TECHNICAL DATA SHEET

ALTERNATOR PRO28M F/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO28M F/4

COMMON DATA

Rated Power at 50Hz	kVA	350	
Rated Power at 60Hz	kVA	420	
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	39,5 at 50Hz	45 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		12
Stator Winding Resistance	Ω	0,004 at 20°C
Rotor Winding Resistance	Ω	2,9 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,25 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,63
Excitation at full load	Adc	2,2

STANDARD

References	EN60034-1 ISO8528-3 EN55011

ON REQUEST

UL 1446, Systems of Insulating Materials - General CSA-C22.2 No. 0, Appendix B, General Requirements - Canadian Electrical Code, Part I

PRO28M F/4

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**	**480/277 240/138**
Rated Power in Class H (125°C/40°C)	kVA	230	350	350	350	340	275	390	420	420	420
	kW	184	280	280	280	272	220	312	336	336	336
Rated Power in Class F (105°C/40°C)	kVA	195	300	300	300	290	235	335	360	360	360
	kW	156	240	240	240	232	188	268	288	288	288
Rated Power Standby (150°C/40°C)	kVA	240	365	365	365	354	283	400	435	435	435
	kW	192	292	292	292	283,2	226,4	320	348	348	348
Rated Power Standby (163°C/27°C)	kVA	245	375	375	375	365	290	415	450	450	450
	kW	196	300	300	300	292	232	332	360	360	360

EFFICIENCY IN CL. H

4/4			93,7%							94,0%
3/4			93,9%							94,2%
2/4			93,0%							93,3%
1/4			90,0%							90,6%

REACTANCES AND TIME CONSTANTS

ρcc			0,40							
Xd	- dir. axis synchronous	377%	340%	316%	273%		422%	405%	370%	340%
X'd	- dir. axis transient	19,9%	18,0%	16,7%	14,5%		22,4%	21,4%	19,6%	18,0%
X''d	- dir. axis subtransient	9,4%	8,5%	7,9%	6,8%		10,6%	10,1%	9,3%	8,5%
X_q	- quad. axis reactance	235%	212%	197%	170%		263%	252%	231%	212%
T'_{do}	- O.C. field time constant	1870ms								
T'_d	- Transient time constant	115ms								
T''_d	- Sub-transient time constant	13ms								

MECHANICAL DATA

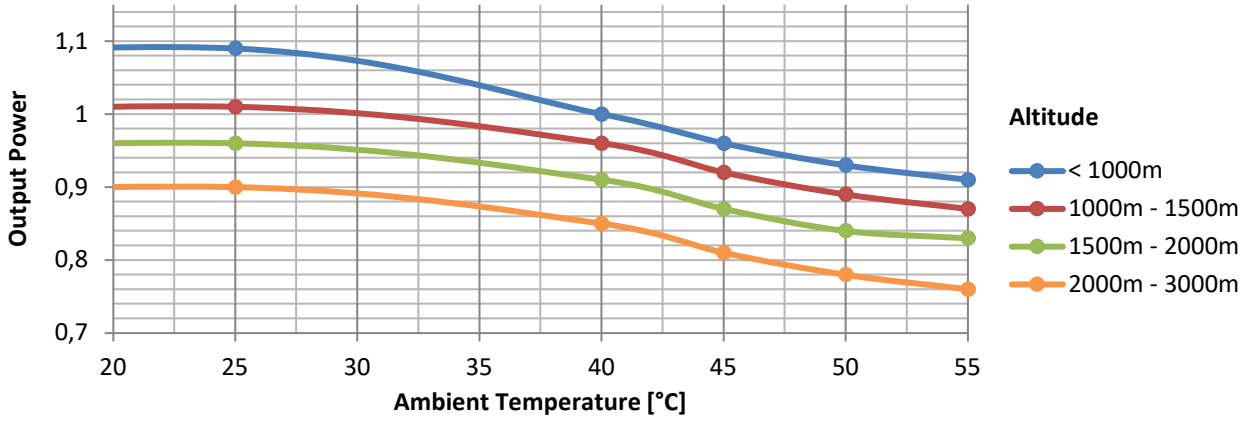
Bearing non drive end			6314-2RS-C3
Bearing drive end (B3/B14 form)			6316-2RS-C3
Weight of generator	in B2	kg	949
	in B3/B14	kg	960
	in B3/B9	kg	\

PRO28M F/4

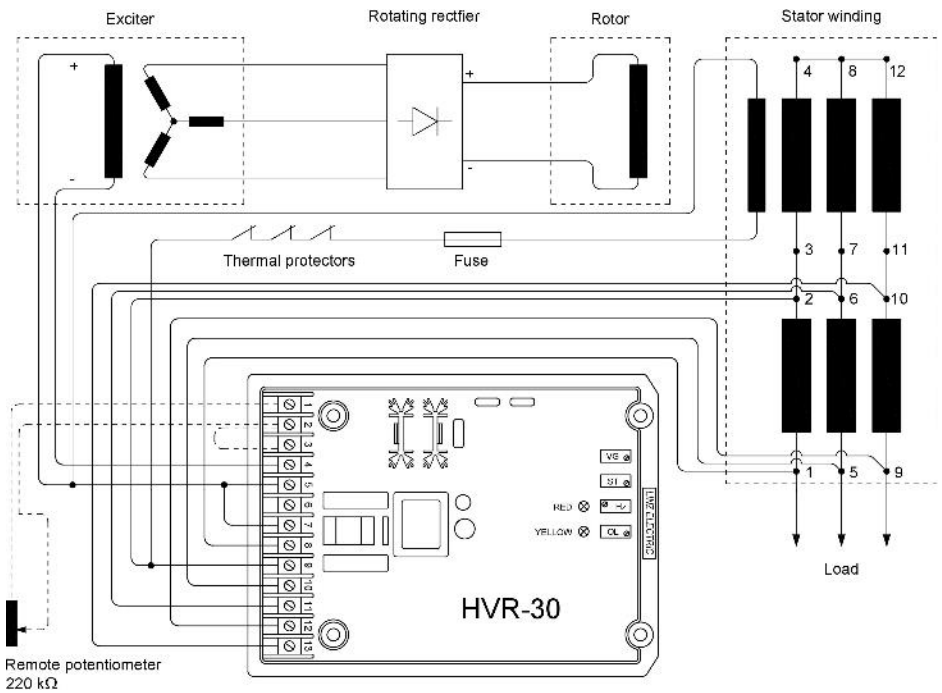
MOMENT OF INERZIA

B3/B9	kg·m²	\
SAE 7½	kg·m²	\
SAE 8	kg·m²	\
SAE 10	kg·m²	\
SAE 11½	kg·m²	4,408
SAE 14	kg·m²	4,524
SAE 18	kg·m²	\
B3/B14	kg·m²	4,229

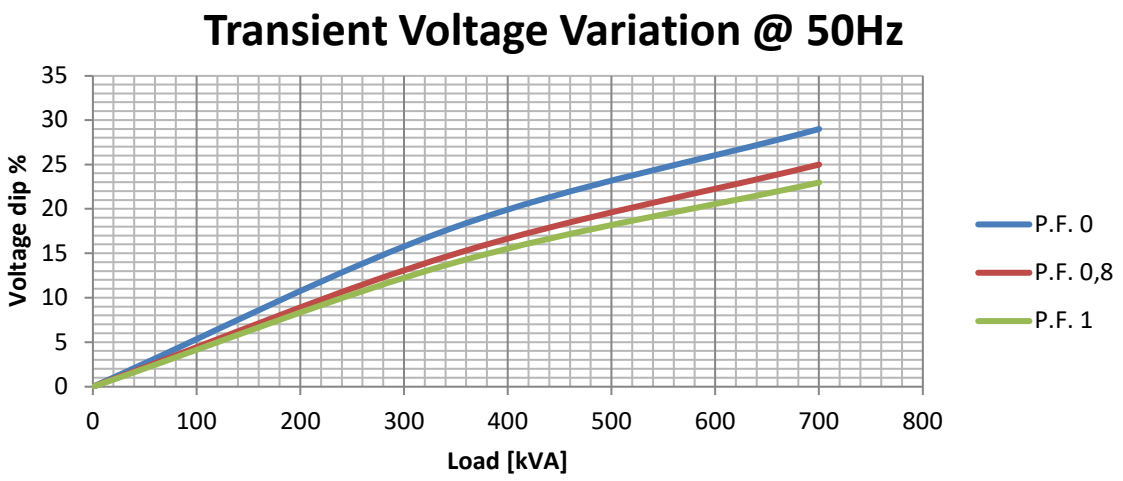
DERATING CURVES



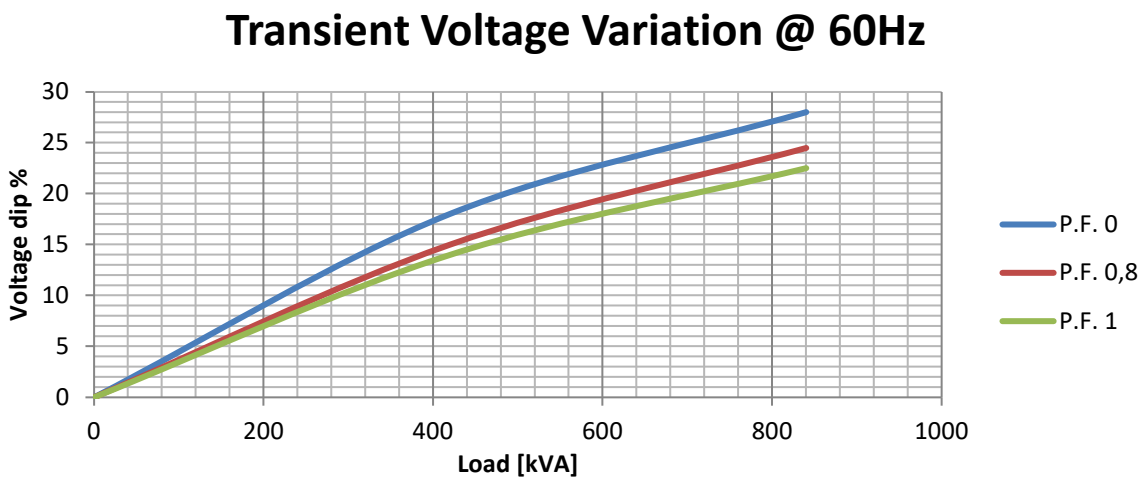
WIRING DIAGRAM



TRANSIENT VOLTAGE VARIATION 50Hz

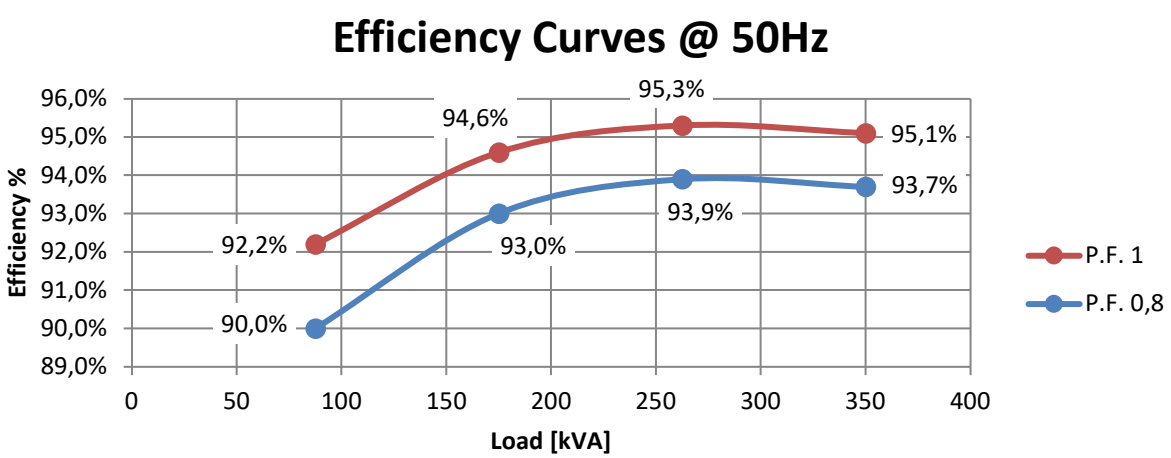


TRANSIENT VOLTAGE VARIATION 60Hz

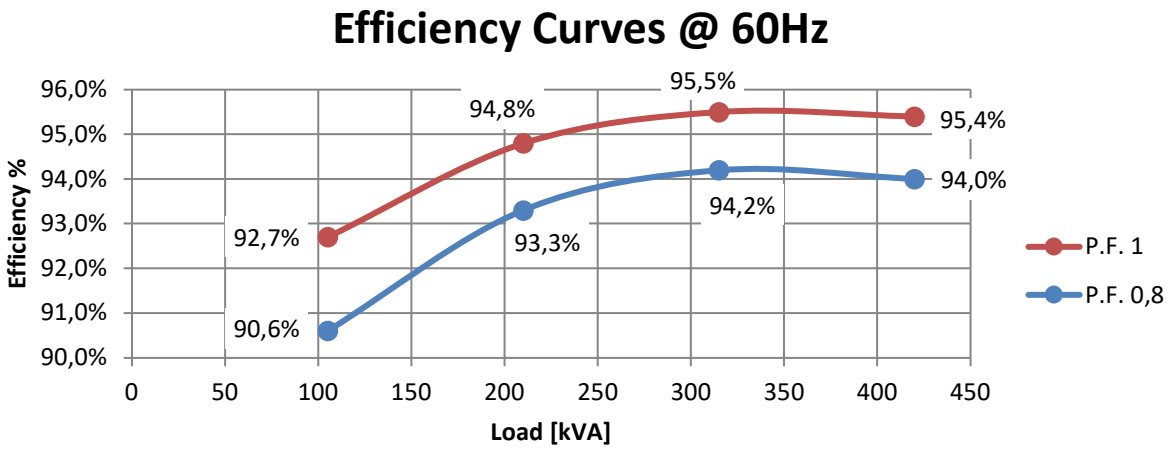


PRO28M F/4

EFFICIENCY 50Hz

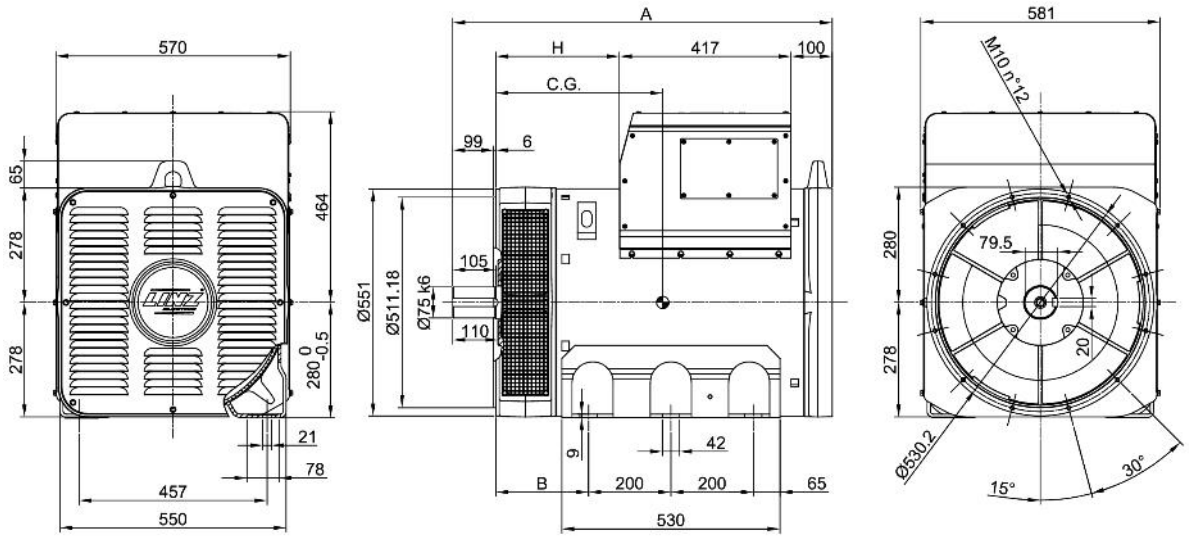


EFFICIENCY 60Hz

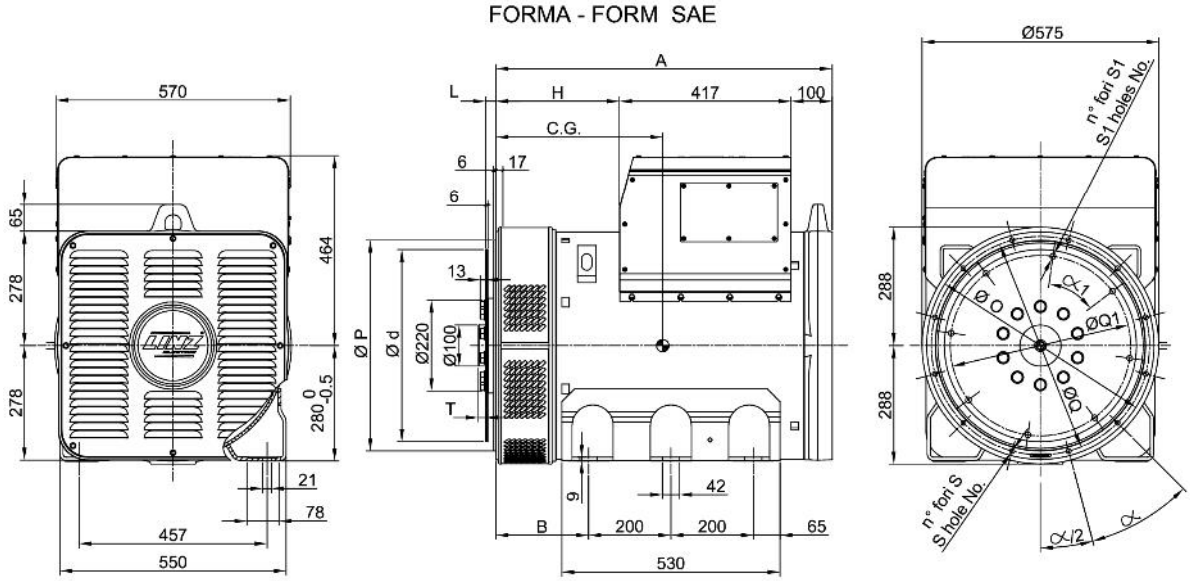


PRO28M F/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	B	H
B3/B14	PRO 28S	922	225	300
	PRO 28M	1072		450
	PRO 28L	1137	325	515
SAE	PRO 28S	817	225	300
	PRO 28M	967		450
	PRO 28L	1032	325	515

TIPO - TYPE	C.G.
PRO28S A/4	376
PRO28S B/4	380
PRO28S C/4	394
PRO28S D/4	406
PRO28M E/4	452
PRO28M F/4	480
PRO28L G/4	513

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	451	409.6	428.6	12	12	30°
2	490	447.68	466.7			
1	552	511.18	530.2			

SAE N.	GIUNTI A DISCO -COUPLING DISCS- JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	T
11 1/2	39.6	352.42	333.37	8	10.5	45°	0
14	25.4	466.72	438.15	8	14	45°	17.3