# JCB ENERGY ELECTRIC POWER INDUSTRY

MADRID / SPAIN

JCBENERGY

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





## **GENERATOR GENERAL INFORMATION**

GENERATOR	FREQUENCY	VOLTAGE	POWER FACTOR	SPEED	DIESEL E	NGINE		ALTERN	IATOR		TYPE OF	GENER		UTPUT
Model	Hz	V	Cos Q	Rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	А
								Ľ			Standby	375,0	300,0	541,9
JCD 375	50	231/400	0.8	1500	Å	A				3155	Prime	341,0	272,8	492,8
					$\Lambda$	TCD12.1G1	TCD	E Z			Continuous	299,6	239,7	433,0
					DEUTŽ						Standby	415,0	332,0	599,7
JCD 415	60	277/480	0.8	1800				ģ		270LXA	Prime	377,3	301,8	545,2
								<u></u> ,	•		Continuous	349,0	279,2	504,3

<ul> <li>Diesel Engines with Advanced Technology and Quality</li> <li>Alternators with Advanced Technology and Quality</li> <li>Low Exhaust Emission</li> <li>Control Panel Suitable for Flexible Application</li> <li>Patented Compact Designed and Sound proof Canopy</li> <li>Low Operating Cost Suitable for Heavy Duty</li> </ul>	<ul> <li>Tropical 50 °C Radiator, First Class Product Support</li> <li>Fuel Filter with Water and Particle Separator</li> <li>Low Fuel Consumption, Low Oil Consumption</li> <li>Global Technical Service and Maintenance Support</li> <li>Wide Range of Affordable Spare Parts</li> <li>High Quality and Paliable Technology</li> </ul>
<ul> <li>Low Operating Cost, Suitable for Heavy-Duty</li> <li>Durability , Low Noise Level</li> </ul>	<ul> <li>High Quality and Reliable Technology</li> <li>Half Century Experience in Generator Manufacturing</li> </ul>
<ul> <li>Durability , Low Noise Level</li> </ul>	<ul> <li>Hair Century Experience in Generator Manufacturing</li> </ul>

#### 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**

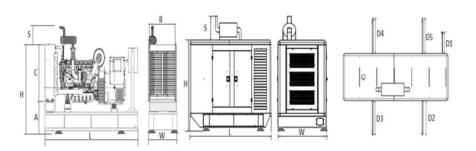




VALUES		OPEN TYPE GENERATOR	CANOPY TYPE GENERATOR
WIDTH mm		1100	1179
LENGTH	mm	3254	3921
HEIGHT	mm	1782	2498
WEIGHT (NET)	Kg	2353	2790
FUEL TANK CAPACITY	L	475	673

SYMBOL	OPEN	CANOPY
L	3254	3921
W	1100	1179
н	1598	1955
S	184	543
Α	766	
В	810	
С	860	
D1		520
D2		850
D3		850
D4		850
D5		850

BENEF



## **FUEL CONSUMPTION**

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
	l/hr	l/hr
110 %	72,56	82,76
100 %	63,81	75,62
75 %	48,10	57,01
50 %	33,21	39,36



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#### DIESEL ENGINE MAIN TECHNICAL PARAMETERS



<b>50 Hz – 1500</b> min <sup>-1</sup>			<b>60 Hz – 1800</b> min <sup>-1</sup>		
Туре		TCD12.1	Туре		TCD12.1
Speed	min <sup>-1</sup>	1500	Speed	min-1	1800
Net Frequency	Hz	50	Net Frequency	Hz	60
Power Standard		LTP	Power Standard		LTP
Power Level		G1	Power Level		G1
Exhaust Emission Standard		Fuel Optimized	Exhaust Emission Standard		Fuel Optimized
GENERAL			GENERAL		
Aspiration		Turbo,CAC	Aspiration		Turbo,CAC
Governing System		Electronic	Governing System		Electronic
Governor Brand		Bosch	Governor Brand		Bosch
No of Cylinders		6	No of Cylinders		6
Configuration		in-line	Configuration		in-line
Injection System		Common Rail	Injection System		Common Rail
Displacement	L	12,10	Displacement	L	12,10
Bore	mm	131	Bore	mm	131
Stroke	mm	150	Stroke	mm	150
Compression Ratio		17:1	Compression Ratio		17:1
Mean Effective Pressure	Bar	26	Mean Effective Pressure	Bar	24,5
Piston Speed	m/s	8	Piston Speed	m/s	9,6
Rotation (looking at flywheel)		ccw	Rotation (looking at flywheel)		ccw
No of Teeth on Flywheel Ring Gear		143	No of Teeth on Flywheel Ring Gear		143
GOVERNOR PERFORMANCE			GOVERNOR PERFORMANCE		
Speed droop (static) electr. gov.	%	0	Speed droop (static) electr. gov.	%	0
Governing standards		G3	Governing standards		G3
MOMENT OF INERTIA			MOMENT OF INERTIA		
Flywheel (standard genset spec.)	kg m²	2,16	Flywheel (standard genset spec.)	kg m²	2,16
Max. step load acceptance, 1st step	%	-	Max. step load acceptance, 1st step	%	-
Sound power at full load, incl. cooling system	dB(A)	108,30	Sound power at full load, incl. cooling	dB(A)	108,30
Cound many (1m outpage full load) incl	. ,	·	system	( )	
Sound press. (1m average, full load), incl.	dB(A)	95,50	Sound press. (1m average, full load), incl.	dB(A)	96,50
cool. syst. ENGINE WEIGHT			cool. syst. ENGINE WEIGHT		
Engine Dry, w/o Cooling System	kg	1154	Engine Dry, w/o Cooling System	Kg	1154
Engine with cooling system	kg	1249	Engine with cooling system	kg	1249
LUBRICATION SYSTEM	<del>ه</del> יי	1215	YAĞLAMA SİSTEMİ	6	12.15
Oil specification		15W40/CI-4/SL	Oil specification		15W40/CI-4/SL
Oil consumption (as % of fuel consumption)	%	0,10	Oil consumption (as % of fuel consumption)	%	0,10
Oil capacity (sump)	1	30	Oil capacity (sump)	1	30
Min. oil pressure (warning)	Bar	0,80	Min. oil pressure (warning)	Bar	0,80
Min. oil pressure (shut down)	Bar	0,60	Min. oil pressure (shut down)	Bar	0,60
Max. permissible oil temperature (oil pan)	°C	130	Max. permissible oil temperature (oil pan)	°C	130
OUTPUT	U	130	OUTPUT	C	130
Gross Output(LTP or StandBy Power)	Kw	330	Gross Output(LTP or StandBy Power)	Kw	365
Fan Reduction	Kw	13	Fan Reduction	Kw	17,5
Net flywheel	Kw	317	Net flywheel		347,5
Electrical Output (Stand By)	Kva	375	Electrical Output (Stand By)	Kva	410
Gross Output(PRP or Prime Power)	Kw	290	Gross Output(PRP or Prime Power)	Kw	335
Gross Output(Continous Power)	kw	268	Gross Output(Continous Power)	kw	310



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## **DIESEL ENGINE MAIN TECHNICAL PARAMETERS**

COOLING SYSTEM, GENERAL ENGINE COOLING DATACOOLING SYSTEM, GENERAL ENGINE COOLING DATAMax, perm. Coolant Outlet Temperature"C99Max, perm. Flow Resistance (cool. syst. and piping)Bar0,30Max, Temperature of Coolant (warning)"C105Max. Temperature of Coolant (warning)"C108Max. Temperature at Which Thermostat Starts to open"C80Temperature at Which Thermostat Starts to open"C80Temperature at Which Thermostat Starts to open"C90Delivery of Coolant Pump"P"/"80Nin. Pressure Before Coolant Pump"P"/"816Nin. Pressure Before Coolant Pump"P"/"816Coolant Capacity (engine)120Coolant Capacity (engine)1Coolant Capacity (engine)120Coolant Capacity (engine)1 <t< th=""><th><b>50 Hz – 1500</b> min<sup>-1</sup></th><th></th><th></th><th><b>60 Hz – 1800</b> min<sup>-1</sup></th><th></th><th></th></t<>	<b>50 Hz – 1500</b> min <sup>-1</sup>			<b>60 Hz – 1800</b> min <sup>-1</sup>		
Max perm. Flow Resistance (cool. syst. and piping)         Bar Ray, remperature of Coolant (warning)         Cooland Coolant (warning)         Cooland Coolant (warning)         Coolant Coolant Coolant (warning)         Coolant Coolant Pump         Coolant Pump         Coolant Pump         Coolant Coolant Capacity (endic cooling unit)         Coolant Capacity (endic cooling unit) <thcoolant (endic="" capacity="" cooling="" th="" unit)<=""> <th< td=""><td>COOLING SYSTEM, GENERAL ENGINE COOLING DATA</td><td>A Contraction</td><td></td><td>COOLING SYSTEM, GENERAL ENGINE COOLING DAT/</td><td>4</td><td></td></th<></thcoolant>	COOLING SYSTEM, GENERAL ENGINE COOLING DATA	A Contraction		COOLING SYSTEM, GENERAL ENGINE COOLING DAT/	4	
pipping)         Bar         0.34         piping)         Bar         0.34           Max. Temperature of Coolant (warning)         "C         105         Max. Temperature of Coolant (shutdown)         "C         108           Temperature at Which Thermostat Starts to open         "C         108         Temperature at Which Thermostat Starts to open         "C         90           Delivery of Coolant Pump         "T         90         Temperature at Which Thermostat is Fully Open         "C         90           Delivery of Coolant Pump         Bar         0.80         Min. Pressure Before Coolant Pump         "G         90           Temperature at CAC outlet at standard conditions         "C         50         Temperature at CAC outlet at standard conditions         "C         90           Coolant Capacity (engine)         1         20         Coolant Capacity (engine)         1         20           Coolant Capacity (engine)         1         20         Coolant Capacity (engine)         1         20           Coolant Capacity (engine)         1         20         Coolant Capacity (engine)         1         20           Coolant Capacity (engine)         1         20         Coolant Capacity (engine)         1         20           Coolant Capacity (engine)         10         38	Max. perm. Coolant Outlet Temperature	°C	99	Max. perm. Coolant Outlet Temperature	°C	99
Max. Temperature of Coolant (shutdown)         "C         108         Max. Temperature of Coolant (shutdown)         "C         108           Temperature at Which Thermostat Starts to open         "C         80         Temperature at Which Thermostat Starts to open         "C         80           Temperature at Which Thermostat Starts to open         "C         90         Temperature at Which Thermostat Starts to open         "C         90           Delivery of Coolant Pump         Bar         0.80         Min. Pressure Before Coolant Pump         Bar         0.80           Temperature at CAC outlet at standard conditions         "C         50         Temperature at CAC outlet at standard conditions         "C         50           ENDINE COOLING SYSTEM         EXEMPTE COOLING SYSTEM         1         20         Coolant Capacity (engine)         1         20           Coolant Capacity (engine)         1         20         Coolant Capacity (incl. cooling unit)         1         35           Air to Boil (max. permissible cool. air temp. at fan.         "C         55         Fan Power Consumption         kW         17,5           Cooling air Flow         mbar         1,64         Air to Boil (max. permissible cool. air temp. at max.         "C         55           Air to Boil (max. permissible cool. air temp. at max.         "S         Hea		Bar	0,30		Bar	0,30
Temperature at Which Thermostat Starts to open*C80Temperature at Which Thermostat Starts to open*C90Temperature at Which Thermostat is Fully Open*C90Temperature at Which Thermostat is Fully Open*C90Delivery of Coolant Pumpm³/h28.80Delivery of Coolant Pumpm³/h34.6Min. Pressure Before Coolant PumpBar0.80Temperature at CAC outlet at standard conditions*C50Temperature at CAC outlet at standard conditions*C50Temperature at CAC outlet at standard conditions*C50ENGINE COOLING SYSTEMI20Coolant Capacity (incl. cooling unit)I353151Coolant Capacity (incl. cooling unit)I35Coolant Capacity (incl. cooling unit)I35Fan Power ConsumptionkW13Fan Power ConsumptionkW17,5Coling air Flowm?/h38486Cooling air Flowm3/h432Air to Boll (max. permissible col. air temp. at fan)*C\$5Heat Dissipation (engine radiator)kW10Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW110Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW50Combustion Air Volumem3'h1186Combustion Air Volumem3'h50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature*C50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Flow	Max. Temperature of Coolant (warning)	°C	105	Max. Temperature of Coolant (warning)	°C	105
Temperature at Which Thermostat is Fully Open°C90Temperature at Which Thermostat is Fully Open°C90Delivery of Coolant Pumpm³/h28.80Delivery of Coolant Pumpm³/h34.6Min. Pressure Before Coolant PumpBar0.80Min. Pressure Before Coolant PumpBar0.80Temperature at CAC outlet at standard conditions°C50Temperature at CAC outlet at standard conditions°C50FINITHE COOLING SYSTEMENDINE COOLING CYSTEMENDINE COOLING CYSTEM120Coolant Capacity (incl. cooling unit)1135Coolant Capacity (incl. cooling unit)135Fan Power ConsumptionkW13Fan Power ConsumptionkW17,555Fan Power ConsumptionkW13Fan Power ConsumptionkW10,4HEAT BALANCEHEAT BALANCEHEAT BALANCE1,641,64HEAT BALANCEHEAT BISIpation (engine radiator)kW1010Heat Dissipation (engine radiator)mbar50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Max. Exhaust Back Pressurembar11830Combustion Air Volumembar50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Max. Exhaust Back Pressurembar50Max. intake Depression (Switch setting)mbar50 <td>Max. Temperature of Coolant (shutdown)</td> <td>°C</td> <td>108</td> <td>Max. Temperature of Coolant (shutdown)</td> <td>°C</td> <td>108</td>	Max. Temperature of Coolant (shutdown)	°C	108	Max. Temperature of Coolant (shutdown)	°C	108
Delivery of Coolant Pumpm³/h28,80Delivery of Coolant Pumpm³/h34,6Min. Pressure Before Coolant PumpBar0,80Min. Pressure Before Coolant PumpBar0,80Temperature at CAC outlet at standard conditions*C50Temperature at CAC outlet at standard conditions*C50ENGINE COOLING SYSTEMENGINE COOLING SYSTEM*C5050Coolant Capacity (engine)120Coolant Capacity (engine)120Coolant Capacity (incl. cooling unit)135Coolant Capacity (incl. cooling unit)135Air to Boil (max. permissible cool. air temp. at fan)*C55Air to Boil (max. permissible cool. air temp. at fan)*C55Fan Power ConsumptionkW13Fan Power ConsumptionkW1010Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW104Heat Dissipation (engine radiator)kW55Heat Dissipation (CAC)kW56,4INLET / EXHAUST DATAINLET / EXHAUST DATAINLET / EXHAUST DATA156Max. Inkake Depression (Switch setting)mbar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature*C51Max. Exhaust Gas Temperature*C50Exhaust Gas Flow (at above temp)m <sup>3</sup> /h1301Exhaust Gas Flow (at above temp)m <sup>3</sup> /h422Max. Exhaust Gas Flow (at above temp)m <sup>3</sup> /h301Exhaust Gas Flow (at above temp)m <sup>3</sup> /h <t< td=""><td>Temperature at Which Thermostat Starts to open</td><td>°C</td><td>80</td><td>Temperature at Which Thermostat Starts to open</td><td>°C</td><td>80</td></t<>	Temperature at Which Thermostat Starts to open	°C	80	Temperature at Which Thermostat Starts to open	°C	80
Min. Pressure Before Coolant PumpBar0,80Min. Pressure Before Coolant PumpBar0,80Temperature at CAC outlet at standard conditions*C50Temperature at CAC outlet at standard conditions*C50ENGINE COOLING SYSTEMENGINE COOLING SYSTEM*C50ENGINE COOLING SYSTEM*C50Coolant Capacity (engine)120Coolant Capacity (engine)13535Air to Boil (max. permissible cool. air temp. at fan)*C55Air to Boil (max. permissible cool. air temp. at fan)*C55Fan Power ConsumptionkW13Fan Power ConsumptionkW17,543286Coolang air Flowm³/h43298Air ressure Loss, externalm³/h3846Coolang air Flowm³/h432981,64417 Pressure Loss, externalmbar1,64HEAT BALANCEHEAT BALANCEHEAT BALANCEHEAT BALANCE101,641,641,64Max. Intake Depression (Switch setting)mbar50Max. Intake Depression (Switch setting)mbar50Max. Intake Depression (Switch setting)mbar50Max. Intake Depression (Switch setting)m³/h150Max. Exhaust Back Pressurem³/h136Combustion Air Volumem³/h150Max. Exhaust Gas Flow (at above temp)m³/h130Exhaust Gas Flow (at above temp)m³/h150Max. Exhaust Gas Flow (at above temp)m³/h330Exhaust Gas Flow (at above temp)m³/h122Ekhaust Gas Flow (at above	Temperature at Which Thermostat is Fully Open	°C	90	Temperature at Which Thermostat is Fully Open	°C	90
Temperature at CAC outlet at standard conditions°C50Temperature at CAC outlet at standard conditions°C50FNGINE COOLING SYSTEMFNGINE COOLING SYSTEMI20Coolant Capacity (engine)120Coolant Capacity (engine)135Coolant Capacity (incl. cooling unit)135Coolant Capacity (incl. cooling unit)135Air to Boil (max. permissible cool. air temp. at fan)°C55Air to Boil (max. permissible cool. air temp. at fan)°C55Fan Power ConsumptionkW13Fan Power ConsumptionkW17,5Cooling air Flowm <sup>3</sup> /h38486Cooling air Flowm <sup>3</sup> /h43298Air Pressure Loss, externalmbar1,64Air Pressure Loss, externalmbar1,64HEAT BALANCEHEAT BALANCEHEAT BALANCE1110Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW101Heat Dissipation (CAC)kW50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem <sup>3</sup> /h1166Combustion Air Volumem <sup>3</sup> /h156Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m <sup>3</sup> /h301Exhaust Gas Flow (at above temp)m <sup>3</sup> /h4229Khaust Gas Flow (at above temp)m <sup>3</sup> /h301 <td< td=""><td>Delivery of Coolant Pump</td><td>m³/h</td><td>28,80</td><td>Delivery of Coolant Pump</td><td>m³/h</td><td>34,6</td></td<>	Delivery of Coolant Pump	m³/h	28,80	Delivery of Coolant Pump	m³/h	34,6
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Air to Boil (max. permissible cool. air temp. at fan)°C55Air to Boil (max. permissible cool. air temp. at fan)°C55Fan Power ConsumptionkW13Fan Power ConsumptionkW17,5Cooling air Flowm³/h38486Cooling air Flowm³/h43298Air Pressure Loss, externalmbar1,64Air Pressure Loss, externalmbar1,64HEAT BALANCEHEAT BALANCEHEAT BALANCEHEAT BALANCE100Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW101Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW56,4INLET / EXHAUST DATAINLET / EXHAUST DATA11661164Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229EtCTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24VoltageV24VoltageKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80Alternator Output		I	20			
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Cooling air Flowm³/h38486Cooling air Flowm³/h43298Air Pressure Loss, externalmbar1,64Air Pressure Loss, externalmbar1,64HEAT BALANCEHEAT BALANCEHEAT BALANCEHEAT BALANCENW100Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW101Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW56INLET / EXHAUST DATANUET / EXHAUST DATAW50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbarCombustion Air Volumem³/h1186Combustion Air Volumem³/h156Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exthaust Flange / pipe diametermm120Extract SYSTEMV24VoltageV24VoltageV24Alternator OutputA80Alternator OutputA80		°C	55		°C	55
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HEAT BALANCEHEAT BALANCEHeat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW110Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW56,4INLET / EXHAUST DATAINLET / EXHAUST DATAINLET / EXHAUST DATA50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA8	Cooling air Flow	m³/h	38486	Cooling air Flow	m³/h	43298
Heat Dissipation (engine radiator)kW108Heat Dissipation (engine radiator)kW110Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW56,4INLET / EXHAUST DATAINLET / EXHAUST DATAINLET / EXHAUST DATAMobar50Max. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h156Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA8Alternator OutputAA	Air Pressure Loss, external	mbar	1,64	Air Pressure Loss, external	mbar	1,64
Heat Dissipation (CAC)kW55Heat Dissipation (CAC)kW56,4INLET / EXHAUST DATAINLET / EXHAUST DATAMax. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputAA8	HEAT BALANCE			HEAT BALANCE		
INLET / EXHAUST DATAINLET / EXHAUST DATAMax. intake Depression (Switch setting)mbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24StarterKW8,80StarterKW8,80KW8,80Alternator OutputA80Alternator OutputAAX	Heat Dissipation (engine radiator)	kW	108	Heat Dissipation (engine radiator)	kW	110
Max. intake Depression (Switch setting)mbarMbar50Max. intake Depression (Switch setting)mbar50Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Ekhaust Flange / pipe diametermm120Ekhaust Flange / pipe diametermm120VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA8Alternator OutputA8	Heat Dissipation (CAC)	kW	55	Heat Dissipation (CAC)	kW	56,4
Combustion Air Volumem³/h1186Combustion Air Volumem³/h1564Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	INLET / EXHAUST DATA			INLET / EXHAUST DATA		
Max. Exhaust Back Pressurembar50Max. Exhaust Back Pressurembar50Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	Max. intake Depression (Switch setting)	mbar	50	Max. intake Depression (Switch setting)	mbar	50
Max. Exhaust Gas Temperature°C511Max. Exhaust Gas Temperature°C507Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24StarterKW8,80StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	Combustion Air Volume	m³/h	1186	Combustion Air Volume	m³/h	1564
Exhaust Gas Flow (at above temp)m³/h3301Exhaust Gas Flow (at above temp)m³/h4229Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	Max. Exhaust Back Pressure	mbar	50	Max. Exhaust Back Pressure	mbar	50
Exhaust Flange / pipe diametermm120Exhaust Flange / pipe diametermm120ELECTRICAL SYSTEMELECTRICAL SYSTEMV24VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	Max. Exhaust Gas Temperature	°C	511	Max. Exhaust Gas Temperature	°C	507
ELECTRICAL SYSTEMVoltageV24StarterKW8,80Alternator OutputA80	Exhaust Gas Flow (at above temp)	m³/h	3301	Exhaust Gas Flow (at above temp)	m³/h	4229
VoltageV24VoltageV24StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	Exhaust Flange / pipe diameter	mm	120	Exhaust Flange / pipe diameter	mm	120
StarterKW8,80StarterKW8,80Alternator OutputA80Alternator OutputA80	ELECTRICAL SYSTEM			ELECTRICAL SYSTEM		
Alternator Output A 80 Alternator Output A 80	Voltage	V	24	Voltage	V	24
	Starter	KW	8,80	Starter	KW	8,80
Batteries (minimum capacity, cold start limit -5°C)       Ah       2*120       Batteries (minimum capacity, cold start limit -5°C)       Ah       2*120	Alternator Output	А	80	Alternator Output	А	80
	Batteries (minimum capacity, cold start limit -5°C)	Ah	2*120	Batteries (minimum capacity, cold start limit -5°C)	Ah	2*120



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



#### **ALTERNATOR TECHNICAL PARAMETERS**



#### ALTERNATOR TECHNICAL PARAMETERS

Insulation Class		н	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 ALTE	RNATOR			OPTIONAL U	SING ALTERN	IATOR			
BRAND/MODEL	JCBENERGY	JCB 315S		LEROY-SC	OMER	TAL046G	STAMFORD	S4L1D E	/HC4E
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	298,4	298,4	309,6	-	328,0	328,0	340,8	-

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

STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR						
BRAND/MODEL	JCBENERGY	JCB 270LXA		LEROY-SOM	ER <sup>®</sup>	TAL046F	STAMF	ORD HC4	D	
DUTY				Continuous				Stand By		
AMBIENT	C°			40°C				27°C		
CLASS / TEMP. RISE	C°			H / 125° K				Н / 163° К		
SERIES STAR	V	416/240	440/254	480/277	1 Pha	se <b>416/240</b>	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	358,0	377,0	398,0	-	394,0	415,00	437,0	-	
OUTPUT POWER	kW	286,4	301,6	318,4	-	315,2	332,0	349,6	-	



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



## **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)



- Powder Painted Steel Panel with Lockable Door
- ATS (Automatic Transfer Panel)-Optional
- o Control Module
- Battery Charger
- Emergency Stop Button
- Terminal BlocksLoad Output Terminal
- System Protection MSBs
- Circuit Breaker-Ontional
- LCD Screen
- Control Relays
- o Backlit, 128x64 Pixel

## **CONTROL MODULE TECHNICAL PARAMETERS**

CONTROL PANEL SPECIFICATIONS

Brand	JCBENERGY	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



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



## **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	<ul> <li>Current / Voltage</li> <li>Asymmetry</li> </ul>	- 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



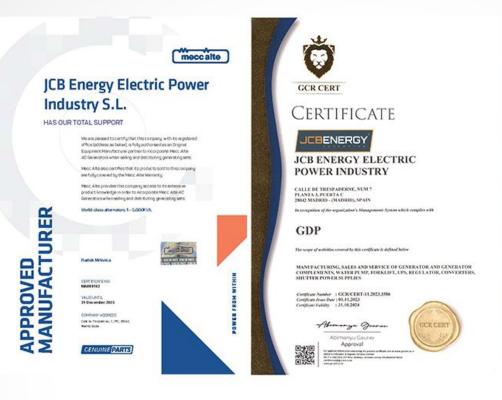
- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting with Electrostatic Powder Paint
- Drying and stabilizing on 200 °C Ovens
- 1500 Hour Salt Test
- o Glass wool Isolation, A1 Class Material -50/+500 ℃
- 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
- o Internal Exhaust Mufflers (Silencers)
- External Exhaust Mufflers (Silencers)
- Radiator water Filling Cap
- Daily Fuel Tank, External Fuel Tank

# **Our Quality Certificates**

legistration 🔊	Certificate of Registration a	
lanagement System of	This is to certify that the Environmental Management System of	
RGY	JCBENERGY	
OWER INDUSTRY	JCB ENERGY ELECTRIC POWER INDUSTRY	
ITA C 28042 MADRID - (MADRID), SPAIN	CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERTA C 28042 MADRID - (MADRID), SPAN	
ts of the following standard	is in accordance with the requirements of the following standard	
:2015 nt System)	ISO 14001:2015 (Environmental Management System)	
	SCOPE	
RATOR AND GENERATOR COMPLEMENTS, WERTERS, SHUTTER POWER SUPPLIES		
(,19)	(AF Code: 18,19)	
hital Registration Date : 35-Sec-0020 11 Schwellinere Date : 35-Sec-0020 27 Schwellinere Date : 35-Sec-0026 Centicute Expty Date : 04-Sec-0026	Centices Number: 2010/2020	initial Registration Data : 25-047-0828 1" Serveillance Data : 25-047-2828 2" Surveillance Data : 25-549-2828 Centicute Euply Data : 24-047-828
Issued by ARS Assessment Private Limited		Issued by ARS Assessment Private Limited
Managing Director		-Managing Director
	anagement System of COWER INDUSTRY TA C 20042 MADRID - (MADRID), SPAIN ts of the following standard 2015 mt System) AND GENERATOR COMPLEMENTS, NEATOR AND GENERATOR COMPLEMENTS, NEATOR	enagement System of RECEV OWER INDUSTRY TA C 204E MADRID. (MADRID]. SPAN ts of the following standard 2015 mt System) Market Commentation 1 System (Market Commentation) Market Commentation Market Commentation







Certificate

#### JEBENERGY

JCB ENERGY ELECTRIC POWER INDUSTRY

CALLE DE TRESPADERNE, NUM ? PLANTA 3, PUERTA C 28642 MADRID - (MADRID), SPAIN

In reception of the organization's Manegoments System which complex with

ISO 22716:2013:GMP GOOD MANUFACTURING PRACTICES The scope of methodise control by this conflictor is defined below

MANUFACTURING, XALIS AND SERVICE OF GENERATOR AND GENERATOR COMPLEMENTS, WATER PUMP, FORKLIFT, UPS, REGULATOR, CONVERTERS, SHUTTER POWER SUPPLIES

Confficute Number : GCR/CERT-11.2023.3585 Confficute Fund Date : 01.11.2023 Confficute Fadialty : 31.31.2024

Abimarya Gaurae Abimarya Gaurae Approval

Approval





GCRCERI

#### Certificate

HEALTHY & SAFE WORKPLACE CERTIFICATE

JCB ENERGY ELECTRIC POWER INDUSTRY

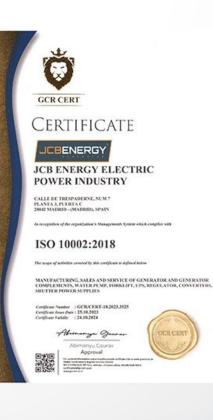
CALLE DE TRESPADERNE, NUN 7 PLANTA & PETRETA C 2006 MARDING - OADBRIDS, PAIN B has been entried to obtain a Healthy and Sele Workslase Conflicts by fulfiling the regimements for COVI-55 measures, within the physical conditions of the Dubries with in the regime of the Nealthy and Sele Workslase Ended on the Dubries

FACTORIES - PRODUCTION LOCATIONS: ELECTRICAL AND ELECTRONICS INDUSTRY

Certifican Number : GCR:CERT-11.2023.3650 Certifican Inac Date : 07.31.2023 Certifican Fullity : 06.31.2024



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www.jcbenergy.es