

QYI404B

THREE-PHASE SYNCHRONOUS GENERATOR

WINDING QY12 Datasheet for 4 poles -50Hz @ 1500rpm/ 60Hz @ 1800rpm

Ambient Temperature环境温度	40 ℃	Method of Cooling 冷却方式		Air cooling风冷	
Temperature Rise 温升	125 ℃	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	3250A				

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	710	750	750	680	810	855	895	938
额定功率在H(125 °C)温升	kW	568	600	600	544	648	684	716	750.4
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	93.2	93.2	93.4	94	93	93.1	93.1	93.2
	3/4%	94.1	94.1	94.2	94.3	93.8	94	94	94
	2/4%	94.3	94.3	94.3	94.1	93.9	94	94	94
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	94.7	94.8	94.9	95.2	94.4	94.5	94.7	94.7
	3/4%	95.3	95.4	95.5	95.7	95	95.1	95.2	95.2
	2/4%	95.6	95.7	95.6	95.3	95.1	95.1	95.2	95.2

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	2.73	2.6	2.42	1.95	3.12	2.94	2.82	2.71
Direct axis transient reactance saturated 直轴瞬态电抗	X'd	0.17	0.16	0.15	0.12	0.2	0.18	0.18	0.17
Direct axis subtransient reactance saturated 直轴瞬变电抗	X" d	0.12	0.12	0.11	0.09	0.14	0.13	0.13	0.12
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	Xq	2.27	2.16	2.01	1.62	2.59	2.44	2.34	2.25
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X" q	0.28	0.27	0.25	0.2	0.32	0.3	0.29	0.28
Leakage reactance漏抗	X1	0.1	0.09	0.09	0.07	0.11	0.11	0.1	0.1
Negative sequence reactance saturated 负序电抗饱和	X2	0.2	0.2	0.18	0.15	0.23	0.22	0.21	0.2
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	0.3663	0.3846	0.4132	0.5128	0.3205	0.3401	0.3546	0.3690

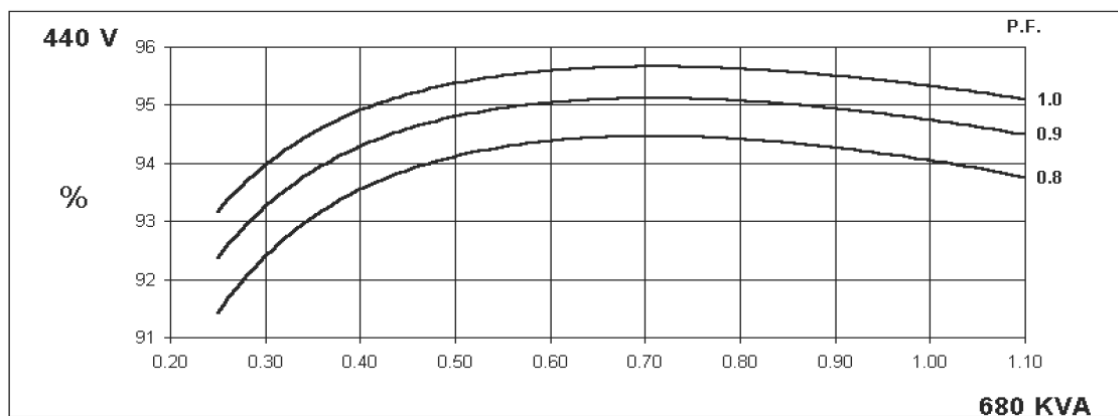
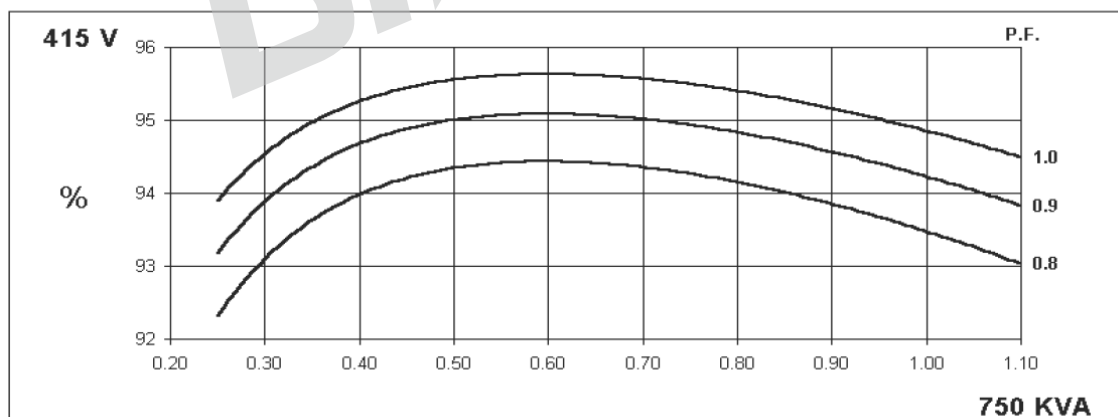
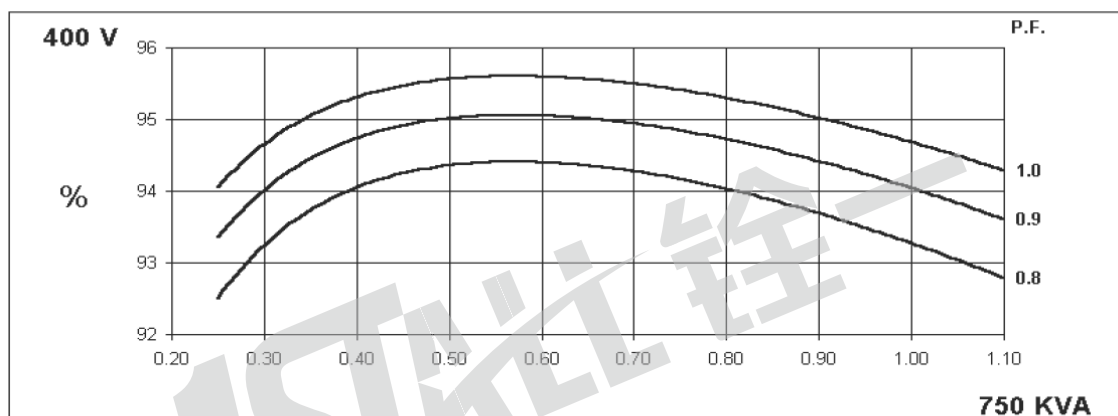
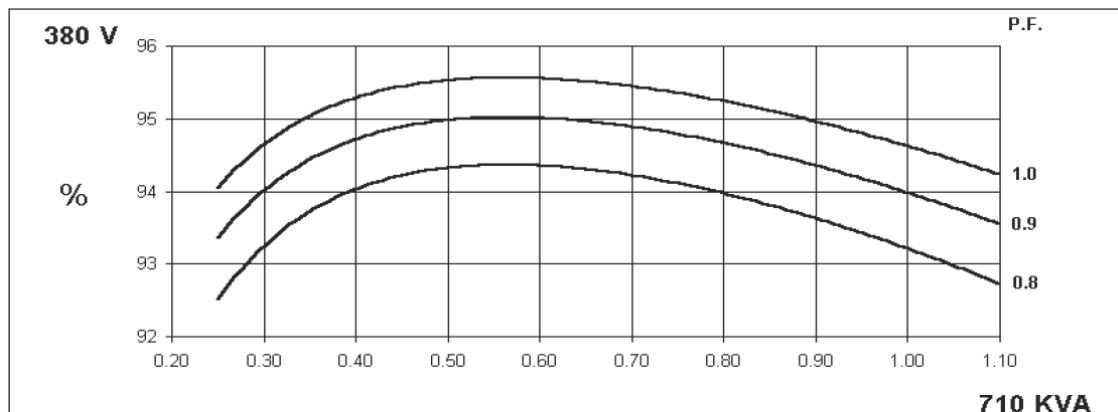
Short-circuit transient time constant (sec.)瞬变时间常数（秒）	T'd	0.106							
Subtransient time constant (sec.) 超瞬变时间常数（秒。）	T" d	0.013							
Open circuit time constant (sec.)开路时间常数	T'do	2.91							
Armature time constant (sec.)电枢时间常数	Ta	0.035							
Stator Winding Resistance (20℃)定子绕组电阻(20℃)	ohm	0.0039							
Rotor Winding Resistance (20℃)转子绕组电阻(20℃)	ohm	1.64							
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	1850	1830
Weight wound stator - kgs 定子重量-公斤	835	835
Weight wound rotor - kgs 转子重量-公斤	760	716
Inertia (J) [kgm2] 转动惯量 (J) [kgm2)	16.7816kgm2	16.2382kgm2
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**

**QYI404B
WINDING 311**

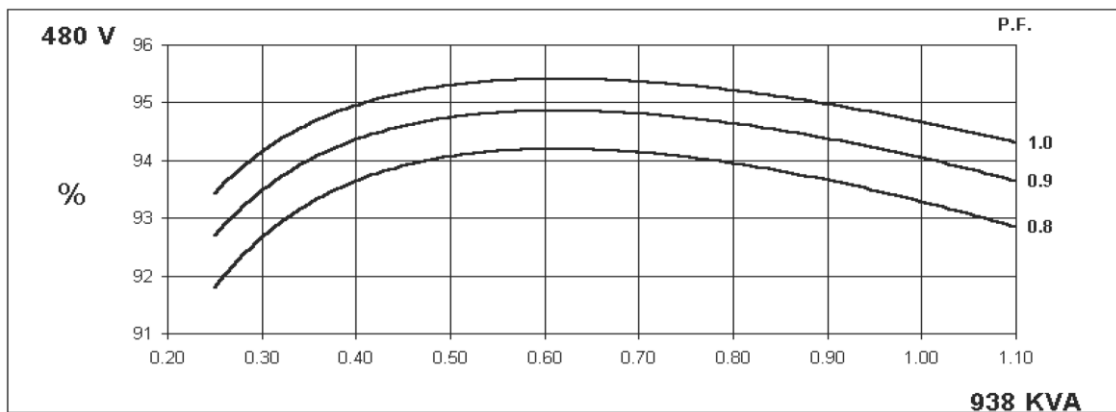
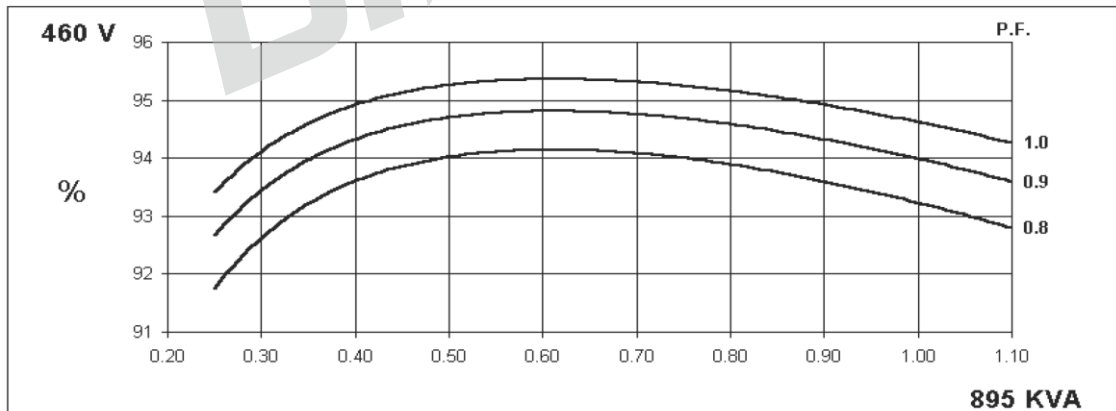
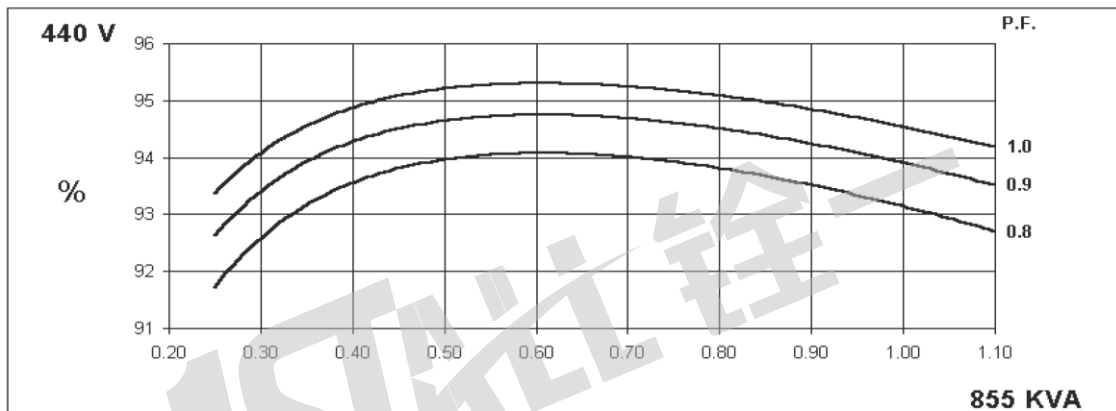
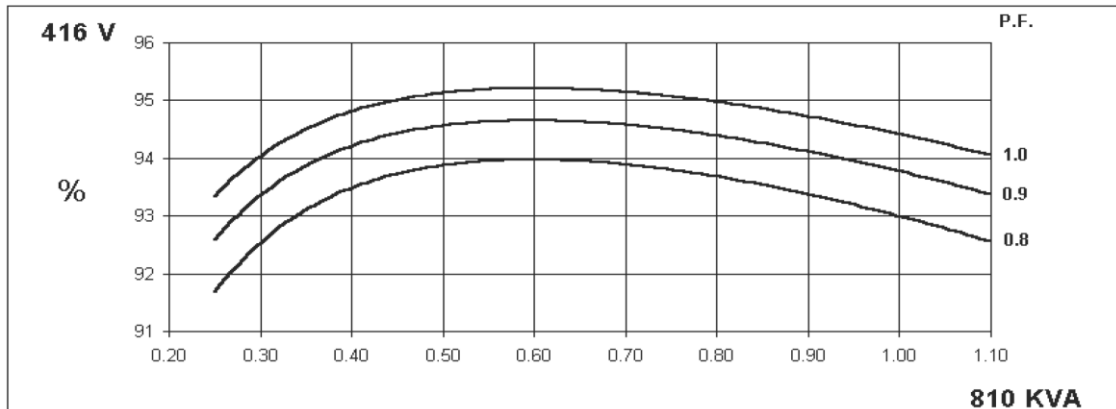
THREE PHASE EFFICIENCY CURVES



**60
Hz**

**QYI404B
WINDING 311**

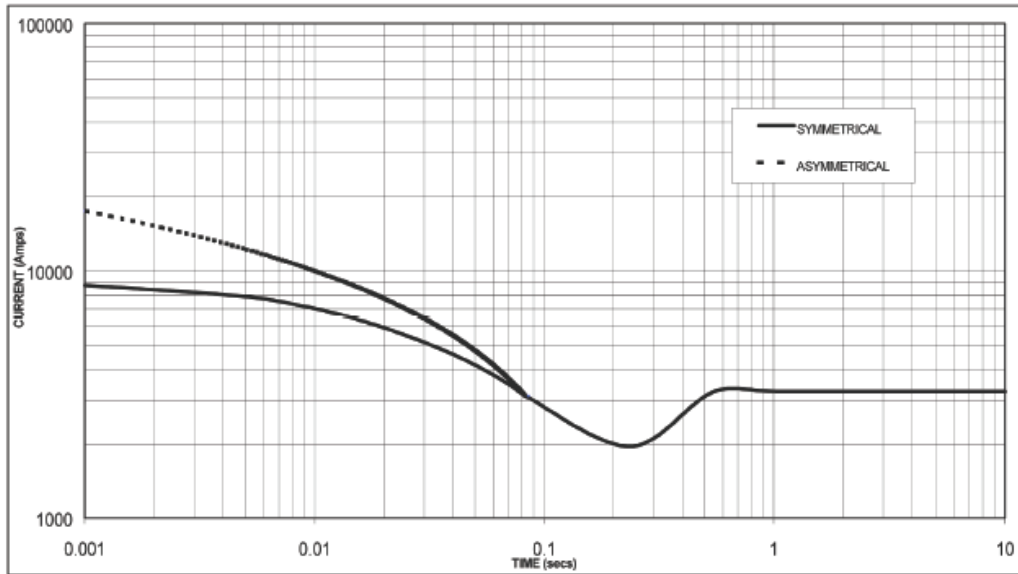
THREE PHASE EFFICIENCY CURVES



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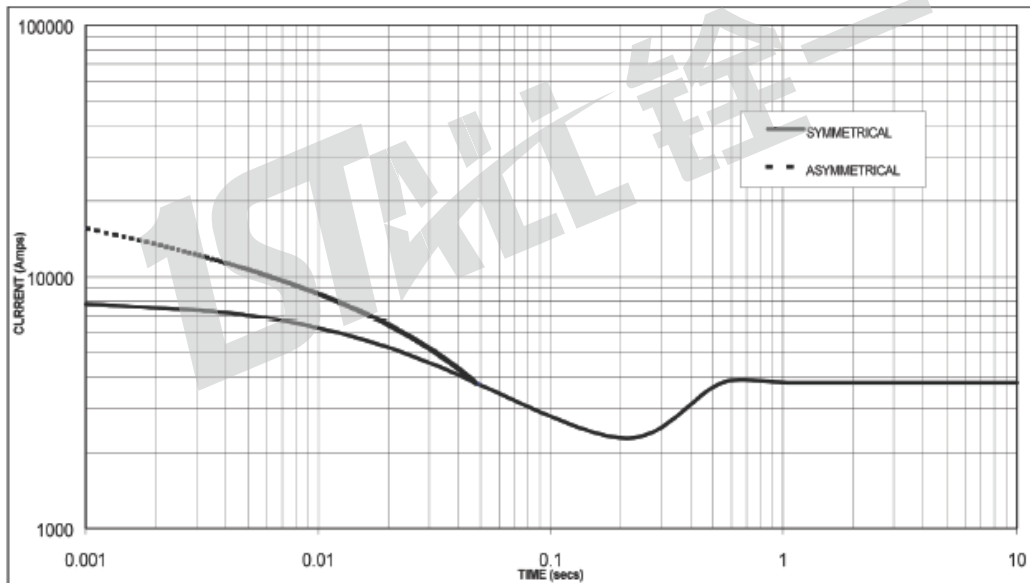
Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed Based on star (wye) connection.

**50
Hz**



**60
Hz**

Sustained Short Circuit = 3250 Amps



Sustained Short Circuit = 3800 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 1.06	440v	X 1.06
415v	X 1.09	460v	X 1.12
440v	X 1.12	480v	X 1.20

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. For other connections the following multipliers should be applied to current values as shown :

Parallel Star = Curve current value X 2

Series Delta = Curve current value X 1.732

QYI404B

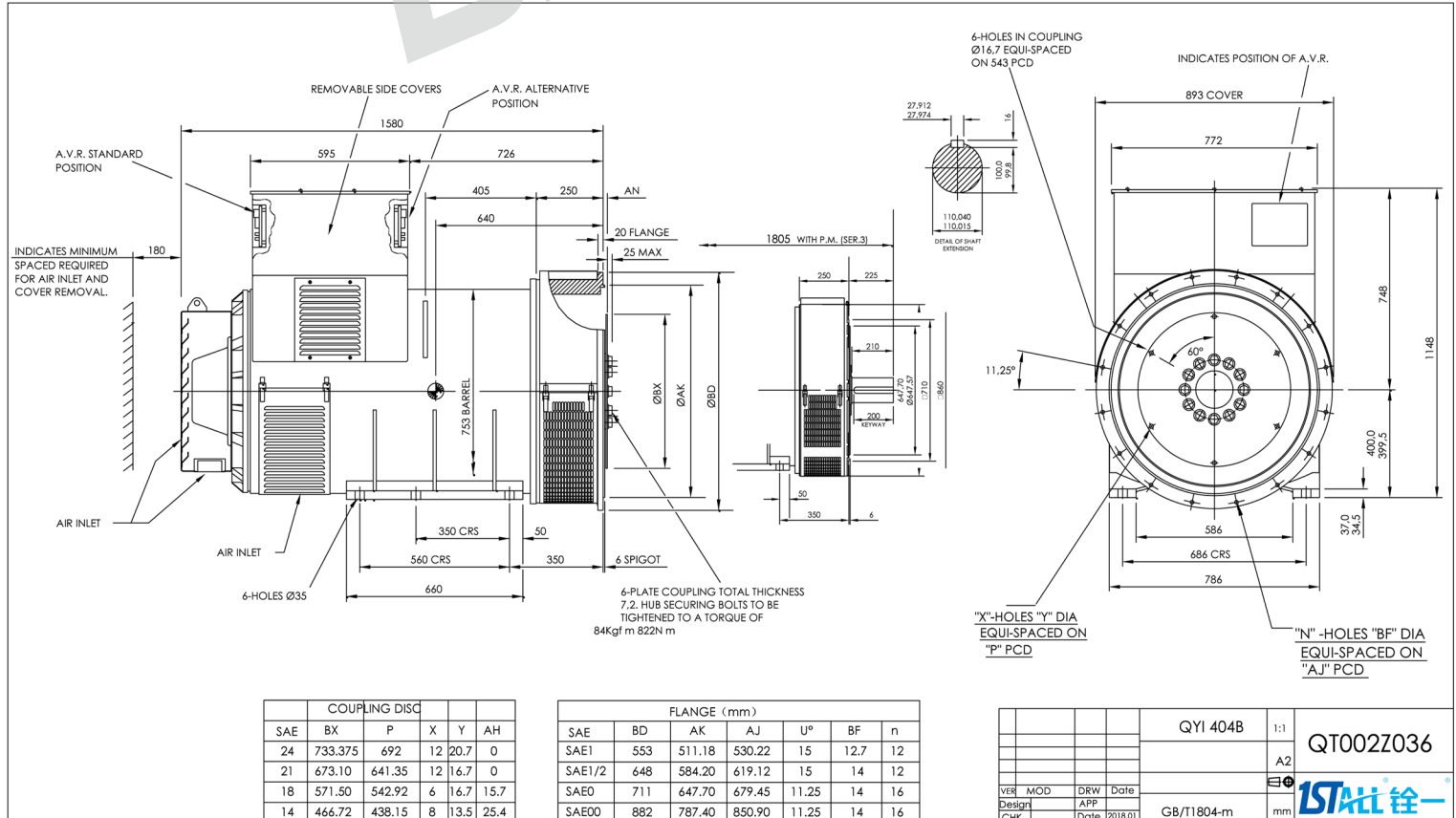
Winding 311 0.8 Power Factor

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
50 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)	651 687 687 623	710 750 750 680	730 775 775 700	745 790 790 715
有功功率 (kW)	521 550 550 498	568 600 600 544	584 620 620 560	596 632 632 572
效率 (%)	93.6 93.6 93.8 94.2	93.2 93.3 93.5 94.0	93.1 93.1 93.3 94.0	93.0 93.0 93.3 93.9
有功功率输入	556 587 586 529	609 643 642 579	627 666 665 596	641 680 677 609

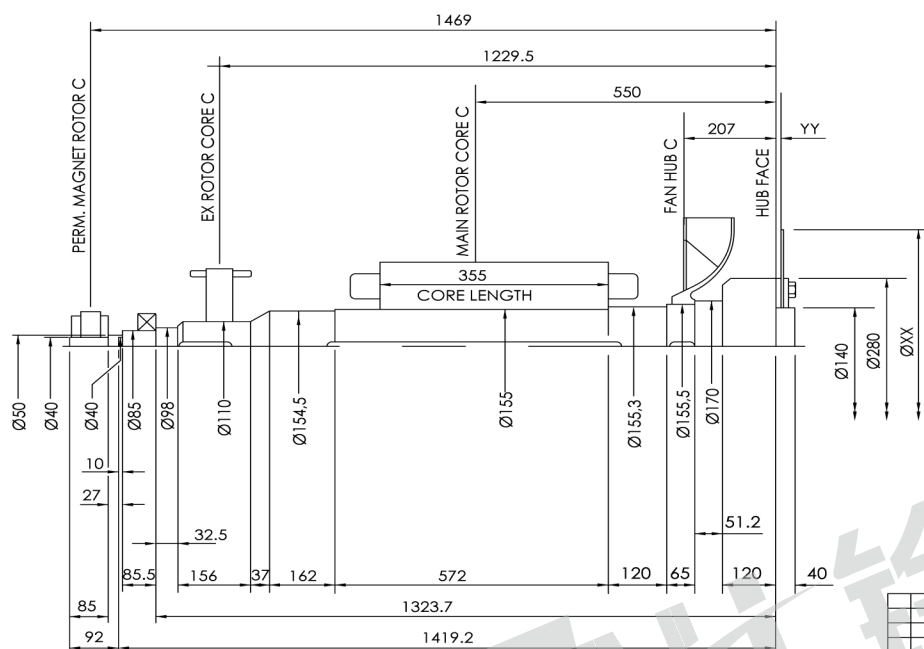
60 星形 (V)	416 440 460 480	416 440 460 480	416 440 460 480	416 440 460 480
Hz 三角形 (V)	240 254 266 277	240 254 266 277	240 254 266 277	240 254 266 277
视在功率 (kVA)	742 784 820 860	810 855 895 938	840 889 929 970	849 898 939 980
有功功率 (kW)	594 627 656 688	648 684 716 750	672 711 743 776	679 718 751 784
效率 (%)	93.3 93.5 93.6 93.6	93.0 93.1 93.2 93.3	92.8 93.0 93.1 93.1	92.8 92.9 93.0 93.1
有功功率输入	636 671 701 735	697 735 768 804	724 765 798 834	732 773 808 842

DIMENSIONS



Winding 311

INERTIA



COMPONENT	Wt kg	J kgm ²
EX. ROTOR	51.6	0,859
MAIN ROTOR	455.116	14.1934
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	759.727	16.7816

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			mm	

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