maranello alternator

M2500

CONT 2250 kVA

THREE-PHASE SYNCHRONOUS GENERATOR

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

Ambient Temperature环境温度	40°C	Method of Cooling 冷却方式	Air cooling风冷
Temperature Rise 温升	125°C	Direction of Rotation 旋转方向	Clockwise顺时针
Insulation Class 绝缘等级	H	Maximum Over-speed 最高转速	2250r/min
Power Factor功率因数	0.8	Degree of Protection / Enclosure 防护等级	IP23
Excitation 励磁方式	Brushless无刷	Altitude 海拔	1000m
Winding Pitch 绕组节距	2/3	Stator winding 定子绕组	双层叠绕绕组 DLL
Pole极数	4	Number of Terminal 终端数量	6
Duty工作制	S1- Continuous	Rotor 转子	With damping cage带阻尼
Waveform 电话干扰因数	TIF<50		THF<2%
Waveform distortion 波形畸变率	BS EN 61000-6-2&BS EN 61000-6-4,VDE 0875G,VDE0874N		
Radio interference 无线电干扰	Noload<1.5%,Non-distorting balanced linear load<5%		

AVR MODEL AVR型号	Standard 标配	Selection 选配		PMG		
	MX341B	MX321		MX341B	MX321	
Voltage Regulation - in steady state condition 电压调节	±0.5	±0.5		±0.5	±0.5	
Short Circuit Current Capacity 短路电流容量	8150A					

Electrical Characteristic

Frequency频率	Hz	50				60			
Voltage (series star)电压 Y	V	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage (parallel star)电压 YY	V	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Voltage (series delta)电压 Δ	V	220	230	240	254	240	254	266	277
Rated power at Class H (125° C) temperature rise	kVA	2135	2200	2200	2160	2420	2535	2625	2750
额定功率在H(125℃)温升	kW	1708	1760	1760	1728	1936	2028	2100	2200
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	96.0	96	96.1	96.3	95.9	96	96	96.1
	3/4%	96.4	96.4	96.5	96.5	96.3	96.3	96.3	96.4
	2/4%	96.4	96.4	96.4	96.3	96.1	96.2	96.2	96.2
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	96.9	97	97	97.1	96.8	96.9	96.9	97
	3/4%	97.3	97.3	97.3	97.4	97.1	97.1	97.2	97.2
	2/4%	97.2	97.2	97.2	97.2	97	97	97	97.1
Reactances (%) at Class H 绝缘等级H考核时的电抗									
Direct axis synchronous reactance unsaturated 直轴同步电抗	Xd	3.71	3.45	3.2	2.8	4.38	4.1	3.89	3.74
Direct axis transient reactance saturated 直轴瞬态电抗	X'd	0.21	0.19	0.18	0.15	0.24	0.23	0.22	0.21
Direct axis subtransient reactance saturated 直轴瞬变电抗	X"d	0.15	0.14	0.13	0.11	0.17	0.16	0.15	0.15
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	Xq	2.38	2.22	2.06	1.8	2.82	2.64	2.5	2.41
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X"q	0.28	0.26	0.24	0.21	0.33	0.31	0.3	0.28
Leakage reactance漏抗	X1	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Negative sequence reactance saturated负序电抗饱和	X2	0.2	0.19	0.18	0.15	0.24	0.22	0.21	0.21
Zero sequence reactance unsaturated 零序电抗不饱和	X0	0.04	0.04	0.03	0.03	0.04	0.04	0.04	0.04
Short-circuit ratio 短路比	Kcc	0.2695	0.2899	0.3125	0.3571	0.2283	0.2439	0.2571	0.2674
Short-circuit transient time constant (sec.)瞬变时间常数（秒）	T'd	0.16							
Subtransient time constant (sec.) 超瞬变时间常数（秒。）	T"d	0.01							
Open circuit time constant (sec.)开路时间常数	T'do	2.89							
Armature time constant (sec.)电枢时间常数	Tα	0.02							
Stator Winding Resistance (20℃)定子绕组电阻(20℃)	ohm	0.00075							
Rotor Winding Resistance (20℃)转子绕组电阻(20℃)	ohm	1.82							
Exciter Stator Resistance (20℃)励磁机定子电阻(20℃)	ohm	20							
Exciter Rotor Phase resistance 励磁机转子相电阻	ohm	0.06							
No load excitation current空载励磁电流	io (A)	0.6	0.63	0.71	0.65	0.56	0.6	0.62	0.63
Full load excitation current满载励磁电流	ic(A)	3.2	3.2	3.6	3.2	3.4	3.3	3.4	3.5
Cooling air requirement空气冷却要求	m^3/sec	2.69m3/s 5200cfm				3.45m3/s 7300cfm			

Mechanical Characteristic

Configuration 结构	Single Bearing 单轴承	Double Bearing 双轴承
Type of Construction 结构形式	B2-SAE	IM B34
Total Weight - kgs 总重量-公斤	4054	4022
Weight wound stator - kgs 定子重量-公斤	2015	2015
Weight wound rotor - kgs 转子重量-公斤	1697	1654
Inertia (J) [kgm2] 转动惯量（J）[kgm2）	52.2511kgm2	51.3341kgm2
Drive end bearing / Lubrication 驱动端轴承/润滑		BALL.6228-2RS(ISO)
Non-drive end bearing / Lubrication非驱动端轴承/润滑	BALL.6319-2RS(ISO)	BALL.6319-2RS(ISO)
Packing crate size 包装尺寸（cm）	220X101X159	230X101X159

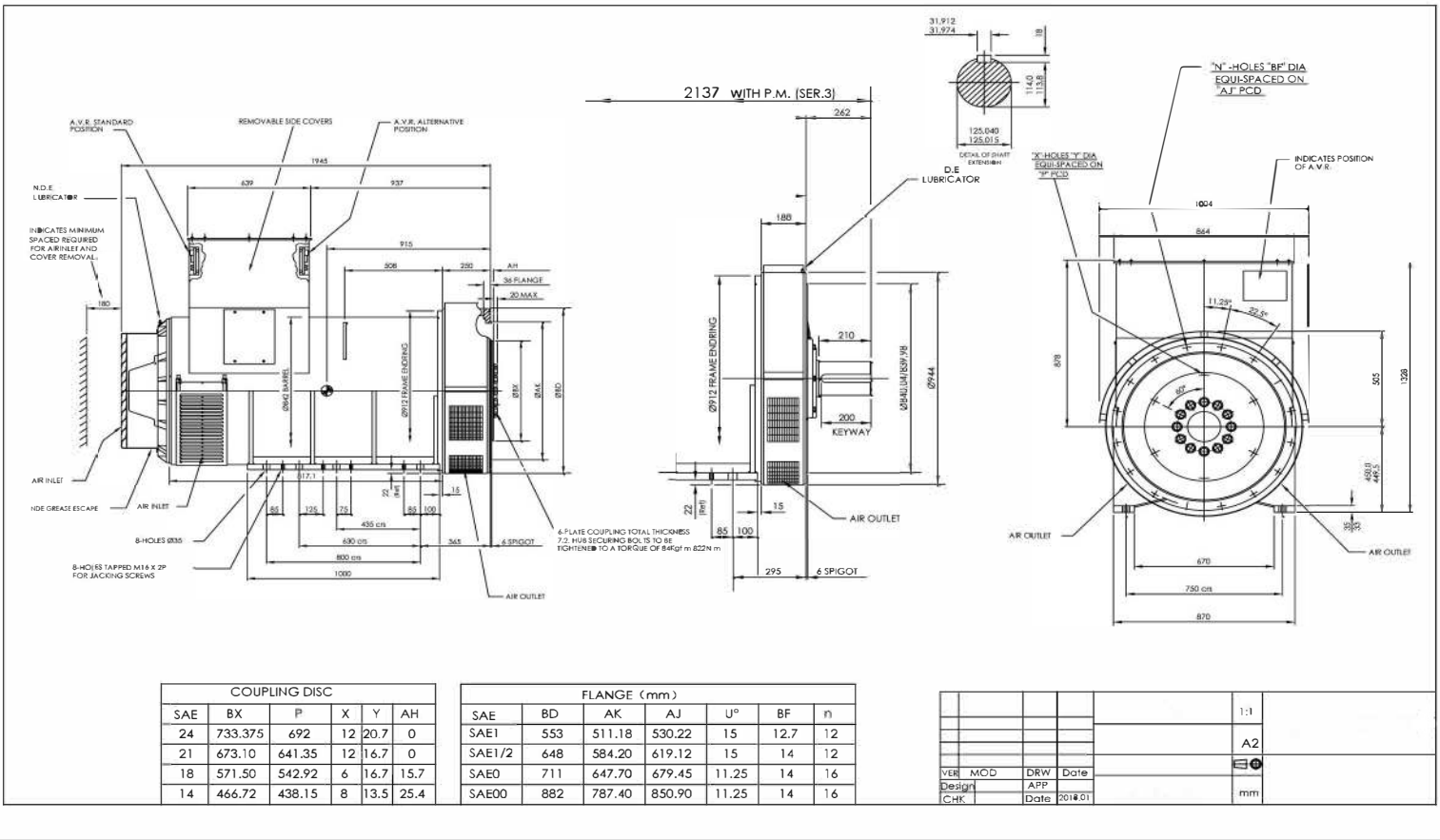
Winding 312 / 0.8 Power Factor

RATINGS

Class - Temp Rise		Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
50Hz	Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	kVA	1985	2050	2050	2005	2135	2200	2200	2160	2225	2295	2295	2250	2290	2360	2360	2310
	kW	1588	1640	1640	1604	1708	1760	1760	1728	1780	1836	1836	1800	1832	1888	1888	1848
	Efficiency (%)	96.1	96.2	96.3	96.4	96.0	96.0	96.1	96.3	95.9	95.9	96.0	96.2	95.8	95.9	96.0	96.1
	kW Input	1652	1705	1703	1664	1779	1833	1831	1794	1856	1914	1913	1871	1912	1969	1967	1923

60Hz	Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	kVA	2255	2360	2445	2560	2420	2535	2625	2750	2515	2635	2725	2860	2590	2715	2810	2945
	kW	1804	1888	1956	2048	1936	2028	2100	2200	2012	2108	2180	2288	2072	2172	2248	2356
	Efficiency (%)	96.0	96.1	96.2	96.2	95.9	96.0	96.1	96.1	95.8	95.9	96.0	96.0	95.8	95.9	95.9	95.9
	kW Input	1879	1965	2033	2129	2019	2113	2185	2289	2100	2198	2271	2383	2163	2265	2344	2457

DIMENSIONS



COUPLING DISC					
SAE	BX	P	X	Y	AH
24	733.375	692	12	20.7	0
21	673.10	641.35	12	16.7	0
18	571.50	542.92	6	16.7	15.7
14	466.72	438.15	8	13.5	25.4

FLANGE (mm)						
SAE	BD	AK	AJ	U°	BF	n
SAE1	553	511.18	530.22	15	12.7	12
SAE1/2	648	584.20	619.12	15	14	12
SAE0	711	647.70	679.45	11.25	14	16
SAE00	882	787.40	850.90	11.25	14	16

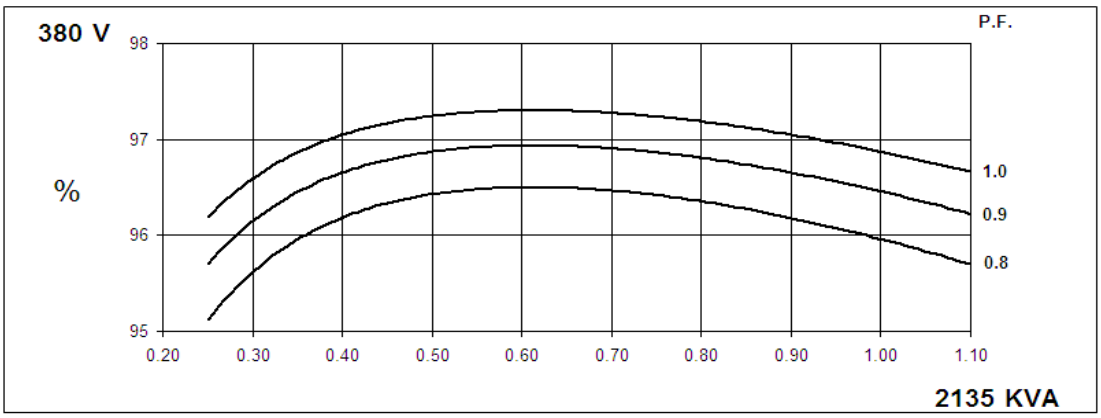
VER	MOD	DRW	Date
Design		APP	
CHK		Date	2018.01

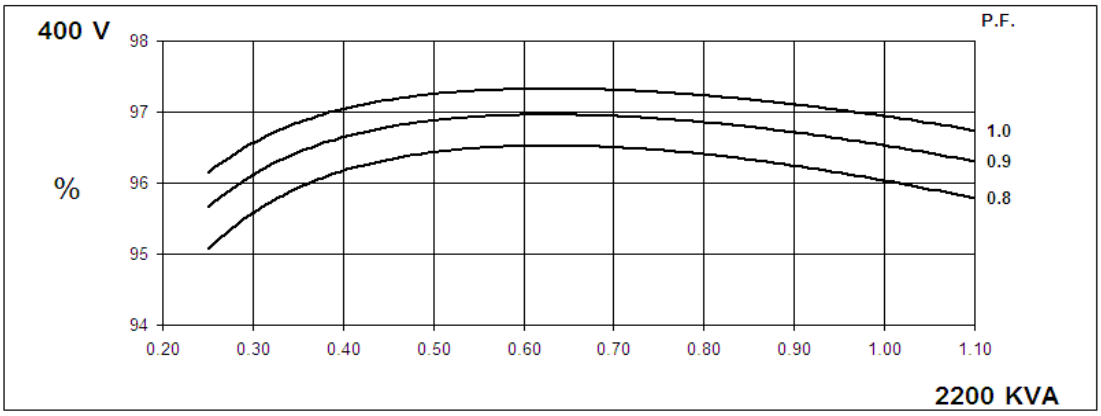
1:1 | A2 | mm

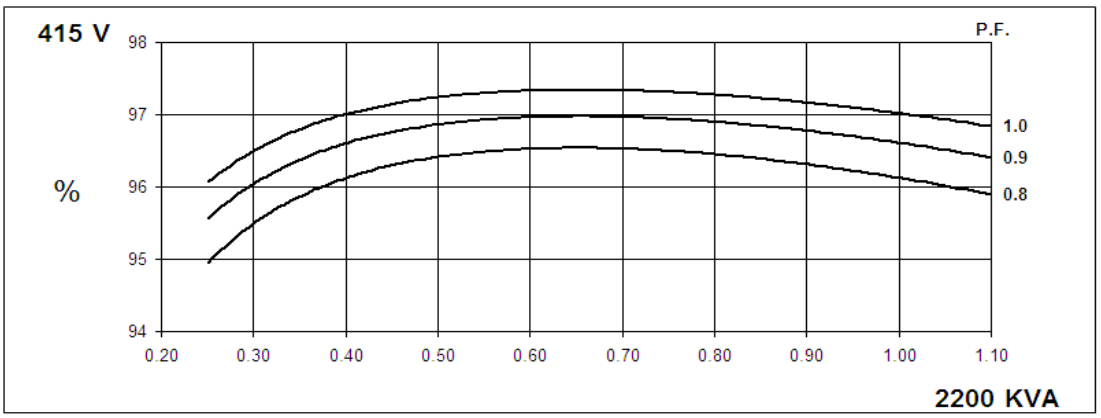
50 Hz

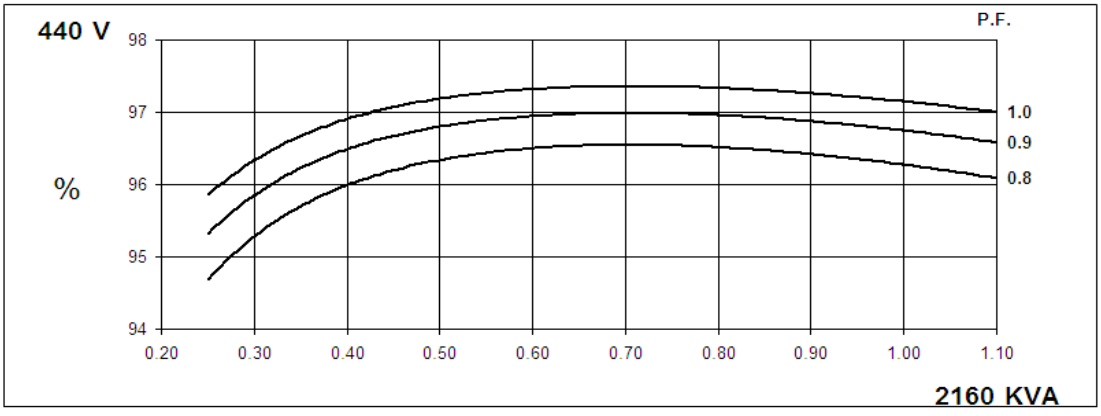
Winding 312

THREE PHASE EFFICIENCY CURVES





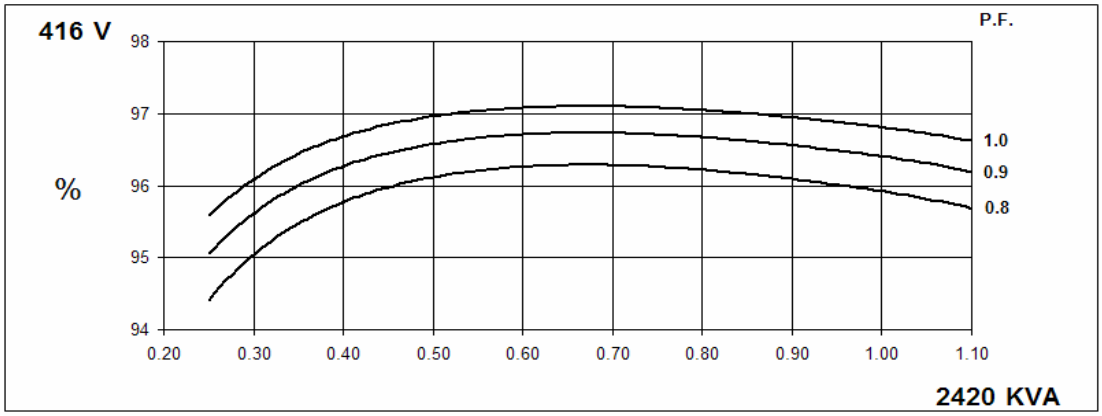


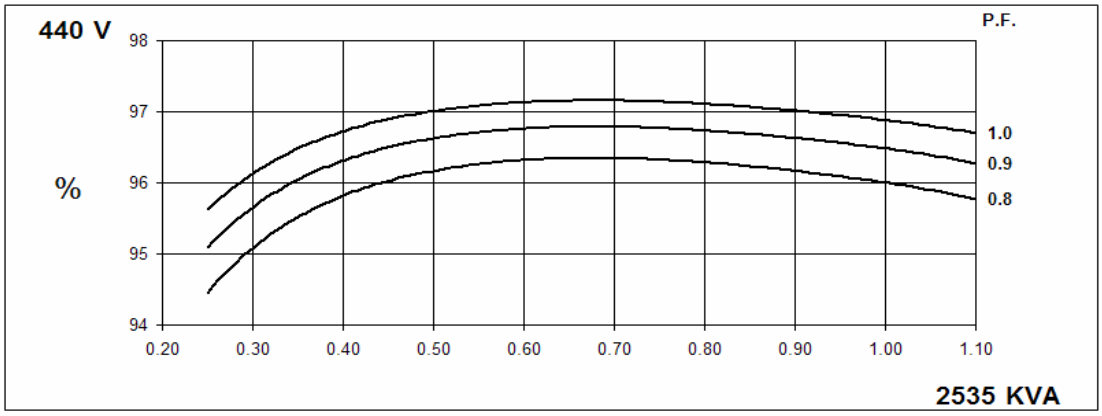


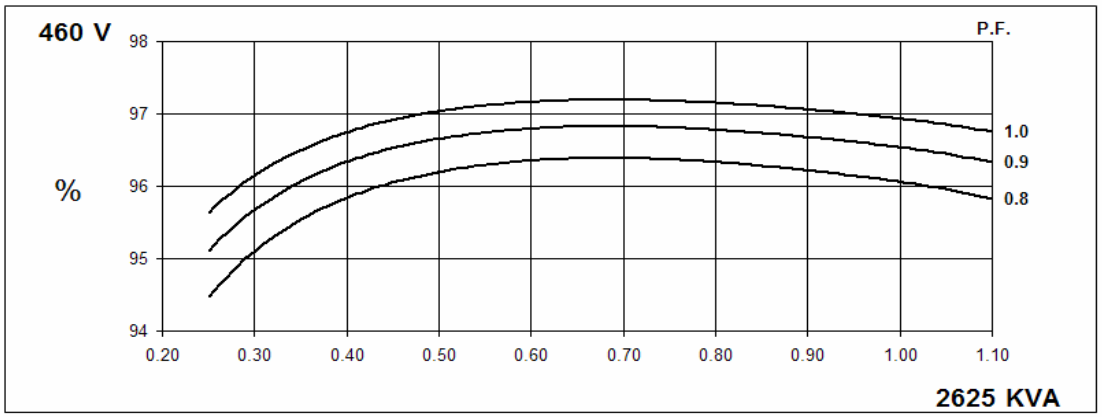
60 Hz

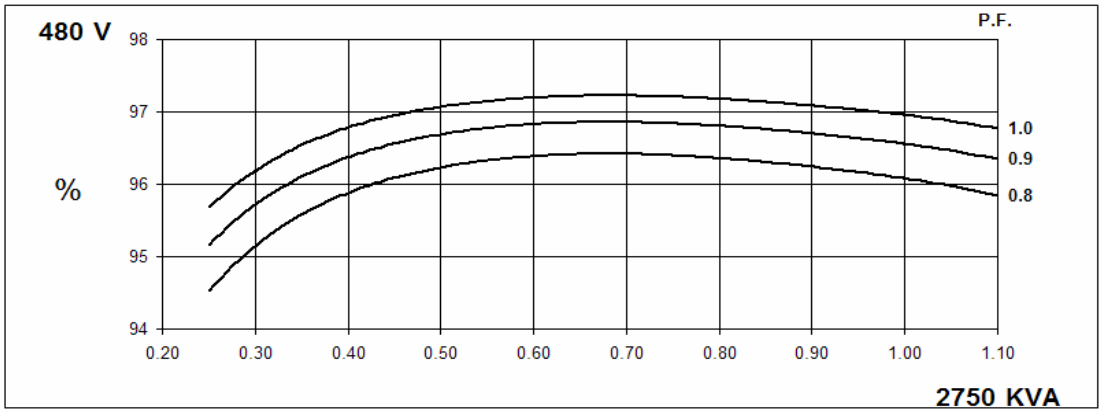
Winding 312

THREE PHASE EFFICIENCY CURVES



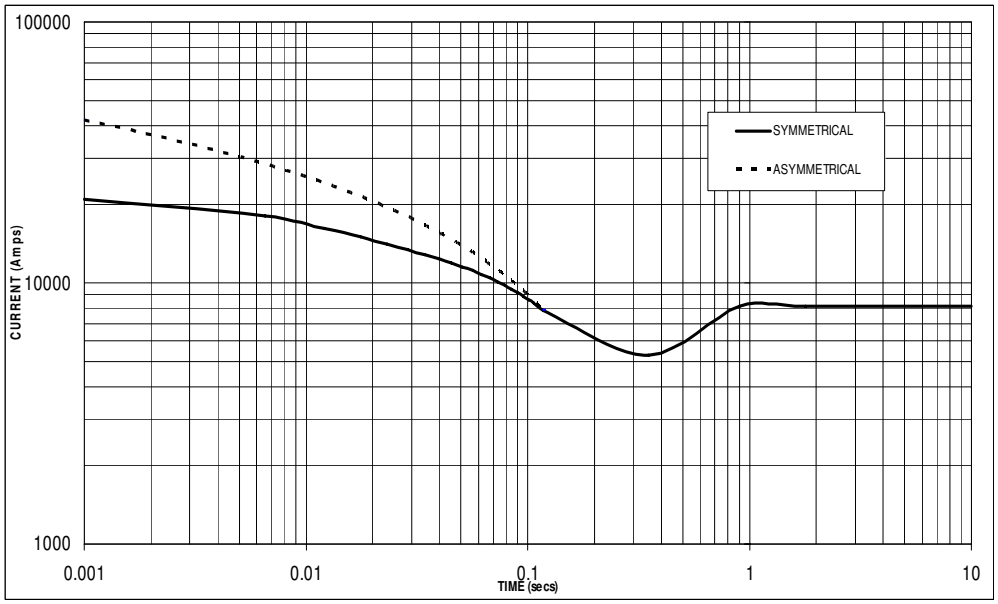






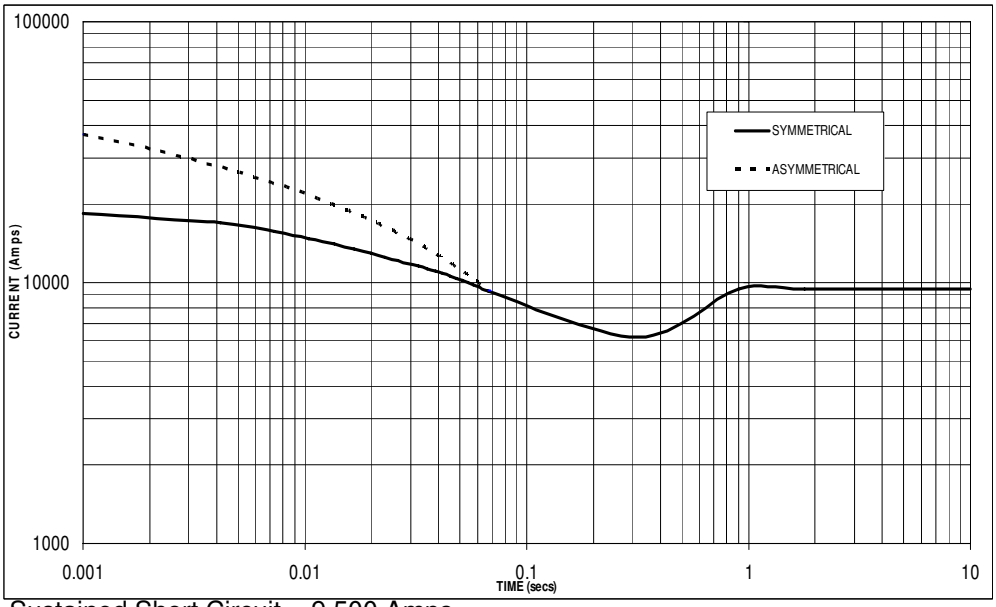
Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (wye) connection.

50 Hz



Sustained Short Circuit = 8,150 Amps

60 Hz



Sustained Short Circuit = 9,500 Amps

Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

50Hz		60Hz	
Voltage	Factor	Voltage	Factor
380v	x 1.00	416v	x 1.00
400v	x 1.05	440v	x 1.06
415v	x 1.09	460v	x 1.10
440v	x 1.16	480v	x 1.15

The sustained current value is constant irrespective of voltage level

Note 2

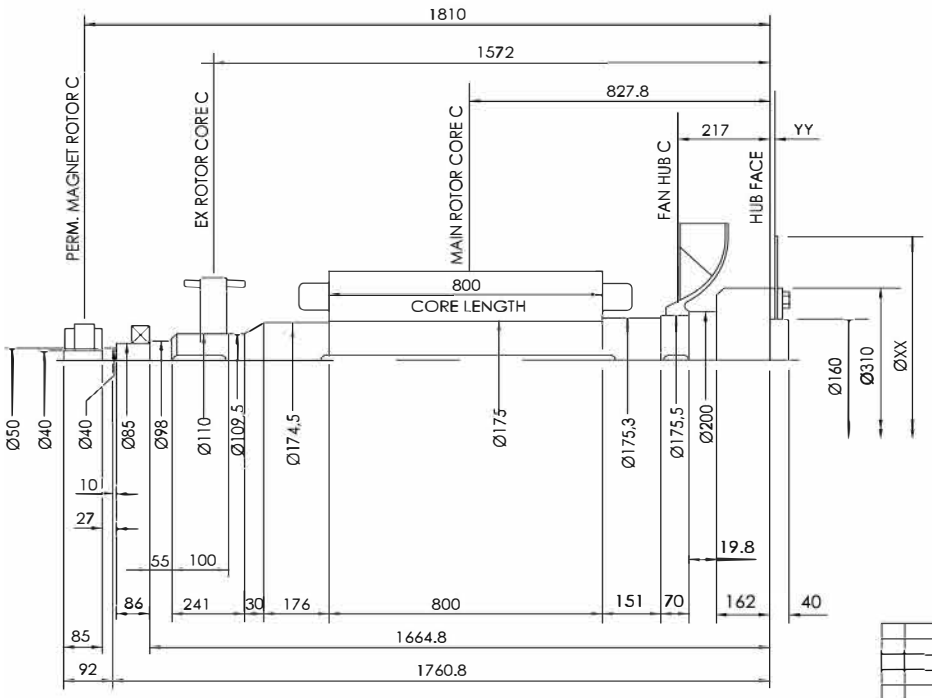
The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3-phase	2-phase L-L	1-phase L-N
Instantaneous	x 1.00	x 0.87	x 1.30
Minimum	x 1.00	x 1.80	x 3.20
Sustained	x 1.00	x 1.50	x 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged

Note 3

Curves are drawn for Star (Wye) connected machines.



COMPONENT	Wt kg	J kgm^2
EX. ROTOR	51.6	0,859
MAIN ROTOR	1195.289	46.423
FAN	28.8	1.652
SHAFT	318.125	1.1979
HUB	53.533	0,8846
P.M.EX.ROTOR	6.97	0.019
P.M. STUB SHAFT	0.929	0,0003
TOTAL	1650.437	50.9527

COUPLING SAE No	COUPLING DIMEN's		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm^2
	XX	YY		
18	572	16	24.5	0,59
21	673	0	23.1	1.135
24	733	0	26.84	1.598

					—	1:1
VER	MOD	DRW	Date			
Design		APP				mm
CHK		Date	2018.01			



Şerifali, Tavukçuyolu Cd No:200, 34775 Ümraniye/İstanbul
+90 216 312 79 79
www.maranellogenerators.com
info@maranellogenerators.com