TECHNICAL DATA SHEET

PRO22M E/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

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		> 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	0.014 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

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PRO22M E/4
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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,

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

ELECTRICAL DATA @50Hz

Frequency		50Hz - 1500rpm				
Voltage	V	3 Phase Series High WYE Parallel Low WYE				1 Phase Reconnected Double Delta
		380/220 190/110	**400/230 200/115**	**415/240 208/120**	**440/254 220/127**	**115/230**
Rated Power in Class H (125°C/40°C)	kVA	130	130	130	110	85
	kW	104	104	104	88	68
Rated Power in Class F (105°C/40°C)	kVA	121	121	121	100	79
	kW	96.8	96.8	96.8	80	63.2
Rated Power Standby (150°C/40°C)	kVA	142	142	140	116	92
	kW	113.6	113.6	112	92.8	73.6
Rated Power Standby (163°C/27°C)	kVA	147	147	145	119	95
	kW	117.6	117.6	116	95.2	76

EFFICIENCY IN CL. H OF RATED POWER @50Hz - 0.8 P.F.

4/4 (100%)	92.3%
3/4 (75%)	92.5%
2/4 (50%)	90.7%
1/4 (25%)	88.2%

REACTANCES AND TIME CONSTANTS @50Hz

pcc			0.45		
Xd	- dir. axis synchronous	327%	295%	274%	206%
X'd	- dir. axis transient	21.1%	19.0%	17.7%	13.3%
X''d	- dir. axis subtransient	9.4%	8.5%	7.9%	5.9%
X_q	- quad. axis reactance	216%	195%	181%	136%
T'_{do}	- O.C. field time constant	298ms			
T'_d	- Transient time constant	23ms			
T''_d	- Sub-transient time constant	10ms			

TECHNICAL DATA SHEET
PRO22M E/4
Three-Phase brushless synchronous alternator with AVR - 4 poles

ELECTRICAL DATA @60Hz

Frequency		60Hz - 1800rpm				
Voltage	V	3 Phase Series High WYE Parallel Low WYE				1 Phase Reconnected Double Delta
		415/240 208/120	**440/254 220/127**	**460/266 230/133**	**480/277 240/138**	**138/277**
Rated Power in Class H (125°C/40°C)	kVA	139	150	156	156	102
	kW	111.2	120	124.8	124.8	81.6
Rated Power in Class F (105°C/40°C)	kVA	129	139	145	145	94
	kW	103.2	111.2	116	116	75.2
Rated Power Standby (150°C/40°C)	kVA	148	160	167	167	109
	kW	118.4	128	133.6	133.6	87.2
Rated Power Standby (163°C/27°C)	kVA	157	169	176	176	115
	kW	125.6	135.2	140.8	140.8	92

EFFICIENCY IN CL. H OF RATED POWER @60Hz - 0.8 P.F.

4/4	92.5%
3/4	92.7%
2/4	91.4%
1/4	89.6%

REACTANCES AND TIME CONSTANTS @60Hz

ρcc					0.45
Xd	- dir. axis synchronous	352%	338%	321%	295%
X'd	- dir. axis transient	22.6%	21.7%	20.7%	19.0%
X''d	- dir. axis subtransient	10.1%	9.7%	9.3%	8.5%
X_q	- quad. axis reactance	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			

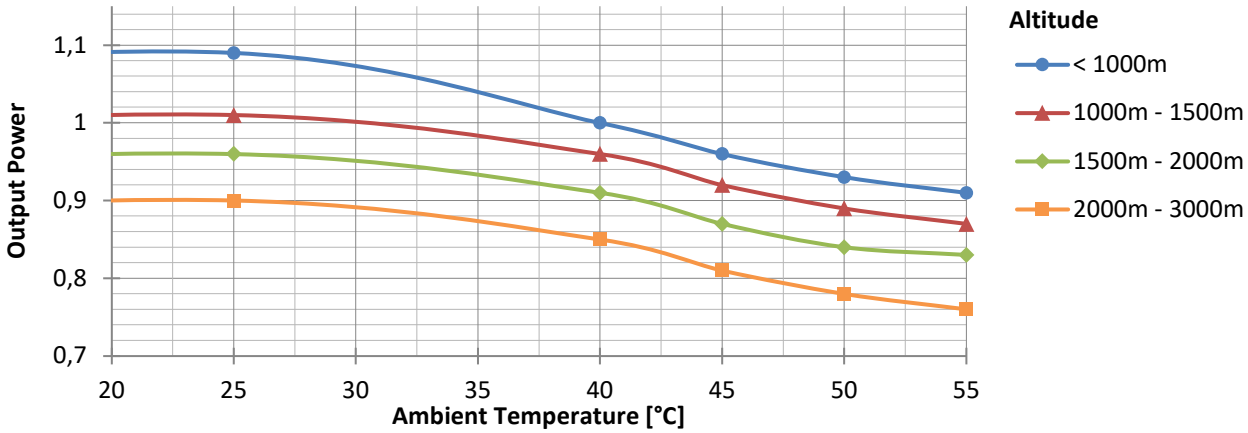
MECHANICAL DATA

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	/

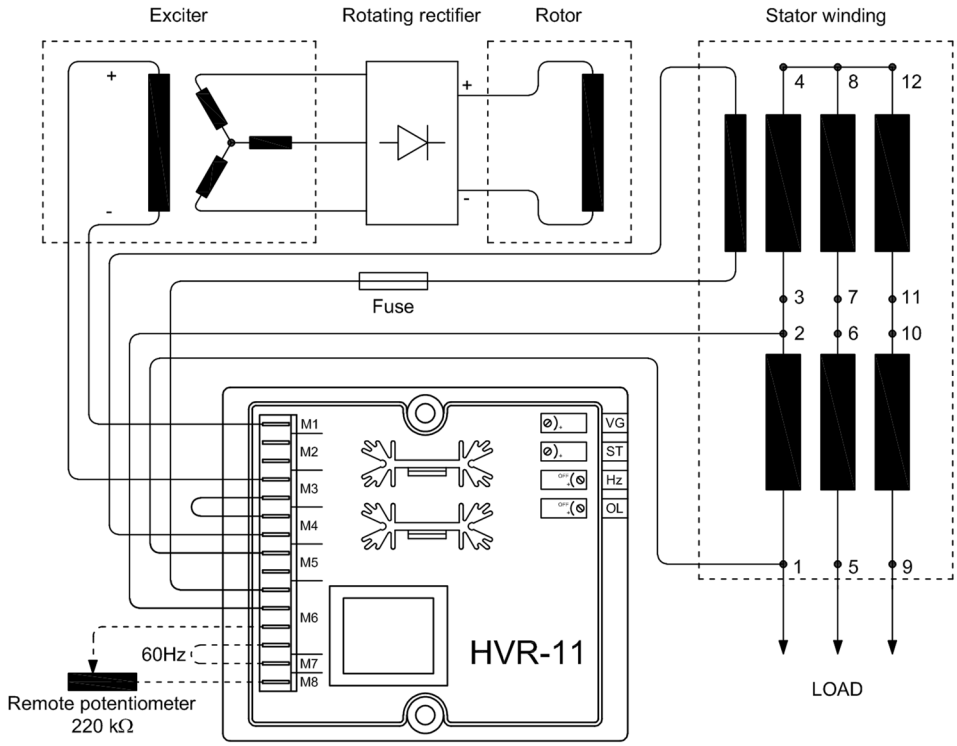
MOMENT OF INERZIA

B3/B9	kg·m²	/
SAE 7½	kg·m²	/
SAE 8	kg·m²	/
SAE 10	kg·m²	/
SAE 11½	kg·m²	1.308
SAE 14	kg·m²	1.456
SAE 18	kg·m²	/
B3/B14	kg·m²	1.230

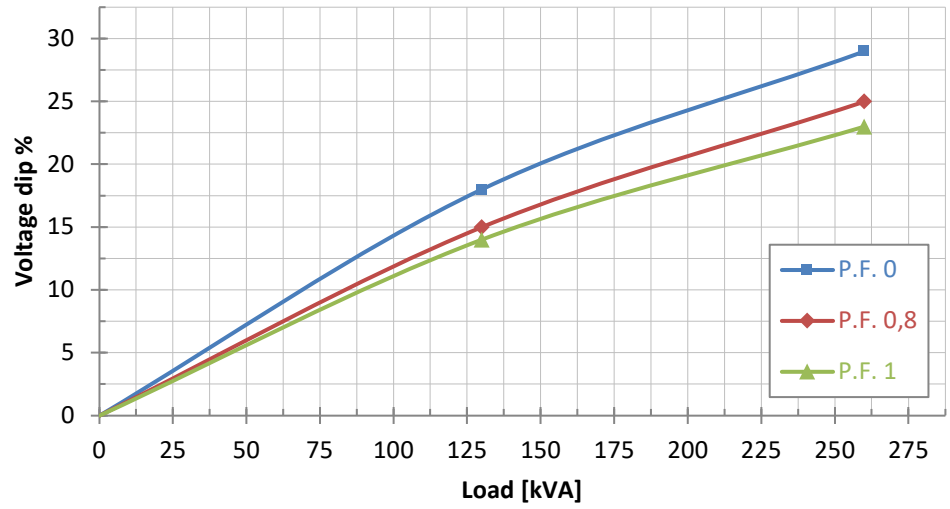
DERATING CURVES



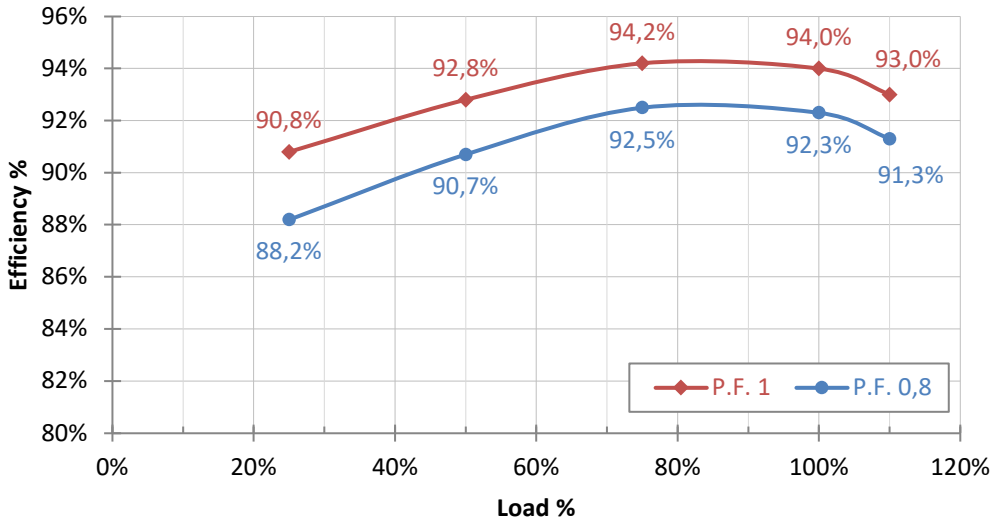
WIRING DIAGRAM



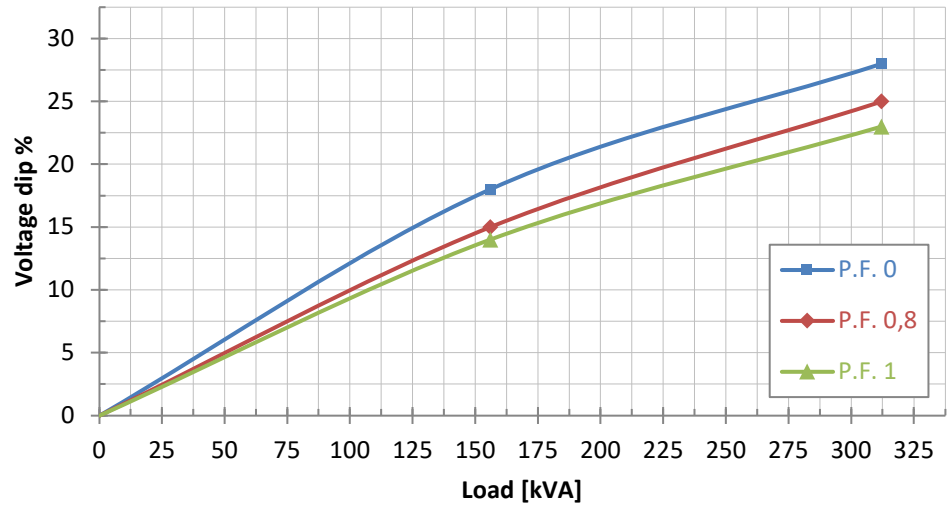
TRANSIENT VOLTAGE VARIATION @50Hz - 230/400V



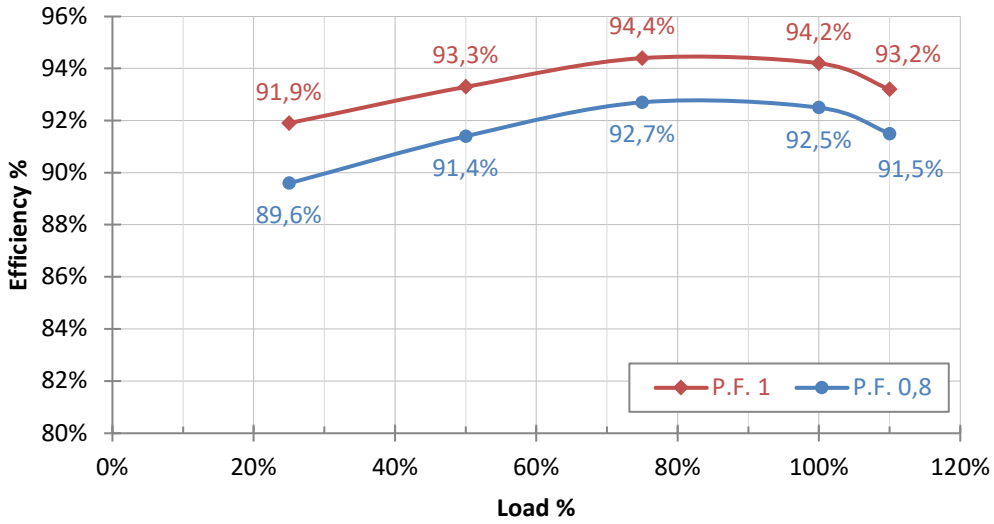
EFFICIENCY CURVES @50Hz - 230/400V



TRANSIENT VOLTAGE VARIATION @60Hz - 277/480V

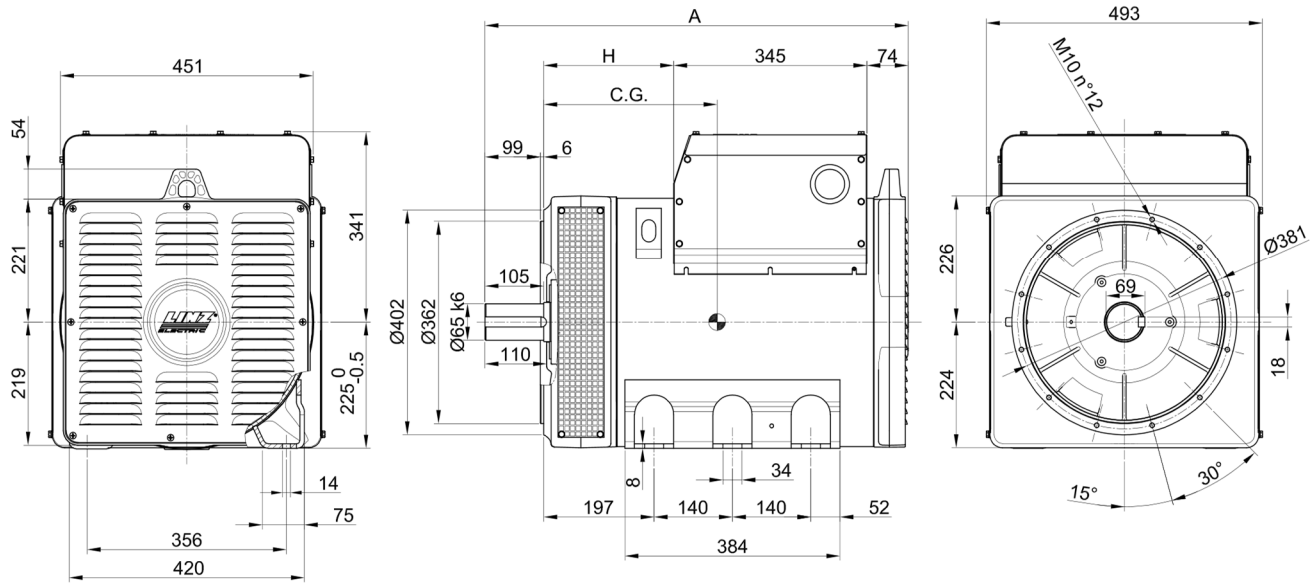


EFFICIENCY CURVES @60Hz - 277/480V

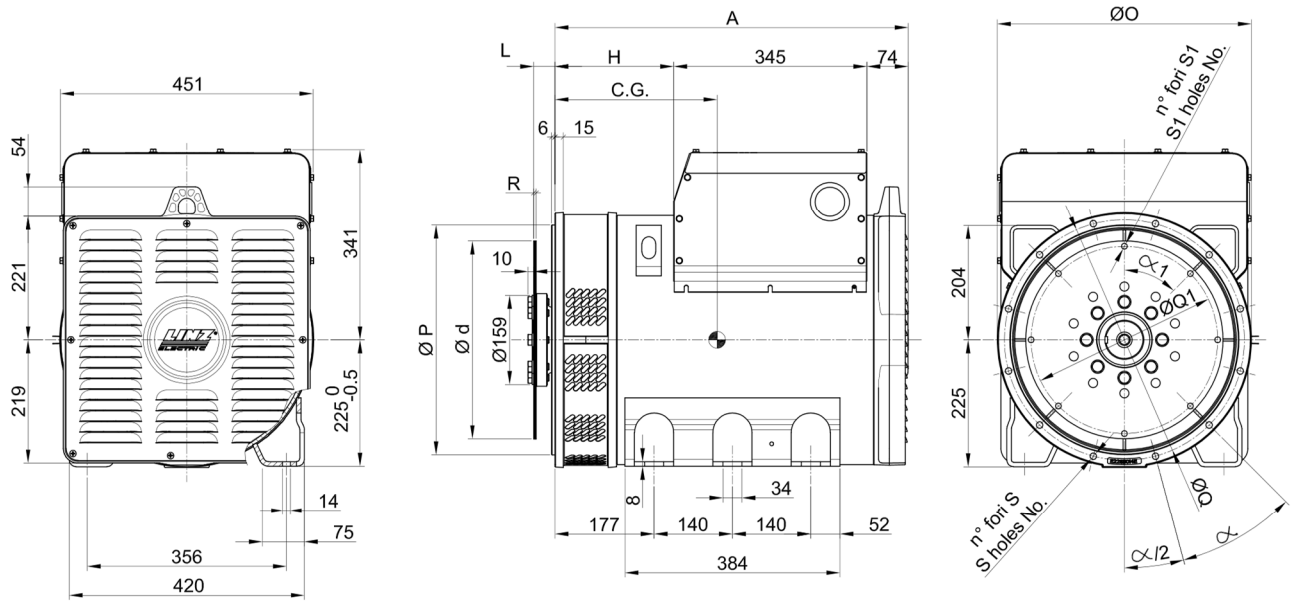


OVERALL DIMENSIONS

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°	