JCB ENERGY ELECTRIC POWER INDUSTRY

MADRID / SPAIN

JCBENERGY

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







GENERATOR GENERAL INFORMATION

| GENERATOR | FREQUENCY | VOLTAGE | POWER FACTOR | SPEED | DIESEL ENG | INE | | ALTERN | IATOR | | TYPE OF | GENER | ATOR O | UTPUT |
|--|--|--|-----------------|-------|------------|---|---|--|--|---|------------|-------|--------|-------|
| Model | Hz | V | Cos Q | Rpm | Brand | Model | Series | Brand | Model | Series | Operation | kVA | kW | А |
| | | | | | | | | L | | | Standby | 255,0 | 204,0 | 368,5 |
| JDD 255 | 50 | 231/400 | 0.8 | 1500 | | | | . H | | 270MX | Prime | 231,8 | 185,5 | 335,0 |
| | | | | | | DP086LA | DP | Z | JCB | | Continuous | 162,3 | 129,8 | 234,5 |
| | | | | | DOOSAN | DI UUULA | | | 100 | 270MX | Standby | 295,0 | 236,0 | 426,3 |
| JDD 295 | 60 | 277/480 | 0.8 | 1800 | | | | | | | Prime | 268,2 | 214,5 | 387,5 |
| | | | | | | | | • | | | Continuous | 187,7 | 150,2 | 271,3 |
| Alternator Low Exhau Control Pa Patented 0 Low Operation | rs with Advanc ust Emission unel Suitable fo | ed Technolc or Flexible A ned and So able for Hea | und proof Cano | | | Fuel Low Glob Wide High | Filter wit Fuel Con al Techni Range c Quality a | h Water sumption ical Servi of Afforda and Relia | and Parti n, Low Oil ce and M able Spare ble Techr | icle Separ Consum aintenan e Parts nology | | | | |

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.

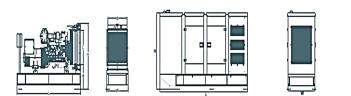
GENERATOR DIMENSIONS AND TECHNICAL DRAWINGS





| VALUES | | OPEN TYPE GENERATOR | CANOPY TYPE GENERATOR |
|--------------------|----|---------------------|-----------------------|
| WIDTH | mm | 900 | 1140 |
| LENGTH | mm | 2400 | 3650 |
| HEIGHT | mm | 1549 | 1900 |
| WEIGHT (NET) | Kg | 1450 | 1810 |
| FUEL TANK CAPACITY | L | 256 | 678 |

| SYMBOL | OPEN | CANOPY |
|--------|------|--------|
| L | 2650 | 3650 |
| W | 900 | 1140 |
| н | 1612 | 2000 |
| S | | 80 |
| Α | 535 | |
| В | 810 | |
| С | 896 | |
| D1 | | 860 |
| D2 | | 860 |
| D3 | | 860 |
| D4 | | 860 |
| D5 | | 860 |





FUEL CONSUMPTION

| PERCENT OF PRIME POWER | 1500 rpm | | 1800 rpm | | |
|------------------------|----------|------|----------|------|--|
| | g/kWh | l/hr | g/kWh | l/hr | |
| 110 % | 200,0 | 53,0 | 200,0 | 59,9 | |
| 100 % | 195,0 | 46,4 | 195,0 | 52,6 | |
| 75 % | 197,0 | 35,1 | 197,0 | 39,9 | |
| 50 % | 212,0 | 25,2 | 212,0 | 28,6 | |



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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

| GENERAL ENGINE DATA | | | | | | | | |
|-------------------------------------|------------------|------------------------|--|----------|-------|--|--|--|
| Engine Model | DP086LA | DP086LA | | | | | | |
| Engine Type | | 4-Cycle, In-line, 6- | 4-Cycle, In-line, 6-Cylinder Diesel, Water Cooled, Turbo Charged & Intercooled | | | | | |
| Bore x Stroke | 111 x 139mm | | | | | | | |
| Displacement | | 8.071 liters | | | | | | |
| Compression Ratio | | 16.7:1 | | | | | | |
| Rotation | | Counter clockwise | e viewed from Flyw | heel | | | | |
| Firing Order | | 1-5-3-6-2-4 | | | | | | |
| Fuel System | | Wuxi-Weifu in-lin | e pump | | | | | |
| Governor | | Electronic | | | | | | |
| Governor Class | | G3 | | | | | | |
| Cooling System | | | | | | | | |
| Total System Coolant Capacity | | 14L | | | | | | |
| Thermostat Operation Range | 80~90°C | | | | | | | |
| Maximum Temperature to Engine | 105°C | | | | | | | |
| Minimum Temperature to Engine | | 70°C | | | | | | |
| Coolant Temperature Alarm | | 105°C | | | | | | |
| Limits of the Environment Temper | ature | 52°C | | | | | | |
| Lubrication System | | | | | | | | |
| Lubrication Oil Capacity | | 15,5L | | | | | | |
| Lubrication Oil Pressure | | min 250 kPa (50H | min 250 kPa (50Hz) /min 300 kPa (60Hz) | | | | | |
| Lubrication Oil Temperature | | At normal operati | on 105°C, Maximur | n 125°C | | | | |
| Lubrication Oil Consumption as % | Fuel Consumption | 0.1 % maximum | 0.1 % maximum | | | | | |
| Pressure of Oil Relief Valve Openin | ng | 550 ± 50 kPa | 550 ± 50 kPa | | | | | |
| Electrical System | | | | | | | | |
| Alternator | | 28.5V x 45A alternator | | | | | | |
| Starter Motor | | 24V x 6.0 kW | | | | | | |
| FAN | | | | | | | | |
| Diameter | 660mm | | | | | | | |
| Number Of Blade | 7 | | | | | | | |
| Material | | Plastic | | | | | | |
| | DOOSAN IN | FRACORE GENSET | ENGINE | | | | | |
| Engine Model | rpm | Gross Engine (| Typical Generat | | | | | |
| 0 | | Stand-by | Prime | Stand-by | Prime | | | |
| DP086LA | 1500 | 224 | 201 | 260 | 234 | | | |
| | 1800 | 253 | 228 | 294 | 265 | | | |



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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 | % | < 4 |
| Overspeed | rpm | 2250 | Wave Form: NEMA = TIF - (*) | | < 50 |
| Air Flow | m³/sec. | 0.514 | Wave Form: I.E.C. = THF - (*) | % | < 2 |
| Bearing Drive | N/A | - | Bearing Non-Drive | Bearing | 6310-2RZ |
| 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 | JCBENERGY | JCB 270MX | | LEROY- | 50MER" | TAL046C | STAMFORD | UC 274 | J |
| DUTY | | | | Continuous | | | S | and 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 | 232,0 | 232,0 | 241,0 | - | 255,0 | 255,0 | 265,0 | - |
| OUTPUT POWER | kW | 185,6 | 171,2 | 192,8 | - | 204,0 | 204,0 | 212,0 | - |

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

| BRAND/MODEL | JCBENERGY | JCB 270MX | | LERO | Y-SOMER | TAL046C | STAN | FORD | UC 274 J |
|--------------------|-----------|-----------|---------|------------|---------|---------|---------|--------|-----------|
| DUTY | | | | Continuous | | | | Stand | Ву |
| AMBIENT | C° | | | 40°C | | | | 27°C | |
| CLASS / TEMP. RISE | C° | | | H / 125° K | | | | H/163 | °К |
| SERIES STAR | V | 416/240 | 440/254 | 480/277 | 1 Phase | 416/240 | 440/254 | 480/27 | 7 1 Phase |
| PARALLEL STAR | V | 208/120 | 220/127 | 240/138 | - | 208/120 | 220/127 | 240/13 | 8 - |
| SERIES DELTA | V | 240 | 254 | 277 | 240 | 240 | 254 | 277 | 240 |
| OUTPUT POWER | kVA | 269,0 | 284,0 | 298,0 | - | 296,0 | 312,0 | 328,0 | - |
| OUTPUT POWER | kW | 215,2 | 227,2 | 238,4 | - | 236,8 | 249,6 | 262,4 | - |



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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
- Control Module
- Battery Charger
- Emergency Stop Button

- Terminal Blocks
- Load Output Terminal
- System Protection MSBs
- Circuit Breaker-Optional
- LCD Screen
- o Control Relays
- o Backlit, 128x64 Pixel

CONTROL MODULE TECHNICAL PARAMETERS

CONTROL PANEL SPECIFICATIONS

| Brand | JEBENERGY | 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 |



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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



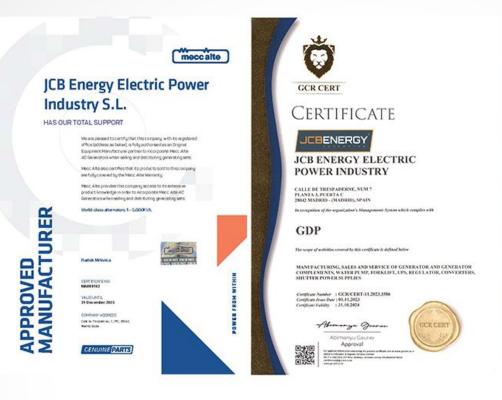
- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting with Electrostatic Powder Paint
- Drying and stabilizing on 200 °C Ovens
- o 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)
- o Radiator water Filling Cap
- Daily Fuel Tank, External Fuel Tank

Our Quality Certificates

| legistration 🔊 | Certificate of Re | egistration 👝 | | |
|---|--|--|--|--|
| lanagement System of | This is to certify that the Environmental Management System of | | | |
| RGY | JCBENER | RGY | | |
| OWER INDUSTRY | JCB ENERGY ELECTRIC PO | WER INDUSTRY | | |
| ITA C 28042 MADRID - (MADRID), SPAIN | CALLE DE TRESPADERNE, NUM 7 PLANTA 3, PUERT | A C 28042 MADRID - (MADRID), SPAIN | | |
| 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) | (IAF 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 2004E MADRID. (MADRID]. SPAN ts of the following standard 20155 mt System) Market Contract Cont | | |







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

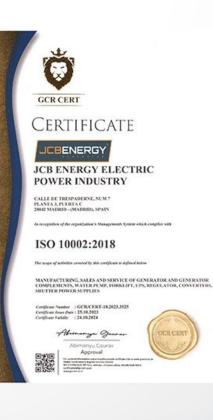
FACTORIES - PRODUCTION LOCATIONS: ELECTRICAL AND ELECTRONICS INDUSTRY

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



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