



HL Series Alternator

INTRODUCTION:

HL series three-phase (or single-phase) brushless synchronous generators, by introducing and developing on foreign advanced technology of well-known generators, are our newly developed products, all data updated synchronously with international well-known generators. HL series generators can be manufactured in both double and single bearing versions with a range of easy coupling to internal and international engines; Its body is constructed by steel shell, stator core is made of whole disc and rotor core is made as whole salient pole type with full-damping, with brushless self exciting method and AVR automatic control . It has following features: small-size, light-weight, good appearance, perfect performance, and easy access for installation and maintenance.

HL series generators meet the quality standard of international well-known generators, we guarantee the quality by strictly-controlled product design, manufacturing technology, tooling, selection of raw materials , production, testing equipment and quality control. Selection of raw materials includes cold rolled silicon sheet and magnet wire, which are purchased from the best of internal supplier, producing and test equipment such as coil winder can effectively control the magnet wire's pulling force while winding, Tooling such as stator laminated tooling is very advanced and it can ensure the stator core's quality, Manufacturing technology such as VPI and wet-winding technology can ensure that the windings have the high level of protection, All of quality control including field control is carried out according to ISO9001 standard.

HL series includes 164/184/224/274/314/354/404 total 7 frames, from 5kW to 1440kW. The technical performance and mounting dimension of HL series generators are international IEC and national GB755 standards compliant, the quality of products can reach current international standard .

MAIN PERFORMANCE DATA:

1. The standard protection for HL series generators is IP23;
2. Windings are insulated to class H;
3. .Full-damping whole salient construction guarantees generator to be operated stably in any conditions, and enable it to run under 150% rated Speed (2250r/min.).
4. HL generators are provided with a 2/3 winding pitch as standard, can effectively eliminate the third harmonic (3rd, 9th, 15th, etc.), and are therefore perfectly suited to installations with distorting loads, and easy to operate with the other generator in parallel.
5. Adjusting rate of stable voltage \leq 1%, adjusting rate of instant voltage: -15% ~+20% (60%In, $\text{COS}\Phi\leq 0.4$ lagging), instant voltage recovery times \leq 1.5s ;
6. Wave aberration rate of voltage THD 3%, telephone harmony wave factor THF \leq 2%, telephone effective factor of TIF \leq 50.

ENVIRONMENT CONDITIONS:

In the following environments, the generator could run continuously:

1. Altitude: do not exceed 1000m.
2. Cooling air temperature: 258~313K(-15 $^{\circ}$ C~40 $^{\circ}$ C).
3. Relative air humidity: do not exceed 90%.

Note: If environment conditions exceed the scope mentioned-above, please feel free to contact us.

FEATURES

1. Excellent compatibility with drive systems: standard mounting dimensions can be coupled to any diesel engines from worldwide, many S.A.E. flanges and S.A.E. drive discs can be easily interchangeable.
2. Good environmentally-friendly protection system: the standard enclosure protection is IP23, insulation class is H, and HL generators made with advanced manufacturing technologies are suitable for harsh environments.
3. Reliable and powerful automatic voltage regulators can provide consistent excitation on all occasions, so the generators can run reliably, and have high performance of magnet on exciter stator which can

rapidly build voltage while starting; All AVR's have numerous features for voltage adjustment, stability adjustment, low frequency protection and exterior voltage adjustment.

Standard AVR: EA460;

Option AVR: EA440(can be suitable for operation in parallel)、EA230、EA08 or EA448(the EA08 and EA448 is suited for auxiliary windings, thus providing the generator with the best design for nonlinear load, performance on start and short-circuit.

4. HL generators are provided with a 2/3 winding pitch as standard, therefore are perfectly suitable for installations with distorting loads, and easy to be operated with other generators in parallel; Several types of windings are available in 50Hz and 60Hz versions to optimize performance according to the voltage required on site and the demands of the application (max. voltages available range up to 690 V).

5. HL generators are provided with three phase as standard, it 's easy to alter the voltage by reconnection for 12-leads on terminal plate, also the units can be run as single phase by changing the output connecting (except for HL354), but single-phase's power only is about 58% of that of three-phase's ; For single-phase generator, it can be designed for special winding.

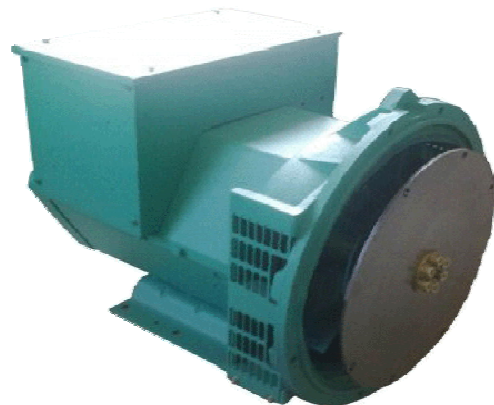
6. The damp winding on rotor and the surge suppressor on rectifier can provide the generator with stability and reliability.

7. For balanced rotor with two sealed and quality ball bearing, HL generators have the features of little vibration and low noise.

8. Easy access for installation and maintenance, including: coupling to engines, connecting for lead wire, adjustment for AVR, connecting for rectifier, integrating with current transformers.

OPTION FEATURES:

1. Interchangeable S.A.E. flanges and S.A.E. drive discs
2. Convenient filters on air inlets and outlets
3. Protection for windings in harsh environments
4. Different AVR type
5. Different windings
6. exterior potentiometer
7. Space heaters
8. stator thermal protection
9. PMG or auxiliary windings
10. Droop current transformers (C.T.)



THE DEFINITION OF PRODUCT MODEL:

	HL	27	4	VS	1
发电机型号 (Type)	HL				
机座号(Frame)					1
极数(Poles):	4 级				
机座长度(Frame Length Code)					VS
铁心长度(Core Length Code)	27				

额定参数 Rated Data
50Hz-1500r.p.m.

额定 Rating		kVA/kW cosΦ=0.8											
工作制/环境温度 Duty/Ambient T°		连续 Continuous/40°C				备用 Stand by/40°C				备用 Stand by/27°C			
绝缘等级/温升 Ins.Class/ T° Rise		H/125°K				H/150°K				H/163°K			
相数 Phase		3Phase				3Phase				3Phase			
电压 Voltage	Y	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V
	Δ	220V	230V	240V		220V	230V	240V		220V	230V	240V	
	YY				220V				220V				220V
HL164VS1	KVA	6.25	6.25	6.25	6.25	7.5	7.5	7.5	7.5	7.875	7.875	7.875	7.875
	kW	5	5	5	5	6	6	6	6	6.3	6.3	6.3	6.3
HL164VS2	KVA	9.375	9.375	9.375	9.375	10.5	10.5	10.5	10.5	11.13	11.13	11.13	11.13
	kW	7.5	7.5	7.5	7.5	8.4	8.4	8.4	8.4	8.9	8.9	8.9	8.9
HL164VS3	KVA	12.5	12.5	12.5	12.5	13.75	13.75	13.75	13.75	14.5	14.5	14.5	14.5
	kW	10	10	10	10	11	11	11	11	11.6	11.6	11.6	11.6
HL164S4	KVA	15	15	15	15	16.5	16.5	16.5	16.5	17.5	17.5	17.5	17.5
	kW	12	12	12	12	13.2	13.2	13.2	13.2	14	14	14	14
HL184S5	KVA	18.75	18.75	18.75	18.75	20.5	20.5	20.5	20.5	21.5	21.5	21.5	21.5
	kW	15	15	15	15	16.4	16.4	16.4	16.4	17.2	17.2	17.2	17.2
HL184M6	KVA	22.5	22.5	22.5	22.5	25	25	25	25	26.5	26.5	26.5	26.5
	kW	18	18	18	18	20	20	20	20	21.2	21.2	21.2	21.2
HL184M7	KVA	25	25	25	25	27.5	27.5	27.5	27.5	29	29	29	29
	kW	20	20	20	20	22	22	22	22	23.2	23.2	23.2	23.2
HL184M8	KVA	27.5	27.5	27.5	27.5	31	31	31	31	32	32	32	32
	kW	22	22	22	22	24.8	24.8	24.8	24.8	25.6	25.6	25.6	25.6
HL184L9	KVA	31.25	31.25	31.25	31.25	35	35	35	35	36.5	36.5	36.5	36.5
	kW	25	25	25	25	28	28	28	28	29.2	29.2	29.2	29.2
HL184L10	KVA	37.5	37.5	37.5	37.5	40	40	40	40	42.5	42.5	42.5	42.5
	kW	30	30	30	30	32	32	32	32	34	34	34	34
HL224S1	KVA	42.5	42.5	42.5	40	46	46	46	42.5	48	48	48	45
	kW	34	34	34	32	36.8	36.8	36.8	34	38.4	38.4	38.4	36
HL224S2	KVA	50	50	50	48	55	55	55	52.5	57.5	57.5	57.5	54.75
	kW	40	40	40	38.4	44	44	44	42	46	46	46	43.8
HL224M3	KVA	62.5	62.5	62.5	60	68.75	68.75	68.75	66	72.5	72.5	72.5	70
	kW	50	50	50	48	55	55	55	52.8	58	58	58	56
HL224M4	KVA	72.5	72.5	72.5	70	81.25	81.25	81.25	78.5	83.75	83.75	83.25	81.25
	kW	58	58	58	56	65	65	65	62.8	67	67	67	65
HL224L5	KVA	80	80	80	76.25	87.55	87.5	87.5	83.75	92.5	92.5	92.5	88.75
	kW	64	64	64	61	70	70	70	67	74	74	74	71
HL224L6	KVA	85	85	85	79	95	95	95	88.75	100	100	100	93.75
	kW	68	68	68	63.2	76	76	76	71	80	80	80	75
HL224VL7	KVA	93.75	93.75	93.75	86.25	106.3	106.3	106.3	98.75	111.3	111.3	111.3	103.8
	kW	75	75	75	69	85	85	85	79	89	89	89	83

HL274VS1	KVA	100	100	100	92.5	108.8	108.8	108.8	98.75	115	115	115	105
	KW	80	80	80	74	87	87	87	79	92	92	92	84
HL274VS2	KVA	112.5	112.5	112.5	107.5	123.8	123.8	123.8	118.8	128.8	128.8	128.8	122.5
	KW	90	90	90	86	99	99	99	95	103	103	103	98
HL274VS3	KVA	125	125	125	118.8	137.5	137.5	137.5	130	145	145	145	137.5
	KW	100	100	100	95	110	110	110	104	116	116	116	110
HL274S4	KVA	140	140	140	130	152.5	152.5	152.5	142.5	160	160	160	150
	KW	112	112	112	104	122	122	122	114	128	128	128	120
HL274S5	KVA	150	150	150	140	165	165	165	155	175	175	175	163.8
	KW	120	120	120	112	132	132	132	124	140	140	140	131
HL274S6	KVA	165	165	165	152.5	182.5	182.5	182.5	170	192.5	192.5	192.5	180
	KW	132	132	132	122	146	146	146	136	154	154	154	144
HL274M7	KVA	187.5	187.5	187.5	175	207.5	207.5	207.5	195	220	220	220	207.5
	KW	150	150	150	140	166	166	166	156	176	176	176	166
HL274M8	KVA	200	200	200	190	225	225	225	210	240	240	240	225
	KW	160	160	160	152	180	180	180	168	192	192	192	180
HL274L9	KVA	225	225	225	205	245	245	245	225	265	265	265	245
	KW	180	180	180	164	196	196	196	180	212	212	212	196
HL274L10	KVA	250	250	250	230	270	270	270	250	270	275	275	255
	KW	200	200	200	184	216	216	216	200	220	220	220	204
HL314S1	KVA	225	225	225	225	245	245	245	245	265	265	265	265
	KW	180	180	180	180	196	196	196	196	212	212	212	212
HL314S2	KVA	250	250	250	250	270	270	270	270	275	275	275	275
	KW	200	200	200	200	216	216	216	216	220	220	220	220
HL314M3	KVA	275	275	275	260	292.5	292.5	292.5	277.5	302.5	302.5	302.5	287.5
	KW	220	220	220	208	234	234	234	222	242	242	242	230
HL314M4	KVA	300	300	300	282.5	318.8	318.8	318.8	300	331.3	331.3	331.3	312.5
	KW	240	240	240	226	255	255	255	240	265	265	265	250
HL314M5	KVA	325	325	325	295	340	340	340	310	347.5	347.5	347.5	318.8
	KW	260	260	260	236	272	272	272	248	278	278	278	255
HL314L6	KVA	350	350	350	306.3	362.5	362.5	362.5	325	372.5	372.5	372.5	345
	KW	280	280	280	245	290	290	290	260	298	298	298	276
HL314L7	KVA	375	375	375	340	387.5	387.5	387.5	352.5	392.5	392.5	392.5	362.5
	KW	300	300	300	272	310	310	310	282	314	314	314	290
HL314VL8	KVA	400	400	400	365	412.5	412.5	412.5	375	418.8	418.8	418.8	387.5
	KW	320	320	320	292	330	330	330	300	335	335	335	310
HL354S1	KVA	450	450	450	450	475	475	475	475	487.5	487.5	487.5	487.5
	KW	360	360	360	360	380	380	380	380	390	390	390	390
HL354S2	KVA	490	500	490	487.5	522.5	522.5	522.5	500	531.3	531.3	531.3	518.8
	KW	400	400	400	390	418	418	418	400	425	425	425	415
HL354S3	KVA	552.5	562.5	552.5	512.5	562.5	581.3	565	531.3	572.5	590	575	557.5
	KW	442	450	442	410	450	465	452	425	458	472	460	446
HL354S4	KVA	588.8	600	588.8	550	602.5	620	605	570	612.5	630	615	595
	KW	471	480	471	440	482	496	484	456	490	504	492	476
HL354M5	KVA	615	625	615	575	625	643.8	627.5	590	632.5	652.5	635	617.5
	KW	492	500	492	460	500	515	502	472	506	522	508	494

HL354M6	KVA	637.5	650	637.5	600	645	665	647.5	612.5	655	675	657.5	640
	kW	510	520	510	480	516	532	518	490	524	540	526	512
HL354M7	KVA	662.5	675	662.5	622.5	665	687.5	667.5	632.5	675	695	677.5	657.5
	kW	530	540	530	498	532	550	534	506	540	556	542	526
HL354L8	KVA	685	700	685	645	687.5	712.5	690	655	697.5	718.8	700	677.5
	kW	548	560	548	516	550	570	552	524	558	575	560	542
HL404S1	KVA	710	750	750	680	746	788	788	714	774	818	818	741
	kW	568	600	600	548	596	630	630	575	619	654	654	597
HL404S2	KVA	760	800	800	725	798	840	840	761	828	872	872	790
	kW	608	640	640	580	638	672	672	609	663	698	698	632
HL404S3	KVA	865	910	910	825	908	956	956	866	943	992	992	899
	kW	692	728	728	660	727	764	764	693	754	794	794	719
HL404S4	KVA	950	1000	1000	910	998	1050	1050	956	1036	1090	1090	992
	kW	760	800	800	728	798	840	840	764	828	872	872	794
HL404S5	KVA	1075	1130	1130	1025	1129	1187	1187	1076	1172	1232	1232	1117
	kW	860	904	904	820	903	949	949	861	937	985	985	894
HL404M6	KVA	1190	1250	1250	1135	1250	1313	1313	1192	1297	1363	1363	1237
	kW	952	1000	1000	908	1000	1050	1050	953	1038	1090	1090	990
HL404M7	KVA	1310	1100	1100	1020	1376	1155	1155	1071	1428	1199	1199	1112
	kW	1048	950	952	953	1100	998	1000	1001	1142	1036	1038	1039
HL404M8	KVA	1425	1500	1500	1375	1496	1575	1575	1444	1553	1635	1635	1499
	kW	1140	1200	1200	1300	1197	1260	1260	1365	1243	1308	1308	1417