

Coupling safety with flexibility

EMCO Chemical Distributors fitted its new packaging and distribution facility with OPW hose couplings and Civacon ground-verification systems

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 in suburban Chicago, IL, he probably never envisioned that his E-M Co would experience days like 6 August 2013.

That's when Polen cut the ribbon on a new 300,000 sq ft corporate headquarters and distribution facility in Pleasant Prairie, Wisconsin, USA, a few miles north and 42 years after it all began in Polen's garage.

"We are thrilled to be expanding our company by opening this new facility in Pleasant Prairie," Polen told the audience at the dedication event, which included Wisconsin Governor Scott Walker. "Although we have been doing business in Wisconsin since 1971, we are excited to have a physical presence with the opening of our state-of-the-art manufacturing/distribution facility and corporate headquarter. This expansion allows great opportunity for EMCO to grow."

Thanks to Polen's 40-plus years of determination and vision, EMCO Chemical Distributors, Inc, the name that replaced E-M Co in 1985, has 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 US\$300 million in annual sales.

The opening of the Pleasant Prairie facility was the culmination of a three-year design, engineering and construction process that was

initiated with the purchase of a vacant facility that had previously been used as a resin and ink plant for the printing industry.

Comfortable connection

Working with a vacant facility was an advantage for EMCO's design team that was headed by BJ Korman, vice president of engineering, Stuart Levy, VP maintenance, and Mark Serdar, facilities maintenance manager. The empty building was like a blank canvas on which they could imprint their ambitions 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 railcar loading/unloading docks.

However, a project of this scope can only be successful if exacting attention is paid to even the smallest of details. That's one of the main reasons why EMCO decided that it would build its own hoses that would be used for loading and unloading at the docks, and colour 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 optimised 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."



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.

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, based in Lebanon, Ohio. The Autoloks feature OPW's patented Twin-Kam feature that holds the adaptor more securely for increased protection against an accidental release. Kamloks are known for their ease of use and reliably safe operation.

"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 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."



With the different types and large volumes of chemicals that the new EMCO facility handles, VP Engineering BJ Korman needs dry and quick disconnect couplings that are both highly reliable and easy to operate



Autolok Quick Disconnect Couplings play an integral role in ensuring the safe and reliable transfer of hazardous chemicals at EMCO's new distribution facility

How do quick disconnects work?

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

An example of the quick disconnect coupling technology available today is the Kamlok from OPW Engineered Systems. The Kamlok 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 not only prevents accidental product spills, but makes it easy to operate as the 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.

The Autolok Quick Disconnect Coupling uses a self-locking Twin-Kam system to hold the adaptor more securely for increased protection against an accidental product release.



OPW Autolok Quick Disconnect Couplings

Making up ground

Helping deliver the highest level of operator safety at the loading/unloading docks is a Model 8030 Ground Verification Monitor system from Civacon, Kansas City, Missouri. 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 will not be allowed to 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."

The recommendation that EMCO use the OPW disconnects and Civacon grounding package came from Joe Cervantes, pump sales engineer for EMCO's long-time equipment supplier, Anderson Pump & Process, Brookfield, WI.

"They were looking for the best type of coupling and ground-verification equipment and asked what we recommended, and we were quick to recommend OPW and Civacon," said Cervantes.

It's often the little things that result in greater success and EMCO Chemical Distributors has helped ensure the viability of its new facility by choosing top-of-the-line equipment and components, all the way down to the hose couplings and loading-dock ground-verification equipment. After just eight months, EMCO's new facility is reaping the benefits from incorporating Autolok and Kamlok couplings and Civacon ground-verification systems in its operation.

"The moral of the story is that if you team up with the right people and design systems per the requirements, you're going to get a great result, and in our situation it has exceeded our requirements," said Korman. "The reliability and service of OPW and Civacon have made them a partner forever."

This article was written by Dave Morrow, product manager for OPW Engineered Systems, part of Dover Corporation's OPW division www.opw-es.com



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



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

How do ground-verification systems work?

In 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 not only be properly contained, but also 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.

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 the operation.

Civacon Model 8030 Ground Verification Monitor System

