



**M1000**

CONT 910 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	3540A		

#### 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	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 额定功率在H(125 °C)温升	kVA	865	910	910	825	986	1043	1090	1138
	kW	692	728	728	660	788.8	834.4	872	910.4
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	93.4	93.5	93.8	94.2	93.2	93.3	93.5	93.6
	3/4%	94.3	94.4	94.6	94.8	94.1	94.2	94.3	94.3
	2/4%	94.8	94.8	94.8	94.6	94.3	94.4	94.4	94.5
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	94.9	95	95	95.5	94.7	94.7	94.8	94.9
	3/4%	95.6	95.7	95.8	95.9	95.3	95.5	95.5	95.6
	2/4%	95.8	95.9	95.9	95.8	95.5	95.7	95.7	95.7

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

		2.83	2.69	2.5	2.02	3.23	3.05	2.92	2.8
Direct axis synchronous reactance unsaturated 直轴同步电抗	X <sub>d</sub>	0.15	0.14	0.13	0.1	0.17	0.16	0.15	0.14
Direct axis transient reactance saturated 直轴瞬态电抗	X' <sub>d</sub>	0.1	0.1	0.09	0.07	0.12	0.11	0.1	0.1
Direct axis subtransient reactance saturated 直轴瞬变电抗	X'' <sub>d</sub>	2.35	2.23	2.07	1.67	2.68	2.53	2.42	2.32
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	X <sub>q</sub>	0.27	0.26	0.24	0.19	0.31	0.29	0.28	0.27
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X'' <sub>q</sub>	0.07	0.08	0.06	0.05	0.08	0.07	0.07	0.07
Leakage reactance漏抗	X <sub>l</sub>	0.19	0.18	0.16	0.13	0.21	0.2	0.19	0.18
Negative sequence reactance saturated 负序电抗饱和	X <sub>2</sub>	0.03	0.03	0.03	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>	0.3534	0.3717	0.4000	0.4950	0.3096	0.3279	0.3425	0.3571
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>	0.092							
Subtransient time constant (sec.) 超瞬变时间常数 (秒。)	T'' <sub>d</sub>	0.013							
Open circuit time constant (sec.)开路时间常数	T' <sub>do</sub>	3							
Armature time constant (sec.)电枢时间常数	T <sub>a</sub>	0.032							
Stator Winding Resistance (20°C)定子绕组电阻(20°C)	ohm	0.003							
Rotor Winding Resistance (20°C)转子绕组电阻(20°C)	ohm	1.78							
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)	2.6	2.7	2.8	2.7	2.7	2.7	2.8	2.8
Cooling air requirement空气冷却要求	m <sup>3</sup> /sec	2.18m <sup>3</sup> /s 4619cfm				2.63m <sup>3</sup> /s 5573cfm			

#### Mechanical Characteristic

Configuration 结构	Single Bearing 单轴承		Double Bearing 双轴承	
	B2-SAE		IM B34	
Type of Construction 结构形式	1978		1961	
Total Weight - kgs 总重量-公斤	924		924	
Weight wound stator - kgs 定子重量-公斤	822		778	
Weight wound rotor - kgs 转子重量-公斤	18.6963kgm <sup>2</sup>		18.1529kgm <sup>2</sup>	
Inertia (J) [kgm <sup>2</sup> ] 转动惯量 (J) [kgm <sup>2</sup> ]	BALL.6317-2RS(ISO)		BALL.6224-2RS(ISO)	
Drive end bearing / Lubrication 驱动端轴承/润滑	BALL.6317-2RS(ISO)		BALL.6317-2RS(ISO)	
Non-drive end bearing / Lubrication非驱动端轴承/润滑	178X97X133		186X97X133	
Packing crate size 包装尺寸 (cm)				

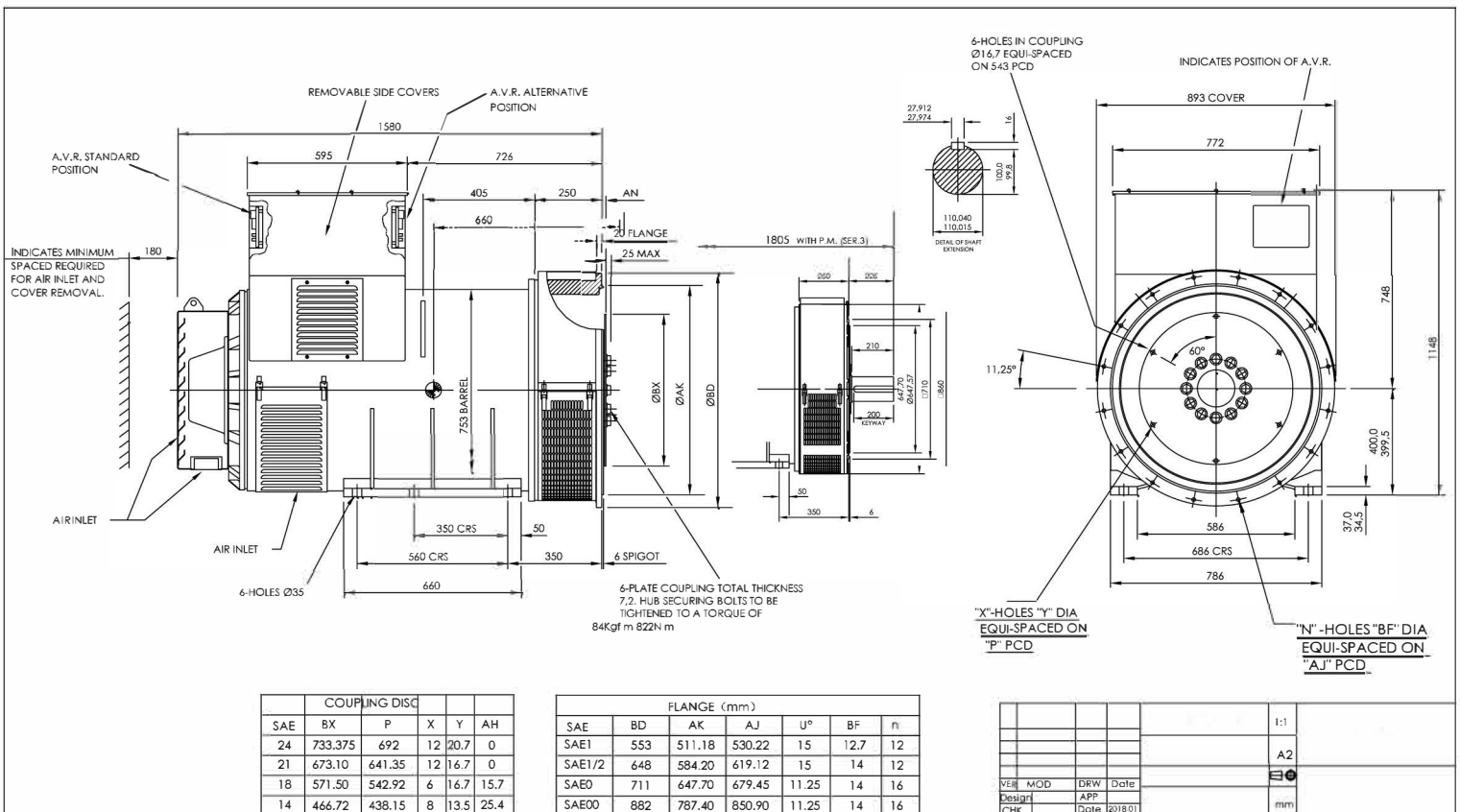
# Winding 312 / 0.8 Power Factor

## RATINGS

温升等级		F级温升 - 105/40°C				H级温升 - 125/40°C				备载 - 150/40°C				备载 - 163/27°C			
<b>50</b>	星形 (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Hz 三角形 (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
视在功率 (kVA)		793	834	834	756	865	910	910	825	890	938	938	850	910	955	955	865
有功功率 (kW)		634	667	667	605	692	728	728	660	712	750	750	680	728	764	764	692
效率 (%)		93.8	93.9	94.1	94.5	93.5	93.5	93.7	94.3	93.3	93.4	93.6	94.3	93.2	93.3	93.5	94.2
有功功率输入		676	711	709	640	740	779	777	700	763	803	802	721	781	819	817	735

<b>60</b>	星形 (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	Hz 三角形 (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
视在功率 (kVA)		904	956	999	1043	986	1043	1090	1138	1018	1077	1126	1175	1030	1090	1140	1190
有功功率 (kW)		723	765	799	834	789	834	872	910	814	862	901	940	824	872	912	952
效率 (%)		93.6	93.7	93.8	93.9	93.3	93.4	93.5	93.6	93.1	93.3	93.4	93.4	93.1	93.2	93.3	93.4
有功功率输入		773	816	852	889	845	893	933	973	875	923	964	1006	885	936	977	1019

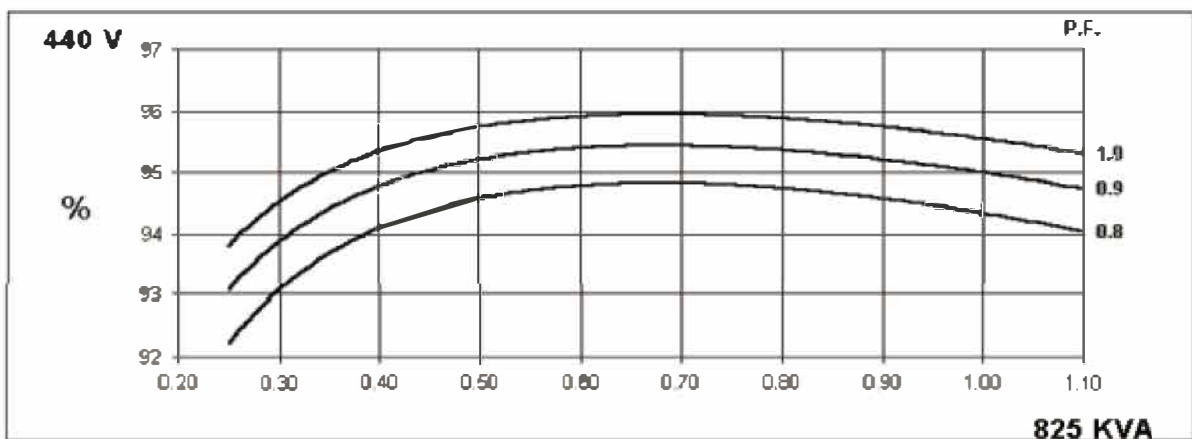
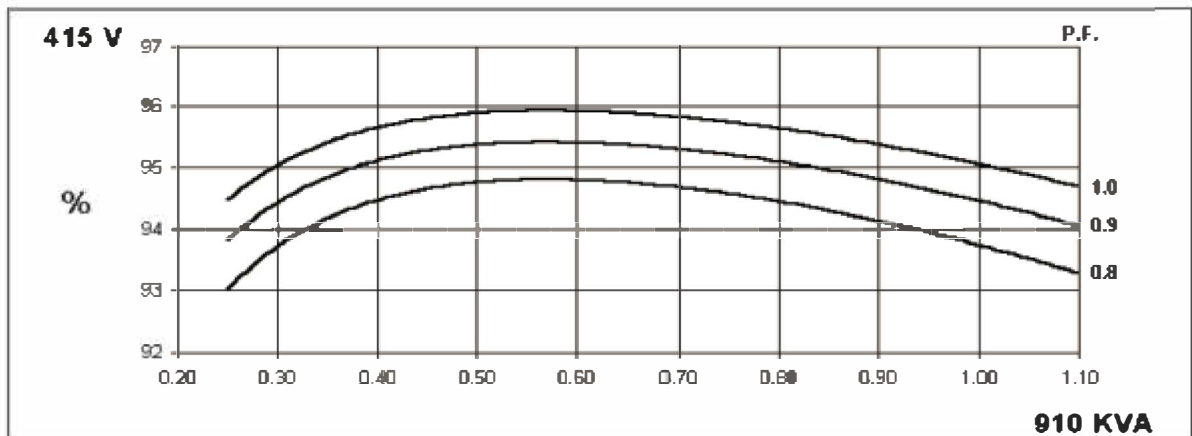
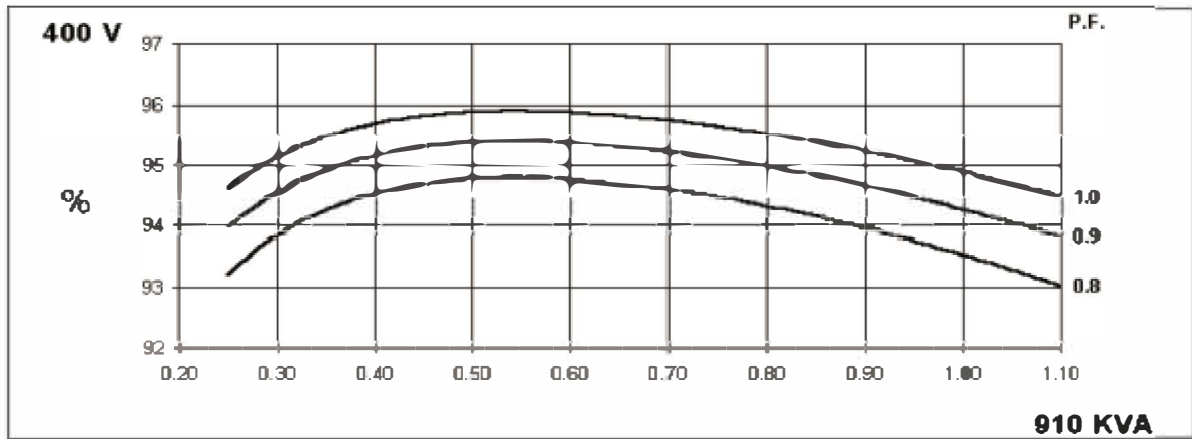
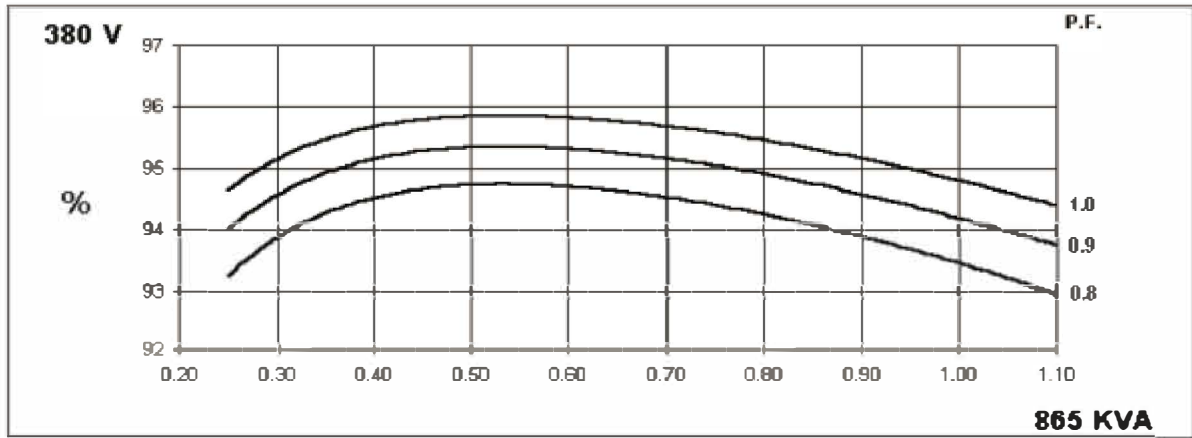
## DIMENSIONS



**50  
Hz**

**Winding 312**

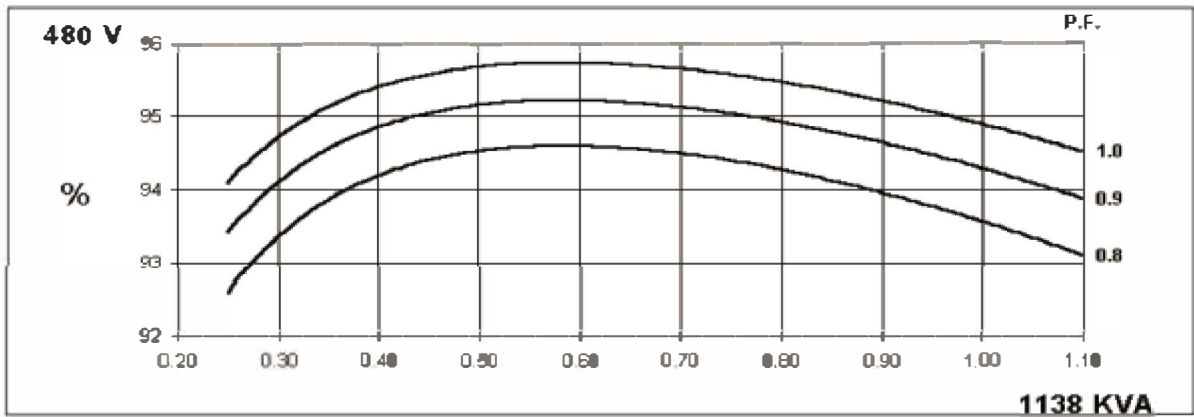
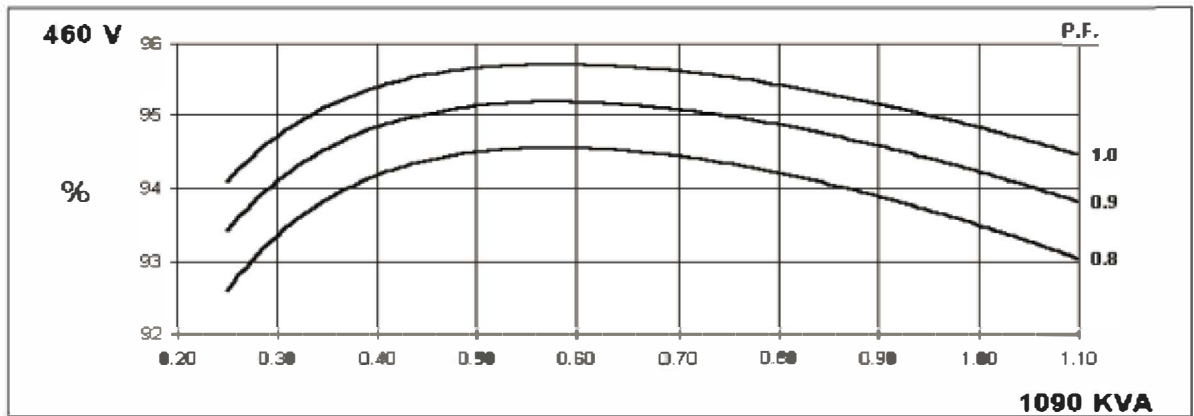
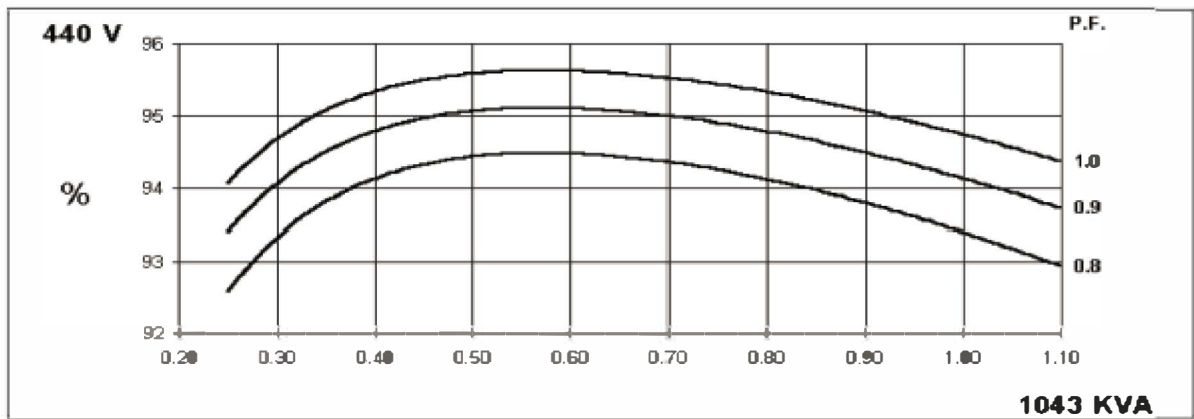
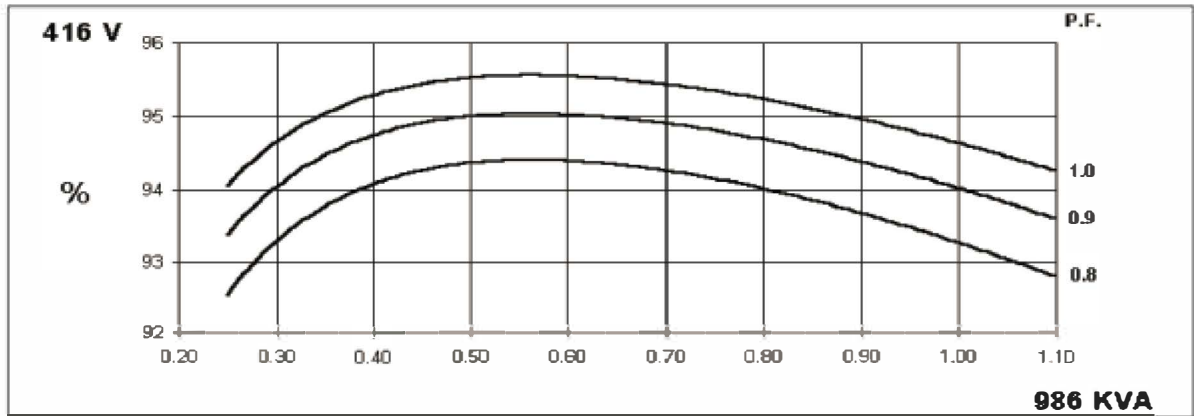
**THREE PHASE EFFICIENCY CURVES**



**60  
Hz**

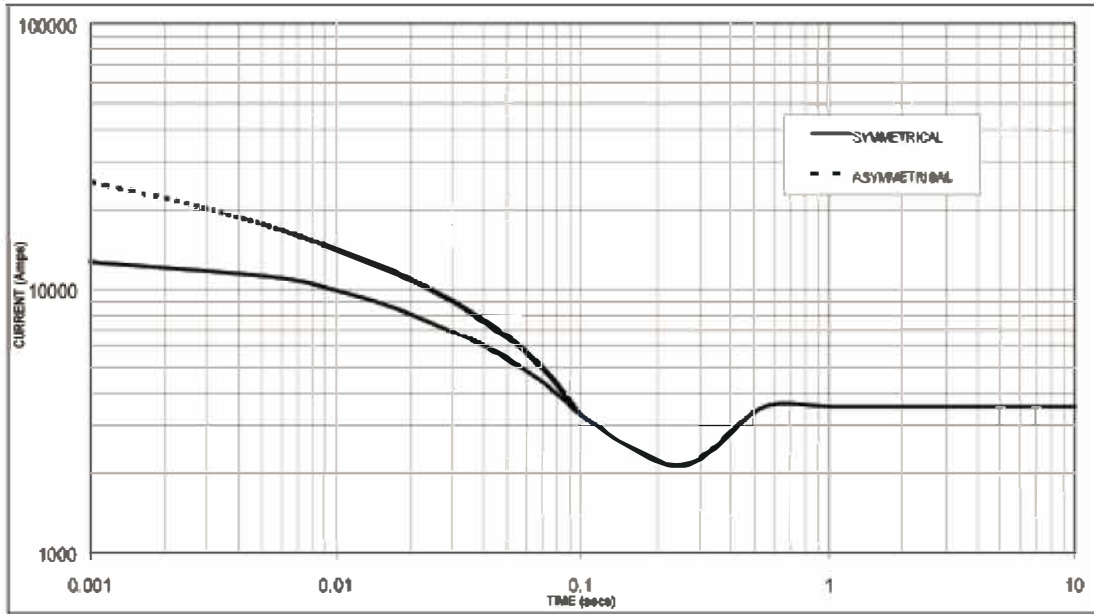
**Winding 312**

**THREE PHASE EFFICIENCY CURVES**



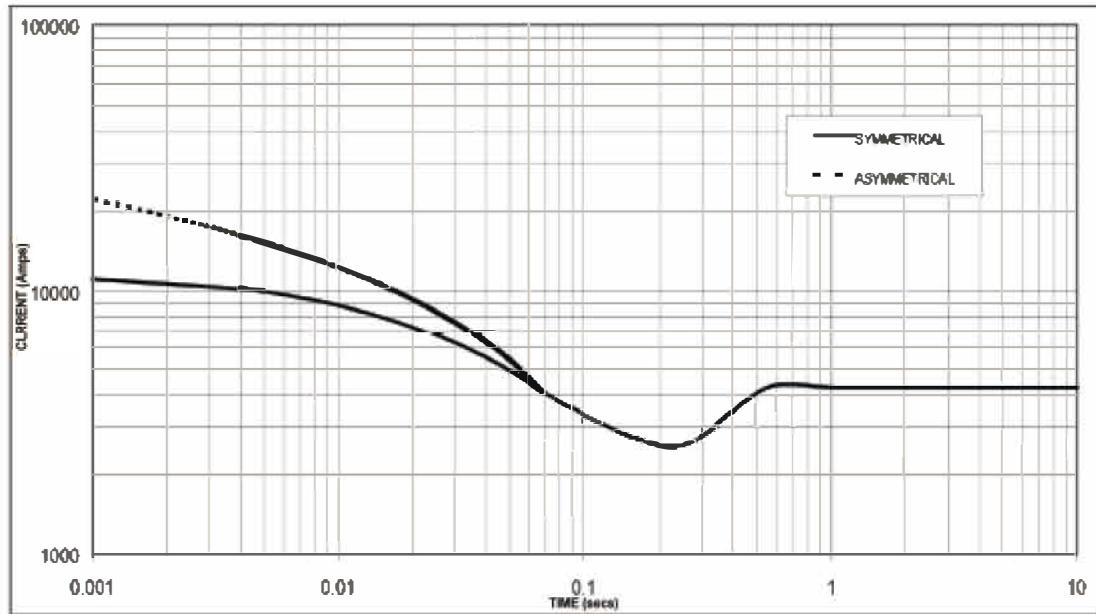
**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed  
Based on star (wye) connection.**

**50  
Hz**



**60  
Hz**

Sustained Short Circuit = 3540 Amps



Sustained Short Circuit = 4240 Amps

**Note 1 Amps**

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**

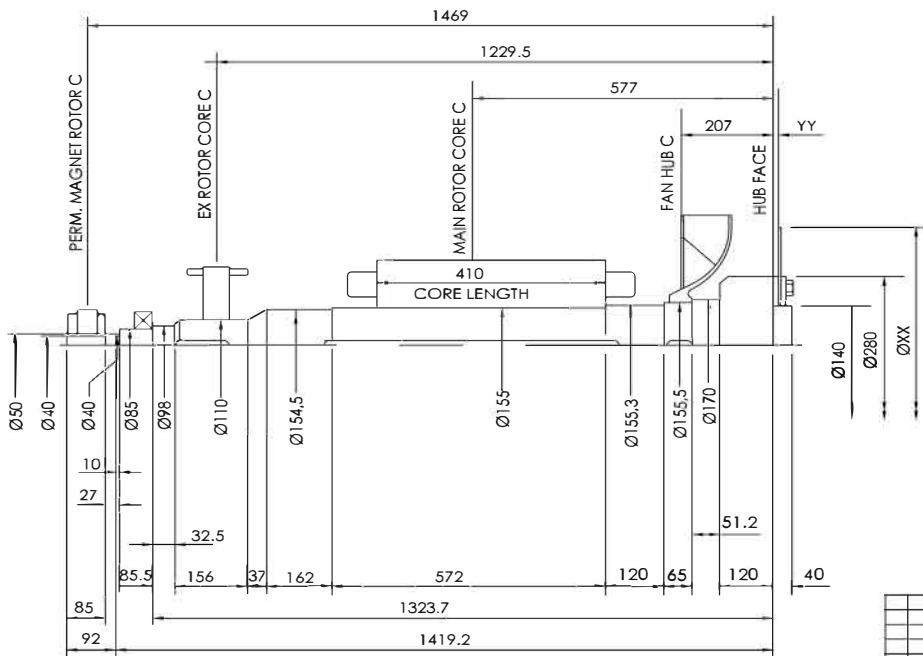
The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	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 <sup>2</sup>
EX. ROTOR	51.6	0,859
MAIN ROTOR	517.606	16.1081
FAN	16.1	0,6762
SHAFT	191.914	0,5514
HUB	37.098	0,4823
P.M.EX.ROTOR	6.97	0,019
P.M. STUB SHAFT	0.929	0,0003
TOTAL	822.217	18.6863

COUPLING SAE No	COUPLING DIMEN's		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm <sup>2</sup>
	XX	YY		
14	467	25	25	0,265
16	518	16	24.3	0,403
18	572	16	24.4	0,535
21	673	0	24.25	1.053
24	733	0	28	1.602

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

