

The Stardrill 300HD is a Direct Circulation type rig with Mud, Air, Down the Hole Hammer, or Mixed, and is able to drill to a depth of 400 m, 4-3/4" to 6" diameter with 3-1/2" flush drill pipe in favorable drilling conditions. Also capable for shallow water well drilling (150-200m) with larger diameter of 12-1/4" in soft formations. (Exception is made in conditions of lost circulation, fractured formation or presence of cavities). In the case of drilling air/down hole hammer where there is water present the depth rating depends on the static water level encountered.

Section I) Rig

BASE MACHINE

TRUCK:

Rig is mounted on a New 2015 Kenworth T-800 6X6 Truck. With a wheelbase of 4,500 mm + 1524mm (to allow for tire deflation). G.C.W. 72,600 lbs (33,000 KG)

ENGINE:

Cummins ISX 500 Export electronic diesel engine rated at 525 HP. Air compressor:

Cummins 18.7 CFM

EXPORT RADIATOR of 1520 square inches for operations at temperatures up to 55C.

CLUTCH:

Eaton 4 paddle ceramic 1650 lb/ft, 15-1/2" easy pedal advantage, Torque limiting clutch brake, severe duty pilot bearing, extended grease fitting.

TRANSMISSION:

Fuller FRO16210C 10-Speed concept 2000 with internal oil cooler.

TRANSFER CASE:

Fabco TC-142 2-Speed with lubrication pump and external oil cooler.

Driver Controlled Differential Lock (crosslock) Xlock/differential lock; plumbed to low side of low side of transmission. Separate flip valve for dual wheel differential lock or crosslock.

Heavy duty torque rods for suspension.

POWER STEERING:

Dual power steering gears 32K TRW TAS85 and power steering cooler.

SUSPENSION:

Heavy duty reinforced suspension for off road duty and deflation of tires when crossing sand dune zones.

TIRES:

Front tires: Michelin XZL 24R21 16PR. 54.6 inch diameter, all position. Includes tubes and flaps. 24.8 inch SLR.

Rear Tires: Michelin XZL 24R21 16PR 2-4; 54.6 inch diameter all position. Includes tubes and flaps.

Spare tire bracket included with rig.

BRAKES:

Pneumatically controlled brakes, wedge type, with automatic slack adjusters.

Front Brakes: 24,000 lbs. Meritor Q-plus 16-1/2 X 6 inch.

Rear Brakes: Dual rear brakes 16-1/2 X 7 inch to 46,000 lbs, Bendix ES-extended service S-cam, with automatic adjustment. Spring Brake: 3030 high output dual.

Engine Brake Included

MAST:

12" (305 mm) square tube mast design with a rated working capacity of 60,000 lbs (267kN) and a working height under jib boom such as to allow the manipulation of 4.5M, 6.0M or two (2) 4.5M rods at one time with 2-line pulley block. Raised and lowered by two (2) hydraulic cylinders. Free height under jib boom: 36'6" (11.1M). Provided with a locking device to hold the mast on the front rest (plinth) during transport.

POWER SWIVEL (Top Head):

The tophead swivel is designed for direct circulation drilling: with mud, water, air or combination. It is mounted on a trolley which is guided along the mast by a system of inter changeable sliding blocks. The pulldown/hoist system is with a combination of hydraulic cylinders and steel chains. Easy change out of the saver sub. Powered by one (1) hydraulic motor and independent hydraulic pump. Capacity of hoist/thrust is 10,880 KG it is sufficient for drilling operations in excess of 400 meters with 5-7/8" diameter, and 200 meters in 16" diameter of soft formations. A floating sub is provided for protection of threads.

24,000 Lb pullback capacity

BREAKOUT TABLE:

The base of the mast is equipped with a breakout table of 12.5 tons capacity. Table equipped with hinged section for easy access to the well to allow setting of casing with external diameter of 400 mm. Equipped with power holding wrench at the rear for breakout of rods.

JIB BOOM:

Adjustable jib boom with two (2) pulleys for winch cable mounted at top of mast and is provided with two (2) hydraulic cylinders for jib extension and rotation from center of mast. Allows for tripping of dual pipes (2 X 4.5M)

WATER INJECTION PUMP:

3-Cylinder water injection pump variable 90- l/min @ 68.9 bar driven by hydraulic motor belt combination with all hoses, connections and controls. Equipped with 1" x 20' suction hose

LUBRICATOR:

Seven (7) gallon (26.5 L) capacity, forced feed, electrically controlled from operator's position, for lubrication of down-hole-hammer.

SINGLE PIPE LOADER:

Single pipe loader is mounted on right of mast. Consists of holding pod with hand wheel mechanism to hold pipe at base and a guide with safety latch at top. Hand wheel rotates the pipe to unscrew from the lift plug. The unit swings from the side of the mast to the center of the hole for automatic line up with the tophead. Can accommodate single 4.5 meter length.

PULLDOWN & HOLDBACK:

Pulldown/Hoist (Holdback) is a dual feed system with hydraulic cylinder and double strand chains connected to tophead. Allows controlled rotary tophead travel up and down the mast. Provides maximum pulldown and hoisting pressure of 10,880 kg. System equipped with manual hydraulic switch to temporarily cancel the hoisting and descent of the tophead without changing the lift setting (holdback bypass). This system facilitates handling the pipes in the shortest time.

24,000 Lbs Holdback

HYDRAULIC WINCH:

Hydraulic winch with forward and reverse control mounted on mast. Equipped with 50M of 9/16" (14 mm) anti-rotation cable with connector and removable counter-weight for drill pipe/tool handling. Capacity with 2-line travelling block is 9080 kg. Independent travelling block 12-Ton, includes counter-weight and shackle for 2-line connection.

24,000 Lbs Hoisting Capacity

AIR COMPRESSOR:

Atlas Copco model ORV-10 rotary screw compressor designed to reach 21.2M3/MIN (1,000 CFM) and maximum pressure of 24.1 bars (350 PSI). Unit is driven from PTO through a multi disc air clutch by a standard torque tube drive shaft with universal joint. Automatic low oil level/high temperature shutdown system. Equipped with an air receiver, pressure gauges, valves and all necessary discharge hoses. Also provided are a purge valve and a take-off valve (latter for cleaning the rig). Drive shaft guard. The pressure gauges will be readable from driller's station. Compressor is mechanically driven from the PTO with a clutch for engagement and dis-engagement.

CONTROL PANEL:

Control levers are grouped at the left rear corner of the rig with removable anti-skid platform. All indicator gauges are mounted in the panel which is provided with a removable and lockable cover. Labels will be in French. The control panel will be illuminated and all indicators will be readable during night-time drilling operations. The controls shall be hydraulically operated.

MUD PUMP:

Gardner Denver Model FXG 5"X6" reciprocating duplex double acting pump with maximum output of 200 GPM (757 LPM) at 310 PSI (21.4 Bar) equipped with slush service valves and seats, includes all necessary piping, pressure gauge, shear relief valve, surge chamber, liner puller and valve seat puller and mud mixer assembly. Maximum pressure 1,136 PSI (78.3 bar) fitted 3" (76 mm) liners. 4" x 20' foot suction hose with strainer and coupler. Driven hydraulically with speed reducer

DUST DEFLECTOR:

Dust deflector and replaceable rod wiper mounted under the working table for air drilling.

RIG LIGHTING:

Six (6) 12-V halogen flood lamps driven by truck electrical generator, (3) installed on mast, (2) on the platform and (1) under the breakout table. Circuit breaker installed at control panel.

BREAKOUT WRENCH:

A modified hydraulically actuated breakout wrench. Equipped with 8" (203 mm) jaws.

PIPE SPINNER:

Hydraulically powered pipe spinner to facilitate unscrewing and screwing together the drill pipes.

PAINT & COLOURS

Truck cabin, all rig components
Including mast: Chrome Yellow
Rig platforms and mast support
(behind cabin) and stabilizing jacks: Petrol Blue
Truck chassis: Black

CABIN:

Two (2) Seats, **BOTH** seats are Kenworth Air Cushion Plus LB Mordura, with 7 inch fore and aft slide adjustment with isolator, 6-23 degree recline, air suspension with cover, dual armrests, and single chamber air lumbar back support. Seat cushion is 20 inches wide with 2-position tilt and 2 position front cushion extension. 3-point matching seat belts included.

Air conditioning/heating, includes 5 mode rotary control.

Steering wheel, 18 inch 4 spoke, with adjustable telescoping tilt steering column.

Gauges - All metric gauges with engine warning lights.

Reinforced exterior visor

Fire extinguisher: 2.27 KG

Tool box with 20-Ton hydraulic jack, lug nut wheel wrench, triangle reflector kit (consists of three (3) triangles in carrying case). First aid kit.

CABIN CONTINUED:

Lockable caps on fuel tanks

Front tow hook and rear tow hooks

Two (2) emergency revolving lights (amber in color) mounted on each side of the top of the cabin

Rear movement audible alarm

Battery disconnect switches

Hour meter

Vertical Exhaust

CHASSIS

DRILL FRAME:

Steel construction, electrically welded. Pivot posts for base of mast, front mast support pedestal. Deck covered with "Diamond Plate" anti-skid steel. Driller's platform non-skid full width / hinged with detachable center section with a safe working gangway, foot stirrups, tool storage box and necessary items for mounting to the truck. Two (2) supports for two (2) spare wheels with a jib and winch for handling the wheels.

CONNECTION OF PTO:

Gear type heavy duty PTO power gear transfer pump drive case transfers truck engine power to hydraulic oil pump and air compressor. Equipped with pressure lubrication and oil cooler. Air controls mounted in truck cabin.

HYDRAULIC LEVELLING JACKS:

Four (4) independent hydraulic levelling jacks, two (2) at the front and two (2) at the rear, displacement 36" (914mm). Individually controlled from operator station. Equipped with swivel bases and safety valves to prevent bleed-off. Two (2) mechanical jacks under rear of chassis for extra support. Jacks are mounted to prevent touching the ground when the machine is being moved on sandy or uneven surfaces.

HYDRAULIC SYSTEM:

System provided with 80 Gal (303 liters) reservoir, hydraulic motor driven fan type heat exchanger. Equipped with pressurized filtration (25 microns) with replaceable elements and air breather filtration. Oil level sight gauge. Pressure and temperature gauges. Hoses will not exceed 6M in length. Hydraulic system will be equipped with high oil temperature alarm. Equipped with manual transfer pump with suction hose 4 M x 25 mm and connectors.