

1. **GENERAL**

Three-phase asynchronous motors series W21, with frame sizes 90S/L, 100L, 112M, 160M/L, 180M/L, 200M/L, 225S/M, 250S/M, 280S/M, 315S/M and 355M/L and equivalent NEMA sizes, Mountings according to drawing number 10000365737, type of protection "Ex d" or "Ex de" power of 0,37 up to 370kW, 2 up to 8 poles (according to table 3), nominal voltage up to 1,0 kV for the type of protection "Ex d" and up to 690 V for the type of protection "Ex de", service factor 1,0 or 1,5, continuous duty S1 up to S9, rotation (according specifications), temperature rise "B", "F", or "H" being "F" with ΔT of "B" and "H" with ΔT of "B" or "H" with ΔT of "F" bidirectional rotation for motors with and without gasket, cooling system IC 411 in cast iron frame FC-200.

The motors can work with use of soft-starter or frequency drives with PWM operating characteristic With vector control and minimum switching frequency of 2,5 kHz.

Optionally, the motors with type of protection Ex d, frames 90S up to 200L, can be supplied with brake, which is enclosed in a flameproof installed in the back of the motors. The motors may have from 4 to 8 poles or in a dual polarity 4/2, 8/4, 6/4 8/2, 12/2, 12/4, 16/4 (according document 10000370408) in 50 and/or 60 Hz. The motors with duty cycles different of S1 and S2 may be Designed according to the features of their applications the motors with enclosure brakes have Temperature class T3 (ambient temperature from -20°C up to +60°C) or T4 (ambient temperature From -55°C up to +60°C).

The motors can be supplied with certified with certified drain, according to document 10000897119 Which are constituted by sintered stain steel tablet, encapsulated in a brass or stain steel threaded Container, assembled on the flameproof motor enclosure or shields.

The motors may be supplied with temperature Sensor Pt100, space heaters, bimetallic thermal Protectors (thermostat) and thermistors.

Type of Seal	Degree of Protection	Frame
Without Sealing	\leq IP66	all
Taconite Labyrinth	\leq IP66	160 up to 355
Lip Seal	\leq IP66	all
Inproseal	\leq IP66	all
Oil Seal	\leq IP66	all
W3 Seal Labyrinth	\leq IP66	all
Type "U" Labyrinth	\leq IP66	all

Technical Data**Sizes 90 – 100**

Maximum rated voltage:	690 V
Maximum rated power:	2,6 / 3,6 kW
Rated current (at 400 V):	4,53 / 5,81 A
Rated frequency:	5 to 90 Hz
Max. speed (at 60 Hz)	3470 / 348 rpm
Duty:	S1 to S9
Temperature class:	T4
Protection mode:	IP55 - IP56 – IP65 – IP66
Insulation class:	temperature rise "B", "F", or "H" being "F" with ΔT of "B" and

"H" with ΔT of "B" or "H" with ΔT of "F"

Ambient temperature: -55°C up to +60°C

Size 160 – 180 – 200

Maximum rated voltage: 690 V

Maximum rated power: 21 / 25 / 45 kW

Rated current (at 400V): 33,3 / 39,5 / 64,9 A

Rated frequency: 5 to 90 Hz

Max. speed (at 60 Hz) 3540 / 3545 / 3550 rpm

Duty: S1 to S9

Temperature class: T4

Protection mode: IP55 – IP56 – IP 65 – IP 66

Insulation class: temperature rise "B", "F" or "H" being "F" with ΔT of "B" and "H" with ΔT of "B" or "H" with ΔT of "F"

Ambient temperature: -55°C up to +60°C

Sizes 225 – 250

Maximum rated voltage: 690V

Maximum rated power: 53 / 85 kW

Rated current (at 400V): 76,2 / 127 A

Rated frequency: 5 to 90 Hz

Max. speed (at 60 Hz) 3465 / 3565 rpm

Duty: S1 to S9

Temperature class: T4

Protection mode: IP55 – IP56 – IP65 – IP66

Insulation class: temperature rise "B", "F" or "H" being "F" with ΔT of "B" and "H" with ΔT of "B" or "H" with ΔT of "F"

Ambient temperature: -55°C up to +60°C

Sizes 280 – 315

Maximum rated voltage: 690V

Maximum rated power: 125 / 185 kW

Rated current (at 400V): 188 / 120 A

Rated frequency: 5 to 90 Hz

Max. speed (at 60 Hz) 3570 / 3565 rpm

Duty:	S1 to S9
Temperature class:	T4
Protection mode:	IP55 – IP56 – IP65 – IP66
Insulation class:	temperature rise “B”, “F” or “H” being “F” with ΔT of “B” and “H” with ΔT of “B” or “H” with ΔT of “F”
Ambient temperature:	-55°C up to +60°C

Sizes 355

Maximum rated voltage:	690V
Maximum rated power:	290 kW
Rated current (at 400V):	414 A
Rated frequency:	5 to 90 Hz
Max. speed (at 60 Hz)	3580 rpm
Duty:	S1 to S9
Temperature class:	T4
Protection mode:	IP55 – IP56 – IP65 – IP66
Insulation class:	temperature rise “B”, “F” or “H” being “F” with ΔT of “B” and “H” with ΔT of “B” or “H” with ΔT of “F”
Ambient temperature:	-55°C up to +60°C

2. INSTALLATION INSTRUCTIONS

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

3. SPECIAL CONDITIONS FOR SAFE USE (denoted by X after certificate number)

1. The use of sealing system ensures to the motor the degree of protection IP55 or IP56 or IP65 or IP66. In order to ensure the degree of protection higher than IP55 it must be applied sealing component film lumomoly evenly by paint brush between the joint of frame and endshield, between N.D.E endshield and brake cover and between flanged joint between frame, intermediate base, terminal box cover.
2. For use in low temperatures, to insure the IP56, IP65, IP66, after each opening, all joints must be lubricated with grease below:
lumomoly P/04 for $T_a \geq -40^\circ\text{C}$, or
Melkote 033 for $T_a \geq -55^\circ\text{C}$.
3. The characteristics of cables and accessories must be suitable for the admitted temperature.
4. The accessories used for cable entries and holes shall be certified and in compliance to the relevant standards.
5. The accessories used for cable glands entries and for closing holes shall guarantee a degree of protection IP66 according with EN 60034-5 standards and shall be certified according to EN 60079-0 and EN 60079-1 for motor and terminal box “Ex d” and according with EN 60079-0 and EN60079-7 to terminal box “Ex e”.
6. If cylindrical threads are used, the coupling between the cable entry and the terminal box shall be made according with requirements indicated in the documents annexed to certificate.
7. The motors can be supplied by main or inverter. When motors are feed by inverters, the derating curve is applied in order to limit the temperature rise with the limit specified for insulation class B.
8. The shutdown of thermal protection must guarantee the disconnection of mains. The

disconnection shall not be automatically resettable..

9. The declarations of conformity of some parts of the assembly are based on standards which are not state of the art. It is the responsibility of the end user if the assembly shall be used in this level, or if the full documentation (Declaration of Conformity in state of the art) shall be provided by the manufacturers.

Based on the following documentation: TÜV 15 ATEX 7769 X

4. CONDITIONS OF CERTIFICATION

- All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

5. MARKING

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Zest WEG Electric (Pty) Ltd
 Manufacturer : WEG Equipamentos Eletricos S.A
 Equipment : Three phase asynchronous Flameproof motor
 Model/Type : Series W21, frame sizes 90S/L, 100L, 132S/M, 160M/L, 180M/L, 200M/L, 225S/M, 250S/M, 280S/M, 315S/M & 355M/L
 Serial No. : ---
 Ex Rating : Ex db IIB T4 Gb, Ex db eb IIB T4 Gb, Ex db IIB T3 Gb, Ex db eb IIB T3 Gb
 IA Certificate No : MS-XPL/17.0531 X

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- Any conditions mentioned in the above report;
- Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- A revision certificate replaces all previous version of the certificate.
- * - Only covers equipment Imported between the "Issued" and "Expire" dates.
- If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd.

Responsible Testing Officer:



D Maree
Senior Testing Officer

Reviewed by:



H De Wet
Testing Officer

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