



High-definition Earth eXplorer (HDeX)

Acquire high-resolution microresistivity images in oil-based mud systems

The **High-definition Earth eXplorer™ (HDeX™) service** from Baker Hughes, a GE company (BHGE), provides high-resolution resistivity images in wells drilled with non-conductive mud systems, such as oil-based mud (OBM) or foam. The HDeX service uses advanced electrical conductivity measurements to deliver images used for geological and petrophysical evaluation. The resolution of HDeX is significantly greater than previously possible, making it easier to identify formation challenges, such as thin fractures, thin beds, or sand-body geometry, which can affect completion strategies or well placement decisions.

The HDeX service offers vertical resolution of 0.2 in. and enables true resistivity measurements for thin beds and layers. The service provides a wide range of solutions from image processing to complex multi-wall sedimentological studies. Its independently articulated six-arm carrier and power stand-off design ensure optimal sensor-to-formation contact, even in highly

deviated wells. Each of the six arms has a pad with eight sensors that provide 48 microresistivity measurements that capture detailed formation features.

Specialized features

- High tensile and compressive strength enables safe deployment in challenging well and pipe-conveyed logging operations.
- Wider guard design in pads enhances focusing.
- Powered stand-off arms significantly improve tool centralization, which improves data quality
- Independent deployment arms conform to borehole wall for higher-quality measurements.
- Pad moves in two axis (laterally and longitudinally) to reduce stand-off effects.

HDeX can be deployed in combination with acoustic imaging services, such as the BHGE **Ultrasonic eXplorer (UXPL™) service** to analyze structural dip, fractured systems,



Applications

- Wells drilled with non-conductive mud systems
- Highly deviated wells
- Beds as thin as 0.2 in. and slim holes ≥ 5.875 -in.

Benefits

- Enhances vertical resolution
- Determines true resistivity in beds as thin as 0.2 in.
- Reduces rig time
- Deploys safely in challenging wells

depositional environments, borehole stability, and net-pay identification in thinly bedded sequences.

To learn more about how the BHGE high-definition Earth eXplorer (HDeX) service can help acquire high-resolution microresistivity images in OBM systems, contact your BHGE representative or visit bhge.com.

Technical Data

Downhole Equipment and Instruments

Outside diameter (max., closed)	5.25 in. (133.4 mm)
Length	30.8 ft (9.4 m)
Weight (in air)	683.4 lb (310 kg)
Minimum borehole/casing/tubing size	5.875 in. (149.2 mm)
Maximum borehole/casing/tubing size	21 in. (533.4 mm)
Maximum operating temperature	350°F (177°C)
Maximum operating pressure	25,000 psi/30,000 psi
Range of measurement	Buttons: 10 to 5000 ohm-m Calipers: 6.0 in. to 20 in. (152.4 mm to 508 mm)
Vertical resolution	0.2 in. (5 mm)
Mud type	Oil-based mud (OBM)
Fishing neck OD	3.375-in. (85.73 mm) cablehead
Maximum logging speed	35 ft/min (10.7 m/min.)
Cable requirements (no. conductors, etc.)	7-conductor cable

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