



Remora System **6,000 m operations**



Phoenix International, Inc.'s *Remora* Remotely Operated Vehicle (ROV) system performs work to water depths of 6,000 meters (20,000 feet). The complete system comprises a vehicle; fiber optic cable and winch; a launch/recovery system; and operations and maintenance vans.

Remora's design strikes a balance between power and capability, meets a wide range of operational requirements, and is sized for air transport and rapid mobilization on vessels of opportunity anywhere in the world.

The design was tailored to cost effectively perform:

- Search
- Wreck Investigation
- Recovery
- Optical Documentation
- Sampling
- Subsea Cable Support

Vehicle

Remora is a 25 horsepower (hp) vehicle that delivers more horsepower per cubic vehicle volume than any known competitor with similar depth capability. Its small physical size coupled with an axial lateral thruster geometry permits precisely controlled maneuvers in the tightest of spaces and minimizes the probability of entrapment or entanglement. Given *Remora's* size and weight, added benefits include lower transportation and support vessel costs.

Fiber optic cable and Winch

To provide the bandwidth needed to accommodate expanding data demands, *Remora* uses a balanced, triple armor, 17.3 mm (0.68 in.) diameter, fiber optic cable containing 3 power conductors and 3 single mode optical fibers. Two of the fibers are available for customer use. The cable has a working strength (at 0.5% strain) of 6,363 kgs. (14,000 lbs.) and a breaking strength of 20,909 kgs. (46,000 lbs.). Available cable lengths are 3650 m. ((11,972 ft.) and 6700 m. (21,975 ft.) that are installed on separate and independent winch systems.

Launch/Recovery System

Phoenix offers a self-contained, compact, air-transportable DYNACON handling system that features the lift winch, electro-active level wind, self-erecting 'A' frame with docking head, and electro-hydraulic power unit integrated on a single, unified skid assembly 6.5m long x 2.6m wide x 2.5m high (21.2 ft. x 8.5 ft. x 2.5 ft.). The skid serves as the base pad for at-sea ROV transport, storage, launch, and recovery. The winch has a drum capacity for 6700 m. (21,976 ft.) of fiber optic cable. Total system weight, including cable is 23,182 kgs (51,000 lbs.). Onboard installations are simplified, and launch & recovery evolutions are safer and quicker and result in a more cost effective operation.

Vans

Remora operations are supported using two self-contained 6.1m (20 ft.) long standard ISO vans; one for vehicle operations, the other for maintenance, spares storage, and vehicle storage during system shipment. The Operations van design emphasizes improved operator ergonomics and reduces the claustrophobic setting found in many ROV control vans. The result is improved operator endurance and efficiency. The van comfortably seats six personnel. Remote monitors are positioned in the rear of the van where on-board observers can view imagery in real-time. The location eliminates crowding in the pilot's area and reduces distractions to the ROV operators.



The benefits of *Remora's* design include:

Design Feature	Benefit
<ul style="list-style-type: none"> • Small vehicle size 	<ul style="list-style-type: none"> • Reduced vehicle cost, Smaller support ship requirement
<ul style="list-style-type: none"> • Optimized power 	<ul style="list-style-type: none"> • Optimized for deep water yet sufficient for most shallow water tasks
<ul style="list-style-type: none"> • Excellent maneuverability 	<ul style="list-style-type: none"> • Better, safer operations results
<ul style="list-style-type: none"> • Modularity 	<ul style="list-style-type: none"> • Quicker mobilizations, Use with diversity of winch systems, Easy access to components for faster repairs
<ul style="list-style-type: none"> • Capability 	<ul style="list-style-type: none"> • Tailored to meet market needs
<ul style="list-style-type: none"> • Reliability 	<ul style="list-style-type: none"> • Integration of ROV pilot experience in the design, Use of COTS technologies
<ul style="list-style-type: none"> • Transportability 	<ul style="list-style-type: none"> • Faster, easier mobilizations, Elimination of special transportation permits