Technical Specification for 750hp Drilling Rig Package

1. Main technical requirements

1.1 Technical standard and reference

- SY/T6584-2003 Truck-mounted Drilling Rig
- API Spec 4F (3rd edition) Specification for Drilling and Well Servicing Structures
- API Spec Q1 (7th edition) Specification for Quality Programs
- API Spec 8C (4th edition) Specification for Drilling and Production Hoisting Equipment
- API Spec 7K (4th edition) Specification for Drilling Equipment
- API Spec 9A (25th edition) Specification for Wire Rope
- Quality system: ISO9001-2001 for Quality Assurance in Design, Development, Production, Installation and Servicing

1.2 Overall specifications

- Drilling depth 3000m ($4^1/_2$"DP)
  2500m (5"DP)
- Max. hook load 1700kN
- Drawworks horsepower 750hp
- Mast height (clear height) 38m
- Racking board height (from rig floor) 17.2m
- Floor height 6m
- Traveling system 5×6
- Drive type, carrier 14×8
- Dia., wirelines φ29mm
- Traveling dimensions 16.03m×3.3m×3.2m (w/o mast)
- Max. speed 60km/h (Limiting speed 45km/h)
- Min. turning radius 21m
- Traveling weight 54500kg (w/o mast)

- Ambient temperature -29 ~ +50 ℃

2. Specifications of main parts

2.1 Power system

2.1.1 Diesel engine (2 sets)

The engine is electronic fuel injection diesel engines with 4 strokes. The engine is mainly comprised of engine body, cooling system, lubricating system, oil supply system, air intake and exhaust system and electronic control system, etc. Fitted with full-range speed governor, the engine throttle can be controlled in cab or on driller's console by air over electricity.

The engine is complete with engine tachometer, water temperature gauge, oil pressure gauge, oil filter and fuel filter etc. The exhaust system is fitted with anti-flaming muffler. The intake system is fitted with turbocharger, air cooler and air filter etc.

The electronic control system consists of sensor, centralized control unit (ECU) and actuator etc. The engine has low oil pressure, high water temperature and over-speed protection devices, with the function of automatic diagnosis, fault code storage, easy for checking and troubleshooting. The engine is supported by three points, complete with PTO for steering oil pump and PTO for air compressor. Complete with engine hood.

2.1.2 Hydraulic transmission (2 sets)

Hydraulic transmission is comprised of torque converter, lockup clutch and gear box etc. It can realize the flexible drive of engine power and absorb the impact and vibration of working machine in order to protect the engine. The performance of hydraulic transmission should be compatible with the mating engine. When turbine speed reaches the locking point, the impeller and turbine will be locked mechanically. And the hydraulic torque converter runs under high transmission efficiency.

The hydraulic transmission is equipped with main control valve, oil filter, oil temperature gauge and oil pressure gauge. Complete with a PTO port for main oil pump. Power is supplied to main oil pump through air-controlled hydraulic clutch. The transmission oil is

cooled via the heat exchanger on the engine.

The transmission has several forward gears and one reverse gear. And gears can be shifted in cab or on driller's console.

2.1.3 The selection of engine and transmission

Model and hp, engine	Model, hydraulic transmission	Compound box
CAT C15/540hp×2	ALLISON M5620AR×2	Self-made

2.2 Chassis

The main vehicle frame is fabricated from wide flange H-steel. Heavy-duty axles with wide wheelbase, 3 front axles and 4 rear axles, carrier with 14×8 drive. The first and third axles: 13t steering driving axles. The second axle: 13t steering driven axle. The fourth and fifth axles: 13t tandem driving axle. The sixth axle: 12t floating axle. The seventh axle: 10t steering floating axle. The first, second, third and seventh axles use 445/65R22.5 tires (single tires). The fourth, fifth and sixth axles use 12-20 tires (double tires). The first three axles use steel plate spring suspension. The fourth and fifth axles use rigid centralizer beam suspension. The sixth and seventh axles use air suspension. Hydraulic assist steering. Cab is COE type with single seat. Interlock for wheels and axles. All controls of carrier are centralized in cab.

- Drive type 14×8
- Min. turning radius 21m
- Max. climb gradient 26%
- Min. ground clearance 0.34m
- Max. speed 60km/h (limiting speed 45km/h)

2.3 Compound box

Compound box is a high power input and output device. It combines power from two engines, transmits the combined power to the operation system on deck through one power output end, drives rotary drive system through another power output end and drives traveling system under deck thought the other two power output ends. When the combined

power is not necessary, only one engine can be used to supply power for each output ends in order not to waste energy. It has the advantages of simple drive line, high transmission efficiency, reliable transmission, non-adjustment of center distance, high torque transmission, stable running and long service life.

- Structure: Gear compounding
- Drive ratio to axle 1: 1
- Drive ratio to rotary output end 1: 1.65

2.4 Right angle gear box

Welded box, forged steel spiral taper gear, input and output shafts are all made of premium alloy steel, oil bath splash lubrication.

2.5 Drawworks (double drum)

—— Main drum:

- Groove diameter × length: φ528mm×1041mm
- Groove structure: φ29 LEBUS groove
- Model, clutch: ATD-330H thrust disc clutch
- Max. fastline pull: 280KN

—— Main drum braking system (band brake):

- Diameter, brake rim: φ1070
- Width, brake rim: 310
- Cooling method, brake rim: inner chamber water circulating

—— Auxiliary brake:

- Type: WPT 324 air-actuated water cooling disc brake
- Rated brake torque: 33870N·m /0.55MPa
- Max. air inlet pressure: 1.03MPa

—— Sand drum:

- Groove diameter × length: φ324mm×1070mm

- Cooling type, brake rim: air pressure splash water cooling
- Model, clutch: ATD-124H forced thrust disc clutch
- Max. fastline pull: 115KN

—— Overwinding crown saver

—— Brake cooling system:

- Volume, water tank: $8m^3$
- Laying type, water tank: on the ground
- Radiator: JH400KW

2.6 Rotary drive

Designed with splash lubrication and ATD-318H air thrust disc clutch, which can meet the max. torque requirement of rotary table, and realize 5 forward and 5 reverse. Complete with anti-reverse rotation device.

2.7 Mast

Derrick, double stage, raised and telescoped by hydraulic cylinders. Inclination angle can be adjusted by screw rod. Crown is box type. Cast steel sheaves approved of dynamic balance test. Rope groove is designed to adapt the wirelines as per API 8C. A kick-back post is set on the sheave seat to prevent ropes from jumping. Crown shaft has been heat-treated and defect-detected. Handrails are set around the crown platform.

- Clear height: 38m
- Max. static load: 1700kN
- Inclination angle: 3°
- Traveling system: 5×6
- Height, racking board (to rig floor): 17.2m
- Capacity, racking board: 8000m($2^7/_8$"DP)
  6500 m ($3^1/_2$"DP)
  4800 m ($4^1/_2$"DP)
- Max. wind rate: 110km/h (about 10 degrees)

- Finger arrangement on racking board Horizontal
- Flagpole
- Lightning rod

2.8 Hydraulic system

It is mainly used for steering aid while the rig is traveling, for leveling carrier frame, raising, lowering and telescoping mast in rig up, and hydraulic application of wellhead tools during workover jobs. The controls of the system are centralized near driller's console. Important operation controls are multiple protected. Key parts of system are imported with reliable and stable performance.

- Max. displacement, oil pump: 96.5ml/rev
- Max. pressure, hydraulic system: 14MPa
- Hydraulic oil: 46# anti-wear hydraulic oil
- Tong cylinder: Double tongs: Travel × Pull × Qty.: 1800mm×80kN×2
- Hydraulic winch: Double hydraulic winches: Hook load × Qty.: 30 kN×1+50 kN×1

2.9 Air system

Air system is used for the traveling of drilling rig as well as the controlling of drilling and workover jobs. It is equipped with multilevel drying, purifying and anti-freezing device to process the compressed air. The power source of air system comes from the air compressor driven by the engine. The driller can control drawworks drum, auxiliary brake, rotary table, throttle and shutdown of diesel engine, gears of drawworks and rotary table, emergency brake of drum, air spider, air bleeding valve of crown, relief of oil pump etc. Key parts of system are imported, stable and reliable.

- Max. displacement, air compressor: 0.67m^3/1250r/min
- System working pressure: 0.75 - 0.85MPa
- Capacity, main air reservoir: 0.22L

2.10 Electric system

The electric system is used for traveling system as well as operation lighting system. Traveling system is supplied with 24V DC. Power comes from the battery and the silicon rectification alternator driven by the engine. It mainly consists of engine start-up, lamp signals of monitoring instrumentations on carrier, and various lights during traveling. Operation lighting system is supplied with external AC power, including lighting for engine, drawworks, mast and substructure. On top of mast, a red explosion-proof flashing lamp is set. All cables for the lighting system are protected by steel tubes, and specialized explosion-proof control box is used for centralized control.

- Power for carrier: 24V DC
- Power for operation lighting system: 380V/220V, 50 Hz AC power
- Power for Inline pump and radiator motor: 380V, 50 Hz AC power
- Lamps: Explosion-proof illumination daylight lamp

2.11 Nameplate: English& Sapnish

3. Accessories

3.1 Traveling hook

- Model: YG180
- Max. static load: 1800kN
- Qty: 1 set

3.2 Elevator link

- Model: DH250
- Rated load: 2250kN
- Qty: 1 set

3.3 Swivel

- Model: SL225
- Max. static load: 2250kN

- Max. working pressure: 35MPa
- ID, wash pipe: φ76mm
- Gooseneck connection: 4LP
- Lower connection: $6^{5}/_{8}$″ API REG LH
- Qty: 1 set

3.4 4” Rotary hose

- Max. working pressure: 35MPa
- Bore size: 4”
- Length: 17m
- Qty: 1 pc

3.5 4” single standpipe

- Max. working pressure: 35MPa
- Bore size: φ103mm (4”)
- Connection type: Gooseneck connection 4LP
  Lower end on standpipe 4LP
- Qty.: 1 pc

3.6 ZP205 rotary table

- Type: ZP205
- Max. static load: 3000kN
- Opening size: φ520.7mm (20.5″)
- Max. RPM: 300rpm
- Drive type: Square drive
- Qty.: 1 set

3.7 Roller Kelly bushing (Square Kelly):

- Size: $4\ ^{1}/_{4}$”

- Drive type: Square drive

3.8 6m Substructure

The substructure is of foldable parallelogram structure and level to the plane of rotary table. Complete with three sets of ladders (one set to the ground and two sets to the carrier), one set of V-door, one set of escaping chute, w/ walkway, handrails, stairs, mouse hole and rat hole, two backup tong posts and power DP tong posts. The sub base is fitted with a trolley for BOP installation. C/w catwalk and pipe rack.

- Floor height: 6m
- Clear height: 4.9m (with ZP205 rotary table)
- Transportation height: 2.65m
- Max. load, rotary table: 1800KN
- Setback capacity:

  8000m ($2^{7}/_{8}$″DP)

  6500m ($3^{1}/_{2}$”DP)

  4800m ($4^{1}/_{2}$”DP)
- Floor area: 5.4m×7.4m
- Qty.: 1 set

3.9 Chain hoist and track (used for BOP installation) (2 sets)

3.10 Drilling lines

- Diameter: φ29mm
- Length 500m

3.11 Winch line

3.12 Mud boat (1 set)

3.13 Hydraulic tong (XYQ12A type)

- Model: XYQ12A
- Application: φ73～φ141 tubing, small casing
- Max. torque: 12kN.m
- Qty.: 1 set

3.14 B type tong (Q3$^{1}/_{2}$-17/90): 1# lug jaw pipe diameter 3 $^{1}/_{2}$"～8 $^{1}/_{4}$" **(1 set)**

3.15 120T air slips

- Model: KW1200
- Max. working load: 1200kN
- Suitable tubing diameter: 2 $^{3}/_{8}$"
- Qty.: 1 set

3.16 Flat bushing for rotary table (1 set)

3.17 Heating system, including cab heater, cab defroster and engine pre-heater (1 set)

3.18 Cab cooling air-conditioner (1 set)

3.19 8kg fire extinguisher (2 sets)

3.20 Slings (1 set)

3.21 Escape device on racking board: Self-made escape device on racking board (1 set)

3.22 Local 30m fall arrester TS30 (1 set)

3.23 Weight indicator JZ200 (w/ recorder) (1 set)

3.24 Protective sleeve for raising cylinder (2 pcs)

3.25 Spare tires and rack (445/65R22.5 and 12-20, one for each)

3.24 Driller's room

Driller's room has good performance against wind and cold weather. Pentagonal structure with fixed glass window in front and sliding glass window on the right. All glass windows are equipped with fences which can be opened and removed integrally. The top is with observation window protected by removable safety protecting netting. There is a wiper on the top as well. All glass windows except that on front are with anti-glare devices. C/w 1.5P explosion-proof air conditioning with two systems, explosion-proof lamps, driller communication system, explosion-proof four screen monitoring system with four cameras used to observe drawwork, racking board, pump house, pipe racking platform, and air horn. Drawwork drum, hydraulic disc brake, rotary table, diesel engine throttle, shut-down, gear of drawwork and rotary table, drum emergent brake, air relief valve of crown saver, etc can be controlled from driller's room. The operational panel is with reasonable layout and convenient for operation. All hydraulic and air lines with tags inside the driller's room are integrated together led out. Hydraulic winch and quintuple valve of tong cylinder are controlled outside the driller's room.

4. Color for main rig

Crown block is red; mast is white; swivel and traveling block are yellow; rotary table is blue; substructure is red; drive units (drawworks and right angle gear box) are red, carrier is red, wheel rims are while, axles are black; handrails of whole rig are yellow; diesel engine and transmission keep their original colors; standpipe is red.

5. Consumable parts come-along with the rig

(Repair kit varies for different configuration)

- Repair kit for electrical apparatus 1
- Repair kit for front axle driving cylinder 1
- Repair kit for drive line 1
- Repair kit for steering mechanism 1
- Repair kit for right angle gear box 1
- Repair kit for main drum 1
- Repair kit for main drum braking system 1
- Repair kit for sand drum 1
- Repair kit for sand drum braking system 1
- Repair kit for brake circulating system 1
- Repair kit for rotary drive 1
- Repair kit for rotary table chain box 1
- Repair kit for crown saver cylinder 1
- Repair kit for crown-O-matic valve 1
- Repair kit for jack cylinder 4
- Repair kit for raising cylinder 2
- Repair kit for telescoping cylinder 2
- Repair kit for tong cylinder 2
- Repair kit for rotary table 1

6. Tools come-along with the rig

S/N	Description and size	Qty.
1	8 nos. double end unadjustable spanner	1 set
2.	8 nos. double offset ring spanner	1 set
3	10 nos. allen wrench	1 set
4	Adjustable spanner 200mm	1 pc
5	Adjustable spanner 300mm	1 pc
6	Adjustable spanner 450mm	1 pc
7	Tire box spanner 32X34	1 pc

8	28 nos. sleeve	1 set
9	Slip joint pliers 200mm	1 pc
10	Nose pilers 150mm	1 pc
11	Circlip pilers 200mm	1 set
12	Pipe wrench 200mm	1 pc
13	Pipe wrench 450mm	1 pc
14	Screw driver 5×150mm	1 pc
15	Screw driver 6×250mm	1 pc
16	Screw driver 1×150mm	1 pc
17	Screw driver 2×250mm	1 pc
18	2 pound ball face hammer	1 pc
19	Hacksaw 300mm	1 pc
20	Steel chisel 150mm	1 pc
21	16t oil jack	1 pc
22	Grease gun 400CC	1 pc
23	Pressure oil can 0.5kg	1 pc
24	Clearance gauge 100mm	1 set
25	Level bar 600mm	1 pc
26	Working lamp	1 pc
27	Tire pressure gauge	1 pc
28	Gas filling hose	1 set
29	Straight clamp plate	2 sets
30	Bent clamp plate	2 sets
31	Long crow bar	1 pc
32	Short crow bar	1 pc
33	Spring location rod	6 pcs
34	Puller	1 set
35	Rubber appliance, stabilizer beam	1 set
36	Chain spanner	1 set
37	Hook spanner (5 in 1)	1 set

7. Pumps & mud manifold

7.1 800HP Mud Pump group

Qty: 2 sets

Main components

- Diesel engine: CAT C27 (760hp/2100RPM)
- Transmission: ALLSION S6620H
- Chain box: LTX800F
- Drive shaft: SWC780DH2±40
- Mud pump: F800
- 45kw charge pump: SB68FJ-12”
- Fuel tank: $1m^3$
- Air receiver: 0.2 m3

Other components: Skid for mud pump, generator house, air system, electric system, lubrication system, instrument console, high pressure manifold, and suction manifold.

The pumps are mounted on one independent skid, including engine control instruments and control console, diesel tank, air tank, weather proof house and remote control system for mud pump.

Structure parameters

- Total length (mm): ~9050
- Total width (mm) ~2800
- Total height (mm) ~3647.5
- Total weight (kg) ~26928
- Transmission: ALLISION S6600
- Max input power (kW) 503
- Max output torque (N.m) 3075
- Max input RPM (r/min) 2500
- Gear ratio: Speed I: 4.00, Speed II: 2.68, Speed III: 2.01, Speed IV: 1.35
- F800 mud pump inch type
- Mud pump: Horizontal triplex single action piston pump
- Max input power (HP): 800
- F-800 pump consists of power end, fluid end, 10” suction manifold, 4” discharge manifold (outlet is equipped with 4” fig 1502 welding union), impulsive dumper, pressure gauge, spray pump, lubrication system, pump support.

- Performance parameters of F-800 mud pump
- Charging unit:
- Power, motor: 45 KW
- Ex-proof grade: dIIBT 4
- Protection grade: IP56
- Model, sand pump: SB 6″X 8″
- Dia, discharge port: 155mm (6″)
- Dia, suction port: 203mm (8″)
- Triplex single active piston type mud pump

7.2 Short hose

- Diameter: Φ103 mm (4")
- Working pressure: 35MPa (5000 psi)

7.3 Mud manifold

- Diameter: Φ103 mm (4")
- Working pressure: 35MPa (5000 psi)

8. Solid control system

- The system consists of four main mud tanks (including one pill tank 2.2m3) and one trip tank (16m3), complete with 5 steps mud cleaner equipment (shale shake, degasser, mud cleaner, centrifuge).
- Each tank base is equipped on oil field type skid and with oil field type skid ends.
- Tank Side, end walls and partition plate V type crimp design.
- Tank walls rimed with mud gun pipeline, water pipeline, grout pipeline and chemicals pipeline.
- Tanks connection is hammer seal pit union type.
- Overall dimension for all tanks are as annex drawings to ensure the safety transmission by railway or road.
- All AC motors are explosion proof type.
- Total effective capacity: 210m^3
- Add one inch steel pipe with spraying jet to drilling floor for cleaning from mud tank

8.1 Shale shaker tank

- Effective capacity 45m^3
- Equip with two shakers, one vacuum degasser, one mud cleaner.
- The bottom of the tank lefts the output pipeline for wellhead pipeline and mud. The surface of tank should lefts sidewalk for people.
- The body of tank consists of four compartments: setting sand compartment, degasser compartment, desander compartment. Desilter compartment with sand removal door, water clean outlet in each compartment.
- Capacity of sand trap tank is 15m^3.
- Two 15KW agitators are fixed on its top. The top of the tank is closed.
- A liquid measure meter is fixed on one side of the tank (the dial have two units m^3 and bbl). The tank is equipped an alarm for mud level.
- Degasser compartment has a mud gun.
- Two 55KW supply pump are fixed at the right (look from drill hole) of the tank. They are used to supply drilling mud for mud cleaner.

8.2 Intermediate tank

- Effective capacity 50m^3
- The tank is separated into two parts, consisting of centrifuge compartment and reserve compartment. One 15KW agitator, one mud gun, sand removal door, clean water outlet in each compartment.
- A centrifuge is fixed on the top of the tank.
- The tank includes one pill tank (capacity2.2m3) on the top of the tank. The pill tank completes with agitator (power 5.5 kw).

8.3 Suction tank

- Effective capacity 55m3
- Two mud pump absorbing inlets (12”) are fixed on the tank side.
- The tank consists of two compartments.
- Two sand discharge gates, three 15KW agitators, three mud guns and three clean water outlets are fixed on this tank.

- A super-charging cell is fixed before the tank. Two super charging pumps are installed in it (include filters of two pumps), installed with mud pump skid.
- The left side of the tank installs two mixing pumps.
- The head of the end installs two mixing hoppers in order to reusing the mud.

8.4 Mixing tank

- Effective capacity 60m3
- The tank consists of three compartments.
- Three sand discharge gates, three 15KW agitators, three mud guns and two clean water outlets are fixed on this tank.
- The left side of the tank installs one shearing pump.

8.5 Trip tank

- Effective capacity 15m3
- The tank consists of two compartments.
- The head of the end installs one SB3"×4"-9" metering pump, two SB3"×4"-9" cooling pump and one cooler.
- One level gauge and one float ball level meter are installed.
- One 7.5KW agitator.

8.6 Solids control equipment

8.6.1 Shale shaker

- Qty: 2set
- Model: PZS/Z-1
- Handling capacity: 40~50 L/S

8.6.2 Vacuum degasser

- Model: ZCQ240
- Water ring vacuum pump is always working at constant temperatures, suitable to swab flammable and explosive gases, safe and reliable.
- Belt transmission is adopted, which simplifies the speed-reducing mechanism.
- Gas/water separator is used, which will make water and gas discharged separately, and

the gas exhaust pipe is always kept unobstructed.

- Major technical parameters:
- Treatment capacity: 3m3/min.
- Vacuity 0.3-0.4
- Power of main motor 15KW
- Power of vacuum pump/speed: 3KW, 876rpm
- Dimensions: 1800×800×1400mm

8.6.3 Mud desander

- Qty: 1set
- Model: CSQ250X2
- Handling capacity: 200m3/h

8.6.4 Mud desilter

- Qty: 1set
- Model: CNQ100X16
- Handling capacity: 200m3/h

8.6.5 Centrifuge

- Qty: 1set
- Model: LW450－1000N2
- Handling capacity 50m3/h
- Motor/ power 30kw
- Dimension (L*W*H) about 3000×1476×1720 mm
- Weight about 3000kg

8.6.6 Sand pump

- Model: SB6”×8”-12-1/2”
- Capacity: 200m3/h
- Lift: 35m
- Ac motor power: 55KW
- Quantity: 4

- 2 for desander and desilter, 1 for mixing hopper.

8.6.7 Shearing pump

- Qty: 1 set
- Model: WJQ5”×6”-10”
- Reliable compound seal is adopted to ensure no leakage.
- Stainless steel turbines are installed inside, having long working life.
- The belt transmission system of the motor is installed on the same skid with the pump, small in volume and easy to set up.
- Major technical specifications:
- Pump inlet diameter: 6”
- Pump outlet diameter: 5”
- Nominal diameter of turbine: 10”
- Flow rate: 155m3/h
- Lift distance: 32m
- Rotating speed: 2280rpm
- Matching power: 55KW

8.6.8 Sand pump

- Qty: 3 sets
- Model: SB3"×4"-9"
- Capacity: 80m3/h
- Ac motor power: 11KW
- One for trip tank, two for cooling tank

8.6.9 Agitators

- JB/W-15 11 sets
- Power 15 kW
- Impeller size 800 mm
- JB/W -7.5 1 set
- Power 7.5 kW
- JB/W -5.5 1 set
- Power 5.5 k8

8.6.10 Mud guns

- Bottom mud guns 12 sets
- Working pressure 4 MPa
- Jet size 2” nozzle

8.6.11 Mixing hopper

- Qty: 2 sets
- Model: SL200
- Capacity: 210m3/h

8.6.12 Shearing hopper

- Qty: 1 set
- Model: SL150
- Capacity: 150m3/h

8.7 Poor boy

- Qty: 1 set
- Model: NQF-1200
- Capacity: 6m3

9. Electrical system

9.1 Generator 2sets

- Generator: VOLVO TAD1641GE
- Model of alternator: STAMFORD HCI544D1
- Power: 400KW/440KW, 50HZ, 230V/400V
- SIEMENS PLC control system, generators combined automatically
- GAC synchronizer
- ABB low pressure breaker
- Equipped with skid base, generator house

9.2 Main switchboard with

- 2 Circuit Breaker for 2 generators
- 1 generator control cubicle for generator control

- Synchronizing completed with all necessary instrument

9.3 Motor Control Center

- All the Cables have fixed length
- The connections are removable.
- All the electrical equipment will be witness tested at manufacture
- Generator house is equipped with lightening, with power input from starter batteries
- All necessary wires and cables

9.4 Oil field standard lightening system:

- Explosion proof: acc. to API standard (RP 500B).
- Ambient temperature between (-20 to +50℃) and in a windy and dusty desert atmospheres with relative high humidity up to 90% (at 20 ℃)
- Explosion proof control box is made of Aluminum.
- All cable is type to resist heat & oil & acids.
- Complete earthing system
- Rated voltage: 380/220V(3 phase, 4 wire)
- Rated frequency: 50Hz

9.5 Generator house

- Qty, generator house: 1 set
- Two generators and main switch board locate in one house. MCC, air compressor and accessories are located in another one house.

10. Air supply system

10.1 Screw type Air Compressor

- Qty: 1 set
- Rated power: 22 KW
- Work pressure: 1MPa
- Air production: 3 m3/min

10.2 Dryer

- Qty: 1 set
- Rated power: 1.2KW
- Work pressure: 1MPa

10.3 Air storage tanks

- Qty: 1 set
- Volume: 3m3
- Work pressure: 1 MPa

11. Choke manifold and kill manifold

11.1. Choke manifold

- Working pressure: 35MPa(5000Psi)
- Nominal ID: main path: 103mm(4-1/16″)
  Bypath: 80mm (3-1/8″)(dual path，one side hydraulic valve remote control, another side manual valve control)
- Working temperature: -29℃~121℃(P&U)
- Connection type: API SPEC 6A flange connection
- Working medium: H2S gas, mud fluid

11.2. Kill manifold

- Working pressure: 35MPa(5000Psi)
- Nominal ID: main path 52mm(2-1/16″)
  Bypath 52mm (2-1/16″)
- Working temperature: -29℃~121℃(P&U)
- Connection type: API SPEC 6A flange connection
- Kill line inlet: 2″1502 union
- Working medium: H2S gas, mud fluid
- Equip with two 2-1/16″manual valves and two 2-1/16″hydraulic valves

11.3. Hydraulic control panel

- Working air pressure: 0.6MPa

- Working temperature: -29℃~60℃
- Rating hydraulic oil pressure: 2.5MPa
- Connection type: M16×1.5~M22×1.5.

11. 4. High pressure pipeline

- For connection between choking manifold and kill manifold
- Working pressure: 35MPa (5000Psi)
- Nominal ID: main path: 103mm (4-1/16″)

11.5. 2 inch high pressure pipe

- From discharging manifold of one mud pump to return flow line of well
- Working pressure: 35MPa (5000Psi)
- Equip with one valve
- Qty: 1 set

12. Fuel tank and water tank

12.1 Fuel tank

- Consists of bottom tank for storage and overhead tank for daily use.
- The overhead tank can be transported at lower position.
- Capacity of bottom tank: 30m3
- Capacity of overhead tank: 4m3
- Overall dimension: 8600×2830×2400mm

Complete with 2sets DN80 centrifugal oil pumps

- Model: YG50-125
- Power: 1.5kW
- Lift: 15m
- Discharge: 15m3/h

Complete with 1set Fuel purifying system

Include filters for purifying and de-water.

12.2 Water tank

- Overall dimension (length×width×height): 11800×3030×2870mm
- Effective volume: total: 100 m3

- Lower tank: 60m3upper tank: 40m3

Complete with:

- ISG80-125 water pump 2sets
- XBD5.5/80 water pump 1 set
- UFZ-04-2000 water level gauge 1 set
- Electrical control panel 1 set
- Light 1 set

13. BOP system

13.1 Annular 13 5/8″×5000psi

- Qty: 1set
- Bore: 13 5/8″
- Working pressure: 5000psi (35MPa)
- Top connection type: 13 5/8″-5000PSI 6BX BX160 Studded
- Bottom connection type: 13 5/8″-5000PSI 6BX BX160 Flanged
- Net / Gross weight (Kg): 6415 / 6550
- Dimensions (mm): 1271×1271×1150 / 1400×1400×1400

13. 2 Double ram preventer

- Qty: 1set
- Bore: 13 5/8″
- Working pressure: 5000psi (35MPa)
- Top connection type: 13 5/8″-5000PSI 6BX BX160 Flanged
- Bottom connection type: 13 5/8″-5000PSI 6BX BX160 Flanged
- Side outlets: 1×4 1/16”-5000PSI 6B R39 studded; 1×2 9/16″- 5000PSI 6B R27 studded
- Net / Gross weight (Kg): 6150 / 6300
- Dimensions (mm): 2400×920×1340 / 2500×1020×1500

13.3 Drilling spool

- Qty: 1set
- Bore: 13 5/8”
- Working pressure: 5000psi (35MPa)
- Top connection type: 13 5/8”-5000PSI 6BX BX160 Flanged

- Bottom connection type: 13 5/8”-5000PSI 6BX BX160 Flanged
- Side outlets: 1×4 1/16”-5000PSI 6B R39 flanged; 1×2 1/16″- 5000PSI 6B R27 flanged
- Net / Gross weight (Kg): 800 / 850
- Dimensions (mm): 950×678×650 / 1050×780×850

14. BOP accumulator unit

Type: FKQ640-6

Nominal working pressure: 21MPa 3000 psi

Max. working pressure: 34.5 MPa 5000 psi

Range of pressure regulating: 0 ~ 14 MPa 0 ~ 2000 psi

Nitrogen pressure of the accumulator:

7 ± 0.7 MPa 1000 ± 100 psi

Range of pressure controller regulation:

19~ 21 MPa 2700 ~ 3000 psi

Range of liquid switch regulation:

17.85 ~ 21 MPa 2580 ~ 3000 psi

Pressure of air supply: 0.65 ~ 0.8 MPa 93 ~ 115 psi

Power supply: 380 ±19 V/50Hz

Equipped with two remote control consoles.

15. Top drive

Type: DQ-40LHTY-A (TIANYI)

- Hook load capacity: 250T.
- Power: A.C
- Motor 273Kw
- Maximum continuous torque: 19180 ft-lbs @ 100 RPM.
- Maximum torque at maximum speed: 10320 ft-lbs.
- RPM range: 0-180 (maximum).