

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	Adc	0,92
Excitation at full load	Adc	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	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	13	20	20	20	18	15,6	21	23	24	24
	kW	10,4	16	16	16	14,4	12,5	16,8	18,4	19,2	19,2
Rated Power in Class F (105°C/40°C)	kVA	12	18,5	18,5	18,5	17	14,5	20	21	22	22
	kW	9,6	14,8	14,8	14,8	13,6	11,6	16	16,8	17,6	17,6
Rated Power Standby (150°C/40°C)	kVA	14,5	22	22	21,5	20	17	24	25	26	26
	kW	11,6	17,6	17,6	17,2	16	13,6	19,2	20	20,8	20,8
Rated Power Standby (163°C/27°C)	kVA	15	23	23	22,5	21	17,5	25	26	27	27
	kW	12	18,4	18,4	18	16,8	14	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

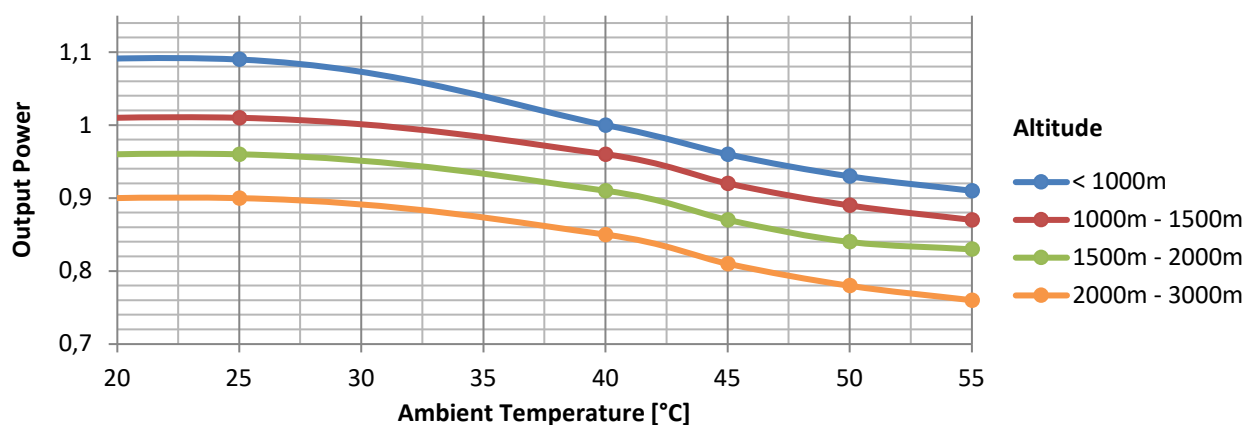
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	121
	in B3/B14	kg	123
	in B3/B9	kg	\

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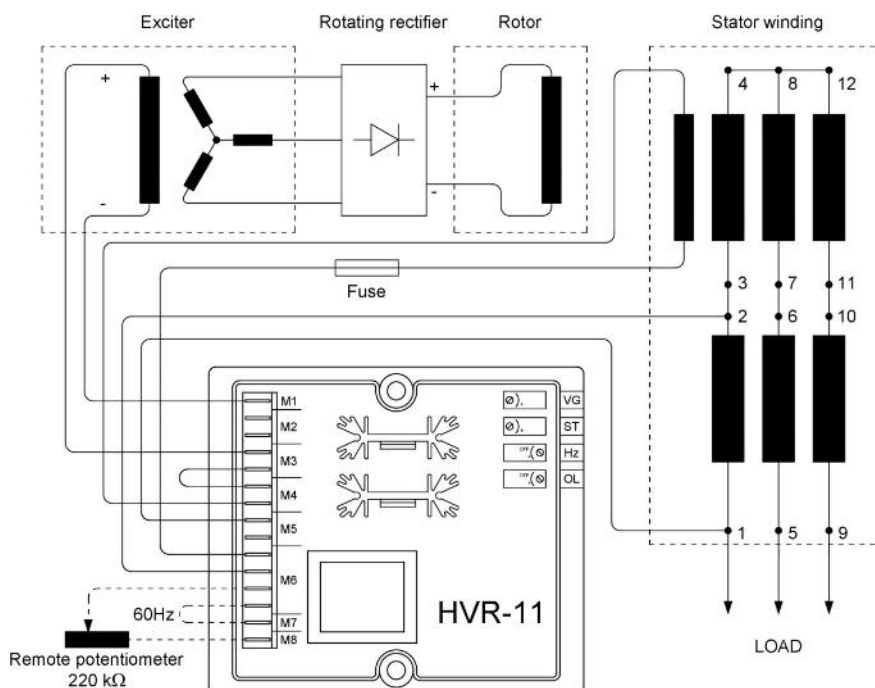
MOMENT OF INERZIA

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



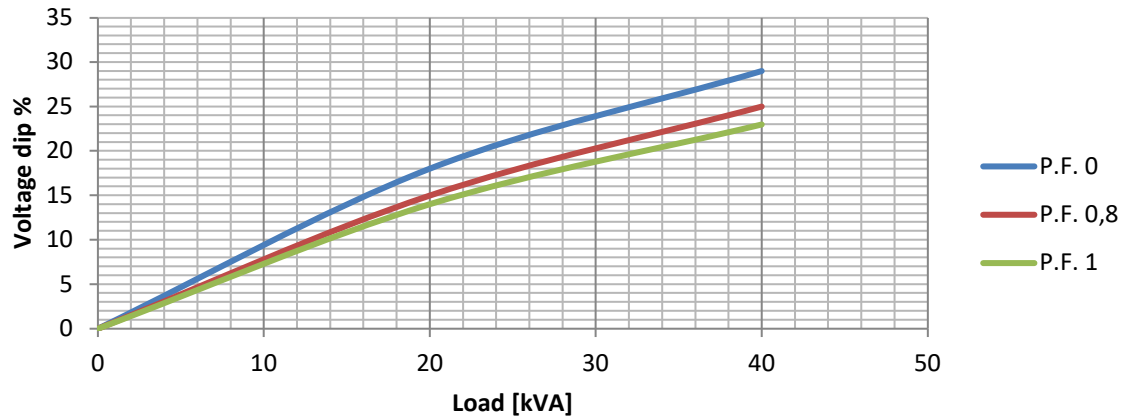
WIRING DIAGRAM



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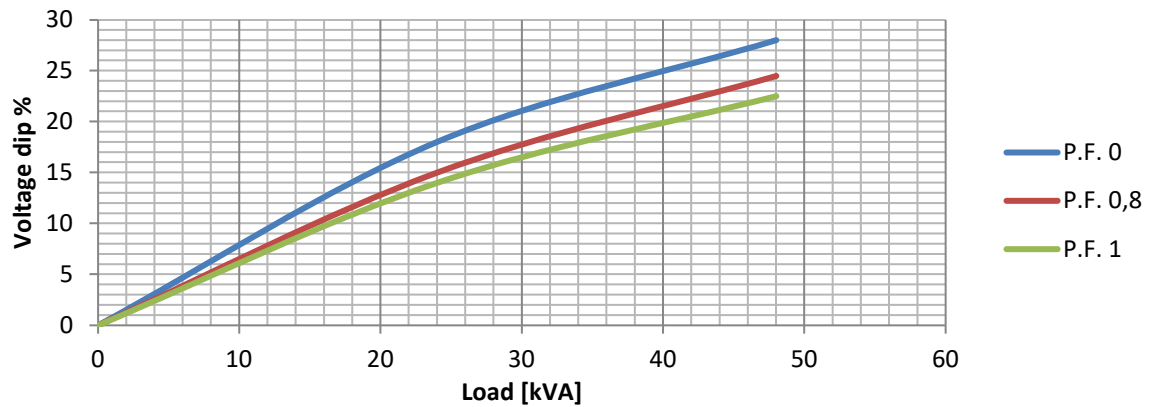
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

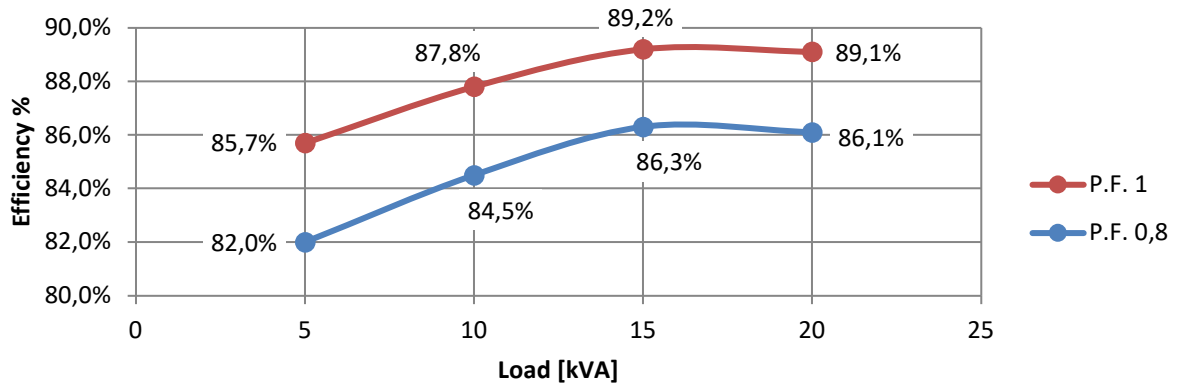
Transient Voltage Variation @ 60Hz



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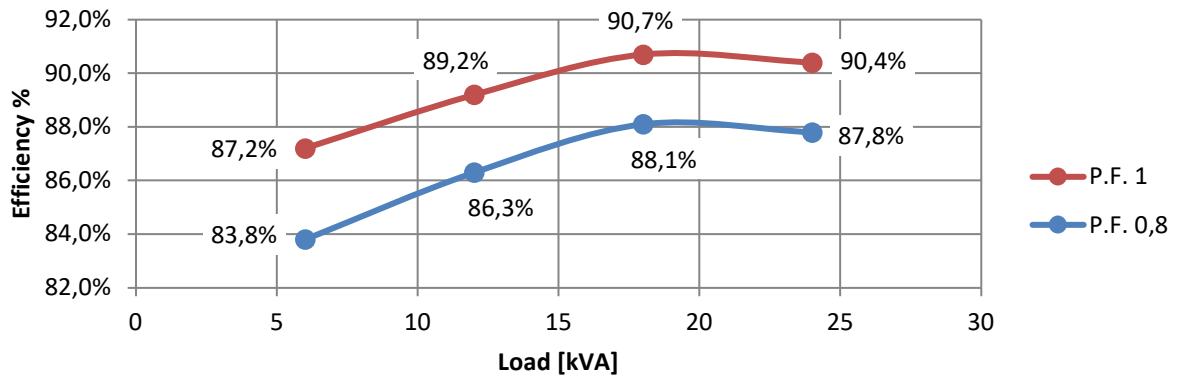
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



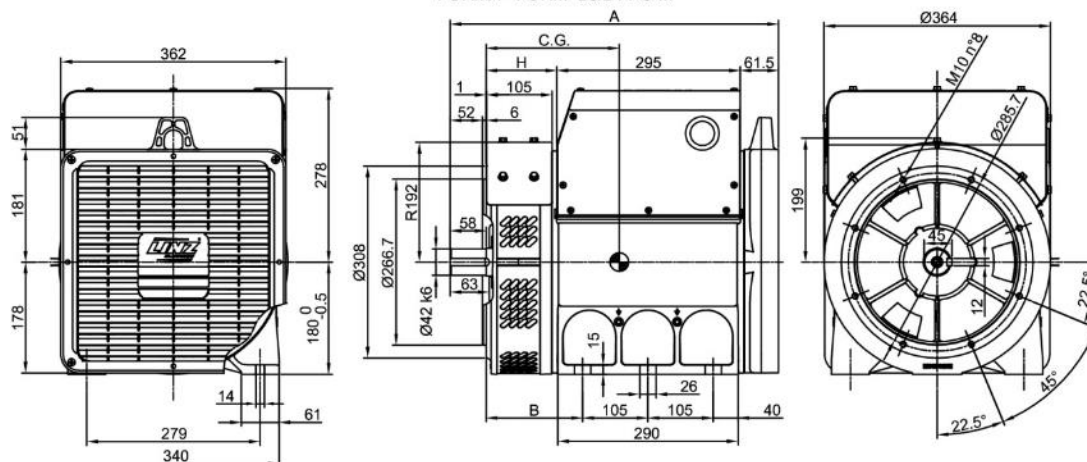
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



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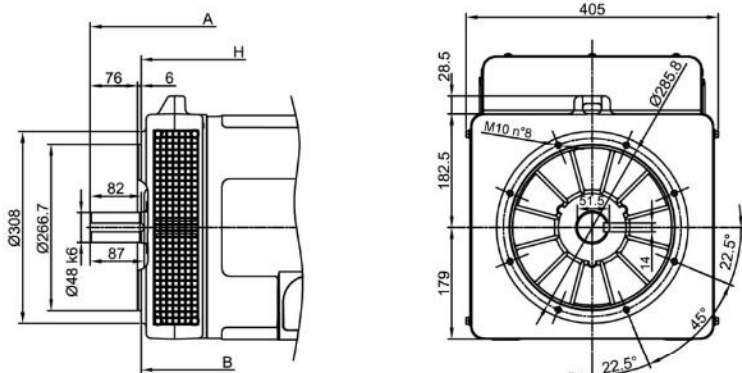
FORMA - FORM B3/B14 'S-M'



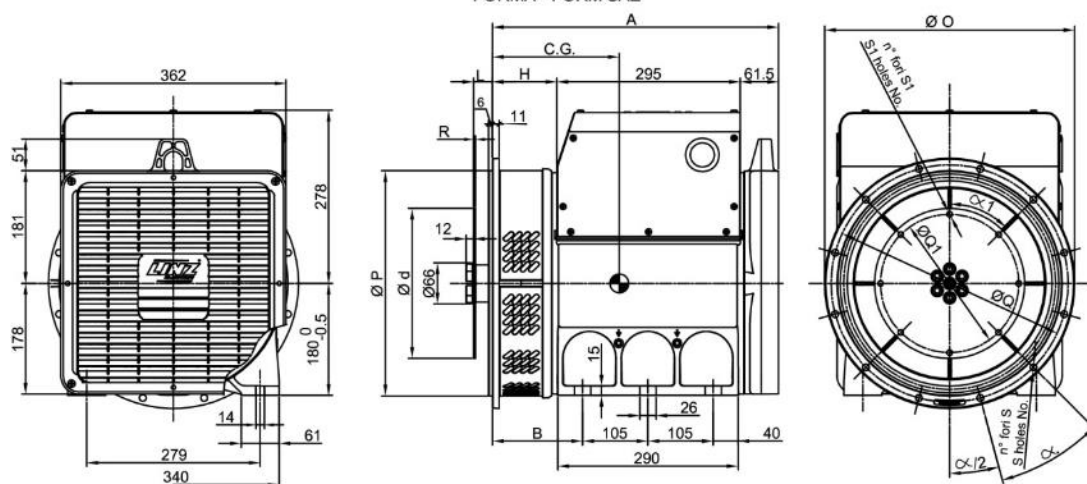
FORMA - FORM B3/B14 'L'

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		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	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	53,8	263,52	244,47	6		60°	
10	39,6	314,32	295,27	8		45°	
11 1/2	39,6	352,42	333,37	8	10,5	45°	4,5