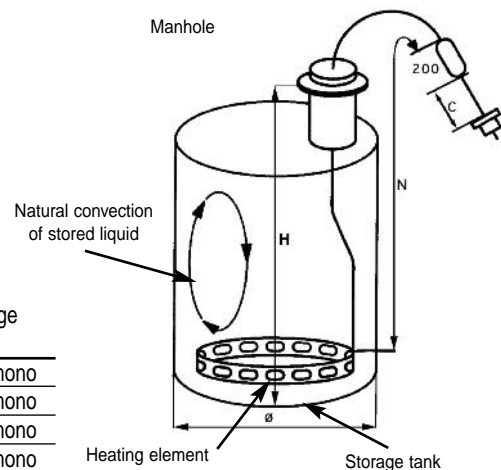
Diam 200mm min. with models A to F

Diam 500mm .min with models G to K.

Circular PTFE heaters offer a simple, economical solution for heating liquids in storage tanks.

Made of Teflon®

Load 1 W/cm², max. temperature 90°C, without gland.



Model	Ø Element (mm)	Power (kW)	Voltage (V)
A	600	1	230 mono
B	600	2	230 mono
C	900	1	230 mono
D	900	3	230 mono
E	1100	1	230 mono
F	1100	6	400 Tri
G	1500	2	230 mono
H	1500	9	400 Tri
J	1900	3	230 mono
K	1900	12	400 Tri

No Type	Coating	Frame in
26495	FEP	PVDF
26458	PFA	PVDF
26497	FEP	PP
26468	PFA	PP

Important : Types 26458 A to K are supplied without gland (90°C max.) ; other models can be operated up to 100°C when fitted with a sealing gland. Other options on request : single phase or three phase voltage, intermediate powers and loads, cable entry via gland or flange. Teflon® -coated PT 100 probe or TC/J thermocouple positioned on the descending supply cable. Dimensions N and C are tailor made.

When ordering state : PTFE immersion heater : Type : Model : - Frame in : PVDF or PP
Power (kW) : - Voltage (V) : - Dimension N (mm) : - Dimension C (mm) : - Dimension H (mm) :
IMPORTANT : Dimension N is the length of cable between the heating element and the connection. It must be long enough for the connector to be clear of vapour.

Polytetrafluoroethylene (PTFE) is a fluoropolymer. Other polymers with similar composition are known under the Teflon name: **Fluorinated ethylene-propylene (FEP)** and **perfluoroalkoxy polymer resin (PFA)**. They retain the useful properties of PTFE.
Polypropylene (PP) is a thermoplastic polymer.

CYLINDRICAL PTFE IMMERSION HEATERS

When ordering state :

PTFE immersion heater : Type :

Model : - Frame in : PVDF or PP

Power (kW) : - Voltage (V) :

Dimension N (mm) : - Dimension C (mm) : - Dimension X (mm)

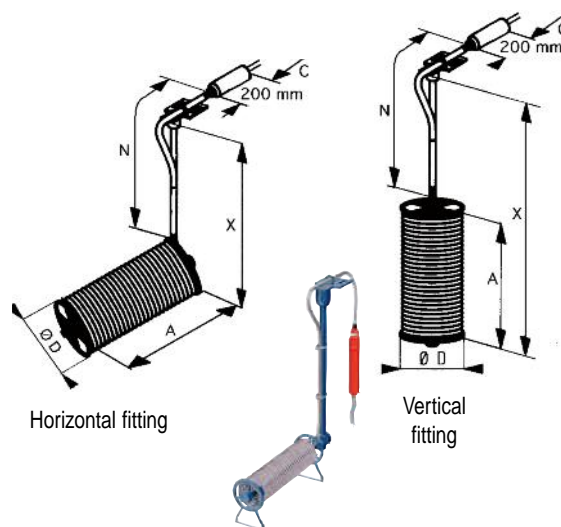
Horizontal or vertical fitting.

IMPORTANT : Dimension N is the length of cable between the heating element and the connection. It must be long enough for the connector to be clear of vapor.

Horizontal fitting		
No Type	Coating	Frame in
26477	FEP	PVDF
26456	PFA	PVDF
26487	FEP	PP
26466	PFA	PP
Vertical fitting		
No Type	Coating	Frame in
26475	FEP 1 couche	PVDF
26451	PFA 2 couches	PVDF
26485	FEP 1 couche	PP
26461	PFA 2 couches	PP

Dimensions N, C et X are made to order

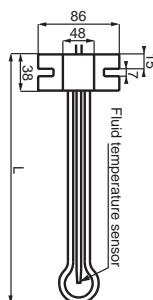
Model	Power ± 10%	Voltage (V)	A (mm)	ØD (mm)
A	1000 W	230 mono	280	85
B	2000 W	230 mono	410	85
C	3000 W	230 mono	650	85
D	4000 W	230 mono	780	85
E	4500 W	400 Tri	630	120
F	6000 W	400 Tri	1140	85
G	9000 W	400 Tri	1200	120
H	12000 W	400 Tri	1395	120



IMPORTANT : The heating area must be covered by at least 20 cm of liquid.

TEFLON® COATED PT100 PROBES

These probes mounted on a holder in PVDF are an essential accessory for the PTFE immersion heaters. Designed to be mounted on the tank edge. They allow to measure the temperature of the heated fluid. Several models are available to fit on different tanks. Connection leads : 1m.



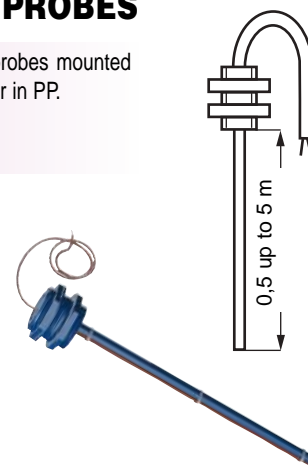
P/N.	L (m)
31170-01	0,5
31170-02	1,0
31170-03	1,5
31170-04	2,0



RIGID TEMPERATURE PROBES

Thermocouples or PT100 Teflon coated probes mounted on plunger with a sealing gland in PVDF or in PP. Standard length 0,5 m available up to 5m. Connection leads : 1m.

P/N.	Plunger material	Type of probe
31981-02	PVDF	Pt 100 ohms - 3 wires
31981-04	PVDF	TC/J
31981-05	PVDF	TC/K
31981-07	PP	Pt 100 ohms - 3 wires
31981-09	PP	TC/J
31981-10	PP	TC/K

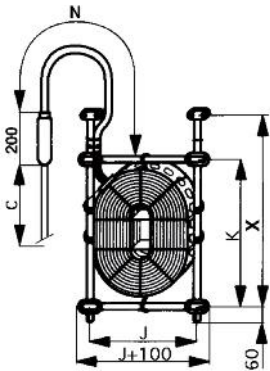
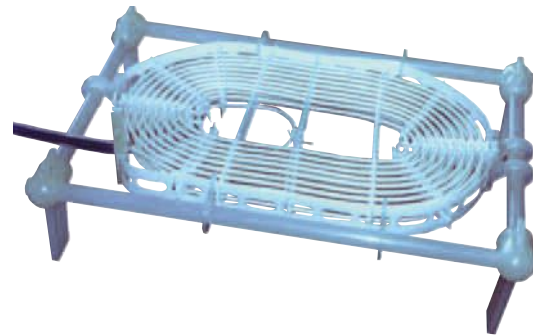


HORIZONTAL OR VERTICAL PTFE IMMERSION HEATERS

Horizontal fitting		
No	Type	Frame in
26477	FEP	PVDF
26456	PFA	PVDF
26487	FEP	PP
26466	PFA	PP

Vertical fitting		
No	Type	Frame in
26475	FEP 1 couche	PVDF
26451	PFA 2 couches	PVDF
26485	FEP 1 couche	PP
26461	PFA 2 couches	PP

Model	Power. ± 10%	voltage (V)	J (mm)	K (mm)
A	1000 W	230 mono	240	250
B	1000 W	230 mono	185	305
C	2000 W	230 mono	295	315
D	2000 W	230 mono	210	420
E	3000 W	230 mono	385	395
F	3000 W	230 mono	265	470
G	4000 W	230 mono	405	420
H	4000 W	230 mono	285	475
J	4500 W	400 Tri	420	440
K	4500 W	400 Tri	305	480
L	6000 W	400 Tri	475	540
M	6000 W	400 Tri	350	550
N	9000 W	400 Tri	600	675
P	9000 W	400 Tri	425	685
R	12000 W	400 Tri	585	785
S	12000 W	400 Tri	425	800



Dimensions **N**, **C** and **X** are made to order :

X = height of immersion heater fixing arms on tank edge
< height of tank.

N = Length of supply cable descending into tank.

This dimension must be large enough for the connector to be clear of vapour.

C = Length of electric supply cable.

Caution : Frame size = (J + 100) x (K + 100)

When ordering state :

PTFE immersion heater : Type : 26450/453/460/463/472/474/482 or 484

Model : - Frame in : PVDF or PP

Coating : FEP (1 coat) or PFA (2 coats)

Power (kW) : - Voltage (V):

Dimension N (mm) : - Dimension C (mm): - Dimension X (mm):

Application : horizontal or vertical.

IMPORTANT : Dimension N is the length of cable between the heating element and the connection. It must be long enough for the connector to be clear of vapour.

For horizontal fitting, add feet : in PVDF , P/N. 26450-03,

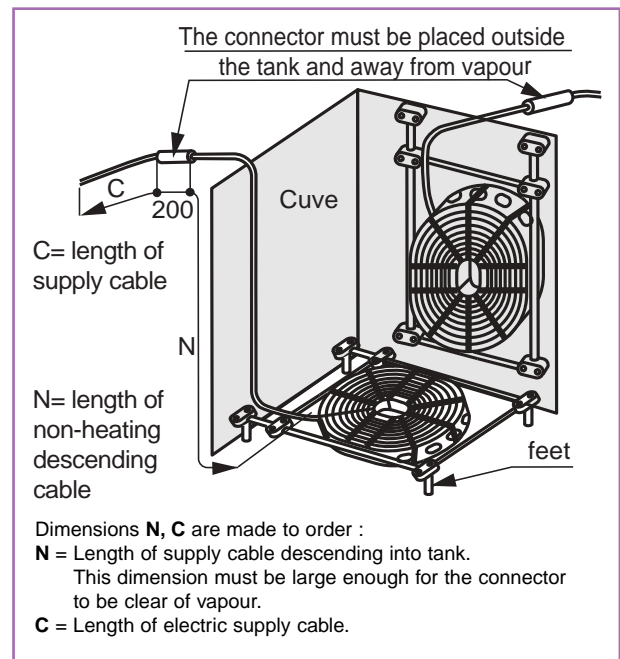
in PP P/N. 26450-53.

Accessories :

- Outdoor frame bracket in PVDF. P/N. 26450.01, in PP P/N. 26450-51
- 4 feet, height 100 mm, in PVDF. P/N. 26450-03, in PP P/N. 26450-53

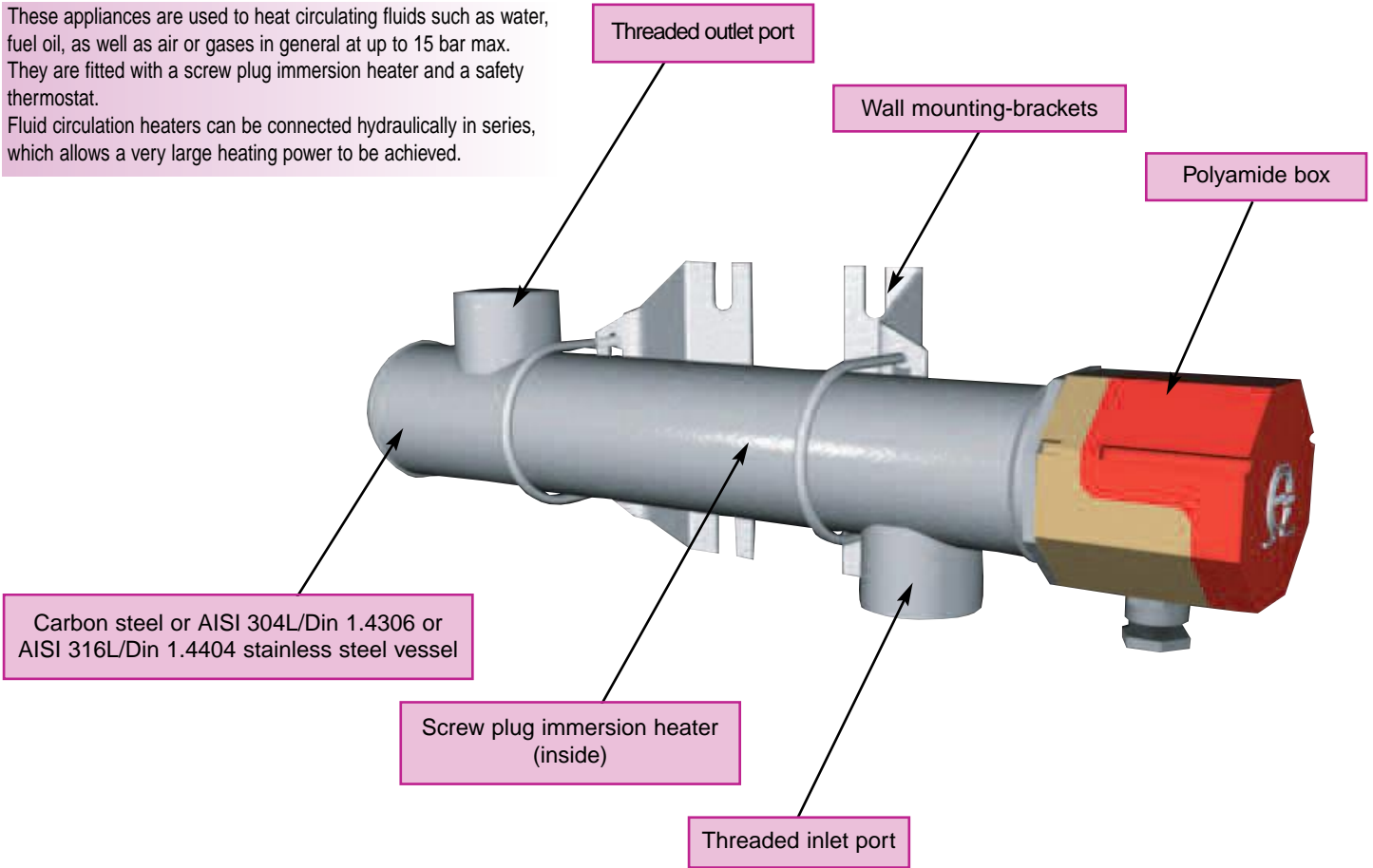
Needed for horizontal fitting as tank bottom heater

- Protective grid in PP. Type 26452 +type code (A, B, C ...)
- Teflon® -coated temperature probe Pt100, length 8 m. P/N. 26216-01 (see section " Temperature probes")
- Pt 100 temperature probe, fixing to immersion heater, length 1,5 m P/N. 26250-98, length 3,5 m P/N. 26450-97
- TC J probe, fixing to immersion heater : length 1,5 m P/N. 26250-97 length 3,5 m P/N. 26450-95

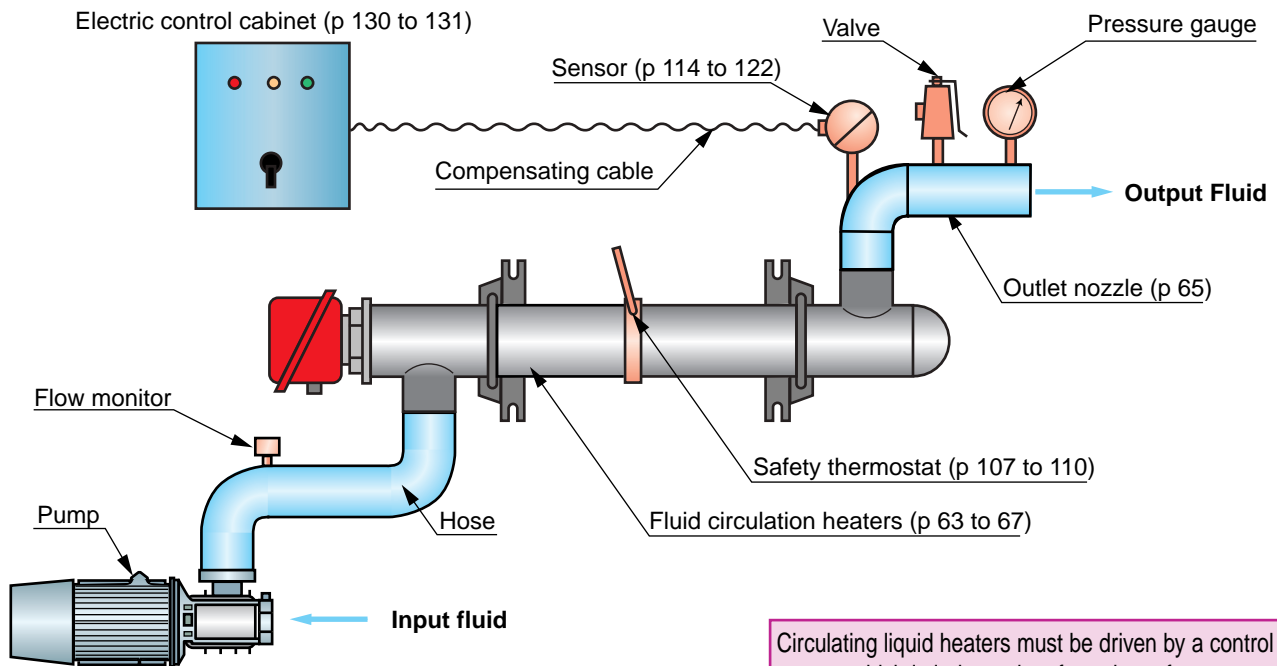


Polytetrafluoroethylene (PTFE) is a fluoropolymer. Other polymers with similar composition are known under the Teflon name: **Fluorinated ethylene-propylene (FEP)** and **perfluoroalkoxy polymer resin (PFA)**. They retain the useful properties of PTFE. **Polypropylene (PP)** is a thermoplastic polymer.

These appliances are used to heat circulating fluids such as water, fuel oil, as well as air or gases in general at up to 15 bar max. They are fitted with a screw plug immersion heater and a safety thermostat. Fluid circulation heaters can be connected hydraulically in series, which allows a very large heating power to be achieved.



ALL COMPONENTS FROM ONE SOURCE.



Circulating liquid heaters must be driven by a control system which is independent from the safety system and measures the fluid output temperature.

DN 20 TO DN 40 LOW FLOW FLUID INLINE HEATERS

Appliances conform to DESP 97/23/CE article 3 § 3.

To heat air, water or oil in open or closed circuits, at a maximum pressure of 10 bar.

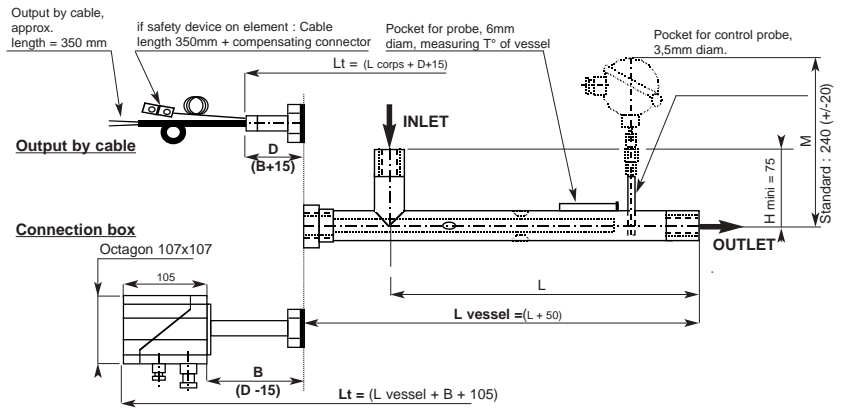
Vessel in stainless steel AISI 316L/Din 1.4044 with BSP threaded inlet/ outlet. With cartridge in stainless steel (AISI 321/Din 1.4541), fitted with type K thermocouple.

The heaters are to be installed in series on rigid pipework. No other fixing needed for connecting the heater to the pipework.

For fluid output temperatures > 60°C, thermal insulation is needed.

AVAILABLE IN 3 VERSIONS :

- Connection by leads, without temperature sensor
- With connection box and PT100 temperature sensor
- With connection box and TC/J temperature sensor



Models without connection box or temperature sensor

Max. output temperature	P/N.	Power +5/-10%	Voltage (V)	Min. output	Max. recommended	Pressure loss mm of WC*	Lt (mm)	D (mm)	L (mm)	H Vessel inside (mm)	Vessel inside Ø (mm)	I/O BSPP	Spare. element No	Weight (kg)
Models for gas (air, nitrogen) 350°C max	10706-01	500 W	230 1 p	20 kg/h	60 kg/h	300 at 5 bar	770	245	460	150	23,7	1/2"	60301-00	1,3
	10706-02	1000 W	230 1 p	40 kg/h	120 kg/h	250 at 5 bar	1130	245	820	150	29,7	3/4"	60302-00	2,7
	10706-03	2000 W	230 1 p	80 kg/h	240 kg/h	200 at 5 bar	1720	245	1410	150	40,9	1 1/4"	60303-00	8,8
Models for softened or treated water 140°C max.	10706-31	2000 W	230 1 p	0,2 m³/h	1 m³/h	300	580	55	460	150	23,7	1/2"	4500226-00	1,2
	10706-32	3000 W	230 1 P	0,5 m³/h	2,5 m³/h	300	750	55	630	150	29,7	3/4"	4500227-00	1,5
	10706-33	5500 W	400 3 P	1 m³/h	5 m³/h	300	1050	55	930	150	40,9	1 1/4"	4500228-00	2,2
Models for oil 200°C max.	10706-41	500 W	230 1 P	0,2m³/h	0,8 m³/h	250 at 100°C**	730	135	530	150	23,7	1/2"	60307-00	1,3
	10706-42	1000 W	230 1 P	0,6 m³/h	2,4 m³/h	300 at 100°C**	1130	135	930	150	29,7	3/4"	60308-00	2,2
	10706-43	2000 W	230 1 P	1,2 m³/h	5 m³/h	350 at 100°C**	1590	135	1390	150	40,9	1 1/4"	4500229-00	2,2

Accessories : TC/J temperature sensor, length 200mm with cable, length 2000mm P/N. 31080-31 or Pt100 Ø 3,5 length 160mm P/N. 31042-31* and extension cable (see probes section).

Models with connection box and temperature sensor (Pt 100 in thermowell on outlet)

Max. output temperature	P/N.	Power +5/-10%	Voltage (V)	Min. output	Max. recommended	Pressure loss mm of WC*	Lt (mm)	B (mm)	L (mm)	H Vessel inside (mm)	Vessel inside Ø (mm)	I/O BSPP	Spare. element No	Weight (kg)
Models for gas (air, nitrogen) 350°C max	10706-74	500 W	230 1 P	20 kg/h	60 kg/h	300 at 5 bar	845	230	460	150	23,7	1/2"	60301-01	1,3
	10706-75	1000 W	230 1 P	40 kg/h	120 kg/h	250 at 5 bar	1205	230	820	150	29,7	3/4"	60302-01	2,7
	10706-76	2000 W	230 1 P	80 kg/h	240 kg/h	200 at 5 bar	1795	230	1410	150	40,9	1 1/4"	60303-01	8,8
Models for softened or treated water 140°C max.	10706-54	2000 W	230 1 P	0,2 m³/h	1 m³/h	300	655	40	460	150	23,7	1/2"	4500226-01	1,2
	10706-55	3000 W	230 1 P	0,5 m³/h	2,5 m³/h	300	825	40	630	150	29,7	3/4"	4500227-01	1,5
	10706-56	5500 W	400 3 P	1 m³/h	5 m³/h	300	1125	40	930	150	40,9	1 1/4"	4500228-01	2,2
Models for oil 200°C max.	10706-64	500 W	230 1 P	0,2 m³/h	0,8 m³/h	250 at 100°C**	805	120	530	150	23,7	1/2"	60307-01	1,3
	10706-65	1000 W	230 1 P	0,6 m³/h	2,4 m³/h	300 at 100°C**	1205	120	930	150	29,7	3/4"	60308-01	2,2
	10706-66	2000 W	230 1 P	1,2 m³/h	5 m³/h	350 at 100°C**	1665	120	1390	150	40,9	1 1/4"	4500229-01	2,2

Accessories : Spare Pt100 temperature sensor Ø 3,5, length 160 P/N. 31042-31 and extension cable (see probes section)

Models with connection box and temperature sensor (type J thermocouple in thermowell on outlet)

Max. output temperature	P/N.	Power +5/-10%	Voltage (V)	Min. output	Max. recommended	Pressure loss mm of WC*	Lt (mm)	B (mm)	L (mm)	H Vessel inside (mm)	Vessel inside Ø (mm)	I/O BSPP	Spare. element No	Weight (kg)
Models for gas (air, nitrogen) 350°C max	10707-51	500 W	230 1 P	20 kg/h	60 kg/h	300 at 5 bar	845	230	460	150	23,7	1/2"	60301-01	1,3
	10707-52	1000 W	230 1 P	40 kg/h	120 kg/h	250 at 5 bar	1205	230	820	150	29,7	3/4"	60302-01	2,7
	10707-53	2000 W	230 1 P	80 kg/h	240 kg/h	200 at 5 bar	1795	230	1410	150	40,9	1 1/4"	60303-01	8,8
Models for softened or treated water 140°C max.	10707-81	2000 W	230 1 P	0,2 m³/h	1 m³/h	300	655	40	460	150	23,7	1/2"	4500226-01	1,2
	10707-82	3000 W	230 1 P	0,5m³/h	2,5 m³/h	300	825	40	630	150	29,7	3/4"	4500227-01	1,5
	10707-83	5500 W	400 3 P	1 m³/h	5 m³/h	300	1125	40	930	150	40,9	1 1/4"	4500228-01	2,2
Models for oil 200°C max.	10707-91	500 W	230 1 P	0,2 m³/h	0,8 m³/h	250 at 100°C**	805	120	530	150	23,7	1/2"	60307-01	1,3
	10707-92	1000 W	230 1 P	0,6 m³/h	2,4 m³/h	300 at 100°C**	1205	120	930	150	29,7	3/4"	60308-01	2,2
	10707-93	2000 W	230 1 P	1,2 m³/h	5 m³/h	350 at 100°C**	1665	120	1390	150	40,9	1 1/4"	4500229-01	2,2

Accessories : Spare TC/J temperature sensor, length 200 mm with cable, length 2000 mm P/N. 31080-31 and extension cable (see probes section).

* Pressure loss depends according to the fluid on the flow, the viscosity and the gas pressure - Consult us

**For Iso VG 32 oil.

Control unit for these heaters (see section control units):

Power control ready to use, for power supply and temperature control panels of low flow heaters

Fitted with a main controller with inputs for Pt100, TC/J or TC/K, and a safety controller with TC/K input, which guarantees protection against element damage due to overheating.



P/N.	Max. power(kW)	Input	Controller	Power unit	Temperature Range
32045-54	5	TC/J	PID	Static relay	0/400°C
32045-55	5	PT100	PID	Static relay	0/300°C

The model with TC/J input can be configured on site in a TC/K input.

DN 50 LIQUID CIRCULATION HEATERS

Appliances conform to DESP 97/23/CE article 3 § 3.

To heat water, fuel or oil circulating in pipework up to 15 bar max. These heaters are made of one or two DN 50 vessels in painted carbon steel, M45 screw plug immersion heaters, and a safety thermostat with automatic reset fixed at up to 115°C, or adjustable from 0°C to 300°C.

Horizontal wall mounting by an adjustable supports supplied with Non-insulated models (optional wall brackets not fixed to insulated models).

Voltage: 230/400 V 3P.

Swivelling box IP55.

* SP= scoured and passivated



Non-insulated 2 vessels circulating heater

Single vessel circulating HEATERS

Heaters for **recycled or waste water** up to 110°C max., 15 bar. Fitted with nickel-plated copper heating elements, brazed brass screw plug. Min. flow 1 m³/h.

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10631-12	10641-12	4,5 kW	8	32065-07	460	2145-21	8 15
10631-13	10641-13	9 kW	8	32065-13	900	2145-22	12 23
10631-14	10641-14	12 kW	8	32065-13	1390	2145-23	18 32

Heaters for **aqueous liquids** up to 110°C max., 15 bar. Fitted with AISI 316L/Din 1.4404 stainless steel heating elements SP*, brazed protected carbon steel screw plug. Min. flow 1 m³/h.

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10631-15	10641-15	3 kW	4	32065-07	460	2145-11	7 13
10631-16	10641-16	6 kW	4	32065-07	900	2145-12	11 22
10631-17	10641-17	9 kW	4	32065-13	1390	2145-13	18 32
10631-18	10641-18	12 kW	4	32065-13	2050	2145-14	23 43

Heaters for **oil and fuel** up to 200°C max., 15 bar. Fitted with oiled carbon steel heating elements, offset, brazed protected carbon steel screw plug. Min. flow 1 m³/h.

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10631-19	10641-19	1,5 kW	2	32065-07	460	2146-01	6,5 12
10631-20	10641-20	3 kW	2	32065-07	900	2146-02	10 21
10631-21	10641-21	4,5 kW	2	32065-07	1390	2146-03	18 32
10631-22	10641-22	6 kW	2	32065-07	2050	2146-04	23 43

Double vessel circulating HEATERS

Heaters for **recycled or waste water** up to 110°C max., 15 bar. Fitted with nickel-plated copper heating elements, brazed brass screw plugs. Min. flow 1 m³/h.

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10632-12	10642-12	9 kW	8	32065-16	460	2145-21	16 30
10632-13	10642-13	18 kW	8	32065-26	900	2145-22	24 46
10632-14	10642-14	24 kW	8	32065-26	1390	2145-23	36 64

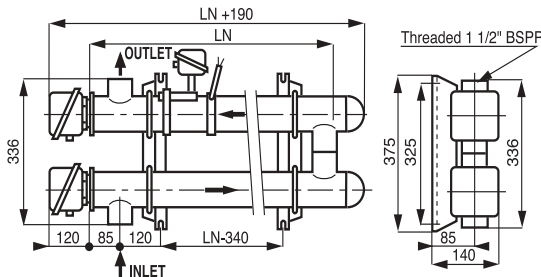
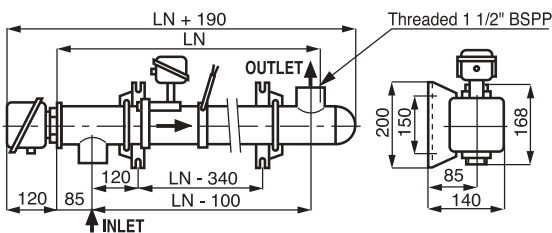
Heaters for **aqueous liquids** up to 110°C max., 15 bar. Fitted with stainless steel AISI 316L/Din 1.4404 heating elements SP*, brazed protected carbon steel screw plugs. Min. flow 1 m³/h.

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10632-15	10642-15	6 kW	4	32065-16	460	2145-11	14 26
10632-16	10642-16	12 kW	4	32065-16	900	2145-12	22 44
10632-17	10642-17	18 kW	4	32065-26	1390	2145-13	36 64
10632-18	10642-18	24 kW	4	32065-26	2050	2145-14	46 86

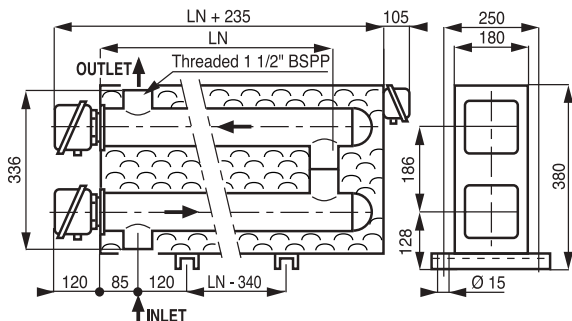
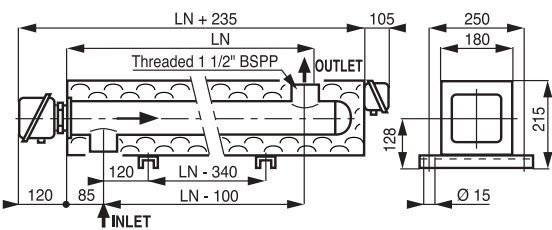
Heaters for **oil and fuel** up to 200°C max., 15 bar. Fitted with oiled carbon steel heating elements, offset, brazed protected carbon steel screw plugs. Min. flow 1 m³/h

P/N. without insulation	P/N. with insulation	Power +5/-10%	Load (W/cm²)	Control box P/N.	LN (mm)	Spare element	Weight without/with insulation (kg)
10632-19	10642-19	3 kW	2	32065-16	460	2146-01	13 24
10632-20	10642-20	6 kW	2	32065-16	900	2146-02	20 42
10632-21	10642-21	9 kW	2	32065-16	1390	2146-03	36 64
10632-22	10642-22	12 kW	2	32065-26	2050	2146-04	46 86

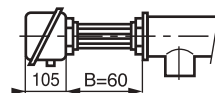
Non-insulated models



Insulated models



Heater with offset for vessel temperature > 110°C



DN 80 LIQUID CIRCULATION HEATERS FOR DOMESTIC WATER

Consisting of a DN 80 vessel in painted steel, a VULCALOY® flanged immersion heater with a 115°C safety thermostat with automatic reset.

To heat waste or recycled domestic water, circulating in pipework, up to 110°C max. and up to 10 bar.

The heating elements are in AISI 904L/ Din 1.4539 stainless steel which is particularly resistant to scale formation and corrosion. Load 12 W/cm².

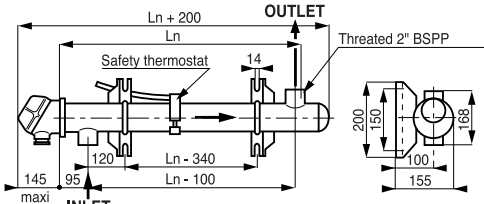


Non-insulated models

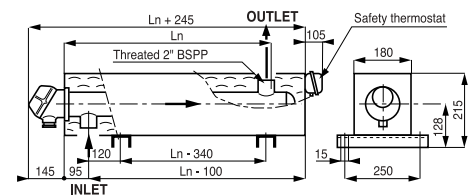


Insulated models

Non-insulated models



Insulated models



Appliances conform to DESP 97/23/CE article 3 § 3.

P/N. without Insulation	P/N. with Insulation	Power +5 /-10%	Voltage (V)	Control box	LN (mm)	Spare heater	Min. flow (m ³ /h)	Weight (kg)
10705-01	10745-01	3 kW	230/400 3 P	32065-07	460	1789-01	1	8/15
10705-02	10745-02	4,5 kW	230/400 3 P	32065-07	460	1789-02	1	8/15
10705-03	10745-03	6 kW	230/400 3 P	32065-07	460	1789-03	1	8/15
10705-05	10745-05	9 kW	230/400 3 P	32065-13	900	1789-05	1	12/23
10705-06	10745-06	12 kW	230/400 3 P	32065-13	900	1789-06	1	12/23
10705-07	10745-07	15 kW	230/400 3 P	32065-23	900	1789-07	1	12/23
10705-08	10745-08	18 kW	230/400 3 P	32065-23	900	1789-08	1	12/23
10705-09	10745-09	21 kW	230/400 3 P	32065-23	1390	1789-09	1	17/31
10705-10	10745-10	24 kW	230/400 3 P	32065-23	1390	1789-10	1	17/31
10705-12	10745-12	30 kW	400 3 P	32065-43	1390	1789-12	1	17/31
10705-14	10745-14	36 kW	400 3 P	32065-43	2050	1789-14	1	20/34
10705-17	10745-17	45 kW	400 3 P	32065-63	2050	1789-17	1	21/35

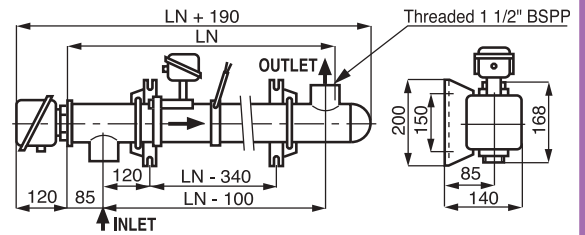
AIR AND GAS CIRCULATION HEATERS

Spare thermostat P/N 9031-01

Designed to heat air or nitrogen up to 150°C, up to 15 bar maximum pressure.

Consisting of a DN 80 vessel in painted steel, Ø 77 screw plug immersion heater and a 300°C adjustable safety thermostat. Stainless steel heating elements. Wall mounting by means of adjustable supports.

Supply voltage : 10901-03 : 400 V 1P
10901-06 and -07 : 230 V 1P or 3P or 400 V 3P.
Inlet temperature : min. +5°C, max. 110°C.



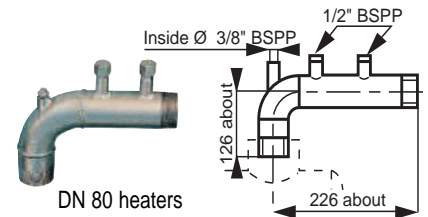
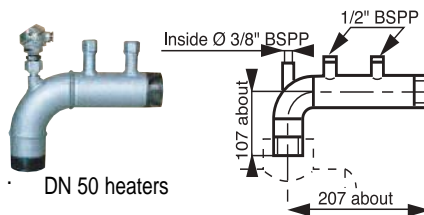
Spare parts :

- Type 2077 immersion heaters : see 'immersion heaters' section.
- 300°C adjustable safety thermostat P/N. 9032-01 (Weight 1 kg).

NEW P/N.	Old P/N.	Power +5 /-10%	LN (mm)	Min. flow (kg/h)	Spare element	Wiring	Weight (kg)
10901-03	10711-03	2000 W	460	120	2077-13	Serie 400 1P	8
10901-06	10711-06	4500 W	460	350	2077-12	400 3 P/Δ 230 3 P	8
10901-07	10711-07	6000 W	460	350	2077-13	400 3 P/Δ 230 3 P	8

OUTLET ELBOW FOR LIQUID CIRCULATION HEATERS

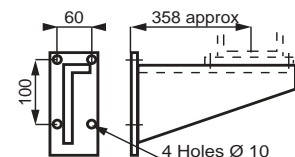
Outlet elbow with tapping for safety valve, air bleed valve and temperature measuring probe. Supplied with blanking plugs.



P/N.	Description for DN 50 heater	Material	Max. temp.
10630-98	With blanking plugs only	AISI316L/ Din 1.4404	450°C
10630-99	With blanking plugs only	Painted steel	300°C
10630-90	With PT100 sensor in aluminium box P/N. 31042-01 + thermowell P/N. 31396-50	Painted steel	110°C
10630-95	With PT100 sensor in alu box P/N. 31042-02 + connector P/N. 31672-00 + thermowell P/N. 31396-50	Painted steel	250°C
P/N.	Description for DN 80 heater	Material	Max. temp.
53824-01	With blanking plugs only	AISI 316L / Din1.4404	450°C
53804-01	With blanking plugs only	Painted steel	300°C
10700-90	With PT100 sensor in aluminium box P/N. 31042-01 + thermowell P/N. 31396-50	Painted steel	110°C
10700-95	With PT100 sensor in aluminium box P/N. 31042-02 + connector P/N. 31672-00	Painted steel	250°C

WALL MOUNTING BRACKETS FOR DN 50 and DN 80 HEATERS

- Pair of wall brackets for insulated heater P/N. 6048-01



ND80 LIQUID CIRCULATION HEATERS

According PED 97/23/CE article 3.3.



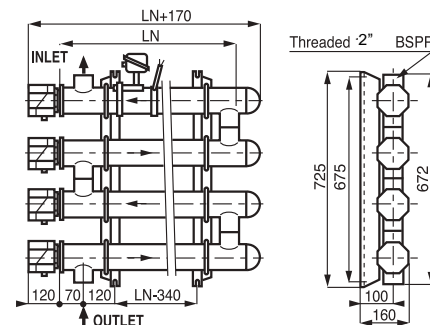
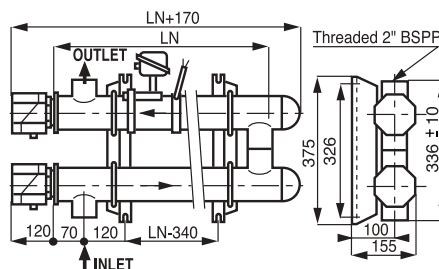
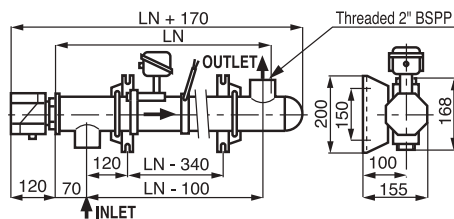
To heat water, fuel or oil circulating in pipework at 15 bar max. Consisting of 1, 2 or 4 DN 80 vessels, in painted carbon steel, M77 screw plug immersion heaters and a safety thermostat with automatic reset, set at 115°C for water and adjustable between 0° and 300°C for oil. Horizontal wall mounting by adjustable brackets (non-insulated models). SP* = Scoured and passived

SINGLE VESSEL

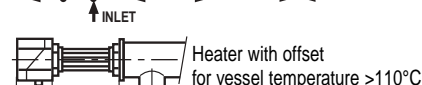
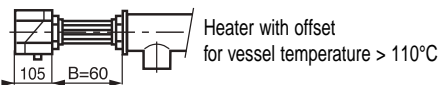
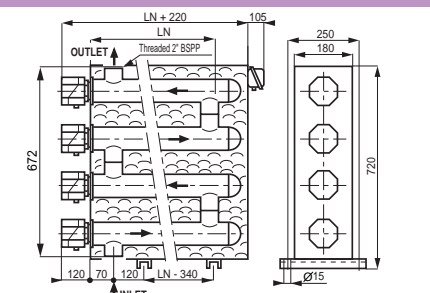
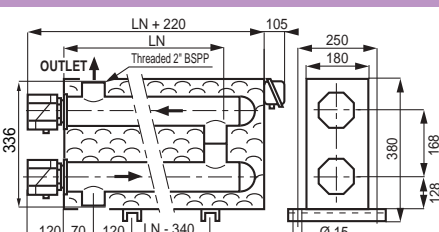
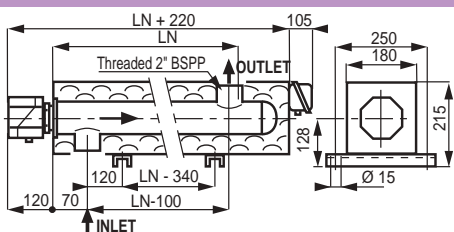
DOUBLE VESSEL

FOUR VESSEL

Non-insulated models



Insulated models



SINGLE VESSEL

Heaters for recycled or waste water up to 110°C, 15 bar. Nickel-plated copper heating elements, brazed brass screw plugs. Load 8 W/cm². Min. flow 2 m³/h.

Painted carbon steel vessel.

P/N without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-08	10741-08	6 kW	230/400 3 P	32065-07	460	2077-31
10701-10	10741-10	9 kW	230/400 3 P	32065-13	460	2077-32
10701-16	10741-16	12 kW	230/400 3 P	32065-13	900	2077-33
10701-17	10741-17	18 kW	230/400 3 P	32065-23	900	2077-34
10701-18	10741-18	24 kW	230/400 3 P	32065-23	1390	2077-35
10701-19	10741-19	36 kW	400 3 P	32065-43	2050	2077-36

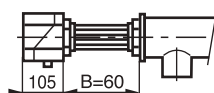
Spare thermostat P/N. 9031-01 for Non-insulated models - all LN, and insulated models up to LN 1390
Spare thermostat P/N. 9031-02 for insulated models LN 2050.

Heaters for aqueous liquids up to 110°C, 15 bar. AISI 316L/ Din 1.4404 stainless steel heating elements SP*, brazed protected carbon steel screw plugs. Load 5 W/cm² about. Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-03	10741-03	3 kW	230/400 3 P	32065-07	460	2077-11
10701-05	10741-05	4,5 kW	230/400 3 P	32065-07	460	2077-12
10701-07	10741-07	6 kW	230/400 3 P	32065-07	460	2077-13
10701-13	10741-13	9 kW	230/400 3 P	32065-13	900	2077-14
10701-14	10741-14	12 kW	230/400 3 P	32065-13	900	2077-15

Spare thermostat P/N. 9031-01 for all models.

Liquid circulation heaters must be controlled by a system which is independent from the safety system and measures the fluid output temperature.



Heater with offset immersion heaters for vessel temperature > 110°C

Heaters for heavy fuel and oil up to 200°C, 15 bar. Fitted with oiled carbon steel heating elements, offset, brazed protected carbon steel screw plug, load 2 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N. without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-65	10741-65	2 kW	230/400 3 P	32065-07	460	2178-02
10701-66	10741-66	3 kW	230/400 3 P	32065-07	900	2178-03
10701-67	10741-67	4,5 kW	230/400 3 P	32065-07	900	2178-04
10701-68	10741-68	6 kW	230/400 3 P	32065-07	1390	2178-05

Spare thermostat P/N. 9032-01 for all non-insulated models. Spare thermostat P/N. 9014-03 for all insulated models. See also 2- and 4-tube models, to achieve higher powers.

Heaters for aqueous liquids up to 200°C, 15 bar. AISI 316L/ Din 1.4404 stainless steel heating elements SP*, welded 304L stainless steel screw plug. Min. flow 2 m³/h. **304L Stainless steel vessel.**

P/N. without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-80	10741-80	4,5 kW	230/400 Tri	32065-07	460	2378-80
10701-81	10741-81	10 kW	230/400 Tri	32065-13	900	2378-81
10701-82	10741-82	16 kW	230/400 Tri	32065-23	1390	2378-82
10701-83	10741-83	24 kW	230/400 Tri	32065-23	2050	2378-83

Specific load 6 W/cm²

P/N. without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-84	10741-84	7 kW	230/400 Tri	32065-07	460	2378-84
10701-85	10741-85	15 kW	230/400 Tri	32065-23	900	2378-85
10701-86	10741-86	24 kW	230/400 Tri	32065-23	1390	2378-86
10701-87	10741-87	36 kW	400 Tri	32065-43	2050	2378-87

Specific load 10 W/cm²

P/N. without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10701-88	10741-88	11,5 kW	230/400 Tri	32065-13	460	2378-88
10701-89	10741-89	25 kW	230/400 Tri	32065-23	900	2378-89
10701-90	10741-90	40 kW	230/400 Tri	32065-43	1390	2378-90
10701-91	10741-91	60 kW	400 Tri	32065-63	2050	2378-91

DOUBLE VESSEL

Heaters for **recycled or waste water up to 110°C**, 15 bar. Fitted with nickel-plated copper heating elements brazed brass screw plugs. Load 8 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-31	10742-31	36 kW	230/400 3 P	32065-46	900	2077-34
10702-32	10742-32	48 kW	230/400 3 P	32065-66	1390	2077-35
10702-34	10742-34	72 kW	400 3 P	32065-96	2050	2077-36

Spare thermostat P/N. 9031-01 for Non-insulated models - all LN, and insulated models up to LN 900
Spare thermostat P/N. 9031-02 for insulated models LN 1390 and longer.

Heaters for **aqueous liquids up to 110°C**, 15 bar. Fitted with stainless steel AISI 316L/Din 1.4404 heating elements SP*, brazed protected carbon steel screw plugs. Load 5 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-10	10742-10	18 kW	230/400 3 P	32065-26	900	2077-14
10702-11	10742-11	24 kW	230/400 3 P	32065-26	900	2077-15

Spare thermostat P/N. 9031-01 for all models.

Heaters for **heavy fuel and oil up to 200°C**, 15 bar. Fitted with oiled carbon steel heating elements, offset, brazed protected steel screw plugs. Load 2 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-54	10742-54	9 kW	230/400 3 P	32065-16	900	2178-04
10702-55	10742-55	12 kW	230/400 3 P	32065-16	1390	2178-05

According to PED, these appliances must not be used with dangerous fluids group 1.
Spare thermostat P/N. 9032-01 for all non-insulated models. Spare thermostat P/N. 9014-03 for all insulated models. See also 2- and 4-vessel models, to achieve higher powers.

Heaters for **aqueous liquids up to 200°C**, 15 bar. AISI 316L/ Din 1.4404 stainless steel heating elements SP*, welded 304L stainless steel screw plug. Min. flow 2 m³/h. **304L Stainless steel vessel.**

Specific load 4 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-80	10742-80	9,5 kW	230/400 Tri	32065-16	460	2378-80
10702-81	10742-81	20 kW	230/400 Tri	32065-26	900	2378-81
10702-82	10742-82	32 kW	230/400 Tri	32065-46	1390	2378-82
10702-83	10742-83	48 kW	230/400 Tri	32065-66	2050	2378-83

Specific load 6 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-84	10742-84	14 kW	230/400 Tri	32065-16	460	2378-84
10702-85	10742-85	30 kW	230/400 Tri	32065-46	900	2378-85
10702-86	10742-86	48 kW	230/400 Tri	32065-66	1390	2378-86
10702-87	10742-87	72 kW	400 Tri	32065-96	2050	2378-87

Specific load 10 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	P/N. control box	LN (mm)	Spare element
10702-88	10742-88	23 kW	230/400 Tri	32065-26	460	2378-88
10702-89	10742-89	50 kW	230/400 Tri	32065-66	900	2378-89
10702-90	10742-90	80 kW	230/400 Tri	32065-96	1390	2378-90
10702-91	10742-91	120 kW	400 Tri	32065-82	2050	2378-91

FOUR VESSEL

Heaters for **recycled or waste water up to 110°C**, 15 bar. Fitted with nickel-plated copper heating elements brazed brass screw plugs. Load 8 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-31	10744-31	72 kW	230/400 3 P	32065-99	900	2077-34
10704-32	10744-32	96 kW	230/400 3 P	32065-99	1390	2077-35
10704-34	10744-34	144 kW	400 3 P	32065-83	2050	2077-36

Spare thermostat P/N. 9031-01 for non-insulated models, all LN, and insulated models up to LN 900. Spare thermostat P/N. 9031-02 or insulated models LN 1390 and longer.

Heaters for **aqueous liquids up to 110°C**, 15 bar. Fitted with AISI 316L/ Din 1.4404 stainless steel heating elements SP*, brazed protected carbon steel screw plugs. Load 5 W/cm² about. Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-10	10744-10	36 kW	230/400 3 P	32065-49	900	2077-14
10704-11	10744-11	48 kW	230/400 3 P	32065-69	900	2077-15

Spare thermostat P/N. 9031-01 for all models.

Heaters for **heavy fuel and oil up to 200°C**, 15 bar. Fitted with oiled carbon steel heating elements, offset, brazed protected carbon steel screw plugs. Load 2 W/cm². Min. flow 2 m³/h. **Painted carbon steel vessel.**

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-54	10744-54	18 kW	230/400 3 P	32065-29	900	2178-04
10704-55	10744-55	24 kW	230/400 3 P	32065-29	1390	2178-05

According to PED, these appliances must not be used with dangerous fluids group 1.
Spare thermostat P/N. 9032-01 for all non-insulated models
Spare thermostat P/N. 9014-03 for all insulated models.

Heaters for **aqueous liquids up to 200°C**, 15 bar. AISI 316L/ Din 1.4404 stainless steel heating elements SP*, welded 304L stainless steel screw plug. Min. flow 2 m³/h. **304L Stainless steel vessel.**

Specific load 4 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-80	10744-80	19 kW	230/400 Tri	32065-23	460	2378-80
10704-81	10744-81	40 kW	230/400 Tri	32065-46	900	2378-81
10704-82	10744-82	64 kW	230/400 Tri	32065-66	1390	2378-82
10704-83	10744-83	96 kW	230/400 Tri	32065-96	2050	2378-83

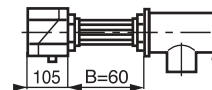
Specific load 6 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-84	10744-84	28 kW	230/400 Tri	32065-43	460	2378-84
10704-85	10744-85	60 kW	230/400 Tri	32065-66	900	2378-85
10704-86	10744-86	96 kW	230/400 Tri	32065-96	1390	2378-86
10704-87	10744-87	144 kW	400 Tri	32065-83	2050	2378-87

Specific load 10 W/cm²

P/N.without insulation	P/N.with insulation	Power +5/-10%	Voltage (V)	Control box	LN (mm)	Spare element
10704-88	10744-88	46 kW	230/400 Tri	32065-43	460	2378-88
10704-89	10744-89	100 kW	230/400 Tri	32065-99	900	2378-89
10704-90	10744-90	159 kW	230/400 Tri	on request	1390	2378-90
10704-91	10744-91	238 kW	400 Tri	on request	2050	2378-91

Liquid circulation heaters must be controlled by a system which is independent from the safety system and measures the fluid output temperature.

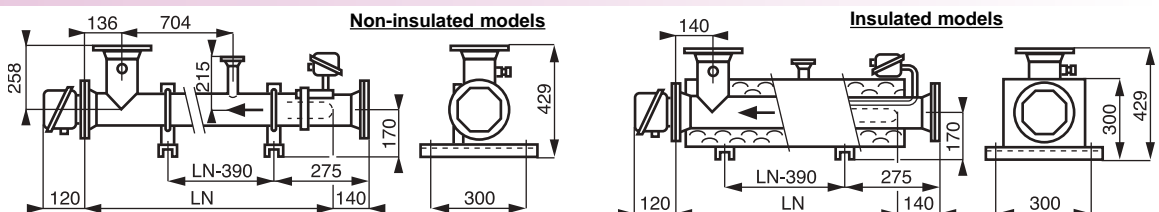


Heater with offset immersion
heaters for vessel temperature > 110°C

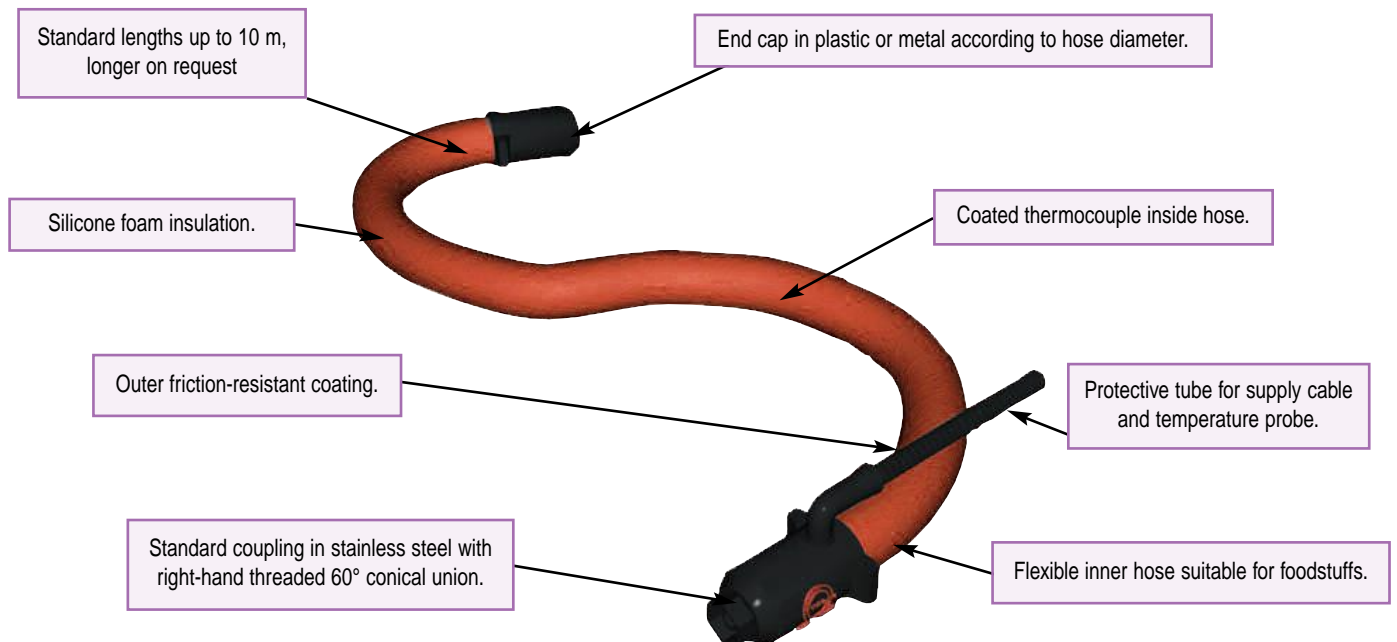
ND 80 CIRCULATING LIQUID HEATERS WITH ND 80 FLANGE (in and outlet)

To heat circulating water, fuel or oil. Made of a ND 80 vessel in painted carbon steel or stainless steel AISI 316L/Din 1.4404, insulated or Non-insulated, DN 80 PN16 FS inlet and outlet, a ND 80 flange immersion heater, and a safety thermostat with automatic reset, adjustable between 0°C and 300°C. Fitted with a 1/4" BSP threaded thermowell on the outlet pipe, for a control sensor.

ON REQUEST



HEATING HOSES TYPE 26177



FLEXIBLE HEATING PIPE TYPE 26177

To maintain the temperature of liquids or gases between 5°C to 350°C (for special models in stainless steel) up to 200 bar during routing from the heating system to the point of use, or for keeping them free from freezing.

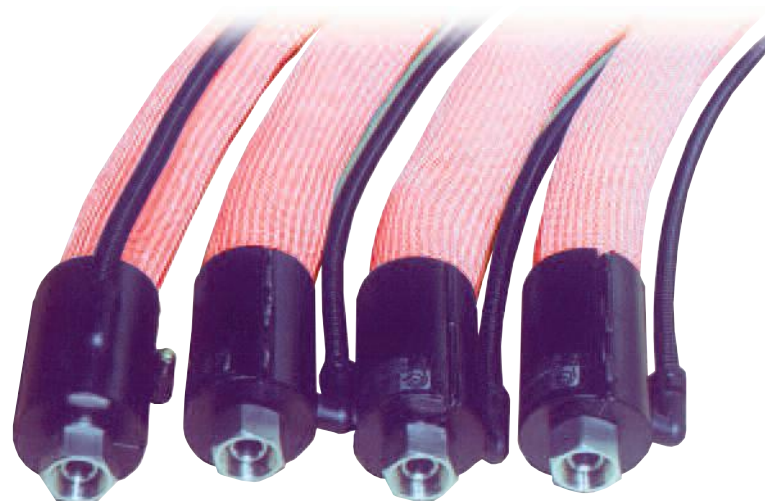
Application areas : foam bitumen, glue, oil, greases, wax, resin, paint, process gas, food products, molten metals....

Protection of certain liquids against freezing.

Protection of certain gases against condensation.

Link between fixed and mobile installations.

Control of viscous product pouring capability.



Special models of heating hose

ADVANTAGES :

These pipes are extremely flexible and can be installed quickly and easily.

Even distribution of temperature.

Quality materials in contact with fluid (usable for food and pharmaceutical industries).

Surface temperature control to guarantee long life duration.



Min. bend radius = 12 x Nominal Ø

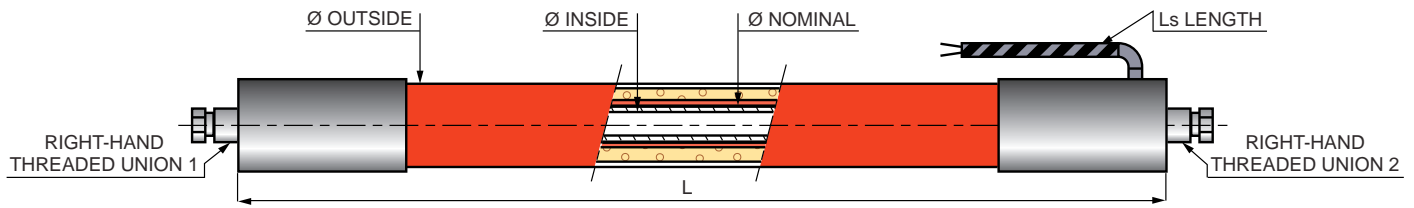
COMPOSITION :

Smooth PTFE flexible pipe or corrugated AISI 321/ Din 1.4541 stainless steel with external braid of AISI 304 / Din 1.4301 stainless steel fitted with end coupling of steel, protected, or of AISI 304 / Din 1.4301 stainless steel. Resistive wire, spiral wound and held by a glass woven tape. Heat insulation adapted to conditions of use, in ceramic fiber or silicone foam, lined with end pieces in molded plastic .

Surface temperature sensor type PT 100 (3 wires) or thermocouple (J, K) placed in the heating part (on the electrical connection side).

Electric connection at one end, by sealed PTFE flexible wires grouped together in a silicone glass silk sheath (maximum temperature 250°C).

MADE-TO-MEASURE HEATING HOSES



Sectional drawing of a heating hose

CHARACTERISTICS :

- Inside nominal diameters (mm) : **ND 6 to ND 25.**
- Interior lining of PTFE (200°C max. or stainless steel of about 350°C max.).
- Exterior lining tolerating 170°C max.
- Minimum of the neutral fiber curve radius : 20 x ND (mm) for PTFE and 16 x ND (mm) for stainless steel.
- Length between ends : from **0,5 to 25 meters.**
- Tolerance on Length = +/- 2%.
- Standard power supply voltage : 230 VAC 1 P
- Maximum power : 3600 W.
- Dielectric strength : 1800 V. Insulation resistance : 100 Megohms.
- Power supply cable length : 0,5 m to 5 m.



Nominal Diameter ND (mm)	6	8	10	13	16	20	25
Recommended linear power (W/m) per 100°C(*) for Δ-t	60	70	80	100	110	135	170
PTFE flexible line for 200°C maxi :							
Interior diameter (mm)	6	7	9,1	10	15	18	24
Exterior diameter (mm)	34	42	42	42	50	50	50
Max pressure at 200°C (bar)	156	130	123	97	71	52	36
Stainless steel flexible line for 350°C maxi :							
Interior diameter (mm)			10,5	13	16	19	25
Exterior diameter (mm)			43	50	50	50	50
Max pressure at 350°C (bar)			53	51	49	36	30

CONDITIONS OF USE :

The linear power of a standardised flexible pipe type 26177 will not allow the fluid temperature to be raised but only compensate for losses through the heat insulation. Connect the measurement probes to a regulator or an electronic thermostat capable of maintaining the temperature at the surface of the flexible hose to the maximum set point accepted by the sheath and the liquid being conveyed. It is preferable to position the power supply cable on the stationary coupling side. Avoid excessive mechanical stresses (compression, traction and twisting).

OTHER MANUFACTURING POSSIBILITIES :

- Other diameters : 5, 32, 38 and 50 mm and other lengths (up to 100 m).
- Other power supply voltages from 24 to 230 VAC.
- Power levels greater than 3600 W for 230 VAC.
- Other temperature sensors.
- Higher service pressures, smaller curve radius.
- Stainless steel external corrugated braid or sheath for strength and mechanical protection.
- Other hydraulic coupling : male, bent, flanges, clamps, all will be in AISI 316L/ Din 1.4404 stainless steel.
- Electric connection by plug-in connector.
- Flexible hoses of PTFE without end coupling for over-heating without pressure over smooth piping.
- Heated flexible pipes for use in explosive atmosphere (ATEX zone 1).
- Multiple flexible pipes for the transport of several components.
- Self-limiting flexible hoses for low temperature applications.

To order a made-to-measure heating hose please state:

- | | | |
|---------------------------------------|--|-------------------------|
| Heating hose type: 26177 | - Application : | |
| - Inside diameter (mm): | - Hose length (m) : | - Max. pressure (bar) : |
| - Connection 1 : | - Connection 2 (can be different from 1) : | - Power(W) : |
| - Desired constant temperature (°C) : | - Temperature probe (PT100, J-type or K-type thermocouple) | - Voltage (V) : |



**ELECTRICAL HEATING AND COOLING
SOLUTIONS
FOR THE INDUSTRY**

VULCANIC SAS
ZI des Chanoux
48, rue Louis Ampère
F-93330 Neuilly sur Marne
France
Tel. : +33 1 49 44 49 20



VULCANIC SAS
ZI la Saunière
F-89600 Saint Florentin
France
Tel. : +33 1 49 44 49 20



VULCANIC UK Ltd
South Green Park Entreprise
Centre, Mattishall
NR20 3JY, Dereham Norfolk
United Kingdom
Tel. : +44 1603 340015



LOREME SAS
12, rue des Potiers d'Étain
Actipôle Borny
F-57071 Metz
France
Tel. : +33 3 87 76 32 51



VULCANIC SA
Heilig Hartstraat, 14
B-2600 Berchem
Belgium
Tel. : +32 3 286 70 30



RS ISOLSEC SAS
45, avenue des acacias
F-45120 Cepoy
France
Tel. : +33 2 38 85 62 62



VULCANIC TERMOELÉCTRICA SLU
Ctra. a Viérnoles, 32
E-39300 Torrelavega
Spain
Tel. : +34 942 80 35 35



VULCANIC GmbH
Donaustraße 21
D-63542 Hanau
Germany
Tel. : +49 6181 9503 0



RS ISOLSEC SLU
Ave Riu Mogent, 5
E-08170 Montornes del valles
Spain
Tel. : +34 93 568 73 10



VULCANIC Russia
105005 Moscow
radio street
house 24 building 1
Russia
Tel. : + 7 (903) 967-95-68



VULCANIC TRIATHERM GmbH
Flurstraße 9
D-96515 Sonneberg
Germany
Tel. : +49 3675 4083-0



www.vulcanic.com

