

## موتور دیزل

Manufacturer	Deutz	تولید کننده
Type	BF4M1013EC	تیپ
Number of cylinders	4	تعداد سیلندر ها
Cylinder arrangement	in-line	آرایش سیلندر ها
Cycle	4 stroke	چرخه
Aspiration	Turbo charged CAC	سیستم تنفس
Bore × Stroke , mm	105X130	قطر سیلندر × کورس پیستون
Displacement , Liters	4.76	جا به جایی
Speed Governor	Mechanical	سرعت گاورنر
Cooling System	water-cooled	سیستم خنک کننده
Starter Motor	12 V	استارتر موتور

## ژنراتور

Manufacturer	Mecc alte	تولید کننده
Type	ECP <sub>34</sub> - 2S	تیپ
Exciter type	Brushless, Self-excited	نوع کانتر
Power factor	0.8	ضریب قدرت
Voltage	380	ولتاژ
Frequency	50 Hz	فرکانس
Speed, Rpm	1500	سرعت
Insulation class	H	کلاس عایق
Protection class	IP <sub>23</sub>	کلاس حفاظتی
Excitation	Brushless	سیستم تمریک

## GENERAL INFORMATION

### DIESEL GENERATOR SET

Model	DE110D5 / DE110D6	
Motor	DEUTZ BF4M1013EC	
Alternator	STAMFORD OR LEROY SOMER	
Speed Control type	Mechanical / Electrical	
Phase	Three	
Fuel Tank Capacity	300 L	
System Voltage	12V	
Frequency	50HZ	60HZ
Air Flow	6100m <sup>3</sup> /h	7600m <sup>3</sup> /h
Combustion air flow	365.3m <sup>3</sup> /h	465.6m <sup>3</sup> /h
Exhaust air flow	1102m <sup>3</sup> /h	1316m <sup>3</sup> /h
Exhaust Temperature	560°C	520°C

### Engine

Maximum output(kw)	88KW(50Hz)	88KW(60Hz)
Number of Cylinders	inline 4	
Aspiration	Turbo charged, CAC	
Cycle	4	
Fuel Type	Diesel	
Combustion Type	Direct Injection	
Cooling Type	Water cooled	
Bore	108mm	
Stroke	130mm	
Displacement	4.76L	
Compression Ratio	19:1	
Lubrication Capacity	11 liter	
Coolant Capacity	7.4 liter	

FUEL CONSUMPTION	1500 RPM	1800 RPM
	L/hr	L/hr
100% Prime Power(1)	25.8	28
75% Prime Power(1)	19.3	21.1
50% Prime Power(1)	13.1	14.5
25% Prime Power(1)	7.2	8.3

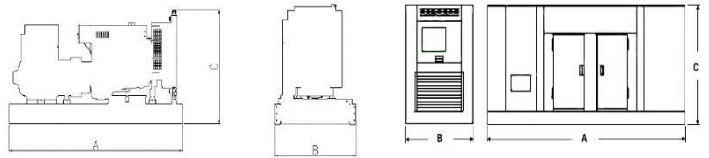
DIMENSION	OPEN	SILENT
Length (A)	2300mm	2900mm
Width (B)	1080mm	1080mm
Height (C)	1580mm	1970mm
Net Weight	1335kg	1735kg

### Alternator

Insulation	Clase "H"
Excitation Type	Self-excitation or PMG
Protection class	IP23

### Certificates

Engine	ISO 3046, BS 5514, DIN 6271
Alternator	UTE NFC 51-111-105-110 ICE34-1, BS 5000-4999 NEMA MG 21, VDE 0530
Generator Set	ISO 8528



(1) Prime Power: ratings are as per DIN 6271, BS5514 and ISO-3046 with 10% overload capacity

(2) Standby Power: power available at variable load for up to a maximum of 500 hours during one year of which 300 hours may be for continuous use

(3) Operation at Altitude  $\leq 1500\text{m}$ , Ambient temperature  $\leq 40^\circ\text{C}$ . If altitude higher than 1500m, each 300m will cause additional de-rating 4%.

**Certificacion ISO 9001:2000**



# GENERATOR TYPE ECP 34-2S/4 A

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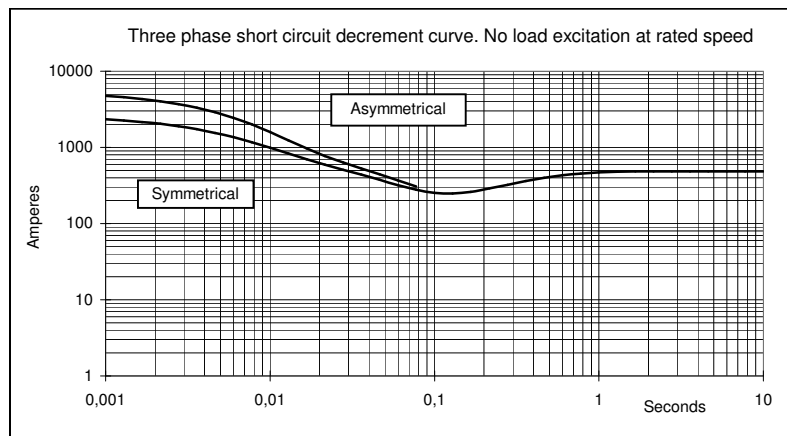
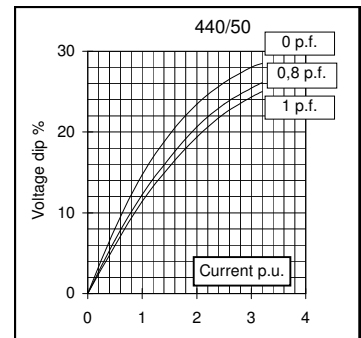
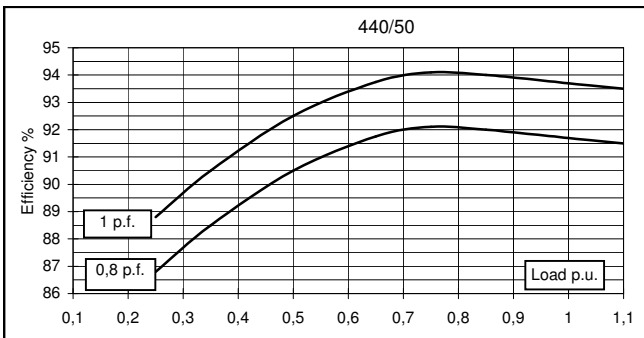
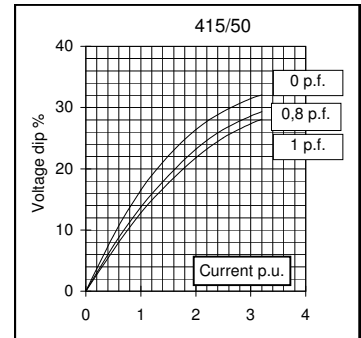
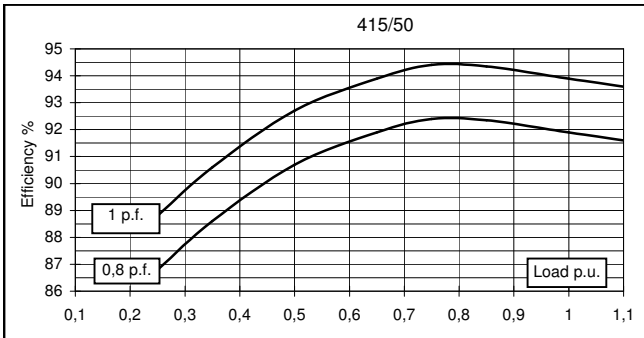
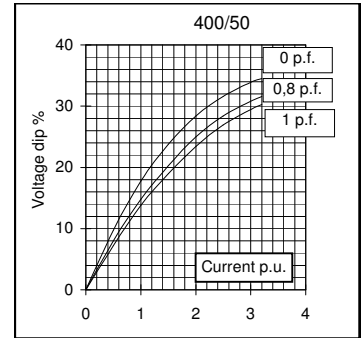
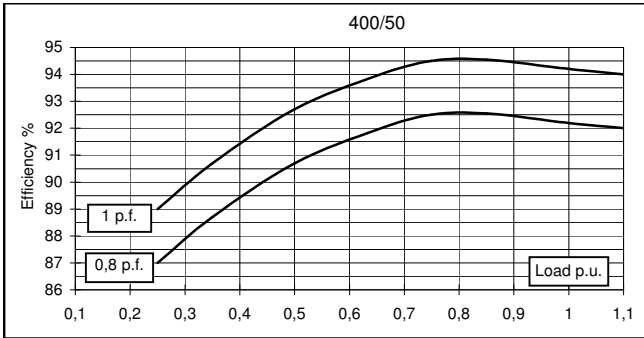
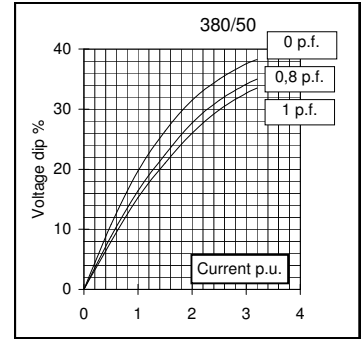
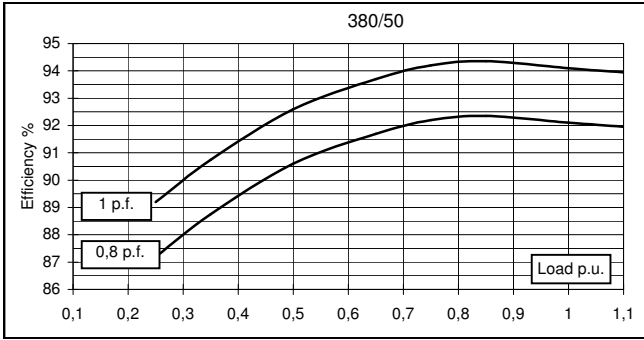
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Electrical Characteristics										
Frequency	Hz	50				60				
Voltage (series star)	V	380	400	415	440	415	440	460	480	
Rated power class H	kVA	105	105	105	85	115	126	126	126	
	kW	84	84	84	68	92	101	101	101	
Rated power class F	kVA	95	95	95	77	104	114	114	114	
	kW	76	76	76	61,6	83,2	91,2	91,2	91,2	
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	%	92,1	92,2	91,9	91,7	93,1	93,6	93,7	93,8
(see graph. for details)	3/4	%	92,2	92,5	92,4	92,1	93,6	93,8	93,9	94,1
	2/4	%	90,6	90,7	90,7	90,5	92	92,1	92,2	92,3
	1/4	%	87,2	87	86,8	86,8	88,2	88,2	88,2	88
Reactances (f. l.cl. F)	Xd	%	254,8	230	213,7	153,9	280,8	273,7	250,4	230
	Xd'	%	19,5	17,6	16,4	11,8	21,5	20,9	19,2	17,6
	Xd''	%	6,3	5,7	5,3	3,8	7,0	6,8	6,2	5,7
	Xq	%	165,8	149,6	139,0	100,1	182,7	178,0	162,9	149,6
	Xq'	%	165,8	149,6	139,0	100,1	182,7	178,0	162,9	149,6
	Xq''	%	34,6	31,2	29,0	20,9	38,1	37,1	34,0	31,2
	X <sub>2</sub>	%	20,5	18,5	17,2	12,4	22,6	22,0	20,1	18,5
	X <sub>0</sub>	%	3,9	3,5	3,3	2,3	4,3	4,2	3,8	3,5
Short Circuit Ratio	Kcc		0,41	0,47	0,61	0,90	0,32	0,35	0,41	0,47
Time Constants	Td'	sec.	0,0393							
	Td''	sec.	0,0055							
	Tdo'	sec.	1,70							
	Tα	sec.	0,0146							
Short Circuit Current Capacity		%	>300				>350			
Excitation at no load	Amp.		0,5	0,6	0,8	1,1	0,2	0,3	0,4	0,5
Excitation at full load	Amp.		2	2,2	2,3	2,6	1,7	1,9	2	2,2
Overload (long-term)		%	1 hour in a 6 hours period 110% rated load							
Overload per 20 sec.		%	300							
Stator Winding Resistance (20 °C)	Ω		0,02							
Rotor Winding Resistance (20 °C)	Ω		2,951							
Exciter Resistance (20 °C)	Ω		Rotor : 0,410				Stator : 15,28			
Heat dissipation at f.l.cl.H	W		7205	7106	7404	6155	6818	6892	6777	6663
Telephone Interference			THF < 2%				TIF < 40			
Radio interference			EN61000-6-3, EN61000-6-2. For others standards apply to factory							
Waveform Distors.(THD) at f. load	LL/LN %		1,8 / 1,9							
Waveform Distors.(THD) at no load	LL/LN %		2,8 / 2,9							
<b>Mechanical characteristics</b>										
Protection			IP 21 ( other protection on request )							
DE bearing			6314.2RS							
NDE bearing			6311.2RS							
Weight of wound stator assembly	kg		126							
Weight of wound rotor assembly	kg		81							
Weight of complete generator	kg		409							
Maximun overspeed	rpm		2250							
Unbalanced magnetic pull at f.l.cl.F	kN/mm		5,1							
Cooling air requirement	m <sup>3</sup> /min		19,3				23			
Inertia Constant (H)	sec.		0,111				0,133			
Noise level at 1m/7m	dB(A)		79 / 65				83 / 69			

All technical data are to be considered as a reference and they can be modified without any notice.

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## 50 Hz



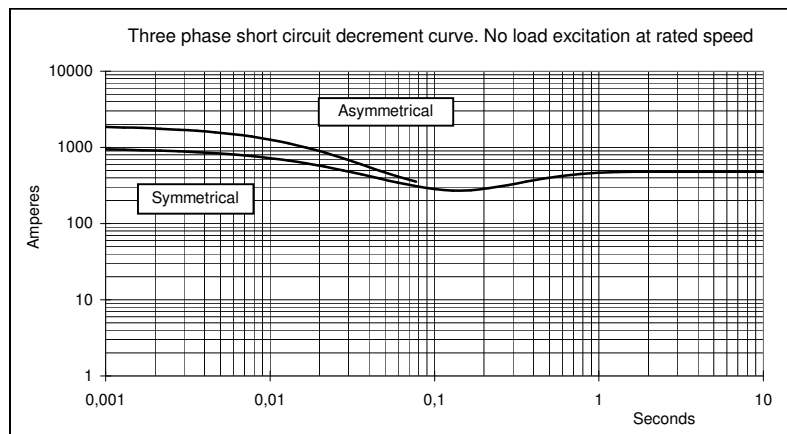
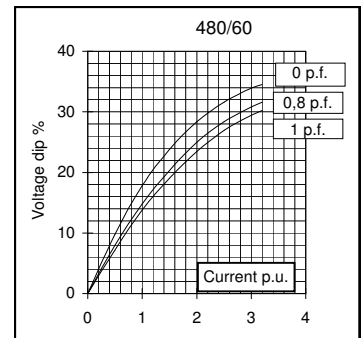
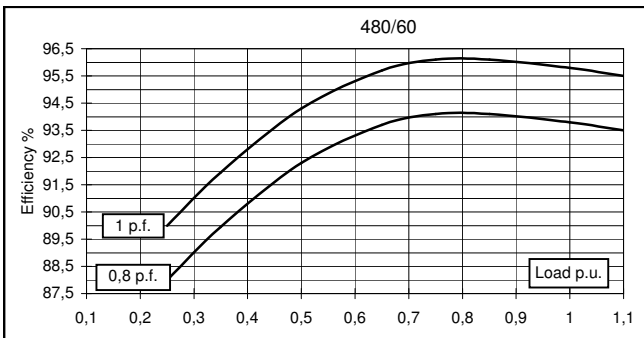
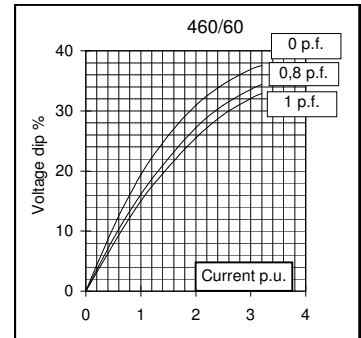
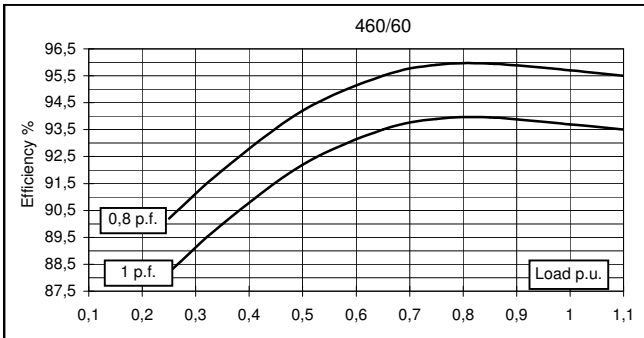
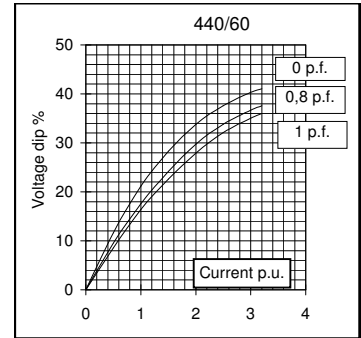
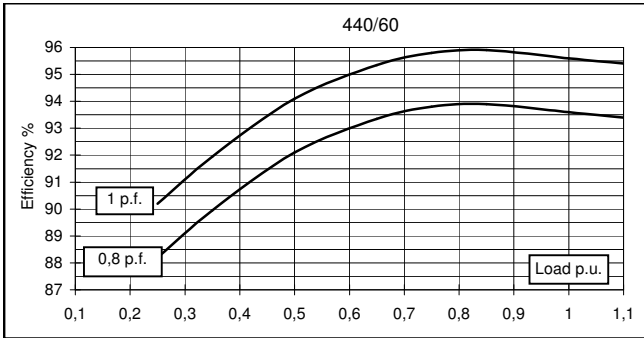
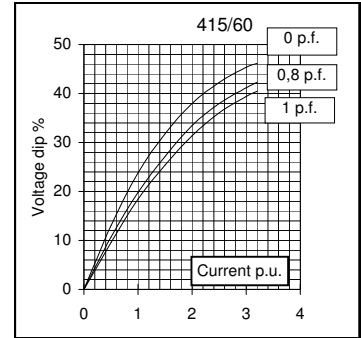
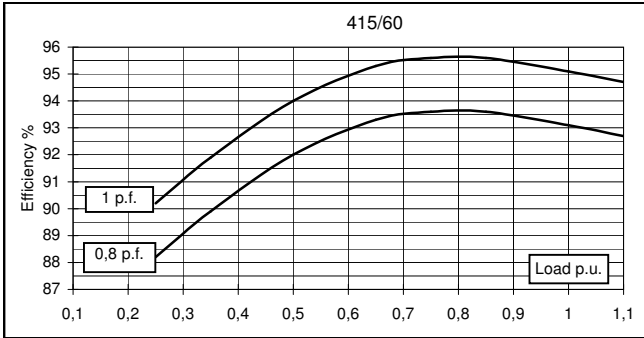


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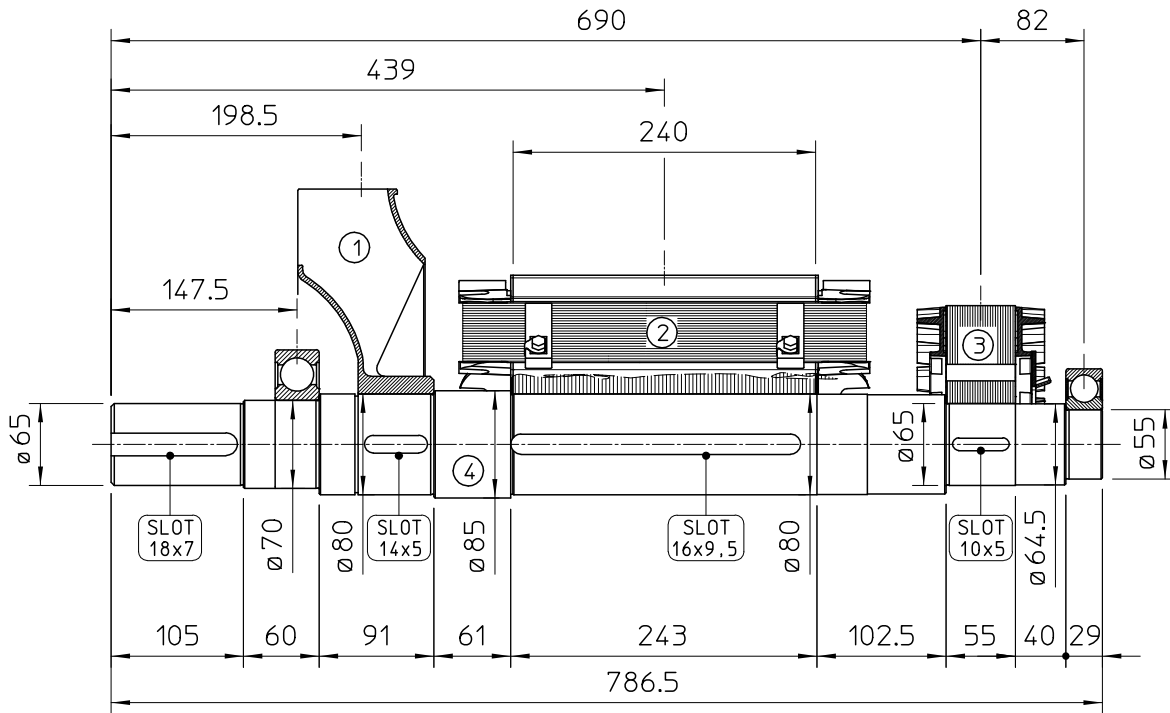
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## 60 Hz

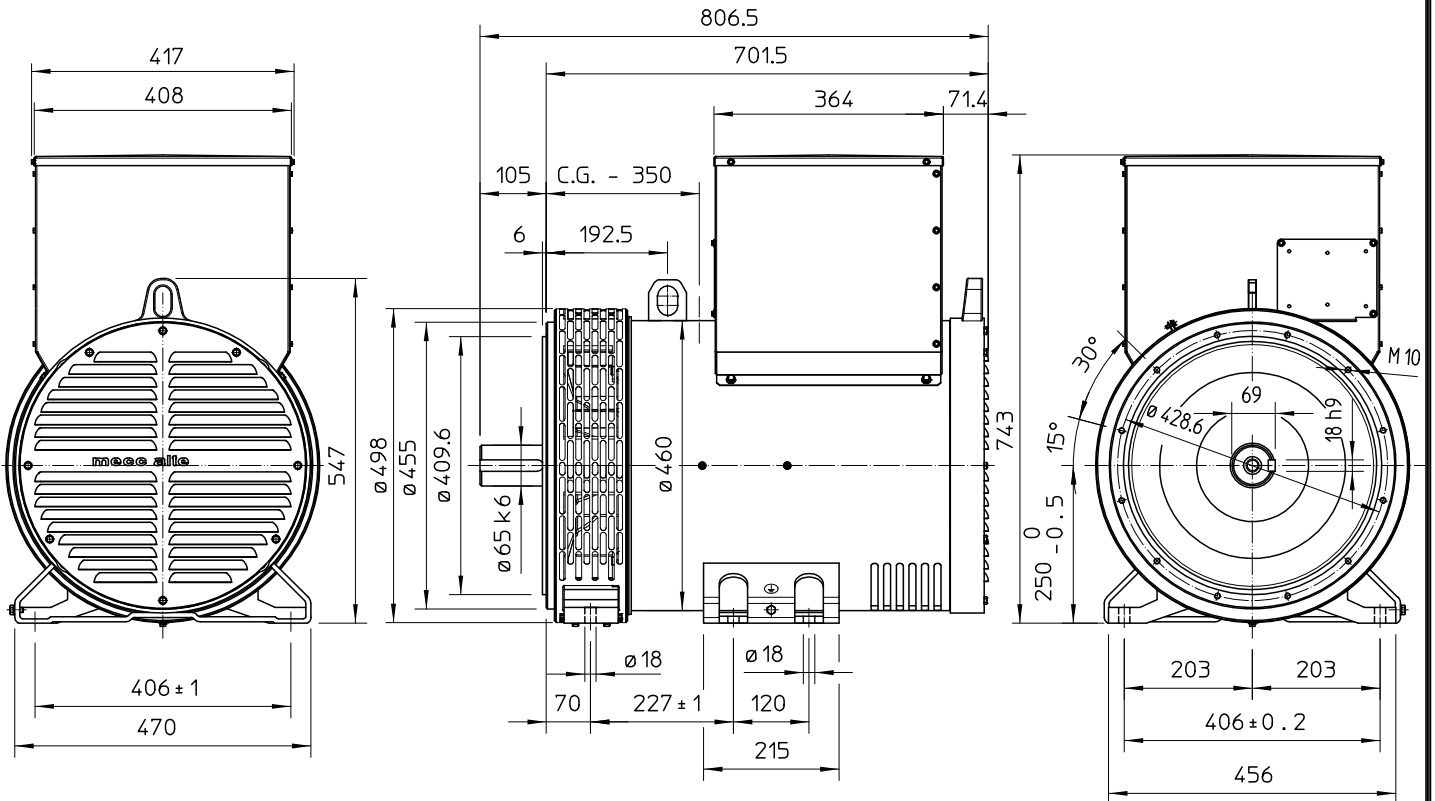


### TWO BEARING MOMENTS OF INERTIA



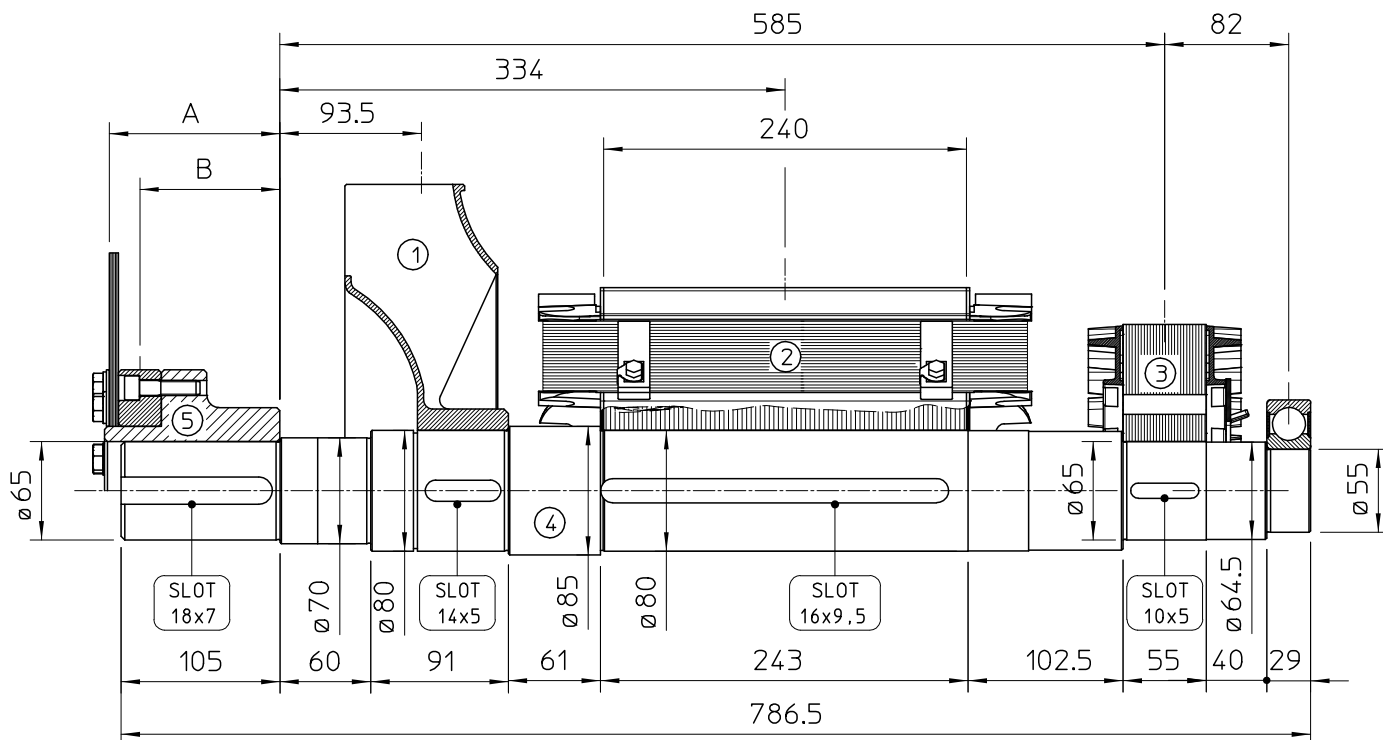
POS.	COMPONENT	WEIGHT (kg)	J (kgm <sup>2</sup> )
1	FAN	3.6	0.0451
2	MAIN ROTOR	83.7	0.7539
3	EX. ROTOR	14.5	0.0874
4	SHAFT	26.8	0.0196
TOTAL		128.6	0.906

### TWO BEARING DIMENSIONS



C.G.= GRAVITY CENTER

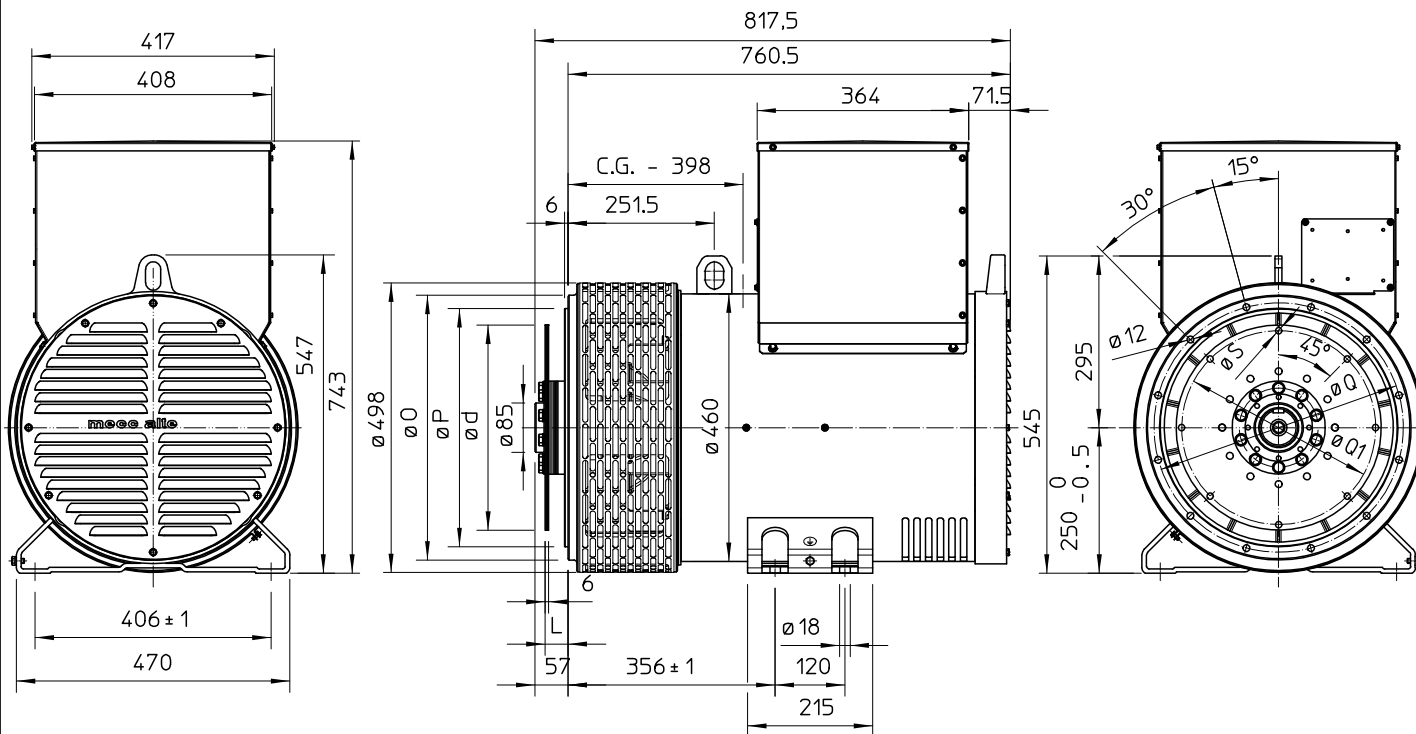
### SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm <sup>2</sup> )
1	FAN	3.6	0.0451
2	MAIN ROTOR	83.7	0.7539
3	EX. ROTOR	14.5	0.0874
4	SHAFT	26.8	0.0196
TOTAL		128.6	0.906

SAE N°	5		SHAFTS COUPLING FLEX PLATE	
	A	B	WEIGHT kg	J kgm <sup>2</sup>
10	112.8	35.6	13.5	0.0770
11 1/2	98.6	71.5	12.4	0.0956
14	84.4	68.6	14.8	0.2360

### SINGLE BEARING DIMENSIONS



SAE N.	FLANGIA / FLANGE BRIDE / FLANSCH		
	O	P	Q
3	451	409.6	428.6
2	489	447.7	466.7
1	552	511.2	530.2

SAE N.	GIUNTI A DISCHI / DISC COUPLING DISQUE DE MONOPALIER / SCHEIBENKUPPLUNG			
	L	d	Q1	S
10	53.8	314.32	295.27	11
11 1/2	39.6	352.42	333.37	11
14	25.4	466.72	438.15	14

C.G.= GRAVITY CENTER