

Thales on the Naval Defence market





Captas-1 ©Thales

With more than 50 years of experience as a provider of naval equipment, systems and services, Thales offers naval forces around the world unrivalled expertise and proven operational benefits. Thales understands how naval and maritime affairs are evolving today, and leverages those insights to help ensure the success of a broad range of naval missions around the world. Thales air defence, surface defence, anti-submarine warfare and maritime safety & security systems are now in service with more than 50 navies.

As of 2017, equipment and systems designed by Thales are deployed by more than 500 vessels serving in 53 naval forces around the globe.

Thales' offer is designed to meet the specific needs of naval forces:

For littoral safety and security

- solutions for protecting citizens, harbours, coastal assets and critical offshore infrastructure
- acoustics and communication systems and subsystems for anti-submarine warfare and mine countermeasures

For maritime security operations

- maritime security and surveillance solutions (safety at sea and critical infrastructure protection)

For power projection

- multifunction surveillance radars
- naval systems and combat capabilities for an extensive range of surface ships

For force protection

- Combat management systems
- Anti-submarine warfare and airborne systems

For force coordination

- C4ISR solutions to gather, process and disseminate information to gain and maintain operational superiority
- management and information security solutions in an interoperable environment between the different navies and the armed forces

Littoral safety and security

Thales has developed a turnkey system designed to protect shipping lanes, port access channels, naval bases and privately operated underwater installations. This self-contained solution, called **SeeMapper**, provides **continuous, high-resolution mapping of the seabed** using a towed synthetic aperture sonar (T-SAS) deployed by a **service vessel**.



SeeMapper @Thales

In March 2015, France and the United Kingdom awarded the **Maritime Mine Counter Measures (MMCM)** contract to Thales, BAE Systems and their programme partners. Initiated in 2012 under a cooperation agreement between France and the United Kingdom, the MMCM programme is developing a prototype autonomous system for detection and neutralisation of sea mines and underwater improvised explosive devices (UWIEDs).

The 20th October, the French and British industries continue their collaboration for the combined United Kingdom and France MMCM (maritime mine counter measures) programme.

At Euronaval 2016, Thales is launching **Pathmaster**, the first fully configurable unmanned mine countermeasures system for naval forces seeking to minimise the risk exposure of their crews. Pathmaster features SAMDIS, Thales's latest-generation high-resolution synthetic aperture sonar, with multi-

aspect imaging technology to improve classification performance.

> *Over 300 Thales mine hunting sonar systems are in service around the world.*

Maritime security

Thales offers a range of maritime patrol and surveillance solutions. The AMASCOS onboard mission system for aircraft incorporates different combinations of sensors such as surveillance radar (SEARCHMASTER®, Ocean Master, I-MASTER) and a sonar subsystem. The SEARCHMASTER® multi-role surveillance radar meets the requirements of five general mission types: anti-surface warfare, anti-submarine warfare, maritime surveillance, ground surveillance and mapping, and air surveillance missions. The radar also offers a number of additional advantages: extended range, 360° field of vision, simultaneous short-range and long-range coverage, outstanding detection performance even in harsh climatic conditions. This radar was selected by the French defence procurement agency (DGA) as part of the Atlantique 2 (ATL2) maritime patrol aircraft upgrade programme for the French navy.



SEARCHMASTER®, ©Thales

VIGILE is the key component of the EW suite. Coupled with R-ECM system, VIGILE provides excellent area and self-defence capabilities. It is fully integrated into the Combat System and plays a vital part in the platforms situational awareness, self-protection and ELINT capabilities.

Power projection

➤ Surveillance

The Thales range of radars is the broadest and most complete family of naval radars on the market. It includes:

- the **Smart-L** surveillance radar, which has been selected for all new-generation European anti-air frigates. **Smart-L is the only radar on the market today to offer a theatre ballistic missile defence capability**
- the **APAR and Herakles** multi-function radars (Herakles has been selected for the FREMM frigate programme)
- the **Smart-S Mk2** is the naval 3D air and surface surveillance radar, optimised for littoral operations. This latest generation radar allows to protect the French aircraft carrier Charles de Gaulle

> 68 Smart-S radars are in service in 15 countries including 5 NATO countries: Canada, Turkey, Poland, Denmark and France.

The multi-function naval radar, **the Sea Fire** is designed for large surface combatants with its fully solid-state four-panel phased-array antenna. In 2017, it was selected for the French frigates FTI. It is suitable for multiple roles ranging from ship self-defence to extended air defence, and provides protection from conventional air and surface threats, asymmetric threats such as UAVs, and emerging threats such as ballistic anti-ship missiles, even in heavily jammed environments and the complex conditions of the littoral. The radar Sea Fire can deploy ASTER missiles.



Sea Fire radar @Thales

➤ Unmanned naval systems

At Euronaval 2016, Thales and 19 French SMEs unveil the world's first hybrid unmanned naval system capable of operating both underwater and on the surface thanks to a dozen major innovations. With its 360° agility and superior endurance, the **AUSS** system can perform many civil and military missions that were formerly considered impossible.



AUSS @Thales

➤ Fire coordination

CONTROLView ensures the Aster missile engagements on board the French aircraft carrier Charles de Gaulle. It implements highly innovative technologies with open architecture software. CONTROLView offers maximum automation in Fire Coordination operations in order to maximize efficiency and to guarantee safe engagements.

PHAROS is a tracking radar for gun and missile control. Its electronic beam steering capability enables multiple-target tracking and integrated guided ammunition control. PHAROS controls any medium calibre type gun, ranging from 30mm to 76mm for naval and ground-based applications. PHAROS provides defence against small, fast moving and highly manoeuvrable air and surface targets.

Force Protection

➤ Combat management systems

TACTICOS is Thales’s response to the real-world operational requirements of naval forces around the world and supports efficient naval mission management in a broad range of roles. Successive evolutions of TACTICOS have made this solution the world’s leading naval combat system. In the latest TACTICOS system Thales has brought two complementary innovations: a new workflow oriented human machine interface.

> It is currently in service with 50 navies (NATO and non-NATO members) on more than 130 platforms of all types.

The dual-axis multi-beam radar **NS200** highly modular and scalable enables an optimal situational awareness, especially in littoral or otherwise complex operational environments.



Le radar NS200 @Thales

➤ Sonars

The family of **CAPTAS variable depth sonars** developed by Thales has been a major commercial success. Available in two-ring and four-ring configurations, CAPTAS offers a number of distinctive capabilities including instantaneous left/right ambiguity resolution for effective torpedo defence. These towed array sonars can also be deployed in association with hull-mounted or dipping sonars for multistatic processing.

In 2014, Thales expanded its sonar offering, developing a range of compact,

easy-to-install sonar systems for surface combatants and Offshore Patrol Vessels of 300 tonnes and above. The new products include a hull-mounted sonar, the **Thales BlueWatcher**, and an **associated towed array sonar, CAPTAS-1**, which provide an ASW capability at relatively low cost.

At Euronaval 2016, Thales announces the launch of the CAPTAS-4 towed array sonar currently in service on the FREMM multi-mission frigates. The compact version of CAPTAS-4 delivers the same very long-range detection performance with 20% lower weight and a footprint almost 50% smaller.

> Thales is the world leader in acoustic dipping sonars.

Thales developed the **FLASH** (Folding Light Acoustic System for Helicopters) low-frequency wideband sonar system. Initially designed for helicopters, the system has also been tested successfully on board Autonomous Surface Vehicles. The outstanding operational performances of the FLASH system have made it the leading dipping sonar system on the world market today.



> The US Navy has ordered 250 FLASH sonars to equip its helicopters.

Force coordination

➤ Communication systems

Thales offers a complete range of solutions for shipboard and external communications, from patrol boats and frigates to submarines and carriers.

Thales offers integrated IP-based secure radio solutions with the latest technologies as high speed HF, software-defined radio, LTE or multiband satcoms.

Aquilon is already in service with the French Navy and numerous other naval forces. The **system is open, flexible and scalable**. It is designed to accommodate all developments in the field of naval communications.

Built around IP architecture, Aquilon provides all shipboard and external communications and delivers secure connectivity services for frigate and crew, **guaranteeing interoperability between all the actors** taking part in the platform missions.

On **Satcom** (satellite communications), Thales offers **SurfSat** (S and L) products for surface buildings. Designed for military use and military environment, SurfSat optimizes the satellite resource for resilient links thanks to its "dual antenna" (dual frequency band, dual link) solution. In addition, **DiveSat** is a particularly compact product that makes satellite communication possible for submarines in the X-to-Ka bands.



For secure communications, Thales provides innovative solutions with the '**System 21**', a unique military solution dedicated to jammed protection and interference with multiple, flexible, scalable, secure waveforms easy to use for all types of platform.

> Our communications systems are in service with 40 naval forces

➤ Electronic warfare system

SENTINEL is the new electronic warfare system from Thales, all-digital, developed for the future FTI. It will also improve the systems for land, naval and submarine platforms. It can handle both radar and communications signals, and brings together all the latest innovations in terms of R-ESM (Radar-Electronic Support Measure) and C-ESM (Communications-Electronic Support Measure).

➤ Cyber Defence

Combat management System (CMS) and **Support management System (SMS)** - constitute potential targets because of their connectivity (maintenance, exchange inter-systems). Modern ships must be protected and resilient and not constitute "weak links" in front of cyber threaten for the third systems with which they exchange. In order to identify emerging threats, to inject real time intelligence to update customers defence proactively, to track cyber attackers, to develop awareness on evolving threats landscape, and to upgrade signature and behavioural based controls, **CYBELS** suite offers an increasing control in front of Advanced Persistent Threats and a help in the command in front of cyber-attack.

Last News

April 2016 (Australia): Thales is delighted that Naval Group has been selected, after an international competitive evaluation process, as the international partner of the Australian Ministry of Defence for the renewal of its submarine fleet (SEA 1000 programme). Thales is Naval Group's main shareholder (35%) alongside the French state.

October 2016 (France): At Euronaval 2016, the French ministry of defence unveiled the FTI medium-size frigate programme for the French Navy. Working alongside DCNS, Thales has been selected to provide a number of latest-generation systems for the future frigates.

January 2017 (Denmark): Thales has been awarded a contract by the Danish Defence Acquisition and Logistics Organization for the delivery of 14 Continuous Wave Illumination (CWI) transmitters to be integrated in the current ESSM fire control systems on-board the Absalon and Iver Huitfeldt class vessels of the Royal Danish Navy.

February 2017 (UAE): At NAVDEX 2017, Thales has been selected for several significant projects to develop the capabilities of the United Arab Emirates Navy in the fields of electronic warfare, anti-submarine warfare as well as security and surveillance.

March 2017 (France): The first in the series production of Thales SEARCHMASTER® multi-role surveillance radars was accepted and declared ready for delivery to its first export customer.

April 2017 (Indonesia): Thales and PT Len extend MoU for further cooperation in combat management systems, The extension of the

existing MoU strengthens cooperation between the two parties in areas of collaboration that will include further research and development in combat management systems, as well as the specific transfer of technology for the Thales TACTICOS CMS and other combat systems' integration.

April 2017 (France): Thales joins Naval Group in welcoming the award by the French defence ministry of the contract for the development and construction of five intermediate-size frigates for the French Navy under the FTI programme.

June 2017 (Belgium): On the occasion of the Belgian Defense Technology & Industry Day trials, held at the Naval Base at Zeebrugge, Thales successfully demonstrated the performances of its latest SAMDIS Multi-view Synthetic Aperture Sonar (SAS) system integrated onboard an ECA A27 AUV platform.

August 2017 (Canada): The Government of Canada has awarded Thales In-Service Support (ISS), refit, repair, maintenance and training to both Arctic and Offshore Patrol Ships and Joint Support Ships. Known as AJISS, the contract includes an initial service period of eight years for up to \$800 million CAD (approx. €540 million) with options to extend services up to 35 years, for a total value of \$5.2 billion CAD (approx. €3.5 billion), making it the largest ISS contract in Canadian history.

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