

Continuous Inclination

Real-time continuous inclination provides enhanced positional awareness, enabling corrective action before serious problems arise.

Directional drilling decisions are made based on static surveys taken every 90 ft. But what is happening in-between those 90 ft stands? Do you really know where you are...or are you simply drilling blind?

In unconventional drilling applications wellbore placement is crucial for overall success of the project. With the addition of Continuous Inclination, ROP does not have to be sacrificed for accurate and precise wellbore placement. Industry standard 90 ft. survey intervals have proven to be far too sparse to give an acceptable position calculation which results in improperly modeled lithology data and incorrect placement of current and subsequent wells. However, surveying at a

greater interval for more accurate positional calculations takes substantial time.

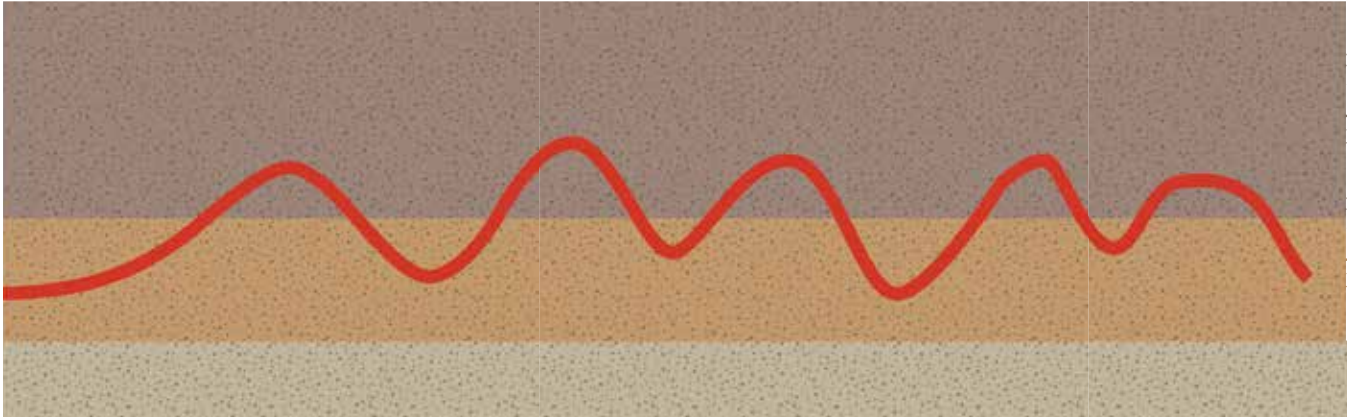
Continuous Inclination is an accurate inclination measurement acquired while drilling to give you better visibility to the trajectory of the wellbore in between static survey stations. Upon reaching 15°, the continuous inclination tool begins transmission of the measurement to .1° accuracy. Continuous Inclination provides the data necessary for more accurate TVD calculation without the time and costs associated with more frequent surveying. It eliminates inclination surprises and enables shorter slides that reduce tortuosity which in turn increases ROP due to less friction along the wellbore.

Advantages of Continuous Inclination

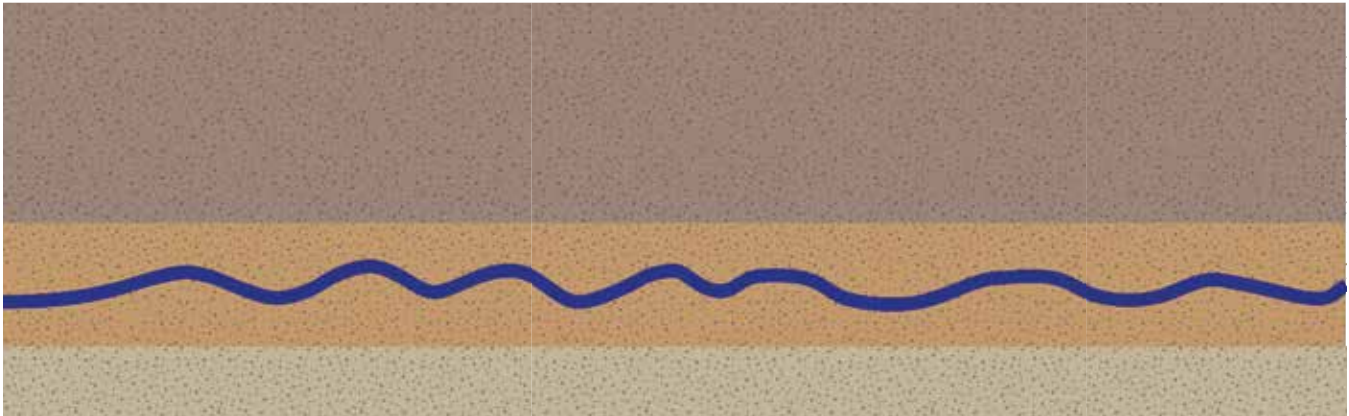
Features	Benefits
Requires no additional hardware or software	Reduces NPT through elimination of check shot surveys (saves an average of 2 hours per 1,000 ft drilled in a lateral well section)
Programmable measurement intervals to accommodate ROP	Improves wellbore profile as a result of enhanced positional awareness (enables earlier directional correction which reduces wellbore tortuosity and overall sliding time)
Measure activates at 15 degrees to 0.1 degree accuracy	Improves drilling efficiency through enhanced awareness of slides, doglegs, and motor output
Offered in AccuMP, AccuWave, AccuSteer	Provides high-resolution data post drill

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Does your wellbore profile resemble this?



What if it could look like this?



Call us today for Continuous Inclination to enable corrective action before serious problems arise.

The Ryan MWD product line is a proprietary family of advanced systems originally developed by Navigate Energy Services, which was acquired by Nabors in 2013, and represents the latest in technology developed specifically for the unique requirements of land-based drilling applications. These tools are suited for applications where high reliability, precise wellbore placement, and drilling efficiency are crucial for success. This patented technology allows Ryan to provide a unique service to our

customers that enables them to cost-effectively drill and accurately hit their targets. Our experienced engineering team and highly skilled field technicians are focused on addressing operator's unique needs and providing the highest level of quality service and customer support in the industry.

Contact us today to experience the Ryan difference.



RYAN DIRECTIONAL SERVICES

A NABORS COMPANY