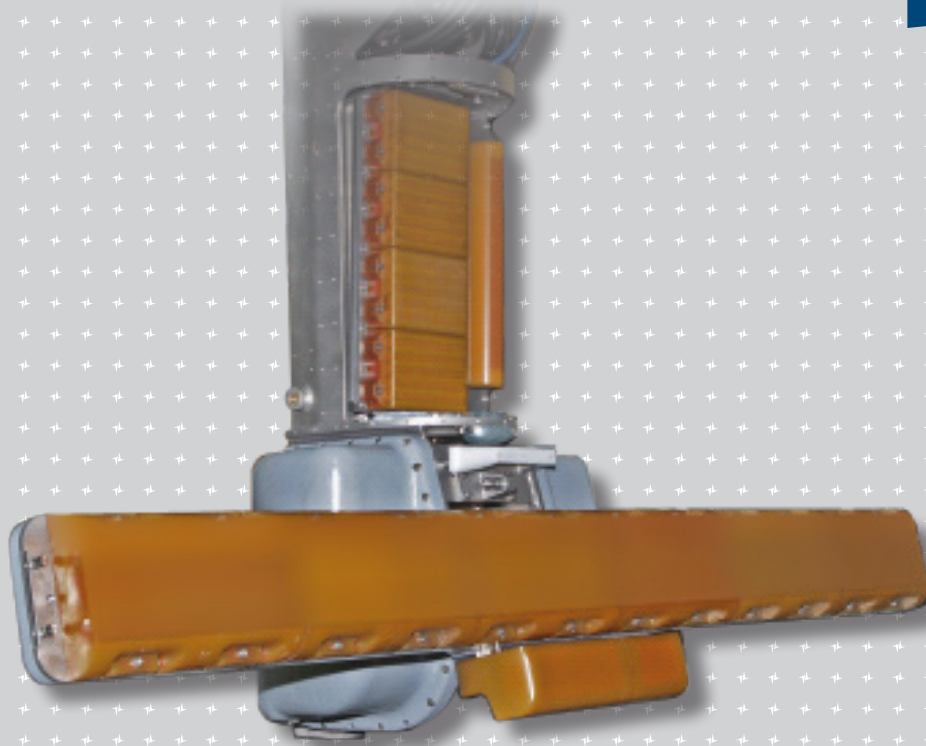




# HMS-12M – Broadband Hull-Mounted Minehunting Sonar

**HMS-12M**  
Mine Warfare System



... a sound decision

 **ATLAS ELEKTRONIK**

# Force Multiplier

A dramatic sunset over the ocean. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water's surface. In the foreground, the dark silhouette of a ship's hull and a sonar dome is visible against the bright sky. The overall mood is serene yet powerful.

The broadband Hull-Mounted Mine-hunting Sonar ATLAS HMS-12M has been designed to safely counter the threat posed by modern mines in European and also in salty tropical waters.

The ATLAS HMS-12M is designed for multiple operations:

- Mine hunting
- Mine avoidance
- Route survey

## 1990 Experience in Hull-Mounted Minehunting Sonars today

# HMS

FRANKENTHAL / AL HASBAH Class



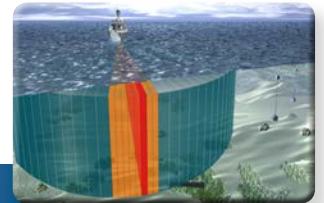
KATANPÄÄ Class



KOSTER Class



HMS-12M



KULMBACH Class



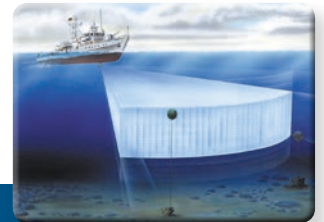
LAT YA Class



BAY Class



DSQS-11M mod



FRANKENTHAL Class



DSQS-11M

HAMELN Class

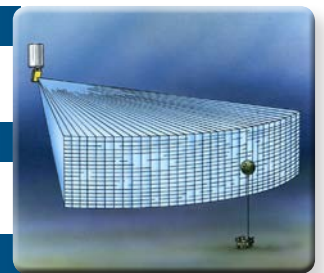


DSQS-15A



BANG RACHAN Class

DSQS-11H



The sonar array is a proven design and successfully in service with many navies as a further development of HMS-11M, which is in operation e.g. in the German Navy and has earned a high reputation concerning Minehunting within NATO. The new HMS-12M is a triple frequency broadband sonar which can detect and classify ground-, moored- and stealthy mines. Even under unfavourable environmental conditions.

- Acceleration of operations by highest converge rates
- Confidence in achieved clearance. More safety for crew and ship.
- Optimized manning concept – only one operator required
- Simultaneous detection and classification
- Simultaneous tracking of underwater vehicles and detection/classification
- Reduced of life cycle costs
- Can be fully integrated into IMCMS
- Qualified and operational proven design

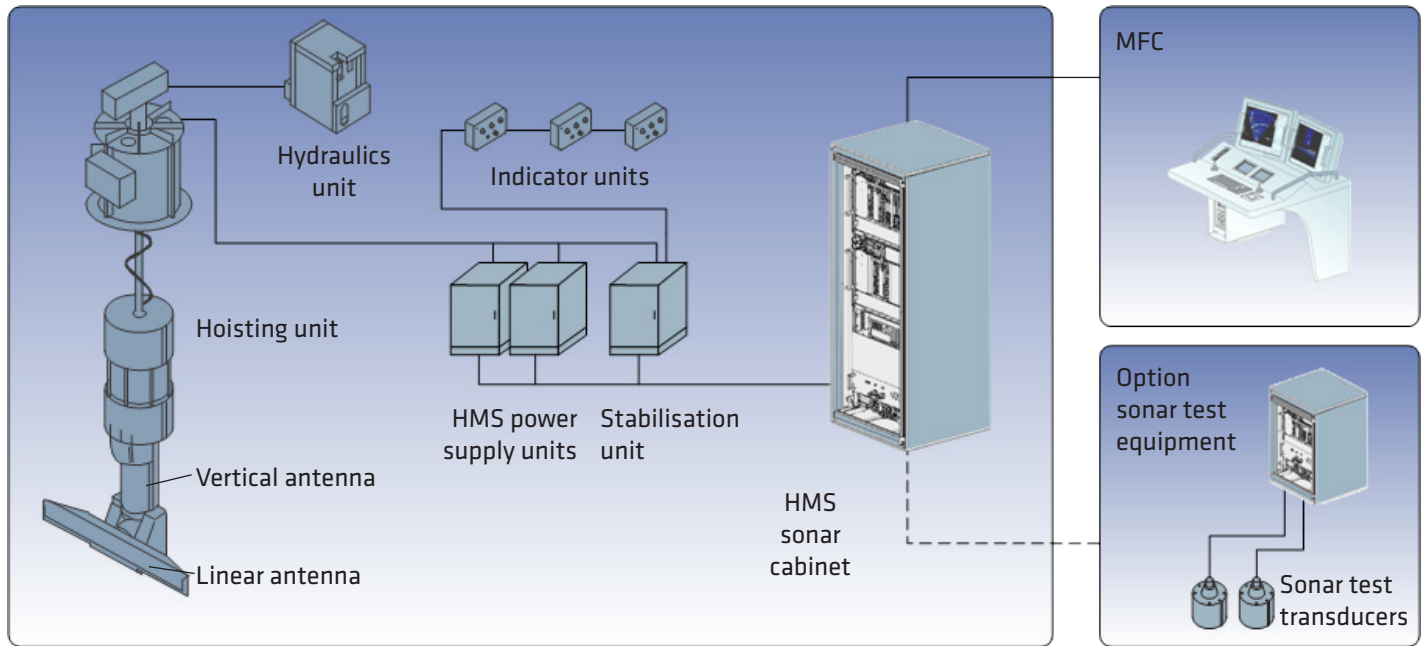
# Operational Characteristics



The ATLAS HMS-12M offers ground mine detection and classification capability in coastal waters to about 200 meters depth. Moored mine detection and classification is also possible in deep waters

# ATLAS HMS-12M

# MINEHUNTING SONAR SYSTEM



The HMS-12M is easy to operate: apart from the sonar operator there is no further personnel required. Sonar operation including full remote control of the HMS-12M is possible from one or more Multi Function Consoles (MFC).

## HMS-12M operates in five different modes:

- Minehunting / Route survey
- Mine avoidance
- Side scan
- Test
- Simulation

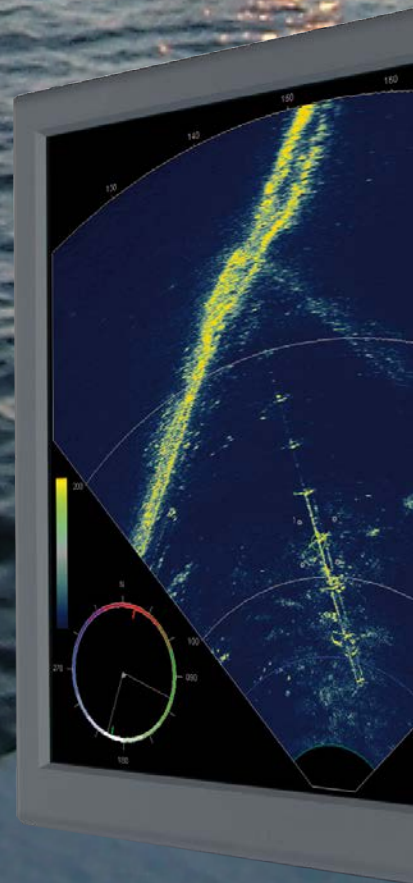
## Features:

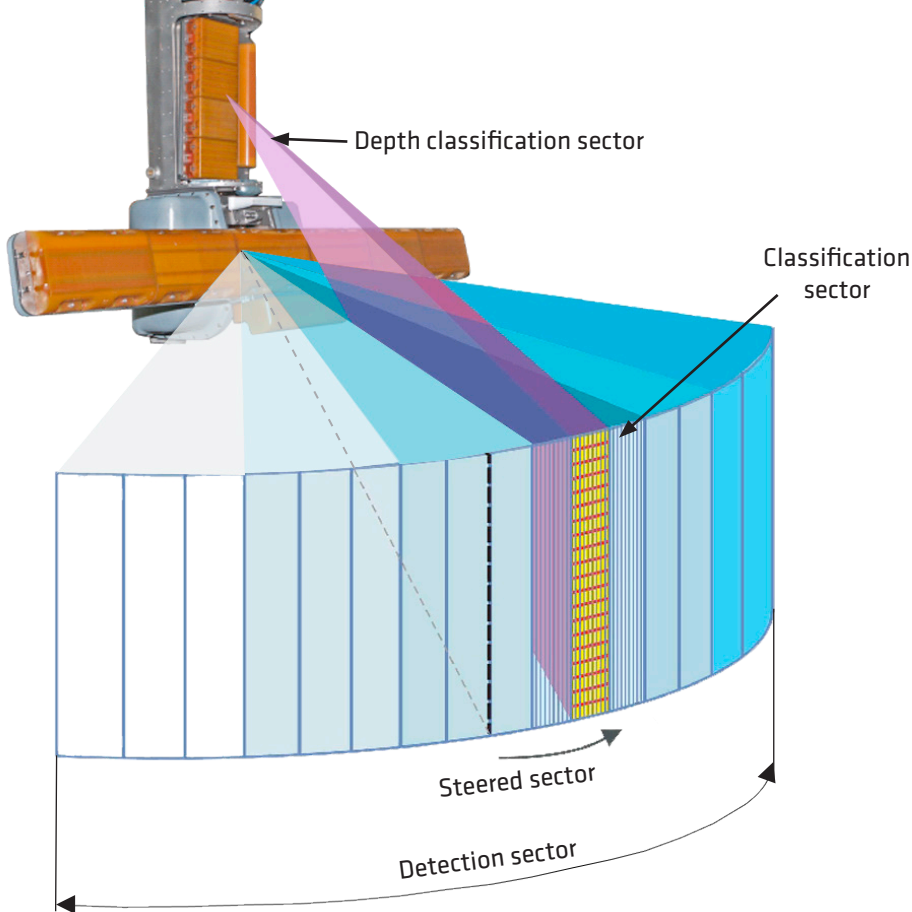
- Simultaneous detection, echo- and depth classification by parallel operation of the vertical and the linear arrays
- Flexible sector steering results in quick mission progress
- Computer aided detection and classification with simultaneous depth classification
- Multitracking of up to 100 fixed or moving targets
- Recording capability for effective mission evaluation



# Key Features

More safety for crew and ship - high resolution means more distance to the threat





### Unique sonar performance

The HMS-12M system offers simultaneous detection, classification and depth classification of naval mines by a combination of two sonar arrays

The ATLAS HMS-12M is equipped with a triple frequency high resolution sonar. Each of these three frequencies is optimised for a specific task in mine hunting and mine avoidance:

#### Low Frequency (LF)

- Long range detection on mud, sand and gravel bottom
- Simultaneous detection, echo- and depth classification by means of the vertical array
- Volume search by 3D detection for mine avoidance providing real 2 dimensional beamforming

#### High Frequency (HF)

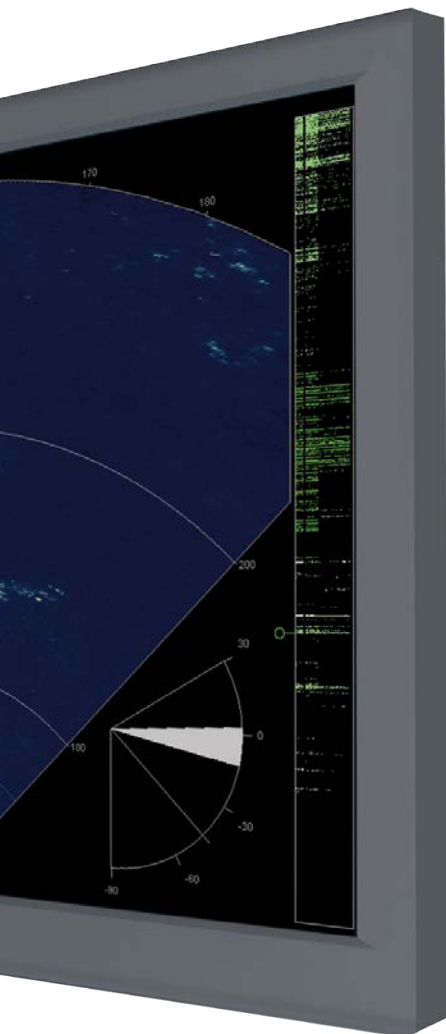
- Medium range detection on mud, sand and gravel bottom
- Echo classification on all bottom types
- Shadow classification on gravel and rock

#### Very High Frequency (VHF)

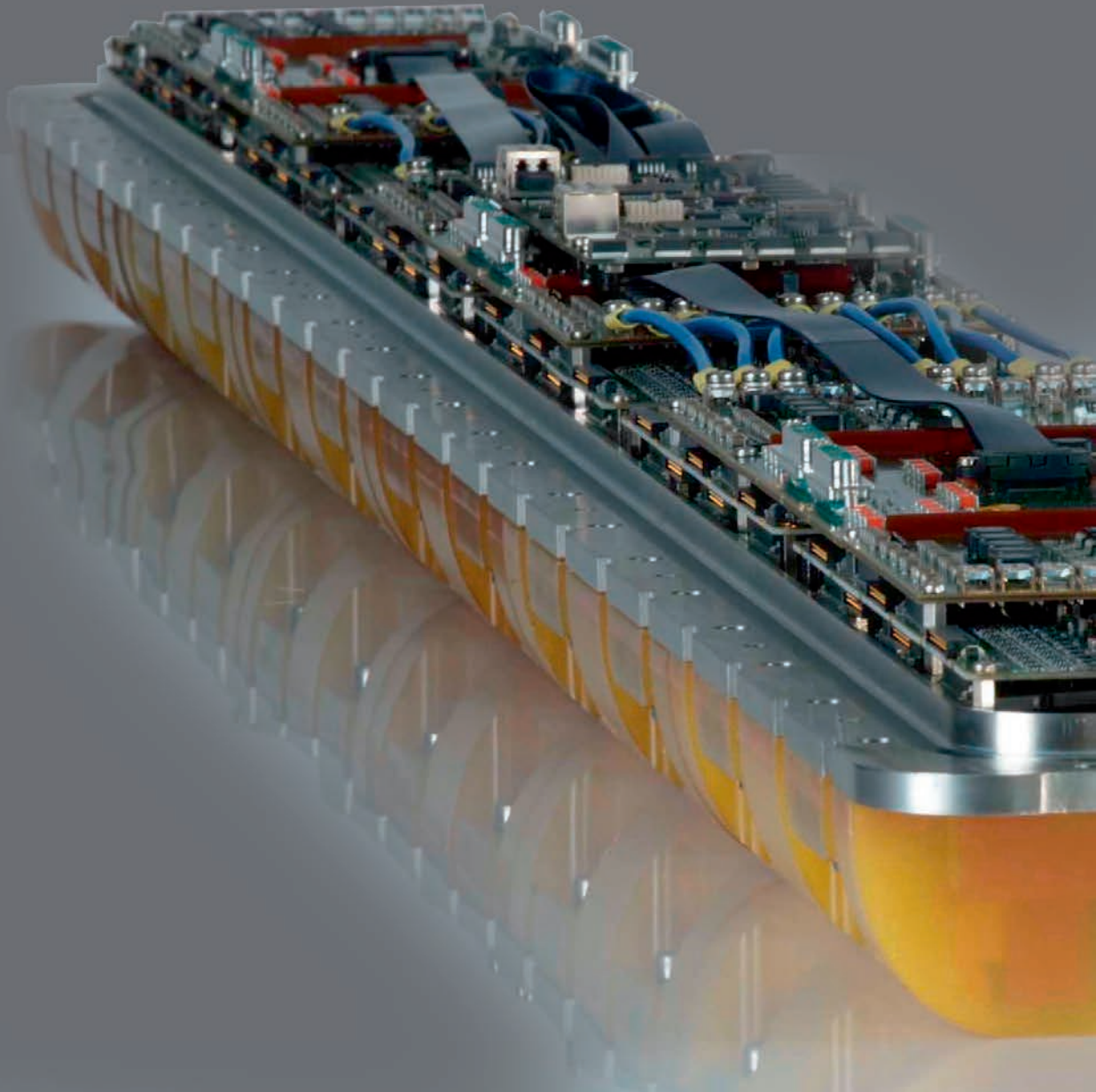
- Short range detection on rock with strong bottom reverberation
- High resolution echo & shadow classification

#### Advantages:

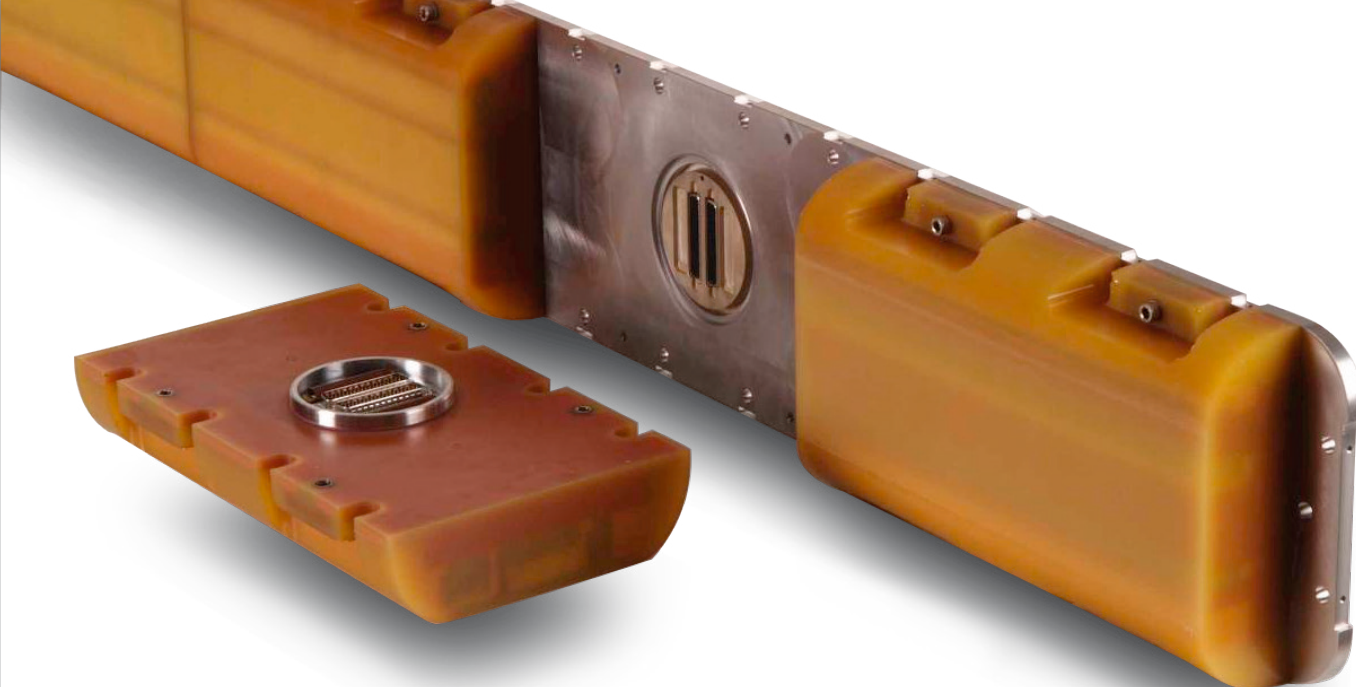
- Interoperability between all frequencies and high number of different modes offers a unique flexibility in operation
- Large detection and classification sectors resulting in high coverage rates
- Due to functionality and flexibility the best possible approach for mine hunting in European and tropical environments and for different bottom types
- High precision raw data processing and display
- Side scan capability for rapid route survey operations



# Technical Characteristics







	LF	HF	VHF
Frequencies (approx.)	100 kHz	200 kHz	400 kHz
Bandwidth (array & signal processing)	24 kHz	48 kHz	48 kHz
Horizontal transmission sector	15° / 30° / 60° / 90°	15° / 30° / 60°	10° / 20° <sup>1</sup>
Vertical transmission sector	3,2° to 32° <sup>1</sup>	18°	18°

Operational speed: up to 10 kts and SS 5 (sea state); survival speed: 12 kts

<sup>1</sup> Sector is selectable and steerable

#### Advantage:

- Due to the small size sonar trunk it is a suitable system for small and medium size vessels
- The optimized hydrodynamic design of the hoisting unit reduces the flow resistance and the torsional forces on the vessel and is even optimized for high speed operations
- Verified shock resistance by qualification test and real explosive tests
- Automatic retraction to protect the antennas if exceeding the depth or speed limitation
- Separate arrays for transmission, receiving and for all frequencies
- High redundancy of array capacity
- Low magnetic signature due to hydraulic drives and non-magnetic casing
- Low noise level and light weight construction



# Summary of Technical Data

## POWER SUPPLY

Designation	Voltage [V] <sup>1</sup>	Freq. [Hz]	Max Continues Power[kVA]
Sonar Cabinet Suite <sup>2</sup>	1 AC 230	60/50	2.7
	1 AC 115 <sup>3</sup>	60	0.4
Hydraulics Unit	3 AC 440	60	7.5
	3 AC 115 <sup>4</sup>	60	1.8
Stabilisation Unit	3 AC 115	60	1
	1 AC 115 <sup>3</sup>	60	0.4
HMS Power Supply Unit	3 AC 115	60	1
	1AC 115 <sup>3</sup>	60	0.5

## WEIGHT AND DIMENSIONS

Designation	Max Dimensions incl. Shock Abs. <sup>5</sup> h x w x l [mm]	Weight approx [kg]
Sonar Cabinet Suite	2051 x 600 x 1011	320
Hoisting Unit <sup>6</sup>	4648 x 1125 x 920	2300
Hydraulics Unit <sup>6</sup>	1355 x 1158 x 885	550
Indicator Unit	160 x 260 x 109	2.4
Stabilisation and HMS Power Supply Units <sup>7</sup>	930 x 1020 x 455	225

<sup>1</sup>Sources in accordance with MIL-STD 461D

<sup>2</sup>The EC shall be supplied by an uninterruptible power source. UPS AC supply voltage variance:  
 - ± 2 % static change  
 - ± 5 % dynamic change at 100 % load change for 1 ms

<sup>3</sup>Stand-by heating only

<sup>4</sup>Only emergency operation

<sup>5</sup>Components are delivered with shock absorbers

<sup>6</sup>No shock attenuation mounting

<sup>7</sup>Total weight for Stabilisation Unit and PSUs mounted on a common frame



**ATLAS ELEKTRONIK**  
your strategic and reliable  
Partner for safe maritime operations

## Contact

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