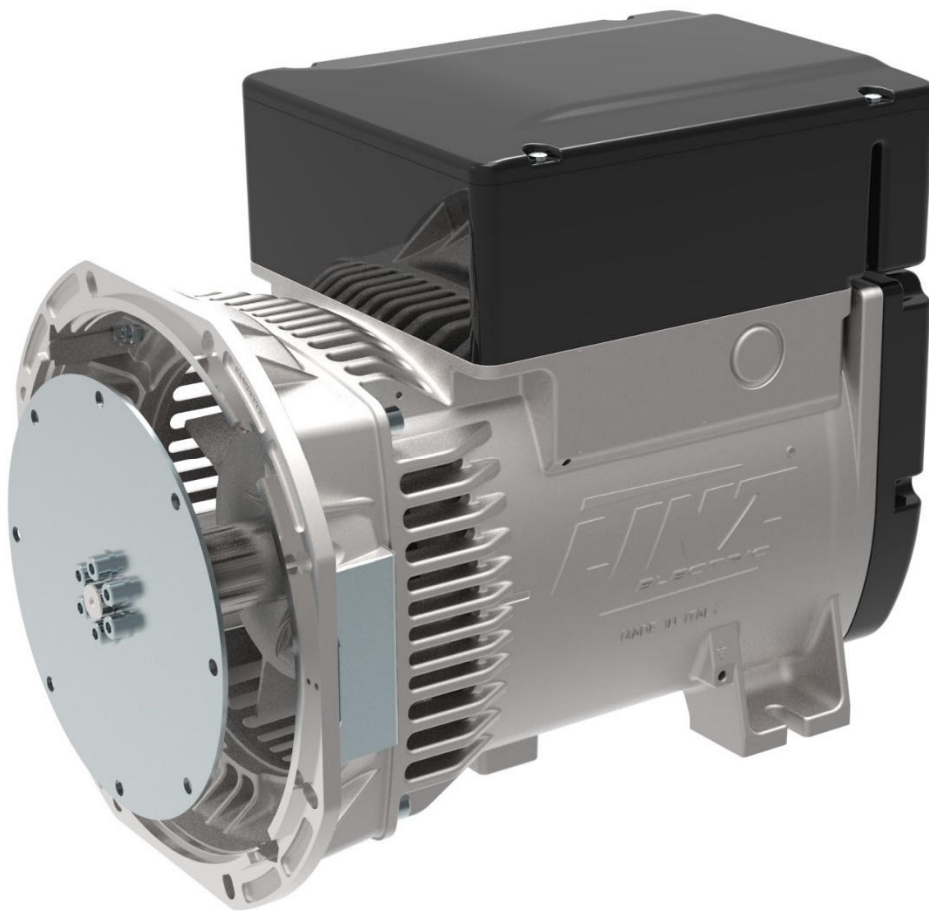


TECHNICAL DATA SHEET



ALTERNATOR E1C13S A/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13S A/4

COMMON DATA

Rated Power at 50Hz	kVA	5,5
Rated Power at 60Hz	kVA	7,0
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	3,1 at 50Hz 3,6 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,73 at 20°C
Rotor Winding Resistance	Ω 0,83 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13S A/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	5,5	7,0
Rated Power in Class F (105°C/40°C)	kW	5,0	6,5
Rated Power Standby (150°C/40°C)	kW	5,8	7,5
Rated Power Standby (163°C/27°C)	kW	6,0	7,8

EFFICIENCY IN CL. H

4/4	77,0%	78,0%
3/4	78,0%	78,5%
2/4	73,0%	74,0%
1/4	71,5%	72,0%

MECHANICAL DATA

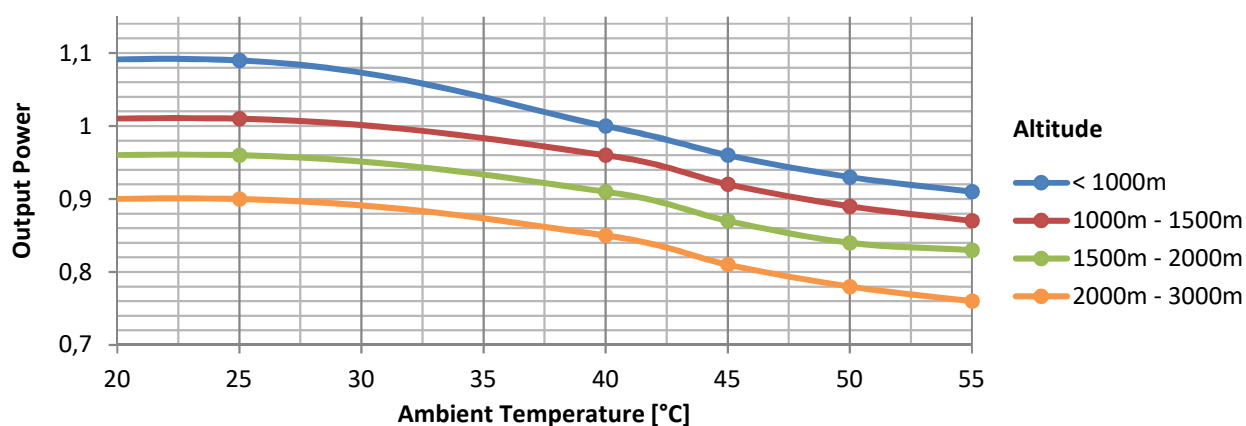
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	51,1
	in B3/B14	kg	47,0
	in B3/B9	kg	44,0

E1C13S A/4

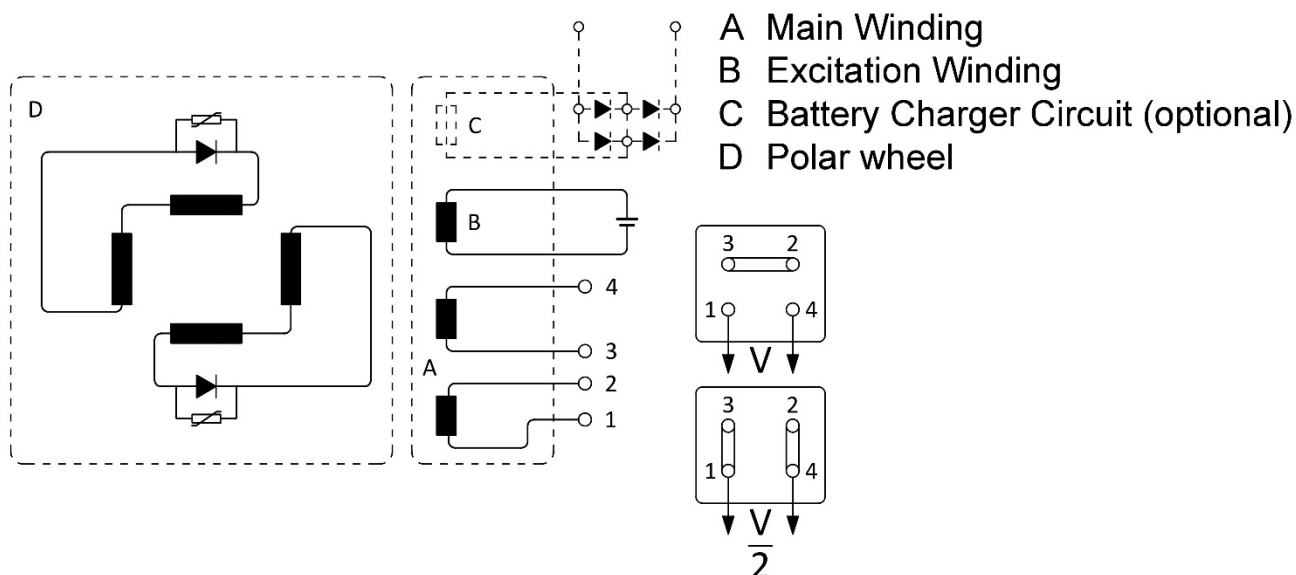
MOMENT OF INERZIA

B3/B9	kg·m ²	0,044
B2	kg·m ²	0,042
B3/B14	kg·m ²	0,044

DERATING CURVES

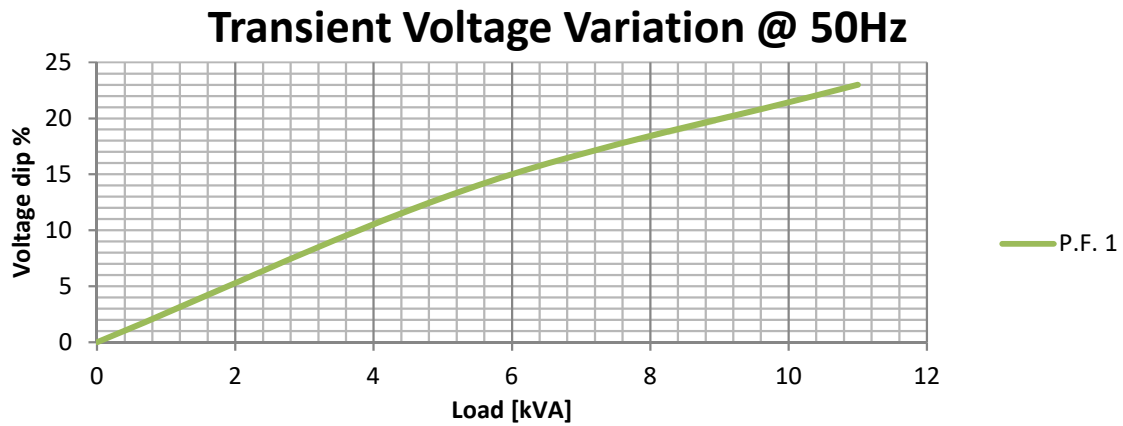


WIRING DIAGRAM

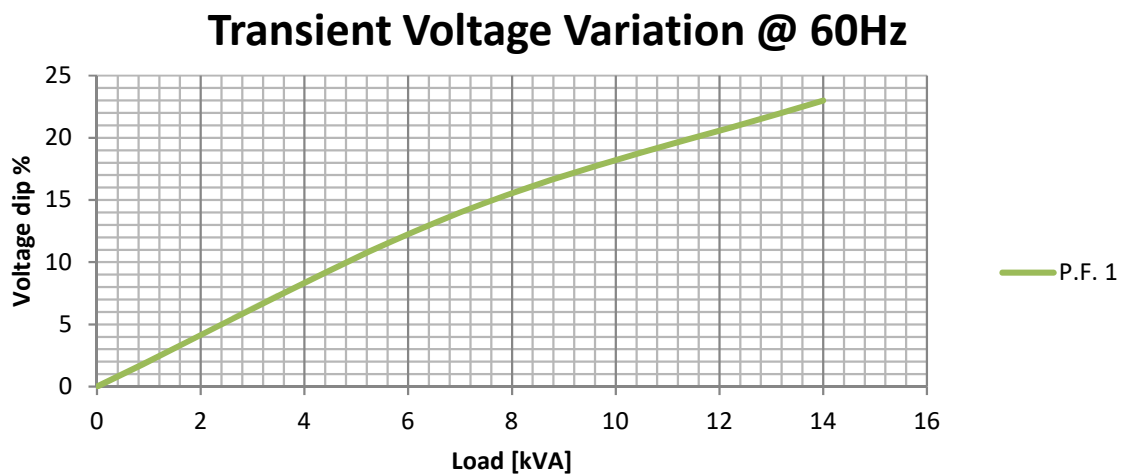


E1C13S A/4

TRANSIENT VOLTAGE VARIATION 50Hz



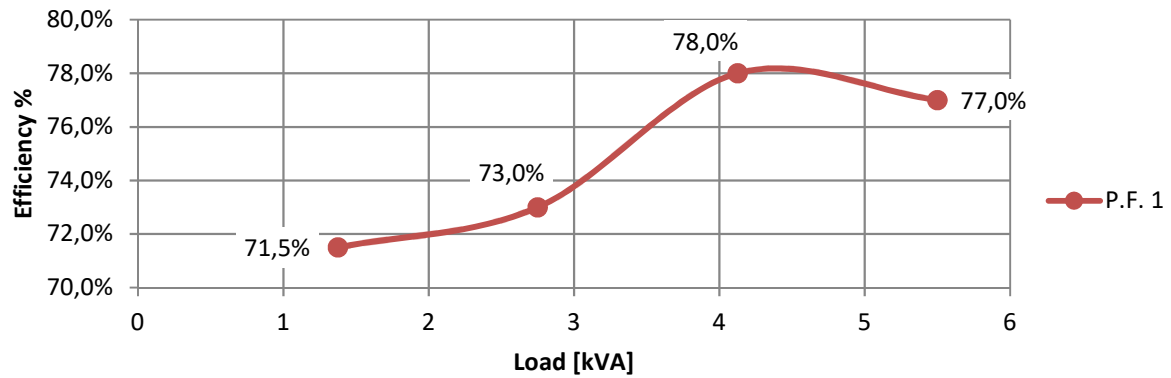
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13S A/4

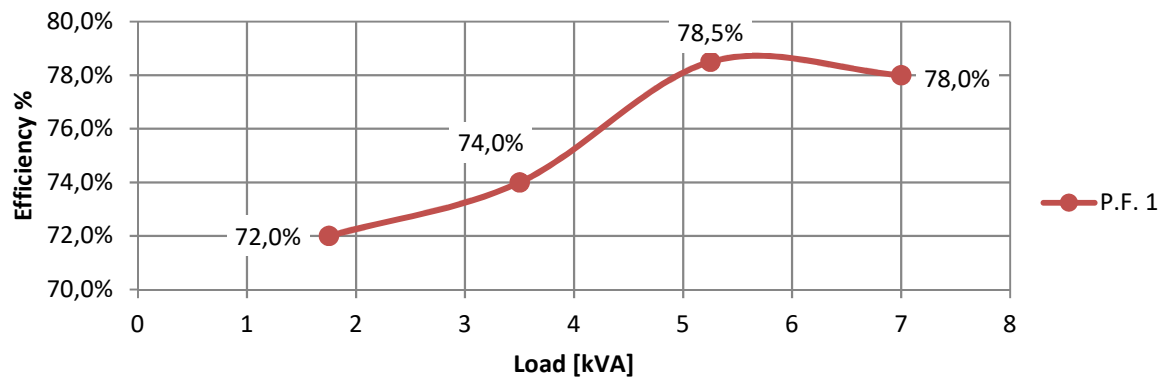
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



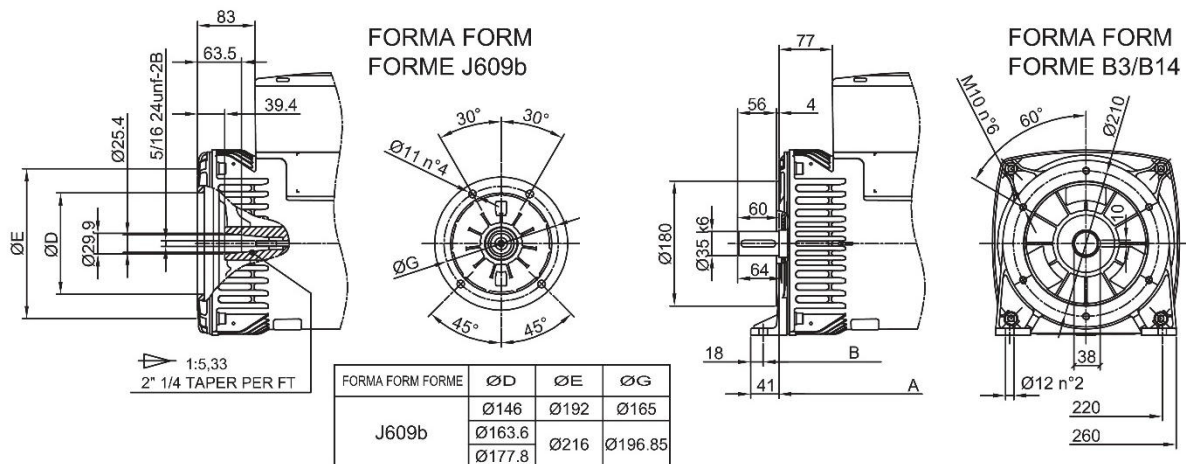
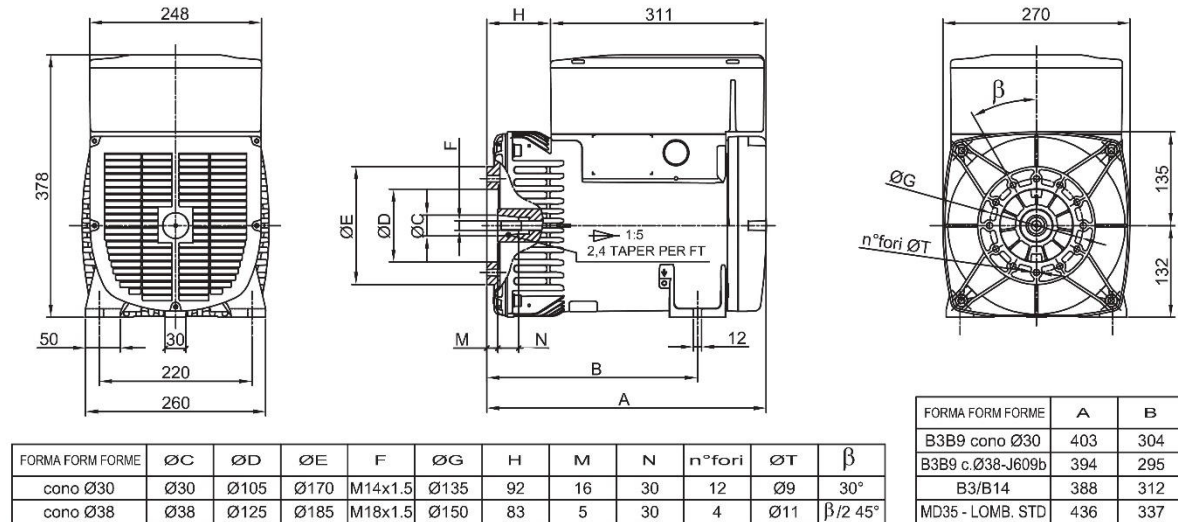
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



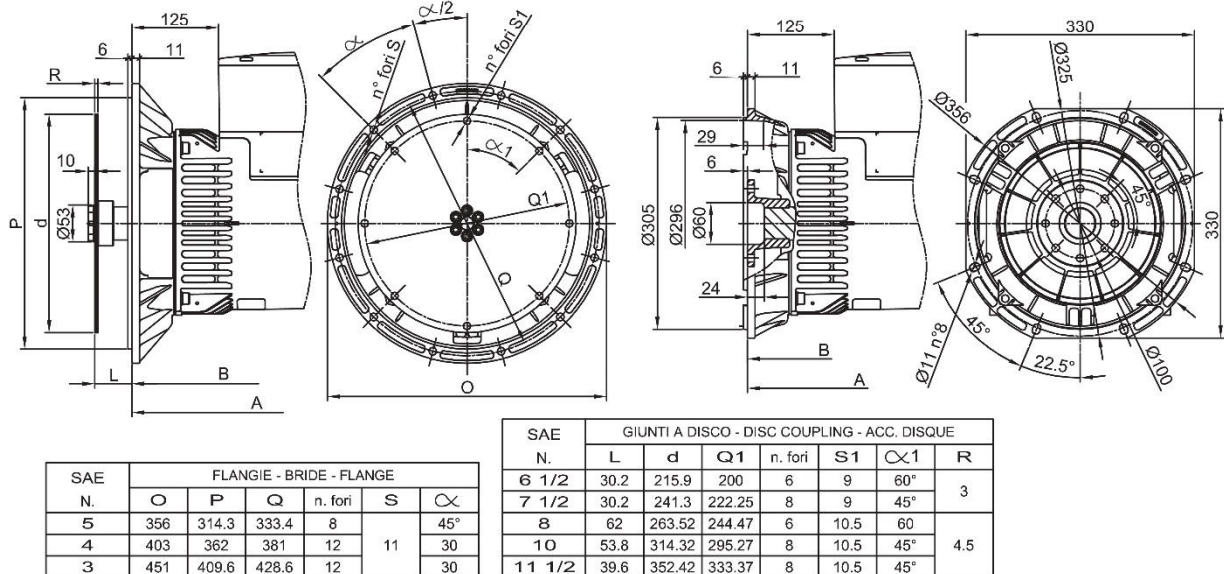
E1C13S A/4

FORMA FORM FORME B3/B9

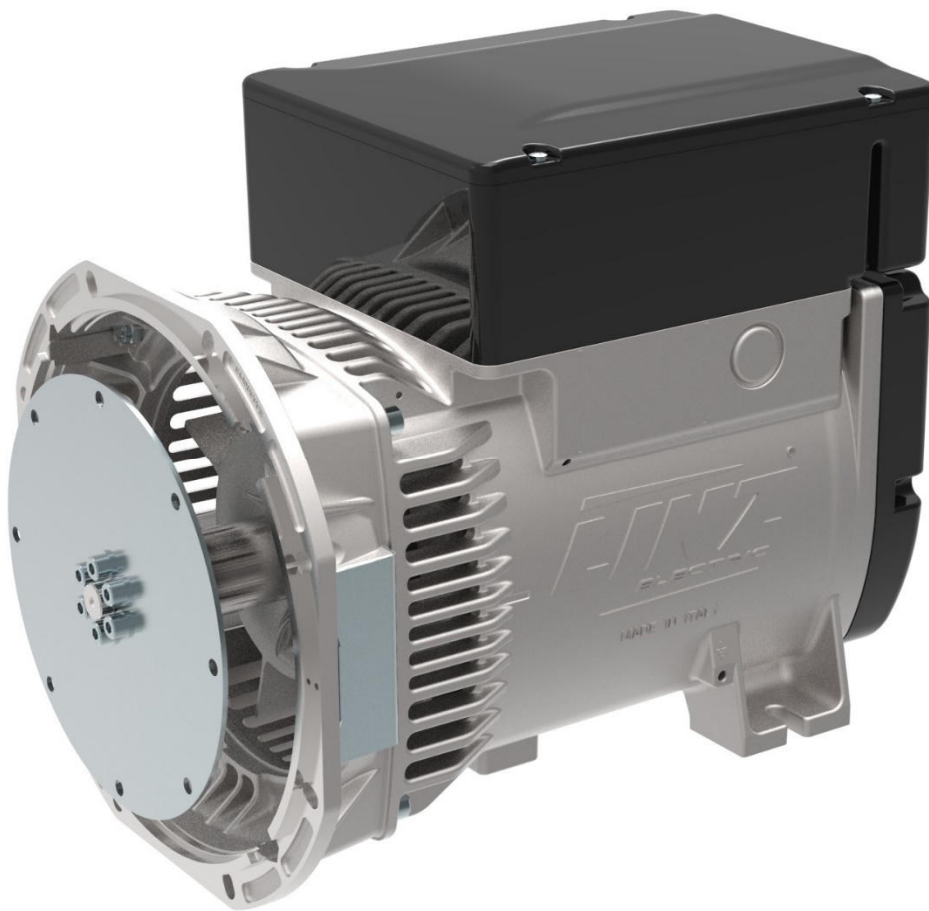


FORMA FORM FORME MD35

FORMA FORM FORME LOMBARDINI STD



TECHNICAL DATA SHEET



ALTERNATOR E1C13S B/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13S B/4

COMMON DATA

Rated Power at 50Hz	kVA	7,0
Rated Power at 60Hz	kVA	8,5
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	5,3 at 50Hz 6,4 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,57 at 20°C
Rotor Winding Resistance	Ω 0,94 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13S B/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	7,0	8,5
Rated Power in Class F (105°C/40°C)	kW	6,2	7,5
Rated Power Standby (150°C/40°C)	kW	7,7	9,3
Rated Power Standby (163°C/27°C)	kW	8,0	9,6

EFFICIENCY IN CL. H

4/4	78,0%	79,0%
3/4	79,0%	80,0%
2/4	74,3%	75,1%
1/4	66,2%	68,0%

MECHANICAL DATA

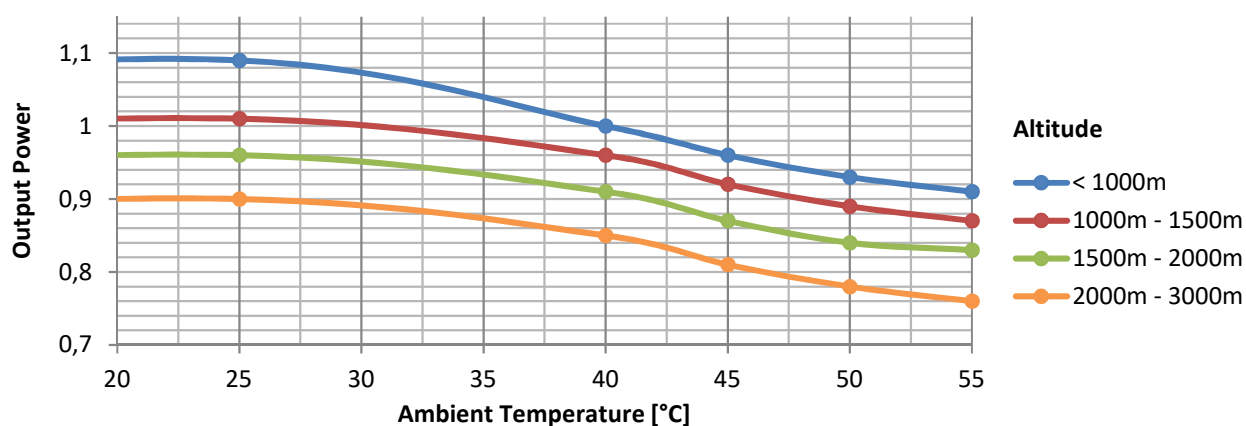
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	57,6
	in B3/B14	kg	53,5
	in B3/B9	kg	50,6

E1C13S B/4

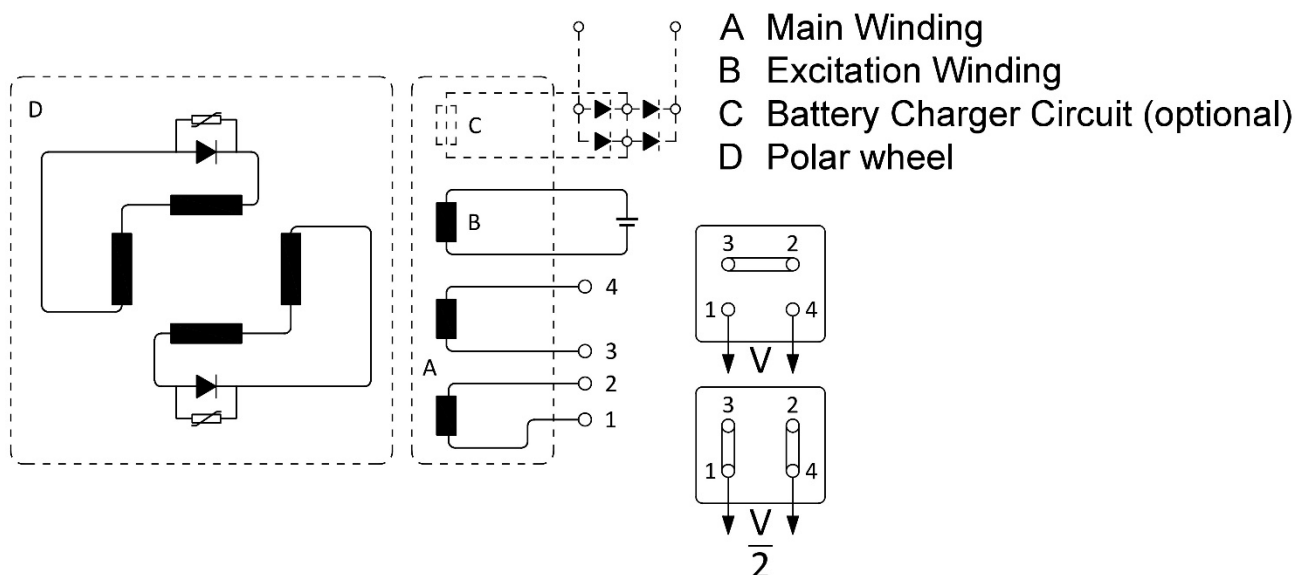
MOMENT OF INERZIA

B3/B9	kg·m ²	0,049
B2	kg·m ²	0,048
B3/B14	kg·m ²	0,049

DERATING CURVES

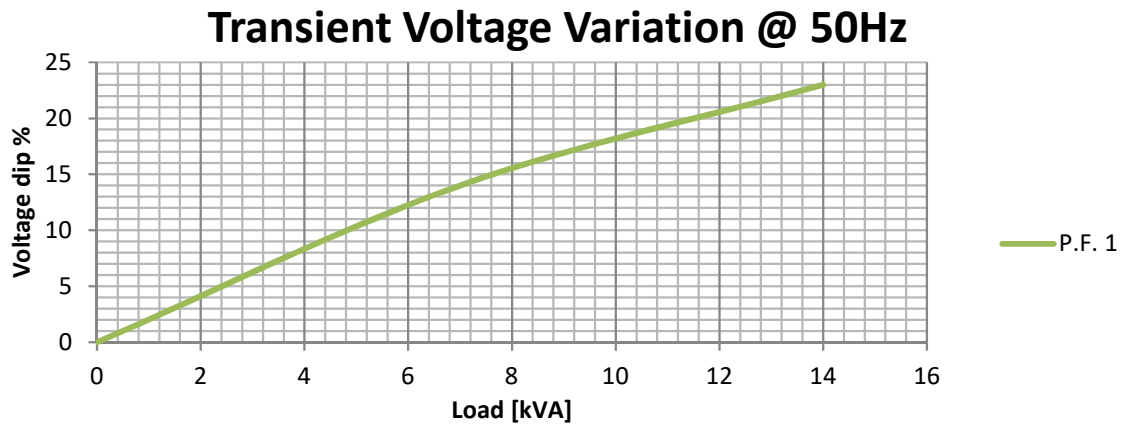


WIRING DIAGRAM

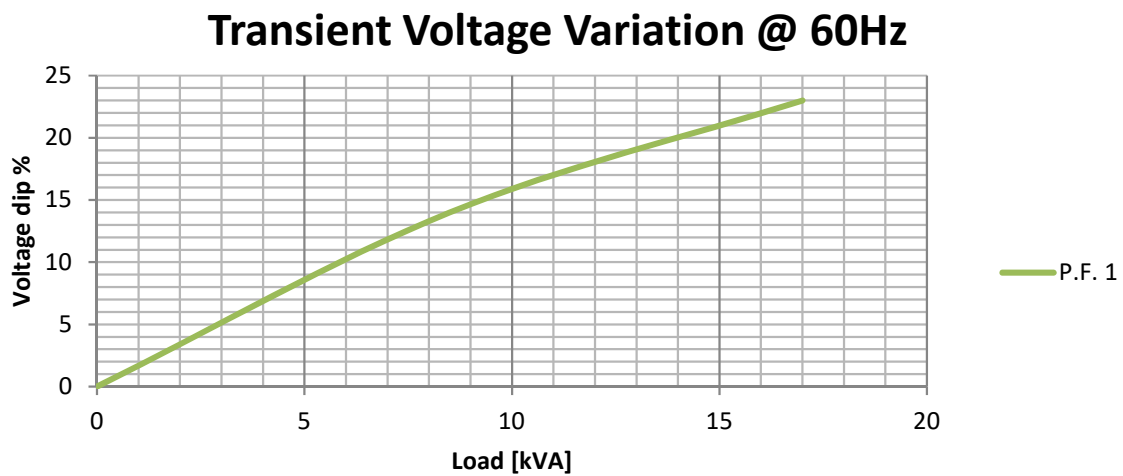


E1C13S B/4

TRANSIENT VOLTAGE VARIATION 50Hz



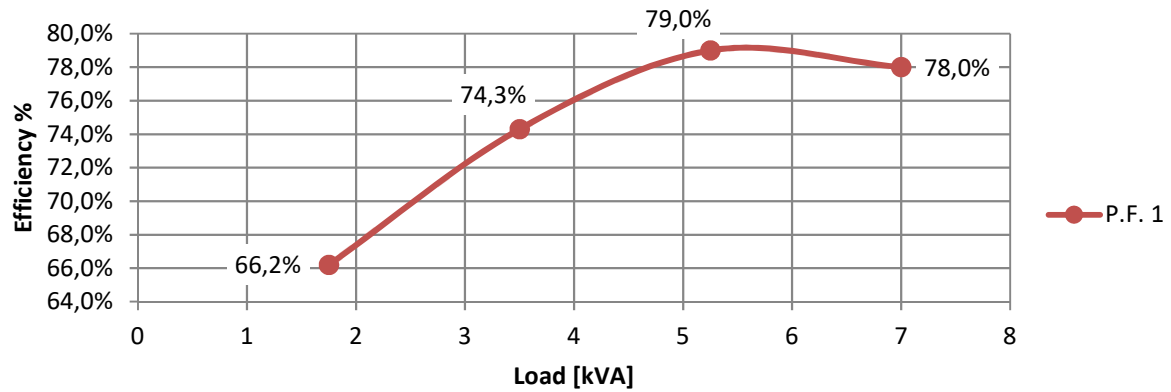
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13S B/4

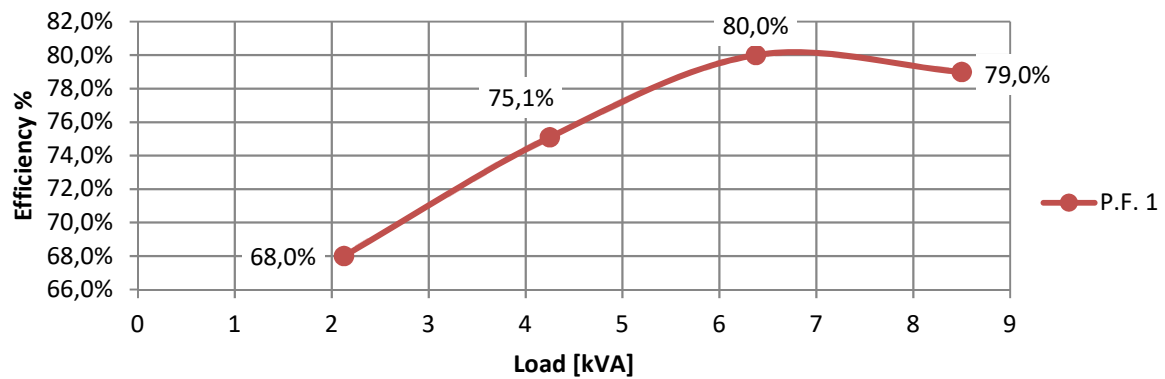
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



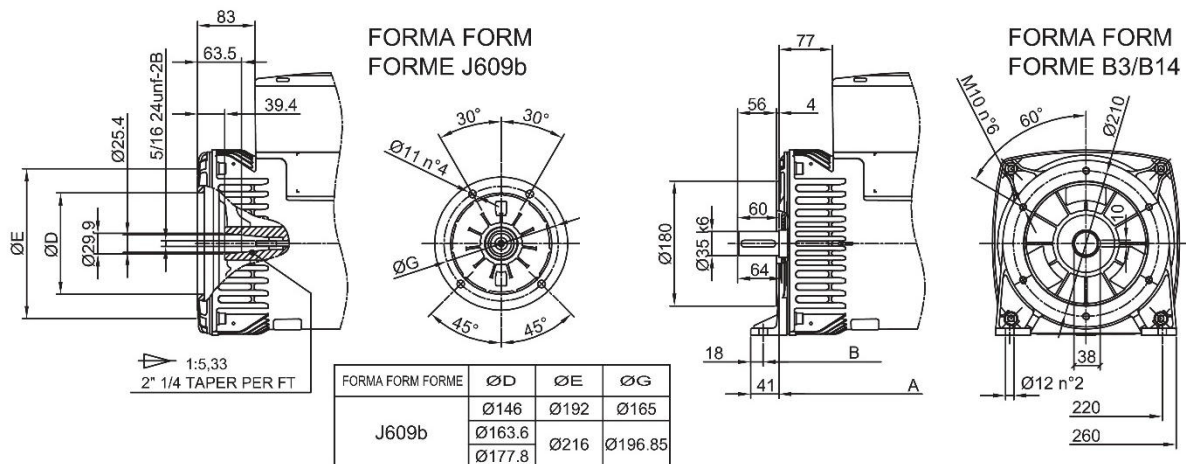
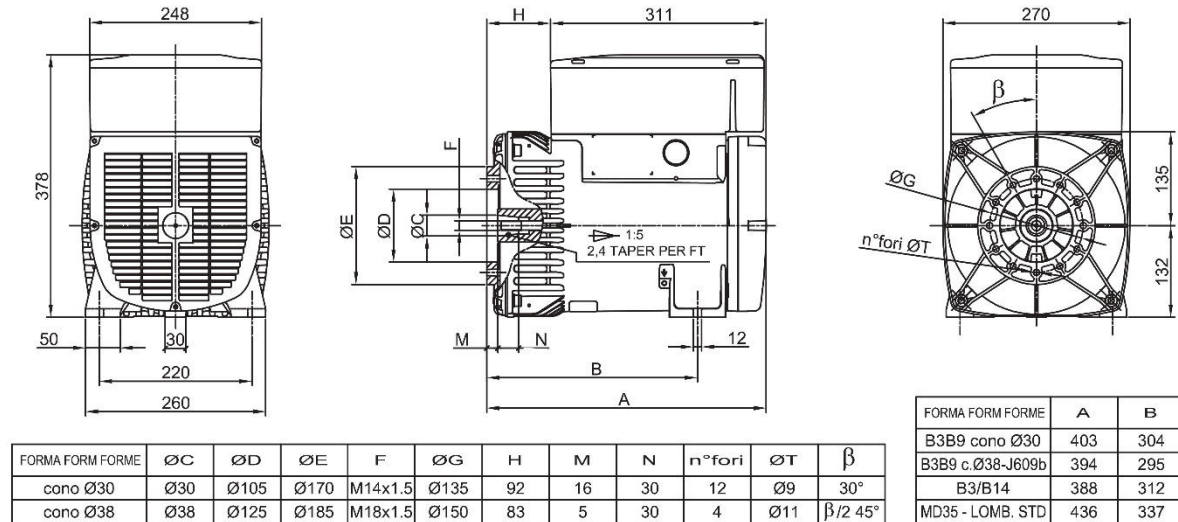
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



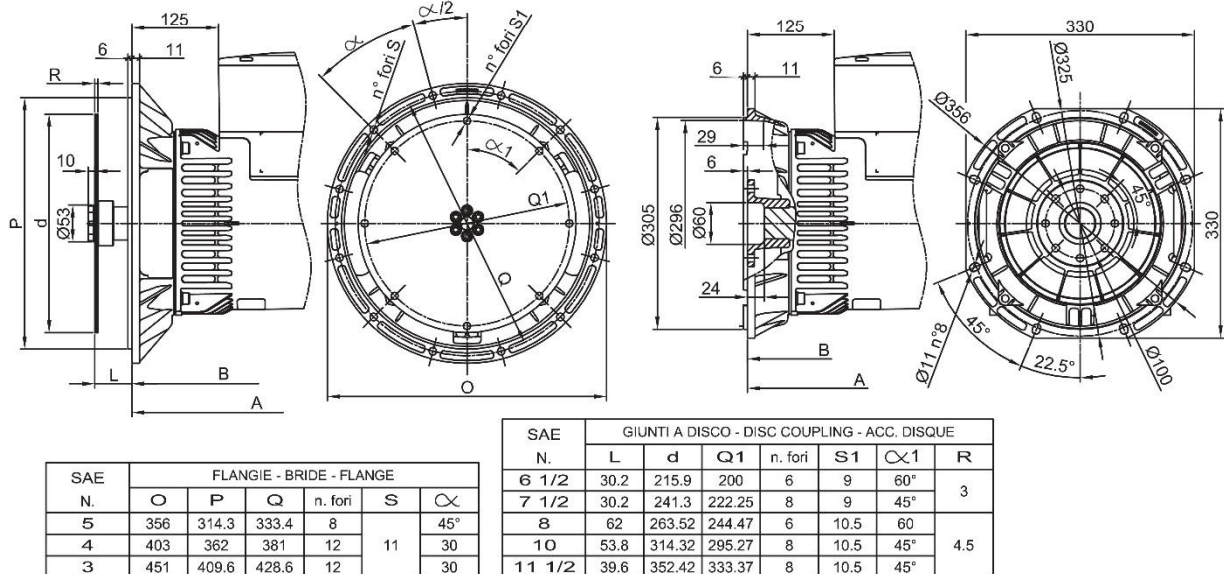
E1C13S B/4

FORMA FORM FORME B3/B9

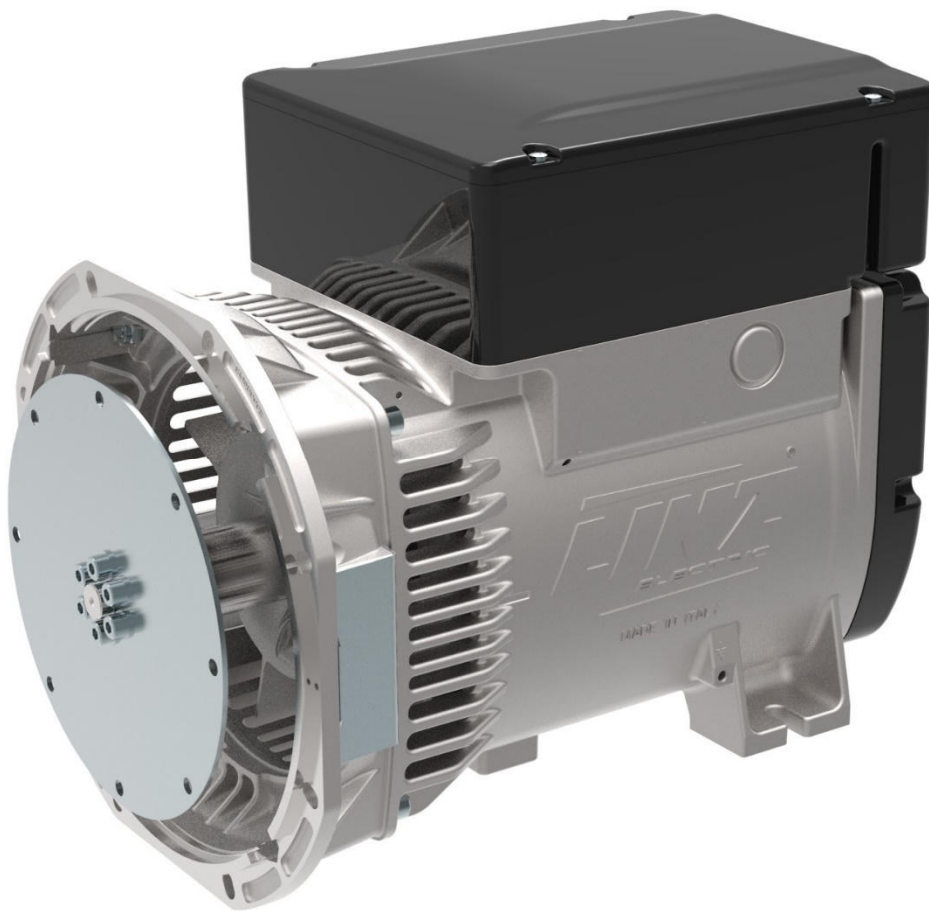


FORMA FORM FORME MD35

FORMA FORM FORME LOMBARDINI STD



TECHNICAL DATA SHEET



ALTERNATOR E1C13S C/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13S C/4

COMMON DATA

Rated Power at 50Hz	kVA	8,0
Rated Power at 60Hz	kVA	9,75
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	5,1 at 50Hz 6,1 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,41 at 20°C
Rotor Winding Resistance	Ω 1,04 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13S C/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	8,0	9,75
Rated Power in Class F (105°C/40°C)	kW	7,3	8,8
Rated Power Standby (150°C/40°C)	kW	8,8	10,5
Rated Power Standby (163°C/27°C)	kW	9,2	11,0

EFFICIENCY IN CL. H

4/4	79,0%	80,0%
3/4	80,0%	80,5%
2/4	74,0%	74,6%
1/4	70,0%	71,0%

MECHANICAL DATA

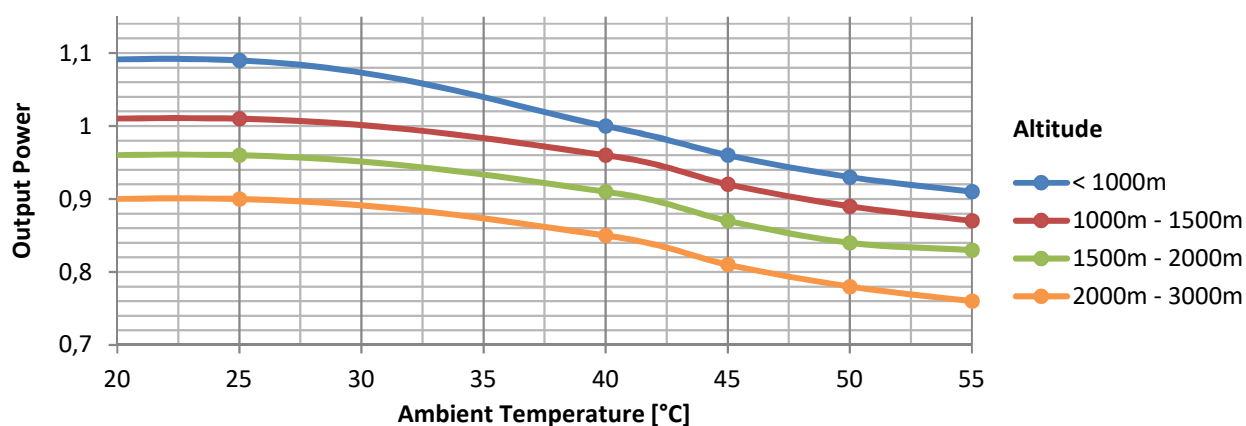
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	64,1
	in B3/B14	kg	60,0
	in B3/B9	kg	57,1

E1C13S C/4

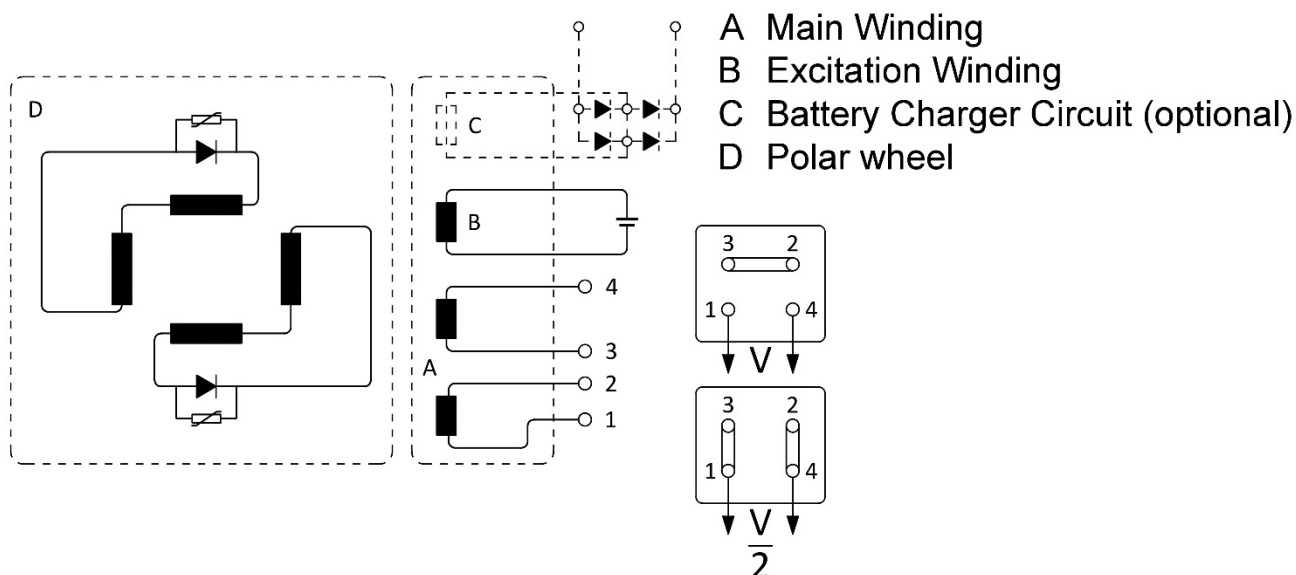
MOMENT OF INERZIA

B3/B9	kg·m ²	0,055
B2	kg·m ²	0,055
B3/B14	kg·m ²	0,055

DERATING CURVES

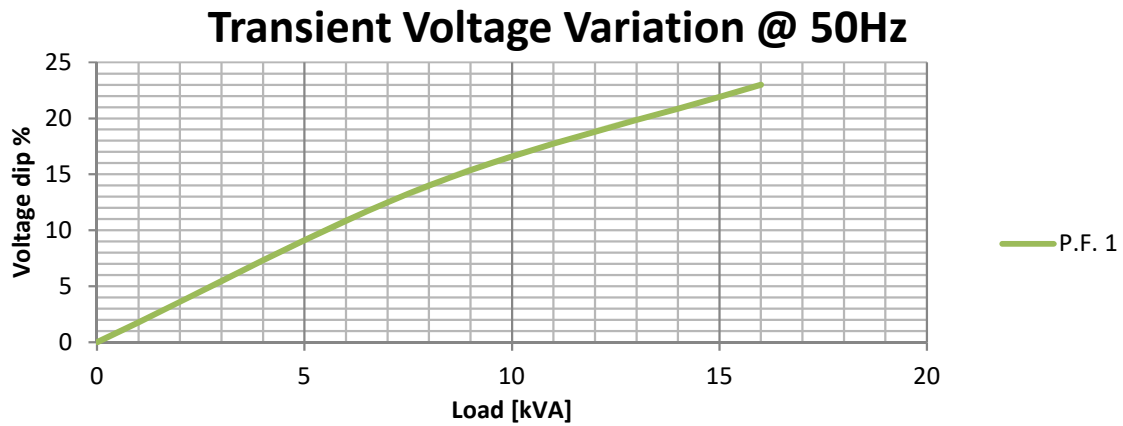


WIRING DIAGRAM

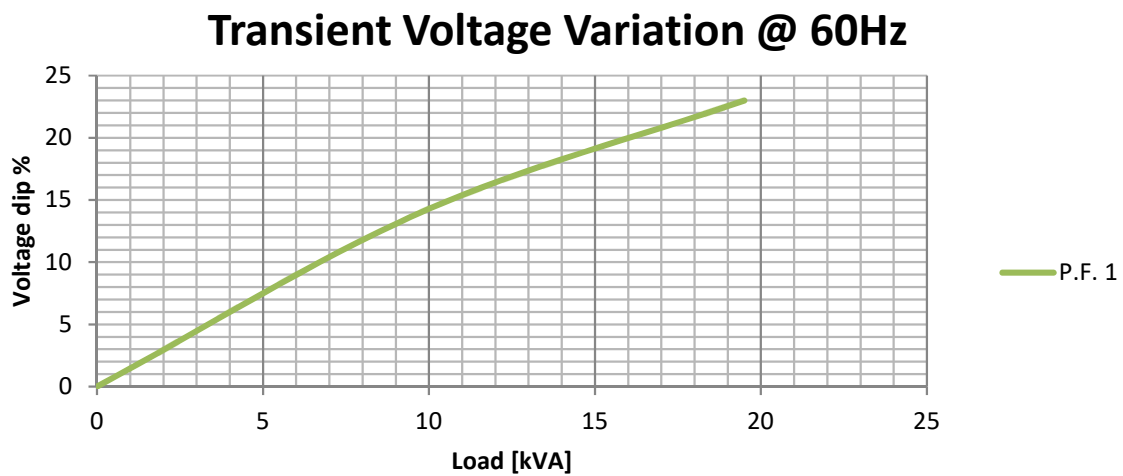


E1C13S C/4

TRANSIENT VOLTAGE VARIATION 50Hz



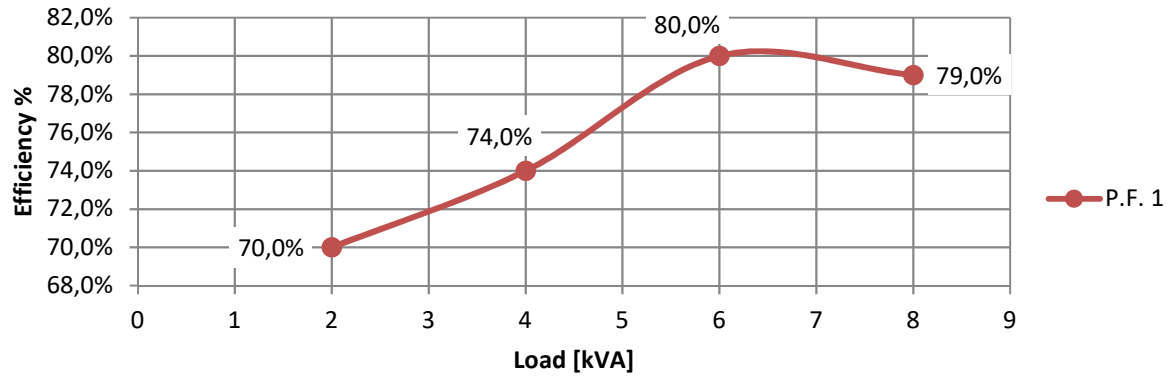
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13S C/4

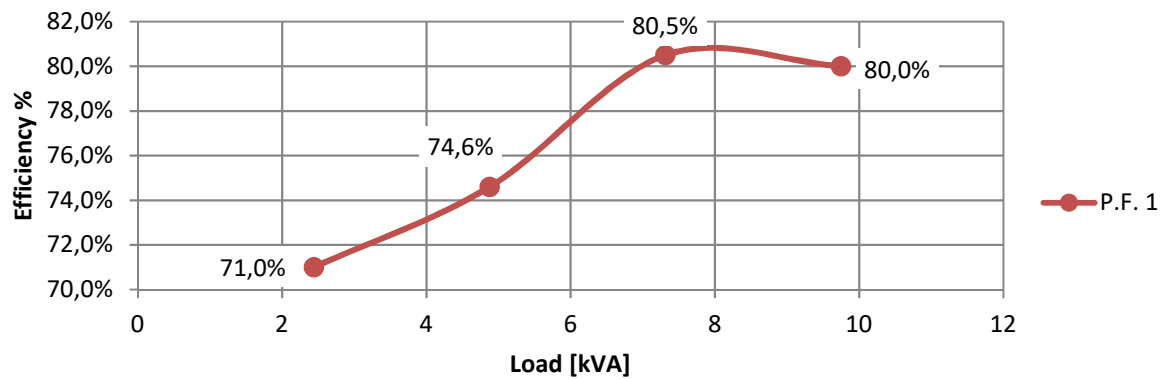
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz

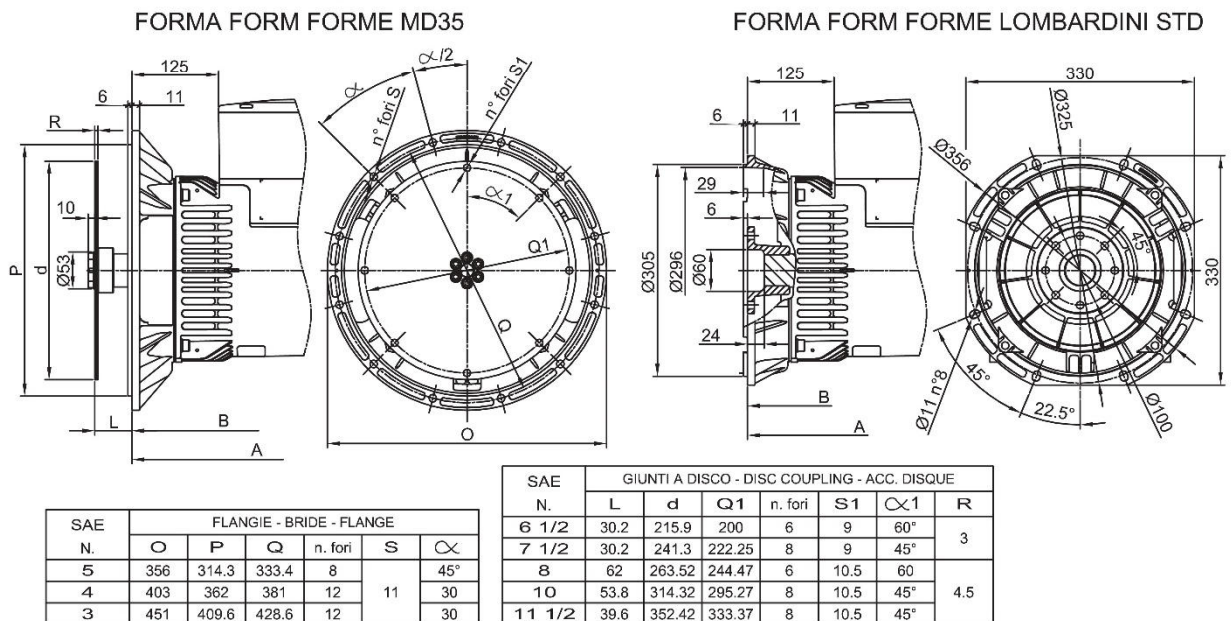
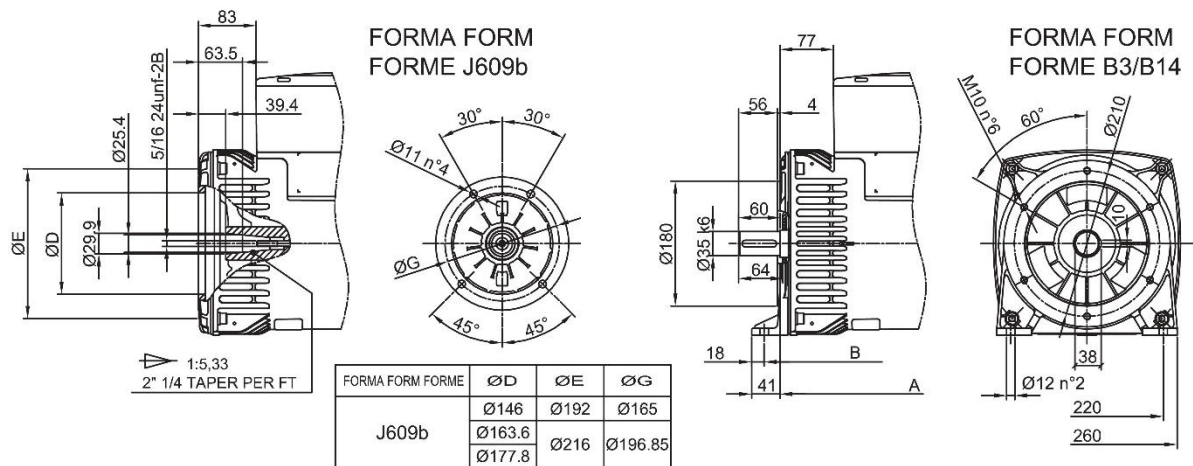
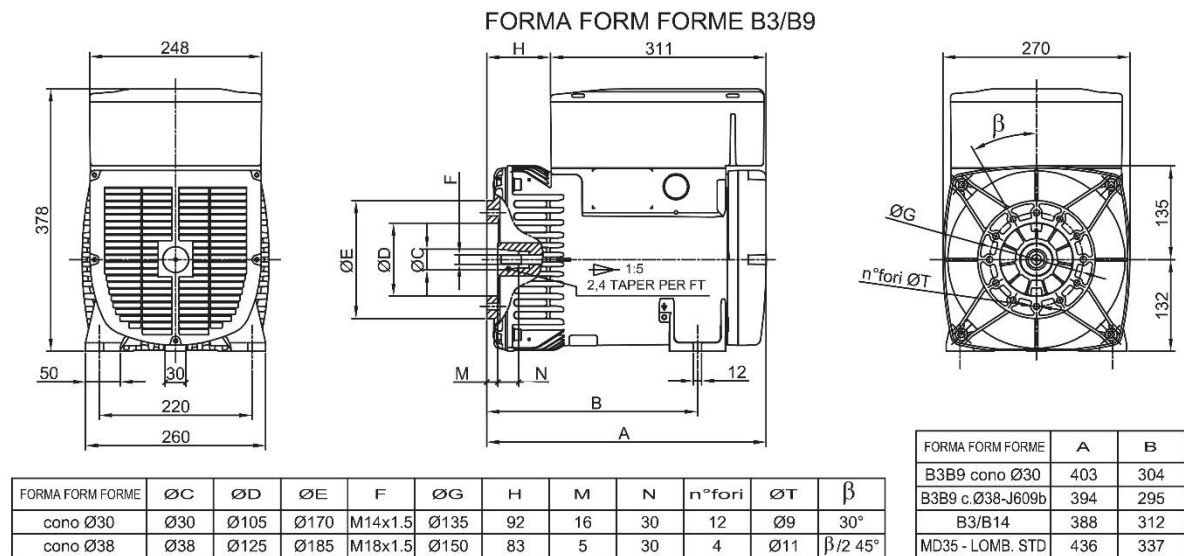


EFFICIENCY 60Hz

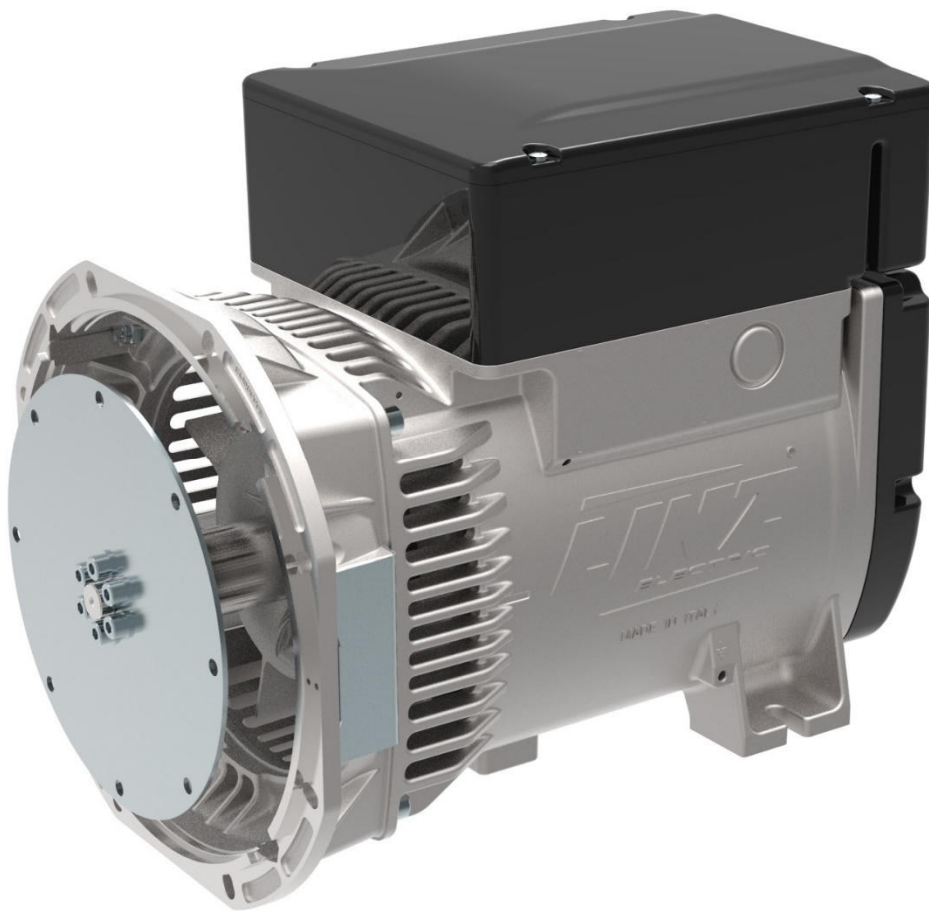
Efficiency Curves @ 60Hz



E1C13S C/4



TECHNICAL DATA SHEET



ALTERNATOR E1C13S D/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13S D/4

COMMON DATA

Rated Power at 50Hz	kVA	9,0
Rated Power at 60Hz	kVA	11,0
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	4,9 at 50Hz 5,9 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,35 at 20°C
Rotor Winding Resistance	Ω 1,13 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13S D/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	9,0	11,0
Rated Power in Class F (105°C/40°C)	kW	8,5	10,0
Rated Power Standby (150°C/40°C)	kW	10,0	12,0
Rated Power Standby (163°C/27°C)	kW	10,5	12,5

EFFICIENCY IN CL. H

4/4	79,5%	80,0%
3/4	80,0%	81,0%
2/4	75,0%	75,5%
1/4	72,0%	72,5%

MECHANICAL DATA

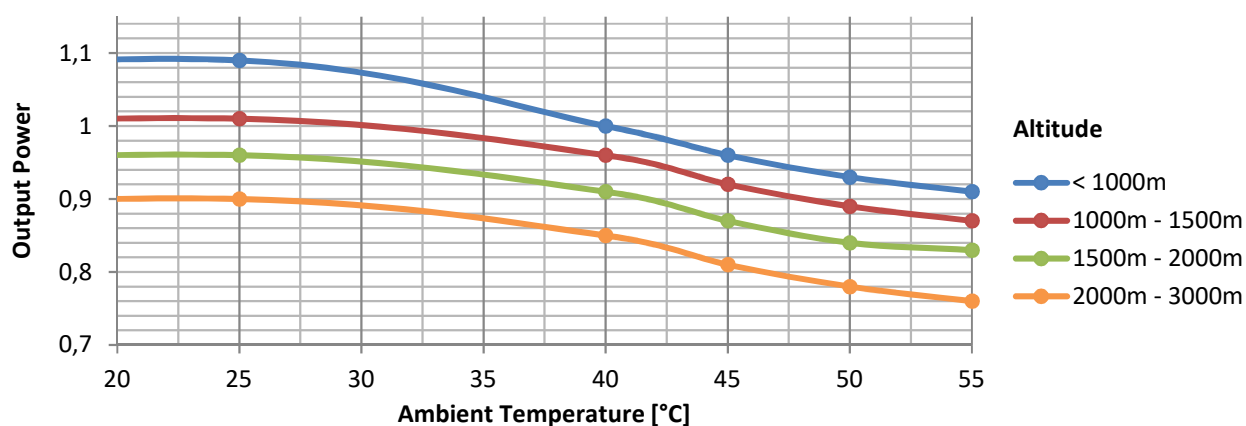
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	68,5
	in B3/B14	kg	64,4
	in B3/B9	kg	61,5

E1C13S D/4

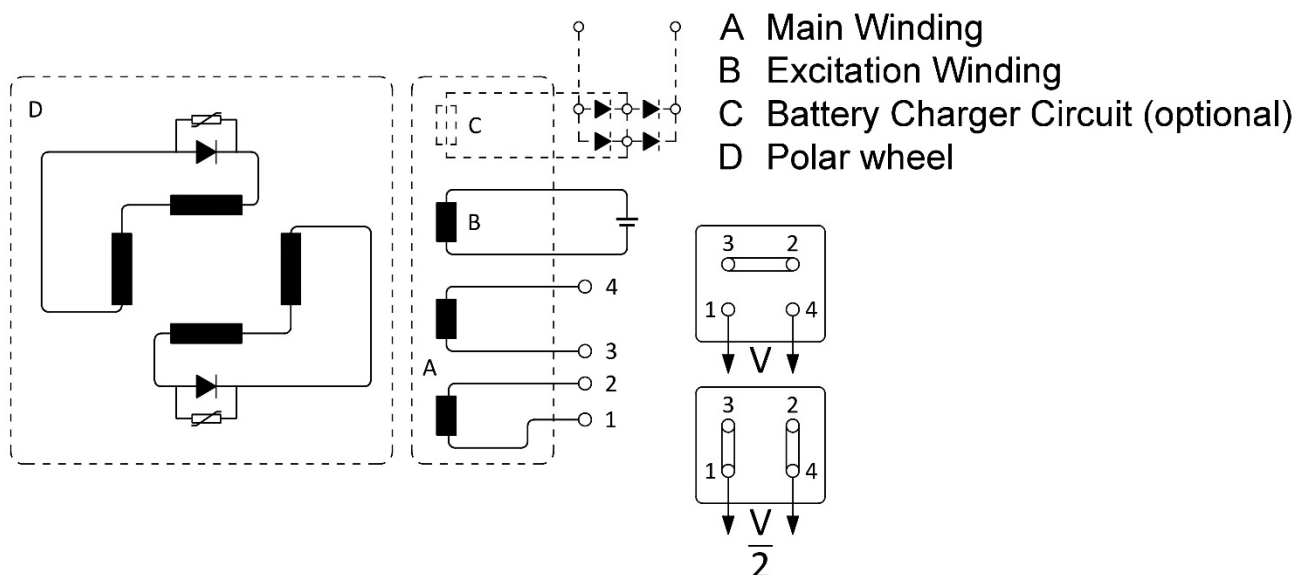
MOMENT OF INERZIA

B3/B9	kg·m ²	0,06
B2	kg·m ²	0,06
B3/B14	kg·m ²	0,06

DERATING CURVES

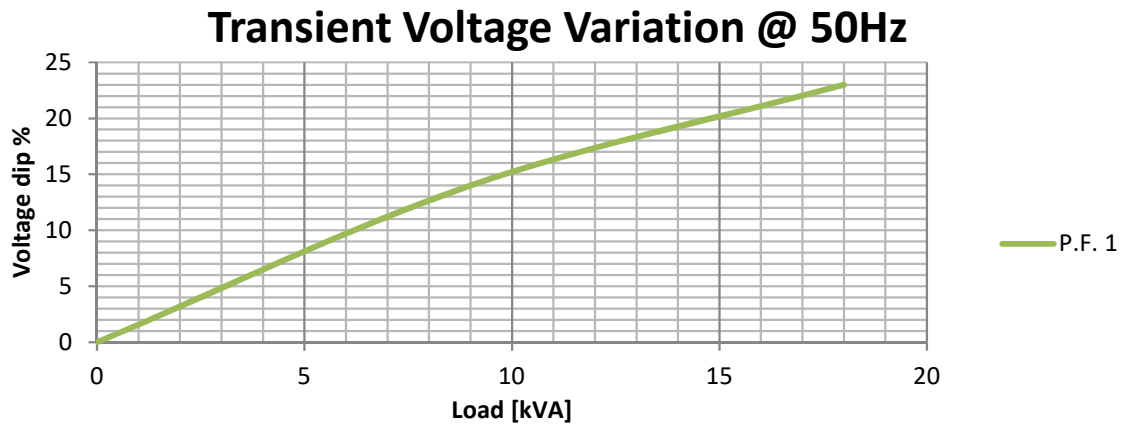


WIRING DIAGRAM

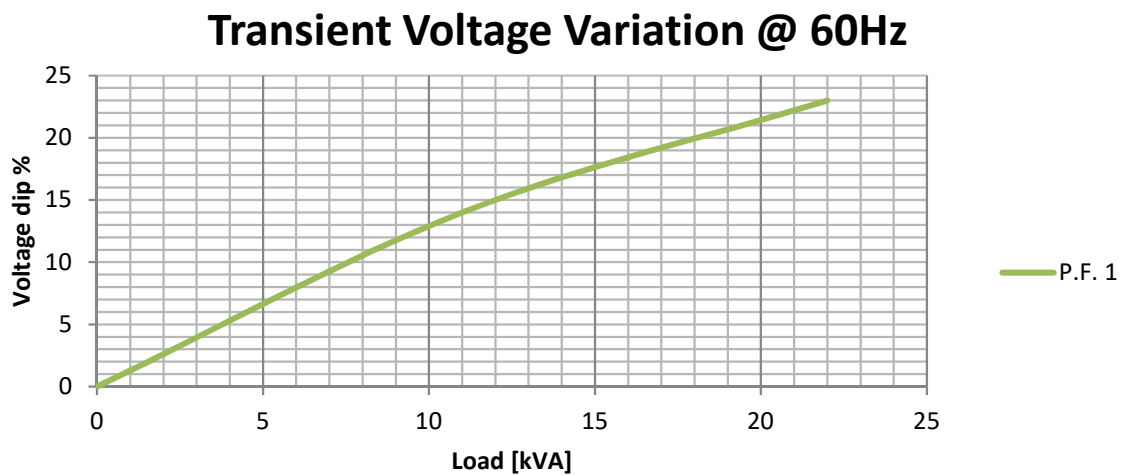


E1C13S D/4

TRANSIENT VOLTAGE VARIATION 50Hz



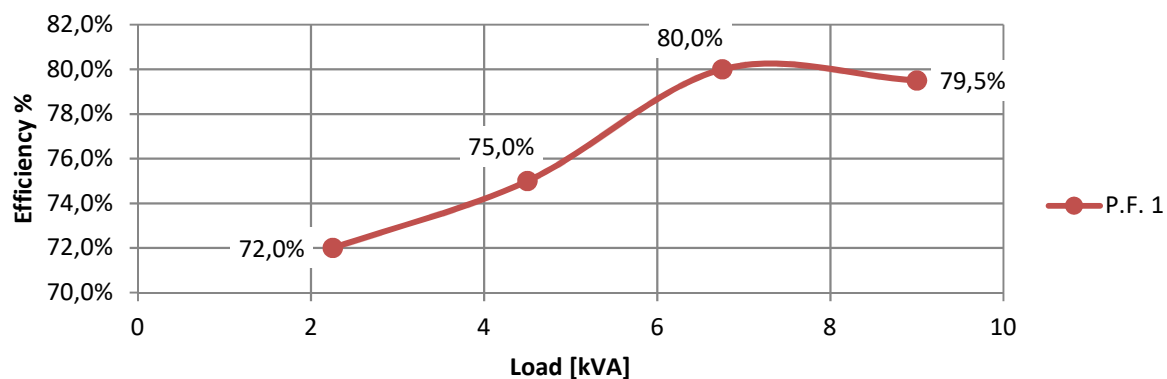
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13S D/4

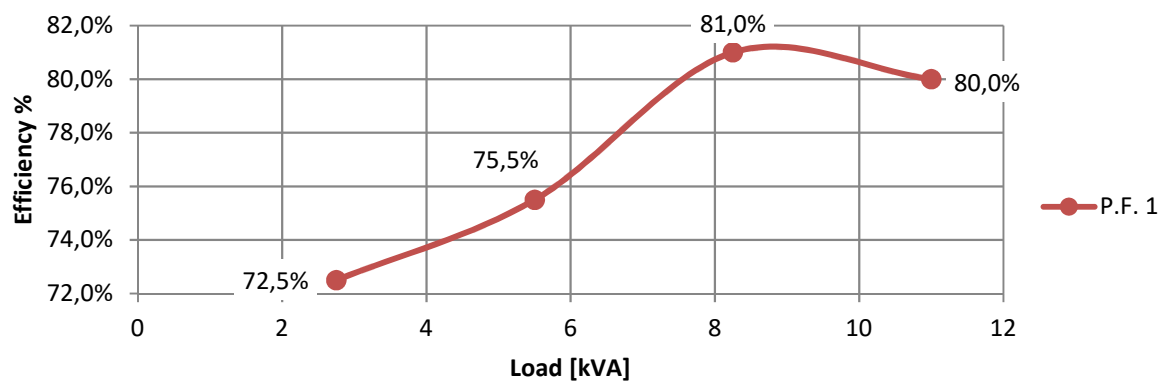
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



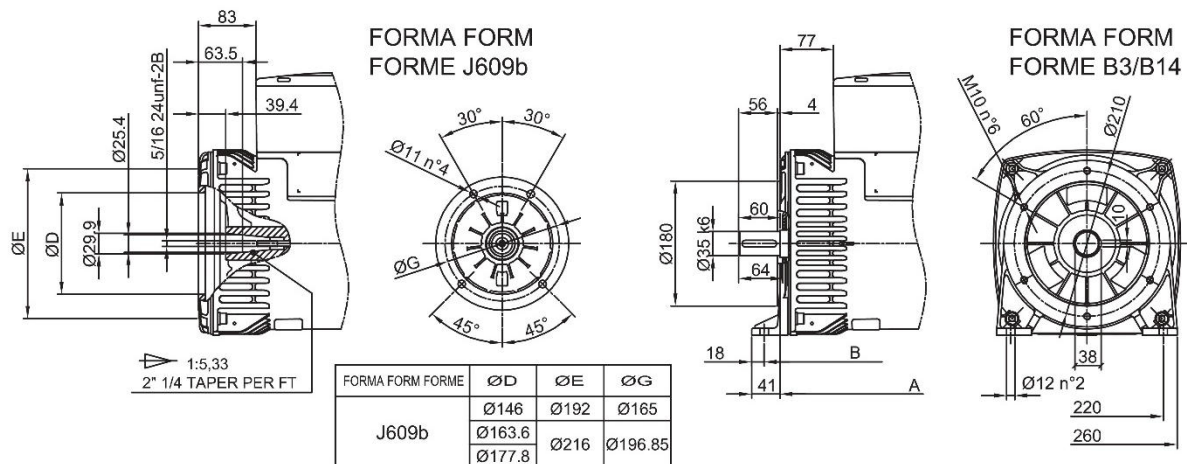
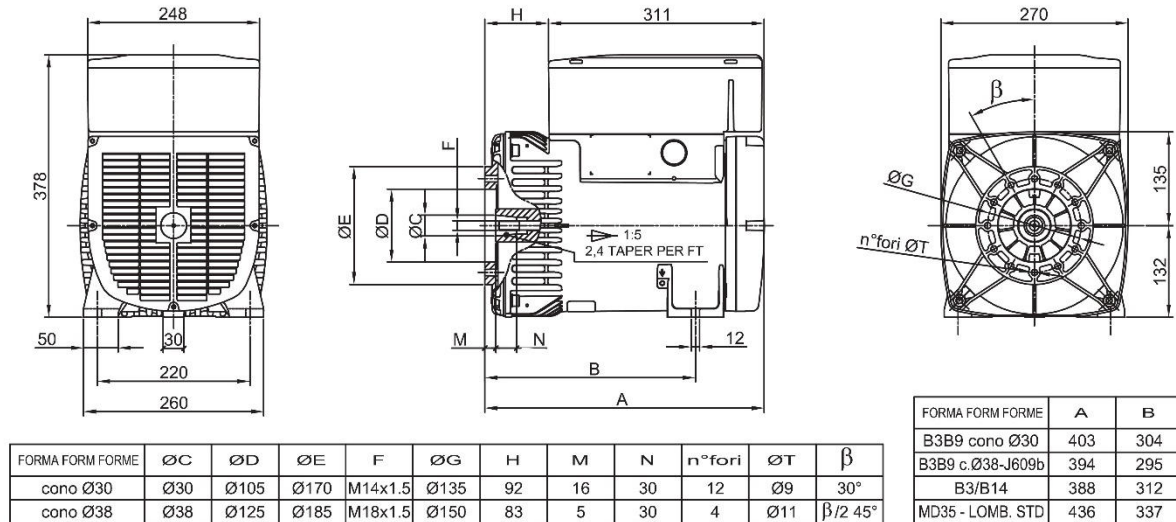
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



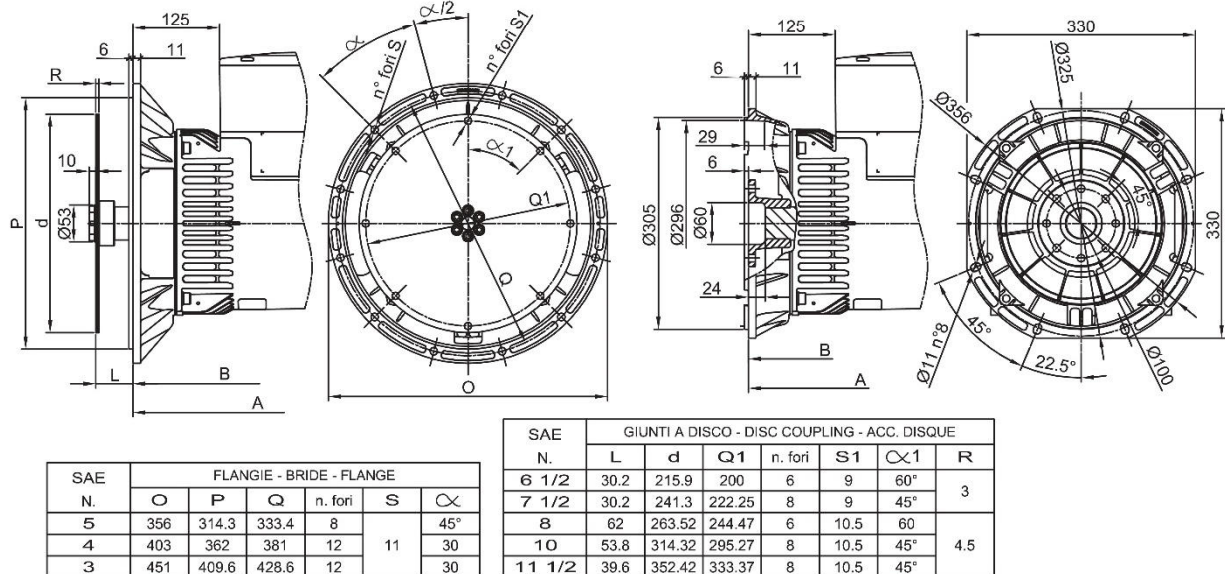
E1C13S D/4

FORMA FORM FORME B3/B9

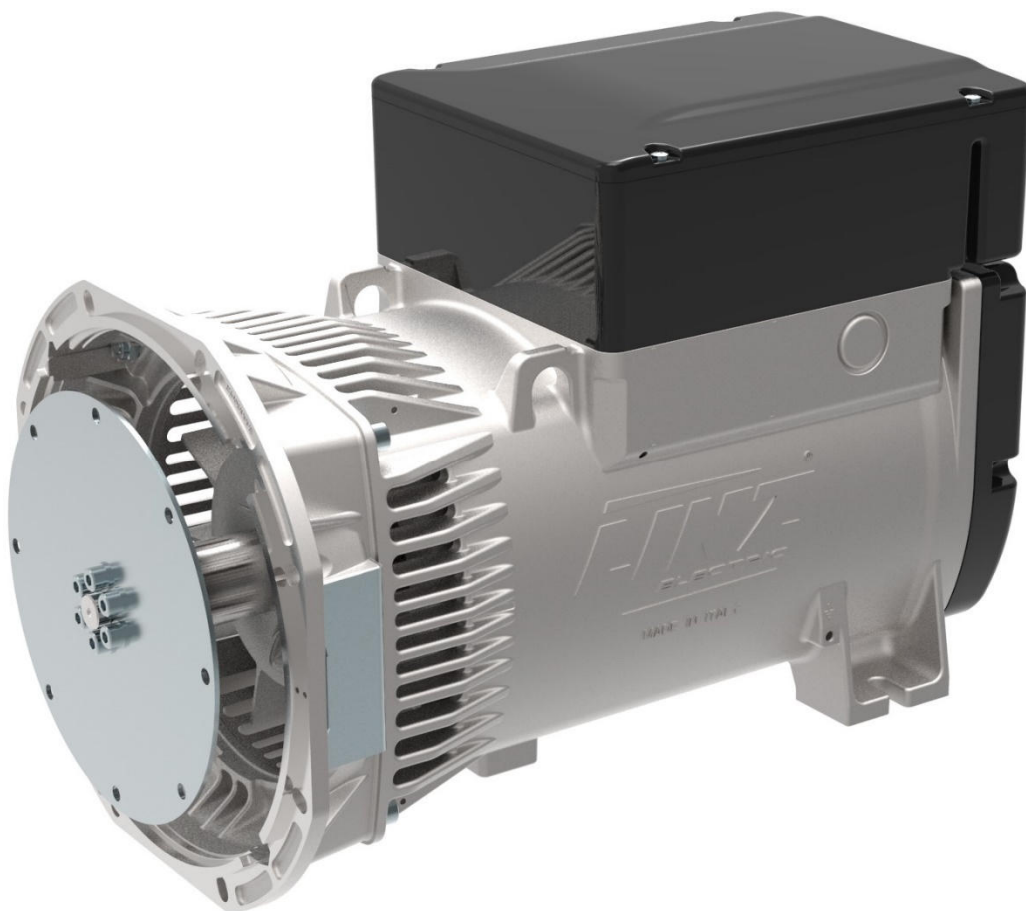


FORMA FORM FORME MD35

FORMA FORM FORME LOMBARDINI STD



TECHNICAL DATA SHEET



ALTERNATOR E1C13M E/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13M E/4

COMMON DATA

Rated Power at 50Hz	kVA	11,5
Rated Power at 60Hz	kVA	14,0
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m³/min	4,7 at 50Hz 5,6 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,23 at 20°C
Rotor Winding Resistance	Ω 1,35 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13M E/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	11,5	14,0
Rated Power in Class F (105°C/40°C)	kW	10,5	12,5
Rated Power Standby (150°C/40°C)	kW	12,3	14,5
Rated Power Standby (163°C/27°C)	kW	13,0	15,5

EFFICIENCY IN CL. H

4/4	80,0%	81,0%
3/4	81,0%	81,5%
2/4	77,0%	78,0%
1/4	74,0%	75,0%

MECHANICAL DATA

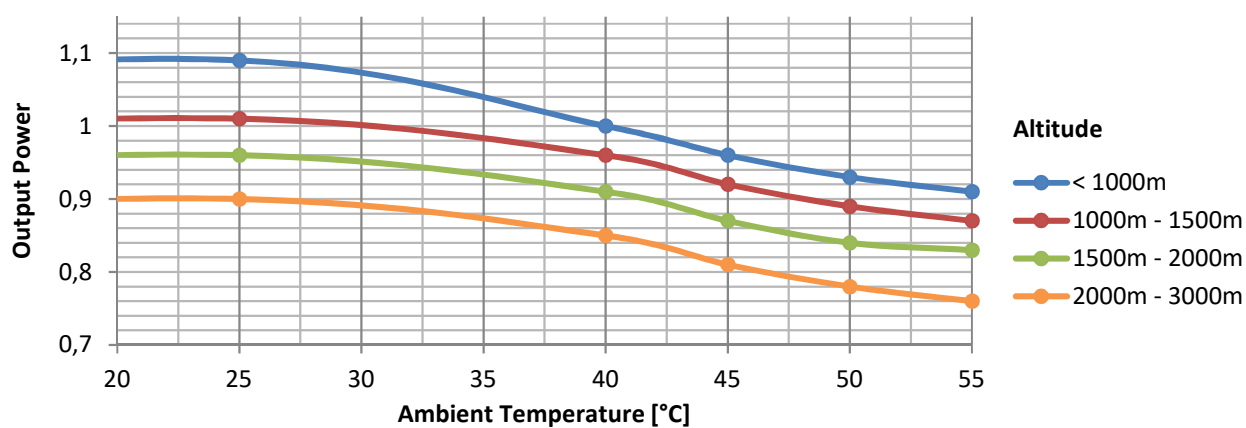
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	83,6
	in B3/B14	kg	79,5
	in B3/B9	kg	76,6

E1C13M E/4

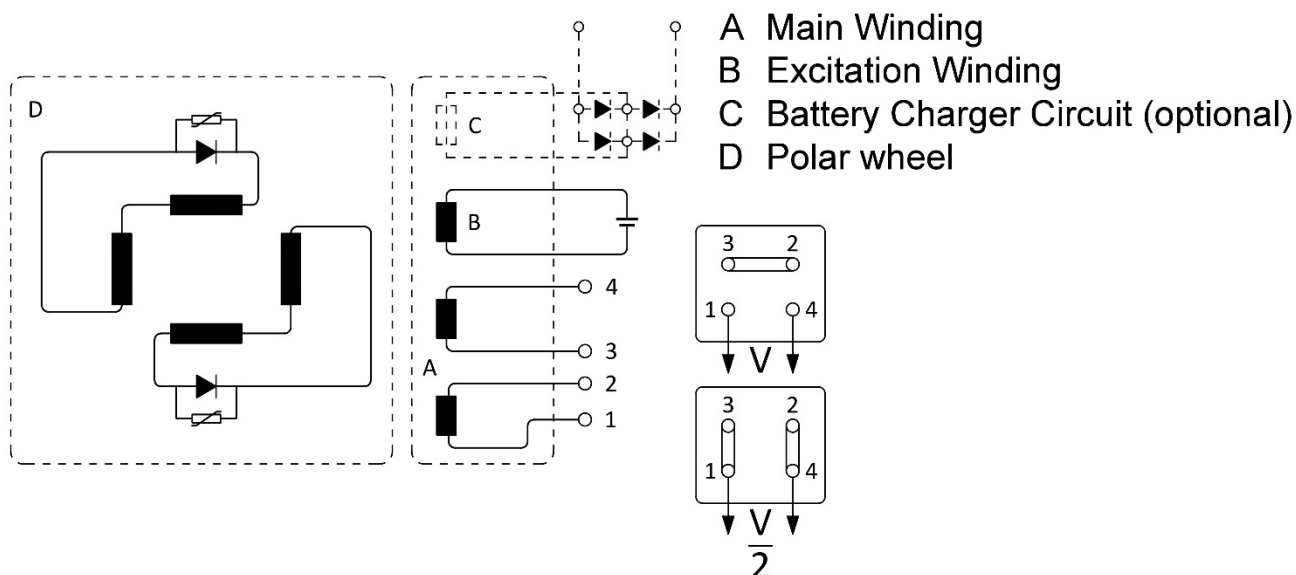
MOMENT OF INERZIA

B3/B9	kg·m ²	0,072
B2	kg·m ²	0,073
B3/B14	kg·m ²	0,072

DERATING CURVES

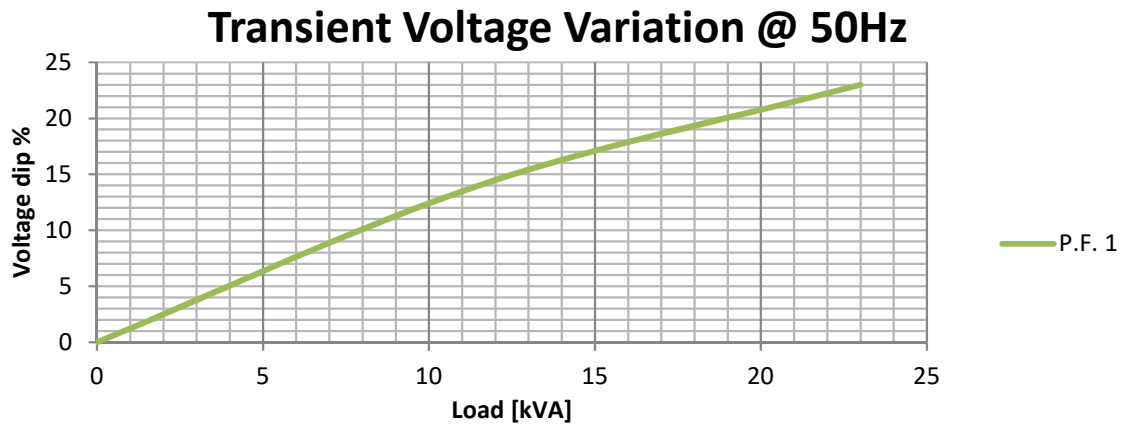


WIRING DIAGRAM

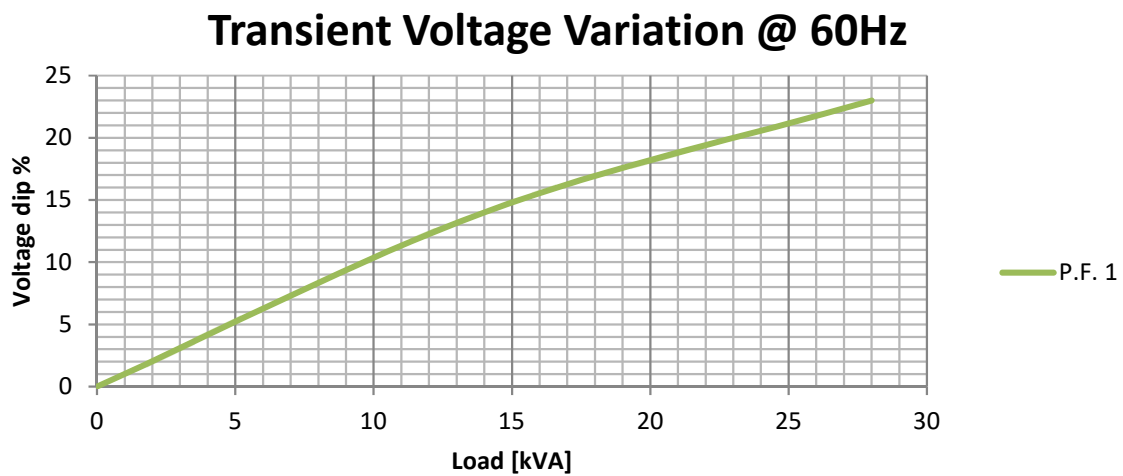


E1C13M E/4

TRANSIENT VOLTAGE VARIATION 50Hz



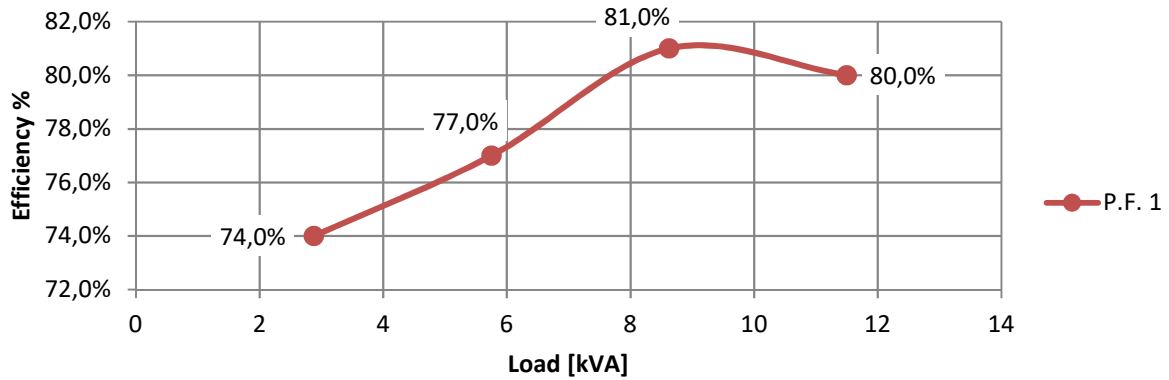
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13M E/4

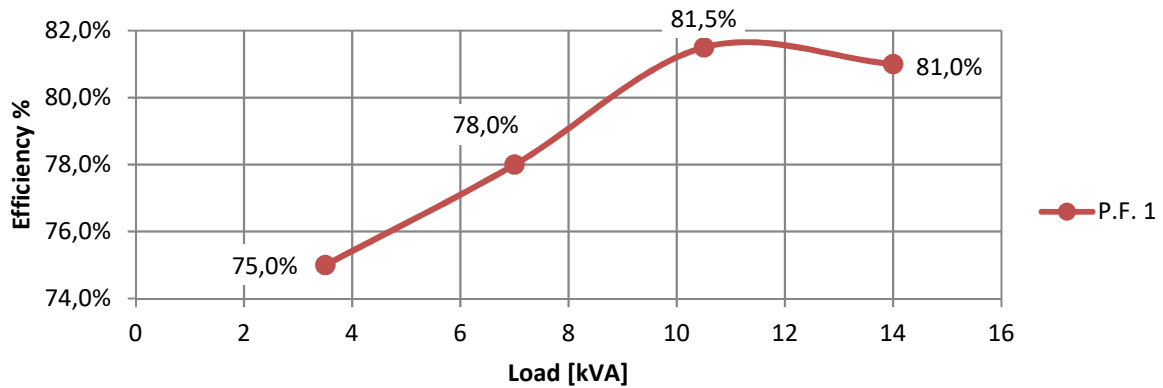
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



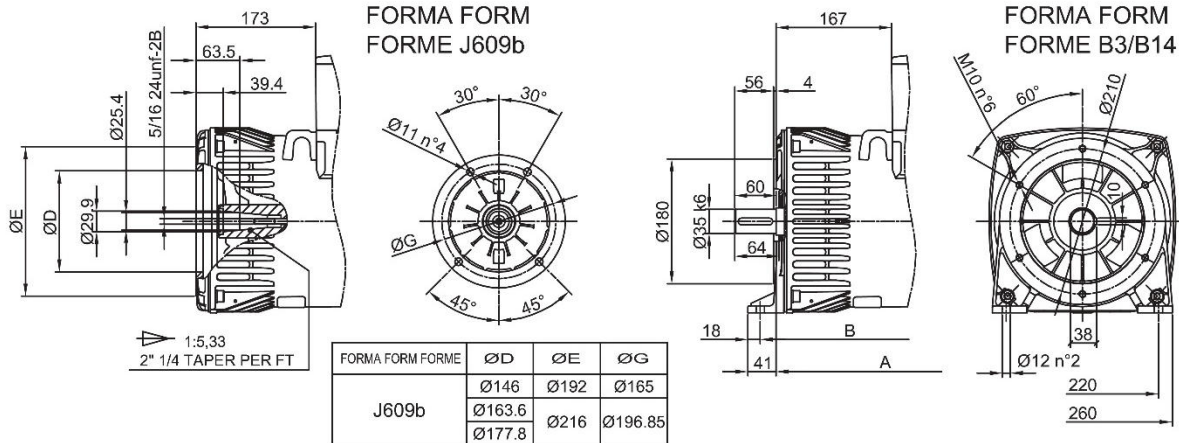
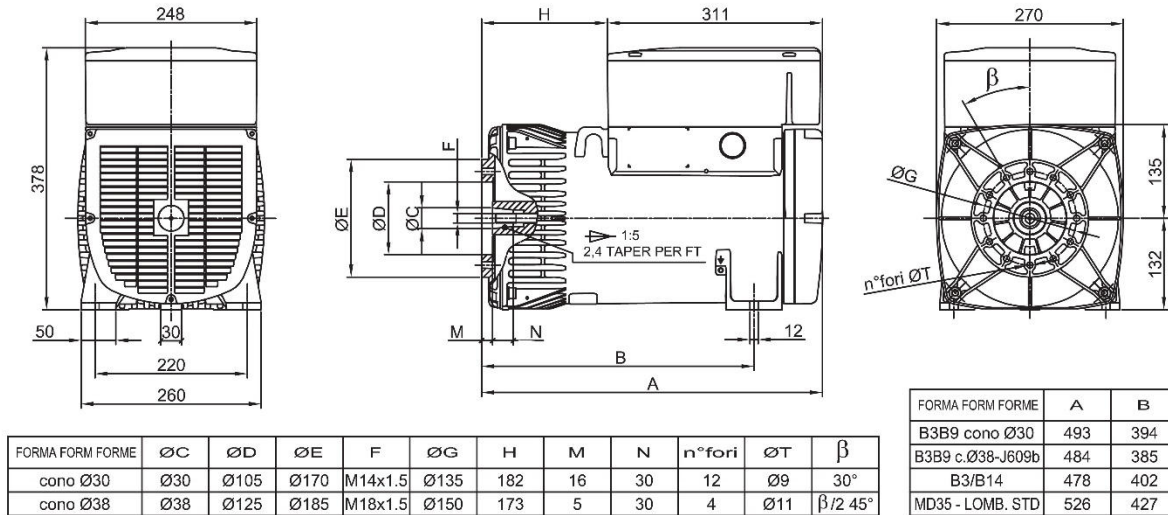
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



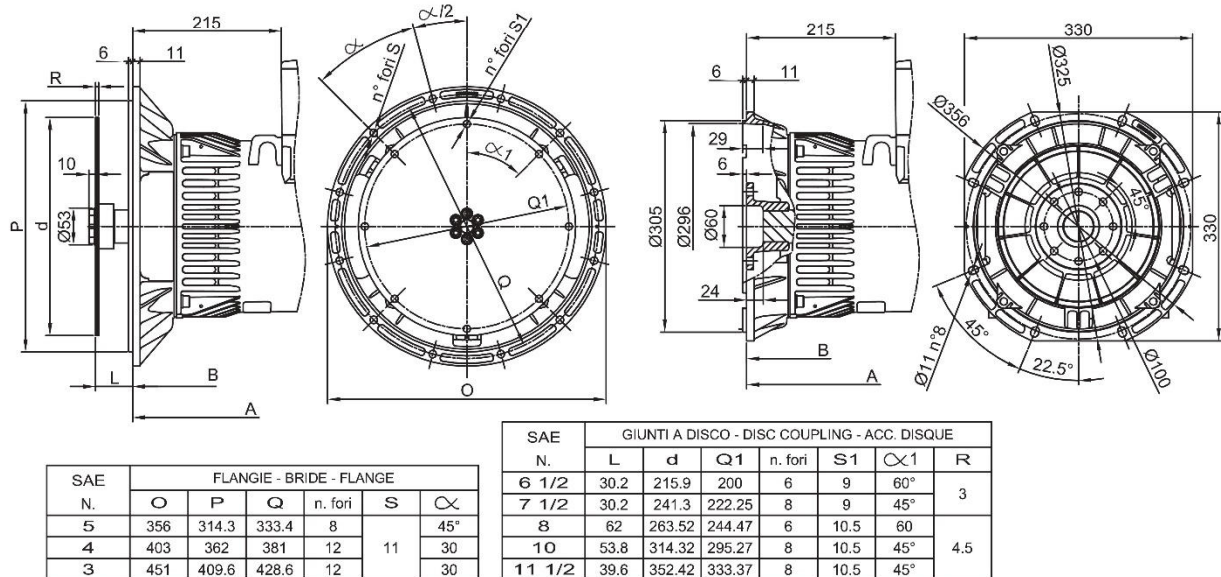
E1C13M E/4

FORMA FORM FORME B3/B9

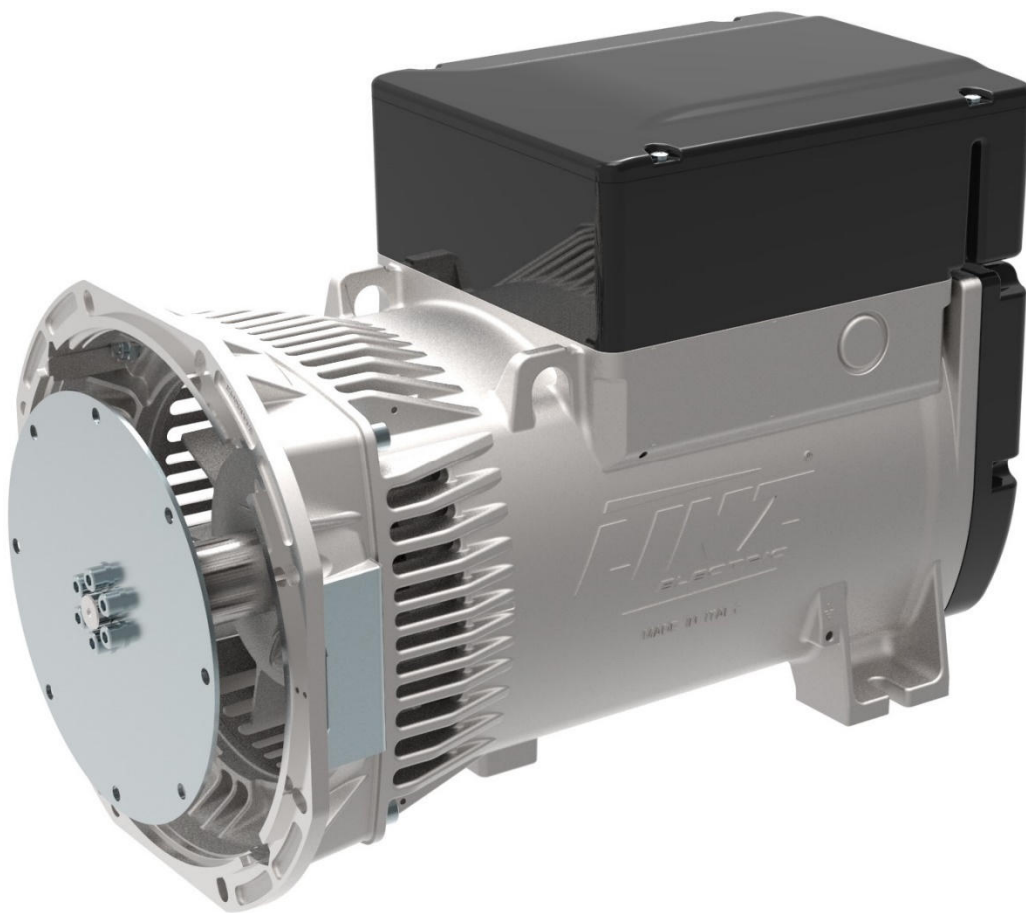


FORMA FORM FORME MD35

FORMA FORM FORME LOMBARDINI STD



TECHNICAL DATA SHEET



ALTERNATOR E1C13M F/4

Single-Phase brushless synchronous alternator with capacitor - 4 poles

E1C13M F/4

COMMON DATA

Rated Power at 50Hz	kVA	12,5
Rated Power at 60Hz	kVA	15,0
Rated Power Factor		1,0
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		Capacitor
Insulation Class		H
Protection		IP21
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m³/min	4,6 at 50Hz 5,5 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

Capacitor	Capacitor with Aluminum Technology
Voltage Regulation	±5%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,2 at 20°C
Rotor Winding Resistance	Ω 1,41 at 20°C
THD at full load	<5,5%
THD at no load	<5,0%

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

E1C13M F/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm	60Hz - 1800rpm
Voltage Series Star	V	115/230	110/220
Rated Power in Class H (125°C/40°C)	kW	12,5	15,0
Rated Power in Class F (105°C/40°C)	kW	11,0	13,0
Rated Power Standby (150°C/40°C)	kW	13,5	16,0
Rated Power Standby (163°C/27°C)	kW	14,0	16,5

EFFICIENCY IN CL. H

4/4	81,5%	81,5%
3/4	82,0%	82,5%
2/4	77,5%	79,0%
1/4	74,2%	75,5%

MECHANICAL DATA

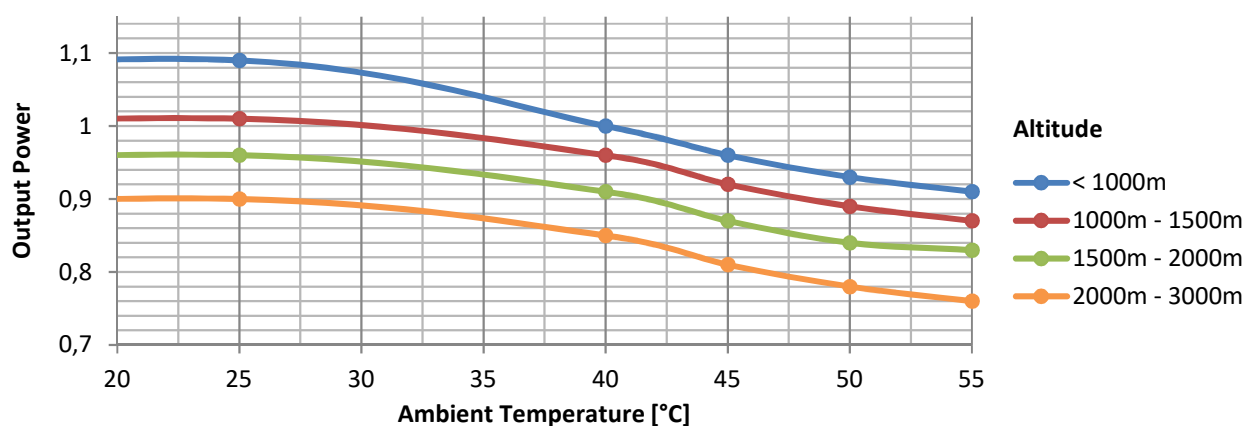
Bearing non drive end			6305-2Z-C3
Bearing drive end (B3/B14 form)			6208-2Z-C3
Weight of generator	in B2	kg	87,1
	in B3/B14	kg	83,0
	in B3/B9	kg	80,1

E1C13M F/4

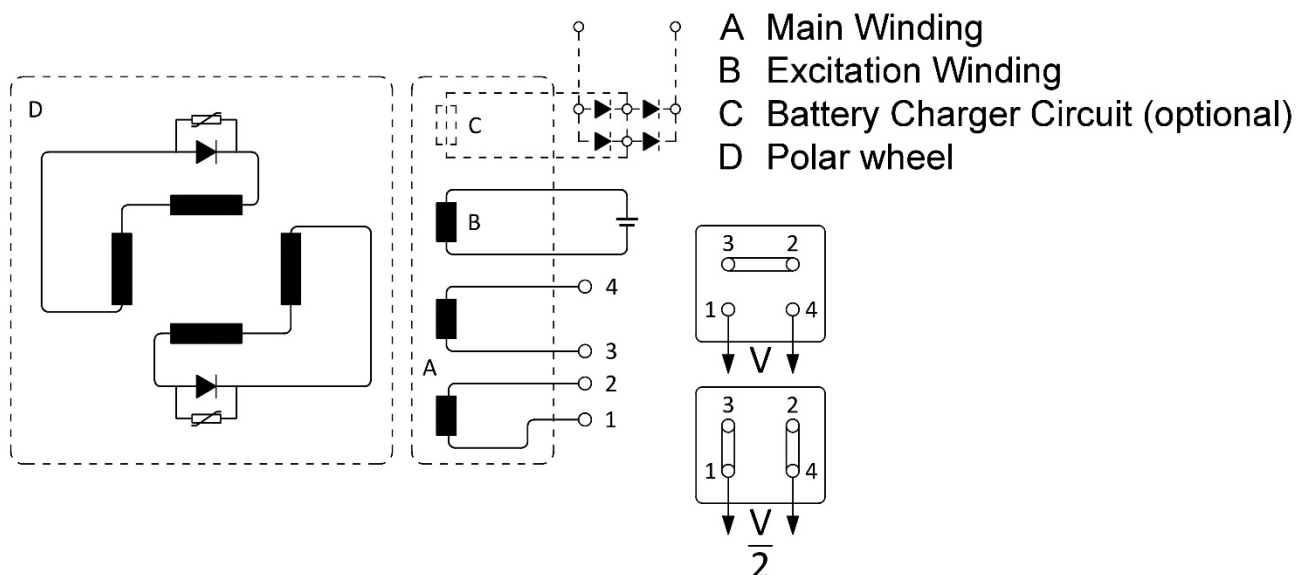
MOMENT OF INERZIA

B3/B9	kg·m ²	0,075
B2	kg·m ²	0,077
B3/B14	kg·m ²	0,075

DERATING CURVES

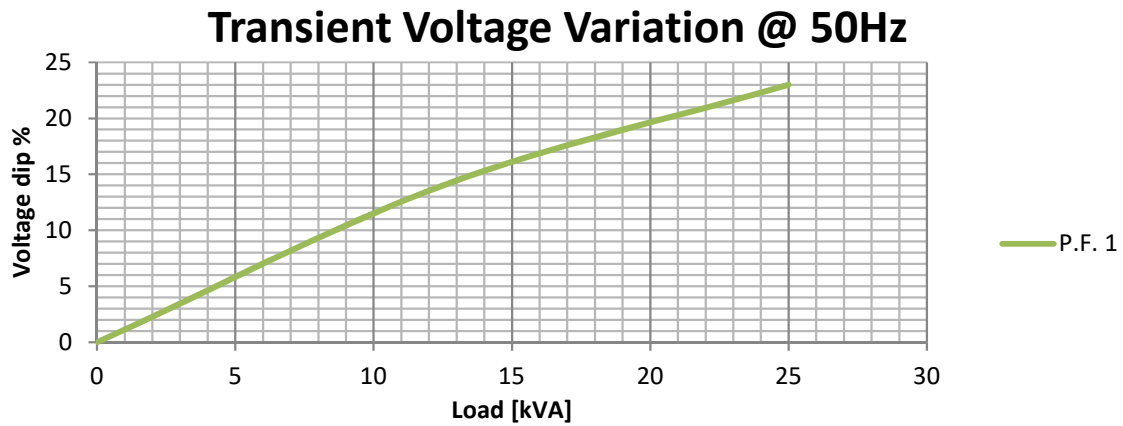


WIRING DIAGRAM

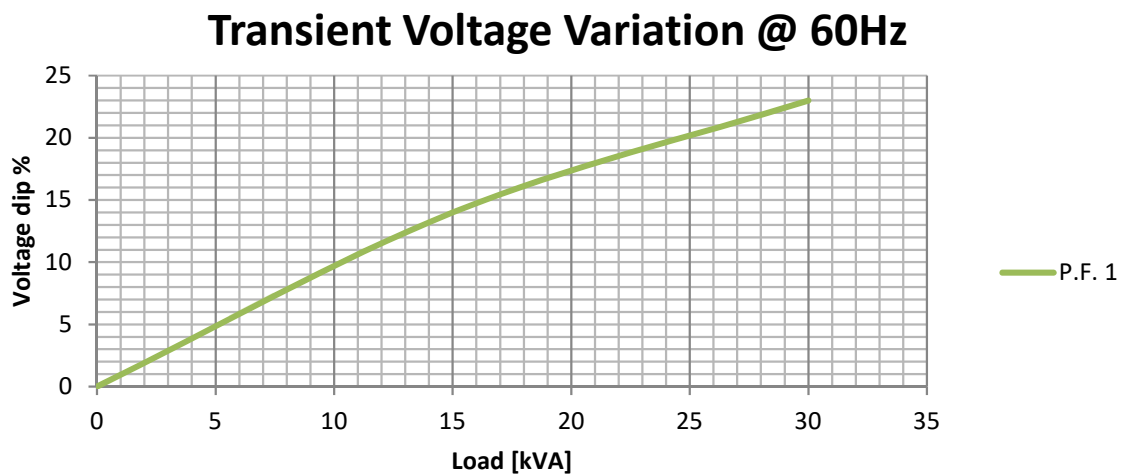


E1C13M F/4

TRANSIENT VOLTAGE VARIATION 50Hz



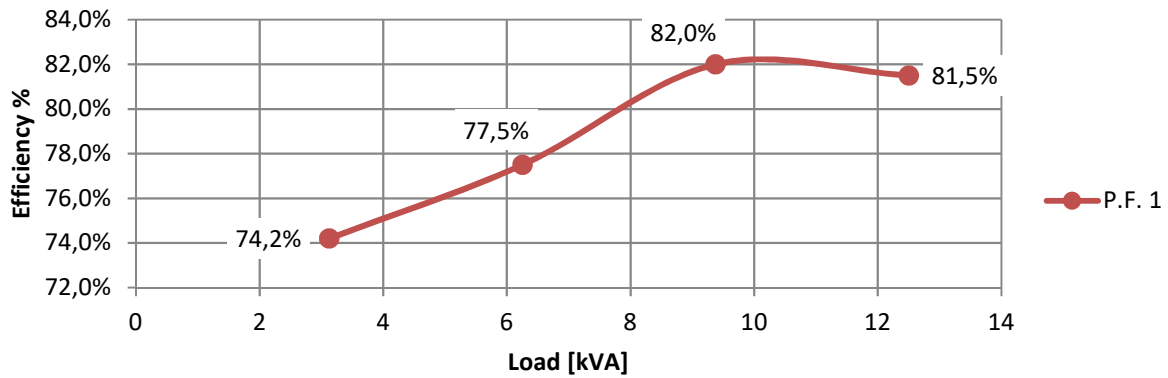
TRANSIENT VOLTAGE VARIATION 60Hz



E1C13M F/4

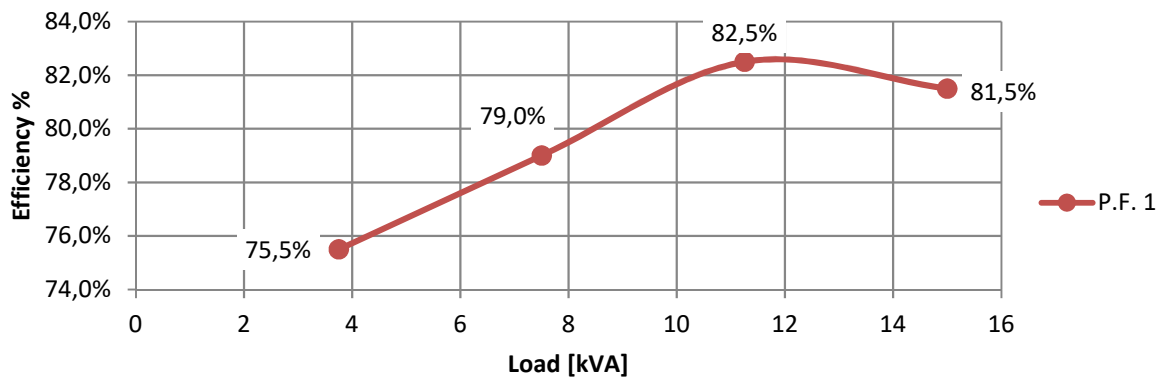
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



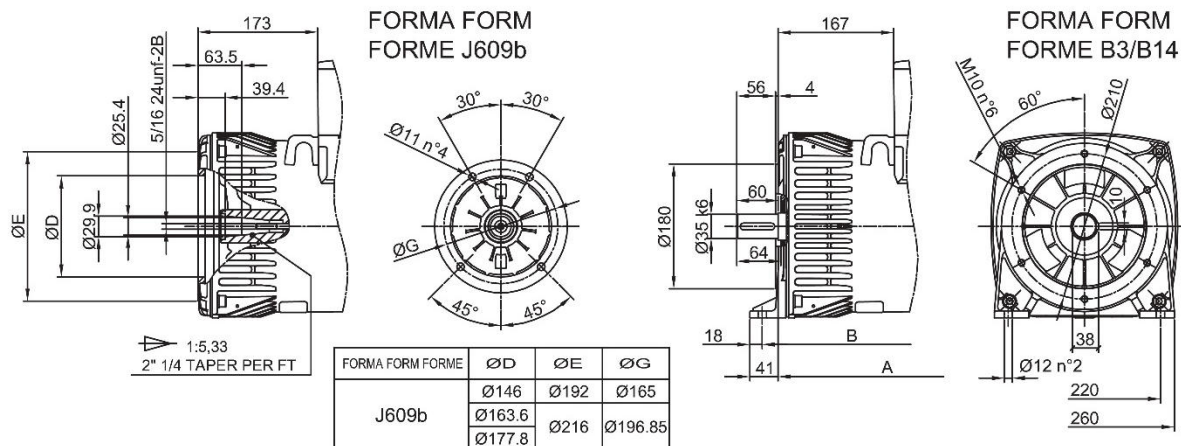
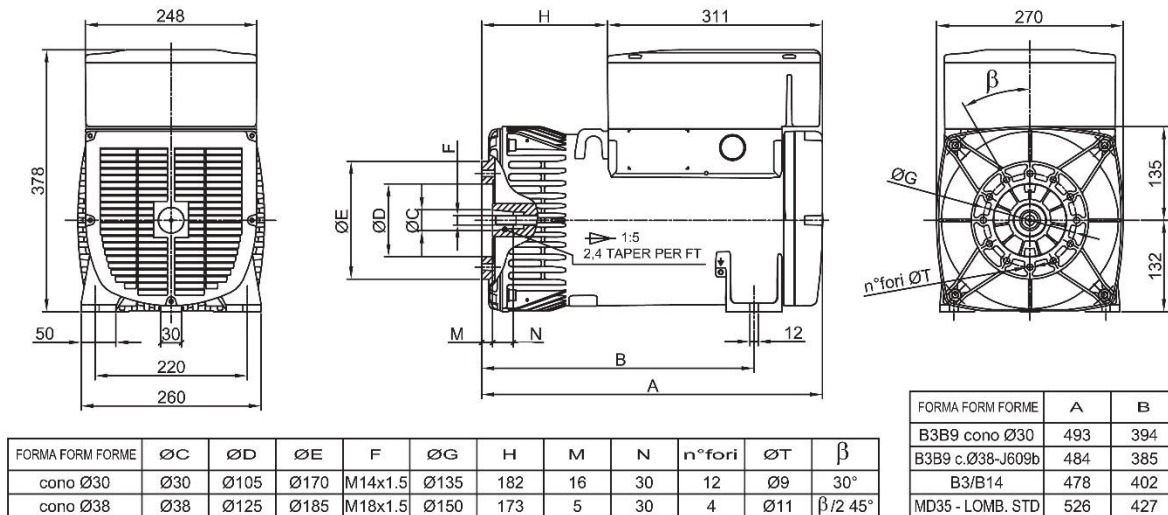
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



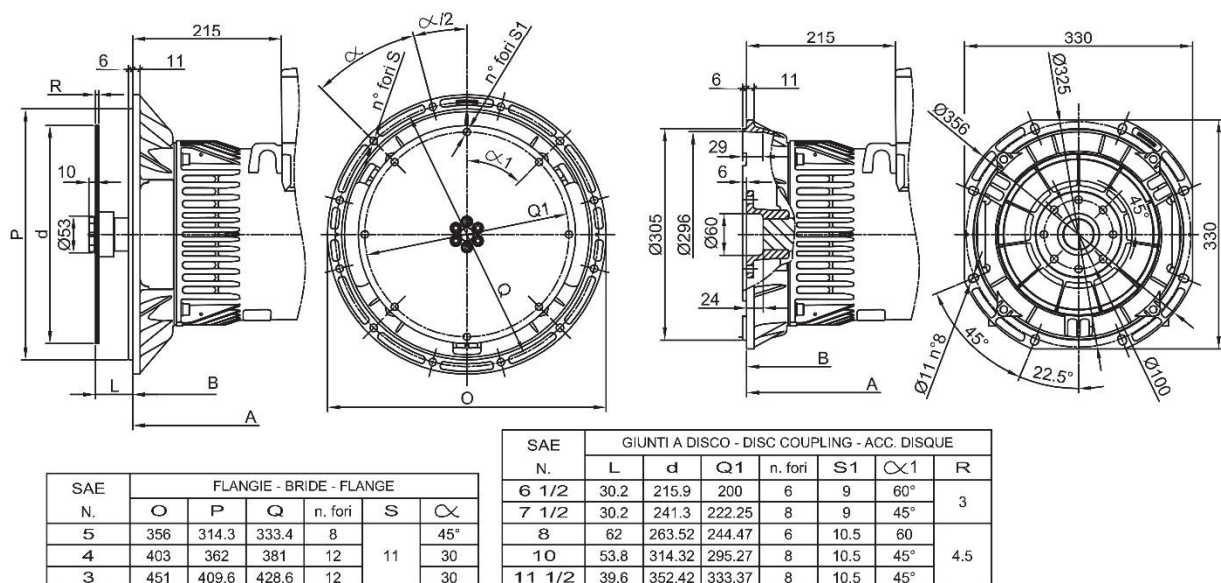
E1C13M F/4

FORMA FORM FORME B3/B9



FORMA FORM FORME MD35

FORMA FORM FORME LOMBARDINI STD



TECHNICAL DATA SHEET



ALTERNATOR SLS18 MC

Single-Phase brushless synchronous alternator with AVR - 4 poles

SLS18 MC

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		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	5,5 at 50Hz 5,7 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

AVR	HVR11
Sensing	single-phase
Voltage Regulation	±1%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding	Single layer with auxiliary winding
Rotor Winding	with damping cage
Number of Leads of Stator	4
Stator Winding Resistance	Ω 0,195 at 20°C
Rotor Winding Resistance	Ω 2,22 at 20°C
Exciter Stator Resistance	Ω 15 at 20°C
Exciter Rotor Resistance	Ω 0,72 at 20°C
THD at full load	<5%
THD at no load	<3%
Excitation at no load	Adc 0,86
Excitation at full load	Adc 2

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

SLS18 MC

ELECTRICAL DATA

Frequency		50Hz - 1500rpm			60Hz - 1800rpm		
Voltage Series Star	V	220	230	240	220	230	240
Rated Power in Class H (125°C/40°C)	kVA	10	10	10	12	12	12
	kW	8	8	8	9,6	9,6	9,6
Rated Power in Class F (105°C/40°C)	kVA	9	9	8,5	11	11	10,5
	kW	7,2	7,2	6,8	8,8	8,8	8,4
Rated Power Standby (150°C/40°C)	kVA	10,8	10,8	10,4	13	13	12,3
	kW	8,64	8,64	8,32	10,4	10,4	9,84
Rated Power Standby (163°C/27°C)	kVA	11,2	11,2	10,8	13,4	13,4	13
	kW	8,96	8,96	8,64	10,72	10,72	10,4

EFFICIENCY IN CL. H (PF=1)

4/4		83,6%			84,1%	
3/4		84,0%			84,6%	
2/4		81,4%			82,0%	
1/4		80,2%			80,8%	

REACTANCES AND TIME CONSTANTS

pcc			0,67			0,67	
X _d	- dir. axis synchronous	231%	211%	194%	231%	211%	194%
X' _d	- dir. axis transient	17,5%	16,0%	14,7%	17,5%	16,0%	14,7%
X'' _d	- dir. axis subtransient	8,1%	7,4%	6,8%	8,1%	7,4%	6,8%
X _q	- quad. axis reactance	129%	118%	108%	129%	118%	108%
T' _{do}	- O.C. field time constant	99ms					
T' _d	- Transient time constant	6ms					
T'' _d	- Sub-transient time constant	5ms					

MECHANICAL DATA

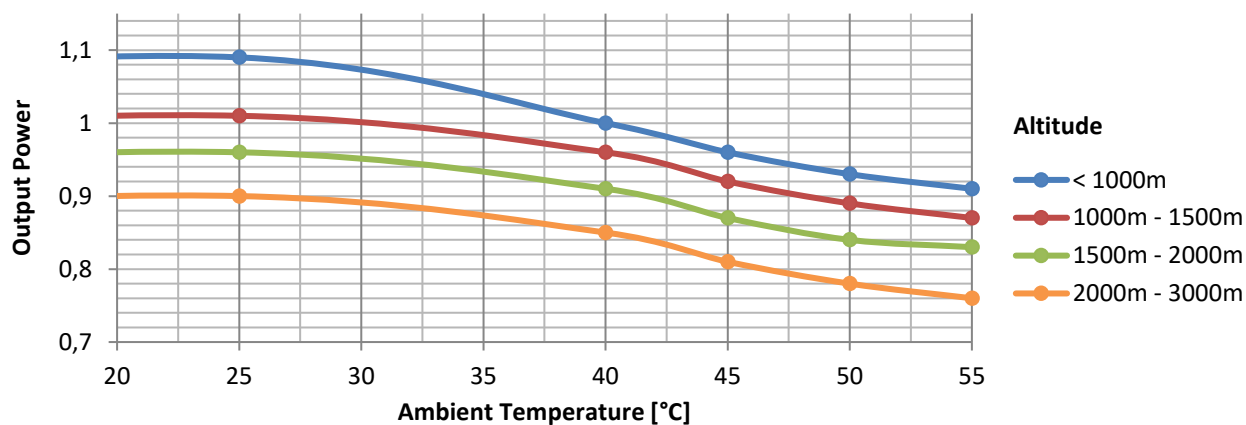
Bearing non drive end			6306-2RS-C3		
Bearing drive end (B3/B14 form)			\		
Weight of generator	in B2	kg	112		
	in B3/B14	kg	\		
	in B3/B9	kg	\		

SLS18 MC

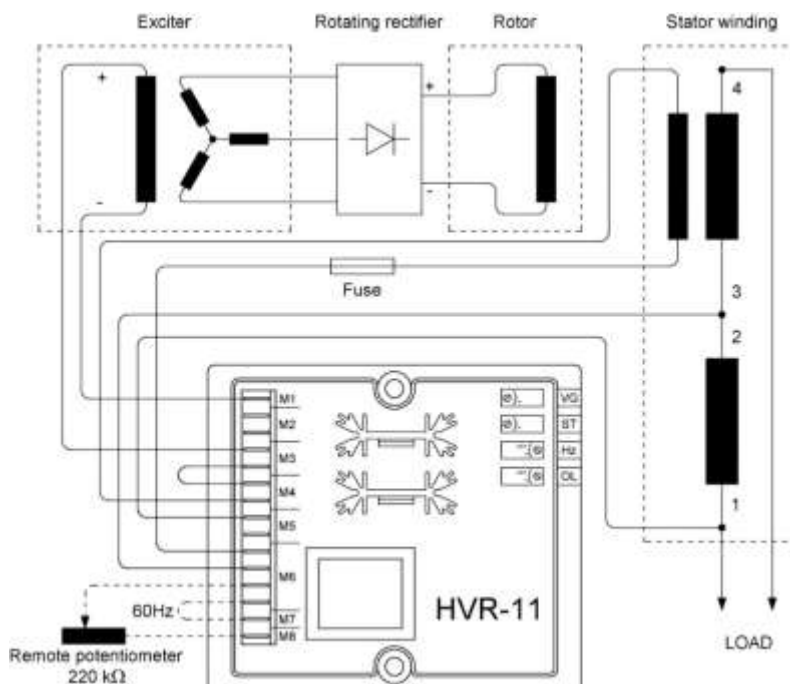
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,192
SAE 8	kg·m ²	0,201
SAE 10	kg·m ²	0,218
SAE 11½	kg·m ²	0,237
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	\

DERATING CURVES



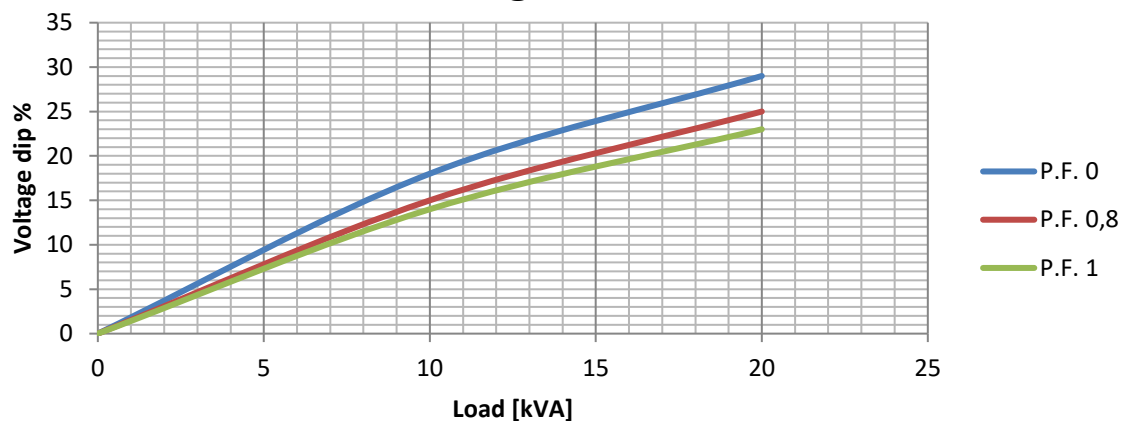
WIRING DIAGRAM



SLS18 MC

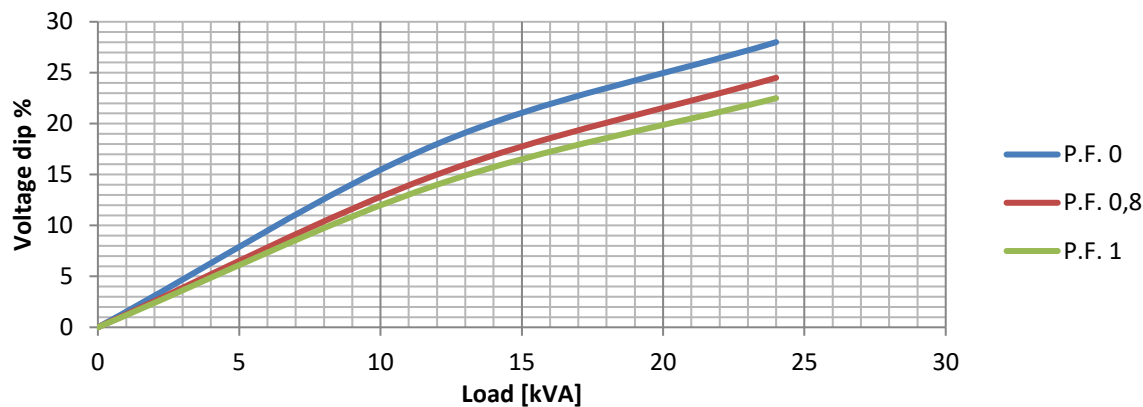
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

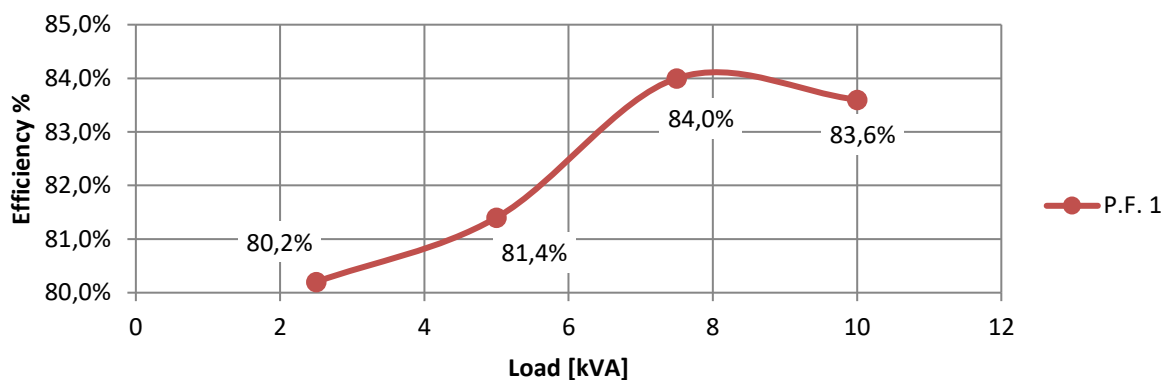
Transient Voltage Variation @ 60Hz



SLS18 MC

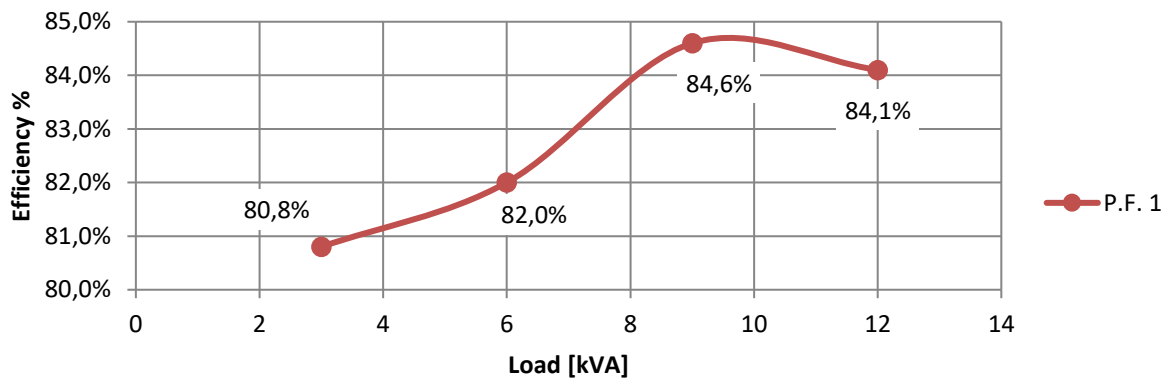
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



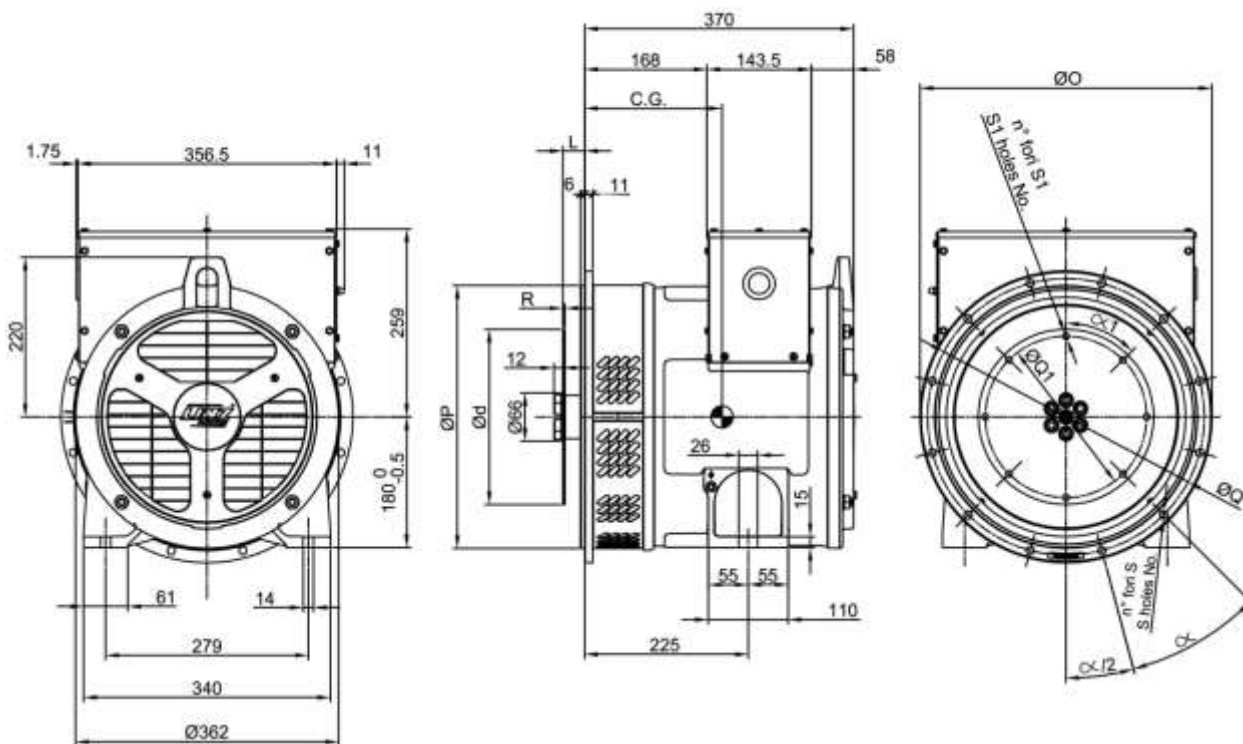
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



SLS18 MC

FORMA - FORM SAE



TIPO - TYPE	C.G.
SLS/SLT18 MC MD35	190
SLS/SLT18 MD MD35	192

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314.3	333.4	8	11	45°
4	402	362	381	12		30°
3	451	409.6	428.6	12		30°

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	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°	

TECHNICAL DATA SHEET



ALTERNATOR SLS18 MD

Single-Phase brushless synchronous alternator with AVR - 4 poles

SLS18 MD

COMMON DATA

Rated Power at 50Hz	kVA	15
Rated Power at 60Hz	kVA	18
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	5,5 at 50Hz 5,7 at 60Hz
R.F.I. Suppression		Standard EN55011

REGULATION DATA

AVR	HVR11
Sensing	single-phase
Voltage Regulation	±1%
Sustained Short Circuit	> 250% of rated current

WINDING DATA

Stator Winding		Single layer with auxiliary winding
Rotor Winding		with damping cage
Number of Leads of Stator		4
Stator Winding Resistance	Ω	0,12 at 20°C
Rotor Winding Resistance	Ω	2,43 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<5%
THD at no load		<3%
Excitation at no load	Adc	1
Excitation at full load	Adc	2,5

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

SLS18 MD

ELECTRICAL DATA

Frequency		50Hz - 1500rpm			60Hz - 1800rpm		
Voltage Series Star	V	220	230	240	220	230	240
Rated Power in Class H (125°C/40°C)	kVA	15	15	15	18	18	18
	kW	12	12	12	14,4	14,4	14,4
Rated Power in Class F (105°C/40°C)	kVA	13	13,5	13,5	16	16,5	16,5
	kW	10,4	10,8	10,8	12,8	13,2	13,2
Rated Power Standby (150°C/40°C)	kVA	15	15,5	15,5	18	18,5	18,5
	kW	12	12,4	12,4	14,4	14,8	14,8
Rated Power Standby (163°C/27°C)	kVA	15,5	16	16	18,5	19	19
	kW	12,4	12,8	12,8	14,8	15,2	15,2

EFFICIENCY IN CL. H (PF=1)

4/4		84,5%			84,7%	
3/4		84,8%			85,0%	
2/4		82,5%			82,7%	
1/4		78,5%			79,0%	

REACTANCES AND TIME CONSTANTS

pcc		0,61			0,61	
X _d - dir. axis synchronous	236%	216%	198%	236%	216%	198%
X' _d - dir. axis transient	18,6%	17,0%	15,6%	18,6%	17,0%	15,6%
X'' _d - dir. axis subtransient	9,1%	8,3%	7,6%	9,1%	8,3%	7,6%
X _q - quad. axis reactance	131%	120%	110%	131%	120%	110%
T' _{do} - O.C. field time constant	103ms					
T' _d - Transient time constant	7ms					
T'' _d - Sub-transient time constant	5ms					

MECHANICAL DATA

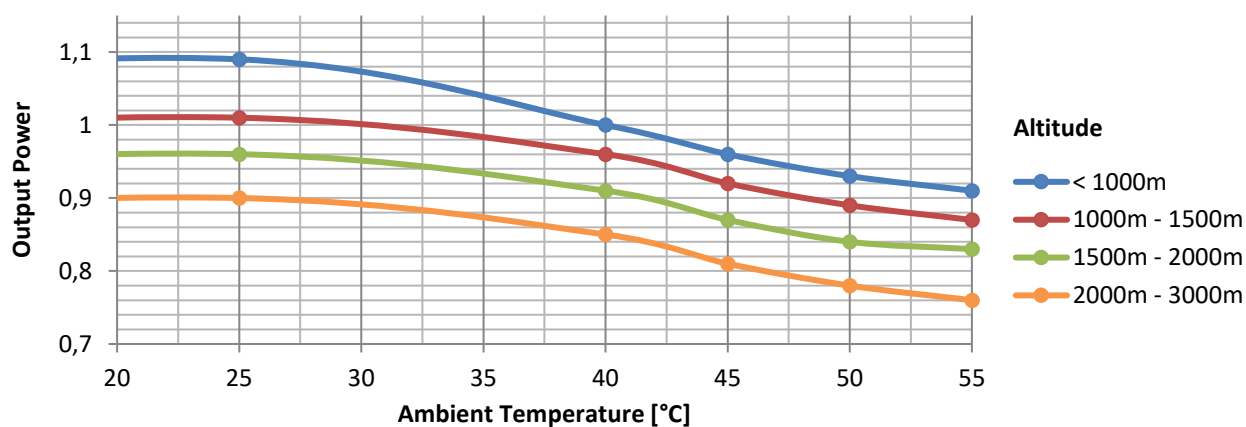
Bearing non drive end			6306-2RS-C3
Bearing drive end (B3/B14 form)			\
Weight of generator	in B2	kg	115
	in B3/B14	kg	\
	in B3/B9	kg	\

SLS18 MD

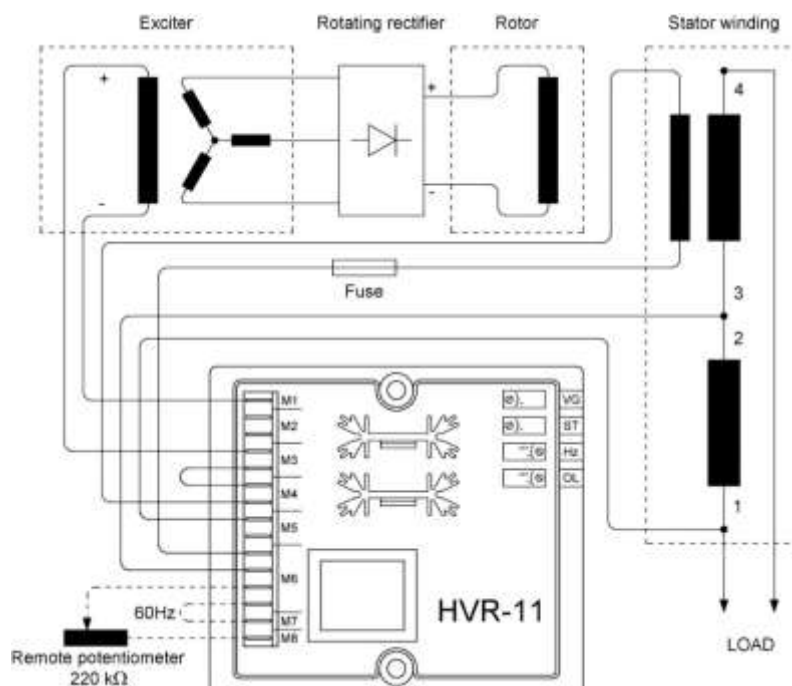
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,211
SAE 8	kg·m ²	0,220
SAE 10	kg·m ²	0,236
SAE 11½	kg·m ²	0,256
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	\

DERATING CURVES



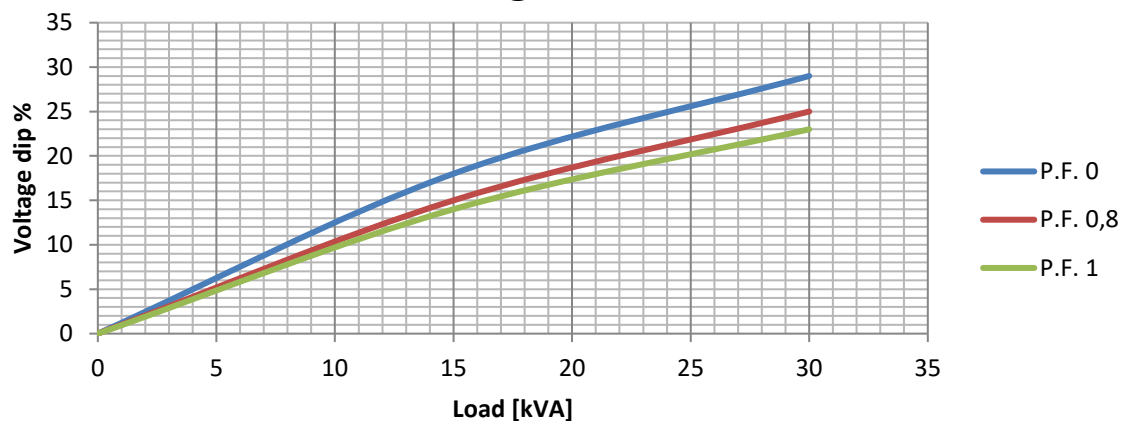
WIRING DIAGRAM



SLS18 MD

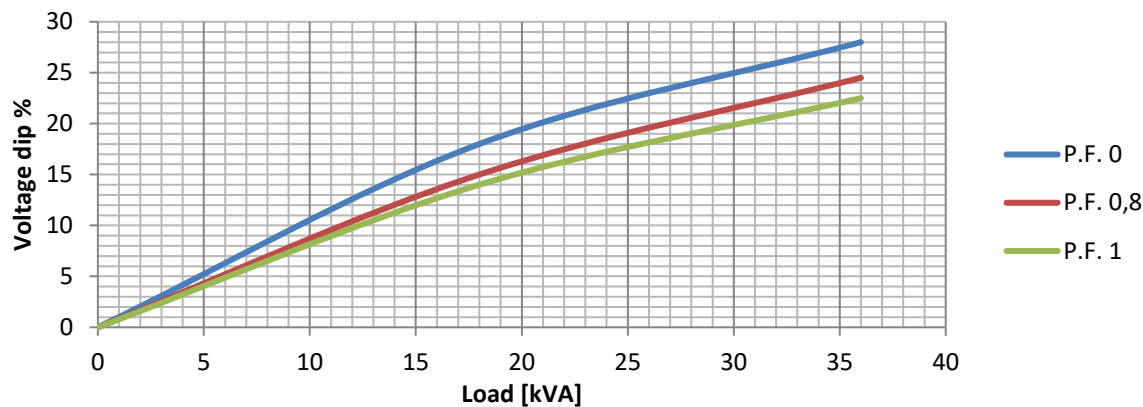
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

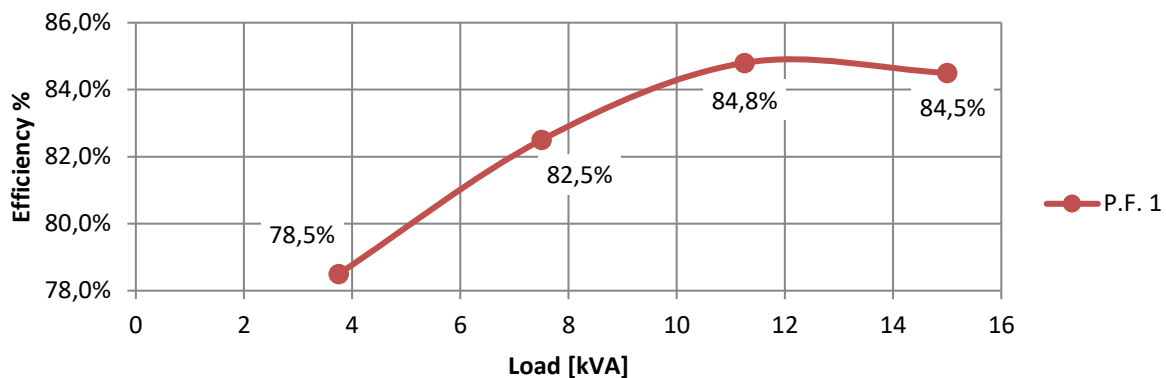
Transient Voltage Variation @ 60Hz



SLS18 MD

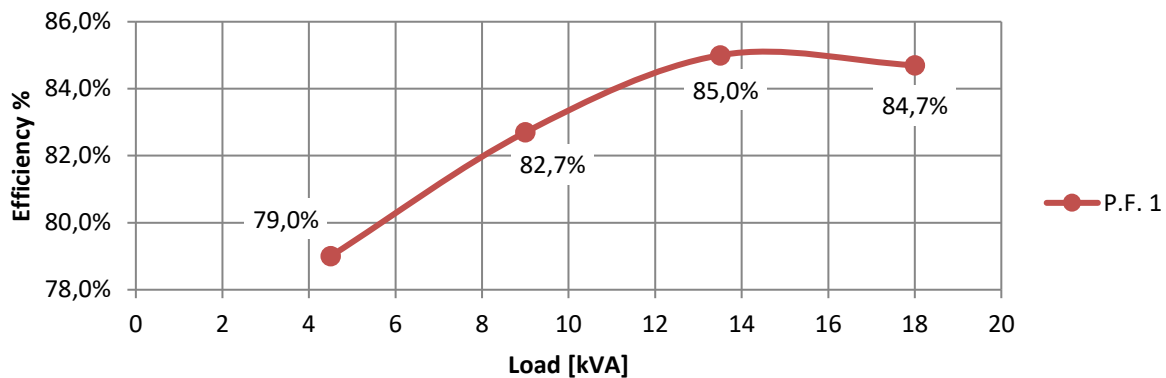
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



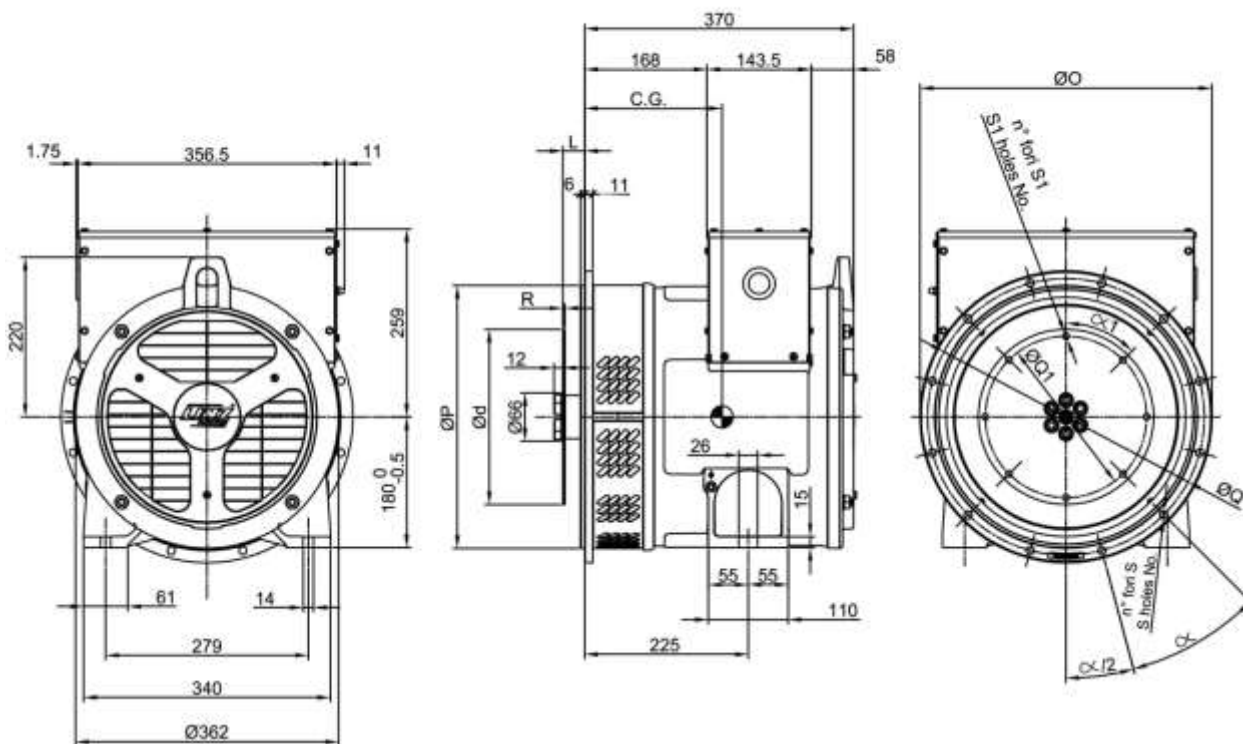
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



SLS18 MD

FORMA - FORM SAE



TIPO - TYPE	C.G.
SLS/SLT18 MC MD35	190
SLS/SLT18 MD MD35	192

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314.3	333.4	8	11	45°
4	402	362	381	12		30°
3	451	409.6	428.6	12		30°

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	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°	

TECHNICAL DATA SHEET



ALTERNATOR PRO18S A/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18S A/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		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	5,5 at 50Hz 5,7 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	> 250% 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	Ω	0,224 at 20°C
Rotor Winding Resistance	Ω	2,43 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,92
Excitation at full load	Adc	2,15

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18S A/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	13	20	20	20	18	15,6	21	23	24	24
	kW	10,4	16	16	16	14,4	12,5	16,8	18,4	19,2	19,2
Rated Power in Class F (105°C/40°C)	kVA	12	18,5	18,5	18,5	17	14,5	20	21	22	22
	kW	9,6	14,8	14,8	14,8	13,6	11,6	16	16,8	17,6	17,6
Rated Power Standby (150°C/40°C)	kVA	14,5	22	22	21,5	20	17	24	25	26	26
	kW	11,6	17,6	17,6	17,2	16	13,6	19,2	20	20,8	20,8
Rated Power Standby (163°C/27°C)	kVA	15	23	23	22,5	21	17,5	25	26	27	27
	kW	12	18,4	18,4	18	16,8	14	20	20,8	21,6	21,6

EFFICIENCY IN CL. H

4/4			86,1%							87,8%
3/4			86,3%							88,1%
2/4			84,5%							86,3%
1/4			82,0%							83,8%

REACTANCES AND TIME CONSTANTS

pcc			0,57							
X _d	- dir. axis synchronous	268%	242%	225%	180%		283%	276%	264%	242%
X' _d	- dir. axis transient	21,1%	19,0%	17,7%	14,1%		22,2%	21,7%	20,7%	19,0%
X'' _d	- dir. axis subtransient	10,0%	9,0%	8,4%	6,7%		10,5%	10,3%	9,8%	9,0%
X _q	- quad. axis reactance	147%	133%	124%	99%		156%	152%	145%	133%
T' _{do}	- O.C. field time constant	103ms								
T' _d	- Transient time constant	7ms								
T'' _d	- Sub-transient time constant	5ms								

MECHANICAL DATA

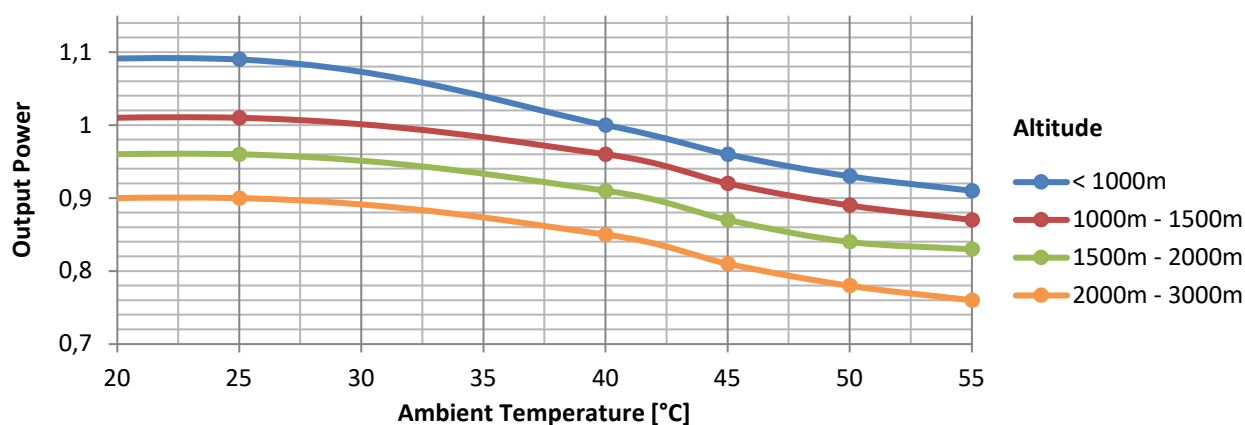
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	121
	in B3/B14	kg	123
	in B3/B9	kg	\

PRO18S A/4

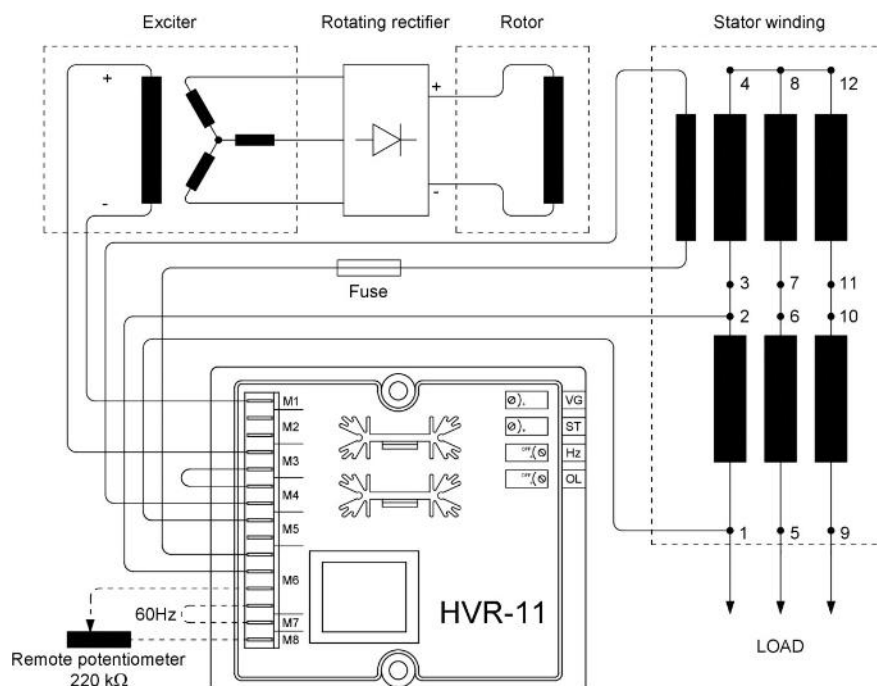
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,212
SAE 8	kg·m ²	0,221
SAE 10	kg·m ²	0,238
SAE 11½	kg·m ²	0,257
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,197

DERATING CURVES



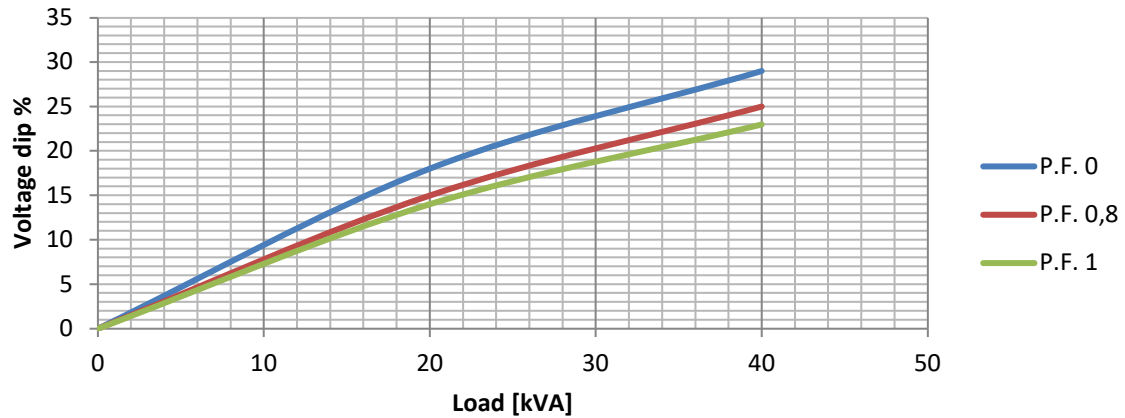
WIRING DIAGRAM



PRO18S A/4

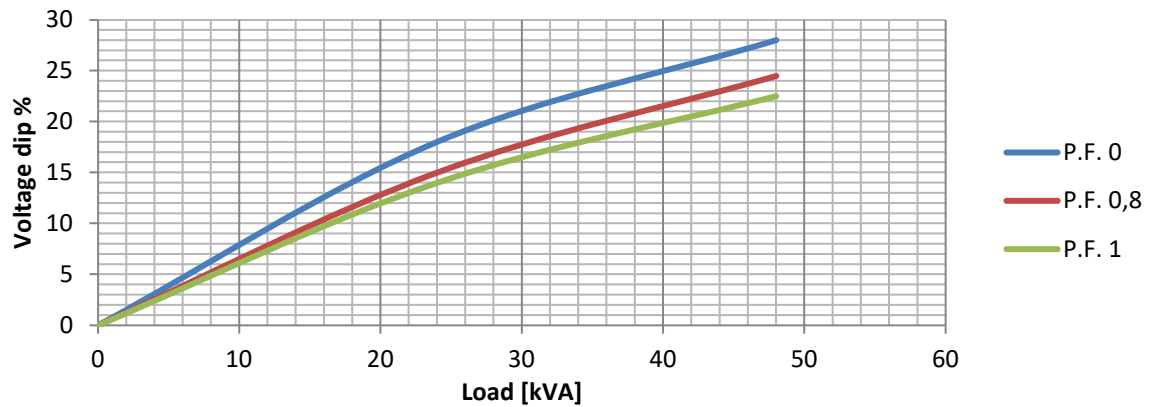
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

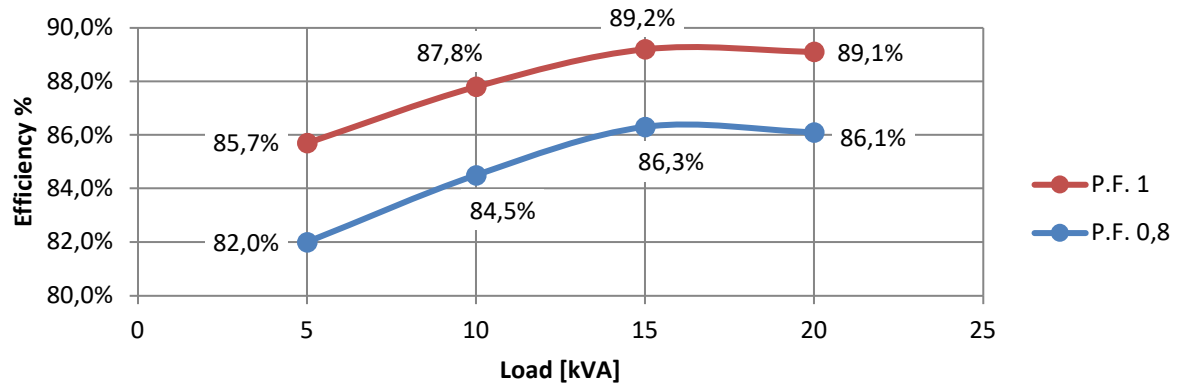
Transient Voltage Variation @ 60Hz



PRO18S A/4

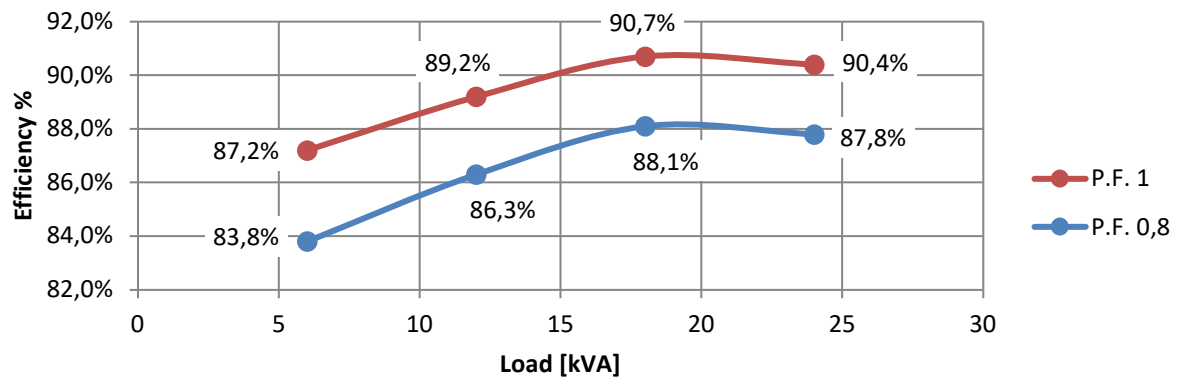
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



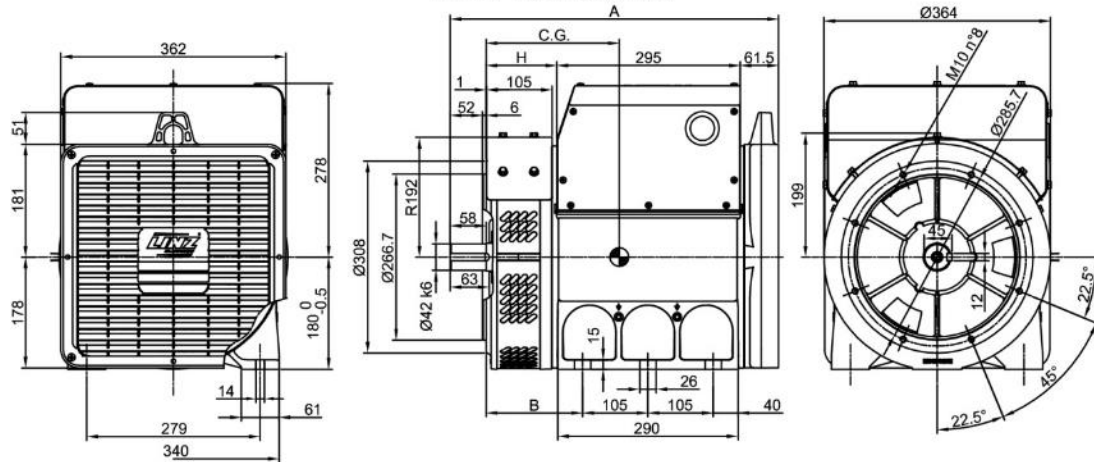
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



PRO18S A/4

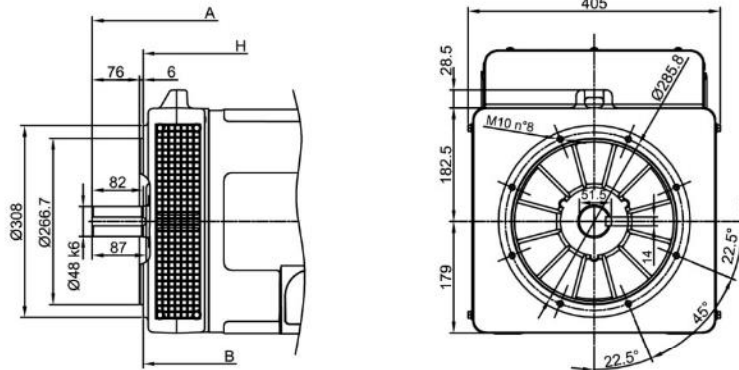
FORMA - FORM B3/B14 'S-M'



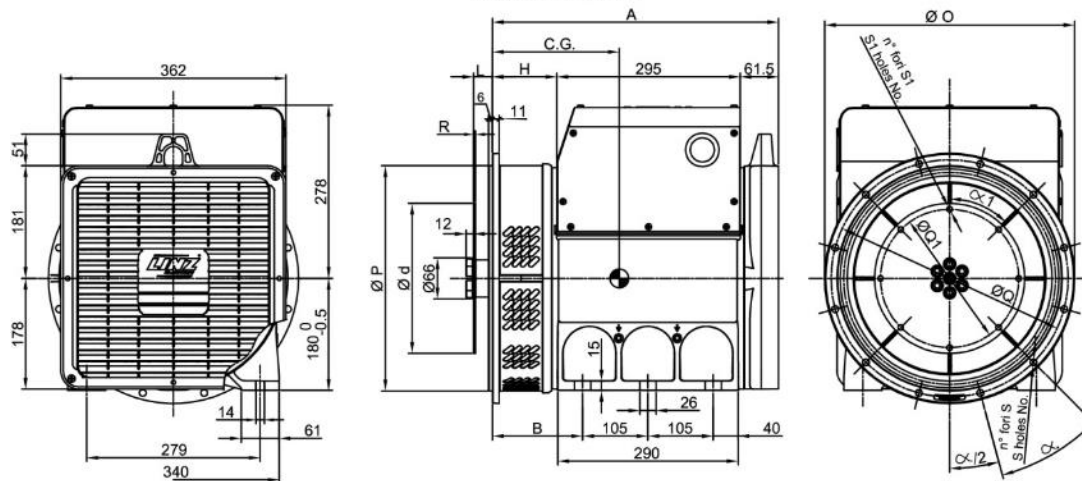
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				

TECHNICAL DATA SHEET



ALTERNATOR PRO18S B/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18S B/4

COMMON DATA

Rated Power at 50Hz	kVA	25
Rated Power at 60Hz	kVA	30
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		Brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	6,3 at 50Hz 6,5 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	Ω	0,16 at 20°C
Rotor Winding Resistance	Ω	2,61 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,92
Excitation at full load	Adc	2,23

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18S B/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	17	25	25	25	22	20	26	28	30	30
	kW	13,6	20	20	20	17,6	16	20,8	22,4	24	24
Rated Power in Class F (105°C/40°C)	kVA	15,5	23	23	23	20	18,5	24	25	27,5	27,5
	kW	12,4	18,4	18,4	18,4	16	14,8	19,2	20	22	22
Rated Power Standby (150°C/40°C)	kVA	18	27	27	26	24	21,5	28,5	30	32	32
	kW	14,4	21,6	21,6	20,8	19,2	17,2	22,8	24	25,6	25,6
Rated Power Standby (163°C/27°C)	kVA	18,5	28	28	27	25	22,5	30	32	34	34
	kW	14,8	22,4	22,4	21,6	20	18	24	25,6	27,2	27,2

EFFICIENCY IN CL. H

4/4			86,5%							88,2%
3/4			86,9%							88,6%
2/4			85,8%							86,7%
1/4			82,5%							83,7%

REACTANCES AND TIME CONSTANTS

pcc			0,57							
X _d	- dir. axis synchronous	266%	240%	223%	175%		278%	267%	261%	240%
X' _d	- dir. axis transient	22,2%	20,0%	18,6%	14,5%		23,2%	22,2%	21,8%	20,0%
X'' _d	- dir. axis subtransient	10,0%	9,0%	8,4%	6,5%		10,4%	10,0%	9,8%	9,0%
X _q	- quad. axis reactance	148%	134%	124%	97%		155%	149%	146%	134%
T' _{do}	- O.C. field time constant	101ms								
T' _d	- Transient time constant	8ms								
T'' _d	- Sub-transient time constant	5ms								

MECHANICAL DATA

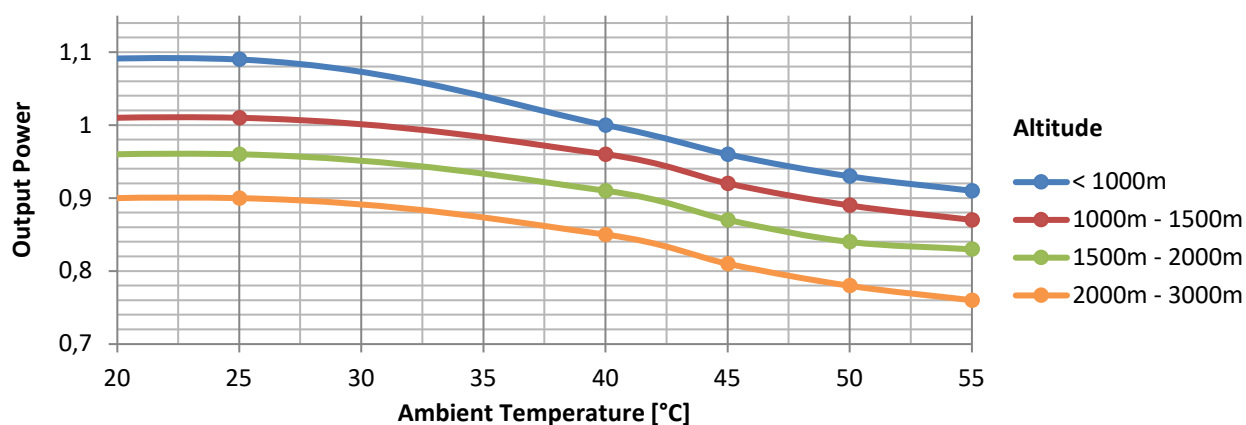
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	134,5
	in B3/B14	kg	136,5
	in B3/B9	kg	\

PRO18S B/4

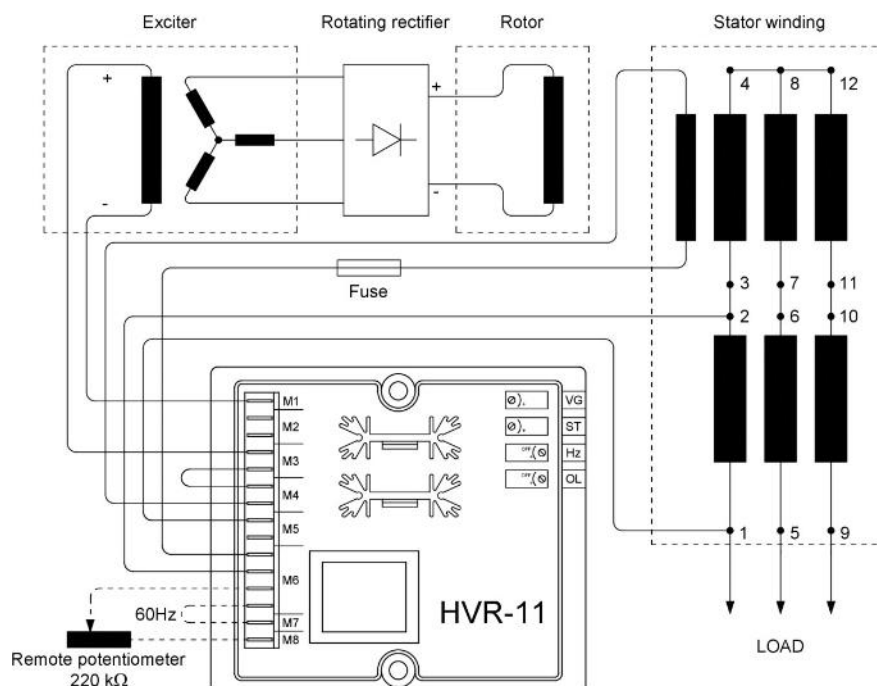
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,244
SAE 8	kg·m ²	0,253
SAE 10	kg·m ²	0,270
SAE 11½	kg·m ²	0,289
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,231

DERATING CURVES



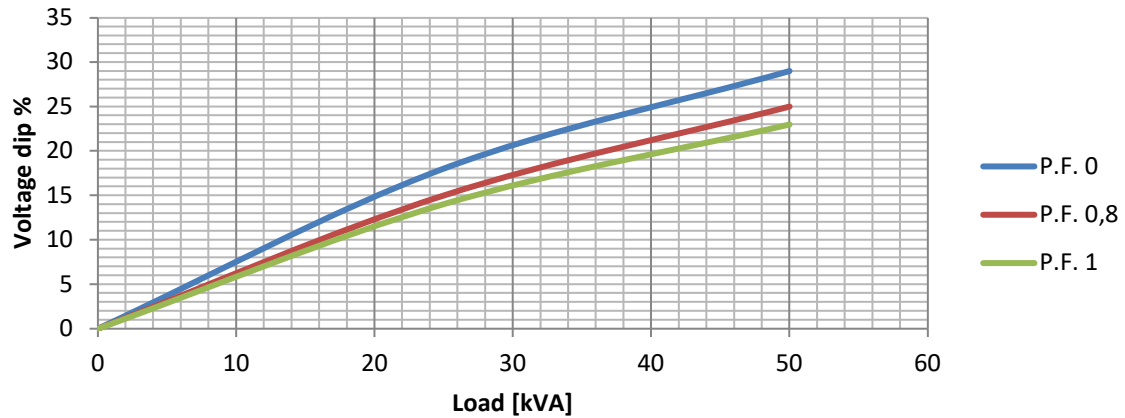
WIRING DIAGRAM



PRO18S B/4

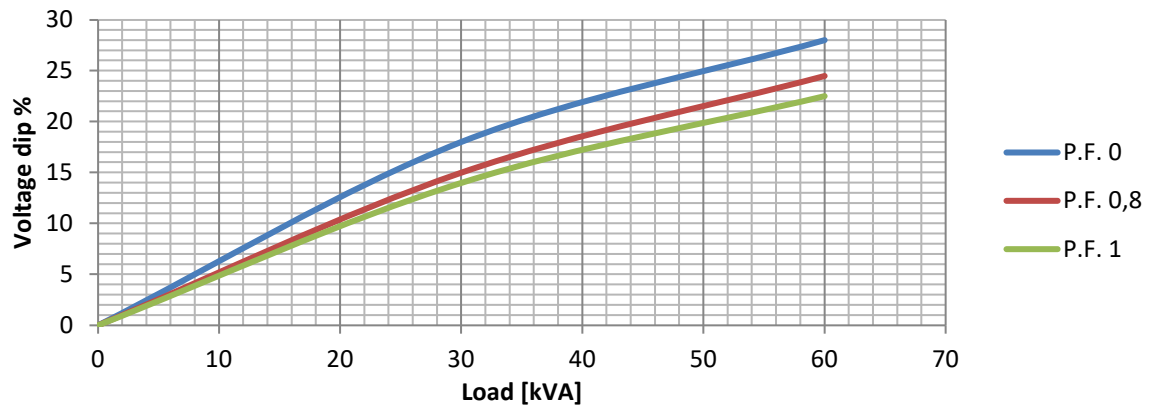
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

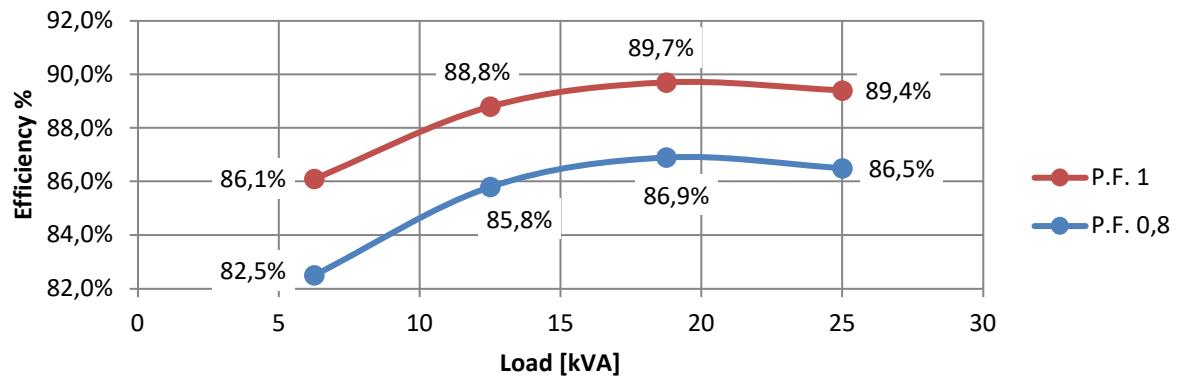
Transient Voltage Variation @ 60Hz



PRO18S B/4

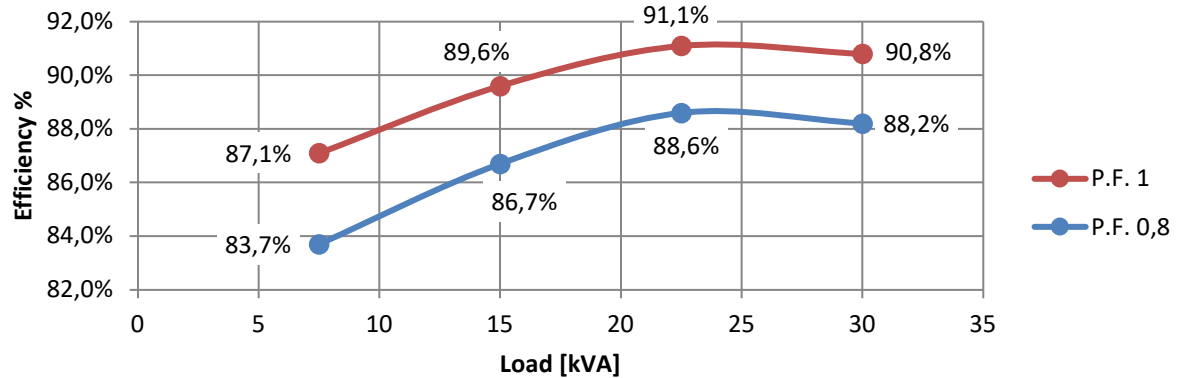
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



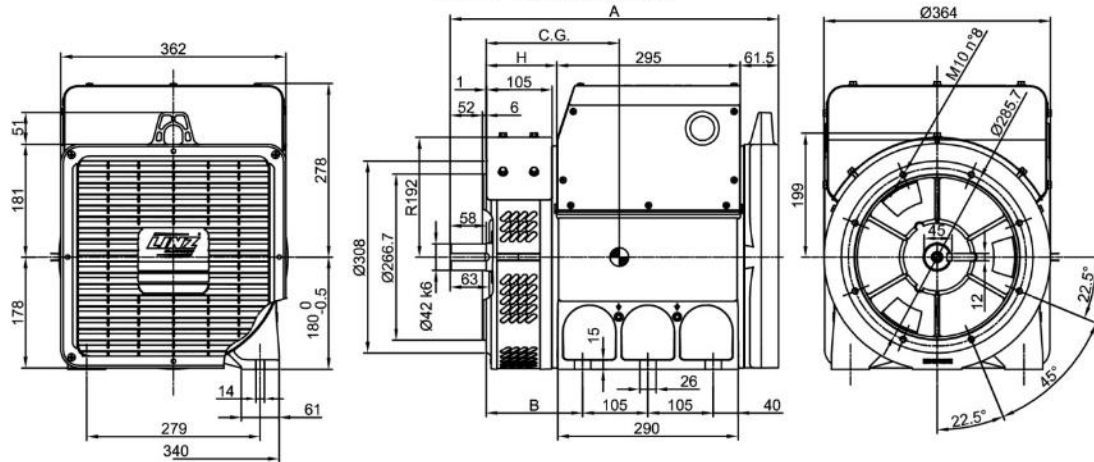
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



PRO18S B/4

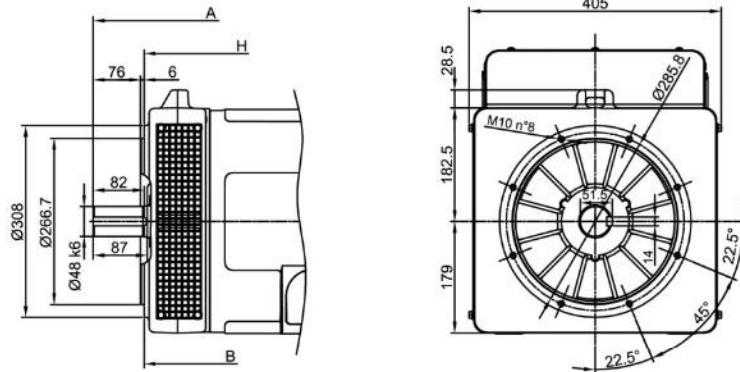
FORMA - FORM B3/B14 'S-M'



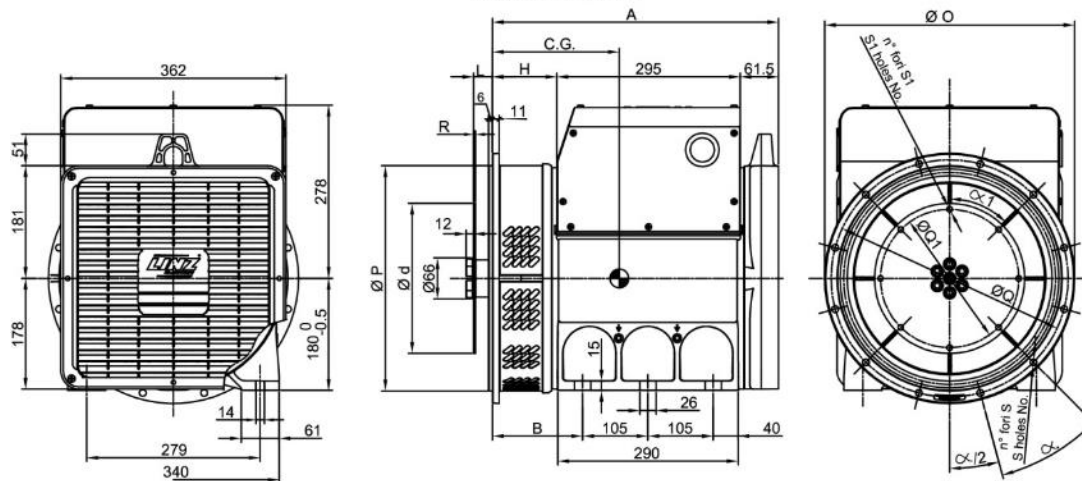
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				

TECHNICAL DATA SHEET



ALTERNATOR PRO18S C/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18S C/4

COMMON DATA

Rated Power at 50Hz	kVA	30
Rated Power at 60Hz	kVA	36
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	6,9 at 50Hz 7,1 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	> 250% 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	Ω	0,117 at 20°C
Rotor Winding Resistance	Ω	2,9 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,92
Excitation at full load	Adc	2,23

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18S C/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye			Double Delta	Series High Wye				
			Parallel Low Wye				Parallel Low Wye				
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	20	30	30	30	25	24	34	35	36	36
	kW	16	24	24	24	20	19,2	27,2	28	28,8	28,8
Rated Power in Class F (105°C/40°C)	kVA	19	28	28	28	24	22,5	32	33	33,5	33,5
	kW	15,2	22,4	22,4	22,4	19,2	18	25,6	26,4	26,8	26,8
Rated Power Standby (150°C/40°C)	kVA	22	33	33	32	27,5	25,5	36	36,5	38	38
	kW	17,6	26,4	26,4	25,6	22	20,4	28,8	29,2	30,4	30,4
Rated Power Standby (163°C/27°C)	kVA	23	34	34	33	28	26	35	37,5	39	39
	kW	18,4	27,2	27,2	26,4	22,4	20,8	28	30	31,2	31,2

EFFICIENCY IN CL. H

4/4			87,1%							88,8%
3/4			87,5%							89,3%
2/4			85,0%							87,0%
1/4			81,3%							82,2%

REACTANCES AND TIME CONSTANTS

pcc			0,58							
X _d	- dir. axis synchronous	269%	243%	226%	167%		307%	281%	265%	243%
X' _d	- dir. axis transient	21,1%	19,0%	17,7%	13,1%		24,0%	22,0%	20,7%	19,0%
X'' _d	- dir. axis subtransient	8,9%	8,0%	7,4%	5,5%		10,1%	9,3%	8,7%	8,0%
X _q	- quad. axis reactance	150%	135%	125%	93%		171%	156%	147%	135%
T' _{do}	- O.C. field time constant	125ms								
T' _d	- Transient time constant	10ms								
T'' _d	- Sub-transient time constant	5ms								

MECHANICAL DATA

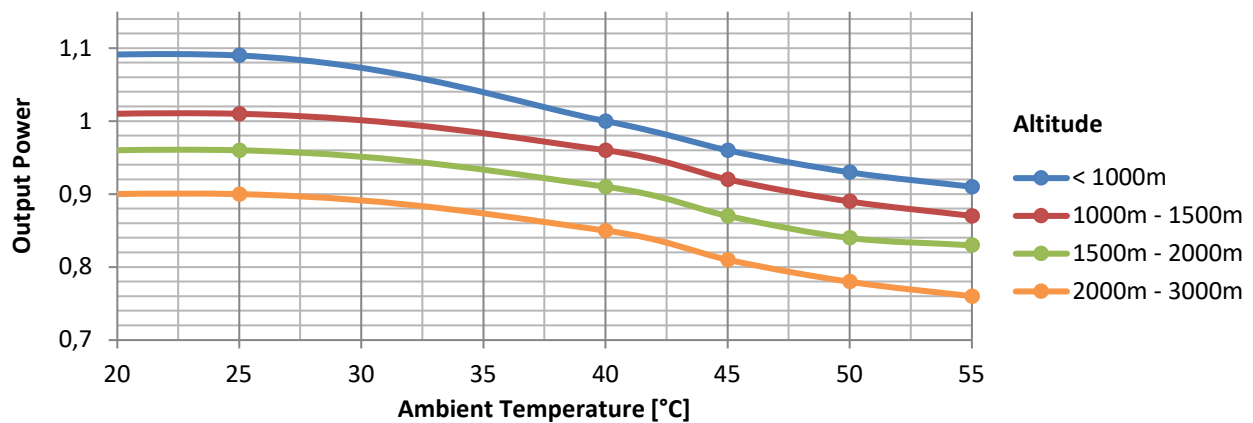
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	150
	in B3/B14	kg	153,5
	in B3/B9	kg	\

PRO18S C/4

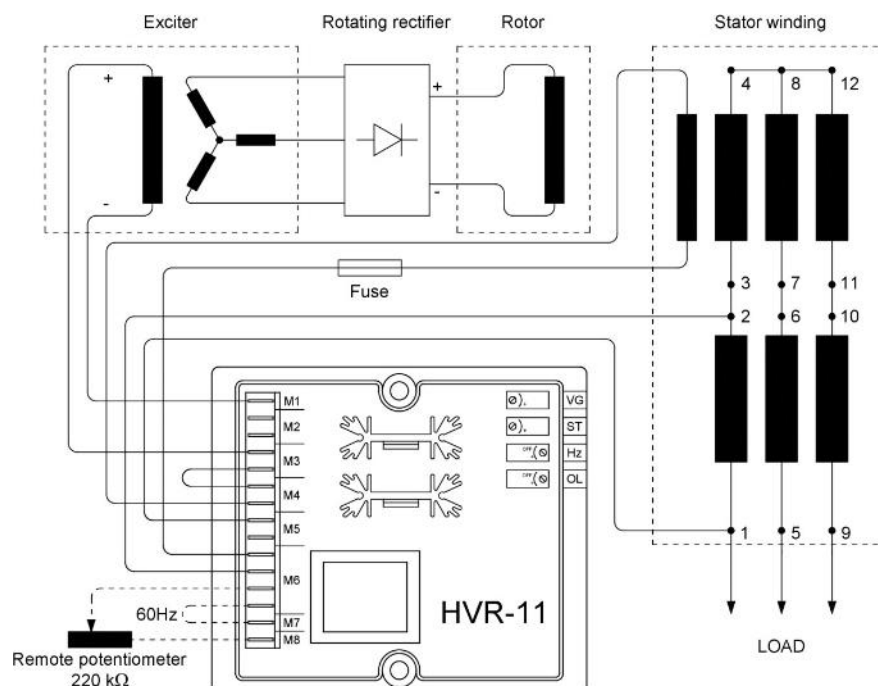
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,281
SAE 8	kg·m ²	0,290
SAE 10	kg·m ²	0,306
SAE 11½	kg·m ²	0,326
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,272

DERATING CURVES



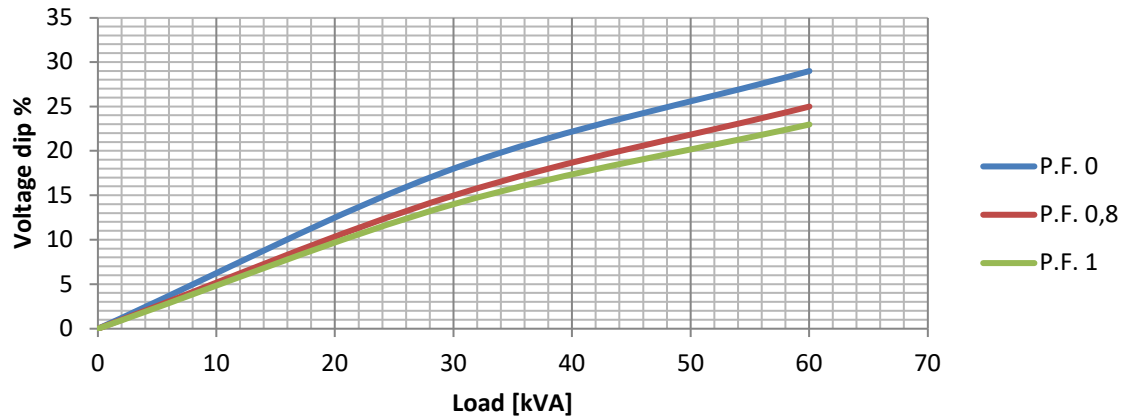
WIRING DIAGRAM



PRO18S C/4

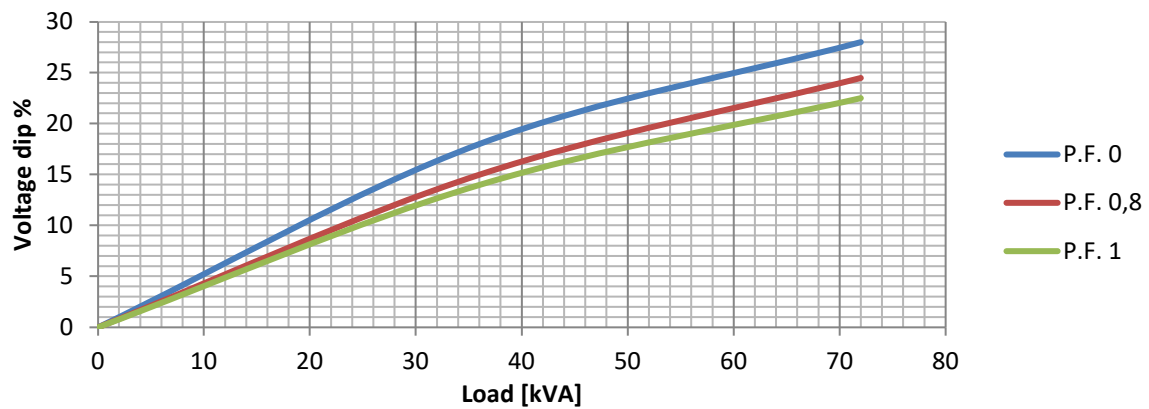
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

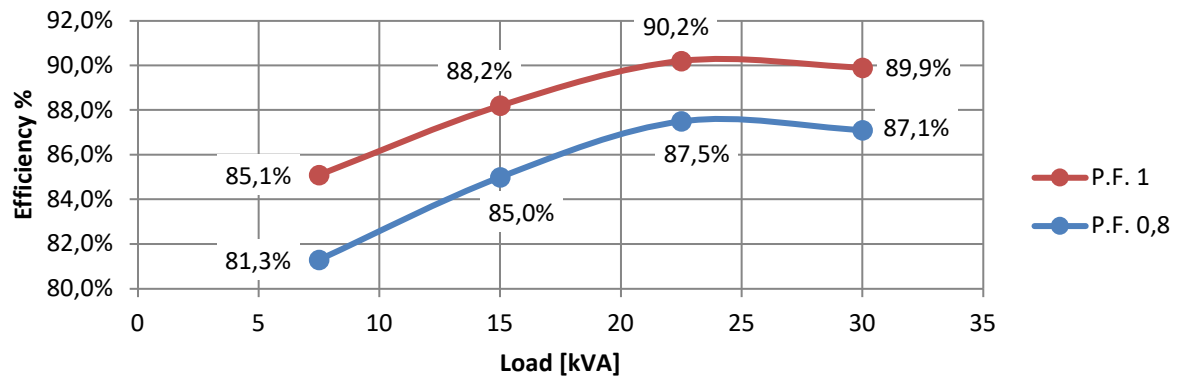
Transient Voltage Variation @ 60Hz



PRO18S C/4

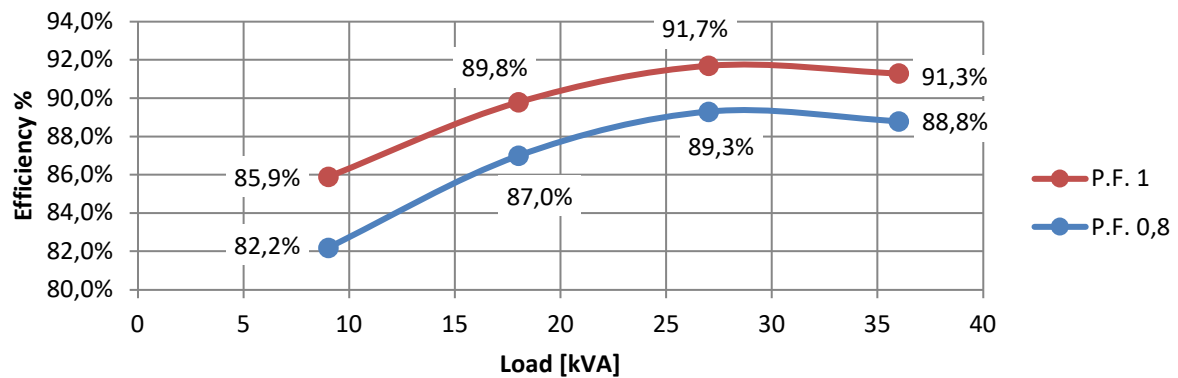
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



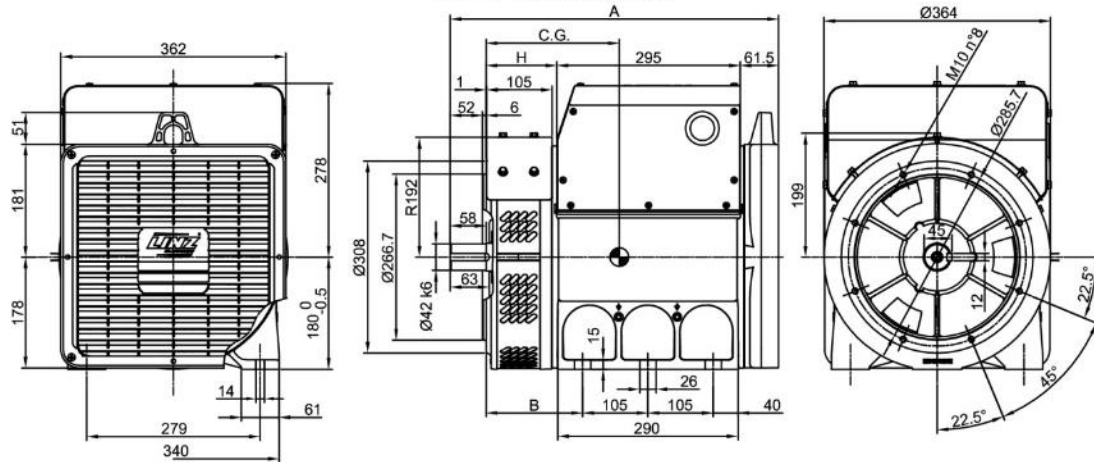
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



PRO18S C/4

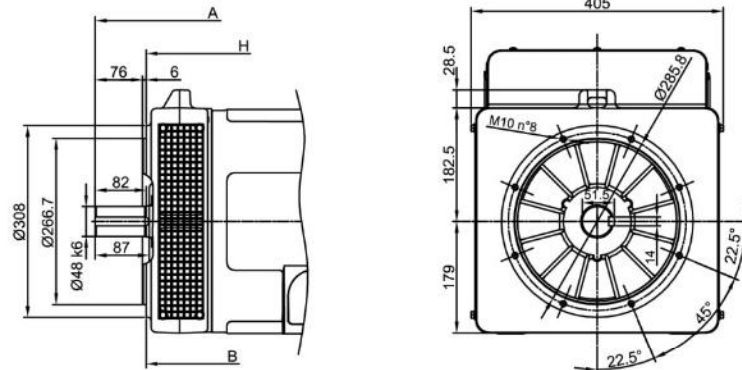
FORMA - FORM B3/B14 'S-M'



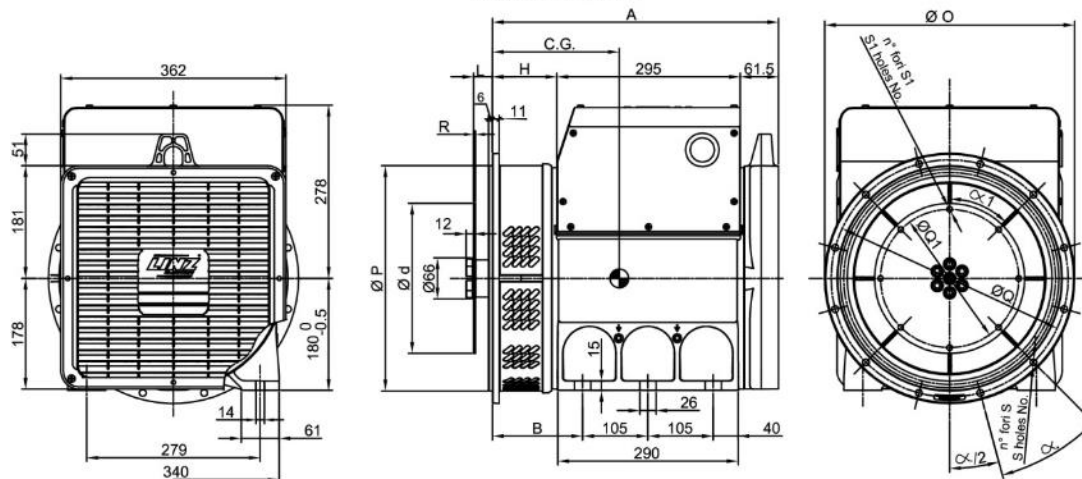
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				

TECHNICAL DATA SHEET



ALTERNATOR PRO18M D/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18M D/4

COMMON DATA

Rated Power at 50Hz	kVA	35
Rated Power at 60Hz	kVA	42
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	8 at 50Hz 8,3 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	Ω	0,087 at 20°C
Rotor Winding Resistance	Ω	3,24 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,91
Excitation at full load	Adc	2,28

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18M D/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	22,5	35	35	35	29	27	38,5	40	42	42
	kW	18	28	28	28	23,2	21,6	30,8	32	33,6	33,6
Rated Power in Class F (105°C/40°C)	kVA	20,5	32	32	31	27,5	24,7	36	37	38,5	38,5
	kW	16,4	25,6	25,6	24,8	22	19,8	28,8	29,6	30,8	30,8
Rated Power Standby (150°C/40°C)	kVA	24,56	37	37	36	30	29,5	40	42	45	45
	kW	19,6	29,6	29,6	28,8	24	23,6	32	33,6	36	36
Rated Power Standby (163°C/27°C)	kVA	25,5	39	39	37	31	30,5	42	45	47	47
	kW	20,4	31,2	31,2	29,6	24,8	24,4	33,6	36	37,6	37,6

EFFICIENCY IN CL. H

4/4			88,6%							90,4%
3/4			89,1%							90,9%
2/4			86,0%							87,5%
1/4			82,5%							83,0%

REACTANCES AND TIME CONSTANTS

pcc			0,58							
X _d	- dir. axis synchronous	266%	240%	223%	164%		294%	272%	261%	240%
X' _d	- dir. axis transient	19,9%	18,0%	16,7%	12,3%		22,1%	20,4%	19,6%	18,0%
X'' _d	- dir. axis subtransient	7,8%	7,0%	6,5%	4,8%		8,6%	7,9%	7,6%	7,0%
X _q	- quad. axis reactance	147%	133%	124%	91%		163%	151%	145%	133%
T' _{do}	- O.C. field time constant	147ms								
T' _d	- Transient time constant	11ms								
T'' _d	- Sub-transient time constant	6ms								

MECHANICAL DATA

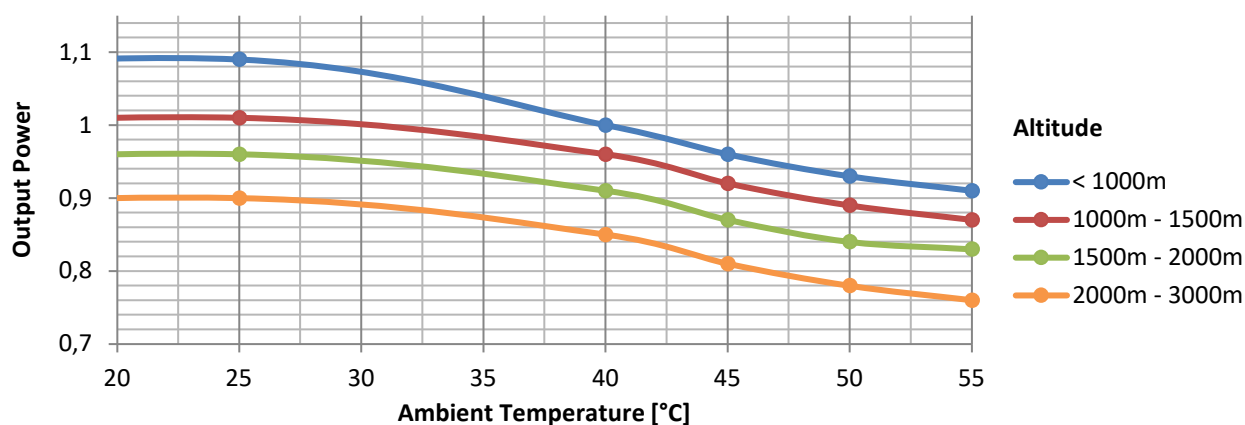
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	170	kg	170
	172	kg	172
	\	kg	\

PRO18M D/4

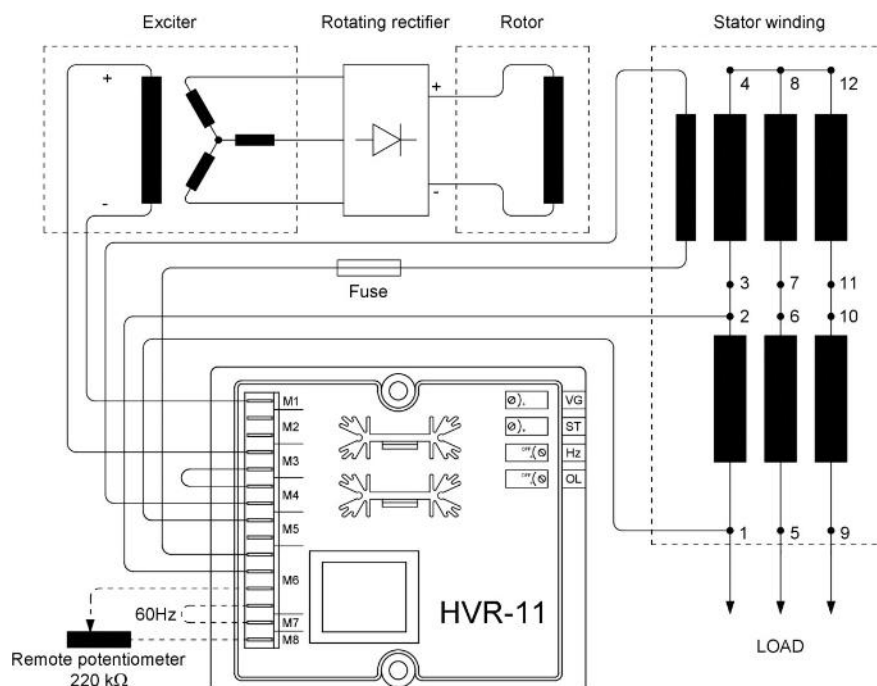
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,316
SAE 8	kg·m ²	0,325
SAE 10	kg·m ²	0,342
SAE 11½	kg·m ²	0,362
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,313

DERATING CURVES



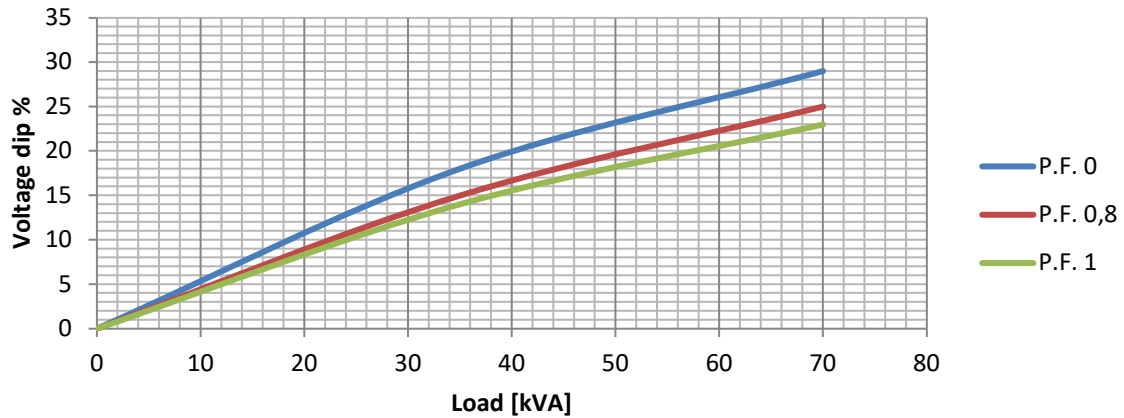
WIRING DIAGRAM



PRO18M D/4

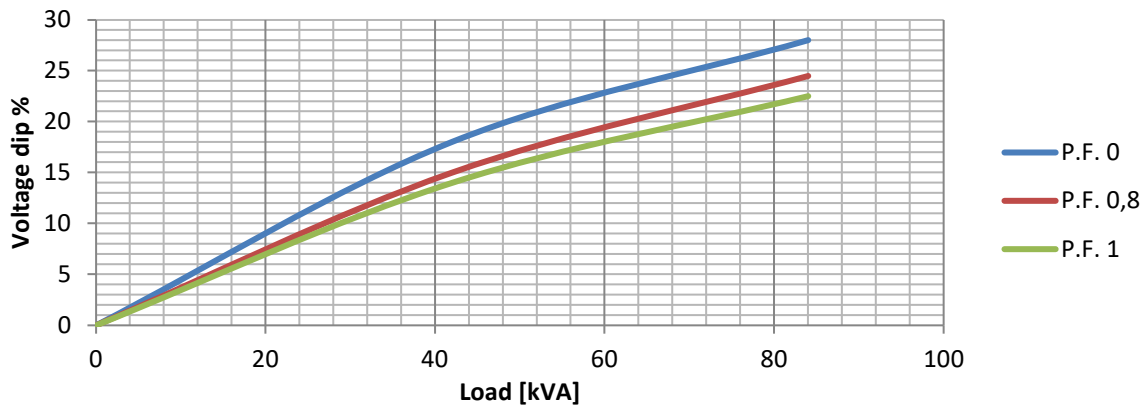
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

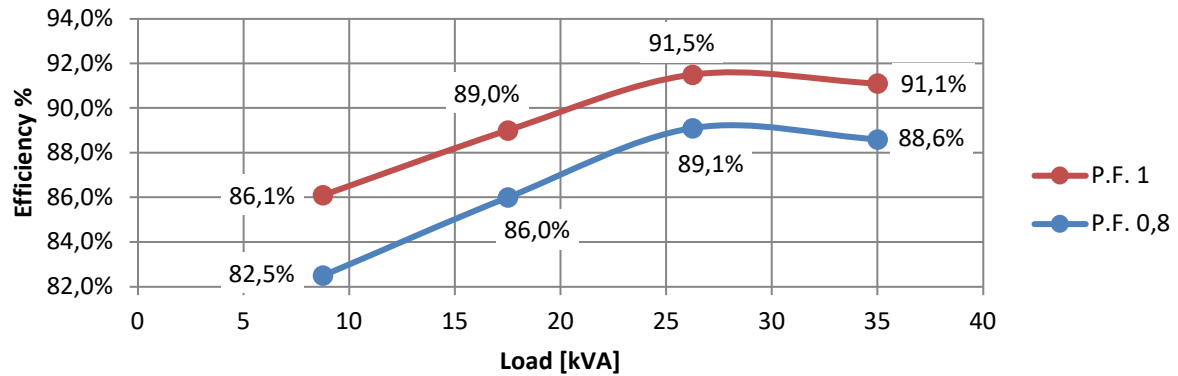
Transient Voltage Variation @ 60Hz



PRO18M D/4

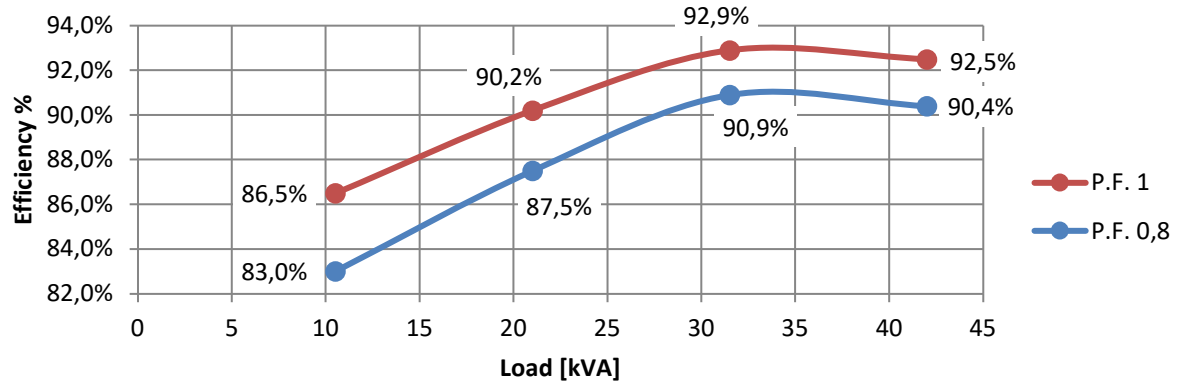
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



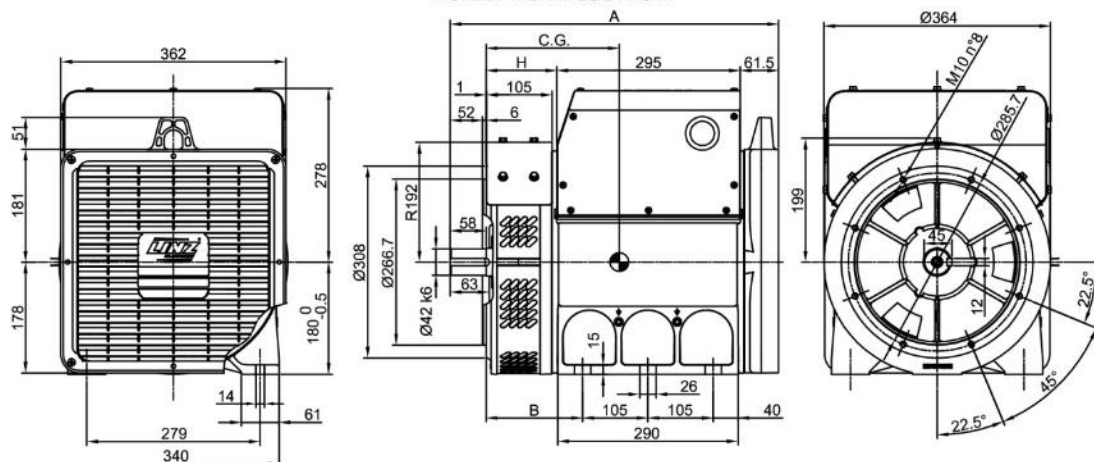
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



PRO18M D/4

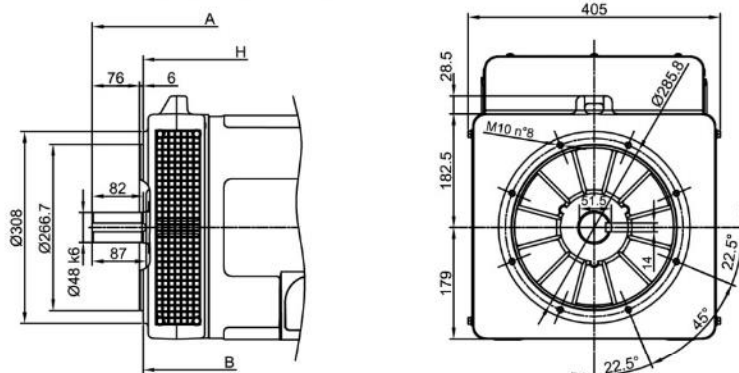
FORMA - FORM B3/B14 'S-M'



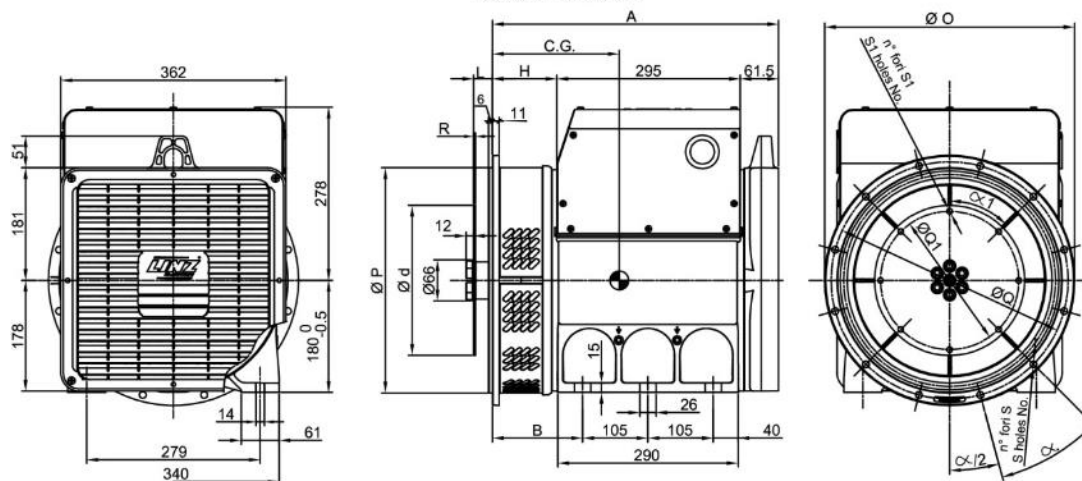
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				

TECHNICAL DATA SHEET



ALTERNATOR PRO18M E/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18M E/4

COMMON DATA

Rated Power at 50Hz	kVA	42
Rated Power at 60Hz	kVA	50
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	9,8 at 50Hz 11 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	Ω	0,068 at 20°C
Rotor Winding Resistance	Ω	3,74 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,92
Excitation at full load	Adc	2,4

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18M E/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	27	42	42	42	36	32	48	50	50	50
	kW	21,6	33,6	33,6	33,6	28,8	25,6	38,4	40	40	40
Rated Power in Class F (105°C/40°C)	kVA	24,5	39	39	39	32	29	45	47	47	47
	kW	19,6	31,2	31,2	31,2	25,6	23,2	36	37,6	37,6	37,6
Rated Power Standby (150°C/40°C)	kVA	29	47	47	45	42	35	50	53	55	55
	kW	23,2	37,6	37,6	36	33,6	28	40	42,4	44	44
Rated Power Standby (163°C/27°C)	kVA	30,5	48	48	46	44	36	52	55	57	57
	kW	24,4	38,4	38,4	36,8	35,2	28,8	41,6	44	45,6	45,6

EFFICIENCY IN CL. H

4/4			89,3%							91,1%
3/4			89,9%							91,7%
2/4			86,3%							87,8%
1/4			81,1%							83,4%

REACTANCES AND TIME CONSTANTS

pcc			0,60							
X _d - dir. axis synchronous		280%	253%	235%	179%		325%	301%	275%	253%
X' _d - dir. axis transient		22,2%	20,0%	18,6%	14,2%		25,7%	23,8%	21,8%	20,0%
X'' _d - dir. axis subtransient		8,9%	8,0%	7,4%	5,7%		10,3%	9,5%	8,7%	8,0%
X _q - quad. axis reactance		156%	141%	131%	100%		181%	168%	154%	141%
T' _{do} - O.C. field time constant		180ms								
T' _d - Transient time constant		14ms								
T'' _d - Sub-transient time constant		8ms								

MECHANICAL DATA

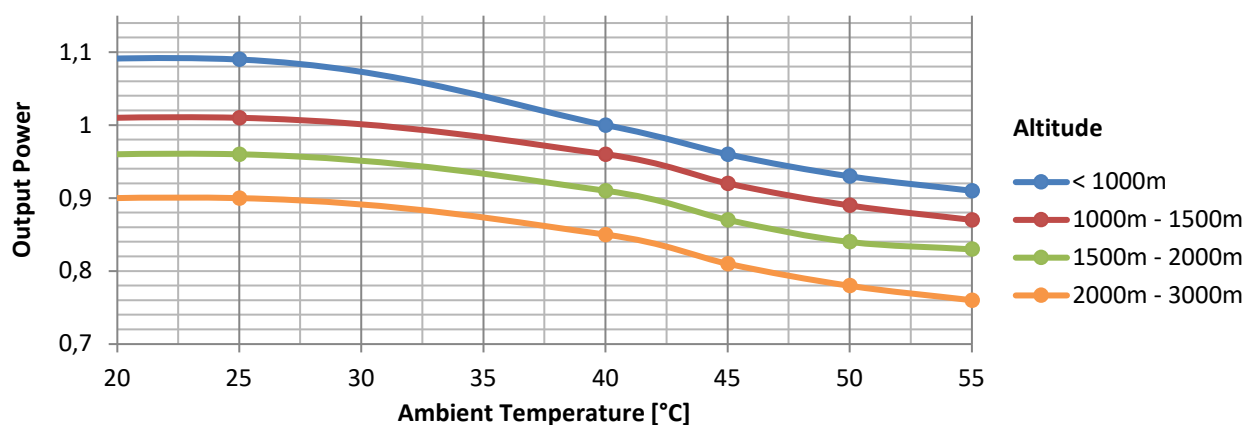
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	200
	in B3/B14	kg	202
	in B3/B9	kg	\

PRO18M E/4

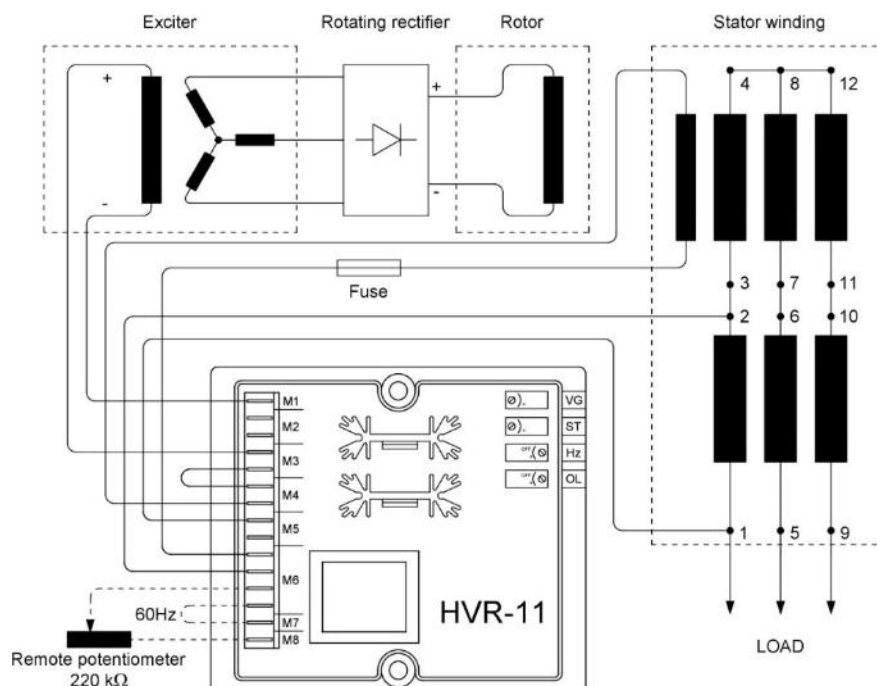
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,369
SAE 8	kg·m ²	0,378
SAE 10	kg·m ²	0,395
SAE 11½	kg·m ²	0,415
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,367

DERATING CURVES



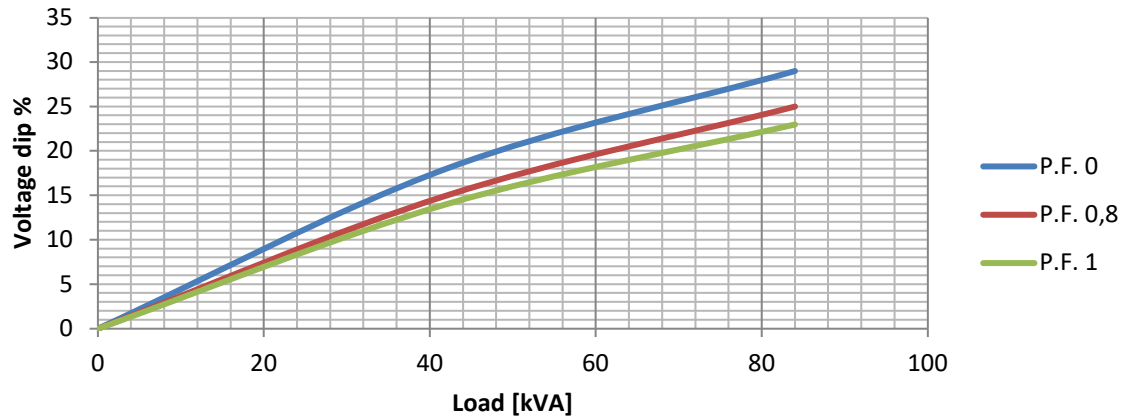
WIRING DIAGRAM



PRO18M E/4

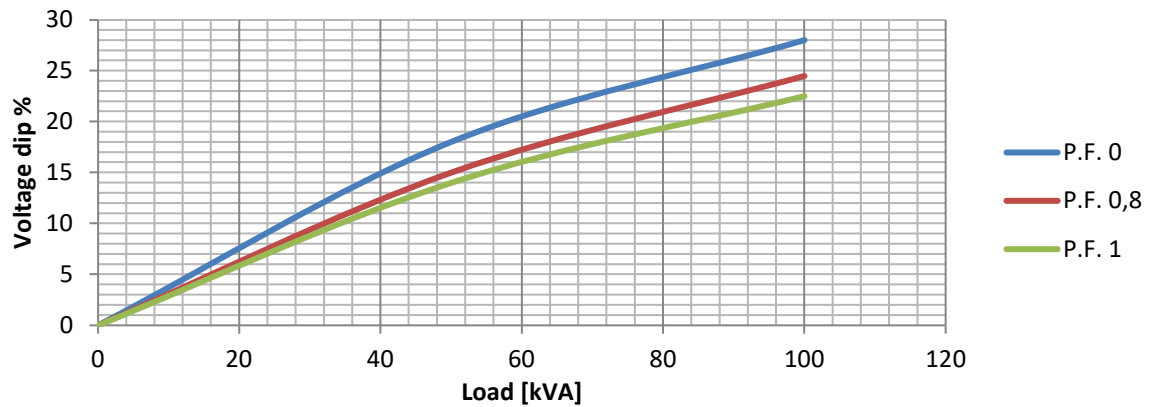
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

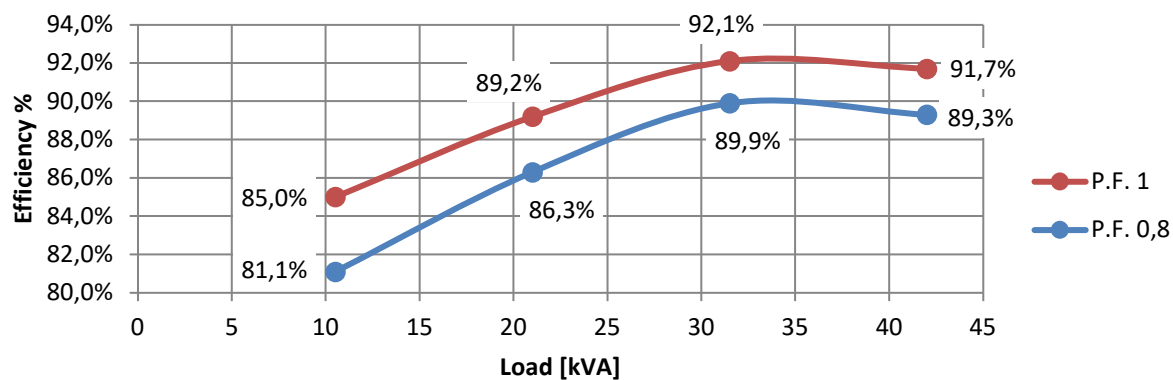
Transient Voltage Variation @ 60Hz



PRO18M E/4

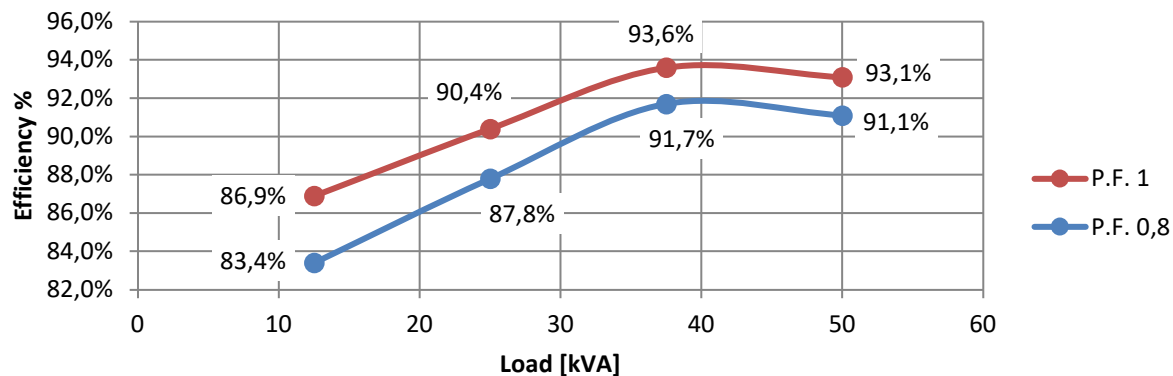
EFFICIENCY 50Hz

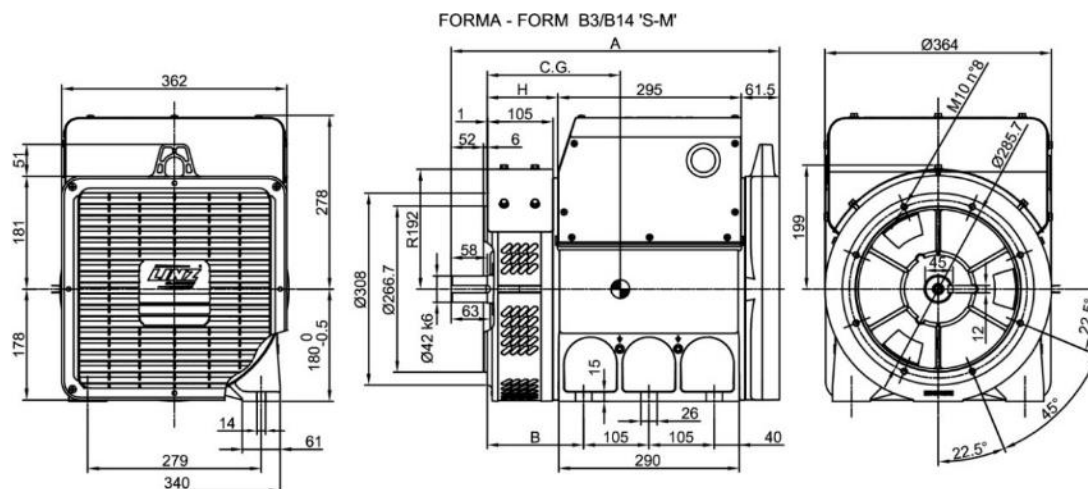
Efficiency Curves @ 50Hz



EFFICIENCY 60Hz

Efficiency Curves @ 60Hz

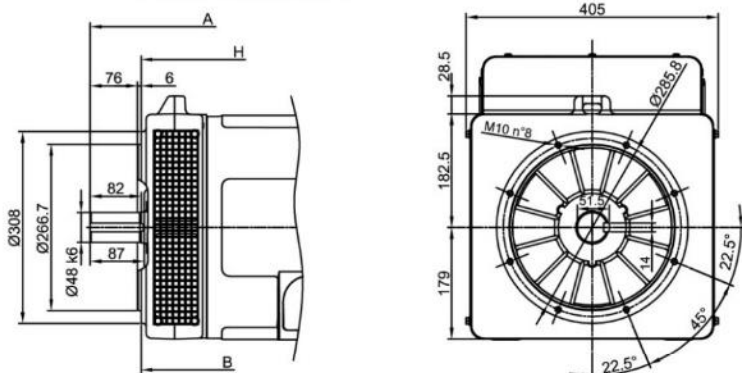




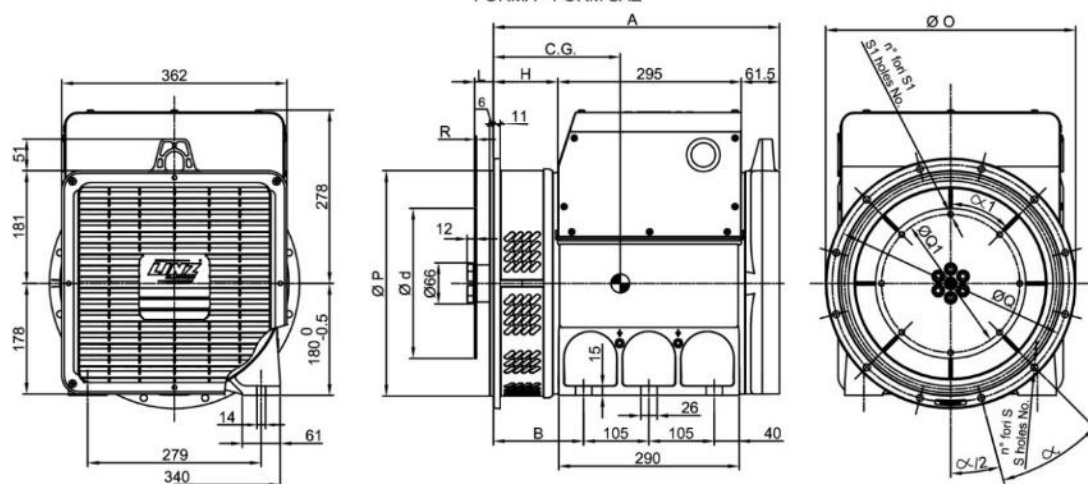
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM		A	B	H
B3/B14	PRO 18S	528	155	113,5
	PRO 18M	598		183,5
	PRO 18L	734	260	295,5
SAE	PRO 18S	460	145	103,5
	PRO 18M	530		173,5
	PRO 18L	642	250	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. ori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381			
3	451	409,6	428,6	12		30°
2	490	447,7	466,7			

SAE N.	GIUNTI A DISCO -COUPLING DISCS- JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30.2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27				
11 1/2	39,6	352,42	333,37	8	10,5	45°	4,5

TECHNICAL DATA SHEET



ALTERNATOR PRO18L F/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18L F/4

COMMON DATA

Rated Power at 50Hz	kVA	50
Rated Power at 60Hz	kVA	60
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	10 at 50Hz 11,5 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	> 250% 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	Ω	0,05 at 20°C
Rotor Winding Resistance	Ω	4,53 at 20°C
Exciter Stator Resistance	Ω	13 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,91
Excitation at full load	Adc	2,25

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18L F/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye			Double Delta	Series High Wye				
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	33	50	50	48	42	39	56	57	58	60
	kW	26,4	40	40	38,4	33,6	31,2	44,8	45,6	46,4	48
Rated Power in Class F (105°C/40°C)	kVA	29,5	45	45	43,5	40	35	48	52	53	54
	kW	23,6	36	36	34,8	32	28	38,4	41,6	42,4	43,2
Rated Power Standby (150°C/40°C)	kVA	34,5	53	53	51	48	42	58	61	63	64
	kW	27,6	42,4	42,4	40,8	38,4	33,6	46,4	48,8	50,4	51,2
Rated Power Standby (163°C/27°C)	kVA	36	55	55	53	50	43	60	63	65	66
	kW	28,8	44	44	42,4	40	34,4	48	50,4	52	52,8

EFFICIENCY IN CL. H

4/4		89,4%								91,2%
3/4		90,0%								92,0%
2/4		88,1%								88,7%
1/4		85,8%								86,2%

REACTANCES AND TIME CONSTANTS

pcc		0,62								
X _d - dir. axis synchronous		283%	255%	227%	177%		318%	288%	268%	255%
X' _d - dir. axis transient		22,2%	20,0%	17,8%	13,9%		25,0%	22,6%	21,1%	20,0%
X'' _d - dir. axis subtransient		7,8%	7,0%	6,2%	4,9%		8,7%	7,9%	7,4%	7,0%
X _q - quad. axis reactance		162%	146%	130%	101%		182%	165%	154%	146%
T' _{do} - O.C. field time constant		188ms								
T' _d - Transient time constant		14ms								
T'' _d - Sub-transient time constant		9ms								

MECHANICAL DATA

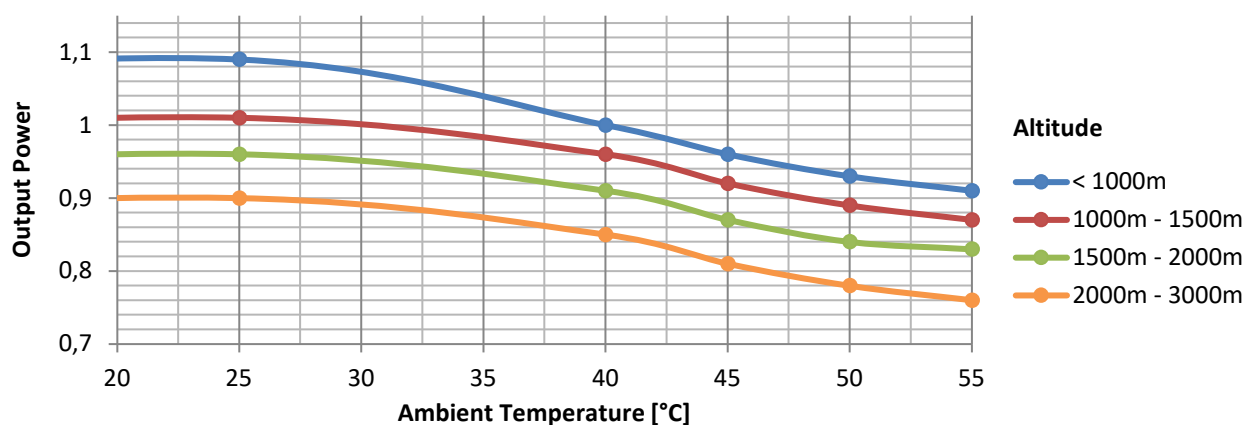
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	236,5
	in B3/B14	kg	238,5
	in B3/B9	kg	\

PRO18L F/4

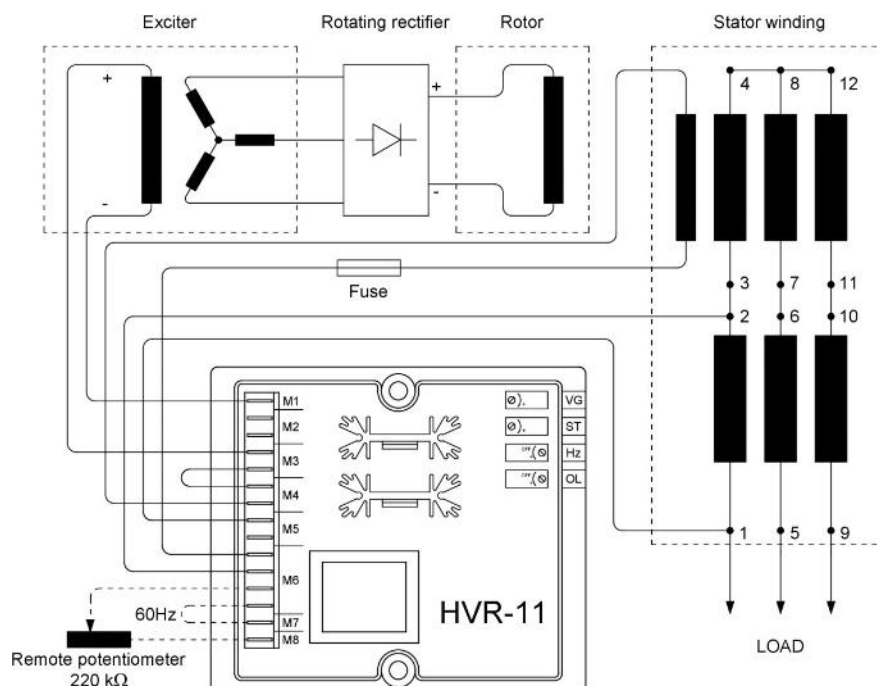
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,441
SAE 8	kg·m ²	0,450
SAE 10	kg·m ²	0,467
SAE 11½	kg·m ²	0,486
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,436

DERATING CURVES



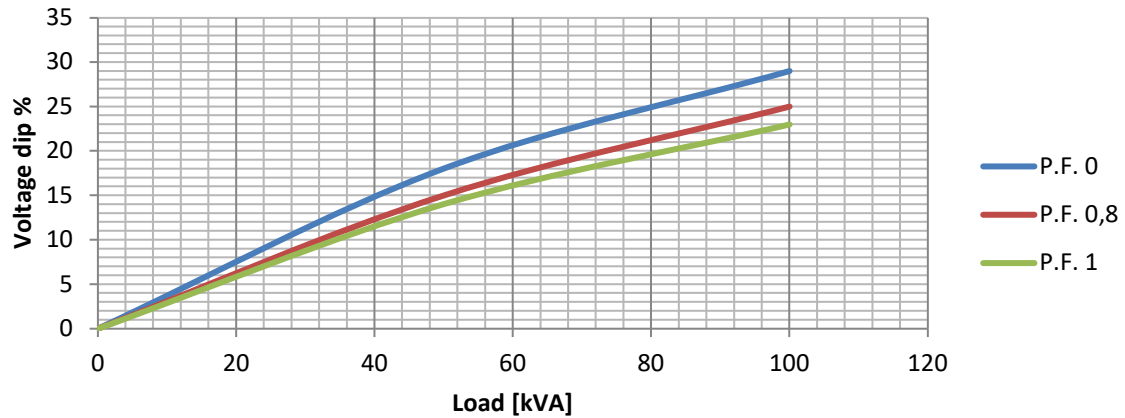
WIRING DIAGRAM



PRO18L F/4

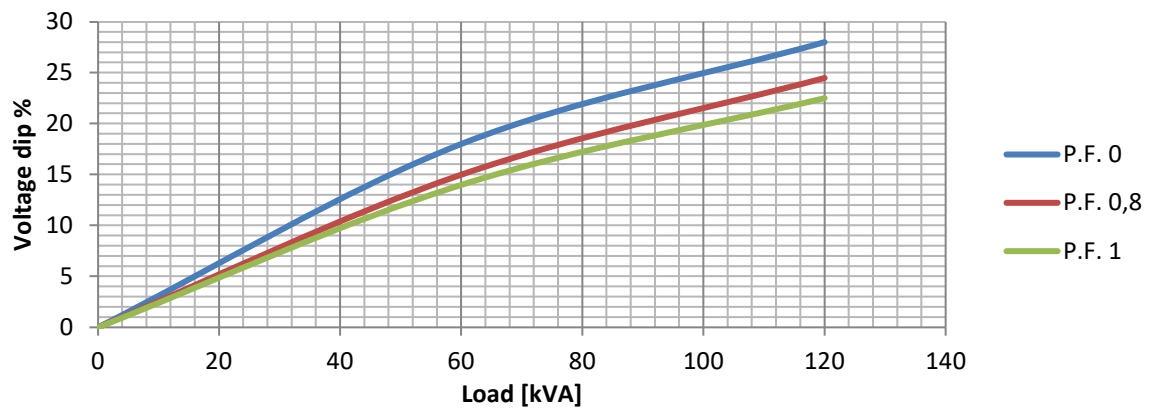
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

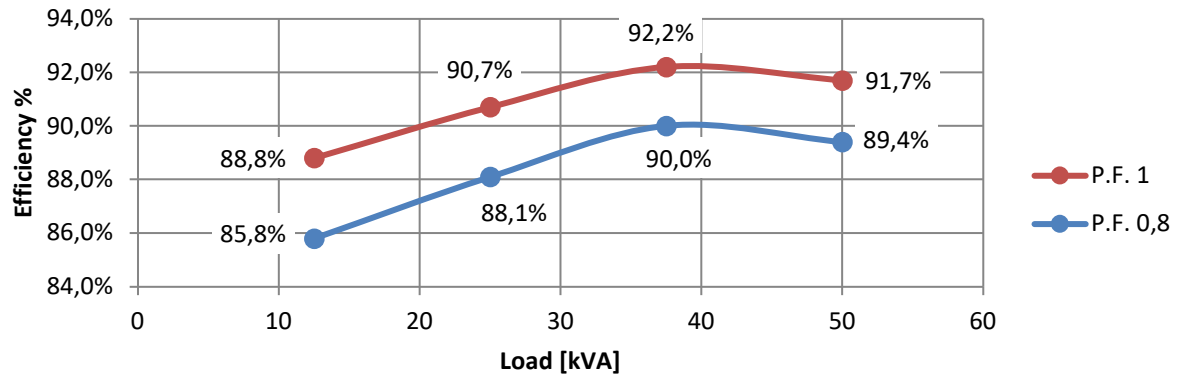
Transient Voltage Variation @ 60Hz



PRO18L F/4

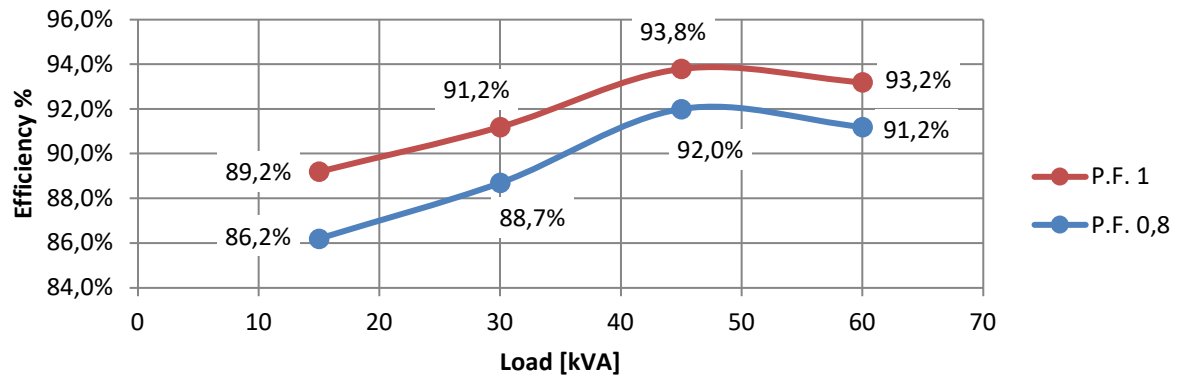
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



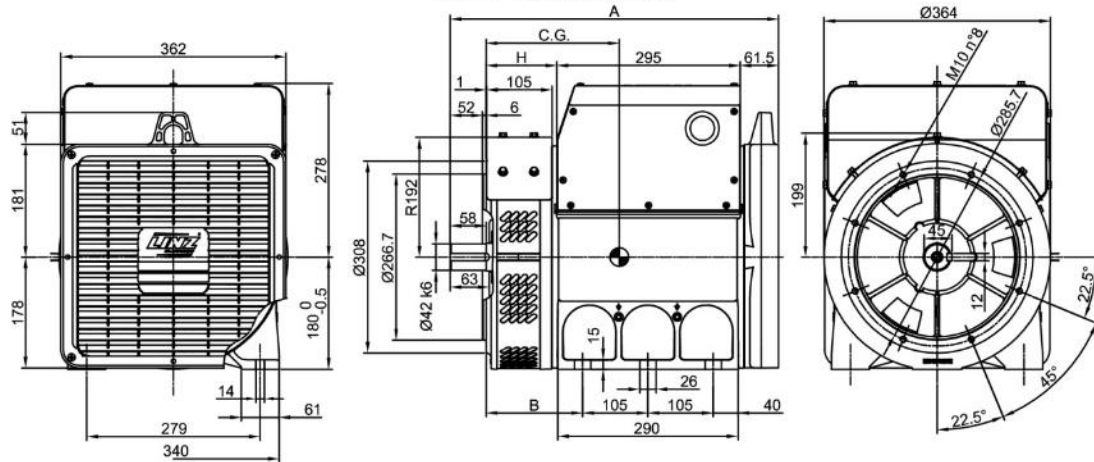
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



PRO18L F/4

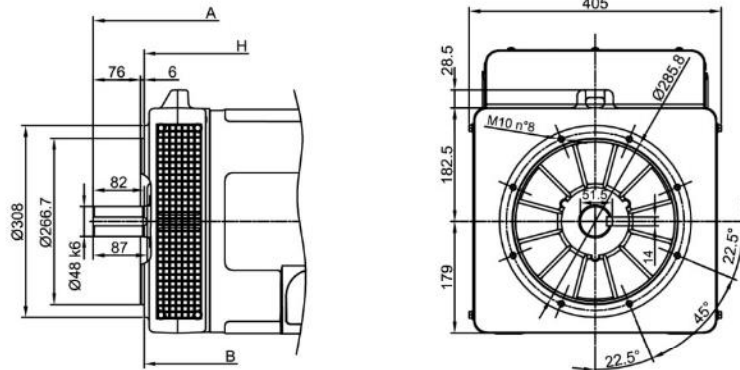
FORMA - FORM B3/B14 'S-M'



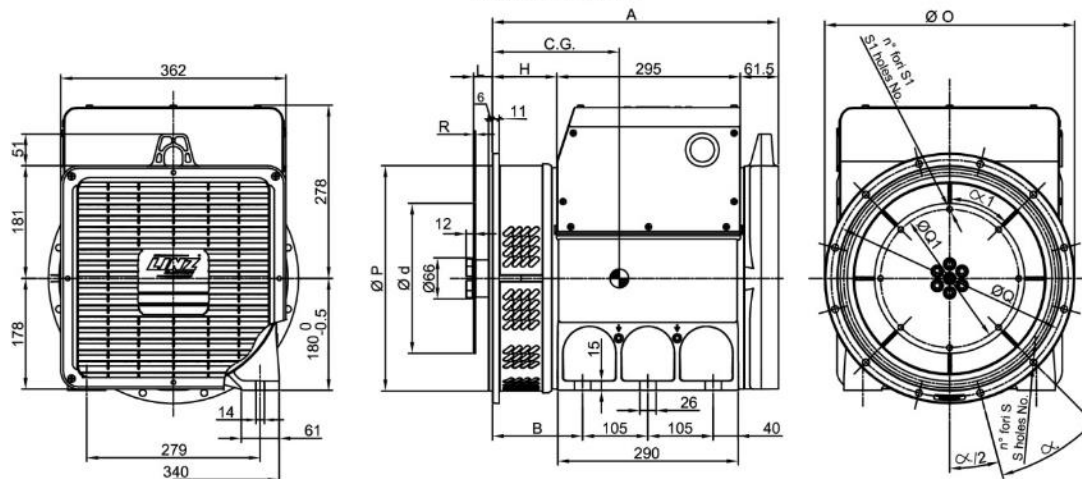
FORMA - FORM B3/B14 'L'

TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM SAE



FORMA - FORM	A	B	H
B3/B14	PRO 18S	528	113,5
	PRO 18M	598	183,5
	PRO 18L	734	295,5
	PRO 18S	460	103,5
SAE	PRO 18M	530	173,5
	PRO 18L	642	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
N.	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2	30,2	215,9	200	6	9	60°	3
7 1/2		241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8	10,5	45°	4,5
11 1/2	39,6	352,42	333,37				

TECHNICAL DATA SHEET



ALTERNATOR PRO18L G/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO18L G/4

COMMON DATA

Rated Power at 50Hz	kVA	60
Rated Power at 60Hz	kVA	72
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	11,7 at 50Hz 14 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	Ω	0,041 at 20°C
Rotor Winding Resistance	Ω	5,23 at 20°C
Exciter Stator Resistance	Ω	13 at 20°C
Exciter Rotor Resistance	Ω	0,72 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,86
Excitation at full load	Adc	2,4

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO18L G/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye			Double Delta	Series High Wye Parallel Low Wye				
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	40	60	60	58	50	48	60	68	72	72
	kW	32	48	48	46,4	40	38,4	48	54,4	57,6	57,6
Rated Power in Class F (105°C/40°C)	kVA	37	55	55	50	45	44,5	50	62	66	66
	kW	29,6	44	44	40	36	35,6	40	49,6	52,8	52,8
Rated Power Standby (150°C/40°C)	kVA	41,5	62	62	60	52	51	62	70	76	76
	kW	33,2	49,6	49,6	48	41,6	40,8	49,6	56	60,8	60,8
Rated Power Standby (163°C/27°C)	kVA	43	65	65	62	55	52,5	64	72	78	78
	kW	34,4	52	52	49,6	44	42	51,2	57,6	62,4	62,4

EFFICIENCY IN CL. H

4/4			89,6%							91,4%
3/4			90,1%							91,8%
2/4			87,5%							89,1%
1/4			82,4%							84,3%

REACTANCES AND TIME CONSTANTS

pcc			0,63							
X _d	- dir. axis synchronous	288%	260%	233%	179%		290%	292%	283%	260%
X' _d	- dir. axis transient	23,3%	21,0%	18,9%	14,5%		23,4%	23,6%	22,9%	21,0%
X'' _d	- dir. axis subtransient	7,8%	7,0%	6,3%	4,8%		7,8%	7,9%	7,6%	7,0%
X _q	- quad. axis reactance	164%	148%	133%	102%		165%	166%	161%	148%
T' _{do}	- O.C. field time constant	195ms								
T' _d	- Transient time constant	15ms								
T'' _d	- Sub-transient time constant	9ms								

MECHANICAL DATA

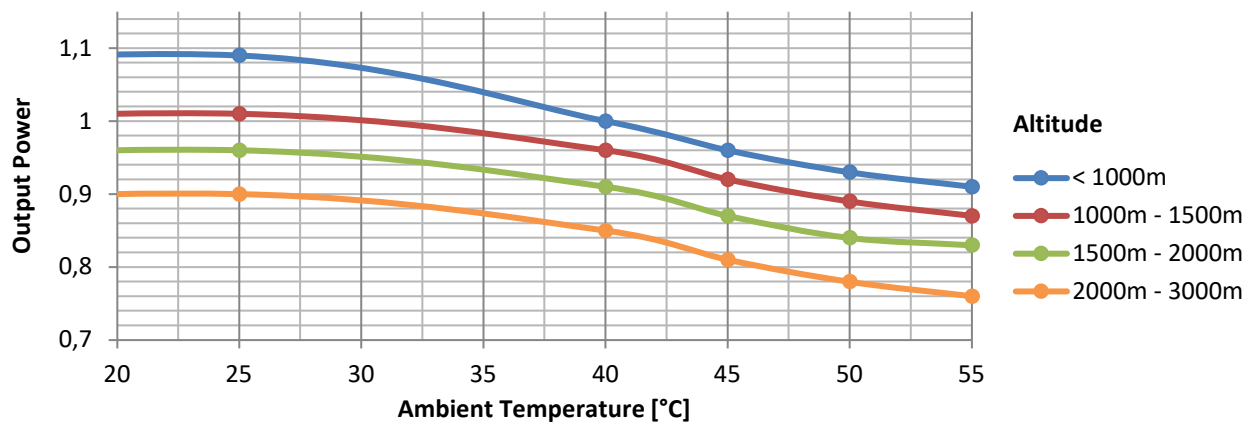
Bearing non drive end			6307-2RS-C3
Bearing drive end (B3/B14 form)			6309-2RS-C3
Weight of generator	in B2	kg	267,5
	in B3/B14	kg	269,5
	in B3/B9	kg	\

PRO18L G/4

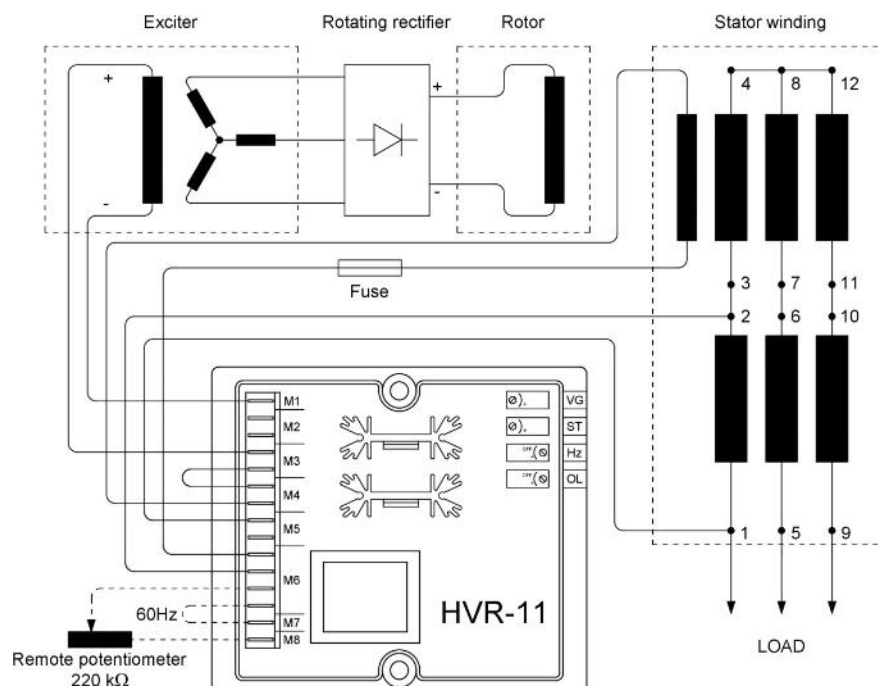
MOMENT OF INERZIA

B3/B9	kg·m ²	\
SAE 7½	kg·m ²	0,511
SAE 8	kg·m ²	0,521
SAE 10	kg·m ²	0,537
SAE 11½	kg·m ²	0,557
SAE 14	kg·m ²	\
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,523

DERATING CURVES



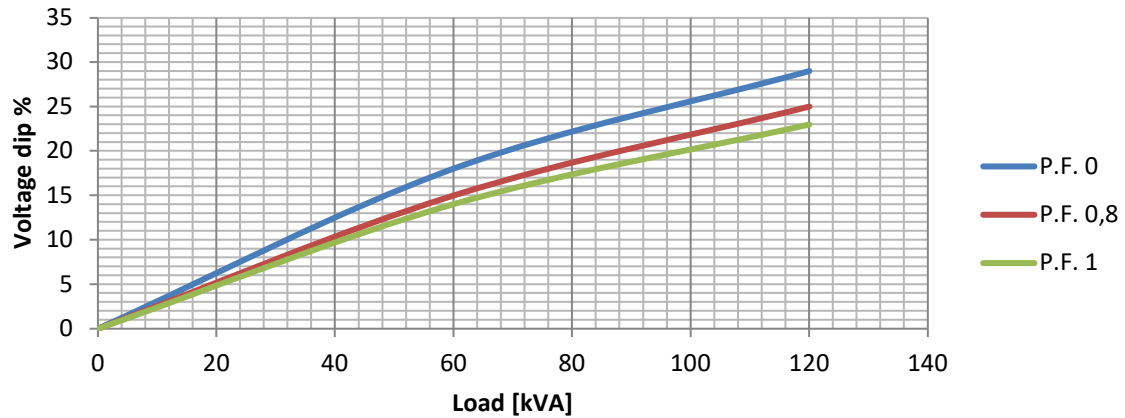
WIRING DIAGRAM



PRO18L G/4

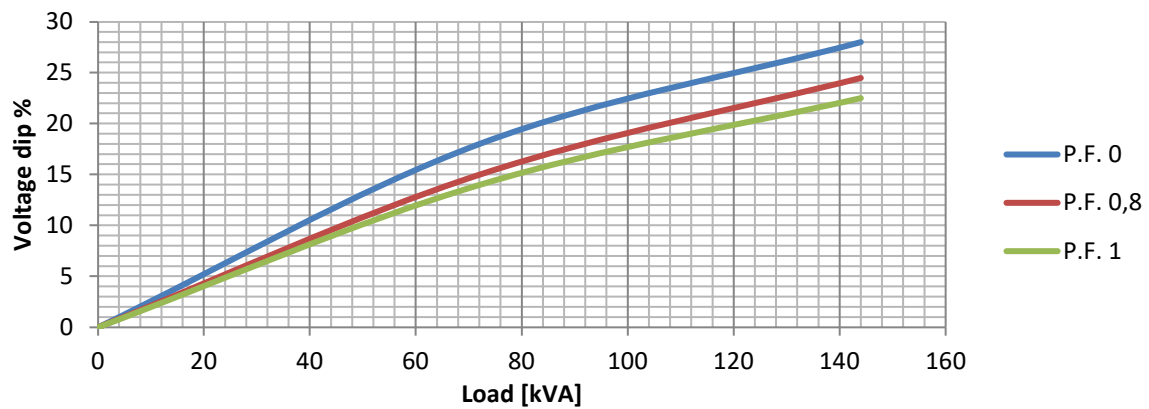
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

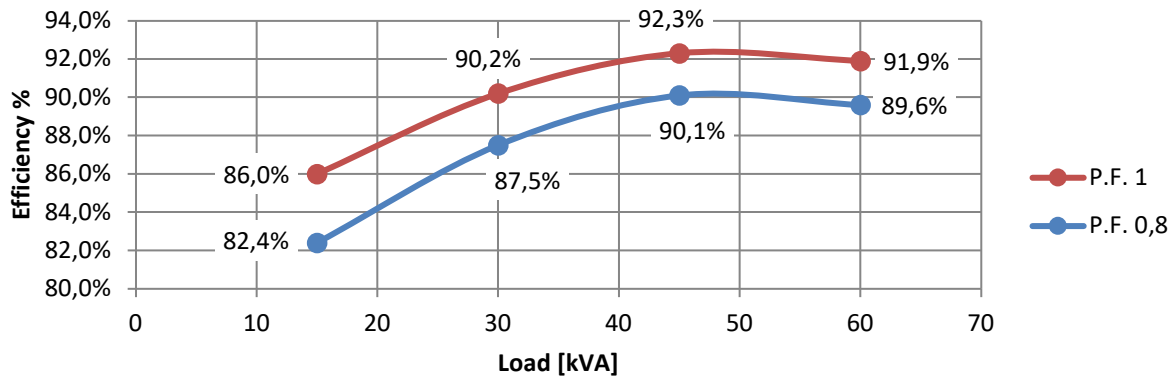
Transient Voltage Variation @ 60Hz



PRO18L G/4

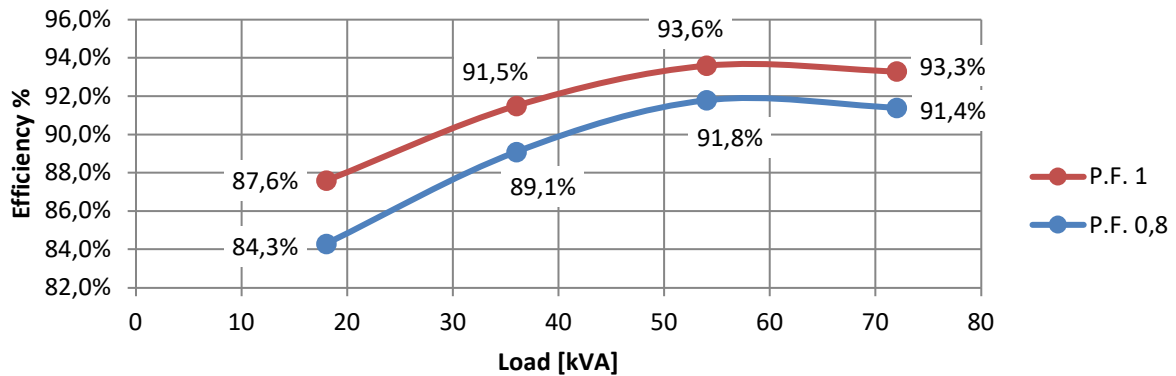
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz

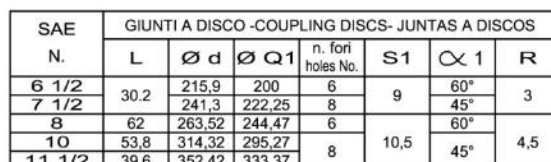


EFFICIENCY 60Hz

Efficiency Curves @ 60Hz



FORMA - FORM B3/B14 'S-M'

FORMA - FORM SAE

TECHNICAL DATA SHEET



ALTERNATOR PRO22S A/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO22S A/4

COMMON DATA

Rated Power at 50Hz	kVA	63
Rated Power at 60Hz	kVA	76
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	18,2 at 50Hz 21,3 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	> 250% 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	Ω	0,049 at 20°C
Rotor Winding Resistance	Ω	2,38 at 20°C
Exciter Stator Resistance	Ω	14,3 at 20°C
Exciter Rotor Resistance	Ω	0,47 at 20°C
THD at full load		<3%
THD at no load		<3%
Excitation at no load	Adc	0,8
Excitation at full load	Adc	2,5

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO22S A/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye			Double Delta	Series High Wye				
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	41	63	63	63	52	50	65	72	76	76
	kW	32,8	50,4	50,4	50,4	41,6	40	52	57,6	60,8	60,8
Rated Power in Class F (105°C/40°C)	kVA	38,5	59	59	58	48	46	61	67	70,5	70,5
	kW	30,8	47,2	47,2	46,4	38,4	36,8	48,8	53,6	56,4	56,4
Rated Power Standby (150°C/40°C)	kVA	45	69	69	67	55	54	71	78,5	83	83
	kW	36	55,2	55,2	53,6	44	43,2	56,8	62,8	66,4	66,4
Rated Power Standby (163°C/27°C)	kVA	46,5	71	71	69	57	56	73,5	81	85,5	85,5
	kW	37,2	56,8	56,8	55,2	45,6	44,8	58,8	64,8	68,4	68,4

EFFICIENCY IN CL. H

4/4			90,1%							90,4%
3/4			90,4%							90,6%
2/4			87,7%							89,3%
1/4			84,0%							87,5%

REACTANCES AND TIME CONSTANTS

pcc			0,48							
X _d	- dir. axis synchronous	335%	302%	281%	206%		346%	340%	329%	302%
X' _d	- dir. axis transient	21,1%	19,0%	17,7%	13,0%		21,7%	21,4%	20,7%	19,0%
X'' _d	- dir. axis subtransient	10,5%	9,5%	8,8%	6,5%		10,9%	10,7%	10,3%	9,5%
X _q	- quad. axis reactance	212%	191%	177%	130%		219%	215%	208%	191%
T' _{do}	- O.C. field time constant	236ms								
T' _d	- Transient time constant	20ms								
T'' _d	- Sub-transient time constant	12ms								

MECHANICAL DATA

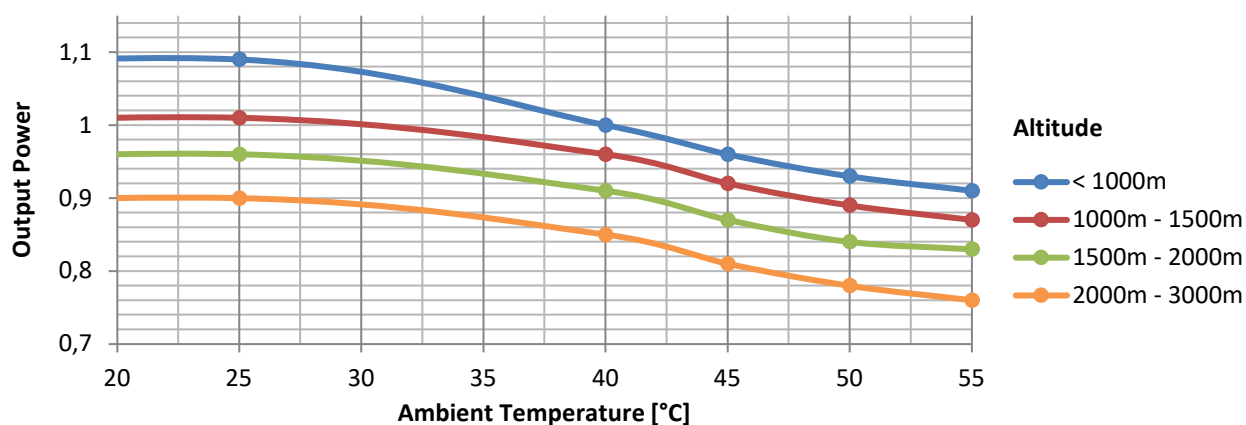
Bearing non drive end			6309-2RS-C3
Bearing drive end (B3/B14 form)			6314-2RS-C3
Weight of generator	in B2	kg	280
	in B3/B14	kg	291
	in B3/B9	kg	\

PRO22S A/4

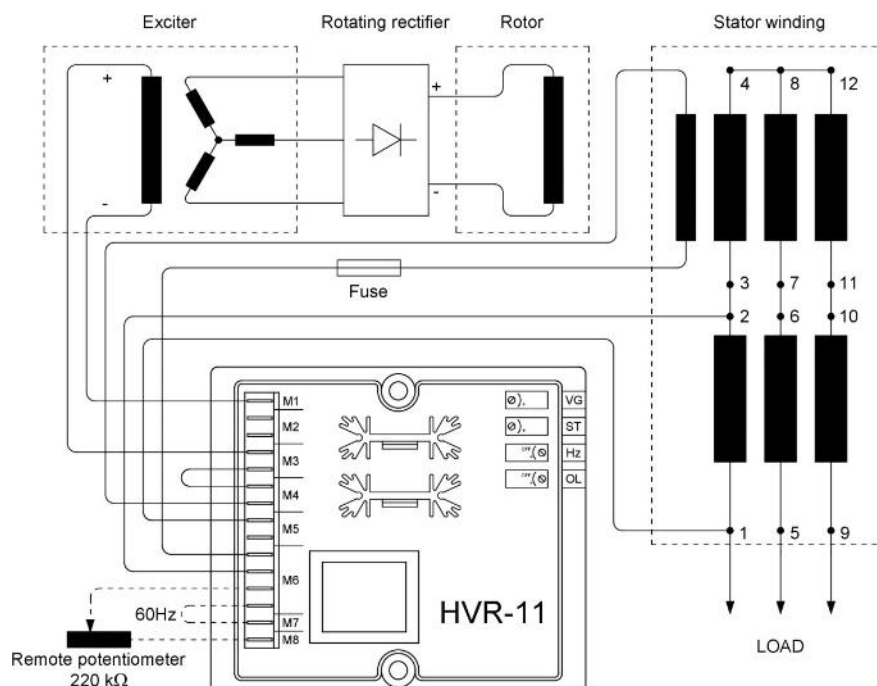
MOMENT OF INERZIA

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	0,729
SAE 14	kg·m ²	0,878
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,652

DERATING CURVES



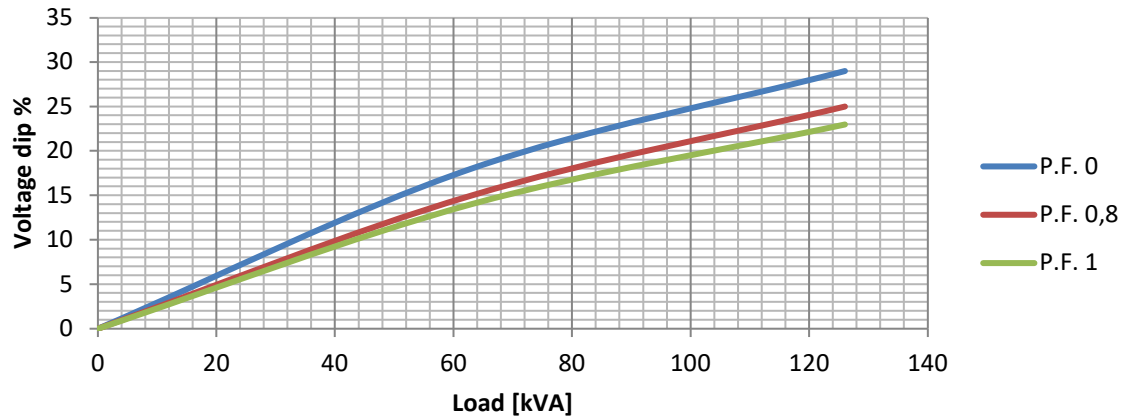
WIRING DIAGRAM



PRO22S A/4

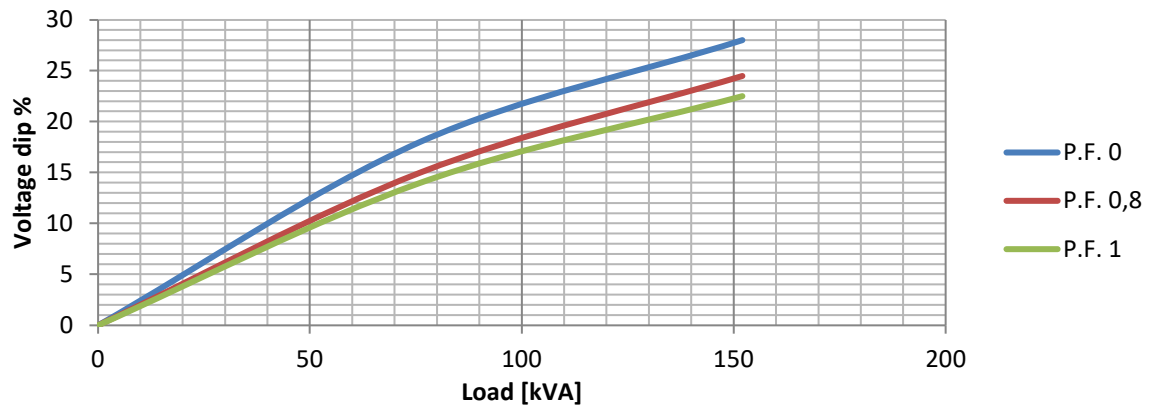
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

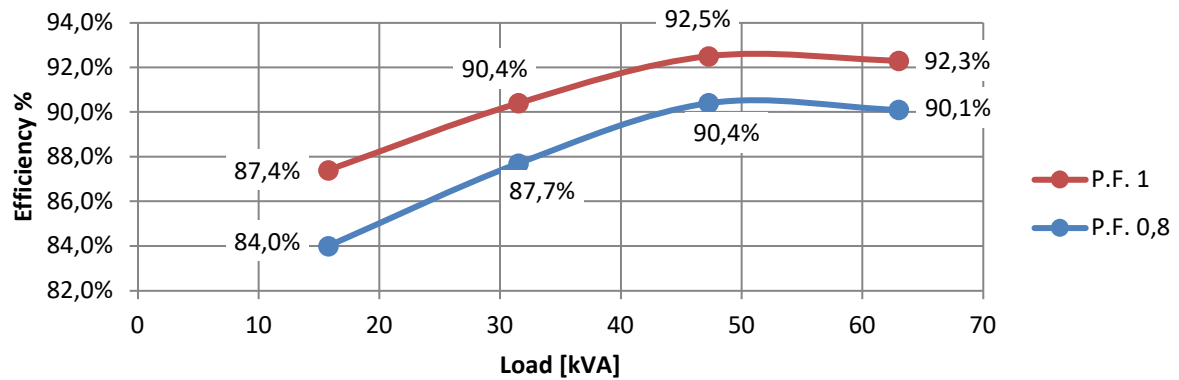
Transient Voltage Variation @ 60Hz



PRO22S A/4

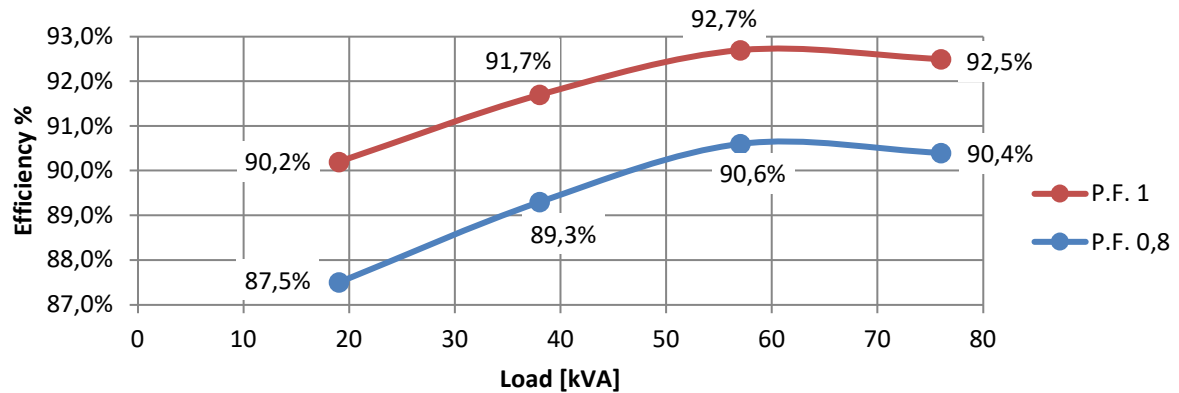
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



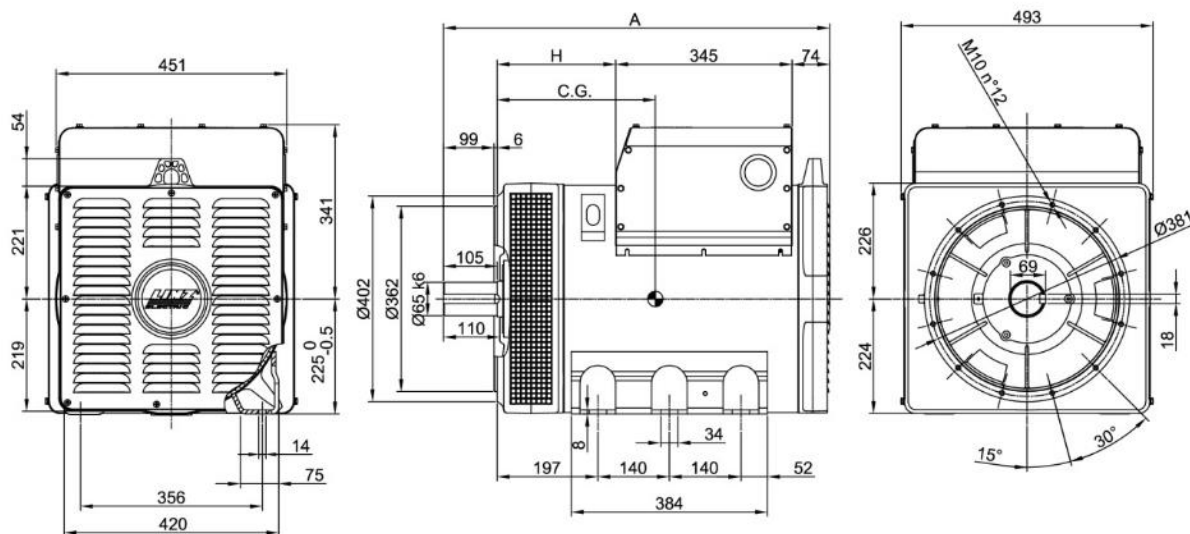
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz

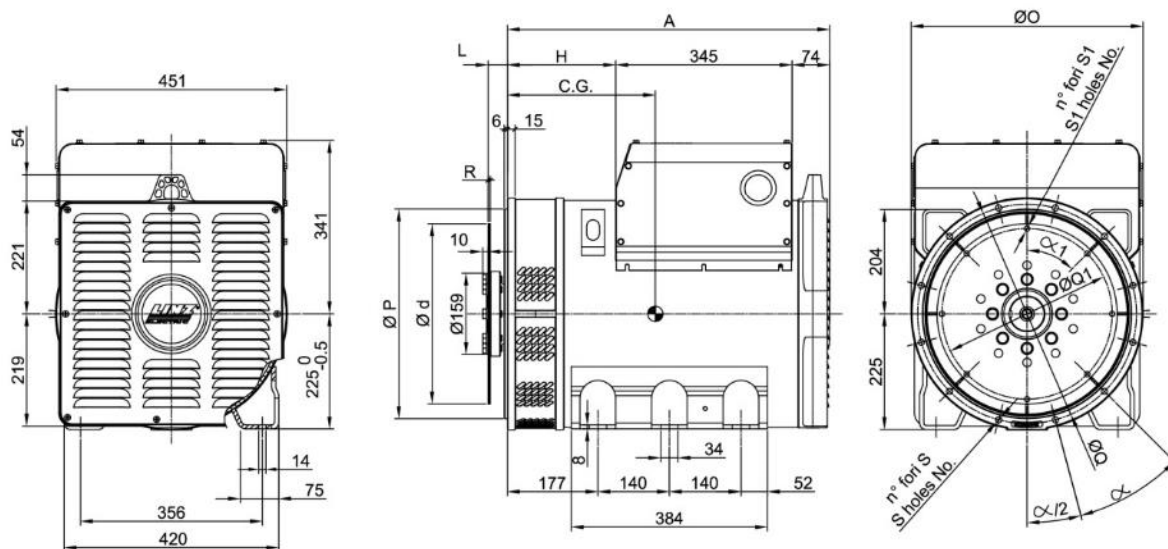


PRO22S A/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	H
B3/B14	PRO 22S	756	232
	PRO 22M	886	362
SAE	PRO 22S	631	212
	PRO 22M	761	342

TIPO - TYPE	C.G.
PRO22S A/4 B3/B14	284
PRO22S B/4 B3/B14	293
PRO22S C/4 B3/B14	299
PRO22S D/4 B3/B14	313
PRO22M E/4 B3/B14	359
PRO22M F/4 B3/B14	377

TIPO - TYPE	C.G.
PRO22S A/4 SAE	270
PRO22S B/4 SAE	279
PRO22S C/4 SAE	285
PRO22S D/4 SAE	298
PRO22M E/4 SAE	344
PRO22M F/4 SAE	362

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	454	409.6	428.6	12	12	30°
2	492	447.68	466.7			
1	552	511.18	530.2			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	R
11 1/2	39.6	352.42	333.37	8	10.5	45°	6
14	25.4	466.72	438.15	8	14	45°	

TECHNICAL DATA SHEET



ALTERNATOR PRO22S B/4

Three-Phase brushless synchronous alternator with AVR - 4 poles

PRO22S B/4

COMMON DATA

Rated Power at 50Hz	kVA	75
Rated Power at 60Hz	kVA	90
Rated Power Factor		0,8
Nominal Temperature	°C	40
Control System		self-excited
Execution		brushless
Regulation Type		AVR
Insulation Class		H
Protection		IP23
Maximum Over speed	rpm	2250
Overload		110% of rated power for one hour in a cycle of 6 hours
Air Flow Requirement	m ³ /min	18 at 50Hz 21,6 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	Ω	0,03 at 20°C
Rotor Winding Resistance	Ω	2,6 at 20°C
Exciter Stator Resistance	Ω	14,3 at 20°C
Exciter Rotor Resistance	Ω	0,47 at 20°C
THD at full load		<3%
THD at no load		<2,5%
Excitation at no load	Adc	0,9
Excitation at full load	Adc	2,5

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

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

PRO22S B/4

ELECTRICAL DATA

Frequency		50Hz - 1500rpm					60Hz - 1800rpm				
Voltage	V	Double Delta	Series High Wye Parallel Low Wye				Double Delta	Series High Wye Parallel Low Wye			
		115/230	380/220 190/110	400/230 200/115	415/240 208/120	440/254 220/127	138/277	415/240 208/120	440/254 220/127	460/266 230/133	480/277 240/154
Rated Power in Class H (125°C/40°C)	kVA	49	75	75	70	65	58	81	86	90	90
	kW	39,2	60	60	56	52	46,4	64,8	68,8	72	72
Rated Power in Class F (105°C/40°C)	kVA	45	69	69	65	62	54	75	80	83	83
	kW	36	55,2	55,2	52	49,6	43,2	60	64	66,4	66,4
Rated Power Standby (150°C/40°C)	kVA	52	80	80	75	70	62	86	90	95	95
	kW	41,6	64	64	60	56	49,6	68,8	72	76	76
Rated Power Standby (163°C/27°C)	kVA	55	85	85	80	75	64	90	93	98	98
	kW	44	68	68	64	60	51,2	72	74,4	78,4	78,4

EFFICIENCY IN CL. H

4/4			90,3%							90,4%
3/4			90,5%							90,7%
2/4			89,5%							90,6%
1/4			86,2%							87,3%

REACTANCES AND TIME CONSTANTS

pcc			0,53							
X _d	- dir. axis synchronous	334%	301%	261%	216%		362%	342%	328%	301%
X' _d	- dir. axis transient	21,1%	19,0%	16,5%	13,6%		22,9%	21,6%	20,7%	19,0%
X'' _d	- dir. axis subtransient	10,5%	9,5%	8,2%	6,8%		11,4%	10,8%	10,3%	9,5%
X _q	- quad. axis reactance	216%	195%	169%	140%		235%	222%	212%	195%
T' _{do}	- O.C. field time constant	245ms								
T' _d	- Transient time constant	21ms								
T'' _d	- Sub-transient time constant	12ms								

MECHANICAL DATA

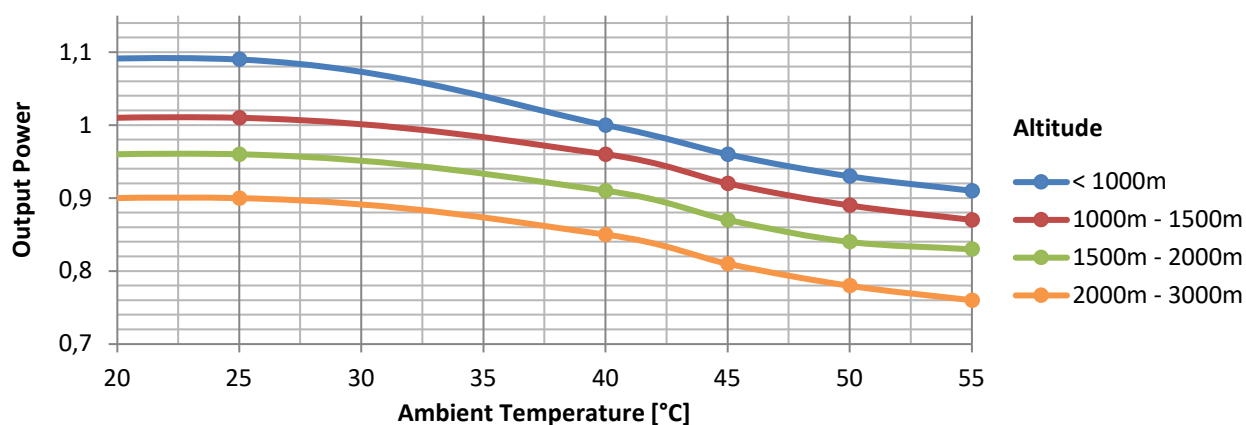
Bearing non drive end			6309-2RS-C3
Bearing drive end (B3/B14 form)			6314-2RS-C3
Weight of generator	in B2	kg	295
	in B3/B14	kg	315
	in B3/B9	kg	\

PRO22S B/4

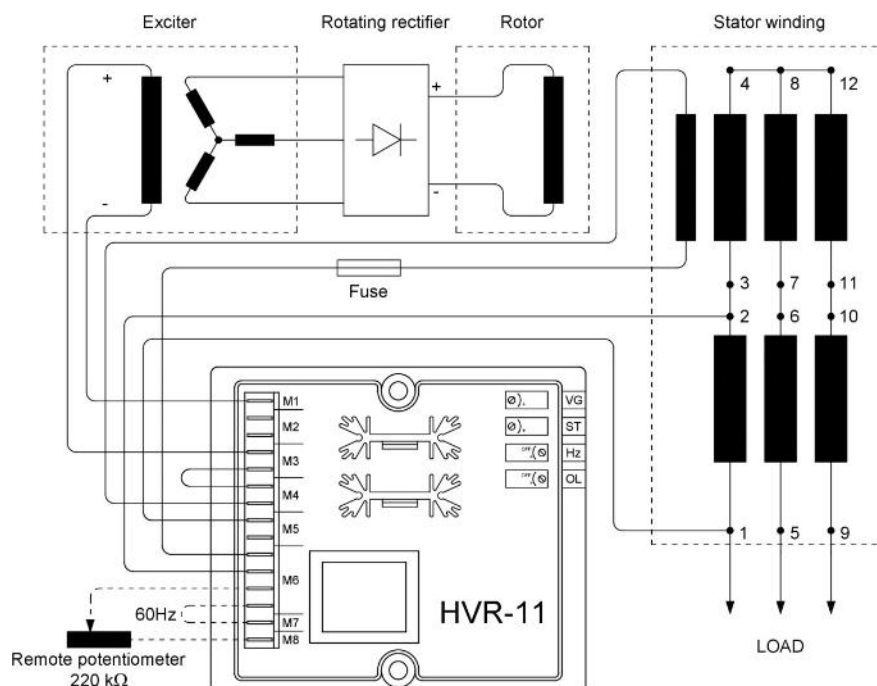
MOMENT OF INERZIA

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	0,853
SAE 14	kg·m ²	1,001
SAE 18	kg·m ²	\
B3/B14	kg·m ²	0,775

DERATING CURVES



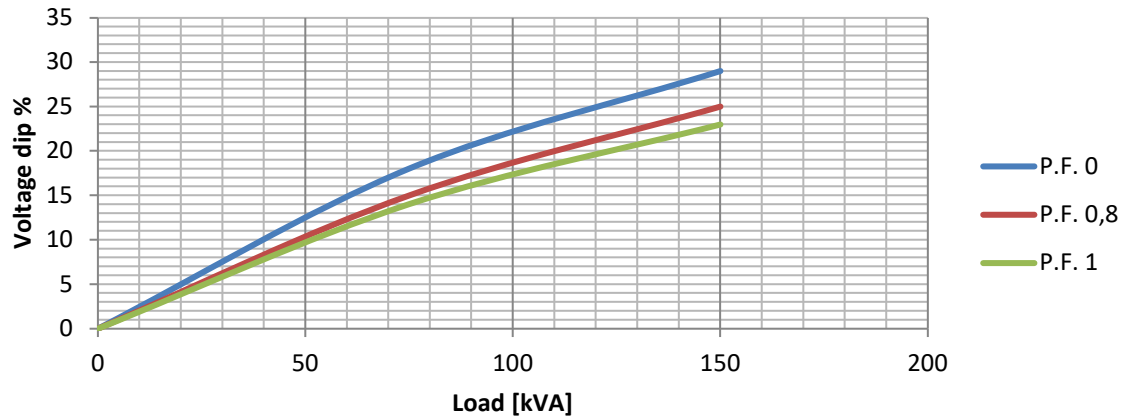
WIRING DIAGRAM



PRO22S B/4

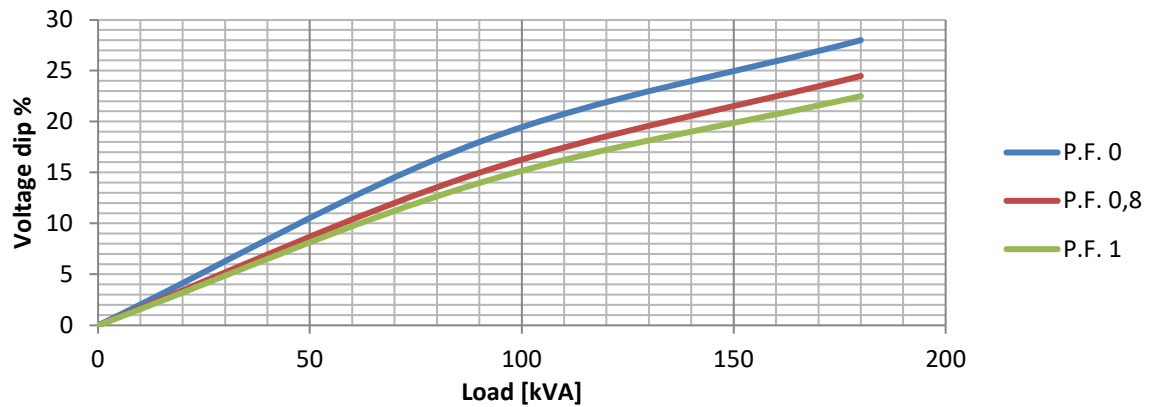
TRANSIENT VOLTAGE VARIATION 50Hz

Transient Voltage Variation @ 50Hz



TRANSIENT VOLTAGE VARIATION 60Hz

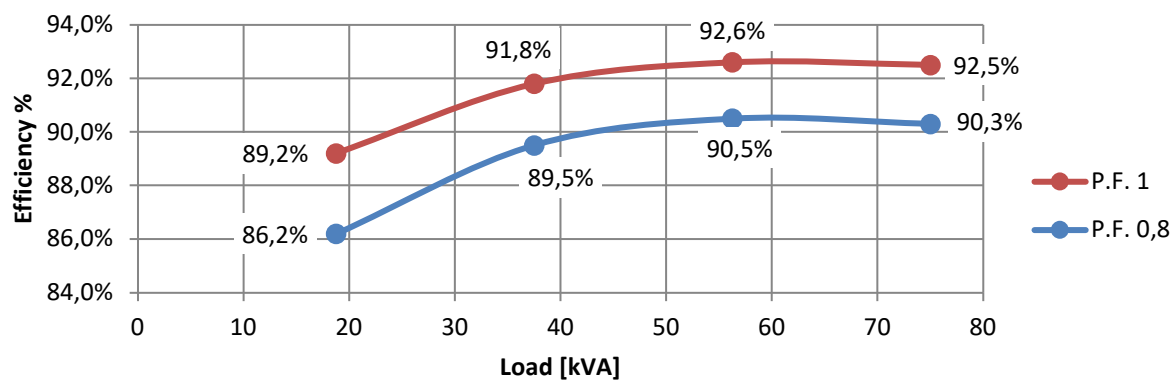
Transient Voltage Variation @ 60Hz



PRO22S B/4

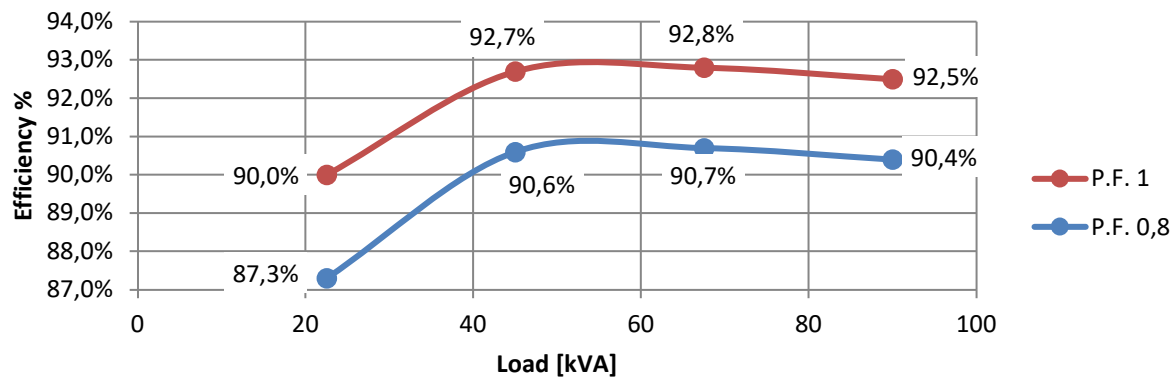
EFFICIENCY 50Hz

Efficiency Curves @ 50Hz



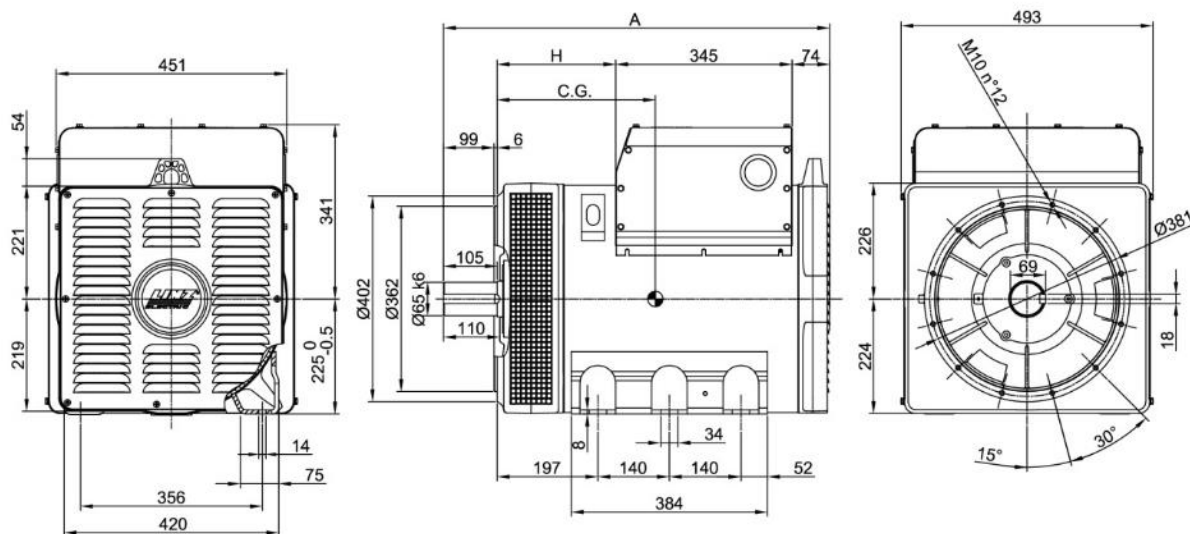
EFFICIENCY 60Hz

Efficiency Curves @ 60Hz

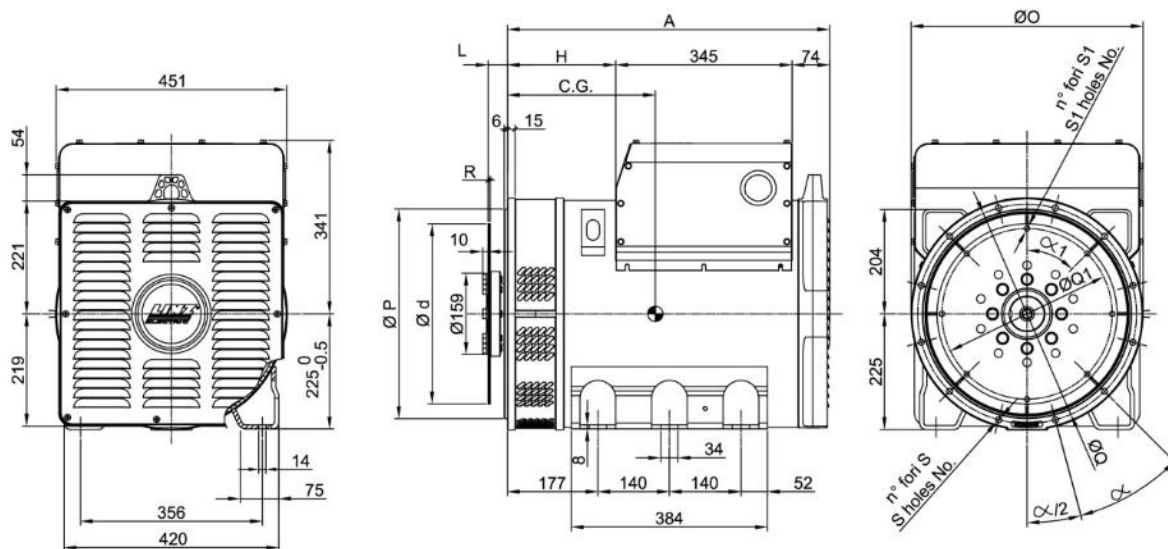


PRO22S B/4

FORMA - FORM B3/B14



FORMA - FORM SAE



FORMA - FORM		A	H
B3/B14	PRO 22S	756	232
	PRO 22M	886	362
SAE	PRO 22S	631	212
	PRO 22M	761	342

TIPO - TYPE	C.G.
PRO22S A/4 B3/B14	284
PRO22S B/4 B3/B14	293
PRO22S C/4 B3/B14	299
PRO22S D/4 B3/B14	313
PRO22M E/4 B3/B14	359
PRO22M F/4 B3/B14	377

TIPO - TYPE	C.G.
PRO22S A/4 SAE	270
PRO22S B/4 SAE	279
PRO22S C/4 SAE	285
PRO22S D/4 SAE	298
PRO22M E/4 SAE	344
PRO22M F/4 SAE	362

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
3	454	409.6	428.6	12	12	30°
2	492	447.68	466.7			
1	552	511.18	530.2			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α1	R
11 1/2	39.6	352.42	333.37	8	10.5	45°	6
14	25.4	466.72	438.15	8	14	45°	