

APAMA

ROV

The APAMA ROV is more than just an underwater vehicle; it is a solution crafted from years of industry insight, designed to overcome the limitations of traditional ROVs and set a new standard in underwater operations.



APAMA Features



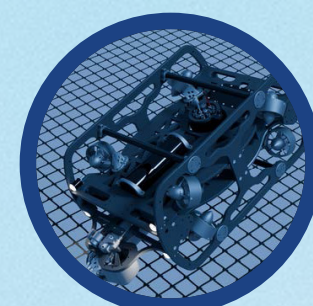
Size	1000x600x505mm	Speed	1.5 meters/second, 3 knots
Thrusters	8 vectored units. Easy to service and replace	Weight	40kg in air, slightly positive in water
Camera	HD 1080p AI image processing	Lighting	4 x LED lights (1500 lumens)
Power Input	240V AC 1.2kW	Sensors	Depth sensor, leak sensor, AHRS with support for DVL, Multibeam sonar and ethernet, RS485, CAN, Serial sensors
Bouyancy	High-density foam	Tether	200m standard, 11mm diameter, Depth hold, attitude hold, free 6DOF mode.
Frame Material	Light weight durable foamed PE	Flight Modes	Position hold (optional)
Inspection Coverage	3000+m ² /hour	Weigh in Water	Slightly positive
Thrust Force	30kg continuous		
Depth Capacity	200m standard with 300m option		

Environmental Sustainability:

With a strong focus on preventing fish escapes, SOSUB's solution plays a crucial role in promoting sustainable aquaculture practices and ecosystem protection.

On-Demand Inspection and Repair:

Ready for immediate use, the system proactively prevents net failures, ensuring continuous protection at the farming site.



Precision Underwater Stitching:

The ROV's innovative stitching tool ensures efficient and precise underwater repairs, eliminating the need for divers and net removal.



Advanced Control System:

Featuring the market's leading 6DOF control system, our ROV offers unparalleled manoeuvrability and intuitive handling for superior operational efficiency.



Adaptability to Harsh Conditions:

Designed to perform in murky waters and strong currents, the Apama ROV is reliable under challenging conditions.



Innovative Design:

Modular design for easy maintenance and seamless upgrades, minimizing downtime. Interchange parts effortlessly, ensuring your ROV fleet remains cutting-edge without full replacements.

Six Degrees of Freedom:

Equipped with six degrees of freedom (6 DoF), this ROV offers unparalleled manoeuvrability, allowing it to navigate complex underwater environments with precision and ease.

Seamless In-Situ Repairs:

Apama ROV excels in performing efficient on-site repairs without requiring net removal, significantly boosting operational efficiency.

Safety and Efficiency:

This system effectively eliminates risks associated with diver-based repairs, creating a safer working environment.

Commitment to Sustainability:

As stewards of the ocean, SOSUB and the Apama ROV uphold practices that honor and preserve the marine ecosystem.

Capabilities of the APAMA ROV

Pressure Cleaning with Retrojet Cleaning System

The APAMA ROV has revolutionized pressure cleaning in challenging underwater environments. One of our clients leverages the ROV to clean skeletal structures on the exteriors of barges, achieving faster, safer results compared to traditional diving methods. Moreover, we've successfully deployed this solution alongside hydro and water companies to pressure clean sealing surfaces at depths too deep for divers. This approach also eliminates the need for costly shutdowns, which would otherwise be necessary to ensure diver safety in hazardous areas.

Fish and Predator Net Inspections

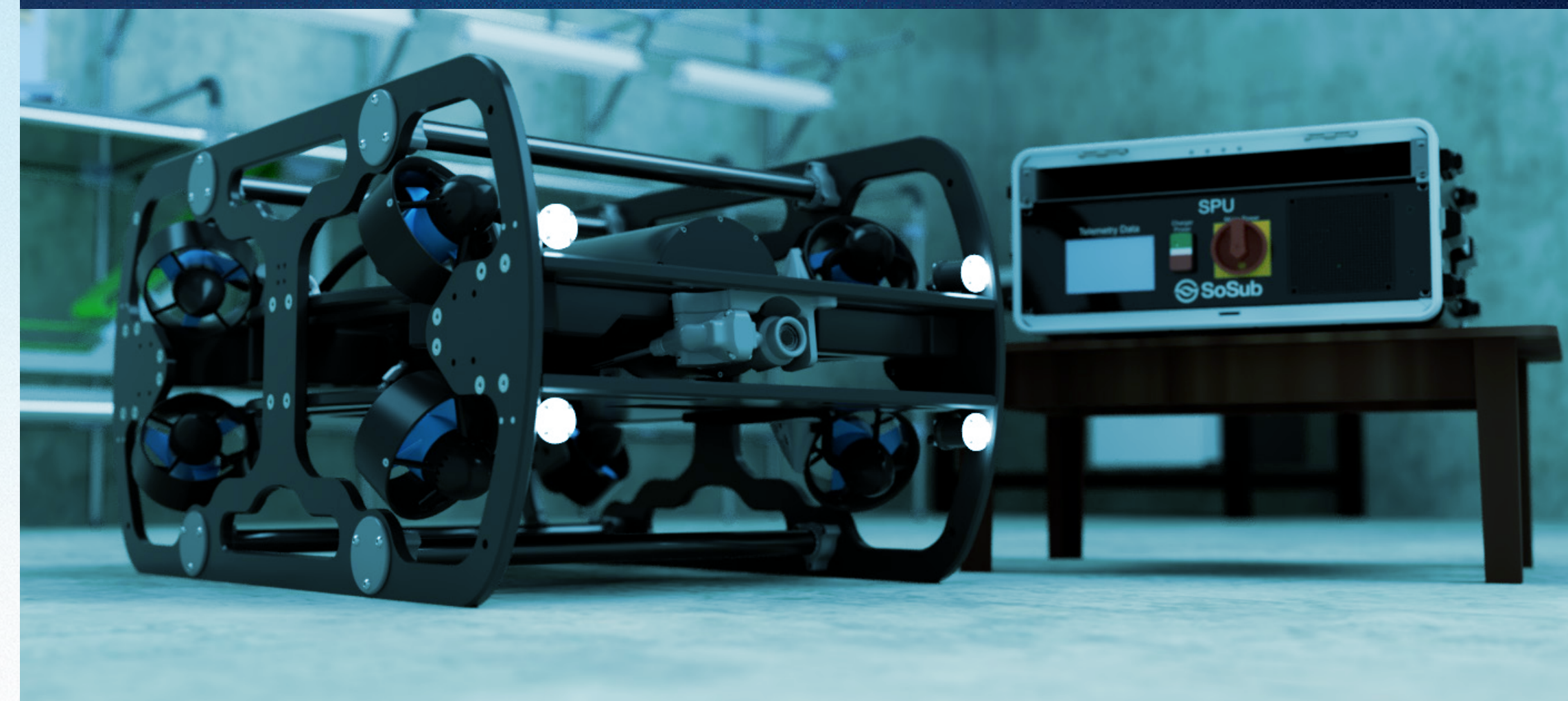
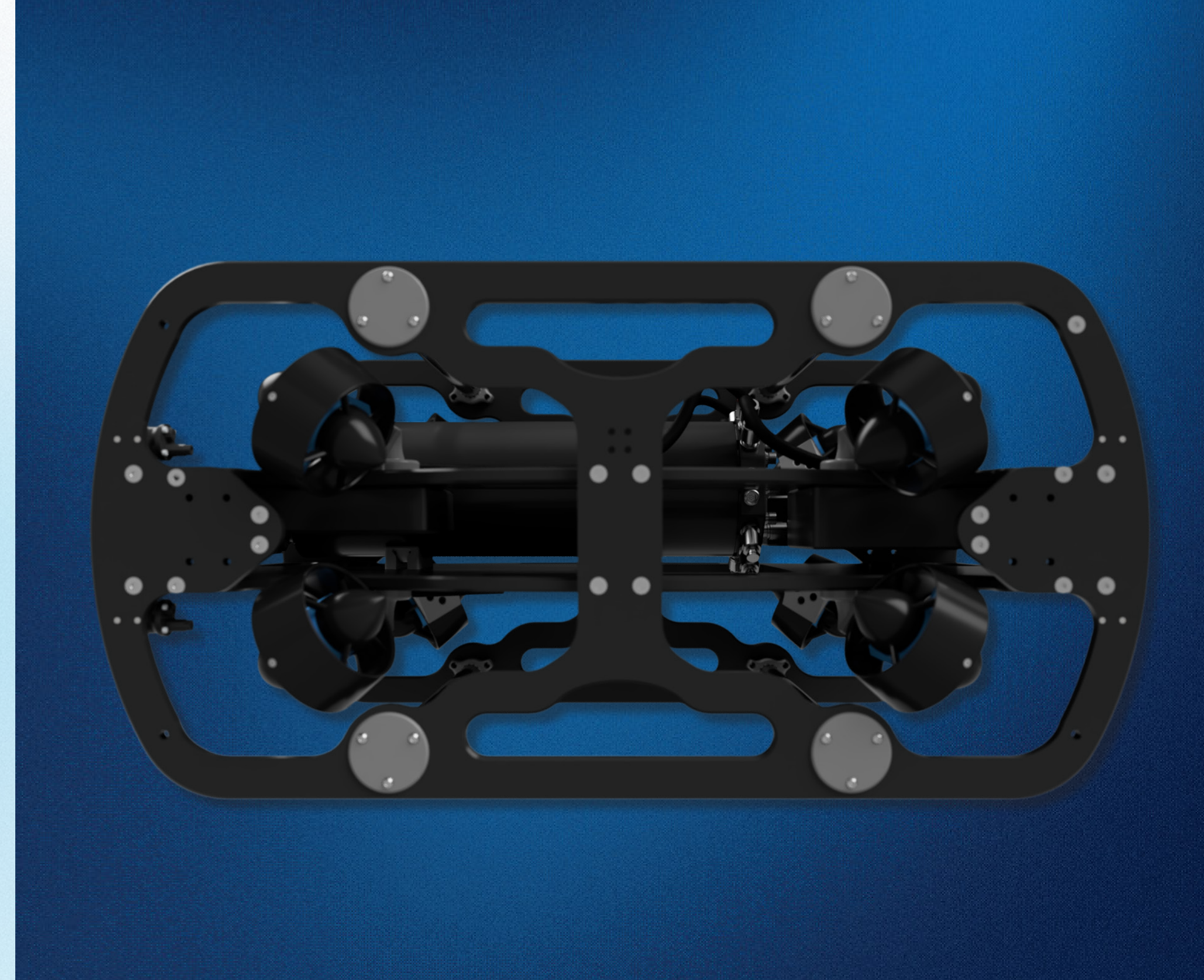
In the aquaculture industry, the APAMA ROV has reduced inspection times by nearly 50%. This efficiency is driven by our advanced 6-DOF intuitive control system, allowing for precise and agile maneuvering. Coupled with an intuitive controller developed in collaboration with end users, operators have full control to orient the ROV in any required position, ensuring tasks are completed efficiently. This combination of advanced control and user-friendly design has been highly praised, significantly enhancing operational productivity when navigating complex net structures.

Net Repair with Patented System

During inspections, when a hole is detected in the net, the APAMA ROV is equipped to perform permanent repairs on the spot. Our patented net repair system has demonstrated a 95% success rate in fixing various types of holes, according to data from clients using the system. While this system is still in its final development stages, it is poised to set a new global standard, potentially eliminating the need for traditional dive-based net repairs.

Rope Cutting Capability

We have developed a prototype electronic rope cutter specifically designed for the APAMA ROV, capable of cutting mooring lines up to 80mm in diameter. The cutter excels on Dyneema ropes, renowned for their strength and durability. To our knowledge, this tool is the smallest in the world capable of handling ropes of this thickness, showcasing the APAMA ROV's advanced capabilities in marine operations.



Why the APAMA ROV Stands Out in the Industry

- **Hybrid Power System**

The APAMA ROV features a unique hybrid power system, enabling indefinite operation on surface power. In the event of a power failure, the ROV can continue operating for an additional 1-2 hours on its own battery power. This capability allows us to send an average amount of power down the tether, avoiding the need to manage peak loads. Consequently, the surface power supply only needs to be 2 kW, making the system both efficient and reliable in various operational scenarios.

- **Lightweight and Robust Design**

Traditional ROVs often struggle with excessive weight. We've engineered the APAMA ROV using a lightweight yet robust material called foamed PE, reducing the ROV's weight to just 35 kg. This design makes deployment and operation much easier without compromising durability.

- **Modular and Repairable Components**

Recognizing that components like thrusters, lights, and cameras are susceptible to wear and tear, we've designed the APAMA with field-replaceable connectors for these parts. This modular approach ensures maintenance can be performed quickly and efficiently, minimizing downtime.

- **Open Frame Design**

The APAMA features an open frame design, facilitating the easy mounting of various payloads and sensors. This flexibility allows users to customise the ROV for a wide range of applications, from routine inspections to complex research missions.

- **3D Printed End-Use Parts**

In collaboration with Formlabs, we've integrated advanced 3D printing techniques into the APAMA's design. This innovation includes 3D-printed pressure vessels tested to depths of up to 850 meters. The use of 3D printing not only allows for rapid production and global distribution of parts but also enables quick customization to meet specific client requirements, whether it's a simple bracket for a tool or a specialized pressure chamber for unique sensor payloads.

The APAMA ROV is more than just an underwater vehicle; it is a solution crafted from years of industry insight, designed to overcome the limitations of traditional ROVs and set a new standard in underwater operations.

