

THE OPW DIFFERENCE CASE STUDY

DESIGN AND CONQUER: New Look Improves Lube Oil Terminal Operation

For a lube oil terminal, it would appear to be a good problem to have: a bottom-loading bay with positions for eight different products, ensuring a steady stream of transport-truck traffic every day. But for a particular lube oil terminal, located in the Great Lakes region of the United States, the loading bay's cramped quarters and antiquated layout – which was designed in the 1990s – were becoming a hindrance.

“Handling eight different lube oil products for bottom loading is challenging when the norm is three to five positions,” said Bill Burns, Regional Sales Manager for OPW Engineered Systems. “It’s a very congested area and they were having a lot of difficulty with hose crossover and hose failures because of the loading-arm configuration. The setup was a little unconventional as many lube oils are top loaded, but this site was bottom loading with 4" API dry disconnects and had a long overhead elevated gangway that was used to access the top of the trucks so they could vent. This overhead gangway created limited space in which to fit all of the loading arms into one bay.”

With operational efficiency and reliability declining, the terminal's operators contacted Burns and OPW-ES to see if adding additional swivels to the loading-arm system could help alleviate the problems. However, after visiting the site in early 2021 Burns realized a more comprehensive solution was needed.

“We talked about seeing if we could improve and simplify the loading-arm design and still get all those different products to fit,” he explained. “We offered them a design that made it easier for the hoses to crossover and still allowed them to accomplish what they needed to do.”

BEFORE



AFTER



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The fulcrum of the redesigned loading bay, which was completed and put into operation in early 2022, is a series of **LBM800 Liquip Balance Mechanism Bottom-Loading Arms**, which feature a state-of-the-art design that helps ensure operational reliability and increased safety with minimal maintenance. The LBM800's "Velvet Touch" design allows for 360-degree rotation of the arm in the horizontal plane, which makes it easier to move from a parked to a loading position while allowing vehicles on either side of the loading bay to be serviced. Additionally, the arm's vertical swivel plane enables drivers to position the API coupler at different heights within the loading envelope.

Other features of the LBM800 loading arms include:

- Gas-strut design that improves safety
- Easy configuration for left-/right-hand and up/down operation
- Slimline drop-leg bracket for easy installation and compact size
- Heavy-duty adjustment mechanism
- All-flanged design that optimizes installation time
- Carbon steel and aluminum materials of construction
- Low-temp fluorocarbon seals
- Long-reach radius of up to 80" (2,032 mm)
- Working pressures to 145 psi (1,000 kPa)
- Operating temperatures between -20°F and 140°F (-29°C to 60°C)

After only a few weeks in operation, the new loading-bay design and the operation of the LBM800 loading arms were receiving rave reviews.

"All of the drivers are elated and super happy in how much of an improvement it is over what they previously had," said Burns. "This is a case where it was a collaborative effort between us, the end user and their design team, and the result is a major improvement over what they were doing."