

TECHNICAL DATA SHEET



ALTERNATOR E1X13S C/2

Three-Phase brushless synchronous alternator with AVR - 2 poles

E1X13S C/2

COMMON DATA

Rated Power at 50Hz	kVA	12,5	
Rated Power at 60Hz	kVA	15,0	
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	8,2 at 50Hz	9,8 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	9,79 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	0,19
Excitation at full load	Adc	1,03

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	12,5	12,5	12,5	10,0	13,0	14,5	15,0	15,0
	kW	10,0	10,0	10,0	8,0	10,4	11,6	12,0	12,0
Rated Power in Class F (105°C/40°C)	kVA	11,5	11,5	11,5	9,0	12,0	13,2	14,0	14,0
	kW	9,2	9,2	9,2	7,2	9,6	10,56	11,2	11,2
Rated Power Standby (150°C/40°C)	kVA	13,5	13,5	13,5	10,8	14,0	16,0	16,4	16,4
	kW	10,8	10,8	10,8	8,64	11,2	12,8	13,12	13,12
Rated Power Standby (163°C/27°C)	kVA	14,0	14,0	13,8	11,2	14,7	16,3	17,0	17,0
	kW	11,2	11,2	11,04	8,96	11,76	13,04	13,6	13,6

EFFICIENCY IN CL. H

4/4	83,1%							83,4%
3/4	83,3%							83,5%
2/4	80,0%							80,0%
1/4	75,6%							76,0%

REACTANCES AND TIME CONSTANTS

pcc		0,43							
X _d	- dir. axis synchronous	421%	380%	353%	251%	441%	437%	414%	380%
X' _d	- dir. axis transient	34,3%	31,0%	28,8%	20,5%	35,9%	35,7%	33,8%	31,0%
X'' _d	- dir. axis subtransient	12,7%	11,5%	10,7%	7,6%	13,3%	13,2%	12,5%	11,5%
X _q	- quad. axis reactance	260%	235%	218%	155%	272%	270%	256%	235%
T' _{do}	- O.C. field time constant	360ms							
T' _d	- Transient time constant	29ms							
T'' _d	- Sub-transient time constant	8,5ms							

MECHANICAL DATA

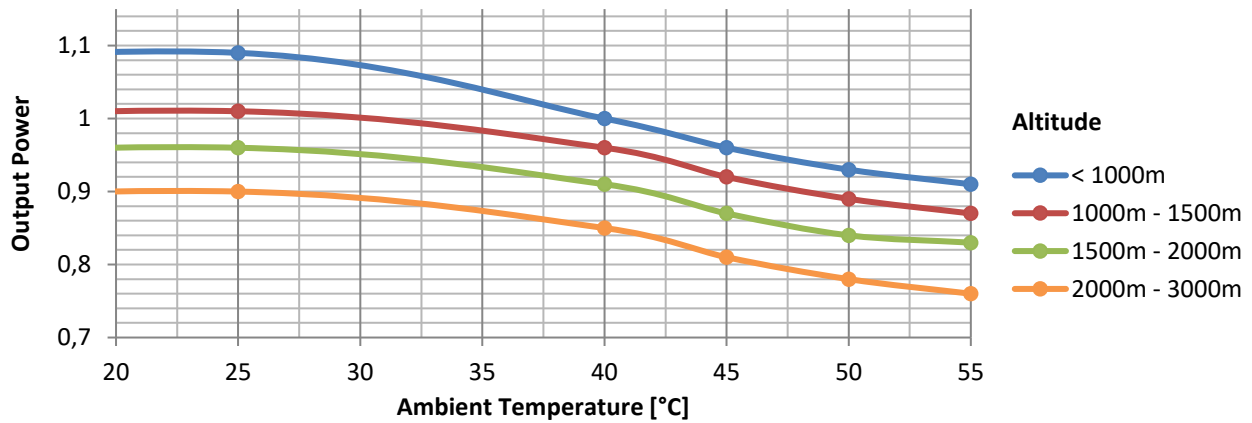
Bearing non drive end		6305-2Z-C3	
Bearing drive end (B3/B14 form)		6208-2Z-C3	
Weight of generator	in B2	kg	73,0
	in B3/B14	kg	68,9
	in B3/B9	kg	\

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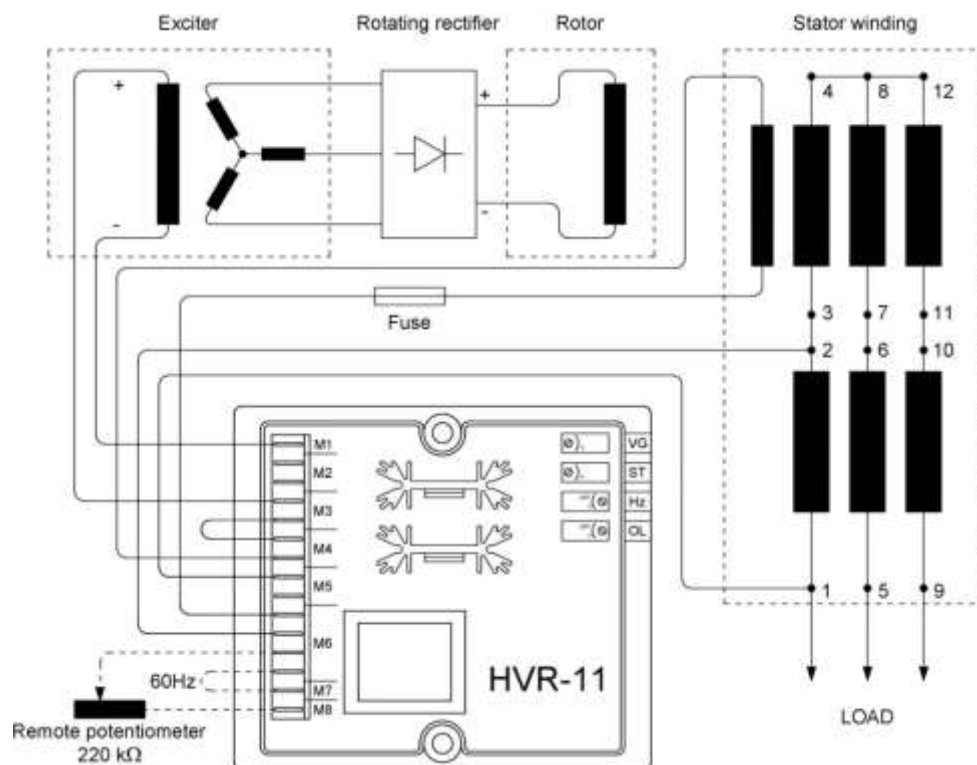
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,067
B2	kg·m ²	0,068

DERATING CURVES



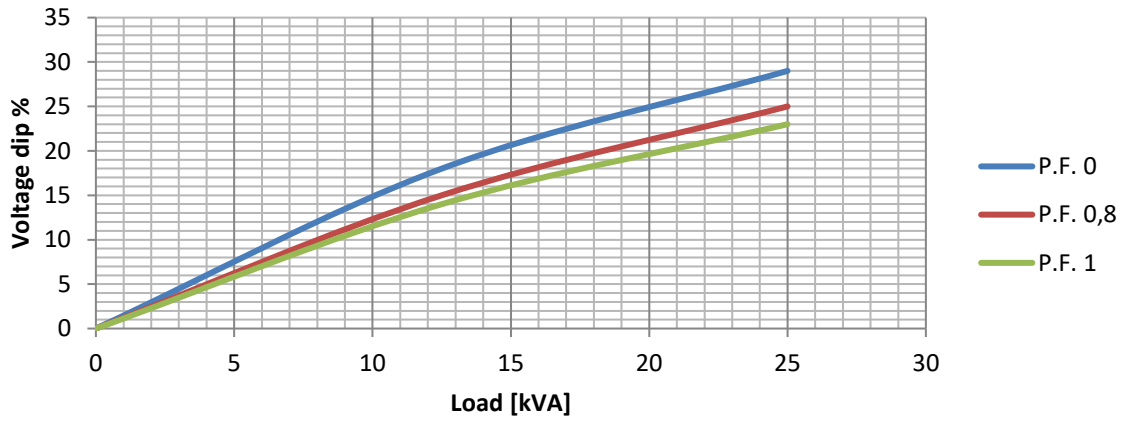
WIRING DIAGRAM



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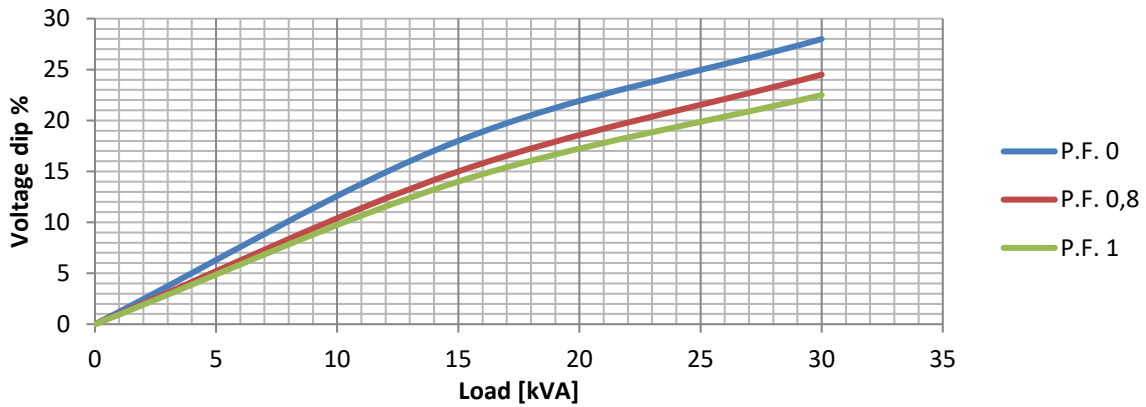
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

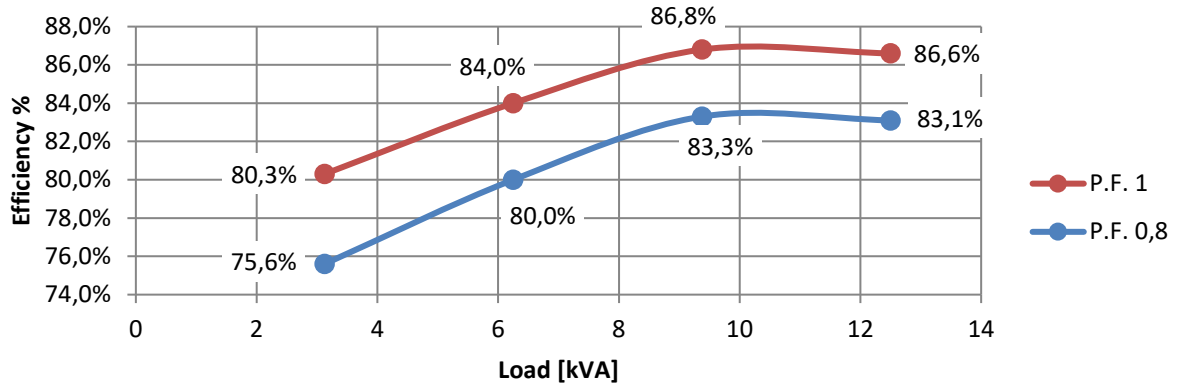
Transient Voltage Variation @ 60Hz



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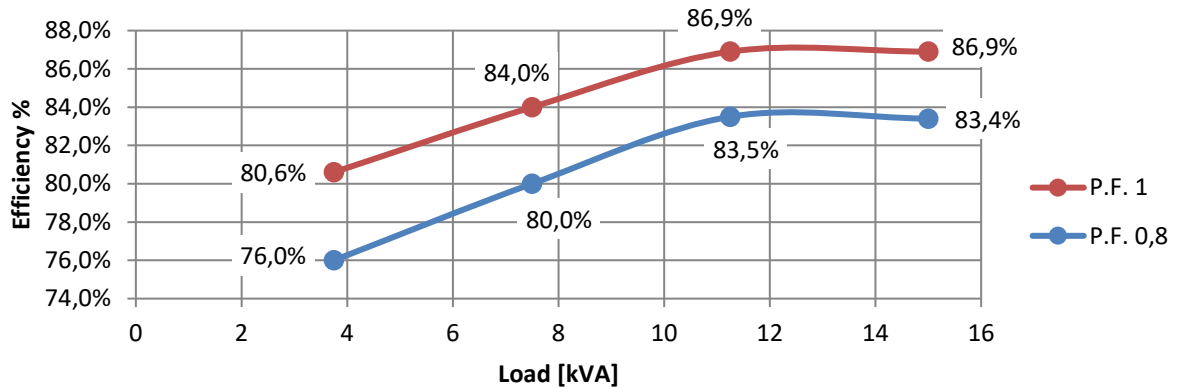
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz

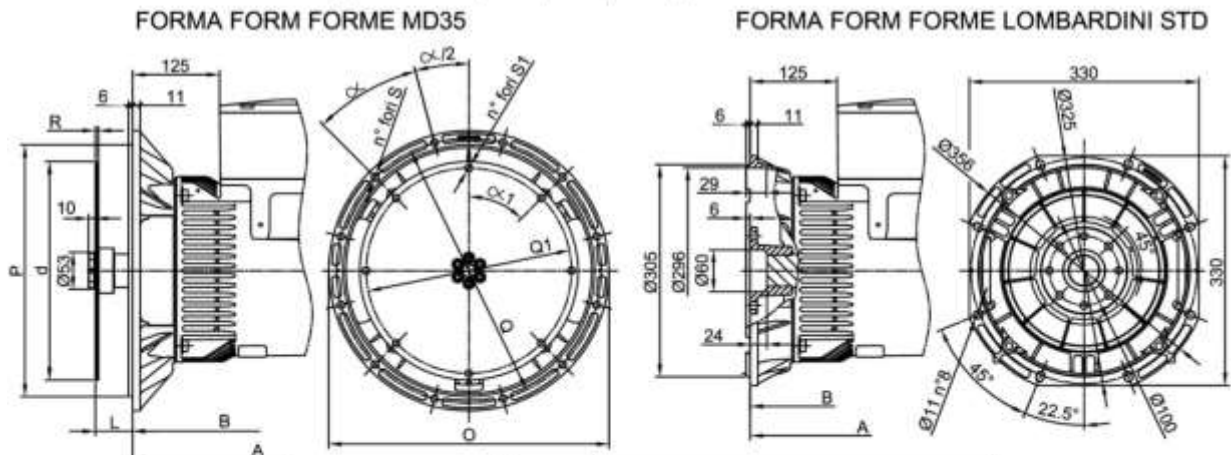
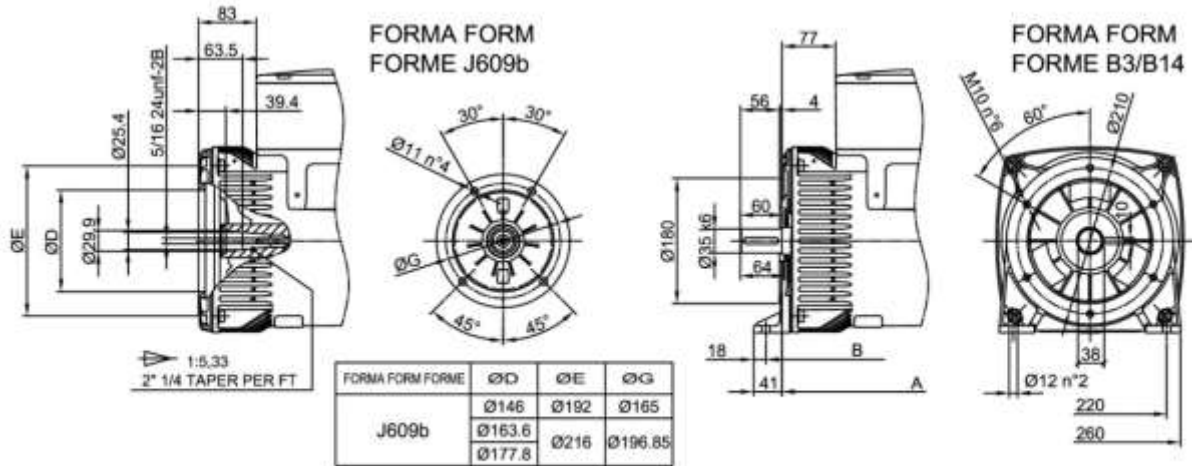
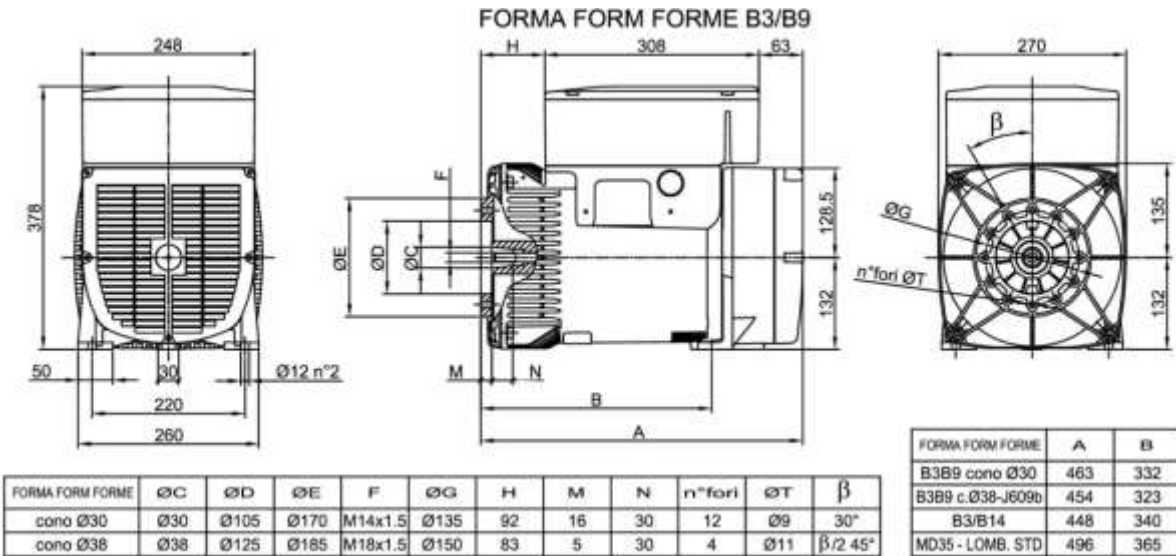


EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



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FLANGIE - BRIDE - FLANGE						
SAE 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

GIUNTI A DISCO - DISC COUPLING - ACC. DISQUE							
SAE N	L	d	Q1	n. fori	S1	α/1	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	295.27	8	10.5	45°	4.5
11 1/2	39.6	352.42	333.37	8	10.5	45°	