

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 | | | |
|---------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| | 5" (127 mm) | 6-1/2" (165 mm) | 8" (203 mm) | 9-5/8" (244 mm) |
| Hole Size | 5-7/8" - 6-3/4" (149 mm - 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" (32 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 | 43,000 lbs (19,127 daN) | 58,000 lbs (25,800 daN) | 86,000 lbs (38,255 daN) | 160,000 lbs (71,172 daN) |
| Maximum WOB - Static | 106,000 lbs (47,151 daN) | 170,000 lbs (75,620 daN) | 240,000 lbs (106,757 daN) | 450,000 lbs (200,170 daN) |
| Maximum Bit Overpull | 158,000 lbs (70,282 daN) | 290,000 lbs (128,998 daN) | 396,000 lbs (176,150 daN) | 600,000 lbs (266,893 daN) |
| Absolute Overpull | 386,000 lbs (171,701 daN) | 820,000 lbs (364,754 daN) | 990,000 lbs (440,374 daN) | 1,500,000 lbs (667,233 daN) |
| Bearing Section Torque Capacity | 19,000 ft-lbs (25,761 Nm) | 38,500 ft-lbs (52,199 Nm) | 55,000 ft-lbs (74,570 Nm) | 134,500 ft-lbs (182,358 Nm) |
| Bit to Bend - Fixed | 42" (1,066 mm) | 36" (914 mm) | 47" (1,193 mm) | 56-1/2" (1,435 mm) |
| Bit to Bend - Adjustable | 55-15/16" (1,421 mm) | 56" (1,422 mm) | 70" (1,778 mm) | 83" (2,108 mm) |



Turbo Drill Motors



Oil Sealed Specifications

| Specifications | Tool Size | | |
|---------------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| | 4-3/4" (121 mm) | 8" (203 mm) | 9-5/8" (244 mm) |
| Hole Size | 5-7/8" - 6 3/4" (149 mm - 171 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 | 6-5/8" Reg | 6-5/8"-7-5/8" Reg |
| Mandrel Bore | 1-1/4" (32 mm) | 2" (51 mm) | 3" (64 mm) |
| Maximum Flow Rates | 500 gpm (1,893 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) | 86,000 lbs (38,255 daN) | 160,000 lbs (71,172 daN) |
| Maximum WOB - Static | 101,000 lbs (44,927 daN) | 230,000 lbs (102,309 daN) | 430,000 lbs (191,274 daN) |
| Maximum Bit Overpull | 151,500 lbs (67,391 daN) | 396,000 lbs (176,150 daN) | 600,000 lbs (266,893 daN) |
| Absolute Overpull | 378,000 lbs (168,143 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) | 55,000 ft-lbs (74,570 Nm) | 134,500 ft-lbs (182,358 Nm) |
| Bit to Bend - Fixed | 44-1/2" (1,130 mm) | 63-1/4" (1,607 mm) | 64-1/4" (1,632 mm) |
| Bit to Bend - Adjustable | 57-5/8" (1,464 mm) | 86-1/4" (2,191 mm) | 91-1/8" (2,315 mm) |

Ball & Race - Mud Lube Specifications

| Specifications | Tool Size | | | | | |
|---------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| | 5" (127 mm) | 5-3/4" (146 mm) | 6-1/2" (165 mm) | 7-1/8" (181 mm) | 8" (203 mm) | 9-5/8" (244 mm) |
| Hole Size | 5-7/8" - 7-7/8" (149 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" (25 mm) | 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 (67,613 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 (625,440 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) | 65" (1,651 mm) | 73-1/8" (1,857 mm) |
| Bit to Bend - Adjustable | 62" (1,574 mm) | N/A | 67-3/4" (1,721 mm) | 69-1/4" (1,759 mm) | 88" (2,235 mm) | 99 3/4" (2,534 mm) |



Shown with CuBIC®

