

TECHNICAL DATA SHEET



ALTERNATOR E1X13M E/2

Three-Phase brushless synchronous alternator with AVR - 2 poles

E1X13M E/2

COMMON DATA

Rated Power at 50Hz	kVA	22,0	
Rated Power at 60Hz	kVA	26,0	
Rated Power Factor		0,8	
Nominal Temperature	°C	40	
Control System		self-excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP21	
Maximum Over speed	rpm	4500	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	7,9 at 50Hz	9,5 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	Ω	0,33 at 20°C
Rotor Winding Resistance	Ω	13,7 at 20°C
Exciter Stator Resistance	Ω	16,5 at 20°C
Exciter Rotor Resistance	Ω	2,15 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	A _{dc}	0,14
Excitation at full load	A _{dc}	1,06

STANDARD

References	EN60034-1 ISO8528-3 EN55011
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ON REQUEST

UL 1446, Systems of Insulating Materials - General CSA-C22.2 No. 0, Appendix B, General Requirements - Canadian Electrical Code, Part I
 CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

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ELECTRICAL DATA

Frequency		50Hz - 3000rpm				60Hz - 3600rpm			
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	22,0	22,0	22,0	18,0	23,0	25,0	26,0	26,0
	kW	17,6	17,6	17,6	14,4	18,4	20,0	20,8	20,8
Rated Power in Class F (105°C/40°C)	kVA	20,5	20,5	20,5	16,5	21,0	23,0	24,0	24,0
	kW	16,4	16,4	16,4	13,2	16,8	18,4	19,2	19,2
Rated Power Standby (150°C/40°C)	kVA	23,5	22,5	22,5	19,5	24,5	26,5	28,0	28,0
	kW	18,8	18,0	18,0	15,6	19,6	21,2	22,4	22,4
Rated Power Standby (163°C/27°C)	kVA	24,0	24,0	22,0	20,0	25,7	27,0	29,0	29,0
	kW	19,2	19,2	17,6	16,0	20,56	21,6	23,2	23,2

EFFICIENCY IN CL. H

4/4		86,0%						86,2%
3/4		86,2%						86,4%
2/4		82,5%						82,7%
1/4		78,1%						78,4%

REACTANCES AND TIME CONSTANTS

pcc		0,40							
X _d	- dir. axis synchronous	460%	415%	386%	281%	491%	475%	452%	415%
X' _d	- dir. axis transient	35,5%	32,0%	29,7%	21,6%	37,9%	36,6%	34,8%	32,0%
X'' _d	- dir. axis subtransient	11,6%	10,5%	9,8%	7,1%	12,4%	12,0%	11,4%	10,5%
X _q	- quad. axis reactance	277%	250%	232%	169%	296%	286%	272%	250%
T' _{do}	- O.C. field time constant	410ms							
T' _d	- Transient time constant	32ms							
T'' _d	- Sub-transient time constant	8,8ms							

MECHANICAL DATA

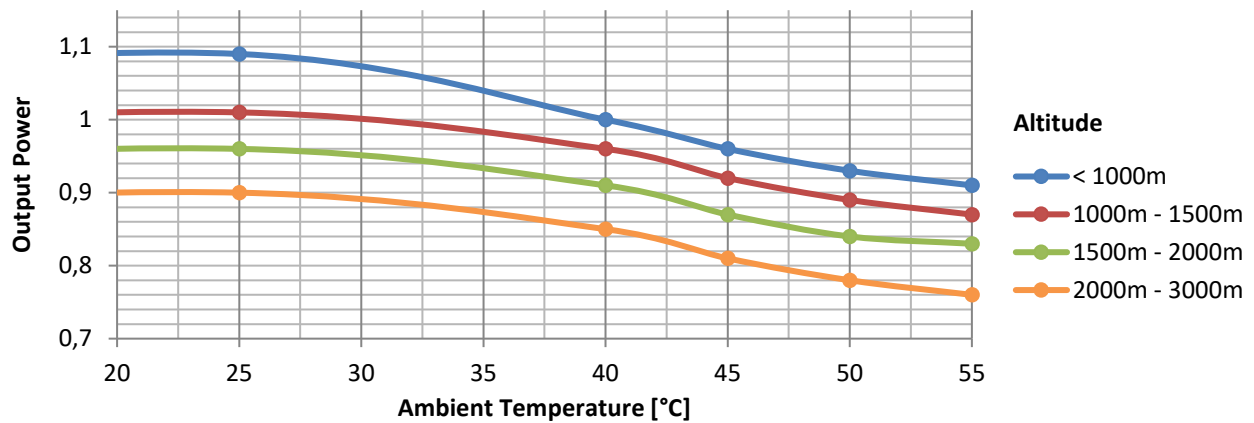
Bearing non drive end		6305-2Z-C3	
Bearing drive end (B3/B14 form)		6208-2Z-C3	
Weight of generator	in B2	kg	101,0
	in B3/B14	kg	96,9
	in B3/B9	kg	\

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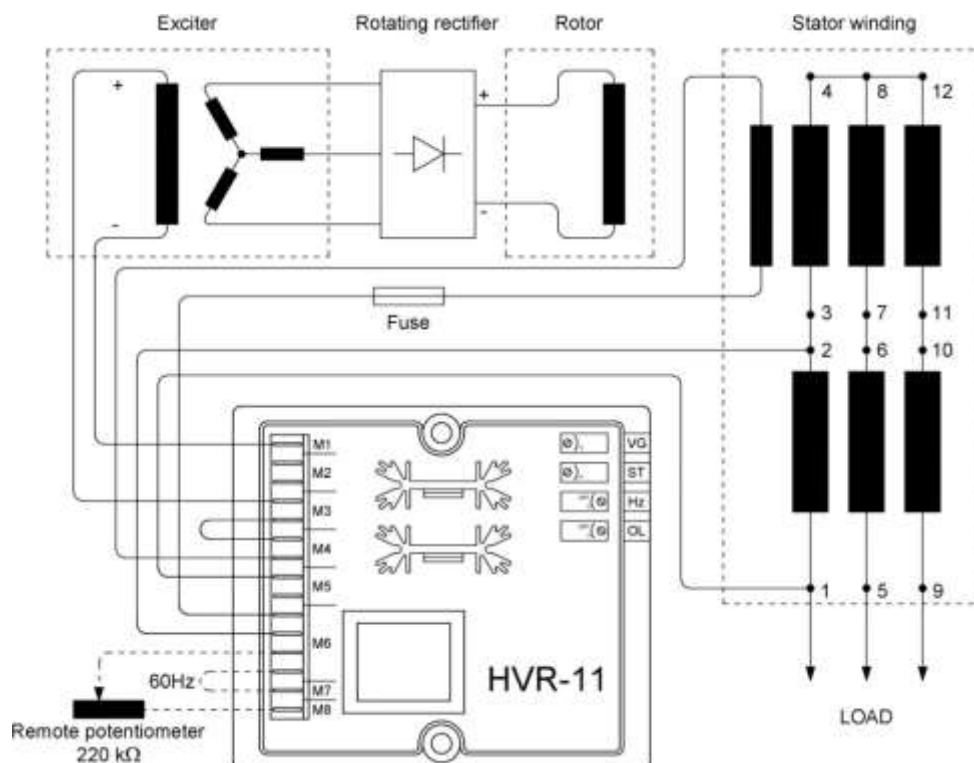
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,092
B2	kg·m ²	0,091

DERATING CURVES



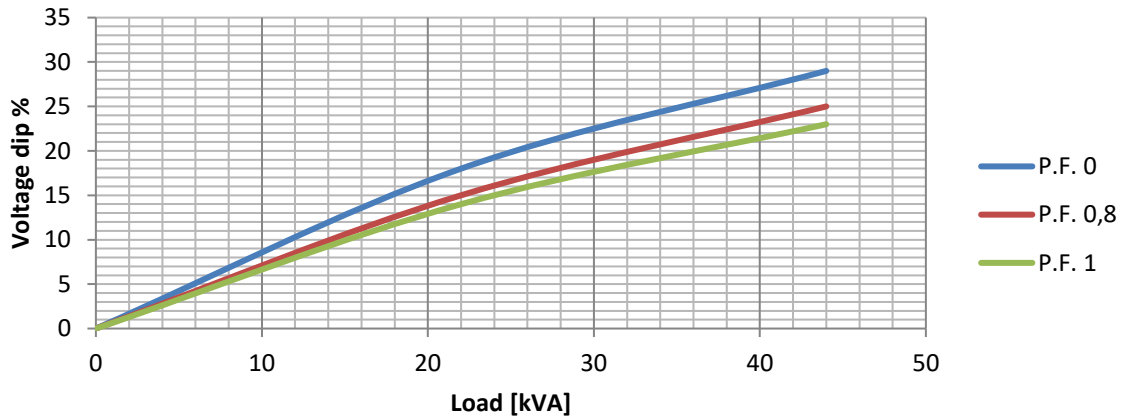
WIRING DIAGRAM



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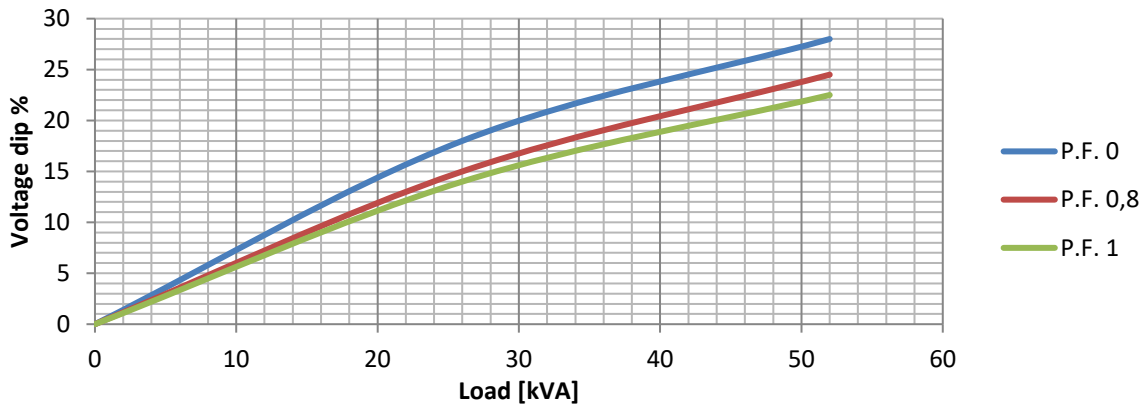
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

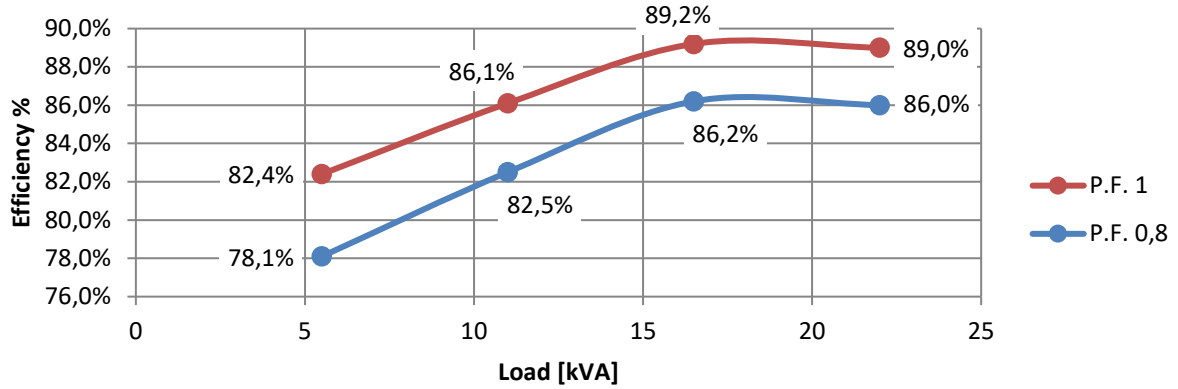
Transient Voltage Variation @ 60Hz



E1X13M E/2

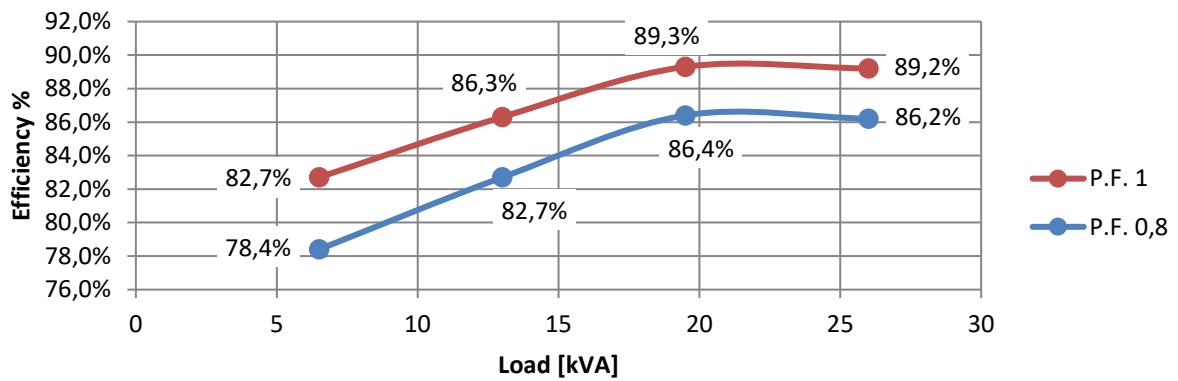
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



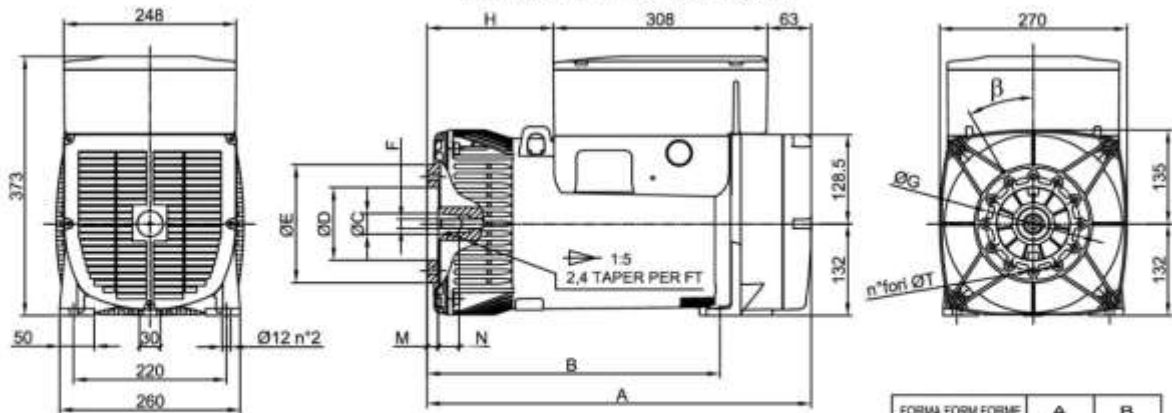
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



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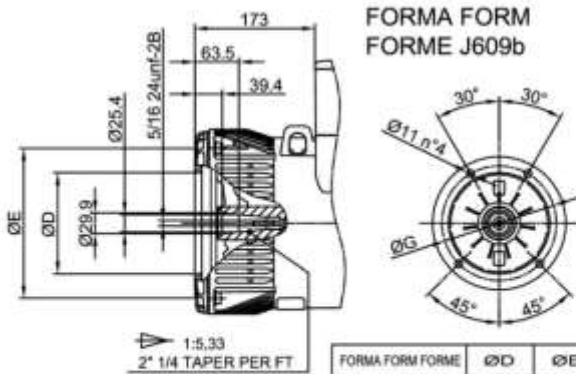
FORMA FORM FORME B3/B9



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°

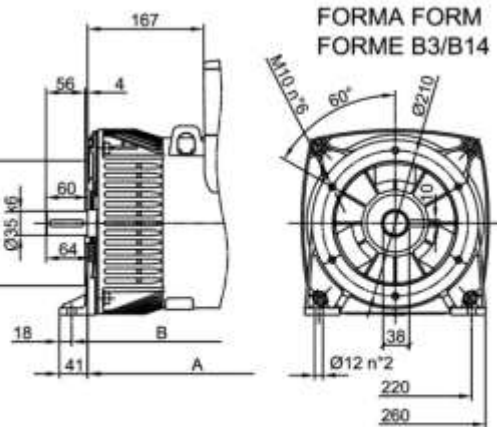
FORMA FORM FORME	A	B
B3B9 cono Ø30	553	422
B3B9 c. Ø38-J609b	544	413
B3/B14	538	430
MD35 - LOMB. STD	586	455

FORMA FORM FORME J609b

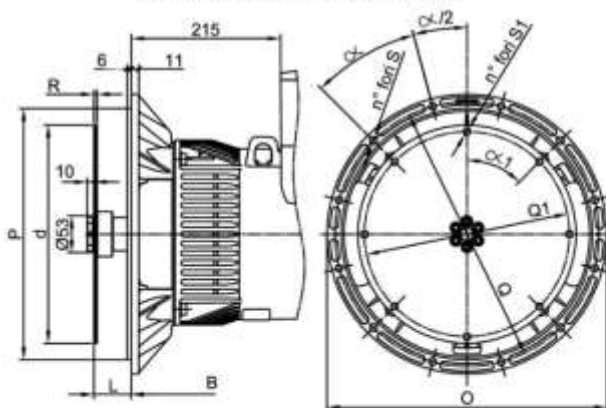


FORMA FORM FORME	ØD	ØE	ØG
J609b	Ø146	Ø192	Ø165
	Ø163.6	Ø216	Ø196.85
	Ø177.8		

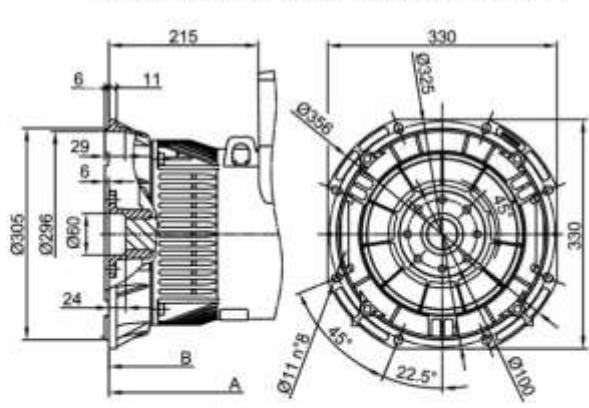
FORMA FORM FORME B3/B14



FORMA FORM FORME MD35



FORMA FORM FORME LOMBARDINI STD



SAE	FLANGIE - BRIDE - FLANGE						
	N.	O	P	Q	n. fori	S	α
5	356	314.3	333.4	8	8	11	45°
4	403	362	381	12	11		30
3	451	409.6	428.6	12			30

SAE	GIUNTI A DISCO - DISC COUPLING - ACC. DISQUE						
	N	L	d	Q1	n. fori	S1	α1
6 1/2	30.2	215.9	200	6	9	80°	3
7 1/2	30.2	241.3	222.25	8	9	45°	
B	62	263.52	244.47	6	10.5	60	
10	53.8	314.32	296.27	8	10.5	45°	4.5
11 1/2	39.6	352.42	333.37	8	10.5	45°	