

ADVANCED SOLUTIONS FROM SEABED TO SPACE



UNDERWATER DOMINANCE

DA
GROUP

TURSO NAVAL MINELAYING SYSTEM

DA-Group's TURSO naval minelaying system offers the most modern, safest and accurate naval mines and modular minelaying capabilities available on market today.

DA-Group provides world navies full naval minelaying capability including mines, minelaying equipment, programming devices, target detection algorithm development environment, operations planning tools with connection to C2, logistics and storage infrastructure, as well as maintenance and other lifecycle support including training.



Multi-sensor Target Detection System

eSAD
Electromechanical Safety and
Arming Device - Safe storage and
operation inshore and onboard

EXPLOSIVES
Modern safe IM
PBX HE

TROLLEY
Compatible with any new or
existing customer specific rail
system and SUMICO

TURSO SEA MINES

TURSO MM30 - SAFETY FIRST

The most modern influence sea mine - TURSO MM30 - features the newest generation of TURSO Target Detection System with multi-sensor technology, including sensors for detection of acoustic, magnetic, pressure, inertial, UEP and photonic signatures, all of which can be utilized in target detection algorithms and to achieve high immunity against countermeasures.

HIGH PERFORMANCE SYSTEM

- Operational depth 10 – 200 meters as a standard
- Lifetime in water up to several years
- 25-year lifetime with economical maintenance costs
- Easy to install, safe to use and store

The target detection is based on the original DA-Group proprietary Target Detection System, which has been deployed successfully into operation with multiple naval mine systems. Most of the features of TURSO MM30 can be tailored to fit the customer's requirements, whether it is to use locally sourced IM explosive material or to be compatible with the existing minelaying infrastructure.

TURSO TARGET DETECTION SYSTEM

The TURSO Target Detection Device (TDD) is a compact, modular device having sensors and control electronics for target detection and detonator ignition. It is the perfect solution for new sea mines or in modernization of old mines. It is a reliable system with long lifetime and low maintenance costs. TDD is easy to install, safe to use and store.

The system includes a complete software tool set for algorithm development, testing and signal collection. After activation, the TDD is 24/7 operational without any sensor stabilization delays and can be immediately ready to detect targets.

The complete system includes the following components:

- Target detection device
- Programming device
- Data logger
- Algorithm development and simulation environment
- Testing and maintenance system
- Leak tester
- Lifecycle services
- Training



FUNCTIONAL TESTING UNIT

The testing and maintenance system is used for testing the performance of a TDD during its lifecycle and after servicing at a depot. The functional tester verifies the electrical performance of the sensor interfaces and firing impulses as well as monitors component aging using the test history database.

THE COMPREHENSIVE TURSO NAVAL MINELAYING SYSTEM

- TURSO sea mines with options and modular design
 - Customizable TDD and sensors
 - Warhead energetic filling as per customer requirements (PBX, etc.)
 - Algorithm development software
 - Research system for algorithm development
 - Testing and maintenance system
- ILS support and training
 - Infrastructure and logistics
 - Maintenance and spares
 - Personnel, training, CONOPS and planning
 - Minelaying capability
 - MLU
- Minefield and operational planning software with C2 connection
- Algorithm development and simulation environment
- Testing and maintenance, other lifecycle services
- SUMICO modular minelaying system
- Based on well validated mines deployed successfully into operation

More information on DA-Group web page



SUMICO – MODULAR MINELAYING SYSTEM

DA-Group has developed and patented the modular minelaying system, SUMICO, which provides plug-in minelaying capability to any ship capable of mission module handling. This modular system supports naval mines through their life, including storage, maintenance, training, logistics and minelaying operations.



FOOTPRINT

Standard ISO
TEU Module

CONFIGURATION

Can be supplied with or without walls and roof to offer cover from exposure and prying eyes.

COMPATIBILITY

Compatible with most naval mines. Available in different configurations.

MODULARITY

Can be easily connected to other modules or used as a standalone unit on any TEU ready platform.

EXPANDABILITY

The versatility and adjustability of the SUMICO system can be further exploited by using modules of different sizes and constructions and by additional functionality, like automated minelaying system.

SUMICO module can be opened at both ends and contains two pairs of mine rails arranged so that the rails can easily be connected with another similar module to yield a lane. The aftmost container connects to a mine dropping unit, enabling minelaying directly with the SUMICO system. The standard SUMICO mission module has ISO TEU footprint with the capacity for 12 TURSO MM30 or similarly sized naval mines.

AUTOMATED MINELAYING

With SUMICO, the actual minelaying can be conducted by the use of the organic minelaying machinery favored by the end user. However, the SUMICO modules can also be equipped with an automated minelaying system, which can be totally independent of other onboard systems.

It is easy to find a suitable version to support any fleet from several versions of SUMICO – starting with manual and stand-alone connection version to fully automatic and integrated version.



More information
on DA-Group web page

HIISI UNDERWATER SURVEILLANCE SYSTEM

DA-Group delivers efficient, modular and affordable systems and components for underwater surveillance. Our system's world leading detection and identification is based on operational and proven TURSO TDS technology. Our profound knowhow of underwater environment and signatures related phenomena enables us to offer our customers the scalable system suitable for large area intelligence and site protection.

The system comprises underwater multisensory units, cables connecting them, and coastal surveillance and analysis stations. HIISI can detect, identify and follow multiple targets on surface or underwater.



More information
on DA-Group web page





DA Defence & Aerospace serves security, defence and space organizations internationally. We design and manufacture advanced spaceflight, RF, microwave and digital systems, subsystems and units, having a strong history of technology development for defence and space applications. We have strong focus on underwater and electronic warfare systems, combat resilience and signature management, naval applications, space sensors and space situational awareness.

DA-Group is a Finnish technology company providing advanced electronic solutions and products for technology industry, defence and aerospace applications. The parent company, DA-Design Oy, was founded in 1995 specializing in electronics and software engineering. Today the corporation employs over 140 professionals. We are experts in embedded systems, electro-mechanics as well as RF and microwave engineering.

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