



ALTERNATOR E1X13M E/4

three-phase brushless synchronous alternator with AVR - 4 poles

Technical Data Sheet

E1X13M E/4

COMMON DATA

Rated Power at 50Hz	kVA	14	
Rated Power at 60Hz	kVA	17	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP21	
Maximum Overspeed	rpm	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	4.3 at 50Hz	5.2 at 60Hz
R.F.I. Suppression		Standard EN55011	

REGULATION DATA

AVR	HVR11	HVR30
Sensing	single-phase	three-phase
Voltage Regulation	±1%	±1%
Sustained Short Circuit	> 300% of rated current	

WINDING DATA

Stator Winding	Double layer with auxiliary winding	
Rotor Winding	with damping cage	
Winding Pitch	2/3	
Number of Leads of Stator	12	
Stator Winding Resistance	0.69 at 20°C	
Rotor Winding Resistance	9.46 at 20°C	
Exciter Stator Resistance	16.5 at 20°C	
Exciter Rotor Resistance	2.15 at 20°C	
THD at full load	<3%	
THD at no load	<3%	
Excitation at no load	A _{dc}	0.57
Excitation at full load	A _{dc}	1.63

STANDARD

References	EN60034-1 ISO8528-3 EN55011
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ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
Voltage Series Star	V	380/220	400/230	415/240	440/254	415/240	440/254	460/266	480/277
Rated Power in Class H (125°C/40°C)	kVA	14	14	14	12	14	16.5	17	17
	kW	11.2	11.2	11.2	9.6	11.2	13.2	13.6	13.6
Rated Power in Class F (105°C/40°C)	kVA	13	13	13	10.5	13	15	15.5	15.5
	kW	10.4	10.4	10.4	8.4	10.4	12	12.4	12.4
Rated Power Standby (150°C/40°C)	kVA	15	15	15	13	14.5	17.5	18	18
	kW	12	12	12	10.4	11.6	14	14.4	14.4
Rated Power Standby (163°C/27°C)	kVA	15.5	15.5	15.5	13.5	15	18	18.6	18.6
	kW	12.4	12.4	12.4	10.8	12	14.4	14.88	14.88

EFFICIENCY IN CL. H

4/4		85.5%						86.0%
3/4		86.0%						86.2%
2/4		83.8%						84.2%
1/4		79.0%						82.1%

REACTANCES AND TIME CONSTANTS

pcc		0.80							
X _d - dir. axis synchronous		268%	242%	225%	171%	267%	280%	264%	242%
X' _d - dir. axis transient		21.1%	19.0%	17.7%	13.5%	20.9%	21.9%	20.7%	19.0%
X'' _d - dir. axis subtransient		8.1%	7.3%	6.8%	5.2%	8.0%	8.4%	7.9%	7.3%
X _q - quad. axis reactance		150%	135%	125%	96%	149%	156%	147%	135%
T' _{do} - O.C. field time constant		394ms							
T' _d - Transient time constant		31ms							
T'' _d - Sub-transient time constant		6ms							

MECHANICAL DATA

Bearing non drive end				6305-2Z-C3
Bearing drive end (B3/B14 form)				6208-2Z-C3
Weight of generator	in B2	kg		96
	in B3/B14	kg		91.9
	in B3/B9	kg		\

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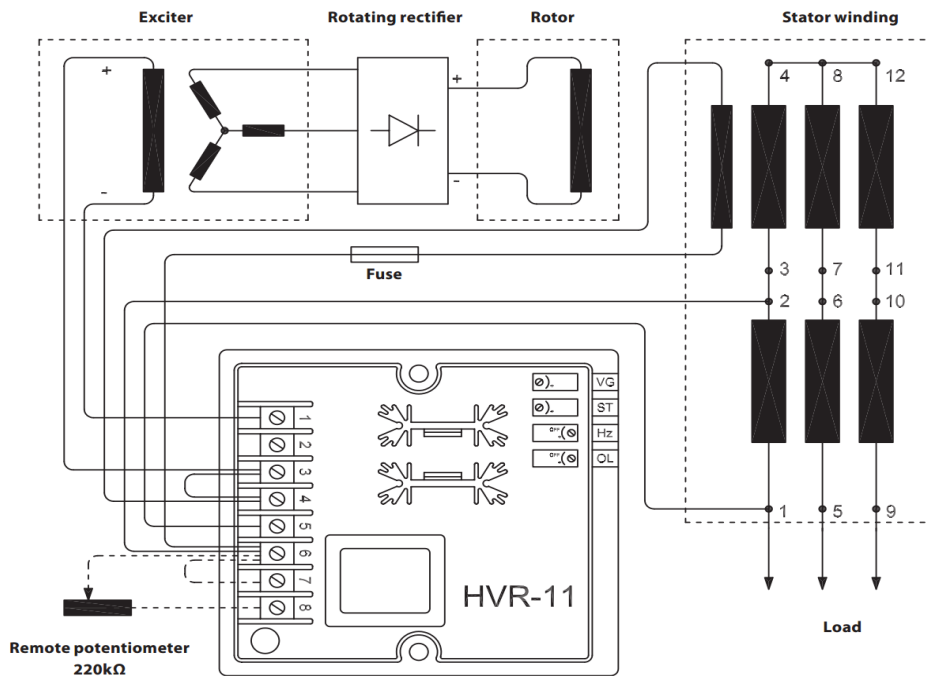
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0.097
B2	kg·m ²	0.088

POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

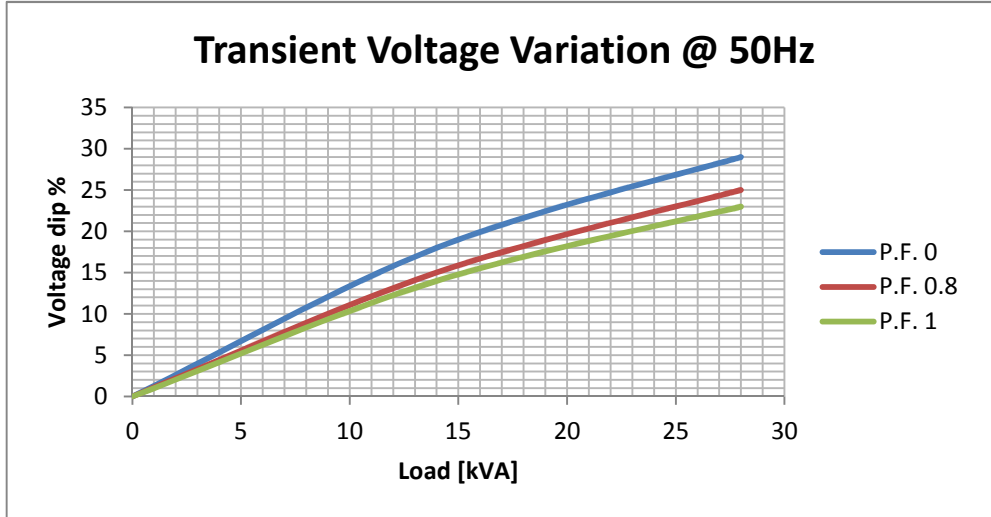
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

WIRING DIAGRAM

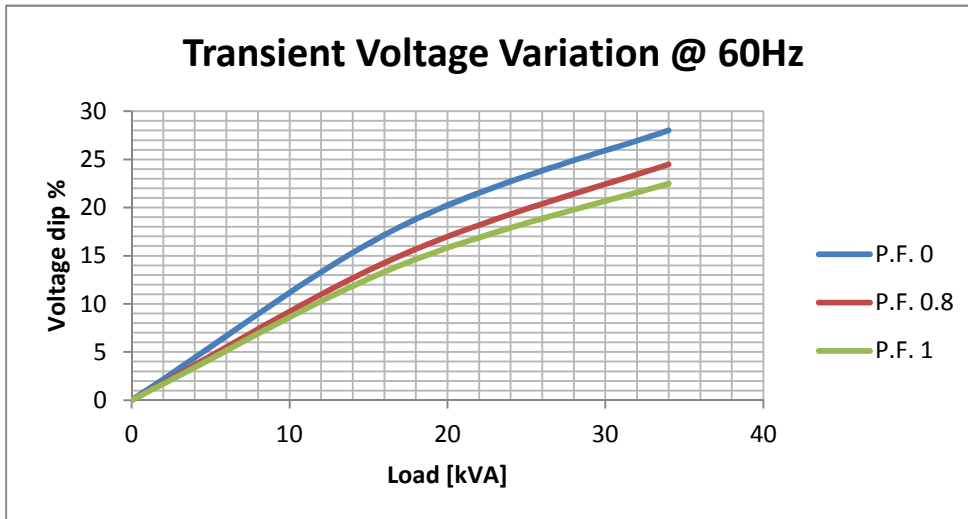


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TRANSIENT VOLTAGE VARIATION 50Hz

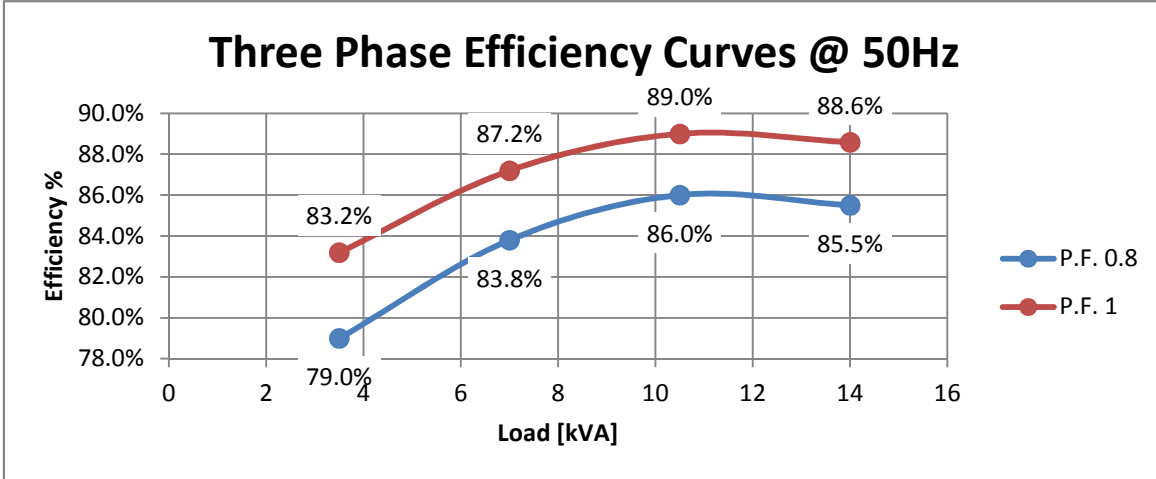


TRANSIENT VOLTAGE VARIATION 60Hz

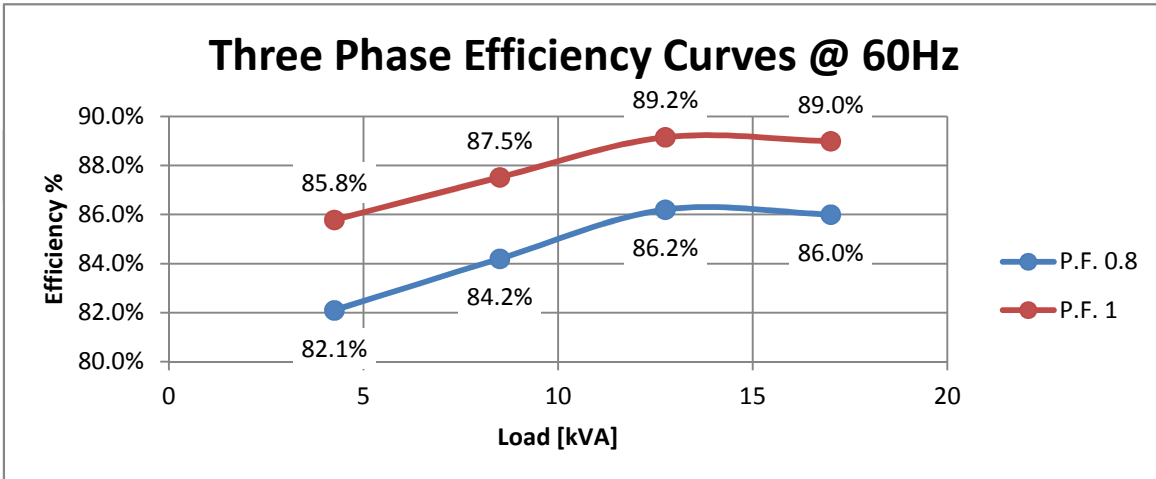


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EFFICIENCY 50Hz

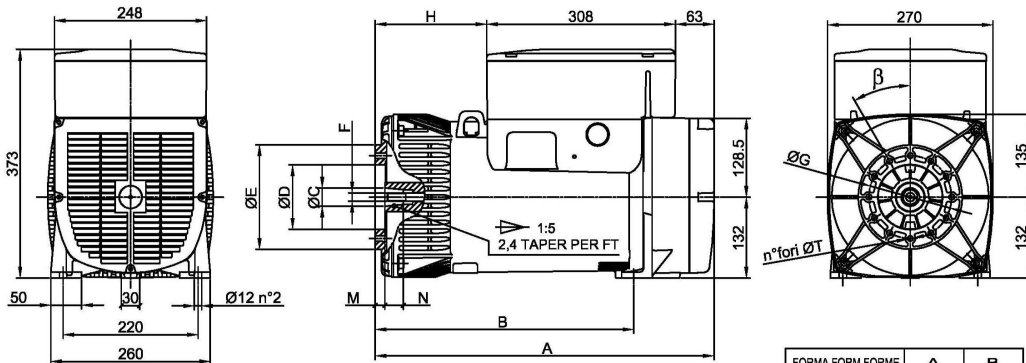


EFFICIENCY 60Hz



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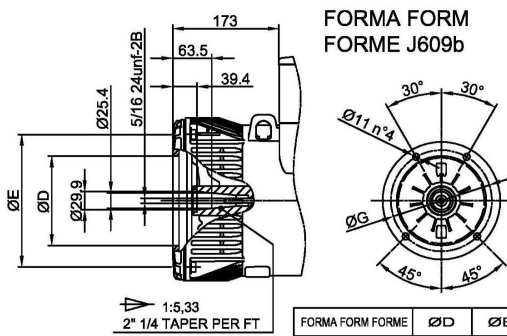
FORMA FORM FORME B3/B9



FORMA FORM FORME	ØC	ØD	ØE	F	ØG	H	M	N	n°fori	ØT	β
cono Ø30	Ø30	Ø105	Ø170	M14x1.5	Ø135	182	16	30	12	Ø9	30°
cono Ø38	Ø38	Ø125	Ø185	M18x1.5	Ø150	173	5	30	4	Ø11	β/2 45°

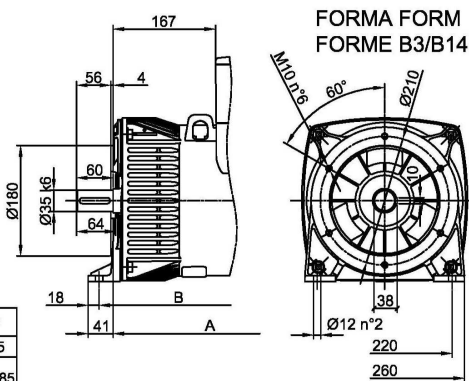
FORMA FORM FORME	A	B
B3B9 cono Ø30	553	422
B3B9 c.Ø38-J609b	544	413
B3/B14	538	430
MD35 - LOMB. STD	586	455

FORMA FORM FORME J609b

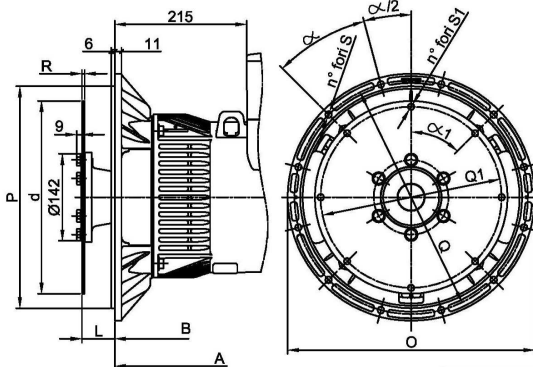


FORMA FORM FORME	ØD	ØE	ØG
J609b	Ø146	Ø192	Ø165
	Ø163.6	Ø216	Ø196.85
	Ø177.8		

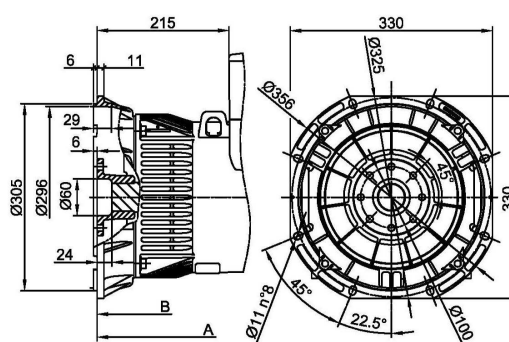
FORMA FORM FORME B3/B14



FORMA FORM FORME MD35



FORMA FORM FORME LOMBARDINI STD



SAE N.	FLANGIE - BRIDE - FLANGE				
	O	P	Q	n. fori	S
5	356	314.3	333.4	8	45°
4	403	362	381	12	30
3	451	409.6	428.6	12	30

SAE N.	GIUNTI A DISCO - DISC COUPLING - ACC. DISQUE						
	L	d	Q1	n. fori	S1	α1	R
6 1/2	30.2	215.9	200	6	9	60°	3
7 1/2	30.2	241.3	222.25	8	9	45°	
8	62	263.52	244.47	6	10.5	60	
10	53.8	314.32	295.27	8	10.5	45°	4.5
11 1/2	39.6	352.42	333.37	8	10.5	45°	