



Processing

SOLUTIONS FOR THE PROCESS INDUSTRIES

Plant Maintenance & Safety

Alleviate Headaches Caused by Faulty Steam Traps

Implementing an effective steam trap management program using TLV's TrapMan® and TrapManager® technology for condition testing and reporting can help identify faulty steam traps to relieve the headaches caused by leaking energy and the resulting backpressure which can hurt a plant's production performance. The TrapMan® makes an accurate, automatic diagnosis of steam trap operating condition, and the powerful TrapManager® database software allows for detailed analysis and reporting. **For more information on plant maintenance & safety, turn to page 16.**

TLV
www.TLV.com
 Write In 500



Featured Article

Valve development meets needs of harsh ethylene production

As the petrochemical industry faces increasing challenges, ever-enhanced efficiency fuels the next generation of olefin production. Valves must address the specific conditions of the changing environment. Valve users require solutions that are safe, reliable and engineered to meet global demands. **Read more on page 6.**

Pneumatic Conveying System

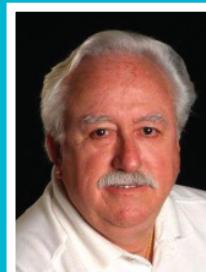
Hapman pneumatic conveyors are engineered to move high-volume bulk ingredients in a short period of time without the need for plant air. Featuring an integral regenerative blower or PD pump to generate the necessary vacuum, Hapman's vacuum conveyor allows a single operator to move material from unload or storage into the process quickly and effectively. The Hapman vacuum series has a unique latched side door for easy access to the internal filters. This latched panel allows for fast filter inspection and changes with no tools. **For more on conveying, turn to page 24.**

Hapman
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Featured Columnist



The rack-and-pinion pneumatic actuator, a perennial workhorse for quarter-turn valve automation, has grown up over the past 25 years. As is well known, an actuator is a type of motor that is responsible for moving or controlling a mechanism or systems. It is operated by an energy source, typically electric current, hydraulic fluid pressure or pneumatic pressure, and converts that energy into motion. A pneumatic actuator converts energy formed by vacuum or compressed air at high pressure into either linear or rotary motion. **Read valve expert Bob Donnelly's column on page 34.**

Roller Gate Valve

The Mucon RGV Roller Gate Valve is designed to meet the needs of the bulk materials handling industry for a robust, heavy-duty isolation valve. Its patented blade support system provides uninterrupted flow of material through the valve body, but can still accommodate an inlet deflector if required by the application. Pre-loaded, self-wear compensating seals prevent the loss of process material and are replaceable without removing the valve from the process line. The Mucon RGV Roller Gate Valve is available in a range of standard sizes from 150mm (6") to 600mm (24") square.

For more on valves & actuators, turn to page 36.



Cone Central Shaft Dryer



The Condry cone central shaft dryer technology is a more efficient and more cost effective drying method compared to other types of vacuum drying technologies. This is accomplished by the engineered design of the Condry, which provides the largest "static" heated surface area (vessel walls) and the largest "dynamic" heated surface area (heated agitator). Most of the heat transfer in dryers is done by the heated agitator, so agitator surface area is of the upmost importance. The Condry conical bottom agitated vacuum dryer has been developed to process a wide variety of products. **For more on dryers & evaporators, turn to page 46.**

Heinkel USA
www.heinkelusa.com
 Write In 503

Incremental innovation in couplings increases safety

Locking quick connects suitable for high-temperature, high-pressure liquid-transfer applications

By David Gibble

Whether at home, on the job or out and about, there is inherent risk in life. Simply crossing a busy street carries risk.

Traffic signals moderate congestion and our traffic laws mitigate risk for drivers, passengers and pedestrians. The knowledge and experience of those walking or riding is the greatest possible hedge against risk.

But when we do the same tasks day after day without adverse effect, complacency can creep in. Thousands of cars pass through a busy downtown Chicago intersection every day. A similar number of people walk across that street every day. It only takes one misstep, though, to lead to catastrophe — e.g., a driver distracted or pedestrian not seeing a "don't walk" sign.

The same analogy holds true for the industrial workplace. Take as an example the refineries, plants, facilities or terminals that handle, store, transfer and transport thousands of gallons of critical, potentially dangerous or hazardous petroleum or industrial-chemical products.

Hazardous liquids are often transferred at high temperatures and pressures. The combination raises the safety stakes for owner/operators. For example, if just one time a distracted employee, who has participated in a loading or



Hazardous liquids are often transferred at high temperatures and pressures.

unloading operation hundreds of times, doesn't recognize a line is pressurized and opens it, bad things can happen.

Employees handle products safely based on good training and oftentimes decades of experience. Equipment suppliers take great pains and spend many hours and research dollars to design, engineer and develop equipment,

including loading systems, hoses and couplers, for safe operations.

But all it takes is that one time...

In this regard, a recently introduced disconnect coupling is impossible to disengage — whether intentionally or by accident — when used in fluid transfers that are under high-temperature or high-pressure.

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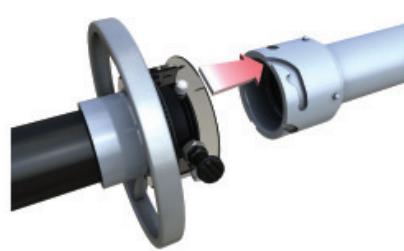
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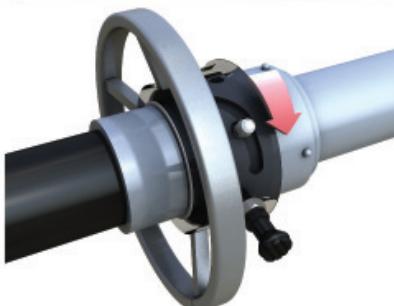
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Connecting with a "twist"

Its developers say the patented Twister Locking Quick Disconnect (LQC) from OPW Engineered Systems represents the next generation of quick couplings for use in handling critical or hazardous fluids in extreme pressure or temperature conditions. It is used in place of conventional cam-and-groove and in conjunction with transfer systems that use either hoses or loading arms.

Innovation is found in the Twister design, not only in how it connects, but also how it stays connected. A fail-safe connection is achieved through four simple actions:

- Align the hose or loading arm with the Twister LQC.
- A one-quarter turn of the Twister engages it with the hose/loading arm.
- The pressure or vacuum within the hose/loading arm energizes the seal.

- The pressure locks the Twister to the hose/loading arm and prevents uncoupling if the pressure is 5 psi or higher.

The Twister LQC can only be uncoupled when all line pressure is removed. Simply rotate the Twister one-quarter turn until the nipple disengages from the adaptor's hook-shaped design. Disengagement is also achieved without the need of special tools

or equipment, which results in time- and cost-savings benefits for the operator.

The Twister LQC is available in a variety of construction materials, including stainless-steel, cold-temperature carbon steel and aluminum that enable its use in numerous severe-duty applications. It is available in six sizes — from 3/4" to 6" — all rated for use at pressure ratings equivalent to ANSI 150/300.



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Back story

A petroleum refinery or chemical-processing facility is a beehive of activity. Trucks constantly arrive for delivery loads. Dozens of railcars filled with raw product arrive for unloading. Newly refined products are transferred to storage tanks. Crisscrossing the landscape is a piping network for product transfers and deliveries. Loading-arm systems or hoses facilitate transfers.

Industry, over the years, when handling critical or hazardous fluids, has learned the details of safety and today's equipment addresses these needs. Most commonly, a quick or dry disconnect coupling is what joins the hose or loading arm to the delivery or storage vessel. Quick and dry-disconnect technology delivers product containment and safety at thousands of installations.

Still, there is always room for improvement.

In fact, the situation is much like that with gasoline fueling nozzles, where small tweaks to basic designs that have remained unchanged over decades now incorporate features such as breakaway valves or automatic-shutoff devices.

While knowing the vast majority of hazardous-product handling or transfer operations are performed flawlessly, one brand, Hiltap Fittings, part of OPW, a Dover company, developed a discon-

nect coupling that, as previously mentioned, is impossible to disengage when transferring liquids under high temperature and pressure.

A quick walk-through

The "Locking Quick Connect," or LQC, technology (see sidebar) is similar to that of a car radiator. When the LQC is attached to a loading arm or hose the locking mechanism cannot be disengaged until line pressure is below 5 pounds per square inch (psi), much like a radiator cap cannot be removed when a vehicle cooling system is under pressure.

LQC technology is appropriate for use in applications that include tank-truck and railcar loading and unloading, maritime vessel loading and unloading, terminal-storage connections and in-plant processing. LQCs are also versatile enough to handle any number of fluids, including oil, LPG, acids, lubricants, ammonia, oilfield fracking chemicals, metal alkyls and in-steam processes.

LQC benefits also extend well beyond furnishing the highest safety levels for site personnel and the environment. For instance, it prevents high-value fluids from leaking. Volatile organic compounds (VOCs) are not allowed to enter the atmosphere. Accident or incident reduction

helps lower insurance premiums and administrative costs. And easy and quick connection reduces downtime.

Final words

Only the insane cross the street hoping to get hit by a car or arrive at work knowing a release of hazardous materials will occur. Still, accidents will happen. In the realm of dangerous-liquid handling, which has benefited from the accumulation of technical improvements, the chances of an accident occurring are again lessened with the availability of Locking Quick Connect technology.

David Gibble is Product Manager, Chemical & Industrial Business Unit for OPW Engineered Systems, part of Dover Corporation's OPW division. He can be reached at (800) 547-9393 or David.Gibble@opwglobal.com.

OPW is a leader in integrated fluid-handling, management, monitoring and control solutions for the safe and efficient handling of critical petroleum-derived fluids from the refinery to the commercial and retail points of consumption.

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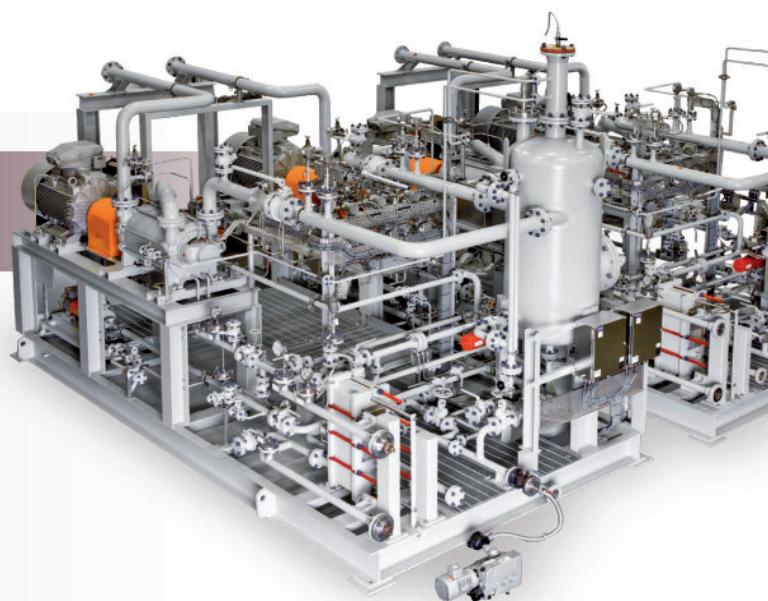
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