Tolteq iSeries MWD Platform

The Tolteq™ iSeries platform is the leading probe-based, mud pulse MWD product line available to the independent directional drilling market. As a modular platform based on the legacy Tensor design, the iSeries platform provides directional drillers with significant flexibility to configure and deploy the tools in a wide variety of applications. With more than 600 tools sold and in use in 15 countries (as of January 2020), the Tolteq iSeries MWD platform is a proven and reliable MWD solution for directional drillers globally.

Field-ready kits

Tolteq iSeries MWD tools are available either as a ready-to-deploy kit or as individual modules. All Tolteq modules are rated to 347°F (175°C) and 20,000 psi, providing performance in a wide variety of applications. Tolteq MWD modules include:

- Directional module (iDM)
- Retrievable pulser (iTPM)
- Retrievable pulser with integrated gamma sensor (iPRGM)
- Top-mount pulser (TMP)
- Ruggedized gamma module (iRGM)
- SureMate™ centralizers

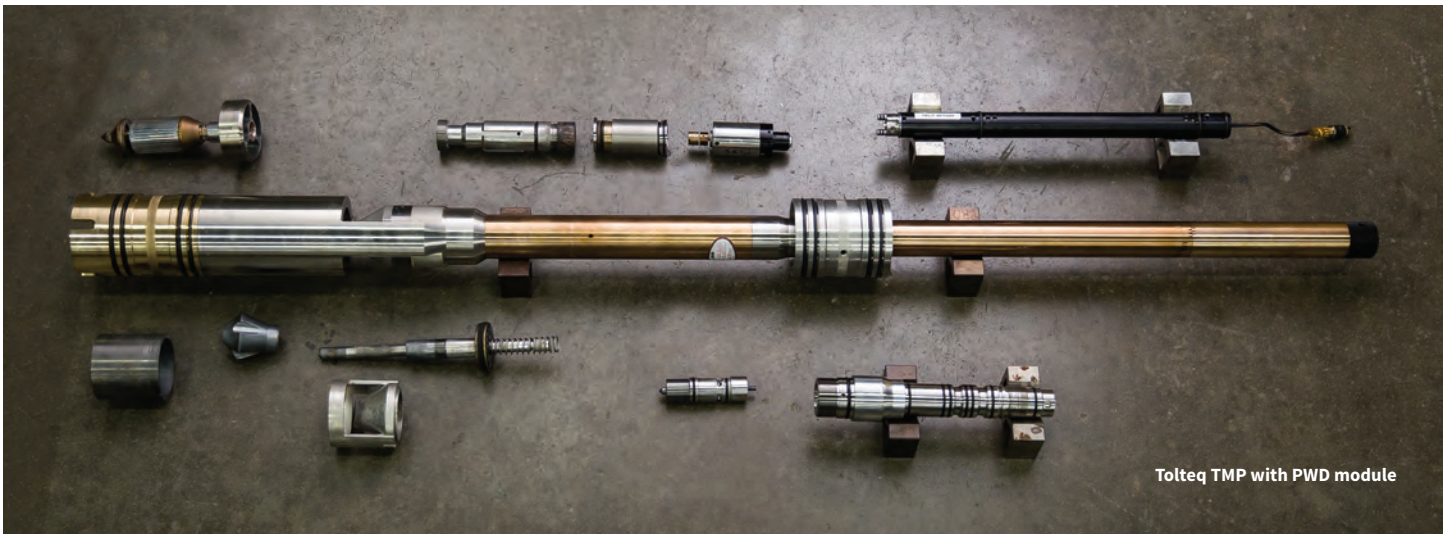
Specifications

General and environmental	
Outside diameter	1.875 in. (47.6 mm)
Operating temperature	32 to 347°F (0 to 175°C)
Survival temperature	-40 to 365°F (-40 to 185°C)
Flow range	200 - 1200 GPM
Vibration, random	20 g RMS, 10 to 200 Hz
Shock	1,000 g, 0.5 m Sec, half-sine
Maximum data rate	4.0 bps*
LCM tolerance	(50lb/bbl with iTPM, 60lb/bbl with TMP and iRPV)
Battery life	Up to 400 hours per battery

Measurements			
Standard measurements	6-axis static surveys, continuous inclination and azimuth*, gamma, shock and vibration, RPM, and temperature		
Inclination:		Absolute Spread	±0.1° ±0.1°
Azimuth (magnetic dip angle at <70°)	at 10° inclination:	Absolute Spread	±1.0° ±0.5°
	at 90° inclination:	Absolute Spread	±0.75° ±0.5°
Continuous inclination (cInc) accuracy ..... up to 150 RPM cInc (Inc <10°) ..... -1.0 / +3.0° cInc (Inc >10°) ..... +/- 0.5°			
Continuous azimuth (cAzm) accuracy ..... up to 150 RPM cAzm (Inc <45°) ..... +/- 15° cAzm (Inc >45°) ..... +/- 5°			
Tool-face accuracy, axial rotation, 10 through 90 inc			±1.0°
Total g field accuracy, absolute			±3.0 mg
Total H field accuracy, absolute			+/- 4.0 m Gauss
RPM measurements 10 to 255 RPM			±0.5% of value
Gamma accuracy ..... +/- 0.5 cps			

*Available with iDM NXT and NXT pulsers

Tolteq iSeries MWD Platform



Tolteq TMP with PWD module

Reliability-driven design

Tolteq MWD tools have earned a reputation for leading reliability as a result of a reliability-driven design philosophy. The iSeries platform includes several unique reliability enhancing features including:

- SureMate connectors – proprietary connector design minimizes risk of damage during assembly and operation
- Ruggedized gamma module – patent-pending floating gamma chamber that isolates the fragile internals from destructive shock and vibration, enabling industry-leading shock and vibration specifications
- ToolTracker™ – included on all modules, this patented system enables users to track and monitor the downhole conditions experienced by each module and apply condition-based maintenance programs

Advanced capabilities

Released in 2019, the iSeries NXT modules provide Tolteq owners with the additional capabilities needed for today's drilling applications. With continued development leveraging NOV's world-class R&D facilities, directional drillers can be assured that the iSeries platform will remain the leading independently manufactured MWD solution in the market.

- Advanced directional module (iDM NXT)
- High data rate pulsers (TMP NXT and iTPM NXT)
- Pressure while drilling (optional on TMP)
- LCM-tolerant retrievable rotary pilot valve pulser (iRPV)
- Azimuthal gamma (iAZG)

Configurable platform

Tolteq MWD tools are offered in both legacy retrievable design with a bottom-mount pulser or in a fixed, top-mount pulser configuration. The top-mount configuration provides several benefits, including:

- Enables gamma, directional, and resistivity LWD measurements closer to the bit
- Provides higher LCM tolerance and stronger pulse amplitude
- Rigidly mounts the MWD toolstring for increased shock and vibration resistance