

TECHNICAL DATA SHEET



**ALTERNATOR PRO40S A/4**

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

## PRO40S A/4

### COMMON DATA

Rated Power at 50Hz	kVA	930	
Rated Power at 60Hz	kVA	1116	
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	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	0,0101 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	Adc	0,71	
Excitation at full load	Adc	2,71	

Note (\*): 230/400V - 460/800V 50Hz  
277/480V - 554/960V 60Hz

### 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	930	930	930	890	1050	1100	1116	1116
	kW	744	744	744	712	840	880	892,8	892,8
Rated Power in Class F (105°C/40°C)	kVA	870	870	870	820	975	1025	1044	1044
	kW	696	696	696	656	780	820	835,2	835,2
Rated Power Standby (150°C/40°C)	kVA	1000	1000	1000	960	1090	1150	1200	1200
	kW	800	800	800	768	872	920	960	960
Rated Power Standby (163°C/27°C)	kVA	1050	1050	1050	1000	1120	1200	1260	1260
	kW	840	840	840	800	896	960	1008	1008

### EFFICIENCY IN CL. H

4/4	95,3%							96,1%
3/4	95,7%							96,4%
2/4	94,8%							95,6%
1/4	92,0%							93,2%

### REACTANCES AND TIME CONSTANTS

pcc		0,31							
X <sub>d</sub> - dir. axis synchronous		289%	261%	242%	206%	329%	306%	284%	261%
X' <sub>d</sub> - dir. axis transient		31,0%	28,0%	26,0%	22,1%	35,2%	32,8%	30,5%	28,0%
X'' <sub>d</sub> - dir. axis subtransient		13,3%	12,0%	11,1%	9,5%	15,1%	14,1%	13,1%	12,0%
X <sub>q</sub> - quad. axis reactance		153%	138%	128%	109%	174%	162%	150%	138%
T' <sub>do</sub> - O.C. field time constant		1794ms							
T' <sub>d</sub> - Transient time constant		185ms							
T'' <sub>d</sub> - Sub-transient time constant		19ms							

### MECHANICAL DATA

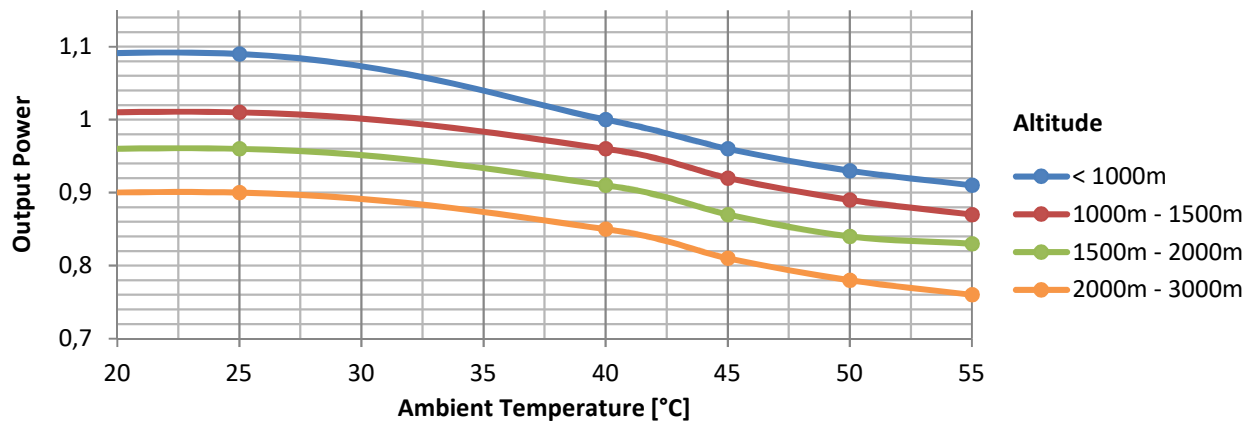
Bearing non drive end	6318-2RS1-C3		
Bearing drive end (B3/B14 form)	6324-C3		
Weight of generator in B2	kg	2029	
in B3/B14	kg	2084	

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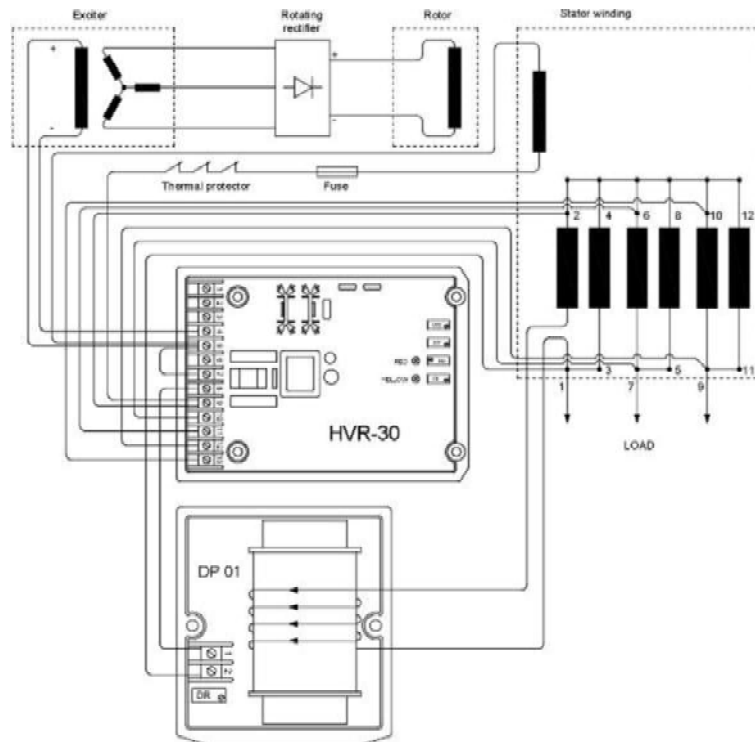
## MOMENT OF INERZIA

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

## DERATING CURVES



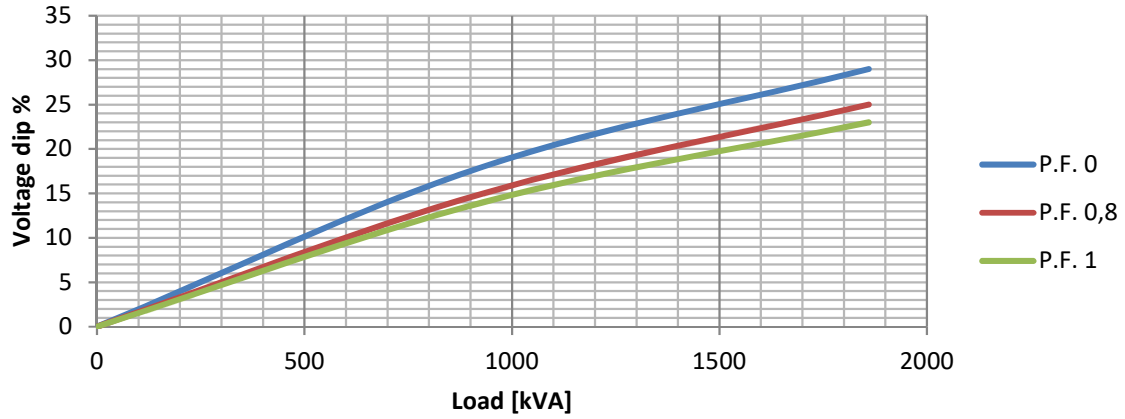
## WIRING DIAGRAM



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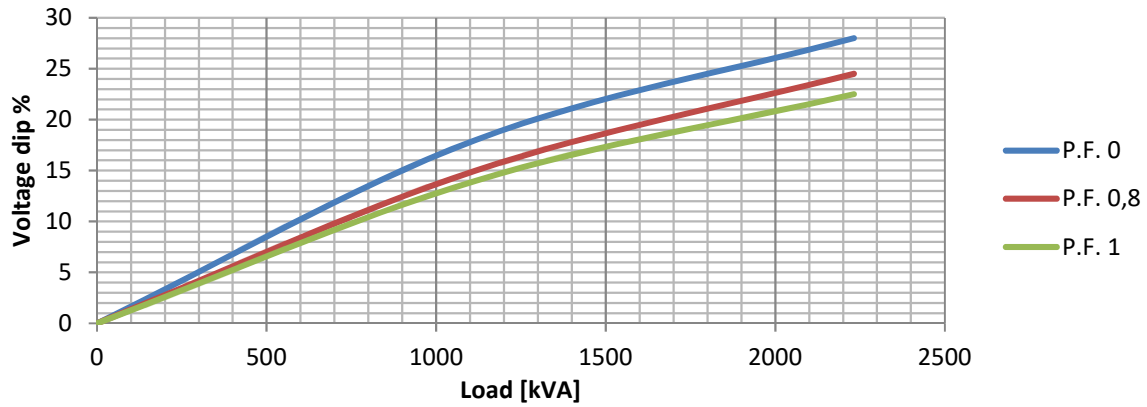
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



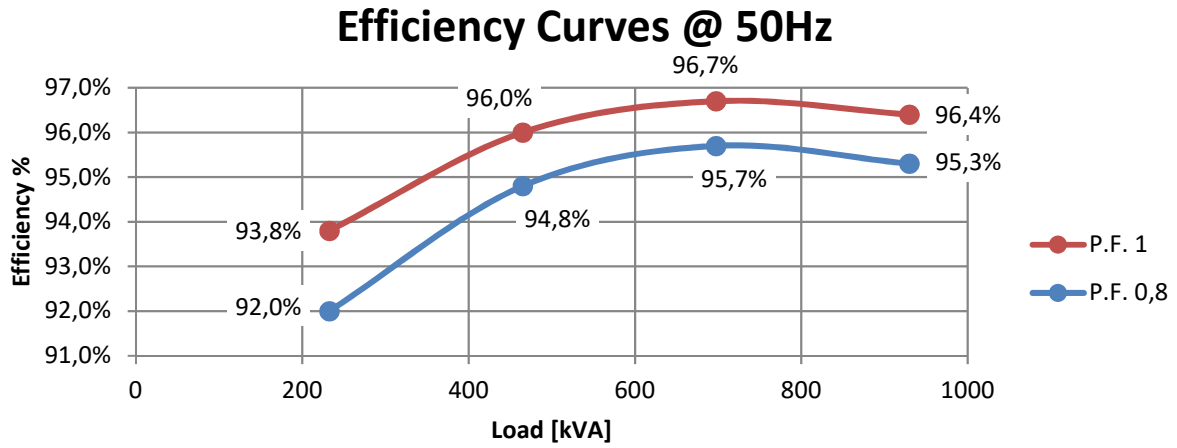
## TRANSIENT VOLTAGE VARIATION 60Hz

### Transient Voltage Variation @ 60Hz

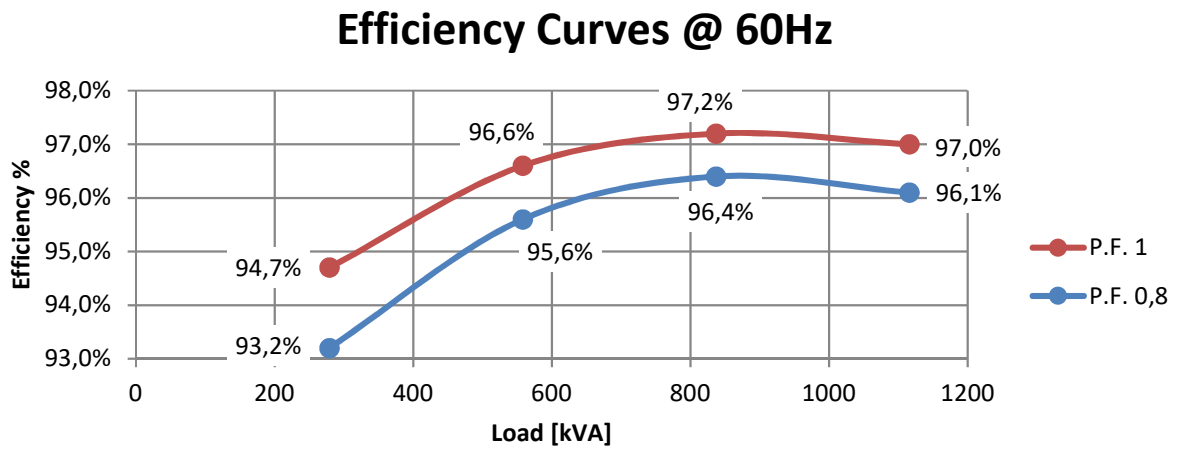


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## EFFICIENCY 50Hz

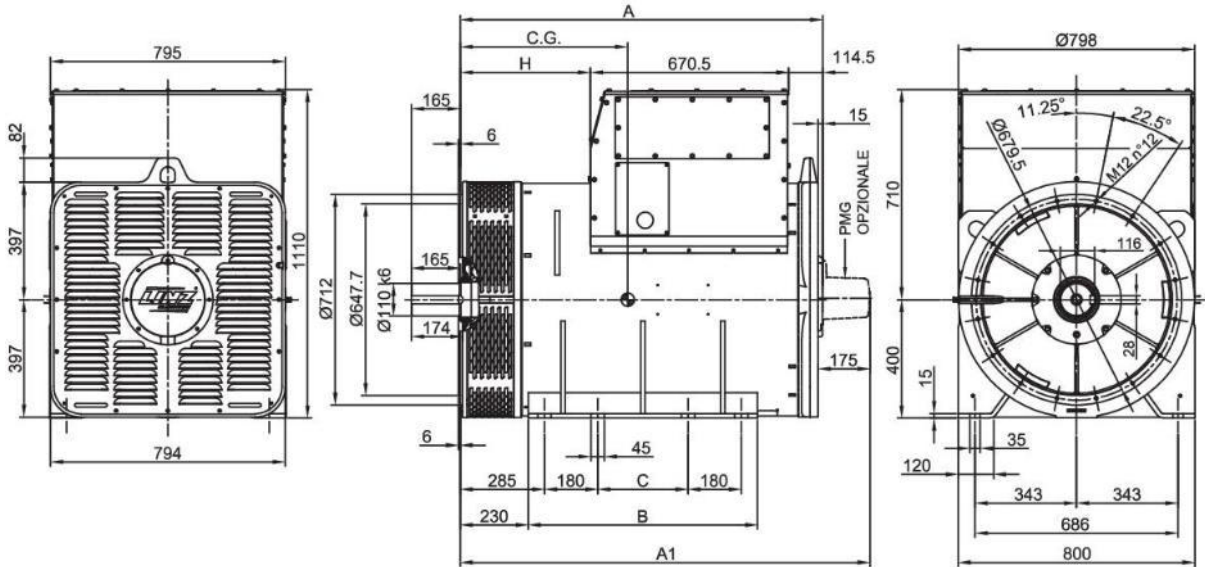


## EFFICIENCY 60Hz

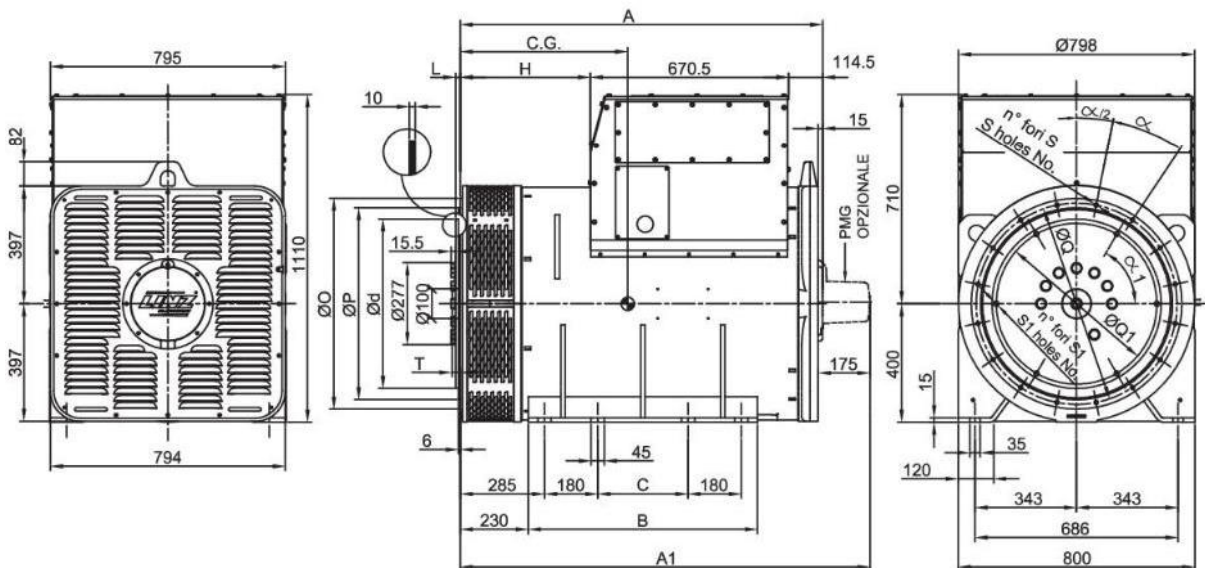


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FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM	A	H	A1	B	C	
B3/B14	PRO40 S	1225	440	1385	775	305
	PRO40 M	1420	635	1580	775	305
	PRO40 L	1625	840	1785	965	495
SAE	PRO40 S	1225	440	1385	775	305
	PRO40 M	1420	635	1580	775	305
	PRO40 L	1625	840	1785	965	495

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