



## **ALTERNATOR PRO40S B/4**

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

Technical Data Sheet

## PRO40S B/4

### COMMON DATA

Rated Power at 50Hz	kVA	1050	
Rated Power at 60Hz	kVA	1260	
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	94 at 50Hz	113 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		6*	
Stator Winding Resistance	Ω	0.00895 at 20°C	
Rotor Winding Resistance	Ω	0.687 at 20°C	
Exciter Stator Resistance	Ω	13.3 at 20°C	
Exciter Rotor Resistance	Ω	0.051 at 20°C	
THD at full load		<3%	
THD at no load		<3%	
Excitation at no load	A <sub>dc</sub>	0.71	
Excitation at full load	A <sub>dc</sub>	2.98	

### STANDARD

References		EN60034-1 ISO8528-3 EN55011	
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Note (\*): 230/400V - 460/800V 50Hz  
277/480V - 554/960V 60Hz

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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	1050	1050	1050	1010	1100	1200	1260	1260
	kW	840	840	840	808	880	960	1008	1008
Rated Power in Class F (105°C/40°C)	kVA	980	980	980	940	1020	1120	1176	1176
	kW	784	784	784	752	816	896	940.8	940.8
Rated Power Standby (150°C/40°C)	kVA	1140	1140	1140	1100	1130	1280	1370	1370
	kW	912	912	912	880	904	1024	1096	1096
Rated Power Standby (163°C/27°C)	kVA	1180	1180	1180	1110	1200	1320	1416	1416
	kW	944	944	944	888	960	1056	1132.8	1132.8

### EFFICIENCY IN CL. H

4/4		95.6%						96.3%
3/4		95.8%						96.5%
2/4		95.4%						96.1%
1/4		92.7%						93.9%

### REACTANCES AND TIME CONSTANTS

pcc		0.31							
X <sub>d</sub>	- dir. axis synchronous	325%	294%	273%	233%	343%	333%	320%	294%
X' <sub>d</sub>	- dir. axis transient	35.0%	31.6%	29.4%	25.1%	36.9%	35.8%	34.4%	31.6%
X'' <sub>d</sub>	- dir. axis subtransient	15.0%	13.5%	12.5%	10.7%	15.8%	15.3%	14.7%	13.5%
X <sub>q</sub>	- quad. axis reactance	173%	156%	145%	124%	182%	176%	170%	156%
T' <sub>do</sub>	- O.C. field time constant	1773ms							
T' <sub>d</sub>	- Transient time constant	190ms							
T'' <sub>d</sub>	- Sub-transient time constant	19ms							

### MECHANICAL DATA

Bearing non drive end				6318-DD2-C3E
Bearing drive end (B3/B14 form)				6324-C3
Weight of generator	in B2	kg	2045	
	in B3/B14	kg	2100	

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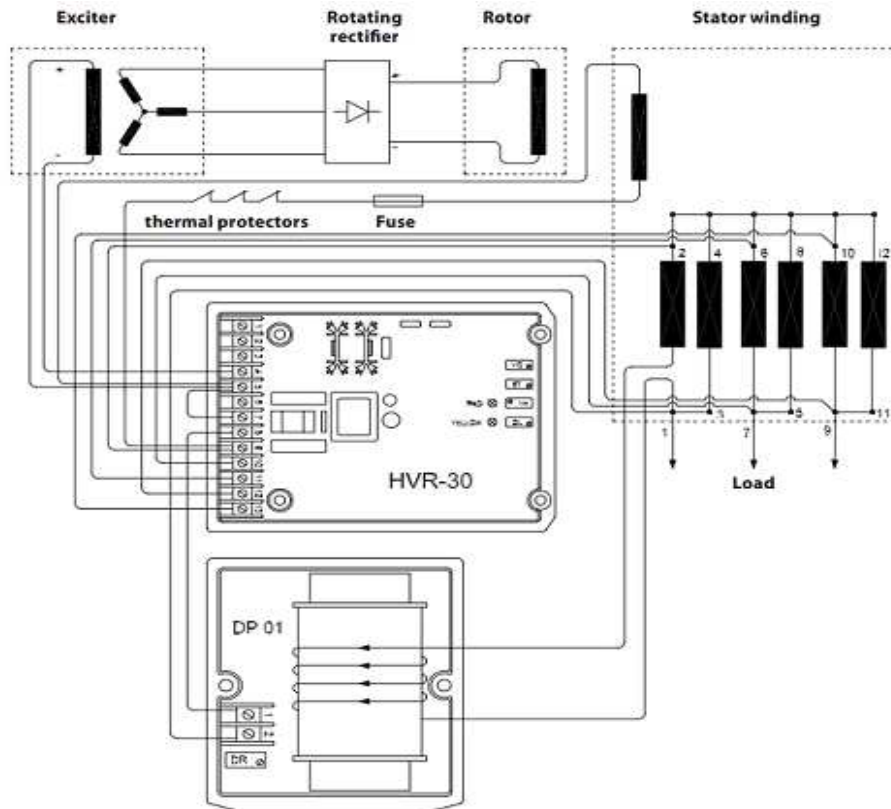
**MOMENT OF INERZIA**

SAE 14	kg·m <sup>2</sup>	18.253
SAE 18	kg·m <sup>2</sup>	18.646
SAE 21	kg·m <sup>2</sup>	19.296
B3/B14	kg·m <sup>2</sup>	17.229

**POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE**

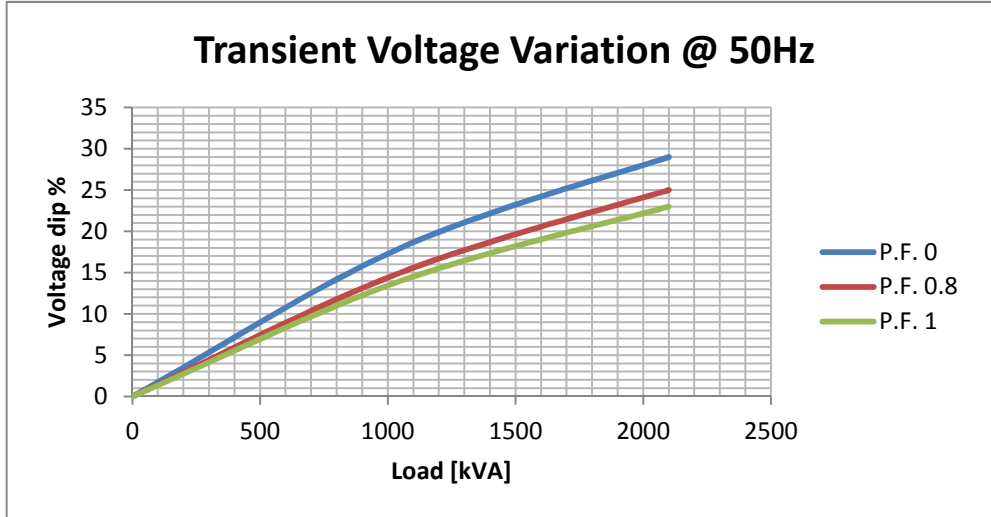
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

**WIRING DIAGRAM**

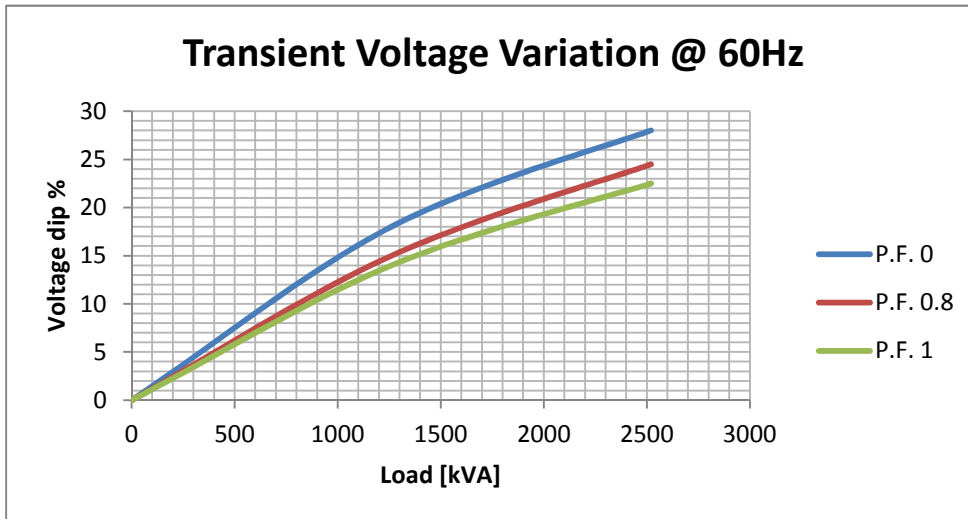


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**TRANSIENT VOLTAGE VARIATION 50Hz**

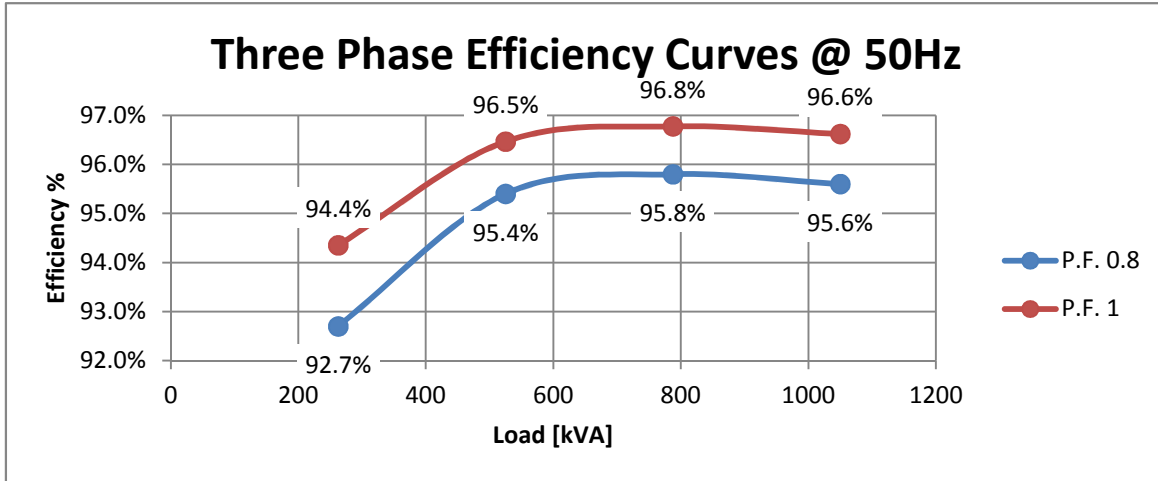


**TRANSIENT VOLTAGE VARIATION 60Hz**

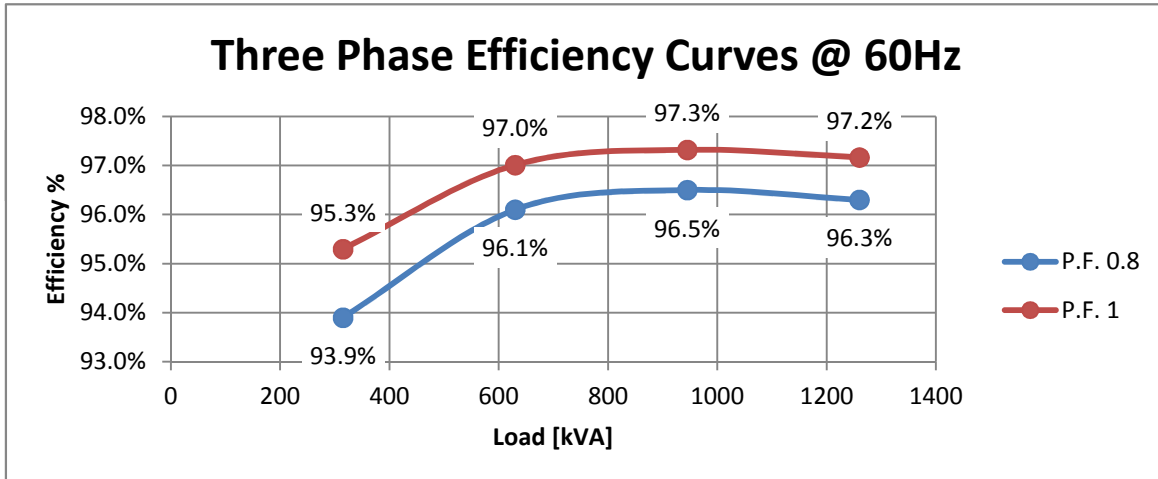


**PRO40S B/4**

**EFFICIENCY 50Hz**

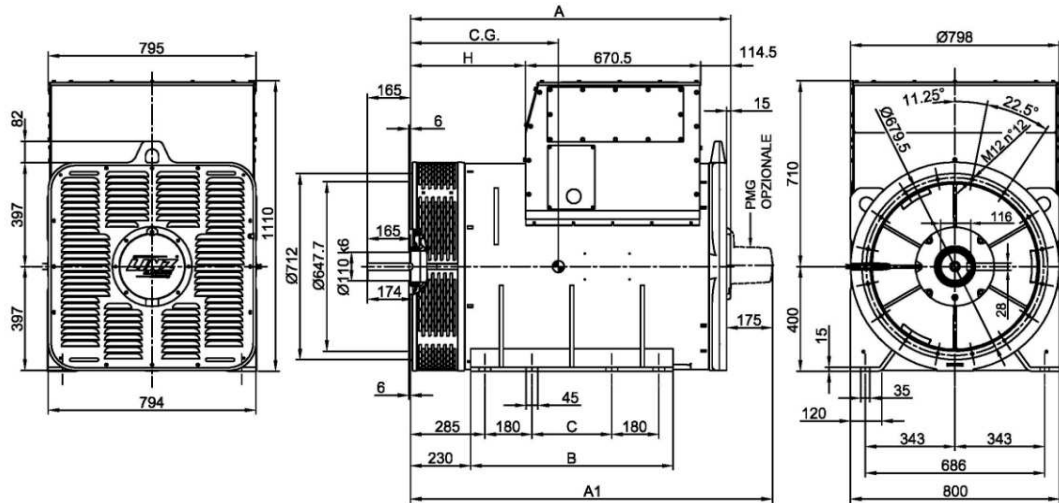


**EFFICIENCY 60Hz**

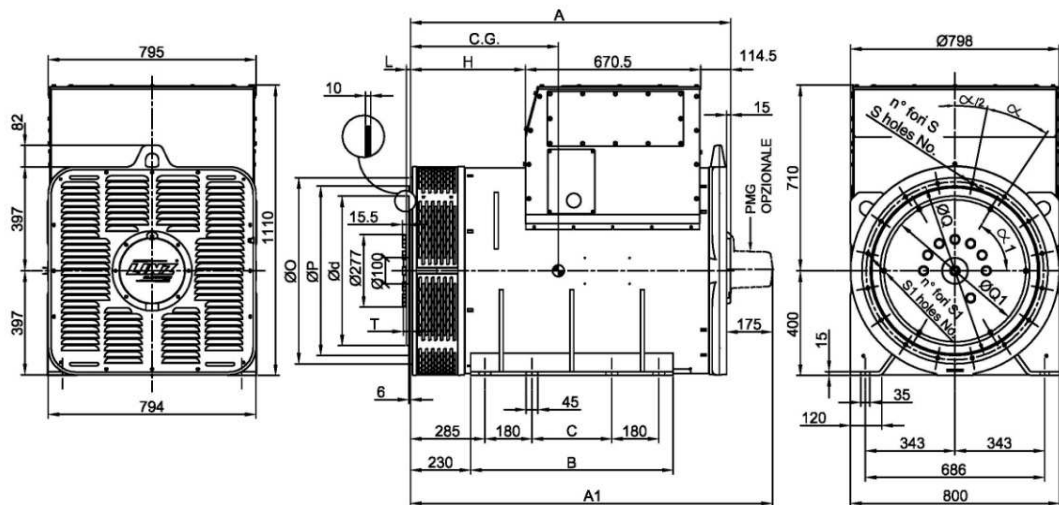


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FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	H	A1	B	C
B3/B14	PRO40 S	1225	440	1385	775	305
	PRO40 M	1420	635	1580		
	PRO40 L	1625	840	1785		
SAE	PRO40 S	1225	440	1385	775	305
	PRO40 M	1420	635	1580		
	PRO40 L	1625	840	1785		

TIPO - TYPE	C.G.
PRO40S A/4	597
PRO40S B/4	597
PRO40M C/4	648
PRO40M D/4	693
PRO40L E/4	795

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
OO	883	787.4	850.9	16	14	22.5°
O	710	647.7	679.5	16	14	22.5°

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	T
14	25.4	466.72	438.15	8	14	45°	2
18	15.7	571.5	542.92	6	17	60°	12
21	0	673.1	641.35	12	17	30°	28