



**M2100**

CONT 1900 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	
	MX341B	MX321	PMG 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	6250A		

#### Electrical Characteristic

Frequency频率	Hz	50				60			
		380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage ( series star )电压 Y	V	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Voltage ( parallel star )电压 YY	V	220	230	240	254	240	254	266	277
Voltage ( series delta )电压 Δ	V	1840	1900	1900	1865	2070	2210	2255	2300
Rated power at Class H (125 °C) temperature rise 额定功率在H(125 °C)温升	kVA	1472	1520	1520	1492	1656	1768	1804	1840
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	95.7	95.8	96	96.1	95.7	95.8	95.9	95.9
	3/4%	96.4	96.5	96.6	96.6	96.2	96.3	96.4	96.4
	2/4%	96.3	96.4	96.4	96.3	96	96.1	96.1	96.2
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	96.7	96.7	96.8	97	96.6	96.6	96.7	96.8
	3/4%	97.2	97.3	97.4	97.4	97	97.1	97.1	97.3
	2/4%	97.2	97.2	97.2	97.2	96.8	96.9	96.9	96.9

#### Reactances (%) at Class H 绝缘等级H考核时的电抗

		3.18	2.96	2.75	2.4	3.84	3.67	3.42	3.21
Direct axis synchronous reactance unsaturated 直轴同步电抗	X <sub>d</sub>	0.19	0.18	0.17	0.15	0.23	0.22	0.21	0.19
Direct axis transient reactance saturated 直轴瞬态电抗	X' <sub>d</sub>	0.14	0.13	0.12	0.11	0.17	0.16	0.15	0.14
Direct axis subtransient reactance saturated 直轴瞬变电抗	X'' <sub>d</sub>	2.04	1.9	1.76	1.54	2.47	2.36	2.2	2.06
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	X <sub>q</sub>	0.29	0.27	0.25	0.22	0.35	0.33	0.31	0.29
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X'' <sub>q</sub>	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Leakage reactance漏抗	X <sub>l</sub>	0.2	0.19	0.17	0.15	0.24	0.23	0.22	0.2
Negative sequence reactance saturated 负序电抗饱和	X <sub>2</sub>	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Zero sequence reactance unsaturated 零序电抗不饱和	X <sub>0</sub>	0.3145	0.3378	0.3636	0.4167	0.2604	0.2725	0.2924	0.3115
Short-circuit ratio 短路比	K <sub>cc</sub>								

Short-circuit transient time constant (sec.)瞬变时间常数 (秒)	T' <sub>d</sub>	0.149							
Subtransient time constant (sec.) 超瞬变时间常数 (秒。)	T'' <sub>d</sub>	0.02							
Open circuit time constant (sec.)开路时间常数	T' <sub>do</sub>	2.46							
Armature time constant (sec.)电枢时间常数	T <sub>a</sub>	0.02							
Stator Winding Resistance (20°C)定子绕组电阻(20°C)	ohm	0.00093							
Rotor Winding Resistance (20°C)转子绕组电阻(20°C)	ohm	1.65							
Exciter Stator Resistance (20°C)励磁机定子电阻(20°C)	ohm	17.5							
Exciter Rotor Phase resistance 励磁机转子相电阻	ohm	0.063							
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 <sup>3</sup> /sec	2.69m <sup>3</sup> /s 5200cfm				3.45m <sup>3</sup> /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	3585	3510
Weight wound stator - kgs 定子重量-公斤	1741	1741
Weight wound rotor - kgs 转子重量-公斤	1487	1423
Inertia (J) [kgm <sup>2</sup> ] 转动惯量 (J) [kgm <sup>2</sup> ]	45.49kgm <sup>2</sup>	44.48kgm <sup>2</sup>
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)	215X101X159	225X101X159

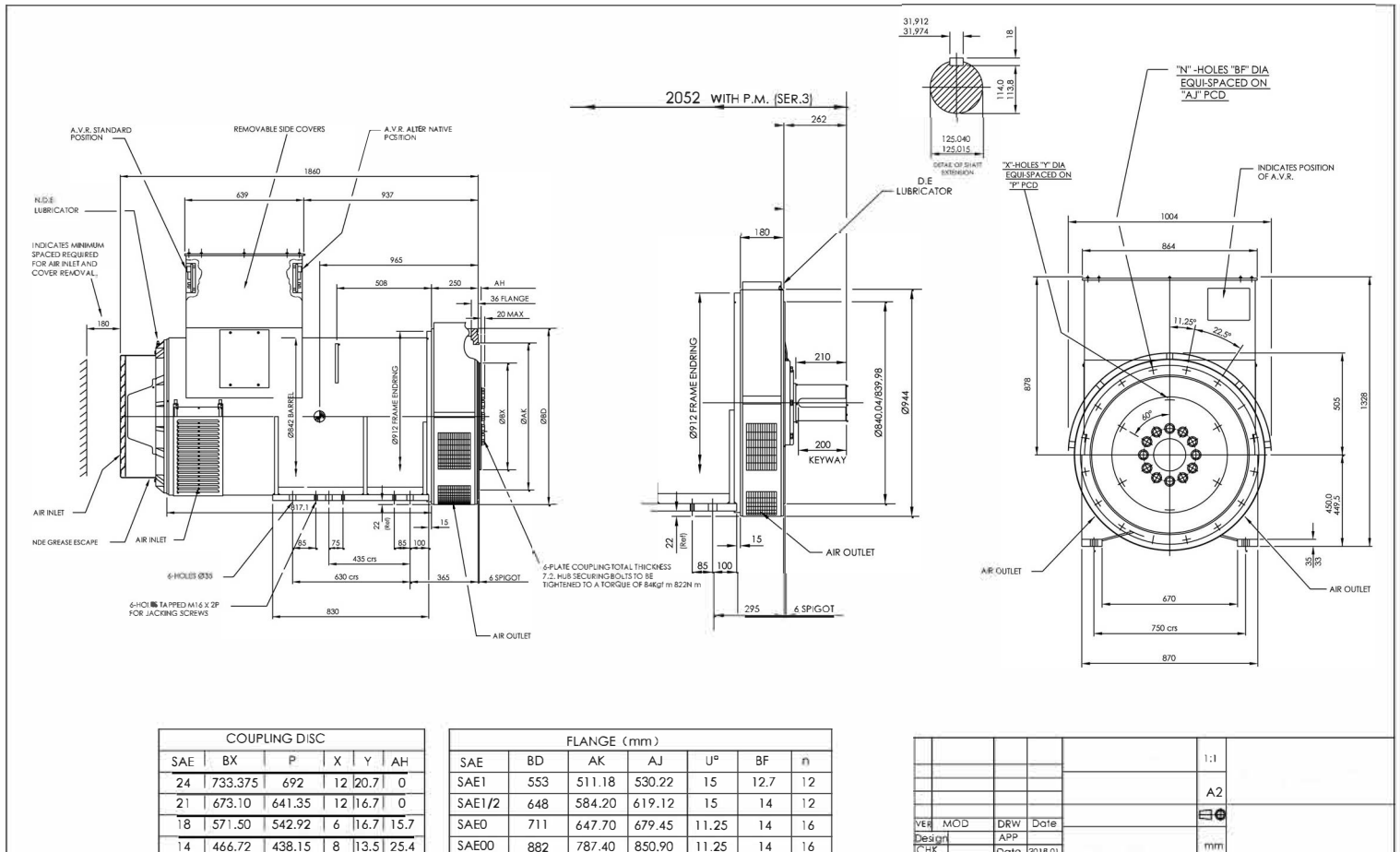
# Winding 312 / 0.8 Power Factor

## RATINGS

Class - Temp Rise		Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
<b>50Hz</b>	Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	kVA	1715	1770	1770	1735	1845	1900	1900	1865	1920	1980	1980	1940	1975	2035	2035	1995
	kW	1372	1416	1416	1388	1476	1520	1520	1492	1536	1584	1584	1552	1580	1628	1628	1596
	Efficiency (%)	95.9	96.0	96.1	96.3	95.7	95.8	96.0	96.1	95.6	95.7	95.8	96.1	95.5	95.6	95.8	96.0
	kW Input	1431	1475	1473	1441	1542	1587	1583	1553	1607	1655	1653	1615	1654	1703	1699	1663

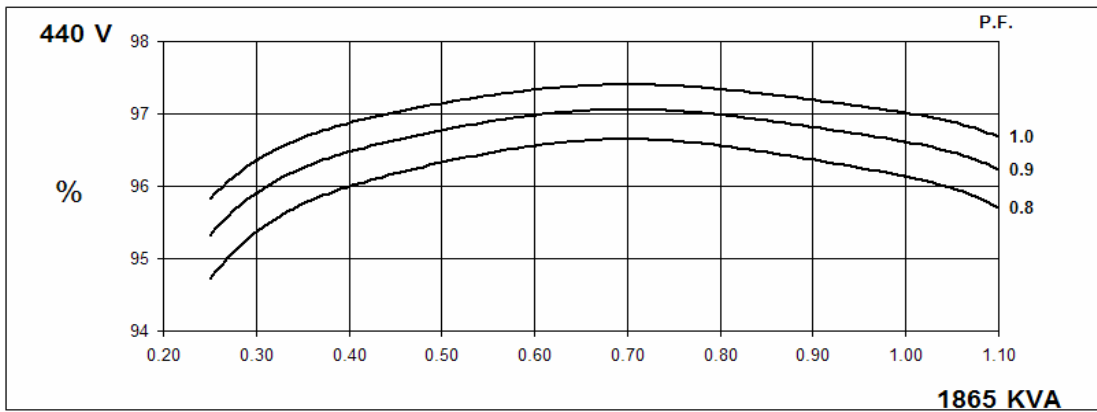
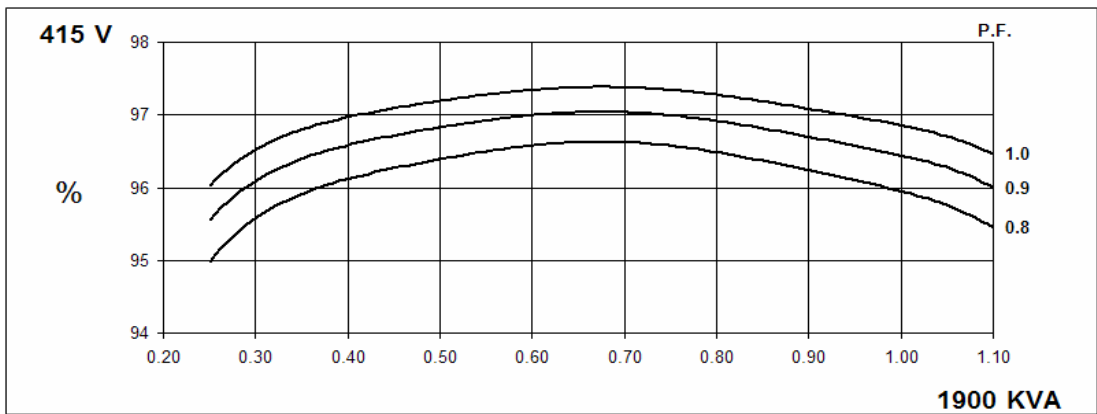
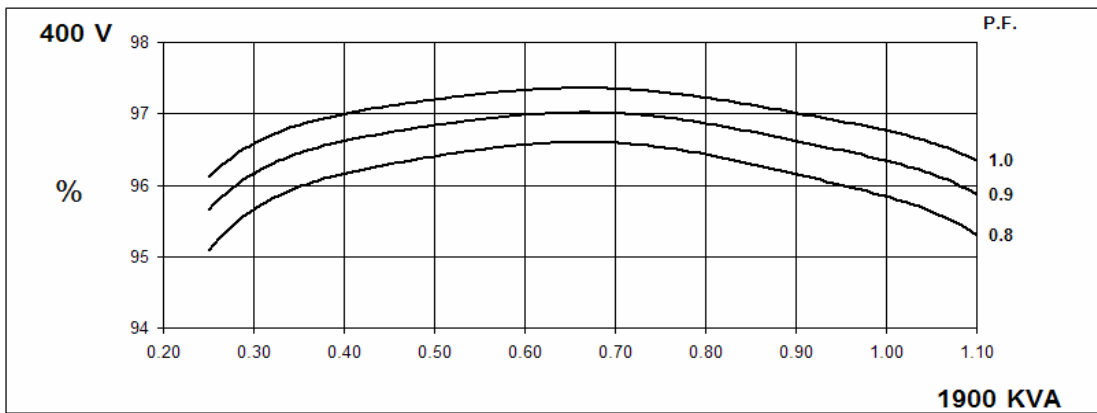
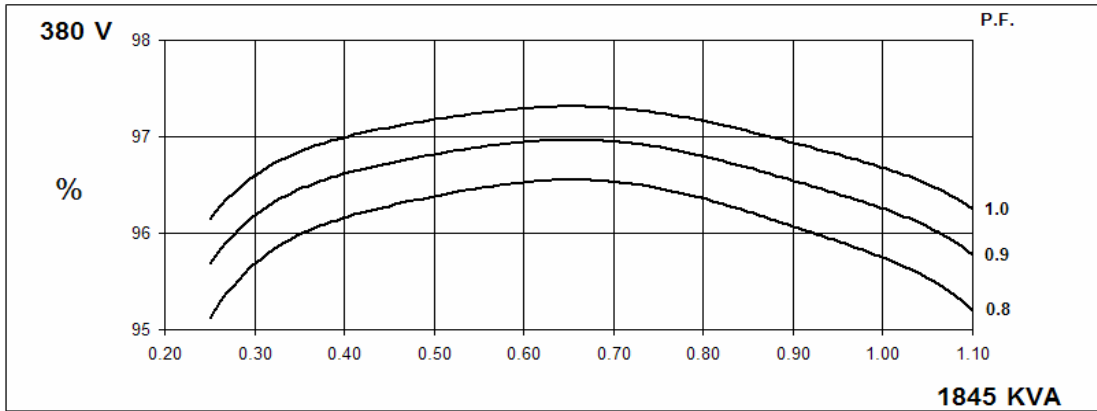
<b>60Hz</b>	Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	kVA	1935	2055	2100	2140	2070	2210	2255	2300	2155	2300	2345	2395	2215	2365	2415	2465
	kW	1548	1644	1680	1712	1656	1768	1804	1840	1724	1840	1876	1916	1772	1892	1932	1972
	Efficiency (%)	95.8	95.9	96.0	96.1	95.7	95.8	95.9	95.9	95.6	95.7	95.8	95.9	95.5	95.6	95.7	95.8
	kW Input	1616	1714	1750	1781	1730	1846	1881	1919	1803	1923	1958	1998	1855	1979	2019	2058

## DIMENSIONS



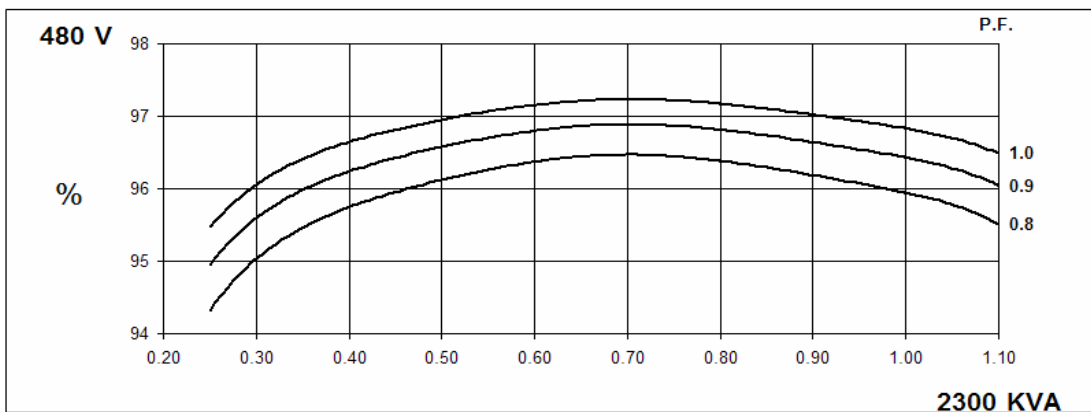
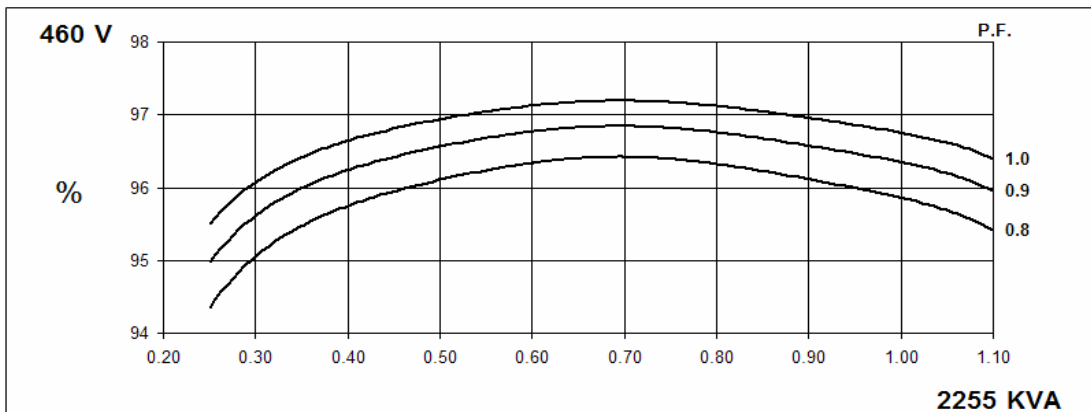
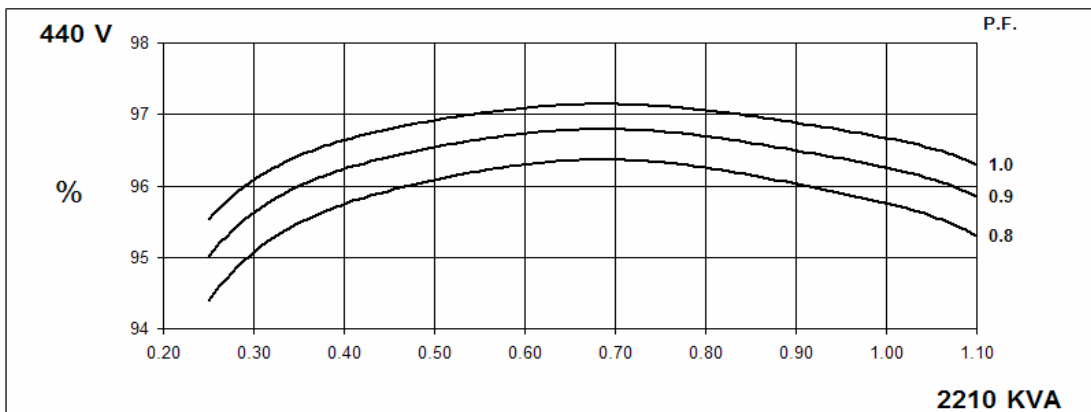
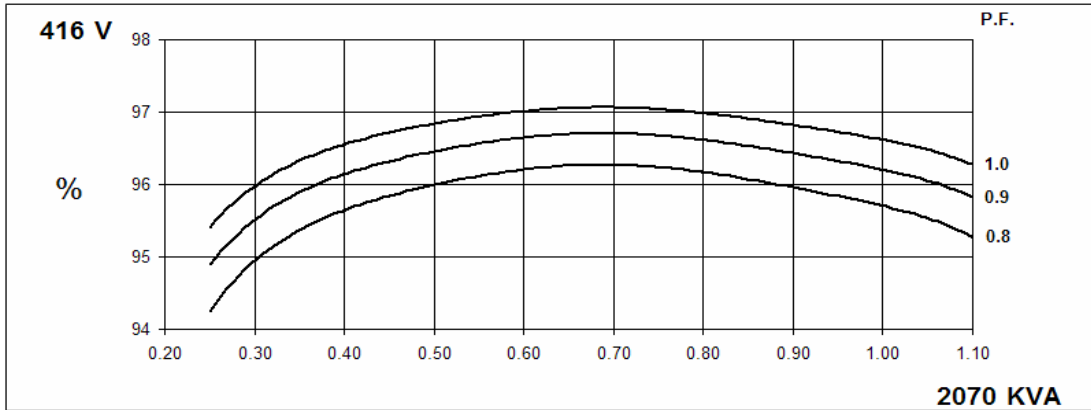
50  
Hz

### THREE PHASE EFFICIENCY CURVES



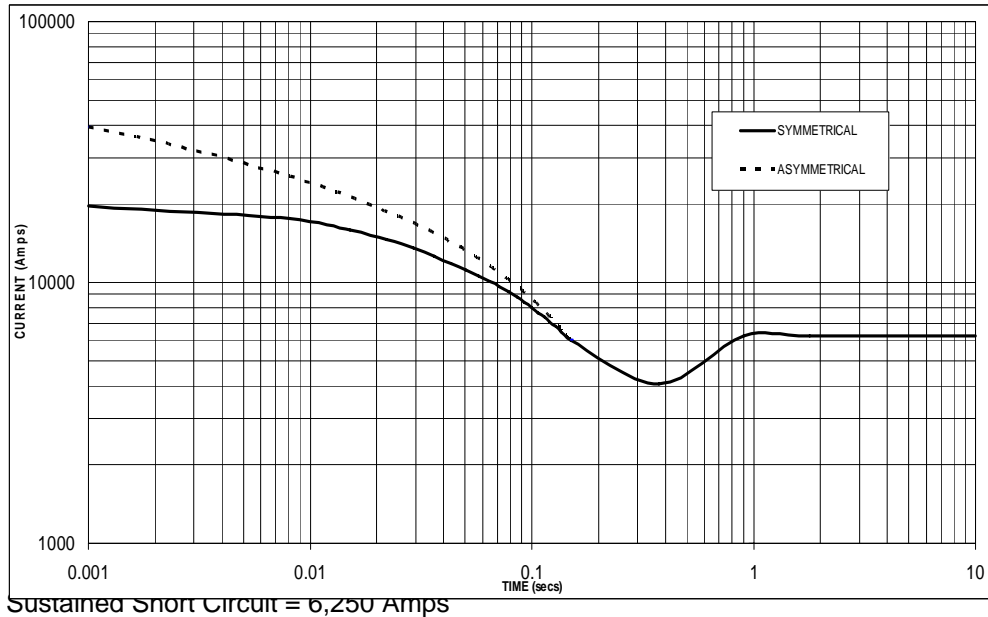
60  
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### THREE PHASE EFFICIENCY CURVES

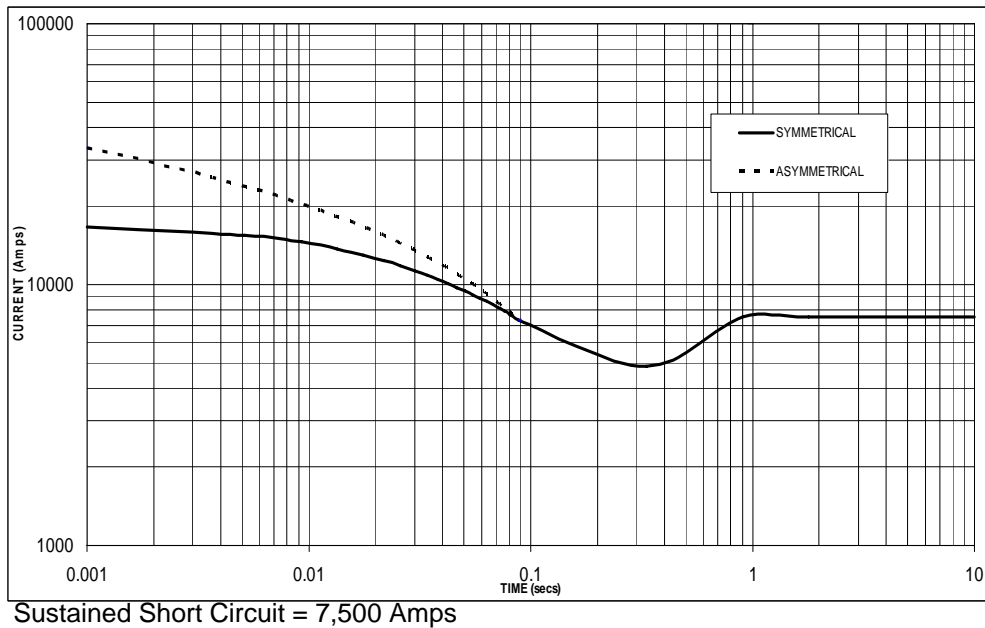


## Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed Based on star (wye) connection.

50  
Hz



60  
Hz



**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.



