



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 14.0075X**

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Certificate history:

Status: **Current**

Issue No: 2

Issue 1 (2016-04-28)

Issue 0 (2014-08-14)

Date of Issue: 2021-06-15

Applicant: **Herforder Elektromotoren-Werke GmbH & Co. KG**
Goebenstraße 106
32051 Herford
Germany

Equipment: **Flameproof electric motors type D*Ex*** ***/**** ****

Optional accessory:

Type of Protection: **Flameproof Enclosures "d", Protection by Enclosure "t", Increased Safety "e"**

Marking: Ex db IIC T* Gb or Ex db eb IIC T* Gb or
Ex db IIB T* Gb or Ex db eb IIB T* Gb or
Ex tb III C T* °C Db
) See General product information clause "Parameters"

Approved for issue on behalf of the IECEx
Certification Body:

Jörg Koch

Position:

Head of Certification Body

Signature:
(for printed version)

Date:

15.06.2021

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 www.iecex.com or use of this QR Code.



Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Manufacturer: **Herforder Elektromotoren-Werke GmbH & Co. KG**
Goebenstraße 106
32051 Herford
Germany

Additional
manufacturing
locations:

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with 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:

[DE/BVS/ExTR14.0077/02](#)

Quality Assessment Report:

[DE/BVS/QAR14.0009/05](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

General product information:

Subject and Type

Flameproof electric motors type D*Ex*** ** / * ** *

Type designation to D *¹⁾Ex *²⁾*²⁾*³⁾*³⁾ / * *⁴⁾*⁴⁾*⁴⁾ *⁵⁾*⁵⁾

¹⁾: Explosion Group

- B: Flameproof enclosure for Group IIB
- C: Flameproof enclosure for Group IIC
- D: Flameproof enclosure for Group IIC or applicable in presence of combustible dust

²⁾: Frame size

71	71 mm
80	80 mm
90	90 mm
100	100 mm
112	112 mm
132	132 mm
160	160 mm
180	180 mm
200	200 mm
225	225 mm

³⁾: Identifier for Motor-variation

⁴⁾: Quantity of poles

⁵⁾: Identifier for temperature control

SPECIFIC CONDITIONS OF USE: YES as shown below:

The lengths of the flameproof joints are in parts longer and the gaps of the flameproof joints are in parts smaller than the values of table 2 of IEC 60079-1:2007. For information of the dimensions of the flameproof joints contact the manufacturer.

Fasteners with a minimum yield stress of 640 N/mm² must be used for the closing of the flameproof enclosure.

Motors which have to be equipped with a direct temperature control must be monitored by a separate certified trigger unit.

If the electrical machine will be cooled by forced ventilation, it has to be assured that the electrical machine can only run if the ventilation is running.



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Equipment (continued):

Description

The enclosure of the flameproof electric motor is made of cast iron and has a mounting place for terminal boxes.

The shaft will be fixed with ball bearings.

The shaft sealing of the flameproof electric motor is realised by non-metallic sealing rings, for use in areas requiring EPL Db.

A terminal compartment in type of protection Flameproof Enclosure "d", Increased Safety "e" or Protection by Enclosure "tb" or a direct cable entry is used for electrical connection of the motor. For electric power input into the motor compartment, separately certified cable glands or line bushings are used.

The cooling of the motor is realised by an external fan that is made of steel, aluminium or plastic. The fan can be driven by the electrical machine itself or by a separately certified forced ventilation motor.

Optionally a space heater can be mounted inside the stator housing.

For direct temperature monitoring the winding of the motor is equipped with temperature sensors (thermistors according DIN 44081 or DIN 44082). The sensors are connected in series. Optionally the temperature monitoring of the winding can be realised by thermal switches / bimetal switches.

Optionally the temperature at the bearings could be monitored separately certified resistance thermometers (Pt100).

The sensors respectively the thermometers shall be connected to a trigger unit which is certified for this purpose.

The maximum permissible ambient temperatures are -50 °C to 85 °C. This temperature range may be limited as a result of the selected terminal boxes and components, or the electrical design.

Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Connecting Terminal Type 07-9702-0*2*/****	² IECEx PTB 07.0007U, issue 2	IEC 60079-0:2011, Ed. 6.0 IEC 60079-7:2015, Ed. 5.0

¹ No applicable technical differences

² Technical differences evaluated and found satisfactory



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Updating to the current version of standards, therefore the marking of the devices will be modified
- Further motor variants added
- Larger terminal box for motor sizes 180 – 225 removed



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Additional information: Parameters

Electrical parameters

Circuits of the flameproof electric motors				
Rated voltage				
Frame size	71 - 225	up to	690	V AC
Rated rotational speed	500	up to	3600	min ⁻¹
Rated rotational speed (with converter)	48	up to	6000	min ⁻¹
Frequency (mains)			50 / 60	Hz
Frequency (converter)				
Frame size	71 - 160	5	up to	100 Hz
Frame size	180 - 225	5	up to	87 Hz
Duty type	S1	up to	S9	

Rated power					
Frame size		50 Hz		60 Hz	
71	up to	0.55	kW	0.66	kW
80	up to	1.1	kW	1.3	kW
90	up to	2.2	kW	2.6	kW
100	up to	3	kW	3.6	kW
112	up to	4	kW	4.8	kW
132	up to	7.5	kW	9	kW
160	up to	18.5	kW	21	kW
180	up to	22	kW	26	kW
200	up to	37	kW	42	kW
225	up to	45.5	kW	52	kW

Monitoring circuits	
Temperature sensors (ptc thermistors)	According to the specifications given in the certificate of the trigger unit and the electrical design.
Circuits of the resistance thermometer (Pt100)	According to the specifications given in the test report of the respective electrical design.
Bimetal switch	According to the specifications given in the test report of the respective electrical design.



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Thermal ratings

Type of protection	Explosion Group	Lower limit	Upper limit
Ex db			
Standard stator housing	IIC	-20 °C	60 °C
	IIB	-20 °C	60 °C
Extended stator housing FS71 – FS132	IIC	-20 °C	60 °C
	IIB	-20 °C	60 °C
Extended stator housing FS160 – FS225	IIC	-50 °C	60 °C
	IIB	-50 °C	60 °C
Ex db eb	IIB / IIC	-20 °C	60 °C
Ex tb	IIIC	-30 °C	85 °C

The stated ambient temperature ranges may be limited as a result of the selected terminal box, components, sealing materials or by the electrical ratings.

The permissible ambient temperature range is marked on the name plate.

Ambient temperature range, temperature class and surface temperature

The electrical data, the temperature class, the surface temperature and the ambient temperature range of the respective version is determined by a routine test carried out by the manufacturer.