

TECHNICAL DATA SHEET



**ALTERNATOR PRO28S B/4**

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

## PRO28S B/4

### COMMON DATA

Rated Power at 50Hz	kVA	200
Rated Power at 60Hz	kVA	240
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	32 at 50Hz      38 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	0,011 at 20°C
Rotor Winding Resistance	Ω	1,9 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	Adc	0,63
Excitation at full load	Adc	2,4

### 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

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### 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	200	200	200	180	225	240	240	240
	kW	160	160	160	144	180	192	192	192
Rated Power in Class F (105°C/40°C)	kVA	175	175	175	160	200	210	210	210
	kW	140	140	140	128	160	168	168	168
Rated Power Standby (150°C/40°C)	kVA	215	215	215	195	245	260	260	260
	kW	172	172	172	156	196	208	208	208
Rated Power Standby (163°C/27°C)	kVA	220	220	220	200	250	265	265	265
	kW	176	176	176	160	200	212	212	212

### EFFICIENCY IN CL. H

4/4	91,7%							92,5%
3/4	92,3%							93,1%
2/4	90,8%							91,6%
1/4	88,7%							89,5%

### REACTANCES AND TIME CONSTANTS

pcc		0,34							
X <sub>d</sub> - dir. axis synchronous		431%	389%	361%	289%	488%	463%	424%	389%
X' <sub>d</sub> - dir. axis transient		23,3%	21,0%	19,5%	15,6%	26,3%	25,0%	22,9%	21,0%
X'' <sub>d</sub> - dir. axis subtransient		12,3%	11,1%	10,3%	8,3%	13,9%	13,2%	12,1%	11,1%
X <sub>q</sub> - quad. axis reactance		265%	239%	222%	178%	300%	284%	260%	239%
T' <sub>do</sub> - O.C. field time constant		1810ms							
T' <sub>d</sub> - Transient time constant		113ms							
T'' <sub>d</sub> - Sub-transient time constant		17ms							

### MECHANICAL DATA

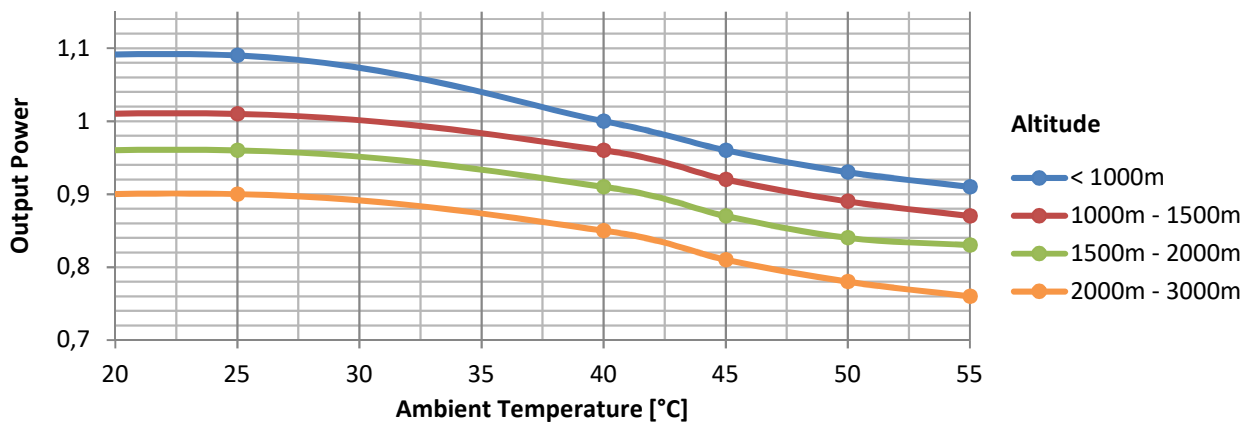
Bearing non drive end		6314-2RS-C3	
Bearing drive end (B3/B14 form)		6316-2RS-C3	
Weight of generator	in B2	kg	591
	in B3/B14	kg	602
	in B3/B9	kg	\

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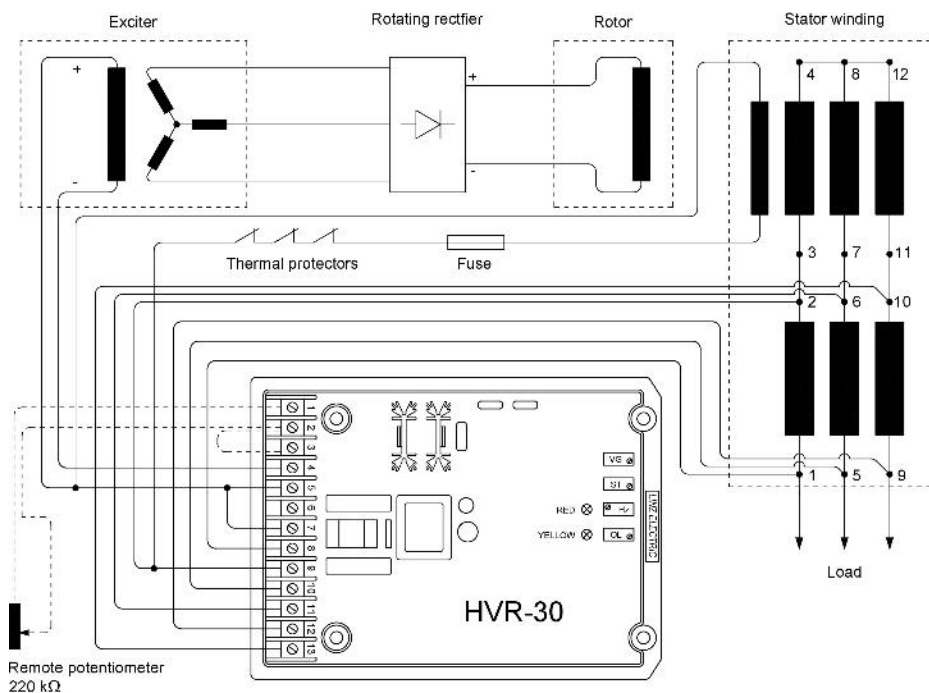
## MOMENT OF INERZIA

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>	2,445
SAE 14	kg·m <sup>2</sup>	2,56
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	2,265

## DERATING CURVES



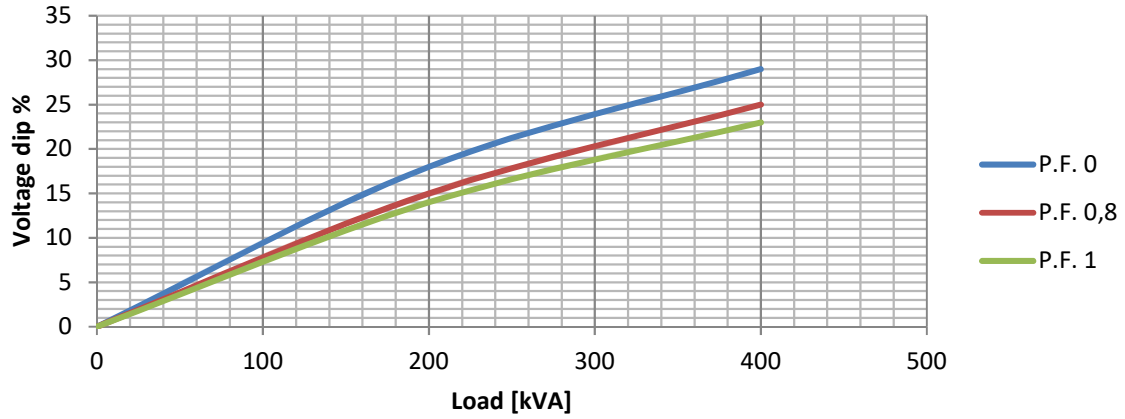
## WIRING DIAGRAM



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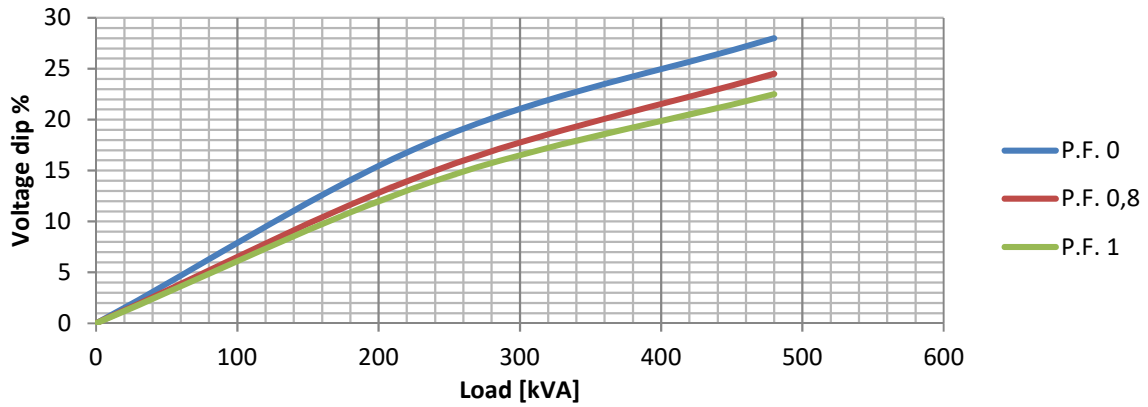
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

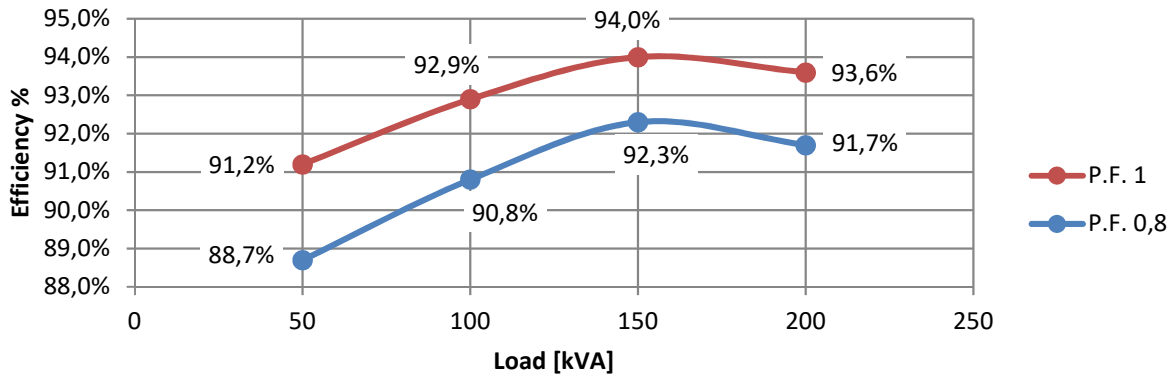
### Transient Voltage Variation @ 60Hz



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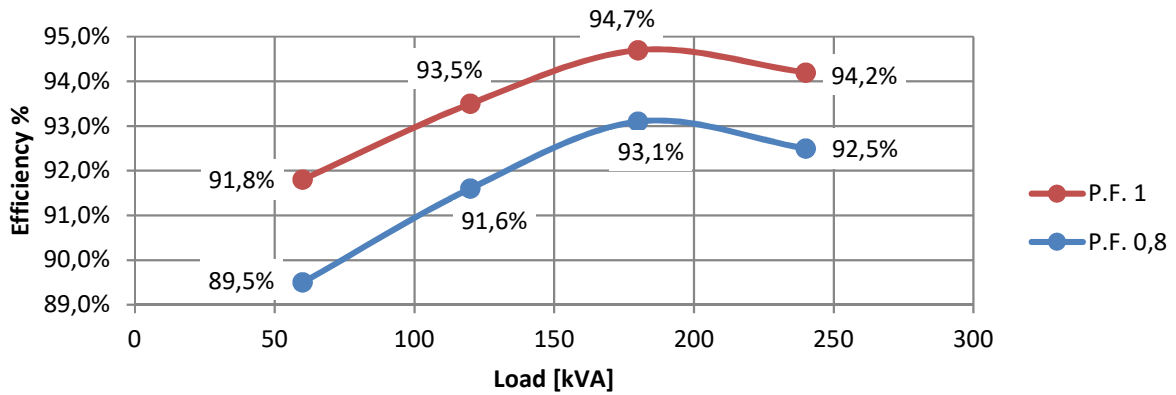
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



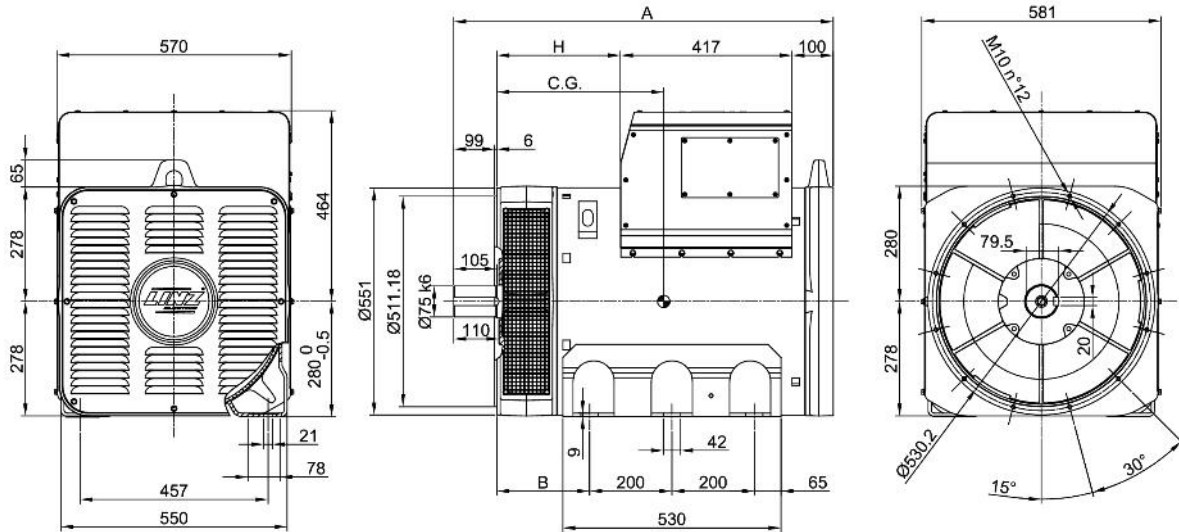
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

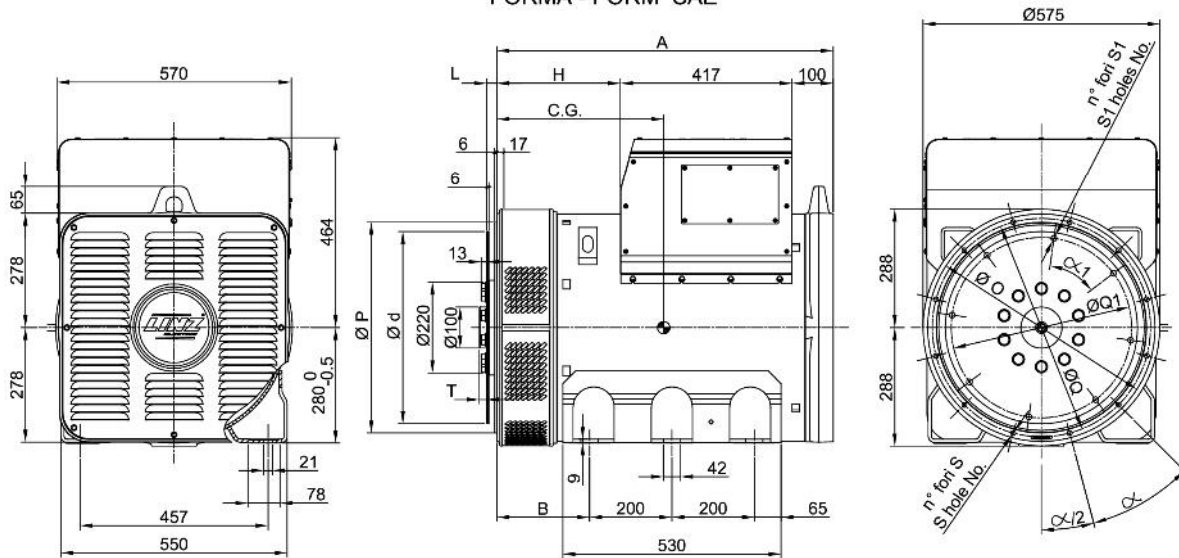


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FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	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