

Portable Turntables Provide Speed & Flexibility to **Turn it Around Fast**

By Jack Shepherd, Macton Corporation

Your company finishes a cable laying job on the east coast and then needs to get the vessel to the west coast to start the next project. That means a lengthy voyage and lots of downtime, when the company isn't making any money. Fortunately, new technologies are about to change all that. Portable cable-laying turntables can be removed from the current vessel, disassembled and shipped to the new location across the country. When the turntable arrives, it's easily reassembled on another vessel at the new location, and you're back in

business, turning weeks of downtime into just days and lost profits into increased revenue.

Underwater cable is manufactured in one of two ways. It is either laid in a stationary shipping basket or laid in a shipping basket placed on a turntable. If the cable is laid on a stationary basket, there is a twist put in the cable with each wrap. When the cable is laid, it has to be dispensed in the opposite rotation to take the twist out of the cable. If a turntable is used in the manufacture of undersea cable, then one must also be used when the cable is laid. Otherwise, there will be

a twist imposed on the cable as it's dispensed from the shipping basket. The cable manufacturer dictates the manufacturing process.

Portable turntables arrive at a job site disassembled. The wheeled base assembly and the turntable itself are manufactured in pie sections that are bolted together on the vessel or barge. The wheeled base assemblies allow for rapid leveling of the base as a whole, as opposed to leveling each individual wheel set. The number and size of the supporting wheels is determined by the diameter and load capacity of the turntable. The design of the wheel

Cable being installed from turntable.



base allows the load to be equally distributed to the deck beams of the vessel. Once the wheel base is installed and leveled, the center post is mounted to the wheel base. Rolled heavy-duty crane rail track is then positioned on the wheel sets, and the pie-section turntable is fastened to the center post and track. The entire installation process takes just two to three days. The openness of the deck and frame design allows easy access to all turntable components for maintenance.

Save Time, Money

Traditionally, turntables for laying underwater cable are permanently mounted on vessels or barges.

However, this limits a marine contractor's flexibility when it comes to how it uses equipment. Vessels and barges with permanent turntables can only serve a single purpose, and must be moved to the next job site, whether that's just down the coast or halfway around the world. The portable turntable solves this problem and provides added flexibility and cost-savings. All the contractor needs to do is rent a "vessel of opportunity" at the job location, which simply has to have adequate space on the deck for a turntable. The turntable itself is disassembled and removed from the vessel at the last job site and shipped by truck to the next job location, where it will be installed on the wait-

ing vessel. The disassembly process takes only two to three days.

The portability option also allows the contractor flexibility with the purchasing and renting options for a vessel. No longer does the shipping company need to buy or rent a turntable-specific vessel. Any vessel with a deck surface large enough to hold the required turntable and cable reel will be sufficient. This alternative enables the contractor to rent, buy or lease a vessel that is much less expensive.

Turntable Specs

A recently delivered portable turntable was manufactured with a diameter of 39 ft. and a 500 metric

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ton capacity. Larger turntables are available with capacities in excess of 2000 metric tons. Purchasers should look for manual controls and reversible variable speeds, although motor parameters, overloads, ramp speed, minimum and maximum speeds, and other variables are controlled by a commercially available speed drive systems. A traction wheel drive system imposes the driving force onto the drive ring. Two 10 hp tropical duty electric motors positioned 180 degrees apart power the turntable. The variable speed control of the drive system allows the operator to precisely match the turntable speed with the cable laying rate. While electric drives are typically more efficient to operate, a hydraulic drive option is also available.

A quick disconnect on the tethered control pendant allows the system to

be operated locally for system check out and startup or remotely from the control room during cable laying operations.

Manufacturing turnaround is relatively quick, and turntables have been delivered to customers in as few as seven weeks. However, a typical manufacturing time including delivery is about 12-14 weeks.

First Hand Experience

Underwater cable is commonly used by two industries today: telecommunications and electric power. A new third market is emerging, however, for which a portable turntable is ideal: alternative energies, in particular, offshore wind. Because the total length of cable needed to reach an offshore wind turbine is relatively short, it can be laid in one piece from a portable turntable with a

minimum of expense and time. Durocher Marine is a division of Kokosing Construction Company, Inc., based in Cheboygan, MI. Durocher recently used a portable turntable to lay cable for an offshore wind project in New York state.

“We install sub-marine cables, both power and fiber optic,” said Project Manager Jack Breininger. “We just installed a cable across Long Island Sound and one between St. Thomas and St. John.”

The company conducts jobs on both the east and west coasts of the US, in addition to the Great Lakes, the Caribbean, and Central and South America. The Long Island Sound project looked to be another routine job for the company, said Breininger. “The supplier buys the cable and we install it with barges,” he said. “We have cable plows to bury



it and everything else that we need.”

“Normally, you can coil the cables in a tank, and the shorter ones they deliver the cable on a reel,” Breininger said. “We didn’t find out until the 11th hour that it wasn’t coilable, so we were under a lot of pressure to get a turntable.”

“Normally on something like that we’d rent the turntable from the cable manufacturer or another company. We looked at the cost of renting one, but when you rent equipment, the cost is sometimes a lot more expensive than you anticipate,” he said.

“Most turntables are one piece so they have to be barged and the cost is

very expensive. On this project, we decided to purchase one of our own, for this project and for future projects,” Breininger added.

To accomplish its goal, Durocher conducted an Internet search for a specialized industrial turntable and found a company with a novel approach. “We discussed making one that was truckable,” said Breininger. “Our work can be on the east coast or the west coast, so it’s not feasible to barge it or ship it. Shipping a turntable that’s not a containerized load—it becomes a time issue. You’re looking at a month or a month and a half for it to get there, and you’re

looking at \$300-400,000 (in shipping costs).”

Durocher’s new, portable turntable made getting it across the country much less expensive. “It completely disassembles into pieces small enough to be trucked,” said Breininger. “If you were to truck it, you’re looking at about \$16,000-20,000” a substantial savings over shipping by boat through the Panama Canal.

“The turntable operated on the job as specified,” Breininger said. “We only had two or three days to put it together. Once it was assembled, we had one day to test it, and the next day we were laying cable with it.”



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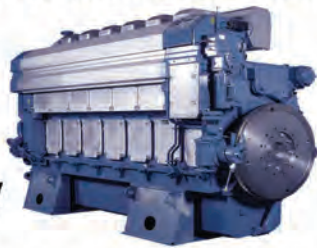
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Rhonda Moniz is an ROV Pilot/Engineer, Diving Safety Officer, and Underwater Cinematographer. She has also worked over the past 20 years, as a lead Science Diver and Diving Instructor. Moniz is founder and Director of Operations for Benthic Exploration, a company specializing in marine technology including ROV, AUV, Side scan, and sub-bottom profiling technology. She has been involved in a number of expeditions around the globe including several as ROV Pilot and Engineer for Dr. Robert Ballard. She has served as the lead science diver and underwater cinematographer for the University of Massachusetts - Marine Science and Technology Campus, and the University of Rhode Island. She has worked as the underwater Director of Photography for the Virginia Institute of Marine Science, Museum of Natural History in New Mexico and has acted as Science Advisor for the underwater-segment for "Evolution" an eight hour PBS series for NOVA. She has also worked on several Discovery Channel productions. She is currently principle investigator for Rescue 57, a project off the coast of Ireland to locate and raise a WWII Halifax Bomber. A documentary and companion book will be included in this project. She has worked as an Open Water SCUBA Instructor and has attained Master Instructor Rating with the Professional Association of Diving Instructors.



See Rhonda's Blog twice each week on www.SeaDiscovery.com

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