

Argonautics, Inc. Engineers Heavy Lift By Russian Ship



In February 1995, two ship unloaders were safely delivered to the refurbished Guacolda pier in Huasco, Chile. The unloaders were shipped fully erected by Trinav Shipping (Barbados) Ltd., using the Russian heavy lift ship *Stakhanovets Ermolenko*. Argonautics Marine Engineering of Sausalito, Calif., provided all the engineering and supervision required for the safe load-out, seafastening, transportation and offloading of the unloaders.

The two Paceco Corporation-designed luffing type ship unloaders were built by Sade Vigesa at the Verolme yard in Angra dos Reis, Brazil. Each unloader measured approximately 51.5 ft. x 33 ft. (15.7 x 10 m) with a total height of approximately 170.6 ft. (52 m). Total shipping weight was 465 tons.

The transport engineering

started in September 1994. First loading and offloading locations were surveyed. A structural model of the unloaders was prepared for the strength analysis of the unloaders subjected to the inertia loading during transportation.

Various seafastening scenarios were analyzed and the optimum configuration was selected.

The *Stakhanovets Ermolenko* departed on Jan. 9. During the voyage, the maximum experienced roll motion was on the order of 13 degrees in a 15-second roll period, well within the design limits of the seafastenings. Weather was favorable and the transport went smoothly. On Jan. 25, the ship arrived at the anchorage of Huasco, Chile.

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