

HEATING CABLES



HEATING CABLES

*Products*

*Heating  
Cables*

# C O N T E N T S

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## HEW-THERM® 260 EYCEX 5203 ATEX

Products

### Construction

Conductor:	Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N according to VDE 0253/12.87, part 5.1.1.)
Insulation:	Sandwich construction made of PTFE and high temperature tape (polyimide), PTFE wall thickness min. 0,7 mm
Braid:	Cu np, wire Ø 0,16 mm (0,20 mm) (specific resistance << 18,2 Ω/km acc. to VDE 0253/12.87, part 5.4.3.)
Sheath:	PTFE, wall thickness 0,6 mm (up to 1,0 mm)

### Application

- Heating cable preferred for industrial applications that requires extreme mechanical strength (impact and crush test according to EN 50019 parts 6.8.4. and 6.8.5. passed).
- Temperature maintenance of media temperatures in pipes and containers up to 150 °C. Steam cleaning pressure up to 18 bar.

### Technical data

Operating temperature:	max. + 260 °C, short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>0</sub> /U:	450/750 Volt
Insulation test voltage:	3 kV AC / 1 minute
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	0,8 - 8.000 Ω/km (lower/higher values on request; see table page 182)

### Notes

- Heating cable according to latest technology with ATEX certificate for installation within hazardous areas (ATEX 100/118a) and based on the standard for construction and testing of heating cables (EN 50019 and IEC 62028).
- PTFE insulation and PTFE sheath ensure interference and maintenance free operation even under extreme conditions like direct contact with lyes, acids or salts due to extremely high resistance quality.
- Installation such as frost protection or temperature maintenance/increase inside or outside hazardous areas (international/national certificates for applicable components in HEW-THERM® product range).
- Termination systems (connection elements, cold leads, lead in pressure entry glands with alternatively PG- or M-thread) for use at high temperatures available.
- National approvals
  - VDE (identification no. 52169, construction code NH5YYQU5Y-220)
- International approvals
  - KEMA 02 ATEX 2014 X (system)
  - KEMA 02 ATEX 2013 U (heating cable)
  - KEMA 02 ATEX 1345 U (joint)

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## HEW-THERM® 260 ECEX 5307

### Construction

Conductor:	Stranded conductor or spiraled heating element on glassfibre core (tensile strength >> 120 N according to VDE 0253/12.87, part 5.1.1.)
Insulation:	PTFE, wall thickness 0,6 mm (up to 1,1 mm)
Braid:	Cu np, wire, Ø 0,16 mm (0,20 mm) (specific resistance << 18,2 Ω/km acc. to VDE 0253/12.87, part 5.4.3.)
Sheath:	PTFE, wall thickness 0,6 mm (up to 1,0 mm)

### Application

- High power heating cable for industrial applications following with it's constructions the extreme requirements concerning corrosion resistance and thermal stress.
- Temperature maintenance of media in pipes and containers up to 150 °C. Steam cleaning pressure up to 18 bar.
- Installations such as frost protection or temperature increase outside hazardous areas (international/national certificates for applicable components in HEW-THERM® product range)

### Technical data

Operating temperature:	max. + 260 °C short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>o</sub> /U:	300/500 Volt
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.87, part 6.3.1.)
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	0,8 Ω/km - 8.000 Ω/km (lower/higher values on request; see table page 183)

### Notes

- PTFE characterizes itself by its extreme chemical resistance against chemicals even in case of direct contact with a variety of lyes, acids and salts.
- Termination systems (connection elements, cold leads, lead in pressure entry glands with alternatively PG- or M-thread) for use at high temperatures available.
- National approvals
  - VDE (identification no. 52169, construction code NH5YQU5Y-220)
- International approvals
  - ISSEP (heating cables: ISSEP 93/050, joint: ISSEP 93C. 108.015 U, pressure entry gland: ISSEP 93C. 102.956)
  - SEMKO (S 9030104)
  - FIMKO (FI 164515)



## HEW-THERM® 200/230 PARA ATEX

Products

### Construction

Conductor:	Parallel busbars (power supply), nickel plated copper, conductor cross section 1,5 mm <sup>2</sup>
Insulation:	PTFE, wall thickness 0.5 mm
Stranding:	2 cores with filler
Heating conductor:	Nickelchromium heating wire; contact spots between heating wire and parallel busbars marked with equispaced printings
Inner sheath:	Fluoropolymer, wall thickness 0.4
Braid:	Cu tp wire, Ø 0,16 mm
Wrapping:	white tape carrying identification print
Outer sheath:	FEP violet, wall thickness 0.4 mm (with HEW-THERM® 200 PARA) PFA red, wall thickness 0,4 mm (with HEW-THERM® 230 PARA) both covering transparent

### Technical data

Operating temperature:	- 40 °C up to + 200 °C (PARA 200) - 40 °C up to + 230 °C (PARA 230)
Rated voltage U <sub>0</sub> /U:	300/300 Volt (230V operating voltage)
Specific heating power:	10,20 and 30 W/m heating cable
Maximum circuit length (single energizing):	10 W/m - 200 m 20 W/m - 150 m 30 W/m - 120 m
Min. bending radius:	20 mm

### Application

→ Short pipes, small surfaces or objects whose final lengths or dimensions are not certain when starting projects, can be heated with the parallel heating tape by individual tailoring on site at installation location. Due to the tape construction with its heating zones, cutting of the last contact point between heating wire and busbar (indicated by print) creates a jointless cold lead - in cable for use as power supply.

### Notes

The application of fluoroplastics in all insulation layers performs in addition to the mechanical strength as an excellent combination against acids, lyes and salts as often occurring in industrial plants.

→ Maintenance of media temperatures in pipes or containers up to 110 °C. Steam cleaning inside pipes up to 12 bar. Installations such as frost protection or increase inside or outside within or beyond hazardous areas (international/national certificates for applicable components in HEW-THERM® product range)

→ Termination systems available with different constructions (Ex/Ex-area)

→ International approvals

- AEX
  - KEMA 97 ATEX 1991 U (heating tape)
  - KEMA 97 ATEX 1995 X (heating system)
- SEMKO
  - S 9412162 (HEW-THERM® 200 PARA)
  - S 9226055 (HEW-THERM® 230 PARA)

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## HEW-THERM® 260 ECEX 5354

### Construction

Conductor:	Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N according to VDE 0253/12.87, part 5.1.1.)
Insulation:	PTFE, wall thickness 0,7 mm (up to 1,2 mm)
Braid:	Cu np wire, Ø 0,16 mm (0,20 mm) (specific resistance << 18,2 Ω/km according to VDE 0253/12.87, part 5.4.3.)
Sheath:	PTFE, wall thickness 0,6 mm (up to 1,0 mm)

### Technical data

Operating temperature:	max + 260 °C short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>0</sub> /U:	450/750 Volt
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.87 part 6.3.1.)
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	0,8 Ω/km - 8000 Ω/km (on request lower/higher values, see table page 183)

### Application

- Industrial heating cable with extreme corrosion resistance and thermal power rating at increased operating voltage, e.g. in supply networks with 450/750 V operating voltage.
- Used for application such as frost protection or temperature maintenance/increase inside or outside of hazardous areas. Steam cleaning inside pipes up to 18 bar.
- Maintenance of media temperatures in pipes or containers up to 150 °C.

### Notes

- PTFE performs with an excellent resistance against a vast variety of lyes, acids and salts even at direct contact.
- Termination systems (connection elements, direct lines, pressure entry glands with alternatively PG- or M-thread) for use in high temperature available.
- National approvals  
- VDE (ÜG no 9521, construction code NH5YQU5Y-220)



## HEW-THERM® 230 SPEZIAL 5852

Products

### Construction

Conductor:	Stranded conductor or spiraled heating element on glassfibre core (tensile strength >> 120 N acc. to VDE 0253/12.87, part 5.1.1.)
Insulation:	PTFE, wall thickness 0.5 mm
Braid:	Cu np wire, Ø 0.127 - 0.20 mm (specific resistance << 18,2 Ω/km acc. to VDE 0253/12.87, part 5.4.3. and VDE 0254/04.98 part 5.5.1.)
Sheath:	PTFE, wall thickness 0,4 mm

### Application

- Heating cable for frost protection on pipes and containers with a specific maximum load of 20 W/m.
- Moderate mechanical strength, high chemical resistance to many acids and lyes as well as salts.
- Max. operating temperature up to 230 °C.
- Steam cleaning inside pipes up to 18 bar.

### Technical data

Operating temperature:	max. + 230 °C short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>0</sub> /U:	300/500 Volt
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.87 part 6.3.1.2.)
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	10 Ω/km - 8.000 Ω/km

### Notes

- PTFE performs with an excellent resistance against a vast variety of lyes, acids and salts even at direct contact
- Termination systems (connection elements, direct lines, pressure entry glands with alternatively PG- or M-thread) for use in high temperature available.
- National approvals  
- VDE (ÜG no 125126)

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## HEW-THERM® 260 TE-WM

### Construction

Conductor:	Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N acc. to VDE 0253/12.87, part 5.1.1.)
Sheath:	PTFE, wall thickness 0.4, 0.5, 0.6 mm (0.6 mm = VDE 0253/12.87)

### Application

→ Examples for application:  
Car seat heating, heating of surfaces in processing machines, e.g. moulding of synthetic materials, heating of flexible, liquid or gas leading pipes.

### Technical data

Operating temperature:	max. + 260 °C short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>0</sub> /U:	300/300 Volt or 300/500 Volt
Insulation test voltage:	3 kV (wall thickness 0.6 mm) (acc. to VDE 0253/12.87 part 6.3.1.)

### Notes

→ These heating cables are variations of previously constructed PTFE-insulated heating cables. In course of the years they have become standardized products for several applications. This is an example for an HEW-KABEL/CDT development according to customers requirement.  
→ Load depending of operation an type of installation between 15 W/m - 25 W/m  
→ Extremely small bending radius depending on small cable diameters  
→ High flexibility, mechanical strength and extremely high corrosion resistance





## Selflimiting heating tape HEW-THERM® 90 SBL-CT ATEX

Products

### Construction

Conductor:	Parallel busbars (power supply), cross-section: 1.5 mm <sup>2</sup>
Heating element:	Semi-conductive heater matrix
Insulation:	Polyolefine, wall thickness 0.8 mm
Braid:	Cu tp wire Ø 0,16 mm (specific resistance << 18,2 Ω/km acc. to VDE 0254, part 5.5.1.)
Sheath:	Type SBL-CR polyolefine, wall thickness 0.8 mm Type SBL-CT FEP, wall thickness 0.45 mm

### Technical data

Operating temperature:	- 20 °C up to 85 °C (switched off) - 20 °C up to + 65 °C (permanent operation)
Rated voltage U <sub>0</sub> /U:	300/300 Volt
Operating voltage:	230 Volt, 50-60 Hz
Insulation test voltage:	2 kV AC / 1 minute
Min. bending radius:	20 mm (over flat side of tape)
Specific load:	10 W/m - reference SBL-CT 10 16 W/m - reference SBL-CT 16 26 W/m - reference SBL-CT 26 33 W/m - reference SBL-CT 33
Max. circuit length:	10 W/m - 201 m 16 W/m - 145 m 26 W/m - 90 m 33 W/m - 75 m

### Application

- Characteristic for the special construction of the heating tape is the variable heating output depending on the heating tape temperature.
- Range of application: Frost protection and temperature maintenance of products up to 40 °C.
- Good mechanical strength extreme chemical resistance.

### Notes

- Load is limited by itself due the material of the heater matrix between the parallel busbars. This requires basicly no limiting device when tape is used in hazardous areas.
- Can be cut to length at site, therefore only requested heating power on pipes or containers has to be calculated.
- Heating tapes may cross or overlap. Due to selflimiting performance no danger of overheating and cable damage.
- Termination sets for use inside hazardous areas are installed without open fire or hot air.
- Instead of FEP sheath, ETFE can be offered upon request.
- National approvals:
  - SEMKO: S9226054
- International approvals:
  - PTB:
    - PTB 97 ATEX 1015 U (heating tape)
    - PTB 97 ATEX 1069 X (heating system)

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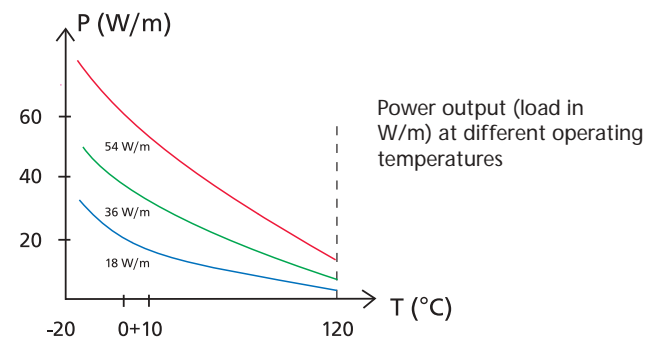
## Selflimiting heating tape HEW-THERM® 180 SBH-CT ATEX

### Construction

Conductor:	Parallel busbars (power supply), cross-section: 1.5 mm <sup>2</sup>
Heating element:	Semi-conductive heater matrix
Insulation:	FEP, wall thickness 0.6 mm
Braid:	Cu tp wire Ø 0,16 mm (specific resistance << 18,2 Ω/km acc. to VDE 0254, part 5.5.1.)
Sheath:	FEP, wall thickness 0.45 mm

### Application

→ HEW-THERM®180 SBH-CT heating tapes show selflimiting properties, similar to heating tape HEW-THERM®90 SBL-CR/CT. Due to the application of FEP on all components, this construction permits the installation at higher operating temperatures. Product temperature can be maintained up to 60 °C. FEP gives the heating tape an extreme resistance against chemicals and performs mechanically excellent within its operating temperature range.



### Technical data

Operating temperature:	max. + 180 °C (switched off) max. + 120 °C (permanent operation)
Rated voltage U <sub>0</sub> /U:	300/300 Volt
Operating voltage:	230 Volt, 50-60 Hz
Insulation test voltage:	2 kV AC / 1 minute
Min. bending radius:	20 mm (over flat side of tape)
Heating output:	18 W/m - reference SBH-CT 18 36 W/m - reference SBH-CT 36 54 W/m - reference SBH-CT 54
Biggest heating circuit lengths allowed:	18 W/m - 100 m 36 W/m - 53 m 54 W/m - 32 m

### Notes

- Load is limited by itself due the material of the heater matrix between the parallel busbars. This requires basically no limiting device when tape is used in hazardous areas.
- Can be cut to length at site, therefore only requested heating power on pipes or containers has to be calculated.
- Heating tapes may cross or overlap. Due to the selflimiting performance there is no danger of overheating and cable damage. Termination sets for use inside hazardous areas are installed without open fire or hot air.
- National approvals:
  - SEMKO: S9226054
- International approvals:
  - PTB:
    - PTB 97 ATEX 1016 U (heating tape)
    - PTB 99 ATEX 1001 X (heating system)
- Steam cleaning inside pipes up to 10 bar (180°C).

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## HEW-THERM® 90 ECY 5311

### Construction

Conductor:	Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N acc. to VDE 0253/12.87, part 5.1.1.)
Insulation:	PTFE, wall thickness 0,6 mm
Braid:	Cu np wire, Ø 0,16 mm (specific resistance << 18,2 Ω/km acc. to VDE 0253, part 5.4.3.)
Sheath:	HDPE, wall thickness 1.2 mm (UV stabilized)

### Technical data

Operating temperature:	- 20 °C up to + 80 °C (105 °C)
Rated voltage U <sub>o</sub> /U:	300/500 Volt (ECY 5311) 450/750 Volt (ECY 5311-II)
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.78 part 6.3.1.2.)
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	0,7 Ω/km - 100.000 Ω/km (on request lower/higher values, see table page 183)

### Application

- Special cable construction for installation in outdoor surfaces.
- Due to the polyethylene reinforced sheath the cable provides an extremely high mechanical strength.
- Parking areas, ramps, soccerfields, bridges and subway stairs are examples for the possible use as well as frost protection of pipelines, vessels and tanks or containers.
- An UV-stabilizing additive in the outer sheath allows an endurand exposure of the cable to daylight on roofs, in gutters and down-pipes.

### Notes

- Heating cable is applicable:  
ECY 5311 - voltage rating (U<sub>o</sub>/U) 300/500 V  
ECY 5311-II- voltage rating (U<sub>o</sub>/U) 450/750 V
- VDE approvals  
5311 : ÜG 9875  
5311-II : ÜG 9877



## HEW-THERM® 90 KY 5333

Products

### Construction

Conductor: Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N acc. to VDE 0253/12.87, part 5.1.1.)  
Insulation: FEP, wall thickness 0,45 mm  
Sheath: PVC, heat stabilized up to 105 °C, wall thickness 1.2 mm

### Application

→ The heating cable is designed for installation in floors. These indoor underfloor heating systems can either be direct or accumulating. With regard to their function they can be installed as full-time, seasonal or comfort heating, e.g. in bathrooms and kitchens. An economical electric heating can be realized in combination with a room thermostat.

### Technical data

Operating temperature: - 20 °C up to + 80 °C (105 °C)  
Rated voltage U<sub>0</sub>/U: 300/500 Volt (ECY 5311)  
Insulation test voltage: 3 kV AC (acc. to VDE 0253/12.87, part 6.3.1.)  
Min. bending radius: 2,5 x diameter at o.d. ≤ 6 mm  
5 x diameter at o.d. > 6 mm  
Conductor resistance: 10 Ω/km - 8,000 Ω/km

### Notes

→ Low investments for the electrical heating system and low operation costs in conjunction with an advanced temperature control.  
→ Fast and easy installation. Individual adjustment of heating to any room shape.  
→ Load on heating cable up to 25 W/m  
→ Use of fluoropolymere (FEP) for conductor insulation ensures long and servicefree lifetime.  
→ Approval for indoor underfloor heating by VDE-ID: 52169/VDE 0253/12.87, construction code NH6YMY 90

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## HEW-THERM® 90 DUO-MIX 5398

### Construction

Conductor:	Stranded conductor or spiralized heating element on glassfibre core (tensile strength >> 120 N acc. to VDE 0253/12.87, part 5.1.1.)
Insulation:	FEP, wall thickness 0.25 mm HDPE, wall thickness 0.6 mm
1 <sup>st</sup> serving:	Cu tp conductor, total cross section $\geq 1 \text{ mm}^2$ ; function: return lead
Intermediate insulation:	HDPE, wall thickness 0.7 mm
2 <sup>nd</sup> serving:	Cu tp conductor, function: earth lead, resistance << 18.2 $\Omega/\text{km}$ acc. to VDE 0253/12.87, part 5.4.3.
Sheath:	PVC, wall thickness 0.6 mm

### Technical data

Operating temperature:	- 20 °C up to + 80 °C (105 °C)
Rated voltage U <sub>0</sub> /U:	300/500 Volt
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.87 part 6.3.1.2.)
Min. bending radius:	2,5 x diameter at o.d. $\leq 6 \text{ mm}$ 5 x diameter at o.d. $> 6 \text{ mm}$
Conductor resistance:	25 - 140,000 $\Omega/\text{km}$

### Application

- Due to its typical construction, HEW-THERM®90 DUO-MIX 5398 offers besides the usual installation on pipes or containers, the opportunity to heat inaccessible pipes. This can be realized by installing heating cable inside the pipeline or tank. The advantage of having an in-built back lead requires the installation of only one cable run instead of two with conventional heater types.
- Frost protection or temperature maintenance up to 40 °C is possible. The outer PVC-jacket, UV. stabilized and temperature resistant up to 105 °C, offers an excellent cable performance under worse conditions.

### Notes

- Maximum load on heating cable: 25 W/m.
- Easy installation as only one cable is needed. The normally necessary installation of a separat return circuit can be omitted.
- Approvals:  
SEMKO S9532165 (expected spring 2002)
- Suitable for inside-pipe-heating together with associated accessories. For this purpose special accessories are available (see Accessories and Associated Products for HEW-THERM® heating cables and heating tapes)
- Meets the requirements for increased mechanical strength acc. to EN 50019 (impact test with 7 Joule, crush test 1500 N)
- Standard termination sets for connection to power supply. (see data sheet)



## HEW-THERM® 260 EGLVA 5320

### Construction

Conductor:	Stranded conductor (tensile strength >> 120 N acc.g to VDE0253/12.87, part 5.1.1.)
Insulation:	PTFE, wall thickness 0.6 mm + glassfiber braid
Braid:	Stainless steel single wires (specific resistance > 18,2 Ω/km, therefore restriction of maximum heating circuit length)

### Application

- The combination of PTFE and glassfiber together with a stainless steel braid obtains an excellent mechanical and chemical performance even under worst conditions. The stainless steel braid protects the heating conductor against animal attacks when cable exposed to the ambient.
- UV-stabilized by material choice.

### Technical data

Operating temperature:	max. + 260 °C short-term + 300 °C (1.000 hours cumulative)
Rated voltage U <sub>0</sub> /U:	300/500 Volt
Insulation test voltage:	3 kV AC (acc. to VDE 0253/12.87 part 6.3.1.2.)
Min. bending radius:	2,5 x diameter at o.d. ≤ 6 mm 5 x diameter at o.d. > 6 mm
Conductor resistance:	10 Ω/km - 8,000 Ω/km available cold leads: 1,5 mm <sup>2</sup> (11,7 Ω/km) 2,5 mm <sup>2</sup> (7 Ω/km)

### Notes

- Maximum load in gutters, on roofs and in down-pipes: 25 W/m.
- Termination systems especially designed for use in water and in UV-radiation.
- Up to a certain length, the heating cable can be installed without any supporting element construction in down pipes.
- Economical and reliable heating system for domestic applications.



## Selflimiting heating tape HEW-THERM® 90 SBL-CR ATEX

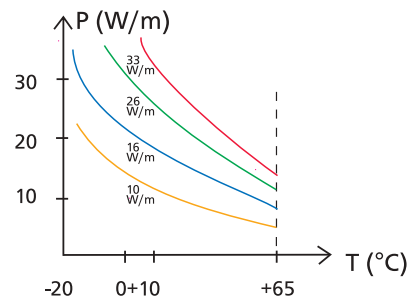
Products

### Construction

Conductor:	Parallel busbars (power supply), cross section 1,5 mm <sup>2</sup>
Heating element:	Semi conductive heater matrix
Insulation:	polyolefine, wall thickness 0,8 mm
Braid:	Cu tp wire Ø 0,16 mm (specific resistance << 18,2 Ω/km acc. to VDE 0254, part 5.5.1.)
Sheath:	Polyolefine, wall thickness 0,8 mm

### Application

- Characteristic for the special construction of the heating tape is the variable heating output depending on the heating tape temperature.
- Range of application: Frost protection and temperature maintenance of products up to 40°C for domestic applications
- Range of applications:  
gutters, down-pipes, roofs



### Technical data

Operating temperature:	- 20 °C up to + 85 °C (switched off) - 20 °C up to + 65 °C (permanent operation)
Rated voltage U <sub>0</sub> /U:	300/300 Volt
Operating voltage:	230 Volt, 50-60 Hz
Insulations test voltage:	2 kV AC / 1 minute
Min. bending radius:	20 mm (over flat side of tape)
Specific load:	10 W/m - reference SBL-CR 10 16 W/m - reference SBL-CR 16 26 W/m - reference SBL-CR 26 33 W/m - reference SBL-CR 33
Max. circuit length:	10 W/m - 201 m 16 W/m - 145 m 26 W/m - 90 m 33 W/m - 75 m

### Notes

- Can be cut to length at site, therefore only requested heating power on pipes in roofs and gutters or containers has to be determined.
- Heating tapes may cross or overlap! Due to self limiting properties no danger of overheating!
- Termination systems are installed without open fire or hot air.
- Optional to polyolefine sheath:  
polyurethane and PVDF available on request.
- National approvals:  
- SEMKO: S9226054
- International approvals:  
- PTB:  
- PTB 97 ATEX 1015 U (heating tape)  
- PTB 97 ATEX 1069 X (heating system)

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## Accessories and associated Products for HEW-THERM® heating cables and heating tapes:

Additional equipment is needed in order to connect heating cables and heating tapes on pipes, vessels, in in-or outdoor-surfaces or on roof and in gutters to the power supply.

A series-resistive heating cable, e.g. HEW-THERM® 260 EYCEX 5203 is joined to a cold lead-in cable by installing a special joint. This cold lead-in cable has got a considerably higher conductor cross section and consequently does not produce any sensible heat.

Due to a temperature drop between heating cable and connection, the maximum limited temperature around the terminal block and inside a control unit, thermostat or connection box is kept. The use of a termination box in combination with the pressure entry gland, ensures a maximum of safety for the heating unit in regard of ingress of moisture or dust.

The program of accessories provides elements for each individual type and construction of cable or tape. This is shown on the following pages.

Most parts are certified by certified bodies for the installation in hazardous areas. Each product is declared with its specific type of protection.

Certified bodies:

- KEMA - KEMA REGISTERED QUALITY B.V.  
Arnhem, Netherlands  
Dutch approval authority for ex-components
- ISSEP - Institut Scientifique de Service Public  
Pâturages, Belgium  
Belgium approval authority for ex-components
- PTB - Physikalisch Technische Bundesanstalt  
Braunschweig, Germany  
German approval authority for ex-components

## Accessories

HEW-THERM®  
heating cables and heating tapes  
Selection table

	Applicable in hazardous areas	HEW-THERM® 260 EYCEX 5203	HEW-THERM® 260 ECEX 5307	HEW-THERM® 260 ECE 5342	HEW-THERM® 230 Spz. 5852	HEW-THERM® 260 ECEX 5354	HEW-THERM® 230/200 PARA	HEW-THERM® 200 KCK 5344	HEW-THERM® 260 EGLVA 5320	HEW-THERM® 180 SBH-CT	HEW-THERM® 90 SBH-CR/CT	HEW-THERM® 90 EGY 5311	HEW-THERM® 90 KY 5333
Joint (PTFE), with filling order references: 60205; 60215; 60225	●	⊕	⊕	⊕	⊕ <sup>1)</sup>	⊕		⊕ <sup>1)</sup>				⊕ <sup>1)</sup>	
Joint (PTFE), without filling order reference: 30298	●	⊕	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>	⊕ <sup>1)</sup>		⊕ <sup>1)</sup>				⊕ <sup>1)</sup>	
Pressure entry gland (cold lead) Material: nickel-plated brass PG 60105, 60115, 60125 ISO 67245, 67255, 67265	●	⊕	⊕	⊕	⊕ <sup>1)</sup>	⊕		⊕ <sup>1)</sup>				⊕ <sup>1)</sup>	
Metal joint for EGLVA 5320 order reference: 60505									⊕				
Termination set selflimiting tape (85 °C)* order reference: 14169 (PTFE/SIR) SBL-CR 14170 (PTFE/SIR) SBL-CT	●										⊕		
Termination set selflimiting tape (180 °C)* order reference: 14171 (PTFE/SIR) SBH-CT	●									⊕			
Termination set selflimiting tape (85 °C) order reference: 14114 (shrink tube+metal gland); 14111 (shrink tube+plastic gland)											⊕		
Termination set selflimiting tape (180 °C) order reference: 14160 (shrink tube+metal gland); 14161 (shrink tube+plastic gland)										⊕			
Termination set PARA heating tape order reference: 17674 (PTFE/SIR)	●						⊕						
Termination set PARA heating tape order reference: 12560 (shrink tube)	●						⊕						
Repair joint for selflimiting heating tape (PTFE/SIR) SBL-CR/CT order ref. 14166/14167; SBH-CT order ref. 14168	●									⊕	⊕		
Repair joint for heating tape PARA order reference: 66180 (PTFE/SIR)	●						⊕						

⊕ to be combined

<sup>1)</sup> not applicable within hazardous areas

\* including 2 meters of flexible cold lead-in cable

Products

Heating  
Cables

## HEW-THERM® Termination sets and components:

### Note:

The following product descriptions are created to support your choice of heating cables or heating tapes together with appropriate accessories.  
Our team members will gladly assist you to put the individual components together to an operational heating system.



1.) Heating cable/cold lead-in joint of PTFE with silicone sealing.

**Maximum permissible operating temperature:**  
200 °C (260°C)

**Rated voltage:** 300/500 V resp. 450/750 V

**Three construction sizes:**

References: 60205 for connection cables up to  
7 Ω/km (2,5 mm<sup>2</sup>)  
60215 for connection cables  
4,4 - 2,9 Ω/km (4 - 6 mm<sup>2</sup>)  
60225 for connection cables  
1,8 - 0,8 Ω/km (10 - 25 mm<sup>2</sup>)

**Maximum permissible power load:**

References: 60205 up to 32 A  
60215 up to 54 A  
60225 up to 129 A

**Approvals:** KEMA 02 ATEX 1345 U  
II 2G EEx em II



2.) Heating cable/cold lead-in joint of PTFE without sealing.

**Maximum permissible operating temperature:**  
200 °C (260 °C)

**Rated voltage:** 300/500 V resp. 450/750 V

**Construction sizes:**

Reference: 30298 for connection cables up to 7 Ω/km  
(2,5 mm<sup>2</sup>)

**Maximum permissible power load:**

Reference: 30298 up to 32A

## HEW-THERM® Termination sets and components:



3.) Pressure entry gland for fitting of cold lead into a termination box or thermostat housing.

**Material:** nickel plated brass

**Fitting thread:** PG16 or M20/M25 (isometric)

**Rated voltage:** 450/750 V

**Maximum permissible operating temperature:**  
70 °C/85 °C

### Construction sizes:

References:

60105 (PG 16) for connection cables 24,8 - 11,7 Ω/km

60115 (PG 16) for connection cables 10 - 4,4 Ω/km

60125 (PG 16) for connection cables 2,9 - 1,8 Ω/km

67245 (M 20) for connection cables 24,8 - 11,7 Ω/km

67255 (M 20) for connection cables 10 - 4,4 Ω/km

67265 (M 20) for connection cables 2,9 - 1,8 Ω/km

67275 (M 25) for connection cables 24,8 - 11,7 Ω/km

67285 (M 25) for connection cables 10 - 4,4 Ω/km

67295 (M 25) for connection cables 2,9 - 1,8 Ω/km

### Approvals:

KEMA 02 ATEX 2014 X

II 2G EEx em II T3



4.) Special termination for the connection of HEW-THERM® 260 EGLVA 5320 to power supply cable. Gas-, moisture- and watertight construction for the exposure to ordinary ambient conditions roof surfaces, in gutters and down-pipes

**Maximum permissible operating temperature:**  
85 °C

**Rated voltage:** 300/500 V

**Maximum permissible power load:** 32 A

**Reference:** 60505

Products

Heating  
Cables

## HEW-THERM® Termination sets and components:



5.)  
Termination set for selflimiting heating tapes  
HEW-THERM® 90 SBL-CR/CT.  
Heating tape is lead via joint onto a flexible cold lead  
for power supply.

**Length of cold lead:** 2 meters (joint and end seal made  
of PTFE)

**Rated voltage:** 300/300 V (working voltage 230 V)

**Maximum operating temperature:** 85 °C

**Maximum power load:** 16 A

**Note:**

In case of order please specify type of heating tape.

**References:**

14169 for HEW-THERM® 90 SBL-CR

14170 for HEW-THERM® 90 SBL-CT

**Approval:**

PTB 97 ATEX 1069 X II 2G EEx e II T4/T5



6.)  
Termination set for selflimiting heating tape  
HEW-THERM® 180 SBH-CT.

Heating tape is lead via joint onto a flexible cold lead  
for power supply.

**Length of cold lead:** 2 meters (joint and end seal made  
of PTFE)

**Rated voltage:** 300/300 V (working voltage 230 V)

**Maximum operating temperature:** 180 °C

**Maximum power load:** 16 A

**Note:**

In case of order please specify type of heating tape.

**Reference:**

14171 for HEW-THERM® 180 SBL-CT

**Approval:**

PTB 99 ATEX 1001 X II 2G EEx e II T3

## HEW-THERM® Termination sets and components:



- 7.)  
Termination set for selflimiting heating tapes  
HEW-THERM® 90 SBL-CR/CT.  
End seal made of shrinkable tube, direct transfer of heating tape by a special fitting into a termination box or thermostate housing.  
Entry glands are available made of plastic or nickel-plated brass and in PG16- or M20 thread.  
**Rated voltage:** 450/750 V  
**Maximum operating temperature:** 85 °C (260 °C)  
**Maximum power load:** 16 A  
**References:**  
Termination sets:  
SBL-CR metal 14114  
          plastic 14159  
SBL-CT metal 14158  
          plastic 14111



- 8.)  
Termination set for selflimiting heating tapes  
HEW-THERM® 180 SBH-CT.  
End seal made of shrinkable tube, direct transfer of heating tape by a special fitting into a termination box or thermostate housing.  
Entry glands are available made of plastic or nickel-plated brass and in PG16- or M20 thread.  
**Rated voltage:** 450/750 V  
**Maximum operating temperature:** 180 °C (260 °C)  
**Maximum power load:** 16 A  
**References:**  
Termination sets:  
PG16 thread, metal 14160  
PG16 thread, plastic 14161  
M20 thread, metal on request  
M20 thread, plastic on request



- 9.)  
Termination set for parallel heating tape  
HEW-THERM® 230/200 PARA, consisting of end seal and accessories for connection to power supply.  
Silicone filled end seal.  
Fitting threads PG 16 or M 20.  
**Materials:** End seal made of PTFE, entry gland made of nickel plated brass.  
**Rated voltage:** 300/300V (max. working voltage 253V)  
**Maximum operating temperature:** 200/230 °C  
**Approval:** KEMA 97 ATEX 1995 X II G2 EEx em II T3  
**References:**  
Termination sets:  
PG16 thread 17674  
M20 thread on request

Products

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Cables

## HEW-THERM® Termination set and components:



- 10.)  
Termination set for parallel heating tape  
HEW-THERM® 230/200 PARA,  
Content: End seal made of fluoroplastic-shrink tube;  
pressure entry gland of nickel-plated brass for connection to power supply into a termination box or thermostat housing. Gland with PG or M 20 thread.  
**Rated voltage:** 300/300V (max. working voltage 253V)  
**Maximum operating temperature:** 200/230 °C  
**Approval:** KEMA 97 ATEX 1995 X II 2G EEx e II T3  
**References:**  
PG16 thread                      17869  
M20 thread                        on request



- 11.)  
Joint for extension or repair of two equal heating tapes  
HEW-THERM® 90 SBL-CR/CT or  
HEW-THERM® 180 SBH-CT.  
**Material:** PTFE.  
**Rated voltage:** 300/500 V  
**Maximum operating temperature:** 200/260 °C  
**References:**  
HEW-THERM® 90 SBL-CR            14166  
HEW-THERM® 90 SBL-CT            14167  
HEW-THERM® 180 SBL-CT           14168

- 12.)  
Joint for extension or repair of two parallel-resistive heating tapes type HEW-THERM® 200/230 PARA.  
**Material:** PTFE.  
**Rated voltage:** 300/500 V  
**Maximum operating temperature:** 230/260 °C  
**Approval:** applied

Products

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Cables



## Installation of HEW-THERM® heating cables and heating tapes

HEW-KABEL/CDT provides components and tools for an easy and safe installation of HEW-THERM® heating cables and tapes on pipes, containers, for indoor and outdoor heating systems.



### For installation on pipes

- Mounting tape made of stainless steel:  
Equipped with clips for carriage of round-shaped heating cables, s.a. HEW-THERM® 260 ECEX 5307.  
For installation on surface of pipes no tools are required!  
According to various cable diameters, two sizes available:  
60008-heating cable up to  $\varnothing$  5 mm,  
tape width: 10 mm  
60018-heating cable more than  $\varnothing$  5 mm,  
tape width: 13 mm  
Not suitable for fixing of flat heating tapes!

- Glassfibre mounting tape with adhesive backside (acid-free).  
Tape width: 12 mm, length 16 m (=1 reel)  
Temperature resistance up to + 300 °C  
Suitable for fixing of all heating cable or tape constructions.  
Reference: 16488

- Aluminium foil with backside coating:  
For full coverage and fixing of heating cables and tapes on pipes. Supports heat propagation on heated surfaces.  
Tape width: 50 mm, length: 100 m,  
Temperature resistance up to 300 °C  
Reference: 15700



### For installation on surfaces

- Mounting tape made of stainless steel:  
Mounting tape can be welded to surfaces.  
According to various cable diameters, two sizes available:  
60008-heating cable up to  $\varnothing$  5 mm,  
tape width: 10 mm  
60018-heating cable more than  $\varnothing$  5 mm,  
tape width: 13 mm  
Not suitable for fixing of flat heating tapes!

## Installation of HEW-THERM® heating cables and heating tapes

### For connections between heating cables and tapes

- Special tools for pressing crimp connectors within the following termination systems:

#### Heating cable joints (series-resistive):

60205, 60215, 60225 (PTFE heating cables)

#### Termination systems:

14169, 14170, 14171 (selflimiting heating tape)

#### Repair and extension joints:

14166, 14167, 14168 (selflimiting heating tape)  
27907 (parallel heating tape PARA)

*Special tools order reference: 12548 (small) or 12552 (big) can be supplied with different pressing dies to ensure an adaptation to each crimp connector.*

*To guarantee secure and maintenance-free operation of a heating system comprising HEW-THERM® heating cables or tapes, especially within hazardous areas, the exclusive use of special tools, the matching pressing dies and crimp connectors is absolutely imperative.*



order reference: 12548



order reference: 12552

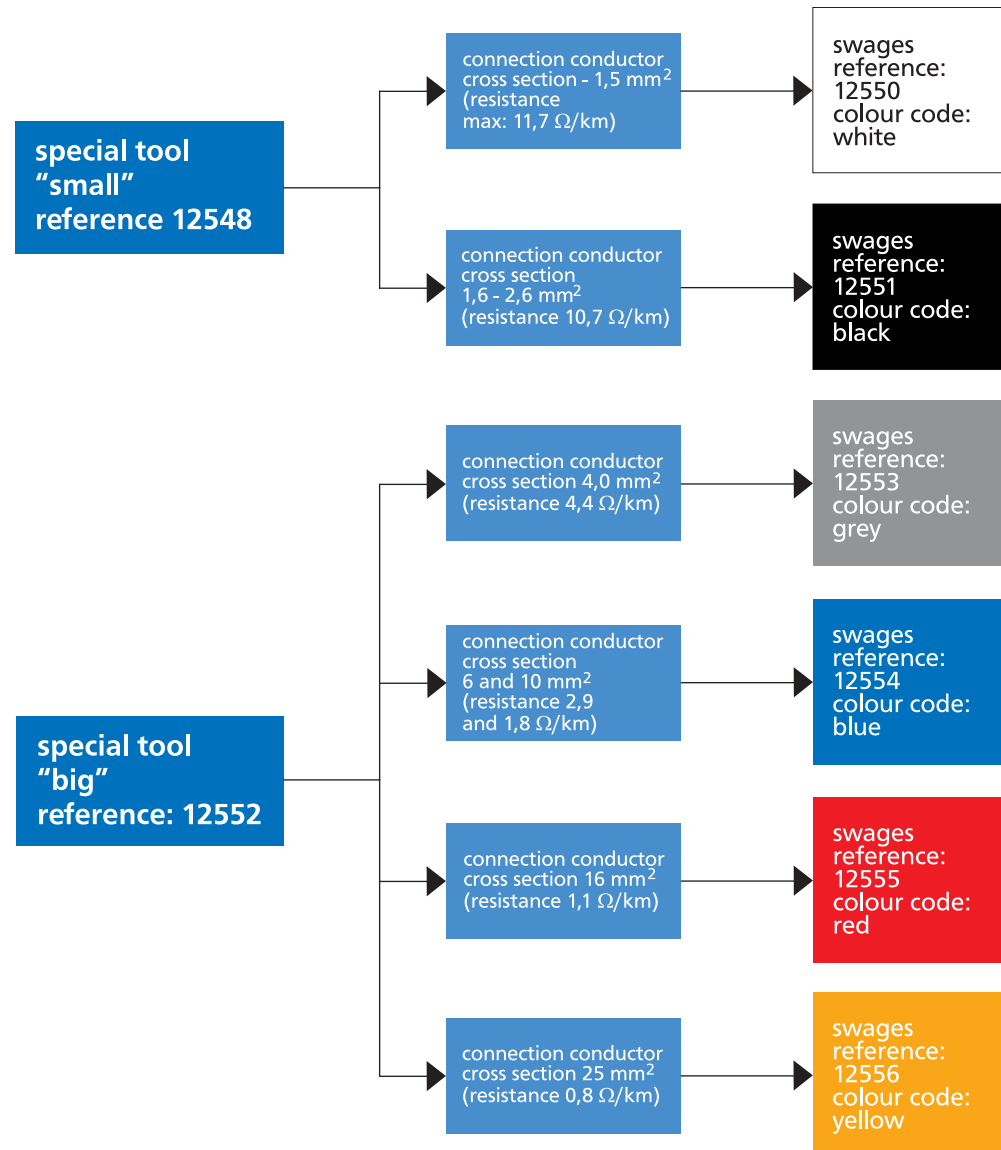
Products

Heating  
Cables

## Installation of HEW-THERM® heating cables and heating tapes

### Choice of tools

The chart below supports the choice of connector, die and tool. Special crimp connectors connect heating cables and tapes to appropriate cold leads or, in case of extension or repair, to again heating cables or tapes. Further the special tools for heating cables of following references can be chosen: HEW-THERM® 260, HEW-THERM® 230 ECE 5342/SPEZIAL 5852, HEW-THERM® 200 KCK 5344, HEW-THERM® 180 und HEW-THERM® 90.



**Important note:** Every termination set contains only the connecting sleeve which serves to establish the protective braid connection. The connection between heating and cold lead has to be chosen individually. Assistance to be offered by the installation instructions or our technical advisors.

## Installation of HEW-THERM® heating cables and heating tapes

The crimp tools of order reference 62005 are recommended to manufacture the connection of conductors for the following products:

Parallel-resistive heating tapes HEW-THERM® 230/200 PARA

Selflimiting heating tape HEW-THERM® 180 SBH-CT

Selflimiting heating tape HEW-THERM® 90 SBL-CR/CT

The termination sets include all required crimp connectors.

Joints of reference 60505 for heating cables HEW-THERM® 260 EGLVA 5320 are made with pressing pliers 62045.

As a basic equipment with tools and connectors, the accessory program of HEW-KABEL/CDT offers complete sets consisting of small metal baggage, tools and connectors according to joint sizes.

Products



Complete set "tool kit small" 14185  
(for joints with cold leads up to 2,5 mm<sup>2</sup>)



Complete set "tool kit large" 14186  
(for joints with cold leads within 4..25 mm<sup>2</sup>)

Heating  
Cables

## HEW-THERM® 260 PTFE-heating cable EYCEX 5203

The table below shows the resistance values, temperature coefficients and dimensions of the HEW-THERM® delivery program. All series - resistive heating cables can be equipped with conductors.

Order reference	Resistance [ $\Omega$ /km]	Resistance material	Conductor construction number of wires x diameter	o.d. [mm]	Temperature coefficient at 20 °C ( $\alpha$ -value) x 10 <sup>-3</sup>
10	10	npc	7 x 0,57	5,35	+ 3,90
11,7	11,7	npc	7 x 0,52	5,20	+ 3,90
15	15	npc	7 x 0,47	5,05	+ 3,90
17,8	17,8	npc	7 x 0,43	4,95	+ 3,90
25	25	A-copper	7 x 0,45	5,00	+ 1,90
31,5	31,5	Alloy 30	7 x 0,54	5,25	+ 1,30
50	50	Alloy 30	7 x 0,43	4,95	+ 1,30
65	65	Alloy 30	7 x 0,37	4,75	+ 1,30
80	80	Alloy 60	7 x 0,47	5,05	+ 0,70
100	100	Alloy 90	7 x 0,52	5,20	+ 0,40
150	150	Alloy 90	7 x 0,43	4,95	+ 0,40
200	200	Alloy 90	7 x 0,37	4,75	+ 0,40
320	320	ISAZIN	7 x 0,41	4,85	+ 0,25
380	380	ISAZIN	7 x 0,38	4,80	+ 0,25
480	480	ISAZIN	7 x 0,34	4,65	+ 0,25
600	600	ISAZIN	7 x 0,3	4,55	+ 0,25
700	700	ISAZIN	7 x 0,28	4,50	+ 0,25
810	810	ISOTAN	7 x 0,335	4,65	+ 0,04
1000	1000	ISOTAN	7 x 0,3	4,55	+ 0,04
1440	1440	ISOTAN	7 x 0,25	4,40	+ 0,04
1750	1750	ISOTAN	7 x 0,228	4,30	+ 0,04
2000	2000	NiCr 3020	7 x 0,315	4,60	$\pm 0,00^1$
3000	3000	NiCr 3020	7 x 0,25	4,40	$\pm 0,00^1$
4000	4000	CrNi 2520	7 x 0,2	4,25	$\pm 0,00^2$
4400	4400	NiCr 8020	7 x 0,22	4,30	$\pm 0,00^3$
5600	5600	NiCr 8020	7 x 0,192	4,35	$\pm 0,00^3$
7000	7000	NiCr 8020	7 x 0,17	4,25	$\pm 0,00^3$
8000	8000	NiCr 8020	7 x 0,16	4,15	$\pm 0,00^3$

<sup>1</sup> = > 200 °C + 0,37

<sup>2</sup> = > 200 °C + 0,47

<sup>3</sup> = > 200 °C + 0,05

## HEW-THERM® 260 PTFE-heating cable ECEX 5307

Products

Order reference	Resistance [ $\Omega$ /km]	Resistance material	Conductor construction number of wires x diameter	o.d. [mm]	Temperature coefficient at 20 °C ( $\alpha$ -value) x 10 <sup>-3</sup>
0,8	0,8	npc	175 x 0,4	11,90	+ 3,90
1,1	1,1	npc	126 x 0,4	10,10	+ 3,90
1,8	1,8	npc	80 x 0,4	8,55	+ 3,90
2,9	2,9	npc	84 x 0,3	7,10	+ 3,90
4,4	4,4	npc	56 x 0,3	6,10	+ 3,90
7	7	npc	50 x 0,25	5,30	+ 3,90
10	10	npc	7 x 0,57	4,75	+ 3,90
11,7	11,7	npc	7 x 0,52	4,60	+ 3,90
15	15	npc	7 x 0,47	4,45	+ 3,90
17,8	17,8	npc	7 x 0,43	4,35	+ 3,90
25	25	A-copper	7 x 0,45	4,40	+ 1,90
31,5	31,5	Alloy 30	7 x 0,54	4,70	+ 1,30
50	50	Alloy 30	7 x 0,43	4,35	+ 1,30
65	65	Alloy 30	7 x 0,37	4,15	+ 1,30
80	80	Alloy 60	7 x 0,47	4,45	+ 0,70
100	100	Alloy 90	7 x 0,52	4,65	+ 0,40
150	150	Alloy 90	7 x 0,43	4,30	+ 0,40
200	200	Alloy 90	7 x 0,37	4,15	+ 0,40
320	320	ISAZIN	7 x 0,41	4,30	+ 0,25
380	380	ISAZIN	7 x 0,38	4,20	+ 0,25
480	480	ISAZIN	7 x 0,34	4,10	+ 0,25
600	600	ISAZIN	7 x 0,3	3,90	+ 0,25
700	700	ISAZIN	7 x 0,28	3,90	+ 0,25
810	810	ISOTAN	7 x 0,335	4,00	+ 0,04
1000	1000	ISOTAN	7 x 0,3	3,95	+ 0,04
1440	1440	ISOTAN	7 x 0,25	3,80	+ 0,04
1750	1750	ISOTAN	7 x 0,228	3,70	+ 0,04
2000	2000	NiCr 3020	7 x 0,315	4,00	$\pm 0,00^1$
3000	3000	NiCr 3020	7 x 0,25	3,80	$\pm 0,00^1$
4000	4000	CrNi 2520	7 x 0,2	3,65	$\pm 0,00^2$
4400	4400	NiCr 8020	7 x 0,22	3,70	$\pm 0,00^3$
5600	5600	NiCr 8020	7 x 0,192	3,65	$\pm 0,00^3$
7000	7000	NiCr 8020	7 x 0,17	3,60	$\pm 0,00^3$
8000	8000	NiCr 8020	7 x 0,16	3,55	$\pm 0,00^3$

Heating  
Cables

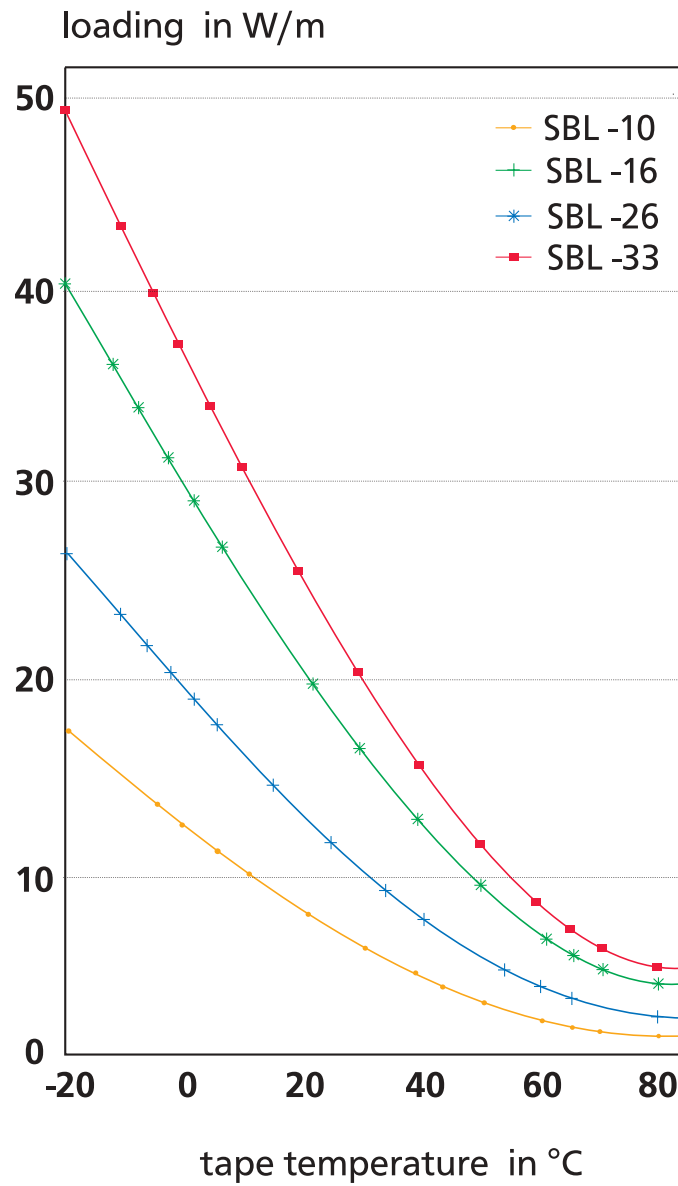
<sup>1</sup> = > 200 °C + 0,37

<sup>2</sup> = > 200 °C + 0,47

<sup>3</sup> = > 200 °C + 0,05

## HEW-THERM® 90 SBL-CR/CT

### Power output of selflimiting heating tape



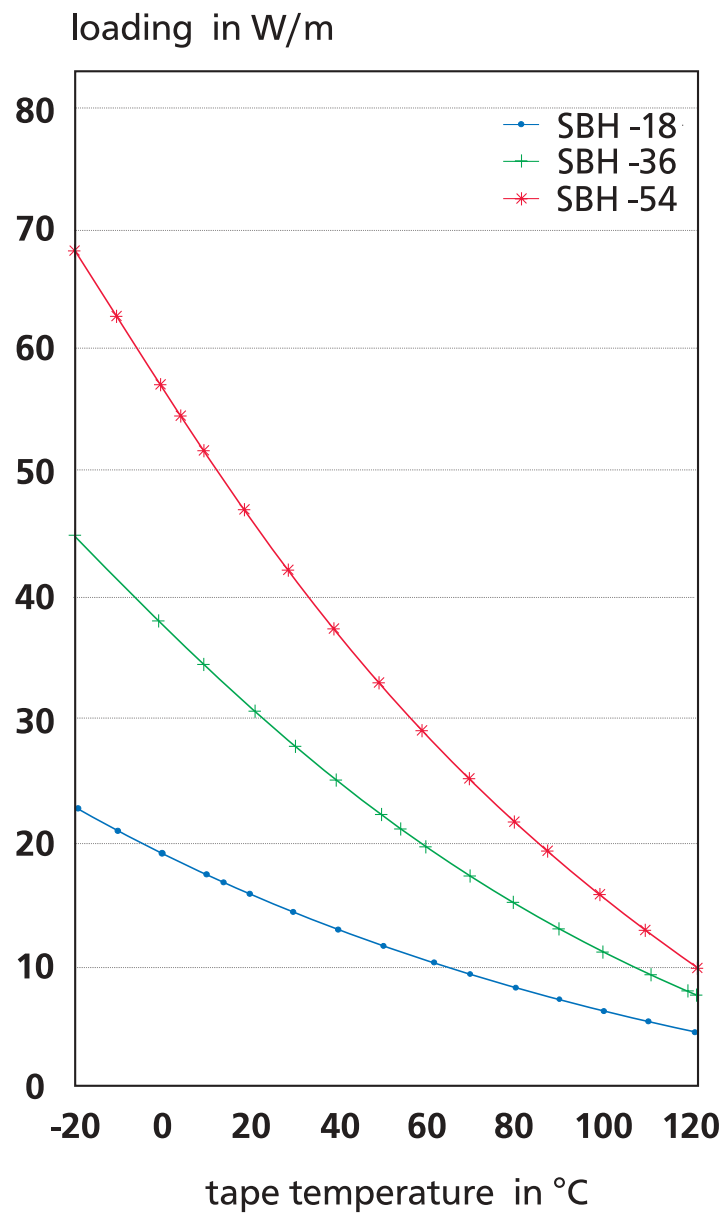
Depending on ambient or tape temperature selflimiting heating tapes emit the load to the heated medium.

The graph shows the performance of HEW-THERM® 90 SBL-CR/CT.

The load response is based on the test procedure shown in VDE standard 0254.

## HEW-THERM® 180 SBH-CT

### Power output of selflimiting heating tape



Depending on ambient or tape temperature selflimiting heating tapes emit the load to the heated medium.

The graph shows the performance of HEW-THERM® 180 SBH-CT.

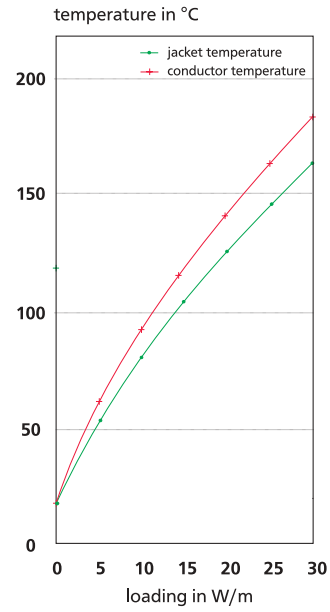
The load response is based on the test procedure shown in VDE standard 0254.

Products

Heating  
Cables

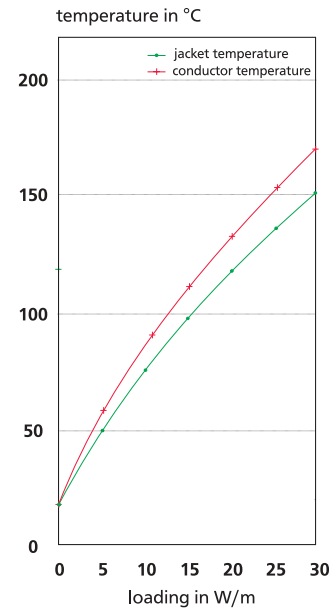


**HEW-THERM® 260 ECEX**  
(diameter: 3,6-4,0 mm)



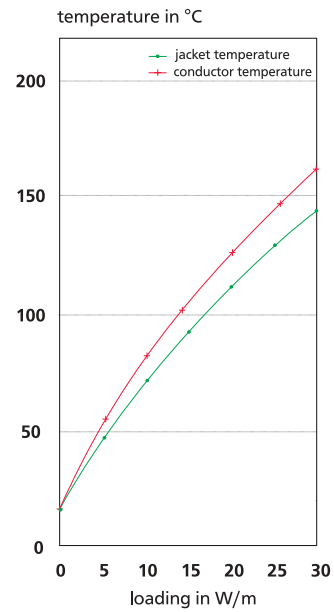
ambient base temperature: +17°C

**HEW-THERM® 260 ECEX**  
(diameter: 4,0-4,3 mm)



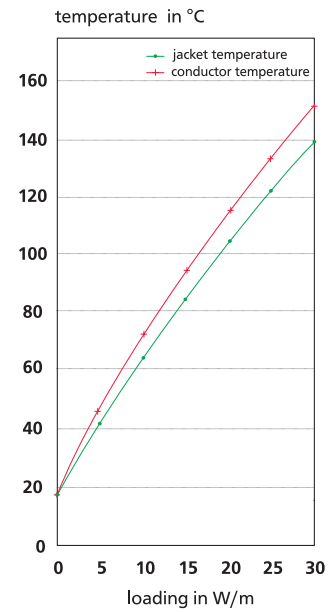
ambient base temperature: +17°C

**HEW-THERM® 260 ECEX**  
(diameter: 4,3-4,6 mm)



ambient base temperature: +17°C

**HEW-THERM® 260 ECEX**  
(diameter: 4,6-4,9 mm)



ambient base temperature: +17°C

The knowledge of the sheath temperature of heating cables is necessary to determine the limiter temperature within hazardous areas to avoid any ignition. Diagrams above show temperatures of the conductor surface and heating cable sheath at an ambient temperature of + 17 °C.

For deviating product or pipe temperatures the temperature difference has to be added to the determined value of the graph.

Example:

Product temperature: 80 °C  
 Reference temperature of values in diagram: 17 °C  
 $\Delta T = 63 \text{ K}$

(This value has to be added to the temperature value of the diagram at defined load to determine conductor or cable sheath temperature.)

## Loads for heating cables HEW-THERM® 260 ECEX 5307

Application temperature in °C	Specific load in W/m at complete/partial contact between heating cable and heated surface
... up to + 10	30/25
+ 11 up to + 30	25/20
+ 31 up to + 50	21/18
+ 51 up to + 75	18/15
+ 76 up to + 100	15/12
+ 101 up to + 125	12/10
+ 126 up to + 150	10/ 8
+ 151 up to + 200	8/ 5

The specific load or power output is subject to variation depending on the temperature of the surface to be heated. This variation has to be taken into consideration when using series - resistive heating cables, e.g. HEW-THERM® 260 EYCEX 5203 or ECEX 5307.

In these values, aspects like heating conductor extension and material movements in insulations and sheaths etc. are taken into consideration.

The power load of connection cables is determined by the material properties as well as the instructions of VDE standard 0100/part 523. These values also typify the use of joints.

Products

Heating  
Cables

## Temperature differences between heating conductor surface and surface of sheath

HEW-THERM® 260 EYCEX 5203 and HEW-THERM® 260 ECEX 5307

Resistance [Ω/km]	Load per meter cable [W]					
	5	10	15	20	25	
	Temperature difference [K]					
0,7	I.	<b>8</b>	<b>14</b>	<b>20</b>	<b>24</b>	<b>29</b>
	II.	21	32	44	53	63
1,1	I.	<b>10</b>	<b>19</b>	<b>27</b>	<b>32</b>	<b>37</b>
	II.	24	38	52	62	70
1,8	I.	<b>12</b>	<b>21</b>	<b>29</b>	<b>36</b>	<b>41</b>
	II.	25	41	54	65	73
2,9	I.	<b>12</b>	<b>21</b>	<b>29</b>	<b>34</b>	<b>40</b>
	II.	26	39	51	60	70
4,4	I.	<b>16</b>	<b>25</b>	<b>34</b>	<b>42</b>	<b>49</b>
	II.	32	51	64	77	87
7	I.	<b>17</b>	<b>27</b>	<b>37</b>	<b>45</b>	<b>52</b>
	II.	32	51	65	78	88
10	I.	<b>19</b>	<b>32</b>	<b>43</b>	<b>51</b>	<b>58</b>
	II.	36	58	73	86	98
11,7	I.	<b>18</b>	<b>30</b>	<b>40</b>	<b>49</b>	<b>56</b>
	II.	35	53	69	82	95
15	I.	<b>19</b>	<b>33</b>	<b>44</b>	<b>53</b>	<b>61</b>
	II.	36	59	75	89	102
25	I.	<b>22</b>	<b>36</b>	<b>48</b>	<b>59</b>	<b>70</b>
	II.	42	64	84	100	115
50	I.	<b>19</b>	<b>32</b>	<b>44</b>	<b>54</b>	<b>63</b>
	II.	38	57	75	89	103
65	I.	<b>21</b>	<b>34</b>	<b>47</b>	<b>57</b>	<b>68</b>
	II.	41	61	80	95	110
80	I.	<b>22</b>	<b>37</b>	<b>51</b>	<b>62</b>	<b>73</b>
	II.	44	66	87	104	119
100	I.	<b>18</b>	<b>30</b>	<b>41</b>	<b>50</b>	<b>59</b>
	II.	36	54	70	84	96
150	I.	<b>20</b>	<b>32</b>	<b>44</b>	<b>54</b>	<b>65</b>
	II.	38	58	76	91	105
200	I.	<b>21</b>	<b>35</b>	<b>48</b>	<b>58</b>	<b>69</b>
	II.	41	63	82	98	112
320	I.	<b>20</b>	<b>34</b>	<b>46</b>	<b>56</b>	<b>67</b>
	II.	40	61	79	94	109
380	I.	<b>21</b>	<b>29</b>	<b>47</b>	<b>57</b>	<b>68</b>
	II.	41	61	80	95	110
480	I.	<b>22</b>	<b>37</b>	<b>51</b>	<b>62</b>	<b>73</b>
	II.	44	66	87	104	119
600	I.	<b>25</b>	<b>41</b>	<b>56</b>	<b>68</b>	<b>81</b>
	II.	49	73	96	114	132
700	I.	<b>21</b>	<b>29</b>	<b>47</b>	<b>57</b>	<b>68</b>
	II.	41	61	80	95	110
810	I.	<b>22</b>	<b>38</b>	<b>51</b>	<b>68</b>	<b>73</b>
	II.	44	66	87	104	119

## Temperature differences between heating conductor surface and surface of sheath

### HEW-THERM® 260 EYCEX 5203 and HEW-THERM® 260 ECEX 5307

Resistance [Ω/km]	Load per meter cable [W]					
		5	10	15	20	25
		Temperature difference [K]				
1000	I.	<b>23</b>	<b>38</b>	<b>53</b>	<b>64</b>	<b>77</b>
	II.	46	69	91	108	124
1440	I.	<b>26</b>	<b>43</b>	<b>58</b>	<b>71</b>	<b>84</b>
	II.	51	76	100	119	137
1750	I.	<b>27</b>	<b>45</b>	<b>62</b>	<b>75</b>	<b>89</b>
	II.	54	81	106	126	145
2000	I.	<b>23</b>	<b>38</b>	<b>52</b>	<b>63</b>	<b>75</b>
	II.	45	68	89	106	122
3000	I.	<b>29</b>	<b>47</b>	<b>64</b>	<b>78</b>	<b>93</b>
	II.	56	84	110	131	151
4000	I.	<b>30</b>	<b>50</b>	<b>69</b>	<b>83</b>	<b>99</b>
	II.	59	90	118	140	161
4400	I.	<b>29</b>	<b>48</b>	<b>66</b>	<b>79</b>	<b>95</b>
	II.	57	86	112	134	154
5600	I.	<b>30</b>	<b>51</b>	<b>70</b>	<b>84</b>	<b>100</b>
	II.	59	90	117	140	162
7000	I.	<b>32</b>	<b>52</b>	<b>72</b>	<b>87</b>	<b>104</b>
	II.	62	94	123	146	169
8000	I.	<b>28</b>	<b>48</b>	<b>67</b>	<b>83</b>	<b>98</b>
	II.	57	86	109	133	152

Temperature differences at:

I. Full surface contact between heating cable and surface to be heated

II. Partial heat transfer between heating cable and surface to be heated

The temperature of the heating conductor can be important when choosing insulation material, especially when installing HEW-THERM® heating cables within hazardous areas. The ΔT-values shown in the tables for HEW-THERM® 260 EYCEX 5203 ECEX 5703 can also be used for the design with heating cables HEW-THERM® 260 ECEX 5344, HEW-THERM® 230 KCY 5344 and HEW-THERM® 230 SPEZIAL 5852.

Example: Calculation of conductor surface temperature:

Product temperature: 80 °C, specific heating power: 10 W/m

Chosen cable:

HEW-THERM® 260 ECEX 5307/100 (100 Ω/km)

ΔT = 54 K

Conductor surface temperature: 80 + 54 = 134 °C

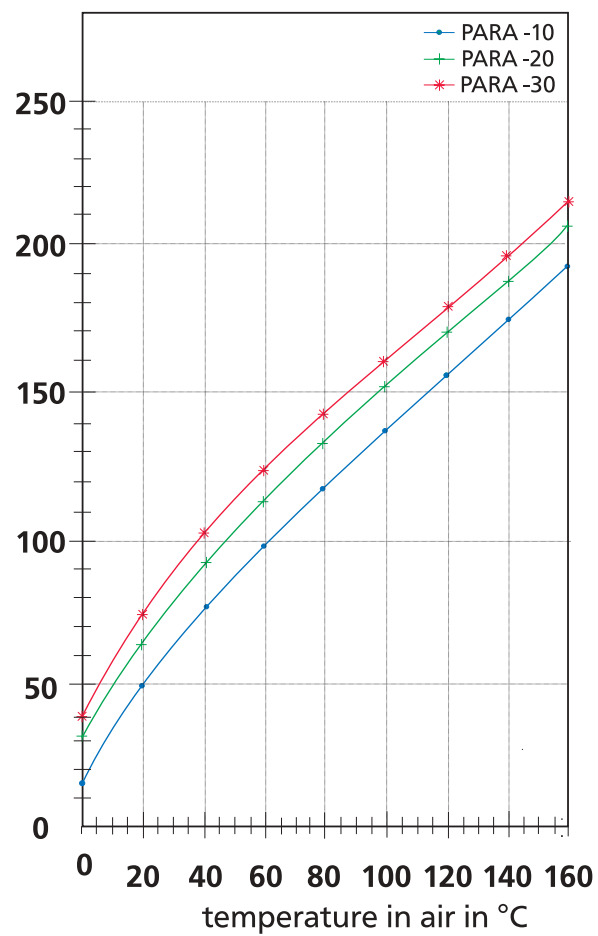
Products

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## HEW-THERM® 230/200 PARA

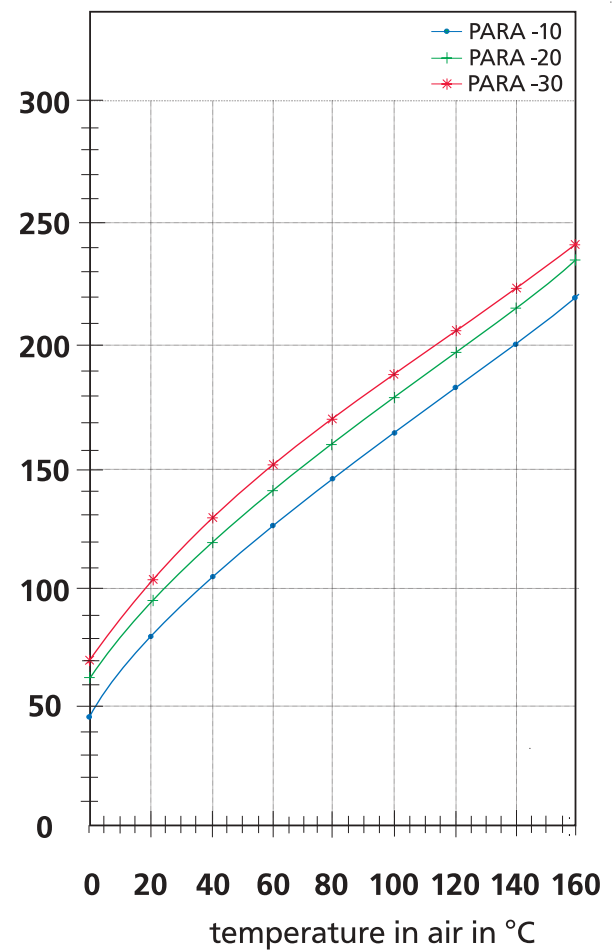
Sheath temperatures (heating tape temperatures) of heating tape HEW-THERM® 230 PARA and 200 PARA.

**HEW-THERM® 200 PARA**  
Heating tape temperature in °C



Measurement in air

**HEW-THERM® 230 PARA**  
Heating tape temperature in °C



Measurement in air

## Public testing authorities HEW-THERM® heating cables

*Products*

HEW-KABEL/CDT products are regularly tested by certified test institutes. These certified bodies test the construction of heating cables and heating tapes as well as accessories for use inside or outside of hazardous areas.

These are in particular:

PTB <sup>1)</sup>	Physikalisch-Technische Bundesanstalt, Braunschweig/D
VDE	VDE-Prüfstelle, Offenbach/D
KEMA <sup>1)</sup>	Dutch test institute, Arnhem/NL
ISSEP <sup>1)</sup>	Belgium test institute, Pâturages/B
SEMKO	Swedish test institute, Kista/S
FIMKO	Finnish test institute, Helsinki/Fin
SEV	Swiss test institute, Zürich/CH
NEMKO	Norwegian test institute, Oslo/N
GOST <sup>1)</sup>	Russian test institute (GUS), Moscow/RUS

<sup>1)</sup> Approvals for products applied in hazardous areas (tests according to EN 50019 and ATEX 110/118a resp.)

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## Resistance of insulation and sheath materials

Only an optimized adjustment of the heating cable to environmental influences ensures a long-term and troublefree operation of the heating system.

Especially the sheath of the heating cable is continuously exposed to more or less aggressive components.

According to this demand the product program of HEW-THERM®-heating cables offers the possibility to choose between several insulation and sheath materials. The table below shows the performance of each material.

	Temperatur °C	Sulphuric acid	Nitric acid	Formic acid	Acetic acid	Hydrochloric acid 20%	Ammonia	Natron hydroxide/potash lye	Sodium chloride	Sodium carbonate	Benzole/ethanol	Toluol/benzine	Tetrachloromethane	Fluorine/chlorine/ozone	Bromine	Hydraulic oil (Skydrol)	Mineral oil	Sodium salt	Potassium salt	UV-rays
PTFE	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	limited applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
PFA	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	limited applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
FEP	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
HDPE	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	90	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
PVDF	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
PVC	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	90	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
V4A + Glass fibre	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
Glass fibre	20	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	60	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	100	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable
	150	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable	applicable

- applicable
- limited applicable
- material not applicable in this temperature range
- not applicable

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Lined area for notes with a decorative circular pattern at the bottom.