

ALTERNATOR

SMM270 Range

_ Rev.G _

APPLICATION AND STANDARDS

Widly used for homes, small shops and offices as a prime power supply or backup

Comply with standards of IEC60034,NEMA MG1-22,IS08528,CSA C22.2-100, VDE 0530, GB755

ELECTRICAL FEATURES

The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage.

2/3 winding pitch, effective control of harmonics.

12 leads, achieve a variety of voltage output

High efficiency and strong motor start ability

Be capable of running at overload up to 10% for 1 hour every 12 hours.

The "ARAP" - Auxiliary Regulation Adopted Principle is optional

Variety of excitation and voltage regulation system to meet different loads.



MECHANICAL FEATURES

Be protected to IP23, and IP44 is optional

Sealed for life bearings

Both single bearing and double bearing configurations are available

Steel sheet terminal box, which provides enough space for customer's reconnection

The rotor is dynamically balanced according to ISO 1940. A half-key balanced for double bearings.

INSULATION AND IMPREGNATION

H class insulation

The VPI (Vacuum Pressure Impregnation) equipped to ensure the electrical insulation and mechanical strength.

The "Anti-Harsh" winding is optional to meet the needs of harsh environment

COMMON DATA

INSULATION	ALTITUDE	OVERSPEED	PROTECTION	LEADS	PITCH	AVR	VOLTAGE REGULATION	WAVEFORM DISTORTION	TIF	THF
H/H	<=1000m	2250 rpm	IP23	12	2/3	SX460	± 1%	<1.5% NO LOAD	<50	<2%

RATING TABLE

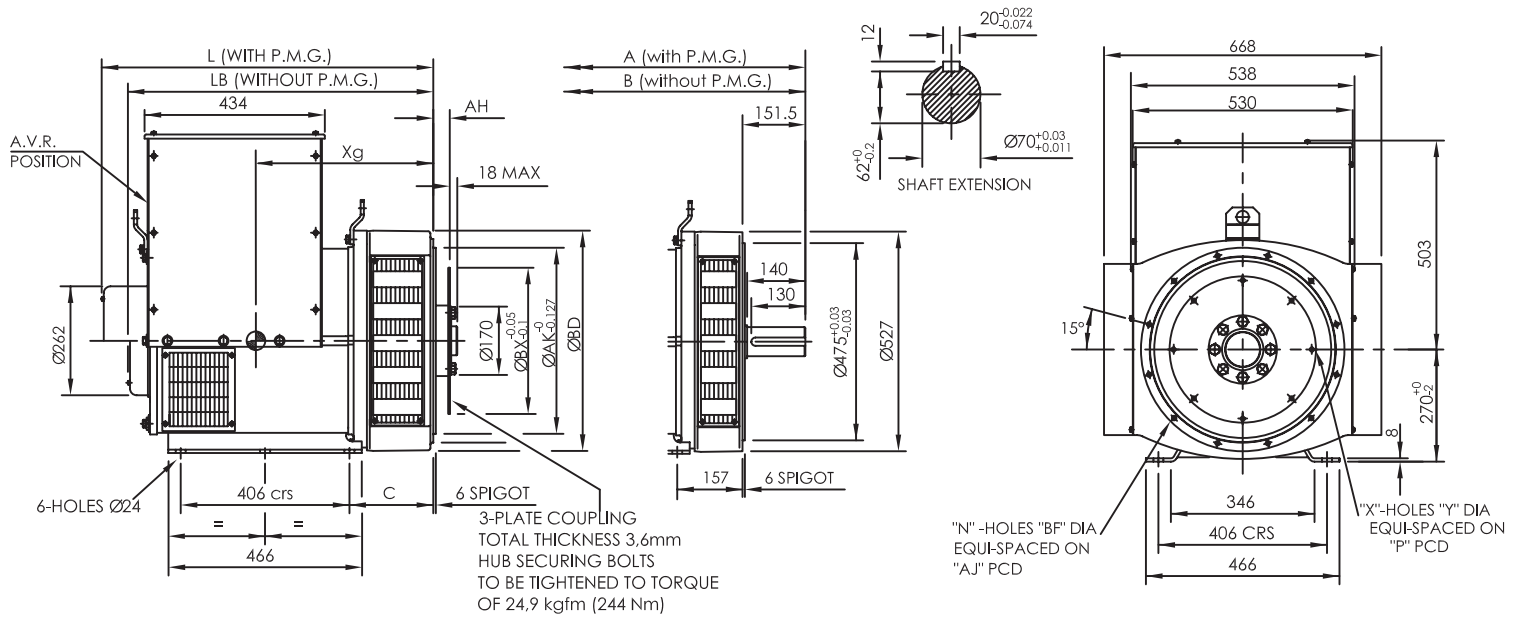
H CLASS	50Hz/1500RPM/PF 0.8											60Hz/1800RPM/PF 0.8																										
	90°C/50°C PRIME POWER										110°C/50°C Standby	Effi.	90°C/50°C PRIME POWER										110°C/50°C Standby	Effi.														
SERIES STAR	380	400	415	440	400	400	416	440	460	480	480	480	PARALLEL STAR	190	200	208	220	200	200	208	220	230	240	240	240	SERIES DELTA	220	230	240	254	230	230	240	254	266	277	277	277
RATING	kVA	kW	kVA	kW	kVA	kW	kVA	kW	kVA	kW	%	kVA	kW	kVA	kW	kVA	kW	kVA	kW	kVA	kW	%																
SMM270B	78	62.2	78	62.2	78	62.2	70	56	82	65.4	90.5	90	72.0	93	74.4	98	78.2	98	78	109	87	89.7																
SMM270CS	80	64.0	80	64.0	80	64.0	80	64	90	72.0	91.5	95	76.0	98	78	100	80	100	80	113	90	91.5																
SMM270C	88	70	88	70	88	70	86	69	97	78	91.5	108	86	110	88	113	90	113	90	125	100	91.5																
SMM270D	113	90	113	90	113	90	110	88	121	96	92.6	126	101	132	106	138	110	138	110	144	115	91.7																
SMM270ES	120	96	120	96	120	96	117	94	130	104	92.8	140	112	145	116	148	118	148	118	154	123	92.0																
SMM270E	135	108	135	108	135	108	130	104	141	112	92.8	150	120	157	125	164	131	164	131	169	135	91.9																
SMM270F	150	120	150	120	150	120	140	112	160	128	92.9	171	137	187	150	192	154	192	154	206	165	92.6																
SMM270GS	156	125	156	125	156	125	150	120	168	134	93.7	185	148	192	154	195	156	203	162	214	171	93.1																
SMM270G	170	136	170	136	170	136	162	130	178	142	93.9	203	162	214	171	220	176	220	176	225	180	93.0																
SMM270H	180	144	180	144	180	144	170	136	185	148	93.2	210	168	224	179	235	188	235	188	235	188	93.0																
SMM270J	190	152	190	152	190	152	180	144	195	156	93.2	225	180	232	186	238	190	239	191	245	196	93.4																

REACTANCE-TIME CONSTANT(s) H CLASS

SMM270 B/CS/C/D/ES/E/F/GS/G

60Hz @ 480V		SMM270B	SMM270CS	SMM270C	SMM270D	SMM270ES	SMM270E	SMM270F	SMM270GS	SMM270G
Xd	Direct axis synchro. reactance unsaturated	2	1.8	1.8	1.81	1.77	1.77	1.83	1.78	1.78
X'd	Direct axis transient reactance saturated	0.17	0.15	0.15	0.17	0.15	0.15	0.16	0.15	0.15
X''d	Direct axis sub transient reactance saturated	0.11	0.1	0.1	0.11	0.1	0.1	0.11	0.1	0.1
Xq	Quadra. Axis synchro. reactance unsaturated	1.15	1.07	1.07	1.18	1.07	1.07	1.1	1.09	1.09
X''q	Quadra. Axis sub transient reactance saturated	0.17	0.15	0.15	0.14	0.14	0.14	0.13	0.14	0.14
X2	Negative sequence reactance unsaturated	0.14	0.12	0.12	0.13	0.11	0.11	0.12	0.11	0.11
Xo	Zero sequence reactance unsaturated	0.09	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
T'd	Short-Circuit transient time constant	0.028s	0.031s	0.031s	0.032s	0.035s	0.035s	0.038s	0.042	0.042s
T''d	Sub transient time constant	0.001s	0.01s	0.01s	0.01s	0.011s	0.011s	0.012s	0.012s	0.012s
T'do	Open circuit time constant	0.8s	0.85s	0.85s	0.85s	0.9s	0.9s	1s	1.12s	1.12s
Ta	Armature time constant	0.007s	0.0073s	0.0073s	0.007s	0.009s	0.009s	0.001s	0.012s	0.012s
Kcc	Short circuit ratio	0.500	0.556	0.556	0.552	0.565	0.565	0.546	0.562	0.562

OUTLINE DRAWING



DATA TABLE - DOUBLE BEARING

Dimension (mm)	Double BRG		Weight		Packing
	A	B	Net(kg)	Gross(kg)	
Model					L x W x H (mm)
SMM270B	905	842	397	432	1100×750×980
SMM270CS	905	842	422	457	1100×750×980
SMM270C	905	842	433	468	1100×750×980
SMM270D	1025	962	478	513	1100×750×980
SMM270ES	1025	962	503	538	1100×750×980
SMM270E	1025	962	523	558	1100×750×980
SMM270F	1070	1007	573	608	1100×750×980
SMM270GS	1070	1007	573	608	1100×750×980
SMM270G	1100	1037	620	655	1100×750×980

DATA TABLE- SINGLE BEARING

Dimension (mm)	SAE 1			SAE 2/3			Weight		Packing
	LB	L	Xg	LB	L	Xg	Net(kg)	Gross(kg)	
Model									L x W x H (mm)
SMM270B	750	813	365	736	799	353	369	404	1100×750×980
SMM270CS	750	813	375	736	799	363	394	429	1100×750×980
SMM270C	750	813	375	736	799	363	405	440	1100×750×980
SMM270D	865	928	390	851	914	378	450	485	1100×750×980
SMM270ES	865	928	415	851	914	403	475	510	1100×750×980
SMM270E	865	928	415	851	914	403	495	530	1100×750×980
SMM270F	915	978	435	901	964	423	545	580	1100×750×980
SMM270GS	915	978	435	901	964	423	545	580	1100×750×980
SMM270G	955	1018	455	941	1004	423	592	627	1100×750×980

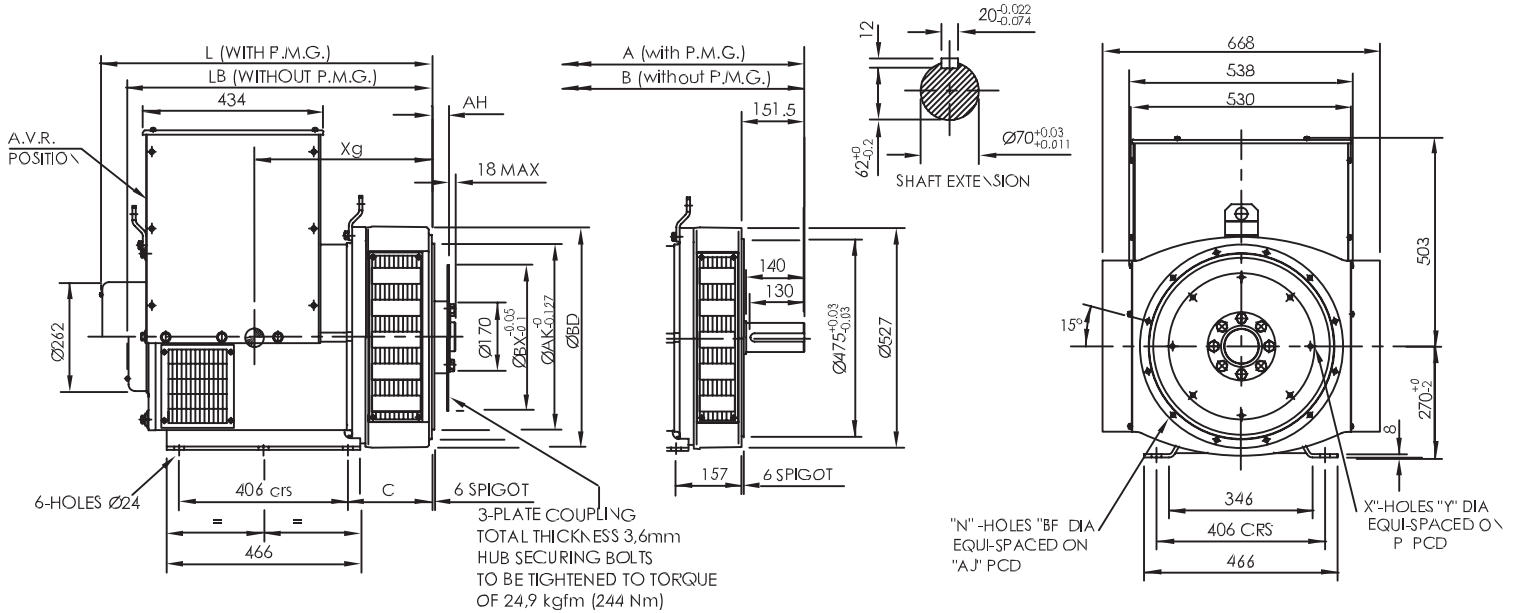
Flange (mm)							Disc (mm)					
SAE#	BD	AK	AJ	BF	N	C	SAE#	BX	P	X	Y	AH
SAE 3	530	409.58	428.62	11	12	202	14	466.72	438.15	8	13.5	25.4
SAE 2	530	447.68	466.72	11	12	202	11.5	352.42	333.38	8	11	39.6
SAE 1	553	511.18	530.22	14	12	216	10	314.32	295.28	8	11	53.8

REACTANCE-TIME CONSTANT(s) H CLASS

SMM270 H/J

60Hz @ 480V		SMM270H	SMM270J						
Xd	Direct axis synchro. reactance unsaturated	1.851	1.863						
X'd	Direct axis transient reactance saturated	0.114	0.115						
X''d	Direct axis sub transient reactance saturated	0.067	0.067						
Xq	Quadra. Axis synchro. reactance unsaturated	0.842	0.0843						
X''q	Quadra. Axis sub transient reactance saturated	0.097	0.098						
X2	Negative sequence reactance unsaturated	0.082	0.082						
Xo	Zero sequence reactance unsaturated	0.033	0.33						
T'd	Short-Circuit transient time constant	0.045s	0.046s						
T''d	Sub transient time constant	0.015s	0.015s						
T'do	Open circuit time constant	1.27s	1.25s						
Ta	Armature time constant	0.03s	0.03s						
Kcc	Short circuit ratio	0.540	0.537						

OUTLINE DRAWING



DATA TABLE - DOUBLE BEARING

Dimension (mm)	Double BRG		Weight		Packing
	A	B	Net(kg)	Gross(kg)	L x W x H (mm)
Model					
SMM270H	1237	1174	684	718	1300×750×980
SMM270J	1237	1174	711	745	1300×750×980

DATA TABLE - SINGLE BEARING

SMM270B	SAE 1			SAE 2/3			Weight		Packing
	LB	L	Xg	LB	L	Xg	Net(kg)	Gross(kg)	L x W x H (mm)
Model									
SMM270H	1000	1063	425	986	1049	453	656	690	1200×750×980
SMM270J	1000	1063	440	986	1049	472	683	717	1200×750×980

Flange (mm)						Disc(mm)					
SAE#	BD	AK	AJ	BF	N	SAE#	BX	P	X	Y	AH
SAE 3	530	409.58	428.62	11	12	14	466.72	438.15	8	13.5	25.4
SAE 2	530	447.68	466.72	11	10	12	352.42	333.38	8	11	39.6
SAE 1	553	511.18	530.22	14	10	10	314.32	295.28	8	11	53.8