


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 400	50	231/400	0.8	1500	PERKINS	1706A-E93TAG2			315S	Standby	400,0	320,0	578,0
										Prime	363,6	290,9	525,5
										Continuous	254,5	203,6	367,8

- 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

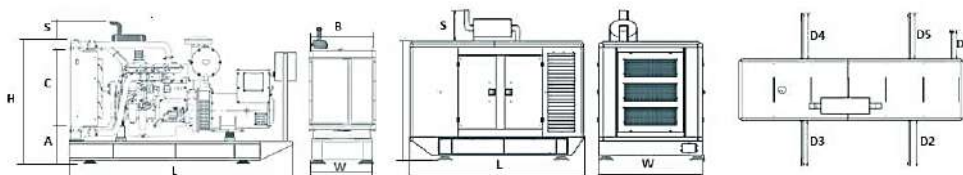
- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	1200	1179
LENGTH	mm	3165	3921
HEIGHT	mm	1966	2498
WEIGHT (NET)	Kg	2588	3162
FUEL TANK CAPACITY	L	673	673

SYMBOL	OPEN	CANOPY
L	3165	3910
W	1200	1140
H	1966	1875
S	297	500
A	520	
B	1048	
C	1100	
D1		1002
D2		800
D3		800
D4		800
D5		800



PERCENT OF PRIME POWER	FUEL CONSUMPTION
	l/hr
110 %	75,78
100 %	68,80
75 %	52,14
50 %	36,03

DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL

Number of Cylinders		6
Configuration		Vertical, in line
Aspiration		Turbo Charged & Intercooled
Combustion System		Direct injection
Compression Ratio		16.5:1
Bore	mm	115
Stroke	mm	149
Displacement	L	9,29
Governing Type		Electronic
Governing Class		G3
Rotation		Counterclockwise
Firing Order		1-5-3-6-2-4
Emission		Fuel Optimised

FILTERS

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

ELECTRICAL SYSTEM

Voltage	V	24
Starter	kW	6,8
Alternator Output Amperes	A	42
Alternator Output Voltage	V	28
Batteries Capacity	Ah	2X135

FAN

Diameter	mm	813
Drive Ratio		1.2:1
Number of Blades		9
Material		Metal
Type		Blowing

COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	33
Max. Perm. Coolant Outlet Temperature	°C	107
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	82
Thermostat Operation Temperature - Full Open	°C	93
Delivery of Coolant Pump	m ³ /h	3,00
Min. Pressure Before Coolant Pump	bar	0,15
Radiator Face Area	m ²	0,62
Rows	Row	4
Matrix Density	Per / Inch	10
Material		Aluminum
Width of Matrix	mm	620
Height of Matrix	mm	1000
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

LUBRICATION SYSTEM		
Total System	L	30
Minimum Oil Level	L	25
Nominal Motor Operating Temperature	°C	40
Lubricating Oil Pressure (Rated Speed)	bar	5,2
Relief Valve Opens	kPa	350-470
Oil / Fuel Consumption Ratio	%	0.1
Normal Oil Temperature	°C	125

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY
Gross Engine Power	kW	343,0
Net Engine Power	kW	334,0
Fan Power Consumption (Belt Pulley Driven)	kW	9,0
Other Power Loss	kW	-
Mean Effective Pressure	MPa	2953,00
Intake Air Flow	m ³ / min	34,10
Exhaust Temperature Limit	°C	480
Exhaust Flow	m ³ / min	82,00
Boost Pressure Ratio		16,80
Mean Piston Speed	m / s	7,5
Cooling Fan Air Flow	m ³ / min	438,0
Typical Generator Output Power	kVA	400
HEAT REJECTION		STAND BY
Energy in Fuel (Heat of Combustion)	kW	723,0
Gross Heat to Power	kW	343,0
Energy to Coolant and Lubricating Oil	kW	127,0
Energy to Exhaust	kW	225,0
Heat to Radiation	kW	16,0

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

ALTERNATOR SPECIFICATIONS

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL		JCB 315S				TAL046H		S4L1D E	
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	373,0	373,0	387,0	-	410,0	410,0	426,0	-
OUTPUT POWER	kW	298,0	298,0	310,0	-	328,0	328,0	341,0	-

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

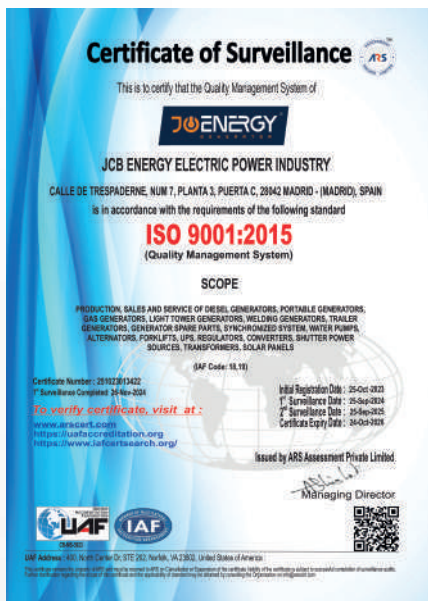
SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- 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





MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 2372384

Valid until: 14 August 2023

Initial certification date: 14 August 2023

Valid: 14 October 2022 – 13 October 2023

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

Site Name: Management Representative

Let's all commit to conditions as set out in the Certification Agreement may render this Certificate invalid. ACCREDITED UNIT: DNV Business Assurance S.L. - Certification - 1, 200-10, Barcelona, Netherlands. TEL: +31-20-7400200. www.dnv.com/assess

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 2372385

Valid until: 13 January 2024

Initial certification date: 13 January 2024

Valid: 14 October 2022 – 13 October 2023

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
REGISTRO GENERAL
SALIDA
Nº de Registro: 945 / 96 645
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 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 WHITNEY
REGISTRO GENERAL
SALIDA
Nº de Registro: 955 / 96 650
Fecha: 29/07/2024 12:00:00

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 1.257 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 consta en la escritura de constitución, el capital social de la compañía JCB ENERGY ELECTRIC POWER INDUSTRY SL, se fija en la cantidad de 19.005,00 € (DIECINUEVE MIL NOVECIENTOS CINCO EUROS), dividido en 19.005 participaciones sociales, de 1,00 € (UN EURO) de valor nominal cada una, distribuidas proporcionalmente del 1 al 19.005, ambas, 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 SL, opta por el sistema de Administración Única y nombra por tiempo indefinido a don Mohamed A.M. Eladiri, con Número de Identidad Extranjera Y42M83279, para que actúe en nombre y representación de la sociedad, con facultades facultades legal y estatutariamente correspondientes 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 faculta para ejercer la actividad "Fabricación de material eléctrico de utilización y equipamiento".

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, WATERS PUMPS, PUMPS, PUMPS, UPS, REGULATORS, CONVERTERS, ALTERNATORS, WELDING GENERATORS, TIGER GENERATORS, BATTERY POWER SOURCES)

Applicable harmonized standards: EN ISO 15280:2019, EN ISO 15281:2019, EN ISO 15282:2019, EN ISO 15283:2019, EN ISO 15284:2019, EN ISO 15285:2019, EN ISO 15286:2019, EN ISO 15287:2019, EN ISO 15288:2019, EN ISO 15289:2019, EN ISO 15290:2019, EN ISO 15291:2019, EN ISO 15292:2019, EN ISO 15293:2019, EN ISO 15294:2019, EN ISO 15295:2019, EN ISO 15296:2019, EN ISO 15297:2019, EN ISO 15298:2019, EN ISO 15299:2019, EN ISO 15300:2019, EN ISO 15301:2019, EN ISO 15302:2019, EN ISO 15303:2019, EN ISO 15304:2019, EN ISO 15305:2019, EN ISO 15306:2019, EN ISO 15307:2019, EN ISO 15308:2019, EN ISO 15309:2019, EN ISO 15310:2019, EN ISO 15311:2019, EN ISO 15312:2019, EN ISO 15313:2019, EN ISO 15314:2019, EN ISO 15315:2019, EN ISO 15316:2019, EN ISO 15317:2019, EN ISO 15318:2019, EN ISO 15319:2019, EN ISO 15320:2019, EN ISO 15321:2019, EN ISO 15322:2019, EN ISO 15323:2019, EN ISO 15324:2019, EN ISO 15325:2019, EN ISO 15326:2019, EN ISO 15327:2019, EN ISO 15328:2019, EN ISO 15329:2019, EN ISO 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