

TECHNICAL DATA SHEET



ALTERNATOR PRO22M E/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO22M E/4

COMMON DATA

Rated Power at 50Hz	kVA	130	
Rated Power at 60Hz	kVA	156	
Rated Power Factor		0,8	
Nominal Temperature	°C	40	
Control System		self-excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP23	
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	18,2 at 50Hz	21,2 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	> 250% 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	0,014 at 20°C	
Rotor Winding Resistance	Ω	3,95 at 20°C	
Exciter Stator Resistance	Ω	14,3 at 20°C	
Exciter Rotor Resistance	Ω	0,47 at 20°C	
THD at full load	<3%		
THD at no load	<3%		
Excitation at no load	A _{dc}	0,75	
Excitation at full load	A _{dc}	2,5	

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	130	130	130	110	139	150	156	156
	kW	104	104	104	88	111,2	120	124,8	124,8
Rated Power in Class F (105°C/40°C)	kVA	121	121	121	100	129	139	145	145
	kW	96,8	96,8	96,8	80	103,2	111,2	116	116
Rated Power Standby (150°C/40°C)	kVA	142	142	140	116	148	160	167	167
	kW	113,6	113,6	112	92,8	118,4	128	133,6	133,6
Rated Power Standby (163°C/27°C)	kVA	147	147	145	119	157	169	176	176
	kW	117,6	117,6	116	95,2	125,6	135,2	140,8	140,8

EFFICIENCY IN CL. H

4/4	92,3%							92,5%
3/4	92,5%							92,7%
2/4	90,7%							91,4%
1/4	88,2%							89,6%

REACTANCES AND TIME CONSTANTS

Pcc		0,45							
X _d - dir. axis synchronous		327%	295%	274%	206%	352%	338%	321%	295%
X' _d - dir. axis transient		21,1%	19,0%	17,7%	13,3%	22,6%	21,7%	20,7%	19,0%
X'' _d - dir. axis subtransient		9,4%	8,5%	7,9%	5,9%	10,1%	9,7%	9,3%	8,5%
X _q - quad. axis reactance		216%	195%	181%	136%	232%	223%	212%	195%
T' _{do} - O.C. field time constant		298ms							
T' _d - Transient time constant		23ms							
T'' _d - Sub-transient time constant		10ms							

MECHANICAL DATA

Bearing non drive end				6309-2RS-C3
Bearing drive end (B3/B14 form)				6314-2RS-C3
Weight of generator	in B2	kg		454
	in B3/B14	kg		456
	in B3/B9	kg		\

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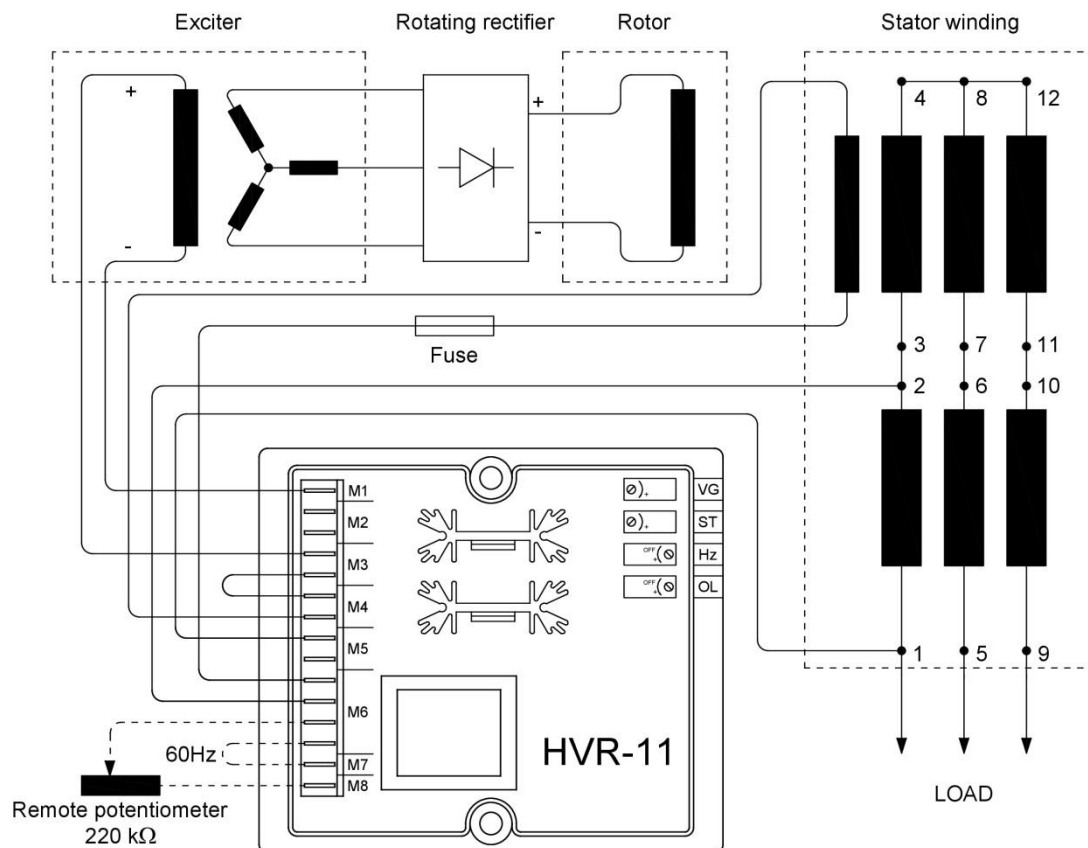
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	\
SAE 8	kg·m ²	\
SAE 10	kg·m ²	\
SAE 11½	kg·m ²	1,308
SAE 14	kg·m ²	1,456
SAE 18	kg·m ²	\
B3/B14	kg·m ²	1,230

POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1,09	1,00	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	0,90	0,85	0,81	0,78	0,76

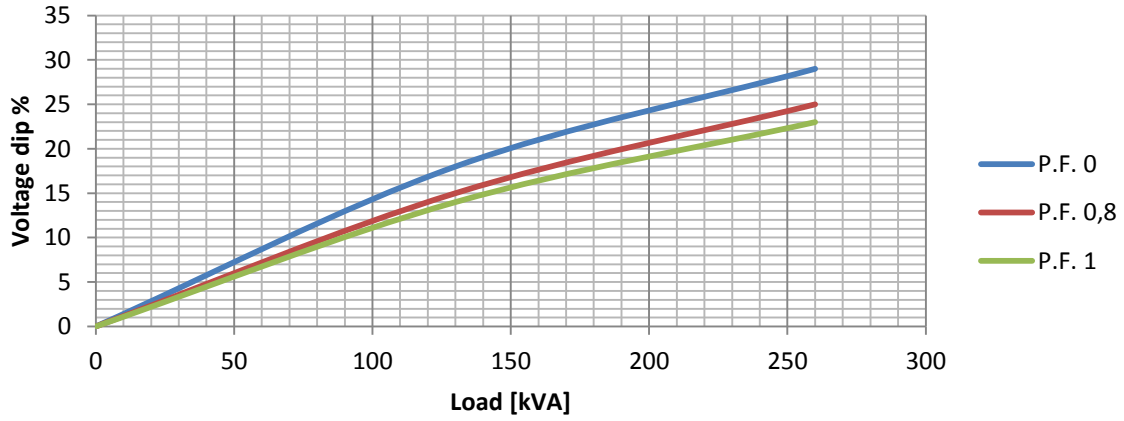
WIRING DIAGRAM



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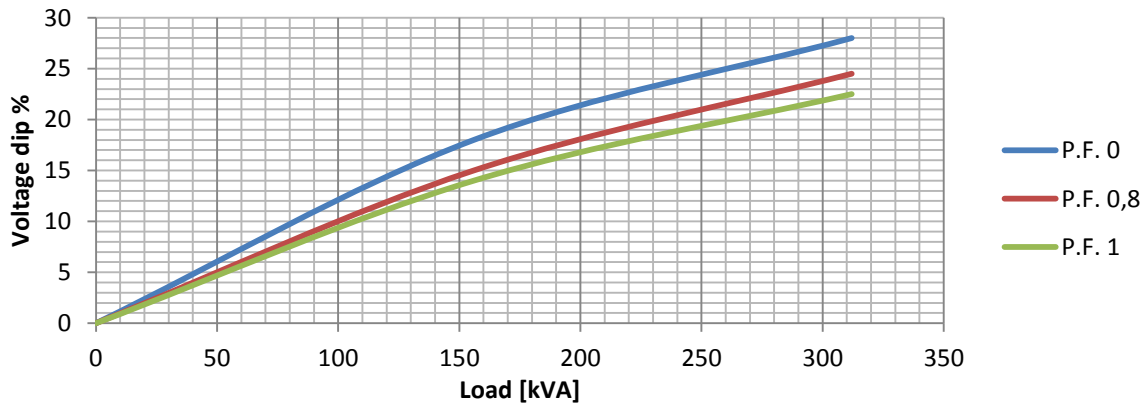
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

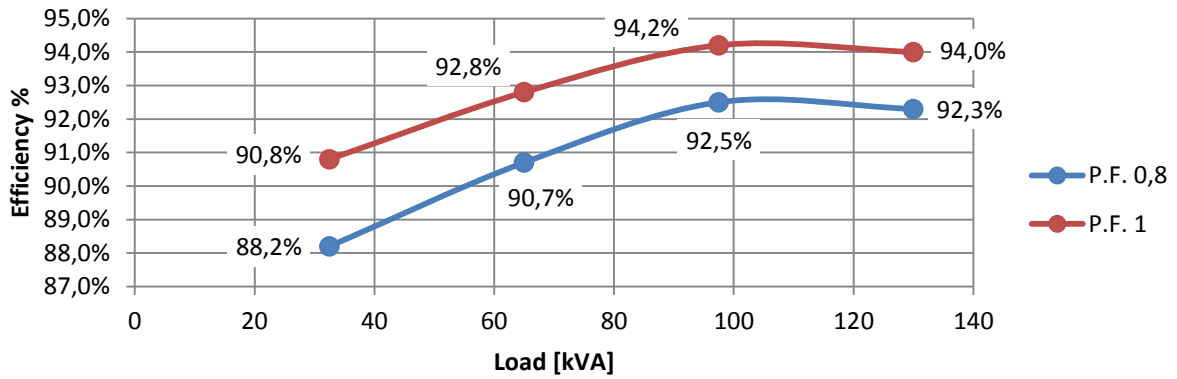
Transient Voltage Variation @ 60Hz



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EFFICIENCY 50Hz

Three Phase Efficiency Curves @ 50Hz



EFFICIENCY 60Hz

Three Phase Efficiency Curves @ 60Hz

