



- [1] **EC-TYPE EXAMINATION CERTIFICATE**  
according to Directive 94/9/EC, Annex III (Translation)
- [2] Equipment and Protective Systems intended for use  
in Potentially Explosive Atmospheres, Directive 94/9/EC
- [3] EC-Type Examination Certificate Number: **IBExU09ATEX1065**
- [4] Equipment: **Three-phase Asynchronous Motor with Squirrel-Cage Rotor**  
Type series (IE1-)K1.R 112... Ex 2D Q (KN) up to (IE1-)K1.R 315... Ex 2D Q  
(KN) and (IE1-)K12R 355... Ex 2D Q (KN)
- [5] Manufacturer: VEM motors GmbH
- [6] Address: Carl-Friedrich-Gauß-Str. 1  
38855 Wernigerode  
GERMANY
- [7] The design of the equipment mentioned under [4] and any acceptable variations thereto are  
specified in the schedule to this EC-Type Examination Certificate.
- [8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with article  
9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies  
that the equipment mentioned under [4] has been found to comply with the Essential Health and  
Safety Requirements (given in Annex II to the Directive) relating to the design and construction of  
equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The test results are recorded in the test report IB-09-3-153 of 22 April 2010.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance  
with EN 61241-0:2006 and EN 61241-1:2004 +Corr.
- [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 under [17] in the schedule to this certificate.
- [11] This EC-Type Examination Certificate relates only to the design and construction of the specified  
equipment. If applicable, further requirements of this Directive apply to the manufacture and sup-  
ply of this equipment.
- [12] The marking of the equipment mentioned under [4] shall include the following:

II 2D Ex tD A21 IP65 T 125 °C  
T<sub>a</sub> -30 °C up to +40 °C ... +55 °C

IBExU Institut für Sicherheitstechnik GmbH  
Fuchsmühlenweg 7 - 09599 Freiberg, GERMANY  
☎ +49 (0) 3731 3805-0 - 📠 +49 (0) 3731 23650

Authorised for certifications  
-Explosion protection-

By order

(Dr. Wagner)

Schedule



- Seal -  
(ID no. 0637)

Freiberg, 22 April 2010

Certificates without signature  
and seal are not valid.  
Certificates may only be  
duplicated completely and  
unchanged. In case of dispute,  
the German text shall prevail.

[13]

### Schedule

[14]

**to the EC-TYPE EXAMINATION CERTIFICATE IBExU09ATEX1065**

[15]

#### **Description of equipment**

The Motors of type series (IE1-)K1.R 112... Ex 2D Q (KN) up to (IE1-)K1.R 315... Ex 2D Q (KN) and (IE1-)K12R 355... Ex 2D Q (KN) are designed as closed surface-ventilated three-phase asynchronous motors with squirrel cage rotors. The enclosure made of grey cast iron is provided with cooling fins. The ventilator works as radial ventilator. The air is sucked axially through the protective grid of the ventilator cowl and conducted over cooling fins of the enclosure.

The connection of the motors is carried out with terminal boxes, which are selected according to the size of the motors.

#### Parameters

The motors are manufactured up to the following rated data:

Type:	K1.R 112...	K1.R 132...	K1.R 160...	K1.R 180...	
Power:	9	13	22	36	kW
Speed:	7000	6000	6000	5000	min <sup>-1</sup>
Type:	K1.R 200...	K1.R 225...	K1.R 250...	K1.R 280...	
Power:	54	66	105	158	kW
Speed:	5000	4500	4300	3600	min <sup>-1</sup>
Type:	K1.R 315...	K12R 355...			
Power:	350	500			kW
Speed:	3600	3600			min <sup>-1</sup>

Rated voltage:	220 V up to 725 V
Frequency (mains operation):	50/60 Hz
Operation mode:	S1
Degree of protection:	IP 65
Cooling method:	IC 411 (surface ventilation)
Cooling medium temperature:	-30 °C up to +40 °C ... +55 °C

The rated values are specified in the test documents respectively in Addition Sheets to this EC-Type Examination Certificate. At this, lower surface temperatures are also possible at appropriate power matching.

[16]

#### **Test report**

The test results are recorded in the test report IB-09-3-153 of 22 April 2010. The test documents are listed in the annex to the test report.

#### Summary of the test results

The Three-phase Asynchronous Motors with Squirrel-Cage Rotor of type series (IE1-)K1.R 112... Ex 2D Q (KN) up to (IE1-)K1.R 315... Ex 2D Q (KN) and (IE1-)K12R 355... Ex 2D Q (KN) (mentioned under [4]) fulfil the requirements of explosion protection for equipment of Group II, Category 2D, type of protection Protection by enclosures "tD".

#### Safety instructions

- The motors may not be operated in dust layers of excessive thickness. They are suitable for areas of Zone 21.
- At installation of the motors with free shaft end upwards, the falling in of dirt particles into the ventilation openings must be prevented by the mounting.

- The degree of protection - at least IP6X - is reached only at proper use of tested cable entries and sealing plugs.
- The electrical and thermal parameters of the individual types of the Three-phase Asynchronous Motors have to be verified separately. It has to be checked that the maximum surface temperature of 125 °C for use in presence of combustible dust is kept. Furthermore, the permissible operating temperatures of the used insulating materials and components must not be exceeded.
- During construction and maintenance the specifications of EN 61241-14 have to be kept. Especially the ignition temperature of the respective air/dust mixture or the smoulder temperature of the respective dust must be higher than the maximum surface temperature of the motors considering the safety factors specified in EN 61241-14.
- The motors may be operated only in the operating mode and under the ambient conditions, for which they have been tested at the type verification. This includes the operation at the frequency converter.
- Motors for feeding by converter with variable frequency and voltage must be tested for this operation as a unit with the converter fixed in the documents.

[17] **Special conditions for safe use**

None

[18] **Essential Health and Safety Requirements**

Confirmed by compliance with standards (see [9]).

By order

Freiberg, 22 April 2010



(Dr. Wagner)