

Mecc Alte : ژنراتور

Cummins : موتور دیزل

Standby		Prime		دیزل ژنراتور
KVA	KW	KVA	KW	
275	-	250	200	

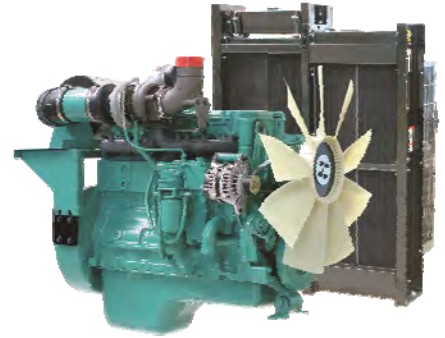


QSL9-G3

Emissions Compliance:

EU Stage IIIA at 50 Hz

EPA NSPS Stationary Emergency Tier 3



> Specification sheet

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Description

Cummins QSL engines are built to deliver heavy-duty performance. Full-authority electronic engine controls combine with the high-pressure fuel system, 24-valve design and centred injectors for one of the highest power-to-weight ratios in its class. At the same time, the QSL delivers better fuel economy, has better cold starting capability and is up to 50% quieter in operation than its predecessors.



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 ISO9002.

Features

Common Rail Fuel System and Controls - Bosch high pressure common rail (HPCR) - Optimize engine performance to provide seamless integration and advanced diagnostics and programming options.

Holset HX40 Turbo charging – Waste-gated design optimizes transient response.

Integrated Block Design - Integrated fluid circuits replace hoses and eliminate potential leaks.

24-Valve Cylinder Head – Four valves per cylinder for increased power with faster response & fuel economy.

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
257/345	227/305	193/259	244/327	217/291	183/245	220	275	200	250	170	213

1800 rpm (60 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
297/399	262/352	178/238	280/375	248/332	164/219	250	313	227	284	152	190

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General Engine Data

Type	4 cycle, in-line, Turbo Charged, Air-cooled
Bore mm	114 mm (4.5in.)
Stroke mm	145 mm (5.7in.)
Displacement Litre	8.8 litre (543 in. ³)
Cylinder Block	Cast iron, 6 cylinder
Battery Charging Alternator	70 amps
Starting Voltage	24 volt, 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)	26.5
Flywheel Dimensions	SAE1/14

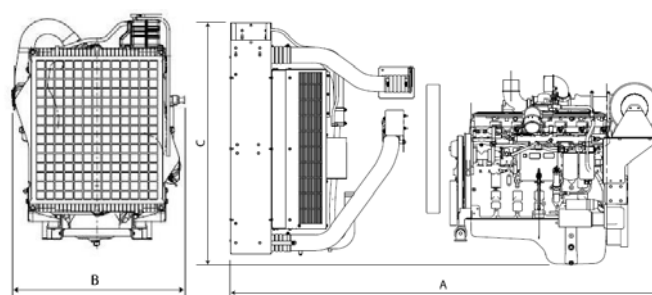
Coolpac Performance Data

Cooling System Design	Air-Air Charge Cooled
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	15.0
Limiting Ambient Temp.** (°C)	50 (50Hz); 55 (60Hz)
Fan Power (kWm)	10 (50Hz); 11 (60Hz)
Cooling System Air Flow (m ³ /s)**	7.9 (50Hz); 8 (60Hz)
Air Cleaner Type	Light duty dry replaceable element with restriction indicator

** @ 13 mm H₂O

Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
1624	1064	1463	861



Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	257	345	66	17.3
Prime Power				
100	227	305	59	15.6
75	170	228	49	13.0
50	114	152	34	8.9
25	57	76	18	4.7
Continuous Power				
100	193	259	53	14.1

Fuel Consumption 1800 (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	297	399	77	20.4
Prime Power				
100	262	352	70	18.5
75	197	264	58	15.2
50	131	176	41	10.8
25	66	88	21	5.6
Continuous Power				
100	178	238	53	14.1

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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):

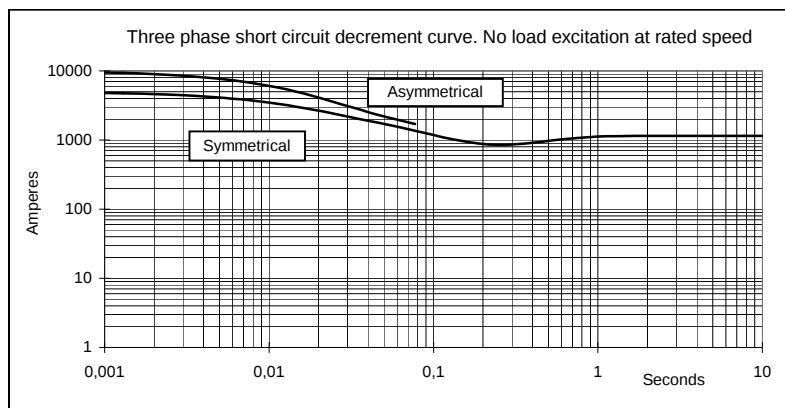
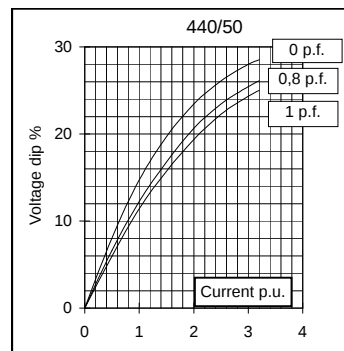
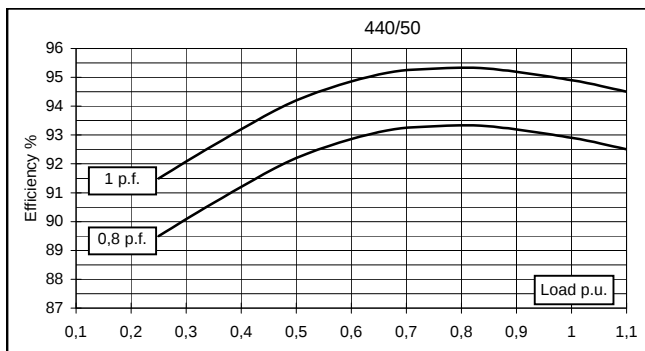
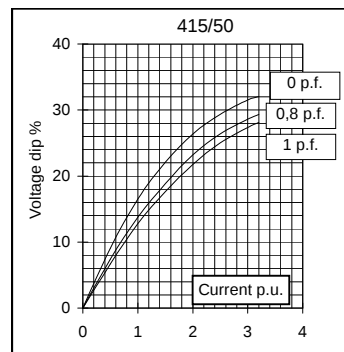
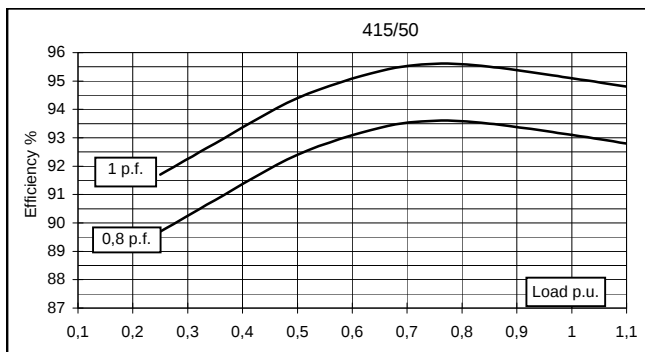
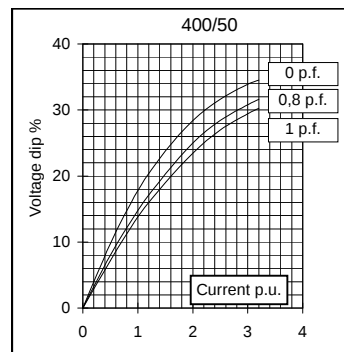
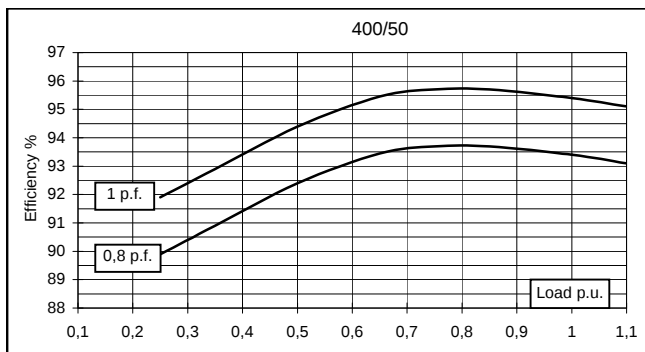
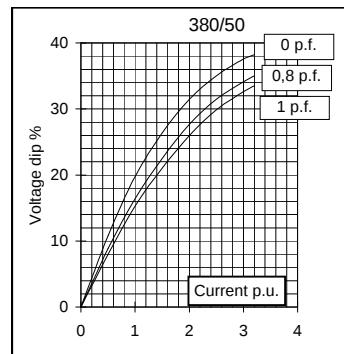
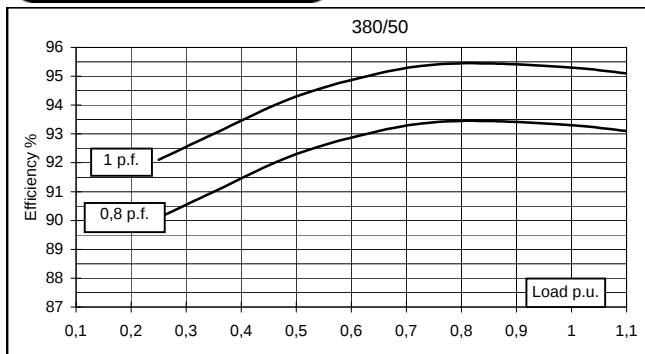
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Electrical Characteristics										
Frequency		Hz	50				60			
Voltage (series star)		V	380	400	415	440	415	440	460	480
Rated power class H		kVA	250	250	250	230	290	300	300	300
		kW	200	200	200	184	232	240	240	240
Rated power class F		kVA	230	230	230	215	270	280	280	280
		kW	184	184	184	172	216	224	224	224
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	%	93,3	93,4	93,1	92,9	93,8	94,3	94,4	94,5
(see graph. for details)	3/4	%	93,4	93,7	93,6	93,3	94,3	94,5	94,7	94,9
	2/4	%	92,3	92,4	92,4	92,2	93,4	93,5	93,6	93,7
	1/4	%	90,1	89,9	89,7	89,5	90,6	90,6	90,6	90,4
Reactances (f. l.cl. F)	Xd	%	229,4	207	192,3	157,4	267,7	246,3	225,4	207
	Xd'	%	15,5	14,0	13,0	10,6	18,1	16,7	15,2	14,0
	Xd''	%	8,0	7,2	6,7	5,5	9,3	8,6	7,8	7,2
	Xq	%	129,6	117	108,7	89,0	151,3	139,2	127,4	117
	Xq'	%	129,6	117	108,7	89,0	151,3	139,2	127,4	117
	Xq''	%	24,4	22	20,4	16,7	28,5	26,2	24,0	22
	X ₂	%	17,7	16,0	14,9	12,2	20,7	19,0	17,4	16,0
	X ₀	%	2,7	2,4	2,2	1,8	3,1	2,9	2,6	2,4
Short Circuit Ratio	Kcc		0,41	0,44	0,68	1,11	0,32	0,38	0,41	0,44
Time Constants	Td'	sec.	0,085							
	Td''	sec.	0,013							
	Tdo'	sec.	1,30							
	Tα	sec.	0,017							
Short Circuit Current Capacity		%	>300				>350			
Excitation at no load	Amp.		0,6	0,71	0,8	0,95	0,4	0,5	0,58	0,7
Excitation at full load	Amp.		2,7	2,8	3	3,2	2,4	2,6	2,7	2,8
Overload (long-term)	%	1 hour in a 6 hours period 110% rated load								
Overload per 20 sec.	%	300								
Stator Winding Resistance (20°C)	Ω	0,0065								
Rotor Winding Resistance (20°C)	Ω	4,887								
Exciter Resistance (20 °C)	Ω	Rotor : 0,685				Stator : 15,28				
Heat dissipation at f.l.cl.H	W	14362	14133	14823	14062	15335	14507	14237	13968	
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 / 2,1								
Waveform Distors.(THD) at no load	LL/LN %	2,9 / 3,1								
Mechanical characteristics										
Protection		IP 21 (other protection on request)								
DE bearing		6318.2RS								
NDE bearing		6314.2RS								
Weight of wound stator assembly	kg	231								
Weight of wound rotor assembly	kg	147,5								
Weight of complete generator	kg	680								
Maximun overspeed	rpm	2250								
Unbalanced magnetic pull at f.l.cl.F	kN/mm	5,1								
Cooling air requirement	m³/min	32					39			
Inertia Constant (H)	sec.	0,116					0,139			
Noise level at 1m/7m	dB(A)	82 / 69					86 / 73			

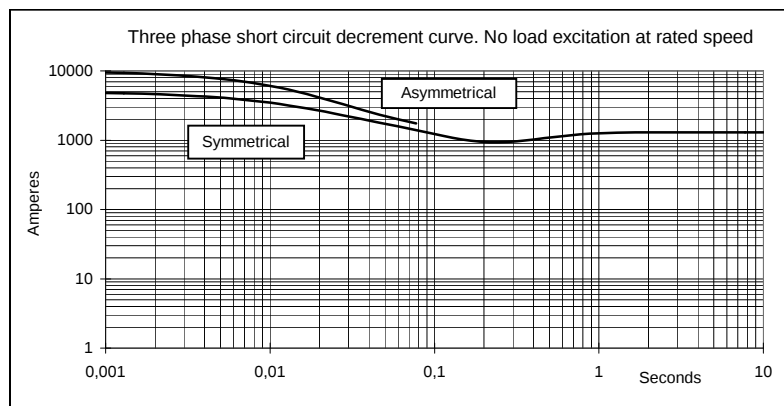
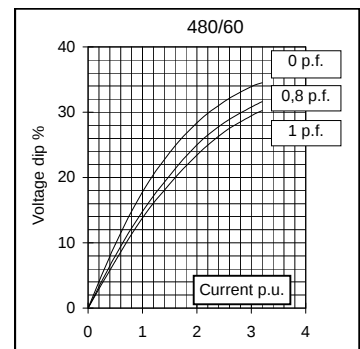
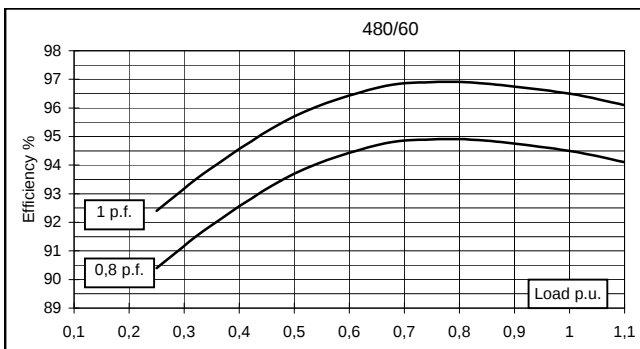
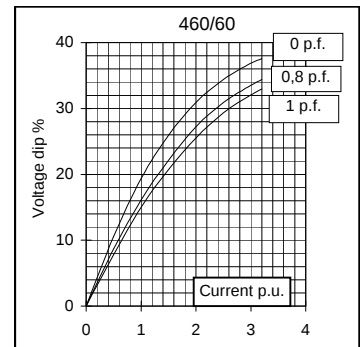
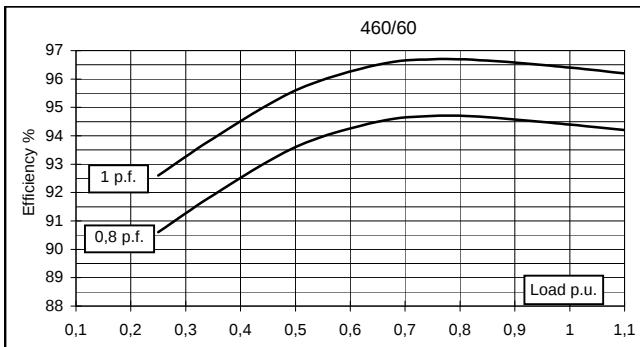
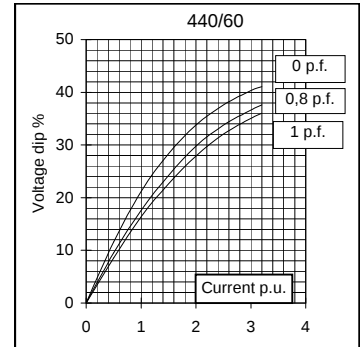
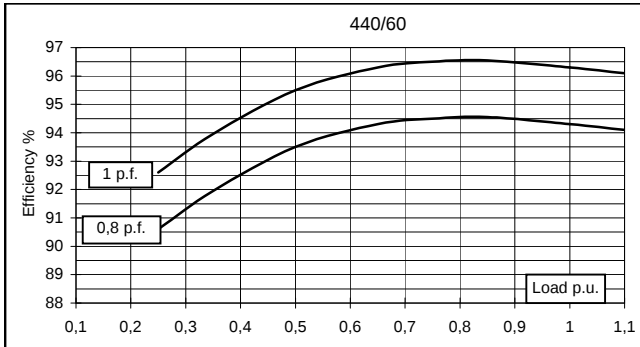
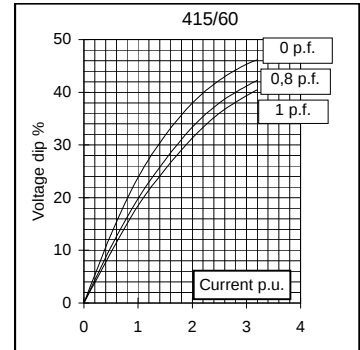
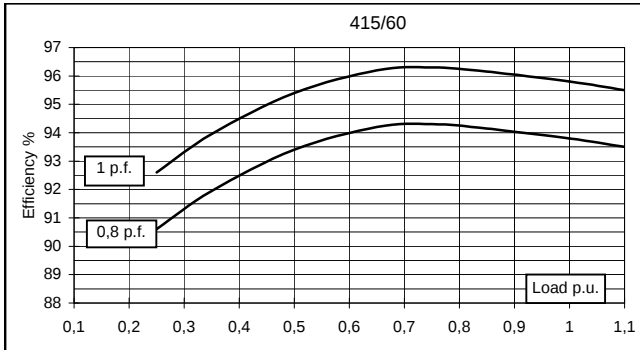
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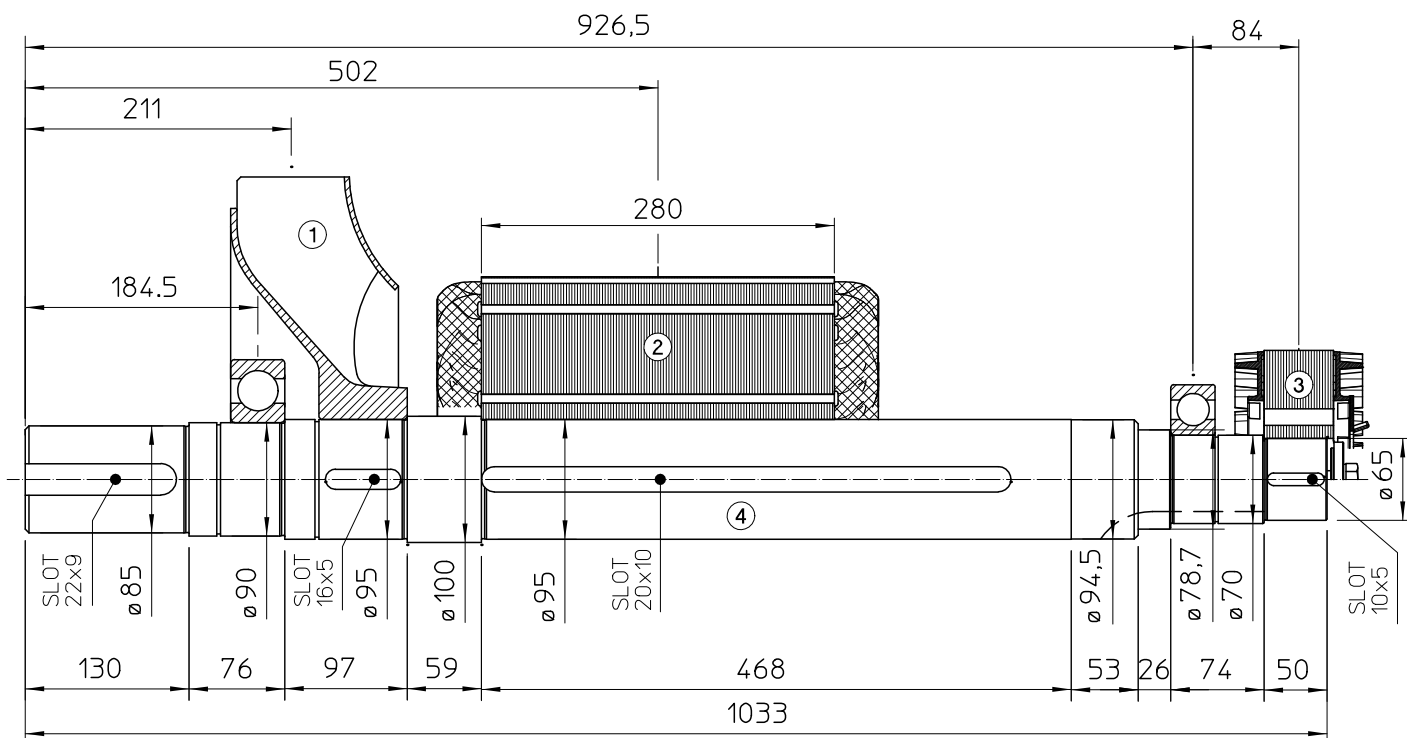
50 Hz



60 Hz

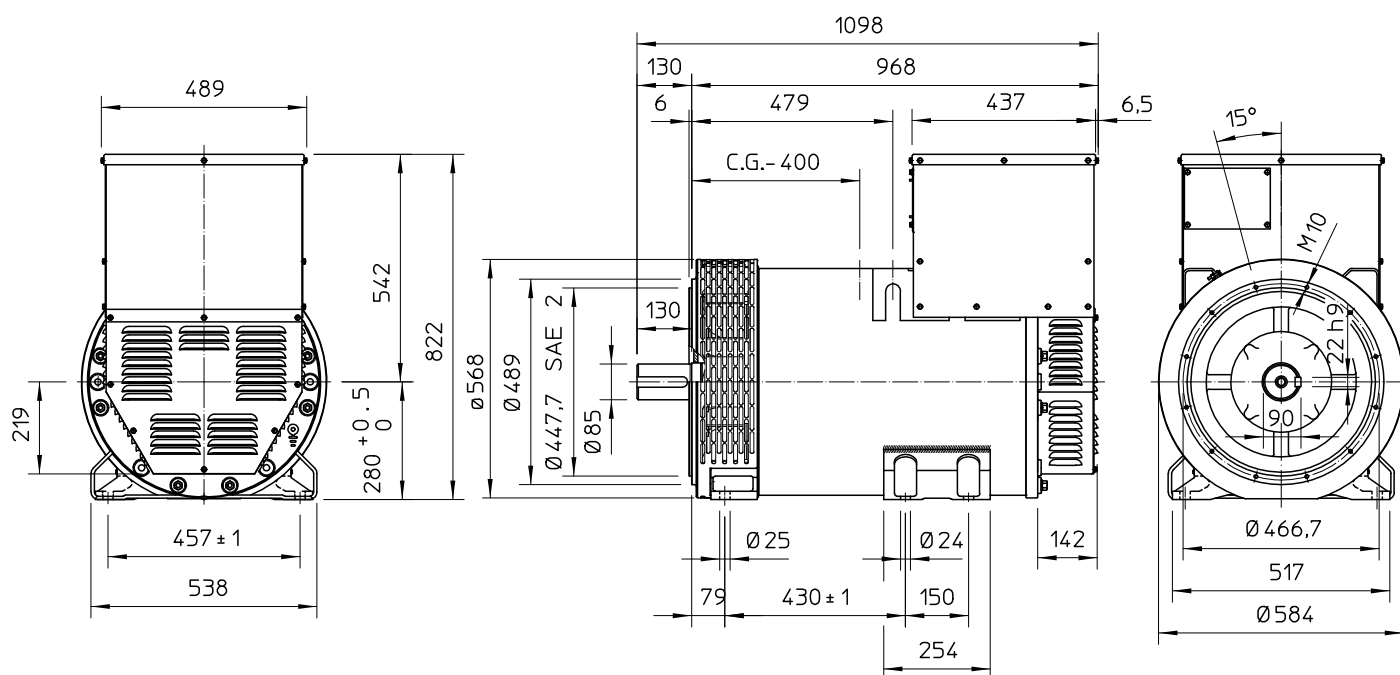


TWO BEARING MOMENTS OF INERTIA

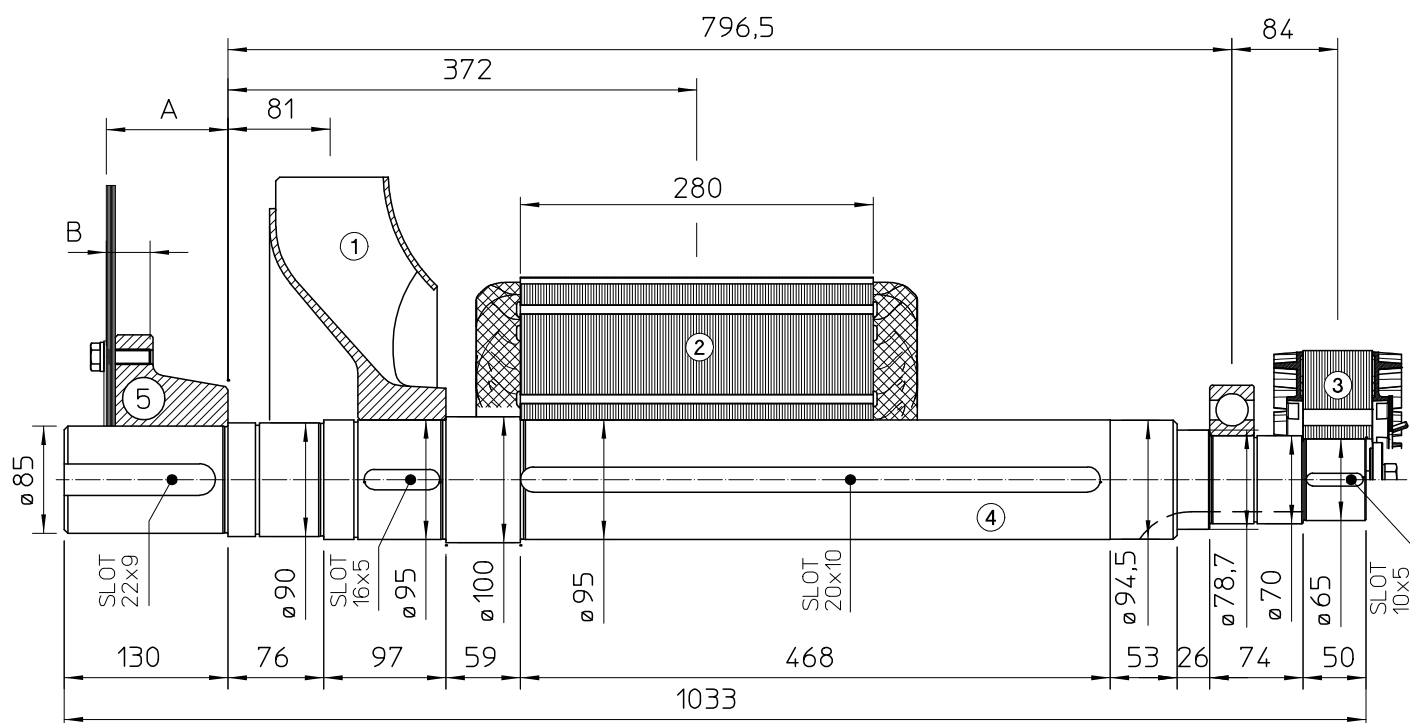


POS.	COMPONENT	WEIGHT (kg)	J (kgm ²)
1	FAN	6.1	0.1887
2	MAIN ROTOR	147.5	2.0195
3	EX. ROTOR	14.5	0.0874
4	SHAFT	49.9	0.0525
TOTAL		218	2.3481

TWO BEARING DIMENSIONS



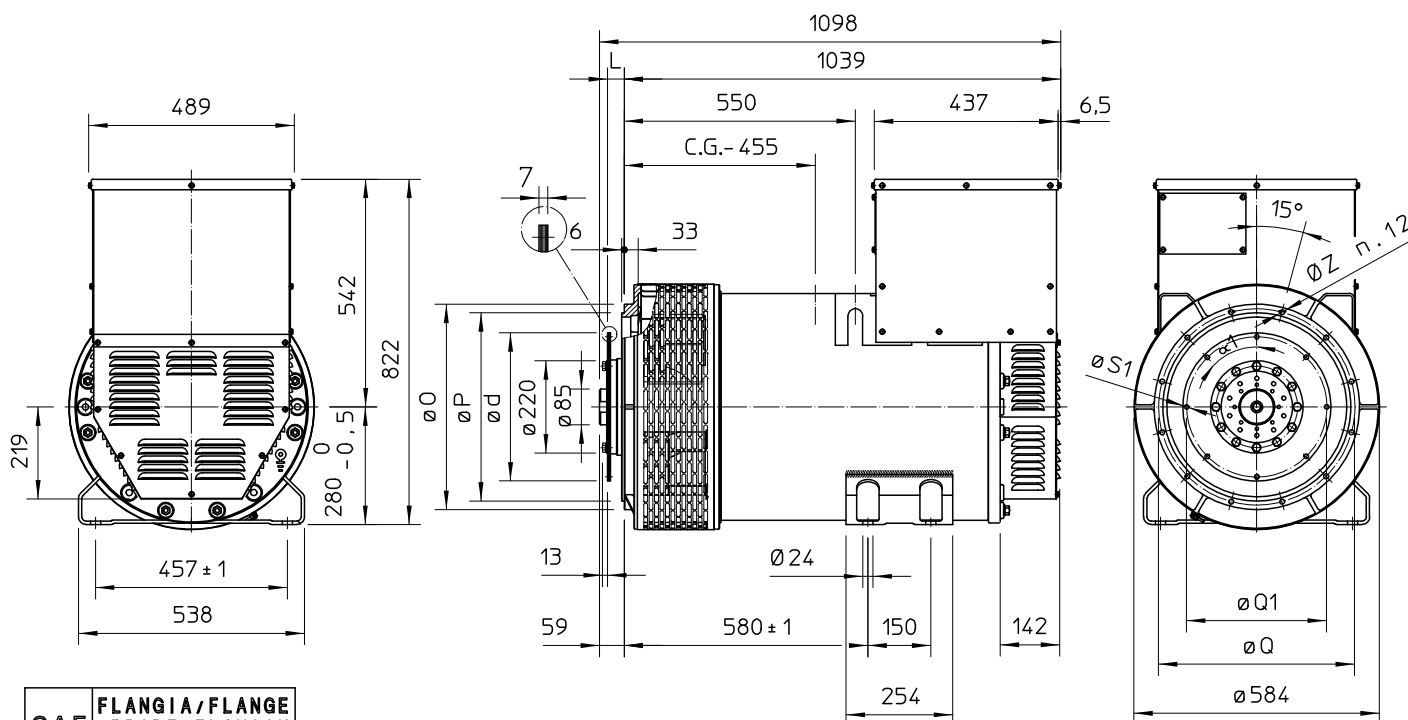
SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm ²)
1	FAN	6.1	0.1887
2	MAIN ROTOR	147.5	2.0195
3	EX. ROTOR	14.5	0.0874
4	SHAFT	49.9	0.0525
TOTAL		218	2.3481

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	α 1°	
11 1/2	39,6	352,42	333,37	8	11	45°	
14	25,4	466,72	438,15	8	14	45°	

C.G.= GRAVITY CENTER