1. # CERTIFICATE

2. ## VTT No. Ex-09.032X Issue 1

3. This Certificate is issued for the following electrical apparatus, intended for use in potentially explosive atmospheres:

4 Equipment: **Range of cage induction motors**

Certified types:
HXR 315...
HXR 355...
HXR 400...
HXR 450...
HXR 500...
HXR 560...

5. Applicant :
ABB Oy Motors and Generators
Strömbergintie 1
FI-00380 HELSINKI
FINLAND

6. Manufactured by
ABB Oy Motors and Generators
Hiomotie 13
FI-00380 HELSINKI
FINLAND

or

ABB Electrical Machines Ltd
No. 380, Tian Xing Road
Minhang District, Shanghai
People's Republic of China

7. These electrical apparatus and any acceptable variations thereto are specified in the Annex and possible supplement(s) to this Certificate and in the descriptive documents therein referred to.

8. VTT Expert Services Ltd, Certification Body NoS017, accredited by the Finnish Accreditation Service (FINAS),

- certifies that these electrical apparatus has been found to comply with the following IEC-standards:

  IEC 60079-0 (2011)
  IEC 60079-15 (2010)

  and have successfully met the type verification and test requirements of these standards.

- confirms that confidential Research Report VTT-S-00486-12 (FI/VTT/ExTR12.0001/00) has been completed on these verifications and tests.

9. The code for the electrical apparatus is:

Ex nA IIA/IIB/IIC T1-T4 Gc

10. By marking the supplied electrical apparatus, the manufacturer attests on his own responsibility that this electrical apparatus complies with the descriptive documents referred to in the Annex to this Certificate or in the Research Report.

11. If there appears sign X after the certification number, there are special conditions for safe use, which are specified in the Annex of this Certificate.

Espoo, 30.1.2012

VTT Expert Services Ltd

Martti Siirola
Senior Expert

Risto Sulonen
Product Manager

12. # Annex

13. **CERTIFICATE NO. VTT No. Ex-09.032X Issue 1**

14. Description of Equipment

Three phase squirrel cage induction motors of a closed type with external longitudinal cooling, cast iron frame and fitted out with Ex-certified main terminal boxes and Ex-certified auxiliary terminal boxes.

Technical data

The Certificate is valid for the range of induction motors having the technical values within the limits in the following table:

Shaft height	U / kV	Number of poles	f / Hz	P / kW
315	Up to 7,3	2 - 6	50/60	Up to 400
355	Up to 7,3	2 - 8	50/60	Up to 500
400	Up to 7,3	2 - 12	50/60	Up to 700
450	Up to 11	2 - 16	50/60	Up to 1000
500	Up to11	2 - 20	50/60	Up to 1500
560	Up to 11	2 - 24	50/60	Up to 2500

In the 50/60 Hz supply the duty type of the motors shall be S1 or S2.

15. Special conditions for safe use

The motors may be indicated to be used in ambient temperature other than specified in the standard (- 20 °C... + 40 °C).

Temperature class may vary between T1 - T4 depending of the design of the motor.

Equipment group may be IIA, IIB or IIC depending of equipment groups of the used auxiliaries.

The Certificate covers also the following frequency converter drives with the converter types ACS 600-series, ACS 800-series, ACS 1000-series, ACS 2000-series or ACS 5000-series, manufactured by ABB Group Ltd:

1. Squared torque drive, and

2. Drives featuring constant torque up to the field weakening point, or/and constant power in speed range above the field weakening point, presuming that the main motor is equipped with a separate (Ex-certified) fan motor or protected with temperature detectors in the stator windings.

All the manufacturer's instructions concerning the speed range and the torque restrictions shall be followed.

16. Validity

The Certificate is valid five years from the date of issue.

Certificate history

Issue	Date	Report No.	Comment
-	27.10.2009	VTT-S-07286-09	Prime certificate
1	30.1.2012	VTT-S-00486-12	Change of the applicant's name. Certification documents are updated with new tests results and construction changes especially with main terminal boxes. Use with the converter type ACS 2000 added. The certificate is extended to cover the new standards IEC 60079-0 (2011) and IEC 60079-15 (2010)

Espoo, 30.1.2012

VTT Expert Services Ltd

Martti Siirola
Senior Expert

Risto Sulonen
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