

Top Drive Systems

ADVANCING THE TECHNOLOGY OF DRILLING



As early as 1912, when Varco was known as Abegg and Reinhold Company and specialized in hand tools and rig repair services, the company was credited with being the first to demonstrate the superiority of heat-treated parts in the oilfield. That heritage of innovation has led throughout the company's development and metamorphosis into an internationally respected leader in the petroleum industry.

Today, National Oilwell Varco manufactures a wide range of automated drilling products including AC and DC powered Top Drive Drilling Systems. Our line of Top Drives have gained acceptance as the industry's most productive and safest method for drilling an oil or a gas well. They have repeatedly demonstrated the capability of reducing drilling time by over 25% while increasing the overall capability and efficiency of the drilling operation. Our extensive line of both AC and DC top drives ensure customers optimum performance and efficiency of their drilling operation.

Top Drive Systems

OFFSHORE DRILLING:

Originally, the Top Drive System was developed for use in offshore drilling operations where harsh environments and demanding drilling requirements called for a rugged and reliable drilling system.

Over the years, increasing well depths, the introduction of lateral drilling techniques, and the development of high-speed drill bits have reinforced the advantages of Top Drive technology for offshore applications. By anticipating industry challenges and developments, NOV continues to set the standard for performance and efficiency in offshore operations with both AC and DC Top Drive Systems.

LAND DRILLING:

Recent changes in land drilling requirements were met with a family of portable, powerful AC Top Drives. Each is designed to provide low maintenance, portability, high reliability and lower operational costs. These specially designed Top Drives are highly mobile and fully transportable between rigs where rig-up or rig-down can be performed in a matter of hours. AC technology provides the precise speed and torque control necessary for more efficient drilling under a variety of conditions. In addition, these AC Top Drives have on-board hydraulic systems that reduce the risk of contamination and fluid spill into environmentally sensitive areas. These systems eliminate umbilical fluid loops and the need for draining and refilling the hydraulic system during rig moves.

VITAL PARTNERSHIP:

Historically, engineers have partnered with NOV customers to develop the new standards for Top Drive processes, performance, and efficiency that are meeting the challenges of today's drilling industry. These skilled professionals are experts at assisting operators and drilling contractors in optimizing their drilling operation. With years of practical drilling experience, our seasoned specialists can accurately assess the needs of a particular operation and make recommendations on a Top Drive System that will maximize productivity while reducing overall drilling costs.

Since National Oilwell Varco offers a comprehensive suite of AC and DC Top Drive Systems, this ensures that the customer optimizes the performance and efficiency of their drilling operations. NOV Top Drive Systems offer:

- High performance
- Low maintenance
- Improved economy
- Increased safety
- Increased environmental safety

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 **NATIONAL OILWELL VARCO**

Top Drive Systems

NOV TOP DRIVE SYSTEMS PROVIDE MORE OFFERINGS FOR THE DRILLING INDUSTRY.



TDS-8SA



TDS-10SA



TDS-11SA



IDS-4A



TDS-4S, 4H



TDS-1000

Technical Specifications

Features	TDS-8SA	TDS-10SA	TDS-11SA
Application	All offshore rigs, large land rigs	Medium and small land rigs, platform rigs, jack-ups	Medium and small land rigs, platform rigs, jack-ups
Motor	GE GEB-20A1 AC Motor, 1,150 HP	Reliance electric AC motor, 350 HP	Reliance electric dual AC motor, 2 x 400 HP
API hoisting capacity	750 tons	250 ton	500 ton
Dolly sizing (setback x spacing)*	<i>Swing/</i> <i>Non-Swing</i> 32 in. x 62 in. 39 in. x 66 in. 48 in. x 62 in.	<i>Retract/</i> <i>Non-Retract</i> 20.5 in. Guide beam offset, 19.4 in. Guide beam setback	30 in. or 39.5 in. Guide beam setback
Pipe handler	PH-100 (Back Up Wrench)	PH-55 (Back Up Wrench)	PH-75 (Back Up Wrench)
Drill pipe sizes	3½ in. to 6⅝ in. (4 in. to 8½ in. OD tool joint)	2⅞ in. to 5 in. (4 in. to 6⅝ in. OD tool joint)	3½ in. to 6⅝ in. (4 in. to 8½ in. OD tool joint)
Stack up height	20.8 ft (6.3 m)	17.6 ft (5.4 m)	18 ft (5.4 m)
System output: Torque (ft-lbs)		Standard	Standard
Continuous	63,000	20,000	37,500
Intermittent	96,000	36,500	55,000
Maximum RPM	270	182	228

Features	IDS-4A	TDS-4S, 4H	TDS-1000
Application	Jack-ups, platforms, barges, and land rigs	All offshore rigs, barges and large land rigs	Large offshore and land rigs
Motor	GEB-20 AC Motor, 1,150 HP	GE-752 Hi-Torque DC Motor, 1,000 HP	GEB-20; 1,150 HP
API hoisting capacity	500 tons	650 or 750 ton	1,000 ton
Dolly sizing (setback x spacing)*	41 in. Guide Beam Setback	<i>Swing/</i> <i>Non-Swing</i> 30 in. x 72 in. 39 in. x 66 in. 48 in. x 62 in.	<i>Retract/</i> <i>Non-Retract</i> 91 in. x 108 in.
Pipe handler	PH-75 (Back Up Wrench)	PH-85 (85,000 ft-lbs torque)	PH-100 (Back Up Wrench)
Drill pipe sizes	3½ in. to 6⅝ in. (4 in. to 8½ in. OD tool joint)	3½ in. to 6⅝ in. (4⅞ in. to 8¼ in. OD tool joint)	3½ in. to 6⅝ in. (4 in. to 8½ in. OD tool joint)
Stack up height	22.8 ft (6.9 m)	TDS-4H 26.2 ft (7.9 m)**	TDS-4S 20.8 ft (6.3 m)
System output: Torque (ft-lbs)		<i>Series</i> <i>Hi</i> <i>Low</i>	<i>Shunt</i> <i>Hi</i> <i>Low</i>
Continuous	44,000	32,000 50,900	29,640 45,500
Intermittent	67,000	43,400 58,200	39,500 50,000
Maximum RPM	230	190 120	205 130
			TDS-1000A
			63,000
			96,000
			270

* Custom configurations available

** Includes separate typical swivel

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