
CERTIFICATE

1.

VTT No. Ex-08.007X/ Issue 1

2.

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: **AMA 400...**
AMA 450...
AMA 500...

5. Applicant : **ABB Oy Machines**
Strömbergintie 1
FI-00380 Helsinki
Finland

6. Manufactured by **ABB Oy Machines**
Strömbergintie 1
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/Electrical Ex-apparatus, Inspection Body No. I018 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 (2007)
IEC 60079-15 (2005)

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

- confirms that confidential Research Report FI/VTT/ExTR08.0001/01 (VTT-S-08115-09) has been completed on these verifications and tests.

9. The code for the electrical apparatus is:

Ex nA 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, 6.11.2009

VTT TECHNICAL RESEARCH CENTRE OF FINLAND



Martti Siirola
Research scientist



Risto Sulonen
Senior research scientist

Range of cage induction motors, types AMA 400, AMA 450 or AMA500

Description of Equipment

Three phase squirrel cage induction motors of a closed type with welded steel frame and fitted out with Ex-certified main terminal boxes and Ex-certified auxiliary terminal boxes. The temperature class of the motor depends on the ratings of the motor and temperature class of the accessories.

Technical data

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

U / kV	Number of poles	f / Hz	P / kW
Up to 11,5	2 - 20	50/60	Up to 4000

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

Report No. FI/VTT/ExTR08.0001/01 (VTT-S-08115-09)

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 and the motor is marked accordingly.

Equipment group may also be IIA or IIB depending of equipment groups of the used auxiliaries and the motor is marked accordingly.

The Certificate covers also the following frequency converter drives with the converter types ACS 600- , ACS 800- , ACS 1000- and 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 the stator windings are equipped with detectors for temperature control.

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

Validity

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

Espoo, 6.11.2009

VTT, TECHNICAL RESEARCH CENTRE OF FINLAND



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Research scientist



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Senior research scientist