



ALTERNATOR E1S13M D/2

three-phase synchronous alternator with brushes and compound - 2 poles

Technical Data Sheet

E1S13M D/2

COMMON DATA

Rated Power at 50Hz	kVA	22	
Rated Power at 60Hz	kVA	26.4	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self excited	
Execution		with brushes	
Regulation Type		compound	
Insulation Class		H	
Protection		IP21	
Maximum Overspeed	rpm	4500	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	9.2 at 50Hz	11.2 at 60Hz
R.F.I. Suppression		Standard EN55011	

REGULATION DATA

compound		Compound
Voltage Regulation		±4%
Sustained Short Circuit		

WINDING DATA

Stator Winding		Double layer
Rotor Winding		with damping cage
Number of Leads of Stator		6
Stator Winding Resistance		0.28 at 20°C
Rotor Winding Resistance		12.3 at 20°C
THD at full load		<4% (L-L)
THD at no load		<3% (L-L)
Excitation at no load	A _{dc}	1.9
Excitation at full load	A _{dc}	7.5

STANDARD

References	EN60034-1 ISO8528-3 EN55011
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ELECTRICAL DATA

Frequency		50Hz - 3000rpm	60Hz - 3600rpm
Voltage Series Star	V	400/230	480/277
Rated Power in Class H (125°C/40°C)	kVA	22	26.4
	kW	17.6	21.12
Rated Power in Class F (105°C/40°C)	kVA	20	24
	kW	16	19.2
Rated Power Standby (150°C/40°C)	kVA	24	29
	kW	19.2	23.2
Rated Power Standby (163°C/27°C)	kVA	24.5	29.4
	kW	19.6	23.52

EFFICIENCY IN CL. H

4/4	86.0%	86.5%
3/4	86.5%	86.7%
2/4	81.5%	82.2%
1/4	78.2%	78.7%

REACTANCES AND TIME CONSTANTS

pcc	0.42
X _d - dir. axis synchronous	373%
X' _d - dir. axis transient	29.0%
X'' _d - dir. axis subtransient	12.0%
X _q - quad. axis reactance	162%
T' _{do} - O.C. field time constant	600ms
T' _d - Transient time constant	47ms
T'' _d - Sub-transient time constant	6ms

MECHANICAL DATA

Bearing non drive end	6305-2Z-C3	
Bearing drive end (B3/B14 form)	6208-2Z-C3	
Weight of generator	in B2 kg	84.5
	in B3/B14 kg	80.3
	in B3/B9 kg	77.4

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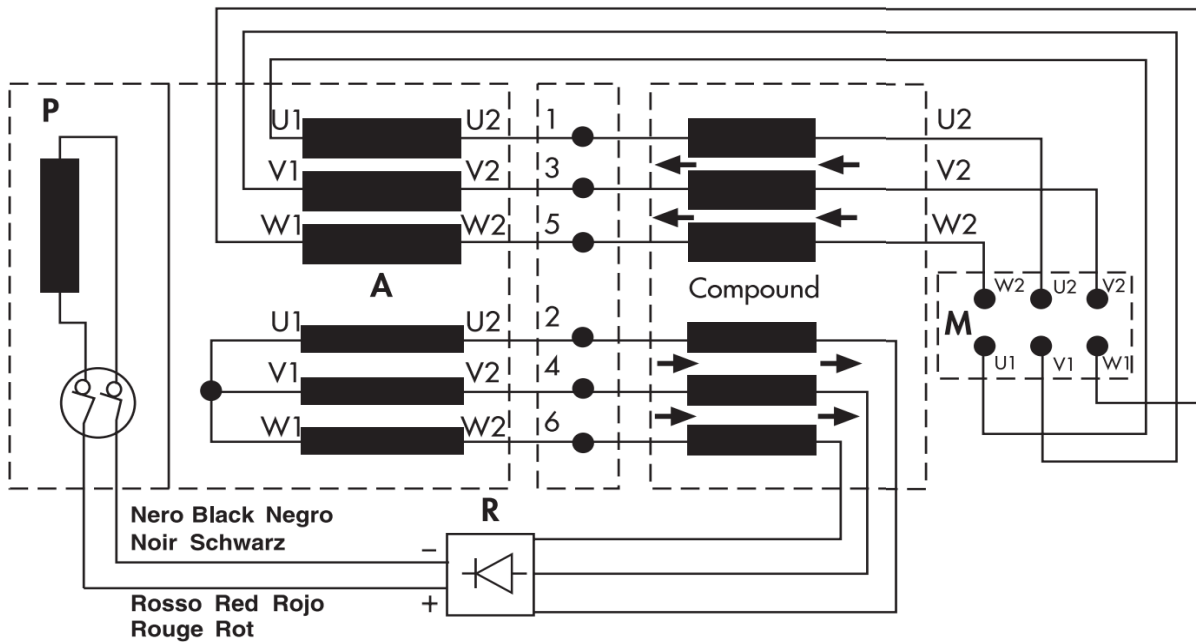
MOMENT OF INERZIA

B3/B9	kg·m ²	0.065
B2	kg·m ²	0.059
B3/B14	kg·m ²	0.065

POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

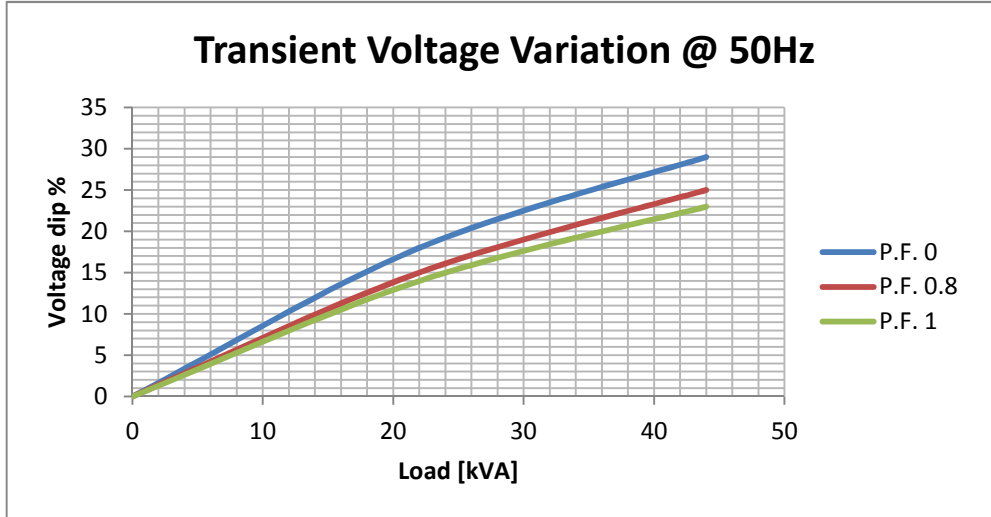
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

WIRING DIAGRAM

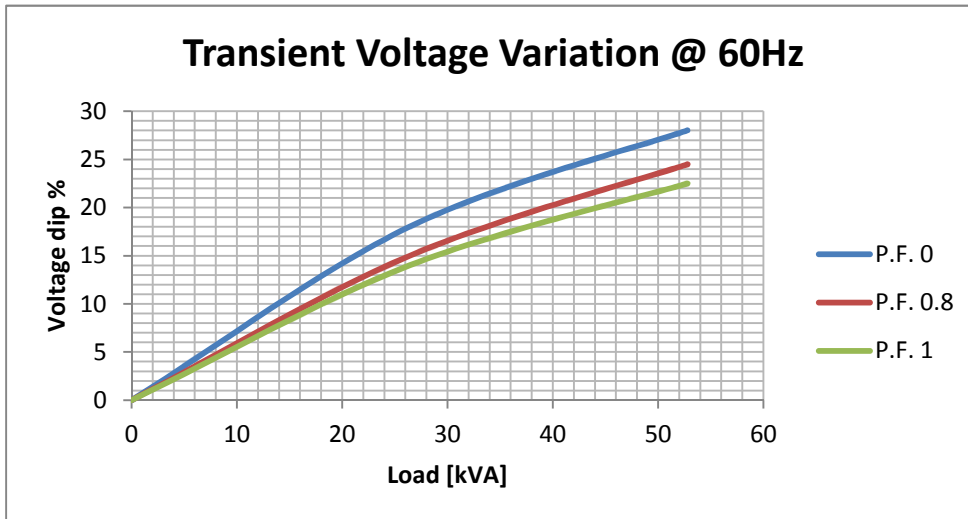


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TRANSIENT VOLTAGE VARIATION 50Hz

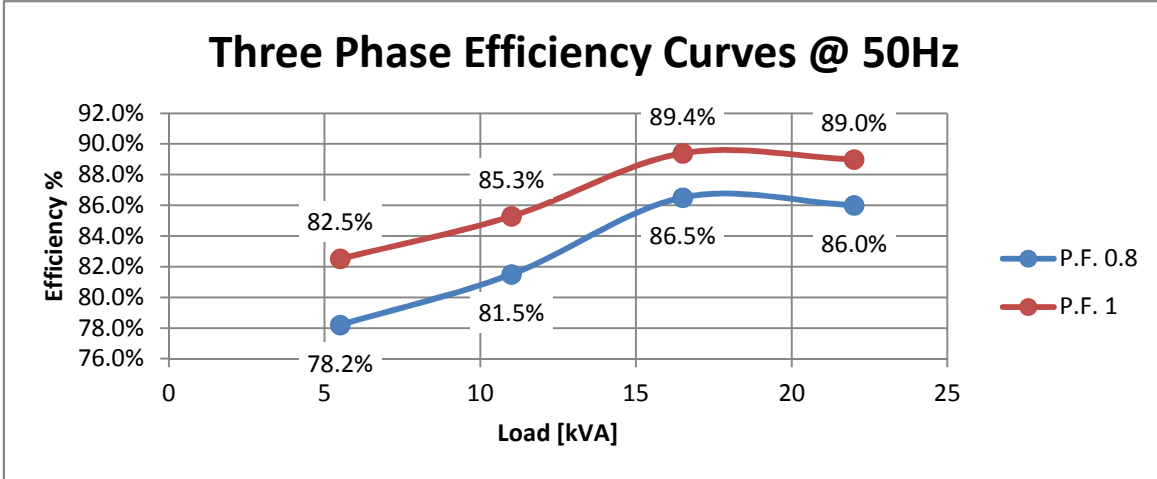


TRANSIENT VOLTAGE VARIATION 60Hz



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EFFICIENCY 50Hz



EFFICIENCY 60Hz

