

TECHNICAL DATA SHEET



ALTERNATOR PRO22M G/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO22M G/4

COMMON DATA

Rated Power at 50Hz	kVA	160
Rated Power at 60Hz	kVA	192
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	22,1 at 50Hz 25,8 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		6
Stator Winding Resistance	Ω	0,0192 at 20°C
Rotor Winding Resistance	Ω	4,22 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	Adc	1,06
Excitation at full load	Adc	2,6

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

PRO22M G/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Delta	Series High Wye				Delta	Series High Wye			
		230	380/220	400/230	415/240	440/254	277	415/240	440/254	460/266	480/277
Rated Power in Class H (125°C/40°C)	kVA	104	160	160	155	130	125	165	180	192	192
	kW	83,2	128	128	124	104	100	132	144	153,6	153,6
Rated Power in Class F (105°C/40°C)	kVA	95	147	147	140	120	114	150	165	176	176
	kW	76	117,6	117,6	112	96	91,2	120	132	140,8	140,8
Rated Power Standby (150°C/40°C)	kVA	114	175	175	170	150	136	180	200	210	210
	kW	91,2	140	140	136	120	108,8	144	160	168	168
Rated Power Standby (163°C/27°C)	kVA	117	180	180	175	155	143	190	210	220	220
	kW	93,6	144	144	140	124	114,4	152	168	176	176

EFFICIENCY IN CL. H

4/4			93,1%							93,5%
3/4			93,3%							93,8%
2/4			91,5%							92,0%
1/4			88,8%							90,1%

REACTANCES AND TIME CONSTANTS

pcc			0,69							
X _d - dir. axis synchronous		266%	240%	216%	161%		276%	268%	261%	240%
X' _d - dir. axis transient		17,7%	16,0%	14,4%	10,7%		18,4%	17,9%	17,4%	16,0%
X'' _d - dir. axis subtransient		8,9%	8,0%	7,2%	5,4%		9,2%	8,9%	8,7%	8,0%
X _q - quad. axis reactance		199%	180%	162%	121%		207%	201%	196%	180%
T' _{do} - O.C. field time constant							310ms			
T' _d - Transient time constant							23ms			
T'' _d - Sub-transient time constant							10ms			

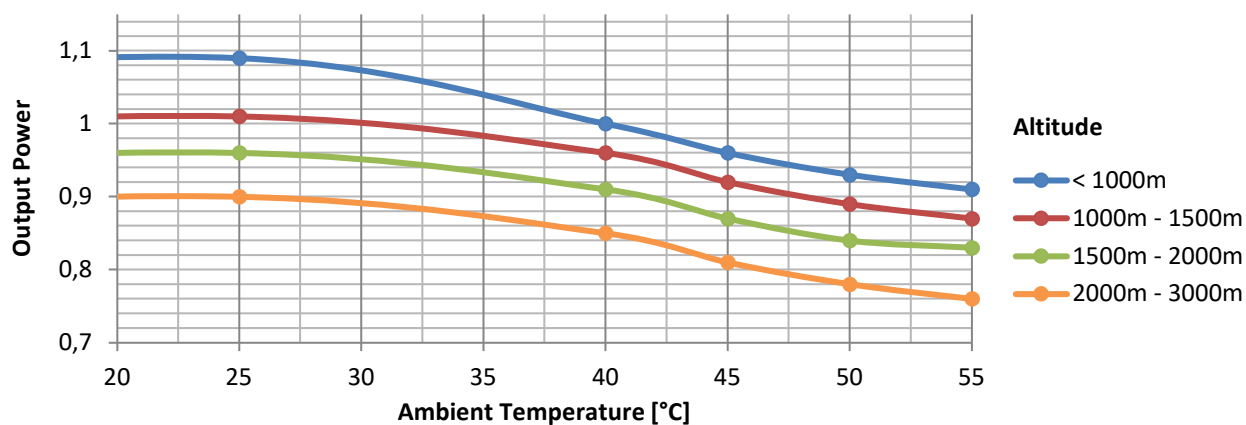
MECHANICAL DATA

Bearing non drive end			6309-2RS-C3
Bearing drive end (B3/B14 form)			6314-2RS-C3
Weight of generator	in B2	kg	499
	in B3/B14	kg	501
	in B3/B9	kg	\

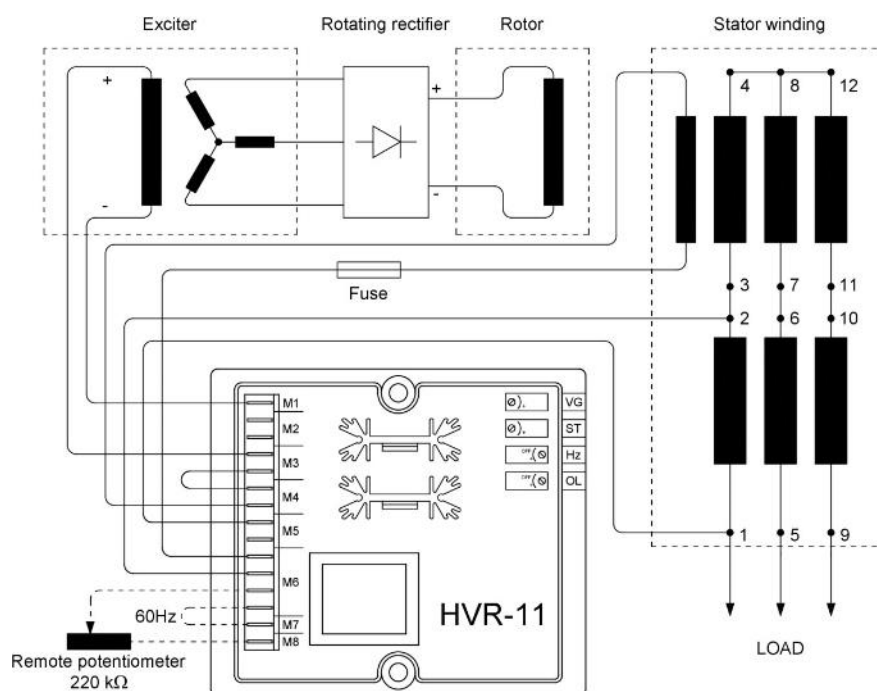
PRO22M G/4

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	1,480
SAE 14	kg·m ²	1,628
SAE 18	kg·m ²	\
B3/B14	kg·m ²	1,402



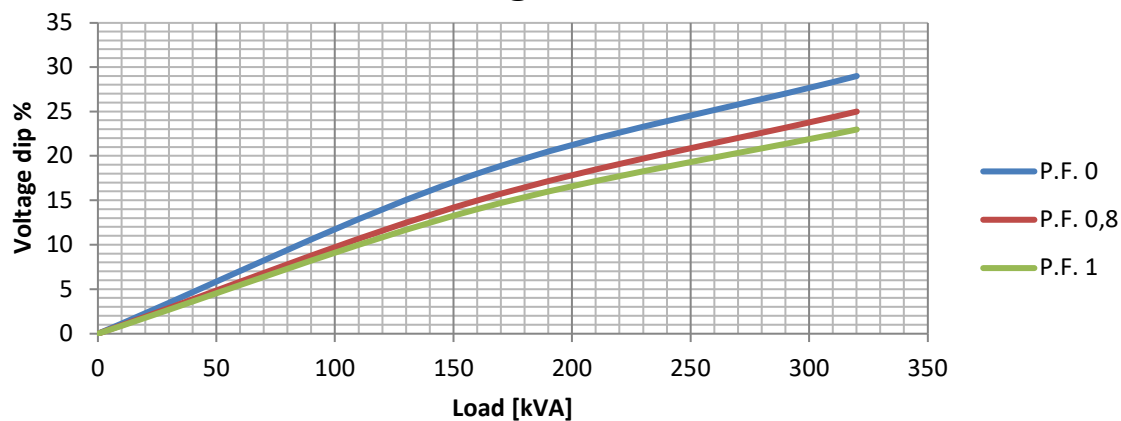
WIRING DIAGRAM



PRO22M G/4

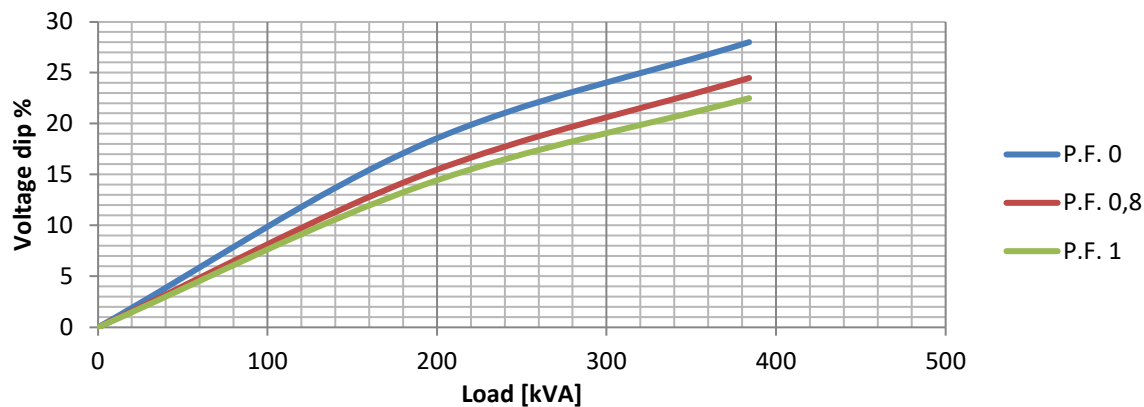
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

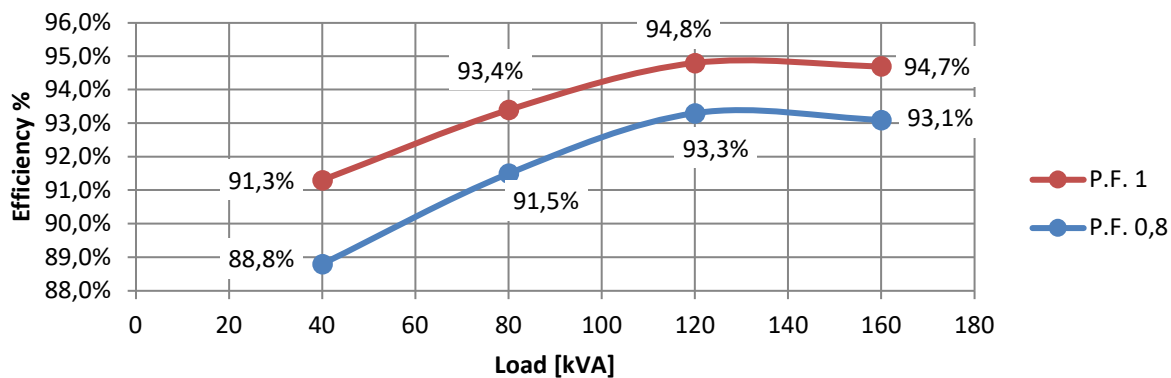
Transient Voltage Variation @ 60Hz



PRO22M G/4

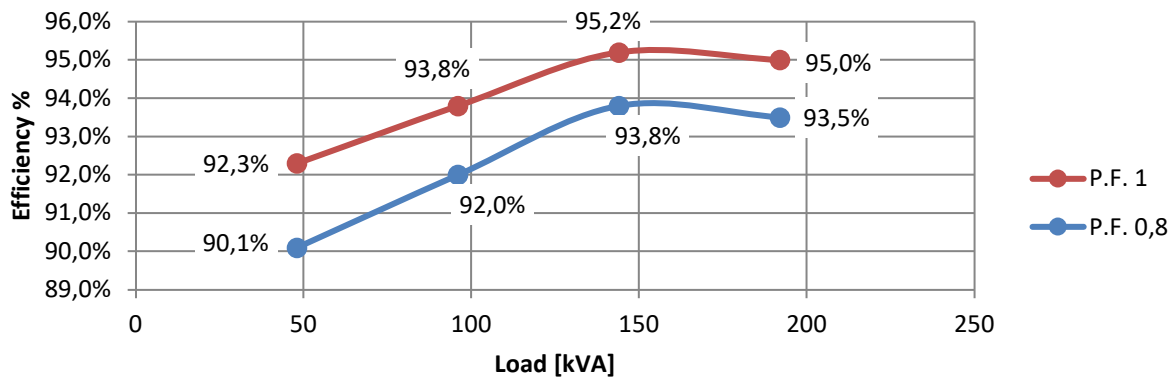
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



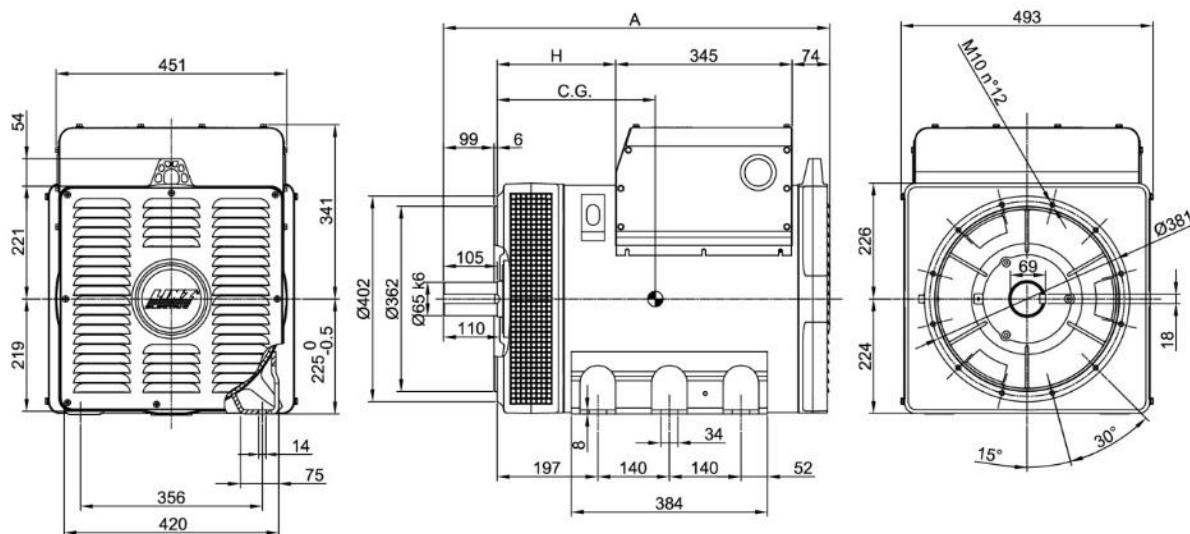
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz

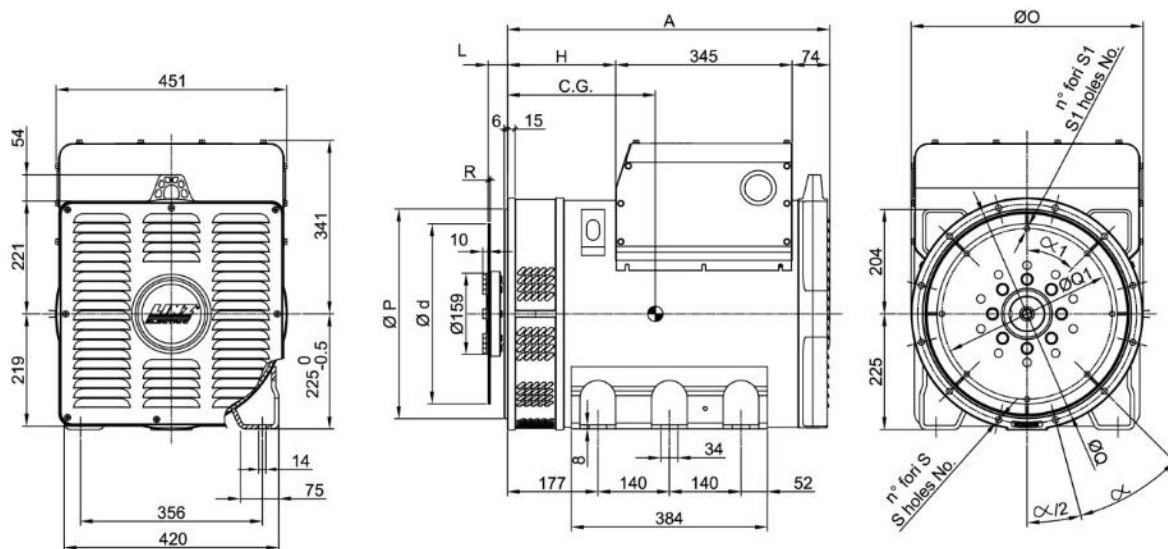


PRO22M G/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	H
B3/B14	PRO 22S	756	232
	PRO 22M	886	362
SAE	PRO 22S	631	212
	PRO 22M	761	342

TIPO - TYPE	C.G.
PRO22S A/4 B3/B14	284
PRO22S B/4 B3/B14	293
PRO22S C/4 B3/B14	299
PRO22S D/4 B3/B14	313
PRO22M E/4 B3/B14	359
PRO22M F/4 B3/B14	377

TIPO - TYPE	C.G.
PRO22S A/4 SAE	270
PRO22S B/4 SAE	279
PRO22S C/4 SAE	285
PRO22S D/4 SAE	298
PRO22M E/4 SAE	344
PRO22M F/4 SAE	362

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	454	409.6	428.6	12	12	30°
2	492	447.68	466.7			
1	552	511.18	530.2			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	R
11 1/2	39.6	352.42	333.37	8	10.5	45°	6
14	25.4	466.72	438.15	8	14	45°	