

JCB ENERGY ELECTRIC POWER INDUSTRY











IVECO

















231 / 400 V - 50 Hz & 277 / 480 V - 60 Hz





GENERATOR GENERAL INFORMATION

GENERATOR	FREQUENCY	VOLTAGE	POWER FACTOR	SPEED	DIESEL ENG	INE		ALTERN	ATOR		TYPE OF	GENER	ATOR O	UTPUT
Model	Hz	V	Cos Q	Rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	А
	50	231/400	0.8	1500	DOOSAN	OSAN SP344CC	: SP	COBENERALY.	ICD		Standby	94,0	75,2	135,8
JDD 94										225M2	Prime	85,5	68,4	123,5
											Continuous	59,8	47,9	86,4
JDD 106	60	277/480	0.8	1800					JCB	225M2	Standby	106,0	84,8	153,2
											Prime	96,4	77,1	139,3
											Continuous	67,5	54,0	97,5

- Diesel Engines with Advanced Technology and Quality
- Alternators with Advanced Technology and Quality
- Low Exhaust Emission
- Control Panel Suitable for Flexible Application
- Patented Compact Designed and Sound proof Canopy
- Low Operating Cost, Suitable for Heavy-Duty
- Durability , Low Noise Level

- Tropical 50 °C Radiator, First Class Product Support
- Fuel Filter with Water and Particle Separator
- Low Fuel Consumption, Low Oil Consumption
- Global Technical Service and Maintenance Support
- Wide Range of Affordable Spare Parts
- High Quality and Reliable Technology
- Half Century Experience in Generator Manufacturing

STAND BY POWER RATING - (ESP):

ESP is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Stand by Power rating. This rating should be applied where reliable utility power is available. A Stand By rated engine should be sized for a maximum of an 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Stand by Power rating. Stand By ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING - (PRP):

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER (ULTP):

PRP (Prime Power) is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER (LTP):

LTP (Limited Time Prime Power) is available for a limited number of hours in a no variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation

CONTINUOUS POWER RATING (COP):

COP is the power that the engine can continue to use under the prescribed speed and the specified environment condition in the normal maintenance period stipulated in the manufacturing plant. And Continuous Power is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.



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PAY ATTENTION TO THE POINTS BELOW IN PICKING AND USING THE GENERATOR

- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive oil and eventually have irreparable damage.
- * If your need is 1000 kVA or above, you should prefer Synchronic Systems with 2-3 generators with failure back up and simultaneous aging.
- * These points will provide advantage for you with purchasing and operating the generator.

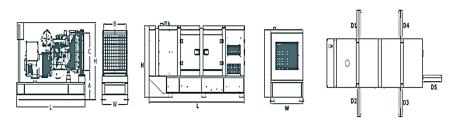
GENERATOR DIMENSIONS AND TECHNICAL DRAWINGS





VALUES		OPEN TYPE GENERATOR	CANOPY TYPE GENERATOR
WIDTH	mm	700	1000
LENGTH	mm	1900	3000
HEIGHT	mm	1562	1380
WEIGHT (NET)	Kg	1024	1200
FUEL TANK CAPACITY	L	161	223

SYMBOL	OPEN	CANOPY
L	2150	3000
W	800	1000
Н	1600	1500
S		80
Α	630	
В	720	
С	755	
D1		600
D2		600
D3		600
D4		600
D5		600



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm		1800 rpm		
TENGENT OF THIME TOWER	g/kWh	l/hr	g/kWh	I/hr	
110 %	200,0	19,2	200,0	21,8	
100 %	195,0	16,8	195,0	19,2	
75 %	197,0	12,8	197,0	14,5	
50 %	212,0	9,2	212,0	10,4	



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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL ENGINE DATA								
Engine Model		SP344CC	SP344CC					
Engine Type		4-Stroke, in-line 4	4-Stroke, in-line 4 cylinder, water cooled, common rail direct injection					
Bore x Stroke		98 x 113mm	98 x 113mm					
Displacement		3.4liters						
Compression Ratio		16.8:1						
Rotation		Counter clockwise	viewed from Flyw	heel				
Firing Order		1-3-4-2						
Fuel System		High Pressure						
Governor		Common Rail						
Governor Class		G3						
Cooling System								
Total System Coolant Capacity		14.2L						
Thermostat Operation Range		80~90°C						
Maximum Temperature to Engine	105°C	105°C						
Minimum Temperature to Engine	70°C	70°C						
Coolant Temperature Alarm		105°C	105°C					
Limits of the Environment Temper	rature	52°C	52°C					
Lubrication System								
Lubrication Oil Capacity		12,6L						
Lubrication Oil Pressure		min 250 kPa (50Hz	min 250 kPa (50Hz) /min 300 kPa (60Hz)					
Lubrication Oil Temperature		At normal operation	At normal operation 105°C, Maximum 125°C					
Lubrication Oil Consumption as %	Fuel Consumption	0.1 % maximum						
Pressure of Oil Relief Valve Openin	ng	550 ± 50 kPa	550 ± 50 kPa					
Electrical System								
Alternator		12V/110A						
Starter Motor		12V/2,5 Kw						
FAN								
Diameter		480mm						
Number Of Blade		7						
Material		Plastic						
	DOOSAN IN	IFRACORE GENSET	ENGINE					
Engine Model	rpm	Gross Engine C	utput(kWm)	Typical Generato	or Output (kVa)			
Engine Woder		Stand-by	Prime	Stand-by	Prime			
SP344CC	1500	81	73	93	84			
	1800	92	83	106	95			



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JCB ALTERNATOR TECHNICAL PARAMETERS AND SPECIFICATIONS



ALTERNATOR TECHNICA	L PARAMETERS								
Insulation Class			H	Field Cont	trol System			:	Self-Excited
Winding Pitch			2/3 - (N° 6)	A.V.R. Mo	del		Standard		SX460
Wires			12	Voltage R	egulation		%		± 1
Protection			IP 23	Sustained	Short-Circuit	Current	10 sec		300% (3 IN)
Altitude	1	m	1000	Total Harı	monic (*) TGH	I / THC	%		< 5
Overspeed	rŗ	om	2250	Wave For	m: NEMA = T	IF - (*)			< 50
Air Flow	m³,	/sec.	0.216	Wave For	m: I.E.C. = TH	IF - (*)	%		< 2
Bearing Drive	N	/A	-	Bearing N	on-Drive		Bearing		6309-2RZ
Rotor Winding	10	00%	Coppe	Stator Wi	nding		100%		Copper
50 HZ / 231-400V COSQ (0,8 / 1500 RPM								
STANDARD USING ALTER	NATOR			OPTIONAL L	ISING ALTERN	ATOR			
BRAND/MODEL	JCB <u>ENERGY</u>	JCB 225M2		LEROY-	SOMER"	TAL044C	STAMFORD	UC 224	l G
DUTY				Continuous			-	Stand By	
AMBIENT	C°			40°C				27°C	
CLASS / TEMP. RISE	C°			H/ 125° K			I	H/ 163° K	
SERIES STAR	V	380/220	400/231	415/240	1 Phase	380/220	400/231	415/240	1 Phase
PARALLEL STAR	V	190/110	200/115	208/120	220	190/110	200/115	208/120	220
SERIES DELTA	V	220	230	240	230	220	230	240	230
OUTPUT POWER	kVA	91,0	91,0	94,0	-	100,0	100,0	103,0	-
OUTPUT POWER	kW	72,8	72,8	75,2	-	80,0	80,0	82,4	-
60 HZ / 277-480V COSQ	0,8 / 1800 RPM								
STANDARD USING ALTER	NATOR			OPTIONAL L	JSING ALTERN	ATOR			
BRAND/MODEL	JCBENERGY	JCB 225M2		LERO	Y-SOMER"	TAL044B	STAMFO	RD UC 2	24 G
DUTY				Continuous			9	itand By	
AMBIENT	C°			40°C				27°C	
CLASS / TEMP. RISE	C°			H / 125° K			Н	/ 163° K	
SERIES STAR	V	416/240	440/254	480/277	1 Phase	416/240	440/254 4	80/277	1 Phase
PARALLEL STAR	V	208/120	220/127	240/138	-	208/120	220/127 2	40/138	-
SERIES DELTA	V	240	254	277	240	240	254	277	240
OUTPUT POWER	kVA	103,0	108,0	114,0	-	113,0	119,0	125,0	-
OUTPUT POWER	kW	82,0	86,0	91,0	-	90,0	95,0	100,0	-



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CONTROL MODULE ALERTS

Emergency Stop Malfunction
High Generator Frequency
Low Generator frequency, Low Load
Over Current, Unbalanced Current
Low Generator Voltage
High generator Frequency
Phase sequence error
Overload, Heat Sensor Broken
Low Water Level (Optional)
Low Oil Pressure, Reverse Power
Low Water Temperature

Start Error, Stop Error
Magnetic Pickup Error
Charge Alternator Error
Unbalanced Load
Maintenance Time Alarm
Low Speed, High Speed
Broken Oil Sensor Cable
High Oil Temperature (Optional)
Low Fuel Level (Optional), High Battery Voltage
Low Battery Voltage, High Water Temperature
Electronic Can bus Errors (ECU)

CONTROL PANEL SPECIFICATIONS





- Powder Painted Steel Panel with Lockable Door
- ATS (Automatic Transfer Panel)-Optional
- Control Module
- Battery Charger
- Emergency Stop Button

- Terminal Blocks
- Load Output Terminal
- System Protection MSBs
- Circuit Breaker-Optional
- o LCD Screen
- Control Relays
- Backlit, 128x64 Pixels

CONTROL MODULE TECHNICAL PARAMETERS

Brand	JEBENERGY	Brand	Trans-MIDIAMF.232.GP
Dimensions	120mmx94mm.	Protection Class	IP65 From the Front
Weight	260 gr.	Environmental Conditions	2000 meters above sea level
Ambient Humidity	Max. %90.	Ambient Temperature	-20°C to +70°C
DC Battery Supply Voltage	8 - 32 V	Battery Voltage Measurement	8 – 32 V
Network Frequency	5 - 99,9 Hz	Mains Voltage Measurement	3 - 300 V phase -Neutral, 5 - 99,9 Hz
Generator Voltage Measurement	3 - 300 V	Generator Frequency	5 - 99,9 Hz
Current Transformer Secondary	5A	Working Period	Continuous
Charge Alternator Voltage Measurement	8 - 32 V	Charge Alternator Excitation	210mA &12V, 105mA &24V Nominal 2.5W
Communication Interface	RS-232	Analog Sender Measurement	0 - 1300ohm
Generator Contactor Relay Output	5A & 250V	Mains Contactor Relay Output	5A & 250V
Solenoid Transistor Outputs	1A with DC Supply	Start Transistor Outputs	1A with DC Supply
Configurable-3 Transistor Outputs	1A with DC Supply	Configurable-4 Transistor Outputs	1A with DC Supply



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CONTROL MODULE FUNCTION

Mains Voltage Level Control	Generator Voltage Level Control	3 Phase Generator Protections	3 Phase AMF Function	Alarm Horn
Network Frequency Level Control	Generator Frequency level Control	- High / Low Voltage	- High / Low Frequency	Heater Tube Thermostat Control
Engine Operating Option Control	Generator Current Level Control	- High / Low Frequency	- High / Low Voltage	Modbus and SNMP
Engine Stop Option Control	Generator Powder Level Control	- Current / Voltage Asymmetry	- High / Low Water Temperature	Working Hour
Engine Speed (RPM) Level Control	Generator work Schedule and Timing Control	- Overcurrent / Overload	- High / Low Load	Ground Leakage
Battery Voltage Options Times	Oil Pressure Controllers Control	Overheat Control	Mains., Generator ATS Control	Analog Modem
Check Engine Maintenance Times	Configurable Analog Inputs and Outputs	1 Phase or 3 Phase, Phase Selection	Network, Voltage, Frequency Display	Ethernet, USB, RS232, RS485
Communication Interfaces GPRS, GSM	Keeping Error Records of Past Events	Parameter Setting via Control Module	Parameter Setting via Computer	Selectable Protection Alarm / Shutdown
Engine Speed, Voltage, Earning	Configurable Programmable Digital Inputs and Outputs	Water Temperature Current and Frequency	Hours of Operation Phase sequence	Battery Voltage Oil Pressure

SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting with Electrostatic Powder Paint
- o Drying and stabilizing on 200 ºC Ovens
- 1500 Hour Salt Test
- Glass wool Isolation, A1 Class Material -50/+500 ºC
- Special Covering Over Glass Wool
- Best Sound Level (in Dba)
- Temperature Tests
- Rustproof Accessories

- Cable Exit Connectors and Glands
- Emergency Stop Button
 Final Level Course
- Fuel Level Gauge
- Fuel Drain Cap
- Fuel Inlet and Return Records
- o I permeability Test for Fuel Tank
- Vacuumed Rubber Mounted
- High Quality weatherstrips
- High Quality Shock Absorbers
- Fuel Filling Cap (with ventilation)
- Lifting and Carrying Equipment
- Internal Exhaust Mufflers (Silencers)
- External Exhaust Mufflers (Silencers)
- Radiator water Filling Cap
- Daily Fuel Tank, External Fuel Tank

Our Quality Certificates

