

TECHNICAL DATA SHEET



**ALTERNATOR PRO18M E/4**

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

## PRO18M E/4

### COMMON DATA

Rated Power at 50Hz	kVA	42	
Rated Power at 60Hz	kVA	50	
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	9,8 at 50Hz	11 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	> 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	12		
Stator Winding Resistance	Ω	0,068 at 20°C	
Rotor Winding Resistance	Ω	3,74 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	2,4	

### 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	<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	42	42	42	36	48	50	50	50
	kW	33,6	33,6	33,6	28,8	38,4	40	40	40
Rated Power in Class F (105°C/40°C)	kVA	39	39	39	32	45	47	47	47
	kW	31,2	31,2	31,2	25,6	36	37,6	37,6	37,6
Rated Power Standby (150°C/40°C)	kVA	47	47	45	42	50	53	55	55
	kW	37,6	37,6	36	33,6	40	42,4	44	44
Rated Power Standby (163°C/27°C)	kVA	48	48	46	44	52	55	57	57
	kW	38,4	38,4	36,8	35,2	41,6	44	45,6	45,6

### EFFICIENCY IN CL. H

4/4	89,3%							91,1%
3/4	89,9%							91,7%
2/4	86,3%							87,8%
1/4	81,1%							83,4%

### REACTANCES AND TIME CONSTANTS

pcc		0,60							
X <sub>d</sub> - dir. axis synchronous		280%	253%	235%	179%	325%	301%	275%	253%
X' <sub>d</sub> - dir. axis transient		22,2%	20,0%	18,6%	14,2%	25,7%	23,8%	21,8%	20,0%
X'' <sub>d</sub> - dir. axis subtransient		8,9%	8,0%	7,4%	5,7%	10,3%	9,5%	8,7%	8,0%
X <sub>q</sub> - quad. axis reactance		156%	141%	131%	100%	181%	168%	154%	141%
T' <sub>do</sub> - O.C. field time constant						180ms			
T' <sub>d</sub> - Transient time constant						14ms			
T'' <sub>d</sub> - Sub-transient time constant						8ms			

### MECHANICAL DATA

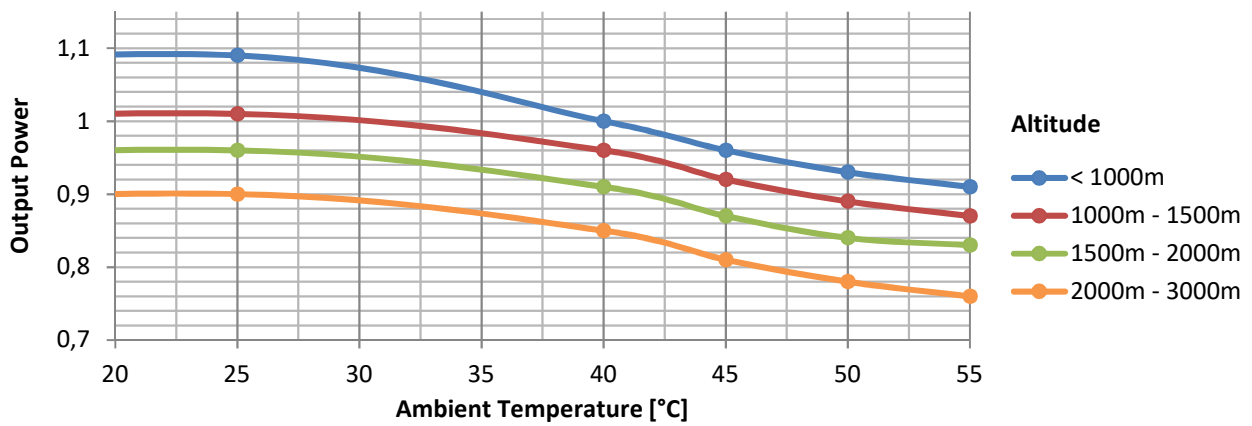
Bearing non drive end				6307-2RS-C3
Bearing drive end (B3/B14 form)				6309-2RS-C3
Weight of generator	in B2	Kg		200
	in B3/B14	Kg		202
	in B3/B9	Kg		\

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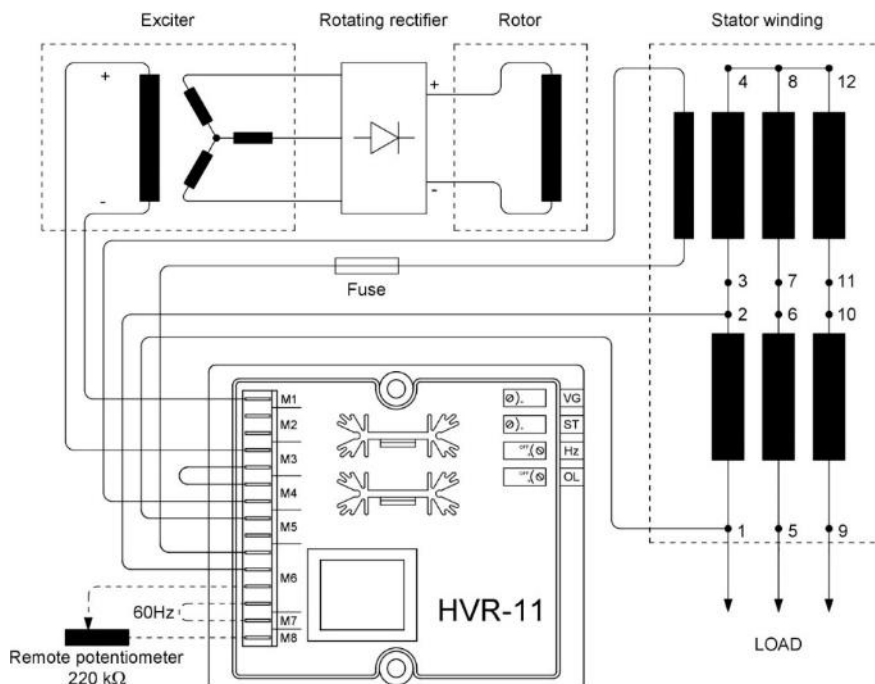
## MOMENT OF INERZIA

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	0,369
SAE 8	kg·m <sup>2</sup>	0,378
SAE 10	kg·m <sup>2</sup>	0,395
SAE 11½	kg·m <sup>2</sup>	0,415
SAE 14	kg·m <sup>2</sup>	\
SAE 18	kg·m <sup>2</sup>	\
B3/B14	kg·m <sup>2</sup>	0,367

## DERATING CURVES



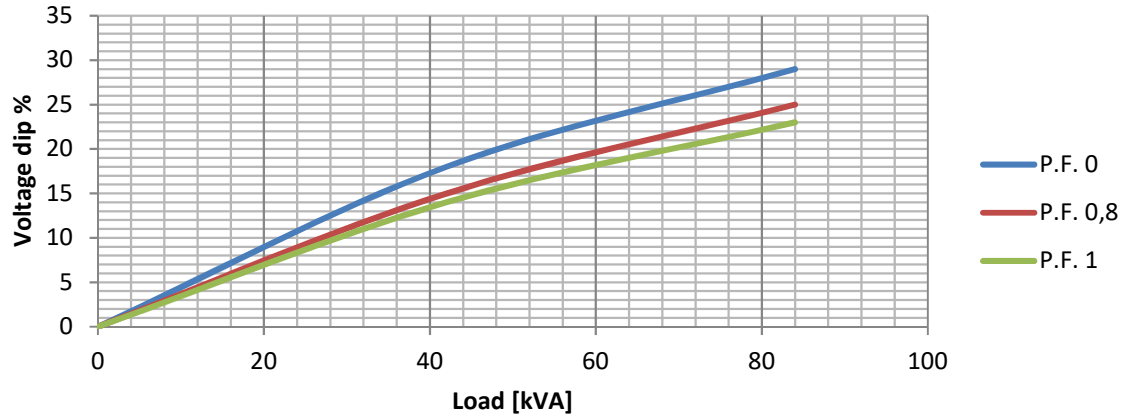
## WIRING DIAGRAM



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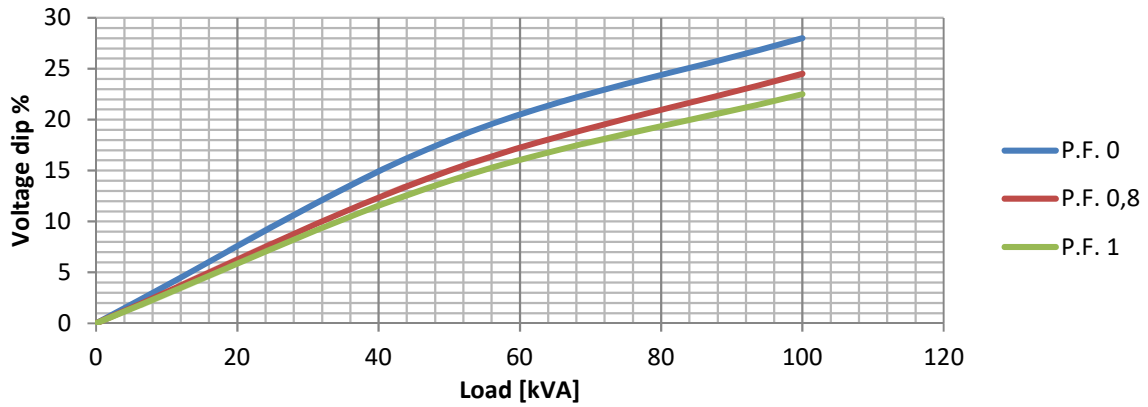
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

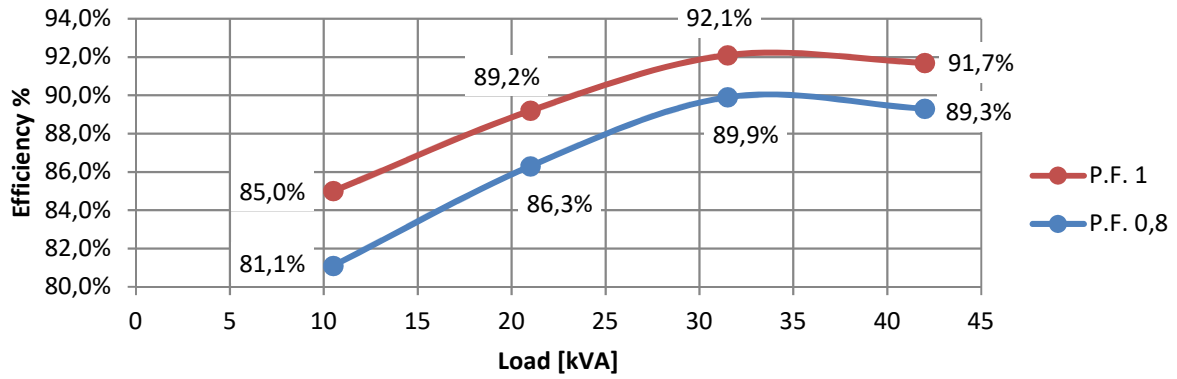
### Transient Voltage Variation @ 60Hz



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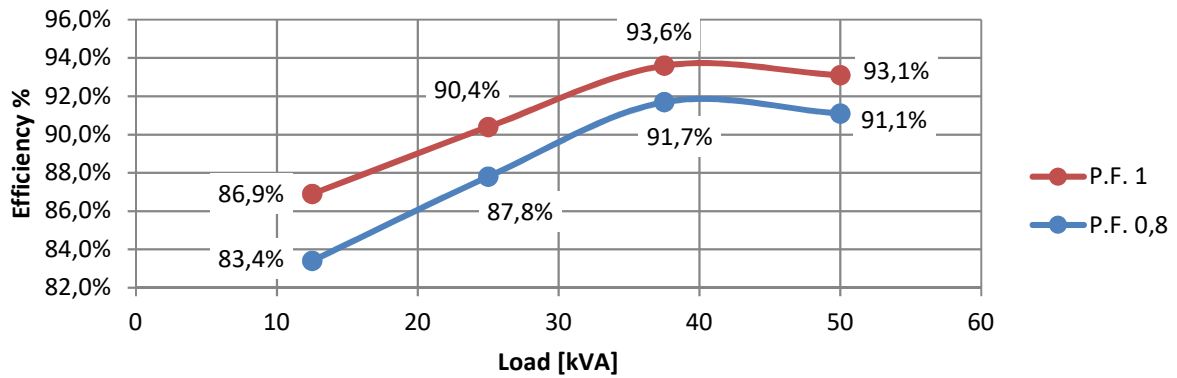
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



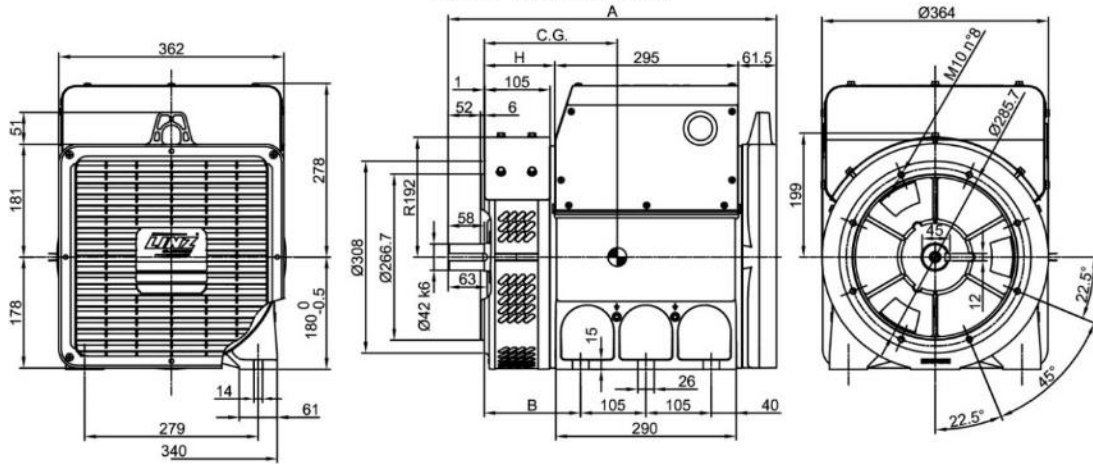
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

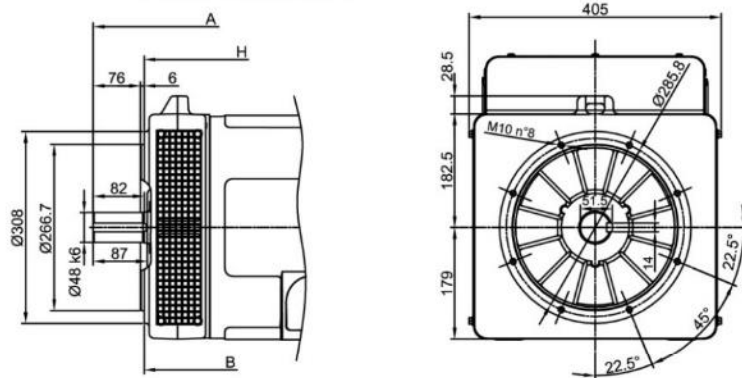


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FORMA - FORM B3/B14 'S-M'



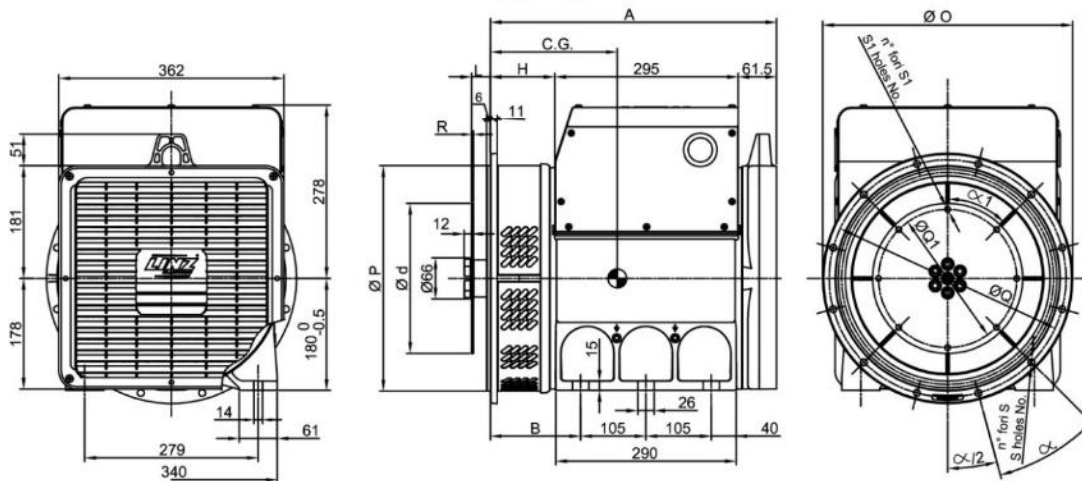
FORMA - FORM B3/B14 'L'



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				