



MAKO 2023 ROV

SEAMOR Marine's MAKO ROV is the system that grows with your requirements as your company and instrumentation load expand. This vehicle is designed to have a large payload capacity and allow the easy integration of future instruments as new uses are developed for the ROV.

The MAKO ROV's large payload (18 kg standard, upgradable to 23 kg) allows the user to either install large and heavy instrumentation or to install a suite of smaller instruments. The MAKO has built-in mounting points for DVL/INS, USBL, beacons and scanning sonar systems. Purpose-designed multi-beam sonar mounts are also available as are mounts for CP and UT systems, electric multi-function arms and grippers. The vehicle is designed with regular grid hole patterns and 30 mm tee-rails to allow the simple repositioning of accessories with off-the-shelf components.

The MAKO can be fitted for tethers run through the topside lift point or through the stern for pipeline operations and the standard lifting point can be inverted to attach a commercial bullet-type lifting system. Mass-limited through-hull lifts are possible without a centerline DVL/INS mounted.

In addition to its variable payload, the MAKO is equipped with modular flotation, allowing the user to adjust the ballast and trim by removing flotation instead of adding weights. This reduces the operational mass during deployment and the inertia the thrusters need to operate against, improving responsiveness. Four runners are used to reduce soft-bottom penetration, where reduced weight can also be beneficial.

The MAKO uses four thrusters in counter-rotating pairs for primary thrust and four thrusters in a vertical/lateral configuration. The thrusters are mounted to minimize visual disturbance in turbulent flow. All thrusters are designed to be easily mounted and swapped and are intended to be upgradable as technology and thrusters develop. Equipped with arms and a full sensor suite, the MAKO approaches a miniature Work Class vehicle in design while remaining deployable from small craft.

FEATURES

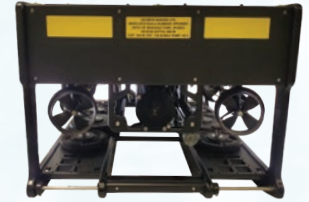
- > Heavy payload capacity of 18 kg (40 lb) standard, upgradable to 23 kg (50 lb)
- > Designed for easy integration of numerous instruments & accessories.
- > Auto heading & depth
- > Dedicated instrument communications wires with optional Ethernet functionality
- > Universal controller with standard or high-wattage power supply



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DIMENSIONS & ATTRIBUTES

Depth Rating	300 meters (1000 ft) - or - 600 meters (2000 ft)
Size (L x W x H)	1000 mm x 655 mm x 555 mm 39.4" x 25.8" x 21.9"
Diagonal	840 mm (33.0")
Weight in Air	220 lb (100 kg)
Construction	Anodized aluminum, stainless steel, syntactic foam & marine grade polymers
Payload	18 kg (40 lb) Standard upgrade to: 23 kg (50 lb)

THRUSTERS & PERFORMANCE

Configuration	4 x Horizontal 4 x Vertical/Lateral
Features	Built-in short circuit protection
Thrust	Approx. 5.5 kgf @ 150 W each
Vehicle Speed	Up to 2 knots dependent on direction and conditions

TETHER

Length (Twisted Pair)	335 meters (1100 ft) std 500 meters (1640 ft) max
Length (Fiber Optic)	625 meters (2050 ft) max
Custom Length (Fiber Optic)	On standard reels Longer length of fiber optic tether is possible, mounted on custom winches for pipeline applications
Diameter	10 mm (0.4")
Working Load	125 kg
Breaking Strength	500 kg
Weight in Water	Neutrally buoyant (freshwater)
Minimum Bending Radius	50 mm (2") static 100 mm (4") dynamic

MAINTENANCE CRADLE

Bolt-down maintenance cradle	Allows the vehicle to be securely fastened to a vessel for safe maintenance and storage
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CAMERAS & LIGHTS

Main Camera:
NTSC or PAL 700 TVL
Optional:
1080P HD-SDI over fiber
Manual or automatic focus
3X optical zoom
32X digital zoom
Tilt range +/- 90°

Main Lights:
2X 1500 Lumens each
Dimmable 5500K LED

Lasers:
Optional green lasers on a 150 mm (6") parallel baseline

Auxiliary Camera:
Color or B&W
NTSC/PAL 480 TVL
Built in LED Ring Lighting

CONTROL SYSTEM

Controller mounted in a durable travel case
Handheld pendant controller available
Built-in 15" LCD monitor with video pass-through
Video overlay with:
Depth / auto-depth
Heading / auto-heading
Pitch / roll
Tether turns counter
Date & time

SENSORS

Pressure/Depth
Compass heading
Pitch & Roll
Dedicated leak detection and internal temperature sensors in both main housings with topside alarms

OPTIONS

- > SEAMOR Aux Lights
- > Daylight readable high brightness monitor
- > Extra monitor in power supply case
- > Upgraded payload (22.7 kg / 50 lb)
- > Hand held controller
- > Parallel green lasers
- > HD-SDI video over fiber
- > Ethernet over VDSL2
- > Ethernet over fiber
- > SEAMOR Dual Function Gripper (open/close/rotate)
- > Field interchangeable tooling skids (trimmed to neutral buoyancy) for rapid tooling changes
- > Altimeter integration with auto-altitude
- > Sonar Integration:
 - Scanning sonars*
 - Forward-looking sonars*
 - 3D multibeam sonars*
 - Acoustic cameras*
 - Pipe profiling sonars*
- > Additional Integrations:
 - 5F or 7F Electric Arm*
 - Rotary brushes*
 - Scoop systems*
 - CT & UT Sensors*
 - Magnetometers*
 - Science sensors*
 - Sample carousels*