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**GOVERNMENT APPROVED TEST LABORATORY**

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

**IA CERTIFICATE**

Date Issued: **16 Aug 2017**  
\*Expiry date: **16 Aug 2020**  
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**Issue: 0**

**Ex – Type Examination Certificate**

Certificate Number: **S-XPL/17.1175 X**  
Equipment: **The W21 Range of Small Induction Motors**  
Model / Type: **Sizes 63 to 355**  
Applicant: **Zest WEG Electric (Pty) Ltd**  
**PRIVATE BAG X 10011**  
**SANDTON**  
**2146**  
Manufacturer: **WEG Equipamentos Eletricos S.A**  
Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by  
**Zest WEG Electric (Pty) Ltd**  
Identified by Inspection Authority number  
**S-XPL/17.1175 X**

And as described in the Explolabs file number **XPL/18786/17.1175** is hereby certified "Explosion Protected Ex nA IIC T3 Gc, Ex tc IIIB T125°C Dc IP (see original schedule) , Ex tb III C T125°C Db IP6X (see schedule) Tamb (See description)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

<b>SANS 60079-0: 2012 Ed 5</b> <b>IEC 60079-0: 2011 Ed 6</b>	Explosive atmospheres Part 0: Equipment — General requirements
<b>SANS 60079-15: 2010 Ed 4</b> <b>IEC 60079-15: 2010 Ed 4</b>	Explosive atmospheres Part 15: Equipment protection by type of protection "n"
<b>SANS 60079-31: 2014 Ed 2</b> <b>IEC 60079-31: 2013 Ed 2</b>	Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
High	Db Group III	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 21 and 22	T125°C
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T3 (200°C)



Ventilation

Various methods of cooling are used including TEBC, TEFC, TEAO or TENV. For TEBC versions a separately IECEx certified blower motor is utilised and optionally an IECEx certified encoder may be attached to the main motor shaft.

External fans when used are manufactured from polypropylene, cast iron, bronze or aluminium containing less than 6% magnesium.

Windings

The low voltage motors are wound using polyester-imide enamel wire with the overhangs suitably insulated and tied with string in order to compact them and keep the insulation between phases in place.

Use of Variable Voltage Variable Frequency Drives

The W21 range of small motors may be operated with frequency inverters (variable speed drives) in the following conditions:

- For a motor to operate with the restriction of optimal flux the motor has to be IE2 High Efficiency rated or higher and the motor is to be supplied by a WEG inverter (Type CFW09 version 2.40 or higher, or the CFW11) and be de-rated according to WEG's de-rating curve.
- Use of WEG PWM inverters (variable speed drives) or equivalent brand with carrier frequency from 2000 Hz up to 20000 Hz, with a frequency range up to 100 Hz or in accordance with manufacturer's recommendations.
- When motors are operated below 50 Hz with contact torque loads, a de-rating factor as per WEG's de-rating Curve for Motors fed by Inverters shall be applied.
- Motors shall be fitted with thermal protective devices which shall be connected into the motor control circuit in order to maintain the T3 temperature class.

Auxiliaries

The auxiliaries which may be fitted to this range of machine are:-

- Anti-condensation heaters.
- Winding and bearing temperature detectors comprising RTD's, thermocouples, thermistors or thermostats.
- Vibration monitoring sensors.

Ambient Temperatures

The standard temperature range of the motors is -20°C to +50°C. By the choice of suitable materials and use of the de-rating data called up on the drawings an ambient range of -55°C to 80°C may be achieved. Individual motors must be marked according to the build of the unit.

Ingress Protection Rating

The ingress protection rating of the motors depend on the shaft seal used:

Shaft seal IP rating	Shaft seal IP rating
Lip or V ring	Lip or V ring IP55
Oil	Oil IP55 and IP56 and
Taconite labyrinth IP55 and IP65	IP55 and IP65
Labyrinth (W3) IP55 to IP66	IP55 and IP65
W Seal	IP55 and IP65
Inproseal	IP55 and IP65

**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.





Responsible Testing Officer:



**D Maree**  
Senior Testing Officer

Reviewed by:



**H De Wet**  
Testing Officer

**EXPLOLABS EXPLOSION PREVENTION SERVICES**

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