



KONGSBERG

VANGUARD

Because safeguarding our waters can be more efficient

Teknologiseminar, Haakonsværn, 10. Januar 2020
Tor Liaen, Kongsberg Defence & Aerospace AS
Johannes Eldøy, Salt Ship Design AS
Bjørn Jalving, Kongsberg Maritime AS



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The Vanguard System

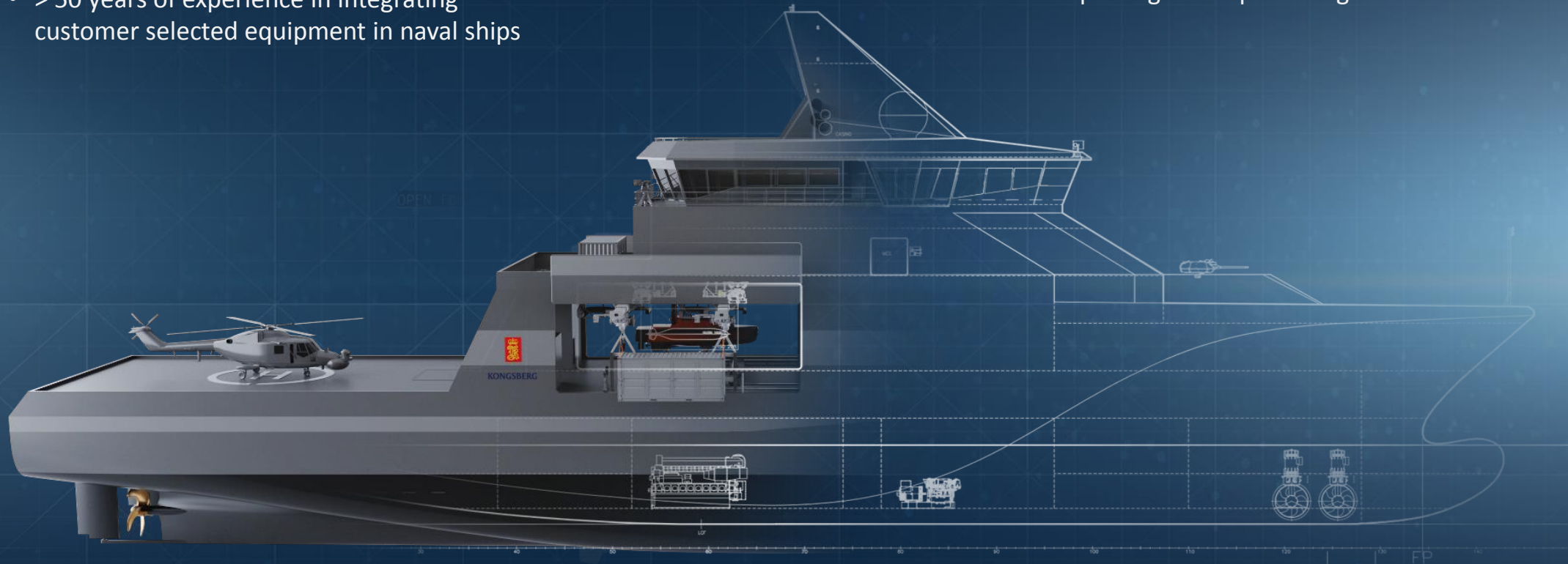


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- Know-How
- System Integrator
- Proven systems & equipment
- > 50 years of experience in integrating customer selected equipment in naval ships

Norwegian Maritime & Offshore Industry

- World Class Industry Cluster
- Decades of experience from offshore vessels operating in world`s toughest waters
- Ship Design & Ship Building



A Multi Mission concept covering Military and Civilian roles across the traditional classes of vessels














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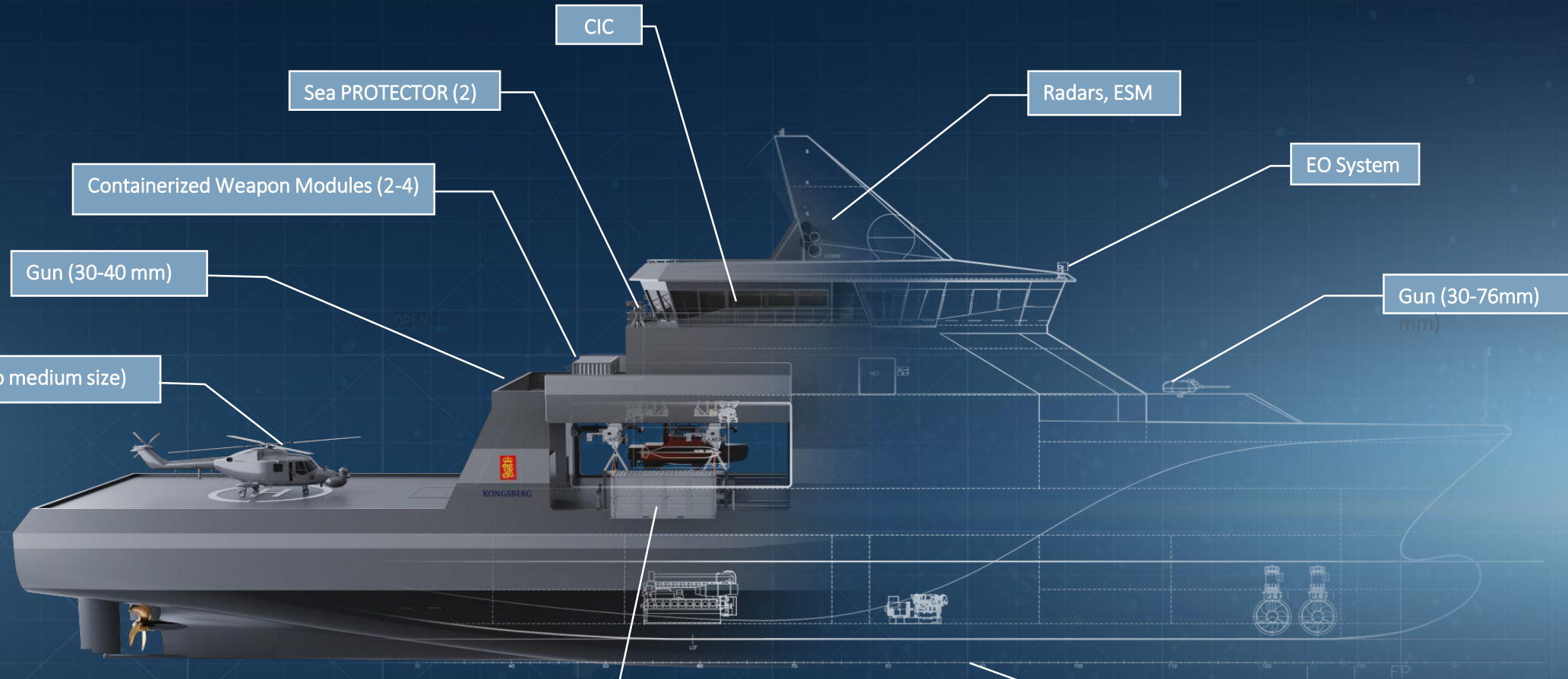
Vanguard is Capable..



MISSION \ MODULES									
Exercise Authority & Sovereignty	✓	✓			✓	✓		✓	✓
Harbour Protection	✓		✓	✓	✓		✓		✓
Search & Rescue		✓	✓				✓	✓	
Hydrographic Survey	✓		✓				✓		
Area Denial		✓			✓	✓		✓	✓
Anti Submarine Warfare	✓						✓	✓	
Mine Clearance	✓		✓	✓	✓		✓		



Vanguard is Adaptable..



Helicopter (up to medium size)

Gun (30-40 mm)

Containerized Weapon Modules (2-4)

Sea PROTECTOR (2)

CIC

Radars, ESM

EO System

Gun (30-76mm mm)

Sonars

Containerized Mission Modules for equipment and vehicles (manned, remotely operated or autonomous, for air, surface and sub-surface.)

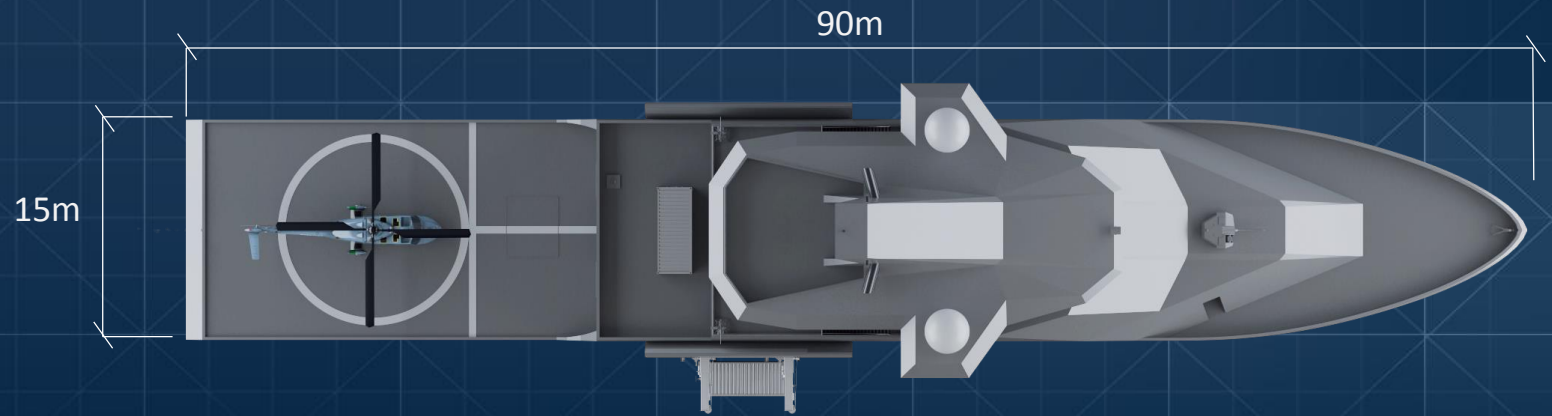
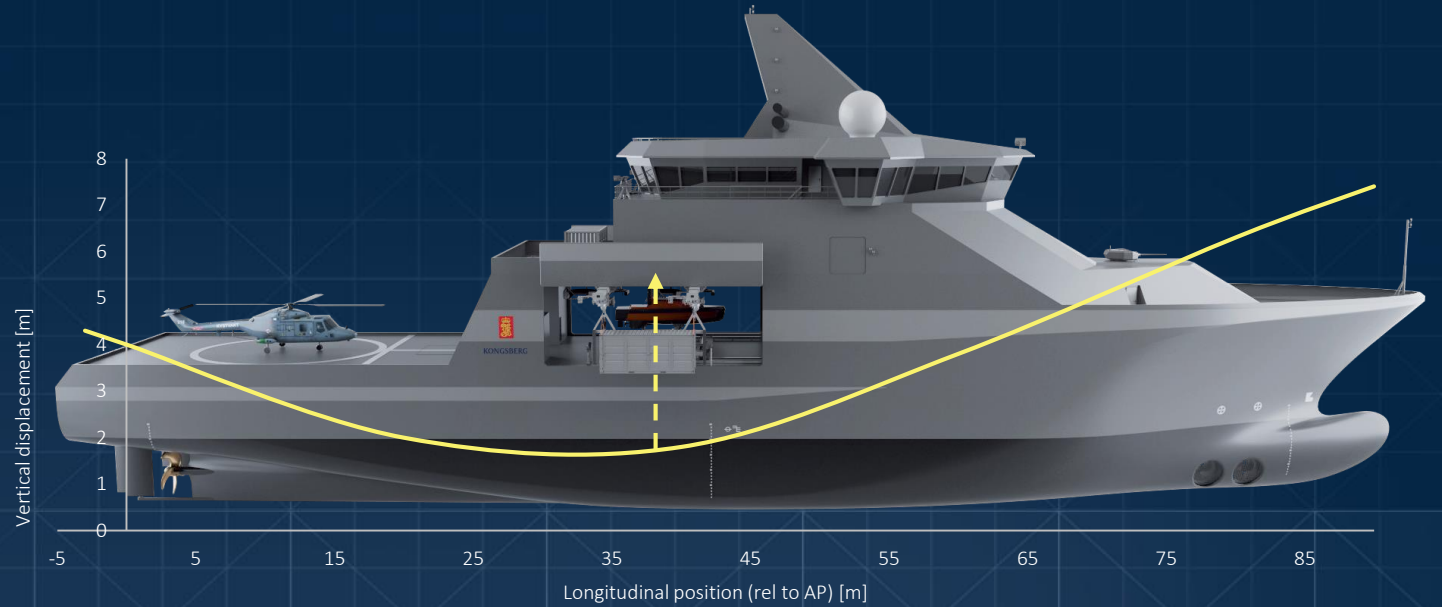
Fit for operation 24/7



Launch & recover vehicles
in rough seas



Optimum location of LARS
+
Suitable main dimensions





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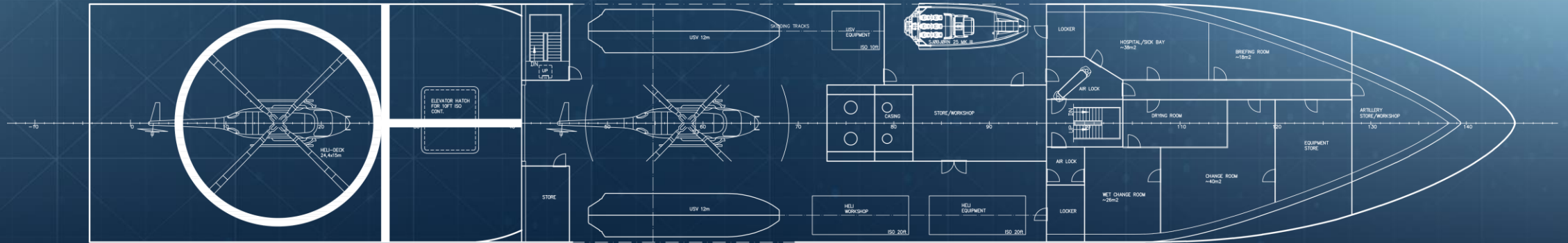
Vanguard is Adaptable..



Mission Module Hangar



Skidding System



A-DECK

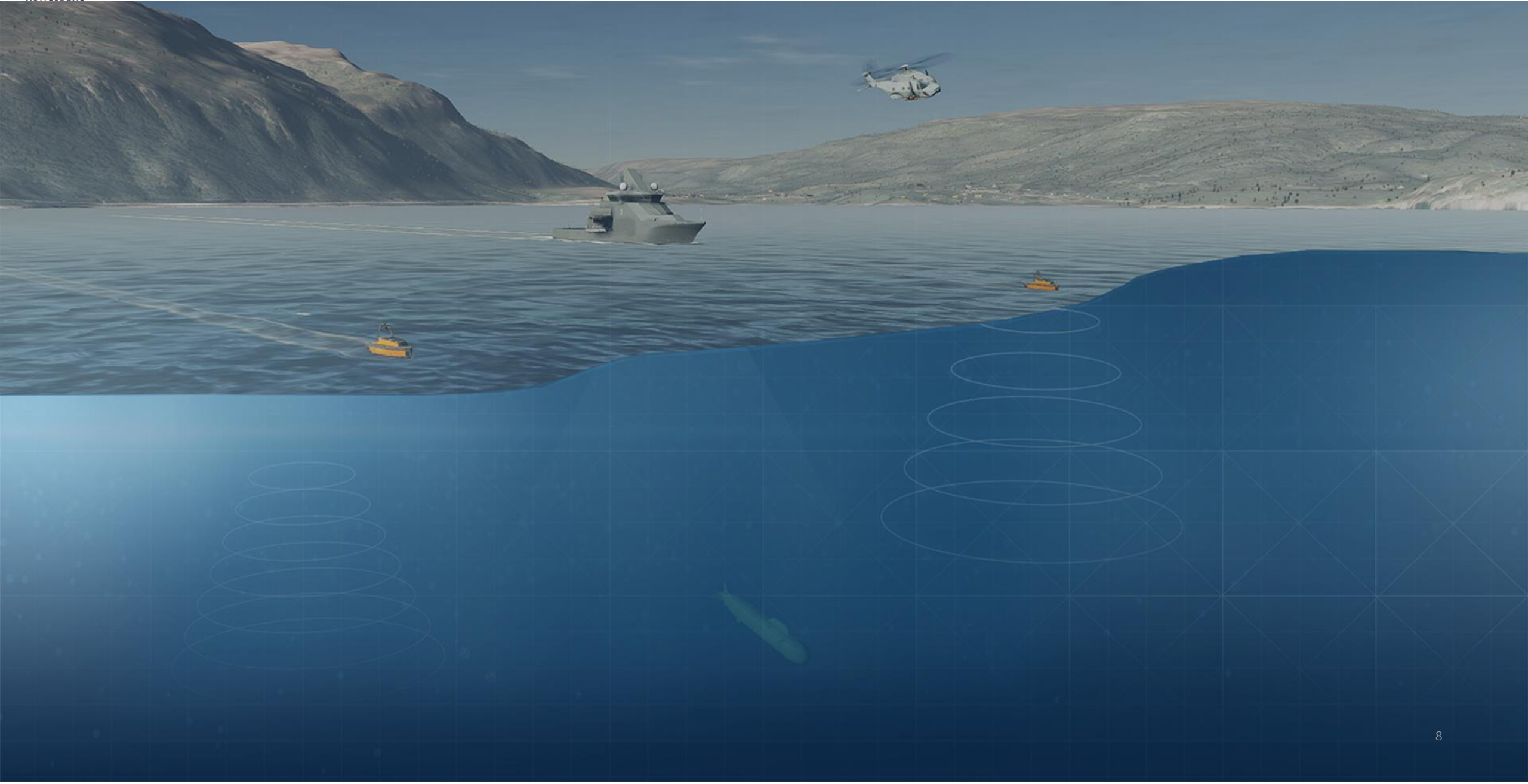
9.700 cb.BL



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Vanguard is Capable..

salt
SHIP DESIGN





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SOUNDER

USV SYSTEM



Unique hull design for optimal performance

Our scientific approach to hull design has given the Sounder USV System unique characteristics, and ensures optimal performance and endurance for hydroacoustic applications



SOUNDER

Situational Awareness and Collision Avoidance

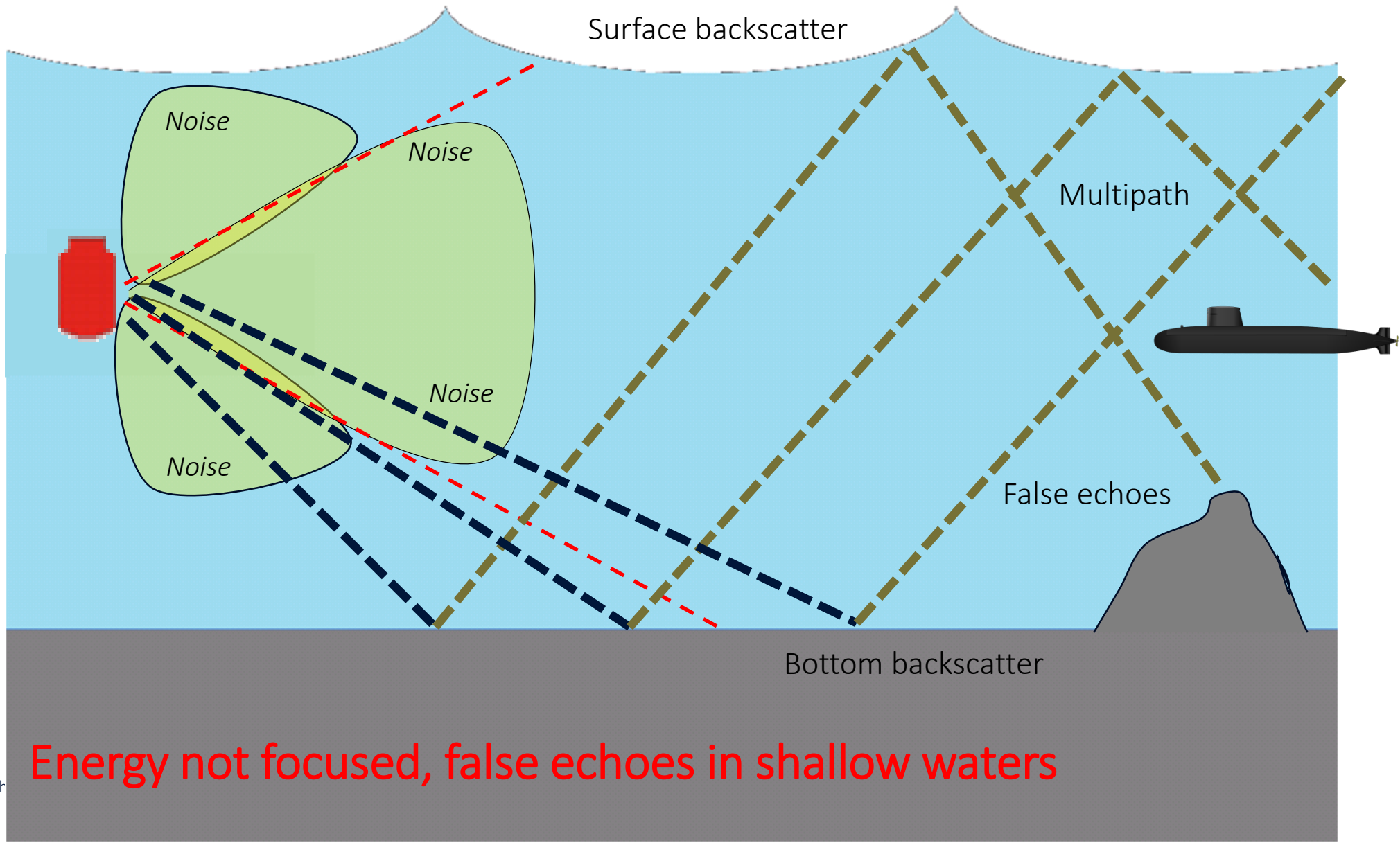
The Sounder USV System features a state of the art scene analysis system for situational awareness that enables collision avoidance.



Typical beam pattern Low frequency sonar



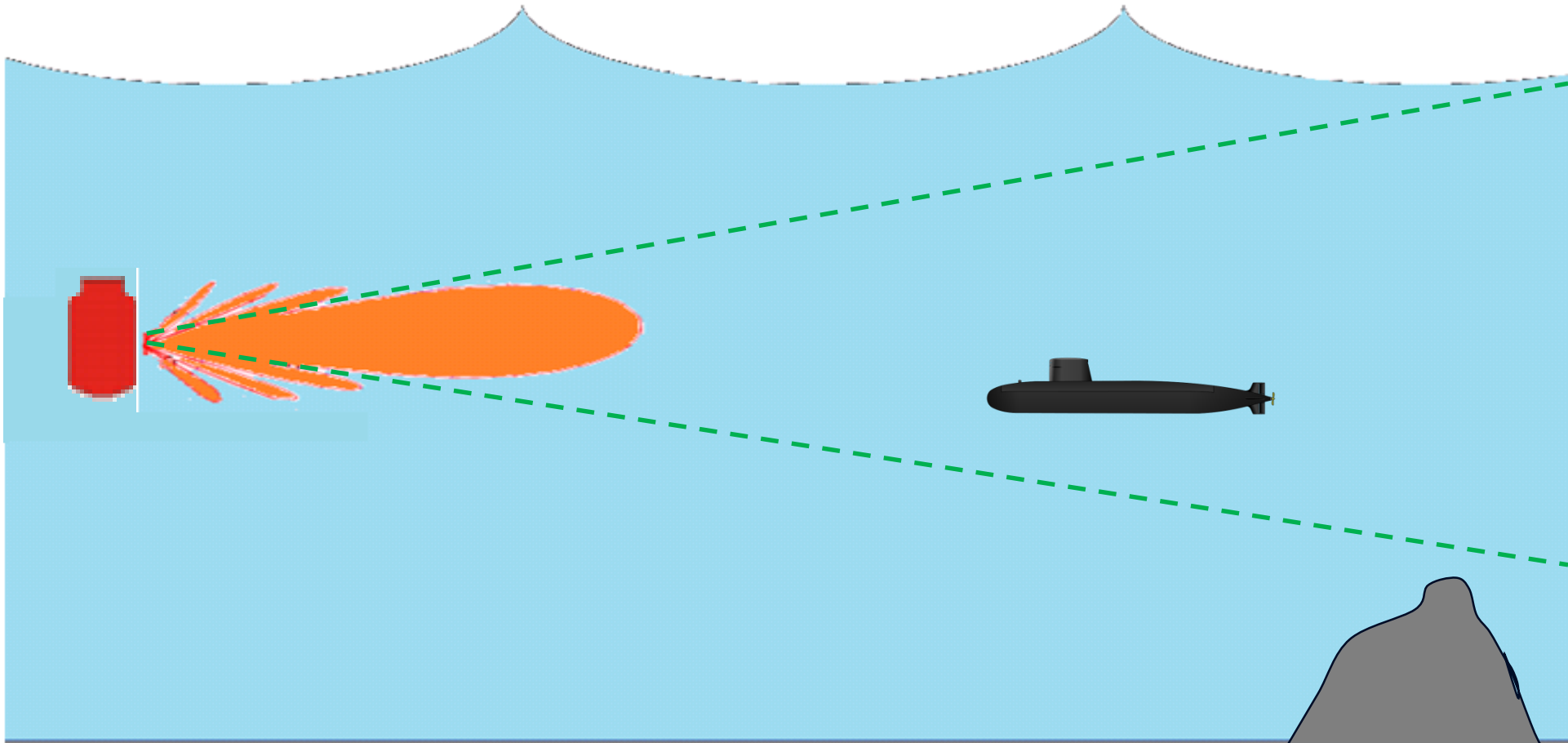
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Focused energy with KM sonars



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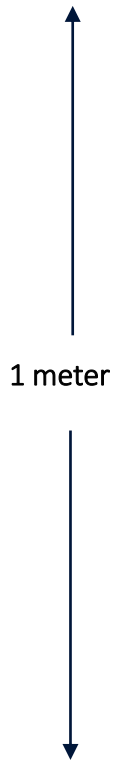
Focused energy in vertical direction is the most important property for shallow water sonar

ASW Sonar suite for small platforms like Corvettes, FPB, USV, etc.

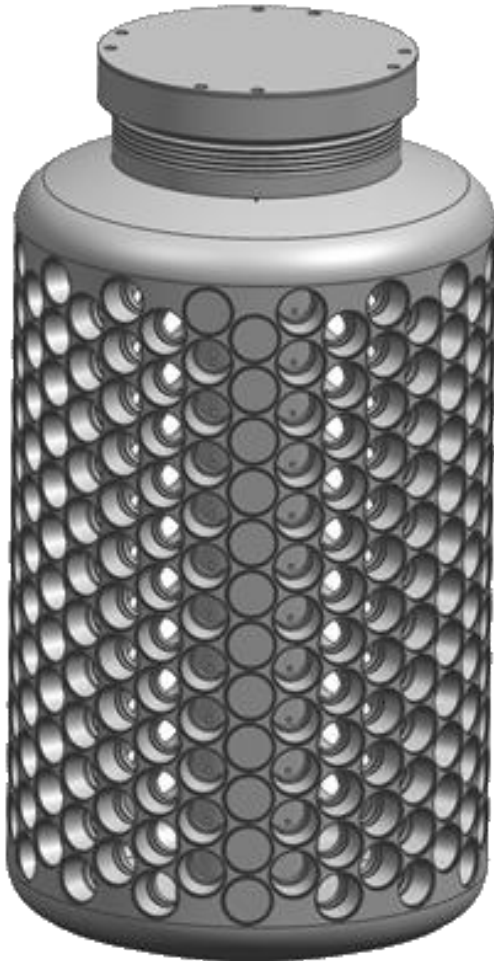


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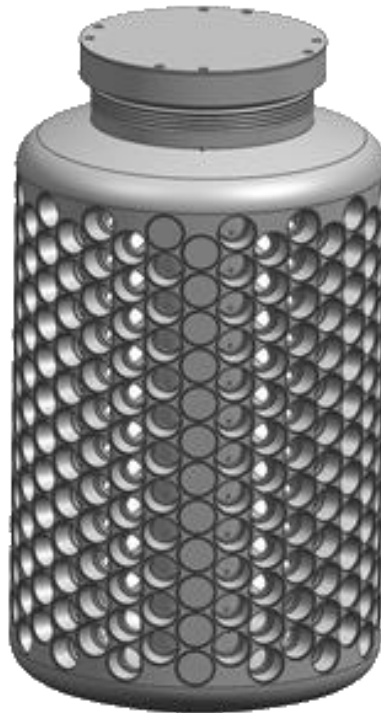
SS1221 HMS



1 meter



SS2030 HMS



SS2030C HMS



SA9000 HMS



SALES ARGUMENTS:

- Compact in size and price
- ASW on low cost platforms
- Swarming, quantity
- Acoustic properties for shallow
- Suitable for coastal waters

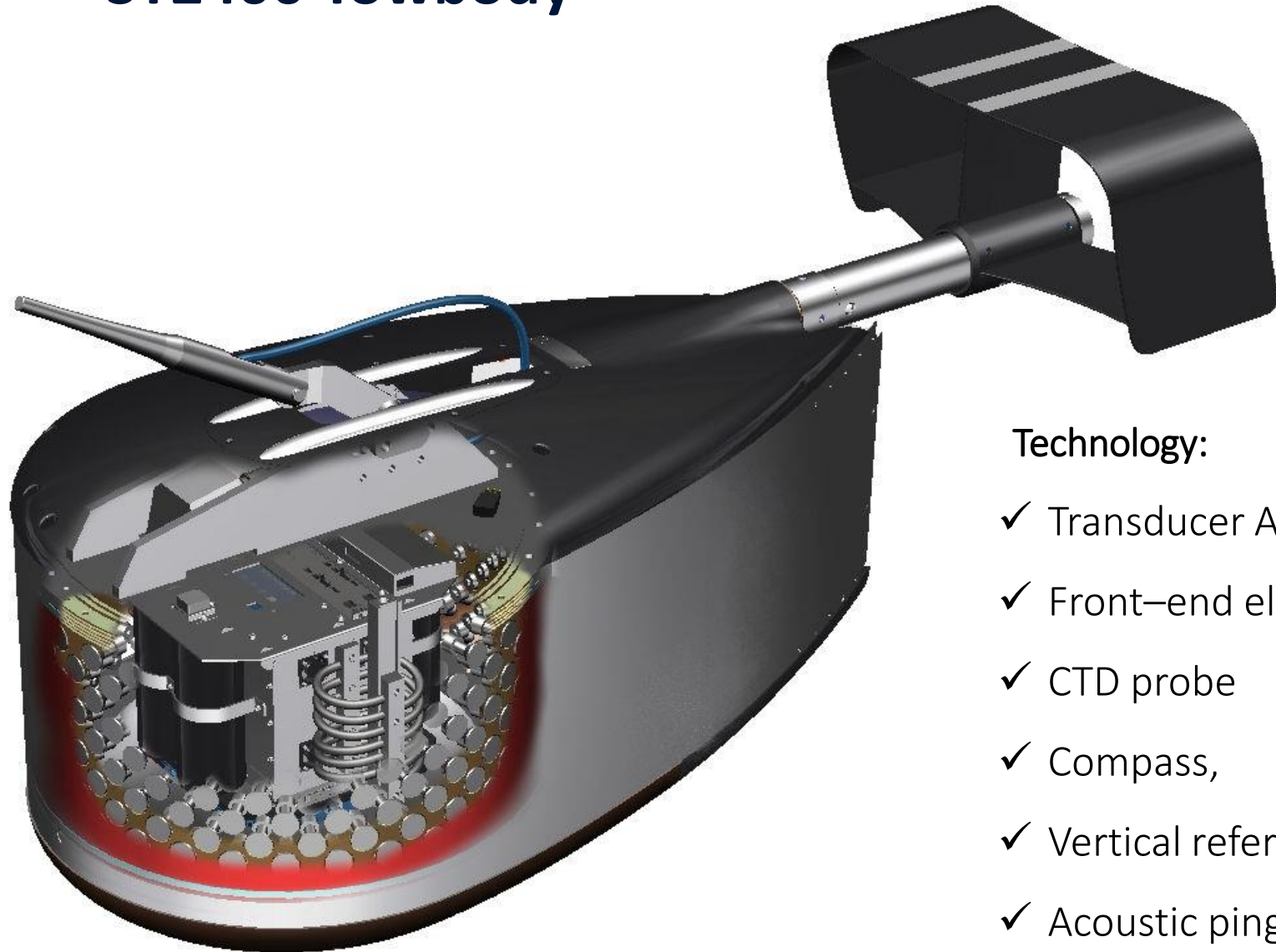


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ST2400 Towbody

Dimensions:

- ✓ Height: 650 mm
- ✓ Width: 720 mm
- ✓ Length: 1860 mm
- ✓ Weight: 535 Kg



Technology:

- ✓ Transducer Array
- ✓ Front-end electronics
- ✓ CTD probe
- ✓ Compass,
- ✓ Vertical reference unit
- ✓ Acoustic pinger

WORLD CLASS – Through people, technology and dedication

KONGSBERG PROPRIETARY - See Statement of Proprietary information



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SHIP DESIGN

VANGUARD

BY KONGSBERG



Capable – Adaptable - Affordable