

Vector Series 50 Drilling Motor

The Vector™ Series 50 drilling motor provides strength and reliability with a short bit-to-bend, allowing superior directional performance and the ability to drill a curve and lateral in a single run.

Engineered to be at least 35% stronger than our previous generation of motor technology, the motor can be run on our strongest ERT™ power sections.

The motor incorporates the next generation universal joint design, which features torque transferring faces and a driveshaft that is up to 25% larger in diameter. The larger driveshaft enables the motor to provide exceptional torque capability and reliability. Combined with 100% flow-through-the-bit technology, this allows for maximum drilling efficiency.

The short bit-to-bend bearing pack features an oil life equivalent to our previous full-length assemblies, providing the ability to reach TD. A locking feature prevents the adjustable assembly from being set incorrectly on the rig floor, reducing down time at the rig.



Features and Benefits

- Faster drilling – Designed to achieve high ROP
- Improved flowrate – Designed for best-in-class flowrate capacity
- Shorter bit-to-bend – Allows for superior directional performance
- Increased strength – 35% stronger than our previous generation motor technology
- Higher torque – one piece mandrel offers industry-leading torque capabilities
- Extreme durability – Redesigned internally, connections minimized and components mechanically locked
- Locking feature – Bend angle cannot be set incorrectly on the rig floor

Applications

- Curve
- Lateral
- Vertical
- RSS
- Air

Technical data

Size	5¼ in.	7⅞ in.
Bit to center of stabilizer	17 in.	16.5 in.
Bit to bend	Adj 43.8 in.	Adj 55.2 in. FBH 48.3 in.
Bit to stator	66.3 in.	74.4 in.
WOB @ 100 RPM	56,000 lbs	115,000 lbs
WOB @ 300 RPM	41,000 lbs	83,000 lbs
Bottom connection	3½ in. REG	4½ in. REG

Vector Series 50 Motor Drills Two-Mile Lateral

Client drills entire 10,000 ft lateral in the Three Forks formation with a single 5¼" drilling motor, outfit with an ERT™ power section

Challenge:

To provide a drilling motor capable of drilling a two mile lateral section in a single run, while maintaining a high ROP.

Solution:

The new 5¼" Vector™ Series 50 drilling motor, was selected and outfit with a 5/6, 9.5 stage ERT™ power section, and run in conjunction with a 6" ReedHycalog™ Tektonic™ TKC53 fixed cutter drill bit equipped with ION™ 4DX shaped cutters. The Vector Series 50 was chosen because it incorporates a universal joint design with a larger driveshaft which enables the motor to provide exceptional torque capability and reliability. In order to achieve optimal performance and longevity, PXP™ elastomer was utilized in the ERT power section. This configuration provides high torque potential, providing improved ROP, and enhanced reliability.

Results:

- The Vector Series 50 drilling motor completed the 9,999 ft interval without tripping, drilling 53% farther than the average lateral offset in Dunn County.
- The interval was completed in 57.5 drilling hours.
- The BHA achieved an average ROP of 173 ft/hr.
- Minimal sliding was required due to exceptional BHA tracking, particularly in the first half of the run.
- The ReedHycalog Tektonic TKC53 fixed cutter drill bit provided excellent performance, and received an IADC dull grade of 1-2-WT-A-X-0-CT-TD.



Client	Confidential
Well	Confidential
County	Mountrail
State	North Dakota
Country	USA
Date	Q2 2019
Lithology	Sandstone, Shale, Dolomite

