


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 2000	50	231/400	0.8	1500	JCN	Y2473JCI	YII		JCB	450SX	Standby	2.000,0	1.600,0	2.890,2
				Prime							1.818,2	1.454,5	2.627,4	
				Continuous							1.272,7	1.018,2	1.839,2	
JCN 2000	60	277/480	0.8	1800							Standby	2.000,0	1.600,0	2.890,2
				Prime							1.818,2	1.454,5	2.627,4	
				Continuous							1.272,7	1.018,2	1.839,2	

- 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

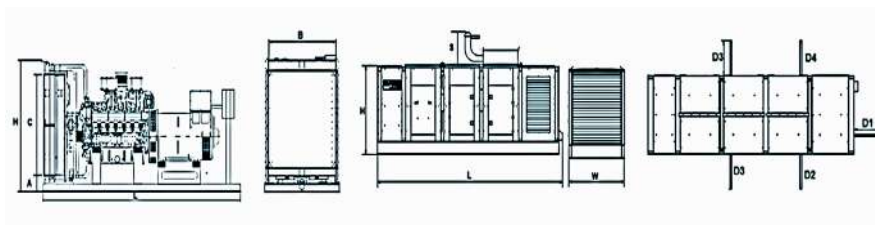
- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	2600	2800
LENGTH	mm	5700	9000
HEIGHT	mm	2643	2900
WEIGHT (NET)	Kg	13330	18350
FUEL TANK CAPACITY	L	3000	3000

SYMBOL	OPEN	CANOPY
L	5700	9000
W	2600	2800
H	2643	2000
S		900
A	300	
B	2559	
C	2086	
D1		1044
D2		1044
D3		1044
D4		1044
D5		1044



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	397,15	397,15
100 %	363,29	363,29
75 %	273,84	273,84
50 %	191,69	161,69

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL

Number of Cylinders		12
Configuration		V-Type
Aspiration		Turbocharged & Intercooled
Combustion System		Direct Injection
Compression Ratio		13.5:1
Bore	mm	200
Stroke	mm	210
Displacement	L	79,17
Governing Type		ECU
Governing Class		G3
Rotation		Counterclockwise
Firing Order		L1-R6-L5-R2-L3-R4-L6-R1-L2-R5-L4-R3
Emission		Tier II
Moments of Rotation Inertia		
Engine	Kg - m ²	39,53
Flywheel	Kg - m ²	25,05
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)	00
Flex Coupling Disc	Inch (")	21

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	3320
Width	mm	2560
Height	mm	2255
Dry Weight	kg	9675

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

FAN

Diameter	mm	1700
Drive Ratio		1,26
Number of Blades		8
Material		PAG
Type		Blowing

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	355
Max. Perm. Coolant Outlet Temperature	°C	105
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	75
Thermostat Operation Temperature - Full Open	°C	85
Delivery of Coolant Pump	m ³ / h	14,50
Min. Pressure Before Coolant Pump	bar	0,5
Radiator Face Area	m ²	5,35
Rows	Row	7
Matrix Density	Per / Inch	12
Material		Aluminum
Width of Matrix	mm	2559
Height of Matrix	mm	2086
Pressure Cap Setting	kPa	50
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	2x4500

LUBRICATION SYSTEM

Total System	L	340
Minimum Oil Level	L	280
Nominal Motor Operating Temperature	°C	40
Lubricating Oil Pressure (Rated Speed)	bar	7
Relief Valve Opens	kPa	200
Oil / Fuel Consumption Ratio	%	≤0,1
Normal Oil Temperature	°C	110

ELECTRICAL SYSTEM

Voltage	V	24
Starter	kW	2X11
Alternator Output Amperes	A	60
Alternator Output Voltage	V	28
Batteries Capacity	Ah	4X200

JCB ENERGY DIESEL ENGINE POWER RATINGS

ENGINE MODEL		Y2473JCI		ENGINE FAMILY	JC17	ENGINE SERIES	YII
Speed (Rpm)	Type of Operation	TYPICAL GENERATOR OUTPUT (NET)		ENGINE POWER			
				Gross		Net	
		kVA	kWe	KWm	Hp	kWm	Hp
1500	Stand By(Maximum)	2.000,0	1.600,0	1.725,0	2.315,4	1.667,0	2.237,6
	Prime	1.815,0	1.452,0	1.570,0	2.107,4	1.513,0	2.030,9
1800	Stand By(Maximum)	2.000,0	1.600,0	1.725,0	2.315,4	1.667,0	2.237,6
	Prime	1.815,0	1.452,0	1.570,0	2.107,4	1.513,0	2.030,9

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	1725,0	1570,0
Net Engine Power	kW	1667,0	1513,0
Fan Power Consumption (Belt Pulley Driven)	kW	56,0	56,0
Other Power Loss	kW	2,0	1,5
Mean Effective Pressure	MPa	1,74	1,58
Intake Air Flow	m ³ / min	145,00	135,00
Exhaust Temperature Limit	°C	550	550
Exhaust Flow	m ³ / min	328,00	304,00
Boost Pressure Ratio		3,15	2,88
Mean Piston Speed	m / s	10,5	10,5
Cooling Fan Air Flow	m ³ / min	2520,0	2520,0
Typical Generator Output Power	kVA	2000	1815
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	4312,5	3925,0
Gross Heat to Power	kW	1725,0	1570,0
Energy to Coolant and Lubricating Oil	kW	580,0	522,0
Heat Dissipation Capacity *	kW	705,0	635,0
Energy to Exhaust	kW	948,0	849,0
Heat to Radiation	kW	203,0	196,3

*Intake Intercooled system

DIESEL ENGINE MATCHING PARAMETERS - 60 HZ

60 HZ @ 1800 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	1725,0	1570,0
Net Engine Power	kW	1667,0	1513,0
Fan Power Consumption (Belt Pulley Driven)	kW	56,0	56,0
Other Power Loss	kW	2,0	1,5
Mean Effective Pressure	MPa	1,74	1,58
Intake Air Flow	m ³ / min	145,00	135,00
Exhaust Temperature Limit	°C	550	550
Exhaust Flow	m ³ / min	328,00	304,00
Boost Pressure Ratio		3,15	2,88
Mean Piston Speed	m / s	10,5	10,5
Cooling Fan Air Flow	m ³ / min	2520,0	2520,0
Typical Generator Output Power	kVA	2000	1815
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	4312,5	3925,0
Gross Heat to Power	kW	1725,0	1570,0
Energy to Coolant and Lubricating Oil	kW	580,0	522,0
Heat Dissipation Capacity *	kW	705,0	635,0
Energy to Exhaust	kW	948,0	849,0
Heat to Radiation	kW	203,0	196,3

*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	MX321+PMG
Wires	6	Voltage Regulation	%	± 0.5
Protection	IP 23	Sustained Short-Circuit Current	10 sec	300% (3 IN)
Altitude	m	1000	Total Harmonic (*) TGH / THC	% < 4
Overspeed	rpm	2250	Wave Form: NEMA = TIF - (*)	< 50
Air Flow	m ³ /sec.	2,69	Wave Form: I.E.C. = THF - (*)	% < 1.5
Bearing Drive	N/A	-	Bearing Non-Drive	Bearing 6319-2RZ
Rotor Winding	100%	Copper	Stator Winding	100% Copper



JCN 2000 & 2000

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 450SX				LSA 52.3S5			P7E
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	1818,0	1818,0	1854,0	-	2000,0	2000,0	2039,0	-
OUTPUT POWER	kW	1454,4	1454,4	1483,2	-	1600,0	1600,0	1631,2	-

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 400L2		LSA 50.2L8		S7L1D-C4			
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	1818,0	1818,0	1854,0	-	2000,0	2000,0	2039,0	-
OUTPUT POWER	kW	1454,4	1454,4	1483,2	-	1600,0	1600,0	1631,2	-

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	JO ENERGY	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

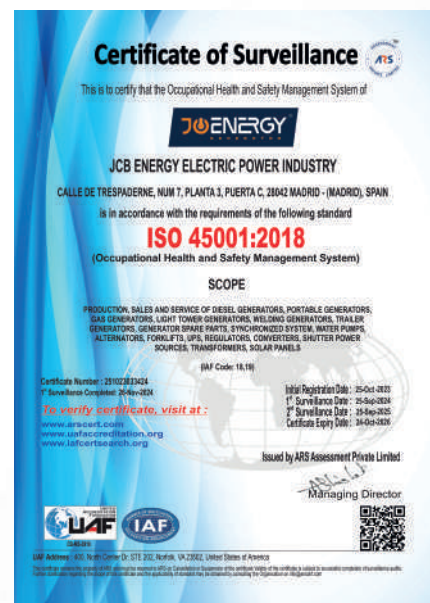
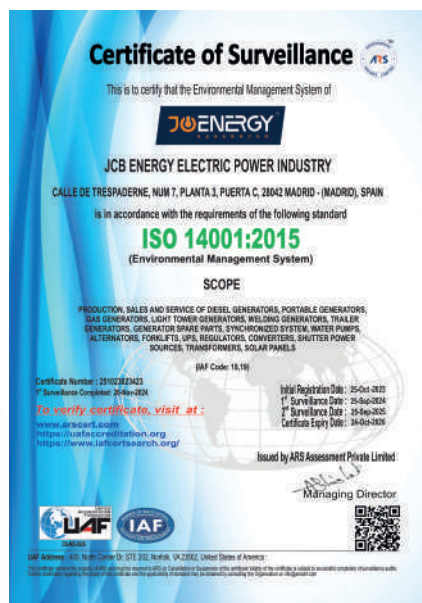
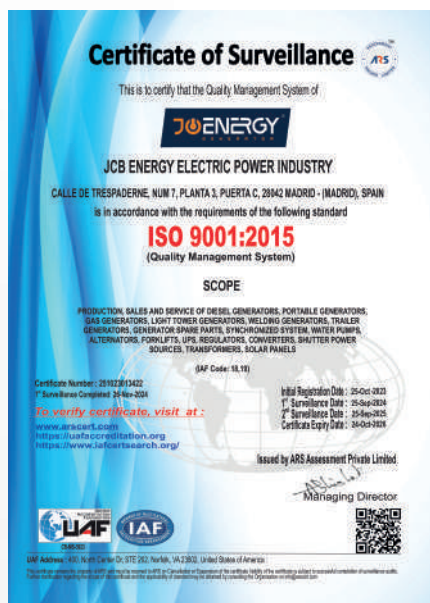
SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- 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





MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 2372384

Valid until: 14 August 2021

Valid from: 14 October 2020 - 13 October 2021

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: **Buenos Aires, 09 October 2021**

For the issuing office: **DNV Business Assurance**
Representing: **DNV LB Buenos Aires, Netherlands**

Signature:

Signature:

Signature:

Let's all benefit of conditions as set out in the Certification Agreement and under this Certificate model.

ACCREDITED UNIT: DNV Business Assurance B.V., Containing: 1. DNV LB Buenos Aires, Netherlands; 2. 11010102000; www.dnv.com/assess

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 2372385

Valid until: 13 January 2022

Valid from: 14 October 2020 - 13 October 2021

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Certificate no.: 2372386

Valid until: 13 January 2022

Valid from: 14 October 2020 - 13 October 2021

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CE DECLARATION OF CONFORMITY

Certificate no.: 2372388

Valid until: 13 January 2022

Valid from: 14 October 2020 - 13 October 2021

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Place and date: **Buenos Aires, 09 October 2021**

For the issuing office: **DNV Business Assurance**
Representing: **DNV LB Buenos Aires, Netherlands**

Signature:

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CE DECLARATION OF CONFORMITY

Certificate no.: 2372389

Valid until: 13 January 2022

Valid from: 14 October 2020 - 13 October 2021

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Representing: **DNV LB Buenos Aires, Netherlands**

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JCBENERGY
GENERATOR



CE -VERTA-106188
-VERTA-106189

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