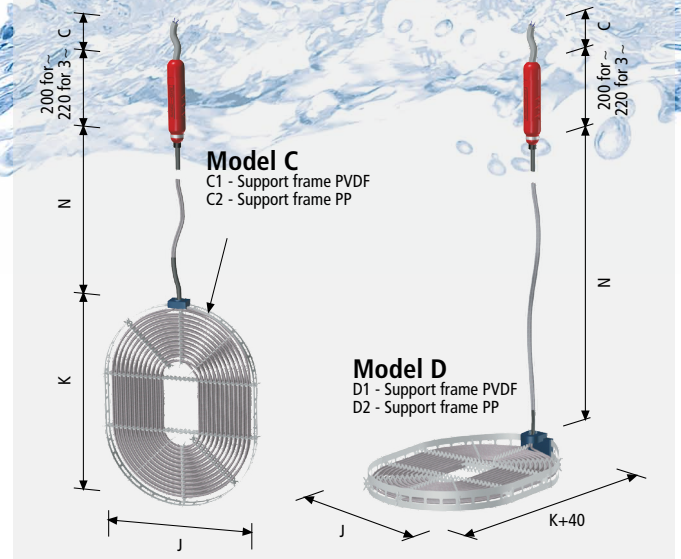
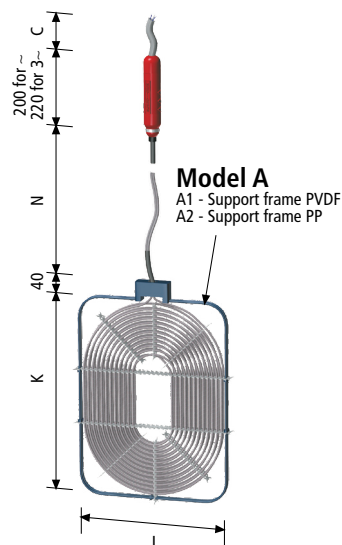


# GALMATHERM® Heaters

GALMATHERM heaters are designed specifically for use as direct electric heaters in plants and tanks where space is at a premium and high heating capacities and excellent resistance to aggressive process liquids are required. The very good chemical resistance of the heating cable is achieved by the use of a special sheath made of FEP or PFA. The surface power density is only  $1 \text{ W/cm}^2$ .



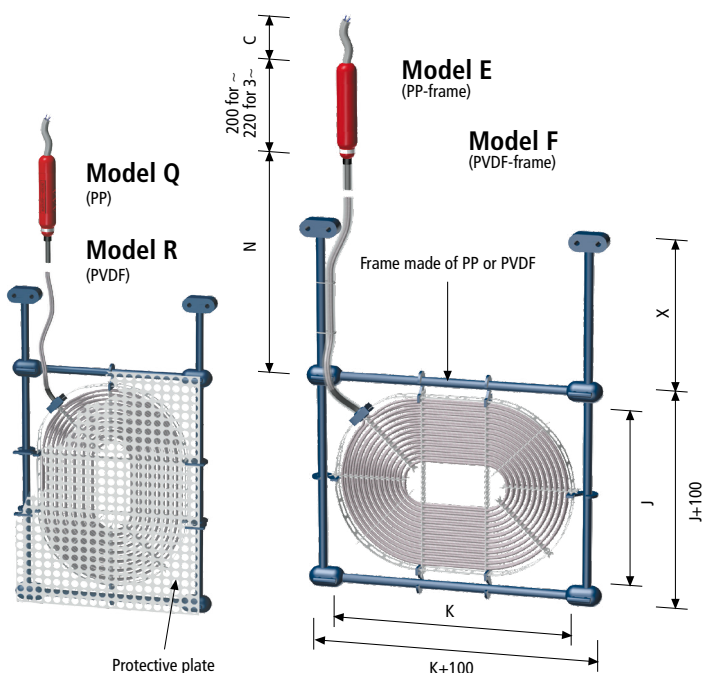
The PFA sheath should be selected for particularly critical operating conditions in extremely aggressive process liquids (such as mixed-acid chrome electrolyte) and for very high liquid temperatures (max.  $100^\circ\text{C}$ ). The wide range of different shapes and designs provides simple solutions to even difficult installation problems. Small dimensions, combined with relatively high heating powers, permit space-saving installation. The use of high-quality materials guarantees a long operating lifetime with optimum reliability and thus ensures problemfree operation of the plant.

A protective plate made of PP or PVDF (Models Q/R) protects the heater against mechanical damage.

The unheated connection cable leaving the heater is also sheathed in as far as the connection sleeve and is secured in a PP expandable braided sleeving. This part of the heater can be immersed in the process liquid and carries markings for the minimum and maximum immersion depth. Even in applications with extreme level variations, the liquid level must remain within this range! From the PVC connection sleeve (degree of protection IP 64 to EN 60529), a PVC connection cable leads to the switchgear cabinet. The connection sleeve may not be immersed in the liquid, nor may it be directly exposed to vapours.

## Construction

These heaters consist of a metal heating wire in a FEP/PFA sheath, wound on a flexible PP or PVDF support frame. The mounting elements and the spacers which prevent direct contact between the windings of the heating cable and between the windings and the tank, are also made of PP or PVDF. The mechanical strength can be improved by mounting the heater in a steel frame with PP/PVDF sheath (Model A) or in a robust PP/PVDF frame (Models E/F).





## Flat Heater GALMATHERM (Type P30/P40)

Rated power [kW]				Rated power [kW]				Rated power [kW]			
Dimensions J x K [mm] for rated voltage		Type designation for rated voltage		Dimensions J x K [mm] for rated voltage		Type designation for rated voltage		Dimensions J x K [mm] for rated voltage		Type designation for rated voltage	
230V~	400V3~	230V~	400V3~	400V3~	400V3~	400V3~	400V3~	400V3~	400V3~	400V3~	400V3~
1,0	150 x 605	-	P 3003102	-	4,5	240 x 905	P 3008455	12,0	430 x 1075	P 3018125	
1,0	170 x 520	-	P 3004102	-	4,5	275 x 750	P 3010455	12,0	440 x 1070	P 3019125	
1,0	185 x 365	-	P 3005102	-	4,5	295 x 730	P 3011455	12,0	510 x 885	P 3023125	
1,0	205 x 335	-	P 3006102	-	4,5	315 x 625	P 3012455	12,0	585 x 785	P 3027125	
1,0	220 x 290	-	P 3007102	-	4,5	350 x 535	P 3014455	12,0	385 x 915	P 4014125	
1,0	240 x 250	-	P 3008102	-	4,5	370 x 520	P 3015455	12,0	405 x 860	P 4015125	
1,0	165 x 395	-	P 4003102	-	4,5	385 x 505	P 3016455	12,0	425 x 800	P 4016125	
1,0	185 x 305	-	P 4004102	-	4,5	405 x 460	P 3017455	12,0	465 x 740	P 4018125	
1,0	205 x 255	-	P 4005102	-	4,5	420 x 440	P 3018455	12,0	485 x 705	P 4019125	
1,0	225 x 230	-	P 4006102	-	4,5	265 x 595	P 4008455	12,0	505 x 680	P 4020125	
1,5	165 x 680	170 x 680	P 3004152	P 3004155	4,5	285 x 535	P 4009455	12,0	545 x 625	P 4022125	
1,5	205 x 425	205 x 475	P 3006152	P 3006155	4,5	305 x 480	P 4010455	12,0	585 x 595	P 4024125	
1,5	220 x 355	225 x 440	P 3007152	P 3007155	4,5	325 x 445	P 4011455	15,0	430 x 1245	P 3018135	
1,5	240 x 315	240 x 360	P 3008152	P 3008155	4,5	345 x 425	P 4012455	15,0	445 x 1235	P 3019135	
1,5	260 x 285	280 x 340	P 3010152	P 3010155	4,5	365 x 395	P 4013455	15,0	465 x 1140	P 3020135	
1,5	185 x 375	185 x 380	P 4004152	P 4004155	4,5	380 x 380	P 4014455	15,0	485 x 1125	P 3021135	
1,5	205 x 345	205 x 375	P 4005152	P 4005155	6,0	275 x 990	P 3010605	15,0	500 x 1045	P 3022135	
1,5	225 x 275	225 x 325	P 4006152	P 4006155	6,0	295 x 855	P 3011605	15,0	520 x 1030	P 3023135	
1,5	245 x 245	245 x 275	P 4007152	P 4007155	6,0	310 x 825	P 3012605	15,0	540 x 1035	P 3024135	
1,5	245 x 245	270 x 270	P 4008152	P 4008155	6,0	350 x 720	P 3014605	15,0	555 x 950	P 3025135	
2,0	170 x 765	-	P 3004202	-	6,0	365 x 645	P 3015605	15,0	575 x 940	P 3026135	
2,0	185 x 635	-	P 3005202	-	6,0	385 x 635	P 3016605	15,0	595 x 925	P 3027135	
2,0	205 x 565	-	P 3006202	-	6,0	405 x 625	P 3017605	15,0	375 x 1125	P 4013135	
2,0	220 x 475	-	P 3007202	-	6,0	420 x 570	P 3018605	15,0	395 x 1055	P 4014135	
2,0	240 x 420	-	P 3008202	-	6,0	440 x 550	P 3019605	15,0	415 x 1000	P 4015135	
2,0	260 x 380	-	P 3009202	-	6,0	455 x 545	P 3020605	15,0	435 x 940	P 4016135	
2,0	275 x 340	-	P 3010202	-	6,0	475 x 540	P 3021605	15,0	455 x 890	P 4017135	
2,0	295 x 315	-	P 3011202	-	6,0	265 x 785	P 4008605	15,0	475 x 850	P 4018135	
2,0	185 x 515	-	P 4004202	-	6,0	305 x 635	P 4010605	15,0	495 x 810	P 4019135	
2,0	210 x 420	-	P 4005202	-	6,0	325 x 585	P 4011605	15,0	515 x 780	P 4020135	
2,0	225 x 350	-	P 4006202	-	6,0	350 x 550	P 4012605	15,0	535 x 750	P 4021135	
2,0	245 x 305	-	P 4007202	-	6,0	365 x 505	P 4013605	15,0	555 x 725	P 4022135	
2,0	265 x 275	-	P 4008202	-	6,0	390 x 470	P 4014605	15,0	575 x 700	P 4023135	
3,0	205 x 925	205 x 905	P 3006302	P 3006305	6,0	405 x 455	P 4015605	15,0	595 x 690	P 4024135	
3,0	225 x 790	225 x 910	P 3007302	P 3007305	6,0	425 x 425	P 4016605	15,0	615 x 660	P 4025135	
3,0	240 x 690	240 x 700	P 3008302	P 3008305	9,0	400 x 975	P 3017905	15,0	635 x 640	P 4026135	
3,0	260 x 620	260 x 705	P 3009302	P 3009305	9,0	435 x 870	P 3019905				
3,0	275 x 555	275 x 580	P 3010302	P 3010305	9,0	475 x 800	P 3021905				
3,0	295 x 510	295 x 575	P 3011302	P 3011305	9,0	490 x 790	P 3022905				
3,0	315 x 460	315 x 490	P 3012302	P 3012305	9,0	525 x 720	P 3024905				
3,0	330 x 440	330 x 465	P 3013302	P 3013305	9,0	545 x 705	P 3025905				
3,0	345 x 410	350 x 450	P 3014302	P 3014305	9,0	565 x 695	P 3026905				
3,0	365 x 390	370 x 410	P 3015302	P 3015305	9,0	600 x 675	P 3028905				
3,0	370 x 385	380 x 395	P 3016302	P 3016305	9,0	345 x 890	P 4012905				
3,0	205 x 685	205 x 735	P 4005302	P 4005305	9,0	385 x 775	P 4014905				
3,0	225 x 575	230 x 615	P 4006302	P 4006305	9,0	405 x 730	P 4015905				
3,0	245 x 500	250 x 545	P 4007302	P 4007305	9,0	425 x 685	P 4016905				
3,0	265 x 445	265 x 470	P 4008302	P 4008305	9,0	445 x 655	P 4017905				
3,0	285 x 400	285 x 420	P 4009302	P 4009305	9,0	465 x 625	P 4018905				
3,0	325 x 340	325 x 360	P 4011302	P 4011305	9,0	505 x 575	P 4020905				
3,0	340 x 340	340 x 340	P 4012302	P 4012305	9,0	525 x 565	P 4021905				
4,0	225 x 880	-	P 3007402	-							
4,0	260 x 700	-	P 3009402	-							
4,0	315 x 545	-	P 3012402	-							
4,0	330 x 515	-	P 3013402	-							
4,0	350 x 475	-	P 3014402	-							
4,0	385 x 435	-	P 3016402	-							
4,0	405 x 420	-	P 3017402	-							
4,0	205 x 810	-	P 4005402	-							
4,0	225 x 685	-	P 4006402	-							
4,0	245 x 595	-	P 4007402	-							
4,0	285 x 475	-	P 4009402	-							
4,0	310 x 435	-	P 4010402	-							
4,0	325 x 400	-	P 4011402	-							
4,0	345 x 375	-	P 4012402	-							

### Legend:

#### Type:

J = unheated connection cable N  
on the short side J

K = unheated connection cable N  
on the long side K

#### Sheath material:

F = Fluorinated ethylene propylene (FEP)  
P = Perfluoroalkoxy (PFA)

Type designation	Type	Sheath heater cable	Length of unheated connection cable N			Length of connection cable C			Model
			0=1 m	1=1,5 m	2=2 m	0=1 m	1=1,5 m	2=2 m	
P . . . . .	J or K	F or P	3=2,5 m	4=3 m	5=3,5 m	3=2,5 m	4=3 m	5=3,5 m	A1, A2, C1, C2, D1, D2, E, F, M1, M2, Q, R
			6=4 m	7=4,5 m	8=5 m	6=4 m	7=4,5 m	8=5 m	
Example:	J	F	2			0			E

**P4010402JF20E:** Flat heater, 4 kW, dimensions J x K for 230V~ (310 x 435 mm), connection cable N on short side J, FEP sheath, 2 m connection cable N, 1 m connection cable C, PP frame without protective plate.