JCBENERGY
GENERATOR

JCN SERIES

SCAN ME

www.jcbenergy.es

JCN 16 & 19

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

60 dB (A) @ 7 mt

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 16	50	231/400	0.8	1500	JCN	E20C	EII	JCB	JCB	160M	**Standby**	**16,0**	**12,8**	**23,1**
											Prime	14,5	11,6	21,0
											Continuous	10,2	8,1	21,0
JCN 19	60	277/480	0.8	1800							**Standby**	**19,0**	**15,2**	**27,5**
											Prime	17,3	13,8	25,0
											Continuous	12,1	9,7	17,5

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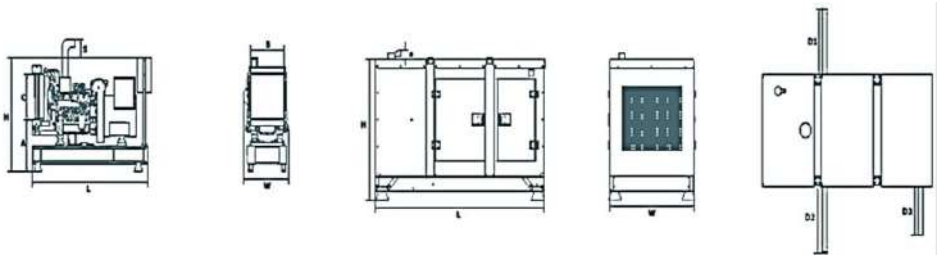
PAY ATTENTION TO THE POINTS BELOW IN PICKING AND USING THE GENERATOR

* 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	597	1000
LENGTH	mm	1400	2000
HEIGHT	mm	1309	1190
WEIGHT (NET)	Kg	525	660
FUEL TANK CAPACITY	L	58	100

SYMBOL	OPEN	CANOPY
L	1400	2000
W	597	1000
H	871	1290
S	438	80
A	438	
B	438	
C	480	
D1		828
D2		828
D3		450
D4		
D5		



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	4,15	4,98
100 %	3,77	4,53
75 %	2,90	3,48
50 %	2,07	2,49

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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL		
Number of Cylinders		4
Configuration		Vertical, In Line
Aspiration		Naturally
Combustion System		Direct Injection
Compression Ratio		19.1:1
Bore	mm	85
Stroke	mm	100
Displacement	L	2,27
Governing Type		Mechanic
Governing Class		G2
Rotation		Counter clockwise
Firing Order		1-3-4-2
Emission		Tier II
Moments of Rotation Inertia		
Engine	Kg - m²	0,44
Flywheel	Kg - m²	2,55
Performance Rating		
Speed Droop	%	≤3
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)	4
Flex Coupling Disc	Inch (“)	7,5
TEST CONDITIONS		
Ambient Temperature	%	25
Atmospheric Pressure	KPa	100
Relative Humidity	Rh (%)	30
Max. Operating Intake Resistance	KPa	5
Exhaust Backpressure Limit	KPa	5
Fuel Temperature (Fuel Inlet Pump)	°C	38±2
OVERALL DIMENSIONS		
Length*	mm	1087
Width	mm	597
Height	mm	749
Dry Weight	kg	275
*From front end of radiator to near end of air filter		
FAN		
Diameter	mm	410
Drive Ratio		1,61:1
Number of Blades		7
Material		Plastic
Type		Blowing

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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

COOLING SYSTEM		
Radiator Type	50ºC	Tropical
Total Coolant Capacity	L	13
Max. Perm. Coolant Outlet Temperature	ºC	103
Max. Perm. Flow Resist. (Cool. System And Piping)	bar	0,5
Max. Temperature of Coolant Warning	ºC	95
Max. Temperature of Coolant Shutdown	ºC	98
Thermostat Operation Temperature - Initial Open	ºC	68
Thermostat Operation Temperature - Full Open	ºC	72
Delivery of Coolant Pump	m^3/h	1,60
Min. Pressure Before Coolant Pump	bar	0,15
Radiator Face Area	m^2	0,21
Rows	Row	2
Matrix Density	Per / Inch	15,5
Material		Aluminum
Width of Matrix	mm	438
Height of Matrix	mm	480
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	1500
LUBRICATION SYSTEM		
Total System	L	8
Minimum Oil Level	L	7
Nominal Motor Operating Temperature	ºC	40
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	352
Oil / Fuel Consumption Ratio	%	≤ 0,3
Normal Oil Temperature	ºC	110
ELECTRICAL SYSTEM		
Voltage	V	12
Starter	kW	3,2
Alternator Output Ampers	A	25
Alternator Output Voltage	V	14
Batteries Capacity	Ah	55

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JCB ENERGY DIESEL ENGINE POWER RATINGS

ENGINE MODEL	E20C	ENGINE FAMILY	JC11	ENGINE SERIES	EII

Speed (Rpm)	Type of Operation	TYPICAL GENERATOR OUTPUT (NET)		ENGINE POWER			
				Gross		Net	
		kVA	kWe	KWm	Hp	kWm	Hp
1500	Stand By(Maximum)	16,5	13,2	17,5	23,5	15,5	20,8
	Prime	15,3	12,2	15,9	21,3	14,4	19,3
1800	Stand By(Maximum)	19,9	15,9	21,0	28,2	18,7	25,1
	Prime	18,4	14,7	19,1	25,6	17,3	23,2

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	17,5	11,5
Net Engine Power	kW	15,5	10,0
Fan Power Consumption (Belt Pulley Driven)	kW	1,5	1,5
Other Power Loss	kW	0,5	0,0
Mean Effective Pressure	MPa	0,62	0,41
Intake Air Flow	m^3 / min	1,25	1,25
Exhaust Temperature Limit	ºC	300	300
Exhaust Flow	m^3/ min	1,30	1,15
Boost Pressure Ratio		2,90	1,98
Mean Piston Speed	m / s	5,0	5,0
Cooling Fan Air Flow	m^3/ min	46,6	46,6
Typical Generator Output Power	kVA	17	15
HEAT REJECTION		**STAND BY**	**PRIME**
Energy in Fuel (Heat of Combustion)	kW	51,9	45,2
Gross Heat to Power	kW	17,5	15,9
Energy to Coolant and Lubricating Oil	kW	16,6	14,4
Heat Dissipation Capacity *	kW	-	-
Energy to Exhaust	kW	14,1	11,9
Heat to Radiation	kW	3,7	3,0

*Intake Intercooled system

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DIESEL ENGINE MATCHING PARAMETERS - 60 HZ

60 HZ @ 1800 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	21,0	19,1
Net Engine Power	kW	18,7	17,3
Fan Power Consumption (Belt Pulley Driven)	kW	1,8	1,8
Other Power Loss	kW	0,5	0,5
Mean Effective Pressure	MPa	0,62	0,56
Intake Air Flow	m ³ / min	1,50	1,50
Exhaust Temperature Limit	ºC	360	360
Exhaust Flow	m ³ / min	1,57	1,38
Boost Pressure Ratio		3,50	3,20
Mean Piston Speed	m / s	6,0	6,0
Cooling Fan Air Flow	m ³ / min	55,9	55,9
Typical Generator Output Power	kVA	20	18
HEAT REJECTION		**STAND BY**	**PRIME**
Energy in Fuel (Heat of Combustion)	kW	61,4	52,1
Gross Heat to Power	kW	21,0	17,3
Energy to Coolant and Lubricating Oil	kW	19,9	17,3
Heat Dissipation Capacity *	kW	-	-
Energy to Exhaust	kW	16,9	14,3
Heat to Radiation	kW	3,5	3,2

*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	1000	**Total Harmonic (*) TGH / THC**	%	< 5
Overspeed	rpm	2250	**Wave Form: NEMA = TIF - (*)**		< 50
Air Flow	m³/sec.	0.071	**Wave Form: I.E.C. = THF - (*)**	%	< 2
Bearing Drive	N/A	-	**Bearing Non-Drive**	Bearing	6306-2RZ
Rotor Winding	100%	Copper	**Stator Winding**	100%	Copper

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ALTERNATOR SPECIFICATIONS

50 HZ / 231-400V COSQ 0,8 / 1500 RPM									
STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL	JCB 160M			LEROY-SOMER TAL040D			STAMFORD SOL1P		
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	**15,0**	15,0	**16,0**	8,3	**16,5**	16,5	**17,5**	11,0
OUTPUT POWER	kW	**12,0**	12,0	**12,8**	6,6	**13,2**	13,2	**14,0**	8,8

60 HZ / 277-480V COSQ 0,8 / 1800 RPM									
STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL	JCB 160M			LEROY-SOMER TAL040D			STAMFORD PIO44G-SOL1-P		
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	**18,0**	19,0	**19,0**	12,6	**20,0**	21,0	**21,0**	14,0
OUTPUT POWER	kW	**14,4**	15,2	**15,2**	10,1	**16,0**	16,8	**16,8**	11,2

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

CONTROL MODULE TECHNICAL PARAMETERS

Brand	JCBENERGY	**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
- 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
- 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 : 251023013422

To verify certificate, visit at :

www.arscert.com
https://uafaccreditation.org
https://www.iafcertsearch.org/

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

Issued by ARS Assessment Private Limited

Managing Director

UAF Address: 401, North Center Dr. STE 202, Norfolk, VA 23502, United States of America

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 : 251023013423

To verify certificate, visit at :

www.arscert.com
https://uafaccreditation.org
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Issued by ARS Assessment Private Limited

Managing Director

UAF Address: 401, North Center Dr. STE 202, Norfolk, VA 23502, United States of America

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

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 : 251023013424

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

Issued by ARS Assessment Private Limited

Managing Director

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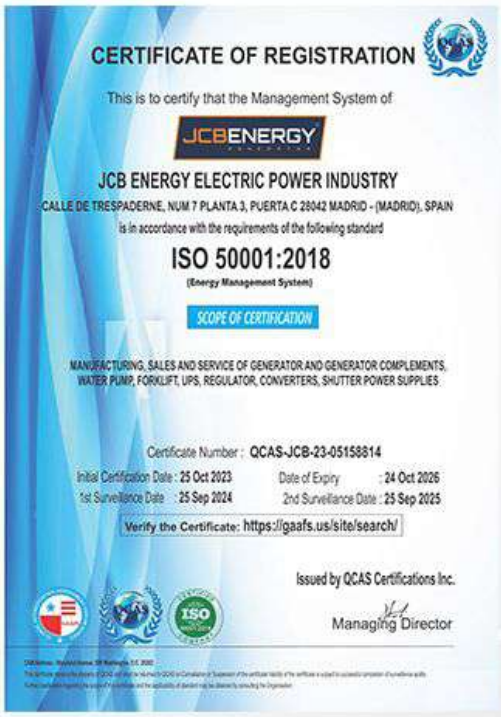


CERTIFICATE OF REGISTRATION

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

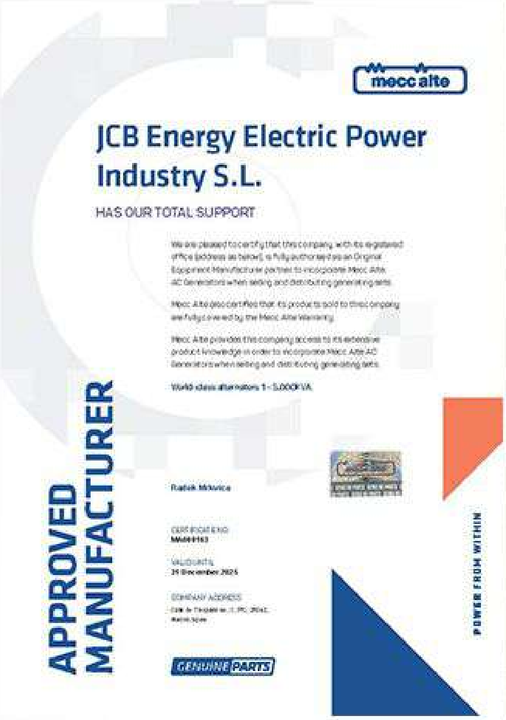
Certificate Number : QCAS-JCB-23-05158814

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



mecc alte

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 authorised as an Original Equipment Manufacturer partner to incorporate Mecc Alte AC Generators when selling and distributing generating sets.

Mecc Alte also certifies that its products 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 - 5,000KVA

Radek Mrkvica

CERTIFICATE NO.

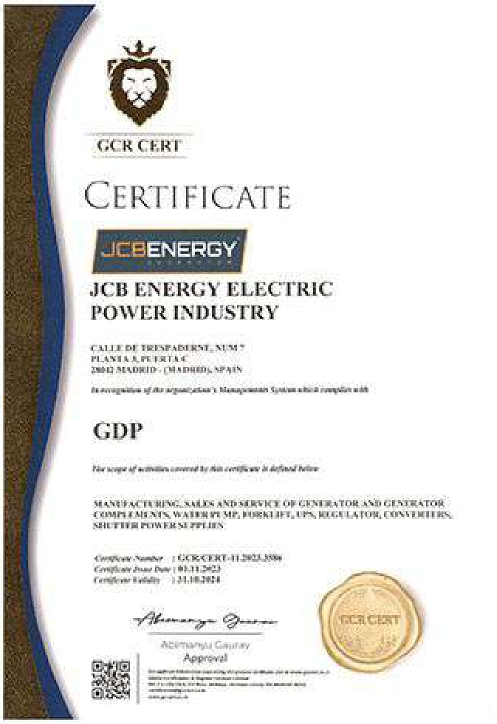
VALID UNTIL

COMPANY ADDRESS

APPROVED MANUFACTURER

GENUINE PARTS

POWER FROM WITHIN



GCR CERT

CERTIFICATE

JCBENERGY

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

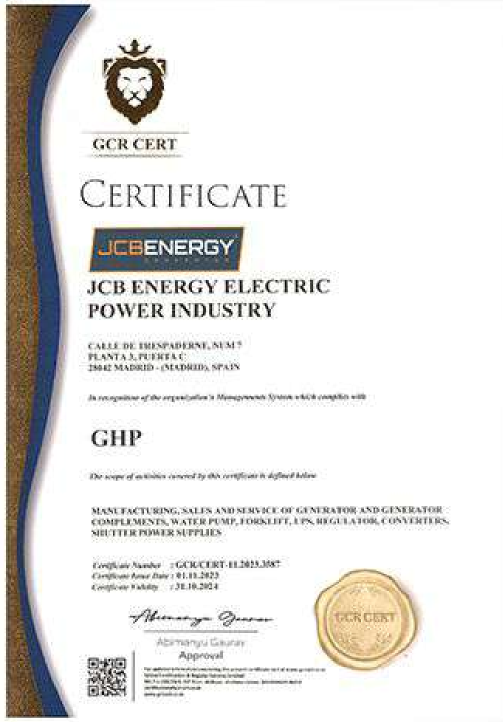
The scope of activities covered by this certificate is defined below

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
Approval

GCR CERT



GCR CERT

CERTIFICATE

JCBENERGY

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
Approval

GCR CERT

GCR CERT

CERTIFICATE

JCBENERGY

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

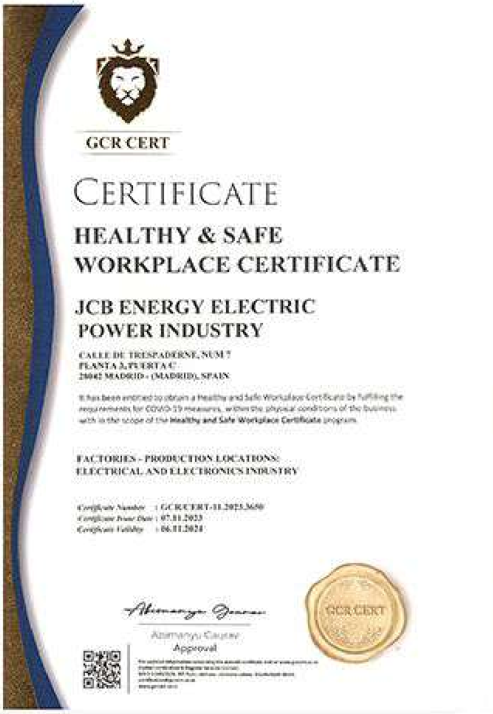
The scope of activities covered by this certificate is defined below

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
Approval

GCR CERT



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

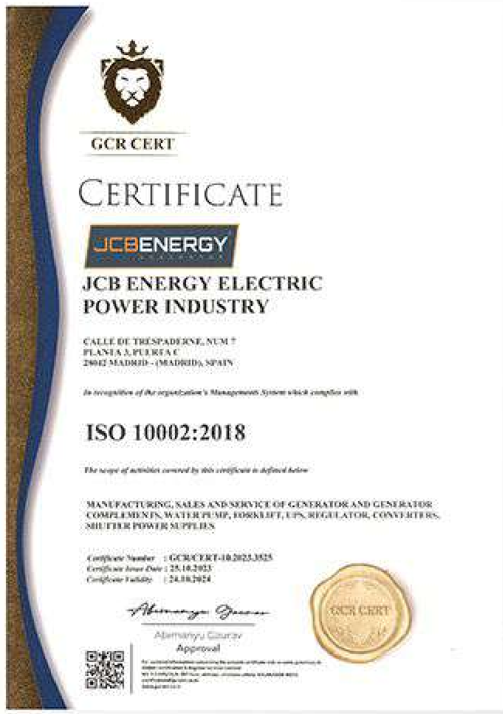
It has been entitled to obtain a Healthy and Safe Workplace Certificate by fulfilling the requirements for COVID-19 measures, within the physical conditions of the business with in the scope of the **Healthy and Safe Workplace Certificate** program.

FACTORIES - PRODUCTION LOCATIONS:
ELECTRICAL AND ELECTRONICS INDUSTRY

Certificate Number : GCR/CERT-11.2023.3650
Certificate Issue Date : 07.11.2023
Certificate Validity : 06.11.2024

Abimanyu Gaurav
Approval

GCR CERT



GCR CERT

CERTIFICATE

JCBENERGY

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
Approval

GCR CERT

JCBENERGY
GENERATOR

www.jcbenergy.es