

# Visby Class Corvettes, Sweden

## Key Data:

Crew 43

Hull Design FRP sandwich

## Dimensions:

Length 72m

Length Between Perpendiculars 61.5m

Width 10.4m

Draught 2.4m

Displacement when Fully Equipped 600t

## Performance:

Speed 35kt

## Propulsion:

High-Speed Machinery Four gas turbines - total 16,000kW

Low-Speed Machinery Two diesel engines - total 2.600kW

Generators Three - total 810kW

## Featured Suppliers:

Thordon Bearings - Pollution-Free Stern Tube Bearings, Rudder Bearings and Deck Equipment

Saab - 3-D Navy Radar

Rolls-Royce - Marine Propulsion Solutions

Rheinmetall Waffe Munition - Naval Weapon and Protection Systems

Polyamp - Degaussing Systems, Magnetic and Acoustic Sweep System

Marioff - Water Mist Fire Protection

L-3 MAPPS - Trainers, Support Facilities and Simulation Based Design

L-3 MAPPS - Integrated Platform Management Systems

Consilium - Marine Safety Solutions

The Visby Class of stealth corvettes is being built for the Swedish Navy by the Swedish company Kockums (a subsidiary of ThyssenKrupp Marine Systems of Germany).



**"The design of the Visby has been directed to minimising the optical and infra-red signature."**

**The Visby Class of stealth corvettes is being built for the Swedish Navy.**

Construction began in 1996 at Kockums' Karlskrona yard. The Visby (K31) was launched in June 2000 and was delivered to the FMV (the Swedish Defence Materiel Administration) in June 2002 for fitting with weapons and combat systems. The second, HMS Helsingborg (K32), was launched in June 2003 and delivered in April 2006. Harnosand (K33) was launched in December 2004. HMS Visby and Harnosand were officially delivered to the FMV in June 2006.

The other hulls are: Nyköping (K34), launched in August 2005 and delivered in September 2006, and Karlstad (K35), launched in August 2006. The vessels are undergoing operational sea trials before commissioning in 2008. The Swedish Navy has cancelled an option on a sixth vessel (Udevalla K36).



**The first four Visby corvettes are for Mine Countermeasures (MCM) and Anti-Submarine Warfare (ASW).**

The first four Visby corvettes for the Swedish Navy are for Mine Countermeasures (MCM) and Anti-Submarine Warfare (ASW). The last vessel will be primarily for the attack and anti-surface warfare role.

A helicopter, such as the AgustaWestland A109M selected by Sweden, can land, take off, and refuel on the upper deck.

## **DESIGN**

The design of the Visby has been directed to minimising the optical and infrared signature, above water acoustic and hydroacoustic signature, underwater electrical potential and magnetic signature, pressure signature, radar cross section and actively emitted signals.



A stealth corvette of the YS 2000 design has a detection range of 13km in rough seas and 22km in calm sea without jamming. In a jammed environment, the Visby would be detected at a range of 8km in rough sea and 11km in calm sea.

**The Visby (K31) was launched in June 2000 and is due to commission in 2006.**

The hull material is a sandwich construction comprising a PVC core with a carbon fibre and vinyl laminate. The material provides high strength and rigidity, low weight, good shock resistance, low radar and magnetic signature.



## COMMAND AND CONTROL

The vessel's CETRIS C3 (command, control and communications) system consists of the Saab Systems 9LV mk3E combat management system, the MAST decision support aid and the integrated communications system. The 9LV mk3 is based on open system architecture and uses the Windows NT operating system.

**The stealth features of the Visby are designed to minimise detection.**

**"The Visby is equipped with a suite of ASW 127mm rocket-powered grenade launchers, depth charges and torpedoes."**

The SaabTech CEROS 200 radar and optronic fire control system has been ordered for the Visby and will be fully integrated into the combat management system.

The communications system has a high-capacity digital communications switch, developed by Danish company Maersk Data Defence (formerly Infocom) together with Karlskrona, which interconnects the voice and data communications channels. The system provides internal communications or open conference lines and access to external communications with various radio links and land-based networks.



**The hull material is a sandwich construction comprising a PVC core with a carbon fibre and vinyl laminate.**

## MISSILES

Visby vessels will not initially be fitted with an air defence missile system, but could later be equipped with one. It has been reported that the Swedish government has selected the Umkhonto surface-to-air missile system, produced by Denel of South Africa. Umkhonto has infrared guidance, range of 12km and ceiling of 10,000m. The system is capable of engaging up to eight targets.



The corvettes will be equipped with eight Saab Bofors Dynamics RBS 15 mk2 anti-ship missiles. Mk3 anti-ship missiles. The RBS 15 mk3 uses active Ku-band radar homing and has a range of more

**The vessel has ROVs for mine hunting and mine disposal.**

than 200km. The missile has a high subsonic speed, Mach 0.9 and is armed with a 200kg warhead. The missiles will be installed below deck and be fired through special hatches to maintain the vessel's stealth. The missiles' exhaust plumes will be managed in separate canals.



#### ANTI-SUBMARINE WARFARE

The Visby is equipped with a suite of ASW 127mm rocket-powered grenade launchers, depth charges and torpedoes. There are three fixed 400mm torpedo tubes for Saab Underwater Systems Tp 45 anti-submarine homing torpedoes.

**The Visby is armed with rocket powered grenade launchers, depth charges and torpedoes for ASW.**

#### GUN

The Visby is equipped with a Bofors 57mm 70 SAK Mark III general purpose gun. The gun has a fully automatic loading system containing 120 rounds of ready-to-fire ammunition. The gun fires up to 220 rounds/minute to a maximum range of 17,000m.

**"The Visby will carry Saab Bofors Underwater system ROVs."**

#### MINE COUNTERMEASURES (MCM)

The Visby will carry Saab Bofors Underwater system ROVs (Remotely Operated Vehicles) for mine hunting and the Atlas Elektronik Seafox ROV for mine disposal. The minehunting ROVs are a development of the Double Eagle Mk III.



**The Bofors 57mm Mark III gun fires up to 220 rounds/minute.**

The Visby corvettes are being fitted with the Hydra multi-sonar suite from General Dynamics Canada (formerly Computing Devices Canada), which integrates data from a Hydrosience Technologies passive towed array sonar, C-Tech CVDS-26 dual-frequency active Variable Depth Sonar (VDS), C-Tech CHMS-90 hull-mounted sonar and data from the ROVs.

#### SENSORS

Saab Microwave Systems (formerly Ericsson) Sea Giraffe AMB 3D C-band multi-role radar provides air and surface surveillance and tracking and target indication to weapon systems. It features 3D agile multi-beam technology and can handle multiple



**The Visby combined diesel and gas (CODAG) propulsion.**

threats up to 20,000m (65,000ft) at elevations up to 70 ° .

ECCM (Electronic Counter Countermeasures) capabilities include ultra-low antenna sidelobes and both frequency and code agility. The antenna has a rotation rate of 30rpm for surveillance and 60rpm for air defence.

There is also an I-band surface search and I/J band fire control radar.

## COUNTERMEASURES

The CS-3701 Tactical Radar Surveillance System (TRSS) from EDO Reconnaissance & Surveillance Systems provides Electronic Support Measures (ESM) and Radar Warning Receiver (RWR) functions.

**"The Visby is equipped with a suite of ASW 127mm rocket-powered grenade launchers."**

Visby Class vessels will be equipped with the MASS (Multi-Ammunition Softkill) decoy system from Rheinmetall Waffe Munition (formerly Buck Neue Technologien) of Germany.

MASS can launch up to 32 omni-spectral projectiles in a time-staggered configuration against anti-ship missiles and guided projectiles. The MASS decoy covers radar, infrared, electro-optic, laser and ultraviolet wavebands.

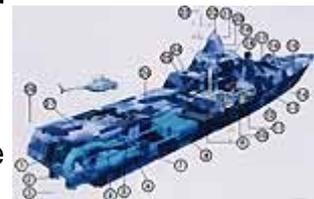
## PROPULSION

The Visby is equipped with a Combined Diesel and Gas (CODAG) turbine arrangement. Four TF 50 A gas turbines from Honeywell and two MTU 16V 2000 N90 diesel motors are connected to two gearboxes which run two Kamewa waterjet propulsors.

The motors provide a maximum speed of 15kt for long duration and 35kt for short duration. The ship has rudders and bowthrusters for harbour manoeuvring.



**The corvettes will be equipped with eight RBS 15 anti-ship missiles.**



**General data on the Visby Class corvette.**