


# 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
JCC 450	50	231/400	0.8	1500	Cummins	QSG12G2	QSG		JCB	315M	Standby	450,0	360,0	650,3
											Prime	409,1	327,3	591,2
											Continuous	286,4	229,1	413,8

- Diesel Engines with Advanced Technology and Quality
- Alternators with Advanced Technology and Quality
- Low Exhaust Emission
- Control Panel Suitable for Flexible Application
- Patented Compact Designed and Sound proof Canopy
- Low Operating Cost, Suitable for Heavy-Duty
- Durability, Low Noise Level

- Tropical 50 °C Radiator, First Class Product Support
- Fuel Filter with Water and Particle Separator
- Low Fuel Consumption, Low Oil Consumption
- Global Technical Service and Maintenance Support
- Wide Range of Affordable Spare Parts
- High Quality and Reliable Technology
- Half Century Experience in Generator Manufacturing

### STAND BY POWER RATING – (ESP):

ESP is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Stand by Power rating. This rating should be applied where reliable utility power is available. A Stand By rated engine should be sized for a maximum of an 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Stand by Power rating. Stand By ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

### PRIME POWER RATING – (PRP):

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

#### UNLIMITED TIME RUNNING PRIME POWER (ULTP):

PRP (Prime Power) is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

#### LIMITED TIME RUNNING PRIME POWER (LTP):

LTP (Limited Time Prime Power) is available for a limited number of hours in a no variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation

#### CONTINUOUS POWER RATING (COP):

COP is the power that the engine can continue to use under the prescribed speed and the specified environment condition in the normal maintenance period stipulated in the manufacturing plant. And Continuous Power is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

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

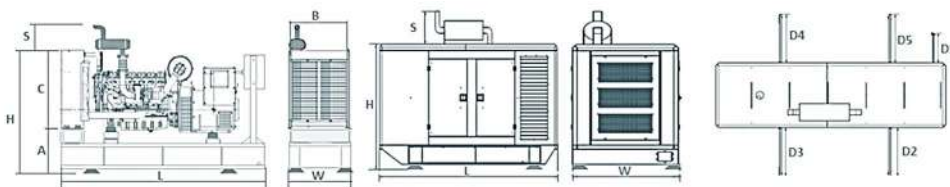
- \* Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- \* Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive oil and eventually have irreparable damage.
- \* If your need is 1000 kVA or above, you should prefer Synchronic Systems with 2-3 generators with failure back up and simultaneous aging.
- \* These points will provide advantage for you with purchasing and operating the generator.

## GENERATOR DIMENSIONS AND TECHNICAL DRAWINGS



VALUES		OPEN TYPE GENERATOR	CANOPY TYPE GENERATOR
WIDTH	mm	1100	1179
LENGTH	mm	3254	3921
HEIGHT	mm	1782	2498
WEIGHT (NET)	Kg	2353	2790
FUEL TANK CAPACITY	L	475	673

SYMBOL	OPEN	CANOPY
L	3254	3921
W	1100	1179
H	1598	1955
S	184	543
A	766	
B	810	
C	860	
D1		520
D2		850
D3		850
D4		850
D5		850





## DIESEL ENGINE MAIN TECHNICAL PARAMETERS

### GENERAL

Number of Cylinders		6
Configuration		Vertical, in line
Aspiration		Turbo Charged & Aftercooled
Combustion System		Direct injection
Compression Ratio		17:1
Bore	mm	137
Stroke	mm	169
Displacement	L	15
Governing Type		Electronic
Governing Class		G3
Rotation		Counterclockwise
Firing Order		1-5-3-6-2-4
Emission		Tier 2

### FILTERS

Air Filter		Dry Type, Replaceable
Fuel Filter		With Water Separator
Oil Filter		Element Type, Particulate Trap

### LUBRICATION SYSTEM

Total System	L	91
Minimum Oil Level	L	85
Nominal Motor Operating Temperature	°C	50
Lubricating Oil Pressure (Rated Speed)	bar	4,8
Relief Valve Opens	kPa	200-300
Oil / Fuel Consumption Ratio	%	<0,1
Normal Oil Temperature	°C	120

### FUEL CONSUMPTION

Standby - Load 110%	L/h	96,07
Prime - Load 100%	L/h	86,91
Prime - Load 75%	L/h	64,86
Prime - Load %50	L/h	45,17

### COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	66
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	84
Thermostat Operation Temperature - Full Open	°C	95
Delivery of Coolant Pump	m <sup>3</sup> /h	3,00
Min. Pressure Before Coolant Pump	bar	0,25
Radiator Face Area	m <sup>2</sup>	0,66
Rows	Row	3
Matrix Density	Per / Inch	12
Material		Aluminum
Width of Matrix	mm	600
Height of Matrix	mm	1100
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	3000

## DIESEL ENGINE MAIN TECHNICAL PARAMETERS

ELECTRICAL SYSTEM		
Voltage	V	24
Starter	kW	7,5
Alternator Output Ampere	A	35
Alternator Output Voltage	V	28
Batteries Capacity	Ah	2X135
FAN		
Diameter	mm	890
Drive Ratio		1.2:1
Number of Blades		9
Material		Metal
Type		Blowing

## DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	407,0	370,0
Net Engine Power	kW	385,0	350,0
Fan Power Consumption (Belt Pulley Driven)	kW	16,0	16,0
Other Power Loss	kW	6,0	6,0
Mean Effective Pressure	MPa	2170,00	2170,00
Intake Air Flow	m <sup>3</sup> / min	27,20	27,20
Exhaust Temperature Limit	°C	528	528
Exhaust Flow	m <sup>3</sup> / min	68,20	68,20
Boost Pressure Ratio		38,00	38,00
Mean Piston Speed	m / s	8,5	8,5
Cooling Fan Air Flow	m <sup>3</sup> / min	637,0	637,0
Typical Generator Output Power	kVA	452	411
Alternator Efficiency	%	94,0	94,0
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	888,0	888,0
Gross Heat to Power	kW	407,0	407,0
Energy to Coolant and Lubricating Oil	kW	141,0	141,0
Energy to Exhaust	kW	302,0	302,0
Heat to Radiation	kW	38,00	38,00

## ALTERNATOR SPECIFICATIONS



### ALTERNATOR TECHNICAL PARAMETERS

Insulation Class		H	Field Control System		Self-Excited
Winding Pitch		2/3 - (N° 6)	A.V.R. Model		Standard SX440
Wires		12	Voltage Regulation		% ± 1
Protection		IP 23	Sustained Short-Circuit Current		10 sec 300% (3 IN)
Altitude		m 1000	Total Harmonic (*) TGH / THC		% < 4
Overspeed		rpm 2250	Wave Form: NEMA = TIF - (*)		< 50
Air Flow		m³/sec. 0.8	Wave Form: I.E.C. = THF - (*)		% < 2
Bearing Drive		N/A -	Bearing Non-Drive		Bearing 6314-2RZ
Rotor Winding		100% Copper	Stator Winding		100% Copper

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

### STANDARD USING ALTERNATOR

### OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 315M		TAL047A		S4L1DF
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DUTY		Continuous				Stand By			
AMBIENT	C°	40°C				27°C			
CLASS / TEMP. RISE	C°	H/ 125° K				H/ 163° K			
SERIES STAR	V	380/220	400/231	415/240	1 Phase	380/220	400/231	415/240	1 Phase
PARALLEL STAR	V	190/110	200/115	208/120	220	190/110	200/115	208/120	220
SERIES DELTA	V	220	230	240	230	220	230	240	230
OUTPUT POWER	kVA	409,0	409,0	424,0	-	450,0	450,0	467,0	-
OUTPUT POWER	kW	327,2	327,2	339,2	-	360,0	360,0	373,6	-

## 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 Power 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

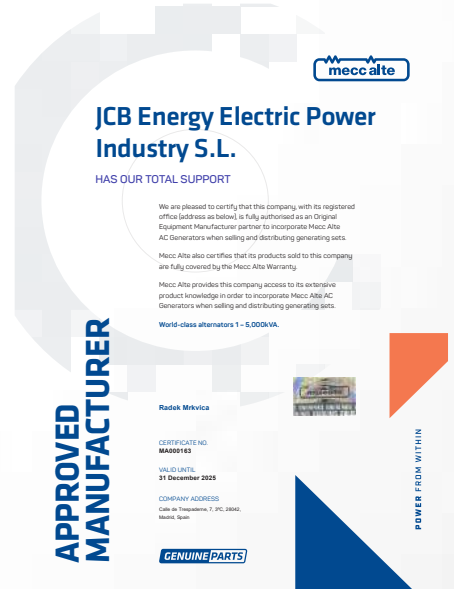
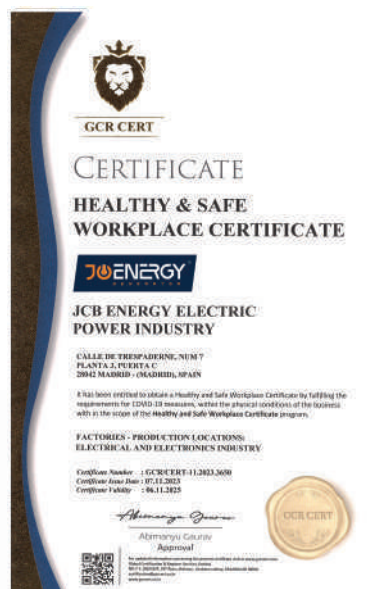
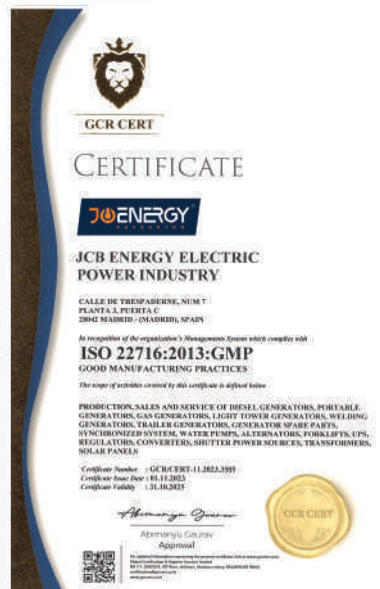
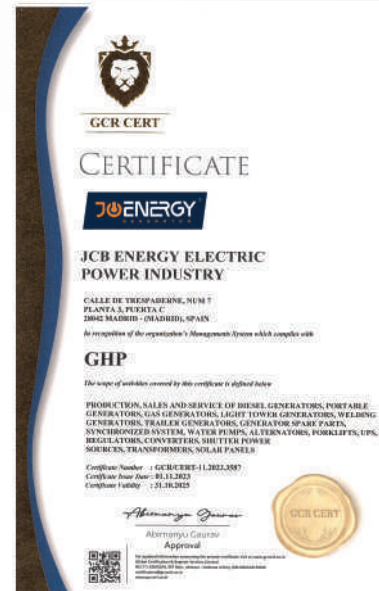
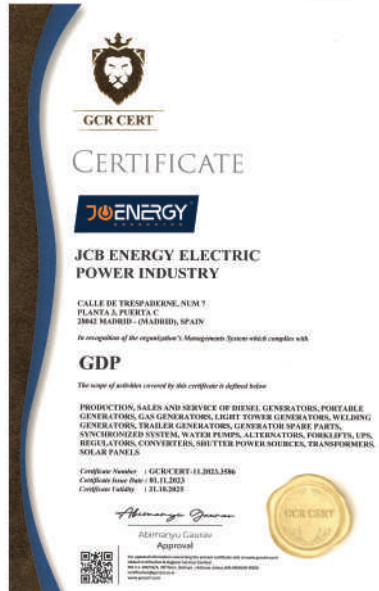
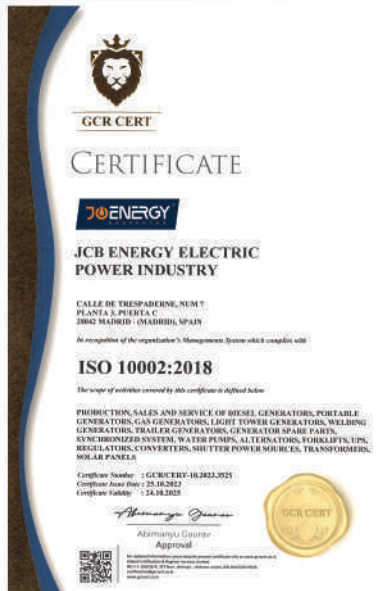
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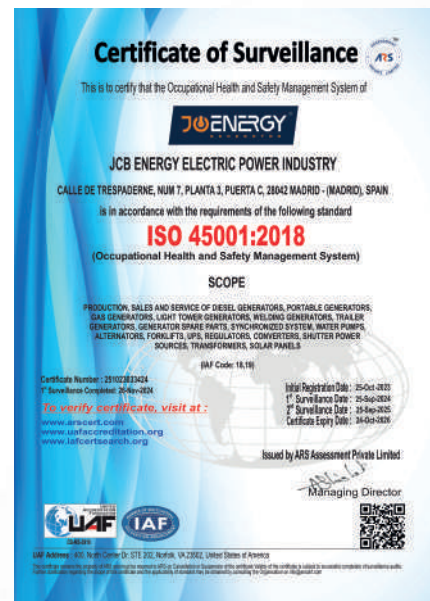
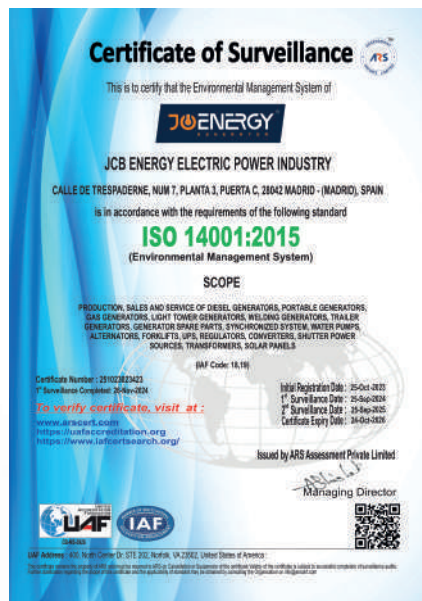
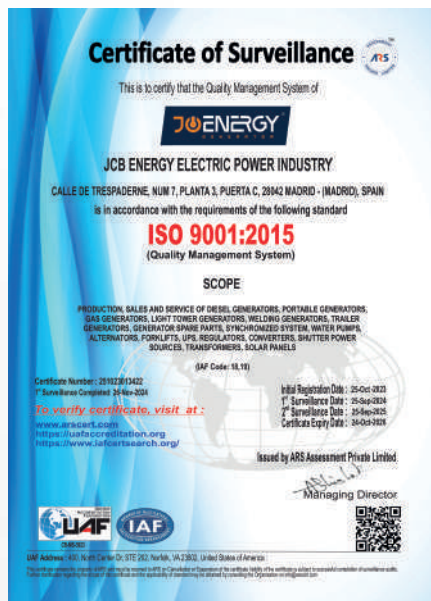
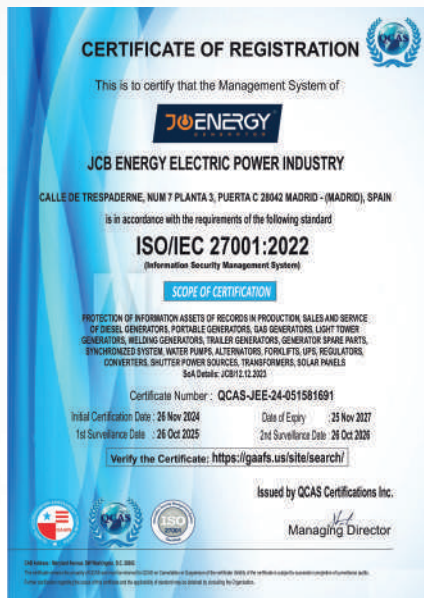


- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting 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.: 2372284

Valid certificate date: 14 August 2023

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: Barcelona, 09 October 2023

For the issuing office: DNV Business Assurance, Barcelona, Spain

DNV KMS Management Representative

Let's all commit to conditions as set out in the Certification Agreement and under this Certificate model. AC002722-001 DNV Business Assurance S.L. - Certification - 1200-10, Barcelona, Netherlands. TEL: +31-20-61032000 www.dnv.com/assess

# MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 2372285

Valid certificate date: 13 January 2024

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).**

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CLAYTON DE WHERRY  
REGISTRO GENERAL  
SALIDA  
Nº de Registro: 945 / 96 645  
Fecha: 29/07/2024 12:08:49

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 Tropezadero no: 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 WHERRY  
REGISTRO GENERAL  
SALIDA  
Nº de Registro: 955 / 96 650  
Fecha: 29/07/2024 12:08:49

IRENE SANCHEZ ROMAN, DIRECTORA DEL DEPARTAMENTO DE ASSESORIA JURIDICA Y CENSO 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 1.251 de acuerdo 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 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, opta por el sistema de Administración Única y nombra por tiempo indefinido a don Mohamed A.M. Eladiri, con Número de Identidad Entregado Y42M83279, para que actúe en nombre y representación de la mercantil, 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 Tropezadero 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".

CE

## CE DECLARATION OF CONFORMITY

JCB ENERGY ELECTRIC POWER INDUSTRY SL  
C/ ALFREDO MARQUESE, 10, PUERTA A, PLANTA 1 BARCELONA MADRID

Description Of The Product: GENERATORS AND PUMPS

Product Brand/Model/Type: (DIESEL GENERATORS, GAS GENERATORS, PORTABLE GENERATORS, LIGHT TOWERS, WELDER, PUMPS, FORKlift, UPS, REGULATORS, CONVERTERS, ALTERNATORS, WELDING GENERATORS, TAILGATE GENERATORS, BATTERY POWER SOURCE)

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 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