

# HELIOS



**Electrical Heaters**



### Screw-in heating elements (with tube elements)

1.1	Without control	C/INC/3/G 1 1/2	Water
1.2	With thermostat	C/Th/INC/3/G 1 1/2	Water
1.3	With thermostat	C/Th/a/INC/3/G 1 1/2	Water
1.4	With run-dry protection	C/INC/TRO/3/G 1 1/2	Water
1.7	Without control	C/i/INC/3/G 1 1/2	Domestic hot water
1.7	With thermostat	C/Th/i/INC/3/G 1 1/2	Domestic hot water
1.7	With double thermostat	C/Th/STB/i/INC/3/G 1 1/2	Domestic hot water
1.9	Without control	C/RE/3/G 1 1/2	Oil
1.10	With thermostat	C/Th/RE/3/G 1 1/2	Oil
1.11	With thermostat	C/Th/a/RE/3/G 1 1/2	Oil
1.12	With thermostat	C/RE/ThO/2/G 2	Oil
1.13	Without control	C/RR/3/G 1 1/2	Different fluids
1.13	With thermostat	C/Th/RR/3/G 1 1/2	Different fluids
1.13	With thermostat	C/Th/a/RR/3/G 1 1/2	Different fluids
1.14	With double thermostat	C/Th/a/STB/RR/3/G 1 1/2	Different fluids



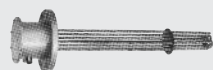
### Screw-in heating elements (with exchangeable ceramic element)

3.1	With thermostat	O/Th G 2	Oil
3.4	Without control	G 1	Water, Oil, Air
3.5	Without control	O/42(G 1 1/2)	Water, Oil, Air
3.6	Without control	O/52(G 2)	Water, Oil, Air
3.7	Flanged heating element	FHK65/Th/52	Water, Oil, Air



### Tank heaters

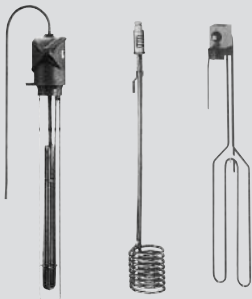
4.1.1	Tank heater	TÜV type approval	EL heating oil
4.1.3	Tank heater	Hydraulic oil	Hydraulic oil
4.1.4	Tank heater	Caustic soda solution	Caustic soda, water
4.1.5	Tank heater	<b>AdBlue</b>	<b>AdBlue</b> , water



### Flanged heating elements

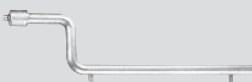
4.2	Flanged heating element	DN 65 - DN 500	Water, Oil, Air
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Continuous-flow heater according to request, please see page 14.1



### Immersion heating elements

5.1	Bath immersion heater	VDE approval	Acids, bases
5.2	Bath immersion heater with thermostat		Acids, bases
5.3	Z-shaped heating element		Different fluids
5.4	Large immersion boiler element	1000 - 5000 W	Different fluids
5.5	Large immersion boiler element	2000 - 15000 W	Different fluids
5.8	PTFE bath heater	Space-saving	Acids, bases
5.9	PTFE bath heater with thermostat	Space-saving	Acids, bases





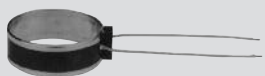
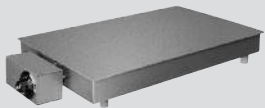
### Heating elements for room heating

6.1	Finned tube heating element		Air
6.3	Finned tube heating element	with limiter	Air
6.3	Finned tube heating element	with room temperature controller	Air
6.5	Switchgear cabinet heater		Air
6.6	Switchgear cabinet heater		Air
6.9	Room temperature controller		Air



### Ceramic heating elements (without jacket tube)

7.2	Longitudinal grooves	Ø 26, Ø 19	Water, Oil, Air
7.3	Longitudinal grooves	Ø 37, Ø 31	Water, Oil, Air
7.4	Longitudinal grooves	Ø 47, Ø 57	Water, Oil, Air
7.5	Helical grooves	Ø 37	Water, Oil, Air
7.6	Helical grooves	Ø 47	Water, Oil, Air



### Different heating elements

8.1	Heating plate		
8.3	High-power cartridge heater	Ø 6.5 - Ø 20	Tools
8.4	Flat heating element		Plane surfaces
8.5	Ring heating element		Cylindrical bodies









### High-power tubular heating elements Ø 8.4 mm

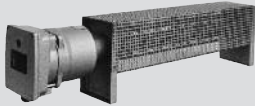
9.1	Application   Technical advantages		
9.2	Design		
9.3	Calculations basis		
9.6	Chart		
9.8	Mounting   Accessories   Material of the tube		
9.9	Shaping   Accessories		
9.11	Finned-tube heating element	Ø 28	Air

Gas heater according to request, please see page 13.1



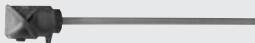
### Explosion-protected heating elements

10.1	 - Screw-in heating element	Different fluids
10.1	 - Flanged heating element	Different fluids
10.3	 - Room heating element	Air
10.4	 - Temperature controller	Air
10.5	 - Finned tube heating element	Air
10.6	 - Finned tube heating element (stainless steel)	Air



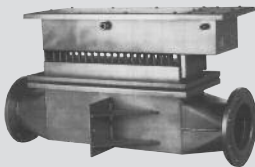
### Controllers

12.1	Temperature controller	To screw-in	Different fluids
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### Gas heaters







13.1	Gas heater for temperatures up to 700 °C	Gases
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### Continuous-flow heaters








14.1	Flow tube with flanged heating elements DN 65 – DN 500	Water, Oil, Air
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<p>1.1 G1½ screw-in heating element</p> <p>Model C/INC/3/G1½</p> 	<p>Application Direct water heating.</p> <p>Design 3 tube elements mat.-no 2.4858 (alloy 825), 35 mm unheated, G1½ brass nipple, bright-galvanized steel hood, IP 30 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>175</td><td>2000</td><td>0101 4011</td></tr> <tr><td>230</td><td>3000</td><td>0101 4021</td></tr> <tr><td>330</td><td>4500</td><td>0101 4031</td></tr> <tr><td>405</td><td>6000</td><td>0101 4041</td></tr> <tr><td>520</td><td>7500</td><td>0101 4051</td></tr> <tr><td>620</td><td>9000</td><td>0101 4061</td></tr> <tr><td>770</td><td>12000</td><td>0101 4071</td></tr> </tbody> </table> <p>Surcharge for hood IP 65</p>	Imm. length mm approx.	Power Watt approx.	Order No.	175	2000	0101 4011	230	3000	0101 4021	330	4500	0101 4031	405	6000	0101 4041	520	7500	0101 4051	620	9000	0101 4061	770	12000	0101 4071																																																		
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<p>1.2 G1½ screw-in heating element with thermostat, internally regulated</p> <p>Model C/Th/INC/3/G1½</p> 	<p>Application Direct water heating.</p> <p>Design 3 tube elements mat.-no 2.4858 (alloy 825), 35 mm unheated, G1½ brass nipple, thermostat 0 to 120°C, differential gap 3 K, switching power 16 A to 400 Volt, 1 pin, bright-galvanized steel hood, IP 30 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>175</td><td>2000</td><td>0102 4011</td></tr> <tr><td>230</td><td>3000</td><td>0102 4021</td></tr> <tr><td>330</td><td>4500</td><td>0102 4031</td></tr> <tr><td>405</td><td>6000</td><td>0102 4041</td></tr> <tr><td>520</td><td>7500</td><td>0102 4051</td></tr> <tr><td>620</td><td>9000</td><td>0102 4061</td></tr> <tr><td>770</td><td>12000</td><td>0102 4071</td></tr> </tbody> </table> <p>Surcharge for brass screw cap IP 65</p>	Imm. length mm approx.	Power Watt approx.	Order No.	175	2000	0102 4011	230	3000	0102 4021	330	4500	0102 4031	405	6000	0102 4041	520	7500	0102 4051	620	9000	0102 4061	770	12000	0102 4071																																																		
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<p>1.3 G1½ screw-in heating element with thermostat, externally regulated</p> <p>Model C/Th/a/INC/3/G1½</p> 	<p>Application Direct water heating.</p> <p>Design 3 tube elements mat.-no 2.4858 (alloy 825), 35 mm unheated, G1½ brass nipple, thermostat 30 to 110°C, differential gap 5 K, switching power 16 A to 400 Volt, steel hood, IP 30 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>175</td><td>2000</td><td>0103 4011</td></tr> <tr><td>230</td><td>3000</td><td>0103 4021</td></tr> <tr><td>330</td><td>4500</td><td>0103 4031</td></tr> <tr><td>405</td><td>6000</td><td>0103 4041</td></tr> <tr><td>520</td><td>7500</td><td>0103 4051</td></tr> <tr><td>620</td><td>9000</td><td>0103 4061</td></tr> <tr><td>770</td><td>12000</td><td>0103 4071</td></tr> </tbody> </table> <p>Surcharge for hood IP 65</p>	Imm. length mm approx.	Power Watt approx.	Order No.	175	2000	0103 4011	230	3000	0103 4021	330	4500	0103 4031	405	6000	0103 4041	520	7500	0103 4051	620	9000	0103 4061	770	12000	0103 4071																																																		
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<p>1.4 G1½ screw-in heating element with run-dry protection</p> <p>Model C/INC/TRO/3/G1½</p>  <p>Photograph shows hood for IP 65 protection system</p>	<p>Application Direct water heating.</p> <p>Design 3 tube elements mat.-no 2.4858 (alloy 825), 45 mm unheated, G1½ brass nipple, bright-galvanized steel hood, IP 30 protection system, run-dry protection, operating temperature 165°C (-30 K).</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>190</td><td>2000</td><td>0104 4011</td></tr> <tr><td>245</td><td>3000</td><td>0104 4021</td></tr> <tr><td>345</td><td>4500</td><td>0104 4031</td></tr> <tr><td>420</td><td>6000</td><td>0104 4041</td></tr> <tr><td>535</td><td>7500</td><td>0104 4051</td></tr> <tr><td>635</td><td>9000</td><td>0104 4061</td></tr> <tr><td>785</td><td>12000</td><td>0104 4071</td></tr> </tbody> </table> <p>Surcharge for hood IP 65</p>	Imm. length mm approx.	Power Watt approx.	Order No.	190	2000	0104 4011	245	3000	0104 4021	345	4500	0104 4031	420	6000	0104 4041	535	7500	0104 4051	635	9000	0104 4061	785	12000	0104 4071																																																		
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<p>1.7 G1½ screw-in heating element</p> <p>Model C//INC/3/G1½ without thermostat C/Th//INC/3/G1½ with thermostat, internally regulated C/Th/STB//INC/3/G1½ with double thermostat, internally regulated</p> 	<p>Application Direct heating of <b>domestic hot water</b> in steel enamelled pressure-type storage water heaters with active anode, and other storage heaters except stainless steel.</p> <p>Design 1 or 3 tube elements of special material, 80 mm unheated, G1½ brass nipple, bright-galvanized steel hood, IP 30 protection system, Order No. 0105... without thermostat Order No. 0106... thermostat 0 to 120 °C Order No. 0107... double thermostat with 5-85 °C controller and 110 °C limiter</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Thermostat without Order No.</th> <th>Thermostat with Order No.</th> <th>Double Thermostat Order No.</th> </tr> </thead> <tbody> <tr><td>480</td><td>2000</td><td>0105 0011</td><td>0106 0011</td><td>0107 0011</td></tr> <tr><td>450</td><td>3000</td><td>0105 0021</td><td>0106 0021</td><td>0107 0021</td></tr> <tr><td>600</td><td>4500</td><td>0105 0031</td><td>0106 0031</td><td>0107 0031</td></tr> <tr><td>600</td><td>6000</td><td>0105 0041</td><td>0106 0041</td><td>0107 0041</td></tr> <tr><td>700</td><td>6000</td><td>0105 0051</td><td>0106 0051</td><td>0107 0051</td></tr> <tr><td>700</td><td>7500</td><td>0105 0061</td><td>0106 0061</td><td>0107 0061</td></tr> <tr><td>800</td><td>9000</td><td>0105 0071</td><td>0106 0071</td><td>0107 0071</td></tr> </tbody> </table> <p>0105... and 0106... Surcharge for brass screw cap IP 65</p>	Imm. length mm approx.	Power Watt approx.	Thermostat without Order No.	Thermostat with Order No.	Double Thermostat Order No.	480	2000	0105 0011	0106 0011	0107 0011	450	3000	0105 0021	0106 0021	0107 0021	600	4500	0105 0031	0106 0031	0107 0031	600	6000	0105 0041	0106 0041	0107 0041	700	6000	0105 0051	0106 0051	0107 0051	700	7500	0105 0061	0106 0061	0107 0061	800	9000	0105 0071	0106 0071	0107 0071																																		
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<p>1.9 G1½ screw-in heating element</p> <p>Model C/RE/3/G1½</p> 	<p>Application For heating: surface load</p> <p>Fluids that do not attack steel.</p> <p>Hydraulic fluids or similar, 1.5 W/cm<sup>2</sup> heat transfer oil, quenching oil, 2.3 W/cm<sup>2</sup> fluids of similar viscosity to 4.5 and water. 6.5 W/cm<sup>2</sup></p> <p>Design 3 steel-jacket tube elements, 35 mm unheated, G1½ brass nipple, bright-galvanized steel hood, IP 30 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th rowspan="2">Imm. length mm approx.</th> <th rowspan="2">Power Watt approx.</th> <th colspan="2">Order No.</th> <th rowspan="2">Power Watt approx.</th> <th rowspan="2">Order No.</th> </tr> <tr> <th colspan="2">Surface load</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td></td> <td>1.5 W/cm<sup>2</sup></td> <td></td> <td></td> <td>2.3 W/cm<sup>2</sup></td> <td></td> </tr> <tr> <td>455</td> <td>1000</td> <td>0109 0011</td> <td>1500</td> <td>0109 0121</td> <td></td> </tr> <tr> <td>680</td> <td>1500</td> <td>0109 0021</td> <td>2250</td> <td>0109 0131</td> <td></td> </tr> <tr> <td>880</td> <td>2000</td> <td>0109 0031</td> <td>3000</td> <td>0109 0141</td> <td></td> </tr> <tr> <td>1100</td> <td>2500</td> <td>0109 0041</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>4.5 W/cm<sup>2</sup></td> <td></td> <td></td> <td>6.5 W/cm<sup>2</sup></td> <td></td> </tr> <tr> <td>455</td> <td>3000</td> <td>0109 0221</td> <td>4500</td> <td>0109 0321</td> <td></td> </tr> <tr> <td>680</td> <td>4500</td> <td>0109 0231</td> <td>6000</td> <td>0109 0331</td> <td></td> </tr> <tr> <td>880</td> <td>6000</td> <td>0109 0241</td> <td>9000</td> <td>0109 0351</td> <td></td> </tr> <tr> <td>1100</td> <td>7500</td> <td>0109 0251</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx.	Order No.		Power Watt approx.	Order No.	Surface load									1.5 W/cm <sup>2</sup>			2.3 W/cm <sup>2</sup>		455	1000	0109 0011	1500	0109 0121		680	1500	0109 0021	2250	0109 0131		880	2000	0109 0031	3000	0109 0141		1100	2500	0109 0041					4.5 W/cm <sup>2</sup>			6.5 W/cm <sup>2</sup>		455	3000	0109 0221	4500	0109 0321		680	4500	0109 0231	6000	0109 0331		880	6000	0109 0241	9000	0109 0351		1100	7500	0109 0251			
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<p>1.10 G1½ screw-in heating element <b>with thermostat</b> Model C/Th/RE/3/G1½</p>  <p>Photograph shows hood for IP 65 protection system</p>	<p><b>Application</b> Controlled heating of: surface load Fluids that do not attack steel. Hydraulic fluids or similar, 1.5 W/cm<sup>2</sup> heat transfer oil, quenching oil, 2.3 W/cm<sup>2</sup> fluids of similar viscosity to 4.5 and water. 6.5 W/cm<sup>2</sup></p> <p><b>Design</b> steel-jacket tube elements, 35 mm unheated, G1½ brass nipple, thermostat 0 to +120°C, bright-galvanized steel hood, IP 30 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">Surface load</td> </tr> <tr> <td>1.5 W/cm<sup>2</sup></td> <td></td> <td></td> <td>2.3 W/cm<sup>2</sup></td> <td></td> </tr> <tr> <td>455</td> <td>1000</td> <td>0110 0011</td> <td>1500</td> <td>0110 0121</td> </tr> <tr> <td>680</td> <td>1500</td> <td>0110 0021</td> <td>2250</td> <td>0110 0131</td> </tr> <tr> <td>880</td> <td>2000</td> <td>0110 0031</td> <td>3000</td> <td>0110 0141</td> </tr> <tr> <td>1100</td> <td>2500</td> <td>0110 0041</td> <td></td> <td></td> </tr> <tr> <td colspan="5" style="text-align: center;">Surface load</td> </tr> <tr> <td>4.5 W/cm<sup>2</sup></td> <td></td> <td></td> <td>6.5 W/cm<sup>2</sup></td> <td></td> </tr> <tr> <td>455</td> <td>3000</td> <td>0110 0221</td> <td>4500</td> <td>0110 0321</td> </tr> <tr> <td>680</td> <td>4500</td> <td>0110 0231</td> <td>6000</td> <td>0110 0331</td> </tr> <tr> <td>880</td> <td>6000</td> <td>0110 0241</td> <td>9000</td> <td>0110 0351</td> </tr> <tr> <td>1100</td> <td>7500</td> <td>0110 0251</td> <td></td> <td></td> </tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx.	Order No.	Power Watt approx.	Order No.	Surface load					1.5 W/cm <sup>2</sup>			2.3 W/cm <sup>2</sup>		455	1000	0110 0011	1500	0110 0121	680	1500	0110 0021	2250	0110 0131	880	2000	0110 0031	3000	0110 0141	1100	2500	0110 0041			Surface load					4.5 W/cm <sup>2</sup>			6.5 W/cm <sup>2</sup>		455	3000	0110 0221	4500	0110 0321	680	4500	0110 0231	6000	0110 0331	880	6000	0110 0241	9000	0110 0351	1100	7500	0110 0251		
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<p>1.12 G2 screw-in heating element <b>with thermostat</b> Model C/RE/ThO/2/G2</p> 	<p><b>Application</b> Controlled heating of: surface load Fluids that do not attack steel. Hydraulic fluids or lube oil, 1.0 W/cm<sup>2</sup> flowing heat carriers and 4.0 W/cm<sup>2</sup> M and S heating oil.</p> <p><b>Design</b> 2 steel-jacket tube elements, 40 mm unheated, G2 steel nipple, thermostat 0 to +120°C, differential gap 3 K, bright-galvanized steel hood, IP 65 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">Surface load</td> </tr> <tr> <td>1 W/cm<sup>2</sup></td> <td></td> <td></td> <td>4 W/cm<sup>2</sup></td> <td></td> </tr> <tr> <td>290</td> <td>700</td> <td>0112 0011</td> <td>2800</td> <td>0112 0111</td> </tr> <tr> <td>390</td> <td>1000</td> <td>0112 0021</td> <td>4000</td> <td>0112 0121</td> </tr> <tr> <td>460</td> <td>1250</td> <td>0112 0031</td> <td>5000</td> <td>0112 0131</td> </tr> <tr> <td>530</td> <td>1500</td> <td>0112 0041</td> <td>6000</td> <td>0112 0141</td> </tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx.	Order No.	Power Watt approx.	Order No.	Surface load					1 W/cm <sup>2</sup>			4 W/cm <sup>2</sup>		290	700	0112 0011	2800	0112 0111	390	1000	0112 0021	4000	0112 0121	460	1250	0112 0031	5000	0112 0131	530	1500	0112 0041	6000	0112 0141																														
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<p>1.13 G1½ screw-in heating element Model C/RR/3/G1½ unregulated C/Th/RR/3/G1½ with thermostat, internally regulated C/Th/a/RR/3/G1½ with thermostat, externally regulated</p> 	<p><b>Application</b> Heating thin oils, aqueous solutions and fluids that do not attack stainless steel mat.-no. 1.4541. Heating air up to 120°C. For air temperatures over 120°C, please ask for information.</p> <p><b>Design</b> Order no. 01130... 3 stainless steel tube elements mat.-no. 1.4541, 35 mm unheated, G1½ brass nipple, bright-galvanized steel hood, IP 30 protection system; differences in Order No. 01131... for hood type, see 1.10, thermostat 0 to +120°C, 1 pin; differences in Order No. 01132... for hood type, see 1.11, thermostat 30 to 110°C, 3 pin.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Order No.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">Surface load 2 W/cm<sup>2</sup></td> </tr> <tr> <td>455</td> <td>1350</td> <td>0113 0011</td> <td>0113 1011</td> <td>0113 2011</td> </tr> <tr> <td>680</td> <td>2000</td> <td>0113 0021</td> <td>0113 1021</td> <td>0113 2021</td> </tr> <tr> <td>880</td> <td>2700</td> <td>0113 0031</td> <td>0113 1031</td> <td>0113 2031</td> </tr> <tr> <td>1100</td> <td>3500</td> <td>0113 0041</td> <td>0113 1041</td> <td>0113 2041</td> </tr> <tr> <td colspan="5" style="text-align: center;">Electrical connection to 230/400 V three-phase current</td> </tr> <tr> <td colspan="5" style="text-align: center;">Surface load 6 W/cm<sup>2</sup></td> </tr> <tr> <td>455</td> <td>4000</td> <td>0113 0111</td> <td>0113 1111</td> <td>0113 2111</td> </tr> <tr> <td>680</td> <td>6000</td> <td>0113 0121</td> <td>0113 1121</td> <td>0113 2121</td> </tr> <tr> <td>880</td> <td>8000</td> <td>0113 0131</td> <td>0113 1131</td> <td>0113 2131</td> </tr> <tr> <td>1100</td> <td>10500</td> <td>0113 0141</td> <td>0113 1141</td> <td>0113 2141</td> </tr> <tr> <td colspan="5" style="text-align: center;">Electrical connection to 3 x 400 V three-phase current</td> </tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx.	Order No.	Order No.	Order No.	Surface load 2 W/cm <sup>2</sup>					455	1350	0113 0011	0113 1011	0113 2011	680	2000	0113 0021	0113 1021	0113 2021	880	2700	0113 0031	0113 1031	0113 2031	1100	3500	0113 0041	0113 1041	0113 2041	Electrical connection to 230/400 V three-phase current					Surface load 6 W/cm <sup>2</sup>					455	4000	0113 0111	0113 1111	0113 2111	680	6000	0113 0121	0113 1121	0113 2121	880	8000	0113 0131	0113 1131	0113 2131	1100	10500	0113 0141	0113 1141	0113 2141	Electrical connection to 3 x 400 V three-phase current				
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<p>1.14 G1½ screw-in heating element with thermostat and limiter Model C/Th/a/STB/RR/3/G1½ with thermostat and run-dry protection Model C/Th/a/TRO/RR/3/G1½</p> 	<p><b>Application</b> Heating chlorine-free water, weak acids and caustic solutions, surface load 2 W/cm<sup>2</sup></p> <p><b>Design</b> 3 <b>stainless steel</b> tube elements mat.-no. <b>1.4571</b>, welded in, 35 mm unheated, G1½ stainless steel nipple, mat.-no. 1.4571, plastic case, off-white, IP 65 protection system; Order No. 01140... thermostat +30 to 110°C and 115°C limiter; Order No. 01141... thermostat +30 to +110°C, run-dry protection 165°C.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;">Surface load 2 W/cm<sup>2</sup></td> </tr> <tr> <td>455</td> <td>1350</td> <td>0114 0011</td> <td>0114 1011</td> </tr> <tr> <td>680</td> <td>2000</td> <td>0114 0021</td> <td>0114 1021</td> </tr> <tr> <td>880</td> <td>2700</td> <td>0114 0031</td> <td>0114 1031</td> </tr> <tr> <td>1100</td> <td>3500</td> <td>0114 0041</td> <td>0114 1041</td> </tr> <tr> <td colspan="4" style="text-align: center;">Electrical connection to 230/400 V three-phase current</td> </tr> <tr> <td colspan="4" style="text-align: center;">Surface load 6 W/cm<sup>2</sup></td> </tr> <tr> <td>455</td> <td>4000</td> <td>0114 0111</td> <td>0114 1111</td> </tr> <tr> <td>680</td> <td>6000</td> <td>0114 0121</td> <td>0114 1121</td> </tr> <tr> <td>880</td> <td>8000</td> <td>0114 0131</td> <td>0114 1131</td> </tr> <tr> <td>1100</td> <td>10500</td> <td>0114 0141</td> <td>0114 1141</td> </tr> <tr> <td colspan="4" style="text-align: center;">Electrical connection to 3 x 400 V three-phase current</td> </tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx.	Order No.	Order No.	Surface load 2 W/cm <sup>2</sup>				455	1350	0114 0011	0114 1011	680	2000	0114 0021	0114 1021	880	2700	0114 0031	0114 1031	1100	3500	0114 0041	0114 1041	Electrical connection to 230/400 V three-phase current				Surface load 6 W/cm <sup>2</sup>				455	4000	0114 0111	0114 1111	680	6000	0114 0121	0114 1121	880	8000	0114 0131	0114 1131	1100	10500	0114 0141	0114 1141	Electrical connection to 3 x 400 V three-phase current																
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<p>3.1 G2 screw-in heating element <b>with thermostat, internally regulated</b> Model O/Th/G2</p>  <p>Photograph shows hood for IP 65 protection system</p>	<p><b>Application</b> Heating fluids that do not attack steel, hydraulic fluids or similar, surface load 1.6 W/cm<sup>2</sup>.</p> <p><b>Design</b> Steel jacket with exchangeable ceramic element, G2 brass nipple, thermostat 0 to +120°C, light alloy hood, IP 30 protection system, <b>horizontal</b> installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx.</th> <th>Order No. for 230 V</th> <th>Order No. for 400 V</th> </tr> </thead> <tbody> <tr> <td>300</td> <td>450</td> <td>0301 1011</td> <td>0301 2011</td> </tr> <tr> <td>400</td> <td>600</td> <td>0301 1021</td> <td>0301 2021</td> </tr> <tr> <td>500</td> <td>750</td> <td>0301 1031</td> <td>0301 2031</td> </tr> <tr> <td>600</td> <td>900</td> <td>0301 1041</td> <td>0301 2041</td> </tr> <tr> <td>700</td> <td>1050</td> <td>0301 1051</td> <td>0301 2051</td> </tr> <tr> <td>800</td> <td>1200</td> <td>0301 1061</td> <td>0301 2061</td> </tr> <tr> <td>900</td> <td>1350</td> <td>0301 1071</td> <td>0301 2071</td> </tr> <tr> <td>1000</td> <td>1500</td> <td>0301 1081</td> <td>0301 2081</td> </tr> </tbody> </table> <p>Surcharge for hood IP 65</p>	Imm. length mm approx.	Power Watt approx.	Order No. for 230 V	Order No. for 400 V	300	450	0301 1011	0301 2011	400	600	0301 1021	0301 2021	500	750	0301 1031	0301 2031	600	900	0301 1041	0301 2041	700	1050	0301 1051	0301 2051	800	1200	0301 1061	0301 2061	900	1350	0301 1071	0301 2071	1000	1500	0301 1081	0301 2081																													
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<p>3.4 G1 screw-in heating element</p> 	<p>Application For heating: surface load low-viscosity oil, hydraulic fluid, 1.5 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.5 W/cm<sup>2</sup></p> <p>Design: Exchangeable ceramic element, G1 brass nipple, Ø 28 mm brass jacket tube, brass screw cap, IP 65 protection system, <b>horizontal</b> installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power (1.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> <th>Power (2.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>150</td><td>200</td><td>0304 0011</td><td>350</td><td>0304 1011</td></tr> <tr><td>250</td><td>350</td><td>0304 0031</td><td>550</td><td>0304 1031</td></tr> <tr><td>350</td><td>450</td><td>0304 0051</td><td>750</td><td>0304 1051</td></tr> <tr><td>500</td><td>650</td><td>0304 0071</td><td>1100</td><td>0304 1071</td></tr> <tr><td>700</td><td>900</td><td>0304 0091</td><td>1550</td><td>0304 1091</td></tr> <tr><td>900</td><td>1200</td><td>0304 0111</td><td>2000</td><td>0304 1111</td></tr> <tr><td>1100</td><td>1450</td><td>0304 0131</td><td>2400</td><td>0304 1131</td></tr> <tr><td>1300</td><td>1700</td><td>0304 0151</td><td>2850</td><td>0304 1151</td></tr> </tbody> </table>	Imm. length mm approx.	Power (1.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	Power (2.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	150	200	0304 0011	350	0304 1011	250	350	0304 0031	550	0304 1031	350	450	0304 0051	750	0304 1051	500	650	0304 0071	1100	0304 1071	700	900	0304 0091	1550	0304 1091	900	1200	0304 0111	2000	0304 1111	1100	1450	0304 0131	2400	0304 1131	1300	1700	0304 0151	2850	0304 1151											
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<p>3.5 G1½ (G1¼) screw-in heating element Model O/42</p>  <p>Photograph shows hood for IP 65 protection system</p>	<p>Application For heating: surface load low-viscosity oil, hydraulic fluid, 1.5 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.5 W/cm<sup>2</sup></p> <p>Design Exchangeable ceramic element with grounding circuit, G1½ steel nipple, Ø 42 mm steel jacket tube, bright-galvanized steel hood, IP 30 protection system, <b>horizontal</b> installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power (1.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> <th>Power (2.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>400</td><td>0305 0011</td><td>650</td><td>0305 1011</td></tr> <tr><td>400</td><td>800</td><td>0305 0031</td><td>1300</td><td>0305 1031</td></tr> <tr><td>600</td><td>1200</td><td>0305 0051</td><td>2000</td><td>0305 1051</td></tr> <tr><td>800</td><td>1600</td><td>0305 0071</td><td>2650</td><td>0305 1071</td></tr> <tr><td>1000</td><td>2000</td><td>0305 0091</td><td>3300</td><td>0305 1091</td></tr> <tr><td>1200</td><td>2400</td><td>0305 0111</td><td>4000</td><td>0305 1111</td></tr> <tr><td>1600</td><td>3200</td><td>0305 0131</td><td>5300</td><td>0305 1131</td></tr> <tr><td>2000</td><td>4000</td><td>0305 0151</td><td>6600</td><td>0305 1151</td></tr> </tbody> </table> <p>Surcharge for brass screw cap IP 65</p>	Imm. length mm approx.	Power (1.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	Power (2.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	200	400	0305 0011	650	0305 1011	400	800	0305 0031	1300	0305 1031	600	1200	0305 0051	2000	0305 1051	800	1600	0305 0071	2650	0305 1071	1000	2000	0305 0091	3300	0305 1091	1200	2400	0305 0111	4000	0305 1111	1600	3200	0305 0131	5300	0305 1131	2000	4000	0305 0151	6600	0305 1151											
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<p>3.6 G2 screw-in heating element Model O/52</p>  <p>Photograph shows hood for IP 65 protection system</p>	<p>Application For heating: surface load low-viscosity oil, hydraulic fluid, 1.5 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.5 W/cm<sup>2</sup></p> <p>Design Exchangeable ceramic element with grounding circuit, G2 steel nipple, Ø 52 mm steel jacket tube, bright-galvanized steel hood, IP 30 protection system, <b>horizontal</b> installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power (1.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> <th>Power (2.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>500</td><td>0306 0011</td><td>800</td><td>0306 1011</td></tr> <tr><td>400</td><td>1000</td><td>0306 0031</td><td>1650</td><td>0306 1031</td></tr> <tr><td>600</td><td>1450</td><td>0306 0051</td><td>2450</td><td>0306 1051</td></tr> <tr><td>800</td><td>1950</td><td>0306 0071</td><td>3250</td><td>0306 1071</td></tr> <tr><td>1000</td><td>2450</td><td>0306 0091</td><td>4100</td><td>0306 1091</td></tr> <tr><td>1200</td><td>2950</td><td>0306 0111</td><td>4900</td><td>0306 1111</td></tr> <tr><td>1600</td><td>3900</td><td>0306 0131</td><td>6550</td><td>0306 1131</td></tr> <tr><td>2000</td><td>4900</td><td>0306 0151</td><td>8150</td><td>0306 1151</td></tr> </tbody> </table> <p>Surcharge for brass screw cap IP 65</p>	Imm. length mm approx.	Power (1.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	Power (2.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	200	500	0306 0011	800	0306 1011	400	1000	0306 0031	1650	0306 1031	600	1450	0306 0051	2450	0306 1051	800	1950	0306 0071	3250	0306 1071	1000	2450	0306 0091	4100	0306 1091	1200	2950	0306 0111	4900	0306 1111	1600	3900	0306 0131	6550	0306 1131	2000	4900	0306 0151	8150	0306 1151											
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<p>3.7 Flanged heating element Model FHK65/Th/52</p> 	<p>Application For heating: surface load low-viscosity oil, hydraulic fluid, 1.5 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.5 W/cm<sup>2</sup></p> <p>Design Exchangeable ceramic element with grounding circuit, steel flange DN 65 DIN 2527, PN 16, Thermostat 0 to 120 °C, Ø 52 mm steel jacket tube, lacquered steel hood, IP 30 or IP 65, <b>horizontal</b> installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power (1.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> <th>Power (2.5 W/cm<sup>2</sup>) Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>500</td><td>0307 0011</td><td>800</td><td>0307 1011</td></tr> <tr><td>400</td><td>1000</td><td>0307 0031</td><td>1650</td><td>0307 1031</td></tr> <tr><td>600</td><td>1450</td><td>0307 0051</td><td>2450</td><td>0307 1051</td></tr> <tr><td>800</td><td>1950</td><td>0307 0071</td><td>3250</td><td>0307 1071</td></tr> <tr><td>1000</td><td>2450</td><td>0307 0091</td><td>4100</td><td>0307 1091</td></tr> <tr><td>1200</td><td>2950</td><td>0307 0111</td><td>4900</td><td>0307 1111</td></tr> <tr><td>1600</td><td>3900</td><td>0307 0131</td><td>6550</td><td>0307 1131</td></tr> <tr><td>2000</td><td>4900</td><td>0307 0151</td><td>8150</td><td>0307 1151</td></tr> </tbody> </table>	Imm. length mm approx.	Power (1.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	Power (2.5 W/cm <sup>2</sup> ) Watt approx.	Order No.	200	500	0307 0011	800	0307 1011	400	1000	0307 0031	1650	0307 1031	600	1450	0307 0051	2450	0307 1051	800	1950	0307 0071	3250	0307 1071	1000	2450	0307 0091	4100	0307 1091	1200	2950	0307 0111	4900	0307 1111	1600	3900	0307 0131	6550	0307 1131	2000	4900	0307 0151	8150	0307 1151											
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<p>4.1.1 Tank heater <b>flexible installation</b></p>  	<p>Application Maintaining EL heating oil at correct temperature, to avoid faults due to wax separation. For tanks up to 100.000 litres. Testing: TÜV (Technical Inspection Association)</p> <p>Design DN 150 steel flange, vertical oil-resistant cable, immersion depth 400 to 2.950 mm (adjustable), 3 steel tube elements, surface load 4 W/cm<sup>2</sup>, temperature controller, safety temperature limiter and terminal box, IP 65 protection system.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. depth adjustable mm approx.</th> <th>Min. depth mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>550 - 2950</td><td>210</td><td>3000</td><td>0401 1011</td></tr> <tr><td>550 - 2950</td><td>230</td><td>4500</td><td>0401 1021</td></tr> <tr><td>550 - 2950</td><td>250</td><td>6000</td><td>0401 1031</td></tr> <tr><td>550 - 2950</td><td>275</td><td>7500</td><td>0401 1061</td></tr> <tr><td>550 - 2950</td><td>300</td><td>9000</td><td>0401 1041</td></tr> <tr><td>550 - 2950</td><td>400</td><td>10500</td><td>0401 1051</td></tr> </tbody> </table> <p>130 x 94 x 58 mm display unit, IP 54 protection system, with terminals and indicator lights.</p>	Imm. depth adjustable mm approx.	Min. depth mm approx.	Power Watt approx.	Order No.	550 - 2950	210	3000	0401 1011	550 - 2950	230	4500	0401 1021	550 - 2950	250	6000	0401 1031	550 - 2950	275	7500	0401 1061	550 - 2950	300	9000	0401 1041	550 - 2950	400	10500	0401 1051																												
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<p>4.1.3 Tank heater <b>for hydraulic fluid</b></p> 	<p>Application Maintaining hydraulic fluid temperature at +15°C to +50°C in installations, machine tools, presses, lifts, etc. The tank heater is laid or placed in the fluid. No screws or flange attachments.</p> <p>Design Helical tube heating element 230 V, 250 W to 2000 W. Surface load 0.6 W/cm<sup>2</sup> or 1.2 W/cm<sup>2</sup>. Temperature controller, 3-wire plastic cable. On request, magnets for placing and removing the metal pick-up in the oil.</p>	<table border="1"> <thead> <tr> <th>Imm. depth adjustable mm approx.</th> <th>Power Watt approx.</th> <th>Order No. without magnets</th> <th>Order No. with magnets</th> </tr> </thead> <tbody> <tr><td colspan="4">Surface load 1.2 W/cm<sup>2</sup> for HLP</td></tr> <tr><td>250</td><td>250</td><td>0401 3011</td><td>0401 3041</td></tr> <tr><td>290</td><td>500</td><td>0401 3021</td><td>0401 3051</td></tr> <tr><td>390</td><td>1000</td><td>0401 3031</td><td>0401 3061</td></tr> <tr><td>600</td><td>2000</td><td>0401 3301</td><td>0401 3311</td></tr> <tr><td colspan="4">Surface load 0.6 W/cm<sup>2</sup> for HFC und HFD-R</td></tr> <tr><td>290</td><td>250</td><td>0401 3111</td><td>0401 3141</td></tr> <tr><td>390</td><td>500</td><td>0401 3121</td><td>0401 3151</td></tr> <tr><td>600</td><td>1000</td><td>0401 3321</td><td>0401 3331</td></tr> <tr><td colspan="4">Surface load 0.6 W/cm<sup>2</sup> for HFA</td></tr> <tr><td>290</td><td>250</td><td>0401 3211</td><td>0401 3241</td></tr> <tr><td>390</td><td>500</td><td>0401 3221</td><td>0401 3251</td></tr> <tr><td>600</td><td>1000</td><td>0401 3341</td><td>0401 3351</td></tr> </tbody> </table>	Imm. depth adjustable mm approx.	Power Watt approx.	Order No. without magnets	Order No. with magnets	Surface load 1.2 W/cm <sup>2</sup> for HLP				250	250	0401 3011	0401 3041	290	500	0401 3021	0401 3051	390	1000	0401 3031	0401 3061	600	2000	0401 3301	0401 3311	Surface load 0.6 W/cm <sup>2</sup> for HFC und HFD-R				290	250	0401 3111	0401 3141	390	500	0401 3121	0401 3151	600	1000	0401 3321	0401 3331	Surface load 0.6 W/cm <sup>2</sup> for HFA				290	250	0401 3211	0401 3241	390	500	0401 3221	0401 3251	600	1000	0401 3341	0401 3351
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4.1.4  
Tank heater  
for caustic acid solution  
04014...



**Application**  
Maintaining caustic acid solutions at a temperature of 20°C, to avoid faults due to crystallization in the system.  
Low overall height allows heating of fluid solutions from a level of 210 mm.

4.1.5  
Tank heater  
for AdBlue  
(Urea solution)  
04015...

**Application**  
Maintaining caustic AdBlue at a temperature to avoid faults due to crystallization in the system.  
Low overall height allows heating of fluid solutions from a level of 130 mm.

Immersion depth according to customer's specification.

Length mm approx.	Min. imm. depth mm approx.	Power Watt approx.	Order No.
to 2000	210	1500	0401 4011
to 2000	230	2250	0401 4021
to 2000	250	3000	0401 4031

to 2000	130	1000	0401 5011
to 2000	130	2000	0401 5021

Additional charge for greater immersion depths.  
Additional charge for run-dry protection.

4.2  
Flanged heating element



**Application**  
Heating fluids in hydraulic, lubrication, and heat transfer installations, water in storage tanks and systems, chemical fluids.

**Design**  
DIN 2527 steel flange, PN 16 to PN 100,  
U-shaped tube elements, installation length up to 3.500 mm, in steel, titanium, and various stainless steels.  
Also with exchangeable elements.  
Nominal widths up to DN 500 mm.

Thermostat 0 to 120 °C, differential gap 3 K,  
switching power 16 A to 400 V, 1 pin,  
lacquered steel hood, IP 30 or IP 65 protection system

TÜV inspection possible.

**Complete continuous-flow heaters  
are also available.**

Flange DN	Imm. length mm approx.	Power Watt approx.	Artikel-Nr.	Power Watt approx.	Artikel-Nr.
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**Oil heating - Surface load**

		1.5 W/cm <sup>2</sup>		2.3 W/cm <sup>2</sup>	
65	450	2000	0402 0011	3000	0402 1011
100	450	3000	0402 0021	4500	0402 1021
65	870	4000	0402 0051	6000	0402 1051
100	670	4500	0402 0061	6700	0402 1061
125	670	6000	0402 0081	9000	0402 1081
125	870	8000	0402 0101	12000	0402 1101
150	670	9000	0402 0111	13500	0402 1111
150	870	12000	0402 0131	18000	0402 1131
200	670	18000	0402 0141	27000	0402 1141
250	670	27000	0402 0171	40500	0402 1171
200	870	24000	0402 0151	36000	0402 1151
250	870	36000	0402 0181	54000	0402 1181

**Water heating - Surface load**

		6.0 W/cm <sup>2</sup>		10 W/cm <sup>2</sup>	
65	400	6000	0402 6011	12000	0402 7011
100	400	9000	0402 6021	18000	0402 7021
65	770	12000	0402 6051	24000	0402 7051
100	610	13500	0402 6061	27000	0402 7061
125	610	18000	0402 6081	36000	0402 7081
125	770	24000	0402 6101	48000	0402 7101
150	610	27000	0402 6111	54000	0402 7111
150	770	36000	0402 6131	72000	0402 7131
200	610	54000	0402 6141	108000	0402 7141
200	770	72000	0402 6151	144000	0402 7151

5.1  
Bath immersion heater



Tested and certified to VDE standard

**Application**  
Helios bath heaters are particularly suitable for the direct heating of:  
water, caustic solutions, acids, disinfectants, oils and other fluids, which can support a surface load of 2.5 W/cm<sup>2</sup>.

**Design**  
Helios bath heaters consist of an exchangeable 230 V element, exchangeable protective tube and IP 65 hood with power cable.

The jacket tube material depends on the type of fluid to be heated.

**Technical advantages:**  
If glass or porcelain tubes break, the heating element can still be used.

The power cable can be arranged axially or radially by rotating the cap.

\* See last page

Tube length mm	Min. depth mm approx.	Power Watt approx.	Thermostat without Order No.	Thermostat with Order No.
----------------	-----------------------	--------------------	------------------------------	---------------------------

Special hard porcelain, Ø 46.5 mm				
300	250	500	0501 0011	0502 0011
450	350	1000	0501 0031	0502 0031
600	450	1500	0501 0051	0502 0051
800	600	2500	0501 0071	0502 0071
1000	800	3000	0501 0081	0502 0081

Engineering glass, Ø 46 mm				
300	250	500	0501 1011	0502 1011
450	350	1000	0501 1031	0502 1031
600	450	1500	0501 1051	0502 1051
800	600	2500	0501 1071	0502 1071
1000	800	3000	0501 1081	0502 1081

Teflon (PTFE), Ø 46 mm				
300	250	500	0501 3011	0502 3011
450	350	750	0501 3021	0502 3021
600	450	1000	0501 3031	0502 3031
800	600	1400	0501 3041	0502 3041
1000	800	1900	0501 3051	0502 3051

Titanium, Ø 40 mm				
300	250	500	0501 4011	0502 4011
450	350	1000	0501 4031	0502 4031
600	450	1500	0501 4051	0502 4051
800	600	2500	0501 4071	0502 4071
1000	800	3000	0501 4081	0502 4081

Steel, Ø 42 mm				
300	250	500	0501 5011	0502 5011
450	350	1000	0501 5031	0502 5031
600	450	1500	0501 5051	0502 5051
800	600	2500	0501 5071	0502 5071
1000	800	3000	0501 5081	0502 5081

Stainless steel mat.-no. 1.4571, Ø 42.4 x 1.6 mm				
300	250	500	0501 6011	0502 6011
450	350	1000	0501 6031	0502 6031
600	450	1500	0501 6051	0502 6051
800	600	2500	0501 6071	0502 6071
1000	800	3000	0501 6081	0502 6081

Stainless steel mat.-no. 1.4539, Ø 42.4 x 1.5 mm

Quartz, Ø 46.5 mm please ask for information

5.2  
Bath immersion heater  
with thermostat










**Application**  
Helios bath heaters are particularly suitable for the controlled heating of: water, caustic solutions, acids, disinfectants, oils and other fluids, which can support a surface load of 2.5 W/cm<sup>2</sup>.

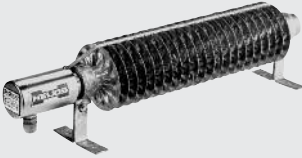
**Design**  
Helios bath heaters with thermostat consist of a 230 V heating element, the appropriate protective tube, thermostat 0 to +120°C with polypropylene protective tube and the terminal box with power cable.  
All parts are exchangeable.

\* See last page



<p>5.3 Z-shaped heating element</p> 	<p><b>Application</b> Hung heating element. For heating fluids in large tanks and flat tubs.</p> <p><b>Design</b> horizontal heated shank A, vertical unheated shank B, horizontal unheated shank, 200 mm long. Brass screw cap, IP 65 protection system, protective jacket tube of steel, stainless steel and titanium. The jacket tube material depends on the type of fluid to be heated.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Power Watt approx.</th> <th>Shank A mm approx.</th> <th>Shank B mm approx.</th> <th>Order No. Steel</th> <th>Order No. Stainless steel</th> </tr> </thead> <tbody> <tr><td>1000</td><td>400</td><td>300</td><td>0503 0011</td><td>0503 1011</td></tr> <tr><td>1300</td><td>500</td><td>400</td><td>0503 0021</td><td>0503 1021</td></tr> <tr><td>1700</td><td>600</td><td>400</td><td>0503 0031</td><td>0503 1031</td></tr> <tr><td>2100</td><td>750</td><td>500</td><td>0503 0041</td><td>0503 1041</td></tr> <tr><td>2500</td><td>850</td><td>500</td><td>0503 0051</td><td>0503 1051</td></tr> <tr><td>3000</td><td>950</td><td>600</td><td>0503 0061</td><td>0503 1061</td></tr> <tr><td>3500</td><td>1050</td><td>600</td><td>0503 0071</td><td>0503 1071</td></tr> <tr><td>4000</td><td>1200</td><td>800</td><td>0503 0081</td><td>0503 1081</td></tr> <tr><td>5000</td><td>1500</td><td>800</td><td>0503 0091</td><td>0503 1091</td></tr> <tr><td>6000</td><td>1800</td><td>1000</td><td>0503 0101</td><td>0503 1101</td></tr> </tbody> </table> <p>Titanium, Ø 40 mm, with plastic screw cap – please ask for information.</p>	Power Watt approx.	Shank A mm approx.	Shank B mm approx.	Order No. Steel	Order No. Stainless steel	1000	400	300	0503 0011	0503 1011	1300	500	400	0503 0021	0503 1021	1700	600	400	0503 0031	0503 1031	2100	750	500	0503 0041	0503 1041	2500	850	500	0503 0051	0503 1051	3000	950	600	0503 0061	0503 1061	3500	1050	600	0503 0071	0503 1071	4000	1200	800	0503 0081	0503 1081	5000	1500	800	0503 0091	0503 1091	6000	1800	1000	0503 0101	0503 1101											
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<p>5.4 Large immersion boiler element</p> 	<p><b>Application</b> Heating water and other non-aggressive fluids, which can support a surface load of 8 W/cm<sup>2</sup>.</p> <p><b>Design</b> Tube elements, Ø 8.4 mm, stainless steel, plastic screw cap as handle, IP 65 protection system, power cable 3 x 1.5 W/cm<sup>2</sup>, with protection contact plug (not included from 4000 W), and adjustable retaining clamp (not included in 1000 W). only order no. 050520.. thermostat 30 to +110°C, differential gap 5 K, switching power 16 A to 400 Volt, 1 pin.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. depth mm approx.</th> <th>Min. imm. depth mm approx.</th> <th>Power Watt approx.</th> <th>Thermostat without Order No.</th> <th>Thermostat with Order No.</th> </tr> </thead> <tbody> <tr><td>210</td><td>60</td><td>1000</td><td>0504 0011</td><td></td></tr> <tr><td>300</td><td>80</td><td>2000</td><td>0504 0021</td><td></td></tr> <tr><td>650</td><td>80</td><td>2000</td><td>0504 0031</td><td>0505 2011</td></tr> <tr><td>650</td><td>130</td><td>3000</td><td>0504 0041</td><td>0505 2021</td></tr> <tr><td>650</td><td>130</td><td>4000</td><td>0504 0051</td><td>0505 2031</td></tr> <tr><td>650</td><td>180</td><td>5000</td><td>0504 0061</td><td>0505 2041</td></tr> </tbody> </table> <p>Electrical connection 230 V AC for powers up to 3000 W, electrical connection 400 V AC for powers up to 4000 W.</p>	Imm. depth mm approx.	Min. imm. depth mm approx.	Power Watt approx.	Thermostat without Order No.	Thermostat with Order No.	210	60	1000	0504 0011		300	80	2000	0504 0021		650	80	2000	0504 0031	0505 2011	650	130	3000	0504 0041	0505 2021	650	130	4000	0504 0051	0505 2031	650	180	5000	0504 0061	0505 2041																															
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<p>5.5 Large immersion boiler element</p> 	<p><b>Application</b> Heating water and other non-aggressive fluids, which can support a surface load of 8 W/cm<sup>2</sup>.</p> <p><b>Design</b> 3 tube elements, Ø 8.4 mm, stainless steel, bright-galvanized steel hood, IP 30 protection system, with handhold. only order no. 050500.. thermostat 30 to +110°C, differential gap 5 K, switching power 16 A to 400 Volt, 3 pin.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. depth mm approx.</th> <th>Min. imm. depth mm approx.</th> <th>Power Watt approx.</th> <th>Thermostat without Order No.</th> <th>Thermostat with Order No.</th> </tr> </thead> <tbody> <tr><td>650</td><td>80</td><td>6000</td><td>0505 1011</td><td>0505 0011</td></tr> <tr><td>650</td><td>130</td><td>9000</td><td>0505 1021</td><td>0505 0021</td></tr> <tr><td>650</td><td>130</td><td>12000</td><td>0505 1031</td><td>0505 0031</td></tr> <tr><td>650</td><td>180</td><td>15000</td><td>0505 1041</td><td>0505 0041</td></tr> </tbody> </table> <p>Electrical connection 3 x 400 V three phase current.</p>	Imm. depth mm approx.	Min. imm. depth mm approx.	Power Watt approx.	Thermostat without Order No.	Thermostat with Order No.	650	80	6000	0505 1011	0505 0011	650	130	9000	0505 1021	0505 0021	650	130	12000	0505 1031	0505 0031	650	180	15000	0505 1041	0505 0041																																									
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<p>5.8 PTFE space-saving bath heater</p> <p>A</p>  <p>B</p> 	<p><b>Application</b> Heating aggressive fluids, caustic solutions, acids, disinfectants, electrolytes, etc.</p> <p><b>Design</b> Proven high-power 230 V tube elements, with PTFE coating, temperature-resistant up to about 260°C, PTFE spacer, Makrolon connection box, IP 65 protection system, cable guide with strain-relief clamp, PVC power cable, 2 m length, moulded plug with protection contact (3-pin CEE plug available on request), plastic-coated retaining bracket.</p>	<table border="1"> <thead> <tr> <th>Illustration</th> <th>Imm. depth mm approx.</th> <th>Min. imm. depth mm approx.</th> <th>Width mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>A</td><td>560</td><td>320</td><td>270</td><td>1000</td><td>0508 0011</td></tr> <tr><td>A</td><td>830</td><td>460</td><td>450</td><td>2000</td><td>0508 0021</td></tr> <tr><td>A</td><td>1010</td><td>430</td><td>450</td><td>2000</td><td>0508 0031</td></tr> <tr><td>A</td><td>1240</td><td>870</td><td>200</td><td>2000</td><td>0508 0041</td></tr> <tr><td>A</td><td>1430</td><td>870</td><td>200</td><td>2000</td><td>0508 0051</td></tr> <tr><td>B</td><td>560</td><td>320</td><td>270</td><td>1000</td><td>0508 0111</td></tr> <tr><td>B</td><td>830</td><td>460</td><td>450</td><td>2000</td><td>0508 0121</td></tr> <tr><td>B</td><td>1010</td><td>430</td><td>450</td><td>2000</td><td>0508 0131</td></tr> <tr><td>B</td><td>1240</td><td>870</td><td>200</td><td>2000</td><td>0508 0141</td></tr> <tr><td>B</td><td>1430</td><td>870</td><td>200</td><td>2000</td><td>0508 0151</td></tr> </tbody> </table>	Illustration	Imm. depth mm approx.	Min. imm. depth mm approx.	Width mm approx.	Power Watt approx.	Order No.	A	560	320	270	1000	0508 0011	A	830	460	450	2000	0508 0021	A	1010	430	450	2000	0508 0031	A	1240	870	200	2000	0508 0041	A	1430	870	200	2000	0508 0051	B	560	320	270	1000	0508 0111	B	830	460	450	2000	0508 0121	B	1010	430	450	2000	0508 0131	B	1240	870	200	2000	0508 0141	B	1430	870	200	2000	0508 0151
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<p>5.9 PTFE space-saving bath heater with thermostat, externally regulated</p> <p>B</p> 	<p><b>Application</b> Heating aggressive fluids, caustic solutions, acids, disinfectants, electrolytes, etc.</p> <p><b>Design</b> Proven high-power 230 V tube elements, with PTFE coating, temperature-resistant up to about 260°C, PTFE spacer, Makrolon connection box, IP 65 protection system, cable guide with strain-relief clamp, PVC power cable, 2 m length, moulded plug with protection contact (3-pin CEE plug available on request), plastic-coated retaining bracket. Thermostat controlled range 0 to +100°C.</p>	<table border="1"> <thead> <tr> <th>Illustration</th> <th>Imm. depth mm approx.</th> <th>Min. imm. depth mm approx.</th> <th>Width mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>A</td><td>560</td><td>320</td><td>270</td><td>1000</td><td>0509 0011</td></tr> <tr><td>A</td><td>830</td><td>460</td><td>450</td><td>2000</td><td>0509 0021</td></tr> <tr><td>A</td><td>1010</td><td>430</td><td>450</td><td>2000</td><td>0509 0031</td></tr> <tr><td>A</td><td>1240</td><td>870</td><td>200</td><td>2000</td><td>0509 0041</td></tr> <tr><td>A</td><td>1430</td><td>870</td><td>200</td><td>2000</td><td>0509 0051</td></tr> <tr><td>B</td><td>560</td><td>320</td><td>270</td><td>1000</td><td>0509 0111</td></tr> <tr><td>B</td><td>830</td><td>460</td><td>450</td><td>2000</td><td>0509 0121</td></tr> <tr><td>B</td><td>1010</td><td>430</td><td>450</td><td>2000</td><td>0509 0131</td></tr> <tr><td>B</td><td>1240</td><td>870</td><td>200</td><td>2000</td><td>0509 0141</td></tr> <tr><td>B</td><td>1430</td><td>870</td><td>200</td><td>2000</td><td>0509 0151</td></tr> </tbody> </table>	Illustration	Imm. depth mm approx.	Min. imm. depth mm approx.	Width mm approx.	Power Watt approx.	Order No.	A	560	320	270	1000	0509 0011	A	830	460	450	2000	0509 0021	A	1010	430	450	2000	0509 0031	A	1240	870	200	2000	0509 0041	A	1430	870	200	2000	0509 0051	B	560	320	270	1000	0509 0111	B	830	460	450	2000	0509 0121	B	1010	430	450	2000	0509 0131	B	1240	870	200	2000	0509 0141	B	1430	870	200	2000	0509 0151
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<p>6.1 Finned-tube heating element</p> 	<p><b>Application</b> Heating and anti-frost protection for: assembly pits, crane driver cabs, payment booths, toilets, greenhouses, workshops, workplaces, cellars, transformer stations, building construction trucks, water supply installations, switchgears.</p> <p><b>Design</b> Stainless steel finned tube, with 2 supports, 1 or 3 stainless steel Ø 8.4 mm elements, bright-galvanized steel hood, IP 65 protection system, screw-in cable connection with strain-relief clamp.</p>	<table border="1"> <thead> <tr> <th>Tube length mm approx.</th> <th>Power Watt approx.</th> <th>Stainless steel Order No.</th> </tr> </thead> <tbody> <tr><td>500</td><td>500</td><td>0601 2011</td></tr> <tr><td>500</td><td>1000</td><td>0601 2021</td></tr> <tr><td>750</td><td>750</td><td>0601 2041</td></tr> <tr><td>750</td><td>1500</td><td>0601 2051</td></tr> <tr><td>1000</td><td>1000</td><td>0601 2071</td></tr> <tr><td>1000</td><td>2000</td><td>0601 2081</td></tr> <tr><td>1500</td><td>1500</td><td>0601 2111</td></tr> <tr><td>1500</td><td>3000</td><td>0601 2121</td></tr> <tr><td>2000</td><td>2000</td><td>0601 2151</td></tr> <tr><td>2000</td><td>4000</td><td>0601 2181</td></tr> <tr><td>3000</td><td>6000</td><td>0601 2211</td></tr> </tbody> </table> <p>• Hood is separated (50 mm gap)</p>	Tube length mm approx.	Power Watt approx.	Stainless steel Order No.	500	500	0601 2011	500	1000	0601 2021	750	750	0601 2041	750	1500	0601 2051	1000	1000	0601 2071	1000	2000	0601 2081	1500	1500	0601 2111	1500	3000	0601 2121	2000	2000	0601 2151	2000	4000	0601 2181	3000	6000	0601 2211																														
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**6.3**  
Finned-tube heating element  
**with limiter**



**Application:**  
Heating and anti-frost protection for: assembly pits, crane driver cabs, payment booths, toilets, greenhouses, workshops, workplaces, cellars, transformer stations, building construction trucks, etc.

**Design:**  
Stainless steel finned tube, with 2 supports, stainless steel Ø 8.4 mm heating element, 230 V, bright-galvanized steel hood, IP 65 protection system, screw-in cable connection with strain-relief clamp, with limiter.


without protective cage: max. case temperature 170°C  
with protective cage: max. case temperature 100°C

Tube length mm approx.	Power Watt approx.	protective cage	
		without Order No.	with Order No.
500	500	0603 0511	0603 0611
750	750	0603 0521	0603 0621
1000	1000	0603 0531	0603 0631
1500	1500	0603 0541	0603 0641

for garages  
max. case temperature 110°C.

1500	1000	0603 0311	0603 0321
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**6.3**  
Finned-tube heating element  
**with room temperature controller**



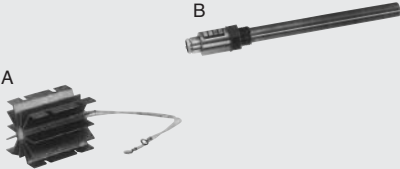
**Application:**  
Heating and anti-frost protection for: assembly pits, crane driver cabs, payment booths, toilets, greenhouses, workshops, workplaces, cellars, transformer stations, building construction trucks, etc.

**Design:**  
Stainless steel finned tube, with 2 supports, stainless steel Ø 8.4 mm heating element, 230 V, polycarbonate housing, IP 65 protection system, screw-in cable connection with strain-relief clamp, room temperature controller - 5 °C up to 35 °C, indicator light.

Tube length mm approx.	Power Watt approx.	protective cage	
		without Order No.	with Order No.
400	600	0603 1411	0603 1511
500	1000	0603 1421	0603 1521
750	1500	0603 1431	0603 1531
1000	2000	0603 1441	0603 1541
1500	3000	0603 1451	0603 1551

Hood is separated (70 mm gap)

**6.5**      **6.6**  
Switchgear cabinet heaters




**Application:**  
Maintaining switchgear cabinets at the correct temperature to prevent condensation.

**Design:**  
Illustration A Light alloy profile, exchangeable cartridge and flexible lead connections.  
Illustration B G<sup>3/8</sup> screw-in heating element, Ø 18 mm brass jacket tube, IP 65.

Illustration	Dimensions mm approx.	Power Watt approx.	Order No.
A	52 x 52 x 75	100	0605 0221
B	200	30	0606 0311
B	200	60	0606 0321
B	500	85	0606 0331
B	500	200	0606 0341

**6.9**  
Room temperature controller




**Application:**  
Maintaining air temperature by Helios room heating elements.  
For wall-fastening.

**Design:**  
Single-pole double-throw switch in a plastic housing.

	Control range	Order No.
Protection system IP 30	-20 bis +30 °C	0609 0111
Protection system IP 65	+5 bis +35 °C	0609 0121
Protection system IP 65	-15 bis +15 °C	0609 0141

Photograph shows IP 65 protection system

**7.2**  
Ceramic heating element Ø 26




**Application:**  
For heating: surface load  
high-viscosity oil, hydraulic fluid, 1.6 W/cm<sup>2</sup>  
fluids of similar viscosity to water. 2.7 W/cm<sup>2</sup>

**Design:**  
Ceramic element support Ø 26 mm, serrated, M4 terminal studs, IP 00 protection system, **horizontal** installation.

Imm. length mm approx.	Power Watt approx. (1.6 W/cm <sup>2</sup> )	Order No.	Power Watt approx. (2.7 W/cm <sup>2</sup> )	Order No.
150	200	0702 0011	350	0702 1011
250	350	0702 0031	550	0702 1031
350	450	0702 0051	750	0702 1051
500	650	0702 0071	1100	0702 1071
700	900	0702 0091	1550	0702 1091
900	1200	0702 0111	2000	0702 1111
1100	1450	0702 0131	2400	0702 1131
1300	1700	0702 0151	2850	0702 1151

\* See last page

**7.3**  
Ceramic heating element Ø 37









**Application:**  
For heating: surface load  
high-viscosity oil, hydraulic fluid, 1.7 W/cm<sup>2</sup>  
fluids of similar viscosity to water. 2.8 W/cm<sup>2</sup>

**Design:**  
Ceramic element support Ø 37, serrated, M5 terminal studs, IP 00 protection system, **horizontal** installation.

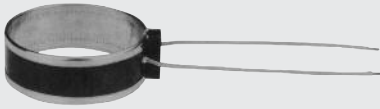
Also available in Ø 31 mm.

Imm. length mm approx.	Power Watt approx. (1.7 W/cm <sup>2</sup> )	Order No.	Power Watt approx. (2.8 W/cm <sup>2</sup> )	Order No.
200	400	0703 0011	650	0703 1011
400	800	0703 0031	1300	0703 1031
600	1200	0703 0051	2000	0703 1051
800	1600	0703 0071	2650	0703 1071
1000	2000	0703 0091	3300	0703 1091
1200	2400	0703 0111	4000	0703 1111
1600	3200	0703 0131	5300	0703 1131
2000	4000	0703 0151	6600	0703 1151

\* See last page

<p>7.4 Ceramic heating element Ø 47</p> 	<p><b>Application</b> For heating: surface load high-viscosity oil, hydraulic fluid, 1.7 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.8 W/cm<sup>2</sup></p> <p><b>Design</b> Ceramic element support Ø 47, serrated, M5 terminal studs, IP 00 protection system, <b>horizontal</b> installation.</p> <p>Also available in Ø 40, 45, 57 and 70 mm.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx. (1.7 W/cm<sup>2</sup>)</th> <th>Order No.</th> <th>Power Watt approx. (2.8 W/cm<sup>2</sup>)</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>500</td><td>0704 0011</td><td>800</td><td>0704 1011</td></tr> <tr><td>400</td><td>1000</td><td>0704 0031</td><td>1650</td><td>0704 1031</td></tr> <tr><td>600</td><td>1450</td><td>0704 0051</td><td>2450</td><td>0704 1051</td></tr> <tr><td>800</td><td>1950</td><td>0704 0071</td><td>3250</td><td>0704 1071</td></tr> <tr><td>1000</td><td>2450</td><td>0704 0091</td><td>4100</td><td>0704 1091</td></tr> <tr><td>1200</td><td>2950</td><td>0704 0111</td><td>4900</td><td>0704 1111</td></tr> <tr><td>1600</td><td>3900</td><td>0704 0131</td><td>6550</td><td>0704 1131</td></tr> <tr><td>2000</td><td>4900</td><td>0704 0151</td><td>8150</td><td>0704 1151</td></tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx. (1.7 W/cm <sup>2</sup> )	Order No.	Power Watt approx. (2.8 W/cm <sup>2</sup> )	Order No.	200	500	0704 0011	800	0704 1011	400	1000	0704 0031	1650	0704 1031	600	1450	0704 0051	2450	0704 1051	800	1950	0704 0071	3250	0704 1071	1000	2450	0704 0091	4100	0704 1091	1200	2950	0704 0111	4900	0704 1111	1600	3900	0704 0131	6550	0704 1131	2000	4900	0704 0151	8150	0704 1151									
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<p>7.5 Ceramic heating element Ø 37</p> 	<p><b>Application</b> For heating: surface load high-viscosity oil, hydraulic fluid, 1.7 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.8 W/cm<sup>2</sup></p> <p><b>Design</b> Ceramic element support Ø 37 mm, with helical groove, M5 terminal studs, IP 00 protection system, <b>vertical</b> and horizontal installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx. (1.7 W/cm<sup>2</sup>)</th> <th>Order No.</th> <th>Power Watt approx. (2.8 W/cm<sup>2</sup>)</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>400</td><td>0705 0011</td><td>650</td><td>0705 1011</td></tr> <tr><td>400</td><td>800</td><td>0705 0031</td><td>1300</td><td>0705 1031</td></tr> <tr><td>600</td><td>1200</td><td>0705 0051</td><td>2000</td><td>0705 1051</td></tr> <tr><td>800</td><td>1600</td><td>0705 0071</td><td>2650</td><td>0705 1071</td></tr> <tr><td>1000</td><td>2000</td><td>0705 0091</td><td>3300</td><td>0705 1091</td></tr> <tr><td>1200</td><td>2400</td><td>0705 0111</td><td>4000</td><td>0705 1111</td></tr> <tr><td>1600</td><td>3200</td><td>0705 0131</td><td>5300</td><td>0705 1131</td></tr> <tr><td>2000</td><td>4000</td><td>0705 0151</td><td>6600</td><td>0705 1151</td></tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx. (1.7 W/cm <sup>2</sup> )	Order No.	Power Watt approx. (2.8 W/cm <sup>2</sup> )	Order No.	200	400	0705 0011	650	0705 1011	400	800	0705 0031	1300	0705 1031	600	1200	0705 0051	2000	0705 1051	800	1600	0705 0071	2650	0705 1071	1000	2000	0705 0091	3300	0705 1091	1200	2400	0705 0111	4000	0705 1111	1600	3200	0705 0131	5300	0705 1131	2000	4000	0705 0151	6600	0705 1151									
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<p>7.6 Ceramic heating element Ø 47</p> 	<p><b>Application</b> For heating: surface load high-viscosity oil, hydraulic fluid, 1.7 W/cm<sup>2</sup> fluids of similar viscosity to water. 2.8 W/cm<sup>2</sup></p> <p><b>Design</b> Ceramic element support Ø 47, with helical groove, M5 terminal studs, IP 00 protection system, <b>vertical</b> and horizontal installation.</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Imm. length mm approx.</th> <th>Power Watt approx. (1.7 W/cm<sup>2</sup>)</th> <th>Order No.</th> <th>Power Watt approx. (2.8 W/cm<sup>2</sup>)</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>200</td><td>500</td><td>0706 0011</td><td>800</td><td>0706 1011</td></tr> <tr><td>400</td><td>1000</td><td>0706 0031</td><td>1650</td><td>0706 1031</td></tr> <tr><td>600</td><td>1450</td><td>0706 0051</td><td>2450</td><td>0706 1051</td></tr> <tr><td>800</td><td>1950</td><td>0706 0071</td><td>3250</td><td>0706 1071</td></tr> <tr><td>1000</td><td>2450</td><td>0706 0091</td><td>4100</td><td>0706 1091</td></tr> <tr><td>1200</td><td>2950</td><td>0706 0111</td><td>4900</td><td>0706 1111</td></tr> <tr><td>1600</td><td>3900</td><td>0706 0131</td><td>6550</td><td>0706 1131</td></tr> <tr><td>2000</td><td>4900</td><td>0706 0151</td><td>8150</td><td>0706 1151</td></tr> </tbody> </table>	Imm. length mm approx.	Power Watt approx. (1.7 W/cm <sup>2</sup> )	Order No.	Power Watt approx. (2.8 W/cm <sup>2</sup> )	Order No.	200	500	0706 0011	800	0706 1011	400	1000	0706 0031	1650	0706 1031	600	1450	0706 0051	2450	0706 1051	800	1950	0706 0071	3250	0706 1071	1000	2450	0706 0091	4100	0706 1091	1200	2950	0706 0111	4900	0706 1111	1600	3900	0706 0131	6550	0706 1131	2000	4900	0706 0151	8150	0706 1151									
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<p>8.1 Heating plate</p> 	<p><b>Application</b> For heating containers with fluids, tools, etc.</p> <p><b>Design</b> 5 mm steel plate with tube elements, 230 V, varnished sheet steel casing and thermostat 50 to 300°C.</p> <p>For other sizes, please ask for information.</p> <p>Also available with electronic temperature control and digital temperature display.</p>	<table border="1"> <thead> <tr> <th>Plate length mm</th> <th>Plate width mm</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>250</td><td>250</td><td>600</td><td>0801 0011</td></tr> <tr><td>400</td><td>250</td><td>1000</td><td>0801 0021</td></tr> <tr><td>500</td><td>300</td><td>1500</td><td>0801 0031</td></tr> <tr><td>600</td><td>360</td><td>2400</td><td>0801 0041</td></tr> </tbody> </table>	Plate length mm	Plate width mm	Power Watt approx.	Order No.	250	250	600	0801 0011	400	250	1000	0801 0021	500	300	1500	0801 0031	600	360	2400	0801 0041																																		
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<p>8.3 High-power cartridge heater</p> 	<p><b>Application</b> For heating tools, shapes and machine parts.</p> <p><b>Design</b> Heating element, embedded in highly-compressed insulation, nickel wire, insulated, 250 mm length, stainless steel jacket tube. Available diameters 6.5, 8, 10, 12.5, 16 and 20 mm; please ask for information.</p>	<table border="1"> <thead> <tr> <th>Ø mm</th> <th>Length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr><td>12.5</td><td>40</td><td>160</td><td>0803 0611</td><td>315</td><td>0803 0711</td></tr> <tr><td>12.5</td><td>50</td><td>160</td><td>0803 0621</td><td>315</td><td>0803 0721</td></tr> <tr><td>12.5</td><td>60</td><td>200</td><td>0803 0631</td><td>400</td><td>0803 0731</td></tr> <tr><td>12.5</td><td>80</td><td>250</td><td>0803 0641</td><td>500</td><td>0803 0741</td></tr> <tr><td>12.5</td><td>100</td><td>250</td><td>0803 0651</td><td>500</td><td>0803 0751</td></tr> <tr><td>12.5</td><td>130</td><td>400</td><td>0803 0661</td><td>630</td><td>0803 0761</td></tr> <tr><td>12.5</td><td>160</td><td>500</td><td>0803 0671</td><td>800</td><td>0803 0771</td></tr> <tr><td>12.5</td><td>200</td><td>630</td><td>0803 0681</td><td>900</td><td>0803 0781</td></tr> </tbody> </table>	Ø mm	Length mm approx.	Power Watt approx.	Order No.	Power Watt approx.	Order No.	12.5	40	160	0803 0611	315	0803 0711	12.5	50	160	0803 0621	315	0803 0721	12.5	60	200	0803 0631	400	0803 0731	12.5	80	250	0803 0641	500	0803 0741	12.5	100	250	0803 0651	500	0803 0751	12.5	130	400	0803 0661	630	0803 0761	12.5	160	500	0803 0671	800	0803 0771	12.5	200	630	0803 0681	900	0803 0781
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<p>8.4 Flat heating element</p> 	<p><b>Application</b> Heating containers and tools to 200°C max.</p> <p><b>Design</b> Heating element insulated with micanite plates, set in metal sheet, with 200 mm insulated nickel wires.</p> <p>For other sizes, please ask for information.</p>	<table border="1"> <thead> <tr> <th>Length mm approx.</th> <th>Power Watt approx.</th> <th>Order No.</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td></td> <td>Width 20 mm approx.</td> <td></td> <td>Width 30 mm approx.</td> <td></td> </tr> <tr><td>100</td><td>70</td><td>0804 0011</td><td>100</td><td>0804 1011</td></tr> <tr><td>500</td><td>500</td><td>0804 0151</td><td>600</td><td>0804 1151</td></tr> <tr> <td></td> <td>Width 40 mm approx.</td> <td></td> <td>Width 50 mm approx.</td> <td></td> </tr> <tr><td>100</td><td>140</td><td>0804 2011</td><td>170</td><td>0804 3011</td></tr> <tr><td>500</td><td>800</td><td>0804 2151</td><td>1000</td><td>0804 3151</td></tr> <tr> <td></td> <td>Width 60 mm approx.</td> <td></td> <td>Width 70 mm approx.</td> <td></td> </tr> <tr><td>100</td><td>200</td><td>0804 4011</td><td>250</td><td>0804 5011</td></tr> <tr><td>500</td><td>1250</td><td>0804 4151</td><td>1500</td><td>0804 5151</td></tr> </tbody> </table>	Length mm approx.	Power Watt approx.	Order No.	Power Watt approx.	Order No.		Width 20 mm approx.		Width 30 mm approx.		100	70	0804 0011	100	0804 1011	500	500	0804 0151	600	0804 1151		Width 40 mm approx.		Width 50 mm approx.		100	140	0804 2011	170	0804 3011	500	800	0804 2151	1000	0804 3151		Width 60 mm approx.		Width 70 mm approx.		100	200	0804 4011	250	0804 5011	500	1250	0804 4151	1500	0804 5151				
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### 8.5 Ring heating element



#### Application

Heating cylindrical shapes and tools to 200°C max.

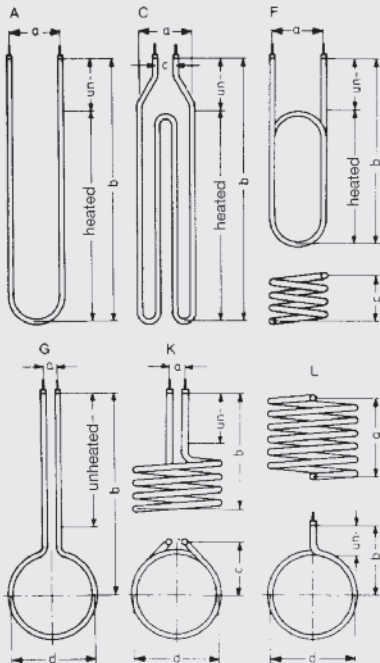
#### Design

Heating element insulated with micanite plates, set in metal sheet, with tensioning angle and 200 mm insulated nickel wires.

For other sizes, please ask for information.

iØ x width mm approx.	Power Watt approx.	Order No.	iØ x width mm approx.	Power Watt approx.	Order No.
30x30	100	0805 0011	60x30	220	0805 0161
30x50	180	0805 0031	60x50	380	0805 0181
30x80	280	0805 0051	60x80	500	0805 0201
40x30	150	0805 0061	80x30	300	0805 0211
40x50	250	0805 0081	80x50	420	0805 0231
40x80	350	0805 0101	80x80	550	0805 0251
50x30	180	0805 0111	100x30	360	0805 0261
50x50	300	0805 0131	100x50	550	0805 0281
50x80	420	0805 0151	100x80	850	0805 0301

### 9.1 - 9.10 High-power tubular heating element Ø 8.4 Tube length up to 7.000 mm



#### Application

Heating up **water** in kettles, boilers, heat exchangers, rinsing and degreasing baths, in double jackets for indirect heating, etc.

Heating up **oil** for hardening-, hydraulic- or lubrication plants, in gear boxes, oil tanks, etc.

**Other fluids** like tar, paraffin, tetrachloroethylene, diphyll, glycerin, phosphat ester, melting of tin or lead, etc.

**Solid media** like heating plates, machine parts, rollers, tanks, etc. (build in or pressing on), aluminium parts (cast in)

**Air** in air heaters or circulating air ovens, in heating cabinets and drying fumaces as radiant heating elements

Further applications please see chart on the right.

#### Technical advantages

High degree of operational reliability, dielectric strength, protection against contact and humidity, resistant against external influences and high temperatures, good heat transmission and heat conductivity, low heat storage, easy malleable, stable, vibration resistant and long life expectancy

#### Design

Heating element consists of a coiled heating wire with welded-on connection bolts, centrally embedded in highly compressed insulating material, protected by a bendable metal tube. Tube ends are sealed by ceramical lock bushings.

Calculation basis for maximum specific surface load and heating element material of high-power tubular for different applications.

Medium / application	Maximum medium temperature in ° C	Maximum specific surface load in W/cm²	Heating element material				
			steel	1.4541	1.4571	1.4439	Titanium
<b>Water</b>							
Tap water (soft)	60	5 - 8					x
Tap water (hard)	60	3 - 5					x
Water (circulation)	100	10			x		x
Water (deionized)	100	10			x	x	
Water (for vaporization)	100	5			x		x
<b>Aqueous fluids</b>							
Iron III chloride 20%	50	5					x
Bases (aqueous)	100	4	x		x		x
Milk	50	1			x		
Causic soda	100	2					x x
Acids (aqueous)	100	2			x		x
Seawater	100	5					x x
Suds (moved)	100	8			x		x
<b>Oil</b>							
Thermal oil	300	5	x				
Light fuel oil	20	4	x				
Hydraulic oil	40	1,5	x				
Lubricating oil (gear box)	40	1	x				
Heavy fuel oil	100	1,5	x				
<b>Other fluids</b>							
Lead bath	500	4		x	x		
Diphyll	350	1,5	x		x		
Frying oil	200	4			x		
Glycerin	110	3	x				
Carbon dioxide (fluid)	20	3	x				
Phosphate ester	40	1	x				
Molten salt	400	2			x		
Lubricating grease	40	0,5	x				
Tar	150	1	x	x			
Water glycol mixture	130	3			x		
Wax	60	1	x				
<b>Solid media</b>							
Aluminium (cast-in)	300	8	x	x			
Charcoal (to ignite)	600	3,5					x
Metal (pressed on)	300	2 - 4	x	x			x
Metal (heating element pressed in groove)	300	6	x	x			1.4876
Sawdust (to ignite)	600	3,5					x x
Sand	200	1,5	x				x
Roller	300	2,5	x				x
<b>Air</b>							
Defrost heating element		1	x				
Grill heating element		4					x
Air (standing)	750	3	x				x
Air (moved)	750	4-6	x				x
Radiant heating element		3 - 5					x

#### Mounting and integration with screw-nipples.

Thread	Length mm	Collar mm	Material
<b>For 1 tube end</b>			
M 14 x 1.5	10	SW19	1.4305
M 14 x 1.5	15	SW19	Br, St37, 1.4571
M 14 x 1.5	25	SW19	Br, St37, 1.4571
M 14 x 1.5	40	SW19	Br, St37, 1.4571
<b>For 2 tube ends</b>			
M 26 x 1,5	11	Ø 32	Brass
M 26 x 2	23	Ø 32	1.4571
G 3/4	25	SW32	Brass
G 1	18	Ø 40	Brass
<b>For 4 tube ends</b>			
G 1	18	Ø 40	Brass

#### Accessories

Screw cap, IP 65 protection system, with IT-gasket

Thread	Length mm	Ø mm	Material
M 14 x 1.5	73	20	Brass
M 26 x 1.5	50	29	Brass
M 26 x 1.5	50	29	Plastic
G 3/4	50	29	Brass
G 3/4	50	29	Plastic
G 1	60	36	Brass
G 1	60	36	Plastic

\* See last page

#### Material of heating element according to application

Material	Material-number	Maximum temperature
Steel	1.0108	400° C
Chrome nickel steel	1.4541	750° C
Chrome nickel steel	1.4571	corrosion-resistant
Chrome nickel steel	1.4439	corrosion-resistant
Chrome nickel steel	1.4828	850° C
Nickel chrom steel (alloy 800)	1.4876	corrosion- and temperature-resistant
Nickel chrom steel (alloy 825)	2.4858	high corrosion resistance
Titan	3.7035	high corrosion resistance

### 9.11 Finned-tube heating element Ø 28



#### Application

Heating the air or gases in air heaters, shrink-film ovens, convection ovens, convection and defrosting heaters.

#### Design

High-power tube element, jacket tube with Ø 28 mm fins, steel or stainless steel, M 14 x 1.5 x 15 mm steel or stainless steel nipple.

For other dimensions, please ask for information.

Finned-tube heating elements are available up to a straight length of 3000 mm.

Power Watt approx.	Bend with fins		Bend without fins	
	Installed Length mm approx.	Order No.	Installed Length mm approx.	Order No.
<b>Steel jacket (max. 400°C)</b>				
1000	335	0912 1041		
1500	460	0912 1101	450	0912 2101
2000	685	0912 1161	675	0912 2161
3000	885	0912 1221	875	0912 2221
<b>Stainless steel jacket (max. 550°C)</b>				
1000	335	0912 3041		
1500	460	0912 3101	450	0912 4101
2000	685	0912 3161	675	0912 4161
3000	885	0912 3221	875	0912 4221




<p>10.1   - Screw-in heating element   - Flanged heating element</p> <p><b>with temperature controller and temperature limiter</b></p>  	<p><b>Application</b></p> <p>For heating non-flammable fluids, or heating fluids with a flash point <math>\geq 55^{\circ}\text{C}</math> in open containers, where the fluids are not to be heated above flash point, in rooms where there is a risk of explosion.</p> <p><b>Explosion protection type</b>            "Flameproof Enclosure" and "Increased Safety"</p> <p><b>Design</b></p> <p>Cast iron housing, IP 54 protection system, G1 1/2 and G2 steel nipple or DIN 2527 steel flange, PN 16, C shape, <math>\varnothing 8.4</math> mm tube element with stainless steel jacket, temperature controller and temperature limiter, for temperature classifications T1 to T6.</p> <p>Screw-in elements with G2 thread are also available with G 1 1/2 thread.</p> <p><b>EC Type of Examination Certificate</b>            IExU 15 ATEX 1019 X</p> <p>* See last page</p>	<table border="1"> <thead> <tr> <th>Flange DN</th> <th>Imm. length mm approx.</th> <th>Voltage Volt</th> <th>Power Watt approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td colspan="5"><b>Oil heating 0.8 W/cm<sup>2</sup></b></td> </tr> <tr> <td>40</td> <td>1250</td> <td>230</td> <td>1000</td> <td>1001 9011</td> </tr> <tr> <td>50</td> <td>880</td> <td>230</td> <td>1000</td> <td>1001 9021</td> </tr> <tr> <td>50</td> <td>1250</td> <td>230</td> <td>1500</td> <td>1001 9031</td> </tr> <tr> <td>80</td> <td>1250</td> <td>230</td> <td>2000</td> <td>1001 9041</td> </tr> <tr> <td>80</td> <td>880</td> <td>230</td> <td>2000</td> <td>1001 9051</td> </tr> <tr> <td>80</td> <td>1250</td> <td>230</td> <td>3000</td> <td>1001 9061</td> </tr> <tr> <td colspan="5"><b>Oil heating 1.5 W/cm<sup>2</sup></b></td> </tr> <tr> <td>40</td> <td>700</td> <td>230</td> <td>1000</td> <td>1001 9071</td> </tr> <tr> <td>50</td> <td>700</td> <td>230</td> <td>1500</td> <td>1001 9081</td> </tr> <tr> <td>80</td> <td>700</td> <td>230</td> <td>2000</td> <td>1001 9091</td> </tr> <tr> <td>80</td> <td>700</td> <td>230</td> <td>3000</td> <td>1001 9101</td> </tr> <tr> <td>80</td> <td>700</td> <td>3 x 400</td> <td>3000</td> <td>1001 9111</td> </tr> <tr> <td>100</td> <td>700</td> <td>3 x 400</td> <td>6000</td> <td>1001 9121</td> </tr> <tr> <td colspan="5"><b>Oil heating 2.3 W/cm<sup>2</sup></b></td> </tr> <tr> <td>40</td> <td>500</td> <td>230</td> <td>1000</td> <td>1001 9131</td> </tr> <tr> <td>50</td> <td>500</td> <td>230</td> <td>1500</td> <td>1001 9141</td> </tr> <tr> <td>80</td> <td>500</td> <td>230</td> <td>2000</td> <td>1001 9151</td> </tr> <tr> <td>80</td> <td>500</td> <td>230</td> <td>3000</td> <td>1001 9161</td> </tr> <tr> <td>80</td> <td>500</td> <td>3 x 400</td> <td>3000</td> <td>1001 9171</td> </tr> <tr> <td>100</td> <td>500</td> <td>3 x 400</td> <td>6000</td> <td>1001 9181</td> </tr> </tbody> </table>	Flange DN	Imm. length mm approx.	Voltage Volt	Power Watt approx.	Order No.	<b>Oil heating 0.8 W/cm<sup>2</sup></b>					40	1250	230	1000	1001 9011	50	880	230	1000	1001 9021	50	1250	230	1500	1001 9031	80	1250	230	2000	1001 9041	80	880	230	2000	1001 9051	80	1250	230	3000	1001 9061	<b>Oil heating 1.5 W/cm<sup>2</sup></b>					40	700	230	1000	1001 9071	50	700	230	1500	1001 9081	80	700	230	2000	1001 9091	80	700	230	3000	1001 9101	80	700	3 x 400	3000	1001 9111	100	700	3 x 400	6000	1001 9121	<b>Oil heating 2.3 W/cm<sup>2</sup></b>					40	500	230	1000	1001 9131	50	500	230	1500	1001 9141	80	500	230	2000	1001 9151	80	500	230	3000	1001 9161	80	500	3 x 400	3000	1001 9171	100	500	3 x 400	6000	1001 9181
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<p>10.3   -Room heating element</p> 	<p><b>Application</b></p> <p>Heating the air in workshops where there is a risk of explosion.</p> <p><b>Explosion protection type</b>            "Flameproof Enclosure" and "Increased Safety"</p> <p><b>Design</b></p> <p>Bundle of either 3 or 6 tube elements, cast iron housing, IP 65 protection system, with varnished protective cage, temperature controller and safety temperature limiter.</p>	<table border="1"> <thead> <tr> <th>Temperature Class</th> <th>Power Watt approx.</th> <th>Overall Length mm approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td>T2</td> <td>1500</td> <td>1450</td> <td>1003 2011</td> </tr> <tr> <td>T2</td> <td>3000</td> <td>1450</td> <td>1003 2021</td> </tr> <tr> <td>T3</td> <td>500</td> <td>900</td> <td>1003 0011</td> </tr> <tr> <td>T3</td> <td>800</td> <td>1225</td> <td>1003 0021</td> </tr> <tr> <td>T3</td> <td>1000</td> <td>1450</td> <td>1003 0031</td> </tr> <tr> <td>T3</td> <td>1500</td> <td>1225</td> <td>1003 0041</td> </tr> <tr> <td>T3</td> <td>2000</td> <td>1450</td> <td>1003 0051</td> </tr> <tr> <td>T3</td> <td>3000</td> <td>2025</td> <td>1003 0061</td> </tr> <tr> <td>T4</td> <td>500</td> <td>1450</td> <td>1003 1011</td> </tr> <tr> <td>T4</td> <td>800</td> <td>1225</td> <td>1003 1021</td> </tr> <tr> <td>T4</td> <td>1000</td> <td>1450</td> <td>1003 1031</td> </tr> </tbody> </table>	Temperature Class	Power Watt approx.	Overall Length mm approx.	Order No.	T2	1500	1450	1003 2011	T2	3000	1450	1003 2021	T3	500	900	1003 0011	T3	800	1225	1003 0021	T3	1000	1450	1003 0031	T3	1500	1225	1003 0041	T3	2000	1450	1003 0051	T3	3000	2025	1003 0061	T4	500	1450	1003 1011	T4	800	1225	1003 1021	T4	1000	1450	1003 1031																																																														
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<p>10.4   -Temperature controller</p> 	<p><b>Application</b></p> <p>Automatic temperature control for room heaters where there is a risk of explosion.</p> <p><b>Explosion protection type</b>            "Powder Filling" and "Increased Safety"</p> <p><b>Design</b></p> <p>Sand encapsulation, IP 54 protection system case, temperature controller, 16 A switching power at 400 V max.</p>	<table border="1"> <thead> <tr> <th>Temperature controller Adjustment range <math>^{\circ}\text{C}</math></th> <th>Diff. gap K</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td>- 20 ... + 50</td> <td>2.5</td> <td>1004 0011</td> </tr> <tr> <td>0 ... + 70</td> <td>2.5</td> <td>1004 0021</td> </tr> <tr> <td>0 ... + 100</td> <td>2.5</td> <td>1004 0031</td> </tr> <tr> <td>0 ... + 150</td> <td>3.8</td> <td>1004 0041</td> </tr> <tr> <td>0 ... + 190</td> <td>5.0</td> <td>1004 0051</td> </tr> <tr> <td>+ 40 ... + 290</td> <td>7.5</td> <td>1004 0061</td> </tr> </tbody> </table>	Temperature controller Adjustment range $^{\circ}\text{C}$	Diff. gap K	Order No.	- 20 ... + 50	2.5	1004 0011	0 ... + 70	2.5	1004 0021	0 ... + 100	2.5	1004 0031	0 ... + 150	3.8	1004 0041	0 ... + 190	5.0	1004 0051	+ 40 ... + 290	7.5	1004 0061																																																																																									
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<p>10.5   -Finned-tube heating element</p> 	<p><b>Application</b></p> <p>Heating the air in workshops where there is a risk of explosion.</p> <p><b>Explosion protection type</b>            "Flameproof Enclosure" and "Increased Safety"</p> <p><b>Design</b></p> <p>Ceramic element, 230 V, in finned tube, cast iron housing, IP 65 protection system, with varnished protective cage.</p>	<table border="1"> <thead> <tr> <th>Temperature Class</th> <th>Power Watt approx.</th> <th>Overall Length mm approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td>T2</td> <td>610</td> <td>740</td> <td>1005 0021</td> </tr> <tr> <td>T2</td> <td>1280</td> <td>1235</td> <td>1005 0041</td> </tr> <tr> <td>T2</td> <td>2000</td> <td>1840</td> <td>1005 0061</td> </tr> <tr> <td>T3</td> <td>360</td> <td>740</td> <td>1005 0091</td> </tr> <tr> <td>T3</td> <td>780</td> <td>1235</td> <td>1005 0111</td> </tr> <tr> <td>T3</td> <td>1145</td> <td>1840</td> <td>1005 0121</td> </tr> <tr> <td>T4</td> <td>200</td> <td>740</td> <td>1005 0131</td> </tr> <tr> <td>T4</td> <td>360</td> <td>1235</td> <td>1005 0141</td> </tr> <tr> <td>T4</td> <td>575</td> <td>1840</td> <td>1005 0151</td> </tr> </tbody> </table>	Temperature Class	Power Watt approx.	Overall Length mm approx.	Order No.	T2	610	740	1005 0021	T2	1280	1235	1005 0041	T2	2000	1840	1005 0061	T3	360	740	1005 0091	T3	780	1235	1005 0111	T3	1145	1840	1005 0121	T4	200	740	1005 0131	T4	360	1235	1005 0141	T4	575	1840	1005 0151																																																																						
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<p>10.6   -Finned-tube heating element of stainless steel</p> 	<p><b>Application</b></p> <p>Heating the air in workshops where there is a risk of explosion.</p> <p><b>Explosion protection type</b>            "Flameproof Enclosure" and "Increased Safety"</p> <p><b>Design</b></p> <p>Ceramic element, 230 V, in stainless steel finnedtube, stainless steel housing, IP 65 protection system.</p>	<table border="1"> <thead> <tr> <th>Temperature Class</th> <th>Power Watt approx.</th> <th>Overall Length mm approx.</th> <th>Order No.</th> </tr> </thead> <tbody> <tr> <td>T2</td> <td>610</td> <td>735</td> <td>1006 0051</td> </tr> <tr> <td>T2</td> <td>1280</td> <td>1230</td> <td>1006 0061</td> </tr> <tr> <td>T2</td> <td>2000</td> <td>1835</td> <td>1006 0071</td> </tr> <tr> <td>T3</td> <td>360</td> <td>735</td> <td>1006 0081</td> </tr> <tr> <td>T3</td> <td>780</td> <td>1230</td> <td>1006 0091</td> </tr> <tr> <td>T3</td> <td>1145</td> <td>1835</td> <td>1006 0101</td> </tr> <tr> <td>T3</td> <td>1525</td> <td>2330</td> <td>1006 0111</td> </tr> </tbody> </table>	Temperature Class	Power Watt approx.	Overall Length mm approx.	Order No.	T2	610	735	1006 0051	T2	1280	1230	1006 0061	T2	2000	1835	1006 0071	T3	360	735	1006 0081	T3	780	1230	1006 0091	T3	1145	1835	1006 0101	T3	1525	2330	1006 0111																																																																														
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**12.1**  
Temperature controller  
Screw-in

Can also be suspended.



**Application**

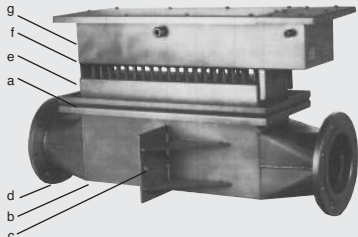

Maintaining fluids at constant temperature; flexible installation.

**Design**

Integrated thermostat, switching power 16 A, 400 V, 1 pin, G1½ sensor with jacket of brass, stainless steel or polypropylene, hood, IP 65 protection system.

Temp.		Imm. length mm	Order No.	Order No.
from °C	to °C			
0	120	200	1201 0061	1201 1061
0	120	300	1201 0071	1201 1071
0	120	500	1201 0081	1201 1081
0	120	1000	1201 0091	1201 1091
Polypropylene				
0	120	200	1201 2061	
0	120	300	1201 2071	
0	120	500	1201 2081	
0	120	1000	1201 2091	

**13.1**  
Gas heater

**Application:** Helios gas heaters are used for heating non-explosive gases, for example air, water vapour, nitrogen etc., up to 700°C max., at up to 0.3 bar pressure. Heater fans (see paragraph 6.7.)

**Types:**

- a) Flange plate for installing in a rectangular building duct or convection oven
- b) Air duct for flange-mounting onto a building fan or air duct
- c) Special shapes at customer request

**Additional types:**

- d) Air funnel for flange-mounting onto pipes
- e) Insulating plug above or below the flange, for heat insulation at temperatures up to 200°C
- f) Cooling zone between the insulating plug and connection case, at temperatures over 200°C
- g) Connection case in IP 65 (IP 30 Standard)

**Design:** Flange or air duct of galvanized steel or stainless steel. 8.4 mm diameter tube element of steel or stainless steel, mat.-no. 1.4541 or mat.-no. 1.4828, in versions with or without fins. Voltage, power, and switching sections at customer request. Regulation by temperature controller, limiter, PT 100 or thermocouples.

To prepare the system, we need the following information:

type of gas heated :	control type :
gas volume :	duct height :
inlet temperature :	duct width :
outlet temperature :	duct length (max.) :
pressure :	material :
power :	protection system :
voltage :	quantity :
switching sections :	special requests :

**14.1**  
Continuous-flow heater



**Application:** Helios continuous-flow heaters are used for heating:

- a) demineralised water and ultrapure water for pharmaceuticals, not too aggressive acids, caustic solutions and other fluids that do not attack the stainless steels used by Helios GmbH
- b) Lubricating, heating, quenching, and hydraulic fluids, vegetable oils, water/glycol mixtures, emulsions, and other fluids that do not attack steel
- c) Air, nitrogen, and other non-explosive gases up to 150°C max.

For special air and gas heaters, see paragraph 13.1

**Design:** Helios continuous-flow heaters consist of 2 components:

- a) Flow pipe with counter flange, feed and discharge connections, draining, vent and support stand (2 support stands for horizontal installation position). At customer request, the flow pipe can be fitted with a mineral matter retainer.
- b) Flanged heating element as described in paragraph 4.2.

HELIOS continuous-flow heaters are made according to the "AD 2000" information leaflets, without TÜV inspection.

To prepare the system, we need the following information:

type of fluid heated :	Connections :	Flange DN
volume flow rate (m³/h) :	or connections :	Thread G
inlet temperature :	installation position :	horizontal / vertical
outlet temperature :	insulation required :	yes / no
pressure :	material :	_____
power :	quantity :	_____
voltage :		
control type :		

**Further product range**

- Integrated temperature controller
- Integrated temperature limiter
- Air heater, with explosion protection
- Tank heaters for chemical fluids
- Gate seal heaters, with flooding protection
- Roller heatings

**Consultation**  
We provide:

- Heat requirement calculation
- Heat loss calculation
- Heating element selection
- Heating element layout
- Material selection
- Suggestions for installation
- Suggestions for control systems
- Circuit diagrams
- Operating and maintenance instructions
- Factory test reports

**Special adaptations**

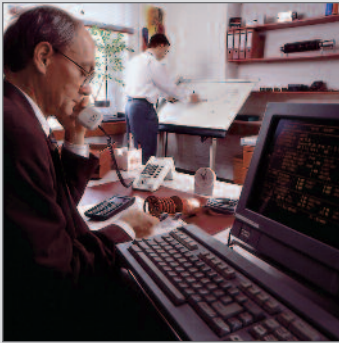
\* These heating elements are available in other lengths, power ratings, voltages, and materials.

If in doubt, please ask your supplier for the maximum permissible surface load of the fluid concerned.





HELIOS, your recognised reliable partner



Design and engineering



Washing machine



Heating wire winding machine



Filling station



Tubular heating element assembly



Quality control

## Our Company

Established in 1914, the **HELIOS** company has grown into a recognised manufacturer of electric heating elements. **HELIOS** is a now well-known name in electric heating appliances.

Continuous innovation, outstanding technical know-how, the highest quality standards, reliable service supported by a technically well-informed sales organisation, together with the flexibility to satisfy the individual needs of our customers: these are the reasons for our success.

Total customer orientation is our company philosophy. We employ qualified personnel with years of experience, specialised in providing tailor-made solutions to heating problems.

Specially fabricated and customised products form a substantial part of the services we provide.

With more than 4000 sq. metres of factory floor, we have all the technical resources needed to ensure a rationalised and flexible production.

The continuous quality controls that accompany our production process guarantee that our heating elements meet the most demanding standards.



**HELIOS GmbH**

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[info@helios-heizelemente.de](mailto:info@helios-heizelemente.de)