Cartridge Heaters

Content

HHP High Watt Density Cartridge Heaters

HHP high watt density cartridge heaters are offered from stock in ten different diameters, in a variety of lengths and wattages. There are three different variants of standard connection options to choose from. Several usual applications in numerous branches profit by this extensive stock range. The **HHP** stock cartridge heaters offer proven technology based upon our experience of many years, with high production security and short delivery times.

Starting from customers' specifications, the **HHP** high watt density cartridge heaters are distinguished with many more options. The performance characteristics, user-specific wattage distributions, integrated thermocouples, numerous connection options and an extensive accessory range make it possible to adjust the **HHP** high watt density cartridge heaters precisely to almost every individual application.

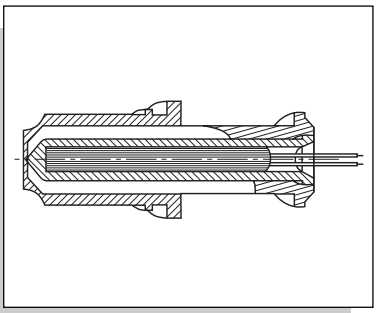
Beyond it, several **HHP** high watt density cartridge heaters are available with VDE-test (proved to VDE 0700, part 1). Thereby, **hotset** guarantees the security of international quality standards.

The dimensions of the **HHP***s* depend entirely on the individual heating task. Factors such as the medium which has to be heated, the measurement or the volume of the medium, voltage, maximum current, power consumption, switching of the heating elements, type and length of the connection, required quantity, heating up time as well as the type of the temperature measurement and controlling have to be taken into consideration. To commit the necessary values for your individual application, you will be supported by the **hotset**-team, which is specialised in the heating tasks of the plastic processing industry, the packaging industry, the mechanical engineering and the die-casting industry.

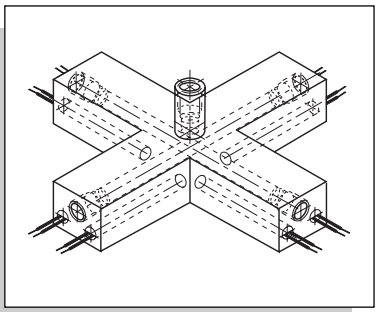
Profit by our experience and our service when solving your heating task.

hotset — a good feeling !

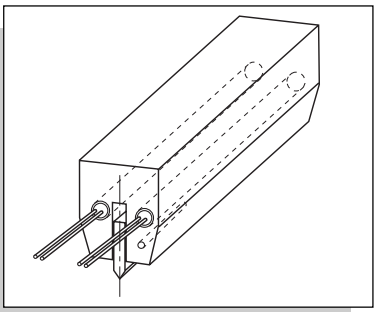
HHP
High watt density cartridge heaters



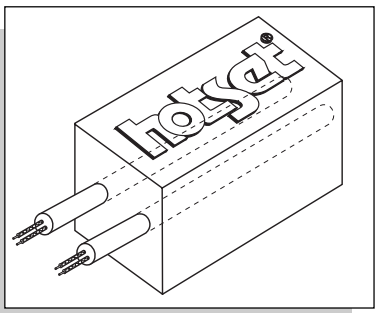
Injection moulding
HHP — Inside heating of nozzles



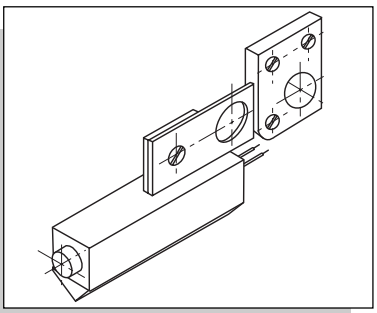
Hot runner systems
HHP — Heating of manifolds



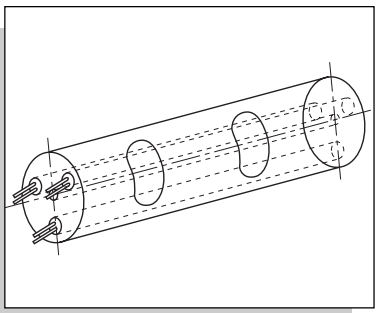
Packaging industry
HHP — Heating of welding bars



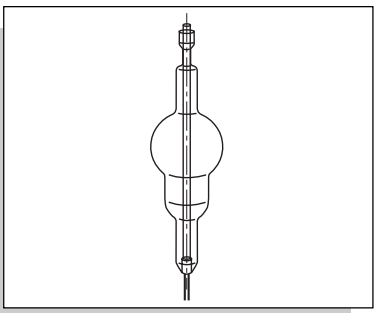
Packaging industry
HHP — Heating of hot stamps



Textile industry
HHP — Heating of cutting knives

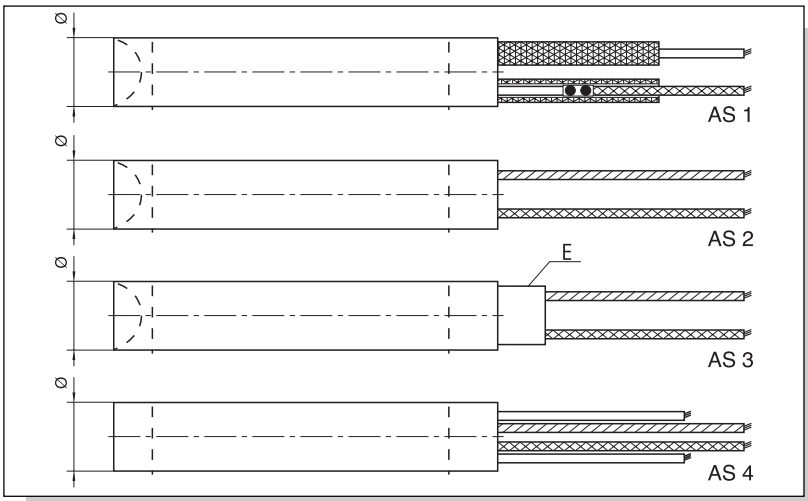


Paper industry
HHP — Heating of stamping rolls



Lab industry
HHP — Heating of analytic devices

HHP High Watt Density Cartridge Heaters



Standard details for stock cartridge heaters without thermocouple

- diameter, length, wattage and surface load acc. to stock tables (page 5-12)
- voltage: 230 V
- connection option AS (page 21-25):

  AS 1 = external crimped glass silk insulated leads
  (for art.-nr. 50... and 51...)

  AS 2 = continuous glass silk insulated leads, 1000 mm
  (for art.-nr. 40... and 41...)

  AS 3 = with ceramic head
  (E ~ 8 mm), glass silk insulated leads from the inside
  (for art.-nr. 50... and 51...)
- gas tight welded heater bottom, concave

Standard details for stock cartridge heaters with thermocouple (T)

- diameter, length, wattage and surface load acc. to stock tables (page 5-12)
- voltage: 230 V
- with integral thermocouple FeCu-Ni (up to 300 °C operating temperature), not grounded, measuring point at the bottom with wattage increase towards the measuring point
- art.-nr. 54... with wattage distribution towards the bottom
- connection option (page 21-25):

  AS 2 = continuous glass silk insulated leads, 1000 mm
  (for art.-nr. 52... and 53...)

  AS 4 = teflon insulated leads with teflon plug, 1000 mm
  (for art.-nr. 54...)
- heater bottom flat

available diameters

metric Ø (*= stock cartridge heaters acc. to tables page 5-12)

4.0	6.0	*6.5	*8.0	*10.0	11.0	12.0	*12.5	12.7	15.0	*16.0	19.0	*20.0

inch-Ø (*= stock cartridge heaters acc. to tables page 5-12)

1/8"	*1/4"	*3/8"	*1/2"	*5/8"	3/4"	1"

Options

- proved to VDE 0700, part 1 (only for connection option AS 2)
- other diameters and and lengths
- limitation of the diameter tolerance
- other voltage and wattage
- user-specific wattage distribution
- connection option and protection of the connection (page 21-25)
- connection leads and -length (not for stock heaters with art.-nr. 4...)
- heater bottom flat or concave
- with integral thermocouple
- thermocouple NiCr-Ni (up to 700 °C operating temperature)
- resistance sensor PT 100 (up to 400 °C operating temperature)
- measuring point at the bottom grounded
- measuring point can be chosen (grounded or not grounded)
- thermoleads can be glass silk insulated, teflon insulated or plain wire with ceramic beads insulation

Remarks

- Ø 1/8" (3.1 mm) only with connection option AS 1 and without thermocouple
- Ø 4.0 mm only with connection option AS 1 (other on request)
- technical data: page 27

Explanation of surface load
(stock tables page 5-12):

I = up to 10 W/cm²
II = up to 15 W/cm²
III = up to 20 W/cm²
IV = up to 25 W/cm²
V = up to 30 W/cm²
VI = more than 30 W/cm²

Please note our installation and storage advice.

Order details

type: HHP (stock measurements)

+ art.-nr.: .....
+ connection option: .....
+ connection length: .....
+ number of pieces: .....

or
type: HHP (special measurements)

+ Ø: .....
+ length: .....
+ wattage: .....
+ voltage: .....
+ thermocouple: .....
+ measuring point: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ number of pieces: .....

HHP — Stock Measurements

Nom.-Ø 6.5 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with...* AS 2	AS 1 / 3	T / AS 2
40.0	100	III	4010404	5010404	5210404
	125	IV	4010405	5010405	
	160	V	4010410	5010410	
	175	V	4010411	5010411	5210411
	200	VI	4010415	5010415	5210415
50.0	100	II	4010504	5010504	
	125	III		5010505	
	160	III	4010510	5010510	
	200	IV	4010515	5010515	5210515
	250	VI	4010517	5010517	
60.0	125	II	4010605	5010605	
	160	III	4010610	5010610	
	180	III		5010612	
	200	III	4010615	5010615	5210615
	250	IV	4010617	5010617	5210617
	315	VI		5010622	
80.0	125	I	4010805	5010805	
	160	II		5010810	
	180	II	4010812	5010812	
	200	II	4010815	5010815	
	250	III	4010817	5010817	
	280	III		5010818	
	315	IV	4010822	5010822	
	350	IV		5010823	
100.0	100	I		5011004	
	160	I	4011010	5011010	
	200	I	4011015	5011015	
	220	II		5011016	
	250	III	4011017	5011017	
	315	III		5011022	
	350	III	4011023	5011023	5211023
	400	IV		5011026	
130.0	220	I	4011316	5011316	
	350	II	4011323	5011323	
160.0	350	II		5011623	
	400	II		5011626	

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

T / AS 4 = with thermocouple, teflon insulated leads with teflon plug, 1000 mm

Nom.-Ø 8.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
40.0	100	II	4020404	5020404	5220404
	140	III		5020407	
	160	IV	4020410	5020410	
	200	V	4020415	5020415	
	250	VI	4020417	5020417	
50.0	125	II	4020505	5020505	
	160	III		5020510	
	200	III	4020515	5020515	
	250	IV	4020517	5020517	5220517
	315	VI	4020522	5020522	
60.0	100	I		5020604	
	125	I	4020605	5020605	
	140	II		5020607	
	160	II		5020610	
	200	III	4020615	5020615	
	220	III		5020616	
	250	III	4020617	5020617	5220617
	280	IV	4020618	5020618	
	315	V		5020622	
	350	V		5020623	
80.0	160	I		5020810	
	200	II	4020815	5020815	
	250	II		5020817	
	280	III		5020818	
	315	III	4020822	5020822	5220822
	350	IV		5020823	
	400	IV	4020826	5020826	
	500	V		5020830	
100.0	180	I		5021012	
	200	I	4021015	5021015	
	250	II	4021017	5021017	
	280	II		5021018	
	315	II	4021022	5021022	5221022
	400	III	4021026	5021026	
130.0	250	I	4021317	5021317	
	315	II	4021322	5021322	
	400	II	4021326	5021326	5221326
160.0	200	I	4021615	5021615	

<<

Nom.-Ø 8.0 mm, humidity resistant

					T / AS 4
50.0	130	II			5420506
65.0	170	II			5420611
85.0	195	II			5420868

<<

HHP — Stock Measurements

Nom.-Ø 10.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
40.0	100	II	4030404	5030404	
	125	II	4030405	5030405	
	160	III		5030410	
	200	IV	4030415	5030415	5230415
	250	V		5030417	
	315	VI	4030422	5030422	
50.0	100	I	4030504	5030504	
	160	II	4030510	5030510	
	200	III	4030515	5030515	
	250	III	4030517	5030517	5230517
	315	V		5030522	
	400	VI	4030526	5030526	
60.0	125	I	4030605	5030605	
	160	II	4030610	5030610	
	180	II	4030612	5030612	
	200	II		5030615	
	250	III	4030617	5030617	5230617
	315	IV	4030622	5030622	
	400	V	4030626	5030626	5230626
	500	VI	4030630	5030630	
80.0	160	I	4030810	5030810	
	200	I		5030815	
	220	II		5030816	
	250	II	4030817	5030817	5230817
	315	II	4030822	5030822	5230822
	400	III	4030826	5030826	
	500	IV	4030830	5030830	
	630	V	4030835	5030835	
100.0	125	I		5031005	
	220	I	4031016	5031016	
	250	I	4031017	5031017	
	315	II	4031022	5031022	
	350	II	4031023	5031023	5231023
	400	II	4031026	5031026	
	500	III	4031030	5031030	
	560	IV		5031031	
	630	IV	4031035	5031035	
	700	V		5031039	
	850	VI	4031044	5031044	
130.0	315	I	4031322	5031322	
	400	II	4031326	5031326	
	500	II	4031330	5031330	
	630	III	4031335	5031335	
	800	IV	4031343	5031343	

continuation >>

<< continuation: nom.-Ø 10.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
160.0	400	I	4031626	5031626	5231626
	500	II		5031630	
	575	II			5231632
	630	II	4031635	5031635	5231635
	800	III		5031643	
200.0	400	I	4032026	5032026	
	630	II	4032035	5032035	
250.0	630	I		5032535	
	800	II		5032543	
	1000	II		5032550	

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — Stock Measurements

Nom.-Ø 12.5 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
40.0	100	I		5050404	
	160	II		5050410	
	200	III		5050415	
	250	IV	4050417	5050417	
	315	V		5050422	
	400	VI	4050426	5050426	
50.0	100	I	4050504	5050504	
	150	I		5050509	
	160	II		5050510	
	200	II	4050515	5050515	
	250	III		5050517	
	315	III		5050522	
	400	V		5050526	
	500	VI		5050530	
60.0	125	I		5050605	
	160	I		5050610	
	200	II	4050615	5050615	
	250	II	4050617	5050617	
	315	III	4050622	5050622	5250622
	400	IV		5050626	5250626
	500	V		5050630	
80.0	150	I		5050809	
	200	I		5050815	
	250	I	4050817	5050817	
	315	II	4050822	5050822	
	400	II		5050826	
	500	III	4050830	5050830	
	630	IV	4050835	5050835	
	800	V	4050843	5050843	
100.0	250	I		5051017	
	315	I		5051022	
	400	II	4051026	5051026	
	500	III	4051030	5051030	5251030
	630	III	4051035	5051035	
	800	IV	4051043	5051043	
	1000	V		5051050	
130.0	400	I	4051326	5051326	
	500	II	4051330	5051330	
	630	II	4051335	5051335	
	800	III	4051343	5051343	
	1000	IV		5051350	
	1250	V	4051352	5051352	

continuation >>

<< continuation: nom.-Ø 12.5 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
160.0	500	I	4051630	5051630	
	630	II	4051635	5051635	
	800	II	4051643	5051643	5251643
	1000	III		5051650	
	1250	IV		5051652	
180.0	670	II	4051836	5051836	
	800	II		5051843	
	1000	III	4051850	5051850	
200.0	630	I	4052035	5052035	
	800	II	4052043	5052043	
	900	II	4052047	5052047	
	1500	IV		5052054	
250.0	800	I	4052543	5052543	
	900	I	4052547	5052547	
300.0	600	I		5053034	
	1500	II		5053054	
	2000	III		5053061	

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — Stock Measurements

Nom.-Ø 16.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
40.0	100	I	4060404	5060404	
	160	II		5060410	
	200	II		5060415	
	250	III	4060417	5060417	
	315	IV		5060422	
	400	V	4060426	5060426	
	500	VI		5060430	
50.0	160	I	4060510	5060510	
	200	II		5060515	
	250	II	4060517	5060517	
	315	III		5060522	
	400	IV	4060526	5060526	
	500	V		5060530	
	630	VI		5060535	
60.0	160	I		5060610	
	200	I	4060615	5060615	
	250	II		5060617	
	315	II	4060622	5060622	
	400	III	4060626	5060626	
	500	IV		5060630	
	630	V	4060635	5060635	
80.0	280	I		5060818	
	315	I		5060822	
	400	II	4060826	5060826	
	500	II	4060830	5060830	
	630	III	4060835	5060835	
	800	IV	4060843	5060843	
	850	V		5060844	
	1000	V		5060850	
100.0	350	I		5061023	
	400	I	4061026	5061026	
	500	II	4061030	5061030	
	630	III	4061035	5061035	
	800	III	4061043	5061043	
	1000	IV	4061050	5061050	
	1250	V	4061052	5061052	
130.0	400	I		5061326	
	500	I	4061330	5061330	
	630	II	4061335	5061335	
	700	II	4061339	5061339	
	800	II	4061343	5061343	
	1000	III	4061347	5061347	
	1100	III		5061351	
	1400	V		5061353	
	1800	VI		5061356	

continuation >>

<< continuation: nom.-Ø 16.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
160.0	630	I	4061635	5061635	
	800	II	4061643	5061643	
	900	II		5061647	
	1000	II	4061650	5061650	
	1250	III	4061652	5061652	
	1600	IV		5061655	
	1800	V		5061656	
180.0	850	II	4061844	5061844	
	1000	II		5061850	
	1250	III	4061852	5061852	
	1800	IV	4061856	5061856	
200.0	500	I	4062030	5062030	
	800	I	4062043	5062043	
	1000	II	4062050	5062050	
	1250	II	4062052	5062052	
	2000	IV	4062061	5062061	
250.0	1000	I	4062550	5062550	
	1250	II	4062552	5062552	
	1600	II	4062555	5062555	
300.0	1000	I	4063050	5063050	
	1250	I	4063052	5063052	
	1500	II	4063054	5063054	
	1800	II	4063056	5063056	

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — Stock Measurements

Nom.-Ø 20.0 mm

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
50.0	200	I		5070515	
	250	II		5070517	
	315	II		5070522	
	400	III		5070526	
60.0	200	I		5070615	
	315	II	4070622	5070622	
	500	III		5070630	
	630	IV		5070635	
	800	V	4070643	5070643	
80.0	315	I		5070822	
	350	I	4070823	5070823	
	500	II		5070830	
	800	III	4070843	5070843	
	1000	IV	4070850	5070850	
	1250	V		5070852	
100.0	400	I		5071026	
	450	I		5071027	
	800	II	4071043	5071043	
	1000	III	4071050	5071050	
	1250	IV		5071052	
	1400	V		5071053	
	1600	V	4071055	5071055	
	1800	VI		5071056	
130.0	630	I	4071335	5071335	
	900	II	4071347	5071347	
	1000	II		5071350	
	1250	III	4071352	5071352	
	1400	IV	4071353	5071353	
	1800	V		5071356	
	2200	VI		5071362	
160.0	800	I	4071643	5071643	
	1000	II	4071650	5071650	
	1100	II		5071651	
	1250	II	4071652	5071652	
	1800	IV	4071656	5071656	
	2200	IV		5071662	
200.0	1000	I	4072050	5072050	
	1600	II	4072055	5072055	
	2500	IV		5072063	
250.0	1250	I	4072552	5072552	
	2000	II	4072561	5072561	
300.0	1600	I	4073055	5073055	
	2200	II	4073062	5073062	
350.0	2500	II		5073563	
	1200	I		5073564	

<<

Nom.-Ø 1/4" (Actual-Ø 6.3 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
1 1/2" (38.1)	100	III		5110304	5310304
	125	IV	4110305	5110305	
	160	V		5110310	
	175	VI	4110311	5110311	5310311
	200	VI	4110315	5110315	
2" (50.8)	100	II		5110504	
	125	II	4110505	5110505	5310505
	150	III	4110509	5110509	
	160	III		5110510	
	200	IV	4110515	5110515	5310515
	250	VI	4110517	5110517	
2 1/2" (63.5)	125	II	4110605	5110605	
	200	III		5110615	
	250	V	4110617	5110617	5310617
	315	V		5110622	
3" (76.2)	200	III	4110715	5110715	5310715
	250	IV		5110717	
	300	IV	4110721	5110721	5310721
3 1/4" (82.5)	125	I	4110805	5110805	
	180	II		5110812	
	280	III		5110818	
	350	IV	4110823	5110823	
4" (101.6)	160	I	4111010	5111010	
	220	II	4111016	5111016	
	250	II		5111017	
	350	III	4111023	5111023	5311023

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — Stock Measurements

Nom.-Ø 3/8" (Actual-Ø 9.46 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
1 1/2" (38.1)	100	II		5130304	
	125	II		5130305	
	175	IV	4130311	5130311	
	200	IV	4130315	5130315	5330315
	250	V	4130317	5130317	
	315	VI		5130322	
2" (50.8)	100	I	4130504	5130504	
	125	II		5130505	
	160	II	4130510	5130510	
	250	IV	4130517	5130517	5330517
	300	IV		5130520	
	315	V	4130522	5130522	
	400	VI	4130526	5130526	
	500	VI		5130530	
2 1/4" (57.2)	300	IV		5130521	
2 1/2" (63.5)	125	I		5130605	
	180	II	4130612	5130612	
	250	III	4130617	5130617	5330617
	315	III		5130622	5330622
	350	IV		5130623	
	400	V	4130626	5130626	
	500	VI	4130630	5130630	
3" (76.2)	100	I		5130704	
	150	I		5130709	
	250	II	4130717	5130717	5330717
	300	III		5130721	
	400	IV	4130726	5130726	5330726
	500	V	4130730	5130730	
	600	VI	4130734	5130734	
3 1/4" (82.5)	160	I	4130810	5130810	
	250	II		5130817	
	400	III	4130826	5130826	
	500	IV		5130830	
	630	V		5130835	
4" (101.6)	150	I		5131009	
	220	I		5131016	
	250	I	4131017	5131017	
	300	II	4131021	5131021	
	350	II	4131023	5131023	5331023
	500	III	4131030	5131030	
	560	IV		5131031	
	600	IV		5131034	
	700	V		5131039	
	850	VI		5131044	

continuation >>

<< continuation: nom.-Ø 3/8" (actual-Ø 9.46 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
5" (127.0)	300	I	4131221	5131221	
	500	III	4131230	5131230	
	750	IV		5131240	
5 1/4" (133.3)	315	I		5131322	
	400	II	4131326	5131326	
	500	II	4131330	5131330	
	800	IV		5131343	
6" (152.4)	400	I		5131526	
	500	II	4131530	5131530	5331530
	575	II			5331532
	600	II		5131534	
	750	III	4131540	5131540	
6 1/2" (165.1)	400	I	4131626	5131626	
	630	II	4131635	5131635	

<<

Nom.-Ø 3/8" (Actual-Ø 9.52 mm)

AS 4, humidity resistant

length in mm	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* T / AS 4
68.0	175	II	5430611
85.0	220	II	5430816
112.0	285	II	5431118
137.0	355	II	5431323

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

T / AS 4 = with thermocouple, teflon insulated leads with teflon plug, 1000 mm

HHP — Stock Measurements

Nom.-Ø 1/2" (Actual-Ø 12.61 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
1 1/2" (38.1)	100	I		5150304	
	125	II		5150305	
	160	II	4150310	5150310	
	200	III	4150315	5150315	
	250	IV	4150317	5150317	
2" (50.8)	100	I	4150504	5150504	
	200	II	4150515	5150515	
	250	III		5150517	
	300	III	4150521	5150521	
	315	III	4150522	5150522	
	400	IV	4150526	5150526	
	500	VI	4150530	5150530	
2 1/4" (57.2)	300	III			5350521
2 1/2" (63.5)	125	I		5150605	
	150	I	4150609	5150609	
	200	I	4150615	5150615	
	250	II	4150617	5150617	
	300	II		5150621	5350621
	315	II	4150622	5150622	
	400	III	4150626	5150626	
	500	IV	4150630	5150630	
3" (76.2)	150	I		5150709	
	200	I	4150715	5150715	
	300	II	4150721	5150721	
	400	III	4150726	5150726	
	500	III	4150730	5150730	
	600	IV	4150734	5150734	5350734
	750	V	4150740	5150740	
3 1/4" (82.5)	200	I	4150815	5150815	
	315	II	4150822	5150822	
	500	III	4150830	5150830	
	630	IV	4150835	5150835	
	800	V	4150843	5150843	
4" (101.6)	250	I	4151017	5151017	
	400	II	4151026	5151026	
	500	II	4151030	5151030	5351030
	630	III	4151035	5151035	
	750	IV	4151040	5151040	
	800	V	4151043	5151043	
	1000	V	4151050	5151050	

continuation >>

<< continuation: nom.-Ø 1/2" (actual-Ø 12.61 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
5" (127.0)	250	I		5151217	
	400	I	4151226	5151226	
	500	II	4151230	5151230	
	750	III	4151240	5151240	
	900	IV	4151247	5151247	
5 1/4" (133.3)	400	I	4151326	5151326	
	630	II	4151335	5151335	
	1000	IV		5151350	
	1250	V		5151352	
6" (152.4)	500	I	4151530	5151530	
	600	II	4151534	5151534	
	750	II	4151540	5151540	5351540
	1000	III	4151550	5151550	
6 1/2" (165.1)	500	I	4151630	5151630	
	800	II	4151643	5151643	
	1250	IV	4151652	5151652	
7" (177.8)	600	I	4151734	5151734	
8" (203.2)	630	I	4152035	5152035	
	900	II	4152047	5152047	
	1000	II	4152050	5152050	
	1500	III	4152054	5152054	
	2000	V		5152061	
10" (254.0)	1500	III	4152554	5152554	
12" (304.8)	1500	II	4153054	5153054	
	2000	III		5153061	

<<

*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — Stock Measurements

Nom.-Ø 5/8" (Actual-Ø 15.81 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
1 1/2" (38.1)	100	I		5160304	
	250	III	4160317	5160317	
	315	IV	4160322	5160322	
	400	VI		5160326	
2" (50.8)	160	I	4160510	5160510	
	250	II		5160517	
	300	III		5160521	
	400	IV	4160526	5160526	
	500	V	4160530	5160530	
	630	VI		5160535	
	750	VI		5160540	
2 1/2" (63.5)	160	I		5160610	
	250	I	4160617	5160617	
	400	III	4160626	5160626	
	500	III		5160630	
	630	IV		5160635	
3" (76.2)	300	I		5160721	
	400	II		5160726	
	500	III	4160730	5160730	
	600	III		5160734	
	750	IV	4160740	5160740	
	1000	VI	4160750	5160750	
3 1/4" (82.5)	280	I		5160818	
	400	II	4160826	5160826	
	630	III	4160835	5160835	
	800	IV		5160843	
	1000	V		5160850	
4" (101.6)	350	I		5161023	
	450	II		5161027	
	500	II	4161030	5161030	
	600	II	4161034	5161034	
	750	III	4161040	5161040	
	800	III		5161043	
	850	III		5161044	
	1000	IV		5161050	
	1250	V		5161052	
5" (127.0)	500	I	4161230	5161230	
	750	II	4161240	5161240	
	1000	III	4161250	5161250	
5 1/4" (133.3)	500	I	4161330	5161330	
	700	II		5161339	
	1100	III	4161351	5161351	
	1400	IV		5161353	
	1800	VI		5161356	

continuation >>

<< continuation: nom.-Ø 5/8" (actual-Ø 15.81 mm)

length in inch (mm)	wattage in watt at 230 V	surface load (see page 4)	article number HHP with ...* AS 2	AS 1 / 3	T / AS 2
6" (152.4)	1000	III	4161550	5161550	
6 1/2" (165.1)	630	I		5161635	
	900	II		5161647	
	1600	IV	4161655	5161655	
	1800	IV		5161656	
7" (177.8)	1000	II	4161750	5161750	
8" (203.2)	500	I		5162030	
	800	I		5162043	
	1000	II	4162050	5162050	
	1250	II		5162052	
	1500	III	4162054	5162054	
	2000	IV	4162061	5162061	
10" (254.0)	1000	I	4162550	5162550	
	1500	II	4162554	5162554	
	1600	II		5162555	
	2000	III		5162561	
12" (304.8)	1250	I	4163052	5163052	
	1800	II	4163056	5163056	

<<

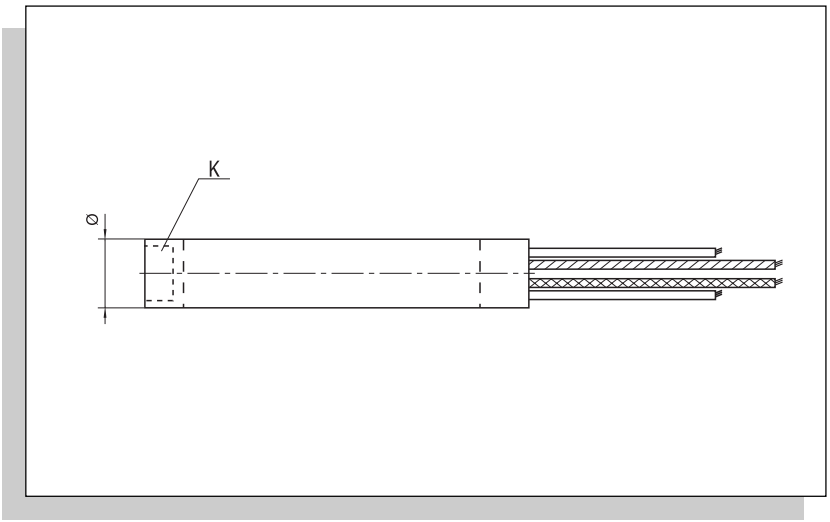
*** Explanations (see also page 4)**

AS 2 = continuous glass silk insulated leads, 1000 mm

AS 1 = external crimped glass silk insulated leads
AS 3 = with ceramic head, glass silk insulated leads from the inside

T / AS 2 = with thermocouple, continuous glass silk insulated leads, 1000 mm

HHP — With Heat Conductive Copper Bottom



Standard details

- high watt density cartridge heater with heat conductive copper bottom (K)
- copper bottom flat
- diameter:
  4.0, 6.0, 6.3, 6.5, 8.0, 9.46, 10.0, 11.0, 12.0, 12.5, 12.7, 15.81, 16.0, 19.0, 19.05 or 20.0
- with integral thermocouple, not grounded
- wattage increase towards the bottom

Options

- diameters vary from the standard details on request
- length
- voltage and wattage
- connection option, connection leads and length (page 21-25)
- thermocouple FeCu-Ni or NiCr-Ni
- thermocouple grounded only when copper bottom flat
- with copper tip (not for Ø 4.0 mm)
- with stainless steel tip (not for Ø 4.0 mm)
- thermocouple not grounded when copper tip
- user-specific wattage distribution

Remarks

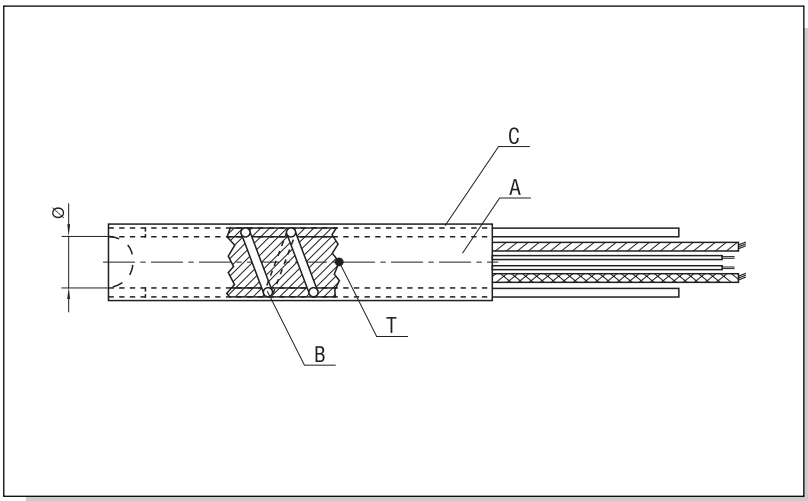
- technical data: page 27
- heater bottom not gas tight
- for a better heat transfer, the bottom of the blind hole should correspond to the bottom of the cartridge heater

Order details

type: HHP

+ with heat conductive copper bottom
+ bottom (flat / tip): .....
+ Ø: .....
+ bottom: .....
+ wattage: .....
+ voltage: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ thermocouple: ..... ,
  grounded or not grounded .....
+ number of pieces: .....

HHP — With External Cooling



Standard details

- high watt density cartridge heater (A) with external cooling (B)
- cooling suitable for liquid and gaseous mediums
- with protective tube (C)
- with integral thermocouple (T), not grounded, at the inner heating element

Options

- diameter
- length
- voltage and wattage
- connection option, connection leads and length (page 21-25)
- thermocouple FeCu-Ni or NiCr-Ni
- thermocouple grounded
- user-specific wattage distribution

Remarks

- technical data: page 27

Order details

type: HHP

+ with external cooling
+ outside-Ø: ..... (incl. cooling and protective tube)
+ length: .....
+ wattage: .....
+ voltage: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ thermocouple: ..... , grounded or not grounded .....
+ connections for cooling: .....
+ number of pieces: .....

Spiral Cartridge Heaters

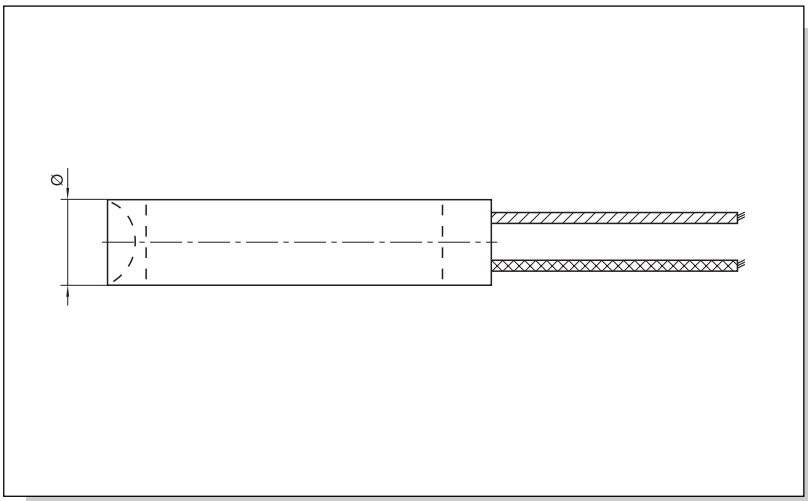
Compressed or non compressed spiral cartridge heaters can be used everywhere, where a surface load of 10 W/cm² and 4 W/cm² is sufficient, in consideration of the technical specifications.

In those cases, the spiral cartridge heaters make a cost-effective heating possible due to their simple construction combined with a long durability.

When using low safety voltages, the current can be returned via the heater sheath (earth return). This is possible for spiral cartridge heaters, so that working with one connection lead is possible. Alternatively, the connection of the spiral cartridge heaters can be mounted at both ends.

Spiral cartridge heaters are typically used when heating sealing-tools in the packaging industry, the cutting of plastic foils or textiles (especially with the cartridge heaters with integral cutting blade) or the heating of galvanic baths, medical or analytic devices.

LHT — Compressed Spiral Cartridge Heater



Standard details for stock cartridge heaters

- compressed spiral cartridge heater
- diameter, length and wattage acc. to stock table (below)
- voltage: 230 V
- surface load: group I up to 10 W/cm²
- connection option (page 21-25):
  AS 2 = continuous glass silk insulated leads, 250 mm
- gas tight welded heater bottom

Options

- diameters vary from the stock range: 6.5, 8.0, 9.5, 11.0, 12.0, 12.7, 15.8 or 19.0 (other on request)
  diameter 4.5 and 5.0 with connection at both ends resp. return leading via sheath
- lengths vary from the stock range
- other voltage and wattage
- with return leading via heater sheath up to max. 24 V low safety voltage
- protection class III when using a low safety voltage transformer
- connection option, connection leads and lengths and protection of the connection (page 21-25)
- with connection at both ends

Remark

- technical data: page 27

Order details

type: LHT
+ art.-nr. (if stock): .....
+ connection length: .....
+ number of pieces: .....

or
type: LHT
+ Ø: .....
+ length: .....
+ wattage: .....
+ voltage: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ number of pieces: .....

nom.-Ø in mm	length in mm	wattage*	art.-nr.
10.0	100	100	6031004
		125	6031005
		160	6031010
	130	200	6031315
		250	6031317
	160	250	6031617
		315	6031622
	200	300	6032021
		350	6032023
	250	200	6032515

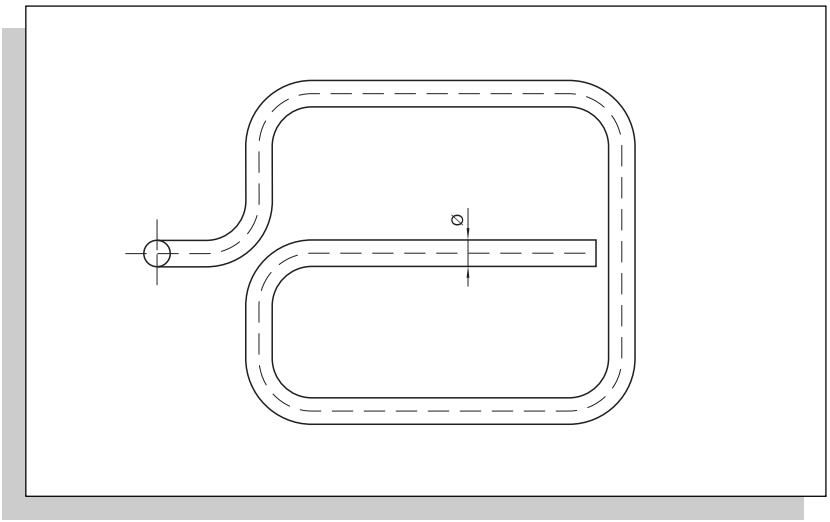
continuation next column >>

<< continuation from previous column

nom.-Ø in mm	length in mm	wattage*	art.-nr.
12.5	100	160	6051010
		200	6051015
	130	220	6051316
		315	6051322
	160	315	6051622
		400	6051626
	200	400	6052026
		500	6052030
	250	500	6052530
		600	6052534
	300	600	6053034
		750	6053040
16.0	100	200	6061015
		280	6061018
	130	280	6061318
		350	6061323
	250	700	6062539
	300	700	6063039
20.0	100	250	6071017
		350	6073523
	300	1000	6073050
		1250	6073052

* wattage in watt at 230 V

Compressed Spiral Cartridge Heaters — Bendable



Standard details

- compressed spiral cartridge heater, bendable
- diameter 6.5 mm or 8.0 mm
- minimum bending radius R 15.0 mm
- connection option (page 21):
  AS 1 = external crimped glass silk insulated leads

Options

- other diameters on request
- length (max. 3000 mm)
- smaller bending radius on request
- voltage and wattage
- connection option and protection of the connection (page 21-25)
- connection leads and length

Remark

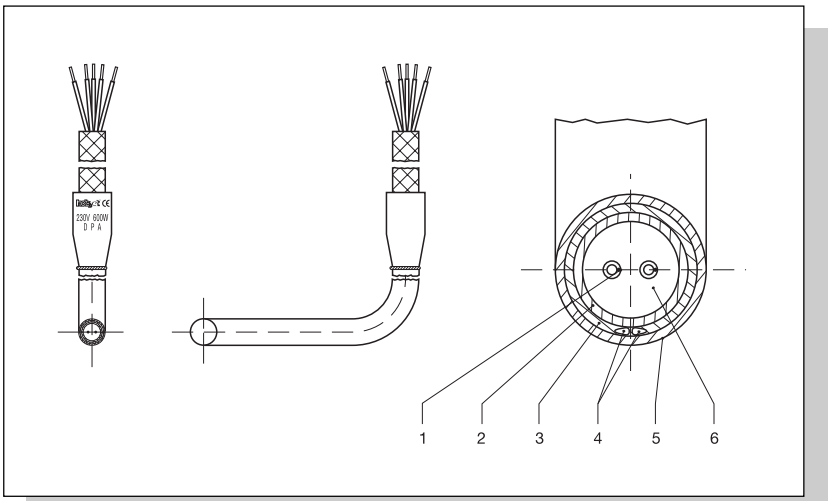
- technical data: page 27

Order details

type: compressed spiral cartridge heater

+ bendable
+ Ø: .....
+ length: .....
+ wattage: .....
+ voltage: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ number of pieces: .....

Compressed Spiral Cartridge Heater — With Multi-Layer Construction



Standard details

- compressed spiral cartridge heater with multi-layer construction for high heat conductivity up to the unheated zone
- diameter 8.0 mm
- with integral thermocouple, grounded
- position of the thermocouple at the most external protective tube for precise temperature controlling of the heated medium
- DBPA
- connection option (page 21):

  AS 1 = external crimped glass silk insulated leads

Options

- other diameter on request
- length (max. 750 mm, other on request)
- delivery straight or bended acc. to customer's request
- voltage and wattage
- thermocouple FeCu-Ni or NiCr-Ni
- connection option and protection of the connection (page 21-25)
- connection leads and length

Remark

- technical data: page 27

Order details

type: compressed spiral cartridge heater

+ with multi-layer construction
+ Ø: .....
+ length: .....
+ bending form: .....
+ wattage: .....
+ voltage: .....
+ thermocouple: .....
+ nr. of the connection option: .....
+ connection leads: .....
+ connection length: .....
+ number of pieces: .....

Construction

(acc. to drawing)

1 heat conductor spiral

2 1. layer (heater sheath): high heat conductivity

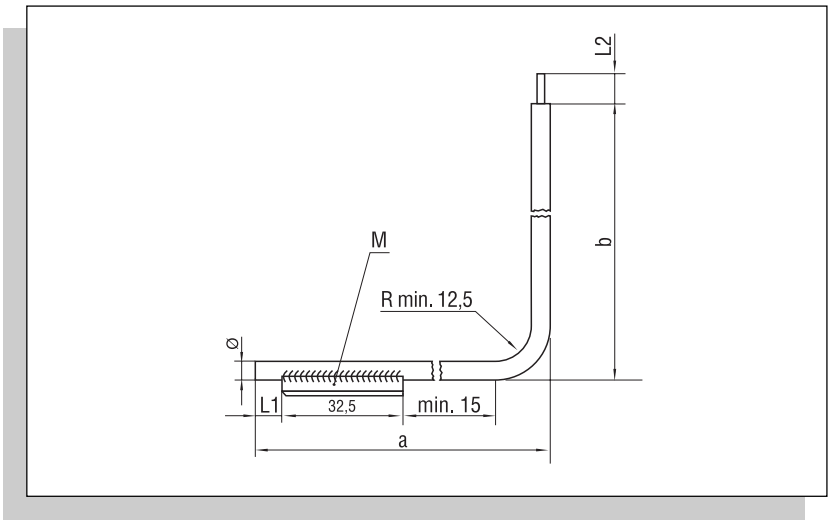
3 2. layer: high heat conductivity in the heated zone

4 supply for thermocouple

5 3. layer: high heat conductivity and good shaping possibilities

6 compressed magnesiumoxyde

Cartridge Heater With Integral Cutting Blade



Standard details

- compressed spiral cartridge heater with integral cutting blade for cutting foils and plastic textile
- cutting knife (M) out of wear-resistant hard metal alloy, not sharpened
- diameter cartridge heater 5.0 mm
- lengths a and b, L1 and L2 variable
- minimum bending radius R 12.5
- delivery bended or straight
- 12 V low safety voltage
- return leading via heater sheath
- inflexible connection wire

Options

- diameter cartridge heater 6.5 mm
- other radius
- other voltage (max. 24 V low safety voltage)

Remarks

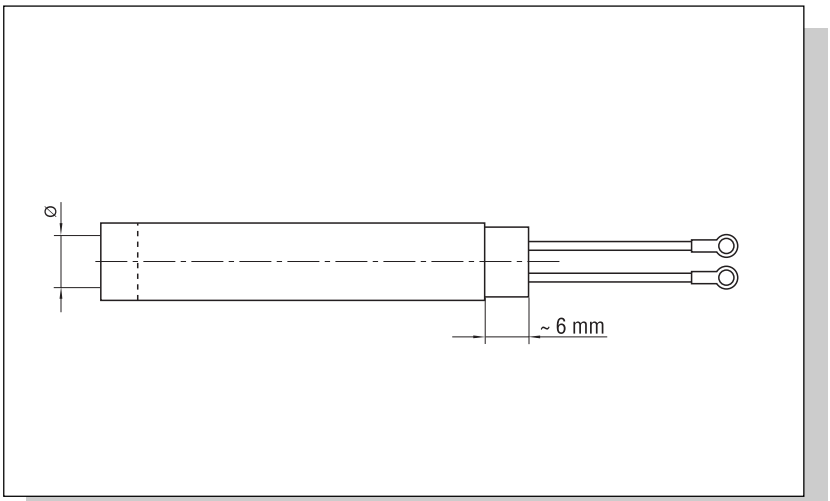
- technical data: page 27
- the cutting knife (M) of the cartridge heater will be delivered pre-formed but not sharpened
- the stated nominal voltage is not to be exceeded
- protection class III when using a low safety voltage transformer

Order details

type: cartridge heater with integral cutting blade

+ Ø: .....
+ length a: .....
+ length b: .....
+ length L1: .....
+ length L2: .....
+ wattage: .....
+ voltage: .....
+ number of pieces: .....

NP — Non Compressed Spiral Cartridge Heater



Standard details

- non-compressed spiral cartridge heater
- surface load max. 4 W/cm²
- diameter:
  8.0, 9.5, 10.0, 11.0, 11.3, 12.0, 12.5, 12.7, 14.0, 15.0, 15.8, 16.0, 16.5, 17.0, 17.5, 18.0, 19.0, 19.5, 20.0, 21.0, 23.0, 24.0, 25.0, 31.5, 32.0 or 40.0
- length from 65 mm
- connection option:
  pure nickel leads, glass silk insulated and silicon impregnated, 200 mm
- beaded heater bottom

Options

- diameters and lengths vary from standard details on request
- user-specific wattage distribution
- low voltage 12 V or 24 V
- other connection length
- sheath material: steel, steel nickel-plated, brass or stainless steel (depending on diameter)
- heater bottom soldered or welded

Remark

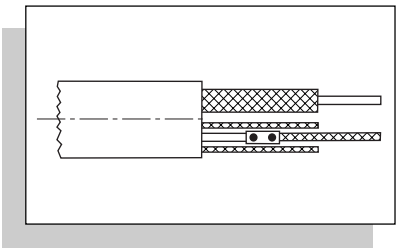
- technical data: page 27

Order details

type: NP

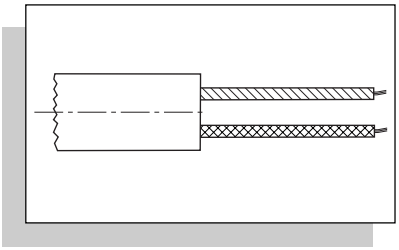
+ Ø: .....
+ length: .....
+ wattage: .....
+ voltage: .....
+ connection length: .....
+ number of pieces: .....

Connection Options (AS)



AS-type 1 — Standard

- external crimped
- glass silk insulated leads (up to 320 °C)

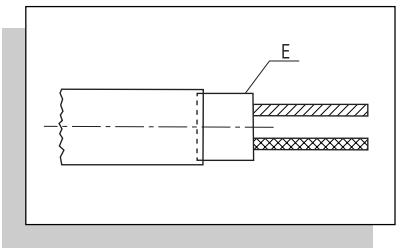


AS-type 2 — Standard

- continuous
- glass silk insulated leads (up to 320 °C)
- options not for stock cartridge heaters

Options

- silicon insulated leads (up to 180 °C)
- teflon insulated leads (up to 260 °C)
- kapton insulated leads (up to 220 °C)
- plain wire with ceramic beads insulation (> 250 °C, danger of breaking)
- extremely high heat resistant leads (up to 600 °C)

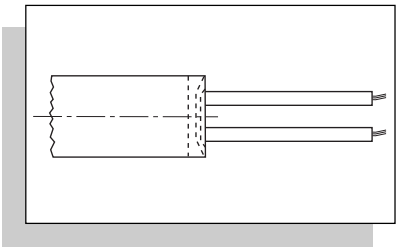


AS-type 3 — Standard

- with ceramic head (E) ~ 8 mm
- glass silk insulated leads (up to 320 °C) from the inside

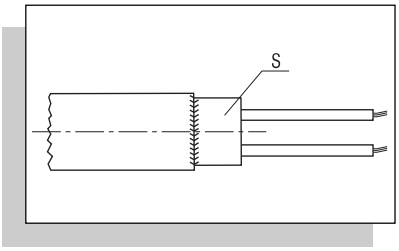
Options

- silicon insulated leads (up to 180 °C)
- teflon insulated leads (up to 260 °C)
- kapton insulated leads (up to 220 °C)
- plain wire with ceramic beads insulation (> 250 °C, danger of breaking)
- extremely high heat resistant leads (up to 600 °C)



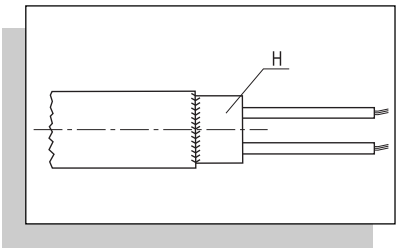
AS-type 4 — Standard

- teflon insulated leads with teflon plug
- humidity resistant up to max. 260 °C in the head zone



AS-type 5 — Standard

- silicon insulated leads with tubing sealed in by silicon (S) ~ 6 mm
- humidity resistant up to max. 180 °C in the head zone



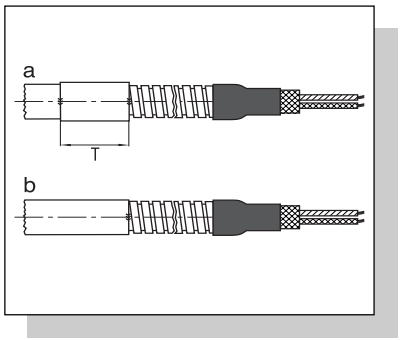
AS-type 6 — Standard

- teflon insulated leads with tubing sealed in by epoxy resin (H) ~ 6 mm
- humidity resistant up to max. 250 °C in the head zone

Options

- silicon insulated leads

Connection Options (AS)

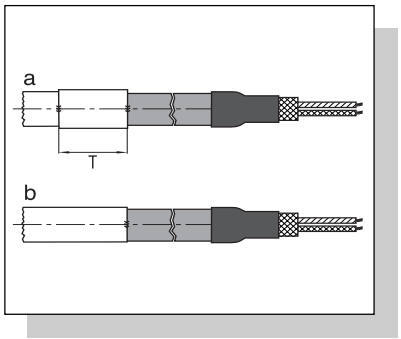


AS-type 7 — Standard

- flexible metal sleeving (MGS)
- zinc-plated steel or stainless steel at Ø 6.5 mm and 1/4"
- a) fastened with piece of tubing (T) ~ 40 mm (> heater diameter)
- mechanical protection

Options

- b) MGS from the inside (< heater diameter)
- shortened piece of tubing, min. 25 mm
- MGS plastic covered

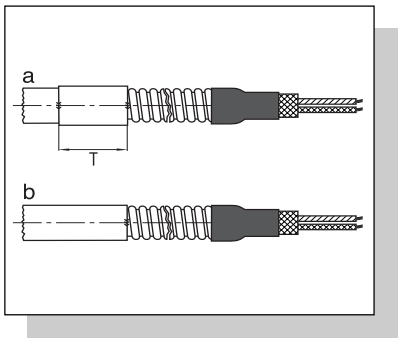


AS-type 8 — Standard

- braided metal sleeving (DHG)
- zinc-plated steel
- a) fastened with piece of tubing (T) ~ 40 mm (> heater diameter)
- mechanical protection

Options

- b) DHG from the inside (< heater diameter) from Ø 3/8" resp. 10 mm
- shortened piece of tubing, min. 25 mm

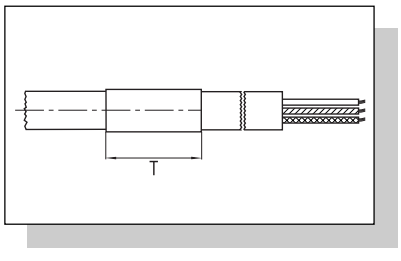


AS-type 9 — Standard

- stainless steel conduit sleeving (EWS)
- a) fastened with piece of tubing (T) ~ 40 mm (> heater diameter)
- gas and water tight (not at cable entry)

Options

- b) EWS from the inside (< heater diameter) from Ø 10 mm
- shortened piece of tubing, min. 25 mm

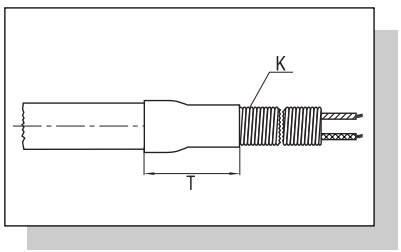


AS-type 10 — Standard

- multi-stranded silicon cable
- fastened with piece of tubing (T) ~ 40 mm (> heater diameter)
- pressed or embedded

Options

- cable from the inside (< heater diameter)
- humidity resistant up to max. 180 °C embedded



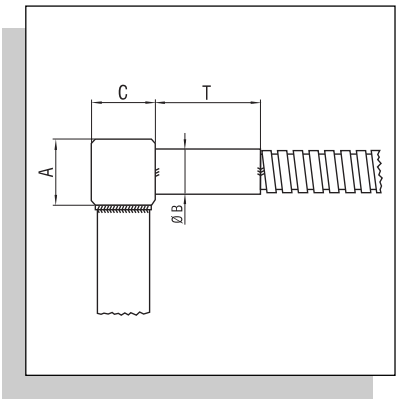
AS-type 11 — Standard

- protective spring (K)
- fastened with piece of tubing (T) ~ 40 mm (> heater diameter)
- spring length ~ 100 mm tightly coiled, extensible

Options

- protective spring from the inside (< heater diameter) from Ø 8 mm
- shortened piece of tubing, min. 25 mm

Connection Options (AS)



AS-type 12 — Standard

- angular block (stainless steel) with piece of tubing (T) ~ 40 mm

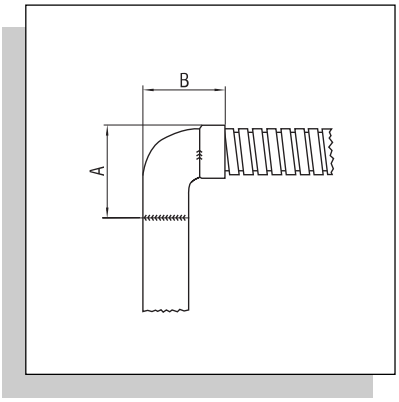
Options

- with MGS
- with DHG (only combined with piece of tubing)
- with EWS (from Ø 10 mm)
- with GLS-sleeving (only combined with piece of tubing)
- without piece of tubing
- humidity resistant up to max. 180 °C embedded

AS-type 12a

- with EWS gas tight welded all around to IP 54 (from Ø 10 mm)

heater-Ø in mm / inch		
	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



AS-type 13 — Standard

- tubular bend (steel casting)
- for heater-Ø 1/4" and 6.5 mm a tubular bend with double sleeve is used (sleeve > heater diameter)

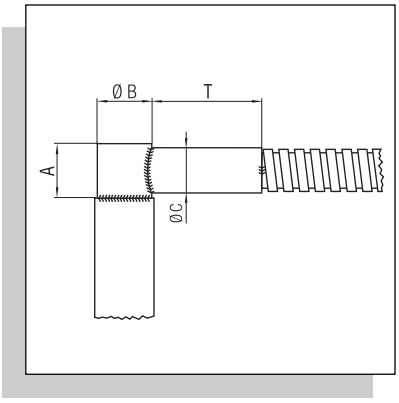
Options

- with piece of tubing (T) ~ 40 mm
- with MGS or DHG
- with EWS (from Ø 10 mm)
- with GLS-sleeving
- humidity resistant up to max. 180 °C embedded

AS-type 13a

- with EWS gas tight welded all around IP 54 (from Ø 10 mm)

heater-Ø in mm / inch		
	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



AS-type 14 — Standard

- right angled exit (from Ø 8 mm stainless)

Options

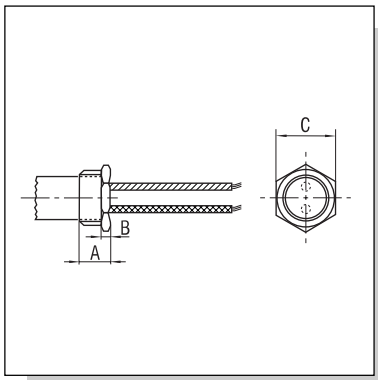
- with piece of tubing (T) ~ 40 mm
- with MGS
- with DHG (only combined with piece of tubing)
- with EWS (from Ø 10 mm)
- with GLS-sleeving (only combined with piece of tubing)
- humidity resistant up to max. 180 °C embedded

AS-type 14a

- with EWS gas tight welded all around to IP 54 (from Ø 10 mm)

heater-Ø in mm / inch			
	A	Ø B	Ø 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

Connection Options (AS)



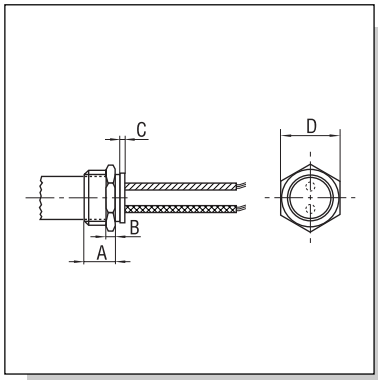
AS-type 15 — Standard

- screw-in nipple (stainless steel)

Remarks

- the unheated zone of the heater should be of the same length as the thread of the tool, otherwise overheating might occur
- please state immersion depth when ordering

	heater-Ø in mm / inch									
	6.5	8.0	10.0	12.5	16.0	20.0	1/4"	3/8"	1/2"	5/8"
A	10.0	10.0	12.0	12.0	12.0	14.0	10.0	12.0	12.0	12.0
B	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
C	12	14	17	19	24	27	12	17	19	24
thread	M 10 x 1.0	M 12 x 1.0	M 14 x 1.5	M 16 x 1.5	M 20 x 1.5	M 26 x 1.5	G 1/8"	G 1/4"	G 3/8"	G 1/2"



AS-type 16 — Standard

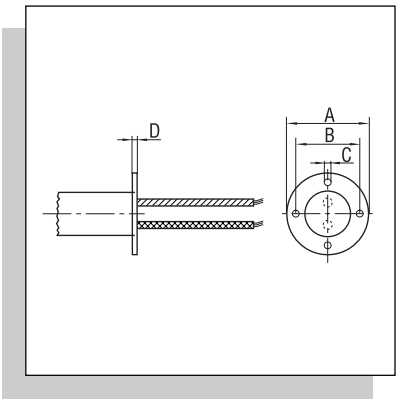
- replacement aid (stainless steel)
- with pull-out ring and loose re-usable screw-in nipple

Remark

- the unheated zone of the heater should be of the same length as the thread of the tool, otherwise overheating might occur

	heater-Ø in mm / inch									
	6.5	8.0	10.0	12.5	16.0	20.0	1/4"	3/8"	1/2"	5/8"
A	10.0	10.0	12.0	12.0	12.0	14.0	10.0	12.0	12.0	12.0
B	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
C	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D	12	14	17	19	24	27	12	17	19	24
thread	M 10 x 1.0	M 12 x 1.0	M 14 x 1.5	M 16 x 1.5	M 20 x 1.5	M 26 x 1.5	G 1/8"	G 1/4"	G 3/8"	G 1/2"

Connection Options (AS)



AS-type 17 — Standard

- flange (stainless steel)

Remarks

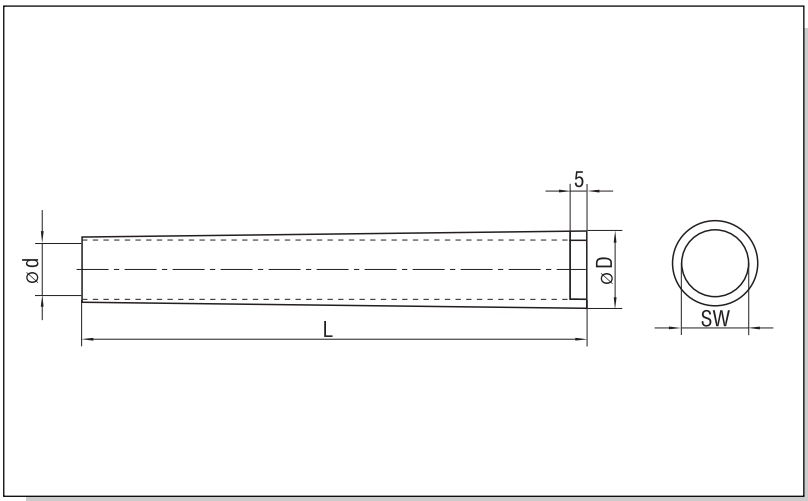
- fastening anywhere within the unheated zone
- please state immersion depth when ordering

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

Further options and remarks to the connection options

- earth wire
- combinations of various connection options
- bending radius glass silk insulated leads minimum fivefold leads diameter
- bending radius of high heat resistant leads minimum fivefold leads diameter
- further protection kinds to IP-standard on request

Conical Heater Insert



The conical heater insert ensures a perfect fit of the cartridge heaters and a heat transfer with minimal heat loss. Even the unheated heater ends are adjusted thermically.

The bore hole for the heater insert is made with the corresponding drills and conical reamers (see our catalogue "**hotset** Service and accessories").

The heater insert can be loosened by the corresponding fork-key or by quick external heating of the brass sheath. The heater insert is re-usable.

Standard details

- for heater diameters and length acc. to stock table (below)
- measures (drawing):

  L = length of the heater insert
  D = diameter at connection end
  d = diameter at bottom
  SW = key width
- sheath material brass
- perfect fit due to standard cone 1:50
- temperature resistant up to 650 °C

Remark

- corresponding drills and conical reamers are available as accessories (see our catalogue "**hotset** Service and Accessories")

Order details

conical heater insert

+ art.-nr.: .....
+ for heater-Ø: .....
+ for heater length: .....
+ number of pieces: .....

accessories

+ drill type: .....
  number of pieces: .....
+ conical reamer type: .....
  number of pieces: .....

for heater-Ø in mm	for heater length in mm	L	Ø D	Ø d	SW	art.-nr.	drill type	reamer type
6.5	80	85	10.7	9.0	8	9510856	1	6
6.5	100	105	11.1	9.0	8	9511056	1	6
6.5	130	135	11.6	9.0	9	9511356	1	6
6.5	160	165	12.3	9.0	9	9511656	1	6
10.0	100	105	14.6	12.5	13	9531057	2	7
10.0	130	135	15.2	12.5	13	9531357	2	7
10.0	160	165	15.7	12.5	13	9531657	2	7
10.0	200	205	16.5	12.5	15	9532058	3	8
10.0	250	255	17.6	12.5	15	9532558	3	8
12.5	100	105	17.1	15.0	15	9551059	4	9
12.5	130	135	17.6	15.0	15	9551359	4	9
12.5	160	165	18.3	15.0	15	9561659	4	9
12.5	200	205	19.1	15.0	17	9552060	5	10
12.5	250	255	20.0	15.0	17	9552560	5	10

Technical Data*

	HHP	LHT	bendable spiral heater	multi-layer spiral heater	heater with int. cut. blade	NP
heater sheath						
+ CrNi-steel	+	+	—	+	—	+
+ Ni-tube	—	—	+	+	—	—
+ steel, steel nickel-plated, brass	—	—	—	—	—	+
+ Incoloy	—	—	—	—	+	—
insulation material						
+ highly compressed MgO	+	+	+	+	+	—
+ MgO	—	—	—	—	—	+
conductor material						
+ NiCr 8020	+	+	+	+	+	+
max. temperature						
+ at the heater sheath	750 °C	750 °C	700 °C	700 °C	950 °C	400 °C
high voltage stability (cold) at heater-Ø < 6.0 mm (straight)						
+ at nominal voltage ≤ 24 V	500 V-AC	500 V-AC	—	—	—	—
+ at nominal voltage > 24 V	800 V-AC	800 V-AC	—	—	—	—
high voltage stability (cold) at heater-Ø ≥ 6.0 mm (straight)						
+ at nominal voltage ≤ 24 V	500 V-AC	500 V-AC	—	on request	—	500 V-AC
+ at nominal voltage > 24 V	1500 V-AC	1500 V-AC	1250 V-AC	1250 V-AC	—	1500 V-AC
min. insulation resistance						
+ cold at 500 V-DC	≥ 5 MΩ	≥ 5 MΩ	≥ 5 MΩ	≥ 5 MΩ	—	≥ 5 MΩ
max. leakage current						
+ cold at 253 V-AC	≤ 0.5 mA	≤ 0.5 mA	≤ 0.5 mA	≤ 0.5 mA	—	≤ 0.5 mA
length tolerance						
+ relative	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %	± 1.5 %
+ absolute (minimum)	± 1 mm	± 1 mm	± 1 mm	on request	± 1 mm	± 1 mm
wattage tolerance						
+ cold	± 10%	± 10 %	± 10 %	± 10 %	± 10 %	± 10 %
diameter tolerance in mm						
+ metric (in mm)	-0.02 - -0.06	± 0.1 mm	± 0.2 mm	-0.3 - +0.1 mm	± 0.1 mm	on request
+ inch (in mm)	± 0.02 mm					
max. connection voltage						
+ at heater-Ø ≤ 4.0 mm	240 V	—	—	—	—	—
+ at heater-Ø > 4.0 mm	440 V	440 V	440 V	260 V	24 V	440 V
max. sheath surface load	on request	10 W/cm²	10 W/cm²	15 W/cm²	15 W/cm²	4 W/cm²
length of unheated zone						
+ head zone	4 - 20 mm	4 - 20 mm	16 mm	110 mm	12 mm	12 mm
+ bottom zone	4 - 9 mm	4 - 9 mm	6 mm	≥ 7 mm	3 mm	3 mm
max. total length						
+ heater-Ø < 6.0 mm	350 mm	1500 mm	1500 mm	—	on request	on request
+ heater-Ø ≥ 6.0 mm (polished)	1500 mm	1500 mm	1500 mm	—	on request	on request
+ heater-Ø ≥ 6.0 mm (unpolished)	3000 mm	3000 mm	3000 mm	550 mm	on request	on request

* standard details — other technical data on request

hotset — in Germany and 30 other countries all over the world:

- Argentina
- Australia
- Austria
- Belgium
- Brazil
- Czech Republic
- Denmark
- Finland
- France
- Great Britain
- Greece
- Hongkong
- India
- Israel
- Italy
- Japan
- Korea
- Netherlands
- New Zealand
- Philippines
- Poland
- Portugal
- Singapore
- South Africa
- Spain
- Sweden
- Switzerland
- Taiwan
- Turkey
- USA

HHPgb. 1 / 1.000 / 09/98 S — Irrtum und technische Änderungen vorbehalten

Heizpatronen und Zubehör GmbH • PB 1860 • D-58468 Lüdenscheid • phone +49 / 2351 / 4302-0
fax +49 / 2351 / 430225 • eMail Sales@hotset.de • http://www.hotset.de