TDS-10SH
Top Drive

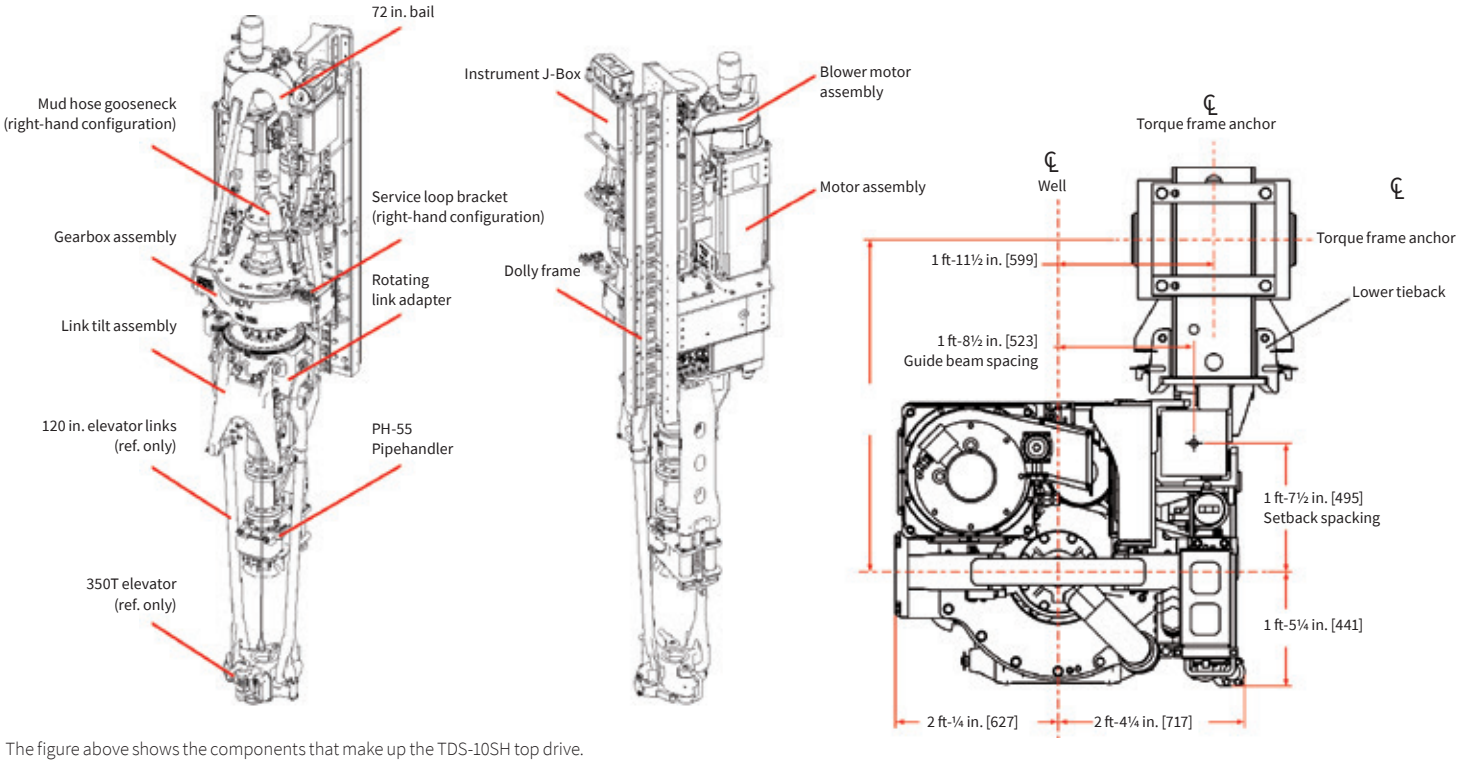
TDS-10SH overview

The TDS-10SH AC top drive is a single motor top drive developed for use in a variety of land and workover rig applications. It is designed around a 400-hp alternating current (AC) drilling motor (CE and ATEX certified) with a hoisting capacity of 250 tons and a continuous drilling torque rating of 22,288 ft-lb (30,218 Nm). The TDS-10SH has a maximum speed of 182 rpm and makeup/break-out torque of 42,690 ft-lb (57866 Nm) using the PH-55 pipe handler. Because of the broad speed and torque range of AC motor technology; this impressive performance is obtained using a single-speed gear box.

The CE-compliant TDS-10SH is a portable top drive designed for land-based drilling operations. Our top drive combines the increased performance of AC drilling motor technology with a compact drilling system. These features allow the TDS-10SH to support increased drilling productivity for smaller land-based drilling operations.

The TDS-10SH top drive is compact enough to operate safely in a standard 136-ft mast. The portable design means that rig-up and rig-down operations take only a few hours. The top drive can also easily integrate into existing rigs with minimal cost and rig modification.

The TDS-10SH is available for purchase, lease, or rental.

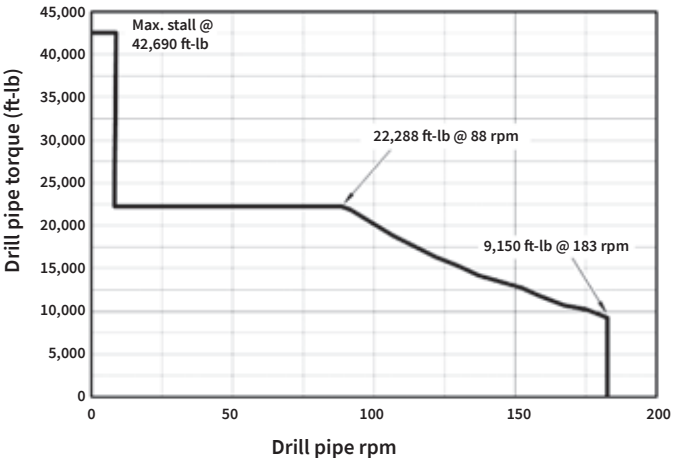


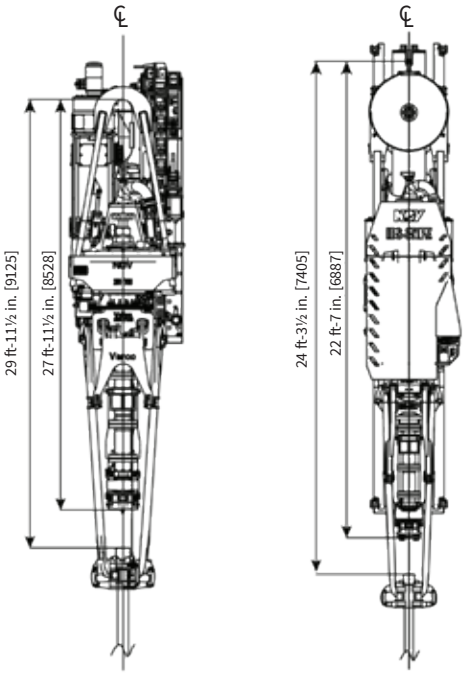
The figure above shows the components that make up the TDS-10SH top drive.

System components:

The TDS-10SH top drive system is driven by a variable frequency drive (VFD) control system for a greater range of torque and speed performance. System components include an integrated swivel, bi-directional link tilt system, remote and manual blowout preventer valves, back-up clamp for breaking out connections, guide tube for reacting drilling torque and an electric service loop. A compact integral power unit mounted on the top drive eliminates the need for hydraulic service loops. And the short overall height and rapid-installation guide beam design of the unit ensure easy installation in existing masts or derricks.

TDS-10SH Top drive
400 HP AC motor - 13.1:1 transmission





Features and benefits

High performance - The AC motor and variable frequency drive of the TDS- 10SH provide precise speed and torque control for low speed drilling. And the extended range of usable horsepower characteristic of AC motors is perfect for taking advantage of modern PDC bits. The higher intermittent torque levels of the AC motor also supply greater breakout and make-up torque than comparable DC and hydraulic powered top drives.

Portability - The AC motor, combined with the "S"-type integral swivel and unique guide beam arrangement, form one of the most compact drilling packages available. This compact design is highly mobile and fully transportable between rigs. Once installed, rig-up or rig-down can be performed in a matter of hours.

Low maintenance - Since AC motors have no brushes, brush gear or commutator, drilling motor maintenance is greatly reduced. And no stand-alone hydraulic supply, fluids service loop or additional standpipe are required, thus reducing accessory costs and improving reliability.

Improved economy - The increased efficiency of the NOV AC motor and drive system reduces rig fuel consumption, improving overall rig economy. An on-board hydraulic power supply eliminates the need for costly remote auxiliary hydraulic power, derrick piping and fluids service loop.

Increased safety - The advanced NOV system for making/breaking connections with the drill motor and pipe handler greatly increases crew safety.

Faster directional drilling - The improved drill bit control possible with the full rotational capability of NOV top drive systems increases the speed of building hole angles in directional and horizontal wells.

Increased environmental safety - A closed loop fluid system reduces the risk of contamination and fluid spill into environmentally sensitive areas by eliminating the need for draining and refilling during rig moves.

Technical specifications

Component	Item	Specification
Top drive	Transmission	13.1:1 double reduction helical gear
	Lubrication system	Pressure fed, filtered
Drilling parameters	Drilling speed range	0 to 182 rpm continuous
	Drilling torque	22,288 ft-lb maximum continuous (30,218 Nm)
	Make-up and break-out torque	42,680 ft-lb (57,866 Nm)
	Drilling horsepower	400 hp (maximum continuous)
	Static locking brake	50,000 ft-lb (67,791 Nm)
Rated capacities	Hoisting	250 tons API-8C, PSL-1
	Drilling (rotating)	250 tons
Drilling motor	Type	AC induction, forced air cooling system
	Rating	400 hp
	Rated speed	1,155 rpm
	Maximum speed	2,400 rpm
	Maximum continuous torque	1,810 ft-lb (2,954 Nm)
	Maximum intermittent torque	2,750 ft-lb (3,729 Nm)
PH-55 pipe handler	Torque capacity	50,000 ft-lb @ 2,000 psi (67,793 @ 136 bar)
	Drill pipe range (O.D.)	2⅞ to 5 in. (73 mm to 127 mm) 6⅝ in. O.D. tool joint (102 mm to 168 mm)
	Upper IBOP (remote actuated)	6⅝ in. (168 mm) API Reg. RH, box and pin
	Lower IBOP (manually actuated)	6⅝ in. (168 mm) API Reg. RH, box and pin
	IBOP pressure rating	15,000 psi (1,020 bar) CWP
	Elevator links	250 or 350 tons, API, (108 in. links optional)
Weight	TDS-10SH top drive	18,000 lb (8,165 kg)
	Guide beam kit (136 ft mast)	10,000 lb (4,536 kg)
	Top drive on shipping skid	21,700 lb (9,843 kg)
Height	Unit height	18 ft-3 in. (5,561 mm)
	Stack-up height	27 ft-10 in. (8,482 mm)

Corporate Headquarters
7909 Parkwood Circle Drive
Houston, Texas 77036
USA

Rig Technologies Headquarters
10353 Richmond Avenue
Houston, Texas 77042
USA

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