

TECHNICAL DATA SHEET



ALTERNATOR PRO18S A/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18S A/4

COMMON DATA

Rated Power at 50Hz	kVA	20	
Rated Power at 60Hz	kVA	24	
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 ³ /min	5,5 at 50Hz	5,7 at 60Hz
R.F.I. Suppression		Standard EN55011	

REGULATION DATA

AVR	HVR11	HVR30
Sensing	single-phase	three-phase
Voltage Regulation	±1%	±1%
Sustained Short Circuit	> 250% 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	0,224 at 20°C	
Rotor Winding Resistance	Ω	2,43 at 20°C	
Exciter Stator Resistance	Ω	15 at 20°C	
Exciter Rotor Resistance	Ω	0,72 at 20°C	
THD at full load	<3%		
THD at no load	<3%		
Excitation at no load	A _{dc}	0,92	
Excitation at full load	A _{dc}	2,15	

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

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ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
Voltage Series Star	V	380/220	400/230	415/240	440/254	415/240	440/254	460/266	480/277
Rated Power in Class H (125°C/40°C)	kVA	20	20	20	18	21	23	24	24
	kW	16	16	16	14,4	16,8	18,4	19,2	19,2
Rated Power in Class F (105°C/40°C)	kVA	18,5	18,5	18,5	17	20	21	22	22
	kW	14,8	14,8	14,8	13,6	16	16,8	17,6	17,6
Rated Power Standby (150°C/40°C)	kVA	22	22	21,5	20	24	25	26	26
	kW	17,6	17,6	17,2	16	19,2	20	20,8	20,8
Rated Power Standby (163°C/27°C)	kVA	23	23	22,5	21	25	26	27	27
	kW	18,4	18,4	18	16,8	20	20,8	21,6	21,6

EFFICIENCY IN CL. H

4/4		86,1%						87,8%
3/4		86,3%						88,1%
2/4		84,5%						86,3%
1/4		82,0%						83,8%

REACTANCES AND TIME CONSTANTS

pcc		0,57							
X _d - dir. axis synchronous		268%	242%	225%	180%	283%	276%	264%	242%
X' _d - dir. axis transient		21,1%	19,0%	17,7%	14,1%	22,2%	21,7%	20,7%	19,0%
X'' _d - dir. axis subtransient		10,0%	9,0%	8,4%	6,7%	10,5%	10,3%	9,8%	9,0%
X _q - quad. axis reactance		147%	133%	124%	99%	156%	152%	145%	133%
T' _{do} - O.C. field time constant		103ms							
T' _d - Transient time constant		7ms							
T'' _d - Sub-transient time constant		5ms							

MECHANICAL DATA

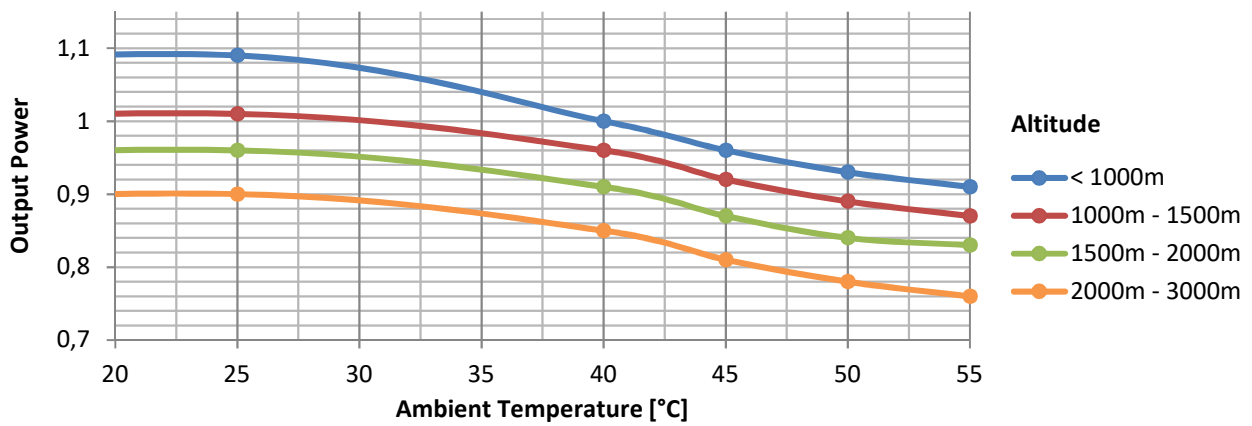
Bearing non drive end		6307-2RS-C3	
Bearing drive end (B3/B14 form)		6309-2RS-C3	
Weight of generator	in B2	kg	121
	in B3/B14	kg	123
	in B3/B9	kg	\

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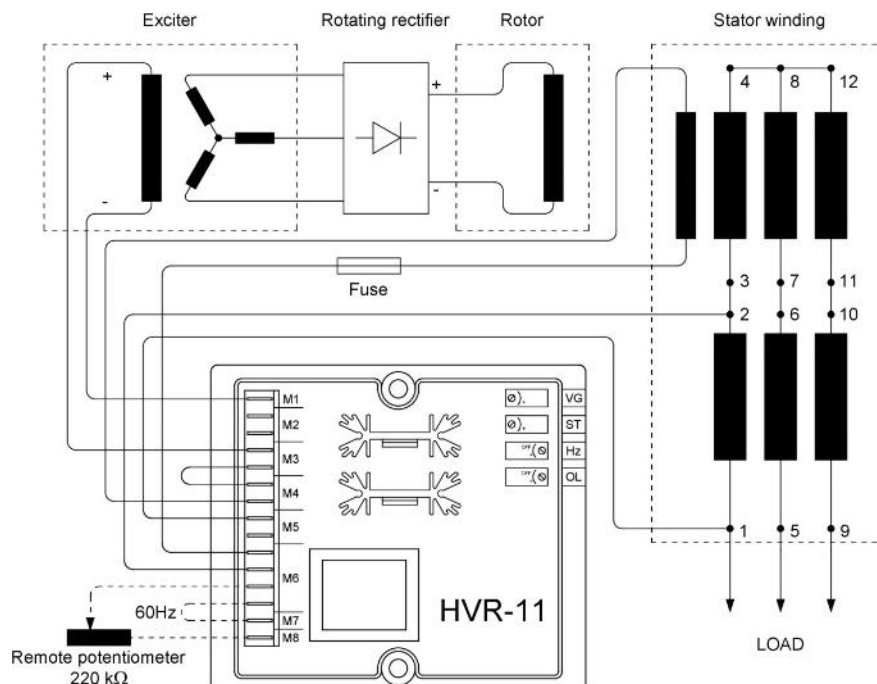
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,212
SAE 8	kg·m ²	0,221
SAE 10	kg·m ²	0,238
SAE 11½	kg·m ²	0,257
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,197

DERATING CURVES



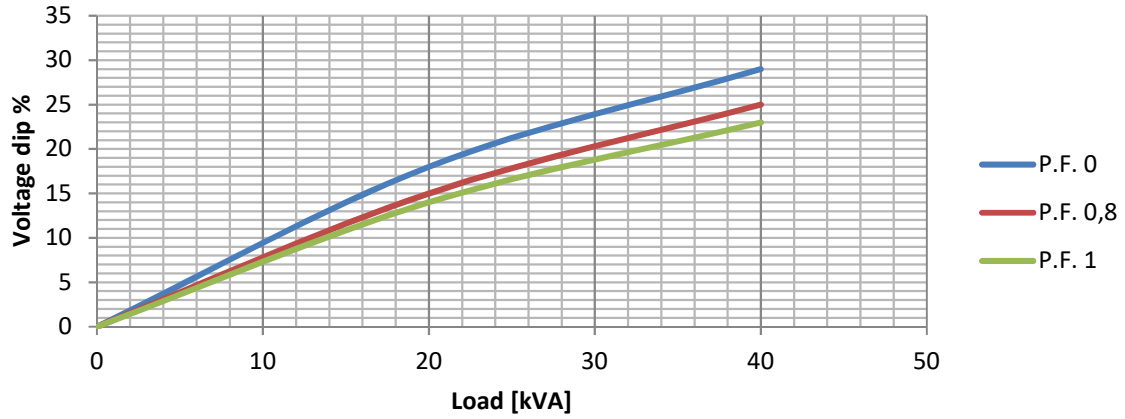
WIRING DIAGRAM



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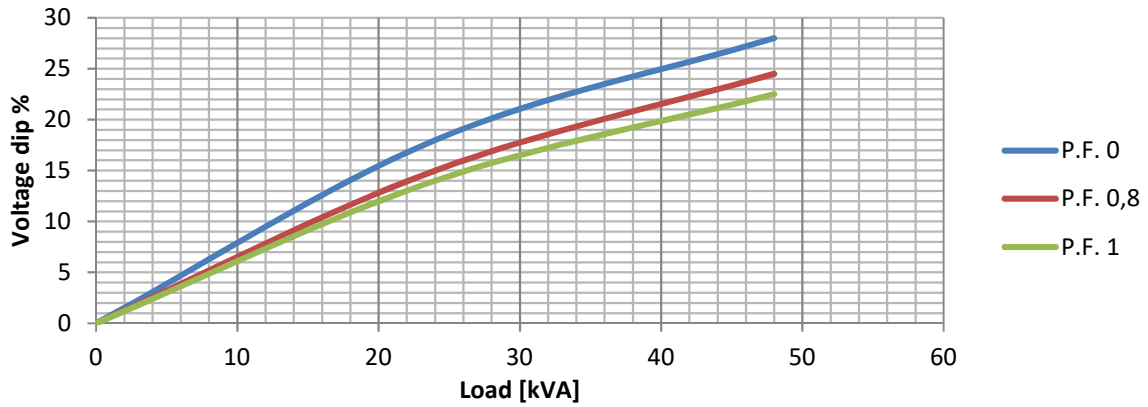
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

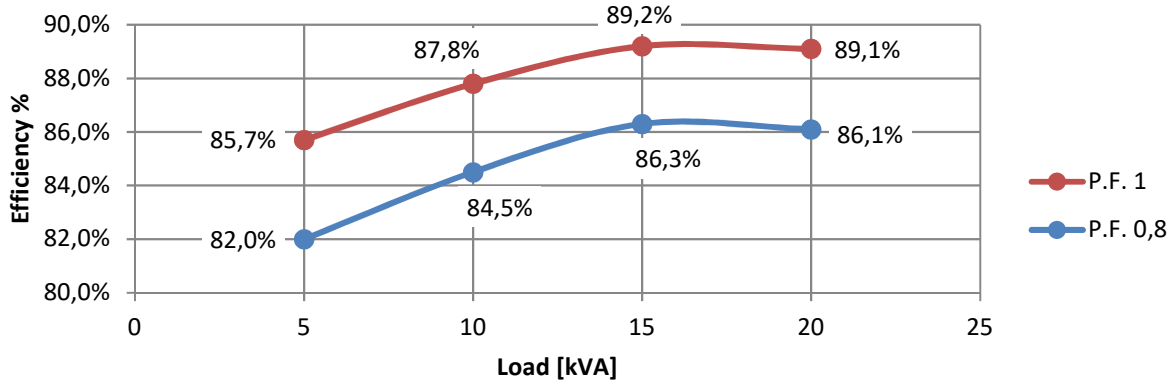
Transient Voltage Variation @ 60Hz



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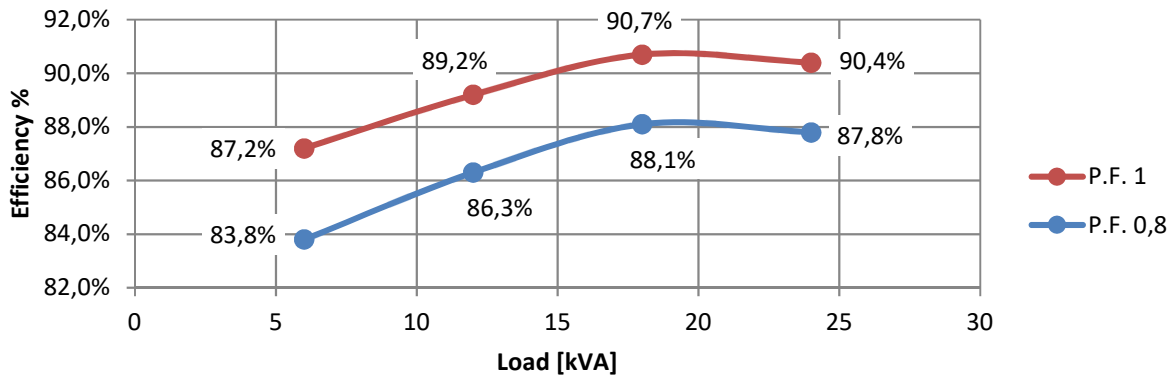
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



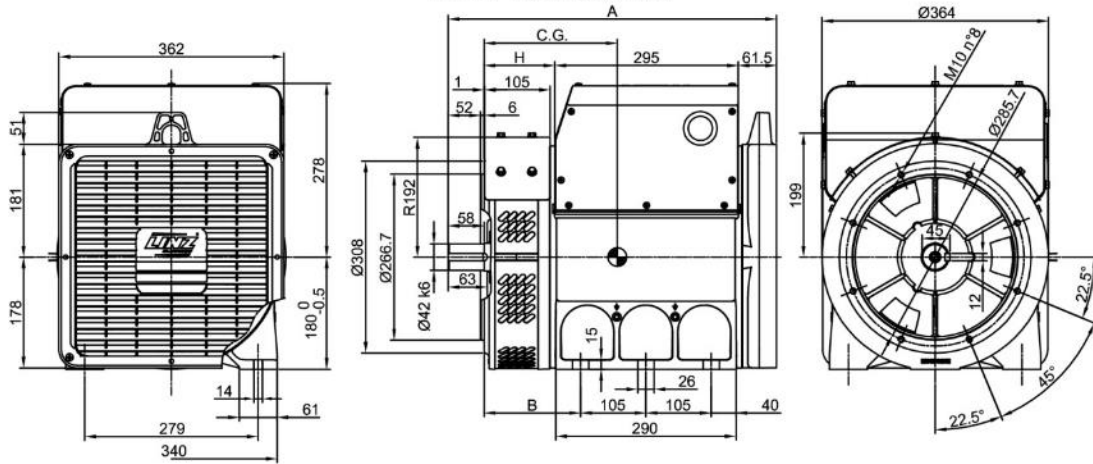
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz

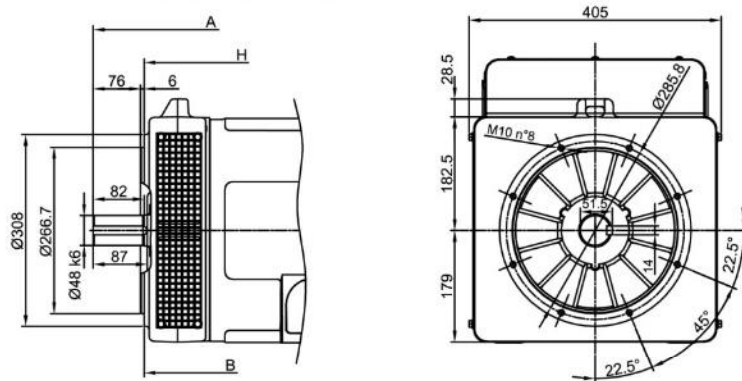


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FORMA - FORM B3/B14 'S-M'



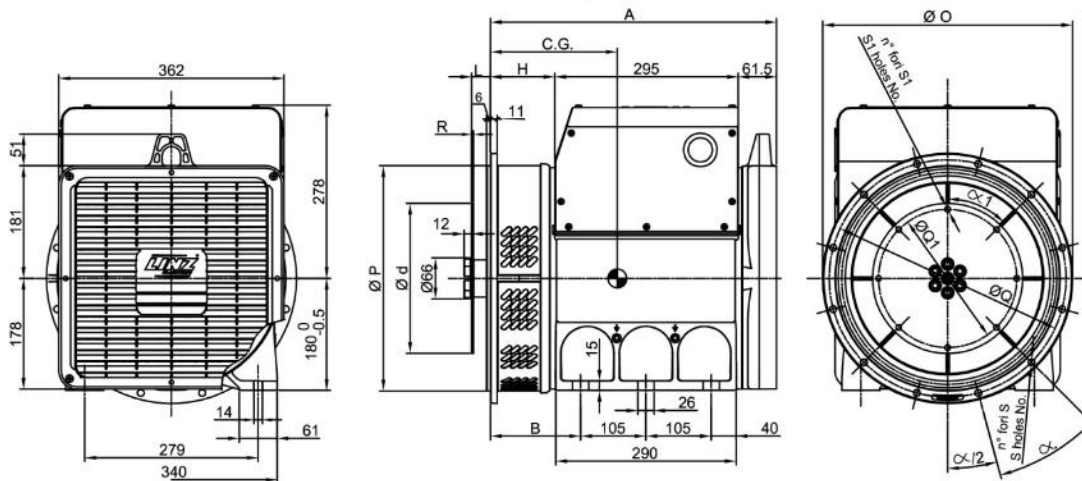
FORMA - FORM B3/B14 'L'



TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313

FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		30°
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2	62	241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				