Diver Propulsion Units

PT. Marine Propulsion Solutions, plans to be recognized as one of the world's leading diver propulsion system developers and introduce this technology to the Marine Industry.

The Bull Dog Diver Propulsion Unit is manufactured using detailed Analysis & New Technology and is designed and built to meet most military applications.

Developed for various Naval requirements, the Bull Dog Diver Propulsion Vehicle will transport one or two divers with cargo to an operational area quickly and efficiently. With a range of six nautical miles it will expand your ability to insert personnel, gather ordnance intelligence, and conduct post assault clearance operations in very shallow water (VSW).

The Bull Dog DPV offers long range capability and operational mobility with its unique mechanical design. With its modular concept the vehicle can be rapidly configured for either one or two man operations. Deployment from either a small boat or the shore line is very easy with the DPU and does not require special handling or lifting equipment.

The Bull Dog DPV is extremely maneuverable and easy to operate because it combines proven commercial thrusters, a streamlined hydrodynamic body and state of the art electronics. Once in the water, the operator powers up the vehicle. The internal electronics runs through a series of self-tests and the main "Operational Display" becomes visible.

Information on speed settings, calculated thrusts, and estimated time remaining on batteries is displayed. Powered by Lithium-Ion batteries stowed in two separated storage tubes, the vehicle can fly through the water using both thruster motors at max speeds up to 5 knots.

The operator maneuvers SeaShadow by moving the bow planes and/or varying the thrust of the motors. All controls are tucked in the hydrodynamic nose assembly along with a navigation console that gives the operator compass heading, depth, and time for total distance and individual legs. Optional equipment to compliment the vehicle includes a miniaturized acoustic marking and relocation system for parking the vehicle.

Rugged and reliable, the vehicle uses an anodized aluminium frame with stainless steel hardware and high-density poly-ethylene plastic to provide strength and maximum corrosion protection.

The Bull Dog is not just another DPV, but a well designed and rugged transport for divers and cargo to meet your undersea mission

- Vehicle Length (Deployed): 220 cm
- Vehicle Beam/Width (Deployed): 105 cm
- Vehicle Height (Deployed): 60 cm
- Vehicle Weight (in air): 80 Kgs

The Bull Dog Diver Propulsion Vehicle

Marine Propulsion Solutions – Marine Group
Diver Propulsion Units (DPU's)

Diver propulsion vehicles are increasingly used in recreational, commercial and military applications, allowing the range and scope of the dive to be increased. The diver uses less energy and therefore it is possible to extend the dive time and the area which can be covered during the dive.

Navigating underwater is a very difficult task. While submerged, the GPS will not function and therefore the diver's position must be estimated using dead reckoning from the measured velocity. As the diver may drift with the tide or water currents, it is essential to know the diver's speed and direction relative to the seabed. This can either be measured directly, or the speed and direction of water currents can be measured together with the velocity achieved through the water.

PT. Marine Propulsion Solutions utilizes the Diver Navigational Unit (DNU). The on-board computer combines the data from a suite of sensors to estimate the position when the diver is submerged. The navigation software acquires the tidal information while the diver is on the surface; this information is applied when submerged if no measurement of ground velocity is available. Sophisticated algorithms are applied to integrate the measurements from the sensors to obtain the diver's position.

Integration with chart software allows the progress through a pre-programmed mission to be displayed. The sensor data can be logged to a data file and the mission progress can be recorded and replayed later for de-briefing purposes.

The Diver Navigation Unit can be used to control the propulsors and control surfaces, allowing autopilot control of the vehicle.

This unit comprises a suite of sensors to measure:
- Water currents,
- Depth below the surface,
- Altitude above the seabed,
- *Attitude (roll and pitch) and heading,*
- Speed through water,
- Position (when surfaced).

Other sensors can be integrated if required by the customer.

The Diver Navigation Unit is fitted to a custom-built pressure housing, with marinised cablend instrumentation.

Enclosure

Dimensions:	320mm x 420mm (with handles) x 320mm
Operating depth:	30m (tested to 50m)

Computer

Operating system:	Windows XP embedded, or later, to latest specifications
Software:	Phantom navigation software
	Chart – raster / vector charts supported

Power

Internal battery:	12V Lithium-Iron
External power:	24V

User interface

Mission set-up:	RF keyboard and mouse
Submerged:	Pressure-balanced buttons (7+)
Screen:	TFT screen 640x480 6.4"

Standard sensor suite

Heading and Attitude:	TCM2 compass and attitude sensor
Position (surfaced):	Holux GPS (marinised)
Altitude above seabed:	Airmar SMART Echo Sounder
Depth below surface:	MPS
Water speed (pitot tube):	MPS

Optional Sensors

Water: ground speed:	RDI WHN 600K3 DVL
INS:	IXSEA PHINS (or other)
Sonar (dual processor option)	