



ALTERNATOR E1S13M F/4

three-phase synchronous alternator with brushes and compound - 4 poles

Technical Data Sheet

E1S13M F/4

COMMON DATA

Rated Power at 50Hz	kVA	20	
Rated Power at 60Hz	kVA	24	
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	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	4.6 at 50Hz	5.5 at 60Hz
R.F.I. Suppression		Standard EN55011	

REGULATION DATA

compound		Compound
Voltage Regulation		±4%
Sustained Short Circuit		> 300% of rated current

WINDING DATA

Stator Winding		Double layer
Rotor Winding		with damping cage
Number of Leads of Stator		6
Stator Winding Resistance		0.38 at 20°C
Rotor Winding Resistance		9.86 at 20°C
THD at full load		<3,5%
THD at no load		<3%
Excitation at no load	A _{dc}	3.35
Excitation at full load	A _{dc}	7.7

STANDARD

References	EN60034-1 ISO8528-3 EN55011
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ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	400/230	480/277
Rated Power in Class H (125°C/40°C)	kVA	20	24
	kW	16	19.2
Rated Power in Class F (105°C/40°C)	kVA	18.3	22
	kW	14.64	17.6
Rated Power Standby (150°C/40°C)	kVA	22	26
	kW	17.6	20.8
Rated Power Standby (163°C/27°C)	kVA	22.5	26.5
	kW	18	21.2

EFFICIENCY IN CL. H

4/4	86.0%	86.5%
3/4	86.2%	86.8%
2/4	82.0%	83.3%
1/4	77.2%	77.7%

REACTANCES AND TIME CONSTANTS

pcc	0.90
X _d - dir. axis synchronous	157%
X' _d - dir. axis transient	21.0%
X'' _d - dir. axis subtransient	7.6%
X _q - quad. axis reactance	135%
T' _{do} - O.C. field time constant	400ms
T' _d - Transient time constant	53ms
T'' _d - Sub-transient time constant	6.4ms

MECHANICAL DATA

Bearing non drive end	6305-2Z-C3	
Bearing drive end (B3/B14 form)	6208-2Z-C3	
Weight of generator	in B2 kg	94
	in B3/B14 kg	89.9
	in B3/B9 kg	87

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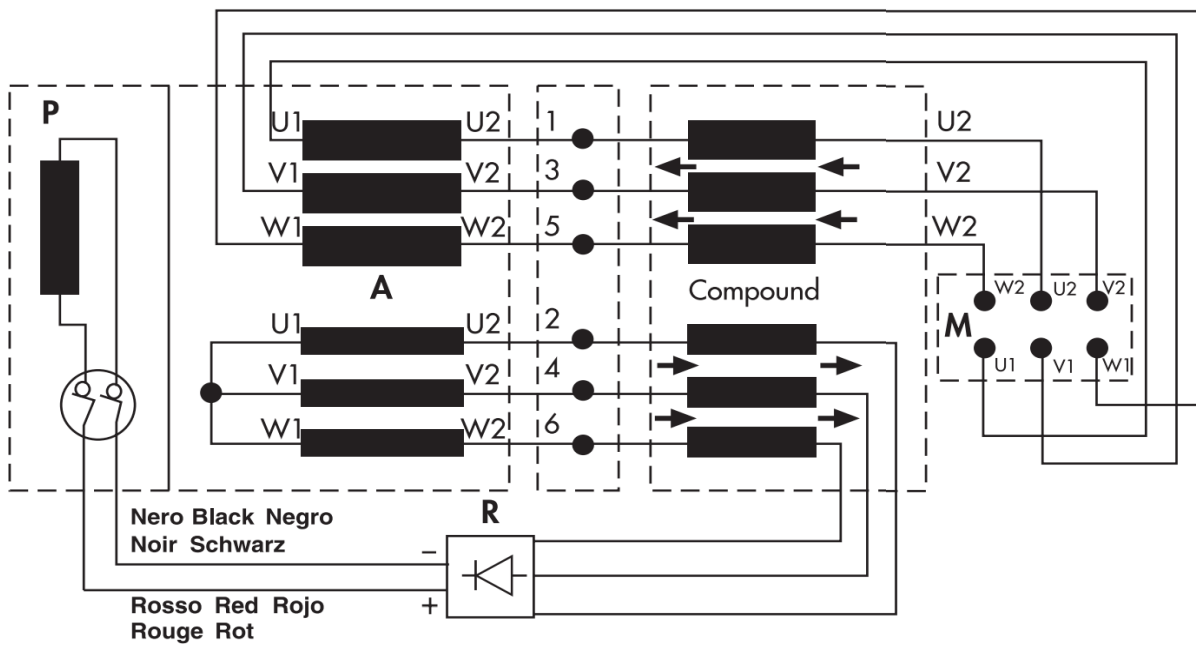
MOMENT OF INERZIA

B3/B9	kg·m ²	0.075
B2	kg·m ²	0.077
B3/B14	kg·m ²	0.075

POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

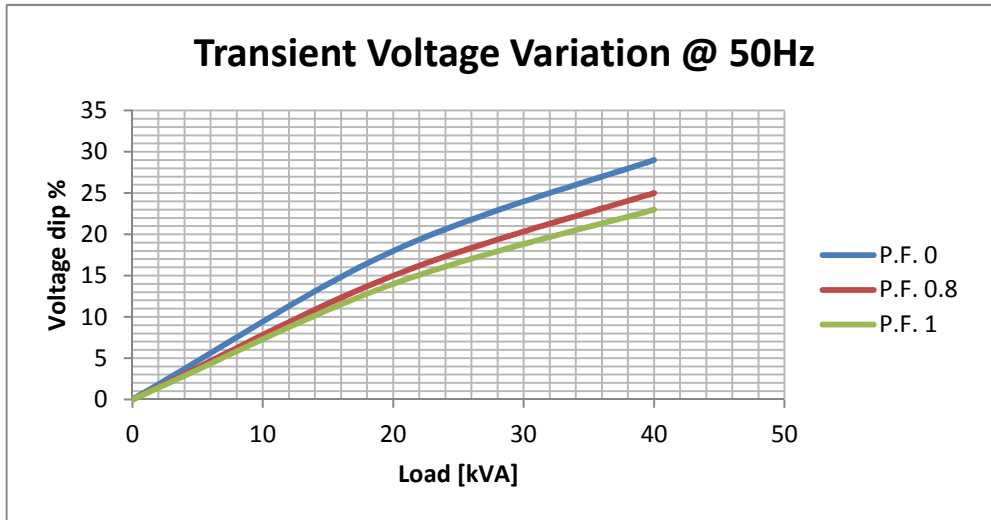
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

WIRING DIAGRAM

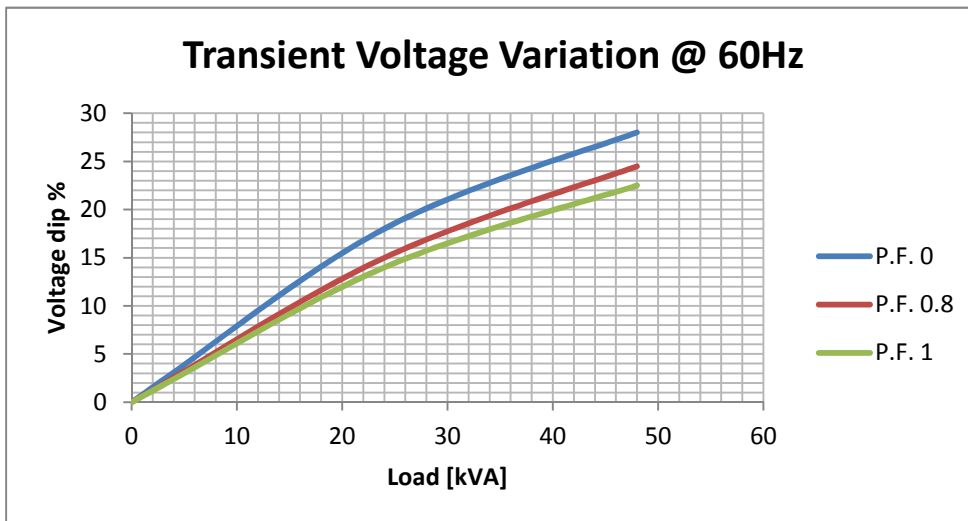


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TRANSIENT VOLTAGE VARIATION 50Hz

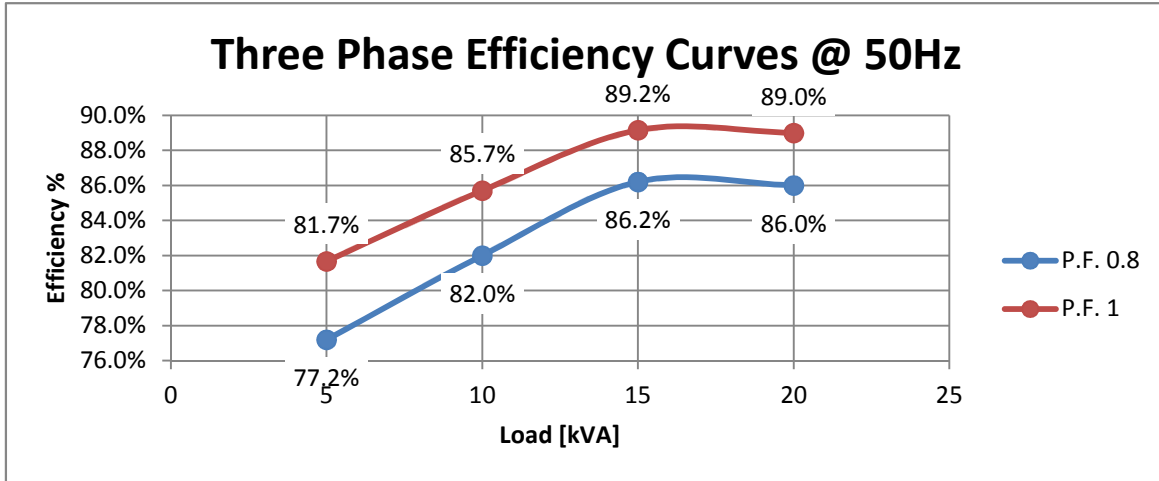


TRANSIENT VOLTAGE VARIATION 60Hz

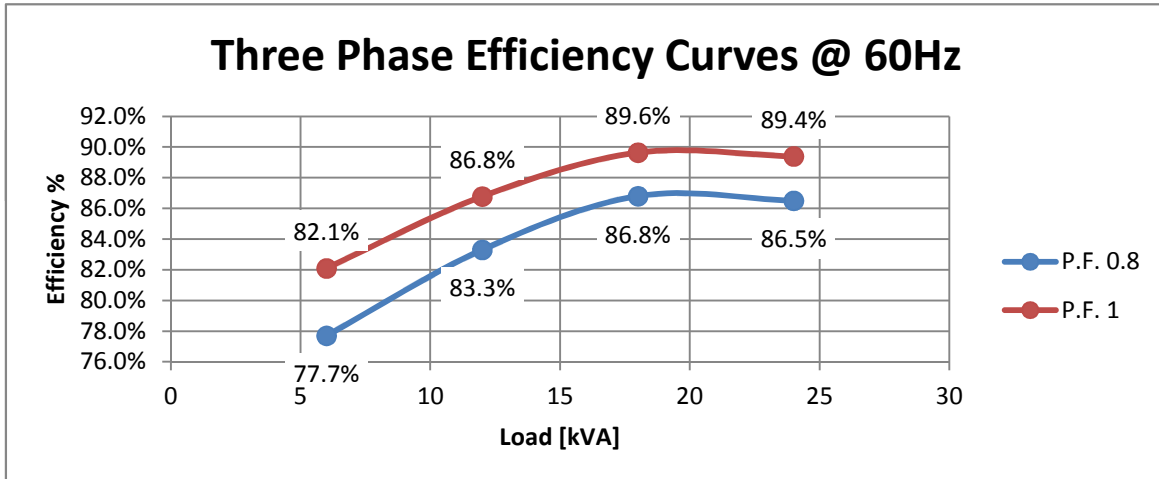


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EFFICIENCY 50Hz

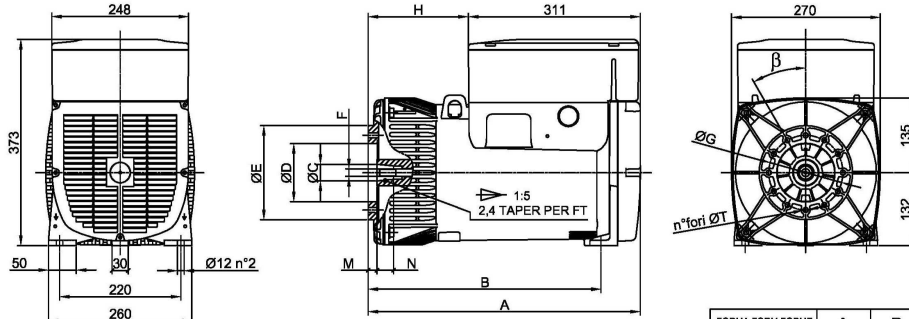


EFFICIENCY 60Hz



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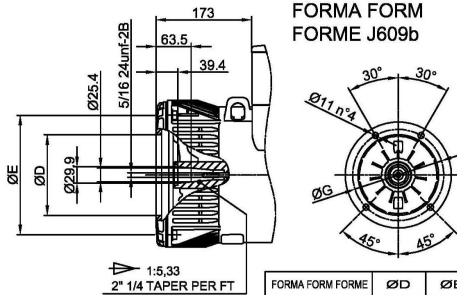
FORMA FORM FORME B3/B9



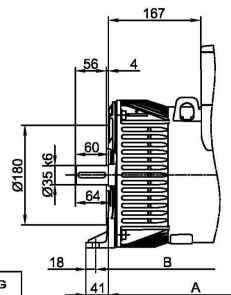
FORMA FORM FORME	ØC	ØD	ØE	F	ØG	H	M	N	n°fori	ØT	β
cono Ø30	Ø30	Ø105	Ø170	M14x1.5	Ø135	182	16	30	12	Ø9	30°
cono Ø38	Ø38	Ø125	Ø185	M18x1.5	Ø150	173	5	30	4	Ø11	β/2 45°

FORMA FORM FORME	A	B
B3B9 cono Ø30	493	422
B3B9 c.Ø38-J609b	484	413
B3/B14	478	430
MD35 - LOMB. STD	526	455

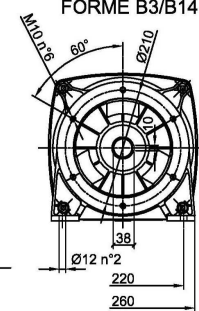
FORMA FORM FORME J609b



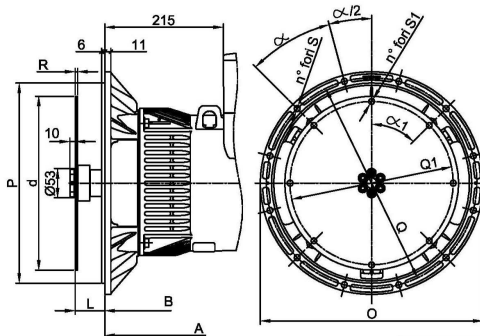
FORMA FORM FORME	ØD	ØE	ØG
J609b	Ø146	Ø192	Ø165
	Ø163.6	Ø216	Ø196.85
	Ø177.8		



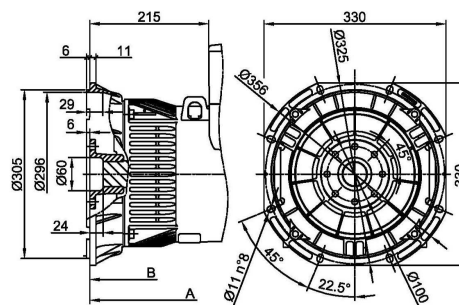
FORMA FORM FORME B3/B14



FORMA FORM FORME MD35



FORMA FORM FORME LOMBARDINI STD



SAE N.	FLANGIE - BRIDE - FLANGE					
	O	P	Q	n. fori	S	α
5	356	314.3	333.4	8	11	45°
4	403	382	381	12		30
3	451	409.6	428.6	12		30

SAE N.	GIUNTI A DISCO - DISC COUPLING - ACC. DISQUE						
	L	d	Q1	n. fori	S1	α1	R
6 1/2	30.2	215.9	200	6	9	60°	3
7 1/2	30.2	241.3	222.25	8	9	45°	
8	62	263.52	244.47	6	10.5	60	4.5
10	53.8	314.32	295.27	8	10.5	45°	
11 1/2	39.6	352.42	333.37	8	10.5	45°	