JCBENERGY
GENERATOR

JCB ENERGY ELECTRIC POWER INDUSTRY

MADRID / SPAIN

JCBENERGY Perkins IVECO Moteurs Baudouin Schneider Electric Cummins DEUTZ
VMAN VOLVO PENTA HD HYUNDAI INFRACORE DOOSAN ABB

SCAN ME

www.jcbenergy.com

CE -VERTA-106188
-VERTA-106189

JCD 23 & 30

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
JCD 23	50	231/400	0.8	1500	DEUTZ	BF3M G1	BF	JCBENERGY	JCB	160LX	**Standby**	**23,0**	**18,4**	**33,2**
											Prime	21,0	16,8	30,3
											Continuous	17,6	14,1	25,4
JCD 30	60	277/480	0.8	1800						180M	**Standby**	**30,0**	**24,0**	**43,4**
											Prime	27,3	21,8	39,4
											Continuous	23,1	18,5	33,4

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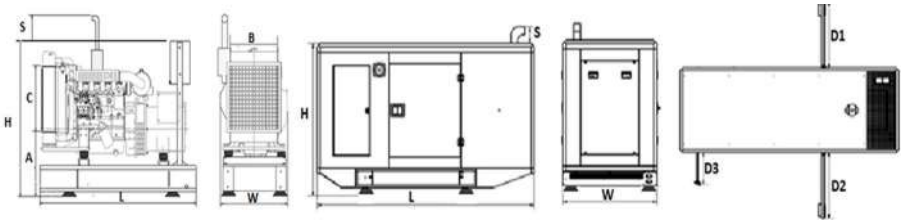
PAY ATTENTION TO THE POINTS BELOW IN PICKING AND USING THE GENERATOR

* 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	942
LENGTH	mm	1400	1916
HEIGHT	mm	1309	1444
WEIGHT (NET)	Kg	553	690
FUEL TANK CAPACITY	L	58	40

SYMBOL	OPEN	CANOPY
L	1400	1916
W	619	942
H	1004	1272
S	325	172
A	555	
B	500	
C	480	
D1		630
D2		630
D3		360
D4		
D5		



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	5,83	7,42
100 %	5,30	6,75
75 %	3,98	5,06
50 %	2,72	3,46

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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

50 Hz – 1500 min^{-1}			60 Hz – 1800 min^{-1}		
Type		BFM3	**Type**		BFM3
Speed	min^{-1}	1500	**Speed**	min^{-1}	1800
Net Frequency	Hz	50	**Net Frequency**	Hz	60
Power Standard		LTP	**Power Standard**		LTP
Power Level		G1	**Power Level**		G1
GENERAL			**GENERAL**		
Aspiration		Natural	**Aspiration**		Natural
Governing System		Electronic	**Governing System**		Electronic
Governor Brand		GAC	**Governor Brand**		GAC
No of Cylinders		4	**No of Cylinders**		4
Configuration		in-line	**Configuration**		in-line
Injection System		In-line pump	**Injection System**		In-line pump
Displacement	L	3,168	**Displacement**	L	3,168
Bore	mm	98	**Bore**	mm	98
Stroke	mm	105	**Stroke**	mm	105
Compression Ratio		18,5:1	**Compression Ratio**		18,5:1
Mean Effective Pressure	Bar	5,6	**Mean Effective Pressure**	Bar	5,6
Piston Speed	m/s	5,25	**Piston Speed**	m/s	6,30
Rotation (looking at flywheel)		ccw	**Rotation (looking at flywheel)**		ccw
No of Teeth on Flywheel Ring Gear		103	**No of Teeth on Flywheel Ring Gear**		103
GOVERNOR PERFORMANCE			**GOVERNOR PERFORMANCE**		
Speed droop (static) mech. gov.	**%**	4-6	**Speed droop (static) mech. gov.**	**%**	4-6
Speed droop (static) electr. gov.	**%**	0	**Speed droop (static) electr. gov.**	%	0
Governing standards		G3	**Governing standards**		G3
MOMENT OF INERTIA			**MOMENT OF INERTIA**		
Engine without flywheel	kg m²	5,40	**Engine without flywheel**	kg m²	5,40
Flywheel (standard genset spec.)	kg m²	0,2	**Flywheel (standard genset spec.)**	kg m²	0,2
Max. step load acceptance, 1st step	%	-	**Max. step load acceptance, 1st step**	%	-
Sound power at full load, incl. cooling system	dB(A)	102	**Sound power at full load, incl. cooling system**	dB(A)	104
Sound press. (1m average, full load), incl. cool. syst.	dB(A)	90	**Sound press. (1m average, full load), incl. cool. syst.**	dB(A)	92
ENGINE WEIGHT			**ENGINE WEIGHT**		
Engine Dry, w/o Cooling System	kg	245	**Engine Dry, w/o Cooling System**	Kg	245
LUBRICATION SYSTEM			**LUBRICATION SYSTEM**		
Oil specification		15W40/CI-4/SL	**Oil specification**		15W40/CI-4/SL
Oil consumption (as % of fuel consumption)	%	0,5	**Oil consumption (as % of fuel consumption)**	%	0,5
Oil capacity (sump)	l	7,5	**Oil capacity (sump)**	l	7,5
Min. oil pressure (warning)	Bar	1,5	**Min. oil pressure (warning)**	Bar	1,5
Min. oil pressure (shut down)	Bar	1,0	**Min. oil pressure (shut down)**	Bar	1,0
Max. permissible oil temperature (oil pan)	°C	120	**Max. permissible oil temperature (oil pan)**	°C	120
OUTPUT			**OUTPUT**		
Gross Output(LTP or StandBy Power)	Kw	22	**Gross Output(LTP or StandBy Power)**	Kw	28
Fan Reduction	Kw	2	**Fan Reduction**	Kw	2.0
Electrical Output (Stand By)	Kva	23	**Electrical Output (Stand By)**	Kva	30
Gross Output(PRP or Prime Power)	Kw	20	**Gross Output(PRP or Prime Power)**	Kw	25
Gross Output(Continous Power)	kw	19	**Gross Output(Continous Power)**	kw	23

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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

50 Hz – 1500 min^{-1}			60 Hz – 1800 min^{-1}		
COOLING SYSTEM, GENERAL ENGINE COOLING DATA			**COOLING SYSTEM, GENERAL ENGINE COOLING DATA**		
Max. perm. Coolant Outlet Temperature	°C	103	Max. perm. Coolant Outlet Temperature	°C	103
Max. perm. Flow Resistance (cool. syst. and piping)	Bar	0.5	Max. perm. Flow Resistance (cool. syst. and piping)	Bar	0.5
Max. Temperature of Coolant (warning)	°C	97	Max. Temperature of Coolant (warning)	°C	97
Max. Temperature of Coolant (shutdown)	°C	103	Max. Temperature of Coolant (shutdown)	°C	103
Temperature at Which Thermostat Starts to open	°C	78	Temperature at Which Thermostat Starts to open	°C	78
Temperature at Which Thermostat is Fully Open	°C	90	Temperature at Which Thermostat is Fully Open	°C	90
Delivery of Coolant Pump	m^3/h	4,2	Delivery of Coolant Pump	m^3/h	4,2
Min. Pressure Before Coolant Pump	Bar	0.15	Min. Pressure Before Coolant Pump	Bar	0.15
ENGINE COOLING SYSTEM			**ENGINE COOLING SYSTEM**		
Coolant Capacity (engine)	l	4.8	Coolant Capacity (engine)	l	4.8
Coolant Capacity (incl. cooling unit)	l	-	Coolant Capacity (incl. cooling unit)	l	-
Fan Power Consumption	kW	2	Fan Power Consumption	kW	3
Air to Boil (max. permissible cool. air temp. at fan)	°C	50	Air to Boil (max. permissible cool. air temp. at fan)	°C	50
Air Pressure Loss, external	mbar	1.5	Air Pressure Loss, external	mbar	2.0
Cooling air Flow	m^3/h	3960	Cooling air Flow	m^3/h	4720
HEAT BALANCE			**HEAT BALANCE**		
Heat Dissipation (engine radiator)	kW	25	Heat Dissipation (engine radiator)	kW	32
Heat Dissipation (CAC)	kW	-	Heat Dissipation (CAC)	kW	-
INLET / EXHAUST DATA			**INLET / EXHAUST DATA**		
Max. intake Depression (Switch setting)	mbar	30	Max. intake Depression (Switch setting)	mbar	30
Combustion Air Volume	m^3/h	132	Combustion Air Volume	m^3/h	180
Max. Exhaust Back Pressure	mbar	100	Max. Exhaust Back Pressure	mbar	100
Max. Exhaust Gas Temperature	°C	530	Max. Exhaust Gas Temperature	°C	530
Exhaust Gas Flow (at above temp)	m^3/h	250	Exhaust Gas Flow (at above temp)	m^3/h	360
ELECTRICAL SYSTEM			**ELECTRICAL SYSTEM**		
Voltage	V	12	Voltage	V	12
Starter	KW	3	Starter	KW	3
Alternator Output	A	55	Alternator Output	A	55
Batteries (minimum capacity, cold start limit -5°C)	Ah	1*55	Batteries (minimum capacity, cold start limit -5°C)	Ah	1*55

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ALTERNATOR TECHNICAL PARAMETERS

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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.	0.095	**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

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

STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL		JCB 160LX		LEROY-SOMER	TAL040F		STAMFORD	S0L2-G1/PI144D	
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	**21,0**	21,0	**22,0**	14,0	**23,0**	23,0	**24,0**	15,0
OUTPUT POWER	kW	**16,8**	16,8	**17,6**	11,2	**18,4**	18,4	**19,2**	12,0

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

STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL		JCB 180M		LEROY-SOMER	TAL042A		STAMFORD	PI144E- S0L2-M	
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	**28,0**	30,0	**30,0**	20,0	**31,0**	33,0	**33,0**	22,0
OUTPUT POWER	kW	**22,4**	24,0	**24,0**	16,0	**24,8**	26,4	**26,4**	17,6

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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
- 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

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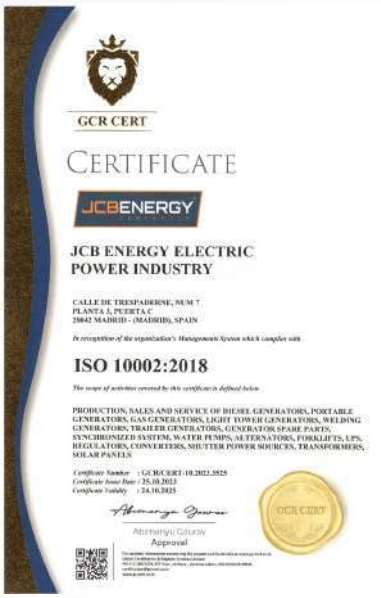
OUR CERTIFICATES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JCB ENERGY ELECTRIC
POWER INDUSTRY

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

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

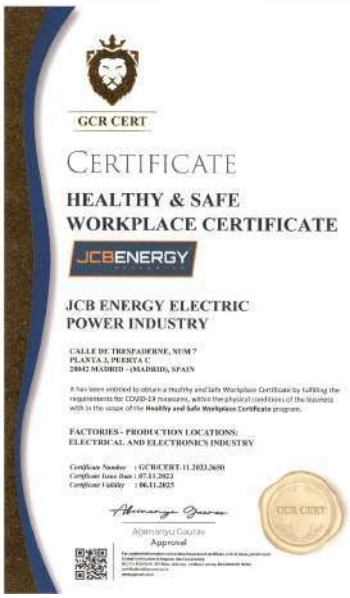
ISO 10002:2018

The scope of activities covered by this certificate is defined below

PRODUCTION, SALES AND SERVICE OF DIESEL GENERATORS, PORTABLE GENERATORS, GAS GENERATORS, LIGHT TOWER GENERATORS, WELDING GENERATORS, TRAILER GENERATORS, GENERATOR SPARE PARTS, SYNCHRONIZED SYSTEM, WATER PUMPS, ALTERNATORS, FORKLIFTS, UPS, REGULATORS, CONVERTERS, SHUTTER POWER SOURCES, TRANSFORMERS, SOLAR PANELS

Certificate Number : GCR/CERT-10.2023.3525
Certificate Issue Date : 25.10.2023
Certificate Validity : 24.10.2025

Abhimanyu Gaurav
Approval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HEALTHY & SAFE
WORKPLACE CERTIFICATE

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CALLE DE TRESPADERNE, NUM 7
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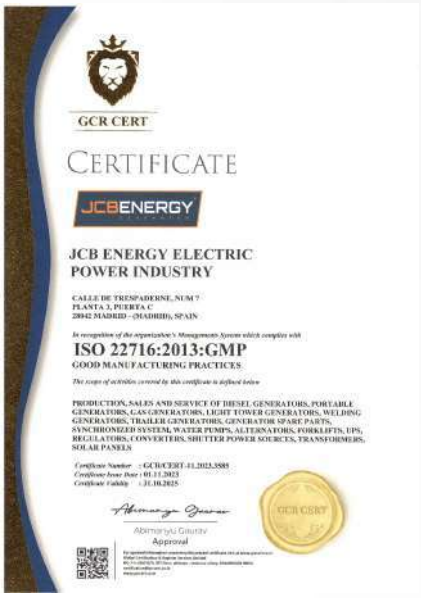
It has been entitled to obtain a Healthy and Safe Workplace Certificate by fulfilling the requirements for COVID-19 measures, within the physical conditions of the business with in the scope of the **Healthy and Safe Workplace Certificate** program.

FACTORIES - PRODUCTION LOCATIONS:
ELECTRICAL AND ELECTRONICS INDUSTRY

Certificate Number : GCR/CERT-11.2023.3650
Certificate Issue Date : 07.11.2023
Certificate Validity : 06.11.2025

Abhimanyu Gaurav
Approval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CALLE DE TRESPADERNE, NUM 7
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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

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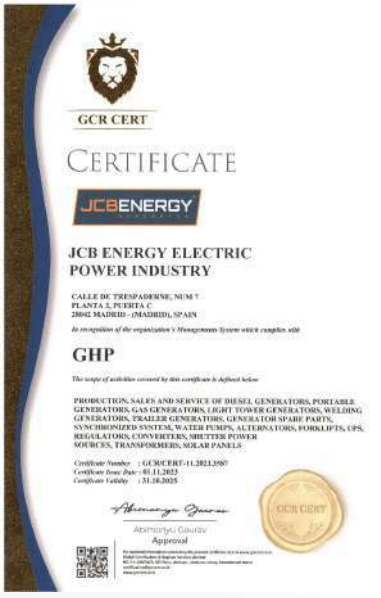
Certificate Number : GCR/CERT-11.2023.3585
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2025

Abhimanyu Gaurav
Approval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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

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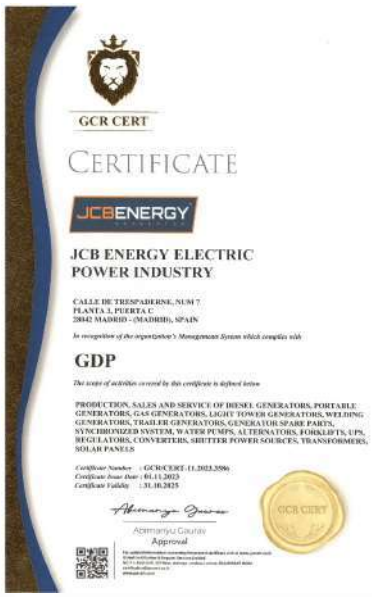
Certificate Number : GCR/CERT-11.2023.3587
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2025

Abhimanyu Gaurav
Approval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CALLE DE TRESPADERNE, NUM 7
PLANTA 3, PUERTA C
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In recognition of the organization's Management System which complies with

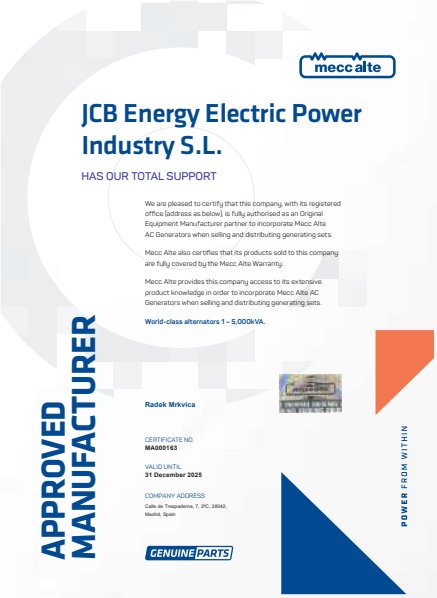
GDP

The scope of activities covered by this certificate is defined below

PRODUCTION, SALES AND SERVICE OF DIESEL GENERATORS, PORTABLE GENERATORS, GAS GENERATORS, LIGHT TOWER GENERATORS, WELDING GENERATORS, TRAILER GENERATORS, GENERATOR SPARE PARTS, SYNCHRONIZED SYSTEM, WATER PUMPS, ALTERNATORS, FORKLIFTS, UPS, REGULATORS, CONVERTERS, SHUTTER POWER SOURCES, TRANSFORMERS, SOLAR PANELS

Certificate Number : GCR/CERT-11.2023.3596
Certificate Issue Date : 01.11.2023
Certificate Validity : 31.10.2025

Abhimanyu Gaurav
Approval


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.

APPROVED MANUFACTURER

Radek Mrkvica

CERTIFICATE NO.
MA000163

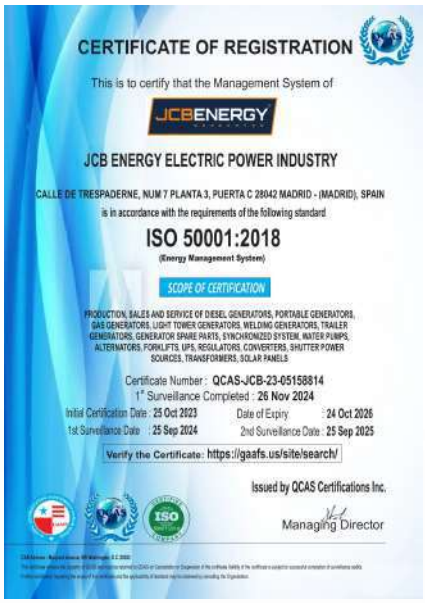
VALID UNTIL
31 December 2025

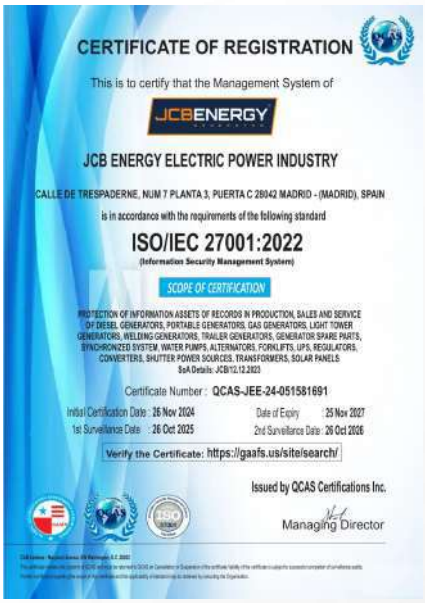
COMPANY ADDRESS
Calle de Trespaderne, 7, 7PC, 28042, Madrid, Spain

GENUINE PARTS

POWER FROM WITHIN

CE -VERTA-106188
-VERTA-106189





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-VERTA-106189

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: C612084
Initial certification date: 14 August 2007
Valid: 14 October 2023 – 13 October 2026

This is to certify that the management system of

HD Hyundai Infracore Co., Ltd. Head Office & Incheon Plant

489, Injung-ro, Dong-gu, Incheon, 22502, Republic of Korea

and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:

ISO 14001:2015

This certificate is valid for the following scope:

Design, Development, Manufacture, Servicing of Internal Combustion Engine for use in Marine Industry, General Industry and Automotive Industry, and Earth Moving Equipment(Excavator, Wheel Loader, Dozer).
Testing of Earth Moving Equipment(Excavator and Wheel Loader).

Place and date:
Barendrecht, 09 October 2023

For the issuing office:
DNV - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erie Koek
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: C612085
Initial certification date: 03 January 2006 (based on OHSAS 18001)
Valid: 14 October 2023 – 13 October 2026

This is to certify that the management system of

HD Hyundai Infracore Co., Ltd. Head Office & Incheon Plant

489, Injung-ro, Dong-gu, Incheon, 22502, Republic of Korea

and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:

ISO 45001:2018

This certificate is valid for the following scope:

Design, Development, Manufacture, Servicing of Internal Combustion Engine for use in Marine Industry, General Industry and Automotive Industry, and Earth Moving Equipment(Excavator, Wheel Loader, Dozer).
Testing of Earth Moving Equipment(Excavator and Wheel Loader).

Place and date:
Barendrecht, 09 October 2023

For the issuing office:
DNV - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erie Koek
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
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Cámara de Madrid
REGISTRO GENERAL
SALIDA
Nº de Registro: 645 / RG 645
Fecha: 29/07/2024 12:30:09

IRENE SANCHEZ ROMAN, MANAGER OF THE DEPARTMENT OF LEGAL ADVISORY SERVICES AND THE DATABASE OF THE OFFICIAL CHAMBER OF COMMERCE, INDUSTRY AND SERVICES OF MADRID, WITH REGISTERED OFFICE AT PLAZA DE LA INDEPENDENCIA 1, MADRID, SPAIN

CERTIFY: That, according to the background data on record at this Chamber and others produced by the Company:

JCB ENERGY ELECTRIC POWER INDUSTRY S.L., a Company with Tax I.D. Number B13975594, and its registered office at street Trespaderne no. 7, 28042 Madrid, is registered on 8 May 2024, under the heading of the 1st Section, companies, of the Economic Activities Tax Tariffs Number 342 to perform the following activity:

- Manufacture of electrical material for use and equipment

In witness whereof, for the appropriate purpose, I have issued and signed this Certificate, to which I affix the stamp of this Chamber, in Madrid on 26 July 2024.

Cámara de Madrid
REGISTRO GENERAL
SALIDA
Nº de Registro: 650 / RG 650
Fecha: 30/07/2024 13:37:38

IRENE SANCHEZ ROMAN, DIRECTORA DEL DEPARTAMENTO DE ASESORIA JURIDICA Y CENSO DE LA CÁMARA OFICIAL DE COMERCIO, INDUSTRIA Y SERVICIOS DE MADRID, CON DOMICILIO SOCIAL EN LA PLAZA DE LA INDEPENDENCIA Nº 1, MADRID – ESPAÑA

CERTIFICA: Que de los antecedentes que obran en esta Corporación y de otros exhibidos por la sociedad, resulta:

PRIMERO.- Que la compañía JCB ENERGY ELECTRIC POWER INDUSTRY S.L., es una sociedad mercantil de nacionalidad española, constituida mediante escritura pública de fecha 23 de junio de 2023, autorizada por don José María Marín Vazquez, Notario del Ilustre Colegio de Madrid con el número 1.251 de orden de su protocolo, e inscrita en el Registro Mercantil al Tomo 45.424, Folio 40, Hoja M-799.035, Inscripción 1ª.

SEGUNDO.- Que según se desprende de la mencionada escritura de constitución, en el artículo 2 de los Estatutos de la compañía JCB ENERGY ELECTRIC POWER INDUSTRY S.L., consta que tiene por objeto social:

"Actividad principal 27.11. Fabricación de motores, generadores y transformadores eléctricos".

TERCERO.- Que según se desprende de la escritura de constitución, el capital social de la compañía JCB ENERGY ELECTRIC POWER INDUSTRY S.L. se fija en la cantidad de 19.920,00 € (DIECINUEVE MIL NOVECIENTOS VEINTE EUROS), dividido en 19.920 participaciones sociales, de 1,00 € (UN EURO) de valor nominal cada una, numeradas correlativamente del 1 al 19.920 ambos inclusive, que son íntegramente asumidas y desembolsadas por el socio fundador.

CUARTO.- Que según consta en la escritura de constitución citada en párrafos anteriores, la compañía JCB ENERGY ELECTRIC POWER INDUSTRY S.L., opta por el sistema de Administrador Único y nombra por tiempo indefinido a don Mohamed A M Elsalem, con Número de Identidad Extranjero Y6048327P, para que actúe en nombre y representación de la mercantil, con cuantas facultades legal y estatutariamente corresponden a dicho cargo, procediendo el administrador nombrado a la aceptación del mismo.

QUINTO.- Que la compañía JCB ENERGY ELECTRIC POWER INDUSTRY S.L., con domicilio en calle Trespaderne número 7, 28042 Madrid y provista de Número de Identificación Fiscal B13975594, consta dada de alta en el grupo/epígrafe 342 de la Sección 1ª empresarial de las Tarifas del Impuesto sobre Actividades Económicas, que faculta para ejercer la actividad "Fabricación de material eléctrico de utilización y equipamiento".

Vertacert international

CE

CE DECLARATION OF CONFORMITY

JCB ENERGY ELECTRIC POWER INDUSTRY SL
C/ ALFREDO MARQUERIE, NÚMERO 11, PUERTA A, PLANTA 7 MADRID 28034 MADRID

Description Of The Product : GENERATOS AND PUMPS

Product Brand/Model/Type : DIESEL GENERATORS, GAS GENERATORS, PORTABLE GENERATORS, LIGHT TOWERS, WATER PUMPS, FORKLIFT, UPS, REGULATORS, CONVERTERS, ALTERNATORS, WELDING GENERATORS, TRAILER GENERATORS, SHUTTER POWER SOURCES

Applicable Harmonized Standards : [illegible]

Applicable EC Directives : 2006/42/EC MACHINERY DIRECTIVE
: 2014/30/EU ELECTROMAGNETIC COMPABILITY DIRECTIVE

Type /Models : [illegible]

Certificate Number : VERTA-106188
Certificate Issue Date : 04.02.2025
Certificate Validity Date : 04.02.2026
Certificate Period : 1 Year

INAS

Vertacert international

CE

CE DECLARATION OF CONFORMITY

JCB ENERGY ELECTRIC POWER INDUSTRY SL
C/ ALFREDO MARQUERIE, NÚMERO 11, PUERTA A, PLANTA 7 MADRID 28034 MADRID

Description Of The Product / Ürünün Tanımı : POWER GENERATORS / GÜÇ JENERATÖRLERİ

Applicable Harmonized Standards / Geçerli Uyumlaştırılmış Standartlar : [illegible]

Applicable EC Directives / Geçerli AT Direktifleri : [illegible]

Sertifika Numarası / Certificate Number : VERTA-106189
İlk Veriliş Tarihi / Certificate Issue Date : 04.02.2025
Sertifika Geçerlilik Tarihi / Certificate Validity Date : 04.02.2026
Sertifika Periyodu / Certificate Period : 1 Yıl / 1 Year

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-VERTA-106189

JCBENERGY
GENERATOR

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