JERRYMETALS
Onshore and Offshore Drilling Equipments

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DRILLING RIG

Oil Drilling Rig can be used in exploration and exploitation of oil and gas well.

All products conform to API Spec. 4F, 7K, 8A, and acquired the certificate of authority to use the official API monogram.

Technical Performance

1. Electric-drive drilling rig: The drive mode of DC electric-drive drilling rig is AC-SCR-DC, while AC electric-drive drilling rig is AC-DC-AC; it is equipped with a complete diesel generator as the power source. Drawworks adopts hydraulic disc brake and the EATON auxiliary brake， etc. Drawworks, Mud Pump and Rotary Table can be driven by independent motors (Rotary table can be driven compound). K type mast, self-lifting or spin-lifting substructure, mast and substructure are raised integrally. The rig is controlled concentratively in Driller's control cabin and achieves automatic bit feeding function. The auxiliary brake of AC-VFD drilling rig is dynamic brake
2. Combined drive drilling rig: The rig's drive mode is that the diesel engines provide power and integrated chain compound box transmits power. Drawworks adopts sealed chain transmission with hydraulic disc brake, etc. Drawworks and Mud Pump are driven uniformly. Rotary Table is driven by AC frequency converter and equipped with VFD system; K type mast; Substructure adopts box on box type or spin-lifting type; Mast and substructure are installed at ground level and raised integrally.
3. Mechanical drive drilling rig: The rig's drive mode is that the diesel engines provide power and the belt compound device transmits power. Drawworks adopts sealed chain driving with band brake system. Drawworks, Rotary Table, Mud Pump are driven uniformly. A type or K type mast. Substructure adopts box on box type or spin-lifting type. Mast is installed at ground level and raised integrally.

7000m digital-control VF electric rig

Major features:

It adopts integrated design of mechanical, electrical, hydraulic, pneumatic and digital control, utilizes fully the advantages of advanced digital control AC VF electric transmission, and simplifies its mechanical structure.

As adopting of slingshot type substructure, drill floor equipments and driller cabin etc realize low-position installation and integer lifting.

Cantilevel type substructure, whose rig floor can reach 10.5m , is more suitable for exploration and exploitation of HP gas well; driller's cabin is separated from drill floor, which can independently lifted to its position by hydraulic and avoid effect caused by drill floor vibration on instruments and control elements in it.

Cooperate with top drive, three sets of 1600 hp VF mud pump provide good conditions for inclined wells and directional wells drilling.

Electric transmission adopts vector VF drive system to realize all digital operation and control, and also processes elementary functions of automation, intelligence and information to realize collection (signal), display, restoration, printing, remote monitoring and management of control and drilling parameters.

Wide-range, high-precision and effective control on bit pressure, bit rev, pump pressure and pump displacement can be easily achieved to improve drilling technology greatly.

By the use of VF technology, DW realizes max torque output when i ts speed is zero to ensure the suspension function of rig lifting system, which change traditional driller operation mode completely.

Operation and control system adopt dual-way PLC redundant design to improve the reliability of the system.

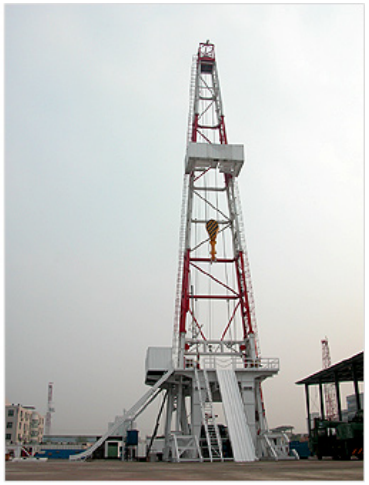
This rig is equipped with an integral driller's cabin, in which a driller can finish major operations.

Main technical parameters:

ZJ70/4500DBS Rig

1	Nominal drilling depth	7000m （ 114mmDP ） 6000m （ 127mmDP ）		10	Substructure type	slingshot type	Cantilevel type
2	Max hook load	4500kN		11	Substructure height and clear height under RT beam	9m / 7.6m	10.5m / 9.2m
3	Wire rope system of traveling system	6 × 7 ， parallel		12	Mast type and effective height	K TYPE ， 45m	
4	DW rated power	1470 kW （ 2000hp ）		13	Transmission mode	AC-VFD-AC	
5	DW gear	One gear stepless speed regulation		14	Quantity/power of main diesel engine	4x 1087 kw	
6	Diameter of drilling wire rope	φ 38mm		15	Quantity/power of auxiliary generator set	1x292kW	
7	RT opening diameter	950mm （ 37 1/2″ ）		16	Quantity and power of VF motor	1×600kW+2 × 1000kw+1 × 45kw +3 × 1200 kw	
8	RT gear	One gear stepless speed regulation	Two gears stepless speed regulation	17	HP mud manifold	Φ 103mm （ bore diameter ） ×35MPa	
9	Quantity and power of drilling pump	3× 1600 hp pump		18	Effective mud volume of solid control system	430m^3	

● 7000m RT-independent-electric-driven rig



Major features:

On the basis of common mechanical rig, driving of RT and DW is separated, and RT is driven by an independent AC VF motor. RT rev, torque and mud pump stroke can be adjusted separately as per drilling technology, which provides precondition and guarantee for drilling technology optimization and auto-bit-feeding realization.

RT and auto-bit-feeding both adopt all-digital auto control technique, which make the performance of the rig under drilling condition get close to digital-control electric VF rig; driller operates the touch screen to fulfill drilling operation through optimized drilling parameters, which will reduce labor intensity significantly and improve work efficiency. Display, restoration, regulation and control, remote management of major drilling parameters can be realized.

Main technical parameters:

ZJ70/4500LDB Rig

1	Nominal drilling depth	7000m （ 114mmDP ）		9	Quantity and power of drilling pump	2× 1600 hp pump	
		6000m （ 127mmDP ）		10	Substructure type	Block package type	Swing up type
2	Max hook load	4500kN		11	Substructure height and clear height under RT beam	9m / 7.6m	10.5m / 9m
3	Wire rope system of traveling system	6 × 7 ， parallel		12	Mast type and effective height	K TYPE ， 45m	
4	DW rated power	1470 kW （ 2000hp ）		13	Transmission mode	hydraulic transmission and chain paralleling +AC-VFD-AC	
5	DW gear	4 gears	6 gears	14	Quantity/power of main diesel engine	3 × 810kW	
		4 forward+ 2 reverse	6 forward+ 2 reverse	15	Quantity/power of auxiliary generator set	3×400kW	
6	Diameter of drilling wire rope	φ 38mm		16	Quantity and power of VF motor	1×600kW+1 × 45kW	
7	RT opening diameter	950mm （ 37 1/2″ ）		17	HP mud manifold	φ 102mm （ bore diameter ） ×35MPa	
8	RT gear	1 gear	2 gears	18	Effective mud volume of solid control system	430m^3	

● 7000m DC electric rig

Major features:

DW, RT and mud pump can realize independent stepless speed regulation which provide guarantee for drilling technology optimization.

Mast, substructure and drill floor equipments can be installed at lower position, and then be lifted integrally upon DW power.

All-digital auto control auto-bit-feeding system is available, driller operates the touch screen to fulfill drilling operation through optimized drilling parameters, which will reduce labor intensity significantly and improve work efficiency. Display, restoration, regulation and control, remote management of major drilling parameters can be realized.

Main technical parameters:

ZJ70/4500D Rig

1	Nominal drilling depth	7000m （ 114mmDP ） 6000m （ 127mmDP ）		10	Substructure type	slingshot type	Swing up type
2	Max hook load	4500kN		11	Substructure height and clear height under RT beam	9m / 7.62m	10.5m / 8.92m
3	Wire rope system of traveling system	6×7 ， parallel		12	Mast type and effective height	K TYPE ， 45m	
4	DW rated power	1470 kW （ 2000hp ）		13	Transmission mode	AC-SCR-DC	
5	DW gear	4 forward+ 4 reverse ， stepless speed regulation		14	Quantity and power of main generator set	4× 1200 kW	
6	Diameter of drilling wire rope	φ 38mm		15	Quantity and power of auxiliary generator set	1×292kW	
7	RT opening diameter	952.5mm （ 37 1/2″ ）		16	Quantity and power of DC motor	9 × 800kw	
8	RT gear	One gear stepless speed regulation	Two gears stepless speed regulation	17	HP mud manifold	Φ 103mm （ bore diameter ） ×35MPa	
9	Quantity and power of drilling pump	3× 1600 hp pump		18	Effective mud volume of solid control system	430m^3	

7000m mechanical rig

Major features:

K type mast is made of H steel, and has the advantages of wide eyeshot and convenient transportation.

The substructure is Block package type which has good stability; while drawworks and mast adopt low-position installation and being lifted upon drawworks power.

Drawworks is a seal type chain transmission drawworks which has 4 forward gears+2 reverse gears (or 6 forward gears+2 reverse gears), and it equips auxiliary drive device for mast lifting and emergency lifting.

This rig is equipped with an integral driller's cabin, in which a driller can finish major operations and controls.

Between each part of rig transmission system adopt cardan shaft connection, which is convenient to install and disassemble.

Overall layout of the rig is reasonable, while its modularization can meet the requirements of integrally lifting, train and truck transportation.

Main technical parameters:

ZJ70/4500L Rig

1	Nominal drilling depth	7000m （ 114mmDP ）	9	Quantity and power of drilling pump	2× 1600 hp pump
		6000m （ 127mmDP ）	10	Substructure type	Block package type
2	Max hook load	4500kN	11	Substructure height and clear height under RT beam	7.5m / 6.26m
3	Wire rope system of traveling system	6x7 ， parallel	12	Mast type and effective height	K TYPE ， 45m
4	DW rated power	1470 kW （ 2000hp ）	13	Transmission mode	hydraulic transmission and chain paralleling
5	DW gear	4 gears / 6 gears	14	Quantity/power of main diesel engine	4x810kw

		4 forward+ 2 reverse	6 forward+ 2 reverse	15	Quantity and power of auxiliary generator set	2×400kW
6	Diameter of drilling wire rope	φ 38mm				
7	RT opening diameter	952.5mm （ 37 1/2″ ）		16	HP mud manifold	Φ 103mm （ bore diameter ） ×35MPa
		698.5mm （ 27 1/2″ ）				
8	RT gear	4 forward+ 2 reverse		17	Effective mud volume of solid control system	430 m^3