CMG motors

CLASS H SMOKESPILL MOTORS

CMG

SOLUTIONS, not just products

REGAL BELOIT

Introduction

This catalogue details the complete range of CMG SGA series motors. Standard SGA motors are three phase squirrel cage TEFC (Totally Enclosed Fan Cooled), with IEC frame sizes from 71 to 355, with CENELEC frame allocation as standard. They combine excellent electrical characteristics with the robust strength of cast iron.

The standard design includes single speed 2,4,6 and 8 pole as well as a comprehensive selection of 2 speed motors. In addition to the standard design, the range includes:

SGAA - Alternative frame allocation
SGAB - Brake motors
SGAE - Hazardous location Ex e
SGAN - Hazardous location Ex nA
SGAD - Hazardous location Ex tD
SGAS - Smokespill application
SGAC - Cooling tower application
SGAR - Airstream rated for Axial flow fans
SGAP - Pad mount motors

All units are supplied with F Class insulation, with temperature rise being limited to less than 80K (unless otherwise marked). This provides the end user with a wide safety margin under general operating conditions.

In addition we also offer motors wound with H Class insulation, and temperature rise still limited to 80K.

SGAH - High ambient temperature application
SGAHS - H Class smokespill application

Additional protection is provided by installation of thermistors in all units from 160 frame upward to continuously protect the winding.

The conservative rating of CMG type SGA motors provides additional operational safeguards, ensures long unit life, and renders this series inherently suitable for most arduous mining, industrial or agricultural applications.

Hazardous area certification

SGA motors in frames 71 to 280 are certified for use in hazardous locations as per IEC Ex and ATEX requirements, with 315 frame certificate pending (Ex nA and Ex tD only).

The following certificates are currently available:

IEC	IECEx TSA 06.0034X	Ex e, Ex nA, Ex tD
ATEX	Sira 06ATEX9112X	EX tD
	Sira 06ATEX4111X	Ex nA, Ex nA/ Ex tD
	Sira 06ATEX3110X	Exe, Ex e/ Ex tD

Standards and specifications

The main dimensions and rated outputs of CMG type SGA motors generally conform to International Standards IEC60034, IEC60072 and Australian Standard AS1359.

Efficiency

The SGA motor range exceeds requirements of European Eff 2 and correspond to IE1 (Standard Efficiency) of the new international standard IEC 00034-30. For Eff 1 motors, refer to CMG's HGA and PPA series catalogues.

Product code specification

When placing an order the motor product code should be specified. The product code of the motor is composed in accordance with the following example:

M	3	2	0 0 1 5 0	3	S G A	E	/ 4 0 5
1	2	3	4 - 8	9	10 - 12	13...	Suffix

Position 1
M = metric frame size

Position 2
Winding design
3 = Standard three phase motors
A = 2 speed fan duty single winding
B = 2 speed fan duty separate windings
C = 2 speed constant torque single winding
D = 2 speed constant torque separate windings

Position 3
Number of poles

2	= 2 poles	**F**	= 2/6 poles	**M**	= 4/12 poles
4	= 4 poles	**G**	= 2/8 poles	**N**	= 6/8 poles
6	= 6 poles	**H**	= 2/10 poles	**O**	= 6/10 poles
8	= 8 poles	**I**	= 2/12 poles	**P**	= 6/12 poles
A	= 10 poles	**J**	= 4/6 poles	**Q**	= 8/10 poles
C	= 12 poles	**K**	= 4/8 poles	**R**	= 8/12 poles
E	= 2/4 poles	**L**	= 4/10 poles	**S**	= 8/16 poles

Positions 4 to 8
Rated power output*
(kW x 100)
* Refers to high speed for 2 speed motors

Position 9
Mounting arrangements

1	= V1	**5**	= B5	**8**	= B3/B14B
3	= B3	**6**	= B3/B14A	**9**	= B14B
4	= B3/B5	**7**	= B14A	**0**	= for Pad Mount only

Positions 10 to 12
Series
SGA = CMG SGA series

Positions 13...*
Series variation

Blank	= Standard	**G**	= Suit NORD gearbox
1	= High output design	**H**	= H Class insulation
A	= Alternative frame allocation	**L**	= LHS terminal box
B	= Brake motor	**N**	= Ex nA
C	= Cooling tower	**P**	= Pad mount
D	= Ex tD	**R**	= Airstream rated
E	= Ex e	**S**	= Smokespill
F	= Flying leads	**T**	= Top terminal box

* Multiple letters indicate multiple variation.

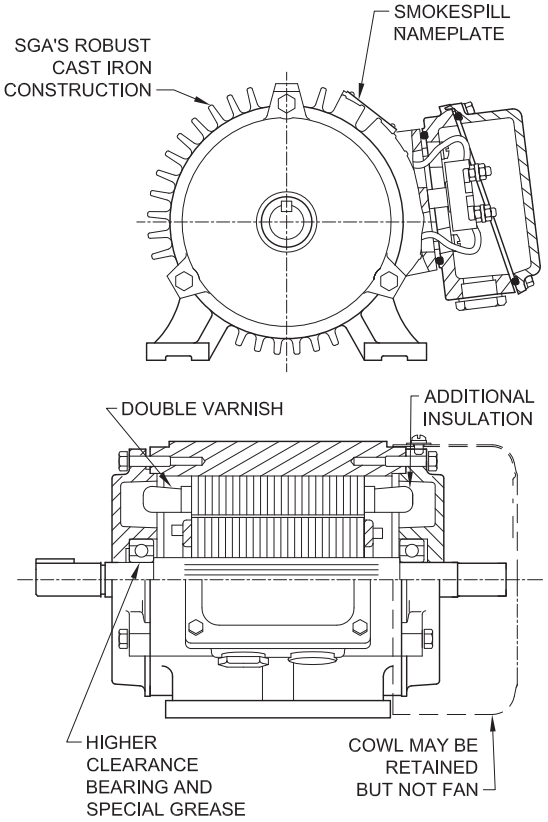
Suffix
Winding design

/385	= 380V / 50Hz	**/A05**	= 1000V / 50Hz
/405	= 400V / 50Hz	**/B05**	= 1100V / 50Hz
Blank	= 415V / 50Hz	**/386**	= 380V / 60Hz
/525	= 525V / 50Hz	**/446**	= 440V / 60Hz
/695	= 690V / 50Hz		

Smokespill - SGAS/SGAHS

Smokespill application motors are designed to withstand the extreme environmental conditions associated with a building fire. Ventilation systems within public buildings are required to continue providing smoke extraction for 2 hours at smokespill air temperature of 200°C or for 30 minutes at 300°C, designated respectively as rating-1 or rating-2 in accordance with AS/NZS1668.1.

The standard SGAS range (formerly SGASS), wound with F class insulation in frame sizes 80A to 180L, meet the rating-1 requirements. SGAHS range, wound with H class insulation in frame sizes 80A to 315L, meet either rating-1 or rating-2 requirements. SGAHS range is also suitable for applications at 300°C for 2 hours.



Smokespill features

The standard SGA motor is inherently suitable for upgrading to the smokespill application due to its low temperature rise. When SGAS motors are ordered F class motors are modified and when SGAHS motors are ordered H class motors are modified in accordance with our standard operating procedures which include the following:

- C3 internal clearance bearings lubricated with extra high temperature specification grease
- Special name plate specifying smokespill suitability
- Double insulated terminal leads
- Double varnish system for winding crown
- Fan and cowl removed if present on the original motor; cowl may sometimes remain to protect from bare shaft
- Motors tested prior to despatch
- Extra High Temperature Grease (Magnalube G)

Certification and testing

Australian standard AS4429 specifies the methods of test and rating requirements for smokespill fans. A range of motors was selected in consultation with a competent authority on this subject. Testing of motors was carried out in a specially designed re-circulating duct system. The test rig and the methods of test were also witness approved by a competent authority. A series of tests were conducted to certify our entire range of SGAS and SGAHS motors.

T.E.A.S.R. (Totally Enclosed Air Stream Rated - no fan or cowl)

The SGAS range is normally supplied without fan and cowl, relying on the air flow generated by the driven fan to provide the necessary cooling during normal operation thereby ensuring high temperature operation will not cause the plastic fan to melt.

Motors are normally supplied with the non drive end stub shaft exposed, as it is expected to be shrouded by the fan housing and duct work when installed. If this presents a problem in a specific application, either removal of this shaft can be requested, or the standard fan cowl can be fitted, but without the motor fan. Alternatively the SGAR series can be used as the base motor.

Terminations

SGAS motors can be supplied either with terminal boxes or with extended leads through a gland plate (see page 18 for details). In either case, it is the installers responsibility to ensure that suitable high temperature leads, conduit and fittings are installed to take the motor leads outside the fan case. CMG can supply terminal boxes and terminal blocks for installation outside the fan drum if required.

Paint

Standard color finish for the SGAS range is RAL 7012 Basalt Grey, and RAL 3000 Flame Red for the SGAHS range. Other colors are available on request.

Nameplates

CMG Smokespill motors are marked with special nameplates labelling its suitability for smokespill duty and stating specific temperature condition ratings and lubrication details. Additional plates for external mounting to fan assemblies are available on request.

Maintenance

Because of the safety related nature of smokespill motors proper maintenance schedules are imperative, especially where the motor is used for dual purposes ie. continuous running for normal ventilation as well as for smokespill application. Serious consideration needs to be given to bearing and insulation deterioration caused by use for extended periods for normal ventilation duty. It is important that the motor remains within its stated rating both on initial commissioning and after any adjustments to the ventilation system.

Protection

For vertically mounted motors

Motors to be mounted with the shaft vertically down must be provided with a suitable cover (available on request) to ensure foreign bodies are prevented from entering the motor.

Special care is necessary in fitting protective covers to ensure air flow is not impeded (refer to Cooling section on page 7).

To maintain IP rating, special additional measures may be required to protect the motor against the ingress of water or foreign bodies. Please contact CMG for further information.

Against solar radiation

High solar radiation will result in undue temperature rise. In these circumstances motors should be screened from solar radiation by placement of adequate sunshades which do not inhibit air flow.

Degree of protection

Standard levels of enclosure protection for all SGA frame sizes for both motor and terminal box is IP55, with IP56, IP65 and IP66 available on request.

Enclosure designations comply with IEC or AS60529. The enclosure protection required will depend upon the environmental and operational conditions within which the motor is to operate.

IP standards explanation

I P	5	5
1-2	3	4

Positions 1 and 2
International protection rating prefix

Position 3
First characteristic numeral
Degree of protection of persons against approach to live parts or contact with live or moving parts (other than smooth rotating shafts and the like) inside the enclosure, and degree of protection of equipment within the enclosure against the ingress of solid foreign bodies.

4 = *Protected against solid object greater than 1.0 mm*: Wires or strips of thickness greater than 1.0 mm, solid objects exceeding 1.0 mm

5 = *Dust protected*: Ingress of dust is not totally prevented but it does not enter in sufficient quantity to interfere with satisfactory operation of the equipment.

6 = *Dust tight*: No ingress of dust.

Position 4
Second characteristic numeral

4 = *Protected against splashing water*: Water splashed against the enclosure from any direction shall have no harmful effect.

5 = *Protected against water jets*: Water projected by a nozzle against the enclosure from any direction shall have no harmful effect.

6 = *Protected against heavy seas*: Water from heavy seas or water projected in powerful jets (larger nozzle and higher pressure than second numeral 5) shall not enter the enclosure in harmful quantities.

Materials and construction

	Motor frame size	
Element	71-180	200-355
Frame	Cast iron	Cast iron
Endshields	Cast iron	Cast iron
Terminal box	Cast iron	Cast iron
Fan	Plastic (alloy available) (cast iron available)	Sheet steel blades mounted on cast iron carrier
Fan cowl	Sheet steel	Sheet steel
Fasteners	Corrosion protected	Corrosion protected

Shaft

SGA motors have standard shaft extension lengths and are provided with standard key, and drilled and tapped hole. Non standard shaft extensions are available upon special order, with shaft design outlined on a detailed drawing.

Shaft extension run out, concentricity and perpendicularity to face of standard flange mount motors, comply with normal grade tolerance as specified in IEC 60072-1 and AS1359. Precision grade tolerance is available upon special order.

Finish

Standard SGA motor color is RAL 7012 Basalt Grey. Other colors are also available. All castings and steel parts are provided with a prime coat of rust-resistant paint.

The finishing coat of enamel paint is sufficient for normal conditions, however special paint systems can be provided to accommodate stringent requirements for motors in corrosive environments. Special coatings are needed to resist such substances as acid, salt water and extreme climatic conditions.

Different colors and paint systems apply for varieties as described later in this catalogue.

Bearings

As standard, frame sizes 71 to 180 have high quality deep groove ball bearings with full contact seals. Bearings are prepacked with grease which, under normal operating conditions, provide a high degree of operational reliability. Frame sizes 200 to 355 have high quality bearings with facilities to enable replenishment of the lubricant during operation. Grease nipples are fitted to endshields with the grease relief chute blanked off by a removable plate.

The table below sets out the permissible forces that can be applied to the motor shaft. Values assume the occurrence of only radial or axial loading. Point of application of the force is assumed to be at the tip of the shaft. Rotor weights have already been allowed for in the calculation of radial and axial loads. These loads are applicable for horizontal mounting only. The values are calculated on the basis of basic rating life or fatigue life L_{10} of 40,000 hours. Adjusted rating life for specific applications can be calculated if all influencing factors are known.

Greater axial forces can be tolerated if the motors are provided with angular contact ball bearings. Note that in such cases, the axial force must operate in one direction.

High capacity bearings

For frame sizes 200 to 280 in applications with increased radial force, cylindrical roller bearings can be substituted for ball bearings at the drive end, according to the accompanying table. When a roller bearing is fitted to the D-end, the N-end ball bearing is locked with a circlip to prevent axial movement. Note that the use of roller bearings is not recommended for 2 pole motors.

Permissible radial force - high capacity

Motor frame	D-end Roller	N-end Ball	Permissible radial force [N]		
			4 pole	6 pole	8 pole
200	NU312	6312	5825	6730	7455
225	NU313	6313	6015	7055	7740
250	NU314	6314	7295	8420	9315
280	NU317	6317	13445	15320	16770

* SGAA D-end bearing = NU6315

Lubrication

SGA motors standard bearings are lubricated with lithium based rolling contact bearing grease suitable for operation within the cooling air temperature range of -20°C to +55°C. For operation outside this temperature range special lubricants are required. SGAH, SGAS and SGAHS motors use Magnalube G grease.

Special lubricants or additional maintenance may be required in the case of motors exposed to comparatively high degrees of pollution, high humidity, increased or changed bearings loads, or prolonged continuous operation.

Permissible radial and axial forces – standard B3 mounted motors

	Bearing		Permissible radial force [N]				Permissible axial force [N]			
Motor frame	D-end	N-end	2 pole	4 pole	6 pole	8 pole	2 pole	4 pole	6 pole	8 pole
71	6202-2RS	6202-2RS	320	380	-	-	235	320	-	-
80	6204-2RS	6204-2RS	465	595	685	-	395	540	650	-
90	6205-2RS	6205-2RS	490	620	720	-	415	570	685	-
100	6206-2RS	6206-2RS	700	885	1030	1140	570	775	940	1075
112	6306-2RS	6306-2RS	960	1230	1415	1575	785	1080	1305	1515
132	6308-2RS	6308-2RS	1410	1815	2095	2320	1160	1590	1910	2200
160	6309-2RS	6309-2RS	1825	2345	2710	3020	1470	2030	2450	2800
180	6311-2RS	6311-2RS	2495	3200	3765	4200	1985	2700	3265	3755
200	6312	6312	2905	3745	4345	4825	2220	3055	3705	4225
225	6313	6313	3265	4010	4725	5205	2460	3385	4120	4730
250	6314*	6314	3570	4635	5370	5960	2730	3775	4560	5220
280-2	6314	6314	3455				2605			
280-4,6,8	6317	6317		8170	9360	10270		4560	5580	6365
315-2	6316	6316	3550				2730			
315-4,6,8	NU319	6319		15720	17925	19660		4835	5890	6770
355-2	6317	6317	3760				2875			
355-4,6,8	NU322	6322		22125	25350	27860		6115	7390	8530

* SGAA D-end bearing = 6315

Recommended Grease Replenishment Intervals (Hours) [1]

Bearing number [2]	Bearing bore [mm]	Qty of grease [g]	3000 r/min		1500 r/min		1000 r/min		750 r/min	
			Ball	Roller	Ball	Roller	Ball	Roller	Ball	Roller
6312/NU312	60	20	3800	1900	10100	5050	16000	8000	20000	10800
6313/NU313	65	25	3400	1700	9400	4700	15100	7500	20000	10300
6314/NU314	70	30	3000	1500	8800	4400	14300	7150	19500	9750
6315/NU315	75	30	2570	1285	8200	4100	13500	6750	18500	9250
6316/NU316	80	35	2200	1100	7600	3800	12800	6400	17700	8850
6317/NU317	85	40	1800	900	7100	3550	12100	6050	16800	8400
6318/NU318	90	45	1650	825	6600	3300	11500	5750	16000	8000
6319/NU319	95	45	1500	750	5700	2850	9000	4500	14600	7300
6322/NU322	110	60	1200	600	4800	2400	8300	4150	13400	6700

[1] Based on maximum grease service life of 20,000 hours [2] Refer to Nameplate / Motor to confirm Bearing size.

Vibration, balancing and noise

Vibration

SGA motors fall within the limits of vibration severity set out in standard IEC 60034-14 which are listed below. As specified in the standard, these values relate to rotating machinery measured in soft suspension.

Vibration severity limit, Level N

Motor frame	Maximum RMS vibration velocity [mm/s]
71	1.6
80	1.6
90	1.6
100	1.6
112	1.6
132	1.6
160	2.2
180	2.2
200	2.2
225	2.2
250	2.2
280	2.2
315	2.8
355	2.8

Balancing

Rotors have been dynamically balanced with a half key. Pulleys or couplings used with motors must also be appropriately balanced.

Noise

Noise levels for SGA motors comply with limits set by IEC 60034.9 and AS1359.109. SGA sound pressure levels at 1 metre (Data relates to motors tested at no load) are set out in the table (above right).

Sound pressure level

Output [kW]	Sound pressure level dB(A) at 1 metre			
	3000 r/min	1500 r/min	1000 r/min	750 r/min
0.37	-	61	57	-
0.55	-	61	57	-
0.75	65	61	59	-
1.1	65	61	60	56
1.5	69	61	60	56
2.2	69	63	60	56
3.0	72	63	64	59
4.0	72	67	64	59
5.5	76	68	68	65
7.5	76	71	68	65
11	80	72	70	65
15	80	74	70	67
18.5	80	74	70	67
22	85	74	70	68
30	87	76	73	70
37	87	76	73	70
45	89	76	76	70
55	89	78	76	74
75	91	81	78	76
90	91	81	78	76
110	92	84	79	76
132	92	86	80	77
160	92	87	85	82
200	92	89	85	82
220	95	92	88	-
250	95	92	88	-
250	95	92	88	-
315	95	92	-	-

Performance data

SGA series, three phase 415V 50Hz
IP55, H class insulation, B class temperature rise

kW	Motor frame	Speed [r/min]	Efficiency % at % full load 125	100	75	50	Power factor, cos φ at % full load 125	100	75	50	Current Full load I_N [A]	Locked rotor I_L/I_N	t_E time Ê [sec]	Torque Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Moment of inertia J=¼GD² [kg m²]	Weight of foot mount motor [kg]
3000 r/min = 2 poles - CENELEC frame allocations																		
0.75	80 A	-19	2820	74.4	76.0	75.8	72.5	0.88	0.84	0.78	0.67	1.61	6.1	17	2.5	2.8	4.0	0.001	18
1.1	80 B	-19	2835	76.7	78.5	79.2	77.2	0.89	0.86	0.82	0.72	2.3	5.9	11	3.7	2.7	3.0	0.001	19
1.5	90 S	-24	2860	79.3	80.5	80.4	77.6	0.88	0.85	0.80	0.70	3.0	6.7	11	5.0	2.9	3.5	0.001	22
2.2	90 L	-24	2830	79.5	81.8	82.8	81.6	0.90	0.87	0.83	0.74	4.3	6.4	6	7.4	2.8	2.8	0.001	26
3	100 L	-28	2870	82.0	83.3	83.3	81.2	0.90	0.88	0.84	0.76	5.7	7.5	7	10.0	2.8	3.4	0.003	36
4	112 M	-28	2900	85.3	86.1	86.1	84.2	0.90	0.89	0.84	0.75	7.4	7.9	7	13.2	2.7	3.5	0.006	45
5.5	132SA	-38	2925	86.7	86.8	86.0	81.7	0.89	0.87	0.82	0.69	10.2	7.0	11	18.0	2.4	2.3	0.011	70
7.5	132 SB	-38	2895	86.0	87.0	87.2	85.5	0.91	0.91	0.89	0.84	13.3	7.2	7	24.7	2.1	2.8	0.013	77
11	160 MA	-42	2935	88.3	88.4	87.4	85.4	0.89	0.89	0.87	0.83	19.6	7.0	25	35.8	2.2	2.9	0.038	122
15	160 MB	-42	2940	89.4	89.8	89.6	87.3	0.92	0.91	0.92	0.83	25.4	7.2	10	48.7	1.8	2.6	0.050	132
18.5	160 L	-42	2930	90.1	90.4	90.1	88.5	0.91	0.91	0.90	0.87	31.4	7.3	10	60.3	2.3	2.9	0.055	150
22	180 M	-48	2945	90.3	90.6	89.9	89.0	0.91	0.92	0.88	0.86	36.6	6.8	7	71.3	2.3	2.4	0.075	182
30	200 LA	-55	2960	92.6	92.6	92.0	90.2	0.90	0.90	0.89	0.82	49.8	4.7	7	96.8	2.4	3.3	0.124	240
37	200 LB	-55	2960	92.6	92.6	92.0	90.0	0.90	0.89	0.87	0.80	62	7.6	10	119	2.4	3.1	0.139	260
45	225 M	-55	2975	93.3	93.0	92.3	90.2	0.90	0.89	0.88	0.83	75	8.3	17	144	2.6	2.9	0.233	325
55	250 M	-60	2975	93.7	93.4	92.6	90.4	0.90	0.89	0.88	0.82	92	8.5	17	177	2.6	3.2	0.312	405
75	280S	-65	2975	94.5	94.4	93.9	92.3	0.91	0.91	0.90	0.88	122	7.5	15	241	2.7	3.0	0.597	550
90	280 M	-65	2980	94.7	94.7	94.2	92.1	0.91	0.92	0.91	0.88	144	7.9	12	288	2.8	3.1	0.675	610
110	315S	-65	2980	95.0	94.7	93.9	92.0	0.89	0.89	0.88	0.84	181	6.6	-	353	2.5	3.0	1.18	980
132	315 MA	-65	2980	95.5	95.3	94.6	93.0	0.90	0.91	0.89	0.87	213	7.0	-	423	2.6	2.9	1.82	1080
160	315 LA	-65	2980	95.7	95.5	94.9	93.6	0.88	0.90	0.89	0.86	259	6.4	-	513	2.4	2.9	2.08	1160
200	315 LB	-65	2980	95.8	95.5	95.0	93.4	0.91	0.87	0.86	0.80	334	6.6	-	641	2.6	2.9	2.38	1210
220[1)]	315 LC	-65	2980	95.8	95.6	95.2	93.7	0.92	0.88	0.86	0.81	361	6.1	-	705	2.3	2.6	2.45	1250
250[1)]	355 MB	-75	2985	94.5	94.5	94.0	92.5	0.90	0.90	0.88	0.81	407	6.8	-	800	1.7	3.1	3.00	1770
315[1)]	355 LB	-75	2985	94.8	94.1	92.8	90.2	0.88	0.88	0.86	0.80	530	8.1	-	1008	2.8	3.0	3.50	1900
High Output Design - CENELEC +1 frame allocations (SGA1)[4)]																		
4	100LB	-28	2875	83.1	84.5	84.5	83.2	0.89	0.87	0.83	0.74	7.6	8.1	-	13.3	3.3	3.1	0.004	39
5.5	112MB	-28	2890	85.4	86.4	86.4	84.7	0.91	0.89	0.86	0.78	9.9	7.8	-	18.2	2.8	3.4	0.011	70
11[1)]	132M	-38	2900	87.7	88.8	89.1	87.9	0.92	0.92	0.91	0.87	18.8	7.3	-	36.2	2.0	2.9	0.015	74
22	160L	-42	2925	91.0	91.6	91.6	90.6	0.91	0.91	0.91	0.87	36.6	7.8	-	71.8	2.3	2.7	0.066	157
45	200L	-55	2955	93.0	93.2	92.8	91.3	0.90	0.89	0.86	0.79	76	8.6	-	145	2.8	3.1	0.167	275
75[1)]	250MB	-60	2970	93.9	93.8	93.4	92.4	0.91	0.91	0.88	0.84	123	7.0	-	241	2.1	2.3	0.426	430
110[1)]	280MB	-65	2978	94.5	94.6	94.2	93.0	0.90	0.89	0.86	0.78	182	8.2	-	353	3.2	3.4	0.825	670
Alternative frame allocations (SGAA)[3)]																		
55	250SM	-60	2975	93.7	93.4	92.6	90.4	0.90	0.89	0.88	0.82	92	8.5	17	177	2.6	3.2	0.312	405
75	250SM	-60	2970	93.9	93.8	93.4	92.4	0.91	0.91	0.88	0.84	123	7.0	-	241	2.1	2.3	0.426	430
90	280SM	-65	2980	94.7	94.7	94.2	92.1	0.91	0.92	0.91	0.88	144	7.9	12	288	2.8	3.1	0.675	610
110	280SM	-65	2978	94.5	94.6	94.2	93.0	0.90	0.89	0.86	0.78	182	8.2	-	353	3.2	3.4	0.825	670
132	315SM	-65	2980	95.5	95.3	94.6	93.0	0.90	0.91	0.89	0.87	213	7.0	-	423	2.6	2.9	1.82	1080
160	315ML	-65	2980	95.7	95.5	94.9	93.6	0.88	0.90	0.89	0.86	259	6.4	-	513	2.4	2.9	2.08	1160
200	315ML	-70	2980	95.8	95.5	95.0	93.4	0.91	0.87	0.86	0.80	334	6.6	-	641	2.6	2.9	2.38	1210
220	315ML	-70	2980	95.8	95.6	95.2	93.7	0.92	0.88	0.86	0.81	361	6.1	-	705	2.3	2.6	2.45	1250

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Results are guaranteed only when confirmed by test results.

[1)] F Class temperature rise

[2)] t_E time applies to Ex e motors only and is explained in the hazardous areas section.

[3)] The SGAA series are supplied as standard in South Africa.

[4)] The output of these motors is one step higher than the basic design with rated outputs in accordance with CENELEC.

Full load currents at various power supplies

SGA series, three phase
Specifically wound for nominated power supply

			Current							Current		
			Full load I_N 50Hz							Full load I_N 60Hz		Speed
kW	Motor frame		380V [A]	400V [A]	415V [A]	525V [A]	690V [A]	1000V [A]	1100V [A]	380V [A]	440V [A]	60Hz [r/min]
3000\3600 r/min = 2 poles - CENELEC frame allocations												
0.75	80 A	-19	1.76	1.67	1.61	1.27	0.97	0.67	0.61	1.76	1.52	3384
1.1	80 B	-19	2.5	2.4	2.3	1.80	1.37	0.95	0.86	2.5	2.2	3402
1.5	90 S	-24	3.3	3.1	3.0	2.4	1.80	1.25	1.13	3.3	2.8	3432
2.2	90 L	-24	4.7	4.5	4.3	3.4	2.6	1.78	1.62	4.7	4.0	3396
3	100 L	-28	6.2	5.9	5.7	4.5	3.4	2.4	2.2	6.2	5.4	3444
4	112 M	-28	8.0	7.6	7.4	5.8	4.4	3.1	2.8	8.0	6.9	3480
5.5	132SA	-38	11.1	10.6	10.2	8.1	6.1	4.2	3.8	11.1	9.6	3510
7.5	132 SB	-38	14.5	13.8	13.3	10.5	8.0	5.5	5.0	14.5	12.5	3474
11	160 MA	-42	21.4	20.3	19.6	15.5	11.8	8.1	7.4	21.4	18.5	3522
15	160 MB	-42	27.7	26.4	25.4	20.1	15.3	10.5	9.6	27.7	24.0	3528
18.5	160 L	-42	34.3	32.6	31.4	24.8	18.9	13.0	11.8	34.3	29.6	3516
22	180 M	-48	40.0	38.0	36.6	28.9	22.0	15.2	13.8	40.0	34.5	3534
30	200 LA	-55	54	52	49.8	39.4	30.0	20.7	18.8	54	47.0	3552
37	200 LB	-55	68	65	62	49.3	37.5	25.9	23.5	68	59	3552
45	225 M	-55	82	78	75	59	45.2	31.2	28.4	82	71	3570
55	250 M	-60	100	95	92	72	55	38.1	34.6	100	86	3570
75	280S	-65	133	126	122	96	73	50	45.8	133	115	3570
90	280 M	-65	157	149	144	114	87	60	54	157	136	3576
110	315S	-65	198	188	181	143	109	75	68	198	171	3576
132	315 MA	-65	232	221	213	168	128	88	80	232	201	3576
160	315 LA	-65	283	269	259	205	156	108	98	283	244	3576
200	315 LB	-65	364	346	334	264	201	138	126	364	315	3576
220[1)]	315 LC	-65	394	375	361	285	217	150	136	394	340	3576
250[1)]	355 MB	-75	444	422	407	322	245	169	154	444	384	3582
315[1)]	355 LB	-75	579	550	530	419	319	220	200	579	500	3582
High Output Design - CENELEC +1 frame allocations (SGA1)[4)]												
4	100LB	-28	8.3	7.9	7.6	6.0	4.6	3.2	2.9	8.3	7.2	3450
5.5	112MB	-28	10.8	10.3	9.9	7.8	5.9	4.1	3.7	10.8	9.3	3468
11[1)]	132M	-38	20.5	19.5	18.8	14.9	11.3	7.8	7.1	20.5	17.7	3480
22	160L	-42	40.0	38.0	36.6	28.9	22.0	15.2	13.8	40.0	34.5	3510
45	200L	-55	83	79	76	60	45.7	31.5	28.7	83	72	3546
75[1)]	250MB	-60	134	127	123	97	74	51	46.2	134	116	3564
110[1)]	280MB	-65	199	189	182	144	109	76	69	199	172	3574
Alternative frame allocations (SGAA)[3)]												
55	250SM	-60	100	95	92	72	55	38.1	34.6	100	86	3570
75	250SM	-60	134	127	123	97	74	51	46.2	134	116	3564
90	280SM	-65	157	149	144	114	87	60	54	157	136	3576
110	280SM	-65	199	189	182	144	109	76	69	199	172	3574
132	315SM	-65	232	221	213	168	128	88	80	232	201	3576
160	315ML	-65	283	269	259	205	156	108	98	283	244	3576
200	315ML	-70	364	346	334	264	201	138	126	364	315	3576
220	315ML	-70	394	375	361	285	217	150	136	394	340	3576

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Performance data

SGA series, three phase 415V 50Hz
IP55, H class insulation, B class temperature rise

				Efficiency %				Power factor, cos φ				Current			Torque				
				at % full load				at % full load											
kW	Motor frame		Speed [r/min]	125	100	75	50	125	100	75	50	Full load I_N [A]	Locked rotor I_L/I_N	t_E timeÊ [sec]	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Moment of inertia J=¼GD² [kg m²]	Weight of foot mount motor [kg]
1500 r/min = 4 poles - CENELEC frame allocations																			
0.37	71B	-14	1375	70.4	72.2	71.6	67.5	0.76	0.69	0.59	0.46	1.05	4.5	35	2.6	3.3	2.7	0.001	15
0.55	80 A	-19	1390	71.0	72.1	72.2	68.5	0.80	0.75	0.67	0.54	1.40	4.8	25	3.8	2.5	2.6	0.002	19
0.75	80 B	-19	1405	73.7	75.7	75.9	73.3	0.81	0.76	0.68	0.55	1.80	5.0	24	5.1	2.4	2.5	0.002	20
1.1	90 S	-24	1410	75.2	77.4	77.9	75.1	0.83	0.78	0.71	0.58	2.5	5.4	10	7.4	2.8	2.4	0.002	25
1.5	90 L	-24	1405	76.7	79.4	80.7	79.8	0.87	0.85	0.81	0.72	3.2	5.7	12	10.2	1.8	2.4	0.003	28
2.2	100 LA	-28	1430	81.4	82.6	82.9	81.2	0.86	0.83	0.76	0.65	4.5	6.6	11	14.7	2.8	3.5	0.005	36
3	100 LB	-28	1425	81.1	82.6	83.2	81.5	0.87	0.85	0.78	0.66	6.0	8.3	7	20.1	2.9	3.1	0.007	39
4	112 M	-28	1445	84.4	85.3	85.1	83.0	0.86	0.82	0.76	0.64	7.9	7.6	7	26.4	3.1	3.5	0.010	45
5.5	132 S	-38	1450	86.0	87.0	87.1	85.9	0.87	0.85	0.81	0.71	10.4	6.8	11	36.2	2.3	3.1	0.021	72
7.5	132 M	-38	1450	87.0	88.1	88.4	87.4	0.88	0.87	0.83	0.74	13.7	7.5	9	49.4	2.6	2.9	0.030	84
11	160 M	-42	1460	88.4	89.2	89.3	87.9	0.86	0.85	0.83	0.75	20.0	6.9	12	72	2.0	2.8	0.075	130
15	160 L	-42	1465	89.3	90.2	90.1	88.8	0.87	0.86	0.83	0.76	27.2	7.2	10	98	2.3	2.9	0.092	145
18.5	180 M	-48	1470	90.2	90.7	90.6	89.2	0.90	0.89	0.86	0.77	32.0	7.0	17	120	2.1	3.0	0.139	180
22	180 L	-48	1470	91.2	91.8	91.9	90.8	0.91	0.89	0.85	0.76	37.4	7.7	14	143	2.2	3.5	0.158	200
30	200 L	-55	1475	91.2	91.4	91.1	89.5	0.92	0.87	0.84	0.76	52	7.5	20	194	2.2	3.1	0.262	260
37	225 S	-60	1485	93.3	93.6	93.4	92.2	0.91	0.89	0.89	0.84	61	7.2	20	238	1.8	2.9	0.406	310
45	225 M	-60	1485	93.5	93.7	93.4	92.2	0.91	0.90	0.88	0.82	74	7.6	7	289	1.9	2.9	0.469	340
55	250 M	-65	1480	93.9	94.1	93.9	92.7	0.91	0.90	0.89	0.83	90	8.2	10	355	2.4	3.1	0.66	405
75	280S	-75	1490	95.2	95.0	94.6	93.2	0.95	0.91	0.88	0.78	121	7.7	20	481	2.5	3.2	1.12	565
90	280 M	-75	1485	94.9	94.9	94.7	93.6	0.90	0.90	0.89	0.84	147	7.3	20	579	2.5	3.3	1.46	665
110	315 S	-80	1489	94.8	94.6	94.1	92.4	0.93	0.92	0.92	0.84	176	8.2	-	706	2.3	2.8	3.11	1000
132	315 MA	-80	1490	95.2	95.0	94.4	92.9	0.92	0.92	0.90	0.85	210	8.1	-	846	2.2	2.7	3.62	1100
160	315 LA	-80	1489	95.7	95.5	95.1	93.9	0.92	0.92	0.89	0.84	254	8.2	-	1026	2.3	2.9	4.13	1140
200	315 LB	-80	1487	95.8	95.5	95.3	94.2	0.92	0.91	0.88	0.80	322	7.5	-	1285	2.7	3.2	4.73	1190
220[1]	315 LC	-80	1485	95.8	95.6	95.3	94.4	0.92	0.91	0.89	0.83	352	6.9	-	1415	2.5	2.9	4.8	1230
250	355 MB	-95	1490	95.8	95.7	95.3	94.2	0.89	0.88	0.87	0.83	412	7.0	-	1602	2.1	3.0	6.5	1800
315	355LB	-95	1490	95.9	95.9	95.6	94.6	0.88	0.89	0.88	0.84	515	5.5	-	2019	1.5	2.9	8.2	1940
High Output Design - CENELEC +1 frame allocations (SGA1)[4]																			
5.5	112MB	-28	1435	84.7	86.3	86.3	84.7	0.88	0.84	0.82	0.66	10.5	6.6	-	36.6	2.3	2.4	0.0116	53
11[1]	132MB	-38	1440	88.0	89.2	89.8	89.3	0.86	0.83	0.78	0.68	20.6	7.8	-	73	1.9	3.0	0.034	81
75[1]	250MB	-65	1480	94.1	94.5	94.7	94.1	0.92	0.89	0.89	0.83	124	7.4	-	484	2.5	2.4	0.90	450
110	280MB	-75	1485	95.2	95.5	95.4	94.6	0.90	0.89	0.87	0.80	181	7.6	-	707	2.0	3.2	1.78	720
Alternative frame allocations (SGAA)[3]																			
55	250SM	-70	1480	93.9	94.1	93.9	92.7	0.91	0.90	0.89	0.83	90	8.2	10	355	2.4	3.1	0.66	405
75	250SM	-70	1480	94.1	94.5	94.7	94.1	0.92	0.89	0.89	0.83	124	7.4	-	484	2.5	2.4	0.90	450
90	280SM	-80	1485	94.9	94.9	94.7	93.6	0.90	0.90	0.89	0.84	147	7.3	20	579	2.5	3.3	1.46	662
110	280SM	-80	1485	95.2	95.5	95.4	94.6	0.90	0.89	0.87	0.80	181	7.6	-	707	2.0	3.2	1.78	720
132	315SM	-85	1490	95.2	95.0	94.4	92.9	0.92	0.92	0.90	0.85	210	8.1	-	846	2.2	2.7	3.62	1100
160	315SM	-85	1489	95.7	95.5	95.1	93.9	0.92	0.92	0.89	0.84	254	8.2	-	1026	2.3	2.9	4.13	1140
200	315ML	-90	1487	95.8	95.5	95.3	94.2	0.92	0.91	0.88	0.80	322	7.5	-	1285	2.7	3.2	4.73	1225
220	315ML	-90	1485	95.8	95.6	95.3	94.4	0.92	0.91	0.89	0.83	352	6.9	-	1415	2.5	2.9	4.80	1230
250	355ML	-100	1490	95.8	95.7	95.3	94.2	0.89	0.88	0.87	0.83	412	7.0	-	1602	2.1	3.0	6.5	1800
315	355ML	-100	1490	95.9	95.9	95.6	94.6	0.88	0.89	0.88	0.84	515	5.5	-	2019	1.5	2.9	8.2	1940

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Results are guaranteed only when confirmed by test results.
[1] F Class temperature rise
[2] t_E time applies to Ex e motors only and is explained in the hazardous areas section.
[3] The SGAA series are supplied as standard in South Africa.
[4] The output of these motors is one step higher than the basic design with rated outputs in accordance with CENELEC.

Full load currents at various power supplies

SGA series, three phase
Specifically wound for nominated power supply

kW	Motor frame		Current Full load I_N 50Hz 380V [A]	400V [A]	415V [A]	525V [A]	690V [A]	1000V [A]	1100V [A]	Current Full load I_N 60Hz 380V [A]	440V [A]	Speed 60Hz [r/min]
1500\1800 r/min = 4 poles - CENELEC frame allocations												
0.37	71B	-14	1.15	1.09	1.05	0.83	0.63	0.44	0.40	1.15	0.99	1650
0.55	80 A	-19	1.53	1.45	1.40	1.11	0.84	0.58	0.53	1.53	1.32	1668
0.75	80 B	-19	2.0	1.87	1.80	1.42	1.08	0.75	0.68	2.0	1.70	1686
1.1	90 S	-24	2.8	2.6	2.5	2.0	1.52	1.05	0.95	2.8	2.4	1692
1.5	90 L	-24	3.4	3.3	3.2	2.5	1.9	1.31	1.19	3.4	3.0	1686
2.2	100 LA	-28	4.9	4.7	4.5	3.6	2.7	1.9	1.70	4.9	4.2	1716
3	100 LB	-28	5.2	4.9	4.8	3.8	2.9	2.0	1.80	5.2	4.5	1710
4	112 M	-28	8.6	8.2	7.9	6.2	4.7	3.3	3.0	8.6	7.4	1734
5.5	132 S	-38	11.3	10.8	10.4	8.2	6.2	4.3	3.9	11.3	9.8	1740
7.5	132 M	-38	15.0	14.2	13.7	10.8	8.2	5.7	5.2	15.0	12.9	1740
11	160 M	-42	21.8	20.8	20.0	15.8	12.0	8.3	7.5	21.8	18.9	1752
15	160 L	-42	29.7	28.2	27.2	21.5	16.4	11.3	10.3	29.7	25.7	1758
18.5	180 M	-48	34.9	33.2	32.0	25.3	19.2	13.3	12.1	34.9	30.2	1764
22	180 L	-48	40.8	38.8	37.4	29.6	22.5	15.5	14.1	40.8	35.3	1764
30	200 L	-55	57	54	52	41.2	31.3	21.6	19.7	57	49.1	1770
37	225 S	-60	66	63	61	48.0	36.5	25.2	22.9	66	57	1782
45	225 M	-60	81	77	74	58	44.5	30.7	27.9	81	70	1782
55	250 M	-65	99	94	90	71	54	37.5	34.1	99	85	1776
75	280S	-75	132	125	121	96	73	50	45.6	132	114	1788
90	280 M	-75	160	152	147	116	88	61	55	160	138	1782
110	315 S	-80	192	182	176	139	106	73	66	192	166	1787
132	315 MA	-80	229	217	210	166	126	87	79	229	198	1788
160	315 LA	-80	278	264	254	201	153	106	96	278	240	1787
200	315 LB	-80	352	334	322	255	194	134	122	352	304	1784
220[1)]	315 LC	-80	384	365	352	278	212	146	133	384	332	1782
250	355 MB	-95	450	427	412	325	248	171	155	450	388	1788
315	355LB	-95	562	534	515	407	310	214	194	562	486	1788
High Output Design - CENELEC +1 frame allocations (SGA1)[4)]												
5.5	112MB	-28	11.5	10.9	10.5	8.3	6.3	4.4	4.0	11.5	9.9	1722
11[1)]	132MB	-38	22.5	21.3	20.6	16.3	12.4	8.5	7.8	22.5	19.4	1728
75[1)]	250MB	-65	135	128	124	98	74	51	46.7	135	117	1776
110	280MB	-75	198	188	181	143	109	75	68	198	171	1782
Alternative frame allocations (SGAA)[3)]												
55	250SM	-70	99	94	90	71	54	37.5	34.1	99	85	1776
75	250SM	-70	135	128	124	98	74	51	46.7	135	117	1776
90	280SM	-80	160	152	147	116	88	61	55	160	138	1782
110	280SM	-80	198	188	181	143	109	75	68	198	171	1782
132	315SM	-85	229	217	210	166	126	87	79	229	198	1788
160	315SM	-85	278	264	254	201	153	106	96	278	240	1787
200	315ML	-90	352	334	322	255	194	134	122	352	304	1784
220	315ML	-90	384	365	352	278	212	146	133	384	332	1782
250	355ML	-100	450	427	412	325	248	171	155	450	388	1788
315	355ML	-100	562	534	515	407	310	214	194	562	486	1788

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Performance data

SGA series, three phase 415V 50Hz
IP55, H class insulation, B class temperature rise

kW	Motor frame		Speed [r/min]	Efficiency % at % full load 125	100	75	50	Power factor, cos φ at % full load 125	100	75	50	Current Full load I_N [A]	Locked rotor I_L/I_N	t_E time[2] [sec]	Torque Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Moment of inertia $J=¼GD^2$ [kg m^2]	Weight of foot mount motor [kg]
1000 r/min = 6 poles - CENELEC frame allocations																			
0.37	80 A	-19	915	64.3	67.5	67.6	63.4	0.77	0.70	0.60	0.48	1.08	3.4	55	3.9	1.8	4.5	0.002	18
0.55	80 B	-19	925	64.7	68.6	68.8	64.7	0.74	0.66	0.58	0.45	1.60	3.3	40	5.7	1.4	2.1	0.002	19
0.75	90 S	-24	935	72.8	74.4	74.1	70.7	0.78	0.72	0.63	0.50	1.93	4.6	30	7.7	2.4	2.6	0.003	24
1.1	90 L	-24	930	72.9	75.6	76.6	74.8	0.81	0.77	0.70	0.57	2.7	4.5	25	11.3	2.3	2.4	0.004	30
1.5	100 L	-28	950	76.1	77.7	77.6	74.9	0.79	0.73	0.66	0.53	3.7	5.1	8	15.1	2.2	3.0	0.007	35
2.2	112 M	-28	945	78.9	80.2	80.2	77.1	0.80	0.76	0.67	0.53	5.0	5.6	12	22.2	2.7	3.0	0.014	45
3	132 S	-38	970	83.5	84.6	84.5	82.0	0.82	0.77	0.70	0.57	6.4	6.7	12	29.5	2.3	3.2	0.029	70
4	132 MA	-38	965	83.6	84.5	84.2	82.6	0.81	0.77	0.68	0.58	8.5	6.7	9	39.6	2.5	3.2	0.036	80
5.5	132 MB	-38	965	84.4	85.6	85.9	84.3	0.84	0.81	0.76	0.64	11.0	6.9	9	54.4	2.4	3.0	0.045	90
7.5	160 M	-42	970	87.5	88.4	88.5	87.0	0.79	0.76	0.70	0.59	15.5	6.0	20	74	2.2	2.6	0.088	130
11	160 L	-42	970	88.1	89.3	89.9	89.2	0.80	0.79	0.74	0.65	23.6	5.8	16	108	2.2	2.4	0.116	160
15	180 L	-48	980	88.4	89.2	89.2	87.9	0.85	0.83	0.79	0.69	28.4	6.0	20	146	2.0	2.7	0.207	195
18.5	200 LA	-55	980	89.2	89.6	89.3	87.5	0.85	0.83	0.78	0.68	34.8	6.9	20	180	2.4	3.3	0.315	225
22	200 LB	-55	980	89.9	90.9	91.1	90.1	0.85	0.84	0.79	0.70	40.3	6.6	15	214	2.2	3.5	0.36	255
30	225 M	-60	985	92.3	92.7	92.6	91.4	0.87	0.86	0.84	0.77	52	7.2	25	291	2.1	3.0	0.547	297
37	250 M	-65	985	92.6	92.9	92.9	91.8	0.88	0.88	0.85	0.78	63	6.6	25	359	2.0	3.0	0.834	413
45	280 S	-75	985	93.1	93.3	93.3	92.1	0.88	0.88	0.87	0.80	77	6.9	25	436	2.0	3.1	1.39	536
55	280 M	-75	985	92.6	93.0	93.0	91.9	0.88	0.89	0.88	0.84	92	6.6	25	533	2.0	3.2	1.65	595
75	315 S	-80	990	94.3	94.2	93.7	92.0	0.88	0.88	0.85	0.79	126	7.1	-	724	2.1	2.9	4.11	990
90	315 MA	-80	990	94.8	94.7	94.2	94.9	0.89	0.88	0.84	0.75	151	7.8	-	868	2.5	2.8	4.78	1080
110	315 LA	-80	990	95.1	95.2	94.6	93.4	0.89	0.88	0.85	0.77	183	7.5	-	1061	2.9	3.1	5.45	1150
132	315 LB	-80	990	94.9	94.7	93.9	92.2	0.88	0.86	0.82	0.72	227	7.6	-	1273	2.4	3.1	6.12	1210
160[1]	355 MA	-95	990	94.9	95.0	94.8	93.5	0.90	0.89	0.87	0.81	262	8.3	-	1543	2.0	2.4	9.5	1590
200[1]	355 MC	-95	990	95.2	95.1	95.0	94.1	0.90	0.91	0.90	0.86	322	6.5	-	1929	1.5	2.0	10.4	1750
250[1]	355 LB	-95	990	95.0	95.0	95.0	94.0	0.88	0.88	0.87	0.84	416	6.4	-	2412	1.9	2.4	12.4	1990
Alternative frame allocations (SGAA)[3]																			
37	250SM	-70	985	92.6	92.9	92.9	91.8	0.88	0.88	0.85	0.78	63	6.6	25	359	2.0	3.0	0.834	413
45	250SM	-70	985	93.1	93.3	93.3	92.1	0.88	0.88	0.87	0.80	77	6.9	-	436	2.0	3.1	1.39	536
55	280SM	-80	985	92.6	93.0	93.0	91.9	0.88	0.89	0.88	0.84	92	6.6	25	533	2.0	3.2	1.65	595
75	280SM	-80	990	94.3	94.2	93.7	92.0	0.88	0.88	0.85	0.79	126	7.1	-	724	2.1	2.9	4.11	990
90	315SM	-85	990	94.8	94.7	94.2	94.9	0.89	0.88	0.84	0.75	151	7.8	-	867.7	2.5	2.8	4.78	1080
110	315ML	-85	990	95.1	95.2	94.6	93.4	0.89	0.88	0.85	0.77	183	7.5	-	1061	2.9	3.1	5.45	1150
132	315ML	-85	990	94.9	94.7	93.9	92.2	0.88	0.86	0.82	0.72	227	7.6	-	1273	2.4	3.1	6.12	1210
160[1]	355ML	-100	990	94.9	95.0	94.8	93.5	0.90	0.89	0.87	0.81	262	8.3	-	1543	2.0	2.4	9.5	1590
200[1]	355ML	-100	990	95.2	95.1	95.0	94.1	0.90	0.91	0.90	0.86	322	6.5	-	1929	1.5	2.0	10.4	1750
250[1]	355ML	-100	990	95.0	95.0	95.0	94.0	0.88	0.88	0.87	0.84	416	6.4	-	2412	1.9	2.4	12.4	1990

This data is provided for guidance only.
Results are guaranteed only when confirmed by test results.
[1] F Class temperature rise
[2] t_E time applies to Ex e motors only and is explained in the hazardous areas section.
[3] The SGAA series are supplied as standard in South Africa.

Full load currents at various power supplies

SGA series, three phase
Specifically wound for nominated power supply

kW	Motor frame		Current Full load I_N 50Hz 380V [A]	400V [A]	415V [A]	525V [A]	690V [A]	1000V [A]	1100V [A]	Current Full load I_N 60Hz 380V [A]	440V [A]	Speed 60Hz [r/min]
1000\1200 r/min = 6 poles - CENELEC frame allocations												
0.37	80 A	-19	1.18	1.12	1.08	0.85	0.65	0.45	0.41	1.18	1.02	1098
0.55	80 B	-19	1.75	1.66	1.60	1.26	0.96	0.66	0.60	1.75	1.51	1110
0.75	90 S	-24	2.1	2.0	1.93	1.53	1.16	0.80	0.73	2.1	1.82	1122
1.1	90 L	-24	3.0	2.8	2.7	2.1	1.63	1.12	1.02	3.0	2.6	1116
1.5	100 L	-28	4.0	3.8	3.7	2.9	2.2	1.52	1.38	4.0	3.5	1140
2.2	112 M	-28	5.5	5.2	5.0	4.0	3.0	2.1	1.9	5.5	4.7	1134
3	132 S	-38	7.0	6.6	6.4	5.1	3.8	2.7	2.4	7.0	6.0	1164
4	132 MA	-38	9.3	8.8	8.5	6.7	5.1	3.5	3.2	9.3	8.0	1158
5.5	132 MB	-38	12.0	11.4	11.0	8.7	6.6	4.6	4.2	12.0	10.4	1158
7.5	160 M	-42	16.9	16.1	15.5	12.3	9.3	6.4	5.8	16.9	14.6	1164
11	160 L	-42	25.8	24.5	23.6	18.7	14.2	9.8	8.9	25.8	22.3	1164
15	180 L	-48	31.0	29.5	28.4	22.4	17.1	11.8	10.7	31.0	26.8	1176
18.5	200 LA	-55	38.0	36.1	34.8	27.5	20.9	14.4	13.1	38.0	32.8	1176
22	200 LB	-55	44.0	41.8	40.3	31.9	24.2	16.7	15.2	44.0	38.0	1176
30	225 M	-60	57	54	52	41.3	31.4	21.7	19.7	57	49.0	1182
37	250 M	-65	69	65	63	50	38.0	26.2	23.8	69	60	1182
45	280 S	-75	84	79	77	60	46.0	31.7	28.9	84	72	1182
55	280 M	-75	101	96	92	73	56	38.3	34.8	101	87	1182
75	315 S	-80	138	131	126	100	76	52	47.6	138	119	1188
90	315 MA	-80	165	157	151	119	91	63	57	165	142	1188
110	315 LA	-80	200	190	183	144	110	76	69	200	172	1188
132	315 LB	-80	248	235	227	179	136	94	86	248	214	1188
160[1)]	355 MA	-95	286	272	262	207	157	109	99	286	247	1188
200[1)]	355 MC	-95	352	334	322	255	194	134	122	352	304	1188
250[1)]	355 LB	-95	454	432	416	329	250	173	157	454	392	1188
Alternative frame allocations (SGAA)[3)]												
37	250SM	-70	69	65	63	50	38.0	26.2	23.8	69	60	1182
45	250SM	-70	84	79	77	60	46.0	31.7	28.9	84	72	1182
55	280SM	-80	101	96	92	73	56	38.3	34.8	101	87	1182
75	280SM	-80	138	131	126	100	76	52	47.6	138	119	1188
90	315SM	-85	165	157	151	119	91	63	57	165	142	1188
110	315ML	-85	200	190	183	144	110	76	69	200	172	1188
132	315ML	-85	248	235	227	179	136	94	86	248	214	1188
160[1)]	355 MA	-100	286	272	262	207	157	109	99	286	247	1188
200[1)]	355 MC	-100	352	334	322	255	194	134	122	352	304	1188
250[1)]	355 LB	-100	454	432	416	329	250	173	157	454	392	1188

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Performance data

SGA series, three phase 415V 50Hz
IP55, H class insulation, B class temperature rise

				Efficiency %				Power factor, cos φ				Current			Torque				
				at % full load				at % full load											
kW	Motor frame		Speed [r/min]	125	100	75	50	125	100	75	50	Full load I_N [A]	Locked rotor I_L/I_N	t_E time[2] [sec]	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Moment of inertia $J=¼GD^2$ [kg m^2]	Weight of foot mount motor [kg]
750 r/min = 8 poles - CENELEC frame allocations																			
1.1	100 LB	-28	710	71.4	72.0	70.4	64.7	0.70	0.63	0.54	0.41	3.4	4.2	16	14.8	2.3	2.8	0.011	35
1.5	112 M	-28	705	75.6	77.6	77.8	75.0	0.73	0.67	0.59	0.46	4.0	4.4	25	20.3	2.1	2.6	0.025	43
2.2	132 S	-38	715	80.1	81.5	82.0	79.6	0.79	0.74	0.66	0.52	5.1	5.3	20	29.4	2.1	3.0	0.031	70
3	132 M	-38	715	81.4	83.0	83.3	81.5	0.79	0.74	0.67	0.54	6.7	5.6	20	40.0	2.3	3.0	0.040	85
4	160 MA	-42	720	84.4	85.6	85.7	84.1	0.78	0.74	0.66	0.54	8.9	6.1	30	53.0	2.4	3.3	0.075	115
5.5	160 MB	-42	715	84.9	86.5	87.2	86.3	0.80	0.77	0.71	0.59	11.6	5.7	25	73.5	2.1	2.9	0.093	127
7.5	160 L	-42	715	84.8	86.9	87.9	87.6	0.82	0.79	0.73	0.62	15.4	5.8	30	100	2.3	2.9	0.126	160
11	180 L	-48	730	86.6	87.6	87.7	86.2	0.80	0.76	0.70	0.57	22.7	6.0	14	144	1.8	2.3	0.203	175
15	200 L	-55	730	87.7	88.9	89.5	88.6	0.82	0.80	0.75	0.63	29.3	5.8	25	196	2.0	2.3	0.339	255
18.5	225 S	-60	735	91.5	91.7	91.2	89.3	0.79	0.76	0.72	0.62	37.1	5.2	40	240	1.8	2.2	0.491	271
22	225 M	-60	730	89.9	91.0	91.7	91.2	0.80	0.79	0.76	0.67	42.8	4.7	45	288	1.7	1.8	0.547	297
30	250 M	-65	735	90.6	91.6	91.7	90.7	0.80	0.79	0.74	0.63	58	5.6	35	390	2.1	2.4	0.834	410
37	280 S	-75	735	91.1	92.0	92.3	91.6	0.82	0.80	0.77	0.68	70	5.4	45	481	1.8	2.5	1.39	525
45	280 M	-75	740	92.0	92.4	92.4	91.2	0.80	0.78	0.74	0.63	86	6.0	40	581	2.1	3.2	1.65	595
55	315 S	-80	740	93.4	93.4	93.0	91.5	0.84	0.82	0.78	0.68	99	7.0	-	710	1.9	2.4	4.79	1000
75	315 MA	-80	740	94.3	94.2	93.7	92.2	0.83	0.82	0.77	0.67	135	7.8	-	968	2.2	2.4	5.58	1100
90	315 LA	-80	742	94.7	94.7	94.4	93.1	0.84	0.83	0.79	0.68	159	7.5	-	1158	2.1	2.5	6.37	1160
110	315 LB	-80	740	94.4	94.7	94.7	93.9	0.86	0.85	0.82	0.75	190	6.4	-	1420	1.7	2.3	7.23	1230
132	355 MA	-95	742	94.7	95.0	94.5	93.4	0.86	0.86	0.84	0.77	225	6.3	-	1699	1.5	2.5	7.9	1660
160	355 MB	-95	742	95.3	95.4	95.4	94.6	0.86	0.87	0.85	0.81	269	6.2	-	2059	1.3	2.5	10.3	1740
200[1]	355 LB	-95	742	95.0	95.0	95.2	94.0	0.87	0.82	0.80	0.80	356	5.7	-	2574	1.3	2.5	12.3	1980
Alternative frame allocations (SGAA)[3]																			
30	250SM	-70	735	90.6	91.6	91.7	90.7	0.80	0.79	0.74	0.63	58	5.6	35	390	2.1	2.4	0.834	410
37	250SM	-70	735	91.1	92.0	92.3	91.6	0.82	0.80	0.77	0.68	70	5.4	-	481	1.8	2.5	1.39	525
45	280SM	-80	740	92.0	92.4	92.4	91.2	0.80	0.78	0.74	0.63	86	6.0	40	581	2.1	3.2	1.65	595
55	280SM	-80	740	93.4	93.4	93.0	91.5	0.84	0.82	0.78	0.68	99	7.0	-	710	1.9	2.4	4.79	1000
75	315SM	-85	740	94.3	94.2	93.7	92.2	0.83	0.82	0.77	0.67	135	7.8	-	968	2.2	2.4	5.58	1100
90	315ML	-85	742	94.7	94.7	94.4	93.1	0.84	0.83	0.79	0.68	159	7.5	-	1158	2.1	2.5	6.37	1160
110	315ML	-85	740	94.4	94.7	94.7	93.9	0.86	0.85	0.82	0.75	190	6.4	-	1420	1.7	2.3	7.23	1230
132	355ML	-100	742	94.7	95.0	94.5	93.4	0.86	0.86	0.84	0.77	225	6.3	-	1699	1.5	2.5	7.9	1660
160	355ML	-100	742	95.3	95.4	95.4	94.6	0.86	0.87	0.85	0.81	269	6.2	-	2059	1.3	2.5	10.3	1740
200[1]	355ML	-100	742	95.0	95.0	95.2	94.0	0.87	0.82	0.80	0.80	356	5.7	-	2574	1.3	2.5	12.3	1980

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[1] F Class temperature rise
[2] t_E time applies to Ex e motors only and is explained in the hazardous areas section.
[3] The SGAA series are supplied as standard in South Africa.

Full load currents at various power supplies

SGA series, three phase
Specifically wound for nominated power supply

			Current							Current		
			Full load I_N 50Hz							Full load I_N 60Hz		Speed
kW	Motor frame		380V [A]	400V [A]	415V [A]	525V [A]	690V [A]	1000V [A]	1100V [A]	380V [A]	440V [A]	60Hz [r/min]
750\900 r/min = 8 poles - CENELEC frame allocations												
1.1	100 LB	-28	3.7	3.5	3.4	2.7	2.0	1.40	1.27	3.7	3.2	852
1.5	112 M	-28	4.3	4.1	4.0	3.1	2.4	1.64	1.49	4.3	3.7	846
2.2	132 S	-38	5.6	5.3	5.1	4.0	3.1	2.1	1.92	5.6	4.8	858
3	132 M	-38	7.3	7.0	6.7	5.3	4.0	2.8	2.5	7.3	6.3	858
4	160 MA	-42	9.7	9.2	8.9	7.0	5.4	3.7	3.4	9.7	8.4	864
5.5	160 MB	-42	12.7	12.0	11.6	9.2	7.0	4.8	4.4	12.7	10.9	858
7.5	160 L	-42	16.8	16.0	15.4	12.2	9.3	6.4	5.8	16.8	14.5	858
11	180 L	-48	24.8	23.6	22.7	17.9	13.7	9.4	8.6	24.8	21.4	876
15	200 L	-55	32.0	30.4	29.3	23.2	17.6	12.2	11.1	32.0	27.6	876
18.5	225 S	-60	40.5	38.5	37.1	29.3	22.3	15.4	14.0	40.5	35.0	882
22	225 M	-60	46.7	44.4	42.8	33.8	25.7	17.8	16.1	46.7	40.4	876
30	250 M	-65	63	60	58	45.7	34.8	24.0	21.8	63	55	882
37	280 S	-75	76	72	70	55	41.9	28.9	26.3	76	66	882
45	280 M	-75	94	90	86	68	52	35.9	32.6	94	81	888
55	315 S	-80	108	103	99	78	60	41.1	37.4	108	93	888
75	315 MA	-80	148	140	135	107	81	56	51	148	128	888
90	315 LA	-80	173	165	159	126	96	66	60	173	150	890
110	315 LB	-80	207	197	190	150	114	79	72	207	179	888
132	355 MA	-95	246	234	225	178	135	93	85	246	212	890
160	355 MB	-95	293	279	269	212	162	111	101	293	253	890
200[1)]	355 LB	-95	388	369	356	281	214	148	134	388	335	890
Alternative frame allocations (SGAA)[3)]												
30	250SM	-70	63	60	58	45.7	34.8	24.0	21.8	63	55	882
37	250SM	-70	76	72	70	55	41.9	28.9	26.3	76	66	882
45	280SM	-80	94	90	86	68	52	35.9	32.6	94	81	888
55	280SM	-80	108	103	99	78	60	41.1	37.4	108	93	888
75	315SM	-85	148	140	135	107	81	56	51	148	128	888
90	315ML	-85	173	165	159	126	96	66	60	173	150	890
110	315ML	-85	207	197	190	150	114	79	72	207	179	888
132	355ML	-100	246	234	225	178	135	93	85	246	212	890
160	355ML	-100	293	279	269	212	162	111	101	293	253	890
200[1)]	355ML	-100	388	369	356	281	214	148	134	388	335	890

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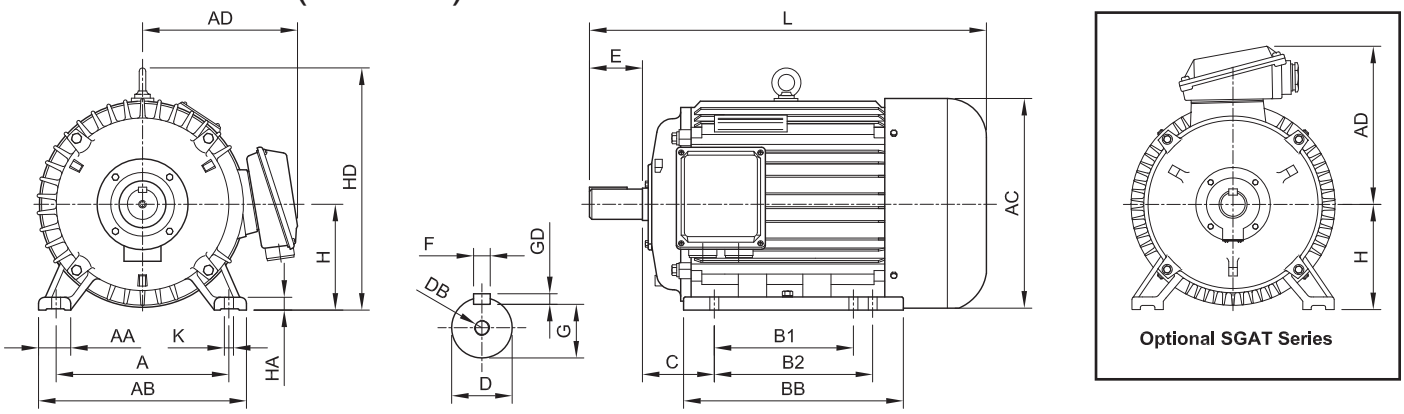
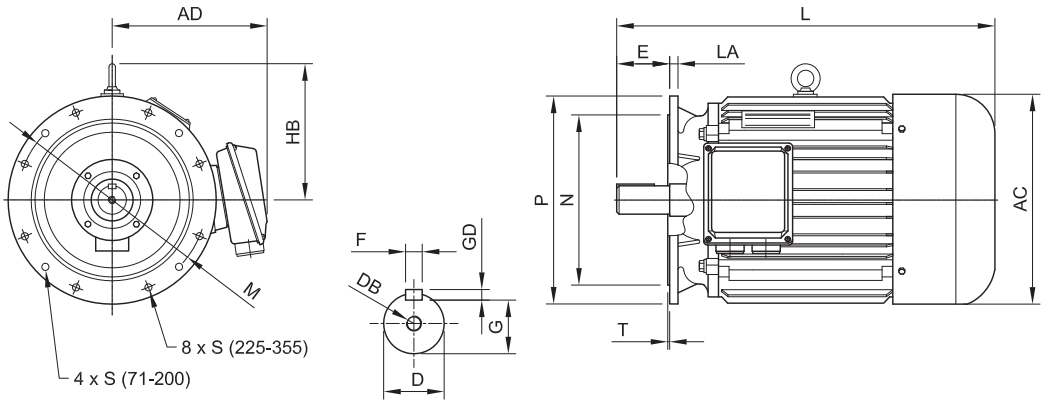
Dimensional drawings

Foot mount B3 (IM1001)



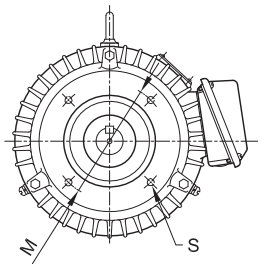
Motor frame	A	AA	AB	AC	AD	B1	B2	BB	C	D	DB	E	F	G	GD	H	HA	HD	K	L
CENELEC and CENELEC +1 frame allocations																				
71[2] - 14	112	32	144	138	136[2]	-	90	120	45	14	M5	30	5	11.0	5	71	8	197[1][2]	7	249
80 - 19	125	40	165	165	155	-	100	130	50	19	M6	40	6	15.5	6	80	10	170[1]	10	285
90S - 24	140	40	180	175	160	-	100	130	56	24	M8	50	8	20.0	7	90	12	190[1]	10	310
90L - 24	140	40	180	175	160	-	125	155	56	24	M8	50	8	20.0	7	90	12	190[1]	10	335
100L - 28	160	40	205	205	180	-	140	176	63	28	M10	60	8	24.0	7	100	14	245	12	380
112M - 28	190	50	245	230	185	-	140	180	70	28	M10	60	8	24.0	7	112	15	265	12	400
132S - 38	216	60	280	275	205	-	140	200	89	38	M12	80	10	33.0	8	132	18	315	12	475
132M - 38	216	60	280	275	205	-	178	238	89	38	M12	80	10	33.0	8	132	18	315	12	515
160M - 42	254	70	320	325	255	-	210	270	108	42	M16	110	12	37.0	8	160	20	375	15	600
160L - 42	254	70	320	325	255	-	254	314	108	42	M16	110	12	37.0	8	160	20	375	15	645
180M - 48	279	70	356	360	270	-	241	311	121	48	M16	110	14	42.5	9	180	22	410	15	670
180L - 48	279	70	356	360	270	-	279	349	121	48	M16	110	14	42.5	9	180	22	410	15	710
200L - 55	318	75	395	400	310	-	305	375	133	55	M20	110	16	49.0	10	200	25	460	19	775
225S - 60	356	75	435	450	335	-	286	368	149	60	M20	140	18	53.0	11	225	28	520	19	820
225M* - 55	356	75	435	450	335	-	311	393	149	55	M20	110	16	49.0	10	225	28	520	19	815
225M - 60	356	75	435	450	335	-	311	393	149	60	M20	140	18	53.0	11	225	28	520	19	845
250M* - 60	406	80	490	495	385	-	349	455	168	60	M20	140	18	53.0	11	250	30	575	24	930
250M - 65	406	80	490	495	385	-	349	455	168	65	M20	140	18	58.0	11	250	30	575	24	930
280S* - 65	457	85	550	555	410	-	368	530	190	65	M20	140	18	58.0	11	280	35	640	24	1000
280S - 75	457	85	550	555	410	-	368	530	190	75	M20	140	20	67.5	12	280	35	640	24	1000
280M* - 65	457	85	550	555	410	-	419	581	190	65	M20	140	18	58.0	11	280	35	640	24	1050
280M - 75	457	85	550	555	410	-	419	581	190	75	M20	140	20	67.5	12	280	35	640	24	1050
315S* - 65	508	125	635	640	530	-	406	620	216	65	M20	140	18	58.0	11	315	50	770	28	1170
315S - 80	508	125	635	640	530	-	406	620	216	80	M20	170	22	71.0	14	315	50	770	28	1200
315M* - 65	508	125	635	640	530	-	457	670	216	65	M20	140	18	58.0	11	315	50	770	28	1220
315M - 80	508	125	635	640	530	-	457	670	216	80	M20	170	22	71.0	14	315	50	770	28	1250
315L* - 65	508	125	635	640	530	-	508	720	216	65	M20	140	18	58.0	11	315	50	770	28	1320
315L - 80	508	125	635	640	530	-	508	720	216	80	M20	170	22	71.0	14	315	50	770	28	1350
355M* - 75	610	135	730	715	608	-	560	810	254	75	M20	140	20	67.5	12	355	52	847	28	1525
355M - 95	610	135	730	715	608	-	560	810	254	95	M24	170	25	86.0	14	355	52	847	28	1555
355L* - 75	610	135	730	715	608	-	630	810	254	75	M20	140	20	67.5	12	355	52	847	28	1525
355L - 95	610	135	730	715	608	-	630	810	254	95	M24	170	25	86.0	14	355	52	847	28	1555
Alternative frame allocations (SGAA)[3]																				
250SM* - 60	406	80	490	495	385	311	349	455	168	60	M20	140	18	53.0	11	250	30	575	24	930
250SM - 70	406	80	490	495	385	311	349	455	168	70	M20	140	20	62.5	12	250	30	575	24	930
280SM* - 65	457	85	550	555	410	368	419	581	190	65	M20	140	18	58.0	11	280	35	640	24	1050
280SM - 80	457	85	550	555	410	368	419	581	190	80	M20	140	22	71.0	14	280	35	640	24	1050
315SM* - 65	508	125	635	640	530	406	457	670	216	65	M20	140	18	58.0	11	315	50	770	28	1220
315SM - 85	508	125	635	640	530	406	457	670	216	85	M20	170	22	76.0	14	315	50	770	28	1250
315ML* - 65	508	125	635	640	530	457	508	720	216	65	M20	140	18	58.0	11	315	50	770	28	1320
315ML* - 70	508	125	635	640	530	457	508	720	216	70	M20	140	20	62.5	12	315	50	770	28	1320
315ML - 85	508	125	635	640	530	457	508	720	216	85	M20	170	22	76.0	14	315	50	770	28	1350
315ML - 90	508	125	635	640	530	457	508	720	216	90	M24	170	25	81.0	14	315	50	770	28	1350
355ML - 100	610	135	730	715	608	560	630	810	254	95	M24	170	25	86.0	14	355	52	847	28	1555

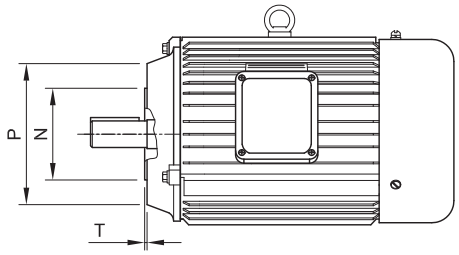
Large flange mount B5 (IM3001)



Motor frame		AC	AD	D	DB	E	F	G	GD	HB	L	LA	M	N	P	S	T
CENELEC and CENELEC +1 frame allocations																	
71[2]	- 14	138	136[2]	14	M5	30	5	11.0	5	126[1][2]	249	12	130	110	160	10	3.5
80	- 19	165	155	19	M6	40	6	15.5	6	90[1]	285	12	165	130	200	12	3.5
90S	- 24	175	160	24	M8	50	8	20.0	7	100[1]	310	12	165	130	200	12	3.5
90L	- 24	175	160	24	M8	50	8	20.0	7	100[1]	335	12	165	130	200	12	3.5
100L	- 28	205	180	28	M10	60	8	24.0	7	145	380	14	215	180	250	15	4.0
112M	- 28	230	185	28	M10	60	8	24.0	7	153	400	14	215	180	250	15	4.0
132S	- 38	275	205	38	M12	80	10	33.0	8	183	475	14	265	230	300	15	4.0
132M	- 38	275	205	38	M12	80	10	33.0	8	183	515	14	265	230	300	15	4.0
160M	- 42	325	255	42	M16	110	12	37.0	8	215	600	16	300	250	350	19	5.0
160L	- 42	325	255	42	M16	110	12	37.0	8	215	645	16	300	250	350	19	5.0
180M	- 48	360	270	48	M16	110	14	42.5	9	230	670	18	300	250	350	19	5.0
180L	- 48	360	270	48	M16	110	14	42.5	9	230	710	18	300	250	350	19	5.0
200L	- 55	400	310	55	M20	110	16	49.0	10	260	775	18	350	300	400	19	5.0
225S	- 60	450	335	60	M20	140	18	53.0	11	295	820	20	400	350	450	19	5.0
225M*	- 55	450	335	55	M20	110	16	49.0	10	295	815	20	400	350	450	19	5.0
225M	- 60	450	335	60	M20	140	18	53.0	11	295	845	20	400	350	450	19	5.0
250M*	- 60	495	385	60	M20	140	18	53.0	11	325	930	22	500	450	550	19	5.0
250M	- 65	495	385	65	M20	140	18	58.0	11	325	930	22	500	450	550	19	5.0
280S*	- 65	555	410	65	M20	140	18	58.0	11	360	1000	22	500	450	550	19	5.0
280S	- 75	555	410	75	M20	140	20	67.5	12	360	1000	22	500	450	550	19	5.0
280M*	- 65	555	410	65	M20	140	18	58.0	11	360	1050	22	500	450	550	19	5.0
280M	- 75	555	410	75	M20	140	20	67.5	12	360	1050	22	500	450	550	19	5.0
315S*	- 65	640	530	65	M20	140	18	58.0	11	455	1170	25	600	550	660	24	6.0
315S	- 80	640	530	80	M20	170	22	71.0	14	455	1200	25	600	550	660	24	6.0
315M*	- 65	640	530	65	M20	140	18	58.0	11	455	1220	25	600	550	660	24	6.0
315M	- 80	640	530	80	M20	170	22	71.0	14	455	1250	25	600	550	660	24	6.0
315L*	- 65	640	530	65	M20	140	18	58.0	11	455	1320	25	600	550	660	24	6.0
315L	- 80	640	530	80	M20	170	22	71.0	14	455	1350	25	600	550	660	24	6.0
355M*	- 75	715	608	75	M20	140	20	67.5	12	492	1525	32	740	680	800	24	6.0
355M	- 95	715	608	95	M24	170	25	86.0	14	492	1555	32	740	680	800	24	6.0
355L*	- 75	715	608	75	M20	140	20	67.5	12	492	1525	32	740	680	800	24	6.0
355L	- 95	715	608	95	M24	170	25	86.0	14	492	1555	32	740	680	800	24	6.0
Alternative frame allocations (SGAA)[3]																	
250SM*	- 60	495	385	60	M20	140	18	53.0	11	325	930	22	500	450	550	19	5.0
250SM	- 70	495	385	70	M20	140	20	62.5	12	325	930	22	500	450	550	19	5.0
280SM*	- 65	555	410	65	M20	140	18	58.0	11	360	1050	22	500	450	550	19	5.0
280SM	- 80	555	410	80	M20	140	22	71.0	14	360	1050	22	500	450	550	19	5.0
315SM*	- 65	640	530	65	M20	140	18	58.0	11	455	1220	25	600	550	660	24	6.0
315SM	- 85	640	530	85	M20	170	22	76.0	14	455	1250	25	600	550	660	24	6.0
315ML*	- 65	640	530	65	M20	140	18	58.0	11	455	1320	25	600	550	660	24	6.0
315ML*	- 70	640	530	70	M20	140	20	62.5	12	455	1320	25	600	550	660	24	6.0
315ML	- 85	640	530	85	M20	170	22	76.0	14	455	1350	25	600	550	660	24	6.0
315ML	- 90	640	530	90	M24	170	25	81.0	14	455	1350	25	600	550	660	24	6.0
355ML	- 100	715	608	95	M24	170	25	86.0	14	492	1555	32	740	680	800	24	6.0

Small flange (face) mount B14 (IM3601)





B14A

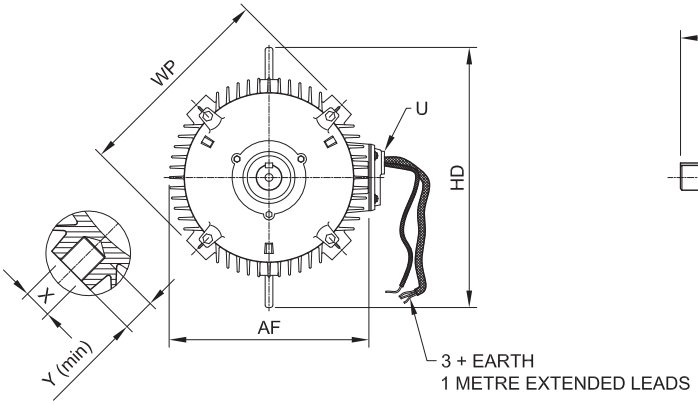
Motor frame	M	N	P	S	T
71	85	70	105	M6	2.5
80	100	80	120	M6	3.0
90	115	95	140	M8	3.0
100	130	110	160	M8	3.5
112	130	110	160	M8	3.5
132	165	130	200	M10	3.5
160	215	180	250	M12	4.0

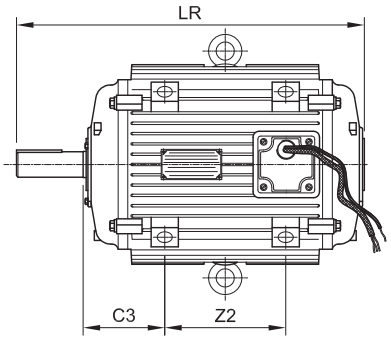
For motor frame and shaft dimensions refer large flange mount B5 dimensional drawings (previous page).

B14B

Motor frame	M	N	P	S	T
80	130	110	160	M8	3.5
90	130	110	160	M8	3.5
100	165	130	200	M10	3.5
112	165	130	200	M10	3.5
132	215	180	250	M12	4.0

PAD mount airstream rated motors with extended leads - SGAPRF





Motor frame		AF	C3	HD	LR	U	WP	X	Y	Z2	Preferred ratings*	
100L	-28	210	83	290	325	M25x1.5	220	M12x1.75	21	100	3kW SGA	4kW SGA1
132S	-38	264	108	354	400	M25x1.5	290	M16x2.0	29	125	5.5kW SGA	7.5kW SGA
160M	-42	330	135	430	540	M32x1.5	340	M20x2.5	27	155	11kW SGA	15kW SGA
160L	-42	330	135	430	580	M32x1.5	340	M20x2.5	27	200	18.5kW SGA	22kW SGA1
200L	-55	410	174	510	680	M50x1.5	431	M24x3.0	34	224	37kW SGA	45kW SGA1

Other speeds and power ratings available on request.

Two speed motors

The CMG range of SGA two speed motors, includes both constant torque and fan duty designs. Wound with either a single winding (requiring appropriate switchgear) or separate windings designed for D.O.L. connection on each speed.

Whilst we offer all 2 speed combinations, we list below the main two speed fan duty requirements.

3000/1500 r/min = 2/4 Poles

Fan duty – single winding 人人/人 (MAE)

High speed [kW]	Low speed [kW]	Frame	High speed [r/min]	High speed [A]	Low speed [r/min]	Low speed [A]
0.8	0.16	80B-4	2730	1.9	1375	0.40
1.2	0.24	90S-4	2825	2.6	1425	0.57
1.7	0.34	90L-4	2870	3.5	1430	0.80
2.4	0.48	100L-2	2900	4.9	1450	1.4
3.3	0.66	112M-2	2925	6.9	1475	2.3
4.4	0.88	132SA-2	2940	8.7	1465	2.5
6.1	1.2	132SB-2	2940	11.5	1465	2.9
8.3	1.7	160MA-2	2955	15.7	1480	4.0
12	2.4	160MB-2	2945	21.2	1470	5.2
17	3.4	160L-2	2940	30.0	1460	7.3
20	4	180M-2	2930	35.3	1470	8.6
24	4.8	200LA-2	2935	42.4	1475	10.3
33	6.6	200LB-2	2940	58	1475	14.2
41	8.2	225M-2	2940	72	1475	17.6
50	10	250M-2	2950	88	1480	21.5
61	12	280S-2	2950	108	1480	25.8
83	17	280M-2	2955	147	1480	36.5
99	20	315S-2	2955	175	1480	42.9
121	24	315MA-2	2955	214	1480	52
145	29	315LA-2	2960	256	1485	62
176	35	315LB-2	2960	311	1485	75

1500/1000 r/min = 4/6 Poles

Fan duty – separate windings 人/人 (MBJ)

High speed [kW]	Low speed [kW]	Frame	High speed [r/min]	High speed [A]	Low speed [r/min]	Low speed [A]
0.55	0.18	80B-4	1410	1.5	945	0.80
0.75	0.25	90S-4	1420	1.8	950	1.0
1.1	0.36	90L-4	1420	2.5	950	1.4
1.5	0.5	100LA-4	1430	3.5	960	1.7
2.2	0.75	100LB-4	1440	4.7	960	2.3
3	1	112M-4	1440	6.3	965	3.0
4	1.3	132S-4	1460	8.2	980	3.7
5.5	1.8	132M-4	1465	11	980	4.7
7.5	2.5	160M-4	1470	14.2	980	5.8
11	3.5	160L-4	1470	20.9	980	8.3
15	5	180L-6	1470	27.2	985	10.5
18.5	6.1	200LA-6	1475	33.5	985	12.0
22	7.3	200LB-6	1480	39.5	985	14.5
33	11	225M-6	1485	59	990	20.9
45	15	250M-6	1485	77	990	26.7
55	18	280M-6	1480	94	990	32.2
75	25	315S-6	1480	128	990	44.7
90	30	315MA-6	1480	154	990	54
110	36	315LA-6	1480	188	990	64
132	44	315LB-6	1480	226	990	79

1500/750 r/min = 4/8 Poles

Fan duty – single winding 人人/人 (MAK)

High speed [kW]	Low speed [kW]	Frame	High speed [r/min]	High speed [A]	Low speed [r/min]	Low speed [A]
0.6	0.12	80B-4	1410	1.7	670	0.57
0.8	0.16	90S-4	1430	2.0	700	0.70
1.2	0.24	90L-4	1430	2.9	700	1.0
1.7	0.34	100LA-4	1435	3.7	715	1.4
2.4	0.48	100LB-4	1430	5.0	720	1.8
3.3	0.7	112M-4	1435	6.5	720	2.2
4.4	0.9	132S-4	1455	8.6	730	2.8
6.1	1.2	132M-4	1460	11.9	730	4.0
8.3	1.7	160M-8	1450	15	730	4.2
12	2.4	160L-8	1455	21.2	735	5.7
17	3.4	180M-4	1475	31.0	740	9.1
20	4	180L-4	1475	37.0	740	11.3
24	5	200L-4	1475	41.1	740	11.8
33	6.6	225S-4	1480	56.5	740	15.3
41	8.2	225M-4	1480	72.6	740	20.4
50	10	250M-4	1480	84.8	740	23.5
61	12	280S-4	1485	105	745	27.3
83	17	280M-4	1485	143	740	38.7
99	20	315S-4	1485	170	740	45.5
121	24	315MA-4	1485	208	740	55
145	29	315LA-4	1485	250	740	66
176	35	315LB-4	1485	303	740	80

1000/750 r/min = 6/8 Poles

Fan duty – separate windings 人/人 (MBN)

High speed [kW]	Low speed [kW]	Frame	High speed [r/min]	High speed [A]	Low speed [r/min]	Low speed [A]
0.55	0.24	90S-6	945	1.5	700	0.94
0.75	0.32	90L-6	945	2.1	710	1.6
1.1	0.47	100L-6	950	2.7	710	1.6
1.5	0.65	112M-6	960	3.6	710	1.9
2.2	0.95	132S-6	975	5.6	730	3.1
3	1.3	132MA-6	975	7.2	730	4.1
4	1.7	132MB-6	975	9.3	730	5.1
5.5	2.4	160M-6	980	11.4	735	6.4
7.5	3.2	160L-6	980	15.1	735	8.4
11	4.7	180L-8	985	25.7	735	11.0
13	5.5	200L-8	985	24.9	735	11.5
15	6.5	225S-8	985	29.5	735	13.1
21	9	225M-8	985	984	735	17.7
26	11	250M-6	990	47.0	740	21.3
30	13	280S-6	990	56	740	25.8
37	16	280M-6	992	73	742	31.0
53	23	315S-6	990	105	740	44.6
65	28	315MA-6	990	128	740	54
80	34	315LA-6	990	158	740	66
92	40	315LB-6	990	182	740	78

This data is provided for guidance only. Results are guaranteed only when confirmed by test results

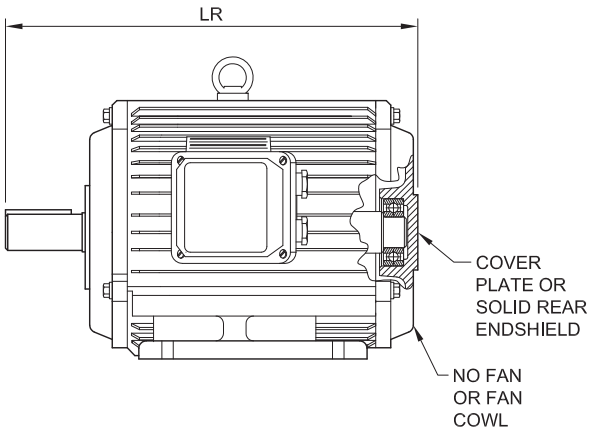
Airstream rated motors for axial fans

CMG offer a comprehensive range of motors specifically built for use with axial flow fans, where the motor is mounted in the airstream.

Provided the airstream ensures ample cooling, the fan and cowl normally fitted to a standard TEFC motor is redundant. Enclosure rating of the motor is also improved with the use of a solid rear endshield.

Due to the elimination of losses associated with the motor fan these motors have a higher efficiency than standard SGA motors.

Standard mount - SGAR (B3, B5, B3/B5)



Motor frame	Dimension [LR]	Motor frame	Dimension [LR]	Motor frame	Dimension [LR]
71	210	160L	580	280M	945
80	240	180M	595	315S*	980
90S	265	180L	630	315S	1010
90L	290	200L	680	315M*	1070
100L	325	225S	725	315M	1100
112M	340	225M*	720	315L*	1140
132S	400	225M	750	315L	1170
132M	435	250M	820		
160M	540	280S	890		

*2 pole motors only

SGARF is a popular alternative to SGAR, with the terminal box replaced by blanking plate and extended leads.

In this case, terminal box and block are supplied loose with motor for convenience of remote leads termination. These motors are also available in H class insulation (SGARHF).

Modifications, variations and optional extras

CMG offers an extensive range of variations to the SGA motor series. Other SGA ranges outlined in other sections include:

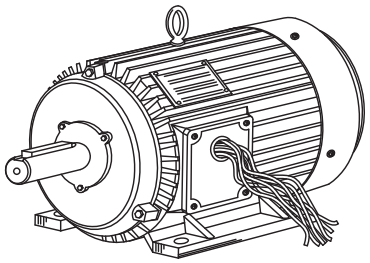
Multi-speed
Brake motors - **SGAB**
Smokespill applications - **SGAS** and **SGAHS**
Airstream motors for axial fans - **SGAR, SGARF** and **SGARHF**
PAD mount airsteam motors for axial fans - **SGAPR** and **SGA**
Cooling tower motors - **SGAC**
Hazardous area motors - **SGAE**, **SGAN** and **SGAD**

Additional to these motor ranges CMG offer a large array of modifications available on order. These modifications are outlined below.

Terminal box

SGA motors come standard with a terminal box on the right hand side viewed from drive end. The following alternatives are available:

- Left hand terminal box - **SGAL**
- Top mounted terminal box - **SGAT**
- Removed terminal box (fitted with a blanking plate and threaded conduit entry. Extended leads, including earth connector) - **SGAF**



Extended leads:
No. of power leads: 3+1 for up to 3kW, 6+1 for 4kW and above

Motor frame	Conduit size
71-132	M25 x 1.5
160-180	M32 x 1.5
200-250	M50 x 1.5
280-315	M63 x 1.5

Testing services

CMG can provide both type test certificates and individual motor test reports on any CMG SGA motor. Testing is carried out by CMG Technology Pty Ltd in our own NATA and ILAC accredited test laboratory.

Accreditation No. 14396

Type test reports and outline drawings of standard motors are available at **www.cmggroup.com.au.**