Catalog

DRILLING RIGS

SATAREM

DRILLING RIGS

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.

Specification

Model	ZJ10/900CZ	ZJ15/1350CZ	ZJ20/1580CZ	ZJ30/1700CZ	ZJ40/2250CZ
Drilling Depth (ft) ($4^1/_2$"DP)	3300	5000	6600	10000	13000
Workover Depth (ft) ($3^1/_2$"DP)	8000	14500	18000	21000	23000
Max Hook Load (lbf)	200000	303500	350000	400000	500000
Hook speed (ft/s)	0.65～4.59	0.65～4.59	0.65～4.59	0.65～4.59	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	Hydraulic + mechanical	Hydraulic + mechanical	Hydraulic + mechanical	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	12	12	12	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.

2.1 ZJ10DB/ ZJ15DB/ ZJ20K/ ZJ90DB parameters

Model		ZJ10DB	ZJ15DB	ZJ20K	ZJ90DB
Nominal drilling depth （ft）	$4^1/_2$"DP	3300	5000	6600	29500
	5"DP	2625	4600	5906	26000
Max hook load （lbf）		135000	200000	300000	1517400
Hook speed (ft/s)		0～3.6	0～3.9	0.66～5	0～6
Mast height (ft)		95	95	102	157
Mast type		Erective	Erective	Erective	K type
Drill floor height (ft)		10	13	15	40
Substructure type		Box-on-box	Box-on-box	Box-on-box	Swing up
Motor/Engine type		AC-VF speed adjustable motor	AC-VF speed adjustable motor	C18	CAT3512B generator set
Motor/Engine power (hp)		308	443	630	5×1757
Drive ways		VFD drive	VFD drive	Hydraulic+ mechanical	VFD drive
Transmission box model		SDX10DB	SDX15DB	S6610HR	ZLQ90DB
Traveling system		5×4	5×4	5×4	8×7
Drawworks		JC10DB	JC15DB	JC20K	JC90DB
Drawworks power (hp)		268	402	470	3000
Main brake		Band brake	Band brake	Band brake	Disc brake
Auxiliary brake		224WCB	224WCB	224WCB	Motor resistance brake
Drilling line diameter (in)		7/8"	1"	1 1/8	1 3/4"
Hook block		YG70	YG90	YG160B	YC675、DG675
Swivel		SL110	SL110	XSL170	SL750
Rotary table		ZP175	ZP175	ZP175	ZP495
Mud pump nominal power (hp/set)		500×1	800×1	800×2	1600×3/2200x3
Nominal working pressure of hydraulic system (psi)		2000	2000	2000	2000
Max working pressure of air system psi		145	145	145	145

2.2 ZJ30K/ ZJ30DB/ ZJ30L/ ZJ30LDB parameters

Model		ZJ30K	ZJ30DB	ZJ30L	ZJ30LDB
Nominal drilling depth （ft）	41/2"DP	10000			
	5"DP	8000			
Max hook load （lbf）		400000			
Hook speed (ft/s)		0.66～5	0～3.9	0.66～5	0.66～5
Mast height (ft)		108	135	141	141
Mast type		Erective	K type	K type	K type
Drill floor height (ft)		16.4/20	16.4	20	20
Substructure type		Box-on-box	Box-on-box	Box-on-box	Box-on-box
Motor/Engine type		2×C15	AC-VF speed adjustable motor	G12V190PZL-3	G12V190PZL-3/0
Motor/Engine power (hp)		2×539	671	1086×3	1086×3
Drive ways		Hydraulic+ mechanical	VFD drive	Hydraulic+ mechanical	Electrical+ mechanical
Transmission box model		2×S5610HR	SDX30DB	Coupler YOZJ760	------
Traveling system		6×5/5×4	6×5	6×5	6×5
Drawworks		JC30K	JC30L	JC30B	JC30LDB
Drawworks power (hp)		537	671	738	671
Main brake		Band brake	Disc brake	Disc brake	Disc brake
Auxiliary brake		324WCB	FDWS30	FDWS30	FDWS30
Drilling line diameter (in)		1 1/8; 1 1/4	1 1/8	1 1/8	1 1/8
Hook block		YG225	YG225	YG180	YG180
Swivel		XSL225	XSL225	XSL170	XSL225
Rotary table		ZP205、ZP275	ZP275	ZP275	ZP275
Mud pump nominal power (hp/set)		1000×2	1000×2	1300×2	1300×2
Nominal working pressure of hydraulic system (psi)		2000			
Max working pressure of air system psi		145			

2.3 ZJ40K/ ZJ40DB/ ZJ40LDB/ ZJ40L/ZJ40D parameters

Model		ZJ40K	ZJ40DB	ZJ40LDB	ZJ40L	ZJ40D
Drilling depth (ft)	$4^1/_2$"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				

2.4 ZJ50DB/ZJ50D/ ZJ50LDB/ ZJ50L parameters

Model		ZJ50DB	ZJ50D	ZJ50LDB	ZJ50L
Drilling depth (ft)	$4^1/_2$"DP	16500			
	5"DP	15000			
Max hook load (lbf)		708120			
Hook speed (ft/s)		0～6	0～5	0.66～5	0.66～5
Mast effective height (ft)		148			
Mast type		K type			
Drill floor height (ft)		30	30	25/30	25
Substructure type		Swing up	Swing up / sling shot	Swing up	Box-on-box
Engine type		CAT3512B generator set	CAT3512B generator set	G12V190PZL-3	G12V190PZL-3
Engine power (hp × set)		3×1757	3×1757	3×1086+1609	3×1086+1073
Drive ways		VFD drive	DC drive	VFD drive +mechanical	Hydraulic+ mechanical
Transmission box model		ZLQ50DB	ZLQ50D	Coupler YOZJ750	Coupler YOZJ750
Traveling system		7×6			
Drawworks		JC50DB	JC50D	JC50LDB	JC50L
Drawworks power (hp)		1475	1475	1475	1475
Main brake		Disc brake			
Auxiliary brake		Motor resistance brake	DWS50	FDWS50	FDWS50
Drilling line diameter (in)		1 3/8"			
Hook block		YC315、DG315			
Swivel		SL450			
Rotary table		ZP375			
Mud pump power (hp×set)		1300×3	1600×2	1600×2	1600×2
Nominal working pressure of hydraulic system (psi)		2000			
Max. working pressure of air system (psi)		145			

2.5 ZJ70DB/ZJ70D/ ZJ70LDB parameters

Model		ZJ70DB	ZJ70D	ZJ70LDB
Drilling depth (ft)	$4^1/_2$"DP	23000		
	5"DP	20000		
Max hook load (lbf)		1011600		
Hook speed (ft/s)		0～6	0～5	0.66～5
Mast effective height (ft)		148		
Mast type		K type		
Drill floor height (ft)		35	35	35
Substructure type		Swing up	Swing up /sling shot	Swing up
Engine type		CAT3512B generator set	CAT3512B generator set	A12V190PZL-3
Engine power (hp × set)		4×1757	4×1757	3×1421
Drive ways		VFD drive	DC drive	VFD drive + mechanical
Transmission box model		ZLQ70DB	ZLQ70D	Coupler YOZJ750
Traveling system		7×6		
Drawworks		JC70DB	JC70D	JC70LDB
Drawworks power (hp)		2000	2000	2000
Main brake		Disc brake		
Auxiliary brake		Motor resistance brake	DWS70	DWS70
Drilling line diameter (in)		1 1/2"		
Hook block		YC450、DG450		
Swivel		SL450		
Rotary table		ZP375		
Mud pump power (hp×set)		1600×3		
Nominal working pressure of hydraulic system (psi)		2000		
Max. working pressure of air system (psi)		145		

3. OFFSHORE DRLLING 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 ocean platform wellhead. 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.

Specification

Model		HZJ30	HZJ40	HZJ50DB	HZJ70DB
Drilling depth (ft)	$4^1/_2$"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	0.66～5	0.66～5
Derrick height (ft)		108/118	108/118	135/148/154	135/148/154
Derrick type		Double section, telescoping	Double section, telescoping	Tower type or jack up	Tower type or jack up
Drill floor height (ft)		15～21		15～40	15～40
Engine type		CAT3406C	CAT3408B	--	--
Engine power (hp ×set)		360×2	530×2	805×7	1073×9
Drive ways		hydraulic+ mechanical	hydraulic+ mechanical	VFD drive	VFD drive
Traveling system		5×4/6×5	5×4/6×5	7×6	7×6
Drawworks		JC28	JC28	HJC50DB	HJC70DB
Drawworks power (hp)		738	986	1475	2000
Main brake		Band brake/Disc brake	Band brake/Disc brake	Band brake	Band brake
Auxiliary brake		324WCB	324WCB	Motor Resistance Brake	Motor Resistance Brake
Drilling line diameter (in)		1 1/8"/1 1/4"	1 1/8"/1 1/4"	1 3/8"	1 1/2"
Hook block		YG180/YG225	YG180/YG225	YC315、DG315	YC450、DG450
Swivel		SL225/XSL225	SL225/XSL225	SL450/XSL450	SL450/XSL450
Rotary table		ZP275	ZP275	ZP375	ZP375
Mud pump power(hp×set)		1000×2	1300×2	1600×2	1600×3
Nominal working pressure of hydraulic system (psi)		2000	2000	2000/3000	2000/3000
Max working pressure of air system (psi)		145	145	145	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.

Specification

Type	Trailer-mounted drilling rig with ground anchor	Trailer-mounted drilling rig with ground anchor		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($4^1/_2$"DP)	9800($4^1/_2$"DP)	9800($3^1/_2$"DP)	13000($4^1/_2$"DP)	13000($4^1/_2$"DP)	13000($4^1/_2$"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		0.66～5		0.66～5
Mast height (ft)	114/118/125	114/118/125		114/118/125		154
Mast type	Double-section telescoping, front-inclination, mast type	Double-section telescoping, front-inclination, 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"		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		2000/3000		
Max working pressure of air system (psi)	145	145		145		

5. SPECIAL DRILLING RIG

5.1 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.

Specification

Model	ZJ20DJ	ZJ30DJ	ZJ40DJ
Nominal drilling depth(ft)（4 1/2”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

5.2 HYDRAULIC RACK AND PINION RIG

This is a new kind of drilling rig. 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.

Specification

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
	4 1/2”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: 400 hp
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

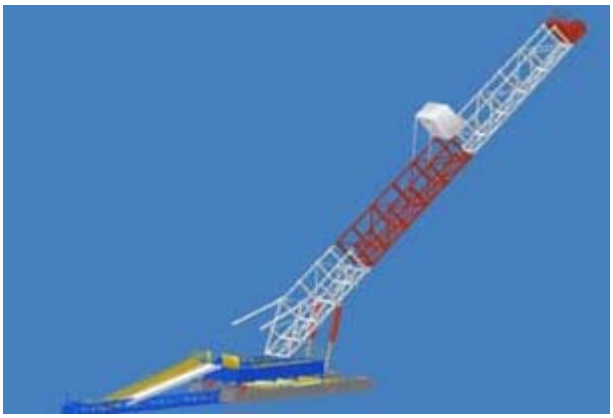
5.3 TF-TYPE DRILLING RIG

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.



Specification

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	2+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	2F+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

5.4 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.

Specification

Model	ZJ40/2250CZK
Drilling depth (ft) ($4^1/_2$"DP)	13000
Workover depth (ft) ($3^1/_2$"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

5.5 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.

Specification

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

5.6 WATER-WELL DRILLING RIG

This drilling rig can be used to drill water wells with a depth of 985ft and wellhead diameter of 1.6 ft. 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.

Specification

Nominal drilling depth (ft)	1000
Rated load of hoisting system (lbf)	33500
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

5.7 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.

Specification

Drilling depth (ft)		3280（$4^1/_2$"DP）	**Drill floor height ft**	12
Max hook load (lbf)		202328	**Drilling line diameter (in)**	1"
Hook speed (ft/s)		1.31～5	**Main brake**	Band brake
Mast height (ft)		72	**Auxiliary brake**	224WCB
Mast type		Erective, front open K type	**Travelling block**	YC90
Installation power	**Main unit (hp)**	603	**Rotary table**	ZP175
	Mud pump(hp)	760	**Mud pump**	RGF-800
Drive ways		Hydraulic+ mechanical	**Mud purification system volume(ft^3)**	2118
Travelling system		4×3	**Top drive**	FOREMOST-100

5.8 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.

Specification

	Integral movement	Individual 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

5.9 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.

Specification

Nominal drilling depth (ft)	16500（$4^1/_2$"DP）	**Rotary table gearshifts**	1 F+1 R Stepless speed regulation
Max hook load (lbf)	708120	**Mast type and effective height (ft)**	K type 148
Rated drawworks power (hp)	1475	**Drill floor height (ft)**	24.6
Drawworks gearshifts	1 F+1 R Stepless speed regulation	**Clear height below rotary beam (ft)**	20.34
Lifting system wire-rope	7×6(sequent pulling)	**Mud pump power (hp× set)**	800×3
Hook speed (ft/s)	0-3.9	**Drive ways**	AC-DC-AC
Drilling line diameter (in)	1 1/4"	**Swivel stem diameter (in)**	3"
Rotary table	ZP275	**High pressure mud pump manifold diameter (in)× pressure (psi)**	4"×5000

5.10 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.

Specification

Model	ZJ40/225DBG	ZJ50/315DBG
Drilling depth (ft) （$4^1/_2$"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 (ft^3)	6886	11300
Working pressure of hydraulic system (psi)	2000	2000
Working pressure of air system (psi)	145	145

5.11 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.

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