

TECHNICAL DATA SHEET



**ALTERNATOR PRO22S A/4**

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

## PRO22S A/4

### COMMON DATA

Rated Power at 50Hz	kVA	63	
Rated Power at 60Hz	kVA	76	
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	18,2 at 50Hz	21,3 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	0,049 at 20°C	
Rotor Winding Resistance	Ω	2,38 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 <sub>dc</sub>	0,8	
Excitation at full load	A <sub>dc</sub>	2,5	

### 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

## PRO22S A/4

### ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
Voltage Series Star	V	<b>380/220</b>	<b>400/230</b>	<b>415/240</b>	<b>440/254</b>	<b>415/240</b>	<b>440/254</b>	<b>460/266</b>	<b>480/277</b>
Rated Power in Class H (125°C/40°C)	kVA	63	63	63	52	65	72	76	76
	kW	50,4	50,4	50,4	41,6	52	57,6	60,8	60,8
Rated Power in Class F (105°C/40°C)	kVA	59	59	58	48	61	67	70,5	70,5
	kW	47,2	47,2	46,4	38,4	48,8	53,6	56,4	56,4
Rated Power Standby (150°C/40°C)	kVA	69	69	67	55	71	78,5	83	83
	kW	55,2	55,2	53,6	44	56,8	62,8	66,4	66,4
Rated Power Standby (163°C/27°C)	kVA	71	71	69	57	73,5	81	85,5	85,5
	kW	56,8	56,8	55,2	45,6	58,8	64,8	68,4	68,4

### EFFICIENCY IN CL. H

4/4	90,1%							90,4%
3/4	90,4%							90,6%
2/4	87,7%							89,3%
1/4	84,0%							87,5%

### REACTANCES AND TIME CONSTANTS

pcc		0,48							
X <sub>d</sub> - dir. axis synchronous		335%	302%	281%	206%	346%	340%	329%	302%
X' <sub>d</sub> - dir. axis transient		21,1%	19,0%	17,7%	13,0%	21,7%	21,4%	20,7%	19,0%
X'' <sub>d</sub> - dir. axis subtransient		10,5%	9,5%	8,8%	6,5%	10,9%	10,7%	10,3%	9,5%
X <sub>q</sub> - quad. axis reactance		212%	191%	177%	130%	219%	215%	208%	191%
T' <sub>do</sub> - O.C. field time constant						236ms			
T' <sub>d</sub> - Transient time constant						20ms			
T'' <sub>d</sub> - Sub-transient time constant						12ms			

### MECHANICAL DATA

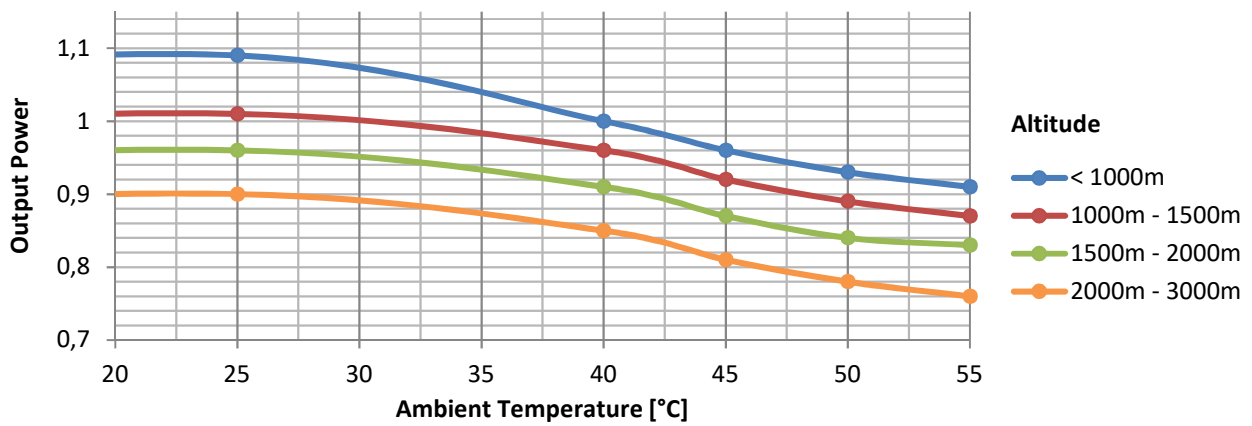
Bearing non drive end				6309-2RS-C3
Bearing drive end (B3/B14 form)				6314-2RS-C3
Weight of generator	in B2	kg		280
	in B3/B14	kg		291
	in B3/B9	kg		\

# PRO22S A/4

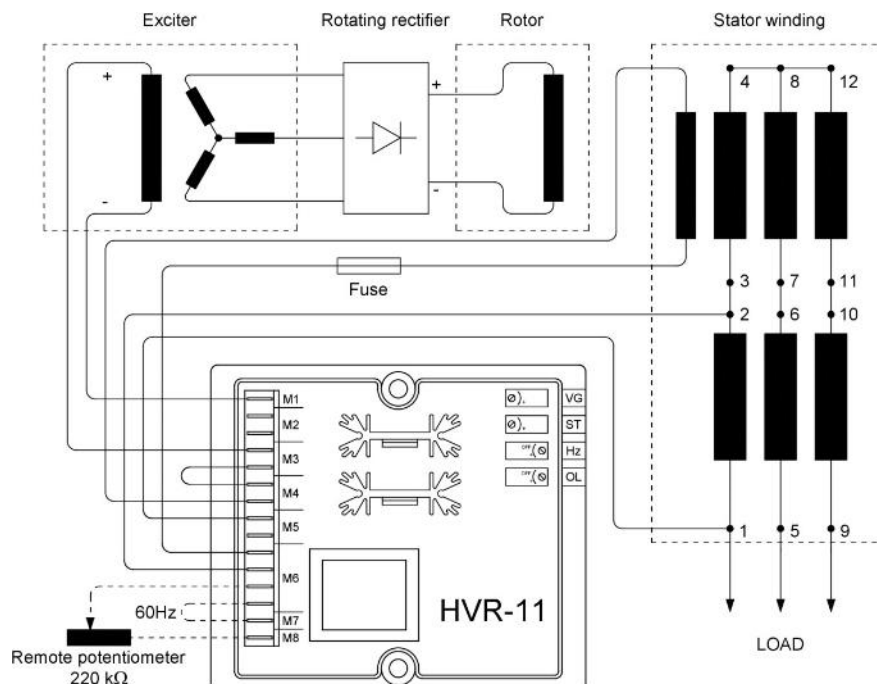
## MOMENT OF INERZIA

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>	0,729
SAE 14	kg·m <sup>2</sup>	0,878
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	0,652

## DERATING CURVES



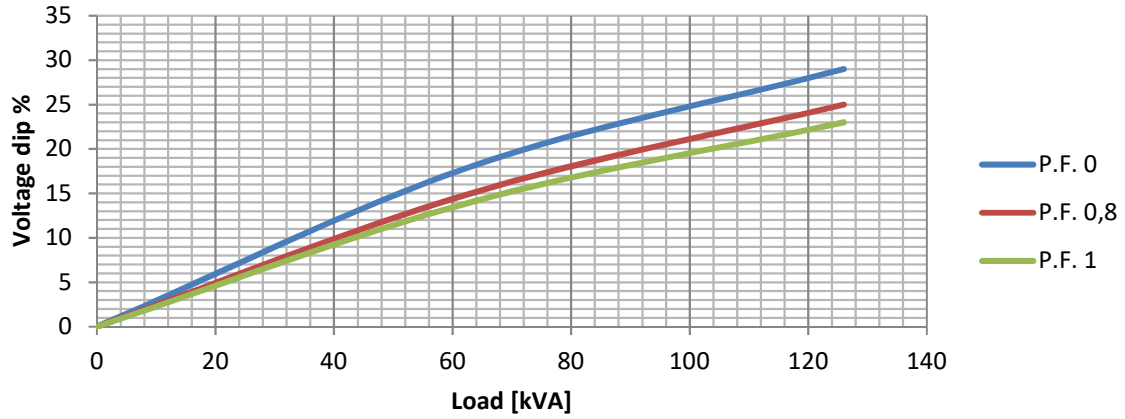
## WIRING DIAGRAM



# PRO22S A/4

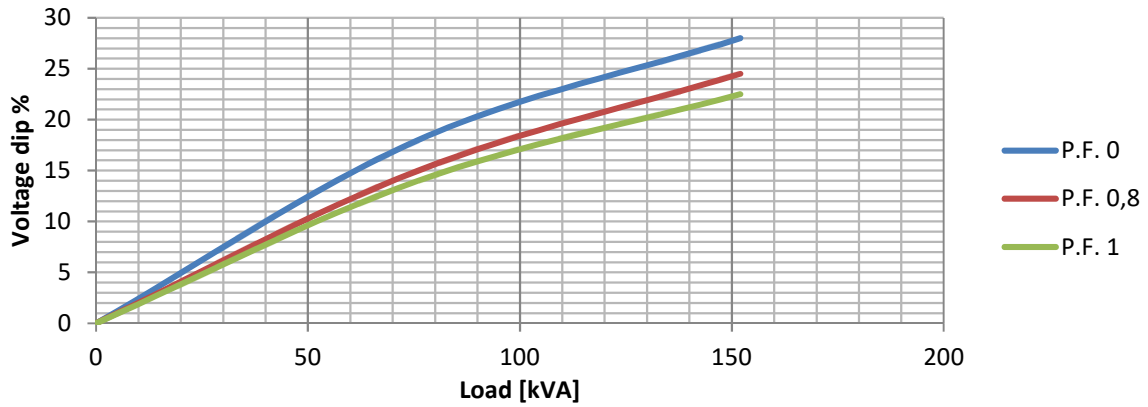
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

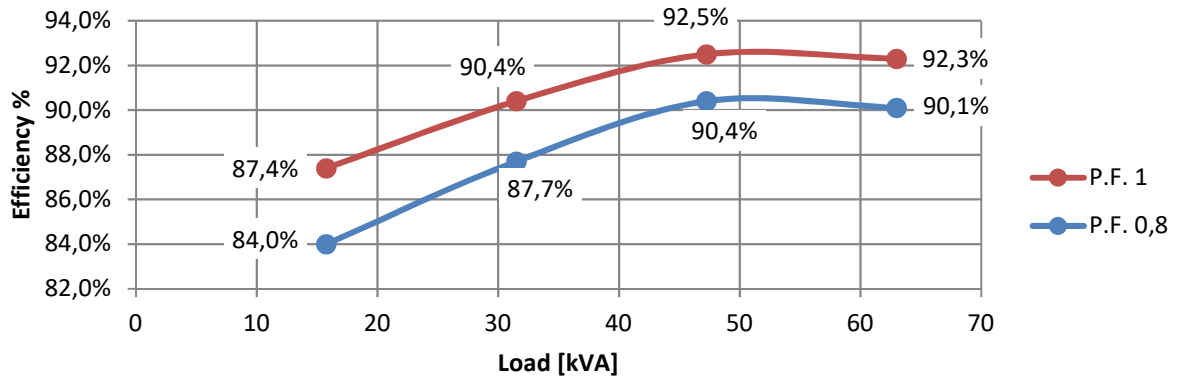
### Transient Voltage Variation @ 60Hz



# PRO22S A/4

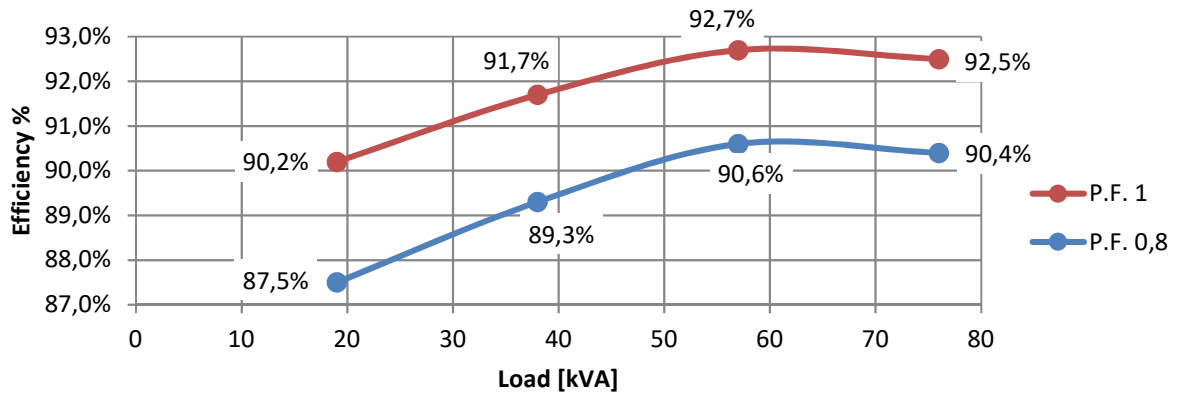
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



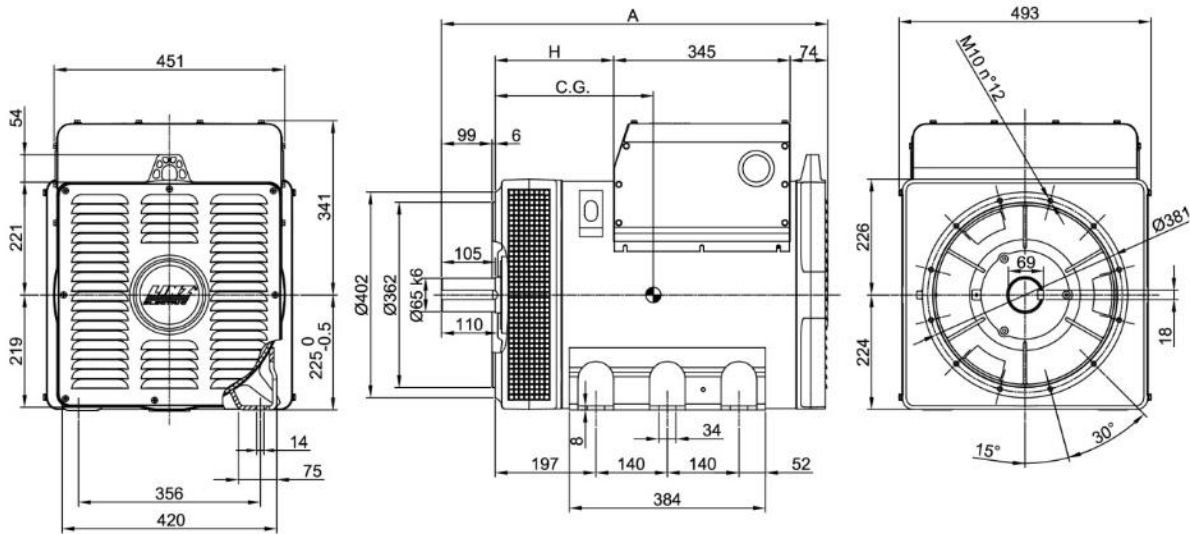
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

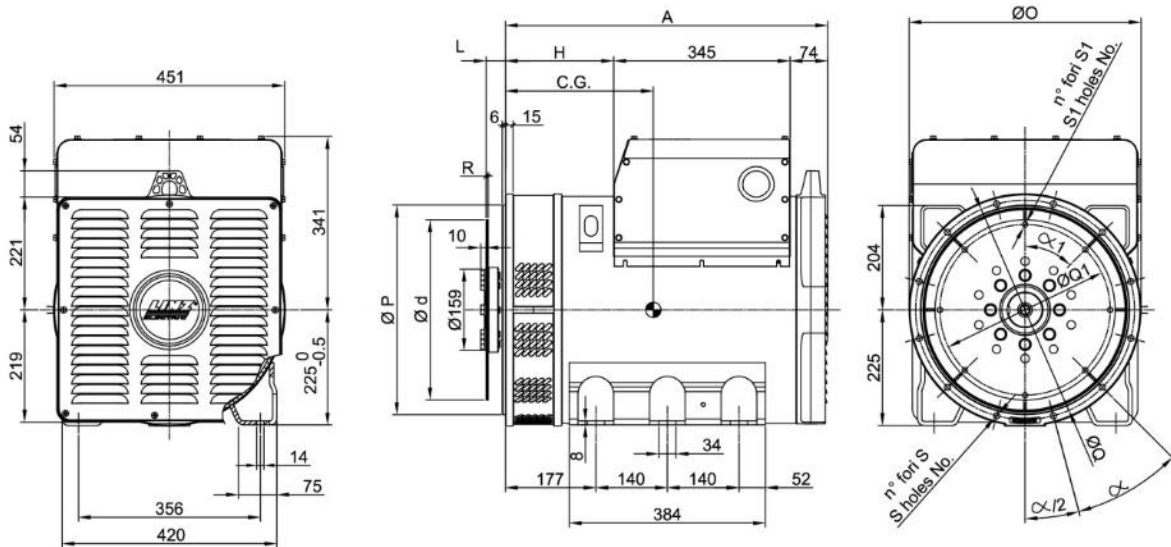


# PRO22S A/4

## 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°	