TOP DRIVES

Bentec designs TOP DRIVES that withstand the harshest conditions and reduce rig downtime. Suitable for onshore or offshore rigs.
Bentec has compiled the experience it has gained from over 20 years of commissioning, maintaining and repairing various Top Drives to develop a more reliable, robust and service friendly product, for safe drilling operations.

Bentec has honed its Top Drives to suit the exacting needs of our customers: They provide up to 30% more continuous torque capability than that of other Top Drives. More robust and reliable, able to withstand arctic temperatures, Bentec Top Drives significantly reduce downtime and maintenance costs.

Bentec Top Drives are AC-powered and developed for use as portable or permanently installed units for onshore and offshore rigs. They also come with a number of innovative features to significantly improve drilling performance.

Bentec can supply Top Drives with a dedicated VFD container, as well as being specified or upgraded with various Bentec developed, Drilling Enhancement Software, such as the Soft Torque Rotary System (STRS).

Main components include a hydraulic swivel, a special high safety link-tilt and monitoring system, remote and manual IBOP valves, a back-up clamp to make-up and break-out, a guide beam to absorb drill torque reaction and service loops that are all produced in-house. A compact hydraulic power unit mounted on board the Top Drive eliminates the requirement for a hydraulic service loop. The compact dimensions of Bentec Top Drives ensure a fast and safe installation into existing or new rigs.

Bentec Top Drives comply with the strict standards applicable to the drilling industry. Our Top Drives conform to the latest API and European CE design standards to ensure our customers receive and maintain a very high level of quality and safety.

Bentec history and technical integration

1992 - 2008
1st commissioning of non-Bentec Top Drives in Europe. Gaining experience in Top Drive installations, maintenance, repair and troubleshooting.

2009
Development of 1st 350ton/500ton Bentec Top Drive.

2011
1st Bentec Top Drive delivered to Sakhalin Island for ERD wells.

2012
1st offshore Bentec 500ton Top Drive delivered.

2014
1st Bentec 750ton Top Drive delivered.

2015
1st Market entry into North America.
1st Bentec Top Drives delivered to North America.

2017
1st Bentec 750ton Top Drive delivered.

Bentec designs its Top Drives to meet and exceed customers’ expectations in terms of performance and reliability. It all starts with the best possible integration solution to suit various rigs. An essential part of these solutions is the flexibility to integrate Bentec Top Drives into many different mast/derrick configurations. Below is just a small choice of possible Top Drive arrangements conforming to these varying mast configurations.

Bentec Top Drives are AC-powered and developed for use as portable or permanently installed units for onshore and offshore rigs. They also come with a number of innovative features to significantly improve drilling performance.

Bentec provides its Top Drives using the latest Variable Frequency Drive (VFD) control system, offering a wide range of torque and speed performance.

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Key Features
- 672 hp single motor
- 250 ton API-8C
- 35,200 ft-lbs cont. torque @ 100 rpm
- 44,254 ft-lbs make & break torque
- Temperature range -45°C / +55°C
- Lowest noise emissions
- Available drilling enhancement software:
  - Soft Torque Systems
  - Remote Access

Benefits
- Flexible design: TDS can be used as portable or fixed installation
- Various carriage solutions available to meet any mast configuration
- Fully retrofittable into existing rigs

Performance Curve TD-250-C @ 55°C ambient

<table>
<thead>
<tr>
<th>Torque [lbs ft]</th>
<th>Speed [rpm]</th>
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<tr>
<td>10,000</td>
<td>20</td>
</tr>
<tr>
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<td>30</td>
</tr>
<tr>
<td>2,500</td>
<td>40</td>
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<tr>
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<td>78</td>
<td>90</td>
</tr>
<tr>
<td>39</td>
<td>100</td>
</tr>
</tbody>
</table>

Footprint (Width x Depth) 56” x 74” 1.40 m x 1.88 m
### Top Drive

**TD-500-XT**

- **Hosting and Rotating**: 500 ton
- **Motor Rating**: 1,140 hp
- **Motor**: AC-Induction Motor
- **Working Height**: 250°
- **Weight**: 34,613 lbs
- **Gear**: Helical Gear; 14:1
- **Continuous Torque**: 52,000 ft-lbs
- **Speed at Max. Cont. Torque**: 115 rpm
- **Max. Speed**: 230 rpm
- **Make & Break out Torque**: 73,760 ft-lbs
- **Mainshaft Quill ID**: 3”
- **Working Pressure**: 7,500 PSI
- **Min. Connection Range**: 2-1/2”
- **Max. Connection Range**: 8-1/2”
- **IBOP Connection**: NC 61
- **Cooling System**: Local Blower
- **Hydraulic Power**: Onboard
- **Suitable Elevator Links**: 250, 500 ton API
- **Min. Temperature**: -49°F
- **Max. Temperature**: +131°F
- **Footprint (Width x Depth)**: 65.4” x 61.2”

**Benefits**

- Flexible design: TDS can be used as portable or fixed installation
- Various carriage solutions available to meet any mast configuration
- Fully retrofittable into existing rigs

**Performance Curve TD-500-XT @ 55°C ambient**

### Top Drive

**TD-350-HT**

- **Hosting and Rotating**: 350 ton
- **Motor Rating**: 1,030 hp
- **Motor**: AC-Induction Motor
- **Working Height**: 250°
- **Weight**: 34,613 lbs
- **Gear**: Helical Gear; 14:1
- **Continuous Torque**: 46,500 ft-lbs
- **Speed at Max. Cont. Torque**: 115 rpm
- **Max. Speed**: 230 rpm
- **Make & Break out Torque**: 73,760 ft-lbs
- **Mainshaft Quill ID**: 3”
- **Working Pressure**: 7,500 PSI
- **Min. Connection Range**: 2-1/2”
- **Max. Connection Range**: 8-1/2”
- **IBOP Connection**: NC 61
- **Cooling System**: Local Blower
- **Hydraulic Power**: Onboard
- **Suitable Elevator Links**: 250, 350 and 500 ton API
- **Min. Temperature**: -49°F
- **Max. Temperature**: +131°F
- **Footprint (Width x Depth)**: 65.4” x 61.2”

**Key Features**

- Flexible design: TDS can be used as portable or fixed installation
- Various carriage solutions available to meet any mast configuration
- Fully retrofittable into existing rigs

**Performance Curve TD-350-HT @ 55°C ambient**
**Hoisting and Rotating**
- 750 ton
- 690 t

**Drilling Motor**
- AC-Induction Motor
- AC-Induction Motor

**Motor Rating**
- 1,609 hp
- 1,200 kW

**Working Height**
- 279"
- 7.09 m

**Weight**
- 57,250 lbs
- 26 t

**Gear**
- Helical Gear; 10.6:1
- Helical Gear; 10.6:1

**Max. Continuous Torque**
- 73,760 ft-lbs
- 100,000 Nm

**Speed at Max. Cont. Torque**
- 115 rpm
- 115 rpm

**Max. Speed**
- 270 rpm
- 270 rpm

**Max. Make & Break out Torque**
- 118,000 ft-lbs
- 160,000 Nm

**Static Brake Torque**
- 93,670 ft-lbs
- 127,000 Nm

**Mainshaft Quill ID**
- 3-3/4" (95.3 mm)

**Working Pressure**
- 7,500 PSI
- 517 bar

**Min. Connection Range**
- 4"
- 101.6 mm

**Max. Connection Range**
- 9-1/2"
- 241.3 mm

**IBOP Connection**
- NC 70
- NC 70

**Cooling System**
- Local Blower
- Local Blower

**Hydraulic Power**
- Onboard
- Onboard

**Suitable Elevator Links**
- 350, 500 and 750 ton API
- 350, 500 and 750 ton API

**Min. Temperature**
- -49°F
- -45°C

**Max. Temperature**
- +131°F
- +55°C

**Footprint (Width x Depth)**
- 87" x 74" (2.2 m x 1.88 m)

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**Key Features**
- 1,609 hp single motor
- 750 ton API-8C
- 73,760 ft-lbs cont. torque @ 115 rpm
- 118,000 ft-lbs make & break torque
- Temperature range -45°C / +55°C
- Integrated link-tilt monitoring
- Lowest noise emissions
- Available drilling enhancement software:
  - soft Torque Systems
  - remote Access

**Benefits**
- Flexible design: TDS can be used as portable or fixed installation
- Various carriage solutions available to meet any mast configuration
- Fully retrofittable into existing rigs

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**Performance Curve TD-750-HT @ 55°C ambient**

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