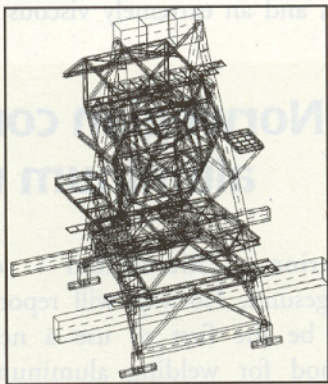


## A calculated lift

A 1,500-t/hr. aluminum ship loader was delivered to the Alunorte pier in Villa do Conde, Brazil. The ship loader was designed and built by Sade Vigesa, and final assembly took place at its Verolme yard in Angra dos Reis, Brazil.

The 300-ton structure was lifted onto the Jumbo-owned heavy lift ship *Stellaprima* (pictured). It was secured to the deck using standard Jumbo lashing slings. Argonautics Marine Engineering was hired by Sade Vigesa to perform the transport engineering. A detailed 3-D finite element model of the ship loader was made in order to check the structure's

behavior during the lifting operations, as well as during the transport, when subjected to the inertia forces resulting from the ship motions. Using in-house software, independent stability and motion response calculations were performed to verify the suitability of *Stellaprima*.



*A 3-D view of the model showing section properties.*

