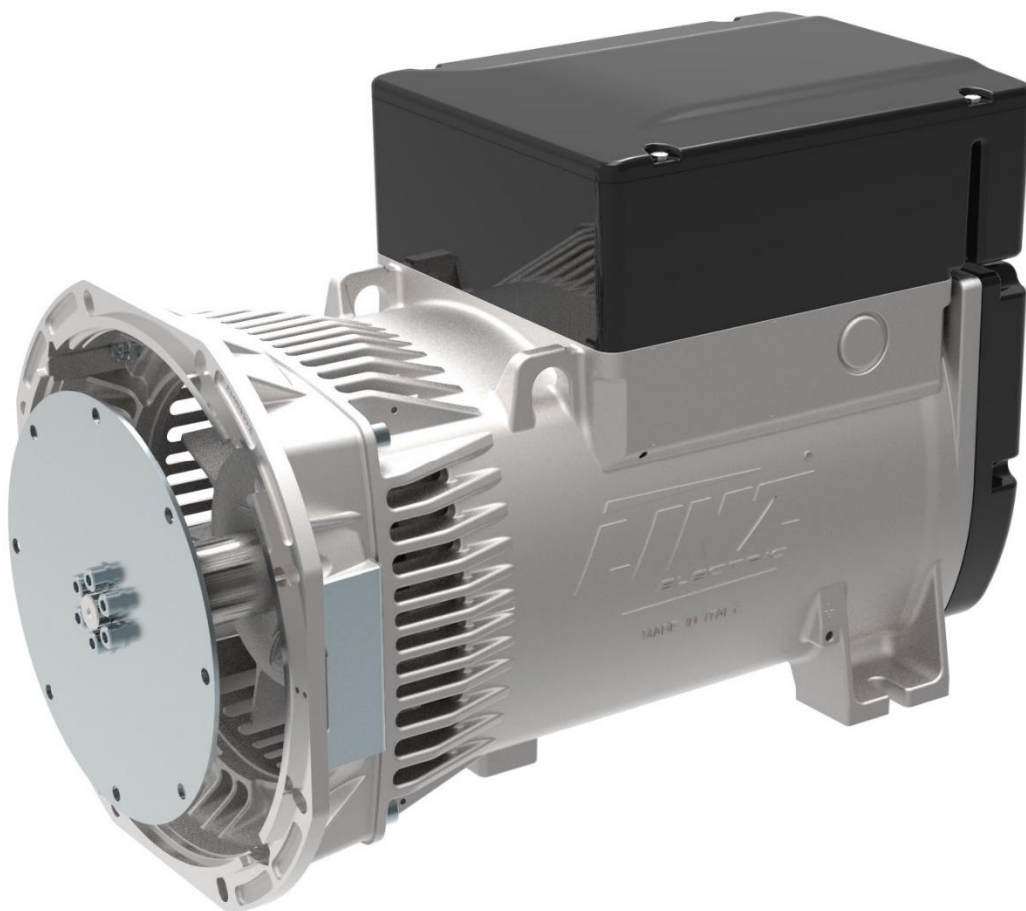


TECHNICAL DATA SHEET



**ALTERNATOR E1S13M D/2**

*Three-Phase synchronous alternator with brushes and compound - 2 poles*

## E1S13M D/2

### COMMON DATA

Rated Power at 50Hz	kVA	22,0	
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 Over speed	rpm	4500	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m <sup>3</sup> /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	Ω	0,28 at 20°C
Rotor Winding Resistance	Ω	12,3 at 20°C
THD at full load		<4% (L-L)
THD at no load		<3% (L-L)
Excitation at no Load	A <sub>dc</sub>	1,9
Excitation at full Load	A <sub>dc</sub>	7,5

### STANDARD

References	EN60034-1 ISO8528-3 EN55011
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### ON REQUEST

UL 1446, Systems of Insulating Materials - General CSA-C22.2 No. 0, Appendix B, General Requirements - Canadian Electrical Code, Part I

## E1S13M D/2

### ELECTRICAL DATA

Frequency		50Hz - 3000rpm	60Hz - 3600rpm
Voltage Series Star	V	<b>400/230</b>	<b>480/277</b>
Rated Power in Class H (125°C/40°C)	kVA	22,0	26,4
	kW	17,6	21,12
Rated Power in Class F (105°C/40°C)	kVA	20,0	24,0
	kW	16,0	19,2
Rated Power Standby (150°C/40°C)	kVA	24,0	29,0
	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 <sub>d</sub> - dir. axis synchronous	373%
X' <sub>d</sub> - dir. axis transient	29,0%
X'' <sub>d</sub> - dir. axis subtransient	12,0%
X <sub>q</sub> - quad. axis reactance	162%
T' <sub>do</sub> - O.C. field time constant	600ms
T' <sub>d</sub> - Transient time constant	47ms
T'' <sub>d</sub> - Sub-transient time constant	6,0ms

### MECHANICAL DATA

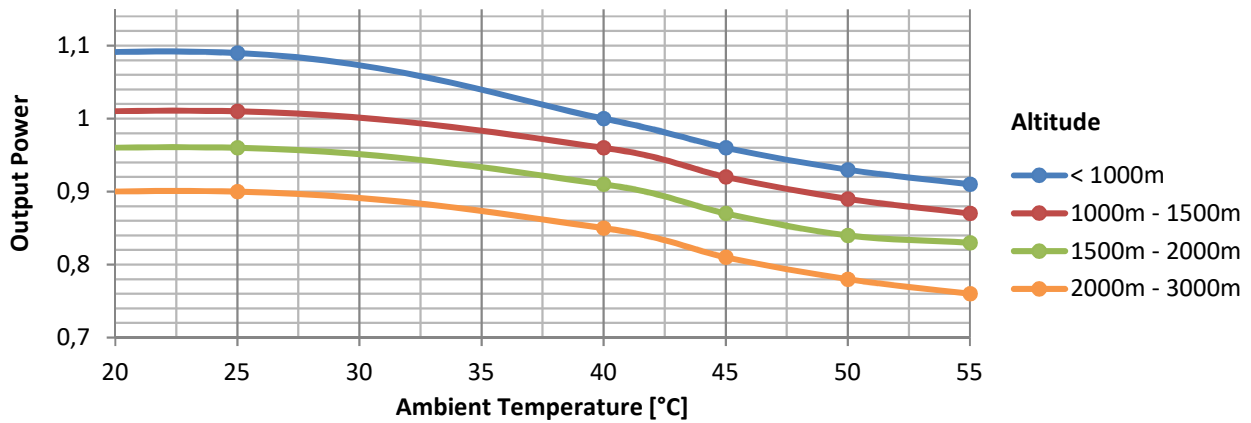
Bearing non drive end	6305-2Z-C3	
Bearing drive end (B3/B14 form)	6208-2Z-C3	
Weight of generator	in B2 kg	84,5
	in B3/B14 kg	80,3
	in B3/B9 kg	77,4

# E1S13M D/2

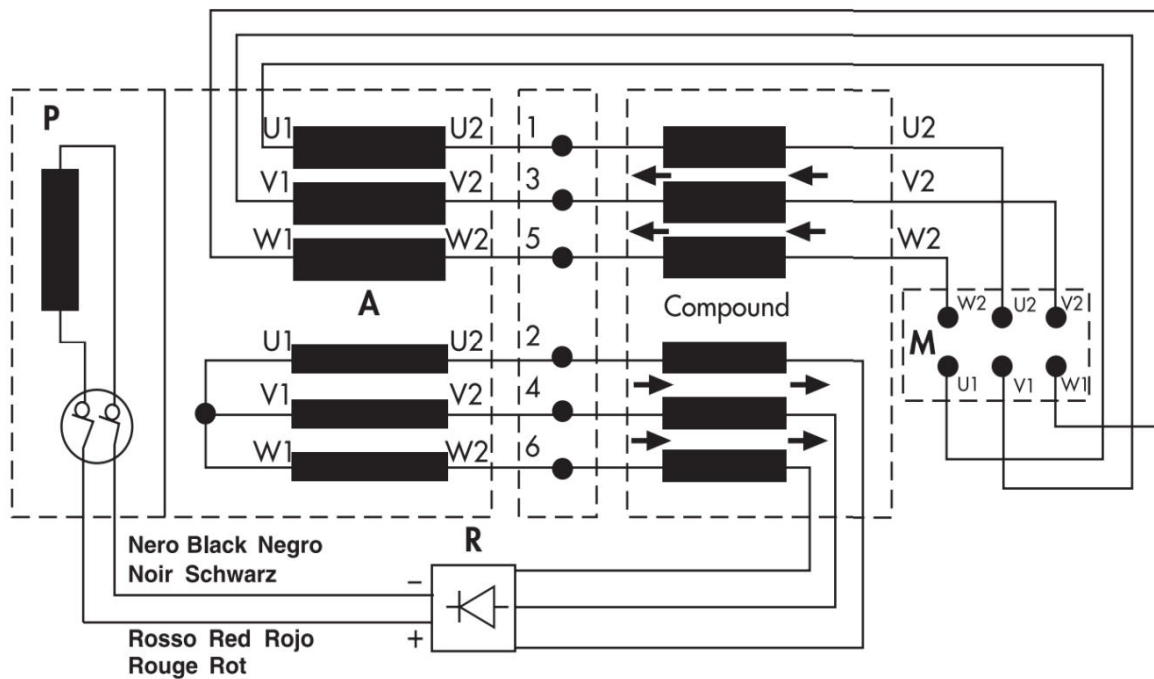
## MOMENT OF INERZIA

B3/B9	kg·m <sup>2</sup>	0,065
B2	kg·m <sup>2</sup>	0,059
B3/B14	kg·m <sup>2</sup>	0,065

## DERATING CURVES



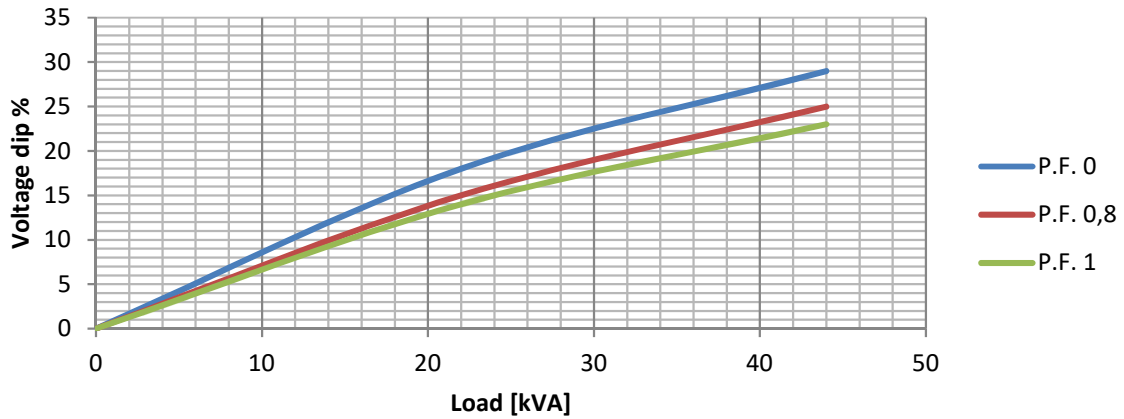
## WIRING DIAGRAM



# E1S13M D/2

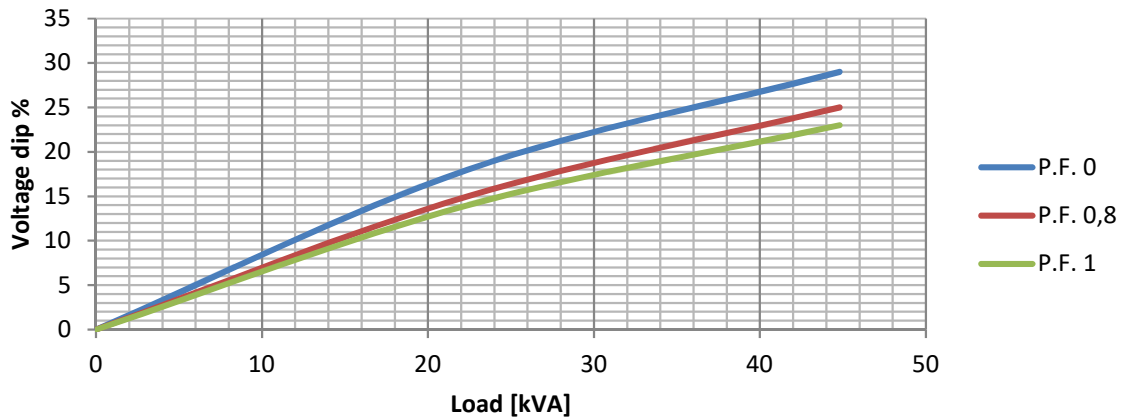
## TRANSIENT VOLTAGE VARIATION 50Hz

### Transient Voltage Variation @ 50Hz



## TRANSIENT VOLTAGE VARIATION 60Hz

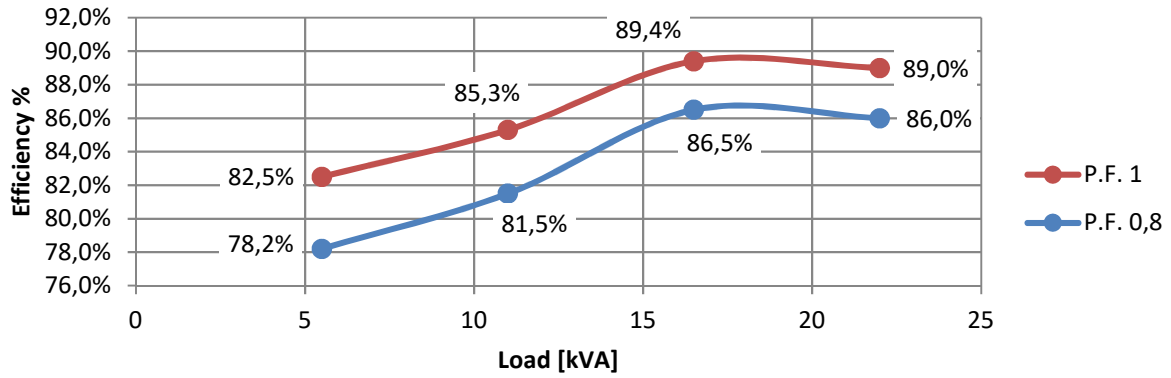
### Transient Voltage Variation @ 60Hz



# E1S13M D/2

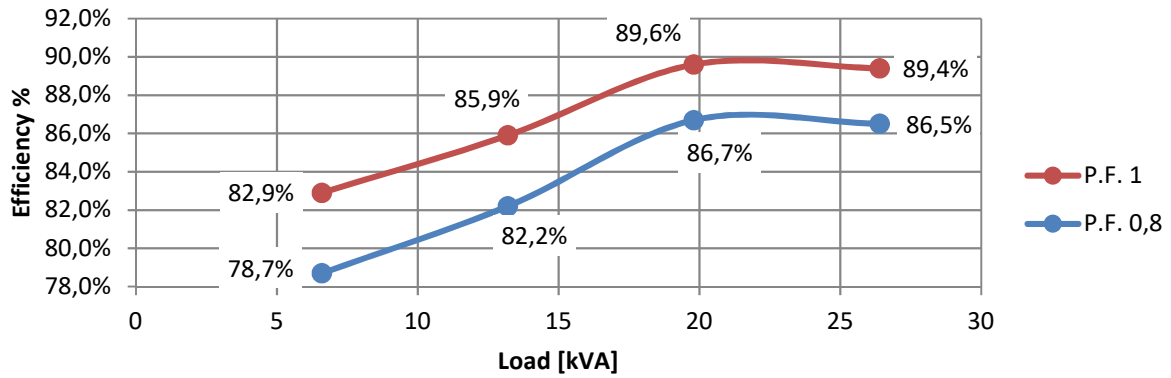
## EFFICIENCY 50Hz

### Efficiency Curves @ 50Hz



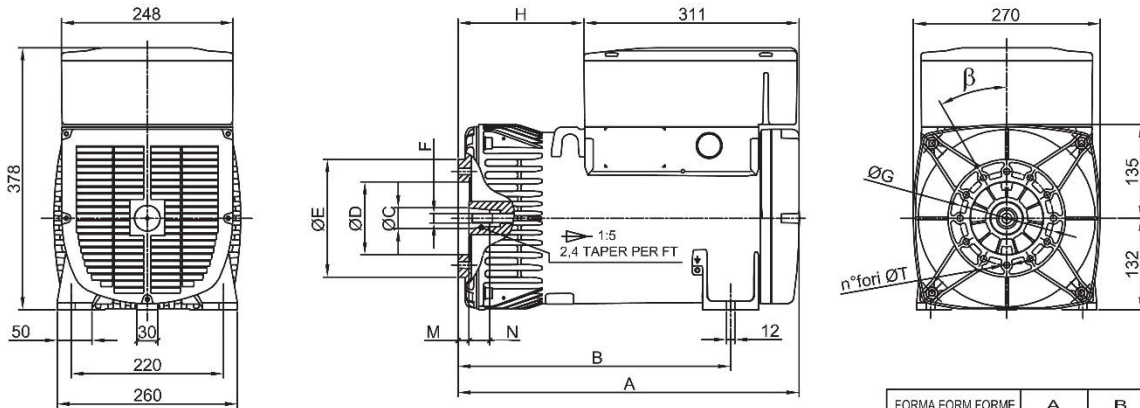
## EFFICIENCY 60Hz

### Efficiency Curves @ 60Hz



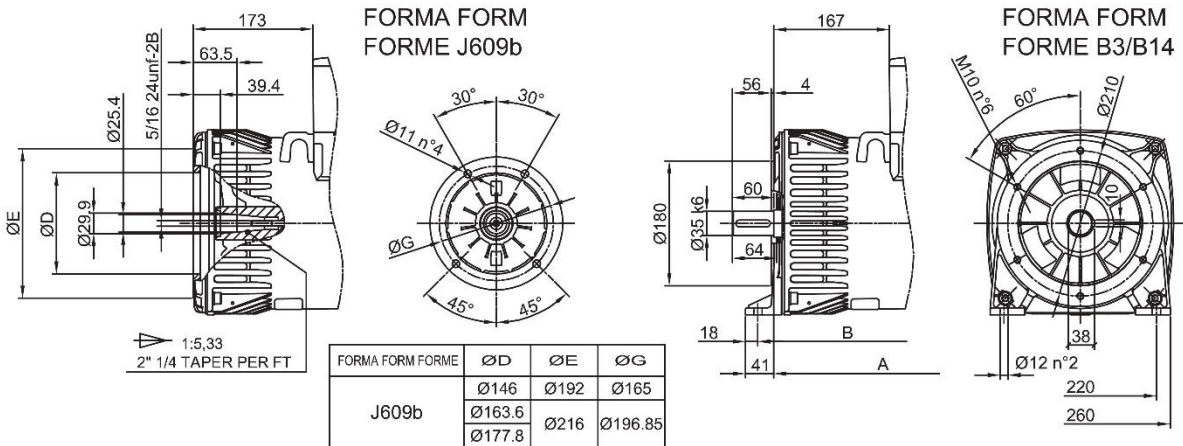
# E1S13M D/2

FORMA FORM FORME B3/B9



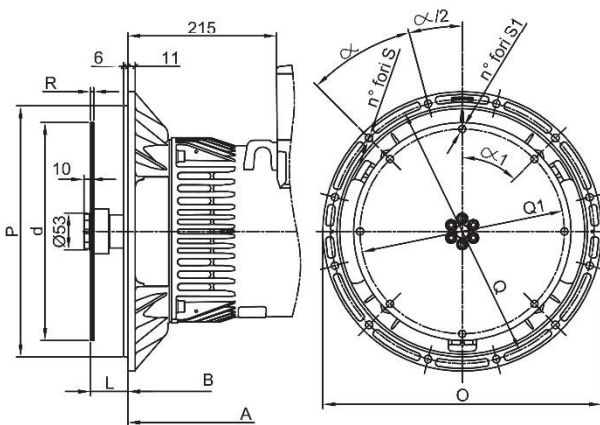
FORMA FORM FORME	$\varnothing C$	$\varnothing D$	$\varnothing E$	F	$\varnothing G$	H	M	N	$n^{\circ}$ fori	$\varnothing T$	$\beta$
cono $\varnothing 30$	$\varnothing 30$	$\varnothing 105$	$\varnothing 170$	M14x1.5	$\varnothing 135$	182	16	30	12	$\varnothing 9$	30°
cono $\varnothing 38$	$\varnothing 38$	$\varnothing 125$	$\varnothing 185$	M18x1.5	$\varnothing 150$	173	5	30	4	$\varnothing 11$	$\beta/2$ 45°

FORMA FORM FORME	A	B
B3B9 cono $\varnothing 30$	493	394
B3B9 c. $\varnothing 38$ -J609b	484	385
B3/B14	478	402
MD35 - LOMB. STD	526	427

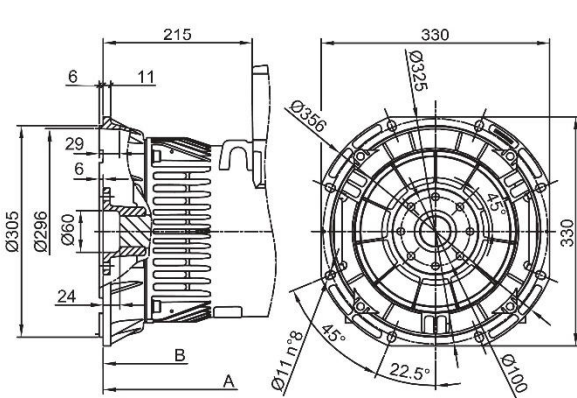


FORMA FORM FORME	$\varnothing D$	$\varnothing E$	$\varnothing G$
J609b	$\varnothing 146$	$\varnothing 192$	$\varnothing 165$
	$\varnothing 163.6$	$\varnothing 216$	$\varnothing 196.85$
	$\varnothing 177.8$		

FORMA FORM FORME MD35



FORMA FORM FORME LOMBARDINI STD



SAE N.	FLANGIE - BRIDE - FLANGE					
	O	P	Q	n. fori	S	$\alpha$
5	356	314.3	333.4	8	11	45°
4	403	362	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	$\alpha/1$	R
6 1/2	30.2	215.9	200	6	9	60°	
7 1/2	30.2	241.3	222.25	8	9	45°	3
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°	