


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	Brand	Model	Series	Operation	kVA	kW	A
JCP 10	50	231/400	0.8	1500	PERKINS	403A-11G1			160S	Standby	10,0	8,0	14,5
										Prime	9,1	7,3	13,1
										Continuous	6,4	5,1	9,2

- 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

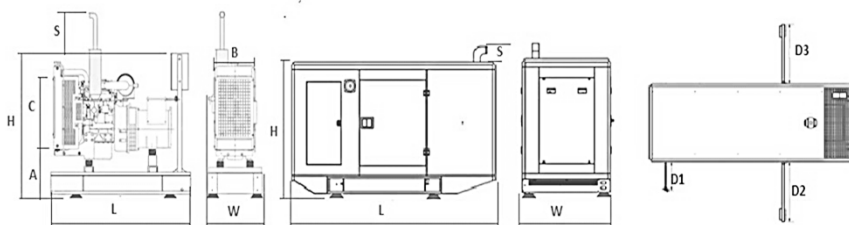
- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	500	942
LENGTH	mm	1400	1916
HEIGHT	mm	1330	1444
WEIGHT (NET)	Kg	402	513
FUEL TANK CAPACITY	L	58	40

SYMBOL	OPEN	CANOPY
L	1400	1900
W	500	900
H	1330	1310
S	533	150
A	630	
B	334	
C	440	
D1		630
D2		630
D3		360
D4		
D5		



PERCENT OF PRIME POWER	FUEL CONSUMPTION
	l/hr
110 %	2,96
100 %	2,48
75 %	1,93
50 %	1,40

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL

Number of Cylinders		3
Configuration		Vertical, in line
Aspiration		Naturally
Combustion System		Indirect injection
Compression Ratio		23:1
Bore	mm	77
Stroke	mm	81
Displacement	L	1,13
Governing Type		Mechanic
Governing Class		G2
Rotation		Counterclockwise
Firing Order		1-2-3
Emission		Fuel Optimised

FILTERS

Air Filter		Dry Type, Replaceable
Fuel Filter		Element type, Replaceable
Oil Filter		Element Type, Particulate Trap

ELECTRICAL SYSTEM

Voltage	V	12
Starter	kW	1,1
Alternator Output Amperes	A	15
Alternator Output Voltage	V	14
Batteries Capacity	Ah	36

FAN

Diameter	mm	320
Drive Ratio		1.285:1
Number of Blades		7
Material		Plastic
Type		Blowing

COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	5,2
Max. Perm. Coolant Outlet Temperature	°C	110
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	87
Delivery of Coolant Pump	m ³ /h	1,20
Min. Pressure Before Coolant Pump	bar	0,35
Radiator Face Area	m ²	0,147
Rows	Row	2
Matrix Density	Per / Inch	14,5
Material		Aluminum
Width of Matrix	mm	334
Height of Matrix	mm	440
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	1500

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

LUBRICATION SYSTEM		
Total System	L	4,9
Minimum Oil Level	L	3,4
Nominal Motor Operating Temperature	°C	35
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	304-500
Oil / Fuel Consumption Ratio	%	0,25
Normal Oil Temperature	°C	125

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY
Gross Engine Power	kW	9,5
Net Engine Power	kW	9,3
Fan Power Consumption (Belt Pulley Driven)	kW	0,2
Other Power Loss	kW	-
Mean Effective Pressure	MPa	672,00
Intake Air Flow	m ³ / min	0,70
Exhaust Temperature Limit	°C	420
Exhaust Flow	m ³ / min	1,80
Boost Pressure Ratio		2,50
Mean Piston Speed	m / s	4,1
Cooling Fan Air Flow	m ³ / min	26,4
Typical Generator Output Power	kVA	10
HEAT REJECTION		STAND BY
Energy in Fuel (Heat of Combustion)	kW	29,5
Gross Heat to Power	kW	9,5
Energy to Coolant and Lubricating Oil	kW	9,5
Energy to Exhaust	kW	8,0
Heat to Radiation	kW	2,5

ALTERNATOR 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

ALTERNATOR SPECIFICATIONS

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 160S				TAL040B				SOL1-H1	
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	10,0	10,0	11,0	6,6	11,0	11,0	12,0	7,5		
OUTPUT POWER	kW	8,0	8,0	8,8	5,3	8,8	8,8	9,6	6,0		

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	JOENERGY	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

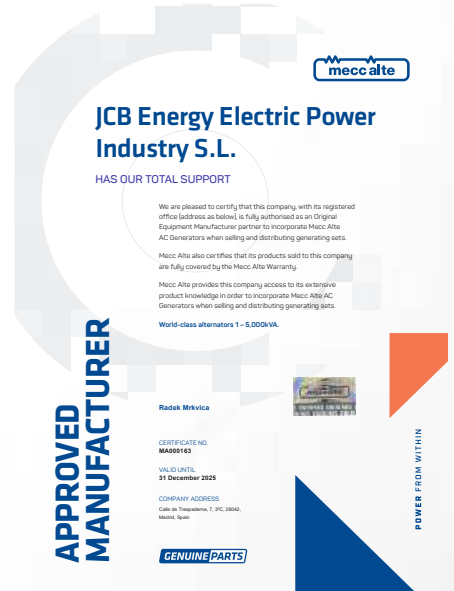
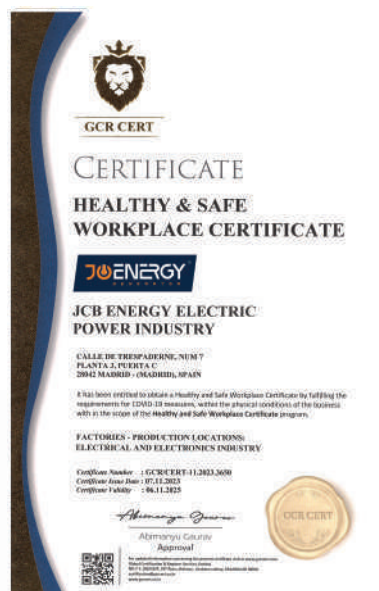
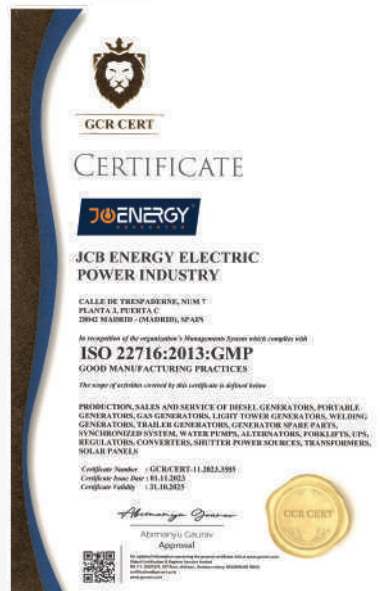
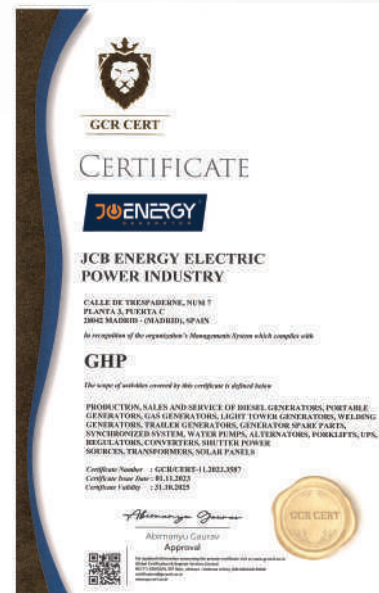
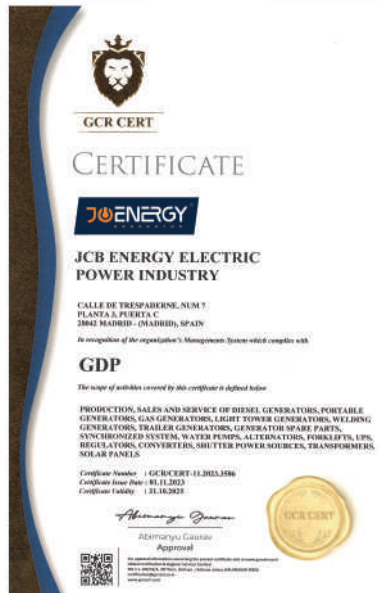
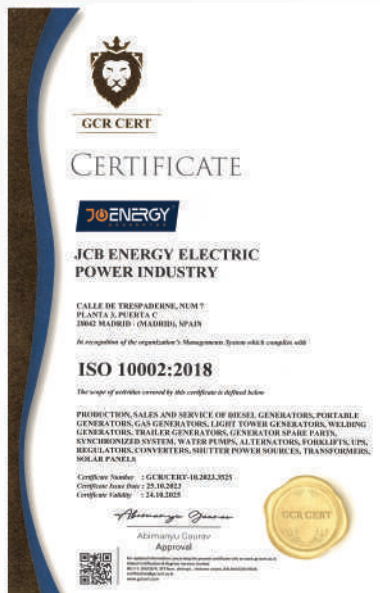
Mains Voltage Level Control	Generator Voltage Level Control	3 Phase Generator Protections	3 Phase AMF Function	Alarm Horn
Network Frequency Level Control	Generator Frequency level Control	- High / Low Voltage	- High / Low Frequency	Heater Tube Thermostat Control
Engine Operating Option Control	Generator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

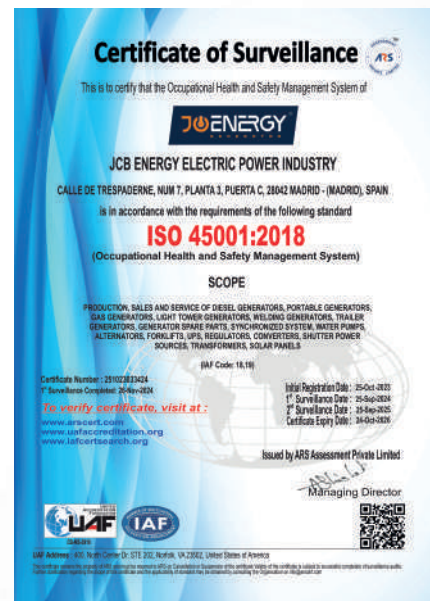
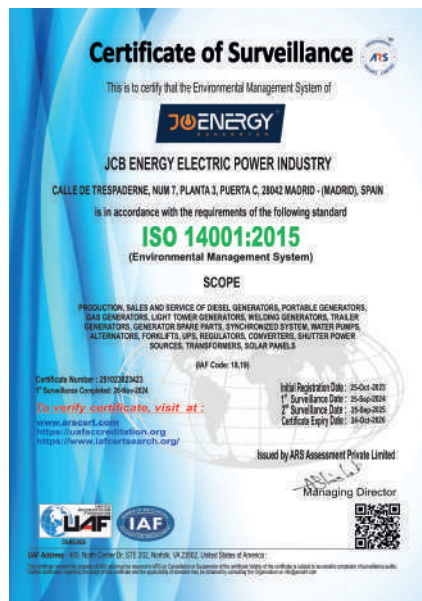
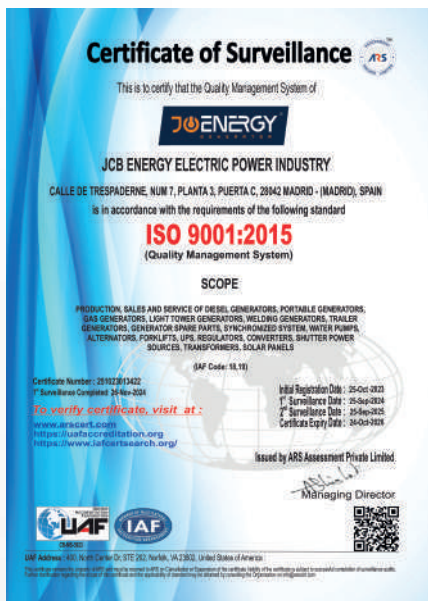
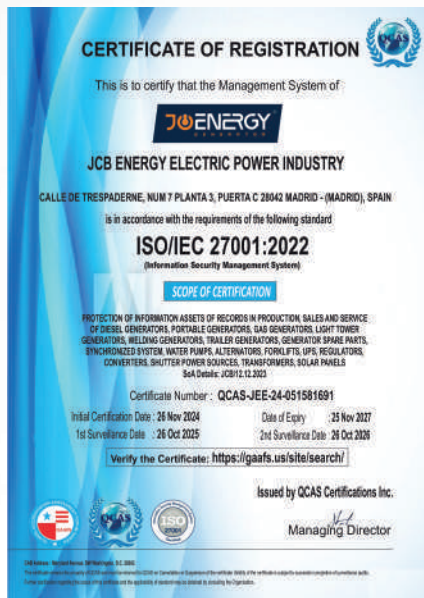
SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- 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
- 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 CERTIFICATES





DNV

MANAGEMENT SYSTEM
CERTIFICATE

Certificate no.: 0372284

Initial certification date: 14 August 2021

Valid: 14 October 2021 – 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:
Buenos Aires, 09 October 2021

For the issuing office:
DNV Business Assurance
Responsible: Tania L.B. Baranowski,
Netherlands

DNV KMS
Management Representative

DNV KMS
Management Representative

Let's all benefit if conditions are met and in the Certification Agreement may under this Certificate model:
ACCREDITED UNIT: DNV Business Assurance B.V., Containing: 1. DNV AS, Barenthek, Netherlands, 22, +31-224502200, www.dnv.com/assura

DNV

MANAGEMENT SYSTEM
CERTIFICATE

Certificate no.: 0372285

Initial certification date: 13 January 2021
(based on OHSAS 18001)

Valid: 14 October 2021 – 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).

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CLAYTON DE WHITNEY
REGISTRARIO GENERAL
SALIDA
Nº de Registro: 945 / RG-045
Fecha: 29/07/2024 12:00:00

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 SL, a Company with Tax ID: Number B13975954,
and its registered office at street Tropezadonero 7, 28042 Madrid is registered on 8 May 2024,
under the heading of the 34 Section, companies, of the Economic Activities Tax Tariff 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.

CLAYTON DE WHITNEY
REGISTRARIO GENERAL
SALIDA
Nº de Registro: 945 / RG-045
Fecha: 29/07/2024 12:00:00

IRENE SANCHEZ ROMAN, DIRECTORA DEL DEPARTAMENTO DE ASSESORIA JURIDICA Y
CESO DE LA CAMARA 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 SL, es una
sociedad mercantil de nacionalidad española, constituida mediante escritura pública de
fecha 23 de junio de 2023, anotada por don José María Vázquez, Notario del
Registro de Madrid con el número 1.257 de acuerdo de su protocolo, e inscrita en el
Registro Mercantil al Tomo 45.424, Folio 40, Hoja M-799.075, Inscripción 1ª.

SEGUNDO.- Que según se desprende de la mercantilización de constitución, en el
artículo 3 de los Estatutos de la compañía JCB ENERGY ELECTRIC POWER INDUSTRY SL,
resulta 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 SL, se fija en la cantidad de
19.005,08 € (DIECINUEVE MIL NOVECIENTOS VEINTE EUROS), dividido en 19.010
participaciones sociales, de 1,00 € (UN EURO) de valor nominal cada una, distribuido
proporcionalmente del 1 al 19.010, ambos inclusive, que son íntegramente asumidos y
desembolsados por el socio fundador.

CUARTO.- Que según consta en la escritura de constitución citada en párrafos anteriores,
la compañía JCB ENERGY ELECTRIC POWER INDUSTRY SL, repta por sí misma de
Administrador Único y miembro por tiempo indefinido a don Mohamed A.M. Eladiri, con
Número de Identidad Extranjera Y42M83279, para que actúe en nombre y representación de
la misma, con cuantas facultades legales y estatutariamente correspondan a dicho
cargo, prestando el administrador nombrado a la aceptación del mismo.

QUINTO.- Que la compañía JCB ENERGY ELECTRIC POWER INDUSTRY SL, con domicilio
en calle Tropezadonero número 7, 28042 Madrid y presunta de Número de Identificación
Fiscal B13975954, consta dada de alta en el grupo empresarial 342 de la Sección 1ª
empresarial de las Tarifas del Impuesto sobre Actividades Económicas, que le habilita 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 MARQUESE, 10, PUERTA A, PLANTA 1º BARCELONA, ESPAÑA

Description Of The Product

GENERATORS AND PUMPS

Product Brand/Model/Type

(DIESEL GENERATORS, GAS GENERATORS, PORTABLE GENERATORS, LIGHT TOWERS,
WATER PUMPS, FORKlift, UPS, REGULATORS, CONVERTERS, ALTERNATORS, WELDING GENERATORS, TAILGAT
GENERATORS, SHUTTER POWER SOURCES)

Applicable harmonized standards

EN ISO 12170:2019, EN ISO 14343:2019, EN ISO 14344:2019, EN ISO 14345:2019, EN ISO 14346:2019, EN ISO 14347:2019, EN ISO 14348:2019, EN ISO 14349:2019, EN ISO 14350:2019, EN ISO 14351:2019, EN ISO 14352:2019, EN ISO 14353:2019, EN ISO 14354:2019, EN ISO 14355:2019, EN ISO 14356:2019, EN ISO 14357:2019, EN ISO 14358:2019, EN ISO 14359:2019, EN ISO 14360:2019, EN ISO 14361:2019, EN ISO 14362:2019, EN ISO 14363:2019, EN ISO 14364:2019, EN ISO 14365:2019, EN ISO 14366:2019, EN ISO 14367:2019, EN ISO 14368:2019, EN ISO 14369:2019, EN ISO 14370:2019, EN ISO 14371:2019, EN ISO 14372:2019, EN ISO 14373:2019, EN ISO 14374:2019, EN ISO 14375:2019, EN ISO 14376:2019, EN ISO 14377:2019, EN ISO 14378:2019, EN ISO 14379:2019, EN ISO 14380:2019, EN ISO 14381:2019, EN ISO 14382:2019, EN ISO 14383:2019, EN ISO 14384:2019, EN ISO 14385:2019, EN ISO 14386:2019, EN ISO 14387:2019, EN ISO 14388:2019, EN ISO 14389:2019, EN ISO 14390:2019, EN ISO 14391:2019, EN ISO 14392:2019, EN ISO 14393:2019, EN ISO 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