1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 06ATEX3110X** Issue: **2**

4 Equipment: **Range of Type SGA 71 to 280 Motors**

5 Applicant's: **CMG Pty Ltd** | **CMG Electric Motors (UK) Limited** | **CMG Electric Motors NZ Ltd**

6 Address:

19 Corporate Avenue
Rowville
Victoria 3178
Australia

Unit A, Stafford Park 2,
Telford
TF3 3AR
UK

303E/315A,
Rosebank Road
Avondale,
Auckland
New Zealand

CMG Electric Motors Asia Pacific Pte Ltd.,

21, Tuas South Street 1
Singapore 638032

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2004 EN 60079-7:2003 IEC 61241-0:2004
IEC 61241-1:2004

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 2 G c
II 2 D c
Ex e II T3
Ex tD A21 IP66 T135°C

or

II 2 G c
Ex e II T3

D R Stubbings BA MIET
Certification Manager

Project Number 51A17344
C. Index 01

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
Email: info@siracertification.com
Web: www.siracertification.com

13 **DESCRIPTION OF EQUIPMENT**

The SGA range of squirrel cage induction motors are manufactured from cast iron and comprise a main body with integral cooling ribs with a separate bolt-on terminal box. The motors are designed to operate on 3 phase, 100 V to 800 V, 40 Hz, 50 Hz or 60 Hz power systems. Motors may be supplied with auxiliary terminal boxes as required for the connection of optional anti-condensation heaters, RTD'S and thermistors. Motors are available as foot mounted, flange mounted or foot and flange mounted. The bearings have V-ring seals and the main terminal box a nitrile rubber gasket seal on the lid to give the motors an IP rating of IP55. A gamma seal option is available to give the motors an IP66 rating. Electrical connection is via a threaded entry in the main terminal box wall, designed to accommodate either a gland or conduit.

2 POLE		4 POLE		6 POLE		8 POLE	
Frame size	**Output kW**	**Frame size**	**Output kW**	**Frame size**	**Output kW**	**Frame size**	**Output kW**
80A	0.75	71	0.37	80A	0.37	100L	1.1
80B	1.1	80A	0.55	80B	0.55	112M	1.5
90S	1.5	80B	0.75	90S	0.75	132S	2.2
90L	2.2	90S	1.1	90L	1.1	132M	3
100L	3	90L	1.5	100L	1.5	160M	4
112M	4	100L	2.2	112M	2.2	160M	5.5
112M	5.5	100L	3	132S	3	160L	7.5
132S	5.5	112M	4	132M	4	180L	11
132S	7.5	132S	5.5	132M	5.5	200L	15
132M	11	132M	7.5	160M	7.5	225S	18.5
160M	11	132M	11	160L	11	225M	22
160M	15	160M	11	180L	15	250M	30
160L	18.5	160L	15	200L	18.5	280S	37
180M	22	180M	18.5	200L	22	280M	45
200L	30	180L	22	225M	30		
200L	37	200L	30	250M	37		
225M	45	225S	37	280S	45		
250M	55	225M	45	280M	55		
280S	75	250M	55				
280M	90	280S	75				
		280M	90				

Options for SGA71 to 280	
1	Left hand terminal box when viewed from the drive-end or top terminal box
2	Anti-condensation heaters for frames 112 – 280. Anti-condensation heaters fitted in accordance with drawing SGA201.
3	Additional sets (3) of PTC thermistors. Fitting of thermistors in accordance with drawing SGA201.
4	Auxiliary terminal box for the termination of the thermistors, RTD's and heaters. Auxiliary box fitted in accordance with drawing SGA203.
5	Winding RTD's – PT100 RTD's Fitted into the motor windings. RTD's fitted in accordance with

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 06ATEX3110X**
Issue 2

Options for SGA71 to 280	
	drawing SGA201.
6	Bearing thermistors fitted into the bearing housing with leads sleeved and routed into auxiliary terminal box. Leads shall be covered with Vidaflex fibreglass sleeve or equivalent.
7	Vibration adaptors fitted in tapped blind hole in endshield or as shown in drawing SGA 207
8	Stainless steel fasteners
9	Stainless steel shaft. Magnetic grades of stainless steel only for 2 pole motors. Other poles can have magnetic or non-magnetic grades of stainless steel.
10	Alterations to shaft extension diameter and/or length. Shaft diameter shall comply with IEC 60072-1 Table 4 "Shaft extension keys and keyways dimensions. Greatest permissible torque on continuous duty for AC motors". Alternatively, shaft design shall meet requirements of AS 1403-2004: Design of Rotating Steel Shafts.
11	Alternative types of rolling bearings i.e. ball, roller, angular contact. (as per manufacturer's recommendations)
12	Flange size and type changes external to motor enclosure.
13	Operation of motors with electronic soft starters. Electronic soft starters shall be disconnected form the circuit once the motor is started and supply of the motor shall be direct from the mains only. t_E times shall be stated as obtained for DOL mains supply , for safety considerations. Refer to drawing SGA 114,139 and 161 for t_E times
14	Forced ventilation by separately driven cooling fan - the main motor protected by thermistors. The motor driving the fan shall have the same protection as the main motor. The cooling unit shall be fitted as shown on drawing SGA205. Applicable to motor with frame size SGA 200 to SGA 280 only
15	Fan and Fan cover design changes for noise reduction maintaining required clearances and airflow. New fan cover shall be of steel / stainless steel with same thickness or thicker than original fan cover with same fixing.
16	Fan material may be cast iron.
17	Additional eyebolt for vertical lifting
18	Rain canopy for vertical mount (shaft down) motors without reducing airflow over motor. Rain canopy made out of steel / stainless steel - Frames 71 to 132 Minimum thickness 1.0 mm and Minimum thickness 1.5 mm for Frames 160 to 280
19	Sun shields made from steel / stainless steel - Frames 71 to 132 Minimum thickness 1.0 mm and Minimum thickness 1.5 mm for Frames 160 to 280
20	Extended leads and blanking plate shall be fitted in accordance with drawing SGA204.
21	Brass, aluminium or steel gland plate in place of cast iron. Alloys to contain <6% magnesium and <7.5% total of magnesium and titanium content by mass.
22	Larger terminal box – Next size up
23	Larger terminal block with larger box (both next size up).
24	Supply terminals to suit star-delta starting with six supply leads.
25	Other supply voltages within 100V to 500V for SGA 71 to 132 and 100 V to 800 V for SGA 160 to 280 – 40 Hz, 50 Hz or 60 Hz.
26	Lower kW output rating other than standard provided IA/I n ratio is still inside the permissible limits for new rating. Other rating data for lower kW rating to be declared by test and / or calculation based on test for standard kW rating.

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Options for SGA71 to 280	
27	IP66 for Ex e
28	Location of drain plug at lowest point for different mounting arrangements.
29	Attachment of shaft encoders certified by IECEx and ATEX approved for Zone 1, Group II, T3 or Ex tD A21, T135 oC for Ex tD

14 **DESCRIPTIVE DOCUMENTS**

14.1 **Drawings**

Refer to Certificate Annexe.

14.2 **Associated Sira Reports and Certificate History**

Issue	Date	Report No.	Comment
0	4 August 2006	R51F13445A	The release of the prime certificate.
1	6 March 2007	R51E16072A	Re-Issued to include the UK Facility
2	8 November 2007	R51A17344A	This Issue covers the following changes: • All previously issued certification was rationalised into a single certificate, Issue , Issues 0 to 1 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format. • Re-Issued to include the Facilities in New Zealand and Singapore

15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)

15.1 Supply cables shall be fitted via conduit or appropriately certified cable glands. The installation shall have an IP rating equivalent with the equipment rating. Unused gland entries must be fitted with appropriately certified conduit fittings or plugs.

15.2 Motor winding temperature sensors, if fitted, shall be connected to intrinsically safe circuit.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 Each motor shall be subjected to an electric strength test of the machine windings in accordance with EN 60079-7: 2003 Clause 7.2.

17.4 When motors are fitted with anti-condensation heaters each motor shall also be subject to an electric strength test of the heater circuit in accordance with EN 60079-7 clause 7.2.

17.5 The manufacturer shall use the appropriate name and address for the manufacturing location on the approved label affixed to the apparatus.

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