

Meccalte : ژنراتور

Cummins : موتور دیزل

Standby		Prime		
KVA	KW	KVA	KW	
176	-	165	140	دیزل ژنراتور



6BTAA5.9-G5



> Specification sheet

Our energy working for you.™



Description

The B5.9 engine has established an unrivalled reputation for reliability, incorporating features designed to maximise engine integration within OEM installation. The 6BTAA5.9-G5 CoolPac is assembled in our new facility at Pirangut, India and utilises the latest Cummins manufacturing processes and Quality Standards.

This engine has been built to comply with CE certification.



This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO 9002 or TS16949.

Features

Single Poly Vee belt drive for fan, alternator and water pump, with self-tensioning idler for minimum maintenance.

Inline-type Bosch VE-Series pump operates at high injection pressures for cleaner combustion and lower emissions.

Spin-on fuel filter and full-flow lubricating oil filter.

Top mounted Holset HX35 turbocharger for increased power, fuel economy, and lower smoke and noise levels.

Coolpac Integrated Design - Products are supplied complete with cooling package and air cleaner kit for a complete power package. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

1500 rpm (50 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
160/215	145/195	101/135	156/209	142/190	98/131	141	176	128	160	80	100

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General Engine Data

Type	4 cycle, in-line, Turbo Charged
Bore mm	102 mm (4.02 in.)
Stroke mm	120 mm (4.72 in.)
Displacement Litre	5.9 litre (360.0 in. ³)
Cylinder Block	Cast iron, 6 cylinder
Battery Charging Alternator	55 amps
Starting Voltage	12 volt, 55 Amp negative ground
Fuel System	Direct injection
Fuel Filter	Spin-on fuel filters with water separator
Lube Oil Filter Type(s)	Spin-on full flow filter
Lube Oil Capacity (l)	16.4
Flywheel Dimensions	3/11.5

Coolpac Performance Data

Cooling System Design	Jacket Water After Cooled
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	19.75
Limiting Ambient Temp.**	56.0
Fan Power(hp)	10.7
Cooling System Air Flow (m ³ /s)**	3.59
Air Cleaner Type (Heavy Duty)	Dry replaceable element with restriction indicator

** @ 13 mm H₂O at 100% Prime

Ratings Definitions

Emergency Standby Power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Weight & Dimensions

	Length	Width	Height	Weight (dry)
	mm	mm	mm	kg
CoolPac	1726	1045	1254	500

Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	160	215	41	10.9
Prime Power				
100	145	195	37	9.8
75	109	146	29	7.5
50	73	96	19	5.0
25	36	49	9	2.5
Continuous Power				
100	101	135	26	6.9

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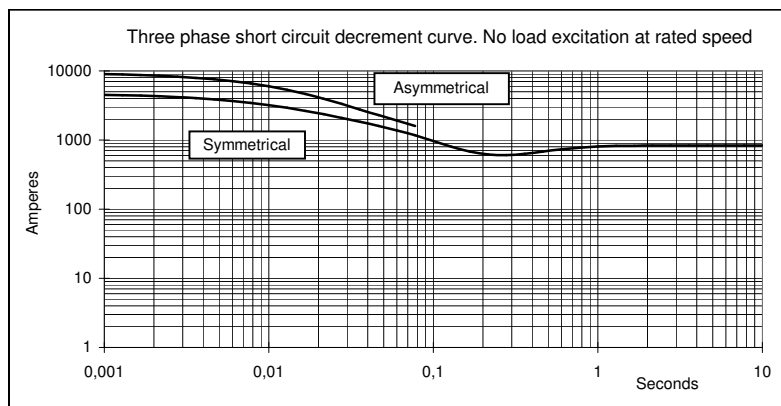
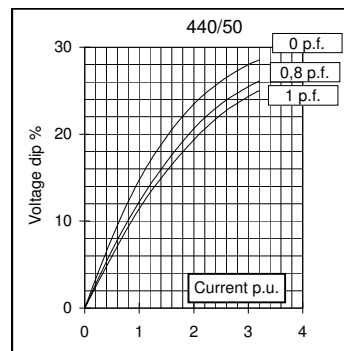
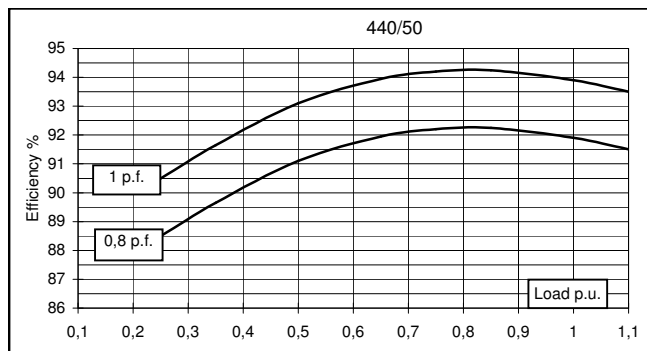
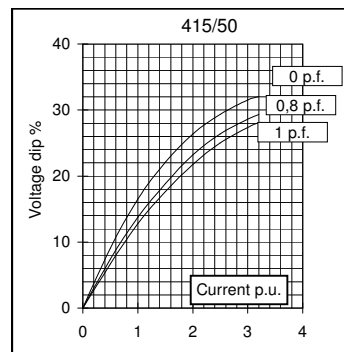
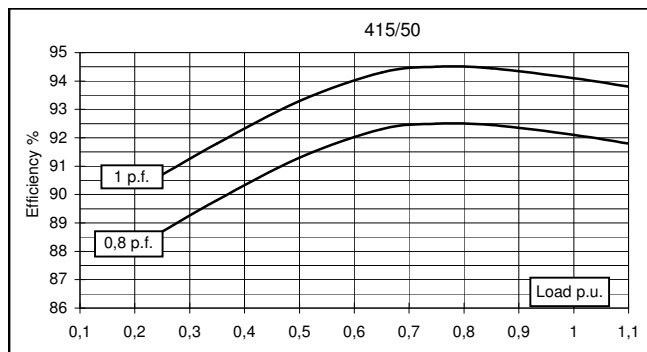
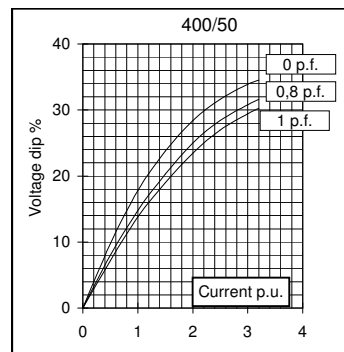
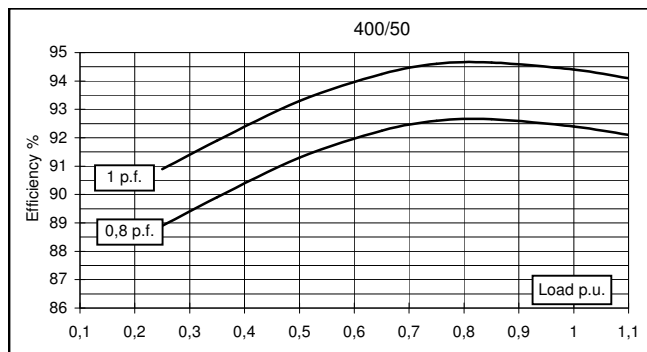
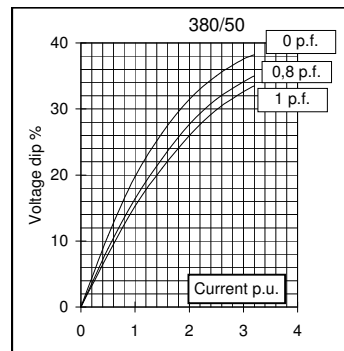
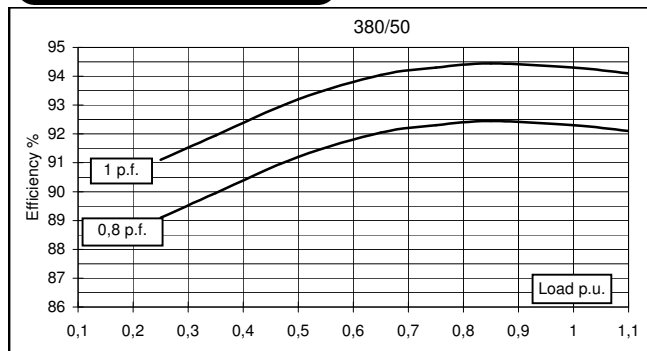


Electrical Characteristics										
Frequency		Hz	50				60			
Voltage (series star)		V	380	400	415	440	415	440	460	480
Rated power class H		kVA	180	180	180	165	210	220	220	220
		kW	144	144	144	132	168	176	176	176
Rated power class F		kVA	170	170	170	155	195	205	205	205
		kW	136	136	136	124	156	164	164	164
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	%	92,3	92,4	92,1	91,9	92,7	93,2	93,3	93,4
(see graph. for details)	3/4	%	92,3	92,6	92,5	92,2	93	93,2	93,4	93,6
	2/4	%	91,2	91,3	91,3	91,1	92	92,1	92,2	92,3
	1/4	%	89,1	88,9	88,7	88,5	90,1	90,1	90,1	89,9
Reactances (f. l.cl. F)	Xd	%	218,3	197	183,0	149,2	251,6	234,4	214,5	197
	Xd'	%	10,7	9,7	9,0	7,3	12,4	11,5	10,6	9,7
	Xd''	%	6,1	5,5	5,1	4,2	7,0	6,5	6,0	5,5
	Xq	%	107,4	96,9	90,0	73,4	123,7	115,3	105,5	96,9
	Xq'	%	107,4	96,9	90,0	73,4	123,7	115,3	105,5	96,9
	Xq''	%	21,8	19,7	18,3	14,9	25,2	23,4	21,5	19,7
	X ₂	%	14,2	12,8	11,9	9,7	16,3	15,2	13,9	12,8
	X ₀	%	3,0	2,7	2,5	2,0	3,4	3,2	2,9	2,7
Short Circuit Ratio	Kcc		0,39	0,44	0,60	0,97	0,28	0,35	0,39	0,44
Time Constants	Td'	sec.	0,073							
	Td''	sec.	0,011							
	Tdo'	sec.	0,70							
	Tα	sec.	0,015							
Short Circuit Current Capacity		%	>300				>350			
Excitation at no load	Amp.		0,65	0,7	0,8	1,1	0,35	0,5	0,6	0,65
Excitation at full load	Amp.		2,9	3,1	3,4	3,5	2,5	2,7	2,8	3
Overload (long-term)	%	1 hour in a 6 hours period 110% rated load								
Overload per 20 sec.	%	300								
Stator Winding Resistance (20 °C)	Ω	0,013								
Rotor Winding Resistance (20 °C)	Ω	3,905								
Exciter Resistance (20 °C)	Ω	Rotor : 0,685				Stator : 15,28				
Heat dissipation at f.l.cl.H	W	12013	11844	12352	11634	13230	12841	12639	12437	
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 %	2,8 / 2,7								
Waveform Distors.(THD) at no load	LL/LN %	3,1 / 3								
Mechanical characteristics										
Protection		IP 21 (other protection on request)								
DE bearing		6318.2RS								
NDE bearing		6314.2RS								
Weight of wound stator assembly	kg	168								
Weight of wound rotor assembly	kg	103								
Weight of complete generator	kg	510								
Maximun overspeed	rpm	2250								
Unbalanced magnetic pull at f.l.cl.F	kN/mm	4,4								
Cooling air requirement	m³/min	32					39			
Inertia Constant (H)	sec.	0,118					0,140			
Noise level at 1m/7m	dB(A)	82 / 69					86 / 73			

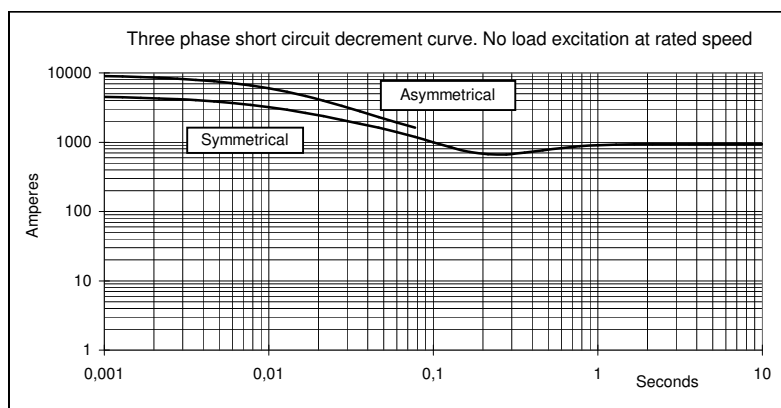
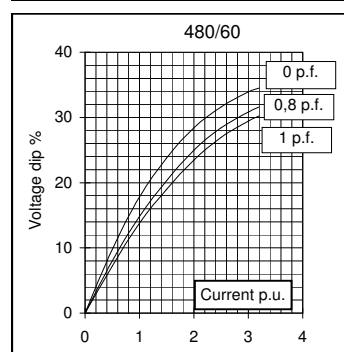
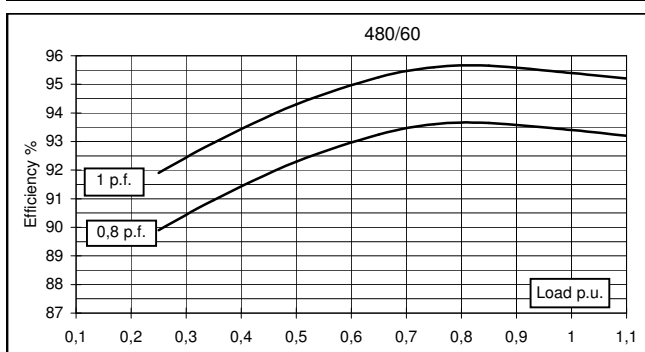
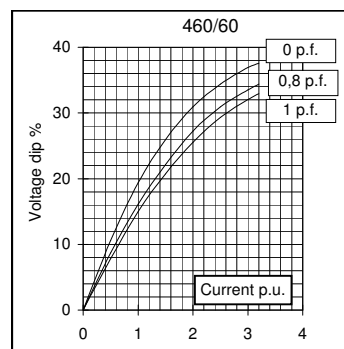
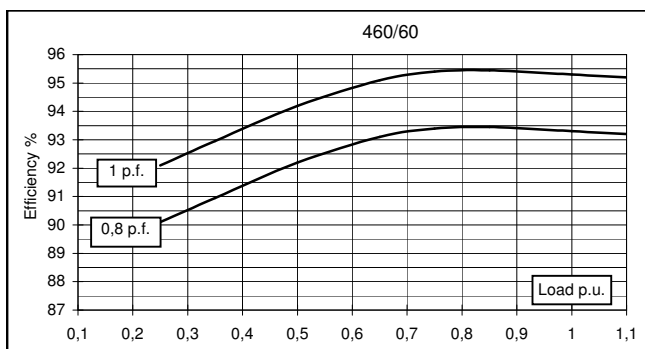
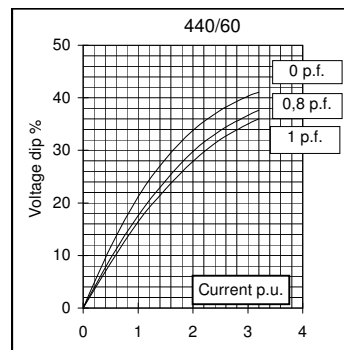
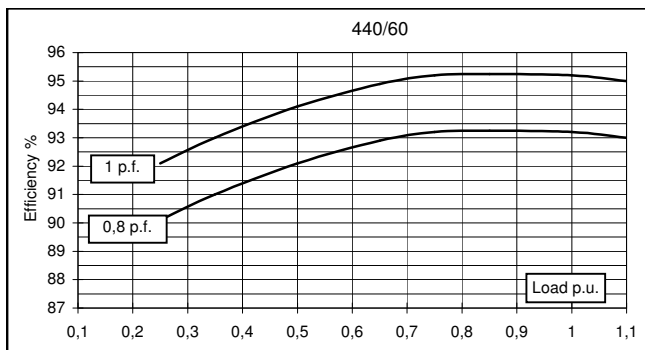
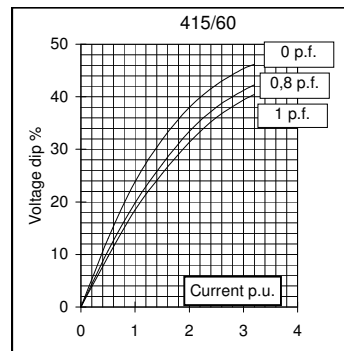
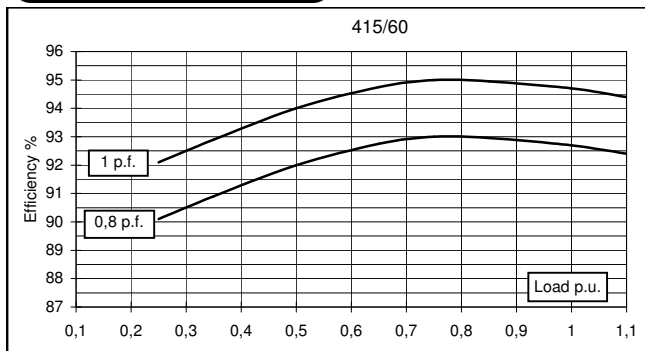
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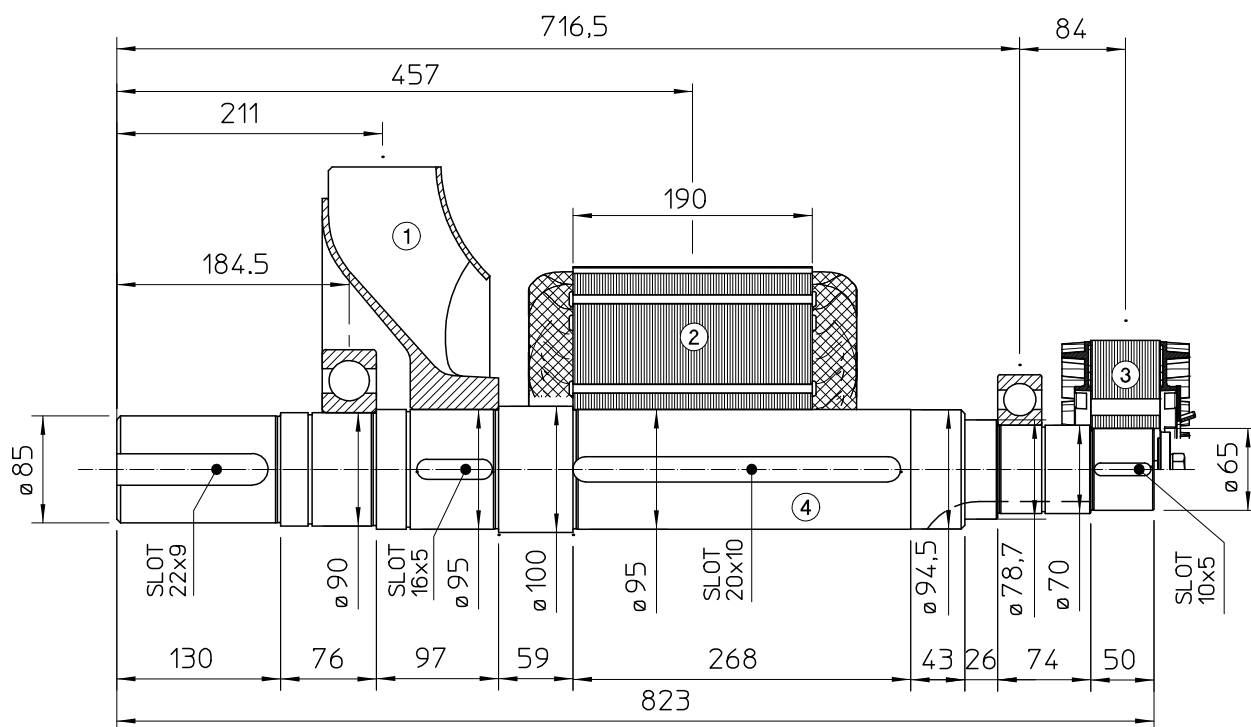
50 Hz



60 Hz

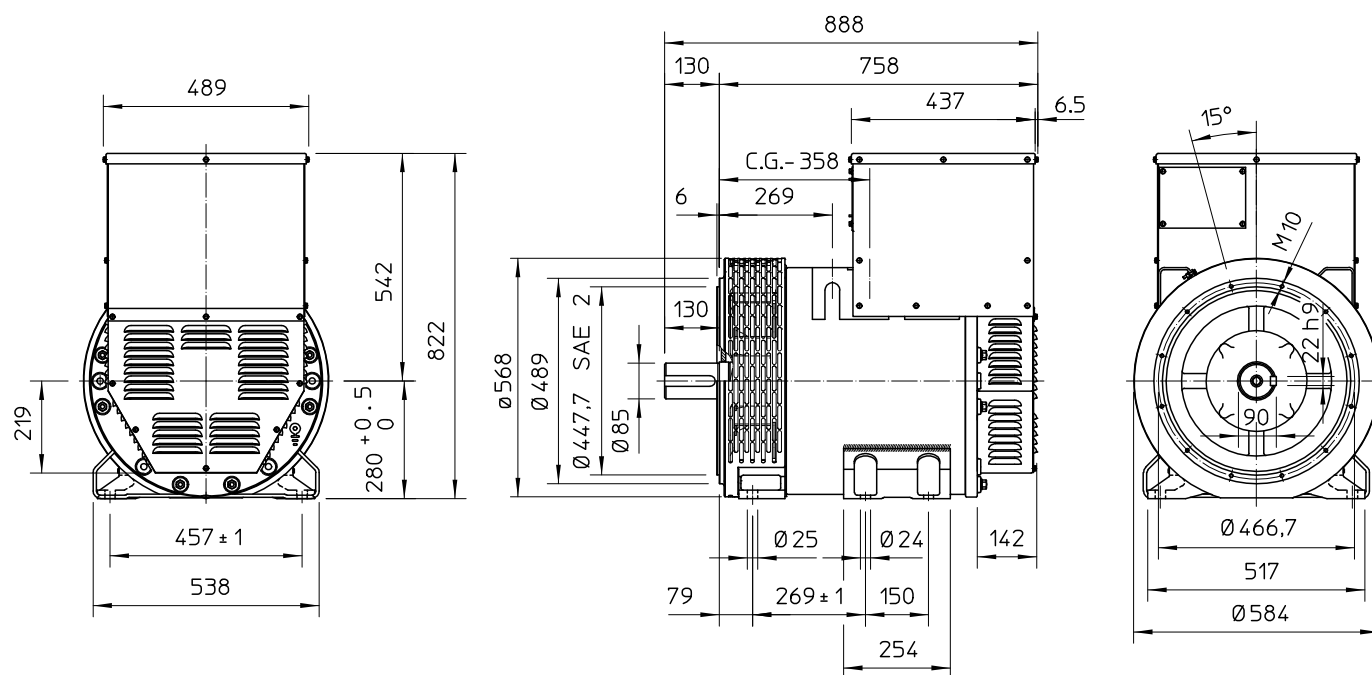


TWO BEARING MOMENTS OF INERTIA

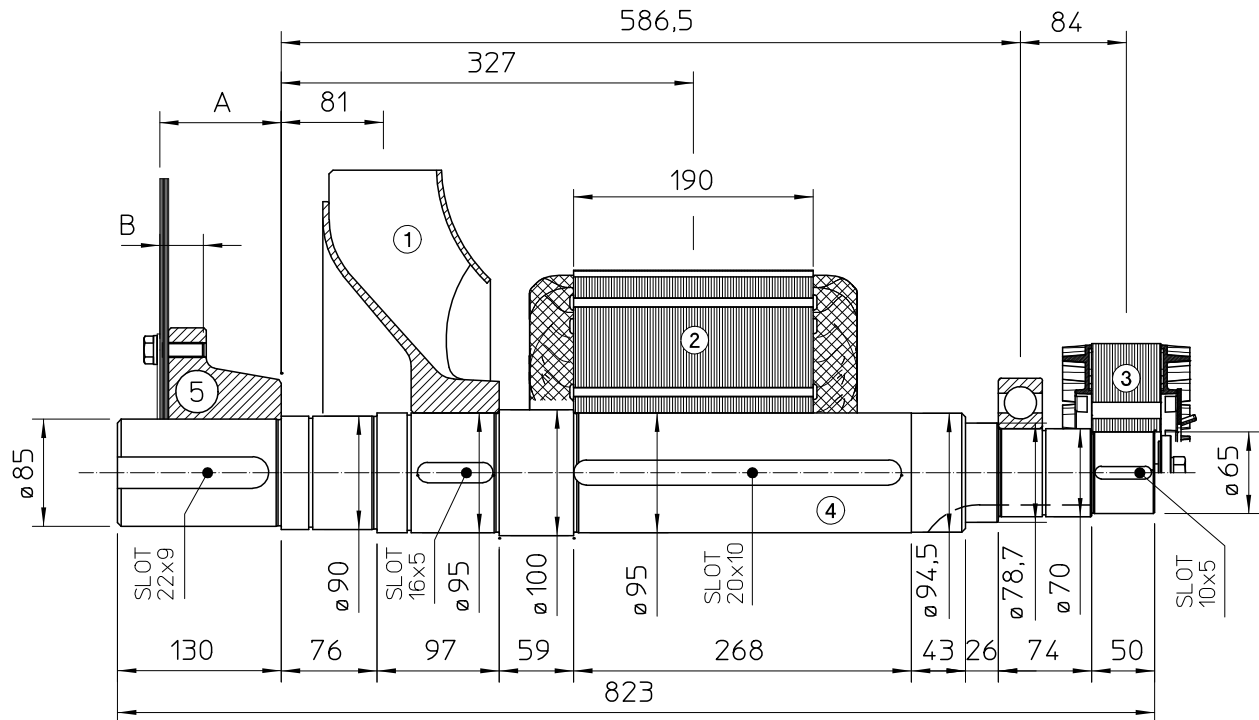


POS.	COMPONENT	WEIGHT (kg)	J (kgm ²)
1	FAN	6.1	0.1887
2	MAIN ROTOR	103	1.4085
3	EX. ROTOR	14.5	0.0874
4	SHAFT	38.5	0.0397
TOTAL		162.1	1.7243

TWO BEARING DIMENSIONS



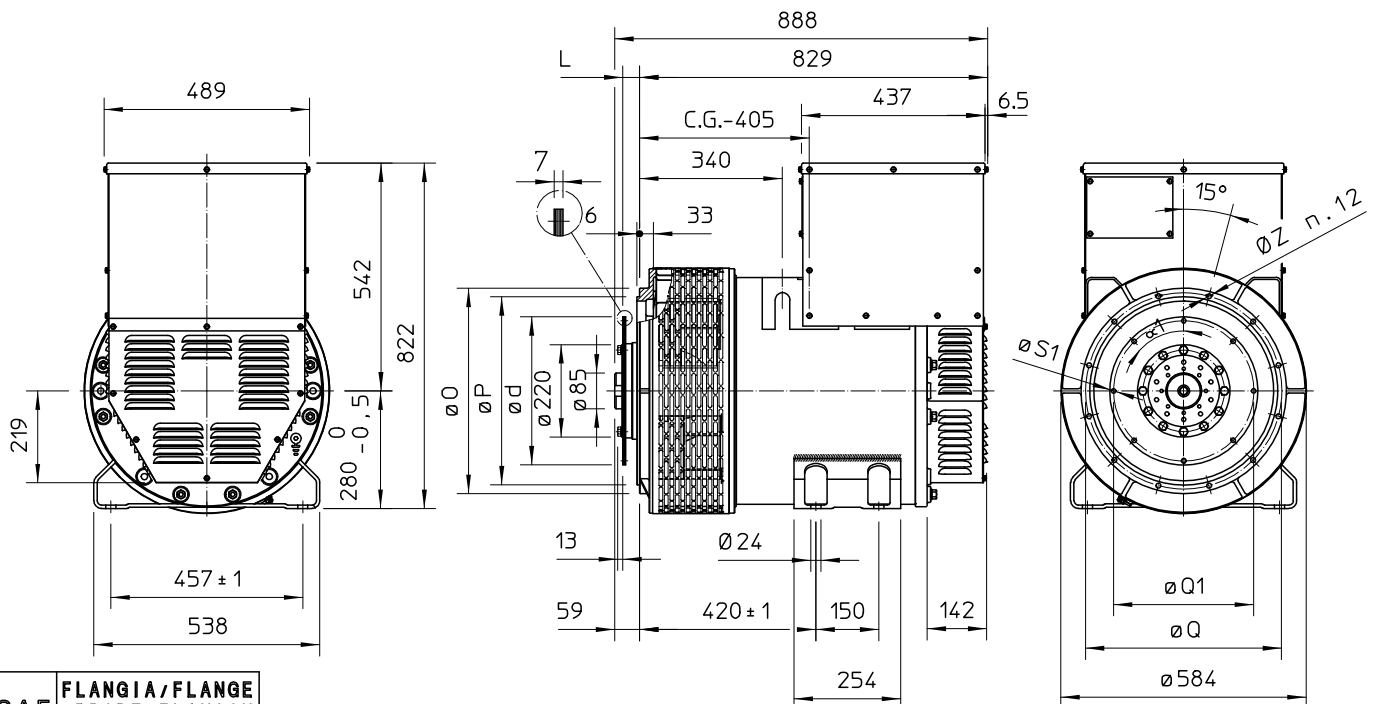
SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm ²)
1	FAN	6.1	0.1887
2	MAIN ROTOR	103	1.4085
3	EX. ROTOR	14.5	0.0874
4	SHAFT	38.5	0.0397
TOTAL		162.1	1.7243

SAE N°	5		SHAFTS COUPLING FLEX PLATE	
	A	B	WEIGHT kg	J kgm ²
11.5	110.4	41.1	20.5	0.174
14	96.4	34.7	23.5	0.275

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
1/2	648	584,2	619,1

SAE N.	GIUNTI A DISCHI DISC COUPLING DISQUE DE MONOPALIER SCHEIBENKUPPLUNG				
	L	d	Q1	n. fori	S1
11 1/2	39,6	352,42	333,37	8	11
14	25,4	466,72	438,15	8	14

C.G.= GRAVITY CENTER