



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx LCI 09.0012X issue No.: 2

Status: Current

Certificate history:

Issue No. 2 (2015-4-3)  
Issue No. 1 (2012-10-1)  
Issue No. 0 (2009-3-13)

Date of Issue: 2015-04-03 Page 1 of 5

Applicant: **ABB Oy Motors and Generators**  
Strömbergin Puistotie 5A  
P.O. Box 633  
65101 Vaasa  
Finland

Electrical Apparatus: **Asynchronous motor : M3G\_ and M3D\_ 160... (Generation H) ; M3G\_ and M3D\_ 180... (Generation H)**  
Optional accessory:

Type of Protection: **Ex nA and/or Ex t**

Marking: **ABB Oy Motors and Generators**  
Address: ...  
Type: ... Serial number: ...  
Ex nA IIB or IIC T3 Gc  
Ex tb IIIA or IIIB or IIIC T125°C Db IP5X or IP6X  
Ex tc IIIB or IIIC T125°C Dc IP5X or IP6X  
IECEx LCI 09.0012X  
Electrical characteristics ( $U_N$  ... V,  $I_N$  ... A,  $P_N$  ... kW, F ... Hz, r/min ..., Cos  $\phi$  ...)  
Ambient operating temperature : ...°C if <-20°C or >+40°C  
**See attached document for warnings and complete marking :**  
**"Annex 1 to Certificate IECEx LCI 09.0012X issue 2"**

Approved for issue on behalf of the IECEx  
Certification Body:


Michel EQUI

Position:

Certification Officer

Signature:  
(for printed version)

Date:

  
2015/04/03

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**Laboratoire Central des Industries Electriques (LCIE)**  
33 Avenue du General Leclerc  
FR-92260 Fontenay-aux-Roses  
France

Documents relative to LCIE certification activities (Certificates, QARs, ExTRs) can be registered under the references "LCI" or "LCIE".





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Manufacturer: **ABB Oy Motors and Generators**  
Strömbergin Puistotie 5A  
P.O. Box 633  
65101 VAASA  
Finland

Additional Manufacturing location  
(s):

<b>ABB Logistics Center</b>	<b>ABB Sp.zo.o</b>
<b>Europe GmbH</b>	Ul. Placydowska
Braukerweg 132	95-070 Aleksandrow Lodzki
Germany	Poland

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b>	Explosive atmospheres - Part 0: General requirements
Edition: 6.0	
<b>IEC 60079-15 : 2010</b>	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition: 4	
<b>IEC 60079-31 : 2008</b>	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'
Edition: 1	

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:  
FR/LCI/ExTR09.0012/00

FR/LCI/ExTR09.0012/01

FR/LCIE/ExTR15.0024/00

Quality Assessment Report:

FR/LCI/QAR08.0003/05



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

Asynchronous motor with type of protection by enclosure "t" and/or non sparking "nA" with IP5X or IP6X.

The complete range of motors and the description of type designations are given in attachment.

#### Electrical specifications:

Network voltage supply : between 190 V and 800 V

Tolerances according to :

- IEC 60034-1 for motors stamped in multivoltages use (eg : 380 V - 420 V)

- IEC 60038 for motor stamped in single voltage use (eg : 400 V /690 V).

Standard output range : 2.2 up to 45kW.

Frequency : 50 Hz or 60 Hz or variable frequency

Duty : S1

### CONDITIONS OF CERTIFICATION: YES as shown below:

- Ambient operating temperature range :

-55°C ≤ Tamb ≤ +80°C according to the motor model specified in manufacturer's instructions.

- Pre-purging before starting the motor is not necessary for "Ex nA" motor.

- In case of use with a frequency converter, the motor may be equipped with embedded thermal sensors to ensure the insulation class. The surface temperature class may also be protected by embedded thermal sensors for the type of protection "Ex t".

Manufacturer's instructions for the safe use with a converter shall be followed.



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## EQUIPMENT(continued):

### DESCRIPTION (Continued) :

Ambient temperature between -20°C up to -55°C is allowed without adding heating elements or other heating systems.

Ambient temperature between +40°C and +80°C is acceptable under the respect of the specifications stated in the descriptive file of the manufacturer.

Permitted electrical and mechanical variations are defined within the manufacturer's technical documentation (doc. 3GZF500930-314 Rev. E).

- Any motors for a voltage between 190 V and 800 V and designed with same nominal flux, within a tolerance of  $\pm 3\%$ , and same frequency as motors listed in descriptive documents are acceptable.
- Any motors with lower rated output power than listed in the descriptive file is acceptable.
- Any motors for intermittent duty S2...S8 or S10 are acceptable.
- Motor used in frequency converter supply and S9 duty are acceptable under following conditions :
  - Fixed second name plate with converter and load data provided.
  - Converter of type ACS550, ACS800 or a comparable converter in reference to the output voltage and current specifications.
- Any motors with higher outputs than the standardized listed ones, respecting the technical requirements stated in the descriptive file are acceptable.
- Any motors with terminal box "Ex e" (IEC 60079-7) in addition to the types of protection "Ex t" are acceptable provided that the box is marked accordingly.
- Flying leads are allowed.
- Thermal sensor for bearings are allowed if they have an appropriate (or better) certification than the motor.
- Closed N-end without fan is allowed (IC410).
- Motors with designation M3GG, M3DG or M3LG are used as asynchronous generators.

### Routine tests for Ex nA motors:

According to clause 23.2.1 of standard IEC 60079-15, each apparatus shall be submitted to a dielectric strength test (carried out in accordance with clause 6.5.1).



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Issue 1:

- Normative update according to the latest edition of standards.
- Update of conditions of certification.
- Addition of motors M3GC 160... and 180... (Generation H) for high speed applications.
- Addition of 2 new isolating materials for the terminal board.
- Addition of use of converter ACS550.

### Issue 2:

- Addition of new type designation M3D\_ for Ex t motor.
- Addition of an improved connection method for flying leads.
- Addition of new material for terminal boards.
- Addition of generator application and associated designations M3GG and M3DG.
- Addition of a new manufacturing site.

## 1. Motors range and description of type designations:

Model <sup>(1)</sup>	Shaft height (in mm)	Voltage supply	Frequency	Efficiency class	
				Code	Generation
M3GP M3DP M3GC M3DC M3GG M3DG	160 (Generation H)  180 (Generation H)	190 – 800 V	50 Hz / 60 Hz or variable frequency	IE2	G

<sup>(1)</sup> Meaning of models:

M3GP: Ex nA / Ex t motor

M3DP: Ex t motor

M3GC: Ex nA / Ex t for high speed application

M3DC: Ex t motor for high speed application

M3GG: Ex nA / Ex t motor used as generator

M3DG: Ex t motor used as generator

### Type designation:

The complete motor type designation is a combination of letters and numbers according to following definition:

For instance: M3GP 160 MLC 4.

M3GP : motor Ex nA / Ex t

160 : shaft height in mm according to IEC 60072-1

ML: mounting dimensions in mm according to IEC 60072-1 (S, M, L)

C : output, as per length of active iron (A...E)

4 : number of poles

The "Generation H" (generation code: H) doesn't appear in the type designation. The letter associated to generation code appears at the 14<sup>th</sup> position of the product code written on the nameplate.

## 2. Marking

### The marking shall be:

ABB Oy Motors and Generators

Address : ...

Type : ...

Serial number : ...

Year of construction : ...

Ex nA IIB or IIC T3 Gc (\*)

Ex tb IIIB or IIIB or IIC T125°C Db IP5X or IP6X (\*)

Ex tc IIIB or IIC T125°C Dc IP5X or IP6X (\*)

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- Electrical characteristics

(U<sub>N</sub> ... V, I<sub>N</sub> ... A, P<sub>N</sub> ... kW, F ... Hz, r/min ..., Cos φ ..., ...)

- Ambient operating temperature ... °C if > 40 °C or < - 20 °C

(\*) Motors with temperature class T2 (Ex nA) or T85°C...T150°C (Ex t) are authorized respecting the specifications stated in the technical file of the manufacturer.

For the motors driven by converters a second name plate will be fixed on the motors mentioning the voltage, current and/or load conditions in function of the frequency range, as well as the relevant converter characteristics.





## Annex 1 to Certificate IECEX LCI 09.0012X issue 02



For use in dust atmospheres :

- WARNING – AFTER DE-ENERGIZING, DELAY 60 MINUTES BEFORE OPENING

or

- WARNING – DO NOT OPEN WHEN AN EXPLOSIVE DUST ATMOSPHERE MAY BE PRESENT

On the cover of the terminal box "Ex e" :

WARNING – DO NOT OPEN WHEN ENERGIZED

In case the temperature under rated conditions is higher than 70°C at the entry point or 80°C at the branching point of the conductors :

WARNING – SELECTION OF CABLES AND CABLE GLANDS – SEE INSTRUCTIONS

For the Group IIC, when the paint thickness is superior to the maximal values specified in IEC 60079-0 :

WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

The efficiency class shall appear on the nameplate of the motors.