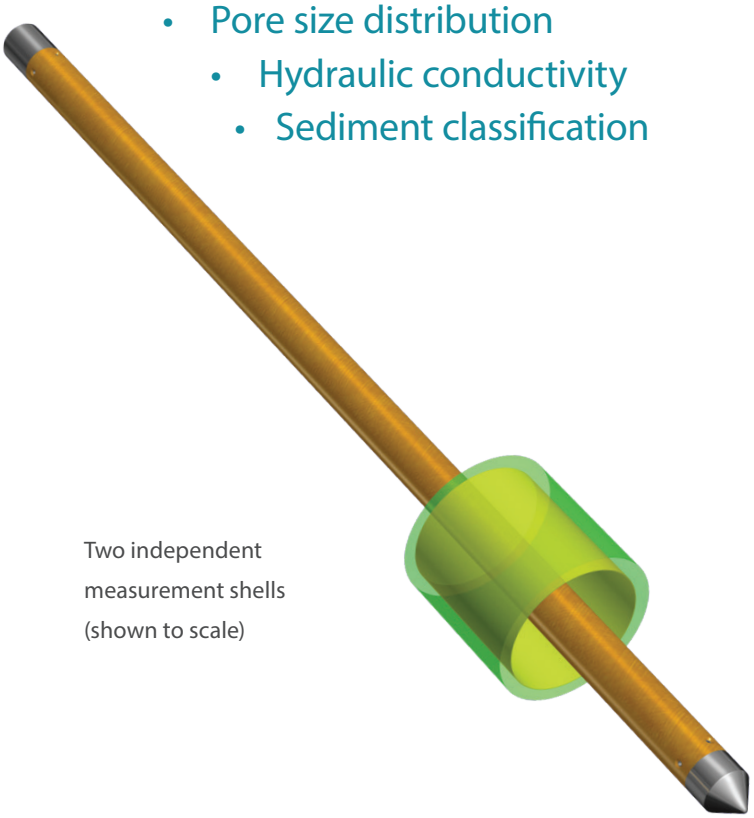
Dart™

Hand-portable and high-resolution NMR technology with Direct Push and CPT deployment options

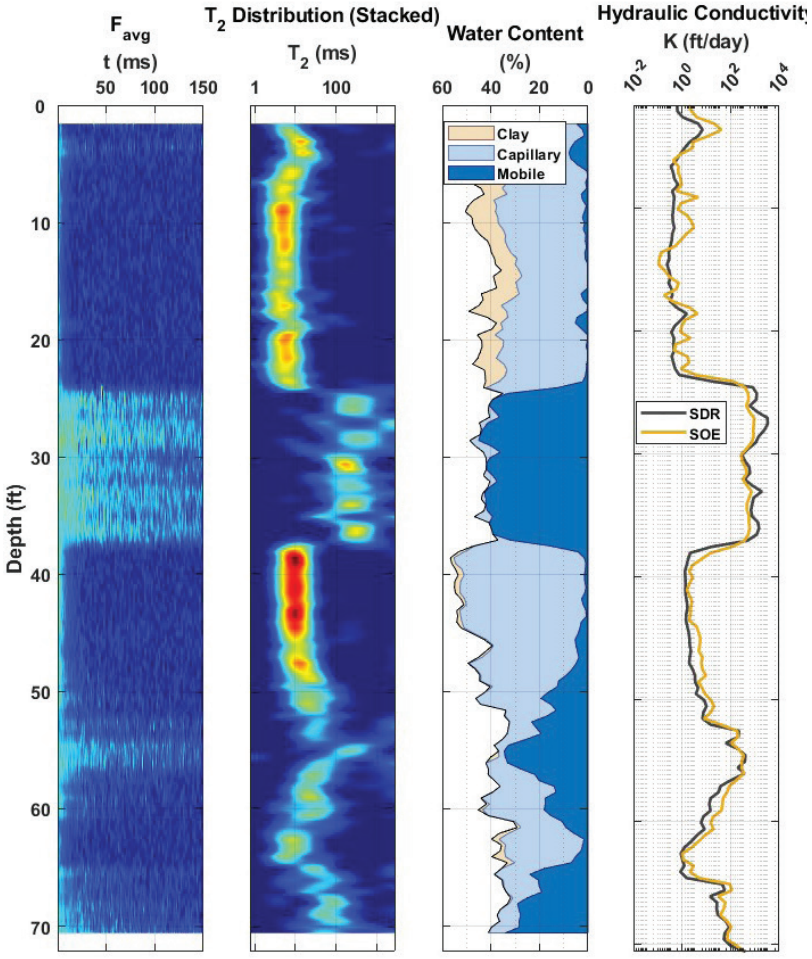
Unique, all purpose NMR instrument for near-surface earth sciences applications

The new lightweight and small diameter Dart family provides high-resolution and high SNR hydrogeologic data acquisition to estimate:

- Porosity
  - Bound and mobile water content
    - Pore size distribution
      - Hydraulic conductivity
        - Sediment classification



Two independent measurement shells (shown to scale)



Applications

- High-resolution site characterization
- Geotechnical site investigations
- Environmental monitoring
- Groundwater resources
- Mining
- Vadose zone characterization

Dart™ lightweight and high-resolution NMR logging tools

FEATURES

Hand-portable NMR

1.75in (44mm) and 1.4in (36mm) probes allow single person operation in small-diameter open or PVC-cased wells. Being lightweight and portable, the Dart system can easily be operated by single person.

Dart Control Unit

Portable, battery-powered control unit housing tool power, control electronics, and telemetry and used to operate all Dart family products. In addition, the Dart control unit can be used to run the portable Helios Trek probe that is used for high resolution analysis of core samples.

Multi-Frequency Operation

Two independent, sensitive shells allow users to assess radial variability and improve resilience in noisy environments.

Ultra-Short Echo Spacing

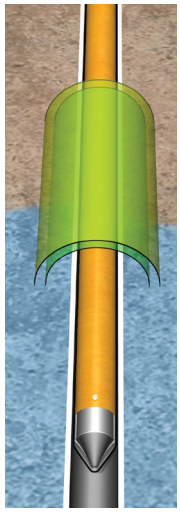
Echo spacing as short as 400 microseconds ensures the most accurate assessment of clay-bound water content.

Direct Push Compatibility*

The world's only tool that is optionally compatible with Geoprobe® Direct Push and CPT deployment methods. Direct in-situ characterization of hydrological properties with minimal disturbance to the native formation eliminating dependence on installing of PVC wells.

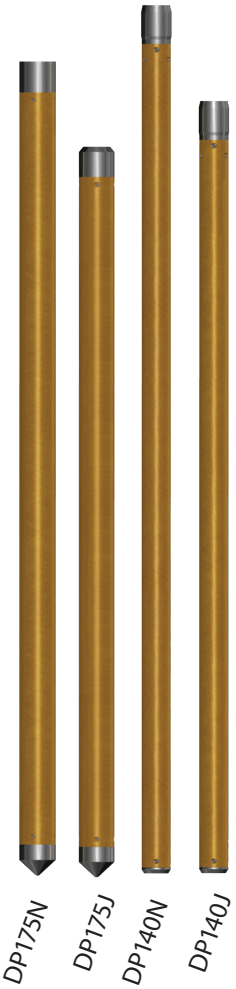
Measurement Capabilities

Dart measurement is done using continuous, stepped, or stationary modes. The acquisition software measures water signal using Dual-wait CPMG pulse sequence. Additional multi-dimensional pulse sequences include T1-T2 and Diffusion-T2.



Dart sensitive shells outside the zone of disturbance from drilling.

Battery-Powered Dart Control Unit



SPECIFICATIONS

Dart Probes:	DP175N	DP175J	DP140N	DP140J
Diameter:	1.75in (44mm)	1.75in (44mm)	1.4in (36mm)	1.4in (36mm)
Length:	48.6in (123cm)	44.6in (112cm)	52.2in (133cm)	46in (117cm)
Weight:	14 lb (6.3 kg)	11 lb (5 kg)	10 lb (4.5 kg)	6 lb (2.7 kg)
Sensitive Diameters:	5in (12cm)	5in (12cm)	5in (12cm)	5in (12cm)
	6in (15cm)	6in (15cm)	6in (15cm)	6in (15cm)
Vertical Resolution:	5in (12.5cm)	2in (5cm)	6in (15cm)	1.5in (4cm)
Echo Spacing:	400µs	400µs	500µs	500µs
Temperature rating:	15ºF (-10ºC) to 160ºF (70ºC)			

Control Unit

Weight: 17 lb (7.7 kg)

Battery: 24V (internal or external)

Interface: PC USB

Logging cable length: 20-120 m

Optional reference coil to cancel electromagnetic interference

† Protected by US Patents: US 8,816,684 B2; US 8,736,264 B2, US 10,113,982 B2; US 10,162,026 B2; US 10,302,733 B2; US 9,348,054 B2; US 9,588,068 B2

Dart is a trademark of Vista Clara.

CE Certified. FCC, CTick, CE Emissions Compliant.

rev 2026-06-20

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NMR Geophysics

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