

## **ALTERNATOR PRO22S D/4**

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

Technical Data Sheet

## PRO22S D/4

### COMMON DATA

Rated Power at 50Hz	kVA	100	
Rated Power at 60Hz	kVA	120	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		Self excited	
Execution		brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP23	
Maximum Overspeed	rpm	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m <sup>3</sup> /min	17.9 at 50Hz	20.8 at 60Hz
Telephone Interference		<2%	
R.F.I. Suppression		Standard EN55011	

### REGULATION DATA

AVR	HVR11	HVR30
Sensing	Single phase	Three phase
Voltage Regulation	± 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 Winding	12	
Stator Winding Resistance	0.044Ω at 20°C	
Rotor Winding Resistance	3.26Ω at 20°C	
Exciter Stator Resistance	14.3Ω at 20°C	
Exciter Rotor Resistance	0.47Ω at 20°C	
THD at full load	<3%	
THD at no load	<3%	
Excitation at no load	A <sub>dc</sub>	0.75
Excitation at full load	A <sub>dc</sub>	2.3

### STANDARD

References	EN60034-1, ISO8538, EN55011
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### ELECTRICAL DATA

Frequency		50Hz - 1500rpm				60Hz - 1800rpm			
		380/220	400/230	415/240	440/254	415/240	440/254	460/266	480/277
Voltage Series Star	V	380/220	400/230	415/240	440/254	415/240	440/254	460/266	480/277
Voltage Parallel Star	V	190/110	200/115	207/120	220/127	207/120	220/127	230/133	240/138
Voltage Series Delta	V	220	230	240	254	240	254	266	277
Rated Power in Class H (125°C/40°C)	kVA	100	100	100	85	110	120	120	120
	kW	80	80	80	68	88	96	96	96
Rated Power in Class F (105°C/40°C)	kVA	93	93	93	80	101	111.5	111.5	111.5
	kW	74.4	74.4	74.4	64	80.8	89.2	89.2	89.2
Rated Power Standby (150°C/40°C)	kVA	110	110	110	93	118	130	130	130
	kW	88	88	88	74.4	94.4	104	104	104
Rated Power Standby (163°C/27°C)	kVA	113	113	113	96	123	135.5	135.5	135.5
	kW	90.4	90.4	90.4	76.8	98.4	108.4	108.4	108.4

### EFFICIENCY IN CL. H

4/4		90.6%						90.9%
3/4		90.9%						91.1%
2/4		88.2%						89.8%
1/4		84.5%						88.0%

### REACTANCES AND TIME CONSTANTS

pcc		0.47%							
X <sub>d</sub> - dir. axis synchronous		330%	298%	277%	209%	365%	355%	324%	298%
X' <sub>d</sub> - dir. axis transient		19.9%	18.0%	16.7%	12.6%	22.1%	21.4%	19.6%	18.0%
X'' <sub>d</sub> - dir. axis subtransient		10.0%	9.0%	8.4%	6.3%	11.0%	10.7%	9.8%	9.0%
X <sub>q</sub> - quad. axis reactance		215%	194%	180%	136%	238%	231%	211%	194%
T' <sub>do</sub> - O.C. field time constant		277 ms							
T' <sub>d</sub> - Transient time constant		22 ms							
T'' <sub>d</sub> - Sub-transient time constant		11 ms							

### MECHANICAL DATA

Bearing non drive end		6309-2RS-C3	
Bearing drive end (B3/B14 form)		6314-2RS-C3	
Weight of generator	in B2	kg	379
	in B3/B14	kg	381

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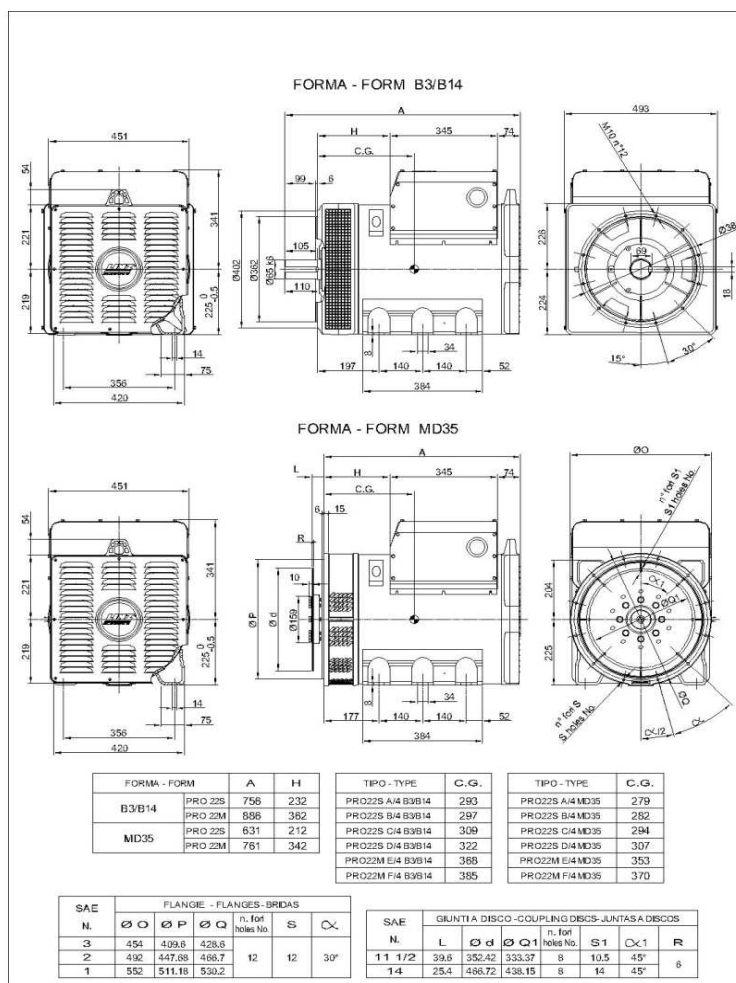
### MOMENT OF INERZIA

SAE 10	kg·m <sup>2</sup>	0.995
SAE 11½	kg·m <sup>2</sup>	1.014
SAE 14	kg·m <sup>2</sup>	1.163
B3/B14	kg·m <sup>2</sup>	0.932

### POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

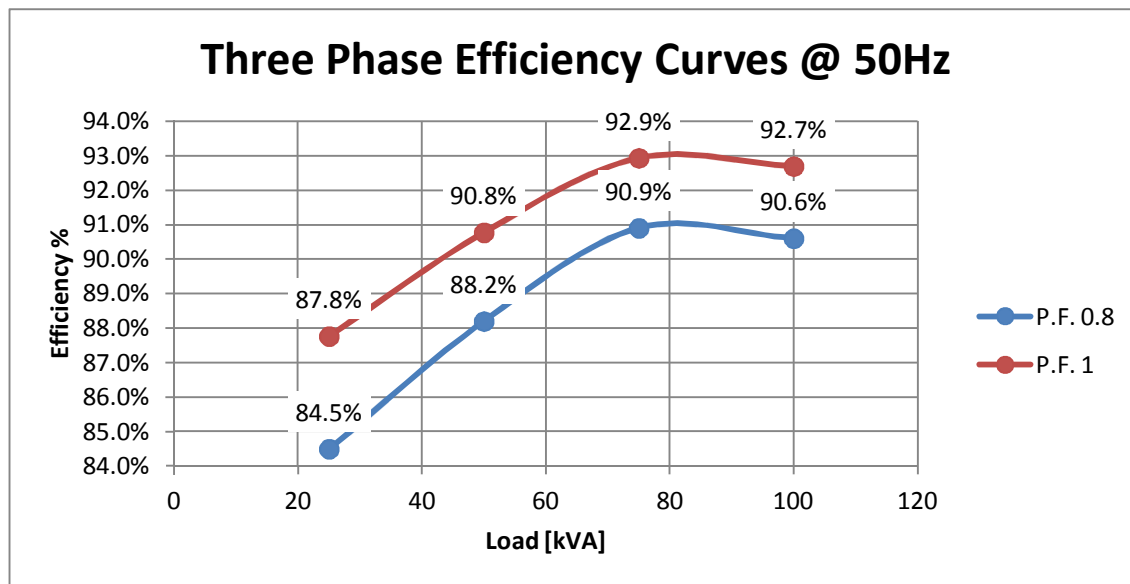
Altitude	Ambient temperature				
	25°C	40°C	45°C	50°C	55°C
< 1000m	1.09	1	0.96	0.93	0.91
1000m - 1500m	1.01	0.96	0.92	0.89	0.87
1500m - 2000m	0.96	0.91	0.87	0.84	0.83
2000m - 3000m	0.9	0.85	0.81	0.78	0.76

### DIMENSIONS

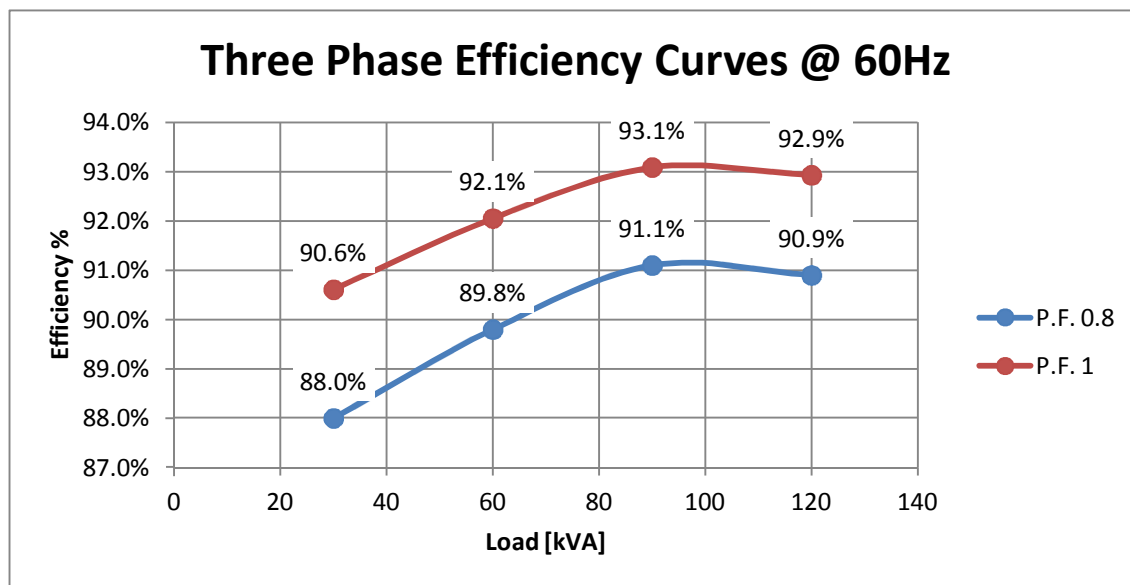


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**EFFICIENCY 50Hz**

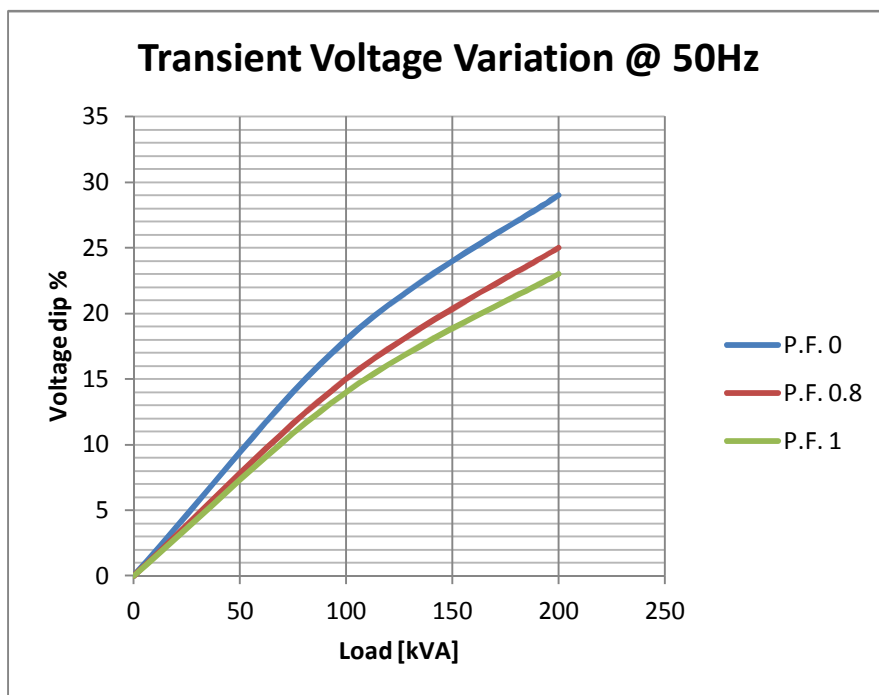


**EFFICIENCY 60Hz**



**PRO22S D/4**

**TRANSIENT VOLTAGE VARIATION 50Hz**



**TRANSIENT VOLTAGE VARIATION 60Hz**

