

TECHNICAL DATA SHEET



**ALTERNATOR PRO35M F/4**

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

## PRO35M F/4

### COMMON DATA

Rated Power at 50Hz	kVA	670
Rated Power at 60Hz	kVA	804
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	56 at 50Hz      67,2 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	0,0148 at 20°C
Rotor Winding Resistance	Ω	1,42 at 20°C
Exciter Stator Resistance	Ω	12,5 at 20°C
Exciter Rotor Resistance	Ω	0,095 at 20°C
THD at full load	<3%	
THD at no load	<3%	
Excitation at no load	Adc	0,56
Excitation at full load	Adc	2,41

### 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

## PRO35M F/4

### 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	655	670	670	625	715	760	804	804
	kW	524	536	536	500	572	608	643,2	643,2
Rated Power in Class F (105°C/40°C)	kVA	600	615	615	570	650	690	730	730
	kW	480	492	492	456	520	552	584	584
Rated Power Standby (150°C/40°C)	kVA	680	700	700	660	750	790	840	840
	kW	544	560	560	528	600	632	672	672
Rated Power Standby (163°C/27°C)	kVA	715	735	735	675	780	830	880	880
	kW	572	588	588	540	624	664	704	704

### EFFICIENCY IN CL. H

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

### REACTANCES AND TIME CONSTANTS

pcc		0,31							
X <sub>d</sub> - dir. axis synchronous		407%	376%	349%	290%	447%	423%	409%	376%
X' <sub>d</sub> - dir. axis transient		20,5%	18,9%	17,6%	14,6%	22,5%	21,3%	20,6%	18,9%
X'' <sub>d</sub> - dir. axis subtransient		12,9%	11,9%	11,1%	9,2%	14,2%	13,4%	13,0%	11,9%
X <sub>q</sub> - quad. axis reactance		249%	230%	214%	177%	274%	259%	250%	230%
T' <sub>do</sub> - O.C. field time constant		2350ms							
T' <sub>d</sub> - Transient time constant		120ms							
T'' <sub>d</sub> - Sub-transient time constant		10ms							

### MECHANICAL DATA

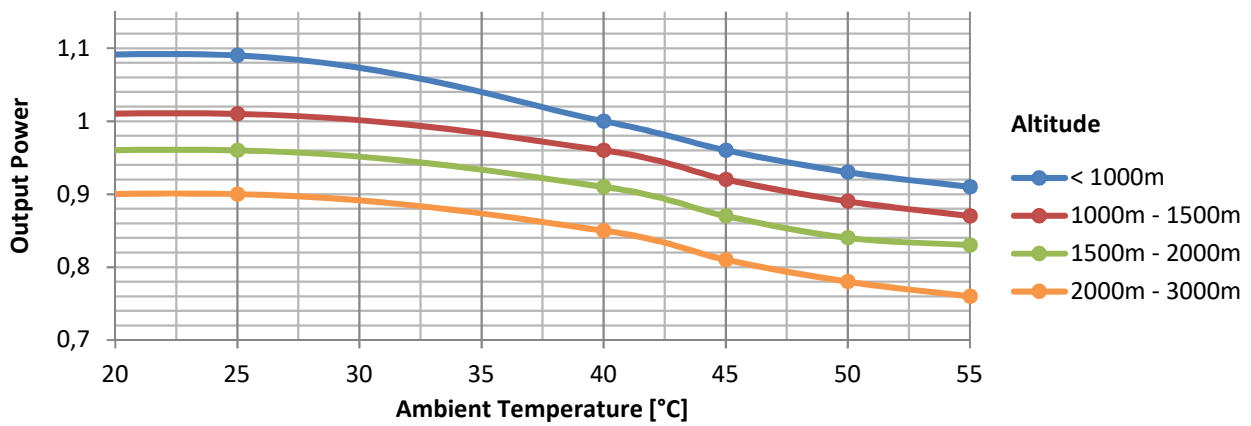
Bearing non drive end				6316-2RS-C3
Bearing drive end (B3/B14 form)				6319-2RS-C3
Weight of generator	in B2	kg		1500,5
	in B3/B14	kg		1524,5
	in B3/B9	kg		\

# PRO35M F/4

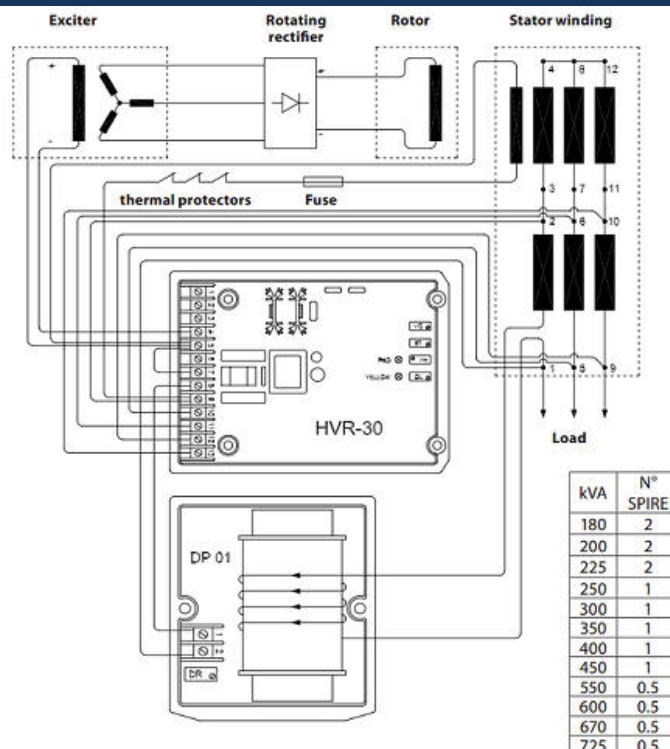
## MOMENT OF INERZIA

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	\
SAE 8	kg·m <sup>2</sup>	\
SAE 10	kg·m <sup>2</sup>	\
SAE 11½	kg·m <sup>2</sup>	\
SAE 14	kg·m <sup>2</sup>	11,352
SAE 18	kg·m <sup>2</sup>	11,692
B3/B14	kg·m <sup>2</sup>	10,838

## DERATING CURVES



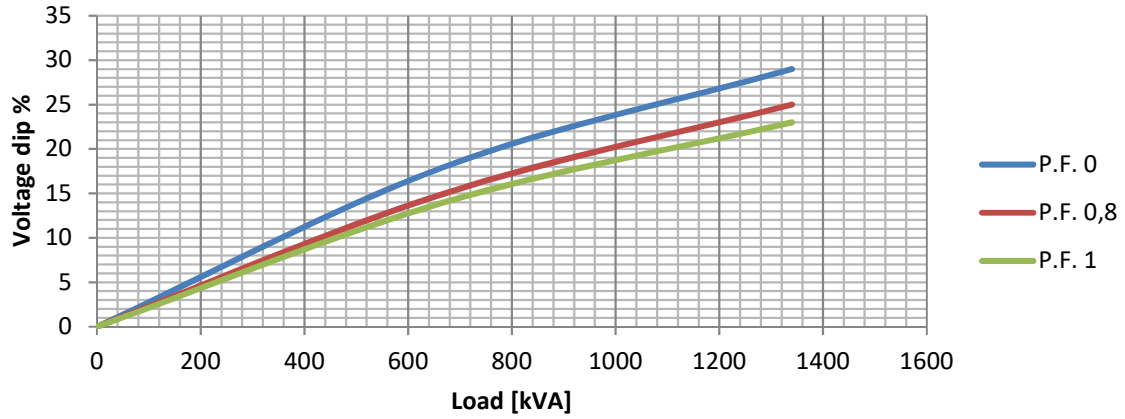
## WIRING DIAGRAM



# PRO35M F/4

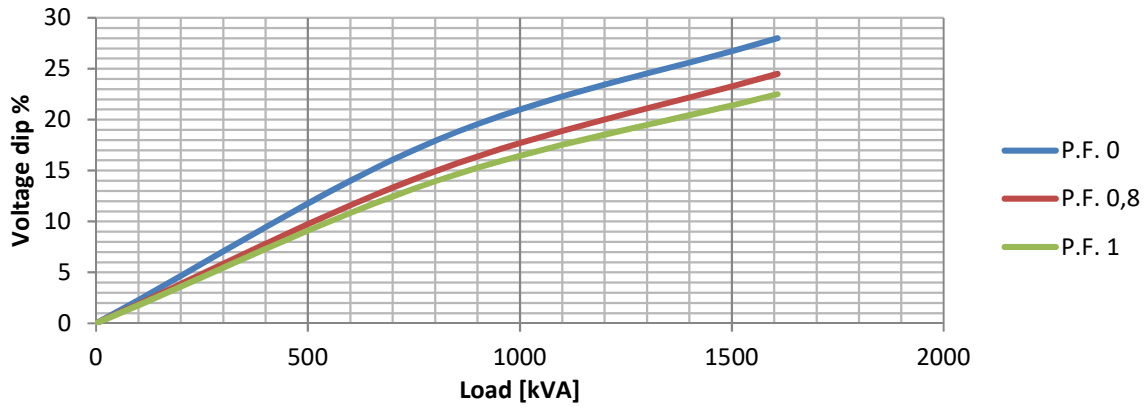
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

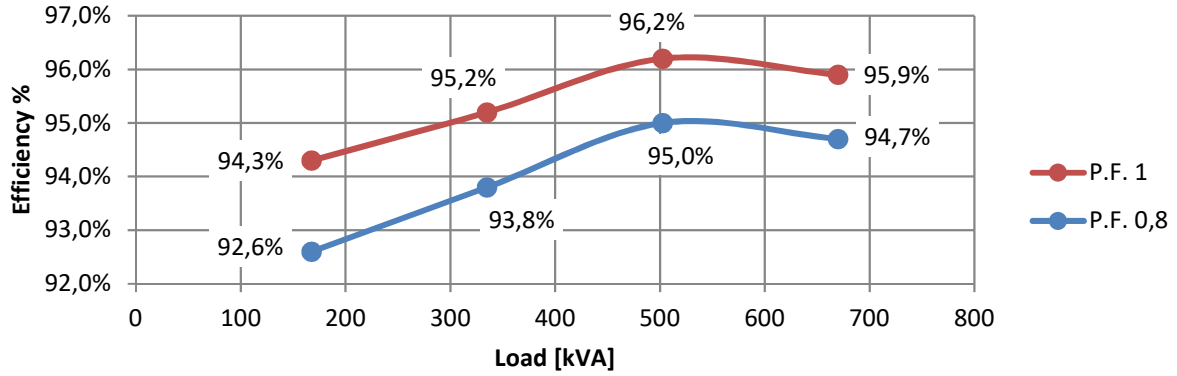
### Transient Voltage Variation @ 60Hz



# PRO35M F/4

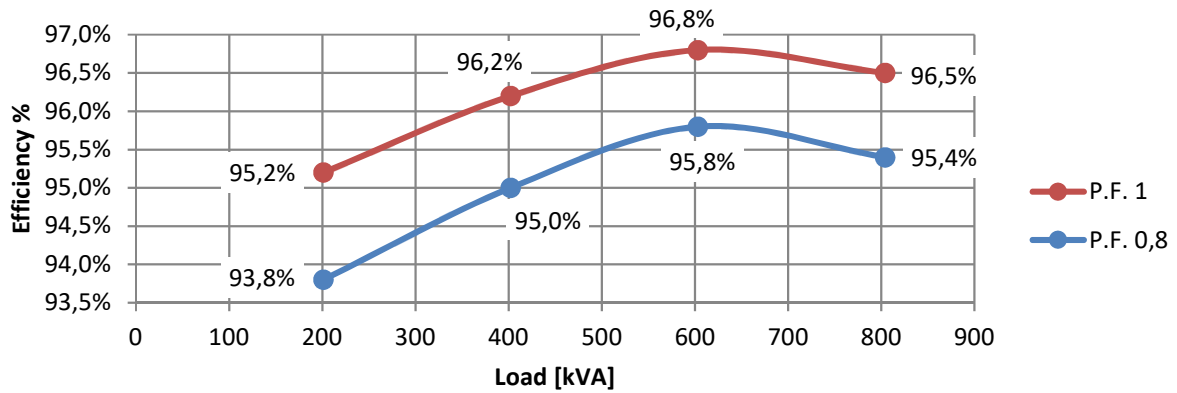
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



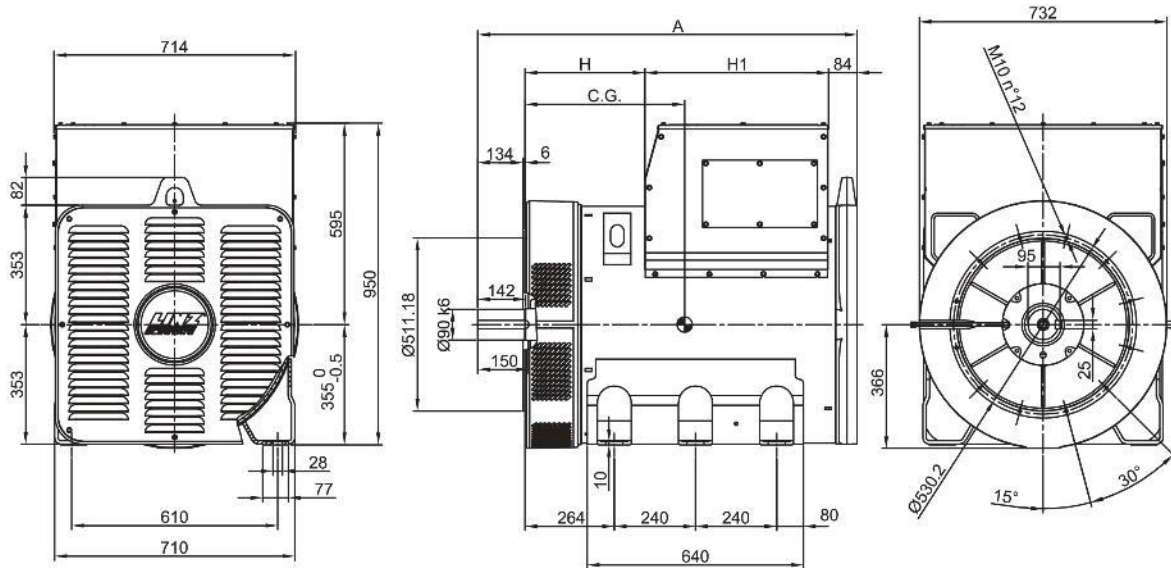
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz

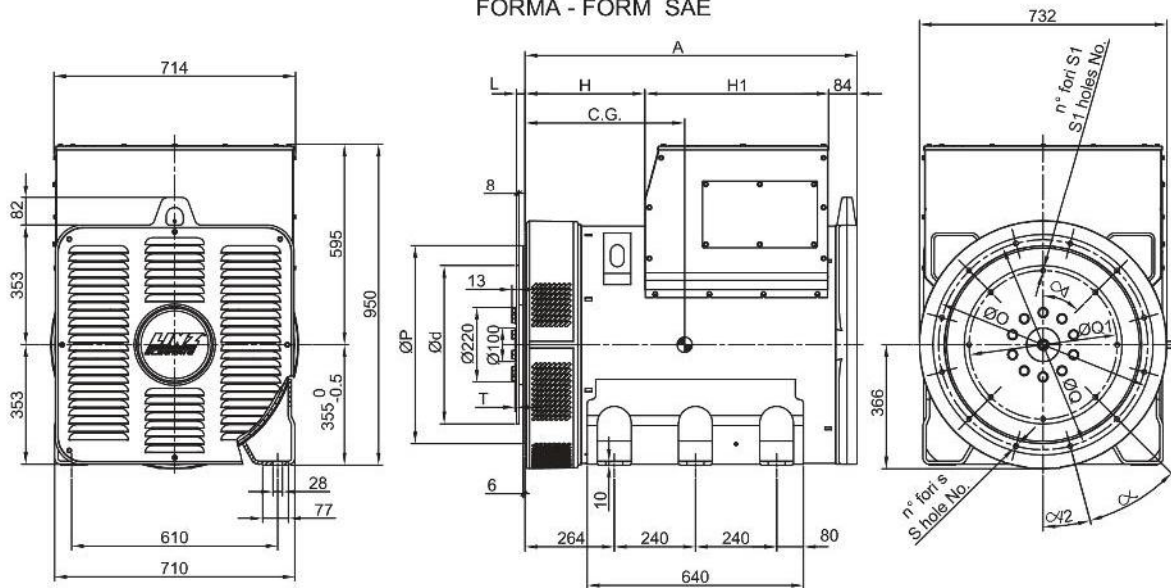


# PRO35M F/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	H	H1	TIPO - TYPE	C.G.
B3/B14	PRO35 S	1122	454.5	443.5	PRO35S B/4	456
	PRO35 M	1247	479.5	543.5	PRO35S C/4	466
	PRO35 L	1347	579.5		PRO35S D/4	478
SAE	PRO35 S	982	454.5	443.5	PRO35M E/4	516
	PRO35 M	1107	479.5	543.5	PRO35M F/4	516
	PRO35 L	1207	579.5		PRO35M G/4	539
					PRO35L H/4	588

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
0	710	647.7	679.5	16	14	22.5°
1/2	650	584.2	619.2	12	14	30°
1	552	511.18	530.2	12	12	30°

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°	4.3
18	15.7	571.5	542.92	6	17	60°	14