



JCPC Gas Engine Products

High Quality and Efficiency Wide Power Range



(300–4000kW)

CNPC Jichai Power Company Limited



CNPCC Jichai Power Company Limited
CNPCC JCPC Industrial Park



Table of content

Company profile	2
Brief Introduction	2
Honor	3
Manufacturing Equipment	4
Research and development platform	5
Natural gas engine series	6
140 series (300kW)	6
127 series (450-660kW)	8
1512 series (500-750kW)	10
6000 series (1100-1500kW)	12
4000 series (1200-2000kW)	14
2632 series (2700-4000kW)	16
Biogas engine series (600/700/1000/1600kW)	20
Coal mine gas Engine Series (600/700/1100/1500kW)	23
Requirement for natural gas, lubricating oil and cooling water	26
Brief introduction for auxiliary equipment of Power station	27
Cooling system	31
Power transmission and distribution system	32
Waste heat recovery system	34
Remote monitor system	35
Typical project performance	36
Communication method and project enquiry	39

Brief Introduction



CNPC Jichai power company limited (CNPC JCPC) is located in the economic development zone of the Jinan city, Shandong province. The company was founded in 1920 and is the only internal combustion engine manufacturing enterprise belonging to CNPC. In 1965, Jichai successfully developed 12V190 high power diesel engine, which filled in gaps of national oil drilling power. In 1988, Jichai produced the first high power gas engine of China. Over 50 years, 190 series diesel engine has occupied more than 90% market share of oil-drilling power, and made a great contribution to national oil industry.

At present, Jichai products have been used in many fields, suitable for multiple fuels internal combustion engine product clusters, formed 140 with high speed, 175 and 190 cylinder bore with middle high speed, 260 and 270 with middle speed, five series of bores with the range of power is 200~9000kW. Jichai Chengdu compressor products have developed 9 series of nearly 100 kinds of products, including ZTY wholesome series, DTY electricity-powered detachable series, RTY gas-fired detachable series, CKY gas drilling series and CCTY vehicle borne mobile series, with power range 10~7500kW.

Jichai products are distributed throughout China oil and gas field and 32 provinces, autonomous regions, municipalities and Hong Kong, Macao and Taiwan regions, have been exported to over 60 countries and regions and forming a diversified market structure. Jichai has 55 national and industrial standard making rights, 98 national patents, and has won the national standard making enterprise award for many times. CNPC JCPC is one of China top 500 mechanical enterprises, and has won the National Quality Management Award, National Customer Satisfaction Enterprise, Jichai has passed the quality, health and safety, environmental management system and HSE management system certification, was rated a quality reputation 3A-class enterprises by China Quality Association. Jichai products have been certified by the Russian Marine Classification Society and China Classification Society.

In 2020, Jichai celebrates its centennial anniversary. New era, new journey, new leap. Jichai will adhere to innovation driven, promote high-quality development, and strive to build a world-class R & D and manufacturing service enterprise!



1. Jinan Base: Medium & high power internal combustion engine and power integrated
2. Chengdu Base: Compressor and compressor unit skid-mounted
3. Wuhan Base: Integration of marine power gasification transformation
4. Cangzhou Base: Internal combustion engine overhaul & remanufacturing, generator units packaged



中油济柴
CNPC JCPC

The birthplace of China's first high-power gas engine

The only enterprise which has been awarded China Well-known Trademark of off-highway engines

The only manufacturer which won the National Gold Prize Medal of large power engine in China

The most influential brand in China's gas engine industry

The top 500 machinery manufacturing enterprise in China

The place of China National Internal Combustion Gas-fired Power Generation Equipment
Standardization Technical Committee



Focus on R&D and manufacture of power equipment for nearly 100 years

Better quality with the world

Committed to international power brand for green environmental field

Manufacturing equipment



Pentahedron Processing Center from German

CNPC Jichai owns international advanced production technology and technical equipment, providing strong technical guarantee for the excellent quality of the products. Jichai has built a body production line based on a pentahedron machine center, a crankshaft and camshaft production line based on larger turn-milling Manu-center, a horizontal cylinder head production line based on vertical and horizontal machining center. The heat treatment adopts advanced technologies of controlled atmosphere multi-purpose furnace, crankshaft induction quenching machine tool. Jichai fully enclosed, clean and dustless internal combustion engine assembly plant adopts advanced island assembly technology, and the internal combustion engine test has all been digitized.

Jichai is CNPC power equipment test base. The measurement center established the highest measurement standard for the company, equipped with a large-scale industrial CT, three-coordinate machine as the sign of the verification equipment and testing equipment, covering the four majors of length, thermals, mechanics, and electronics, it can perform a variety sophisticated detection of geometric errors, temperature, force values and electrical parameters. Physical and Chemical Center has more than 40 sets of direct reading photoelectric spectrometer, oil analyzer, gas chromatograph, metallographic microscope hardness tester, testing machine and other equipment, these equipment can take comprehensive physicochemical analysis of product materials, oils and gases. The perfect measures of physical and chemical testing have played a key role in product quality control.



ABB fully automatic engine body assembly line



larger turn-milling Manu-center from German



Precision detection instruments from German



R&D center



Engine test center

Jichai assumes a number of national key R&D program, owns 27 national and industry standards and 45 national patents. National Standardization Technical Committees SAC/TC32 and SAC/TC177/WG2 workgroup, SAC/TC96 workgroup are all settled in Jichai.

Jichai is China oil equipment test base. Making major technological breakthrough on the key technology such as ECU and SCR, Jichai make use of 3D digital design on world leading level computer workstation and design software to improve intellectualization and reliability of project. New product test center owns 16 test benches including of engine components reliability test benches, port characteristics test benches and common rail injection system test benches, are capable to test all performance indexes from single cylinder engines to 6000kW engines.



140 Series natural gas engine products(300kW)

Jichai 140 series engines, are type of high speed engine with high supercharging, low energy consumption, high reliability and service life. Jichai owns 100% intellectual property. 140 series engine is certified to the standards Euro III and American TIER2. 140 series engine is applicable to oil truck-mounted drilling rigs, mobile power stations, emergency power supply, engineering machines and trucks. The engine performance parameters reached advanced international standards,

Production characteristic

- ◆ Engine code 140
- ◆ Pre-mixing before turbocharge
- ◆ Air and gas mixed before compressor, low requirement for gas inlet pressure
- ◆ Air and gas mixed in long pipe, well mixed
- ◆ Digital ignition controller
- ◆ Easy to adjust the ignition advance angle
- ◆ Air/Fuel control
- ◆ Air/Fuel control with Woodward EGS Trim system
- ◆ High efficiency, low emission



Application project



Gas engine drilling project in
Karamay



Oilfield associated gas generator set
project in Kazakhstan



Gas engine drilling project in
Uzbekistan



Typical Generator set Technical Specification

Genset Model	300GF30-T
Alternator	XN5C series
Control Panel	Back packed
Rated power	300kW
Rated voltage	400V/6300V/10500V/480V/13800V
Rated frequency	50/60 Hz
Rated power factor	0.8
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire
Alternator Protection Class	IP23
Alternator Insulation Class	H
Stabilized state voltage regulation	$\leq \pm 2.5\%$
Transient voltage regulation	$\leq +20\%$ (-15)
Voltage stabilization time	≤ 1.5 s
Fluctuation rate of voltage	$\leq 1.0\%$
Stabilized state frequency regulation	0 ~ 5%
Transient frequency regulation rate	$\leq \pm 10\%$
Frequency stabilization time	≤ 7 s
Fluctuation rate of frequency	$\leq 0.5\%$
Overall dimension	3701mm×1345mm×1701mm
Net weight	3900 kg
Mode of engine	JC15D/T
Type	Four strokes, Turbocharged , Spark plug ignition, Water cooled, V-type.
Bore of cylinder	140mm
Stroke of piston	165mm
Total Displacement	15.2L
Rated speed	1500r/min
Rated power	350kw
Gas pressure	100-400KPa
Gas consumption	$\leq 10000\text{kJ/kW}\cdot\text{h}$
Oil consumption rate	$\leq 0.6\text{g/kW}\cdot\text{h}$
Exhaust Temperature(before turbine)	$\leq 620^{\circ}\text{C}$
Water outlet temp	$< 90^{\circ}\text{C}$
Water inlet temperature of intercooler	$< 45^{\circ}\text{C}$
Oil temperature	$< 100^{\circ}\text{C}$
Stabilized speed droop	0 ~ 5%
Cooling mood	Open type-Cooling tower/Closed type-Vertical or Horizontal Radiator
Lubricating mood	Pressure and splash lubrication
Starting mood	Electric Starting
Crankshaft rotation	Counter-clockwise(Facing to flywheel)

127 series natural gas engine products (450-660kW)

According to the Oil Industry Ministry's (82) Oil Manufacturing No. 17 Order, in 1982, Jichai carried out R&D of high-power turbocharged natural gas engines.

Three prototypes were developed in the laboratory between 1984 and 1988, and 10,000 hours of industrial tests were conducted in Shengli Oilfield.

October 12, 1988 passed the national appraisal, the identification model 600kW/1000r/min external hybrid supercharged gas engine. After years of continuous improvement, products have become serialized and widely used in major oil fields and gas applications, resulting in huge economic benefits.

Identification conclusion: Filling the gap of China's pressurized high-power natural gas machine, the main indicators have reached the international advanced level.



Production characteristic

- ◆ Production code: 127/408
- ◆ WOODWARD controller
- ◆ Magnetor ignition
- ◆ Ignition plug, high pressure coil
- ◆ Diaphragm mixer
- ◆ Intake-gas pressure: 100–400KPa
- ◆ Natural gas、oilfield associated gas
- ◆ Mainly used in natural gas power generation and oil field drilling power fields



Application project



Niger Natural Gas Power Plant Project



Kazakhstan Gas Coupling set Unit Project



Sudan Natural Gas power plant Project

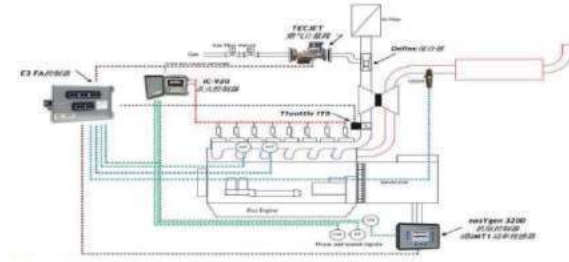


Typical Generator set Technical Specification

Genset model	400GF-T	500GF-T	600GF-T
Alternator model	Siemens technology、Brushless excitation、Automatic voltage control		
Control panel	GPL400	GPL500	GPL600
Rated power	400kW	500kW	600kW
Rated voltage	400V/6300V/10500V/480V/13800V		
Rated frequency	50/60Hz		
Rated power factor	0.8		
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire		
Protection Class	IP23		
Insulation Class	H		
Stabilized state voltage regulation	≤±2.5%		
Transient voltage regulation	≤+20%（-15）		
Voltage stabilization time	≤1.5s		
Fluctuation rate of voltage	≤1.0%		
Stabilized state frequency regulation	0～5%		
Transient frequency regulation rate	≤±10%		
Frequency stabilization time	≤7s		
Fluctuation rate of frequency	≤0.5%		
Overall dimension	4566mm×2040mm×2195mm	4566mm×2040mm×2780mm	4733mm×2040mm×2778mm
Net weight	11300kg	11800kg	12000kg
Engine model	12V190DT-2	12V190ZDT-2	12V190ZDT1-1
Type	Four strokes, V-type, Water cooling, Spark plug ignition , Electric controller ,Outer mixed		Four strokes, V-type, Turbocharged Intercooling, Spark plug ignition, Electric controller, Outer mixed
Number of cylinder	12		
Bore	190mm		
Stroke	210mm		
Total displacement	71.5L		
Rated speed	1000r/min		1200r/min
Rated power	450kW	552kW	660kW
Idle speed	700r/min		
Gas pressure	100～400 KPa		
Gas consumption	≤11386kJ/kW·h		
Oil consumption	≤0.8g/kW·h		
Exhaust temperature（before turbine）	≤680℃		
Water outlet temperature	<90℃		
Water inlet temperature of intercooler	<45℃		
Oil temperature	<90℃		
Stabilized speed droop	0～5 %		
Cooling mood	Open type-cooling tower/closed type-vertical or horizontal radiator		
Lubrication method	Pressure and splash lubrication		
Starting mood	Electric starting		
Crankshaft rotation	Counter-clockwise (facing to flywheel)		

1512 series natural gas engine products(500-750kW)

In cooperation with America WOODWARD company, Jichai has developed a pre-booster hybrid gas engine by adopting advanced international gas-fired hybrid methods and using advanced electronic control technology and lean-burn control strategies. This series of products has been put on the market nearly a thousand units, high cost performance, with good control and reliability.



Production characteristic

- ◆ Engine Code: 1512
- ◆ 100% Independent intellectual property rights
- ◆ Low pressure intake and lean burning control technology(adopted to low pressure gas,)
- ◆ International main control technology(engine intelligence management system)
- ◆ International advanced compression ratio control technology
- ◆ High flow and high pressure intake system adapts to wider concentration changes
- ◆ Advanced management module (automatic synchronization and automatic load distribution)
- ◆ Online Maintenance Technology (More than 2500 hours of continuous trouble-free operation)
- ◆ Digital monitor technology(Full monitoring of engine thermal parameters and unit electrical parameters)
- ◆ Distributed energy system(electric-heat system, electric-heat-cooling system)
- ◆ Different voltage level output (0.4kV/6.3kV/10.5kV)



Application project



Gas generator set power plant project in Columbia



Gas generator set power plant project in Russia



Gas generator set power plant project in Nigeria

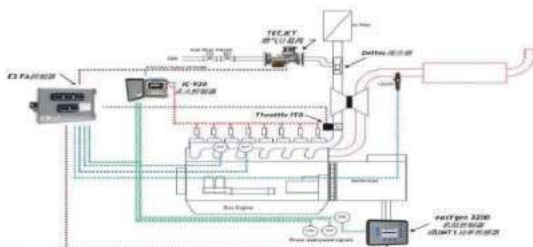


Typical Generator set Technical Specification

Genset model	500GF-T		750GF-T
Alternator model	Siemens technology,Brushless excitation,Automatic voltage regulation		
Control panel	GPL500		GPL750
Rated power	500kW		750kW
Rated voltage	400V/480V/6300V/10500V/13800V		
Rated Frequency	50/60Hz		
Rated power factor	0.8		
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire		
Alternator protection class	IP23		
Alternator insulation class	H		
Stabilized state voltage regulation	$\leq \pm 2.5\%$		
Transient voltage regulation	$\leq +20\%(-15)$		
Voltage stabilization time	$\leq 1.5s$		
Fluctuation rate of voltage	$\leq 1.0\%$		
Stabilized state frequency regulation	$0 \sim 5\%$		
Transient frequency regulation rate	$\leq \pm 10\%$		
Frequency stabilization time	$\leq 7s$		
Fluctuation rate of frequency	$\leq 0.5\%$		
Overall dimension	6195mm×2330mm×2776mm		4770mm×2040mm×2249 mm Without Horizontal Radiator
Net weight	13800kg		13000kg Without Horizontal Radiator
Engine model	G12V190ZLT-1	G12V190ZLT-2	C12V190ZLT-2
Type	Four strokes, V-type, Turbocharged intercooling, Spark plug ignition		
Number of cylinder	12		
Bore	190mm		
Stroke	210		230
Total displacement L	71.5 L		78.3 L
Rated speed r/min	1200	1000	1000
Rated power	640kW	550kW	830kW
Idle speed	700r/min		700r/min
Gas pressure	100~400 KPa		
Gas consumption	$\leq 11000kJ/kW \cdot h$		$\leq 9500kJ/kW \cdot h$
Oil consumption	$\leq 0.6g/kW \cdot h$		
Exhaust temperature (before turbine)	$\leq 650^{\circ}C$		$\leq 620^{\circ}C$
Water outlet temperature	$< 85^{\circ}C$		$< 90^{\circ}C$
Water inlet temperature of intercooler	$< 45^{\circ}C$		
Oil temperature	$< 90^{\circ}C$		
Stabilized speed droop	$0 \sim 5\%$		
Cooling mood	Open type – Cooling tower / Closed type - Vertical or Horizontal Radiator		
Lubrication method	Pressure and splash lubrication		
Starting mood	Electric starting		
Crankshaft rotation	Counter-clockwise (facing to flywheel)		

6000series natural gas engine products (1100—1500kW)

At present, the power range of gas engines in China is mainly concentrated in the range of 200kW to 600kW, and the demand for gas engines of over 1000kW is very large. The 6000 series gas engine is a high-power gas engine independently developed by our company for this situation. Recently, the power of this series of gas engines can reach 1600kW. It adopts international advanced air-fuel ratio control technology, and its engine power, economy, reliability and safety have been greatly improved. Its main performance indicators have reached the international advanced level, can be matched Gas generating units and compressor units meet the needs of markets such as power supply and compressors in cities and well fields.



Production Characteristic

- ◆ 6016T Engine Code:6016T
- ◆ Independent intellectual property rights
- ◆ International mainstream control technology (engine intelligent management system)
- ◆ International advanced air-fuel ratio control technology (TECJET air-fuel ratio automatic adjustment)
- ◆ High flow and high pressure intake system adapts to wider concentration changes
- ◆ Low-pressure air intake and lean combustion control technology (for low pressure gas, better emissions)
- ◆ Advanced unit management module (automatic synchronization and automatic load distribution)
- ◆ Online Maintenance Technology (More than 2500 hours of continuous trouble-free operation)
- ◆ Digital Monitoring Technology (Full monitoring of engine thermal parameters and unit electrical parameters)
- ◆ Distributed Energy Systems (Electric-Thermal, Electric-Hot-Cool)



Application project



Gas generator set power plant project in Iran



Gas generator set power plant project in Peru



Gas generator set power plant project in Ghana



Typical Generator set Technical Specification

Genset model	1100GF-T	1200GF-T	1500GF-T
Alternator model	Siemens technology、Brushless excitation、Automatic voltage regulation		
Panel model	GP1100	GPL1200	GPL1500
Rated power	1100kW	1200kW	1500kW
Rated voltage	400/10500V	6300V	480/13800V
Rated frequency	50Hz		60Hz
Rated power factor	0.8		
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire		
Protection class	IP23		
Insulation class	H		
Stabilized state voltage regulation	$\leq \pm 2.5\%$		
Transient voltage regulation	$\leq +20\%(-15)$		
Voltage stabilization time	$\leq 1.5s$		
Fluctuation rate of voltage	$\leq 1.0\%$		
Stabilized state frequency regulation	$0 \sim 5\%$		
Transient frequency regulation rate	$\leq \pm 10\%$		
Frequency stabilization time	$\leq 7s$		
Fluctuation rate of frequency	$\leq 0.5\%$		
Overall dimension mm	5998mm×2180mm×2540mm	7757mm×2585mm×2864mm	6452mm×2180mm×2540mm
Net weight	19800kg	23000kg	24000kg
Engine model	H16V190ZLT-2	H16V190ZLT2-2	H16V190ZLT-1
Type	Four strokes, V type turbocharged intercooling ,spark plug ignition,		
Number of cylinder	16		
Bore mm	190		
Stroke mm	215		
Total displacement	97.53 L		
Rated speed	1000 r/min		1200 r/min
Rated power	1200kw	1300kw	1600kw
Idle speed	700r/min		
Gas pressure	100~400 KPa		
Gas consumption	$\leq 9200kJ/kW \cdot h$		
Oil consumption	$\leq 0.6g/kW \cdot h$		
Exhaust temperature(before turbocharged)	$\leq 650^{\circ}C$		
Water outlet temperature	$< 85^{\circ}C$		
Water inlet temperature of intercooler	$< 45^{\circ}C$		
Oil temperature	$< 90^{\circ}C$		
Stabilized speed droop	$0 \sim 5\%$		
Cooling mood	Open type — Cooling tower/Closed type — Vertical or Horizontal Radiator		
Lubrication method	Pressure and splash lubrication		
Starting mood	Electric starting		
Crankshaft rotation	Counter-clockwise (facing to flywheel)		

4000 series natural gas engine products (1200-2000kW)

In recent years, with the improvement and promotion of h16v series units, the market share of jichai gas generating units in the gas power generation market, especially in Shanxi Province, has increased year by year, and the market share of 1000 kW low concentration gas generating units has reached more than 90%. However, jichai does not meet the market requirements within the power range of 1000kW ~ 2000kW. It is necessary to develop 190 series gas-fired generating units covering 1000kW ~ 2000kW power section. While maintaining the cost advantage to foreign units, expand the power coverage, continue to improve the competitiveness of 190 series gas-fired generating units, and maintain the competitive advantage of jichai.

The long-stroke 20v190 gas engine has a single power range of 1000kW ~ 2000kW, and its gas type can take into account natural gas, gas and biogas. The market demand is promising.



Production Characteristic

- ◆ Turbocharger pre-mixing technology, where gas and air are sucked in at the same time in the compressor, to be suitable for low pressure gas.
- ◆ Rarefied combustion technology, WOODWARD's E6 control system is used to control the air-fuel ratio accurately to reach the high - altitude combustion ratio, rarefied combustion.
- ◆ The single point injection and air - fuel ratio closed - loop control technology can realize the closed - loop control of air - fuel ratio (in).The engine can adjust the amount of air and natural gas according to the requirements of different working conditions and different speeds, so that the engine can run in the best state.
- ◆ Efficient and reliable design of the intake and exhaust system, the use of advanced high pressure ratio, large flow supercharger, increase the flow area of the intake pipeline, improve the intake efficiency.
- ◆ High efficiency, low resistance and plate type oil cooling book are adopted to improve cooling efficiency and increase cooling area of air and lubricating oil.
- ◆ The ignition system with high energy and high reliability is selected to make the combustion of each cylinder of the engine more stable and even.

Application project





Typical Generator set Technical Specification

Genset Model	1200GF-T
Alternator Model	1FC Series, Siemens Technology, Brush-less Excitation, Automatic Voltage
Panel Model	GPL1200
Rated Power	1200kW
Rated Voltage	400V/480V/6300V/10500V/13800V
Rated Frequency	50/60Hz
Rated Power Factor	0.8
Wiring Mood	3 Phase 4 Wire/3 Phase 3 Wire
Protection Class	IP23
Isolation Class	H
Stabilized State Voltage Regulation	$\leq \pm 2.5\%$
Transient Voltage Regulation	$\leq +20\%(-15)$
Voltage Stabilization Time	$\leq 1.5s$
Fluctuation Rate of Voltage	$\leq 1.0\%$
Transient Frequency Regulation Rate	$\leq \pm 1.0\%$
Frequency Stabilization Time	$\leq 7s$
Fluctuation Rate of Frequency	$\leq 0.5\%$
Overall Dimension	6000mm×2300mm×2800mm(Without Horizontal Radiator)
Net Weight	17000kg(Without Horizontal Radiator)
Engine Model	L12V200ZLT-2
Type	Four Strokes/V Type/Turbocharged Inter-cooling/Spark Plug Ignition
No. of Cylinder	12
Bore	200mm
Stroke	255mm
Total Displacement	96.1L
Rated Speed	1000r/min
Rated Power	1320kW
Idle Speed	700r/min
Gas Pressure	100kPa~400kPa
Heat Rate	$\leq 8850kJ/kW \cdot h$
Lube Consumption	$\leq 0.6g/kW \cdot h$
Exhaust Temperature (Before Turbocharger)	$\leq 650^{\circ}C$
Water Outlet Temperature	$\leq 85^{\circ}C$
Water Inlet Temperature of Inter-cooler	$\leq 45^{\circ}C$
Lube Temperature	$\leq 90^{\circ}C$
Stabilized Speed Droop	≤ 5
Cooling Mood	Open Type (Cooling Tower)/ Closed Type (Vertical or Horizontal Radiator)
Lubrication Method	Pressure and Splash Lubrication
Starting Mood	DC24V Electric Start
Crankshaft Rotation	Counter-clockwise(Facing to Flywheel)

Typical Generator set Technical Specification

Genset Model	1500GF-T
Alternator Model	1FC Series, Siemens Technology, Brush-less Excitation, Automatic Voltage
Panel Model	GPL1500
Rated Power	1500kW
Rated Voltage	400V/480V/6300V/10500V/13800V
Rated Frequency	50/60Hz
Rated Power Factor	0.8
Wiring Mood	3 Phase 4 Wire/3 Phase 3 Wire
Protection Class	IP23
Isolation Class	H
Stabilized State Voltage Regulation	$\leq \pm 2.5\%$
Transient Voltage Regulation	$\leq +20\%(-15)$
Voltage Stabilization Time	$\leq 1.5s$
Fluctuation Rate of Voltage	$\leq 1.0\%$
Transient Frequency Regulation Rate	$\leq \pm 10\%$
Frequency Stabilization Time	$\leq 7s$
Fluctuation Rate of Frequency	$\leq 0.5\%$
Overall Dimension	8100mm×2300mm×2800mm(Without Horizontal Radiator)
Net Weight	26700kg(Without Horizontal Radiator)
Engine Model	L16V190ZLT-2
Type	Four Strokes, V Type, Turbocharged Inter-cooling, Spark Plug Ignition
No. of Cylinder	16
Bore	190mm
Stroke	255mm
Total Displacement	115.7L
Rated Speed	1000r/min
Rated Power	1600kW
Idle Speed	700r/min
Gas Pressure	100–400kPa
Heat Rate	$\leq 8770kJ/kW \cdot h$
Lube Consumption	$\leq 0.6g/kW \cdot h$
Exhaust Temperature (Before Turbocharger)	$\leq 650^{\circ}C$
Water Outlet Temperature	$\leq 85^{\circ}C$
Water Inlet Temperature of Inter-cooler	$\leq 45^{\circ}C$
Lube Temperature	$\leq 90^{\circ}C$
Stabilized Speed Droop	≤ 5
Cooling Mood	Open Type (Cooling Tower)/ Closed Type (Vertical or Horizontal Radiator)
Lubrication Method	Pressure and Splash Lubrication
Starting Mood	DC24V Electric Start
Crankshaft Rotation	Counter-clockwise(Facing to Flywheel)

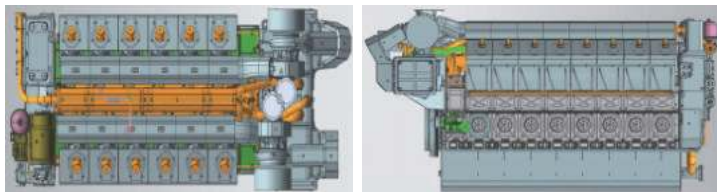


Typical Generator set Technical Specification

Genset model	2000GF10-T
Alternator model	Siemens Technology, Brush-less Excitation, Automatic Voltage
Panel model	GPL2000
Rated power	2000kW
Rated voltage	400V/480V/6300V/10500V/13800V
Rated frequency	50/60Hz
Rated power factor	0.8
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire
Protection class	IP23
Insulation class	H
Stabilized state voltage regulation	$\leq \pm 2.5\%$
Transient voltage regulation	$\leq +20\%(-15)$
Voltage stabilization time	$\leq 1.5s$
Fluctuation rate of voltage	$\leq 1.0\%$
Stabilized state frequency regulation	$0 \sim 5\%$
Transient frequency regulation rate	$\leq \pm 10\%$
Frequency stabilization time	$\leq 7s$
Fluctuation rate of frequency	$\leq 0.5\%$
Overall dimension mm	7500×2300×2800 Without Horizontal Radiator
Net weight	30000kg Without Horizontal Radiator
Engine model	L20V190ZLT-2
Type	Four Strokes, V Type, Turbocharged Inter-cooling, Spark Plug Ignition
Number of cylinder	20
Bore	190mm
Stroke	255mm
Total displacement	144.6L
Rated speed	1000 r/min
Rated power	2200kw
Idle speed	700r/min
Gas pressure	100~400 KPa
Gas consumption	$\leq 8600kJ/kW \cdot h$
Oil consumption	$\leq 0.6g/kW \cdot h$
Exhaust temperature(before turbocharged)	$\leq 640^{\circ}C$
Water outlet temperature	$< 95^{\circ}C$
Water inlet temperature of intercooler	$< 45^{\circ}C$
Oil temperature	$< 100^{\circ}C$
Stabilized speed droop	$0 \sim 5\%$
Cooling mood	Open type — Cooling tower/Closed type — Vertical or Horizontal Radiator
Lubrication method	Pressure and splash lubrication
Starting mood	Electric starting
Crankshaft rotation	Counter-clockwise (facing to flywheel)

2632 series natural gas engine products

The 26/32 series natural gas engines are developed by Jichai to meet the demand for power from long-distance pipeline compressor drive power, offshore drilling platform power, large-scale gas power stations, distributed energy, and other national energy-saving emission reduction projects. High power natural gas engine have the following characteristic: high pressure, high power, high efficiency, low emission, green, environmental protection and other characteristics. The engine's gas consumption rate is 8500kJ/kW·h, thermal efficiency is greater than 44%, and its power, economy, and reliability all reach the international advanced level.



Production Characteristic

- ◆ Production code: 2632
- ◆ λ accurate control (International level: 2.1-2.3, Jichai: 2.05) lean burning ;
- ◆ High efficiency (international level: 42-45%, test level: 44%) 、 security (Installation of explosion-proof devices, double-walled gas pipes and oil mist detectors for each system) ;
- ◆ High pressurization, strong MILLER, low emissions ;
- ◆ Knock control technology and explosion pressure monitoring (or in-cylinder combustion temperature);
- ◆ Multipoint Electronic Control (Port Injection) ; engine management system
- ◆ The optimal control of the intake air amount and the intake time of the main combustion chamber and the pre-chamber ;
- ◆ Load balance (According to the cylinder rear temperature control system online correction) .
- ◆ High turbocharged, two-stage cooling
- ◆ Self-cleaning filter technology
- ◆ The filter element adopts the metal filter element and can realize automatic cleaning without replacing the filter element. It can not only guarantee the oil filter requirements of the engine, but also extend the service life, reduce the use cost and maintenance labor intensity.

Application project



Gas generator set power plant in Saudi Arabia



Gas generator set power plant in Bengal

Typical Generator set Technical Specification

Genset model	3000GF-T	2700GF-T	4000GF-T	3600GF-T
	Siemens Technology Alternator, you can choose other brands			
Panel model	GPL3000	GPL2700	GPL4000	GPL3600
Rated power	3000kW	2700kW	4000kW	3600kW
Rated voltage	6300V/10500V	13800V	6300V/10500V	13800V
Rated frequency	50Hz	60Hz	50Hz	60Hz
Rated power factor	0.8			
Overall dimension	8330mm×2930mm×3638mm		9435mm×2930mm×4175mm	
Net weight	48000kg		70000kg	
Engine model	12V 26/32		16V 26/32	
Type	Four strokes,water cooling,turbocharged intercooling, pre-burning zone,multi-point injection,compression ratio control			
Bore	260mm			
Stroke	320mm			
Single cylinder displacement	17L			
Rated speed	1000 r/min	900 r/min	1000 r/min	900 r/min
Rated power	3150kw	2835kw	4200kw	3780kw
Gas pressure	700~1000 KPa			
Gas consumption	≤8500kJ/kW·h			
Oil consumption	≤0.6g/kW·h			
Exhaust tem.(before turbine)	≤620℃			
Heat efficiency	43%			
NOx emission	0.5g/Nm3@5%O2			
Type of cooling	Water coolingopen type – cooling tower/ closed type – horizontal radiator			
Starting mood	Air starting			
Crankshaft rotation	Counter-clockwise (facing to flywheel)			



Biogas engine products

The main raw material for biogas is biomass. Biogas is a valuable resource with high calorific value and cleanliness. The comprehensive utilization of biogas will help in reducing the greenhouse effect and promoting a virtuous cycle of ecology, which can replace some of the energy such as oil and coal. There are large amounts of biogas resources available for use in farms, food factories, brewing companies, sewage treatment plants, waste treatment plants and other companies. Biogas is used for power generation, and waste heat recovery equipment is used for recovering the heat of engine exhaust. Therefor it can realize cogeneration, develop a recycling economy, and the comprehensive utilization efficiency of biogas can reach over 70%. It can not only reduce environmental pollution, benefit the environment, reduce greenhouse gas emissions, but also can ease the contradiction between supply and demand of electricity, reduce production costs, increase the efficiency of enterprises, and increase the competitiveness of enterprises.

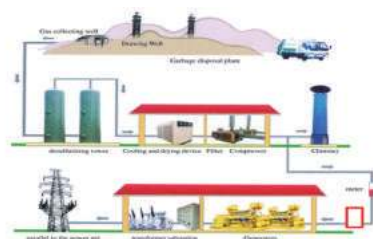


Since 2002, Jichai has devoted itself to the R&D of biogas engines. After years of continuous efforts, 550KW and 1200KW biogas engines have been successively launched, and they can be assembled as generator sets. They are now widely used in China and Southeast Asia.

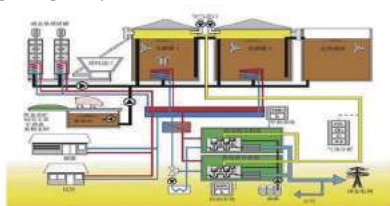
The proctess of biogas application

The use of biogas for power generation is a manifestation of the conversion of biomass to higher-grade energy. The main component of biogas is methane (CH_4), which usually accounts for 55% to 65% of the total volume; followed by carbon dioxide, which accounts for the total volume. 30% to 40%; remaining hydrogen sulfide, ammonia, hydrogen, and carbon monoxide gases account for about 5% of the total volume. When the biogas burns completely, it only generates carbon dioxide and water and releases heat energy. It is a clean fuel.

Landfill plant biogas generator set power plant system flow chart:



Farm biogas generator set power plant system flow chart:



Biogas engine products (600kW/700kW/1000kW/1600kW)

Jichai cooperated with WOODWARD Company in the United States, adopting an advanced international gas-fired external mixing method, using advanced electronic control technology and lean-burn control strategy to develop a gas engine with gas and air mixed before turbocharger, which is cost-effective and has good Controllability and reliability. Since the products were put on the market in 2005, they have been sold well both at home and abroad, and have achieved good benefits for customers.



Production characteristic

- ◆ Production code: 1512Z,6016Z,4012Z,4016Z,4020Z
- ◆ 100% independent intellectual property
- ◆ International mainstream control technology (engine intelligent management system)
- ◆ International advanced air-gas ratio control technology (TECJECT air-fuel ratio automatic adjustment)
- ◆ High-flow and high-pressure intake system adapts to wide variations in concentration (30% to 60% methane concentration)
- ◆ Low-pressure air intake and lean combustion control technology (adapt to low pressure gas, better emissions)
- ◆ Advanced management module (automatic synchronization and automatic load distribution)
- ◆ Online Maintenance Technology (More than 2500 hours of continuous trouble-free operation)
- ◆ Digital Monitoring Technology (Full monitoring of engine thermal parameters and unit electrical parameters)
- ◆ Distributed Energy Systems (Electric-Thermal, Electric-Hot-Cool)

Application project



Biogas generator set power plant in
Sichuan



Biogas generator set power plant in
Thailand



Biogas generator set power plant in
Nanjing

Biogas engine products

Typical Generator set Technical Specification

Genset model	600GF-NK	700GF2-Z
Alternator model	1FCseries,siemens technology,Brushless excitation,Automatic voltage regulation	
Panel model	GPL600	GPL700
Rated power	600kW	700kW
Rated voltage	400V/480V/6300V/10500/13800	
Rated frequency	50/60Hz	
Rated power factor	0.8	
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire	
Production class	IP23	
Insulation class	H	
Stabilized voltage regulation	$\leq \pm 2.5\%$	
Transient state voltage regulation	$\leq +20\%(-15)$	
Voltage stabilization time	$\leq 1.5s$	
Fluctuation rate of voltage	$\leq 1.0\%$	
Stabilized frequency regulation	$0 \sim 5\%$	
Transient state frequency regulation	$\leq \pm 10\%$	
Frequency stabilization time rate	$\leq 7s$	
Fluctuation rate of frequency	$\leq 0.5\%$	
Overall dimension	5120mm×2040mm×2776.5mm	4770mm×2040mm×2249mm
Net weight	13800kg	13000kg
Engine model	G12V190ZLZ-2	C12V190ZLZ-2
Type	Four strokes, Vshape,turbocharged intercooling,spark plug ignition,	
Number of cyliner	12	12
Bore	190mm	190mm
Stroke	210mm	230mm
Total displacement	71.5L	78.3L
Rated speed	1000r/min/1200r/min	1000r/min/1200r/min
Rated power	550kw	770kw
Idle speed	700r/min	
Gas pressure	10~40 KPa	
Gas consumption	$\leq 11000kJ/kW \cdot h$	$\leq 9500kJ/kW \cdot h$
Oil consumption	$\leq 0.8g/kW \cdot h$	$\leq 0.6g/kW \cdot h$
Exhaust tem.(before turbine)	$\leq 650^{\circ}C$	$\leq 620^{\circ}C$
Water outlet temperature	$\leq 85^{\circ}C$	$\leq 90^{\circ}C$
Water inlet temperature of intercooler	$< 45^{\circ}C$	
Oil temperature	$< 90^{\circ}C$	
Stabilized speed droop	$0 \sim 5\%$	
Cooling mood	Open type – Cooling tower/Closed type – Vertical or Horizontal Radiator	
Lubrication method	Pressure and splash lubrication	
Starting mood	Electric starting	
Crankshaft rotation	Counter-clockwise(face to flywheel)	



Typical Generator set Technical Specification

Genset model	1000GF-Z	1100GF-Z
Alternator model	1FCSeries,siemens technology,Brushless excitation,Automatic voltage regulation	
Panel model	GPL1000	GPL1100
Rated power	1000kW	1100kW
Rated voltage	400V/480V/6300V/10500/13800	
Rated frequency	50/60Hz	
Rated power factor	0.8	
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire	
Production class	IP23	
Insulation class	H	
Stabilized voltage regulation	$\leq \pm 2.5\%$	
Transient state voltage regulation	$\leq +20\%(-15)$	
Voltage stabilization time	$\leq 1.5s$	
Fluctuation rate of voltage	$\leq 1.0\%$	
Stabilized frequency regulation	0 ~5%	
Transient state frequency regulation	$\leq \pm 10\%$	
Frequency stabilization time rate	$\leq 7s$	
Fluctuation rate of frequency	$\leq 0.5\%$	
Overall dimension	6198mm×2540mm×2180mm	6000×2300×2800(Without Horizontal Radiator)
Net weight	21000kg	17000kg(Without Horizontal Radiator)
Engine model	H16V190ZLZ-2	L12V200ZLZ-2
Type	Four strokes, Vshape,turbocharged intercooling,spark plug ignition,	
Number of cyliner	16	12
Bore	190mm	200mm
Stroke	215mm	255mm
Total displacement	97.53L	96.1L
Rated speed	1000r/min/1200r/min	1000r/min
Rated power	1200kw	1200kw
Idle speed	700r/min	
Gas pressure	10–40KPa	
Gas consumption	$\leq 9500kJ/kW \cdot h$	$\leq 8850kJ/kW \cdot h$
Oil consumption	$\leq 0.6g/kW \cdot h$	
Exhaust tem.(before turbine)	$\leq 650^{\circ}C$	
Water outlet temperature	$< 85^{\circ}C$	
Water inlet temperature of intercooler	$< 45^{\circ}C$	
Oil temperature	$< 90^{\circ}C$	
Stabilized speed droop	≤ 5	
Cooling mood	Open type – Cooling tower/Closed type – Vertical or Horizontal Radiator	
Lubrication method	Pressure and splash lubrication	
Starting mood	Electric starting	DC24V Electric Start
Crankshaft rotation	Counter-clockwise(Facing to Flywheel)	

Typical Generator set Technical Specification

Genset model	1400GF-Z
Alternator model	1FCSeries,siemens technology,Brushless excitation,Automatic voltage regulation
Panel model	GPL1400
Rated power	1400kW
Rated voltage	400V/480V/6300V/10500/13800
Rated frequency	50/60Hz
Rated power factor	0.8
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire
Production class	IP23
Insulation class	H
Stabilized voltage regulation	$\leq \pm 2.5\%$
Transient state voltage regulation	$\leq +20\%(-15)$
Voltage stabilization time	$\leq 1.5s$
Fluctuation rate of voltage	$\leq 1.0\%$
Transient state frequency regulation	$\leq \pm 10\%$
Frequency stabilization time rate	$\leq 7s$
Fluctuation rate of frequency	$\leq 0.5\%$
Overall dimension	8100mm×2300mm×2800mm(Without Horizontal Radiator)
Net weight	26700kg((Without Horizontal Radiator)
Engine model	L16V190ZLZ-2
Type	Four strokes,Vshape,turbocharged intercooling,spark plug ignition,
Number of cyliner	16
Bore	200mm
Stroke	255mm
Total displacement	115.7L
Rated speed	1000r/min
Rated power	1500kw
Idle speed	700r/min
Gas pressure	10~40KPa
Heat Rate	$\leq 8770kJ/kW \cdot h$
Lube Consumption	$\leq 0.6g/kW \cdot h$
Exhaust Temperature (Before Turbocharger)	$\leq 650^{\circ}C$
Water Outlet Temperature	$< 85^{\circ}C$
Water Inlet Temperature of Inter-cooler	$< 45^{\circ}C$
Lube Temperature	$< 90^{\circ}C$
Stabilized Speed Droop	≤ 5
Cooling Mood	Open type – Cooling tower/Closed type – Vertical or Horizontal Radiator
Lubrication Method	Pressure and splash lubrication
Starting Mood	DC24V Electric Start
Crankshaft Rotation	Counter-clockwise(Facing to Flywheel)



Genset model	1600GF-Z
Alternator Model	1FC Series,Siemens Technology,Brush-less Excitation,Automatic Voltage
Panel Model	GPL1600
Rated Power	1600kW
Rated Voltage	400/480/6300/10500/13800V
Rated Frequency	50/60Hz
Rated Power Factor	0.8
Wiring Mood	3 Phase 4 Wire/3 Phase 3 Wire
Protection Class	IP23
Isolation Class	H
Stabilized State Voltage Regulation	$\leq \pm 2.5\%$
Transient Voltage Regulation	$\leq +20\%(-15)$
Voltage Stabilization Time	$\leq 1.5s$
Fluctuation Rate of Voltage	$\leq 1.0\%$
Transient Frequency Regulation Rate	$\leq \pm 10\%$
Frequency Stabilization Time	$\leq 7s$
Fluctuation Rate of Frequency	$\leq 0.5\%$
Overall Dimension	7500mm×2300mm×2800mm(Without Horizontal Radiator)
Net Weight	29000kg(Without Horizontal Radiator)
Engine Model	L20V190ZLZ-2
Type	Four Strokes,V Type,Turbocharged Inter-cooling,Spark Plug Ignition
No. of Cylinder	20
Bore	190mm
Stroke	255mm
Total Displacement	144.6L
Rated Speed	1000r/min
Rated Power	1750kW
Idle Speed	700r/min
Gas Pressure	10~40kPa
Heat Rate	$\leq 8600kJ/kW \cdot h$
Lube Consumption	$\leq 0.6g/kW \cdot h$
Exhaust Temperature (Before Turbocharger)	$\leq 640^{\circ}C$
Water Outlet Temperature	$< 85^{\circ}C$
Water Inlet Temperature of Inter-cooler	$< 45^{\circ}C$
Lube Temperature	$< 90^{\circ}C$
Stabilized Speed Droop	≤ 5
Cooling Mood	Open Type (Cooling Tower)/ Closed Type (Vertical or Horizontal Radiator)
Lubrication Method	Pressure and Splash Lubrication
Starting Mood	Electric Start
Crankshaft Rotation	Counter-clockwise(Facing to Flywheel)

Coal mine gas engine products

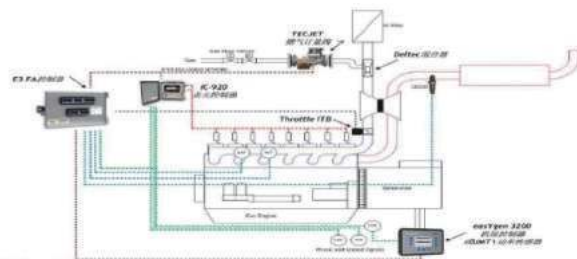
Coal mine gas is a mixture of methane, carbon dioxide, and nitrogen that escapes from coal and the surrounding rock. Gas is the harmful factors in the production of coal mines. It not only pollutes the air, but also can cause explosions when the gas content in the air is between 5% and 16%. Coal mine gas is also a kind of high-quality energy, which is clean, high in thermal efficiency, and less pollution. Coal mine gas is used for power generation, and waste heat recovery equipment is used for recovering the heat of engine exhaust. Therefore it can realize cogeneration, develop a recycling economy. It can not only reduce environmental pollution, benefit the environment, reduce greenhouse gas emissions, but also can ease the contradiction between supply and demand of electricity, reduce production costs, increase the efficiency of enterprises, and increase the competitiveness of enterprises.



Since 2002, Jichai has devoted itself to the R&D of biogas engines. After years of continuous efforts, 600KW and 1100KW coal mine gas engines have been successively launched, and they can be assembled as generator sets. They are now widely used in China.

Coal mine gas engine products (600kW/700kW/1100kW/1500kW)

CNPC's Jichai coal mine gas power generation products were first used in the Jincheng area in 2003. Since 2005, the company has increased investment in R&D of coal mine gas power generation products, focusing on communication and cooperation with relevant scientific research institutes in coal mines, and coal bed methane in China. The Society, Henan Polytechnic University, Fushun Coal Science General Institute and coal design institutes have established close ties, and developed eight types of proprietary high and low concentration coal mine gas power, with power coverage of 200-1100kW, and adopting advanced international gas engines. The control technology and lean combustion theory aim at the characteristics that the gas concentration fluctuates greatly during the process of domestic gas extraction. Through the reasonable matching of the intake system, the gas turbine unit has a wider adaptability and can burn 8%-60% of the methane concentration, gas pressure in the range of 3-15KPa. Its power, economy, safety and reliability have reached the international advanced level. Distributed in 13 major coal-producing areas, the Shanxi market alone has accumulated a total of more than 400 sets of gas (CBM) equipment.





Production characteristic

- ◆ Production code: 1512W,6016W,4016W,4020W
- ◆ 100% independent intellectual property
- ◆ International mainstream control technology (engine intelligent management system)
- ◆ International advanced air-fuel ratio control technology (TECJECT air-fuel ratio automatic adjustment)
- ◆ High-flow, high-pressure intake system adapts to wide variations in concentration (30% to 60% methane concentration)
- ◆ Low-pressure air intake and lean combustion control technology (for low pressure gas, better emissions)
- ◆ Advanced crew management module (automatic synchronization and automatic load distribution)
- ◆ Online Maintenance Technology (More than 2500 hours of continuous trouble-free operation)
- ◆ Digital Monitoring Technology (Full monitoring of engine thermal parameters and unit electrical parameters)
- ◆ Distributed Energy Systems (Electric-Thermal, Electric-Hot-Cool)



Application project

The use of coal mine gas for power generation is a manifestation of the conversion of biomass to higher-grade energy. The main component of high-concentration gas is methane (CH_4), which usually accounts for 25% to 60% of the total volume, followed by small amounts of other hydrocarbon gases and carbon dioxide and nitrogen. When the biogas burns completely, it generates only carbon dioxide and water, and releases heat energy. It is a clean fuel.



The coal mine gas genset power plant project in Shanxi



The coal mine gas genset power plant project in Shanxi



The coal mine gas genset power plant project in Ningxia

Coal mine gas engine products

Typical Generator set Technical Specification

Genset model	600GF-W	700GF1-Wd
Alternator model	1FCSeries,Siemens technology,brushless excitation,automatic voltage regulation	
Panel model	GPL600	GPL700
Rated power (kW)	600	700
Rated voltage (V)	400V/480V/6300V/10500/13800	
Rated frequency(Hz)	50/60	
Rated power factor	0.8	
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire	
Production class	IP23	
Insulation class	H	
Stabilized state voltage regulation	$\leq \pm 2.5\%$	
Transient voltage regulation	$\leq +20\%(-15)$	
Voltage stabilization time	$\leq 1.5s$	
Fluctuation rate of voltage	$\leq 1.0\%$	
Stabilized state frequency regulation	$0 \sim 5\%$	
Transient frequency regulation rate	$\leq \pm 10\%$	
Frequency stabilization time	$\leq 7s$	
Fluctuation rate of frequency	$\leq 0.5\%$	
Overall dimension	5120mm×2040mm×2776.5mm	5120mm×2180mm×2540mm
Net weight	13800kg	14000kg
Engine model	G12V190ZLW-2	C12V190ZLWd-2
Type	Four strokes, Vshape,turbocharged intercooling,spark plug ignition,	
Number of cylinder	12	12
Bore	190mm	190mm
Stroke	210mm	230mm
Total displacement L	71.5	78.3
Rated speed r/min	1000/1200	1000/1200
Rated power kw	650	770
Idle speed	700r/min	
Gas pressure	$7 \sim 9 \text{ KPa}$	
Gas consumption	$\leq 11000\text{kJ/kW}\cdot\text{h}$	$\leq 9500\text{kJ/kW}\cdot\text{h}$
Oil consumption	$\leq 0.8\text{g/kW}\cdot\text{h}$	$\leq 0.6\text{g/kW}\cdot\text{h}$
Exhaust tem.(before turbine)	$\leq 650^\circ\text{C}$	$\leq 620^\circ\text{C}$
Water outlet temperature	$<85^\circ\text{C}$	$<90^\circ\text{C}$
Water inlet temperature of intercooler	$<45^\circ\text{C}$	
Oil temperature	$<90^\circ\text{C}$	
Stabilized speed droop	$0 \sim 5\%$	
Cooling mood	Open type – cooling tower/closed type – vertical or horizontal radiator	
Lubrication method	pressure and splash lubrication	
Starting mood	Electric starting	
Crankshaft rotation	Counter-clockwise(facing to flywheel)	



Typical Generator set Technical Specification

Genset model	1100GF-W	1500GF-W
Alternator model	1FCseries,Siemens technology,brushless excitation,automatic voltage regulation	
Panel model	GPL1100	GPL1500
Rated power (kW)	1100	1500
Rated voltage (V)	400V/480V/6300V/10500/13800	
Rated frequency(Hz)	50/60	
Rated power factor	0.8	
Wiring mood	3 Phase 4 Wire/3 Phase 3 Wire	
Production class	IP23	
Insulation class	H	
Stabilized state voltage regulation	$\leq \pm 2.5\%$	
Transient voltage regulation	$\leq +20\%(-15)$	
Voltage stabilization time	$\leq 1.5s$	
Fluctuation rate of voltage	$\leq 1.0\%$	
Stabilized state frequency regulation	$0 \sim 5\%$	
Transient frequency regulation rate	$\leq \pm 10\%$	
Frequency stabilization time	$\leq 7s$	
Fluctuation rate of frequency	$\leq 0.5\%$	
Overall dimension mm	6198×2540×2180	7500×2300×2800
Net weight kg	21000	29000
Engine model	H16V190ZLW-2	L20V190ZLWd-2
Type	Four strokes,Vshape,turbocharged intercooling,spark plug ignition,	
Number of cylinder	16	20
Bore mm	190	190
Stroke mm	215	255
Total displacement L	97.53	144.6
Rated speed r/min	1000	1000
Rated power kw	1100	1700
Idle speed	700r/min	
Gas pressure	7 ~ 9 KPa	
Gas consumption	$\leq 9500kJ/kW \cdot h$	$\leq 8600kJ/kW \cdot h$
Oil consumption	$\leq 0.6g/kW \cdot h$	$\leq 0.6g/kW \cdot h$
Exhaust tem.(before turbine)	$\leq 650^{\circ}C$	
Water outlet temperature	$< 85^{\circ}C$	
Water inlet temperature of intercooler	$< 45^{\circ}C$	
Oil temperature	$< 90^{\circ}C$	
Stabilized speed droop	$0 \sim 5\%$	
Cooling mood	Open type – cooling tower/closed type – vertical or horizontal radiator	
Lubrication method	pressure and splash lubrication	
Starting mood	Electric starting	
Crankshaft rotation	Counter-clockwise(facing to flywheel)	

The requirement of engine to gas /lubrication oil and cooling water

Gas quality requirements :

Gas pressure : < 400kpa Total sulfur content $\leq$ 480mg/m³ Hydrogen sulfide content : $\leq$ 20mg/m³
 Impurity particles : < 0.005mm, Impurity content : $\leq$ 0.03g/m³ Dust content : < 10mg/m³

Before use, the gas should be passed through a gas-water separator, a filter and a surge tank. The separator should periodically drain away the condensed liquid to ensure that there is no liquid in the gas.

Oil and water composition: After the filter, the particle size of the gas in the gas is less than 5 μ m, the content is not more than 0.03g/m³, the temperature of the gas is 0~65C, the porcelain tube is recommended, the paper core filter: the capacity of the surge tank is about 1m³, and should be set There is a safety valve. When multiple units are used together, they can share a larger capacity surge tank.

gas ingredient requirement :

CH₄: $\geq$ 76% C₂H₆: < 10% C₃H₈: < 8% C₄H₁₀: < 6%

The reference data table of standard gas composition

Item		Natural as					Biogas	Coal mine gas	Straw gas			
		Volume (%)										
Ingredient	Molecular Formula	Daqing oil field	Shengli oil field	Dagang oil field	Sichuan gas field	Shanganning gas field			Corn cob	Cotton straw	Corn stalk	Wheat straw
Methane	CH4	79.75	86.6	76.29	95	95.94	58.4	8-90.02	2.32	1.92	1.87	1.36
Ethane	C2H6	1.9	4.2	11	1.76	0.32		2.075				
Propane	C3H8	7.6	3.5	6	0.58	0.05		0.02				
Butane	C4H10	5.62	2.6	4	0.41			0.002				
Pentane	C5H12		1.1		0.06			0.001				
Carbon dioxide	CO2		0.6	1.36	0.08	3.04	36.7	5.54	12.5	11.6	13	14
Carbon monoxide	CO								22.5	22.7	21.4	17.6
Nitrogen	N2		1.1	0.71	1.55	0.29	0.7	2-30	48.98	50.8	49.88	56.84
Hydrogen	H2						2		12.2	11.5	12.2	8.5
Oxygen	O2						2.2	9	1.4	1.5	1.65	1.7
Other		5.13	0.3	0.64	0.56	0.36						
Low calorific valueKJ/m3		40944	39251	42061	34252	32679	19988	30443	5032	5585	5327	3664

lubrication oil requirement:

The engine is recommended to use the Kunlun KCN7805.KCN7810 gas engine oil product according to its operating conditions. The gas quality used satisfies the requirements of Class I and II in 287820-1999, the sulfur content is $\leq$ 200mg/rm³, and KCN7805 is recommended;

The quality meets the three requirements in GB17820-1999, ie the sulfur content is less than or equal to 460mg/m³. The recommended use of KCN7810: When the sulfur content is >460mg/m³, consult the company or the oil supplier.

Cooling water requirement:

Slightly alkaline clean water should be used. It must not contain corrosive compounds such as chlorides, sulfates or acids. The main indicators are as follows :

hardness 0.7~5.3me/L

Chloride ion content<150mg/L

PH 7~8.5

Introduce to auxiliary equipment of internal combustion engine power station



CNPC JCP

Power plant system schematic diagram:

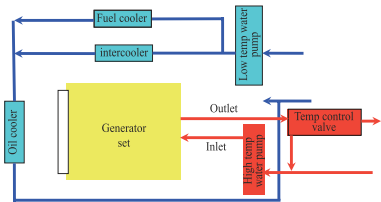


Cooling system:



Cooling tower characteristic:

- Low cost, high cooling efficiency
- High water consumption
- Equipped with cooling water pump.
- Low power consumption

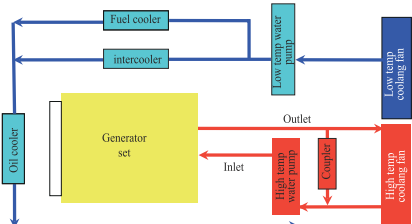


Suitable for use in power stations with ample water supply and multiple units



Horizontal radiator characteristic:

- High cost,high cooling efficiency
- Low water consumption, but high requirement for water quality in inner circulation
- Large floor space, but easy to assembly in scene
- High power consumption



Suitable for areas where water resources are strained.

Introduce to auxiliary equipment of internal combustion engine power station

Power transmission and distribution system:

Power transmission and distribution systems mainly include power transmission, power distribution and electrical protection functions. CNPC Jichai can provide you with high and low voltage switchgear, measurement, protection and control equipment required by the power station. Advanced technology and excellent quality.

Main equipment in low voltage system:



Control panel for diesel or gas Generator set :

Diesel and gas generator set control panel is designed for supporting generator sets :

- ◆ Power range : 10 ~ 5000 KW
- ◆ Detection parameters : Voltage, current, power, frequency etc.
- ◆ Protection : Acousto-optic alarm or shutdown protection when the protection setting is reached
- ◆ Advanced Import Automation Parallel and Grid Module
- ◆ Provide unit monitoring data remote transmission interface



Low voltage switch gear cabinet:

The low-voltage switchgear is mainly used for the entry/exit of low-voltage busbars and distribution of power equipment, and is equipped with protection devices, which facilitates the entry and exit lines of the power station generator set busbars, the power distribution of the power station low-voltage self-use electrical systems, and the control and protection of power plant power equipment.

- ◆ Range : ≤ 4000 A
- ◆ Working voltage : $\leq$ AC 660V , frequency : 50Hz / 60 Hz
- ◆ Standard module , Flexible combination
- ◆ Motor centralized control, Reactive power compensation
- ◆ According to user demand, cabinets such as MNS, GCS, GCK, GGD and 8PT can be provided.

Step-up and step-down system main equipment :

Transformer : As the main electrical equipment of the power station, the transformer has step-up transformers and step-down transformers, which can be selected according to the needs of the power station.

- ◆ Range : 80 ~ 3150 KVA
- ◆ Differential protection available : ≥ 2000 KVA
- ◆ Oil-immersed and dry-type transformers can be selected and supplied on demand



Main equipment for high voltage system:



High voltage switchgear

High-voltage switchgear is widely used in high-voltage generator sets. The main functions of the switchgear are transmission, equipment and line protection, and can also be used as the generator generating point and power grid access point.

- ◆ Range: 630 ~ 4000 A
- ◆ Working voltage: 3 ~ 13.8 KV , frequency: 50Hz / 60 Hz
- ◆ Equipped with comprehensive protection devices, current transformers, lightning arresters and other electrical components
- ◆ As a main switch of high-voltage generator set, add voltage transformer and generator comprehensive protection device and harmonic elimination device.

Voltage transformer cabinet

Generally, it is directly installed on the busbar. Its internal main configured voltage transformers and harmonic elimination device. The main function is to provide voltage measurement for high-voltage systems and to protect devices such as metering devices.



DC panel

Supply direct-current for high voltage operation system

The 220v power supply can also provide other levels of DC voltage. Internally equipped with batteries and complete

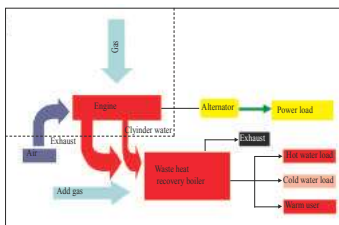
Rectification system.



Introduce to auxiliary equipment of internal combustion engine power station

Waste heat recovery system :

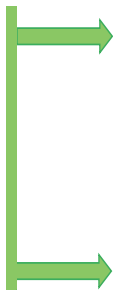
The heat-electric-cooling triple-feedback system uses the waste heat generated by power generation for secondary use, and at the same time outputs a power, cold, and heat distributed energy supply system to the user. The overall energy utilization rate is over 80%.



Heat-cooling supply :



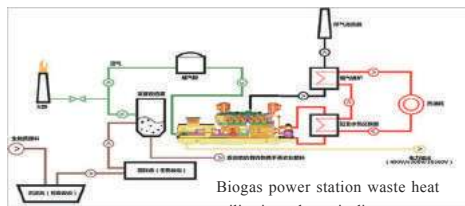
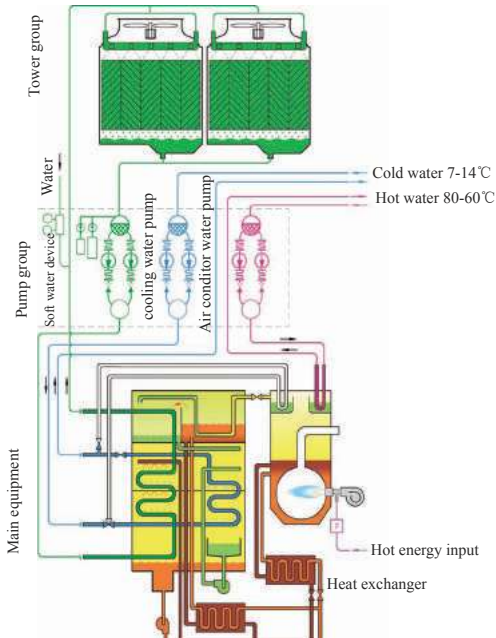
Exhaust : $480^{\circ}\text{C} \sim 650^{\circ}\text{C}$
Cylinder liner water : $80 \sim 90^{\circ}\text{C}$



Exhaust heat recovery boiler



Refrigerant type lithium bromide absorption refrigeration unit



Biogas power station waste heat utilization schematic diagram

Heat resource : steam/hot water
Resource : cool water/cool air



Final user



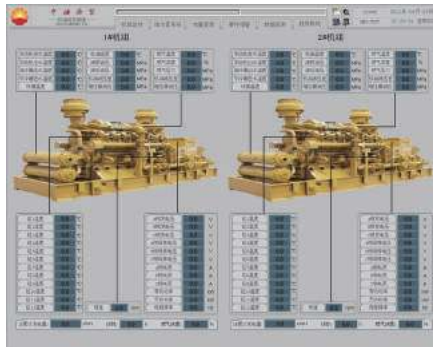


SCADA system introduce

The SCADA system mainly completes the real-time data acquisition and process control (such as PLC control) of various parameters of the power station generator set and its auxiliary equipment (such as cooling system, fuel system, etc.), and can also be used in data exchange with other systems with standard interfaces and protocols. The monitoring system can control the operation status of the power station equipment and implement related functions such as protection, data browsing, fault alarm, power generation statistics, report printing, historical data query, and web access.

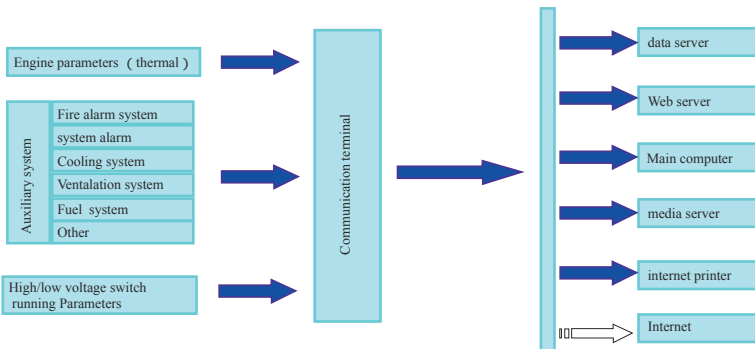


The SCAD system process



The human-computer interface

SCADA system process



Typical project performance table

Product name	Model	Quantity	Delivery time	Export country	Product name	Model	Unit	Quantity	Delivery time	Export country
Diesel generator set	CVD5-400	Set	8	2019	Diesel generator set	1200GF8	Set	3	2020	Serbia
Diesel engine	G12V190PZL	Set	1	2020	Marine engine	B6190ZL C1-2	Set	1	2020	Russia
Diesel generator set	1600GFZ	Set	1	2020	Marine engine	B6190ZL C1-2R	Set	1	2020	Russia
Diesel generator set	800GFZ	Set	1	2020	Marine engine	L8190ZLC-1	Set	2	2020	Russia
Diesel generator set	250GFZ	Set	1	2020	Diesel generator set	CCF1500/1000	Set	1	2020	Russia
Diesel generator set	1000GFZ	Set	1	2020	Diesel generator set	1200GF8	Set	5	2020	Romania
Diesel generator set	250GFZ	Set	1	2020	Coupler set	G12V190PZL-3/O	Set	1	2020	Nigeria
Diesel generator set	20GFZ	Set	1	2020	Coupler set	C0810F-3/22	Set	1	2020	Nigeria
Gas generator set	3500GF70-T	Set	5	2020	Gas generator set	1200GF-TK1	Set	2	2020	Nigeria
Coupler set	C0900FA/30	Set	1	2021	Marine engine	B6190ZL CA-2	Set	2	2020	Russia
Diesel generator set	1000GF	Set	3	2021	Marine engine	8190ZL CA-2	Set	1	2020	Russia
Diesel generator set	112GF	Set	6	2021	Marine engine	B6190ZL CA-2R	Set	2	2020	Russia
Diesel generator set	20GFZ	Set	1	2021	Marine engine	8190ZL CA-2R	Set	1	2020	Russia
Diesel generator set	30GFZ	Set	1	2021	Diesel engine	G12V190PZL	Set	1	2020	Russia
Gas generator set	500GF18-TK	Set	2	2019	Coupler set	C01200F/30	Set	2	2020	Russia
Long stroke marine engine	L8190ZLC-1	Set	1	2019	Gas generator set	500GF-TK	Set	2	2020	Ghana
Coupler set	C01000F/30	Set	2	2019	Marine engine	B6190ZL CA-2	Set	2	2020	Russia
Diesel generator set	1000GF9	Set	1	2019	Marine engine	B6190ZL CZA-2R	Set	2	2020	Russia
Complete diesel engine set	G12V190PZL1	Set	1	2019	Coupler set	C0900F/30	Set	1	2020	Bengal
Complete diesel engine set	G12V190PZL1	Set	1	2019	Diesel engine	AG12V190PZL1	Set	1	2020	Bengal
Complete diesel engine set	A12V190PZL1	Set	2	2019	Compressor set	RTY60H110-110-85-85	Set	4	2020	Mexico
Marine engine	B6190ZL CZA-2R	Set	2	2019	Diesel generator set	800KW	Set	6	2020	Argentina
Complete diesel engine set	G12V190PZL1	Set	1	2019	Marine engine	B6190ZL CA-2	Set	1	2020	Russia
Diesel engine	H16V190ZL	Set	1	2019	Marine engine	B6190ZL CZA-2R	Set	1	2020	Russia
Gas generator set	1200GF-TK1	Set	6	2019	Complete diesel engine set	G12V190PZL-3	Set	2	2020	Vietnam
Complete diesel engine set	PZ12V190B	Set	1	2019	Complete diesel engine set	G12V190PZL1	Set	1	2020	Russia
Coupler set	C0810F-3/22	Set	2	2019	Complete diesel engine set	G12V190PZL1	Set	1	2020	Kazakhstan
Complete diesel engine set	G12V190PZL-3	Set	1	2019	Diesel generator set	300GF	Set	1	2020	Philippines
Coupler set	G12V190PZL1/O	Set	1	2019	Marine engine	B6190ZL CA-2	Set	2	2020	Russia
Gas generator set	1200GF-TK1	Set	4	2019	Marine engine	B6190ZL CZA-2R	Set	2	2020	Russia
Gas generator set	450GF-T	Set	1	2019	Diesel generator set	CCF1500/1000	Set	1	2020	Russia
Diesel generator set	1200GF8	Set	4	2019	Marine engine	B6190ZL CA-2	Set	1	2020	Russia
Marine engine	6190ZLC	Set	0	2019	Marine engine	B6190ZL CZA-2R	Set	1	2020	Russia
Gas generator set	CCF110001-Y	Set	2	2019	Marine engine	S6190ZLC-1	Set	2	2020	Vietnam
Complete diesel engine set	G12V190PZL1	Set	1	2019	Marine engine	G12V190ZLC1	Set	1	2020	Bengal
Gas generator set	1200GF-TK1	Set	1	2019	Marine engine	G6190ZLCD	Set	1	2020	Bengal
Complete diesel engine set	G12V190PZL-3	Set	1	2019	Gas generator set	600GF-T	Set	2	2020	Nigeria
Complete diesel engine set	G12V190PZL1	Set	1	2019	Gas generator set	600GF-T	Set	6	2020	Nigeria



Diesel generator set	CCF3000/1000	Set	1	2019	Russia	Gas generator set	600GF-T	Set	10	2020	Nigeria
Coupler set	CO1200F/50	Set	2	2019	Russia	Gas generator set	600GF-T	Set	4	2020	Nigeria
Marine engine	B6190ZL C1	Set	2	2019	Malaysia	Gas generator set	500GF18-TK1	Set	4	2020	Nigeria
Gas generator set	600GF-T	Set	2	2019	Nigeria	Marine engine	B6190ZL CA-2	Set	2	2020	Russia
Marine engine	B6190ZL CA-2	Set	1	2019	Russia	Marine engine	B6190ZL CZ-A-2R	Set	2	2020	Russia
Marine engine	B6190ZL C1-2	Set	1	2019	Russia	Marine engine	B6190ZL C1-2	Set	1	2020	Russia
Marine engine	B6190ZL CZ1-2R	Set	1	2019	Russia	Marine engine	B6190ZL CZ1-2R	Set	1	2020	Russia
Coupler set	CO1200/20	Set	1	2019	Russia	Gas generator set	500GF-T	Set	4	2020	Venezuela
Marine engine	C6190ZL C	Set	1	2019	Oman	Marine engine	B6190ZL CA-2	Set	1	2020	Russia
Coupler set	CO1200F/53	Set	2	2019	Nigeria	Marine engine	B6190ZL CZ-A-2R	Set	1	2020	Russia
Marine engine	B6190ZL CZ-A-2R	Set	1	2019	Russia	Marine engine	G6190ZL C1	Set	2	2020	Ukraine
Coupler set	CO1000F/30	Set	1	2019	Egypt	Marine engine	H12V190ZLC	Set	1	2020	Cambodia
Marine engine	B6190ZL CA-2	Set	1	2019	Russia	Marine engine	6190ZL C	Set	1	2020	Cambodia
Marine engine	B6190ZL CZ-A-2R	Set	1	2019	Russia	Marine engine	B6190ZL CA-2	Set	4	2020	Russia
Diesel generator set	CCF4000/1000	Set	1	2019	Russia	Marine engine	B6190ZL CZ-A-2R	Set	4	2020	Russia
Diesel generator set	220/127V, 700kW	Set	1	2019	Ecuador	Marine engine	B6190ZL C1-2	Set	1	2020	Russia
Diesel generator set	380/220V, 160kW	Set	1	2019	Russia	Marine engine	B6190ZL CZ1-2R	Set	1	2020	Russia
Diesel generator set	220/127V, 550kW	Set	1	2019	Ecuador	Marine engine	B6190ZL CA-2	Set	1	2020	Russia
Gas generator set	500GF-T6	Set	2	2019	Myanmar	Marine engine	B6190ZL CZ-A-2R	Set	1	2020	Russia
Marine engine	C8190ZL C-2	Set	1	2019	Russia	Gas generator set	1200GF-TK1	Set	2	2021	Nigeria
Marine engine	C8190ZL CZ-2R	Set	1	2019	Russia	Diesel generator set	1200GF8	Set	8	2021	Romania
Marine engine	A12V190ZL C	Set	1	2019	Vietnam	Marine engine	C6190ZL CZ-3	Set	2	2021	Egypt
Marine engine	6190ZL C	Set	1	2019	Vietnam	Diesel generator set	500GF17-2	Set	2	2021	Iraq
Gas generator set	250GF-T	Set	1	2019	Philippines	Bogas generator set	300GF30-Z	Set	1	2021	Malaysia
Gas generator set	600GF-T	Set	1	2019	Mexico	Gas generator set	2000GF9-T	Set	2	2021	Nigeria
Diesel engine	G12V190ZL D10	Set	1	2019	Russia	Marine engine	8190ZL CA-2	Set	1	2021	Russia
Diesel engine	G12V190ZL D11	Set	1	2019	Kazakhstan	Marine engine	8190ZL CZ-A-2R	Set	1	2021	Russia
Marine engine	B6190ZL CZ-A-2R	Set	3	2019	Russia	Gas generator set	550GF-TK1	Set	1	2021	Bengal
Marine engine	B6190ZL CA-2	Set	3	2019	Russia	Marine engine	66190ZL C1	Set	4	2021	Singapore
Gas generator set	600GF9s-Wd	Set	10	2019	Russia	Gas generator set	300GF30-T	Set	1	2021	India
Complete diesel engine set	G12V190ZL-3	Set	1	2019	Oman	Coupler set	G12V190ZL-3/O	Set	2	2021	Bengal
Bogas generator set	1000GF39-Z1	Set	4	2019	Ukraine	Marine engine	S6190ZL C-1	Set	1	2021	Bengal
Diesel engine	G12V190ZL1	Set	1	2019	Kazakhstan	Coupler set	CO900FA/30	Set	1	2021	Russia
Marine engine	B6190ZL C1-2	Set	1	2019	Russia	Bogas generator set	500GF-NK	Set	1	2021	Thailand
Marine engine	B6190ZL CZ1-2R	Set	2	2019	Russia	Diesel generator set	150GF	Set	1	2021	Russia
Marine engine	B6190ZL CA-2	Set	1	2019	Russia	Marine engine	B6190ZL CZ-R	Set	1	2021	India
Marine engine	B6190ZL CZ-A-2R	Set	2	2019	Russia	Gas generator set	600GF-T	Set	4	2021	Colombia
Marine engine	8190ZL C-2	Set	1	2019	Russia	Marine engine	B6190ZL CA-2	Set	2	2021	Russia
Marine engine	8190ZL CZ-2R	Set	1	2019	Russia	Marine engine	B6190ZL CZ-A-2R	Set	2	2021	Russia

Marine engine	G12V190ZLC1	Set	1	2019	Bengal	Diesel generator set	1400GF9	Set	1	2021	Niger
Marine engine	L8190ZLC-1	Set	2	2019	Bengal	Diesel generator set	500GF9	Set	2	2021	Niger
Marine engine	B6190ZLC-A-2	Set	1	2019	Russia	Diesel generator set	250GF	Set	2	2021	Niger
Diesel generator set	CCF3300/1000	Set	1	2019	Russia	Marine engine	B6190ZLC-A-2	Set	2	2021	Russia
Biogas generator set	700GF1-Z	Set	2	2019	Nigeria	Marine engine	B6190ZLCZA-2R	Set	2	2021	Russia
Marine engine	H12V190ZLC	Set	1	2019	Bengal	Biogas generator set	500GF-NK	Set	2	2021	Malaysia
Marine engine	G12V190ZLC1	Set	2	2019	Bengal	Biogas generator set	1600GF-NK	Set	4	2021	Thailand
Marine engine	6190ZLC	Set	2	2019	Bengal	Gas generator set	2000GF-T	Set	2	2021	UAE
Gas engine	H16V190ZLT2	Set	1	2019	Nigeria	Diesel generator set	800GF-Z-1	Set	1	2021	UAE
Biogas generator set	700GF1-Z	Set	2	2019	Nigeria	Compressor set	RTY1330L630-610-520-390	Set	1	2021	CNOOC
Complete diesel engine set	G12V1900PZL1	Set	2	2019	Nigeria	Marine engine	B6190ZLC-A-2	Set	2	2021	Russia
Marine engine	8190ZLC-A-2	Set	1	2019	Russia	Marine engine	B6190ZLCZA-2R	Set	2	2021	Russia
Marine engine	8190ZLCZA2-2R	Set	1	2019	Russia	Gas generator set	500GF-T	Set	1	2021	Russia
Gas generator set	1200GF9-TK1	Set	1	2019	Nigeria	Marine engine	B6190ZLC-A-2	Set	1	2021	Russia
Diesel generator set	CCF6600	Set	6	2019	Nigeria	Marine engine	B6190ZLCZA-2R	Set	1	2021	Russia
Gas generator set	500GF-16	Set	1	2019	Nigeria	Marine engine	8190ZLCZA2-2	Set	1	2021	Russia
Diesel generator set	400GF30	Set	1	2019	Panama	Marine engine	8190ZLCZA2-2R	Set	1	2021	Russia
Gas generator set	500GF18-TK1	Set	5	2019	Nigeria	Diesel engine set	CCF3300/1000	Set	1	2021	Russia
Complete diesel engine set	G12V1900PZL1	Set	1	2019	Ghana	Diesel engine set	CCF3350/1000	Set	1	2021	Russia
Marine engine	G6190ZLC2-1	Set	1	2019	Russia	Marine engine	B6190ZLC-A-2	Set	3	2021	Russia
Marine engine	G6190ZLC2-1R	Set	1	2019	Russia	Marine engine	B6190ZLCZA-2R	Set	3	2021	Russia
Marine engine	G12V190ZLC1	Set	1	2019	Bengal	Marine engine	8190ZLCZA2-2	Set	2	2021	Russia
Marine engine	B6190ZLC-A-2	Set	2	2019	Russia	Marine engine	8190ZLCZA2-2R	Set	2	2021	Russia
Marine engine	B6190ZLCZA-2R	Set	1	2019	Russia	Marine engine	8190ZLC2-2	Set	1	2021	Russia
Marine engine	B6190ZLCZA-2R	Set	1	2019	Russia	Marine engine	8190ZLC2-2-2R	Set	1	2021	Russia
Marine engine	8190ZLC-A-2	Set	1	2019	Russia	Marine engine	B6190ZLC-A-2	Set	2	2021	Russia
Marine engine	8190ZLCZA2-2R	Set	1	2019	Russia	Marine engine	B6190ZLCZA-2R	Set	2	2021	Russia
Marine engine	B6190ZLCZA-2	Set	1	2019	Russia	Gas generator set	700KW High voltage 10.5kV"	Set	18	2021	Nigeria
Marine engine	B6190ZLCZA-2R	Set	1	2019	Russia	Gas generator set	250GF-T	Set	6	2021	Mexico
Diesel generator set	1200GF8	Set	3	2020	Serbia	Gas generator set	500GF18-TK	Set	2	2021	Nigeria
Diesel generator set	CCF4400/1000	Set	1	2020	Russia	Marine engine	B6190ZLC-A-2	Set	2	2021	Russia
Complete diesel engine set	G12V1900PZL1	Set	1	2020	Nigeria	Marine engine	B6190ZLCZA-2R	Set	2	2021	Russia
Marine engine	G6190ZLC-1	Set	1	2020	Greece	Gas generator set	700KW High voltage 10.5kV"	Set	32	2021	Gabon
Diesel engine	G12V190ZL1	Set	1	2020	Kanya	Diesel generator set	500GF17-2	Set	3	2021	Iraq
Gas generator set	1200GF-T	Set	1	2020	Syria	Marine engine	C8190ZLC	Set	2	2021	India
Gas generator set	300GF-30-T	Set	2	2020	Syria	Gas generator set	600GF-T	Set	7	2021	Nigeria
Diesel generator set	1200GF8	Set	3	2020	Serbia	Gas generator set	500GF18-TK	Set	4	2021	Nigeria



Jichai overseas sales and services company regional manager contact information

Market district	Name	Duty	Phone number	E-mail	Office phone number
Asia Pacific area	Wang Xinji	Regional general manager	0086 13290322132	wxj_007@163.com	0531-87422581
Russia and Central Asia area	Meng Xiaoli	Regional general manager	0086 15966333760	mengxiaolijc@163.com	0531-87422595
African area	Zhou Changwang	Regional general manager	008613698628491	jdeczhou@163.com	0531-87422602
America and Europe area	Li Yunhui	Regional general manager	0086 13954185195	13954185195@163.com	0531-87422323
Middle East area	Wang Qijie	Regional general manager	0086 13791142831	wangqijie0108@163.com	0531-87423061
Marketing Department	Xu Minghe	Regional general manager	0086 15610109986	xuminghe414@163.com	0531-87423062

Project Inquiry Form					
Environmental condition					
Altitude m		Highest temperature °C		Lowest temperature °C	
Wind speed m/s		Desert (yes/no)		Salt fog (yes/no)	
Generator set basic technical parameters					
Rated power KW			Rated voltage V		
Rated frequency HZ					
Engine set purpose			Total quantity		
Number of work			Standby quantity		
With function	on-gnd ☐ in parallel ☐ single engine operation ☐	Operation mode		continuous operation ☐ interval ☐ standby ☐	
Cooling method	cooling tower ☐ Vertical radiator ☐ Horizontal radiator ☐				
Starting method	Electric start ☐ Air start ☐				
Color requirements			Inspection requirements		
Installation Location	outdoor ☐ Civil machine room ☐ Steel machine room ☐				
Load profile (especially power of high power motor and quantity):					
Other special requirement					
Gas information (natural gas/associated gas/biogas/gas (high/low))					
Gas composition (available on schedule):					
Gas pressure (kPa) :			Pressure fluctuation range (kPa) :		
Gas temperature (°C) :			Air volume (Nm ³ /d)		



CNPC JCPD



CNPC Jichai Power Company Limited

Address: No. 11966 Jingshixi Road, Jinan

Postcode: 250306

www.jichai.com