



maranello
alternator

M44

CONT 40 kVA



THREE-PHASE SYNCHRONOUS GENERATOR

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

Ambient Temperature	40 °C	Method of Cooling				Air cooling			
Temperature Rise	125 °C	Direction of Rotation				Clockwise			
Insulation Class	H	Maximum Over-speed				2250r/min			
Power Factor	0.8	Degree of Protection / Enclosure				IP22			
Excitation	Brushless	Altitude				1000m			
Winding Pitch	2/3	Stator winding				DLL			
Pole	4	Number of Terminal				12			
Duty	S1- Continuous	Rotor				With damping cage			
Waveform	TIF<50				THF<2%				
Waveform distortion	BS EN 61000-6-2&BS EN 61000-6-4,VDE 0875G,VDE0874N								
Radio interference	Noload<1.5%,Non-distorting balanced linear load<5%								
AVR MODEL AVR	Standard	Selection				PMG			
	KR620	AS440	KRS440						
Voltage Regulation - in steady state condition	±1.0	±1.0	±1.0	±1.0					
Short Circuit Current Capacity	Control does not sustain a short circuit current								
Electrical Characteristic									
Frequency	Hz	50				60			
Voltage (series star) Y	V	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage (parallel star) YY	V	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
Voltage (series delta) Δ	V	220	230	240	254	240	254	266	277
Rated power at Class H (125 °C) temperature rise	kVA	40	42.5	40	35	47.3	50	50	50
	kW	32.0	34.0	32.0	28.0	37.8	40.0	40.0	40.0
Efficiency at Class H (P.F.=0.8)	4/4%	86.7	86.6	87.1	87.6	86.8	86.9	87	87.4
	3/4%	88.2	88.2	88.6	88.7	88.1	88.2	88.4	88.7
	2/4%	88.7	88.7	88.3	88.1	88.2	88.2	88.3	88.1
Efficiency at Class H (P.F.=1.0)	4/4%	89.5	89.5	90	90.2	89.3	89.5	89.9	90
	3/4%	90.9	90.9	91	91	90.7	90.9	91	91
	2/4%	91.1	91.1	91	90.9	90.9	90.9	90.9	90.9
Reactances (%) at Class H									
Direct axis synchronous reactance unsaturated	Xd	2.139	2.051	1.793	1.823	2.431	2.297	2.101	1.93
Direct axis transient reactance saturated	X'd	0.163	0.156	0.136	0.138	0.185	0.175	0.16	0.147
Direct axis subtransient reactance saturated	X''d	0.089	0.085	0.074	0.075	0.101	0.095	0.087	0.08
Quadrature axis synchronous reactance unsaturated	Xq	1.032	0.99	0.866	0.88	1.174	1.109	1.015	0.932
Quadrature axis subtransient reactance saturated	X''q	0.18	0.173	0.151	0.154	0.205	0.194	0.177	0.163
Leakage reactance	X1	0.067	0.064	0.056	0.057	0.076	0.071	0.065	0.06
Negative sequence reactance saturated	X2	0.136	0.13	0.114	0.115	0.154	0.145	0.133	0.122
Zero sequence reactance unsaturated	X0	0.033	0.032	0.028	0.029	0.038	0.036	0.033	0.03
Short-circuit ratio	Kcc	0.4675	0.4876	0.5577	0.5485	0.4114	0.4354	0.4760	0.5181
Short-circuit transient time constant (sec.)	T'd	0.025							
Subtransient time constant (sec.)	T''d	0.016							
Open circuit time constant (sec.)	T'do	0.59							
Armature time constant (sec.)	Ta	0.0105							
Stator Winding Resistance (20°C)	ohm	0.148							
Rotor Winding Resistance (20°C)	ohm	0.95							
Exciter Stator Resistance (20°C)	ohm	24							
Exciter Rotor Phase resistance	ohm	0.12							
No load excitation current	io (A)	0.6	0.62	0.64	0.62	0.55	0.57	0.63	0.65
Full load excitation current	ic(A)	2	2.2	2.3	2	2	2.2	2.3	2.3
Cooling air requirement	m ³ /sec	0.095m ³ /s 200cfm				0.119m ³ /s 250cfm			
Mechanical Characteristic									
Configuration	Single Bearing				Double Bearing				
Type of Construction	B2-SAE				IM B34				
Total Weight - kgs	199				204				
Weight wound stator - kgs	75				75				
Weight wound rotor - kgs	77.15				73.95				
Inertia (J) [kgm ²]	0.2978kgm ²				0.2921kgm ³				
Drive end bearing / Lubrication					BALL.6309-2RS(ISO)				
Non-drive end bearing / Lubrication					BALL.6306-2RS(ISO)				
Packing crate size (cm)	70X49X70				80X50X70				

Winding 311 / 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			
50 Hz	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	36.7	39.0	36.7	32.1	40.0	42.5	40.0	35.0	N/A				N/A			
	kW	29.4	31.2	29.4	25.7	32.0	34.0	32.0	28.0								
Efficiency (%)	87.3	87.3	87.8	88.1	86.7	86.6	87.3	87.6									
kW Input	33.6	35.7	33.4	33.3	36.9	39.3	36.7	36.5									
60 Hz	Series Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	Parallel Star (V)	208	220	230	240	208	220	230	240	208	220	230	240	208	220	230	240
	Series Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	47.3	50.0	50.0	50.0	47.3	50.0	50.0	50.0	N/A				N/A			
	kW	37.8	40.0	40.0	40.0	37.8	40.0	40.0	40.0								
Efficiency (%)	86.7	86.8	87.2	87.5	86.7	86.8	87.2	87.5									
kW Input	43.6	46.1	45.9	45.7	43.6	46.1	45.9	45.7									

DIMENSIONS

**3mm THICK COUPLING DISC
SECURING SCREWS TO BE
TIGHTENED TO A TORQUE
OF 7.6 kgfm (7.5 Nm)**

DIMENSIONS(mm)				WEIGHE	
SAE	TYPE	LB		KG	
	QYI 184ES	431		114	
	QYI 184E	431		130	
	QYI 184F	521		147	
SAE 4/5	QYI 184G	521		169	
	QYI 184H	581		183	
	QYI 184J	581		194	

COUPLING DISC					
SAE	BX	P	X	Y	AH
11.5	352.42	333.38	8	11	39.6
10	314.32	295.28	8	11	53.8
8	263.52	244.48	6	11	62
7.5	241.3	222.25	8	9	30.2
6.5	215.9	200.02	6	9	30.2

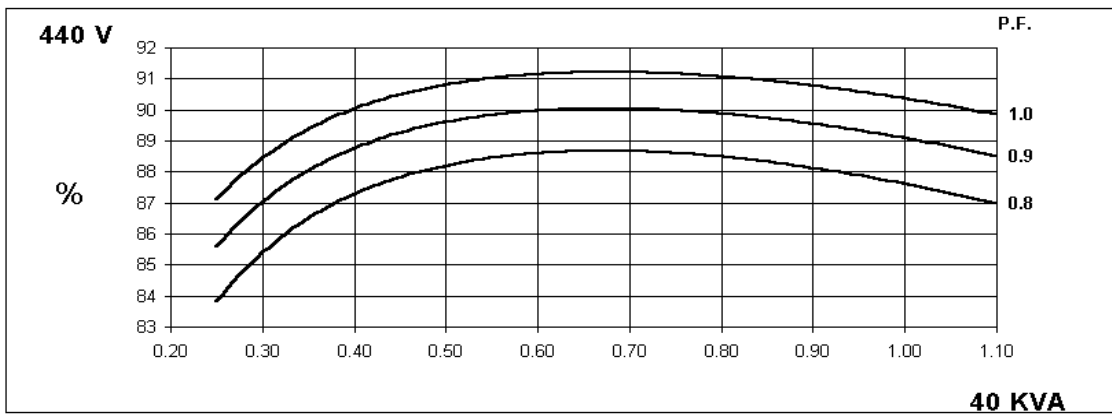
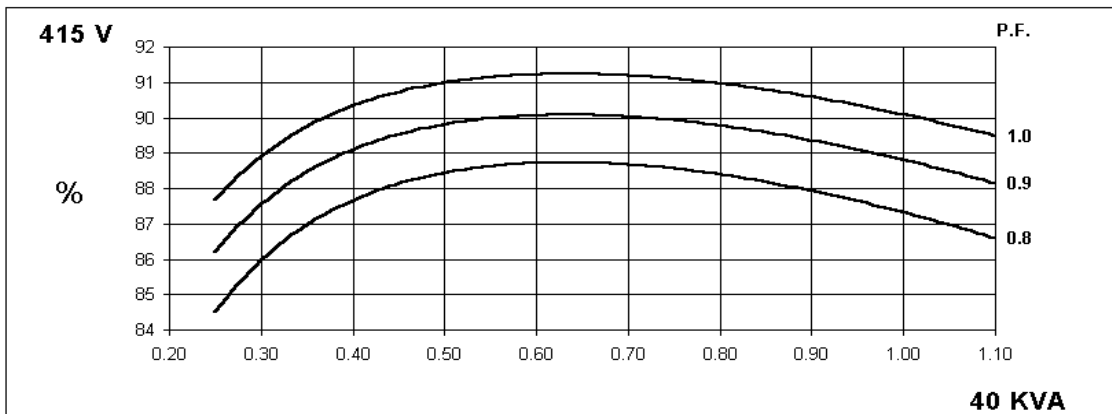
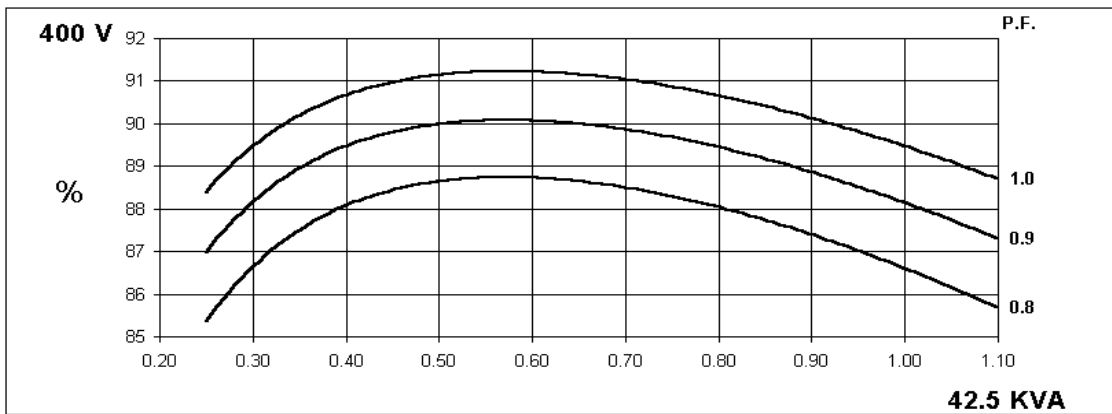
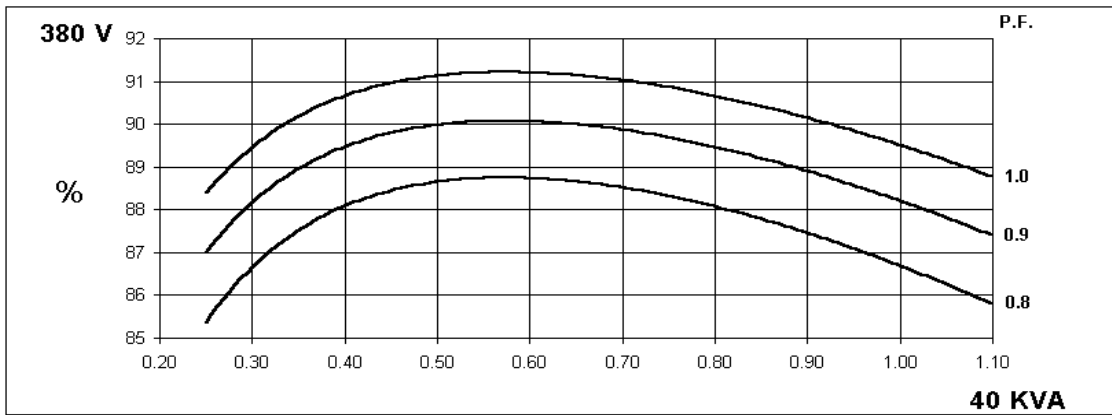
DIMENSIONS(mm)				WEIGHE	
SAE	TYPE	LB		kg	A
SAE 2	QYI 184H	620.5		183	703.5
	QYI 184J	620.5		194	703.5
SAE 3	QYI 184H	593		185	
	QYI 184J	593		195	

FLANGE(mm)								
	BD	AK	AJ	U°	BF	n	C	D
SAE5	356	314.32	333.38	22.5	11	8	133	117
SAE4	402	361.95	381	15	11	8	133	117
SAE3	451	409.58	428.62	15	11	8	145	129
SAE2	489	447.68	466.72	15	11	12	172	156

**50
Hz**

Winding 311

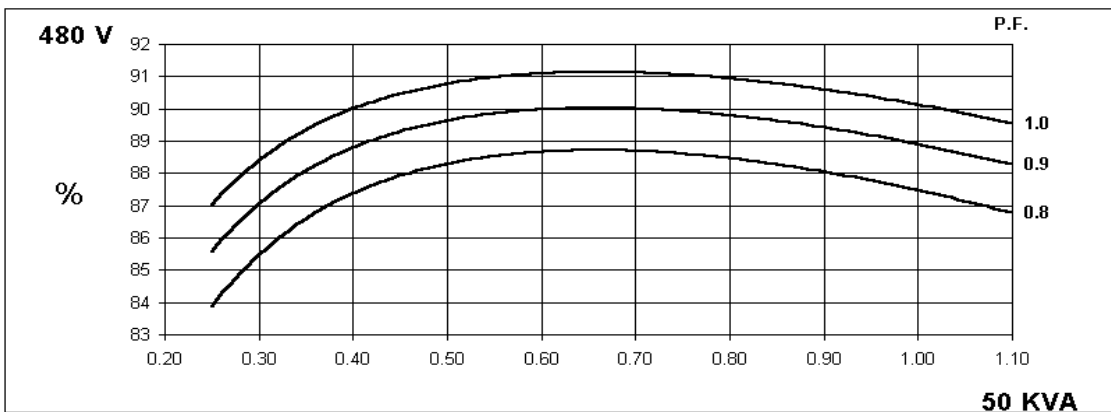
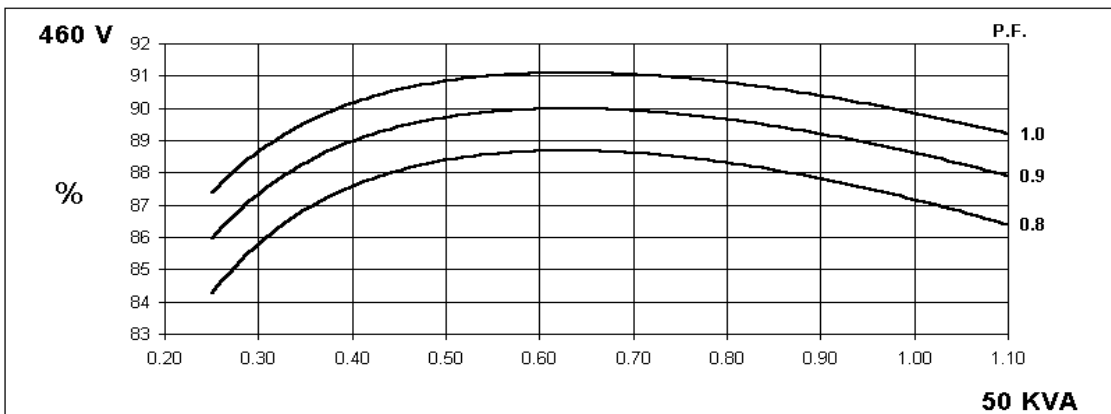
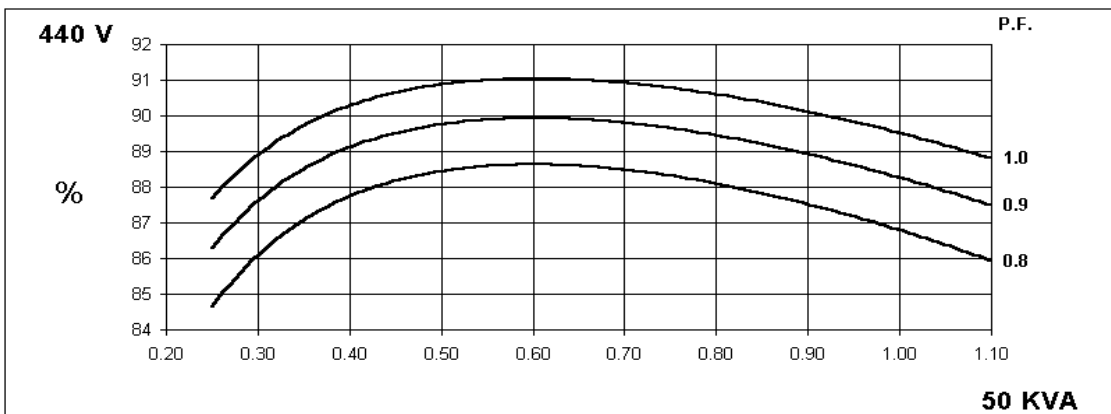
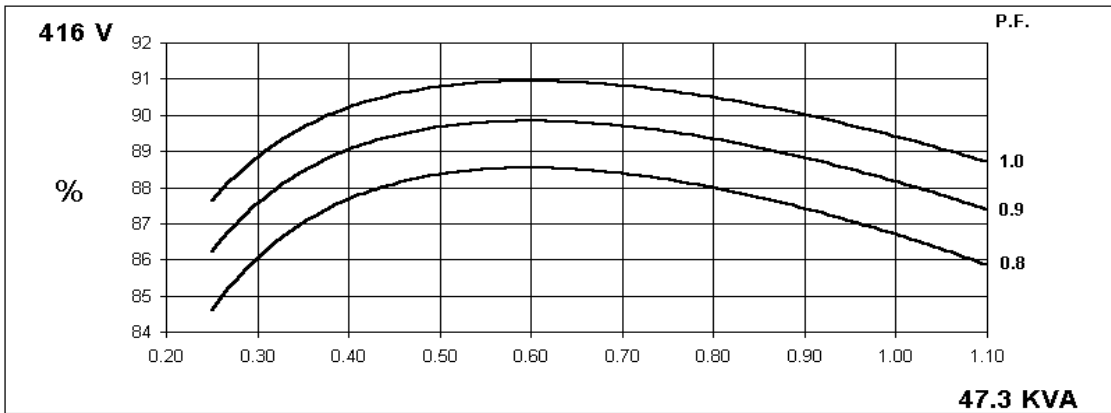
THREE PHASE EFFICIENCY CURVES

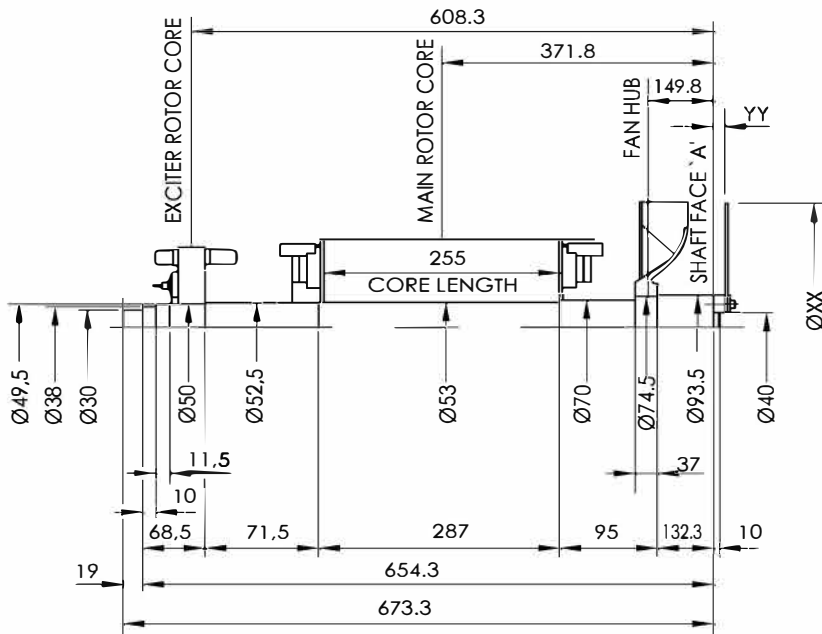


Winding 311

THREE PHASE EFFICIENCY CURVES

**60
Hz**

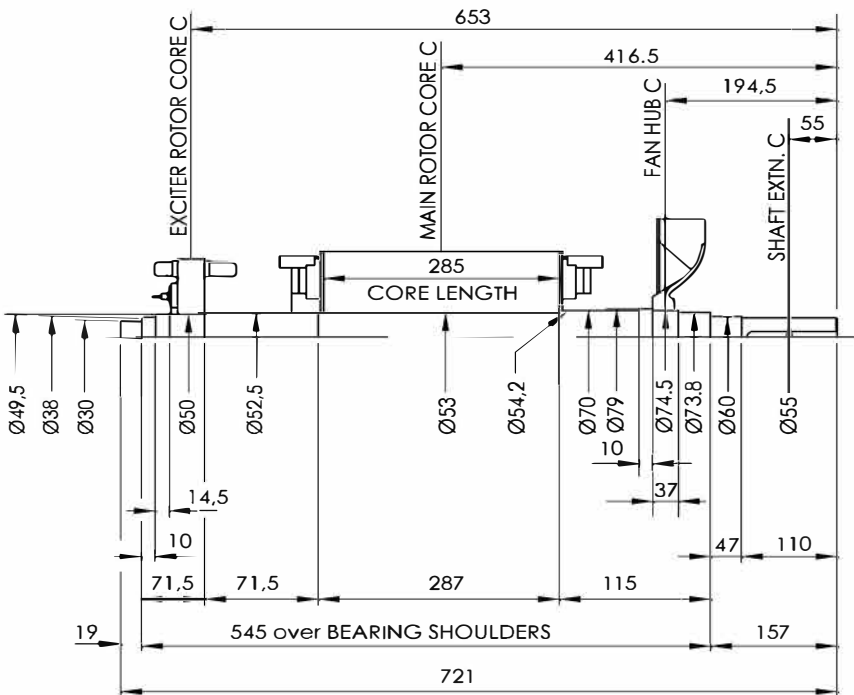




COMPONENT	Wt kg	J kgm ²
EX. ROTOR	7.425	0,0287
MAIN ROTOR	50.430	0,2307
FAN	1.920	0,0265
SHAFT	17.376	0,0119
TOTAL	77.151	0,2978

ADAPTOR SAE No.	COUPLING SAE No.	COUPLING DIMENSIONS		COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm ²
		XX	YY		
4	10	314	14.3	1.43	0,0180
3	1½	352	0	1.86	0,0284

VER	MOD	DRW	Date	1:1
Design	APP			
CHK	Date	2018.01		
				mm



COMPONENT	Wt kg	J kgm ²
EX. ROTOR	7.425	0,0287
MAIN ROTOR	50.43	0,2307
FAN	1.920	0,0265
SHAFT	14.170	0,0062
TOTAL	73.945	0,2921

VER	MOD	DRW	Date	1:1
Design	APP			
CHK	Date	2018.01		
				mm

