

## DHA-7 Downhole Hydrophone Array



The Model DHA-7 downhole hydrophone array is designed for high-resolution seismic borehole imaging. Unique, proprietary polymer hydrophones (no ceramics) are in-line molded to a fully integrated, triple-sealed multi-conductor cable. Non-shattering polymer material provides superior performance and durability under the rigors of borehole applications and a stable signal response up to 10 kHz. The Model DHA-7 is suited for use in cased and uncased, water-filled, narrow-diameter boreholes. Custom hydrophone group intervals and multi-borehole configurations are available to tailor the system to meet your needs. The array is easily deployed by hand or with a small winch.

### FEATURES & BENEFITS

- **Only 41 mm (1.6 in) diameter** - Fits in any borehole.
- **Small bend radius** - Fits on small winch.
- **State-of-the-art hydrophones instead of geophones** - Coupling problems are eliminated in water-filled holes.
- **Small hydrophone spacings** - Image exceedingly small features, ideal for high-resolution tomography.
- **Light weight** - Easy transport and deployment.



## Specifications

### ELECTRICAL

#### HYDROPHONE

- **Sensor type:** Proprietary Polymer.
- **Sensors per group:** One.
- **Frequency response:** 10 Hz to 10,000 Hz  $\pm$  1.0 dB.
- **Capacitance:** 5 nF at 22°C.
- **Sensitivity:** -197 dB re 1 Volt per 1  $\mu$ Pa.
- **Sensitivity with depth:** < 1.0 dB over 400 m depth.
- **Sensitivity with acceleration:** < -70 dB re 1 Volt per g.

#### PREAMPLIFIER

- **Type:** Ultra-low noise differential.
- **Gain:** 6 dB.
- **Current:** 10 mA per channel.
- **Power:**  $\pm$ 12V DC Model DHA Battery Pack on surface.

### PHYSICAL

#### CABLE

- **Type:** Multi-conductor with polyurethane jacket.
- **Termination**  
 Topside: Y-type with one 61-socket connector (or 27-socket connector) and one 4-pin connector.  
 Tail: 1m (3.28ft) long with stainless steel swivel and 6 kg (13.2 lb) weight.
- **Maximum total length:** 400 m (1,300 ft) (lead plus active section).
- **Strength member:** Zylon center core.
- **Outside diameter:** 13.5 mm (0.53 in).
- **Weight**  
 12 channels: 0.12 kg/m (0.08 lb/ft).  
 24 channels: 0.15 kg/m (0.10 lb/ft).
- **Bend radius:** 12.7 cm (5 in).
- **Working load:** 273 kg (600 lb).
- **Breaking strength:** 1,364 kg (3,000 lb).

### ACTIVE SECTION

- **Channels:** 12 or 24 standard; other counts available\*.
- **Group Interval:** 1 to 5 m (3 to 15 ft) standard; other intervals available with a minimum of 0.5 m (18 in)\*.
- **Outside diameter (hydrophone):** 41.3 mm (1.63 in).
- **Length (hydrophone):** 30.5 cm (12 in).
- **Weight (hydrophone):** 0.16 kg (0.35 lb).
- **Bend radius:** 22.9 cm (9 in).

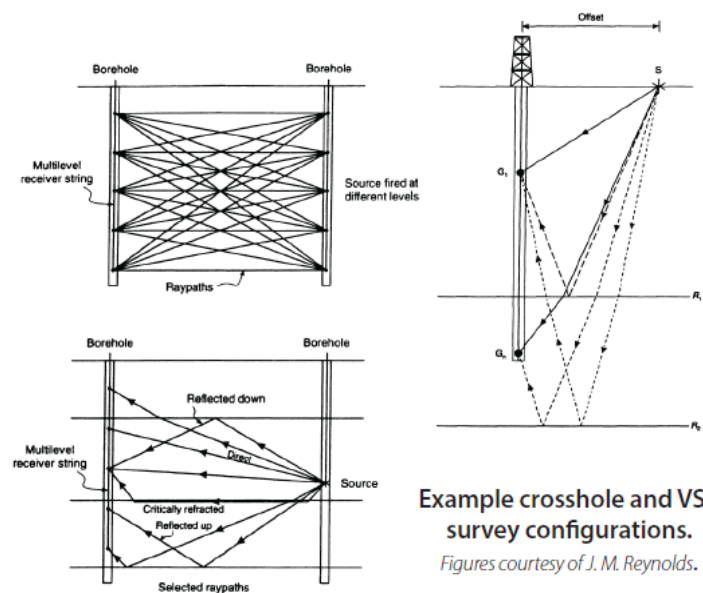
### ENVIRONMENTAL DEPTH

- **Operating maximum:** 400 m (1,300 ft).

### TEMPERATURE

- **Operating range:** -10°C to +70°C (+14°F to +158°F).
- **Storage range:** -40°C to +70°C (-40°F to +158°F).

\*Please contact us to discuss your requirements.



Example crosshole and VSP survey configurations.

Figures courtesy of J. M. Reynolds.



Terraplus Inc.

120 West Beaver Creek Rd, Unit #15  
 Richmond Hill, ON, Canada, L4B 1L2

terraplus.ca

1.905.764.5505  
 sales@terraplus.ca