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

Certificate No.: IECEx EXA 16.0006X

Issue No: 1

Certificate history:
Issue No. 1 (2018-02-26)
Issue No. 0 (2016-03-10)

Status: **Current**

Date of Issue: **2018-02-26**

Applicant: **CEMP Srl**
via Piemonte 16
I-20030 Senago (MI)
Italy

Equipment: **Three-phase and single phase motors, brake motors supplied by mains or inverter**

Optional accessory: *AC/AB...r... ; DC/HC...r ... ; size 63 – 315 and AM 315 L and AC 315 L*

Type of Protection: **'d'; 'e'; 'tb'**

Marking:

Ex d IIC/IIB T6...T3 Gb or

Ex d e IIC/IIB T6...T3 Gb and/or

Ex tb/tc IIIC/IIIB T85°C...T150°C Db

Ex d I Mb or Ex d e I Mb (only for size 315 L)

Approved for issue on behalf of the IECEx Certification Body:

Stipo Đerek

Position:

Head of Certification Body

Signature:
(for printed version)

Date:

2018-02-26

AGENCIJA ZA PROSTORE UGROŽENE EKSPLOZIVNOM ATMOSFEROM SVETA NEDELJA 3

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.

Certificate issued by:

Agencija za prostore ugrožene eksplozivnom atmosferom (Ex-Agencija)
Industrijska 25
HR-10431 Sveta Nedelja
Croatia

Ex-Agencija

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Manufacturer:	**CEMP Srl** via Piemonte 16 I-20030 Senago (MI) **Italy**	

Additional Manufacturing location(s):

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:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2008 Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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:

HR/EXA/ExTR14.0008/00 HR/EXA/ExTR14.0008/01 HR/EXA/ExTR14.0008/02
HR/EXA/ExTR14.0008/03 IT/CES/ExTR14.0028/00

Quality Assessment Report:

IT/CES/QAR07.0002/10

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The three-phase and single phase asynchronous motors series AC/AB...r... sizes 63-71-80-90-100, 112-132-160; 180-200-225-250; 280-315; 315L and serie AM 315L are made of cast iron with separate compartments: motor enclosure and terminal box for supply and auxiliary circuits connection. Motor enclosure is designed in Ex d type of protection, while terminal box can be Ex d or Ex e type of protection.

The motor enclosure satisfies also Ex tb type of protection, mechanical protection IP65 or IP64. The motors can be equipped with auxiliary devices: heaters, thermal detectors, encoders etc.

The flamepaths are specified in the manufacturing drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.

Additional Information given in the Annex.

Safety instruction SD-7 IECEx dated 2014-06.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The flame paths are specified on the manufacturer's drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.

- In special cases the suitable paint system is not in compliance to thickness limit indicated for gas group IIC. In order to minimize risk of hazards caused by electrostatic charges, clean motor only with a wet rag or by non-frictional means.

- For the installation in places with presence of dust shall be taken into account the risk of electrostatic charges able to activate propagating brush discharges.

- For installation in places with presence of dust group IIIC, when the motors are made without flange, the D-end sealing ring shall be protected from light by a device supplied by the manufacturer.

- For use with non-sinusoidal or variable frequency supplies the motor is fitted with thermal protection in the form of one PTC or PT100 thermal probe per phase in the drive end stator winding overhang. These are to be connected to a protection circuit so as to limit the stator temperature to:

  - max. 120°C for temperature class T4/T125°C
  - max. 130°C for T4/T135°C and for group I
  - max. 140°C for T3/T150°C.

- The cable temperature in motors (temperature class T4 or T3) at the entry point is greater than 70 °C, and at the branching point is greater than 80°C, therefore connection for those motors shall be provided with cable of thermal stability not less than 90°C.

- The motor when provided with the cables permanently connected shall have these cables protected against the risk of damage due to mechanical stresses. The end connections shall be made according to one of the types of protection indicated in the IEC 60079-0 standard and in accordance with the installation rules in force in the site of installation.

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

This issue 1 of the CoC covers the extensions or changes as the following:

- New version of motors type AB30/35 280; HC-50/55r 90L and HC-50/55r 132L (The motors are listed in TECHNICAL NOTE NT/DP/D180315L_280T6 and NT/FO/90&132T6/IIC) for additional temperature class T6 and max. surface temperature for dust T85°C added.

- New version of motor type 315L added (The motor is described in TECHNICAL NOTE NT/DP/D180315L_280T6 and tested and assessed in CESI - IECEx tests report IT/CES/ExTR14.0028/00).

- The new brake for frame size 180 - 315 and 315L added. The brake was tested for minimum ambient temperature T_{amin} = -60 °C.

Annex:

IECEx_EXA_16_0006X_ANNEX_issue_1.pdf

Three-phase and single phase motors, brake motors

Description:

The three-phase asynchronous motors with brakes series DC/HC...r... , DB/HB...r... sizes 63-71-80-90-100, 112-132-160; 180-200-225-250; 280-315; 315L and AM 315L are made of cast iron with separate compartments: motor enclosure and terminal box for supply and auxiliary circuits connection. Motor enclosure is designed in Ex d type of protection, while terminal box can be Ex d or Ex e type of protection. The motor enclosure satisfies also Ex tb type of protection, mechanical protection IP65 or IP64. The electromechanical brake device is located on the flame-proof enclosure with Ex d type of protection. Brake main components are: an electromagnet, a mobile anchor held by three studs on which it able to slide, and brake disc able to move the axis of toothed hub connected to the motor shaft. Brake disc frictional material can work at temperature up to 160 °C, but is used up to maximum temperature of 100 °C. The brakes sizes up to 160 are without manual hand release and the brakes size 180 - 315 can be with or without manual hand release.

The motors can be equipped with auxiliary devices: heaters, thermal detectors, encoders etc. The anticondensation heaters installed inside the motor enclosure have maximum power of 200 W and are allowed to be in operation only when motor is not powered.

The motor supplied by inverter is equipped inside of stator winding and on bearings with PTC or PT100 thermal detectors for temperature control. Rating data are specified on supplementary plate. The presence of the thermal detectors inside the motor is shown by appropriate warning label. The PTC thermal detectors are calibrated for an operation of:

- max. 120°C for temperature class T4/T125°C
- max. 130°C for T4/T135°C and for group I
- max. 140°C for T3/T150°C.

The motors marked for temperature class T5 and T6 are not intended for supply by inverter.

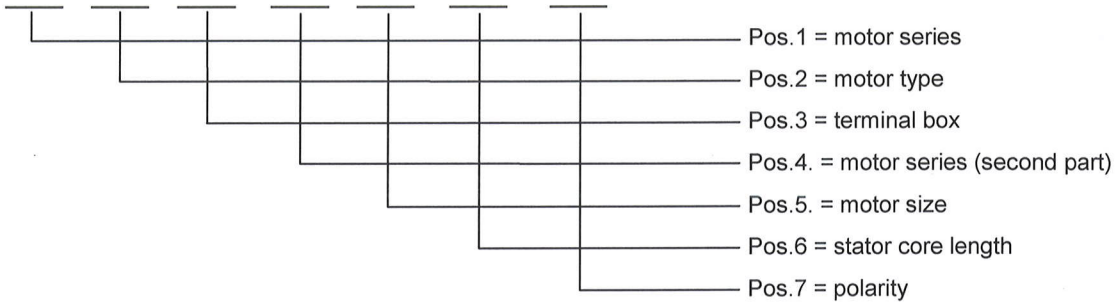
According to IEC 60034-6 standard, the cooling is achieved by one of the following methods:

- Self-cooled motor by metal fan fitted on shaft, IC 411
- Fan directly coupled, IC 418
- Totally enclosed not ventilated, IC 410
- Forced ventilation by means of auxiliary motor, IC 416 (allowed only for group IIB and IIC)

The motors in type of protection Ex d can be equipped with separately certified draining devices. Motor enclosure sizes 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315 and 315L provided with welded sleeve for fixing the drain valve.

The accessories used for cable entry and for unused holes shall be separately certified according to following standards: IEC 60079-1; IEC 60079-7 and IEC 60079-31 as applicable.

Identification codes of motors:



Explanation of codes:

Pos.1: Motor series

- **AC** Flameproof electric motors for gas group IIC and for dust group IIIC/IIIB
- **AB** Flameproof electric motors for gas group IIB and for dust group IIIC/IIIB
- **AM** Flameproof electric motors for gas group I (only for size 315L)
- **DC** Flameproof brake motors IC410 for gas group IIC and for dust group IIIC
- **HC** Flameproof brake motors IC411 for gas group IIC and for dust group IIIC
- **DB** Flameproof brake motors IC410 for gas group IIB and for dust group IIIB
- **HB** Flameproof brake motors IC411 for gas group IIB and for dust group IIIB
-

Pos. 2: Motor type, electrical features

- **2** Three phase motors double polarity constant torque
- **3** Three phase motors one polarity
- **4** Three phase motors double polarity quadratic torque
- **5** Three phase motors for hoist
- **7** Three phase motors suitable for frequency converter
- **1** Single phase motors (only for AC/AB motors)

Pos. 3: Terminal box

- **0** Standard terminal box
- **2** With bigger terminal box
- **3** Plate and cable gland version
- **5** Exe terminal box

Pos. 4: Motor series

- **r** REGAL series

Pos. 5: Size

- **63** Size 63
- **71** Size 71
- **80** Size 80
- **90** Size 90
- **100** Size 100
- **112** Size 112
- **132** Size 132
- **160** Size 160
- **180** Size 180
- **200** Size 200
- **225** Size 225
- **250** Size 250
- **280** Size 280
- **315** Size 315

Pos. 6: Stator core length

- **A** Short (63-71-80)
- **B** Long (63-71-80)
- **S** Short (90-225-280-315)
- **L** Long (90-160-180-315
- **LA** Short (100-160-200)
- **LB** Long (100-160-200)
- **M** Medium (112-180-225-250-280-315)
- **SA** Short (132)
- **SB** Short medium (132)
- **MA** Medium short (160)
- **MB** Medium (132-160)
- **ML** Long (132-225-280)

Poz. 7: Polarity number

- **2** 2 pole
- **4** 4 pole
- **6** 6 pole
- **8** 8 pole
- **10** 10 pole
- **12** 12 pole
- **16** 16 pole
- **24** Double polarity: 2/4 pole
- **42** Double polarity: 4/24 pole
- **64** Double polarity: 6/24 pole
- **48** Double polarity: 4/8 pole
- **46** Double polarity: 4/6 pole
- **68** Double polarity: 6/8 pole
- **21** Double polarity: 2/12 pole
- **26** Double polarity: 2/6 pole
- **61** Double polarity: 6/12 pole
- **83** Double polarity: 8/16 pole
- **60** Double polarity: 6/10 pole
- **81** Double polarity: 8/12 pole

Ratings:

Mains supply:	(all sizes)	
	Maximum rated voltage:	1000 V
	Maximum rated power:	240 kW
	Maximum rated current:	520 A
	Rated frequency:	50/60 Hz
	Insulation class:	F (with Δt. B)
	Duty:	S1, S2, S3, S4, S6, S9
	Maximum rated speed:	3600 rpm

Inverter supply:			
	Maximum working voltage:	1000 V	sizes 63 -315
		880 V (Ex d) / 800 V (Ex de)	size 315 L
	Maximum peak voltage:	2300 V	sizes 63 -315
		1250 V	size 315L
	Frequency range:	5 – 120 Hz	sizes 63 -315
		5 - 87 Hz	
	Maximum rated speed:	5200 rpm	sizes 63-100
		4200 rpm	sizes 112-160
		3600 rpm	sizes 180-315 and 315L
	Duty:	S9	

Certified components/equipment:

Equipment / component	Type	Manufacturer or Applicant	Type of protection	CoC Number
Auxiliary terminal board	07-9702-0*2*/****	BARTEC	Ex eb IIC Gb Ex eb I Mb	IECEx PTB 07.0007U
Auxiliary terminal board	07-9721...	BARTEC	Ex e IIC Gb	IECEx PTB 07.0037U
Drain valve	ECD ...	CORTEM	Ex d I/IIC	IECEx TSA 07.0053U
Breather and drain valve	ECD 215 1/2"	EL.FIT	Ex d IIC Gb Ex e IIC Gb Ex tb IIIC Db	IECEX CES 14.0016U

Equipment / component	Type	Manufacturer or Applicant	Type of protection	CoC Number
Breather/ Drain Plug	781D	CMP	Ex d IIC Gb Ex ta IIIC Da	IECEx SIR 10.0149U
Rubber bushing	552...	CEMP	Ex d IIC	IECEx LCI 09.0003U
Incremental encoder	2REX	SCANCON A/S	Ex d IIC T5 Gb Ex tb IIIC T100°C Db	IECEx ITS 10.0015
Cable entry	R... and B ...	RCN S.r.l.	Ex d IIC Gb Ex e IIC Gb Ex tb IIIC Db	IECEx INE 10.0010X
Terminal block	BPL.4; TPL.4	CABUR	Ex e II	IECEX CES 11.0008U
Line bushing	07-91..-..../....	BARTEC	Ex d II Ex d I	IECEx PTB 06.0093U

Rated ambient temperature range

-50°C to +40°C/+50°C/+60°C only for sizes 63-315 group IIB, IIC or IIIC

-55°C to +40°C/+50°C/+60°C only for size 315L group IIC or IIIC

-55°C to +40°C/+50°C/+60°C IIC or IIIC only for size 315L group I

-50°C to +80°C only for gas group IIB

-35°C to +60°C only for singe phase motor group IIB, IIC or IIIC

-50°C to +40°C/+50°C/+60°C group IIC or IIB

For motors sizes 63-71-80-90-100-112-132-160 with brake T_{ambmin}= -20°C

For motors sizes 180-200-225-250-280-315 with brake T_{ambmin}= -50°C

Warning markings:

The following warning markings can be applied to the motors:

- "Restore greasing at every opening"
- "Use screws quality 8.8 ISO 898-1"
- "To energized with cable suitable for temperature 90°C"

In case of use of anticondensation heaters:

- "Warning - energized resistors"

For motors supplied by inverter:

- "Winding protected with PTC thermistors"

- "Winding protected with bimetallic thermistors"
- "Winding protected with PT100 detectors calibrate at 120 °C"
- "Winding protected with PT100 detectors calibrate at 130 °C"
- "Winding protected with PT100 detectors calibrate at 140 °C"

For special painted motors:

- "Warning - Potential electrostatic charging hazard - see instruction"

"Specific Conditions of Use" for Ex Equipment:

- The flame paths are specified on the manufacturer's drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.
- In special cases the suitable paint system is not in compliance to thickness limit indicated for gas group IIC. In order to minimize risk of hazards caused by electrostatic charges, clean motor only with a wet rag or by non-frictional means.
- For the installation in places with presence of dust shall be taken into account the risk of electrostatic charges able to activate propagating brush discharges.
- For installation in places with presence of dust group IIIC, when the motors are made without flange, the D-end sealing ring shall be protected from light by a device supplied by the manufacturer.
- For use with non-sinusoidal or variable frequency supplies the motor is fitted with thermal protection in the form of one PTC or PT100 thermal probe per phase in the drive end stator winding overhang. These are to be connected to a protection circuit so as to limit the stator temperature to:
  - max. 120°C for temperature class T4/T125°C
  - max. 130°C for T4/T135°C and for group I
  - max. 140°C for T3/T150°C.
- The cable temperature in motors (temperature class T4 or T3) at the entry point is greater than 70 °C, and at the branching point is greater than 80°C, therefore connection for those motors shall be provided with cable of thermal stability not less than 90°C.
- The motor when provided with the cables permanently connected shall have these cables protected against the risk of damage due to mechanical stresses. The end connections shall be made according to one of the types of protection indicated in the IEC 60079-0 standard and in accordance with the installation rules in force in the site of installation.