



Gorbel® Jib Lifts Oceanographic Institute Out of Deep Water

Industry:

Oceanographic Research

Product:

Testing Autonomous Underwater Vehicles and Remote Operated Vehicles

The Problem:

Using a forklift for a slow, controlled application where weight shifts significantly

The Solution:

Free Standing I-Beam Jib Crane



Gorbel Jib Provides Complete Control of the Objects In or Out of the Water Tank

In a lab that is part Jacques Cousteau and part George Lucas, an east coast oceanographic institute is using advanced technology to open the doors for expanded open sea scientific research.

The centerpiece of the lab is a 50,000 gallon water tank in which the aquatic research facility simulates open sea conditions while experimenting with autonomous underwater vehicles (AUVs) and remote operated vehicles (ROVs). These underwater vehicles conduct a wide variety of tests using lasers, targets and various large obstacles. These targets and obstacles weigh about 500 pounds on average and are typically about 5 feet long and 6 feet high. Perhaps the trickiest aspect of placing the targets in and out of the water tank is that they are hollow and fill with water, creating a dynamic lifting application. They must be lowered in very slowly to control the buoyancy and not cause any damage to the targets or the tank should the tank fill with water and drop suddenly. When they are being removed, the weight shifts significantly as water drains, which can cause unexpected movement of the object.

For the first two years, our floor plan was a little more open,” said the senior research technician. “We were able to bring in a forklift and drop the items in.”

Since then, the lab has expanded and wall partitions have constrained the path that the forklift could travel. “Our supervisors were always nervous about us using a fork lift to put items in because it was coming within two feet of some obstructions. Really, we were already looking for another lifting option because the forklift required two people. You need someone to operate the lift, but someone else needed to be up on the catwalk guiding the load to the right place. If one of us was working late or coming in early, we had to sit and wait for a second person to arrive.”

The first choice for a new lifting method was an overhead bridge crane, however the large water tank made it impossible to use a free-standing crane, and the building's engineers would not sign off on a ceiling mounted crane.

The institute selected a Gorbelt FS300DD freestanding jib crane with a 2-ton capacity, 20-foot span and 16-foot height under boom. The crane was bundled with a radio to control the direct drive powered rotation as well as the chain hoist.

The Gorbelt jib provides complete control to safely move any of the objects in or out of the water tank, and the powered rotation with radio control allows one technician to make changes to an experiment without waiting for a second person to assist with lifts.

"It's helped us to move projects along without the stop and wait we previously experienced," said the senior technician. "With the radio controls, I can load the items and then walk up to the catwalk and watch as I lower the items into the water. It's very easy to do with one person."