



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%	392%	360%
X' _d - dir. axis transient		21.1%	19.0%	17.2%	14.4%	23.2%	21.6%	20.7%	19.0%
X'' _d - dir. axis subtransient		11.1%	10.0%	9.0%	7.6%	12.2%	11.3%	10.9%	10.0%
X _q - quad. axis reactance		240%	217%	196%	164%	265%	246%	236%	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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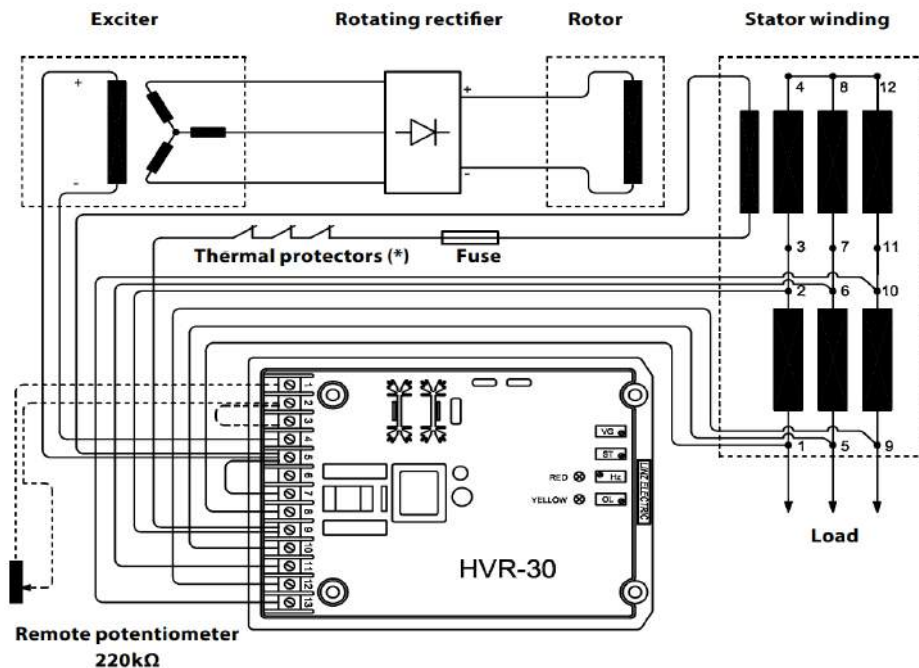
MOMENT OF INERZIA

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

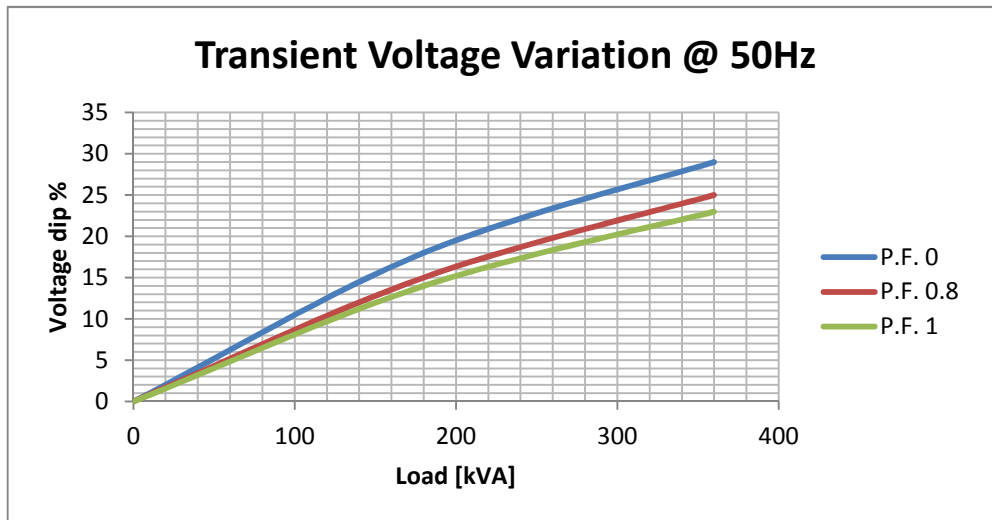
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

WIRING DIAGRAM

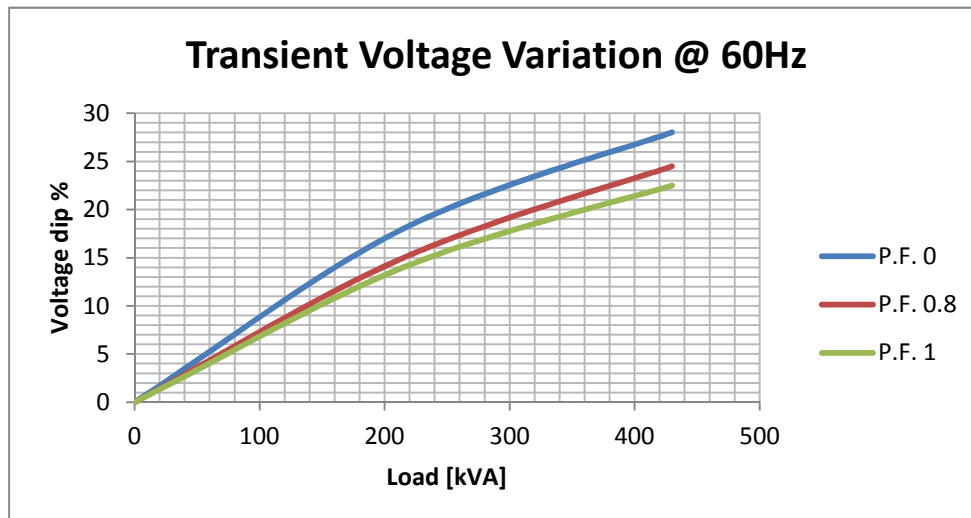


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TRANSIENT VOLTAGE VARIATION 50Hz

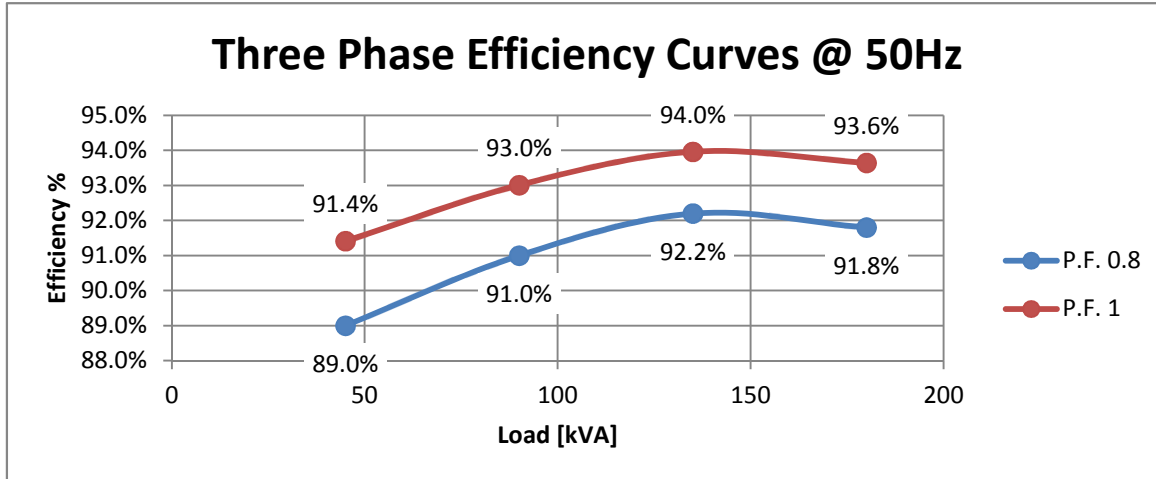


TRANSIENT VOLTAGE VARIATION 60Hz

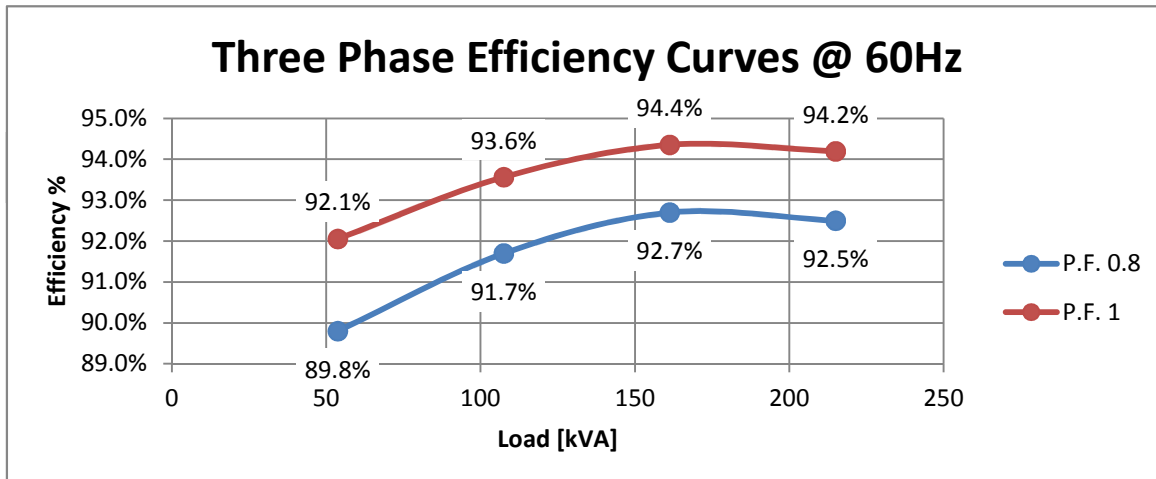


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EFFICIENCY 50Hz

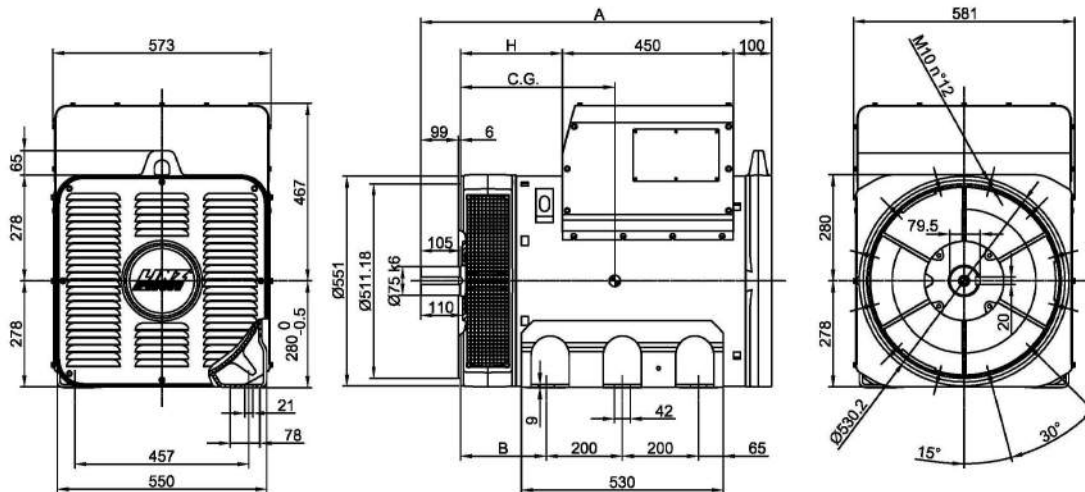


EFFICIENCY 60Hz

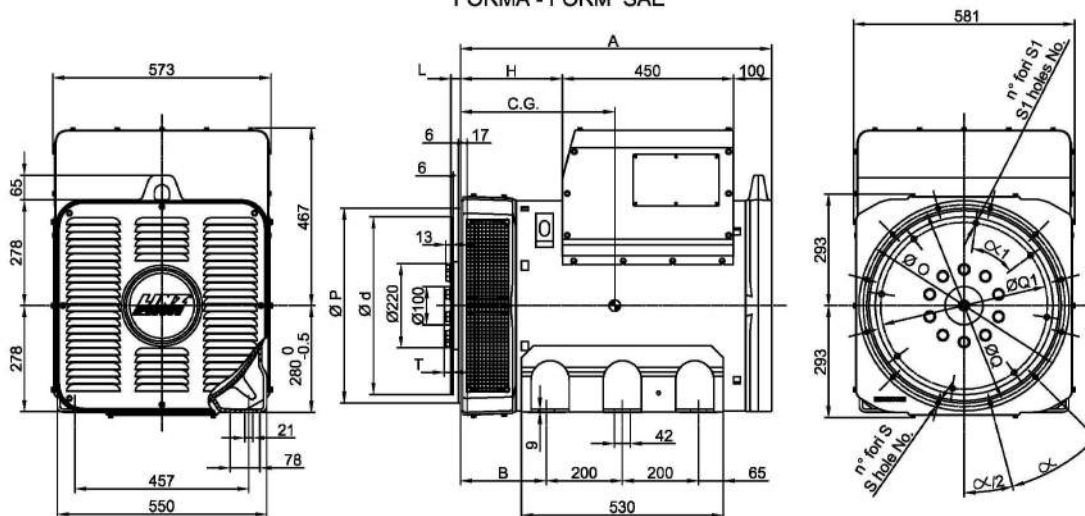


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FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM	A	B	H	TIPO - TYPE	C.G.
B3/B14	PRO 28S	922	267	PRO28S A/4	376
	PRO 28M	1072	417	PRO28S B/4	380
	PRO 28L	1137	482	PRO28S C/4	394
SAE	PRO 28S	817	267	PRO28S D/4	406
	PRO 28M	967	417	PRO28M E/4	452
	PRO 28L	1032	482	PRO28M F/4	480
				PRO28L G/4	513

SAE	FLANGIE - FLANGES - BRIDAS					
N.	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	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	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