

2000 hp SCR Drilling Rig Specifications

- Nominal drilling depth 7000m (5"DP)
- Maximum hook load 4500kN
- Maximum drill string weight 2520kN
- Number strung 6×7 (Series)
- Maximum line number 12
- Wireline Dia. Φ38mm
- Rated input power of drawworks 2000HP (1470kW)
- Shifting number of drawworks 4 shifts, stepless regulation
- Opening dia. of rotary table Φ952.5
- Rated power×number of mud pump 1600HP/3set
- Effective height of mast 46.5m
- Mast type K type
- Setback capacity 5"-28m stand 7000m (including 10 drill collars)
- Height of drill floor 10.5m
- Clearance height of rotary table beam 9.12m
- Drill floor area (L × W) 13.7m×11.66m
- Air tank capacity 3.5m³+2×2.5m³
- Power×number of main engine sets 1200kW×4
- Power×number of auxiliary generator sets 400kW×1
- Mud tank capacity 660m³

Note: Imported equipment is marked with a blue background.

#	Name	Technical Description	Model	QTY
1	Hoisting System			

#	Name	Technical Description	Model	QTY
1.1.3	Pneumatic casing stabbing board	<ul style="list-style-type: none"> • Maximum lifting distance: 6m • Winch type: QJ-1 		1
1.1.4	Dead Line Anchor	No weight indicator	JZG41	1
1.1.5	Raising Line	Consist of 2 raising lines, used for the lifting and lowering of the mast and substructure.	Φ72-6x84WSNS+IWR1770, L=55400	1
1.1.6	1tAir Winch	<ul style="list-style-type: none"> • Load Capacity: 1t • Working Pressure: 0.8MPa • Rope Speed: 12 m/s 	QJ-1	2
1.1.7	Hydraulic Damper Cylinder	Consists of hydraulic cylinder, hydraulic line and quick coupling etc. used for the buffering during the lifting and lowering of the mast and substructure.		1
1.1.8	Leveling jacks	For leveling the mast.	LF100/200LB	2

#	Name	Technical Description	Model	QTY
1.2	Substructure	<p>Parallelogram structure. Continuous lifting, Consist of one rampway, three ladders, one escaping way, one 2.5m³ air tank, air winch, hydraulic cathead, B type manual tong and hydraulic tong. Drill floor rail height is 1.2m. There is a 3-1/2" protection pillar in the rampway gate. With driller room stents in both sides. Substructure conforms to API spec4F with API mark.</p> <ul style="list-style-type: none"> • Maximum Hook Load 4500kN • Max Setback Load 2520kN • Height of drill floor 10.5m • Drill Floor Area 13.7mx11.66m • Clearance Heigh 9.12m • Setback capacity column 5": 240 pillar column 9": 4 pillar column 8": 6 pillar 	DZ450/10.5-S	1
1.2.1	Catwalk	Length 18000mm, width 1600mm, height 1070mm		1
1.2.2	Pipe rack	Length 9000mm, height 1070mm		8
1.2.3	man-riding winch	•Capacity:1T		1
1.2.4	BOP hydraulic suspending device	<ul style="list-style-type: none"> • Rated traction force: 400x2=800kN • Maximum lifting height: 4.8m • Maximum lifting speed: 1.5m/min • Rated work pressure: 16MPa • Rated Flow: 120L/min 	FY-80Y/4.8	1

#	Name	Technical Description	Model	QTY
1.3	Drawworks	<p>Three shafts drawworks, hermetic DW frame, driven by 2 sets of YZ08 DC motor. The main brake is hydraulic disc brake and auxiliary brake is eddy current brake. C/W Crown block rolling valve device, Lebus slotted drum.</p> <p>Conforms to API spec4F with API mark.</p> <ul style="list-style-type: none"> • Max Input Power: 1470kW • Maximum Fast Line Pull: 485kN • Wire Rope Dia.: Φ38mm • Shifting number of Drawworks: 4 shifts, stepless regulation 	JC70D	1
1.3.1	Hydraulic disc brake	<ul style="list-style-type: none"> • Number of NO Work Clamp: 6 • Number of NC Work Clamp: 2 • Diameter and thickness: 1600x76mm • Rated Pressure: 9MPa • Single side maximum positive pressure of working clamps: 75kN • Single side maximum positive pressure of safety clamp: 90kN • Cooling Method: Wind 	DBS75	1
1.3.2	Eddy current brake	<ul style="list-style-type: none"> • Maximum braking torque: 98000N.m • Cooling Method: water 	SDWS70	1
1.3.2.1	Forced Cooling Device	<p>Consist of radiator, water pump, pipelines and control valves.</p> <ul style="list-style-type: none"> • Water tank volume: 50m³ 		1

#	Name	Technical Description	Model	QTY
1.3.3	DW driven motor	DC motor • Rated Power: 800kW • Rated Voltage: 750V • Rated Speed: 970r/min • Rated Torque: 8034N.m	YZ08(A)	2
1.3.4	Automatically feed drilling device	It is equipped with one 45kW AC motor, one reduction gearbox and one set of LT600/250T clutch, etc. • Motor power: 45kW • Motor voltage: 380V • Motor rated speed: 1480r/min		1

#	Name	Technical Description	Model	QTY
1.4	Crown block	<p>Including 6 main sheaves, 1 fast rope sheave, 1 bailing sheave, 4 auxiliary sheaves, with Rubber beam, 1 crane hoisting frame. With TDS hangers, traveling clock suspension oticplacode, traveling block suspension ropes. Conforms to API Spec 4F with API mark.</p> <ul style="list-style-type: none"> • Maximum Hook Load: 4500kN • Main Pulley dia.: Φ1524mm • Dia. of wire line: Φ38mm 	TC450	1
1.5	Traveling block	<p>Conforms to API- 8C with API marks.</p> <ul style="list-style-type: none"> • Maximum Hook Load: 4500kN • OD of main sheave: Φ1524mm • Dia. of sheave rope groove: Φ38mm 	YC450	1
1.6	Hook	<p>Conforms to API- 8C with API marks.</p> <ul style="list-style-type: none"> • Maximum Hook Load: 4500kN • Opening size of main hook: 220mm • Opening size of secondary hook: 120mm 	DG450	1
1.7	Drilling wire rope	<p>Conforms to API- 9B,</p> <ul style="list-style-type: none"> • Sirul steel core: 1200m; 	Φ 38-6x19S-IWRC EIPS	1
1.8	Lacing machine			1

#	Name	Technical Description	Model	QTY
1.9	Electric spooler	<ul style="list-style-type: none"> • Maximum Workload: 14t • Maximum Speed: 5rpm • Motor Power: 7.5kW 		1
2	Rotary System			
2.1	Swivel	<p>With duplex air driven spinner, conforms to API- 8C with API marks</p> <ul style="list-style-type: none"> • Maximum static load: 4500kN • Maximum speed: 300rpm • Rated pressure: 34.3Mpa • Center pipe ID: 75mm 	SL450-5	1
2.2	Rotary table (include master bushing)	<p>Conforms to API- 7K.</p> <ul style="list-style-type: none"> • Dia of through hole: $\phi 952.5\text{mm}$ • Maximum static load: 5850kN • Maximum Speed: 300r/min • Gear ratio: 3.56 	ZP375	1
2.3	Kelly bushing	5 1/4" hexagonal, four pin drive, fit for hexagonal kelly		1
		3 1/2" hexagonal, four pin drive, fit for hexagonal kelly		1

#	Name	Technical Description	Model	QTY
2.4	Bushing liner	<ul style="list-style-type: none"> • One from 2 3/8" to 8 5/8" • One from 11-3/4" to 13-3/8" • One from 9-5/8" to 10-3/4" • One 20" casing bushing 		1
2.5	Independent rotary table driven device	C/w reducer casing, rotary brake, cardan shaft. <ul style="list-style-type: none"> • Shifting number: Steepless speed regulation • Gear ratio: i1=2.043 i2=1.059 • Cardon shaft: W51.5-735 		1
2.6	RT Motor	DC motor <ul style="list-style-type: none"> • Rated Power: 800kW • Rated Voltage: 750V • Rated Speed: 970r/min • Rated Torque: 8034N.m 	YZ08B	1
3	High Pressure Mud Circulation System			
3.1	Mud pump	<ul style="list-style-type: none"> • Triplex cylinder single acting piston pump • Maximum ID of liner x strike: Ø180x305mm • Rated Strikes : 120s/min • Rated power : 1176kW • Transmission type: Herringbone • Gear ratio: 4.206:1 • Maximum working pressure: 35MPa 	F-1600	3

#	Name	Technical Description	Model	QTY
3.2	Mud pump motor	DC motor • Rated Power: 800kW • Rated Voltage: 750V • Rated Speed: 970r/min • Rated Torque: 8034N.m	YZ08(A)	6
3.3	Charging pump	• Rated Power: 55kW • Rated Speed: 1480r/min		3
3.4	Pump transmission device	Consist of belt transmission unit, skid, motor skid, joint, V-type belt, belt sheave and belt safety sheild, etc. • Accessories: 3 cruciform mesh filters.		3
3.5	Pump relief line	•Consist of 2" pipelines, gate valves and safety chain, etc.		3
3.6	Safety valve	•Working Pressure: 35Mpa		3

#	Name	Technical Description	Model	QTY
3.7	High pressure manifold	<p>Double standpipes & double ground lines. C/w floor valves, ground valves, H.P. manifold & hoses. All valves are manual.</p> <ul style="list-style-type: none"> •Pipe dia: 4" •Work pressure: 5000psi, •Test pressure: 50Mpa, •Operating temperature: -29°C-121°C, •Work medium water,drilling fluid,crude oil,cracking oil •Connection type: Union connection 		1
3.7	Rotary hose	L=23m		2
4	Low Pressure Mud Circulation System			
	Mud circulating system	<p>Mud circulation adopts shale shaker, vacuum degasser, desander, centrifuge to finish five-step purification, can meet the requirements of circulation, charging, aggravating and accident management of drilling fluid. The system is heat resistant, anti-explosive, anti-leakage, anti-corrosion.</p> <ul style="list-style-type: none"> • System total volume: 660m³ • Rate pressure of recycling pipeline: 1MPa • Rated pressure of water pipeline: 0.5MPa • Weight system capacity: 240 m³/h • Mud suction pipeline size: 12" 		1
4.1	Mud treating tank			7

#	Name	Technical Description	Model	QTY
4.2	Heavy mud reserve tank			4
4.3	Industrial water tank			1
4.4	Drilling water tank			1
4.5	Duty room			1
4.6	Poor boy	<ul style="list-style-type: none"> • Pressure: 1.0 Mpa • Separator Dia. : 1200mm 	HLGS1200-1.0	1
4.7	Shale shaker	<ul style="list-style-type: none"> • Excitation force: 2x36kN • Power: 2x2.2kw • Speed: 1450rpm • Qty: Four screen 	HZS270-4P-PTS	3
4.8	Vacuum degasser	<ul style="list-style-type: none"> • Capacity 200-240m³/h • Power 22kW+3kW 	HCQ240-N-B	1
4.9	Mud cleaner	<ul style="list-style-type: none"> • Capacity: 220m³/h • Hydrocyclones: 250x3/100x16 • Power 2x2.2kW 	HCQ300x3/100x20-270	1

#	Name	Technical Description	Model	QTY
4.10	Intermediate speed centrifuge	<ul style="list-style-type: none"> • Capacity: 50m³/h • Speed: 1800rpm 	LW450-842NA	1
4.11	High speed centrifuge	<ul style="list-style-type: none"> • Capacity: 40m³/h • Speed: 3000rpm 	GLW500-1300NA	1
4.12	Shearing pump	<ul style="list-style-type: none"> • Flow: 120m³/h • Head delivery: 35m • Power: 55kW • Rotary speed: 2900rpm; 	WJQ5x6-55KW	1
4.13	Sand pump	<ul style="list-style-type: none"> • Flow: 200-270m³/h • Head delivery: 25-45m • Power: 110kW • Rotary speed: 1450rpm 	SB6x8	3
4.14	Sand pump	<ul style="list-style-type: none"> • Flow: 200-270m³/h • Head delivery: 25-45m • Power: 75kW • Rotary speed: 1450rpm 	SB6x8	2
4.15	Sand pump	<ul style="list-style-type: none"> • Flow: 40m³/h • Head delivery: 14m • Power: 15kW • Rotary speed: 1450rpm 	SB3x4	7
4.16	Mixing hopper	Capacity 180m ³ /h	ZHP150	4

#	Name	Technical Description	Model	QTY
4.17	Agitator	Power: 15kW	JB-15	35
4.18	Agitator	Power: 11kW	JB-11	5
4.19	Agitator	Power: 2.2kW	JB-2.2	1
4.20	Rotating mud gun	Pressure: 1Mpa 3 heads	NJQ-80	30
4.21	Swing mud gun	Pressure: 1Mpa 1 head		18
4.22	Aggravating platform	Including pipelines		1
4.23	Pill tank	Electrical, equipped with 2.2KW agitator		1
4.24	Pill tank	Swing type		1
4.25	Cleaning device			31

#	Name	Technical Description	Model	QTY
4.26	Pipeline valve	All valves, flanges, unions, T, elbows, reducers, etc. between all tanks and equipments.		1
4.27	Burning pipeline	8" flange connection, 3m and 5m each 3pcs		1
4.28	Electrical ignitor			1
5	Power Generation System			
5.1	Diesel Engine Set	<ul style="list-style-type: none"> • Rated power: 1200kW • Rated speed: 1500r/m • Rated voltage: 600V/230V • Rated Frequency: 50Hz • Start-up mode: Electric start-up 	CAT3512B/SR 4B DITA	4
5.2	Auxiliary Generator Set	<ul style="list-style-type: none"> • Rated output power: 400kW • Rated frequency: 50Hz • Motor type: 505 • Rated voltage: 400V • Rated current: 1225A • Rated rotate speed: 1500r/min • Start-up mode: Electric start-up 	VOLVO HDL- TAD1232GZ	1
5.3	Generator House	4 main generator houses & 1 aux. generator house integrally installed, connected by cross covers, end covers & side covers. House dimensions: 10500mmx3000mmx3000mm		5

#	Name	Technical Description	Model	QTY
5.4	SCRMCC SCR Electric Drive System & MCC	<p>Conforming to GB3797 and GB4720 standard. Consisting of SCR control device, 600V AC generator control device, 400V MCC cabinet, breaker, PLC control system, air condition, SCR house body and cables. SCR control system devices drive 9 sets of DC motors, one drawwork, 3 sets of mud pumps and one set of rotary table. 600V AC generator control devices control four CAT3512B diesel engines. MCC provides the power and control for pumps, agitators, Hydraulic source, blower, oil pump and BOP system.</p> <ul style="list-style-type: none"> External Dimension of SCR house:13000mmx3000mmx3000mm 		1
5.5	Air Source System			
5.5.1	Screw compressor	<ul style="list-style-type: none"> Rated output Volume: 5.5m³/min Rated pressure: 1MPa Power: 37kW External dimension: 1574mmx875mmx1562mm 	WS3710	2
5.5.2	Refrigeration dryer	Rated handling capacity: 6m ³ /min	HDL	1
5.5.3	Gas tank	<ul style="list-style-type: none"> Capacity: 3.5m³+2.5m³ Working pressure: 1.0 Mpa 		1

#	Name	Technical Description	Model	QTY
5.5.4	Air source	<p>Including all lines and valves from the air source to each air-driven equipments, as well as air compressor, dryer, air tank connections, fittings, relief valves, filters, etc.</p> <ul style="list-style-type: none"> • Main pipe dia.: 2" • Working pressure: 1.0 Mpa 		1
6	Driller's Control System			
6.1	Driller's Console	Air controlled by driller, Hydraulic controlled operation, Meter display, with revolving chair, electrothermal board and propagation device, 1.5P single explosion-proof air conditioning system, lab mat; glue toughened glass, with windshield wiper, Indoor electric explosion-proof.		1
6.2	Instrument	C/w weight indicator system, electric rotary torque table, mud pump pressure indicator system, tong torque indicator system, tong torque meter, drilling rate indicator, stroke rate indicator, Pressure gauge, drilling recorder.		1
6.3	CCTV & Communicating system	Monitoring system: 2 dynamic + 2 static pictures		1
7	Wellsite Lighting System			

#	Name	Technical Description	Model	QTY
7.1	Wellsite lighting system	C/w lighting and cables for mast, substructure, HPU, fuel & water tank, pump, solid control area, air supply room, eddy current brake etc. • Voltage: 400/230V three-phase four-wire sys. • Frequency : 50Hz • Service environment: Outdoor round-the-clock • Relative humidity: ≤85% (20°C)		1
8	Driller's Doghouse			

#	Name	Technical Description	Model	QTY
8.1	Left doghouse	Devided into three rooms: • Rest room with 1.5P air conditioning,extractor fan and required location for AC plug cabinet, wellsite cable passway • HPU room. • Corridor with hand rails. • Dimension: 10500mmx2800mmx2800mm		1
9	Drill tool			
9.1	Hydraulic/Air tongs	• Pipe dia.: 127-203mm • Maximum torque: 125kN.m	ZQ203-125	1
9.2	Hydraulic cathead	• Rated pulling force: 160kN • Rated flow: 120L/min • Traction trip: 1200mm	YM-16	2
9.3	5t air winch	• Load capacity: 5t • Working pressure: 0.8MPa • Rope speed: 12 m/s • Wire rope dia.: Φ 16mm	QJ-5	3
9.4	Compound HPU			1

#	Name	Technical Description	Model	QTY
9.5	B type tong		Q86-324/75KN	1
9.6	Elevator link	<ul style="list-style-type: none"> • Maximum static load: 3150kN • Length: 3300mm 	DH350	1
		<ul style="list-style-type: none"> • Maximum static load: 4500kN • Length: 3600mm 	DH500	1
9.7	Casing tongs	<ul style="list-style-type: none"> • Pipe dia.: 114.3-340mm • Maximum torque: 2.5-40kN.m 	TQ340-35	1
9.8	Logging winch	<ul style="list-style-type: none"> • L=7000m, • Dia. of rope: 0.108" 	CJ7000F	1
10	Auxiliary equipment			
10.1	Cable tray			1
10.2	Assembly parts			1
10.3	multishot instrument		LHE1203	1

#	Name	Technical Description	Model	QTY
10.4	Fuel tank	Volume: 45m ³ , including pump and pipelines		1
10.5	Storage tank	Volume: 55m ³ , including pump and pipelines		4
10.6	Sledge			1
11	Well control system			
11.1	BOP Annular BOP	Bore dia.: 21 1/4" Working pressure: 2000PSI Upper connect: Stud Lower connect: Flange	FH54-14	1
11.2	BOP Double ram BOP	Bore dia. :21 1/4" Working Pressure: 2000PSI Upper connect: Stud Lower connect: Flange	2FZ54-14	1
11.3	Drilling stool	Working pressure: 2000PSI	FS54-14	1

#	Name	Technical Description	Model	QTY
11.4	BOP Annular BOP	Bore dia.: 13 5/8 Working pressure:10000psi Upper connect: Stud Lower connect: Flange	FH35-70	1
11.5	BOP Single ram BOP	Bore dia.: 13 5/8 Working pressure:10000psi Upper connect: Stud Lower connect: Flange	FZ35-70	1
11.6	BOP Double ram BOP	Bore dia.: 13 5/8 Working pressure:10000psi Upper connect: Stud Lower connect: Flange	2FZ35-70	1
11.7	Drilling stool	Working Pressure:10000psi	FS35-70	1
11.8	Manual flat valve		PFF103-70	2
11.9	Hydraulic flat valve		YPFF103-70	2
11.10	Inner blowout pipeline	6BX4-1/16"-10000 (BX155) x6m		2

#	Name	Technical Description	Model	QTY
11.11	Choke manifold		JG103/78-70	1
11.12	Kill manifold		YG103/50-70	1
11.13	BOP remote control station		FKQ1280-8	1
11.14	1" Pipeline joint			1
11.15	Choke manifold control station			1
11.16	Pressure test substructure		54-14	1
11.17	Pressure test substructure		35-70	1
11.18	Pneumatic pressure test pump	Working pressure: 20000PSI		1
11.19	Pipe rack			1

#	Name	Technical Description	Model	QTY
12	Top drive system		DQ70BS	1
13	Painting	<p>Three layers of painting, international marine paint.</p> <ul style="list-style-type: none"> • Primer: Epoxy zinc rich primer, DFT: 85 µm • Intermediate: Epoxy MIO coating, DFT: 85 µm • Finish: Acrylic polyurethane coating, DFT: 80 µm 		1
14	Assembly and Commission In Factory			1
15	Operation and Maintenance Manuals			1
16	Packing			1