RG PETRO-MACHINERY (GROUP) CO., LTD.

RG PETRO-MACHINERY (GROUP) CO., LTD is one of the largest manufacturers of petroleum drilling equipment in China. It is a share-holding company reorganized from Nanyang Petroleum Machinery Factory (The former No.2 Petroleum Machinery Factory of the National Petroleum Industrial Ministry of China). As a state technical equipment production base authorized by the State Economic and Trade Commission, RG PETRO-MACHINERY (GROUP) CO.LTD has become a state-level new product trial production enterprise, a light-duty drilling rig production base of SINOPEC and one of the 50 zooming high-tech enterprises in Henan Province.

RG PETRO-MACHINERY (GROUP) CO., LTD. has set up a postdoctoral scientific research working station, an academic working station and a standard drafting department for mobile drilling rigs as authorized by the National Petroleum Drilling Equipment and Tool Standardization Technical Committee. There is also a national-level technical center and a provincial technical center, an information center, and a quality control center. RG PETRO-MACHINERY (GROUP) CO., LTD. also possesses 12 production workshops to complete the forging, metal machining, heat treatment, steel structure and general assembly processes as well as painting and new product trial production. Besides this it also has more than 645855ft^2 of comprehensive testing sites for drilling rigs with a special railway line connecting to the company. Meanwhile, RG PETRO-MACHINERY (GROUP) CO., LTD. also exercises share control over several Sino-American joint-ventures such as NanYang HuaMei Petroleum Equipment Co.Ltd., Nanyang XinCheng Aerial Equipment Co. Ltd., as well as NanShi LiTian Transmission Co., Ltd., NanYang RG Vehicle Manufacturing Co. Ltd, RG (Luoyang) Petroleum Equipment Co., Ltd. and any other companies.

With a complete quality-control system, RG PETRO-MACHINERY (GROUP) CO., LTD. is one of the first companies in China that has passed the certification of ISO9001 /2000. Since 1995 and it has owned the right to use monograms including API SPEC 8A, 8C, 11E, 4F, 7K, 16C, Q1 of the American Petroleum Institute. Its vehicle products have passed the "3C" compulsory certification of China. Meanwhile, RG PETRO-MACHINERY (GROUP) CO. LTD. has obtained HSE system certification, ISO14001 and GB28001 certification successively.

Our products cover 12 varieties with over 200 products, including skid-mounted drilling rigs, truck-mounted drilling rigs, trailer-mounted drilling rigs, workover rigs, offshore drilling/workover rigs, solid control system, well logging trucks, petroleum special vehicles, top drive system, mud pump system, hoisting & rotary drilling equipment and spare parts.

By firmly upholding the principle of "Customer First", RG PETRO-MACHINERY (GROUP) CO., LTD has established professional service organizations in all China's oilfields and in Canada, Moscow and other countries. Complete after-sales service systems have been put in place for equipment installation, debugging, maintenance, training and spare parts supply. The products made by our company are in high demand in all China's oilfields and have been exported to more than 30 countries and regions around the world, such as America, Canada, Mexico, Venezuela, Brazil, Argentina, Columbia, Bolivia, Costa Rica, Chile, Russia, Britain, Hungary, Switzerland, Turkey, Turkmenistan, Kazakhstan, Uzbekistan, Egypt, Sudan, Nigeria, Saudi Arabia, Iraq, Oman, Iran, Syria , Libya, Tunis, Morocco, India, Indonesia, Thailand, Malaysia, Myanmar, UAE, Kuwait, Ukraine, Tajikistan, Azerbaijan etc.

RG PETRO-MACHINERY (GROUP) CO., LTD warmly welcomes all customers, both from home and abroad, for inquiry, visit and cooperate to create mutual success!

RG PETRO-MACHINERY (GROUP) CO., LTD will be your sincere friend and ideal long-term cooperator!

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RG PETRO-MACHINERY (GROUP) CO., LTD.

RG PETRO-MACHINERY (GROUP) CO., LTD.

OUR VISION IS TO CREATE A WORLD-FAMOUS BRAND AND TO ESTABLISH A TOP INDUSTRIAL ENTERPRISE.

OUR MISSION IS TO SUPPLY THE FIRST-CLASS EQUIPMENT AND BEST SERVICES TO THE PETROLEUM INDUSTRY OF CHINA AND THE WORLD.

OUR VALUES IS TO DO WORLDWIDE BUSINESSES WITH CREDITABILITY BY AN ACTIVE PARTICIPATION OF COMPETITIONS AND A TECHNICAL INNOVATION AS WELL AS A PREEMINENT WORKS.

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PART 1: DRILLING RIGS

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PART 4: HOISTING EQUIPMENT AND MAST (DERRICK)

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1

TRUCK-MOUNTED DRILLING RIG

- With an optimum structure and high-level integration, the whole rig requires a small working space.
- The heavy-duty self-propelled chassis are available in various drive ways 8×6, 10×8, 12×8, 14×8, 14×12, with hydraulic steering system which ensures good drilling accessibility, cruise capability and lateral stability, and also the working reliability of every component.
- The matching between the engine and the transmission box ensures high driving efficiency and high working reliability. The drawworks and rotary tables can be driven by motors.
- The drilling rig main brake can be band brake or hydraulic disc brake, and the auxiliary brake can be water cooling thrust plate pneumatic brake or water brake.
- The rotary table transmission box provides forward-reverse shift, which is suitable for DP make up and break out operations, and is equipped with a reverse torque release device that ensures the DP deformation force releases safely.
- The mast, which is front-open and double-sectioned with an inclination angle or with an erective double-section, can be raised up or laid down and telescoped hydraulically.
- The drill floor is twin-body telescopic type or parallelogram structure, which is convenient for hoisting and transportation. The dimension and height of the drill floor can be designed based on customers' requirements.
- The configurations of the solid control system, well control system, high-pressure manifold system, generator house, engine pump house, doghouse and other auxiliary equipment can meet the different requirements of the end-users.

MAIN TECHNICAL PARAMETERS FOR TRUCK-MOUNTED DRILLING RIGS

Model	ZJ10/900CZ	ZJ15/1350CZ	ZJ20/1580CZ	ZJ30/1700CZ	ZJ40/2250CZ
Drilling Depth (ft) (4½" DP)	3300	5000	6600	10000	13000
Workover Depth (ft)(3½" DP)	8000	14500	18000	21000	23000
Max Hook Load (lbf)	200000	303500	350000	400000	500000
Hook speed (ft/s)	0.65~4.59				
Mast height (ft)	96/102	108	115	118/125	125
Mast type	Mast	Mast	Mast	Mast or Erection	Mast or Erection
Engine power(hp)	350	540.4	630.3	2×540	2×630
Hydraulic transmission box	4700	S5610HR/TH35	S6610HR	2×S5610HR	2×S6610HR
Drive ways	Hydraulic + mechanical				
Traveling system	4×3	5×4	5×4	6×5	6×5
Drilling line diameter (in)	1"	1"	1 1/8"	1 1/4"	1 1/4"
Hook block	YG90	YG110	YG160	YG180	YG225
Swivel	SL110	SL135	SL160	SL225	SL225
Rotary table	ZP175	ZP175	ZP175	ZP205/ZP275	ZP275
Chassis	XD40/8×6	XD50/10×8	XD60/12×8	XD70/14×8	XD70/14×8
Approaching /Departure angle	22° /18°	30° /20°	26° /18°	26° /18°	26° /18°
Min. ground clearance (in)	12				
Max. gradient ability	30%	26%	26%	26%	26%
Min. turning diameter (ft)	92	98	125	135	135
Overall dimension (ft)	55×9×14	62×9×14	67×9×15	73×10×15	73×10×15
Main unit mass (lbs)	93000	110000	130000	170000	180000
Mass of accessories (lbs)	~33000	~44000	~53000	~70000	~75000

2 SKID-MOUNTED DRILLING RIG

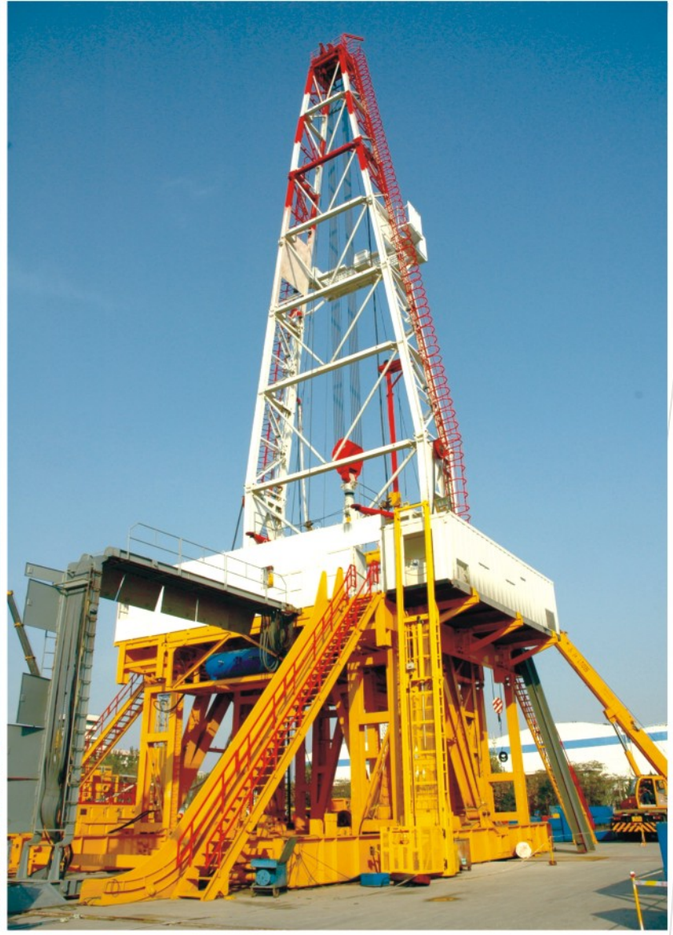
- The drive ways of these kinds of drilling rigs include mechanical drive, electrical drive (VFD or SCR), electro/mechanical drive and others.
- The compact skid modular structure is convenient for installation and transportation. It meets the requirement of entire moving structure and cluster well drilling. In addition, the drilling rig requires only a small working space due to its compact configuration.
- Mast structure types include A type, K type (telescopic vertical hoisting mast, entire hoisting mast), etc.
- The structure types of the substructure include swing-up, sling-shot, box-on-box, and telescoping etc.
- Band brakes or hydraulic disc brakes can be applied as the main brake; water cooling thrust plate pneumatic brake or FDWS brakes can be used as auxiliary brakes; the energy-consumption brake can be used as the AC variable frequency drive rig's auxiliary brake.
- The drilling rigs adopt network and information technology as well as integrated design for the control, monitoring and display of power, air and hydraulics so as to realize intelligent and safe control of the driller.
- A standardization and modularization design and various methods of combining the design have been applied in order to increase the universality and exchangeability of the drilling rigs.
- The configurations of the solid control system, well control system, high-pressure pipe manifold system, generator house, pump engine house, doghouse and other auxiliary facilities can meet the different requirements of the end-users.

MAIN TECHNICAL PARAMETERS FOR SKID-MOUNTED DRILLING RIGS（3300～10000 ft）

Model		ZJ10DB	ZJ15DB	ZJ20K	ZJ30K	ZJ30DB	ZJ30L	ZJ30LDB
Nominal drilling depth (ft)	4½" DP	3300	5000	6600	10000			
	5" DP	2625	4600	5906	8000			
Max hook load (lbf)		135000	200000	300000	400000			
Hook speed (ft/s)		0～3.6	0～3.9	0.66～5	0.66～5	0～3.9	0.66～5	0.66～5
Mast height (ft)		95	95	102	108	135	141	141
Mast type		Erective	Erective	Erective	Erective	K type	K type	K type
Drill floor height (ft)		10	13	15	16.4/20	16.4	20	20
Substructure type		Box-on-box	Box-on-box	Box-on-box	Box-on-box	Box-on-box	Box-on-box	Box-on-box
Motor/Engine type		AC-VF speed adjustable motor	AC-VF speed adjustable motor	C18	2×C15	AC-VF speed adjustable motor	G12V190PZL-3	G12V190PZL-3/0
Motor/Engine power (hp)		308	443	630	2×539	671	1086×3	1086×3
Drive ways		VFD drive	VFD drive	Hydraulic+ mechanical	Hydraulic+ mechanical	VFD drive	Hydraulic+ mechanical	Electrical+ mechanical
Transmission box model		SDX10DB	SDX15DB	S6610HR	2×S5610HR	SDX30DB	Coupler YOZJ760	——
Traveling system		5×4	5×4	5×4	6×5/5×4	6×5	6×5	6×5
Drawworks		JC10DB	JC15DB	JC20K	JC30K	JC30L	JC30B	JC30LDB
Drawworks power (hp)		268	402	470	537	671	738	671
Main brake		Band brake	Band brake	Band brake	Band brake	Disc brake	Disc brake	Disc brake
Auxiliary brake		224WCB	224WCB	224WCB	324WCB	FDWS30	FDWS30	FDWS30
Drilling line diameter (in)		7/8"	1"	1 1/8	1 1/8/1 1/4	1 1/8	1 1/8	1 1/8
Hook block		YG70	YG90	YG160B	YG225	YG225	YG180	YG180
Swivel		SL110	SL110	XSL170	XSL225	XSL225	XSL170	XSL225
Rotary table		ZP175	ZP175	ZP175	ZP205/ZP275	ZP275	ZP275	ZP275
Mud pump nominal power(hp/set)		500×1	800×1	800×2	1000×2	1000×2	1300×2	1300×2
Working pressure of the hydraulic system (psi)		2000						
Nominal working pressure of hydraulic system (psi)		145						

MAIN TECHNICAL PARAMETERS FOR SKID-MOUNTED DRILLING RIG (13000 ft)

Model		ZJ40K	ZJ40DB	ZJ40LDB	ZJ40L	ZJ40D
Drilling depth (ft)	4½" DP	13000				
	5" DP	10500				
Max hook load (lbf)		505800				
Hook speed (ft/s)		0.66~5	0~5	0.66~5	0.66~5	0~5
Mast effective height (ft)		135/141	141	141	141	141
Mast type		Erective	K type	K type	A type/K type	A type/K type
Drill floor height (ft)		20	25	25	20/25	25
Substructure type		Box-on-box/telescoping	Swing up	Swing up	Box-on-box	Swing up
Engine type		2×C18	CAT3512B generator set	G12V190PZL-3	G12V190PZL-3	CAT3512B generator set
Engine power (hp x set)		2×630	2×1757	3×1086	3×1086	2×1757
Drive ways		Hydraulic+ mechanical	VFD drive	VFD drive+ mechanical	Hydraulic+ mechanical	DC drive
Transmission box model		S6610HR	JS800C	Coupler YOZJ750	Coupler YOZJ750	—
Traveling system		6×5/7×6	6×5	6×5	6×5	6×5
Drawworks		JC40K	JC40DB	JC40LDB	JC40L	JC40D
Drawworks power (hp)		986	986	986	986	986
Main brake		Band brake/Disc brake	Disc brake			
Auxiliary brake		236WCB	Motor resistance brake	FDWS40	FDWS40	FDWS40
Drilling line diameter (in)		1 1/4"/ 1 1/8"	1 1/4"			
Hook block		YG225	YC225, DG225			
Swivel		XSL225				
Rotary table		ZP275				
Mud pump power (hp/set)		1300×2				
Nominal working pressure of hydraulic system (psi)		2000				
Max working pressure of air system (psi)		145				



MAIN TECHNICAL PARAMETERS FOR SKID-MOUNTED DRILLING RIG (16500~29500 ft)

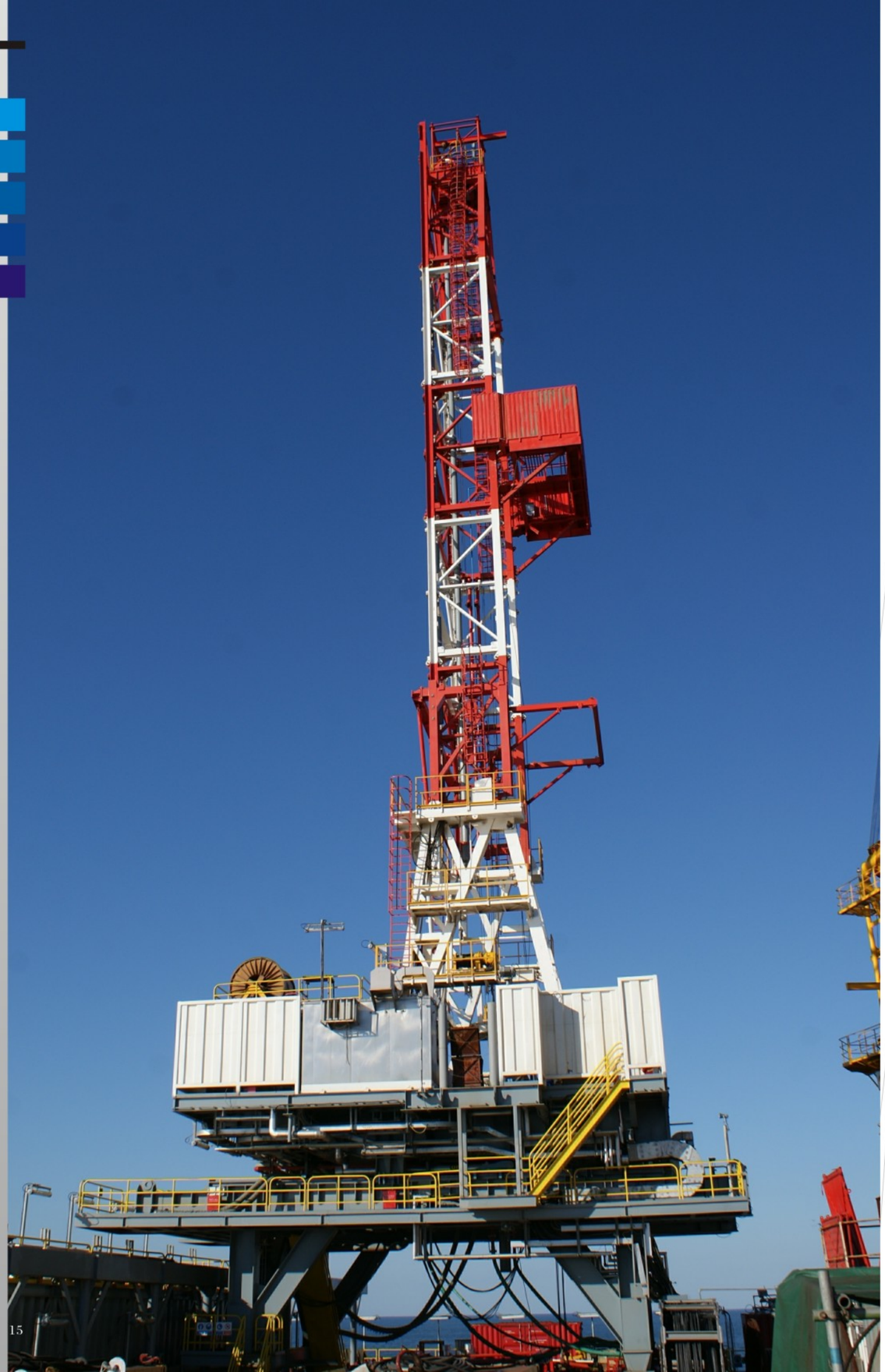
Model		ZJ50DB	ZJ50D	ZJ50LDB	ZJ50L	ZJ70DB	ZJ70D	ZJ70LDB	ZJ90DB
Drilling depth (ft)	4½" DP	16500				23000			29500
	5" DP	15000				20000			26000
Max hook load (lbf)		708120				1011600			1517400
Hook speed (ft/s)		0~6	0~5	0.66~5	0.66~5	0~6	0~5	0.66~5	0~6
Mast effective height (ft)		148				148			157
Mast type		K type				K type			K type
Drill floor height (ft)		30	30	25/30	25	35	35	35	40
Substructure type		Swing up	Swing up / sling shot	Swing up	Box-on-box	Swing up	Swing up /sling shot	Swing up	Swing up
Engine type		CAT3512B generator set	CAT3512B generator set	G12V190PZL-3	G12V190PZL-3	CAT3512B generator set	CAT3512B generator set	A12V190PZL-3	CAT3512B generator set
Engine power (hp × set)		3×1757	3×1757	3×1086+1609	3×1086+1073	4×1757	4×1757	3×1421	5×1757
Drive ways		VFD drive	DC drive	VFD drive +mechanical	Hydraulic+ mechanical	VFD drive	DC drive	VFD drive + mechanical	VFD drive
Transmission box model		ZLQ50DB	ZLQ50D	Coupler YOZJ750	Coupler YOZJ750	ZLQ70DB	ZLQ70D	Coupler YOZJ750	ZLQ90DB
Traveling system		7×6				7×6			8×7
Drawworks		JC50DB	JC50D	JC50LDB	JC50L	JC70DB	JC70D	JC70LDB	JC90DB
Drawworks power (hp)		1475	1475	1475	1475	2000	2000	2000	3000
Main brake		Disc brake				Disc brake			Disc brake
Auxiliary brake		Motor resistance brake	DWS50	FDWS50	FDWS50	Motor resistance brake	DWS70	DWS70	Motor resistance brake
Drilling line diameter (in)		1 3/8"				1 1/2"			1 3/4"
Hook block		YC315, DG315				YC450, DG450			YC675, DG675
Swivel		SL450				SL450			SL750
Rotary table		ZP375				ZP375			ZP495
Mud pump power (hp×set)		1300×3	1600×2	1600×2	1600×2	1600×3			1600×3/2200×3
Nominal working pressure of hydraulic system (psi)		2000							
Max working pressure of air system (psi)		145							

3
OFFSHORE DRILLING RIG

It consists of mechanical drive and electrical drive offshore drilling rig.

Main features:

- By using diesel engines and a hydraulic transmission box to drive the drawworks and rotary table, the mechanical drive offshore drilling rig can achieve high transmission efficiency. The electrical drive offshore drilling rig normally uses one or several DC or AC motors to drive the drawworks. In addition, it is also equipped with a motor for operation of the auto driller; the rotary table is driven by an AC motor independently, and the mud pump is driven by one or several AC or DC motors. The system control uses MCC/SCR or MCC/VFD all-digital modules.
- This rig can be moved both in longitudinal and transverse directions to meet cluster-well drilling requirements on the platform. We have taken the following requirements of convenience, safety and availability into full consideration: fire extinguishing, BOP system, mud supply, cementing supply, air supply, stream supply, and sea water and fresh water supply. It also meets the requirements of easy installation, dismantling and maintenance.
- Modularization can be realized in all the following parts of the drilling rig: rig floor, drawworks, mast, basement, mud pump system, solid control system, and auxiliary system with a high level of modularization.
- The drawworks uses single drum drawworks, and the main brake is a disc brake mechanism (single disc or double disc).
- The derrick is tower-type or has a multi-section telescoping structure, which can be hydraulically rigged up and rigged down.
- This rig has high reliability, strong wind-resistant ability and excellent seawater corrosion resistant performance. In addition, its explosion-proof capability also meets offshore drilling requirements.
- Something is designed for pollutions zero-discharge.
- The correlative ACS certificate, such as CCS, DNV, can be obtained according to the client's requirements.



MAIN TECHNICAL PARAMETERS FOR OFFSHORE DRILLING RIG

Model		HZJ30	HZJ40	HZJ50DB	HZJ70DB
Drilling depth (ft)	4½" DP	10000	13000	16500	23000
	5" DP	8000	10500	15000	20000
Max hook load (lbf)		404640	505800	708120	1011600
Hook speed (ft/s)		0.66～5		0.66～5	
Derrick height (ft)		108/118		135/148/154	
Derrick type		Double section, telescoping		Tower type or jack up	
Drill floor height (ft)		15～21		15～40	
Engine type		CAT3406C	CAT3408B	——	——
Engine power (hp ×set)		360×2	530×2	805×7	1073×9
Drive ways		hydraulic+ mechanical		VFD drive	VFD drive
Traveling system		5×4/6×5		7×6	7×6
Drawworks		JC28		HJC50DB	HJC70DB
Drawworks power (hp)		738	986	1475	2000
Main brake		Band brake/Disc brake		Band brake	
Auxiliary brake		324WCB		Motor Resistance Brake	
Drilling line diameter (in)		1 1/8"/1 1/4"		1 3/8"	1 1/2"
Hook block		YG180/YG225		YC315, DG315	YC450, DG450
Swivel		SL225/XSL225		SL450/XSL450	
Rotary table		ZP275		ZP375	
Mud pump power (hp×set)		1000×2	1300×2	1600×2	1600×3
Nominal working pressure of hydraulic system (psi)		2000		2000/3000	
Max working pressure of air system (psi)		145			

4

TRAILER-MOUNTED DRILLING RIG

The trailer-mounted drilling rig is divided into mechanical drive, electrical drive and trailer-mounted drilling rig without ground anchor, of which the main characteristics are as follows:

- The drawworks of the trailer-mounted mechanical drive is driven by diesel engine and hydraulic transmission box, which has a proper matching and high transmission efficiency.
- For the electrical drive trailer-mounted rig, the drawworks and rotary table are driven by electrical motors, and the driving control is realized by a digital SCR/VFD system.
- These drilling rigs have the following advantages: reasonable structure design, high-integration configuration and they only require a small working space.
- The main unit, drill floor, DP cat walk, generator set, pump set, solid control system, and auxiliary system of this kind rig can all be transported and moved by trailers.
- The drawworks is a double-drum type. The hydraulic disc brake is used as the main brake and water cooling thrust plate pneumatic brake or FDWS brake is used as the auxiliary brake.
- The mast is front-open type, which has a twin-body structure with an inclination angle mode or erective mode and can be raised or laid down and telescoped hydraulically.
- The drill floor has a two-section telescopic structure or parallelogram structure for easy transportation and lifting.
- The mast of the drilling rig without ground anchor is front-open, triple-section and front-inclination type with a height of 154ft, and it can perform triple-setback (columns) round-trip operations. The guyline is fixed on the drilling rig body, which saves disassembly and assembly time and reduces labor intensity.

MAIN TECHNICAL PARAMETERS FOR TRAILER-MOUNTED DRILLING RIG

Type	Trailer-mounted drilling rig with ground anchor					Trailer-mounted drilling rig without ground anchor
Model	ZJ20/1580CT	ZJ30/1700T	ZJ30/1700DT	ZJ40/2250CT	ZJ40/2250DT	ZJ40/2250CT
Drilling depth (ft)	6600(4½" DP)	9800(4½" DP)	9800(3½" DP)	13000(4½" DP)	13000(4½" DP)	13000(4½" DP)
	5900(5" DP)	8200(5" DP)	8200(5" DP)	10000(5" DP)	10000(5" DP)	10000(5" DP)
Max hook load (lbf)	350000	400000	400000	500000	500000	500000
Hook speed (ft/s)	0.66～5					0.66～5
Mast height (ft)	114/118/125					154
Mast type	Double-section telescoping, front-inclination, mast type					Triple-section mast telescoping
Drill floor height (ft)	14.8	19.7	18.06	19.7	19.7～22	19.7
Engine type	C18	2×C15	SR4B Generator unit	2×C18	SR4B Generator unit	2×C18
Engine power (hp × set)	630	2×540	2×1341+804	2×630	2×1676+804	2×630
Drive ways	hydraulic+ mechanical	hydraulic+ mechanical	VFD/SCR	hydraulic+ mechanical	VFD/SCR	hydraulic+ mechanical
Transmission box	S6610HR	2×S5610HR		2×S6610HR		2×S6610HR
Travelling system	5×4	6×5	5×4	6×5	6×5	6×5
Drawworks	JC21	JC28	JC28	JC28	JC28	JC28
Main brake	Disc brake	Disc brake	Disc brake	Disc brake	Disc brake	Disc brake
Auxiliary brake	224WCB	324WCB	DWS40	236WCB	Motor Resistance Brake	236WCB
Drilling line diameter (in)	1 1/8"	1 1/4"				
Hook block	YG160	YG180	YG180	YG225		
Swivel	SL160	XSL225	XSL225	XSL225	XSL225	XSL225
Rotary table	ZP175	ZP275	ZP205	ZP275	ZP275	ZP275
Mud pump power (hp× set)	800×1	800×2	1000×2	1300×2	1300×2	1300×2
Nominal working pressure of hydraulic system (psi)	2000			2000/3000		
Max working pressure of air system (psi)	145					

5 SPECIAL DRILLING RIG

COLD WEATHER DRILLING RIG

- The cold-weather drilling rig can normally be operated under a working ambient temperature of -45 degrees, which is suitable for use in the severe cold oil fields in Russia, Canada and other similar regions.
- The main loading parts of this drilling rig are produced with cryogenic materials which are assessed strictly after low-temperature welding.
- The travelling block and crown block are produced with special materials and technology processes to ensure good working performance under low temperature conditions.
- The hydraulic lines, air lines, cables, valves and oils that we selected have a cold weather performance.
- Electrical heating system or steam heating system is used for the transmission box, oil tank or water tank.
- Special windproof sheds as well as insulation and heating measures are used for the drilling rig.

CLUSTER DRILLING RIG

- The cluster drilling rig is a kind of rig that has a mast, substructure basement, power drive equipment, solid control system, pump unit, power control system, generator set, and other equipment on rails, which can be moved along the rails as a whole. Therefore, it is suitable for cluster–well drilling operations. The moving way can be hydraulic step-in type or wheel-rolling type.
- An integrative-module design and fabrication have been adopted with the purpose of making operation easy and convenient and to ensure the working performance is stable and reliable. Each module's overall size can fully meet the requirements for road and railway transportation.
- Special windproof and sand proof sheds as well as a heating facility will be equipped for the drilling rig, which can also move with the drilling rig together along the rails. This kind of rig can meet drilling requirements in the desert and cold areas.

MAIN TECHNICAL PARAMETERS FOR CLUSTER DRILLING RIG

Model	ZJ40/225DBG	ZJ50/315DBG
Drilling depth (ft) (4½" DP)	13000	16000
Hoisting capacity (lbs)	500000	700000
API max hook load (lbs)	610000	840000
Mast effective height (ft)	148	148
Mast type	A type/K type	A type/K type
Drill floor height (ft)	33	33
Substructure type	Box-on-box	Box-on-box
Setback length (ft)	82—88	82—88
Drive ways	AC drive	AC drive
Traveling system	6×5	7×6
Drilling line diameter (in)	1 1/4"	1 3/8"
Drawworks type	JC40	JC50
Drawworks power (hp)	1072	1609
Main brake	Disc brake	Disc brake
Auxiliary brake	Motor Resistance Brake	Motor Resistance Brake
Traveling block model	YC225,DG225	YC315,DG315
Swivel	XSL225	SL450
Rotary table	P-560	P-700
Mud pump nominal power (hp/set)	1282×2	1577×2
Max working pressure of mud system (psi)	5000	5000
Effective capacity of solid control system (ft³)	6886	11300
Working pressure of hydraulic system (psi)	2000	2000
Working pressure of air system (psi)	145	145

HELICOPTER DRILLING RIG

- The drilling rig with a drilling depth of below 16500 ft can be designed as a helicopter-hoisted drilling rig. Each module of the drilling rig can be kept within 5291 lb, which is suitable for application in mountains, jungles, swamps, beaches, deserts and islands where there is no road access or road conditions do not permit the transportation of large-size components.
- With its small size, the designed and manufactured parts and components are easy and convenient for hoisting and transportation.
- By using helicopter-hoisted transportation, we can save a lot of time and cost on construction of roads, decrease the destruction of green land, protect the environment, shorten the drilling periods and reduce drilling costs.

MAIN TECHNICAL PARAMETERS FOR HELICOPTER DRILLING RIG

Nominal drilling depth (ft)	16500 (4½" DP)
Max hook load (lbf)	708120
Rated drawworks power (hp)	1475
Drawworks gearshifts	1F+1R Stepless speed regulation
Lifting system wire-rope	7×6 (Run in)
Hook speed (ft/s)	0-3.9
Drilling line diameter (in)	1¼"
Rotary table	Zp275
Rotary table gearshifts	1F+1R RStepless speed regulation
Mast type and effective height (ft)	K type 148
Drill floor height (ft)	24.6
Clear height below rotary beam (ft)	20.34
Mud pump power (hp× set)	800×3
Drive ways	AC-DC-AC
Swivel stem diameter (in)	3"
High pressure mud pump manifold diameter (in)× pressure (psi)	4" ×5000

SKID-ON-TRAILER DRILLING RIG

This kind of drilling rig has two types: the integral skid-on-trailer drilling rig and the individual skid-on-trailer drilling rig. The integral skid-on-trailer drilling rig means that all components, such as the mast, substructure, crow block, drawworks, travelling block (top drive), etc. will be installed on a trailer for quick short-distance transportation, which doesn't need rigging down. The individual skid-on-trailer drilling rig means the mast and substructure will be trailer-moved separately. It is applicable for the harsh road condition and long-distance transportation.

MAIN TECHNICAL PARAMETERS FOR SKID-ON-TRAILER RIG

	Individual movement	Split movement	
		Substructure movement	Mast movement
Movement capacity (lbf)	1084660	654168	195576
Max load capacity of crown block saddle seat (lbf)	——	——	89920
Max gradient capacity (%)	5.2	14	14
Max road lean (°)	2	5	10
Max moving speed (ft/min)	273.4	437.4	546.8

ONLY SINGLE DRILLING RIG

- The only single drilling rig is a new drilling rig which has greatly integrated with power driven system, hydraulic top drive, power supply, drawworks, drill floor, mast, traveling system, BOP, etc. All of these are configured on a heavy-duty trailer and can perform a single-DP drilling operation.
- This drilling rig is equipped with many automatic tools to reduce labor intensity, such as hydraulic top drive, BOP hydraulic lifting device, and hydraulic pipe handling device. The whole unit is safe and highly efficient. The drilling operation needs only 2- 3 crews.
- This drilling rig has its exclusive heave-duty trailer with two-shaft axles. This means it has a large load capacity and small tyre grounding pressure and it is useful for transportation on soft roadbeds and frozen ground.
- With its compact structure, high integration, and strong moving capability, the whole unit requires less transportation time and is easy and convenient to install and dismantle.

MAIN TECHNICAL PARAMETERS FOR ONLY SINGLE DRILLING RIG

Drilling depth (ft)		3280 （4½" DP）
Max hook load (lbf)		202328
Hook speed (ft/s)		1.31～5
Mast height (ft)		72
Mast type		Erective, front open K type
Installation power	Main unit (hp)	603
	Mud pump (hp)	760
Drive ways		Hydraulic+ mechanical
Traveling system		4×3
Drill floor height (ft)		12
Drilling line diameter (in)		1"
Main brake		Band brake
Auxiliary brake		224WCB
Travelling block		YC90
Rotary table		ZP175
Mud pump		RGF-800
Mud purification system volume (ft^3)		2118
Top drive		FOREMOST-100

WATER-WELL DRILLING RIG

- This drilling rig can be used to drill water wells with a depth of 1000ft and wellhead diameter of 1.6ft. It can also be used to drill the gas wells of the same specification and also can engage in workover operations.
- The water-well drilling rig is a kind of mobile rig. The heavy-duty and cruise chassis is chosen for loading the hoisting/spinning and circulation system integrally, which has a perfect movement.
- With a full hydraulic drive, the operations of this kind of drilling rig, such as hoisting operations, spinning operations, mud circulation and power drive, use a hydraulic loop system. The drilling parameters can realize stepless regulation.
- The water-well drilling rig also has an auto driller system and high working efficiency, by equipped with a pressure device for pressurization and depressurization to DP.
- A hydraulic brake and a Crown-O-Matic are adopted to meet drilling-process requirements, and an emergency hydraulic source is installed on the chassis to ensure the safety and reliability of the rig.

MAIN TECHNICAL PARAMETERS FOR WATER WELL DRILLING RIG

Nominal drilling depth (ft)	1000
Rated load of hoisting system (lbf)	33721
Hook speed (ft/s)	0~2.3
Mast effective height (ft)	46
Rated engine power (hp)	332
Pull-down capacity of hoisting system (lbf)	9000
Max pressure of mud system (psi)	435
Max discharge of mud system (us gal/min)	192

CBM DRILLING RIG

- There are two types: the skid-mounted CBM drilling rig and the truck-mounted CBM drilling rig. A 9842ft drill depth is designed for the skid-mounted type and 2296ft-9842ft drill depth is designed for the truck-mounted type respectively.
- The truck-mounted CBM drilling rig has mechanical drive and hydraulic drive, which power unit, mast, drawworks, rotary table (power end), and air compressor are all installed on the truck to create good moving capability. Hoisting operations and rotary operations of the drilling rig are controlled by a hydraulic system.
- The CBM drilling rig can meet the requirements of mud drilling, air drilling, clean water drilling, foam drilling and the other types of drilling as well.

MAIN TECHNICAL PARAMETERS FOR CBM DRILLING RIG

Model		MZJ06/300	MZJ10/450	MZJ15/600	MZJ20/900
Nominal drilling depth (ft)	2 7/8" DP	2296～2952	3280～4921	4921～7217	6561～9842
	4 1/2" DP	2296	3280	4921	6561
Max. hook load (lbf)		67442	202320	303480	404000
Max. down force (lbf)		13488	22480	35969	40465
Max. rotary torque (N.m)		8000	15000	20000	20000
Max. rotary speed (rpm)		170	170	170	170
Rotary table opening diameter (in)		13.8	15.7	15.7	15.7
Mast effective height (ft)		≧24.6	≧36.1	≧39.4	≧39.4

MOUNTAINOUS DRILLING RIG

- The mountainous drilling rig is designed with a small module structure. The length of a single module is less than 36ft and its weight is less than 33069lb. This means it is suitable for transportation and operation in mountainous and hilly areas. The drill floor has a box structure which makes transportation and lifting more convenient. The rig floor area and height can be designed in accordance with the requirements of the customer. With a clearance height of 105ft, the mast is a free standing, multi-section telescopic type that can be raised up vertically in orders by horizontal hydraulic cylinders. It is especially suitable for narrow well sites. With high-level technical integration, the mast only covers a small space.
- This drilling rig adopts a heavy-duty, 8x8 all-wheel-drive chassis with extra short carrier. This makes it perfect cruise performance.

MAIN TECHNICAL PARAMETERS FOR MOUNTAINOUS DRILLING RIG

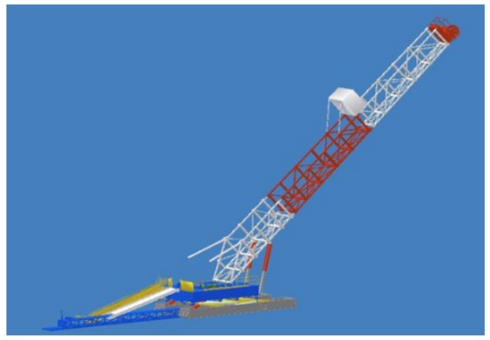
Model	ZJ40/2250CZK
Drilling depth (ft) (4½" DP)	13000
Workover depth (ft)(3½" DP)	23000
Max hook load (lbf)	500000
Hook speed (ft/s)	0.66～5
Mast height (ft)	105
Mast type	Erective, telescoping
Drill floor height (ft)	20
Engine type	2×C15
Engine power (hp)	2×540
Hydraulic transmission box	2×S5610HR
Transmission type	Hydraulic+ mechanical
Traveling system	6×5
Drilling line diameter (in)	1 1/4"
Traveling block model	YG225
Swivel	SL225
Rotary table	ZP275
Moving type	Self-propelled
Chassis type	XD40/8×8
Approaching angle/ departure angle	25/25
Max. gradient ability	⩽46.6%
Min. turning radius (ft)	40
Min. ground clearance (in)	12

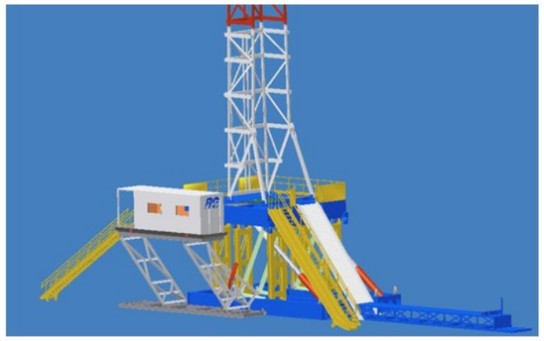
TF-TYPE DRILLING RIG

- This is a digital VFD drilling rig with a very good TF characteristic, and it can be separated into several modules quickly for integral transportation. For example, the three-section telescopic mast can be moved as an individual module; the substructure can be divided into three skid-on-trailer modules for transportation; the driller house, doghouse, mud pump unit, solid control tanks, generator house, air purification system, electrical control house, oil tank, water tank and BOP system can be installed on one trailer or more trailers for easy transportation.
- The installation for the mast, substructure, doghouse, BOP system and other equipment uses hydraulic swing-up to keep the operation simple, safe and reliable.
- The whole drilling rig has a high level of modularization, which allows for convenient and quick installation and dismantling. No big cranes will be needed for this installation. With a simple structure and excellent moving performance, this drilling rig only needs a small working space for safe installation.

MAIN TECHNICAL PARAMETERS FOR TF DRILLING RIG

Nominal drilling depth (4 1/2" DP)	16500ft
Max hook load (lbf)	708120
Drive way	AC-DC-AC
Drawworks rated power (hp)	1475
Drawworks gearshifts	2F+2R
Drilling line diameter (in)	1 3/8"
Hoisting system wire	7×6
Rotary table× opening nominal diameter (in)	ZP375×37 1/2"
Rotary table gears	2+2R
Mud pump × set	RGF-1600×2
Mast type and effective height (ft)	K type 137.8
Substructure type and height (ft)	Hydraulic swing up 25000
High pressure manifold diameter× pressure (psi)	4" ×5000
Mud circulation and purification system (ft^3)	11300.7





HYDRAULIC RACK AND PINION RIG

- This is a new kind of drilling rig designed and produced by our company. It is driven hydraulically for drilling and hoisting operations via gears and toothed racks and it is unnecessary to use drawworks, wire line, travelling block, hook block, and rotary tables on the drilling rig. Due to the simple design, it is easy to maintain and has a long working life. This kind of drilling rig is suitable for under-balance drilling, slim-hole operation, general workover/service, snubbing operation, heavy drilling operation and side tracking etc.
- This kind of drilling rig is equipped with a hydraulic power end, hydraulic pipe handling tools and other automatic tools which can reduce heavy labor and achieve safety and high efficiency.

MAIN TECHNICAL PARAMETERS FOR HYDRAULIC RACK AND PINION RIG

Main technical parameters for main unit			Main technical parameters for peripheral equipment		
Nominal drilling depth (ft)	5" DP	4000	Mud pump unit	Diesel engine	Cummins NT855-P400
	4½" DP	5000			400hp,1800rpm
Hoisting (pull-down system)	Max hook load (lbf)	202320		Clutch	A-1E
	Max hoisting speed (ft/s)	2		Gear-box reducer	Speed ratio 1.4 : 1
	Max hoisting speed at maximum hook load (ft/s)	0.66		Mud pump	ZB400
Rotary system	Power end speed rpm	0-150			Power: 400hp
Stem diameter (ft)	3"				Rated pump pressure: 5000psi
Diesel engine	C18				Max discharge 25L/s
Transmission box	Allison S6610HR (1set)		Screw type air compressor unit	Diesel engine	C18
Working platform	Opening size (in)	6.56		Screw rod air compressor	Sullair 1350XH

GRID-ELECTRICITY DRILLING RIG

- This is a new environmental protection drilling rig. We can directly use the existing power grid to supply power to the AC motors and then supply power to the drawworks, mud pumps and rotary table or top drive and other equipment via a gear box or chain box reducer.
- The application of the industrial power grid instead of diesel oil can decrease drilling costs, reduce environmental pollution and well-site noise, improve the well-site working environment and reduce working intensity.

MAIN TECHNICAL PARAMETERS FOR GRID-ELECTRICITY DRILLING RIG

Model	ZJ20DJ	ZJ30DJ	ZJ40DJ
Nominal drilling depth (ft) (4½" DP)	6500	10000	13000
Max hook load (lbf)	303480	400000	500000
Drawworks gearshifts	4	4	4
Hoisting system wire	4×5 (run in)	5×6 (run in)	5×6 (run in)
Hook speed (ft/s)	0.66-3.9	0.66-3.9	0.89-3.67
Drilling line diameter (in)	1 1/8"	1 1/8"	1 1/4"
Rotary table	ZP175	ZP205	ZP275
Rotary table gearshifts	4	4	4
Mast type and effective height (ft)	A type /K type，114.83	A type /K type，134.5	A type /K type，137.8
Drill floor height (ft)	16.4	16.4	19.69
Main motor (hp)	476	536.4	844.8
Drive ways	Electromechanical drive	Electromechanical drive	Electromechanical drive

- Onshore workover rig is designed and manufactured in accordance with API spec Q1, 4F, 7K, 8A, 8C, 16C and API RP500 standards, GB3836.1, GB3836.2, GB7258, GB/T 2305-2009, SY/T 5534 and other technical standards as well as the “3C” compulsory certification. Offshore workover rig is designed and manufactured in accordance with API Spec Q1, 4F, 7K, 8C and technical standards of API RP2A-LRFD/2A-WSD, 2Z, 14F, 14G, 500, GB3836.1, GB3836.2, SY/T5202, Q/HS.
- Safety protection and inspection measures are always strengthened, in light of people-oriented concept, to meet the requirements of HSE standards.

1 ONSHORE WORKOVER RIG

· NORMAL ONSHORE WORKOVER RIG

- With an optimum structure and high-level integration, the whole rig requires a small working space. The power system is a hydraulic+ mechanical type with high comprehensive efficiency. A class II or self-propelled type chassis can be adopted to meet the various requirements of the end-users.
- The mast is front–open type, with a single section or double- section structure, hydraulic raising and hydraulic telescoping, or mechanical telescoping.
- Band brake or hydraulic disc brake can be applied as the main brake of the drawworks. The water cooling thrust plate pneumatic brake or water brake can be used as an auxiliary brake.
- The drill floor is twin-body telescopic type or parallelogram structure, both of which are convenient for installation and transportation. The dimension and height of the drill floor can be designed according to the end-user’s requirements.

MAIN TECHNICAL PARAMETERS FOR NORMAL ONSHORE WORKOVER RIG (Ⅰ)

MODEL	XJ350 (XJ20)	XJ600 (XJ30)	XJ700 (XJ40)	XJ900 (XJ60)
Nominal service depth (ft) (2⅞" EUE tubing)	5200	8500	10500	13000
Nominal workover depth (ft) (2⅞" DP)	3280	5000	6562	10500
Max. hook load (lbf)	80000	130000	150000	202320
Rated hook load (lbf)	45000	65000	90000	134880
Engine model	X6130	F8L413F	T-3A929orWD615. 68	C9
Engine power (hp)	233	252	281 or 303	350
Transmission type	Hydraulic + mechanical			
Traveling system	4×3	4×3	4×3	4×3
Effective height of mast (ft)	50	56	56	95,102
Drilling line diameter (in)	7/8	7/8	7/8	1
Hook speed (ft/s)	0.66~5. 7	0.66~5. 7	0.66~4. 6	0.66~5. 7
Approaching/departure angle	18° /14°	18° /14°	18° /12°	23° /16°
Min. ground clearance (in)	14	13	13	14
Max. gradient ability	30%	30%	26%	30%
Min. turning diameter (ft)	92	108	108	92
Rotary table model	ZP35	ZP70	ZP70	ZP90
Traveling block model	YG20	YG60	YG70	YG90
Swivel model	SL35	SL70	SL70	SL110
Overall moving dimension (ft)	54.8×8×13.5	33.8×8×12.8	38×8×13	54.8×10×13.5
Main unit mass (lb)	44500	55200	55200	93000

MAIN TECHNICAL PARAMETERS FOR NORMAL ONSHORE WORKOVER RIG (Ⅱ)

MODEL	XJ1100(XJ80)	XJ1350(XJ100)	XJ1600(XJ120)	XJ1800(XJ150)	XJ2250(XJ180)
Nominal service depth (ft) (2⅞" EUE tubing)	18000	23000	28000	———	———
Nominal workover depth (ft) (2⅞" DP)	15000	19000	23000	26000	29000
Drilling depth (ft) (4½" DP)	5000	6600	8200	10000	13000
Max. hook load (lbf)	250000	300000	350000	400000	500000
Rated hook load (lbf)	180000	220000	270000	330000	400000
Engine model	C15	C15	C18	2×C15	2×C18
Engine power (hp)	540	540	630	2×540	2×630
Hydraulic transmission box model	S5610HR	S5610HR	S6610HR	2×S5610HR	2×S6610HR
Transmission type	Hydraulic + mechanical				
Effective height of mast (ft)	102,108		115	118,125	36/38
Traveling system	5×4		5×4	5×4/6×5	6×5
Drilling line diameter (in)	1		1 1/8	1 1/8 ; 1 1/4	1 1/4
Hook speed (ft/s)	0.66~3.93	0.66~4. 6	0.66~4. 3, 0. 66~4. 6	0.66~4. 3/0. 66~3. 93	0.66-4.26
Chassis model/Drive ways	XD50/10×8	XD50/10×8	XD60/12×8	XD70/14×8	XD70/14×8
Approaching/departure angle	26° /17°	26° /18°	26° /18°	26° /18°	26° /18°
Min. ground clearance (in)	12	12	12	12	12
Max. gradient ability (%)	26%	26%	26%	26%	26%
Min. turning diameter (ft)	108	108	125	135	135
Rotary table model	ZP135	ZP135	ZP175/ZP205	ZP205/ZP275	ZP205/ ZP275
Traveling block model	YG110	YG135	YG160	YG180	YG225
Swivel model	SL110	SL135	SL160	SL225	SL225
Overall moving dimension (ft)	61×10×14	61×10×14	67×10×15	74×10×15	74×10×15
Main unit mass (lb)	110000	120000	143000	168000	172000

· FREE-STANDING WORKOVER RIG WITHOUT GUYLINE ANCHOR

- Compared with a normal workover rig, the free-standing workover rig is much more stable as its mast structure center coincides with the loading point in the same direction. It is easy to install the mast without needing to adjust the mast tilting angle or to fix the guylines after rigging up. With a much bigger operation space than the normal workover rig, it is easy to operate and control.
- Compared with a normal workover rig, the free-standing workover rig has the following differences:
  (1) With an 8x8 all-wheel-drive chassis, it has a stronger moving capacity.
  (2) With an erect mast, it is easy to install, stable and reliable.
  (3) The operation platform is integrated at the rear section of the carrier, which can be moved easily.

MAIN TECHNICAL PARAMETERS FOR FREE-STANDING WORKOVER RIG WITHOUT GUYLINE ANCHOR

MODEL	ZXJ350（XJ20）	ZXJ600（XJ30）	ZXJ700（XJ40）	ZXJ900(XJ60)
Nominal service depth(ft)（2⅞" EUE tubing)	5300	8600	11000	13000
Nominal workover depth(ft)（2⅞" DP）	3750	5000	6562	11000
Max. hook load (lbf)	81000	131600	160000	210000
Rated hook load (lbf)	45000	75000	90000	150000
Engine model	X6130	F8L413F	T-3A929 or WD615.68	C9
Engine power (hp)	233	252	282 or 303	329~375
Transmission type	Hydraulic + mechanical			
Effective height of mast (ft)	50	56	56	95/102
Drilling line diameter (in)	7/8	7/8	7/8	1
Hook speed (ft/s)	0.66~5.7	0.66~5. 7	0.66~4. 6	0.66~5.7
Approaching/departure angle	18° /14°	18° /14°	18° /12°	26° /16°
Min. ground clearance (in)	14	14	13	14
Max. gradient ability (%)	30%	30%	26%	30%
Min. turning diameter (ft)	92	108	108	92
Rotary table model	ZP35	ZP70	ZP70	ZP90
Traveling block model	YG35	YG70	YG70	YG90
Swivel model	SL35	SL70	SL70	SL110
Overall moving dimension (ft)	54.8×10×13.5	33.8×8×12.8	38×8×13	54.8×10×13.5
Main unit mass (lb)	44500	55200	55200	93000

2 OFFSHORE DRILLING AND WORKOVER RIG

- This offshore drilling and workover rig has a modular structure to achieve fast installation, and can meet the hoisting requirements of different hoisting equipment. It can move in both longitudinal and transverse directions to achieve workover or drilling operations on every well location in the pad area of the platform. With different structure and height, the basement can meet the layout requirements of a variety of guide rail spaces and deck surface.
- This rig has strong wind-resistance and an anti-vibration capacity. Its maximum wind-resistance capacity is 107 knots (without setback).
- The use of Caterpillar or Detroit engines with an Allison hydraulic transmission box ensures safety and reliability. The offshore workover rig can be driven by VFD or SCR, and has high driving efficiency whilst still being easy to control.
- The derrick is erect, front-open without guylines, and has a double or multi-section telescopic structure or tower type.
- The structural parts have undergone surface anticorrosive processes. This includes a combination of spray-painting, baked painting, spray-aluminum and spray-zinc to meet the requirements of the ocean environment and climate.
- The rig is equipped with auxiliary safety equipment such as H2S and a combustible gas monitoring system, fire control and safe alarm system, industrial monitoring system, and so on.
- The solid-control equipment and well-control equipment can be equipped to meet the requirements of drilling and workover operations.

MAIN TECHNICAL PARAMETERS FOR OFFSHORE DRILLING/WORKOVER RIG

MODEL	HXJ90	HXJ112	HXJ112DB	HXJ112DZ	HXJ135	HXJ158	HXJ158DB	HXJ158DZ	HXJ180	HXJ180DB	HXJ180DZ	HXJ225
Structure type	Skid module type											
Workover depth (ft) (3½" DP)	8200	11500			15000	18000			21000			———
Drilling depth (ft) (5" DP)	5000	5900			6562	8000			9100			10000
Max. hook load (lbf)	200000	250000			300000	350000			400000			500000
Engine model	C13	C15			C18	C18	YZ23A	YZ47	2 ×C11	YJ23	YZ47B	2×C15
Engine power (hp)	361	475	577		676 650	603..804	671		2 ×361	804		2 ×475
Transmission box model	TH35	S5610H	LDX 150		S5610H	S6610H	JFD300/JS300	S6610H	2 × S5610H	JFD300/JS300		2 × S5610H
Transmission type	Hydraulic +mechanical	Hydraulic +mechanical	VFD+ mechanical	SCR+ mechanical	Hydraulic +mechanical	Hydraulic +mechanical	VFD+ mechanical	SCR+ mechanical	Hydraulic +mechanical	VFD+ mechanical	SCR+ mechanical	Hydraulic +mechanical
Derrick structure/ height (ft)	K type/95	K type /95,102			K type/95,102,108	K type/102,108	Tower type/102,108,118		K type /108	Tower type/102,108		K type/102,108
Traveling system	4×3	5×4			5×4	5×4/6×5			5×4/6×5			5×4/6×5
Drilling line diameter (in)	1	1			1	1 1/8			1 1/4			1 1/4
Rotary table model	ZP90	ZP135			ZP175	ZP175/ZP275			ZP275			ZP275
Traveling block model	YG90	YG110			YG135	YG160			YG180/ YG225			YG225
Swivel model	SL110	SL110			SL135	SL160			SL225			SL225
Rated power of mud pump (hp)	500	500			500	800			800/1000			1000/1300
Substructure height (ft)	19	19	21		19	19	6.56	12.13	20/21	12		20
Working environment — Limit wind speed (knot)	107 (without setback) 93 (full setback)											
Working environment — Earthquake magnitude	8											
Working environment — Temperature(℃)	-20~+40											
Working environment — Relative humidity	≤98%											

3
SPECIAL WORKOVER RIG

· COLD WEATHER WORKOVER RIG

- All kinds of workover rigs have corresponding cold weather types that are suitable for the severe cold of oilfields in Russia, Canada and other regions.
- Performance parameters:
  Working ambient temperature: -45 degrees～+35 degrees
  Storage temperature: -60 degrees
- The main load supporting parts use cryogenic materials that have passed low temperature welding assessments.
- The traveling system uses special materials and special process measures to ensure good working performance under cold weather conditions.
- The hydraulic lines, air lines, cables, valves and oils that we selected have a cold weather performance.
- Electrical heating system or steam heating system is used for the transmission box, oil tank or water tank.
- Special wind-proof, heat preservation and heating measures have been adopted for the workover rig.

· DESERT WORKOVER RIG

- All kinds of rigs have corresponding models suitable for the desert.
- The chassis is heavy-duty 8x8 all-wheel-drive, with a hydraulic steering system, and large diameter low pressure desert tyres. The diesel engine is equipped with a sand-proof filter and the rig is installed with a sand-proof shed so as to maintain the rig's working performance and safe movement in the desert.
- An inner-circulated forced water cooling system can ensure the drawworks operate normally under high-temperature conditions.
- The mast is a front–open, tilting and double-section telescopic type with a heavy-duty wind-proof design, and it can be hydraulically rigged up and down.
- The drill floor is twin-body telescopic type or parallelogram structure, both of which are convenient for installation and transportation.

MAIN TECHNICAL PARAMETERS FOR DESERT WORKOVER RIG

MODEL	SXJ160
Nominal service depth (ft) (2⅞" EUE tubing)	28000
Nominal workover depth (ft) (3" DP)	18000
Drilling depth (ft) (4½" DP)	6500
Max. hook load (lbf)	360000
Engine model	C18
Engine power (hp)	631
Hydraulic transmission box model	S6610HR
Transmission type	Hydraulic + mechanical
Effective height of mast (ft)	115
Traveling system	6×5
Drilling line diameter (in)	1 1/8
Hook speed (ft/s)	0.66~3.9
Chassis model/Drive ways	SXD60/8×8
Approaching /departure angle	30° /20°
Min. ground clearance (in)	14.57
Max. gradient ability(%)	30%
Min. turning diameter (ft)	164
Rotary table model	Zp175
Traveling block model	YG160
Swivel model	SL160
Overall moving dimension (ft)	61×10×15.7
Main unit mass (lb)	130071
Accessories mass (lb)	44500

· SWAMP WORKOVER RIG

- All kinds of workover rigs have corresponding swamp rigs with a self-made, cruise type chassis and special pattern big diameter tyres that are suitable for fast movement in a swamp.

MAIN TECHNICAL PARAMETERS FOR SWAMP WORKOVER RIG

MODEL	TXJ70
Nominal service depth (ft) (2⅞" EUE tubing)	11000
Nominal workover depth (ft) (2⅞" DP)	8300
Max. hook load (lbf)	160000
Engine model	C9
Engine power (hp)	302
Transmission type	Hydraulic + mechanical
Carrier drive way	6×6
Water depth/mud depth (in)	31.5/11.8
Min. turning radius (ft)	44.3
Max. speed (mi/h)	25
Max. gradient capability (%)	30%
The whole unit weight (lb)	58000
Overall dimension of the whole unit (ft)	50.5×10×12.5

· SLANT-WELL WORKOVER RIG

- The slant-well workover rigs can be used for service and workover operations on the slant oil, gas and water wells with a slant degree of 45°～80° and well depth of less than 5000ft.
- The chassis is a heavy-duty 8x4 drive chassis with a hydraulic steering system, which has a good cruise performance.
- The whole unit could be moved in both longitudinal and transverse directions with a stepless adjustable function to allow the wellhead to be centralized quickly and conveniently.
- The monkey board and light-duty working platform are lifted hydraulically and locked mechanically, which is safe and reliable.
- These workover rigs can also be used for slant-well drillings after being equipped with a power swivel.

MAIN TECHNICAL PARAMETERS FOR SLANT-WELL WORKOVER RIG

MODEL	XXJ35
Max. hook load (lbf)	79000
Effective height of mast (ft)	67
Inclination angle of the mast	45° ～80°
Longitudinal adjustable scope (in)	24
Transverse adjustable scope (in)	10
Rotary adjustable scope	5°
Traveling system	3×2
Engine power (hp)	361
Drawworks gearshifts	4F+1R
Diameter× Length of main drum (in)	Φ14×32
Diameter× Width of brake rim (in)	Φ38×8.3
Max. speed (mi/h)	28
Max. gradient ability	26%
Turning diameter (ft)	92
Overall dimension (ft)	67×10×15.7
The whole unit weight (lb)	89000

· MOUNTAINOUS WORKOVER RIG

- The rig unit is a small module, with the length of a single module less than 36ft, and its weight less than 33069lb. It is especially suitable for transportation and operation in mountainous areas. The box type substructure is convenient for transportation and lifting. The rig floor working area and height can be designed in accordance with the requirements of the end-users. The mast is a free-standing type without guy lines with a clearance height of 105ft. The multiple sections of the mast can be rigged up and rigged down telescopically in orders by horizontal hydraulic cylinders, which is particularly useful for narrow well sites due to a highly –integrated designs .
- This rig uses a heavy-duty, 8x 8 all-wheel-drive chassis and has an excellent cruise performance.

MAIN TECHNICAL PARAMETERS FOR MOUNTAINOUS WORKOVER RIG

MODEL	XJ225
Workover depth (ft)(4½″ DP)	13000
Workover depth (ft)(3½″ DP)	25000
Max. hook load (lbf)	506000
Hook speed (ft/s)	0.66～4.6
Effective height of mast (ft)	105（clearance）
Mast type	Erective telescoping
Drill floor height (ft)	20
Engine model	C15×2
Engine power (hp×2)	540×2
Hydraulic transmission box ×2	S5610HR×2
Transmission type	Hydraulic+ mechanical
Traveling system	6×5
Drilling line diameter (in)	1 1/4
Traveling block model	YG225
Swivel model	SL225
Rotary table model	ZP275
Moving type	Self-propelled
Chassis model	XD40/8×8
Approaching/departure angle	25° / 25°
Max. gradient ability (%)	46.6%
Min. turning diameter (ft)	79
Min. ground clearance (in)	12

· GRID-ELECTRICITY WORKOVER RIG

The grid-electricity workover rig can meet all kinds of workover operational requirements due to its safety, stability, and reliability as well as excellent technical performances. The wellsite is now completely free from exhausted gas/oil emissions, and well site noise has also been greatly reduced. We can make a new contribution to save energy in oilfields by using this kind of environmentally-friendly workover rig.

MAIN TECHNICAL PARAMETERS FOR GRID-ELECTRICITY WORKOVER RIG

MODEL	WXJ700（XJ40）	WXJ900（XJ60）	WXJ1100（XJ80）
Nominal service depth (ft)（2⅞" EUE tubing）	11000	13000	18000
Nominal workover depth (ft)（2⅞" DP）	6500	11000	15000
Max. hook load (lbf)	160000	202320	260000
Rated hook load (lbf)	90000	150000	180000
Motor model	YJS355L-8	YJS450L-8	YJS450L-8
Motor power (hp)	250	300	410
Effective height of mast (ft)	56	96	102
Drilling line diameter (in)	7/8	1	1
Hook speed (ft/s)	0.66～4.6	0.66～5.7	0.66～4.6
Approaching/departure angle	18° / 14°	26° / 16°	26° / 17°
Min. ground clearance (in)	12.24	13.4	12.24
Max. gradient ability (%)	26%	30%	26%
Min. turning diameter (ft)	108.27	92	108.27
Rotary table model	ZP70	ZP90	ZP135
Traveling block model	YG70	YG90	YG135
Swivel model	SL70	SL110	SL135
Overall moving dimension (ft)	38×8×13	54.8×10×13.5	61×10×13.8
Main unit mass (lb)	55200	93000	111000

1 PUMPING UNIT

Main features:

- The working beam is driven by the motor and the gear-box reducer to carry out oil pumping operations. This is safe and reliable unit with a straightforward configuration.
- The gear transmission brake mainly uses a band- brake, and the working beam support is four tilting stands, which makes it easy for installation.
- There are a complete set of pumping units for your choice. Maximum and minimum suspension point loadings are 35968 lbf and 6744 lbf respectively. Max/min strokes are 19.68ft and 4.59ft. Max/min stroke times are 12 s/min and 2 s/min respectively, which can fully meet all oil field working conditions both at home and abroad.

MAIN TECHNICAL PARAMETERS FOR PUMPING UNIT

MODEL	CYJT8-3-37HB	CYJ10-3-53HB	CYJ12-4.8-73HB	CYJ14-4.8-89HB	CX830	Q1460
Rated suspension point load (lbs)	17984	22480	26976	31472	17984	22480
Rated torque of gear-box reducer(in-lbs)	327464	469088	646102	787714	424834	469088
Stroke (times/min)	6/9/12	6/9/12	6/8/10 (or4/6/8)	6/8/10	6/8/10	2/4/6
Stroke length (in)	118	118	189	189	118	236
	98	106	149	165	98	197
	82	94	110	141	79	——
	——	82	——	118	——	——
	——	71	——	——	——	——
Mass (lb)	34171	44363	55115	63933	41006	59414

2 GROUND ANCHOR TRUCK

This truck can be used for quick anchoring operation of the guylines in oilfields. With a class II heavy-duty automobile chassis and 4-section rectangle telescoping and foldable arms, the truck is also equipped with H-type or frog-type hydraulic supporting legs and a rotary platform, which can perform 360-degree free rotation. The whole vehicle is hydraulically controlled and engaged/disengaged by air drive PTO, which can be operated comfortably, safely and reliably.

MAIN TECHNICAL PARAMETERS FOR GROUND ANCHOR TRUCK

MODEL	ES5091TDM	ES5092TDM
Max. output torque (lb. ft)	4425	
The rotation speed of the ground anchor (r/min)	12~22	
Rotary speed of the cantilever (r/min)	0~2.5	
Rotary range of the cantilever	360°	
Working pressure of the hydraulic system (psi)	2000	
Working radius (ft)	30	
Outrigger type	H type	
Chassis	EQ1102T-D3GJ	DFL1160BXB
Seats	3	
Emission standard	GB III	GB IV

3
RIG MOVING TRUCK

This truck consists of a tractor, semi-trailer, hydraulic winch, wire line and hydraulic, air, and electrical systems. The semi-trailer has auto-load and unload functions, and therefore can transport drilling rig modules and peripheral equipment that are over-height, over-width and over-length, or with special requirements. It is suitable for moving components with an oil skid structure, and it is highly efficient, flexible and safe for operation.

MAIN TECHNICAL PARAMETERS FOR RIG MOVING TRUCK

PRODUCT CATEGORY	2 Axles	3 Axles		4 Axles
Model	ES9630	ES9640	ES9650	ES9660
Whole truck mass (lb)	33000	50000	57000	57000
Loading weight (lb)	66000	88000	110000	133000
Tractor model	2532S/6×4	2532S/6×4		2532S/6×4
Max. speed (mile/h)	40	40		40
Min. turning radius (ft)	39	52	59	59
Max. gradient ability	22%	22%		17%
Min. ground clearance (in)	13	13	13	13
Loading and unloading type	Winch+ rolling bar (or access board)	Winch+ rolling bar (or access board)	Winch+ floating frame	Winch+ rolling bar (or access board)
Max. pull of winch (lbf)	67440	67440		67440
Overall dimension of semi-trailer (ft)	51×10.17	55.77×10.17		60×10.17
Deck dimension (ft) (L×W)	24×10.17	39.4×10.17	39.4×10.17	39.4×10.17
Deck height (full load) (ft)	3.94	3.94	4.86	3.94
Semi-trailer wheelbase (ft)	4.46	4.46+4.46		4.46+4.46+4.46
Rear suspension (ft)	3.46	3.46		3.46
Semi-trailer departure angle	27°	27°	21°	27°

4

WELL FLUSHING TRUCK

- This truck is suitable for water injection and well flushing operation. It can perform the combined tasks of a water treatment truck and a well flushing pump truck. It is highly integrated, automated, and easy to use. Models I, II, III are suitable for the flushing water wells with a depth of less than 8202ft; the model IV can be used for flushing wells with a depth of less than 13000ft.
- The truck uses a self-made XD30/6×6 chassis or a heavy-duty class II automobile chassis, and the power system adopts hydraulic drive and mechanical drive for movement and operation.
- A high pressure stream can be generated for kick-flushing.
- A 7-grade filter is installed on the water-treated unit; the filtering media can be used repeatedly and selected in accordance with the pollution conditions of the well.

MAIN TECHNICAL PARAMETERS FOR WELL FLUSHING TRUCK

MODEL	I TYPE	II TYPE	III TYPE	ES5302TJC/ES5303TJC
Rated pressure for well flushing (psi)	1740	1740	1740	2320
Rated intensity for well flushing (us gal/h)	7.9	7.9	7.9	7.9
Continuous time for well flushing (h)	6	6	6	8
Working pressure for the equipment on the truck (psi)	⩽87	⩽87	⩽87	⩽87
Applicable media temperature (°F)	⩽140	⩽140	⩽140	⩽149
Applicable media (lbs/in^3)	Mechanical impurity⩽72	Mechanical impurity⩽72	Mechanical impurity⩽72	Mechanical impurity⩽180
	Oil ⩽36	Oil ⩽36	Oil ⩽36	Oil ⩽180
After-treatment media (lbs/in^3)	Mechanical impurity ⩽0.18	Mechanical impurity ⩽0.18	Mechanical impurity ⩽0.18	Mechanical impurity ⩽0.18
	Oil⩽0.36	Oil⩽0.36	Oil⩽0.36	Oil⩽0.29
Overall dimension (ft) (L×W×H)	32×8.2×10.5	32×8.2×10.5	35.2×8.2×12.5	39.4×9.4×12.8
Carrier	Class II chassis	Class II chassis	Class II chassis	XD30/6×6 self-made chassis

5 BENCH-WORKER TRUCK

- This kind of truck is equipped with a mobile power source, devices and tools for bench workers, electricians and welders, and it can drive to the drilling site directly for maintenance of the drilling equipment. With a strong engine power and good cruising capability, the truck is suitable for use in harsh driving conditions, such as deserts, hills and swamps as well as other sites.

MAIN TECHNICAL PARAMETERS FOR BENCH-WORKER TRUCK

Chassis	Model	SX2150KS (Cruise type)
	Drive way	6×6
	Max. loading mass (lb)	11000
Generator model		EF6600
Grinding machine model		TD5250
Bench pressure machine model		JC04-0.5
Portable arc welding machine model		BX6-180
Overall dimension of bench-worker room (ft) (L×W×H)		15×7.5×8.2
Overall dimension of bench-worker truck (ft) (L×W×H)		25.64×8.2×12.66
Mass of bench-worker truck (lb)		38580

6 PIPE-CARRYING TRUCK

- This truck is equipped with special hoisting tools and tubing clamping tools, and its hydraulic and air systems are centrally controlled.
- This truck has enough power and a good cruise capacity.

MAIN TECHNICAL PARAMETERS FOR PIPE-CARRYING TRUCK

MODEL	YGC-1
Allowable loading length (ft)	39
Hydraulic system pressure (psi)	2320
Overall dimension without load (ft) (L×W×H)	23.2×8.1×8.7
Overall dimension with full load (ft) (L×W×H)	39.4×8.1×8.7

7

OIL PUMP MOVING TRUCK

This kind of truck is equipped with an imported truck-crane, which is safe and reliable. The clamping device is hydraulic control. With advanced technical performance and a simple structure, it is easily installed and moved, meaning that working intensity can be greatly reduced. In addition, the truck also has excellent cruising capabilities.

MAIN TECHNICAL PARAMETERS FOR OIL-PUMPING MOVING TRUCK

MODEL	ES5120TYB
Chassis model	DFL1720B
Overall dimension (ft)	30×8.2×10.66
Pump-carrying diameter scope	1.57-4.33
Pump-carrying quantity（set）	10
Working pressure of hydraulic system (psi)	1571.4
Max. hoisting capacity of truck- crane (lbf)	7120.86
Max. working radius of truck- crane (ft)	24.64
Max. hoisting height of truck- crane (ft)	31.8
Rated pressure (psi)	1571.4

8

MAST-CARRYING TRUCK

With a simple and reliable structure, this truck is suitable for the disassembly and transportation of masts. The holding poles and supporting legs are all operated hydraulically and the whole unit's hydraulic and air system is centrally controlled.

This truck has enough carrying power and an excellent cruise capacity.

MAIN TECHNICAL PARAMETERS FOR MAST-CARRYING TRUCK

Model	ES5220TLF
Applicable mast (ft)	95
Hydraulic system pressure (psi)	2000
Air system pressure (psi)	116
Hydraulic oil tank capacity gal	66
Max. overturn angle for boom (°)	95
Overall dimension (L×W×H) (ft)	48×8.2×12.8
Mass (lb)	47817.77

9
TANK-CARRYING TRUCK

With a simple structure, this truck can be used to install and move all of kinds of water tanks and its hydraulic and air systems are centrally controlled. The truck has a strong power and a good cruising capability.

MAIN TECHNICAL PARAMETERS FOR TANK-CARRYING TRUCK

Tank diameter (ft)	8.24
Tank height (ft)	19.76
Tank mass (lb)	6800
Rated hoisting load (lbf)	8500
Working pressure of hydraulic system (psi)	1800
Back rake angle of gantry frame(°)	95°
Overall dimension of the tank (ft) (L×W×H)	34.45×8.86×11.15
Overall dimension without load (ft) (L×W×H)	39.37×8.07×8.69

10
OIL EXTRACTION TRUCK

With a simple structure, the oil extraction truck is suitable for swabbing operations of remote wells and low-production wells.

The hydraulic and air systems are centrally controlled with an automatic wire line traversed unit and weight/depth indicator.

This truck has a large carrying capacity, with excellent working and cruise performance.

MAIN TECHNICAL PARAMETERS FOR OIL EXTRACTION TRUCK

MODEL	ES5230TCY
Oil extraction well depth (ft)	⩽5906
Drum capacity（ϕ 15.5 wire line） (ft)	5906
Max. hoisting load (lbf)	18000
Max. hoisting speed (ft/s)	26.2～29.5
Chassis model	SX1255UFT434
Engine power hp	300
Drive way	6×4
Approaching angle	18°
Departure angle	13°
Min. turning diameter (ft)	78.7
Overall dimension (L×W×H) (ft)	34.8×8.2×12.8

11
SAND MIXING TRUCK

The sand mixing truck is equipped with a complete hydraulic drive, stepless speed regulation, and centralized controls for the whole hydraulic and air system. This truck has a large installed capacity and excellent working and cruise performance.

MAIN TECHNICAL PARAMETERS FOR SAND MIXING TRUCK

MODEL	HS30B	HS50B	Hs100
Sand pump displacement (ft^3/m)	106	177	424
Sand pump pressure (psi)		14.3~74.3	
Rated sand transport rate (ft^3/m)	17.66	26.48	60.03
Max. sand concentration (%)	40%	40%	50%
Mixing sand tank volume (ft^3)	52.97	70.63	70.63
The whole unit mass (lb)	34000	38700	41200

12
FRACTURING TRUCK

This kind of truck uses Steyr or Cummins heavy-duty chassis, which includes a Cummins diesel engine, Allison hydraulic transmission, drive system, triplex single -action piston fracturing pump, control system, lubrication system, and high and low pressure pipelines. All of this equipment is fixed on the metal-frame, which is connected to the chassis main beam firmly. The equipment has perfect mobility and working reliability.

This truck can work independently or in-series.

MAIN TECHNICAL PARAMETERS FOR 2000 TYPE FRACTURING TRUCK

MODEL	YLC105-1490
Max. working pressure (psi)	15000
Max. working displacement (gpm)	610
Plunger pump model	3ZB1490
Max. input power of plunger pump (hp)	2000
Optional chassis	Steyr or Cummins
Overall dimension (in)	404×99×150
Weight (lb)	79365

13
WELL DRIFTING TRUCK

With a compact structure, this truck uses hydraulic and mechanical drives for comprehensive efficiency. With class II chassis or self-made chassis, it has large carrying power and excellent cruise performance.

MAIN TECHNICAL PARAMETERS FOR WELL DRIFTING TRUCK

MODEL	ES5211TTJ
Nominal service depth (2⅞" EUE tubing) (ft)	11000
Nominal workover depth (2⅞" DP) (ft)	7500
Rated load (lbf)	90000
Max. hook load (lbf)	160000
Engine model	WP10.336N
Engine power (hp)	331
Hoisting wire line diameter (in)	7/8
Drive way	6×6
Approaching angle	33°
Departure angle	12°
Min. turning diameter (ft)	59
Overall dimension (ft) (L×W×H)	36×8.2×12

14
MOBILE GENERATOR TRUCK

The generator capacity ranges from 67HP to 536HP and its matched diesel engines can be foreign products from overseas or a joint venture, such as Cummins, Mannheim, Volvo, Caterpillar, Detroit or some Chinese products such as Nantong, Wuxi, or Yulin, etc. The generators are imported, such as Stanford, Siemens. It can move as a trailer or with its own power, depending on the different requirements of users.

15
AERIAL DEVICE TRUCK

- It is widely used in aerial operation in many fields such as street lamp repair, municipal works, airports, telecommunications, television stations, and petroleum drilling rigs, Its operational height is from 26ft-118ft.
- The complete set of the upper level loading facility is imported from Italy. Its material is highly strengthened and cold drawing structural steel with high mechanical strength and light weight.
- With complete hydraulic proportional control, the operation is flexible, stable and reliable.
- This truck has multiple safety designs: with an arm limit protection device, the outrigger cannot operate until the arm withdraws. With the outrigger safety supporting device, it ensures excellent support. It is also equipped with outrigger and upper level operation interlocks to avoid incorrect operation. The glass fiber reinforced plastic bucket has excellent insulation with forced automatic leveling. The start/stop operation can be executed at high positions. With auxiliary power system, the bucket can be withdrawn safely when the engine is tripped off. The automatic amplitude-limiting device can prevent tilting accidents due to overload.
- It is convenient to use electrical tools when the AC electrical supply is connected.

MAIN TECHNICAL PARAMETERS FOR AERIAL DEVICE TRUCK

MODEL	ES5101JGK
Max. operation height (ft)	52.5
Max. operation radius (ft)	32.8
Rated load of bucket (lb)	661.38
Turing angle	360°
Max. rise angle of small arm (°)	80 °
Max. rise angle of lower arm (°)	130°
Outrigger type	H type

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POWDER-MATERIAL MOVING TRUCK

- It can be used in the transportation of material in bulk such as cement, flour, aluminum ore powder, foodstuffs and so on. The execution standard is QC/T560-1999.
- This truck is jointly controlled by liquid, electricity and air with high automatization, simple operation and safety. It looks great, and is also well laid-out, with fast unloading performance, and residue being less than 0.1%. It is environment-friendly and highly efficient. The DongFeng EQ1290WJ 8×4 chassis has been chosen because of its double turning front axle, good tyre wear and, accomplished movement in traffic. The four-axle truck has a high carrying capacity, and the compressor uses a lifting-type structure with high air output, low vibration, and low noise.

MAIN TECHNICAL PARAMETERS FOR POWDER-MATERIAL MOVING TRUCK

Name	Model	Chassis model	Truck-self mass (lb)	Rated loading mass (lb)	Total mass (lb)	Overall dimension (ft) (L×W×H)
Powder-material moving truck	ES5290GFL	EQ1290WJ	30900	36700	68000	39×8.2×13

17

OIL TANK TRUCK

- Execution standard: QC/T653—2000.
- The tank truck has separate compartments to load different oils or chemicals. Whatever is pumped in or out can be monitored through metering gauges. The tanks are made of carbon steel, stainless steel, inserted plasticized material and glass fiber reinforced plastic, and there are square, elliptical and round tanks. The oil pumps use self-sucking pumps and gear pumps. The oil meters use single-counting meters, double-counting meters or oil-add machines for tax control.
- This truck is jointly controlled by a liquid system, electrical system and air system with high automation and simple and safe operation. It looks great and is also well laid-out with fast unloading performance and less residue. It is environment-friendly and highly efficient.
- The Dongfeng EQ1290WJ 8×4 chassis has been selected. This chassis has a double turning front axle, double drive rear axle, good tyre wear, good traffic ability and a high carrying capacity.

MAIN TECHNICAL PARAMETERS FOR OIL TANK TRUCK

Name	Model	Chassis model	Truck-self mass (lb)	Rated loading mass (lb)	Total mass (lb)	Overall dimension (ft) (L×W×H)
Oil tank truck	ES5290GJYE	EQ1290WJ	32000	32000	64000	56×8.2×12

18

SEMI-TRAILER TRUCK

- The universal technical standard is GB/T 23336-2009.
- This truck is made of a straight beam and flat plate type structure, which has a low center of gravity and high safety performance. It can be used in door-to-door combined transportation of road, rail, inland water and ocean transportation, and it is more safe and reliable than other similar trucks.
- The low-bed semi-trailer truck can be widely utilized for the transportation of both special equipment and bulk cargo.

MAIN TECHNICAL PARAMETERS FOR SEMI-TRAILER TRUCK

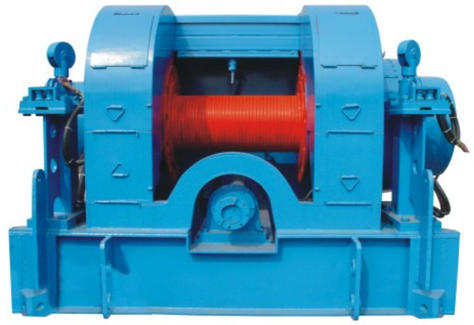
Name	Model	Axle number	Truck-self mass (lb)	Rated loading mass (lb)	Total mass (lb)	Overall dimension (ft) (L×W×H)
low-bed semi-trailer	ES9370DP	3	35274	55200	90400	56×8.2×12

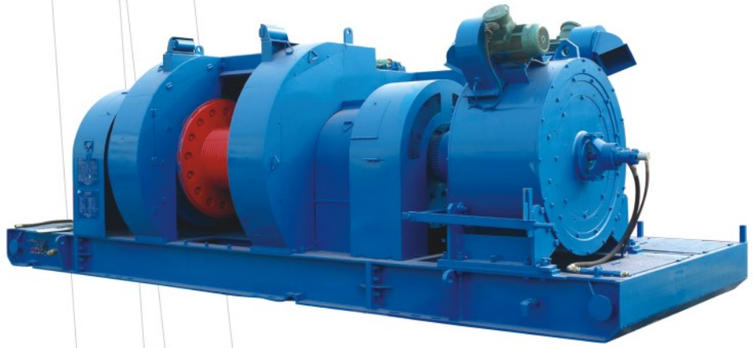
1 HOISTING EQUIPMENT

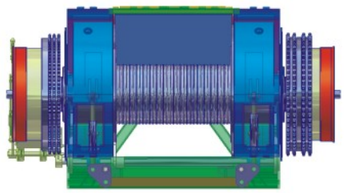
DRAWWORKS

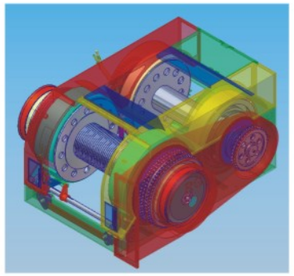
Performance:

- Design and manufacturing of drawworks conform to API Spec 7K and SY/T 5532, which is the standard for drawworks used on petroleum drilling rigs.
- The drawworks are complete in series and have single drum or double drums as well as multiple shaft structures which are driven by mechanical or electrical power; there is a reasonable layout between the main brake and auxiliary brake in order to meet the requirements of power transmission and drilling/work over operations.
- The drawworks adopt integrated controls for the hydraulic system, air system and electrical system to allow for convenient operation.
- The gearbox of the electrical drive drawworks adopts a big module and a hard-tooth, flank-type gear with forced lubrication.
- The drawworks and its power unit can be installed on one skid for easy transportation.









MAIN TECHNICAL PARAMETERS FOR MECHANICAL DRIVE DRAWWORKS

Model	Power (hp)	Fast line pull (lbf)	Drilling line diameter (in)	Gears	Main drum diameter x Width(in)	Sand drum diameter x Width(in)	Brake rim (disc) diameter × Width(in)	Auxiliary brake	Main clutch	Weight (lb)
JC14	350	31473	7/8"	–	13.9 x 31.5	—	Band brake 38.19x8.27	/	ATD224H	6945
JC18/11	450	40465	7/8"	–	16.89 x 35.91	12.76x35.91 (Selectable)	Band brake 42.13x8.27	Water brake/124WCB	ATD224H	13999
JC21/11	550	44962	1" ;1 1/8"	–	17.72 x 35.91	13.39x37.2 (Selectable)	Band brake 42.13x10.51 (water cooling)	224WCB	ATD324H	14504
					20.5 x 35.91					
JC28/11	735	47209	1 1/8" ;1 1/4"	–	22 x 40.94	13.39x37.2 (Selectable)	Band brake 45x10.51 (water cooling)	324WCB	ATD330H	23170
	1000				25 x 44	13.39x41	Band brake 50x10.51 (water cooling)	236WCB		27586
JC20	550	44962	1" ;1 1/8"	–	17.72 x 35.91	–	Band brake 42.13x12 (water cooling)	224WCB	ATD324H	10882
JC30	750	47200	1 1/8" ;1 1/4"	–	22 x 40.94	–	Disc brake PZ40 59X2.36	324WCB	ATD330H	17972
JC40	1000	62946	1 1/4"	4 forward 2 reverse	25.2 x 47.56	–	Disc brake PZ40 59X2.99	FDWS40	LT1070/200T(low) LT900/250T(high)	71379
JC50	1500	78683	1 3/8"	6 forward 2 reverse	26.97 x 50.79	–	Disc brake PZ40 59.84X2.99	DWS50	LT1168/305T(low) LT965/305T(high)	93088
JC70	2000	109032	1 1/2"	6 forward 2 reverse	26.97 x 50.79	–	Disc brake PZ40 59.84X2.99	DWS70	LT1168/305T(low) LT900/305T(high)	107116

MAIN TECHNICAL PARAMETERS FOR ELECTRICAL DRIVE DRAWWORKS

Model	Power (hp)	Fast line pull (lbf)	Drilling line diameter (ft)	Gears	Main drum (in)	Brake rim (disc) diameter × Width(in)	Gear-boxreducer speed ratio	Auxiliary brake	Weight (lb)	Transport width (ft)
JC30DB	750	47210	1 1/8" ;1 1/4"	Stepless speed regulation	φ22.05×40.94	Single disc brake Pz30 φ59.05×2.36	5.2	Motor resistance brake for main motor	41447	10.5
JC40DB	1000	62947	1 1/4"	Stepless speed regulation	φ25.2×47.56	Single disc brake Pz40 φ59.05×2.36	7.5	Motor resistance brake for main motor	54816	10.5
JC40DJ	1000	62947	1 1/4"	4 gears	φ25.2×47.56	Disc brake Pz40 φ59.05×2.36	4 gears	DWS40 FDWS	51400	8.5
JC40DZ	1000	62947	1 1/4"	4 gears	φ25.2×47.56	Band brake	4 gears	236WCB	68511	10.5
JC50DB	1100	78683	1 3/8"	2 gears Stepless speed regulation	φ26.97×51.18	Single disc brake Pz50 φ59.84×2.99	8.5/5	Motor resistance brake for main motor	77735	10.2
JC50D	1500	78683	1 3/8"	4 Forward 4 Reverse, Stepless speed regulation	φ26.97×51.18	Disc brake Pz50 φ59.84×2.99	/	DWS50 FDWS	83731+27337	10.5
JC70DB	2000	109032	11/2"	2 gears Stepless speed regulation	φ30.31×51.18	Disc brake Pz70 φ59.84×2.99	10.4/5.4	Motor resistance brake for main motor	100376	10.5
JC70D	2000	109032	11/2"	4 Forward 4 Reverse, Stepless speed regulation	φ30.31×51.18	Disc brake Pz70 φ59.84×2.99	/	DWS70 FDWS	88405+27337	10.5
JC90DB	3000	145000	1 3/4"	2 gears Stepless speed regulation	φ42×72.44	Disc brake φ86.6×2.99	8.76/5.72	Motor resistance brake for main motor	168083	10.5

HOOK BLOCK

- The design and manufacturing of hook blocks conform to API Spec 8A, 8C. The surface of sheave grooves is processed with a quenching treatment so as to ensure its wear-resistance and longevity.
- The main bearing is made of high strength alloy steel and NDT will be completed after production.
- The spring and hydraulic buffering devices of the hook block are available for protection of the drilling pipe joints.

MAIN TECHNICAL PARAMETERS FOR INTEGRATED-TYPE HOOK BLOCK

Model		YG35	YG60	YG70	YG80	YG90	YG110	YG135B	YG160	YG160B	YG180	YG225
Max load (lbf)		80931	131508	151746	179840	20232	252910	303492	355198	155398	404656	505820
Sheave OD (in)		19.68	24.02	24.02	24.02	29.92	29.92	29.92	29.92	29.92	36.02	36.02
Number of sheaves		3	4	3	3	3	4	4	5	4	4	5
Drilling line diameter (in)		3/4	7/8	7/8	7/8	1	1	1	1	1 1/8	1 1/4	1 1/4
Hook body type		Two-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook	Three-hook
Hook opening dimension (in)		3.54	4.33	4.33	4.33	4.33	5.91	5.98	7.09	7.09	7.48	7.48
Spring stroke (in)		6.02	4.53	4.53	6.02	6.02	5.91	6.02	5.91	5.91	7.09	7.09
Overall dimension (ft)	L	3.89	6	6.04	7.36	7.71	8.66	9.08	10.33	10.33	11.32	11.32
	W	1.48	2.27	2.27	2.2	2.72	2.72	2.72	2.72	2.72	3.18	3.18
	H	1.02	1.5	1.5	2.07	1.35	1.64	1.64	1.98	2.4	2.76	2.79
Mass (lb)		1047	2646	2535	4740	4409	5093	6265	7231	7054	10207	10432

MAIN TECHNICAL PARAMETERS FOR TRAVELLING BLOCK

Type	YC225	YC315	YC450	YC585	YC675
Max hook load (lbf)	505820	708148	1011640	1315132	1517400
Number of sheaves	5	6	6	7	7
Sheave OD (in)	44	50	60	60	60
Drilling line diameter (in)	1 1/8; 1 1/4	11/4; 1 3/8	1 3/8; 1 1/2	1 5/8	1 3/4
Overall dimension (in)	8.23×3.9×2.06	8.79×4.42×3.19	10.15×5.24×2.65	10.17×5.24×3.16	11.2×5.25×3.77
Mass (lb)	8388.57	15084	18168.27	21164.35	23821

MAIN TECHNICAL PARAMETERS FOR HOOK

Model	DG225	DG315	DG450	DG675
Max hook load (lbf)	505820	483339	1011640	1517460
Main hook opening size (in)	7.48	8.66	8.66	9.37
Spring stroke (in)	7.08	7.87	7.87	7.87
Overall dimension (ft)	8.34×2.55×2.46	9.68×2.92×7.87	9.68×2.92×2.88	10.35×3.97×3.05
Mass (lb)	4806	7517.8	7707.35	8598

CROWN BLOCK

The crown block consists of crown basement, fast-line sheave, dead-line sheave, main sheave, sand-line sheave, drilling line protector and sheaves for hydraulic and air winch, bumper wood for the Crown-O-Matic and guardrail. It's designed with closed type and open type. The traveling system is divided into 7×6, 6×5, 5×4 and 4×3, which fit to Φ7/8"~Φ1 1/2" drilling lines. The sheave groove conforms to the requirements of API RP 9B. The sheave groove surface is processed with a quenching treatment. The bearing adopts centralized lubrication for convenient operation.

MAIN TECHNICAL PARAMETERS FOR CROWN BLOCK

Model	Traveling system	Drilling line diameter (in)	Load (lbf)	Main sheave diameter (in)	Fastline sheave diameter (in)	Sandline sheave diameter (in)	Overall Dimension (ft)	Self-weight (lb)
TC60	3×2	7/8	134885	19.68	19.68		5.37×4.36×4.89	1305
TC70	4×3	7/8	157366	24.02	24.02		4.86×2.05×2.07	1598
TC90C	4×3	1	202328	24.02	24.02		4.46×3.28×4.1	1764
TC135	4×3	1	303492	29.92	36.02		6×4.95×4.27	2866
TC158	5×4	1;1 1/8	355198	29.92	36.02	19.68	7.64×4.69×4.82	3263
TC158	6×5	1;1 1/8	355198	29.92	36.02	19.68	7.64×5.38×4.82	3472
*TC160	4×3	1 1/8	359694	36.02	36.02	19.68	2.23×3.23×3.41	4393
*TC170C	5×4	1 1/4	382175	36.02	44.09	15.75	7.97×3.28×4.43	6095
*TC180D	6×5	1 1/4	404656	36.02	36.02		8.14×2.7×3.18	4574
*TC225	6×5	1 1/4	505820	44.09	50		8.14×2.7×3.18	12306
TC225	6×5	1 1/4	505820	36.02	36.02	19.68	6.56×4.59×4.43	5158
*TC315	7×6	1 3/8	708148	50	60	30	12.84×10×9.24	19294
*TC450	7×6	1 1/2	111640	60	60	29.92	11.38×10×9.8	21459

Note: *marked items for the mast of skid-mounted drilling rig.

2
MAST (DERRICK)

- The drilling and workover mast (derrick) with different loadings is designed and fabricated according to API Spec 4F and SY/T5025-1999.
- The mast (derrick) includes A type, tower type, K type, special K type, mast type and the special type used in offshore drilling.
- The main parameters for the different kinds of mast (derrick) are given in tables 1 to 6.

TABLE 1: MAIN TECHNICAL PARAMETERS FOR A -TYPE MAST

Model	Height of mast (ft)	Hook load (lbf)	Height of racking platform (ft)	Sheave groove Dia. (in)	Travelling system	Weight (lbs)	Top span(ft)	Bottom span (ft)
JJ17041	134.51	382175	80.38/83.66/86.94	1 1/8	6×5	85098	5.58×6.56	24.61×7.55
JJ22542	137.79	505820	80.38/83.66/86.94	1 1/4	6×5	109349	5.58×6.56	25.59×7.55
JJ31545	147.64	708148	80.38/83.66/86.94	1 3/8	6×5/7×6	125222	6.23×6.89	27.23×7.55

TABLE 2: MAIN TECHNICAL PARAMETERS FOR K-TYPE MAST

Model	Height of mast (ft)	Hook load (lbf)	Height of racking platform (ft)	Sheave groove Dia. (in)	Travelling system	Weight(lbs)	Top span(ft)	Bottom span (ft)
JJ17041	134.51	382175	80.38/83.66/86.94	1 1/8	6×5	80468	5.91×6.56	21.33×8.86
JJ22543	141	505820	80.38/83.66/86.94	1 1/4	6×5	134481	5.91×6.56	29.53×8.2
JJ31545	147.64	708148	80.38/83.66/86.94	1 3/8	7×6	209438	7.22×7.22	27.89×8.37
JJ45045	147.64	1011640	80.38/83.66/86.94	1 1/2	7×6	251326	8.2×7.55	29.53×8.69
JJ67548	157.48	1517400	80.38/83.66/86.94	1 3/4	8×7	357145	8.53×7.87	32.8×8.69

TABLE 3: MAIN TECHNICAL PARAMETERS FOR K-TYPE SPECIAL MAST

Model	Type	Height of mast(ft)	Hook load (lb)	Height of racking platform (ft)	Sheave groove Dia. (in)	Travelling system	Weight(lbs)	Top span(ft)	Bottom span (ft)
JJ15831B	K Type triple-section telescopic set	101.7	355198	55.77	1 1/8	5×4	47178	3.94×3.28	10.52×5.18
JJ15831C	K Type double-section telescopic set	101.7	355198	55.77	1 1/8	5×4	44357	3.94×3.28	10.52×5.18
JJ15831D	K Type double-section telescopic set	101.7	355198	57.09	1 1/8	5×4	48501	3.94×3.28	9.5×4.5
JJ17032A	K Type double-section telescopic set	104.99	382175	54.79	1 1/4	5×4	55115	5.74×4.98	9.8×5.7
JJ17033A	K Type triple-section telescopic set	108.27	382175	52.49/55.77	1 1/4	6×5	61729	5.74×4.98	10.5×5.2
JJ22541	Five-section butt-joint expansion	134.51	505820	83.66/86.94	1 1/4	6×5	84216	7.68×6.2	13.12×8.5
JJ22532	Fraction type five-section expansion	104.99	505820	50.85/54.13/57.4	1 1/4	6×5	114640	8.2×7.55	24.61×9.35
JJ22543	Fraction type six-section expansion	141.08	505820	80.38/83.66/86.94	1 1/8	7×6	128970	8.2×7.55	24.61×9.35

TABLE 4: MAIN TECHNICAL PARAMETERS FOR MAST

Model	Type	Height of mast (ft)	Max. rated static hook load (lb)	Height of racking platform (ft)	Sheave groove Dia. (in)	Travelling system	Transportation length (ft)	Weight (lb)
JJ7021	double-section	67.26	157366	——	7/8;1	4×3	37.73	11243.56
JJ7029	double-section	95.14	157366	50.85/57.41	7/8	4×3	55.77	21164.35
JJ9029	double-section	95.14	202328	57.41/66.27	1	4×3	46.26	33730.69
JJ9031	double-section	101.7	202328	57.41/66.27/69.55	1	4×3	55.77	28660
JJ11331	double-section	101.7	254034	55.77/64.63	1	5×4	55.77	28660
JJ13533	double-section	108.27	303492	57.41/66.27/69.55/72.18	1	5×4	59.05	30864.68
JJ15835	double-section	114.83	355198	57.41/66.27/69.55/72.18	1;1 1/8	5×4	62.34	32407.9
JJ15835B	triple-section	114.83	355198	57.41/66.27	1	5×4	52.49	52910.88
JJ15836	double-section	115	355198	57.41/66.27	1 1/8	5×4	68.9	36375.9
JJ18038	double-section	124.67	404656	72.18/75.46/78.74	1 1/4	6×5	62.34	46297
JJ22538	double-section	124.67	505820	70.54/75.46	1 1/4	6×5	67.26	47840.25
JJ22547	triple-section	154.2	505820	83.66/86.94	1 1/4	6×5	67.26	73413.85
XJJ60	Slant-well mast	68.9	134885	20.67-30.84	7/8	3×2	68.9	19841.58

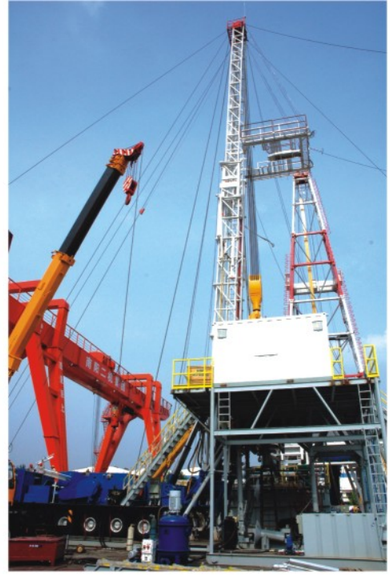
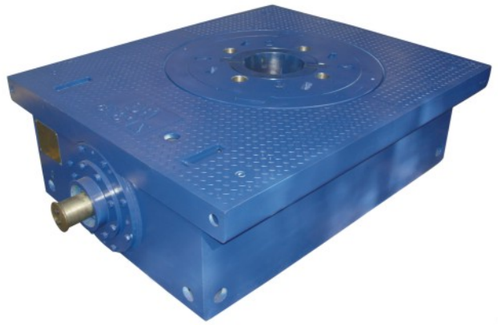


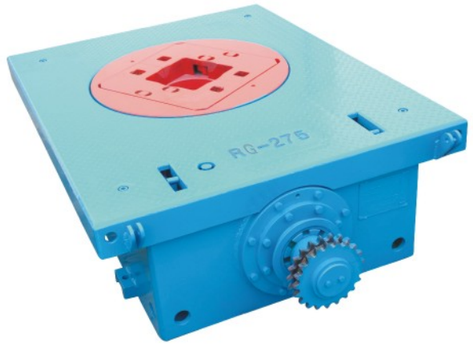
TABLE 5: MAIN TECHNICAL PARAMETERS FOR TOWER-TYPE DERRICK

Model	Height (ft)	Max. rated static hook load (lbf)	Height of racking platform (ft)	Sheave groove Dia. (in)	Traveling system	Weight (lbs)
HJJ11322	72.18	254034	54.79	1	5×4	39683
HJJ11231	101.7	254034	54.79	1	5×4	57320
HJJ13531	101.7	303492	54.79	1	5×4	52910
HJJ15833	108.27	355198	54.79	1 1/8	5×4	56217
HJJ18043	141	404656	85.3	1 1/4	6×5	77161
HJJ22545	147.6	505820	85.3	1 1/4	6×5	92594
HJJ31547	154.2	708120	85.3	1 3/8	7×6	194005

TABLE 6: MIAN TECHNICAL PARAMETERS FOR OFFSHORE SPECIAL DERRICK

Model	Height (ft)	Max. rated static hook load (lb)	Height of racking platform (ft)	Sheave groove Dia.(in)	Anti-wind capacity without hook load ft/s		Traveling system	Weight(lb)
HJJ9029	95.14	202328	53.15/54.79/56.43	1	No setback	180.44	4×3	37919.46
					Full setback	157.48		
HJJ11329	95.14	269770	49.87/55.12/60.37	1	No setback	180.44	5×4	40565
					Full setback	157.48		
HJJ13533	108.27	303492	52.17/54.79/57.41	1 1/8	No setback	157.48	5×4	52910.88
					Full setback	118		
HJJ16031	101.7	359694	49.54/54.79/60	1 1/8	No setback	180.44	6×5	77161.7
					Full setback	157.48		
HJJ18033	108.27	404656	51.5/54.79/58	1 1/4	No setback	180.44	6×5	84657.4
					Full setback	157.48		
HJJ22533	108.27	505820	50.85/54.13/57.4	1 1/4	No setback	193.57	6×5	90389.4
					Full setback	157.48		
HJJ31545	147.6	708120	86.94	1 3/8	No setback	157.48	7×6	242506
					Full setback	118		
HJJ31547	153.22	708120	86.94	1 3/8	No setback	168.96	7×6	194004.8
					Full setback	118		
HJJ45045	147.6	1011600	86.94	1 1/2	No setback	157.48	7×6	264552
					Full setback	118		





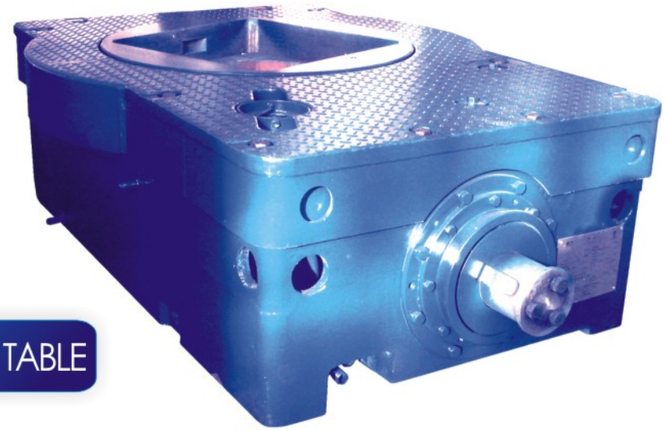
1 ROTAING EQUIPMENT
ROTARY TABLE

NORMAL ROTARY TABLE

- The design and fabrication of the rotary table conform to API Spec 7K.
- The rotary table has the following strong points: smooth operation, strong bearing capacity, lightweight, good lubrication, reliable locking and convenient installation and maintenance.

MAIN TECHNICAL PARAMETERS FOR NORMAL ROTARY TABLE

PARAMETER \ MODEL	ZP50	ZP135	ZP175	ZP205C	ZP275	ZP375	ZP495
Opening Dia.(in)	7 "	12.25"	17.5 "	20.5"	27.5"	37.5"	49.5"
Max. static load (lbf)	134885	303492	303492	708148	1011640	1315132	2023200
Rated torque (ft-lb)	5900	8850	10325	16595	20282	23867	47498
Distance between rotary table center and chain wheel internal teeth centerline (ft)	1.93	3.66	3.66	4.43	4.43	4.43	5.42
Max. speed (r/min)	300	300	300	300	300	300	300
Gear ratio(I)	2.94	3.5	3.58	3.62	3.67	3.56	3.96
Center height (in)		6.29	10.62	12.51	12.99	12.99	14.49
Overall dimension (ft)	3.05x1.93x1.77	5.59×3.51×1.24	6.24×4.19×1.88	7.57×4.83×2.19	7.92×5.51×2.25	8.09×5.93×2.35	9.89×7.39×2.69
Mass (lb)	1170	3007	8238	9208	14931	17694	24823

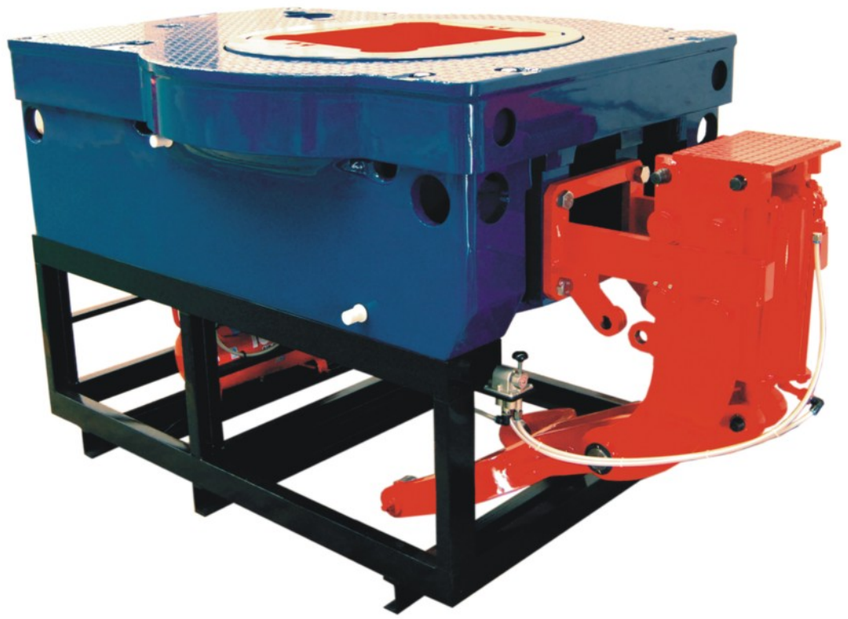


RUSSIAN-STYLE ROTARY TABLE

- It is developed according to special drilling requirements in Russia and has good performance and better environmental applicability.
- The rotary table has the following strong points: smooth operation, strong bearing capacity, light weight, good lubrication, reliable locking and convenient installation and maintenance.

MAIN TECHNICAL PARAMETERS FOR RUSSIAN-STYLE ROTARY TABLE

Rotary table model	P700	P560
Max. load (lbf)	1011600	899200
Opening diameter (in)	27.5 "	22 "
Max. torque (ft-lb)	47937	36875
Gear ratio(I)	3.61	3.05
Max. speed (r/pm)	300	300
Center distance (ft)	4.43	4.43
Center height (ft)	1	1
Overall dimension (ft)	7.41×5.07×2.23	7.59×5.33×2.46
Weight (lb)	13999	12897



SWIVEL

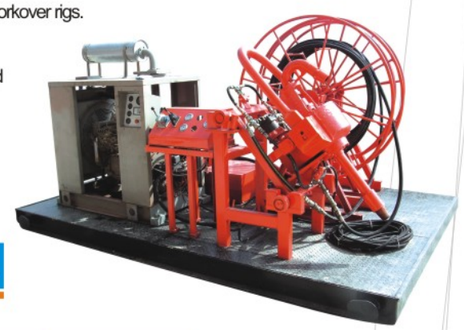
- The design and fabrication of swivels conform to API Spec 8A, 8C, SY/T5530 and related technical standards. The load-bearing components are made of high-quality alloy steel.
- Wash pipe and packing can be easily replaced.

MAIN TECHNICAL PARAMETERS FOR SWIVEL

MODEL	SL70	SL110	SL135	SL160	SL225	XSL225	XSL450	SL675
Max. static load (lbf)	151740	25290	303492	35969	505820	505820	1011640	1517400
Working load of main bearing (lbf)	67440	101164	224808	269770	337213	377213	562022	1011600
Gooseneck pipe thread	2⅜" TBG	4½" NPT	4½" TBG	4½" TBG	4½" TBG	4" NPT	4" NPT	4" NPT
Bottom thread of central pipe joint	2⅞" UP DP	4½" REG LH	5½" REG LH	5½" REG LH	6⅝" REG LH	6⅝" REG LH	6⅝" REG LH	6⅝" REG LH
Max. working pressure (psi)	2143	3000	5000	5000	5000	5000	5000	7571
Opening diameter of central pipe (in)	1.96	2.50	2.99	2.99	2.99	2.99	2.99	4.01
Overall dimension (ft)	5.57×1.49×0.98	5.53×0.93×1.67	7.41×2.21×2.44	7.87×2.33×2.47	8.53×2.56×2.60	9.45x3.37x3.49	9.89×3.59×3.49	12.38X4.07X4.61
Mass (lb)	606	741	1711	2176	2925	5666	6746	15168

POWER SWIVEL

- The power swivel is driven by motor via a gear-box reducer and uses it to run the DP by its roiary shaft. It consists of power device and swivel, which can realize rotation of drilling strings and circulation of the mud fluid.
- The power swivel is suitable for light-duty drilling rigs, truck-mounted drilling rigs and workover rigs.
- It has stepless speed control, which can realize big torque at lower rotary speeds.
- Hydraulic system power is from a motor or diesel engine. It is put on an integrated skid for convenient movement, installation and commissioning.

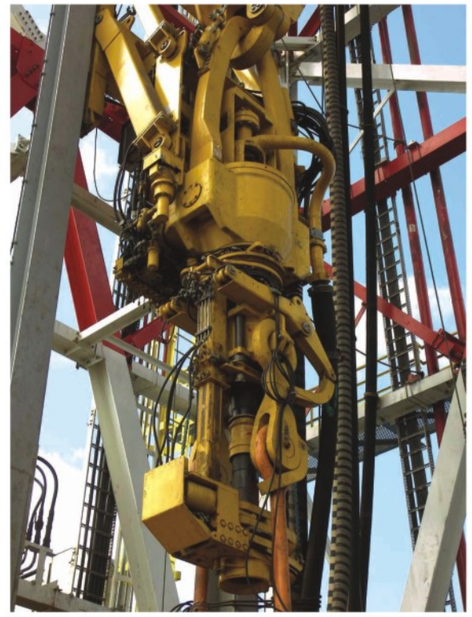


MAIN TECHNICAL PARAMETERS FOR POWER SWIVEL

MODEL	DSL60	DSL90	DSL135	DSL160
Drive ways	Hydraulic drive	Hydraulic drive	Hydraulic drive	Hydraulic drive
Nominal drilling depth (ft) (4½" DP)	1640	3280	4920	6560
Max. load (lbf)	134885.4	269770.7	303492.1	359694.3
Rotary speed range (r/min)	0～170	0～180	0～180	0～180
Max. working torque (ft-lb)	3687.8	7375.6	11063.4	13276.1
Max. working pressure of hydraulic system (psi)	5000	5000	5000	5000
Open-end hole diameter of central pipe (in)	1.97	2.36	2.99	2.99
Max. working pressure of central pipe thru hole (psi)	5000	5000	5000	5000
Thread type	2 7/8" IF	3 1/2" IF	4 1/2" IF	4 1/2" IF
Electrical Power	380VAC/50Hz	380VAC/50Hz	380VAC/50Hz	380VAC/50Hz
Engine power (hp)	107	147	355	482

TOP DRIVE SYSTEM

- The top drive system is compact to meet the installation requirements of truck-mounted drilling and workover rigs, skid-mounted land rigs and offshore drilling rigs.
- With good performance, it is especially applicable for drilling operations of directional wells and horizontal wells in order to save auxiliary drilling time and improve drilling efficiency.
- The AC variable frequency drive is adopted to realize stepless speed regulation, wide regulating range, simple and reliable drive, and simple and convenient installation, maintenance and operation.
- The key load-bearing parts are made of special materials and subjected to heat treatment to ensure mechanical integrity.



MAIN TECHNICAL PARAMETERS FOR TOP DRIVE

MODEL		DQ250	DQ500
Nominal drilling range (ft)	5" DP	10498.7	19685.0
	4½" DP	13123.4	22965.8
Max. hook load (lbf)		505800	1011600
Max. torque of main shaft (ft-lb)		29502.4	36878.0
Max. break-out torque (ft-lb)		44253.6	55317.0
Speed range of main shaft (r/min)		0～180	0～220
Suitable mast height (ft)		108～141	148
Opening diameter of central pipe (in)		2.95	2.95

2
WELLHEAD TOOLS
ELEVATOR LINKS AND ELEVATORS

ELEVATOR LINKS

- The design and fabrication conform to API Spec 8A, API Spec 8C, SY/T5035 and other relevant technical specifications, with a national fabrication license.
- It's made of high quality alloy steel created by a forging process.
- Finite-element analysis is adopted for strength checking and electrical measurement for stress testing. There are two kinds of elevator links, including the single arm type and the double arm type.
- More effective sand blasting process is adopted to intensify the surface of the links.

MAIN TECHNICAL PARAMETERS FOR SINGLE ARM ELEVATOR LINKS

Model	Rated load (lbf)	Working length (ft)	Overall dimension (ft)	Weight (lb)
DH150	303492	5.91	6.50×0.89×0.33	132.28
DH250	505820	8.86	9.51×1.18×0.36	330.69
DH350	708148	10.83	11.48×1.27×0.43	498.24
DH500	1000360	12.46	12.68×1.61×0.52	868.61

★The length can be custom-made in accordance with the requirements of the end-users.

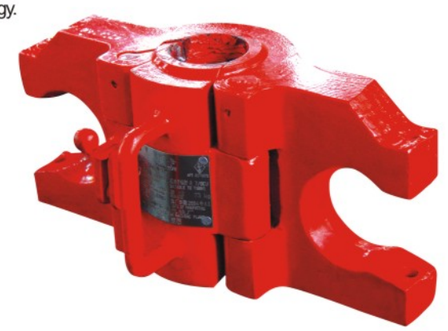
MAIN TECHNICAL PARAMETERS FOR DOUBLE ARM ELEVATOR LINKS

Type	Rated load (lbf)	Working length (ft)	Overall dimension (ft)	Net weight (lb)
SH75	151746	4.92	5.31×0.89×0.26	13272
SH150	303492	5.58	6.10×1.02×0.34	24691

★The length can be custom-made in accordance with the requirements of the end-users.

ELEVATORS

- The design and fabrication conform to API Spec 8A, API Spec 8C, SY/T5035 and other technical specifications, with a national fabrication license.
- The main loading parts are made of high quality alloy steel.
- Finite element analysis is adopted for strength checking and electrical measurement for stress testing.
- A two-time liquid quench process is used in the heat treatment technology.
- Factory test and NDT are done stringently in accordance with the related standards.



MAIN TECHNICAL PARAMETERS FOR SIDE-DOOR DRILL PIPE ELEVATORS

Specification and model	Rated load (KN/US ton)	Suitable DP size		Elevator upper/ lower bore diameter (in)	Net weight (lb)
		in	mm		
CD2⅛ EU-150	1350/150	2⅛ EU	73.0	3.39/2.99	160.94
CD3 ½EU-150		3 ½EU	88.9	4.06/3.62	167.55
CD3 ½EU -250	2250/250	3 ½EU	88.9	4.06/3.62	211.64
CD4 IU-150	1350/150	4 IU	101.6	4.33/4.13	187.39
(CD4EU – 150)		4EU	101.6	4.80/4.65	209.44
CD4 ½IU – 150		4 ½IU	114.3		
(CD4 ½IEU – 150)		4 ½IEU	114.3		
(CD4EU – 250)	2250/250	4EU	101.6	4.80/4.65	275.58
CD4 ½IU – 250		4 ½IU	114.3		
(Cd4½IEU – 250)		4 ½ EU	114.3		
CD4 ½EU -150	1350/150	4 ½EU	114.3	5.16/4.65	202.83
(CD4 ½EU – 250)	2250/250	4 ½EU	114.3	(5.16/4.65)	286.60
CD5 IEU-250		5 IEU	127	5.31/5.16	

Note : the model in parentheses is optional.

MAIN TECHNICAL PARAMETERS FOR CENTRAL-LATCH (SQUARE SHOULDER) DRILL PIPE ELEVATORS

Specification and model	Rated load (KN/US ton)	Suitable DP size		Elevator upper/lower bore diameter (in)	Net weight (lb)
		in	mm		
DD2 7/8EU-150	1350/150	2 7/8EU	73.0	3.39/2.99	286.6
DD3 1/2EU -150		3 1/2EU	88.9	4.06/3.62	282.2

MAIN TECHNICAL PARAMETERS FOR CENTRAL-LATCH (18°CONICAL SHOULDER) DRILL PIPE ELEVATORS

Specification and model	Rated load (KN/US ton)	Suitable DP size		Elevator upper/lower bore diameter (in)	Net weight (lb)
		in	mm		
DDZ2 3/8EU-150	1350/150	2 3/8EU	60.3	2.68	291
DDZ2 7/8EU-150		2 7/8EU	73.0	3.28	287
DDZ3 1/2EU -150		3 1/2EU	88.9	3.98	283
DDZ 5 IEU-250	2250/250	5 IEU			

TUBING ELEVATORS

MAIN TECHNICAL PARAMETERS FOR SIDE-DOOR TUBING ELEVATORS

Specification and model	Rated load (KN/US ton)	Suitable tubing size		Elevator upper/lower bore diameter (in)	Net weight (lb)
		in	mm		
CD2 7/8-150	1350/150	2 7/8	73.0	2.95/2.95	161
CD2 7/8EU-150		2 7/8EU	73.0	3.23/2.95	161
CD3 1/2-150		3 1/2	88.9	3.58/3.58	168
CD3 1/2EU-150		3 1/2EU	88.9	3.86/3.58	168
CD4 -150		4	101.6	4.09/4.09	188
CD4EU-150		4EU	101.6	4.37/4.09	188
CD4 1/2-150		4 1/2	114.3	4.61/4.61	210
CD4 1/2EU-150		4 1/2EU	114.3	4.84/4.61	210

MAIN TECHNICAL PARAMETERS FOR CENTRAL-LATCH TUBING ELEVATORS

Specification and model	Rated load (KN/US ton)	Suitable tubing size		Elevator upper/lower bore diameter(in)	Net weight (lb)
		in	mm		
DD2 3/8-150	1350/150	2 3/8	60.3	2.48/2.48	291
DD2 3/8EU-150		2 3/8EU	60.3	2.72/2.48	291
DD2 7/8-150		2 7/8	73.0	2.95/2.95	287
DD2 7/8EU-150		2 7/8EU	73.0	3.23/2.95	287
DD3 1/2-150		3 1/2	88.9	3.58/3.58	283
DD3 1/2EU-150		3 1/2EU	88.9	3.86/3.58	283
DD4 -150		4	101.6	4.09/4.09	276
DD4EU-150		4EU	101.6	4.37/4.09	268
DD4 1/2-150		4 1/2	114.3	4.61/4.61	266
DD4 1/2EU-150		4 1/2EU	114.3	4.84/4.61	265

IRON ROUGHNECK

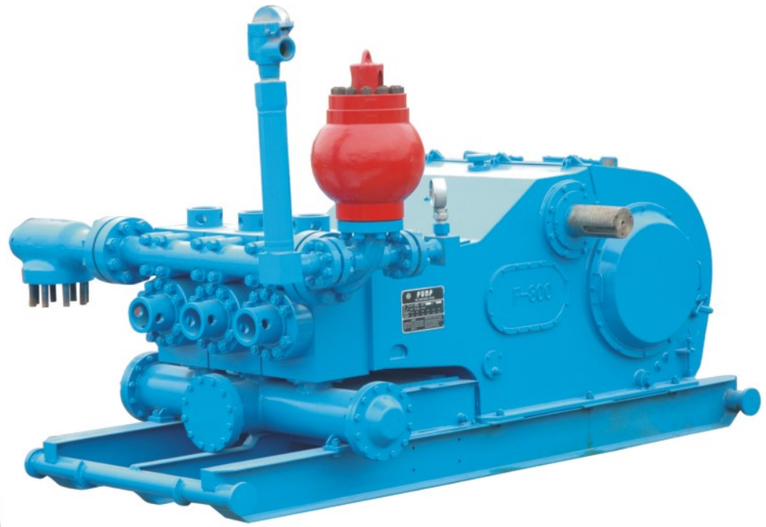
- The iron roughneck is a new multiple functional power tong with a wide holding range. It can perform the functions of making up and breaking out instead of hydraulic power tong and manual tongs.
- Its structure is compact and covers a small working space, and the base is permanently installed to implement the adjustment of the upper and lower and fore-and-aft positions. Its operation scope covers everything from well heads to mouse holes.
- Complete hydraulic control or electrical-hydraulic proportional control is used, with adjustable torque and speed performance. The maximum torque and speed that can be operated in both forward and reverse directions is to get a precise control of the make-up torque and to protect the drill pipe.
- The rotary guide rail is installed between the upper and lower tongs to prevent the drill pipe from bending due to large torque so as to avoid the drill pipe from slippage in the slips.

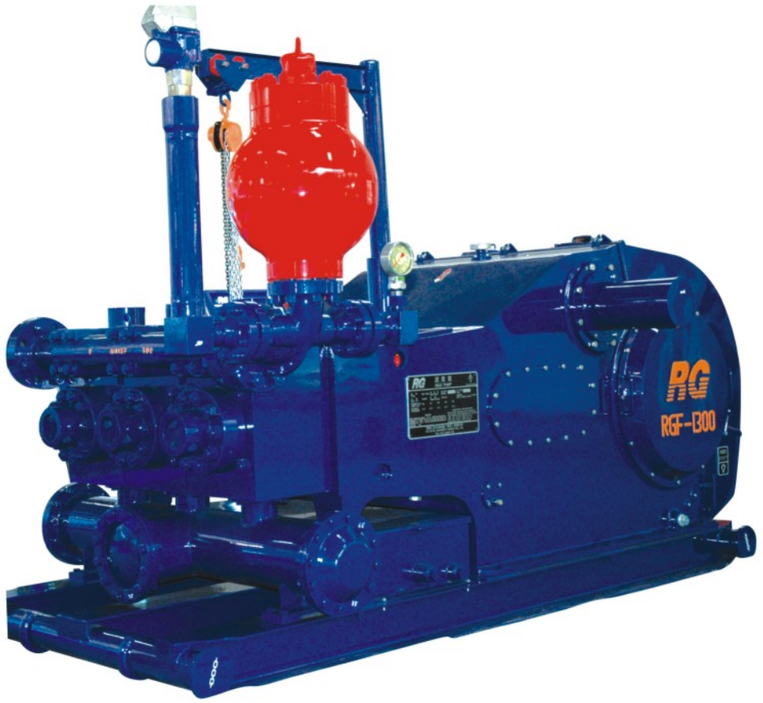
MAIN TECHNICAL PARAMETERS FOR IRON ROUGHNECK

Application scope	3 1/2" DP～9" DC
Max. pressure of hydraulic system(PSI)	2286
Max. make-up torque (lbf.ft)	66380
Max. break-out torque (lbf.ft)	110634
Spinning torque (lbf.ft)	1748
Spinning speed rpm	40～90
Connection height of drilling string (in)	23.62～49.80
Vertical travel distance (in)	25.59
Weight (lb)	6631

1 MUD PUMP

- The RGF series mud pump is advanced in structure and compact and small in size. It has perfect working performance and conforms to the drilling requirements of oilfields with high pump pressures and large capacity.
- The RGF series mud pump has a long stroke and can work at low strokes, which effectively enhances the water lifting capability of the mud pump and prolongs the service-life of the wearing parts at the hydraulic end. The suction damper is advanced and reliable, allowing it to optimize the suction effect of the mud pump.
- The important parts of the RGF series pumps such as hydraulic cylinder, crankshaft, and herringbone gear are made of high-quality alloy steel. The main frame uses a steel plate welding structure with high strength, rigidity and light weight.
- RGF series mud pumps have high interchangeability; all wearing parts at the hydraulic end conform to parts interchange requirements specified in API Spec. It is easy to maintain, and therefore offers good working performance.





MAIN TECHNICAL PARAMETERS FOR RGF500 MUD PUMP

Stroke number/(SPM)	Rated power		Diameter of liner (in) and rated pressure, MPa (psi)													
			6.69		6.30		5.91		5.51		5.12		4.72		4.30		3.94	
	kW	HP	9.4	1365	10.6	1540	12.1	1750	13.9	2010	16.1	2335	18.9	2740	22.5	3260	27.2	3945
			Displacement L/S (GPM)															
170	384	515	36.75		32.56		28.61		24.93		21.49		18.31		15.39		12.72	
			(582)		(516)		(453)		(395)		(340)		(290)		(244)		(201)	
*165	*373	500	35.67		31.60		27.77		24.19		20.86		17.77		14.93		12.34	
			(565)		(501)		(440)		(383)		(330)		(281)		(236)		(195)	
150	339	455	32.43		28.73		25.25		21.99		18.96		16.16		13.58		11.22	
			(514)		(455)		(400)		(348)		(300)		(256)		(215)		(178)	
140	316	424	30.27		26.81		23.56		20.53		17.70		15.08		12.67		10.47	
			(480)		(425)		(373)		(325)		(280)		(239)		(201)		(166)	
130	294	394	28.11		24.90		21.88		19.06		16.44		14.00		11.77		9.73	
			(445)		(394)		(347)		(302)		(260)		(222)		(186)		(154)	
120	271	364	25.94		22.98		20.20		17.60		15.17		12.93		10.86		8.98	
			(411)		(364)		(320)		(279)		(240)		(205)		(172)		(142)	
110	249	333	23.78		21.07		18.52		16.13		13.91		11.85		9.96		8.23	
			(377)		(334)		(293)		(255)		(220)		(188)		(158)		(130)	
1			0.2162		0.1915		0.1683		0.1466		0.1264		0.1077		0.0905		0.0748	
			(3.427)		(3.036)		(2.668)		(2.324)		(2.004)		(1.707)		(1.435)		(1.186)	

★ Note:
1. The aforementioned parameters are calculated in accordance with 100% cubage efficiency and 90% mechanical efficiency.
2. The numbers marked with * are recommended stroke numbers and input power under continuous running.

MAIN TECHNICAL PARAMETERS FOR RGF800 MUD PUMP

Stroke number/(SPM)	Rated power		Diameter of liner (in) and rated pressure, MPa (psi)													
			6.69		6.30		5.91		5.51		5.12		4.72		4.30		3.94	
	kW	HP	13.8	2000	15.6	2260	17.7	2570	20.3	2950	23.6	3420	27.7	4015	53.0	4780	34.5	5000
			Displacement L/S (GPM)															
160	636	853	41.51		36.77		32.32		28.15		24.27		20.68		17.38		14.36	
			(658)		(583)		(512)		(446)		(358)		(328)		(275)		(227)	
*150	*596	800	38.92		34.47		30.30		26.39		22.76		(19.39)		16.29		13.47	
			(617)		(546)		(480)		(418)		(360)		(307)		(258)		(213)	
140	557	747	36.32		32.17		28.28		24.63		21.24		18.10		15.21		12.57	
			(575)		(510)		(448)		(390)		(336)		(287)		(241)		(199)	
130	517	693	33.73		29.88		26.26		22.87		19.72		16.81		14.12		11.67	
			(534)		(473)		(416)		(362)		(312)		(266)		(224)		(185)	
120	477	640	31.13		27.58		24.24		21.11		18.21		15.51		13.03		10.77	
			(493)		(437)		(384)		(334)		(288)		(246)		(206)		(171)	
110	437	587	28.54		25.28		22.22		19.35		16.69		14.22		11.95		9.87	
			(452)		(400)		(352)		(307)		(264)		(225)		(189)		(156)	
1			0.2594		0.2298		0.2020		(0.1759)		0.1517		0.1293		0.1086		0.0898	
			(4.112)		(3.643)		(3.202)		(2.789)		(2.405)		(2.049)		(1.722)		(1.423)	

★Note:
1. The aforementioned parameters are calculated in accordance with 100% cubage efficiency and 90% mechanical efficiency.
2. The numbers marked with * are recommended stroke number and input power under continuous running.

MAIN TECHNICAL PARAMETERS FOR RGF1000 MUD PUMP

Stroke number/(SPM)	Rated power		Diameter of liner (in) and rated pressure, MPa (psi)													
			6.69		6.30		5.91		5.51		5.12		4.72		4.30	
	kW	HP	16.6	2410	18.8	2725	21.4	3100	24.5	3555	28.4	4125	33.4	4840	34.5	5000
			Displacement L/S (GPM)													
150	799	1071	43.24		38.30		33.66		29.33		25.29		21.55		18.10	
			(685)		(607)		(533)		(465)		(401)		(341)		(287)	
*140	*746	1000	40.36		35.75		31.42		27.37		23.60		20.11		16.90	
			(639)		(566)		(498)		(434)		(374)		(318)		(268)	
130	692	929	37.47		33.20		29.13		25.42		21.92		18.67		15.69	
			(594)		(526)		(462)		(403)		(347)		(296)		(248)	
120	639	857	34.59		30.64		26.93		23.46		20.23		17.24		14.48	
			(548)		(485)		(427)		(372)		(320)		(273)		(229)	
110	586	786	31.71		28.09		24.93		21.51		18.54		15.80		13.28	
			(502)		(445)		(391)		(341)		(294)		(250)		(210)	
100	533	714	28.83		25.53		22.44		19.55		16.86		14.36		12.07	
			(457)		(404)		(355)		(310)		(267)		(227)		(191)	
1			0.2883		0.2553		0.2244		0.1955		0.1686		0.1436		0.1207	
			(4.569)		(4.047)		(3.557)		(3.099)		(2.672)		(2.277)		(1.913)	

★Note:
1. The aforementioned parameters are calculated in accordance with 100% cubage efficiency and 90% mechanical efficiency.
2. The numbers marked with * are recommended stroke number and input power under continuous running.

MAIN TECHNICAL PARAMETERS FOR RGF1300 MUD PUMP

Stroke number/(SPM)	Rated power		Diameter of liner (in) and rated pressure, MPa (psi)											
			7.09		6.69		6.30		5.91		5.51		5.12	
	kW	HP	18.7	2720	21.0	3050	23.7	3440	27.0	3915	31.0	4495	34.5	5000
			Displacement L/S (GPM)											
130	1050	1408	50.42		44.97		39.83		35.01		30.50		26.30	
			(799)		(713)		(631)		(555)		(483)		(417)	
*120	*969	1300	46.54		41.51		36.77		32.32		28.15		24.27	
			(737)		(658)		(583)		(512)		(446)		(385)	
110	889	1192	42.66		38.05		33.71		29.62		25.81		22.25	
			(676)		(603)		(534)		(469)		(409)		(352)	
100	808	1083	38.78		34.59		30.64		26.93		23.46		20.23	
			(614)		(548)		(485)		(427)		(372)		(320)	
90	727	975	34.90		31.13		27.58		24.24		21.11		18.21	
			(553)		(493)		(437)		(384)		(334)		(288)	
1			0.3878		0.3459		0.3064		0.2693		0.2346		0.2023	
			(6.147)		(5.483)		(4.857)		(4.269)		(3.719)		(3.206)	

★ Note:
1. The aforementioned parameters are calculated in accordance with 100% cubage efficiency and 90% mechanical efficiency.
2. The numbers marked with * are recommended stroke number and input power under continuous running.

MAIN TECHNICAL PARAMETERS FOR RGF1600 MUD PUMP

Stroke number/(SPM)	Rated power		Diameter of liner (in) and rated pressure, MPa (psi)											
			7.09		6.69		6.30		5.91		5.51		5.12	
	kW	HP	23.6	3345	25.9	3750	29.2	4235	33.2	4820	35.1	5000	34.5	5000
			Displacement L/S (GPM)											
130	1293	1733	50.42		44.97		39.83		35.01		30.50		26.30	
			(799)		(713)		(631)		(555)		(483)		(417)	
*120	1193	1600	46.54		41.51		36.77		32.32		28.15		24.27	
			(737)		(658)		(583)		(512)		(446)		(385)	
110	1094	1467	42.66		38.05		33.71		29.62		25.81		22.25	
			(676)		(603)		(534)		(469)		(409)		(352)	
100	994	1333	38.78		34.59		30.64		26.93		23.46		20.23	
			(614)		(548)		(485)		(427)		(372)		(320)	
90	727	975	34.90		31.13		27.58		24.24		21.11		18.21	
			(553)		(493)		(437)		(384)		(334)		(288)	
1			0.3878		0.3459		0.3064		0.2693		0.2346		0.2023	
			(6.147)		(5.483)		(4.857)		(4.269)		(3.719)		(3.206)	

★Note:
1. The aforementioned parameters are calculated in accordance with 100% cubage efficiency and 90% mechanical efficiency.
2. The numbers marked with * are recommended stroke number and input power under continuous running.

2
PUMP-ENGINE UNIT

The pump-engine unit can be associated with different drilling rigs or workover rigs. Its power can be diesel engine or motor. The transmission ways include belt, chain, gear, transmission shaft and other ways. The moving ways include the skid mounted type and the trailer-mounted type. This unit can be equipped with a rain–proof shed, sand–proof shed and winter-proof facilities according to the special requirements of the user.

MAIN TECHNICAL PARAMETERS FOR PUMP-ENGINE UNIT DRIVEN BY DIESEL ENGINE

Item		Specification							
Type of pump-engine unit		JBZ5A	JBZ8A	JBZ8B	JBZ10A	JBZ10B	JBZ13A	JBZ13B	JBZ16A
Diesel engine	Model	CATC15	G12V190PZL-2	CAT3412	G12V190PZL-3	CAT 3512	A12V190PZL-3	A12V190PZL-1	A12V190PZL
	Power (hp)	539.09	804.61	760.36	1086.23	1011.13	1475.12	1287.38	1609.22
	Rated speed (r/min)	2100	1000	2100	1300	1200	1300	1200	1500
Mud pump	Model	RGF500	RGF800	RGF800	RGF1000	RGF1000	RGF1300	RGF1300	RGF1600
	Power (hp)	493	788	788	985	985	1282	1282	1577
	Rated stroke (s/min)	165	150	150	140	140	120	120	120
	Transmission ratio	4.268	4.185	4.185	4.207	4.207	4.206	4.206	4.206
Clutch type		No	Double LT600×125	No	Double LT600×125	Double LT600×125	No	Double LT600×125	Double LT600×125
Transmission box or gear box type		S5610	JS3-1000	S6610	JS3-1000	YLBT900-45FDF (+15)	YOFJ750-20FLSH	ZDY450-2- II	ZDY450-1.6- II
Total weight (lbs)		57320	66138	70547	74957	88184	94798	97003	123740

MAIN TECHNICAL PARAMETERS FOR PUMP-ENGINE UNIT DRIVEN BY MOTOR

Item		Specification			
Type of pump-engine unit		JBZ8C	JBZ10C	JBZ13DB	JBZ16DB
Motor	Model	YJ23	YZ08	YJ13F4	YJ13A6
	Power (hp)	804.61	1072.88	1341.02	1609.23
	Rated speed (r/min)	1035	970	1000	1000
Mud pump	Model	RGF800	RGF1000	RGF1300	RGF1600
	Power (hp)	788.52	985.65	1282.02	1577.04
	Rated stroke (s/min)	150	140	120	120
	Transmission ratio	4.185	4.207	4.206	4.206
Drive ways		Belt drive/chain drive	Belt drive	Belt drive	Belt drive
Total weight (lbs)		55115	57320	94798	99207

3
SOLID CONTROL SYSTEM

The solid control system can be associated with the drilling rigs or workover rigs, including the skid-mounted type (NJXX), trailer type (TNJXX) and pump tank integrated type (BGC). It can be equipped with a rain-proof shed, sand-proof shed and winter -proof equipment according to the special requirements of the end-user.

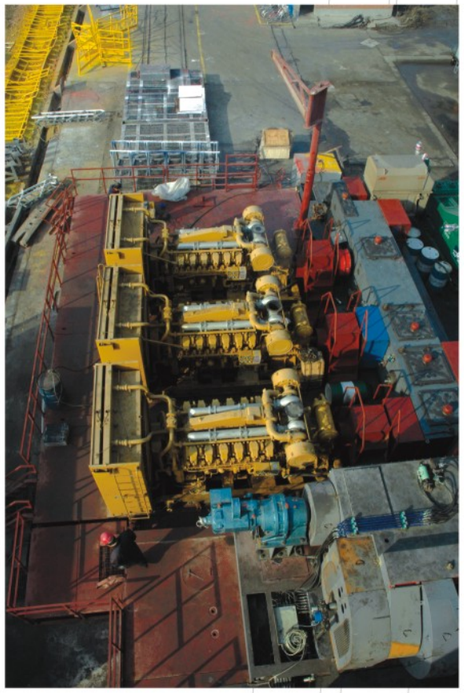
MAIN TECHNICAL PARAMETERS FOR SOLID CONTROL SYSTEM

Type	Model of solid control system	Drilling rig or workover rig	Total capacity of mud tank (ft^3)	Number of mud tank	Purification grade
Skid-mounted type (NJXX)	NJ40	For workover rig	1412.58	1/2	1
	NJ50	For workover rig	1765.73	2	1
	NJ60	For workover rig	2118.88	2	4
	NJ120	6600ft drilling rig	4237.76	3/4	5
	NJ180	10000ft drilling rig	6356.64	3/4	5
	NJ200	13000ft drilling rig	7062.93	4/5	5
	NJ250	16500ft drilling rig	8828.67	6 (Inc. trip/cooling tank)	5
	NJ400	23000ft drilling rig	14125.87	6 (Inc. trip/cooling tank)	5
Trailer type (TNJXX)	TNJ100	6600ft trailer-mounted drilling rig	3531.47	3	5
	TNJ100B	6600ft trailer-mounted drilling rig	3531.47	4	5
Pump tank integrated type (BGC)	BGC	For workover rig	1271.33	1	

4

MUD CIRCULATION MANIFOLD SYSTEM

- The mud circulation manifold system consists of mud gate valve, high pressure union, three-way valve, four-way valve, elbow, high pressure hose, pup joint, and pressure gauge.
- The design and fabrication of the mud circulation manifold system conform to SY/T5244-2006 standards.



MAIN TECHNICAL PARAMETERS FOR MUD CIRCULATION MANIFOLD SYSTEM

Model	ZG50-35,ZG80-35,ZG100-35
Working pressure(psi)	5000
Opening diameter (")	2/3/4
Working medium	Oil / gas / water / mud / cement
Model for drilling rig	ZJ20,ZJ30,ZJ40,ZJ50,ZJ70

5

CHOKE AND KILL MANIFOLDS

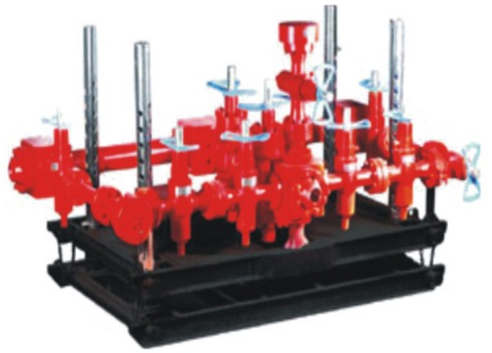
- Choke and kill manifolds are the key well control devices for balance drilling in petroleum exploration, which can effectively control well blowout, overflow, prevent oil layer pollution and improve drilling speed.
- The design and fabrication of the choke and kill manifolds conform to API Spec 16C standards.

MAIN TECHNICAL PARAMETERS FOR CHOKE AND KILL MANIFOLDS

Name	Choke manifold	Kill manifold
Model	JG-21,JGS-35,JGY-35,JGS-70,JGY-70	YG-21,YG-35,YG-70
Main stem and branch stem diameters	4 1/16"× 4 1/16", 4 1/16"× 3 1/8", 4 1/16"× 2 9/16", 4 1/16"× 2 1/16", 3 1/8"× 3 1/8",3 1/8"× 2 9/16", 3 1/8"× 2 1/16", 2 9/16"× 2 1/16"	
Working pressure (psi)	3000/5000/10000	
Working temperature℃	-29～121	
Working medium	Mud, oil, drilling fluid (including H_2S)	

YG-35 kill manifold

JGS-35 choke manifold



1

HYDRAULIC DISC BRAKE AND COMPONENTS

- A redundancy design is adopted to provide safe and reliable braking torque for the rig.
- It has working brake, parking brake, over-roll protection, an emergency brake and other functions so as to meet drilling process requirements to the fullest extent. It also has automatic protective functions for power, air and hydraulic failures.
- The hydraulic station is equipped with the dual electric pumps and multi-accumulator, the hand pump, heater and cooling system supply the reliable hydraulic power.
- The control system is valve-embedded to reduce external pipes.

MAIN TECHNICAL PARAMETERS FOR HYDRAULIC DISC BRAKE

MODEL		PZ30	PZ40	PZ50	PZ70
Working tong	Max. positive pressure on one side (lbf)	11240.45	16860.67	20232.80	
	Effective stroke (in)	1.18			
	Min working thickness allowed for brake shoe (in)	0.47			
	Overall dimension (in)	Φ5.90×9.52	Φ7.08×11.41		
	Weight (lb)	39.68	20232.80		
Safety tong	Max. positive pressure on one side (lbf)	11240.45	90		
	Overall dimension (in)	Φ7.48×12.99	Φ8.26×13.97		
	Weight (lb)	77.16	105.82		
Hydraulic system	Rated pressure (psi)	857		1143	
	Summer	L-HM46 Anti wear hydraulic oil			
	Winter	L-HV32 Low temperature anti wear hydraulic oil			
	Rated flow rate of single pump (ft^3/min)	0.63			
	Oil tank volume (ft^3)	5.30			
	Motor power (hp)	2.95			
	Accumulator capacity (ft^3)	4×0.22			
	Heater power (hp)	1.34			
	Cooling water flow rate (ft^3/h)	70.63			
	Overall dimension (ft)	3.93×3.44×4.21			
	Weight (lb)	1675.51			

2
CLUTCH AND COMPONENTS

The clutch is divided into a radial air-tube clutch and an axial push-plate clutch.

- The radial air-tube clutch is a friction-type clutch using compressed air as power. It is designed to transfer large torque and change the rotary direction at fast speeds. The air-tube clutch can transfer a large amount of torque with smooth transmission; therefore, it is convenient for installation. The working temperature is about 20～60 degrees Celsius, and the working pressure is about 100 psi～142 psi. The radial air-tube clutch is divided into common type and ventilation type in terms of its structural form.

  (1) The common type clutch is used to transfer torque by air tube with a simple structure and convenient installation.

  (2) The ventilation type clutch, with one set of radiation and energy storage devices added, can overcome the deficiencies that might occur on the normal type clutch.

- The axial push-plate clutch is mainly used for industrial power transfer, and has a simple structure for convenient operation.

MAIN TECHNICAL PARAMETERS FOR RADIAL AIR-TUBE CLUTCH

Structure type	Model	Allowed speed (r/min)	Dynamic torque (lbf.ft)	Static torque (lbf.ft)	Air tube volume (gal)
Common type	LT500×125	949～1085	5008～6722	7711～10082	1.45
	LT600×125	781～894	7283～9520	10459～14279	1.45
	LT700×135	687～881	10990～16060	16485～14279	1.59
Ventilation type	LT500×200T	1312～1578	8412～12277	12619～18416	2×0.53
	LT500×250T	1586～1701	11498～13224	17251～19840	2×0.66
	LT600×250T	1281～1544	15832～22967	23749～34451	2×0.79
	LT700×250T	1016～1244	23675～34886	35550～51563	2×0.87
	LT800×250T	1016～1244	26670～38677	40005～580160	2×0.97
	LT900×250T	903～1087	33534～48644	50154～72966	2×1.06
	LT965×305T	932～1123	41598～60325	62397～90476	2.11
	LT1070×200T	932～1123	41598～60325	62397～90476	2.38
	LT1168×305T	932～1123	90720～129441	132760～194162	2.91
	LT700×135DY	1569～1890	11926～17517	18114～26279	0.79

MAIN TECHNICAL PARAMETERS FOR AXIAL PUSH-PLATE CLUTCH

Model	Rated torque (lbf.ft)		Max. speed (rpm	Total weight (lb)	Moment of inertia ($lb.ft^2$)
	Static torque	Dynamic torque			
118	5620	4215	1750	276	90
218	11609	8430	1750	397	142
318	16860	12645	1750	849	189
124H	13596	10200	1350	500	373
224H	27194	20400	1350	593	510
324H	40790	30601	1350	800	622
330H	87688	65772	1100	1872	1706

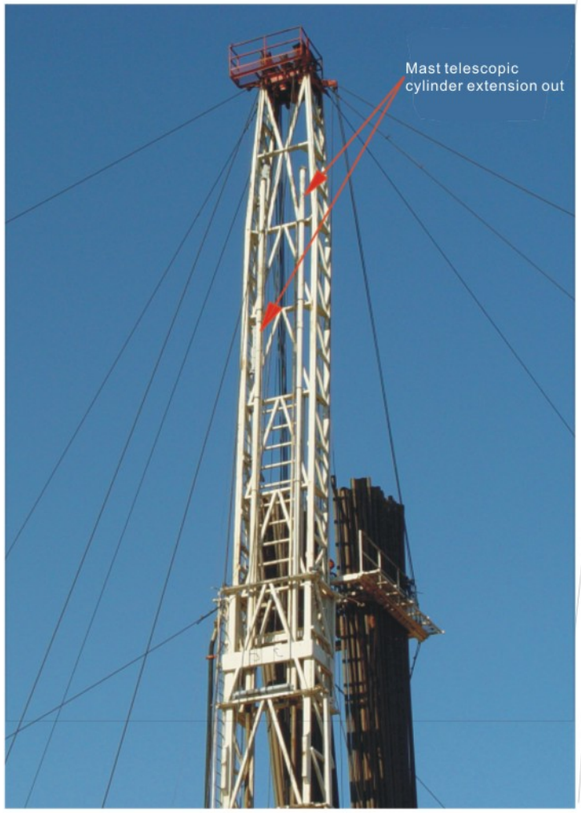
3
MAST TELESCOPIC CYLINDER AND COMPONENTS

The mast telescopic cylinder is applicable to the telescopic-type mast of drilling rig and workover rig, and its production, manufacturing and testing are done in accordance with the JB/T10205 "Hydraulic cylinder Technical Qualification" and GB/T15622 "Hydraulic cylinder Test Method" to ensure greater universality and convenient installation and maintenance.

MAIN TECHNICAL PARAMETERS FOR MAST TELESCOPIC CYLINDER

Cylinder diameter (in)	φ4.72
Max. piston rod diameter (in)	φ4.33
Rated working pressure (psi)	2000
Max. thrust (lbf)	20000
Working speed (ft/min)	<65.62
Working temperature	-45℃～+60℃

Note: The telescoping cylinder stroke can be customized.



4
TRANSMISSION SHAFT

There is a variety of transmission shafts that we can provide for drilling rigs, workover rigs, special vehicles and pump-engine units. We can also provide other special transmission shafts based on the users' requirements.

5
AUXILIARY EQUIPMENT ON THE WELL SITE

Hydraulic winch

- The YJ series winch uses a hydraulic motor as its power source with hydraulic control brake. This means it has a small volume, light weight, and has low noise, large lifting torque, high efficiency and convenient installation. In addition, the hydraulic brake can achieve self-locking. This can be widely applied to lifting and dragging operations in oilfields.
- The hydraulic winch is equipped with a wire line guard to keep the wire line organized, which can prolong the service life of the wire line.

MAIN TECHNICAL PARAMETERS FOR HYDRAULIC WINCH

MODEL	YJ1.5	YJ3B	YJ3C	YJ5B	YJ13
Rated working pressure of hydraulic system (psi)	2000	2000	2000	2000	2000
Drum wire line capacity (ft)	196.85	328.09	328.09	328.09	196.85
Wireline diameter (in)	0.5	0.5	0.5	0.6	1
Max. pulling force of drum (lbf)	3372.13	6744.27	6744.27	11240.45	29225.16
Max. speed of drum rpm	90	70	70	60	40
Weight (lb)	308.65	504.86	471.79	679.02	992.08

Escaper

- The escaper is applicable for safety emergency escapes during aerial operations.
- Overall dimension : 18.11x18.89x45.67 in
- Seating capacity : one person

Climbing assistor

- The Climbing assistor is used to assist the aerial operators to balance their body weight during ascending and descending and it is also applicable in emergency escape.
- Only one person at a time can use the assistor for any ascending or descending process.

Wire line tightener

- The wire line will be tightened by frapping the links of the wire line tightener gradually on the basis of the lever principle and its special structure.

Wire line stabilizer

- The wire line stabilizer utilizes a damping action to reduce outside force interference and stabilize the drawworks wire line to enable the main drum to arrange and organize the wire line. This can prolong the service life of the wire line.
- It is applicable to a variety of drawworks with wire line diameters of no more than φ 1 ½".

6 HPU AND COMPONENTS

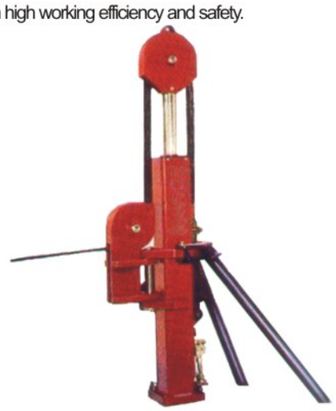
The HPU（hydraulic power unit） mainly supplies hydraulic power to the drilling rig and workover rig, and it can also be used as the hydraulic source for mining machinery. It is composed of an ex-proof motor, hydraulic pump, valves, oil tank, pipelines and other parts.

MAIN TECHNICAL PARAMETERS FOR HPU

Model	Nominal displacement for pump （gal/r）	Rated pressure of hydraulic system （psi）	Motor power （hp）	Effective volume （gal）	Weight （lb）	Overall dimension （ft）
YZ400	0.01	2320	24.81	105.67	947.99	3.97×3.10×3.10
YZ630	0.03	2320	49.62	166.43	2204.62	4.92×3.94×5.38
YZ1200	0.03	2320	49.62	317.01	3042.38	5.91×5.14×3.94
YZ1500	0.03	2320	49.62	396.26	3306.93	5.91×5.14×3.94
YZ1000F	0.04	2320	49.62	264.17	4520.00	5.57×4.43×6.23

7 HYDRAULIC CATHEAD AND COMPONENTS

The hydraulic cathead is used together with the tongs to implement the make-up and break-out of the drill pipe and casing. It mostly consists of a control box and hydraulic cathead. It is divided into the push cylinder type and rotary cathead type in terms of its structural features. With the hydraulic drive, the output torque can be adjusted conveniently according to the tubular diameter, with high working efficiency and safety.



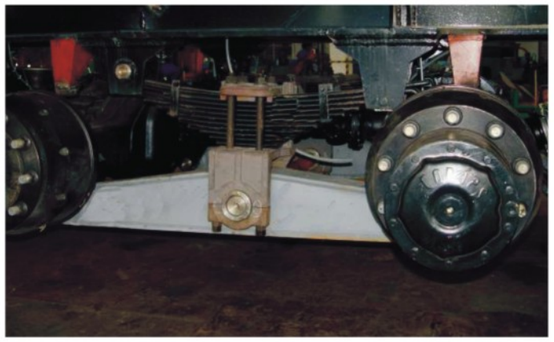
MAIN TECHNICAL PARAMETERS FOR HYDRAULIC CATHEAD

Type	Push cylinder type			Rotary cathead type	
Model	YM-8	YM-10	YM-16	YXM-13	YXM-16
Rated working pressure (psi)	2000	2320	2320	2320	2320
Stroke (ft)	5.24	5.41	5.32	——	——
Rated pull force(lbf)	17984	22480	35969	29225	35969
Overall dimension(ft)	4.10×2.19×1.11	4.10×2.19×1.11	8.40×0.88×2.40	3.97×2.40×2.41	3.97×2.40×2.41
Weight(lb)	1058.22	1653.47	1984.16	2204.60	2204.60

8

VEHICLE SUSPENSION DEVICE AND COMPONENTS

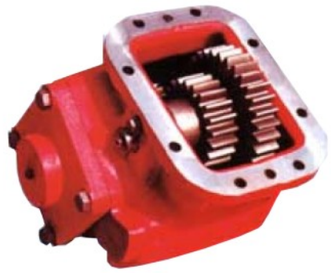
It is applicable to special vehicle chassis such as truck-mounted drilling rigs, trailer-mounted drilling rigs, workover rigs, and so on. It is divided into spring steel-plate suspension, pneumatic suspension, rigid suspension, semi-rigid suspension and various other structural forms.



9

POWER TAKEOFF UNIT AND COMPONENTS

The power takeoff unit is specially equipped for the hydraulic torque converter. The power takeoff is compact in structure and convenient for installation.



MAIN TECHNICAL PARAMETERS FOR POWER TAKEOFF UNIT

MODEL	Engaging type	Working pressure (psi)	Output power (hp)	Output shaft head type	Matched transmission model
PTO	Mechanical fork clutch	NO	93.87	Internal spline DP12/24 a=30° z=14	ALLISON 5000/ 6000/7000 series
YPTO	Hydraulic friction clutch	≤285.71			
YPTO II		≤428.57			CAT TH35L,TH31 Twin disc 40000

10

ROTARY TABLE BUSHING SERIES

KELLY ROLLER BUSHING

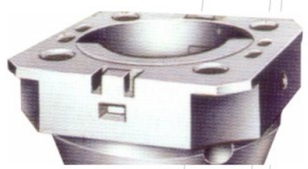
Kelly roller bushing includes square drive and four-pin drive: it is applicable to the ZP175-ZP375 rotary table and to 3 ½"-6" square and hexagonal kelly of different sizes. The design and fabrication conforms to API Spec.7K and SY/T5080 as well as other technical standards and the special structural design can facilitate the change and adjustment of the roller.

MAIN TECHNICAL PARAMETERS FOR KELLY ROLLER BUSHING

Applicable scope	3 ½ " -6 " Kelly
Max. torque (lbf.ft)	19914.15
Drive ways	Four-pin or square
Overall dimension (in)	24.80x24.80x28.94
Weight (lb)	1587.33

MASTER BUSHING AND INSERT

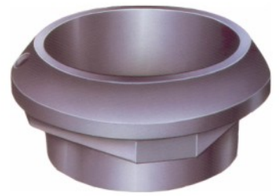
The rotary table master bushing and insert are applicable to the ZP175-ZP375 rotary table, which is made of high quality alloy steel. The main bushing includes four-pin drive and square drive, and has solid type and split type.



MAIN TECHNICAL PARAMETERS FOR MASTER BUSHING

Bushing type	Applicable rotary table	Insert	Pipe size
Square drive of split type	ZP175 rotary table	——	$2\frac{3}{8}$ " ~ $8\frac{5}{8}$ "
Square drive of split type	ZP205 rotary table	——	$2\frac{3}{8}$ " ~ $8\frac{5}{8}$ "
Four-pin drive of solid type	ZP275 rotary table	1# insert	$11\frac{3}{4}$ " ~$13\frac{3}{8}$ "
		2# insert	$9\frac{5}{8}$ " ~$10\frac{3}{4}$ "
		3# insert	$2\frac{3}{8}$ " ~ $8\frac{5}{8}$ "
Four-pin drive of split type Four-pin drive of solid type	ZP375 rotary table	1# insert	$11\frac{3}{4}$ " ~$13\frac{3}{8}$ "
		2# insert	$9\frac{5}{8}$ " ~$10\frac{3}{4}$ "
		3# insert	$2\frac{3}{8}$ " ~ $8\frac{5}{8}$ "

CASING BUSHING AND INSERT



The casing bushing and insert are used to run 9 5/8"-20" casings.

The casing bushing includes an solid type and split type.

MAIN TECHNICAL PARAMETERS FOR CASING BUSHING

Bushing type	Suitable rotary table	Bushing body and insert	Suitable pipe size
Solid type	ZP275 rotary table	Bushing body	$18\frac{5}{8}$ " ~20 "
		Bushing body +16 " insert	16 "
		Bushing body +1 # insert	$11\frac{3}{4}$ " ~$13\frac{3}{8}$ "
		Bushing body +2 # insert	$9\frac{5}{8}$ " ~$10\frac{3}{4}$ "
Split type	ZP375 rotary table	Bushing body+16 " insert	16 "
		Bushing body +1 # insert	$11\frac{3}{4}$ " ~$13\frac{3}{8}$ "
		Bushing body +2 # insert	$9\frac{5}{8}$ " ~$10\frac{3}{4}$ "

KELLY BUSHING

The external square of the kelly bushing is compatible with the internal hole of the master bushing, and the internal square bushing and kelly work together to transfer torque to the kelly. The kelly bushing includes 10 kinds of products from 2 1/2"～6", which are applicable to the ZP135～ZP375 rotary table.

MAIN TECHNICAL PARAMETERS FOR KELLY BUSHING

Bushing type	Suitable Kelly size
2 1/2 " Kelly bushing	2 1/2 " Kelly
2 7/8 " Kelly bushing	2 7/8 " Kelly
3 " Kelly bushing	3 " Kelly
3 1/2 " Kelly bushing	3 1/2 " Kelly
4 " Kelly bushing	4 " Kelly
4 1/4 " Kelly bushing	4 1/4 " Kelly
4 1/2 " Kelly bushing	4 1/2 " Kelly
5 1/4 " Kelly bushing	5 1/4 " Kelly
5 1/2 " Kelly bushing	5 1/2 " Kelly
6 " Kelly bushing	6 " Kelly

11
MUD AGITATOR AND COMPONENTS

The mud agitator is special equipment for a standard circulation tank of drilling fluid and is driven by a narrow V triangle belt, which is flexibly connected and can provide overload protection for the motor. The mud agitator is simple in structure and convenient for maintenance, with its small volume and light weight as well as low noise and long service life. It is useful in the field for harsh operation conditions.

MAIN TECHNICAL PARAMETERS FOR MUD AGITATOR

MODEL	Motor power (hp)	Impeller speed (r/min)	Weight (lb)	Overall dimension (not include poker bar) (ft)
NJ5.5	7.37	90	881.84	3.28×1.80×1.64
NJ7.5	10.06	91	992.08	3.31×2.034×1.71
NJ11-5	14.76	95	1102.31	3.6×2.29×1.80
NJ15-5	20.12	91	1212.54	3.69×2.29×1.80

12
MUD GUN

The mud gun is used in the drilling fluid circulation system to clean the dead corners and deposits in all the mud tanks. The DN50 mud gun is powered by the drilling mud pump fluid-returning system with three evenly-distributed nozzles at the bottom that can be rotated 360 degrees. The NJQ80 manual mud gun is a single nozzle type. With a simple structure, flexible operation and easy use, it is the ideal equipment to prevent mud deposition in the solids control system.

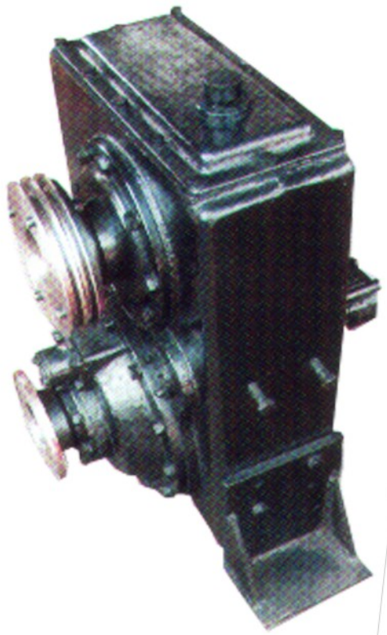
MAIN TECHNICAL PARAMETERS FOR MUD GUN

Type	Automatic	Manual
Model	DN50-3	NJQ80
ID	2 "	3 "
Interface size(")	3 "	4 "
Working pressure (psi)	≤357.14	≤357.14
Number of nozzle	3	1
Rotate angle (°)	360°	360°
Jet distance (ft)	16.4	9.9

13

TORQUE CONVERTOR AND COMPONENTS

The torque convertor is used to distribute torque output from the engine to the front and rear axles of the chassis to eliminate additional torque due to a rigid drive from the front and rear axles.



MAIN TECHNICAL PARAMETERS FOR TORQUE CONVERTOR

Torque distribution ratio	1:1
Max. input speed (rpm)	2300
Max. input torque (lbf.ft)	13278
Max. input power (hp)	645
Ambient temperature (℃)	-45～50

14

DEADLINE ANCHOR (JZ SERIES WEIGHT INDICATOR) AND COMPONENTS

The JZ series weights indicator conforms to relevant requirements of P. R. C State Petroleum and Natural Gas Industry Standard SY/T5320-2000 "JZ series weight indicator" and Specification for Drilling and Production Hoisting Equipment standard, API Spec 8A and API Spec 8C.

MAIN TECHNICAL PARAMETERS FOR DEADLINE ANCHOR

Weight indicator model	Deadline anchor model	Type	Max. deadline pulling force (lbf)	Number of line	Load(lbf)	Output pressure (MPa)	Rope clamp and wire line Dia.(in)	Installation size (in)	Hole Qty × Relative Dia.(in)
JZ500	JZG42	Vertical	94416	12	1132992	857	1.496	15.74×19.68	8×2.04
				10	944160				
JZ500A	JZG41	Horizontal	92168	12	1106016	976	1.496	Refer to installation drawing	6×1.77
				10	921680				
JZ400	JZG35	Vertical	78680	12	944160	857	1.378 (1.26)	15.74×19.68	8×2.04
				10	786800				
JZ400B	JZG34A	Horizontal	76432	12	917184	857	1.378	Refer to installation drawing	6×1.50
				10	764320				
JZ250	JZG24	Vertical	53952	12*	647424	857	1.26 (1.142)	16.14×16.14	4×1.57
				10	539520				
				8	431616				
JZ200	JZG20	Vertical	44960	10	449600	857	(1.142) 1	11.81×5.51	4×1.18
				8	359680				
JZ150A	JZG18A	Horizontal	40464	10*	404640	857	(1.142) 1	19.68×4.72	4×1.02
				8	323712				
				6	242784				
JZ150	JZG18	Vertical	40464	10*	404640	857	(1.142) 1	11.81×5.51	4×1.18
				8	323712				
				6	242784				
JZ100A	JZG15A	Horizontal	33720	8	269760	857	1	19.68×4.72	4×1.02
				6	202320				
JZ100	JZG15	Vertical	33720	8	269760	857	1	11.81×3.94	4×1.02
				6	202320				
JZ60	JZG10	Straight pull	22480	8	179840	600	—	Refer to installation drawing	—
				6	134880				
JZ82	JZG13	Straight pull	30707	6	184336	857	—	Refer to installation drawing	—
JZ75	JZG12	Straight pull	28100	6	168600	743	—	Refer to installation drawing	—

Note: Item with* is special customized.

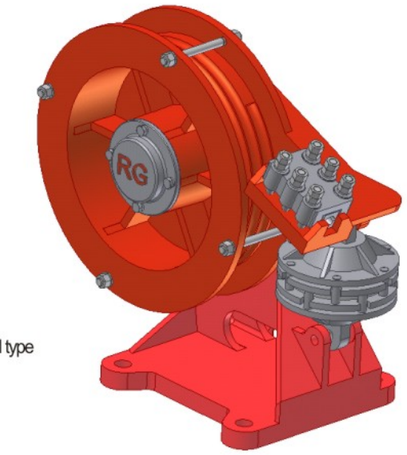
- The JZ series weight indicator has three basic types according to installation method:
- Vertical weight indicator:

  The deadline anchor seat is L type and the L type bottom is fixed on the rig by bolts that are in the vertical direction.
- Horizontal weight indicator (also called side hanging type weight indicator):

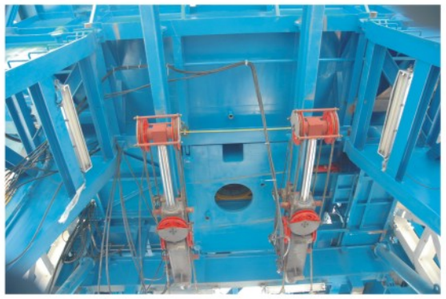
  The deadline anchor seat is fixed on its installation plate on the mast (or on the installation plate welded on the rig or workover rig platform) by bolts that are in the horizontal direction.
- Straight-pulling weight indicator:

  With a small pulling capacity, it is used for small-size workover rigs. There are two bails; one is used to tie the wire line dead end and the other bail (or pin hole) is fixed to the workover rig seat.

L type



Vertical type



15 BOP HOISTING DEVICE AND COMPONENTS

- The BOP hoisting device is applicable in the installation of a BOP stack for large-size and medium-size drilling equipment at the well head. It is hung on the two guide rails under the rig floor which can be used for simultaneous lifting, laying, and forward and back movement through the control of the hydraulic operation box. It is with ex-proof performance, simple, safe and reliable to use.

MAIN TECHNICAL PARAMETERS FOR BOP HOISTING DEVICE

Product model	DZ-500
Max. lifting load (lbf)	112400
Max. lifting stroke (ft)	10.5
Max. lifting speed (in/s)	1.02
Max. lowering speed (in/s)	2.20
Max horizontal movement speed (double direction) (ft/min)	39.37
Max. working pressure of hydraulic system (psi)	2320
Wireline diameter (in)	1.10
Wireline specification	6×37(Uncoated rope type steel core)

16
EX-PROOF CONTROL CABINET/BOX

- At present our company produces EX-proof electrical distribution boxes and positive-pressure type EX-proof cabinets.
- Ex-proof electrical distribution cabinets/boxes have the following characteristics:

(1)The cabinet/box is made of die-casted aluminum alloy or a steel-welded structure, with the surface coated with plastic spray.

(2)The switch, A-meter, indicating lamp, press button, contactors, gauges, etc. can be installed inside the cabinet/box.

(3)It can realize many kinds of local control and remote control.

(4)It is applicable to explosive gas environments ZONE 1 and ZONE 2.

- The characteristics of the positive pressure ex-proof cabinet/box are:

(1)This kind of cabinet/box is made of ordinary plastic sprayed steel plate or welded 304/316S stainless steel plate

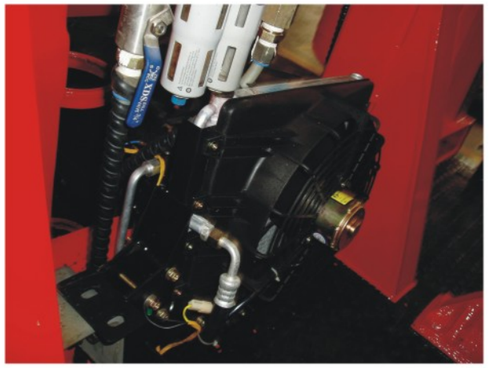
(2)The switch, A-meter, indicating lamp, press button, contactors, gauges, PLC, frequency converter, soft-starter, etc. can be installed inside the cabinet/box with a variety of installation methods.

(3)The positive pressure ex-proof function for inert gases or compressed air in the safe zone can be realized by the positive pressure controller. The gases can be changed according to the set temperature to reduce the inside components' working temperature.

(4)It is applicable to explosive gas environments ZONE 1 and ZONE 2.

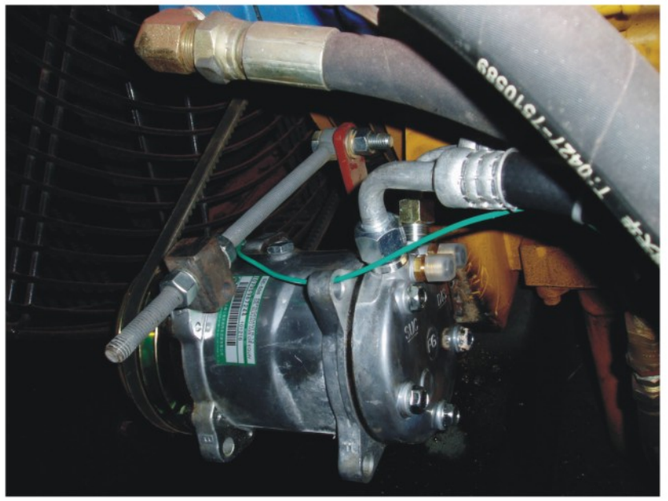
MAIN TECHNICAL PARAMETERS FOR EX-PROOF CONTROL CABINET/BOX

Model	Rated voltageVAC	Rated current A	Protection class	EX-Proof mark
FBKX 58	380/460	16	IP 54	Exdemb II BT4
PED 01	500	63	IP 55	Expzdeib II BT4



17
TRUCK AIR CONDITIONER

- This excellent product has an advanced design. Product refrigeration performance and system stability can be effectively improved by adopting a high-efficiency and environmentally-friendly compressor, photo catalyst, digital temperature control and other technologies. At the same time, the company has implemented standardization management and it has passed ISO9001, ISO14001, OHSAS18000 and other certifications.



MAIN TECHNICAL PARAMETERS FOR TRUCK AIR CONDITIONER

Refrigerating output cal/h	3300000
Heat way	Heater unit
Power supply V DC	24
Freezing medium	R12
Temperature sensing range°C	Cold 16、heat 29
Temperature sensing method	Electrical or mechanical
Air output of evaporator	4400
Speed control	3 shifts
Weight（lb）	10.58
Indoor unit size（ft）	1.31×1.08×0.48

18

WIRELINE SPOOLER

- The DSJ wire line spooler is a special device to retract or discharge the wire lines. This spooler can retract the wire line after use so that they may be reused. It can also protect the wire line from coiling or distortion. Meanwhile, it can reduce working intensity and achieve mechanized operation. The equipment is particularly applicable in the operations of handling and pulling wire lines before and after drilling operations in oilfield. It can also be used for large-size cables and electrical wires.
- We can also produce hydraulic spoolers with various specifications according to the users' requirements.

MAIN TECHNICAL PARAMETERS FOR WIRELINE SPOOLER

Motor power (hp)	7.5	11
Motor speed (r/min)	720	960
Drum speed (r/min)	8.3	11
Average operating speed of wire line(t/min)	44	82.5
Rope capacity(drilling line) (ft)	3300/5000/6600	
Drilling line size(")	1 1/8" ,1 1/4",1 3/8",1 1/2"	

19

1.5T HYDRAULIC LIFTER

- The TS series hydraulic lifter is a kind of lifting equipment that can be installed on all kinds of drilling rigs for lifting cargo. It has excellent lifting stability, adjustable speed, and is easy, safe and reliable to use. The TS series hydraulic lifter can upgrade the drilling rig's mechanization level and make drilling operations much more convenient. It is designed and produced according to "hoisting tackle" in the API Spec 8A, Specification for Drilling and Production Hoisting Equipment.

MAIN TECHNICAL PARAMETERS FOR HYDRAULIC LIFTER

		YTS (C)	YTS (B)	YTS (A)
Hoisting performance parameters	Rated load (lbf)	337.2		
	Lifting height (ft)	27.23	32.13	34.45
	Lifting speed (ft/s)	0.66～1.25		
Hydraulic system performance parameters	Rated flow rate (ft^3/h)	75.2		
	Rated pressure (psi)	2875		
Motor control system performance parameters	Motor power (hp)	14.75		
	Motor rotation speed (r/min)	1460		
	Input voltage (V)	380		
	Control voltage (V)	220		
	Wireline specification (in)	0.43(11-6×37W-1770 GB/T8918-1996)		
	Overall dimension (in)	4.47×6.10×34.45	4.47×6.10×39.37	4.47×6.10×42.65
	Weight (lb)	5291	5511	5732

20
BIT BREAKER

The bit breaker is mainly used for making up/breaking out of the tri-cone bit. Its adaptor plate is a normal device that can fit to the master bushings for ZP275 and ZP375 rotary tables.

MAIN TECHNICAL PARAMETERS FOR BIT BREAKER

Model	Applicable type
ZTQ-00 Bit breaker	For ZP275,ZP375 rotary table master bushing make-up/break-out the tri-cone bit
ZTQ-01-00 Adaptor plate	For transitional connect of ZP275,ZP375 rotary table master bushing and bit breaker
ZTQ-02-00 3 7/8" Bit breaker	For 3 7/8" tri-cone bit
Q-03-00 4 1/4" Bit breaker	For 4 1/4" tri-cone bit
TQ-04-00 6" Bit breaker	For 6" tri-cone bit
ZTQ-05-00 6 1/8" Bit breaker	For 6 1/8" tri-cone bit
ZTQ-06-00 7" Bit breaker	For 7" tri-cone bit
ZTQ-07-00 8 1/2" Bit breaker	For 8 1/2" tri-cone bit
ZTQ-08-00 9 5/8" Bit breaker	For 9 5/8" tri-cone bit
ZTQ-09-00 12 1/4" Bit breaker	For 12 1/4" tri-cone bit
ZTQ-11-00 17 1/2" Bit breaker	For 17 1/2" tri-cone bit
ZTQ-12-00 26" Bit breaker	For 26" tri-cone bit
Note : ZTQ—bit breaker, ZT—bit, Q—breaker.	

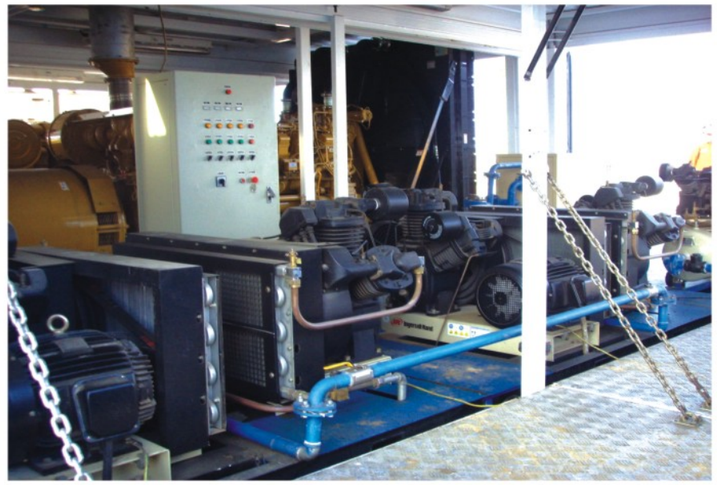
1

CONTROL SYSTEM FOR THE DIESEL GENERATOR SET

- The main functional unit of a diesel generator set control system is a synchronization cabinet which can be applied to the parallel running of more than 2 (2 included) diesel generator sets (with electronic speeder or electrical- control fuel injection device).
- The control system has the following functions: manual synchronization mode of operation, automatic synchronization mode of operation, automatic loading distribution, peak adjustment, failure prevention, reverse power prevention, over current and short circuit prevention and emergency stop prevention. These functions will be equipped with all kinds of related indicators.

MAIN TECHNICAL PARAMETERS FOR DIESEL GENERATOR SET CONTROL SYSTEM

Rated voltage	AC 400V～AC 690V
Single unit rated power	121hp～2816hp
Frequency	50HZ or 60HZ
Connection way	Y type three phase four wires/ Y type three phase three wires
Synchronous phase difference	1°～25°, usually at 10°
Load allocation difference	± 5% adjustable
Reverse power motion setting	5%～20% adjustable
Forward power motion setting	"ON" 20%～100% adjustable, usually set at 80%
	"OFF" 0%～80% adjustable, normally set at 30%



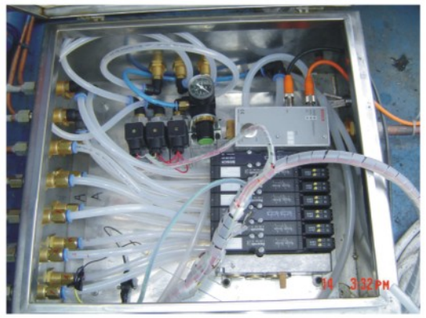
2 MCC HOUSE

- The MCC control system is a key unit for well-site power supply, power control, and power metering and protection. It can be used for controlling and supplying the power to the substructure area, pump area, water tank area, well control area, camp area and living area amongst others. This control system consists of a set of six lower voltage distribution cabinets, including a power -cable input cabinet, a fixed power-cable output cabinet and a soft- start cabinet.
- The functions of the power- cable input cabinet include lower voltage trip, shunt trip, overload trip. These can be set up in a desired location as per client requirements. There are two power-cable input switches (one for operation, the other standby) which can be interlocked, i.e. only one switch is permitted to switch on under any condition.
- The power cable output cabinet can be configured to meet specific applications; all cables can be connected with plugs.
- The soft-start cabinet adopts a “One Controlling Three” mode， where each cabinet will be equipped with one soft starter and three motor-controlled loops with the same wiring connection. The soft-start control system consists of switch power, PLC and electronic soft starter.

3 AUTO DRILLER SYSTEM

Auto driller systems include two types: one type is an independent motor auto driller system and the other is a disc/band brake auto driller system.

- The independent motor auto driller system consists of feeding motor, sensor, AC frequency conversion control system, and other equipment. Constant WOB and constant ROP can be realized through speed feedback and torque control in order to increase drilling efficiency and decrease working intensity for the driller.
- The disc/band brake auto driller system can provide an auto drilling function by controlling the disc/band brake. WOB can be controlled in real time and ROP can be increased by controlling the disc/band braking torque of the drawworks in the driller system. Besides the above basic functions, this system can also provide safe drilling monitoring functions, such as the Crown-O-Matic.



4 VALVE TERMINAL CONTROL SYSTEM

The digital and integrated driller house control system adopts Siemens newest S7-200 PLC module and can be used to control all operations for the drilling rig by a way of sending "ON" and "OFF" instructions to each of the solenoids which are connected with driller house terminal, drawworks terminal and compound box terminal via multi-core cable or bus after collection of the driller operation instructions and system feedback datum. The system integrates the electronic Crown-O-Matic that can monitor hook height and hook speed, collision-proof alarming and braking. The system adopts DC in-wire uninterrupted power supply which can keep the system working for more than 4 hours continuously, even when there is no external power supply. On the other hand, in order to keep the system stable and reliable, the system adopts double PLC redundancy control device, i.e. the control switch can be automatically converted to PLC2 for control of the drilling rig's operation when PLC1 fails. The input module of the whole system is equipped with manual buttons and a touch screen, and the output module is equipped with a two PLCs control system that ensures the whole system's reliability and safety, thus reducing maintenance time and costs and increasing working efficiency. Considering Ex proof and shockproof standards, the system's control device is integrated into the EX cabinet of the driller house. All input and output signal cables are connected with the EX cabinet by fast plugs, then connected to the PLC via terminals. The system voltage is DC24V which is safe and not harmful to workers. The whole system is reliable, stable, has good anti-jamming capability, a reasonable layout, easy operation and is convenient in terms of maintenance.

MAIN TECHNICAL PARAMETERS FOR VALVE TERMINAL CONTROL SYSTEM

Power supply	AC220V ±15% 50Hz/AC110V ±15% 60Hz
Working time of continuous power	⩾4h
PLC terminal output current (A)	0.5
PLC terminal output voltage (V)	24-0.3
PLC terminal output short circuit protection	Electronic
Operating temperature	– 25～60
Relative humidity (%)	⩽95 (at 25℃)
Response time (ms)	⩽20
MTBF	⩽50000H

5 ELECTRICAL DRIVE CONTROL SYSTEM

The electrical drive control system can be divided into the DC drive control system and AC frequency conversion drive system.

DC drive control system can be used to convert AC current to adjustable DC current output, with the SCR cabinet as the main module.

The AC frequency conversion drive system can be used to rectify from AC to DC first and then to reverse from DC to AC output. This is adjustable with the purpose of realizing frequency conversion control of the asynchronous motors by IGBT and internal operations.

1
OILWELL LOGGING TRUCK

ES5251TCJ TYPE OILWELL LOGGING TRUCK

Product structural performance:

- Chassis: The imported Benz 3341 chassis is equipped with German OM 501LA turbocharged & Inter-cooled intelligent control and its power can reach 402HP26000ft. The Europe III standard engine adopts a 6×4 drive. This type of truck is the optimum choice for super-deep logging work in domestic oil fields.
- Drawworks: 26000ft single drawworks or 23000ft double drawworks can be installed （the small drawworks uses hydraulic elevation, which is convenient for operation）. Its drum is cast and welded with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment to create a highly stable and reliable drive. The brake system is a double–belt pneumatic control brake, and a tension overload automatic brake device is installed to ensure safety. The framework is welded using high-grade seamless rectangular tubes and firmly connected with subsidiary beams to ensure advanced performance, safety and reliability of the whole unit.
- Drawworks Transmission System: The main hydraulic system and hydraulic generator drive are controlled separately and individually. The power of the main system comes from the engine via full-power driving devices. Its output torque can reach 1106lb.ft, with plenty of power for easy operation. The hydraulic system utilizes closed-circulation loop operation, which can realize bulky stepless speed adjustments. The pneumatic control and large torque transmission box are made in China and are used as the main unit of the hydraulic chain transmission system; giving it application in deep-well logging operations. The product has reliable performance with an overloading auto-stop system installed for the drawworks to ensure safe running of the equipment. The W16T hydraulic shift gearbox is imported from USA and is utilized for the full hydraulic system, which has a large speed-adjusting scope and neutral shift. Two drive ways are applicable in all kinds of working conditions for logging operations. Its minimum speed can be lower than 98.4ft/h so as to meet super-low- speed working requirements. The hydraulic generator is driven by the power output end on the gearbox side.
- Carriage: The carriage is constructed using a steel framework and the deck inside the operation cabin is made of straight-vein stainless steel plate. After polyurethane foaming treatment, the carriage body has excellent heat conservation performance and is installed with a ceiling air-conditioner imported from the USA. The operation table and toolbox are made of 5700 steel and provide a comfortable environment. The drawworks cabin floor is made of 0.15in waved-type aluminum plate, underneath which are strong and durable steel sheets. The outside deck is also installed with aluminum plate which has been treated by the processes of oxidation sand-blasting; the surface is coated with imported Dupont paint so that perfect performance can be maintained permanently in severe environments.
- Rope Guider Device: The upper rope guide is hydraulically controlled. With hydraulic power and an imported control valve, it is convenient for operation. This system also has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System (110V/220V): This system is equipped with a HARRISON hydraulic generator, imported diesel generator and external power which can supply power synchronously or individually to meet the requirements of different electrical devices. The lighting installed on the wellhead can be self-rotated so as to ensure a safe driving environment and convenient logging operation.
- Auxiliary System: Instrument racks have been equipped with rollers with an airbag structure for convenient use.

MAIN TECHNICAL PARAMETERS FOR ES5251TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	26247 (Φ1/2〃cable)
	Hoisting Capacity (lbf)	14612
	Hoisting Speed (in/s)	0.32~87.49
Chassis model		Actros 3341
Drive way		6×4
Overall Size (ft)		31.82×8.20×12.80
Wheel base (ft)		14.76+4.43
Engine	Model	OM501LA V6
	Power (hp)	402.30
	Maximum torque (lbf.ft)	1475.12
Transmission box		G240-16/11.7~0.69
Truck Weight (lb)		54597
Maximum total weight (lb)		55027

Operation compartment

Drawworks compartment

Full hydraulic drawworks compartment

ES5252TCJ TYPE OILWELL LOGGING TRUCK

Product structural performance:

- Chassis: The chassis is the class II type MANTGA 33.350 (Europe III). The imported German MAN D2066 LF03 diesel engine has a strong power output, which can reach 340HP. Its cab is broad, comfortable with double-layer sleeper and air suspension adjustable seats. The gearbox is a synchronous auto gear-shift type, and the chassis load capacity is so high that its allowable total mass under full load can reach 72751lb. With ABS and ASR intelligent control, the brake system is safe and reliable. This type of truck is the optimum choice for super-deep logging work in domestic oil fields.
- Drawworks: 26000ft single drawworks or 23000ft double drawworks can be installed (the small drawworks uses hydraulic elevation which is convenient for operation. Its drum is cast and welded with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment. Its drive is stable and reliable. Its brake system is a double–belt pneumatic control brake. The tension overload automatic brake device is installed to ensure safety. Its framework is welded using high-grade seamless rectangular tubes and firmly connected with the subsidiary beam to ensure advanced performance, safety and reliability of the whole unit.
- Transmission System: The main hydraulic system and hydraulic generator drive are controlled separately and individually. The power of the main system comes from the engine via full-power driving devices. Its output torque can reach 1106lb.ft with plenty of power for easy operation. The hydraulic system utilizes closed-circulation loop operation, which can realize a bulky stepless speed adjustment. The pneumatic control and large torque transmission box are made in China and are used as the main unit of the hydraulic chain transmission system, which is applicable for deep-well logging operation. The product has reliable performance with an overloading auto-stop system installed for the drawworks to ensure safe running of the equipment. The W16T hydraulic shift gearbox imported from the USA is utilized for full hydraulic system which has a large speed-adjusting scope and neutral shift. The two drive ways are applicable in all kinds of working conditions for logging operations. Its minimum speed can be lower than 98.4ft/h so as to meet super-low-speed working requirements. The hydraulic generator is driven by the power output end on the gearbox side.
- Carriage: The carriage is constructed from a steel framework and the deck inside the operation cabin is made of straight-vein stainless steel plate. After polyurethane foaming treatment, the carriage body has excellent heat conservation performance and it is installed with a ceiling air-conditioner imported from the USA. The operation table and toolbox are made of 5700 steel and provide a comfortable environment. The drawworks cabin floor is made of 0.15in waved-type aluminum plate, underneath which are strong and durable steel sheets. The outside deck is also installed with aluminum plate which has been treated by the processes of oxidation sand-blasting; the surface is coated with imported Dupont paint so that perfect performance can be permanently maintained in severe environments.
- Rope Guider Device: The upper rope guide is hydraulically controlled. With hydraulic power and an imported control valve, it is convenient for operation. This system has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System (110V/220V): this system is equipped with a HARRISON hydraulic generator, imported diesel generator and external power which can supply power individually or synchronously to meet the requirements of different electrical devices. The lighting installed on the wellhead can be self-rotated so as to ensure a safe driving environment and convenient logging operation.
- Auxiliary System: Instrument racks have been equipped with rollers with an airbag structure for convenient use.

MAIN TECHNICAL PARAMETERS FOR ES5252TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	26247 (Φ1/2〃cable)
	Hoisting Capacity (lbf)	14621
	Hoisting Speed (in/s)	0.32—87.49
	Transmission way	PTO+Hydraulic system+Planetary gear-box reducer
Chassis model		MAN TGA 33.350
Drive way		6×4
Overall size (ft)		31.82×8.24×12.80
Wheel base (ft)		14.76+4.5
Engine	Model	1.1.MAN D2066 LF03
	Power (hp)	344.64
	Maximum torque (ft-lb)	1290.73
Truck mass (lb)		54795
Total mass (lb)		55028

Operation compartment

Drawworks compartment

Full hydraulic drawworks compartment

ES5253TCJ TYPE OILWELL LOGGING TRUCK

Product structural performance:

- Chassis: A DND 1253CWB459P (Europe Ⅲ)class Ⅱ environment-friendly chassis and PF6B diesel engine are utilized with a power of 334HP and a 6×4 drive. Its cab is ample, comfortable and equipped with a well-structured and aesthetically pleasing sleeper. The chassis has a dual-cabin layout. The operation cabin includes an operation table with a large and comfortable working space. The drawworks cabin is equipped with devices such as hydraulic cable drawworks, hydraulic oil tank, electrically-controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices which can meet the requirements of different working environments and climatic conditions in domestic oil fields.
- Drawworks: the drawworks with a wire line contain of below 16400ft can be installed. Its drum is cast and welded with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment. Its drive is stable and reliable. Its brake system is a double–belt pneumatic control brake. Its frame work is welded using high-grade seamless rectangular tubes and firmly connected to the subsidiary beam to ensure advanced performance, safety and reliability of the whole unit.
- Drawworks Transmission System: the main system uses engine full-power take-off driving. With plenty of power, it is easy to operate. The hydraulic system utilizes a closed-circulation system and bulky stepless speed adjustment. The main elements such as the imported hydraulic elements and drawworks will shut down automatically in case of system overload in order to ensure safe running of the equipment. A gearbox originally assembled in USA is utilized. DC or AC motors can be used.
- Allowing for a large adjustment scope in speed and neutral shift. This makes it useful in all kinds of logging conditions. Its minimum speed can be lower than 98.4ft/h so as to meet super low-speed working requirements.
- Carriage: It imitates the 5700's interior decoration, and it is constructed with a steel framework. The deck inside the operation cabin is made of straight-vein stainless steel plate. The carriage body has undergone foaming and heat conservation treatment and it is installed with a COLEMAN ceiling and cold-warm air-conditioner imported from the USA to create a comfortable environment. The outside deck is installed with aluminum plate which has been treated by the processes of oxidation sand-blasting; the surface is coated with imported Dupont paint so that perfect performance is permanently maintained in severe environments.
- Rope Guider Device: The upper rope guide is hydraulically controlled. With hydraulic power and an imported control valve, it is convenient for operation. This system has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System (110V/220V): The module-type distribution box is made using an artificial 5700 structure (220V or 110V power supply system). This system is equipped with a HARRISON hydraulic generator (20HP-40HP) and imported diesel generator which can supply the power synchronously to meet the requirements of different electrical devices.
- Auxiliary System: An Instrument rack uses segmented type rollers with an airbag structure.

MAIN TECHNICAL PARAMETERS FOR ES5253TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	18044.62 (Φ1/2〃cable)
	Hoisting Capacity (lbf)	11240
	Hoisting Speed (in/s)	0.32 ~87.49
Chassis model		DND1253CWB459
Drive form		6×4
Overall size (ft)		31.82×8.20×12.80
Wheel base (ft)		15.14+4.26
Engine	Model	1.2.PF6B
	Power (hp)	339.27
	Maximum torque (ft-lb)	1076.83
Transmission box		9JS150
Truck mass (lb)		54244
Maximum total mass (lb)		54674

Coaxial double drums

Hydraulic double drums

Hydraulic drum

Operation compartment

ES5255TCJ TYPE OILWELL LOGGING TRUCK

- Chassis: A DFL1250A8 type-chassis is used along with a 6x4 drive. The installed D310 cab is large and comfortable. A CUMINS SDe245-30 diesel engine is used with a power output of 241HP that meets China emissions standards. The 8JS118T-B gearbox has perfect performance. The total mass of the chassis can reach 55115lb under full load. 11.00R20 mode tyres are used, creating perfect cruise performance. This type of truck is one of the best options for deep logging works in domestic oil fields.
- Drawworks: The drum is cast and welded with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment. Its brake system uses a double-chamber spring energy storage cylinder with belt brake under pneumatic operation. Its framework is welded using high-grade seamless rectangular tubes and firmly connected to the subsidiary beam to ensure advanced performance, safety and reliability.
- Hydraulic and Transmission System: The gearbox acts as a power take-off device with convenient operation. The hydraulic system adopts a closed-loop drive which has a bulky stepless speed adjustment function. The main components use world renowned hydraulic part manufacturers' products. The system is equipped with a safe pressure relief valve and the pressure can be adjusted at will. The imported planetary gear-box reducer or the pneumatically controlled gear-down box that is made within the country has reliable working performance. The oil pump can realize electric proportional control with high precision and sensitivity. In addition, the spare hydraulic control device can also be equipped based on the clients' demands to further improve safety and reliability.
- Carriage: the carriage is made of a steel framework and the deck inside the operation cabin is made of straight-vein stainless steel plate. The outside deck is also installed with aluminum plate which has been treated by the processes of oxidation sand-blasting. The carriage body has undergone heat conservation treatment and installed with a heating system and COLEMAN air-conditioner imported from the USA to create a comfortable environment. The surface is coated with imported Dupont paint so that perfect performance can be permanently maintained in severe environments.
- Rope Guider Device: The upper rope guide will be hydraulically controlled. With hydraulic power and an imported control valve, it is convenient for operation. This system also has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System: This system can be powered by an imported diesel generator or independently powered by external power. Both power supply systems can be used synchronously to meet the requirements of different electrical devices.
- Auxiliary System: Instrument racks have been equipped with rollers with an airbag structure. It can also be installed with overhead sheaves, winding wheels and other devices according to the users' requirements.

MAIN TECHNICAL PARAMETERS FOR ES5255TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	18044.62 (Φ1/2〃cable)
	Hoisting Capacity (lbf)	11240
	Hoisting Speed (in/s)	0.37~87.49
Chassis model		DFL1250A8
Drive way		6×4
Overall Size (ft)		31.80×8.20×12.80
Wheel base (ft)		14.27+4.26
Engine	Model	ISDe245 30
	Power (hp)	241.38
	Maximum torque (lbf.ft)	682.24
Truck Weight (lb)		53803
Maximum total weight (lb)		54233

Coaxial double drums

Hydraulic drum

Operation compartment

ES5256TCJ TYPE OILWELL LOGGING TRUCK

Product structural performance:

- Chassis: The chassis uses an Actros3332 (Europe Ⅲ) 6x4 type chassis. The engine utilizes an OM 501LA V6 turbocharged & Inter-cooled intelligently controlled diesel engine with strong power output of 315HP. Its ample cab is comfortable and equipped with double-layer sleeper and air suspension adjustable seats. The gearbox is a synchronous automatic gear shifting type, and chassis load capacity is so high that its allowable total mass can reach 33 tons under full load. With ABS and ASR intelligent control, the brake system is safe and reliable. This type of truck is the optimum choice for deep logging work in domestic oil fields.
- Drawworks: 26000ft drawworks or double type 23000ft drawworks can be installed (with hydraulic elevation, the small drawworks is convenient for operation). Its drum is cast with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment. Its drive is stable and reliable. Its brake system is a double–belt pneumatic control brake and a tension overload automatic brake device is installed to ensure safety. Its framework is welded using high-grade seamless rectangular tubes and firmly connected to the subsidiary beam to ensure advanced performance, safety and reliability.
- Drawworks Transmission System: the main hydraulic system and hydraulic generator drive are independently controlled. The main system uses engine full-power take-off with output torque that can reach 1217lb.ft. With great power, it is convenient for operation. The hydraulic system utilizes a closed-circulation loop drive and volume variation stepless speed regulation. The hydraulic chain drive system selects the domestic pneumatically controlled large torque gearbox, which is suitable for deep well operations. The drawworks will shut down automatically in case of system overload in order to ensure safe running of the equipment. The full hydraulic transmission system uses a W16T hydraulic shifting gearbox that is originally assembled in the USA with a large speed regulation range and neutral shift. The two transmission ways are applicable for all kinds of working conditions in logging. Its minimum speed can be lower than 98.4ft/h so as to meet super low-speed working requirements. The hydraulic generator is driven by the power output on the gearbox side.
- Carriage: The carriage is using a steel framework and the deck inside the operation cabin is made of straight grain stainless steel plate. After polyurethane foaming treatment, the carriage body has excellent heat conservation performance and is installed with a COLEMAN ceiling-mounted air-conditioner imported from the USA. The operation table and toolbox are made using a 5700 structure to create a comfortable environment. The drawworks cabin floors are 0.15in waved aluminum plate, underneath which are strong and durable steel sheets. The outside deck is processed with aluminum oxidation sand-blasting treatment; the surface is coated with imported Dupont paint so that perfect performance can be permanently maintained in severe environments.
- Rope Guider Device: The upper rope guide is hydraulically controlled. With hydraulic power and an imported control valve, it is convenient for operation. This system also has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System: This system is equipped with a HARRISON hydraulic generator, imported diesel generator and external power which can be used synchronously or independently to meet the requirements of different electrical devices. The lighting installed on the wellhead can be self-rotated so as to ensure a safe driving environment and convenient logging operation.
- Auxiliary System: Instrument racks have been equipped with rollers with an airbag structure for convenient use.

MAIN TECHNICAL PARAMETERS FOR ES5256TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	26246.72 (Φ1/2"cable)
	Hoisting Capacity (lbf)	14612
	Hoisting Speed (in/s)	0.34~87.49
	Transmission way	PTO+hydraulic system+planetary gear-box reducer
Chassis model		Actros 3332
Drive way		6×4
Wheel base (ft)		14.76+4.26
Engine	Model	OM501 LA V6
	Power (hp)	315.14
	Maximum torque (ft-lb)	1216.97
Truck mass (lb)		54597
Maximum total mass (lb)		54883

ES5120TCJ TYPE OILWELL LOGGING TRUCK

Product structural performance:

- The chassis is a DFL1120B2 chassis with state III emissions standards. The truck has a power output of 177HP and with a 4×2 drive. The chassis utilizes a dual-cabin layout with luxurious internal decoration. The operation cabin has ample and comfortable working space. The drawworks cabin is equipped with such devices as hydraulic cable drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices. This type of truck is the optimum choice for logging work in domestic oil fields.
- Drawworks System: A cable or wire line drum can be installed according to the user's requirements. The wire line drawworks is equipped with an exterior-packed double-belt brake mechanism without a dead end. A pneumatic controlled brake can be added and the handling mechanism of the drawworks is mounted in the operation table with flexible, convenient, safe and reliable operation. An automatic wire arrangement device is equipped to lower labor intensity and force required. Users can replace the wire arrangement hangers according to steel wire size in order to meet different working requirements. A hydraulic upper rope device can be installed in the logging truck.
- Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed adjustment. The SAUERDANFOSS90L75variable oil pump and a low speed large torque motor are produced by a China-Italy joint venture and have been used to form a closed loop with a large adjustable speed scope. The logging truck can be equipped with an ASUERDANFOSS100 oil pump and motor to meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain stable, simple and reliable operations.
- Metering System: It mainly consists of sensors mounted on a wire arrangement mechanism and a gauge panel mounted on an operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The gauge panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has a safety alarm for convenient and reliable operation.
- Electrical System: DC power on the chassis can be used to provide power for DC devices, and we also can use external AC power equipped with display and electrical circuit protection devices to supply the power to all auxiliary facilities in the vehicle.
- Color: the color can be determined according to users' requirements and interests.

Drawworks compartment

Operation console

Wireline drawworks

MAIN TECHNICAL PARAMETERS FOR ES5120TCJ OILWELL LOGGING TRUCK

	Chassis Type	DFL1120B2
Drawworks	Capacity (ft)	32808.40 (φ0.09〃wireline)
	Hoisting Capacity (lbf)	2248
	Hoisting Speed (in/s)	0-350
	Drive way	4×2
	Wheel base (ft)	15.10
	Total mass (lb)	27381
Engine	Model	ISDe180 30
	Power (hp)	177.01
	Maximum torque (ft-lb)	479.41
	Overall size (ft)	21.56×8.20×11.81

ES5211TCJ TYPE OILWELL LOGGING TRUCK

- Chassis: The chassis used on the truck is a FVZ34Q II chassis. The engine is a 6HK1-TC water-cooled electrical spray diesel engine with a power output of 256HP that meets European III emissions standards. The computer-controlled pedal throttle is equipped with advanced performance. The suspension and adjustable seats are installed in the ample cab to improve comfort. The chassis load capacity is so high that its full-load mass can reach 47399lb, and with 6×4 drive, it has great cruise performance.
- Carriage: This is made from a steel framework and the deck inside the cabin is made of straight grain stainless steel plate with withholding technology. The carriage body has undergone an insulating process and the whole unit has undergone polyurethane foaming treatment, and it is also installed with a COLEMAN ceiling-mounted cold-warm air-conditioner imported from the USA for a comfortable working environment. The outside deck is covered with oxidation aluminum after sand-blasting treatment. The surface is coated with imported Dupont paint so that perfect performance can be permanently maintained in severe environments. The engine's exhaust pipe is made of stainless steel and reconstructed onto the rear parts of the cab so that the exhaust is pointed in an upward direction.
- Transmission System: The transmission box is a power take-off end with an output torque of 258lb.ft. The hydraulic system adopts a looped-circulation system with volume variation speed stepless adjustment. The main elements use world renowned hydraulic part manufacturers' products. The system is equipped with safety valves and the pressure can be adjusted at will. In addition, it has tension protection and overload protection. The gear-box reducer and double-shift gearbox are originally assembled in USA, allowing for a wide speed regulation range and neutral shift.. This makes it applicable for all kinds of working conditions in logging. Its minimum speed can be lower than 98.4ft/h so as to meet super low-speed working requirements.
- Drawworks: Its drum is cast with full-anti-magnetic steel, and dynamic balance tests have been done after machining and heat treatment. Its brake system is a double-chamber spring brake cylinder which belongs to a belt brake and can be operated pneumatically. Its framework is welded by high-grade seamless rectangular pipes and is firmly connected to the subsidiary beam to ensure advanced performance, safety and reliability.
- Rope Guider Device: The upper rope guide is hydraulically controlled. With hydraulic power, it is convenient for operation. This system also has a servo-buffering function so that it is convenient and reliable for operation.
- Electrical System: This system can be independently powered by an imported diesel generator, hydraulic generator or external power. One, two or three power supply systems can be used synchronously as required to meet the requirements of different electrical devices.
- Auxiliary System: Instrument racks utilize an airbag and mechanical clamping according to a user's requirements. It is also equipped with overhead sheaves, winding wheels and other devices. The operation cabinet can also provide a working table, sofa, sleepers and other facilities according to the users' requirements.

MAIN TECHNICAL PARAMETERS FOR ES5211TCJ OILWELL LOGGING TRUCK

Drawworks	Capacity (ft)	18044.62 (Φ1/2〃cable)
	Hoisting Capacity (lbf)	11240
	Hoisting Speed (in/s)	0.32~87.49
	Chassis model	FVZ34Q
	Drive way	6×4
	Overall size (ft)	31.82×8.20×12.80
	Wheel base (ft)	15.14+4.27
Engine	Model	6HK1-TC
	Power (hp)	256.13
	Maximum torque (ft-lb)	1475.12
	Truck mass (lb)	45867
	Total mass (lb)	46297

Operation compartment

Drawworks compartment

Hydraulic drawworks compartmernt

Drawworks compartment

Operation compartment

2 OILWELL TESTING TRUCK

ES5040TSJ TYPE OILWELL TESTING TRUCK

Product structural performance:

- The truck can be designed with 5 seats according to users' requirements.
- Chassis: The chassis used on the truck is an NJ6593ER6 IVECO chassis with open doors at the side and rear of the truck. There is an electrical spray diesel engine with a 4×2 drive that meets European III emissions standards. The vehicle looks great and is well laid-out with its dual cabins and luxurious interior decoration. The operation cabin is installed with an operation table with ample and comfortable working space. The drawworks cabin has hydraulic steel wire drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices. This type of truck is the optimum choice for well testing works in domestic oil fields.
- Drawworks System: It has a stepless- speed-adjusting function. It doesn't need to change drawworks speed through automobile gearbox shifting, therefore the operation is flexible, simple, safe and reliable with low noise. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. The handling mechanism is mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can be used to reduce labor intensity and force. The operator also can replace wire guider hangers according to steel wire sizes in order to meet different working requirements.
- Hydraulic Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and a low speed big torque motor are produced by a China-Italy joint venture and have been used to form a closed loop. With a large adjustable speed scope, it can meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain a stable, simple and reliable operational system.
- Wire Line Metering System: This mainly consists of sensors mounted on the wire guider and a metering panel mounted on the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and a safety alarm for convenient and reliable operation.
- Electrical System: DC power on the vehicle can be used.
- Color: Its color can be determined according to users' requirements and interests.

MAIN TECHNICAL PARAMETERS FOR ES5040TSJ OILWELL TESTING TRUCK

Chassis model		NJ6593ER6
Drawworks	Capacity (ft)	22965.88 (φ0.09〃wire line)
	Hoisting capacity (lbf)	2248
	Hoisting speed (in/s)	0~350
Drive way		4×2
The maximum speed (in/s)		1367.01
Wheel base (ft)		10.81
Approach angle°		20
Departure angle°		10.5
Total mass under full load (lb)		9414
Engine	Model	SOFIM8140.43S3 (Europe III)
	Maximum power (hp)	123.37
	Maximum torque (ft-lb)	210.20
Overall size (ft)		19.69 × 6.56×8.86
Tyre model		6.50R16C

ES5045TSJ TYPE OILWELL TESTING TRUCK

Product structural performance:

- The truck can be designed with 6 seats according to users' requirements.
- Chassis: The NJ2045SFD36 chassis is used on the truck with a 4×4 with open doors at the side and rear of the truck. An electrical spray diesel engine is utilized with a 4×4 drive that meets European III emissions standards. The vehicle looks great and is well laid-out with its dual cabins and luxurious interior decoration. The operation cabin has an operation table with ample and comfortable working space. The drawworks cabin has hydraulic- steel- wire drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices. This type of truck is the optimum choice for well testing works in domestic oil fields.
- Drawworks System: A φ0.075-0.09in wire line can be selected according to users' requirements and the drawworks capacity is 13000-24500ft. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. Hand brake devices and handling mechanisms are mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can reduce labor intensity and required worker force. The operator can also replace wire guider hangers according to steel wire sizes in order to meet different working requirements.
- Hydraulic Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and low speed big torque motor are produced by a China-Italy joint venture and have been used to form a closed loop. With a large adjustable speed scope, it can meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain stable, reliable and simple operation.
- Wire Line Metering System: It mainly consists of sensors mounted on the wire guider and a metering panel mounted the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has a safety alarm for convenient and reliable operation.
- Electrical System: DC power on the vehicle can be utilized.

MAIN TECHNICAL PARAMETERS FOR ES5045TSJ OILWELL TESTING TRUCK

Chassis Type		NJ2045SFD36
Drawworks	Capacity (ft)	24606.30 (φ0.075-0.09" wireline)
	Hoisting Capacity (lbf)	2248
	Hoisting Speed (in/s)	0～350
Drive way		4×4
The maximum speed(in/s)		1148.30
Wheel base (ft)		10.86
Approach angle°		37
Departure angle°		18
Maximum total weight (lb)		9810
The min ground clearance(ft)		0.80 〃
Engine	Model	SOFIM8142.43S
	Maximum power (hp)	123.37
	Maximum torque (lbf.ft)	210.20
Overall Size (ft)		19.67×6.89× 8.20

ES5050TSJ TYPE OILWELL TESTING TRUCK

Product structural performance:

- The truck can be designed with 5 according to users' requirements.
- Chassis: The chassis used on the truck is a NJ6683NR6 IVECO chassis with open doors at the side and rear of the truck. An electrical- spray diesel engine is utilized with a 4×2 drive that meets European III emissions standards. The vehicle looks great and is well laid-out with its dual cabins and luxurious interior decoration. The operation cabin has an operation table with ample and comfortable working space. The drawworks cabin has hydraulic steel wire drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices. This type of truck is the optimum choice for well testing works in domestic oil fields.
- Drawworks System: It has a stepless- speed-adjusting function. It doesn't need to change drawworks speed through automobile gearbox shifting, and therefore the operation is simple, balanced and easy with low noise.. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. Hand brake devices and handling mechanisms are mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can reduce labor intensity and worker force. The operator also can replace wire guider hangers according to steel wire sizes in order to meet different working requirements.
- Hydraulic Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and low speed big torque motors are produced by China-Italy joint venture and have been used to form a closed loop. It has a large adjustable speed scope to meet requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain stable, simple and reliable operation.
- Wire Line Metering System: It mainly consists of sensors mounted on the wire guider and a metering panel mounted on the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has safety alarm for convenient and reliable operation.
- Electrical system: DC power on the chassis can be used.
- Color: Its color can be determined according to users' requirements and interests.

MAIN TECHNICAL PARAMETERS FOR ES5050TSJ OILWELL TESTING TRUCK

Chassis Type		NJ6683NR6
Drawworks	Capacity (ft)	22965.88 (φ0.09〃wireline)
	Hoisting capacity (lbf)	2248
	Hoisting speed (in/s)	0~350
Drive way		4×2
The maximum speed(in/s)		1257.65
Wheel base (ft)		12.96
Approach angle°		20
Departure angle°		9.5
Total mass under full load (lb)		10979
Engine	Model	SOFIM8140.43S3 (Europe III)
	Maximum power (hp)	123.37
	Maximum torque (ft-lb)	210.20
Overall size (ft)		22.63×6.56 × 9.51

ES5061TSJ TYPE OILWELL TESTING TRUCK

Product structural performance:

- The truck can be designed with 5 –6 seats according to users' requirements.
- Chassis: The chassis used on the truck is a Dong Feng EQ6670PT type cruise chassis with open doors at the side and rear of the truck. An electrical spray diesel engine (European III emission standard, 138HP) is utilized with 4×4 drive and excellent cruise performance. The vehicle looks great and is well laid-out its with dual cabins and luxurious interior decoration. The operation cabin has an operation table with ample and comfortable working space. The drawworks cabin has hydraulic steel wire drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices.The truck is equipped with cruise tires (11R18). This type of truck is the optimum choice for well testing works in domestic oil fields.
- Drawworks System: It has a stepless speed-adjusting function. It doesn't need to change drawworks speed through automobile gearbox shifting, and therefore the operation is simple, balanced and easy with low noise. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. The hand brake device and handling mechanisms are mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can reduce labor intensity and worker force. Operator also can replace wire guider hangers according to steel wire sizes in order to meet different working requirements.
- Hydraulic Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and low speed big torque motors are produced by a China-Italy joint venture and have been used to form a closed loop, which has a large adjustable speed scope to meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and defined freely. Overload protection is provided to maintain stable, simple and reliable operation.
- Wire Line Metering System: It mainly consists of sensors mounted on the wire guider and a metering panel mounted on the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force o then drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has a safety alarm for convenient and reliable operation.
- Electrical system: DC power on the Vehicle can be utilized.
- Color: Its color can be determined according to users' requirements and interests.

MAIN TECHNICAL PARAMETERS FOR ES5061TSJ OILWELL TESTING TRUCK

	Chassis Type	EQ6670PT
Drawworks	Capacity (ft)	22965.88 (φ0.09〃wireline)
Drawworks	Hoisting capacity (lbf)	2248
Drawworks	Hoisting speed (in/s)	0~350
	Drive way	4×4
	The maximum speed(in/s)	874.89
	Wheel base (ft)	11.97
	The min ground clearance(ft)	0.93
	Approach angle(°)	35
	Departure angle(°)	23
	Total mass under full load (lb)	14330
Engine	Model	ISDe140-30(Europe III)
Engine	Maximum power (hp)	138.12
Engine	Maximum torque (ft-lb)	331.90
	Overall size (ft)	21.98×7.55×9.19

ES5101TSJ TYPE OILWELL TESTING TRUCK

Product structural performance:

- Chassis : The chassis used on the truck is a Dong Feng EQ1108KJ type cruise chassis with open doors at the side and rear of the truck. An electrical spray diesel engine (European III emission standard, 158HP) is utilized with a 4×2 drive for excellent cruise performance. The vehicle looks great and is well laid-out with its dual cabins and luxurious interior decoration. The operation cabin has an operation table with ample and comfortable working space. Drawworks cabin has hydraulic steel wire drawworks, hydraulic oil tank, electrically controlled hydraulic radiator, instrument rack, toolbox, tilting-type well site lamp and other devices. This type of truck is the optimum choice for well testing works in domestic oil fields.
- Drawworks System: It has a stepless speed-adjusting function. It doesn't need to change drawworks speed through automobile gearbox shifting, and therefore the operation is simple, balanced and easy with low noise. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. Hand brake devices and handling mechanisms are mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can reduce labor intensity and worker force. The operator also can replace wire guider hangers according to steel wire sizes in order to meet different working requirements.
- Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and low speed big torque motors are produced by a China-Italy joint venture and have been used to form a closed loop, which has a large adjustable speed scope to meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain stable, simple and reliable operation.
- Wire Line Metering System: It mainly consists of sensors mounted on the wire guider and a metering panel mounted on the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has a safety alarm for convenient and reliable operation.
- Electrical System: DC power on the chassis can be used to provide power for DC devices, and we can also use the external AC power which is equipped with display and electrical circuit protection devices to supply power to all auxiliary facilities in the vehicle.
- Color : Its color can be determined according to users' requirements and interests.

MAIN TECHNICAL PARAMETERS FOR ES5101TSJ OILWELL TESTING TRUCK

Chassis model		EQ1108KJ
Drawworks	Capacity (ft)	24606.30 (φ0.09〃 wireline)
	Hoisting capacity (lbf)	2248
	Hoisting speed (in/s)	0~350
Drive way		4×2
Wheel base (ft)		12.96
Total mass under full load (lb)		22928
Engine	Model	ISDe160-30(European III)
	Maximum power (hp)	158.24
	Maximum torque (ft-lb)	331.90
Overall Size (ft)		24.61×7.87×11.48

3 OILWELL TESTING TRUCK WITH A HYDRAULIC HOIST

ES5061TCS TYPE OILWELL TESTING TRUCK WITH A HYDRAULIC HOIST

Product structural performance:

- Chassis: The chassis used for the truck is the Jiang Ling NKR77LLLWCJA duty truck chassis with side doors. An electrical spray diesel engine is utilized with a power of 129HP and a 4×2 drive that conforms to Europe III emissions standards. In addition, it has excellent cruise performance. The engine is used to drive drawworks for hoisting up and down well-testing instrumentation. It also can be used for testing well temperature, well pressure, well slant angle, conducting well bottom samples and probing sand surfaces as well as removing paraffin, etc. This type of truck is the optimum choice for logging work in domestic oil fields.
- Special Devices: Hydraulic hoister, hydraulic wire line winch, hydraulic system, control device, etc.
- The simply operated hoisting system can be used for hoisting BOP pipes and tools on the drawworks and wellhead, which can save costs and improve working efficiency.
- Drawworks System: It has a stepless speed-adjusted function. It doesn't need to change drawworks speed through automobile gearbox shifting and therefore the operation is simple, balanced and easy with low noise. The brake is equipped with an exterior-packed double-belt brake mechanism without a dead end. Hand brake devices and handling mechanisms are mounted in the operation cabin for flexible, convenient, safe and reliable operation. It is equipped with an automatic wire guider which can reduce working intensity. The operator also can replace wire guider hangers according to steel wire sizes in order to meet different working requirements. Four sets of drawworks or six sets of drums which can be dismantled will be installed in the system according to the client's requirements.
- Hydraulic Transmission System: The power is taken from the gearbox end for convenient operation. The hydraulic system utilizes a closed-circulation loop and volume variable stepless speed regulation. The SAUERDANFOSS90L75 variable oil pump and low speed big torque motors are produced by a China-Italy joint venture and have been used to form a closed loop, which has a large adjustable speed scope to meet the requirements of all kinds of working conditions. The system is equipped with safety valves and their pressure can be regulated and set freely. Overload protection is provided to maintain simple, stable and reliable operation.
- Wire Line Metering System: It mainly consists of sensors mounted on the wire guider and a metering panel mounted on the operation table. It is used to measure, display and set hole depth of the steel wires and steel wire pulling force on the drums. The metering panel can measure mechanical depth, electric depth, electric tension, and tension difference, and has a safety alarm for convenient and reliable operation.
- Electrical System: DC power on the vehicle can be utilized.

MAIN TECHNICAL PARAMETERS FOR ES5061TCS OILWELL TESTING TRUCK WITH A HYDRAULIC HOIST

Chassis model		NKR77LLLWCJA
Drawworks	Capacity (ft)	11482.94 (ϕ0.09 〃 wire line)
	Hoisting capacity (lbf)	2248
	Hoisting speed (in/s)	0~350
Crane	Maximum hoisting height(ft)	16.40
	Maximum working range(ft)	12.47
	Maximum hoisting torque(ft-lb)	29500
Drive way		4×2
Wheel base (ft)		11.02
Total mass under full load (lb)		13790
Engine	Model	4KH1-TC (Europe III)
	Rated power(hp)	128.74
	Maximum torque (ft-lb)	206.52
Overall size (ft)		19.36×6.23×7.22

ES5180TCS TYPE TESTING TRUCK WITH A HYDRAULIC HOIST

- Chassis: The chassis used on the truck is a Manitowoc Dongyue heavy chassis with a TA517JQZQY12F model hoist. With large carrying capacity, the full load mass can reach 44092lb. A 6×4 drive is adopted and its cruise performance is excellent.
- Hoisting System: The hoisting arm is using a three-segment telescopic structure. Its second and third segments can be shrunk synchronously with a maximum working height of 72.18ft. The following functions can be completed hydraulically: rig up, rotation, breadth adjustment and telescopic activity as well as support- leg reset. Meanwhile, it utilizes a mutually-locked, dual-control system so that it can work with stability, safety and reliability.
- Hydraulic System: It is equipped with a two-pump system for hoisting operations to ensure swift, high efficiency and energy-saving lifting up and down. It is equipped with safety devices, including: overflow valves, balance valves, hydraulic locks and an emergency pump. The main hydraulic elements are imported to keep the performance safe, stable and reliable.
- Grease System: It is equipped with an imported high-pressure pneumatic grease-filling pump with a maximum output pressure of 14285psi. The air compressor is driven by a hydraulic motor and the grease-filling pressure can be adjusted continuously in order to meet blowout-protection and pressure requirements during well testing and logging operations. The open type grease storage tank is convenient for use.
- Auxiliary Devices: The instrument rack and grease-filling pump case use mechanical or airbag clamping devices. Air pipelines and grease-filling pipelines are configured with winding wheels for convenient applications.
- This compact truck is convenient for a variety of operations and can be used under different working conditions.

MAIN TECHNICAL PARAMETERS FOR ES5180TCS OILWELL TESTING TRUCK WITH A HYDRAULIC HOIST

	Product model	ES5180TCS
	Chassis model	TA5171JQZQY12F
	Engine	CA6DF3-18E3
	Power (hp)	177.02
	Truck mass(lb)	38713
	Maximum total mass(lb)	39143
	Wheel base(ft)	12.68 +4.17
Test mast	Whole telescopic arm+ secondary arm maximum hoisting height(ft)	28.7
	Supporting leg span (ft) (vertical x horizontal)	13.78x15.10
Hoisting system	Maximum working pressure of grease-filling pump(FT) (psi)	14285.71
	Rated working pressure of air compressor(FT) (psi)	114.28
	Discharge capacity of air compressor (m^3 /min)	0.67
	Rated rotary speed (r/min)	1000
	Overall size (ft)	35.10×8.20×10.49

4 OILWELL-TESTING INSTRUMENTATION TRUCK

ES5101TYQ TYPE OILWELL-TESTING INSTRUMETN TRUCK

Product structural performance:

- Chassis: The chassis used on the truck is a Dong Feng EQ1108KJ chassis with a power output of 158HP. It conforms to Europe III emissions standards and uses a 4×2 drive with excellent cruise performance. This type of truck is the optimum choice for auxiliary devices in testing work in domestic oil fields.
- Carriage: The vehicle has a streamlined coach to create an elegant look. The double-cabin layout contains ample and comfortable space, high-grade luxury and durable interior decoration materials. Its cab can hold 5-6 persons, and is equipped with a drinking machine. The rear cabin is configured with 8 tilting coaches, a microwave stove, a working bench, a toolbox, a first-aid box and an airbag-clamping instrument rack. The cab is simple and beautiful, with COLEMAN DC truck-mounted & ceiling dual-function air-conditioners imported from the USA. Both front and rear cabins are equipped with luxurious fans on the ceiling. The individual fuel heaters also can be used to meet working requirements in cold areas. The ceiling can be equipped with a DC truck-mounted air conditioner for a comfortable environment in the summer. The whole vehicle is compact in layout. .
- Special Devices: Special devices include instrument racks and tank fixing devices. Instrument can be placed with several units of Φ1.7-6in instrument racks with a maximum length of 20ft. The tank fixing device can be configured according to the user's requirements.
- Electrical System: DC power on the chassis can be used to provide power for DC devices, and we can also use external AC power which can be equipped with display and electrical circuit protection devices to supply power to all auxiliary facilities in the vehicle.
- Color: Its color can be determined according to users' requirements and interests.

Bedroom

Instrument frame

MAIN TECHNICAL PARAMETERS FOR ES5101TYQ TYPE OILWELL-TESTING INSTRUMETN TRUCK

Product model		ES5101TYQ
Chassis model		EQ1108KJ
Drive way		4×2
Wheel base (ft)		12.96
Total mass under full load (lb)		22928
Engine	Model	ISDe160-30(Europe III)
	Maximum power (hp)	158.24
	Maximum torque (ft-lb)	331.90
Overall size (ft)		24.93×7.87×10.83

ES5122TYQ TYPE OILWELL-TESTING INSTRUMET TRUCK

Product structural performance:

- Chassis: The chassis used on the truck is a Dong Feng EQ1126KJ1 chassis with a power output of 158HP. It conforms to Europe III emissions standards and uses a 4×2 drive with excellent cruise performance. This type of truck is the optimum choice for auxiliary devices of testing work in domestic oil fields.
- Carriage: The vehicle has a streamlined coach appearance, which is elegant and beautiful. The double-cabin layout contains ample and comfortable space, high-grade luxury and durable interior decoration materials. Its cab can hold 5-6 persons, and is equipped with a drinking machine. The rear cabin is configured with 8 tilting coaches, a microwave stove, a working bench, a toolbox, a first-aid box and an airbag-clamping instrument rack. The cab is simple and beautiful with COLEMAN DC truck-mounted & ceiling dual-function air-conditioners imported from the USA. Both front and rear cabins are equipped with luxurious fans on the ceiling. The individual fuel heaters can also be used to meet working requirements in cold areas. The ceiling can be equipped with a DC truck-mounted air conditioner for a comfortable environment in the summer. The whole vehicle is compact in layout.
- Special Devices: Special devices include instrument racks and tank fixing devices. The instrument racks can be placed with several units of Φ1.7-6in instruments with a maximum length of 21ft. The tank fixing device can be configured according to the users' requirements.
- Electrical System: DC power on the chassis can be used to provide power for DC devices, and we can also use external AC power which can be equipped with display and electrical circuit protection devices to supply power to all auxiliary facilities in the vehicle.
- Color : Its color can be determined according to users' requirements and interests.

Bedroom

Instrument frame

MAIN TECHNICAL PARAMETERS FOR ES5122TYQ TYPE OILWELL-TESTING INSTRUMENTATION TRUCK

Product model		ES5122TYQ
Chassis Type		EQ1126KJ1
Drive way		4×2
Wheel base(ft)		15.42
Maximum total weight (lb)		26455
Engine	Model	ISDe160-30(Europe III)
	Maximum power (hp)	158.24
	Maximum torque(lbf.ft)	331.90
Overall size (ft)		24.93×7.87×10.83

5
SKID-MOUNTED LOGGING UNIT

- Skid: The drawworks skid uses a steel framework and includes an operation cabin and a drawworks cabin. The operation cabin is designed with an insulating structure. The cabin wall and ceiling inter layers have been processed with insulated foaming technology and the inner covering is made of plastic-coated sheets. Moreover, an air-conditioner with cooling and warming functions is installed so that the internal environment can be more comfortable. The outer panel of the drawworks skid utilizes a unique and elegant corrugated-steel structure. The surface paintings uses imported Dupont brand paint, which should keep the equipment in a permanently perfect condition, even in severe working environments. The operation cabin doorframe is designed with a labyrinth structure so that sand and wind can be effectively repelled. The drawworks cabin door is equipped with a GeBang brand medium-sized lock which is solid, durable and beautiful.
- Drawworks: Different drawworks can be equipped. Well testing drawworks with a capacity ranging from 11400ft to 24600ft can be equipped, based on the users' demands to suit different working requirements.
- Transmission System: Users can choose electrical drive, hydraulic drive and mechanical drive according to different power sources.
- In the electrical drive way, an explosion-proof motor is used as the power source, which is connected with a hydraulic pump through a flange so that the hydraulic system can be driven to work. The explosion-proof motor is powered by an external electrical source. Meanwhile, a cable cabinet is placed on the right of the operation cabin so that external power cables can be placed in it.
- In the hydraulic drive way, the hydraulic system utilizes a closed-circulation loop with which a stepless speed adjustment that allows for a wide speed regulating range to meet the requirements of all kinds of working conditions. The main elements are imported from world-famous hydraulics manufacturers. The system is equipped with safety valves, and the pressure can be regulated freely.
- In the mechanical chain drive way, a strong engine will be used to drive the drawworks through a transmission shaft, angle gear box and chains.
- Auxiliary Devices: The instrument racks and wellhead lamps are provided for convenient operation.
- Certificates of IACS (International Association of Classification Societies): Ex-proof products that meet the IACS certificate requirement can be provided according to users' requirements.

Skid-mounted testing unit

Mechanical skid-mounted logging unit

MAIN TECHNICAL PARAMETERS FOR SKID-MOUNTED LOGGING UNIT

Product model	HSJ70 wire line skid-mounted logging unit	HMC35 cable skid-mounted logging unit	HMC70 separated skid-mounted logging unit
Electrical motor model	YB－180L2	EQ4BTA3.9-C125	EQB180-20
Power(hp)	29.51	124.72	177.02
Output torque (ft-lb)	– –	350.34	449.91
Total mass (lb)	5511	11464	16314
Drawworks capacity(ft)	39370.08(Φ0.09" wire line)	11482.94 (Φ1/2" cable)	39370.08(Φ0.46" cable)
Drawworks transmission way	Electrical motor＋hydraulic system	Internal combustion engine + mechanical transmission	Internal combustion engine + hydraulic system
Drawworks hoisting capacity (lbf)	2248	7868	12488
Drawworks hoisting speed(n/s)	2.19～16.40	1.32～76.56	0.32～87.49
Overall size(ft)	11.81×6.89×7.22	16.73×6.89×7.22	Separated

Separated skid-mounted logging unit

Integral skid-mounted logging unit