

Application

The BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y can be used in industrial applications for to maintain temperature, for heat-up, for freeze protection and process temperature maintenance up to 110 °C. The BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y are specially designed for use in potentially explosive gas or combustible dust atmospheres.

Directive: 2014/34/EU, Group II Category 2,
EN 60079-0:2012 + A11:2013,
EN 60079-30-1:2007, EN 60079-31:2014,
EN 62395-1:2013

IEC 60079-0:2011, mod. + Co.:2012 + Cor.:2013,
IEC 60079-30-1:2007, IEC 60079-31:2013,
IEC 62395-1:2013

Safety Instructions





Read these instructions to avoid lethal injuries and damage to property by use of the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y in explosive atmosphere.



Do only design, install or operate the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y in the shown limit for temperature class.

Explosion safety marking



 II 2 G Ex e IIC 150 °C (T3), T4 Gb
 II 2 D Ex tb IIIC T 150 °C, T 130 °C Db



Don't touch the surface of the BARTEC MSB self-limiting heating tapes type 07-5804-2..X and 07-5804-2..Y while these are energized. First-/second-/third-degree burn can occur. Don't touch also the heated areas. Warning signs shall be installed.

Technical data



See print at self-limiting heating tape:
BARTEC D-97980 MSB.. W/m @ 10 °C 230 V/254 V Type 07-5804-2... 0044

 II 2G Ex e IIC 150 °C (T3), T4 Gb,
 II 2D Ex tb IIIC T150 °C, T130 °C Db
DEKRA 12ATEX 0044 U
IECEX DEK 12.0004 U - see description (lot no.)

Operation voltage	at AC 208 V to AC 254 V to
	10 W/m
	15 W/m
Power output rating at +10 °C	25 W/m
	30 W/m
	40 W/m

Circuit breaker size	16 A, 20 A, 32 A C-Characteristic
max. operation temperature, power "on"	+110 °C
max. withstand temperature, power "off"	+130 °C
min. start-up temperature	-50 °C
min. installation temperature	-40 °C
min. bending radius	25 mm

Explosion protection

Certification	DEKRA 12 ATEX 0044 U IEC Ex DEK 12.0004 U
Ex protection type	 II 2 G Ex e IIC 150 °C (T3), T4 Gb  II 2 D Ex tb IIIC T 150 °C, T 130 °C Db

max. work-piece temperature/exposure temperature

Operation voltage	Type	max. exposure temperature	T-class*
AC 254 V	all	< 110 °C	150 °C (T3)
	MSB10	< 100 °C	T4
	MSB15	< 90 °C	T4
	MSB25	< 80 °C	T4
	MSB30	< 70 °C	T4
	MSB40	< 60 °C	T4

* based on product classification

Electrical Data

Designation	Explanation	Value	Version
I	General Code	07	
II	Installation material	5	
III	Heating tape/explosion-proof	8	
IV	Parallel heating tape	0	
V	Type of construction	4	Selflimiting heating tape MSB
VI (U)	Rated voltage range	2	AC 208 V to AC 254 V
VII (xx)	min. rated capacity at 10 °C, xx	10	10 W/m
		15	15 W/m
		25	25 W/m
		30	30 W/m
		40	40 W/m
VIII (Z)	Outer jacket	X	Fluoropolymer outer jacket
		Y	TPC outer jacket

01-5804-7D0001/A-08/2016-BARTEC-319054

Installation Instructions

The assembly of all heat trace connections must be completed carefully according to the manufacturer's installation manual supplied with the connection sets. Connections and terminations for installation with this selflimiting heating tapes shall be certified according to the requirements of the applicable standards for their types of protection for potential explosive gas and combustible dust atmospheres, as well as the requirements of IEC/EN 60079-30-1 and IEC/EN 60079-31 as integral parts of this trace heating system.

For the connection of the BARTEC selflimiting heating tapes type MSB to power certified glands, enclosures and terminals shall be used that are suitable for the application and are correctly installed. The cable glands shall be mounted in an enclosure in such a way that the ingress protection rating IP 65 for use in explosive atmospheres caused by the presence of flammable gas and/or vapours, IP 6X for use in explosive atmospheres caused by the presence of combustible dust is ensured. Ingress of protection ratings is according to IEC/EN 60529.

Before installing any connection to the cable, check the electrical resistance between the active bus wires and the protective braid or other equivalent electrically conductive material (refer to IEC/EN 60079-30-2 clause 8.3.4). It must be at least 20 M Ω for a minimum supplied test voltage of DC 500 V. The use of maximum test voltage of DC 2500 V is recommended.

The minimum circuit protection requirements for trace heating systems for use in hazardous area follows:

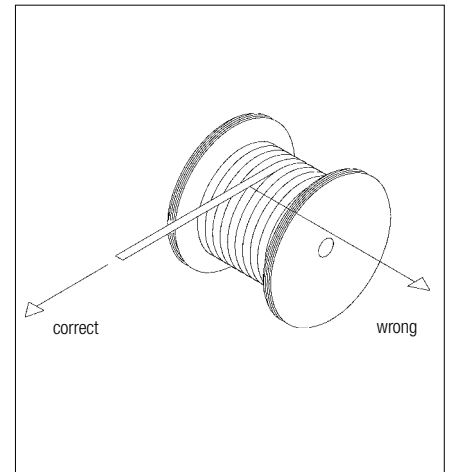
1. A means of isolating line conductors from the supply;
2. Over-current protection provided for each branch circuit;
3. A means of protecting against earth faults which depend on the type of system earthing (see IEC 60364-3 for definitions).
4. The copper braid must be used as a ground wire, especially as the electrical resistance is less than 18.2 Ω /km.
5. For TT and TN systems: a residual-current protective device for each branch circuit having a rated residual operating current not greater than 300 mA. The device shall have a trip-time not exceeding 150 ms at five times the rated residual operating current. Values of 30 mA and 30 ms are preferred unless there is evidence that this will re-sult in a marked increase in nuisance tripping (refer to IEC/EN 60079-30-1 clause 4.2).
6. For IT systems: an electrical monitoring device shall be installed to disconnect the supply whenever the electrical resistance is not greater than 50 Ω /V of rated voltage (refer to IEC/EN 60079-30-1 clause 4.2).

General points

- Every defective heating tape or component must not be installed. Visual inspection and check of type code matching with the requirements shall be executed first. Defect material must be replaced.
- All gaskets used for the heat trace connections must be replaced after every disassembly.
- Improper installation or the use of not origin or defect connective components must be avoided to prevent moisture migration which can lead to electrical arcing. Improper installation might also lead to be out of the certified conditions.

Before installation

- The documentation and design for the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y application shall be available. Only install the heating tape according the design and layout for stabilized design.
- The pipe network shall be checked before installing the cable. By visual inspection it must be checked that the surface of the carrier pipe, vessel or application is dry and clean. Do not install after the mechanical works in example welding at the pipe are complete.
- Check the voltage of the power supply. A deviation from the nominal operating voltage will change the heating power. Do not operate the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y when the supplied voltage is higher than the allowed technical data. Exceeding the technical limits can lead into increased surface temperature.
- The upstream main switch and circuit breaker shall be locked in off position during the installation and dismantling.
- Only carry out the installation at temperature above the specified minimum installation temperature.
- Before installing the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y the electrical resistance between the bus wires and the braid must be checked at least with a min. supply voltage of DC 500 V. The use of DC 2500 V is recommended. The measured insulation resistance shall not be less than 20 M Ω .
- The BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y shall only be installed by a skilled and trained staff for installation of trace heating.



Unrolling the cable

- Unroll the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y from the spool in a straight manner and cut to size. Do not exceed the maximum installation circuit lengths.
- The BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y shall be unrolled/pulled perpendicular to its axis. Avoid excessive pulling or bending of the tape when winding and unwinding during transport and assembly. To avoid damaging the insulation, exercise care if there are any sharp corners and edges, such as for example on flanges or holding devices.
- Before unrolling the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y the electrical resistance between the active bus wires and the braid or other equivalent electrically conductive material (refer to IEC/EN 60079-30-2 clause 8.3.4) must be checked. It must be at least 20 M Ω for a min. supply voltage of DC 500 V. The use of max. test voltage of DC 2500 V is recommended.

Storage

The BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y must be stored in dry and clean places. The storage temperature should be between -40 °C and +65 °C. Keep ends of trace heaters dry before and during installation.

Handling

Avoid excessive pulling or bending of the tape when winding and unwinding during spooling, transport and assembly. To handle a forklift or motorized device for pulling is prohibited. Coils or drums might be handled either secured on a pallet either with a securing device.

General

Every defective BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y must not be installed. Visual inspection and check of type code matching with the requirements shall be executed first. Every defective heating tape or component must not be installed. Visual inspection and check of type code matching with the requirements shall be executed first. Defect material must be replaced.

Connection to power supply and commissioning**CAUTION**

BARTEC's standard Acceptance Test Record can be found in the "Installation and operation of parallel heating tapes" documentation (www.bartec.de). For claims under guarantee the submission of a correctly and completely written Acceptance Inspection Record is mandatory.

The assembly of all heat trace connections must be completed carefully according to the manufacturer's installation manual supplied with the connection sets. Connections and terminations for installation with this heating tape shall be certified according to the requirements of the applicable standards for their types of protection for potential explosive gas and combustible dust atmospheres, as well as the requirements of EN 60079-31 and EN 60079-30-1 as integral parts of this heating tracing system. When installing on locations where explosive atmospheres may be present, regulations of IEC/EN 60079-14 are applicable. Furthermore in most countries where the product is installed, national regulations may be applicable. Those regulations are mostly obligatory.

Refer to IEC/EN 60079-30-1 clause 4.3 and 4.4 pre-installation testing shall include:

Individual controls shall be tested to ensure correct calibration including, but not limited to set points, operating temperature range and span. Vendor fabricated and assembled control panels shall include documentation certifying that all wiring, layout and functions are correct and have been tested. Upon receipt of the control panels at the work site, a general inspection shall be made to confirm also that no damage has occurred in transit.

**DANGER**

Safety instructions and measures shall be known as the system can operate with voltage up to AC 254 V. Read these instructions to avoid lethal injuries and damage to property by use of the BARTEC MSB selflimiting heating tapes type 07-5804-2..X and 07-5804-2..Y in explosive atmosphere. The upstream circuit breaker and main switch and load capacitor shall be locked and in off position during the installation and dismounting.

Related documents

Cold applied connection and termination kit 21-1780-7D0001
 PLEXO connection and termination kit 21-1780-7D0003
 PLEXO TCS connection and termination kit 21-59P0-7D0001

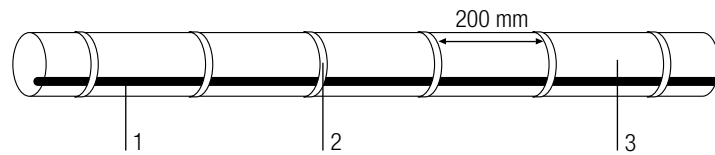
Installation methods

As applicable, the BARTEC MSB self-limiting heating tapes type 07-5804-2..X and 07-5804-2..Y may be wound as a spiral around the heated object or longitudinal to the object. Where possible, to ensure a better heat conduction the heating cable shall be applied longitudinal to the pipe and attached along its flat side.

Never use adhesive tapes that contain plasticizers or made of PVC. Never use cable ties made of metal or nylon. This can damage the outer jacket and insulation of the heating tape.

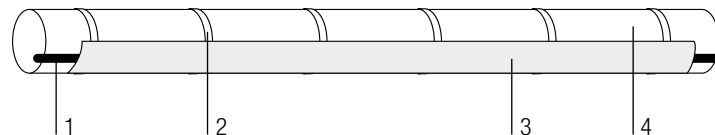
The thermal conductivity of plastic pipes is much lower than the thermal conductivity of metallic pipes. Therefore it is recommended to put aluminium foil under and over the heating cable to enhance heat distribution and prevent local heat accumulation. Simultaneously the lowered heat transfer due to the lower thermal conductivity of the plastic pipe and the lower heat output of the cable is partially compensated. Check that the installed cables are located where heat is required.

Strapping with adhesive tape



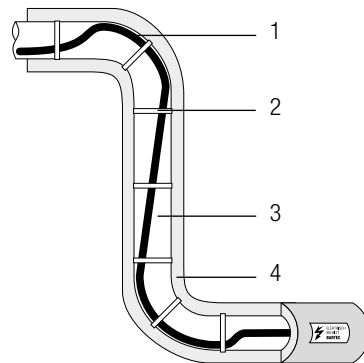
- 1 MSB
- 2 Adhesive Tape
- 3 Pipe

Strapping with adhesive tape and covering with aluminium tape/foil



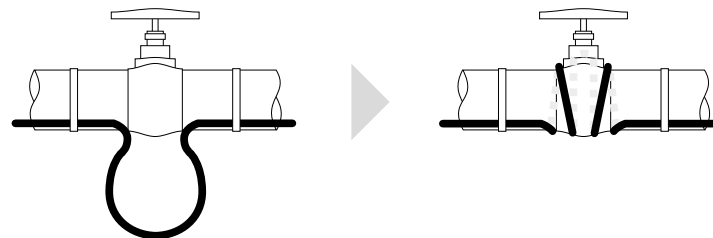
- 1 MSB
- 2 Adhesive Tape
- 3 Aluminium Tape
- 4 Pipe

Strapping at elbow

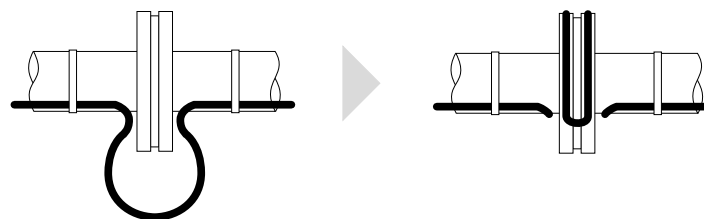


- 1 MSB
- 2 Adhesive Tape
- 3 Pipe
- 4 Insulation

Fixation and strapping at valve



Fixation and strapping at flange



 **CAUTION**

Never cross or overlap the heating tape!



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max. circuit length (m) based on **circuit breaker size** (equipment protection type C)

	Start-up temperature (°C)	Operating voltage \leq AC 254 V			
		16 A	20 A	25 A	32 A
MSB 10	+10	200	235	235	235
	-25	175	235	235	235
	-50	165	225	230	235
MSB 15	+10	165	189	189	189
	-25	117	152	170	189
	-50	110	144	160	189
MSB 25	+10	120	140	140	140
	-25	88	120	130	140
	-50	80	114	120	136
MSB 30	+10	85	114	114	114
	-25	69	92	100	114
	-50	65	86	92	110
MSB 40	+10	70	82	82	82
	-25	49	66	75	82
	-50	45	62	70	78

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Konformitätsbescheinigung
Attestation of Conformity
Attestation de conformité

BARTEC

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

N° 01-5804-7C0001_A

Wir	We	Nous
BARTEC GmbH,		
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
Parallel-Heizleitung MSB	Parallel heating cable MSB	Parallèle chauffage MSB
Typ 07-5804-2***		
auf das sich diese Erklärung bezieht den Anforderungen der folgenden Richtlinien (RL) entspricht	to which this declaration relates is in accordance with the provision of the following directives (D)	se référant à cette attestation correspond aux dispositions des directives (D) suivantes
ATEX-Richtlinie 2014/34/EU RoHS-Richtlinie 2011/65/EU	ATEX-Directive 2014/34/EU RoHS-Directive 2011/65/EU	ATEX-Directive 2014/34/UE RoHS-Directive 2011/65/UE
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous
EN 60079-0:2012+A11:2013 EN 60079-31:2014	EN 60079-30-1:2007 EN 62395-1:2013	
Kennzeichnung	Marking	Marquage
	II 2G Ex e IIC 150 °C (T3), T4 Gb II 2D Ex tb IIIC T 150 °C, T 130 °C Db	
Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
DEKRA 12 ATEX 0044 U^(*) 0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL		
^(*) Die Ex-Komponente ist Teil eines elektrischen Betriebsmittels oder eines Moduls, das mit dem Symbol „U“ gekennzeichnet ist, das nicht für sich allein verwendet werden darf und über dessen Einbau in elektrische Betriebsmittel oder Systeme zur Verwendung in explosionsgefährdeten Bereichen gesondert entschieden werden muss.	^(*) The Ex-component is a part of an electrical apparatus or a module, marked with the symbol „U“, which is not intended to be used alone and requires additional consideration when incorporated into electrical apparatus or systems for use in explosive atmospheres.	^(*) Le composant Ex est partie de matériel électrique ou de module, marquée du symbole „U“, ne devant pas être utilisée seule et nécessitant une certification complémentaire lorsqu'elle est incorporée a un matériel électrique ou à un système pour atmosphères explosives.

Konformitätsbescheinigung
Attestation of Conformity
Attestation de conformité

BARTEC

BARTEC GmbH
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N° 01-5804-7C0001_A

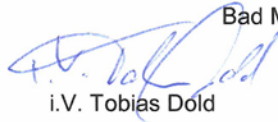
Merkmale dieser Komponenten
sowie die Bedingungen für ihren
Einbau in Geräte und Schutzsys-
teme siehe Betriebsanleitung der
Komponente.

Characteristics and how the com-
ponent must be incorporated into
equipment or protective systems
see operation manual of the com-
ponent.

Les caractéristiques du composant
ainsi que les conditions
d'incorporation dans des appareils
ou des systèmes de protection
regarde voir l'instruction d'emploi
du composant.

0044

Bad Mergentheim, den 29.07.2016



i.V. Tobias Döld
Leiter PM EHT



i.V. Michael Schulte
Leiter GW PZ

