



# 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 09.0083X Issue No: 2 Certificate history:  
Issue No. 2 (2014-02-21)  
Status: Current Page 1 of 4 Issue No. 1 (2012-10-26)  
Issue No. 0 (2011-03-29)  
Date of Issue: 2014-02-21  
Applicant: BARTEC GmbH  
Max-Eyth-Straße 16  
97980 Bad Mergentheim  
Germany  
Electrical Apparatus: HSB Heating System type 27-1780-\*\*\*0/\*\*\*\* and MSB Heating System type  
27-1980-1\*\*0/\*\*\*\*  
Optional accessory:  
Type of Protection: Ex e, Ex tb  
Marking: Ex e IIC 200 °C (T2), T3, T4 Db  
Ex tb IIIC T 200 °C, T 195 °C, T 130 °C Db

Approved for issue on behalf of the IECEX  
Certification Body:

T. Pijpker

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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Page 2 of 4

Manufacturer: **BARTEC GmbH**  
Max-Eyth-Straße 16  
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:

**IEC 60079-0 : 2007-10** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:5

**IEC 60079-30-1 : 2007-01** Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements  
Edition:1

**IEC 60079-31 : 2008** Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'  
Edition:1

**IEC 60079-7 : 2006-07** Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:4

*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/DEK/ExTR12.0005/00

NL/KEM/ExTR07.0054/00

NL/KEM/ExTR09.0085/00

NL/KEM/ExTR09.0085/01

NL/KEM/ExTR09.0085/02

### Quality Assessment Report:

DE/TUN/QAR06.0017/05



# IECEx Certificate of Conformity

Certificate No: IECEx KEM 09.0083X

Issue No: 2

Date of Issue: 2014-02-21

Page 3 of 4

## Schedule

### EQUIPMENT:

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

#### Description

The HSB Heating System type 27-1780-\*\*\*0/\*\*\*\* and the MSB Heating System type 27-1980-1\*\*0/\*\*\*\* are trace heating systems used to raise or maintain the temperature of a workpiece where they are externally applied.

The trace heating systems consist of Self Limiting Heating Cable either series HSB or series MSB (trace heater), non-metallic or metallic junction boxes, terminals, glands, blind plugs and heating cable connection and termination kits in heat shrink, cold applied and PLEXO TCS technology.

For thermal data, product ratings, electrical data, temperature class and description of system elements see Annex 1 to Annex 1 to Certificate of Conformity IECEx KEM 09.0083 X, issue no. 2.

### CONDITIONS OF CERTIFICATION: YES as shown below:

Supply cables shall be selected per manufacturer's installation instructions for appropriate conductor size and temperature range.



# IECEx Certificate of Conformity

Certificate No: IECEx KEM 09.0083X

Issue No: 2

Date of Issue: 2014-02-21

Page 4 of 4

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

1.  
upgrade IEC 60079-0 : 2004, ed.4 to IEC 60079-0 : 2007, ed. 5 for EPL Gb
2.  
upgrade IEC 61241-0 : 2004, ed.1 and IEC 61241-1:2004, ed.1 to IEC 60079-0 : 2007, ed. 5 and IEC 60079-31 : 2008, ed.1 for EPL Db
3.  
replacement of PLEKO HTS by PLEKO TCS for HSB and MSB heating systems
4.  
adoption of new type references for PLEKO TCS Termination and Connection Systems and the heating systems comprising PLEKO TCS
5.  
increase of "Maximum withstand temperature, power "off" rating for HSB system 27-1780-\*\*10/\*\*\*\* from +190 °C to +200 °C

## Annex:

[216188800\\_Annex to\\_08ATEX0110 X-Iss5\\_KEM09.0083X-Iss2.pdf](#)

**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**  
**Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5**  
**Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5**

**Description**

The HSB Heating System type 27-1780-\*\*\*0/\*\*\*\* and the MSB Heating System type 27-1980-1\*\*0/\*\*\*\* are trace heating systems used to raise or maintain the temperature of a workpiece where they are externally applied.

The trace heating systems consist of Self Limiting Heating Cable either series HSB or series MSB (trace heater), non-metallic or metallic junction boxes, terminals, glands, blind plugs and heating cable connection and termination kits in heat shrink, cold applied and PLE XO TCS technology.

Type of Heating System	HSB 27-1780-**00/****	HSB 27-1780-**10/****
Heating cable connection and termination technology:	heat shrink	cold applied
Ambient temperature range, per EN 60079-30-1:	-40 °C ... +55 °C	-55 °C ... +55 °C
Degree of protection:	IP 65	IP 65
Maximum cross section power supply conductors:	16 mm <sup>2</sup>	16 mm <sup>2</sup>
For trace heater: Heating Cable Series:	HSB	HSB
Maximum operating temperature, power "on":	+120 °C	+120 °C
Maximum withstand temperature, power "off":	+185 °C	+200 °C
Minimum bending radius:	25 mm	25 mm

Type of Heating System	HSB 27-1780-**50/****	HSB 27-1780-**60/****	HSB 27-1780-**70/****
Heating cable connection and termination technology:	PLEXO TCS	PLEXO TCS with cold applied	PLEXO TCS with heat shrink
Ambient temperature range, per EN 60079-30-1:	-60 °C ... +55 °C	-55 °C ... +55 °C	-40 °C ... +55 °C
Degree of protection:	IP 65	IP 65	IP 65
Maximum cross section power supply conductors:	4 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
For trace heater: Heating Cable Series:	HSB	HSB	HSB
Maximum operating temperature, power "on":	+120 °C	+120 °C	+120 °C
Maximum withstand temperature, power "off":	+180 °C	+180 °C	+180 °C
Minimum bending radius:	25 mm	25 mm	25 mm

**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**  
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**Description (continued)**

Type of Heating System	MSB 27-1980-1*10/****	MSB 27-1980-1*50/****	MSB 27-1980-1*60/****
Heating cable connection and termination technology:	cold applied	PLEXO TCS	PLEXO TCS with cold applied
Ambient temperature range, per EN 60079-30-1:	-40 °C ... +55 °C	-40 °C ... +55 °C	-40 °C ... +55 °C
Degree of protection:	IP 65	IP 65	IP 65
Maximum cross section power supply conductors:	16 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
For trace heater:			
Heating Cable Series:	MSB	MSB	MSB
Maximum operating temperature, power "on":	+110 °C	+110 °C	+110 °C
Maximum withstand temperature, power "off":	+130 °C	+130 °C	+130 °C
Minimum bending radius:	25 mm	25 mm	25 mm

The heating systems may consist the following heating cable connection and termination kits:

05-0091-0096:	heat shrink heating cable connection and termination kit, 1 set
05-0091-0129:	cold applied heating cable connection and termination kit, 1 set
05-0091-012901:	cold applied heating cable connection kit, 1 set
05-0091-012902:	cold applied heating cable termination kit, 1 set
05-0091-0135:	cold applied heating cable connection and termination kit, 10 sets
05-0091-013501:	cold applied heating cable connection kit, 10 sets
05-0091-013502:	cold applied heating cable termination kit, 10 sets
05-0091-013503:	cold applied heating cable connection kit, 50 sets
05-0091-013504:	cold applied heating cable termination kit, 50 sets
27-1100-1250/****:	PLEXO TCS system for MSB heating cable
27-1100-*350/****:	PLEXO TCS system for HSB heating cable

**Electrical data**

Type of Heating System	HSB 27-1780-0**0/****	HSB 27-1780-1**0/****	MSB 27-1980-1**0/****
Rated voltage:	110 to 120 Vac	208 to 254 Vac	208 to 254 Vac
Rated power output at 10 °C:	10 W/m	10 W/m	10 W/m
	15 W/m	15 W/m	15 W/m
	25 W/m	25 W/m	25 W/m
	30 W/m	30 W/m	30 W/m
	45 W/m	45 W/m	40 W/m
	60 W/m	60 W/m	
Maximum rating of over current protection:	32 A	32 A	32 A

The rated current is limited by the maximum circuit length and the applied supply cables, specified for each individual heating cable in the design documentation and installation instructions. The applicable maximum circuit length shall not be exceeded for installation.

**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**  
**Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5**  
**Anhang 1 zu EG Baumunsterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5**

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

The maximum surface temperature "T" is based upon exposure to the temperatures listed under "Description" and the "Electrical Data" above.

**HSB Heating System type 27-1780-\*\*\*0/\*\*\*\*:**

For use with		Product classification approach		Systems approach, design verification method		
Rated voltage	Rated power output	T-class	Max. surface temperature "T"	Max. operating temperature	T-class	Max. surface temperature "T"
208 Vac to 254 Vac	10 W/m	T3	195 °C	105 °C	T4	130 °C
	15 W/m	T3	195 °C	70 °C	T4	130 °C
	25 W/m	T3	195 °C	55 °C	T4	130 °C
	30 W/m	T3	195 °C	25 °C	T4	130 °C
	45 W/m	T3	195 °C	120 °C	T3	195 °C
	60 W/m	-	-	120 °C	T3	195 °C
110 Vac to 120 Vac	10 W/m	T3	195 °C	-	-	-
	15 W/m	T3	195 °C	-	-	-
	25 W/m	T3	195 °C	-	-	-
	30 W/m	T3	195 °C	-	-	-
	45 W/m	T2	200 °C	-	-	-
	60 W/m	T2	200 °C	-	-	-

**MSB Heating System type 27-1980-1\*\*0/\*\*\*\*:**

For use with		Systems approach, design verification method		
Rated voltage	Power output rating	Maximum operating temperature	T-class	Maximum surface temperature "T"
254 Vac	All	110 °C	150 °C (T3)	150 °C
	10 W/m	100 °C	T4	130 °C
	15 W/m	90 °C	T4	130 °C
	25 W/m	80 °C	T4	130 °C
	30 W/m	70 °C	T4	130 °C
	40 W/m	60 °C	T4	130 °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 operating 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 operating 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.

**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**

**Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5**

**Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5**

**Beschreibung**

Das HSB Heizsystem Typ 27-1780-\*\*\*0/\*\*\*\* und das MSB Heizsystem Typ 27-1980-1\*\*0/\*\*\*\* sind Begleitheizungssysteme, die an einem Werkstück außen angebracht, zur Temperaturerhöhung oder Temperaturerhaltung von diesem Werkstück dienen.

Die Heizsysteme bestehen entweder aus Selbstbegrenzender Heizleitung HSB oder MSB, Anschlussgehäusen aus Kunststoff oder Metall, Reihenklemmen, Kabeleinführungen, Blindstopfen und An- und Abschlusssets in Warmschrumpftechnik, Kaltklebetechnik und dem PLEXO TCS Anschlusssystem.

Typ Heizsystem	HSB 27-1780-**00/****	HSB 27-1780-**10/****
Heizleitung An- und Abschlusstechnik:	Warmschrumpf-technik	Kaltklebetechnik
Umgebungstemperaturbereich, nach EN 60079-30-1:	-40 °C ... +55 °C	-55 °C ... +55 °C
Schutzart:	IP 65	IP 65
Maximaler Leiterquerschnitt der Anschlussleitungen:	16 mm <sup>2</sup>	16 mm <sup>2</sup>
Für Heizleitung: Heizleitungsserie:	HSB	HSB
Maximale Arbeitstemperatur, Versorgung eingeschaltet:	+120 °C	+120 °C
Maximale Einsatztemperatur, Versorgung ausgeschaltet:	+185 °C	+200 °C
Minimaler Biegeradius:	25 mm	25 mm

Typ Heizsystem	HSB 27-1780-**50/****	HSB 27-1780-**60/****	HSB 27-1780-**70/****
Heizleitung An- und Abschlusstechnik:	PLEXO TCS	PLEXO TCS mit Kaltklebetechnik	PLEXO TCS mit Warmschrumpf-technik
Umgebungstemperaturbereich, nach EN 60079-30-1:	-60 °C ... +55 °C	-55 °C ... +55 °C	-40 °C ... +55 °C
Schutzart:	IP 65	IP 65	IP 65
Maximaler Leiterquerschnitt der Anschlussleitungen:	4 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
Für Heizleitung: Heizleitungsserie:	HSB	HSB	HSB
Maximale Arbeitstemperatur, Versorgung eingeschaltet:	+120 °C	+120 °C	+120 °C
Maximale Einsatztemperatur, Versorgung ausgeschaltet:	+180 °C	+180 °C	+180 °C
Minimaler Biegeradius:	25 mm	25 mm	25 mm



**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**  
**Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5**  
**Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5**

**Beschreibung (fortgesetzt)**

Typ Heizsystem	MSB 27-1980-1*10/****	MSB 27-1980-1*50/****	MSB 27-1980-1*60/****
Heizleitung An- und Abschluss technik:	Kaltklebetechnik	PLEXO TCS	PLEXO TCS mit Kaltklebetechnik
Umgebungstemperaturbereich, nach EN 60079-30-1:	-40 °C ... +55 °C	-40 °C ... +55 °C	-40 °C ... +55 °C
Schutzart:	IP 65	IP 65	IP 65
Maximaler Leiterquerschnitt der Anschlussleitungen:	16 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>
Für Heizleitung: Heizleitungsserie:	MSB	MSB	MSB
Maximale Arbeitstemperatur, Versorgung eingeschaltet:	+110 °C	+110 °C	+110 °C
Maximale Einsatztemperatur, Versorgung ausgeschaltet:	+130 °C	+130 °C	+130 °C
Minimaler Biegeradius:	25 mm	25 mm	25 mm

Die Heizsysteme können mit folgenden An- und Abschlusssets ausgestattet sein:

05-0091-0096:	Warm Schrump An- und Abschlussset für Heizleitungen, 1 Set
05-0091-0129:	Kaltklebe An- und Abschlussset für Heizleitungen, 1 Set
05-0091-012901:	Kaltklebe Anschlussset für Heizleitungen, 1 Set
05-0091-012902:	Kaltklebe Abschlussset für Heizleitungen, 1 Set
05-0091-0135:	Kaltklebe An- und Abschlusssets für Heizleitungen, 10 Sets
05-0091-013501:	Kaltklebe Anschlusssets für Heizleitungen, 10 Sets
05-0091-013502:	Kaltklebe Abschlusssets für Heizleitungen, 10 Sets
05-0091-013503:	Kaltklebe Anschlusssets für Heizleitungen, 50 Sets
05-0091-013504:	Kaltklebe Abschlusssets für Heizleitungen, 50 Sets
27-1100-1250/****:	PLEXO TCS System für MSB Heizleitung
27-1100-*350/****:	PLEXO TCS System für HSB Heizleitung

**Elektrische Daten**

Typ Heizsystem	HSB 27-1780-0**0/****	HSB 27-1780-1**0/****	MSB 27-1980-1**0/****
Bemessungsspannung:	110 bis 120 Vac	208 bis 254 Vac	208 bis 254 Vac
Bemessungsleistung bei 10 °C:	10 W/m 15 W/m 25 W/m 30 W/m 45 W/m 60 W/m	10 W/m 15 W/m 25 W/m 30 W/m 45 W/m 60 W/m	10 W/m 15 W/m 25 W/m 30 W/m 40 W/m
Maximaler Bemessungswert der Stromabsicherung:	32 A	32 A	32 A

Der Bemessungsstrom ist durch die maximale Heizkreislänge und den verwendeten Anschlussleitungen beschränkt, die für jede Heizleitung in der Systemdokumentation und den Errichtungshinweisen spezifiziert ist. Der jeweilige Wert der maximalen Heizkreislänge darf nicht überschritten werden.

Annex 1 to Certificate of Conformity IECEX KEM 09.0083X, issue no. 2

Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5

Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5

### Temperaturklasse und maximale Oberflächentemperatur „T“

Die maximale Oberflächentemperatur „T“ basiert auf der Anwendung bei Temperaturen, die unter „Beschreibung“ genannt sind, mit den oben genannten „Elektrischen Daten“.

#### HSB Heizsystem Typ 27-1780-\*\*\*0/\*\*\*\*:

Anwendung mit		Produktklassifizierungs- annäherung		Systemannäherung, Entwurfsprüfungsverfahren		
Bemessungs- spannung	Bemessungs- leistung	T- Klasse	Maximale Oberflächen- temperatur „T“	Maximale Arbeits- temperatur	T- Klasse	Maximale Oberflächen- temperatur „T“
208 Vac bis 254 Vac	10 W/m	T3	195 °C	105 °C	T4	130 °C
	15 W/m	T3	195 °C	70 °C	T4	130 °C
	25 W/m	T3	195 °C	55 °C	T4	130 °C
	30 W/m	T3	195 °C	25 °C	T4	130 °C
	45 W/m	T3	195 °C	120 °C	T3	195 °C
	60 W/m	-	-	120 °C	T3	195 °C
110 Vac bis 120 Vac	10 W/m	T3	195 °C	-	-	-
	15 W/m	T3	195 °C	-	-	-
	25 W/m	T3	195 °C	-	-	-
	30 W/m	T3	195 °C	-	-	-
	45 W/m	T2	200 °C	-	-	-
	60 W/m	T2	200 °C	-	-	-

#### MSB Heizsystem Typ 27-1980-1\*\*0/\*\*\*\*:

Anwendung mit		Systemannäherung, Entwurfsprüfungsverfahren		
Bemessungs- spannung	Bemessungs- leistung	Maximale Arbeits- temperatur	T-Klasse	Maximale Oberflächen- temperatur „T“
254 Vac	Alle	110 °C	150 °C (T3)	150 °C
	10 W/m	100 °C	T4	130 °C
	15 W/m	90 °C	T4	130 °C
	25 W/m	80 °C	T4	130 °C
	30 W/m	70 °C	T4	130 °C
	40 W/m	60 °C	T4	130 °C

**Annex 1 to Certificate of Conformity IECEx KEM 09.0083X, issue no. 2**  
**Annex 1 to EC Type Examination KEMA 08ATEX0110 X, issue no. 5**  
**Anhang 1 zu EG Baumusterprüfbescheinigung KEMA 08ATEX0110 X, Ausgabe Nr. 5**

**Temperaturklasse und maximale Oberflächentemperatur „T“ (fortgesetzt)**

**Bedingungen für Systemannäherung, Entwurfsprüfungsverfahren**

Systeme mit isolierten von außen beheizten Oberflächen können die auf der vorigen Seite genannten niedrigeren Temperaturklassen bekommen. Dabei ist sicher zu stellen, dass die auf der vorigen Seite jeweilig genannte maximale Arbeitstemperatur nicht überschritten wird.

Die Temperaturklasse die durch Systemannäherung, Entwurfsprüfungsverfahren ermittelt ist, basiert auf dem Ausgleich des Wärmeverlustes und der erzeugten Energie des Systems bei einer bestimmten Temperatur. Die maximale Arbeitstemperatur des Systems, einschließlich der resultierenden Temperaturklasse, und der Typ der Heizleitung müssen als Datensatz in der Systemdokumentation für jedes System, in stabilisierter Bauart mitgeliefert werden. Die Parameter in der Systemdokumentation müssen während der Systemabnahme kontrolliert werden.

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