

# QYI454H

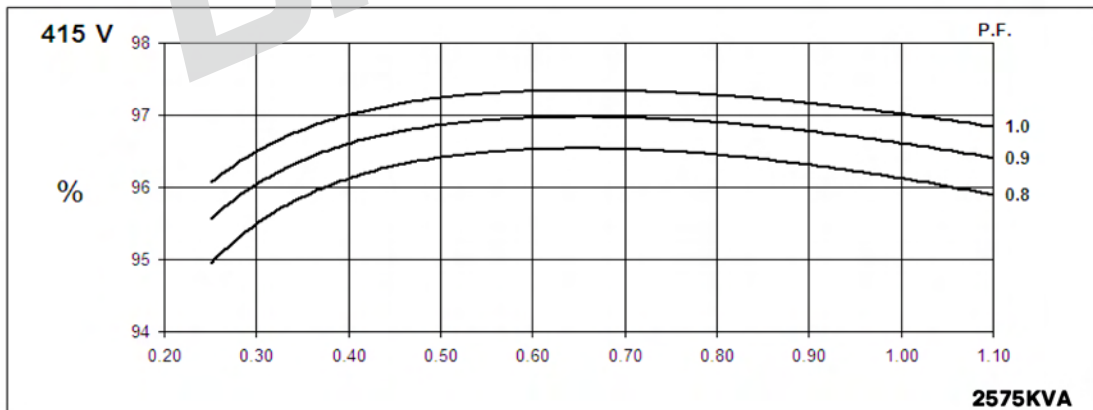
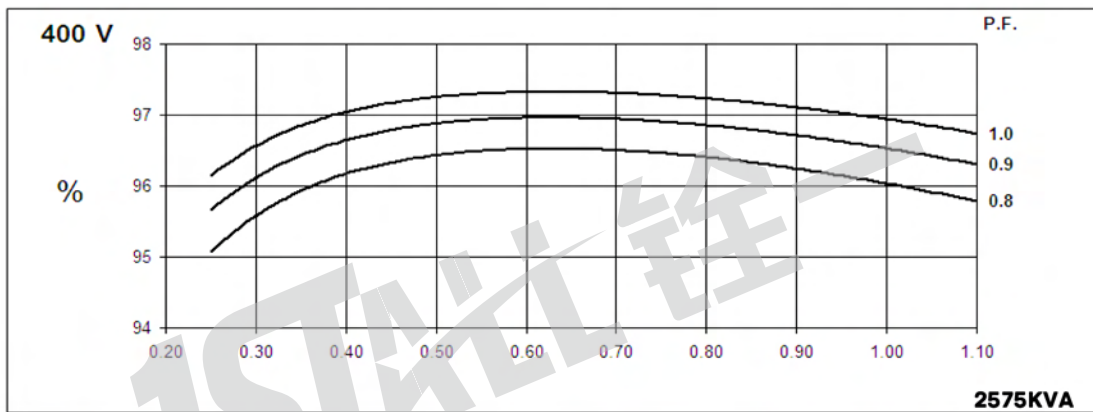
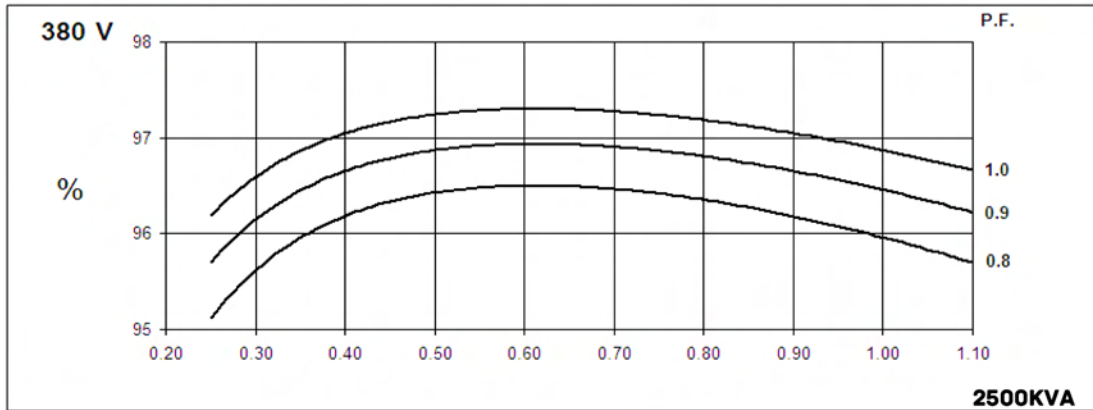
## THREE-PHASE SYNCHRONOUS GENERATOR WINDING QY12 Datasheet for 4 poles -50Hz @ 1500rpm/ 60Hz @ 1800rpm

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	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	9540A								
<b>Electrical Characteristic</b>									
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	N/A	240	254	266	277
Rated power at Class H (125 °C) temperature rise 额定功率在H(125 °C)温升	kVA	2500	2575	2575	N/A	2750	2937.5	3000	3090
	kW	2000	2060	2060	N/A	2200	2350	2400	2472
Efficiency at Class H (P.F.=0.8) 绝缘等级H (P.F.=0.8) 效率	4/4%	95.9	96	96.1	N/A	95.9	96	96	96.1
	3/4%	96.4	96.5	96.6	N/A	96.4	96.4	96.4	96.4
	2/4%	96.4	96.4	96.5	N/A	96.2	96.2	96.2	96.2
Efficiency at Class H (P.F.=1.0) 绝缘等级H (P.F.=1.0) 效率	4/4%	96.8	96.9	97	N/A	96.8	96.8	96.9	97
	3/4%	97.2	97.3	97.3	N/A	97.3	97.3	97.2	97.2
	2/4%	97.2	97.2	97.2	N/A	96.9	96.9	97	97
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	X <sub>d</sub>	3.71	3.45	3.2	N/A	4.3	4.1	3.89	3.74
Direct axis transient reactance saturated 直轴瞬态电抗	X' <sub>d</sub>	0.21	0.19	0.18	N/A	0.24	0.23	0.22	0.21
Direct axis subtransient reactance saturated 直轴瞬变电抗	X'' <sub>d</sub>	0.15	0.14	0.13	N/A	0.17	0.16	0.15	0.15
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	X <sub>q</sub>	2.37	2.2	2.06	N/A	2.8	2.64	2.5	2.41
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X' <sub>q</sub>	0.28	0.26	0.24	N/A	0.33	0.31	0.31	0.28
Leakage reactance 漏抗	X <sub>l</sub>	0.03	0.03	0.03	N/A	0.04	0.04	0.04	0.04
Negative sequence reactance saturated 负序电抗饱和	X <sub>2</sub>	0.2	0.19	0.17	N/A	0.24	0.22	0.22	0.21
Zero sequence reactance unsaturated 零序电抗不饱和	X <sub>0</sub>	0.03	0.03	0.02	N/A	0.04	0.04	0.04	0.04
Short-circuit ratio 短路比	K <sub>cc</sub>	0.2695	0.2899	0.3125	N/A	0.2326	0.2439	0.2571	0.2674
Short-circuit transient time constant (sec.) 瞬变时间常数 (秒)	T' <sub>d</sub>	0.165							
Subtransient time constant (sec.) 超瞬变时间常数 (秒。)	T'' <sub>d</sub>	0.01							
Open circuit time constant (sec.) 开路时间常数	T' <sub>do</sub>	2.92							
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	0.00061							
Rotor Winding Resistance (20°C) 转子绕组电阻(20°C)	ohm	1.97							
Exciter Stator Resistance (20°C) 励磁机定子电阻(20°C)	ohm	16							
Exciter Rotor Phase resistance 励磁机转子相电阻	ohm	0.06							
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			
<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		4350				4300			
Weight wound stator - kgs 定子重量-公斤		2166				2166			
Weight wound rotor - kgs 转子重量-公斤		1825				1798			
Inertia (J) [kgm <sup>2</sup> ] 转动惯量 (J) [kgm <sup>2</sup> ]		56.5427kgm <sup>2</sup>				53.2468kgm <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)		234X101X159				244X101X159			

**50  
Hz**

**QYI454H**  
Winding 312

**THREE PHASE EFFICIENCY CURVES**

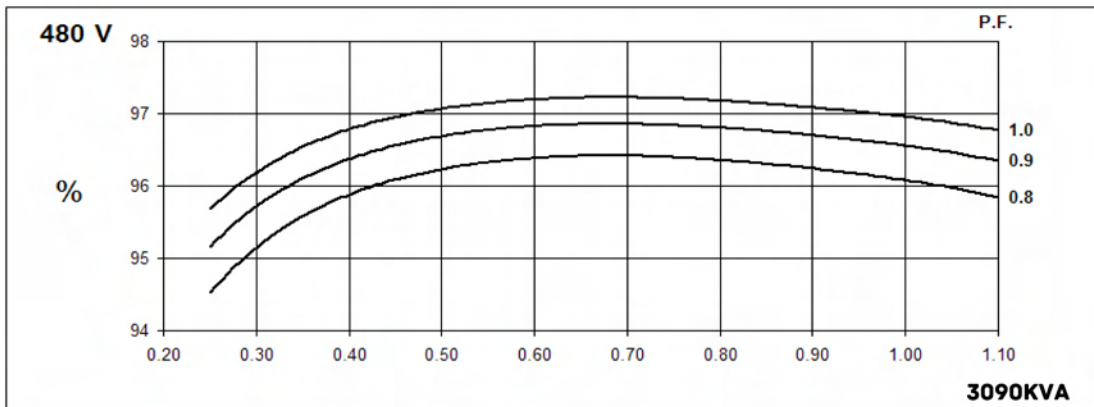
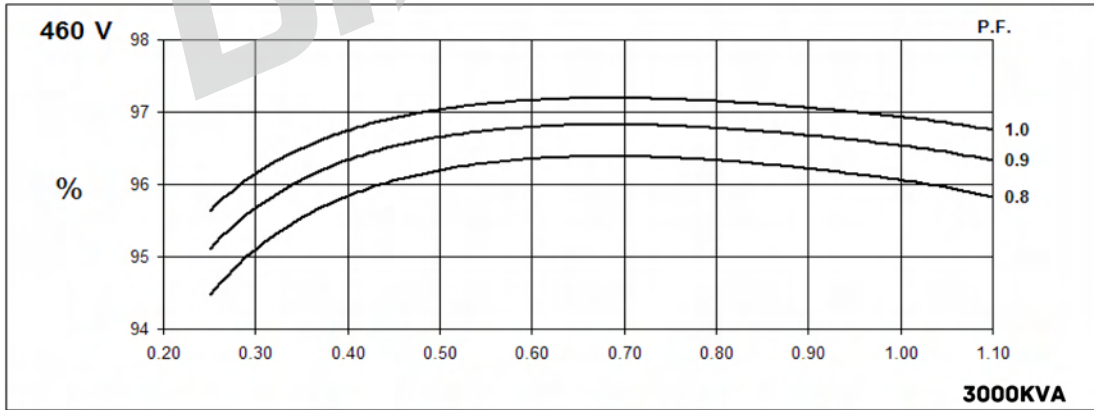
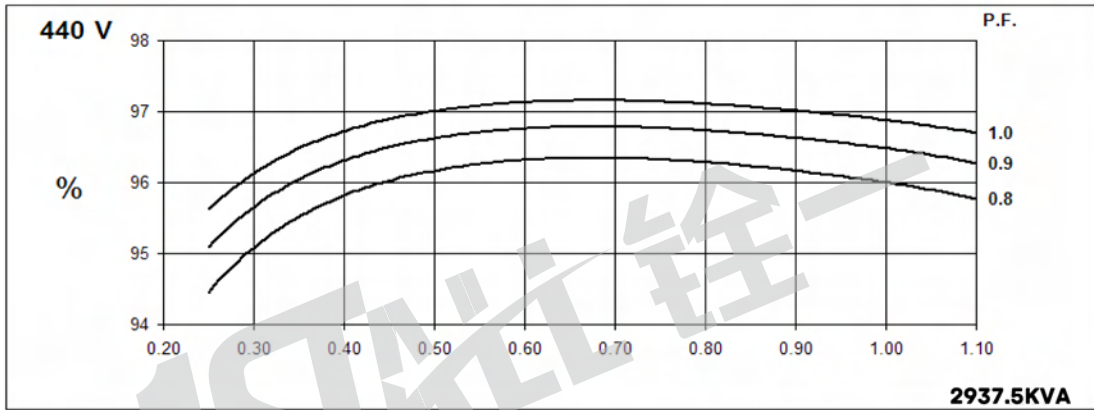
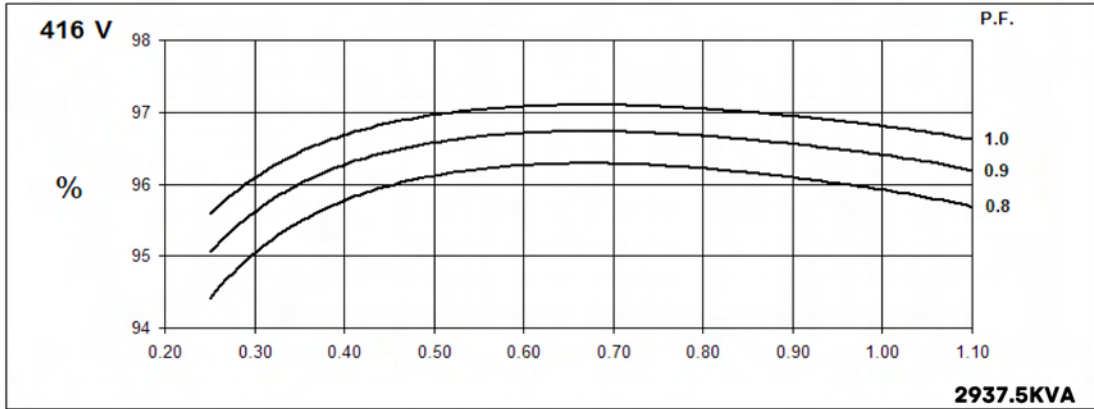


**60  
Hz**

**QYI454H**

**Winding 312**

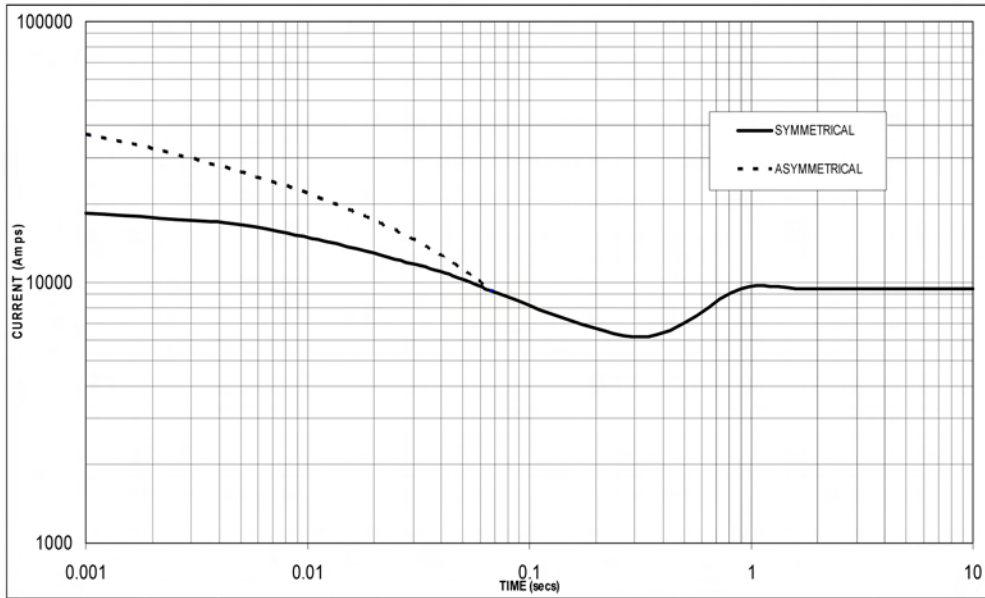
**THREE PHASE EFFICIENCY CURVES**



# QYI454H

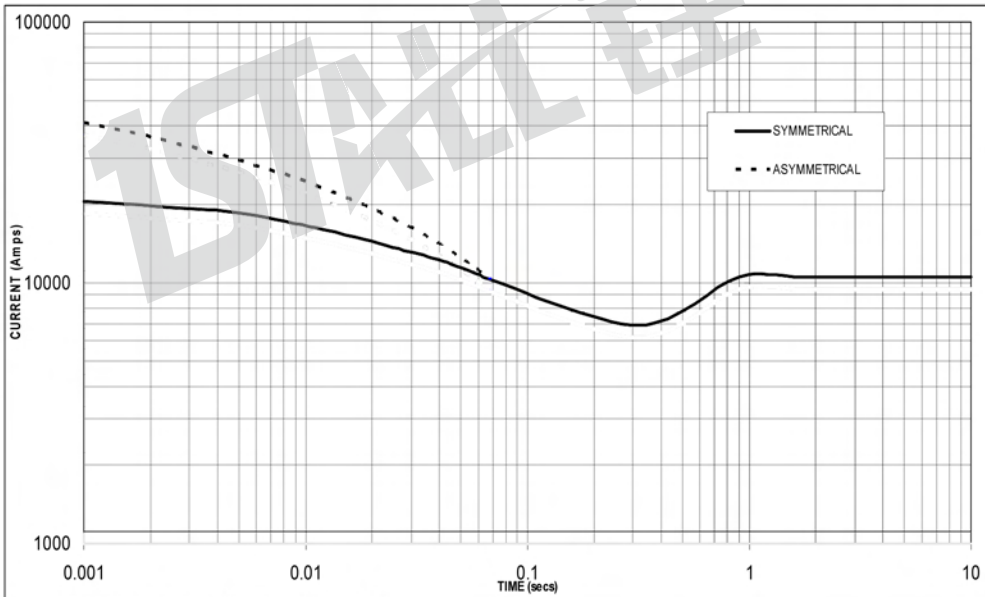
## Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed Based on star (wye) connection.

**50  
Hz**



Sustained Short Circuit = 9540 Amps

**60  
Hz**



Sustained Short Circuit = 10500

**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.

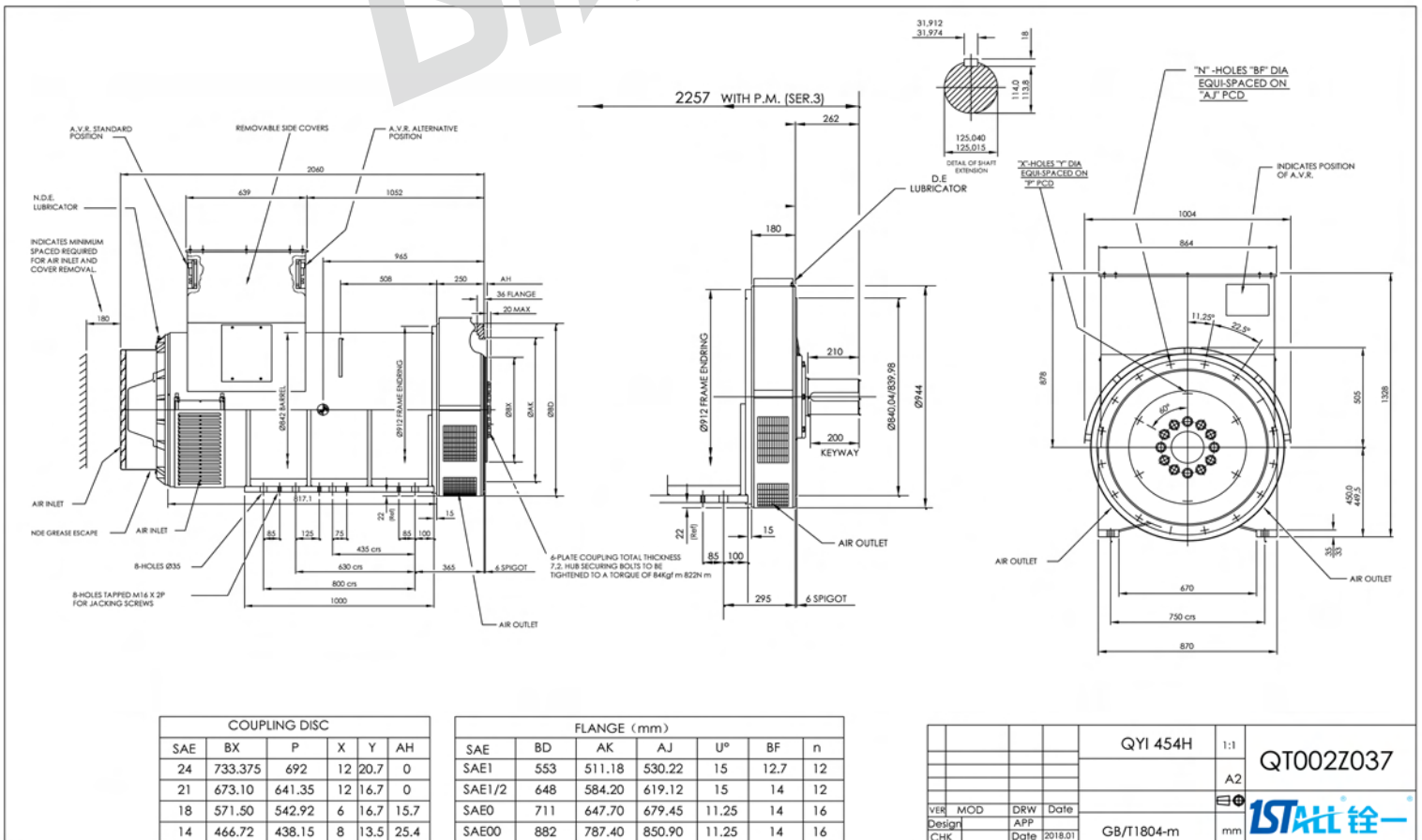
# QYI454H

## 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			
50HZ	Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	kVA	2325	2395	2395	N/A	2500	2575	2575	N/A	2625	2705	2705	N/A	2700	2780	2780	N/A
	kW	1860	1916	1916	N/A	2000	2060	2060	N/A	2100	2164	2164	N/A	2160	2224	2224	N/A
	Efficiency (%)	96.1	96.2	96.3	N/A	95.9	96	96.1	N/A	95.9	95.9	96	N/A	95.8	95.9	96	N/A
	kW Input	1935	1992	1990	N/A	2086	2146	2144	N/A	2190	2257	2254	N/A	2255	2319	2317	N/A
60HZ	Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	kVA	2560	2730	2790	2875	2750	2937.5	3000	3090	2888	3085	3150	3245	2970	3172	3240	3338
	kW	2048	2184	2232	2300	2200	2350	2400	2472	2310	2468	2520	2596	2376	2538	2592	2670
	Efficiency (%)	96	96.1	96.2	96.2	95.9	96	96.1	96.1	95.8	95.9	96	96	95.8	95.9	95.9	95.9
	kW Input	2133	2273	2320	2391	2294	2448	2497	2572	2412	2574	2625	2704	2480	2646	2703	2785

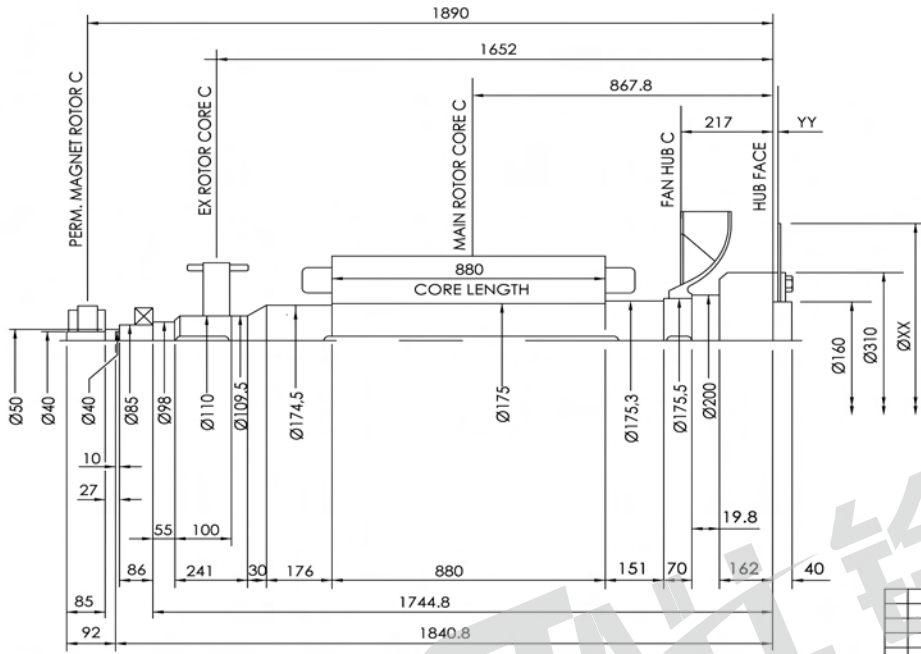
### DIMENSIONS



# QYI454H

## Winding 311

### INERTIA



COMPONENT	Wt kg	J kgm <sup>2</sup>
EX. ROTOR	51.6	0,859
MAIN ROTOR	1334.21	51.818
FAN	28.8	1.652
SHAFT	347.844	1.3098
HUB	53.533	0.8846
P.M.EX.ROTOR	6.97	0.019
P.M. STUB SHAFT	0.929	0,0003
TOTAL	1823.886	56.5427

COUPLING SAE No	COUPLING DIMEN's		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm <sup>2</sup>
	XX	YY		
18	572	16	24.5	0.59
21	673	0	23.1	1.135
24	733	0	26.84	1.598

VER	MOD	DRW	Date
Design		APP	
CHK		Date	2018.01

QYI 454H	1:1	0QY201087
INERTIA		
		mm

