Project:

Hot Strip Steel Coil Carrier

Client:

Bridge & Tank Company of Canada
Hamilton, Ontario

Description:

The handling of steel coils represents a considerable cost to the primary steel industry. Coils representing the output from a hot strip mill must be transported to a storage area; moved to another portion of the mill for further processing, or carried from the storage area to a shipping area. This transportation function requires the use of self-propelled vehicles that must pick up, carry and unload these coils, pacing the output of the hot strip mill. The service requirements for these vehicles are extremely rugged and they must be capable of operating seven days per week on a round-the-clock basis.

This project involved the development of a self propelled vehicle for the lifting, transportation and lowering of hot steel coils at a temperature of up to 900ºF specifically for the primary steel industry. Original concepts were required as there was no product available on the market to meet the client's requirements.

The main features of this design involved the following:

- A mandrel capable of entering the eye of the coil or coils
- An articulated joint coupling the two main vehicle frames together
- Hydrostatic drive in combination with hydraulic cylinders to perform the steering and lifting functions
- Consideration of operator visibility, operational safety and ease of handling
- A "fail-safe" steering system with full redundancy
- Development of a control circuit to limit engine torque and horsepower rather than depend upon wheel skid as a protective limit for the drive
- Dual lift cylinder synchronization
- Ease of component replacement

Byrne Engineering Inc. received an Award of Excellence in the Mechanical, Aeronautical and Industrial category under the Canadian Consulting Engineering Awards Program for this project.

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