

TECHNICAL DATA SHEET



**ALTERNATOR PRO28S D/4**

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

## PRO28S D/4

### COMMON DATA

Rated Power at 50Hz	kVA	250
Rated Power at 60Hz	kVA	300
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	36,5 at 50Hz      43,1 at 60Hz
R.F.I. Suppression		Standard EN55011

### REGULATION DATA

AVR	HVR30
Sensing	three-phase
Voltage Regulation	±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	0,0069 at 20°C
Rotor Winding Resistance	Ω	2,26 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,25 at 20°C
THD at full load	<3%	
THD at no load	<3%	
Excitation at no load	A <sub>dc</sub>	0,62
Excitation at full load	A <sub>dc</sub>	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

## PRO28S D/4

### 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	163	250	250	250	235	200	290	300	300	300
	kW	130,4	200	200	200	188	160	232	240	240	240
Rated Power in Class F (105°C/40°C)	kVA	137	210	210	210	197	165	240	250	250	250
	kW	109,6	168	168	168	157,6	132	192	200	200	200
Rated Power Standby (150°C/40°C)	kVA	173	266	266	266	250	210	310	320	320	320
	kW	138,4	212,8	212,8	212,8	200	168	248	256	256	256
Rated Power Standby (163°C/27°C)	kVA	182	280	280	280	260	220	320	335	335	335
	kW	145,6	224	224	224	208	176	256	268	268	268

### EFFICIENCY IN CL. H

4/4			92,7%							93,2%
3/4			93,1%							93,6%
2/4			92,0%							92,5%
1/4			89,3%							90,1%

### REACTANCES AND TIME CONSTANTS

pcc		0,38								
X <sub>d</sub>	- dir. axis synchronous	388%	350%	325%	272%		453%	417%	381%	350%
X' <sub>d</sub>	- dir. axis transient	19,9%	18,0%	16,7%	14,0%		23,3%	21,4%	19,6%	18,0%
X'' <sub>d</sub>	- dir. axis subtransient	11,1%	10,0%	9,3%	7,8%		12,9%	11,9%	10,9%	10,0%
X <sub>q</sub>	- quad. axis reactance	235%	212%	197%	165%		274%	252%	231%	212%
T' <sub>do</sub>	- O.C. field time constant	1850ms								
T' <sub>d</sub>	- Transient time constant	115ms								
T'' <sub>d</sub>	- Sub-transient time constant	14ms								

### MECHANICAL DATA

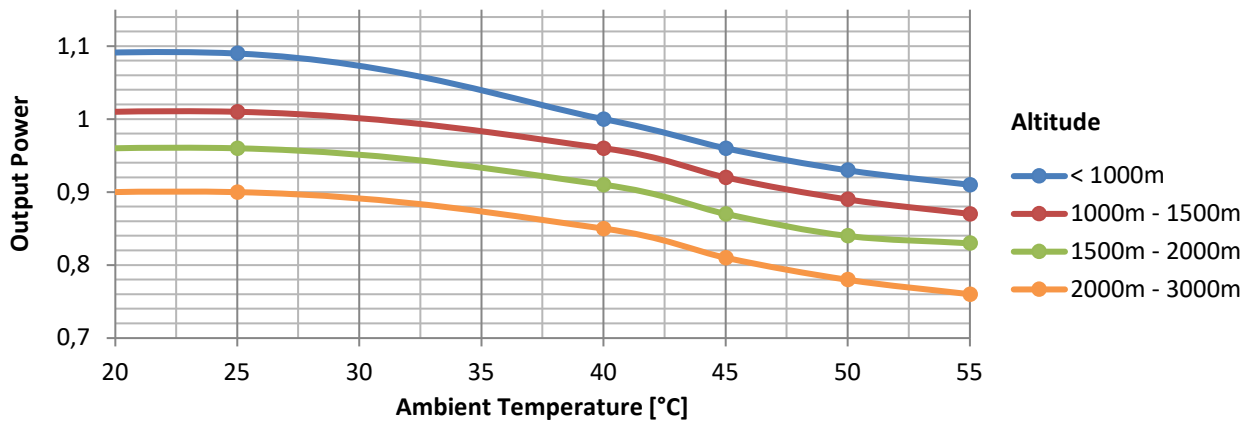
Bearing non drive end			6314-2RS-C3
Bearing drive end (B3/B14 form)			6316-2RS-C3
Weight of generator	in B2	kg	730,5
	in B3/B14	kg	741,5
	in B3/B9	kg	\

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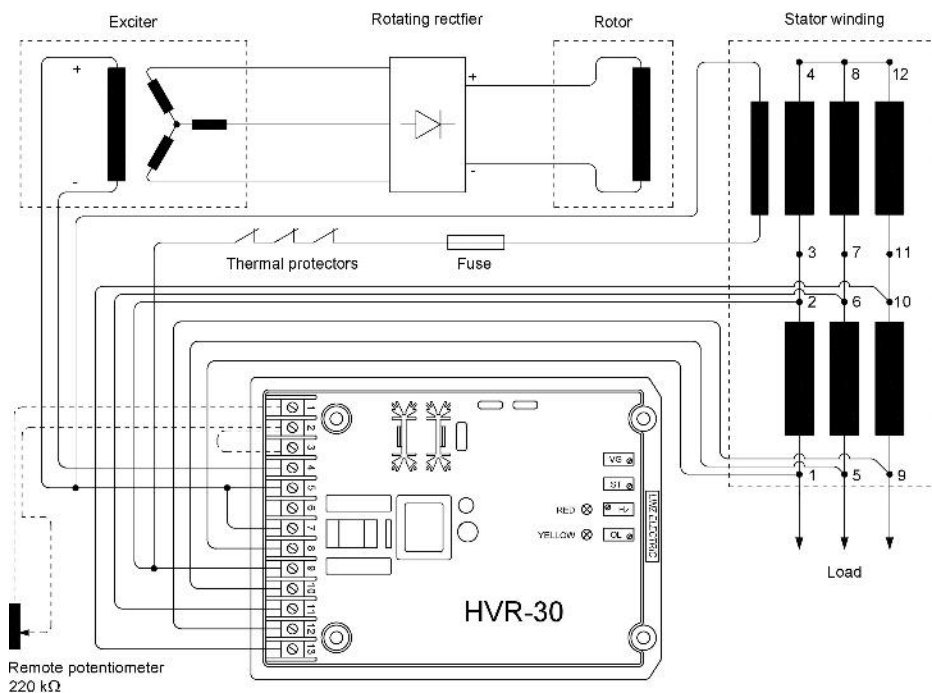
## MOMENT OF INERZIA

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>	3,252
SAE 14	kg·m <sup>2</sup>	3,368
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	3,073

## DERATING CURVES



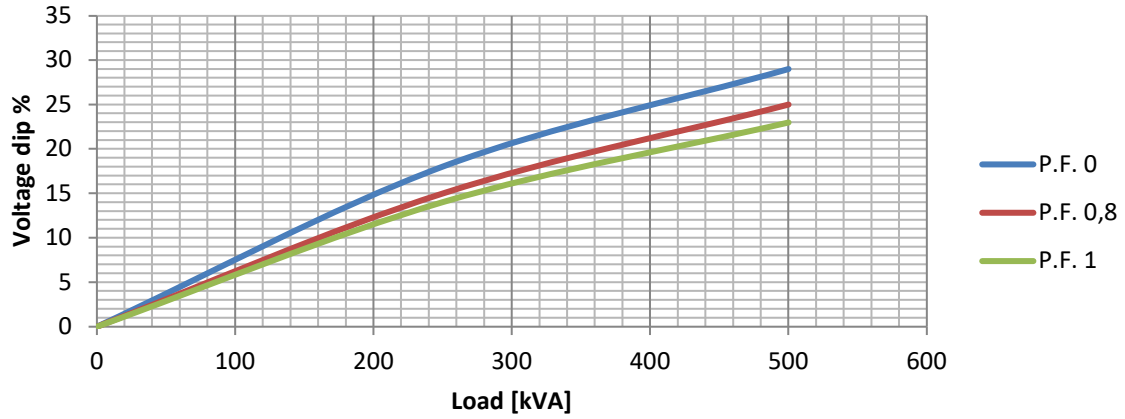
## WIRING DIAGRAM



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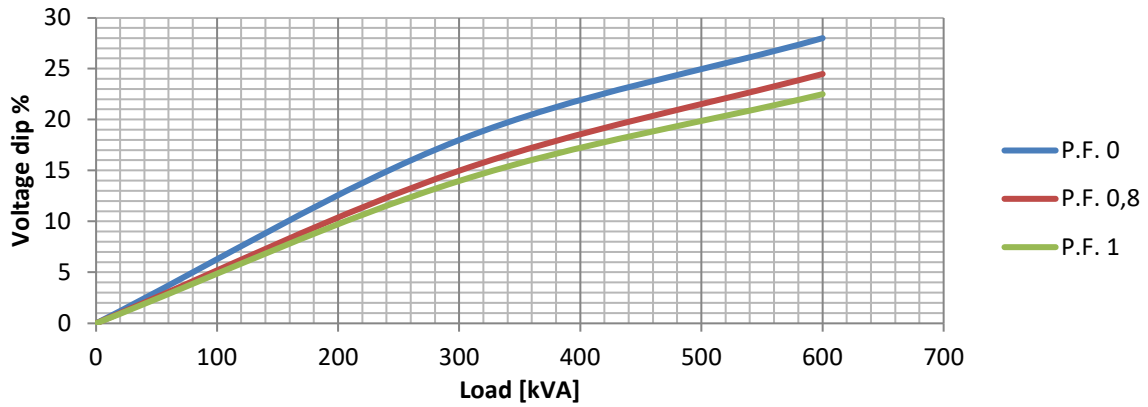
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



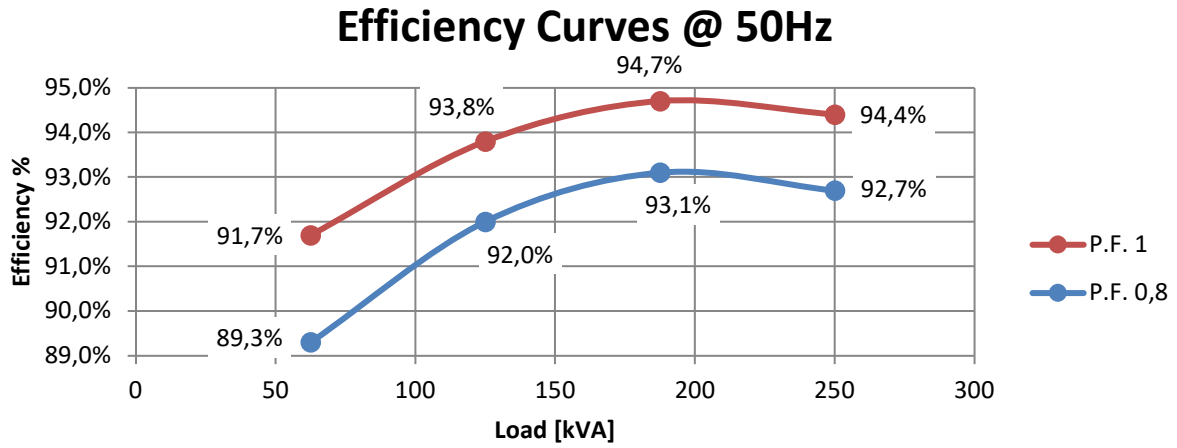
## TRANSIENT VOLTAGE VARIATION 60Hz

### Transient Voltage Variation @ 60Hz

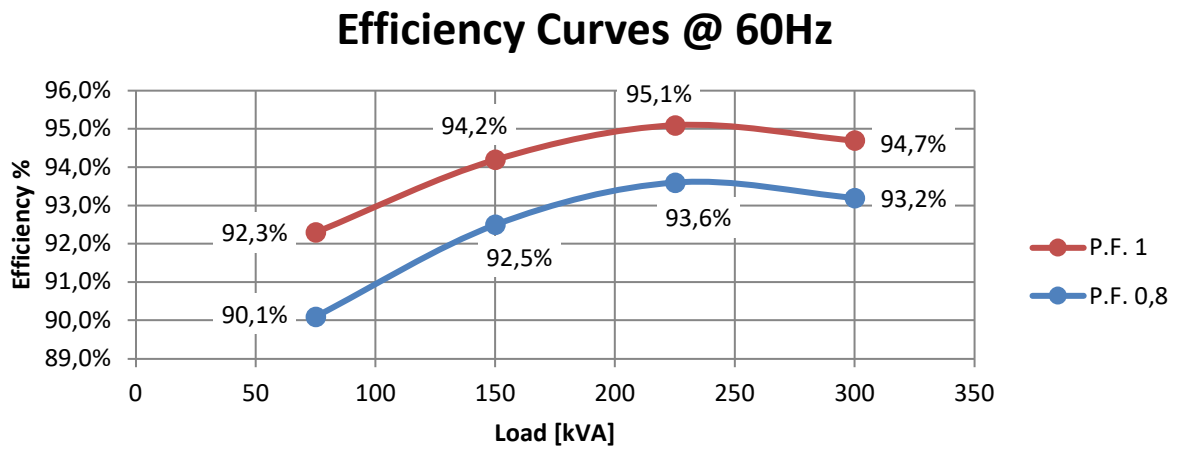


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## EFFICIENCY 50Hz

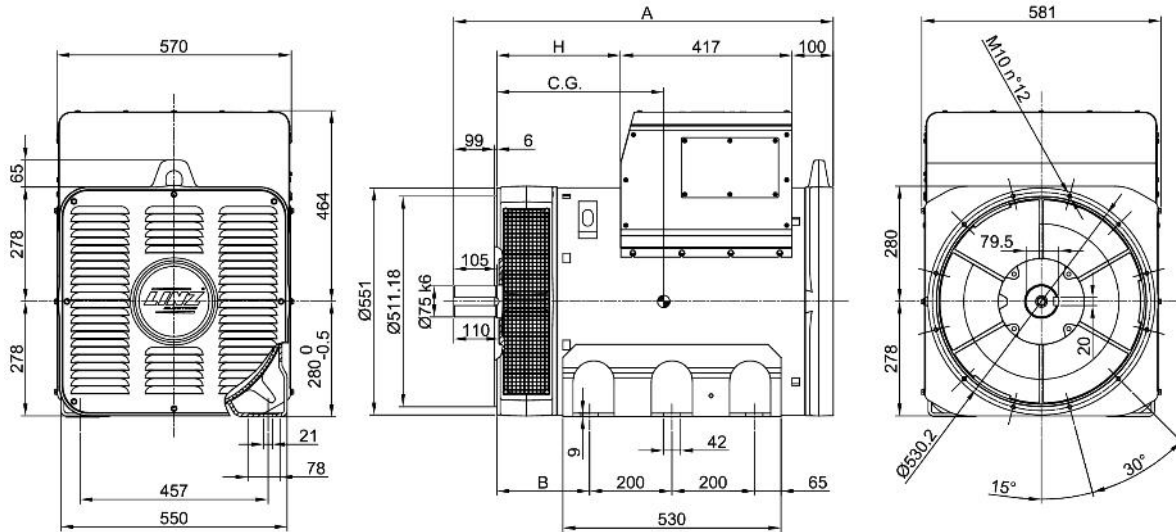


## EFFICIENCY 60Hz

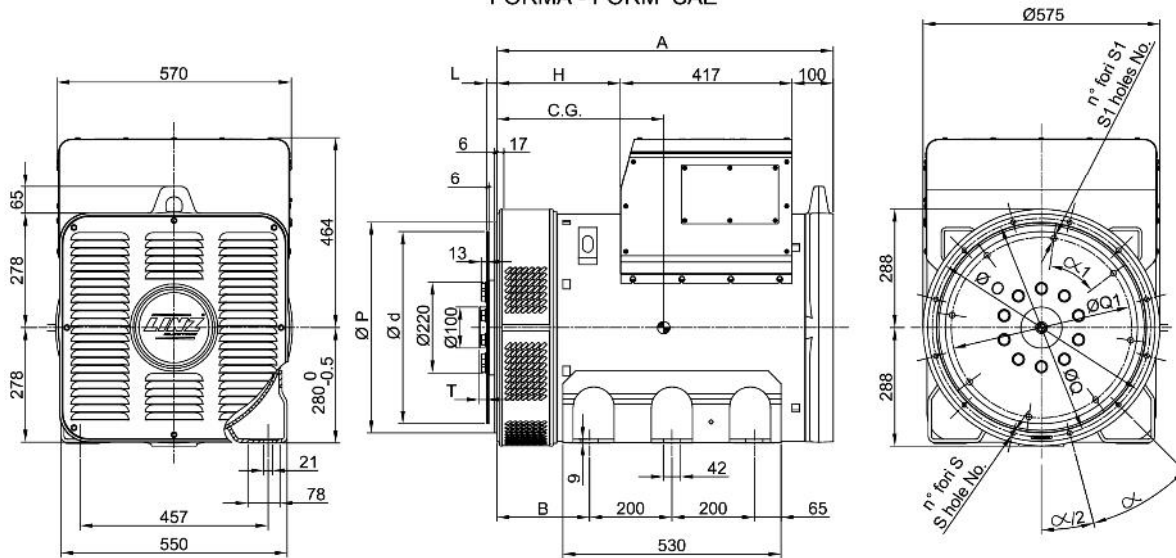


# PRO28S D/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	B	H
B3/B14	PRO 28S	922	225	300
	PRO 28M	1072		450
	PRO 28L	1137	325	515
SAE	PRO 28S	817	225	300
	PRO 28M	967		450
	PRO 28L	1032	325	515

TIPO - TYPE	C.G.
PRO28S A/4	376
PRO28S B/4	380
PRO28S C/4	394
PRO28S D/4	406
PRO28M E/4	452
PRO28M F/4	480
PRO28L G/4	513

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	451	409.6	428.6	12	12	30°
2	490	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	T
11 1/2	39.6	352.42	333.37	8	10.5	45°	0
14	25.4	466.72	438.15	8	14	45°	17.3