QYI454E

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	6250A					

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 ºC) temperature rise	kVA	1840	1900	1900	1865	2070	2210	2255	2300
额定功率在H(125℃)温升	kW	1472	1520	1520	1492	1656	1768	1804	1840
Efficiency at Class H (P.F.=0.8)绝缘等级H (P.F.=0.8)效率	4/4%	95.7	95.8	96	96.1	95.7	95.8	95.9	95.9
	3/4%	96.4	96.5	96.6	96.6	96.2	96.3	96.4	96.4
	2/4%	96.3	96.4	96.4	96.3	96	96.1	96.1	96.2
Efficiency at Class H (P.F.=1.0)绝缘等级H (P.F.=1.0)效率	4/4%	96.7	96.7	96.8	97	96.6	96.6	96.7	96.8
	3/4%	97.2	97.3	97.4	97.4	97	97.1	97.1	97.3
	2/4%	97.2	97.2	97.2	97.2	96.8	96.9	96.9	96.9
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	3.18	2.96	2.75	2.4	3.84	3.67	3.42	3.21
Direct axis transient reactance saturated 直轴瞬态电抗	X'd	0.19	0.18	0.17	0.15	0.23	0.22	0.21	0.19
Direct axis subtransient reactance saturated 直轴瞬变电抗	X"d	0.14	0.13	0.12	0.11	0.17	0.16	0.15	0.14
Quadrature axis synchronous reactance unsaturated 交轴同步电抗	Xq	2.04	1.9	1.76	1.54	2.47	2.36	2.2	2.06
Quadrature axis subtransient reactance saturated 交轴起始瞬态电抗	X"q	0.29	0.27	0.25	0.22	0.35	0.33	0.31	0.29
Leakage reactance漏抗	X1	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Negative sequence reactance saturated负序电抗饱和	X2	0.2	0.19	0.17	0.15	0.24	0.23	0.22	0.2
Zero sequence reactance unsaturated 零序电抗不饱和	X0	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Short-circuit ratio 短路比	Kcc	0.3145	0.3378	0.3636	0.4167	0.2604	0.2725	0.2924	0.3115

Short-circuit transient time constant (sec.)瞬变时间常数（秒）	T'd	0.149							
Subtransient time constant (sec.) 超瞬变时间常数（秒。）	T"d	0.02							
Open circuit time constant (sec.)开路时间常数	T'do	2.46							
Armature time constant (sec.)电枢时间常数	Tα	0.02							
Stator Winding Resistance (20℃)定子绕组电阻(20℃)	ohm	0.00093							
Rotor Winding Resistance (20℃)转子绕组电阻(20℃)	ohm	1.65							
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)	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^3/sec	2.69m3/s 5200cfm				3.45m3/s 7300cfm			

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	3585	3510
Weight wound stator - kgs 定子重量-公斤	1741	1741
Weight wound rotor - kgs 转子重量-公斤	1487	1423
Inertia (J) [kgm2] 转动惯量（J）[kgm2）	45.49kgm2	44.48kgm2
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）	215X101X159	225X101X159

50 Hz

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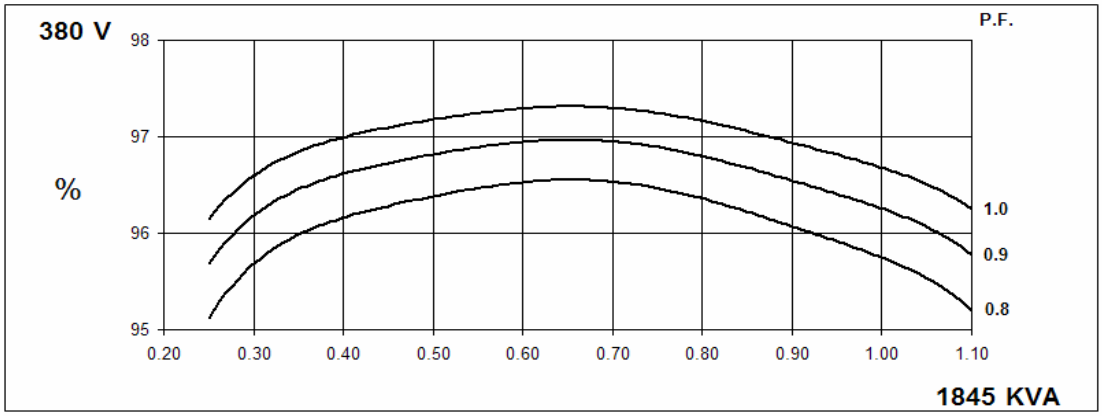
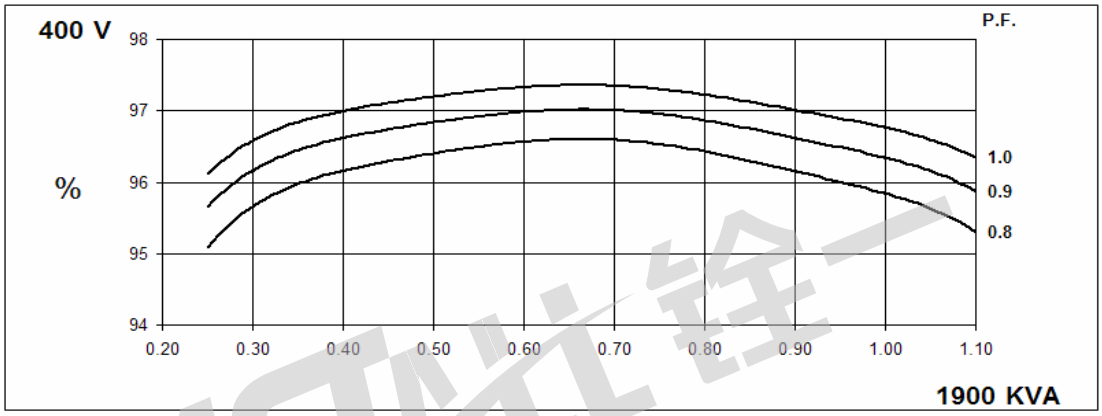
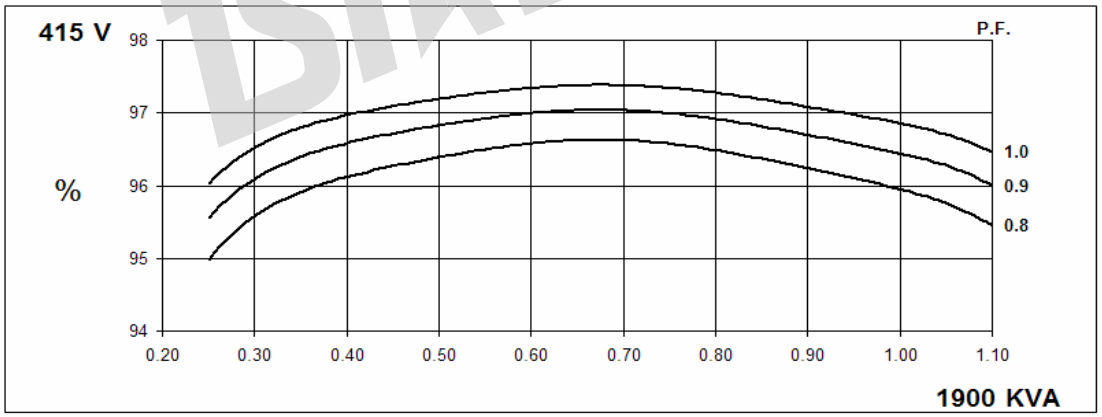
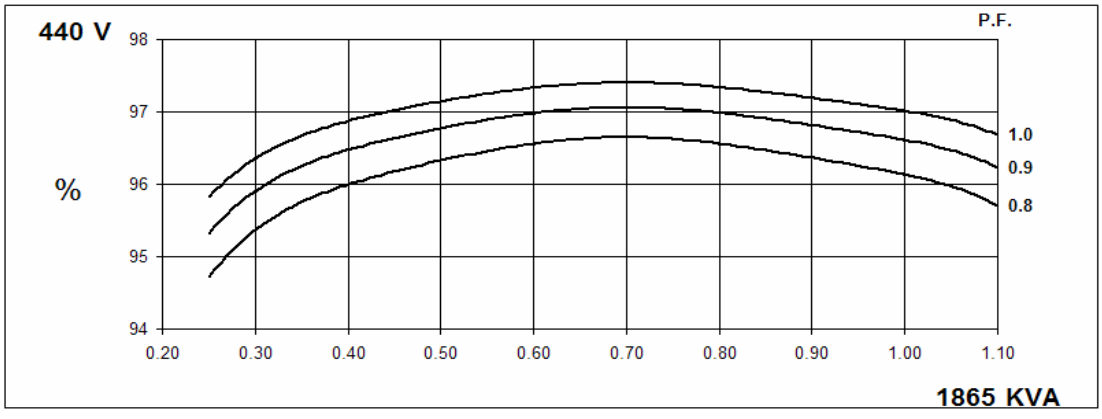
Winding 312

THREE PHASE EFFICIENCY CURVES









60 Hz

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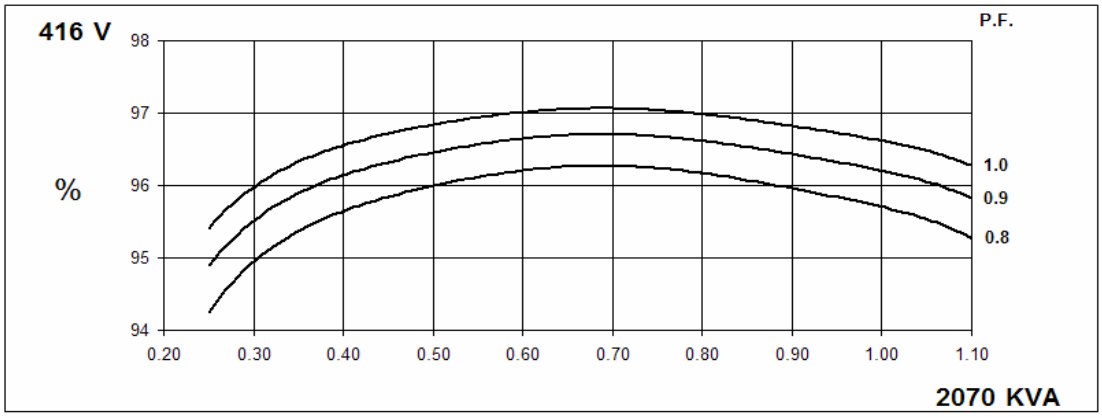
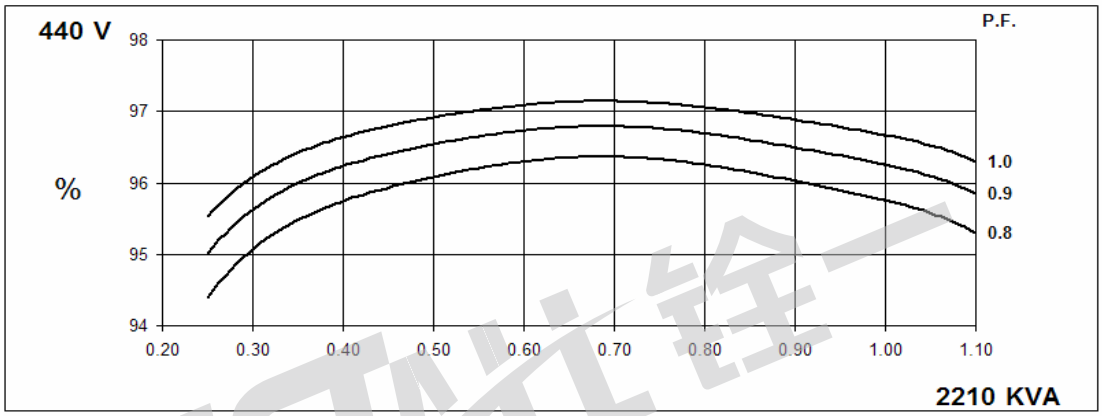
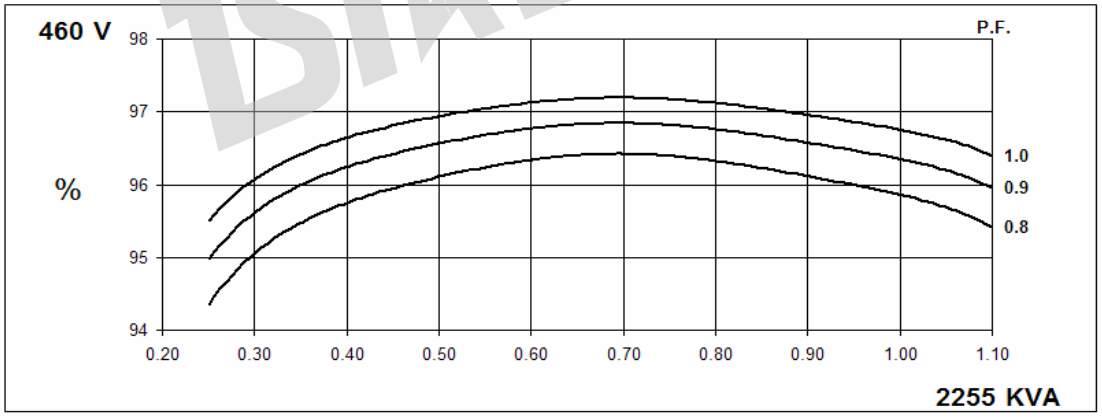
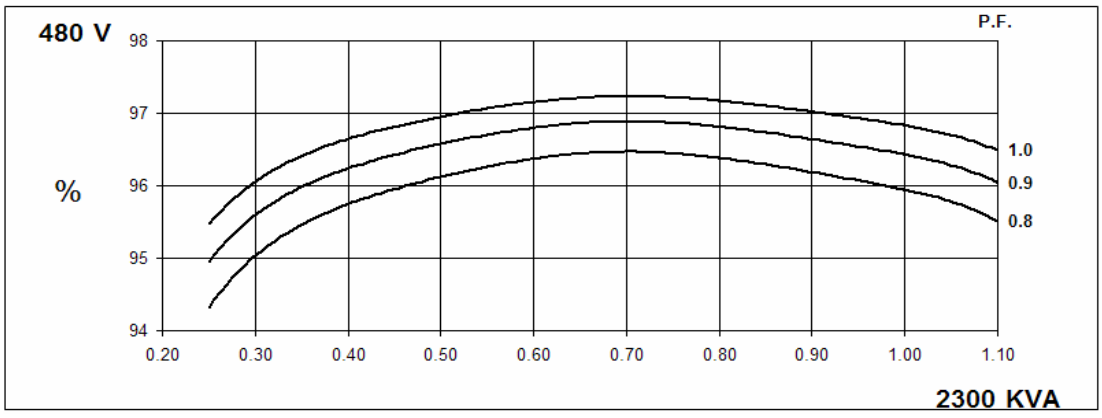
Winding 312

THREE PHASE EFFICIENCY CURVES









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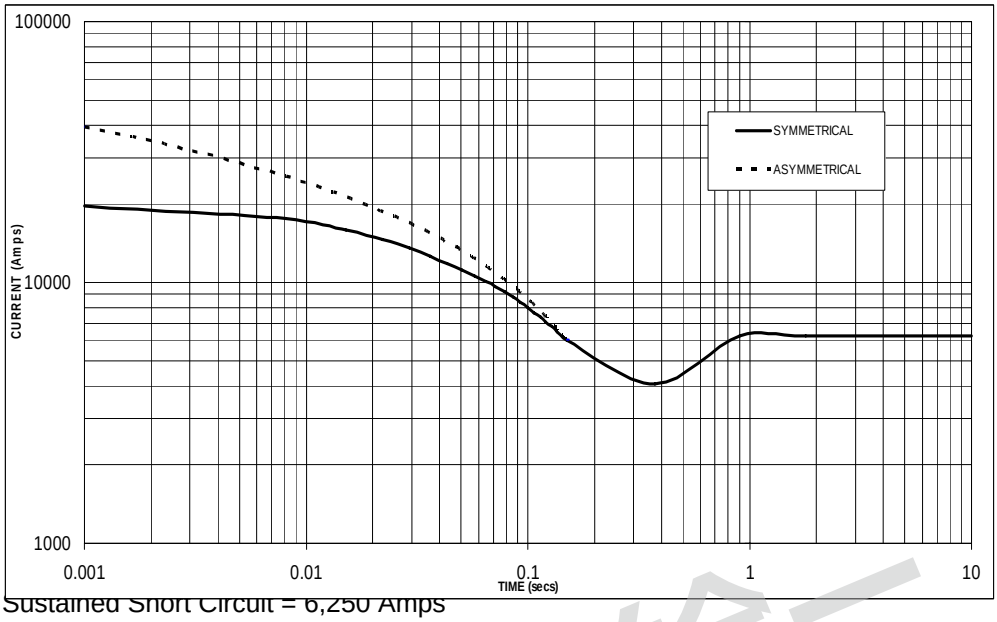
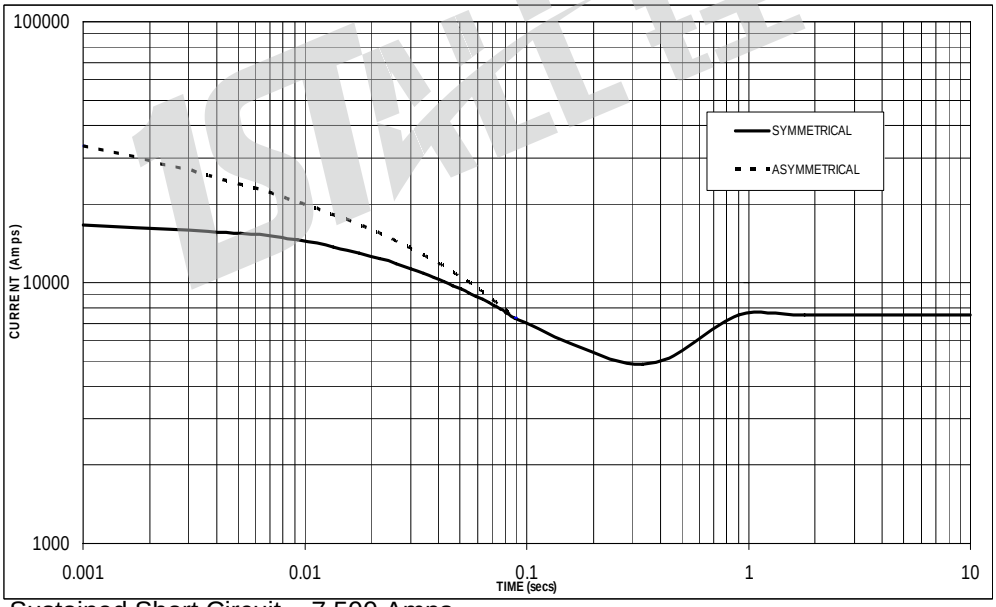
Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (wye) connection.

50 Hz



Sustained Short Circuit = 6,250 Amps

60 Hz



Sustained Short Circuit = 7,500 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 1.05	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.

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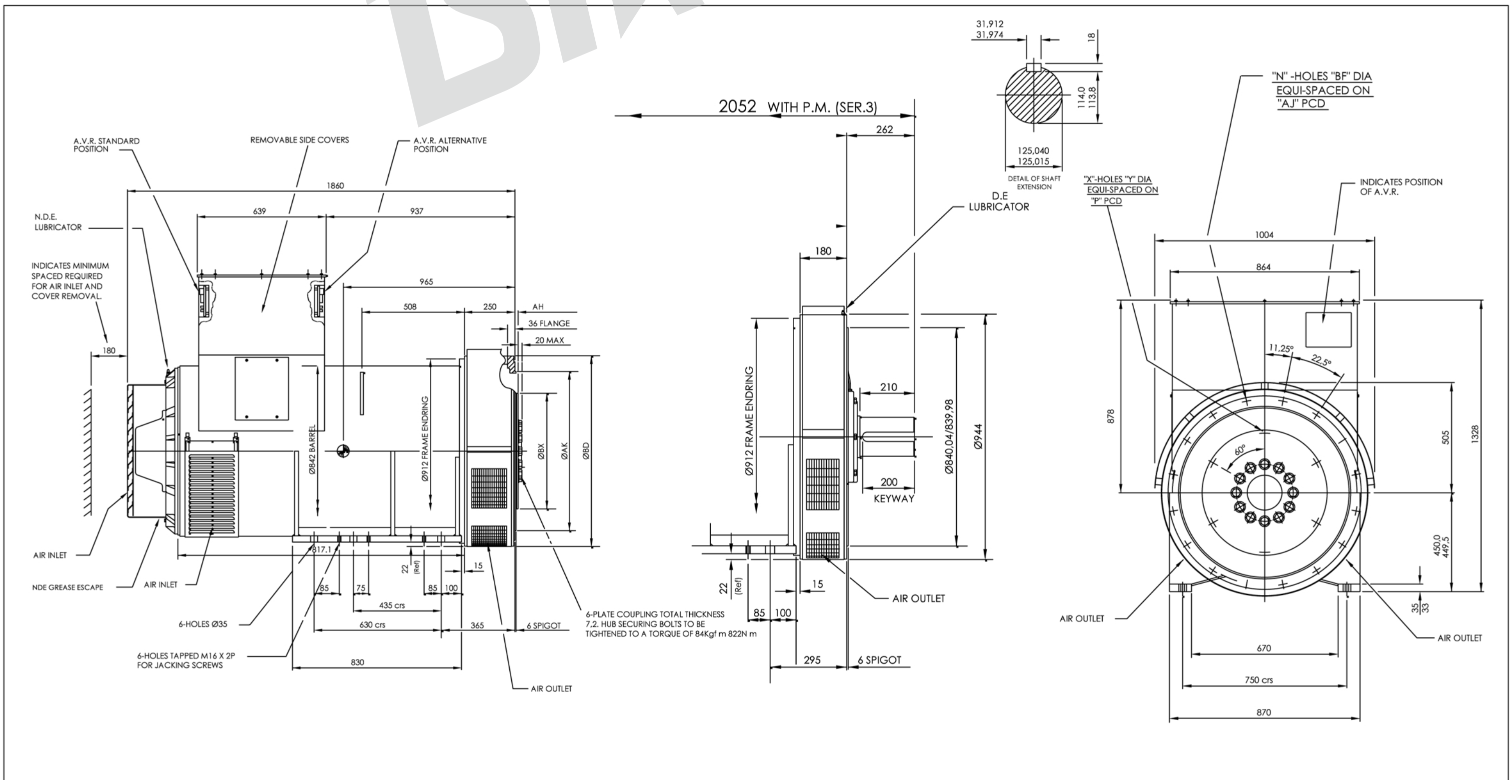
Winding 312 / 0.8 Power Factor

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	1715	1770	1770	1735	1845	1900	1900	1865	1920	1980	1980	1940	1975	2035	2035	1995
kW	1372	1416	1416	1388	1476	1520	1520	1492	1536	1584	1584	1552	1580	1628	1628	1596
Efficiency (%)	95.9	96.0	96.1	96.3	95.7	95.8	96.0	96.1	95.6	95.7	95.8	96.1	95.5	95.6	95.8	96.0
kW Input	1431	1475	1473	1441	1542	1587	1583	1553	1607	1655	1653	1615	1654	1703	1699	1663

60Hz Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
kVA	1935	2055	2100	2140	2070	2210	2255	2300	2155	2300	2345	2395	2215	2365	2415	2465
kW	1548	1644	1680	1712	1656	1768	1804	1840	1724	1840	1876	1916	1772	1892	1932	1972
Efficiency (%)	95.8	95.9	96.0	96.1	95.7	95.8	95.9	95.9	95.6	95.7	95.8	95.9	95.5	95.6	95.7	95.8
kW Input	1616	1714	1750	1781	1730	1846	1881	1919	1803	1923	1958	1998	1855	1979	2019	2058

DIMENSIONS



COUPLING DISC					
SAE	BX	P	X	Y	AH
24	733.375	692	12	20.7	0
21	673.10	641.35	12	16.7	0
18	571.50	542.92	6	16.7	15.7
14	466.72	438.15	8	13.5	25.4

FLANGE（mm）						
SAE	BD	AK	AJ	U°	BF	n
SAE1	553	511.18	530.22	15	12.7	12
SAE1/2	648	584.20	619.12	15	14	12
SAE0	711	647.70	679.45	11.25	14	16
SAE00	882	787.40	850.90	11.25	14	16

VER MOD	DRW Date	QYI 454E	1:1 A2	QT002Z037
Design	APP			
CHK	Date 2018.01	GB/T1804-m	mm	1STALL 铨一

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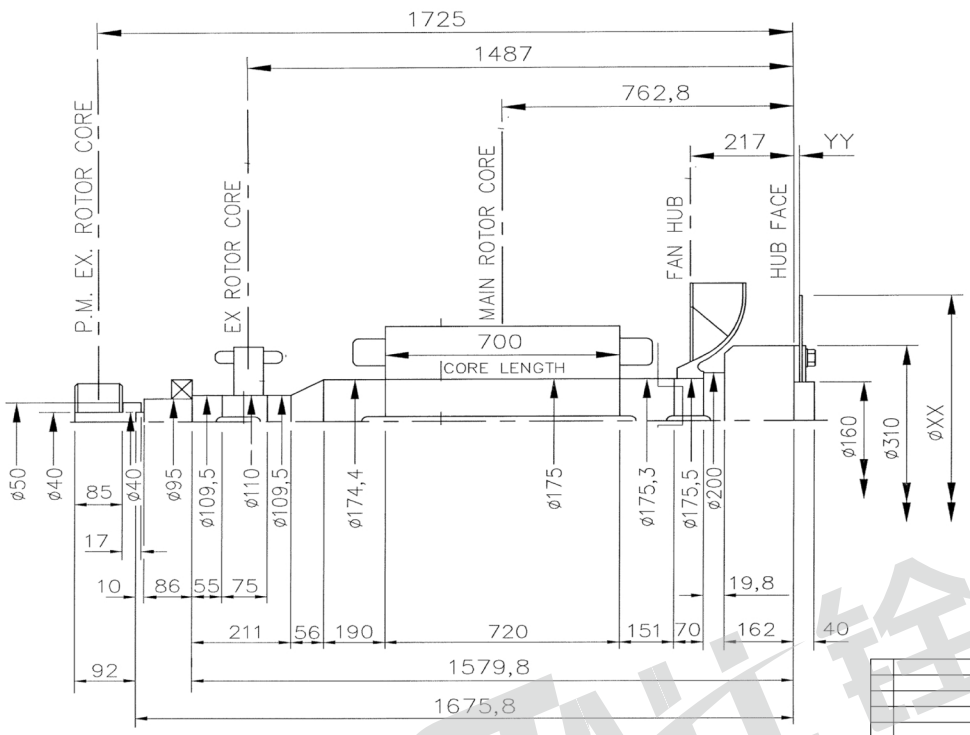
Winding 311

INERTIA



COMPONENT	Wt kg	WR² kgm²
EX.ROTOR	51,600	0,8590
MAIN ROTOR	1056,084	41,0301
FAN	28,800	1,6520
SHAFT	288,406	1,0724
HUB	53,533	0,8846
P.MAG.ROTOR	6,970	0,0190
STUB SHAFT	0,929	0,0003
–	–	–
TOTAL	1486,322	45,5174

COUPLING SAE No	COUPLING DIMEN's XX	COUPLING DIMEN's YY	COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC WR² kg m²
18	572	16	24,5	0,590
21	673	00	23,1	1,135
24	733	00	26,84	1,598

VER	MOD	DRW	Date
Design		APP	
CHK		Date	2018.01

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INERTIA

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mm

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