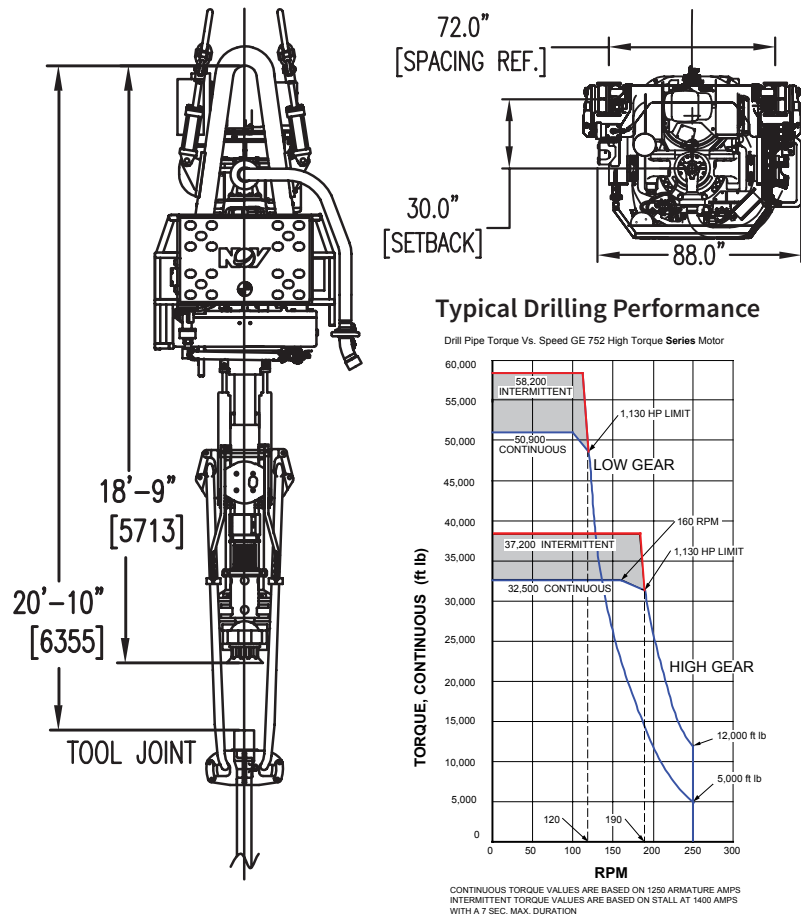
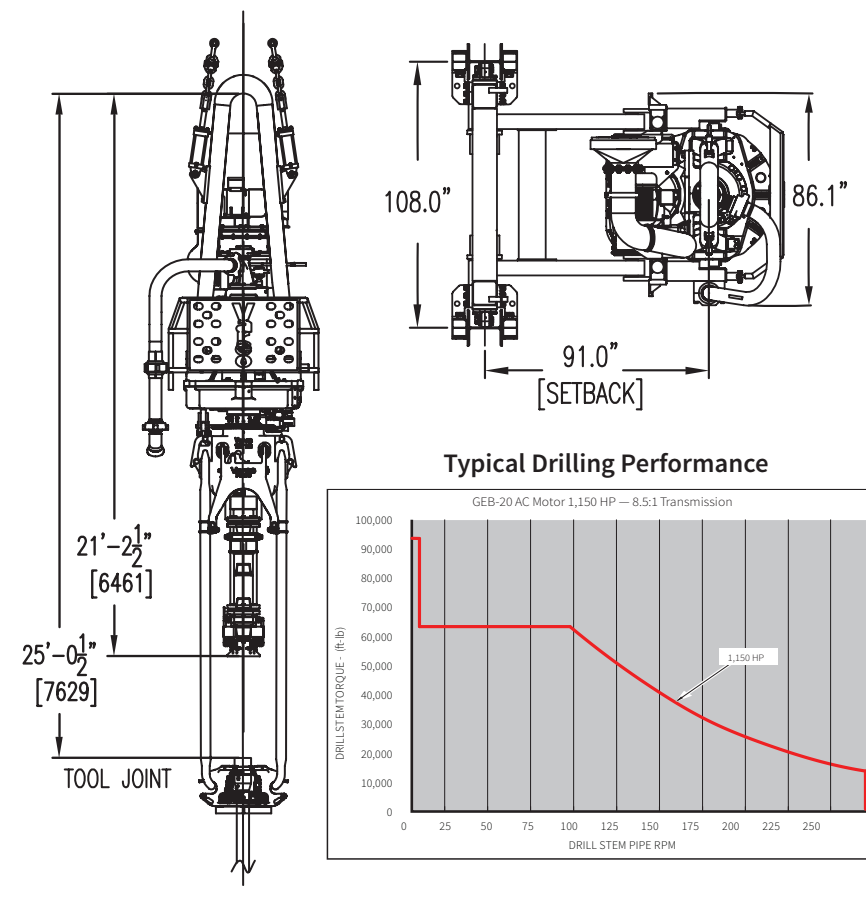


TDS-4™


Top Drive	TDS-4S
Motor Type	GE 752 Hi-Torque Series/Shunt DC
Horsepower Rating	1 x 1,100 HP
Stack Up Height	20.8 ft (6,339 mm)
Weight	32,000 lbs (14,514 kg)
TRANSMISSION	
Gear Ratio	Low: 7.95:1, High 5.08:1
DRILLING PARAMETERS	
Max Speed	Low: 120 RPM, High 205 RPM
Max Cont. Torque	45,500 ft-lb (61,689 N-m) in low gear
Speed @ Max Cont. Torque	120 RPM
Max Intermittent Torque	85,000 ft-lb (115,244 N-m)
Brake Static Capacity	34,000 ft-lb (46,097 N-m)
RATING CAPACITIES	
Hoisting	750 ton (680,388kg)
Water Course	3.82 in. (97mm)
Washpipe Packing	5,000 psi or 7,500 psi (344 or 517 bar)
Pipe Handler	PH-85
Breakout Torque Capacity	85,000 ft-lb (115,244 N-m)
Connection OD	4 in - 8 1/2 in (101.6 mm - 215.9 mm)
IBOP Pressure Rating	15,000 psi (1,034 bar)
Upper IBOP	7.5/8 in API Reg. RH Box (remote)
Lower IBOP	8.5/8 in API Reg. RH Box (remote)
Rotation/Orientation	360° / unlimited
OTHER	
Cooling System	Local or remote
Hydraulic Power	HPU required
Temperature Range	-20C to 55C (-4F to 131F)
Casing Running Tool Ready	Yes
Elevator Links	300, 500, or 700 ton API

The TDS-4S is our prime large bore DC top drive. It has built its reputation by performing well in the heavy drilling environments found offshore. This 750 ton top drive has been in service and operation since 1988 and over 350 units have been in service since that time. Although considered a mature product, its high demand in the top drive market today is a tribute to its robust and reliable reputation built on years of drilling experience.

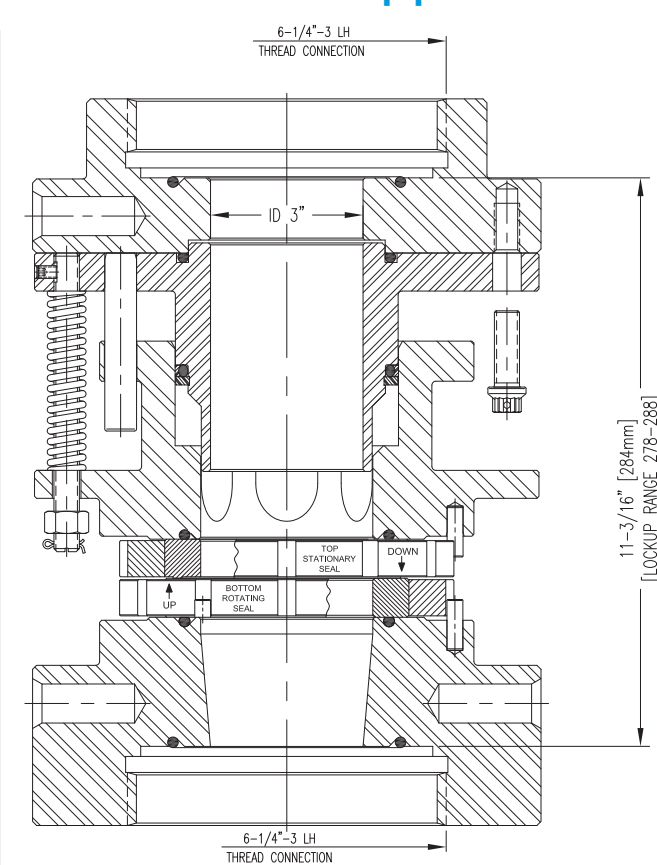
- High performance series or shunt single motor design incorporates the high torque and speed performance needed in deep water drilling

TDS-1000™


Top Drive	TDS-1000
Motor Type	GE AC Induction Motor
Horsepower Rating	1 x 1,150 HP
Stack Up Height	24 ft (7,315 mm)
Weight	40,000 lb (18,143kg)
TRANSMISSION	
Gear Ratio	8.5:1
DRILLING PARAMETERS	
Max Speed	270 RPM
Max Cont. Torque	62,250 ft-lb (84,399 N-m)
Speed @ Max Cont. Torque	95 RPM
Max Intermittent Torque	103,000 ft-lb (139,649 N-m)
Brake Static Capacity	76,000 ft-lb (103,042 N-m)
RATING CAPACITIES	
Hoisting	1,000 ton (907,184 kg)
Water Course	3.82 in (97 mm)
Washpipe Packing	5,000 psi or 7,500 psi (344 or 517 bar) (hammerless option)
Pipe Handler	PH-100
Breakout Torque Capacity	103,000 ft-lb (139,649 N-m)
Connection OD	4 in - 8 1/2 in (101.6 mm - 215.9 mm)
IBOP Pressure Rating	15,000 psi (1,034 bar)
Upper IBOP	15,000 psi (1,034 bar)
Lower IBOP	7.5/8 in. API Reg. RH Pin/Box (manual)
Rotation/Orientation	360° / unlimited
OTHER	
Cooling System	Local blower
Hydraulic Power	HPU required
Temperature Range	-20C to 45C (-4F to 113F)
Casing Running Tool Ready	Yes
Elevator Links	350, 500, 750, or 1000 ton API

Developed for use in deep drilling applications, the TDS-1000 provides an intermittent torque output of 96,000 ft-lbs to make and break even the highest torque connections. Because of the broad speed and torque range provided by the AC motor, this performance is obtained using a single-speed gear box. The TDS-1000 Top Drive is driven by a Variable Frequency Drive (VFD) control system for a greater range of torque and speed performance.

- Integrated swivel and link tilt system
- Remote and manual IBOP valves
- Back-up type pipe handler for making and breaking connections (including upper and lower IBOP connections)
- Guide dolly for reacting drilling torque

Mechanical Seal Washpipe


The NOV Washpipe System is a patented design that utilizes a set of proprietary ultra-hard mechanical face seals to provide superior life. The ongoing challenge to solve high pressure, high temperature washpipe life has finally been met with this robust and innovative design. These durable maintenance-free seals can be changed out in 10 minutes or less without removing the upper and lower nuts and with only a single-hand wrench. This advantage vastly improves seal change-out time and increases crew safety. The system works on most major brand top drives with no special modifications. The key value to the washpipe system is the confidence to keep drilling. Success with hundreds of units operating in many of the high pressure, high temperature wells across the world has proven the washpipe system to be the answer to premature washpipe failures.

Mechanical Seal Washpipe	
Pressure rating	7500 PSI
Bore size compatibility	3 in & 4 in ID
Top drive compatibility	TDX, TDS, IDS, PS, PS2 & HPS
ACCEPTABLE END-FLOAT AND RUN OUTS	
Mainshaft end float:	
TDS and TDX series	0.003" maximum
PS and HPS series t	0.030" maximum
Main shaft face run-out	0.002" maximum
Stationary face run-out	0.006" maximum
Radial run-out	0.020" maximum

- Extreme long-life service
- Simple mechanical seal design
- Seals change in minutes with single, standard hand tool
- Small and large-bore top drive application
- No maintenance required
- Fewer and lighter components for change-out (10 lbs vs. 120 lbs)
- Reduces risk of dropped objects
- Significant reduction in man-riding events
- Eliminates use of a sledge hammer

Washpipe Life Comparison
