



Shandong Hongfan Power Technology Co.,Ltd.

1605,Customs Supervision Warehouse, High-tech Zone, Jinan Shandong China

Tel:86-18766952912 Email:2239946438@qq.com

CNPC JPEC

## DIESEL ENGINE

### SERIES Z12VB190B (588kW ~ 882kW)



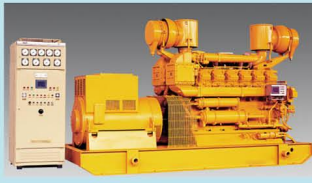
MAIN SPECIFICATION	
No. and layout of cylinders	12、60°Vee
Type	water cooled、turbocharged and aftercooled、direct injection
Rated speed (r/min)	1000、1200、1300、1500
Rated power (kW)	588 ~ 882
Fuel oil consumption (g/kW·h)	≤209.4
Lube oil consumption (g/kW·h)	≤1.0
Overall dimension L × B × H(mm)	2692 × 1560 × 2070
Net weigh (kg)	5300

Model Z12V190B diesel engine is a kind of high power, high speed engines, with excellent properties and wide application. In 1986, it was rewarded with the National Gold Prize Medal, and in 1994 it was honoured with Nation Customer Satisfactory Title. Years of development and constantly adopting latest technology and effective achievements in the internal combustion engine field, all these bring an engine of advanced technical and economic data, compact in structure, easy for operation and convenient for maintenance and also widely applicable even under severe.

### APPLICATION AREA



Power of Mechanical Drilling



Generating set

MAIN TECHNICAL DATA				
Rated power(kW)	500-800			
Rated frequency(Hz)	50、60			
Rated voltage(V)	400、6300、10500			
Voltage	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	±2.5%	-15% ~ +20%	1.5s	0.5%
Frequency	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	5%	±10%	7s	0.5%

Coupling sets with universal shaft and drive chain to drive mud pumps, winch  
Match 40L、50L、70L Mechanical Drill

### APPLICATION CASE



Tanzania 60MW diesel power plant



Chad 4MW diesel power plant



Saudi Arabia 75MW diesel power plant



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## DIESEL ENGINE

### SERIES 2000 (400kW ~ 1000kW)



Series 2000 diesel engines is developed on the basis of Z12V190B diesel engine. In order to improve engine reliability, economical efficiency and dynamic property, solve leakage problem and appearance quality, convenient to maintenance we have carried on the bigger improvement. So series 2000 can better meet all kinds of drilling rig, generating set, Engineering machinery demand for power.

#### MAIN SPECIFICATION

No. and layout of cylinders	12(8)stroke, 60°Vee
Type	water cooled, turbocharged and aftercooled, direct injection
Rated speed (r/min)	1000/1200/1300/1500
Rated power (kW)	600 ~ 1000(400 ~ 600)
Fuel oil consumption (g/kW·h)	≤209.4 (213.5)
Specific oil consumption	≤1.6 (2.7)
8v overall dimension L × B × H(mm)	1802 × 1560 × 2070
12v overall dimension L × B × H(mm)	3610 × 1770 × 2400

### APPLICATION AREA



Drilling power



Marine engine



Generating set

Main power of mechanical drilling rig, match 40L, 50L, 70L mechanical drill

This series diesel engine has been as fisheries, high-speed passenger ship, fresh ships host engine widely used. This series engine supports power in the Yangtze river, port terminals, coastal areas to tug, dredger engineering, also this series engine has been exported to north Africa for ocean fishing trawler, golden gun fishing boats.

#### MAIN ELECTRICAL PERFORMANCE DATA

Rated power	300 kW-800 kW			
Rated frequency	50Hz, 60Hz			
Rated voltage	400V, 6300V, 10500V			
Voltage	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	±2.5%	-15% ~ +20%	1.5s	0.5%
Frequency	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	5%	±10%	7s	0.5%

### APPLICATION CASE



Power plant of Iraq Rumaila oil field



Series 2000 air-cooled hydrodynamic coupling



Hydrodynamic coupling drive the mud pump independently



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## DIESEL ENGINE

### SERIES 3000(600kW ~ 1360kW)



MAIN SPECIFICATION	
No. and layout of cylinders	12, 8 stroke, 60°Vee
Type	water cooled,turbocharged and aftercooled,direct injection
Rated speed (r/min)	1000/1200/1300/1500
Rated power (kW)	600 ~ 1200(960 ~ 1360)
Fuel oil consumption (g/kW.h)	≤205
Specific oil consumption (g/kW.h)	≤1.0 (1.4)
8v overall dimension L × B × H(mm)	2300 × 1774 × 2173
12v overall dimension L × B × H(mm)	2950 × 1980 × 2206
Net weight (kg)	9300(7200)

In order to meet the power demand of the developing oil industrial and increase the progress and reliability of our of our drilling equipment, JDEC developed a new generation of diesel engine Series 3000. On the basis of series 6000 diesel engine and adopting the advanced structure and techniques both in domestic and on abroad, the economic effect and dynamic performance have increased by a large margin. The main performance data has achieved or approached the advanced level of the international world.

### APPLICATION AREA



Drilling power

Main power of mechanical drilling rig, match 40L, 50L, 70L mechanical drill



Marine engine

Series 3000 are applied for several different kinds of dredgers. According to different characteristics, we made modifications on design as the main propulsion and auxiliary engines to fulfill the special requirements of the working conditions. Furthermore, this series engines are considered as power take-off for engineering boats, such as dredging, transmission, suction.



Generating set

MAIN ELECTRICAL PERFORMANCE DATA				
Rated power kW	700-1200			
Rated frequency Hz	50, 60			
Rated voltage V	400, 6300, 10500			
Voltage	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	±2.5%	±15%	1.5s	0.5%
Frequency	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	0 ~ 5%	±5%	3s	0.5%

### APPLICATION CASE



Series 3000 water-cooled hydrodynamic coupling generating sets



Series 3012 diesel engine rig



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## DIESEL ENGINE

### SERIES 4000 (1000kW ~ 1300kW)



MAIN SPECIFICATION	
NO. and arrangement of cylinders	12,60°Vee
Type	Water cooled, turbocharged and aftercooled, direct injection
Rated speed (r/min)	1000/1200/1300
Rated power (kW)	1000/1100/1200/1300
Fuel consumption (g/kWh)	≤200
Specific oil consumption (g/kWh)	≤0.8
Overall dimension L×B×H(mm)	2950×1980×2315
Net weight (kg)	10050

In order to meet the growing demand for petroleum industry, my company developed series 4000 diesel engines, which can make the drilling equipment advanced, reliability, and also developed a new generation of diesel engine. The economic effect and dynamic performance have increased by a large margin. The main performance data has achieved or approached the advanced level of the international world.

### APPLICATION AREA

Series 4000 long stroke engine main form a complete set of 1000 kW/ 1000 rpm generator sets for electric drilling, 1100 kw / 1200rpm generator sets for electric drill; and it can also match the 1600,1300 mud pump unit.



### APPLICATION CASE



Chad generator set project



Xinjiang oil field drilling



Power of Western China Drilling Company



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## DIESEL ENGINE

### SERIES 6000(1600kW ~ 2400kW)



MAIN SPECIFICATION	
No. and layout of cylinders	12 (16) , 60°Vee
Type	water cooled , turbocharged and aftercooled, direct injection
Rated speed (r/min)	1000, 1200, 1500
Rated power (kW)	1600-2400
Fuel oil consumption (g/kW·h)	≤200
Lube oil consumption (g/kW·h)	≤0.8
12V Overall dimension L × B × H(mm)	3162 × 1754 × 2244
Overall dimension L × B × H(mm)	3525 × 2060 × 2331
Net weigh (kg)	9300 (13000)

Series 6000 diesel engines is co-developed by JDEC and AVL, Austria as well as some domestic famous university and research institute, and the simulation calculation and optimization have been carried out for the combustion process, crankshaft torque and vibration, turbocharger match and intake and exhaust system etc. by means of using latest development methods such as CAD, computer simulation, FEM and so on. It have been adopted and targets of BEMP, fuel consumption and emission, operation reliability and safety have been improved very much.

### APPLICATION AREA



Power of offshore drilling platform



Marine engine



Diesel power generation

Series 6000 diesel engines are widely used as the main and auxiliary engine of ships.

MAIN TECHNICAL DATA				
Rated power(kW)	1350-2000			
Rated frequency(Hz)	50, 60			
Rated voltage(V)	400, 6300, 10500			
Voltage	Stable regulat- ing rate	Instantaneous regulating rate	Recovery time	Fluctuation
	±2.5%	-15% ~ +20%	1.5s	0.50%
Frequency	Stable regulat- ing rate	Instantaneous regulating rate	Recovery time	Fluctuation
	5%	±10%	7s	0.5%

### APPLICATION CASE



10 sets of generating units for Indonesia SILO iron ore processing plant



Power of Oil Drilling Project of Central Asian



Power of Tarim Oilfield



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## GAS ENGINE

### SERIES 127 GAS ENGINE (450kW ~ 660kW)



MAIN SPECIFICATION	
No.and layout of cylinders	12、60° Vee
Rated power ( kW )	450-660
Rated speed ( r/min )	1000/1200
Specific heat consumption (kJ/kWh)	≤11386
Specific oil consumption (g/kWh)	≤1.6
Fuel	Natural gas
Overall dimension (L×W×H mm)	3253×1715×2538(3050×1715×1955)
Net weight ( kg )	5300

Series 127 gas engine is the first generation of gas engine developed by our company based on the 190 diesel engine. It fills up the gap of turbocharged high-power gas engine in China, and the main targets reach the world advanced level of 1980s. After continual improvement for years, the 190 gas engines have formed a series which are widely used in oil fields and other places with fuel gas, bringing tremendous economic benefits.

### APPLICATION AREA

The 127 series is mainly used in natural gas power generation and oil field drilling power field.



Series 127 gas torque converter unit



Series 127 gas generator set

### APPLICATION CASE



Series 127 natural gas generator set in Nigeria



Power plant of Ansai oilfield



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## GAS ENGINE

### 2000 SERIES CLOSED LOOP ELECTRONIC CONTROL GAS ENGINE(550kW ~ 800kW)



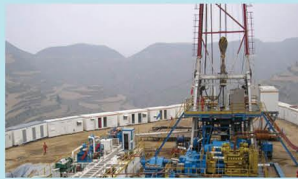
MAIN SPECIFICATION	
No. And layout of cylinders	12/60° Vee
Type	Water cooled , turbocharged and aftercooled , direct injection
Rate speed (r/min)	1000
Rate power(kW)	550—800
Heat consumption(kj/kWh)	≤11000
Lube oil consumption(g/kWh)	≤1.0
Type of fuel	Natural gas/biogas/coal gas

Developed by Jichai and WOODWARD, this series engine adopts electronic control technique, Lean-Burn control technique and mix before booster technique, and its performance indicators lead the international advanced level.

Main application: natural gas, methane, coal gas and some other gas electricity generating, equipped with compressor units.

### APPLICATION AREA

Main application: With nature gas ,biogas,coal gas,etc as fuel for generator; Form a complete set of compressor.



Drilling power



Gas power generation

Mechanical oil rig power for 40L、50L、70L mechanical rigs

MAIN TECHNICAL DATA				
Rated power(kW)	500-800			
Rated frequency(Hz)	50/60			
Rate speed (r/min)	400/6300/10500			
Voltage	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	±2.5%	-15%~+20%	1.5s	0.5%
Frequency	Stable regulating rate	Instantaneous regulating rate	Recovery time	Fluctuation
	5%	±10%	7S	0.5%

### APPLICATION CASE



Associated gas power plant in Sudan



Natural gas power plant of W-EGTP



Henan Shuanghui biogas power plant



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## HYDRODYNAMIC DRIVE PRODUCT

### OIL SERIES FLUID TRANSMISSION DEVICE



#### MAIN SPECIFICATION

Torque capacity	48—89kN.m
Transmission ration	158.48—439.2
Motor rated speed	750/1000/1500r/min
Speed regulating motor speed	600r/min ~ 1500 r/min
Motor rated power	18kW ~ 55kW

Beam pumping unit use fluid power plant to cancel the belt device. Increase the hydraulic coupling. Make the speed motor + coupling + gearbox combination as an independent power unit. improving systematic drive efficiency, improving the pumping performance, reducing pumping energy consumption. The device uses a multi-speed motor or variable speed motors as a power unit. match with gearbox, pumping fully meet the conditions required to achieve system multi-speed or variable speed output.

Compared with conventional gear belt drive, hydraulic coupling gearbox power unit has the following advantages:

1. It having a no-load start and soft start feature that allows the motor to start under heavy state light load.
2. The abolition of the belt drive, improved mechanical efficiency, it can avoid traditional belt transmission belt slip caused by rain and snow, stop, etc. which influence the normal production wells. While saving material costs, reduce labor intensity.
3. Fluid coupling is a flexible drive, with shock mitigation and torsional vibration isolation function, greatly reducing the mechanical losses of the system, greatly improving the life of the gearbox.
4. Fluid coupling can flatten (weak) due to the alternating load caused by the motor peak current, Elimination of the motor "power" phenomenon, improve power factor, and close the motor running in the high region, with significant energy-saving effect.
5. Using multi speed technology can be implemented directly by the electrical junction box combination switches enable exchange of stroke, easy to use.
6. Compare with conventional beam pumping unit as compared to the conventional configuration of power, the system can save energy about 15% to 20%, in line with national building a conservation-oriented society.
7. The device increased motor parts, have the effect of the flood control security

### APPLICATION AREA

Usage: Apply to 48.53.73.89 and other types of beam pumping unit power configuration and transformation.





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## HYDRODYNAMIC DRIVE PRODUCT

### YOTFJ450/560/650/750/875 SERIES FIXED JACKET SPEED ADJUSTABLE COUPLING SPEED REDUCTION GEARBOX



MAIN SPECIFICATION	
Input rotation	1000 ~ 1500 r/min
Transmitted power	200 ~ 3000kW
Rated power	≥96%
Reduction ratio	2.0 ~ 3.3
Rated slip	3%
Speed adjustable range	1 ~ 1/3
Clutch sensitivity	6 ~ 8S

This kind of products is developed for drilling slush pump solid control and circulation system. This product adopt fixed jacket speed adjust technology, realize coupling continuously viable and speediness, stable clutch, is the best choice for drilling slush pump assembly in domestic. Character: adopt fixed jacket and adjustable inlet combination method to realize adjust rotation, with the function of with load start up, overload protection, torsional vibration isolation, slow down the impact, continuously viable, no impact speediness clutch, is the most optimal speed adjustable gearing device for slush pump .

### APPLICATON AREA

Application usage: assembly with 140、190、260、320 series diesel engine and Carter, Volvo, and Commies diesel engine or electric motor, used for driving slush pump.





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## HYDRODYNAMIC DRIVE PRODUCT

### YOTZJ700/750 SERIES FIXED JACKET SPEED ADJUSTABLE COUPLING SPEED

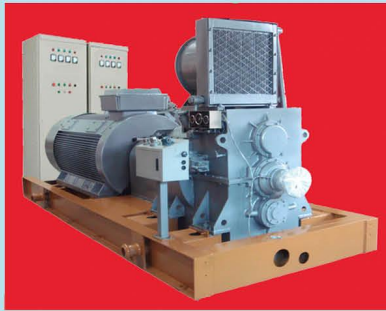


MAIN SPECIFICATION	
Input rotation	1000 ~ 1500r/min
Transmitted power	600 ~ 1200kW
Rated power	96%
Cooling method	air cooling
Speed adjustable range	1 ~ 1/3

Character: adopt fixed jacket and adjustable inlet combination method to realize adjust rotation, with the function of with load start up, overload protection, torsional vibration isolation, slow down the impact, continuously viable, no impact speediness clutch, is the most optimal speed adjustable gearing device for "electric instead of oil" remolding slush pump and drilling main driving system.

### APPLICATION AREA

Product usage: assembly with our 190 series diesel engine and electric motor, then can be used for slush pump set, also can be used for power grid driving drilling machine.(machinery, electric driving) compound drilling machine main driving system.





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## HYDRODYNAMIC DRIVE PRODUCT

### YOZJ750SERIES AIR COOLING HYDRAULIC COUPLING REDUCTION GEARBOX



MAIN SPECIFICATION

Input rotation	600 ~ 1500r/min
Power range	600 ~ 1300kW
Rated slip	3%
Rated power	≥96%
Reduction ratio	1.5 ~ 2.5
Cooling method	air cooling
Installation method	independent installation <input type="checkbox"/> joint installation

### APPLICATION AREA

This kind of hydraulic coupling speed reduction gearbox adopt independent air cooling system, adopt independent base or joint with diesel engine common base, fitting for any kind of drilling machine assembly, used for machinery drilling machine, electric drilling machine , compound driving drilling main driving system.

