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EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU – Annex III**

[3] Certificate Number: **EPT 17 ATEX 2588 X** **issue 4**

[4] Equipment: **Electric motor**
O-M

[5] Manufacturer: **ORANGE1 ELECTRIC MOTORS S.p.A**

[6] Address: Via Mantova, 93 – 43122 Parma - Italy

[7] This equipment and its accepted variations are specified in the annex to this Certificate.

[8] Eurofins Product Testing Italy S.r.l., Notified Body n. 0477 in accordance with Article 21 of the Directive 2014/34/EU of the European Parliament and of the Council of 26th February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II of the Directive. The examination and test results are recorded in the confidential Report N°EPT.22.REL.02/2213099

[9] Compliance with the essential health and safety requirements is assured through the verification of them and by compliance with the following harmonized standards:

EN IEC 60079-0:2018, EN 60079-1:2014, EN 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 is subject to the special conditions for safe use specified in the annex to this Certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, the exam and the tests of the specified equipment.
Further requirements of the Directive 2014/34/EU apply to the manufacture and supply of this equipment.
These requirements are not object of this Certificate.

[12] The equipment shall include the sign Ex and the following strings:

II 2G
Ex db IIC T5 ... T3 Gb *or*

II 2GD
Ex db IIC T5 ... T3 Gb
Ex tb IIIC T125°C Db

Applicable when flameproof terminal compartment is used

II 2G
Ex db eb IIC T5 ... T3 Gb *or*

II 2GD
Ex db eb IIC T5 ... T3 Gb
Ex tb IIIC T125°C Db

Applicable when increased safety terminal compartment is used

-40°C ≤ Tamb ≤ +60°C

Relationships between ambient temperature range and temperature limits are reported in the equipment description

Place and date of issue:
(DD-MM-YYYY)

Torino, 21-12-2022

Omar Galasso
Deputy Directive Responsible

Paolo Trisoglio
Managing Director

Eurofins Product Testing Italy S.r.l. eurofins Notified Body N. 0477

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

PRD N° 119B
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CP-ATEX-MOD-26-00

This Certificate has 8 pages and it is reproducible only in its entirely. Conditions of validity are reported below.

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[15] **Equipment description**

The motors are made of aluminium and have separate parts: motor enclosure, terminal box for supply and capacitor enclosure (optional). The motors are suitable for group IIC and group IIIC. The motor enclosure has types of protection "Ex d" and "Ex t";

The terminal box can have types of protection "Ex d" and "Ex t" or "Ex e" and "Ex t"; in addition, the connection between the motor wires and supply cable can be made in a box without terminals by the use of splicing or head to head connectors

The capacitor enclosure has types of protection "Ex d" and "Ex t";
All the parts of the flameproof enclosures have flameproof joints independent from each other.
The motors can be equipped with auxiliary devices (heaters, thermal protectors).
The anti-condensation heater can be activated only when the motor is not powered.
In case of single phase motors the capacitors have to be placed in the appropriate enclosure or in safe area.
The motors can be produced in low efficiency version (IE1, not for European market) or high efficiency version (IE2 or IE3)

Electrical characteristics
The equipment can be supplied by mains or inverter:
Mains Supply
Maximum rated voltage: 850 V
Maximum rated power: 30 kW
Rated frequency: 50/60 Hz
Insulation class: F or H
Duty: S1, S2, S3, S9
Poles: 2, 4, 6, 8, 2/4, 4/8, 4/6, 6/8
Degree of protection: IP66 (For version with Ex db / Ex tb termination compartment)
IP65 (For version with Ex eb / Ex tb termination compartment)
Inverter supply
Frequency range: 5-100 Hz
Possibility of supply through inverter exclusively with the use of thermal protectors applied on the windings.
Such protectors may be either PTO and PTC and they shall be connected to an appropriate and reliable control device.

Activation temperature related to the temperature class:
- 90°C for temperature class T5;
- 130°C for temperature class T4;
- 150°C for temperature class T3.

Ambient temperature. -40 ÷ +40 °C (or +60°C for T3, T4 class of temperature)
Temperature classes and Maximum surface temperature:
T5, T4, T3, T125°C as a function of the ambient temperature and of the electrical characteristics (as indicated in the technical note).

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Ventilation
The motors can be ventilated and not ventilated (with half power in respect to the ventilated corresponding motors so to maintain a T3 temperature class with ambient temperature of 60°C or T4 temperature class with ambient temperature of 40°C).
Ventilation can be made by fan, who is fitted directly on the shaft, or by using an auxiliary motor. The auxiliary motor belongs to O-M series. It will be a two poles 63 motor (for shaft height from 80 to 132) or a two poles 71 motor (for shaft height from 160 to 180).
Impellors for Ex db motors, which have a peripheral speed below 50 m/s, are made of plastic material.
Impellors for Ex tb or Ex db tb or Ex db motors (which have a peripheral speed above 50 m/s) are made of plastic dissipative material or metallic material.
The degree of protection (IP) of ventilation openings are:
- IP 20 on the air inlet side
- IP 10 on the air outlet side

Summary of possible marking strings and allowed ambient temperature range

Ordinary terminal box

Ex db IIC T4 Gb	Ex tb IIIC T125°C	Tamb -40°C + 60°C
Ex db eb IIC T4 Gb	Ex tb IIIC T125°C	Tamb -40°C + 60°C
Ex db IIC T5 Gb	Ex tb IIIC T125°C	Tamb -40°C + 40°C
Ex db eb IIC T5 Gb	Ex tb IIIC T125°C	Tamb -40°C + 40°C

Cable connection by means of flat box

Three phases motors

Ex db eb IIC T3 Gb	Ex tb IIIC T125°C	Tamb -40°C + 60°C
Ex db eb IIC T4 Gb	Ex tb IIIC T125°C	Tamb -40°C + 50°C

Single phase motors from frame size 56 up to frame 100:

Ex db eb IIC T3 Gb	Ex tb IIIC T125°C	Tamb -40°C + 50°C

Cable entries
The cable entries integrated in motor body, terminal box (motor side), capacitor box are part of this certification.
All the other cable entries devices used on the enclosures are already properly ATEX certified.
The accessories used for cable entries and for unused holes must be covered by a separate ATEX certification according to the applicable standards EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31.

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Identification

The three-phase and single-phase asynchronous motors, Series O-M (IE1 Range), are identified by a code as follows

Motor Type Identification				OD	063	A	4
Motor Type							
Three phase and single phase motors Efficiency IE1							
MD	1ph Ex db or Ex db Ex tb (ATEX Marking)	ME	1ph Ex db Ex eb or Ex db Ex eb Ex tb (ATEX Marking)				
MX	1ph Ex db or Ex db Ex tb (ATEX + IECEx Marking)	MY	1ph Ex db Ex eb or Ex db Ex eb Ex tb (ATEX + IECEx Marking)				
OD	3ph Ex db or Ex db Ex tb (ATEX Marking)	OE	3ph Ex db Ex eb or Ex db Ex eb Ex tb (ATEX Marking)				
OX	3ph Ex db or Ex db Ex tb (ATEX + IECEx Marking)	OY	3ph Ex db Ex eb or Ex db Ex eb Ex tb (ATEX + IECEx Marking)				
Shaft Heigth							
56, 63, 71, 80, 90, 100, 112, 132, 160,180							
Main stator dimensions (depending on motor power)							
A,B		56 63 71 80					
S,L		90 132 160 180					
K,M		100 132 160 180					
Poles number							
2, 4, 6	Single phase motors 1 speed						
2, 4, 6 , 8	Three phase motors 1 speed						
3, 5, 7, 9	3ph double speed 2/4, 4/8, 4/6, 6/8 poles Constant Torque						
C, D, E, F	3ph double speed 2/4, 4/8, 4/6, 6/8 poles Quadratic Torque						

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The three-phase and single phase asynchronous motors, Series O (IE2-IE3 Range), are identified by a code as follows:

Motor Type Identification				OH	063	A	4
Motor Type							
Three phase and single phase motors Efficiency IE2 – IE3							
MH	1-Phase Ex db or Ex db tb (Atex marking)	**MK**	1-Phase Ex db eb or Ex db eb tb(Atex marking)				
OH	3 –Phase Ex db or Ex db Ex tb (ATEX Marking)	**OK**	Ex db Ex eb or Ex db Ex eb Ex tb (ATEX Marking)				
MZ	1-Phase Ex db or Ex db tb (Atex + IECEx marking)	**MJ**	1-Phase Ex db eb or Ex db tb (ATEX +IECEx marking)				
OZ	Ex db or Ex db Ex tb (ATEX + IECEx Marking)	**OJ**	Ex db Ex eb or Ex db Ex eb Ex tb (ATEX + IECEx Marking)				
Shaft Heigth							
56, 63, 71, 80, 90, 100, 112, 132, 160,180							
Main housing Frame S M L **Main stator dimensions (depending on motor power)** **A B C D E S Z**							
Poles number							
2, 4, 6 , 8	Three phase motors 1 speed						
2, 4	Single phase motors 1 speed						

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Warning label

"Flameproof joints cannot be repaired"

"Use screws quality ≥ 8.8"

"Potential electrostatic charging hazard – Do not rub the surface – Clean only with a damp cloth"

Note: this warning is included only in case of painting with thickness greater than 0.2mm

"Do not open in presence of explosive atmosphere"

"Refer to instruction for cable and cable gland selection"

"Do not open when energized"

Routine tests

According to clause 7.1 of EN 60079-7 standard, each motor having increased safety "Ex eb" terminal box shall be submitted to the dielectric strength test (carried out in accordance with clause 6.1). The test shall be deemed to have passed if no breakdown or arcing occurs applying a test voltage equals to (1000+ 2U) V.r.m.s. for at least 1 minute, where U is the rated voltage of the motor.

The test can be alternatively carried out at 1.2 times the test voltage for a period of at least 100 ms.

The test voltage shall be applied between each galvanically isolated connection included in the terminal box.

[16] **Assessment Report n° EPT.22.REL.02/2213099**

This EU-Type Examination Certificate is released after the positive result of the conformity assessment of the Council Directive 2014/34/EU and to harmonized technical standards listed in this certificate performed by the Notified Body Eurofins Product Testing Italy S.r.l., and reported in the Assessment Report above cited.

[17] **Special condition for a safe use**

Supply voltage must be within:

- ±5% of the nominal value for temperature class T5;
- ±10% of the nominal value for temperature class T3 or T4.

•Flameproof joints are not intended to be repaired.

•The anti-condensation heater can be activated only when the motor is not powered.

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

Assured by compliance with harmonized standards.

[19] **Descriptive documents**

The equipment object of this Certificate are described by the following documents that are scheduled documents and therefore they cannot be modified without the explicit authorization of the Notified Body.

Type of document	Document identification	Rev.	Date
*Technical note (four attachements included)	Technical note asynchronous motors series O - M sizes 56-180	3	06-10-2022
Sealing rings drawings	Schema gommini	-	19-02-2021
Gland nuts drawings	Schema premistoppa	-	23-02-2021
Washer drawings	Schema rondelle	-	23-02-2021
Safety, installing maintenance instructions (non-flat box motor)	Motors series O-M - Safety, installing maintenance instructions	01	28-06-2021
Safety, installing maintenance instructions (flat box and not flat box motors)	Motors series O-M - Safety, installing maintenance instructions	02	20-05-2022

* New or revised document

[20] **Terms and conditions**

The product liability rests with the Manufacturer, his representative or, in the absence of a representative, with the importer, in accordance with the General Product Safety Directive 2001/95/EC.

The following conditions may render this certificate invalid:

- changes in the design or construction of the product;
- changes or amendments to the Directive;
- changes or amendments in the standards which form the basis for documenting compliance with the essential requirements of the 2014/34/EU Directive.

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[21] **History**

Issue	Description	Date
0	First emission, replacement of the EC-TYPE EXAMINATION CERTIFICATE n. EUM1 10 ATEX 0350 and its supplements n. 1 and 2.	06-02-2017
1	Constructive change and changing of manufacturer's references	08-02-2019
2	• Inclusion of the high efficiency IE2-IE3 versions (with and without extension ring) • Verification of compliance according to the latest standard editions EN IEC 60079-0:2018 and EN 60079-7:2015+A1:2018	29-06-2021
3	Inclusion of "flat box" version for single phase motors sizes from 56 to 100 and for three phase motors sizes from 56 to 132 (models 132M D2, 71M Z6, 132M E6 are excluded)	15-07-2022
4	The high efficiency version (IE2) for single phase motors has been included in the scope of the certificate	21-12-2022

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End of Certificate