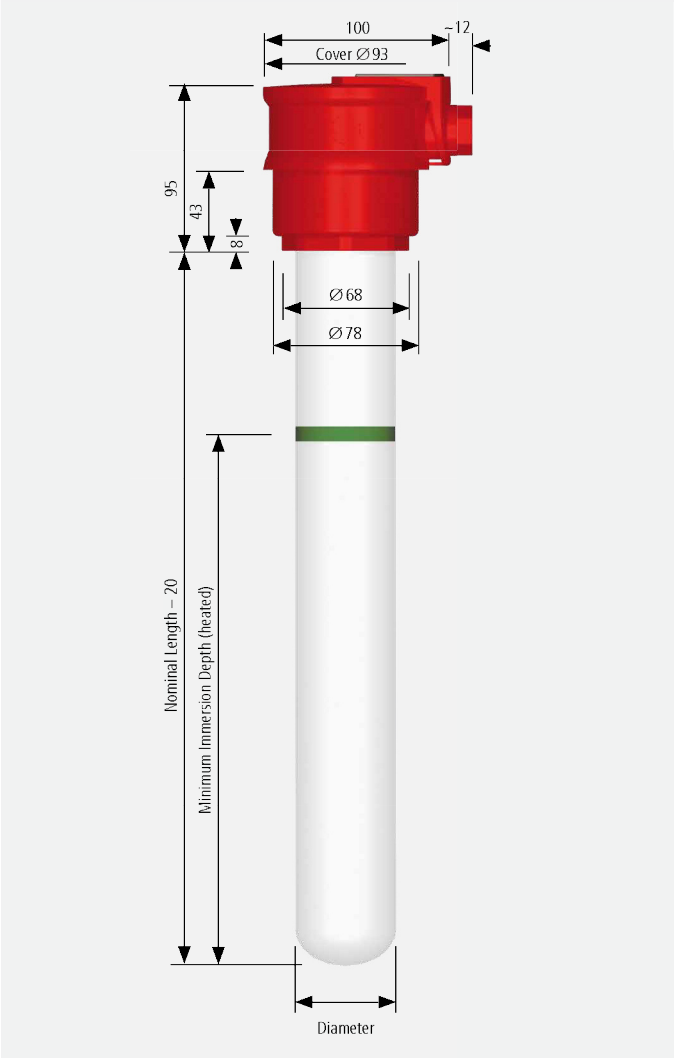
Immersion Heaters ROTKAPPE®



Immersion Heater ROTKAPPE

ROTKAPPE Immersion Heaters are most suitable for direct heating of nearly all process liquids and corresponding applications. Excellent chemical resistance is ensured by the use of different immersion tube materials and variable fitting options help you to meet the individual requirements of heating installations. A long life span with optimum reliability is assured by using high quality materials thereby ensuring faultless operation of your system.

The ROTKAPPE immersion heater is constructed on a modular basis and consists of a tube, a long-life heating cartridge, a terminal casing and the lead.

The Immersion Heater Tube

We can offer you the optimum material for every application. The heated length (minimum immersion depth) is marked by a ring which is generally two-thirds of the tube length. The tube is not heated above this mark. The heated portion must always be covered with liquid even in the case of high liquid level fluctuation.

The Long-Life Heating Cartridge

Long-life heating cartridges are made from ceramic groove bodies with high electrical insulation values and good mechanical strength. A high temperature resistance heating wire is fitted as a coil in order to achieve the best possible heat radiation from tube to liquid. The cartridges for immersion heaters are available in rated power voltages up to a maximum of 500 volts for one, two and three phase connections.

The Terminal Casing BC

The BC terminal casing for immersion heaters consists of high temperature stabilized PP. Problem-free use in most process liquids is ensured by good mechanical and thermal strength as well as wide ranging chemical resistance. The PVDF terminal casing (BC/L) is recommended in cases of extreme temperature (liquid temperature >80°C) or when subjected to strongly oxidizing chemicals (e.g. chrome electrolyte or HNO_3). The protective casing is IP 65 (jet-waterproof) according to EN 60529.

Easy access to the terminal (after fitting) when connecting the lead is also ensured by unscrewing the cap with the mounting wrench SB.

The Lead

The PVC connecting lead is with a standard length of 1.6 m. Other lead lengths can be provided if desired.

Electrical Safety

The immersion heaters are classified as "safety class 1" according to EN 60519 / 1-2. All metal parts that are not protected from human contact are securely connected to earth. Using non-conductive tubes made of porcelain or glass, a "protective coil" is also fitted to the heating cartridges in order to earth these tubes. The highest possible electrical safety is therefore ensured by using an earth leakage circuit breaker (ELCB).

ROTKAPPE immersion heaters type B-... carry the VDE label.

Accessories

- Mounting Sleeve EM
- Holding Sleeve HM
- Support HB
- Protective Tube SRF
- Mounting Wrench SB
- Support THB
- Support SHB

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Safety and Quality Heating

The chemicals in your treatment liquids demand the utmost chemical resistance of the materials used. When choosing the materials the physical processes (possible encrustment) and thermal limits (surface power density) have to be taken equally into consideration. The advantages and disadvantages of the individual materials are illustrated in the chemical resistance list. The following table gives an overview of the standard types available. The specific surface power density for the immersion heater tube is stated in W/cm² according to the minimum immersion depth and the rated power.

Standard Material Specifications

Type	Tube diameter [mm]	
PS	54	Special hard porcelain, glazed
TG	50	Technical glass (hydrolytic class 1, acid class 1, alkaline class 2 according to DIN 12111,12116 & 52322)
QS	52	Quartz glass (hydrolytic class 1, acid class 1, alkaline class 1, according to DIN 12111, 12116 & 52322)
FC	48	Polytetrafluorethylene (PTFE)-compound
KB	45	Stainless steel (material no. 316TI)
SB	45	Steel E 235
TI	45	Titanium (material no. 3.7035)

ROTKAPPE Immersion Heater Overview (Summary)

Nominal Length [mm]	Rated Power [kW]	Minimum Immersion Depth [mm]	Rated Voltage 230V~	Rated Voltage 400V3~	Surface Power Density [W/cm²] PS	TG	QS	FC	KB	SB	TI
315	0,40	225	x	-	1,6	1,7	-	-	1,9	1,9	1,9
315	0,63	225	x	-	2,5	2,7	-	-	3,0	3,0	3,0
400	0,63	275	x	x	1,9	2,0	-	2,1	2,3	2,3	2,3
400	1,00	275	x	x	3,0	3,2	-	-	3,6	3,6	3,6
500	0,80	360	x	x	1,6	1,7	1,7	1,8	1,9	1,9	1,9
500	1,00	360	x	x	2,0	2,2	2,1	2,3	2,4	2,4	2,4
500	1,40	360	x	x	2,8	3,0	2,9	-	3,4	3,4	3,4
630	1,25	460	x	x	1,9	2,0	2,0	2,1	2,3	2,3	2,3
630	1,60	460	x	x	2,4	2,6	2,5	-	2,9	2,9	2,9
630	2,00	460	x	x	3,0	3,2	3,1	-	3,6	3,6	3,6
800	1,00	560	x	x	1,2	1,3	1,2	1,4	1,4	1,4	1,4
800	1,60	560	x	x	1,9	2,1	2,0	2,2	2,3	2,3	2,3
800	2,00	560	x	x	2,4	2,6	2,5	-	2,9	2,9	2,9
800	2,50	560	x	x	3,0	3,2	3,1	-	3,6	3,6	3,6
1000	1,25	725	x	x	1,2	1,2	1,2	1,3	1,4	1,4	1,4
1000	1,60	725	x	x	1,5	1,6	1,5	1,7	1,8	1,8	1,8
1000	2,00	725	x	x	1,9	2,0	1,9	2,1	2,2	2,2	2,2
1000	2,50	725	x	x	2,3	2,5	2,4	-	2,8	2,8	2,8
1000	3,15	725	x	x	2,9	3,1	3,0	-	3,5	3,5	3,5
1000	3,50	725	x	x	3,2	3,5	3,4	-	3,9	3,9	3,9
1250	1,00	875	x	x	0,8	0,8	0,8	0,8	0,9	0,9	0,9
1250	1,60	875	x	x	1,2	1,3	1,3	1,4	1,4	1,4	1,4
1250	2,00	875	x	x	1,5	1,6	1,6	1,7	1,8	1,8	1,8
1250	2,50	875	x	x	1,9	2,0	2,0	2,1	2,3	2,3	2,3
1250	2,80	875	x	x	2,1	2,3	2,2	-	2,6	2,6	2,6
1250	3,50	875	x	x	2,6	2,8	2,7	-	3,2	3,2	3,2
1250	4,00	875	-	x	3,0	3,2	3,1	-	3,6	3,6	3,6
1600	2,00	1125	x	x	-	1,3	-	1,4	1,4	1,4	1,4
1600	3,15	1125	x	x	-	2,0	-	2,1	2,3	2,3	2,3
1600	3,50	1125	x	x	-	2,3	-	2,3	2,5	2,5	2,5
1600	4,00	1125	-	x	-	2,6	-	-	2,9	2,9	2,9
1600	4,50	1125	-	x	-	2,9	-	-	3,2	3,2	3,2
1600	6,00	1125	-	x	-	3,9	-	-	4,3	4,3	4,3
2000	4,00	1400	-	x	-	-	-	2,1	2,2	2,2	2,2
2000	4,50	1400	-	x	-	-	-	2,3	2,5	2,5	2,5
2000	5,00	1400	-	x	-	-	-	-	2,8	2,8	2,8
2000	6,00	1400	-	x	-	-	-	-	3,3	3,3	3,3
2500	4,50	1750	-	x	-	-	-	1,8	2,0	2,0	2,0
2500	6,30	1750	-	x	-	-	-	-	2,8	2,8	2,8
3150	5,00	2200	-	x	-	-	-	-	1,7	1,7	1,7
3150	7,00	2200	-	x	-	-	-	-	2,4	2,4	2,4

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