

7" Well-Guide RSS™: 7-100 Series

Point-the-Bit Rotary Steerable System

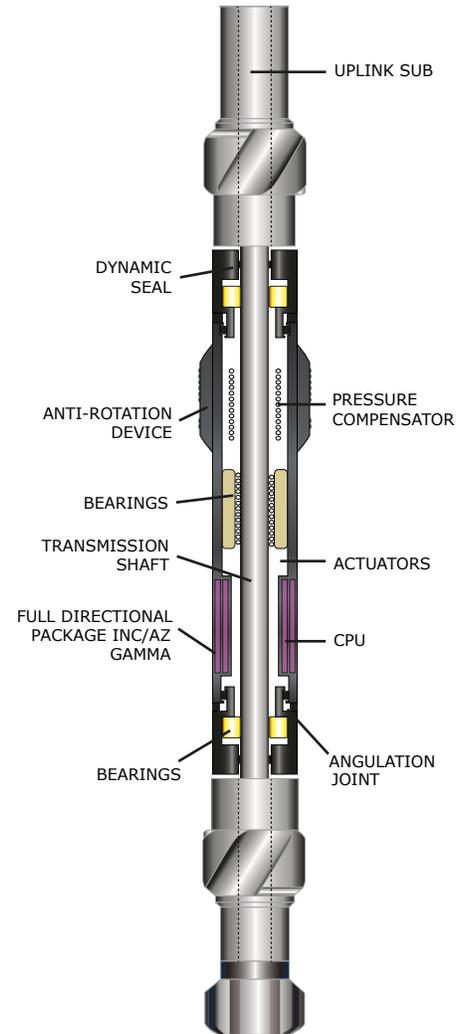
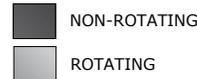


Features

- » **Closed-loop, fully automated inclination & azimuth directional control**
 - Minimal surface input needed to achieve and maintain course
 - Allows for low inclination directional control
 - Manual override control available
- » **Non-Mag Construction**
 - Allows for a full directional sensor array placed near the bit (inc/azi)
- » **Point-the-Bit**
 - 3 point geometry set up between the bit, NBS and Well-Guide upper stabilizer
 - Gives smooth borehole with low tortuosity
 - Bit drills on its front face, with no side cutting action required
 - Independent of formation
 - Low side forces are generated
- » **Versatility**
 - Wide range of bit types can be used
 - Standard operation can be used independent of MWD provider
 - Capable of drilling any directional profile – Vertical, "S" Well, Curve, Horizontal, 3-D Profile
- » **Rotating Stabilizers**
 - Minimizing stuck pipe situations
- » **Normal drilling parameters can be used**
 - No limit on mud pressure, sand content, or LCM
 - No pressure drop required to operate tool allows for optimized bit hydraulics
- » **Compatible with all types of drilling fluids**
- » **Re-programmable downhole**
 - 12 minutes of varying RPM sequences re-program Well-Guide's Inc/Azi targets
- » **Uplink Sub Connects to MWD**
 - Connects to MWD for real-time surface communication
 - Integrated gamma module 6' from the bit

Operating Principle

- » Well-Guide takes a survey every 90 seconds using its own directional sensor package, and automatically calculates the correct toolface required to achieve its programmed course
- » This toolface is achieved by hydraulically deflecting the central rotating shaft to point the bit
- » The tool is initially programmed with a target course (inclination & azimuth) on surface and can be re-programmed downhole by using a series of fast and slow drillstring rotations (no pressure variance required)
- » Tool surveys, downhole temperatures, vibrations and tool operating parameters are logged and can be downloaded on the surface



Specifications 7" Well-Guide Series 7-100

Dimensions

Borehole Sizes (Bit only)	8 3/4" to 9 3/4"
Length	25 ft/7.6m
Tool OD	7"
Bore of central shaft (no restriction)	2 1/4"
Upper Connection	4 1/2" IF (NC50) box
Lower Connection	4 1/2" Reg box
Tool weight (hole size)	1.0 t/2204 lb (8 1/2")

Drilling Parameters

Maximum RPM	200 RPM
Maximum Downhole Torque	15,000 lbft/20,000Nm
Maximum indicated WOB	53,000 lb/24,000daN
Maximum Overpull	500,000 lb/222,000daN
Maximum Downhole Temperature	150°C/302°F
Maximum Downhole Pressure	20,000 psi/138MPa
Maximum Mud Flow	600 GPM
Downlink rotary speeds	High 100 RPM Low 50 RPM

Performance

Maximum dogleg	6°/100ft
Battery life (unlimited if alternator fitted)	200 hrs
Make-up Torque	
Upper	4 1/2" IF (NC50) box 30,703 lbft/41,672Nm
Lower	4 1/2" Reg Box 17,400 lbft/23,591Nm