



ORCA™

Oil Response Cleaning Apparatus



The ORCA™ (Oil Response Recovery Apparatus) is a marine environment clean up machine that provides clear advantages over other equipment used in oil spill recovery. In addition to recovering oil more effectively, the ORCA can be put to profitable use cleaning tanks, industrial waste, pipeline spills, lakes, ports, shorelines – while other types of oil recovery equipment sit unused in storage, waiting for the next spill.

With its powerful vortex technology, the ORCA is virtually clog-proof. Its unique technology allows it to pull oil, tar balls, and debris via its suction hose directly into a receiving tank, without passing through any machinery. This feature virtually eliminates clogging, jamming and downtime, which are key issues with all other oil spill equipment.

Certification of the ORCA by ABS (American Bureau of Shipping) and Lloyds Register Type Approval prove its capabilities by industry standards, while its use in actual clean up conditions proves its superior performance where it counts – in the field.



Critique on currently used equipment

- January 1990: Jim O'Brien, one of the co-coordinators of the Exxon Valdez Clean up, quoted in the January issue of *National Geographic* magazine, said: "By the time the (oil) mousse mixes with Kelp and other debris, it is so heavy that pumps can't raise it more than two or three feet."
- 1993: Vice Admiral John Costello, also a former president of Marine Spill Response Corp. (MSRC), described the state of technology in the industry as "equivalent to a Model T" during a candid speech in Seattle.



25 years later, at the BP-Deepwater Horizon disaster in 2015, even adding cutting knives to currently used equipment did not solve the issue, since kelp and seaweed soaked in oil make the cutting knives inoperable.

The ORCA – ahead of its time

- The ORCA was purchased and used by Singapore Oil Spill Response Centre in the MT Evoikos 28,000 tonnes spill in the Singapore Straits.

1997: Chris Richards, Oil Spill Services Manager, stated:

"...the oil after it has been in the water for a few days...had partly emulsified by then although it was fairly viscous oil even before it was spilt - 380 fuel Oil. The main problem with recovery was not so much with the skimmer's ability to pick up the oil, rather the pumps' ability to drain the skimmer. All the pump types (including DOP 250 screw pumps) very quickly jammed up, having filled themselves with oil which then became virtually solid. The only unit that worked and continued working successfully was our "ORCA" inductor unit - with its very large suction hose diameter and few moving parts it was capable of lifting the "oil" from the surface (with care and experience, without much water either)..."

- June 2015: Darrell Wilson, ex USA Coastguard Chief of 21 years and current president of MTI Network USA: "I watched your video and I must say that I was very impressed. During my Coast Guard career and almost 10 years with MTI Network, I have been around a lot of spills and cleanup operations and I know how difficult the equipment can be. To watch it work showed what good, thoughtful engineering can accomplish. Watching the ORCA in action was impressive."
- July 2015: OES/ProLog Inc: "We feel that your technology can become a mainstay within the market place. As we stated in our call, the technology may have been ahead of its time 15+ years ago, but now it would appear that THIS IS THE TIME to truly work toward offering this as a versatile, highly effective, low cost solution for many years to come."



An example of using the Universal Hatch Cover™ to load sludge into the container from a Crowley barge.

Key advantages of the ORCA

Fast recovery of 500 barrels+ of oil per hour

The ORCA can lift 500 to 1,600 barrels per hour, 100 ft (abt 30 m) into a ship's hold, depending on the type of oil and prevailing weather conditions.

Virtually eliminates clogging

Based on vortex technology, the ORCA is virtually clog-proof. It pulls oil, tar balls and debris straight up its hose and directly into a receiving tank, without passing through any machinery.

Light weight and compact for easy transport

The ORCA comes as a self-contained unit with a power pack that fits inside its cylindrical "belly" for compact shipping and storage, and is easily transported by helicopter, boat or truck. It can be used on board a tanker, barge or even on a small truck to accommodate a wide range of application needs.

Easily operated

Once the ORCA is lifted on board with a crane or helicopter, the operator starts the diesel engine, connects the hydraulics, raises the hydraulic legs to extend 4.5 ft (1.38m) to remove the power pack from the ORCA. These legs allow the operator to 'walk' the unit over obstacles on deck, without the need of additional gear. The ORCA uses one size set of bolts, and comes with forklift slots. Comes with a selfpowered hydraulic crane to handle lowering the floatation device.

The ORCA can be deployed by just two deck hands – one to position the universal hatch cover, the other to attach the hoses.

Removes materials directly into a receiving tank barge

The Universal Hatch Cover is a key component that allows the oil and debris to pass directly into a receiving tank without passing through the cylindrical tank of the ORCA, thus allowing it to handle large volumes of spilled oil.

Wide range of applications

Most oil recovery equipment is single-purpose, and sits idle when not being used for oil spills. The ORCA can be profitably used all year round for a variety of clean-up operations, especially since its lighter weight and compactness make it economical to transport.

And here again ORCA out-performs other equipment: it can vertically lift a 62 lb (28 k) bag of sludge 100 ft (30 m) in four seconds.

See the ORCA in action at www.orcaclean.com/video

ORCA includes

Cyclonic tank

Aircraft grade aluminum

Height = 6.5 ft (1.99 m) (shipping)

Width = 6.4 ft (1.97 m)

Weight = 1,300 lbs (590 kg)

The minimum working height to remove the Power Pack is 7.2 ft (2.18 m). The legs extend fully to 4.5 ft (1.38 m) clearance to either fill barrels or to clear obstacles. Weight with the Power Pack inside the ORCA 3,080 lbs (1.397 kg).

Power Pack with AMOT control

The 116 HP, diesel-driven hydraulic power pack is stored inside the ORCA's tank for shipping and transport, while AMOT controls automatically shut down the power pack when there is a high level of hydrocarbons in the atmosphere.

Hydraulic start

The ORCA uses a hydraulic start, thus avoiding the issue of discovering a dead battery just when one needs it in an emergency.

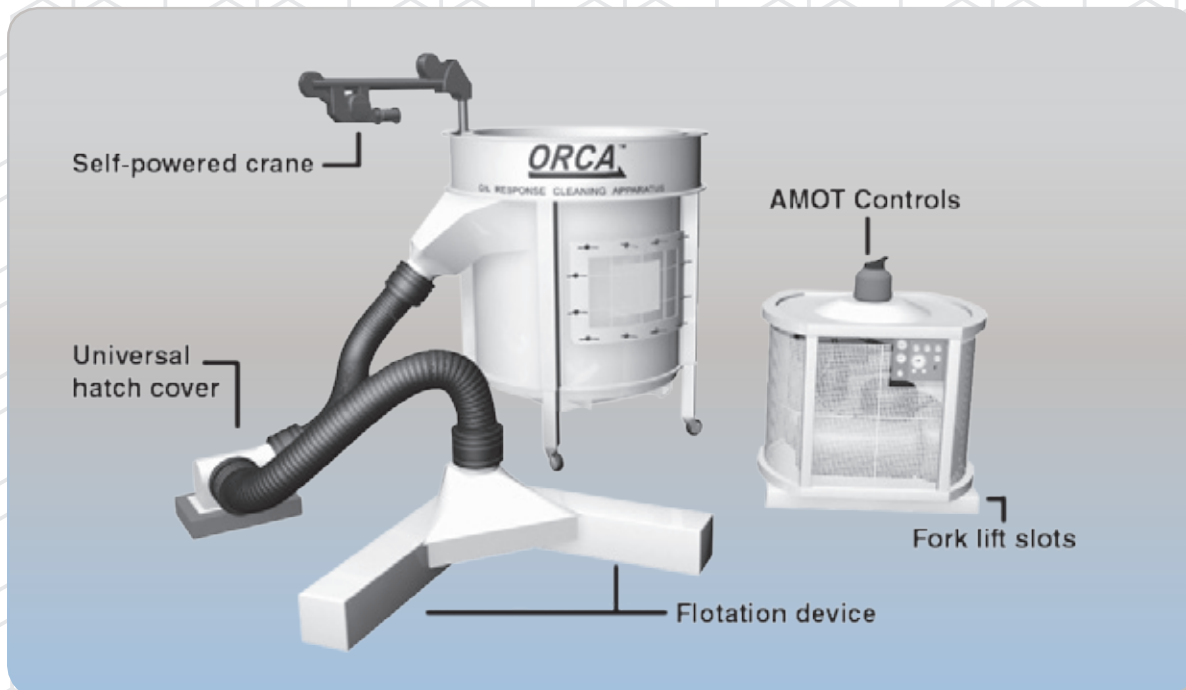
Universal Hatch Cover

An aluminum adapter is used to couple the ORCA to a vessel's tank by using the tank openings, thus allowing the ORCA to handle large volumes of spilled oil.

Suction hoses

Lightweight, flexible hose sections are provided in lengths of 9.8 ft x 12" or 15" (3 m x 30 or 38 cm) hose connected with couplings.

Complete shipping information available on request.



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