DAMEN SEARCH AND RESCUE VESSEL

DAMEN SAR 1906 - KNRM Nh1816

GENERAL
Hull material: Aluminium
Superstructure: FRP Composite
Design: KNRM/De Vries Lentsch/Damen
Classification: Lloyds Register

SPECIAL FEATURES
Stability: Self-righting
Damage stability: 2 compartment, 2 separated engine rooms

LIFE SAVING EQUIPMENT
Rescue platform: 3.50 m at the stern, hydraulically driven
Salvage pumps: 2x 60 m³/h Hatz pump
Life raft: 1x 6 persons
Fire extinguishers: 6 (CO² and AFFF types)

DIMENSIONS
Length o.a.: 19.30 m
Beam o.a.: 6.54 m
Depth at sides: 1.90 m
Draught (max): 1.10 m

CAPACITIES
Fuel oil: 4.90 m³
Crew: 6
Survivors: 120
Stretchers transport: 2
Range: 348 nm

PERFORMANCES
Speed (trial): 31 knots
Max. bollard pull: 7 tone

PROPELLION SYSTEM
Main engines: 2x MTU 8V2000 M84L
Total power: 1,790 kW (2,400 bhp) at 2,450 rpm
Gearboxes: 2x ZF 2000
Propulsion: 2x Hamilton 570

ELECTRICAL EQUIPMENT
Network: 230/50 Hz, 24V/DC
Generator capacity: 2x 8 kW main engine powered

ACCOMMODATION
Below main deck: Technical room with extra bunks and toilet
Wheelhouse: 6x Ullman Biscaya joystick seats
Dashboard: Watertight secured space

DAMEN SEARCH AND RESCUE 1906
The SAR 1906, developed by Damen in close cooperation with KNRM (Royal Netherlands Sea Rescue Institution), Delft University of Technology and maritime design bureau de Vries Lentsch, is a fast, harbour-based, all weather, self-righting lifeboat that is able to function as an ‘on-scene-coordinator’ unit.

Since the 1980s, Damen and Delft University of Technology have cooperated in a research programme aimed at improving the sea keeping characteristics of high speed vessels. In the 1990s, this cooperation produced the “Enlarged Ship Concept” on which the highly successful Stan Patrol 4207 and 4708 are based. In the beginning of the 21st century, the “Axe Bow Concept” was developed. The Sea Axe is a hull shape with unparalleled sea-keeping characteristics. Based on this concept, Damen has developed the Sea Axe Patrol Vessels, Fast Crew Suppliers and Safety Standby Vessels. The hull of the SAR 1906 is a semi-Sea Axe.

During the design of the wheelhouse, an ergonomics specialist was involved to ensure the best possible working conditions for the crew. Computer models were used to visualise how crew members would be affected by the most extreme conditions. To be able to make the last refinements in the wheelhouse design, a full scale mock-up was made. Besides the standard navigational and nautical systems, the bridge can be fitted with a high speed data link to e.g. a Coast Guard station to increase effectiveness during SAR operations.

**All weather and self-righting**
- up to 12 hours at 25 knots
- reach of 348 nautical miles
- maximum speed of 31 knots
- 7 tonnes of bollard pull

**Based on experience and research**
- hydrodynamic research from Delft University of Technology
- real-time operation test results are implemented in the design

**Basic specifications**
- seaworthiness class: 1B
- maximum freeboard: 0.70 m
- maximum hold: 9 tonnes
- triple propeller systems
- two waterjets
- two watertight engine rooms
- two propulsion trains
- retractable stabilizers
- retractable fins for course stability (down) or extreme maneuvering (up)
- 5 multifunctional displays
- IP over VHF
- ship-to-shore real-time feedback
- two watertight divided engine rooms
- four watertight sections
- two watertight living spaces
- 120 survivors
- four firefighting extinguishers
- sustainable motor installation
- 2 electronic systems
- strong and watertight bridge
- four-wheel steering
- retractable stabilizers
- enclosed survivor cabin for 24 survivors
- toilet and bunks
- living space for 24 survivors
- safe and stable platform for survivors
- 7 tonnes of bollard pull

**Wheelhouse**
- Jockey seats (6 members)
- climate control
- safety seatbelts
- lower decibel within wheelhouse

**Aerodynamically designed foam filled fender**
- minus 40% vertical acceleration
- increased crew safety by reduced stress

**Self-righting**
- the design provides self righting within seconds after capsize or even 360° roll
- motors keep running and go to idle to ensure direct sail power when rolled back

**Ergonomic layout for crew**
- climate control
- safety seatbelts
- lower decibel within wheelhouse

**Convenient pick-up for survivors**
- hydraulically driven horizontal platform
- 1 life raft

**Improved maintenance conditions and effectiveness**
- generous dimensions in machining room
- even floors

**Maximum security from twofold systems**
- 2 watertight divided engine rooms
- 2 propulsion trains
- 2 waterjets
- 2 electronic systems

**Safe and optimal comfort**
- hydrodynamic research from Delft University of Technology
- real-time operation test results are implemented in the design

**The Sea Axe Bow Concept**
Since the 1990s, Damen and Delft University of Technology have cooperated in a research programme aimed at improving the sea keeping characteristics of high speed vessels. In the 1990s, this cooperation produced the “Enlarged Ship Concept” on which the highly successful Stan Patrol 4207 and 4708 are based. In the beginning of the 21st century, the “Axe Bow Concept” was developed. The Sea Axe is a hull shape with unparalleled sea-keeping characteristics. Based on this concept, Damen has developed the Sea Axe Patrol Vessels, Fast Crew Suppliers and Safety Standby Vessels. The hull of the SAR 1906 is a semi-Sea Axe.

**Foam filled fender**
- A near vertical hull that slices through waves limiting ‘slamming’ motion and peaks
- increased crew safety by reduced stress

**State-of-the-art integrated electronics**
- 5 multifunctional displays
- IP over VHF
- ship-to-shore real-time feedback