

TECHNICAL DATA SHEET



**ALTERNATOR PRO22S D/4**

*Three-Phase brushless synchronous alternator with AVR - 4 poles*

## PRO22S D/4

### COMMON DATA

Rated Power at 50Hz	kVA	100
Rated Power at 60Hz	kVA	120
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 <sup>3</sup> /min	17,9 at 50Hz      20,8 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	> 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	0,02 at 20°C
Rotor Winding Resistance	Ω	3,26 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	0,75
Excitation at full load	Adc	2,3

### 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	V	Double Delta	Series High Wye Parallel Low Wye			Double Delta	Series High Wye Parallel Low Wye				
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	65	100	100	100	85	78	110	120	120	120
	kW	52	80	80	80	68	62,4	88	96	96	96
Rated Power in Class F (105°C/40°C)	kVA	61	93	93	93	80	73	101	111,5	111,5	111,5
	kW	48,8	74,4	74,4	74,4	64	58,4	80,8	89,2	89,2	89,2
Rated Power Standby (150°C/40°C)	kVA	72	110	110	110	93	86	118	130	130	130
	kW	57,6	88	88	88	74,4	68,8	94,4	104	104	104
Rated Power Standby (163°C/27°C)	kVA	74	113	113	113	96	88	123	135,5	135,5	135,5
	kW	59,2	90,4	90,4	90,4	76,8	70,4	98,4	108,4	108,4	108,4

### EFFICIENCY IN CL. H

4/4			90,6%							90,9%
3/4			90,9%							91,1%
2/4			88,2%							89,8%
1/4			84,5%							88,0%

### REACTANCES AND TIME CONSTANTS

pcc			0,47							
X <sub>d</sub>	- dir. axis synchronous	330%	298%	277%	209%		365%	355%	324%	298%
X' <sub>d</sub>	- dir. axis transient	19,9%	18,0%	16,7%	12,6%		22,1%	21,4%	19,6%	18,0%
X'' <sub>d</sub>	- dir. axis subtransient	10,0%	9,0%	8,4%	6,3%		11,0%	10,7%	9,8%	9,0%
X <sub>q</sub>	- quad. axis reactance	215%	194%	180%	136%		238%	231%	211%	194%
T' <sub>do</sub>	- O.C. field time constant	277ms								
T' <sub>d</sub>	- Transient time constant	22ms								
T'' <sub>d</sub>	- Sub-transient time constant	11ms								

### MECHANICAL DATA

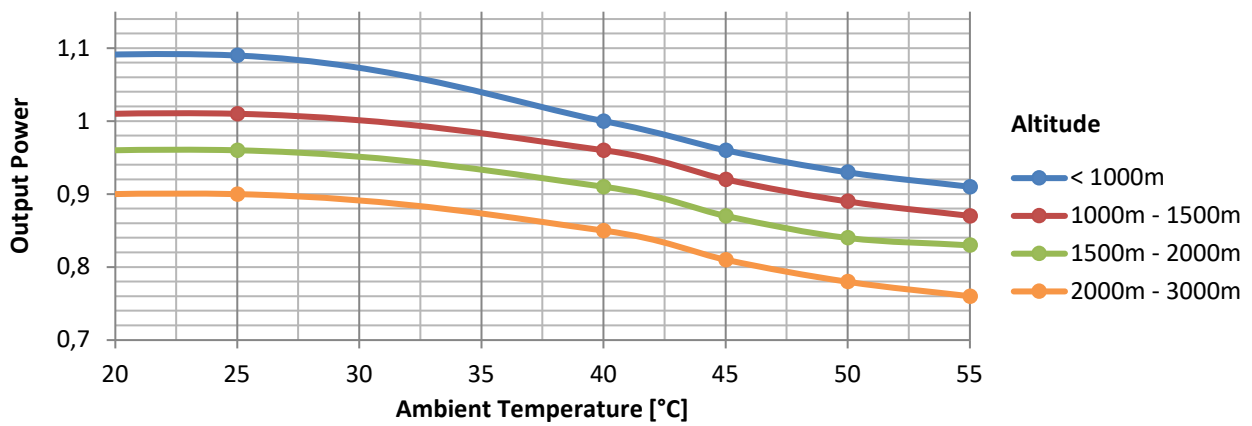
Bearing non drive end				6309-2RS-C3
Bearing drive end (B3/B14 form)				6314-2RS-C3
Weight of generator	in B2	kg		379
	in B3/B14	kg		381
	in B3/B9	kg		\

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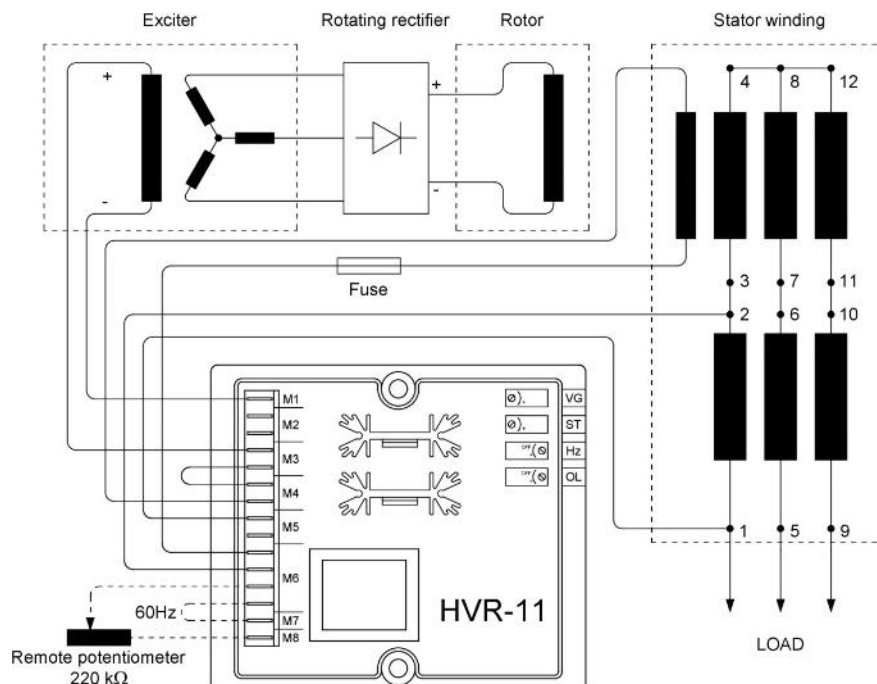
## MOMENT OF INERZIA

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	\
SAE 8	kg·m <sup>2</sup>	\
SAE 10	kg·m <sup>2</sup>	\
SAE 11½	kg·m <sup>2</sup>	1,074
SAE 14	kg·m <sup>2</sup>	1,222
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	0,996

## DERATING CURVES



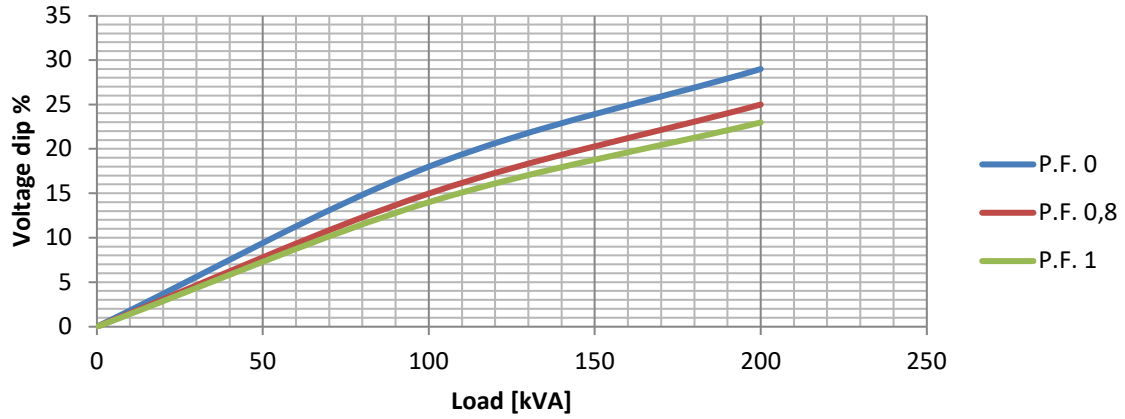
## WIRING DIAGRAM



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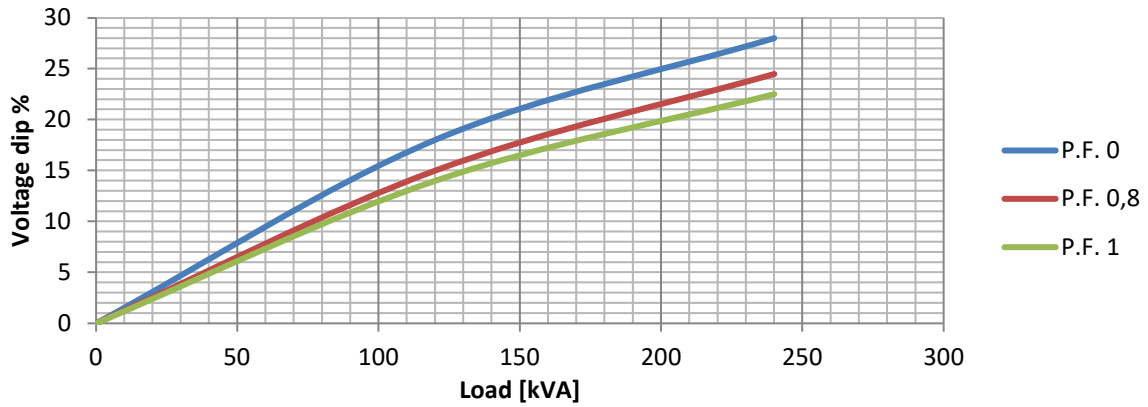
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

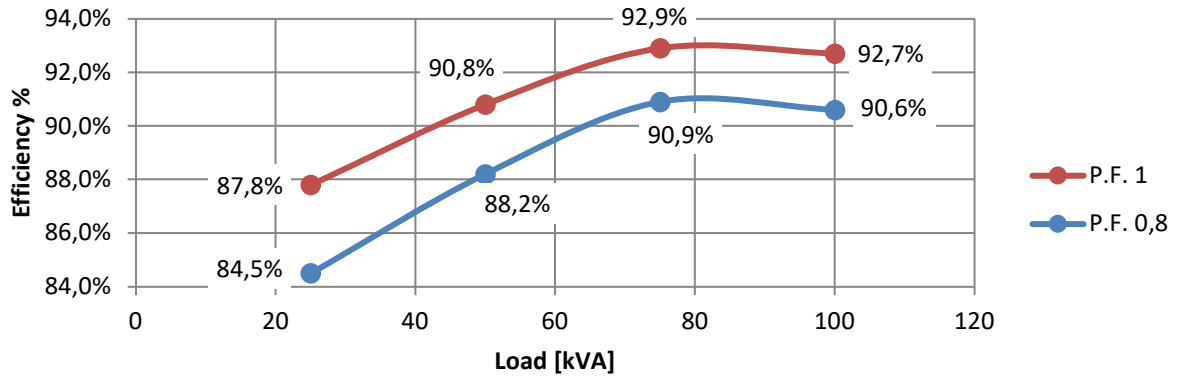
### Transient Voltage Variation @ 60Hz



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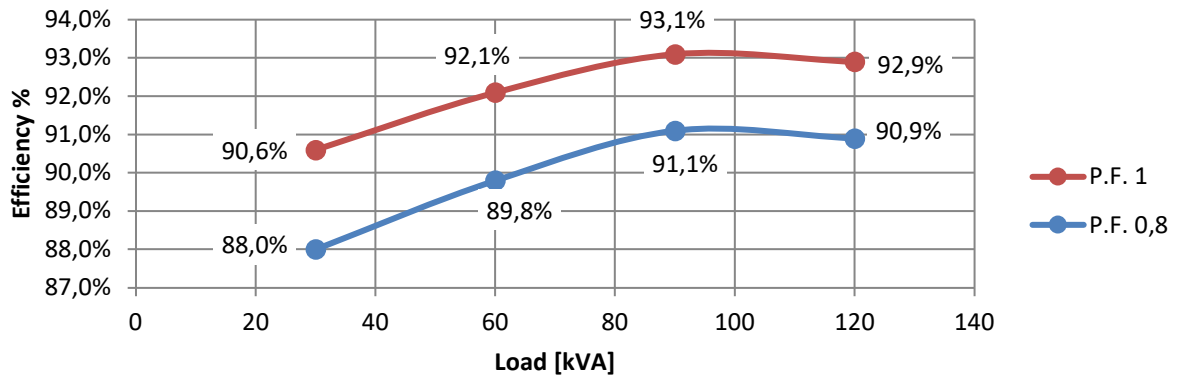
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



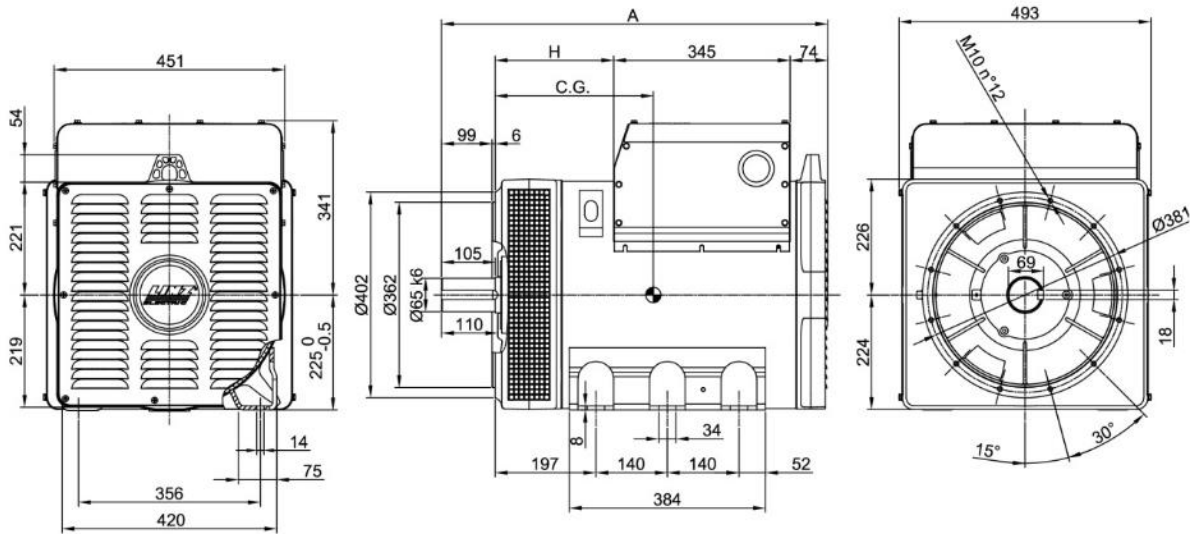
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

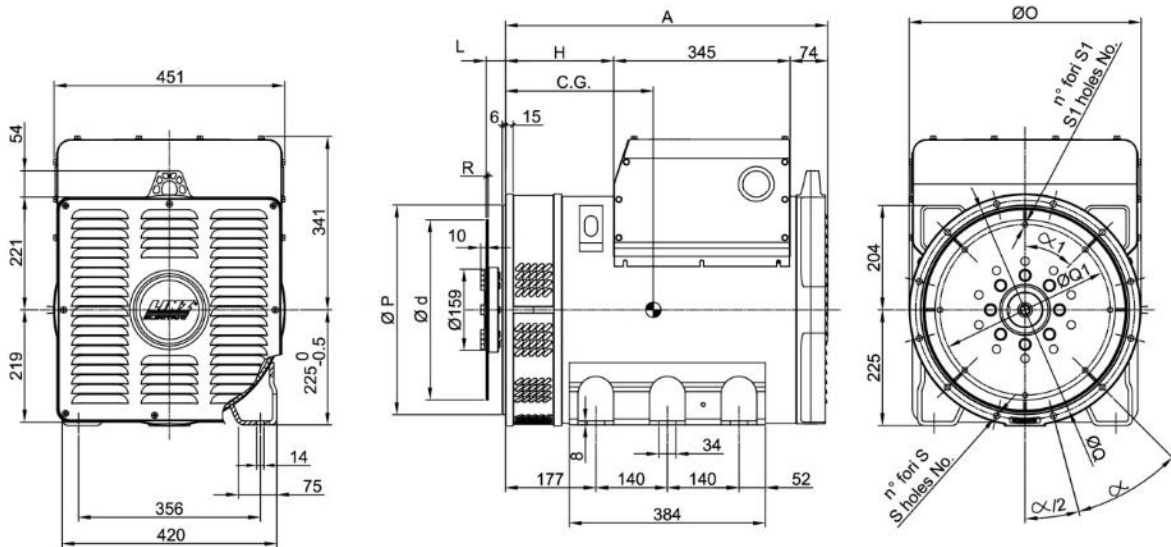


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## FORMA - FORM B3/B14



## 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°	