Fujian Kwise Generator CO.,LTD

S274G Range

80kW - 200 kW

APPLICATION AND STANDARD

Kwise 4-pole alternators are designed for delivering superior efficiencies in defense, telecoms, airports, hospitals, buildings and oil exploration, industrial and mining continuous or standby power applications.

Alternators are in compliance to the main domestic and international standards and regulations: GB755, BS5000, IEC 60034, VED0530, CSAC22.2 100, NEMA MG-1.22. Alternators are designed, manufactured and marked in ISO 9001 environments.

ELECTRICAL FEATURES

Automatic voltage regulator: KWISE 4 Pole generators are fitted with reliable and performant AVR's, adapted to KWISE excitation systems, and their transistors have a fulfilling perfect voltage regulation function

Short circuit capacity: KWISE propose two choices of excitation systems, depending on the customer needs:

A) SELF-EXCITATION system, without short-circuit capacity.

B) PMG, with a short-circuit capacity of 3 times the nominal current for 10 seconds.

Transient features: Transient voltage dip for rated step load at 0.4 power factor is less than 15%,Recovery time is less than 1.5s.

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: 4 Pole alternators can be overloaded according to NEMA.

Single Phase operation:4 Pole alternators SG274 can be reconnected for single phase use.

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

Frequency:4 Pole alternators may operate either 50 or 60 Hz. The standard winding (B31,B32) is suitable both for 50 and 60Hz.

Power factor:4 Pole alternator are designed to operate between 0.8 and 1 power factor. A derating is necessary when power factor is below 0.8 (see derating chart).

MECHANICAL FEATURES

Forms: 4 Pole alternator can be provided in single bearing or double bearing configurations according to customer requirements. Adaptors and coupling discs are available to fit the major engines.

Balancing: All the rotors are dynamically balanced strictly according to ISO1940.The double bearing rotors are dynamically balanced with a half key.

Insulation and protection: 4 Pole alternator 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 particularly harsh environments.

Enclosure: Standard enclosure is IP23.

Direction of rotation: 4 pole alternators SG274 can operate in both directions.

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

Bearings: Sealed for life bearings up to all KWISE 4 Pole alternators.

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

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

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Common Data

Ambient temp	40℃	Temp rise	125K	Short circuit capacity	/
Altitude	1000m	Voltage regulation	±1%	Cooling method	IC01
Insulation class	Class H	Excitation system	self excitation	Direction of rotation	clockwise
Duty	S1	Winding pitch	2/3	Over speed	2250rpm
Phase	3	Power factor	0.8	Protection	IP23
Pole	4	TIF	<50	Frequency	50/60Hz
AVR	SX460	THF	<2%	THD	<3%

Electrical Data

50Hz/1500RPM		WindingB31/0.8 Power Factor							
Duty/Temp Rise/Ambient T°		Cont./125K/40℃				Standby/150K/40℃			
Phase		3 Phase				3Phase			
Voltage	Y	380V	**400V**	415V	440V	380V	400V	415V	440V
	Δ	220V	**230V**	240V		220V	230V	240V	
	YY				220V				220V
S274G80B1	KVA	100	**100**	100	95	110	110	110	105
	KW	80	**80**	80	76	88	88	88	84
S274G90B2	KVA	113	**113**	113	108	124	124	124	119
	KW	90	**90**	90	86	99	99	99	95
S274G100B3	KVA	125	**125**	125	119	138	138	138	130
	KW	100	**100**	100	95	110	110	110	104
S274G112C4	KVA	140	**140**	140	130	153	153	153	143
	KW	112	**112**	112	104	122	122	122	114
S274G120C5	KVA	150	**150**	150	140	165	165	165	155
	KW	120	**120**	120	112	132	132	132	124
S274G128C6	KVA	160	**160**	160	150	175	175	175	165
	KW	128	**128**	128	120	140	140	140	132
S274G140C7	KVA	175	**175**	175	165	193	193	193	182
	KW	140	**140**	140	132	154	154	154	145
S274G150D8	KVA	188	**188**	188	178	206	206	206	195
	KW	150	**150**	150	142	165	165	165	156
S274G160D9	KVA	200	**200**	200	190	220	220	220	210
	KW	160	**160**	160	152	176	176	176	168
S274G180E10	KVA	225	**225**	225	205	245	245	245	225
	KW	180	**180**	180	164	196	196	196	180
S274G200E11	KVA	250	**250**	250	230	275	275	275	256
	KW	200	**200**	200	184	220	220	220	205

***Other Voltage:Consult the factory**

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Electrical Data

60Hz/1800RPM		WindingB32/0.8 Power Factor							
Duty/Temp Rise/Ambient T°		Cont./125K/40℃				Standby/150K/40℃			
Phase		3 Phase				3Phase			
Voltage	Y	416V	**440V**	460V	480V	416V	440V	460V	480V
	Δ	240V				240V			
	YY	208V	**220V**	230V	240V	208V	220V	230V	240V
S274G80B1	KVA	120	**120**	120	120	132	132	132	132
	KW	96	**96**	96	96	106	106	106	106
S274G90B2	KVA	135	**135**	135	135	149	149	149	149
	KW	108	**108**	108	108	119	119	119	119
S274G100B3	KVA	150	**150**	150	150	165	165	165	165
	KW	120	**120**	120	120	132	132	132	132
S274G112C4	KVA	168	**168**	168	168	185	185	185	185
	KW	134	**134**	134	134	147	147	147	147
S274G120C5	KVA	180	**180**	180	180	198	198	198	198
	KW	144	**144**	144	144	158	158	158	158
S274G128C6	KVA	192	**192**	192	192	211	211	211	211
	KW	154	**154**	154	154	169	169	169	169
S274G140C7	KVA	210	**210**	210	210	231	231	231	231
	KW	168	**168**	168	168	185	185	185	185
S274G150D8	KVA	225	**225**	225	225	248	248	248	248
	KW	180	**180**	180	180	198	198	198	198
S274G160D9	KVA	240	**240**	240	240	264	264	264	264
	KW	192	**192**	192	192	211	211	211	211
S274G180E10	KVA	270	**270**	270	270	297	297	297	297
	KW	216	**216**	216	216	238	238	238	238
S274G200E11	KVA	300	**300**	300	300	330	330	330	330
	KW	240	**240**	240	240	264	264	264	264

***Other Voltage:Consult the factory**

Inertia & Efficiency

Model	S274G	80B1	90B2	100B3	112C4	120C5	128C6	140C7	150D8	160D9	180E10	200E11
Inertia(SB).J	kgm^2	1.080	1.256	1.311	1.393	1.512	1.633	1.856	1.919	2.032	2.493	2.513
Efficiency(100%Load)	%	91.1	91.6	92	92.4	92.7	93.1	93.2	93.3	93.6	93.9	94.1

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Reactance-time constant(s)

50Hz @ 400V	S274G	80B1	90B2	100B3	112C4	120C5	128C6	140C7	150D8	160D9	180E10	200E11
Short-circuit ratio	Kcc	0.452	0.468	0.485	0.474	0.484	0495	0.521	0.522	0.524	0.571	0.392
Direct-axis synchro. reactance unsaturated	Xd	2.210	2.135	2.060	2.110	2.065	2.020	1.920	1.915	1.910	1.750	2.550
Direct-axis transient reactance saturated	X'd	0.180	0.180	0.180	0.190	0.180	0.170	0.170	0.165	0.160	0.093	0.119
Direct-axis subtransient reactance saturated	X"d	0.130	0.120	0.110	0.130	0.125	0.120	0.120	0.115	0.110	0.064	0.078
Quadrature-axis synchro. Reactance unsaturated	Xq	1.430	1.375	1.320	1.380	1.315	1.250	1.150	1.150	1.150	0.800	1.140
Quadrature-axis subtransient reactance saturated	X"q	0.160	0.160	0.160	0.160	0.155	0.150	0.160	0.155	0.150	0.147	0.137
Negative sequence reactance saturated	X2	0.140	0.135	0.130	0.140	0.135	0.130	0.120	0.120	0.120	0.105	0.108
Zero sequence reactance	X0	0.090	0.085	0.080	0.090	0.085	0.080	0.070	0.075	0.080	0.040	0.020
Short-circuit transient time constant	T'd	0.028s	0.030s	0.031s	0.032s	0.033s	0.035s	0.038s	0.039s	0.042s	0.045s	0.049s
Subtransient time constant	T"d	0.001s	0.01s	0.01s	0.01s	0.010s	0.011s	0.012s	0.012s	0.012s	0.015s	0.02s
No-load transient time constant	T'do	0.8s	0.82s	0.85s	0.85s	0.870s	0.90s	1.00s	1.05s	1.10s	1.27s	1.27s
Armature time constant	Ta	0.007s	0.007s	0.007s	0.007s	0.017s	0.009s	0.01s	0.011s	0.012s	0.03s	0.018s

60Hz @ 440V	S274G	80B1	90B2	100B3	112C4	120C5	128C6	140C7	150D8	160D9	180E10	200E11
Short-circuit ratio	Kcc	0.388	0.405	0.424	0.474	0.446	0.422	0.433	0.426	0.418	0.404	0.344
Direct-axis synchro. reactance unsaturated	Xd	2.580	2.470	2.360	2.110	2.240	2.370	2.310	2.350	2.390	2.475	2.903
Direct-axis transient reactance saturated	X'd	0.220	0.210	0.200	0.190	0.195	0.200	0.200	0.195	0.190	0.153	0.136
Direct-axis subtransient reactance saturated	X"d	0.150	0.145	0.140	0.130	0.130	0.130	0.140	0.135	0.130	0.090	0.089
Quadrature-axis synchro. Reactance unsaturated	Xq	1.480	1.435	1.390	1.380	1.405	1.430	1.400	1.405	1.410	1.126	1.298
Quadrature-axis subtransient reactance saturated	X"q	0.210	0.205	0.200	0.160	0.175	0.190	0.170	0.175	0.180	0.129	0.156
Negative sequence reactance saturated	X2	0.180	0.170	0.160	0.140	0.145	0.150	0.150	0.150	0.150	0.109	0.123
Zero sequence reactance	X0	0.110	0.104	0.098	0..095	0.093	0.090	0.080	0.070	0.060	0.045	0.023
Short-circuit transient time constant	T'd	0.028s	0.030s	0.031s	0.032s	0.033s	0.035s	0.038s	0.039s	0.042s	0.045s	0.049s
Subtransient time constant	T"d	0.001s	0.01s	0.01s	0.01s	0.010s	0.011s	0.012s	0.012s	0.012s	0.015s	0.02s
No-load transient time constant	T'do	0.8s	0.82s	0.85s	0.85s	0.870s	0.9s	1s	1.05s	1.1s	1.27s	1.27s
Armature time constant	Ta	0.007s	0.0071s	0.0073s	0.007s	0.017s	0.009s	0.01s	0.011s	0.012s	0.03s	0.018s

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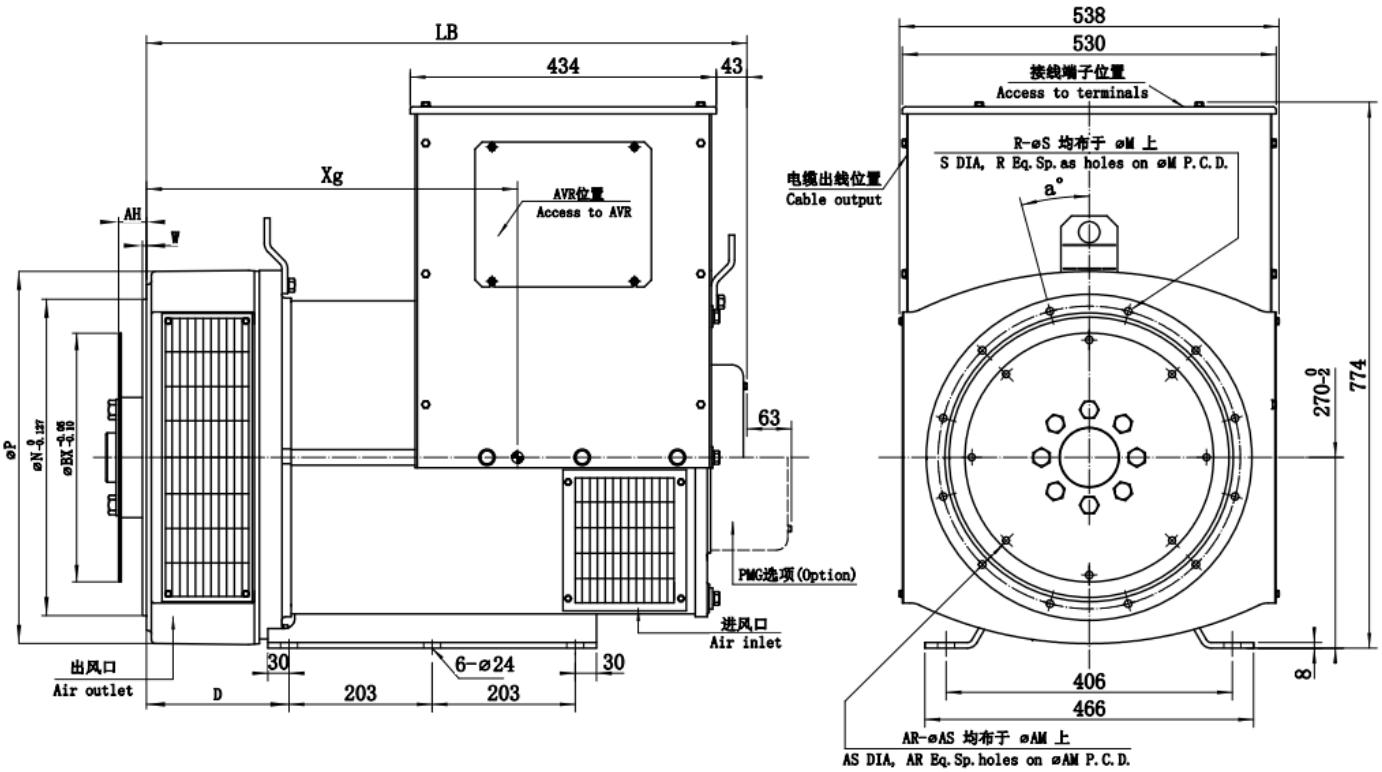
Outline Drawing（Single Bearing）



Dimensions(mm)					
Model	LB		*Xg	Net W.	Packing
	SAE1	SAE2&3			
	mm	mm	mm	kg	L x W x H(mm)
S274G80B1	750.3	736	342	362	894*624*947
S274G90B2	750.3	736	352	384	894*624*947
S274G100B3	750.3	736	360	397	894*624*947
S274G112C4	865.3	851	367	443	1024*624*947
S274G120C5	865.3	851	383	465	1024*624*947
S274G128C6	865.3	851	398	491	1024*624*947
S274G140C7	865.3	851	398	513	1024*624*947
S274G150D8	915.3	901	416	543	1074*624*947
S274G160D9	915.3	901	432	578	1074*624*947
S274G180E10	1001.3	986	453	621	1154*624*947
S274G200E11	1001.3	986	473	665	1154*624*947

Flange (mm)							
S.A.E	P	N	M	R-øS	W	D	a°
#1	580	511.175	530.225	12-ø12	6	216.3	15°
#2	530	447.675	466.725	12-ø12	5	202	15°
#3	530	409.575	428.625	12-ø12	5	202	15°

Coupling Discs (mm)				
S.A.E	BX	AM	AR-øAS	AH
#10	314.325	295.3	8-ø11	53.8
#11.5	352.425	333.38	8-ø11	39.6
#14	466.725	438.15	8-ø14	25.4

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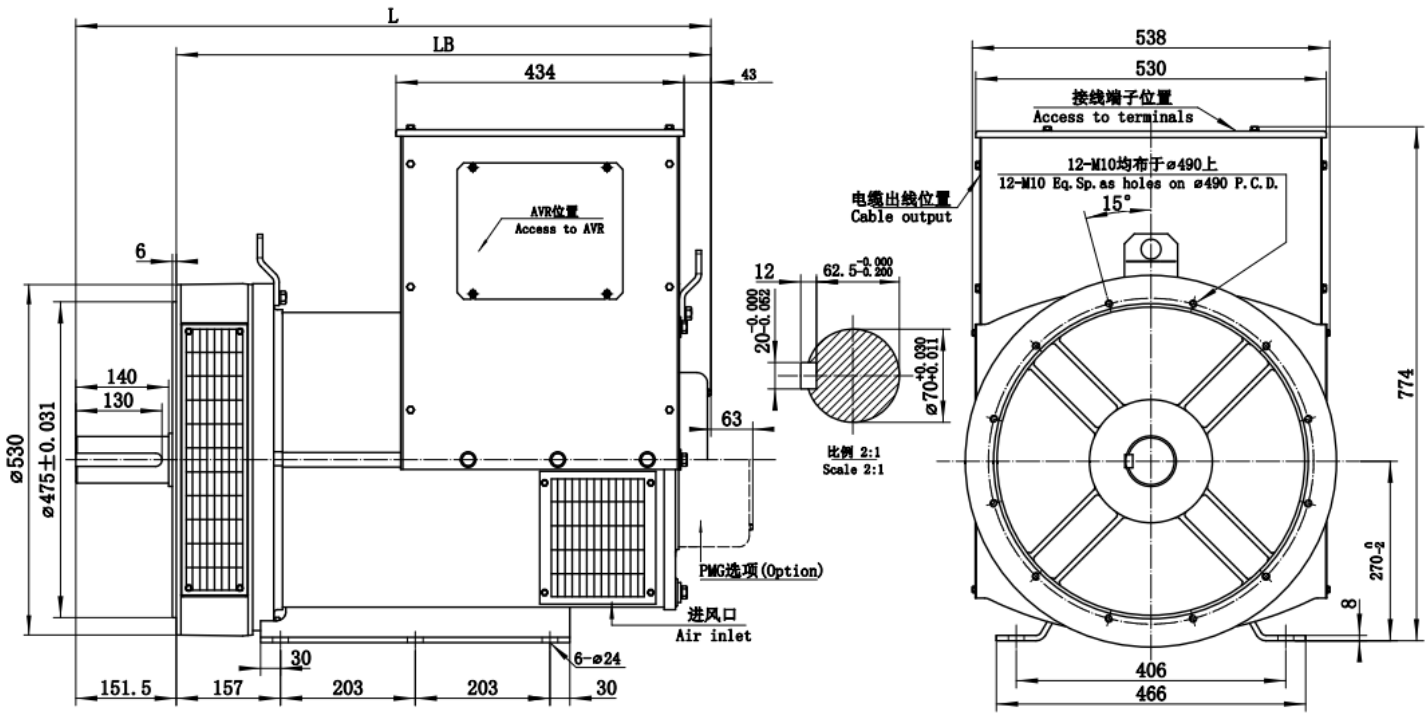
Outline Drawing（Double Bearing）



Dimensions(mm)						
Model	L	LB	D	*Xg	Net W.	Packing
	mm	mm	mm	mm	kg	L x W x H(mm)
S274G80B1	842	690.5	319.5	294	352	1024*624*947
S274G90B2	842	690.5	319.5	304	374	1024*624*947
S274G100B3	842	690.5	319.5	312	387	1024*624*947
S274G112C4	957	805.5	359.5	319	433	1074*624*947
S274G120C5	957	805.5	359.5	335	455	1074*624*947
S274G128C6	957	805.5	359.5	350	481	1074*624*947
S274G140C7	957	805.5	359.5	359	506	1074*624*947
S274G150D8	1007	855.5	359.5	368	533	1154*624*947
S274G160D9	1007	855.5	359.5	384	568	1154*624*947
S274G180E10	1092	940.5	370.3	405	611	1326*786*1063
S274G200E11	1092	940.5	370.3	425	655	1326*786*1063