

CERTIFICATE



Italia

[1] **EU-TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU**

[3] EU-Type Examination Certificate number:

TÜV IT 21 ATEX 052 X

[4] Equipment or Protective System: single and 3 phase asynchronous electric motors and
brake motors series D, size 63+315L

[5] Manufacturer: Marelli Motori S.r.l.

[6] Address: Via Sabbionara, 1
I-36071 Arzignano (VI) - ITALY

[7] This equipment or protective system and any acceptable variation thereto is specified in the
schedule to this certificate and the documents therein referred to.

[8] TÜV Italia, notified body no. 0948 in accordance with Article 17 of Directive 2014/34/EU of the
European Parliament and of the Council, dated 26 February 2014, certifies that this product
has been found to comply with the Essential Health and Safety Requirements relating to the
design and construction of products intended for use in potentially explosive atmospheres
given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 21 EX 060

[9] Compliance with the Essential Health and Safety Requirements has been assured by
compliance with:

EN IEC 60079-0:2018; EN 60079-1:2014; EN IEC 60079-7:2015/A1:2018; EN 60079-31:2014

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective
system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of
the specified product. Further requirements of the Directive apply to the manufacturing process
and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:



**II 2G Ex db IIB T6...T3 Gb
II 2G Ex db eb IIB T6...T3 Gb
II 2D Ex tb IIIC (or IIIB) T85°C...T150°C Db**

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Issue date: 29th July 2021



PRD N° 081B

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual
Recognition Agreements



**TÜV Italia S.r.l.
Notified Body N° 0948**

Alberto Carelli
Alberto Carelli

**Industry Service - Real Estate & Infrastructure
Managing Director**

TÜV Italia has been authorized by Italian government to operate as notified body for the certification of equipment or protective
system intended for use in potentially explosive atmospheres. This document is not valid without official signature and logo. The
internal reference code is 722260624

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EU-TYPE EXAMINATION CERTIFICATE
No. TÜV IT 21 ATEX 52 X
Certificate History

Revision:	Description:	Report no:	Issue Date:
-	First emission	-	29/07/2021

[15] **Description of equipment**

The electric motors covered by this certificate are asynchronous three-phase and single phase motors D series, with type of protection “Ex db” or “Ex db eb” and protected from dust penetration, with type of protection “Ex tb”.

The motors 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 db or Ex eb type of protection.

The motor enclosure satisfy also Ex tb type of protection, mechanical protection IP6X.

The three phase asynchronous motors with brakes series 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 db type of protection, while terminal box can be Ex db or Ex eb type of protection.

The motor enclosure satisfy also Ex tb type of protection, mechanical protection IP6X.

The electromechanical brake device in located in the flameproof enclosure with Ex db type of protection.

Brake motor size 71 to 160 and 180 to 315 can be equipped with manual hand release.

The motors can be used for continuous or intermittent duty, as defined by EN 60034.1 for : S1, S2, S3, S4, S6 and S9.

The motors can be equipped with auxiliary devices: heaters, thermal detectors, encoders etc.

The anti condensate 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 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 85°C for temperature class T6/T85°C
- Max 100°C for temperature class T5/T100°C
- Max 120°C for temperature class T4/T125°C
- Max 130°C for temperature class T4/T135°C
- Max 140°C for temperature class T3/T150°C

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

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- Fan directly coupled IC 418
- Totally enclosed not ventilated IC 410
- Forced ventilation by means of auxiliary motor IC 416

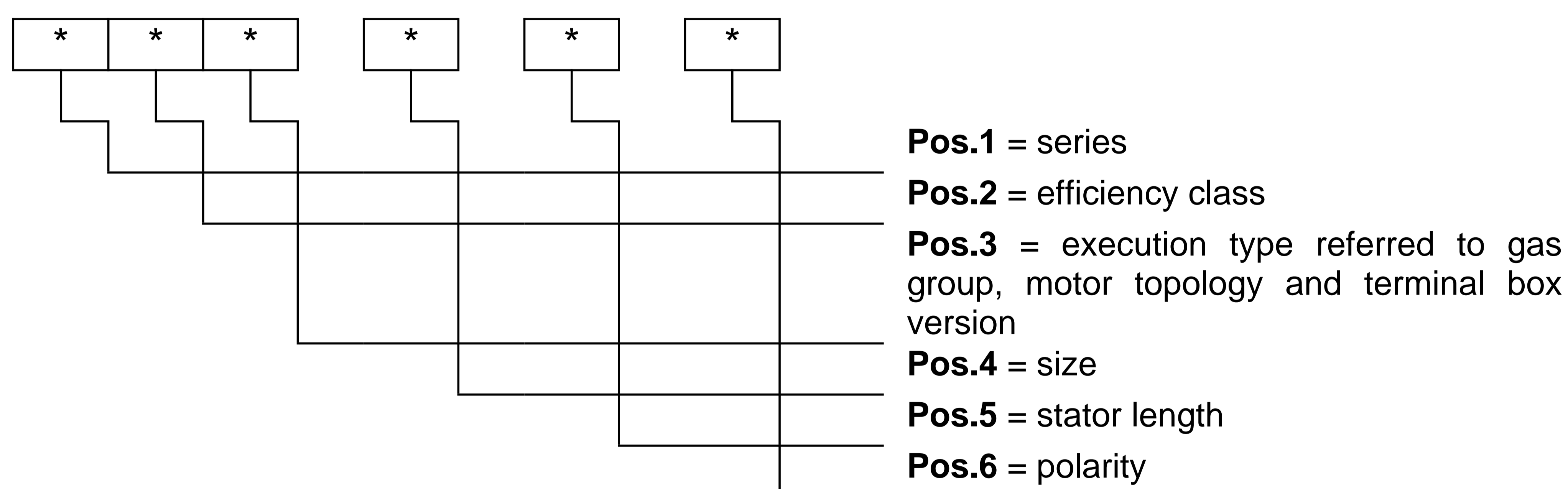
The motors in type of protection Ex d can be equipped with separately certified draining devices II 2GD Ex db IIB.

The motors can be made for different ambient temperatures as described below

- Frame size 63-160: ambient temperature from -50°C/-20°C to +80°C
- Frame size 180-250: ambient temperature from -50°C/-20°C to +80°C
- Frame size 180-250: ambient temperature from -50°C/-20°C to +80°C (it's necessary to de-rate power in proportion to the ambient temperature)
- Frame size 280-315: ambient temperature from -50°C/-20°C to +80°C (it's necessary to de-rate power in proportion to the ambient temperature)
- Frame size 315L: ambient temperature from -55°C/-20°C to +40°C
- Frame size 315L: ambient temperature from -55°C/-20°C to +60°C (it's necessary to de-rate power in proportion to the ambient temperature)
- Single phase motors: ambient temperature from -35°C to +80°C
- Motors with brake 63-160: ambient temperature from -20°C to +60°C
- Motors with brake 180-315: ambient temperature from -50°C to +60°C

In order to identify the relation between size of motor, ambient temperature and temperature class see instructions.

The products with the identification codes are listed in the following table:



Pos.1 : Motor series

D	Flame proof electric motors
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Pos.2 : Efficiency class

1	IE1
2	IE2
3	IE3
4	IE4

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Pos.3 : execution type referred to gas group, motor topology and terminal box version

C, F, D, X, S, W, B or U	Motor for gas group IIB
W or U	Motor for for gas group IIB and for dust group IIIC / IIIB
W or U	DOL electrical supply single or dual speed
C, F, X or S	DOL electrical supply single speed
D or B	DOL electrical supply dual speed
C, F, D or W	Ex db terminal box
X, S, B or U	Ex eb terminal box

Pos.4 : Size

		160	Motor size 160
71	Motor size 71	180	Motor size 180
80	Motor size 80	200	Motor size 200
90	Motor size 90	225	Motor size 225
100	Motor size 100	250	Motor size 250
112	Motor size 112	280	Motor size 280
132	Motor size 132	315	Motor size 315

Pos.5 : Stator core length

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

Pos.6 : Polarity number

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

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Rated characteristics

Mains supply:

	Motor type 63-100	Motor type 112	Motor type 132-160	Motor type 180-250	Motor type 280-315	Motor type 315L
Maximum current [A]	30	30	60	210	280	520
Maximum voltage [V]	690	690	750	1000	1000	1000
Frequency [Hz]	50/60	50/60	50/60	50/60	50/60	50/60
Max speed [r.p.m.]	3600	3600	3600	3600	3600	3600
Insulation class	F (with Δt.B)	F (with Δt.B)	F (with Δt.B)	F (with Δt.B)	F (with Δt.B)	F/H (with Δt.B)
Service	S1,2,3,4,6,9	S1,2,3,4,6,9	S1,2,3,4,6,9	S1,2,3,4,6,9	S1,2,3,4,6,9	S1,2,4,6,9

Inverter supply:

Maximum working voltage:	1000 V
Maximum peak voltage:	2300 V
Frequency range:	5 ÷ 120 Hz
Maximum rated speed [rpm]:	5200 (63÷100)/ 4200(112÷160)/ 3600(180÷315)
Duty:	S9

Inverter supply (only for 315L motors):

Maximum working voltage:	880 V (Ex d) / 800 V (Ex de)
Maximum peak voltage:	1250 V
Frequency range:	5 ÷ 87 Hz
Maximum rated speed [rpm]:	3600
Duty:	S3, S9

Warning label

“To be energized with cable suitable for temperature 90°C”

“Restore greasing at every opening”

“Use screws quality 8.8 ISO 898-1”

In case of use of anti condensate heaters:

- “Warning – energized resistors” or
- “Caution: heater energized”

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For motors supplied by auxiliaries:

- "Winding protected with PTC thermistors" or
- "Winding protected with bimetallic thermistors" or
- "Winding protected with PT100 detectors calibrate at xxx°C"

[16] **Report no.** R 21 EX 060**Routine tests**

For motor and brakes enclosures, manufacturer shall carry out the following routine test:

Motor enclosures:

- Size 80, 90 and 100 provided with welded sleeve for fixing the drain valve: overpressure test according to EN60079-1 with pressure not less than 20 bar for at least 10 seconds
- Size 112 provided with welded sleeve for fixing the drain valve intended for minimum ambient temperature of -20°C: overpressure test according to EN60079-1 with pressure not less than 9 bar for at least 10 seconds
- Size 112 intended for minimum ambient temperature of less than -20°C: overpressure test according to EN60079-1 with pressure not less than 22.8 bar for at least 10 seconds
- Size 132 provided with welded sleeve for fixing the drain valve: overpressure test according to EN60079-1 with pressure not less than 13.2 bar static for at least 10 seconds
- Size 160 provided with welded sleeve for fixing the drain valve: overpressure test according to EN60079-1 with pressure not less than 13.5 bar static for at least 10 seconds
- Size 180 intended for minimum ambient temperature of less than -20°C: overpressure test according to EN60079-1 with pressure not less than 27 bar static for at least 10 seconds
- Size 200 intended for minimum ambient temperature of less than -20°C: overpressure test according to EN60079-1 with pressure not less than 27,2 bar static for at least 10 seconds
- Size 225 intended for minimum ambient temperature of less than -20°C: overpressure test according to EN60079-1 with pressure not less than 31 bar

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- static for at least 10 seconds
- Size 250 intended for minimum ambient temperature of less than -20°C: overpressure test according to EN60079-1 with pressure not less than 23 bar static for at least 10 seconds
- Size 280 and 315 intended for minimum ambient temperature of -50°C: overpressure test according to EN60079-1 with pressure not less than 52 bar static for at least 10 seconds
- Size 280 and 315 intended for minimum ambient temperature of -20°C: overpressure test according to EN60079-1 with pressure not less than 33 bar static for at least 10 seconds
- Size 315L intended for minimum ambient temperature of -20°C: overpressure test according to EN60079-1 with pressure not less than 21 bar static for at least 10 seconds
- Size 315L intended for minimum ambient temperature of -55°C: overpressure test according to EN60079-1 with pressure not less than 26 bar static for at least 10 seconds

Motor enclosures size 63, 71, 80, 90, 100, 132, 160 satisfied overpressure test with 4x Pref at -50°C so it is not necessary to perform routine overpressure test.

Motor enclosures size 112, 180, 200, 225, 250 satisfied overpressure test with 4x Pref at -20°C so it is not necessary to perform routine overpressure test.

Brake enclosures:

- Size 63 / 71: overpressure test according to EN60079-1 with pressure not less than 16.5 bar for at least 10 seconds
- Size 80 / 90 / 100: overpressure test according to EN60079-1 with pressure not less than 24.2 bar for at least 10 seconds
- Size 112 / 132: overpressure test according to EN60079-1 with pressure not less than 20.9 bar for at least 10 seconds
- Size 160: overpressure test according to EN60079-1 with pressure not less than 20.9 bar for at least 10 seconds

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Brake enclosures size 180 satisfied overpressure test with 4x Pref, so it is not necessary to perform routine overpressure test.

Ex d terminal boxes:

Ex d terminal boxes for 315L motor intended for minimum ambient temperature of -20°C: overpressure test according to EN60079-1 with pressure not less than 14 bar for at least 10 seconds

Ex d terminal boxes for 315L motor intended for minimum ambient temperature of -55°C: overpressure test according to EN60079-1 with pressure not less than 20 bar for at least 10 seconds

Other Ex d terminal boxes (STB100, LTB100, TB16, TB180 and TB315) satisfied overpressure test with 4x Pref, so it is not necessary to perform routine overpressure test.

Motor with Exe terminal box:

Dielectric strength test according to EN60079-7 with voltage $(2U_n+1000)V$ in period of at least 60 s or $1.2 \times (2U_n+1000)V$ for at least 100 ms.

[17] Special conditions for safe use

- The motor intended for use with ambient temperature $> 50^\circ\text{C}$ shall be feed with cable of thermal stability not less of 90°C
- The dimensions of the joints are different from those indicated in the reference standards. For information about dimensions of the flameproof joints the manufacturer shall be contacted
- The motor when provided with cables permanently connected shall have these cables protected against the risk of damage due to mechanical stresses. The end connection shall be made according to one of the types of protection indicated in the EN60079-0 standard and in accordance with the installation rules in force in the site of installation

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- For installation in place with presence of dust group IIIC, when motors are made without flange, the D-end sealing ring shall be protected from light by a device supplied by the manufacturer
- The motor supplied by inverter is equipped in the drive end stator winding overhang with PTC or PT100 thermal detectors per phase for temperature control. These are to be connected to a protection circuit so as to limit the stator temperature to:
 - Max 85°C for temperature class T6/T85°C
 - Max 100°C for temperature class T5/T100°C
 - Max 120°C for temperature class T4/T125°C
 - Max 130°C for temperature class T4/T135°C
 - Max 140°C for temperature class T3/T150°C

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

Assured by compliance with the standards set out in the [9]

[19] **Drawings and Documents****Listed documents** (prot. 722260624)

Title:	Description:	Pages:	Rev:	Date:
963858646_=_D 1_D2 71-315	Declaration of conformity	1	-	03-06-2021
NNTLPXD0731 VSIIB	Technical note	3	1	11-05-2021
NAEDGD07131 5IIB	Nameplate	1	0	11-06-2021
963857270	Instruction for use and maintenance	24	0	01-06-2021
963857269	Safety Information	24	0	01-06-2021

One copy of all documents is kept in TÜV Italia files.

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