

# Turbo Drill Motors



At Turbo Drill Industries, we design motors that rise to the challenge. TDI drilling motors have established a solid reputation in North America shale drilling for strength and reliability. They are reliable because they have been designed mechanically stronger than average drilling motors, enabling them to handle higher torque and increased WOB. Turbo Drill motors offer additional benefits by adding CuBIC® sensors from Sanvean Technologies that record drilling dynamics.

The Turbo Drill motors with CuBIC® sensors record lateral and axial shock and vibration, string and bit RPM, and temperature above and below the motor. And they also map drilling dynamics response in different formations.

The bearing assembly can be selected based on the drilling application utilizing an innovative interchangeable bottom-end platform. Diamond Mud Lubricated, Ball & Race Mud Lubricated and Oil Sealed variants are available. TDI motor technology is patent protected.

Turbo Drill motors are OEM compatible for all configurations, and motor component parts can be customized for your specific needs. Because they are designed, and manufactured in-house, it enables cradle to grave traceability on all parts. Motors are engineered, built, and serviced at the same facility.

## Features

- High torque drive lines, single or double articulated for varying conditions
- Mandrel catch included in all Turbo Drill motors
- Robust and reliable through long-life radial and thrust bearings
- Stress relief to external components relieves stress at threaded connections

## Benefits

- Optimized bit-to-bend length and stabilization for slide yield and neutral rotary tendency
- Increased WOB
- Increased reliability - reduced NPT
- CuBIC embedded sensors add no additional length or connections to the motor
- Automatic on/off recording trigger requires no field personnel
- CuBIC data is used for Condition-Based Monitoring and to enhance performance
- Eliminate anecdotal and opinionated decisions – make decisions based on downhole facts

## Diamond Mud Lube Specifications

Specifications	Tool Size					
	4 3/4" (121 mm)	5" (127 mm)	6-1/2" (165 mm)	7-1/8" (181 mm)	8" (203 mm)	9-5/8" (244 mm)
Hole Size	5-7/8" - 6 3/4" 149 mm - 171 mm	5-7/8" - 6-3/4" 149 mm - 171 mm	7-7/8" - 9-7/8" 200 mm - 251 mm	8-1/2" - 9-7/8" 216 mm - 251 mm	9-7/8" - 12-1/4" 251 mm - 311 mm	12-1/4" - 24" 311 mm - 610 mm
Bit Box	3-1/2" Reg	3-1/2" Reg	4-1/2" Reg	4-1/2" Reg	6-5/8" Reg	6-5/8" - 7 -5/8" Reg
Mandrel Bore	1-1/4" 32 mm	1-1/4" 32 mm	1-1/2" 38 mm	1-3/4" 44 mm	2" 51 mm	2-1/2" 64 mm
Maximum Flow Rates	500 gpm 1,893 l/min	500 gpm 1,893 l/min	750 gpm 2,839 l/min	1,000 gpm 3,785 l/min	1,300 gpm 4,921 l/min	2,000 gpm 7,571 l/min
Maximum WOB - Dynamic	43,000 lbs 19,127 daN	43,000 lbs 19,127 daN	58,000 lbs 25,800 daN	63,800 lbs 28,380 daN	86,000 lbs 38,255 daN	160,000 lbs 71,172 daN
Maximum WOB - Static	106,000 lbs 47,151 daN	106,000 lbs 47,151 daN	170,000 lbs 75,620 daN	187,000 lbs 83,182 daN	240,000 lbs 106,757 daN	450,000 lbs 200,170 daN
Maximum Bit Overpull	154,500 lbs 68,725 daN	158,000 lbs 70,282 daN	290,000 lbs 128,998 daN	319,000 lbs 141,898 daN	396,000 lbs 176,150 daN	600,000 lbs 266,893 daN
Absolute Overpull	386,000 lbs 171,701 daN	386,000 lbs 171,701 daN	820,000 lbs 364,754 daN	902,000 lbs 401,230 daN	990,000 lbs 440,374 daN	1,500,000 lbs 667,233 daN
Bearing Section Torque Capacity	16,000 ft-lbs 21,693 Nm	19,000 ft-lbs 25,761 Nm	38,500 ft-lbs 52,199 Nm	55,000 ft-lbs 67,790 Nm	55,000 ft-lbs 74,570 Nm	134,500 ft-lbs 182,358 Nm
Bit to Bend - Fixed	40" 1,016 mm	42-1/2" 1,079 mm	36" 914 mm	48" 1,219 mm	47" 1,193 mm	53" 1346 mm
Bit to Bend - Adjustable	53-3/8" 1,356 mm	55-15/16" 1,421 mm	55-3/4" 1,416 mm	69-1/4" 1,759 mm	69-3/8" 1,762 mm	74-1/8" 1,883 mm



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## Oil Sealed Specifications

Specifications	Tool Size			
	4 3/4" (121 mm)	6-1/2" (165 mm)	8" (203 mm)	9-5/8" (244 mm)
Hole Size	5-7/8" - 6 3/4" 149mm - 171 mm	7-7/8" - 9-7/8" 200 mm - 251 mm	9-7/8" - 12-1/4" 251 mm - 311 mm	12-1/4" - 24" 311 mm - 610 mm
Bit Box	3-1/2" Reg	4-1/2" Reg	6-5/8" Reg	6-5/8"-7-5/8" Reg
Mandrel Bore	1-1/4" 31.75 mm	1-1/2" 38 mm	2" 51 mm	2-1/2" 64 mm
Maximum Flow Rates	500 gpm 1,893 l/min	750 gpm 2,839 l/min	1,300 gpm 4,921 l/min	2,000 gpm 7,571 l/min
Maximum WOB - Dynamic	41,500 lbs 18,460 daN	58,000 lbs 25,800 daN	86,000 lbs 38,255 daN	160,000 lbs 71,172 daN
Maximum WOB - Static	101,000 lbs 44,927 daN	165,000 lbs 73,396 daN	230,000 lbs 102,309 daN	430,000 lbs 191,274 daN
Maximum Bit Overpull	151,500 lbs 67,391 daN	290,000 lbs 128,998 daN	396,000 lbs 176,150 daN	600,000 lbs 266,893 daN
Absolute Overpull	378,000 lbs 168,143 daN	820,000 lbs 364,754 daN	990,000 lbs 440,374 daN	1,500,000 lbs 667,233 daN
Bearing Section Torque Capacity	12,500 ft-lbs 16,948 Nm	33,500 ft-lbs 45,420 Nm	55,000 ft-lbs 74,570 Nm	134,500 ft-lbs 182,358 Nm
Bit to Bend - Fixed	44-1/2" 1,130 mm	44-1/2" 1,130 mm	56-1/2" 1,435 mm	71" 1,803 mm
Bit to Bend - Adjustable	57-5/8" 1,464 mm	64-1/4" 1,632 mm	81-3/16" 2,062 mm	92-1/8" 2,340 mm

## Ball & Race - Mud Lube Specifications

Specifications	Tool Size					
	5" (121 mm)	5-3/4" (147 mm)	6-3/4" (171 mm)	7-1/8" (181 mm)	8" (203 mm)	9-5/8" (244 mm)
Hole Size	6" - 7-7/8" 152 mm - 200 mm	6-3/4" - 7-7/8" 171 mm - 200 mm	7-7/8" - 9-7/8" 200 mm - 229 mm	8-3/8" - 9-7/8" 213 mm - 251 mm	9-7/8" - 12-1/4" 251 mm - 311 mm	12 1/4" - 24" 311 mm - 609 mm
Bit Box	3-1/2" Reg	3-1/2" Reg	4-1/2" Reg	4-1/2" Reg	6-5/8" Reg	6 5/8" - 7-5/8" Reg
Mandrel Bore	1" 25mm	1-1/4" 32 mm	1-1/2" 38 mm	1-1/2" 38 mm	2" 51 mm	2-1/2" 64 mm
Maximum Flow Rates	350 gpm 1,325 l/min	500 gpm 1,893 l/min	750 gpm 2,839 l/min	750 gpm 2,839 l/min	1,300 gpm 4,921 l/min	2,000 gpm 7,571 l/min
Maximum WOB - Dynamic	36,000 lbs 16,014 daN	41,500 lbs 18,460 daN	56,000 lbs 24,910 daN	58,000 lbs 25,800 daN	81,000 lbs 36,031 daN	152,000 lbs 23,131 daN
Maximum WOB - Static	101,000 lbs 44,927 daN	116,000 lbs 51,599 daN	160,000 lbs 71,172 daN	164,000 lbs 72,951 daN	228,000 lbs 101,419 daN	427,000 lbs 189,939 daN
Maximum Bit Overpull	125,000 lbs 55,603 daN	132,000 lbs 58,717 daN	197,000 lbs 87,630 daN	202,000 lbs 89,854 daN	282,000 lbs 125,440 daN	1,410,200 lbs 627,288 daN
Absolute Overpull	535,000 lbs 237,980 daN	615,000 lbs 273,566 daN	845,000 lbs 375,875 daN	865,000 lbs 384,771 daN	1,206,000 lbs 536,456 daN	2,259,000 lbs 1,004,853 daN
Bearing Section Torque Capacity	14,000 ft-lbs 18,981 Nm	19,000 ft. lbs 25,761 Nm	35,000 ft. lbs. 47,454 Nm	43,000 ft-lbs 58,300 Nm	55,000 ft-lbs 74,570 Nm	117,000 ft-lbs 158,631 Nm
Bit to Bend - Fixed	48" 1,219 mm	48" 1,219 mm	48" 1,219 mm	48" 1,219 mm	64-1/4" 1,632 mm	70-1/2" 1,791 mm
Bit to Bend - Adjustable	59" 1,499 mm	N/A	73-3/4" 1,873 mm	69-1/4" 1,759 mm	87-1/4" 2,216 mm	97" 2,464 mm



Shown with CuBIC®

