

## GOVERNMENT APPROVED TEST LABORATORY

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

### IA CERTIFICATE

Date Issued:

**31 Aug 2018**

\*Expiry date:

**24 Jan 2028**

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**Issue: 1**

#### Ex – Type Examination Certificate

Certificate Number:

**S-XPL/18.0057 X**

Equipment:

**Variable Speed Drive-Motor Combinations**

Model / Type:

**CFW09, CFW11 VSD's & Motor Combinations**

Applicant:

**Zest WEG Electric (Pty) Ltd**

**Private Bag X1011**

**Sandton**

**2146**

Manufacturer:

**Zest WEG Electric (Pty) Ltd**

Serial No:

All serial numbers of equipment covered by a valid report or acceptable product certification mark.

The unit(s) as described in Explolabs File Number **XPL/19240/18.0057** is hereby certified "Explosion Protected" **Ex nA IIC T4 Gc (T3 when anti-condensation heaters are fitted) or Ex tb IIIC T125°C Db IP65 or Ex db IIB T4 Gb or Ex db eb IIB T4 Gb**, having been tested, examined and inspected in accordance with the relevant requirements of South African Standards:

**SANS 10086-1: 2003 Ed 3.3**

"The installation inspection and maintenance of equipment used in explosive atmospheres, Part 1: Installations including surface installations on mines"

#### Referring to:

**SANS 60079-0: 2012 Ed 5**

**IEC 60079-0: 2011 Ed 6**

Explosive atmospheres Part 0: Equipment — General requirements

**SANS 60079-1: 2015 Ed 5**

**IEC 60079-1: 2014 Ed 7**

Explosive atmospheres Part 1: Equipment protection by flameproof enclosures "d"

**SANS 60079-15: 2010 Ed 4**

**IEC 60079-15: 2010 Ed 4**

Explosive atmospheres Part 15: Equipment protection by type of protection "n"

**SANS 60079-31: 2014 Ed 2**

**IEC 60079-31: 2013 Ed 2**

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			
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T4 (135°C)

High	Gb Group II	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T4 (135°C)
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

## 1. DESCRIPTION OF EQUIPMENT

This report is to provide evidence supporting the use of previously approved WEG motors and VSD combinations for use in hazardous locations. Motors with the following protection techniques will be covered by this report Ex nA IIC T4 (T3 when anti-condensation heaters are fitted), Ex tb IIIA/IIIB/IIIC T135°C IP6x, Ex db eb IIB T4 Gb and Ex db IIB T4 or T3 Gb.

For testing the following combination was used in the determination of the WEG motor VSD setup procedure:

The motors made provision for PTC thermistor that was fitted to each phase of the stator winding. The thermistors may be used as an option for temperature monitoring.

### Temperature testing on CFW 09

The motor-VSD combination involved a WEG 30 kW 4 pole 380V TEFC squirrel cage induction motor, certified as non-sparking Ex nA II 180°C (T3A) to SABS 970 under the SABS mark scheme permit No. 4754/9784 and Inspection Authority Certificate No SABS S/S577.

The variable speed drive (VSD) was a WEG Model CFW09 0060 T 3848 ESZ AC and was rated: 380-480V +10% - 15%, 60A, 30kW. The drive was not certified as explosion protected.

### Temperature testing on CFW 11

The motor-VSD combination involved a WEG 37 kW 4 pole 525V TEFC squirrel cage induction motor, certified as non-sparking Ex nA II 180°C (T3A) to SANS 60079-15 under the Certex mark scheme permit No. CX0514 Ed 6.2 and Inspection Authority Certificate S-XPL / 14.1464 X Rev 2.

The variable speed drive (VSD) was a WEG Model CFW11 0053 T6 0NBYZ and was rated: 500-600V +10% - 15%, 53A, 37kW. The drive was not certified as explosion protected.

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

- The VSDs shall be installed in a non-hazardous location.
- The maximum cable length between the VSDs and the motors shall be restricted to 300m and the choke shall be installed.
- The VSD's may only be connected to WEG approved motors as detailed in document No: CX0514.

## 3. 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.

## 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 : Zest WEG Electric (Pty) Ltd  
Equipment : Variable Speed Drive-Motor Combinations  
Model/Type : CFW09, CFW11 VSD's & Motor Combinations  
Serial No. : ---  
Ex Rating : Ex nA IIC T4 Gc (T3 when anti-condensation heaters are fitted) or Ex tb IIIC  
T125°C Db IP65 or Ex db IIB T4 Gb or Ex db eb IIB T4 Gb  
IA Certificate No : S-XPL/18.0057 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:*

- ii) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- iii) Any conditions mentioned in the above report;
- iv) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- v) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- vi) A revision certificate replaces all previous version of the certificate.
- vii) \* - Only covers equipment Imported between the "Issued" and "Expire" dates.
- viii) 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:**



**K Malibe**  
**Testing Officer**

**EXPLOLABS EXPLOSION PREVENTION SERVICES**

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