

TECHNICAL DATA SHEET



ALTERNATOR E1X13M E/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

E1X13M E/4

COMMON DATA

Rated Power at 50Hz	kVA	14,0	
Rated Power at 60Hz	kVA	17,0	
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	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	4,0 at 50Hz	4,7 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	0,69 at 20°C
Rotor Winding Resistance	Ω	9,46 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	Adc	0,57
Excitation at full load	Adc	1,63

STANDARD

References	EN60034-1 ISO8528-3 EN55011
------------	-----------------------------

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

E1X13M E/4

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	14,0	14,0	14,0	12,0	14,0	16,5	17,0	17,0
	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	13,0	13,0	13,0	10,5	13,0	15,0	15,5	15,5
	kW	10,4	10,4	10,4	8,4	10,4	12,0	12,4	12,4
Rated Power Standby (150°C/40°C)	kVA	15,0	15,0	15,0	13,0	14,5	17,5	18,0	18,0
	kW	12,0	12,0	12,0	10,4	11,6	14,0	14,4	14,4
Rated Power Standby (163°C/27°C)	kVA	15,5	15,5	15,5	13,5	15,0	18,0	18,6	18,6
	kW	12,4	12,4	12,4	10,8	12,0	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

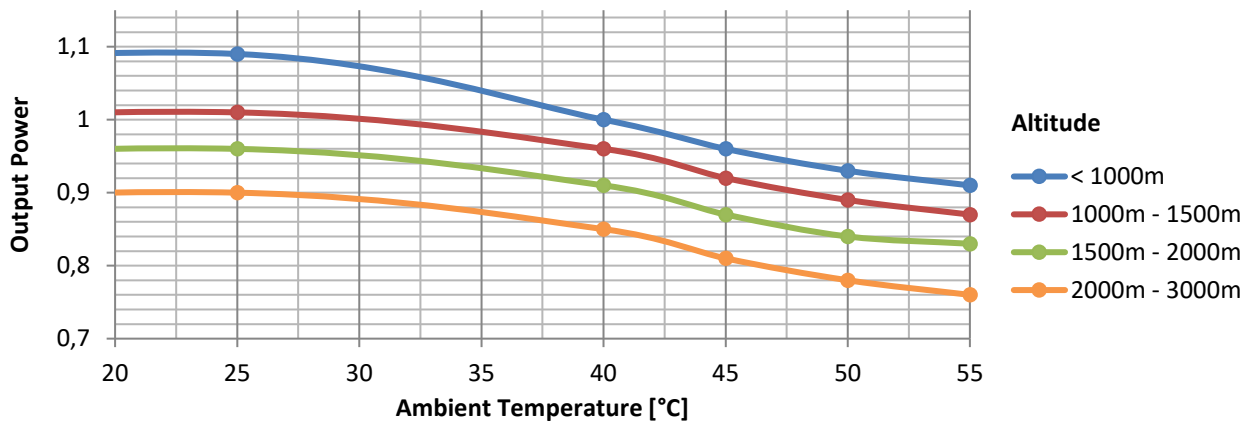
Bearing non drive end		6305-2Z-C3	
Bearing drive end (B3/B14 form)		6208-2Z-C3	
Weight of generator	in B2	kg	96
	in B3/B14	kg	91,9
	in B3/B9	kg	\

E1X13M E/4

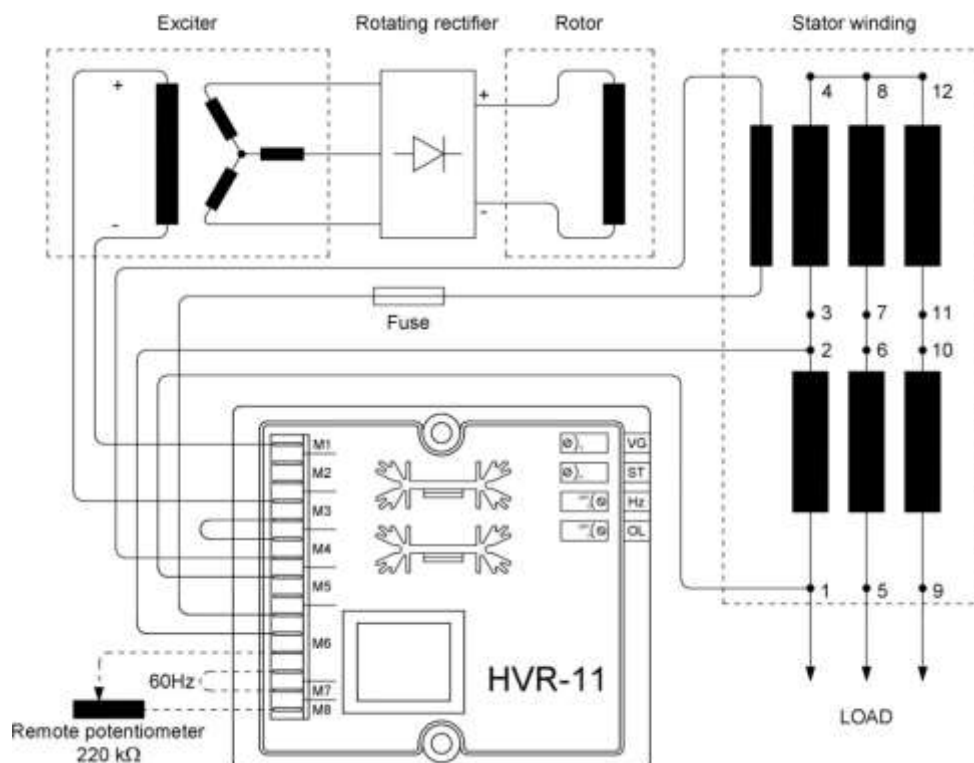
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,091
B2	kg·m ²	0,088

DERATING CURVES



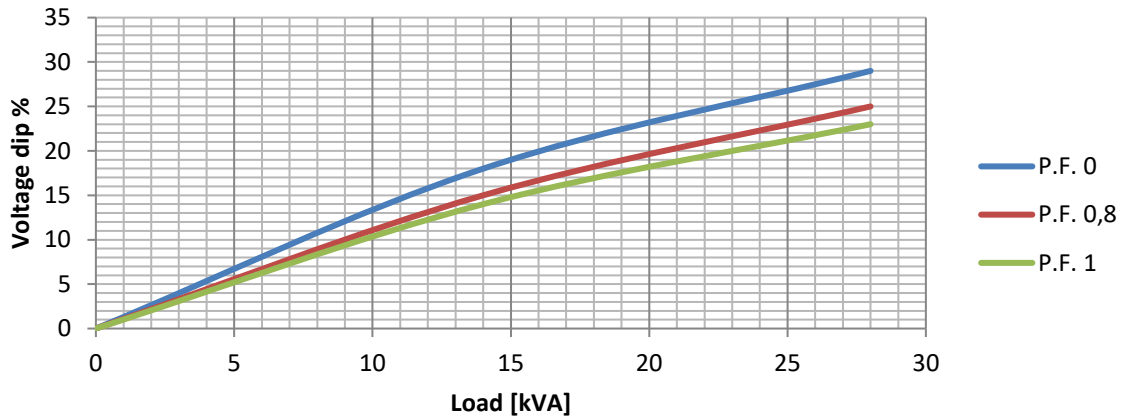
WIRING DIAGRAM



E1X13M E/4

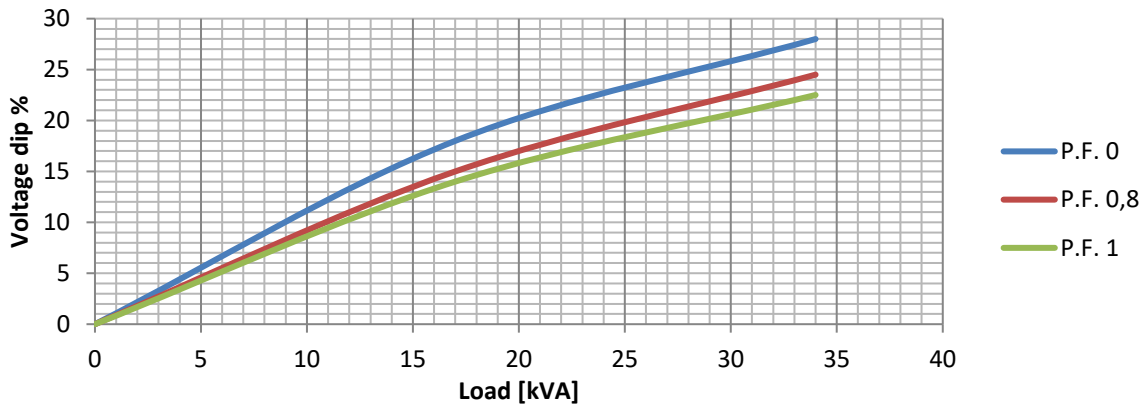
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

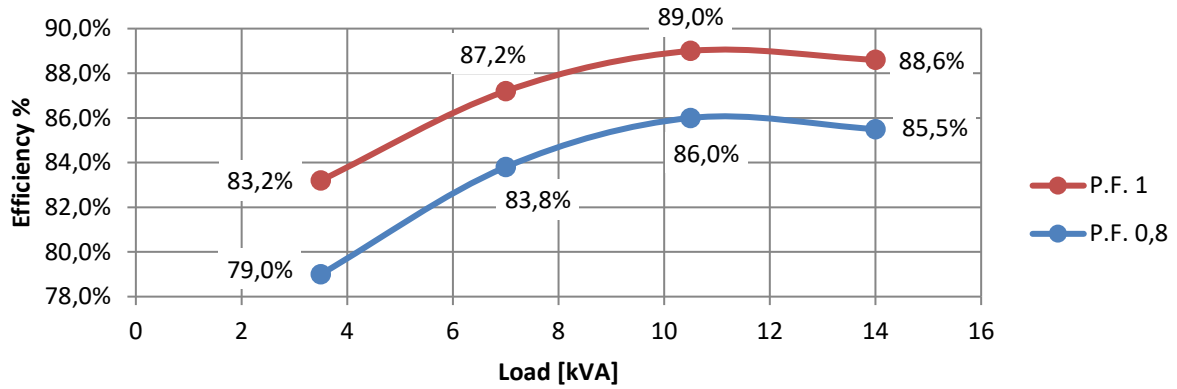
Transient Voltage Variation @ 60Hz



E1X13M E/4

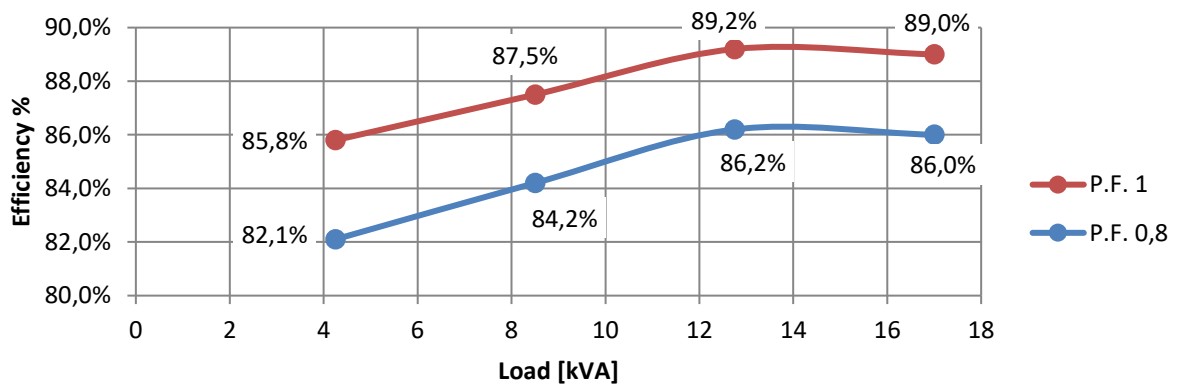
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



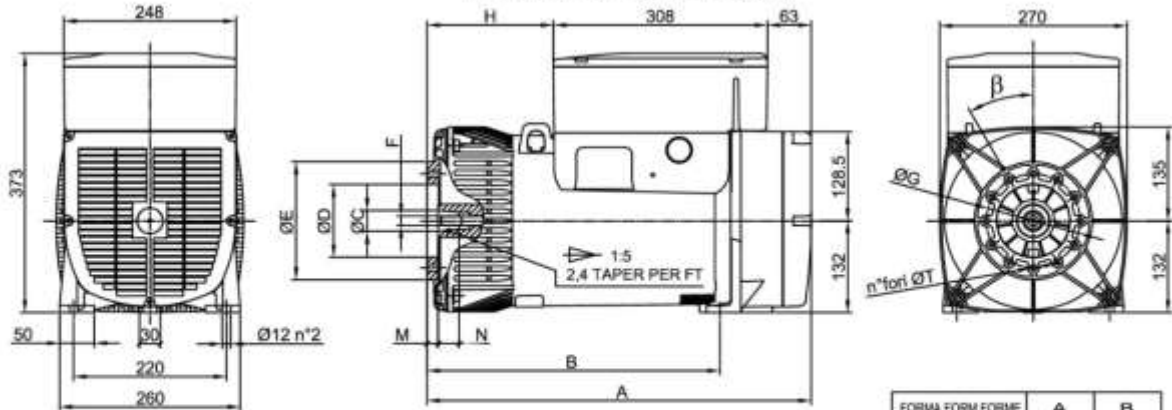
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



E1X13M E/4

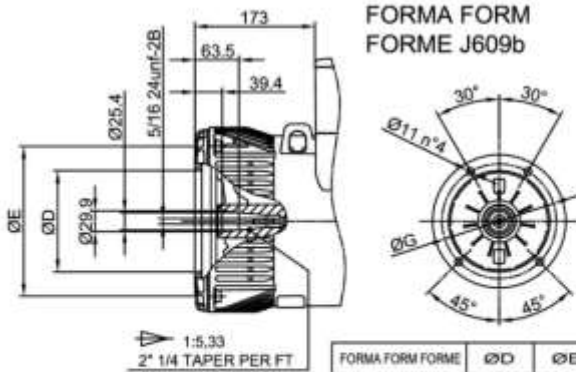
FORMA FORM FORME B3/B9



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°

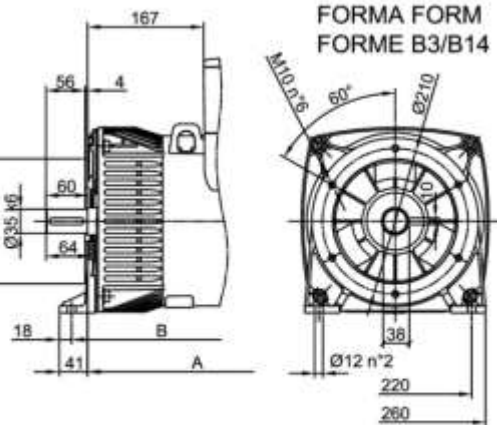
FORMA FORM FORME	A	B
B3B9 cono Ø30	553	422
B3B9 c. Ø38-J609b	544	413
B3/B14	538	430
MD35 - LOMB. STD	586	455

FORMA FORM FORME J609b

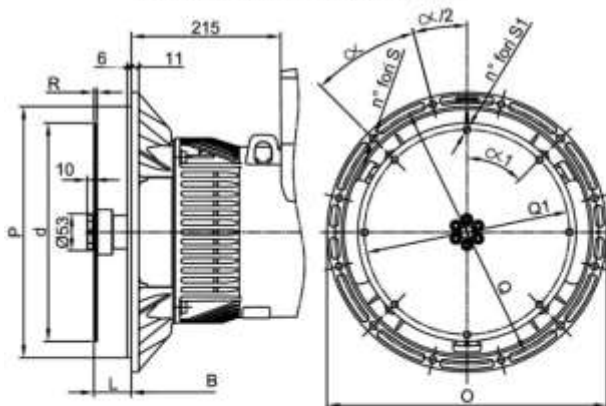


FORMA FORM FORME	ØD	ØE	ØG
J609b	Ø146	Ø192	Ø165
	Ø163.6	Ø216	Ø196.85
	Ø177.8		

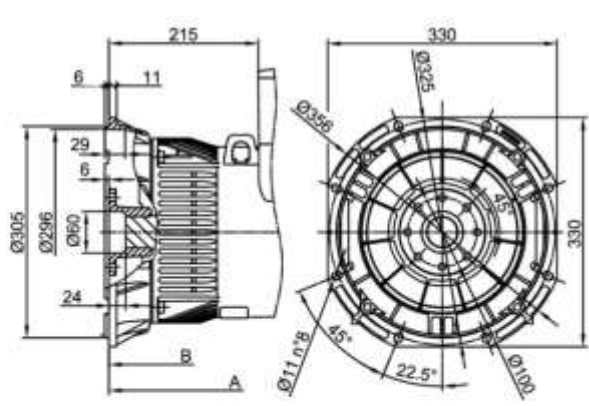
FORMA FORM FORME B3/B14



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		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	R
6 1/2	30.2	215.9	200	6	9	60°	
7 1/2	30.2	241.3	222.25	8	9	45°	3
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°	