

# hotrod<sup>®</sup>

## Cartridge Heaters

- For heating application with:
  - Packaging machines
  - Extruders
  - Casting Machines
  - Hot glue
  - Cutting knives
  - Analytical equipment in laboratories
- Customization options for example:
  - Power distribution
  - Numerous attachments and protection sleeves
  - Various moisture protection options
- Special Features:
  - Stainless steel with the highest level of mixed properties for heat conductivity, corrosion resistance, thermal expansion
  - Standard diameter tolerance to fit H7
  - The best diameter tolerances in the industry: up to -0.02 -0.04 mm possible
  - Various VDE certificates available
  - UL certified
  - Protection class IP67 possible for a number of dimensions

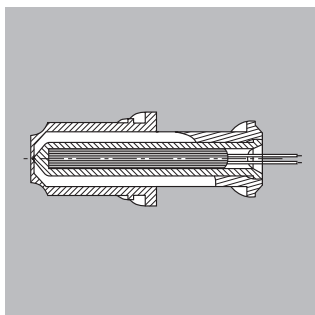


### Technical Key Features

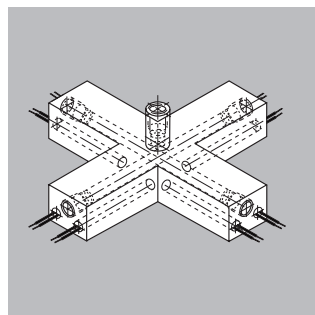
Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. sheath temperature	750 °C / 1380 °F
Max. voltage	480 V
Wattage tolerance*	± 10 %
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at ≤ 24 V operation voltage
Insulation resistance*	≥ 5 MΩ at 500 V DC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

\*tested at environmental temperature

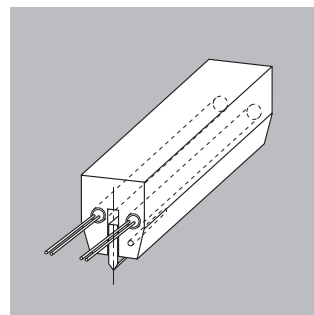
### Application Field



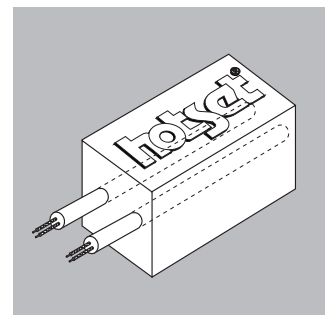
plastic injection mold  
internal heating of nozzles



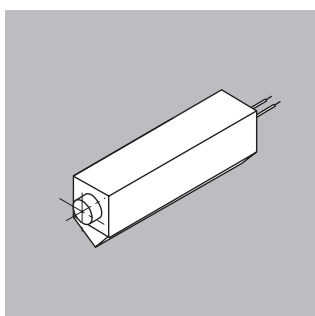
hot runner systems  
heating of manifolds



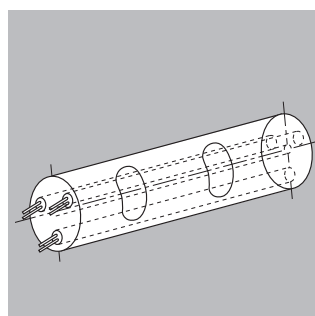
packaging industry  
heating of sealing bars



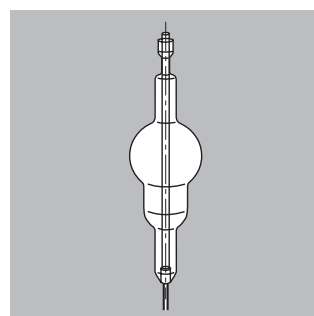
packaging industry  
heating of hot stamps



textile industry  
heating of cutting knives



paper industry  
heating of embossing rollers



laboratories  
heating of analytical equipment,  
for example, mass spectrometer

Performance Range

Type	Ø	tolerance	max L [mm/inch]	max W/cm <sup>2</sup>	max Temp [°C/°F]	max U [V]	thermocouple	attachments	options	power distribution	moisture protection
HHP	4	-0.02 mm -0.06 mm	350 / 13.8	20	275/527	250		no		limited	
	6.5	-0.02 mm -0.06 mm	1500 / 59	40*	750/ 1380	480				yes	IP 67
		± 0.1 mm	3000 / 118	10							
	8	-0.02 mm -0.06 mm	1500 / 59	40*							
		± 0.1 mm	3000 / 118	10							
	10	-0.02 mm -0.06 mm	1500 / 59	40*							
		± 0.1 mm	3000 / 118	10							
	12.5	-0.02 mm -0.06 mm	1500 / 59	40*							
		± 0.1 mm	3000 / 118	10							
	16	-0.02 mm -0.06 mm	1500 / 59	40*							
		± 0.1 mm	3000 / 118	10							
	20	-0.02 mm -0.06 mm	1500 / 59	40*							
		± 0.1 mm	3000 / 118	10							
	1/4"	± 0.08 mils	1500 / 59	40*							
± 0.1 mm		3000 / 118	10								
3/8"	± 0.08 mils	1500 / 59	40*								
	± 0.1 mm	3000 / 118	10								
1/2"	± 0.08 mils	1500 / 59	40*								
	± 0.1 mm	3000 / 118	10								
5/8"	± 0.08 mils	1500 / 59	40*								
	± 0.1 mm	3000 / 118	10								
LHT	6.5	± 0.1 mm	3000 / 118	10				yes	no	limited	
	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	700/ 1292							
LHT bendable	8	± 0.2 mm	3000 / 118								

\*If the surface load exceeds 20 W/cm<sup>2</sup> then an interference fit is required

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, regular temperature control of the material in the goose neck
- removal stud
- With angle block, tube section and metal sleeving

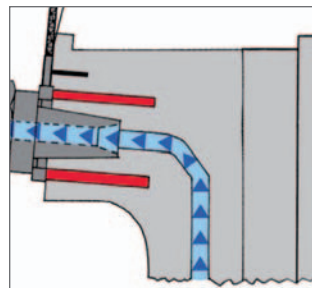
#### Specifications

Sheath material	Stainless steel 1.4541
Heating resistor 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
Wattage tolerance*	± 10 %
High voltage resistance*	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	metric: -0.02 / -0.06 mm

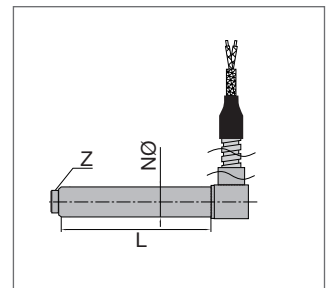
\*tested at environmental temperature

#### Options

- Power distribution
- Thermocouple type K
- Selectable connection options



heating of the gooseneck



NØ = nominal diameter  
L = length, Z = stud

#### Stock Range HHP/G

Connection Voltage: 230V, Connection GLS Lead

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	180	1500	630	230	Nozzle DAW 40-50
9906110	20.0	100	1500	630	230	DAW 160-200

## hotrod<sup>®</sup> HHP Ø 4 mm

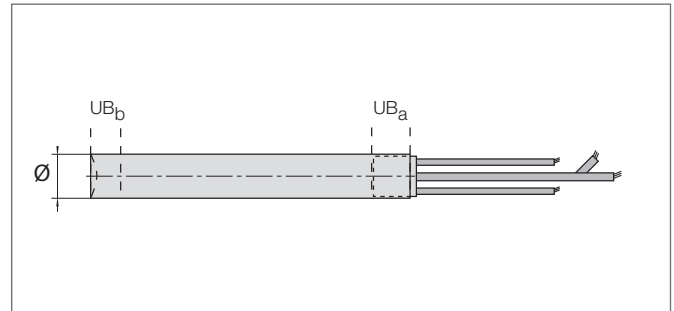
High Power Cartridge Heater

### Specifications

Max. sheath temperature	275°C / 527 °F
Max. sheath surface load	20 W/cm <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 resistance with nominal voltage	≥ 24V: 800 V AC < 24V: 500 V AC
Max. connection voltage	250 V
Max. current:	1.6 A
Length tolerance	± 2.5%, min. ± 1.5 mm / 0.059 inch
Connection type	Type 5a

### Options

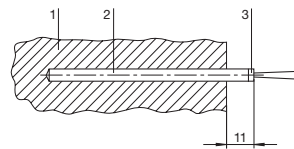
- Power distribution
- Thermocouple, ungrounded (Type J or Type K)  
Measuring point at bottom



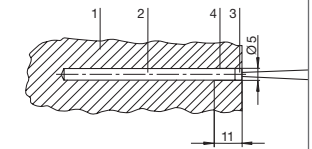
UB = length of the unheated zone

### Installation instructions for higher tool temperatures

Connection disc outside  
of tool



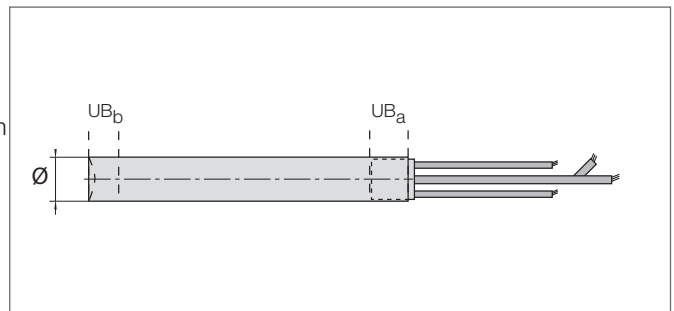
Connection disc inside tool  
with ring gap



## hotrod<sup>®</sup> HHP Ø 6.5 – 20 mm

High Power Cartridge Heater

Max. sheath temperature	750°C / 1380 °F
Max. Length	1500 mm / 59 inch Ø-tolerance -0.02 mm / -0.06 mm 3000 mm / 118 inch Ø-tolerance ± 0.1 mm
UB <sub>a</sub> Length	4 ... 20 mm / 0.157... 0.787 inch
UB <sub>b</sub> Length	4 ... 9 mm / 0.157... 0.354 inch



UB = Length of unheated Zone

### Options

- certified according to UL and CSA standards
- Power distribution
- Thermocouple, ungrounded (Type J or Type K)  
Measuring point at the bottom or in the middle
- Moisture protection up to IP67
- Selectable connection options
- Attachments

# hotrod<sup>®</sup>

## Cartridge Heaters

### hotrod<sup>®</sup> LHT

Spiral Cartridge Heater

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

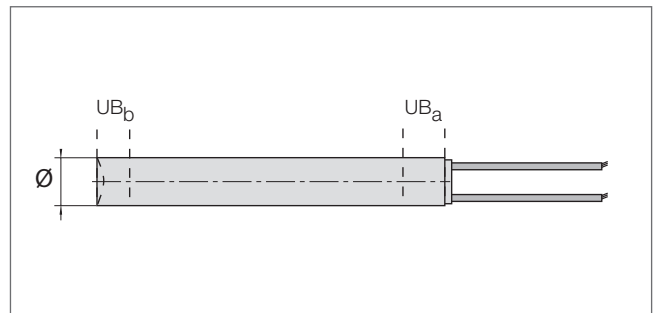
#### Specifications

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>
Max. length	3000 mm / 118 inch
Length tolerance	± 1.5 %, min. ± 1.5 mm / 0.059 inch

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

#### Options

- Moisture protection
- Selectable connection options
- In case of extra low voltage, current return via the cartridge sheath is possible
- Connection leads attached to both ends of the cartridge possible



### hotrod<sup>®</sup> LHT bendable

Spiral Cartridge Heater

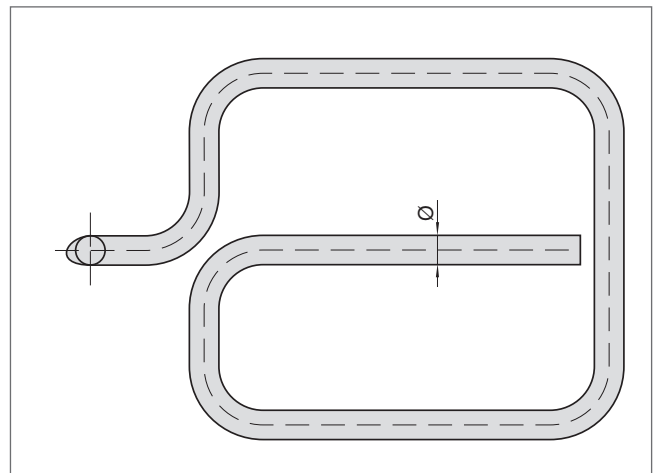
#### Specifications

Diameter	6.5 or 8.0
Sheath material	nickel tube
Max. sheath temperature	700°C / 1292 °F
Max. sheath surface load	10 W/cm <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 resistance and no insulation resistance in the case of return path via the cartridge sheath (only extra low voltage).

#### Options

- Moisture protection
- Selectable connection options



## hotrod<sup>®</sup> LHT Knife Cartridge

Spiral Cartridge Heater

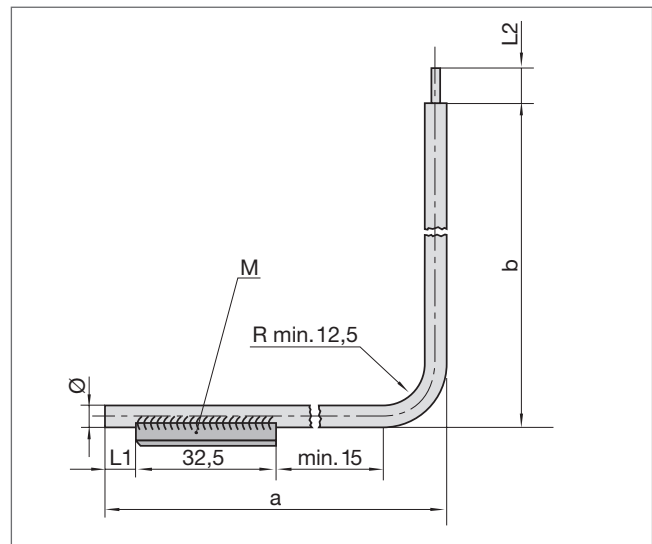
- Cutting knife for textiles and foils

### Specifications

Diameter	5.0 mm / 0.197 inch
Sheath material	Incoloy
Max. sheath temperature	950°C / 1742 °F
Max. sheath surface load	15 W/cm <sup>2</sup>
Diameter tolerance	± 0.1 mm / 0.059 inch
Max. connection voltage	24 V, with return path 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

- Delivered straight or bent

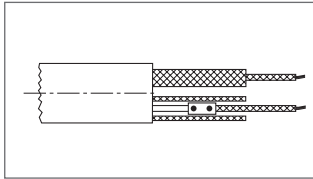


M = Cutting knife  
a, b, L1, L2 = variable length  
All dimensions in mm

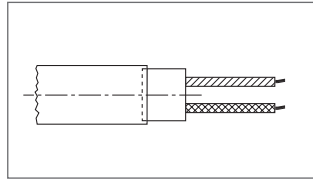
# hotrod<sup>®</sup>

## Cartridge Heaters

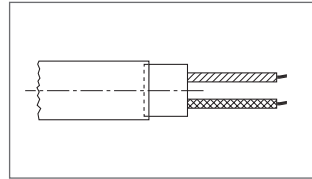
### Connection types with leads mounted externally



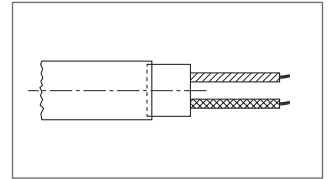
**Type 1**  
GLS sleeve  
GLS leads  
max. 320°C / 608 °F



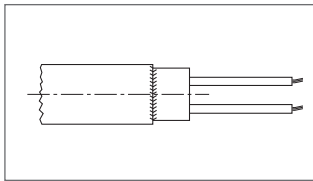
**Type 2a**  
leads with a ceramic head  
GLS leads  
max. 320°C / 608 °F



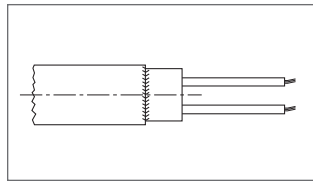
**Type 2b**  
leads with a ceramic head  
PTFE leads  
max. 260°C / 500 °F



**Type 2c**  
leads with a ceramic head  
siliconized leads  
max. 180°C / 356 °F

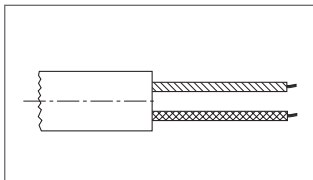


**Type 3a**  
with ring sleeve, siliconized  
leads, sealed with silicon,  
moisture protected  
max. 180°C / 356 °F

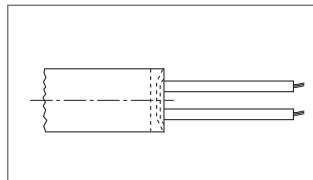


**Type 3b**  
with ring sleeve, PTFE leads,  
sealed with epoxy resin,  
moisture protected  
max. 250°C / 482 °F

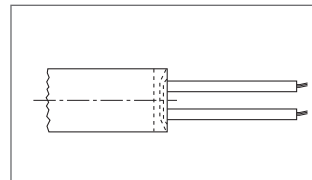
### Connection types with leads mounted internally



**Type 4**  
sealed, GLS leads,  
sealed with ceramic,  
max. 320°C / 608 °F



**Type 5a**  
with PTFE disc, PTFE leads,  
moisture protection,  
max. 260°C / 500 °F



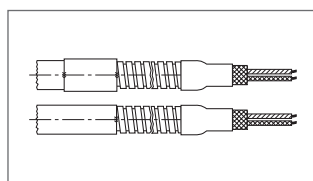
**Type 5b**  
with PTFE disc, siliconized  
internal structure, IP67 up to  
40W/cm<sup>2</sup>, max. 350°C / 662 °F

### Connection Leads

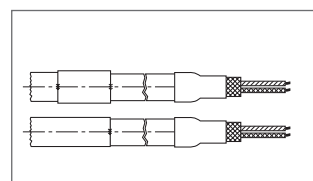
Glass silk insulated Ni-leads  
Siliconized Ni-leads  
PTFE insulated Ni-leads (multistranded)  
High temperature resistant glass silk insulated Ni- leads  
Bare, beaded leads (breakage risk)  
Multistranded silicon leads

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  
max. Temp: 180 °C / 356 °F

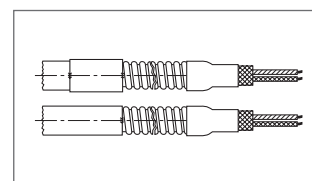
### Sleeves



**Flexible metal sleeving**

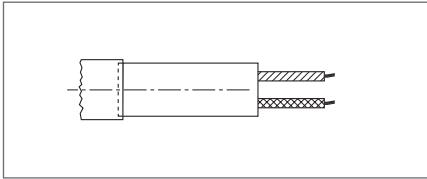


**Braided metal sleeving**

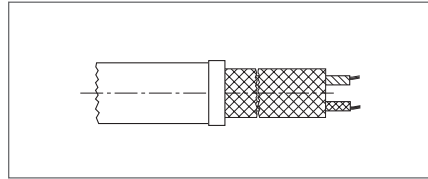


**stainless steel sleeving**

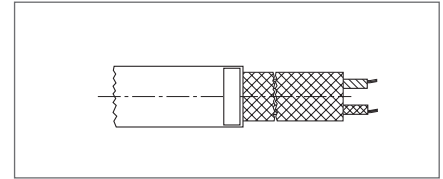
## Connecting Parts



Connecting part  
with a tube section

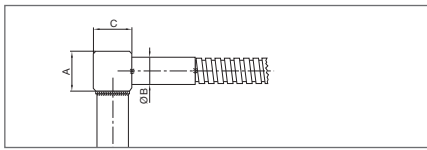


Connecting part  
with outer ring sleeve



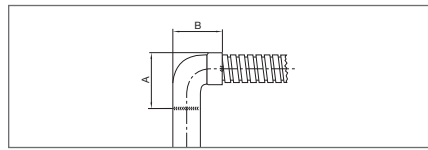
Connecting part  
with inner ring sleeve

## Attachment Parts



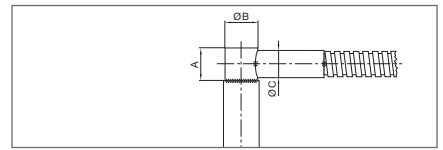
Angular block

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

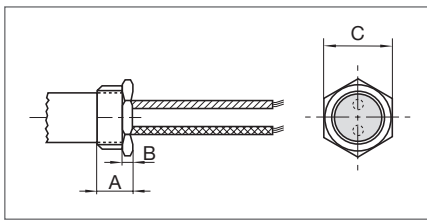
Ø hotrod	A	B
6.5	17.3	14.3
8.0	18.0	15.0
10.0	22.0	19.0
12.5	25.0	22.3
16.0	33.0	29.0
20.0	39.0	35.0
1/4"	18.0	14.5
3/8"	22.0	18.8
1/2"	25.0	22.4
5/8"	33.0	29.0
3/4"	39.0	35.0



Right angle exit

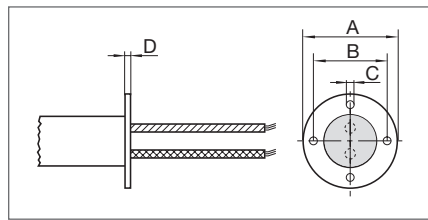
Ø hotrod	A	B	C
8.0	12.0	7.5	7.5
10.0	12.0	9.0	9.0
12.5	13.0	12.0	11.0
16.0	16.0	15.0	14.0
20.0	18.0	19.5	16.0
3/8"	12.0	9.0	9.0
1/2"	13.0	12.0	11.0
5/8"	16.0	15.0	14.0
3/4"	18.0	18.5	16.0

## Fixing Parts



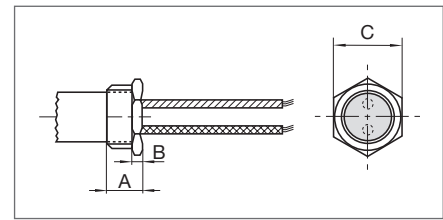
Threaded nipple

Ø hotrod	A	B	C	Gew.
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"



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



Threaded nipple with removal aid

Ø hotrod	A	B	C	D	Gew.
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"



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

Stock Range

Stock Range HHP Ø 6,5 mm

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

**Stock Range HHP Ø 8.0 mm**

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
5220404	40	100	H7-boring	4	Fe-CuNi Typ J
4020404	40	100	H7-boring	4	
5020404	40	100	H7-boring	2a, 2b, 2c	
4020410	40	160	Excess fit (DIN 7157)	4	
4020415	40	200	Excess fit (DIN 7157)	4	
5020415	40	200	Excess fit (DIN 7157)	4	
4020417	40	250	Excess fit (DIN 7157)	4	
4020505	50	125	H7-boring	4	
4020515	50	200	H7-boring	4	
5020515	50	200	H7-boring	2a, 2b, 2c	
5220517	50	250	Excess fit (DIN 7157)	4	Fe-CuNi Typ J
4020517	50	250	Excess fit (DIN 7157)	4	
4020522	50	315	Excess fit (DIN 7157)	4	
5020604	60	100	H7-boring	2a, 2b, 2c	
4020605	60	125	H7-boring	4	
5020610	60	160	H7-boring	2a, 2b, 2c	
4020615	60	200	H7-boring	4	
5020615	60	200	H7-boring	2a, 2b, 2c	
4020617	60	250	H7-boring	4	
5220617	60	250	H7-boring	4	Fe-CuNi Typ J
5020617	60	250	H7-boring	2a, 2b, 2c	
4020618	60	280	Excess fit (DIN 7157)	4	
5020622	60	315	Excess fit (DIN 7157)	2a, 2b, 2c	
4020815	80	200	H7-boring	4	
5020817	80	250	H7-boring	2a, 2b, 2c	
5220822	80	315	H7-boring	a	Fe-CuNi Typ J
4020822	80	315	H7-boring	4	
5020822	80	315	H7-boring	2a, 2b, 2c	
4020826	80	400	Excess fit (DIN 7157)	4	
5020826	80	400	Excess fit (DIN 7157)	2a, 2b, 2c	
5020830	80	500	Excess fit (DIN 7157)	2a, 2b, 2c	
4021015	100	200	H7-boring	4	
4021017	100	250	H7-boring	4	
5221022	100	315	H7-boring	4	Fe-CuNi Typ J
4021022	100	315	H7-boring	4	
4021026	100	400	H7-boring	4	
4021317	130	250	H7-boring	4	
5021317	130	250	H7-boring	2a, 2b, 2c	
4021322	130	315	H7-boring	4	
5221326	130	400	H7-boring	4	Fe-CuNi Typ J
4021326	130	400	H7-boring	4	
4021615	160	200	H7-boring	4	

**Stock Range HHP Ø 10.0 mm**

Stock ID	Length [mm]	Wattage [W]	Tool Preparation	Connection Type	Thermo-couple
4030404	40	100	H7-boring	4	
4030405	40	125	H7-boring	4	
5230415	40	200	Excess fit (DIN 7157)	4	Fe-CuNi Typ J
4030415	40	200	Excess fit (DIN 7157)	4	
5030415	40	200	Excess fit (DIN 7157)	2a, 2b, 2c	
5030417	40	250	Excess fit (DIN 7157)	2a, 2b, 2c	
4030422	40	315	Excess fit (DIN 7157)	4	

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**Stock Range HHP Ø 10.0 mm**

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

**Stock Range HHP Ø 12.5 mm**

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

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**Stock Range HHP Ø 16.0 mm**

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

**Stock Range HHP Ø 20.0 mm**

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

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### Stock Range HHP Ø 1/4" (Ø 6.3 mm)

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

### Stock Range HHP Ø 3/8" (Ø 9.46 mm)

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

### Stock Range HHP Ø 1/2" (Ø 12.61 mm)

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

### Stock Range HHP Ø 5/8" (Ø 15.81 mm)

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