



## **ALTERNATOR E1X13S C/4**

*three-phase brushless synchronous alternator with AVR - 4 poles*

Technical Data Sheet

## E1X13S C/4

### COMMON DATA

Rated Power at 50Hz	kVA	10	
Rated Power at 60Hz	kVA	12	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self excited	
Execution		brushless	
Regulation Type		AVR	
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 <sup>3</sup> /min	4.5 at 50Hz	5.4 at 60Hz
R.F.I. Suppression		Standard EN55011	

### REGULATION DATA

AVR		HVR11	HVR30
Sensing		single-phase	three-phase
Voltage Regulation		±1%	±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		1.35 at 20°C
Rotor Winding Resistance		7.22 at 20°C
Exciter Stator Resistance		16.5 at 20°C
Exciter Rotor Resistance		2.15 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	A <sub>dc</sub>	0.54
Excitation at full load	A <sub>dc</sub>	1.51

### STANDARD

References	EN60034-1 ISO8528-3 EN55011
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### ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
Voltage Series Star	V	<b>380/220</b>	<b>400/230</b>	<b>415/240</b>	<b>440/254</b>	<b>415/240</b>	<b>440/254</b>	<b>460/266</b>	<b>480/277</b>
Rated Power in Class H (125°C/40°C)	kVA	10	10	10	9	10.8	11.5	12	12
	kW	8	8	8	7.2	8.64	9.2	9.6	9.6
Rated Power in Class F (105°C/40°C)	kVA	9.2	9.2	9.2	8	10	10.5	11	11
	kW	7.36	7.36	7.36	6.4	8	8.4	8.8	8.8
Rated Power Standby (150°C/40°C)	kVA	11	11	11	8.8	11.5	12.5	13	13
	kW	8.8	8.8	8.8	7.04	9.2	10	10.4	10.4
Rated Power Standby (163°C/27°C)	kVA	11.4	11.4	11.4	9	12	13	13.5	13.5
	kW	9.12	9.12	9.12	7.2	9.6	10.4	10.8	10.8

### EFFICIENCY IN CL. H

4/4		84.4%						84.6%
3/4		84.5%						85.0%
2/4		81.2%						81.4%
1/4		77.0%						78.0%

### REACTANCES AND TIME CONSTANTS

pcc		0.81							
X <sub>d</sub> - dir. axis synchronous		244%	220%	204%	164%	265%	251%	240%	220%
X' <sub>d</sub> - dir. axis transient		19.9%	18.0%	16.7%	13.4%	21.7%	20.5%	19.6%	18.0%
X'' <sub>d</sub> - dir. axis subtransient		8.4%	7.6%	7.1%	5.7%	9.2%	8.7%	8.3%	7.6%
X <sub>q</sub> - quad. axis reactance		132%	119%	111%	89%	143%	136%	130%	119%
T' <sub>do</sub> - O.C. field time constant		335ms							
T' <sub>d</sub> - Transient time constant		27ms							
T'' <sub>d</sub> - Sub-transient time constant		5ms							

### MECHANICAL DATA

Bearing non drive end				6305-2Z-C3
Bearing drive end (B3/B14 form)				6208-2Z-C3
Weight of generator	in B2	kg		76.5
	in B3/B14	kg		72.4
	in B3/B9	kg		\

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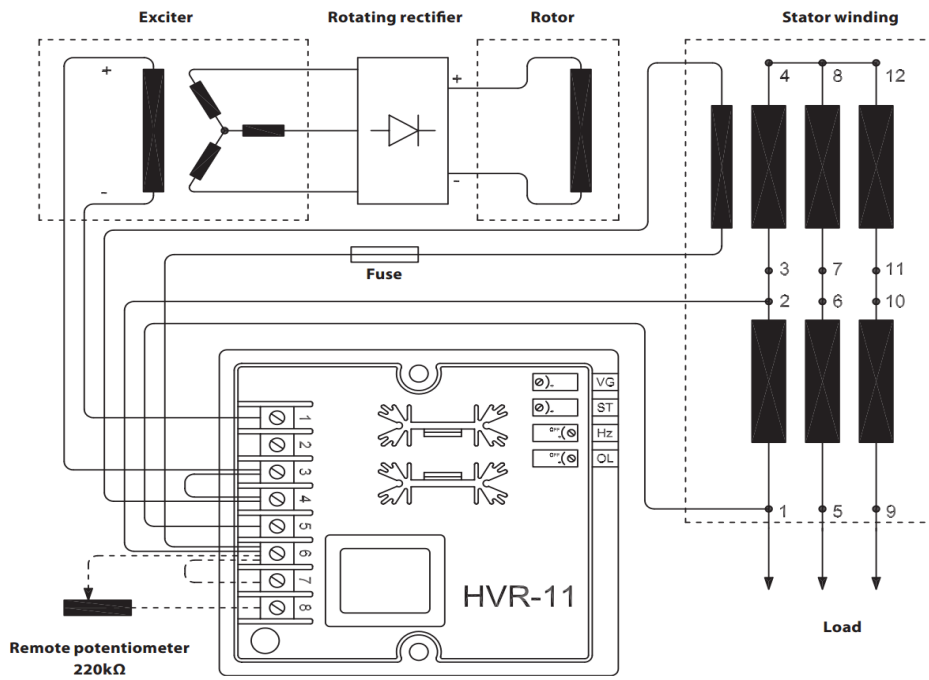
**MOMENT OF INERZIA**

B3/B9	kg·m <sup>2</sup>	\
SAE 7½	kg·m <sup>2</sup>	0.079
B2	kg·m <sup>2</sup>	0.072

**POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE**

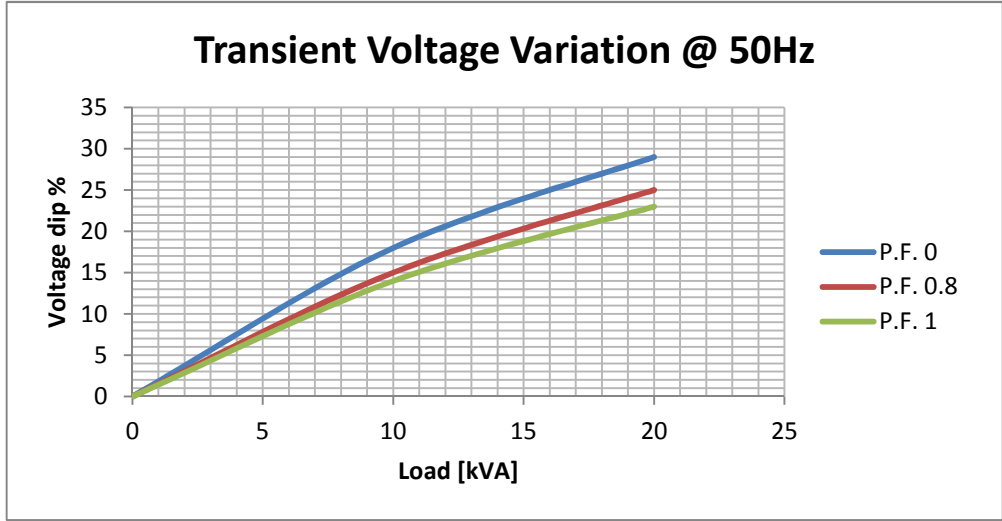
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

**WIRING DIAGRAM**

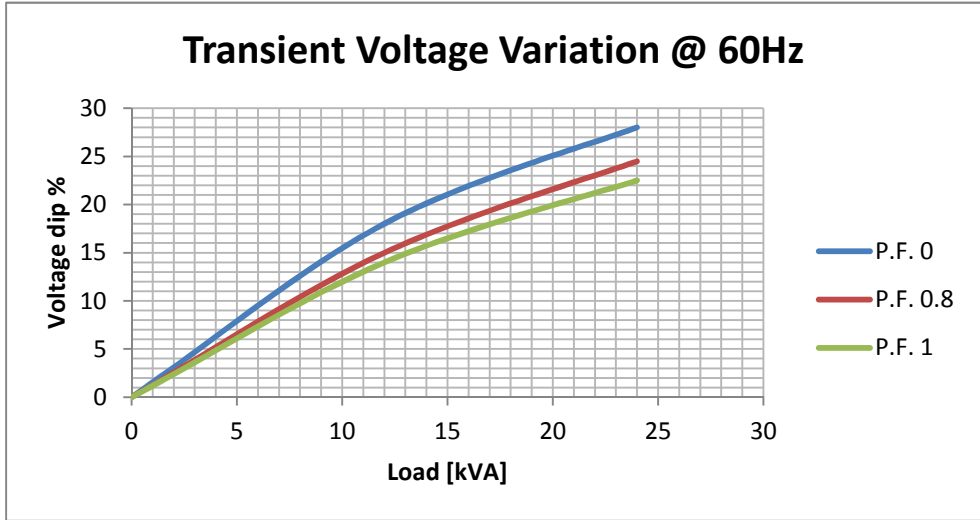


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**TRANSIENT VOLTAGE VARIATION 50Hz**

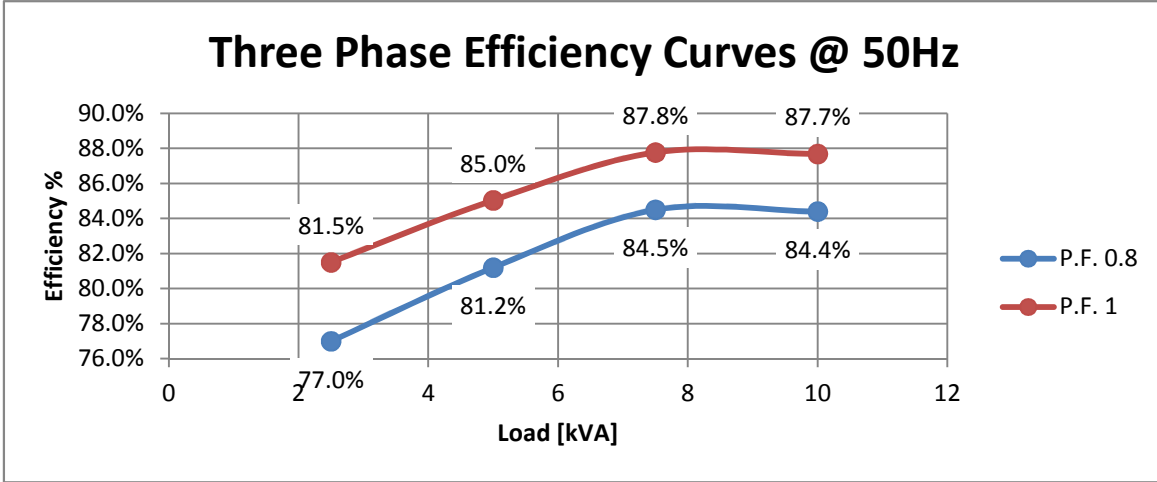


**TRANSIENT VOLTAGE VARIATION 60Hz**

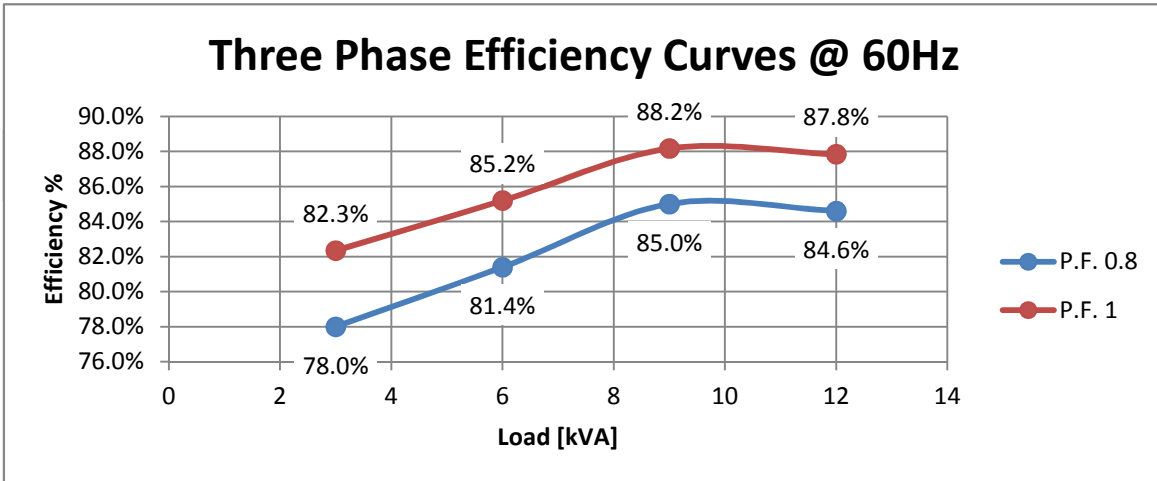


**E1X13S C/4**

**EFFICIENCY 50Hz**



**EFFICIENCY 60Hz**



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### FORMA - FORM B3/B9

FORMA FORM	ØC	ØD	ØE	F	ØG	H	M	N	n°fori	ØT	β
cono Ø30	Ø30	Ø105	Ø170	M14x1.5	Ø135	92	16	30	12	Ø9	30°
cono Ø38	Ø38	Ø125	Ø185	M18x1.5	Ø150	83	5	30	4	Ø11	β/2 45°

FORMA FORM	A	B
B3B9 cono Ø30	463	332
B3B9 c.Ø38-J609b	454	323
B3/B14	448	340
MD35 - LOMB. STD	496	365

### FORMA - FORM J609b

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

### FORMA - FORM B3/B14

### FORMA - FORM MD35

### FORMA - FORM LOMBARDINI STD

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	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°	
10	53.8	314.32	295.27	8	10.5	45°	4.5
11 1/2	39.6	352.42	333.37	8	10.5	45°	

SAE N.	FLANGIE - FLANGES - BRIDAS					
	O	P	Q	n. fori	S	α
5	356	314.3	333.4	8		45°
4	403	362	381	12	11	30°
3	451	409.6	428.6	12		30°