

QYI404E

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	3900A		

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	950	1000	1000	910	1083	1145	1197	1250
额定功率在H(125 °C)温升	kW	760	800	800	728	866.4	916	957.6	1000
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	94.1	94.2	94.3	94.8	94	94.1	94.2	94.2
	3/4%	94.9	95	95	95	94.7	94.8	94.9	94.9
	2/4%	95	95	95	94.7	94.7	94.8	94.8	94.8
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	95.4	95.4	95.6	96	95.2	95.3	95.4	95.5
	3/4%	96	96	96	96.1	95.8	95.9	96	96
	2/4%	96.1	96.1	96	95.9	95.8	95.9	95.9	95.9
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	2.62	2.49	2.31	1.87	2.99	2.82	2.7	2.59
Direct axis transient reactance saturated 直轴瞬态电抗	X'd	0.13	0.13	0.12	0.1	0.15	0.14	0.14	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	0.1
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	Xq	2.18	2.07	1.92	1.56	2.49	2.35	2.25	2.16
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X''q	0.25	0.24	0.22	0.18	0.28	0.27	0.26	0.25
Leakage reactance漏抗	Xl	0.06	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	0.2	0.19	0.18	0.17
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	0.3817	0.4016	0.4329	0.5348	0.3344	0.3546	0.3704	0.3861

Short-circuit transient time constant (sec.)瞬变时间常数（秒）	T'd	0.097							
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	3.18							
Armature time constant (sec.)电枢时间常数	Ta	0.034							
Stator Winding Resistance (20℃)定子绕组电阻(20℃)	ohm	0.0024							
Rotor Winding Resistance (20℃)转子绕组电阻(20℃)	ohm	1.92							
Exciter Stator Resistance (20℃)励磁机定子电阻(20℃)	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			

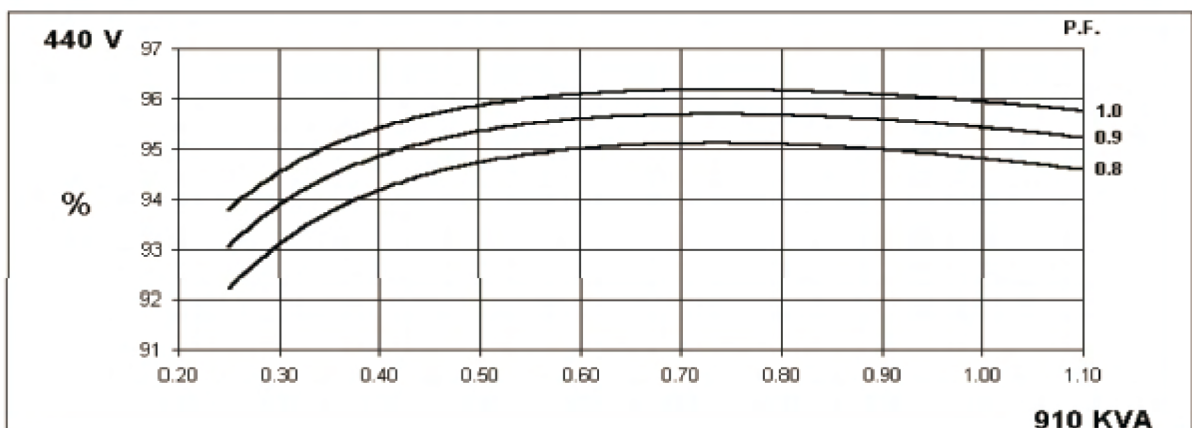
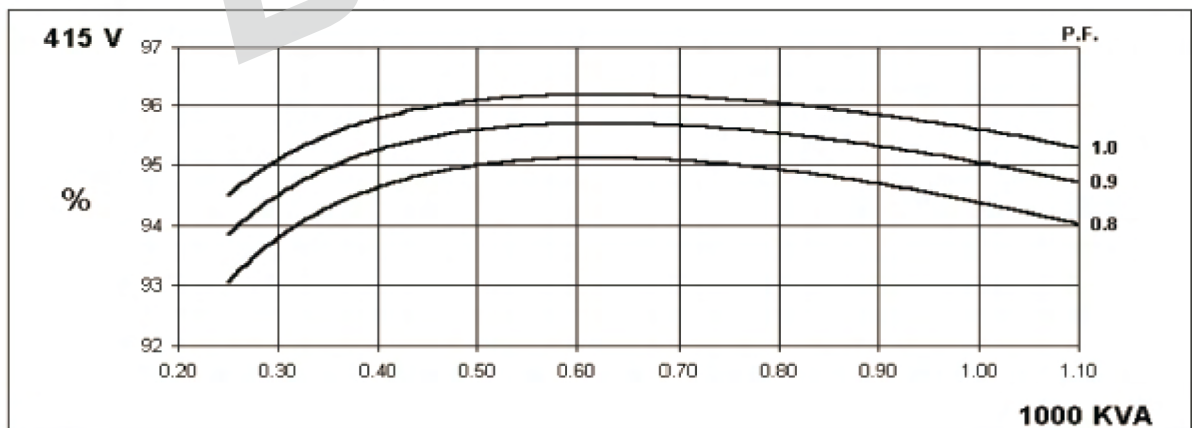
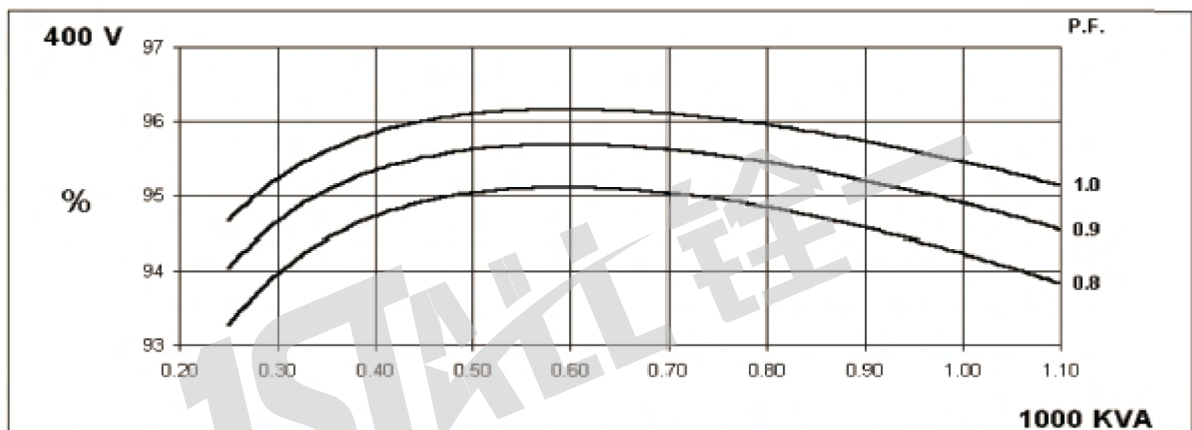
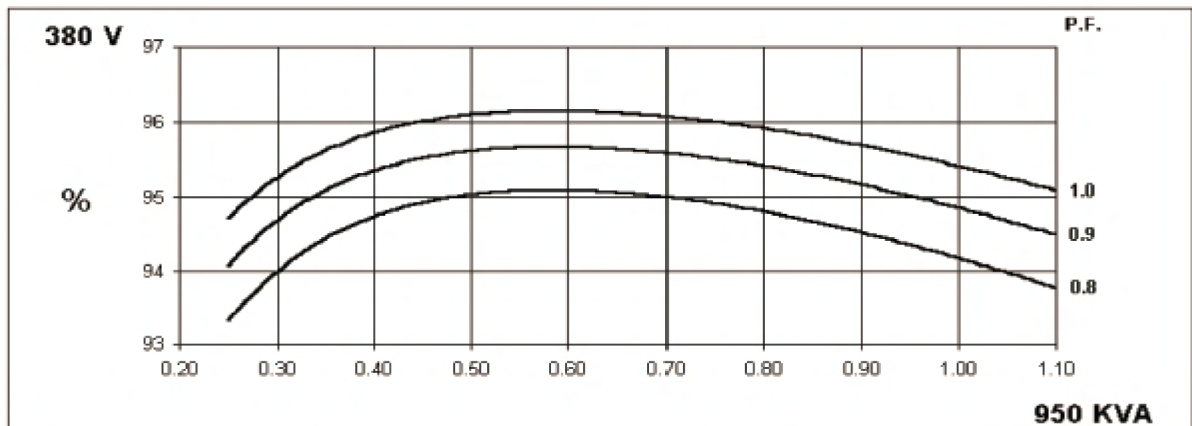
Mechanical Characteristic		
Configuration 结构	Single Bearing 单轴承	Double Bearing 双轴承
Type of Construction 结构形式	B2-SAE	IM B34
Total Weight - kgs 总重量-公斤	2120	2105
Weight wound stator - kgs 定子重量-公斤	1010	1010
Weight wound rotor - kgs 转子重量-公斤	885	841
Inertia (J) [kgm2] 转动惯量 (J) [kgm2)	20.611kgm2	20.068kgm2
Drive end bearing / Lubrication 驱动端轴承/润滑		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

**50
Hz**

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Winding 312

THREE PHASE EFFICIENCY CURVES

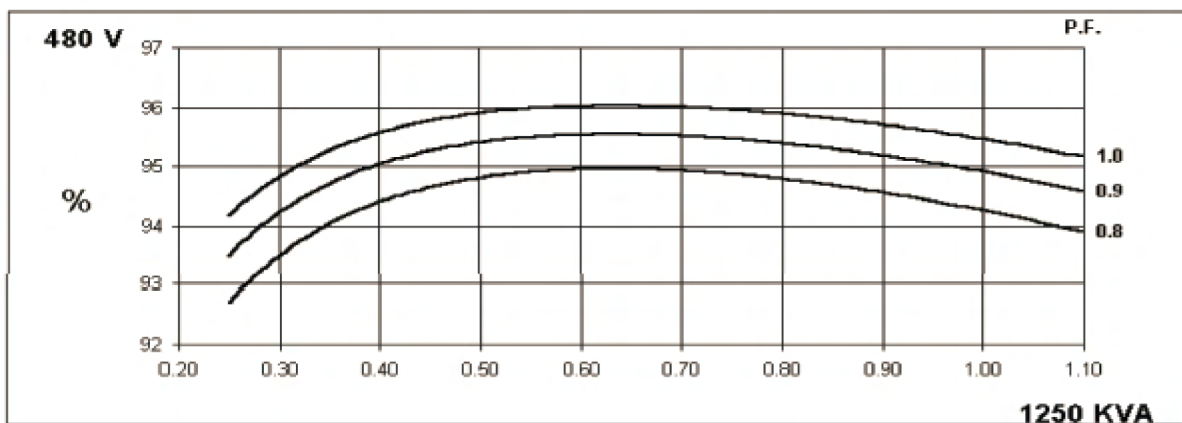
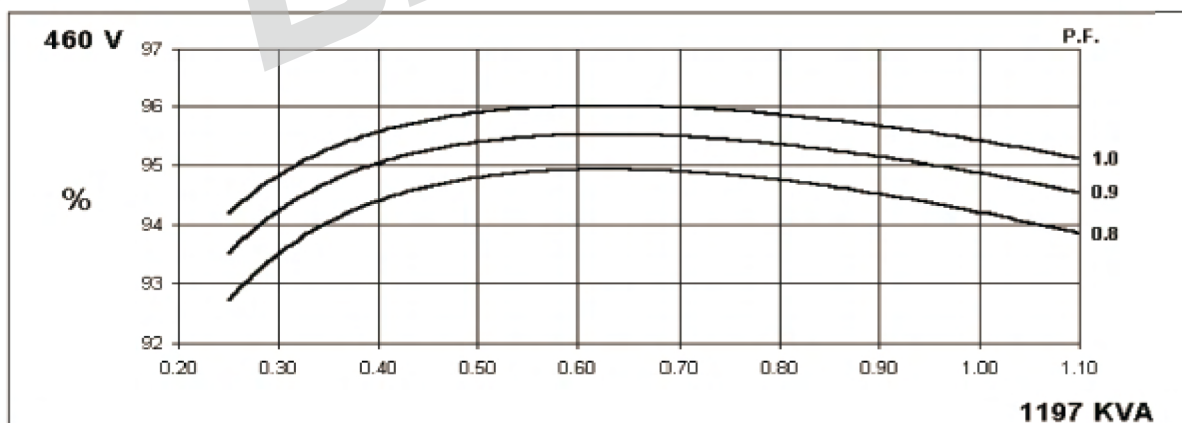
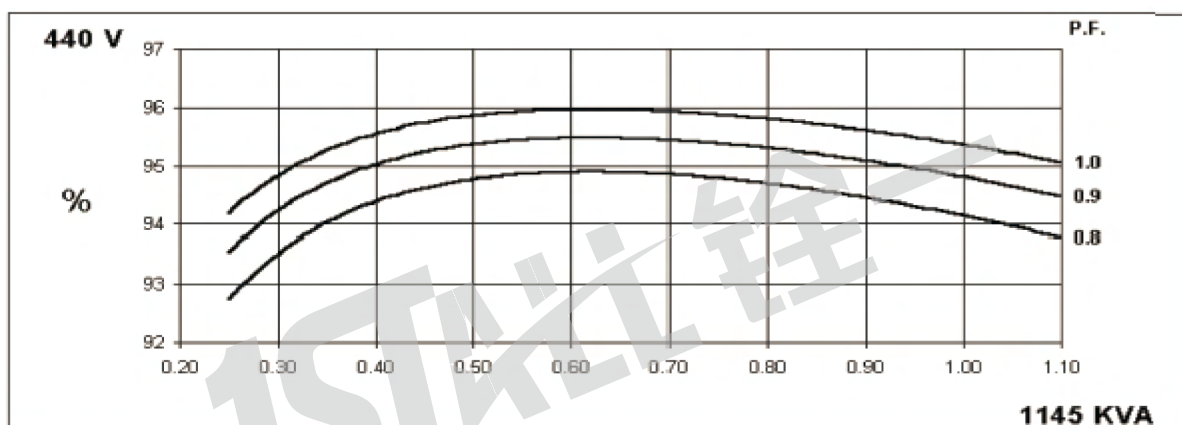
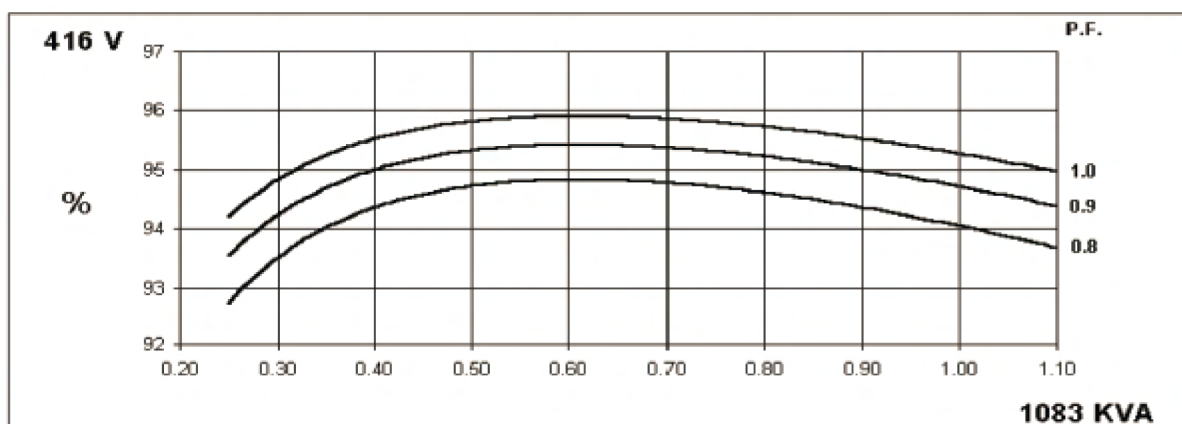


**60
Hz**

QYI404E

Winding 312

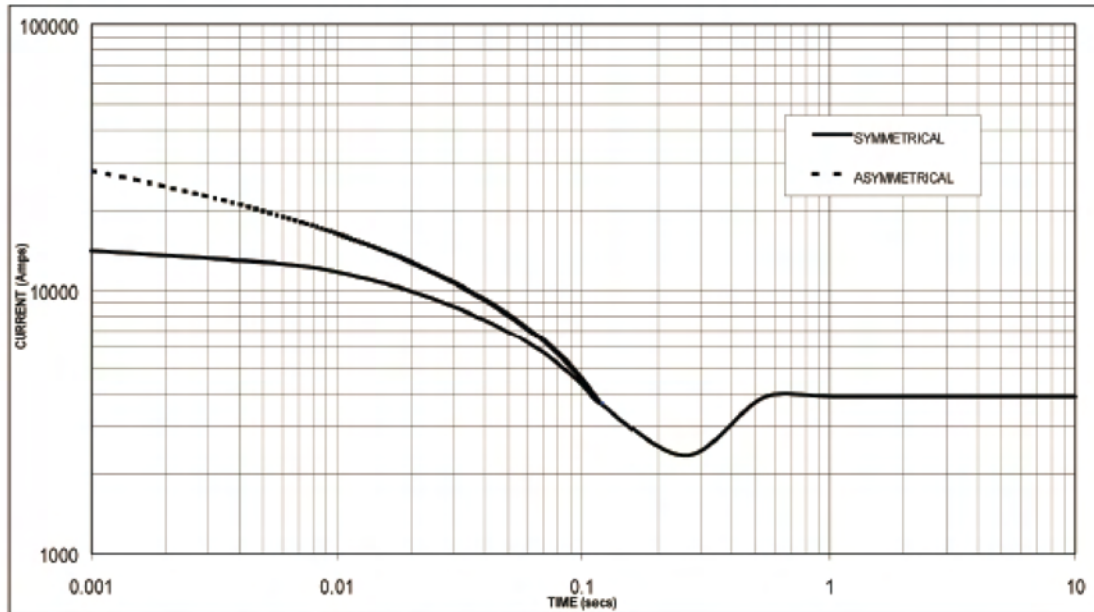
THREE PHASE EFFICIENCY CURVES



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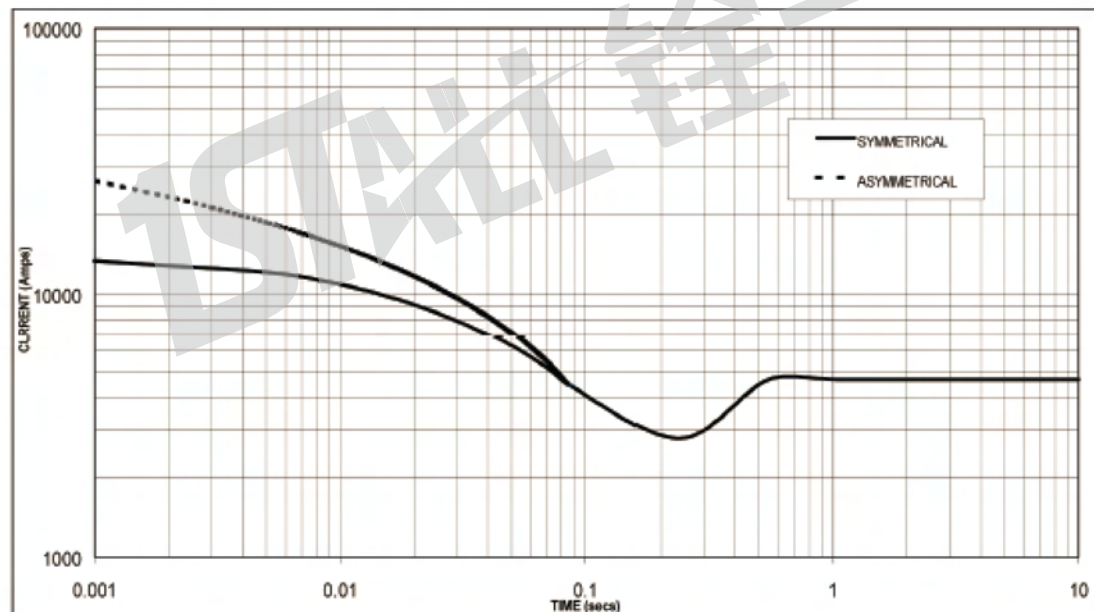
**Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (wye) connection.**

**50
Hz**



**60
Hz**

Sustained Short Circuit = 3900 Amps



Sustained Short Circuit = 4660 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.

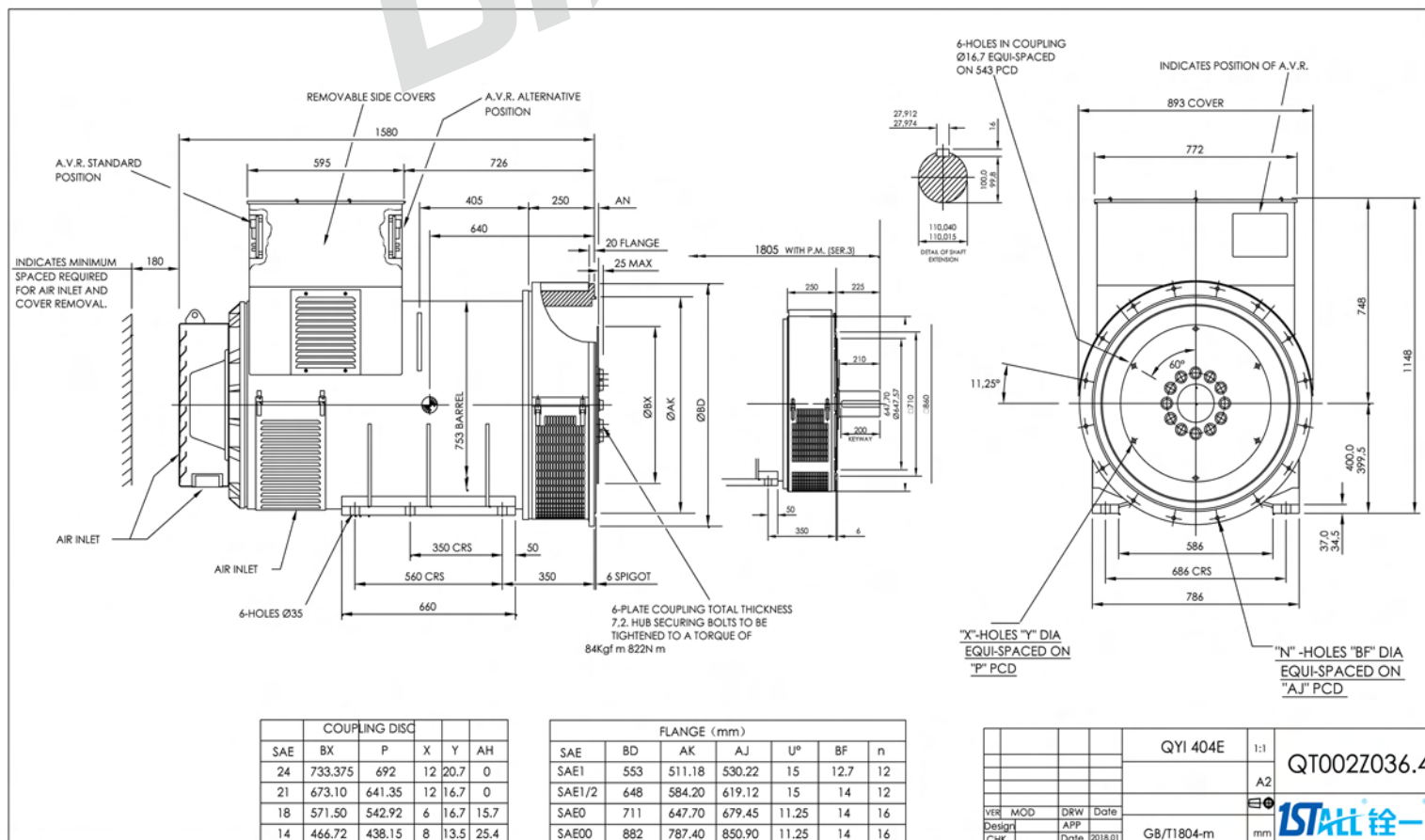
QYI404E
Winding 312 / 0.8 Power Factor

RATINGS

温升等级		F级温升 - 105/40℃				H级温升 - 125/40℃				备载 - 150/40℃				备载 - 163/27℃			
50 Hz	星形（V）	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	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）	871	917	917	834	950	1000	1000	910	980	1030	1030	938	1000	1050	1050	955
	有功功率（kW）	697	734	734	667	760	800	800	728	784	824	824	750	800	840	840	764
	效率（%）	94.5	94.5	94.6	95.0	94.2	94.2	94.4	94.8	94.1	94.1	94.3	94.8	94.0	94.0	94.2	94.7
	有功功率输入	737	776	775	702	807	849	847	768	833	876	874	792	851	894	892	807

60 Hz	星形（V）	416	440	460	480	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	240	254	266	277
	视在功率（kVA）	990	1049	1097	1146	1083	1145	1197	1250	1118	1180	1236	1290	1130	1195	1250	1305
	有功功率（kW）	792	839	878	917	866	916	958	1000	894	944	989	1032	904	956	1000	1044
	效率（%）	94.3	94.4	94.5	94.5	94.1	94.2	94.2	94.3	93.9	94.0	94.1	94.2	93.9	94.0	94.1	94.1
	有功功率输入	840	889	929	970	921	972	1017	1060	953	1004	1051	1096	963	1017	1063	1109

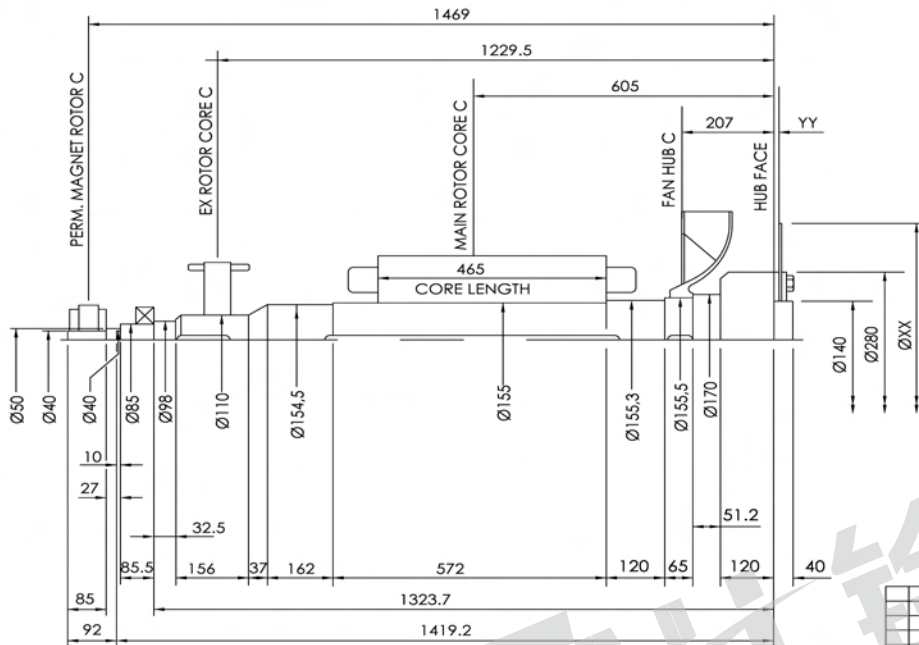
DIMENSIONS



QYI404E

Winding 311

INERTIA



COMPONENT	Wt kg	J kgm ²
EX. ROTOR	51.6	0,859
MAIN ROTOR	580.095	18.0228
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	884.706	20.611

COUPLING SAE No	COUPLING DIMEN's		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm ²
	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

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				INERTIA		
VER	MOD	DRW	Date			
Design		APP				
CHK		Date	2018.01			
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