

# 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
JVP 200	50	231/400	0.8	1500	Volvo Penta	TAD732GE	JO ENERGY	JCB	270M	Standby	200,0	160,0	289,0
										Prime	181,8	145,5	262,7
										Continuous	127,3	101,8	183,9

- 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

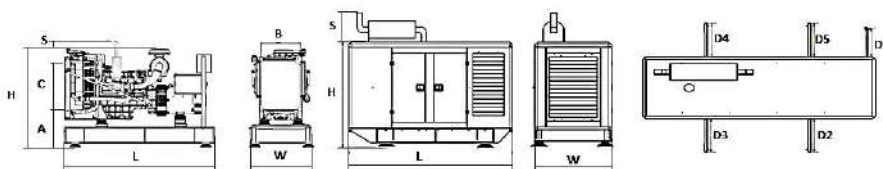
- \* Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- \* Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive 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	1003	1110
LENGTH	mm	2400	2960
HEIGHT	mm	1885	1727
WEIGHT (NET)	Kg	1655	2085
FUEL TANK CAPACITY	L	256	376

SYMBOL	OPEN	CANOPY
L	2400	2960
W	1003	1110
H	1885	1727
S	87	500
A	317	
B	707	
C	1013	
D1		520
D2		604
D3		604
D4		604
D5		604



PERCENT OF PRIME POWER	FUEL CONSUMPTION
	l/hr
110 %	45,9
100 %	41,7
75 %	31,4
50 %	21,7

## DIESEL ENGINE MAIN TECHNICAL PARAMETERS

### GENERAL

Number of Cylinders		6
Configuration		Vertical, in line
Aspiration		Turbo Charged & CAC
Combustion System		Direct injection
Compression Ratio		18:1
Bore	mm	108
Stroke	mm	130
Displacement	L	7,15
Governing Type		Electronic
Governing Class		G3
Rotation		Counterclockwise
Firing Order		1-5-3-6-2-4
Emission		EU Stage 2

### FILTERS

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

### ELECTRICAL SYSTEM

Voltage	V	24
Starter	kW	5,5
Alternator Output Amperes	A	35
Alternator Output Voltage	V	28
Batteries Capacity	Ah	2x85

### FAN

Diameter	mm	770
Drive Ratio		1:1
Number of Blades		9
Material		Composite
Type		Blowing

### COOLING SYSTEM

Radiator Type	50°C	Tropical
Total Coolant Capacity	L	39
Max. Perm. Coolant Outlet Temperature	°C	105
Max. Perm. Flow Resist. (Cool. System And Piping)	bar	0,5
Max. Temperature of Coolant Warning	°C	98
Max. Temperature of Coolant Shutdown	°C	103
Thermostat Operation Temperature - Initial Open	°C	87
Thermostat Operation Temperature - Full Open	°C	102
Delivery of Coolant Pump	m <sup>3</sup> /h	3,00
Min. Pressure Before Coolant Pump	bar	0,25
Radiator Face Area	m <sup>2</sup>	0,716
Rows	Row	2
Matrix Density	Per / Inch	12
Material		Aluminum
Width of Matrix	mm	707
Height of Matrix	mm	10013
Pressure Cap Setting	kPa	90
Estimated Cooling Air Flow Reserve	kPa	0,125
Engine Pre Heater-Tube (with Circulation Pump)	W	2000



## DIESEL ENGINE MAIN TECHNICAL PARAMETERS

LUBRICATION SYSTEM		
Total System	L	34
Minimum Oil Level	L	24
Nominal Motor Operating Temperature	°C	45
Lubricating Oil Pressure (Rated Speed)	bar	5,2
Relief Valve Opens	kPa	300
Oil / Fuel Consumption Ratio	%	0,08
Normal Oil Temperature	°C	110

## DIESEL ENGINE MATCHING PARAMETERS - 50 HZ

50 HZ @ 1500 R/MIN		STAND BY
Gross Engine Power	kW	183,4
Net Engine Power	kW	179,0
Fan Power Consumption (Belt Pulley Driven)	kW	4,4
Other Power Loss	kW	-
Mean Effective Pressure	MPa	2100,00
Intake Air Flow	m <sup>3</sup> / min	12,40
Exhaust Temperature Limit	°C	542
Exhaust Flow	m <sup>3</sup> / min	35,10
Boost Pressure Ratio		19,00
Mean Piston Speed	m / s	6,5
Cooling Fan Air Flow	m <sup>3</sup> / min	138,0
Typical Generator Output Power	kVA	206

HEAT REJECTION		STAND BY
Energy in Fuel (Heat of Combustion)	kW	470,0
Gross Heat to Power	kW	183,0
Energy to Coolant and Lubricating Oil	kW	76,0
Energy to Exhaust	kW	156,0
Heat to Radiation	kW	19,0

## ALTERNATOR SPECIFICATIONS



### ALTERNATOR TECHNICAL PARAMETERS

Insulation Class	H	Field Control System	Self-Excited
Winding Pitch	2/3 - (N° 6)	A.V.R. Model	Standard 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

## ALTERNATOR SPECIFICATIONS

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

STANDARD USING ALTERNATOR

OPTIONAL USING ALTERNATOR

BRAND/MODEL



JCB 270M



TAL044L

STAMFORD

UC274G

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

182,0

182,0

189,0

-

200,0

200,0

208,0

-

OUTPUT POWER

kW

146,0

146,0

151,0

-

160,0

160,0

166,0

-

## 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

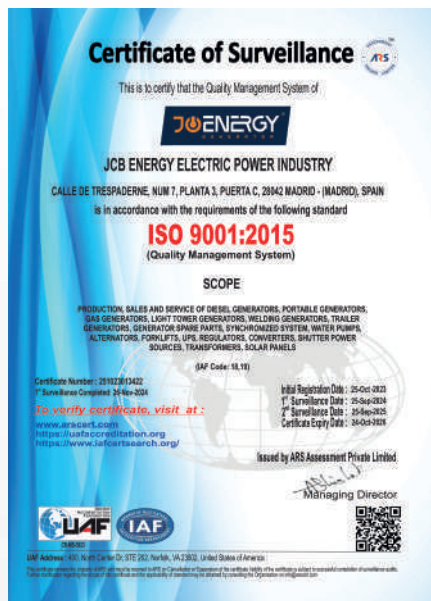


- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting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





DNV

MANAGEMENT SYSTEM  
CERTIFICATE

Certificate no.: 2372384

Initial certification date: 14 August 2021




Valid: 14 October 2021 – 13 October 2026

This is to certify that the management system of  
**HD Hyundai Infracore Co., Ltd. Head Office & Incheon Plant**  
489, Injung-ro, Dong-gu, Incheon, 22502, Republic of Korea  
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:  
**ISO 14001:2015**

This certificate is valid for the following scope:  
**Design, Development, Manufacture, Servicing of Internal Combustion Engine for use in Marine Industry, General Industry and Automotive Industry, and Earth Moving Equipment(Excavator, Wheel Loader, Dozer), Testing of Earth Moving Equipment(Excavator and Wheel Loader).**

Place and date:  
Buenos Aires, 09 October 2021



Site Manager  
Management Representative

Let's all commit to conditions as set out in the Certification Agreement and under this Certificate model.  
ACCREDITED UNIT: DNV Business Assurance S.L. - Certification - 12041-03, Buenos Aires, Argentina - TEL: +54-11-5523-0200 - www.dnv.com/assess

DNV

MANAGEMENT SYSTEM  
CERTIFICATE

Certificate no.: 2372385

Initial certification date: 13 January 2021  
(based on OHSAS 18001)




Valid: 14 October 2021 – 13 October 2026

This is to certify that the management system of  
**HD Hyundai Infracore Co., Ltd. Head Office & Incheon Plant**  
489, Injung-ro, Dong-gu, Incheon, 22502, Republic of Korea  
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Occupational Health and Safety Management System standard:  
**ISO 45001:2018**



This certificate is valid for the following scope:  
**Design, Development, Manufacture, Servicing of Internal Combustion Engine for use in Marine Industry, General Industry and Automotive Industry, and Earth Moving Equipment(Excavator, Wheel Loader, Dozer), Testing of Earth Moving Equipment(Excavator and Wheel Loader).**

Place and date:  
Buenos Aires, 09 October 2021



Site Manager  
Management Representative

Let's all commit to conditions as set out in the Certification Agreement and under this Certificate model.  
ACCREDITED UNIT: DNV Business Assurance S.L. - Certification - 12041-03, Buenos Aires, Argentina - TEL: +54-11-5523-0200 - www.dnv.com/assess



CHAMBER OF COMMERCE,  
INDUSTRY AND SERVICES  
SALIDA  
Nº de Registro: 945 / RG-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 Trepadamerio 7, 28042 Madrid is registered on 8 May 2024,  
under the heading of the 3rd Section, companies, of the Economic Activities Tax Tariff Number  
542 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.





CHAMBER OF COMMERCE,  
INDUSTRY AND SERVICES  
SALIDA  
Nº de Registro: 945 / RG-645  
Fecha: 29/07/2024 12:00:00

IRENE SANCHEZ ROMAN, DIRECTORA DEL DEPARTAMENTO DE ASSESORIA JURIDICA Y  
CESO 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 19.000  
participaciones sociales, de 1,00 € (UN EURO) de valor nominal cada una, distribuido  
proporcionalmente del 1 al 19.000, ambos inclusive, que son íntegramente asumidos y  
desembolsados por el socio fundador.

CUARTO.- Que según consta en la escritura de constitución citada en párrafos anteriores,  
la compañía JCB ENERGY ELECTRIC POWER INDUSTRY SL, opta por el sistema de  
Administrador Único y nombra por tiempo indefinido a don Mohamed A.M. Eladiri, con  
Número de Identidad Extranjera Y42M33279, 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 Trepadamerio número 7, 28042 Madrid y presunta de Número de Identificación  
Fiscal B13975954, consta dada de alta en el grupo empresarial 342 de la Sección 1ª  
empresarial de las Tarifas del Impuesto sobre Actividades Económicas, que le habilita para  
ejercer la actividad “Fabricación de material eléctrico de utilización y equipamiento”.



CE DECLARATION OF CONFORMITY

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

Description Of The Product: GENERATORS AND PUMPS  
Product Brand/Model/Type: JCB GENERATORS, GAS GENERATORS, PORTABLE GENERATORS, LIGHT TOWERS,  
WATER PUMPS, FORKlift, UPS, REGULATORS, CONVERTERS, ALTERNATORS, WELDING GENERATORS, TRAILER  
GENERATORS, BATTERY POWER SOURCES

Applicable harmonized standards: EN ISO 12170:2019, EN ISO 14343:2019, EN ISO 14344:2019, EN ISO 14345:2019, EN ISO 14346:2019, EN ISO 14347:2019, EN ISO 14348:2019, EN ISO 14349:2019, EN ISO 14350:2019, EN ISO 14351:2019, EN ISO 14352:2019, EN ISO 14353:2019, EN ISO 14354:2019, EN ISO 14355:2019, EN ISO 14356:2019, EN ISO 14357:2019, EN ISO 14358:2019, EN ISO 14359:2019, EN ISO 14360:2019, EN ISO 14361:2019, EN ISO 14362:2019, EN ISO 14363:2019, EN ISO 14364:2019, EN ISO 14365:2019, EN ISO 14366:2019, EN ISO 14367:2019, EN ISO 14368:2019, EN ISO 14369:2019, EN ISO 14370:2019, EN ISO 14371:2019, EN ISO 14372:2019, EN ISO 14373:2019, EN ISO 14374:2019, EN ISO 14375:2019, EN ISO 14376:2019, EN ISO 14377:2019, EN ISO 14378:2019, EN ISO 14379:2019, EN ISO 14380:2019, EN ISO 14381:2019, EN ISO 14382:2019, EN ISO 14383:2019, EN ISO 14384:2019, EN ISO 14385:2019, EN ISO 14386:2019, EN ISO 14387:2019, EN ISO 14388:2019, EN ISO 14389:2019, EN ISO 14390:2019, EN ISO 14391:2019, EN ISO 14392:2019, EN ISO 14393:2019, EN ISO 14394:2019, EN ISO 14395:2019, EN ISO 14396:2019, EN ISO 14397:2019, EN ISO 14398:2019, EN ISO 14399:2019, EN ISO 14400:2019, EN ISO 14401:2019, EN ISO 14402:2019, EN ISO 14403:2019, EN ISO 14404:2019, EN ISO 14405:2019, EN ISO 14406:2019, EN ISO 14407:2019, EN ISO 14408:2019, EN ISO 14409:2019, EN ISO 14410:2019, EN ISO 14411:2019, EN ISO 14412:2019, EN ISO 14413:2019, EN ISO 14414:2019, EN ISO 14415:2019, EN ISO 14416:2019, EN ISO 14417:2019, EN ISO 14418:2019, EN ISO 14419:2019, EN ISO 14420:2019, EN ISO 14421:2019, EN ISO 14422:2019, EN ISO 14423:2019, EN ISO 14424:2019, EN ISO 14425:2019, EN ISO 14426:2019, EN ISO 14427:2019, EN ISO 14428:2019, EN ISO 14429:2019, EN ISO 14430:2019, EN ISO 14431:2019, EN ISO 14432:2019, EN ISO 14433:2019, EN ISO 14434:2019, EN ISO 14435:2019, EN ISO 14436:2019, EN ISO 14437:2019, EN ISO 14438:2019, EN ISO 14439:2019, EN ISO 14440:2019, EN ISO 14441:2019, EN ISO 14442:2019, EN ISO 14443:2019, EN ISO 14444:2019, EN ISO 14445:2019, EN ISO 14446:2019, EN ISO 14447:2019, EN ISO 14448:2019, EN ISO 14449:2019, EN ISO 14450:2019, EN ISO 14451:2019, EN ISO 14452:2019, EN ISO 14453:2019, EN ISO 14454:2019, EN ISO 14455:2019, EN ISO 14456:2019, EN ISO 14457:2019, EN ISO 14458:2019, EN ISO 14459:2019, EN ISO 14460:2019, EN ISO 14461:2019, EN ISO 14462:2019, EN ISO 14463:2019, EN ISO 14464:2019, EN ISO 14465:2019, EN ISO 14466:2019, EN ISO 14467:2019, EN ISO 14468:2019, EN ISO 14469:2019, EN ISO 14470:2019, EN ISO 14471:2019, EN ISO 14472:2019, EN ISO 14473:2019, EN ISO 14474:2019, EN ISO 14475:2019, EN ISO 14476:2019, EN ISO 14477:2019, EN ISO 14478:2019, EN ISO 14479:2019, EN ISO 14480:2019, EN ISO 14481:2019, EN ISO 14482:2019, EN ISO 14483:2019, EN ISO 14484:2019, EN ISO 14485:2019, EN ISO 14486:2019, EN ISO 14487:2019, EN ISO 14488:2019, EN ISO 14489:2019, EN ISO 14490:2019, EN ISO 14491:2019, EN ISO 14492:2019, EN ISO 14493:2019, EN ISO 14494:2019, EN ISO 14495:2019, EN ISO 14496:2019, EN ISO 14497:2019, EN ISO 14498:2019, EN ISO 14499:2019, EN ISO 14500:2019, EN ISO 14501:2019, EN ISO 14502:2019, EN ISO 14503:2019, EN ISO 14504:2019, EN ISO 14505:2019, EN ISO 14506:2019, EN ISO 14507:2019, EN ISO 14508:2019, EN ISO 14509:2019, EN ISO 14510:2019, EN ISO 14511:2019, EN ISO 14512:2019, EN ISO 14513:2019, EN ISO 14514:2019, EN ISO 14515:2019, EN ISO 14516:2019, EN ISO 14517:2019, EN ISO 14518:2019, EN ISO 14519:2019, EN ISO 14520:2019, EN ISO 14521:2019, EN ISO 14522:2019, EN ISO 14523:2019, EN ISO 14524:2019, EN ISO 14525:2019, EN ISO 14526:2019, EN ISO 14527:2019, EN ISO 14528:2019, EN ISO 14529:2019, EN ISO 14530:2019, EN ISO 14531:2019, EN ISO 14532:2019, EN ISO 14533:2019, EN ISO 14534:2019, EN ISO 14535:2019, EN ISO 14536:2019, EN ISO 14537:2019, EN ISO 14538:2019, EN ISO 14539:2019, EN ISO 14540:2019, EN ISO 14541:2019, EN ISO 14542:2019, EN ISO 14543:2019, EN ISO 14544:2019, EN ISO 14545:2019, EN ISO 14546:2019, EN ISO 14547:2019, EN ISO 14548:2019, EN ISO 14549:2019, EN ISO 14550:2019, EN ISO 14551:2019, EN ISO 14552:2019, EN ISO 14553:2019, EN ISO 14554:2019, EN ISO 14555:2019, EN ISO 14556:2019, EN ISO 14557:2019, EN ISO 14558:2019, EN ISO 14559:2019, EN ISO 14560:2019, EN ISO 14561:2019, EN ISO 14562:2019, EN ISO 14563:2019, EN ISO 14564:2019, EN ISO 14565:2019, EN ISO 14566:2019, EN ISO 14567:2019, EN ISO 14568:2019, EN ISO 14569:2019, EN ISO 14570:2019, EN ISO 14571:2019, EN ISO 14572:2019, EN ISO 14573:2019, EN ISO 14574:2019, EN ISO 14575:2019, EN ISO 14576:2019, EN ISO 14577:2019, EN ISO 14578:2019, EN ISO 14579:2019, EN ISO 14580:2019, EN ISO 14581:2019, EN ISO 14582:2019, EN ISO 14583:2019, EN ISO 14584:2019, EN ISO 14585:2019, EN ISO 14586:2019, EN ISO 14587:2019, EN ISO 14588:2019, EN ISO 14589:2019, EN ISO 14590:2019, EN ISO 14591:2019, EN ISO 14592:2019, EN ISO 14593:2019, EN ISO 14594:2019, EN ISO 14595:2019, EN ISO 14596:2019, EN ISO 14597:2019, EN ISO 14598:2019, EN ISO 14599:2019, EN ISO 14600:2019, EN ISO 14601:2019, EN ISO 14602:2019, EN ISO 14603:2019, EN ISO 14604:2019, EN ISO 14605:2019, EN ISO 14606:2019, EN ISO 14607:2019, EN ISO 14608:2019, EN ISO 14609:2019, EN ISO 14610:2019, EN ISO 14611:2019, EN ISO 14612:2019, EN ISO 14613:2019, EN ISO 14614:2019, EN ISO 14615:2019, EN ISO 14616:2019, EN ISO 14617:2019, EN ISO 14618:2019, EN ISO 14619:2019, EN ISO 14620:2019, EN ISO 14621:2019, EN ISO 14622:2019, EN ISO 14623:2019, EN ISO 14624:2019, EN ISO 14625:2019, EN ISO 14626:2019, EN ISO 14627:2019, EN ISO 14628:2019, EN ISO 14629:2019, EN ISO 14630:2019, EN ISO 14631:2019, EN ISO 14632:2019, EN ISO 14633:2019, EN ISO 14634:2019, EN ISO 14635:2019, EN ISO 14636:2019, EN ISO 14637:2019, EN ISO 14638:2019, EN ISO 14639:2019, EN ISO 14640:2019, EN ISO 14641:2019, EN ISO 14642:2019, EN ISO 14643:2019, EN ISO 14644:2019, EN ISO 14645:2019, EN ISO 14646:2019, EN ISO 14647:2019, EN ISO 14648:2019, EN ISO 14649:2019, EN ISO 14650:2019, EN ISO 14651:2019, EN ISO 14652:2019, EN ISO 14653:2019, EN ISO 14654:2019, EN ISO 14655:2019, EN ISO 14656:2019, EN ISO 14657:2019, EN ISO 14658:2019, EN ISO 14659:2019, EN ISO 14660:2019, EN ISO 14661:2019, EN ISO 14662:2019, EN ISO 14663:2019, EN ISO 14664:2019, EN ISO 14665:2019, EN ISO 14666:2019, EN ISO 14667:2019, EN ISO 14668:2019, EN ISO 14669:2019, EN ISO 14670:2019, EN ISO 14671:2019, EN ISO 14672:2019, EN ISO 14673:2019, EN ISO 14674:2019, EN ISO 14675:2019, EN ISO 14676:2019, EN ISO 14677:2019, EN ISO 14678:2019, EN ISO 14679:2019, EN ISO 14680:2019, EN ISO 14681:2019, EN ISO 14682:2019, EN ISO 14683:2019, EN ISO 14684:2019, EN ISO 14685:2019, EN ISO 14686:2019, EN ISO 14687:2019, EN ISO 14688:2019, EN ISO 14689:2019, EN ISO 14690:2019, EN ISO 14691:2019, EN ISO 14692:2019, EN ISO 14693:2019, EN ISO 14694:2019, EN ISO 14695:2019, EN ISO 14696:2019, EN ISO 14697:2019, EN ISO 14698:2019, EN ISO 14699:2019, EN ISO 14700:2019, EN ISO 14701:2019, EN ISO 14702:2019, EN ISO 14703:2019, EN ISO 14704:2019, EN ISO 14705:2019, EN ISO 14706:2019, EN ISO 14707:2019, EN ISO 14708:2019, EN ISO 14709:2019, EN ISO 14710:2019, EN ISO 14711:2019, EN ISO 14712:2019, EN ISO 14713:2019, EN ISO 14714:2019, EN ISO 14715:2019, EN ISO 14716:2019, EN ISO 14717:2019, EN ISO 14718:2019, EN ISO 14719:2019, EN ISO 14720:2019, EN ISO 14721:2019, EN ISO 14722:2019, EN ISO 14723:2019, EN ISO 14724:2019, EN ISO 14725:2019, EN ISO 14726:2019, EN ISO 14727:2019, EN ISO 14728:2019, EN ISO 14729:2019, EN ISO 14730:2019, EN ISO 14731:2019, EN ISO 14732:2019, EN ISO 14733:2019, EN ISO 14734:2019, EN ISO 14735:2019, EN ISO 14736:2019, EN ISO 14737:2019, EN ISO 14738:2019, EN ISO 14739:2019, EN ISO 14740:2019, EN ISO 14741:2019, EN ISO 14742:2019, EN ISO 14743:2019, EN ISO 14744:2019, EN ISO 14745:2019, EN ISO 14746:2019, EN ISO 14747:2019, EN ISO 14748:2019, EN ISO 14749:2019, EN ISO 14750:2019, EN ISO 14751:2019, EN ISO 14752:2019, EN ISO 14753:2019, EN ISO 14754:2019, EN ISO 14755:2019, EN ISO 14756:2019, EN ISO 14757:2019, EN ISO 14758:2019, EN ISO 14759:2019, EN ISO 14760:2019, EN ISO 14761:2019, EN ISO 14762:2019, EN ISO 14763:2019, EN ISO 14764:2019, EN ISO 14765:2019, EN ISO 14766:2019, EN ISO 14767:2019, EN ISO 14768:2019, EN ISO 14769:2019, EN ISO 14770:2019, EN ISO 14771:2019, EN ISO 14772:2019, EN ISO 14773:2019, EN ISO 14774:2019, EN ISO 14775:2019, EN ISO 14776:2019, EN ISO 14777:2019, EN ISO 14778:2019, EN ISO 14779:2019, EN ISO 14780:2019, EN ISO 14781:2019, EN ISO 14782:2019, EN ISO 14783:2019, EN ISO 14784:2019, EN ISO 14785:2019, EN ISO 14786:2019, EN ISO 14787:2019, EN ISO 14788:2019, EN ISO 14789:2019, EN ISO 14790:2019, EN ISO 14791:2019, EN ISO 14792:2019, EN ISO 14793:2019, EN ISO 14794:2019, EN ISO 14795:2019, EN ISO 14796:2019, EN ISO 14797:2019, EN ISO 14798:2019, EN ISO 14799:2019, EN ISO 14800:2019, EN ISO 14801:2019, EN ISO 14802:2019, EN ISO 14803:2019, EN ISO 14804:2019, EN ISO 14805:2019, EN ISO 14806:2019, EN ISO 14807:2019, EN ISO 14808:2019, EN ISO 14809:2019, EN ISO 14810:2019, EN ISO 14811:2019, EN ISO 14812:2019, EN ISO 14813:2019, EN ISO 14814:2019, EN ISO 14815:2019, EN ISO 14816:2019, EN ISO 14817:2019, EN ISO 14818:2019, EN ISO 14819:2019, EN ISO 14820:2019, EN ISO 14821:2019, EN ISO 14822:2019, EN ISO 14823:2019, EN ISO 14824:2019, EN ISO 14825:2019, EN ISO 14826:2019, EN ISO 14827:2019, EN ISO 14828:2019, EN ISO 14829:2019, EN ISO 14830:2019, EN ISO 14831:2019, EN ISO 14832:2019, EN ISO 14833:2019, EN ISO 14834:2019, EN ISO 14835:2019, EN ISO 14836:2019, EN ISO 14837:2019, EN ISO 14838:2019, EN ISO 14839:2019, EN ISO 14840:2019, EN ISO 14841:2019, EN ISO 14842:2019, EN ISO 14843:2019, EN ISO 14844:2019, EN ISO 14845:2019, EN ISO 14846:2019, EN ISO 14847:2019, EN ISO 14848:2019, EN ISO 14849:2019, EN ISO 14850:2019, EN ISO 14851:2019, EN ISO 14852:2019, EN ISO 14853:2019, EN ISO 14854:2019, EN ISO 14855:2019, EN ISO 14856:2019, EN ISO 14857:2019, EN ISO 14858:2019, EN ISO 14859:2019, EN ISO 14860:2019, EN ISO 14861:2019, EN ISO 14862:2019, EN ISO 14863:2019, EN ISO 14864:2019, EN ISO 14865:2019, EN ISO 14866:2019, EN ISO 14867:2019, EN ISO 14868:2019, EN ISO 14869:2019, EN ISO 14870:2019, EN ISO 14871:2019, EN ISO 14872:2019, EN ISO 14873:2019, EN ISO 14874:2019, EN ISO 14875:2019, EN ISO 14876:2019, EN ISO 14877:2019, EN ISO 14878:2019, EN ISO 14879:2019, EN ISO 14880:2019, EN ISO 14881:2019, EN ISO 14882:2019, EN ISO 14883:2019, EN ISO 14884:2019, EN ISO 14885:2019, EN ISO 14886:2019, EN ISO 14887:2019, EN ISO 14888:2019, EN ISO 14889:2019, EN ISO 14890:2019, EN ISO 14891:2019, EN ISO 14892:2019, EN ISO 14893:2019, EN ISO 14894:2019, EN ISO 14895:2019, EN ISO 14896:2019, EN ISO 14897:2019, EN ISO 14898:2019, EN ISO 14899:2019, EN ISO 14900:2019, EN ISO 14901:2019, EN ISO 14902:2019, EN ISO 14903:2019, EN ISO 14904:2019, EN ISO 14905:2019, EN ISO 14906:2019, EN ISO 14907:2019, EN ISO 14908:2019, EN ISO 14909:2019, EN ISO 14910:2019, EN ISO 14911:2019, EN ISO 14912:2019, EN ISO 14913:2019, EN ISO 14914:2019, EN ISO 14915:2019, EN ISO 14916:2019, EN ISO 14917:2019, EN ISO 14918:2019, EN ISO 14919:2019, EN ISO 14920:2019, EN ISO 14921:2019, EN ISO 14922:2019, EN ISO 14923:2019, EN ISO 14924:2019, EN ISO 14925:2019, EN ISO 14926:2019, EN ISO 14927:2019, EN ISO 14928:2019, EN ISO 14929:2019, EN ISO 14930:2019, EN ISO 14931:2019, EN ISO 14932:2019, EN ISO 14933:2019, EN ISO 14934:2019, EN ISO 14935:2019, EN ISO 14936:2019, EN ISO 14937:2019, EN ISO 14938:2019, EN ISO 14939:2019, EN ISO 14940:2019, EN ISO 14941:2019, EN ISO 14942:2019, EN ISO 14943:2019, EN ISO 14944:2019, EN ISO 14945:2019, EN ISO 14946:2019, EN ISO 14947:2019, EN ISO 14948:2019, EN ISO 14949:2019, EN ISO 14950:2019, EN ISO 14951:2019, EN ISO 14952:2019, EN ISO 14953:2019, EN ISO 14954:2019, EN ISO 14955:2019, EN ISO 14956:2019, EN ISO 14957:2019, EN ISO 14958:2019, EN ISO 14959:2019, EN ISO 14960:2019, EN ISO 14961:2019, EN ISO 14962:2019, EN ISO 14963:2019, EN ISO 14964:2019, EN ISO 14965:2019, EN ISO 14966:2019, EN ISO 14967:2019, EN ISO 14968:2019, EN ISO 14969:2019, EN ISO 14970:2019, EN ISO 14971:2019, EN ISO 14972:2019, EN ISO 14973:2019, EN ISO 14974:2019, EN ISO 14975:2019, EN ISO 14976:2019, EN ISO 14977:2019, EN ISO 14978:2019, EN ISO 14979:2019, EN ISO 14980:2019, EN ISO 14981:2019, EN ISO 14982:2019, EN ISO 14983:2019, EN ISO 14984:2019, EN ISO 14985:2019, EN ISO 14986:2019, EN ISO 14987:2019, EN ISO 14988:2019, EN ISO 14989:2019, EN ISO 14990:2019, EN ISO 14991:2019, EN ISO 14992:2019, EN ISO 14993:2019, EN ISO 14994:2019, EN ISO 14995:2019, EN ISO 14996:2019, EN ISO 14997:2019, EN ISO 14998:2019, EN ISO 14999:2019, EN ISO 15000:2019, EN ISO 15001:2019, EN ISO 15002:2019, EN ISO 15003:2019, EN ISO 15004:2019, EN ISO 15005:2019, EN ISO 15006:2019, EN ISO 15007:2019, EN ISO 15008:2019, EN ISO 15009:2019, EN ISO 15010:2019, EN ISO 15011:2019, EN ISO 15012:2019, EN ISO 15013:2019, EN ISO 15014:2019, EN ISO 15015:2019, EN ISO 15016:2019, EN ISO 15017:2019, EN ISO 15018:2019, EN ISO 15019:2019, EN ISO 15020:2019, EN ISO 15021:2019, EN ISO 15022:2019, EN ISO 15023:2019, EN ISO 15024:2019, EN ISO 15025:2019, EN ISO 15026:2019, EN ISO 15027:2019, EN ISO 15028:2019, EN ISO 15029:2019, EN ISO 15030:2019, EN ISO 15031:2019, EN



**JCBENERGY**  
GENERATOR



**CE** -VERTA-106188  
-VERTA-106189

[www.jcbenergy.com](http://www.jcbenergy.com)