

AccuDrift (Drift While Drilling System)



Drill ahead with 100% confidence using Ryan's patented AccuDrift unmanned MWD survey system. It transmits inclination surveys to surface on every connection, eliminating downtime associated with wireline surveys in vertical drilling applications.

Eliminate rig downtime while waiting for wireline surveys. The AccuDrift™ unmanned MWD survey system acquires inclination (drift) surveys during every connection which are then automatically transmitted to the surface – enabling more informed drilling decisions for ROP improvements. Advanced signal processing techniques, coupled with robust pulsing technology, enables reliable and accurate decoding. The latest in sensor technology ensures the highest quality measurements are given to our clients.

The AccuDrift surface receiver is easy to use and designed for rig personnel to operate, reducing the overall headcount at the wellsite. Surveys are decoded automatically with all transmitted data stored in the surface system memory. In addition, the system stores all downhole data in memory, including bottomhole temperature. All memory data is analyzed by experts post-job to ensure quality using Ryan's proprietary diagnostic software.

Advantages of AccuDrift

Features	Benefits
No wellsite assembly required	Increases reliability with fewer hands on the tool at the wellsite
Inclination and temperature stored in memory	Provides high-resolution data that can be downloaded post well
Remote monitoring capability	Provides 24/7 monitoring to ensure quality control
Surveys on every connection	Reduces HSE exposure and saves time – no wireline surveys
Long battery life (1,000 Hours)	Enables the ability to drill surface with the same tool on multiple well pads



RYAN DIRECTIONAL SERVICES

A NABORS COMPANY

AccuDrift (Drift While Drilling System)

AccuDrift System Specifications



Sensor	Range: 0-7°
Accuracy	Inclination: ±0.1° (Resolution .25° in real-time .1° in memory)
Signal Transmission	Positive Mud Pulse
Pulse Height	Adjustable
Pulse Activation	Vibration - flow and rotation
Tool Length	8 ft.
Collar Size	4¼ in. OD x 8 ft. x 3½ IF box pin 6½ in. OD x 8 ft. x 4½ XH box pin 8 in. OD x 8 ft. x 6% reg or NC56 box pin 9½ in. OD x 8 ft. x 7 ⅝ reg box pin
Flow Ranges	4¼ in.: 150-325 GPM 6½ in.: 300-850 GPM 8 & 9½ in.: 300 - 1300 GPM
LCM Tolerance	25 lbs/bbl medium well mixed LCM
Battery Life	1,000 hours
Maximum Temperature	150°C (302°F)
Maximum Pressure	20,000 psi
Max. Vibration, g	20 (rms, random, 15–1,000 Hz)
Max. Shock, g	500
Service Type/Support	Manned or unmanned—24 x 7 x 365

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