

S 119 Astute - 2009

United Kingdom

Type: SSN - Nuclear Powered Attack

Submarine



Max Depth: -300 m

Max Speed: 32 kt

Commissioned: 2009

Length: 97.0 m

Beam: 10.7 m

Draft: 10.0 m

Crew: 110

Displacement: 6500 t

Displacement Full: 7200 t

Propulsion: 1x Rolls-Royce PWR.2 Nuclear

Reactors

Sensors / EW:

- Type 1007 - (1988, KH 1007) Radar, Radar, Surface Search & Navigation, Max range: 177.8 km
- Type 2065 [Type 2076 Suite] - (1988, KH 1007) TASS, Passive-Only Towed Array Sonar System, TASS, Passive-Only Towed Array Sonar System, Max range: 185.2 km
- Type 2079 [Type 2076 Suite] - (Astute) Hull Sonar, Active/Passive, Hull Sonar, Active/Passive Search, Max range: 74.1 km
- Type 2082 - (1994) Acoustic Intercept (Active Sonar Warning), Acoustic Intercept, Passive Ranging, Max range: 27.8 km
- Type 2072 [Type 2076 Suite] - (Trafalgar, FMS 12, Type 2007 Replacement) Hull Sonar, Passive-Only, Hull Sonar, Passive-Only Ranging Flank Array Search & Track, Max range: 129.6 km
- UAP-4 - (Astute) ESM, ELINT w/ OTH Targeting, Max range: 926 km
- CM010 TV/EO Component - (1.5x/24x Zoom) Visual, Visual, Surveillance & Navigation TV Camera, Max range: 41.7 km
- CM010 LLTV Component - (2000s/2010s, 1.5x/24x Zoom) Visual, LLTV, Surveillance & Navigation Camera, Max range: 41.7 km
- CM010 IR Component - (2000s/2010s, 1.5x/12x Zoom) Infrared, Infrared, Surveillance & Navigation Camera, Max range: 41.7 km
- CM010 QLR IR Component - (1x/2x Zoom) Infrared, Infrared, Day/Night Spherical Situational Awareness & Fire Control, Max range: 27.8 km

Weapons / Loadouts:

- SCAD 102 - (Internal) Decoy (Expendable). Subsurface Max: 1.9 km.
- SCAD 200 - Decoy (Expendable). Subsurface Max: 1.9 km.
- UGM-109C Tomahawk Blk III TLAM - (1994, TT) Guided Weapon. Land Max: 1666.8 km.
- Spearfish Mod 0 - (1994) Torpedo. Surface Max: 11.1 km. Subsurface Max: 11.1 km.
- UGM-109E Tomahawk Blk IV TACTOM - (2008, TT) Guided Weapon. Land Max: 1600.1 km.

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OVERVIEW: The Astute class is the latest class of nuclear-powered fleet submarines in service of the British Royal Navy. The class sets a new standard for the Royal Navy in terms of weapons load, communication facilities and stealth. The boats are being constructed by BAE Systems Maritime Submarines at Barrow-in-Furness. Seven boats will be constructed. The first of class, Astute, was launched in 2007 and commissioned in 2010, and the second, Ambush, was launched on 6 January 2011, and commissioned on 1 March 2013. Astute was declared fully operational in May 2014, while Ambush is undergoing maintenance in preparation for operational deployment.

DETAILS: The boats of the Astute class are powered by a Rolls-Royce PWR2 (Core H) (a pressurised water) reactor and fitted with a pump-jet propulsor. The PWR2 reactor was developed for the Vanguard-class ballistic missile submarines. As a result the new submarines are about 30 per cent larger than previous British fleet submarines, which were powered by smaller-diameter reactors. Like all Royal Navy submarines, the bridge fin of the Astute-class boats is specially reinforced to allow surfacing through ice caps. These submarines can also be fitted with a dry deck shelter, which allows special forces (e.g. SBS) to deploy whilst the submarine is submerged. More than 39,000 acoustic tiles mask the vessel's sonar signature, giving the Astute class a better stealth quality than any other submarine previously operated by the Royal Navy. Speculation released by the media stated that by using advanced stealth technology Astute "makes less noise than a baby dolphin, making her as good as undetectable by enemy ships."

Astute is the first Royal Navy submarine class to have a bunk for each member of the ship's company, ending the practice of 'hot bunking', whereby two sailors on opposite watches shared the same bunk at different times. However, they have less mess-deck space than the Valiant-class submarine built 45 years earlier.

The Royal Navy announced a speed of 29+ knots for the class, but it is reported this speed could not be reached in the trials of Astute due to a propulsion design problem. It is unclear if this problem can be overcome, and at the launch of the Ambush the Royal Navy only stated she was "capable of speeds in excess of 20 knots".

The Astute class has stowage for 38 weapons and would typically carry both Spearfish heavy torpedoes and Tomahawk Block IV cruise missiles. The Astute class will also be able to fire the new "tactical Tomahawk" currently under development. The Astute Combat Management System is an evolved version of the Submarine Command System used on other classes of British submarine. The system receives data from the boat's sensors and displays real time imagery on all command consoles. The submarines also have Atlas Hydrographic DESO 25 high-precision echosounders, two CM010 non-hull-penetrating optronic masts - in place of conventional periscopes - which carry thermal imaging and low-light TV and colour CCD TV sensors. The class also mounts a Raytheon Successor IFF system.

For detecting enemy ships and submarines the Astute class are equipped with the sophisticated Thales Underwater Systems Sonar 2076, an integrated passive/active search and attack sonar suite with bow, intercept, flank and towed arrays. BAE claims that the 2076 represents a "step change" over previous sonars and is the world's most advanced and effective sonar system.

In 2012, during simulated battles with the United States Navy's latest Virginia-class submarine (the USS New Mexico), it was reported that the Americans were "taken aback" by Astute's capabilities. Royal Navy Commander Ian Breckenridge was quoted saying: "Our sonar is fantastic and I have never before experienced holding a submarine at the range we were holding USS New Mexico. The Americans were utterly taken aback, blown away with what they were seeing."

TYPE: Nuclear Powered Fleet Submarine.

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SPECIFICATIONS: Displacement: 7,000 tonnes surfaced (7,400 tonnes submerged) || Length: 97 m (318 ft) || Beam: 11.3 m (37 ft) || Draught: 10 m (33 ft) || Propulsion: Rolls-Royce PWR 2 reactor, MTU 600 kilowatt diesel generators || Complement: 98 (capacity for 109).

PERFORMANCE: Speed: Up to 30 knots (56 km/h) submerged || Range: Only limited by food and maintenance requirements || Test depth: Over 300 m.

SENSORS: Thales Sonar 2076 || Atlas DESO 25 echosounder || (2) Thales CM010 optronic masts || Raytheon Successor IFF.

ARMAMENT: (6) 21-inch (533 mm) torpedo tubes with stowage for up to 38 weapons || Tomahawk Block IV land-attack missiles || Spearfish heavyweight torpedoes.

SHIPS BUILT: Astute (S119) || Ambush (S120) || Artful (S121) || Audacious (S122) || Anson (S123) || Agamemnon (S124) || Ajax (S125).

SOURCE: [SCO] Wikipedia <http://en.wikipedia.org>