

## The Naval Thruster & Propulsion Specialists

### Key Features:

- High reliability, Rugged Design
- Disposable "One Shot" System
- Identify & Destroy Naval Mines
- Shipboard Control Systems
- Vertically oriented shaped charge
- Manoeuvring system with laser aiming device
- Semi armor piercing (SAP) gun option
- Shipboard Launch Platform
- Bow Sonar "search & destroy"



## Marine Propulsion Solutions Naval Group

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# "SMART"

## Mine Hunting Counter Charge AUV Systems



### New generation Mine Hunting AUV Systems

PT. Marine Propulsion Solutions introduces the MH500AUV-Self propelled Mine Counter Charge AUV System used to identify and destroy naval mines. Its target can be located at least 500m from a launch point and offered as part of a system designed specifically for the SDV (Seal Delivery Vehicle) or a standalone Auv system offered by our company.

Typical mission profile calls for identification and destruction of a target detected by other means. Normally it will be detected by means of mine hunter's bow sonar. Missions against targets stored in data bases are also very likely.

The vehicle is a disposable, torpedo like, small remotely operated vehicle. It carries mine disposal equipment to detect and classified target. While target is identified by vehicle sonar and TV camera this equipment is used to initiate mine explosive. Specific feature of one of Mine Hunting AUV (MHAUV) versions is vertically oriented shaped charge. For the shaped charge or semi armor piercing (SAP) gun, an aiming procedure is required. This is achieved using MHAUV maneuvering abilities and laser aiming device.





## Marine Propulsion Solutions – Naval Group AUV Mine Hunting Systems “*One Shot*”

### Mine disposal devices

PT. Marine Propulsion Solutions is prepared to carry two types of mine disposal devices. They are located in the vehicles bow section. Less expensive is the shaped charge. It is metal lined to increase capability to initiate mine explosive charge. Depending on target specification, shaped charge is pointed horizontally or vertically. Vertical charges are used against moored and partly buried mines. QinetiQ designed SAP projectile gun is installed as alternative. It is understood that the gun is more effective against non sensitive explosives and mines buried in sediments. Charge type and orientation is being selected according to local conditions.

### Observation and navigation equipment

To achieve high navigation accuracy, the MH500AUV system uses comprehensive set of navigation equipment. Different devices are of prime importance during mission phases defined below. USBL hydro acoustic navigation system leads vehicle during transition to a target area. Diving depth and altitude are measured simultaneously. While in the area, scanning sonar and TV camera provide required information. Complete set mounted on the vehicle consists of:

- Two B&W TV cameras  
Three (3) lamps  
Scanning sonar  
Two laser aiming devices  
Magnetic compass with pitch and roll sensor  
Echo sounder as altitude meter  
Pressure sensor as depth meter  
Transponder/responder for hydro acoustic navigation
- Operating depth: 200 m  
Maximum speed: 3 m/s  
Range: 500m  
Mission duration time (total maximum) 30 minutes  
Mine disposal device:
  - + Shaped charge with 2kg of explosive, vertically or horizontally mounted
  - + Qinetiq's - SAP projectile gun
  - + Other devices up to 8kg mass
- External dimensions of MH500AUV:  
Length total: 1,400m (1,600m armed with SAP gun)  
Width with stabilizers: 0,360m  
Height with stabilizers: 0,360m  
Mass: 45,0kg  
Buoyancy: +1,0N to 2,0N  
Propulsion:
  - + four, 4 bladed propellers in horizontal plane, electrically driven, 150 W power each
  - + single vertical thruster, electrically driven 4 blade propeller in a tunnel, 100 W power



Energy source: Lithium ion accumulator battery

nominal voltage: 24V

nominal capacity: 16Ah C1

Controls: Remote, computer aided, using single optical fibre of 2500mm length

Mas of MH500AUV and optical fibre dispensers

In transport case: 65.0 Kgs

Marine Propulsion Solutions “SMART” One-Shot AUV Mine Hunter Module