

# hotrod<sup>®</sup> Cartridge Heaters

- For heating applications:
  - Packaging machines
  - Extruders
  - Casting machines
  - Hot melt
  - Cutting knives
  - Analytical equipment in laboratories
- Custom options:
  - Power distribution
  - Numerous attachments and protection sleeves
  - Various moisture protection options
- Special Features:
  - High quality stainless steel with special alloy properties for improved heat conductivity, thermal expansion and is corrosion resistant.
  - Standard diameter tolerances to fit H7 tolerances bore
  - The most precise diameter tolerances in the industry: up to -0.02 -0.04 mm available
  - Various VDE certificates available
  - Certified according to UL and CSA standards on request
  - Protection class IP67 available on request

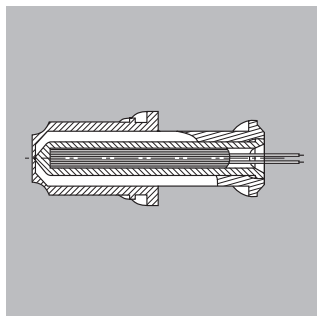


## General Technical Key Features

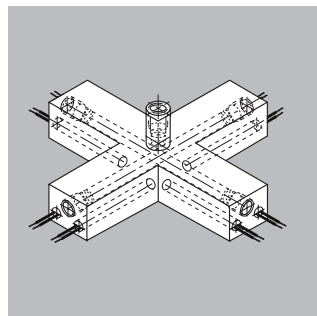
Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. sheath temperature	750 °C / 1380 °F
Max. voltage	480 V, UL rated: 250 V
Wattage tolerance*	± 10%
High voltage test*	1500 V AC at > 24 V operation voltage 500 V at ≤ 24 V operation voltage
Insulation resistance*	≥ 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	± 1.5%, min ± 1 mm
Standard diameter tolerance for metric sizes:	-0.02 / -0.06 mm
Standard diameter tolerance for imperial sizes:	± 0.79 mils [± 0.02 mm]

\*tested at environmental temperature

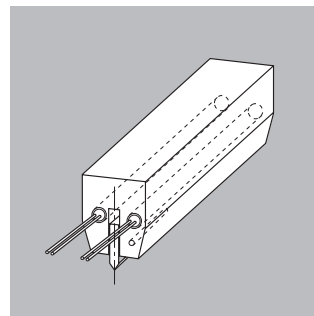
## Application Fields



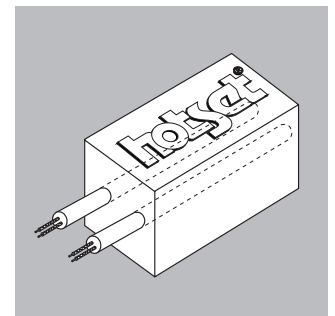
Plastic injection mold  
Internal heating of nozzles



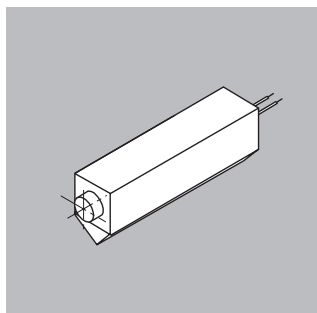
Hot runner systems  
Heating of manifolds



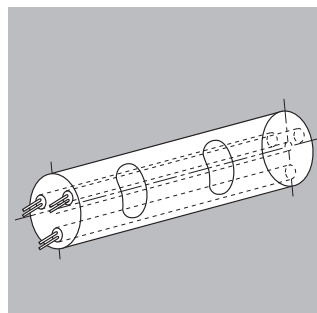
Packaging industry  
Heating of sealing bars



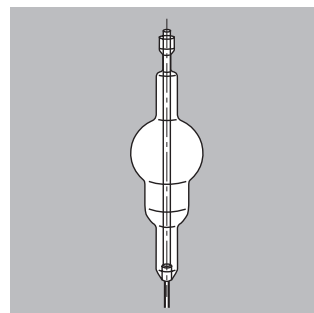
Packaging industry  
Heating of hot stamps



Textile industry  
Heating of cutting knives



Paper industry  
Heating of embossing rollers



Laboratories  
Heating of analytical equipment,  
for example, mass spectrometer

Performance Range

Options

Type	Ø	Ø-Tolerance	max. L [mm/inch]	max. W/cm <sup>2</sup>	max. W/inch <sup>2</sup>	max. W/cm <sup>2</sup> UL rated	max. Temp [°C/°F]	max. U [V]	Thermocouple	Attachments	Power Distribution	Moisture Protection	Express
HHP	4	-0.02 mm -0.06 mm	350 / 13.8	20	129	n/a	275/527	250	no		limited	no	
	6.5	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*	750/ 1380	480	yes	limited	IP67	24 h	
		± 0.1 mm	3000 / 118	10	65	10							
	8	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*							
		± 0.1 mm	3000 / 118	10	65	10							
	10	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*							
		± 0.1 mm	3000 / 118	10	65	10							
	12.5	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*							
		± 0.1 mm	3000 / 118	10	65	10							
	16	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*							
		± 0.1 mm	3000 / 118	10	65	10							
	20	-0.02 mm -0.06 mm	1500 / 59	65*	419*	57*							
		± 0.1 mm	3000 / 118	10	65	10							
	1/4"	± 0.79 mils	1500 / 59	65*	419*	57*							
± 3.94 mils		3000 / 118	10	65	10								
3/8"	± 0.79 mils	1500 / 59	65*	419*	57*								
	± 3.94 mils	3000 / 118	10	65	10								
1/2"	± 0.79 mils	1500 / 59	65*	419*	57*								
	± 3.94 mils	3000 / 118	10	65	10								
5/8"	± 0.79 mils	1500 / 59	65*	419*	57*								
	± 3.94 mils	3000 / 118											
LHT	6.5	± 0.1 mm	3000 / 118	10	65	10	700/ 1292	no	yes	no	limited	no	
	8	± 0.1 mm	3000 / 118										
	10	± 0.1 mm	3000 / 118										
	12.5	± 0.1 mm	3000 / 118										
	16	± 0.1 mm	3000 / 118										
	20	± 0.1 mm	3000 / 118										
LHT bendable	6.5	± 0.2 mm	3000 / 118										
LHT bendable	8	± 0.2 mm	3000 / 118										

\*Surface load > 10 W/cm<sup>2</sup> we recommend a H7 tolerance bore.  
Surface load > 20 W/cm<sup>2</sup> we recommend a press fit.  
Maximum surface load depends on heater sheath temperature.

Formula for calculating the surface load (W/cm<sup>2</sup>)

$$W/cm^2 = \frac{\text{Wattage} \times 1.1}{\text{Circumference} \times \text{heated length [cm]}}$$

# hotrod<sup>®</sup> Cartridge Heaters

## hotrod<sup>®</sup> HHP/G

Casting Cartridge Heater



- Optimal temperature of the material in the goose neck
- Removal stud
- With angle block, tube section and metal sleeving

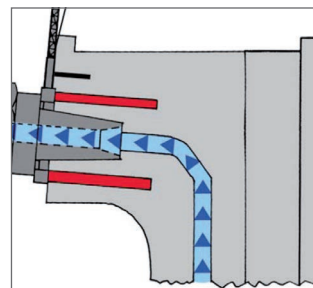
### Specifications

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Diameter mm	6.5 / 8.0 / 10.0 / 12.5 / 16.0 / 20.0
Max. length	1500 mm / 59 inch
Max. sheath temperature	750 °C / 1380 °F
Max. voltage	480 V, UL rated: 250 V
Wattage tolerance*	± 10%
High voltage test*	1500 V AC at > 24 V operation voltage 500 V at ≤ 24 V operation voltage
Insulation resistance*	≥ 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	± 1.5%, min ± 1 mm
Standard diameter tolerance for metric sizes:	-0.02 / -0.06 mm
Standard diameter tolerance for imperial sizes:	± 0.79 mils [± 0.02 mm]

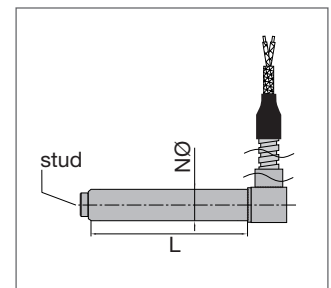
\*tested at environmental temperature

### Options

- Wattage distribution
- Thermocouple type K
- Various connection options
- Certified according to UL and CSA standards



Heating of the gooseneck



NØ = Nominal diameter  
L = Length

### Stock Range HHP/G

Connection Voltage: 230V, GLS Lead, 1500 mm

Stock ID	Diameter [mm]	Length [mm]	Connection Length [mm]	Wattage [W]	Voltage [V]	Gooseneck / Nozzle type
9906100	10.0	80	1500	250	230	Nozzle DAW 5
9906101	12.5	60	1500	200	230	DAW 5
9906104	12.5	90	1500	350	230	Nozzle DAW 20
9906103	16.0	80	1500	315	230	DAW 10/20
9906106	16.0	100	1500	500	230	DAW 40-125
9906113	16.0	100	1500	600	230	DAW 40-125
9906105	16.0	160	1500	630	230	Nozzle DAW 40-50
9906110	20.0	100	1500	630	230	DAW 160-200

## hotrod® HHP Ø 4 mm

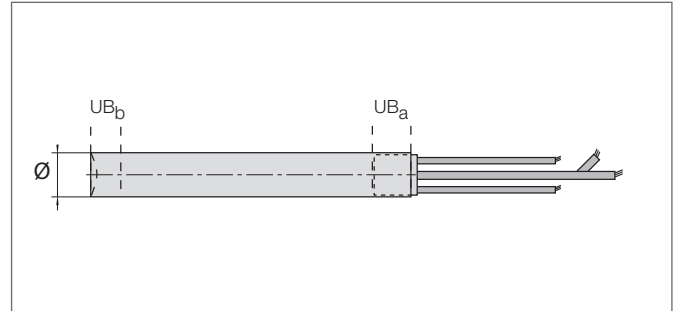
High Power Cartridge Heater

### Specific key features

Max. sheath temperature	275 °C / 527 °F
Max. voltage	250 V
Max. sheath surface load	20 W/cm <sup>2</sup> / 129 W/inch <sup>2</sup>
Max. Length	350 mm / 13.8 inch
UB <sub>a</sub> Length	13 mm / 0.512 inch
UB <sub>b</sub> Length	6 mm / 0.236 inch
High voltage test with supply voltage	≥ 24V: 800 V AC < 24V: 500 V AC
Max. current:	1.6 A
Length tolerance	± 2.5%, min. ± 1.5 mm / 0.059 inch
Connection type	Type 5a

### Options

- Power distribution
- Thermocouple, grounded or ungrounded type J or K (IEC / ANSI color codes), measuring point at bottom
- Diameter tolerances up to -0.02 -0.04 mm



UB = Length of the unheated zone

## hotrod® HHP Ø 6.5 – 20 mm

High Power Cartridge Heater

### Specific key features

*For metric sizes:*

Max. length / Ø-tolerance	1500 mm
	Ø-tolerance -0.02 mm / -0.06 mm
	3000 mm
	Ø-tolerance ± 0.1 mm

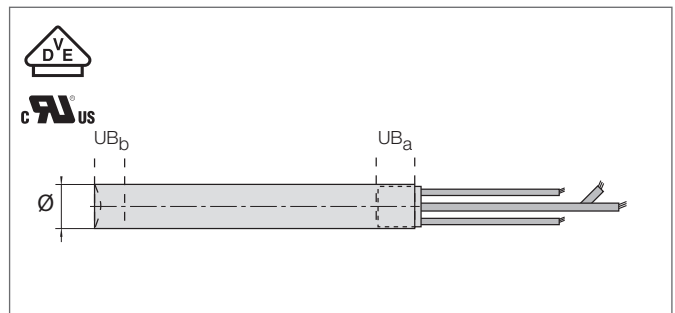
*For imperial sizes:*

Max. length / Ø-tolerance	59 inch
	Ø-tolerance ± 0.79 mils
	118 inch
	Ø-tolerance ± 3.94 mils

UB <sub>a</sub> Length	4 to 20 mm / 0.157 to 0.787 inch
UB <sub>b</sub> Length	4 to 9 mm / 0.157 to 0.354 inch

### Options

- Certified according to UL and CSA standards
- Wattage distribution
- Thermocouple, grounded or ungrounded type J or K (IEC / ANSI color codes) measuring point at the bottom or in the middle
- Ground lead
- Moisture protection up to IP67
- Various connection options
- Various attachments
- Diameter tolerances up to -0.02 -0.04 mm



UB = Length of unheated Zone

### Express Service

Order by 10:00 a.m CET / CEST, following hotrod are ready for shipping from HQ Germany within:

- 24 hours: Ø 6.5 mm to 10.0 mm Ø 1/4 inch to 3/8 inch
- 48 hours: Ø 12.5 mm to 20.0 mm Ø 1/2 inch to 5/8 inch
- Max. order quantity: 20 pcs.
- Max. length: 1,000 mm / 39 inch

### Available Connection types

- Max. lead length external mounted: 2,000 mm
- Max. lead length internal mounted: 1,500 mm
- With PTFE-disc: requires 48 hours
- With ceramic sealing: requires 48 hours

### Options not available

- Epoxy or silicone sealing
- Multicore silicone cables
- Thermocouples grounded

# hotrod®

## Cartridge Heaters

### hotrod® LHT

Low Power Cartridge Heater

- For lower surface loads with a max. of 10 W/cm<sup>2</sup>
- Cost effective heating with a longer lifespan

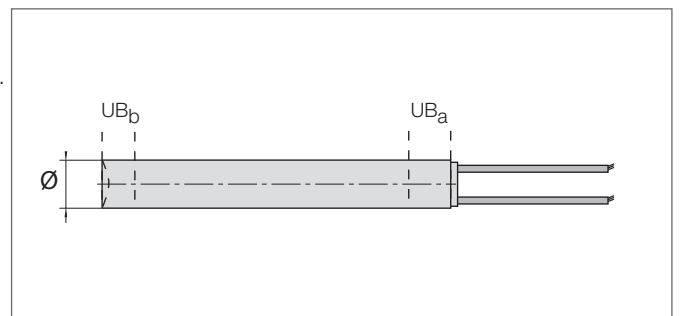
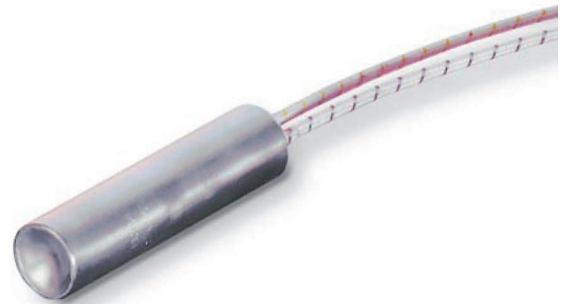
#### Specific key features

Diameter	6.5 / 8.0 / 10.0 / 12.5 / 16.0 / 20.0
Max. sheath temperature	750 °C / 1380 °F
Max. sheath surface load	10 W/cm <sup>2</sup> / 64 W/inch <sup>2</sup>
Max. length	3000 mm / 118 inch
Length tolerance	± 1.5%, min. ± 1.5 mm / 0.059 inch

No high voltage test and no insulation resistance in case of current return via the cartridge sheath (only extra low voltage).

#### Options

- Moisture protection
- Various connection options
- In case of extra low voltage, current return via the cartridge sheath is possible
- Connection leads attached to each end of the cartridge possible
- Certified according to UL and CSA standards



UB = Length of unheated Zone

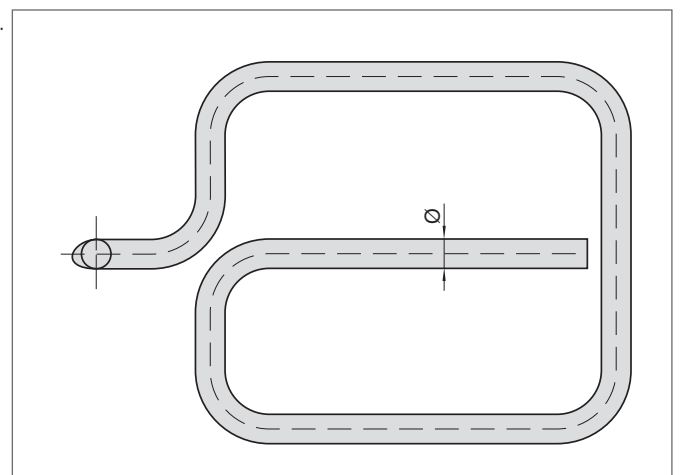
### hotrod® LHT bendable

Low Power Cartridge Heater

#### Specific key features

Diameter	6.5 or 8.0
Sheath material	nickel or stainless steel
Max. sheath temperature	700 °C / 1292 °F
Max. sheath surface load	10 W/cm <sup>2</sup> / 64 W/inch <sup>2</sup>
Max. length	3000 mm / 118 inch
Length tolerance	± 1.5%, min. ± 1.5 mm / 0.059 inch
Diameter tolerance	± 0.2 mm / 0.008 inch
Connection	glass silk insulated Ni-leads mounted externally
Min. bending radius	15 mm / 0.59 inch (internal)

No high voltage test and no insulation resistance in case of current return via the cartridge sheath (only extra low voltage).



#### Options

- Moisture protection
- Various connection options
- Certified according to UL and CSA standards

## hotrod® LHT Knife Cartridge

Low Power Cartridge Heater

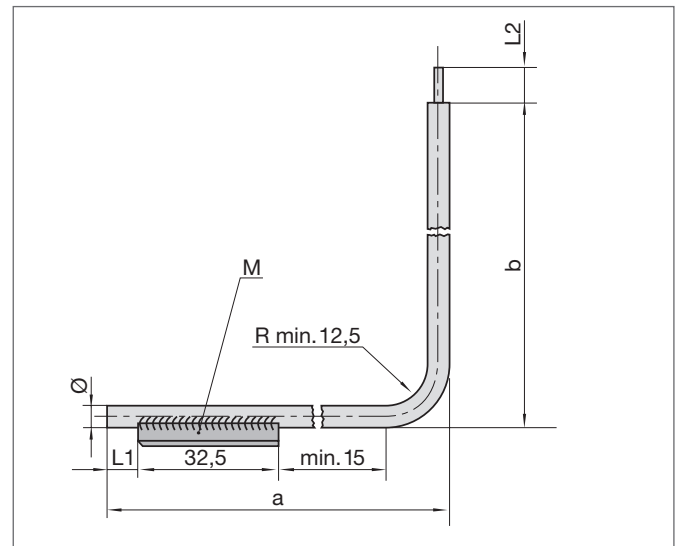
- Cutting knife for textiles and foils

### Specific key features

Diameter	4.9 mm / 0.193 inch 5.0 mm / 0.197 inch 5.3 mm / 0.209 inch 6.5 mm / 0.256 inch
Sheath material	Incoloy
Max. sheath temperature	950 °C / 1742 °F
Max. sheath surface load	15 W/cm <sup>2</sup> / 96 W/inch <sup>2</sup>
Diameter tolerance	± 0.1 mm / 0.059 inch
Max. connection voltage	24 V, with current return via sheath
Connection options	connection pin
Cutting knife	wear-resistant hard metal alloy, pre-formed, unsharpened
Min. bending radius	12.5 mm / 0.049 inch (internal)

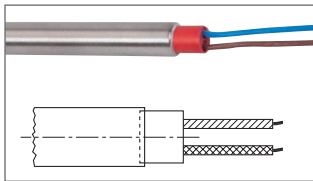
### Options

- Manufactured straight or bent

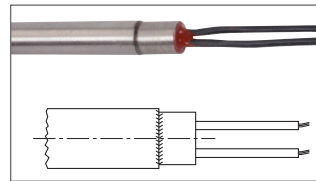


M = Cutting knife  
a, b, L1, L2 = Variable length  
R = Inner bending radius  
All dimensions in mm

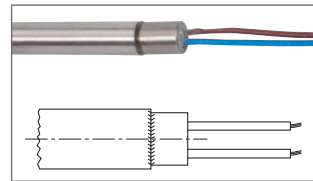
### Connection with leads mounted externally



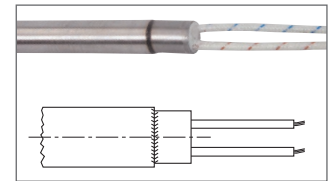
**Type 2**  
Ceramic head,  
any leads,  
see "Connection leads"



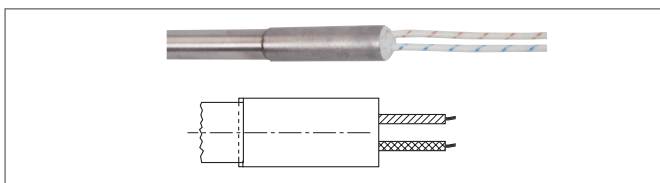
**Type 3a**  
Ring sleeve, silicone leads,  
sealed with silicone, moisture  
protected, max. 180 °C / 356 °F,  
UL rated: max. 150 °C / 302 °F



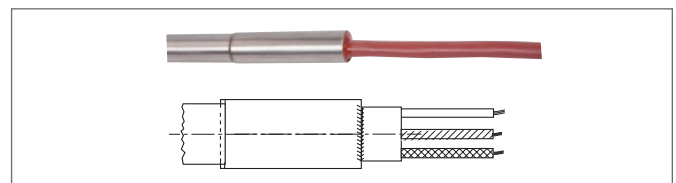
**Type 3b**  
Ringsleeve, PTFE leads, sealed  
with epoxy resin, moisture pro-  
tected, max. 250 °C / 482 °F  
UL rated: max. 130 °C / 266 °F



**Type 3c**  
Ring sleeve, GLS leads,  
ceramic sealing,  
max. 320 °C / 608 °F

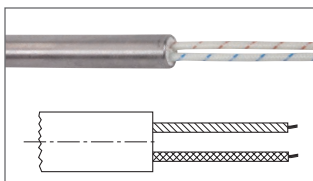


**Option Type 3 (for all)**  
Tube section 40 mm instead of ring sleeve, e.g. with large lead  
cross sections (25 mm tube section on request)

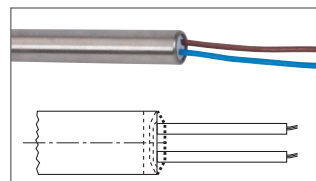


**Type 6**  
Multi core silicone cable with tube section 40 mm, sealed with  
silicone, moisture protected  
Max. 180 °C / 356 °F, UL rated max. 150 °C / 302 °F

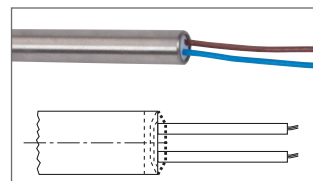
### Connection with leads mounted internally



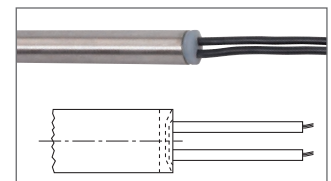
**Type 4**  
Any leads,  
sealed with ceramic,  
see "Connection leads"



**Type 5a**  
PTFE disc\*, PTFE leads,  
moisture protected,  
max. 260 °C / 500 °F  
UL rated: max 150 °C / 302 °F



**Type 5b**  
PTFE disc\*, silicized internal  
structure, IP67 up to  
40 W/cm<sup>2</sup> / 258 W/inch<sup>2</sup>,  
max. 350 °C / 662 °F at sheath,  
260 °C / 500 °F at leads,  
UL rated: max 180 °C / 355 °F



**Type 5c**  
Silicone disc, silicone leads,  
max. 180 °C / 356 °F  
UL rated: max. 150 °C / 355 °F

\* PTFE disc can extend length by 1.5 mm.

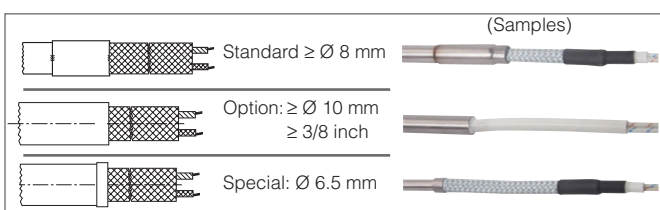
### Connection Leads

Glass silk insulated Ni-leads  
Silicone Ni-leads  
PTFE insulated Ni-leads (multi-stranded)  
High temperature resistant glass silk insulated Ni-leads  
Bare, beaded leads (breakage risk)

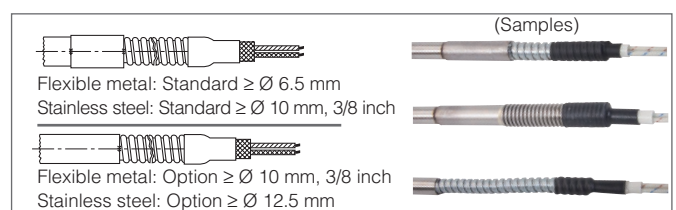
max. Temp: 320 °C / 608 °F  
max. Temp: 180 °C / 356 °F  
max. Temp: 260 °C / 500 °F  
max. Temp: 600 °C / 1112 °F  
max. Temp: 600 °C / 1112 °F

UL rated: max. 150 °C / 302 °F  
UL rated: max. 180 °C / 356 °F

### Sleeves

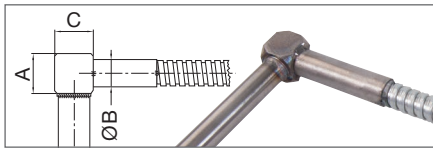


**GLS sleeving**  
**Braided metal sleeving**



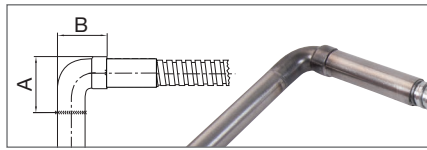
**Flexible metal sleeving**  
**Stainless steel sleeving, moisture proof**

## Right Angle Attachments\*



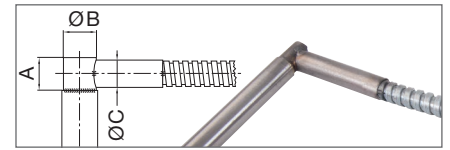
**Angular block**

Ø hotrod	Ø B	A/C
6.5	7.5	10.0
8.0	9.0	10.0
10.0	11.0	14.0
12.5	11.0	14.0
16.0	14.0	18.0
20.0	18.0	25.0
1/4"	7.5	10.0
3/8"	11.0	14.0
1/2"	11.0	14.0
5/8"	14.0	18.0
3/4"	18.0	25.0



**Bent pipe**

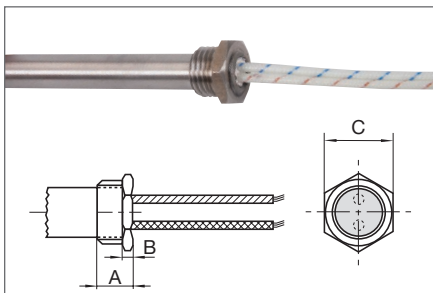
Ø hotrod	A	B
6.5	17.3	14.3
8.0	18.0	15.0
10.0	22.0	19.0
12.5	25.0	22.3
16.0	33.0	29.0
20.0	39.0	35.0
1/4"	18.0	14.5
3/8"	22.0	18.8
1/2"	25.0	22.4
5/8"	33.0	29.0
3/4"	39.0	35.0x



**Right angle exit**

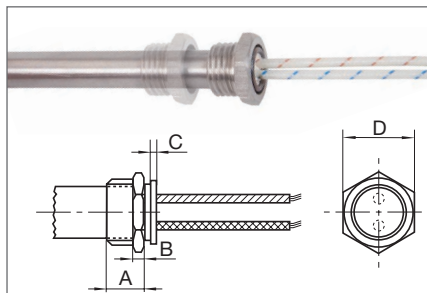
Ø hotrod	A	B	C
8.0	12.0	7.5	7.5
10.0	12.0	9.0	9.0
12.5	13.0	12.0	11.0
16.0	16.0	15.0	14.0
20.0	18.0	19.5	16.0
3/8"	12.0	9.0	9.0
1/2"	13.0	12.0	11.0
5/8"	16.0	15.0	14.0
3/4"	18.0	18.5	16.0

## Flange and Threaded Nipple Attachments\*



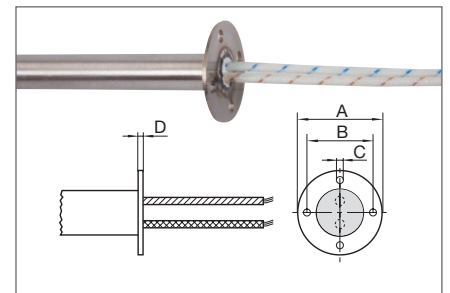
**Threaded nipple**

Ø hotrod	A	B	C	Thread
6.5	10.0	4.0	12	M10 x 1.0
8.0	10.0	4.0	14	M12 x 1.0
10.0	12.0	4.0	17	M14 x 1.5
12.5	12.0	4.0	19	M16 x 1.5
16.0	12.0	4.0	24	M20 x 1.5
20.0	14.0	4.0	27	M26 x 1.5
1/4"	10.0	4.0	12	G 1/8"
3/8"	12.0	4.0	17	G 1/4"
1/2"	12.0	4.0	19	G 3/8"
5/8"	12.0	4.0	24	G 1/2"



**Threaded nipple with removal aid**

Ø hotrod	A	B	C	D	Thread
6.5	10.0	4.0	2.5	12	M10 x 1.0
8.0	10.0	4.0	2.5	14	M12 x 1.0
10.0	12.0	4.0	2.5	17	M14 x 1.5
12.5	12.0	4.0	2.5	19	M16 x 1.5
16.0	12.0	4.0	2.5	24	M20 x 1.5
20.0	14.0	4.0	2.5	27	M26 x 1.5
1/4"	10.0	4.0	2.5	12	G 1/8"
3/8"	12.0	4.0	2.5	17	G 1/4"
1/2"	12.0	4.0	2.5	19	G 3/8"
5/8"	12.0	4.0	2.5	24	G 1/2"



**Flange**

Ø hotrod	A	B	C	D
6.5	18.0	13.0	2.2	1.0
8.0	18.0	13.0	2.2	1.0
10.0	27.0	20.0	3.2	1.5
12.5	27.0	20.0	3.2	1.5
16.0	33.0	25.6	3.2	1.5
20.0	33.0	25.6	3.2	1.5
1/4"	18.0	13.0	2.2	1.0
3/8"	27.0	20.0	2.2	1.5
1/2"	27.0	20.0	3.2	1.5
5/8"	33.0	25.6	3.2	1.5

## Mounting clamp

Ø hotrod	A	B	C	D
10.0	10.0	5.0	10.0	14.0
12.5	12.2	5.5	4.95	11.7
12.5	12.2	5.5	7.95	14.7
16.0	12.2	6.9	10.9	17.7
20.0	12.2	5.5	12.5	20.0



### \* Remarks

- All attachments are mounted at the unheated zone of the heater
- No immersion of any attachments
- Please state immersion depth with order



## Stock Range

### Stock Range HHP Ø 6,5 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5210404	40	100	H7 tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4010404	40	100	H7 tolerance bore	4, GLS 1 m	
5010404	40	100	H7 tolerance bore	2	
4010405	40	125	Press fit (DIN 7157)	4, GLS 1 m	
5010405	40	125	Press fit (DIN 7157)	2	
4010410	40	160	Press fit (DIN 7157)	4, GLS 1 m	
5010410	40	160	Press fit (DIN 7157)	2	
4010411	40	175	Press fit (DIN 7157)	4, GLS 1 m	
5010411	40	175	Press fit (DIN 7157)	2	
4010415	40	200	Press fit (DIN 7157)	4, GLS 1 m	
5010415	40	200	Press fit (DIN 7157)	2	
4010504	50	100	H7 tolerance bore	4, GLS 1 m	
5010504	50	100	H7 tolerance bore	2	
5010505	50	125	H7 tolerance bore	2	
4010510	50	160	H7 tolerance bore	4, GLS 1 m	
5210515	50	200	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4010515	50	200	Press fit (DIN 7157)	4, GLS 1 m	
4010517	50	250	Press fit (DIN 7157)	4, GLS 1 m	
4010605	60	125	H7 tolerance bore	4, GLS 1 m	
5010605	60	125	H7 tolerance bore	2	
5210615	60	200	H7 tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4010615	60	200	H7 tolerance bore	4, GLS 1 m	
5010615	60	200	H7 tolerance bore	2	
5210617	60	250	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4010617	60	250	Press fit (DIN 7157)	4, GLS 1 m	
5010622	60	315	Press fit (DIN 7157)	2	
4010805	80	125	H7 tolerance bore	4, GLS 1 m	
5010805	80	125	H7 tolerance bore	2	
4010815	80	200	H7 tolerance bore	4, GLS 1 m	
4010817	80	250	H7 tolerance bore	4, GLS 1 m	
4010822	80	315	Press fit (DIN 7157)	4, GLS 1 m	
5010823	80	350	Press fit (DIN 7157)	2	
5011004	100	100	H7 tolerance bore	2	
4011010	100	160	H7 tolerance bore	4, GLS 1 m	
4011017	100	250	H7 tolerance bore	4, GLS 1 m	
5211023	100	350	H7 tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4011023	100	350	H7 tolerance bore	4, GLS 1 m	
5011026	100	400	Press fit (DIN 7157)	2	
4011316	130	220	H7 tolerance bore	4, GLS 1 m	
4011323	130	350	H7 tolerance bore	4, GLS 1 m	

Final part ID may be different to stock ID

Stock Range HHP Ø 8.0 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5220404	40	100	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4020404	40	100	H7-tolerance bore	4, GLS 1 m	
5020404	40	100	H7-tolerance bore	2	
4020410	40	160	Press fit (DIN 7157)	4, GLS 1 m	
4020415	40	200	Press fit (DIN 7157)	4, GLS 1 m	
5020415	40	200	Press fit (DIN 7157)	4, GLS 1 m	
4020417	40	250	Press fit (DIN 7157)	4, GLS 1 m	
4020505	50	125	H7-tolerance bore	4, GLS 1 m	
4020515	50	200	H7-tolerance bore	4, GLS 1 m	
5020515	50	200	H7-tolerance bore	2	
5220517	50	250	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4020517	50	250	Press fit (DIN 7157)	4, GLS 1 m	
4020522	50	315	Press fit (DIN 7157)	4, GLS 1 m	
5020604	60	100	H7-tolerance bore	2	
4020605	60	125	H7-tolerance bore	4, GLS 1 m	
5020610	60	160	H7-tolerance bore	2	
4020615	60	200	H7-tolerance bore	4, GLS 1 m	
5020615	60	200	H7-tolerance bore	2	
4020617	60	250	H7-tolerance bore	4, GLS 1 m	
5220617	60	250	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
5020617	60	250	H7-tolerance bore	2	
4020618	60	280	Press fit (DIN 7157)	4, GLS 1 m	
5020622	60	315	Press fit (DIN 7157)	2	
4020815	80	200	H7-tolerance bore	4, GLS 1 m	
5220822	80	315	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4020822	80	315	H7-tolerance bore	4, GLS 1 m	
5020822	80	315	H7-tolerance bore	2	
4020826	80	400	Press fit (DIN 7157)	4, GLS 1 m	
5020826	80	400	Press fit (DIN 7157)	2	
5020830	80	500	Press fit (DIN 7157)	2	
4021015	100	200	H7-tolerance bore	4, GLS 1 m	
4021017	100	250	H7-tolerance bore	4, GLS 1 m	
5221022	100	315	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4021022	100	315	H7-tolerance bore	4, GLS 1 m	
4021026	100	400	H7-tolerance bore	4, GLS 1 m	
4021317	130	250	H7-tolerance bore	4, GLS 1 m	
5021317	130	250	H7-tolerance bore	2	
4021322	130	315	H7-tolerance bore	4, GLS 1 m	
5221326	130	400	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4021326	130	400	H7-tolerance bore	4, GLS 1 m	
4021615	160	200	H7-tolerance bore	4, GLS 1 m	

Stock Range HHP Ø 10.0 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4030404	40	100	H7-tolerance bore	4, GLS 1 m	
4030405	40	125	H7-tolerance bore	4, GLS 1 m	
5230415	40	200	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4030415	40	200	Press fit (DIN 7157)	4, GLS 1 m	
5030415	40	200	Press fit (DIN 7157)	2	
5030417	40	250	Press fit (DIN 7157)	2	
4030422	40	315	Press fit (DIN 7157)	4, GLS 1 m	

Final part ID may be different to stock ID

Stock Range HHP Ø 10.0 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4030504	50	100	H7-tolerance bore	4, GLS 1 m	
4030510	50	160	H7-tolerance bore	4, GLS 1 m	
4030515	50	200	H7-tolerance bore	4, GLS 1 m	
5230517	50	250	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4030517	50	250	H7-tolerance bore	4, GLS 1 m	
5030522	50	315	Press fit (DIN 7157)	2	
4030526	50	400	Press fit (DIN 7157)	4, GLS 1 m	
4030612	60	180	H7-tolerance bore	4, GLS 1 m	
5230617	60	250	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4030617	60	250	H7-tolerance bore	4, GLS 1 m	
4030622	60	315	Press fit (DIN 7157)	4, GLS 1 m	
5030622	60	315	Press fit (DIN 7157)	2	
4030626	60	400	Press fit (DIN 7157)	4, GLS 1 m	
4030630	60	500	Press fit (DIN 7157)	4, GLS 1 m	
5030630	60	500	Press fit (DIN 7157)	2	
4030810	80	160	H7-tolerance bore	4, GLS 1 m	
5230817	80	250	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4030817	80	250	H7-tolerance bore	4, GLS 1 m	
5030817	80	250	H7-tolerance bore	2	
4030822	80	315	H7-tolerance bore	4, GLS 1 m	
4030826	80	400	H7-tolerance bore	4, GLS 1 m	
4030830	80	500	Press fit (DIN 7157)	4, GLS 1 m	
4030835	80	630	Press fit (DIN 7157)	4, GLS 1 m	
5031005	100	125	H7-tolerance bore	2	
4031016	100	220	H7-tolerance bore	4, GLS 1 m	
4031017	100	250	H7-tolerance bore	4, GLS 1 m	
5031017	100	250	H7-tolerance bore	2	
4031022	100	315	H7-tolerance bore	4, GLS 1 m	
5231023	100	350	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4031023	100	350	H7-tolerance bore	4, GLS 1 m	
4031026	100	400	H7-tolerance bore	4, GLS 1 m	
4031030	100	500	H7-tolerance bore	4, GLS 1 m	
5031030	100	500	H7-tolerance bore	2	
4031035	100	630	Press fit (DIN 7157)	4, GLS 1 m	
4031044	100	850	Press fit (DIN 7157)	4, GLS 1 m	
4031322	130	315	H7-tolerance bore	4, GLS 1 m	
5031322	130	315	H7-tolerance bore	2	
4031326	130	400	H7-tolerance bore	4, GLS 1 m	
4031330	130	500	H7-tolerance bore	4, GLS 1 m	
4031335	130	630	H7-tolerance bore	4, GLS 1 m	
4031343	130	800	Press fit (DIN 7157)	4, GLS 1 m	
5231626	160	400	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4031626	160	400	H7-tolerance bore	4, GLS 1 m	
5231635	160	630	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4031635	160	630	H7-tolerance bore	4, GLS 1 m	
5031643	160	800	H7-tolerance bore	2	
4032026	200	400	H7-tolerance bore	4, GLS 1 m	
4032035	200	630	H7-tolerance bore	4, GLS 1 m	
5032535	250	630	H7-tolerance bore	2	
5032550	250	1000	H7-tolerance bore	2	

Final part ID may be different to stock ID

Stock Range HHP Ø 12.5 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5050415	40	200	H7-tolerance bore	2	
4050417	40	250	Press fit (DIN 7157)	4, GLS 1 m	
4050426	40	400	Press fit (DIN 7157)	4, GLS 1 m	
5050522	50	315	H7-tolerance bore	2	
4050615	60	200	H7-tolerance bore	4, GLS 1 m	
5050615	60	200	H7-tolerance bore	2	
5050617	60	250	H7-tolerance bore	2	
4050622	60	315	H7-tolerance bore	4, GLS 1 m	
5050626	60	400	Press fit (DIN 7157)	2	
5050630	60	500	Press fit (DIN 7157)	2	
5050815	80	200	H7-tolerance bore	2	
4050817	80	250	H7-tolerance bore	4, GLS 1 m	
5050817	80	250	H7-tolerance bore	2	
4050822	80	315	H7-tolerance bore	4, GLS 1 m	
5050822	80	315	H7-tolerance bore	2	
4050830	80	500	H7-tolerance bore	4, GLS 1 m	
4050835	80	630	Press fit (DIN 7157)	4, GLS 1 m	
4050843	80	800	Press fit (DIN 7157)	4, GLS 1 m	
5051022	100	315	H7-tolerance bore	2	
4051026	100	400	H7-tolerance bore	4, GLS 1 m	
5251030	100	500	H7-tolerance bore	4, GLS 1 m	Fe-CuNi Typ J
4051030	100	500	H7-tolerance bore	4, GLS 1 m	
4051035	100	630	H7-tolerance bore	4, GLS 1 m	
4051043	100	800	Press fit (DIN 7157)	4, GLS 1 m	
4051326	130	400	H7-tolerance bore	4, GLS 1 m	
4051330	130	500	H7-tolerance bore	4, GLS 1 m	
4051335	130	630	H7-tolerance bore	4, GLS 1 m	
4051343	130	800	H7-tolerance bore	4, GLS 1 m	
5051350	130	1000	Press fit (DIN 7157)	2	
4051352	130	1250	Press fit (DIN 7157)	4, GLS 1 m	
4051630	160	500	H7-tolerance bore	4, GLS 1 m	
5051630	160	500	H7-tolerance bore	2	
4051635	160	630	H7-tolerance bore	4, GLS 1 m	
4051643	160	800	H7-tolerance bore	4, GLS 1 m	
5051650	160	1000	H7-tolerance bore	2	
4051836	180	670	H7-tolerance bore	4, GLS 1 m	
4051850	180	1000	H7-tolerance bore	4, GLS 1 m	
4052035	200	630	H7-tolerance bore	4, GLS 1 m	
5052035	200	630	H7-tolerance bore	2	
4052043	200	800	H7-tolerance bore	4, GLS 1 m	
4052047	200	900	H7-tolerance bore	4, GLS 1 m	
4052543	250	800	H7-tolerance bore	4, GLS 1 m	
4052547	250	900	H7-tolerance bore	4, GLS 1 m	
5053034	300	600	H7-tolerance bore	2	
5053054	300	1500	H7-tolerance bore	2	

Final part ID may be different to stock ID

Stock Range HHP Ø 16.0 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4060417	40	250	H7-tolerance bore	4, GLS 1 m	
4060615	60	200	H7-tolerance bore	4, GLS 1 m	
4060622	60	315	H7-tolerance bore	4, GLS 1 m	
4060626	60	400	H7-tolerance bore	4, GLS 1 m	
5060630	60	500	Press fit (DIN 7157)	2	
4060826	80	400	H7-tolerance bore	4, GLS 1 m	
4060830	80	500	H7-tolerance bore	4, GLS 1 m	
4060835	80	630	H7-tolerance bore	4, GLS 1 m	
4060843	80	800	Press fit (DIN 7157)	4, GLS 1 m	
4061026	100	400	H7-tolerance bore	4, GLS 1 m	
4061030	100	500	H7-tolerance bore	4, GLS 1 m	
4061035	100	630	H7-tolerance bore	4, GLS 1 m	
4061043	100	800	H7-tolerance bore	4, GLS 1 m	
5061043	100	800	H7-tolerance bore	2	
4061050	100	1000	Press fit (DIN 7157)	4, GLS 1 m	
4061330	130	500	H7-tolerance bore	4, GLS 1 m	
4061335	130	630	H7-tolerance bore	4, GLS 1 m	
4061343	130	800	H7-tolerance bore	4, GLS 1 m	
4061347	130	1000	H7-tolerance bore	4, GLS 1 m	
5061347	130	1000	H7-tolerance bore	2	
4061635	160	630	H7-tolerance bore	4, GLS 1 m	
5061635	160	630	H7-tolerance bore	2	
4061643	160	800	H7-tolerance bore	4, GLS 1 m	
4061650	160	1000	H7-tolerance bore	4, GLS 1 m	
4061652	160	1250	H7-tolerance bore	4, GLS 1 m	
4061852	180	1250	H7-tolerance bore	4, GLS 1 m	
4062030	200	500	H7-tolerance bore	4, GLS 1 m	
4062043	200	800	H7-tolerance bore	4, GLS 1 m	
4062050	200	1000	H7-tolerance bore	4, GLS 1 m	
5062050	200	1000	H7-tolerance bore	2	
4062052	200	1250	H7-tolerance bore	4, GLS 1 m	
4062061	200	2000	Press fit (DIN 7157)	4, GLS 1 m	
4062550	250	1000	H7-tolerance bore	4, GLS 1 m	
5062550	250	1000	H7-tolerance bore	2	
4062552	250	1250	H7-tolerance bore	4, GLS 1 m	
4062555	250	1600	H7-tolerance bore	4, GLS 1 m	
4063050	300	1000	H7-tolerance bore	4, GLS 1 m	
5063050	300	1000	H7-tolerance bore	2	
4063052	300	1250	H7-tolerance bore	4, GLS 1 m	
5063052	300	1250	H7-tolerance bore	2	
4063054	300	1500	H7-tolerance bore	4, GLS 1 m	
4063056	300	1800	H7-tolerance bore	4, GLS 1 m	

Final part ID may be different to stock ID

Stock Range HHP Ø 20.0 mm, 230 V

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4070622	60	315	H7-tolerance bore	4, GLS 1 m	
5070635	60	630	Press fit (DIN 7157)	2	
4070843	80	800	H7-tolerance bore	4, GLS 1 m	
4071050	100	1000	H7-tolerance bore	4, GLS 1 m	
4071643	160	800	H7-tolerance bore	4, GLS 1 m	
4071650	160	1000	H7-tolerance bore	4, GLS 1 m	
4071656	160	1800	Press fit (DIN 7157)	4, GLS 1 m	
4072050	200	1000	H7-tolerance bore	4, GLS 1 m	
4072055	200	1600	H7-tolerance bore	4, GLS 1 m	
5072055	200	1600	H7-tolerance bore	2	
4072552	250	1250	H7-tolerance bore	4, GLS 1 m	
4072561	250	2000	H7-tolerance bore	4, GLS 1 m	
4073055	300	1600	H7-tolerance bore	4, GLS 1 m	
4073062	300	2200	H7-tolerance bore	4, GLS 1 m	
5073563	350	2500	H7-tolerance bore	2	

Final part ID may be different to stock ID

**Stock Range HHP Ø 1/4" (Ø 6.3 mm), 230 V**

Stock ID	Length [inch]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5110304	1 1/2	100	H7-tolerance bore	2	
4110305	1 1/2	125	Press fit (DIN 7157)	4, GLS 1 m	
5310311	1 1/2	175	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4110311	1 1/2	175	Press fit (DIN 7157)	4, GLS 1 m	
4110315	1 1/2	200	Press fit (DIN 7157)	4, GLS 1 m	
4110505	2	125	H7-tolerance bore	4, GLS 1 m	
5310515	2	200	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4110515	2	200	Press fit (DIN 7157)	4, GLS 1 m	
5310617	2 1/2	250	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4110617	2 1/2	250	Press fit (DIN 7157)	4, GLS 1 m	
5310721	3	300	Press fit (DIN 7157)	4, GLS 1 m	Fe-CuNi Typ J
4111023	4	350	H7-tolerance bore	4, GLS 1 m	

**Stock Range HHP Ø 3/8" (Ø 9.46 mm), 230 V**

Stock ID	Length [inch]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4130315	1 1/2	200	Press fit (DIN 7157)	4, GLS 1 m	
4130317	1 1/2	250	Press fit (DIN 7157)	4, GLS 1 m	
4130517	2	250	Press fit (DIN 7157)	4, GLS 1 m	
4130726	3	400	Press fit (DIN 7157)	4, GLS 1 m	
4131030	4	500	H7-tolerance bore	4, GLS 1 m	
4131230	5	500	H7-tolerance bore	4, GLS 1 m	
4131530	6	500	H7-tolerance bore	4, GLS 1 m	

**Stock Range HHP Ø 1/2" (Ø 12.61 mm), 230 V**

Stock ID	Length [inch]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5150515	2	200	H7-tolerance bore	2	
4150630	2 1/2	300	Press fit (DIN 7157)	4, GLS 1 m	
4150726	3	400	H7-tolerance bore	4, GLS 1 m	
4150730	3	500	H7-tolerance bore	4, GLS 1 m	
4151030	4	500	H7-tolerance bore	4, GLS 1 m	
4151040	4	750	Press fit (DIN 7157)	4, GLS 1 m	
4151230	5	500	H7-tolerance bore	4, GLS 1 m	
4151240	5	750	H7-tolerance bore	4, GLS 1 m	
4151530	6	500	H7-tolerance bore	4, GLS 1 m	
4151540	6	750	H7-tolerance bore	4, GLS 1 m	
4151550	6	1000	H7-tolerance bore	4, GLS 1 m	
5151630	6 1/2	500	H7-tolerance bore	2	
4152050	8	1000	H7-tolerance bore	4, GLS 1 m	
4152554	10	1500	H7-tolerance bore	4, GLS 1 m	
4153054	12	1500	H7-tolerance bore	4, GLS 1 m	

**Stock Range HHP Ø 5/8" (Ø 15.81 mm), 230 V**

Stock ID	Length [inch]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4160322	1 1/2	315	Press fit (DIN 7157)	4	
4160730	3	500	H7-tolerance bore	4	
4161550	6	1000	H7-tolerance bore	4	

Final part ID may be different to stock ID

**hotrod® HHP Ø 1/8" (3.1 mm)**

High Power Cartridge Heater

**Key Technical Features**

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. sheath temperature	750 °C / 1380 °F
Wattage tolerance*	± 10 %
High voltage test*	800 V AC at > 24 V operation voltage, 500 V at ≤ 24 V operation voltage
Insulation resistance*	≥ 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Max. sheath surface load	30 W/cm <sup>2</sup> / 190 W/inch <sup>2</sup>

\* tested at environmental temperature

Diameter tolerance	± 0.05 mm / 1.97 mils
Min. Length	25.4 mm / 1 inch
Max. Length	150 mm / 5.91 inch
Length tolerance	≤ 76.2 mm: ± 2.4 mm / 0.09 inch > 76.2 mm: ± 3 %
UB <sub>a</sub> Length	8 mm / 0.31 inch
UB <sub>b</sub> Length	6 mm / 0.24 inch
Max. voltage	250 V
Max. current	2.0 A

Connection option**	Mounted internally high temperature resistant glass silk insulated Ni-leads, wire cross-section 0.095 mm <sup>2</sup> , max. Temp. 600 °C / 1112 °F
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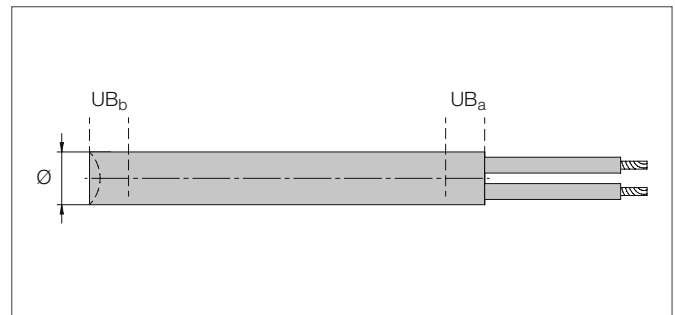
\*\* additional connection options available upon request

**Options**

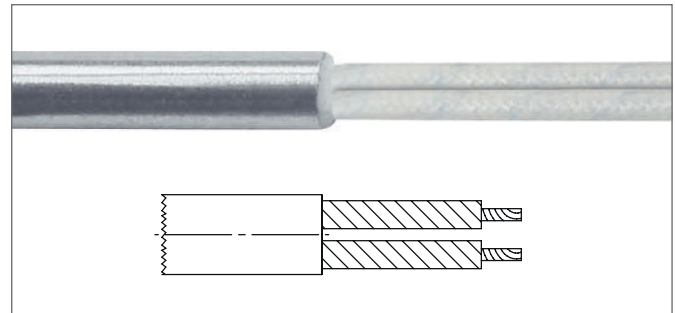
- Power distribution

**Application fields**

- Packaging machines
- Gas analyzers
- Mass spectrometry
- Ink jet printers
- Solid-state relays (SSR)



UB = Length of the unheated zone



Connection with leads mounted internally

$$W/cm^2 = \frac{\text{Wattage} \times 1.1}{\text{Circumference} \times \text{heated length [cm]}}$$

Formula for calculating the surface load (W/cm<sup>2</sup>)

$$W/inch^2 = \frac{\text{Wattage} \times 1.1}{\text{Circumference} \times \text{heated length [inch]}}$$

Formula for calculating the surface load (W/inch<sup>2</sup>)

\*\*\* Dimensions on request \*\*\*