

Coupling Safety with Flexibility:

EMCO outfits new facility with quick disconnect couplings and ground-verification system

By Dave Morrow – OPW Engineered Systems



EMCO Chemical Distributors handles different types and large volumes of chemicals. Shown here: B.J. Korman, EMCO's Vice President of Engineering.

When Edward Polen decided to change his careers as a pharmacist and chemical salesman in 1971 so that he could incorporate his own chemical packaging and distribution company, he probably never imagined that he would be cutting the ribbon on a new 300,000-square-foot corporate headquarters and distribution facility in Pleasant Prairie, WI, a few miles north and 42 years after it all began in Polen's garage.

EMCO Chemical Distributors, Inc. has since grown into one of the 10 largest privately-owned distributors, blenders and custom packagers of industrial chemicals, specialty chemicals and fine ingredients in the United States, and the 44th largest in the world, with more than \$300 million in annual sales. The opening of the Pleasant Prairie facility was the culmination of a three-year design, engineering and construction process.

A comfortable connection

Working with a vacant facility was an advantage for EMCO's design team that was headed by B.J. Korman, Vice President of Engineering, Stuart Levy, Vice President, Maintenance, and Mark Serdar, Facilities Maintenance Manager. The empty building was like a blank canvas on which they could imprint their hopes and dreams for the facility. The result is a state-of-the-art operation that features 10 miles of stainless-steel pipe, 64,000 miles of wire, more than one million gallons of liquid-storage space, upwards of 70 dedicated storage tanks, a 25-car railway siding, and side-by-side transport-truck and rail-car loading/unloading docks.

EMCO decided that it would build its own hoses that would be used for loading and unloading at the docks, and color code them so that the proper hose would always be used to handle the appropriate chemical.

"We make our own hoses, mainly because of the optimized turnaround time. We make them 'right now' and get them

out to the guys that need them," said Serdar. "We make it any length we need and if the ends get wrecked, we just cut a foot off and put a new end on."

A crucial component of the hose is the coupling at each end that is used to connect the hose to a truck or railcar and the loading/unloading rack. These couplings cannot leak and must be easy for the operator to handle, with no wasted time. For this task, EMCO chose Autolok™ and Kamlok® Quick Disconnects from OPW Engineered Systems in Lebanon, OH. The Autoloks feature OPW's patented Twin-Kam™ feature, designed to hold the adaptor more securely for increased protection against an accidental release.

"The Autoloks and Kamloks are great, they keep the guys from accidentally popping the coupling on the hose," said Serdar. "It's also a very simple end to disconnect and reconnect with gloves on, so the simplicity of working that connection is important to the guys. We must have around 500 Autoloks and Kamloks in use. We do all of the pressure

How Do Quick Disconnects Work?

Chemical-handling operations are only optimized when two critical operational parameters are successfully met: complete product containment and efficient time management.

An example of Quick Disconnect Coupling technology is the Kamlok® from OPW Engineered Systems. It features the Twin-Kam™ arm design to help prevent accidental releases and Spring-Ring™ to ensure proper position of finger rings for ease of operation.

Here's how it works:

- Couple in any position
- Cam arms lock the coupler and adaptor together

This method of operation can help to prevent accidental product spills, and makes it easy to operate; connections and disconnects are accomplished by simply closing and opening the two cam arms that lock into the mechanical groove around the circumference of the mating adaptor.



OPW Autolok® Quick Disconnect Coupling

Quick Disconnect Couplings have also been designed to engage and disengage in the quickest (and safest) manner possible.



testing and each hose gets an ID tag so we can track that hose, and the Autoloks and Kamloks make the certification process that much easier.”



By some estimates, there are currently more than 500 Autolok™ and Kamlok® Quick Disconnect Couplings in use at EMCO's new distribution and packaging facility.

Making up ground

Helping EMCO to deliver the highest level of operator safety at the loading/unloading docks is a Model 8030 Ground Verification Monitor system from Civacon, Kansas City, MO. The 8030 ground system has been designed to visually confirm a ground connection between the truck or railcar and the loading terminal. If no ground connection is verified, the loading or unloading process cannot begin.

“The reason we chose the 8030 is that it gives a visual indication that something is grounded,” said Korman. “At EMCO, safety is of the utmost importance and that is one of the reasons why we chose the 8030 grounding package. Not only do you get a good visual of what’s going on, whether the vehicle is grounded, but we also tied it into our Programmable Logic Controller (PLC) so that a pump won’t start unless there’s a ground, and if it loses ground during a pumping operation, that pump will automatically turn off.”



Raw materials and finished chemical blends are transported and stored in the expansive warehousing area of EMCO's new facility in Pleasant Prairie, WI.

How Do Ground-Verification Systems Work?

In the world of chemical handling and transfer, “staying grounded” can have life-or-death consequences. Many of the chemicals that are shipped, pumped, transferred, loaded and unloaded can be hazardous, meaning that they must be properly contained and handled in the safest manner possible.

When chemicals are loaded into or unloaded from tank trucks and railcars, operators must take care that no electrical charges or sparks are produced, which could potentially ignite flammable materials. The best way to do this is to install a ground-verification system at the loading/unloading dock. The Model 8030 Ground Verification Monitor system from Civacon has been designed to provide visual verification that confirms a ground connection exists between the transport vehicle and the loading/unloading terminal.



Civacon Model 8030 Ground Verification Monitor System

Specifically, the ground-verification monitor is equipped with green and red LED lights. When a proper ground signal is detected, the green LED will light and a permissive signal will allow the loading rack to be operational. If a ground is not detected, or if it is lost, the red LED will light, indicating a non-permissive state that will shut down the loading operation.



EMCO's side-by-side tank-truck and railcar loading/unloading dock features numerous loading racks that are dedicated to specific products or raw materials.

ABOUT THE AUTHOR

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