

Product Specifications

Nova Ray® ROV Model 2500 Package

The Nova Ray® ROV, with its patented arcuate (bow shaped) wing design, solves long-time industry struggles with cable drag in strong currents, creating unequalled ocean and river maneuverability, stability and performance. This remotely operated vehicle (ROV) offers portability and a multi-use platform. The only arcuate winged ROV in its class, it is an exceptional value with many standard features.



- ◆ Portable ROV with arcuate wing
- ◆ Side scan sonar
- ◆ Proprietary Command and Control software with interval upgrades
- ◆ Fully digital onboard electronics
- ◆ Two, 1/4 hp thrusters
- ◆ 300-ft umbilical
- ◆ Dual operation mode (tow or use thrusters)
- ◆ Integrated surface control console: 3-axis joystick; laptop, LCD monitor
- ◆ Internal camera system
- ◆ Transport/operation cases with wheels and telescoping handles
- ◆ Tools & Parts Standard Kit (TAPS)
- ◆ Dual quartz lighting system
- ◆ 3-auto pilot modes for multi tasking
- ◆ Patented channel and rail system for user specified add-on technology
- ◆ Patented arcuate wing
- ◆ Depth rated to 305 meters (1,000 ft)



Features Description

Imaging Clarity and a Stable Arcuate Wing Platform

Nova Ray® is a compact, yet powerful inspection class ROV for survey, inspection and security applications. Its patented wing design allows it to use its umbilical to advantage. It can be towed-- operating much like a kite -- or fly under its own thruster power.

Model 2500 delivers image clarity from its side scan sonar to the surface control console. High resolution images are displayed for wide area sweeps, reconnaissance projects, and underwater search, survey and inspection of large areas. Stable

and maneuverable, Model 2500 performs in strong currents and cross currents, turbid or murky waters, and in low light conditions. It can efficiently conduct ship hull surveys, as well as baseline and repetitive imaging for inspection, security and marine research projects. First responder units for waterway emergencies will appreciate its portability and quick launch capabilities. It is highly versatile to meet user-defined specifications. Where needed, it converts to a digitally operated conventional ROV (conversion kit optional). Other user-defined peripheral devices can be added (ie., manipulators).

Fast Assembly, Easy Launch from Limited Platforms

The Nova Ray® ROV is designed for fast mobilization from inflatable boats to larger vessels. It is adaptable to applications in oceans, ports, rivers and wilderness lakes, with quick field assembly possible by one person. Basic maintenance or repair is accomplished in the field with the optional Tools and Parts Plus (TAPP+) Kit.

Customer-Focused , Performance Driven Design

Designed by ROV users, the Nova Ray® ROV offers customers user-friendly features with the durability to efficiently operate in challenging underwater environments. It travels in wheeled cases that meet commercial airline luggage size requirements. The Control Console conforms to airline carry-on luggage limits.



Category	Standard Feature	Nova Ray® ROV Model 2500 Specifications
Performance	Depth Rating	305meters (1,000 feet).
Currents	Stability in Strong Currents	Arcuate wing design counters destabilizing effects of cable drag. Results in faster, more stable performance in currents with less cable.
Maneuverability	Dual Operation Mode	Can be towed or use thruster power in strong currents. See Speed for knots.
	Speed	Up to 9 knots in currents under tow. With thrusters: 4 to 6 knots (¼ or 1/3hp respectively)
	Cable to Depth Ratio	Under tow, Nova Ray® provides deeper operation with less cable than other Underwater Towed Vehicles (UTV). Nova Ray® can operate up to 70% deeper than conventional UTV systems using the same cable length. Under tow, operates at a ratio of 2.38:1. With thrusters, the Nova Ray® can reduce the ratio to 2:1. With less cable, the Nova Ray® system is lighter, smaller and easy to deploy anywhere in the world on a rapid response basis.
	Thrusters	DC brushless rare earth motors. Two (1 port; 1 starboard) magnetic drive. ¼ hp standard with 150 volts DC. Optional 1/3 hp. Propellers and Thruster Guards: 75mm for 1/4 hp., and 90 mm for 1/3 hp. Guard is impact resistant HMW plastic.
	Control Surfaces	Rudder provides directional control; two elevons provide vertical positioning (depth control).
Umbilical	Length, Diameter and Type	Length: 300 ft (91.4 m). Diameter: 15mm. Type: 12-conductor, neutrally buoyant.
	Custom Umbilical	Length to fit user specifications; optional fiber optic available.
Temperature Rating	Operating Range	-2 to 42 degrees C.
Command & Control System		
Hardware	Integrated Control Console	3 axis joystick; mode selection buttons and slide throttle; auto pilot capability; laptop with proprietary Windows™-based software; LCD video display (see details below). I/O: video out, monitor in, RS 232 and RS 485, and hydrophone ready.
	Digital Onboard Electronics	Fully Digital: Precise control and easy integration of digital peripheral devices. Proprietary embedded software.
Software	Proprietary Software	Aeronautical style display showing pitch & roll and elevon, rudder and thruster direction and magnitude. Reports depth, heading, internal temperature. Heads-up video overlay enabled.
	Flight Control	Choice of manual or 3 auto pilot modes: Heading Hold, Wings Level and Depth Hold (optional altimeter provides an additional mode: Altitude Hold).
Instrumentation		
Depth	Depth Sensor	Depth gauge with range of 0 to 340 meters.
Heading	Compass	Solid state with pitch and roll correction and integrated thermometer.
Imaging	Side Scan Sonar	Digital multi-frequency; up to 240m or 800 ft. total coverage. 12VDC and GPS Interface feature; data file storage: 10-15MB per hour.
Video, Camera, Lights		
Video Display	Flat Panel Monitor	Real time image viewing; 254mm color LCD video monitor. NTSC or PAL Composite. Out Port: RCA and S Video.
Lights	Front Lights	Dual 150 Watt mini quartz. Beam pattern 78 degrees (included angle to half power point).
Internal Camera	Type and Resolution	Color. 480 TVL with CS (Hi Res maximum for color), 1/3" CCD, NTSC or PAL.
	Sensitivity and Lens	1 lux @ F1.2 for color camera. Lens: 4mm, F1.2 or wide angle: 2.6mm, F1.6.
	Focus and Tilt	Adjustable with auto white balance and auto iris. Manual tilt range: 90 degrees.
ROV Characteristics		
Physical	Length, Width, Height, Weight	L: 1,022mm. W: 997mm. H: Body: 229mm; Rudder: 356mm. Weight: 31kg.
Electrical	Connectors	Standard watertight bulkhead connectors, and two accessory connectors.
	Line & Umbilical Voltage, Power	Line: 120 VAC 60hz. Umbilical: 109 VAC. Power Consumption: 900 -1100 Watts.
Housing	Construction	Single piece, anodized 6061 T6 aluminum hull with patented channel and rail system for wings, thrusters, skids & add-on devices (no welds nor hull penetration, and includes triple "O" rings to ensure watertight integrity of housing system).
ROV Construction	Material	Key ROV molded components: impact resistant, light weight polyurethane resin. Accessory fittings and mountings are aluminum or stainless steel for corrosion resistance and durability.
	View and Light Ports	View dome: annealed, impact-resistant 3/8" acrylic. Lights: ¼" quartz window and depth rated to 1,000 meters.
Other		
Shipping	Transport Cases	Water-tight Control Console is carry-on commercial airline luggage. 3-cases for ROV and umbilical shipped as commercial luggage. All include telescoping handles and wheels.
	Shipping Weight	Control Console: 20 kg. Transit Cases: 79.8 kg. total.
Tools & Spares	Tool Kit	TAPS Kit (Tools and Parts Standard) provides for basic field assembly and servicing.
Warranty	Agreement	Details available from customer service