Together with major generator manufacturers, ALLFORGEN CO. LTD developed its own specification and began producing modern, reliable and competitive A4GEN® generators. The agreement signed with an experienced and renowned production center in China, guarantees quality and reliability as well as meeting all requirements for safety standards and the CE marking.

The A4GEN® generator line includes the most popular power ranges and easy fit to installation requirements according to European standards. The A4GEN® generators line offers cost-effective options in the power range from 16kW (20kVA) to 2000kW (2500kVA). For more demanding applications, the A4GEN® series can be enhanced with additional equipment such as PMG, XAW, AVR for parallel operation, anti-condensation heaters or a set of PT100 temperature sensors.

The central warehouse in Poland ensures wide availability of the most popular models and short delivery times. All generators undergo rigorous tests and are subject to continuous production quality control. A4GEN® generators are covered by a 2-year manufacturer's warranty.

Contents

RATING DEFINITION

INTRODUCTION

This catalogue is a summary of ratings for the range of A4GEN at the most common voltages around the world. For other voltages, please consult ALLFORGEN

1. RATING DEFINITION

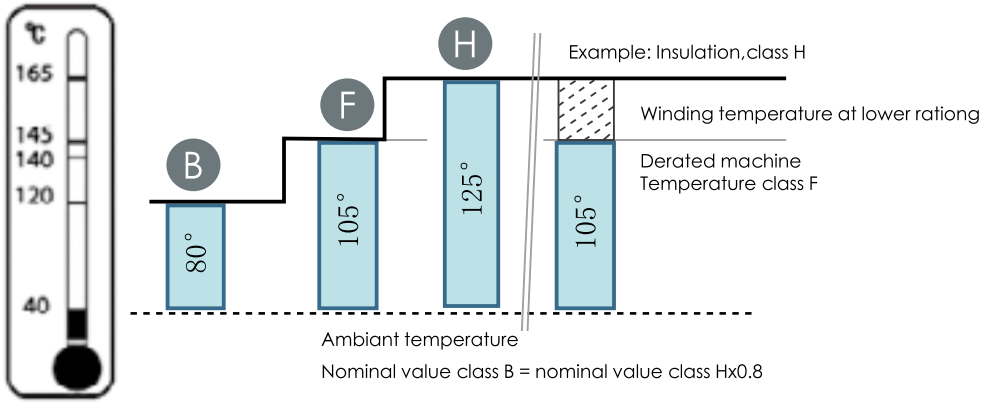
◆ Continuous rating S1/40℃ IEC 60034-1 definition: Running at constant load limited to the insulation class; permissible overload 1h every 12 hours.

◆ Stand-by rating 40℃ : Running at constant load without overload, for a limited duration of maximum 500h/year, with a permissible increase of the temperature rise above class H.

◆ Stand-by rating 27℃ : Same conditions than stand-by duty 40℃ but with acceptance of a lower ambient temperature (27℃) that allows to increase the rating and the temperature rise for the same level of temperature in the alternator.

Ex: S1/40℃ = 100 kW - std by/40℃ = 105 kW - std by/27℃ = 110 kW

2. INSULATION CLASS AND TEMPERATURE RISE



3. DERATING

◆ Multiply nominal rating by derating factor

Ambiant Temperature						
ALTITUDE	25 ℃	40 ℃	45 ℃	50 ℃	55 ℃	60 ℃ (*)
0 - 1000 m	1.05	1.00	0.97	0.94	0.91	0.88
1001 - 1500 m	1.02	0.97	0.94	0.91	0.88	0.85
1501 - 2000 m	0.99	0.94	0.91	0.88	0.86	0.83
2001 - 2500 m	0.96	0.91	0.88	0.86	0.83	0.80
2501 - 3000 m	0.92	0.88	0.85	0.83	0.80	0.77
3001 - 3500 m	0.89	0.85	0.82	0.80	0.77	0.75
3501 - 4000 m	0.86	0.82	0.80	0.77	0.75	0.72
4001 - 4500 m	0.83	0.79	0.77	0.74	0.72	0.70

Power Factor					
Lagging Power Factor	1.0	0.9	0.8	0.7	0.6
Factor	1.0	1.0	1.0	0.92	0.85

(*) External A.V.R. If ≥ 56℃

GENERAL FEATURES

4. WINDINGS

ALLFORGEN proposes various 2/3 pitch windings for rating optimisation according to the required voltage and frequency.

- ◆ Standard winding: B31
- ◆ Optional winding: please contct ALLFORGEN

5. GENERAL FEATURES

5.1. COMPLIANCE WITH INTERNATIONALLY RECOGNIZED STANDARDS

◆ The 4 pole Alternators are in compliance to the main international standards and regulations:

GB755, BS500, IEC 60034, VDE0530, CSA C22.2 100, NEMA MG1.22

Alternators are designed, manufactured and marketed in an ISO 9001 environments.

5.2. ELECTRICAL FEATURES

◆ Excitation Systems: Short circuit capacity

A4GEN propose a choice of excitation systems, depending on the customer needs: A) SELF-EXCITION system, without short-circuit capacity. B) PMG or C) XAW system, with a short-circuit capacity of 3 times the nominal current for 10 seconds.

◆ Frequency:

The 4 pole alternators may operate either 50 or 60 Hz. The standard winding (B31) is suitable both for 50 or 60 Hz. For dedicated windings, see specific table or consult factory.

◆ Power factor:

The 4 pole alternators are designed to operate between 0.8 and 1 power factor. A derating is necessary below 0.8 power factor (see derating chart).

◆ Parallel operation:

All 4 pole alternators can operate in parallel with other alternators or with the mains, when they are equipped with the appropriate devices (AVR, current transformer…).

◆ Overload acceptance:

The 4 pole alternators can be overloaded according to NEMA.

◆ Voltage regulators:

The 4 pole Alternators are fitted with reliable and performant AVR's, adapted to A4GEN excitation systems, powered by transistors and fulfilling perfect regulation. Available excitation systems depending on alternator frames, are indicated in rating tables.

◆ Waveform:

Total harmonic distortion (THD), at no load or linear load is less than 5% according to IEC. Telephone influence factor (TIF) according to NEMA is less than 50.

◆ Transient features:

Transient voltage dip for 60% rated current at 0.4 power factor is less than 15%. Recovery time for a 15% transient voltage dip is less than 1.5s.

5.3. MECHANICAL FEATURES

◆ Mechanical arrangement:

The 4 pole alternators can be provided in single bearing or two bearing configurations. A large range of engine adaptors and coupling discs are available to fit the major engines.

◆ Enclosure:

Standard enclosure is IP 23.

◆ Direction of rotation:

The 4 pole alternators from 164 up to 354 can operate in both directions; 404, 454 are only available for clockwise running. (see from D.E.).

◆Overspeed:

The maximum overspeed is 2250 rpm(1.25 times the 60 Hz rated speed).

◆ Insulation and protection:

4 pole alternators are class H insulated. The standard winding protection can accept up to 95 % relative humidity and is suitable for indoors marine applications. Specific added coatings can be proposed for harsh environments.

◆ Mechanical structure:

Steel frame. Aluminium, cast iron or steel housings and flanges depending on models.

◆ Balancing:

All the rotors are dynamically balanced according to ISO 1940 and IEC 60034-14. Two bearing rotors are balanced with a half key.

◆ Bearings:

Sealed for life bearings for all KWISE 4 pole alternator.

◆ Terminal box and connectors:

4 Pole alternators have a large terminal box which allows easy access for reconnection or to the AVR. Current transformers and other optional modules can be fitted within the box.

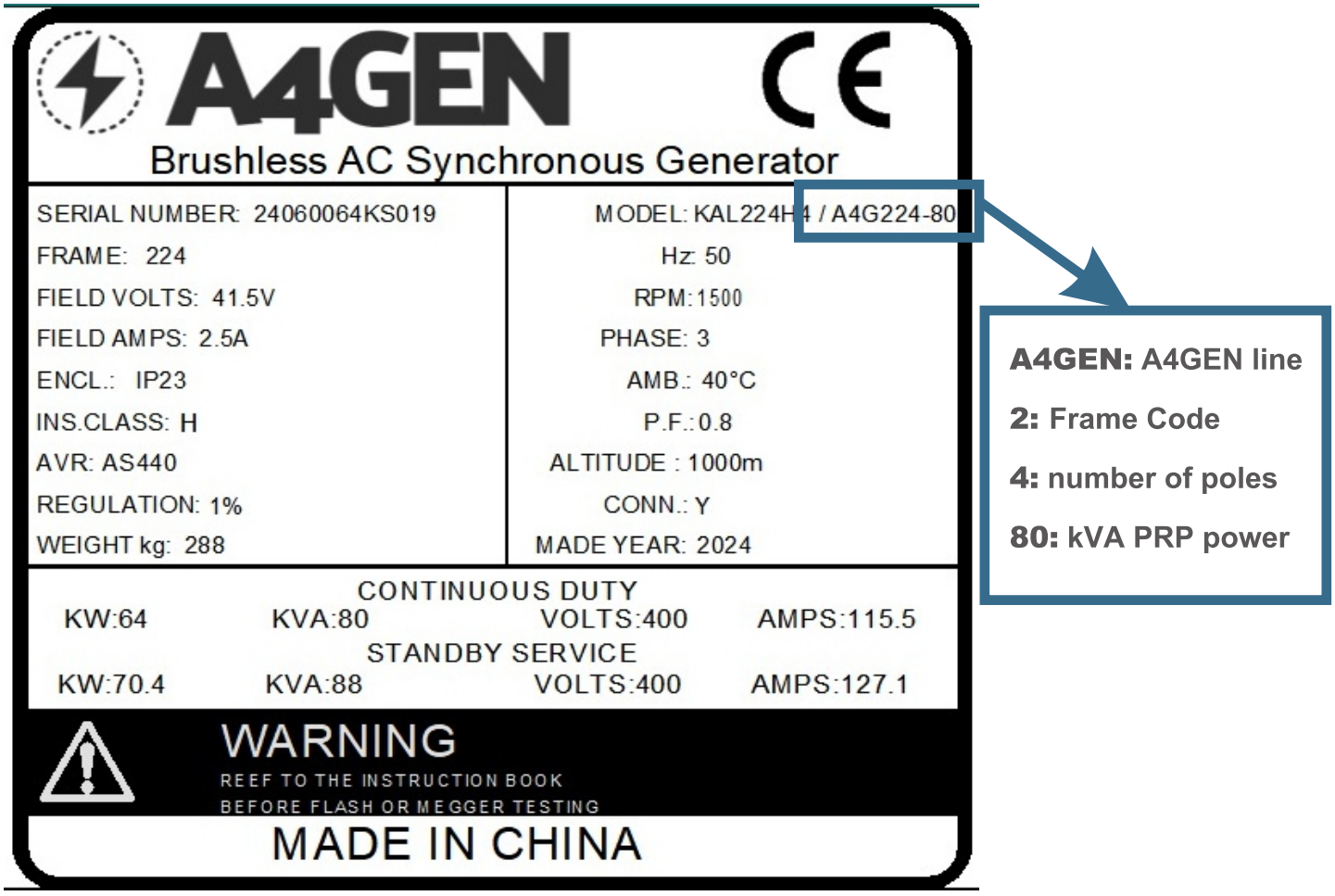
6. ACCESSORIES AND OPTIONS

- ◆ PMG (from A4GEN224-40)
- ◆ XAW Extra Auxiliery Winding for the excitation system
- ◆ Engine adaptors for two bearing alternators
- ◆ three-proofing lacquer for harsh environments
- ◆ Air inlet filters (5% derating)
- ◆ Air outlet filters or deflectors (5% derating)
- ◆ Specific painting
- ◆ Thermal protections for bearings
- ◆ Thermal protections for stator windings
- ◆ Anti condensation heaters (retrofittable)
- ◆ First emergency kits (AVR + diodes)

7. PRODUCT DESCRIPTION

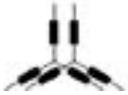
The machine name is defined according to various criteria (see below).

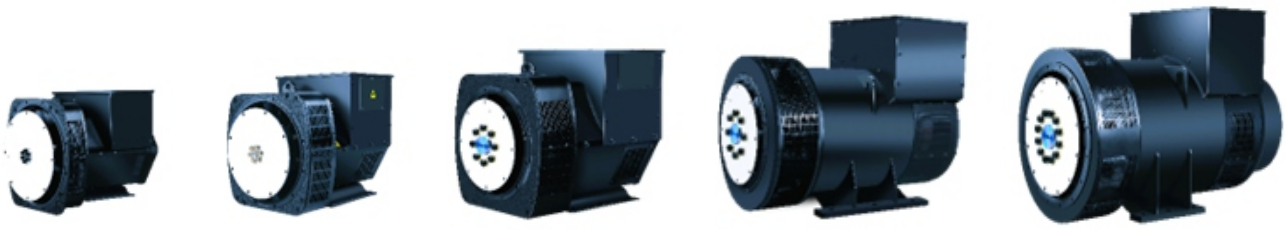
Example of description for: A4G224-80



CONNECTIONS

8. CONNECTIONS 50Hz

4 POLE	50Hz – 1500 R.P.M.						
Phase – Code	3PH-D	3PH-F	3PH-D	3PH-F	3PH-A	3PH-FF	3PH-Z
Connections							
	star	delta	star	delta	parallel star	double delta	open delta
Number of Wire	6	6	12	12	12	12	12
Standard Winding B31	380-400-415-440V (P7-10)	220-240V (P7-10)	380-400-415V (P7-10)	220-240V (P7-10)	190-208-220V (P7-10)	220-240V (P11)	220-240V (P11)

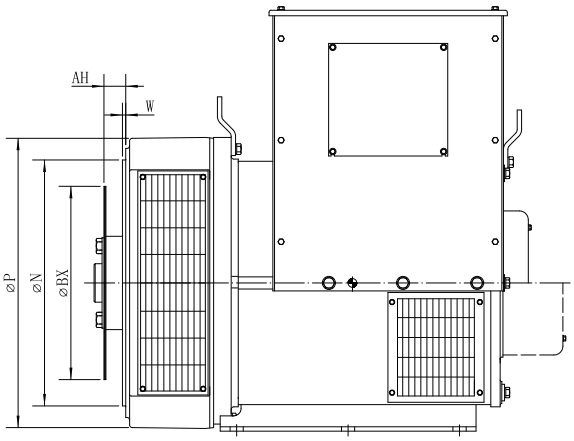


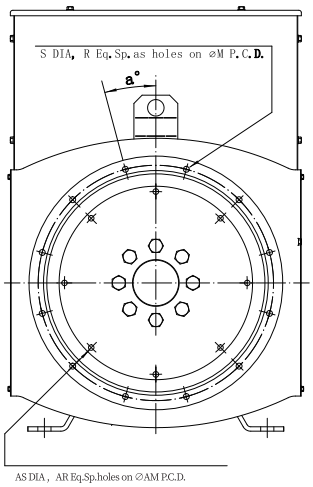
BRUSHLESS SYNCHRONOUS GENERATOR - 4POLE, SINGLE BEARING

A4GEN SERIES DIMENSIONS (mm) AND WEIGHT (kg)

TYPE	NET(kg)	GROSS(kg)	DIMENSIONS(L*W*H)
A4G184-20	112	138	677*504*620
A4G184-31	143	166	677*504*620
A4G184-35	158	182	747*504*620
A4G184-40	172	196	747*504*620
A4G224-40	202	230	710*560*830
A4G224-63	241	271	805*560*830
A4G224-80	285	316	845*560*830
A4G224-100	330	362	895*560*830
A4G274-125	394	433	880*650*880
A4G274-140	436	479	970*650*880
A4G274-150	447	490	970*650*860
A4G274-175	472	513	970*650*880
A4G274-200	512	554	1010*650*880
A4G274-250	631	675	1120*650*880
A4G314-275	717	783	960*786*1040
A4G314-300	741	806	1010*786*1040
A4G314-325	736	804	1010*786*1040
A4G314-350	783	850	1010*786*1040
A4G314-375	801	868	1010*786*1040
A4G314-400	875	942	1010*786*1040
A4G354-450	1073	1151	1237*846*1130
A4G354-500	1096	1174	1237*846*1130
A4G354-600	1229	1307	1237*846*1130
A4G354-625	1257	1335	1237*846*1130
A4G354-675	1349	1433	1432*846*1130
A4G354-700	1372	1456	1432*846*1130
A4G354-750	1416	1500	1432*846*1130
A4G404-800	1575	1686	1590*1000*1230
A4G404-910	1693	1807	1680*1000*1230
A4G404-1000	1817	1931	1680*1000*1230
A4G404-1250	2221	2340	1820*1000*1230
A4G404-1500	2480	2602	1910*1000*1230
A4G454-2000	3471	3593	1950*1050*1350
A4G454-2500	4566	4696	2150*1050*1350

SAE Dimensions





SAE	Coupling			
	ΦBX	AR-ΦAS	ΦAM	AH
#6.5	215.9	6-Φ9	200.025	30.2
#7.5	241.3	8-Φ9	222.25	30.2
#8	263.525	6-Φ11	244.475	62
#10	314.325	8-Φ11	295.3	53.8
#11.5	352.425	8-Φ11	333.38	39.6
#14	466.725	8-Φ14	438.15	25.4
#18	571.5	6-Φ17	542.925	15.7
#21	673.1	12-Φ17	641.35	0
#24	733.3	12-Φ21	692	0

SAE	Adaptor					
	ΦP	ΦN	W	R-ΦS	ΦM	a
#5	356	314.325	5	8-Φ12	333.375	22.5°
#4	402	361.95	5	12-Φ12	381	15°
#3	451,617	409.575	5	12-Φ12	428.625	15°
#2	490,530,617	447.675	5	12-Φ12	466.725	15°
#1	533,580,617,700	511.175	6	12-Φ12	530.225	15°
#1/2	680,700,810	584.2	6	12-Φ14	619.125	15°
#0	711,810,940	647.7	6	16-Φ14	679.45	11.25°
#00	882,940	787.4	6	16-Φ14	850.9	11.25°