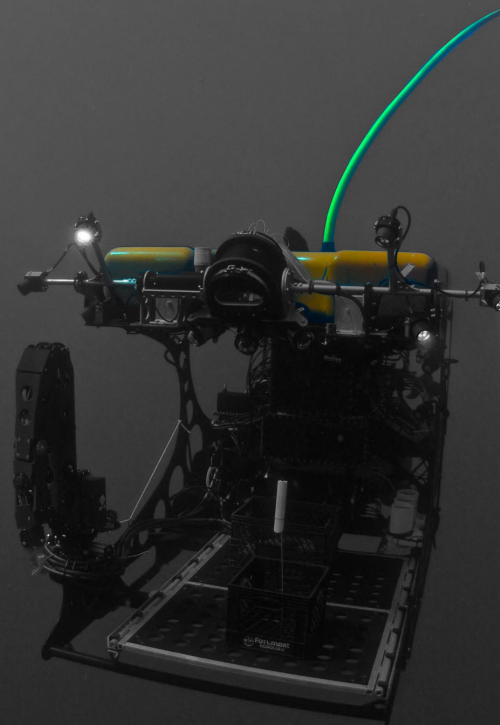


NEREID HT HYBRID ROV/AUV VEHICLE



DEEP OCEAN OPERATION

- 5km depth capability

BROAD OPERATIONAL CAPABILITY

- AUV and ROV operation

THIN LIGHTWEIGHT TETHER IN ROV MODE

- Allows for long-range excursions

ONBOARD POWER

- 18 KWHR lithium ion batteries

HIGHLY EFFICIENT HYDRAULIC MANIPULATOR ARM

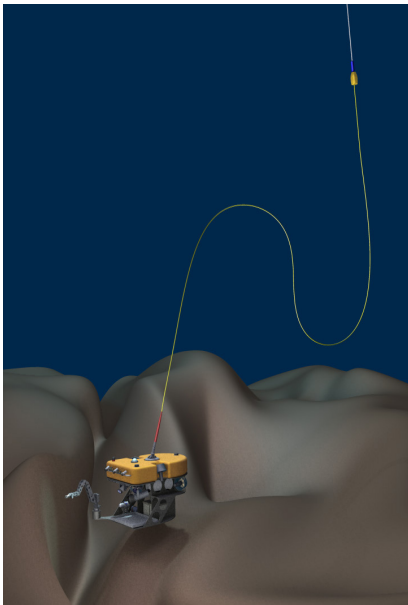
- Seven function manipulator arm

Hybridization of tethering offers a new degree of flexibility for undersea exploration.

Overview: Submersible vehicles use tethers to carry power and communicate, but these tethers can place significant burden on vehicles as well as at-sea logistics as undersea robotics reach greater depths. Removing dependence on traditional tethers and creating more versatile, lightweight, hybrid ROV/AUV's reduces on-board winch footprint which in turn: eliminates the need for tenders with dynamic position capabilities, creates the opportunity for use of smaller vessels, and allows for deep-water operations from less costly platforms.

Technology: Nereid HT is a hybrid light-workclass ROV with the ability to switch seamlessly between a traditional tether cable, fiber optic line, innovative lift tether, and a combined acoustic/optic wireless modem. Hybridization of tethering allows vehicles to operate both at extreme depths (up to 11,000 meters) and extreme horizontal distance from surface vessels (under ice). Nereid HT is equipped with real time visual and acoustic imaging via a high resolution camera, for full HD underwater video. Its seven function manipulator arm allows for scientific sample collection and object manipulation.

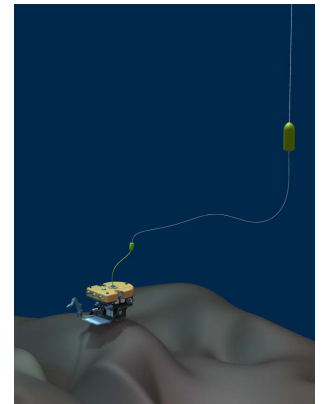




The **ARMORED LIFTING TETHER** enhances load carrying capability, changes buoyancy of the cable and manages torsional forces preventing twisting and hocking. By adding flotation or weight to different sections of the lifting tether, an "S" shape can be created which allows the ROV to decouple from the motion of the ship and operate without being tugged by its tether. A swivel mount on top of the vehicle spins out any twists in the tether allowing the ROV to maneuver freely.



A **COMBINED ACOUSTIC & OPTIC WIRELESS MODEM** allows for through-water communications at ranges up to 100+ meters for complete freedom from a tether



The **THIN FIBER OPTIC TETHER** allows for long-range excursions from the launch point

NEREID HT VEHICLE SPECIFICATIONS

DEPTH CAPACITY: 2,500 meters - scalable to 11,000 meters

VEHICLE SIZE: 3.56 m (11.7 ft) long, 1.8 m (5.9 ft) high, 1.55 m (3.1 ft) wide

VEHICLE WEIGHT: ~ 2,000 kg (~ 4500 lbs) in air

CABLE: Standard EOM 0.322 oceanographic cable w/ Lifting Tether

PROPULSION: 8x brushless DC electric thrusters

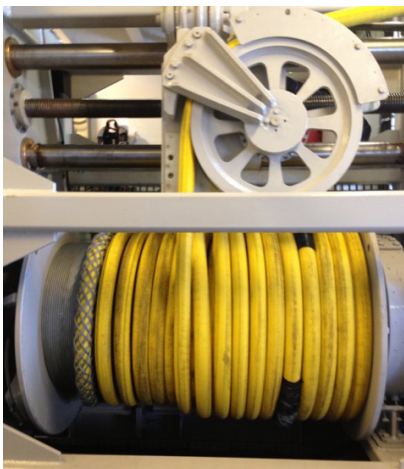
MAX SPEED: 1.5 knots fwd, 0.5 knots lateral, 1 knot vertical

POWER: 18 kWhr lithium-ion batteries

LIGHTING AND IMAGING: Triscopic 3D HD camera, panoramic HD cameras, 3x DeepSea Power & Light standard definition task cameras

NAVIGATION: Sonardyne RangerPro USBL Navigation, Blueview Scanning Sonar

SAMPLING: Support for 7 function 6 degree of freedom Manipulator Arm, 200 lbs wet weight of science payload available on a sliding sampling drawer



LIFTING TETHER: The lower section of the cable tether is reinforced to allow lifting of the vehicle from a lighter, standard oceanographic cable that would otherwise not be strong enough to support the vehicle weight.



NO TETHER: Successfully tested tetherless operation through optical communication



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