

EU – TYPE EXAMINATION CERTIFICATE

[1]

[2] Equipment or Protective Systems Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU.[3] EU-Type Examination Certificate Number: **EXA 18 ATEX 0001X** Issue: **3**[4] Product: **Three-phase asynchronous motors**Type: **7ATL 90 - 250**[5] Manufacturer: **KONČAR-MES d.d.**
(KONČAR – MALI ELEKTRIČNI STROJEVI d.d.)[6] Address: **Fallerovo šetalište 22, HR-10000 Zagreb, Croatia**

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

[8] Ex-Agencija, Notified Body number 2465 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 of the Directive.

The examination and test results are recorded in confidential Report No.: **EXA 18CR001,
EXA 18CR050 and
EXA 18CR084**[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012/A11:2013 **EN 60079-1:2014** **EN 60079-7:2015**

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design, examination and test of the specified product in accordance with Annex III. Further requirements of the Directive apply to the manufacturing process and supply of this products. These are not covered by this certificate.

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


**II 2G Ex db eb IIB T5...T3 Gb**

or

II 2G Ex db IIB T5...T3 Gb

Date: 17.12.2018.

PB.17.TC.1010/ISa

**Ex-Agencija**
Department of equipment certification
Approved by:
Damir Korunić, dipl.ing.el.

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PQC-C-10-1e/12

[13]

SCHEDULE[14] **EU - TYPE EXAMINATION CERTIFICATE No.:** **EXA 18 ATEX 0001X**[15] **Description of product**

Three-phase asynchronous motors series 7ATL 90 - 250 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 db) and terminal box (Ex db or Ex eb) for supply and auxiliary circuit connection or can be provided with permanently connected cable. The motors can be equipped with auxiliary devices such as heaters, thermal detectors, brake and encoder.

The three-phase asynchronous motors series 7ATL 90 - 250 can be manufactured with efficiency class IE1, IE2 and IE3 according to IEC 60034-30 standard.

The standard motors are produced with insulation system in class F and are designed with temperature limit of the insulation class B ($\Delta t=80K$). The motors series 7ATL can be assessed for temperature classes T5 and ambient temperature $T_a = +40^\circ C$. The motors, for temperature class T3 can be designed with temperature limit of the insulation class F ($\Delta t=105K$) with insulation system in class F or H.

List of precertified components (bushings, terminals, cable glands, electrical brakes, encoder, ...) used on motors are given in manufacturer's documentation.

Model identification

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

A B C D E F G H I J K

A = Efficiency class: **Blank** - IE1; **E** - IE2; **H** - IE3

B = Motor series: **7**- motors with welded construction frame or casted iron frame

C = Type of motor:

ATL - basic design of single-speed motor

ATLP - multi-speed motor with constant torque at all speed

ATLPV - multi-speed fan rated motor

ABTL - single-speed marine motor

ABTLP - multi-speed marine motor with constant torque at all speed

ABTLPV - multi-speed fan rated marine motor

D = Additional code (single or in combination)

A - motor with special mounting dimension

E - motor with special electric design

K - motor with electromagnetic brake

E = Motor frame size (**90, 100, 112, 132, 160, 180, 200, 225** or **250**)

F = Frame length: **S** - Short, **M** - Medium, **L** - Long and **X** - for longer frame (SX, MX, LX)

G = Power designation, power according to stator and rotor length:

A,B,C,.. or **RA, RB, ...**; (R- for reduced power in bigger frame)

H = Number of poles: **2** to **8** (4/2; 6/4, 8/4/2, ...)

I = Type of protection and means of external connection:

D - Ex db - motor and terminal box "db"

E - Ex db eb - motor "db" and terminal box "eb"

K - Ex db - motor "db" with permanently connected cables

J = Code of additionally mounted equipment (single or in combination):

T = motor with thermal protection

A = motor with space heaters

V = motor with forced ventilation unit and certified driving motor

G = motor with encoder

K = Temperature class designation: **T3, T4** or **T5**

Electrical characteristics

Main electrical characteristics of motors series 7ATL 90-250, with Temperature classes **T3** and **T4**:

Supply by mains

Maximum voltage:	750 V
Maximum rated power (S1 duty):	55 kW
Maximum rated current:	100 A
Rated frequency:	50 / 60 Hz
Rated speed:	750 ÷ 3600 rpm
Insulation class:	F (with Δt B) H (with Δt F)
Duty:	S1 ÷ S10
Number of poles:	2 ÷ 8
Degree of mechanical protection:	Terminal box: IP 55, IP 56, IP65 or IP66 (tested according to EN 60079-0 and EN 60529) Motor enclosure: IP 55, IP 56, IP65 or IP66 (tested according to EN 60034-5)
Ambient temperature:	-40 ÷ +40 °C (standard motors) -50 ÷ +60°C (on demand), narrow range can be declared

Motors can be designed for temperature class **T5** according to technical data given in manufacturer's design procedure.

The anticondensate heaters installed inside the motor can have a maximum power of 130 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.

Motors with forced ventilation unit

These machines are provided with a motor-driven blower mounted on the primary motor. The motor used for forced ventilation shall be suitable for group, type of protection and ambient temperature range foreseen from the primary motor. The operation of the primary motor shall be interlocked to the correct operation of the forced ventilation.

Warning labels

"Warning - Do not open when energized".

For motor supply by inverter:

"Winding protected with PTC thermistors".

In case of use of anticondensate heaters:

"Warning – energised resistors".

For motors without terminal box and motors with ambient temperature +60°C:

"Supply cables of motors shall be suitable at least for operating temperature 90°C".

Installation conditions

The accessories used for cable entries and for closing unused openings shall be certified according to the followings standards:

- EN 60079-0 and EN 60079-1 for motors and terminal box with type of protection "Ex db"
- EN 60079-0 and EN 60079-7 for terminal box with type of protection "Ex eb"

If cylindrical threads are used the coupling between the cable gland and terminal box shall be provided with block to prevent loosening.

[16] Confidential Report No. EXA 18CR001, EXA 18CR050 and EXA 18CR084

[16.1] Routine testing

The manufacturer shall carry out the following routine tests:

- static overpressure test according to clause 16.1 of the EN 60079-1, with pressure according to table below in a period of at least 10 seconds:

Motor sizes 90, 100 i 112

Motor enclosure: 11,5 bar

Terminal box: 13,1 bar

Motor size 132

Motor enclosure: 12,9 bar

Terminal box: 14,5 bar

Motor sizes 160 i 180

Motor enclosure: 9,6 bar

Terminal box: 15,9 bar

Motor sizes 200, 225 i 250

Motor enclosure: 11,7 bar

Terminal box: 15,0 bar

- dielectric strength test according to standard EN 60079-7 cl. 7.1 with test voltage applied $(2U_n+1000)$ V but not less than 1500 V for a period at least 60 s or with $1,2 \times (2U_n+1000)$ V for a period at least 100 ms on motors with terminal box in type of protection "Ex eb".

[17] Specific Conditions of Use

- Screws used for fastening the parts of motor enclosure, shields and terminal box shall have a tensile strength equal or higher than 700 N/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 EN 60079-0 standard according to the installation rules in force in the site of installation.
- The flameproof joints have different values from those specified in the tables of the EN 60079-1 standard. For information regarding the dimensions of the flameproof joints contact the manufacturer.
- The motors supplied by inverter 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.

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[18] Essential Health and Safety Requirements

Covered by the standards listed at item 9.

[19] Drawings and Documents

Title:	Drawing No.:	Rev. level:	Date:
Technical description of motor series 7ATL 90-315	1653300	1, Annex 2	30.11.2018.
Annex 1: Technical description of motor series 7ATL 90-315: Technical data of IE1 motors	-	-	25.10.2017.
Annex 2: Technical description of motor series 7ATL 90-315 - Technical data of IE2 motors	-	-	25.10.2017.
Annex 3: Technical description of motor series 7ATL 90-315 - Technical data of IE3 motors	-	-	25.10.2017.
Annex 4: Technical description of motor series 7ATL 90-315: Dimension of stator and rotor	-	2	23.11.2018.
Annex 5: Technical description of motor series 7ATL 90-315: Drive over frequency inverter	-	-	25.10.2017.
Annex 6: Technical description of motor series 7ATL 90-315 - List of certified components	-	-	23.01.2018.
Instruction for use	1619721	-	11/2018.
Assembly drawing 7ATL 90 – 112	1653300/A1	B	30.11.2018.
Data and list of positions 7ATL 90 – 112	1653300/B1	B	30.11.2018.
Assembly drawing 7ATL 132 – 315	1653300/A2	B	30.11.2018.
Data and list of positions 7ATL 132 – 315	1653300/B2	B	30.11.2018.
Dimensional drawing	1653300/C	-	25.10.2017.
Assembly drawing 7ATL 132 – 315 IIB	1653300/D	B	30.11.2018.
Assembly drawing 7ATL 90 IIB	1653300/D1	-	10.10.2018.
Assembly drawing 7ATL 100 IIB	1653300/D2	-	10.10.2018.
Assembly drawing 7ATL 112 IIB	1653300/D3	-	10.10.2018.
Assembly drawing 7ATL 132 IIB	1653300/D4	-	23.11.2018.
Assembly drawing 7ATL 160 IIB	1653300/D5	B	30.11.2018.
Assembly drawing 7ATL 180 IIB	1653300/D6	B	30.11.2018.
Assembly drawing 7ATL 200 IIB	1653300/D7	-	23.11.2018.
Assembly drawing 7ATL 225 IIB	1653300/D8	-	23.11.2018.
Assembly drawing 7ATL 250 IIB	1653300/D9	-	23.11.2018.
Drawing of terminal box 90-112	1653300/F1	A	27.11.2018.
Drawing of terminal box 132-280	1653300/F2	-	25.10.2017.
Drawing of terminal box 90-112	1653300/F4	-	25.10.2017.
Terminal box cable adapter 7ATL 90-112	1653300/F5	-	25.10.2017.
Drawing of version with two terminal boxes 90-315 Exe-version	1653300/F6	-	25.10.2017.
Drawing of force ventilation unit	1653300/G	-	25.10.2017.
Drawing of brake mounting	1653300/H	-	25.10.2017.

Title:	Drawing No.:	Rev. level:	Date:
Drawing of encoder mounting	1653300/I	-	25.10.2017.
Drawing of IP 66 protection, Ex db/Ex eb terminal box 7 ATL 90-315	1653300/J1	-	25.10.2017.
Drawing of IP 66 protection, Ex eb terminal box 7 ATL 90-112	1653300/J2	-	25.10.2017.
Drawing of IP 66 mechanical protection, Ex db eb 7 ATL 90-112	1653300/J3	-	25.10.2017.
Drawing of IP protection, motors Ex db 7 ATL 132-315	1653300/J4	-	25.10.2017.
Drawing of marking plates	1653300/K	-	25.10.2017.
Terminal board Exe, M5-24	148815	C	30.03.2016.
Terminal board Exe, M5-24	148815/A	C	30.03.2016.
Terminal board Exe, M8-35	148309	C	30.03.2016.
Terminal board Exe, M8-35	148309/A	C	30.03.2016.
Terminal board Exe, M12-45	148814	C	30.03.2016.
Terminal board Exe, M12-45	148814/A	C	30.03.2016.
Earthing dimension	122016/7B8	A	01.2018.