Hydroacoustics' New Generation of HLF Acoustic Sources

A world leader in advanced acoustic technology

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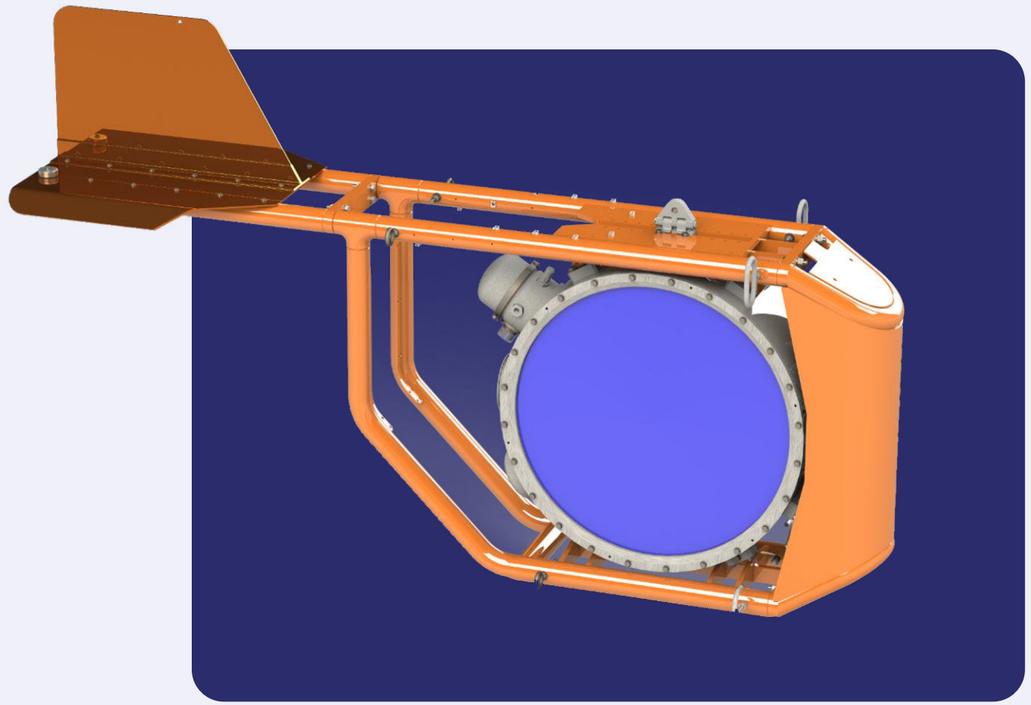
The new Hydroacoustics Low Frequency (HLF) family of underwater acoustic sources specializes in generating high acoustic output at very low frequencies.



Each size is highly customizable in frequency range and power level to offer a perfect match for mission requirements. The HLF family is based on five decades of experience in military and commercial applications.

HLF acoustic sources can transmit arbitrary waveforms, such as simple sinusoidal tones, data-encoded sequences, or band-limited noise. The nominal frequency bandwidth is approximately two octaves above and below the resonant frequency, and all configurations can be operated from below 1Hz to above 1kHz.

The acoustic source can be delivered with a protective deployment frame for stationary or moored applications, or a rugged tow frame capable of withstanding rough sea conditions for reliable operation at up to 10 knots.

The HLF requires no pressure compensation to achieve the rated maximum operating depth and exhibits minimal change in performance with depth. A passive pressure compensation system can be used to achieve operating depths up to 5,000 feet.

The table below summarizes the characteristics and performance of Hydroacoustics' four new HLF acoustic sound sources:

Product	HLF - 24	HLF - 34	HLF - 46	HLF - 60
Housing Diameter Inches	24	34	46	60
Resonant Frequency Hz	100 to 400	75 to 300	55 to 200	30 to 100
Peak SPL dB re 1µPa @ 1m	Up to 200	Up to 210	Up to 215	Up to 218
Input Power Range kW	4 to 11	4 to 22	4 to 112	11 to 190
Operating depth w/o Compensation Feet	Up to 1500	Up to 1000	Up to 550	Up to 350
With Compensation Feet	5000	5000	5000	5000
Max Omnidirectional Frequency (±1dB), Hz	750	500	350	250
In-Air Weight, incl. Tow Frame Pounds	1200 to 1800	2000 to 3000	3500 to 5500	5000 to 8000
Tow-Frame Length Inches	48	74	84	100
Tow-Frame Height Inches	32	42	54	68
Tow-Frame Width Inches	18	19	21	27

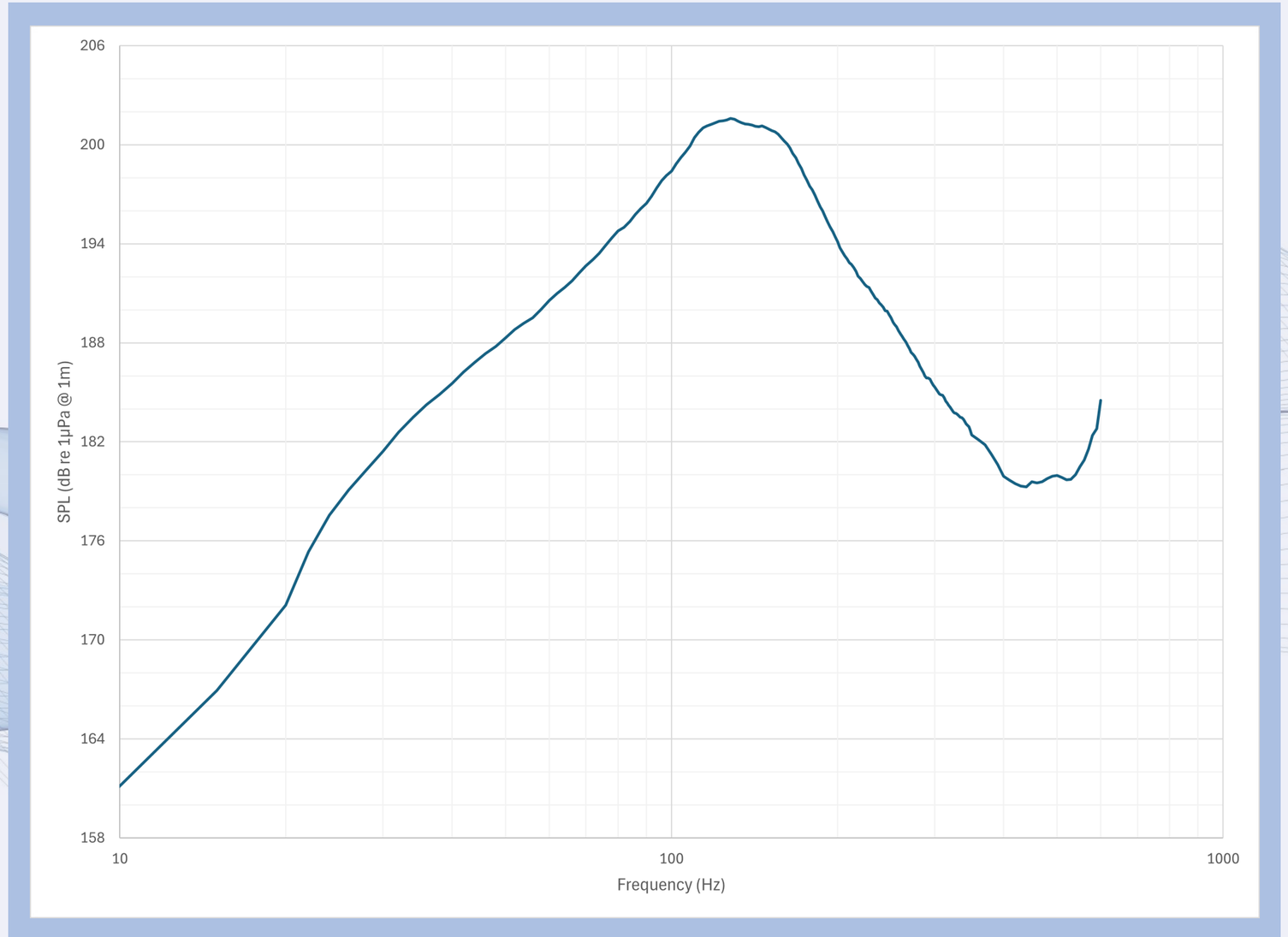
The Resonant Frequency is a customizable design parameter, and an HLF system can be made with any frequency within the specified range. Special narrow-bandwidth tuned configurations can be developed for increased peak SPL or improved low-frequency performance at deep operating depths without pressure compensation.

Input Power is also a customizable design parameter, depending on the overall acoustic output level required. The indicated value corresponds to the power draw when operating the acoustic source with maximum drive input.

The high-impedance nature of the internal drive system means that multiple HLF systems can be deployed in an array for applications requiring beam forming without concern for mutual-interaction related amplifier failures.

Example of HLF Acoustic Output

Calibration Test Data,
140Hz tuned, 11kW input power



The HLF power amplifier is contained within the acoustic source, freeing up valuable space in the control room. The standard electronics package consists of a rack-mounted interface box, computer, and KVM, totaling 6U of 19” rack space, plus a small contactor box for switching the acoustic source on and off.

The supplied monitoring software displays system health and performance data, including a calibrated reference acoustic output signal.

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