

# CALOR Cartridge Heaters

CALOR cartridge heaters are especially suitable for direct heating of cleaning solutions and alkalines.

We adapt our products to customers' individual and respective requirements in order to allow you as much freedom as possible when planning your system:

- Tubeless cartridge heaters with different diameters, installation lengths and heating performances specially tailored to your needs.
- Immersion tube cartridge heaters made from different materials with diverse fixing options such as flange or threaded nipple.

## Cartridge Heater Specifications

The cartridge heaters consist of ceramic groove bodies with high electrical insulation values, good mechanical strength and excellent temperature fluctuation resistance. A high temperature heating wire is fitted as a coil in order to ensure good heat radiation and a long life span of the cartridge.

The unheated zone below the connection head can be designed individually and is at least 50 mm. However, we can also extend this unheated zone according to your wishes.

## CALOR Cartridge Heater Overview

Nominal length [mm]	Installation length [mm]	Rated power [kW] at 230 V~			Rated power [kW] at 400 V3~		
		PHK 40	PHK 46	PHK 57	PHK 40	PHK 46	PHK 57
		400	375	1,5	1,75	2,0	1,5
500	475	2,0	2,2	2,8	2,0	2,2	2,8
600	575	2,5	2,8	3,5	2,5	2,8	3,5
700	675	3,0	3,5	-	3,0	3,5	4,0
800	775	3,5	-	-	3,5	4,0	5,0
900	875	-	-	-	4,0	4,5	5,5
1000	975	-	-	-	4,5	5,0	6,0
1200	1175	-	-	-	5,0	5,5	7,5
1400	1375	-	-	-	6,0	7,5	8,5
1600	1575	-	-	-	7,0	8,5	10,0
1800	1775	-	-	-	8,0	9,5	11,0
2000	1975	-	-	-	9,0	11,0	12,0

The cartridges are available in every rated power voltage up to a maximum of 500 V. The connection can be one, two or three phase. The list above represents an overview of possible executions. Individual requirements regarding nominal length, rated voltage and rated power can be realized at any time due to the modular construction.

## Immersion Tube Material Specifications

We can offer you different metallic materials with the most varied fixing methods according to your requirements or demands. The chemical resistance list illustrates our analysis of the respective materials. The surface power density of the immersion tube can be customized to suit your application. This individual custom design guarantees you the faultless operation of your system, a long life span and prevents damage to the heated liquid.

## CALOR Cartridge Heater Tubes

Cartridge Heater	Tube materials with dimensions, tube diameter [mm] x wall thickness [mm]	
	Stainless steel n°. 316 TI	Titanium n°. 3.7035
PHK 40	44,5 x 1,5	44,5 x 0,9
PHK 46	52 x 1,5	-
PHK 57	-	-



# Safety and Quality Heating



Terminal casing BC 62 (PP) and BC 62/L (PVDF); protection IP 64



Terminal casing B (steel, zinc-plated); protection IP 64



## Possible Fixings and Terminal Casings for Immersion Tubes

We have planned the widest variety of possible fixings for your application. The immersion tubes can be equipped without a flange, with a welded or screw-on flange, or a threaded nipple according to your particular application.

We would recommend a central terminal casing for several immersion heater tubes in a row. If single immersion tubes (or tubes fitted further apart) are planned, then an individual casing has to be chosen for each immersion tube.

There is the choice of either the polypropylene (PP) BC 62 terminal casing or the polyvinylidenfluoride (PVDF) BC 62/L. The casing can be easily and quickly fitted by using the mounting wrench. Alternatively the zinc-plated steel B terminal casing can be used specially for high temperatures.

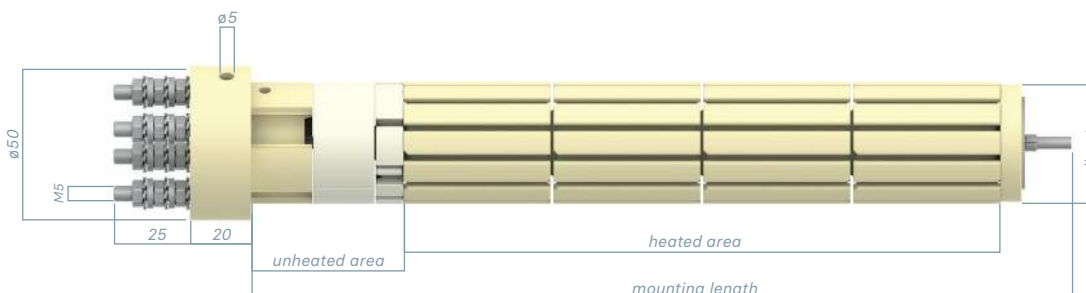
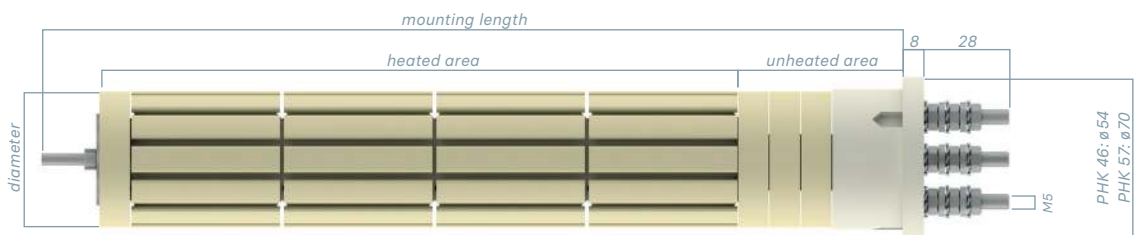
## Electrical Safety

The cartridge heaters are classified as safety class 1 according to EN 60519-1. All metal parts (immersion heater tubes) that are not protected from human contact are securely connected to earth.

## Fixing Types and Terminal Casings

Fixing types	Tube material	
	Stainless steel	Titanium
without fixing flange	K	T
with welded flange	K 1	T 1
with screw-on flange	K 2	T 2
with threaded nipple G 2"	K 3	-
<b>Terminal casing</b>		
without casing	-OA	-OA
with terminal casing BC	-BC	-BC
with terminal casing B	-B	-B

### PHK 46/57



### PHK 40

