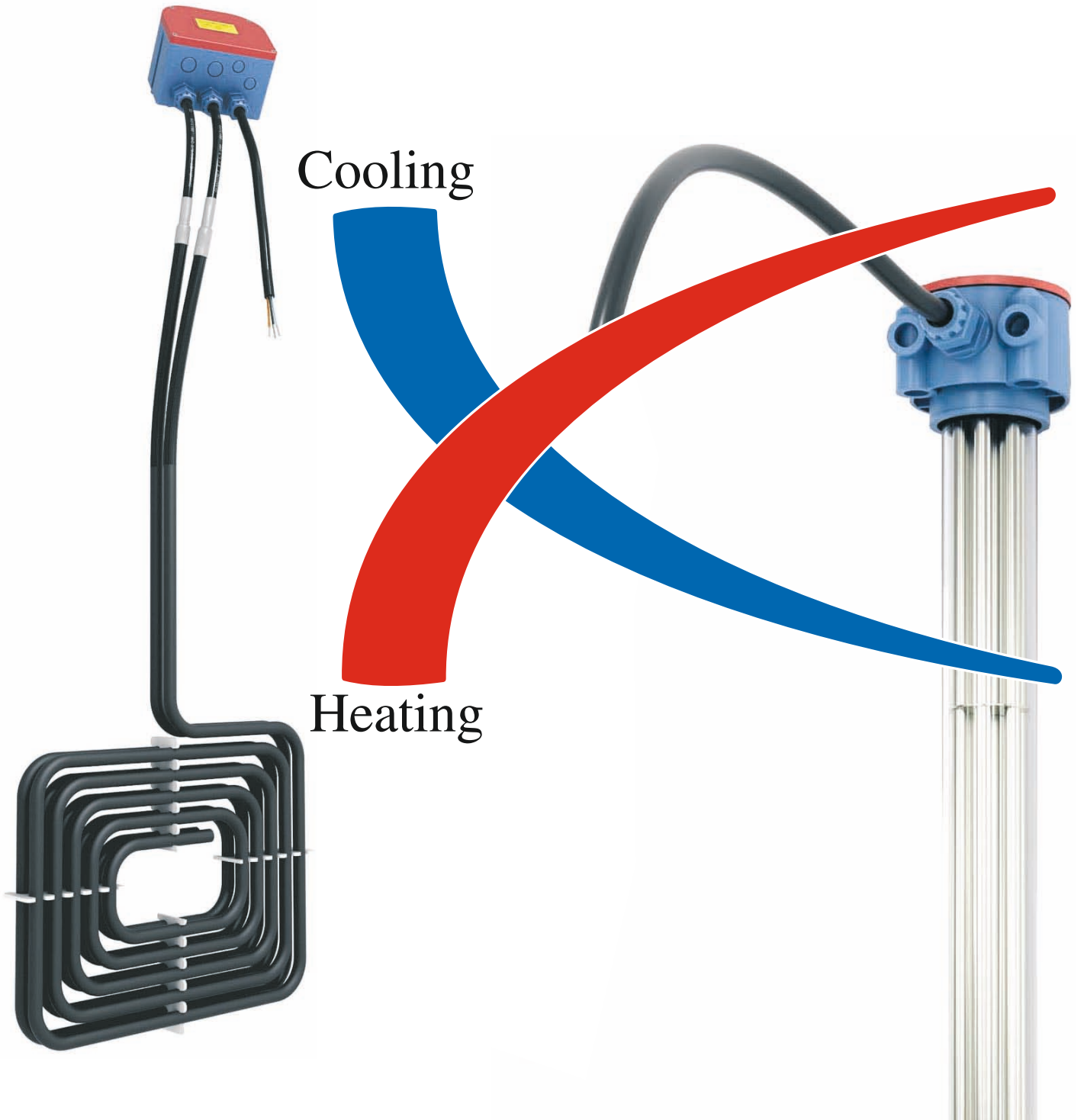




SCANDYMET



SCANDYMET, Innovative and Technically Advanced Manufacturer of Immersion Heaters and Heat Exchangers for Surface Treatment

In a high velocity world, industry demands flexible designs, quality manufacturing methods and constantly reliable products to improve productivity and profitability.

With regards to electrical heaters it is extremely important that choice of material and technical execution harmonize in order to produce reliable and cost efficient products.

Our product development program is based on 4 corner stones:

- Established proven products – reliable and cost efficient
- Input from users – continuous innovation based on customer demand
- In-house development of production methods and material adaptation
- Adherence to safety regulations – all products certified

Over the years our innate curiosity and creativity has prompted us to solve industry problems, often where others would not commit themselves to the same extent. This has given us a breadth and depth of experience that has resulted in a correspondingly ingenious product program.

Our 35 years of electrical heater experience gives us confidence that our expanded product program will be well received by both old and new customers.

VDE Prüf- und Zertifizierungsinstitut



VDE Prüf- und Zertifizierungsinstitut



| | Page |
|--|--------------|
| STFX - Flexible PTFE Heaters Ratings 500-15000 Watts | 4-7 |
| Submersible Metal Heaters SCAX - Stainless Steel STIX - Titanium Ratings 500-12000 Watts | 8-9 |
| STFR - Rigid L-bent PTFE Heaters Ratings 2250-15000 Watts | 10 |
| SFO - Tube Heater for Phosphate Ratings 1000-3300 Watts | 11 |
| Tubular heaters SRF - Stainless Steel SST - Mild Steel STI - Titanium Ratings 1000-4500 Watts | 12 |
| Tubular Heaters STE - PTFE Tube Heater SQG - Quartz Tube Heater Ratings 1000-4500 Watts | 13 |
| VAT Heaters SMSP - Mild Steel SSSP - Stainless Steel STIP - Titanium Ratings 2000-4000 Watts | 14-15 |
| VAT teflon heater. STFP. | 16 |
| HAMPUS Metallic Heat Exchanger for liquids | 17 |
| INGA PTFE Tubular Heat Exchanger for corrosive liquids | 18 |
| GUNNAR Rigid Tubular Heat Exchanger for corrosive liquids | 19 |
| HAMPUS, INGA, GUNNAR Heat Exchanger size calculation example | 20 |
| Scandymet Fasteners and Frames | 21 |
| ISABELLE - Thermostate KELVIN - Digital Thermal Regulator | 22 |
| PT-100 - Rigid Thermal Sensor | 23 |
| Level Control | 24 |
| OHP 1, OHP 2 - Overheat Protection | 25-26 |
| Maintenance instructions | 27 |
| Heater Selection Guideline | 28-29 |
| Warranty and transports | 30 |

STFX - Flexible PTFE Heaters

Flexible Design, Certified, Flexible Risers

Model Ratings 500-15000 Watts

☐ **An all-purpose heater!**

Resistant to most acids and alkalines.
Max 90° C bath temperature for standard range.

☐ **Safe Heating!**

Heating part deeply submerged or placed horizontally on tank bottom.

☐ **Efficient!**

Superior heating capacity, compared to conventional tubular heater.

☐ **Space Saver!**

Compact design and flexible riser makes it easy to install these heaters with maintained safety.

☐ **Reliable performance! Increased service life!**

Unique manufacturing method assures tight bonding between heating element and PTFE layer. Immediate heat transfer from heating element to liquid solution prevents internal heat accumulation, thus increasing element life.

☐ **Easy Maintenance!**

Simple clear-cut design, easy to overview and clean.

☐ **Economic!**

Modular system with elements in two or more layers which are individually replaceable. Facilitates maintenance and reduces replacement cost.

☐ **Certified adherence to Safety Standards!**

Both the conduit and stainless steel element under the PTFE layer are grounded. All elements are individually tested and certified.

☐ **Options**

- Bimetallic Overheat Protection, OHP 1
- Fused Overheat Protection, OHP 2
- Flexible Riser, Length 1 – 10 m (C)
- Electric Cable, Length 1 – 15 m (E)
- L-bent for Bottom installation

Standard Vertical Heater



Option Bottom Mount



Scandymet PTFE Heaters = More Value for you money!

All-Purpose Heater + Reliable + Efficient + Space Saving + Easy Maintenance

Heater Identification

All heaters are clearly labeled with power, voltage, and serial numbers. Keep marking outside of tank.

Grounded Conduit

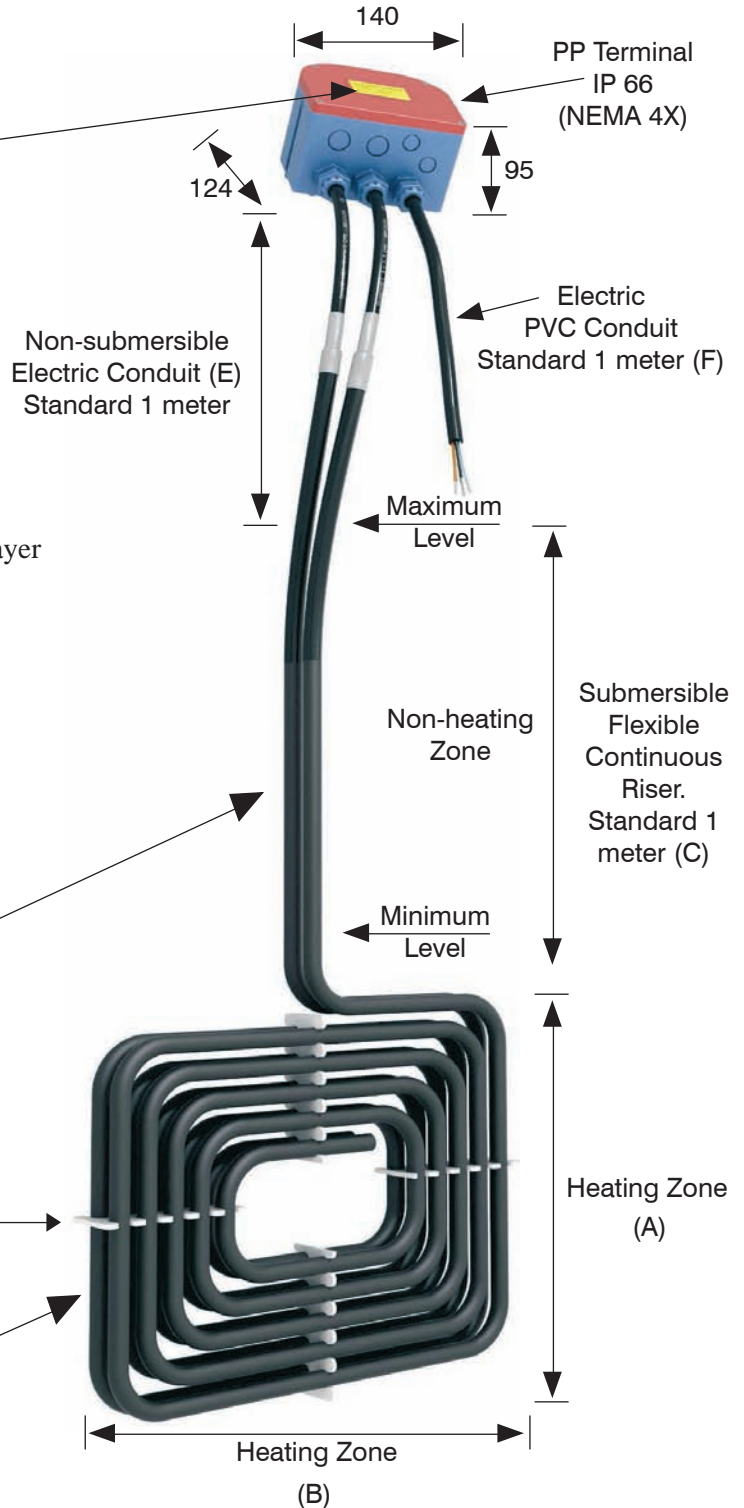
The stainless steel heating element under the PTFE layer is grounded. Standard length 1 meter.

Flexible Riser 1-10 meters

The continuous flexible riser is non-heating and suitable for bending over the tank edge. Standard length 1 meter. Additional length according to request.

Custom Design

The hot and rigid part of the element is bent as shown. (See table for standard dimensions). The elements can be bent to meet your specific requirements at **no extra cost**.



STFX - Flexible PTFE Heaters

Flexible Design, Certified, Flexible Risers

Ratings 500-3700 Watts.

Voltage: 1 phase 230 V or 3-phase 400 V

* Also available in 3-phase 230 V

Standard sizes

1 phase 230 Volts

| | A | B | Th. | W/cm ² |
|-------|------|-----|-----|-------------------|
| 0,5kW | 230 | 180 | 35 | 1,5 |
| 1kW | 230 | 260 | 35 | 1,5 |
| 1,5kW | 260 | 300 | 35 | 1,5 |
| 1,5kW | 320 | 260 | 35 | 1,5 |
| 1,5kW | 350 | 220 | 35 | 1,5 |
| 1,5kW | 420 | 210 | 35 | 1,5 |
| 2kW | 340 | 280 | 35 | 1,5 |
| 2kW | 540 | 200 | 35 | 1,5 |
| 2kW | 290 | 370 | 35 | 1,5 |
| 2kW | 245 | 410 | 35 | 1,5 |
| 3kW | 320 | 420 | 35 | 1,5 |
| 3kW | 410 | 325 | 35 | 1,5 |
| 3kW | 535 | 270 | 35 | 1,5 |
| 3kW | 640 | 240 | 35 | 1,5 |
| 3kW | 680 | 225 | 35 | 1,5 |
| 3kW | 880 | 195 | 35 | 1,5 |
| 3kW | 1050 | 160 | 35 | 1,5 |
| 4kW | 340 | 280 | 50 | 1,5 |
| 4kW | 540 | 200 | 50 | 1,5 |
| 4kW | 290 | 370 | 50 | 1,5 |
| 4kW | 245 | 410 | 50 | 1,5 |
| 6kW | 320 | 420 | 50 | 1,5 |
| 6kW | 410 | 325 | 50 | 1,5 |
| 6kW | 535 | 270 | 50 | 1,5 |
| 6kW | 640 | 240 | 50 | 1,5 |
| 6kW | 680 | 225 | 50 | 1,5 |
| 6kW | 880 | 195 | 50 | 1,5 |
| 6kW | 1050 | 160 | 50 | 1,5 |

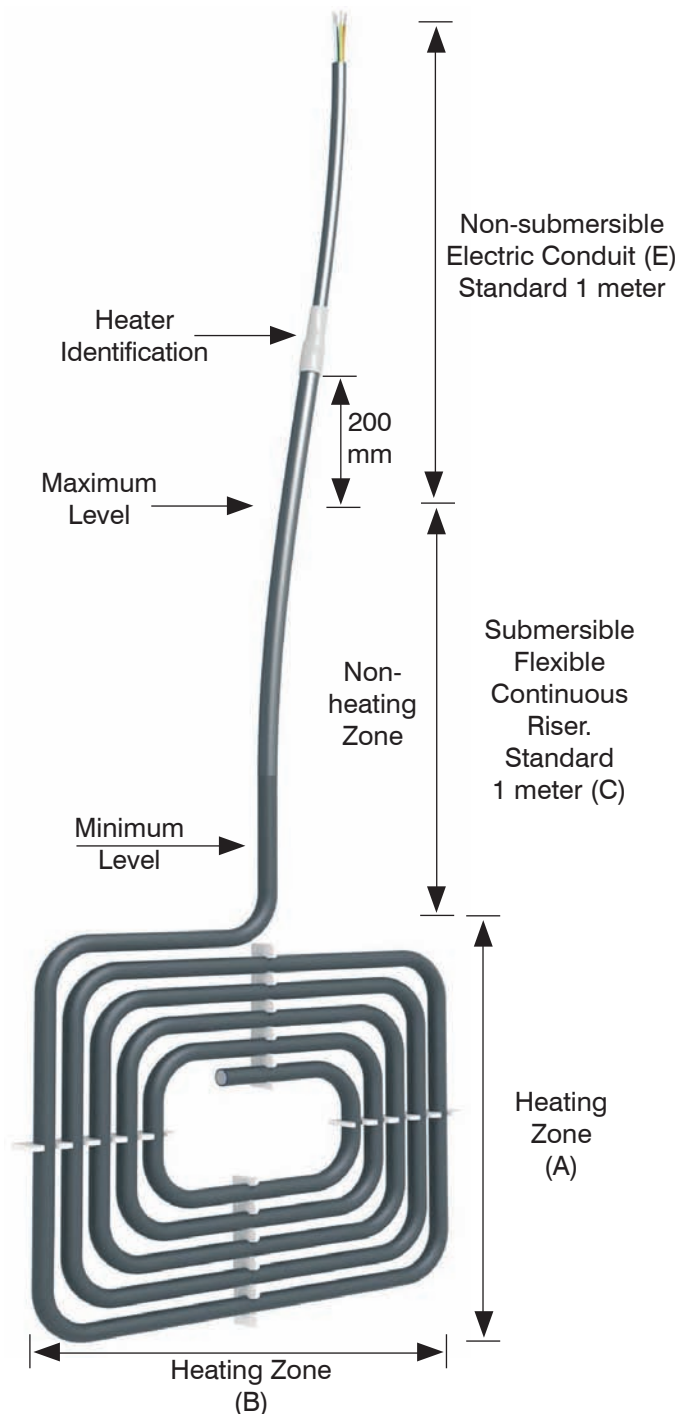
3 phase 400 Volts

| | A | B | Th. | W/cm ² |
|--------|------|-----|-----|-------------------|
| 2,25kW | 335 | 340 | 35 | 1,5 * |
| 2,25kW | 400 | 280 | 35 | 1,5 * |
| 2,25kW | 460 | 255 | 35 | 1,5 * |
| 2,25kW | 530 | 230 | 35 | 1,5 * |
| 2,25kW | 625 | 215 | 35 | 1,5 * |
| 2,25kW | 1030 | 150 | 35 | 1,5 * |
| 3kW | 320 | 420 | 35 | 1,5 * |
| 3kW | 410 | 325 | 35 | 1,5 * |
| 3kW | 535 | 270 | 35 | 1,5 * |
| 3kW | 640 | 240 | 35 | 1,5 * |
| 3kW | 680 | 225 | 35 | 1,5 * |
| 3kW | 880 | 195 | 35 | 1,5 * |
| 3kW | 1050 | 160 | 35 | 1,5 * |
| 3,7kW | 320 | 420 | 35 | 2,0 |
| 3,7kW | 410 | 325 | 35 | 2,0 |
| 3,7kW | 535 | 270 | 35 | 2,0 |
| 3,7kW | 640 | 240 | 35 | 2,0 |
| 3,7kW | 680 | 225 | 35 | 2,0 |
| 3,7kW | 880 | 195 | 35 | 2,0 |
| 3,7kW | 1050 | 160 | 35 | 2,0 |

Options:

Overheat Protection OHP 1 or OHP 2

L-bent Bottom Mount



STFX - Flexible PTFE Heaters

Flexible Design, Certified, Flexible Risers

Ratings 4500-15000 Watts

Voltage: 1 Phase 230 V, or 3-Phase 400 V

* Also available in 3-phase 230 V

Important and valuable feature

The heating elements are individually replaceable
In case of failure you only need to replace the failed heating element, not the entire heater

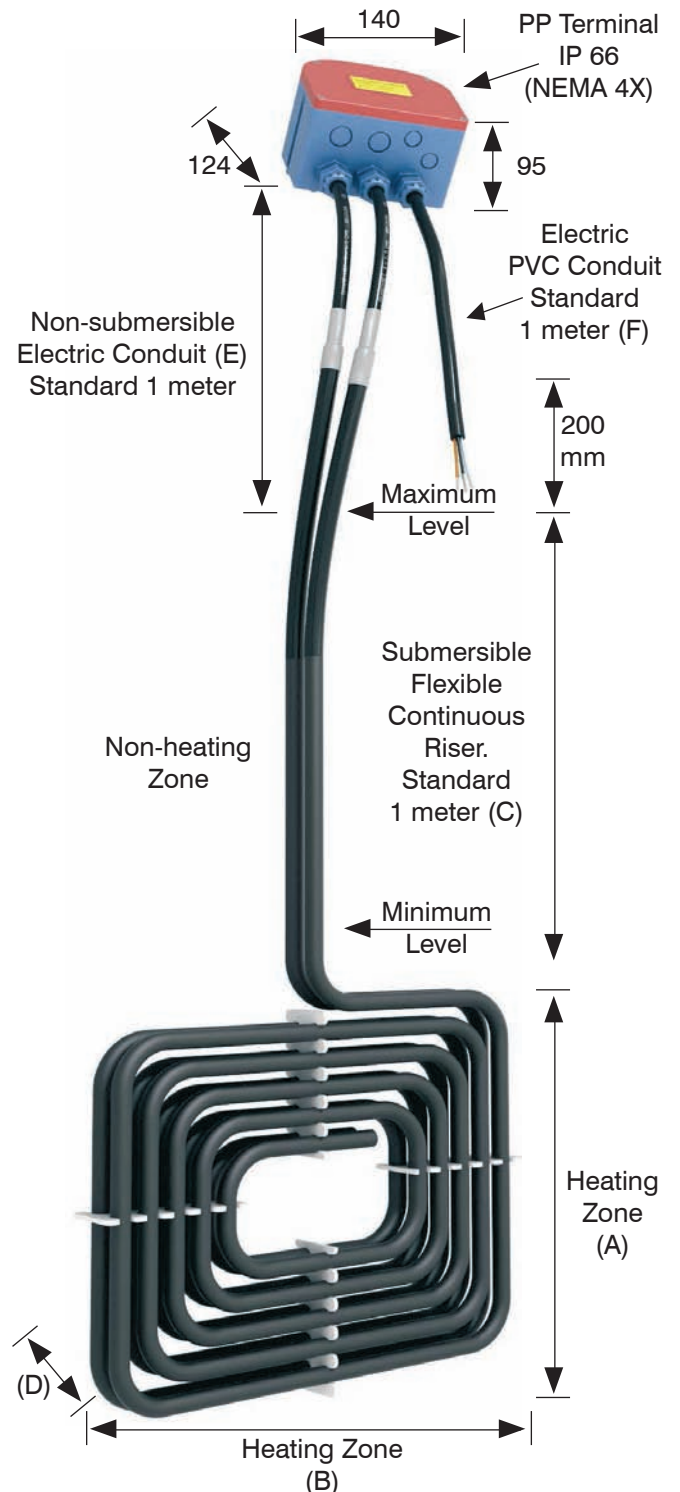
Options:

Overheat Protection OHP 1 or OHP 2
L-bent Bottom Mount

Standard sizes

3 phase 400 Volts

| | A | B | Th. | W/cm ² |
|-------|------|-----|-----|-------------------|
| 4,5kW | 335 | 340 | 50 | 1,5 * |
| 4,5kW | 400 | 280 | 50 | 1,5 * |
| 4,5kW | 460 | 255 | 50 | 1,5 * |
| 4,5kW | 530 | 230 | 50 | 1,5 * |
| 4,5kW | 625 | 215 | 50 | 1,5 * |
| 4,5kW | 1030 | 150 | 50 | 1,5 * |
| 6kW | 320 | 420 | 50 | 1,5 * |
| 6kW | 410 | 325 | 50 | 1,5 * |
| 6kW | 535 | 270 | 50 | 1,5 * |
| 6kW | 640 | 240 | 50 | 1,5 * |
| 6kW | 680 | 225 | 50 | 1,5 * |
| 6kW | 880 | 195 | 50 | 1,5 * |
| 6kW | 1050 | 160 | 50 | 1,5 * |
| 7,4kW | 320 | 420 | 50 | 2,0 |
| 7,4kW | 410 | 325 | 50 | 2,0 |
| 7,4kW | 535 | 270 | 50 | 2,0 |
| 7,4kW | 640 | 240 | 50 | 2,0 |
| 7,4kW | 680 | 225 | 50 | 2,0 |
| 7,4kW | 880 | 195 | 50 | 2,0 |
| 7,4kW | 1050 | 160 | 50 | 2,0 |
| 9kW | 320 | 420 | 75 | 1,5 * |
| 9kW | 410 | 325 | 75 | 1,5 * |
| 9kW | 535 | 270 | 75 | 1,5 * |
| 9kW | 640 | 240 | 75 | 1,5 * |
| 9kW | 680 | 225 | 75 | 1,5 * |
| 9kW | 880 | 195 | 75 | 1,5 * |
| 9kW | 1050 | 160 | 75 | 1,5 * |
| 11kW | 320 | 420 | 75 | 2,0 |
| 11kW | 410 | 325 | 75 | 2,0 |
| 11kW | 535 | 270 | 75 | 2,0 |
| 11kW | 640 | 240 | 75 | 2,0 |
| 11kW | 680 | 225 | 75 | 2,0 |
| 11kW | 880 | 195 | 75 | 2,0 |
| 11kW | 1050 | 160 | 75 | 2,0 |
| 12kW | 325 | 825 | 50 | 1,5 * |
| 12kW | 420 | 650 | 50 | 1,5 * |
| 12kW | 550 | 530 | 50 | 1,5 * |
| 12kW | 640 | 480 | 50 | 1,5 * |
| 12kW | 700 | 430 | 50 | 1,5 * |
| 12kW | 860 | 380 | 50 | 1,5 * |
| 12kW | 1050 | 330 | 50 | 1,5 * |
| 12kW | 1400 | 280 | 50 | 1,5 * |
| 15kW | 325 | 825 | 50 | 2,0 |
| 15kW | 420 | 650 | 50 | 2,0 |
| 15kW | 550 | 530 | 50 | 2,0 |
| 15kW | 640 | 480 | 50 | 2,0 |
| 15kW | 700 | 430 | 50 | 2,0 |
| 15kW | 860 | 380 | 50 | 2,0 |
| 15kW | 1050 | 330 | 50 | 2,0 |
| 15kW | 1400 | 280 | 50 | 2,0 |



Flexible Metal Heaters

SCAX – Stainless Steel, STIX – Titanium

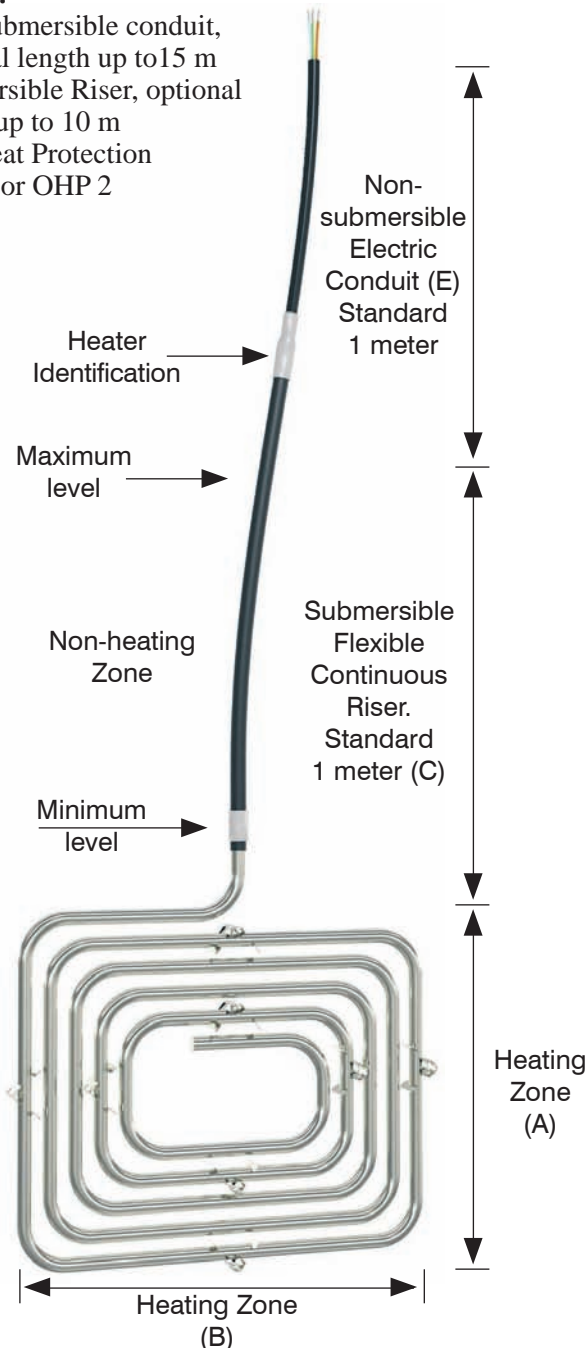
Flexible Design, Certified, Flexible Risers

Ratings 500-12000 Watts

Voltage: 1 Phase 230 V, or 3-Phase 400 V

* Also available in 3-phase 230 V

- **Use:** See Heater Selection Guideline, page 26-27
- **Efficient!** Suitable for bottom installation for excellent heat distribution.
- **Flexible!** Conduit and PTFE Riser (C) are continuous and flexible. Easy to install over the tank edge. Guards are standard.
- **Space saver!** The elements can be bent to meet your specific requirements at no extra cost!
- **Options:**
 - Non-submersible conduit, optional length up to 15 m
 - Submersible Riser, optional length up to 10 m
 - Overheat Protection OHP 1 or OHP 2



SCAX Stainless steel, EN 1.4404

1 phase 230 Volts

| | A | B | Th. | W/cm ² |
|-------|------|-----|-----|-------------------|
| 0,5kW | 230 | 180 | 35 | 1,5 * |
| 1kW | 230 | 260 | 35 | 1,5 * |
| 1,5kW | 260 | 300 | 35 | 1,5 * |
| 1,5kW | 320 | 260 | 35 | 1,5 * |
| 1,5kW | 350 | 220 | 35 | 1,5 * |
| 1,5kW | 420 | 210 | 35 | 1,5 * |
| 2kW | 340 | 280 | 35 | 1,5 * |
| 2kW | 540 | 200 | 35 | 1,5 * |
| 2kW | 290 | 370 | 35 | 1,5 * |
| 2kW | 245 | 410 | 35 | 1,5 * |
| 3kW | 320 | 420 | 35 | 2,9 |
| 3kW | 410 | 325 | 35 | 2,9 |
| 3kW | 535 | 270 | 35 | 2,9 |
| 3kW | 640 | 240 | 35 | 2,9 |
| 3kW | 680 | 225 | 35 | 2,9 |
| 3kW | 880 | 195 | 35 | 2,9 |
| 3kW | 1050 | 160 | 35 | 2,9 |

SCAX Stainless steel, EN 1.4404

3 phase 400 Volts

| | A | B | Th. | W/cm ² |
|--------|------|-----|-----|-------------------|
| 2,25kW | 335 | 340 | 35 | 1,6 * |
| 2,25kW | 400 | 280 | 35 | 1,6 * |
| 2,25kW | 460 | 255 | 35 | 1,6 * |
| 2,25kW | 530 | 230 | 35 | 1,6 * |
| 2,25kW | 625 | 215 | 35 | 1,6 * |
| 2,25kW | 1030 | 150 | 35 | 1,6 * |
| 3kW | 320 | 420 | 35 | 1,5 * |
| 3kW | 410 | 325 | 35 | 1,5 * |
| 3kW | 535 | 270 | 35 | 1,5 * |
| 3kW | 640 | 240 | 35 | 1,5 * |
| 3kW | 680 | 225 | 35 | 1,5 * |
| 3kW | 880 | 195 | 35 | 1,5 * |
| 3kW | 1050 | 160 | 35 | 1,5 * |
| 3,7kW | 320 | 420 | 35 | 2,0 |
| 3,7kW | 410 | 325 | 35 | 2,0 |
| 3,7kW | 535 | 270 | 35 | 2,0 |
| 3,7kW | 640 | 240 | 35 | 2,0 |
| 3,7kW | 680 | 225 | 35 | 2,0 |
| 3,7kW | 880 | 195 | 35 | 2,0 |
| 3,7kW | 1050 | 160 | 35 | 2,0 |
| 4,5kW | 320 | 420 | 35 | 2,5 |
| 4,5kW | 410 | 325 | 35 | 2,5 |
| 4,5kW | 535 | 270 | 35 | 2,5 |
| 4,5kW | 640 | 240 | 35 | 2,5 |
| 4,5kW | 680 | 225 | 35 | 2,5 |
| 4,5kW | 880 | 195 | 35 | 2,5 |
| 4,5kW | 1050 | 160 | 35 | 2,5 |
| 6kW | 320 | 420 | 35 | 3,8 |
| 6kW | 410 | 325 | 35 | 3,8 |
| 6kW | 535 | 270 | 35 | 3,8 |
| 6kW | 640 | 240 | 35 | 3,8 |
| 6kW | 680 | 225 | 35 | 3,8 |
| 6kW | 880 | 195 | 35 | 3,8 |
| 6kW | 1050 | 160 | 35 | 3,8 |
| 7,5kW | 320 | 420 | 35 | 4,1 |
| 7,5kW | 410 | 325 | 35 | 4,1 |
| 7,5kW | 535 | 270 | 35 | 4,1 |
| 7,5kW | 640 | 240 | 35 | 4,1 |
| 7,5kW | 680 | 225 | 35 | 4,1 |
| 7,5kW | 880 | 195 | 35 | 4,1 |
| 7,5kW | 1050 | 160 | 35 | 4,1 |

SCAX Stainless steel, EN 1.4404
3 phase 400 Volts

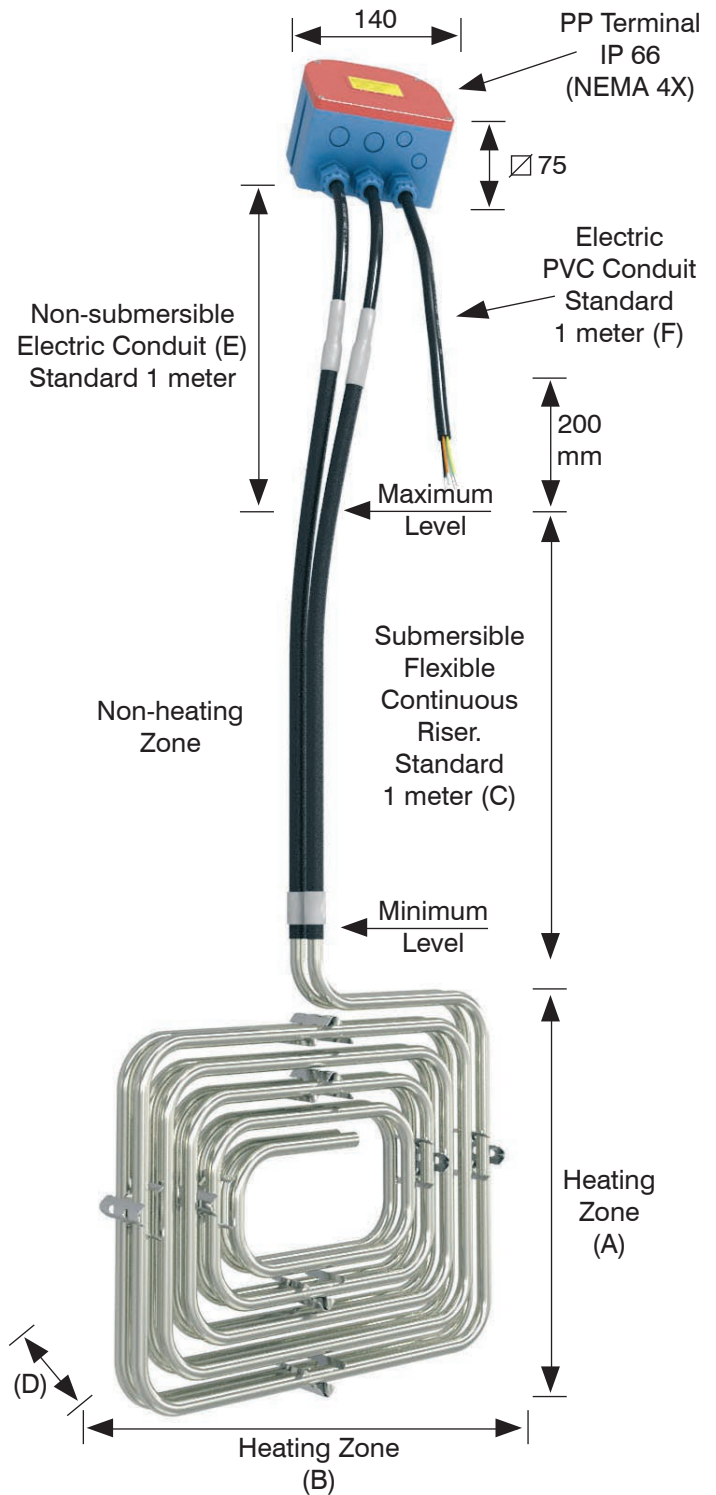
| | A | B | Th. | W/cm ² |
|------|------|-----|-----|-------------------|
| 9kW | 320 | 420 | 35 | 5,6 |
| 9kW | 410 | 325 | 35 | 5,6 |
| 9kW | 535 | 270 | 35 | 5,6 |
| 9kW | 640 | 240 | 35 | 5,6 |
| 9kW | 680 | 225 | 35 | 5,6 |
| 9kW | 880 | 195 | 35 | 5,6 |
| 9kW | 1050 | 160 | 35 | 5,6 |
| 12kW | 320 | 420 | 35 | 6,8 |
| 12kW | 410 | 325 | 35 | 6,8 |
| 12kW | 535 | 270 | 35 | 6,8 |
| 12kW | 640 | 240 | 35 | 6,8 |
| 12kW | 680 | 225 | 35 | 6,8 |
| 12kW | 880 | 195 | 35 | 6,8 |
| 12kW | 1050 | 160 | 35 | 6,8 |
| 12kW | 320 | 420 | 50 | 3,8 |
| 12kW | 410 | 325 | 50 | 3,8 |
| 12kW | 535 | 270 | 50 | 3,8 |
| 12kW | 640 | 240 | 50 | 3,8 |
| 12kW | 680 | 225 | 50 | 3,8 |
| 12kW | 880 | 195 | 50 | 3,8 |
| 12kW | 1050 | 160 | 50 | 3,8 |

STIX Titanium, Grade 2 commercial pure
1 phase 230 Volts

| | A | B | Th. | W/cm ² |
|-----|-----|-----|-----|-------------------|
| 1kW | 290 | 260 | 35 | 1,3 |
| 2kW | 250 | 350 | 35 | 1,8 |
| 2kW | 340 | 250 | 35 | 1,8 |
| 2kW | 470 | 200 | 35 | 1,8 |
| 3kW | 250 | 350 | 35 | 2,8 |
| 3kW | 340 | 250 | 35 | 2,8 |
| 3kW | 470 | 200 | 35 | 2,8 |
| 4kW | 250 | 350 | 35 | 3,8 |
| 4kW | 340 | 250 | 35 | 3,8 |
| 4kW | 470 | 200 | 35 | 3,8 |

STIX Titanium, Grade 2 commercial pure
3 phase 400 Volts

| | A | B | Th. | W/cm ² |
|-------|------|-----|-----|-------------------|
| 3kW | 230 | 320 | 35 | 3,8 |
| 3kW | 310 | 220 | 35 | 3,8 |
| 4,5kW | 335 | 340 | 35 | 3,1 |
| 4,5kW | 400 | 280 | 35 | 3,1 |
| 4,5kW | 460 | 255 | 35 | 3,1 |
| 4,5kW | 530 | 230 | 35 | 3,1 |
| 4,5kW | 625 | 215 | 35 | 3,1 |
| 4,5kW | 1030 | 150 | 35 | 3,1 |
| 6kW | 335 | 340 | 35 | 4,1 |
| 6kW | 400 | 280 | 35 | 4,1 |
| 6kW | 460 | 255 | 35 | 4,1 |
| 6kW | 530 | 230 | 35 | 4,1 |
| 6kW | 625 | 215 | 35 | 4,1 |
| 6kW | 1030 | 150 | 35 | 4,1 |
| 9kW | 320 | 420 | 35 | 4,9 |
| 9kW | 410 | 325 | 35 | 4,9 |
| 9kW | 535 | 270 | 35 | 4,9 |
| 9kW | 640 | 240 | 35 | 4,9 |
| 9kW | 680 | 225 | 35 | 4,9 |
| 9kW | 880 | 195 | 35 | 4,9 |
| 9kW | 1050 | 160 | 35 | 4,9 |
| 12kW | 320 | 420 | 35 | 6,6 |
| 12kW | 410 | 325 | 35 | 6,6 |
| 12kW | 535 | 270 | 35 | 6,6 |
| 12kW | 640 | 240 | 35 | 6,6 |
| 12kW | 680 | 225 | 35 | 6,6 |
| 12kW | 880 | 195 | 35 | 6,6 |
| 12kW | 1050 | 160 | 35 | 6,6 |



Model STFR rigid L-bent fluoropolymer (PTFE) electrical heaters

Ratings from 2250 - 15000 watts, voltage 3 phase 400 V

An all-round heater: Resistant to most acids and alkaline, max 90° C bath temperature.

L-bended design: For varying liquid levels and even heating.

Reliable duty: Excellent heat transfer , due to positive contact between heating element and PTFE coating. Heat is transferred directly to bath without internal build-up, thus increasing element life.

Heating element: Stainless steel 316L element grounded.

Connection box: Polypropylene material for good chemical resistance and vapor tight construction.

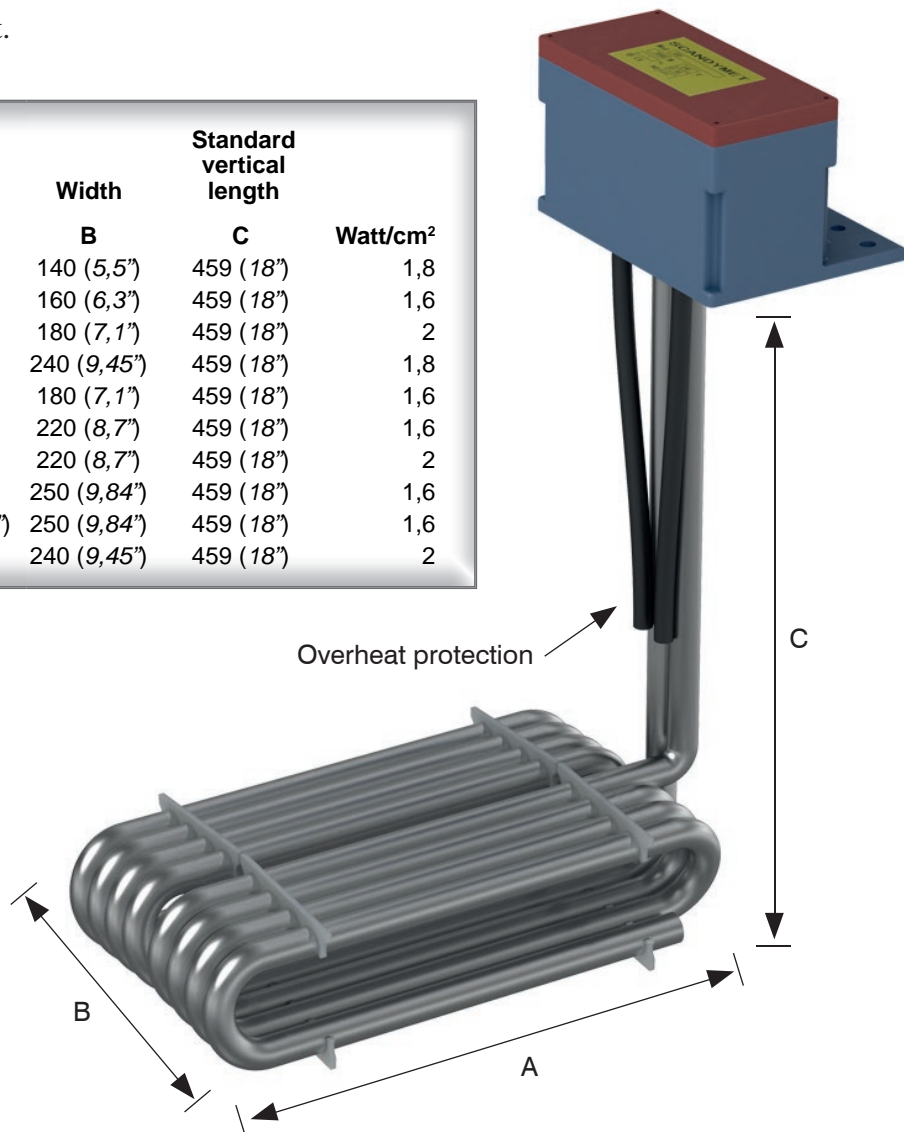
Electrical cabling: Standard electric cabling 4 meters.

Overheat protection: 2 exchangeable bimetallic sensors are standard.

Distance feet: Standard material is pure PTFE.

CE-marked product.

| kW | Length | | Standard vertical length | Watt/cm ² |
|------|--------------|-------------|--------------------------|----------------------|
| | A | B | | |
| 2,25 | 270 (10,6") | 140 (5,5") | 459 (18") | 1,8 |
| 3 | 270 (10,6") | 160 (6,3") | 459 (18") | 1,6 |
| 3,7 | 270 (10,6") | 180 (7,1") | 459 (18") | 2 |
| 4,5 | 270 (10,6") | 240 (9,45") | 459 (18") | 1,8 |
| 6 | 530 (20,7") | 180 (7,1") | 459 (18") | 1,6 |
| 6 | 450 (17,7") | 220 (8,7") | 459 (18") | 1,6 |
| 7,4 | 450 (17,7") | 220 (8,7") | 459 (18") | 2 |
| 9 | 530 (20,7") | 250 (9,84") | 459 (18") | 1,6 |
| 12 | 730 (28,74") | 250 (9,84") | 459 (18") | 1,6 |
| 15 | 780 (30,7") | 240 (9,45") | 459 (18") | 2 |



SFO - Tubular Heater for Phosphate

Ratings 1000-3300 Watts

Voltage: 1 phase 230 V or 3 phase 400 V

Head

Reinforced PP, Ø 85mm

Sealing IP66 (NEMA 4X)

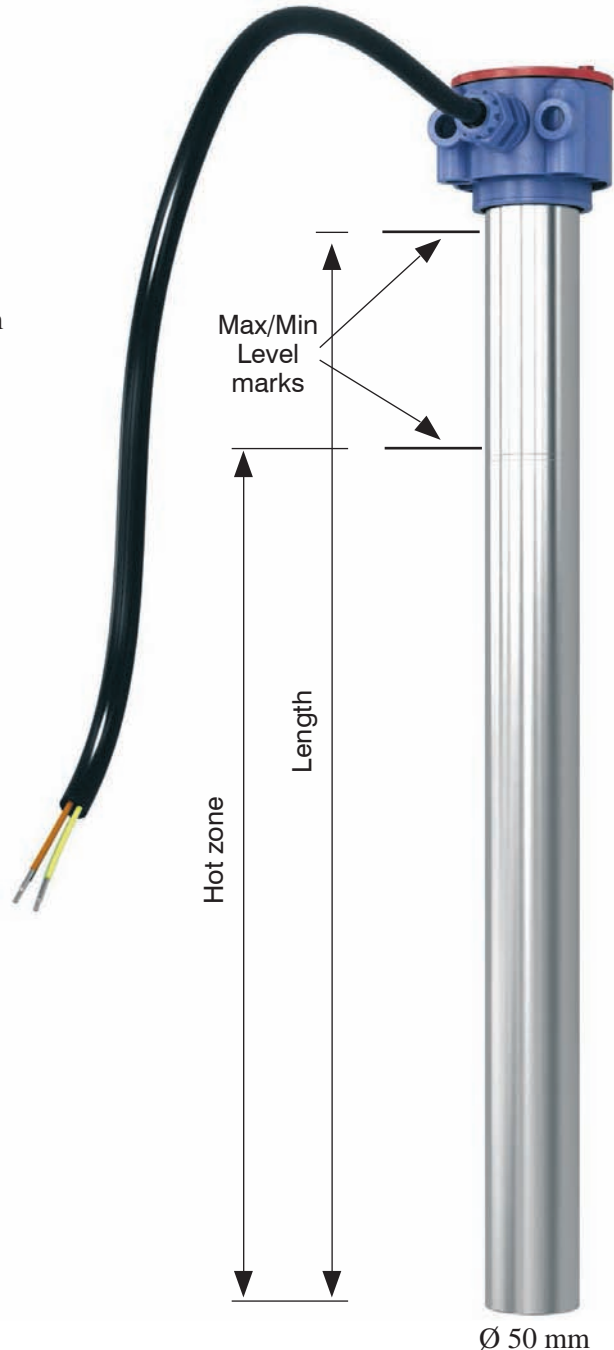
Threaded O-ring sealed lid

- ☐ SFO is the answer for your heavy duty service
- ☐ Heating element cast in aluminum inside tube Ø 50mm
- ☐ Tube Ø50mm of Stainless Steel, EN 1.4404
- ☐ Excellent heat transfer
- ☐ Impact resistant
- ☐ Withstands mechanical cleaning
- ☐ Head from Reinforced PP, Ø 85mm
- ☐ Threaded O-ring sealed lid
- ☐ Standard cable length 2m.
Additional length on request
Cable fixed inside head, not replaceable

EXAMPLE

| | | |
|---------------------|------|-------|
| SFO 600 10 3 | | |
| Length | 1 KW | Phase |

Specify +V: 1 for 1 phase 230 V
2 for 3 phase 230 V
3 for 3 phase 400 V



| Model | Watts | Length | Hot Zone | W/cm ² |
|--------------|-------|---------|----------|-------------------|
| SFO 60010 +V | 1000 | 580 mm | 450 mm | 1,5 |
| SFO 80018 +V | 1800 | 780 mm | 550 mm | 2,0 |
| SFO 10022 +V | 2200 | 980 mm | 720 mm | 2,0 |
| SFO 12528 +V | 2800 | 1230 mm | 870 mm | 2,0 |
| SFO 15033 +V | 3300 | 1470 mm | 1120 mm | 2,0 |

Tubular Heaters

STI – Titanium, SRF – Stainless Steel, SST – Mild Steel

Ratings 1000-4500 Watts

Voltage: 1 Phase 230 V or 3-Phase 400 V

For 3-Phase 230 V, please consult factory

Head

Reinforced PP, Ø 85mm

Sealing IP66 (NEMA 4X)

Threaded O-ring sealed lid

Easy access to replace conduit or heating element

Heating element

Heat resistant Stainless Steel

Element can easily be changed if necessary

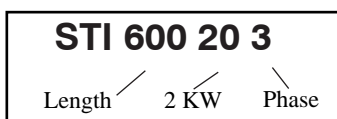
PVC Conduit

Grounded to metal parts

Standard length 2 m.

Additional length on request

EXAMPLE



Specify +V: 1 for 1 phase 230 V

2 for 3 phase 230 V

3 for 3 phase 400 V

STI Titanium, grade 2 commercial pure

Dia. 50 mm, thickness 0.9 mm.

| Model No. | Watts | Length | Hot Zone | W/cm ² |
|-------------|-------|--------|----------|-------------------|
| STI50010 +V | 1000 | 480 | 370 | 2,1 |
| STI60020 +V | 2000 | 570 | 460 | 3,0 |
| STI80020 +V | 2000 | 780 | 610 | 2,3 |
| STI80025 +V | 2500 | 780 | 610 | 2,9 |
| STI10030 +V | 3000 | 980 | 780 | 2,6 |
| STI12535 +V | 3500 | 1210 | 900 | 2,6 |
| STI15045 +V | 4500 | 1470 | 1150 | 2,6 |

SRF Stainless steel tubes, EN 1.4404

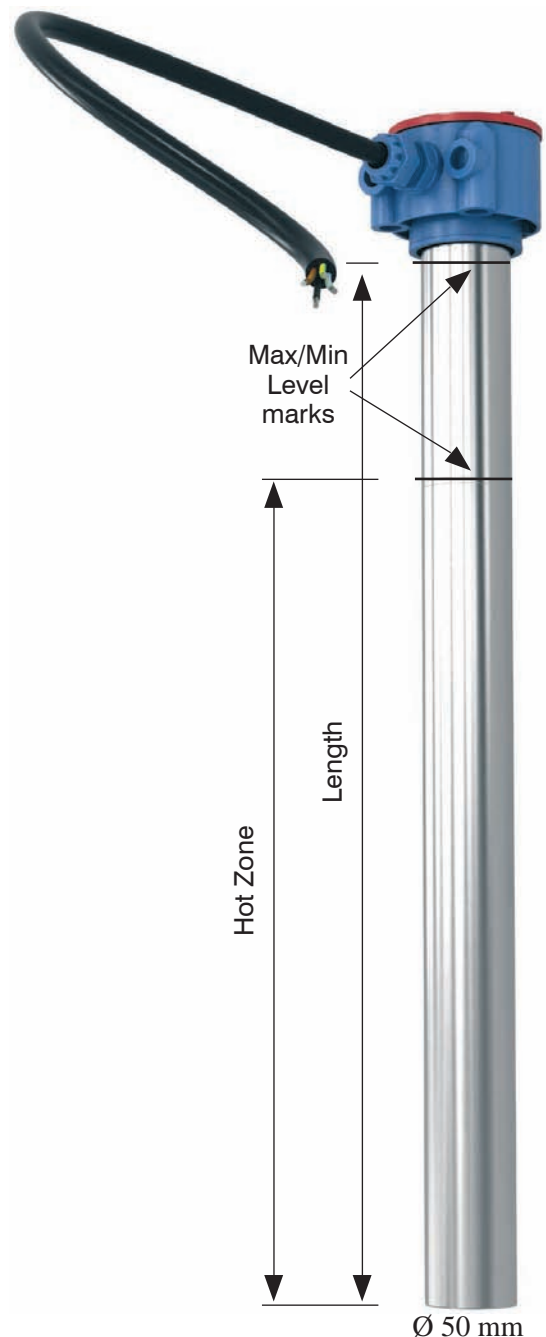
Dia. 50 mm, thickness 1.5 mm.

| Model No. | Watts | Length | Hot Zone | W/cm ² |
|-------------|-------|--------|----------|-------------------|
| SRF50010 +V | 1000 | 480 | 370 | 2,1 |
| SRF60020 +V | 2000 | 570 | 460 | 3,0 |
| SRF80020 +V | 2000 | 780 | 610 | 2,3 |
| SRF80025 +V | 2500 | 780 | 610 | 2,9 |
| SRF10030 +V | 3000 | 980 | 780 | 2,6 |
| SRF12535 +V | 3500 | 1210 | 900 | 2,6 |
| SRF15045 +V | 4500 | 1470 | 1150 | 2,6 |

SST Steel tubes, EN 1.0037

Dia. 50 mm, thickness 1.5 mm.

| Model No. | Watts | Length | Hot Zone | W/cm ² |
|-------------|-------|--------|----------|-------------------|
| SST50010 +V | 1000 | 480 | 370 | 2,1 |
| SST60020 +V | 2000 | 570 | 460 | 3,0 |
| SST80020 +V | 2000 | 780 | 610 | 2,3 |
| SST80025 +V | 2500 | 780 | 610 | 2,9 |
| SST10030 +V | 3000 | 980 | 780 | 2,6 |
| SST12535 +V | 3500 | 1210 | 900 | 2,6 |
| SST15045 +V | 4500 | 1470 | 1150 | 2,6 |



Tubular Heaters

STE – PTFE-coated Tubular Heater, SQG – Transparent Quartz Heater

Ratings 1000-4500 Watts

Voltage: 1 Phase 230 V or 3-Phase 400 V

For 3-Phase 230 V, please consult factory

Head

Reinforced PP, Ø 85mm

Sealing IP66 (NEMA 4X)

Threaded O-ring sealed lid

Easy access to replace conduit or heating element

PVC Conduit

Grounded to metal parts

Standard length 2 m.

Additional length on request

Quartz tubes

Dia. 50 mm, thickness 3,5 mm.

| Model No. | Watts | Length | Hot Zone | W/cm ² |
|-------------|-------|--------|----------|-------------------|
| SQG50010 +V | 1000 | 480 | 370 | 2,1 |
| SQG60020 +V | 2000 | 570 | 460 | 2,8 |
| SQG80020 +V | 2000 | 780 | 610 | 2,3 |
| SQG80025 +V | 2500 | 780 | 610 | 2,6 |
| SQG10030 +V | 3000 | 980 | 780 | 2,6 |
| SQG12535 +V | 3500 | 1210 | 900 | 2,6 |
| SQG15045 +V | 4500 | 1470 | 1150 | 2,6 |

Teflon tubes

Dia. 50 mm, thickness 2,5 mm.

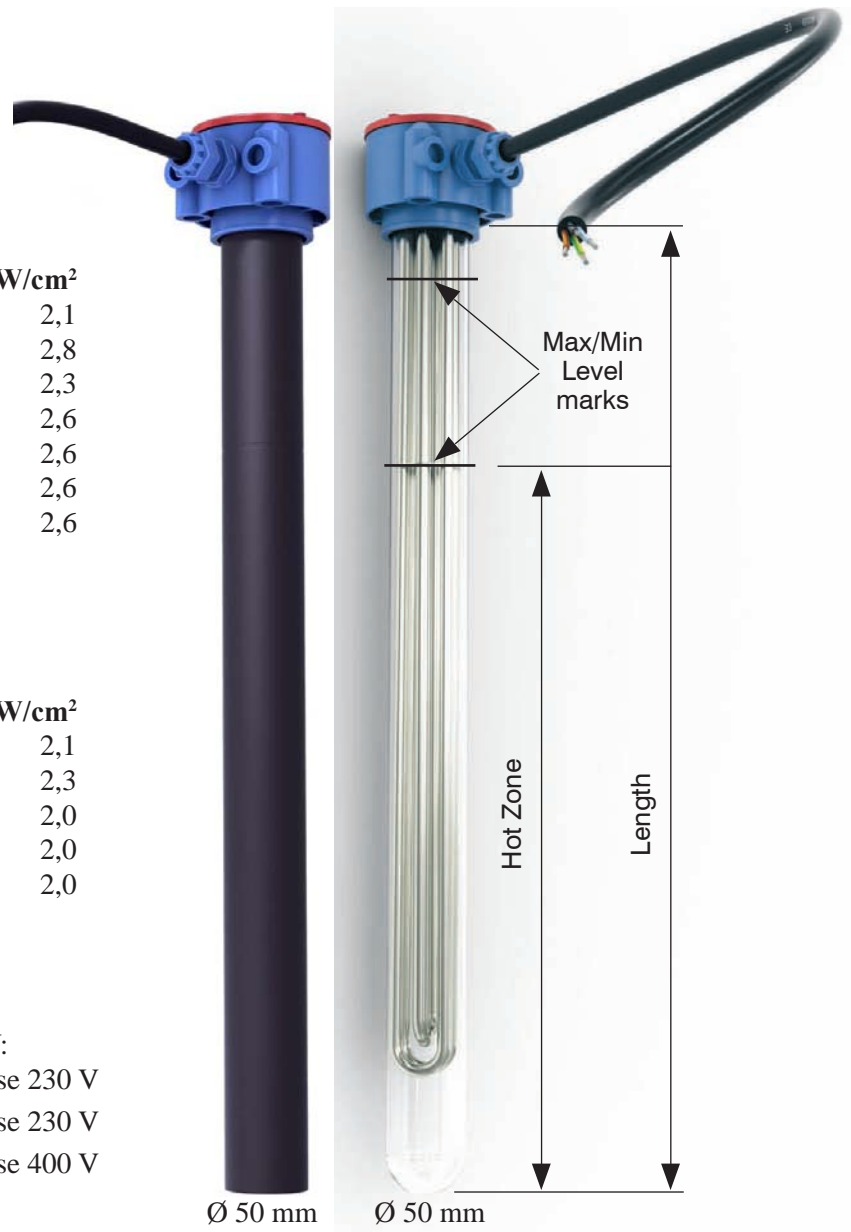
| Model No. | Watts | Length | Hot Zone | W/cm ² |
|-------------|-------|--------|----------|-------------------|
| STE60010 +V | 1000 | 480 | 370 | 2,1 |
| STE80020 +V | 2000 | 780 | 610 | 2,3 |
| STE10022 +V | 2200 | 980 | 780 | 2,0 |
| STE12528 +V | 2800 | 1210 | 900 | 2,0 |
| STE15033 +V | 3300 | 1470 | 1150 | 2,0 |



Heating Element

Heat resistant Stainless Steel

Element can easily be changed if necessary



EXAMPLE

| | | |
|---------------------|------|-------|
| SQG 600 20 3 | | |
| Length | 2 KW | Phase |

Specify +V:

1 for 1 phase 230 V

2 for 3 phase 230 V

3 for 3 phase 400 V

VAT Heaters

SMSP – Mild steel, **SSSP** – Stainless Steel, **STIP** – Titanium

Ratings 2-4 kW
Voltage: 1 Phase 230 V

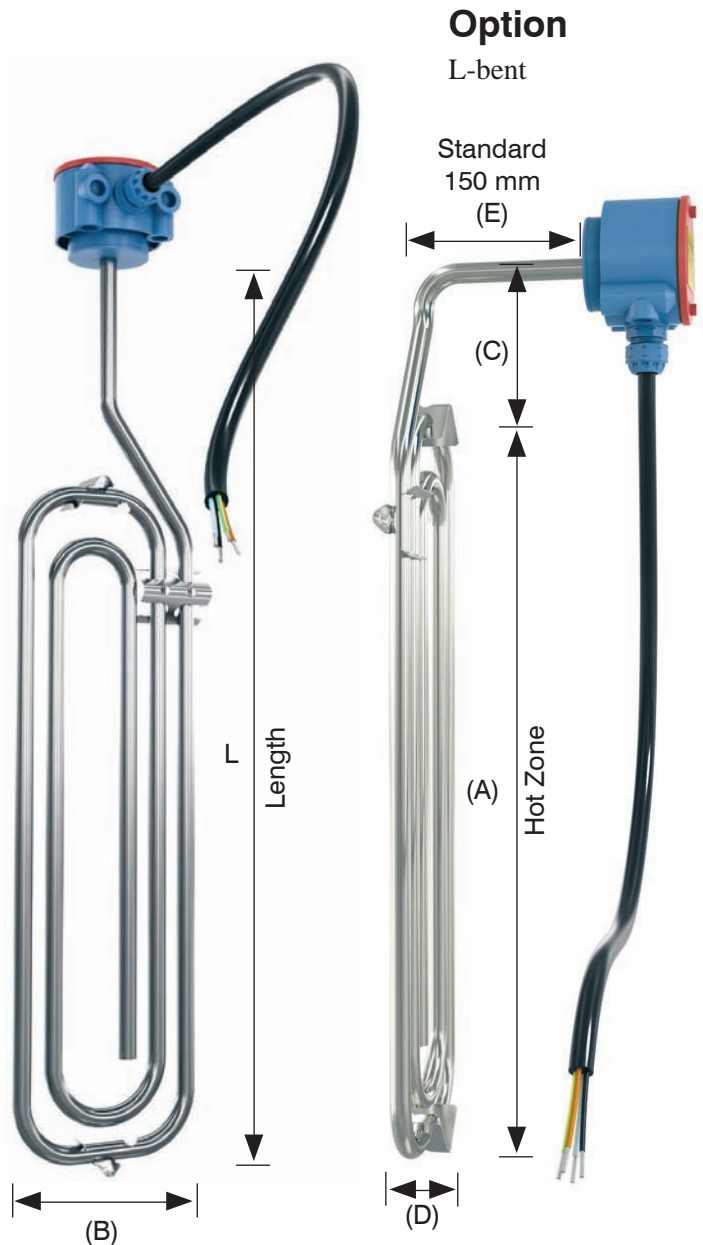
Head

Reinforced PP, Ø 85mm
Sealing IP66 (NEMA 4X)
Threaded O-ring sealed lid

PVC Conduit

Grounded to metal parts
Standard length 2 m.
Additional length on request
Cable fixed inside head, not replaceable

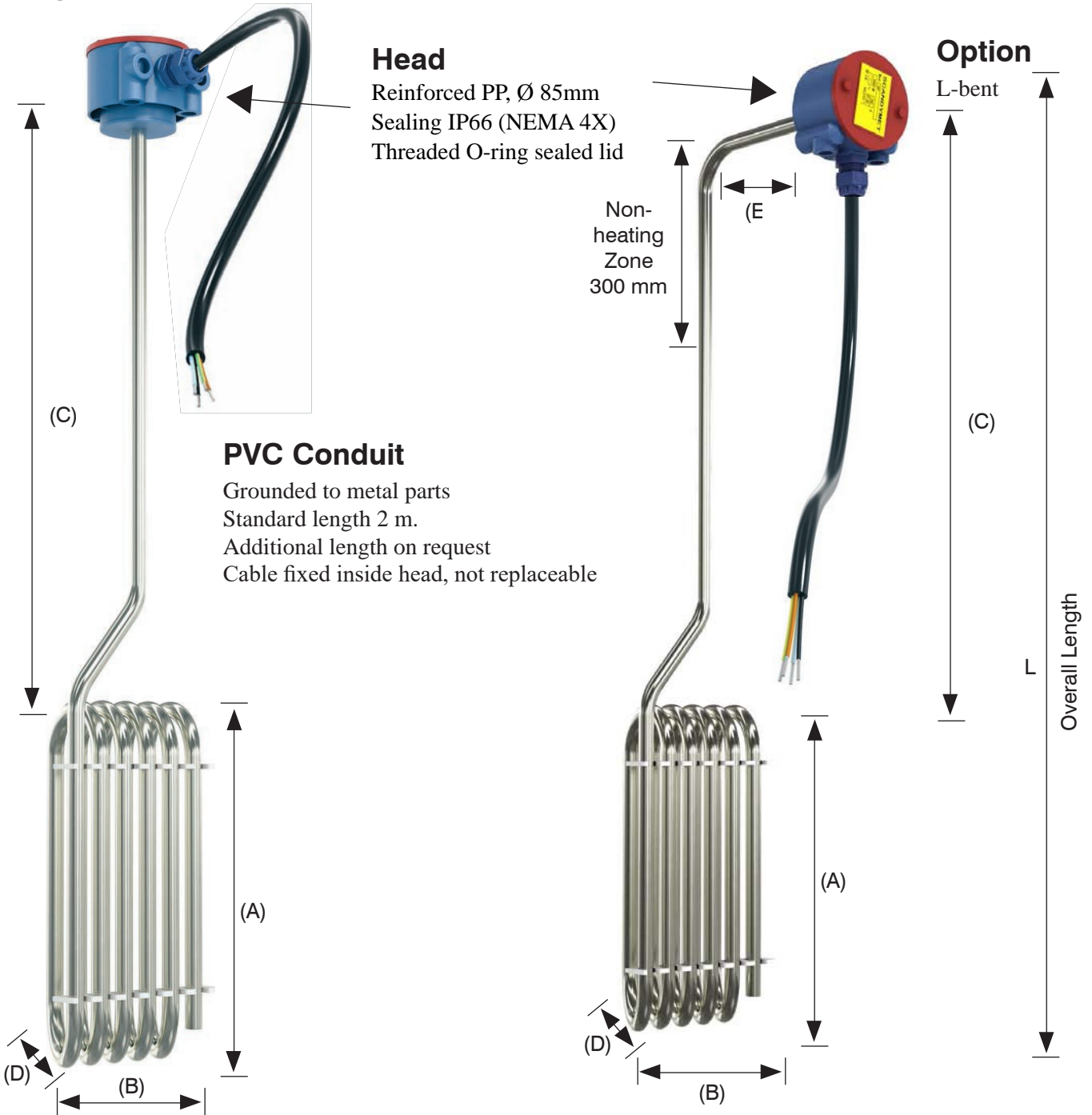
| kW | A | B | C | D | E | L | W/cm ² |
|---|-----|-------------|-----|-----|-----|-----|-------------------|
| 1-230V Heater with 2 m cable. | | | | | | | |
| SMSP Mild steel, EN 1.0037 | | | | | | | |
| 2 kW | 495 | 180 | 200 | 35 | 150 | 685 | 2,2 |
| 3 kW | 495 | 180 | 200 | 35 | 150 | 685 | 3,3 |
| 4 kW | 495 | 180 | 200 | 35 | 150 | 685 | 4,4 |
| SSSP Stainless steel, EN 1.4404 | | | | | | | |
| 2 kW | 495 | 180 | 200 | 35 | 150 | 685 | 2,2 |
| 3 kW | 495 | 180 <td 200 | 35 | 150 | 685 | 3,3 | |
| 4 kW | 495 | 180 | 200 | 35 | 150 | 685 | 4,4 |
| STIP Titanium, Grade 2 commercial pure | | | | | | | |
| 2 kW | 495 | 180 | 200 | 35 | 150 | 685 | 2,2 |
| 3 kW | 495 | 180 | 200 | 35 | 150 | 685 | 3,3 |
| 4 kW | 495 | 180 | 200 | 35 | 150 | 685 | 4,4 |



AUGUST, VAT Heater

August 1-14 – Stainless Steel, EN 1.4404 Ratings 3-9 kW, 3-Phase 400 V

August 7-14 – Titanium, Grade 2 commercial pure Ratings 6-9 kW, 3-Phase 400 V



3x400 V heater with 2 m cable.

| | A | B | C | D | E | L | W/cm ² | Model nr |
|--------|-----|-----|-----|----|-----|------|-------------------|-----------|
| 3 kW | 300 | 180 | 300 | 65 | 150 | 600 | 1,5 | August 1 |
| | 300 | 180 | 400 | 65 | 150 | 700 | 1,5 | August 2 |
| | 300 | 180 | 600 | 65 | 150 | 900 | 1,5 | August 3 |
| 4,5 kW | 300 | 180 | 300 | 65 | 150 | 600 | 2,5 | August 4 |
| | 300 | 180 | 400 | 65 | 150 | 700 | 2,5 | August 5 |
| | 300 | 180 | 600 | 65 | 150 | 900 | 2,5 | August 6 |
| 6 kW | 300 | 180 | 300 | 65 | 150 | 600 | 3,8 | August 7 |
| | 300 | 180 | 400 | 65 | 150 | 700 | 3,8 | August 8 |
| | 300 | 180 | 600 | 65 | 150 | 900 | 3,8 | August 9 |
| 9 kW | 300 | 180 | 900 | 65 | 150 | 1200 | 3,8 | August 10 |
| | 300 | 180 | 300 | 65 | 150 | 600 | 5,6 | August 11 |
| | 300 | 180 | 400 | 65 | 150 | 700 | 5,6 | August 12 |
| | 300 | 180 | 600 | 65 | 150 | 900 | 5,6 | August 13 |
| | 300 | 180 | 900 | 65 | 150 | 1200 | 5,6 | August 14 |

Manufacturer of certified VAT Teflon[®] Heater - STFP - rigid 0,5 - 3,7 kW

Voltage: 1 phase 230 V or 3 phase 400 V

Head

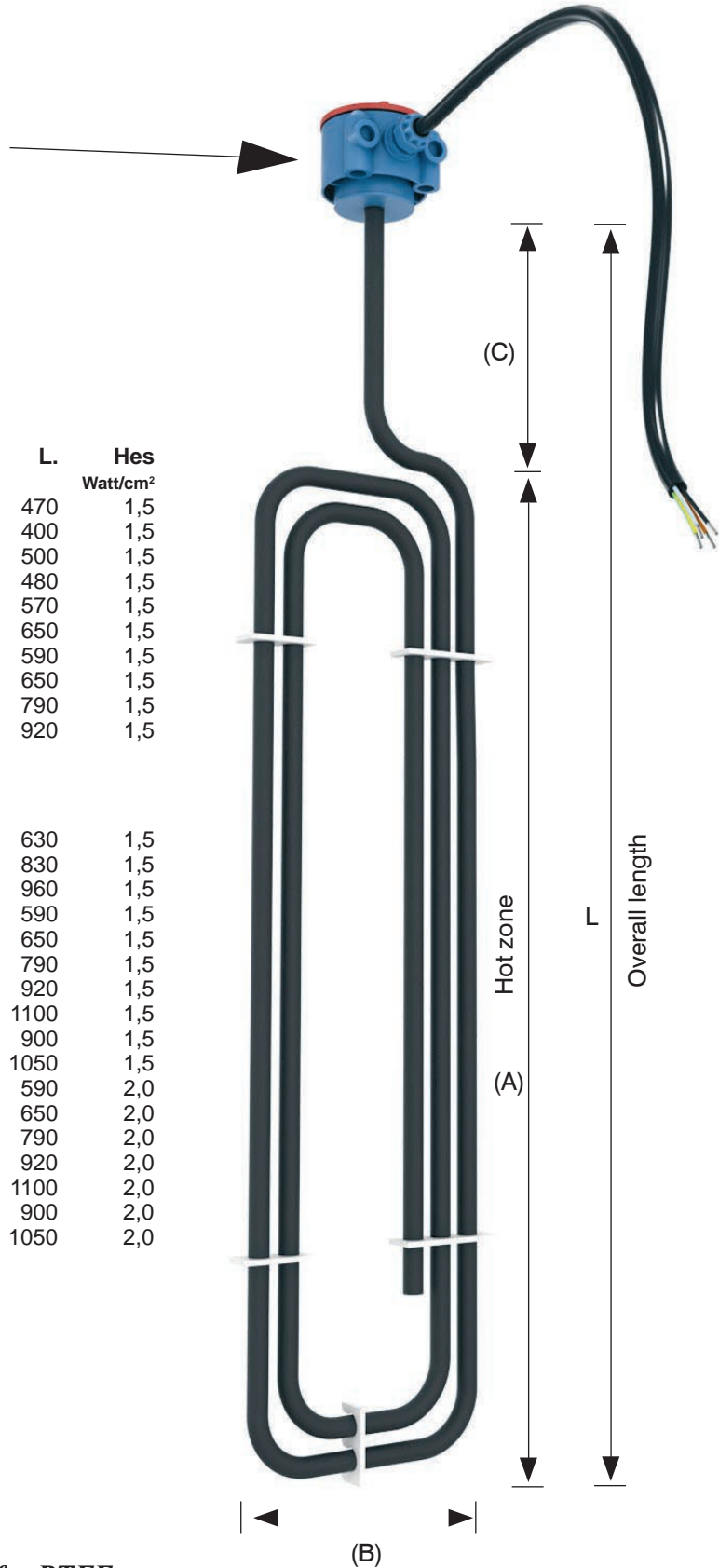
Sealing IP 66 (Nema 4X). Reinforced PP, diameter 85 mm. Threaded lid, sealed with O-rings.

STFP 1 phase 230 Volts

| | A | B | C | Th. | L. | Hes Watt/cm ² |
|-------|-----|-----|-----|-----|-----|-----------------------------|
| 0,5KW | 250 | 140 | 220 | 35 | 470 | 1,5 |
| 1KW | 220 | 290 | 200 | 35 | 400 | 1,5 |
| 1,5KW | 320 | 240 | 200 | 35 | 500 | 1,5 |
| 2KW | 280 | 340 | 200 | 35 | 480 | 1,5 |
| 2KW | 450 | 210 | 200 | 35 | 570 | 1,5 |
| 2KW | 390 | 240 | 200 | 35 | 650 | 1,5 |
| 3KW | 340 | 420 | 250 | 35 | 590 | 1,5 |
| 3KW | 400 | 320 | 250 | 35 | 650 | 1,5 |
| 3KW | 540 | 260 | 250 | 35 | 790 | 1,5 |
| 3KW | 720 | 220 | 200 | 35 | 920 | 1,5 |

STFP 3 phase 400 Volts

| | | | | | | |
|--------|-----|-----|-----|----|------|-----|
| 2,25KW | 430 | 250 | 200 | 35 | 630 | 1,5 |
| 2,25KW | 630 | 200 | 200 | 35 | 830 | 1,5 |
| 2,25KW | 760 | 175 | 200 | 35 | 960 | 1,5 |
| 3KW | 340 | 420 | 250 | 35 | 590 | 1,5 |
| 3KW | 400 | 320 | 250 | 35 | 650 | 1,5 |
| 3KW | 540 | 260 | 250 | 35 | 790 | 1,5 |
| 3KW | 720 | 220 | 200 | 35 | 920 | 1,5 |
| 3KW | 880 | 195 | 200 | 35 | 1100 | 1,5 |
| 3KW | 680 | 175 | 220 | 50 | 900 | 1,5 |
| 3KW | 850 | 175 | 200 | 50 | 1050 | 1,5 |
| 3,7KW | 340 | 420 | 250 | 35 | 590 | 2,0 |
| 3,7KW | 400 | 320 | 250 | 35 | 650 | 2,0 |
| 3,7KW | 540 | 260 | 250 | 35 | 790 | 2,0 |
| 3,7KW | 720 | 220 | 200 | 35 | 920 | 2,0 |
| 3,7KW | 880 | 195 | 200 | 35 | 1100 | 2,0 |
| 3,7KW | 680 | 175 | 220 | 50 | 900 | 2,0 |
| 3,7KW | 850 | 175 | 200 | 50 | 1050 | 2,0 |



* Teflon is the DuPont[™] trade name for PTFE.

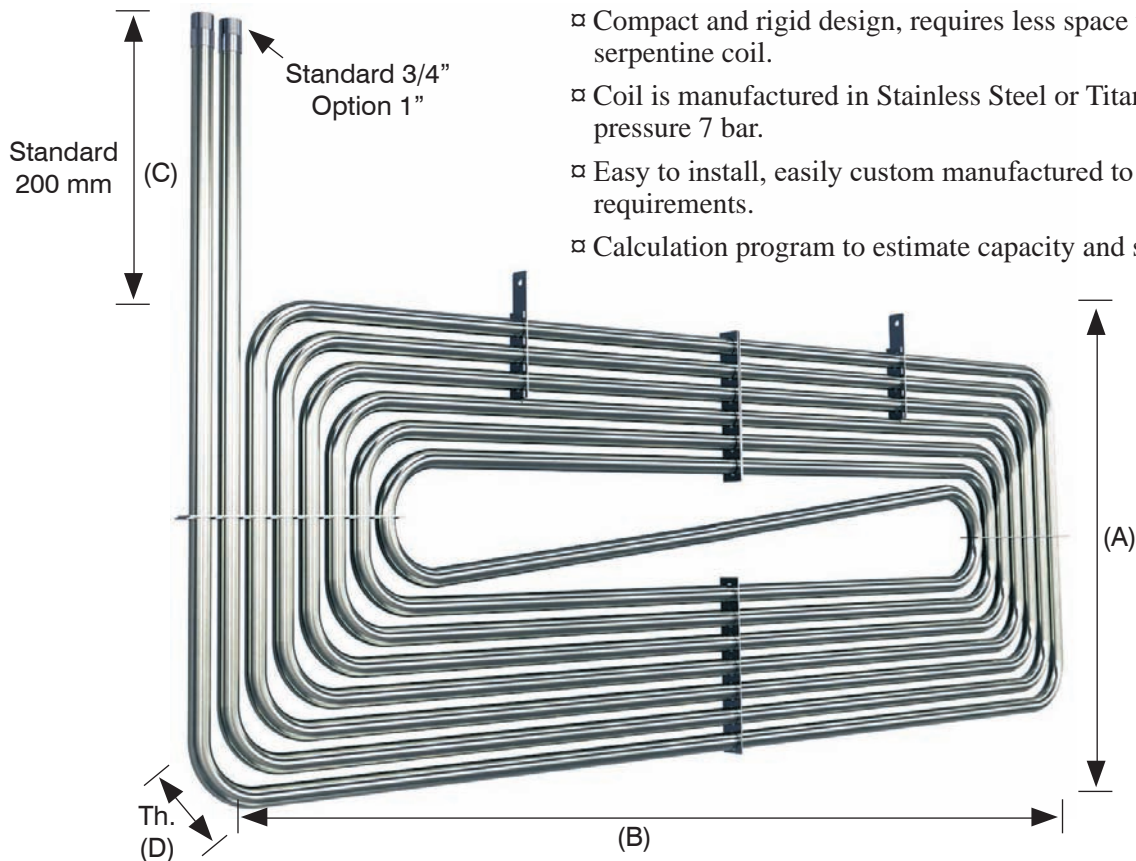
HAMPUS - Metallic Heat Exchanger for liquids

Stainless steel AISI 904L can be used in H₂SO₄ anodizing processes at operating temperatures up to 33°C.

Stainless Steel, EN 1.4404

Titanium, Grade 2 commercial pure

- For both heating and cooling applications
- Compact and rigid design, requires less space than a serpentine coil.
- Coil is manufactured in Stainless Steel or Titanium. Max pressure 7 bar.
- Easy to install, easily custom manufactured to meet specific requirements.
- Calculation program to estimate capacity and size of coil



One layer

Two layers

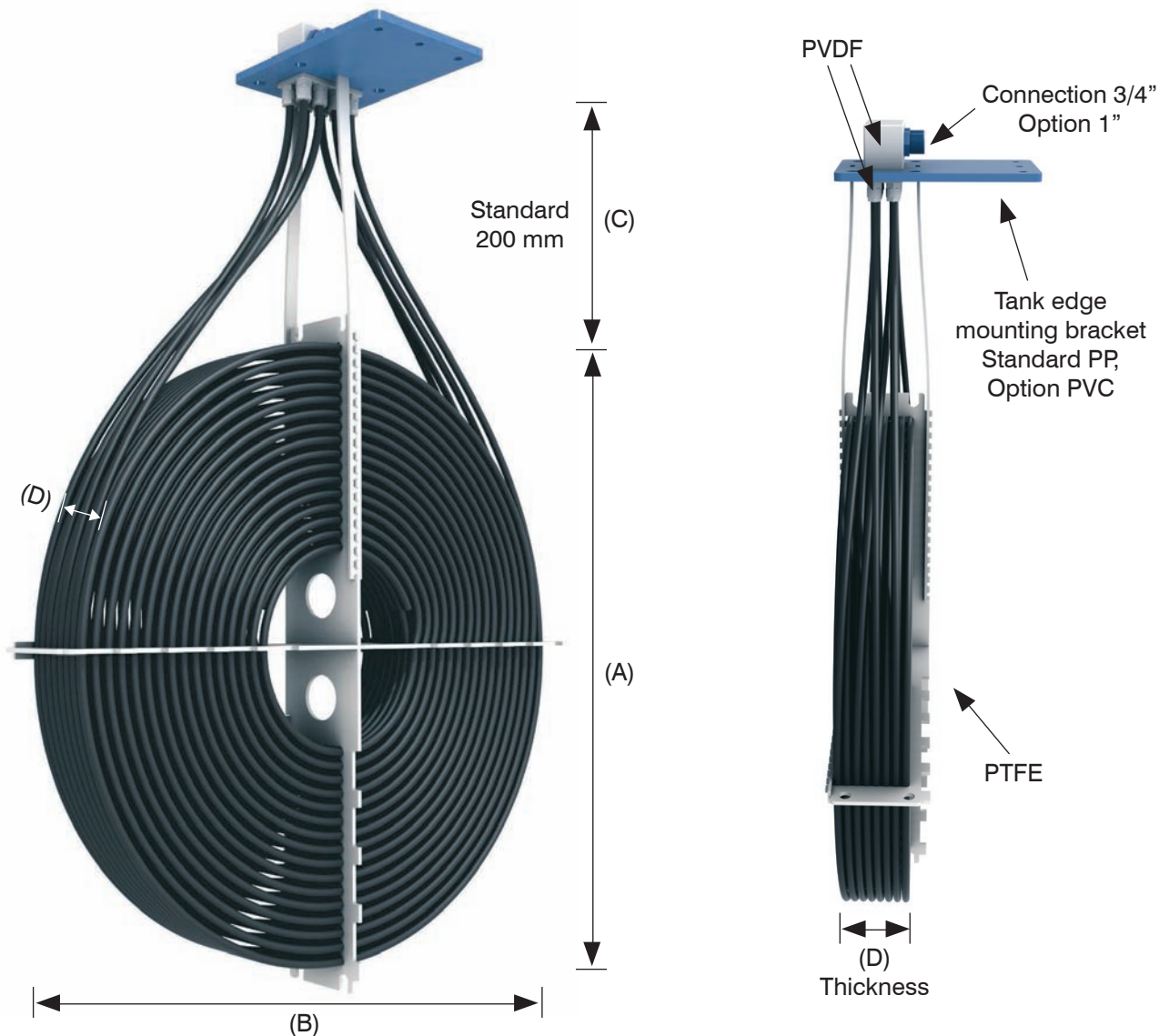
| A | B | D | Surface area | A | B | D | Surface area |
|------|------|----|--------------------|------|------|----|--------------------|
| 435 | 920 | 35 | 0,5 m ² | 390 | 810 | 70 | 0,7 m ² |
| 920 | 435 | 35 | 0,5 m ² | 810 | 390 | 70 | 0,6 m ² |
| 600 | 800 | 35 | 0,8 m ² | 890 | 580 | 70 | 1,6 m ² |
| 800 | 600 | 35 | 0,8 m ² | 580 | 890 | 70 | 1,8 m ² |
| 1080 | 580 | 35 | 1,0 m ² | 1000 | 705 | 70 | 2,4 m ² |
| 580 | 1080 | 35 | 1,0 m ² | 705 | 1000 | 70 | 2,5 m ² |
| 600 | 1400 | 35 | 1,2 m ² | 1050 | 840 | 70 | 3,2 m ² |
| 700 | 1100 | 35 | 1,2 m ² | 840 | 1050 | 70 | 3,3 m ² |
| 870 | 900 | 35 | 1,2 m ² | | | | |
| 1000 | 1180 | 35 | 1,4 m ² | | | | |
| 1180 | 1000 | 35 | 1,4 m ² | | | | |
| 1000 | 1050 | 35 | 1,7 m ² | | | | |
| 1620 | 600 | 35 | 1,7 m ² | | | | |
| 600 | 1620 | 35 | 1,9 m ² | | | | |
| 1860 | 735 | 35 | 2,2 m ² | | | | |
| 735 | 1860 | 35 | 2,5 m ² | | | | |
| 1500 | 900 | 35 | 2,5 m ² | | | | |
| 900 | 1500 | 35 | 2,7 m ² | | | | |

Other dimensions on request.

INGA - PTFE Tubular Heat Exchanger for corrosive liquids

- For both heating and cooling applications
- Compact design, standard range – much value for money!
- Max pressure 3 bar, Max temp 95° C
- Easy to install – ready for use
- Calculation program to estimate capacity and size of coil

- Options:
 - C-measurement can be modified to meet requirements
 - Mounting bracket: standard PP, option PVC
 - Pipe connection: standard 3/4", option 1"

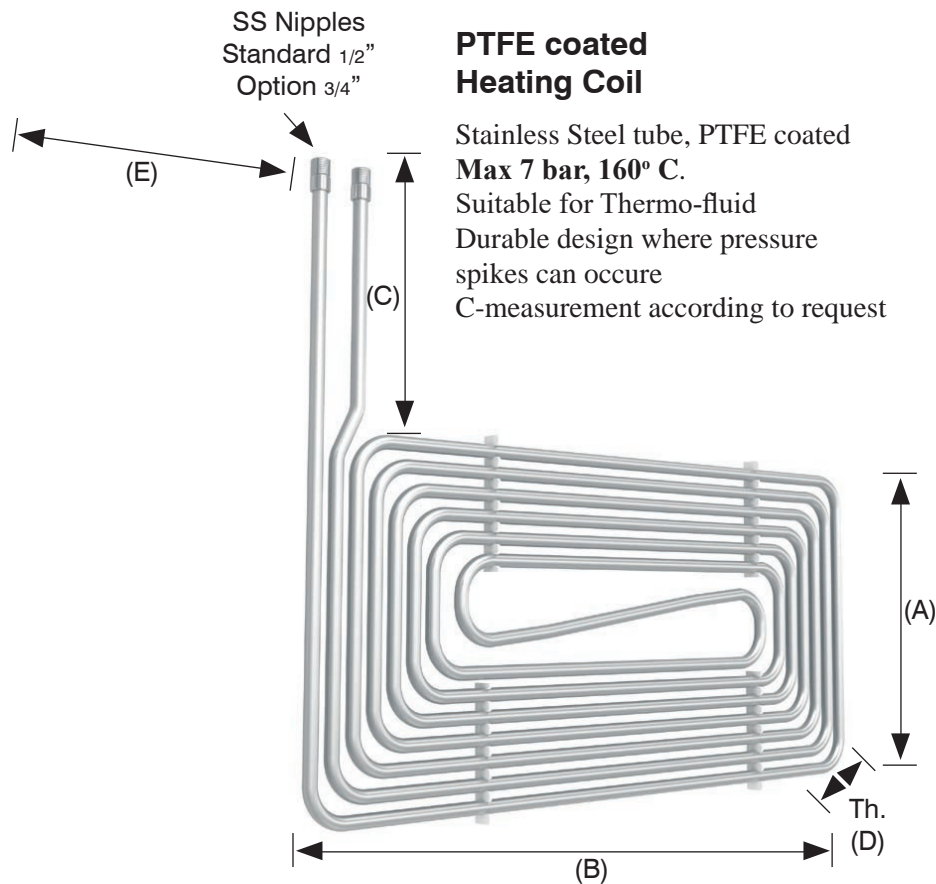


| A | B | C | D | Surface area m ² |
|-----|-----|-----|-----|--------------------------------|
| 530 | 530 | 200 | 60 | 0,8 |
| 580 | 580 | 200 | 60 | 1,2 |
| 630 | 630 | 200 | 80 | 1,8 |
| 705 | 705 | 200 | 80 | 2,0 |
| 760 | 760 | 200 | 80 | 2,5 |
| 805 | 805 | 200 | 80 | 2,8 |
| 710 | 710 | 200 | 130 | 2,8 |
| 650 | 650 | 200 | 150 | 3,5 |

| A | B | C | D | Surface area m ² |
|-----|-----|-----|-----|--------------------------------|
| 680 | 680 | 200 | 130 | 3,5 |
| 680 | 680 | 200 | 150 | 4,0 |
| 805 | 805 | 200 | 105 | 4,2 |
| 710 | 710 | 200 | 150 | 4,5 |
| 805 | 805 | 200 | 130 | 5,7 |
| 710 | 710 | 200 | 180 | 6,2 |
| 805 | 805 | 200 | 150 | 7,0 |
| 805 | 805 | 200 | 180 | 8,0 |

GUNNAR - Rigid Tubular Heat Exchanger for corrosive liquids

- Standard range, compact, rigid design.
- Open design, easy to inspect and clean.
- Can be custom manufactured to meet specific requirements.
- Calculation program to estimate capacity and size of coil.



Max 160° C. Max pressure 7 bar.

| A | B | C | E | D | Surface area m ² |
|-----|-----|-----|-----|-----|-----------------------------|
| 650 | 425 | 200 | 200 | 35 | 0,4 |
| 650 | 425 | 200 | 200 | 50 | 0,8 |
| 650 | 425 | 200 | 200 | 75 | 1,2 |
| 650 | 425 | 200 | 200 | 100 | 1,6 |
| 700 | 475 | 200 | 200 | 35 | 0,5 |
| 700 | 475 | 200 | 200 | 50 | 1,0 |
| 700 | 475 | 200 | 200 | 75 | 1,5 |
| 700 | 475 | 200 | 200 | 100 | 2,0 |
| 870 | 525 | 200 | 200 | 35 | 0,7 |
| 870 | 525 | 200 | 200 | 50 | 1,4 |
| 870 | 525 | 200 | 200 | 75 | 2,1 |
| 870 | 525 | 200 | 200 | 100 | 2,8 |

INGA – GUNNAR – HAMPUS

Metallic and Fluoropolymer Heat Exchangers Capacity and Size Calculation Example

Heating Coil (Double coils in one plane)
Summary of Calculations for Heating Coils

Page
1(1)

Customer:
Project:
Tank no: 1A
Calculation no: 1.

| | | | |
|--------------------------|--------|----------------|--|
| Volume to heat: | 2,3 | m ³ | |
| Liquid: water | 4175 | J/kg*oC | |
| Total power for heating: | 432113 | kJ | |
| Heating time: | 8 | h | |
| Starting temp.: | 20 | °C | |
| Operating temp.: | 65 | °C | |

| | | | |
|-------------------|----|----|--------|
| Heat supply water | 80 | °C | input |
| | 70 | °C | output |

Logarithmic mean temperature: 25,60 °C

Example of valuable information for your installation

| | | | |
|---------------------|----|----|----|
| Coil pipe: dia.out. | 25 | mm | |
| dia. in. | 23 | mm | |
| thickness 1 | 1 | mm | SS |
| thickness2 | 0 | mm | SS |

Total heat transfer coefficient 708,73 W/m².°C

Minimum flow required

| | | |
|----------------------|------|-------------------|
| Minimum flow | 1,29 | m ³ /h |
| no of parallel coils | 1 | pcs |
| flow speed | 0,86 | m/s |

Size of coil

| | | |
|---------------------------|-------|----------------|
| Length of one coil | 11,0 | m |
| Area of one coil | 0,830 | m ² |
| Area of 1 coils | 0,830 | m ² |
| pressure drop of one coil | 0,82 | m wc |

Pressure drop per coil

| | | |
|--------------------------------------|-----------|-----|
| Recommended diameter of feeding pipe | #MISSING! | mm |
| flow speed in feeding pipe | #MISSING! | m/s |
| | #MISSING! | |

| | |
|--|--------|
| The dimensions of the coil are shown in drawing no | Offen |
| Width | 810 mm |
| Height | 738 mm |

Recommendation for the choice of the feeding pump

| | | |
|----------------------------|------|------|
| Pressure loss for one coil | 0,82 | m wc |
| Geodetic difference | 2,00 | |
| Extra | 5,00 | |
| Total | 7,82 | m wc |

0,78 bar

| | | |
|-----------------------|-------|----|
| Calculated pump power | 0,042 | kW |
| Pump efficiency | 65 | % |

Needed pump power

Attachments for SCANDYMET Products

Fasteners



- Fastener in reinforced PP
- For mounting of flexible heaters on tank edge
- Fits all STFX, STIX and SCAX

PP-Fastener for Flexible Heater
2-holes **Product Code 15279**
4-holes **Product Code 15280**

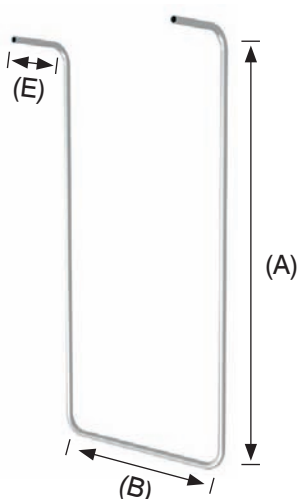


- Fastener in reinforced PP
- For mounting of tubular and all straight, rigid heaters on tank edge
- Fits STI, SRF, SST, SQG, STE STFP, MSP, SSP, TIP and August

PP-Fastener for Tubular Heater
Product code 15198

Frames for heaters

Rigid frames for flexible heaters
Frame builds 60 mm on (B) heater measurement
and 30 mm on (A) heater measurement



Frames manufactured in:

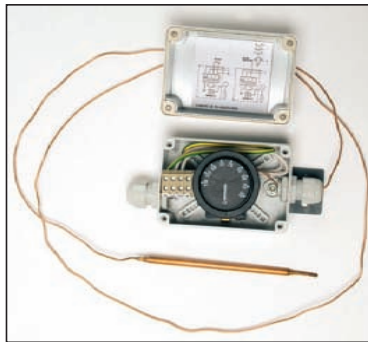
- Stainless steel
- Titanium
- Aluminium/
PVDF
- Stainless steel/
Teflon
- Stainless steel/
PVDF

Mounts for heaters in frame



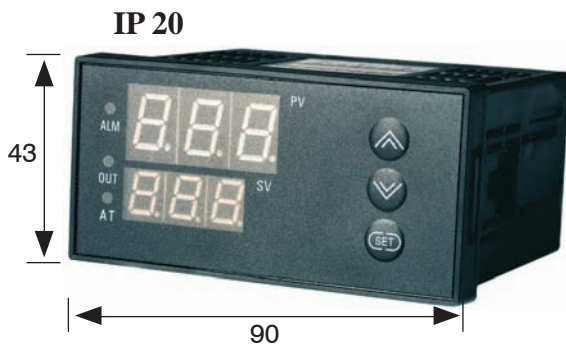
SCANDYMET Thermostat ISABELLE

Non indicating thermostat with plastic junction box.
 Temperature sensor PTFE coated for resistance in chemical solutions.

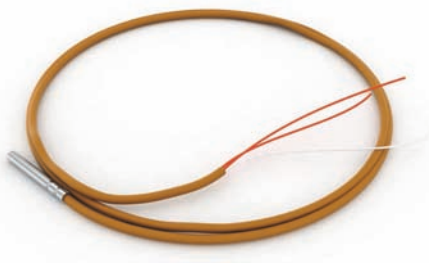


| Product code | Power | Max. wattage | Max. amps. | Temp. Range | Sensor length | Accuracy |
|--------------|--------|--------------|------------|-------------|---------------|------------|
| Isabelle 1 | 230V | 3100 | 16 | 30-90° C | 1,5 mtr. | +/- 1,5° C |
| Isabelle 2 | 3x400V | 9000 | 16 | 30-90° C | 1,5 mtr. | +/- 1,5° C |

SCANDYMET Digital Thermal Regulator KELVIN



Dual LED display to set range.
 Provides precise control in most aqueous processes
 Use with PT-100 sensor
 Temperature range with PT-100 sensor
 -50° C to +180° C. Accuracy +/- 0,6° C.
 Power 230V, 50/ 60 Hz
 Additional features: Type J,K,T thermocouples

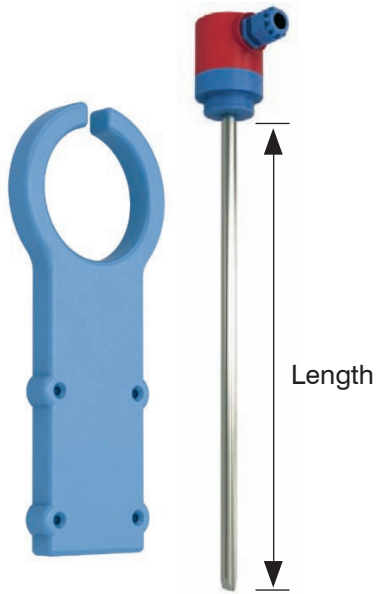


| Product code | |
|--------------|--------------------------------|
| PT-100 | Only the PT-100 |
| PT-100 Flex | PT-100 with PTFE coated sleeve |

PT-100 Flex sensor

- PTFE coated standard length 1,5 m + 1,5 m cable.
- Optional length consult factory.
- Temperature range -50° C to +180° C.

PT-100 sensors for different liquids



PT-100 Rigid sensor

- PTFE coated Stainless Steel (SS) probe.
- Standard lengths 200-1000 mm.
- Optional length consult factory.
- Temperature range -50° C to + 180° C.

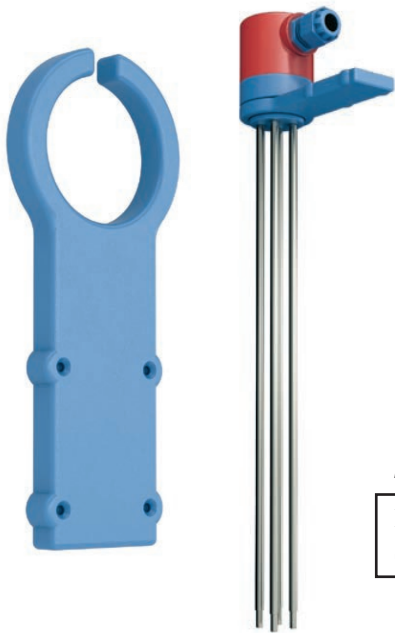
Rigid PTFE coated Stainless Steel (SS) probe

| Product code | Length |
|--------------|---------|
| PT100S200 | 200 mm |
| PT100S300 | 300 mm |
| PT100S400 | 400 mm |
| PT100S500 | 500 mm |
| PT100S600 | 600 mm |
| PT100S700 | 700 mm |
| PT100S800 | 800 mm |
| PT100S900 | 900 mm |
| PT100S1000 | 1000 mm |

Rigid Stainless Steel (SS) probe

| Product code | Length |
|--------------|---------|
| PT100S200SS | 200 mm |
| PT100S300SS | 300 mm |
| PT100S400SS | 400 mm |
| PT100S500SS | 500 mm |
| PT100S600SS | 600 mm |
| PT100S700SS | 700 mm |
| PT100S800SS | 800 mm |
| PT100S900SS | 900 mm |
| PT100S1000SS | 1000 mm |

SCANDYMET Level Control



Level sensor with PP head and fastener

- Operates in most electrically conductive solutions
- PTFE coated probe in Stainless Steel (SS) or Titanium (TI)
- Standard lengths 200 – 1000mm. Max 5 probes per unit.
- For other lengths or materials please consult factory

Place orders according to Product code example below

EXAMPLE

| Product code | Base material | Coating | No of probes | Length of probes |
|--------------|-----------------|---------|--------------|------------------|
| SS/PTFE3-500 | Stainless steel | PTFE | 3 | 500 |

Stainless Steel Ø 4 mm. PTFE coated

| Material | Length |
|---------------|--------|
| SS/PTFE 2-300 | 300 mm |
| SS/PTFE 2-400 | 400 mm |
| SS/PTFE 2-500 | 500 mm |
| SS/PTFE 2-800 | 800 mm |
| SS/PTFE 3-300 | 300 mm |
| SS/PTFE 3-400 | 400 mm |
| SS/PTFE 3-500 | 500 mm |
| SS/PTFE 3-800 | 800 mm |
| SS/PTFE 4-300 | 300 mm |
| SS/PTFE 4-400 | 400 mm |
| SS/PTFE 4-500 | 500 mm |
| SS/PTFE 4-800 | 800 mm |
| SS/PTFE 5-300 | 300 mm |
| SS/PTFE 5-400 | 400 mm |
| SS/PTFE 5-500 | 500 mm |
| SS/PTFE 5-800 | 800 mm |

Titanium Ø 4 mm. PTFE coated

| Material | Length |
|---------------|--------|
| Ti/PTFE 2-300 | 300 mm |
| Ti/PTFE 2-400 | 400 mm |
| Ti/PTFE 2-500 | 500 mm |
| Ti/PTFE 2-800 | 800 mm |
| Ti/PTFE 3-300 | 300 mm |
| Ti/PTFE 3-400 | 400 mm |
| Ti/PTFE 3-500 | 500 mm |
| Ti/PTFE 3-800 | 800 mm |
| Ti/PTFE 4-300 | 300 mm |
| Ti/PTFE 4-400 | 400 mm |
| Ti/PTFE 4-500 | 500 mm |
| Ti/PTFE 4-800 | 800 mm |
| Ti/PTFE 5-300 | 300 mm |
| Ti/PTFE 5-400 | 400 mm |
| Ti/PTFE 5-500 | 500 mm |
| Ti/PTFE 5-800 | 800 mm |

SCANDYMET Overheat Protection



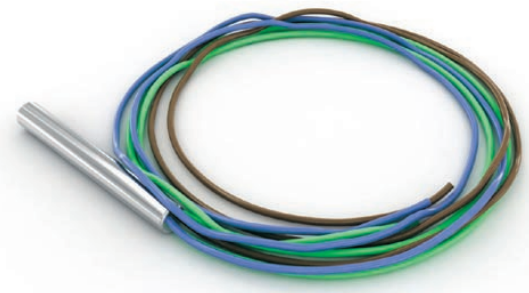
OHP 1

Resettable bimetallic overheat protection for heater type STFX, STIX and SCAX

PTFE coated. Standard length 2m.

Submersible flexible riser

Maximum process temperature +90° C



OHP 2

Fused one-shot overheat protection for heater type STFX, STIX and SCAX

PTFE coated. Standard length 2m.

Submersible flexible riser

Maximum process temperature +90° C

Overheat protection sensor fixed to heating element

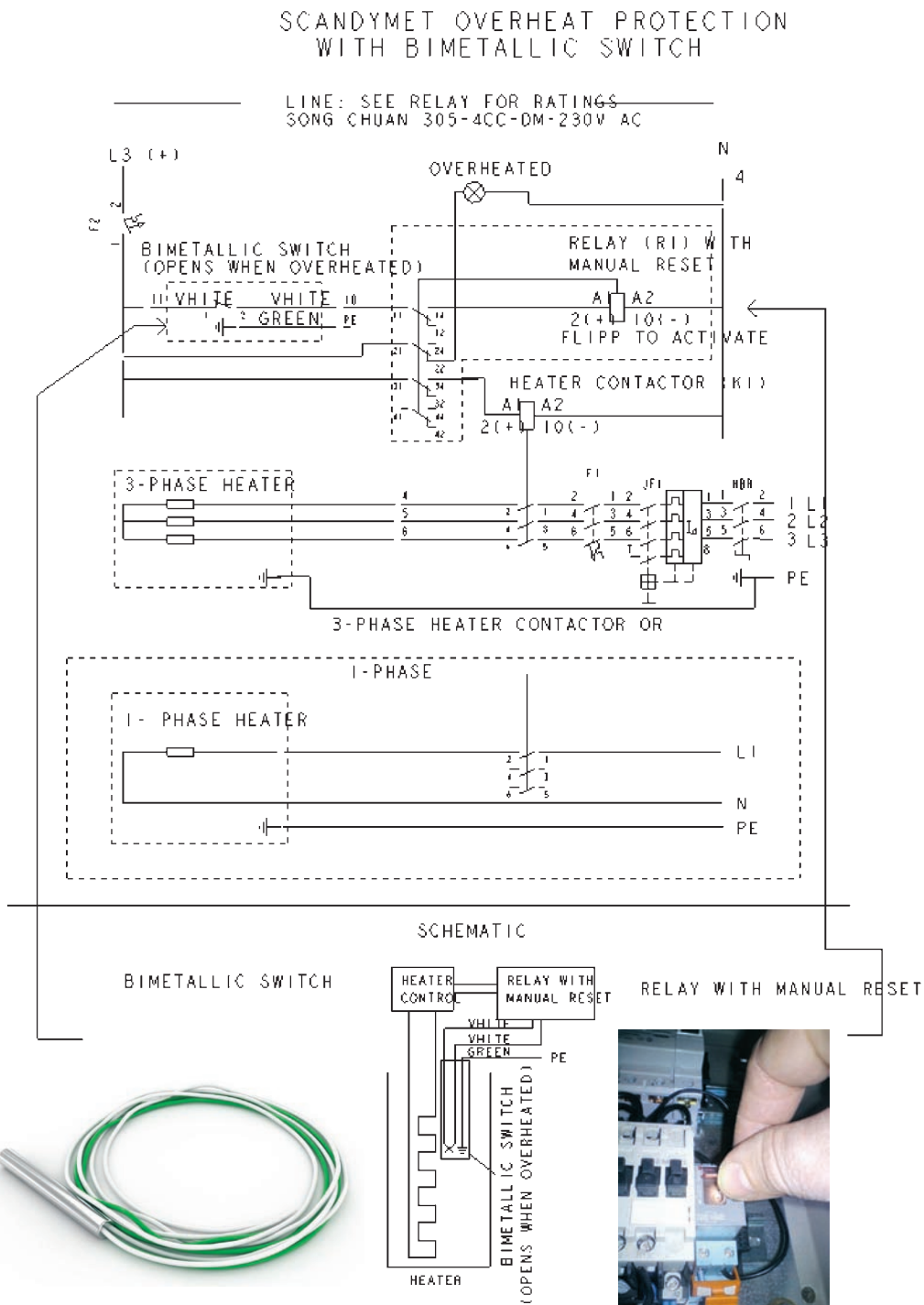


Overheat protection why and when?

Every electric immersion heater can suddenly be exposed to air e.g. by low fluid level or by being removed from the vat by mistake. Without OP it's a matter of minutes before the temperature of the heater is high enough to destroy it and cause damage to the vat or plant.

We particularly recommend OP when heaters are installed in vats of flammable materials such as plastic or steel vats lined with rubber.

The wiring diagram shows a fully reliable and low cost method to achieve the securest and highest level of overheat protection.



Scandymet electrical immersion heaters

Installation manual and maintenance instructions

Before installing:

- ❑ Inspect the heater. Verify it is undamaged after transport, and that there is no damage to the glass, teflon, or electric cable.
- ❑ Check the sheath material to be sure it is compatible with the intended bath solution. If you are even slightly uncertain, contact us!
- ❑ Confirm the line and heater voltage agree and the cubicle is locked for heating capacity.

During installation

- ❑ Installation must be done by a qualified electrician. In a stationary electrical installation an omnipole contact breaker must precede the heater.
- ❑ Confirm all power is disconnected and fuses have been removed at the actual switching point.
- ❑ Heaters without supports have to be installed vertically. The active part should be at least 20 mm from the tank wall, bottom, or sludge accumulation. Otherwise, overheating and/or heater damage can be the consequence.
- ❑ Heaters should be installed for stationary service (anchored) in a bath solution of 95° C max. Min. level and max. level for bath solutions are marked on the heaters. While in service the solution level must be maintained between these markings.
- ❑ For electrical heating, a level control must always be installed. If not, overheating can occur at min. level, which may be a fire hazard.
- ❑ In service, heaters should be protected from contact with moving parts, anodes, cathodes, or any other source of current.

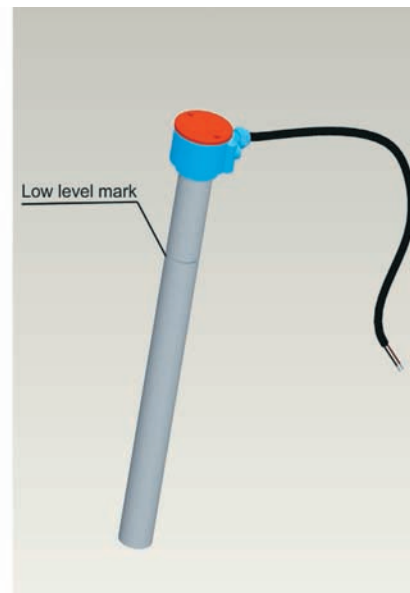
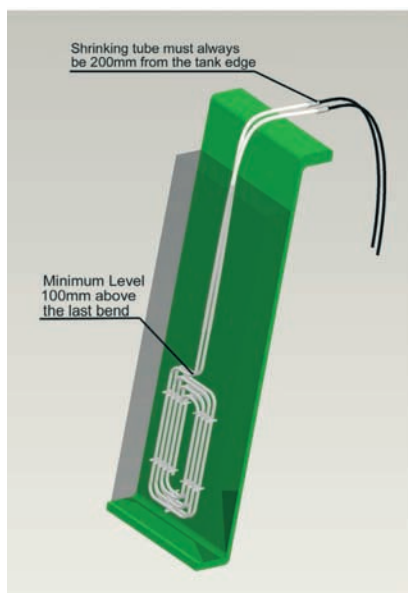
- ❑ When installing heaters with a collecting box, the box must always be located where it will not be subjected to direct flushing, drips, or vapors from bath solution. The collecting box should never be located on the tank edge.

Maintenance and control of immersion heater in service

- ❑ Maintain the solution level between the two level marks.
- ❑ Clean heaters regularly and check function of level control.
- ❑ Check heaters regularly for any sign of potential failure, such as cracks (glass or teflon) or corrosion (metal heater).
- ❑ When checking the element, the electricity supply to the heater must be turned off at least 20 minutes prior to exposing the element to air.
- ❑ The supply cord cannot be replaced. If the cord is damaged the appliance should be scrapped (flexible heaters).
- ❑ If the supply cord is damaged, it must be replaced by manufacturer, its service agent or similiary qualified person in order to avoid a hazard (tubular heaters).

Cleaning of heaters

- ❑ Turn off the heat electric supply for at least 20 min. prior to exposing the element to air.
- ❑ A soft brush or gloved hands are recommended to remove build-up from the element. Be cautious while cleaning to avoid damage.



Heater Selection Guideline

| | | | SFO | | | | |
|---------------------------|------------------|---------------------------|------|------|-----|------|-----|
| | | | STFX | SRF | | | |
| | | | STFP | SCAX | | STI | SST |
| | | | STE | SSP | SQG | STIX | MSP |
| Acetic acid | H3COOH | Quartz or teflon | X | | X | | |
| Alkaline cleaner | | Stainless steel, steel | X | | | | X |
| Alkaline soaking cleaners | | Stainless steel, steel | | X | | | X |
| Aluminum bright | | Quartz or teflon | X | | X | | |
| Aluminium chloride | ALCL3 | Quartz or teflon | X | | X | | |
| Aluminum sulphate | AL2SO4 | Stainless steel | | X | | | |
| Ammonium fluoride | NH4F | Quartz or teflon | X | | | | |
| Ammonium chloride | NH4CL | Titan | | | | X | |
| Ammonium persulphate | (NH4)2S2O8 | Stainless steel | | X | | | |
| Bonderizing | NA2B4O7 10 H2O | Stainless steel | | X | | | |
| Black oxide | | Stainless steel | | X | | | |
| Boric Acid | H3BO3 | Titanium | | | | X | |
| Bright nickel | Ni3CO3(OH)4 4H2O | Quartz, PTFE or Titanium | X | | X | X | |
| Bright copper cyanide | | Stainless ,steel or steel | | X | | | X |
| Bronze | | Stainless steel | | X | | | |
| Brown oxide | | Titanium | | | | X | |
| Butyric acid | CH3CH2CH2-COOH | Titanium | | | | X | |
| Calcium chloride | CaCL2 | Titanium | | | | X | |
| Carbonic acid | H2CO3 | Titanium | | | | X | |
| Caustics | | Steel | | | | | X |
| Chromic acid no fluorides | H2CRO4 | Quartz or teflon | X | | X | | |
| Chlorosulphuric acid | HSO 3 CL | Titanium | | | | X | |
| Chromic baths | | Quartz or teflon | X | | X | | |
| Chromate baths | | Teflon | X | | | | |
| Copper acid | | Teflon | X | | | | |
| Copper fluoborate | | Teflon | X | | | | |
| Copper strike | | Stainless steel | | X | | | |
| Deionized water | | Titanium | | | | X | |
| Deoxidizer etching | | Quartz or teflon | X | | X | | |
| Electroless copper | | Teflon | X | | | | |
| Electroless nickel | | Teflon | X | | | | |
| Electroless tin | | Teflon | X | | | | |
| Electro cleaner | | Stainless steel | | X | | | |
| Electro Polishing | | Teflon or quartz | X | | X | | |
| Ferric Chloride | FeCL3 | Quartz or teflon | X | | X | | |
| Ferric nitrate | FE(NO3)3 | Teflon | X | | | | |
| Fluoborate baths | | Teflon | X | | | | |
| Formic acid | HCOOH | Stainless steel | | X | | | |

Heater Selection Guideline

| | | | STFX | SFO | STI | SST |
|---------------------------|-------------|----------------------------|------|-----|------|------|
| | | | STFP | SRF | SCAX | |
| | | | STE | SSP | SQG | STIX |
| | | | | | | MSP |
| Gold acid | | Titanium, quartz or teflon | X | | X | X |
| Hydrochloric acid | HCL | Teflon or quartz | X | | X | |
| Hydrofluoric acid | HF | Teflon | X | | | |
| Hydrogen peroxide | H2O2 | Quartz or teflon | X | | X | |
| Iron Phosphate | FePO4 | Stainless steel | | SFO | | |
| Manganese Phosphate | MnPO4 | Stainless steel | | SFO | | |
| Nickel plating (watts) | | Titanium, quartz or teflon | X | | X | X |
| Nickel acetate | | Stainless steel | | X | | |
| Nickel Chloride | NiCL2 | Titanium | | | | X |
| Nickel sulphate | NiiSO4 | Titanium, quartz or teflon | X | | X | X |
| Nitric acid | HNO3 | Quartz or teflon | X | | X | |
| Oil | | Steel, stainless steel | | X | | |
| Oxalic acid | C2O2(OH)2 | Quartz or teflon | X | | X | |
| Paint stripper (alkaline) | | Stainless steel | | X | | |
| Phosphoric acid | H3PO4 | Teflon | X | | | |
| Phosphate | | Stainless steel | | X | | |
| Potassium acid | | Teflon | X | | | |
| Potassium hydroxide | KOH | Stainless steel | | X | | |
| Potassium permanganate | KMnO4 | Stainless steel | | X | | |
| Ruthenium | Ru | Teflon | X | | | |
| Sea water | | Titanium | | | | X |
| Silver baths | | Stainless steel | | X | | |
| Sodium bisulphate | NaHSO4 | Teflon | X | | | |
| Sodium carbonate | Na2CO3 | Titanium | | | | X |
| Sodium Chlorate | NaCLO3 | Titanium | | | | X |
| Sodium chloride | NaCL | Titanium | | | | X |
| Sodium persulphate | Na2S2O8 | Teflon | X | | | |
| Sulphuric acid | | Quartz or teflon | X | | X | |
| Tin acid baths | | Teflon | X | | | |
| Tin alkaline baths | | Stainless steel | | X | | |
| Zinc acetate | Zn(O2CCH3)2 | Titanium or teflon | X | | | X |
| Zink ammonium chloride | | Titanium | | | | X |
| Zink phosphate | | Stainless steel | | X | | |
| Zincate | | Stainless steel | | X | | |

This list is provided as a help and guide only and SCANDYMET assumes no responsibility for damages resulting from faulty material choice. Due to the complexities of solutions and applications it is the user's responsibility to check with the supplier of chemicals, regarding immersion heater and heat exchanger material compatibility and recommendations.

Warranty

All Scandymet equipment, heaters and controls have been carefully inspected before shipping and are warranted to be free from defects in workmanship and material for a period of one year from date of purchase on a prorated basis. At its option, Scandymet will repair or replace any defects which are exhibited under proper and normal use. Scandymet disclaims any responsibility for misuse, misapplication, negligence or improper installation of equipment. Scandymet makes no warranty or representation regarding the fitness for use or the application of its products by the purchaser.

Please ensure applicability of heater before installation since we cannot guarantee heaters against premature failure due to corrosion caused by unusual conditions over which we have no control, such as:

- Excessive sludge buildup
- Stagnant or turbulent flow of the solution
- Aeration
- Erosion

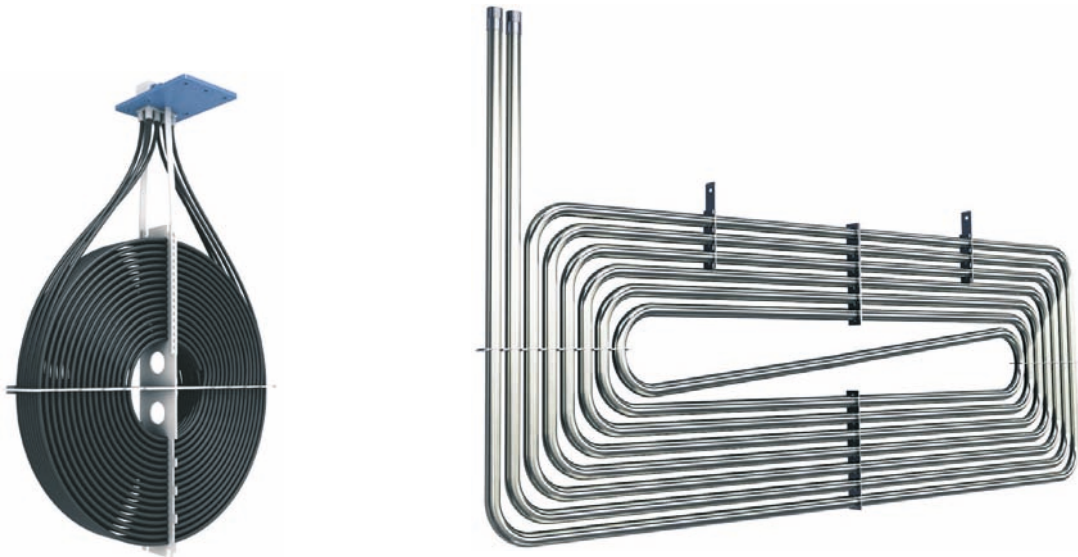
Scandymet is not liable for costs incurred in removal, reinstallation, or unauthorized repair of the product, or for damage of any type whatsoever including incidental or consequential damage.

Transports

If no other agreements have been made, claims against freight carriers for damage in transit must be filed by the buyer and freight must be pre-paid for returned products.

Kindly inform us immediately if you have received damaged products. Specifications of products in catalog 2010 are subject to change without notice.

40 years of continuous development!



P. O. Box 72, S-826 22 SÖDERHAMN
Phone: +46 (0)270-193 10 • Fax: +46 (0)270-106 56
e-mail: info@scandymet.se
www.scandymet.com