



NEW!

DPD-M2AV

Diver Propulsion Device
Manned to
Autonomous
Vehicle

stiddmil.com

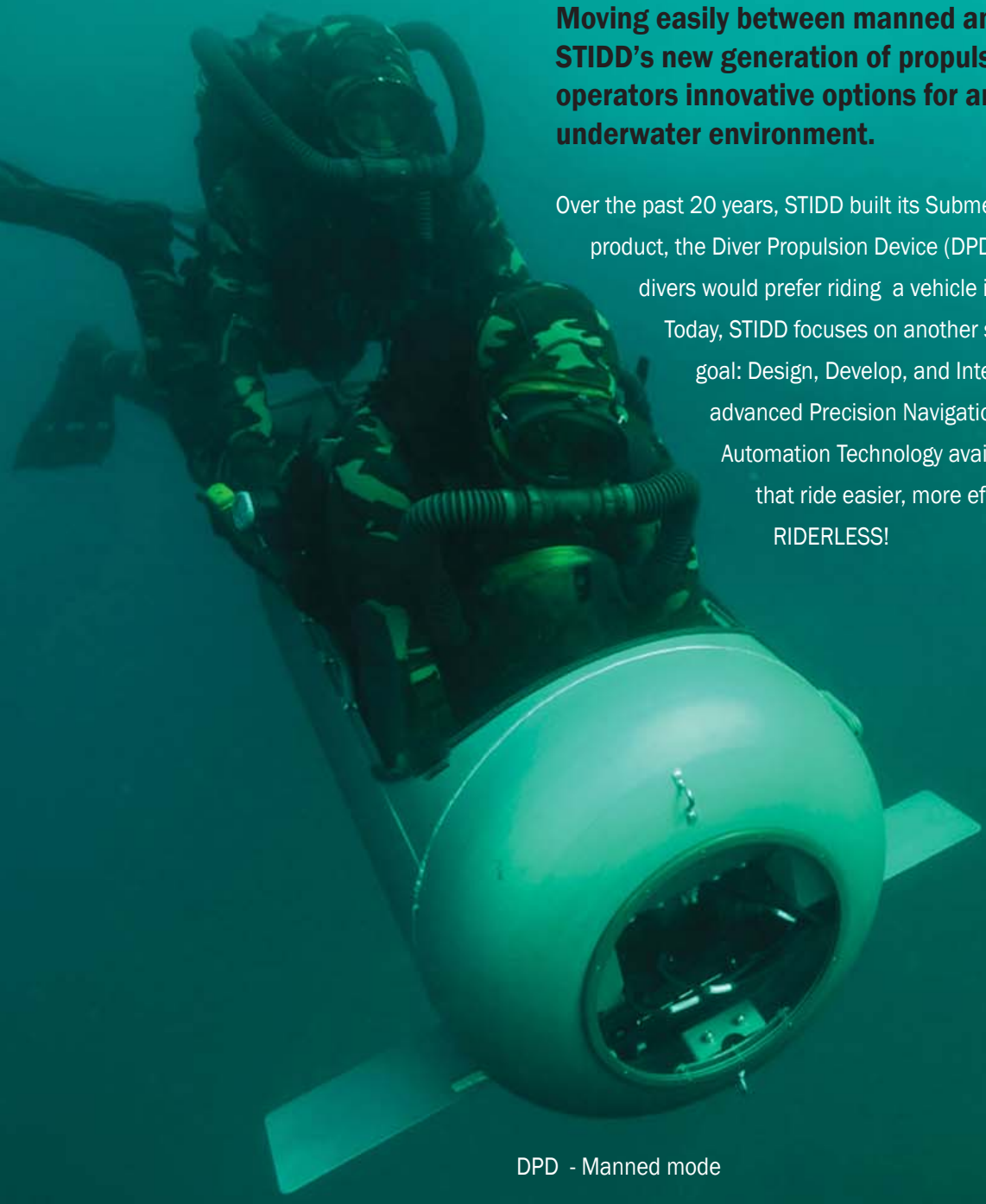
DPD in AUV mode
with CP2 Cargo Pod

Manned or Autonomous... The “All-In-One” Vehicle

Moving easily between manned and autonomous roles, STIDD’s new generation of propulsion vehicles provide operators innovative options for an increasingly complex underwater environment.

Over the past 20 years, STIDD built its Submersible Company and flagship product, the Diver Propulsion Device (DPD), around the simple idea that divers would prefer riding a vehicle instead of swimming.

Today, STIDD focuses on another simple, but transformative goal: Design, Develop, and Integrate the most advanced Precision Navigation, Control and Automation Technology available into the DPD to make that ride easier, more effective, and in some cases. . .
RIDERLESS!



DPD - Manned mode



DPD - Autonomous mode

Precision Navigation, Control & Automation System for the DPD

Building on the legacy of its Diver Propulsion Device (DPD), the most widely used vehicle of its kind, STIDD designed and developed a system of DPD Navigation, Control and Automation features which enable a seamless transition between the DPD's Manned and fully Autonomous modes.

RNAV2, developed by STIDD is the backbone of this capability. RANV2 is powered by Greensea's patent-pending OPENSEA™ operating platform, which not only enables RNAV2's open architecture, but also seamlessly integrates STIDD's M2AV/AP2 Autopilot/S2 Sonar products into an intuitive, easy to use, autonomous system. When configured with the complete Precision Navigation, Control & Automation System including RNAV2/M2AV/AP2/S2, any DPD easily transitions between Manned, Semi-Autonomous, and Full-Autonomous modes.



PRECISION NAVIGATION, CONTROL & AUTOMATION SYSTEM

POWERED BY GREENSEA

RNAV2



PRECISION NAVIGATION & CONTROL

- Ensures Precise Clandestine Navigation
 - Intuitive, User-Friendly Interface
 - Open Architecture System

M2AV



MANNED TO AUV

- Automates key DPD Functions
- Communicates between DPD and other Vehicles

AP2



AUTOPILOT

- Provides 2 Axis Control of DPD
- Adjusts DPD Heading and Depth

S2



SONAR

- Enhances Precision Navigation
- Allows Obstacle Avoidance and Target Identification

DPD Precision Navigation, Control & Automation System Layout



DPD in Autonomous Mode

M2AV

M2AV is a transformative system of vehicle control features that enable full remote autonomous control of the DPD.

M2AV features include:

- Automated Antenna Mast
- Automated Throttle Control
- Communications Receiver
- Network Sensor Integration Hub

DPD-DIVER PROPULSION DEVICE

The DPD designed for and certified by the U.S. Navy is the most widely used military-grade underwater mobility vehicle in the world.

DPD Certifications:

- AMU DPD is the only export controlled "Approved for Military Use" (AMU) certified diver propulsion device in the world.
- NAVSEA 9310 DPD LI-ion Battery is 9310 Certified
- NAVSEA 9290 DPD is Deep Submergence Certified (pending)
- NATO NSN NATO (National) Stock Number

*PATENTED: U.S. Patent No. 6,615,761 * International Patents Pending



RNAV2 with S2 SONAR mounted in Diver Portable mode

DPD with fore/aft cutaways exposing installed RNAV2 and AP2 actuators

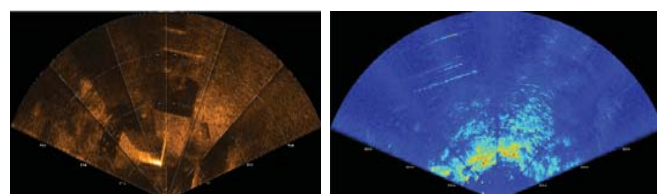


S2 SONAR

The 2S Sonar Option for RNAV2 enhances the precision navigation capabilities of the innovative RNAV2, adding high quality forward-looking sonar images to the operator in low- and zero-visibility environments for precise long, or short range obstacle avoidance and/or target interrogation.

S2 Sonar Applications include:

- Object Detection / Obstacle Avoidance
- Situational Awareness
- Operations Monitoring
- Area Survey/Search & Recovery



S2 Dual Frequency SONAR fans

RNAV2 PRECISION NAVIGATION & CONTROL

RNAV2 is an innovative electronic navigation system that can be either mounted in the DPD to enable precision navigation by divers, or without divers for AUV missions. The RNAV2 adjustable back lit 8.4" color LCD screen constantly displays the operator's position on a high resolution moving map display for instantaneous situational awareness. Position accuracy of 0.25% over distance traveled is achieved through a suite of high-accuracy on-board sensors and an optimized Kalman filter.

The RNAV2 is powered by an internal BB-2590/U Li-Ion battery which provides system power for 7+ hours. The simple to operate ergonomic input devices and user-friendly mission planning software allow all levels of users to create waypoints and routes and easily upload them into the RNAV2.

RNAV2 includes the following cutting edge precision accuracy sensors:

- 600kHz Doppler Velocity Log (DVL)
- 3-axis compass module with sub 1° heading accuracy
- Fiber Optic Gyro (FOG) Internal Measurement Unit (IMU)
- 40 channel GPS with <2.5m position accuracy
- Multi-state Kalman filter

AP2 AUTOPILOT

The AP2 Autopilot Option provides exceptional RNAV2 control of the DPD by dynamically adjusting vehicle pitch and heading, automatically keeping the DPD on its programmed or manually-selected course and depth, while accurately compensating for the effects of currents, diver motions, and changes in diver buoyancy.






AP2 Autopilot features include:

- AP2 Autopilot 2-axis control the of the DPD via integrated electro-mechanical actuators fitted to the pitch and rudder linkages of the DPD
- The AP2 eliminates manual heading errors, deviations, depth excursions, and delayed diver response to changing environmental conditions.
- AP2 Software control algorithms provide a smooth and safe descent/ascent rate, protecting the divers from undesired excursions.

One Vehicle . . . Many Missions

When equipped with the complete Navigation, Control and Automation System, the DPD's inherent speed, endurance, and payload capacity enable operators to conduct an unprecedented range of missions in Manned, Semi-Autonomous, Full Autonomous Mode . . . all with the same DPD!

| DPD MODE | EQUIPMENT | FEATURES | MISSIONS |
|--|--------------|---|---|
|  MANNED | RNAV2 | <ul style="list-style-type: none"> Precision Navigation | <ul style="list-style-type: none"> ISR Infil/Exfil Beach Survey Payload Delivery MCM CT - Piracy / Narcotics Over-Watch of CACHE site Near Land / Harbor Monitoring Deploy - Leave Behind Sensors / Arrays Search & Recovery Operations MUM-T Operations Rapid Environmental Assessment |
| | AP2 | <ul style="list-style-type: none"> Increased Operator Situational Awareness | |
| | S2 | <ul style="list-style-type: none"> Reduced Operator Workload | |
| MANNED & AUV  | RNAV2 | <ul style="list-style-type: none"> Low Operator Effort Transits | |
| | AP2 | <ul style="list-style-type: none"> Low Operator Training Required | |
| | S2 | <ul style="list-style-type: none"> Route/Mission Changes from Remote C² Nodes | |
|  AUV | M2AV | <ul style="list-style-type: none"> On-Call Resupply/Extraction Fully Autonomous Capability - NO Operator Required | |

POWERED BY GREENSEA

Greensea provides navigation, control, and autonomy products for marine vehicles based on their patent-pending OPENSEA™ operating platform. Over 700 systems have been installed on manned, unmanned, surface, and subsea vehicles. www.greenseasystems.com



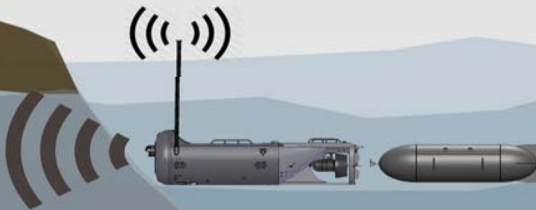
RNAV2 with S2 Sonar is also Diver Portable for Clandestine, Short Duration Dives requiring Precision Navigation.

Mission Scenarios

Switching easily between Manned, Semi-Autonomous, and Full Autonomous modes, the DPD configured with the complete Navigation, Control and Automation System can perform an unprecedented number of missions.



DPD-AUV
M2AV transforms DPD into a fully autonomous vehicle.
(Shown with optional CP2 Cargo Pod)



DPD-MANNED/AUV
M2AV provides operators options for semi-autonomous, or fully autonomous vehicle modes



DIVER PORTABLE
RNAV2 enables short duration dives requiring Precision Navigation



DPD-MANNED
AP2 Autopilot reduces operator workload / increases situational awareness

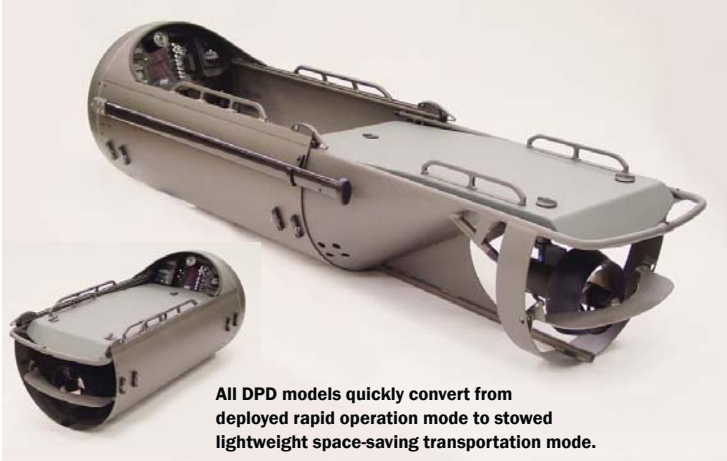


STIDD's DPD, when configured with the complete RNAV2 controlled Precision Navigation and Automation System, provides the benefits of Manned-Unmanned Teaming (MUM-T) operations, where the combined strengths of each capability can be optimized to increase overall situational awareness and navigational accuracy. Using the unmanned element of MUM keeps the manned assets safe and improves overall mission effectiveness.



DPD Models for All Missions

STIDD now offers an expanded lineup of three different DPD Models optimized to execute any mission profile with different combinations of **SPEED, RANGE, and PAYLOAD CAPACITY.**

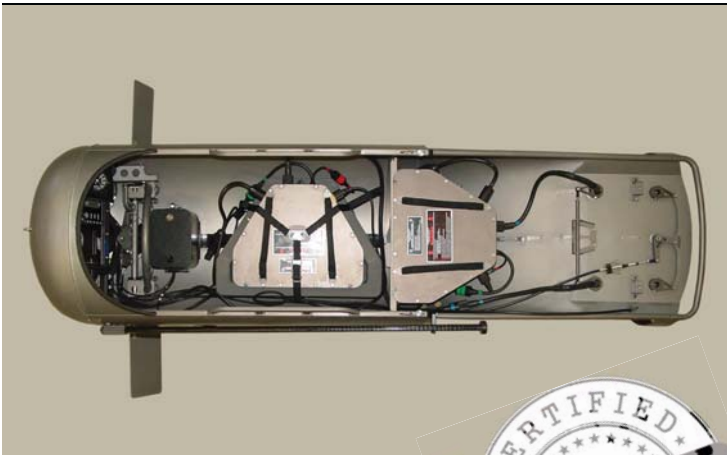


All DPD models quickly convert from deployed rapid operation mode to stowed lightweight space-saving transportation mode.

STANDARD MODEL

The STIDD Diver Propulsion Device (DPD) is the most widely used military-grade underwater mobility platform in the world. The DPD enables divers to travel farther and faster with more payload than previously possible with any other diver propulsion device.

- **NAVSEA 9310 Certified**
- **Approved for US Military Use (AMU Listing)**
- **Under contract to USMC, US Army, USSOCOM and many International SOF Maritime Units**



EXTENDED RANGE MODEL

With the addition of a second High Capacity "MUSCLES" Lithium-Ion Battery System, the Standard DPD with Extended Range Option effectively doubles the Range.

- **200% the Range of a Standard DPD**
- **Two Batteries Required**
- **Same Dimensions & Certifications as Standard DPD**



**ALL DPD MODELS CERTIFIED
APPROVED FOR
MILITARY USE (AMU)**

DUAL THRUSTER XT MODEL

The DPD with Dual Thruster (DPD-XT) provides operators not only additional speed and range, but also two independently redundant propulsion systems. The DPD-XT maintains all of the Standard DPD's exterior dimensions and certifications. The DPD-XT utilizes two (2) standard DPD batteries which power two (2) standard DPD thrusters. For missions that require extended speed and range, the Dual Thruster DPD is an ideal platform.

- **33% Faster than Standard DPD**
- **Redundant propulsion improves mission safety**
- **Twin high efficiency, low noise direct drive DC thruster motors**
- **Two Batteries**
- **Additional towing capacity:
Easily tows 3-4 divers with full load**

CP2 Cargo Pod - Low-Drag Towable Capsule



CP2 POD on bottom prior to detachment from DPD

The new CP2 DPD Cargo POD (p/n 4510-400), provides an additional 12 cubic feet (340L) of cargo space with minimal additional drag, when towed behind the Diver Propulsion Device (DPD). Optimized for minimal drag using advanced CFD (Computational Fluid Dynamics), and extensively dive-tested under real world conditions, the Cargo POD is fabricated from marine alloy aluminum and hardcoat anodized for prolonged corrosion resistance and rugged durability. Neutral buoyancy is provided by hard-mounted rigid foam volumes in the nose and tail sections. The 21 inch (0.53m) diameter and 92.5 inch (2.4m) length are compatible with NATO submarine torpedo tubes.

CP2 Cargo Pod features include:

- **Hinged Hatch, allowing full access to the interior**
- **Positive spring-loaded gloved-hand operable hatch lock**
- **Internal tie down rails to secure gear**
- **Bow tow-eye for quick link to DPD**
- **Forward and aft lifting eyes for fast launch and recovery**
- **Stabilizing stern planes for positive tracking without pitch or yaw**
- **Multiple vents for quick fill/drain**
- **Four (4) Hand Holds for easy manual lift/carry**

CP2 Specifications:

| | |
|----------------------|------------------------------|
| Material: | Marine aluminum alloy |
| Finish: | Hardcoat anodized |
| Hardware & fittings: | 316L Stainless steel |
| Cargo Volume: | 12 cu-ft (340L) |
| Cargo Weight (air): | 700 lbs (317kg) max |
| Cargo Access: | Hinged hatch |
| Cargo Hatch: | 18 in x 48 in (0.5m x 1.2m) |
| Cargo length, max : | 66 in (1.7m) |
| Cargo hatch lock: | Spring-loaded latch |
| Cargo Tie Downs: | Three (3) 48 in (1.2m) rails |
| Drag Load: | Minimal |
| Diameter: | 21 in (0.53m) |
| Length: | 93.5 in (2.4m) |
| Weight, empty (air): | 80lbs (36.3kg) |
| Weight (salt water): | 0lbs (0kg) |
| Lifting Handles: | Four (4) |
| Lifting Points: | Forward and aft |

The POD weighs 80lbs (36kg) in air, and may be loaded with up to 700lbs (317kg) of neutrally buoyant cargo. The POD is towed from the DPD aft tow point. Horizontal and vertical Stern Planes keep the POD aligned within the shadow of the DPD, resulting in minimal additional drag. An additional Cargo POD may be added to double DPD cargo capacity from 12 cu-ft (340L) to 24cu-ft (680L).



CP2 POD towed by DPD in Autonomous mode



Internal tie down rails to secure gear.



Bow tow-eye for quick link to DPD



Forward and aft Lifting Eyes for fast launch and recovery



CP2 POD with hinged hatch in open position

DPD OPTIONS & ACCESSORIES

4600-101

RNAV2 Precision Navigation & Control System

Innovative electronic navigation system for use by combat divers, mounted in the DPD, or dismounted in seconds for swimming in hand-held mode. Includes GPS, DVL, KALMAN Filter, internal battery and charger.

4600-102

S2 Sonar Option

Enhances the precision navigation capabilities of the RNAV2, adding high quality forward-looking sonar images to the operator in low and zero visibility environments for precise long or short range obstacle avoidance and/or target interrogation.

4600-120

AP2 Autopilot Option

Provides exceptional RNAV2 control of the DPD by dynamically adjusting vehicle pitch and heading, automatically keeping the DPD on its programmed or manually selected course and depth, while accurately compensating for the effects of current, diver motion, and changes in diver buoyancy.

4600-122

M2AV Manned to Autonomous Vehicle Option

Provides a series of vehicle control features that enable full remote, autonomous control of the DPD

4600-121

RNAV2 Tactical Mission Planning/Debrief Terminal

The mission planning workstation allows for a computerized method of planning and optimizing mission parameters for use with the RNAV2 navigation system. Post mission debriefing capabilities allows the users to review actual tracks and transit depths, recorded sonar images, marked target positions etc.

4600-125

RNAV2 DPD Mount & Mounting Provisions

Includes all DPD modifications and hardware required to mount and operate the RNAV2 in the DPD.

4600-126

RNAV2-S2 DPD Mount & Mounting Provisions

Includes all DPD modifications and hardware required to mount the RNAVS2 in the DPD. Requires 4600-125 RNAV2 DPD Mount & Mounting Provisions.

4600-127

GPS Float

Deployable/retractable GPS antenna cable reel with a 15m deployment length. GPS antenna in a buoyant pressure-proof float easily deploys to the surface by releasing out the minimum cable necessary to reach the surface. Clandestine low-viz GPS float quickly re-acquires signal even in heavy seas. Cable retracts via the hand crank spool eliminating the requirement to manually wrap the cable around a fixed spool. Other cable lengths available upon request.

4510-256

Standard RNAV with Doppler

High accuracy flat-screen electronic moving map navigation system for DPD. Provides exceptional accuracy for surface and submerged situational awareness on dimmable dual displays using GPS, DVL and heading sensor input data.

4510-259

RNAV "C-Map" Digital Electronic Charts (Only for use with Standard RNAV)

Universally recognized database. Provides reliable topographic, obstruction, depth, navigational aid, and bathymetric data, worldwide. Specify required area of coverage.

4510-259

RNAV "C-Map" Digital Electronic Charts (Only for use with Standard RNAV)

Universally recognized database. Provides reliable topographic, obstruction, depth, navigational aid, and bathymetric data, worldwide. Specify required area of coverage.

4510-252

Deployable GPS Antenna

Pressure-proof GPS antenna on 49.5 inch (126 cm) locking and pivoting mast. Mounts to existing DPD. Provides signal to RNAV while submerged. Cable and connector included

4510-112

DPD "MUSCLES" Li-Ion Battery Charger

Charges one (1) DPD Li-Ion Battery from full discharge to full charge in eleven (11) hours.

(NSN 6130-01-536-0585)

4510-118

Spare DPD "MUSCLES" Li-Ion Propulsion Battery

Contained in sealed Pressure-Proof Battery Container.

(NSN 6140-01-536-0008)

4510-130

DPD Contoured Cargo Bag w/NBU Pouches

Cargo bag contoured to fit into the DPD cargo area and be made neutral with NBUs (p/n 4510-944)

4510-131

Heavy-Duty Carry Bag DPD (A)

Protective Nylon zippered bag for hand-carrying the DPD.

4510-137

Maintenance Cart (B)

Wheeled cart for use when servicing or storing the DPD.

4510-138

DPD All Terrain Dolly (C)

Wheeled cart with welded aluminum frame, four (4) all-terrain tires and collapsible handle. Launches the DPD over rough terrain and over the beach to water.

4510-155

Reusable Shipping Container (D)

Molded IATA-Approved HDPE Container with foam inserts. For one (1) DPD plus Battery and Accessories. Stainless Hardware.

(NSN 8145-01-536-1002)



DPD OPTIONS & ACCESSORIES

4530-9-332

Unique Identification (UID) Tag

Provides for the coding, identification and marking of DPD and selected options in compliance with MIL STD 130



4510-920

Extended Range Option

(Left) Doubles the range of a DPD, includes: B-Link Electronic Interface, (shown left) Neutral Buoyancy Cradle, Installation Hardware and O&M Manual. A second (spare) DPD "MUSCLES" Li-Ion Battery is required (p/n 4510-118). (NSN 4220-01-536-1467)

4510-935

Operational Spare Parts & Consumables

Includes the parts and consumables to operate one (1) DPD for approximately four (4) years. (NSN 4220-01-538-5983)

4510-940

Long Term Maintenance Spare Parts

Includes all spare parts required to perform DPD depot maintenance and non-warranty repair for one (1) DPD for approximately four (4) years. (NSN 2590-01-536-1576)



DPD Electrical Diagnostic Bench Test Kit is included with DPD Long Term Maintenance Special Tools.



DPD Thruster Bench Test Power Supply is included with DPD Long Term Maintenance Special Tools.

4510-941

Long Term Maintenance Special Tools

Includes all special tools required to perform depot level maintenance. (NSN 4220-01-536-1448)

4510-944

Neutral Buoyancy Unit (NBU) Pack

Contains 64 NBU cells, each cell provides 1 lb. (500g) of buoyancy. For use with Contoured Cargo Bag (p/n 4510-130) or other load out container. (NSN 4220-01-538-5980)

4510-943

Provisioning Parts List (PPL)

Listing of all recommended replaceable parts and LRUs for the DPD with current FY pricing. 4510-200 Field Service Kit All tools required to service and maintain the DPD while in operational deployment. (NSN 4220-01-538-5984)

DEEP SUBMERGENCE DPD OPTION

270 FSW (82m)

4500-100-DS

Deep Submergence DPD Vehicle

Includes: All required NAVSEA Approved components to extend transport/operating depth to 270 FSW (82m), including: Deep Submergence DPD "MUSCLES" Li-Ion Propulsion Battery in sealed Pressure-Proof Battery Container (p/n 4510-118-DS), Deep Submergence rated Thruster and Throttle pressure containers; and O&M Manual (p/n 4510-125). Charger (p/n 4510-112) not included.

4510-118-DS

Deep Submergence DPD BATTERY

"MUSCLES" Li-Ion Propulsion Battery Same configuration as a standard DPD battery, but housed in a NAVSEA approved Machined Billet pressure container. When combined with Deep Submergence Upgrade Kit (p/n 4510-253), extends the transport/operating depth of a DPD (p/n 4510-100) to 270FSW (82m).

4510-253

Deep Submergence Upgrade Kit

Kit includes all required NAVSEA approved components to increase transport/operating depth of a standard DPD (p/n 4510-100) to 270 FSW (82m). Deep Submergence Upgrade kit does not include DPD Deep Submergence Li-Ion Propulsion Battery (p/n 4510-118-DS), which must be purchased separately.

4510-210

Deployment Load Out Kit

All parts and consumables required to support the DPD during both operational deployment and emergency field repairs for one (1) DPD for approximately four (4) years. (NSN 4220-01-538-5985) 4510-125 DPD O&M Manual CD format, in plastic case.

4510-930

Basic Maintenance & Operator Training Course (Level 1)

Comprehensive five (5) day Instructional course for up to ten (10) students, performed by a STIDD senior technician/operator at customer facility, covering all aspects of DPD maintenance and operation. Includes all consumables and travel costs for the instructor.

4510-931

Advanced Maintenance & Repair Training Course (Level 2)

Comprehensive two (2) day Instructional course for up to ten (10) students, performed at the STIDD facility or customer facility, covering all aspects of DPD maintenance and repair including troubleshooting and repair of key DPD components. Includes instructor travel costs.

(Requires p/n 4510-940 and p/n 4510-941)

4510-932

Factory Technical Support

4510-933

ON-SITE Technical Support *

4510-934

ON-SITE Operational Training and Support *

4510-220

Load Out Training & Support

(Required with p/n 4510-210)

* For services rendered in CONUS. Consult factory for details.

MILITARY EXHIBIT SCHEDULE & IN-WATER DEMOS

Our military exhibit booth is an ideal place to see STIDD Sub Boats and discuss your requirements with STIDD's team of expert acquisition specialists. Please check our website for exact show dates.

STIDD also invites approved users to visit our Sub Boat Test Facility in South Florida for in-water demonstrations.

On-site demonstrations at customer's facility are also possible.

Contact STIDD for more details

With over 450 units in operation by US and International Special Operations Forces (SOF), the STIDD DPD is the most widely used Combat Diver Propulsion Vehicle (DPV) in the world.

STIDD Systems, Inc. is proud to support these Military Units and International Organizations, including:

- U.S. Special Operations Command
- United States Marine Corps
- Navy Special Warfare Command
- Army Special Forces Command
- North Atlantic Treaty Organization (NATO) Members and Major Non-NATO Allies (MNNA)
- Association of South East Asian Nation Members (ASEAN)



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CAGE CODE OW5E3

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Specifications and availability of all STIDD Systems, Inc. products are subject to change without notice.
20 REV 1.1 - 04/04/2017

Call Us Today: +1-631-477-2400 x 158

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STIDD Systems Inc.

Welcome to STIDD Submersible Boats

STIDD Sub-Boats, outfitted with the latest technical innovations, redefine what is possible for SOF units combating both asymmetric and traditional maritime threats.

stiddmil.com

The STIDD Military Products website includes the latest, most up to date unclassified information on STIDD Military Submersibles

To become an authorized STIDD Military Website User Contact: 631-477-2400 ext 158 or e-mail sales@stiddmil.com



- **DPD (Diver Propulsion Device) Items**
Items are on GSA Contract No. GS-07F-0101K
www.gsaadvantage.gov
- STIDD Systems is a Small Business Entity.
- STIDD Submersible Boats are subject to ITAR controls.
US Department of State DTC license required for export.

www.stiddmil.com



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