Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(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 08 ATEX 3028 X

(4) Equipment: Three-phase motor of the type series K1.R 225 ... ExeII...

(5) Manufacturer: VEM Motors GmbH

(6) Address: Carl-Friedrich-Gauß-Str. 1, 38855 Wernigerode, 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 08-38029.

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

EN 60079-0: 2006 **EN 60079-7: 2007**

(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, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II 2 G Ex e II T1 - T4

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. F. Lienesch
Regierungsdirektor

Braunschweig, July 10, 2008

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 08 ATEX 3028 X

(15) Description of equipment

The three-phase motors of types K1.R 225 ... ExeII... are designed to Increased Safety “e” type of protection. The motor housings are made from grey cast iron, and they provide for attachment of terminal boxes and the squirrel-cage rotor is made from aluminium.

In the double squirrel-cage version, the outer and the inner cage are made from cast aluminium. The shaft rotates in rolling bearings. Another option with a shaft end at the non-drive end is possible.

Cooling is achieved by heat exchange, using an external fan made from aluminium, grey cast iron or plastics and by using the housing surface. It is also possible to use a separately driven fan, with a drive motor separately certified in compliance with Directive 94/9/EC.

The motors can, in addition, be equipped with resistance thermometers for Increased Safety "e" type of protection, with anti-condensation heaters, pulse generator and a brake, all of which must be separately certified in compliance with Directive 94/9/EC. PTC thermistor detectors are alternatively used as additional or as the only motor protection together with a certified tripping unit.

Electric connection is made with separately tested (with a separate Test Report) terminal boxes designed to Increased Safety "e" type of protection.

The admissible ambient temperature range is 40 °C down to -20 °C. This temperature range may be extended from 55 °C down to -40 °C by specific electric or thermal equipment design, in which suitable terminal boxes, materials, components are used, or by the data sheet for the electrical design.

The electric motor data, including the specifications for compliance with the temperature class, are defined in a data sheet attached to the EC-Type-Examination Certificate.

For motors designed for ambient temperatures down to -40 °C, materials and components will be used that have been tested and certified separately.

(16) Test report PTB Ex 08-38029

(17) Special conditions for safe use

has been specified in the associated data sheets

Notes for manufacturing and operation

Due care must be taken that the temperatures accepted for the components used will not be exceeded.

At an ambient temperature higher than +40 °C, due regard must in particular during the electro-thermal test be given to the maximum working temperatures of materials, components and sealing used.

If the types of protection of terminal box and electric machine are not identical, the terminal box must carry a note that makes reference to the type of protection used for the terminal box.

Components attached or installed (terminal compartments, bushings, cable entry fittings, connectors) have to be of a technical standard that complies with the specifications on the cover sheet. They must be suited for the operating conditions, and be covered by a separate examination certificate. The special conditions specified for the components must be complied with and may have to be included in the type test.

If the three-phase motor is cooled by a separately driven fan, adequate measures must be taken to ensure that the motor can only be operated with the separately driven fan switched on.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. F. Lienesch
Regierungsdirektor

Braunschweig, July 10, 2008

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 11