

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 450	50	231/400	0.8	1500	JCN	C556JCI	CII	JCB ENERGY	JCB	315M	Standby	450,0	360,0	650,3
											Prime	409,1	327,3	591,2
											Continuous	286,4	229,1	413,8
JCN 450	60	277/480	0.8	1800	JCN	C556JCI	CII	JCB ENERGY	JCB	315S	Standby	450,0	360,0	650,3
											Prime	409,1	327,3	591,2
											Continuous	286,4	229,1	413,8

- 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

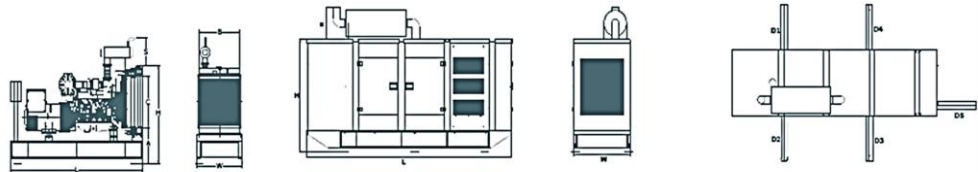
- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	1100	1140
LENGTH	mm	3254	4100
HEIGHT	mm	1782	1900
WEIGHT (NET)	Kg	2379	2970
FUEL TANK CAPACITY	L	475	678

SYMBOL	OPEN	CANOPY
L	3254	4100
W	1100	1140
H	1598	2000
S	184	600
A	766	
B	810	
C	860	
D1		860
D2		860
D3		860
D4		860
D5		860



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm		1800 rpm	
	l/hr		l/hr	
110 %	88,84		88,84	
100 %	80,84		80,84	
75 %	60,95		60,95	
50 %	42,11		42,11	

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL		
Number of Cylinders		6
Configuration		Vertical, In Line
Aspiration		Turbocharged & Intercooled
Combustion System		Direct Injection
Compression Ratio		17:1
Bore	mm	126
Stroke	mm	130
Displacement	L	9,726
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	3,02
Flywheel	Kg - m ²	2,35
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)	1
Flex Coupling Disc	Inch (")	14
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	1854
Width	mm	887
Height	mm	1209
Dry Weight	kg	980
*From front end of radiator to near end of air filter		
FAN		
Diameter	mm	760
Drive Ratio		1,04:1
Number of Blades		10
Material		Plastic
Type		Blowing



JCN 450 & 450

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



DIESEL ENGINE MAIN TECHNICAL PARAMETERS

COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	46
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	68
Thermostat Operation Temperature - Full Open	°C	71
Delivery of Coolant Pump	m ³ / h	5,60
Min. Pressure Before Coolant Pump	bar	0,5
Radiator Face Area	m ²	0,72
Rows	Row	5
Matrix Density	Per / Inch	15,5
Material		Aluminum
Width of Matrix	mm	830
Height of Matrix	mm	870
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	3000

LUBRICATION SYSTEM

Total System	L	26
Minimum Oil Level	L	24
Nominal Motor Operating Temperature	°C	40
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	300-400
Oil / Fuel Consumption Ratio	%	≤0,36
Normal Oil Temperature	°C	105

ELECTRICAL SYSTEM

Voltage	V	24
Starter	kW	8,5
Alternator Output Ampers	A	55
Alternator Output Voltage	V	28
Batteries Capacity	Ah	2X135



JCN 450 & 450

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



JCB ENERGY DIESEL ENGINE POWER RATINGS

ENGINE MODEL		C556JCI		ENGINE FAMILY	JC13	ENGINE SERIES	CII
Speed (Rpm)	Type of Operation	TYPICAL GENERATOR OUTPUT (NET)		ENGINE POWER			
				Gross		Net	
		kVA	kWe	KWm	Hp	kWm	Hp
1500	Stand By(Maximum)	451,0	361,0	400,0	536,9	384,0	515,4
	Prime	409,0	328,0	364,0	488,6	349,0	468,5
1800	Stand By(Maximum)	451,0	361,0	400,0	536,9	384,0	515,4
	Prime	409,0	328,0	364,0	488,6	349,0	468,5

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	400,0	364,0
Net Engine Power	kW	384,0	349,0
Fan Power Consumption (Belt Pulley Driven)	kW	14,0	14,0
Other Power Loss	kW	2,0	1,5
Mean Effective Pressure	MPa	3,29	3,00
Intake Air Flow	m ³ / min	21,72	20,68
Exhaust Temperature Limit	°C	650	650
Exhaust Flow	m ³ / min	42,73	40,70
Boost Pressure Ratio		3,26	3,09
Mean Piston Speed	m / s	6,5	6,5
Cooling Fan Air Flow	m ³ / min	612,0	612,0
Typical Generator Output Power	kVA	451	409
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	1000,0	910,0
Gross Heat to Power	kW	400,0	364,0
Energy to Coolant and Lubricating Oil	kW	200,0	182,0
Heat Dissipation Capacity *	kW	70,0	64,0
Energy to Exhaust	kW	290,0	264,0
Heat to Radiation	kW	40,0	36,0

*Intake Intercooled system

DIESEL ENGINE MATCHING PARAMETERS - 60 HZ

60 HZ @ 1800 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	400,0	364,0
Net Engine Power	kW	381,2	345,7
Fan Power Consumption (Belt Pulley Driven)	kW	16,8	16,8
Other Power Loss	kW	2,0	1,5
Mean Effective Pressure	MPa	2,74	2,50
Intake Air Flow	m ³ / min	21,72	20,68
Exhaust Temperature Limit	°C	650	650
Exhaust Flow	m ³ / min	42,73	40,70
Boost Pressure Ratio		3,20	3,10
Mean Piston Speed	m / s	7,8	7,8
Cooling Fan Air Flow	m ³ / min	612,0	612,0
Typical Generator Output Power	kVA	447	406
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	1002,0	895,0
Gross Heat to Power	kW	400,0	347,0
Energy to Coolant and Lubricating Oil	kW	200,0	182,0
Heat Dissipation Capacity *	kW	70,0	63,0
Energy to Exhaust	kW	290,0	264,0
Heat to Radiation	kW	42,0	38,0

*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	SX440
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	6314-2RZ
Rotor Winding	100%	Copper	Stator Winding	100% Copper



JCN 450 & 450

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



ALTERNATOR SPECIFICATIONS

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 315M				TAL047A			S4L1DF
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	409,0	409,0	424,0	-	450,0	450,0	467,0	-
OUTPUT POWER	kW	327,2	327,2	339,2	-	360,0	360,0	373,6	-

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 315S				TAL046G			HC4E
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	421,0	443,0	466,0	-	463,0	487,0	513,0	-
OUTPUT POWER	kW	336,8	354,4	372,8	-	370,4	389,6	410,4	-

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 Db)
- Temperature Tests
- Rustproof Accessories
- Cable Exit Connectors and Glands
- Emergency Stop Button
- Fuel Level Gauge
- Fuel Drain Cap
- Fuel Inlet and Return Records
- 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

Certificate of Registration 

This is to certify that the Quality Management System of

JCBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY
CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

is in accordance with the requirements of the following standard

ISO 9001:2015
(Quality Management System)

SCOPE



MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES
(IAF Code: 18,19)


Certificate Number : 251022013422

Initial Registration Date : 25-Oct-2023
1st Surveillance Date : 25-Sep-2024
2nd Surveillance Date : 25-Sep-2025
Certificate Expiry Date : 24-Oct-2026

To verify certificate, visit at:
www.arscert.com
<https://www.iafacreditation.org>
<https://www.iafcertsearch.org/>

Issued by ARS Assessment Private Limited
Managing Director



IAF Address : 401, North Center Dr., STE 202, Norfolk, VA 23502, United States of America
This certificate is issued in accordance with the requirements of the standard and is subject to the terms and conditions of the certificate. The certificate holder is responsible for maintaining the certificate in accordance with the requirements of the standard and for ensuring that the certificate is used only for the purposes for which it was issued. The certificate holder is also responsible for ensuring that the certificate is used only for the purposes for which it was issued. The certificate holder is also responsible for ensuring that the certificate is used only for the purposes for which it was issued.

Certificate of Registration 

This is to certify that the Environmental Management System of

JCBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY
CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

is in accordance with the requirements of the following standard

ISO 14001:2015
(Environmental Management System)

SCOPE

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES
(IAF Code: 18,19)

Certificate Number : 25102202423

Initial Registration Date : 25-Oct-2023
1st Surveillance Date : 25-Sep-2024
2nd Surveillance Date : 25-Sep-2025
Certificate Expiry Date : 24-Oct-2026


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CERTIFICATE OF REGISTRATION 

This is to certify that the Management System of

JCBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY
CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

is in accordance with the requirements of the following standard

ISO 27001:2013
(Information Security Management System)

SCOPE OF CERTIFICATION



PROTECTION OF RECORDS AND INFORMATION ASSETS IN MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES

Certificate Number : QCAS-JCB-23-05158813

Initial Certification Date : 25 Oct 2023 Date of Expiry : 24 Oct 2026
1st Surveillance Date : 25 Sep 2024 2nd Surveillance Date : 25 Sep 2025

Verify the Certificate: <https://gaafs.us/site/search/>

Issued by QCAS Certifications Inc.
Managing Director

QCAS Address: 10000, Redwood Avenue, 97060, Medford, OR, USA
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Certificate of Registration 

This is to certify that the Occupational Health and Safety Management System of

JCBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY
CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

is in accordance with the requirements of the following standard

ISO 45001:2018
(Occupational Health and Safety Management System)

SCOPE


MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES
(IAF Code: 18,19)


Certificate Number : 251022013424

Initial Registration Date : 25-Oct-2023
1st Surveillance Date : 25-Sep-2024
2nd Surveillance Date : 25-Sep-2025
Certificate Expiry Date : 24-Oct-2026

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IAF Address : 401, North Center Dr., STE 202, Norfolk, VA 23502, United States of America
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CERTIFICATE OF REGISTRATION 

This is to certify that the Management System of

JCBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY
CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

is in accordance with the requirements of the following standard

ISO 50001:2018
(Energy Management System)

SCOPE OF CERTIFICATION

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES

Certificate Number : QCAS-JCB-23-05158814

Initial Certification Date : 25 Oct 2023 Date of Expiry : 24 Oct 2026
1st Surveillance Date : 25 Sep 2024 2nd Surveillance Date : 25 Sep 2025

Verify the Certificate: <https://gaafs.us/site/search/>

Issued by QCAS Certifications Inc.
Managing Director

QCAS Address: 10000, Redwood Avenue, 97060, Medford, OR, USA
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JCB Energy Electric Power Industry S.L.

HAS OUR TOTAL SUPPORT

We are pleased to certify that this company, with its registered office (address as below) is fully authorized as an Original Equipment Manufacturer partner to incorporate Mecc Alte AC Generators when selling and distributing generating sets.

Mecc Alte also certifies that its product sold to this company are fully covered by the Mecc Alte Warranty.

Mecc Alte provides this company access to its extensive product knowledge in order to incorporate Mecc Alte AC Generators when selling and distributing generating sets.

World class alternators 1-5000kVA.

APPROVED MANUFACTURER

Radek Mivovca



COIF PIGOT ENG. MADRID

VALDURTEL 29 December 2023

COMPANY ADDRESS: C/Av. de Tréspaderne, 7, Pta. C, 28042 Madrid, Spain

GENUINE PARTS

POWER FROM WITHIN



GCR CERT

CERTIFICATE



JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

In recognition of the organization's Management System which complies with

GDP

The scope of activities covered by this certificate is defined below:

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES.

Certificate Number : GCR/CERT-11.2023.3586
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2024

Abimanyu Gaurav
Abimanyu Gaurav
Approval



GCR CERT

CERTIFICATE



JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

In recognition of the organization's Management System which complies with

GHP

The scope of activities covered by this certificate is defined below:

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES.

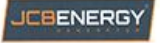
Certificate Number : GCR/CERT-11.2023.3587
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2024

Abimanyu Gaurav
Abimanyu Gaurav
Approval



GCR CERT

CERTIFICATE



JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

In recognition of the organization's Management System which complies with

ISO 22716:2013:GMP GOOD MANUFACTURING PRACTICES

The scope of activities covered by this certificate is defined below:

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES.

Certificate Number : GCR/CERT-11.2023.3585
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2024

Abimanyu Gaurav
Abimanyu Gaurav
Approval



GCR CERT

CERTIFICATE

HEALTHY & SAFE WORKPLACE CERTIFICATE

JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

It has been entitled to obtain a Healthy and Safe Workplace Certificate by fulfilling the requirements for COVID-19 measures, within the physical conditions of the business with in the scope of the Healthy and Safe Workplace Certificate program.

FACTORIES - PRODUCTION LOCATIONS: ELECTRICAL AND ELECTRONICS INDUSTRY

Certificate Number : GCR/CERT-11.2023.3600
Certificate Issue Date : 07.11.2023
Certificate Validity : 06.11.2024

Abimanyu Gaurav
Abimanyu Gaurav
Approval



GCR CERT

CERTIFICATE



JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAIN

In recognition of the organization's Management System which complies with

ISO 10002:2018

The scope of activities covered by this certificate is defined below:

MANUFACTURING, SALES AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES.

Certificate Number : GCR/CERT-10.2023.3525
Certificate Issue Date : 25.10.2023
Certificate Validity : 24.10.2024

Abimanyu Gaurav
Abimanyu Gaurav
Approval





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