

TECHNICAL DATA SHEET



ALTERNATOR E1X13S C/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

E1X13S C/4

COMMON DATA

Rated Power at 50Hz	kVA	10,0	
Rated Power at 60Hz	kVA	12,0	
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	3,2 at 50Hz	3,7 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	1,35 at 20°C
Rotor Winding Resistance	Ω	7,22 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}	0,54
Excitation at full load	A _{dc}	1,51

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 - 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	10,0	10,0	10,0	9,0	10,8	11,5	12,0	12,0
	kW	8,0	8,0	8,0	7,2	8,64	9,2	9,6	9,6
Rated Power in Class F (105°C/40°C)	kVA	9,2	9,2	9,2	8,0	10,0	10,5	11,0	11,0
	kW	7,36	7,36	7,36	6,4	8,0	8,4	8,8	8,8
Rated Power Standby (150°C/40°C)	kVA	11,0	11,0	11,0	8,8	11,5	12,5	13,0	13,0
	kW	8,8	8,8	8,8	7,04	9,2	10,0	10,4	10,4
Rated Power Standby (163°C/27°C)	kVA	11,4	11,4	11,4	9,0	12,0	13,0	13,5	13,5
	kW	9,12	9,12	9,12	7,2	9,6	10,4	10,8	10,8

EFFICIENCY IN CL. H

4/4		84,4%						84,6%
3/4		84,5%						85,0%
2/4		81,2%						81,4%
1/4		77,0%						78,0%

REACTANCES AND TIME CONSTANTS

pcc		0,81							
X _d	- dir. axis synchronous	244%	220%	204%	164%	265%	251%	240%	220%
X' _d	- dir. axis transient	19,9%	18,0%	16,7%	13,4%	21,7%	20,5%	19,6%	18,0%
X'' _d	- dir. axis subtransient	8,4%	7,6%	7,1%	5,7%	9,2%	8,7%	8,3%	7,6%
X _q	- quad. axis reactance	132%	119%	111%	89%	143%	136%	130%	119%
T' _{do}	- O.C. field time constant	335ms							
T' _d	- Transient time constant	27ms							
T'' _d	- Sub-transient time constant	5ms							

MECHANICAL DATA

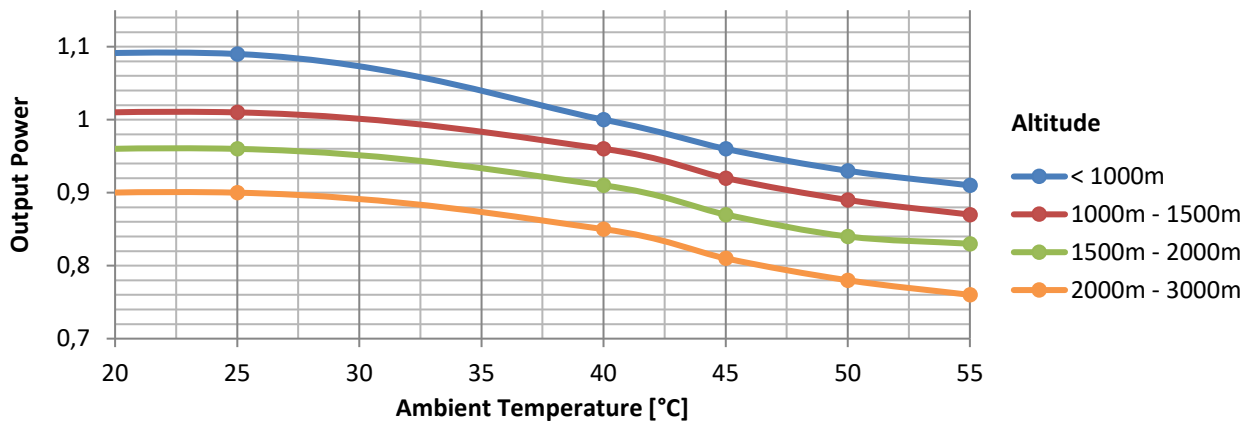
Bearing non drive end		6305-2Z-C3	
Bearing drive end (B3/B14 form)		6208-2Z-C3	
Weight of generator	in B2	kg	76,5
	in B3/B14	kg	72,4
	in B3/B9	kg	\

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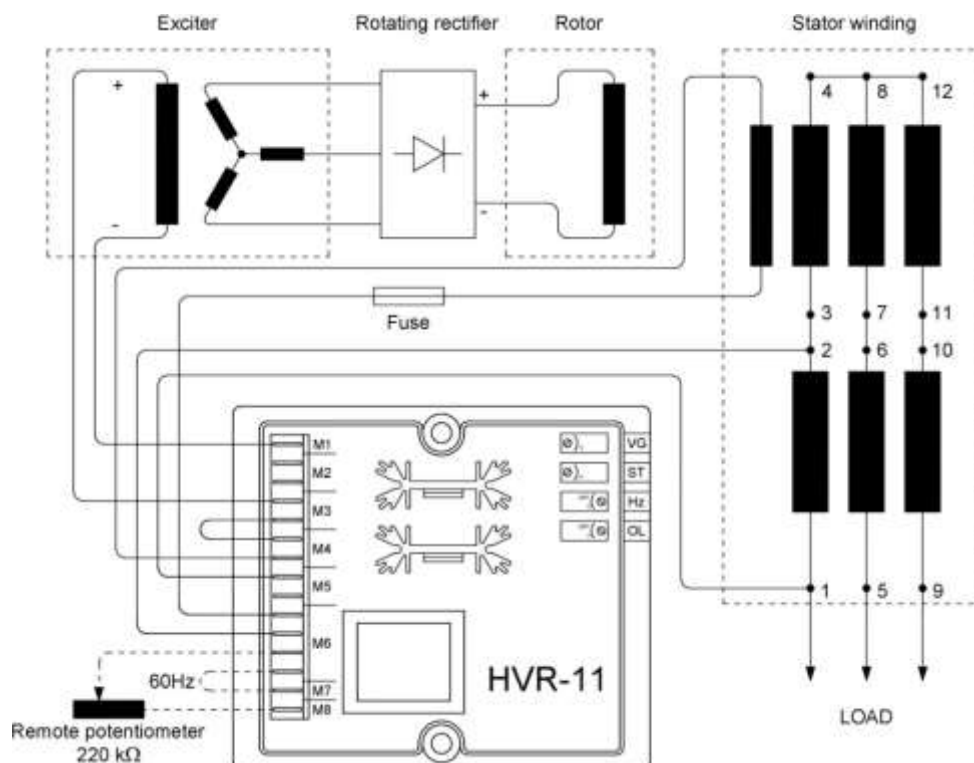
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,073
B2	kg·m ²	0,072

DERATING CURVES



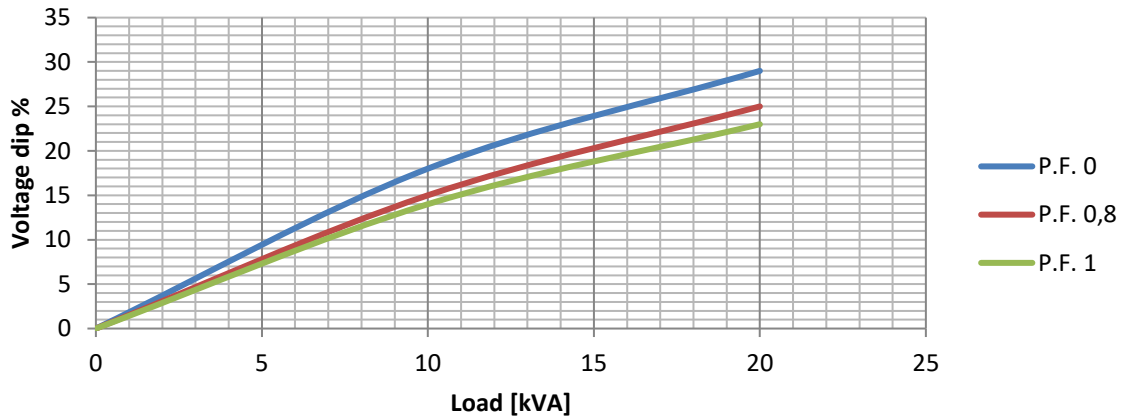
WIRING DIAGRAM



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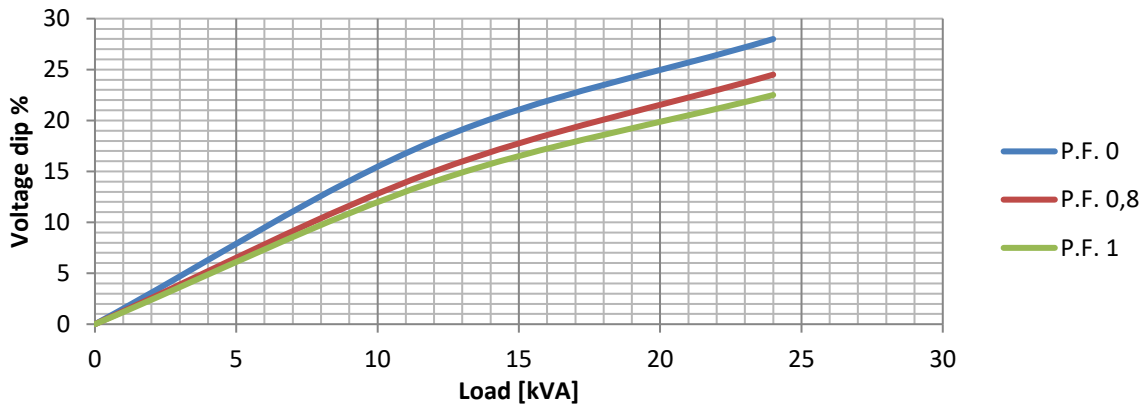
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

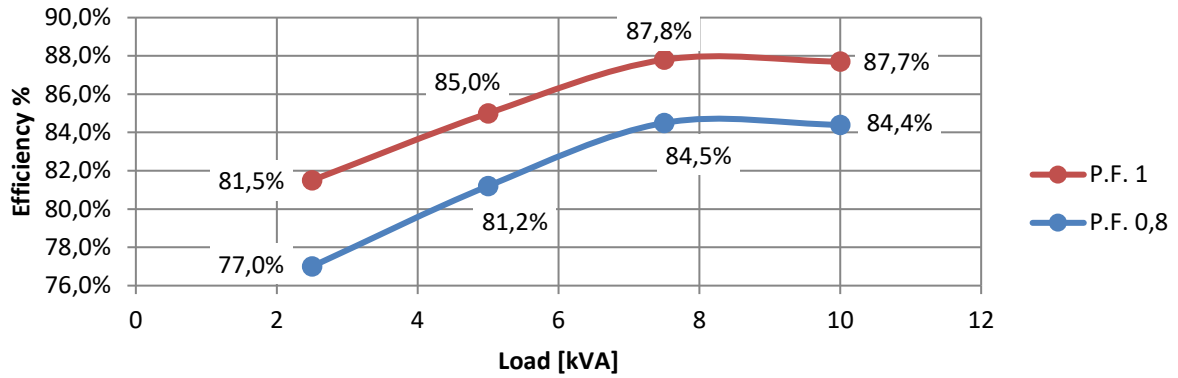
Transient Voltage Variation @ 60Hz



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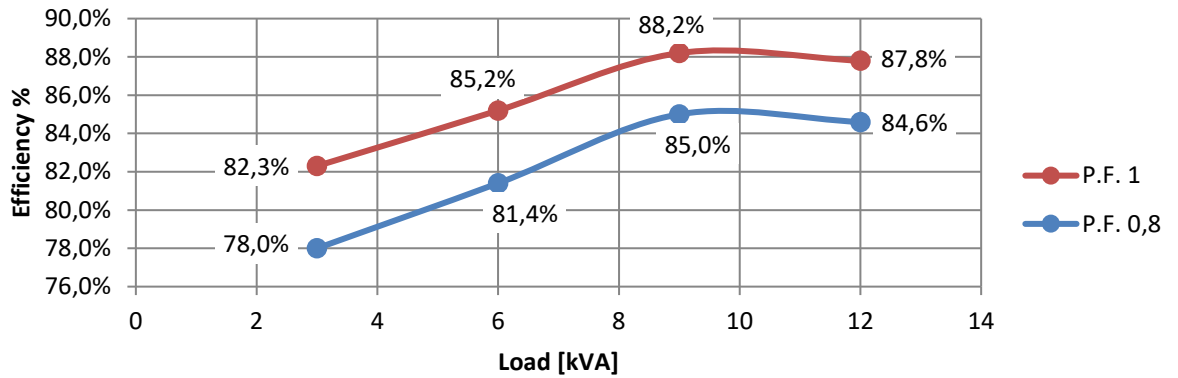
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz

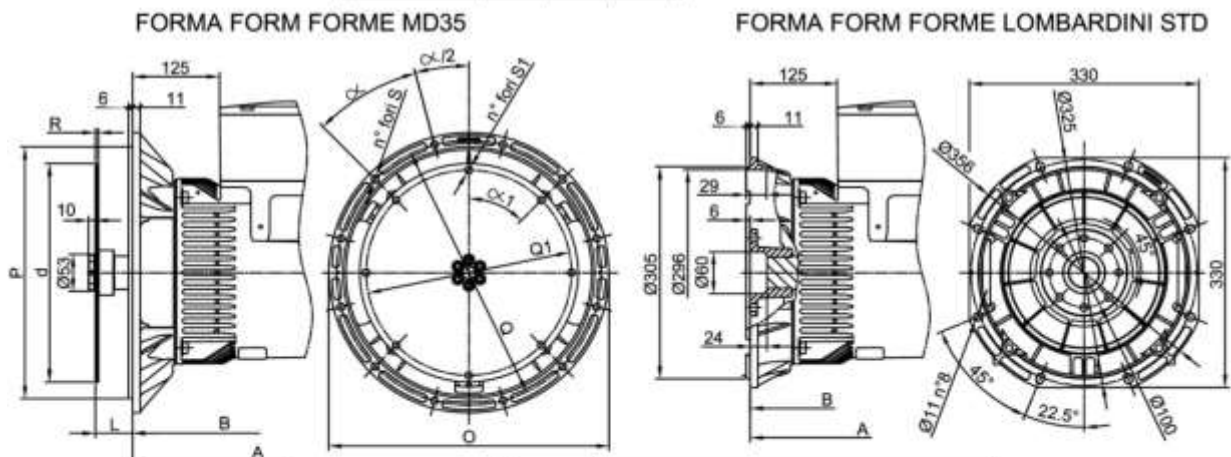
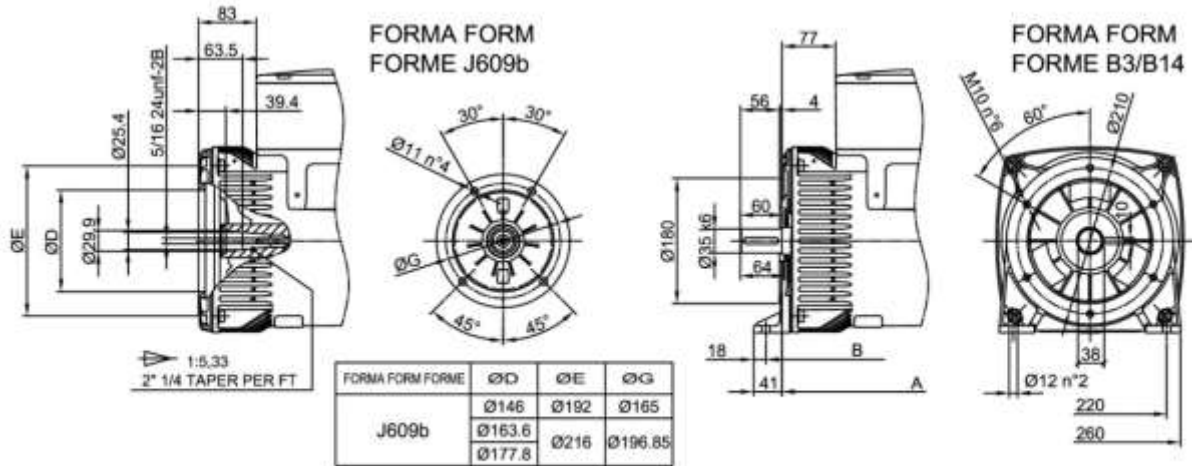
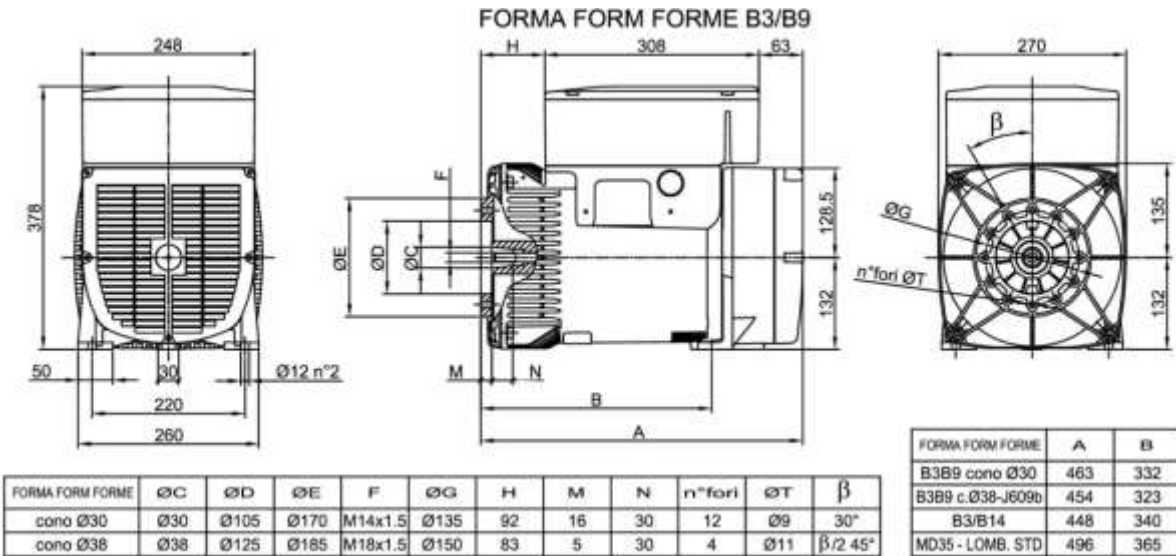


EFFICIENCY 60Hz

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°	