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 CES 10.0019X issue No.:1	Certificate history: Issue No. 1 (2014-9-30) Issue No. 0 (2010-12-1)
Status:	Current	
Date of Issue:	2014-09-30	Page 1 of 4
Applicant:	**KONCAR - MES d.d.** (KONCAR – MALI ELEKTRICNI STROJEVI d.d.) Falerovo setaliste 22, HR – 10002 Zagreb **Croatia**	
Electrical Apparatus: *Optional accessory:*	**Three-phase asynchronous motors series 5AT 71- 80-90-100-112**	
Type of Protection:	**Flameproof enclosures 'd'; increased safety "e"**	
Marking:	**Ex de IIC T4, T3 Gb or** **Ex d IIC T4, T3 Gb**	
Approved for issue on behalf of the IECEx Certification Body:	Mirko Balaz	
Position:	Head of IECEx CB	
Signature: *(for printed version)*		
Date:	30-09-2014	

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:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI
CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
Fiorenzo Bregani

IECEx Certificate of Conformity

Certificate No.: IECEx CES 10.0019X

Date of Issue: **2014-09-30** Issue No.: 1

Manufacturer: **KONCAR - MES d.d.**
(KONCAR – MALI ELEKTRICNI STROJEVI d.d.)
Falerovo setaliste 22,
HR – 10002 Zagreb
Croatia

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 60079-7 : 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:
IT/CES/ExTR09.0007/00 IT/CES/ExTR09.0007/01 IT/CES/ExTR09.0007/02

Quality Assessment Report:

IT/CES/QAR10.0010/04

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Schedule

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

Three-phase asynchronous motors series 5AT 71-80-90-100-112 are manufactured by different constructive typologies; they can be supplied by mains or by inverter, with simple or double polarity, self-ventilated or with forced ventilation.
The motors are manufactured with two separate compartments: motor (Ex-d) and terminal box (Ex-d or Ex-e) for supply and auxiliary circuits connection or can be provided with permanently connected cable.
The motors can be equipped with auxiliary devices (heaters, thermal detectors) and with separate brake and encoder.
The cable entry devices used on the enclosure shall be suitably certified.

See annex for further description.

CONDITIONS OF CERTIFICATION: YES as shown below:

- Supply cables of motors for the ambient temperature +60°C shall be suitable for an operating temperatur e equal or greater than 85°C;
- Screws used for fastening the parts of motor enclosure, shields and terminal box shall have a yield stress higher than 800N/mm2.
- The motor provided with the cables permanently connected, shall have these cables protected against the risk of damage due to mechanical stresses. The free end connections shall be made according to one of the types of protection indicated in the IEC 60079-0 standard according to the installation rules in force in the site of installation.

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

Variation 1
Variation 1.1
- Updating of drawings with more details

Variation 1.2
- New terminal boxes, with enlarged gap, in protection mode "Ex d"

Variation 1.3
- Updating of nameplate

Variation 1.4
- Updating to the new reference standard editions: IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-7:2006. No difference between the two standards affects the design of the motors with exception of the marking; the marking has been updated including the equipment protection level (EPL) "Gb".

Annex: IECExCES10.0019X ANNEX Issue 1-KONCAR motors 5AT 71-112.pdf

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CESI

Prot: B4025223

Annex to certificate: **IECEx CES 10.0019X Issue No.1 of 2014-09-30**

Applicant: **KONCAR - MES d.d.**
(KONCAR – MALI ELEKTRICNI STROJEVI d.d.)
Falerovo setaliste 22, HR – 10002 Zagreb, Croatia

Electrical Apparatus: **Three-phase asynchronous motors series 5AT 71-80-90-100-112**

Description of equipment

Three-phase asynchronous motors series 5AT 71-80-90-100-112 are manufactured by different constructive typologies; they can be supplied by mains or by inverter, with simple or double polarity, self-ventilated or with forced ventilation.
The motors are manufactured with two separate compartments: motor (Ex-d) and terminal box (Ex-d or Ex-e) for supply and auxiliary circuits connection or can be provided with permanently connected cable.
The motors can be equipped with auxiliary devices (heaters, thermal detectors) and with separate brake and encoder.
The cable entry devices used on the enclosure shall be suitably certified.

The various motors types are identified by a code as follows:

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- Motor series
- Type of motor
  - AT = basic design of single-speed motor
  - ATP = multi-speed motor with constant torque at all speed
  - ATPV = multi-speed fan rated motor
  - ABT = single-speed marine motor
  - ABTP = multi-speed marine motor with constant torque at all speed
  - ABTPV = multi-speed fan rated marine motor
- Additional code
  - A = motor with special mounting dimension
  - E = motor with special electric design
  - K = motor with electromagnetic brake
- Motor frame size (71, 80, 90, 100, 112)
- Frame length (S, M, L)
- Stator and rotor pack length (A, B, C)
- Number of poles (2 ÷ 8)
- Type of protection and means of external connection
  - D – Ex d IIC (B) - motor and terminal box "d"
  - E – Ex de IIC (B) - motor "d" and terminal box "e"
  - K – Ex d IIC (B) - motor "d" with permanently connected cables
- Code of additionally mounted equipment (A, T, G, single or combination)
  - A – motor with anticondensate heaters
  - T – motor with thermal protection
  - G – motor with encoder
- Temperature Class (T3; T4)

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(KONCAR – MALI ELEKTRICNI STROJEVI d.d.)
Falerovo setaliste 22, HR – 10002 Zagreb, Croatia

Electrical Apparatus: **Three-phase asynchronous motors series 5AT 71-80-90-100-112**

Electrical characteristics

Supply by mains

Maximum voltage:	750	V
Maximum rated power (S1 duty)	4,5	kW
Maximum rated current:	8,7	A
Rated frequency:	50 / 60	Hz
Rated speed:	750 ÷ 3600	rpm
Insulation class:	F-H	(with Δt B)
Duty:	S1 ÷ S10	
Number of poles:	2 ÷ 8	
Ambient temperature:	-20 ÷ +40 °C or -20 ÷ +60 °C Motors provided with permanently connected cables: -20 ÷ +50°C	
Degree of protection:	IP 55 (IEC 60034-5) IP 54 or IP 56 or IP 65 or IP 66 optional	

The anticondensate heaters installed inside the motor can have a maximum power of 80 W.

Motors supplied by inverter

Maximum voltage:	750 V
Peak voltage maximum:	1060 V
Frequency range:	5 ÷ 87 Hz (motors 2p=2) 5 ÷ 100 Hz (motors 2p=4, 6, 8)

The three-phase asynchronous motors supplied by inverter are provided with a suitable label reporting electrical operating characteristics; they shall be provided, inside the stator winding, with thermal detectors (PTC); these thermal detectors shall be connected to suitable protection devices of the supply system.

The operation of the thermal detector shall guarantee the disconnection of the supply at:
- 150 °C maximum for motors with temperature class T3;
- 130 °C maximum for motors with temperature class T4.

The operation of the thermal detector shall guarantee the disconnection of the supply; the resetting of the supply shall not be automatic.

Motors with brake and/or encoder

Brake and/or encoder, coupled to the motor, shall be suitable for group, type of protection and ambient temperature range foreseen from the motor.

Warning label

For motor supply by inverter: "Winding protected with PTC thermistors"
In case of use of anticondensate heaters: "Warning – energised resistors".