

United Bulk Terminal - Transfer Magnet Monorail Engineering

Description

Industry: Ports & Terminals | **Service:** Lift Planning & Rigging Engineering, Structural & Mechanical Engineering

Location: United Bulk Terminal, Davant, LA - C1-C2-C6 Transfer Tower

The Challenge

As part of the terminal's expansion to add a parallel C2 conveyor alongside the existing C1, United Bulk Terminal needed magnetic separators installed at the C1-C6 transfer to remove scrap metal from the conveyed material. Each magnetic separator (approximately 23 kips) had to be able to translate away from the transfer point for cleaning and maintenance, and to be lowered into the chute and tilted nearly parallel to the material trajectory for optimal operation. The challenge was to design a monorail and translation system capable of handling these requirements in an extremely headroom-limited space.

The Solution

After multiple design iterations, DSE determined that the optimal solution was a two-trolley system for each magnetic separator: an 8-ton geared trolley and an 8-ton plain trolley, both translating on an S18x54.7 monorail beam. This arrangement allowed the heavy magnets to be moved smoothly along the monorail using low-headroom trolleys - the key to working within the elevation constraints of the structure.

The monorail beams and support structures were engineered for both the transfer-point operating position and the translated maintenance position, accounting for the eccentric loading conditions created by the tilted magnet orientation.

Result

The monorail systems were successfully installed over both conveyors. The magnetic separators can be positioned, lowered, and tilted into the active scrap-removal position, and translated away for cleaning and maintenance - providing the operational flexibility the terminal required while working within the tight headroom available at the structure.

Contact DSE to discuss monorail engineering and structural design for terminal and port applications.

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Date Created

April 20, 2026

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