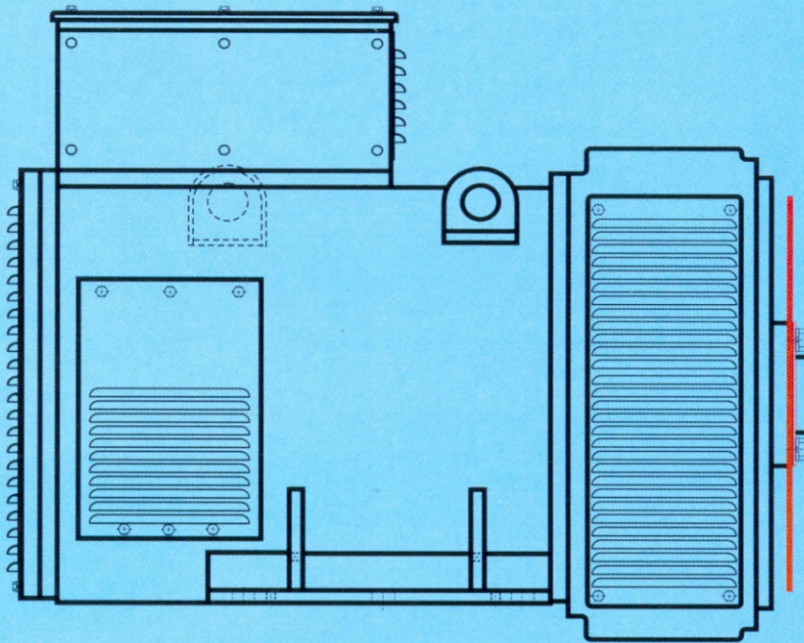


# KIRLOSKAR ELECTRIC

## AC GENERATOR



**100 to 625 kVA**

**BRUSHLESS SINGLE BEARING  
HIGH PERFORMANCE**



Kirloskar Electric have long experience in the manufacture of brushless AC Generators alongwith AC and DC Motors. They are known for their technology and reliability. Kirloskar Electric have most advanced designs, modern production and test facilities.

Kirloskar Electric is accredited with Quality Standards ISO 9001 for its quality management system for the manufacture of these AC Generators.

These products have KEMA attestation for having met the requirements of Low Voltage directive as well as EMC directive and entitled to provide the 'CE' marking for the generators.

Kirloskar Electric have the comprehensive range from 5 to 20000 kVA, single bearing & double bearing AC Generators to cater to the needs of commercial, industrial, tele-communications, defence and marine applications.

Kirloskar AC Generators are available for 50/60 Hz and cater to all applications for the prime and stand by power generations.

### **SPECIAL FEATURES**

- Compact and aesthetically built.
- Conforms to all leading industrial and marine standards.
- Simple design, fewer parts, easy access to coupling bolts, output terminals and rotating diodes.
- Simple to install and maintenance.
- Wide range of flange adopters and single bearing flexi-disc couplings.
- Wound with 2/3 pitch in stator to reduce harmonic effects.
- Permanent magnet generators (PMG) for providing constant excitation. (Optional)
- Paralleling with other generator or main grid.
- Self lubricated, sealed type for ball bearings.
- Sophisticated and reliable AVR, having good capability to handle non-linear loads.

### **STANDARDS**

Kirloskar AC Generators meet the requirements of the following standards.

IEC 60034-1 Rotating Electrical Machines Ratings and Performance.

BS EN 60034 - Rotating Electrical Machines.

IS 4722 - Indian Standard for Rotating Electrical Machines.

IS 13364-Pt.II : AC Generators driven by reciprocating internal combination engines (Rated above 20 KVA upto 1250 KVA)

### **RATINGS**

Standard ratings are offered for 380-415 V, 50 Hz & 220-480 V, 60 Hz, for 40 °C ambient, 1000mtr altitude, class H temperature rise.

### **CONSTRUCTIONAL FEATURES MECHANICAL**

Basic stator frame is of fabricated steel cage construction with a wrap around. This construction is rigid and houses wound stator core with interference fit. This provides further mechanical stability for the machine. Rotors are dynamically balanced to better grade than 2.5 of ISO 1940.

### **ELECTRICAL**

Stators are wound with 2/3 pitch. This eliminates the triplen harmonics on the voltage waveform and enhances the performance with non-linear loads.

Rotors are of cruci-form construction and are provided with large size damper cage which reduces rotor oscillation and make generators suitable for paralleling.

Apart from above design feature, correct design of pole and tooth ensures very low distortion in the waveform.

### **INSULATION**

These generators are provided with class H insulation. Wound stators are trickle impregnated and the wound rotors are roll impregnated with class H resin.

### **TERMINATION**

Generators are provided with amply sized terminal box, with removable wall plates, mounted

on top of the frame, for the termination of 12 leads from the generators as well as customer wiring and glands. This box also houses the automatic voltage regulator (AVR). This box is easily accessible to the user.

### **ENCLOSURE**

All industrial generators are provided with IP 23 protection as standard.

For special applications, enclosure to IP 55 with CACA or CACW cooling arrangements can be designed for reasonably large ratings like 500 kVA & above.

### **ADAPTOR & COUPLINGS FOR SINGLE BEARING GENERATOR**

For single bearing generators, depending on the kVA ratings and Prime movers various sizes and combinations of adopter to SAE 00, 0, 1/2 & 1 and flexi - disc couplings to SAE 10, 11.5, 14, 18 & 21 are available.

### **AUTOMATIC VOLTAGE REGULATOR**

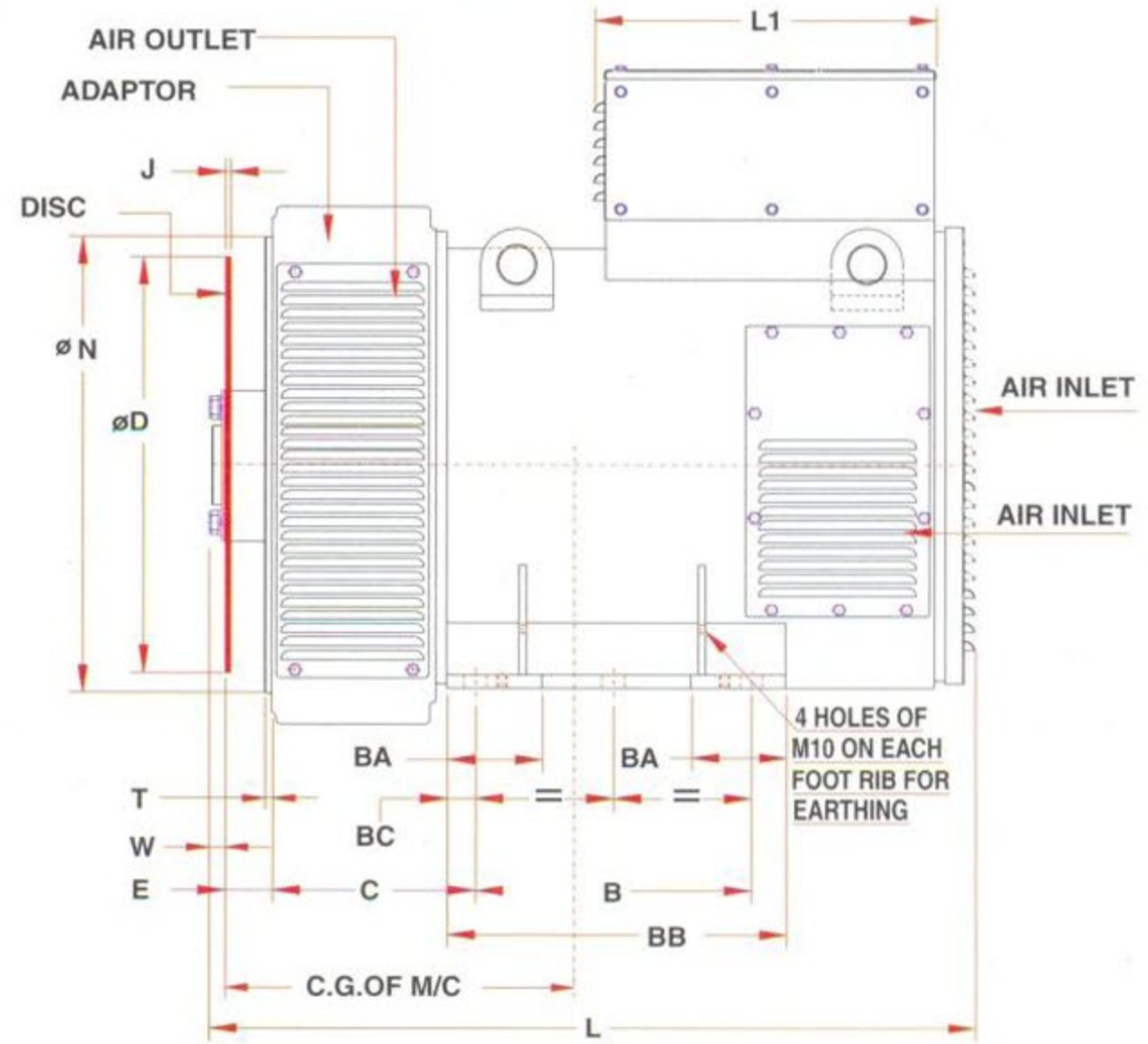
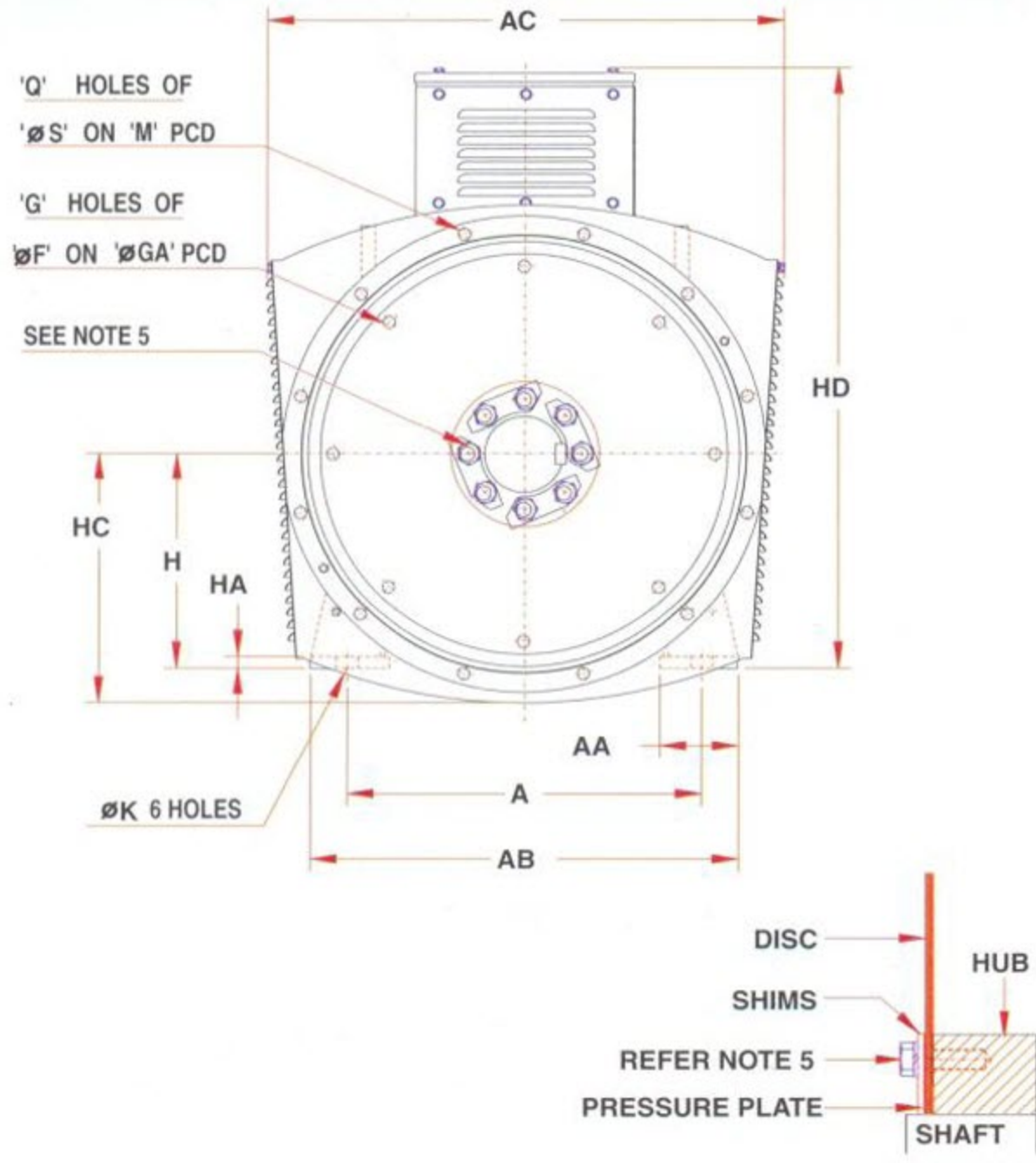
Automatic Voltage Regulators (AVR) are quite sophisticated, compact and rugged. These AVRs employ efficient semi-conductors. These are suitable for 50 / 60 Hz application as well as for solo and parallel running modes. These AVRs provide a regulation of  $\pm 1\%$ . Also  $\pm 0.5\%$  regulation available on request.

They have very good ability to pickup from low residual voltage. Also can easily sustain a variety of non-linear loads with the use of complex internal filtering.

### **TELEPHONE HARMONIC DISTORTION AND RADIO INTERFERENCE**

Telephone Interference, THF is as per BS 4999 Part 40. Kirloskar brushless AC generators with sophisticated AVRs ensure low levels of interference with radio transmission as well.

## DIMENSIONS FOR FRAME 4AB 250 AND 4AB 280



SL. NO	FRAME	A	AA	AB	AC	B	BA	BB	BC	C	E	H	HA	HC	HD	ØK	L	L1	W	M <sub>PCD</sub> ON ADAPTOR	ØN SPIGOT	Q	QS	T	J	ØF	G	GA <sub>PCD</sub> ON DISC	ØD DISC ØD	CG	GD <sup>2</sup> Kgm <sup>2</sup>	ROTOR WT. Kg.	NETT WT. Kg.
1	4AB 250S1 SAE-1/14	406	90	490	610	305	-	375	31	224	25.40	250.0 249.5	15	290	735	24	825	380	17.5	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.66 466.60 SAE-14	420	10.12	326	448
2	4AB 250S1 SAE2/11.5	406	90	490	610	305	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	416	10.12	326	448
3	4AB 250S1 SAE3/11.5	406	90	490	610	305	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	416	10.12	326	448
4	4AB 250M1 SAE1/14	406	90	490	610	305	-	375	31	224	25.40	250.0 249.5	15	290	735	24	825	380	17.5	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.66 466.60 SAE-14	420	12.00	352	468
5	4AB 250L1 SAE2/11.5	406	90	490	610	305	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	424	11.11	345	465
6	4AB 250M1 SAE3/11.5	406	90	490	610	368	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	424	11.11	345	465
7	4AB250L1 SAE1/14	406	90	490	610	305	-	375	31	224	25.40	250.0 249.5	15	290	735	24	825	380	17.5	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.60 466.60 SAE-14	425	12.30	370	490
8	4AB250L1 SAE2/11.5	406	90	490	610	305	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	428	12.10	363	486
9	4AB250L1 SAE3/11.5	406	90	490	610	305	-	375	31	210	39.68	250.0 249.5	15	262	735	24	825	380	17.5	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	338.38	352.36 352.30 SAE-11.5	428	12.10	363	486
10	4AB280S1 SAE1/14	457	90	540	650	368	105	425	33	245	25.40	280.0 279.5	20	300	810	24	830	380	20	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.66 466.60 SAE-14	370	16.0	300	590
11	4AB280S1 SAE2/11.5	457	90	540	650	368	105	425	33	231	39.68	280.0 279.5	20	300	810	24	830	380	20	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	375	16.8	295	580
12	4AB280S1 SAE3/11.5	457	90	540	650	368	105	425	33	231	39.68	280.0 279.5	20	300	810	24	830	380	20	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	375	16.8	295	580
13	4AB280M1 SAE1/14	457	90	540	650	419	105	480	33	245	25.40	280.0 279.5	20	300	810	24	950	380	20	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.66 466.60 SAE-14	410	16.5	340	645
14	4AB280M1 SAE2/11.5	457	90	540	650	419	105	480	33	231	39.68	280.0 279.5	20	300	810	24	950	380	20	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	415	16.3	335	638
15	4AB280M1 SAE3/11.5	457	90	540	650	419	105	480	33	231	39.68	280.0 279.5	20	300	810	24	950	380	20	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	415	16.3	335	638
16	4AB280L1 SAE1/14	457	90	540	650	419	105	480	33	245	25.40	280.0 279.5	20	300	810	24	950	380	20	530.22 SAE-1	511.18 511.10	12	14	8	6	14	8	438.15	466.66 466.60 SAE-14	425	17.0	370	870
17	4AB280L1 SAE2/11.5	457	90	540	650	419	105	480	33	231	39.68	280.0 279.5	20	300	810	24	950	380	20	466.7 SAE-2	447.68 447.60	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	430	16.8	365	865
18	4AB280L1 SAE3/11.5	457	90	540	650	419	105	480	33	231	39.68	280.0 279.5	20	300	810	24	950	380	20	428.6 SAE-3	409.57 409.52	12	11	8	6	11	8	333.38	352.36 352.30 SAE-11.5	430	16.8	365	865

- NOTES :**
1. OUTGOING CABLES TO BE INDEPENDENTLY SUPPORTED SUCH THAT THE WEIGHT OF THE CABLE DOES NOT COME ON THE MACHINE.
  2. A MINIMUM OF ONE METER CLEAR SPACE AROUND THE MACHINE IS NECESSARY FOR GOOD VENTILATION.
  3. LIFTING HOOKS ARE TO BE USED FOR LIFTING THE AC GENERATOR ONLY AND NOT THE DG SET.
  4. DIMENSION ARE SUBJECT TO ALTERATION WITHOUT NOTICE.
  5. SCREWS FOR FIXING DISCS TO HUB SHALL BE TIGHTENED WITH TORQUE OF 13 kgm.

# RATING CHART FOR INDUSTRIAL RANGE AC GENERATORS

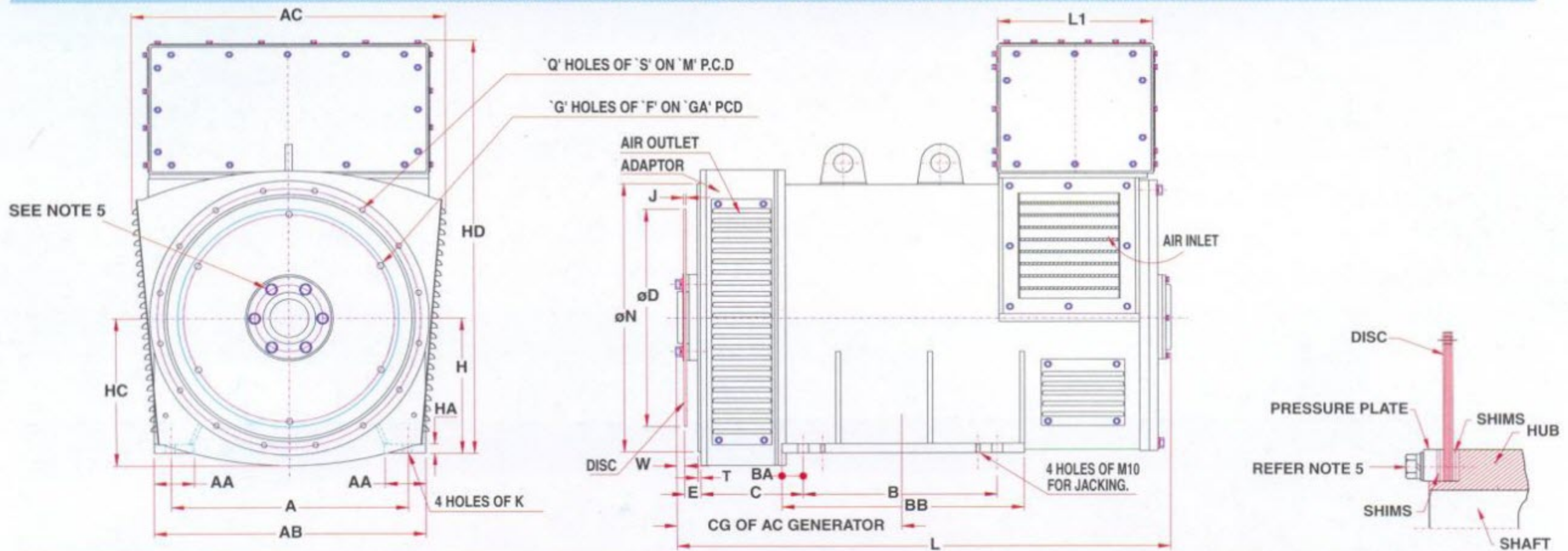
1. 50Hz, 1500 rpm, 0.8 pf, 3Ph, Class H(125°C), 380-415 V

2. 60Hz, 1800 rpm, 0.8 pf, 3 Ph, Class H(125°C), 220-480 V

FRAME	PRIME RATING			STANDBY RATING		
	kVA	kW	% Eff	kVA	kW	% Eff
4AB250S1	100	80	92.6	106	85	92.7
4AB250M1	110	88	92.3	116	93	92.4
4AB250L1	125	100	92.5	132	106	92.6
4AB280S1	160	128	92.6	169	135	92.7
4AB280M1	200	160	92.6	212	170	92.6
4AB280L1	250	200	93.0	265	212	93.1
4AB315S1	320	250	92.9	339	271	92.9
4AB315M1	380	304	92.9	403	322	93.5
4AB315M1	400	320	93.5	424	339	93.6
4AB355S1	500	400	94.8	530	424	94.9
4AB355M1	625	500	95.4	662	529	95.5

FRAME	PRIME RATING			STANDBY RATING		
	kVA	kW	% Eff	kVA	kW	% Eff
4AB250S1	120	96	92.0	127	102	92.1
4AB250M1	132	106	91.9	139	111	92.0
4AB250L1	150	120	92.4	159	127	92.5
4AB280S1	192	154	92.7	203	162	92.8
4AB280M1	240	192	92.9	254	203	93.0
4AB280L1	300	240	93.0	318	254	93.1
4AB315S1	384	307	93.1	407	326	93.2
4AB315M1	480	384	93.9	508	406	94.0
4AB355S1	570	456	95.0	604	483	95.2
4AB355M1	710	568	95.2	752	602	95.4

## DIMENSIONS FOR FRAME 4AB315 & 4AB355



SL NO	FRAME	A	AA	AB	AC	B	BA	BB	C	E	H	HA	HC	HD	ØK	L	L1	W	M	ØN	Q	QS	T	J	ØF	G	GA	ØD	CG	GD <sup>2</sup> Kg <sup>m</sup> ²	ROTOR WT. Kg.	NETT WT. Kg.	
1	4AB315S1 SAE-0/18	508	100	600	810	419	37	510	264	15.75	315	20	375	990	28	1060	435	23	679.45	647.60	16	14	8	6	16.7	6	543.00	571.44 571.38	SAE-18	500	25	388	925
2	4AB315S1 SAE-1/14	508	100	600	810	419	37	510	264	25.40	315	20	348	990	28	1060	435	23	530.22	511.18	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	500	25	388	925
3	4AB315S1 SAE-2/11.5	508	100	600	770	419	37	510	254	39.62	315	20	335	990	28	1060	435	23	466.72	447.68	12	11	8	6	11.0	8	333.38	352.36 352.30	SAE-11.5	500	25	388	925
4	4AB315M1 SAE-0/18	508	100	600	810	457	37	548	264	15.75	315	20	375	990	28	1130	435	23	679.45	647.60	16	14	8	6	16.7	6	543.00	571.44 571.38	SAE-18	530	29	442	1080
5	4AB315M1 SAE-1/14	508	100	600	810	457	37	548	264	25.40	315	20	348	990	28	1130	435	23	530.22	511.18	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	530	29	442	1080
6	4AB315M1 SAE-2/11.5	508	100	600	770	457	37	548	254	39.62	315	20	335	990	28	1130	435	23	466.72	447.68	12	11	8	6	11.0	8	333.38	352.36 352.30	SAE-11.5	530	29	442	1080
7	4AB355S1 SAE0/18	610	105	700	810	500	55	625	290	15.75	355	25	385	1085	28	1270	435	23	679.45	647.60	16	14	8	6	16.7	6	543.00	571.44 571.38	SAE-18	700	60	730	1450
8	4AB355S1 SAE1/14	610	105	700	810	500	55	625	290	25.40	355	25	385	1085	28	1270	435	23	530.22	511.18	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	700	60	730	1450
9	4AB355S1 SAE1/2/14	610	105	700	810	500	55	625	290	25.40	355	25	385	1085	28	1270	435	23	619.12	584.20	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	700	60	730	1450
10	4AB355M1 SAE0/18	610	105	700	810	560	55	685	290	15.75	355	25	385	1085	28	1330	435	23	679.45	647.60	16	14	8	6	16.7	6	543.00	571.44 571.38	SAE-18	740	75	805	1650
11	4AB355M1 SAE1/14	610	105	700	810	560	55	685	290	25.40	355	25	385	1085	28	1330	435	23	530.22	511.18	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	740	75	805	1650
12	4AB355M1 SAE1/2/14	610	105	700	810	560	55	685	290	25.40	355	25	385	1085	28	1330	435	23	619.12	584.20	12	14	8	6	14.0	8	438.15	466.66 466.60	SAE-14	740	75	805	1650

- NOTES:**
1. OUTGOING CABLES TO BE INDEPENDENTLY SUPPORTED SUCH THAT THE WEIGHT OF THE CABLE DOES NOT COME ON THE MACHINE.
  2. A MINIMUM OF ONE METER CLEAR SPACE AROUND THE MACHINE IS NECESSARY FOR GOOD VENTILATION.
  3. LIFTING HOOKS ARE TO BE USED FOR LIFTING THE AC GENERATOR ONLY AND NOT THE DG SET.
  4. DIMENSION ARE SUBJECT TO ALTERATION WITHOUT NOTICE.
  5. SCREWS FOR FIXING DISCS TO HUB SHALL BE TIGHTENED WITH TORQUE OF 30 kgm.

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