



## **ALTERNATOR PRO28S D/4**

*three-phase brushless synchronous alternator with AVR - 4 poles*

Technical Data Sheet

## 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 Overspeed	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	0.0069 at 20°C	
Rotor Winding Resistance	2.26 at 20°C	
Exciter Stator Resistance	15 at 20°C	
Exciter Rotor Resistance	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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### 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	250	250	250	235	290	300	300	300
	kW	200	200	200	188	232	240	240	240
Rated Power in Class F (105°C/40°C)	kVA	210	210	210	197	240	250	250	250
	kW	168	168	168	157.6	192	200	200	200
Rated Power Standby (150°C/40°C)	kVA	266	266	266	250	310	320	320	320
	kW	212.8	212.8	212.8	200	248	256	256	256
Rated Power Standby (163°C/27°C)	kVA	280	280	280	260	320	335	335	335
	kW	224	224	224	208	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%	350%
X' <sub>d</sub> - dir. axis transient		19.9%	18.0%	16.7%	14.0%	23.3%	21.4%	18.0%
X'' <sub>d</sub> - dir. axis subtransient		11.1%	10.0%	9.3%	7.8%	12.9%	11.9%	10.0%
X <sub>q</sub> - quad. axis reactance		235%	212%	197%	165%	274%	252%	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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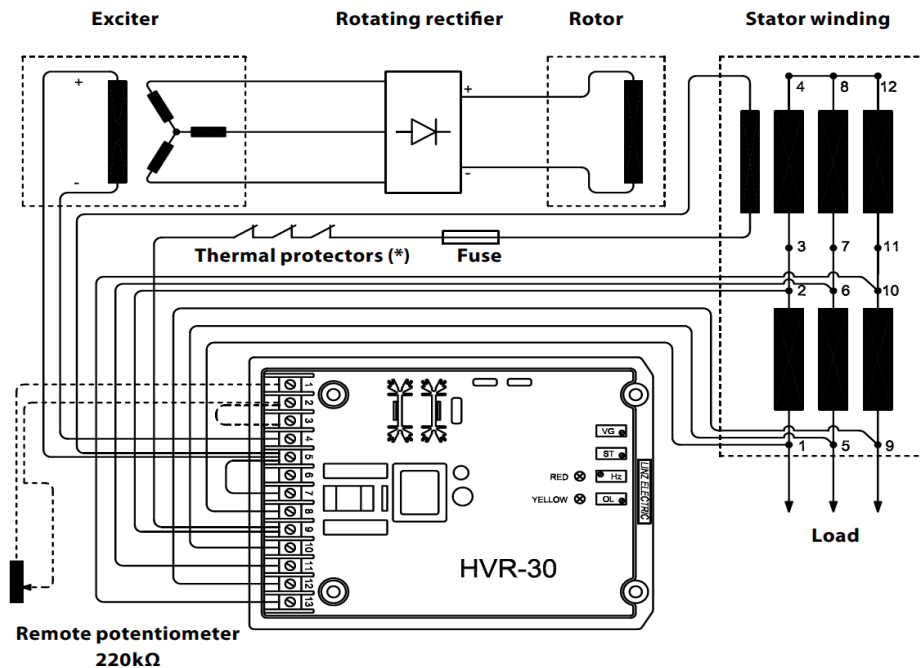
## MOMENT OF INERZIA

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

## POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

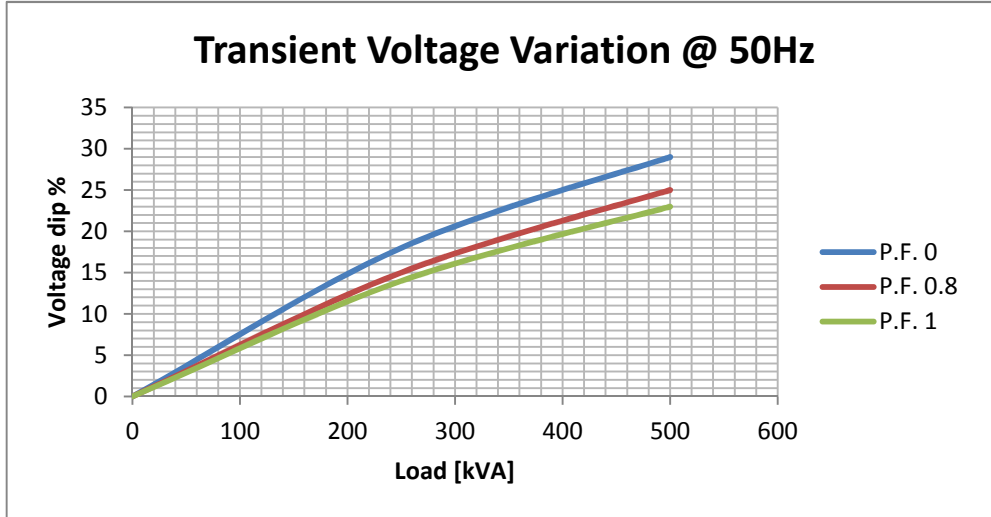
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

## WIRING DIAGRAM

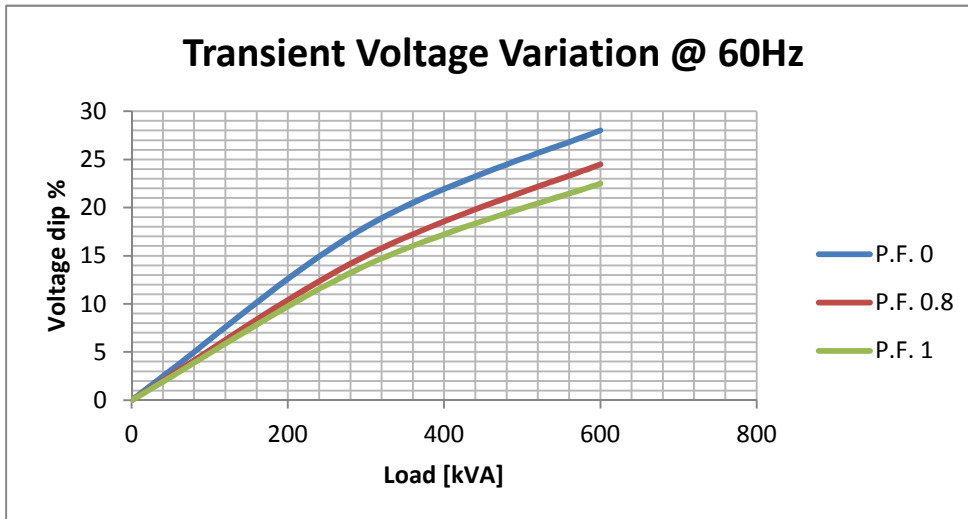


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**TRANSIENT VOLTAGE VARIATION 50Hz**

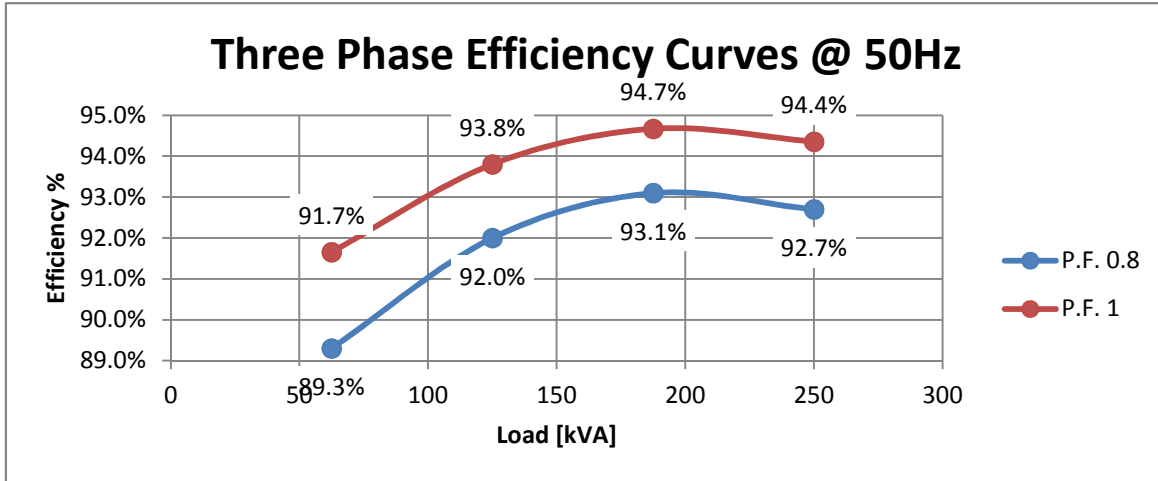


**TRANSIENT VOLTAGE VARIATION 60Hz**

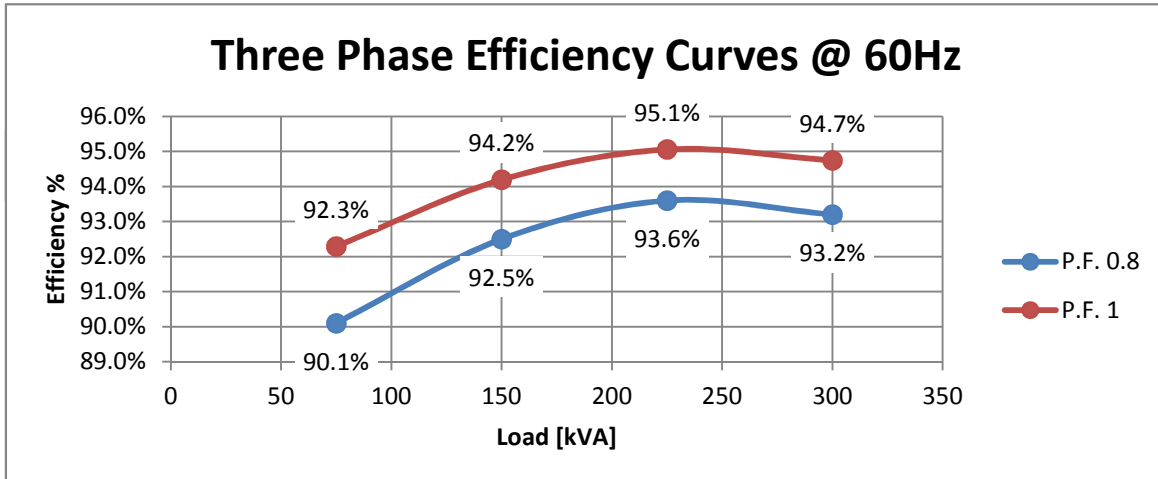


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**EFFICIENCY 50Hz**

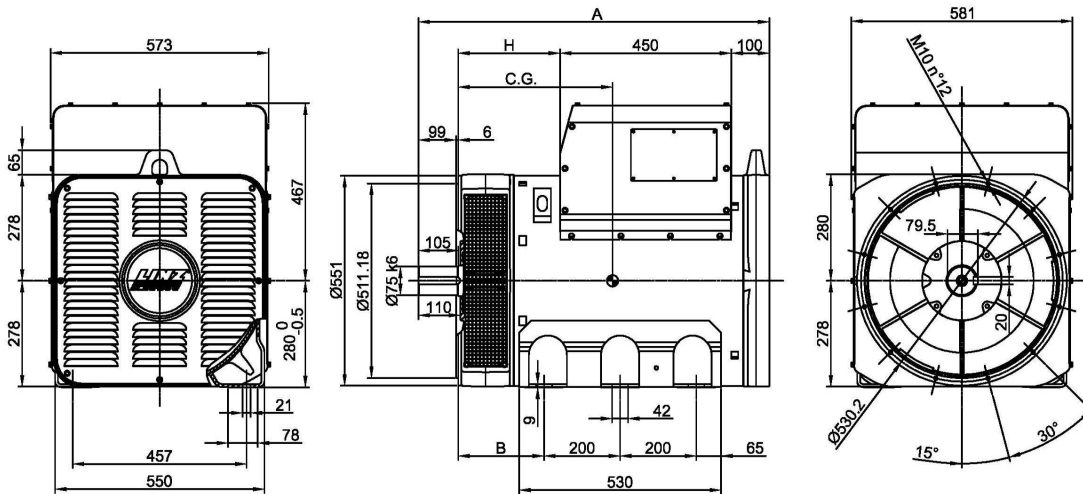


**EFFICIENCY 60Hz**

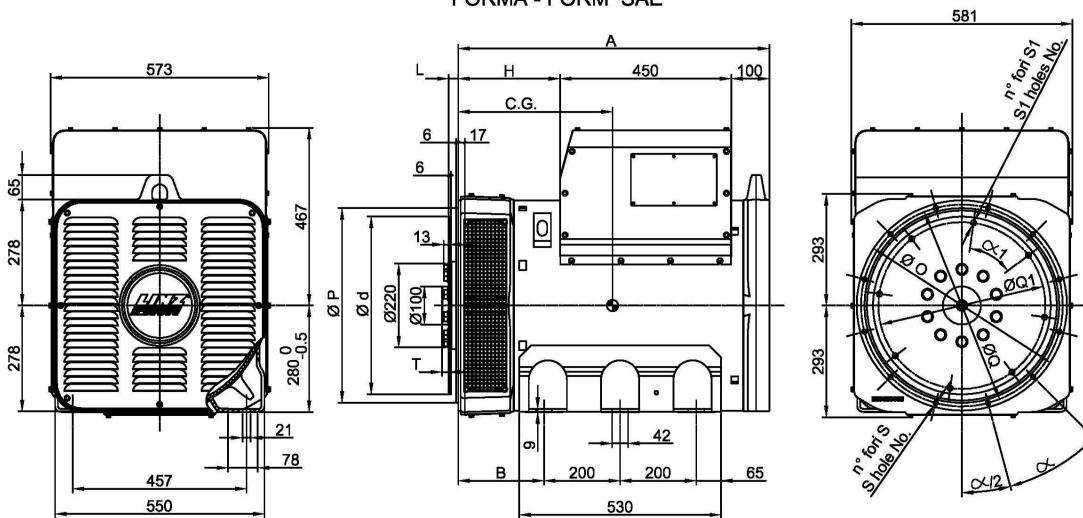


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**FORMA - FORM B3/B14**



**FORMA - FORM SAE**



FORMA - FORM	A	B	H	TIPO - TYPE	C.G.	
B3/B14	PRO 28S	922	225	267	PRO28S A/4	376
	PRO 28M	1072		417	PRO28S B/4	380
	PRO 28L	1137	325	482	PRO28S C/4	394
SAE	PRO 28S	817	225	267	PRO28S D/4	406
	PRO 28M	967		417	PRO28M E/4	452
	PRO 28L	1032	325	482	PRO28M F/4	480
				PRO28L G/4	513	

SAE N.	FLANGIE - FLANGES - BRIDAS					
	∅ O	∅ P	∅ 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	∅ d	∅ 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