VERSABAR VB 10,000 HEAVY LIFT SYSTEM PULLS ITS WEIGHT

VIRTUAL REALITY THE FUTURE OF OPERATOR TRAINING
**IT'S ALL ABOUT THE ROPES**

*BY PETER DEVINE*

**Versabar** is a lift specialist company founded in 1981 in New Orleans, Louisiana. In 2010, the company launched the VB 10,000, an innovative heavy lift vessel with a rated lift capacity of 7,500 tons. The largest salvage vessel ever built in the United States, the VB 10,000 has lifted over 80,000 tons.

The VB 10,000 Heavy Lift System is an anomaly of modern construction. Although designed and engineered using the most common of maritime components – winches, barges, steel pipe, and wire rope – it is the innovative manner in which these components have been assembled that give the vessel its unique character. While the VB 10,000 and its associated lifting components have won numerous engineering and construction awards, it is the simplicity of the concept behind the vessel's design that has made it such an effective and versatile heavy lifter.

In deviating significantly from the template of conventional mono-hulled derrick barges, the advantages of the VB 10000's catamaran-style construction are easy to note: the use of two hulls coupled together with a patented pin system provides enhanced stability; the use of four main hoist winches/blocks instead of one assures level lifting; and at 13,500 deadweight tons (less than half the size of vessels with comparable lift capacity) the vessel's shallow 12.5-foot draft permits the VB 10,000 to work in rivers, bays, and other inland waterways inaccessible to deep-draft vessels.

Yet for all its innovative design characteristics, the real "secret" of VB-10K's efficiency and versatility is the nearly 70,000 feet of wire rope spooled on the 28 winches it employs to get the work done. Each of the vessel's 400-ton main hoist winches carries 7,500 feet of 3 ½" Bridon galvanized steel rope; the four 100-ton winches used to operate the massive jaws of "The Claw," a grappling device, carry 5,000 feet of 2" wire rope apiece; the eight 30-ton tieback winches are each equipped with 400 feet of 1 1/8" rope, while the vessel's four double-drum mooring winches carry 2,000 feet of 2" rope per drum. In addition to the wire rope, each of the system's eight 40-ton barge-handling winches carries 500 feet of Samson-Turbo-75 synthetic line. Along with all of the above, the system carries over 1,000 feet of 2" Amsteel line for use in tying back the Claw and also to make up the vessel's tow harness. That's a lot of rope, and VB 10,000 personnel are skilled at making the most of it.

Known initially for its ability to make single-piece retrievals of sunken topsides, this heavy lift system has, in the years since its launch in 2010, expanded its performance envelope to include installations, decommissionings, jacket removals, jacket tows, and topplings/reefings. But to single out a project which best demonstrates the many uses of the VB-10K's wire rope...
FOR ALL ITS INNOVATIVE DESIGN CHARACTERISTICS, THE REAL “SECRET” OF VB-10K’S EFFICIENCY AND VERSATILITY IS THE NEARLY 70,000 FEET OF WIRE ROPE SPOOLED ON THE 28 WINCHES IT EMPLOYS TO GET THE WORK DONE.

inventory, we can highlight a multi-phase operation which took place earlier this year in the Gulf of Mexico.

Having been issued a contract to decommission a field of four topsides in addition to their jackets, Versabar engineers set to work to determine to optimum methods for performing a total of thirteen VB 10,000 lifts with an aggregate weight of more than 11,000 tons. One of the key drivers in the engineering process was to significantly reduce offshore construction time and personnel exposure by modifying The Claw, Versabar’s subsea lifting tool. This modification enabled the VB 10,000 to lift the structures by their legs below the topside deck level, thus avoiding offshore equipment removal and the cutting of process piping. The subsequent rigging package, which used not only The Claw, but also two purpose-built 175’ box girders each weighing 400 tons, was one of the heaviest ever assembled for an offshore lift.

Before the lift system could get underway from its base in Sabine Pass, Texas, following SOP, Versabar personnel used the eight tieback winches to secure the lift rigging against the motion of the barges and protect the integrity of the system’s 240-foot-tall twin gantries. Once this was done, the lead tug picked up the tow
harness and the system moved down the Port Arthur Ship Channel on its way to the Gulf and the 140-mile transit to the project site. Once on site, the VB 10,000 established position under its own propulsion, the tieback lines were released, and the rigging was made ready for use.

Using its eight 1,000 HP Thrustmaster thrusters, the VB 10,000 maneuvered via its DP-3 Dynamic Positioning System over each platform in succession. Once in position, Versabar personnel began the delicately balanced procedure of positioning the rigging to make the lift. This process involved the simultaneous paying out of the 3 1/2" wire rope on the main hoist winches, and the pulling in of the 2" wire rope on the four 100-ton Claw winches in order to open the claw arms wide and enable them to span the topside and reach the legs beneath the structure. Once the Claw arms were in the proper position, their Claw winches paid out rope until the lifting hooks were secured inside the preset lifting pins on the legs of the topside. At this point, the main hoist winches were engaged and the lift was made.

With the eight-pile topside now suspended some 25 feet above the surface, the system slowly maneuvered away from the jacket. Now it was time for another rope-oriented procedure requiring a high degree of skill and timing. Operating from a raised control stand midships and inboard of each barge, the operators stood above their winches in view of the four Smithberger single sheave, balanced head fairleads. Samson-Turbo-75 synthetic rope was routed around the fairleads and tied off to bits on the transport barge. The winch operators on each side of the system stayed in constant communication with each other to manipulate the transport barge into position. In the interest of safety, it is important to position the barge under the load swiftly and smoothly. Once the load was fully settled on the barge, welders went to work on the sea fastenings, (a process that may take anywhere from 2 to 6 hours), after which the barge was removed by tugs and towed to a Gulf Coast salvage yard.

With each repetition, the VB 10,000 lift team became more skilled in the unorthodox process of lifting and setting of these large decks (averaging 1,500 tons apiece). The last three of the four topsides, with an aggregate weight of 4,534 tons, were all lifted, placed on barges, and towed away in 30 hours, a remarkably short time for an operation of such scope and complexity.

An even more complex operation, however, lay just ahead - the removal of the jackets. On other occasions the procedure for jacket removal had been the same as that of the topsides. Lifting the structures and placing them directly on barges for transport to salvage yards. In this instance, however, the operation was complicated by the fact that the height of the jackets did not allow, even with the VB 10,000's ample 175' hook height, for adequate clearance to position a barge under the load. The result was that after lifting the jackets—a fairly straightforward procedure which involved slipping doubled wire rope slings under hooks welded to the
Known initially for its ability to make single-piece retrievals of sunken topsides, this heavy lift system has, in the years since its launch in 2010, expanded its performance envelope to include installations, decommissionings, jacket removals, jacket tows, and topplings/reefings. Jacket legs – VB 10,000 personnel then secured the load using the 2" Amsteel lines and each 1,800-ton jacket was towed 140 miles back to Sabine Pass. At an average speed of 4 knots, and keeping a careful eye on the load monitors, the 30-hour transits were made without incident.

Once the VB 10,000 was moored at her Sabine berth, the second phase of the jacket removal could begin. From a separate barge, welders began the task of severing 14’ foot piling sections from each of the eight legs in order to allow for a heavily ballasted 260’ by 100’ transport barge to be maneuvered underneath the jacket to receive the load. Once the jacket was eased onto the grillage, welders could then complete the sea fastenings, after which the cumbersome barge/jacket combinations were maneuvered out from under the system and taken in tow for their trips to the salvage yards. Total elapsed time on decommissioning the four topsides and jackets, including time in transit, was about six weeks, which averages out to about 1,800 tons of steel per week, all performed safety while safeguarding the environment and limiting the client’s offshore exposure.

In seven years of operation the VB 10,000 has lifted more than 80,000 tons of steel and performed a range of groundbreaking tasks including, in 2014, the first-ever decommissioning of a spar-mounted topside. And it’s all made possible because the system carries the right ropes, and personnel who know how to optimize them.