



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEX Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	IECEX KEM 07.0048U	Issue No: 2	<u>Certificate history:</u> Issue No. 2 (2014-02-21) Issue No. 1 (2012-12-07) Issue No. 0 (2007-11-02)
Status:	<b>Current</b>	Page 1 of 5	
Date of Issue:	<b>2014-02-21</b>		
Applicant:	<b>BARTEC GmbH</b> Max-Eyth-Straße 16 D-97980 Bad Mergentheim Germany		
Electrical Apparatus:	<b>Self Limiting Heating Cable series HSB type 07-5803-****</b>		
Optional accessory:	N/A		
Type of Protection:	<b>Ex e, Ex tb</b>		
Marking:	Ex e IIC 200 °C (T2), T3, T4 Gb Ex tb IIC T 200 °C, T 195 °C, T 130 °C Db		

Approved for issue on behalf of the IECEX  
Certification Body:

T. Pijker

Position:

Certification Manager

Signature:  
(for printed version)

Date:

2014-02-21

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEX Website](http://www.iecex.com).

Certificate issued by:

DEKRA Certification B.V.  
Meander 1051  
6825 MJ Arnhem  
The Netherlands





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Manufacturer: **BARTEC GmbH**  
Max-Eyth-Straße 16  
D-97980 Bad Mergentheim  
**Germany**

Additional Manufacturing  
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-30-1 : 2007-01</b> Edition:1	Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements
<b>IEC 60079-31 : 2008</b> Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

[NL/KEM/ExTR07.0054/00](#)

[NL/KEM/ExTR07.0054/01](#)

[NL/KEM/ExTR07.0054/02](#)

#### Quality Assessment Report:

[DE/TUN/QAR06.0017/05](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Self Limiting Heating Cable series HSB is a parallel trace heater, used to raise or maintain the temperature of a workpiece where it is externally applied to. The HSB heating cable series consists of an electrical resistance heater element with positive temperature coefficient. This means that the HSB heating cable series reduces its power output with increasing temperature.

For thermal data, product ratings and electrical data see Annex 1 to Certificate of Conformity IECEx KEM 07.0048U, issue no. 2.

**CONDITIONS OF CERTIFICATION: NO**



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## EQUIPMENT (continued):

### Schedule of Limitations

Connections and terminations for installation with the HSB heating cable series shall be certified according to the requirements of the applicable standards for their types of protection for potentially flammable gas and/or combustible dust atmosphere, as well as the requirements of IEC 60079-30-1 as integral parts of this trace heating system.

For the connection of the heating cable 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 ratings are ensured as follows. IP54 for use in explosive atmospheres caused by the presence of flammable gas and/or vapours. IP6X for use in explosive atmospheres caused by the presence of combustible dust. Ingress protection ratings according to IEC 60529.

When used in TT and TN systems a residual current device according to IEC 60079-30-1, clause 4.3 point d) shall be installed. When used in IT systems an insulation monitoring device according to IEC 60079-30-1, clause 4.3 point e) shall be used.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Increase of "Maximum withstand temperature, power "off"" rating from +190 °C to +200 °C.

**Annex:**

[216188800\\_Annex to\\_ExTR07.0054.02\\_KEM07.0048U-Iss2\\_02ATEX2327 U-Iss4.pdf](#)

**Annex 1 to Test Report IECEx NL/KEM/ExTR07.0054/02**  
**Annex 1 to Certificate of Conformity IECEx KEM 07.0048U, issue no. 2**  
**Annex 1 to EC Type Examination KEMA 02ATEX2327 U, issue no. 4**  
**Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 02ATEX2327 U, Ausgabe Nr. 4**

**Description**

The Self Limiting Heating Cable series HSB is a parallel trace heater and used to raise or maintain the temperature of a workpiece where it is externally applied. The HSB heating cable series consists of an electrical resistance heater element with positive temperature coefficient. This means that the HSB heating cable series reduces its power output with increasing temperature.

Maximum operating temperature, power "on": +120 °C  
 Maximum withstand temperature, power "off": +200 °C  
 Minimum start-up temperature: -60 °C  
 Minimum installation temperature: -60 °C  
 Minimum bending radius: 25 mm

**Nomenclature and electrical data**

07 - 5 8 0 3 - 2 20 A  
 I II III IV V VI VII VIII

Designation	Explanation	Value	Explanation
I, II, III, IV	General	07-580	Parallel circuit heating cable for use in potential explosive atmospheres
V	Cable Series Designation	3	Self Limiting HSB
VI	Rated voltage	1	110 Vac to 120 Vac
		2	208 Vac to 254 Vac
VII	Power output rating at 10 °C	10	10 W/m
		15	15 W/m
		20	20 W/m
		25	25 W/m
		30	30 W/m
		45	45 W/m
VIII	Overjacket option	60	60 W/m
		A	Fluoropolymer overjacket

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**Temperature class and specified maximum surface temperature "T"**

**Product classification approach**

The maximum surface temperature "T" is based upon exposure of a heating cable to a workpiece having a temperature not exceeding the maximum surface temperature "T".

Rated voltage	Power output rating	T-class	Maximum surface temperature "T"
254 Vac	10, 15, 20, 25, 30, 45 W/m	T3	+195 °C
	60 W/m	T2	+200 °C
120 Vac	10, 15, 20, 25, 30 W/m	T3	+195 °C
	45, 60 W/m	T2	+200 °C

**Systems approach, design verification method**

The maximum surface temperature "T" is based upon exposure of a heating cable to a workpiece having a temperature not exceeding the maximum exposure temperature.

Rated voltage	Power output rating	Maximum exposure temperature	T-class	Maximum surface temperature "T"
254 Vac	10 W/m	105 °C	T4	130 °C
	15 W/m	70 °C	T4	130 °C
	20 W/m	60 °C	T4	130 °C
	25 W/m	55 °C	T4	130 °C
	30 W/m	25 °C	T4	130 °C
	45 W/m	120 °C	T3	195 °C
	60 W/m	120 °C	T3	195 °C

**Conditions for systems approach, design verification method**

For insulated externally heated surfaces lower T-class systems may be obtained by ensuring that the heating cable shall not be exposed to temperatures exceeding those listed under maximum exposure temperature.

The T-class obtained through systems approach is based on the energy balance of heat loss and heat production of the system at a certain temperature. The maximum exposure temperature of the system including the resulting T-class and heating cable type shall be provided as a record of system documentation for each stabilized designed system. The parameters in the system documentation shall be checked during commissioning of the system.

The system documentation shall be kept by the owner of the system and be available at all times for as long as the system is in use.

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### Beschreibung

Die selbstbegrenzende Heizleitung HSB ist eine parallele Begleitheizung und wird zur Temperaturerhöhung oder Temperaturerhaltung von einem Werkstück, wo sie von außen aufgebracht ist, verwendet. Die Heizleitung HSB besteht aus elektrischen Widerstands-Heizelementen mit positivem Temperaturkoeffizient. Dies bedeutet, daß die Leistung der Heizleitung HSB bei steigender Temperatur abnimmt.

Maximale Betriebstemperatur, Leistung "ein": +120 °C  
 Maximale Einsatztemperatur, Leistung "aus": +200 °C  
 Minimale Einschalttemperatur: -60 °C  
 Minimale Installationstemperatur: -60 °C  
 Minimaler Biegeradius: 25 mm

### Nomenklatur und Elektrische Daten

07 - 5 8 0 3 - 2 20 A  
 I II III IV V VI VII VIII

Platzhalter	Erklärung	Wert	Bedeutung
I, II, III, IV	Allgemein	07-580	Parallele Heizleitung für den Einsatz in explosionsgefährdeten Bereichen
V	Leistungsbezeichnung	3	HSB , selbstbegrenzend
VI	Bemessungsspannung	1 2	110 Vac bis 120 Vac 208 Vac bis 254 Vac
VII	Bemessungsleistung bei 10 °C	10 15 20 25 30 45 60	10 W/m 15 W/m 20 W/m 25 W/m 30 W/m 45 W/m 60 W/m
VIII	Außenmantel	A	Fluorpolymer Außenmantel



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**Temperaturklasse und angegebene maximale Oberflächentemperatur „T“**

**Produktklassifizierungsannäherung**

Die maximale Oberflächentemperatur „T“ basiert auf einer Applikation der Heizleitung auf einem Werkstück, dessen Temperatur die höchste Oberflächentemperatur „T“ nicht überschreitet.

Bemessungs- spannung	Bemessungs- leistung	Temperaturklasse	Maximale Oberflächentemperatur „T“
254 Vac	10, 15, 20, 25, 30, 45 W/m	T3	+195 °C
	60 W/m	T2	+200 °C
120 Vac	10, 15, 20, 25, 30 W/m	T3	+195 °C
	45, 60 W/m	T2	+200 °C

**Systemannäherung, Entwurfsprüfungsverfahren**

Die maximale Oberflächentemperatur „T“ basiert auf einer Applikation der Heizleitung auf einem Werkstück, dessen Temperatur die maximale Aussetzungstemperatur nicht überschreitet.

Bemessungs- spannung	Bemessungs- leistung	Maximale Aussetzungs- temperatur	Temperaturklasse	Maximale Oberflächen- temperatur „T“
254 Vac	10 W/m	105 °C	T4	130 °C
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	45 W/m	120 °C	T3	195 °C
	60 W/m	120 °C	T3	195 °C

**Bedingungen für Systemannäherung, Entwurfsprüfungsverfahren**

Systeme mit isolierten von außen beheizten Oberflächen können oben genannte Temperaturklassen bekommen. Dabei ist sicherzustellen, dass die Heizleitung keinen höheren Temperaturen ausgesetzt wird, als welche unter „Maximale Aussetzungstemperatur“ gelistet sind.

Die Temperaturklassen die durch Systemannäherung, Entwurfsprüfungsverfahren ermittelt sind, basieren auf dem Energieausgleich zwischen Wärmeverlust und Ausgangsleistung der Begleitheizung bei einer bestimmten Temperatur. Die maximale Aussetzungstemperatur des Systems inklusive der daraus folgenden Temperaturklasse und der verwendete Heizleitungstyp müssen als Datensatz in der Systemdokumentation für jedes System in stabilisierter Ausführung erstellt werden. Die, in der Systemdokumentation, genannten Parameter müssen während der Systemabnahme kontrolliert werden.

Der Systembetreiber muss die Systemdokumentation solange das System in Betrieb ist aufbewahren und jederzeit zur Verfügung haben.

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