

QY1184F

THREE-PHASE SYNCHRONOUS GENERATOR WINDING QY311 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				IP23			
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				
	SX460	AS440	KRS440						
Voltage Regulation - in steady state condition	±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	27.5	27.5	27.5	22.5	32.5	34.4	34.4	35
	kW	22.0	22.0	22.0	18.0	26.0	27.5	27.5	28.0
Efficiency at Class H (P.F.=0.8)	4/4%	85.3	85.8	86	86.3	85.3	85.5	86	86
	3/4%	87.3	87.4	87.5	87.7	87.2	87.3	87.6	87.7
	2/4%	87.9	87.9	87.8	87.4	87.8	87.9	87.9	87.8
Efficiency at Class H (P.F.=1.0)	4/4%	88.4	88.8	89	89.3	88.3	88.5	88.9	89
	3/4%	90	90.2	90.2	90.4	90	90	90.1	90.2
	2/4%	90.6	90.5	90.4	90.2	90.3	90.4	90.3	90.2
Reactances (%) at Class H									
Direct axis synchronous reactance unsaturated	X _d	1.828	1.65	1.533	1.667	2.163	2.047	1.872	1.75
Direct axis transient reactance saturated	X' _d	0.188	0.17	0.158	0.172	0.21	0.199	0.182	0.17
Direct axis subtransient reactance saturated	X'' _d	0.122	0.11	0.102	0.111	0.148	0.14	0.128	0.12
Quadrature axis synchronous reactance unsaturated	X _q	0.92	0.83	0.771	0.838	1.088	1.029	0.942	0.88
Quadrature axis subtransient reactance saturated	X'' _q	0.211	0.191	0.177	0.192	0.247	0.234	0.214	0.2
Leakage reactance	X _l	0.073	0.066	0.061	0.066	0.087	0.082	0.075	0.07
Negative sequence reactance saturated	X ₂	0.166	0.15	0.139	0.152	0.198	0.187	0.171	0.16
Zero sequence reactance unsaturated	X ₀	0.08	0.072	0.067	0.073	0.094	0.089	0.081	0.076
Short-circuit ratio	K _{cc}	0.5470	0.6061	0.6523	0.5999	0.4623	0.4885	0.5342	0.5714
Short-circuit transient time constant (sec.)	T' _d	0.022							
Subtransient time constant (sec.)	T'' _d	0.0055							
Open circuit time constant (sec.)	T' _{do}	0.45							
Armature time constant (sec.)	T _a	0.0065							
Stator Winding Resistance (20°C)	ohm	0.25							
Rotor Winding Resistance (20°C)	ohm	0.74							
Exciter Stator Resistance (20°C)	ohm	22							
Exciter Rotor Phase resistance	ohm	0.12							
No load excitation current	i _o (A)	0.6	0.62	0.64	0.62	0.55	0.57	0.63	0.65
Full load excitation current	i _c (A)	1.95	2	2	1.95	1.9	1.95	2	2
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	151				155				
Weight wound stator - kgs	55				55				
Weight wound rotor - kgs	49.74				50.52				
Inertia (J) [kgm ²]	0.1909kgm ²				0.1909kgm ³				
Drive end bearing / Lubrication					BALL.6309-2RS(ISO)				
Non-drive end bearing / Lubrication					BALL.6306-2RS(ISO)				
Packing crate size (cm)	63X49X58				70X49X57				

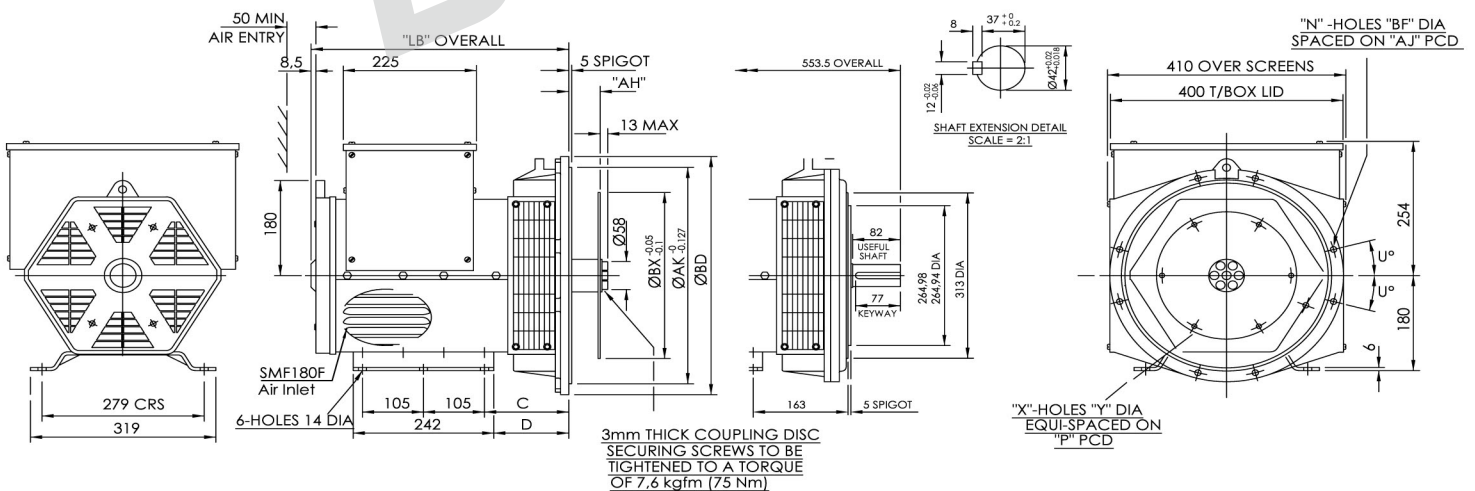
QYI184F

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	25.0	25.0	25.0	20.5	27.5	27.5	27.5	22.5	N/A	N/A						
kW	20.0	20.0	20.0	16.4	22.0	22.0	22.0	18.0									
Efficiency (%)	86.1	86.5	86.7	86.9	85.3	85.8	86.0	86.4									
kW Input	23.2	23.1	23.1	23.0	25.8	25.6	25.6	25.5									
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	30.0	31.3	31.3	32.5	32.5	34.4	34.4	35.0	N/A	N/A						
kW	24.0	25.0	25.0	26.0	26.0	27.5	27.5	28.0									
Efficiency (%)	86.1	86.3	86.6	86.7	85.4	85.5	85.9	86.1									
kW Input	27.9	29.0	28.9	30.0	30.4	32.2	32.0	32.5									

DIMENSIONS



DIMENSIONS(mm)		WEIGHE	
SAE	TYPE	LB	KG
SAE 2	QYI 184F	560.5	147
SAE 3	QYI 184F	533	148
SAE 4/5	QYI 184F	521	147

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

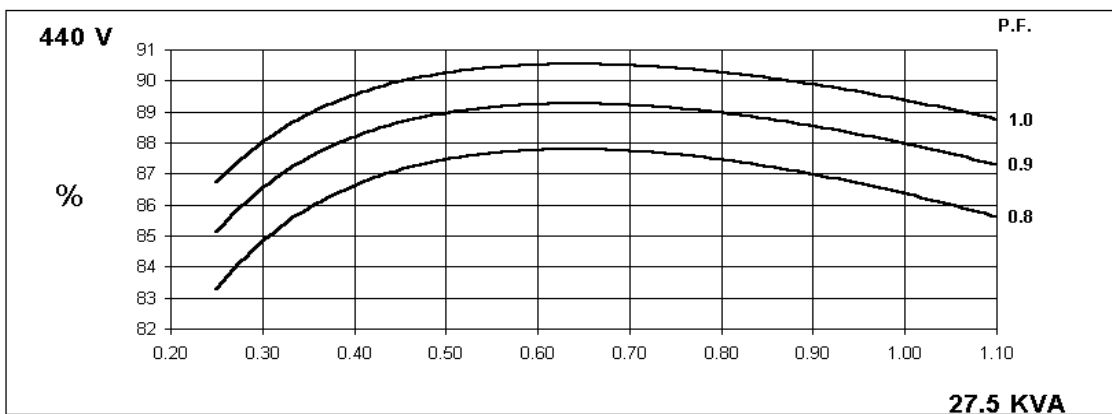
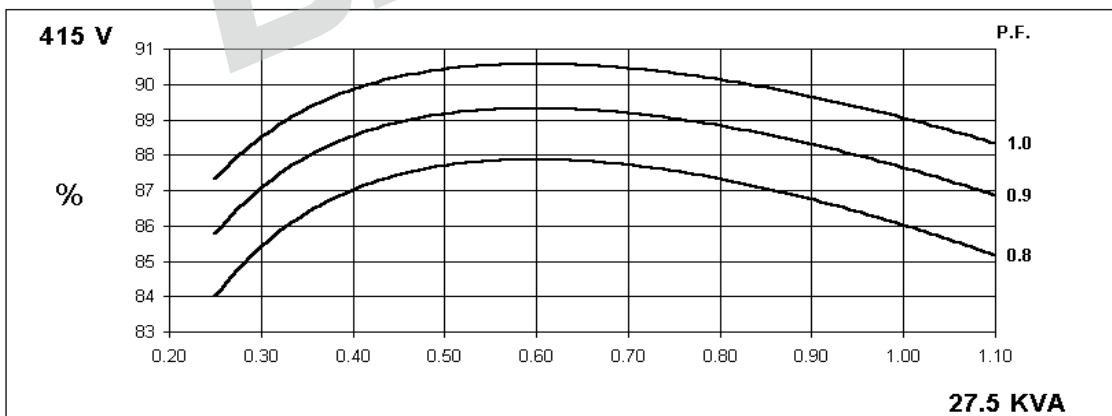
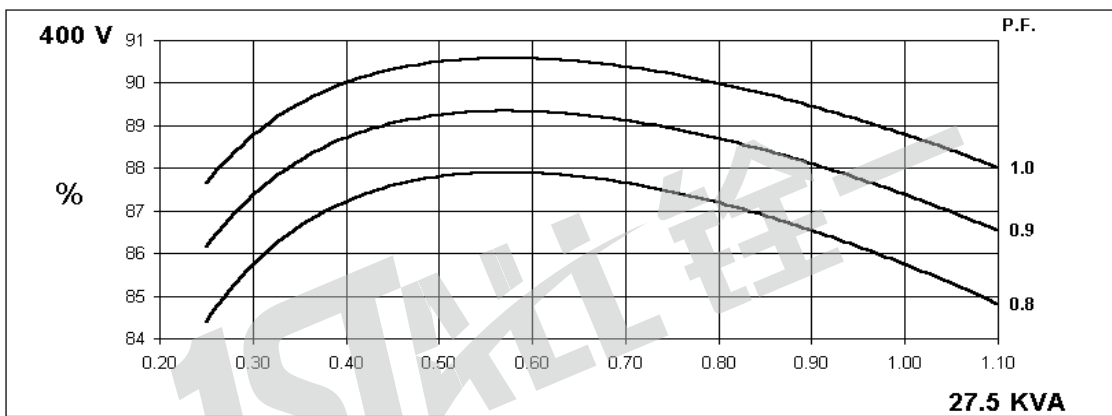
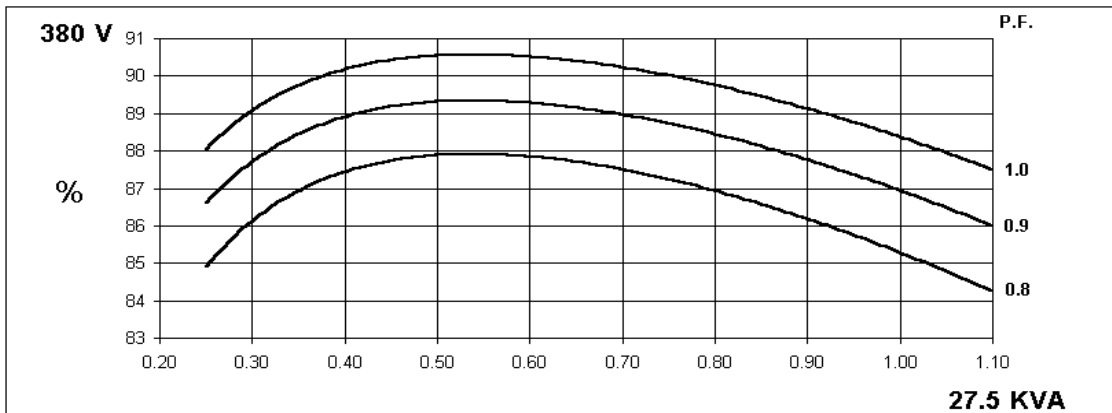
FLANGE(mm)								
	BD	AK	AJ	U°	BF	n	C	D
SAE5	356	314.32	333.38	22.5	11	8	133	117
SAE4	402	361.95	381	15	11	8	133	117
SAE3	451	409.58	428.62	15	11	8	145	129
SAE2	489	447.68	466.72	15	11	12	172	156

QYI 184F				1:1	QT002Z031.2
				A2	
VER	MOD	DRW	Date		
Design	APP	Date			
CHK		2018.01			

**50
Hz**

QYI184F
Winding 311

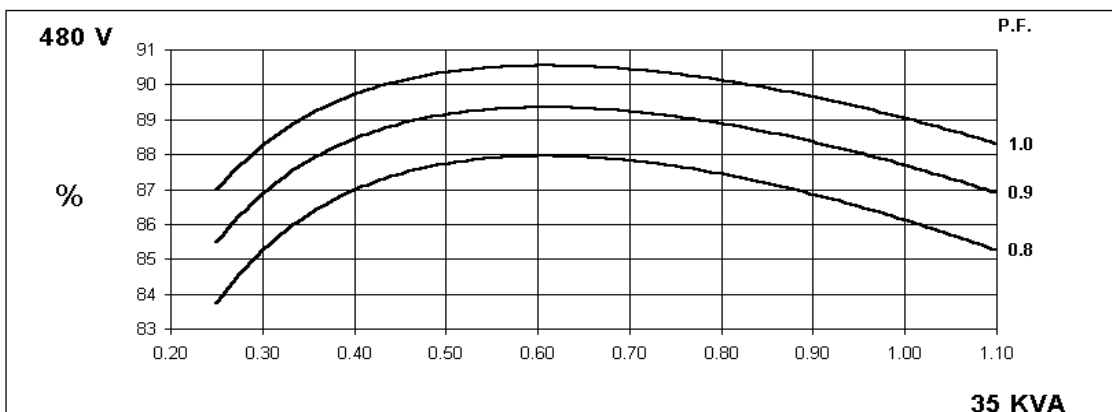
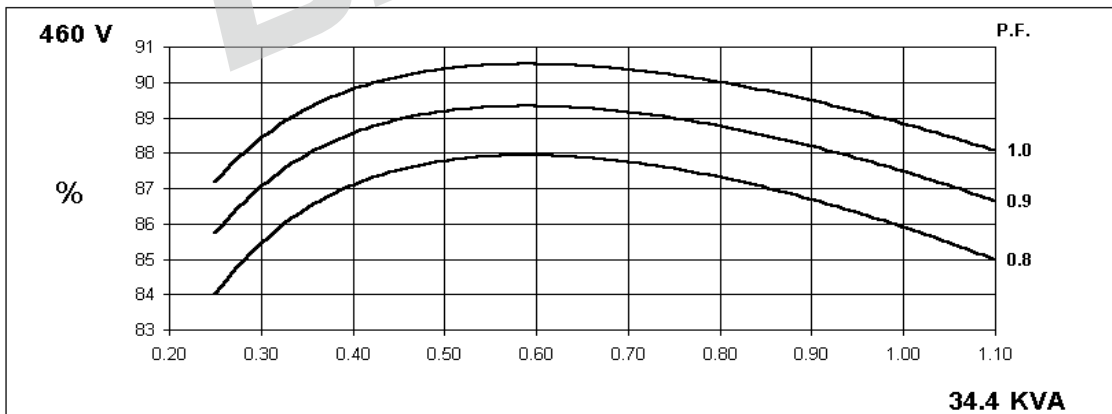
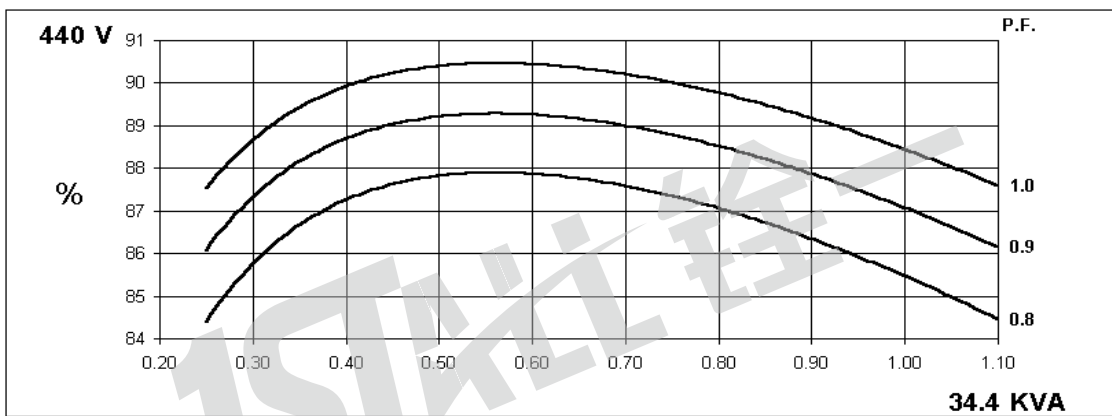
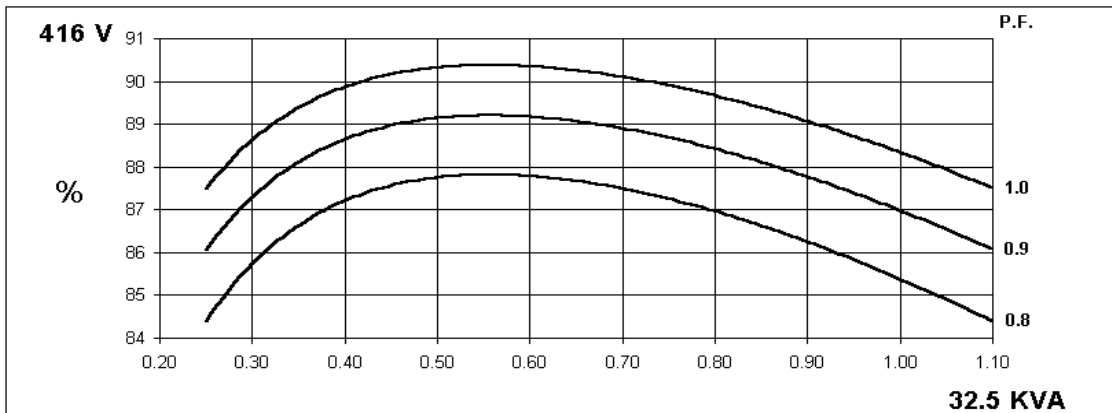
THREE PHASE EFFICIENCY CURVES



QYI184F
Winding 311

60
Hz

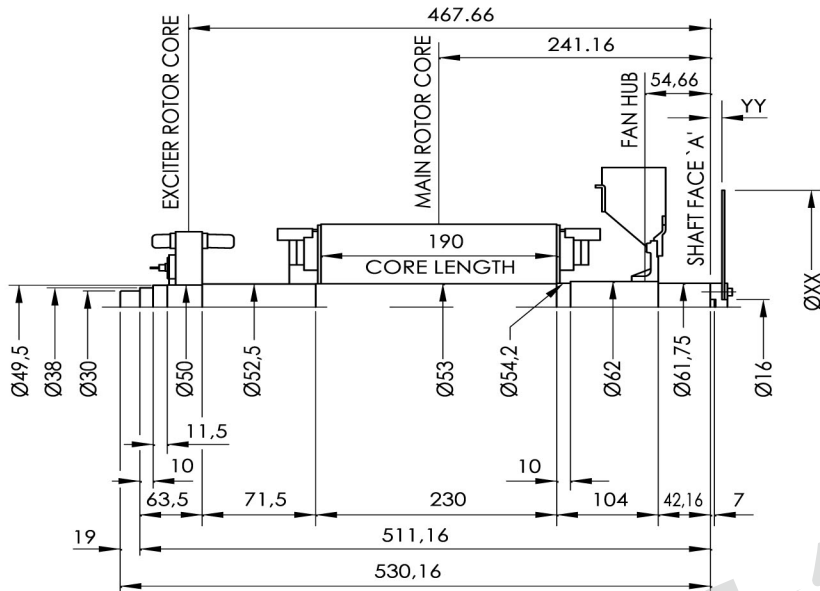
THREE PHASE EFFICIENCY CURVES



QYI184F

Winding 311

INERTIA

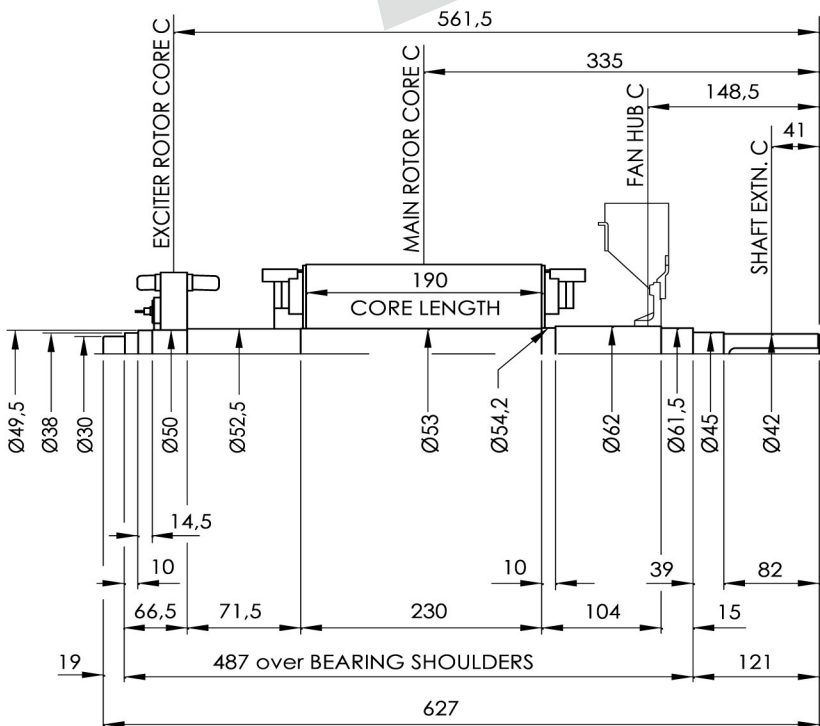


COMPONENT	Wt kg	J kgm ²
EX. ROTOR	6,530	0,0253
MAIN ROTOR	32,850	0,1558
FAN	0,744	0,0061
SHAFT	9,614	0,0037
TOTAL	49,738	0,1909

ADAPTOR	COUPLING	COUPLING DIMENSIONS		COUPLING ASSEMBLY WEIGHT	COUPLING DISC J
SAE No.	SAE No.	XX	YY	kg	kgm ²
6	7½	241,2	31,7	1,810	0,0078
4/5	7½	241,2	0	1,071	0,0078
4/5	8	263	31,7	2,018	0,0111
4	10	314	23,8	2,377	0,0225
3	10	314	35,8	2,657	0,0225
3	1½	352	21,5	2,793	0,0356

				QYI 184F	1:1	OQY2010011
				INERTIA		
VER	MOD	DRW	Date			
Design		APP				
CHK		Date	2018.01			

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COMPONENT	Wt kg	J kgm ²
EX. ROTOR	6,530	0,0253
MAIN ROTOR	32,850	0,1558
FAN	0,744	0,0061
SHAFT	10,397	0,0037
TOTAL	50,521	0,1909

				QYI 184F	1:1	OQY2010012
				INERTIA		
VER	MOD	DRW	Date			
Design		APP				
CHK		Date	2018.01			

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