



*reliable. safe. efficient.*

# MECHANICAL DRILLING EQUIPMENT



**ALWAYS READY FOR YOUR BUSINESS**



# BENTEC

## Advanced Technology for Comprehensive Drilling Solutions.

With years of experience, Bentec is one of the world's leading manufacturers of high-quality drilling and workover rigs. Additionally, our portfolio includes both mechanical and electrical drilling equipment, as well as control systems.

Bentec produces a full range of land rigs and drilling equipment, supplying packages that operate successfully all around the world.

Bentec designs and manufactures a wide range of durable, cost effective and trouble free drilling rigs and drilling equipment for harsh and hostile environments, ranging from light to heavy duty units, with Drawworks capacities of up to 3,000hp.

Bentec provides comprehensive drilling solutions that include technically advanced, field proven equipment integrated into existing systems. Our products increase drilling efficiency, enhance health, safety, and environmental (HSE) programs whilst maximising our customers' life cycle economics.

Bentec possesses an unparalleled capability in the design, manufacturing, installation, commissioning and aftermarket service for a wide variety of drilling systems and equipment.

We deliver high-grade mechanical drilling equipment, such as Top Drives, Drawworks, Iron Roughnecks, Mud Pumps, Pipe Handling Equipment and BOP Closing Units.

Our electrical equipment includes Power Control Rooms (VFD and SCR), infoDRILL, Anti Collision Systems, Soft Torque Rotary Systems, and Soft Pump Systems.

Bentec specialises in designing and manufacturing customised solutions tailored to your individual requirements. Our engineers continue to develop innovative drilling rig systems that can withstand any environmental challenge.

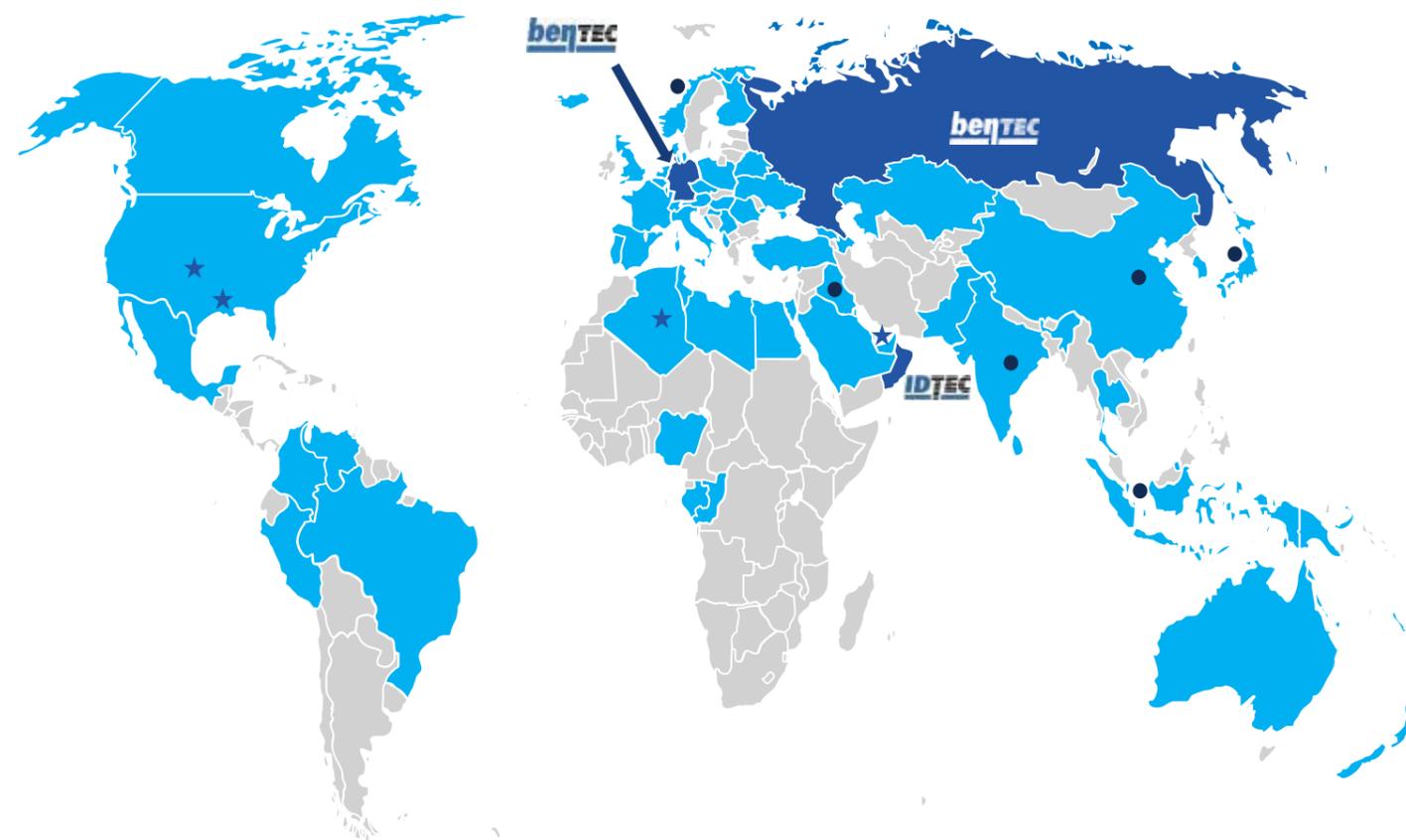
### BENTEC SOLUTIONS - MADE IN GERMANY

- Design and manufacture of drilling rigs for use worldwide
- Manufacture of mechanical and electrical main equipment and systems
- After Sales Service
- Service, repair and overhaul
- Spare parts supply and logistics
- Upgrades
- Re-certification
- System integration and commissioning
- Global project management



## Bentec Headquarters and Subsidiaries

Bentec has its headquarters in Bad Bentheim, Germany, where it maintains production facilities of over 100,000 m<sup>2</sup>, including its Training Centre. Additionally, we have production and service facilities in Tyumen, Russia and Nizwa, Sultanate of Oman. Bentec has also established a network of operational hubs in North America, Algeria and United Arab Emirates, as well as an extensive agent network.



★ Operational Hub

● Agent Network

## Bentec – Proven Around the World.

Bentec designs, manufactures and delivers reliable, safe and efficient rigs and equipment for the oil, gas and geothermal drilling industry, in the harshest and most hostile environments, around the world. By combining these prime solutions with extensive services ranging from 24/7 field support to sophisticated training, Bentec is a true vertically integrated system supplier.

Everything we do is oriented around our core values but above all to our strict health, safety and environment (HSE) policies.

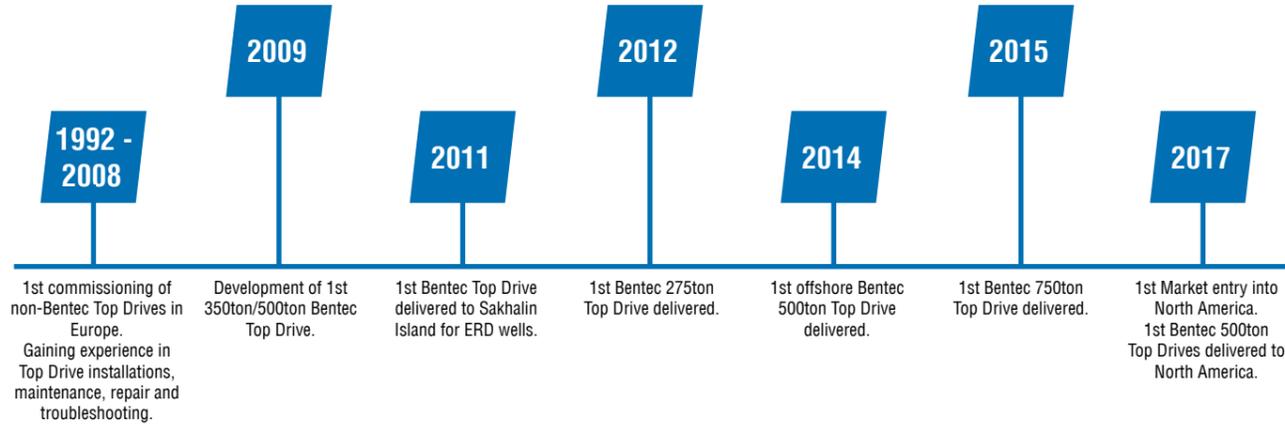
# TOP DRIVES

benTEC



Bentec designs TOP DRIVES that withstand the harshest conditions and reduce rig downtime. Suitable for onshore or offshore rigs.

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reliable. safe. efficient.



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

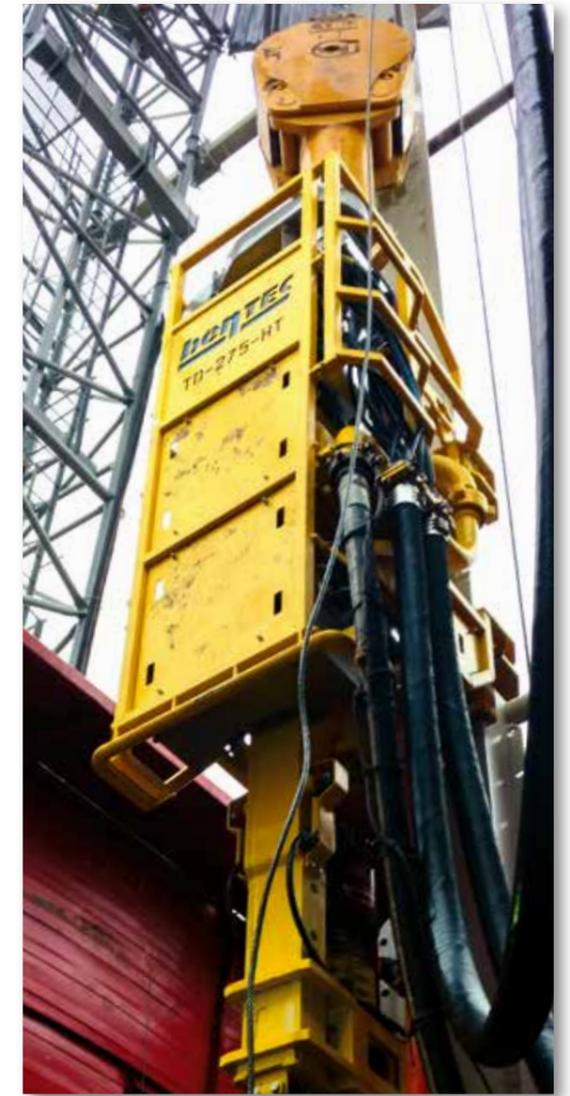
# TD-275-HT

# Top Drive



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

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



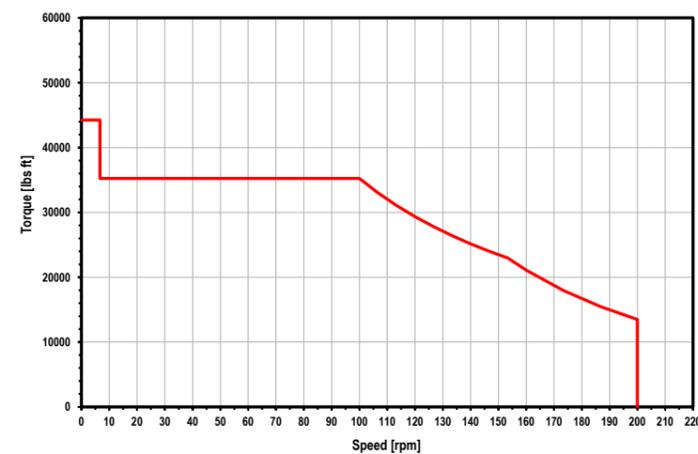
## Key Features

- 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

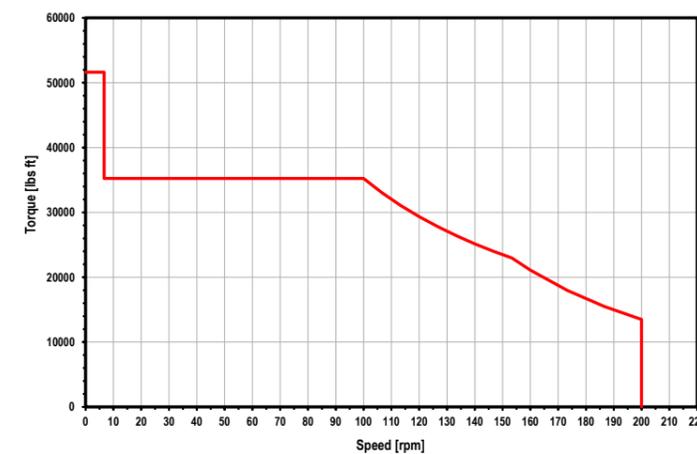
## Benefits

- 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

# TD-500-XT

# Top Drive



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

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



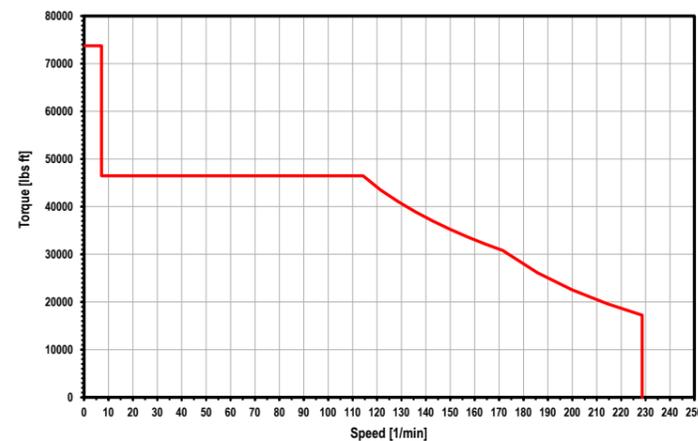
## Key Features

- 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

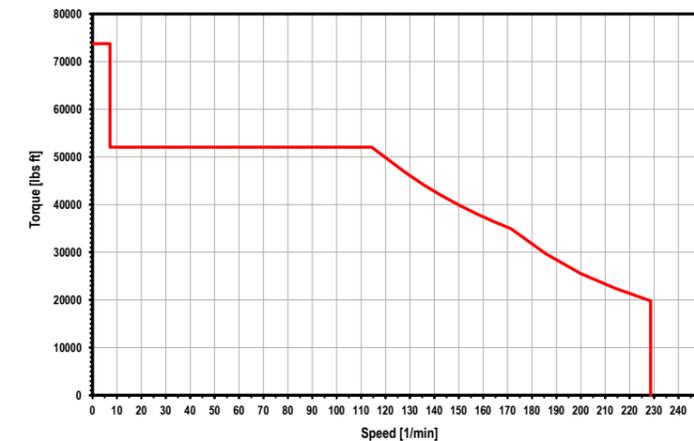
## Benefits

- 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



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

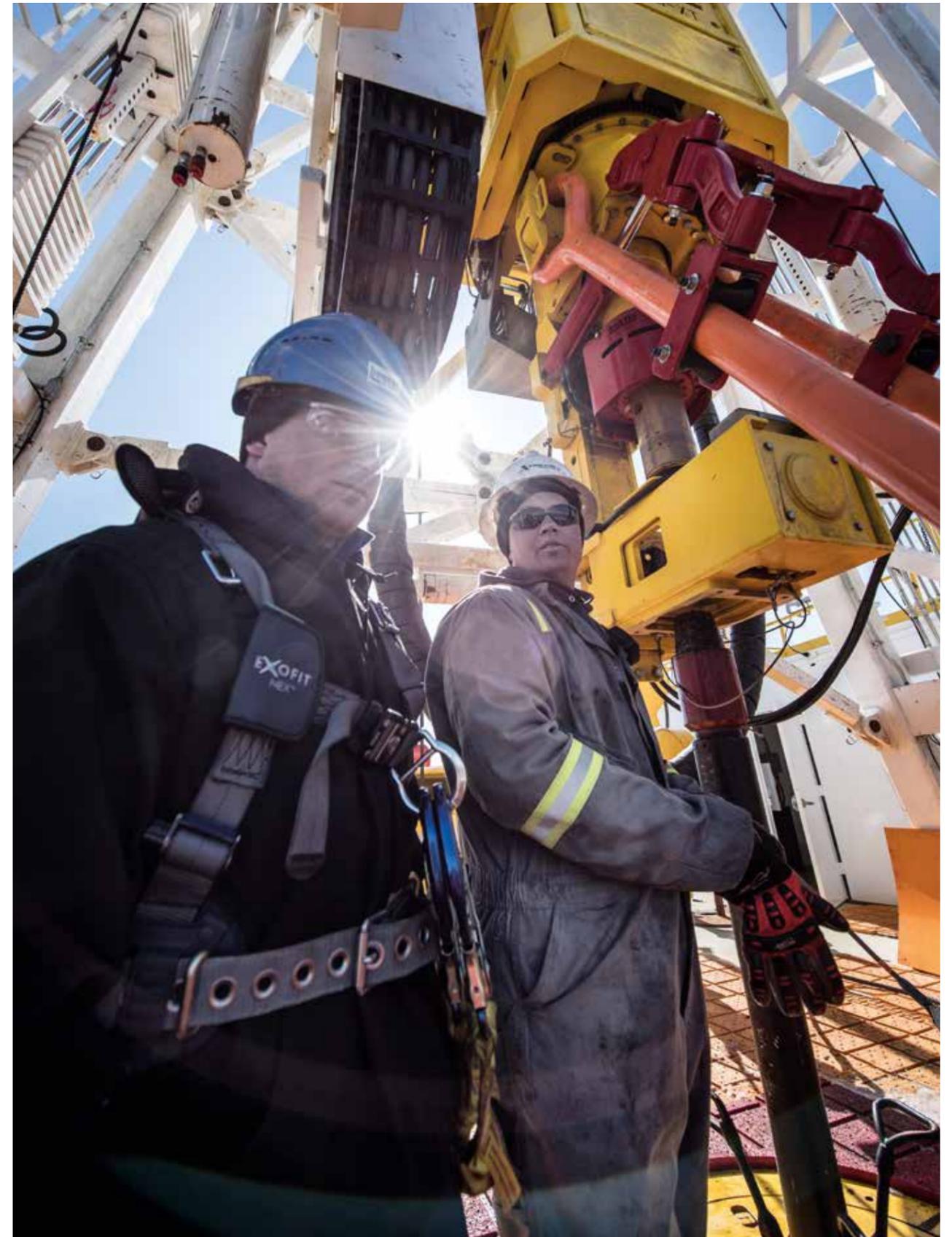
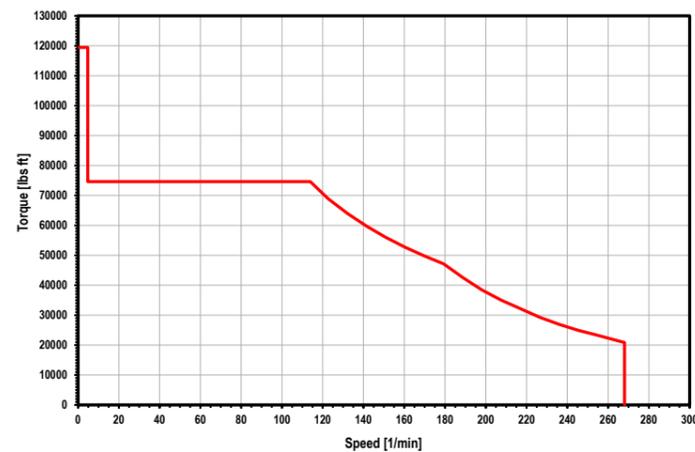
## Key Features

- 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

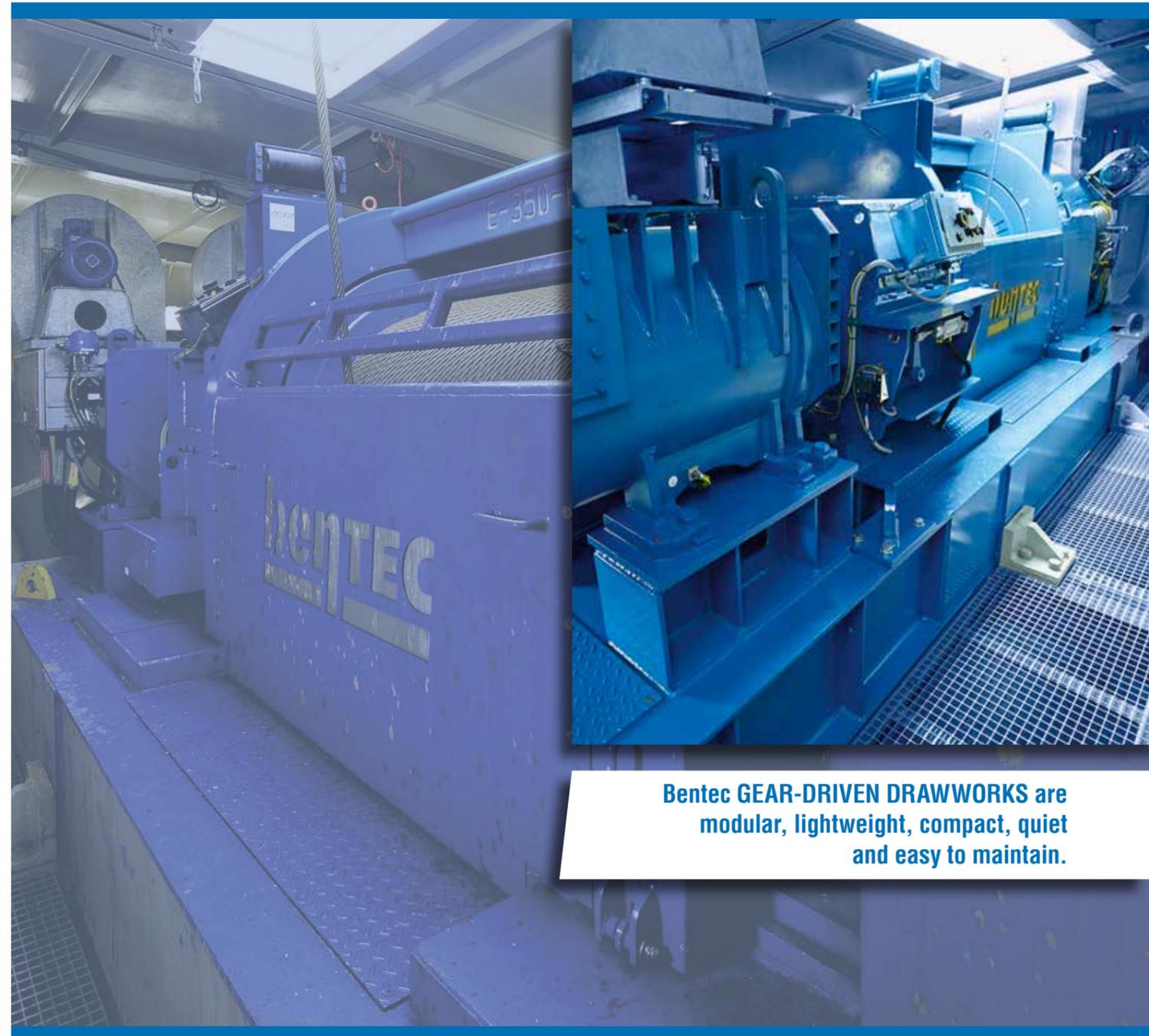
- Flexible design: TDS can be used as portable or fixed installation
- Various carriage solutions available to meet any mast configuration
- Fully retrofittable into existing rigs

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



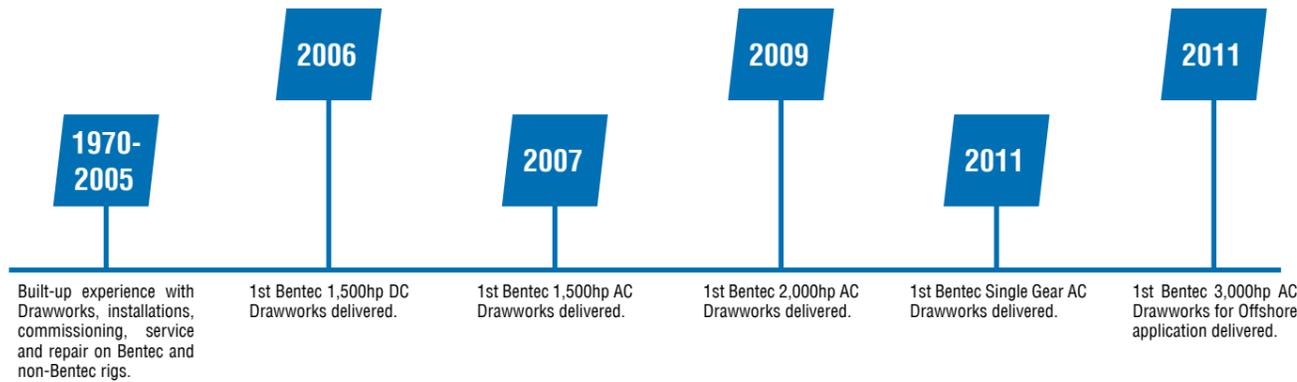
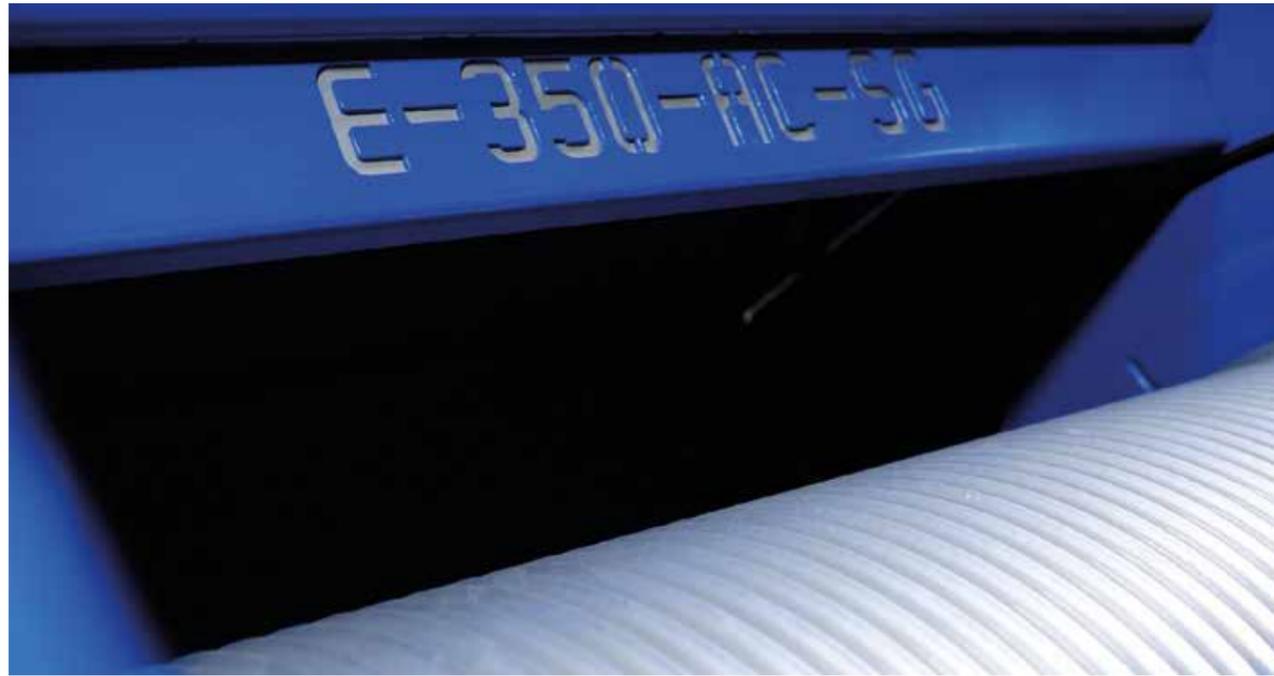
# GEAR-DRIVEN DRAWWORKS

**ben**TEC



**Bentec GEAR-DRIVEN DRAWWORKS** are modular, lightweight, compact, quiet and easy to maintain.

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Bentec developed Gear Driven Drawworks provide the market with a more reliable technology and greater hoisting performance. Their lightweight and compact dimensions make them ideal for frequent rig moves or limited crane capacity. Thanks to our decades of experience in designing and manufacturing drilling equipment, Bentec Gear Driven Drawworks are equipped with modern AC or DC motor technology and key components, all of which are developed and produced in-house.

Bentec has also reduced the sensors to a more feasible number. Our Gear Driven Drawworks only require electric power and compressed air, doing away with the need for water or hydraulics, simplifying the Drawworks significantly. Bentec provides many Drawworks solutions to meet our customers' requirements for existing or new build rigs.

All of these features make Bentec Gear Driven Drawworks the premier choice. Technically, the Drawworks is just another winch – but equipped with modern and reliable technology, it offers outstanding performance - especially when combined with the Bentec Drilling Enhancement Software available, such as our Anti Collision Systems (ACS).

### Bentec AC-Motors

Bentec supplies its own AC-Motors, designed in-house and dedicated to continuous Drawworks hoisting operations. These motors provide best in class electrical performance and insulation, with superior mechanical durability.

High-end quality materials, state of the art technology and a design meeting ISO 9001 standards ensure the highest degree of performance and service in the harshest environments.



### Bentec Gearboxes

Every Drawworks is equipped with uniquely designed Gearboxes. The transmission has been simplified to function as its intended to optimum performance with all unnecessary components, removed. Having no forced lubrication system leads to less maintenance costs and increases the in-service time of the unit.



### Bentec Eddy Current Brakes (air-cooled)

2-Speed Drawworks are equipped with an Eddy Current Brake, designed in-house, which replaces water as the cooling medium. The Brake is dynamically *air-cooled*, on-demand by VFD-controlled blower motors, with extremely noise emissions.



# Single Gear AC-Drawworks

## Technical Data

Drawworks	DW-E-200-AC-SG	DW-E-250-AC-SG	DW-E-350-AC-SG	DW-E-450-AC-SG
Continuous Power Rating	1,000 hp	1,250 hp	1,500 hp	2,000 hp
	735 kW	920 kW	1,100 kW	1,470 kW
Number of Motors	2 x 600 kW	2 x 850 kW	2 x 850 kW	2 x 1,150 kW
Gearbox Design	Multi-Speed	Multi-Speed	Multi-Speed	Multi-Speed
Eddy Current Brake	No	No	No	No
Max. Hook Load @6 Lines*	268,964 lbs	337,307 lbs	-	-
	122 t	153 t	-	-
Max. Hook Speed @6 Lines*	6.75 ft/sec	6.82 ft/sec	-	-
	2.06 m/sec	2.08 m/sec	-	-
Max. Hook Load @8 Lines*	357,150 lbs	445,333 lbs	564,383 lbs	-
	162 t	202 t	256 t	-
Max. Hook Speed @8 Lines*	5.07 ft/sec	5.12 ft/sec	5.77 ft/sec	-
	1.54 m/sec	1.56 m/sec	1.76 m/sec	-
Max. Hook Load @10 Lines*	440,925 lbs	551,155 lbs	698,865 lbs	842,166 lbs
	200 t	250 t	317 t	382 t
Max. Hook Speed @10 Lines*	4.05 ft/sec	4.09 ft/sec	4.62 ft/sec	4.66 ft/sec
	1.24 m/sec	1.25 m/sec	1.41 m/sec	1.42 m/sec
Max. Hook Load @12 Lines*	-	-	831,142 lbs	1,000,899 lbs
	-	-	377 t	454 t
Max. Hook Speed @12 Lines*	-	-	3.85 ft/sec	3.89 ft/sec
	-	-	1.17 m/sec	1.18 m/sec
Max. Hook Load @14 Lines*	-	-	-	1,133,176 lbs
	-	-	-	524 t
Max. Hook Speed @14 Lines*	-	-	-	3.33 ft/sec
	-	-	-	1.02 m/sec
Max. Number of Layers	3	3	3	3
Dimensions L x W	218.3" x 114.2"	219.4" x 114.2"	220.5" x 114.2"	234.4" x 117.5"
	5,546 mm x 2,900 mm	5,573 mm x 2,900 mm	5,600 mm x 2,900 mm	5,953 mm x 2,985 mm
Weight	63,934 lbs	66,140 lbs	70,548 lbs	77,162 lbs
	29 t	30 t	32 t	35 t

\*values are based on the 2<sup>nd</sup> layer

### Key Features

- No eddy current brake
- Simplified modular design
- Interchangeable Bentec AC-Motors
- 4Q-Mode with Anti-Collision System enables fastest tripping speeds
- Single motor mode with one motor out of service possible
- Slip & cut function and separate control console
- Available drilling enhancement software:
  - Feed-Off
  - Auto-Driller
  - Anti-Collision System

### Benefits

- Fastest hoisting speeds at most compact footprints
- No cooling water required
- No hydraulics
- No forced lubrication
- Lower maintenance costs
- Lowest noise emissions

# Technical Data

## Dual Gear AC-Drawworks

Drawworks	DW-E-1250-AC	DW-E-1500-AC	DW-E-2000-AC	DW-E-3000-AC
Continuous Power Rating	1,250 hp	1,500 hp	2,000 hp	3,000 hp
	920 kW	1,100 kW	1,470 kW	2,200 kW
Number of Motors	2 x 600 kW	2 x 600 kW	2 x 850 kW	2 x 1,150 kW
Gearbox Design	2-Speed	2-Speed	2-Speed	2-Speed
Eddy Current Brake	Yes – Air Cooled			
Max. Hook Load @6 Lines*	410,060 lbs	-	-	-
	186 t	-	-	-
Max. Hook Speed @6 Lines**	8.66 ft/sec	-	-	-
	2.64 m/sec	-	-	-
Max. Hook Load @8 Lines*	540,133 lbs	626,113 lbs	-	-
	245 t	284 t	-	-
Max. Hook Speed @8 Lines**	6.50 ft/sec	7.38 ft/sec	-	-
	1.98 m/sec	2.25 m/sec	-	-
Max. Hook Load @10 Lines*	668,001 lbs	776,027 lbs	925,942 lbs	-
	303 t	352 t	420 t	-
Max. Hook Speed @10 Lines**	5.20 ft/sec	5.90 ft/sec	5.96 ft/sec	-
	1.58 m/sec	1.80 m/sec	1.82 m/sec	-
Max. Hook Load @12 Lines*	-	921,532 lbs	1,102,311 lbs	1,525,599 lbs
	-	418 t	500 t	692 t
Max. Hook Speed @12 Lines**	-	4.92 ft/sec	4.97 ft/sec	4.84 ft/sec
	-	1.50 m/sec	1.51 m/sec	1.475 m/sec
Max. Hook Load @14 Lines*	-	-	1,274,272 lbs	1,761,493 lbs
	-	-	578 t	799 t
Max. Hook Speed @14 Lines**	-	-	4.26 ft/sec	4.14 ft/sec
	-	-	1.30 m/sec	1.26 m/sec
Max. Hook Load @16 Lines*	-	-	-	1,992,979 lbs
	-	-	-	904 t
Max. Hook Speed @16 Lines**	-	-	-	3.62 ft/sec
	-	-	-	1.10 m/sec
Max. Number of Layers	3	3	4	4
Dimensions L x W	283" x 117.5"	305.3" x 117.5"	306.5" x 117.5"	338.6" x 125.5"
	7,190 mm x 2,985 mm	7,754 mm x 2,985 mm	7,785 mm x 2,985 mm	8,600 mm x 3,187 mm
Weight	83,776 lbs	92,594 lbs	94,800 lbs	132,244 lbs
	38 t	42 t	43 t	60 t

\*values are based on the 1<sup>st</sup> gear and 2<sup>nd</sup> layer \*\* values are based on 2<sup>nd</sup> gear

### Key Features

- Simplified modular design
- Interchangeable Bentec AC-Motors
- 4Q-Mode with Anti-Collision System enables fastest tripping speeds
- Single motor mode with one motor out of service possible
- Slip & cut Function and separate control console
- Available drilling enhancement software:
  - feed-off
  - auto-driller
  - anti-collision system

### Benefits

- Fastest hoisting speeds at most maximum hoisting performance
- No cooling water required
- No hydraulics
- No forced lubrication
- Lower maintenance costs

# Dual Gear DC-Drawworks

# Technical Data

Drawworks	DW-E-1250-DC	DW-E-1500-DC	DW-E-2000-DC
Continuous Power Rating	1,250 hp	1,500 hp	2,000 hp
	920 kW	1,100 kW	1,470 kW
Number of Motors	2x GE 752 DC	2x GE 752 DC	2x GE 752 DC
Gearbox Design	2-Speed	2-Speed	2-Speed
Eddy Current Brake	Yes – Air Cooled	Yes – Air Cooled	Yes – Air Cooled
Max. Hook Load @6 Lines*	410,060 lbs	-	-
	186 t	-	-
Max. Hook Speed @6 Lines**	8.66 ft/sec	-	-
	2.64 m/sec	-	-
Max. Hook Load @8 Lines*	540,133 lbs	599,657 lbs	-
	245 t	272 t	-
Max. Hook Speed @8 Lines**	6.50 ft/sec	7.38 ft/sec	-
	1.98 m/sec	2.25 m/sec	-
Max. Hook Load @10 Lines*	668,001 lbs	740,753 lbs	839,961 lbs
	303 t	336 t	381 t
Max. Hook Speed @10 Lines**	5.20 ft/sec	5.90 ft/sec	5.96 ft/sec
	1.58 m/sec	1.80 m/sec	1.82 m/sec
Max. Hook Load @12 Lines*	-	881,849 lbs	998,694 lbs
	-	400 t	453 t
Max. Hook Speed @12 Lines**	-	4.92 ft/sec	4.97 ft/sec
	-	1.50 m/sec	1.51 m/sec
Max. Hook Load @14 Lines*	-	-	1,153,018 lbs
	-	-	523 t
Max. Hook Speed @14 Lines**	-	-	4.26 ft/sec
	-	-	1.30 m/sec
Max. Hook Load @16 Lines*	-	-	-
	-	-	-
Max. Hook Speed @16 Lines**	-	-	-
	-	-	-
Max. Number of Layers	3	3	3
Dimensions L x W	286" x 117.5"	307.7" x 117.5"	301.2" x 117.5"
	7,263 mm x 2,985 mm	7,816 mm x 2,985 mm	7,650 mm x 2,985 mm
Weight	83,775 lbs	92,594 lbs	99,200 lbs
	38 t	42 t	45 t

\*values are based on the 1<sup>st</sup> gear and 2<sup>nd</sup> layer    \*\* values are based on 2<sup>nd</sup> gear

### Key Features

- Interchangeable DC motors
- Simplified modular design
- 4Q-Mode with Anti-Collision System enables fastest tripping speeds
- Slip & cut function and separate control console
- Available drilling enhancement software:
  - Feed-Off
  - Auto-Driller
  - Anti-Collision System

### Benefits

- Fastest hoisting speeds at most maximum hoisting performance
- No cooling water required
- No hydraulics
- No forced lubrication
- Lower maintenance costs

Whether a simple joystick control or a touch screen interface, the main purpose of the controls is to allow the driller to drill and trip efficiently. Bentec has provided automated drilling control systems for over two decades. Our integrated approach ensures efficient interaction between components.

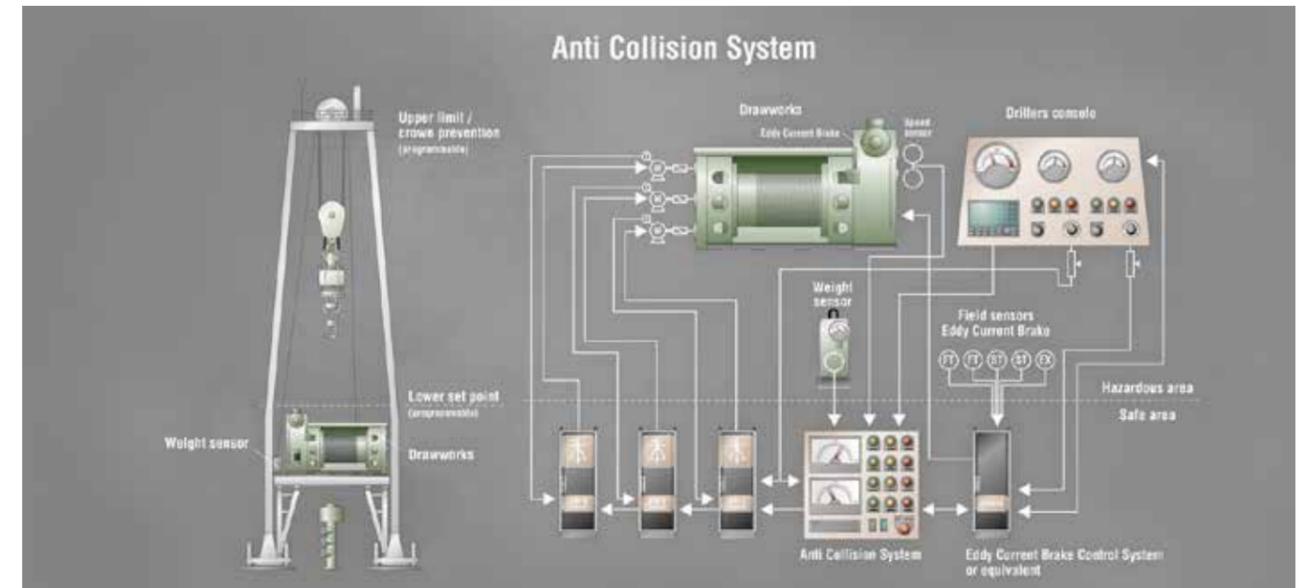
The following products are also available for Drawworks Systems:

### Software Enhancement Solutions

- Auto-Driller
- Anti-Collision System
- infoDRILL
- Rig Control System

### Electrical Equipment

- VFD Systems



# MUD PUMPS

**benTEC**



Bentec MUD PUMPS stand for new technology, enhanced reliability and reduced maintenance.

**benTEC**  
reliable. safe. efficient.



Bentec have completely redeveloped the concept of Mud Pumps. Equipping our Mud Pumps with a direct drive gearbox, Bentec AC-Motor and a state of the art pump housing. There is no requirement for an internal gear, with its many disadvantages and no more belt/chain tensioning. Bentec Mud Pumps are constructed to do the task that they are intended for: *pumping operations*.

Bentec Mud Pumps are lightweight and have a compact footprint. The Bentec AC-Motor can be either; top or rear mounted – suitable for any drilling rig arrangement. The pump is available with 5,000 or 7,500 psi, fluid ends, with all components conforming to the latest API standards and are available worldwide.

An integrated jib crane makes light work of changing liners and fluid end components. Bentec uses a unique and patented liner and valve clamp system, reducing maintenance time's significantly. A quick-change piston rod system adds further to reducing maintenance times. A special feature of the Bentec Mud Pump is the side-mounted transmission drive, eliminating the need for chain or belt drive and tensioning systems. The three stage helical gearbox drives directly onto a forged/welded and balanced crankshaft, which in turn means the pump is extremely quiet with reduced vibrations.

Liner cooling and gearbox lubrication systems are included; a supercharged pump and a noise reduction package are available upon request.

The Bentec Mud Pump is the right choice especially when it comes to noise-sensitive environments, such as offshore or densely populated areas. Beyond the supply of Mud Pumps, Bentec is a complete system supplier and can deliver the pumps together with the Bentec Variable Frequency Drive.

Improving the efficiency of the system further is available by upgrading it with Bentec Drilling Enhancement Software.

For example; the Bentec Soft Pump System, de-synchronises strokes of multiple Mud Pumps, in order to reduce wear and tear on high-pressure equipment and improves response times for MWD tools.

### Bentec AC-Motors

Bentec supplies its own AC-Motors designed in-house and dedicated to continuous Mud Pump operations. These motors provide best-in class electrical performance and insulation, with superior mechanical durability.

High quality materials, state of the art technology and design that conforms to ISO 9001 standards, ensure the highest degree of performance and service in the harshest environments.

### Bentec Gearboxes

Bentec Mud Pumps are equipped with a uniquely designed Gearbox. The transmission has been simplified to function as its intended to, with all other unnecessary components removed. It replaces the internal bull gear with its associated reaction forces, which reduces the life of Mud Pump components; Bentec Mud Pumps have lower maintenance costs and increased in-service operation.

### Bentec Smart Fluid Ends

Since the development of the first Bentec Mud Pump in 2009, we have continuously improved the AC Gearbox Driven Mud Pump in terms of increasing reliability and reducing the total cost of the equipment. With the latest development, Bentec has designed a new, technologically advanced Smart Fluid End, reducing the overall cost of Mud Pump ownership. In principle, Bentec has converted the standard 2-piece fluid end into a 3-piece fluid end. By separating the fluid end body from the valve body, the new module is utilised as either, the suction or the discharge module. These modules are identical and are both mounted on one carrier unit. This enables drilling contractors and operators to significantly reduce holdings of Mud Pump spare parts, as well as overhaul costs.

### Bentec Quick Liner Clamping System

Changing Mud Pump liners is always a time consuming task that must to be planned in advance and often requiring special or heavy tools.

Bentec has patented a design and developed a simplified Quick Liner Clamping System that eliminates the need for special tools whilst maintaining the accuracy when tightening the liner clamp bolts.

The system only requires a manual torque wrench to carry out adjustments. Each liner clamp bolt contains two mechanical check rings that visually indicate whether the connection is under or over torqued or within the specified range.

This system is the most simplified solution to clamp a liner in a safest and quickest way with most reliable torque precision.

The Bentec Quick Liner Clamping System therefore, enables frequent torque checks, while reducing unnecessary NPT and extending liner life.





# 1300hp - 2200hp

# Mud Pump

Technical Data	MP-T-1300-AC-R	MP-T-1600-DC-R	MP-T-1600-AC	MP-T-1600-AC-R	MP-T-2200-AC
<b>Power Rating</b>	1,300 hp / 970 kW	1,600 hp / 1,200 kW	1,600 hp / 1,200 kW	1,600 hp / 1,200 kW	2,200 hp / 1,641 kW
<b>Number of Motors</b>	Single AC, forced ventilated	Double DC, forced ventilated	Single AC, forced ventilated	Single AC, forced ventilated	Double AC, forced ventilated
<b>Motor Orientation</b>	Rear Mount	Rear Mount	Top Mount	Rear Mount	Top Mount
<b>Transmission</b>	External Gearbox				
<b>Max. Pressure</b>	5,000 PSI / 345 bar	7,500 PSI / 517 bar			
<b>Stroke</b>	12" / 304.8 mm	14" / 355.6 mm			
<b>Max. Stroke Speed</b>	120 spm	120 spm	120 spm	120 spm	110 spm
<b>Min. Liner Size</b>	5" / 127 mm	4-1/2" / 114.3 mm	4-1/2" / 114.3 mm	4-1/2" / 114.3 mm	5" / 127 mm
<b>Max. Liner Size</b>	7-1/2" / 190.5 mm	9" / 228.6 mm			
<b>Max. Discharge Flow</b>	826 gpm / 3,127 l/min	1,272 gpm / 4,816 l/min			
<b>Length</b>	241" / 6,121 mm	275" / 7,000 mm	196" / 5,050 mm	241" / 6,110 mm	204" / 5,180 mm
<b>Width</b>	100" / 2,530 mm	118" / 2,991 mm	116" / 2,950 mm	100" / 2,530 mm	125" / 3,170 mm
<b>Height</b>	1159" / 4,040 mm	154" / 3,930 mm	169" / 4,290 mm	159" / 4,040 mm	163" / 4,130 mm
<b>Weight (dry)*</b>	76,059 lbs / 34.5 t	87,082 lbs / 39.5 t	97,003 lbs / 44 t	81,571 lbs / 37 t	101,854 lbs / 46.2 t

\*Weight is based on 5,000psi fluid ends

### Key Features

- Direct-driven external gearbox
- No internal gear
- Patented simplified liner clamping
- Compact footprint
- Main motor cooling is VFD-controlled
- Fast change valve cover
- Patented smart fluid ends
- Further fluid end solutions available
- Available drilling enhancement software:
  - Soft Pump System

### Benefits

- Extended crankshaft lifetime due to no internal reaction forces
- Extended lifetime of main bearings
- Shorter duration for liner change
- Safer liner change
- Less special transport permits required
- Extended lifetime of main motors
- Shorter duration for valve change
- Smart fluid ends enable significant savings in stocking less fluid ends

Performance Chart MP-T-1300-AC

Liner size		inch	7½**	7,0	6½	6¼	6,0	5¾	5½	5,0
		mm	190,5	177,8	165,1	158,8	152,4	146,1	139,7	127,0
Max. discharge pressure	psi		2428	2787	3232	3496	3793	4130	4514	5000*
	bar		167	192	223	241	262	285	311	344
Volume per stroke	gal (US)		6,88	6,00	5,17	4,78	4,41	4,05	3,70	3,06
	litre		26,1	22,7	19,6	18,1	16,7	15,3	14,0	11,6
Pump Speed SPM	Max Input HP	Max Input kW	gal / min							
			l / min							
120	1300	969	826	720	621	574	529	486	444	367
			3127	2724	2349	2172	2002	1838	1682	1390
110	1192	889	757	660	569	526	485	445	407	337
			2867	2497	2153	1991	1835	1685	1542	1274
100	1083	808	688	600	517	478	441	405	370	306
			2606	2270	1958	1810	1668	1532	1402	1158
90	975	727	620	540	465	430	397	364	333	275
			2346	2043	1762	1629	1501	1379	1261	1042
80	867	646	551	480	414	382	353	324	296	245
			2085	1816	1566	1448	1334	1226	1121	927
70	758	565	482	420	362	335	308	283	259	214
			1824	1589	1370	1267	1168	1072	981	811
60	650	485	413	360	310	287	264	243	222	184
			1564	1362	1175	1086	1001	919	841	695
50	542	404	344	300	259	239	220	202	185	153
			1303	1135	979	905	834	766	701	579
40	433	323	275	240	207	191	176	162	148	122
			1042	908	783	724	667	613	561	463

Stroke 12" (304,8mm) based on 90% mechanical efficiency SPM = strokes per minute \* max working pressure  
 based on 100% volumetric efficiency gal = US standard \*\* not preferred size

Performance Chart MP-T-1600-AC/DC

Liner size		inch	7½	7,0	6¾**	6½	6¼**	6,0	5¾**	5½
		mm	190,5	177,8	171,5	165,1	158,8	152,4	146,1	139,7
Max. discharge pressure	psi		2988	3430	3689	3978	4303	4669	5000*	5000*
	bar		206	236	254	274	297	322	345	345
Volume per stroke	gal (US)		6,88	6,00	5,58	5,17	4,78	4,41	4,05	3,70
	litre		26,1	22,7	21,1	19,6	18,1	16,7	15,3	14,0
Pump Speed SPM	Max Input HP	Max Input kW	gal / min							
			l / min							
120	1600	1193	826	720	669	621	574	529	486	444
			3127	2724	2533	2349	2172	2002	1838	1682
110	1467	1094	757	660	613	569	526	485	445	407
			2867	2497	2322	2153	1991	1835	1685	1542
100	1333	994	688	600	558	517	478	441	405	370
			2606	2270	2111	1958	1810	1668	1532	1402
90	1200	895	620	540	502	465	430	397	364	333
			2346	2043	1900	1762	1629	1501	1379	1261
80	1067	795	551	480	446	414	382	353	324	296
			2085	1816	1689	1566	1448	1334	1226	1121
70	933	696	482	420	390	362	335	308	283	259
			1824	1589	1478	1370	1267	1168	1072	981
60	800	597	413	360	335	310	287	264	243	222
			1564	1362	1267	1175	1086	1001	919	841
50	667	497	344	300	279	259	239	220	202	185
			1303	1135	1056	979	905	834	766	701
40	533	398	275	240	223	207	191	176	162	148
			1042	908	844	783	724	667	613	561

Stroke 12" (304,8mm) based on 90% mechanical efficiency SPM= strokes/min \*Max PSI  
 based on 100% volumetric efficiency gal= US standard \*\* not preferred Liner size

Performance Chart MP-T-1600-AC/DC

Fluid End size		7500 PSI FLUID END										
Liner size		inch	7½**	7,0	6¾**	6½	6¼**	6,0	5¾**	5½	5,0	4½
		mm	190,5	177,8	171,5	165,1	158,8	152,4	146,1	139,7	127,0	114,3
Max. discharge pressure	psi		2988	3430	3689	3978	4303	4669	5083	5556	6723	7500*
	bar		206	236	254	274	297	322	350	383	464	517
Volume per stroke	gal (US)		6,88	6,00	5,58	5,17	4,78	4,41	4,05	3,70	3,06	2,48
	litre		26,1	22,7	21,1	19,6	18,1	16,7	15,3	14,0	11,6	9,4
Speed SPM	Max input HP	Max input kW	gal / min									
			l / min									
120	1600	1193	826	720	669	621	574	529	486	444	367	297
			3127	2724	2533	2349	2172	2002	1838	1682	1390	1126
110	1467	1094	757	660	613	569	526	485	445	407	337	273
			2867	2497	2322	2153	1991	1835	1685	1542	1274	1032
100	1333	994	688	600	558	517	478	441	405	370	306	248
			2606	2270	2111	1958	1810	1668	1532	1402	1158	938
90	1200	895	620	540	502	465	430	397	364	333	275	223
			2346	2043	1900	1762	1629	1501	1379	1261	1042	844
80	1067	795	551	480	446	414	382	353	324	296	245	198
			2085	1816	1689	1566	1448	1334	1226	1121	927	751
70	933	696	482	420	390	362	335	308	283	259	214	174
			1824	1589	1478	1370	1267	1168	1072	981	811	657
60	800	597	413	360	335	310	287	264	243	222	184	149
			1564	1362	1267	1175	1086	1001	919	841	695	563
50	667	497	344	300	279	259	239	220	202	185	153	124
			1303	1135	1056	979	905	834	766	701	579	469
40	533	398	275	240	223	207	191	176	162	148	122	99
			1042	908	844	783	724	667	613	561	463	375

Stroke 12" (304,8mm) based on 90% mechanical efficiency SPM = strokes per minute \* max working pressure  
 based on 100% volumetric efficiency gal = US standard \*\* not preferred size

Performance Chart MP-T-2200-AC

Liner size		inch	9*	8,0	7,0	6½	6,0	5½	5,0
		mm	228,6	203,2	177,8	165,1	152,4	139,7	127,0
Max. discharge pressure	psi		2668	3376	4410	5114	6002	7143	7500*
	bar		184	233	304	353	414	493	517
Volume per stroke	gal (US)		11,57	9,14	7,00	6,03	5,14	4,32	3,57
	litre		43,8	34,6	26,5	22,8	19,5	16,4	13,5
Pump Speed SPM	Max Input HP	Max Input kW	gal / min						
			l / min						
110	2200	1641	1272	1005	770	664	565	475	393
			4816	3806	2914	2512	2141	1799	1487
100	2000	1491	1157	914	700	603	514	432	357
			4378	3460	2649	2284	1946	1635	1351
90	1800	1342	1041	823	630	543	463	389	321
			3941	3114	2384	2055	1751	1472	1216
80	1600	1193	925	731	560	483	411	346	286
			3503	2768	2119	1827	1557	1308	1081
70	1400	1044	810	640	490	422	360	302	250
			3065	2422	1854	1599	1362	1145	946
60	1200	895	694	548	420	362	308	259	214
			2627	2076	1589	1370	1168	981	811
50	1000	746	578	457	350	302	257	216	178
			2189	1730	1324	1142	973	818	676
40	800	597	463	366	280	241	206	173	143
			1751	1384	1059	914	778	654	541

based on 90% mechanical efficiency based on 100% volumetric efficiency  
 SPM= strokes/min gal= US standard  
 \* 9" Liners special arrangement \*\* max. discharge pressure

# IRON ROUGHNECKS

benTEC



The Bentec IRON ROUGHNECK maximises the efficiency of pipe handling operations.

It provides a safe and versatile alternative to conventional pipe connection techniques for make-up & break out operations.

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reliable. safe. efficient.



Over the past 40 years, Bentec has developed an impressive portfolio of automated tubular running operations in order to build more robust and reliable Iron Roughnecks that reduce both downtime and maintenance. The Iron Roughneck is available in two versions.

The IR-100 model operates purely hydraulically, simple and robust for safe drilling operations. This design includes the essential functions to make-up and break out pipe connections.

The IR-100-Remote model operates electrically and hydraulically. It includes automated features for; make and break sequences, remote positioning system and a torque readout system for partial or fully automated make and break operations.

The compact dimensions of the Bentec Iron Roughneck makes it easy to install in any existing or new build rigs. The design allows a simple interchange with competitors' Iron Roughnecks. Bentec developed both Iron Roughneck models for use as either a portable unit on land rigs or permanent installation on offshore rigs. The existing rig hydraulic power unit (Rig HPU) powers the Iron Roughneck, although a separate hydraulic power unit is also available. Bentec Iron Roughnecks comply with the latest European CE and ATEX standards, as well as with the latest international API standards, maintaining the highest level of industry quality and safety.



- Wireless Ex Zone rated Control Console
- Full make and break sequence controls
- Full make and break torque control



- Zone-rated HMI based Iron Roughneck controls
- Sequences overview
- Digital documentation
- Alarm status
- Digital troubleshooting guide
- Digital pipe tally

## IR-100 &amp; IR-100-Remote

## Technical Data

Max. Makeup Torque	100,000 ft-lbs	135,600 Nm
Max. Breakout Torque	120,000 ft-lbs	162,700 Nm
Tool Joint Connection O.D. Range	3-1/8" – 9-3/4"	
Spin Speed	100 rpm @ 5" DP, 46 gpm / 176 l/min	
Spin Torque	3,000 ft-lbs @ 5" DP, 46 gpm / 176 l/min	
Min. Connection Height	30.2"	767 mm
Max Connection Height	69.6"	1,768 mm
Max. horizontal Travel*	8 ft	2,438 mm
Hydraulic Requirements (min.)	45 gpm @ 2,466 PSI	170 l/min @ 170 bar
Hydraulic Requirements (max.)	55 gpm @ 3,046 PSI	207 l/min @ 210 bar
Torque Wrench Angle	40°	
Controls	Local Control Panel or Remote Controls via Zone Rated HMI or Zone Rated Wireless Controls	
Remote Capabilities	Sequence Assisted Automation	
Mount	Pedestal / Floor Mount Socket	
Pedestal Rotation	300°	
Casing Ready	No	
Width	55.5"	1,410 mm
Height (From Drill Floor Level)	97.4"	2,474 mm
Height (Transport)**	86.6"	2,200 mm
Depth	89.4"	2,271 mm
Weight	14,330 lbs	6.5 t
Min Temperature***	-40 °F	-40°C
Max Temperature	131 °F	+55°C

\* horizontal travel is the defined distance between center of wrench when retracted and center of wrench when extended

\*\* socket pin removed from the unit for transport

\*\*\* deep temperature kit from -4°F / -20°C required



The Bentec Iron Roughneck provides a safe and versatile alternative to conventional pipe connection techniques for make and break operations.

### Key Features

- Fastest cycle time for make / break of connections min. 37 seconds
- Make and break cycles can be done in automated sequences
- Hard wired, HMI-based or wireless remote controls (zone rated)
- Each torque process is measurable with the highest accuracy and stored in the HMI unit or 3rd party systems
- Combined electric over hydraulic approach
- Central lubrication spots
- Available drilling enhancement software:
  - Digital Pipe Tally

### Benefits

- Up to 50% reduction of flat time during make and break connections
- Floorhands or drillers can focus on the actual work task
- Holistic control about all functions or sequences of the Iron Roughneck and simplified troubleshooting
- Highest level of automation
- More reliable and valuable feedback for drill string make torque documentation
- Less hydraulics requiring less maintenance
- Simplified lubrication process

# MUD BUCKET

**ben**TEC



**Bentec MUD BUCKET**  
preventing mud fluid spills on drill floor -  
fully remote or manual controlled  
with the crew kept out of harm's way.

**ben**TEC  
reliable. safe. efficient.



Manually operated Mud Buckets with integrated return line.



Automated Mud Bucket with external mud return line.

The Bentec Mud Bucket is a hydraulically or manually operated safety system, which prevents mud spills on the drill floor during wet trips or breaking out drillpipe connections.

The simplified design is flexible and fits into any drill floor arrangement. The Mud Bucket is a fixed installation on the drill floor, diverting the mud via hoses or integrated pipework back into the mud sump. The standard system is manually operated but is also available with full remote control, thus keeping your crew out of harm's way.

The slewing range can be integrated into Bentec, or any other rig, Zone Management System preventing collisions with other drilling equipment that is in motion.



Automated Mud Bucket with integrated mud return line.



Manual operated Mud Bucket



Simplified integrated mud return line with hammer union connection on the drill floor.



### Key Features & Benefits

- Occupies minimal space in its park position
- Seal kits are suitable to the pipe diameter, reducing spills to a minimum extend - plus seal kits can be changed quickly
- Hydraulically remote controlled or manually operated
- Integrated mud return line or separate mud return line via hoses
- Environmentally friendly due to significantly less mud spills on the drill floor
- Remote operation - the crew is kept out of harm's way during mud bucket operation
- Automatic operation from a remote control console or drillers cabin with adjustable slewing speeds
- Reduces crew work and fatigue caused by continuous handling of a manual mud buckets
- The design avoids all pinch points
- Fully integratable into a zone management system to prevent collisions with other equipment in motion

# CATWALK SYSTEMS

**benTEC**



The Bentec CATWALK SYSTEM  
cuts down on manual pipe handling.

**benTEC**  
reliable. safe. efficient.



Standard hydraulic Catwalk System

The Bentec Catwalk Systems simplify and speed up the pipe handling process from the pipe racks to the drill floor. By elevating drillpipe up to the drill floor, pipes can be transferred directly into the Top Drive elevators. The time-consuming process of firstly storing pipes in the mouse hole is not necessary. Personnel can operate the Bentec Catwalk System by remote control, keeping themselves out of harm's way.



Special Design: Mechanized Catwalk System with elevation to work above wellheads.



Special Design: Noise reduced Catwalk System with lowest possible elevation.

# Catwalk Systems

# Technical Data

Catwalks	HCS-16-25	HCS-25-35	HCS-35-40	HCS-40-46
Min. Substructure Height	16 ft / 4.9 m	25 ft / 7.6 m	35 ft / 10.7 m	40 ft / 12.2 m
Max. Substructure Height	25 ft / 7.6 m	35 ft / 10.7 m	40 ft / 12.2 m	46 ft / 14 m
Min. Tubular Handling DIA	2-3/8" / 60.3 mm	2-3/8" / 60.3 mm	2-3/8" / 60.3 mm	2-3/8" / 60.3 mm
Max. Tubular Handling DIA	20" / 508 mm	20" / 508 mm	24" / 610 mm	24" / 610 mm
Max. Tubular Length	48 ft / 14.6 m	48 ft / 14.6 m	64 ft / 19.51 m	64 ft / 19.51 m
Max. Tubular Weight	8,000 lbs / 3.6 t	8,000 lbs / 3.6 t	16,000lbs / 7,3 t	16,000lbs / 7,3 t
Operation Length	72.8 ft / 22.2 m	72.8 ft / 22.2 m	78.2 ft / 23.83 m	88 ft / 26.8 m
Operation Width*	41.1 ft / 12.52 m	41.1 ft / 12.52 m	41.1 ft / 12.52 m	41.1 ft / 12.52 m
Operation Height	5.3 ft / 1.6 m	5.3 ft / 1.6 m	5.9 ft / 1.8 m	6.6 ft / 2 m
Weight	72,753 lbs / 31 t	72,753 lbs / 31 t	101,413 lbs / 46 t	110,200 lbs / 50 t
Transport Length	72.8 ft / 22.2 m	72.8 ft / 22.2 m	78.2 ft / 23.83 m	88 ft / 26.8 m
Transport Width	8 ft / 2.44 m	8 ft / 2.44 m	9.8 ft / 3 m	9.8 ft / 3 m
Transport Height	5.9 ft / 1.8 m	5.9 ft / 1.8 m	99.8 ft / 3 m	9.8 ft / 3 m
Special Catwalk Solutions are also available on request:	Low Elevation Catwalk / Low Noise Catwalk / Double Casing Handling Catwalk / Mechanized Catwalk			
Advanced Performance Options available:	Zone Rated Wireless Controls	Upgrade to Double Stand Handling	Stand Tailing Arm Drill Floor Mount or Mast Mount	Utility Winch
	LED Lighting System	Walking System	Trailer Moving Set	

\* Incl. Pipe Storage / Pipe storage size can also customized

## Key Features

- Sequence assisted controls
- Hydraulic pipe rack
- Hydraulic leveling system
- Optional trailer mounted transport system
- Optional walking system
- Compatible with Bentec Tailing Arms
- One transport load
- Onboard HPU

## Benefits

- Simplified operation
- Safe pipe handling
- Fastest rig up time
- Suitable for fast moving rig concepts
- Ready for pad drilling
- Full integration into an holistic rig pipe handling system



Local control panel



Wireless remote console



Wired control panel at V-Door

# PIPE GUIDE ARM

benTEC



The Bentec PIPE GUIDE ARM is especially designed to improve the HSE levels of onshore and offshore rigs, by reducing hands-on pipe handling.



Bentec has combined over 20 years of experience in commissioning, maintaining and repairing drilling equipment to develop a more reliable, robust and service-friendly product for safe drilling operations. Bentec developed the Pipe Guide Arm to match and meet the needs of our customers.

Designed exclusively for use on drilling rigs, the Pipe Guide Arm, guides drillpipe or casing from the handover position at the V-door to the center of the well, but is also able to guide the drillpipe from the center of the well, back to the handover position at the V-door.

The Bentec Pipe Guide Arm is operated by hydraulic cylinders and is specifically designed for harsh conditions, providing a high level of quality and safety.

Manually handling drillpipe is no longer required: The Pipe Guide Arm significantly reduces the possibility of accidents in accordance with, IADC Safety Statistics Reports.

The Bentec Pipe Guide Arm is suitable for onshore and offshore rigs.

## Technical Data

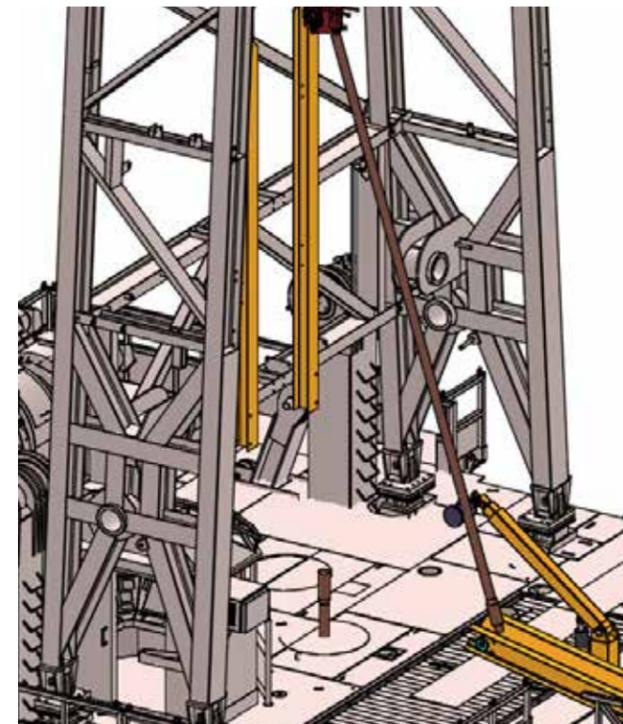
## Pipe Guide Arm



### TECHNICAL DATA Bentec PGA-20-3000

<b>Weight:</b>	3,086 lbs/1.4 t
<b>Min. length:</b>	228" / 5,800 mm
<b>Max. length:</b>	327" / 8,295 mm
<b>Width:</b>	23" / 580 mm
<b>Height:</b>	27" / 695 mm
<b>Min. pipe handling diameter:</b>	2 7/8" / 73 mm
<b>Max. pipe handling diameter:</b>	20" / 508 mm
<b>Max. drillpipe weight:</b>	6,614 lbs/3.0t
<b>Ambient temperature:</b>	-4 °F to +113 °F / -20 °C to +45 °C*
<b>Mount:</b>	Mast Mounted / Floor Mounted

\*deep temperature kit from -4 °F / -20 °C required.



### Benefits

- Controlled pipe handling from Catwalk System to the well centre
- Manual handling Drillpipe is no longer necessary
- The Pipe Guide Arm significantly reduces possible accidents iaw 2013 IADC Safety Statistics Report
- No ropes or chains are required to handle Drillpipe
- No hand and finger injuries during pipe handling
- HSE level improved due to the controlled pipe handling

### Key Features

- HSE improvement – individuals are kept out of harm's way
- Teachable stabbing and positioning function
- Available for both – arctic and desert environments
- Suitable for onshore or offshore rigs
- Higher level of rig automation

# RIG WALKING SYSTEM

**ben**TEC



**Bentec RIG WALKING SYSTEM** for moving the mast and substructure in any direction with full setback.



Bentec Rig Walking Systems provides a solution for reducing the time taken for a rig move on multi-well rig-sites. Moving the complete rig to the next well also requires fewer cranes and less manpower.

Compatible with a wide range of rig designs, Bentec Rig Walking Systems can be adapted to both existing and new build rigs. It consists of four units, each of which fits directly to the substructure. The integrated lift and slide system is operated by hydraulic cylinders to move the rig and the full setback to the desired position. The Bentec Rig Walking System features a reliable and robust design "Made in Germany" and is ideal for drilling rigs on pad drilling or cluster well operations.

A remote console controls the system and can either be operated with the existing rig hydraulic power unit, or if required, a separate hydraulic power unit is also available.

Bentec can provide an in-house designed, standalone HPU that attaches to the substructure and is controlled by a local control panel or with an optional zone-rated wireless control console.

The Bentec Rig Walking System conforms to the latest European and International Standards, maintaining the highest levels of quality and safety.

## Technical Data

<b>Length:</b>	108" / 2,733 mm
<b>Width:</b>	101" / 2,570 mm
<b>Height:</b>	72" / 1,828 mm
<b>Weight: (approx.)</b>	30,967 lbs / 14,500 kg
<b>Total lifting capacity:</b>	2,645,547 lbs / 1,200 t
<b>Lifting capacity per unit:</b>	661,387 lbs / 300t
<b>Max. walk speed:</b>	46 ft/hr / 14 m/hr
<b>Max. lifting height:</b>	5.9" / 150 mm
<b>Max. travelling path:</b>	19.7" / 500 mm
<b>Rotation:</b>	360°/20 directions
<b>Stand area per unit:</b>	6820"² / 4.4 m²
<b>Max. working pressure:</b>	2,466 PSI / 170 bar
<b>Volumetric flow:</b>	63.4 gpm / 240l/min
<b>Max. surface load:</b>	14,620 lbs / ft² / 700 kN/m²
<b>Max. ground irregularity:</b>	0.4"/32 ft / 10 mm / 10 m



## Rig Walking System



### Key Features

- Available for new built and existing rigs
- The rig can walk in 20 different directions within 360°
- Optional standalone HPU
- Optional wireless zone rated control console
- Compatible with widest range of rig designs
- Integration with rig hydraulic power unit possible
- Compact design

### Benefits

- Simplified moving system reduces rig move time from well to well
- Ideal for pad drilling and cluster well locations
- Fewer cranes and less manpower required to move rigs

# BOP CLOSING UNIT

**benTEC**



Bentec BOP Closing Units are modular & compact with flexible control solutions to meet customers' expectations.

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reliable. safe. efficient.

# BOP Closing Unit



Push button hardwired Control Console



Containerised BOP Closing Unit

Driven by innovation and quality to set new industry standards, Bentec manufactures an extensive range of BOP CONTROL SYSTEMS, or BOP CLOSING UNITS designed for reliable performance and simplified maintenance. Its components are modular and easily exchanged with standard components to meet customer specifications. The BOP CONTROL SYSTEM uses nitrogen-based pre-charged accumulator bottles, hydraulic fluids and electric / air based pumps to generate the pressure to serve different BOP Stack configurations. Bentec also offers a wide range of remote control solutions, again meeting any customer requirements. Bentec benefits from high-end quality certification, such as ISO 9001 & API 16D License to deliver the best value BOP Closing Unit to our customers.



## Features & Benefits

- Flexible Configuration serving all land rig and non-subsea offshore drilling configurations
- Modular Design simplifies maintenance and reduces the total cost of ownership
- Triple controls redundancy
- ATEX Zone I / Class I DIV I for Remote Controls
- Rated for extreme environment such as arctic or desert
- Decades of field-proven reliability in drilling equipment with industry-leading service life
- Several Pump options enable planning flexibility for customers:
  - Pneumatic Driven Oil Pump & Electric Driven Triplex Oil Pump
  - 2x Electric Driven Triplex Oil Pump
- Various Remote Console Solutions to meet specific customer preferences:
  - Push Button hard-wired (Standard)
  - HMI Touchscreen hardwired PLC
  - Electric Pneumatic Remote Controls (for units with pneumatic & electric driven pumps)
  - Electric Hydraulic Remote Controls (for units with two electric driven pumps)
- Basket Filter: cost efficient and environmental-protecting filtration system
  - Advanced oil filtration system extends Closing Unit life
  - Simplified oil filter maintenance

## Options

- Additional Pressure Filter
- Diverter System controls
- Heavy duty Modular Oilfield Skid
- Various Housing Options available
  - ISO Containerization 20ft or 30ft
  - Arrangement Side Door Access / Front Door Access
  - Sun Shed
- Various Certifications available:
  - API 16D monogramming available to meet customers' requirements
  - CE Certification
  - ATEX Zone 1 Certification for the closing unit

# TRAVELING BLOCKS

**ben**TEC



**Bentec TRAVELING BLOCKS**  
provide a compact design to enhance  
performance and operability.

**ben**TEC  
reliable. safe. efficient.



Bentec designs and manufactures a comprehensive range of Traveling Blocks to meet our customer's specific drilling requirements. The compact and streamlined design eliminates interferences with mast or derrick components. Long service life is achieved through quality fabrication and carefully selected components. Apart from our standard range of products, a low temperature design is available upon request.



# Traveling Blocks

# Technical Data

Model	Load Rating	Number of Sheaves	Sheave OD	Wireline Sizes	
TB-250-5-36	250 ton / 227 t	5	36" / 914 mm	1-1/8" / 29 mm	1-1/4" / 32 mm
TB-275-5-42	275 ton / 250 t	5	42" / 1,067 mm	1-1/8" / 29 mm	1-1/4" / 32 mm
TB-350-5-42	350 ton / 318 t	5	42" / 1,067 mm	1-1/8" / 29 mm	1-1/4" / 32 mm
TB-350-6-42	350 ton / 318 t	6	42" / 1,067 mm	1-1/8" / 29 mm	1-1/4" / 32 mm
TB-400-5-50	400 ton / 363 t	5	50" / 1,270 mm	1-1/4" / 32 mm	1-3/8" / 35 mm
TB-400-6-50	400 ton / 363 t	6	50" / 1,270 mm	1-1/4" / 32 mm	1-3/8" / 35 mm
TB-500-6-52	500 ton / 454 t	6	52" / 1,321 mm	1-3/8" / 35 mm	1-1/2" / 38 mm
TB-500-6-60	500 ton / 454 t	6	60" / 1,524 mm	1-3/8" / 35 mm	1-1/2" / 38 mm
TB-500-7-60	500 ton / 454 t	7	60" / 1,524 mm	1-3/8" / 35 mm	1-1/2" / 38 mm
TB-650-6-60	650 ton / 590 t	6	60" / 1,524 mm	1-1/2" / 38 mm	1-5/8" / 42 mm
TB-650-7-60	650 ton / 590 t	7	60" / 1,524 mm	1-1/2" / 38 mm	1-5/8" / 42 mm
TB-750-7-60	750 ton / 680 t	7	60" / 1,524 mm	1-1/2" / 38 mm	1-5/8" / 42 mm

## Key Features

- Compact design
- Individual sheave lubrication lines
- Heavy duty wireline guards
- Tapered roller bearings in sheaves

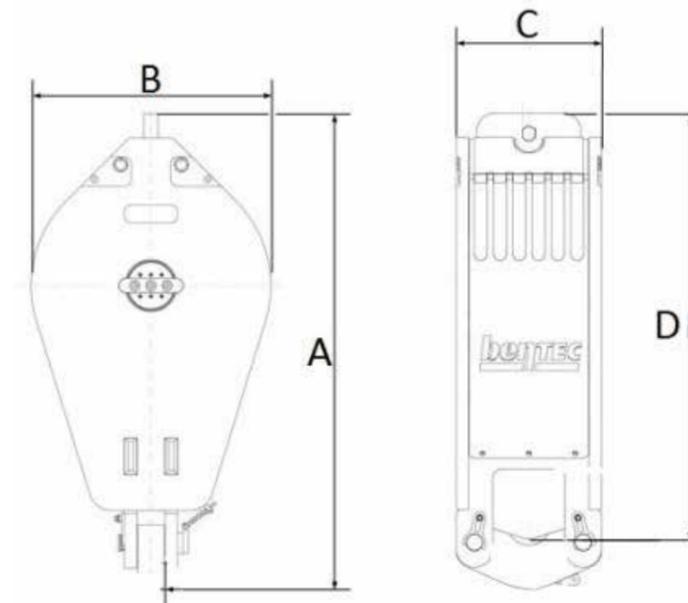
## Benefits

- Heavy steel fabricated main frame
- One piece forged alloy clevis
- Sheaves with API wireline grooves
- Designed in according with API 8C including available monogramming

# Dimensions

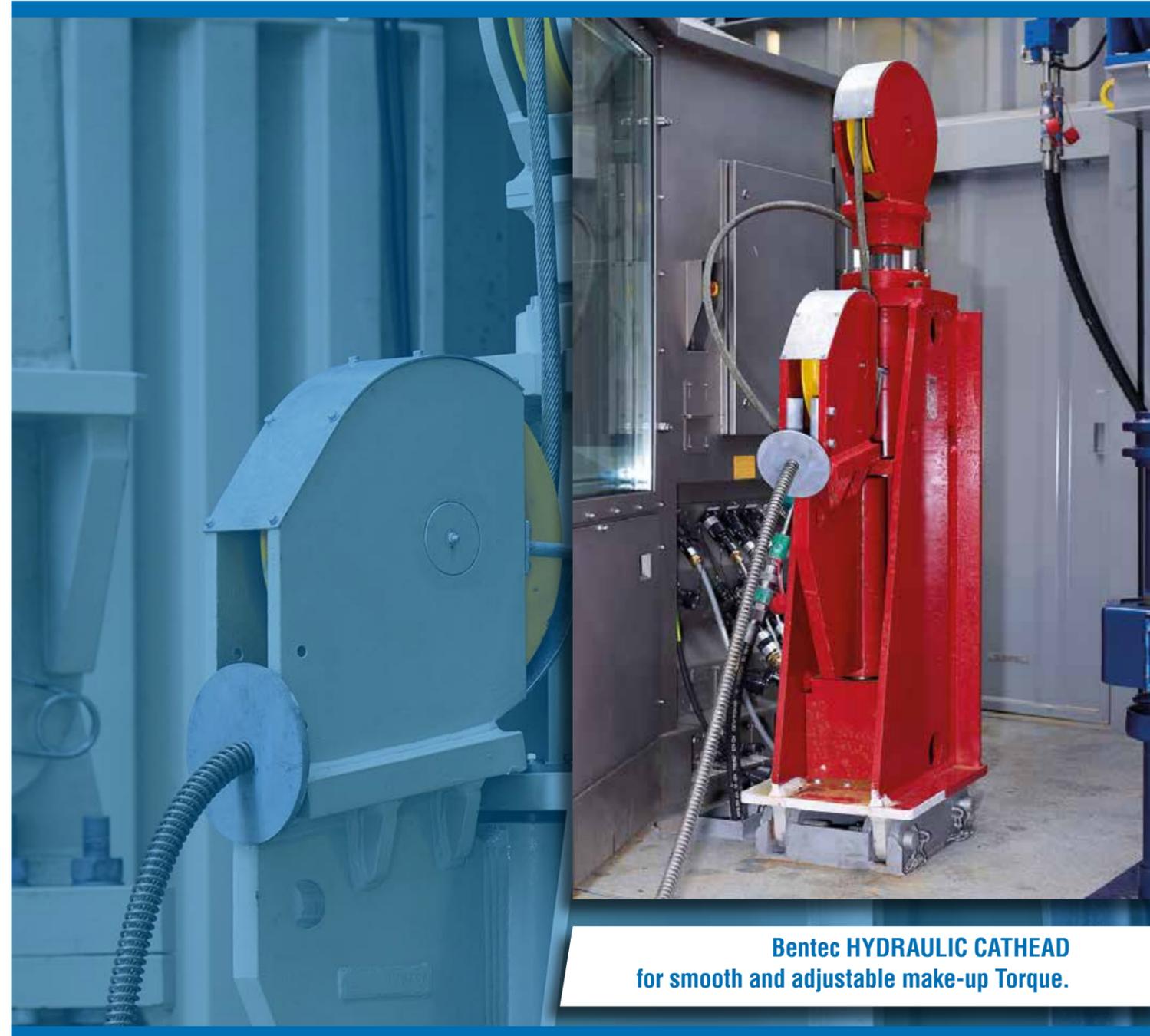
# Traveling Blocks

Model	A	B	C	D	Weight
TB-250-5-36	80.9" / 2,055 mm	39.3" / 998 mm	24.5" / 622 mm	71.73" / 1,822 mm	6,063 lbs / 2.75 t
TB-275-5-42	92.9" / 2,360 mm	45.3" / 1,150 mm	24.5" / 622 mm	71.73" / 1,822 mm	8,160 lbs / 3.7 t
TB-350-5-42	92.9" / 2,360 mm	45.3" / 1,150 mm	24.5" / 622 mm	82.87" / 2,105 mm	8,160 lbs / 3.7 t
TB-350-6-42	92.9" / 2,360 mm	45.3" / 1,150 mm	28.2" / 716 mm	82.87" / 2,105 mm	8,708 lbs / 3.95 t
TB-400-5-50	103.4" / 2,626 mm	52.8" / 1,341 mm	28.8" / 732 mm	93.42" / 2,373 mm	11,684 lbs / 5.3 t
TB-400-6-50	103.4" / 2,626 mm	52.8" / 1,341 mm	32" / 813 mm	93.42" / 2,373 mm	12,677 lbs / 5.75 t
TB-500-6-52	111" / 2,826 mm	56" / 1,420 mm	33" / 834 mm	99" / 2,514 mm	17,637 lbs / 8 t
TB-500-6-60	119.4" / 3,033 mm	64" / 1,626 mm	33" / 834 mm	107" / 2,718 mm	20,170 lbs / 9.15 t
TB-500-7-60	119.4" / 3,033 mm	64" / 1,626 mm	37" / 940 mm	107" / 2,718 mm	22,266 lbs / 10.1 t
TB-650-6-60	123.5" / 3,137 mm	64" / 1,626 mm	33" / 854 mm	110.1" / 2,797 mm	22,046 lbs / 10 t
TB-650-7-60	123.5" / 3,137 mm	64" / 1,626 mm	37.9" / 963 mm	110.1" / 2,797 mm	24,250 lbs / 11 t
TB-750-7-60	125" / 3,175 mm	64" / 1,626 mm	37.9" / 963 mm	110.1" / 2,797 mm	24,690 lbs / 11.2 t



# HYDRAULIC CATHEAD

**benTEC**



**Bentec HYDRAULIC CATHEAD**  
for smooth and adjustable make-up Torque.

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reliable. safe. efficient.



This useful rig floor equipment provides smooth and adjustable make-up Torque. Due to its hydraulic operation, the Bentec Hydraulic Cathead eliminates electrical hazards. The system can be powered by either a stand-alone hydraulic power unit (HPU), or integrated into the existing rig hydraulic power unit.

The pulling force provided by the Bentec Hydraulic Cathead ensures correct and sufficient make-up and break out torque for drill-pipe, drill collars, bit connections or other applications.

## Technical Data

### Model HC-31.5

Max. line pull:	31,500 lbf	140 kN
Max. line speed:	0.5 ft / sec	0.15 m / sec
Line stroke:	4.92"	1 500 mm
Wireline diameter:	7/8"	22 mm
Hydraulic working pressure:	2,030 PSI	140 bar
Hydraulic flow:	26.4 gpm	100l / min
Operation angle of pivot arm in degrees:	25° - each side	
Length:	32.3"	821 mm
Width:	19.7"	500 mm
Height:	84.6"	2 000 mm
Weight less optional equipment:	2,535 lbs	1,150 kg

### Key Features

- Remote controls with pressure regulation
- CE & ATEX conformity
- Suitable for arctic and desert environments
- Suitable for onshore and offshore
- Flexible floor connections

## Hydraulic Cathead



### Benefits

- Simplified design enables trouble free performance
- Simplified design - extended maintenance intervals
- Various floor connections enable flexible rig applications

# DEADLINE ANCHOR

**ben**TEC



Standard Bentec DEADLINE ANCHORS are available in different sizes and capacities - as left-hand and right-hand design. Custom made deadline anchors are also available.



Designed for use with compression load cells, Bentec Deadline Anchors are made from high-grade structural steel for operations in the harshest environments, from -40°C up to +55°C.

Bentec Deadline Anchors are designed, fabricated and tested in-house, with high quality manufacturing standards and in accordance with API 8C.

## Technical Data

## Deadline Anchor

Model	Line Pull	Load Sensor	Wireline Size	Dimensions (h x w x l)	Drum Dia.	Weight	Mounting
DA-100-W-1 1/2	100,000 lbf 445 kN	Compression E 551	1-1/2" 38 mm	46" x 20" x 55" 1,160 x 506 x 1,400 mm	28" 711 mm	2,315 lbs 1,050 kg	Wall or Floor
DA-100-W-1 3/8	100,000 lbf 445 kN	Compression E 551	1-3/8" 35 mm	46" x 19" x 55" 1,160 x 490 x 1,400 mm	28" 711 mm	2,293 lbs 1,040 kg	Wall or Floor
DA-100-W-1 1/4	100,000 lbf 445 kN	Compression E 551	1-1/4" 32 mm	46" x 19" x 55" 1,160 x 490 x 1,400 mm	28" 711 mm	2,293 lbs 1,040 kg	Wall or Floor
DA-60-W-1 1/4	60,000 lbf 267 kN	Compression E 551	1-1/4" 32 mm	37" x 17" x 43" 950 x 420 x 1,100 mm	24" 610 mm	1,598 lbs 725 kg	Wall or Floor
DA-60-W-1 1/8	60,000 lbf 267 kN	Compression E 551	1-1/8" 28 mm	37" x 16" x 43" 950 x 408 x 1,100 mm	24" 610 mm	1,598 lbs 725 kg	Wall or Floor

\* other models and sizes are available on request.

### Available mounts



Mast Mounted Deadline Anchor



Floor Mounted Deadline Anchor

### Key Features

- Heavy-duty, high-grade structural steel
- Tapered roller anti-friction bearings
- Bronze wireline clamp
- Machined grooved drum
- Left-hand models available
- Deadline anchor manufactured iaw API 8C
- CE conformity
- ATEX conformity on request

### Benefits

- Manufactured iaw API 8C
- Heavy steel fabricated main frame

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