

Cartridge Heater



High-density cartridge heaters in different versions.

heatsystems cartridge heaters are designed for installation in and therefore direct heating of tools or tool parts.

heatsystems cartridge heaters are often used for heating:

- tools
- moulds
- machine parts for example in plastic processing and the packing industry
- dies
- die-casting moulds in the foundry industry

The right choice of heating cartridge is the prerequisite for trouble-free operation and long life. The

- operating temperature
- operating conditions, for example heavy vibrations in the tool
- quality of the bore in the tool must be given special consideration in the choice of the heating cartridge.

There are basically three different design versions

High-density cartridge heater

The high-density cartridge heater has been the standard heating element for countless applications for many years. A special feature is the heating coil positioned very close to the outer wall.

Compressed spiral cartridge heater

The compressed spiral cartridge heater is the compromise between the high quality, high-density cartridge heater and the uncompressed spiral cartridge heater.

It is a robust heating element that can be used for surface loads up to 12 W/cm².

Uncompressed spiral cartridge heater

The uncompressed spiral cartridge heater is a proven heating element especially at operating temperatures up to 200 °C. These heating elements are often used in the field of tool heating.

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HIGH-DENSITY CARTRIDGE HEATERS

High-density cartridge heaters were developed in the USA in the 1950s and are the most widely distributed cartridge heating elements today. They are used, for example, as an internal heating in nozzles, for welding bars and distributor bars as well as stamping dies and rollers. In fact, wherever a lot of energy is required with minimum installation space.

Common diameters for **heatsystems** high-density cartridge heaters are the proven dimensions on the market:

Diameters "metric":

6.5; 8; 10; 12.5; 16; 20; 25 mm.

Diameters "inches":

1/4" (6.35 mm); 5/16" (7.94 mm); 3/8" (9.53 mm); 1/2" (12.7 mm); 5/8" (15.88 mm); 3/4" (19.05 mm); 1" (25.4 mm).

You can choose from the standard program of more than 500 different dimensions listed below at short notice. Many dimensions are on stores stock ready for dispatch.

In the **heatsystems** standard program, the two connecting wires are fed out of the heating element flexibly. This version is occasionally referred to as "reduced in wire".

Individually produced **heatsystems** cartridge heaters can cover all the normal customer requirements on the market. Different capacities, voltages, lengths, diameters, diameter tolerances and special connection variants such as ground conductors, supply line protection, ceramic insulating beads or protective silicone tubing are available at short notice.

The request for angled supply line with pipe bend or connecting cube can also be satisfied. The same applies for fastening possibilities such as screw-in nipple, flange or bracket. Zone heating for particularly precise temperature distribution is possible.

Standard dimensions for **heatsystems** high-density cartridge heaters

Capacity in Watt at voltage 230 Volt AC

Diameter 6.5 mm

Length	100	125	160	175	200			
40 mm	100	125	160	175	200			
50 mm	100	125	160	200	250			
60 mm	125	160	200	250	315			
80 mm	125	160	180	200	250	280	315	350
100 mm	100	160	200	250	315	350	400	
130 mm	220	350						
160 mm	350	400						

Diameter 8 mm

Length	100	160	200	250				
40 mm	100	160	200	250				
50 mm	125	160	200	250	315			
60 mm	100	125	140	160	200	250	280	315
80 mm	160	200	250	315	350	400	500	
100 mm	200	250	280	315	400			
130 mm	250	315	400					
160 mm	200							

Diameter 10 mm

Length	100	125	160	200	250	315	400	500	630
40 mm	100	125	160	200	250	315			
50 mm	100	160	200	250	315	400			
60 mm	125	160	200	250	315	400	500	630	
80 mm	160	200	250	315	400	500	630		
100 mm	125	160	200	250	315	400	500	630	
130 mm	315	400	500	630	800				
160 mm	400	630							
200 mm	400	630							
250 mm	630	800	1000						

Diameter 12.5 mm

Length	100	160	200	250	315	400	500	630	800	1000	1250
40 mm	100	160	200	250	315	400					
50 mm	100	125	160	200	250	315	400	500			
60 mm	125	160	200	250	315	400	500				
80 mm	200	250	315	400	500	630	800				
100 mm	250	315	400	500	630	800	1000				
130 mm	400	500	630	800	1000						
160 mm	500	630	800	1000	1250						
180 mm	800	1000									
200 mm	630	800									
250 mm	800	900	1500								
300 mm	600	1500	2000								

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Diameter 16 mm

Length	40 mm	100	160	200	250	315	400	500
50 mm	160	200	250	315	400	500	630	
60 mm	160	200	250	315	400	500	630	
80 mm	250	315	400	500	630	800	1000	
100 mm	315	400	500	630	800	1000	1250	
130 mm	500	630	800	1000	1400			
160 mm	630	800	1000	1250	1600			
180 mm	1000	1250	1800					
200 mm	800	1000	1250	1600	2000			
250 mm	1000	1250	1600	2000				
300 mm	1250	1800						

Diameter 20 mm

Length	50 mm	200	250	315	400
60 mm	200	315	500	630	800
80 mm	400	500	630	800	1000
100 mm	400	630	800	1000	1250
130 mm	630	800	1000	1250	1600
160 mm	1000	1250	1600	2000	2500
200 mm	1250	1600	2000	2500	3150
250 mm	1600	2000	2500	3150	
300 mm	2000	2500	3150	4000	

Diameter 1/4" = 6.35 mm

Length	1 1/2"	100	125	160	175	200
2"	100	125	160	200	250	
2 1/2"	125	160	180	200	250	315
3"	125	160	180	200	250	280
4"	100	160	200	220	250	315
5"	220	350				
6"	350	400				

Diameter 5/16" = 7.94 mm

Length	1 1/2"	100	140	160	200	250
2"	125	160	200	250	315	
2 1/2"	100	125	140	160	200	220
3"	160	200	250	280	315	350
4"	180	200	250	280	315	400
5"	250	315	400			
6"	200					

Capacity in Watt at voltage 230 V.

Diameter 3/8" = 9.53 mm

Length	1 1/2"	100	125	160	200	250	315
2"	100	160	200	250	315	400	
2 1/2"	125	160	180	200	250	315	400
3"	160	200	220	250	315	400	500
4"	125	220	250	315	350	400	560
5"	315	400	500	630	800		
6"	400	500	630	800			
8"	400	630					
10"	630	800	1000				

Diameter 1/2" = 12.7 mm

Length	1 1/2"	100	160	200	250	315	400
2"	100	150	160	200	250	315	400
2 1/2"	125	160	200	250	315	400	500
3"	150	200	250	315	400	500	630
4"	250	315	400	500	630	800	1000
5"	400	500	630	800	1000	1250	
6"	500	630	800	1000	1250		
7"	670	800	1000				
8"	630	800	900	1500			
10"	800	900					
12"	600	1500	2000				

Diameter 5/8" = 15.88 mm

Length	1 1/2"	100	160	200	250	315	400
2"	160	200	250	315	400	500	630
2 1/2"	160	200	250	315	400	500	630
3"	280	315	400	500	630	800	850
4"	350	400	500	630	800	1000	1250
5"	400	500	630	700	800	1000	1100
6"	630	800	900	1000	1250	1600	1800
7"	850	1000	1250	1800			
8"	500	800	1000	1250	2000		
10"	1000	1250	1600				
12"	1000	1250	1500	1800			

Diameter 3/4" = 19.05 mm

Length	2"	200	250	315	400
2 1/2"	200	315	500	630	800
3"	315	350	500	800	1000
4"	400	450	800	1000	1250
5"	630	900	1000	1250	1400
6"	800	1000	1100	1250	1800
8"	1000	1600	2500		
10"	1250	2000			
12"	1600	2200			

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Connection variants

Nickel wires are used as a standard glass-fibre insulated for tool heating. The cross section of the conductor is designed according to the current loads.

The conductor is spun with glass fibre for electrical insulation.

In the standard version, the supply line has a length of 250 mm and is fed out of the heating element flexibly. Occasionally, this version is also referred to as


“reduced in wire”. The supply line can be lengthened at the customer’s request.

On request, all versions are delivered with an additionally fitted ground conductor.

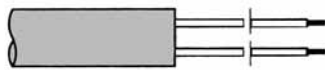
Common connection variants for cartridge heaters



Nickel wire, fibre glass insulation, silicon saturated. Temperature resistant up to 350 °C, higher on request.



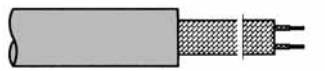
Nickel wire, PTFE insulated. Temperature resistant up to 250 °C.



Nickel wire, silicon insulated. Temperature resistant up to 180 °C. In highly flexible version on request.



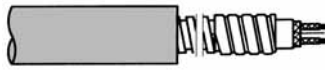
Nickel wire, insulation with ceramic insulating beads. Can be used up to 650 °C.



Wire as described above, covered additionally with fibre glass insulating tube. Insulating tube pulled over single wire or all wires together according to the customer’s wishes.



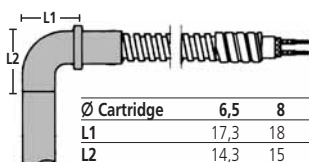
Nickel wire as described above, covered additionally with a corrugated metal tube.



Nickel wire as described above, covered additionally with a corrugated metal tube. A proven protection of the supply line, e.g. in foundries.

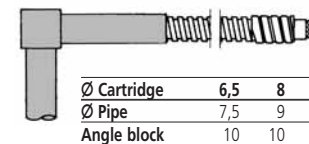


Right-angled connection with pipe bend.



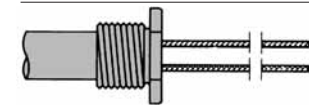
Right-angled connection with pipe bend and corrugated metal tube.

Ø Cartridge	6,5	8	10	12,5	16	20	1/4"	3/8"	1/2"	5/8"
L1	17,3	18	22	25	33	39	18	22	25	33
L2	14,3	15	19	22,3	29	35	14,5	18,8	22,4	29



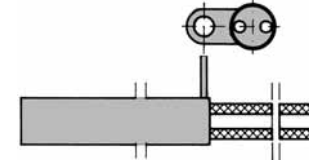
Right-angled connection with cube and corrugated metal tube.

Ø Cartridge	6,5	8	10	12,5	16	20	1/4"	3/8"	1/2"	5/8"
Ø Pipe	7,5	9	11	11	14	18	7,5	11	11	14
Angle block	10	10	14	14	18	25	10	14	14	18

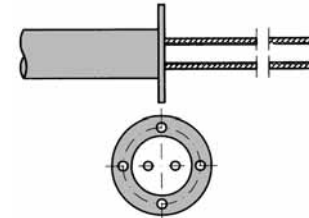


Stainless steel screw-in nipple, welded to the heating cartridge.

Ø Cartridge	6,5	8	10	12,5	16	20	1/4"	3/8"	1/2"	5/8"
Length nipple	10	10	12	12	14	14	10	12	12	12
Height flats	4	4	4	4	4	4	4	4	4	4
Thread/M	10x1	12x1	14x1,5	16x1,5	20x1,5	26x1,5	1/8"	1/4"	3/8"	1/2"
Wrench size	12	14	17	19	24	27	12	17	19	24



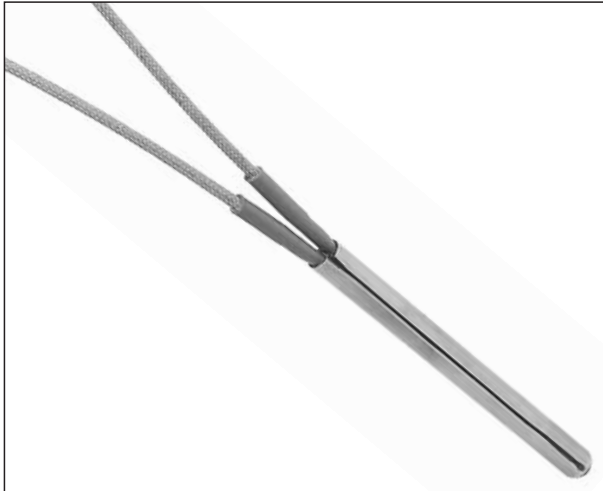
Stainless steel bracket for fastening the heating cartridge in the bore.



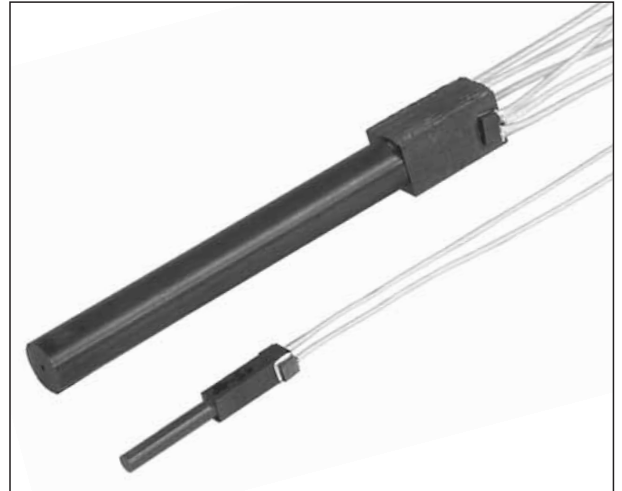
Stainless steel flange for fastening the heating cartridge in the bore.

Ø Cartridge	6,5	8	10	12,5	16	20	1/4"	3/8"	1/2"	5/8"
Ø Flange	18	18	27	27	33	33	18	27	27	33
Ø Hole circle	13	13	20	20	25,6	25,6	13	20	20	25,6
Ø Hole	2,2	2,2	3,2	3,2	3,2	3,2	2,2	3,2	3,2	3,2
FL thickness	1,0	1,0	1,5	1,5	1,5	1,5	1,0	1,5	1,5	1,5

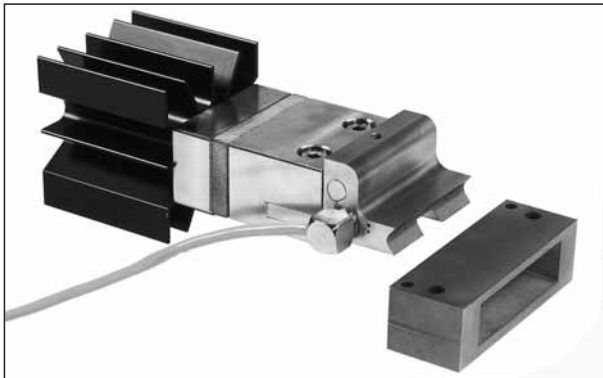
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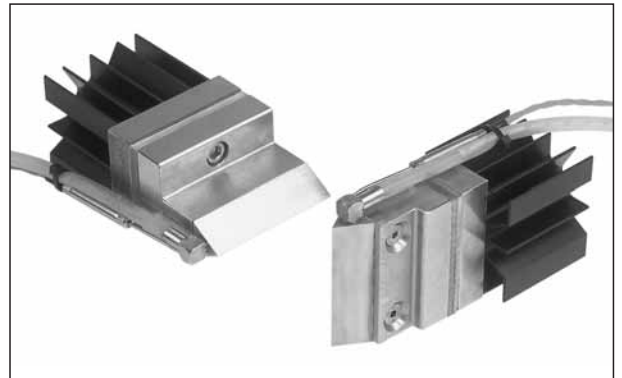
heatsplit heating cartridge. Fits optimally into the tool bore.



Ceramic heating cartridge for extremely high specific capacities and high operating temperature.



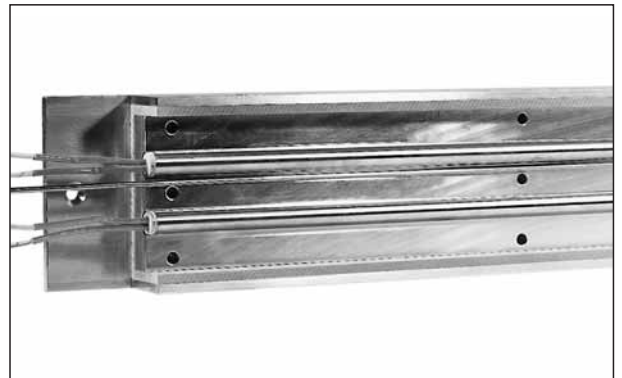
Heated knife with double blade.



Heated knife with single blade.



Heated welding bar with wide welding surface and special temperature distribution of the cartridge heaters.



Open welding bar with two cartridge heaters.