

TECHNICAL DATA SHEET



**ALTERNATOR PRO18L F/4**

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

## PRO18L F/4

### COMMON DATA

Rated Power at 50Hz	kVA	50
Rated Power at 60Hz	kVA	60
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	10 at 50Hz      11,5 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	0,05 at 20°C
Rotor Winding Resistance	Ω	4,53 at 20°C
Exciter Stator Resistance	Ω	13 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 <sub>dc</sub>	0,91
Excitation at full load	A <sub>dc</sub>	2,25

### 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	33	50	50	48	42	39	56	57	58	60
	kW	26,4	40	40	38,4	33,6	31,2	44,8	45,6	46,4	48
Rated Power in Class F (105°C/40°C)	kVA	29,5	45	45	43,5	40	35	48	52	53	54
	kW	23,6	36	36	34,8	32	28	38,4	41,6	42,4	43,2
Rated Power Standby (150°C/40°C)	kVA	34,5	53	53	51	48	42	58	61	63	64
	kW	27,6	42,4	42,4	40,8	38,4	33,6	46,4	48,8	50,4	51,2
Rated Power Standby (163°C/27°C)	kVA	36	55	55	53	50	43	60	63	65	66
	kW	28,8	44	44	42,4	40	34,4	48	50,4	52	52,8

### EFFICIENCY IN CL. H

4/4	89,4%									91,2%
3/4	90,0%									92,0%
2/4	88,1%									88,7%
1/4	85,8%									86,2%

### REACTANCES AND TIME CONSTANTS

pcc		0,62								
X <sub>d</sub> - dir. axis synchronous		283%	255%	227%	177%		318%	288%	268%	255%
X' <sub>d</sub> - dir. axis transient		22,2%	20,0%	17,8%	13,9%		25,0%	22,6%	21,1%	20,0%
X'' <sub>d</sub> - dir. axis subtransient		7,8%	7,0%	6,2%	4,9%		8,7%	7,9%	7,4%	7,0%
X <sub>q</sub> - quad. axis reactance		162%	146%	130%	101%		182%	165%	154%	146%
T' <sub>do</sub> - O.C. field time constant							188ms			
T' <sub>d</sub> - Transient time constant							14ms			
T'' <sub>d</sub> - Sub-transient time constant							9ms			

### MECHANICAL DATA

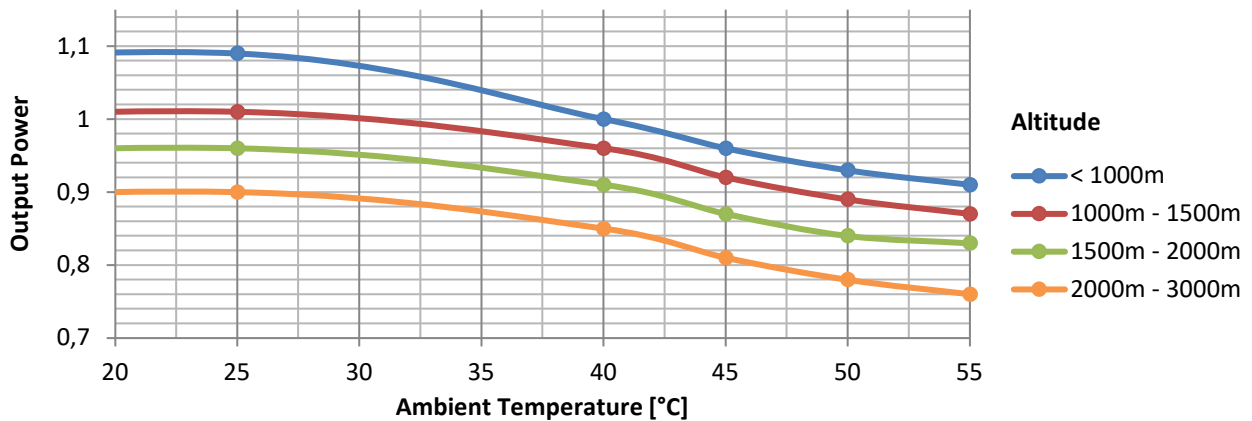
Bearing non drive end				6307-2RS-C3
Bearing drive end (B3/B14 form)				6309-2RS-C3
Weight of generator	in B2	kg		236,5
	in B3/B14	kg		238,5
	in B3/B9	kg		\

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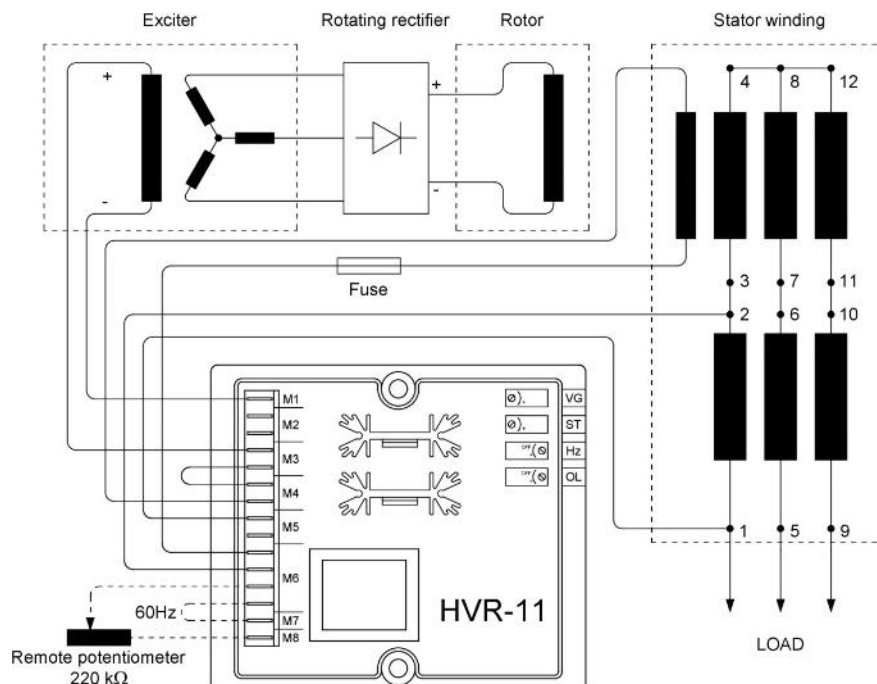
## MOMENT OF INERZIA

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	0,441
SAE 8	kg·m <sup>2</sup>	0,450
SAE 10	kg·m <sup>2</sup>	0,467
SAE 11½	kg·m <sup>2</sup>	0,486
SAE 14	kg·m <sup>2</sup>	\
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	0,436

## DERATING CURVES



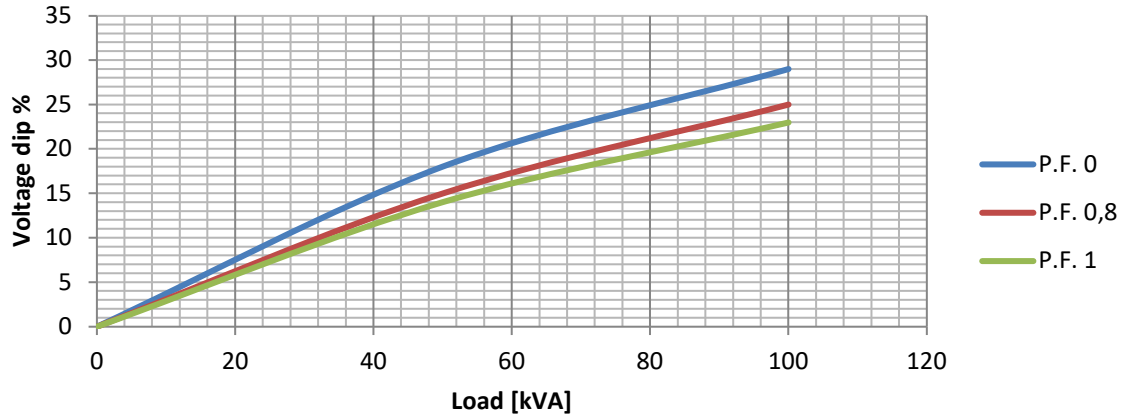
## WIRING DIAGRAM



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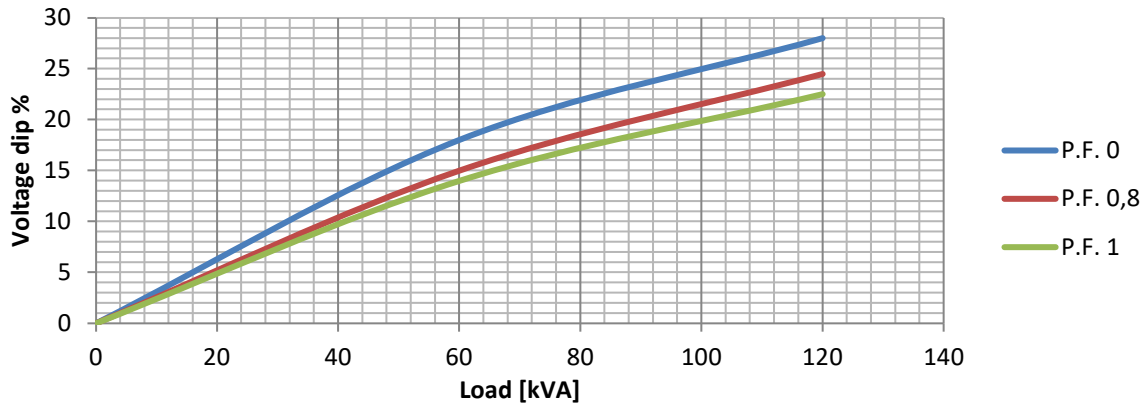
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

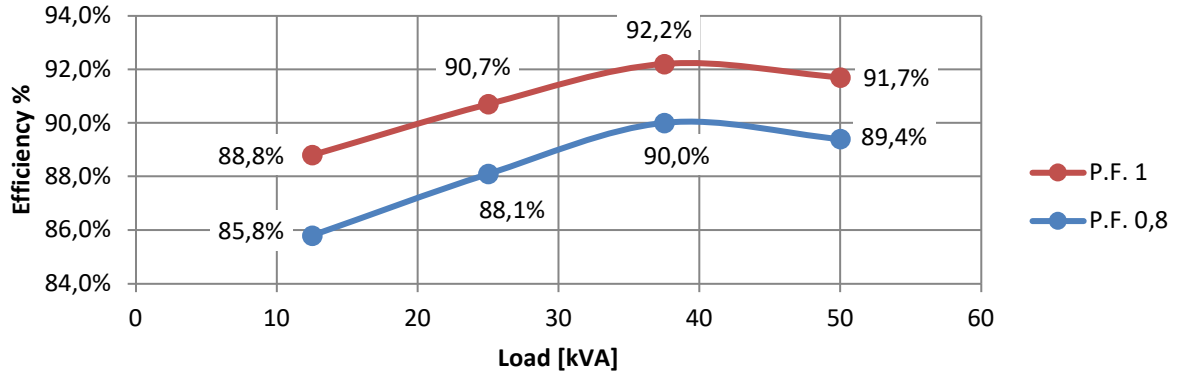
### Transient Voltage Variation @ 60Hz



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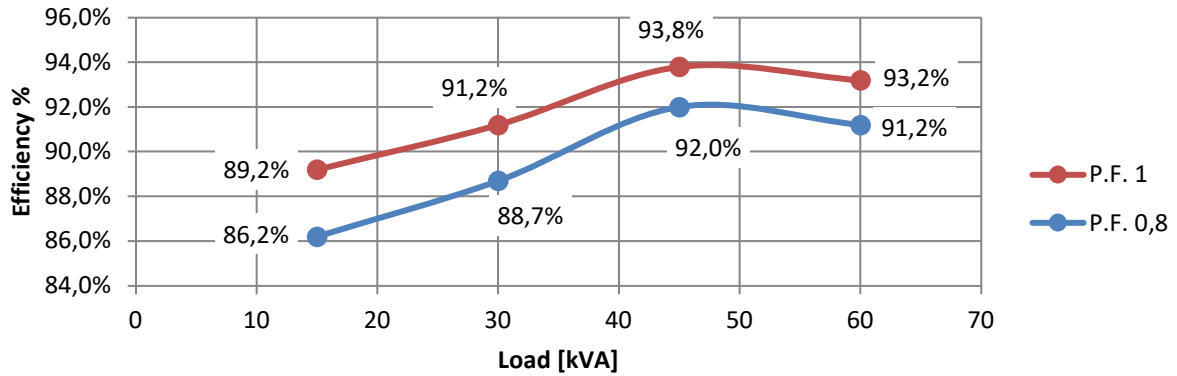
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



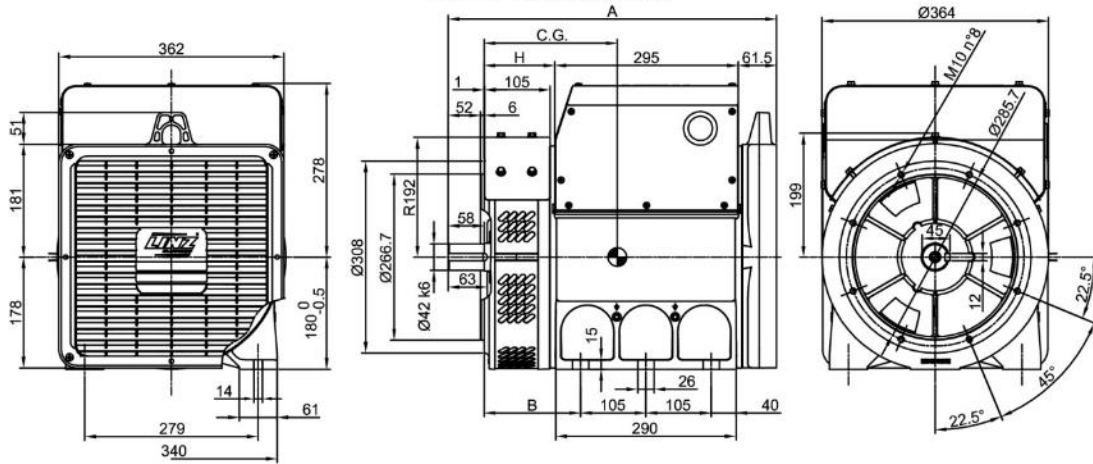
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

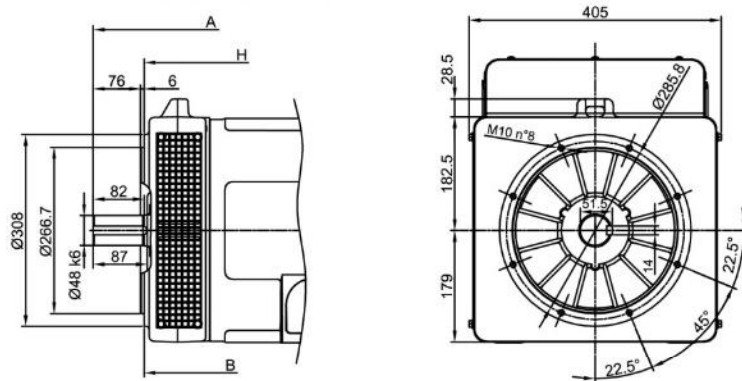


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FORMA - FORM B3/B14 'S-M'



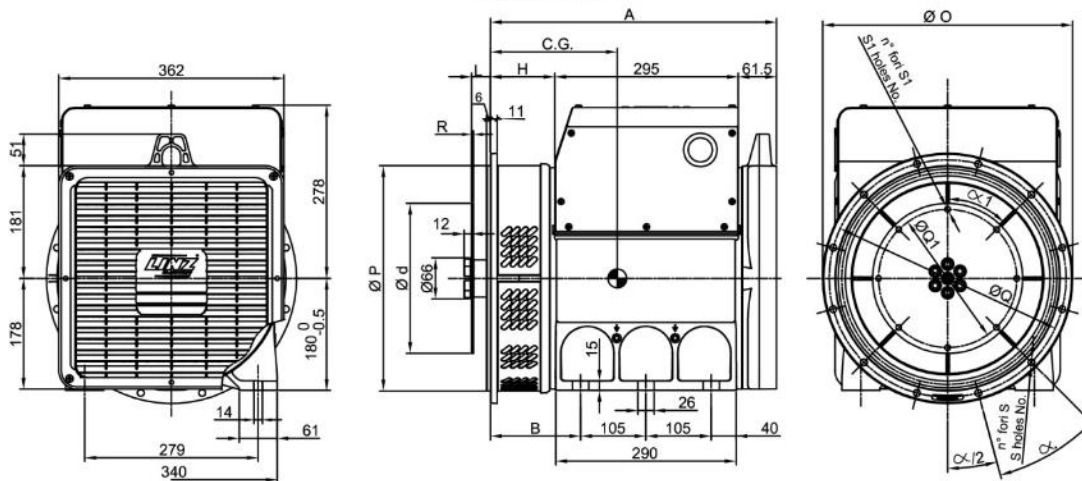
FORMA - FORM B3/B14 'L'



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
SAE	PRO 18S	460	103,5
	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		241,3	222,25	8		45°	
8	62	263,52	244,47	6	10,5	60°	
10	53,8	314,32	295,27	8		45°	
11 1/2	39,6	352,42	333,37				