


JCB ENERGY ELECTRIC POWER INDUSTRY

📍 MADRID / SPAIN





GENERATOR GENERAL INFORMATION

GENERATOR	FREQUENCY	VOLTAGE	POWER FACTOR	SPEED	DIESEL ENGINE			ALTERNATOR			TYPE OF	GENERATOR OUTPUT		
Model	Hz	V	Cos Q	Rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	A
JCN 235	50	231/400	0.8	1500	JCN	G295JCI	GII		JCB	270M1	Standby	235,0	188,0	339,6
				Prime							213,6	170,9	308,7	
				Continuous							149,5	119,6	216,1	
JCN 235	60	277/480	0.8	1800							Standby	235,0	188,0	339,6
				Prime							213,6	170,9	308,7	
					Continuous	149,5	119,6	216,1						

- 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.

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

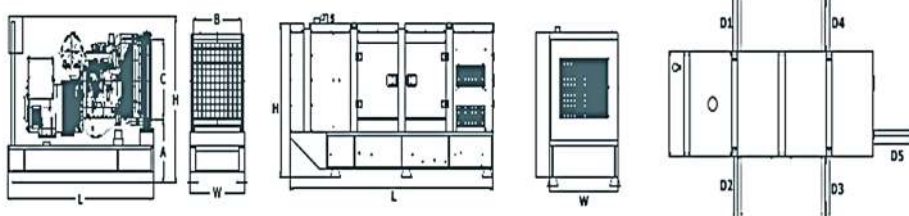
- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	900	1140
LENGTH	mm	2400	3650
HEIGHT	mm	1549	1900
WEIGHT (NET)	Kg	1450	1810
FUEL TANK CAPACITY	L	256	678

SYMBOL	OPEN	CANOPY
L	3650	3650
W	900	1140
H	1612	2000
S	-	80
A	535	
B	810	
C	896	
D1		850
D2		850
D3		850
D4		850
D5		850



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	51,42	51,42
100 %	47,45	47,45
75 %	35,06	35,06
50 %	23,14	23,14

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL

Number of Cylinders		6
Configuration		Vertical, In Line
Aspiration		Turbocharged & Intercooled
Combustion System		Direct Injection
Compression Ratio		16:1
Bore	mm	105
Stroke	mm	124
Displacement	L	6,5
Governing Type		Electronic
Governing Class		G3
Rotation		Counterclockwise
Firing Order		1-5-3-6-2-4
Emission		Tier II
Moments of Rotation Inertia		
Engine	Kg - m ²	2,01
Flywheel	Kg - m ²	1,75
Performance Rating		
Speed Droop	%	≤0,5
Steady State Speed Band	%	≤0,5

FILTERS

Air Filter		Dry Type, Replaceable
Fuel Filter		With Water Separator
Oil Filter		Element Type, Particulate Trap

FLYWHEEL HOUSING AND FLEX COUPLING

Flywheel Housing	SAE (J620)	3
Flex Coupling Disc	Inch (")	11,5

TEST CONDITIONS

Ambient Temperature	%	25
Atmospheric Pressure	KPa	100
Relative Humidity	Rh (%)	30
Max. Operating Intake Resistance	KPa	5
Exhaust Backpressure Limit	KPa	10
Fuel Temperature (Fuel Inlet Pump)	°C	38±2

OVERALL DIMENSIONS

Length*	mm	1461
Width	mm	870
Height	mm	1206
Dry Weight	kg	600

*From front end of radiator to near end of air filter

FAN

Diameter	mm	660
Drive Ratio		1,6:1
Number of Blades		10
Material		Plastic
Type		Blowing

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	32
Max. Perm. Coolant Outlet Temperature	°C	103
Max. Perm. Flow Resist. (Cool. System And Piping)	bar	0,5
Max. Temperature of Coolant Warning	°C	95
Max. Temperature of Coolant Shutdown	°C	98
Thermostat Operation Temperature - Initial Open	°C	72
Thermostat Operation Temperature - Full Open	°C	80
Delivery of Coolant Pump	m ³ / h	3,72
Min. Pressure Before Coolant Pump	bar	0,15
Radiator Face Area	m ²	0,44
Rows	Row	3
Matrix Density	Per / Inch	15,5
Material		Aluminum
Width of Matrix	mm	650
Height of Matrix	mm	680
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	2000

LUBRICATION SYSTEM

Total System	L	18
Minimum Oil Level	L	15
Nominal Motor Operating Temperature	°C	40
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	300-400
Oil / Fuel Consumption Ratio	%	≤1,63
Normal Oil Temperature	°C	120

ELECTRICAL SYSTEM

Voltage	V	24
Starter	kW	5,5
Alternator Output Ampers	A	42
Alternator Output Voltage	V	28
Batteries Capacity	Ah	2X60

JCB ENERGY DIESEL ENGINE POWER RATINGS

ENGINE MODEL	G295JCI	ENGINE FAMILY		JC38	ENGINE SERIES		GII
Speed (Rpm)	Type of Operation	TYPICAL GENERATOR OUTPUT (NET)		ENGINE POWER			
				Gross		Net	
		kVA	kWe	KWm	Hp	kWm	Hp
1500	Stand By(Maximum)	235,3	188,2	210,0	281,9	204,0	273,8
	Prime	213,9	171,1	191,0	256,4	185,0	248,3
1800	Stand By(Maximum)	235,3	188,2	210,0	281,9	204,0	273,8
	Prime	213,9	171,1	191,0	256,4	185,0	248,3

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	220,0	201,0
Net Engine Power	kW	214,0	196,0
Fan Power Consumption (Belt Pulley Driven)	kW	4,0	4,0
Other Power Loss	kW	2,5	2,0
Mean Effective Pressure	MPa	2,39	2,18
Intake Air Flow	m ³ / min	12,72	11,56
Exhaust Temperature Limit	°C	550	520
Exhaust Flow	m ³ / min	37,20	33,82
Boost Pressure Ratio		3,10	3,00
Mean Piston Speed	m / s	6,8	6,8
Cooling Fan Air Flow	m ³ / min	211,5	211,5
Typical Generator Output Power	kVA	235	214
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	525,0	488,0
Gross Heat to Power	kW	210,0	191,0
Energy to Coolant and Lubricating Oil	kW	101,0	94,0
Heat Dissipation Capacity *	kW	45,0	41,0
Energy to Exhaust	kW	153,0	147,0
Heat to Radiation	kW	16,0	15,0

*Intake Intercooled system

DIESEL ENGINE MATCHING PARAMETERS - 60 HZ

60 HZ @ 1800 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	220,0	201,0
Net Engine Power	kW	214,0	196,0
Fan Power Consumption (Belt Pulley Driven)	kW	4,0	4,0
Other Power Loss	kW	2,5	2,2
Mean Effective Pressure	MPa	2,19	1,99
Intake Air Flow	m ³ / min	13,99	12,71
Exhaust Temperature Limit	°C	605	572
Exhaust Flow	m ³ / min	40,92	37,18
Boost Pressure Ratio		3,40	3,30
Mean Piston Speed	m / s	8,1	8,1
Cooling Fan Air Flow	m ³ / min	233,0	233,0
Typical Generator Output Power	kVA	235	214
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	577,0	529,0
Gross Heat to Power	kW	231,0	203,0
Energy to Coolant and Lubricating Oil	kW	111,0	103,0
Heat Dissipation Capacity *	kW	49,0	45,0
Energy to Exhaust	kW	168,0	162,0
Heat to Radiation	kW	18,0	17,0

*Intake Intercooled system

JCB ALTERNATOR TECHNICAL PARAMETERS AND SPECIFICATIONS






ALTERNATOR TECHNICAL PARAMETERS				
Insulation Class	H	Field Control System	Self-Excited	
Winding Pitch	2/3 - (N° 6)	A.V.R. Model	Standard	SX460
Wires	12	Voltage Regulation	%	± 1
Protection	IP 23	Sustained Short-Circuit Current	10 sec	300% (3 IN)
Altitude	m	Total Harmonic (*) TGH / THC	%	< 4
Overspeed	rpm	Wave Form: NEMA = TIF - (*)		< 50
Air Flow	m ³ /sec.	Wave Form: I.E.C. = THF - (*)	%	< 2
Bearing Drive	N/A	Bearing Non-Drive	Bearing	6310-2RZ
Rotor Winding	100%	Copper	Stator Winding	100% Copper

ALTERNATOR SPECIFICATIONS

50 HZ / 231-400V COSQ 0,8 / 1500 RPM

STANDARD USING ALTERNATOR




OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 270M1		TAL046B		UC274H			
DUTY		Continuous				Stand By			
AMBIENT	C°	40°C				27°C			
CLASS / TEMP. RISE	C°	H/ 125° K				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	214,0	214,0	222,0	-	235,0	235,0	244,0	-
OUTPUT POWER	kW	171,2	171,2	177,6	-	188,0	188,0	195,2	-

60 HZ / 277-480V COSQ 0,8 / 1800 RPM

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 270M		TAL046A		UC274G			
DUTY		Continuous				Stand By			
AMBIENT	C°	40°C				27°C			
CLASS / TEMP. RISE	C°	H / 125° K				H / 163° K			
SERIES STAR	V	416/240	440/254	480/277	1 Phase	416/240	440/254	480/277	1 Phase
PARALLEL STAR	V	208/120	220/127	240/138	-	208/120	220/127	240/138	-
SERIES DELTA	V	240	254	277	240	240	254	277	240
OUTPUT POWER	kVA	210,0	221,0	233,0	-	231,0	243,0	256,0	-
OUTPUT POWER	kW	168,0	176,8	186,4	-	184,8	194,4	204,8	-

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
- LCD Screen
- Control Relays
- Backlit, 128x64 Pixels

CONTROL MODULE TECHNICAL PARAMETERS

Brand		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

CONTROL MODULE FUNCTION

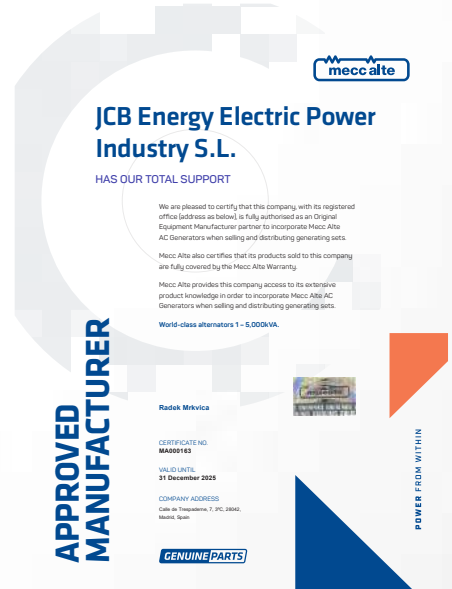
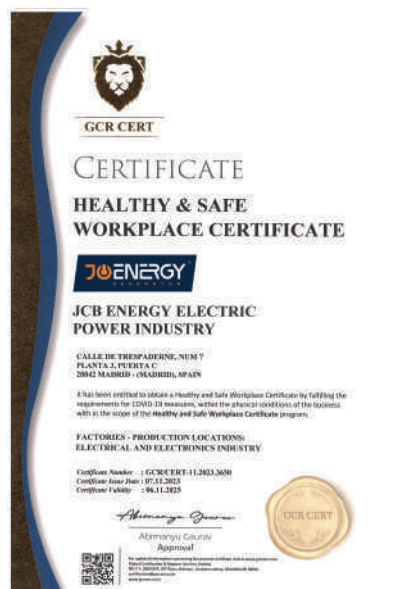
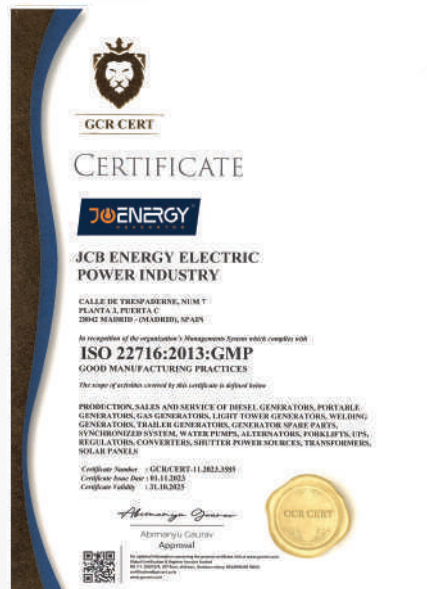
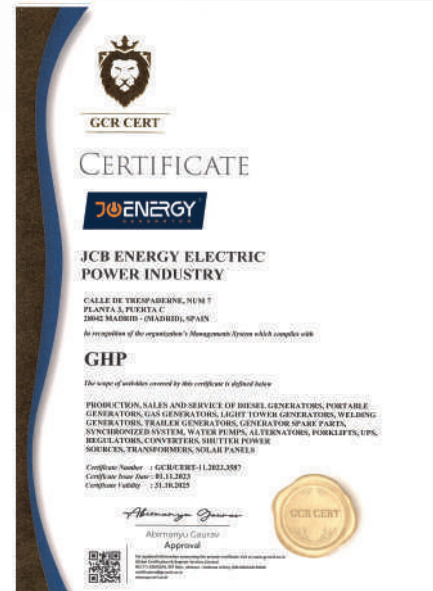
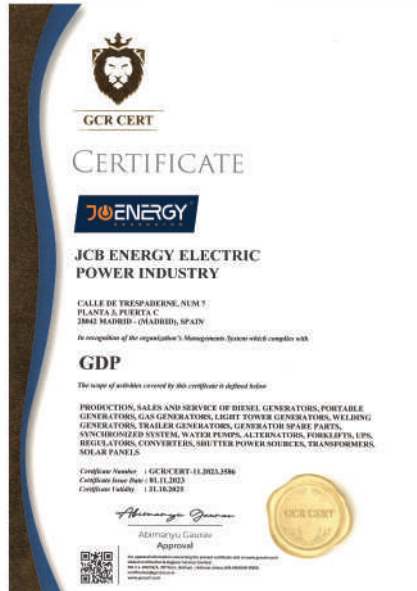
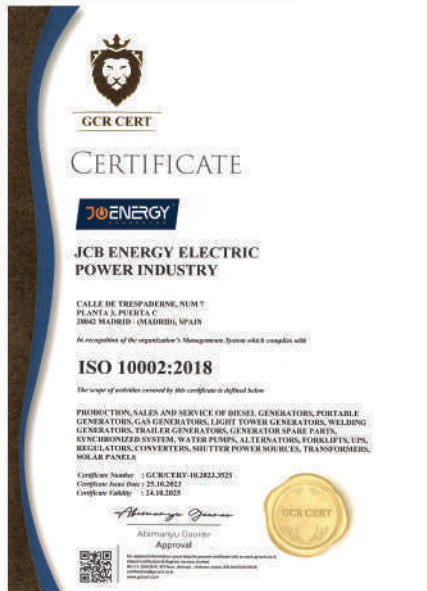
Mains Voltage Level Control	Generator Voltage Level Control	3 Phase Generator Protections	3 Phase AMF Function	Alarm Horn
Network Frequency Level Control	Generator Frequency level Control	- High / Low Voltage	- High / Low Frequency	Heater Tube Thermostat Control
Engine Operating Option Control	Generator 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

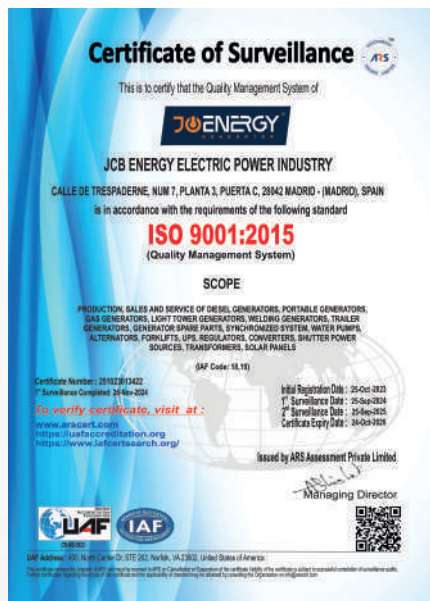
SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- 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
- Drying and stabilizing on 200 °C Ovens
- 1500 Hour Salt Test
- Glass wool Isolation, A1 Class Material -50/+500 °C
- Special Covering Over Glass Wool
- Best Sound Level (in DbA)
- Temperature Tests
- Rustproof Accessories
- Cable Exit Connectors and Glands
- Emergency Stop Button
- Fuel Level Gauge
- Fuel Drain Cap
- Fuel Inlet and Return Records
- Impermeability 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 CERTIFICATES







JCBENERGY
GENERATOR



CE -VERTA-106188
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