



C303/S

Anti-Torpedo Countermeasure System for Submarines

DESCRIPTION

The C303/S is an anti-torpedo countermeasure system for submarines, designed to counter attacks of acoustic homing torpedoes, active/passive, lightweight and heavyweight, wire and non wire-guided, through the use of expendable low-cost, light-weight, high-performance Stationary Jammers and Mobile Target Emulators. The submarine deploys such devices during the course of pre-determined evasive counter-manoeuvers, to maximise the submarine survivability against modern torpedo attacks.

The **C303/S** consists of:

- 1) The effectors: Mobile Target Emulators and Stationary Jammers.
- 2) Launching system, mounted externally on the pressure hull of the submarine and below the submarine super-structure.
- 3) Control Computer, fitted with a Man Machine Interface, and connected with the torpedo detection system or with the Combat Management System, which controls the launch of the countermeasures.

EFFECTORS

The Jammer features a highly efficient transducer, covering the whole receiving bandwidth of any torpedo, with a switching power amplifier and high-energy density thermal battery. The Jammer generates a very high amount of energy spread over the entire reception band of the acoustic head of the torpedo. By emitting a high intensity broadband noise, the Jammer masks the target echo as well as the target radiated noise, preventing target acquisition by the torpedo.

The Mobile Target Emulators (MTE) are able to produce reliable echoes for any type of torpedo acoustic transmission, by means of a wide band signal processing and separate acoustic receiver and transmitter.

The MTE must draw the torpedo away from the real target. To achieve the deception effect, the MTE uses a sophisticated transponder to simulate a real target, generating in real time acoustic echoes of a determined target strength to any multi-frequency coded pulse emitted by the torpedo. The echo structure is identical to the one of a real target (acoustic length, highlights). During its underwater run the MTE also radiates noise, in order to simulate a moving target. The noise radiation is performed independently from the echo emulation function. MTE are compatible with the jammers presence, even at short distance. A high-energy density thermal propulsion battery



powers the MTE. The underwater trajectory of the MTE is automatically preset moments before the launch. The modular design and commonality with existing devices combined with simple functional architecture enables the system to be easily interfaced with the majority of existing platforms.

The C303/S effectors are basically the same as the ones of the CIRCE system for U212 and U214 Submarines protection, jointly developed by WASS and HDW (Germany), and of C310 for surface ship protection. Upon requirement, the effectors can be delivered as positive buoyant devices and be equipped with an acoustic locator (pinger), allowing their recovery at the end of the run and the possibility to be reused several times for training purposes.

LAUNCHING SYSTEM

The countermeasures are deployed from a dedicated launching system, one for each side of the submarine, including a multi-barreled module fitted externally to the pressure hull.

Although the standard configuration foresees two modules with twelve barrels each, capable to counter six torpedo engagements, the number of barrels per module and the number of modules can be tailored to meet specific submarine constraints and customer requirements.

Each barrel, loaded with the appropriate countermeasure, contains its own air bottle, electro-valve and launching tube, thus remaining independent from the rest of the barrels.

The launchers are in fixed positions and flush mounted covers ensure that the ejection of effectors leaves the submarine external profile unchanged.

CONTROL COMPUTER

The system is controlled by a Control Computer normally located in the operations room. It displays the status of the launchers and countermeasures. The system operates automatically via a link with the torpedo alert system. The submarine sonar provides threat detection and bearing and alarm signals which are continuously fed to the system which remains in constant stand-by, ready to respond to any alert.

SPECIFICATIONS

Jammers:	stationary
Length :	1,125 mm
Diameter:	76,2 mm
Weight :	6 kg
MTE :	mobile
Length :	1,125 mm
Diameter:	127 mm
Weight :	15 kg

