

# QYI404F

## THREE-PHASE SYNCHRONOUS GENERATOR WINDING QY12 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						
Voltage Regulation - in steady state condition 电压调节	±0.5		±0.5			±0.5						
Short Circuit Current Capacity 短路电流容量	4480A											
<b>Electrical Characteristic</b>												
Frequency 频率	Hz	<b>50</b>			<b>60</b>							
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	1090	1130	1130	1025	1204	1274	1332	1390			
额定功率在H(125 °C)温升	kW	872	904	904	820	963.2	1019.2	1065.6	1112			
Efficiency at Class H (P.F.=0.8) 绝缘等级H (P.F.=0.8) 效率	4/4%	94.8	94.8	94.9	95.1	94.8	94.8	94.9	94.9			
	3/4%	95.3	95.3	95.3	95.2	95.1	95.1	95.2	95.2			
	2/4%	95.3	95.3	95.2	94.9	95	95	95	95			
Efficiency at Class H (P.F.=1.0) 绝缘等级H (P.F.=1.0) 效率	4/4%	95.9	95.9	96	96.2	95.9	95.9	96	96			
	3/4%	96.3	96.3	96.4	96.3	96.1	96.2	96.2	96.2			
	2/4%	96.3	96.3	96.2	96	96	96.1	96.1	96.1			
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	2.57	2.4	2.23	1.8	2.88	2.73	2.61	2.5			
Direct axis transient reactance saturated 直轴瞬态电抗	X'd	0.13	0.12	0.12	0.09	0.15	0.14	0.13	0.13			
Direct axis subtransient reactance saturated 直轴瞬变电抗	X" d	0.1	0.09	0.08	0.07	0.11	0.1	0.1	0.09			
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	Xq	2.14	2	1.86	1.5	2.4	2.27	2.17	2.08			
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X" q	0.24	0.23	0.22	0.17	0.27	0.26	0.25	0.24			
Leakage reactance 漏抗	X1	0.07	0.06	0.06	0.05	0.07	0.07	0.07	0.06			
Negative sequence reactance saturated 负序电抗饱和	X2	0.17	0.16	0.15	0.12	0.19	0.19	0.17	0.16			
Zero sequence reactance unsaturated 零序电抗不饱和	X0	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03			
Short-circuit ratio 短路比	Kcc	0.3891	0.4167	0.4484	0.5556	0.3472	0.3663	0.3831	0.4000			
Short-circuit transient time constant (sec.) 瞬变时间常数 (秒)	T'd	0.103										
Subtransient time constant (sec.) 超瞬变时间常数 (秒。)	T" d	0.014										
Open circuit time constant (sec.) 开路时间常数	T'do	3.38										
Armature time constant (sec.) 电枢时间常数	Ta	0.035										
Stator Winding Resistance (20°C) 定子绕组电阻(20°C)	ohm	0.0018										
Rotor Winding Resistance (20°C) 转子绕组电阻(20°C)	ohm	2.16										
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	m³/sec	2.18m³/s 4619cfm			2.63m³/s 5573cfm							
<b>Mechanical Characteristic</b>												
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	2350			2335								
Weight wound stator - kgs 定子重量-公斤	1100			1100								
Weight wound rotor - kgs 转子重量-公斤	993			945								
Inertia (J) [kgm²] 转动惯量 (J) [kgm²]	23.9182kgm²			23.375kgm²								
Drive end bearing / Lubrication 驱动端轴承/润滑	BALL.6224-2RS(ISO)			BALL.6224-2RS(ISO)								
Non-drive end bearing / Lubrication 非驱动端轴承/润滑	BALL.6317-2RS(ISO)			BALL.6317-2RS(ISO)								
Packing crate size 包装尺寸 (cm)	178X97X133			186X97X133								

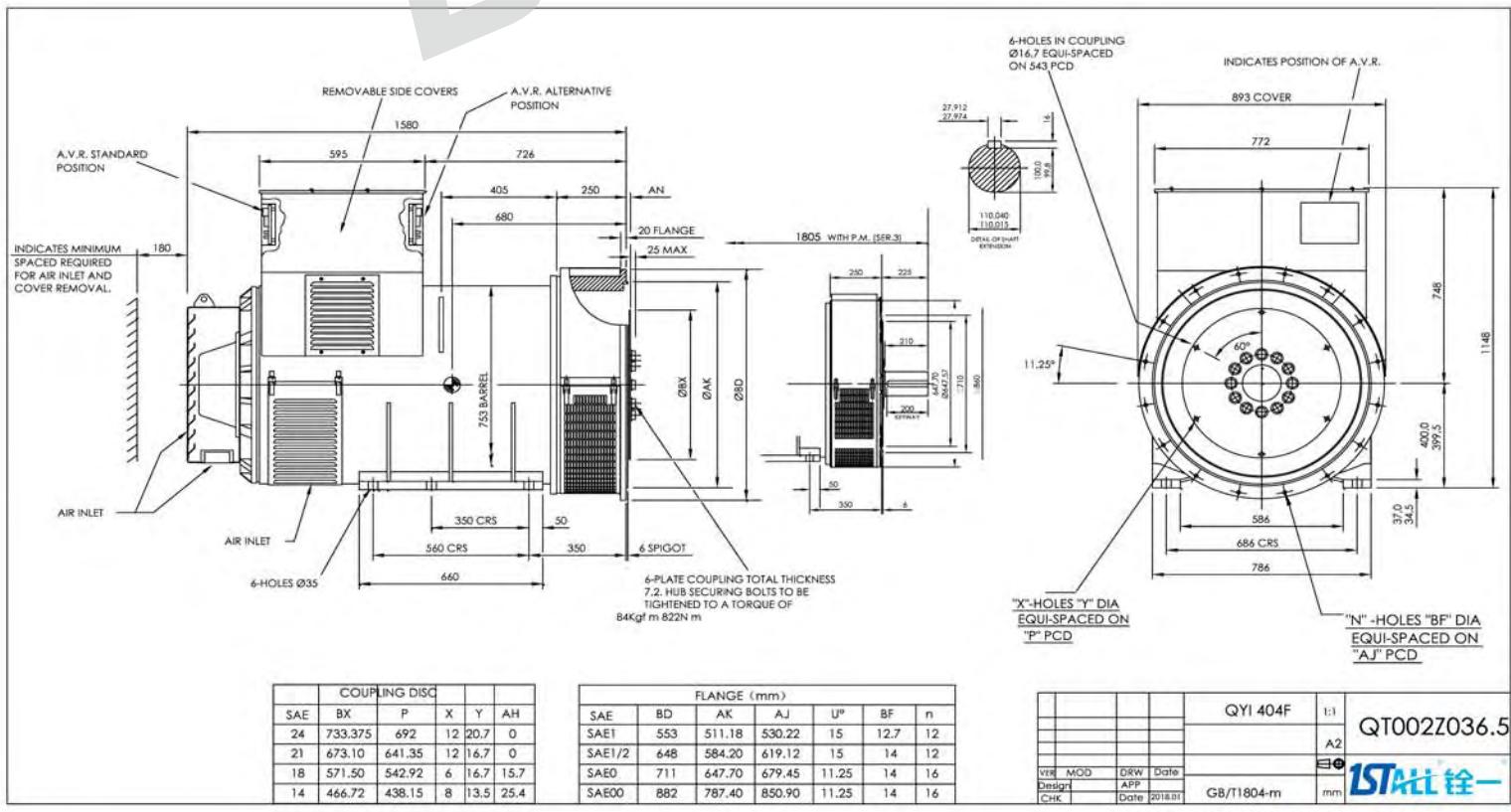
**QYI404F**  
Winding 312 / 0.8 Power Factor

## 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)		999	1035	1035	939	1090	1130	1130	1025	1125	1165	1165	1055	1145	1185	1185	1075
有功功率 (kW)		799	828	828	751	872	904	904	820	900	932	932	844	916	948	948	860
效率 (%)		94.8	94.9	95.0	95.3	94.6	94.7	94.8	95.1	94.5	94.6	94.7	95.1	94.4	94.5	94.7	95.1
有功功率输入		843	872	872	788	922	955	954	862	952	985	984	887	970	1003	1001	904

<b>60</b> <b>Hz</b>	星形 (V)	416	440	460	480	416	440	460	480	416	440	460	480			
	三角形 (V)	240	254	266	277	240	254	266	277	240	254	266	277			
视在功率 (kVA)	1104	1167	1220	1274	1204	1274	1332	1390	1243	1315	1375	1435	1257	1329	1390	1450
有功功率 (kW)	883	934	976	1019	963	1019	1066	1112	994	1052	1100	1148	1006	1063	1112	1160
效率 (%)	94.8	94.9	94.9	95.0	94.6	94.7	94.7	94.7	94.5	94.6	94.6	94.7	94.5	94.5	94.6	94.6
有功功率输入	932	984	1028	1073	1018	1076	1125	1174	1052	1112	1163	1212	1064	1125	1175	1226

## DIMENSIONS

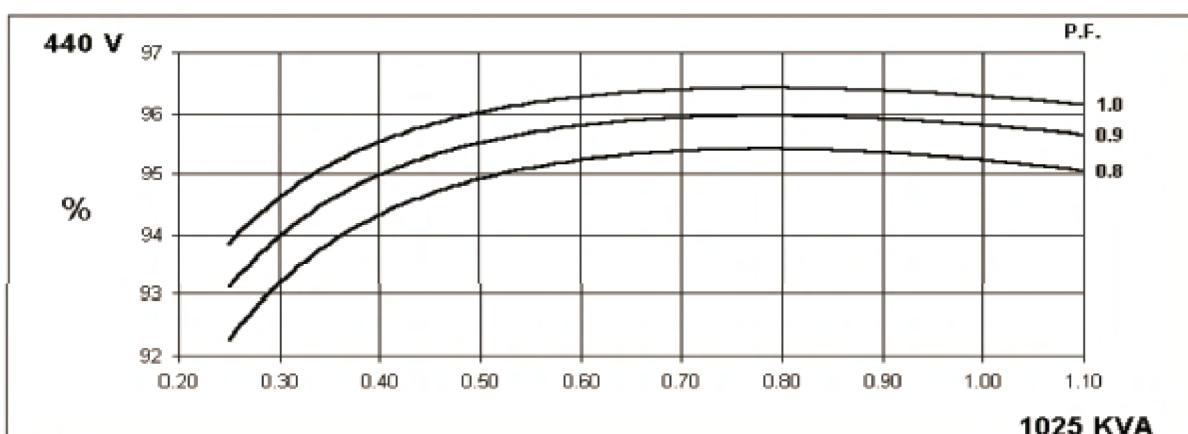
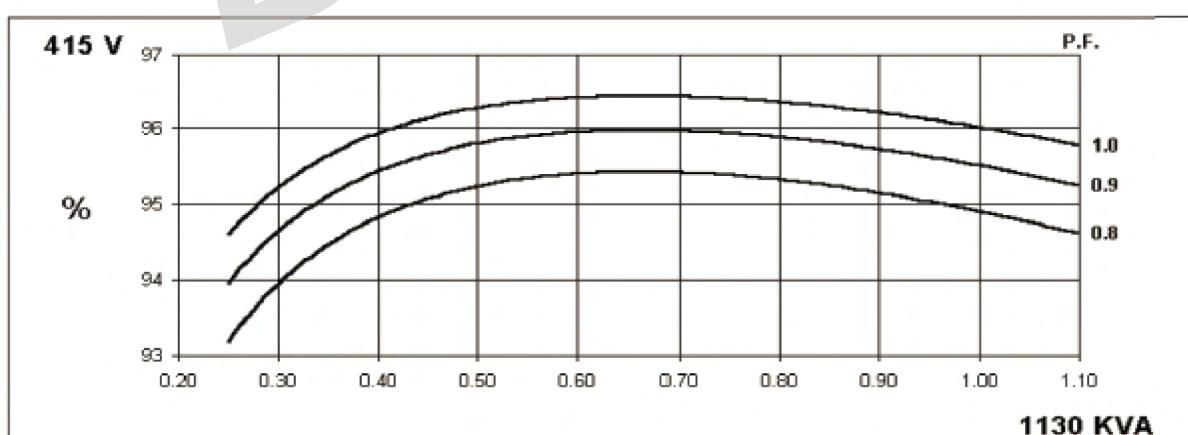
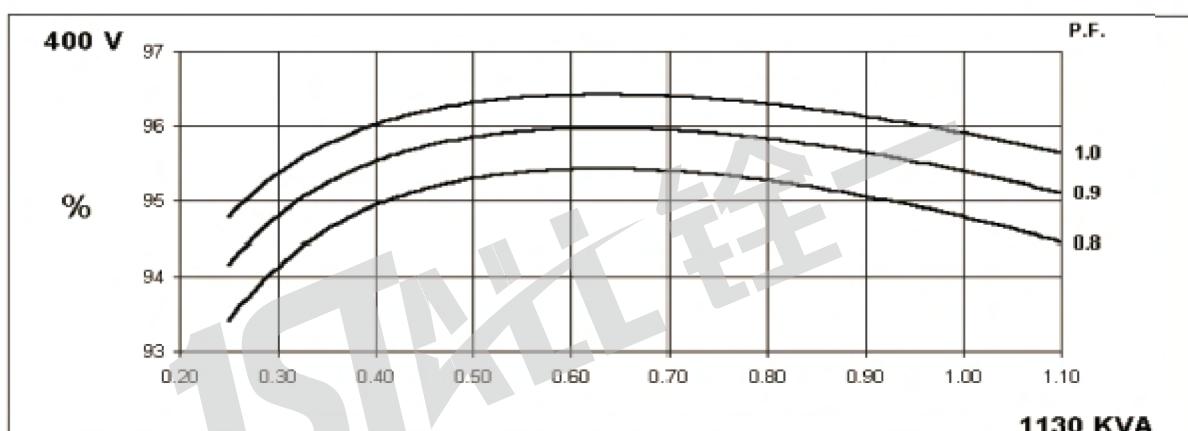
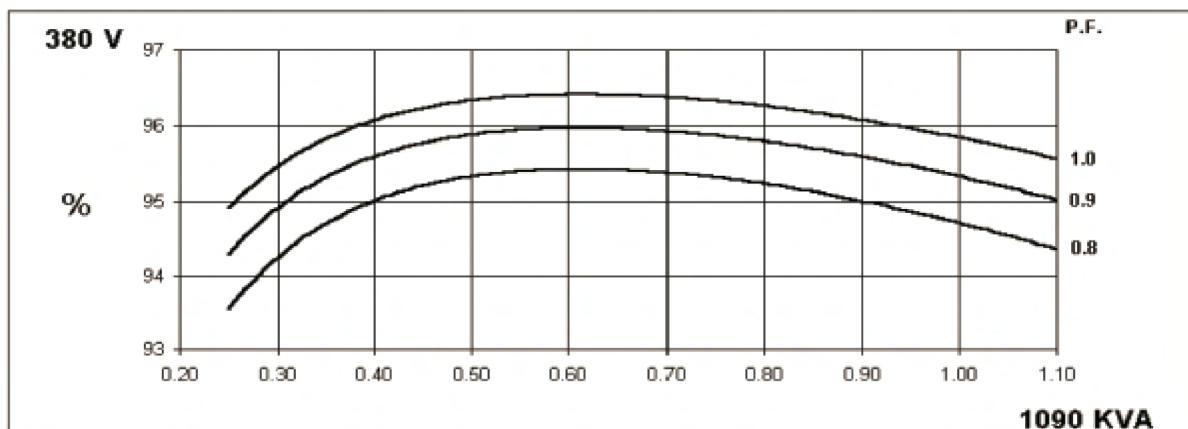


**50  
Hz**

**QYI404F**

**Winding 312**

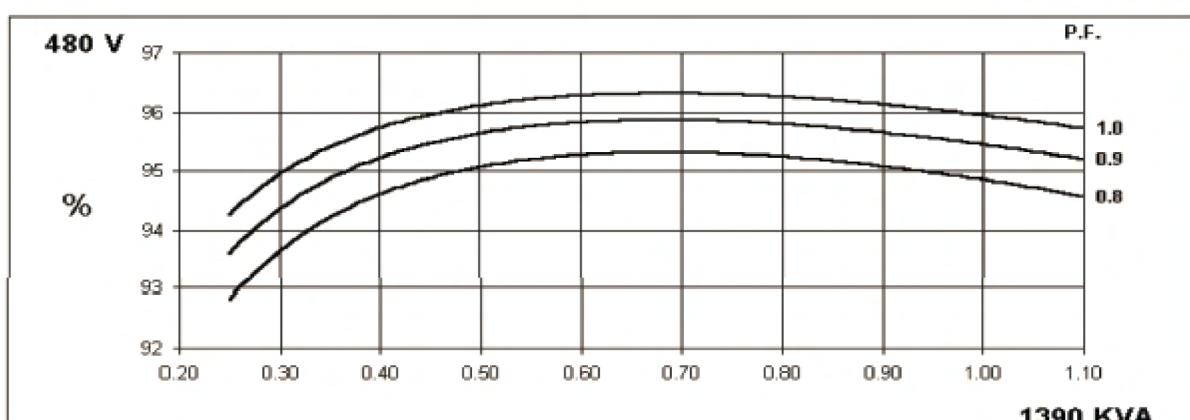
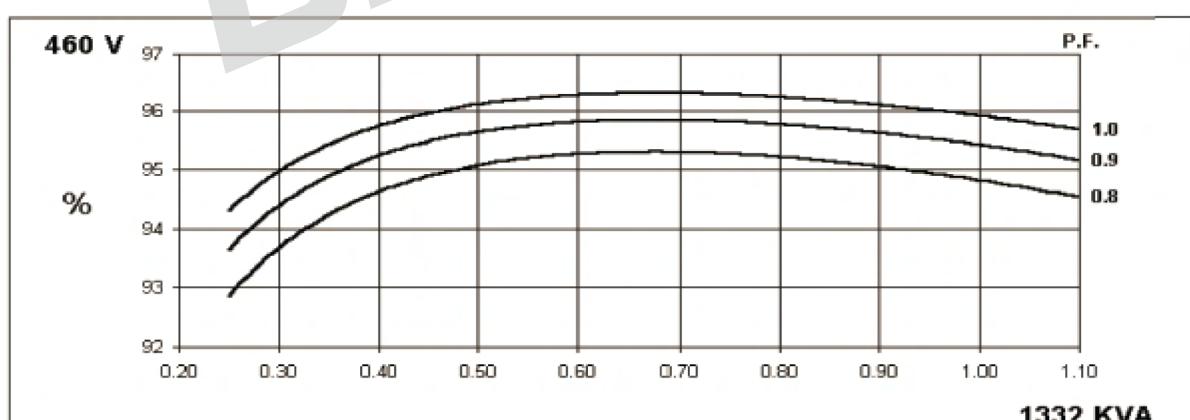
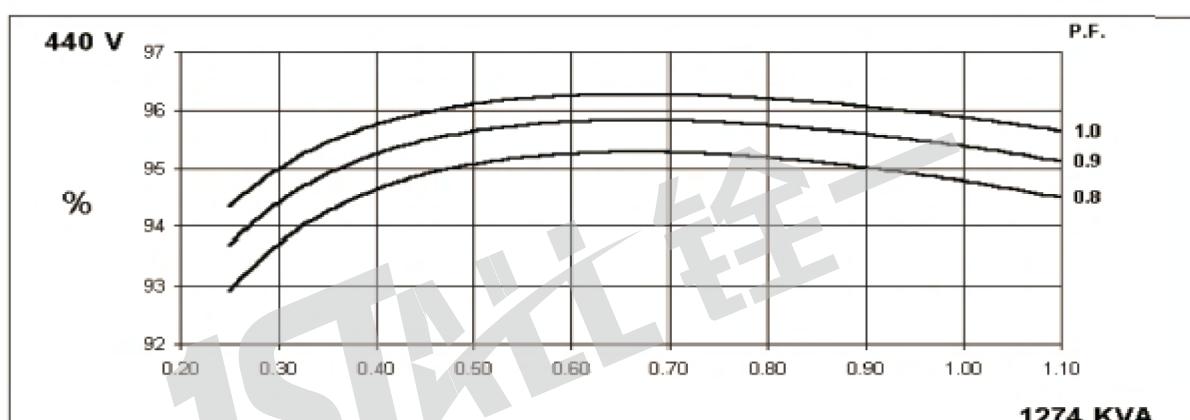
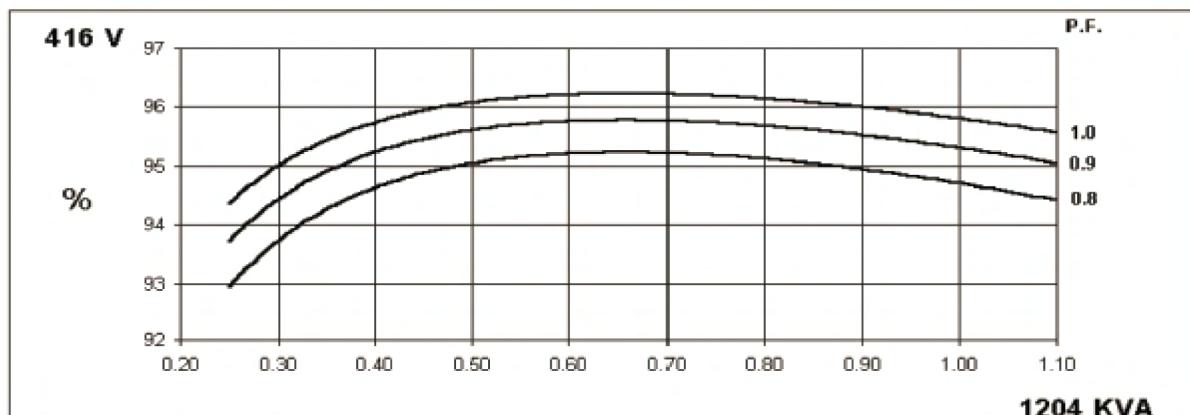
**THREE PHASE EFFICIENCY CURVES**



**60  
Hz**

**QYI404F**  
**Winding 312**

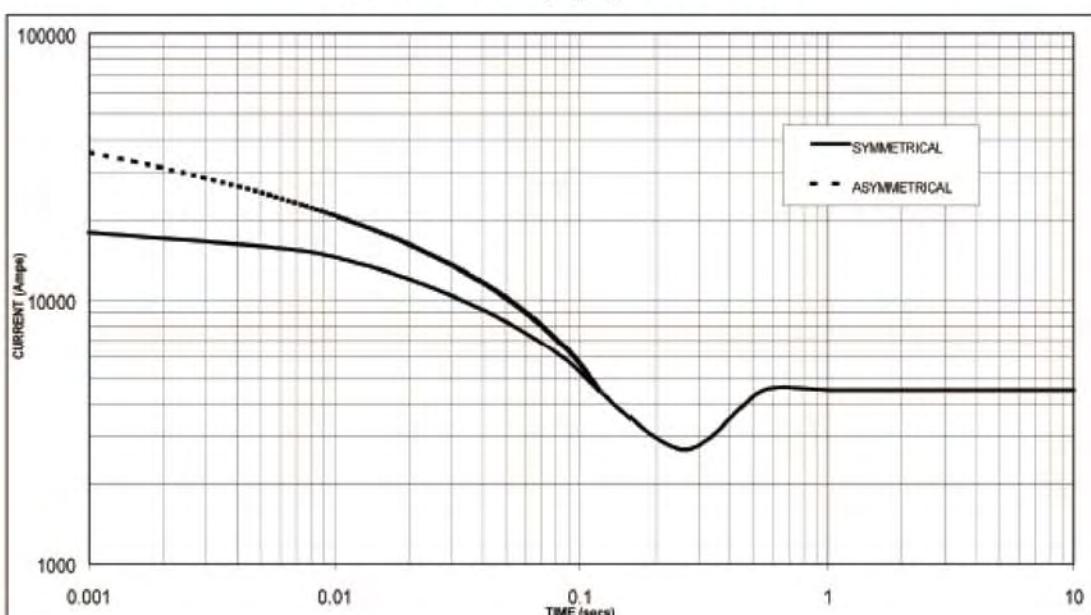
**THREE PHASE EFFICIENCY CURVES**



# QYI404F

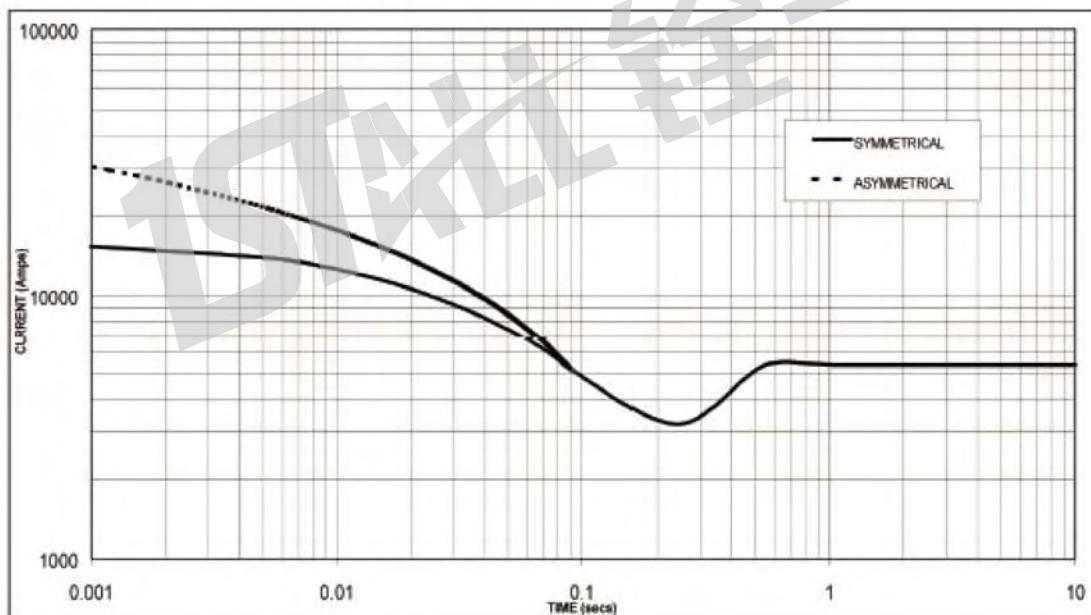
**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed  
Based on star (wye) connection.**

**50  
Hz**



**60  
Hz**

Sustained Short Circuit = 4480 Amps



Sustained Short Circuit = 5630 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.

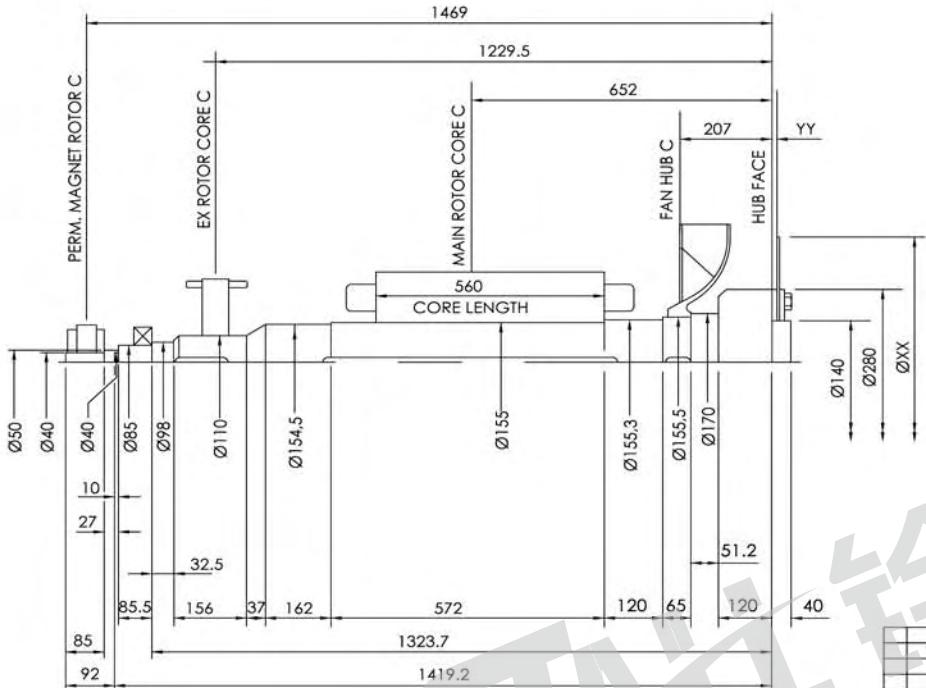
All other times are unchanged

**Note 3**

Curves are drawn for Star (Wye) connected machines.

**QYI404F**  
**Winding 311**

**INERTIA**



COMPONENT	Wt kg	J kgm <sup>2</sup>
EX. ROTOR	51.6	0,859
MAIN ROTOR	688.031	21.33
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	992.642	23.9182

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

			QYI 404F	1:1
			INERTIA	
VER	MOD	DRW	Date	
Design		APP		mm
CHK		Date	2018.01	1ST ALL 钰一

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