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[1] # EU-TYPE EXAMINATION CERTIFICATE

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

[3] Certificate Number: **EPT 19 ATEX 3409 X** **issue 3**

[4] Equipment: **Electric motors**

Series: **J2 – K2**

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

[6] Address: Via Mantova, N. 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.02/2113111

[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 at least one of the following strings:

II 2G Ex eb IIC T4 Gb	**-40°C ≤ T_{amb} ≤ +40°C**	3Ph, Size 56 and 63 without flat box,
II 2G Ex eb IIC T3 Gb	**-40°C ≤ T_{amb} ≤ +45°C**	3Ph, Size 56 and 63 with flat box; all other sizes with and without flat box
II 2G Ex db eb IIC T3 Gb	**-40°C ≤ T_{amb} ≤ +45°C**	Single phase motors with or without flat box
II 2D Ex tb IIIC T125°C Db		Applicable to all motors; if present it's always in addition to one of the above listed strings

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

Torino, 20-06-2022

Eurofins Product Testing Italy

Dionisio Bucchieri
Directive Responsible

eurofins

Notified Body N. 0477

Paolo Trisoglio
Managing Director

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

PRD N° 119B
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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 three-phase and single-phase asynchronous squirrel cage motors, Series J2 - K2, are a range of motors size 56 up to 160 (motor shaft height). They are identified by a code as follows:

J2 063 A 4 H 230 5 F Z 3

Motor type	
K2	Single-phase category 2
J2	Three-phase category 2

Motor shaft height
56, 63, 71, 80, 90, 100, 112, 132, 160

Stator dimensions	
A, B	56, 63, 71, 80
S, L	90
K, M	100
M	112
S, K, M, L	132
S, M, L	160

Poles	
2, 4	Single-phase motors
2, 4, 6 , 8	Three-phase motors 1 speed

Mounting arrangements			
H	B3	W	B3/B14
B	B3 right box	X	B3/B5
S	B3 left box	J	B3/B14 left box
F	B5	M	B3/B14 right box
G	V1 (B5 + rain cover)	R	B3/B5 left box
Q	B14	T	B3/B5 right box

Supply voltage	
Three-phase 1 speed	
230	For 230/400V Motors
400	For 400/690V Motors
Single-phase	
230	-

Frequency	
5	50Hz
6	60Hz

Protection (IP and Ex)	
F	IP55 – Increased safety 'Ex eb'
G	IP65 - Protection Ex tb IIIC (Conductive dust)
H	Increased safety 'Ex eb' IP65 - Protection Ex tb IIIC
C	IP65 - Protection Ex tb IIIC (Conductive dust) Flat T. Box
K	Increased safety 'Ex eb' IP65 - Protection Ex tb IIIC Flat T. Box

Painting			
Z	Not painted	M	BRIGHT BLACK RAL9005
B	BLUE RAL5010	N	OPAQUE BLACK
E	BLUE RAL5014	V	GREEN 5018
K	BLUE RAL5015	W	WHITE RAL9001
G	GREY RAL7031		

Thermal protectors	
-	Without thermal protectors
P	Thermistor PTC – Temperature Class T3
U	Thermistor PTC – Temperature Class T4

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The equipment are made of aluminum with separate parts: motor enclosure, terminal box for supply and a capacitor enclosure (for single phase motors).
The motors are suitable for Group IIC and Group IIIC.
The motor enclosure and the terminal box have types of protection "Ex eb" and "Ex tb"; the factory connections to the supply cable can be also done by means of splicing or head to head connectors.
The capacitor enclosure has types of protection "Ex db" and "Ex tb";
The motors can be equipped with auxiliary devices (capacitor, breathing and draining devices).
The equipment are provided with PTC thermal protectors in the stator windings (one on each phase).

Equipment characteristics:

Maximum supply voltage:	600 $V_{ac\ 3\text{-}phase}$
Rated frequency:	50 Hz or 60 Hz
Rated power:	0.06 kW to 18.5 kW
Poles:	2, 4, 6, 8
Insulation class:	F (155°C)
Duty:	S1
Degree of protection:	IP 65 (according to EN 60079-0 and IEC 60529)
Ambient temperature:	from -40 °C to +40 °C (or +45°C for T3 temperature class)
Painting:	Maximum thickness of 0.2 mm for type of protection "Ex eb" Not performed for type of protection "Ex tb"

Temperature classes and Maximum surface temperature:

T4, T3, T 125°C as a function of the ambient temperature and of the electrical characteristics

The list of time tE per motor is reported below:

Three phase motors - 400V 50Hz - 2 poles

			Class T3		Class T4
			T_a 40°C	T_a 45°C	T_a 40°C
Type	Poles	Power [kW]	t_E [s]	t_E [s]	t_E [s]
J2 56A2	2	0.09	13	13	13
J2 56B2	2	0.12	14	14	14
J2 63A2	2	0.18	8	8	8
J2 63B2	2	0.25	16	16	16
J2 71A2	2	0.37	13	13	-
J2 71B2	2	0.55	9	9	-
J2 80A2	2	0.75	6	6	-
J2 80B2	2	1.1	12	12	-
J2 90S2	2	1.5	13	13	-
J2 90L2	2	2.2	11	11	-
J2 100L2	2	3	15	15	-
J2 112M2	2	4	6	6	-
J2 132K2	2	5.5	10	10	-
J2 132S2	2	7.5	5	5	-
J2 160K2	2	11	6	6	-
J2 160M2	2	15	7	7	-
J2 160L2	2	18.5	9	9	-

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Three phase motors - 400V 50Hz - 4 poles

Type		Poles	Power [kW]	Class T3 T_a 40°C t_E [s]	Class T3 T_a 45°C t_E [s]	Class T4 T_a 40°C t_E [s]
J2	56A4	4	0.06	17	17	17
J2	56B4	4	0.09	19	19	19
J2	63A4	4	0.12	28	28	28
J2	63B4	4	0.18	19	19	19
J2	71A4	4	0.25	17	17	-
J2	71B4	4	0.37	12	12	-
J2	80A4	4	0.55	11	11	-
J2	80B4	4	0.75	17	17	-
J2	90S4	4	1.1	16	16	-
J2	90L4	4	1.5	11	11	-
J2	100K4	4	2.2	7	7	-
J2	100L4	4	3	12	12	-
J2	112M4	4	4	5.5	5.5	-
J2	132S4	4	5.5	9	9	-
J2	132M4	4	7.5	7	7	-
J2	160M4	4	11	7	7	-
J2	160L4	4	15	8	8	-

Three phase motors - 400V 50Hz - 6 poles

Type		Poles	Power [kW]	Class T3 T_a 40°C t_E [s]	Class T3 T_a 45°C t_E [s]
J2	71A6	6	0.18	21	21
J2	71B6	6	0.25	19	19
J2	80A6	6	0.37	14	14
J2	80B6	6	0.55	14	14
J2	90S6	6	0.75	16	16
J2	90L6	6	1.10	16	16
J2	100L6	6	1.50	12	12
J2	112M6	6	2.20	15	15
J2	132S6	6	3.00	7.5	7.5
J2	132K6	6	4.00	7	7
J2	132M6	6	5.50	8	8
J2	160M6	6	7.50	7.5	7.5
J2	160L6	6	11.00	7	7

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Three phase motors - 400V 50Hz - 8 poles

Type		Poles	Power [kW]	Class T3 T_a 40°C t_E [s]	Class T3 T_a 45°C t_E [s]
J2	80A8	8	0.18	28	28
J2	80B8	8	0.25	21	21
J2	90S8	8	0.37	23	23
J2	90L8	8	0.55	20	20
J2	100K8	8	0.75	14	14
J2	100L8	8	1.10	14	14
J2	112M8	8	1.50	17	17
J2	132S8	8	2.20	18	18
J2	132L8	8	3.00	12	12
J2	160S8	8	4.00	12	12
J2	160M8	8	5.50	12	12
J2	160L8	8	7.50	11	11

Single phase motors - 230V 50Hz - 2 poles

Type		Poles	Power [kW]	Class T3 t_E time[s] 40°C	Class T3 t_E time[s] 45°C
K2	56A2	2	0.09	32.0	32.0
K2	56B2	2	0.12	32.0	32.0
K2	63A2	2	0.18	18.2	18.2
K2	63B2	2	0.25	26.0	26.0
K2	71A2	2	0.37	14.7	14.7
K2	71B2	2	0.55	23.3	23.3
K2	80A2	2	0.75	13.0	13.0
K2	80B2	2	1.1	10.9	10.9
K2	90S2	2	1.5	27.8	27.8
K2	100L2	2	2.2	30.0	30.0
K2	100L2	2	3	28.4	28.4

Single phase motors - 230V 50Hz - 4 poles

Type		Poles	Power [kW]	Class T3 t_E time[s] 40°C	Class T3 t_E time[s] 45°C
K2	56A4	4	0.06	32.0	32.0
K2	56B4	4	0.09	32.0	32.0
K2	63A4	4	0.12	32.0	32.0
K2	63B4	4	0.18	32.0	32.0
K2	71A4	4	0.25	24.2	24.2
K2	71B4	4	0.37	21.7	21.7
K2	80A4	4	0.55	15.5	15.5
K2	80B4	4	0.75	24.9	24.9
K2	90S4	4	1.1	19.4	19.4
K2	90L4	4	1.5	14.7	14.7
K2	90L4	4	1.5	17.5	17.5
K2	100K4	4	2.2	32.0	32.0
K2	112M4	4	3	13.1	13.1

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Ventilation

Ventilation is made by fan, who is fitted directly on the shaft.

Fans for "Ex eb" motors, which have a peripheral speed below 50 m/s, are made of plastic material.

Fans for "Ex tb" or "Ex eb" motors (which have a peripheral speed above 50 m/s) are made of plastic dissipative material or aluminum.

The degree of protection (IP) of ventilation openings are:

- IP 20 on the air inlet side
- IP 10 on the air outlet side

Cable entries

Cable glands shall be already properly ATEX certified.

The accessories used for cable entries are not object of this certification and must be subjected of a separate ATEX certification according to EN 60079-31 and EN 60079-0. They must have an operating temperature range from -40°C and +80°C and ensure a degree of protection IP 65.

Warning label

Do not open when energized

Single phase cap. conduit thread size: M20x1.5 (or M16x1.5 or ½"NPT or ¾" NPT).

Routine tests

In compliance with clause 7.1 of EN 60079-7, the manufacturer has to perform the dielectric strength test between galvanically isolated parts at a minimum voltage of (2*U+1000) V r.m.s. for 60 s, where "U" is the working voltage. As an alternative, the test can also be conducted at (2*U+1000) x1.2 V r.m.s. for t>0.1 s.

[16] **Assessment Report n° EPT.22.REL.02/2113111**

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.

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

The operating temperature of supply cable must be suitable for a temperature of 80°C.

In addition, for single-phase motors:
- The supply voltage must be within ±5% of the nominal value
- Flameproof joints are not intended to be repaired

In addition, for motor for sizes from 71 to 160 with increased safety type of protection:
- The user has to connect the equipment to a current-dependent safety device which, in case of locked rotor, de-energize within the limit time t_E.
-The intervention curve of the protection device, for the automatic de-energizing of supply, must consistent with the value I_A/I_N and the time t_E shown on the marking plate.
- It is forbidden the self-restart of the equipment after the intervention of the protection.

In addition, for motor sizes 56 and 63 with increased safety type of protection:
- The user has to follow what is indicated for motor sizes from 71 to 160; or
- Only for T3 temperature class, the user has to connect the terminals of each PTC sensor to a relay type MS220KA manufactured by ZIEHL (one for each PTC) which, in case of locked rotor, de-energize the motor to avoid that the surface temperature reaches the ignition value; Activation temperature of the relay is 150 °C.
- It is forbidden the self-restart of the equipment after the intervention of the relay.
-The relay has to be placed in safe zone or in an appropriate certified enclosure.

[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	Asynchronous motors – Series J2-K2	05	10-03-2022
Instruction manual	Motors series J-K Safety, installing and maintenance instructions	01	30-11-2021

* New or revised document

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[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.

[21] **History**

Issue	Description	Date
0	First Emission.	23-09-2019
1	A different model of thermal protector has been added (as before positive thermal coefficient resistance) A motor version without terminals box and with the supply cable integrated and connected by means of splicing terminals or "head to head" connections has been added	03-02-2022
2	Typing errors corrected: - Marking string *II 2G Ex eb IIC T3 Gb -40°C ≤ Tamb ≤ +45°C* applies to 3Ph, Size 56 and 63 with flat box; all other sizes with and without flat box - The date in the Annex was 03-02-2022 instead of 03-02-2021	25-02-2022
3	New types of supply connection boxes and PTC temperature sensors have been added as alternative construction version. The issue date Motors series J-K Safety, installing and maintenance instructions rev. 01 has been corrected from 07-12-2021 to 30-11-2021	20-06-2022

Dionisio Bucchieri
Directive Responsible

End of Certificate