

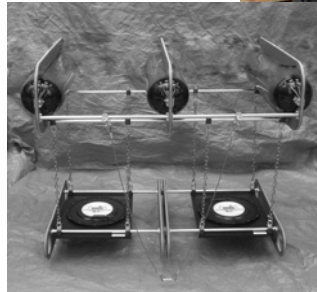
Ultra-Portable Low-Frequency Acoustic Seismic System

The HMS-620 Bubble Gun uses low-frequency acoustic signals to provide superior signal penetration vertically through coarse sand, gravel tills, and other difficult-to-penetrate sediments.

Small system component size and portability make this a valuable tool for any survey platform.

APPLICATIONS

- Offshore Wind Turbine and Dam Site Surveys
- Cross River Surveys for Bridge Construction
- Bedrock Investigation
- Pipeline Construction Surveys
- Geotechnical Site Investigation
- Coastal Engineering



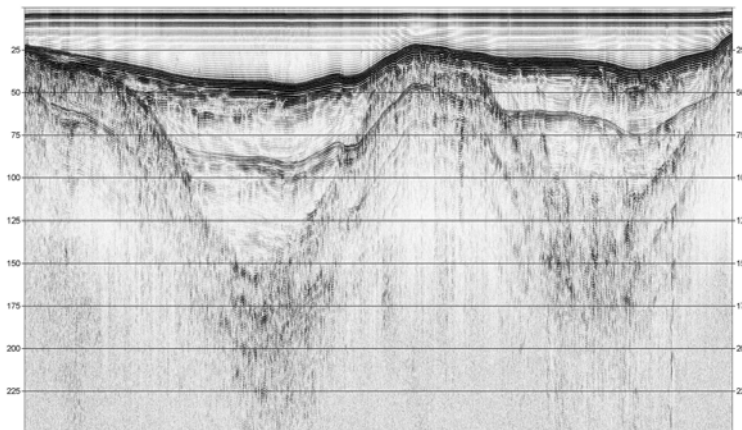
Dual-Source Bubble Gun Vehicle



Complete Single-Source Bubble Gun System
(shown with source vehicle suspended on display frame)

FEATURES/BENEFITS

- Narrow-band 70-700Hz (100Hz peak) pulse provides bottom penetration through many sediment types
- Rugged, lightweight transducer platform provides stable operation in adverse sea-state conditions
- Flexible portable transceiver unit optimizes system for a wide range of sediments
 - User-selectable trigger or external trigger
 - Low-noise pre-amp with high/low pass filters and gain control
- Operates from a portable power supply
 - 110 or 220 VAC source of less than 1 KWatt (2KWatt for Dual Source)
 - Optional 24 VDC powered system available
- Oil-filled single channel hydrophone streamer cable incorporates a 7-meter multi-element active section
 - 35-meter deactivation switches on each hydrophone element enable exportation outside of USA



HMS-620 provided over 125 meters of penetration in this survey in Narragansett Bay, Rhode Island (scale in msec)

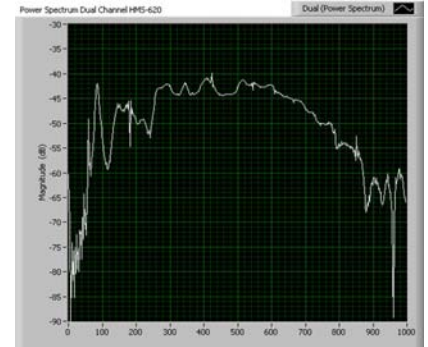
Courtesy of University of Rhode Island Graduate School of Oceanography

SPECIFICATIONS

HMS-620 System Components

Source Vehicle and Electromechanical Tow Cable

Source Type:	Electromagnetic / Contained Air
Frequency:	Narrow band, 70-700Hz pulse (100Hz peak)
Acoustic Source Level (single):	Approximately +200 dB ref 1 μ Pa @ 1 meter with 15 cubic inch volume
Tow Vehicle:	Stainless steel frame, buoyant surface-towed vehicle
Tow Cable:	50-meter abrasion resistant
Dimensions (single):	109.22 cm x 93.97 cm x 48.26 cm 43 in x 37 in x 26 in
Weight in Air (single):	Vehicle/Source – 43.5 kg (96 lbs) Tow Cable - 12.25 kg (27 lbs)



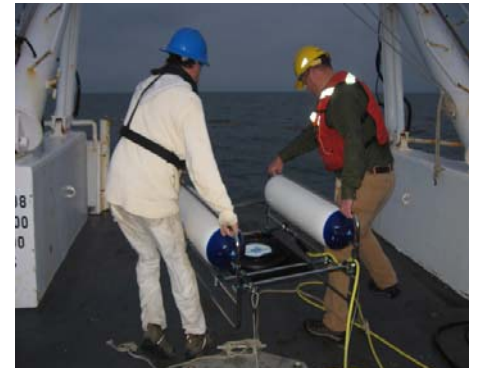
Typical Bubble Gun Frequency Spectrum

Seismic Transceiver

Signal Input:	Designed to operate with HMS-620 System Hydrophone Streamer Cable. 7-pin Amphenol connector
Gain:	Adjustable in 3 dB steps 0 to 45 dB
Filters:	Adjustable high- and low-pass active
Analog Interface:	\pm 10 V Output

Power Supply

Trigger Input:	External key or manual time-based selection
Repetition Rate:	1/8 second maximum
Transducer Connector:	4-pin Amphenol to mate with HMS-620 Source Vehicle Towing cable
Packaging:	Portable splash-resistant case
Dimensions:	55.88 cm x 53.34 cm x 25.4 cm 22 in x 21 in x 10 in
Weight:	17.24 kg (38 lbs)



Source vehicle is compact and easy to deploy

Hydrophone Streamer Cable

Length:	Active section - 7 meters; Single- channel, 24 elements; Leader – 50 meters
Preamplifier:	Integral preamp - 20 dB gain; Designed to operate with HMS-620 Transceiver
Power Input:	Supplied by transceiver
Weight in Air:	13.6 kg (30 lbs)

Specifications Subject to Change without Notice
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