Decision Making for Compressor Casing Cart Design Aspects

Methods of Containing Casing

The final decision for how to attach the casing to the cart was chosen to be a pedestal with studs. This is the same way that the compressor is attached to the final chassis assembly. The obscure and diverse shapes of the casings make it infeasible to attach at any point other than the feet, and a pedestal is the only way to attach to the feet and allow for bundle insertion.

Adjustment and Locking Mechanism

To limit the complexity of the cart, the final design would use one method to accomplish both adjustment and locking. The need for infinite adjustability caused many methods to drop out. The two primary considerations after that were jack bolts and ball screws. Ball screws could lead to interference with the inlet/outlet flange, therefore jack bolts were selected.

Transportation

Simplicity and mobility were key considerations for the selection of a mode of transportation. With more time to design, powered casters would have been considered in more depth. The power buggy was chosen because it will require the least amount of work by Dresser-Rand to manufacture. In addition, it is known that this method works in the plant because it is used in other plant sections.

Casters with wide wheels and springs were selected for the cart to keep floor damage to a minimum. They will also include a wheel lock and swivel lock to assist with the bundle insertion process.

Materials

The primary construction material is A500 Type C carbon steel. Superior strength, low deflection, easy of cutting and welding, and low relative cost all came into effect with this decision. The yield strength of 50 ksi leads to a high factor of safety with the design.

A plastic material is needed to isolate mobile metal members. Low creep over time was the primary concern of the customer. After speaking with manufacturers and distributors, Ultem 2300 Glass Reinforced was selected as the best material.