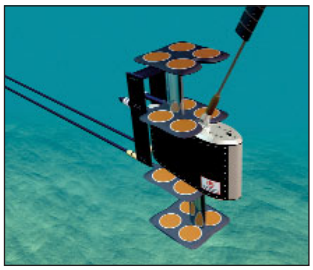
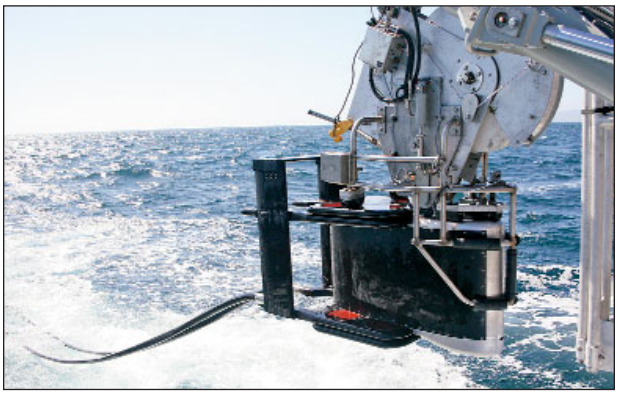
LFATS VDS-100

Variable Depth Sonar System





Features

- **Detects, localizes and prosecutes all types of submarines in all kinds of environments**
- **Easy installation, removal and handling from ships of various sizes, readily cross-deckable**
- **Extended detection range capability in excess of 30 miles**
- **Short tow scope ideal for shallow water operations**
- **Transmits omni and by quadrant, so you can put the energy where you want it**
- **Lightweight and small size ideal for use on small platforms**
- **Twin receive arrays allow instant resolution of target bearing ambiguity**
- **Bi- and multistatically compatible with HELRAS DS-100 helicopter dipping sonar, sonobuoys and some towed arrays**

The VDS-100 is a low frequency, variable depth, active sonar system used on surface ships to detect, localize and prosecute all types of submarines. It has been specifically designed for small ships operating in shallow water against modern diesel electric submarine threats.

Using proven technology derived from our HELRAS helicopter DS-100 dipping sonar, the VDS-100 system is designed for high performance at a lower operating frequency, with easy installation, removal and handling from ships of various sizes, including frigates, corvettes, small patrol craft and platforms of opportunity.

The low frequency of the variable depth sonar manifests in a long wave length capable of penetrating most submarine cladding schemes. The VDS-100 sonar achieves high resolution of low Doppler targets and is able to operate at depths between 15 and 300 m.

The VDS-100 consists of a towed body, a compact integrated winch & handling system and an inboard processing subsystem. Inboard electronics include the transmit power amplifier and the sonar processing unit, which was designed with an open architecture configuration to accommodate future technology. The system can be used in standalone mode or integrated into a ship's combat system.

The transmit array contained in the body of the towed vehicle consists of 16 compact projector elements. An innovative array extension and retraction mechanism enables the system to develop high transmit directivity. Return signals are received by up to four small diameter, liquid-filled linear towed arrays.

VDS-100 processing involves multiple ping wave trains, multidimensional target clustering and averaging, target discrimination against high background noise in shallow water environments, own-ship noise cancellation, Doppler nullification, and CW and HFM wave train generation and processing.

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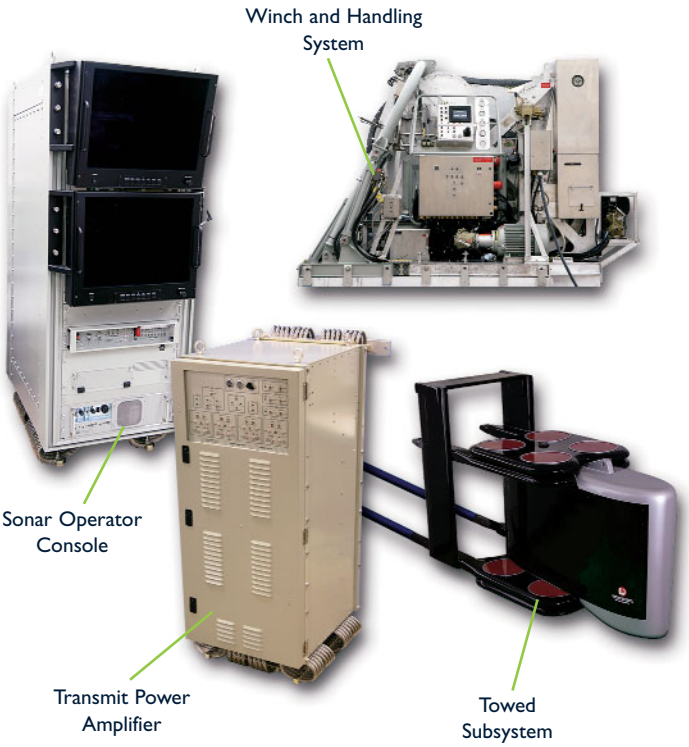

Specifications

Source level	219 – 222 dB/1µPa (omnidirectional)
Frequency	1.38 kHz
Transmission	Omni and by quadrant
Survival speed	30 kts
Operating depth	15 – 300 m
Size:	
Winch and Handling Subsystem	4.5 x 3.5 x 2.2 m (180 x 138 x 84")
Sonar Operator Console	1.52 x 0.66 x 1.73 m (60 x 26 x 68")
Transmit Power Amplifier	1.07 x 0.71 x 1.73 m (42 x 28 x 68")
Weight:	
Winch and Handling Subsystem	3954 kg (8717 lbs)
Towed Subsystem	678 kg (1495 lbs)
Ship Electronics (includes Sonar Operator Console and Transmit Power Amplifier)	928 kg (2045 lbs)
Platforms	Frigates, corvettes and platforms of opportunity

Special Features

Workstation-based operator-machine interface:

- Point-and-click operator control (trackball and pushbutton switches)
- Functions and parameters selected by pull-down menus

Operator aids include:

- Operating mode and parameter setting recommendations
- Automated range of day estimation
- Data history recall
- Effective, flexible search, classification and geographic display formats
- Ground-stabilized, high-resolution color displays

Effective, state-of-the-art processing:

- Multiple ping wavetrains, multidimensional target clustering and averaging
- Target discrimination against high-clutter shallow water backgrounds
- Own-ship noise cancellation and Doppler nullification
- CW and HFM wavetrain generation and processing

Hardware:

- Compact, ruggedized COTS
- Modular, expandable, open architecture

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