



TA180-22N2

THREE-PHASE SYNCHRONOUS ALTERNATOR

CONT 27.5 kVA

50 Hz / 60 Hz

Rated output at 400 V / 50 Hz, Class H (125/40 °C) continuous

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				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	Xd	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	Xq	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	X1	0.073	0.066	0.061	0.066	0.087	0.082	0.075	0.07	
Negative sequence reactance saturated	X2	0.166	0.15	0.139	0.152	0.198	0.187	0.171	0.16	
Zero sequence reactance unsaturated	X0	0.08	0.072	0.067	0.073	0.094	0.089	0.081	0.076	
Short-circuit ratio	Kcc	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.)	Ta	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	io (A)	0.6	0.62	0.64	0.62	0.55	0.57	0.63	0.65	
Full load excitation current	ic(A)	1.95	2	2	1.95	1.9	1.95	2	2	
Cooling air requirement	m³/sec	0.095m3/s 200cfm				0.119m3/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) [kgm2]	0.1909kgm2				0.1909kgm3					
Drive end bearing / Lubrication					BALL.6309-2RS(ISO)					
Non-drive end bearing / Lubrication	BALL.6306-2RS(ISO)				BALL.6306-3RS(ISO)					
Packing crate size (cm)	63X49X58				70X49X57					

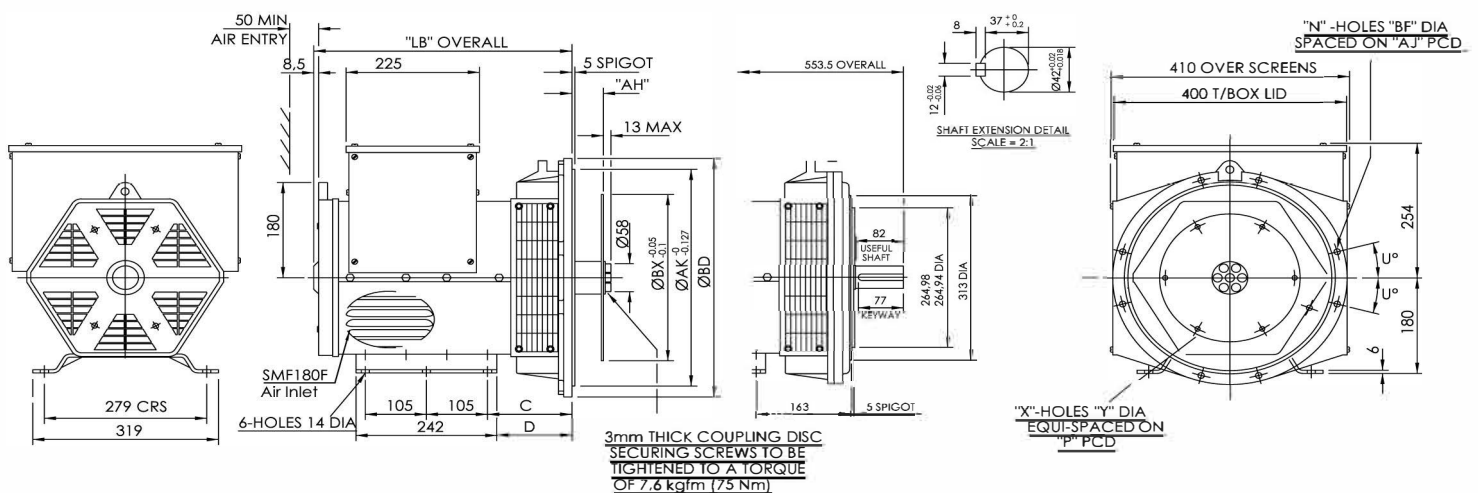
Winding 311 / 0.8 Power Factor

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	
SAE 2	QYI 184F	560.5	147
SAE 3	QYI 184F	533	148
SAE 4/5	QYI 184F	521	147

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

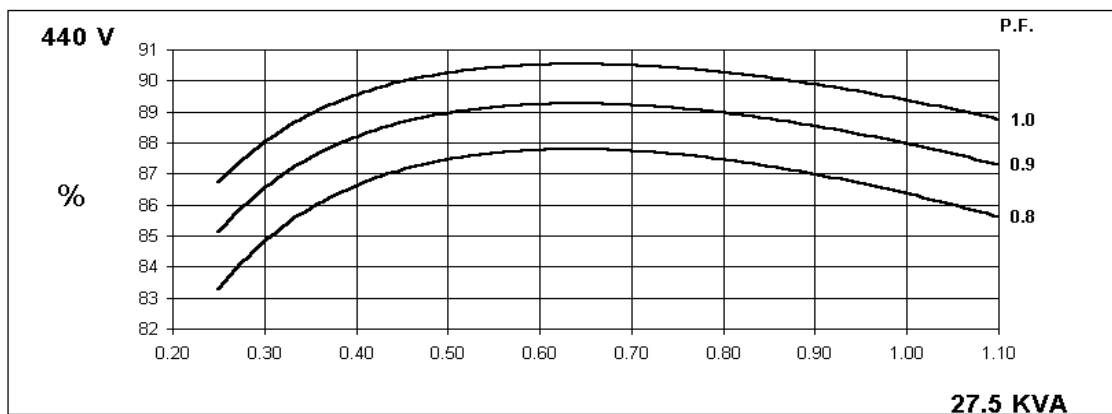
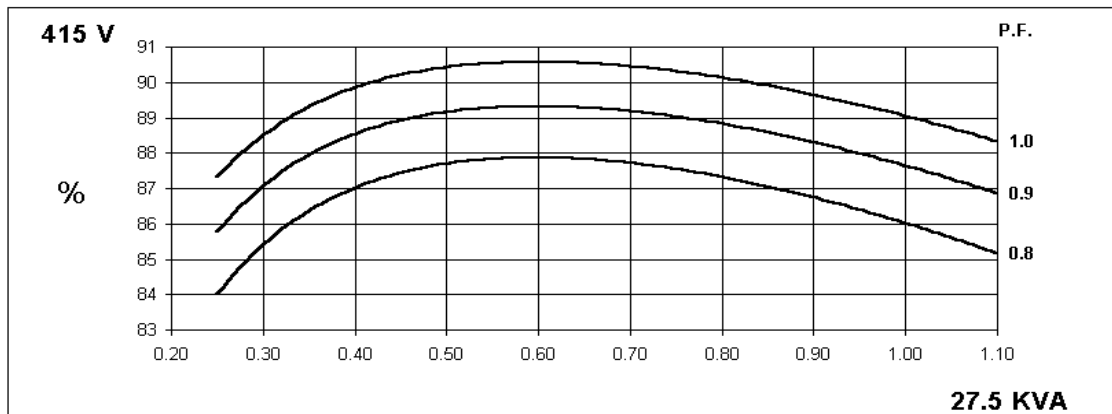
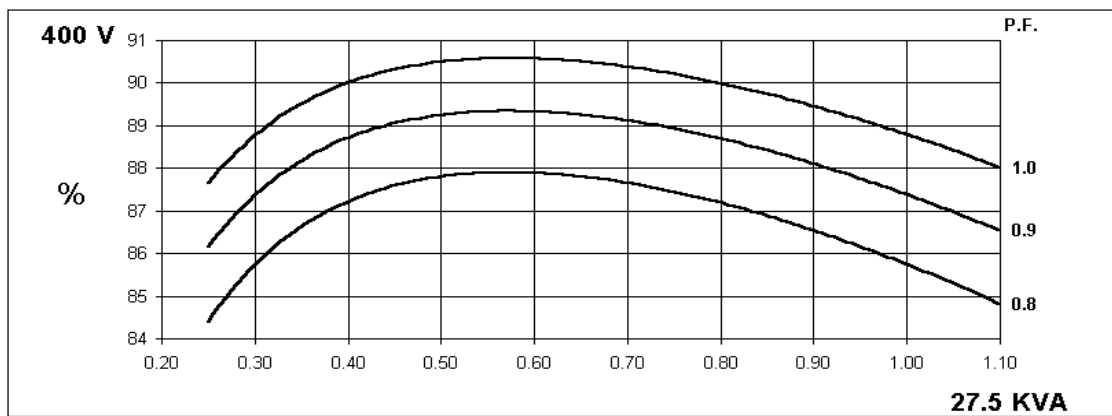
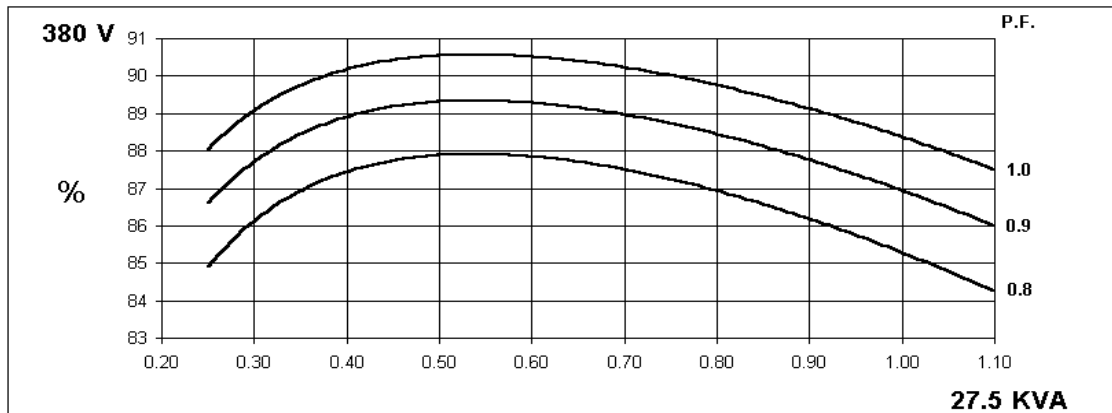
COUPLING DISC					
SAE	BX	P	X	Y	AH
11.5	352.42	333.38	8	11	39.6
10	314.32	295.28	8	11	53.8
8	263.52	244.48	6	11	62
7.5	241.3	222.25	8	9	30.2
6.5	215.9	200.02	6	9	30.2

				1:1	
				A2	
VER	MOD	DRW	Date		
Design	CHK	APP	Date	2018.01	
				mm	

**50
Hz**

Winding 311

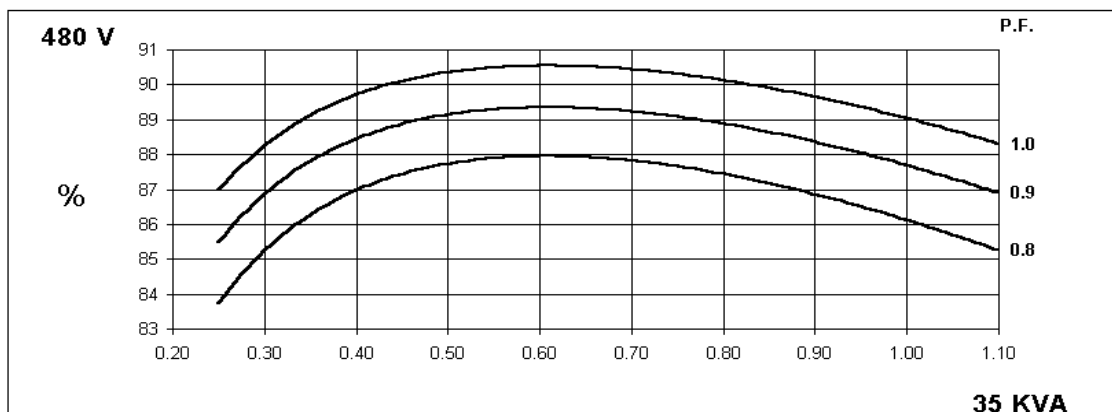
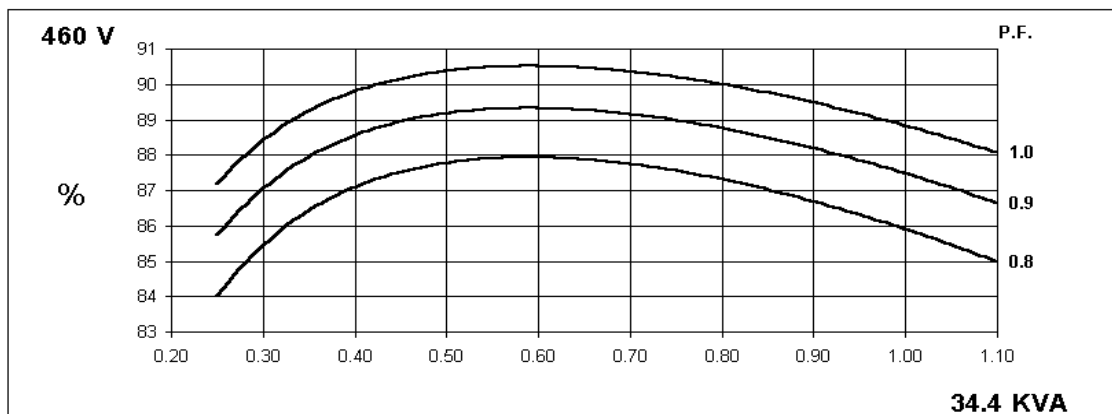
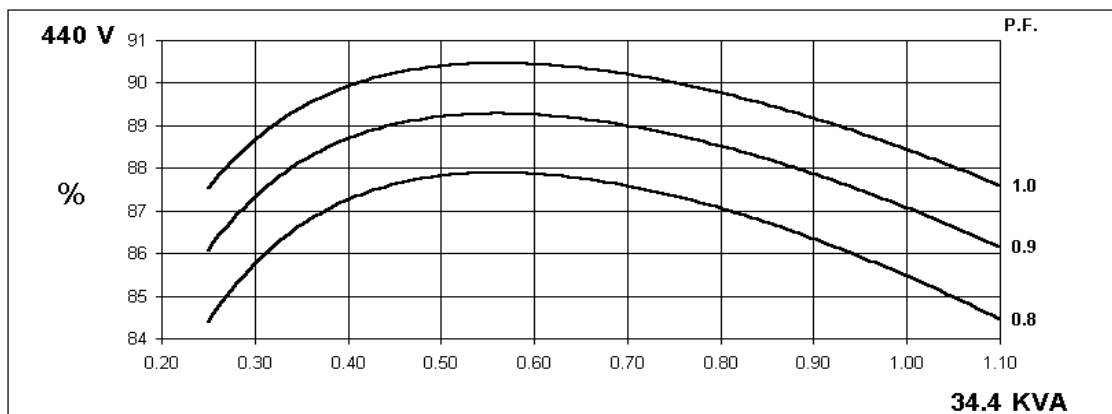
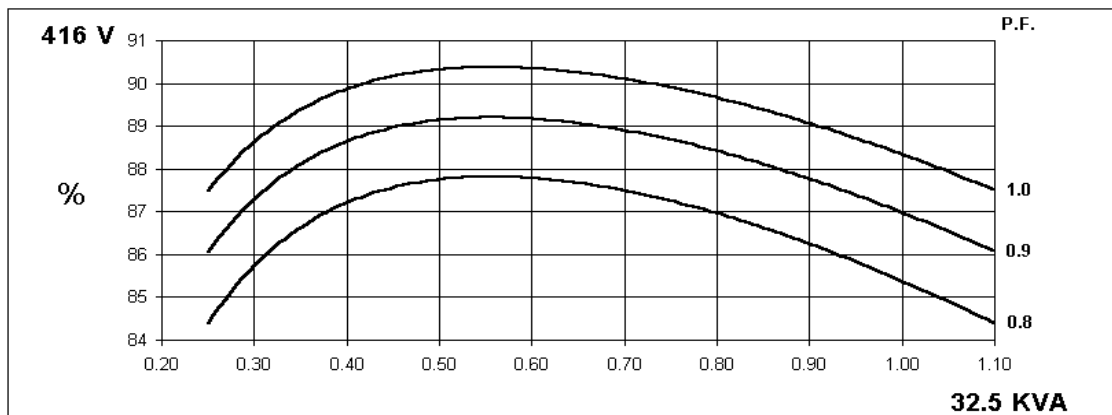
THREE PHASE EFFICIENCY CURVES

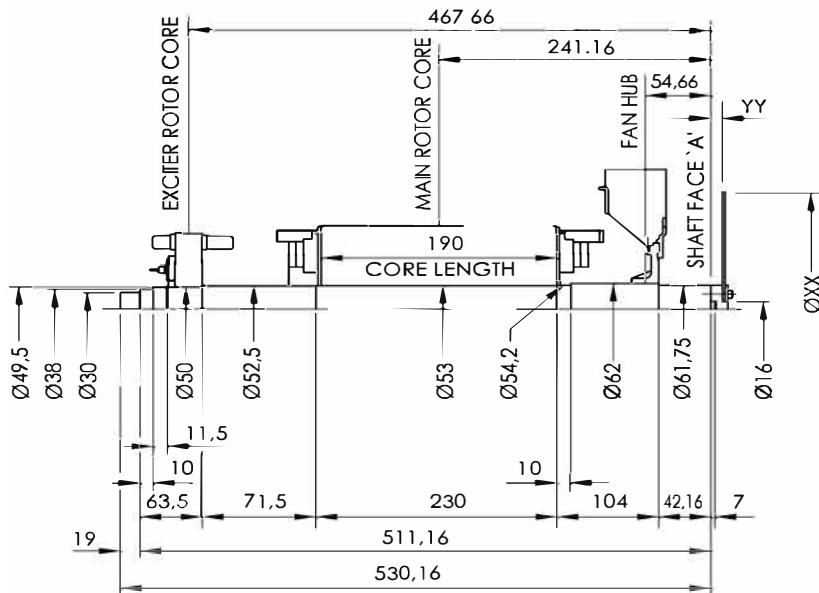


Winding 311

THREE PHASE EFFICIENCY CURVES

**60
Hz**

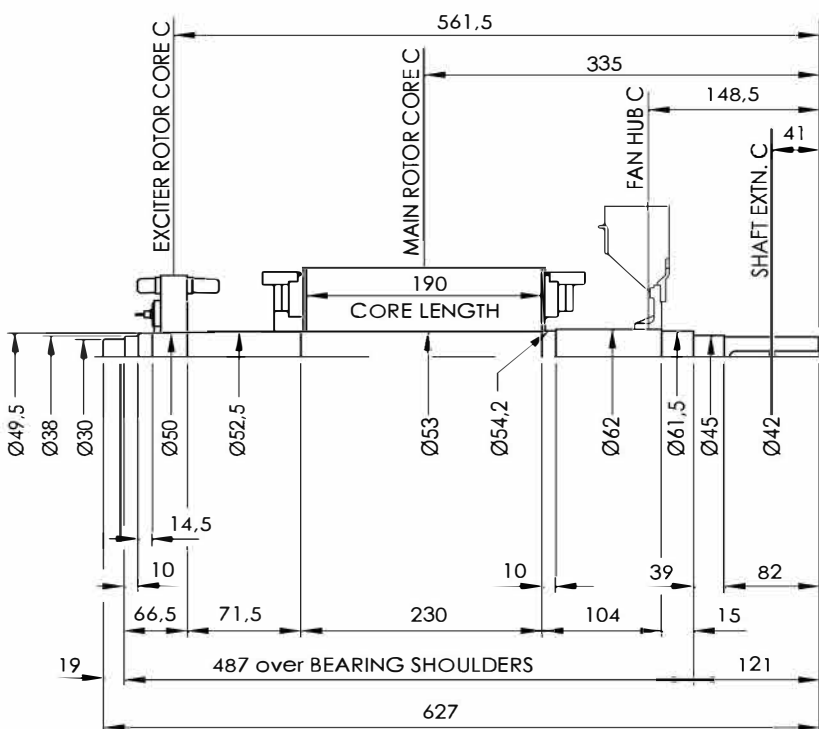




COMPONENT	Wt kg	J kgm ²
EX. ROTOR	6,530	0,0253
MAIN ROTOR	32,850	0,1558
FAN	0,744	0,0061
SHAFT	9,614	0,0037
TOTAL	49,738	0,1909

ADAPTOR	COUPLING	COUPLING DIMENSIONS		COUPLING ASSEMBLY WEIGHT	COUPLING DISC
SAE No.	SAE No.	XX	YY	kg	J 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

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



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

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



TEREX
DIESEL

TEREX ALTERNATOR | TA180-22N2 | CONT 27.5 kVA (400 V / 50 Hz, Class H)

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