



## MU90

### Impact ALWT

#### STATUS

The MU90/IMPACT Advanced Light Weight Torpedo is the leader of the 3rd generation of LWTs. Designed and built with the most advanced technology, the weapon is of fire-and-forget type, conceived to cope with any-task any-environment capability requirements and meet the ASW operational needs of the 21st century. It is in mass production for 6 major NATO and Allied Countries; more than 1000 units are being built in France (DCNS-St. Tropez) and Italy (WASS - Livorno). The Marketing and contractual activities are handled by GEIE EuroTorp.

#### DESCRIPTION

The weapon has been designed to counter any type of nuclear or conventional submarine, acoustically coated, deep and fast-evasive, deploying active or passive anti-torpedo effectors. The torpedo can be deployed by any type of platform such as surface vessels, fixed or rotary wing aircrafts or missiles. Pre-arrangements to cope with Submarine-Launched Anti-Air-Missile (SLAAM) have been already incorporated in the system. Hard-Kill (anti-torpedo torpedo), continental shelf mine and submarine launching capabilities have been included during the torpedo design process.

The MU90/IMPACT torpedo is 323,7mm 'NATO Standard' calibre, weight 304 kg and is 2850 mm long.

Powered through an Aluminium-Silver Oxide sea water battery using dissolved sodium-dioxide powder as electrolyte and incorporating an advanced closed-loop electrolyte re-circulation system, the torpedo is propelled by an electronically controlled high-RPM brush-less motor driving a skewed multi-blades pump-jet propulsor allowing a continuously variable torpedo speed automatically selected by the tactics of the weapon according to the scenario, the environment and the operational phase.

The weapon, of extremely long endurance, operates without any speed degradation and any limitation of salinity and temperature in water depths in excess of 1000 m and as shallow as 25 m, retaining navigation capability up to 3m. The advanced acoustic seeker features multi pre-formed transmission & reception beams.

Its multi-frequency, parallel processing and simultaneous acoustic modes operation, allow multi-target tracking capability, high engagement distance, high performance in very shallow water providing the weapon with high immunity to the most advanced anti-torpedo countermeasures.

The control and guidance electronic, of incomparable computation power and digital memories, accommodates the operational and tactical software including the signal processing, the data processing and the torpedo guidance algorithms, which enable the weapon to continuously self-adapt its



configuration and tactics according to the evolution of the operational situation and of the threat. The inertial system exploited for the torpedo control and guidance is based on 'strap-down' technology providing the weapon with an excellent manoeuvrability, all-attitudes capability including bottom following capability and high accuracy for the final impact on the target. The torpedo homing system matched with the high energy propulsion system, grants target engagement ranges in excess of 15,000 m. The very low radiated noise, achieved through the use of the most modern pump-jet technologies combined with an extended selection of torpedo preset parameters and proper tactics, allows a silent approach to the target minimising the alert range of even sophisticated submarine detection systems and increasing the overall killing probability of the weapon.

The payload consists of V350 explosive, fully insensitive, shaped charge warhead, proven to kill double hull submarines and ignited through an impact type exploder incorporating two mechanical and six electrical independent safety devices. The warhead fully meets any STANAG safety requirement. The exercise section, interchangeable with the warhead section, allows live exercise evaluation, war stock surveillance & training firings. Composed of a pneumatic recovery system based on inflatable collar technology, it features high recovery reliability & easy localisation. The exercise head also incorporates redundant safety and localisation devices, underwater tracking capability as well as a solid state memories data acquisition system, providing a computer-based post-firing evaluation analysis capability. The length, weight and CoG of the Exercise round is strictly the same of the warshot weapon thus guaranteeing fully realistic live firings. An exercise, rechargeable battery with Li-Ion technology, capable of more than 60 sea trials, has been developed to drastically reduce the live firing complexity and costs.

A comprehensive ILS is provided to the customer to assure an easy preventive and corrective maintenance throughout the system shelf life. The modern approach to the MU90 ILS turns the 30-years Life Cycle Cost of the weapon significantly low with respect to all the existing torpedo systems and minimises the need of significant infrastructures and human resources. Several types of turn-key stand-alone, partially- or fully integrated ship borne and airborne torpedo launching systems either for the MU90 or for combined weapons capability are available to the customers to best suit their requirements.

