



(1) **EC-TYPE-EXAMINATION CERTIFICATE**
(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**



(3) EC-type-examination Certificate Number:

PTB 99 ATEX 3405

(4) Equipment: three-phase motor of the type series eD.. 100 ...

(5) Manufacturer: SEW-EURODRIVE GmbH & Co

(6) Address: Ernst-Blickle-Straße 42, 76646 Bruchsal, Germany

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 99-30134.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997

EN 50018:1994

EN 50019:1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

II 2 G EEx e II T1, T2, T3 or T4 resp. EEx ed IIB T1, T2, T3 or T4

Zertifizierungsstelle Explosionsschutz

Braunschweig, March 15, 2000

By order:

Dr.-Ing. U. Engel
Regierungsdirektor



sheet 1/2

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3405**

(15) Description of equipment

Three-phase motors of the type series eD.. 100... of the type of protection Increased Safety "e", whose mechanical construction has been specified in the test report according to clause 16 below and whose electrical design has been specified in an associated data sheet, each according to the manufacturer's application.

Motors of this type are optionally equipped with certificated spring-operated brakes of the type of protection Flameproof Enclosure "d" according to the directive 94/9/EC.

In this case, the letters " /BC.." are added to the type designation.

(16) Report PTB Ex 99-30134

(17) Special conditions for safe use

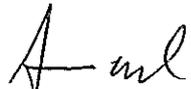
not applicable

(18) Essential health and safety requirements

met by standards

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, March 15, 2000


Dr.-Ing. U. Engel
Regierungsdirektor



sheet 2/2

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3405

(Translation)

Equipment: Three-phase induction motor of type series eD... 100...

Marking:  II 2 G EEx e II T1, T2, T3 or T4 resp. EEx ed IIB T1, T2, T3 or T4

supplemented by:  II 2 D IP65 T120°C

Manufacturer: SEW-EURODRIVE GmbH & Co. KG

Address: Ernst-Blickle-Straße 42, 76646 Bruchsal, Germany

Description of supplements and modifications

When using electrostatically conductive fans the electrical equipment certified under this EC-type examination certificate is suitable for conventional application in areas with combustible dust according to EN 61241-10:2004 .

Unless otherwise stated in the data sheets to this EC-type examination certificate, these apply to the use of the equipment in hazardous areas due to both, flammable gas and combustible dust.

The compliance with the degree of protection IP65 according to EN 60034-5 bzw. EN 60259 is verified. If the manufacturer can verify the compliance with the requirements to a higher degree of protection to the user, the IP-code may be adapted on the type label correspondingly.

Applied standards

EN 50014:1997 +A1 +A2 EN 50018:2000 EN 50019:2000 EN50281-1-1:1998

Test report: PTB Ex 05-35289

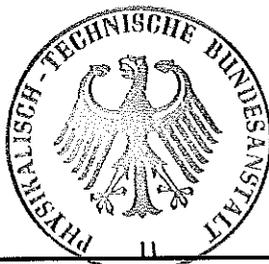
Zertifizierungsstelle Explosionsschutz

Braunschweig, January 27, 2006

By order:



Dr.-Ing. F. Lienesch
Oberregierungsrat



Sheet 1/1

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3405

(Translation)

Equipment: Three-phase motors, type series eD.. 100...

Marking:  II 2 G Ex e II... or
 II 2 G Ex ed IIC... or
 II 2 D Ex tD A21 IP65 T...°C

Manufacturer: SEW-EURODRIVE GmbH & Co KG

Address: Ernst-Blickle-Straße 42,
76646 Bruchsal, Germany

Description of supplements and modifications

Motors of type series eD.. 100... comply with the requirements specified in the EN 60079 and EN 61241 series of standards as well as with the marking requirements.

Motors with enclosures made from aluminium or grey cast iron have a squirrel-cage rotor made from die-cast aluminium. The shafts rotate in rolling bearings. They are provided with a separately tested sealing ring which is to safeguard compliance with IP degree of protection. For machines of category II 2 G, the degree of protection of the enclosure is IP54; and for machines of category II 2 D it is IP65.

The required cooling effect is achieved by heat exchange, using the surface of the stator housing, which is provided with cooling ribs, and by using an external fan made from aluminium or plastic.

The motors may, in addition, be equipped with a brake designed to Flameproof Enclosure "d" type of protection, which is separately certified in compliance with Directive 94/9/EC. The motors may alternatively be provided with backstop and, if required, with PTC thermistor detectors embedded in the motor winding.

Electric connection is by means of terminal compartments, which have the same type of protection as the motor, and whose IP degree of protection is at least the same as that of the motor housing. Their enclosures are made from grey cast iron, and they are equipped with separately certified cable entries, sealing plugs, terminal boards, and separately tested seals.

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3405

The electrical data, including temperature class; for category-II 2 D machines: the maximum surface temperature, are defined for the different electrical designs in a data sheet attached to the EC Type-Examination Certificate.

For all data sheets of this EC Type Examination Certificate which show a voltage rating range, the maximum rated voltage must, according to EN 60079-7: 2003, table 1, be $690 \text{ V} \pm 10 \%$ (area B). This comprises a rated voltage of $725 \text{ V} \pm 5 \%$ (area A).

Notes for manufacturing and operation

Due care must be taken to make sure that the admissible temperatures of the components used will not be exceeded.

The maximum working temperature of materials, components and seals must be considered in particular in the electro-thermal tests at ambient temperatures greater than $+40 \text{ }^\circ\text{C}$.

Terminal compartments must be mounted in the way defined in the attached technical documents, the required degree of protection IP54 must be safeguarded as a minimum for machines of category II 2 G, and IP65 as a minimum for machines of category II 2 D, and the requirements set forth in EN 60079 and EN 61241 must be complied with.

Applied standards

EN 60079-0:2004

EN 60079-1:2004

EN 60079-7:2003

prEN 61241-0:2002

EN 61241-1:2004

Test report: PTB Ex 07-36183

Zertifizierungsstelle Explosionsschutz

Braunschweig, January 24, 2007

By order:

Dr.-Ing. F. Lienesch
Oberregierungsrat



Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

DATA SHEET 02 TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3405

Manufacturer: SEW-EURODRIVE GmbH & Co, D-76646 Bruchsal

for the three-phase asynchronmotor type series eD.T 100LS 4/BC2/HR/TF

Ratings

This certificate is valid for the following designs providing the motors of this type differ only negligibly from the sample tested as regards the electrical and thermal stresses:

Power on the output shaft:			2,0			kW
Voltage:	110	230	440	460	690	V
Current:	15,8	7,6	3,95	3,80	2,50	A
Power factor:			0,83			
Frequency:			60			Hz
Speed: (motor)			1700			min ⁻¹
Duty type:			S1			
I _A /I _N ratio:			6,4			
Thermal class:			B or F			

In addition to the above-mentioned voltages, intermediate values are also permissible. The associated currents are to be converted in the inverse ratio to the voltages. The mains voltage may vary by up to $\pm 5\%$ and the mains frequency by up to $\pm 2\%$ from the rated values, in keeping with range A according to IEC 34-1.

The spring-loaded brake which is fitted is defined in the EC type examination certificate PTB 99 ATEX 1132 U and appertaining addendums.

Motors of this type are also suitable for intermittent operation (S4) with the following data:

	S4 50%	
No-load starting frequency z_0 :	1450	h ⁻¹
Motor mass moment of inertia J_M :	$52 * 10^{-4}$	kg m ²

The permissible number of starts per hour is derived from the no-load starting frequency by calculating the relation of the motor mass moment of inertia to the entire drive (in reference to the motor shaft).

Temperature monitoring

The directives for the motors up to **Temperature Class T3** according to EN 50 019 Section 4.7.4 are met if temperature sensors are installed together with a PTB-approved trip switch certified to 3.53 PTC/A (PTC thermistor DIN 44 082-M 120 motor and 44 081-S 70 brake) even with the brakes fully applied. The tripping time at rated voltage and with a cold motor (20%) is $t_A = 16$ s.

Due to the adapted protection device, the details on the heating time t_E are no longer required.

Report PTB Ex 99-30085

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, 15.3.2000

Dr.-Ing. U. Engel
Regierungsdirektor