



ALTERNATOR PRO28S A/4

three-phase brushless synchronous alternator with AVR - 4 poles

Technical Data Sheet

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COMMON DATA

Rated Power at 50Hz	kVA	180	
Rated Power at 60Hz	kVA	215	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP23	
Maximum Overspeed	rpm	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	32 at 50Hz	38 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	0.0143 at 20°C	
Rotor Winding Resistance	1.7 at 20°C	
Exciter Stator Resistance	15 at 20°C	
Exciter Rotor Resistance	0.25 at 20°C	
THD at full load	<3%	
THD at no load	<2,5%	
Excitation at no load	A _{dc}	0.56
Excitation at full load	A _{dc}	2.5

STANDARD

References	EN60034-1 ISO8528-3 EN55011
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ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
Voltage Series Star	V	380/220	400/230	415/240	440/254	415/240	440/254	460/266	480/277
Rated Power in Class H (125°C/40°C)	kVA	180	180	175	165	196	205	215	215
	kW	144	144	140	132	156.8	164	172	172
Rated Power in Class F (105°C/40°C)	kVA	160	160	150	145	175	183	192	192
	kW	128	128	120	116	140	146.4	153.6	153.6
Rated Power Standby (150°C/40°C)	kVA	195	195	190	177	213	223	234	234
	kW	156	156	152	141.6	170.4	178.4	187.2	187.2
Rated Power Standby (163°C/27°C)	kVA	200	200	195	182	218	228	240	240
	kW	160	160	156	145.6	174.4	182.4	192	192

EFFICIENCY IN CL. H

4/4		91.8%						92.5%
3/4		92.2%						92.7%
2/4		91.0%						91.7%
1/4		89.0%						89.8%

REACTANCES AND TIME CONSTANTS

pcc		0.32						
X _d - dir. axis synchronous		399%	360%	325%	273%	439%	409%	360%
X' _d - dir. axis transient		21.1%	19.0%	17.2%	14.4%	23.2%	21.6%	19.0%
X'' _d - dir. axis subtransient		11.1%	10.0%	9.0%	7.6%	12.2%	11.3%	10.0%
X _q - quad. axis reactance		240%	217%	196%	164%	265%	246%	217%
T' _{do} - O.C. field time constant		1830ms						
T' _d - Transient time constant		112ms						
T'' _d - Sub-transient time constant		16ms						

MECHANICAL DATA

Bearing non drive end				6314-2RS-C3
Bearing drive end (B3/B14 form)				6316-2RS-C3
Weight of generator	in B2	kg		564
	in B3/B14	kg		575
	in B3/B9	kg		\

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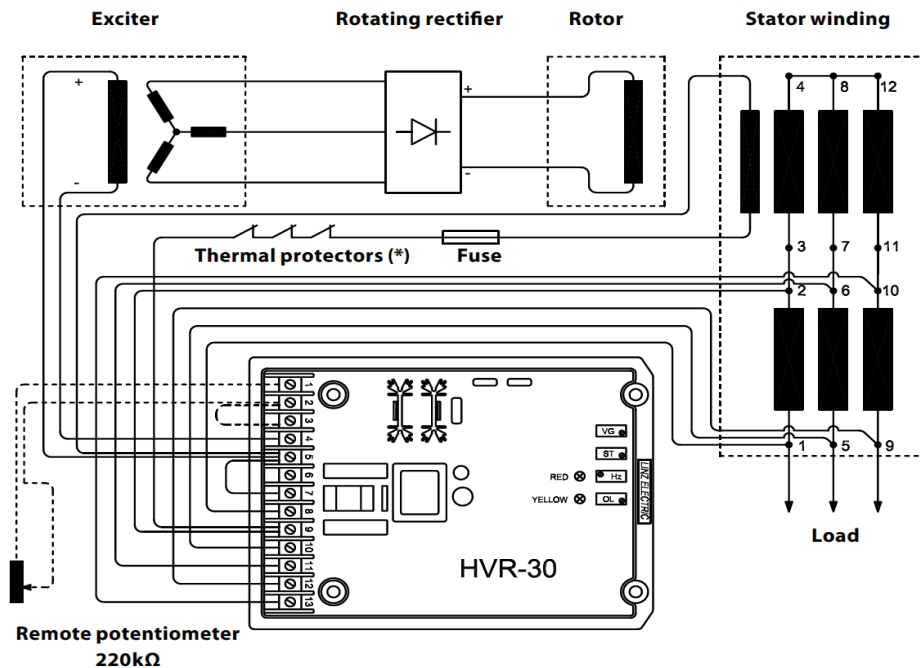
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	\
SAE 8	kg·m ²	\
SAE 10	kg·m ²	\
SAE 11½	kg·m ²	2.302
SAE 14	kg·m ²	2.417
SAE 18	kg·m ²	\
B3/B14	kg·m ²	2.123

POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

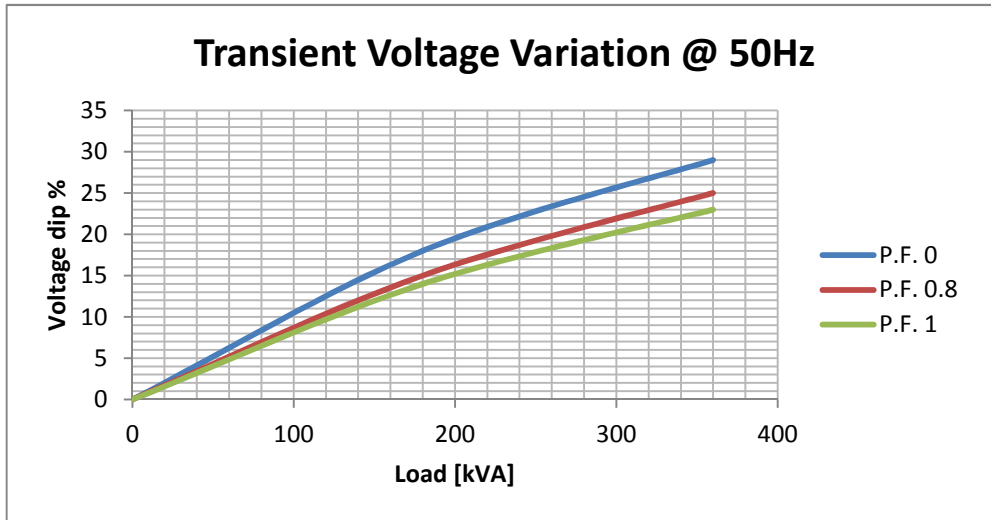
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

WIRING DIAGRAM

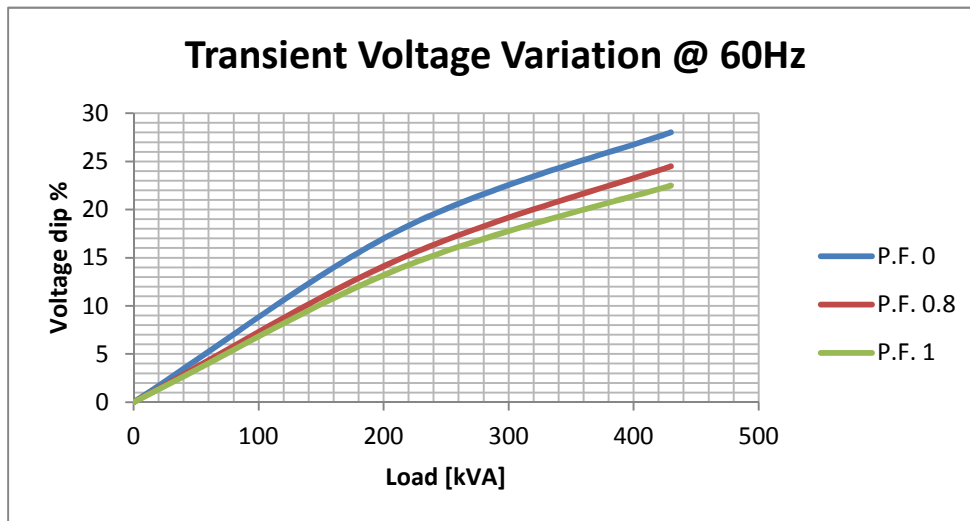


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TRANSIENT VOLTAGE VARIATION 50Hz

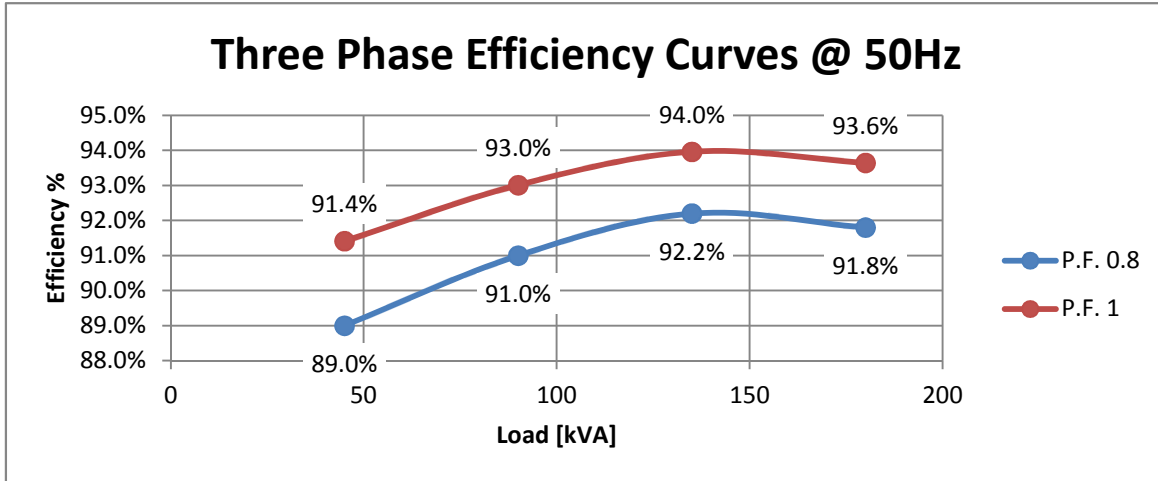


TRANSIENT VOLTAGE VARIATION 60Hz

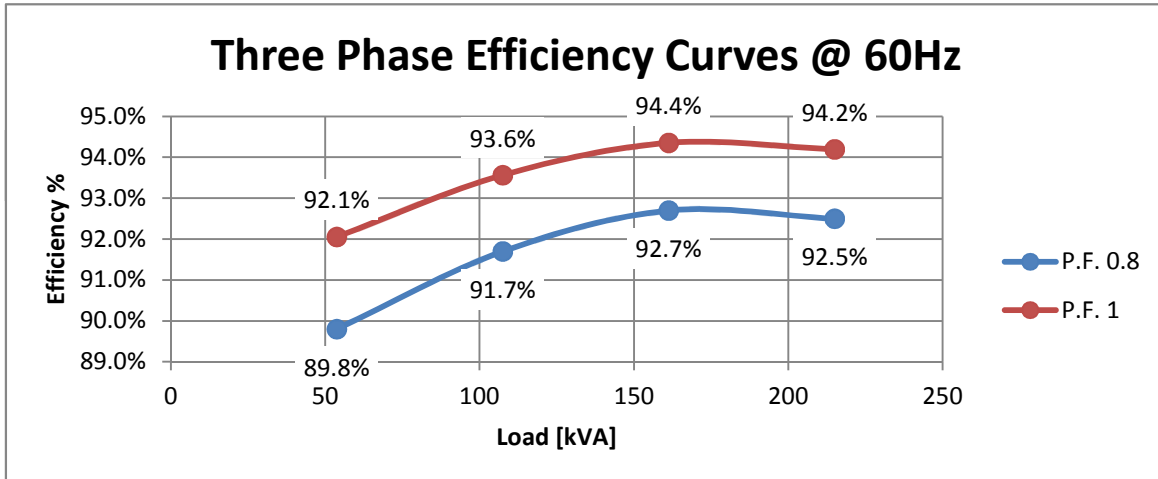


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EFFICIENCY 50Hz

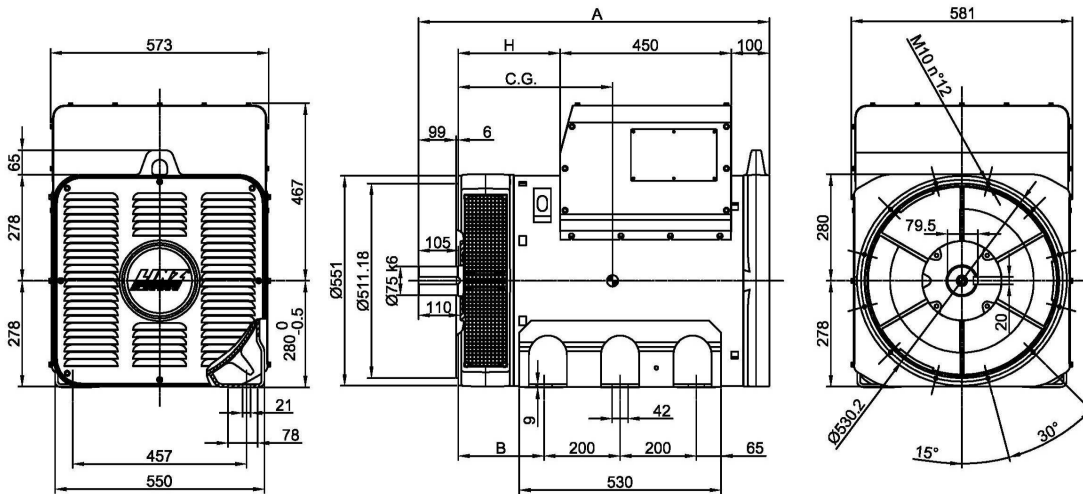


EFFICIENCY 60Hz

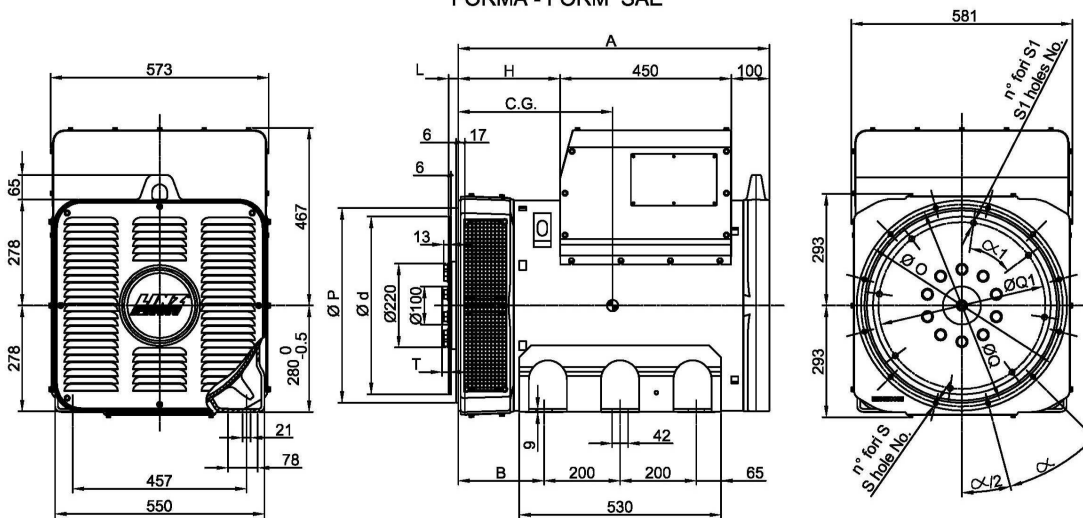


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FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM	A	B	H	TIPO - TYPE	C.G.
B3/B14	PRO 28S	922	225	267	376
	PRO 28M	1072		417	380
	PRO 28L	1137	325	482	394
SAE	PRO 28S	817	225	267	406
	PRO 28M	967		417	452
	PRO 28L	1032	325	482	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