

KONČAR

MOTORS AND ELECTRICAL SYSTEMS



EXPLOSION-PROTECTED MOTORS

Product overview

The reliable way to maximum safety and efficiency

www.koncar-mes.hr

GENERAL DESCRIPTION

KONČAR – Motors and electrical systems is the consistent platform for explosion-protected motors that represents the reliable, easy, and fast way to achieve maximum safety. This motor series covers all hazardous zones - 1, 2, 21, and 22 - with a technologically seamless concept. Based on decades of experience and expertise in explosion protection our low voltage explosion-proof motors satisfy the highest quality standards combining reliability, high efficiency, and robustness even under extreme conditions. The motors are certified for use

in explosive gases and dust. They are available in all common ex-protection types.

Explosion-protected motors have been specially developed for pumps, fans, compressors, extruders, separators, and agitators in process industries such as chemicals, petrochemicals, Oil & Gas, HVAC, and food & beverage. They cover a power range from 0.09 up to 200kW, with degrees of protection from IP55 to IP67, they are suitable for direct-on-line (DOL) as well as converter operation (VSD).

YOUR BENEFITS

Maximum operational safety, availability, and reliability even in extreme environments. Preconfigured option packages for the chemical and oil & gas industries, e.g., industry-specific coatings with category C4 corrosion protection, stainless steel screws and bolts, and an industry-specific, extended warranty period.

- Significant cost savings by simplified overall processes
- Short delivery times, faster project execution
- Reduced specification work, fewer changes, and clarifications
- Documentation that is adjusted to simple or highly complex projects

- Choice of options, such as reduced starting currents, motor monitoring, reinforced bearings, tropical climate version
- For extreme humidity, coating systems, or offshore C5M-M classification

The high investment costs and long lifecycles associated especially with large plants in the petrochemical and oil & gas industries, as well as the increasing environmental and emission protection requirements in these markets, all demand top performance, and maximum efficiency.



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**Certified according to ATEX Directive 2014/34/
EU and in compliance with international
efficiency standard IEC 60034-30 and EU
Ecodesign directive 2019/1781**



Danger of explosion, aggressive atmospheres, extreme temperatures. Drives in the oil & gas, chemical and petrochemical sectors must cope with a lot of challenges. Even under the harshest conditions conceivable, KONČAR - MES motors fulfil all

the associated requirements when it comes to safety, reliability, and efficiency. This results in maximum protection for man and machine – and finally, also for the environment.

KONČAR - MES is a European producer that has many decades of experience in production of high quality motors



EXPLOSION-PROTECTED MOTORS

- Low voltage motors in IEC size range 71-315
- Power range up to 200kW
- Number of poles 2 – 8, other polarities upon request
- Efficiency class up to IE4 according to EN 60034-30
- Low voltage and voltage range acc. to IEC 60038
- Duty type S1 DOL and S9 inverter duty
- Degree of protection IP 55, IP 65, IP 66, IP67
- Cooling IC 411, IC 416
- Mounting IM B3, IM B35, IM B5 and derived types to EN 60034-7
- Regulations IEC, EN, optional VIK
- Labelling VIK: second name plate in terminal box
- Stator frame Aluminium /Cast iron
- Terminal box Aluminium/Cast iron
- Bearings greased for life up to size 250, for sizes 280 and 315 regreasing devices as standard
- Ball bearing C3
- Winding protection PTC thermistor as additional protection

OPTIONS

- Vibration intensity A (Vibration intensity B optional)
- Balancing half key
- Ex-protection Ex db, Ex eb, Ex ec, Ex tb, Ex tc
- Vibration sensors and monitoring
- Regreasing system from size 160
- Additional terminal box
- Anti-condensation heating
- 60Hz, special voltage
- Terminal box right or left-hand side
- Mounting from ex certified brakes, encoders, and external fans
- Special bearing for high axial/radial forces



FLAMEPROOF MOTORS EX db for Zone 1 and 2

Certified according to ATEX Directive 2014/34/EU, IECEx Scheme and UKCA

Type 5AT 71 – 112 (die-cast aluminium frame)
7AT 71 – 315 (cast-iron frame)

Power range 0,08 -200kW

Ex protection marking and usage:

- I M2 Ex db (eb) I Mb for mining industry
- II 2G Ex db (eb) IIC T6/T5/T4/T3 Gb
- II 2G Ex db (eb) IIB T3 Gb
- II 2D Ex tb IIIC T100/T130/T160°C Db

Standard design:

- Rated voltage / frequency: 400V / 50Hz
- Number of poles: 2 to 8
- Duty type: S1
- Efficiency class up to IE4 acc. to EN 60034-30
- Maximum voltage: 750V
- Insulation class: F (with temperature rise in B class)
- Ambient temperature: -20°C/+40°C
- Temperature class: T3



Design options:

- Temperature class T4, T5, T6
- Other ambient temperatures (up to -20/+60°C and -20/+80°C for IIB T3)
- Other numbers of poles (up to 12) and multi-speed motors
- Frequency converter operation
- Marine design for tropical environments
- Degree of mechanical protection: IP56, IP65, IP66, IP67

*With ATEX Ex db protected brake

*With ATEX Ex db protected forced ventilation (IC416)

*With ATEX Ex db encoder

FLAMEPROOF MOTORS db FOR LOW TEMPERATURES
IEC frame size range: 7ATL 90-250 (up to 55kW)

II 2G Ex db eb IIB T5...T3 Gb or II 2G Ex db IIB T5...T3 Gb
Ambient temperature: standard -40°C/+40°C
Design options: -50°C/+60°C



INCREASED SAFETY Ex eb motors Protection level Gb for zones 1 and 2

Type 5AZS 63 – 160 (die-cast aluminium frame)
7AZS 90 – 160 (cast-iron frame)

Ex protection marking and usage:

- II 2G Ex eb IIC T4...T3 Gb

Standard design:

- Rated voltage / frequency: 400V / 50Hz or 440V / 60Hz
- Rated power at S1 duty: up to 13kW
- Number of poles: 2 and 4
- Duty type: S1
- Efficiency class up to IE3 acc. to EN 60034-30

- Maximum voltage: 750V
- Insulation class: F (with temperature rise in B class)
- Ambient temperature: -20°C/+40°C
- Temperature class: T3

Design options:

- Temperature class T4
- Frequency converter operation
- Marine use design for tropical environments
- Degree of mechanical protection: IP56, IP65, IP66
- Ambient temperature: -30°C up to +60°C

IE4 AND IE5 MOTORS IN EXPLOSION PROTECTION

SERIES 7KSRT (SYNCHRONOUS RELUCTANCE MOTOR IEC FRAME SIZE 80-160)

Ex protection marking and usage:

- II 2G Ex db IIC T3, T4, T5, T6 Gb
- II 2G Ex db eb IIC T3, T4, T5, T6 Gb
- II 2D Ex tb IIIC, T160°C, T130°C, T100°C Db

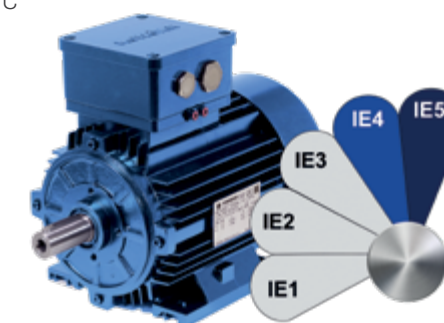
Standard design:

- Cast iron design
- Ex protection: II 2G Ex db eb IIC T4 Gb
- Frequency inverter input voltage: 3 x 400V / 50Hz
- Rated power: up to 18,5kW
- Duty type: S1
- Frequency range: 5-133Hz; up to 4000 rpm
- Efficiency class: IE4 and IE5 acc. to EN60034-30-2
- Ambient temperature: -20°C/+40°C
- Insulation class: F (with temperature rise in

- B class)
- Mechanical protection: IP55
- Cooling type: IC411
- Mounting arrangement: IMB3
- Color tone RAL 7031 C4

Design options:

- Temperatures classes (up to -20/+60°C for IIC and -20/+80°C for IIB T3)
- Marine use design for tropical environments
- Standstill winding heaters
- Other degrees of mechanical protection: IP56, IP65, IP66 or IP67
- Other cooling types: IC410, IC416, IC418
- Other duty types: S2-S10
- Other mounting arrangement: IMB5, IMB14, IMB35 etc.
- Special flanges, bearings, and shaft ends
- Degree of mechanical protection: IP56, IP65, IP66



Mounting possibilities

- With ATEX Ex db protected brake
- With ATEX Ex db protected forced ventilation (IC416)
- With ATEX Ex db encoder

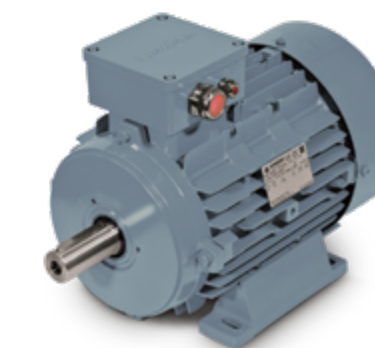
MOTORS IN PROTECTION BY ENCLOSURE Ex tb for Zone 21

Dust-explosion protected motors II 2D Ex tb IIIC T90...T135°C Db IP6x
Type of protection - Protection by enclosure „tb“ for use in Zone 21

Type 5AZST 63 – 160 (die-cast aluminium frame)
7AZST 90 – 315 (cast-iron frame)

Standard design:

- Rated voltage / frequency: 400V / 50Hz or 440V / 60Hz
- Rated power at S1 duty: up to 200kW
- Number of poles: 2 to 8
- Duty type: S1
- Efficiency class up to IE4 acc. to EN 60034-30
- Maximum voltage: 750V
- Insulation class: F (with temperature rise in B class)
- Ambient temperature: -20°C/+40°C



Design options:

- Frequency converter operation
- Marine use design for tropical environments
- Degree of mechanical protection: IP56, IP65, IP66, IP67
- Ambient temperature -30°C up to +60°C

Drives for the chemical industry, agriculture, wood processing

INCREASED SAFETY Ex ec motors for Zone 2 and Ex tc for Zone 22

Type 5AZN 63 – 160 (die-cast aluminium frame)
7AZN 90 – 315 (cast-iron frame)

Ex protection marking and usage:

- II 3G Ex ec IIC/IIB/IIA T4...T3 Gc
- II 3D Ex tc IIIC T90...T160°C Dc IP6x

Standard design:

- Rated voltage / frequency: 400V / 50Hz or 440V / 60Hz
- Rated power at S1 duty: up to 200kW
- Number of poles: 2 to 8
- Duty type: S1
- Efficiency class up to IE4 acc. to EN 60034-30
- Maximum voltage: 750V

- Insulation class: F (with temperature rise in B class)
- Ambient temperature: -20°C/+40°C
- Temperature class: T4

Design options:

- Temperature class T3
- Frequency converter operation
- Other numbers of poles (up to 12) and multi-speed motors
- Marine use design for tropical environments
- Degree of mechanical protection: IP56, IP65, IP66
- Ambient temperature: -30°C up to +60°C