



Fujian Kwise Generator CO.,LTD

L354A Range

360kW - 600 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.

**Waveform:** Total harmonic distortion (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 LA354 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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4 Pole

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**Common Data**

Ambient temp	40°C	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	KR440	THF	<2%	THD	<3%

**Electrical Data**

50Hz/1500RPM		WindingB31/0.8 Power Factor							
Duty/Temp Rise/Ambient T°		Cont./125K/40°C				Standby/150K/40°C			
Phase		3 Phase				3Phase			
Voltage	Y	380V	<b>400V</b>	415V	440V	380V	400V	415V	440V
	Δ	220V	<b>230V</b>	240V		220V	230V	240V	
L354A360D1	KVA	450	<b>450</b>	450	431	495	495	495	474
	KW	360	<b>360</b>	360	345	396	396	396	380
L354A400D2	KVA	500	<b>500</b>	500	475	550	550	550	523
	KW	400	<b>400</b>	400	380	440	440	440	418
L354A430D3	KVA	538	<b>538</b>	538	513	592	592	592	564
	KW	430	<b>430</b>	430	410	473	473	473	451
L354A450D4	KVA	563	<b>563</b>	563	531	619	619	619	584
	KW	450	<b>450</b>	450	425	495	495	495	468
L354A480D5	KVA	600	<b>600</b>	600	563	660	660	660	619
	KW	480	<b>480</b>	480	450	528	528	528	495
L354A500D6	KVA	625	<b>625</b>	625	588	688	688	688	647
	KW	500	<b>500</b>	500	470	550	550	550	517
L354A520E7	KVA	650	<b>650</b>	650	613	715	715	715	674
	KW	520	<b>520</b>	520	490	572	572	572	539
L354A540E8	KVA	675	<b>675</b>	675	638	743	743	743	702
	KW	540	<b>540</b>	540	510	594	594	594	561
L354A560E9	KVA	700	<b>700</b>	700	663	770	770	770	729
	KW	560	<b>560</b>	560	530	616	616	616	583
L354A600E10	KVA	750	<b>750</b>	750	700	825	825	825	770
	KW	600	<b>600</b>	600	560	660	660	660	616

\*Other Voltage:Consult the factory



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4 Pole

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Electrical Data

60Hz/1800RPM		WindingB32/0.8 Power Factor							
Duty/Temp Rise/Ambient T°		Cont./125K/40°C				Standby/150K/40°C			
Phase		3 Phase				3Phase			
Voltage	Y	416V	<b>440V</b>	460V	480V	416V	440V	460V	480V
	Δ	240V				240V			
L354A360D1	KVA	540	<b>540</b>	540	540	594	594	594	594
	KW	432	<b>432</b>	432	432	475	475	475	475
L354A400D2	KVA	600	<b>600</b>	600	600	660	660	660	660
	KW	480	<b>480</b>	480	480	528	528	528	528
L354A430D3	KVA	646	<b>646</b>	646	646	711	711	711	711
	KW	516	<b>516</b>	516	516	568	568	568	568
L354A450D4	KVA	676	<b>676</b>	676	676	744	744	744	744
	KW	540	<b>540</b>	540	540	594	594	594	594
L354A480D5	KVA	720	<b>720</b>	720	720	792	792	792	792
	KW	576	<b>576</b>	576	576	634	634	634	634
L354A500D6	KVA	750	<b>750</b>	750	750	825	825	825	825
	KW	600	<b>600</b>	600	600	660	660	660	660
L354A520E7	KVA	780	<b>780</b>	780	780	858	858	858	858
	KW	624	<b>624</b>	624	624	686	686	686	686
L354A540E8	KVA	810	<b>810</b>	810	810	891	891	891	891
	KW	648	<b>648</b>	648	648	713	713	713	713
L354A560E9	KVA	840	<b>840</b>	840	840	924	924	924	924
	KW	672	<b>672</b>	672	672	739	739	739	739
L354A600E10	KVA	900	<b>900</b>	900	900	990	990	990	990
	KW	720	<b>720</b>	720	720	792	792	792	792

\*Other Voltage:Consult the factory

Inertia & Efficiency

Model	L354A	360D1	400D2	430D3	450D4	480D5	500D6	520E7	540E8	560E9	600E10
Inertia(SB).J	kgm^2	7.237	8.407	8.744	8.996	9.432	9.826	10.219	10.535	11.006	11.495
Efficiency(100%Load)	%	94.9	95.1	95.2	95.3	95.6	95.7	95.8	95.9	96	96.1



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4 Pole

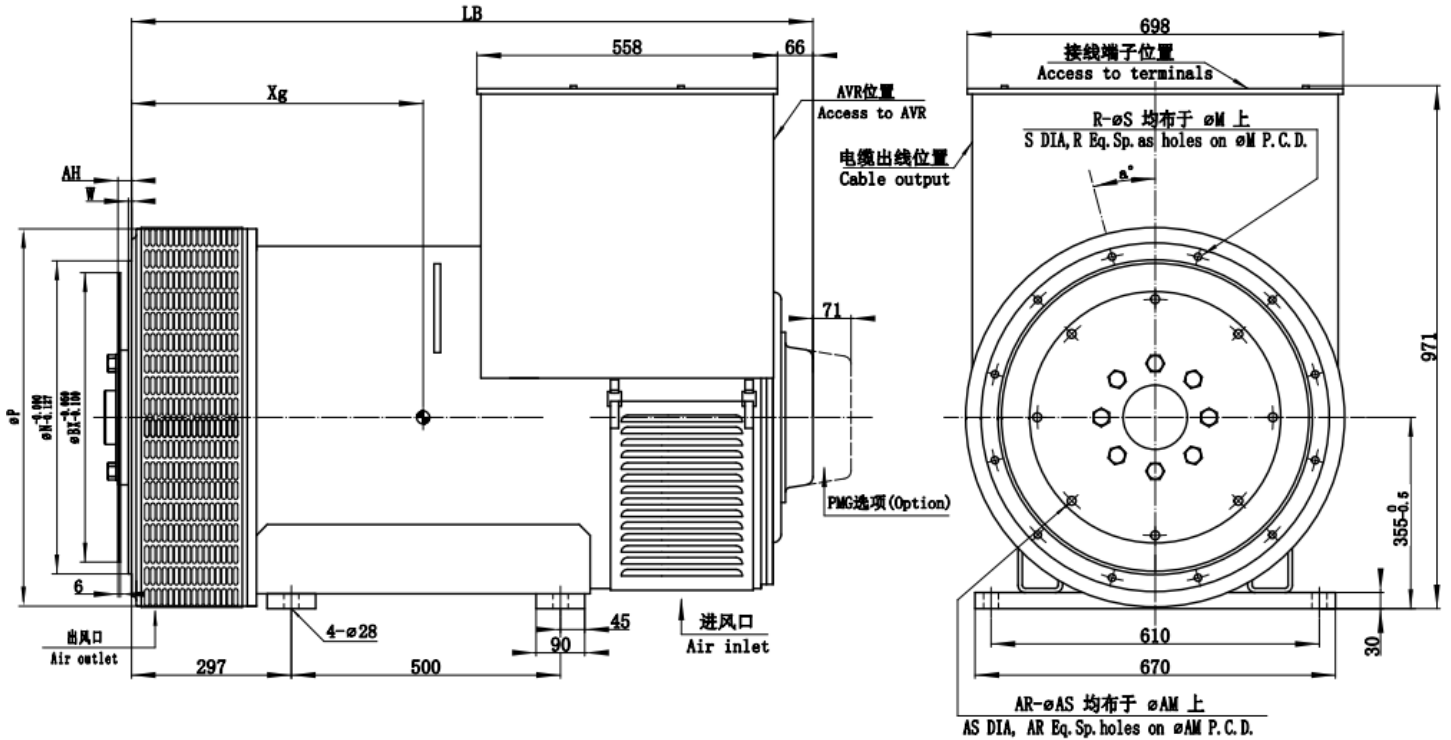
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Reactance-time constant(s)

50Hz @ 400V	L354A	360D1	400D2	430D3	450D4	480D5	500D6	520E7	540E8	560E9	600E10
Short-circuit ratio	Kcc	0.339	0.368	0.364	0.358	0.353	0.360	0.367	0.382	0.398	0.415
Direct-axis synchro. reactance unsaturated	Xd	2.950	2.720	2.750	2.790	2.830	2.778	2.725	2.620	2.515	2.410
Direct-axis transient reactance saturated	X'd	0.160	0.140	0.120	0.135	0.150	0.148	0.145	0.140	0.135	0.130
Direct-axis subtransient reactance saturated	X''d	0.120	0.100	0.080	0.095	0.110	0.108	0.105	0.100	0.095	0.090
Quadrature-axis synchro. Reactance unsaturated	Xq	2.400	2.240	2.080	2.145	2.210	2.205	2.200	2.190	2.180	2.170
Quadrature-axis subtransient reactance saturated	X''q	0.240	0.250	0.260	0.250	0.240	0.238	0.235	0.230	0.225	0.220
Negative sequence reactance saturated	X2	0.170	0.170	0.170	0.165	0.160	0.160	0.160	0.160	0.160	0.160
Zero sequence reactance	X0	0.100	0.090	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
Short-circuit transient time constant	T'd	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s
Subtransient time constant	T''d	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s
No-load transient time constant	T'do	2.0s	2.2s	2.3s	2.3s	2.5s	2.5s	2.5s	2.6s	2.6s	2.6s
Armature time constant	Ta	0.017s	0.018s	0.018s	0.017s	0.019s	0.020s	0.020s	0.019s	0.019s	0.019s

60Hz @ 400V	L354A	360D1	400D2	430D3	450D4	480D5	500D6	520E7	540E8	560E9	600E10
Short-circuit ratio	Kcc	0.271	0.308	0.305	0.304	0.303	0.311	0.315	0.319	0.324	0.328
Direct-axis synchro. reactance unsaturated	Xd	3.690	3.250	3.275	3.288	3.300	3.215	3.173	3.130	3.088	3.045
Direct-axis transient reactance saturated	X'd	0.170	0.160	0.160	0.160	0.160	0.155	0.153	0.150	0.148	0.145
Direct-axis subtransient reactance saturated	X''d	0.120	0.110	0.110	0.110	0.110	0.105	0.103	0.100	0.098	0.095
Quadrature-axis synchro. Reactance unsaturated	Xq	2.920	2.650	2.645	2.643	2.640	2.570	2.535	2.500	2.465	2.430
Quadrature-axis subtransient reactance saturated	X''q	0.320	0.290	0.305	0.313	0.320	0.305	0.298	0.290	0.283	0.275
Negative sequence reactance saturated	X2	0.220	0.200	0.210	0.215	0.220	0.210	0.205	0.200	0.195	0.190
Zero sequence reactance	X0	0.100	0.090	0.090	0.090	0.090	0.085	0.083	0.080	0.078	0.075
Short-circuit transient time constant	T'd	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s	0.08s
Subtransient time constant	T''d	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s	0.012s
No-load transient time constant	T'do	2.0s	2.2s	2.3s	2.3s	2.5s	2.5s	2.5s	2.6s	2.6s	2.6s
Armature time constant	Ta	0.017s	0.018s	0.018s	0.018s	0.019s	0.020s	0.020s	0.019s	0.019s	0.019s

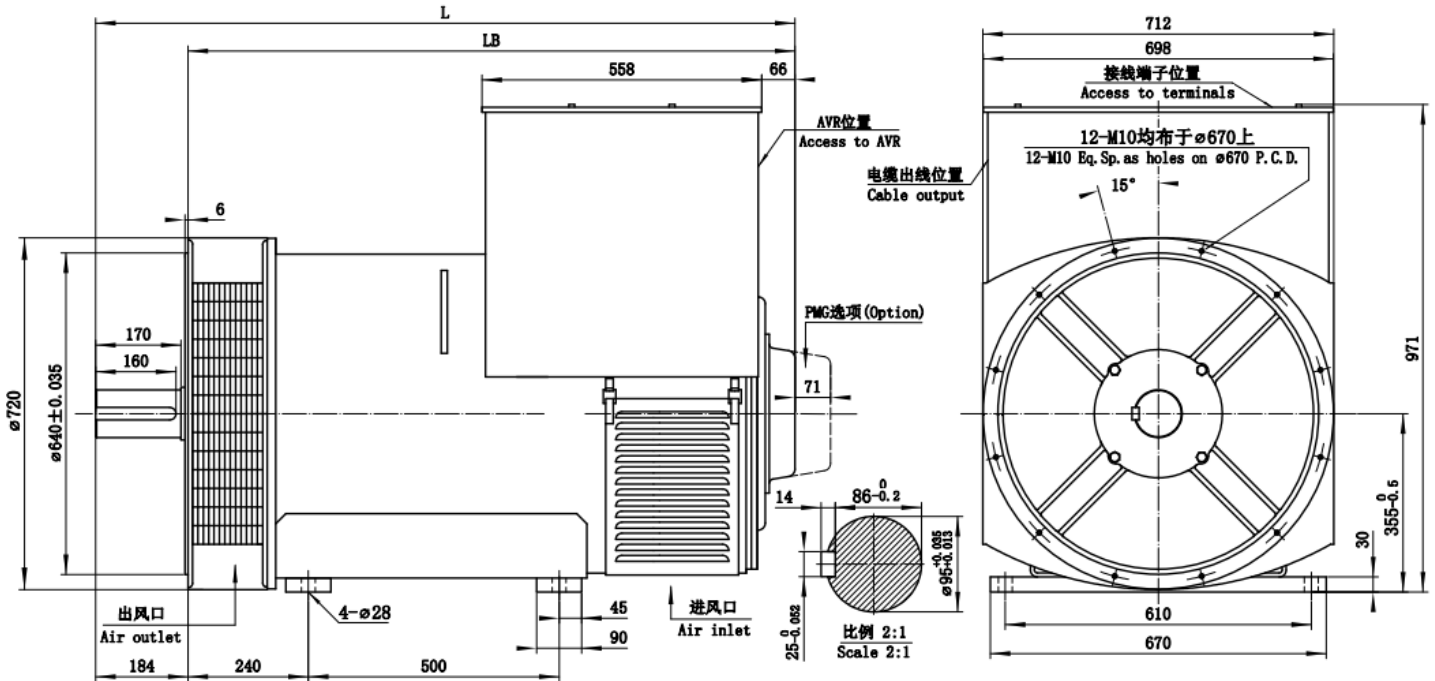
Outline Drawing (Single Bearing)



Dimensions(mm)				
Model	LB	*Xg	Net W.	Packing
	mm	mm	kg	L x W x H(mm)
L354A360D1	1266	555	1168	1466*846*1193
L354A400D2	1266	575	1240	1466*846*1193
L354A430D3	1266	580	1314	1466*846*1193
L354A450D4	1266	585	1363	1466*846*1193
L354A480D5	1266	595	1414	1466*846*1193
L354A500D6	1266	605	1436	1466*846*1193
L354A520E7	1341	610	1512	1546*846*1193
L354A540E8	1341	620	1556	1546*846*1193
L354A560E9	1341	630	1586	1546*846*1193
L354A600E10	1341	640	1618	1546*846*1193

Flange (mm)							Coupling Discs (mm)				
S.A.E	P	N	M	R-øS	W	a°	S.A.E	BX	AM	AR-øAS	AH
#00	882	787.4	850.9	16-ø14	6	11.25°	#14	466.725	438.15	8-ø14	25.40
#0	711	647.7	679.45	16-ø14	6	11.25°	#18	571.5	542.925	6-ø17	15.7
#1/2	700	584.2	619.125	12-ø14	6	15°	#21	673.1	641.35	12-ø18	0
#1	700	511.175	530.225	12-ø12	6	15°					

Outline Drawing (Double Bearing)



Dimensions(mm)					
Model	L	LB	*Xg	Net W.	Packing
	mm	mm	mm	kg	L x W x H(mm)
L354A360D1	1393	1209	498	1183	1546*846*1193
L354A400D2	1393	1209	518	1255	1546*846*1193
L354A430D3	1393	1209	523	1334	1546*846*1193
L354A450D4	1393	1209	528	1378	1546*846*1193
L354A480D5	1393	1209	538	1428	1546*846*1193
L354A500D6	1393	1209	548	1451	1546*846*1193
L354A520E7	1468	1284	553	1527	1900*1000*1390
L354A540E8	1468	1284	563	1571	1900*1000*1390
L354A560E9	1468	1284	573	1601	1900*1000*1390
L354A600E10	1468	1284	583	1633	1900*1000*1390