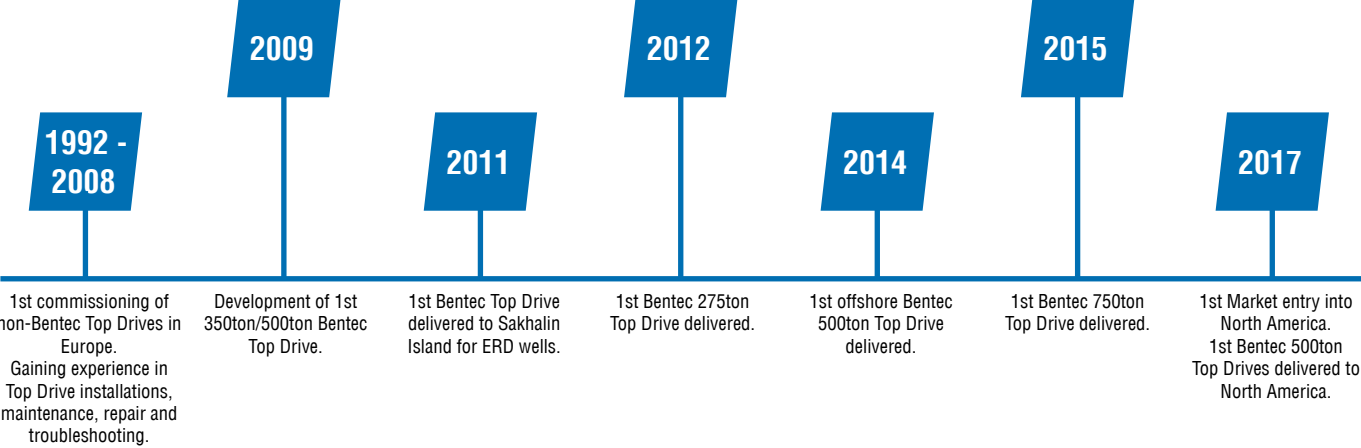


TOP DRIVES



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



Integrated Rail Design
Top Drive guide rails are an integrated part of the mast structure eliminating lifts and transport during rig move.



Portable Design
Hanged-off portable rails in the mast with a torque reaction beam on the lower mast section enables high flexibility and usage over multiple rigs.



Herringbone Design
The Top Drive carriage runs between the masts front legs, optimising rig moves by reducing lifts and rig move loads, to a minimum.



Offshore Portable Design
The most successful land configuration adapted to an offshore derrick to enable low investment costs.



Portable Rotated Design (Dual Rail)
The preferred solution to eliminate modifications on older mast designs capable of Top Drive operations.



Portable Rotated Design (Mono Rail)
The configuration of choice to avoid any mast modification on existing and narrow mast designs.

Top Drive

TD-250-C



Hoisting and Rotating	250 ton	227 t
Drilling Motor	AC-Induction Motor	AC-Induction Motor
Motor Rating	672 hp	500 kW
Working Height	222"	5.64 m
Weight	23,809 lbs	10.8 t
Gear	Helical Gear; 15:1	Helical Gear; 15:1
Max. Continuous Torque	35,200 ft-lbs	47,750 Nm
Speed at Max. Cont. Torque	100 rpm	100 rpm
Max. Speed	200 rpm	200 rpm
Max. Make & Break out Torque	44,254 ft-lbs	60,000 Nm
Static Brake Torque	51,500 ft-lbs	70,000 Nm
Mainshaft Quill ID	2-1/2"	63.5 mm
Working Pressure	7,500 PSI	517 bar
Min. Connection Range	2-1/2"	63.5 mm
Max. Connection Range	7-1/2"	191 mm
IBOP Connection	NC 50	NC 50
Cooling System	Local Blower	Local Blower
Hydraulic Power	Onboard	Onboard
Suitable Elevator Links	150, 250 and 350 ton API	150, 250 and 350 ton API
Min. Temperature	-49°F	-45°C
Max. Temperature	+131°F	+55°C
Footprint (Width x Depth)	55" x 63"	1.40 m x 1.60 m

TD-275-HT

Hoisting and Rotating	275 ton	250 t
Drilling Motor	AC-Induction Motor	AC-Induction Motor
Motor Rating	672 hp	500 kW
Working Height	225"	5,71 m
Weight	24,912 lbs	11.3 t
Gear	Helical Gear; 15:1	Helical Gear; 15:1
Max. Continuous Torque	35,200 ft-lbs	47,750 Nm
Speed at Max. Cont. Torque	100 rpm	100 rpm
Max. Speed	200 rpm	200 rpm
Max. Make & Break out Torque	51,500 ft-lbs	70,000 Nm
Static Brake Torque	51,500 ft-lbs	70,000 Nm
Mainshaft Quill ID	2-1/2"	63.5 mm
Working Pressure	7,500 PSI	517 bar
Min. Connection Range	2-1/2"	63.5 mm
Max. Connection Range	7-3/4"	197 mm
IBOP Connection	NC 50	NC 50
Cooling System	Local Blower	Local Blower
Hydraulic Power	Onboard	Onboard
Suitable Elevator Links	150, 250 and 350 ton API	150, 250 and 350 ton API
Min. Temperature	-49°F	-45°C
Max. Temperature	+131°F	+55°C
Footprint (Width x Depth)	55" x 74"	1.40 m x 1.88 m



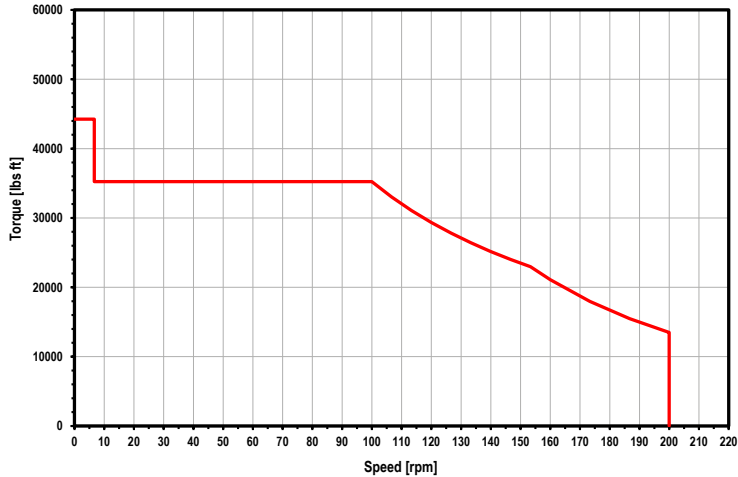
Key Features

- 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

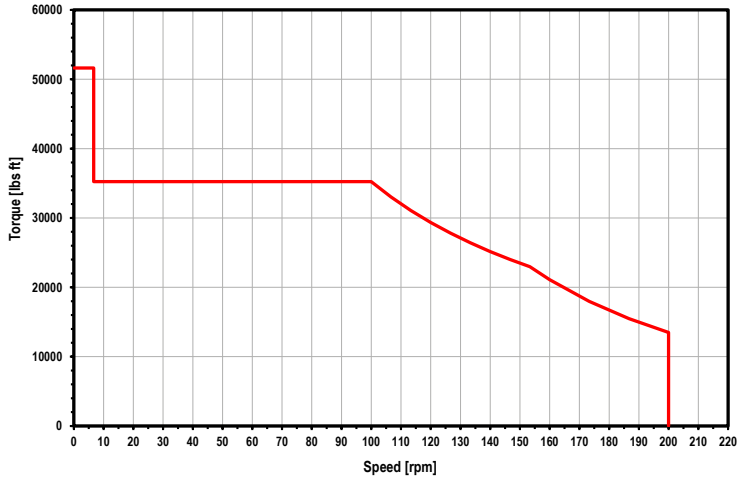
Benefits

- 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



Performance Curve TD-275-HT @ 55°C ambient



Key Features

- 672 hp single motor
- 275 ton API-8C
- 35,200 ft-lbs cont. torque @ 100 rpm
- 51,500 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

Top Drive



TD-350-HT

Hoisting and Rotating	350 ton	317 t
Drilling Motor	AC-Induction Motor	AC-Induction Motor
Motor Rating	1,030 hp	758 kW
Working Height	250"	6.35 m
Weight	34,613 lbs	15.7 t
Gear	Helical Gear; 14:1	Helical Gear; 14:1
Max. Continuous Torque	46,500 ft-lbs	63,000 Nm
Speed at Max. Cont. Torque	115 rpm	115 rpm
Max. Speed	230 rpm	230 rpm
Max. Make & Break out Torque	73,760 ft-lbs	100,000 Nm
Static Brake Torque	77,440 ft-lbs	105,000 Nm
Mainshaft Quill ID	3"	76.2 mm
Working Pressure	7,500 PSI	517 bar
Min. Connection Range	2-1/2"	63.5 mm
Max. Connection Range	8-1/2"	216 mm
IBOP Connection	NC 61	NC 61
Cooling System	Local Blower	Local Blower
Hydraulic Power	Onboard	Onboard
Suitable Elevator Links	250, 350 and 500 ton API	250, 350 and 500 ton API
Min. Temperature	-49°F	-45°C
Max. Temperature	+131°F	+55°C
Footprint (Width x Depth)	65.4" x 61.2"	1.66 m x 1.55 m

TD-500-XT

Hoisting and Rotating	500 ton	454 t
Drilling Motor	AC-Induction Motor	AC-Induction Motor
Motor Rating	1,140 hp	850 kW
Working Height	250"	6.35 m
Weight	34,613 lbs	15.7 t
Gear	Helical Gear; 14:1	Helical Gear; 14:1
Max. Continuous Torque	52,000 ft-lbs	70,580 Nm
Speed at Max. Cont. Torque	115 rpm	115 rpm
Max. Speed	230 rpm	230 rpm
Max. Bake & Break out Torque	73,760 ft-lbs	100,000 Nm
Static Brake Torque	77,444 ft-lbs	105,000 Nm
Mainshaft Quill ID	3"	76.2 mm
Working Pressure	7,500 PSI	517 bar
Min. Connection Range	2-1/2"	63.5 mm
Max. Connection Range	8-1/2"	216 mm
IBOP Connection	NC 61	NC 61
Cooling System	Local Blower	Local Blower
Hydraulic Power	Onboard	Onboard
Suitable Elevator Links	250, 350 and 500 ton API	250, 350 and 500 ton API
Min. Temperature	-49°F	-45°C
Max. Temperature	+131°F	+55°C
Footprint (Width x Depth)	65.4" x 61.2"	1.66 m x 1.55 m



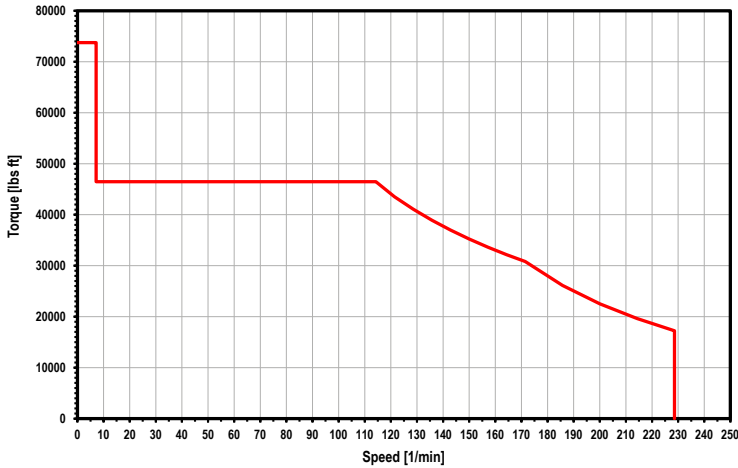
Key Features

- 1,040 hp single motor
- 46,500 ft-lbs cont. torque @ 115 rpm
- 73,760 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

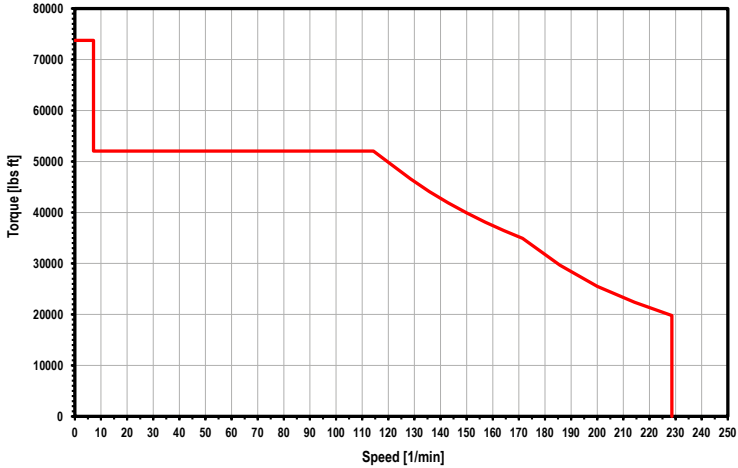
Benefits

- 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

Performance Curve TD-350-HT @ 55°C ambient



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



Key Features

- 1,140 hp single motor
- 500 ton API-8C
- 52,000 ft-lbs cont. torque @ 115 rpm
- 73,760 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

Top Drive

TD-750-HT



Hoisting and Rotating	750 ton	680 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

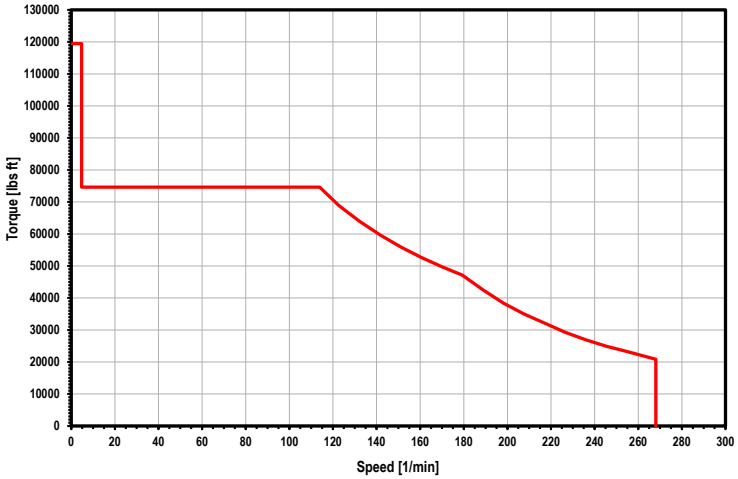
Key Features

- 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

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



Bentec design Top Drives that withstand the harshest conditions and to reduce rig downtimes.



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