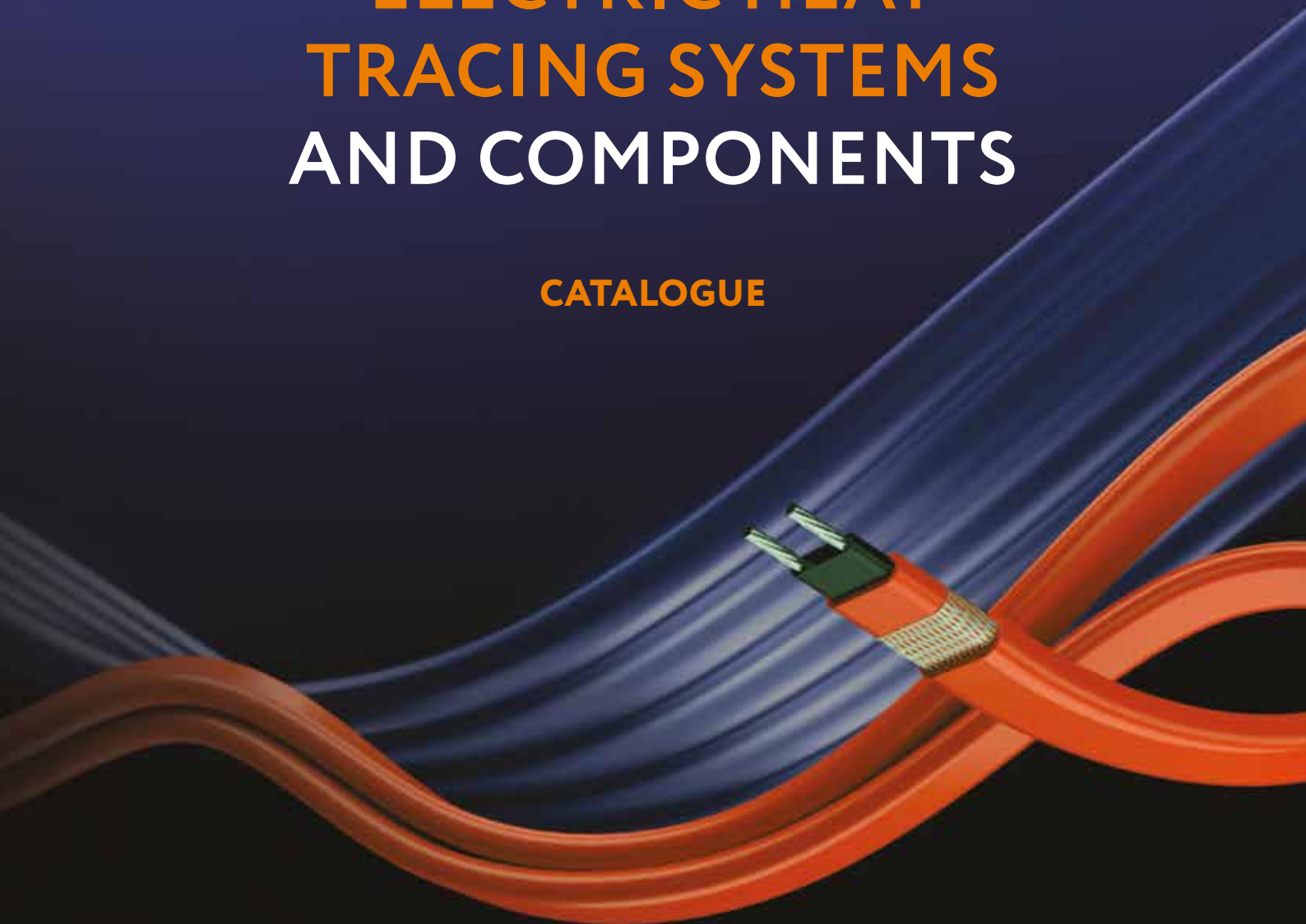


Sigmian

ELECTRIC HEAT TRACING SYSTEMS AND COMPONENTS

CATALOGUE



2025





ELECTRIC HEAT TRACING SYSTEMS AND COMPONENTS

CATALOGUE

2025

Content

ABOUT US	4
Manufacturing Facilities	5
Cutting-Edge Technologies	6
Quality Assurance	8
Digital Technologies	10
OUR PRODUCTS	11
Premium	12
Self-Regulating Heating Cable HTM	12
Self-Regulating Heating Cable HTA	14
Self-Regulating Heating Cable HTP	16
Self-Regulating Heating Cable BTC	18
Self-Regulating Heating Cable BTCe	20
Self-Regulating Heating Cable BTX	22
Self-Regulating Heating Cable BTXe	24
Self-Regulating Heating Cable CTE	26
Series-Resistance Heating Cable SNF	28
Series-Resistance Heating Cable SNF-L	30
Metal Outer Jacket Fibreglass-Insulated Cable MOIC-F	32
Mineral Insulated Heating Cable MIAL	34
Mineral Insulated Heating Cable MICN	38
Mineral Insulated Heating Cable MICU	42
Mineral Insulated Heating Cable MISS	46
Junction Boxes for Self-Regulating Heating Cables	50
Junction Boxes for Self-Regulating Heating Cables (3 and More Circuits)	52
Junction Boxes for Light Indication and Connection of Heating Cables to Power Supply	54
Junction Boxes for Connection of Data, Control and Signal Cables	58
Junction Boxes for Series-Resistance Heating Cables Connection	60
Junction Boxes for Connection of Mineral-Insulated Heating Cables	62
Junction Boxes for Power Cables Connection	64
Junction Boxes for Three-Phase Series-Resistance Heating Cables Connection	66
Premium Line Models Assortment & Ordering Information	68
Connection Kits for Self-Regulating Heating Cables	70
Connectors for SNF, SNF-L Cables	72
Cable Entry Unit LEK/U	73
Connection kit KTY	73
Brackets	74
Tapes & Straps	78

Classic	80
Self-Regulating Heating Cable VTM	80
Self-Regulating Heating Cable VTL	82
Self-Regulating Heating Cable VTR	84
Series-Resistance Heating Sections IndAstro-R	86
Junction Boxes for Self-Regulating Heating Cables to Power Connection with Pipe Installation Support	90
Junction Boxes for Self-Regulating Heating Cables to Power Connection	92
Junction Box for Light Indication	94
Junction Box for Series-Resistance Heating Cables	96
Junction Box for Mineral-Insulated Heating Cables	98
Precipitator & Water Sensors (TSP02, TSP03-D, TSW01)	100
Temperature Sensors & Power Supply Unit (TST01, PT100, TST04)	101
Pipe Support Stand UVK	102
ECO.....	104
Self-Regulating Heating Cable LTM	104
Self-Regulating Heating Cable LTL	106
Self-Regulating Heating Cable LTR	108
Self-Regulating Heating Cable Units RoofMate	110
Self-Regulating Heating Cable Units PipeMate	112
QUESTIONNAIRES.....	114

ABOUT US

Sigmian GmbH is part of the international group of companies in the top three global providers of industrial heat tracing of industrial heat tracing as well as residential and commercial electric heating cable solutions and electrical and mechanical equipment.

Our core principles are **innovation, quality and responsibility**. For over 7 years we have been creating technologically advanced products based on our extensive experience and high engineering capacity to ensure the safety and reliability of industrial companies' technological processes.

In-house production
in UAE

High quality products
proved by certificates

Project consultancy services
in Europe with our team of professionals

Large warehouse
continuously restocked

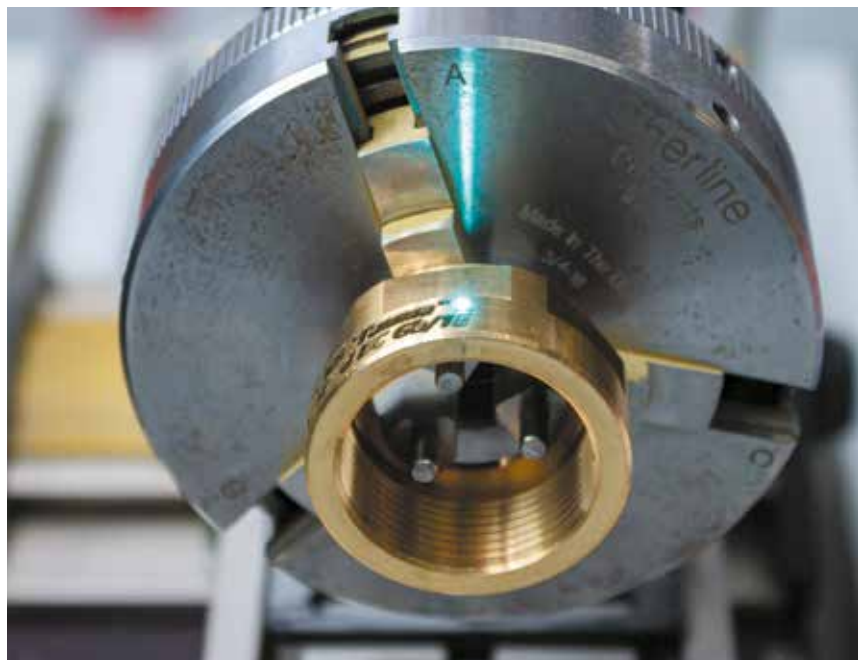
Quick delivery time
due to uninterrupted supply



Manufacturing Facilities

At our manufacturing facilities located in the UAE, we are committed to meeting the entire scope of our customers' requirements in the field of heat tracing.

Extensive manufacturing experience, qualified staff and automated machinery ensure compliance with the demanding world standards and the highest quality levels.



Cutting-Edge Technologies



We manufacture all critical components of heat tracing systems, including self-regulating heating cables, series-resistance heating cables, junction boxes and accessories.



Our manufacturing park includes specialized machines: electron-beam machining (EBM), automated test and measurement instruments and other state-of-the-art equipment for uninterrupted manufacturing of a wide range of products.

We manufacture world-class heat tracing systems based on series-resistance cables for applications such as pipelines, tanks and process equipment in temperatures up to 600 °C.

Electric heating systems based on self-regulating heating cables ensure the continuity and safety of technological processes in all key energy industries. It is the most energy-efficient solution for trace heating systems on the market.

Our group is one of only few worldwide to manufacture self-regulating heating cables completely in-house, including the electrically-conductive matrix. We produce a matrix for high, medium and low temperature cables, compatible with heating systems of all global manufacturers.



We also make high-quality junction boxes for power supply and input of self-regulating and series-resistance heating cables in electric heating cable systems.

Well-established manufacturing processes guarantee the junction box's adaptability to project changes.

- Reduced risk of damage to heating cables at connection points
- Wide range of possible applications
- Quick and easy installation
- High thermal stability
- Non-corrosive
- Approved for installation in explosion hazardous areas



Quality Assurance

Our products undergo multi-stage quality control, which allows us to guarantee stability of the product characteristics.

Sigmian GmbH pays special attention to complying with international standards and global best practices in the area of quality management system, lean manufacturing, health, safety and environmental protection.

All our eco-friendly solutions meet international quality and environmental standards. Our products have ATEX and CE approvals, and our companies hold ISO 9001 certifications.



Our group is listed as a trusted supplier of heat tracing systems among the world's largest EPC contractors due to the extensive engineering and project management experience as well as the top quality of its products.



Due to our attention to quality and innovative approach, our customers can always expect high quality and efficiency of the installed systems. We offer short delivery times across Europe due to large stock capacity and a knowledgeable, attentive and fast customer service.



WIDE RANGE OF PRODUCTS

100% in-house production of all key components of heat tracing systems



SHORT DELIVERY TIME

Large stock capacity of the German facility allows quick deliveries to any EU country.



REASONABLE PRICING

Best price-quality ratio guaranteed.



PROFESSIONAL CONSULTATION AND CALCULATION

Design, engineering, technical and logistical support.



Digital Technologies

COMING SOON

We develop our own software products to automate various industrial processes, linked by a single business-to-business order management system.

MODERN SERVICE

We are developing an online B2B-portal for easy and fast order management at the tip of your fingers. A digital environment for efficient business processes — from quotation to delivery.

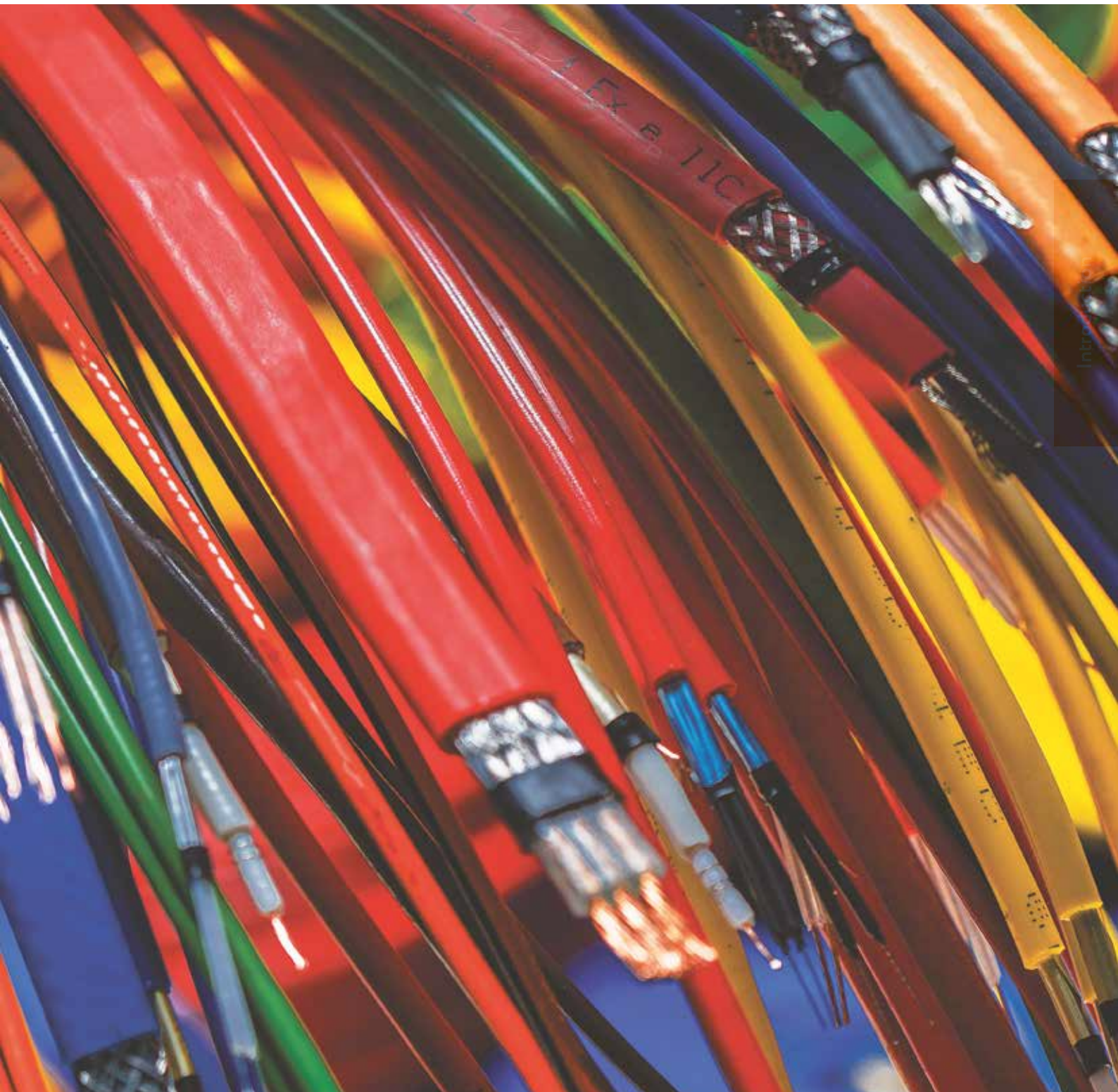
- Personalised discount system
- Online tools for technical solution selection
- Quick and reliable delivery of orders (24/7)
- Up-to-date stock
- Transparent terms of cooperation

INNOVATIVE DIGITAL PRODUCTS

TraceXPro is a tool specifically designed to calculate the parameters of industrial trace heating systems, enabling the professional selection of technical solutions to provide the offer to the client in the shortest possible time.



OUR PRODUCTS



Self-Regulating Heating Cable HTM

HTM is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas. The power output adjusts automatically in response to the ambient temperature.

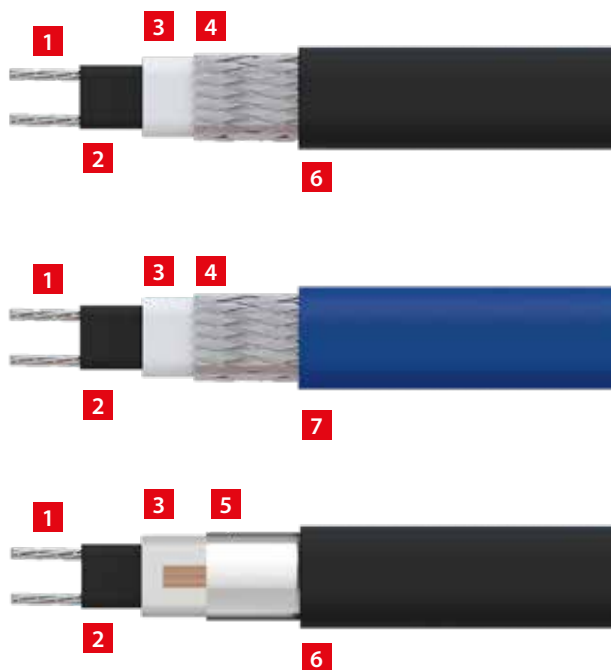
Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Features

- 10 or 15 W/m
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer or fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant fluoropolymer

Application

- Freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. 0.56 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

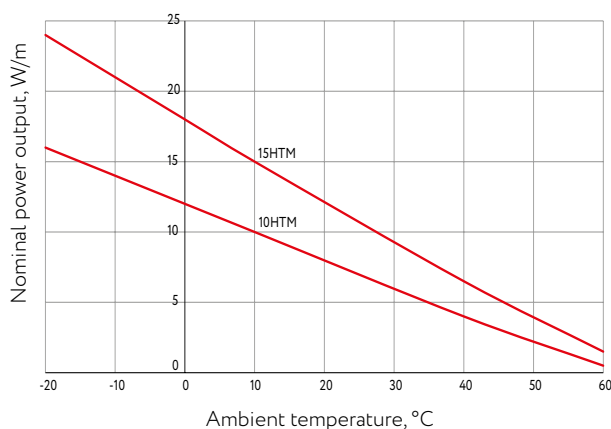
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance	
- Braiding	10 Ohm/km
- Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	0.56 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Braiding	9.0×5.8 mm
- Al/PET tape with drain conductor	8.7×5.1 mm
Fluoropolymer outer jacket, braiding	8.6×5.4 mm
Weight:	
Thermoplastic elastomer outer jacket	
- Braiding	69 kg/km
- Al/PET tape with drain conductor	88 kg/km
Fluoropolymer outer jacket, braiding	97 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T6 Gb
Ex 60079-30-1 IIIC T85°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Cable Type	Switch-on temperature, °C	Recommended maximum length depends on Type C circuit breaker, m	
		10 A	16 A
10-HTM	10	130	130
	-20	110	110
15-HTM	10	120	120
	-20	85	85

Marking

Example: 15-HTM2-BT

① ② ③ ④ ⑤

- Nominal power output, W/m at +10 °C
- Cable type
- Rated voltage: 2 – 230 VAC
- Screen type: B – Tinned copper wire braiding, A – Al/PET tape with drain conductor
- Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	3201100000	Black	10-HTM2-AT	10
	3201100001		15-HTM2-AT	15
Thermoplastic elastomer outer jacket, braiding	3201100002	Black	10-HTM2-BT	10
	3201100003		15-HTM2-BT	15
Fluoropolymer outer jacket, braiding	3201100004	Blue	10-HTM2-BP	10
	3201100005		15-HTM2-BP	15

Self-Regulating Heating Cable HTA

HTA is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

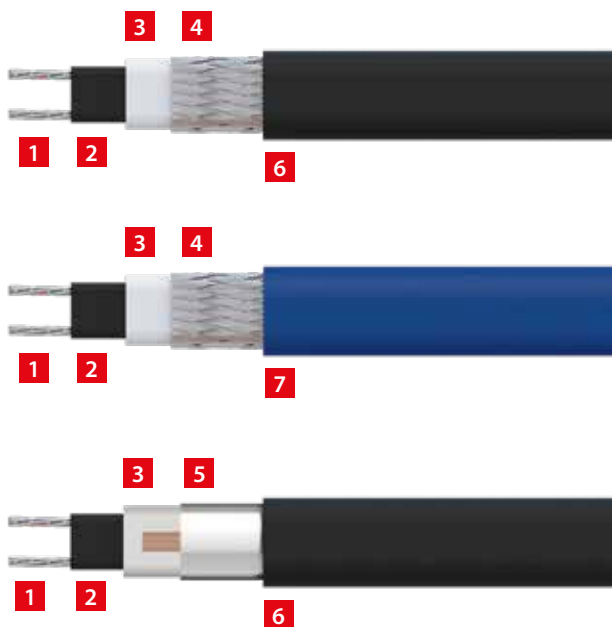
Installation of HTA heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Features

- 10, 15, 25 or 30 W/m
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer or Fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant fluoropolymer

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. 1.00 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

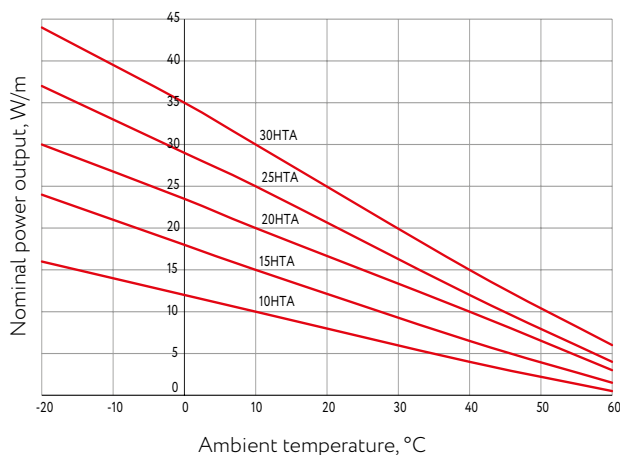
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance	
- Braiding	10 Ohm/km
- Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	1.00 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Braiding	10.9×6.0 mm
- Al/PET tape with drain conductor	10.7×5.3 mm
Fluoropolymer outer jacket, braiding	10.5×5.6 mm
Weight:	
Thermoplastic elastomer outer jacket	
- Braiding	109 kg/km
- Al/PET tape with drain conductor	89 kg/km
Fluoropolymer outer jacket, braiding	120 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X

II 2 GD

Ex 60079-30-1 IIC T6 Gb

Ex 60079-30-1 IIIC T85°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Cable Type	Switch-on temperature, °C	Heating circuit length/m at 230 VAC				
		10 A	16 A	20 A	25 A	32 A
10-HTA	10	130	160	190	190	190
	-20	90	140	160	160	170
15-HTA	10	120	150	170	170	175
	-20	85	140	140	140	140
20-HTA	10	90	140	150	150	160
	-20	65	110	115	115	120
25-HTA	10	55	90	115	125	140
	-20	40	65	80	85	95
30-HTA	10	40	65	85	100	115
	-20	30	50	65	70	80

Marking

Example: 15-HTA2-BT

① ② ③ ④ ⑤

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Rated voltage: 2 – 230 VAC
4. Screen type: B – Tinned copper wire braiding, A – Al/PET tape with drain conductor
5. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	3201101900	Black	10-HTA2-AT	10
	3201101901		15-HTA2-AT	15
	3201101902		20-HTA2-AT	20
	3201101903		25-HTA2-AT	25
	3201101904		30-HTA2-AT	30
Thermoplastic elastomer outer jacket, braiding	3201101013	Black	10-HTA2-BT	10
	3201101004		15-HTA2-BT	15
	3201101005		20-HTA2-BT	20
	3201101006		25-HTA2-BT	25
	3201101007		30-HTA2-BT	30
Fluoropolymer outer jacket, braiding	–	Blue	10-HTA2-BP	10
	3201101008		15-HTA2-BP	15
	3201101009		20-HTA2-BP	20
	3201101010		25-HTA2-BP	25
	3201101011		30-HTA2-BP	30

Self-Regulating Heating Cable HTP

HTP is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

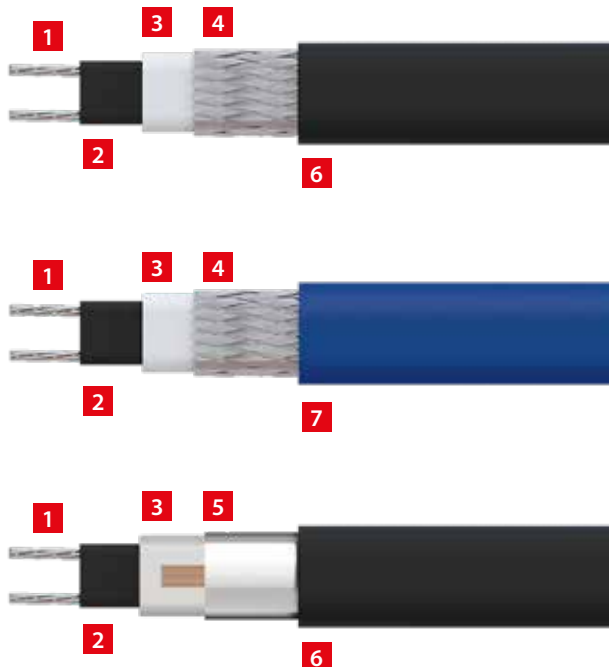
Installation of HTP heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Features

- 10, 15, 20, 25, 33 or 40 W/m
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer or fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant fluoropolymer

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

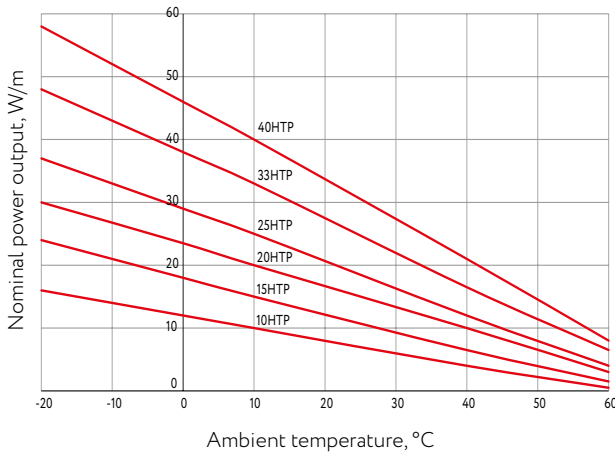
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance:	
- Braiding	10 Ohm/km
- Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	1.25 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Braiding	13.2×6.1 mm
- Al/PET tape with drain conductor	12.9×5.4 mm
Fluoropolymer outer jacket, braiding	12.8×5.7 mm
Weight:	
Thermoplastic elastomer outer jacket	
- Braiding	135 kg/km
- Al/PET tape with drain conductor	111 kg/km
Fluoropolymer outer jacket, braiding	148 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T6 Gb
Ex 60079-30-1 IIIC T85°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Cable Type	Switch-on temperature, °C	Recommended maximum length depends on Type C circuit breaker, m				
		10A	16A	20 A	25 A	32A
10-HTP	10	130	205	206	208	210
	-20	90	160	170	185	205
15-HTP	10	120	170	175	180	190
	-20	85	140	145	155	165
20-HTP	10	90	150	160	175	190
	-20	65	105	110	125	135
25-HTP	10	65	105	120	140	155
	-20	40	70	85	105	130
33-HTP	10	45	85	95	105	120
	-20	35	60	70	80	100
40-HTP	10	35	70	80	90	100
	-20	30	45	55	75	75

Marking

Example: 33-HTP2-BT

① ② ③ ④ ⑤

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Rated voltage: 2 – 230 VAC
4. Screen type: B – Tinned copper wire, braiding, A – Al/PET tape with drain conductor
5. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	3201102000	Black	10-HTP2-AT	10
	3201102001		15-HTP2-AT	15
	3201102002		20-HTP2-AT	20
	3201102003		25-HTP2-AT	25
	3201102004		33-HTP2-AT	33
	3201102005		40-HTP2-AT	40
Thermoplastic elastomer outer jacket, braiding	3201102006	Black	10-HTP2-BT	10
	3201102007		15-HTP2-BT	15
	3201102008		20-HTP2-BT	20
	3201102009		25-HTP2-BT	25
	3201102010		33-HTP2-BT	33
	3201102011		40-HTP2-BT	40
Fluoropolymer outer jacket, braiding	3201102012	Blue	10-HTP2-BP	10
	3201102013		15-HTP2-BP	15
	3201102014		20-HTP2-BP	20
	3201102015		25-HTP2-BP	25
	3201102016		33-HTP2-BP	33
	3201102017		40-HTP2-BP	40

Self-Regulating Heating Cable BTC

BTC is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of BTC heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Features

- 8, 15, 24, 30, 37, 45 or 60 W/m
- For high temperatures
- Steam purging possible
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Fluoropolymer outer jacket

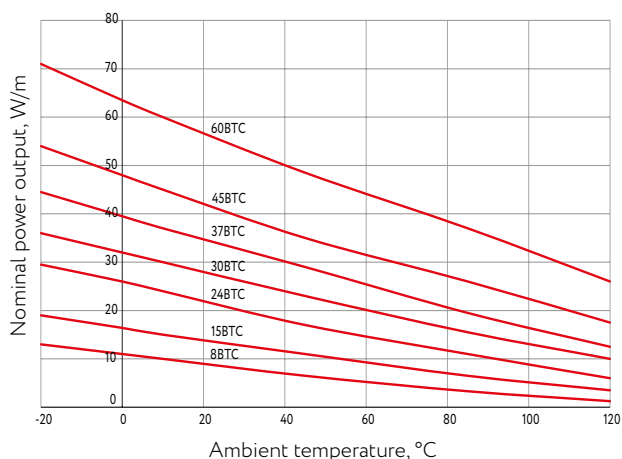
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+120 °C
Maximum continuous exposure temperature (trace heater de-energized)	+200 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature: Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance – Braiding	10 Ohm/km
Conductor cross-section	1.25 mm ²
Dimension: Fluoropolymer outer jacket, braiding	10.8×5.3 mm
Weight: Fluoropolymer outer jacket, braiding	141 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T3 Gb
Ex 60079-30-1 IIIC T200°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Switch-on temperature, °C	Recommended maximum length depends on Type C circuit breaker, m				
		10 A	16 A	20 A	25 A	32 A
8-BTC	10	205	280	290	305	320
	-20	140	190	200	210	225
15-BTC	10	120	165	175	195	220
	-20	100	145	150	170	200
24-BTC	10	95	130	140	150	170
	-20	80	115	120	140	160
30-BTC	10	80	115	120	127	135
	-20	70	100	105	115	125
37-BTC	10	68	95	100	105	115
	-20	65	95	100	102	105
45-BTC	10	55	80	85	93	100
	-20	45	75	77	85	95
60-BTC	10	45	70	73	78	85
	-20	39	63	65	71	78

Marking

Example: 15-BTC2-BP

① ② ③ ④ ⑤

- Nominal power output, W/m at +10 °C
- Cable type
- Rated voltage: 2 – 230 VAC
- Screen type: B – Tinned copper wire braiding
- Outer jacket material: P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Fluoropolymer outer jacket, braiding	—	Red	8-BTC2-BP	8
	3201103000		15-BTC2-BP	15
	3201103005		24-BTC2-BP	24
	3201103001		30-BTC2-BP	30
	3201103006		37-BTC2-BP	37
	3201103002		45-BTC2-BP	45
	3201103003		60-BTC2-BP	60

Self-Regulating Heating Cable BTCe

BTCe is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas. Comply with the requirements of IEC/IEFF 60079-30-1-2017 and IEC 60079-0:2018.

BTCe series is an upgrade version of BTC heating cables but with a higher maximum continuous operation temperature – up to +150 °C.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of BTCe heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated designed calculations.

Features

- 8, 15, 24, 30, 37, 45 or 60 W/m
- For high temperatures
- Steam purging possible
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Fluoropolymer outer jacket

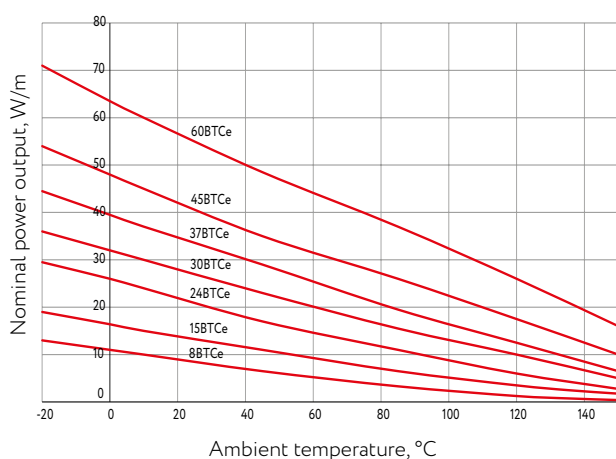
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+150 °C
Maximum continuous exposure temperature (trace heater de-energized)	+250 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature: Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance – Braiding	10 Ohm/km
Conductor cross-section	1.25 mm ²
Dimension: Fluoropolymer outer jacket, braiding	10.8×5.3 mm
Weight: Fluoropolymer outer jacket, braiding	141 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T3 Gb
Ex 60079-30-1 IIIC T200°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Switch-on temperature, °C	Recommended maximum length depends on Type C circuit breaker, m					
		10 A	16 A	20 A	25 A	32 A	
8-BTCe	10	205	280	290	305	320	
	-20	140	190	200	210	225	
15-BTCe	10	120	165	175	195	220	
	-20	100	145	150	170	200	
24-BTCe	10	95	130	140	150	170	
	-20	80	115	120	140	160	
30-BTCe	10	80	115	120	127	135	
	-20	70	100	105	115	125	
37-BTCe	10	68	95	100	105	115	
	-20	65	95	100	102	105	
45-BTCe	10	55	80	85	93	100	
	-20	45	75	77	85	95	
60-BTCe	10	45	70	73	78	85	
	-20	39	63	65	71	78	

Marking

Example: 15-BTCe2-BP

① ② ③ ④ ⑤

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Rated voltage: 2 – 230 VAC
4. Screen type: B – Tinned copper wire braiding
5. Outer jacket material: P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Fluoropolymer outer jacket, braiding	—	Red	8-BTCe2-BP	8
	—		15-BTCe2-BP	15
	—		24-BTCe2-BP	24
	—		30-BTCe2-BP	30
	—		37-BTCe2-BP	37
	—		45-BTCe2-BP	45
	—		60-BTCe2-BP	60

Self-Regulating Heating Cable BTX

BTX is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of BTX heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Features

- 8, 15, 30, 45, 60, 75 or 100 W/m
- For medium-high temperatures
- Steam purging possible
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



**THERMAL RESISTANCE
UP TO 250 °C**

Construction

1. 1.25 mm² (2.00 mm² for 75 W/m, 100 W/m) nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Fluoropolymer outer jacket

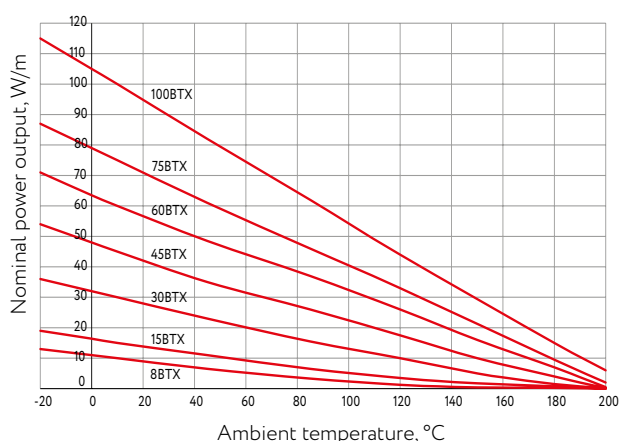
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+205 °C
Maximum continuous exposure temperature (trace heater de-energized)	+250 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature: Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance – Braiding	10 Ohm/km
Conductor cross-section	1.25 or 2.00 mm ²
Dimension:	
8BTX – 60BTX	12.1×5.2 mm
75BTX, 100BTX	14.5×5.9 mm
Weight:	
8BTX – 60BTX	153 kg/km
75BTX, 100BTX	211 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD



8BTX – 60BTX:
Ex 60079-30-1 IIC T3 Gb
Ex 60079-30-1 IIIC T200°C Db
75BTX, 100BTX:
Ex 60079-30-1 IIC 240°C (T2) Gb
Ex 60079-30-1 IIIC T300°C Db

Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC					
		10A	16A	20 A	25 A	32A	50A
8-BTX	10	84	135	169	186	210	210
	-20	69	109	134	164	205	205
15-BTX	10	76	125	154	175	205	205
	-20	61	107	124	155	200	200
30-BTX	10	52	85	102	120	145	145
	-20	40	69	81	106	140	140
45-BTX	10	38	65	76	88	105	105
	-20	30	50	61	75	95	95
60-BTX	10	30	50	62	74	90	90
	-20	20	35	40	53	70	70
75-BTX	10	–	45	50	65	85	85
	-20	–	35	40	52	68	68
100-BTX	10	–	35	45	55	70	70
	-20	–	30	35	45	59	59

Marking

Example: 15-BTX2-BP

① ② ③ ④ ⑤

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Rated voltage: 2 – 230 VAC
4. Screen type: B – Tinned copper wire braiding
5. Outer jacket material: P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Fluoropolymer outer jacket, braiding	–	Black	8-BTX2-BP	8
	3201004000		15-BTX2-BP	15
	3201004001		30-BTX2-BP	30
	3201004002		45-BTX2-BP	45
	3201004003		60-BTX2-BP	60
	3201004004		75-BTX2-BP	75
	3201004005		100-BTX2-BP	100

Self-Regulating Heating Cable BTXe

BTXe is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for temperature maintenance or freeze protection of pipelines and vessels. It can be used in non-hazardous and ex-hazardous areas. The cables comply with requirements of IEC/IEEF 60079-30-1-2017 and IEC 60079-0:2018.

BTXe series is an upgrade version of BTx heating cables but with a higher maximum continuous operation temperature - up to +250 °C.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of BTXe heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Features

- 8, 15, 30, 45, 60, 75 or 100 W/m
- For extra high temperatures
- Steam purging possible
- Ex-approved solution
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Can be used in explosive environments without temperature limiter
- Full range of accessories available
- UV- and chemical-resistant

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



**THERMAL RESISTANCE
UP TO 250 °C**

Construction

1. 1.25 mm² (2.00 mm² for 75 W/m, 100 W/m) nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Fluoropolymer outer jacket

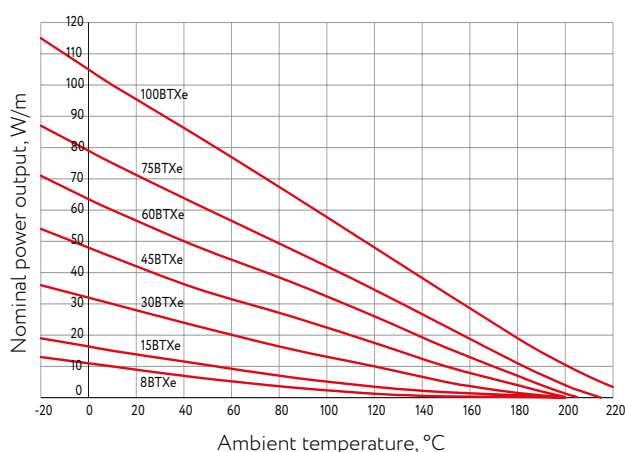
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+250 °C
Maximum continuous exposure temperature (trace heater de-energized)	+250 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance – Braiding	10 Ohm/km
Conductor cross-section	1.25 or 2.00 mm ²
Dimension:	
8BTXe – 60BTXe	12.1×5.2 mm
75BTXe, 100BTXe	14.5×5.9 mm
Weight:	
8BTXe – 60BTXe	153 kg/km
75BTXe, 100BTXe	211 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD



8BTXe – 60BTXe:
Ex 60079-30-1 IIC T3 Gb
Ex 60079-30-1 IIIC T200°C Db
75BTXe, 100BTXe:
Ex 60079-30-1 IIC 240°C (T2) Gb
Ex 60079-30-1 IIIC T300°C Db

Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC			
		16A	20A	32A	50A
8-BTXe	10	135	169	210	210
	-20	110	134	210	210
15-BTXe	10	125	154	205	205
	-20	110	122	205	205
30-BTXe	10	85	102	145	145
	-20	70	82	145	145
45-BTXe	10	65	76	105	105
	-20	50	62	100	100
60-BTXe	10	50	62	90	86
	-20	35	40	75	86
75-BTXe	10	45	50	85	76
	-20	36	40	70	60
100-BTXe	10	35	45	70	84
	-20	31	35	60	76

Marking

Example: 15-BTXe2-BP

① ② ③ ④ ⑤

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Rated voltage: 2 – 230 VAC
4. Screen type: B – Tinned copper wire braiding
5. Outer jacket material: P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Fluoropolymer outer jacket, braiding	—	Black	8-BTXe2-BP	8
	—		15-BTXe2-BP	15
	—		30-BTXe2-BP	30
	—		45-BTXe2-BP	45
	—		60-BTXe2-BP	60
	—		75-BTXe2-BP	75
	—		100-BTXe2-BP	100

Self-Regulating Heating Cable CTE

CTE is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) used to prevent formation of ice and accumulation of snow on outdoor industrial sites (open pump sites, ramps, helipads).

A high power output allows to use CTE for concrete heating. Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Thanks to its parallel construction the power output of the heating cable is everywhere the same.

Thus it can be fitted on site to exact piping length without any complicated design calculations.

CTE can be supplied as pre-fabricated connection-ready sections with cold leads.

Features

- 90 W/m (at 0°C in concrete)
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer outer jacket
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Full range of accessories available

Application

- Prevention of ice formation and snow accumulation on outdoor industrial sites (open pump sites, ramps, helipads)



Construction

1. 2.00 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Thermoplastic elastomer outer jacket

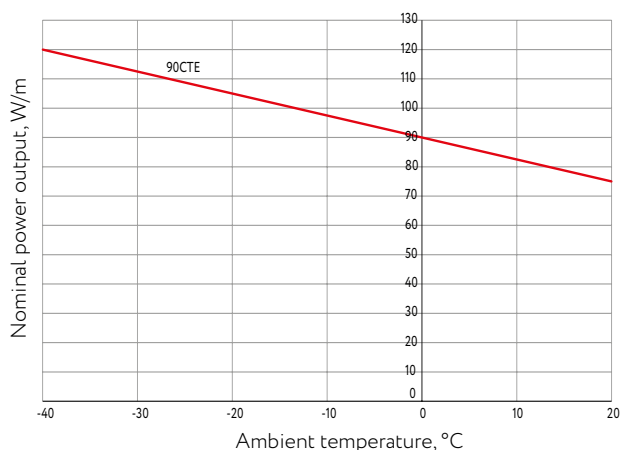
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+80 °C
Maximum continuous exposure temperature (trace heater de-energized)	+100 °C
Ambient temperature range	-60...+55 °C
Minimum installation temperature: Thermoplastic elastomer outer jacket	-30 °C
Minimum bending radius	25 mm
Maximum resistance – Braiding	10 Ohm/km
Conductor cross-section	2.00 mm ²
Dimension: Thermoplastic elastomer outer jacket, braiding	17.8 × 8.0 mm
Weight: Thermoplastic elastomer outer jacket, braiding	230 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T6 Gb
Ex 60079-30-1 IIIC T85°C Db



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC	
		20 A	32 A
90-CTE	10	62	84
	0	47	80
	-10	44	76
	-20	42	74
	-30	41	72
	-40	40	69

Marking

Example: 90-CTE2-BT

① ② ③ ④ ⑤ ⑥

1. Nominal power 90 W/m (at 0 °C in concrete)
2. Cable type: CT – mid-temperature
3. Cable version: E – for industrial applications
4. Rated voltage: 2 – 230 VAC (other voltages on request)
5. Screen type: B – Tinned copper wire braiding
6. Outer jacket material: T – Thermoplastic elastomer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, braiding	3201105101	Green	90-CTE2-BT	90

Series-Resistance Heating Cable SNF

SNF is a flexible heating cable with a fixed specific resistance and is specifically designed for use in areas where high operating temperatures and high output power is required. By using fluoropolymer for external insulation, the heating cable is particularly suitable for use in chemically aggressive and corrosive

environments. The special design of the SNF heating cable ensures high mechanical strength. Installation of SNF heating cables on site is quick and easy. Thanks to its small outside dimensions it can be easily attached to irregular objects such as pumps, valves and flanges.

Features

- Temperature resistance up to 260 °C
- High mechanical resistance (7J impact resistance)
- Ex-approved solution
- Steam cleaning resistant, high chemical resistance

Application Areas

- Temperature maintenance or freeze protection in non-hazardous and ex-hazardous areas



Construction

1. Series-resistance heating conductor
2. Fluoropolymer insulation
3. Nickel-plated copper braid
4. Fluoropolymer outer jacket

Series-Resistance Heating Cables

Types

Name	Nominal resistance (Ohm/km) at +20 °C	Outer diameter, mm	Order code
SNF 01R8	1.8	7.80	3202101701
SNF 02R9	2.9	6.74	3202101702
SNF 04R4	4.4	5.88	3202101703
SNF 07R1	7.1	5.10	3202101704
SNF 09R7	9.7	5.25	3202101705
SNF 11R9	11.9	4.96	3202101706
SNF 17R4	17.4	4.69	3202101707
SNF 24R8	24.8	4.48	3202101708
SNF 32R7	32.7	4.73	3202101709
SNF 0050	50	4.55	3202101710
SNF 0062	62	4.52	3202101711
SNF 0080	80	4.40	3202101712
SNF 0100	100	4.70	3202101713
SNF 0142	142	4.61	3202101714
SNF 0178	178	4.52	3202101715
SNF 0200	200	4.55	3202101716
SNF 0250	250	4.55	3202101717
SNF 0340	340	4.45	3202101718
SNF 0410	410	4.28	3202101719
SNF 0490	490	4.45	3202101720
SNF 0590	590	4.55	3202101721
SNF 0665	665	4.70	3202101722
SNF 0765	765	4.52	3202101723
SNF 1000	1000	4.40	3202101724
SNF 1300	1300	4.34	3202101725
SNF 1480	1480	4.51	3202101726
SNF 1865	1865	4.76	3202101727
SNF 2825	2825	4.70	3202101728
SNF 3950	3950	4.61	3202101729
SNF 5900	5900	4.34	3202101730
SNF 7000	7000	4.30	3202101731
SNF 8000	8000	4.27	3202101732

Technical Data

Maximum exposure temperature		+260 °C (intermittent +300 °C)
Minimum installation temperature		-70 °C
Rated voltage		up to 450/750 VAC (U ₀ /U)
Maximum power output		40 W/m
Mechanical resistance		7J
Minimal bending radius	for cable diameter up to 6 mm	2.5 × diameter
	for cable diameter above 6 mm	6 × diameter

Approvals



CETS 23 ATEX 026X
 II 2 G D
 Ex 60079-30-1 IIC Gb
 Ex 60079-30-1 IIIC Db
 -70 ≤ Tamb ≤ +55 °C
 Ex 60079-30-1 IIC T6 ... T2 Gb
 Ex 60079-30-1 IIIC T85 °C ... T260 °C Db

Marking

Example: SNF 32R7



1. Cable type (SNF)
2. Resistance code (32R7 – 32.7 Ohm/km)

Series Resistance Heating Cable SNF-L

SNF-L is a flexible heating cable with a fixed specific resistance and is specifically designed for use in areas where high operating temperatures and high output power is required. By using fluoropolymer for external insulation, the heating cable is particularly suitable for use in chemically aggressive and corrosive

environments. The special design of SNF-L heating cable ensures high mechanical strength. Installation of the heating cables on site is quick and easy. Thanks to its small outside dimensions it can be easily attached to irregular objects such as pumps, valves and flanges.

Features

- Temperature resistance up to +260 °C
- Excellent mechanical resistance (4J impact resistance)
- Ex-approved solution
- Steam cleaning resistant, high chemical resistance

Application

- Temperature maintenance or freeze protection in non-hazardous and ex-hazardous areas



Construction

1. Series-resistance heating conductor
2. Fluoropolymer insulation
3. Nickel-plated copper braid
4. Fluoropolymer outer jacket

Series-Resistance Heating Cables

Types

Name	Nominal resistance (Ohm/km) at +20 °C	Outer diameter, mm	Order code
SNFL 17R4	17.4	4.29	3202101407
SNFL 24R8	24.8	4.08	3202101408
SNFL 32R7	32.7	3.93	3202101409
SNFL 0050	50	3.75	3202101410
SNFL 0062	62	3.72	3202101411
SNFL 0080	80	3.6	3202101412
SNFL 0100	100	3.9	3202101413
SNFL 0142	142	3.81	3202101414
SNFL 0178	178	3.72	3202101415
SNFL 0200	200	3.75	3202101416
SNFL 0250	250	3.75	3202101417
SNFL 0340	340	3.65	3202101418
SNFL 0410	410	3.48	3202101419
SNFL 0490	490	4.05	3202101420
SNFL 0590	590	3.75	3202101421
SNFL 0665	665	3.9	3202101422
SNFL 0765	765	3.72	3202101423
SNFL 1000	1000	3.6	3202101424
SNFL 1300	1300	3.54	3202101425
SNFL 1480	1480	3.71	3202101426
SNFL 1865	1865	3.96	3202101427
SNFL 2825	2825	3.9	3202101428
SNFL 3950	3950	3.81	3202101429
SNFL 5900	5900	3.54	3202101430
SNFL 7000	7000	3.5	3202101431
SNFL 8000	8000	3.47	3202101432

Technical Data

Maximum exposure temperature		+260 °C (intermittent +300 °C)
Minimum installation temperature		-70 °C
Rated voltage		Up to 450/750 VAC (U ₀ /U)
Maximum power output		40 W/m
Mechanical resistance		4J
Minimal bending radius	for cable diameter up to 6 mm	2.5 × diameter
	for cable diameter above 6 mm	6 × diameter

Approvals



CETS 23 ATEX 026X
 II 2 G D
 Ex 60079-30-1 IIC Gb
 Ex 60079-30-1 IIIC Db -70≤T_{amb}≤+55°C
 Ex 60079-30-1 IIC T6 ... T2 Gb
 Ex 60079-30-1 IIIC T85°C ... T260°C Db

Marking

Example: SNF-L 32R7



1. Cable type (SNF-L)
2. Resistance code (32R7 – 32.7 Ohm/km)

Metal Outer Jacket Fibreglass-Insulated Cable MOIC-F

High temperature metal overjacket industrial cable for heating pipelines, vessels and process equipment.

Heating cable MOIC-F is specially designed to be an effective and reliable solution where high operating temperature has to be maintained when thermal conditions are high (for example, for heating of bitumen facilities and pipelines).

Due to high thermal stability of the fiberglass insulation, MOIC-F cable can be used where outer jacket temperature reaches up to +800 °C.

MOIC-F cable has an excellent mechanical strength and high corrosion stability, it is fire-resistant, safe in operation and can be used in corrosive environments and explosion hazardous areas.

Correct calculation of the electric heating cable system power output makes it possible to use MOIC-F in a wide temperature range.

The cable is supplied as ready-made sections that consist of the heating cable, connection couplings, installation wires, cable entries and flexible installation wires.

Features

- Operating temperature up to +800 °C
- High mechanical resistance
- Ex-approved solution
- Can be used in chemically aggressive and corrosive environments
- Wide range of controls and accessories

Application Areas

- Temperature maintenance in non-hazardous and ex-hazardous areas, extra-high thermal conditions, chemically aggressive environments



Construction

1. Series-resistance heating wire
2. Fiberglass insulation
3. Stainless steel* outer jacket (plain or corrugated)

Approvals

For details please contact the office in your region

* Other jacket materials available on request (Cu, Incoloy etc)

Extra-High Temperature Series-Resistance Cables

Technical Data

Maximum exposure temperature	for MOIC HT series	+800 °C
	for MOIC LT series	+650 °C
Minimum installation temperature		-70 °C
Rated voltage		Up to 670 VAC
Maximum power output		70 W/m
Minimal bending radius	for plain outer jacket cable	40 mm
	for corrugated outer jacket cable	30 mm

Marking, Heating Cable

Example: MOIC-F-170-SA/2-HT

① ② ③ ④ ⑤

1. Cable name (Metal Outer jacket Industrial Cable, Fiberglass)
2. Resistance, Ohm/km
3. Outer jacket type (SA = steel annealed, SU = steel non-annealed)
4. Outer jacket shape (1 = plain surface, 2 = corrugated surface)
5. Thermal resistance (HT = +800 °C, LT = +650 °C)

Marking, Heating Sections

Example: 30MOIC-F2-170-HSA/2-0510/020

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

1. Linear power output, W/m
2. Cable name (Metal Outer jacket Industrial Cable, Fiberglass)
3. Rated voltage (2 = 230 VAC)
4. Resistance, Ohm/km
5. Temperature group and outer jacket type (H = high temperature, L = low temperature, SA = steel annealed, SU = steel non-annealed)
6. Outer jacket shape (1 = plain surface, 2 = corrugated surface)
7. Hot cable length, dm
8. Cold fragment length on every side, dm

Types

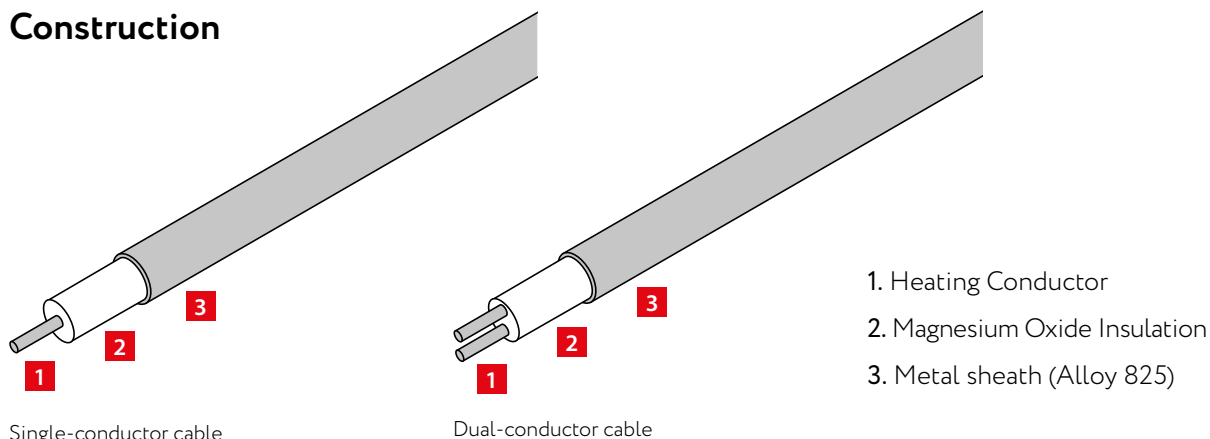
Cable name	Nominal resistance (Ohm/km) at +20 °C	Order code
MOIC-F-170-SA/1-HT	170	3202003000
MOIC-F-230-SA/1-HT	230	3202003001
MOIC-F-440-SA/1-HT	440	3202003002
MOIC-F-620-SA/1-HT	620	3202003003
MOIC-F-890-SA/1-HT	890	3202003004
MOIC-F-1400-SA/1-HT	1400	3202003005
MOIC-F-2500-SA/1-HT	2500	3202003006
MOIC-F-3600-SA/1-HT	3600	3202003007
MOIC-F-170-SU/2-LT	170	3202003008
MOIC-F-230-SU/2-LT	230	3202003009
MOIC-F-440-SU/2-LT	440	3202003010
MOIC-F-620-SU/2-LT	620	3202003011
MOIC-F-890-SU/2-LT	890	3202003012
MOIC-F-1400-SU/2-LT	1400	3202003013
MOIC-F-2500-SU/2-LT	2500	3202003014
MOIC-F-3600-SU/2-LT	3600	3202003015
MOIC-F-170-SU/2-HT	170	3202003016
MOIC-F-230-SU/2-HT	230	3202003017
MOIC-F-440-SU/2-HT	440	3202003018
MOIC-F-620-SU/2-HT	620	3202003019
MOIC-F-890-SU/2-HT	890	3202003020
MOIC-F-1400-SU/2-HT	1400	3202003021
MOIC-F-2500-SU/2-HT	2500	3202003022
MOIC-F-3600-SU/2-HT	3600	3202003023
MOIC-F-170-SA/2-HT	170	3202003024
MOIC-F-230-SA/2-HT	230	3202003025
MOIC-F-440-SA/2-HT	440	3202003026
MOIC-F-620-SA/2-HT	620	3202003027
MOIC-F-890-SA/2-HT	890	3202003028
MOIC-F-1400-SA/2-HT	1400	3202003029
MOIC-F-2500-SA/2-HT	2500	3202003030
MOIC-F-3600-SA/2-HT	3600	3202003031

Mineral Insulated Heating Cable MIAL

The MIAL range of alloy 825 sheathed Mineral Insulated (MI) heating cable has been developed to meet the specific need for a cable having a high temperature capability and electrical resistance values needed for long circuit lengths. Alloy 825 sheath combined with heating conductors allows to enable an operating temperature of 800°C with resistance values from 2.1Ω/km

down to 36100Ω/km. MI cables have excellent mechanical strength and are intrinsically quite resistant to corrosion. They are series resistance heaters, which must be designed to provide the required heat output. Shipped as cable or ready-made heating units. Heating unit consists of a heating cable, couplings, cold cable inserts, cable glands and flexible installation wires.

Construction



Application

- Phosphoric acid evaporators pickling-tank heaters
- Metal Forming Industry – Melting of low melt alloys
- Chemical process equipment
- Propeller shafts
- Pickling hooks and equipment
- Tank/vessel Heating
- Spent nuclear fuel element recovery
- Tank trucks

Specification

Heating Units Ordering Code

Example: MI AL-B 16N12220/60/2520/220/E1
Digit: ① ② ③ ④ ⑤ ⑥ ⑦

Digit number	Description	Explication
1	Sheath material	AL
2	Cable configuration	See Table 1
3	Cable reference	See Table 2, 3, 4
4	Cable length	In meter
5	Cable wattage	In Watts
6	Cable voltage	In volt
7	Gland size	See Table 5

Heating Cable Decoding

Example: 1 6 N 12220
Digit: ① ② ③ ④

Digit number	Description	Explication
1	Number of conductors	1 or 2
2	Maximum voltage rating	3=300V, 6=600V
3	Conductor material	K, N
4	Cable resistance × 1000	12220=12.22 Ω/m × 1000

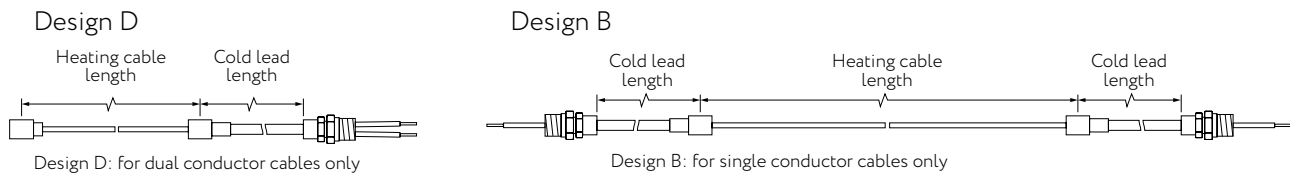
Technical Data

Operating voltage	Up to 600 V
Maximum thermal resistance	Up to +400 °C
Ex marking	Ex 60079-30-1 IIC T1 to T6 Gb Ex 60079-30-1 IIIC T450 °C to T85°C Db
Resistance at 20 °C	4–28000 Ω/m
Construction	1 or 2 conductors

Alloy 825 Sheathed Mineral Insulated Heating Cable

Cable Configurations

Table 1



Cable References

Table 2 Single Conductor 600V

Cable ref	Diameter	Resist. at 20 °C	Nominal Length	Nominal Weight
	mm		m	kg/km
16C2.1	6.8	0.0021	130	218.0
16C3.4	5.9	0.0034	170	158.1
16C5.3	5.3	0.0053	210	121.8
16C8.5	4.7	0.0085	195	92.4
16C13	4.3	0.013	240	74.3
16C21	4.0	0.021	210	65.4
16K40	5.8	0.04	170	154.9
16K50	5.4	0.05	200	131.9
16K60	5.2	0.06	210	119.9
16K80	4.8	0.08	190	99.4
16K100	4.7	0.1	195	91.9
16K120	4.5	0.12	210	82.2
16N160	6.5	0.16	140	193.9
16N200	5.9	0.2	170	159.7
16N250	5.3	0.25	210	128.9
16N400	4.7	0.4	200	95.9
16N500	4.5	0.5	215	86.0
16N630	4.3	0.63	235	76.6
16N1000	3.9	1.0	290	60.9
16N1600	3.6	1.6	335	50.8
16N2500	3.4	2.5	300	45.5
16N2800	3.4	2.8	300	45.3
16N3300	3.4	3.3	300	45.1
16N4000	3.2	4.0	335	39.9
16N5200	3.2	5.2	335	39.6
16N6300	3.2	6.3	335	39.0
16N10000	3.2	10	335	38.7

Mineral Insulated Heating Cable MIAL

Table 3 Dual Conductor 600V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
26C8.4	9.8	0.0084	60	400.3
26C13.4	8.7	0.0134	75	308.6
26C21	7.9	0.021	95	246.9
26C34	7.3	0.034	110	208.1
26C54	6.3	0.054	145	153.9
26C85	5.6	0.085	185	120.8
26C130	5.3	0.13	215	104.8
26K180	7.9	0.18	95	255.9
26K260	7.4	0.26	105	220.5
26K360	6.8	0.36	130	180.8
26K500	6.4	0.5	145	159.3
26K650	5.9	0.65	165	131.3
26K1000	5.7	1.0	175	124.4
26K1300	6.2	1.3	150	147.3
26K2000	5.8	2.0	170	125.9
26K3300	5.4	3.3	205	109.1
26N4600	5.8	4.6	170	130.3
26N8000	5.4	8.0	205	111.5
26N13000	5.0	13.0	140	95.0
26N27000	4.8	27.0	150	87.1
26N40000	4.6	40.0	160	79.7
26N60000	4.4	60.0	175	72.8
26N72000	4.2	72.0	190	66.3

Table 4 Dual Conductor 300V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
23K210	5.4	0.21	200	118.5
23K300	5.0	0.3	240	99.4
23K400	4.8	0.4	250	90.2
23K480	4.8	0.48	250	89.4
23K650	4.6	0.65	200	82.9
23K1000	4.1	1.0	210	64.8
23K1300	3.8	1.3	240	55.4
23K2000	5.0	2.0	235	97.2
23K2400	4.8	2.4	250	89.3
23K3000	4.6	3.0	200	80.5
23N4600	4.8	4.6	250	89.6
23N7500	4.6	7.5	200	80.0
23N11200	4.4	11.2	180	74.0
23N14000	4.2	14.0	200	67.4
23N18000	3.8	18.0	240	55.1
23N26000	3.6	26.0	270	49.2
23N40000	3.4	40.0	300	43.8
23N50000	3.4	50.0	300	43.7
23N60000	3.4	60.0	300	43.6
23N72000	3.4	72.0	300	43.6

Note: For the required voltage 600 V above application, please contact us.

Alloy 825 Sheathed Mineral Insulated Heating Cable

Gland Size

Table 5

Max. voltage (V)	Design A, D, E			Design B		
	Max. current (amps)	Gland size (English)	(Metric)	Max. current (amps)	Gland size (English)	(Metric)
600	15	E1	M1	20	E1	M1
600	20	E1	M1	25	E1	M1
600	30	E2	M2	40	E2	M2
600	50	E2	M2	70	E2	M2
600	70	E2	M2	100	E2	M2

Note 1: E1 stands for 1/2" NPT; E2 stands for 3/4" NPT; M1 stands for gland diameter M20; M2 stands for gland diameter M25. Stands model shall be advised properly while design.

Note 2: 2-meter-long cold lead is supplied with heating cable. For special requirement, please contact us.

Corrosion Resistance

Table 6

Substance	Recommendation
Sulphuric Acid	Excellent
Hydrochloric Acid	Excellent
Hydrofluoric Acid	Excellent
Phosphoric Acid	Excellent
Nitric Acid	Excellent
Organic Acid	Excellent
Alkalis	Excellent
Sea Water	Excellent
Chloride	Excellent

Explosion Proof

MIAL cable has excellent mechanical strength and high corrosion resistance, can operate in aggressive, hazardous environments, explosive areas included.

Approval



CML 22ATEX3486

IECEX CML 16.0081

Ex 60079-30-1 IIC T1 to T6 Gb

Ex 60079-30-1 IIIC T450°C to T85°C

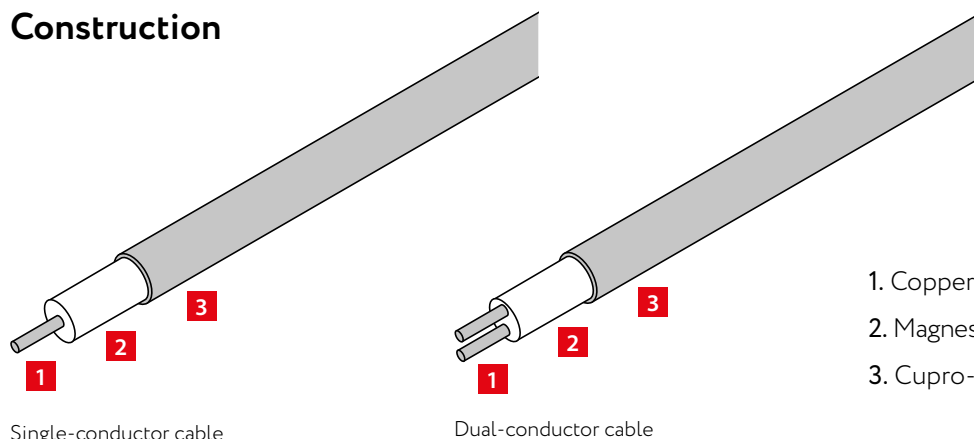
Mineral Insulated Heating Cable MICN

The MICN range of cupronickel sheathed Mineral Insulated (MI) heating cable has been developed to meet the specific need for a cable having a high temperature capability and electrical resistance values needed for long circuit lengths. Cupronickel sheath combined with heating conductors allows to enable an operating temperature of 400 °C with resistance values from

4Ω/km down to 28000Ω/km. MI cables have excellent mechanical strength and are resistant to corrosion. They are series resistance heaters, which must be designed to provide the required heat output.

Shipped as cable or ready-made heating units. Heating unit consists of a heating cable, couplings, cold cable inserts, cable glands and flexible installation wires.

Construction



Application

Cupronickel sheathed Mineral Insulated heating cables are widely used within a range of industrial application, from oil and gas, chemicals and

petroleum, power plant, gas storage and many other industrial application.

Specification

Heating Units Ordering Code

Example: MI CN-B 16K2390/60/2520/220/E1
Digit: ① ② ③ ④ ⑤ ⑥ ⑦

Digit number	Description	Explication
1	Sheath material	CN
2	Cable configuration	See Table 1
3	Cable reference	See Table 2, 3, 4
4	Cable length	In meter
5	Cable wattage	In Watts
6	Cable voltage	In volt
7	Gland size	See Table 5

Heating Cable Decoding

Example: 1 6 K 2390
Digit: ① ② ③ ④

Digit number	Description	Explication
1	Number of conductors	1 or 2
2	Maximum voltage rating	3=300V, 6=600V
3	Conductor material	K, N
4	Cable resistance × 1000	2390=2.39 Ω/m × 1000

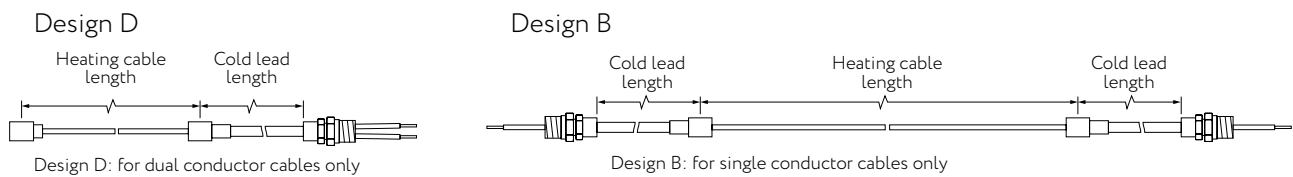
Technical Data

Operating voltage	Up to 600 V
Maximum thermal resistance	+800 °C
Ex marking	Ex 60079-30-1 IIC T1 to T6 Gb Ex 60079-30-1 IIIC T450 °C to T85°C Db
Resistance at 20 °C	2.1-36100 Ω/m
Construction	1 or 2 conductors

Cupronickel Sheathed Mineral Insulated Heating Cable

Cable Configurations

Table 1



Cable References

Table 2 Single Conductor 600V

Cable ref	Diameter	Resist. at 20 °C	Nominal Length	Nominal Weight
	mm			
16C4	5.9	0.004	190	161.0
16C7	5.3	0.007	240	117.8
16C11	4.9	0.011	290	101.7
16C17	4.6	0.017	300	89.9
16C25	3.7	0.025	500	58.2
16C40	3.4	0.04	600	48.4
16C63	3.2	0.063	650	42.0
16K82	5.7	0.082	200	163.2
16K122	5.2	0.122	250	130.1
16K160	4.9	0.16	280	112.5
16K188	4.7	0.188	300	102.3
16K250	4.4	0.25	350	87.9
16K312	4.2	0.312	380	78.6
16K400	4.0	0.4	430	68.8
16K478	3.8	0.478	470	62.8
16K630	3.7	0.63	500	58.6
16K1000	3.4	1.0	600	48.5
16K1600	3.2	1.6	600	42.6
16K2400	3.1	2.4	600	38.9

Mineral Insulated Heating Cable MICN

Table 3 Dual Conductor 600V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
26K160	11.2	0.16	55	565.4
26K240	9.9	0.24	70	433.4
26K300	9.3	0.3	80	378.4
26K380	9.0	0.38	85	348.7
26K480	8.6	0.48	90	314.6
26K620	8.0	0.62	105	270.0
26K960	7.5	0.96	120	232.9
26K1480	7.1	1.48	135	205.7
26K1890	6.8	1.89	145	187.6
26K2340	6.4	2.34	165	165.7
26K3100	6.2	3.1	175	154.6
26K4800	5.8	4.8	200	134.4

Table 4 Dual Conductor 300V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
23K160	10.4	0.16	60	497.6
23K240	9.4	0.24	85	366.6
23K300	8.4	0.3	95	315.9
23K380	8.0	0.38	105	281.9
23K480	7.7	0.48	115	257.0
23K620	7.1	0.62	135	216.7
23K960	6.5	0.96	160	178.0
23K1480	6.0	1.48	190	149.2
23K1890	5.7	1.89	210	133.7
23K2340	5.5	2.34	225	123.7
23K3100	5.3	3.1	240	114.0
23K4800	4.9	4.8	285	96.7

Note: For the required voltage 600 V above application, please contact us.

Cupronickel Sheathed Mineral Insulated Heating Cable

Gland Size

Table 5

Max. voltage (V)	Design A, D, E			Design B		
	Max. current (amps)	Gland size (English)	(Metric)	Max. current (amps)	Gland size (English)	(Metric)
600	15	E1	M1	20	E1	M1
600	20	E1	M1	25	E1	M1
600	30	E2	M2	40	E2	M2
600	50	E2	M2	70	E2	M2
600	70	E2	M2	100	E2	M2

Note 1: E1 stands for 1/2" NPT; E2 stands for 3/4" NPT; M1 stands for gland diameter M20; M2 stands for gland diameter M25. Stands model shall be advised properly while design.

Note 2: 2-meter-long cold lead is supplied with heating cable. For special requirement, please contact us.

Corrosion Resistance

Table 6

Substance	Recommendation
Sulphuric Acid	Not Recommended
Hydrochloric Acid	Check for Specific Data
Hydrofluoric Acid	Check for Specific Data
Phosphoric Acid	Check for Specific Data
Nitric Acid	Check for Specific Data
Organic Acid	Check for Specific Data
Alkalis	Check for Specific Data
Sea Water	Good-Excellent
Chloride	Good-Excellent

Explosion Proof

MICN cable has excellent mechanical strength and high corrosion resistance, can operate in aggressive, hazardous environments, explosive areas included.

Approval



CML 22ATEX3489

IECEX CML 16.0079

Ex 60079-30-1 IIC T1 to T6 Gb

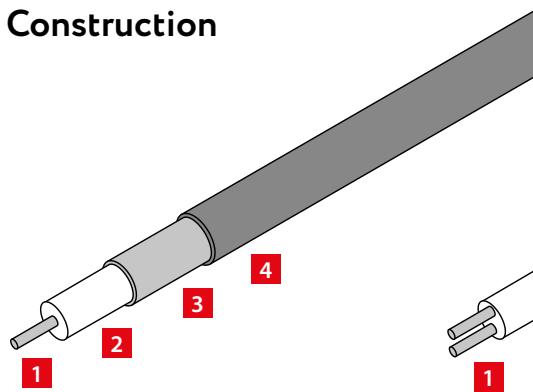
Ex 60079-30-1 IIIC T450°C to T85°C Db

Mineral Insulated Heating Cable MICU

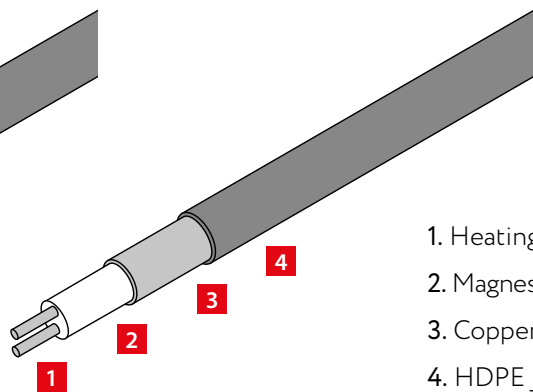
The MICU range of copper sheathed Mineral Insulated (MI) heating cable has been developed to meet the specific need for a cable having a high temperature capability and electrical resistance values needed for long circuit lengths. Copper sheath combined with heating conductors allows to enable an operating temperature of 250°C with resistance values from 0.68Ω/km down to 2000Ω/km. However, an high density polyethylene (HDPE) outer sheath must be used when the cable is used in special situations, such as corrosion re-

sistance or burying or snow melting application. HDPE jacketed copper-sheathed heating cables (MIHC) have an operating temperature of 90°C. MI cables have excellent mechanical strength and are resistant to corrosion. They are series resistance heaters which must be designed to provide the required heat output. Shipped as cable or ready-made heating units. Heating unit consists of a heating cable, couplings, cold cable inserts, cable glands and flexible installation wires.

Construction



Single-conductor cable



Dual-conductor cable

1. Heating Conductor
2. Magnesium Oxide Insulation
3. Copper Sheath
4. HDPE jacket (optional)

Application

Bare copper-sheathed heating cable	Max. power output (W/m)
De-icing of metal gutters and downspouts	49
De-icing of nonmetallic gutters and downspouts	16
Process temperature maintenance (pipes and vessels)	59
Freeze protection of metal pipes and vessels	59
Snow melting on metal roofs	49
HDPE jacketed copper-sheathed heating cable	
Freeze protection of metal pipes and vessels	26
Freeze protection of nonmetallic pipes and vessels	13
Snow melting in road-grade asphalt slab	82
Snow melting on nonmetal roof	26
De-icing of metal gutters and downspouts	26
De-icing of nonmetallic gutters and downspouts	16
Floor warming in concrete slab	33
Frost heave prevention in sand under freezer or arena floor	23
Snow melting in concrete and mastic asphalt slab	99

Note: When designing heating cables for pipe and vessel tracing, the 'Max. power output' values may have to be decreased to ensure that the sheath temperature does not exceed the maximum exposure temperature or the autoignition temperature of the area (hazardous location only).

Specification

Heating Units Ordering Code

Example: MI CU-B 16K3200/60/2520/220/E1
Digit: ① ② ③ ④ ⑤ ⑥ ⑦

Digit number	Description	Explication
1	Sheath material	CU
2	Cable configuration	See Table 1
3	Cable reference	See Table 2, 3, 4
4	Cable length	In meter
5	Cable wattage	In Watts
6	Cable voltage	In volt
7	Gland size	See Table 5

Heating Cable Decoding

Example: 1 6 K 3200
Digit: ① ② ③ ④

Digit number	Description	Explication
1	Number of conductors	1 or 2
2	Maximum voltage rating	3=300V, 6=600V
3	Conductor material	C, K
4	Cable resistance × 1000	3200=3.22 Ω/m × 1000

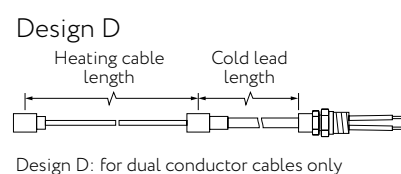
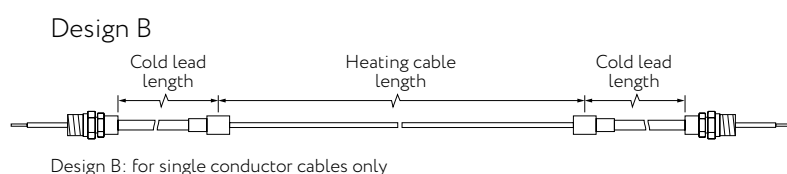
Copper Sheathed Mineral Insulated Heating Cable

Technical Data

Operating voltage	Up to 600 V
Maximum thermal resistance	Up to +250 °C
Ex marking	Ex 60079-30-1 IIC T1 to T6 Gb Ex 60079-30-1 IIIC T450 °C to T85°C Db
Resistance at 20 °C	0.68–2000 Ω/m
Construction	1 or 2 conductors

Cable Configurations

Table 1



Cable References

Table 2 Single Conductor 600V

Cable ref	Diameter	OD of HDPE Jacket	Resiet. at 20 °C	Nominal Length	Nominal Weight With jacket
	mm	mm	Ω/m	m	kg/km
16C1.7	7.3	9.7	0.0017	550	314.1
16C2.2	7.0	9.4	0.0022	600	282.3
16C2.9	6.4	8.8	0.0029	550	237.2
16C4	5.9	8.3	0.004	600	196.2
16C7	5.3	7.7	0.007	245	157.6
16C11	4.9	7.3	0.011	280	134.7
16C13	4.6	7	0.013	325	119.8
16C17	4.6	7	0.017	325	118.5
16C21	4.6	7	0.021	325	115.3
16C25	4.6	7	0.025	325	116.2
16C33	4.6	7	0.033	325	113.9
16C40	3.4	5.8	0.04	410	70.5
16C63	3.2	5.6	0.063	450	62.8
16K80	5.3	7.7	0.08	245	158.3
16K100	5.2	7.6	0.1	270	146.5
16K140	4.9	7.3	0.14	300	130.7
16K197	4.45	6.85	0.197	350	109.6
16K220	4.5	6.9	0.22	330	113.8
16K315	4.3	6.7	0.315	370	108.1
16K345	4.2	6.6	0.345	380	103.5
16K450	4.0	6.4	0.45	430	94.6
16K630	4.0	6.4	0.63	430	92.2
16K800	3.5	5.9	0.8	390	74.5
16K1280	3.7	6.1	1.28	350	78.5
16K2000	3.6	6	2.0	370	75.4

Mineral Insulated Heating Cable MICU

Table 3 Dual Conductor 600V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm			
26C3.4	12.9	0.0034	150	849.7
26C4.4	12.2	0.0044	160	748.6
26C5.8	11.3	0.0058	170	637.5
26C8.6	9.90	0.0086	180	489.5
26C11.4	9.30	0.0114	200	498.9
26C13.8	9.00	0.0138	210	399.2
26C17.2	8.60	0.0172	220	363.3
26023	8.00	0.023	250	314.7
26C34.4	7.50	0.0344	280	275.4
26C49.2	7.10	0.0492	300	246.5
26K240	9.90	0.24	180	489.4
26K320	9.30	0.32	200	498.6
26K384	9.00	0.384	210	399.2
26K480	8.60	0.48	220	363.2
26K640	8.00	0.64	250	314.7
26K960	7.50	0.96	280	275.3

Table 4 Dual Conductor 300V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm			
23C3.4	12.4	0.0034	200	797.2
23C4.4	11.3	0.0044	220	660.6
23C5.8	10.4	0.0058	240	555.8
23C8.6	9.00	0.0086	260	417.6
23C11.4	8.40	0.0114	280	361.3
23C13.8	8.00	0.0138	300	326.9
23C17.2	7.60	0.0172	320	294.1
23023	7.10	0.0 23	340	256.2
23C34.4	6.60	0.0344	360	220.5
23C49.2	6.20	0.0492	380	194.4
23K160	10.4	0.16	220	556.4
23K240	9.00	0.24	240	417.5
23K320	8.40	0.32	265	361.0
23K384	8.00	0.384	280	326.9
23K480	170	0.48	300	300.6
23K640	710	0.64	320	256.3
23K960	6.50	0.96	350	214.7

Note: For the required voltage 600 V above application, please contact us.

Copper Sheathed Mineral Insulated Heating Cable

Gland Size

Table 5

Max. voltage (V)	Design A, D, E			Design B			Design C, F, G		
	Max. current (amps)	Gland size (English)	(Metric)	Max. current (amps)	Gland size (English)	(Metric)	Max. current (amps)	Gland size (English)	(Metric)
600	15	E1	M1	20	E1	M1	15	E1	M1
600	20	E1	M1	25	E1	M1	20	E1	M1
600	30	E2	M2	40	E2	M2	30	E2	M2
600	50	E2	M2	70	E2	M2	50	E2	M2
600	70	E2	M2	100	E2	M2	70	E2	M2

Note 1: E1 stands for 1/2" NPT; E2 stands for 3/4" NPT; M1 stands for gland diameter M20; M2 stands for gland diameter M25. Stands model shall be advised properly while design.

Note 2: 2-meter-long cold lead is supplied with heating cable. For special requirement, please contact us.

Corrosion Resistance

Table 6

Substance	MICU	MIHC
Sulphuric Acid	Not Recommended	Good-Excellent
Hydrochloric Acid	Not Recommended	Good-Excellent
Hydrofluoric Acid	Acceptable	Acceptable
Phosphoric Acid	Acceptable	Acceptable
Nitric Acid	Not Recommended	Acceptable
Organic Acid	Acceptable	Not Recommended
Alkalis	Acceptable	Acceptable
Sea Water	Not Recommended	Acceptable
Chloride	Check for specific data	Acceptable

Explosion Proof

MICU cable has excellent mechanical strength and high corrosion resistance, can operate in aggressive, hazardous environments, explosive areas included.

Approval



CML 22ATEX3487

IECEx CML 16.0075

Ex 60079-30-1 IIC T1 to T6 Gb

Ex 60079-30-1 IIIC T450°C to T85°C Db

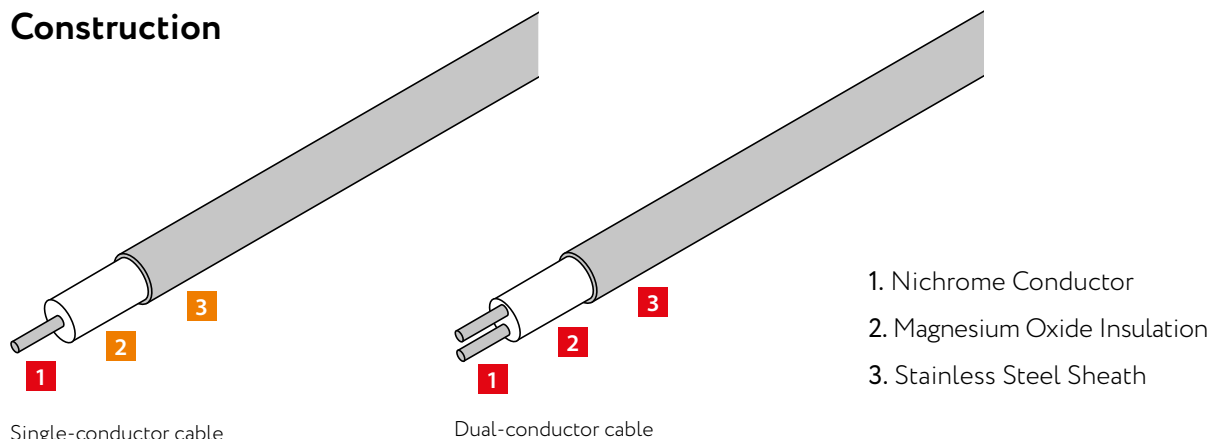
Mineral Insulated Heating Cable MISS

The MISS range of stainless steel sheathed Mineral Insulated (MI) heating cable has been developed to meet the specific need for a cable having a high temperature capability and electrical resistance values needed for long circuit lengths. Stainless steel sheath combined with heating conductors allows to enable an operating temperature of 600 °C with resistance values from

2.1 Ω/km down to 36100 Ω/km. MI cables have excellent mechanical strength and are resistant to corrosion. They are series resistance heaters, which must be designed to provide the required heat output.

Shipped as cable or ready-made heating units. Heating unit consists of a heating cable, couplings, cold cable inserts, cable glands and flexible installation wires.

Construction



Application

- Nuclear Industry – Sodium loops
- Metal Forming Industry – Melting of low melt alloys
- Underfloor heating
- Building Industry – Bitumen/asphalt heating
- Tank/vessel Heating

Specification

Heating Units Ordering Code

Example: MI SS-B 16N12220/60/2520/220/E1
Digit: ① ② ③ ④ ⑤ ⑥ ⑦

Digit number	Description	Explication
1	Sheath material	SS
2	Cable configuration	See Table 1
3	Cable reference	See Table 2, 3, 4
4	Cable length	In meter
5	Cable wattage	In Watts
6	Cable voltage	In volt
7	Gland size	See Table 5

Heating Cable Decoding

Example: 1 6 N 12220
Digit: ① ② ③ ④

Digit number	Description	Explication
1	Number of conductors	1 or 2
2	Maximum voltage rating	3=300V, 6=600V
3	Conductor material	K, N
4	Cable resistance × 1000	12220=12.22 Ω/m × 1000

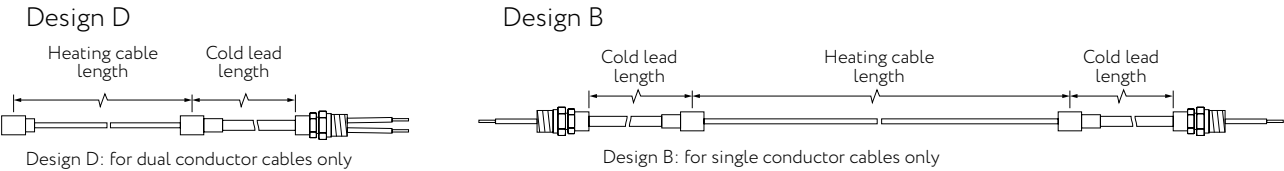
Technical Data

Operating voltage	Up to 600 V
Maximum thermal resistance	Up to +600 °C
Ex marking	Ex 60079-30-1 IIC T1 to T6 Gb Ex 60079-30-1 IIIC T450 °C to T85°C Db
Resistance at 20 °C	0.68–2000 Ω/m
Construction	1 or 2 conductors

Stainless Steel Sheathed Mineral Insulated Heating Cable

Cable Configurations

Table 1



Cable References

Table 2 Single Conductor 600V

Cable ref	Diameter	Resist. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
16C2.1	6.8	0.0021	130	218.0
16C3.4	5.9	0.0034	170	158.1
16C5.3	5.3	0.0053	210	121.8
16C8.5	4.7	0.0085	195	92.4
16C13	4.3	0.013	240	74.3
16C21	4.0	0.021	210	65.4
16K40	5.8	0.04	170	154.9
16K50	5.4	0.05	200	131.9
16K60	5.2	0.06	210	119.9
16K80	4.8	0.08	190	99.4
16K100	4.7	0.1	195	91.9
16K120	4.5	0.12	210	82.2
16N160	6.5	0.16	140	193.9
16N200	5.9	0.2	170	159.7
16N250	5.3	0.25	210	128.9
16N400	4.7	0.4	200	95.9
16N500	4.5	0.5	215	86.0
16N630	4.3	0.63	235	76.6
16N1000	3.9	1.0	290	60.9
16N1600	3.6	1.6	335	50.8
16N2500	3.4	2.5	300	45.5
16N2800	3.4	2.8	300	45.3
16N3300	3.4	3.3	300	45.1
16N4000	3.2	4.0	335	39.9
16N5200	3.2	5.2	335	39.6
16N6300	3.2	6.3	335	39.0
16N10000	3.2	10	335	38.7

Mineral Insulated Heating Cable MISS

Table 3 Dual Conductor 600V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
26C8.4	9.8	0.0084	60	400.3
26C13.4	8.7	0.0134	75	308.6
26C21	7.9	0.021	95	246.9
26C34	7.3	0.034	110	208.1
26C54	6.3	0.054	145	153.9
26C85	5.6	0.085	185	120.8
26C130	5.3	0.13	215	104.8
26K180	7.9	0.18	95	255.9
26K260	7.4	0.26	105	220.5
26K360	6.8	0.36	130	180.8
26K500	6.4	0.5	145	159.3
26K650	5.9	0.65	165	131.3
26K1000	5.7	1.0	175	124.4
26K1300	6.2	1.3	150	147.3
26K2000	5.8	2.0	170	125.9
26K3300	5.4	3.3	205	109.1
26N4600	5.8	4.6	170	130.3
26N8000	5.4	8.0	205	111.5
26N13000	5.0	13.0	140	95.0
26N27000	4.8	27.0	150	87.1
26N40000	4.6	40.0	160	79.7
26N60000	4.4	60.0	175	72.8
26N72000	4.2	72.0	190	66.3

Table 4 Dual Conductor 300V

Cable ref	Diameter	Resiet. at 20 °C	Nominal Length	Nominal Weight
	mm	Ω/m	m	kg/km
23K210	5.4	0.21	200	118.5
23K300	5.0	0.3	240	99.4
23K400	4.8	0.4	250	90.2
23K480	4.8	0.48	250	89.4
23K650	4.6	0.65	200	82.9
23K1000	4.1	1.0	210	64.8
23K1300	3.8	1.3	240	55.4
23K2000	5.0	2.0	235	97.2
23K2400	4.8	2.4	250	89.3
23K3000	4.6	3.0	200	80.5
23N4600	4.8	4.6	250	89.6
23N7500	4.6	7.5	200	80.0
23N11200	4.4	11.2	180	74.0
23N14000	4.2	14.0	200	67.4
23N18000	3.8	18.0	240	55.1
23N26000	3.6	26.0	270	49.2
23N40000	3.4	40.0	300	43.8
23N50000	3.4	50.0	300	43.7
23N60000	3.4	60.0	300	43.6
23N72000	3.4	72.0	300	43.6

Note: For the required voltage 600 V above application, please contact us.

Stainless Steel Sheathed Mineral Insulated Heating Cable

Gland Size

Table 5

Max. voltage (V)	Design A, D, E			Design B		
	Max. current (amps)	Gland size (English)	(Metric)	Max. current (amps)	Gland size (English)	(Metric)
600	15	E1	M1	20	E1	M1
600	20	E1	M1	25	E1	M1
600	30	E2	M2	40	E2	M2
600	50	E2	M2	70	E2	M2
600	70	E2	M2	100	E2	M2

Note 1: E1 stands for 1/2" NPT; E2 stands for 3/4" NPT; M1 stands for gland diameter M20; M2 stands for gland diameter M25. Stands model shall be advised properly while design.

Note 2: 2-meter-long cold lead is supplied with heating cable. For special requirement, please contact us.

Corrosion Resistance

Table 6

Substance	Recommendation
Sulphuric Acid	Not Recommended
Hydrochloric Acid	Not Recommended
Hydrofluoric Acid	Not Recommended
Phosphoric Acid	Not Recommended
Nitric Acid	Check for Specific Data
Organic Acid	Suitable under Most Conditions
Alkalis	Acceptable
Sea Water	Not Recommended
Chloride	Not Recommended

Explosion Proof

MISS cable has excellent mechanical strength and high corrosion resistance, can operate in aggressive, hazardous environments, explosive areas included.

Approval



CML 22ATEX3488

IECEx CML 16.0080

Ex 60079-30-1 IIC T1 to T6 Gb

Ex 60079-30-1 IIIC T450°C to T85°C Db

Junction Boxes for Self-Regulating Heating Cables

Designed for connecting self-regulating electric heating cables to the power network and for branching of self-regulating heating cables*.

For installation onto a wall, onto a nearby metal structure or using a bracket directly onto the pipe-line (brackets supplied separately).

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability.

Features

- Efficient solution for power supply and input of self-regulating heating cables connection through thermal insulation in electric heating cable systems
- Compatible with all types of self-regulating electric heating cables
- Excludes the risk of damage to heating cables at connection points
- Approved for installation in explosion hazard areas

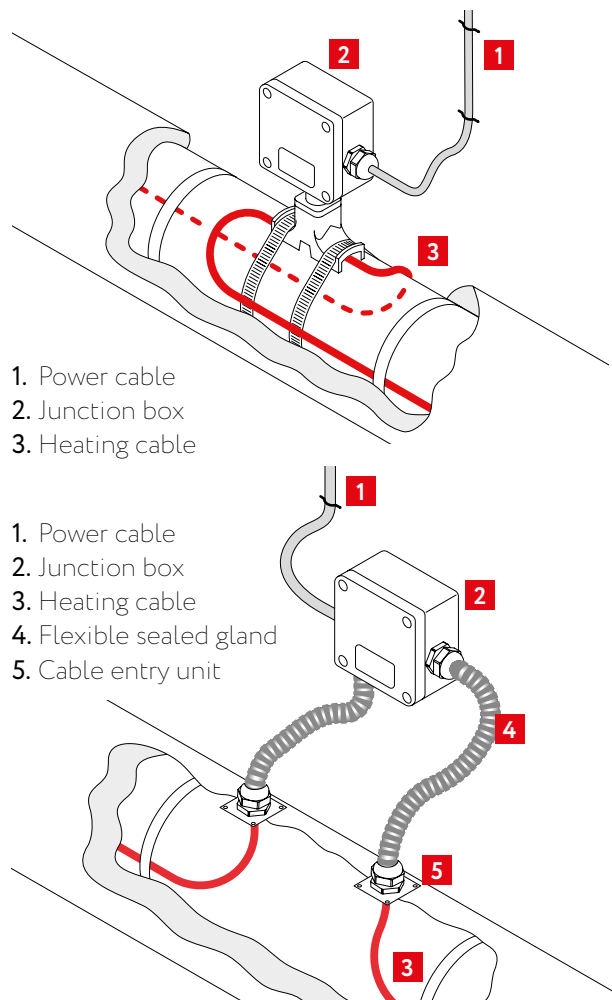
Cable gland of the box is intended for connecting unarmoured power cables with a diameter of 7 to 18 mm or armored power cables with a diameter of 12 to 20 mm.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 1.5 to 10 mm². Design options with screw or push-in terminals are available to order.

- Critical components are included in the scope of supply. Metal pipe strap PFS/3, cable entry unit and flexible sealed gland FSG to be ordered separately
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

The box allows connection of up to three self-regulating electric heating cables to the power cable and connection of up to three cables for branching.



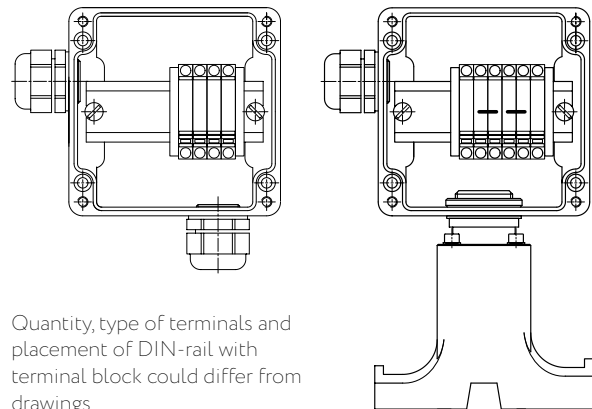
* This junction box is compatible with self-regulating heating cables

Power Supply of Self-Regulating Heating Cables

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db
Temperature group of the explosion hazard area	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 550 V
Operating current	max 50 A
Enclosure dimensions JB 2221-223	122×120×91.5 mm
Total weight (maximum)	1.55 kg
Material Box / Color	Glass fiber reinforced polyester / Black
Material Pipe installation support / Color	

Construction



Quantity, type of terminals and placement of DIN-rail with terminal block could differ from drawings.

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								A C D B			Earthing tag	Terminated earthing wire	Pipe installation support	Terminal block	Type of terminals	Order code
	Side A		Side B		Side C		Side D										
	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug									
JB2221-223-2X340°			1xM25 P		1xM25 P									1L, 1N, 2PE	screw/ spring	3210101601	
JB2221-223-2X350				1xM25 P	1xM25 P											3210101603	
JB2221-223-2X360			3xM25 P		1xM25 P											3210101605	
JB2221-223-2X370				3xM25 P	1xM25 P									3L, 3N, 3PE		3210101607	
JB2221-223-1X300					1xM25 P							V		2L, 2N, 2PE		3210101609	
JB2221-223-1X310						1xM25 P						V				3210101611	
JB2221-223-1X11						1xM25 P			V	V	V			2L, 1N, 2PE/ 3L, 2N, 2PE		3210102006	
JB2221-223-1X12					1xM25 B				V	V	V					3210102007	
JB2221-223-1X13					1xM25 P				V	V	V					3210102008	
JB2221-223-2X11			1xM25 P		1xM25 B		1xM25 P		V	V						3210102009	
JB2221-223-2X12			1xM25 P		1xM25 B		1xM25 P		V	V						3210102010	
JB2221-223-2X13			1xM25 P		1xM25 P		1xM25 P		V	V						3210102011	
JB2221-223-2X14			1xM25 P		1xM25 P		1xM25 P		V	V						3210102013	
JB2221-223-2X15			1xM25 P		1xM25 B		1xM25 B		V	V						3210102015	

° X = 1 for screw type terminal block; X=2 for push-in type terminal block

Order codes are valid for junction boxes with push-in terminal block.
Additional configurations are available upon request.

Approval



CETS 23 ATEX 029X
II 2G Ex eb IIC T6...T3 Gb
II 2D Ex tb IIIC T85°C...T165°C Db

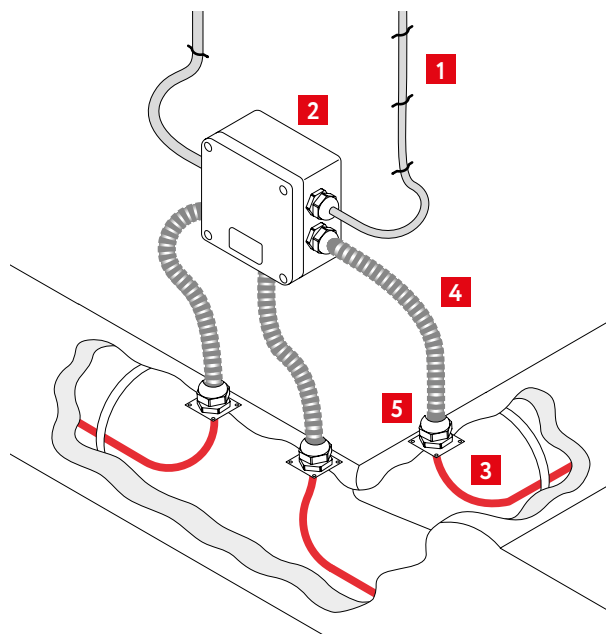
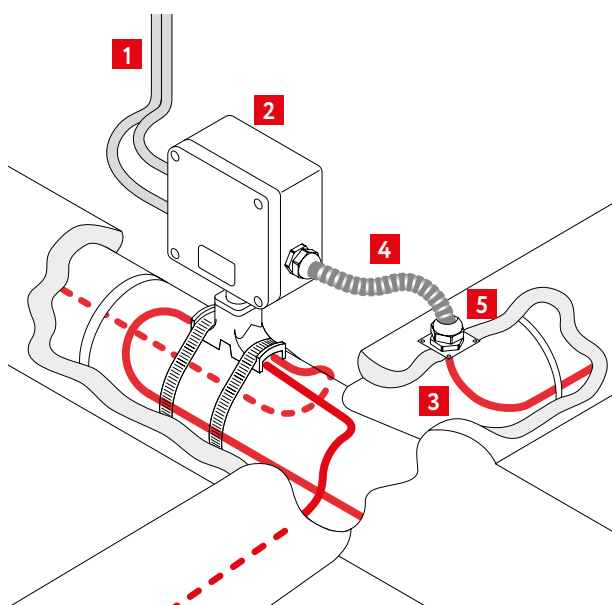
Junction Boxes for Self-Regulating Heating Cables (3 and More Circuits)

Application

Junction boxes for 3 and more self-regulating heating cables connection are designed for connecting of self-regulating electrical heating cables to the power

network* and for the branching of self-regulating heating cables. The box also supports branching of the power cable in utility networks.

For installation onto a wall, onto a nearby metal structure or using a bracket directly onto the pipeline (brackets supplied separately).



The junction boxes are compatible with all types of self-regulating heating cables.

- 1. Power cable
- 2. Junction box
- 3. Heating cable

- 4. Mechanical cable protection
- 5. Cable entry unit

- 1. Power cable
- 2. Junction box
- 3. Heating cable

- 4. Mechanical cable protection
- 5. Cable entry unit

Power Supply of Self-Regulating Heating Cables

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db
Temperature group of the explosion hazard area	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 550 V
Operating current	max 50 A
Enclosure dimensions	160×160×94.5 mm
Total weight (maximum)	2.76 kg
Material Box / Color	Glass fiber reinforced polyester / Black

Approval



CETS 23 ATEX 029X
II 2G Ex eb IIC T6...T3 Gb
II 2D Ex tb IIIC T85°C...T165°C Db



Accessories (to be ordered separately)

Connection kit for self-regulating heating cables is specified depending on the type of cable used.

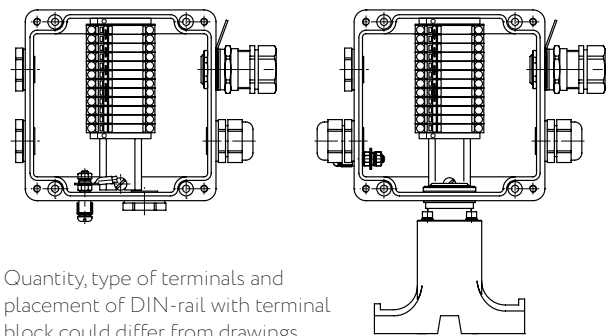
Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the bracket onto the pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Construction



Quantity, type of terminals and placement of DIN-rail with terminal block could differ from drawings.

PREMIUM

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								Earthing tag	Terminated earthing wire	Pipe installation support	Terminal block	Type of terminals	Order code
	A		B		C		D							
	Side A	Side B	Side C	Side D	Side A	Side B	Side C	Side D						
	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug						
JB2221-333-1X11					1xM25 B			3xM25 P	V	V	V	3L, 2N, 2PE/6L, 3N, 3PE	screw/spring	3210102100
JB2221-333-1X12					1xM25 B		1xM25 B	2xM25 P	V	V	V			3210102101
JB2221-333-1X13					1xM25 B		1xM25 P	2xM25 P	V	V	V			3210102102
JB2221-333-1X14					1xM25 B		2xM25 B	1xM25 P	V	V	V			3210102103
JB2221-333-1X15					1xM25 B		2xM25 P	1xM25 P	V	V	V			3210102104
JB2221-333-1X16					1xM25 P			3xM25 P	V	V	V			3210102105
JB2221-333-1X17					1xM25 P		1xM25 P	2xM25 P	V	V	V			3210102106
JB2221-333-1X18					1xM25 P		2xM25 P	1xM25 P	V	V	V			3210102107
JB2221-333-1X19					1xM25 B		1xM25 P 1xM25 B	1xM25 P	V	V	V			3210102108
JB2221-333-2X11			1xM25 P	1xM25 B	1xM25 P	1xM25 P	1xM25 P	1xM25 P	V	V				3210102109
JB2221-333-2X12			1xM25 P	1xM25 B	1xM25 P	1xM25 B	1xM25 P	1xM25 P	V	V				3210102110
JB2221-333-2X13			1xM25 P	1xM25 B	1xM25 P	2xM25 B			V	V				3210102111
JB2221-333-2X14			1xM25 P	1xM25 B	1xM25 P	2xM25 P			V	V				3210102112
JB2221-333-2X15			1xM25 P	2xM25 B		2xM25 B			V	V				3210102113
JB2221-333-2X16			1xM25 P	1xM25 B 1xM25 P		2xM25 P			V	V				3210102114
JB2221-333-2X17			1xM25 P	1xM25 P	1xM25 P	1xM25 P	1xM25 P	1xM25 P	V	V				3210102115
JB2221-333-2X18			1xM25 P	1xM25 P	1xM25 P	2xM25 P			V	V				3210102116
JB2221-333-2X19			1xM25 P	2xM25 P		2xM25 P			V	V				3210102117
JB2221-333-2X20			1xM25 P	2xM25 B		1xM25 P	1xM25 P		V	V				3210102118
JB2221-333-2X21			1xM25 P	1xM25 B 1xM25 P		1xM25 B 1xM25 P			V	V				3210102119
JB2221-333-2X22		1xM25 P		1xM25 B 1xM25 P		1xM25 B 1xM25 P			V	V				3210102120
JB2221-333-2X23		1xM25 P		2xM25 P		2xM25 P			V	V				3210102121

Order codes are valid for junction boxes with push-in terminal block. Additional junction box configurations are available upon request.

° X = 1 for screw type terminal block; X=2 for push-in type terminal block

Junction Boxes for Light Indication and Connection of Heating Cables to Power Supply

Junction boxes for light indication are designed to indicate the availability of power for heating sections based on self-regulating electric heating cables* and is intended for connecting heating cables to power network.

For installation onto a wall, onto a nearby metal structure or using a bracket directly onto the pipeline (brackets supplied separately).

Boxes JB2221-223 – allow connecting of one self-regulating heating cable to the power cable or two cables if the box is used for splicing.

Boxes JB2221-333 – allow connection to the power cable of up to three self-regulating heating cables with screw terminal straps and up to two – with push-in terminals.

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability. Cable glands of the box are intended for connecting unarmored power cables with a diameter of 7 to 18 mm or armored power cables with a diameter of 12 to 20 mm.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 1.5 to 10 mm². Design options with screw or push-in terminals are available to order.

A light indicator with a super bright LED signals voltage at the heating section termination.

The green LED has a long service life and has a 180° angle view, including in direct sunlight.

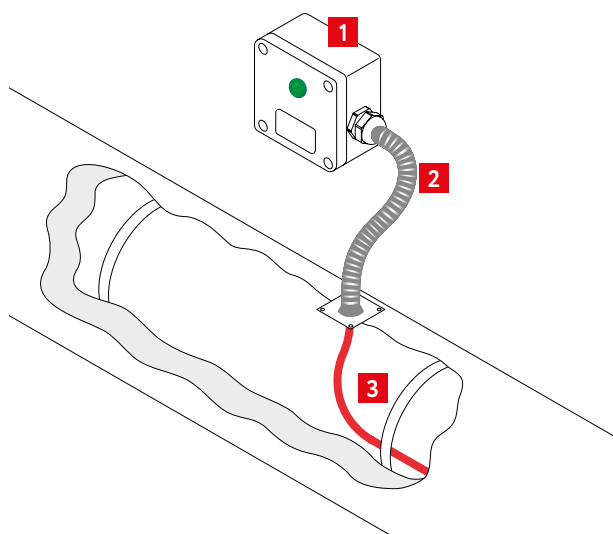
Features and Application

- Provides light indication of power voltage presence at the end of heating cable section and connection of cables to power network
- Compatible with all types of self-regulating electric heating cables
- High mechanical strength
- Critical component parts are included in the scope of supply. Metal pipe strap PFS/3, cable entry unit.
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive
- Approved for installation in explosion hazard areas

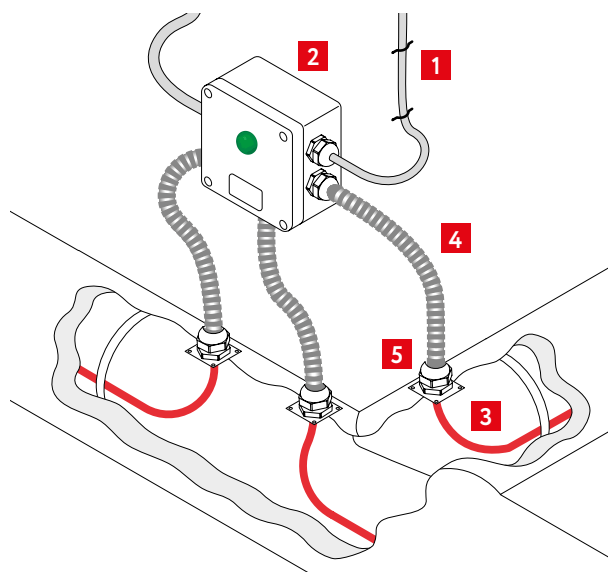


* This junction box is compatible with self-regulating heating cables.

Light Indication of Voltage Presence and Power Supply of Self-Regulating Heating Cables



1. Junction box JB2221-223-2X(27-31)
2. Mechanical cable protection
3. Heating cable



1. Power cable
2. Junction box JB2221-333-2X(27-33)
3. Heating cable
4. Mechanical cable protection
5. Cable entry unit

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex db eb IIC T6...T3 Gb Ex tb IIIC T85°C...T165°C Db
Temperature group of the explosion hazard area	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 550 V
Operating current	max 50 A
Electric life of the LED	>10 ⁵ hours
LED power intake	<1 W
Light source	green LED
View angle	180°
Enclosure dimensions	JB2221-223 122×120×91.5 mm JB2221-333 160×160×94.5 mm
Total weight (maximum)	JB2221-223 1.55 kg JB2221-333 2.44 kg
Material Box / Color	Glass fiber reinforced polyester / Black

Accessories (to be ordered separately)

Connection kit for self-regulating heating cables is specified depending on the type of cable used.

Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

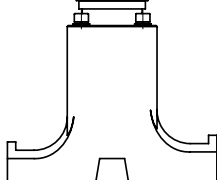
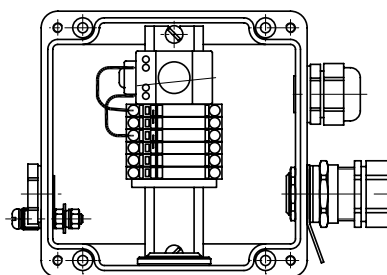
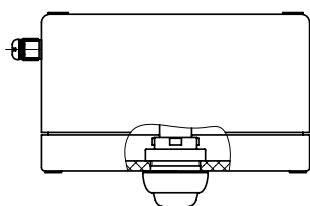
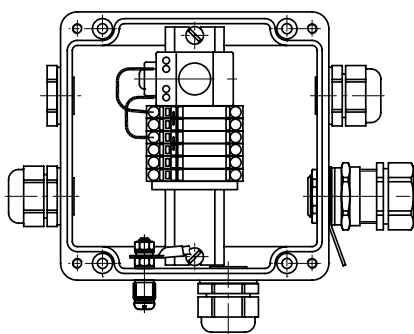
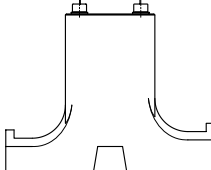
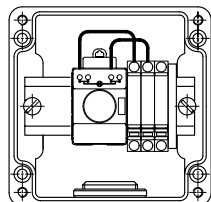
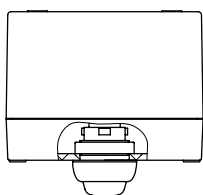
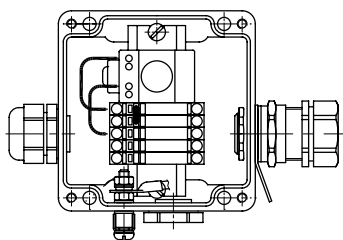
Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the bracket onto the pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Junction Boxes for Light Indication and Connection of Heating Cables to Power Supply

Construction



Boxes JB2221-223 (left) and JB2221-333 (right) with push-in terminals. Quantity, type of terminals and placement of DIN-rail with terminal block could differ from drawings.

Light Indication of Voltage Presence and Power Supply of Self-Regulating Heating Cables

Delivery Set

Model	Box enclosure	Cable glands and plugs (P=plastic; B=brass)								Earth- ing tag	Termi- nated earth- ing wire	Pipe instal- lation support	Terminal block	Type of terminals	Light Indica- tor	Order code
		Side A		Side B		Side C		Side D								
		Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug							
JB2221-223-1X320*	V											V	1L,1N,1PE	screw/ spring	V	3210102200
JB2221-223-1X21	V						1xM25 P			V	V	V			V	3210102201
JB2221-223-1X22	V					1xM25 B				V	V	V	1L,1N,1PE / 2L,1N,2PE		V	3210102202
JB2221-223-1X23	V					1xM25 P				V	V	V			V	3210102203
JB2221-223-2X27	V			1xM25 P						V	V				V	3210102204
JB2221-223-2X28	V				1xM25 P	1xM25 P		1xM25 P		V	V		1L,1N,1PE / 2L,1N,2PE		V	3210102205
JB2221-223-2X29	V			1xM25 P		1xM25 P		1xM25 P		V	V				V	3210102206
JB2221-223-2X30	V				1xM25 P	1xM25 B		1xM25 P		V	V				V	3210102207
JB2221-223-2X31	V			1xM25 P		1xM25 B		1xM25 P		V	V				V	3210102208
JB2221-333-1X23	V					1xM25 P			2xM25 P	V	V	V			V	3210102209
JB2221-333-1X24	V					1xM25 P		1xM25 P	1xM25 P	V	V	V			V	3210102210
JB2221-333-1X25	V					1xM25 P			2xM25 P	V	V	V	V		3210102211	
JB2221-333-1X26	V					1xM25 B			2xM25 P	V	V	V	V		3210102212	
JB2221-333-1X27	V					1xM25 B		1xM25 B	1xM25 P	V	V	V	V		3210102213	
JB2221-333-1X28	V					1xM25 B		1xM25 P	1xM25 P	V	V	V	V		3210102214	
JB2221-333-1X29	V					1xM25 B		2xM25 P		V	V	V	V		3210102215	
JB2221-333-1X30	V					1xM25 B		1xM25 B 1xM25 P		V	V	V	2L,2N,2PE		V	3210102216
JB2221-333-2X27	V				1xM25 P	2xM25 P		2xM25 P		V	V				V	3210102217
JB2221-333-2X28	V			1xM25 P		2xM25 P		2xM25 P		V	V				V	3210102218
JB2221-333-2X29	V			1xM25 P		1xM25 B	1xM25 P	2xM25 P		V	V				V	3210102219
JB2221-333-2X30	V			1xM25 P		1xM25 B 1xM25 P		1xM25 P		V	V				V	3210102220
JB2221-333-2X31	V				1xM25 P	1xM25 B	1xM25 P	1xM25 B 1xM25 P		V	V				V	3210102221
JB2221-333-2X32	V				1xM25 P	1xM25 B 1xM25 P		1xM25 B 1xM25 P		V	V				V	3210102222
JB2221-333-2X33	V			1xM25 P		1xM25 B 1xM25 P		1xM25 B 1xM25 P		V	V				V	3210102223

* X = 1 for screw type terminal block; X=2 for push-in type terminal block

Order codes are valid for junction boxes with push-in terminal block.

Additional junction box configurations are available upon request.

Approvals



CETS 23 ATEX 029X

II 2 G Ex db eb IIC T6 ... T3 Gb

II 2D Ex tb IIIC T85°C ... T165°C Db



PREMIUM

Junction Boxes for Connection of Data, Control and Signal Cables

Junction boxes models range JB222(3)1-223-2X(16-24) is designed for connecting control cables to the electric heating systems.

The boxes are installed on a wall or on a nearby metal structure or using a bracket directly on a pipeline. Brackets are supplied separately.

The box allows connection of one or two control cables, up to three temperature sensors and input through thermal insulation of up to four temperature sensors (one reserved).

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability.

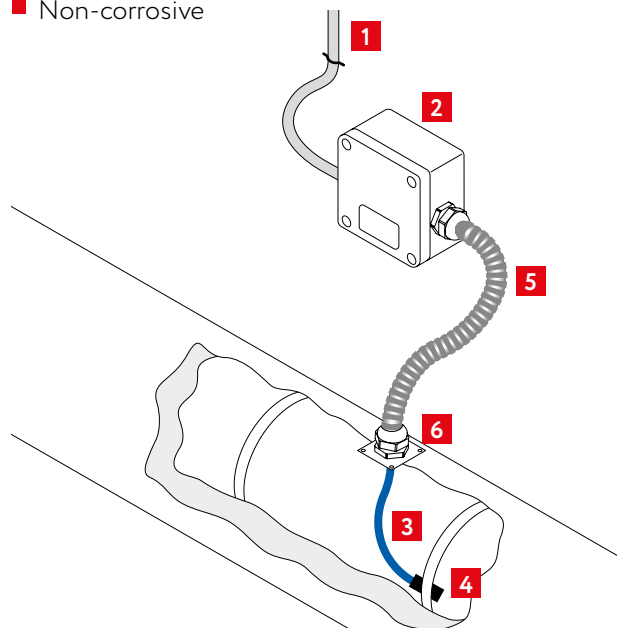
Cable glands are intended for connecting unarmored power cables with a diameter of 7 to 18 mm or armored power cables with a diameter of 12 to 20 mm.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 0.5 to 2.5 mm². Design options with screw or push-in terminal blocks and with various types of explosion protection: models JB2221 – type e (increased safety) and models JB2231 – type ia (intrinsic safety) – are available.



Features and Application Areas

- Efficient solution for control cables connection and input through thermal insulation
- Approved for installation in explosion hazard areas
- Critical component parts included in the scope of supply. Metal pipe strap PFS/3, cable entry unit and flexible sealed gland FSG to be ordered separately
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive



1. Control cable
2. Junction box JB222(3)1-223-2X(16-24)
3. Installation sensor cable
4. Temperature sensor
5. Flexible sealed gland
6. Cable entry unit

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex ia IIC T6 Gb Ex tb IIIC T85°C... T165°C Db
Operating ambient temperature range	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 550 V
Operating current	max 21 A
Enclosure dimensions	122×120×91.5 mm
Total weight (maximum)	1.8 kg
Material Box / Color	Glass fiber reinforced polyester / Black
Material Pipe installation support / Color	

Accessories (to be ordered separately)

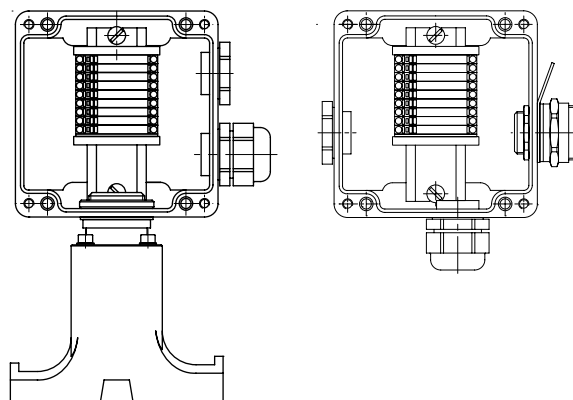
Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the pipe support stand or bracket onto the pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Construction



Boxes JB222(3)1-223-1XXX (left) and JB222(3)1-223-2XXX (right) with push-in terminal block. Quantity, type of terminals and placement of DIN-rail with terminal block could differ from drawings.

Approvals*



CETS 23 ATEX 029X

II 2 G Ex eb IIC T6 ... T3 Gb

II 2 G Ex ia IIC T6 Gb

II 2D Ex tb IIIC T85°C ... T165°C Db

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								Pipe installation support	Terminal block	Type of terminals	Order code
	A C D B											
	Side A		Side B		Side C		Side D					
	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug				
JB22Y1°-223-1X14**							1xM25 B	1xM25 P	V	9L	screw/ push-in	3210102300
JB22Y1-223-1X15							2xM25 B		V			3210102301
JB22Y1-223-1X16							1xM25 P	1xM25 P	V			3210102302
JB22Y1-223-1X17							2xM25 P		V			3210102303
JB22Y1-223-2X16			1xM25 B			1xM25 P		1xM25 P				3210102304
JB22Y1-223-2X17				1xM25 P	1xM25 B		1xM25 B					3210102305
JB22Y1-223-2X18			1xM25 B		1xM25 B		1xM25 B					3210102306
JB22Y1-223-2X19			1xM25 P		1xM25 B			1xM25 P				3210102307
JB22Y1-223-2X20			1xM25 P		1xM25 B		1xM25 P					3210102308
JB22Y1-223-2X21				1xM25 P	1xM25 P			1xM25 P				3210102309
JB22Y1-223-2X22			1xM25 P		1xM25 P			1xM25 P				3210102310
JB22Y1-223-2X23			1xM25 P		1xM25 P		1xM25 P					3210102311
JB22Y1-223-2X24			1xM25 P		1xM25 B		1xM25 B			3210102312		

Order codes are valid for junction boxes with push-in terminal block and "e" explosion proof level. Additional junction box configurations are available upon request.

* Y = 2 for "e" explosion proof level; Y = 3 for "ia" explosion proof level

** X = 1 for screw type terminal block; X=2 for push-in type terminal block

Junction Boxes for Series-Resistance Heating Cables Connection

Junction boxes are designed for connecting of series-resistance heating cables, such as SNF[®], to power network.

Boxes' models are designed for installation onto a wall, onto a nearby metal structure or using a bracket directly onto the pipeline (brackets supplied separately).

The enclosure properties ensures moisture and dust ingress protection IP66 and high corrosion stability.

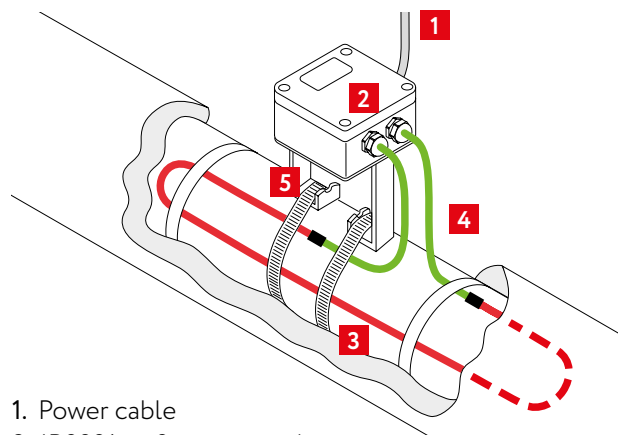
Cable glands of the box are intended for connecting unarmored power cables with a diameter of 7 to 18 mm or armored power cables with a diameter of 12 to 20 mm.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 1.5 to 10 mm² (JB2221-223 models) or up to 16 mm² (JB2221-333, JB2221-533 models). Design options with screw or push-in terminals are available to order.

Features and Application Areas

- Efficient solution for power supply and input of SNF series-resistance heating cables
- Designed for loop, star and delta connection
- Excludes the risk of damage to heating cables at connection points
- Critical component parts are included in the scope of supply. Metal pipe strap PFS/3, cable entry unit
- Approved for installation in explosion hazard areas

- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive



1. Power cable
2. JB2221-...-2... junction box
3. Heating cable
4. Connection cable (cold lead)
5. Bracket

Application Types

JB2221-223 – Loop to power connection

JB2221-333 – Star to power connection

JB2221-533 – Delta to power connection

[°] The junction boxes are compatible with all types of series resistance heating cables

Power Supply of Series-Resistance Heating Cables

Technical Data

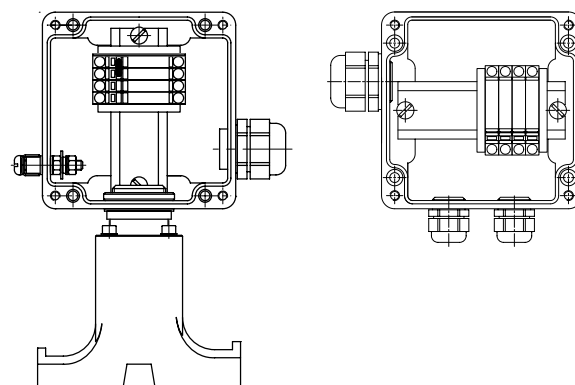
Dust and moisture protection rating	IP66	
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db	
Temperature group of the explosion hazard area	T6	
Operating ambient temperature range	-60...+55 °C	
Operating voltage	JB2221-223	max 550 V
	JB2221-333, JB2221-533	max 750 V
Operating current	JB2221-223	max 50 A
	JB2221-333, JB2221-533	max 66 A
Enclosure dimensions	JB2221-223	122×120×91.5 mm
	JB2221-333	160×160×94.5 mm
	JB2221-533	260×160×90 mm
Total weight (maximum)	JB2221-223	1.35 kg
	JB2221-333	2.26 kg
	JB2221-533	2.30 kg
Material Box / Color	Glass fiber reinforced polyester / Black	

Approvals



CETS 23 ATEX 029X
II 2 G Ex eb IIC T6 ... T3 Gb
II 2D Ex tb IIIC T85°C ... T165°C Db

Construction



Quantity of terminals and placement of DIN-rail with terminal block could differ from drawings.

Accessories (to be ordered separately)

Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the pipe support stand or bracket onto the pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

PREMIUM

Delivery Set

Model	Box enclosure	Cable glands and plugs (P=plastic; B=brass)						A C D B		Earthing tag	Terminated earthing wire	Pipe installation support	Terminal block	Type of terminals	Order code
		Side A		Side B		Side C		Side D							
		Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug						
JB2221-223-1X18°	V								1xM25 P	V	V	V	2L,1N,2PE / 1L,1N,2PE	screw/spring	3210102400
JB2221-223-1X19	V							1xM25 B		V	V	V			3210102401
JB2221-223-1X20	V							1xM25 P		V	V	V			3210102402
JB2221-333-1X20	V								1xM32 P	V	V	V	2L,1N,2PE/ 3L,2N,3PE		3210102403
JB2221-333-1X21	V							1xM32 B		V	V	V			3210102404
JB2221-333-1X22	V							1xM32 P		V	V	V			3210102405
JB2221-223-2X380	V			2xM20 P		1xM25 P							1L,1N,2PE		3210102406
JB2221-333-2X380	V			3xM20 P		1xM25 P							3L,3N,2PE		3210102407
JB2221-533-2X130	V			6xM20 P		1xM25 P							7L, 6PE		3210102408

Order codes are valid for junction boxes with push-in terminal block.
Additional junction box configurations are available upon request.

° X = 1 for screw type terminal block; X=2 for push-in type terminal block

Junction Boxes for Connection of Mineral-Insulated Heating Cables

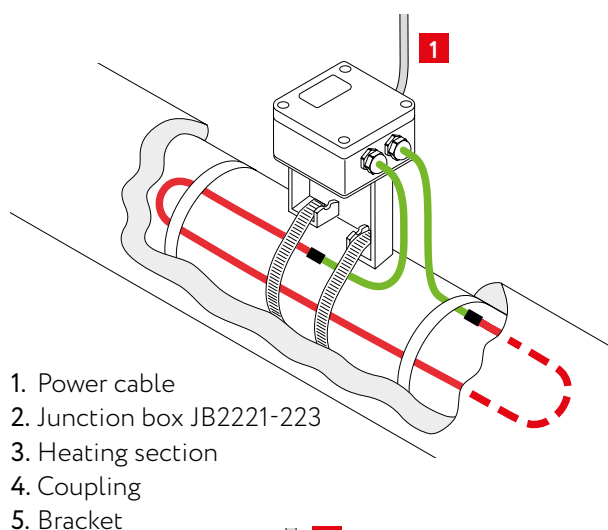
Junction boxes for connecting of heating cables with mineral insulation are designed in 3 enclosure dimensions and intended for loop, star and delta connection. Boxes' models are designed for installation onto a wall, onto a nearby metal structure or using a bracket directly onto the pipeline. The choice of the mounting option also depends on the temperature of the heated system (pipeline). At a pipeline temperature of over 200 °C, it is recommended to mount the box on a wall or on an adjacent metal structure. The box allows to connect one section of the heating cable.

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability. Cable glands of the box are intended for connecting unarmored power cables with a diameter of 7 to 18 mm or armored power cables with a diameter of 12 to 20 mm.

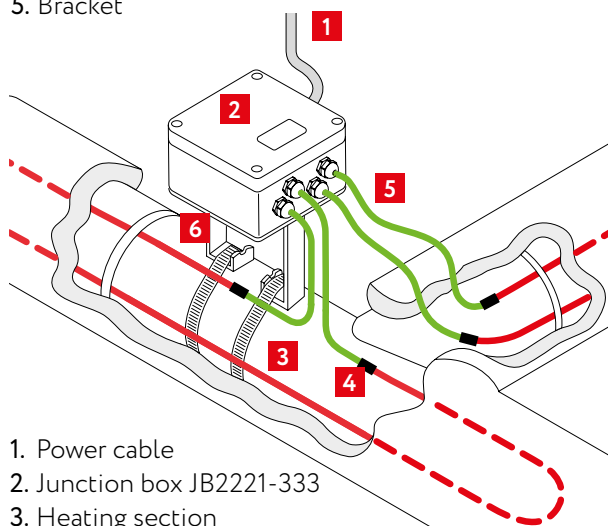
Installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 1.5 to 10 mm² (JB2221-223 models) or up to 16 mm² (JB2221-333, JB2221-533 models). Design options with screw or push-in terminals are available to order.

Features and Application

- Efficient solution for power supply to cables with mineral insulation
- Approved for installation in explosion hazard areas
- Necessary component parts included in the scope of supply
- Designed for loop, star and delta connection
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive



1. Power cable
2. Junction box JB2221-223
3. Heating section
4. Coupling
5. Bracket



1. Power cable
2. Junction box JB2221-333
3. Heating section
4. Coupling
5. Installation wire
6. Bracket

° This junction box is compatible with heating cables MOIC-F, MOIC-M.

° The junction boxes are compatible with mineral and metal insulated heating cables

Power Supply Heating Sections Based on Cables with Mineral Insulation

Technical Data

Dust and moisture protection rating	IP66	
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db	
Temperature group of the explosion hazard area	T6	
Operating ambient temperature range	-60...+55 °C	
Operating voltage	JB2221-223	max 550 V
	JB2221-333, JB2221-533	max 750 V
Operating current	JB2221-223	max 50 A
	JB2221-333, JB2221-533	max 66 A
Enclosure dimensions	JB2221-223	122×120×91.5 mm
	JB2221-333	160×160×94.5 mm
	JB2221-533	260×160×90 mm
Total weight (maximum)	JB2221-223	1.26 kg
	JB2221-333	1.95 kg
	JB2221-533	2.10 kg
Material Box / Color	Glass fiber reinforced polyester / Black	

Approvals



CETS 23 ATEX 029X

II 2 G Ex eb IIC T6 ... T3 Gb

II 2D Ex tb IIIC T85°C ... T165°C Db

Accessories (to be ordered separately)

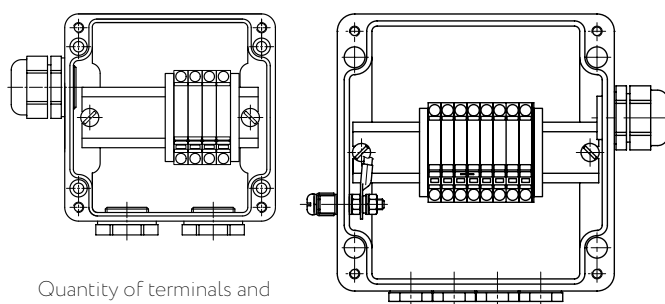
Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the pipe support stand or bracket onto the pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Construction



Quantity of terminals and placement of DIN-rail with terminal block could differ from drawings.

PREMIUM

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								Earthing tag	Terminated earthing wire	Terminal block	Type of terminals	Order code
	A C B D												
	Side A		Side B		Side C		Side D						
Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug						
JB2221-223-2X25°			2xM20 P			1xM25 B		V	V	1L,1N,2PE	screw/ push-in	3210102450	
JB2221-223-2X26			2xM20 P			2xM25 P		V	V			3210102451	
JB2221-333-2X24			4xM20 P				1xM25 P	V	V	2L,1N,2PE/ 3L,2N,3PE		3210102452	
JB2221-333-2X25			4xM20 P			1xM25 B		V	V			3210102453	
JB2221-333-2X26			4xM20 P					V	V			3210102454	
JB2221-223-2X390			2xM20 P	1xM25 P						1L,1N,2PE		3210101617	
JB2221-333-2X390			3xM20 P	1xM25 P						3L,3N,2PE		3210101621	
JB2221-533-2X140			6xM20 P	1xM25 P						7L,6PE	3210101625		

Order codes are valid for junction boxes with push-in terminal block.
Additional junction box configurations are available upon request.

* X = 1 for screw type terminal block; X=2 for push-in type terminal block

Junction Box for Power Cables Connection

Junction boxes JB2221-544-2X(11-59) are designed for power distribution during installation, repair and upgrade of power cables and utility networks in explosion hazard areas.

The boxes' models are designed for installation onto a nearby metal structure. The box allows connection of up to six power cables.

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability.

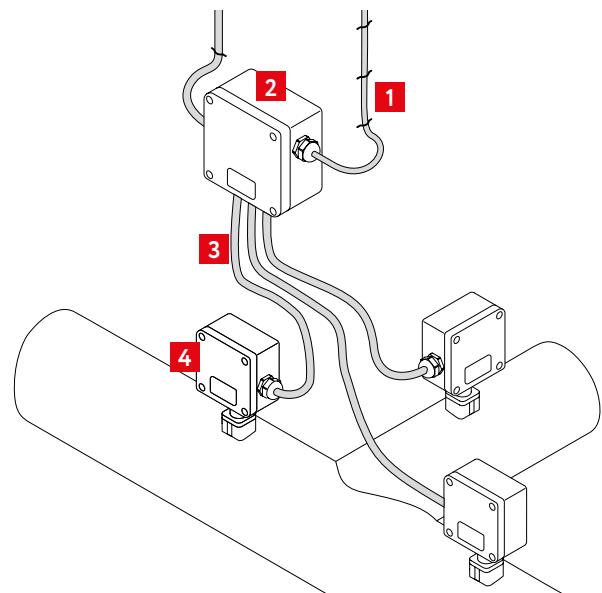
The box has following cable glands:

- up to two glands for unarmored cable with a diameter of 14 to 25 mm or armored cable with a diameter of 17 to 26.3 mm (for models JB2221-544-21(11-38)) or armoured cable with a diameter of 23.5 to 33.6 mm (for models JB2221-544-21(39-59)).
- up to four glands for unarmored cable with a diameter of 7 to 18 mm or armored cable with a diameter of 12 to 20 mm.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 2.5 to 35 mm².

Features and Application Areas

- Efficient solution for power supply cables connection in electric heating systems
- Approved for installation in explosion hazard areas
- Critical component parts are included in the scope of supply. Flexible sealed gland FSG to be ordered separately
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive

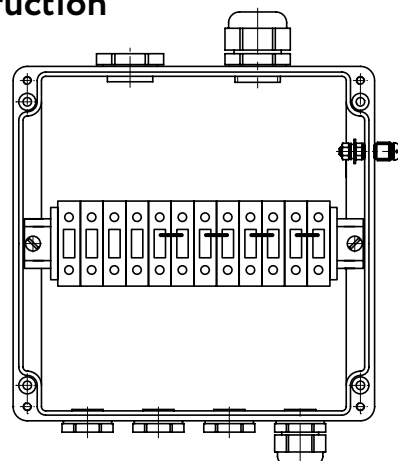


1. Power cable
2. Junction box JB2221-544-2X(11-59)
3. Power cable
4. Junction box

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db
Temperature group of the explosion hazard area	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 750 V
Operating current	max 109 A
Enclosure dimensions	250×255×120 mm
Total weight (maximum)	5.80 kg
Material box	Glass fiber reinforced polyester
Color	Black

Construction



Connection of Power Supply Cables

Accessories (to be ordered separately)

Z-profile – for mounting the box onto a metal structure or onto a wall.

Approvals



CETS 23 ATEX 029X

II 2 G Ex eb IIC T6 ... T3 Gb

II 2D Ex tb IIIC T85°C ... T165°C Db

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								Earthing tag	Terminated earthing wire	Terminal block	Type of terminals	Order code
	Side A		Side B		Side C		Side D						
	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug					
JB2221-544-2111		2xM25 P	4xM25 B						V	V	6L, 2N,4PE	screw	3210102500
JB2221-544-2112	1xM25 B	1xM25 P	4xM25 B						V	V			3210102501
JB2221-544-2113	2xM25 P		4xM25 B						V	V			3210102502
JB2221-544-2114		2xM25 P	3xM25 P	1xM25 P					V	V			3210102503
JB2221-544-2115		2xM25 P	4xM25 P						V	V			3210102504
JB2221-544-2116	1xM25 P	1xM25 P	4xM25 P						V	V			3210102505
JB2221-544-2117	2xM25 P		4xM25 P						V	V			3210102506
JB2221-544-2118	1xM32 B	1xM32 P	1xM25 B	3xM25 P					V	V			3210102507
JB2221-544-2119	1xM32 B	1xM32 P	2xM25 B	2xM25 P					V	V			3210102508
JB2221-544-2120	1xM32 B	1xM32 P	3xM25 B	1xM25 P					V	V			3210102509
JB2221-544-2121	1xM32 B	1xM32 P	4xM25 B						V	V			3210102510
JB2221-544-2122	1xM32 B	1xM32 P	2xM25 P	2xM25 P					V	V			3210102511
JB2221-544-2123	1xM32 B	1xM32 P	3xM25 P	1xM25 P					V	V			3210102512
JB2221-544-2124	1xM32 B	1xM32 P	4xM25 P						V	V			3210102513
JB2221-544-2125	2xM32 B			4xM25 P					V	V			3210102514
JB2221-544-2126	2xM32 B		1xM25 B	3xM25 P					V	V			3210102515
JB2221-544-2127	2xM32 B		2xM25 B	2xM25 P					V	V			3210102516
JB2221-544-2128	2xM32 B		3xM25 B	1xM25 P					V	V			3210102517
JB2221-544-2129	2xM32 B		4xM25 B						V	V			3210102518
JB2221-544-2130	1xM32 P	1xM32 P	1xM25 P	3xM25 P					V	V			3210102519
JB2221-544-2131	1xM32 P	1xM32 P	2xM25 P	2xM25 P					V	V			3210102520
JB2221-544-2132	1xM32 P	1xM32 P	3xM25 P	1xM25 P					V	V			3210102521
JB2221-544-2133	1xM32 P	1xM32 P	4xM25 P	0xM25 P					V	V			3210102522
JB2221-544-2134	2xM32 P			4xM25 P					V	V			3210102523
JB2221-544-2135	2xM32 P		1xM25 P	3xM25 P					V	V			3210102524
JB2221-544-2136	2xM32 P		2xM25 P	2xM25 P					V	V			3210102525
JB2221-544-2137	2xM32 P		3xM25 P	1xM25 P					V	V			3210102526
JB2221-544-2138	2xM32 P		4xM25 P						V	V			3210102527
JB2221-544-2139	1xM40 B	1xM40 P	1xM25 B	3xM25 P					V	V			3210102528
JB2221-544-2140	1xM40 B	1xM40 P	2xM25 B	2xM25 P					V	V			3210102529
JB2221-544-2141	1xM40 B	1xM40 P	3xM25 B	2xM25 P					V	V			3210102530
JB2221-544-2142	1xM40 B	1xM40 P	4xM25 B						V	V			3210102531
JB2221-544-2143	1xM40 B	1xM40 P	1xM25 P	3xM25 P					V	V	3210102532		
JB2221-544-2144	1xM40 B	1xM40 P	2xM25 P	2xM25 P					V	V	3210102533		
JB2221-544-2145	1xM40 B	1xM40 P	3xM25 P	1xM25 P					V	V	3210102534		
JB2221-544-2146	2xM40 B			4xM25 P					V	V	3210102535		
JB2221-544-2147	2xM40 B		1xM25 B	3xM25 P					V	V	3210102536		
JB2221-544-2148	2xM40 B		2xM25 B	2xM25 P					V	V	3210102537		
JB2221-544-2149	2xM40 B		3xM25 B	1xM25 P					V	V	3210102538		
JB2221-544-2150	2xM40 B		4xM25 B						V	V	3210102539		
JB2221-544-2151	1xM40 P	1xM40 P	1xM25 P	3xM25 P					V	V	3210102540		
JB2221-544-2152	1xM40 P	1xM40 P	2xM25 P	2xM25 P					V	V	3210102541		
JB2221-544-2153	1xM40 P	1xM40 P	3xM25 P	1xM25 P					V	V	3210102542		
JB2221-544-2154	1xM40 P	1xM40 P	4xM25 P						V	V	3210102543		
JB2221-544-2155	2xM40 P			4xM25 P					V	V	3210102544		
JB2221-544-2156	2xM40 P		1xM25 P	3xM25 P					V	V	3210102545		
JB2221-544-2157	2xM40 P		2xM25 P	2xM25 P					V	V	3210102546		
JB2221-544-2158	2xM40 P		3xM25 P	1xM25 P					V	V	3210102547		
JB2221-544-2159	2xM40 P		4xM25 P						V	V	3210102548		

Additional junction box configurations are available upon request.

Junction Boxes for Three-Phase Series-Resistance Heating Cables Connection

Boxes JB2221-544-21(60-64) and JB2221-544-2165 allow to connect heating sections based on a three-phase series-resistance heating cable with each other and with a power cable in explosion hazard areas.

The enclosure design ensures moisture and dust ingress protection IP66 and high corrosion stability.

The box can be mounted onto a nearby metal structure or using a bracket directly onto the pipeline. Depending on the purpose, the boxes are classified into power connecting boxes (for connecting the heating section to a source of power), maintenance boxes (for connecting two strings of the heating section) and terminal boxes (for connecting the heating section at the heating stretch termination).

The cable gland of the box JB2221-544-21(60-64) is intended for connecting armored cable with a diameter of 23.5 to 33.6 mm. The box allows the connection of one section using the star or loop configuration. For conveniently connecting heating sections and power cables and orienting the box at the connection point, the box has an opening on each side sealed by a plug.

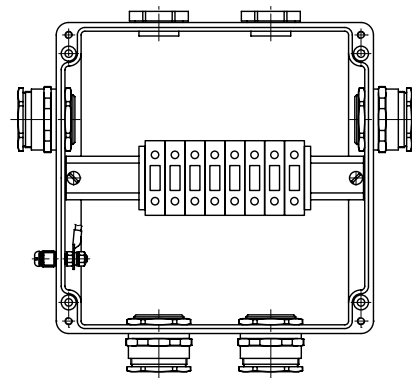
JB2221-544-2165 is intended for connecting armored cable with a diameter from 17 to 26.3 mm. The box allows connection of one section using the star configuration.

The installed terminal blocks allow the connection of multi-core or single-core wires with a cross-section of 2.5 to 35 mm².

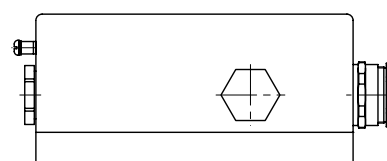
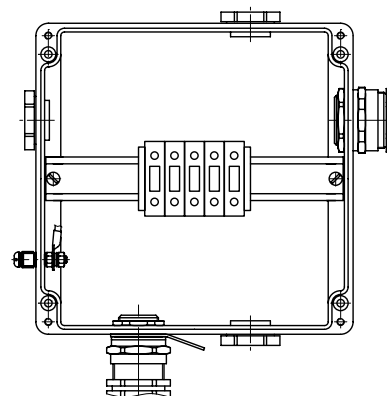
Features and Application Areas

- Efficient solution for power supply to three-phase series-resistance heating cable LLS
- Approved for installation in explosion hazard areas
- Critical component parts are included in the scope of supply. Flexible sealed gland FSG to be ordered separately
- Wide application range
- Quick and easy installation
- High thermal stability
- Non-corrosive

Construction



Junction box JB2221-544-21(63,64)



Junction box JB2221-544-21(60-62), JB2221-544-2165



Power Supply of Three-Phase Series-Resistance Heating Cables

Technical Data

Dust and moisture protection rating	IP66
Explosion protection marking	Ex eb IIC T6...T3 Gb Ex tb IIIC T85°C... T165°C Db
Temperature group of the explosion hazard area	T6
Operating ambient temperature range	-60...+55 °C
Operating voltage	max 750 V
Operating current	max 109 A
Enclosure dimensions	250×255×120 mm
Total weight (maximum)	
JB2221-544-21(60-64)	5.7 kg
JB2221-544-2165	4.8 kg
Material box	Glass fiber reinforced polyester
Color	Black

Accessories (to be ordered separately)

Z-profile – for mounting the box onto a metal structure or onto a wall.

Plate PL.JB 1007 and bracket K.JB 10.YYY×ZZZ – for mounting the box onto the pipeline.

Approvals



CETS 23 ATEX 029X

II 2 G Ex eb IIC T6 ... T3 Gb

II 2D Ex tb IIIC T85°C ... T165°C Db

Delivery Set

Model	Cable glands and plugs (P=plastic; B=brass)								A C D B		Earthing tag	Terminated earthing wire	Terminal block	Type of terminals	Order code
	Side A		Side B		Side C		Side D								
	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug	Cable gland	Screw plug							
JB2221-544-2160		1xM40 P	1xM40 B	1xM40 P		1xM40 P	1xM40 P		V	V	3L,2PE	screw	3210002700		
JB2221-544-2161				1xM40 P	1xM40 P				V	V			3210002701		
JB2221-544-2162				1xM40 P	1xM40 P		1xM40 P	1xM40 P	V	V			3210002702		
JB2221-544-2163		1xM40 P		1xM40 P	2xM40 P				V	V	6L,6PE		3210002703		
JB2221-544-2164		2xM40 P		2xM40 P	1xM40 P		1xM40 P		V	V			3210002704		
JB2221-544-2165		1xM40 P	1xM32 B	1xM40 P		1xM40 P	1xM40 P		V	V	3L,2PE		3210002705		

Additional junction box configurations are available upon request.

Premium Line Models Assortment

Junction box intended use	Dimensions	Box's model	Application
For self-regulating heating cables	122×120×91.5 mm	JB2221-223-2X11	Junction box for connecting of 1 self-reg. heating circuit
		JB2221-223-2X12	Junction box for connecting of 2 self-reg. heating circuits
		JB2221-223-2X13	Junction box for connecting of 2 self-reg. heating circuits
		JB2221-223-2X14	Junction box for connecting of 1 self-reg. heating circuit
		JB2221-223-2X15	Junction box for connecting of 2 self-reg. heating circuits
		JB2221-223-2X340	Junction box for connecting of 1 self-reg. heating circuit
		JB2221-223-2X350	
		JB2221-223-2X360	Junction box for connecting of up to 3 self-reg. heating circuits to power network
		JB2221-223-2X370	
	160×160×94.5 mm	JB2221-333-2X11	Junction box for connecting of 1 self-reg. heating circuit to power network
		JB2221-333-2X12	
		JB2221-333-2X13	Junction box for connecting of 2 self-reg. heating circuits to power network
		JB2221-333-2X14	
		JB2221-333-2X15	Junction box for connecting of 3 self-reg. heating circuits to power network
		JB2221-333-2X16	
		JB2221-333-2X17	Junction box for connecting of 1 self-reg. heating circuit to power network
		JB2221-333-2X18	Junction box for connecting of 2 self-reg. heating circuits to power network
		JB2221-333-2X19	Junction box for connecting of 3 self-reg. heating circuits to power network
		JB2221-333-2X20	Junction box for connecting of 1 self-reg. heating circuit to power network + it's branching
		JB2221-333-2X21	Junction box for connecting of 2 self-reg. heating circuits to power network + it's branching
		JB2221-333-2X22	Junction box for connecting of 3 self-reg. heating circuits to power network + it's branching
		JB2221-333-2X23	
For light indication	122×120×91.5 mm	JB2221-223-2X27	Junction box with light indication
		JB2221-223-2X28	Junction box with light indication and for power connection of 1 self-reg. heating circuit
		JB2221-223-2X29	Junction box with light indication and for power connection of 2 self-reg. heating circuit
		JB2221-223-2X30	Junction box with light indication and for power connection of 1 self-reg. heating circuit
		JB2221-223-2X31	Junction box with light indication and for power connection of 2 self-reg. heating circuit
	160×160×94.5 mm	JB2221-333-2X27	Junction box with light indication and for connecting of up to 3 self-reg. heating circuits to power network
		JB2221-333-2X28	
		JB2221-333-2X29	
		JB2221-333-2X30	
		JB2221-333-2X31	Junction box with light indication and for connecting of up to 1 self-reg. heating circuit to power network + it's branching
For data, control and signal cables connection	122×120×91.5 m	JB2221-223-2X16**	Junction box for connection of 1 control cable and 1 air temperature sensor
		JB2221-223-2X17**	Junction box for connection of 1 control cable and 1 temperature sensor
		JB2221-223-2X18**	Junction box for connection of 1 control cable and 2 temperature sensors
		JB2221-223-2X19**	Junction box for connection of 1 control cable and 1 temperature sensor
		JB2221-223-2X20**	Junction box for connection of 1 control cable and 2 temperature sensors
		JB2221-223-2X21**	Junction box for connection of 1 control cable and 1 air temperature sensor
		JB2221-223-2X22**	Junction box for connection of 1 control cable and 1 temperature sensor
		JB2221-223-2X23**	Junction box for connection of 1 control cable and 2 temperature sensors
		JB2221-223-2X24**	Junction box for connection of 2 control cablse and one temperature sensor
For series-resistance cables	122×120×91.5 mm	JB2221-223-2X380	Junction box for connecting of series-resistant heating cables (loop to power connection)
	160×160×94.5 mm	JB2221-333-2X380	Junction box for connecting of series-resistant heating cable (star to power connection)
	260×160×90 mm	JB2221-533-2X130	Junction box for connecting of series-resistant heating cable (dela to power connection)
For cables in mineral insulation	122×120×91.5 mm	JB2221-223-2X25	Junction box for heating cables in mineral insulation
		JB2221-223-2X26	Junction box for heating cables in mineral insulation
		JB2221-223-2X390	Junction box for heating cables in mineral insulation (loop to power connection)
	160×160×94.5 mm	JB2221-333-2X24	Junction box for heating cables in mineral insulation
		JB2221-333-2X25	Junction box for heating cables in mineral insulation
		JB2221-333-2X26	Junction box for heating cables in mineral insulation
	260×160×90 mm	JB2221-333-2X390	Junction box for heating cable in mineral insulation (star to power connection)
For power cables connection	250×255×120 mm	JB2221-544-21(11-38)	Distribution box for power cable connection and canalization, suitable for 2xM32 and 4xM25 cable glands
		JB2221-544-21(39-59)	Distribution box for power cable connection and canalization, suitable for 2xM40 and 4xM25 cable glands
For long line system connection		JB2221-544-21(60-65)	Junction box for 3-phase constant wattage heating cable LLS (long line system)

* X=1 for junction box with screw type terminals; X=2 for junction box with push-in type terminals

** The model has an equivalent with «ia» explosion proof level

Ordering Information

Ordering Information

Marking of JB models indicates class of boxes, dimensions, mounting type, terminals type. The last 2 digits indicate a box's model depending on application.

Example: Junction box JB2221-XXX-A-B-YY-Z

① ② ③ ④ ⑤ ⑥

1. **Class of boxes:**
2221 – Explosion-proof boxes
2. **Dimension code:**
223 – 122×120×91.5 mm
333 – 160×160×94.5 mm
533 – 260×160×90 mm
544 – 255×250×120 mm
3. **Mounting type:**
2 – Wall mounted
4. **Terminals type:**
1 – Screw
2 – Push-in
5. **Model #:**
11-99 – Application code
6. **Reserved number for accessories presence or absence:**
0 – Earthing stud absence

Non-Standard Versions

Please send us your request for non-standard junction boxes' models using Questionnaire form

Connection Kits for Self-Regulating Heating Cables

Connection kits are available in a wide range of different types for various applications. Our connection technology is the ideal solution when connecting self-regulating heating cables (self-limiting parallel trace heaters) HTM, HTA, HTP, BTC, BTCe, BTX and BTXe to junction boxes as well as to "cold" cables.

Features

- Ex-approved solution
- Easy to install
- Full range of kits available
- Silicone connection kits can be installed in explosive environments without "hot permit to work"

Application Areas

- Connection technology for all self-regulating heating cables

Variations

To connect self-regulating heating cable into a junction box using a junction box' cable gland.



TKL, TKR connection kit



TKL/JB, TKR/JB connection kit

Connection Kit vs. Trace Heater Type

Name	Ref. type of self-regulating heating cable
TKL	BTC, BTCe
TKR	HTM, HTA, HTP, BTX, BTXe
TKL/JB	BTC, BTCe
TKR/JB	HTM, HTA, HTP, BTX, BTXe

Variations

To connect self-regulating heating cable with a power supply cable as well as repair kit



TKT/M connection kits



CP-6 connection kit



CP-7 connection kit

Connection Kit vs. Trace Heater Type

Name	Ref. type of self-regulating heating cable
TKT/M	HTM, HTA, HTP, CTE (TPE)
CP-6	HTM HTA, HTP (TPE)
CP-7	HTM, HTA, HTP, BTC, BTCe, BTX, BTXe (FEP)

Approvals



CETS 23 ATEX 030X
II 2 GD
Ex 60079-30-1 IIC T6 Gb
Ex 60079-30-1 IIIC T85°C Db

Types

Name	Order code
TKL	3290102101
TKR	3290102102
TKL/JB	3290102111
TKR/JB	3290102112
TKT-M	3290103101
CP-6	3290103102
CP-7	3290103103

PREMIUM

Connectors for SNF, SNF-L Cables

The SNF-MF connection technology for SNF series-resistance heating cables is available in different versions for all cable diameters. SNF MF connectors are the ideal solution for the fast and reliable connection of heating cables SNF, SNF-L with cold

cable and connection of two heating cables. The connector housing is made of a heat-resistant material that can withstand temperatures up to +300 °C. All connectors are Ex-approved in combination with SNF and SNF-L series-resistance heating cables.

Features

- Ex-approved solution
- Easy to install
- High mechanical strength and system structural reliability
- Can be installed in explosive environments without "hot permit to work"
- High chemical stability

Application

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas



Construction

1. Gland
2. Seal
3. Strain relief
4. Body case

Approvals



CETS 23 ATEX 026X
Ex 60079-30-1 IIC T6 ... T2 Gb
Ex 60079-30-1 IIIC T85°C ... T260°C Db



Connection Options

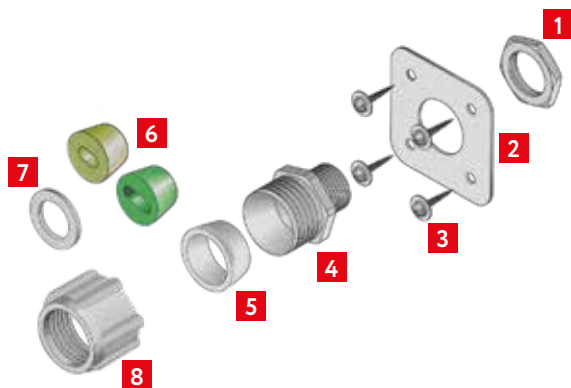
Name	Wire cross-section range, mm ²	Application
SNF MF-03-01-1	up to 4	Hot-cold and hot-hot connection
SNF MF-05-00-1	4 – 10	Hot-cold connection
SNF MF-05-01-1	6 – 10	Hot-cold and hot-hot connection

Types

Name	Order code
SNF MF-03-01-1	3290101001
SNF MF-05-00-1	3290101002
SNF MF-05-01-1	3290101003

Cable Entry Unit LEK/U

Construction



Approvals

This product is exempt from mandatory certification

Delivery Set

Part	Qty
1. Lock nut	1
2. Metal plate	1
3. Self-tapping screws	4
4. Connector body GW50416	1
5. Connector seal	1
6. Cable seal (2 types)	1
7. Washer	1
8. Connector head	1

Types

Name	Order code
Cable entry unit LEK/U	7090110300

Connection kit KTY



The KTY kit is designed for mounting the connection kit (heating cable with installation wire) and end termination kit for all types of Freezstop self-regulating heating cables on site.

Max. exposure temperature: +125 °C.

Min. exposure temperature: -30 °C.

Includes heat shrinkable tubing and crimp sleeves (for end coupling) with adhesive layer for better sealing of the connection, copper tubing for core and braid connection.

Approvals

This product is exempt from mandatory certification

Types

Name	Order code
Connection kit KTY	8002105106

PREMIUM

Brackets

Description

Support brackets are used in cases where it is not possible to reliably mount the junction box onto the surface of a nearby structure (supports, traverses, etc.) of the heated system.

When specifying the bracket, the dimensions of the heated system, its operating parameters and the types of permissible installation work should be taken into account.

A range of support brackets fully compatible with all types of Sigmian junction boxes is available.

Features

- Quick and easy installation, does not require special tools
- Increased structural strength and reliable fastening to the heated surface
- Resistance to vibration and alternating stresses
- High accuracy of surface interface
- Optimum size and weight
- Versatility and compatibility with all standard sizes of JB junction boxes

Approvals

This product is exempt from mandatory certification

Bracket KP3

Intended for mounting onto adjacent metal structures, large diameter pipelines and tanks with thermal insulation up to 120 mm thick.

Compatible with JB2221-223-2XXX, JB2221-333-2XXX box models.

Dimensions L×W×H, mm	Weight, kg/pc.	Mount
152×158×128	0.6	Weld

Material – steel.

Types

Name	Order code
Bracket KP3	7090201004



KP3

Bracket KP101

Intended for fastening the fastening tape to the heated surface. Mounted by welding to the heated surface.

Material – steel.

Types

Name	Order code
Bracket KP101	7090101005



KP101

Brackets

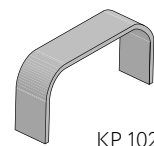
Adapter bracket KP 102

Intended for mounting the support stand UVK onto small diameter pipelines (less than 32 mm).

Mounted onto the lower part of the support. One support requires one bracket kit KP 102 and KP 102-01.

Designation	Dimensions L×W×H, mm	Weight, kg/pc.
KP 102	39×18×15	0.0338
KP 102-01	39×22×15	0.0386

Material – steel.



KP 102

Types

Name	Order code
Adapter bracket KP 102	7090101006
Adapter bracket KP 102-01	7090101007

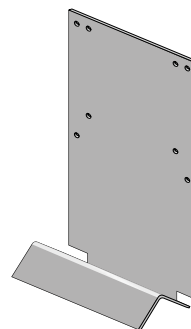
Bracket PB

Intended for mounting onto small-diameter pipelines (up to 54 mm).

Compatible with JB2221-223-2XXX, JB2221-333-2XXX box models (MOIC cables boxes excluded).

Dimensions L×W×H, mm	Weight, kg/pc.	Mount
331×158×39	0,73	Two straps PFS*

Material – galvanized steel.



PB

Types

Name	Order code
Bracket PB	7090101000

Brackets

Bracket PL.JB 0606-10

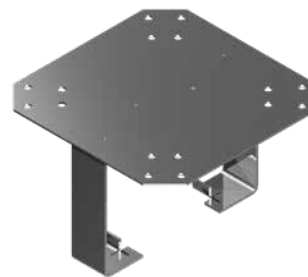
Intended for mounting onto pipelines with thermal insulation up to 100 mm thick.

Compatible with JB2221-223-2XXX, JB2221-333-2XXX box models not supplied with UVK pipe installation support, thermostat exTHERM-AT.

The equipment is mounted horizontally.

Dimensions L×W×H, mm	Weight, kg/pc.	Mount
158×158×103	0.54	Two straps PFS®. Fasteners included in the bracket kit.

Material – galvanized steel.



PL.JB 0606-10

Types

Name	Order code
Bracket PL.JB 0606-10	7090201001

Bracket PL.JB 0606-20(40)

Intended for mounting onto pipelines with thermal insulation up to 100 mm (Bracket PL.JB 0606-20) or 150 mm thick (Bracket PL.JB 0606-40).

Compatible with JB2221-223-2XXX, JB2221-333-2XXX box models not supplied with UVK pipe installation support, thermostat exTHERM-AT.

The equipment is mounted vertically.

Name	Dimensions L×W×H, mm	Weight, kg/pc.	Mount	Thickness of the thermal insulation
Bracket PL JB 0606-20	299×160×40	1.09	Two straps PFS®. Fasteners included in the bracket kit.	up to 150 mm
Bracket PL JB 0606-40	299×160×40	1.40	Two straps PFS®. Fasteners included in the bracket kit.	up to 210 mm

Material: plate – galvanized steel, channel – steel.



100 mm (Bracket PL.JB 0606-20)
or 150 mm thick (Bracket PL.JB 0606-40).

Types

Name	Order code
Bracket PL.JB 0606-20	7090201002
Bracket PL.JB 0606-40	

Brackets

Bracket KP1

Intended for mounting onto large diameter pipelines and tanks with thermal insulation up to 120 mm thick. Compatible with JB2221-223-2XXX, JB2221-333-2XXX box models not supplied with UVK pipe installation support (JB2221-333-2(X)22 excluded). The equipment is mounted vertically.

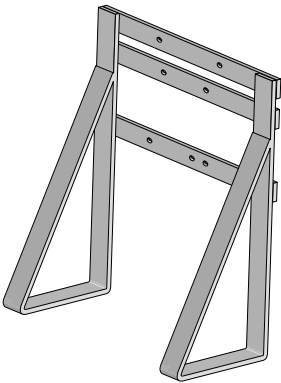
Dimensions L×W×H, mm	Weight, kg/pc.	Mount
304×300×115	1.8	Weld

Material – steel.

Types

Name	Order code
Bracket KP1	7090201003

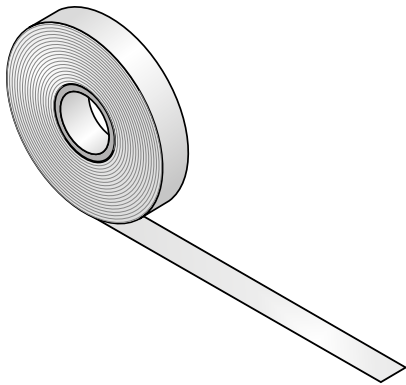
° To be ordered separately



KP1

Tapes & Straps

Self-Adhesive Fastening Tape



Applications

Fastening of heating cable to high temperature pipes.
Compatible with all heating cable types.

Technical Data

Length	33 m
Width	11 mm
Permanent exposure temperature	200 °C
Recommended installation temperature	Not lower than -15 °C
Adhesive material	Modified silicone

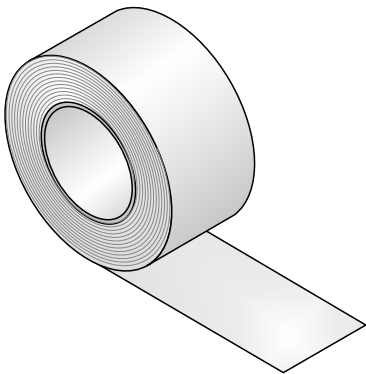
Approvals

This product is exempt from mandatory certification.

Types

Name	Order code
Fastening tape FT/HTM	7090200000

Self-Adhesive Aluminum Fastening Tape



Applications

Fastening of heating cable onto flat surfaces, e.g. tanks, or onto a valve / pump body, padding of heating cables laid onto plastic pipes.

Technical Data

Length	50 m
Width	50 mm
Permanent exposure temperature	110 °C
Recommended installation temperature	Not lower than -5 °C
Adhesive material	Acryl

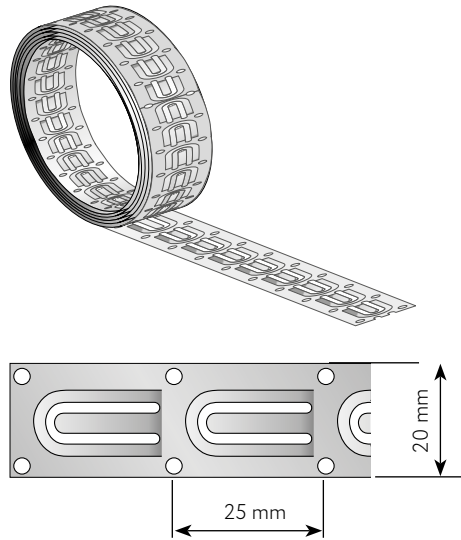
Approvals

This product is exempt from mandatory certification.

Types

Name	Order code
Self-adhesive aluminum fastening tape	7090200001

Fastening Band



Applications

Fastening of cable to a tank.

The fastening tape is fastened onto a tank using KP101 brackets or PFS straps.

Coil length upon request.

Types

Name	Order code
Fastening Tape 25 - 10m	7090200058
Fastening Tape 25 - 20m	7090200059
Fastening Tape 25 - 30m	7090200060

Approvals

This product is exempt from mandatory certification.

Straps for Mounting Junction Box Brackets Onto a Pipe

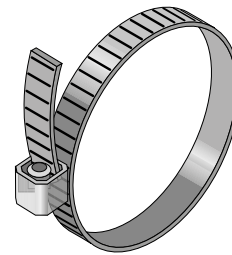
The strap is intended for mounting junction box brackets directly onto the surface of a heated system (pipe, tank) and also for mounting heating sections based on MOIC-M cables with mineral insulation. The kit contents make it possible to assemble worm

drive straps of the required diameter in a short time without the use of special tools. With the help of the strap, parts can be mounted onto structures and equipment of any shape and size.

Material – stainless steel.

Features

- Quick-action lock allows to mount the strap without the use of special tools, simplifying and speeding up the installation process
- High strength and corrosion resistance
- Highly reliable installation
- Packaging convenient for storage and transportation



Fasteners for PFS/30 Strap

Metal lock with a screw for tightening the strap. Intended for reliably connecting worm drive straps of the required diameter. The fasteners are universal and can be used both for creating small-diameter straps and for mounting large-sized parts. Allow to connect the strap's two loose ends. A small overlap is recommended when mounting the strap.

Material – stainless steel.

Approvals

This product is exempt from mandatory certification.

Types

Name	Order code
Fixing strap PFS/3 (3 m incl. 8 fixing elements)	7090200301
Fixing strap PFS/30 (30 m)	7090200302
Fixing element	–

Part name	Length, m	Width, mm	Type of band	Weight, kg	Type of packaging	Delivery kit, pcs.
PFS/3	3	12.7	Hose strap	0.3	Blister pack	Strap – 1 pc. Fastening element – 8 pcs.
PFS/30	30	9	Hose strap	1.447	Plastic reel	Strap – 1 pc. Fastening element – to be ordered separately / not included in the package.

Self-Regulating Heating Cable VTM

VTM is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of VTM heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

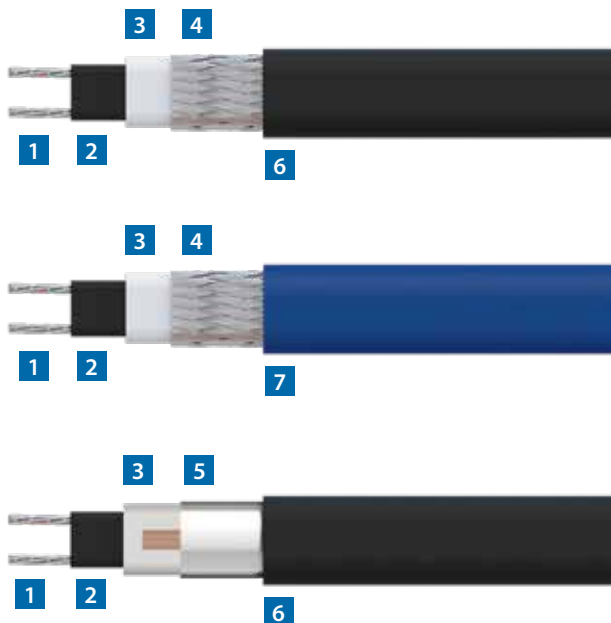
Termination, splicing and power connection components are available in convenient kits.

Features

- 10, 15 W/m
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer or fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- UV- and chemical-resistant fluoropolymer

Application

- Freeze protection of pipelines and vessels (non-Ex)



Construction

1. 0.56 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

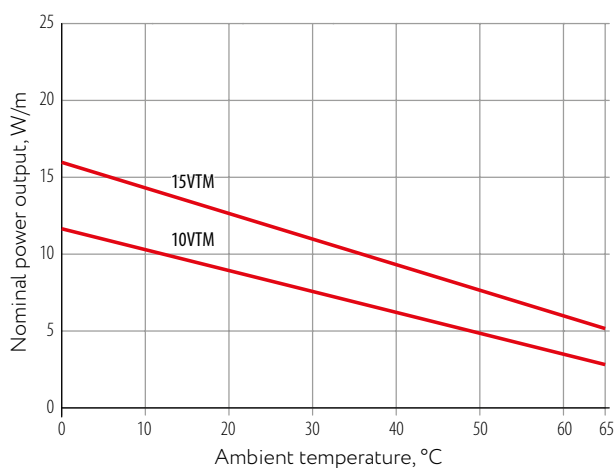
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance:	
- Braiding	10 Ohm/km
- Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	0.56 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Braiding	9.0×5.8 mm
- Al/PET tape with drain conductor	8.7×5.1 mm
Fluoropolymer outer jacket, braiding	8.6×5.4 mm
Weight:	
Thermoplastic elastomer outer jacket	
- Braiding	88 kg/km
- Al/PET tape with drain conductor	69 kg/km
Fluoropolymer outer jacket, braiding	97 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Cable Type	Switch-on temperature, °C	Recommended maximum length depends on Type C circuit breaker, m	
		10A	16A
10-VTM	10	130	130
	-20	110	110
15-VTM	10	120	120
	-20	85	85

Marking

Example: 15-VTM-BT



1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – Tinned copper wire braiding;
A – Al/PET tape with drain conductor
4. Outer jacket material: T – Thermoplastic elastomer;
P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	2101200000	Black	10-VTM-AT	10
	2101200001		15-VTM-AT	15
Thermoplastic elastomer outer jacket, braiding	2101200002	Black	10-VTM-BT	10
	2101200003		15-VTM-BT	15
Fluoropolymer outer jacket, braiding	2101200005	Blue	10-VTM-BP	10
	—		15-VTM-BP	15

Self-Regulating Heating Cable VTL

VTL is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels and also for snow and ice prevention on roofs and gutters..

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of VTL heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

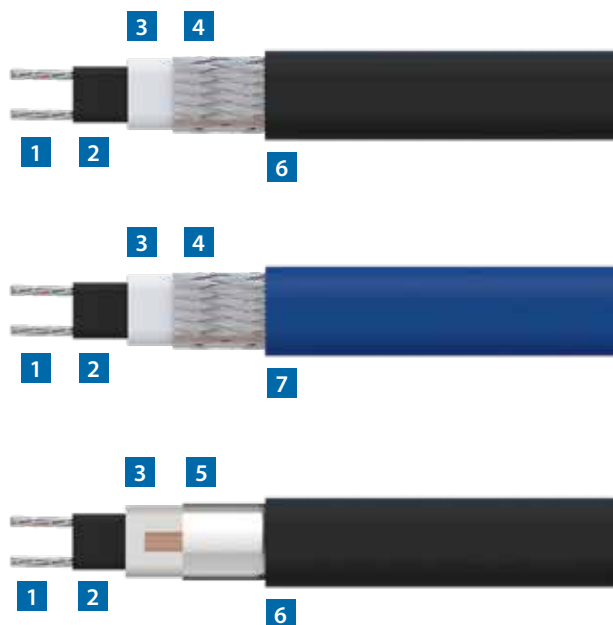
Termination, splicing and power connection components are available in convenient kits.

Features

- 10, 15, 20, 25 or 30 W/m
- Self-regulating, automatically adjusts power output in response ambient temperature
- Thermoplastic elastomer or fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- UV- and chemical-resistant fluoropolymer

Application

- Freeze protection of pipelines and vessels (non-Ex)
- Snow and ice prevention on roof and gutters (non-Ex)



Construction

1. 1.00 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

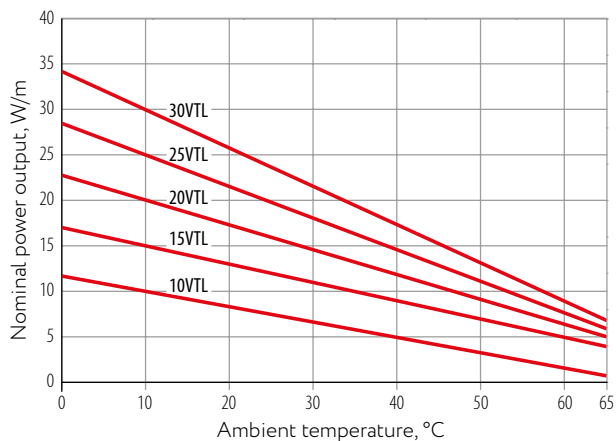
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance:	
- Braiding	10 Ohm/km
- Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	1.00 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Braiding	10.9 × 6.0 mm
- Al/PET tape with drain conductor	10.2 × 5.7 mm
Fluoropolymer outer jacket, braiding	10.5 × 5.6 mm
Weight:	
Thermoplastic elastomer outer jacket	
- Braiding	113 kg/km
- Al/PET tape with drain conductor	86 kg/km
Fluoropolymer outer jacket, braiding	120 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC		
		10 A	16 A	32 A
10-VTL	10	130	160	190
	-20	90	140	170
15-VTL	10	120	150	175
	-20	85	140	140
20-VTL	10	90	140	160
	-20	65	110	120
25-VTL	10	55	90	140
	-20	40	65	95
30-VTL	10	45	70	115
	-20	30	50	80

Marking

Example: 15-VTL-BT

① ② ③ ④

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – Tinned copper wire braiding, A – Aluminium/PET foil screen
4. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, aluminum foil	2101201008	Black	10-VTL-AT	10
	2101201000		15-VTL-AT	15
	2101201001		20-VTL-AT	20
	2101201002		25-VTL-AT	25
	2101201003		30-VTL-AT	30
Thermoplastic elastomer outer jacket, braiding	2101201009	Black	10-VTL-BT	10
	2101201004		15-VTL-BT	15
	2101201005		20-VTL-BT	20
	2101201006		25-VTL-BT	25
	2101201007		30-VTL-BT	30
Fluoropolymer outer jacket, braiding	—	Blue	10-VTL-BP	10
	—		15-VTL-BP	15
	—		20-VTL-BP	20
	—		25-VTL-BP	25
	—		30-VTL-BP	30

Self-Regulating Heating Cable VTR

VTR is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels and also for snow and ice prevention on roofs and gutters.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of VTR heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Termination, splicing and power connection components are available in convenient kits.

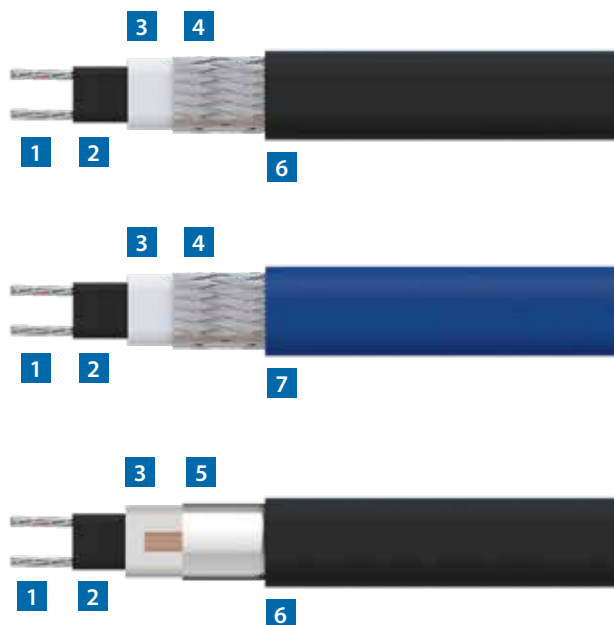
Features

- 10, 15, 20, 25, 30 or 40 W/m
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer or fluoropolymer outer jacket

- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- UV- and chemical-resistant fluoropolymer

Application

- Freeze protection of pipelines and vessels (non-Ex)
- Snow and ice prevention on roof and gutters (non-Ex)



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Tinned copper braid
5. Al/PET tape with drain conductor
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

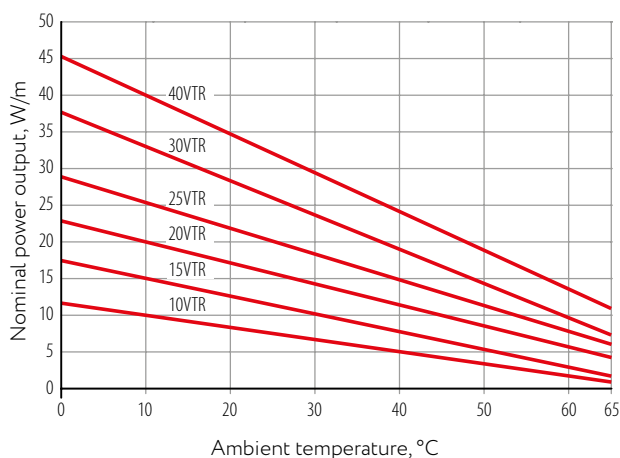
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum resistance:	
– Braiding	10 Ohm/km
– Al/PET foil with drain conductor	18.2 Ohm/km
Conductor cross-section	1.25 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
– Braiding	13.2×6.1 mm
– Al/PET tape with drain conductor	12.9×5.4 mm
Fluoropolymer outer jacket, braiding	12.8×5.7 mm
Weight:	
Thermoplastic elastomer outer jacket	
– Braiding	134 kg/km
– Al/PET tape with drain conductor	108 kg/km
Fluoropolymer outer jacket, braiding	148 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC 16A
10-VTR	10	205
	-20	160
15-VTR	10	170
	-20	140
20-VTR	10	150
	-20	105
25-VTR	10	105
	-20	70
30-VTR	10	85
	-20	60
40-VTR	10	70
	-20	45

Marking

Example: 10-VTR-BT

① ② ③ ④

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – Tinned copper wire braiding; A – Al/PET tape with drain conductor
4. Outer jacket material: T – Thermoplastic elastomer; P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	2101202000	Black	10-VTR-AT	10
	2101202001		15-VTR-AT	15
	2101202002		20-VTR-AT	20
	2101202003		25-VTR-AT	25
	2101202004		30-VTR-AT	30
	2101202005		40-VTR-AT	40
Thermoplastic elastomer outer jacket, braiding	2101202006	Black	10-VTR-BT	10
	2101202007		15-VTR-BT	15
	2101202008		20-VTR-BT	20
	2101202009		25-VTR-BT	25
	2101202010		30-VTR-BT	30
	2101202011		40-VTR-BT	40
Fluoropolymer outer jacket, braiding	2101002012	Blue	10-VTR-BP	10
	–		15-VTR-BP	15
	2101002014		20-VTR-BP	20
	–		25-VTR-BP	25
	2101002016		30-VTR-BP	30
	–		40-VTR-BP	40

Series-Resistance Heating Units IndAstro-R

Features

- The series-resistance heating units IndAstro-R are specially designed to provide fast and even electric heating for roofs, drains, open areas, pavements, ground and freezers
- Resistant to UV and precipitation
- Extended operating period
- Manufactured as heating cable sections with heating cable, couplings, installation wire

IR-U



- 1
- 2
- 3
- 4



IR-H

1. Heating cores made of resistance alloys
2. Thermoplastic elastomer insulation
3. Foil shield with drainage wire or braided copper wire
4. Thermoplastic elastomer sheathing

Application

IndAstroR heating cable units are designed for:

- Heating the ground or outdoor areas, pavements, stairs when laid directly into cement-sand screed, tile adhesive layer or commercial concrete;
- To prevent the formation of ice in the drainage systems of buildings and structures, residential and industrial premises and freezers.



5. Double core heating cable
6. End coupling
7. Connection coupling
8. Installation wire

Application

- Heating cable section IR-U (universal)
De-icing roof systems, gutters of buildings and structures, outdoor areas, pavements, ground, freezers
- Heating cable section IR-H (enhanced)
De-icing roofs system, gutters of buildings and structures, outdoor areas, pavements

Technical Data

Rated voltage	~230 V ~380-400 V (optional)	
Insulation resistance, min	400 MOhm·m	
Linear power	5, 10, 20, 30, 40 W/m	
Ambient temperature range	IR-U	-35...+90 °C
	IR-H	-40...+90 °C
Minimum installation temperature	IR-U	-30 °C
	IR-H	-30 °C
Degree of external protection	IP67	
Mechanical resistance	M2	
Operating lifetime of the heating cable sections	minimum 25 years	

Heating cable sections

Recommended line capacities depending on the application

№	Application area	Recommended power density, W/m ²	Power density, W/m	
			Recommended	Max
1	Heating of open areas	250–400	25–30	40
2	Roof and gutter heating	250–300	20	25
3	Heating of football pitches and stadiums: – with natural grass – artificial turf	90–130 150–200	18	20
4	Heating greenhouses, orangeries and conservatories	70–120	10	12
5	Freezers	30–50	5	10

Parameters of standard heating units (220 V)

Heating cable section 5 IR-U, 5 IR-H (power 5 W/m)

Model	Length, m	Power Output, W	Resistance, Ohm, -5%...+10%	IR-U Order Code	IR-H Order Code
5IR-X [°] -2-01-0140-040	14	70	623,9–722,5		
5IR-X-2-01-0240-040	24	120	391,9–453,8		
5IR-X-2-01-0370-040	37	185	250,6–290,2		
5IR-X-2-01-0500-040	50	250	186,3–215,8		
5IR-X-2-01-0600-040	60	300	149,1–172,6		
5IR-X-2-01-0800-040	80	400	119,3–138,1		
5IR-X-2-01-1000-040	100	500	94,4–109,3		
5IR-X-2-01-1150-040	115	575	78,1–90,5		
5IR-X-2-01-1400-040	140	700	66,1–76,5		
5IR-X-2-01-1700-040	170	850	52,6–60,9		
5IR-X-2-01-1950-040	195	975	44,6–51,7		
5IR-X-2-01-2350-040	235	1175	37,0–42,8		
5IR-X-2-01-2700-040	270	1350	32,5–37,6		
5IR-X-2-01-3000-040	300	1500	29,1–33,7		
5IR-X-2-01-3350-040	335	1675	25,9–30,0		
5IR-X-2-01-3850-040	385	1925	22,8–26,4		

° - "X" is to be replaced with "U" for IR-U series and with "H" for IR-H series

Heating cable section 10 IR-U, 10IR-H (power 10 W/m)

Model	Length, m	Power Output, W	Resistance, Ohm, -5%...+10%	IR-U Order Code	IR-H Order Code
10IR-X [°] -2-01-0100-040	10	100	445,7–516,0		
10IR-X-2-01-0170-040	17	170	277,6–321,4		
10IR-X-2-01-0260-040	26	260	176,1–203,9		
10IR-X-2-01-0350-040	35	350	130,4–151,0		
10IR-X-2-01-0430-040	43	430	106,8–123,7		
10IR-X-2-01-0550-040	55	550	82,0–94,9		
10IR-X-2-01-0700-040	70	700	66,1–76,5		
10IR-X-2-01-0820-040	82	820	55,7–64,5		
10IR-X-2-01-1000-040	100	1000	47,2–54,6		
10IR-X-2-01-1200-040	120	1200	37,1–43,0		
10IR-X-2-01-1400-040	140	1400	32,1–37,1		
10IR-X-2-01-1650-040	165	1650	25,9–30,0		
10IR-X-2-01-1900-040	190	1900	22,9–26,5		
10IR-X-2-01-2150-040	215	2150	20,9–24,2		
10IR-X-2-01-2400-040	240	2400	18,6–21,5		
10IR-X-2-01-2700-040	270	2700	16,0–18,5		

° - "X" is to be replaced with "U" for IR-U series and with "H" for IR-H series

Heating cable sections

Heating cable section 20 IR-U, 20 IR-H (power 20 W/m)

Model	Length, m	Power Output, W	Resistance, Ohm, -5%...+10%	IR-U Order Code	IR-H Order Code
20IR-X-2-01-0070-040	7	140	312,0-361,2		
20IR-X-2-01-0120-040	12	240	196,0-226,9		
20IR-X-2-01-0180-040	18	360	121,9-141,2		
20IR-X-2-01-0250-040	25	500	93,2-107,9		
20IR-X-2-01-0300-040	30	600	74,5-86,3		
20IR-X-2-01-0400-040	40	800	59,6-69,0		
20IR-X-2-01-0500-040	50	1000	47,2-54,6		
20IR-X-2-01-0580-040	58	1160	39,4-45,6		
20IR-X-2-01-0700-040	70	1400	33,0-38,2		
20IR-X-2-01-0850-040	85	1700	26,3-30,4		
20IR-X-2-01-1000-040	100	2000	22,9-26,5		
20IR-X-2-01-1200-040	120	2400	18,9-21,9		
20IR-X-2-01-1350-040	135	2700	16,2-18,8		
20IR-X-2-01-1500-040	150	3000	14,6-16,9		
20IR-X-2-01-1700-040	170	3400	13,2-15,2		
20IR-X-2-01-1900-040	190	3800	11,3-13,0		

° - "X" is to be replaced with "U" for IR-U series and with "H" for IR-H series

Heating cable section 30 IR-U, 30 IR-H (power 30 W/m)

Model	Length, m	Power Output, W	Resistance, Ohm, -5%...+10%	IR-U Order Code	IR-H Order Code
30IR-X-2-01-0060-040	6	180	267,4-309,6		
30IR-X-2-01-0100-040	10	300	163,3-189,1		
30IR-X-2-01-0150-040	15	450	101,6-117,6		
30IR-X-2-01-0200-040	20	600	74,5-86,3		
30IR-X-2-01-0250-040	25	750	62,1-71,9		
30IR-X-2-01-0320-040	32	960	47,7-55,2		
30IR-X-2-01-0400-040	40	1200	37,7-43,7		
30IR-X-2-01-0470-040	47	1410	31,9-37,0		
30IR-X-2-01-0570-040	57	1710	26,9-31,1		
30IR-X-2-01-0700-040	70	2100	21,6-25,1		
30IR-X-2-01-0800-040	80	2400	18,3-21,2		
30IR-X-2-01-0950-040	95	2850	14,9-17,3		
30IR-X-2-01-1100-040	110	3300	13,2-15,3		
30IR-X-2-01-1250-040	125	3750	12,1-14,0		
30IR-X-2-01-1350-040	135	4050	10,4-12,1		
30IR-X-2-01-1550-040	155	4650	9,2-10,6		

° - "X" is to be replaced with "U" for IR-U series and with "H" for IR-H series

Heating cable sections

Heating cable section 40 IR-U, 40 IR-H (power 40 W/m)

Model	Length, m	Power Output, W	Resistance, Ohm, -5%...+10%	IR-U Order Code	IR-H Order Code
40IR-X-2-01-0050-040	5	200	222,8-258,0		
40IR-X-2-01-0080-040	8	320	130,6-151,3		
40IR-X-2-01-0130-040	13	520	88,1-102,0		
40IR-X-2-01-0180-040	18	720	67,1-77,7		
40IR-X-2-01-0220-040	22	880	54,7-63,3		
40IR-X-2-01-0280-040	28	1120	41,7-48,3		
40IR-X-2-01-0350-040	35	1400	33,0-38,2		
40IR-X-2-01-0410-040	41	1640	27,9-32,3		
40IR-X-2-01-0500-040	50	2000	23,6-27,3		
40IR-X-2-01-0600-040	60	2400	18,6-21,5		
40IR-X-2-01-0700-040	70	2800	16,0-18,6		
40IR-X-2-01-0850-040	85	3400	13,4-15,5		
40IR-X-2-01-0950-040	95	3800	11,4-13,2		
40IR-X-2-01-1050-040	105	4200	10,2-11,8		
40IR-X-2-01-1200-040	120	4800	9,3-10,8		
40IR-X-2-01-1350-040	135	5400	8,0-9,3		

° - "X" is to be replaced with "U" for IR-U series and with "H" for IR-H series

Approvals



Junction Box for Self-Regulating Heating Cables to Power Connection with Pipe Installation Support

Junction box for self-regulating heating cables is designed for connection of self-regulating heating cables to power network. The junction box is equipped with a pipe installation support stand UVK which allows fixation of the junction box directly onto the pipeline. The junction box is used as part of cable heat trace systems for pipelines and vessels in non-hazardous areas. The junction box design ensures

moisture and dust ingress protection IP66 and high corrosion stability. The junction box is available with cable glands for connection of unarmored power cables. The installed terminal blocks ensure fast and safe connection of multi-core or single-core conductors. Our boxes are available with screw clamp terminals as well as with push-in terminals.

Features

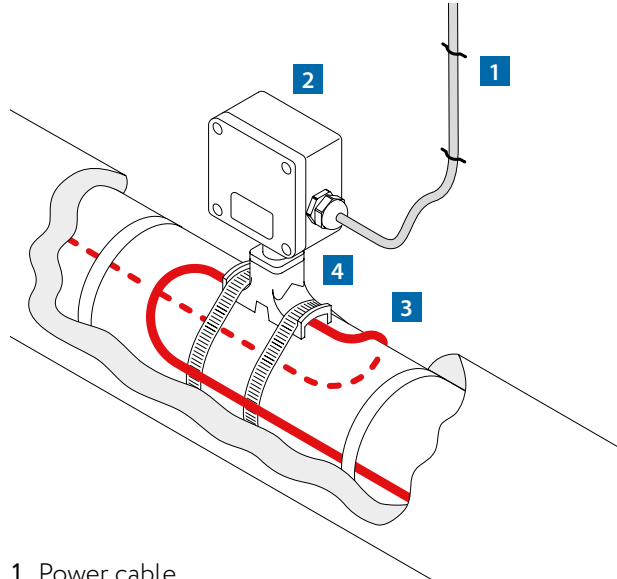
- Non-hazardous approved solution
- Perfect solution for installation of self-regulating heating cables through thermal insulation
- Excludes the risk of damage to heating cables
- All required component parts are included
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous areas

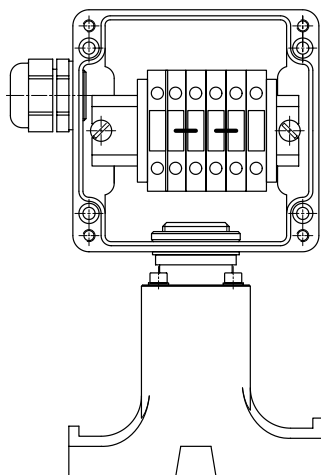


JB2212-223-1xxxx

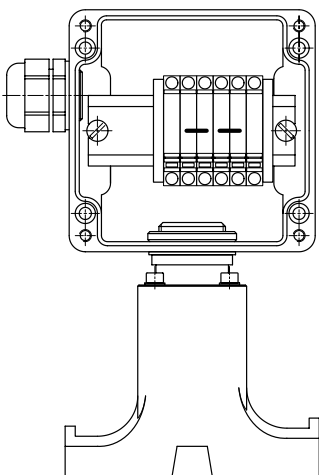


1. Power cable
2. JB2212-223-1xxxx junction box
3. Heating cable
4. Pipe support stand UVK

Construction



JB2212-223-1xxxx box with screw clamp terminal block



JB2212-223-1xxxx box with push-in terminals block

Technical Data

Degree of protection	IP66
Ambient temperature range	-55...+55 °C
Operating voltage	max. 750 V
Operating current	max. 32 A
Enclosure dimensions	122×120×90 mm
Total weight (maximum)	1.35 kg
Material box	Glass fiber reinforced polyester
Color	Grey
Pipe installation support material	Glass fiber reinforced polyester
Color	Black

Application Types

Application	Terminals	Name
Heating cable branching [°]	screw, 2L, 2N, 2PE	JB2212-223-11310
	push-in, 2L, 2N, 2PE	JB2212-223-12310
Power connection [°]	screw, 2L, 2N, 2PE	JB2212-223-11300
	push-in, 2L, 2N, 2PE	JB2212-223-12300

[°] All junction boxes for power connection are equipped with a cable gland M25×1,5 for the power cable and terminal jumpers L-L, N-N

Approvals



Types

Name	Order code
JB2212-223-11310	2210001610
JB2212-223-12310	2210001611
JB2212-223-11300	2210001608
JB2212-223-12300	2210001609

Accessories (to be ordered separately)

Metal pipe strap PFS/3 – for mounting the box onto the pipeline.

The heating cable termination kit is specified depending on the type of cable used.

Junction Box for Self-Regulating Heating Cables to Power Connection

Junction box for self-regulating heating cables is designed for connection of self-regulating heating cables to power network. The junction box is used as a part of heat tracing systems for pipelines and vessels in non-hazardous areas. The junction box design ensures moisture and dust ingress protection IP66 and high corrosion stability. The junction box is

available with cable glands for connection of unarmored power and heating cables. The installed terminal blocks ensure fast and safe connection of multi-core or single-core conductors. Our boxes are available with screw clamp terminals as well as with push-in terminals.

Features

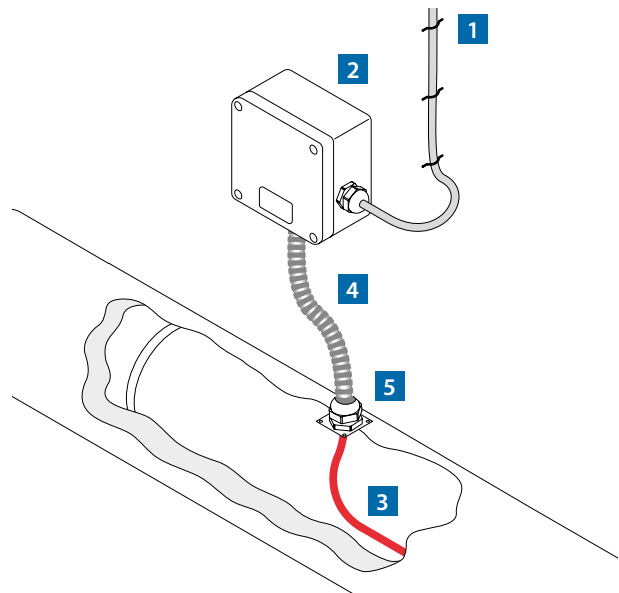
- Non-hazardous area solution
- All required component parts are included
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous and ex-hazardous areas

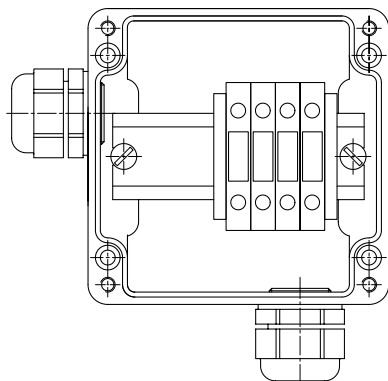


JB2212-223-2xxxx

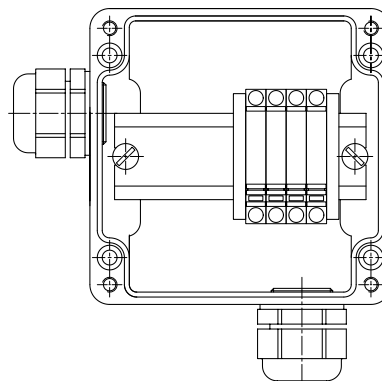


1. Power cable
2. JB2212-223-2xxxx junction box
3. Heating cable
4. Flexible sealed gland
5. Cable entry unit

Construction



JB2212-223-2xxxx box with screw clamp terminal block



JB2212-223-2xxxx box with push-in terminal block

Technical Data

Degree of protection	IP66
Ambient temperature range	-55...+55 °C
Operating voltage	max. 750 V
Operating current	max. 32 A
Enclosure dimensions	122×120×90 mm
Total weight (maximum)	1.1 kg
Box material	Glass fiber reinforced polyester
Color	Grey

Types

Name	Order code
JB2212-223-21340	2210001600
JB2212-223-22340	2210001601
JB2212-223-21350	2210001602
JB2212-223-22350	2210001603
JB2212-223-21360	2210001604
JB2212-223-22360	2210001605
JB2212-223-21370	2210001606
JB2212-223-22370	2210001607

Application Types

Application	Terminals	Name
1 heating cable		
Power connection	screw, 1L, 1N, 2PE	JB2212-223-21340
2x M25 x 1,5	push-in, 1L, 1N, 2PE	JB2212-223-22340
Connection	screw, 1L, 1N, 2PE	JB2212-223-21350
1x M25 x 1,5	push-in, 1L, 1N, 2PE	JB2212-223-22350
1x M25x1,5 screw plug		
Application	Terminals	Name
3 heating cable		
Power connection*	screw, 3L, 3N, 3PE	JB2212-223-21360
4x M25 x 1,5	push-in, 3L, 3N, 3PE	JB2212-223-22360
Connection*	screw, 3L, 3N, 3PE	JB2212-223-21370
1x M25 x 1,5	push-in, 3L, 3N, 3PE	JB2212-223-22370
3x M25x1,5 screw plug		

* With jumper L-L, N-N

Accessories (to be ordered separately)

Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

The heating cable termination kit is specified depending on the type of cable used. For ordering information see units..

Cable entry unit LEK/U – for penetrating of thermal insulation.

Approvals



Junction Box for Light Indication

The junction box for light indication is designed for the purpose of light indication and connection of self-regulating heating cables to power network. The junction box is used as a part of heat tracing systems for pipelines and vessels in non-hazardous areas. The junction box is equipped with a pipe installation support stand UVK which allows fixation directly

onto the pipeline/vessel. The junction box design ensures moisture and dust ingress protection IP66 and high corrosion stability. The installed terminal blocks ensure fast and safe connection of multi-core or single-core conductors. Our boxes are available with screw clamp terminals as well as with push-in terminals.

Features

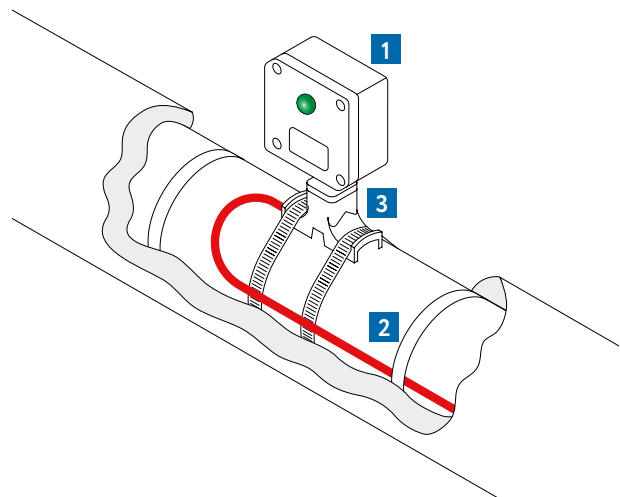
- Non-hazardous area approved solution
- Excludes the risk of damage to heating cables
- All required component parts are included
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous areas

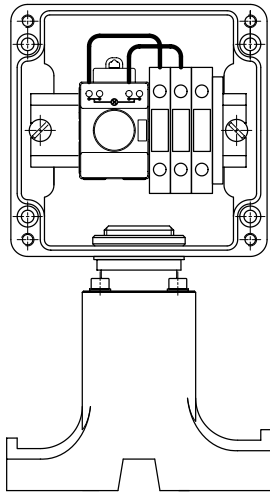


JB2212-223-1xxxx

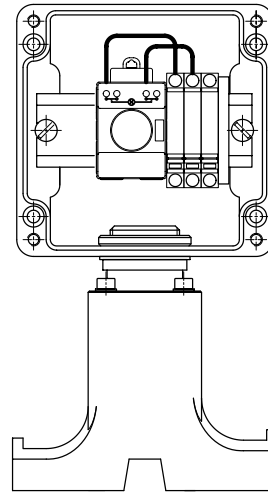


1. JB2212-223-1xxxx junction box
2. Heating cable
3. Pipe support stand UVK

Construction



JB2212-223-1xxxx box with screw clamp terminal block



JB2212-223-1xxxx box with push-in terminal block

Technical Data

Degree of protection	IP66
Ambient temperature range	-55...+55 °C
Operating voltage on terminals	max. 750 V
Maximum voltage on light module	250 V
Operating current	max. 32 A
Electric lamp lifetime	> 10 ⁵ h
Lamp consuming power	< 1 W
Light source	green LED
Light coverage	180°
Enclosure dimensions	122×120×90 mm
Total weight (maximum)	1.35 kg
Material box	Glass fiber reinforced polyester
Color	Grey
Pipe installation support material	Glass fiber reinforced polyester
Color	Black

Types

Name	Order code
JB2212-223-11320	2210001612
JB2212-223-12320	2210001613

Application types

Application	Terminals	Name
Light ind. end box	screw, 1L, 1N, 1PE	JB2212-223-11320
	push-in, 1L, 1N, 1PE	JB2212-223-12320

Accessories (to be ordered separately)

Metal pipe strap PFS/3 – for mounting the box onto the pipeline.

Approvals



Junction Box for Series-Resistance Heating Cables

The junction box for series-resistance heating cables is designed for connection of heating cables to power network. The junction box could be mounted on a wall of a building or using a bracket directly on a pipe/vessel surface. The box enables connection of series-resistance heating cable sections with power cable.

The junction box is used as a part of heat tracing systems for pipelines and vessels in non-hazardous

areas. The junction box design ensures moisture and dust ingress protection IP66 and high corrosion stability. The junction box is available with cable glands for connection of unarmored power and heating cables. The installed terminal blocks ensure fast and safe connection of multi-core or single-core conductors. The boxes are available with screw clamp terminals as well as with push-in terminals.

Features

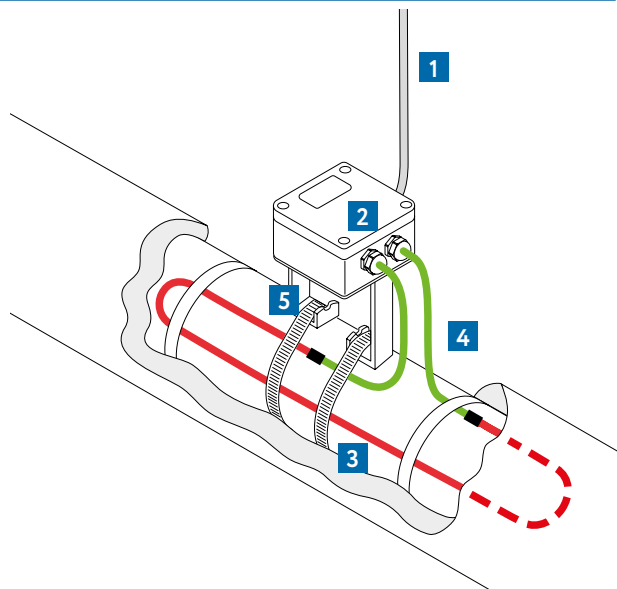
- Non-hazardous area approved solution
- Perfect solution for installation of series-resistance cables through thermal insulation
- Excludes the risk of damage to heating cables
- All required component parts are included
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous areas

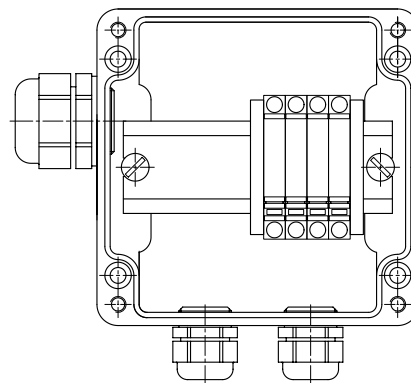
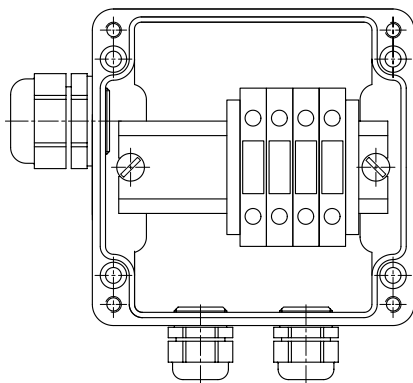


JB2212-...-2xxxx



1. Power cable
2. JB2212-...-2xxxx junction box
3. Heating cable
4. Connection cable (cold lead)
5. Bracket

Construction



JB2212-223-2xxxx box with screw clamp (left) and push-in (right) terminal block. Number of terminals and cable glands could differ from drawings.

Technical Data

Degree of protection	IP66	
Ambient temperature range	-55...+55 °C	
Operating voltage	max. 750 V	
Operating current	JB2212-223...	max. 32 A
	JB2212-333...	max. 50A
	JB2212-523...	max. 50A
Dimensions enclosure	JB2212-223...	122×120×90 mm
	JB2212-333...	160×160×90 mm
	JB2212-533...	260×160×90 mm
Weight	JB2212-223..	1.2 kg
	JB2212-333...	1.8 kg
	JB2212-533...	2.2 kg
Box material	Glass fiber reinforced polyester	
Color	Grey	

Application types

Application Loop to Power JB2212-223-2xxxx	Terminals	Name
1x M25x1.5 2x M20x1.5	screw, 1L, 1N, 2PE	JB2212-223-21380
	push-in, 1L, 1N, 2PE	JB2212-223-22380
Application Star to Power JB2212-333-2xxxx	Terminals [°]	Name
1x M25x1.5 3x M20x1.5	screw, 3L, 3N, 2PE	JB2212-333-21380
	push-in, 3L, 3N, 2PE	JB2212-333-22380
Application Delta to Power JB2212-533-2xxxx	Terminals ^{°°}	Name
1x M25x1.5 6x M20x1.5	screw, 7L, 6PE	JB2212-533-21130
	push-in, 7L, 6PE	JB2212-533-22130

[°] Terminal jumpers L-L-L and N-N-N

^{°°} Terminal jumpers L-L and L-L-L

Types

Name	Order code
JB2212-223-21380	2210001614
JB2212-223-22380	2210001615
JB2212-333-21380	2210001618
JB2212-333-22380	2210001619
JB2212-533-21130	2210001622
JB2212-533-22130	2210001623

Accessories (to be ordered separately)

Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the bracket onto a pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Approvals



Junction Box for Mineral-Insulated Heating Cables

The junction box for heating mineral-insulated cables is designed for connection of mineral-insulated (MI) heating cables to power network. The junction box could be mounted on a wall of a building or using a bracket directly on a pipe/vessel surface. The box enables connection of one mineral-insulated heating cable section to power cable. The junction box is used as a part of heat tracing systems for pipelines and vessels in non-hazardous areas. The junction box

design ensures moisture and dust ingress protection IP66 and high corrosion stability. The junction box is available with cable glands for connection of unarmored power cables. The installed terminal blocks ensure fast and safe connection of multi-core or single-core conductors. The boxes are available with screw clamp terminals as well as with push-in terminals.

Features

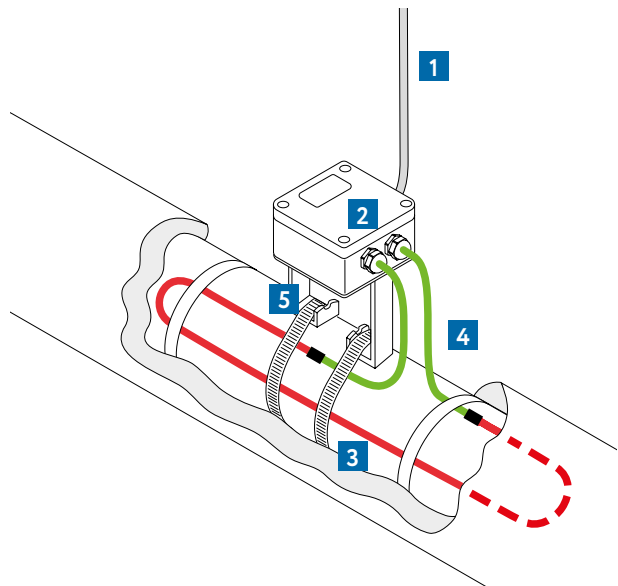
- Non-hazardous area solution
- All required component parts are included
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Temperature maintenance or freeze protection of pipelines and vessels in non-hazardous areas

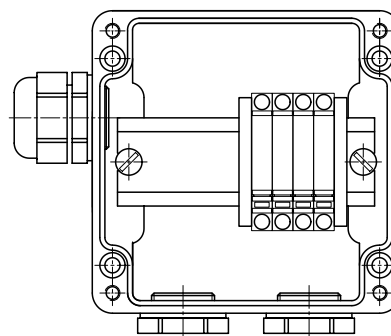
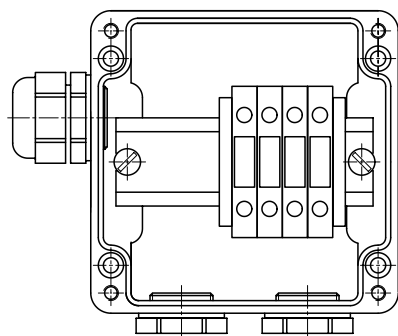


JB2212-...-2xxxx



1. Power cable
2. JB2212-...-2xxxx junction box
3. Heating cable
4. Connection cable (cold lead)
5. Bracket

Construction



JB2212-223-2xxxx box with screw clamp (left) and push-in (right) terminal block. Number of terminals and cable glands may vary.

Technical Data

Degree of protection	IP66	
Ambient temperature range	-55...+55 °C	
Operating voltage	max. 750 V	
Operating current	JB2212-223...	max. 32 A
	JB2212-333...	max. 50 A
	JB2212-533...	max. 50 A
Dimensions enclosure	JB2212-223...	122×120×90 mm
	JB2212-333...	160×160×90 mm
	JB2212-533...	260×160×90 mm
Weight	JB2212-223...	1.20 kg
	JB2212-333...	1.65 kg
	JB2212-533...	2.00 kg
Material box	Glass fiber reinforced polyester	
Color	Grey	
Pipe installation support material	Glass fiber reinforced polyester	
Color	Black	

Application types

Application Loop to Power JB2221-223-2xxxx	Terminals	Name
1x M25x1.5 2x M20x1.5 screw plug	screw, 1L, 1N, 2PE	JB2212-223-21390
	push-in, 1L, 1N, 2PE	JB2212-223-22390
Application Star to Power JB2221-333-2xxxx	Terminals*	Name
1x M25x1.5 3x M20x1.5 screw plug	screw, 3L, 3N, 2PE	JB2212-333-21390
	push-in, 3L, 3N, 2PE	JB2212-333-22390
Application Delta to Power JB2221-533-2xxxx	Terminals**	Name
1x M25x1.5 6x M20x1.5 screw plug	screw, 7L, 6PE	JB2212-533-21140
	push-in, 7L, 6PE	JB2212-533-22140

* Terminal jumpers L-L-L and N-N-N

** Terminal jumpers L-L and L-L-L

Types

Name	Order code
JB2212-223-21390	2210001616
JB2212-223-22390	2210001617
JB2212-333-21390	2210001620
JB2212-333-22390	2210001621
JB2212-533-21140	2210001624
JB2212-533-22140	2210001625

Accessories (to be ordered separately)

Brackets PB, KP, PL.JB0606 – for mounting the box onto the pipeline.

Z-profile – for mounting the box onto a metal structure or onto a wall.

Metal pipe strap PFS/3 – for mounting the bracket onto a pipeline.

Cable entry unit LEK/U – for penetrating of thermal insulation.

Approvals



Precipitation & Water Sensors

Precipitation Sensors TSP02, TSP03-D

Precipitation sensors are designed to determine the presence of precipitation on a heated surface. The sensors are designed for use with commercial heating systems. If the sensor detects water, contacts in the connected thermostat will be closed. In combination with a temperature sensor, energy-efficient use of the heating system is ensured.

Features

- Installation on a vertical wall (TSP02)
- Installation in screed (TSP03-D)

Application

- Snow and ice prevention in open area heating systems and roof and gutters (non-Ex)

Construction



TSP02

TSP03-D

Technical Data

Type of sensor	TSP02	TSP03-D
Dimensions (W×H×D)	110×210×160 (with bracket)	100×95×95
Supply voltage	36 VAC, 50 Hz	36 VAC, 50 Hz
Rated power	3,5 W	10 W
Operating temperature range	-40 ... +50 °C	-40 ... +50 °C
Length of the installation wire	3 m	3 m
Max. sensor distance from the controller	100 m	100 m

Approvals



Name	Order code
Precipitation sensor TSP02	2121002000
Precipitation sensor TSP03-D	2121002001

Water Sensor TSW01

Our water sensor is designed to determine the presence of water in heated gutters. If the water sensor detects the presence of precipitation, contacts in the connected thermostat will be closed and the connected heating system will be switched on.

Features

- Installation in gutters

Construction



TSW01

Technical Data

Type of sensor	TSW01
Dimensions (W×H×D)	160×40×15
Length of the installation wire	3 m
Max. sensor distance from the controller	100 m

Approvals



Name	Order code
Water sensor TSW01	2121003000

Temperature Sensors

Temperature Sensors TST01, PT100

Temperature sensors are designed for continuous temperature measurement and transmission of values. Temperature sensors are used with electronic temperature controllers for electric heating cable systems in industrial and commercial applications.

Features

- Temperature control of the heated surface
- Ambient temperature control

Application Areas

- Snow and ice prevention on roof and gutters and open areas (non-Ex)

Construction



TST01



PT100

Technical Data

Type of sensor	TST01	PT100
Temperature measurement range	-55 ... +60 °C	-50 ... +260 °C
Sensing element type	Digital	Analog
Number of cores in connection cable	3	2
Length of the installation wire	5 m	2.5 m
Maximum sensor distance from the controller	100 m	100 m

Approvals



Types

Name	Order code
Temperature sensor TST01	2121001000
Temperature sensor Pt100 2.5	2121001100

Temperature Sensors TST04

Temperature sensor TST04 is designed to measure temperature and transmit a control signal to the controller. TST04 is programmed at the factory for a specified maintenance temperature. Hence, reprogramming the temperature is not possible. It can be used to measure the temperature of hard surfaces and air.

Features

- Control of the heated surface temperature
- Control of the ambient temperature

Application

- Freeze protection of pipelines and vessels (non-Ex)

Construction



Technical Data

Switching temperature values (on / off)	+2 ... +5 °C
Operating temperature range	-55 ... +60 °C
Sensing element type	digital
Number of cores in connection cable	3
Length of the installation wire	5 m
Maximum sensor distance from the controller	100 m

Approvals



Types

Name	Order code
Temperature sensor TST04	2121001000

Pipe Support Stand UVK

UVK pipe support stand is designed for the purpose of fixing of junction boxes through thermal insulation. Depending on the junction box, up to three self-regulating heating cables could be connected. The pipe support stand is fixed by means of metal straps directly onto pipes or tanks. With the UVK pipe

support stand insulation thickness up to 100 mm is possible. The design of the stand provides mechanical strength and high corrosive stability of electric equipment being mounted. All the necessary fixing elements for electric equipment in inner part of the device is included in the delivery set.

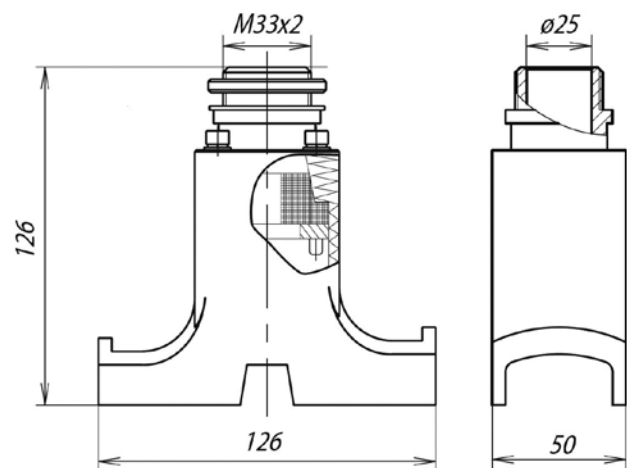
Features

- Efficient solution for installation of self-regulating heating cables through thermal insulation
- Excludes the risk of damage to self-regulating heating cables
- Quick and easy installation
- High thermal stability
- Non-corrosive

Application Areas

- Installation of self-regulating heating cables in non-hazardous areas

Construction



Technical Data

Degree of protection	IP66
Ambient temperature range	-60 ... +55 °C
Maximum exposure temperature	+110 °C
Minimum installation temperature	-50 °C
Mechanical resistance	7J/7Nm
Dimensions	126×126×50 mm
Total weight	0.25 kg

Accessories (to be ordered separately):

Metal strap PFS/3 – for fixing onto a pipe.

Approvals



Material Specification

Support stand	Glass fiber reinforced polyester
Sealing grommet	Silicone rubber
Nuts	Carbon steel
Locknut	Carbon steel
Washers	Zinc-coated brass
Screws	Carbon steel
Plate	Carbon steel

Types

Name	Order code
Support stand UVK	3210001500

Self-Regulating Heating Cable LTM

LTM is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels in non-Ex areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of LTM heating cable is quick and simple and requires no special skills or tools.

Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

The LTM cable with fluoropolymer outer jacket is characterized by high resistance to high temperatures, chemicals and UV radiation.

Termination, splicing and power connection components are available in convenient kits.

Features

- 10 or 15 W/m
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer and fluoropolymer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Full range of accessories available
- UV and high chemical resistance fluoropolymer

Application

- Freeze protection of pipelines and vessels (non-Ex)



Construction

1. 0.56 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Aluminum foil with drainage wires or tinned copper braid
5. Thermoplastic elastomer or fluoropolymer outer jacket

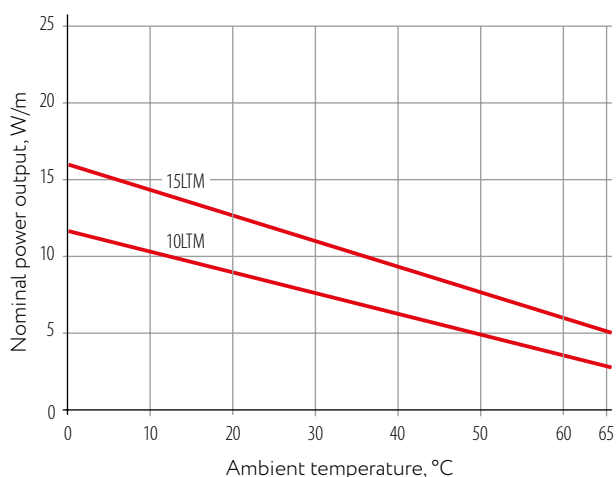
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum Al/PET foil screen resistance	18 Ohm/km
Maximum braiding resistance	10 Ohm/km
Conductor cross-section	0.56 mm ²
Dimension:	
Thermoplastic elastomer outer jacket, braiding	9.0×5.8 mm
Thermoplastic elastomer outer jacket, aluminum foil	8.3×5.5 mm
Fluoropolymer outer jacket, braiding	8.6×5.4 mm
Weight:	
Thermoplastic elastomer outer jacket, braiding	88 kg
Thermoplastic elastomer outer jacket, aluminum foil	66 kg/km
Fluoropolymer outer jacket, braiding	98 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC 10 A
10-LTM	10	130
	-20	110
	Inside pipe	60
15-LTM	10	120
	-20	85

Marking

Example: 15-LTM-AT

① ② ③ ④

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – tinned copper wire braiding, A – Aluminium/PET foil screen
4. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, aluminum foil	1101200000	Black	10-LTM-AT	10
	1101200001		15-LTM-AT	15
Thermoplastic elastomer outer jacket, braiding	1101200002	Black	10-LTM-BT	10
	1101200003		15-LTM-BT	15
Fluoropolymer outer jacket, braiding	—	Blue	10-LTM-BP	10
	—		15-LTM-BP	15

Self-Regulating Heating Cable LTL

LTL is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels and also for snow and ice prevention on roofs and gutters in non-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Installation of LTL heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Termination, splicing and power connection components are available in convenient kits.

Features

- 10, 15, 20, 25 or 30 W/m
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer outer jacket
- Easy to install
- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Full range of accessories available
- UV-resistant

Application

- Freeze protection of pipelines and vessels (non-Ex)
- Snow and ice prevention on roofs and gutters (non-Ex)



Construction

1. 1.00 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Aluminum foil with drainage wire or tinned copper braid
5. Thermoplastic elastomer or fluoropolymer outer jacket

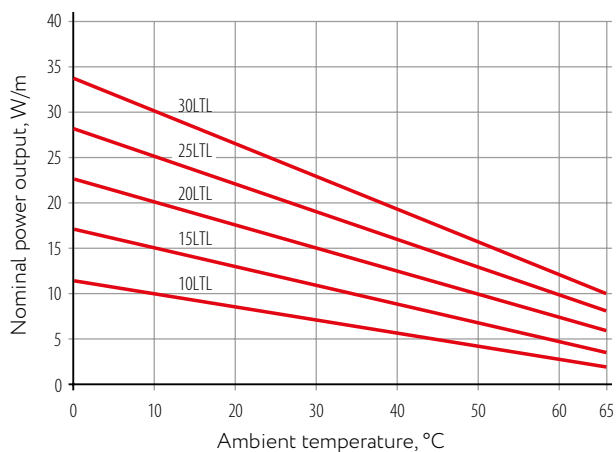
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature: Thermoplastic outer jacket	-30 °C
Minimum bending radius	25 mm
Maximum aluminium screen resistance	18 Ohm/km
Maximum braiding resistance	10 Ohm/km
Conductor cross-section	1.00 mm ²
Dimension:	
Thermoplastic elastomer outer jacket, aluminum foil	10.2×5.7 mm
Thermoplastic elastomer outer jacket, braiding	10.9×6.0 mm
Weight:	
Thermoplastic elastomer outer jacket, aluminum foil	86 kg/km
Thermoplastic elastomer outer jacket, braiding	113 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC		
		10 A	16 A	32 A
10-LTL	10	130	160	190
	-20	90	140	170
15-LTL	10	120	150	175
	-20	85	140	140
20-LTL	10	90	140	160
	-20	65	110	120
25-LTL	10	55	90	140
	-20	40	65	95
30-LTL	10	45	70	115
	-20	30	50	80

Marking

Example: 15-LTL-BT

① ② ③④

1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – tinned copper wire braiding, A – aluminum foil screen
4. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, aluminum foil	1101201008	Black	10-LTL-AT	10
	1101201000		15-LTL-AT	15
	1101201001		20-LTL-AT	20
	1101201002		25-LTL-AT	25
	1101201003		30-LTL-AT	30
Thermoplastic elastomer outer jacket, braiding	1101201009	Black	10-LTL-BT	10
	1101201004		15-LTL-BT	15
	1101201005		20-LTL-BT	20
	1101201006		25-LTL-BT	25
	1101201007		30-LTL-BT	30
Fluoropolymer outer jacket, braiding	—	Blue	10-LTL-BP	10
	—		15-LTL-BP	15
	—		20-LTL-BP	20
	—		25-LTL-BP	25
	—		30-LTL-BP	30

Self-Regulating Heating Cable LTR

LTR is an industrial-grade self-regulating heating cable (self-limiting parallel trace heater) that can be used for freeze protection of pipelines and vessels and also for snow and ice prevention on roofs and gutters in non-hazardous areas.

The power output adjusts automatically in response to the ambient temperature.

Due to its self-regulating characteristics it will not overheat even when the cable is overlapped. This guarantees maximum safety and reliability.

Features

- 10, 20, 30 or 40 W/m W/m
- Self-regulating, automatically adjusts power output in response to ambient temperature
- Thermoplastic elastomer and fluoropolymer outer jacket
- Easy to install

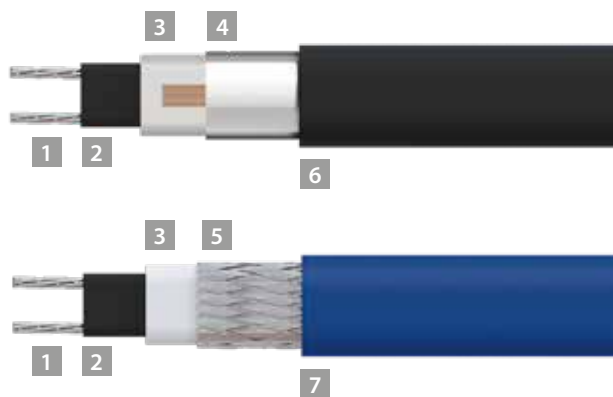
Installation of LTR heating cable is quick and simple and requires no special skills or tools. Thanks to its parallel construction the heating cable can be fitted on site to exact length without any complicated design calculations.

Termination, splicing and power connection components are available in convenient kits.

- Can be cut to required length on site without any complicated design calculations
- Will not overheat even when overlapped
- Full range of accessories available
- UV and high chemical resistance (fluoropolymer)

Application

- Freeze protection of pipelines and vessels (non-Ex)
- Snow and ice prevention on roof and gutters (non-Ex)



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating heating matrix
3. Matrix insulation
4. Al/PET tape with drain conductor
5. Tinned copper braid
6. Thermoplastic elastomer outer jacket
7. Fluoropolymer outer jacket

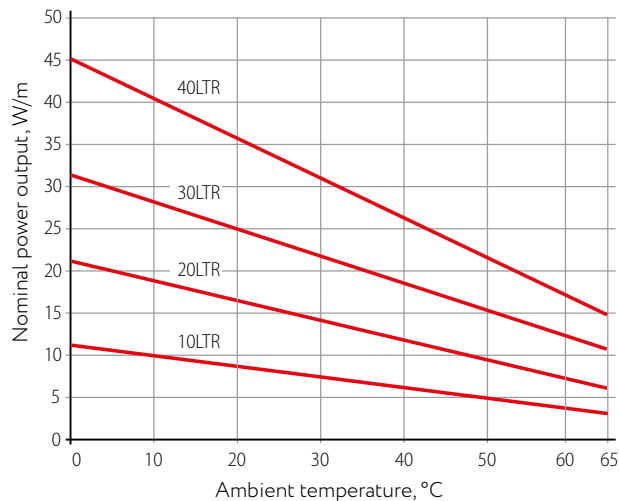
Self-Regulating Heating Cables

Technical Data

Rated voltage	230 VAC
Maximum continuous operating temperature (trace heater energized)	+65 °C
Maximum continuous exposure temperature (trace heater de-energized)	+85 °C
Ambient temperature range	-60 ... +55 °C
Minimum installation temperature:	
Thermoplastic elastomer outer jacket	-30 °C
Fluoropolymer outer jacket	-60 °C
Minimum bending radius	25 mm
Maximum screen resistance (Al/PET tape with drain conductor)	18 Ohm/km
Maximum braiding resistance	10 Ohm/km
Conductor cross-section	1.25 mm ²
Dimension:	
Thermoplastic elastomer outer jacket	
- Al/PET tape with drain conductor	12.9x5.4 mm
- Braiding	13.2x6,1 mm
- Fluoropolymer outer jacket	12.8x5.7 mm
Weight:	
- Al/PET tape with drain conductor	111 kg/km
- Braiding	135 kg/km
- Fluoropolymer outer jacket	148 kg/km

Power Output Curve

Nominal power output at rated voltage 230 VAC



Approvals



Maximum Heating Circuit Length

For use with type C circuit breakers according to IEC 60898-1:2015

Type	Turn-on temperature, °C	Heating circuit length/m at 230 VAC 16 A
10-LTR	10	205
	-20	160
20-LTR	10	150
	-20	105
30-LTR	10	85
	-20	60
40-LTR	10	70
	-20	45

Marking

Example: 15-LTR-BT



1. Nominal power output, W/m at +10 °C
2. Cable type
3. Screen type: B – Tinned copper wire braiding A – Al/PET tape with drain conductor
4. Outer jacket material: T – Thermoplastic elastomer, P – Fluoropolymer

Types

Outer jacket type	Order code	Outer jacket color	Name	Power output, W/m
Thermoplastic elastomer outer jacket, Al/PET tape with drain conductor	1101202000	Black	10-LTR-AT	10
	1101202002		20-LTR-AT	20
	1101202004		30-LTR-AT	30
	1101202005		40-LTR-AT	40
Thermoplastic elastomer outer jacket, braiding	1101202006	Black	10-LTR-BT	10
	1101202018		10-LTR-BT 24V	10
	1101202008		20-LTR-BT	20
	1101202010		30-LTR-BT	30
	1101202011		40-LTR-BT	40
Fluoropolymer outer jacket, braiding	—	Blue	10-LTR-BP	10
	—		20-LTR-BP	20
	—		30-LTR-BP	30
	—		40-LTR-BP	40

Self-Regulating Heating Cable Units RoofMate

Features

- The sections are ready for installation
- Fire safe product; due to the self-regulation effect the cable will not overheat
- Thermostat is not required that reduces the overall cost of organizing the electrical heating system
- Resistant to any atmospheric phenomena and UV-radiation
- Operating temperature up to minus 50 °C is suitable for severe climatic conditions
- Minimal energy consumption due to automatic adjustment of the cable to environmental conditions



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Tinned copper braid or aluminium foil with grain conductor
5. Thermoplastic elastomer or fluoropolymer outer jacket



Application

Heating cable units RoofMate are designed to prevent icing of roofs and drains.

- They are placed in the drain system to ensure the flow of meltwater and to prevent the descent of snow
- They are installed on the edge of the roof as well as on snow-retaining elements

Technical Data

Rated voltage	~220-240 V
Linear power at 10 °C	20 W/m
Screen	Copper braid
Minimum installation temperature	-30 °C
Minimum bending radius	30 mm
Maximum temperature during continuous operation (energized)	+60 °C / 85 °C
Ambient temperature range	-50 ... +50 °C
Ingress Protection	IP67
Plug on the wire	CEE 7/7
Installation wire length	3 m
Operating lifetime of the heating cable sections	minimum 10 years

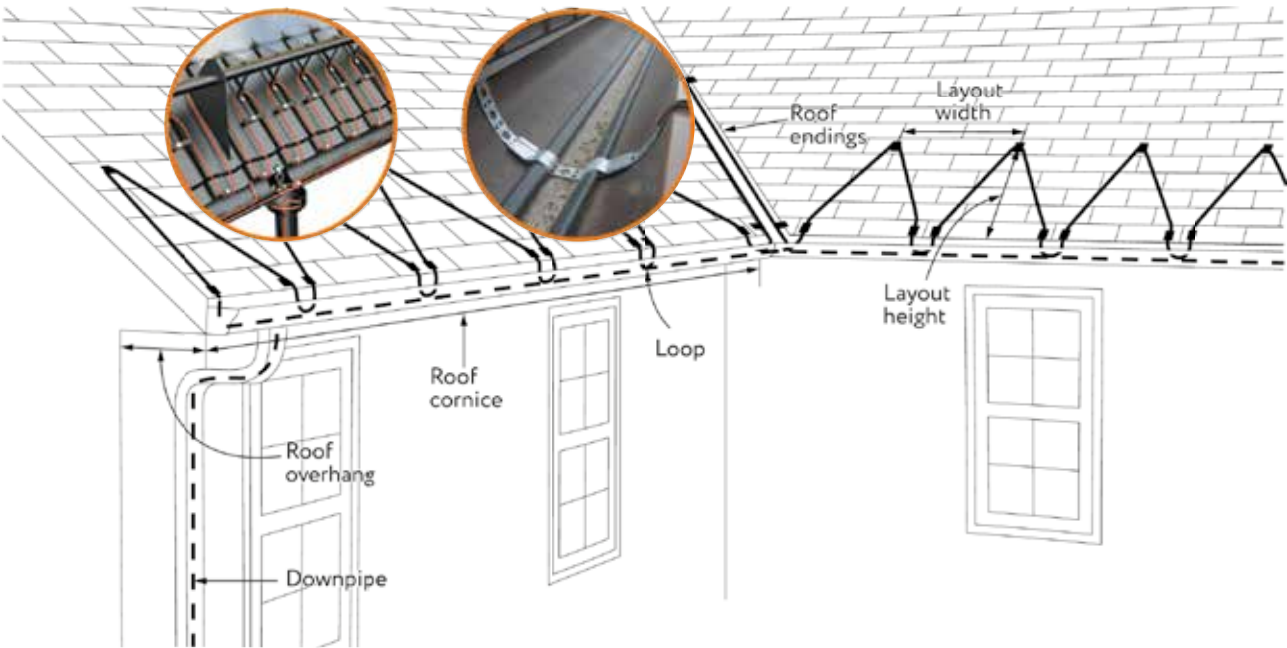
Types

Name	RoofMate Models	Order Codes
Heating cable section RoofMate 20 W/m 02 m	20-RM2-02-25	
Heating cable section RoofMate 20 W/m 04 m	20-RM2-04-25	
Heating cable section RoofMate 20 W/m 06 m	20-RM2-06-25	
Heating cable section RoofMate 20 W/m 10 m	20-RM2-10-25	
Heating cable section RoofMate 20 W/m 15 m	20-RM2-15-25	
Heating cable section RoofMate 20 W/m 20 m	20-RM2-20-25	
Heating cable section RoofMate 20 W/m 25 m	20-RM2-25-25	
Heating cable section RoofMate 20 W/m 40 m	20-RM2-40-25	
Heating cable section RoofMate 20 W/m 50 m	20-RM2-50-25	

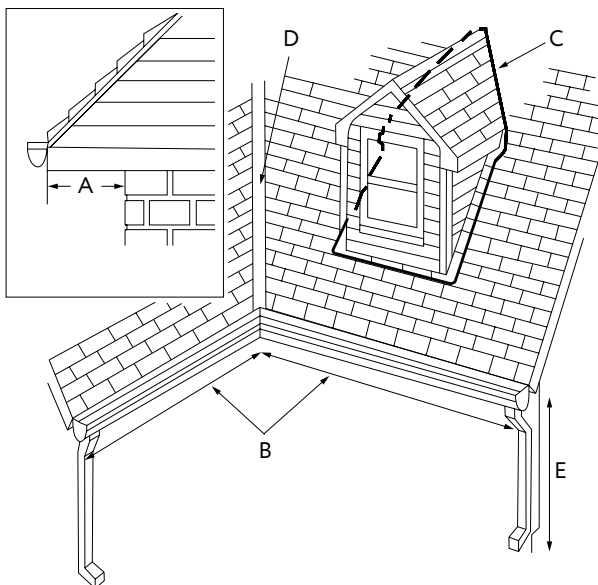
Installation Scheme

Sections RoofMate are designed to prevent icing of roofs and drains.

Heating sections are placed in the drain system to ensure the flow of meltwater and to prevent the descent of snow. They are installed on the edge of the roof as well as on snow-retaining elements.



Cable Section Length Calculation



Installation location	What to measure	How to calculate
Edge of the pitched roof	Length of roof cornice (size A)	Length of roof cornice (size A) $\times$ 5,5
Attic window	Perimeter around the attic windows (size B)	Number of attic windows $\times$ perimeter length (size B)
The end of the roof	Total length of the ends (C)	Length of the ends $\times$ 0,7
Gutter	Length of gutter (A)	Length of gutter $\times$ 2
Downpipe	Length of downpipe(D)	Total number of downpipes $\times$ Length of downpipe $\times$ 2

Self-Regulating Heating Cable Units PipeMate

Features

- The sections are ready for installation
- Fire safe product; due to the self-regulation effect the cable will not overheat
- Thermostat is not required that reduces the overall cost of organizing the electrical heating system
- Resistant to any atmospheric phenomena and UV-radiation
- Operating temperature up to minus 50 °C is suitable for severe climatic conditions
- Minimal energy consumption due to automatic adjustment of the cable to environmental conditions



Construction

1. 1.25 mm² nickel-plated copper conductors
2. Semi-conductive self-regulating matrix
3. Matrix insulation
4. Tinned copper braid or aluminium foil with grain conductor
5. Thermoplastic elastomer or fluoropolymer outer jacket



Application

Heating cable units PipeMate are designed for heating metal and plastic pipelines, water taps, valves.

- They are installed in one or two lines, depending on the size and material of the pipeline. The use of thermal insulation is required
- It is allowed to use sections for heating drainage systems of buildings and structures of facilities

Technical Data

Rated voltage	~220-240 V
Linear power at 10 °C	10 W/m
Screen	Copper braid
Minimum installation temperature	-30 °C
Minimum bending radius	30 mm
Maximum temperature during continuous operation (energized)	+60 °C / 85 °C
Ambient temperature range	-50 ... +50 °C
Ingress Protection	IP67
Plug on the wire	CEE 7/7
Installation wire length	2 m
Operating lifetime of the heating cable sections	minimum 10 years

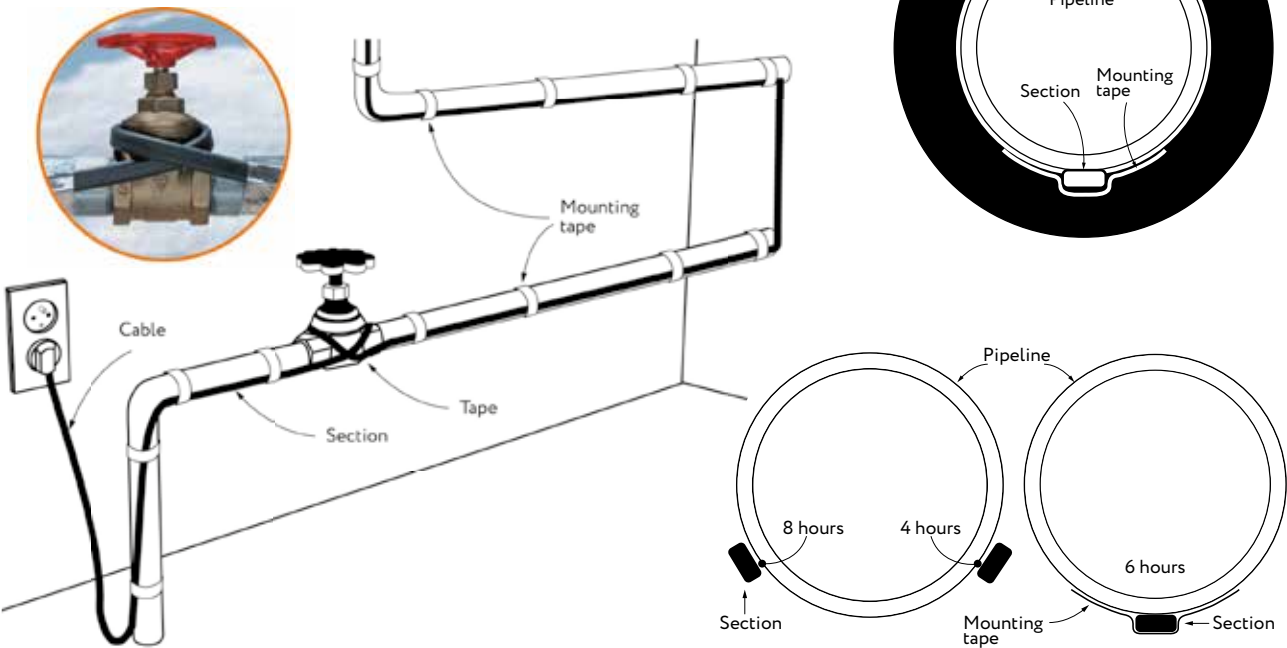
Types

Name	PipeMate Models	Order Codes
Heating cable section PipeMate 10 W/m 02 m	10-PM2-02-20	
Heating cable section PipeMate 10 W/m 04 m	10-PM2-04-20	
Heating cable section PipeMate 10 W/m 06 m	10-PM2-06-20	
Heating cable section PipeMate 10 W/m 08 m	10-PM2-08-20	
Heating cable section PipeMate 10 W/m 10 m	10-PM2-10-20	
Heating cable section PipeMate 10 W/m 15 m	10-PM2-15-20	
Heating cable section PipeMate 10 W/m 20 m	10-PM2-20-20	
Heating cable section PipeMate 10 W/m 25 m	10-PM2-25-20	
Heating cable section PipeMate 10 W/m 30 m	10-PM2-30-20	

Installation Scheme

PipeMate sections are designed for heating metal and plastic pipelines, water taps, valves.

The sections are installed in one or two lines, depending on the size and material of the pipeline. The use of thermal insulation is required. It is allowed to use sections for heating drainage systems of buildings and structures and facilities.



Cable Section Length Calculation

Section length, m													
Pipe diameter		Pipe length, m	1	2	3	4,5	6	9	12	15	18	21	24
Inches	mm	Pipe material											
1/2"	20	plastic	-	2	3	5	8	10	12	15	20	25	25
		metal	-	2	3	5	8	10	12	15	20	25	25
3/4"	25–26	plastic	-	2	3	5	8	10	12	15	20	25	25
		metal	-	2	3	5	8	10	12	15	20	25	25
1"	32	plastic	-	2	3	5	8	10	12	15	20	25	25
		metal	-	2	3	5	8	10	12	15	20	25	25
1 1/2"	45–50	plastic	2	4	8	10	12	20	25	2x15	2x20	2x25	2x25
		metal	-	2	3	5	8	10	12	15	20	25	25
2"	57–63	plastic	2	4	8	10	12	20	25	2x15	2x20	2x25	2x25
		metal	2	4	8	10	12	20	25	2x15	2x20	2x25	2x25
3"	89–90	plastic	2	4	8	10	12	20	25	2x15	2x20	2x25	2x25
		metal	2	4	8	10	12	20	25	2x15	2x20	2x25	2x25

Please fill out and send us this questionnaire containing the parameters required to design the electric heating system. We will respond with a detailed quote.

QUESTIONNAIRE

1 Customer*	Company					
	Name		Surname			
	Phone		E-mail			
2 Site object*	Name					
	Location*					
	Available design documentation for heated object	☐ Yes ☐ No				
	Installer					
3 Type of design works*	Responsible representative		Phone			
	☐ Thermotechnical stage (TTS) (installation drawings and cabinets one-line diagrams)	☐ Automation (ACS - automated control systems) (a possibility of centralized control and data transfer to the higher level)				
	☐ Electrotechnical stage (ETS) (electric networks laying diagrams, cable record)	☐ Thermal insulation (TI) (equipment thermal insulation drawings, list of equipment to be installed)				
4 Purpose of the system	☐ Freeze protection	☐ Temperature maintenance				
	☐ Heating up in stop mode	Time of heating		hours	Initial temperature °C	
	☐ Heating up in pumping mode	Time of heating		hours	Initial temperature °C	
5 Temperature conditions		°C, Required pipe temperature*				
		°C, Minimum ambient temperature				
		°C, Maximum ambient temperature				
		°C, Standard process-oriented temperature* (Product temperature under standard operational conditions)				
		°C, Maximum process-oriented temperature* (The highest process-oriented temperature the product may occasionally attain)				
		°C, Maximum allowed product temperature* (The product highest temperature having no adverse effect on the product properties)				
		°C, Minimum activation temperature* (The lowest temperature, which enables activation of the heating system)				
6 Steaming*		°C, Maximum steam temperature in case an object steaming is stipulated				
7 Environment	☐ Normal (water, household wastewater) ☐ Corrosive (oil, lube oils, industrial wastes)					
8 Pipeline location*	☐ Open air	☐ Underground	Depth		m Soil	
	☐ Indoors					
9 Cabling	☐ External ☐ Internal					
10 Heat insulation type*	☐ Mineral wool	☐ Polyurethane foam				
	☐ Foamed rubber	☐ Other, heat conductivity coefficient W/m·°C				
11 Heat insulation installation	☐ Onsite ☐ Preinsulated pipes					
12 Zone classification	☐ Safe ☐ Explosion hazardous					
13 Pipe material*	☐ Carbon steel	☐ Stainless steel				
	☐ Plastic	☐ Other, heat conductivity coefficient W/m·°C				
14 Parameters of pipeline*	Pipeline	1	2	3	4	5
	Pipeline name					
	Pipeline diameter					
	Heat insulation thickness, mm					
	Pipe length, m					
	Quantity of valves, pcs					
	Quantity of flanges, pcs					
	Quantity of pipe supports, pcs					
	Pumped product					
	Product density, kg/m³					
Product heat capacity, J/(kg·°C)						
15 Further information					Date*	

* Required field (mandatory for completion)

Please fill out and send us this questionnaire containing the parameters required to design the electric heating system. We will respond with a detailed quote.

QUESTIONNAIRE

1 Customer*	Company			
	Name		Surname	
	Phone		E-mail	
2 Site object*	Name			
	Location*			
	Available design documentation for heated object			
	Installer			
	Responsible representative		Phone	
3 Type of design works*	☐ Thermotechnical stage (TTS) (installation drawings and cabinets one-line diagrams)	☐ Automation (ACS - automated control systems) (a possibility of centralized control and data transfer to the higher level)		
	☐ Electrotechnical stage (ETS) (electric networks laying diagrams, cable record)	☐ Thermal insulation (TI) (equipment thermal insulation drawings, list of equipment to be installed)		
4 Purpose of the system	☐ Freeze protection	☐ Temperature maintenance		
	☐ Heating up an empty tank	Time of heating		hours Initial temperature
	☐ Heating up of the product tank	Time of heating		hours Initial temperature
5 Temperature conditions		°C, Required vessel temperature*		
		°C, Minimum ambient temperature		
		°C, Maximum ambient temperature		
		°C, Standard process temperature* (Product temperature under standard operational conditions)		
		°C, Maximum process temperature* (The highest temperature the vessel may occasionally attain)		
		°C, Maximum allowed product temperature* (The product highest temperature having no adverse effect on the product properties)		
		°C, Minimum activation temperature* (The lowest temperature, which enables activation of the heating system)		
6 Steaming		°C, Maximum steam temperature in case an object steaming is provided		
7 Object location*	☐ Open air	☐ On the soil		
	☐ Indoors	☐ On supports, their design:		
8 Cabling*	☐ External	Distance to heating control point		m
	☐ Internal	Distance to power supply point		m
9 Heat insulation type*	☐ Mineral wool (mats)	☐ Polyurethane foam	☐ Foam rubber	
	☐ Others, heat-conductivity factor		W/m·°C Thickness	mm
10 Zone classification	☐ Safe	☐ Explosion hazardous (zone classification)		
11 Vessel material*	☐ Carbon steel	☐ Stainless steel		
	☐ Plastic	☐ Other, heat conductivity coefficient		W/m·°C
12 Parameters of the vessel*	☐ Horizontal	☐ Vertical	Fullness coefficient	
	Diameter	mm	Height	mm
	Fittings and hatches:			
	Type of cover:	☐ Flat	Cover height	m
		☐ Spherical		
	☐ Conic			
13 Parameters of the product	Name*			
	Density		kg/m³	
	Viscosity		kg/m·s	at a temperature
	Heat capacity		J/kg·°C	
	Discharge		m³/h	☐ Continuous ☐ Cyclic
14 Type of supports	☐ On the ground/foundation	☐ Support of the "skirt" type		
	Concrete bed, quantity		pc.	Steel saddles, quantity
	Type of supports		pc.	Stair supports
15 Further information				Date*

* Required field (mandatory for completion)

Please fill out and send us this questionnaire containing the parameters required to design the electric heating system. We will respond with a detailed quote.

QUESTIONNAIRE

For project documentation N _____

Dimensions		Length mm × Width mm × Depth mm											
1 Housing	Enclosure material	☐ plastic ☐ aluminium ☐ stainless steel											
	Explosion protection level required	☐ "d" ☐ "ia" ☐ "e" ☐ without explosion protection											
	IP	☐ IP 65 ☐ IP 66 ☐ IP 67 ☐ IP 68											
	Temperature class	☐ T4 ☐ T5 ☐ T6											
	Operating temperature	T _{ambience} from °C to °C											
2 Terminal block	Connection wire	L	N	PE									
	Nominal current	A	A	A									
	Wire section	mm²	mm²	mm²									
	Quantity	pcs	pcs	pcs									
	Type of terminals	☐ screw ☐ spring											
3 Cable glands	Installation side	A			B			C			D		
	Cable gland type & size												
	Cable type												
	External Ø of cable, mm												
	Internal Ø of cable, mm												
	Quantity, pcs												
	Cable gland material												
	Mechanical cable protection	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4 Options and accessories	☐ Anticondensation inner coating			☐ Protective hood			☐ External earthing lug						
	☐ Pipe installation support			☐ Drain unit			☐ LED-light indicator						
	☐ Terminals installation on 15 mm DIN-rail (i.a. at producer's option)						☐ Terminal bridges per customer specification						
	☐ Design based on model-analogue						Model:						
5 Quantity of junction boxes	pcs												
6 Additional information													
7 Contact information	Company							Contact person					
	Phone							E-mail					

Date of completion



Sigmian

Sigmian GmbH

Rastatter Str. 30
75179 Pforzheim
Germany
+49 723 146 09 040
info@sigmian.com

SST Thermal Solutions ME FZE

RA08 JA-01 & 02,
PO Box No. 392750
Jebel Ali Free Zone, Dubai,
United Arab Emirates
+ 971 501 002 495
+ 971 501 002 861
middle-east@sst-international.com

SST GS India Pvt. Ltd.

International Trade Tower,
Block E, 2nd Floor,
Nehru Place, New Delhi,
110019, India
+ 91 11 3044 6544
+ 91 98 1075 4894
asia@sst-international.com

sigmian.com