JCB ENERGY ELECTRIC POWER INDUSTRY

JOENERGY

* * * * * * Palstal

MADRID / SPAIN





JCN 51 & 62

231 / 400 V - 50 Hz & 277 / 480 V - 60 Hz







GENERATOR GENERAL INFORMATION

GENERATOR	FREQUENCY	VOLTAGE	POWER FACTOR	SPEED	DIESELI	ENGINE		ALTERN	ATOR		TYPE OF	GENEF	RATOR O	UTPUT
Model	Hz	V	Cos Q	Rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	А
								C			Standby	51,0	40,8	73,7
JCN 51	50	231/400	0.8	1500		JCN E63JC					Prime	46,4	37,1	67,0
										180LX	Prime Continuous Standby	32,5	26,0	46,9
					JCIN		EII		JCB	18017		62,0	49,6	89,6
JCN 62	60	277/480	0.8	1800							Prime	56,4	45,1	81,5
								- - X			Continuous	39,5	31,6	57,0
								-						

 Diesel Engines with Advanced Technology and Quality Alternators 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 Tropical 50 °C Radiator, First Class Fuel Filter with Water and Particle Low Fuel Consumption, Low Oil Co Global Technical Service and Maint Wide Range of Affordable Spare Particle High Quality and Reliable Technologies 	Separator nsumption cenance Support arts
 Low Operating Cost, Suitable for Heavy-Duty Durability, Low Noise Level High Quality and Reliable Technologies Half Century Experience in Generation 	

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):

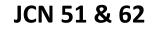
PRP (Prime Power) is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. 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.





231 / 400 V – 50 Hz & 277 / 480 V – 60 Hz



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

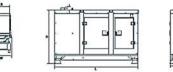




VALUES		OPEN TYPE GENERATOR	CANOPY TYPE GENERATOR
WIDTH	mm	622	1000
LENGTH	mm	1600	2300
HEIGHT	mm	1329	1190
WEIGHT (NET)	Kg	685	850
FUEL TANK CAPACITY	L	55	100

SYMBOL	OPEN	CANOPY
L	1600	2300
W	622	1000
н	894	1292
S	435	
Α	565	
В	550	
С	480	
D1		800
D2		800
D3		450
D4		
D5		







FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	11,86	14,23
100 %	10,79	12,93
75 %	8,29	9,93
50 %	5,93	7,10







DIESEL ENGINE MAIN TECHNICAL PARAMETERS

GENERAL		
Number of Cylinders		4
Configuration		Vertical, In Line
Aspiration		Turbocharged
Combustion System		Direct Injection
Compression Ratio		19.1:1
Bore	mm	90
Stroke	mm	100
Displacement	L	2,55
Governing Type	-	Mechanic
Governing Class		G2
Rotation		Counterclockwise
Firing Order		1-3-4-2
Emission		Tier II
Moments of Rotation Inertia		
Engine	Kg - m²	0,44
	-	
Flywheel	Kg - m²	2,55
Performance Rating	0/	
Speed Droop	%	≤3
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)	4
Flex Coupling Disc	Inch (")	7,5
TEST CONDITIONS		
Ambient Temperature	%	25
Atmospheric Pressure	КРа	100
Relative Humidity	Rh (%)	30
Max. Operating Intake Resistance	КРа	5
Exhaust Backpressure Limit	КРа	5
Fuel Temperature (Fuel Inlet Pump)	°C	38±2
OVERALL DIMENSIONS		1012
Length* Width	mm mm	1042 592
Height	mm	734
Dry Weight	kg	315
*From front end of radiator to near end of air filter	-	
FAN		
Diameter	mm	400
Diameter Drive Ratio	mm	1,25:1
Diameter	mm	





DIESEL ENGINE MAIN TECHNICAL PARAMETERS

COOLING SYSTEM		
Radiator Type	50ºC	Tropical
Total Coolant Capacity	L	13
Max. Perm. Coolant Outlet Temperature	₅C	103
Max. Perm. Flow Resist. (Cool. System And Piping)	bar	0,5
Max. Temperature of Coolant Warning	₅C	95
Max. Temperature of Coolant Shutdown	ōC	98
Thermostat Operation Temperature - Initial Open	°C	68
Thermostat Operation Temperature - Full Open	°C	72
Delivery of Coolant Pump	m ³/ h	1,60
Min. Pressure Before Coolant Pump	bar	0,15
Radiator Face Area	m²	0,26
Rows	Row	2
Matrix Density	Per / Inch	15,5
Material		Aluminum
Width of Matrix	mm	440
Height of Matrix	mm	590
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	1500
LUBRICATION SYSTEM		
Total System	L	8
Minimum Oil Level	L	7
Nominal Motor Operating Temperature	₅C	40
Lubricating Oil Pressure (Rated Speed)	bar	5
Relief Valve Opens	kPa	352
Oil / Fuel Consumption Ratio	%	≤ 0,3
Normal Oil Temperature	°C	110
ELECTRICAL SYSTEM		
Voltage	V	12
Starter	kW	3,2
Alternator Output Ampers	А	25
Alternator Output Voltage	V	14
Batteries Capacity	Ah	55





JCB ENERGY DIESEL ENGINE POWER RATINGS

ENGINE MODEL	E63JC		ENGINE FAMILY	JC41	ENGINE SERIES	EII	
Speed (Rpm)		TYPICAL GENER	TYPICAL GENERATOR OUTPUT (NET)		3		
	Type of Operation	THEAL GENERATOR COTFOT (NET)		Gr	oss	Net	
		kVA	kWe	KWm	Нр	kWm	Нр
1500	Stand By(Maximum)	50,4	40,3	50,0	67,1	46,0	61,7
	Prime	45,5	36,4	45,5	61,1	41,8	56,1
1800	Stand By(Maximum)	61,4	49,1	60,0	80,5	55,8	74,9
	Prime	55,4	44,3	54,5	73,2	50,3	67,5

DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY	PRIME
Gross Engine Power	kW	50,0	45,0
Net Engine Power	kW	46,0	41,8
Fan Power Consumption (Belt Pulley Driven)	kW	2,5	2,5
Other Power Loss	kW	1,2	1,2
Mean Effective Pressure	MPa	1,57	1,43
Intake Air Flow	m ³ / min	2,10	2,10
Exhaust Temperature Limit	ōC	400	400
Exhaust Flow	m ³/ min	3,55	3,23
Boost Pressure Ratio		7,70	7,00
Mean Piston Speed	m / s	5,0	5,0
Cooling Fan Air Flow	m ³/ min	46,6	46,6
Typical Generator Output Power	kVA	50	46
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	113,0	102,0
Gross Heat to Power	kW	50,0	45,0
Energy to Coolant and Lubricating Oil	kW	25,0	22,5
Heat Dissipation Capacity *	kW	-	-
Energy to Exhaust	kW	29,1	26,2
Heat to Radiation	kW	8,6	7,7
*Intake Intercooled system			

*Intake Intercooled system





DIESEL ENGINE MATCHING PARAMETERS - 60 HZ

60 HZ @ 1800 R/MIN		STAND BY	PRIME
		-	
Gross Engine Power	kW	60,0	54,5
Net Engine Power	kW	55,8	50,3
Fan Power Consumption (Belt Pulley Driven)	kW	3,0	3,0
Other Power Loss	kW	1,2	1,2
Mean Effective Pressure	MPa	1,57	1,43
Intake Air Flow	m ³ / min	2,52	2,52
Exhaust Temperature Limit	°C	480	480
Exhaust Flow	m ³ / min	4,27	3,88
Boost Pressure Ratio		9,20	8,40
Mean Piston Speed	m / s	6,0	6,0
Cooling Fan Air Flow	m ³ / min	55,9	55,9
Typical Generator Output Power	kVA	61	55
HEAT REJECTION		STAND BY	PRIME
Energy in Fuel (Heat of Combustion)	kW	135,2	118,0
Gross Heat to Power	kW	60,0	50,3
Energy to Coolant and Lubricating Oil	kW	30,0	27,0
Heat Dissipation Capacity *	kW	-	-
Energy to Exhaust	kW	34,9	31,4
Heat to Radiation	kW	10,3	9,3
*Intake Intercooled system			

JCB ALTERNATOR TECHNICAL PARAMETERS AND SPECIFICATIONS



ALTERNATOR TECHNICAL PARAMETERS								
Insulation Class		Н	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			







ALTERNATOR SPECIFICATIONS

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

STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL	JOENERGY	JCB 180LX		LEROY-SO	LEROY-SOMER		STAMFORD S1L2N		l
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	46,0	46,0	48,0	31,0	51,0	51,0	53,0	34,0
OUTPUT POWER	kW	36,8	36,8	38,4	24,8	40,8	40,8	42,4	27,2

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

STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
BRAND/MODEL	JUENERGY	JCB 180LX		LEROY-S	OMER	TAL042F	STAMFORD	S1L2-N	J
DUTY				Continuous			Star	d By	
AMBIENT	C°			40°C			27	″°C	
CLASS / TEMP. RISE	C°			H / 125° K			H / 1	63° K	
SERIES STAR	V	416/240	440/254	480/277	1 Phase	416/240	440/254 48	0/277	1 Phase
PARALLEL STAR	V	208/120	220/127	240/138	-	208/120	220/127 24	0/138	-
SERIES DELTA	V	240	254	277	240	240	254	277	240
OUTPUT POWER	kVA	57,0	61,0	61,0	41,0	63,0	67,0	57,0	45,0
OUTPUT POWER	kW	45,6	48,8	48,8	32,8	50,4	53,6	53,6	36,0







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 wit 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
- o LCD Screen
- Control Relays
- Backlit, 128x64 Pixels

CONTROL MODULE TECHNICAL PARAMETERS

Brand	JUENERGY	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	Generator Frequency level	- High / Low Voltage	- High / Low Frequency	Heater Tube
Control	Control			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

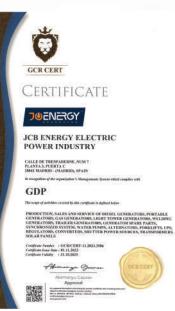


- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting with Electrostatic Powder Paint
- Drying and stabilizing on 200 °C Ovens
- 1500 Hour Salt Test
- Glass wool Isolation, A1 Class Material -50/+500 ºC
- Special Covering Over Glass Wool
- Best Sound Level (in Dba)
- Temperature Tests
- Rustproof Accessories

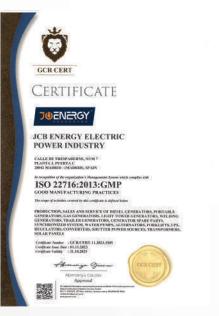
- Cable Exit Connectors and Glands
- Emergency Stop Button
- Fuel Level Gauge
- Fuel Drain Cap
- Fuel Inlet and Return Records
- I permeability Test for Fuel Tank
- Vacuumed Rubber Mounted
- High Quality weatherstrips
- High Quality Shock Absorbers
- Fuel Filling Cap (with ventilation)
- Lifting and Carrying Equipment
- Internal Exhaust Mufflers (Silencers)
- External Exhaust Mufflers (Silencers)
- Radiator water Filling Cap
- o Daily Fuel Tank, External Fuel Tank

OUR CERTIFICATES











CERTIFICATE HEALTHY & SAFE WORKPLACE CERTIFICATE

JUENERGY JCB ENERGY ELECTRIC POWER INDUSTRY

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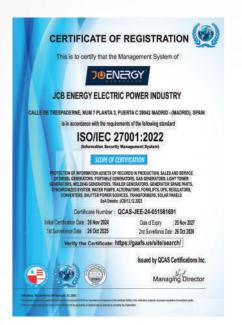
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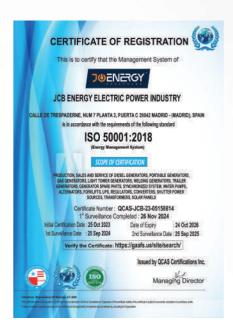
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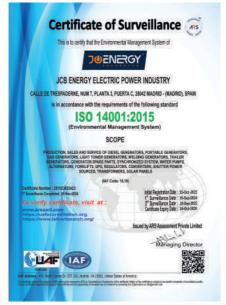


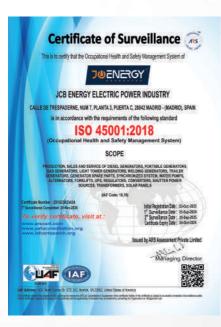
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MANAGEMENT SYSTEM CERTIFICATE

Certificate no: Initial certification date: D012084 14 August 2007

The is to cardy that the management system of HD Hyundai Infracore Co., Ltd. Head Office & Incheon Plant 40 (highes). Drops, indexe, 2200, Republic of Korea and the sites as mentioned in the appendix accompanying this cartificate has been toyaid to conform to the Environmental Management System standard. Iso 14001;2015

Valid: 14 October 2023 - 13 October 2026

The certificate is walls 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, Dezer], Testing of Earth Moving Equipment[Excavator and Wheel Loader].





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RENE SANCHEZ ROMAN, MANAGER CH'THE DEMARTMENT O' LIGAL ADMSONY SERVICES AND THE DATAINGE OF THE OFFICIAL OMAXBER OF COMMERCE, MOUERRE AND SERVICES OF MARIND, WITH INDUSTRIED OFFICE AT PLAZA DE LA INDERDIDICA 1, MARIND, DAVIN

CERTIFY. That, according to the background data on moord at this Chambar and others produced by the Company

CB-ID-BERGY RECEISE FOOMER INCOMENTS II, a Company with Tax ID. Namine IN 1975594, and Is registreed office a strengt impactements in 20000 Masking is registreed on MMAy 2004. and the the basing of the 3D Sentan companies, of the Economic Activities Tax Tarihi function Set Us performing in futureing schaft;

· Menufacture of electrical material for use and equipment

In whites whereast, for the appropriate purpose, i have issued and signed this Certificate, to which Latts the stamp of this Chamilee, in Madrial on 28 July 2004.





Libratus de Manare Maista Maria Nº de Register 155 / 85 660 Fecha: 3607/355 1357/35

BENE SANCHEZ ROMAN, DIRECTORA DEL DEIWOTMENTO DE ASESORIA IMPORTA Y CINSO DE LA CIMARIA OFICIAL DE COMERCIO, INDUSTINA Y SURVICIS DE MARIRO, CON OCIACIONI SOCIAL EN LA TILAZA DE LA INDEPENDENCIA Y IL IMPORTO-ENTRATA CERTIFICA Que de los antecedentes que obrin en ente Cuipenación y de coso entididos por la recordad, manta

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