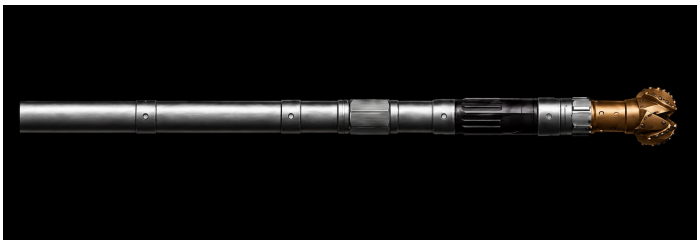
Near-Bit Measurement

Near-bit measurements

Positioned between the motor and bit, Near-Bit Measurement measures inclination, azimuth, gamma and azimuthal gamma near the cutting structure. An EM short-hop carries data to a receiver in the MWD string for transmission to surface.



12 in sensor offset

175°C temperature rating

250 rpm combined motor + string

Published reference values and equipment illustration. Confirm the selected assembly.

The short-hop signal, receiver configuration and operating limits need to be reviewed as part of the complete BHA.

Sensor measurements

Parameter	Published value
Inclination accuracy	±0.25°
Inclination range	0-180°
Sensor / gamma offset	12 in
Gravity accuracy	0.0005 G
Gravity range	0-2 G
Gamma resolution	1 AAPI
Gamma range	0-1023
Temperature	175°C / 347°F

Reference and limitations

Source: supplied MWD Solutions near-bit brochure, page(s) 1-2. This reference reorganizes the source data; it is not a certification of the selected assembly. Configuration-dependent limits are identified in the notes. Confirm current ratings, compatibility and personnel scope with MWD Solutions before use.

Operating envelope

Near-Bit Measurement

Operating considerations

Parameter	Published value
Formation resistivity	2-200 ohm·m optimal
Mud system	Water- or oil-based
Differential pressure	Avoid spikes above 300 psi
Torque	Avoid spikes above 1,500 ft·lbf
Rotary measurement limit	250 rpm, motor + string combined
Axial shock	20 G maximum
Agitator separation	800 m / 2,625 ft behind
Reaming	Keep to an absolute minimum
Battery, inclination + gamma	160 hours per 14 V cell
Battery, inclination + azimuthal gamma	128 hours per 14 V cell

Battery figures are published per-cell figures, not guaranteed run duration.

Transmitter configuration

Nominal tool size	4.75 in	6.5 in	8 in
Length	34 in	34 in	34 in
Diameter	5.0 in	6.5 in	8.0 in
Makeup torque (ft·lbf)	14,200	23,000	57,000
Max drilling torque (ft·lbf)	9,900	22,500	47,000
Surface RPM	30	50	50
Max sliding dogleg (°/100 ft)	28	20	12
Max rotating dogleg (°/100 ft)	12	10	7

Confirm connections and use the limits for the selected tool size and assembly.

Configuration review

Near-Bit Measurement

Integration and field scope

Between the motor and bit

The transmitter sub sits below the motor. Confirm tool size, connections, makeup torque and the applicable sliding and rotating dogleg limits.

Short hop, then surface telemetry

An EM short-hop sends data to a receiver in the MWD string. The MWD system then transmits it to surface; this is not a direct bit-to-surface link.

Review the recovery path

The receiver arrangement supports retrieval of the MWD. The near-bit transmitter sub itself is not made retrievable by that arrangement.

A changing interval

Bring near-bit formation response into the steering discussion when sensor position affects how the team interprets a boundary.

A casing-point decision

Review inclination and gamma close to the bit alongside the geological prognosis and the other measurements available.

A dipping target

Evaluate near-bit directional and azimuthal gamma information with the planned trajectory and formation context.