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**ZPMC manufactures port products and bridges to world markets** By Robert L. Wallack, AJOT

Shanghai Zhenhua Heavy Industries Co. Ltd. (ZPMC) manufactures port equipment in Shanghai, PR China from eight production facilities and delivers the port cranes and container spreaders on its 26 ships. Large steel structures and offshore engineering equipment also comprise the product lines of ZPMC. The most notable is the 45,000 tons of steel structure fabrication for the San Francisco-Oakland Bay Bridge.

Port cranes were the first production line when ZPMC began in 1992. Now, the company is sprawled across 16,475 acres with a 6.2 mile coastline with total sales in 2010 of $2.6 billion. The Changxing base is on Changxing Island across from the Shanghai Pudong International Container Terminal and produced port cranes from the beginning. “Now, it developed into an integrated production base of port cranes, marine products, production plant for large-scale steel bridge and steel structure construction of wind power,” a spokeswoman for ZPMC explained to the American Journal of Transportation in a recent interview.

The crane product line is important to the productivity of ports for cargo handling efficiencies where terminal and yard space is at a premium. ZPMC quayside crane has a shore bridge innovation to increase productivity over traditional ones. The rail mounted gantry crane (RMG) is engineered for piling containers and provides automation to save yard space on the docks, on inland transits and on railway terminals. Another of the 14 different cranes produced is the car dumper for bulk shipments on railway flatcars to reverse or tilt to unload mining material.

Nearby, the Changzhou branch is the production base for the hydraulic and electric devices that extend across the containers at the end of the crane to grasp and move the containers. These devices are the container spreaders and ZPMC cuts high strength steel, welds and tests 500 sets per year of 10 types and 100 varieties. Inspection and testing is rigorous through each sequence of the manufacturing process to the finished product. The twist locks that attach the spreader to the container are stress tested to guarantee their use to over 20 million times.

The containerization of goods for transport is contributing to the increase in business of container spreaders at ZPMC. Containerized goods now include bulks and break bulks such as grain and lumber. ZPMC has spreader business in 45 countries and 180 docks. “There is an increase in demand for spreaders, especially in mainland China, as well as Korea, Brazil and Vietnam. ZPMC spreaders also operate at ports in the United Kingdom, Pakistan, Europe and North America,” said the ZPMC spokeswoman.

Offshore products are another heavy equipment segment of ZPMC. “The largest product line is the heavy equipment product line in Changxing and is where the floating crane is made,” she said. The capacity of the floating crane ranges from 600 tons to 12,000 tons and used for offshore oil drilling as well as search and rescue. Pipe laying vessel, dredger and wind farm installer also comprise the offshore product line of which there are eight different items.

“The fastest growing line is the automated welding in Changxing base,” said the ZPMC spokeswoman. The welding function is critical to ZPMC steel structure fabrication project for the $7.2 billion San Francisco-Oakland Bay Bridge. The bridge construction is the world’s largest single-tower self-anchored suspension steel bridge with earthquake resistance to 8 degrees. “The welding is extremely difficult. Preheating is needed before welding and temperature control after welding. There are difficulties such as how to prevent deformation and weld cracks and are the world’s top difficulties in bridge construction,” said the spokeswoman at ZPMC.

ZPMC delivers the steel structures to the San Francisco-Oakland Bay Bridge site as well as cargo handling machinery to worldwide customers on its fleet of 26 ships. These ships have payload capacity from 60,000 dead weight tons (DWT) to 100,000 DWT and provide shipping service for products made by other companies. For example, “ZPMC provided shipping service for KSL, a Korean company, for shipment of offshore engineering ships, and also for Petro China for shipments of offshore oil drilling platform,” according to ZPMC.

ZPMC conducts tests at their port of origin with their ships and heavy duty cargo so that all products can arrive to the customers’ port safely and on time. Shipments to the United States are divided into East Coast and West Coast. The West Coast port of Oakland is a 25 day journey from Shanghai port and the height of the crane cargo must contend with obstacles such as the Golden Gate Bridge and the Bay Bridge that cause adjustments to the ballast to pass the bridge safely. The East Coast route is further by the Strait of Malacca, then across the Indian Ocean and through the Cape of Good Hope, then the Atlantic and Caribbean or Bermuda to reach the final destination. “One journey had a load of 4 bridges to withstand a storm of 3 days and 3 nights near the Cape of Good Hope,” said the spokeswoman.

In the span of 19 years, ZPMC is recognized as a leading heavy-duty equipment manufacturer. Product lines from port cranes and container spreaders to new market areas such as the steel structure fabrication for the San Francisco-Oakland Bay Bridge position this Shanghai, PR China company to reach new customers worldwide. Indeed, ZPMC transport ships are a big part of on time delivery of all product lines to these customers.