

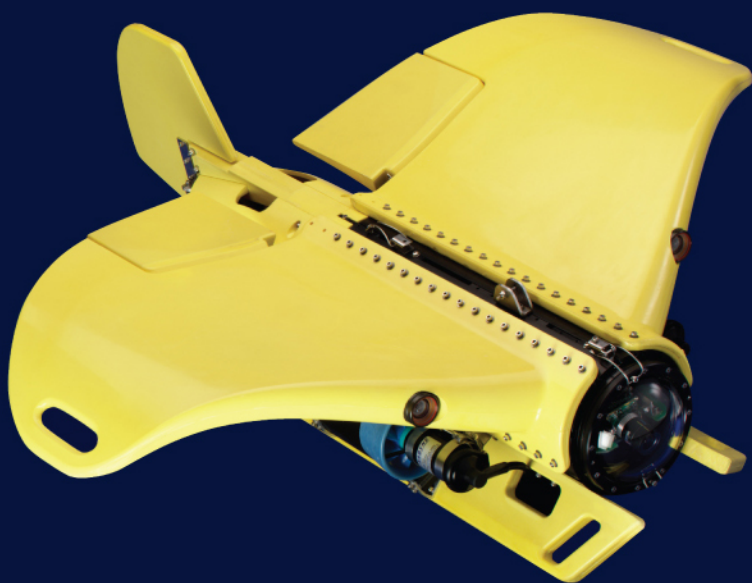


Marine
Exploration
Services

INNOVATIVE

**DESIGN
TECHNOLOGY
ACCURACY**

Marine Exploration Services -
Leading innovators in underwater
inspection of pipelines for the oil
and gas industry.



CATEGORY	STANDARD FEATURE	NOVA RAY® ROV MODEL: 2500 SPECIFICATIONS
Performance		
Depth	Rating	305 meters (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 (1/4 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. 1/4 hp standard with 150 volts DC. Optional 1/3 hp. Propellers and Thruster Guards: 75 mm for 1/4 hp., and 90 mm for 1/3 hp. Guard is impact resistant HMW plastic.
Umbilical	Control Surfaces	Rudder provides directional control; two elevons provide vertical positioning (depth control).
	Length, Diameter and Type	Length: 300 ft (91.4 m). Diameter: 15 mm. Type: 12-conductor, neutrally buoyant.
Temperature Rating	Custom Umbilical	Length to fit user specifications.
	Rating Operating	-2 to 42 degrees C.

Command and 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 and roll and elevon, rudder and thruster direction and magnitude. Reports depth, heading, internal temperature. Heads-up video overlay enabled with additional hardware device.
	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 240 m or 800 ft. total coverage. 12VDC and GPS Interface feature; data file storage: 10-15MB per hour.
	Forward Scan Sonar	The Nova Ray is Equipped with the Blue View 450-45 Forward Imaging Sonar for low visibility applications and obstacle avoidance.
	Camera	The Nova Ray carries an additional External mounted ROS ROVER underwater camera which can be affixed directionally to the vehicle to meet mission requirements.

Video, Camera, Lights		
Video Display	Flat Panel	Real time image viewing; 254 mm 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: 4 mm, F1.2 or wide angle: 2.6 mm, 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: 1,022 mm. W: 997 mm. H: Body: 229 mm; Rudder: 356 mm. Weight: 31kg.
	Connectors	Standard watertight bulkhead connectors, and two accessory connectors.
Electrical	Line and Umbilical Voltage, Power	Line and Umbilical Voltage, Power Line: 120 VAC 60hz. Umbilical: 109 VAC. Power Consumption: 900 -1100 Watts.
	Construction	Single piece, anodized 6061 T6 aluminum hull with patented channel and rail system for wings, thrusters, skids and 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: 1/4" quartz window and depth rated to 1,000 meters.



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