موتور دیزل : IVECO	ژنراتور : Meccalte

	Prime		Standby	
	KVA	KW	KVA	KW
دیزل ژنراتور	48	60	52.8	66

موتور دیزل		
Manufacturer	IVECO	تولید کننده
Type	NEF45SM1A	تیپ
Number of cylinders	4	تعداد سیلندر ها
Cylinder arrangement	inline	آرایش سیلندر ها
Displacement , Liters	4.5	جا به جایی
Bore × Stroke , mm	104x132	قطر سیلندر × کورس پیستون
Compression Ratio	17,5 : 1	نسبت تراکم
Fan Power, kWm	1,15	قدرت فن
Mean Piston Speed , m/s	6,6	میانگین سرعت پیستون

ژنراتور		
Manufacturer	Mecc Alte	تولید کننده
Type	ECO32-2L/4	تیپ
Frequency, Hz	50	فرکانس
Speed, Rpm	1500	سرعت
Voltage, V	380	ولتاژ
Excitation	2	سیستم تحریک
Stator windings	12	سیم پیچ استاتور
Rotor	with damping cage	روتور
Over speed, Rpm	2250	حداکثر سرعت مجاز
Short circuit current	0,47	جریان اتصال کوتاه
Insulation class	H	کلاس عایق
Protection class	IP 21	کلاس حفاظتی
Cooling air volume,m^3 / sec	11,8	دبی هوای خنک کننده

NEF45 SM1A

59 kW (1500 rpm) - 65 kW (1800 rpm)

1/ GENERAL		1500 rpm	1800 rpm
Engine model		N45 SM1A	
Basic engine type		F4GE0455C*F650 - 504253544	
Number cylinders		4	
Firing order (N° 1 nearest to fan)		1-3-4-2	
Cylinder arrangement		in line	
Valves per cylinder		2	
Cycle		diesel 4 stroke	
Injection system		direct	
Induction System		Turbocharged	
Bore	mm	104	
Stroke	mm	132	
Total displacement	lit	4,5	
Mean piston speed	m/s	6,6	7,9
Compression ratio		17,5 : 1	
Flywheel rotation		anti clockwise viewed on flywheel	
Housing flywheel		SAE 3	
Flywheel		11"1/2	
Moment of inertia			
without flywheel	kgm^2	0,14	
flywheel only	kgm^2	0,71	
BMEP gross			
Prime Power	bar/kPa	9,7 / 969,7	9,0 / 902,4
Stand-by Power	bar/kPa	10,7 / 1066,7	9,9 / 992,6
Dry weight (including cooling package)	kg	~450	
Energy to coolant	kcal/kWh	485,4	588,2
Energy to radiation	kcal/kWh	172	141
Dimensions L x W x H	mm	1259 x 657 x 1016	

2/ PERFORMANCES			1500 rpm	1800 rpm
Continuous Power	(gross)	kWm	43,5	49
Prime Power	(gross)	kWm	54,5	61
Stand-By Power	(gross)	kWm	60	67
Fan consumption		kWm	1,15	2
Continuous Power	(net)	kWm	42,3	47
Prime Power	(net)	kWm	53,3	59
Stand-By Power	(net)	kWm	58,8	65
Performance condition				
temperature		°C	≤ 40	
altitude a.s.l		m	≤ 1000	
Derating				
temperature > T 40°C		%/5°C	2%	
altitude >1000 <3000 m		%/500m	2%	
altitude >3000 m		%/500m	4%	

3/ COOLING SYSTEM		1500 rpm	1800 rpm
Type		liquid	
Recommanded coolant		water - paraflu 50%	
Coolant capacity			
engine only	liter	8,5	
radiator and hoses	liter	10	
Coolant pump flow	l/min	103,3	123,9
Pressure cap setting	kPa (bar)	70 (0,7)	
Shutdown switch setting	°C	103	
Maximum additional restriction	Pa	147	
Air To Boil Prime Power	°C	58	60
Fan			
diameter	mm	450	
number of blades		8	
drive ratio		1,41 : 1	
speed	rpm	2115	2538
air flow	m^3/s	1,86	2,3
power consumption	kWm	1,15	2

4/ LUBRICATION SYSTEM		1500 rpm	1800 rpm
Oil sump capacity			
max	liter	8,5	
min	liter	5,5	
Oil system capacity including filter	liter	12,8	
Oil pressure at rated speed	kPa	300 - 500	
Oil temperature			
normal	°C	---	
max	°C	120	
Engine angularity			
longitudinal	degrees	25°	
transverse	degrees	25°	
Servicing interval	hours	600	
Oil specification		ACEA E3 / E5	
Oil consumption	%fuel	< 0,1	

5/ INTAKE SYSTEM		1500 rpm	1800 rpm
Air consumption at 100 % of load	m^3/h (Kg/h)	260 (313)	346 (417)
Air intake restriction, clean filter	kPa (mbar)	2 (20)	
Air intake restriction, dirty filter	kPa (mbar)	5 (50)	
Air filter type		dry	

6/ EXHAUST SYSTEM		1500 rpm	1800 rpm
Gas flow at stand-by Power	kg/h	325	431
Max temperature at PRP (25°C)	°C	483	385
Max allowable back pressure	kPa (mbar)	5 (50)	
Energy to exhaust	kcal/kWh	655,3	722,9

7/ FUEL SYSTEM		1500 rpm	1800 rpm
Fuel consumption at			
Stand-By	gr/kWh (l/h) [kg/h]	210,0 (15,0) [12,6]	211,9 (16,9) [14,2]
Full load	gr/kWh (l/h) [kg/h]	210,8 (13,7) [11,5]	213,4 (15,5) [13,0]
80%	gr/kWh (l/h) [kg/h]	210,2 (10,2) [8,60]	214,5 (11,7) [9,80]
50%	gr/kWh (l/h) [kg/h]	216,30 (7,0) [5,90]	226,6 (8,20) [6,90]
Fuel specifications		EN 590	
Feed pump max suction head	m	---	
Injection pump	type STANADYNE	DB4427-5955	

8/ ELECTRIC SYSTEM			1500 rpm	1800 rpm
Voltage (negative to ground)		V	12	
Starter motor				
	make		Bosch	
	power	kW	3	
	pull current	Amp	60	
	hold current	Amp	12	
	break away current +20°C	Amp	1580	
	cranking current +20°C	Amp	---	
Number of teeth on starter motor			10	
Number of teeth on flywheel			125	
Starting batteries				
	recommended capacity Ah	1x	100	
	discharge current (EN 50342)	Amp	650	
Stop solenoid energized to run		Amp	---	
Alternator				
	voltage	V	14	
	charge	Amp	90	

9/ COLD STARTING		1500 rpm	1800 rpm
Without air preheating	°C	-10	
With air preheating	°C	-25	

10/ EMISSION GASEOUS AND PARTICLES			1500 rpm	1800 rpm
No_x	Oxides of nitrogen	gr/kWh	5,73	5,69
HC	Hydrocarbons	gr/kWh	0,51	0,25
No_x+HC		gr/kWh	6,24	6,6
CO	Carbon monoxide	gr/kWh	0,69	2,1
PT	Particles	gr/kWh	0,145	0,25

GENERATOR TYPE ECO 32-2L/4

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Electrical Characteristics										
Frequency		Hz	50				60			
Voltage (series star)		V	380	400	415	440	415	440	460	480
Rated power class H		kVA	63	63	63	52	63	71	75,5	75,5
		kW	50	50	50	42	50	56,8	60,4	60,4
Rated power class F		kVA	60	60	60	47	58	68	72	72
		kW	48	48	48	38	46	54	57,6	57,6
Regulation with		DSR	±1 % with any power factor and speed variations between -5% +30%							
Insulation class			H							
Execution			Brushless							
Stator winding			12 ends							
Rotor			with damping cage							
Efficiencies class H	4/4	%	90,1	90,2	89,9	89,4	92,1	92,6	92,7	92,8
(see graph. for details)	3/4	%	90,5	90,8	90,7	90,4	92,7	92,9	93,1	93,3
	2/4	%	89,4	89,5	89,5	89,5	90,8	90,9	91	91,1
	1/4	%	86,2	86	85,8	85,5	87	87	87	87
Reactances (f. l.cl. F)	Xd	%	314,1	283,5	263,4	193,4	316,5	317,3	308,7	284
	Xd'	%	14,85	13,4	12,45	9,14	14,96	15,00	14,59	13,4
	Xd"	%	7,91	7,14	6,63	4,87	7,97	7,99	7,77	7,14
	Xq	%	123,0	111	103,1	75,7	123,9	124,2	120,9	111
	Xq'	%	123,0	111	103,1	75,7	123,9	124,2	120,9	111
	Xq"	%	38,3	34,6	32,1	23,6	41,5	36,8	34,6	34,6
	X_2	%	25,93	23,4	21,74	15,96	26,12	26,19	25,48	23,4
	X_0	%	3,49	3,15	2,93	2,15	3,52	3,53	3,43	3,15
Short Circuit Ratio	Kcc		0,47	0,59	0,69	1,29	0,34	0,39	0,47	0,59
Time Constants	Td'	sec.	0,062							
	Td"	sec.	0,014							
	Tdo'	sec.	1,20							
	Tα	sec.	0,028							
Short Circuit Current Capacity		%	>300				>350			
Excitation at no load		Amp.	0,5	0,6	0,7	1	0,3	0,4	0,45	0,6
Excitation at full load		Amp.	2	2	2,5	2,9	1,7	1,8	1,9	2,1
Overload (long-term)		%	1 hour in a 6 hours period 110% rated load							
Overload per 20 sec.		%	300							
Stator Winding Resistance (20°C)		Ω	0,041							
Rotor Winding Resistance (20°C)		Ω	2,861							
Exciter Resistance (20 °C)		Ω	Rotor : 0,442				Stator : 11,35			
Heat dissipation at f.l.cl.H		W	5538	5476	5662	4932	4323	4539	4756	4686
Telephone Interference			THF < 2%				TIF < 45			
Radio interference			EN61000-6-3, EN61000-6-1. For others standards apply to factory							
Waveform Distors.(THD) at f. load		LL/LN %	3,8 / 3,6							
Waveform Distors.(THD) at no load		LL/LN %	3 / 2,9							
Mechanical characteristics										
Protection			IP 21 (other protection on request)							
DE bearing			6312-2RS							
NDE bearing			6309-2RS							
Weight of wound stator assembly		kg	95							
Weight of wound rotor assembly		kg	64,5							
Weight of complete generator		kg	282							
Maximun overspeed		rpm	2250							
Unbalanced magnetic pull at f.l.cl.F		kN/mm	4,7							
Cooling air requirement		m^3/min	11,8				14,5			
Inertia Constant (H)		sec.	0,098				0,118			
Noise level at 1m/7m		dB(A)	75 / 60				79 / 64			

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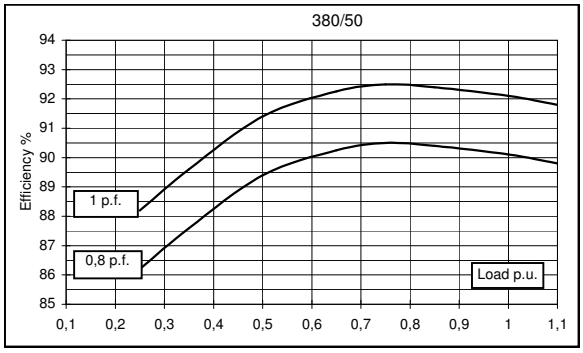
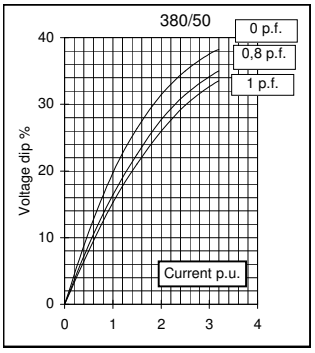
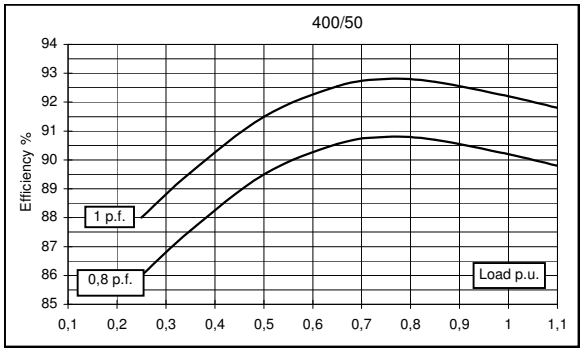
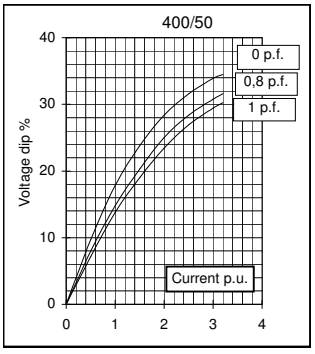
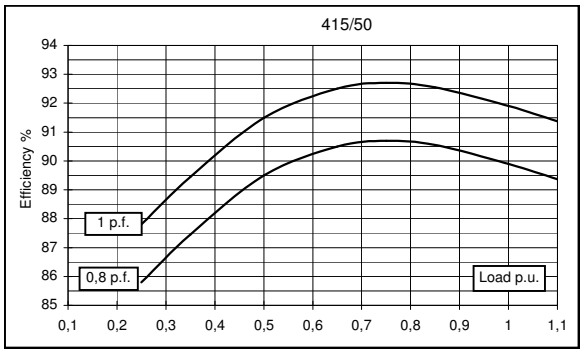
50 Hz

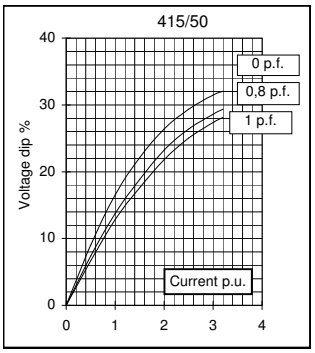


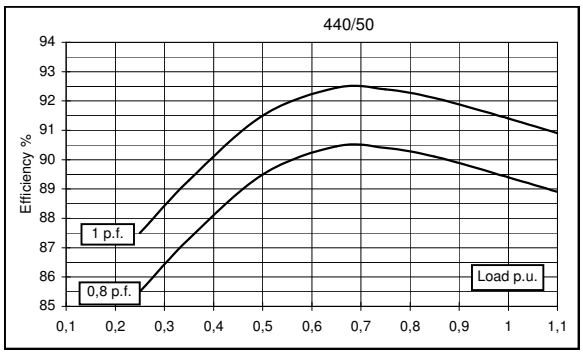


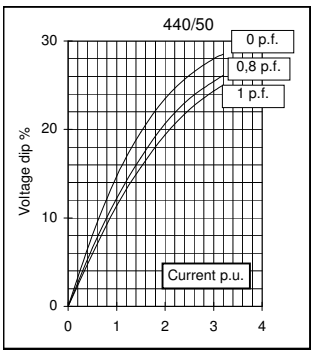


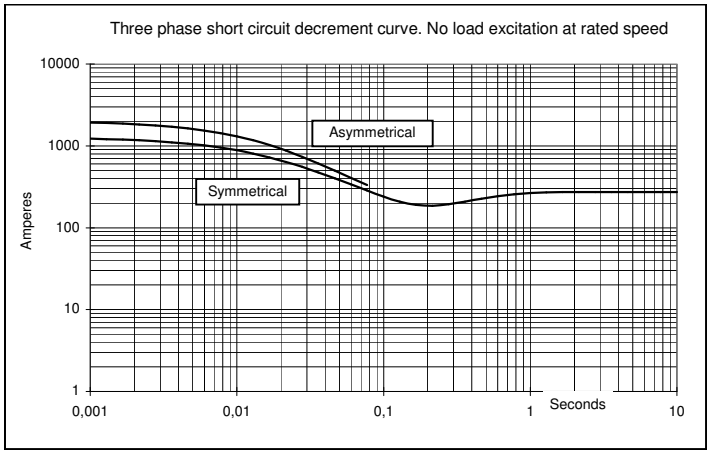












GENERATOR TYPE ECO 32-2L/4

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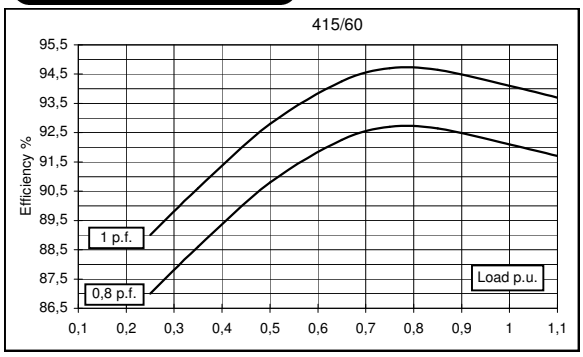
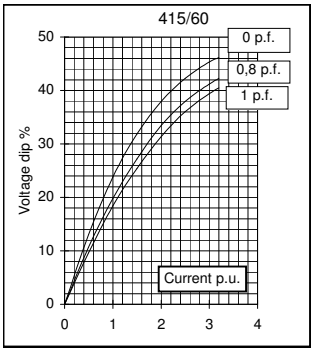
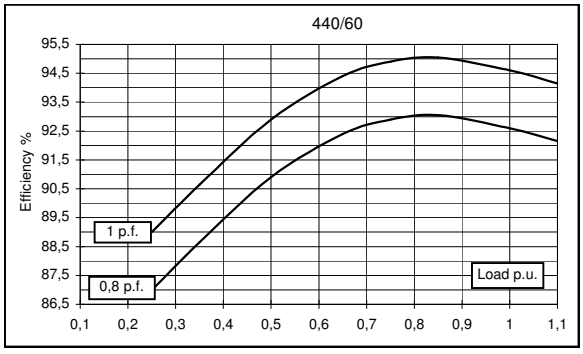
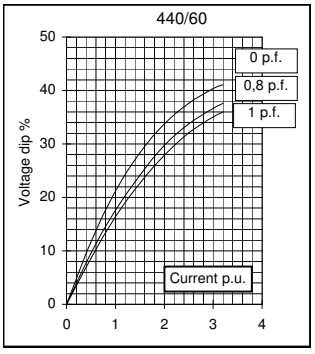
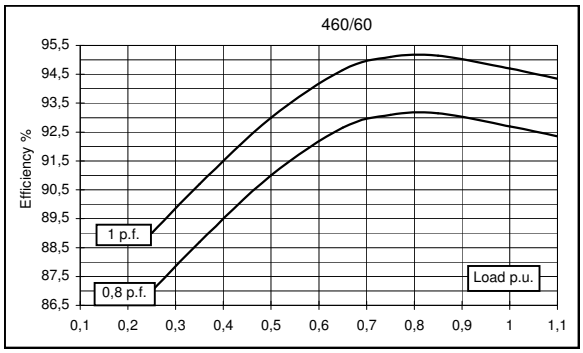
60 Hz

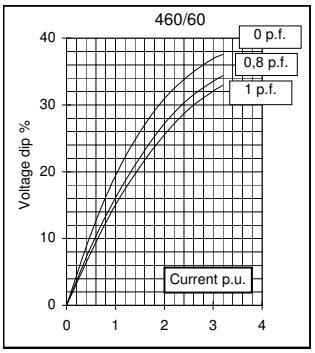


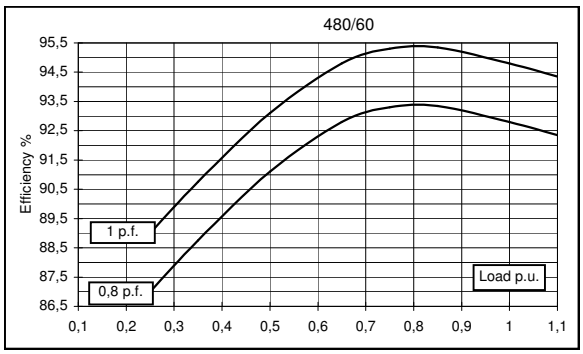


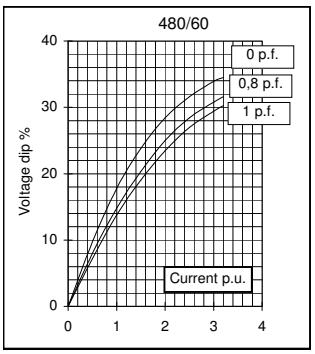


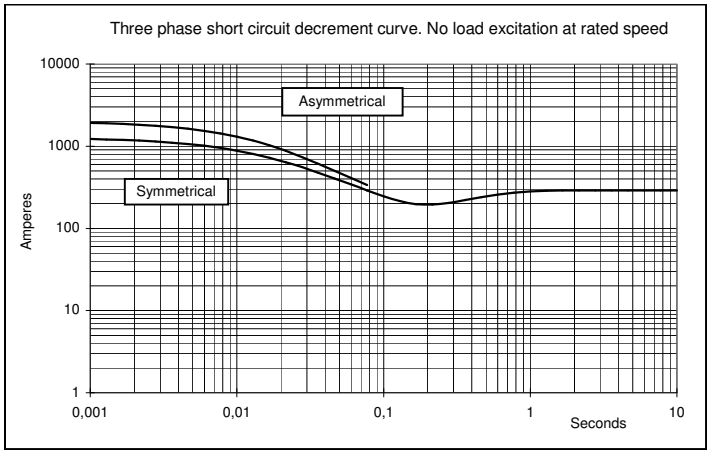




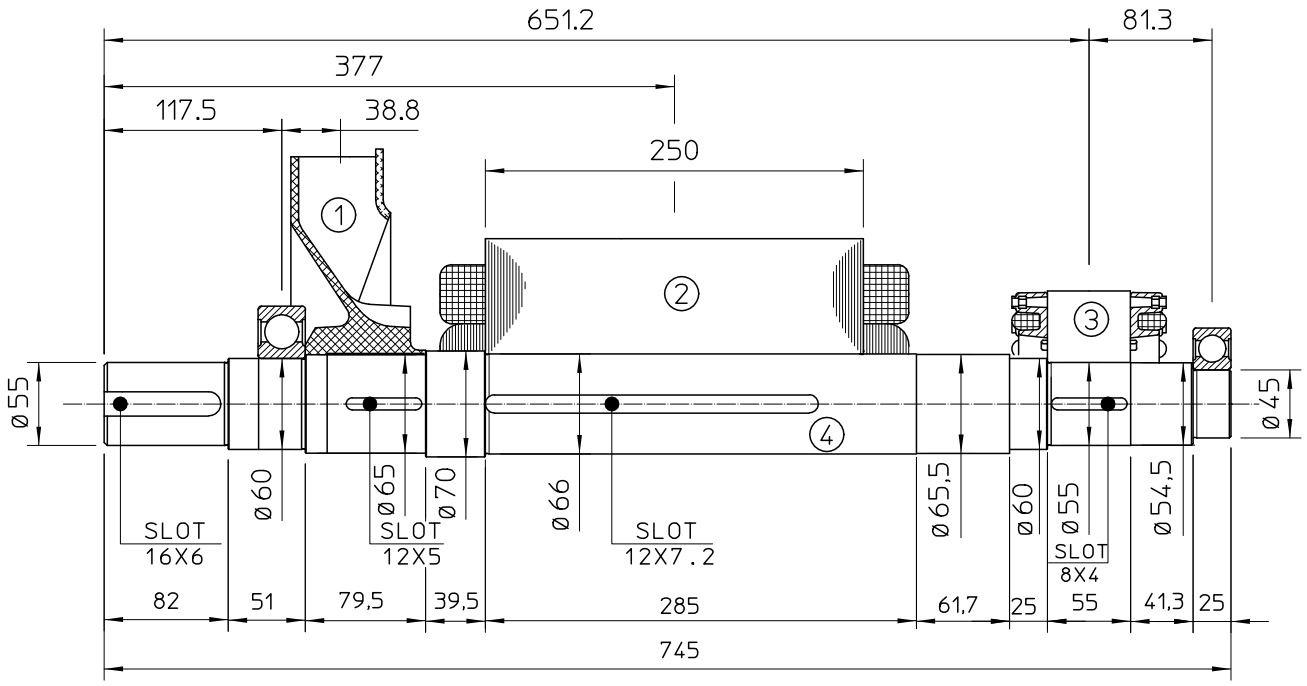






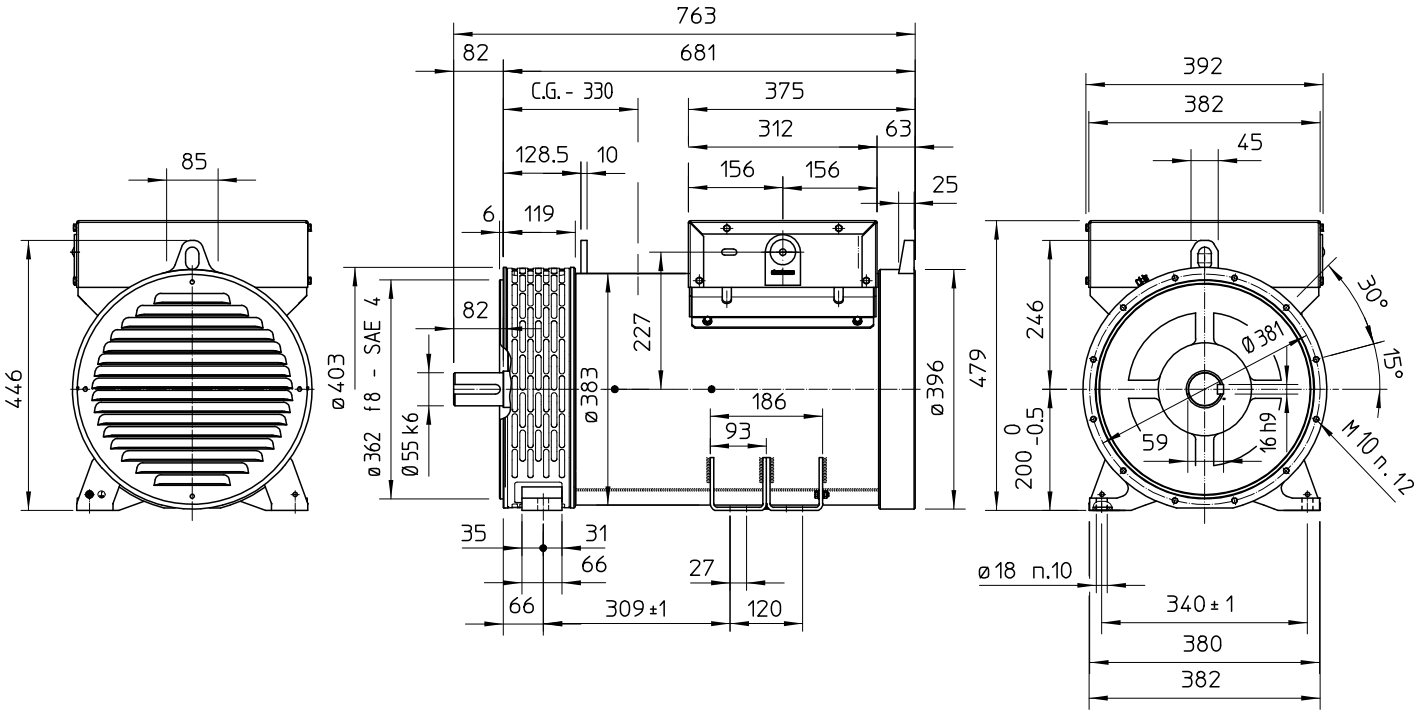


TWO BEARING MOMENTS OF INERTIA



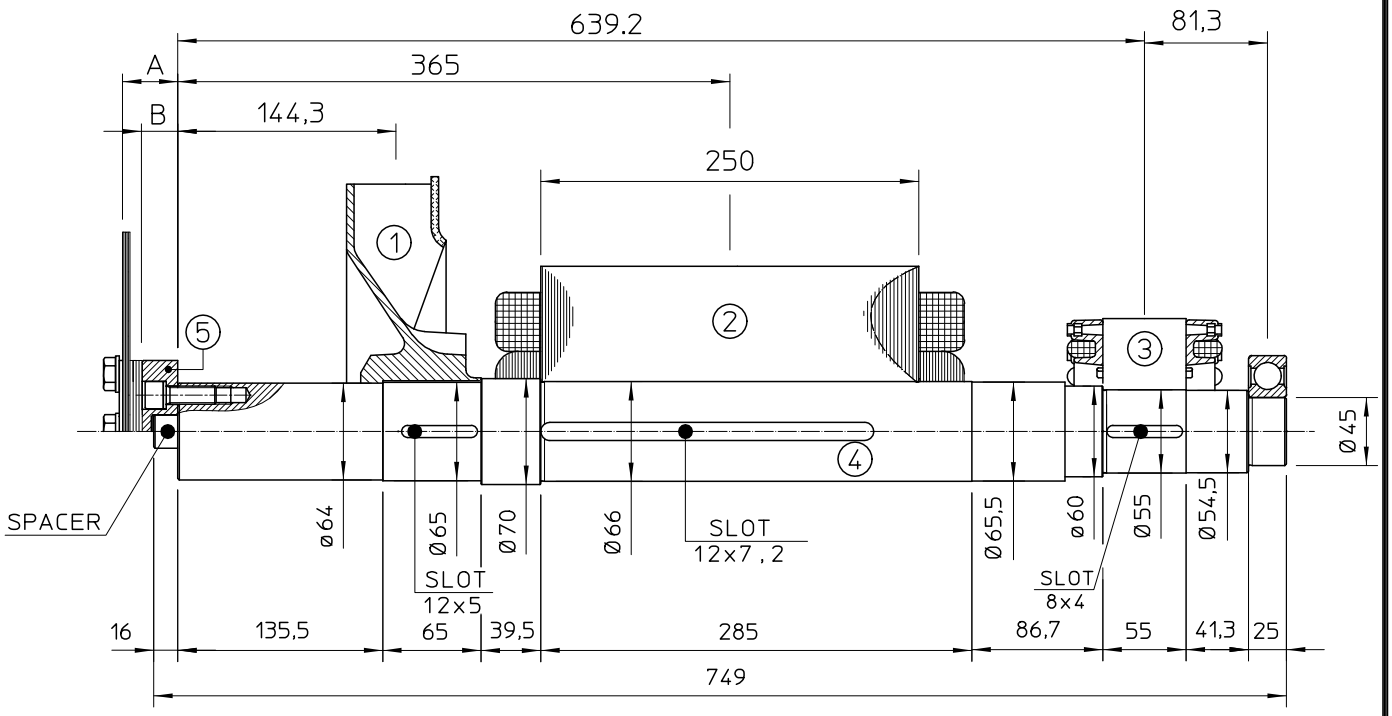
POS.	COMPONENT	WEIGHT (kg)	J (kgm^2)
1	FAN	2.3	0.0224
2	MAIN ROTOR	64.5	0.4579
3	EX. ROTOR	7	0.016
4	SHAFT	17.3	0.0067
TOTAL		91.1	0.503

TWO BEARING DIMENSIONS



C.G.= GRAVITY CENTER

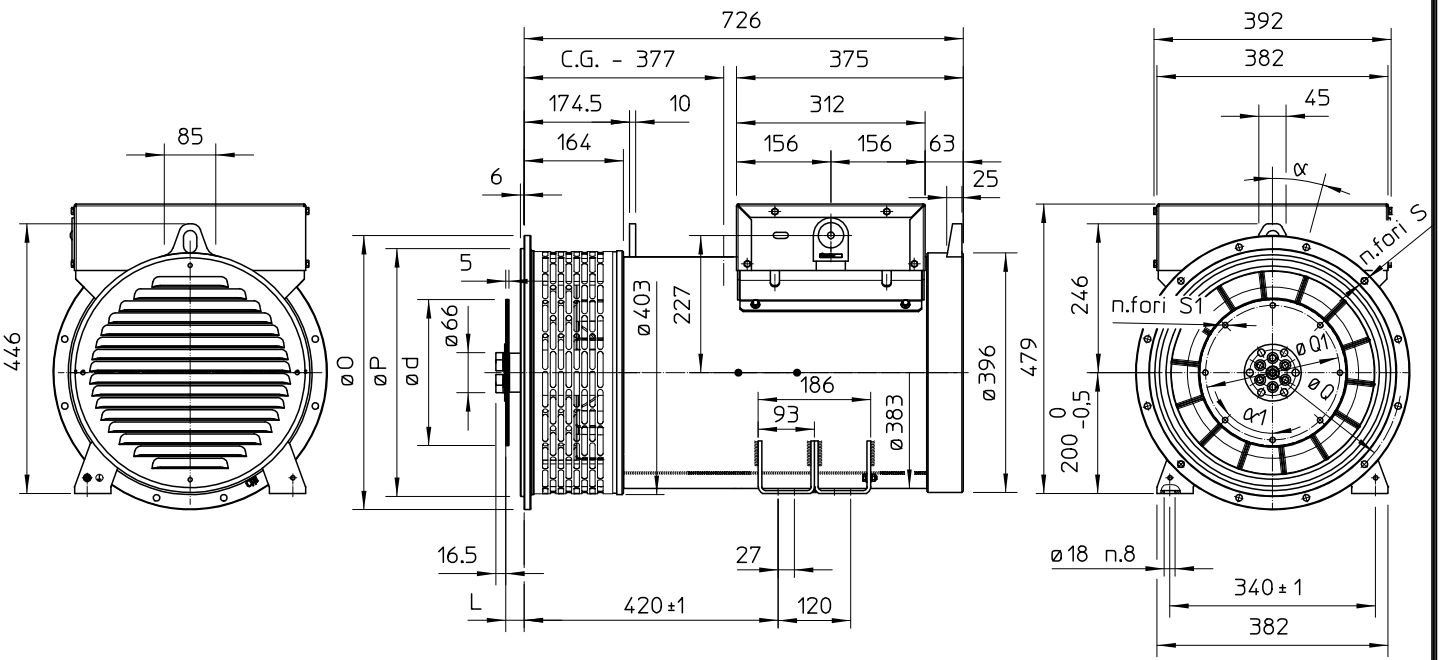
SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm^2)
1	FAN	2.3	0.0224
2	MAIN ROTOR	64.5	0.4579
3	EX. ROTOR	7	0.016
4	SHAFT	17.6	0.0090
TOTAL		91.4	0.5053

SAE	5	SHAFTS COUPLING FLEX PLATE		
N°	A	B	WEIGHT kg	J kgm^2
6,5	5	2.5	1.74	0.0084
7,5	5	2.5	2.1	0.013
8	36.6	28.1	3.9	0.02
10	28.6	21.6	4.47	0.038
11.5	15	11.5	4.51	0.059

SINGLE BEARING DIMENSIONS



SAE N.	FLANGIA / FLANGE BRIDE / FLANSCH					
	O	P	Q	S	N. FORI HOLES N°	α
5	356	314.3	333.4	11	8	45
4	403	362	381	11	12	30
3	451	409.6	428.6	11	12	30
2	490	447.7	466.7	11	12	30
1	552	511.2	530.2	11	12	30

SAE N.	GIUNTI A DISCHI / DISC COUPLING DISCQUE DE MONOPALIER / SCHEIBENKUPPLUNG					
	d	L	Q1	S1	N. FORI HOLES N°	α_1
6 1/2	215.9	30.2	200	9	6	60
7 1/2	241.3	30.2	222.25	9	8	45
8	263.52	62	244.47	11	6	60
10	314.32	53.8	295.27	11	8	45
11 1/2	352.42	39.6	333.37	11	8	45

C.G.= GRAVITY CENTER