



## POLARIS™ - The Future of CTD is here

AnTech's gyro-steered, directional drilling Bottom Hole Assembly (BHA) **POLARIS™** is targeted at the larger hole sizes that, to date, have been difficult to drill with coil. Larger hole sizes require higher flow rates, which are not possible through smaller tools, and many alternative drilling options are limited by their inability to operate in aerated fluids, such as nitrogen mist and foam.

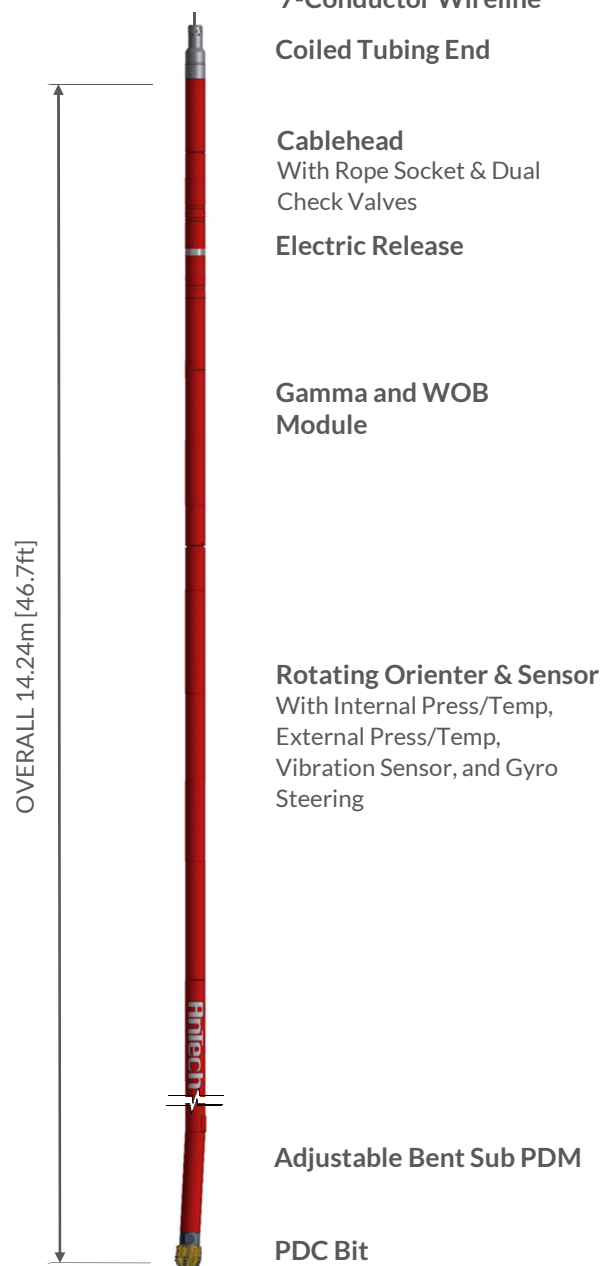
POLARIS™ makes all this possible and incorporates AnTech's solid state Acrobat™ Gyro, which is tough enough to withstand the harsh vibrations of underbalanced drilling.

### Benefits

**Underbalanced drilling** – The wireline telemetry of the POLARIS™ tool allows communication to be maintained when drilling with aerated fluids, which is not achievable with tools that utilise mud-pulse technology. This allows the tool to operate in underbalanced conditions, protecting the reservoir, increasing the Rate of Penetration (ROP) and allowing production to continue whilst drilling.

**Lower cost** – The innovative Acrobat™ Gyro-based Directional Measurement Unit (DMU) eliminates the need for expensive non-magnetic materials and allows the tool to be dramatically simplified, with a significantly shorter length. This makes it easier and more cost-effective to manufacture and operate.

**Faster operational and drilling times** – Rig-up times are reduced by the use of a shorter tool that can be more easily deployed. POLARIS™ can drill the straight and curved sections in the same run, delivering accurate and fast drilling performance.



**Better durability** – The POLARIS™ components, including the Acrobat™ Gyro, are robust enough to withstand harsh downhole conditions, even when drilling with aerated fluids.

**Less downtime** – The patented electronics packaging of AnTech’s drilling tools ensures they are protected against the destructive vibrational forces downhole, resulting in fewer tool failures.

**Increased safety** – A closed system and simple rig-up process means improved safety and less human interaction on site, reducing the chances of accidents.

## Features

**Acrobat™ Gyro-based DMU** – AnTech’s patented gyroscopic steering tool provides real time measurement-while-drilling and can locate azimuth in magnetic environments, such as inside casing. Azimuth measurements are taken at survey stations. This gives precise directional control without the cost implications associated with more complex sensors.

**Rotating orienter** – A fully rotating electric orienter gives precise directional control and enables POLARIS™ to drill the build and straight sections in the same run.

**Shorter length** – The introduction of the Acrobat™ Gyro-based DMU means that the sensor can be located closer to the bit. This halves the size of the BHA, resulting in a more cost-effective tool capable of traversing high build-rate sections.



## Applications

The POLARIS™ tool is suitable for all types of Coiled Tubing Drilling. Typical applications include:

- Re-entry/Thru-tubing Re-entry Drilling
- Unconventional Gas Shales
- Coal Bed Methane
- Underground Coal Gasification (UCG)
- Gas Storage
- Shallow Grass Roots Wells

## Specifications

Dimensions	
Outside Diameter	5" (127.0mm)
Inside Diameter	1.5" (38.1mm)
Length without motor and bit	19.2ft (5.9m)
Length with motor and bit	46.7ft (14.23m) (dependent on motor and bit used)
Mechanical	
Max. Operating Pressure	7,500psi (517bar)
Max. Differential Pressure	3,000psi (200bar)
Max. Tensile Rating (@ 80% yield)	50,000lbf (220kN)
Max. Compression Rating	15,000lbf (66kN)
Max. Torque Rating	4,000lb-ft (5,440Nm)
Max. Build Rate	20°/100ft (20°/30m)
Environment	
Max. Operating Temperature	185°F (85°C) (currently being extended)
Fluid Types	Non-corrosive. All inc air, nitrogen foam and mud.
Vibration (continuous)	30G (@10-500Hz)
Vibration (shock)	50G Maximum (0.5ms half sine)
Electrical	
Wireline Conductors	7-conductor