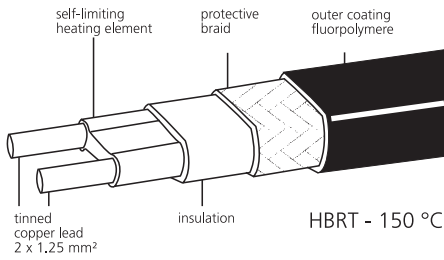


## HBRT - 150 °C

### Self-Limiting Heating-Tape

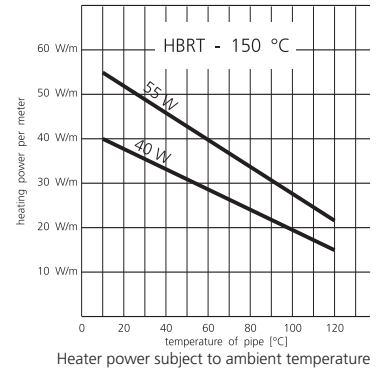
This self-limiting heating tape is designed for industrial use. It is applied in areas of process heating or temperature preservation of pipe sections and containers at an operating temperature of 150°C.



#### Technical Data

nominal temperature: 150 °C  
 nominal voltage: 230 V~  
 min. bending radius: 30 mm  
 protective braid: copper, tinned  
 humidity-proof

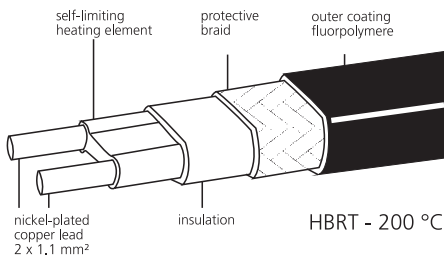
order no.	Watt / m	reference temp.	breadth	thickness
02 15 23	40	10 °C	dimensions on request	
02 15 26	55	10 °C	request	



## HBRT - 200 °C

### Self-Limiting Heating-Tape

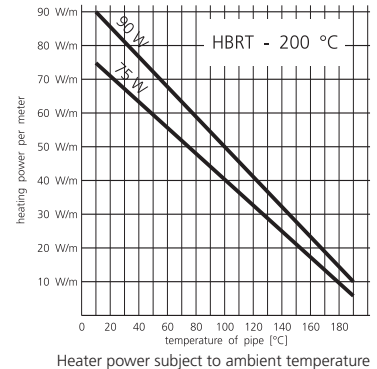
Self-limiting heating tape for industrial use. Suitable for process heating or temperature preservation of pipe sections and containers, for operating temperatures up to 200°C.



#### Technical Data

nominal temperature: 200 °C  
 nominal voltage: 230 V~  
 min. bending radius: 30 mm  
 protective braid: copper, tinned  
 humidity-proof

order no.	Watt / m	reference temp.	breadth	thickness
02 15 43	75	10 °C	dimensions on request	
02 15 46	90	10 °C	request	



picture: finishing set HBRT 120

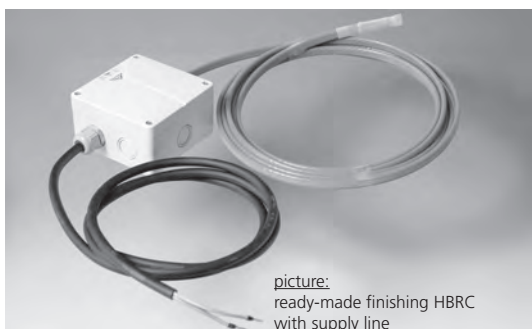
## Accessories for Self-Limiting Heating-Tapes

### Finishing Set HBRC/HBRT

Consisting of heat shrinkable hose cuts, a flat-sealing cable screwing for the housing inlet and small parts for the electrical connection.

order no.	Type	Heating cable bushing
02 16 06	finishing set HBRC	M 25
02 16 05	finishing set HBRT 120	M 25
02 16 60	finishing set HBRT 150	
02 16 62	finishing set HBRT 200	

Please consider to order additional heating tape length for the finishing and for the distance from the component to be heated to the connection box!



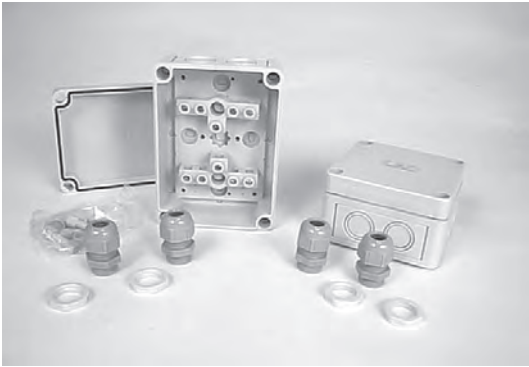
picture: ready-made finishing HBRC with supply line

### Ready-Made Finishing

Factory finishing with the above-mentioned finishing sets. The heating tape will be connected via cable screwings with a robust rubber hose line in a high-quality, glass-fibre-reinforced plastic housing.

order no.	Type	Housing dimension	Type connection line
02 17 02	for HBRC	110 x 110 x 67 mm	H 07 RN-F 3 G 1.5
02 17 01	for HBRT 120	110 x 110 x 67 mm	H 07 RN-F 3 G 1.5
02 17 05	for HBRT 150	110 x 110 x 67 mm	H 07 RN-F 3 G 1.5
02 17 08	for HBRT 200	110 x 110 x 67 mm	H 07 RN-F 3 G 1.5

# Heating Tapes



## VTK 40 / VTK 50

### Distribution Boxes (Wall-Mounted Models)

Two cable glands (M 20) with lock nuts incl.

#### Technical Data

	VTK 40	VTK 50
terminals:	5-pole clamped conn., 4 x 4 mm <sup>2</sup>	2 x 5-pole clamped conn., 4 x 2.5 mm <sup>2</sup>
leadthrough:	6 x cable glands (M 20)	10 x cable glands (M 20)
dimensions:	93 x 93 x 55 mm	94 x 130 x 57 mm
material:	polycarbonat, amplified by glass fiber	polycarbonat, amplified by glass fiber
prot. category:	IP 65	IP 65
safety class:	II	II

#### order no.

02 20 01	VTK 40
02 20 02	VTK 50



## TR 1208

### Antifreeze Regulator for Wall Mounting

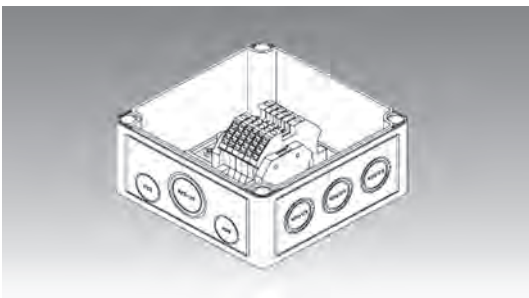
Temperature regulator for application with self-limiting heating tapes. Switching function depends on ambient temperature and will be triggered electromechanically through the liquid expansion within the measuring system.

#### Technical Data

set point range:	0 ... 40 °C	switching hysteresis:	± 0.75 K
nominal voltage:	230 V~	protection category:	IP 54 (DIN 40 050)
max. switching current:	16 A / 250V	sensor system:	membrane measuring
contact:	1 change-over contact	dimensions:	145 x 112 x 68 mm
ambient temperature:	-20 ... 50 °C	weight:	approx. 350 g

#### order no.

06 12 20	
06 12 21	accessory: protective grating for the capillary against mechanical damage



## VTK 70

### Connection Box

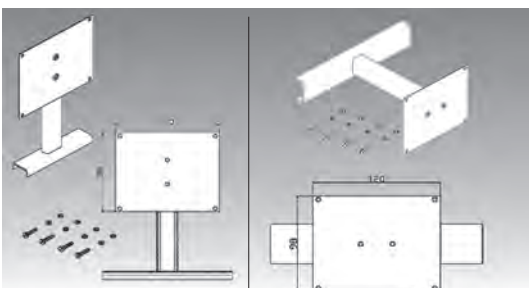
For the set-up of an electrical heating tape feed-in and connection. Up to four connections can be linked via the internal terminals.

#### Technical Data

protection category:	IP 65 (DIN 40 050)
dimensions:	139 x 130 x 75 mm
material:	polycarbonate, amplified by glass fiber
knock-outs:	9 x M20 / M25, 2 x M20, 1 x M25 / M32
temperature resistance:	-35 °C ... +75 °C
terminals:	Conta-Clip RK 2.5-4 on DIN mounting rail
grounded conductor clamp:	Conta-Clip SL 4 on DIN mounting rail
conductor cross-section:	4 mm <sup>2</sup>

#### order no.

02 20 80	1 x M25 cable screwing for connection line included
----------	---



pic.: retaining foot VTH 80

pic.: retaining foot VTH 150

## VTH

### Retaining Foots for Connection Box VTK 70

Made of stainless steel (1.4301), mounting material included, without fastening clamps

#### order no.

02 20 85	Retaining foots, small version, for distance plate – pipe: ca. 80 mm, weight: ca. 0.2 kg
02 20 86	Retaining foots for distance plate – pipe: ca. 150 mm, weight: ca. 0.65 kg

## VTB

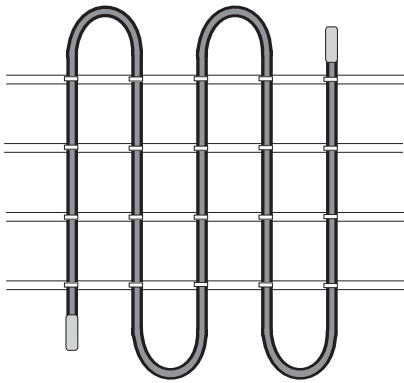
### Fastening Clamps for Retaining Foots of Connection Box

Material: Stainless steel

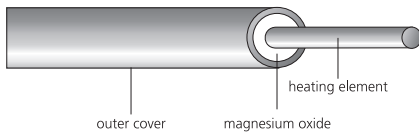
#### order no.

02 20 87	VTB 50, for tube outer Ø 27 - 51 mm
02 20 88	VTB 120, for tube outer Ø 51 - 127 mm
02 20 89	VTB 300, for tube outer Ø 52 - 311 mm





high malleability due to small bending radii



## HSMV - 600 °C

### Heating Cable with Special Steel Cover

As a result of their stainless steel mantle (1.4541), heating cables series HSMV can be operated also in very corrosive areas. Due to their low resistance values, even long pipe sections are no problem.

Mineral-insulated heating cables are produced with a seamless stainless-steel outside mantle. Inside, the heating wire is bedded in magnesium oxide to guarantee insulation towards the outside mantle.

A great variety of resistance values allows the set-up of a huge number of heating cable lengths and operating voltages.

A connection sleeve (pic. 1), which is soldered or welded, forms the transition to the cold end that is also equipped with a metal mantle. This homogenous heating construction goes to the connection box or into the switching cabinet. For the lead-through at the box, the heating cables are equipped with suitable metal screwings M 20 x 1.5 (pic. 2).

Mineral-insulated heating cables are applied if generally high demands are made on the heating element. They are suitable for the heating of pipes, containers, tanks, armatures and many more. Mineral-insulated heating cables can also be integrated into the bottom or into wall constructions made of concrete or similar materials.

They are suitable for antifreeze as well as for the preservation or generation of process heat between 400 °C and 600 °C. If Inconel 2.4816 is used as mantle material, even higher temperatures will be possible. Their main characteristics are:

- high mechanical strength
- waterproof composition
- fire-proof
- high heater power of several hundred Watt per meter heating wire
- operating temperatures up to 600°C and higher
- small bending radius that allows a good processing with simple tools
- good corrosion resistance

With tension bands, the heating cables can be directly mounted at the parts to be heated or you can produce pre-cut metal parts or perforated plates where the heating cables are distributed in meandering shape before the mounting.

Please let us have a description of your planned application. We will then put together the suitable heating cable in an offer for you.

heating cable				cold end type-dependent D = 5 - 6 mm	cold end connection, laser-welded
order no..	Ω / m	outer Ø (mm)	min.bending rad.	order no.	order no.
02 82 99	10.00	3.2	> 15 mm	02 88 03	02 84 99
02 82 63	6.30	3.2	> 15 mm	02 88 03	02 84 63
02 82 40	4.00	3.2	> 15 mm	02 88 03	02 84 40
02 82 25	2.50	3.6	> 18 mm	02 88 03	02 84 25
02 82 16	1.60	3.8	> 18 mm	02 88 03	02 84 16
02 82 10	1.00	4.1	> 20 mm	02 88 03	02 84 10
02 82 06	0.63	4.5	> 20 mm	02 88 03	02 84 06
02 82 04	0.40	5.0	> 30 mm	02 88 03	02 84 04
02 82 02	0.25	5.6	> 30 mm	02 88 04	02 84 02
02 82 01	0.16	6.5	> 35 mm	02 88 04	02 88 01

Following a selection of configured heating cables with standardized lengths and power rates. Other lengths and power rates on request.

#### Technical Data:

nominal voltage: 230 V~  
 connection cable: 0.5 m  
 protection category: comparable with IP 67  
 safety class: I  
 nominal temperature: 600 °C  
 cable screwing: M 20 x 1.5 (at the end of the connection cable)  
 material: 1.4541

#### HSMV preconfigured (power: 100 W/m):

prder no.	power [W]	length [m]	Ø [mm]	min. bending radius [mm]
02 80 05	720	7.2	3.2	> 15
02 80 10	910	9.1	3.2	> 15
02 80 15	1150	11.5	3.2	> 15
02 80 20	1450	14.5	3.6	> 18
02 80 25	1800	18.0	3.8	> 18
02 80 30	2300	23.0	4.1	> 20
02 80 35	2900	29.0	4.5	> 20

#### HSMV preconfigured (power: 200 W/m):

prder no.	power [W]	length [m]	Ø [mm]	min. bending radius [mm]
02 80 60	1020	5.1	3.2	> 15
02 80 65	1300	6.5	3.2	> 15
02 80 70	1540	7.7	3.2	> 15
02 80 75	2060	10.3	3.6	> 18
02 80 80	2540	12.7	3.8	> 18
02 80 85	3100	15.5	4.1	> 20

# Heating Tapes



## HBS/HB - 450 °C / 350 °C

### HBS - Smooth Heating Tape with Protective Braid

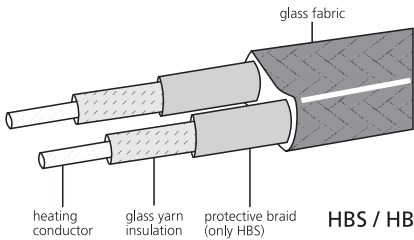
This versatile heating tape comes up to high requirements regarding heater power and operating temperature in a dry work environment. It adapts perfectly, is flexible and consists of a multi-layer glass-yarn insulation and a metallic protective fabric round the heating conductor.

### HB - Heating Tape without Protective Braid for Small Radii

Due to the fact that it has no protective braid, the HB heating tape, which is otherwise identical to the HBS, is particularly flexible and allows very small winding radii.

Technical Data

nominal voltage:	230 V~	not humidity-proof
connection cable:	0.5 m	with connection box (see p. 15)
thickness:	5.5 mm	
breadth:	30 mm	
min. bending radius:	HB: 6 mm, HBS: 10	only HBS: protective braid: nickel



### HBS

order no.	meter	watt	nominal temp.
02 03 01	0.5	100	450 °C
02 03 02	1.0	250	450 °C
02 03 03	1.5	350	450 °C
02 03 04	2.0	500	450 °C
02 03 05	2.5	600	450 °C
02 03 06	3.0	750	450 °C
02 03 11	4.0	900	450 °C
02 03 07	5.0	1250	450 °C
02 03 08	7.0	1550	450 °C
02 03 09	10.0	2000	350 °C
02 03 10	15.0	3000	350 °C

### HB

order no.	meter	watt	nominal temp.
02 02 01	0.5	100	450 °C
02 02 02	1.0	250	450 °C
02 02 03	1.5	350	450 °C
02 02 04	2.0	500	450 °C
02 02 05	2.5	600	450 °C
02 02 06	3.0	750	450 °C
02 02 11	4.0	900	450 °C
02 02 07	5.0	1250	450 °C
02 02 10	6.0	1250	450 °C
02 02 08	7.0	1550	450 °C
02 02 09	10.0	2000	350 °C



## HBQ - 900 °C

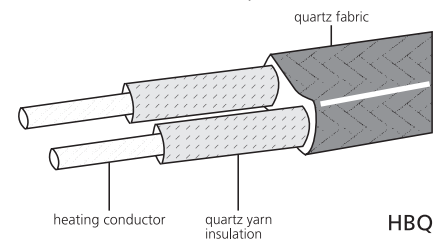
### High Temperature Heating Tape without Protective Braid

The quartz-fiber insulation of this extremely smooth heating tape allows the usage at very high temperatures in dry environments.

Technical Data

nominal temperature:	900 °C
nominal voltage:	230 V~
connection cable:	0.5 m
thickness:	5 mm
breadth:	30 mm
min. bending radius:	10 mm

no protective braid  
not humidity-proof  
with connection box (see p. 15)



order no.	meter	watt
02 04 01	0.5	170
02 04 02	1.0	350
02 04 03	1.5	500
02 04 04	2.0	700
02 04 05	2.5	850
02 04 06	3.0	1000



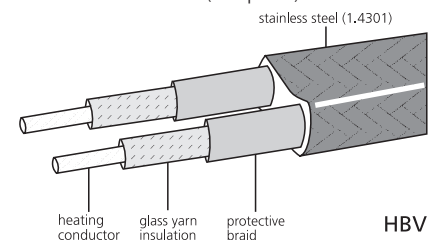
## HBV - 450 °C

### Heating Tape with Outer Stainless Steel Protective Braid

Heating tape with multiple electrical glass-yarn insulation and earthed protective braid. This braid is made of 1.4301 (V2A) stainless steel, which minimizes the release of fibres.

Technical Data

nominal temperature:	450 °C	thickness:	5 mm
nominal voltage:	230 V~	breadth:	30 mm
connection cable:	0.5 m	protective braid:	nickel
min. bending radius:	10 mm	not humidity-proof	
		with connection box (see p. 15)	



order no.	meter	watt
02 03 31	0,5	100
02 03 32	1,0	250
02 03 33	1,5	350
02 03 34	2,0	500
02 03 35	2,5	600
02 03 36	3,0	750
02 03 37	5,0	1250
02 03 38	7,0	1550





## HBSI - 200 °C

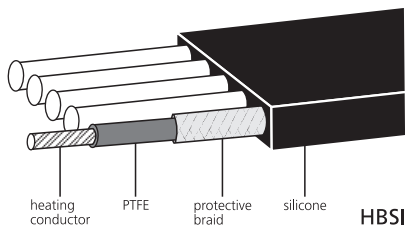
### Robust Silicone Heating Tape with High Power Output

This flexible and hard-wearing heating tape has a good heat transfer to surfaces and a high power output per meter. As they are very versatile, all tapes of this series, even shorter ones, are earthed.

Each heating conductor has an individual earthing and a silicone coating protects them against environmental influence and mechanical damage. Since they are insulated with PTFE, HBSI heating tapes are also resistant against chemical attacks. The heat resistance of PTFE allows a safe usage at temperatures up to 250 °C, even if the silicone coating was damaged by accidental excess temperature or mechanical stress.

Technical Data

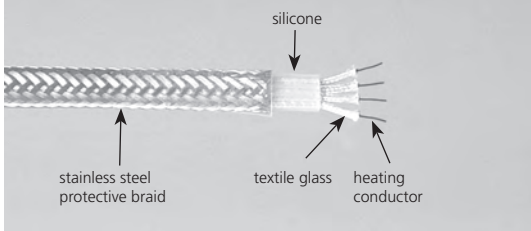
nominal temperature:	200 °C	protective braid:	copper, nickel-plated
nominal voltage:	230 V~	humidity-proof	
connection cable:	1.5 m	with connection box (see p. 15)	
min. bending radius:	20 mm		
thickness:	5 mm		
breadth:	24 mm		



HBSI

order no.	meter	watt	order no.	meter	watt
02 06 01	0.8	125	02 06 08	4.0	400
02 06 02	1.0	100	02 06 09	5.0	500
02 06 03	1.5	70	02 06 10	6.0	600
02 06 04	1.7	235	02 06 11	10.0	1000
02 06 05	2.0	200	02 06 12	12.0	1200
02 06 06	2.8	320	02 06 13	15.0	970
02 06 07	3.0	300	02 06 14	20.0	2000

Lay-Out



## HBSIE - 200 °C

### Slim Silicone Heating Tape

This silicone heating tape combines the advantages of HBSI type with a compact design, a high flexibility and a small minimum bending radius.

Technical Data

nominal temperature:	200 °C	protective braid:	stainless steel
nominal voltage:	230 V~	Operat.insul. heat.conductor:	silicone
connection cable:	1.5 m	humidity-proof	
min. bending radius:	12 mm	with connection box (see p. 15)	
thickness:	6.4 mm		
breadth:	12 mm		

order no.	meter	watt	order no.	meter	watt
02 06 82	2.0	165	02 06 86	6.0	480
02 06 83	3.0	240	02 06 89	9.0	710
02 06 84	4.0	400			



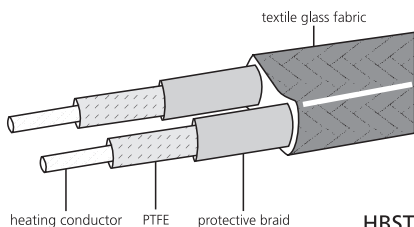
## HBST - 250 °C

### Heating Tape for the Conservation of Heat and for Antifreeze

This reasonably priced, flexible heating tape is especially suitable for the conservation of heat and for antifreeze. HBST has a heat-resistant PTFE insulation, an additional protective conductor and a robust coating made of textile glass fabric.

Technical Data

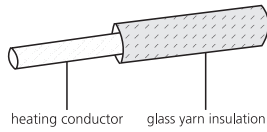
nominal temperature:	250 °C	protective braid:	copper, nickel-plated
nominal voltage:	230 V~	humidity-proof	
connection cable:	1.0 m	with connection box (see p. 15)	
min. bending radius:	15 mm		
thickness:	5 mm		
breadth:	25 mm		



HBST

order no.	meter	watt	order no.	meter	watt
02 07 08	0.55	28	02 07 10	12.0	570
02 07 01	1.0	50	02 07 07	14.0	690
02 07 02	2.0	100	02 07 11	17.0	820
02 07 03	3.0	150	02 07 12	20.0	950
02 07 04	4.0	200	02 07 13	25.0	1200
02 07 05	5.0	250	02 07 14	29.0	1400
02 07 09	7.0	350	02 07 15	36.0	1800
02 07 06	10.0	480			

# Heating Tapes



## HS - 450 °C

### Heating Cable with Very Small Winding Radius

The extreme flexibility of this glass-yarn-insulated heating cable allows a usage even in places where very small winding radii are required.

Technical Data

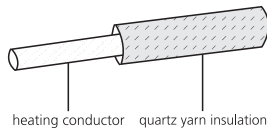
nominal temperature: 450 °C  
 nominal voltage: 230 V~  
 connection cable: 1.5 m  
 min. bending radius: 4 mm  
 diameter: 3 - 4 mm

no protective braid  
 not humidity-proof

order no.	meter	watt
02 01 01	0,6	75
02 01 02	1,0	100
02 01 03	2,0	250
02 01 04	3,0	350
02 01 05	4,0	500
02 01 06	5,0	600
02 01 07	6,0	800
02 01 08	8,0	900
02 01 10	10,0	1250
02 01 12	15,0	1500



Other lengths and outputs are deliverable at short notice.



## HSQ - 900 °C

### Flexible Heating Cable with High Temperature Resistance

HSQ heating cables are insulated with quartz yarn and have high power rates per meter. Therefore they can be used at high temperatures and when small winding radii are required.

Technical Data

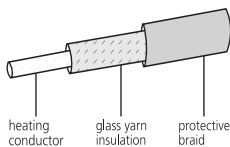
nominal temperature: 900 °C  
 nominal voltage: 230 V~  
 connection cable: 1.5 m  
 min. bending radius: 10 mm  
 diameter: 3.5 - 4.5 mm

no protective braid  
 not humidity-proof

order no.	meter	watt
02 10 01	1.0	170
02 10 02	2.1	370
02 10 03	3.0	500
02 10 04	4.0	700
02 10 05	5.0	850
02 10 06	6.0	1000



Other lengths and outputs are deliverable at short notice.



## HSS - 450 °C

### Heating Cable with Additional Protective Braid

This flexible heating conductor is similar to the HS heating cable but has an additional protective braid.

Technical Data

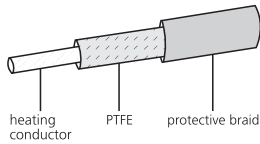
nominal temperature: 450 °C  
 nominal voltage: 230 V~  
 connection cable: 1.5 m  
 min. bending radius: 6 mm  
 diameter: 3.5 - 4.5 mm

protective braid: nickel  
 not humidity-proof

order no.	meter	watt
02 09 01	0.6	75
02 09 02	1.0	100
02 09 03	2.0	250
02 09 04	3.0	350
02 09 05	4.0	500
02 09 06	5.0	600
02 09 07	6.0	800
02 09 10	10.0	1250



Other lengths and outputs are deliverable at short notice.



## HST - 250 °C

### Humidity-Proof Heating Cable with Small Diameter

This heating cable has a protective braid and withstands high voltages. Due to its small diameter, it can be used to heat narrow hoses and pipes but, after an appropriate installation, it also can be used to heat surfaces.

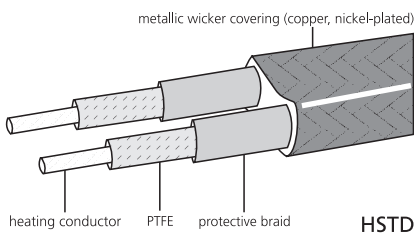
Technical Data

nominal temperature: 250 °C  
 nominal voltage: 230 V~  
 connection cable: 1.5 m PTFE cable  
 min. bending radius: 10 mm  
 diameter: 2.5 - 3.5 mm

protective braid: copper, nickel-plated  
 humidity-proof

order no.	meter	watt	order no.	meter	watt
02 08 21	1.1	30	02 08 12	14.0	350
02 08 22	2.0	50	02 08 07	20.0	480
02 08 23	4.0	100	02 08 25	24.0	570
02 08 85	5.0	120	02 08 26	28.0	690
02 08 01	5.5	125	02 08 08	30.0	635
02 08 02	6.0	150	02 08 27	34.0	820
02 08 03	8.0	200	02 08 28	40.0	950
02 08 04	9.0	180	02 08 29	50.0	1200
02 08 24	10.0	250	02 08 30	58.0	1400
02 08 05	12.0	250	02 08 31	72.0	1800

Other lengths and outputs are deliverable at short notice.



## HSTD - 250 °C

### Slim Heating Tape with High Specific Heat Output

This slim heating tape consists of two PTFE insulated heating conductors with earthed protection braid, which have a common coating made of metal cloth.

Technical Data

nominal temperature: 250 °C  
 nominal voltage: 230 V~  
 connection: 1 m with conductor end sleeves  
 min. bending radius: 10 mm  
 thickness: 4 mm  
 breadth: 8-9 mm

protective braid: copper, nickel-plated  
 humidity-proof

order no.	meter	watt
02 52 01	0.5	30
02 52 02	1.0	50
02 52 03	2.0	100
02 52 04	3.0	150
02 52 05	4.0	200
02 52 06	5.0	250
02 52 07	10.0	480

Other lengths and outputs are deliverable at short notice.



## VTH

### Connection Box for Heating Tapes

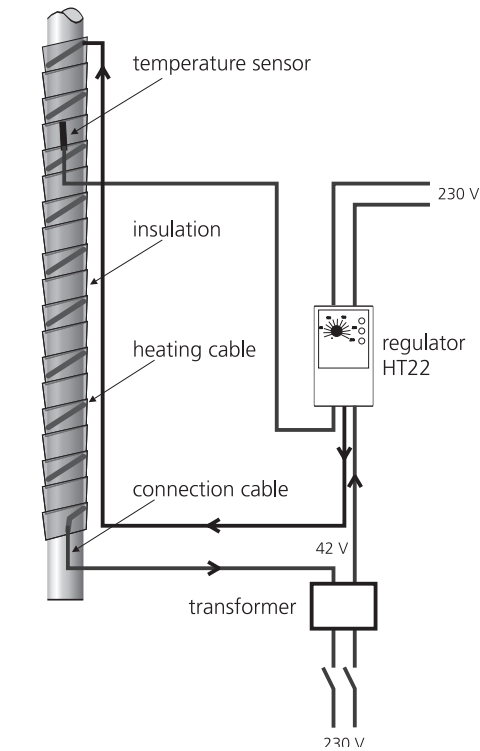
The clamps and cable glands of this connection box are specially designed for the HBS, HB, HBQ, HBV, HBSI, HBSIE and HBST heating tapes and are automatically delivered with each of them. However, the connection box can also be used for HS, HSQ, HSS, HST and HSTD heating cables and can thus be ordered separately. According to the VDE rules, there is a ground connection for the protective earthing of conductive objects and surfaces

Technical Data.

protection category: IP 65  
 material: ABS  
 dimensions (L x W x H) in mm: 65 x 55 x 35

order no. \_\_\_\_\_  
 02 20 30

# Heating Tapes



example: 42 V heating connected to a temperature regulator

## Heating Cables for 42 V

For safety or technical reasons, it is often necessary to use a low-voltage electric heating. The 42 V heating cables listed below are similar to the 230 V types and have thus excellent insulating properties.

### HST 42 - 250 °C

#### Humidity-Proof Heating Cable for Low Voltages

order no.	meter	watt	order no.	meter	watt
02 32 01	0.4	10	02 32 08	4.5	110
02 32 02	0.7	20	02 32 09	5.0	125
02 32 03	1.0	30	02 32 10	6.0	150
02 32 04	1.5	40	02 32 11	7.0	175
02 32 05	2.0	50	02 32 12	9.0	225
02 32 06	2.6	65	02 32 13	10.5	260
02 32 07	3.8	90	02 32 14	13.0	320

### HS 42 - 350 °C / 450 °C

#### Heating Cable for Low Voltages with Very Small Winding Radius

order no.	meter	watt	nom. temp.	order no.	meter	watt	nom. temp.
02 30 01	0.6	60	450 °C	02 30 06	2.3	210	450 °C
02 30 02	0.8	80	450 °C	02 30 07	2.7	270	450 °C
02 30 03	1.0	100	450 °C	02 30 08	3.5	350	450 °C
02 30 04	1.3	120	450 °C	02 30 09	3.8	360	350 °C
02 30 05	1.6	150	450 °C	02 30 10	5.7	520	350 °C

### HSQ 42 - 900 °C

#### Flexible Heating Cable for Low Voltages with High-Temperature Stability

order no.	meter	watt	order no.	meter	watt
02 31 01	0.4	70	02 31 04	1.0	140
02 31 02	0.6	80	02 31 05	1.3	190
02 31 03	0.8	120	02 31 06	1.7	220

## ST 100 - ST 300

### Safety Transformer according to EN 60742 for Heating Cables with a Nominal Voltage of 42 V

The safety transformers ST 100 and ST 300 with separate windings are required for heatings with a nominal voltage of 42 V.

In case of a short-circuit, these transformers are protected by an integrated thermal fuse and against overload by an exchangeable glass tube fuse.

The primary 230 V~ input is carried out by a power cable with a flat plug which complies to the European Norm. The secondary 42 V~ consumer outputs are connected by clamps.

The transformers are encapsulated in outer casings.

Please ask for further output currents or output voltages.

Technical Data	ST 100	ST 300
type:	safety transformer corresponding VDE 0551 part 1, EN 60742 with VDE 0710 part 14	
input voltage:	230 V~	230 V~
output voltage:	42 V~	42 V~
output current:	2.3 A	7.0 A
safety class:	II	II
testing voltage:	5000 V	5000 V
outlet terminals:	1 pair	2 pairs
length connecting cable:	1.6 m	1.6 m
dimensions:	79 x 86.5 x 129.5 mm	119 x 107.5 x 176.5 mm
total weight:	2.5 kg	5.5 kg
order no.	10 50 01	10 50 02

