Overview

OceanWorks International’s submarine rescue systems and services provide rapid response and world wide capability for rescue of crew members from a submarine that is disabled and trapped on the sea floor (DISSUB). OceanWorks International supplies a variety of system configuration and operational service options for customers to choose from.

Products

| Remotely Operated Rescue Vehicles (RORV) | Advanced Remotely Operated Vehicle technology is applied to these tethered systems to combine unlimited power, enhanced control features and high angle mating capability with an operational depth up to 650 meter depths to quickly evacuate 18 personnel per sortie from a DISSUB. Surface systems allow transfer under pressure at up to 5 bar. |
| Submersible Rescue Vehicle (SRV) | This battery operated rescue vehicle has similar depth and operating capability as the RORV in a free swimming mode for customers with a preference for a traditional submersible configuration. |
| Submarine Rescue Chambers (SRC) | This is a surface supplied, McCann bell type configuration upgraded from the early design that has been in service over 70 years. The upgrades include increased personnel capacity, improved supply umbilical technology, water depths up to 600 meters, integrated launch and recovery and transfer under pressure capability. |
| Transfer Under Pressure (TUP) | OceanWorks provides full transfer under pressure capability for all its rescue vehicle options. This includes deck transfer locks, vehicle mating interfaces and decompression chamber facilities. |
| Ship Interface Template Sets (SITS) | These portable, reusable and adjustable structural templates provide the load transfer interface between the deck of a vessel of opportunity and the launch and recovery system of a fly-away submarine rescue system, such as the US Navy’s SRDRS system. The ability to weld and secure these templates in place on the ship while the rescue system is in transit from its home base significantly reduces the load out time for the rescue system. |
| Full rescue system ship integration services | OceanWorks provides system level design, manufacturing and installation of systems on vessels dedicated to submarine rescue support. This includes hyperbaric chamber complexes, ROV, ADS, rescue vehicle Launch & Recovery Systems (LARS) and the full range of intervention support equipment and custom interfaces to enable interoperability of submarine rescue systems between nations. |
Submarine Rescue Systems

RORV

OceanWorks has pioneered technology development for submarine rescue in two key areas:

- The introduction of our patented articulated mating skirt, which allows a rescue vehicle to lock onto a disabled submarine lying at extreme angles (up to 60 degrees) on the sea floor without requiring the vehicle to change pitch or roll. Our skirt is fully compatible with all NATO and other standard submarine mating seats.

- The introduction of the tethered Remotely Operated Rescue Vehicle (RORV) system configuration, which applies state-of-the-art ROV technology to rescue operations, training, and through-life support.

Used in combination, these RORV technologies provide submarine rescue capability with unlimited power and mission endurance, real time, 2 way command, control and communication and unprecedented safety, mating, and maneuvering control. The SRV is a free swimming rescue vehicle offered to those customers who prefer a traditional submersible configuration.

SRC

Submarine Rescue Chambers (SRC) are the lowest cost and smallest footprint submarine rescue system available. They are based on older designs, upgraded for deeper operating depth and transfer under pressure capability. They can be rapidly transported due to small size and light weight when compared to more capable systems. The SRC requires a down-haul cable to be attached to a special pad-eye on the submarine hatch in order to align itself and mate.

The SRC requires a diver, HARDSUITTM ADS or ROV to connect the down-haul cable and requires the surface support vessel to provide maneuvering into location. As a result the SRC has a limited operational window compared to the RORV solution. Options are available to add thrusters and the OceanWorks patented articulating skirt to increase operational capability. The SRC can be provided with a fully integrated LARS.

SITS

OceanWorks has developed Ship Interface Template Sets (SITS) to allow partner nations to prepare a vessel of opportunity (VOO) to rapidly install the existing US Navy submarine rescue system in the event of a submarine accident. A similar arrangement can be made for the NATO submarine Rescue System (NSRS).

SITS are an approved structural interface that can be fitted to a pre-qualified VOO or dedicated ship during the time that the rescue system itself is being air transported to the port of embarkation, thus improving time to first rescue. By procuring SITS for forward deployment and identifying suitable vessels of opportunity, navies are able to provide more cost effective submarine rescue support capabilities on a fast response time, based on the use of the U.S. Navy PRMS or NATO NSRS systems.

TUP

Transfer Under Pressure (TUP) capability is a requirement for modern submarine rescue systems since it has been established that survivors will most likely be exposed to elevated pressure for extended periods prior to rescue and that they will require transfer into a surface decompression and treatment facility. TUP is provided for all OceanWorks rescue system options.

OceanWorks offers TUP interface chambers, mating trunks and deck decompression chamber systems designed to allow for safe, efficient transfer under pressure of rescued personnel once the rescue vehicle is secure on the deck of the vessel of opportunity. The integrated decompression system configuration is customized to match the customer’s requirements as driven by size of submarine crews, ship detail and decompression protocols.

System Integration and Interoperability

Several nations are acquiring dedicated ships and associated intervention and rescue equipment to allow them to support submarine rescue while relying on the US Navy PRMS or NATO rescue vehicles to conduct the actual rescue. This reduces initial and ongoing support cost and also improves the time to first rescue since the ship preparation time is eliminated and the logistics of flying the rescue vehicle to any location in the world are significantly reduced.

Turkey is the first nation to fully embrace this approach and OceanWorks is providing full system integration services and hardware to support this type of approach to rescue.