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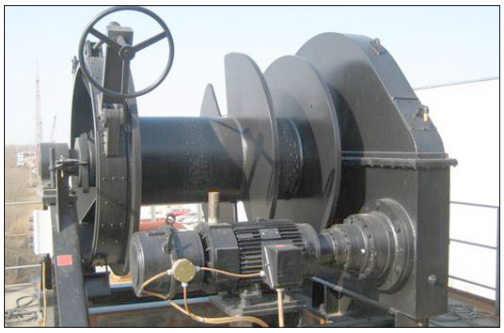
VLT® drives are used on the biggest barge ever built on the Ohio River

As the process of transporting goods continues to evolve, one of the main challenges is reducing the costs and consumption of energy and other resources involved. In many cases, this means constructing ever larger vessels for transporting those goods, allowing the costs to be spread over a larger amount of product.

An aft view of the barge, under construction at Corn Island Shipyards

Whenever this can be accomplished, it results in greater productivity and higher efficiency; moving more with fewer trips saves time, energy and therefore, money.
But building larger vessels comes with its own set of challenges. As ships become larger, for example, they can benefit from more sophisticated controls even on devices and systems that have previously been too simple to need any sort of control capability. Securing a rowboat to a dock is a simple matter of tying off with a rope attached to its bow. But when the ship is a barge weighing millions of pounds and measuring the size of a football field, securing it to land becomes a more rigorous process.
Headquartered in Gulfport, Mississippi, Coastal Marine Equipment, Inc. provides the shipbuilding industry with marine deck machinery. They recently provided the anchor windlasses for a barge being built by Corn Island Shipyards, which is located on the Ohio River in Lamar, Indiana. Anchor windlasses are the machines that take up and let out the line connected to either an anchor or a mooring post when the ship is docked.



Coastal Marine Equipment in Gulfport, Mississippi, manufactures anchor windlasses and other deck machinery for large shipbuilders.

Flexibility and control

The barge being built was destined for the west coast. It now carries heavy molten tar between Seattle and San Francisco. As one might imagine, the amount of weight involved when the barge is full of tar is considerable. The motors and line on the anchor windlasses need to be substantial enough to hold this massive load steady when the barge is docked. But they can also benefit from some flexibility and control.

A smart solution

Coastal Marine wanted to use drives on the windlasses in order to provide this capability. Using drives would allow the motors to operate at multiple speeds, offering greater control and efficiency in mooring procedures. Drives would also provide the capability to hold the ship steady while reacting to and absorbing possible movement of the ship while docked.

Open loop

Coastal Marine approached Southern Industrial Supply, who provided several 45 kW VLT® Series drives, each with a 2-contactor bypass, to operate the anchor windlass motors. These Type 12 rated packages are housed together in a central building located on the deck of the barge.
Of particular interest to Coastal Marine was the capability of the VLT® Series drives to perform this operation in open loop.
That is, the drive is able to provide the control needed to take up and let out line in a controlled manner without receiving any feedback from an external sensor. It accomplishes this by measuring the amount of torque being applied to the motor at any given time.
"It works beautifully," says Mark Scharfenort, Regional Sales Manager. "We demonstrated to Coastal Marine that our drive could do it easily, and that's what enabled us to get the sale."