TEREX DIESEL

TA160-14N2

THREE-PHASE SYNCHRONOUS ALTERNATOR

CONT 13.5 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 (125º C) temperature rise	kVA	13.5	13.5	13.5	11	16	16.9	16.9	16.9
	kW	10.8	10.8	10.8	8.8	12.8	13.5	13.5	13.5
Efficiency at Class H (P.F.=0.8)	4/4%	80	80.8	81	81.6	80.1	80.2	81	81.5
	3/4%	83	83.2	83.5	83.7	83	83	83.5	83.9
	2/4%	84.1	84.1	84.1	84	84.1	84.1	84.2	84.2
Efficiency at Class H (P.F.=1.0)	4/4%	84	84.7	85	85.6	84	84.1	84.9	85.2
	3/4%	86.5	87	87	87.1	86.4	86.7	87	87.2
	2/4%	87.8	87.8	87.8	87.5	87.5	87.6	87.7	87.6
Reactances (%) at Class H									
Direct axis synchronous reactance unsaturated	Xd	1.943	1.754	1.629	1.78	2.303	2.174	1.989	1.827
Direct axis transient reactance saturated	X'd	0.198	0.179	0.166	0.182	0.236	0.223	0.204	0.187
Direct axis subtransient reactance saturated	X"d	0.124	0.112	0.104	0.114	0.147	0.139	0.127	0.117
Quadrature axis synchronous reactance unsaturated	Xq	0.966	0.872	0.81	0.885	1.144	1.081	0.989	0.908
Quadrature axis subtransient reactance saturated	X"q	0.223	0.201	0.187	0.204	0.263	0.249	0.228	0.209
Leakage reactance	X1	0.078	0.07	0.065	0.071	0.092	0.087	0.079	0.073
Negative sequence reactance saturated	X2	0.186	0.168	0.156	0.171	0.221	0.208	0.191	0.175
Zero sequence reactance unsaturated	X0	0.084	0.076	0.071	0.077	0.1	0.094	0.086	0.079
Short-circuit ratio	Kcc	0.5147	0.5701	0.6139	0.5618	0.4342	0.4600	0.5028	0.5473
Short-circuit transient time constant (sec.)	T'd	0.016							
Subtransient time constant (sec.)	T"d	0.004							
Open circuit time constant (sec.)	T'do	0.3							
Armature time constant (sec.)	Ta	0.005							
Stator Winding Resistance (20)	ohm	0.785							
Rotor Winding Resistance (20)	ohm	0.52							
Exciter Stator Resistance (20)	ohm	19							
Exciter Rotor Phase resistance	ohm	0.13							
No load excitation current	io (A)	0.56	0.62	0.64	0.62	0.55	0.57	0.62	0.65
Full load excitation current	ic(A)	1.95	1.9	1.95	1.9	1.88	1.9	1.92	1.92
Cooling air requirement	m^3/sec	0.071m3/s 150cfm				0.09m3/s 191cfm			

Mechanical Characteristic

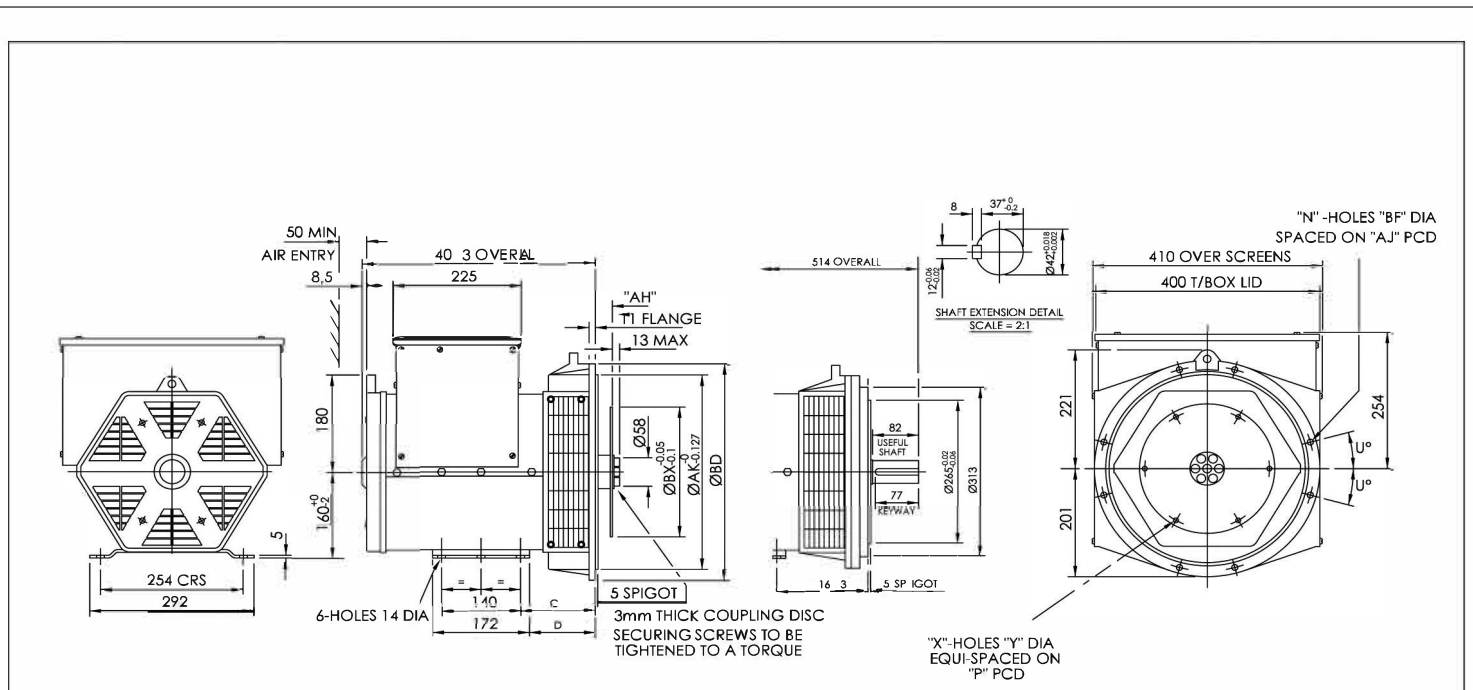
Configuration	Single Bearing	Double Bearing
Type of Construction	B2-SAE	IM B34
Total Weight - kgs	98	108
Weight wound stator - kgs	29.5	29.5
Weight wound rotor - kgs	31.4	32.18
Inertia (J) [kgm2]	0.117kgm2	0.1171kgm3
Drive end bearing / Lubrication		BALL.6309-2RS(ISO)
Non-drive end bearing / Lubrication	BALL.6306-2RS(ISO)	BALL.6306-3RS(ISO)
Packing crate size（cm）	49X45X58	58X45X57

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	12.5	12.5	12.5	10.2	13.5	13.5	13.5	11.0	N/A				N/A			
	kW	10.0	10.0	10.0	8.2	10.8	10.8	10.8	8.8								
	Efficiency (%)	81.0	81.6	81.9	82.4	80.1	80.7	81.1	81.7								
	kW Input	12.3	12.3	12.2	12.1	13.5	13.4	13.3	13.2								
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
	Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	14.8	15.6	15.6	15.6	16.0	16.9	16.9	16.9	N/A				N/A			
	kW	11.8	12.5	12.5	12.5	12.8	13.5	13.5	13.5								
	Efficiency (%)	81.2	81.4	81.9	82.4	80.3	80.4	81.0	81.5								
	kW Input	14.6	15.3	15.2	15.1	15.9	16.8	16.7	16.6								

DIMENSIONS



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

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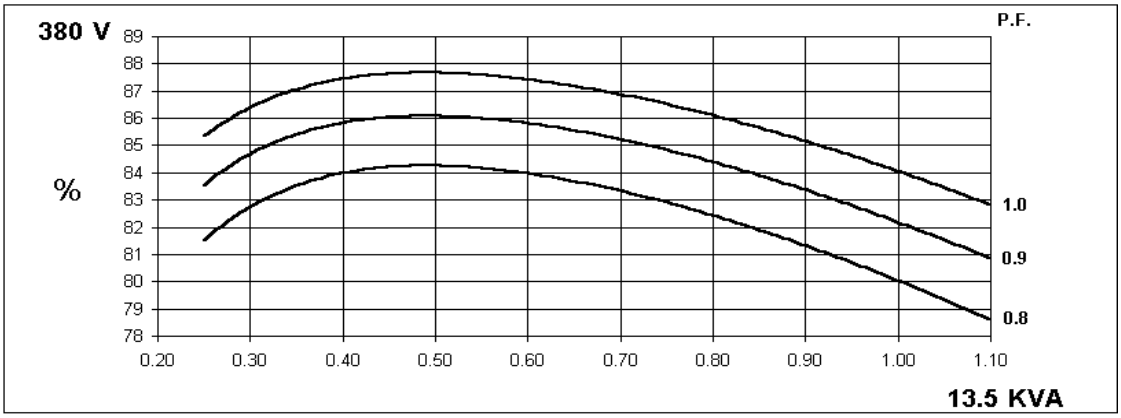
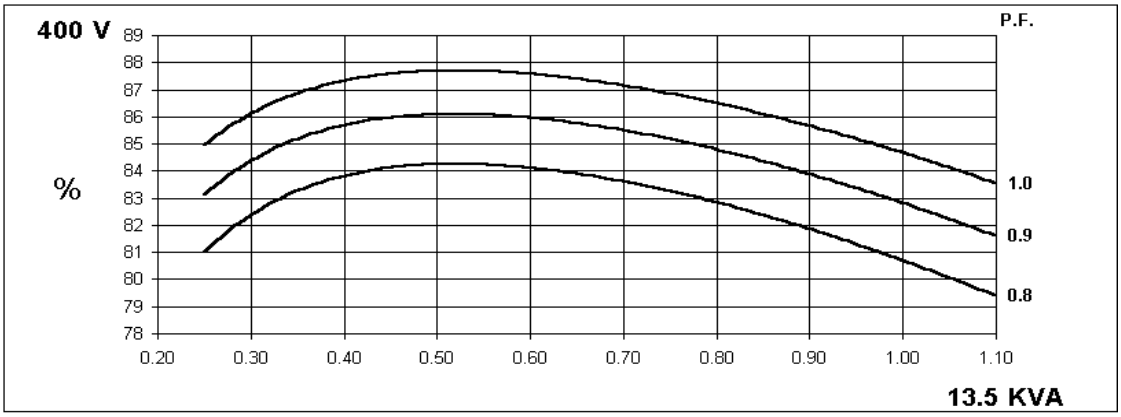
A2
mm

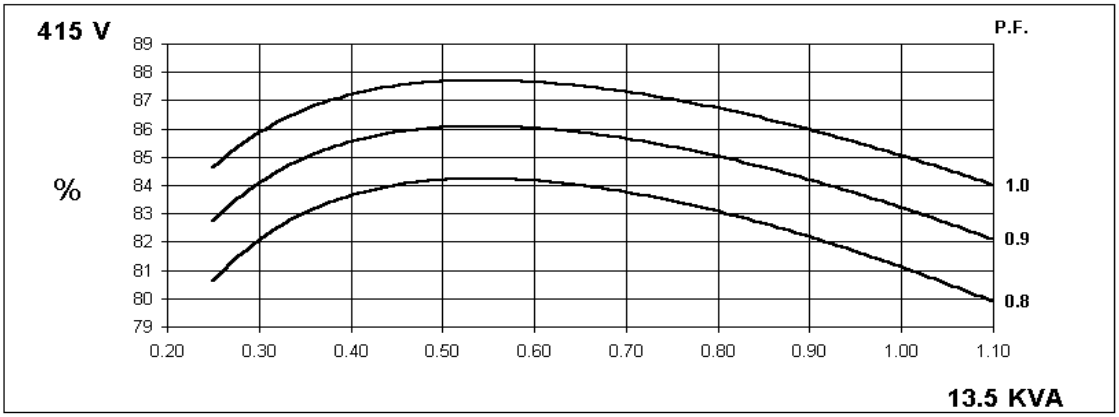
50 Hz

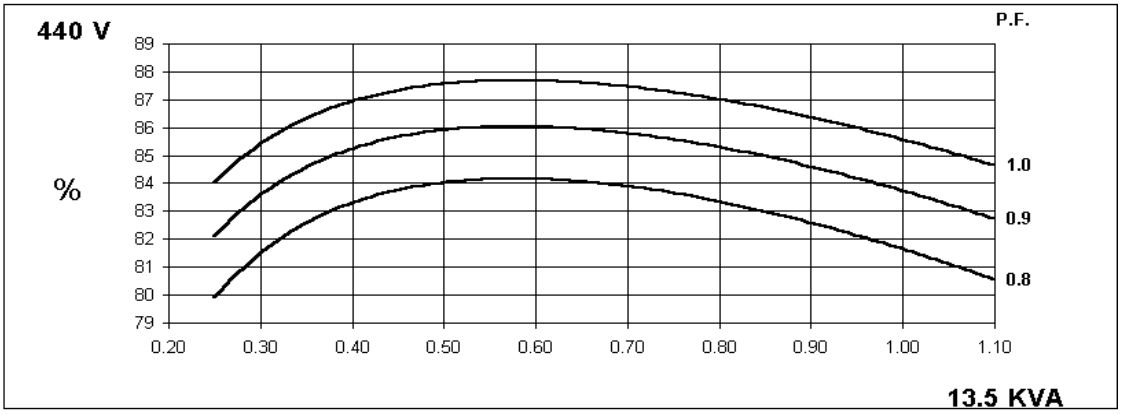
Winding 311

THREE PHASE EFFICIENCY CURVES





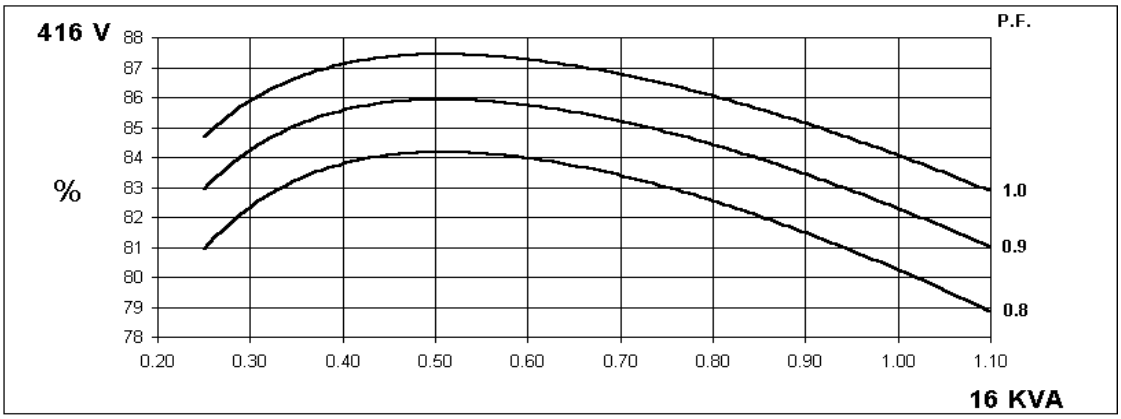


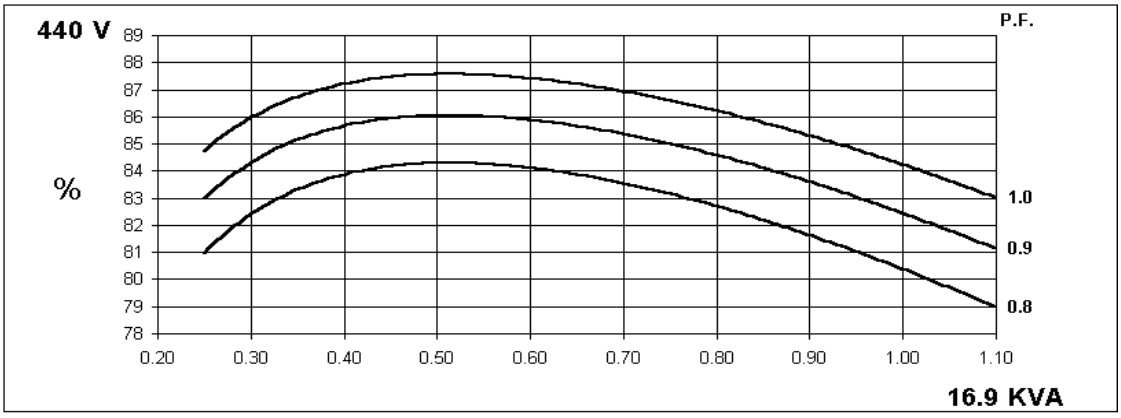


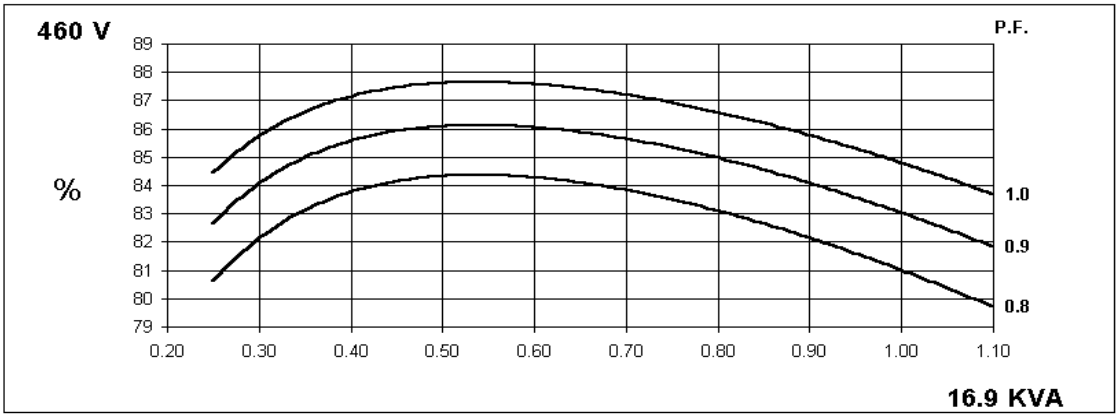
Winding 311

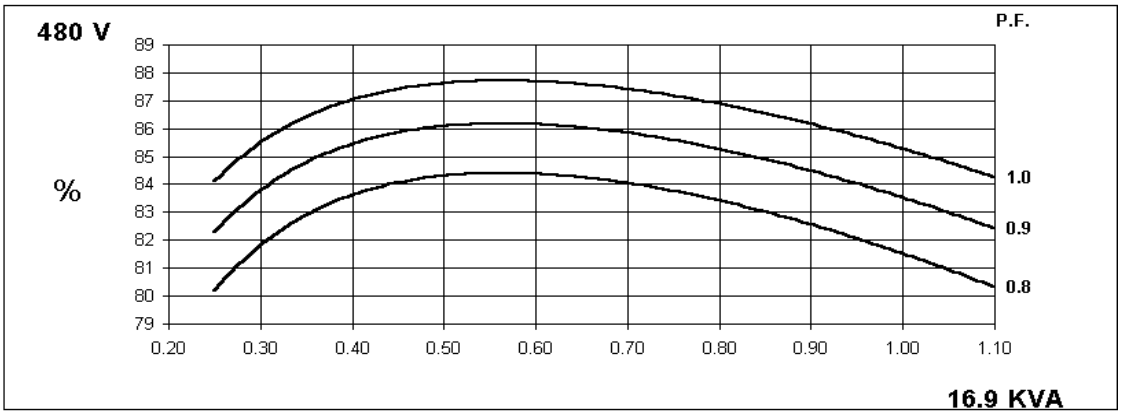
THREE PHASE EFFICIENCY CURVES

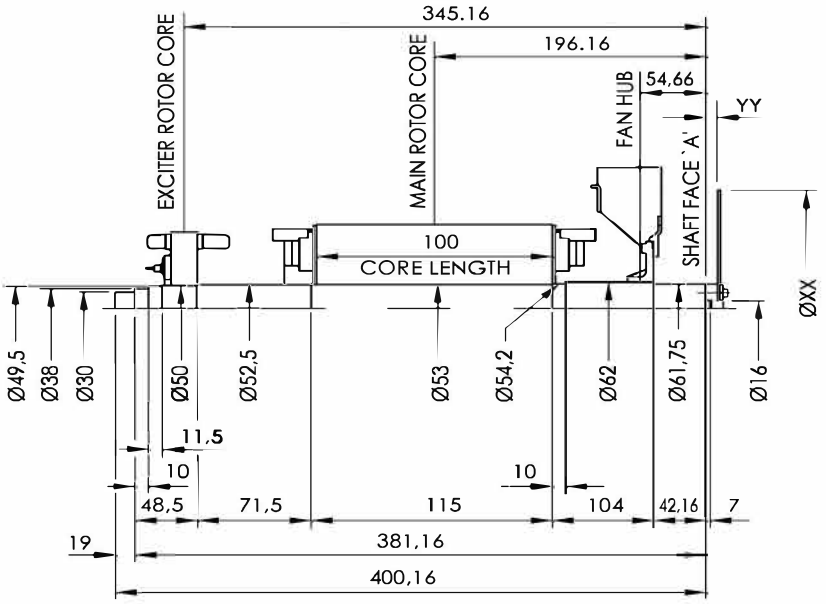
60 Hz











COMPONENT	Wt kg	J kgm²
EX.ROTOR	4,300	0,0170
MAIN ROTOR	18,960	0,0910
FAN	0,744	0,0061
SHAFT	7,391	0,0029
TOTAL	31,395	0,1170

ADAPTOR SAE No.	COUPLING SAE No.	COUPLING DIMENSIONS XX	COUPLING DIMENSIONS YY	COUPLING ASSEMBLY WEIGHT kg	COUPLING DISC J kgm²
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	11½	352	21,5	2,793	0,0356

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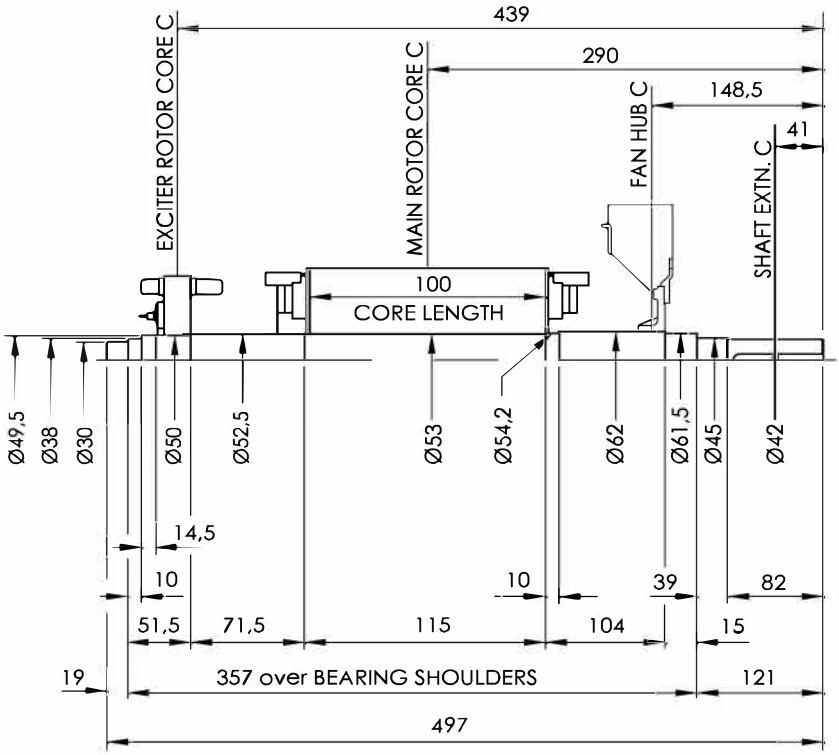
VER	MOD	DRW	Date		
Design		APP			
CHK		Date	2018.01		mm



COMPONENT	Wt kg	J kgm²
EX. ROTOR	4,300	0,0170
MAIN ROTOR	18,960	0,0910
FAN	0,744	0,0061
SHAFT	8,174	0,0030
TOTAL	32,178	0,1171

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VER	MOD	DRW	Date		
Design		APP			
CHK		Date	2018.01		mm

TEREX DIESEL

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