



**M10**

CONT 8 kVA



### THREE-PHASE SYNCHRONOUS GENERATOR

Datasheet for 4 poles -50Hz @ 1500rpm/ 60Hz @ 1800rpm

Ambient Temperature	40 °C	Method of Cooling	Air cooling	
Temperature Rise	125 °C	Direction of Rotation	Clockwise	
Insulation Class	H	Maximum Over-speed	2250r/min	
Power Factor	0.8	Degree of Protection / Enclosure	IP23	
Excitation	Brushless	Altitude	1000m	
Winding Pitch	2/3	Stator winding	DLL	
Pole	4	Number of Terminal	12	
Duty	S1- Continuous	Rotor	With damping cage	
Waveform	TIF<50		THF<2%	
Waveform distortion	BS EN 61000-6-2&BS EN 61000-6-4,VDE 0875G,VDE0874N			
Radio interference	Noload<1.5%,Non-distorting balanced linear load<5%			
AVR MODEL AVR	Standard	Selection		PMG
	SX460	AS440	KRS440	
Voltage Regulation - in steady state condition	±1.0	±1.0	±1.0	
Short Circuit Current Capacity	Control does not sustain a short circuit current			

#### Electrical Characteristic

Frequency	Hz	50				60			
		380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage ( series star ) <b>Y</b>	V	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage ( parallel star ) <b>YY</b>	V	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
Voltage ( series delta ) <b>Δ</b>	V	220	230	240	254	240	254	266	277
Rated power at Class H (125 °C) temperature rise	kVA	8.1	8.1	8.1	6.2	9.6	10.2	10.2	10.2
	kW	6.5	6.5	6.5	5.0	7.7	8.2	8.2	8.2
Efficiency at Class H (P.F.=0.8)	4/4%	75.3	76	76.5	77.1	75.8	75.9	76.4	77
	3/4%	78.5	79	79	79.2	78.7	78.8	79	79.5
	2/4%	80	80	79.9	79.8	79.7	79.9	79.9	79.9
Efficiency at Class H (P.F.=1.0)	4/4%	80.1	81	81.3	82	80.1	80.2	81	81.5
	3/4%	83	83.2	83.5	84	82.8	83	83.2	83.7
	2/4%	84	84.1	84.1	84	83.8	84	84	84

#### Reactances (%) at Class H

Direct axis synchronous reactance unsaturated	Xd	1.994	1.8	1.672	1.944	2.367	2.248	2.057	1.889
Direct axis transient reactance saturated	X'd	0.204	0.184	0.171	0.199	0.242	0.23	0.21	0.193
Direct axis subtransient reactance saturated	X''d	0.127	0.115	0.107	0.124	0.152	0.144	0.132	0.121
Quadrature axis synchronous reactance unsaturated	Xq	0.992	0.895	0.831	0.967	1.177	1.117	1.022	0.939
Quadrature axis subtransient reactance saturated	X''q	0.229	0.207	0.192	0.223	0.272	0.258	0.236	0.217
Leakage reactance	X1	0.08	0.072	0.067	0.078	0.095	0.09	0.083	0.076
Negative sequence reactance saturated	X2	0.191	0.172	0.16	0.186	0.226	0.215	0.197	0.181
Zero sequence reactance unsaturated	X0	0.086	0.078	0.072	0.064	0.103	0.098	0.089	0.082
Short-circuit ratio	Kcc	0.5015	0.5556	0.5981	0.5144	0.4225	0.4448	0.4861	0.5294

Short-circuit transient time constant (sec.)	T'd	0.012							
Subtransient time constant (sec.)	T''d	0.003							
Open circuit time constant (sec.)	T'do	0.2							
Armature time constant (sec.)	Ta	0.004							
Stator Winding Resistance (20°C)	ohm	1.62							
Rotor Winding Resistance (20°C)	ohm	0.44							
Exciter Stator Resistance (20°C)	ohm	19							
Exciter Rotor Phase resistance	ohm	0.13							
No load excitation current	io (A)	0.55	0.6	0.63	0.63	0.54	0.56	0.6	0.62
Full load excitation current	ic(A)	1.9	1.85	1.9	1.9	1.85	1.85	1.9	1.9
Cooling air requirement	m <sup>3</sup> /sec	0.071m <sup>3</sup> /s 150cfm				0.09m <sup>3</sup> /s 191cfm			

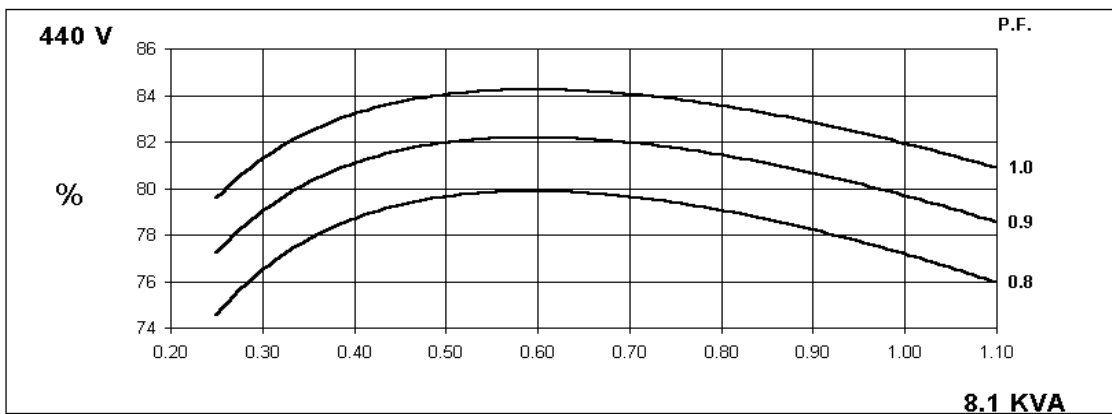
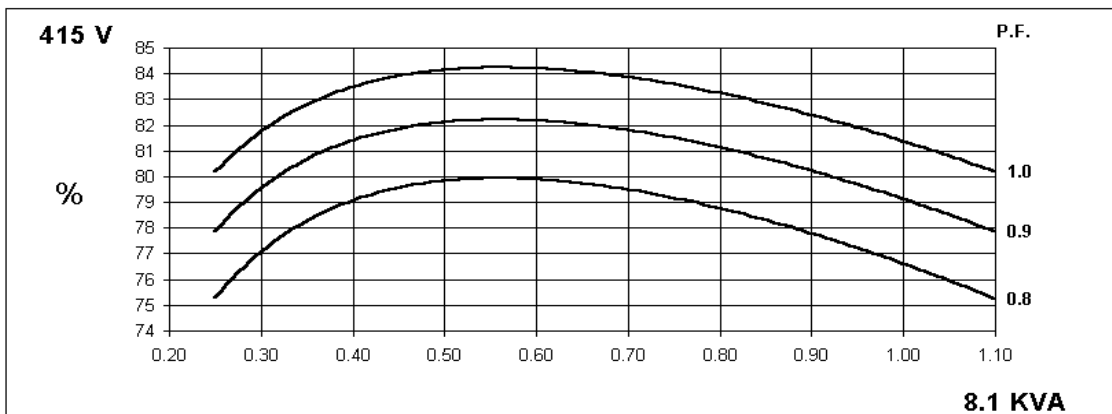
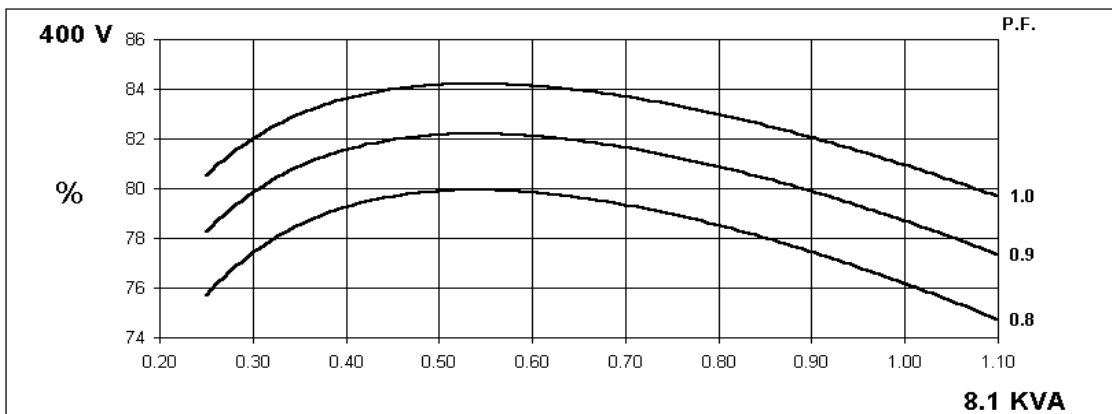
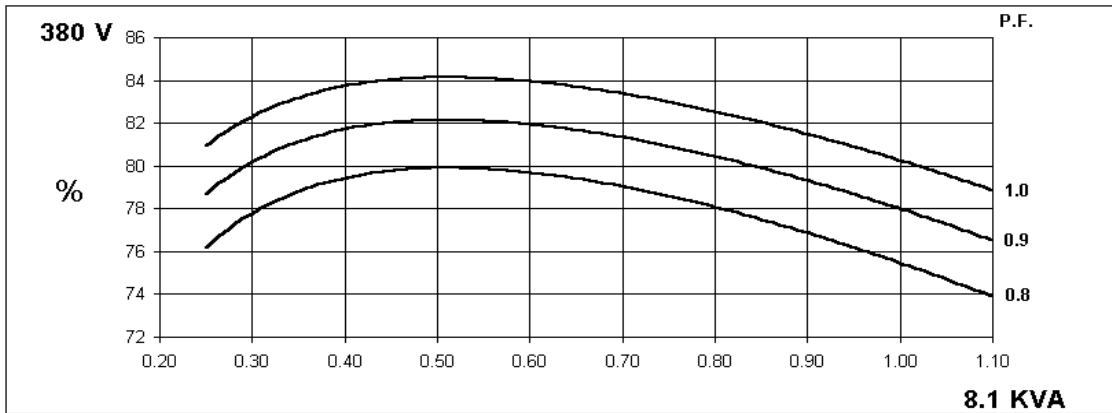
#### Mechanical Characteristic

Configuration	Single Bearing	Double Bearing
Type of Construction	B2-SAE	IM B34
Total Weight - kgs	86	90
Weight wound stator - kgs	21	21
Weight wound rotor - kgs	23.6	24.2
Inertia (J) [kgm <sup>2</sup> ]	0.0923kgm <sup>2</sup>	0.0923kgm <sup>3</sup>
Drive end bearing / Lubrication		BALL.6309-2RS(ISO)
Non-drive end bearing / Lubrication	BALL.6306-2RS(ISO)	BALL.6306-3RS(ISO)
Packing crate size (cm)	49X45X58	58X45X57



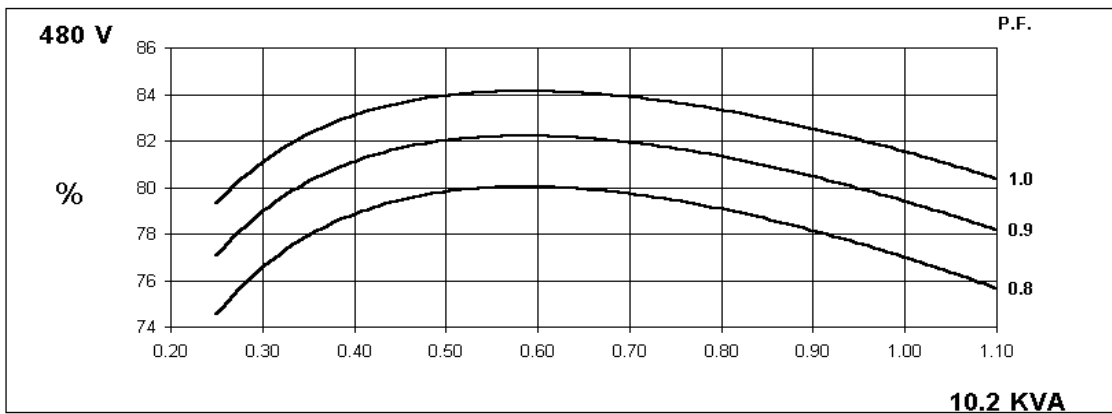
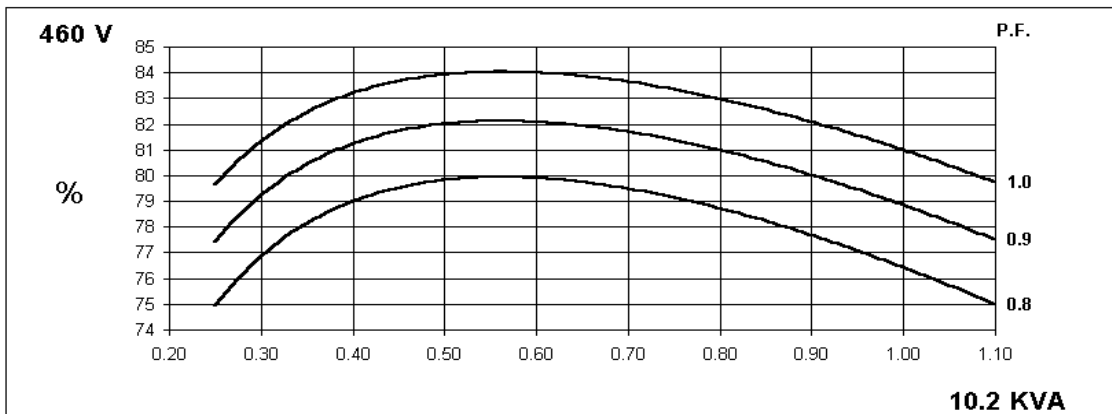
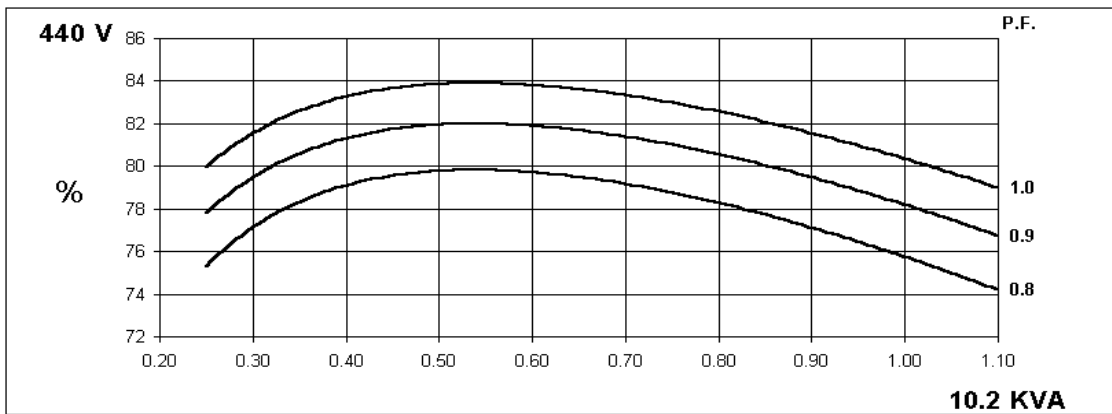
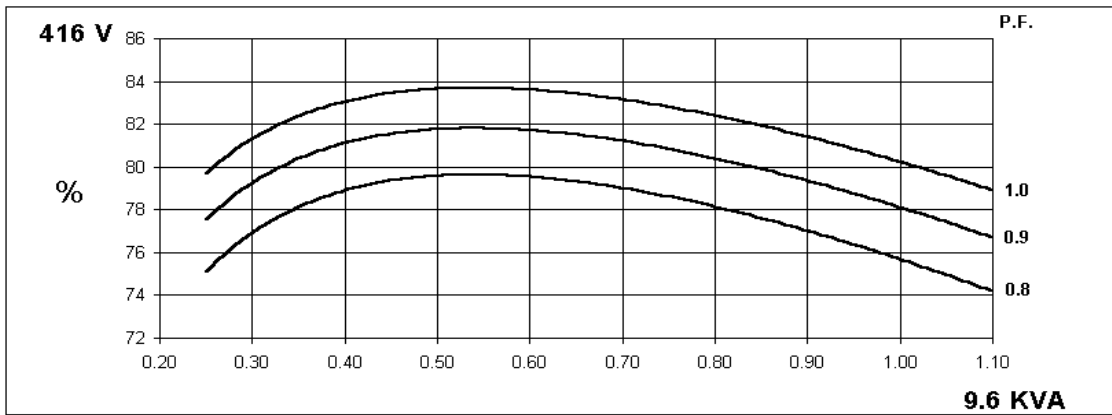
**50  
Hz**

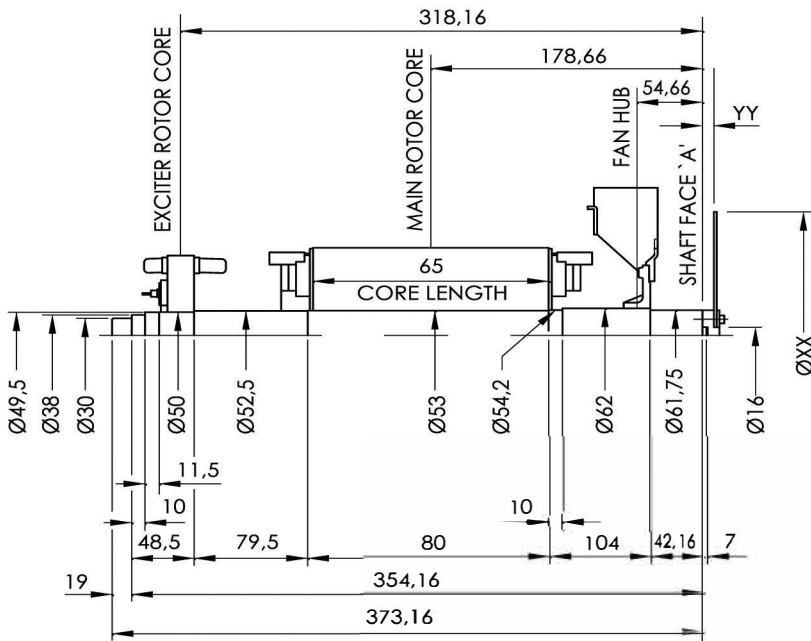
### THREE PHASE EFFICIENCY CURVES



**60  
Hz**

### THREE PHASE EFFICIENCY CURVES

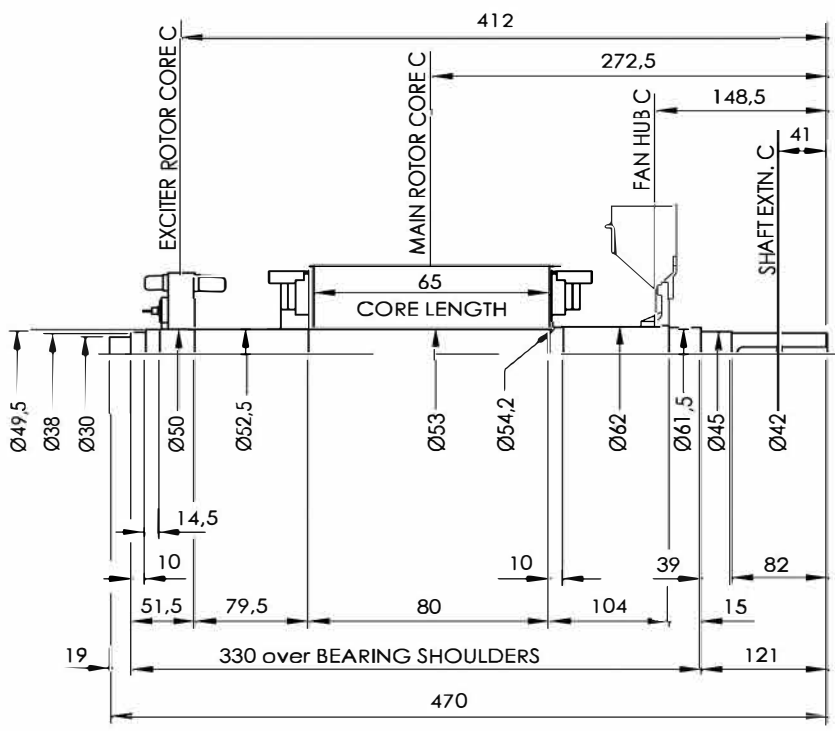




COMPONENT	Wt kg	J kgm <sup>2</sup>
EX. ROTOR	4,300	0,0170
MAIN ROTOR	13,670	0,0664
FAN	0,744	0,0061
SHAFT	6,921	0,0028
TOTAL	25,635	0,0923

ADAPTOR No.	COUPLING SAE No.	COUPLING DIMENSIONS		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm <sup>2</sup>
		XX	YY		
6	7½	241,2	31,7	1,810	0,0078
4/5	7½	241,2	0	1,071	0,0078
4/5	8	263	31,7	2,018	0,0111
4	10	314	23,8	2,377	0,0225
3	10	314	35,8	2,657	0,0225
3	1½	352	21,5	2,793	0,0356

VER	MOD	DRW	Date	
Design		APP		
CHK		Date	2018.01	
				mm



COMPONENT	Wt kg	J kgm <sup>2</sup>
EX. ROTOR	4,300	0,0170
MAIN ROTOR	13,670	0,0664
FAN	0,744	0,0061
SHAFT	7,704	0,0028
TOTAL	26,418	0,0923

VER	MOD	DRW	Date	
Design		APP		
CHK		Date	2018.01	
				mm

