Safety Pays

Safety Can Save You Money

Don't be afraid of sealless options for your facility. They can protect your employees, the environment, and your bottom line.

Emissions and spillage in chemical transfer operations cost companies millions of dollars annually in lost man-hours, lost process yields, and ultimately, lost revenues. Both pumps and hose couplings are prime culprits, but the technology exists to minimize leaks and promote plant safety.

What are your emissions?

Average emission rate of a mechanical seal ranges from 0.13 gpm to 0.35 gpm. While at first glance that rate seems insignificant, the actual atmospheric penetration is very large, considering that large chemical plants have thousands of pumps in operation. For 2002, US industries reported fugitive air emissions of 68,900 tons of toxic materials into the atmosphere, in part attributable to pump leakage. The prime culprit for pumps is the mechanical seal around the pump shaft.

Many Sealless Pump Options

Whether magnetic drive or canned motor, all sealless pumps are hermetically sealed. Therefore, a mechanical seal is not required around the pump shaft.

Both centrifugal and positive displacement pumps are available in sealless designs.

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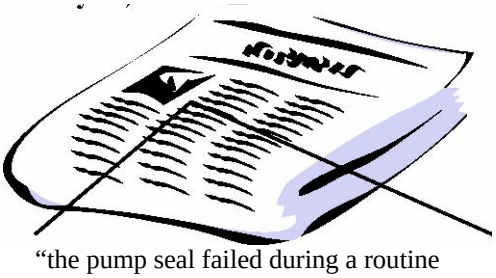

"the pump seal failed during a routine unloading of toluene...there was about 53,000 pounds of toluene in the tank at the time. About 14,000 pounds of the chemical was believed to have been released, burned or vaporized...it is not clear what caused the liquid toluene from the pump seal to ignite…"

Sealless centrifugal pumps are either magnetic drive or canned motor pump. Rotary positive displacement pumps such as gear and lobe pumps are typically mag drive. Due to their internal design, diaphragm pumps are also sealless. All these pumps offer you alternatives to using a pump with a mechanical seal.

Safety Built Right In

Sealless pumps offer an inherent level of safety , protecting your employees and the environment from product exposure. For both magnetic drive and canned motor pumps, the liquid is sealed off from atmosphere by way of hermetically sealed containment shells or can. These replace the mechanical seal and are non-wear parts. In the case of the diaphragm pump, the mechanical seal is replaced by the diaphragm itself.

"These products reduce maintenance, lost days due to accidents, and emissions that cost in lost product and environmental damage."

Here the hydraulically, mechanically, or air operated diaphragm that is used to move the liquid creates the barrier. These pumps can also offer dual protection by way of using a double diaphragm design.

Monitoring systems are also available for most sealless pumps. Bearing wear monitors, dry-run protectors, and leak detection systems are available to allow for predictive maintenance and remote sensor control of the system.

A Side Benefit

Sealless pumps offer reduced maintenance cost by eliminating the required (hopefully scheduled) mechanical seal repair or replacement. Long bearing life ensures that these pumps can run maintenance-free for many years.

Other System Leak Points

In many applications, product is shipped in or out of the facility via tote, train or truck, requiring a fluid transfer. If it is not hard piped from point A to point B, then there is some type of coupling connection. Technology has caught up in this area as well. Dry-disconnect couplings are available that allow you to connect and disconnect with spillages of less than 0.7 ml to 0.2 ml with VOC emissions from less than 25 ppm to a level undetectable.

These couplings remove the need for costly installation, maintenance of abatement equipment and personal protective gear. They eliminate chemical waste incineration and disposal cost, reduce liability exposure, lost time and worker comp claims, and help maintain compliance with the Clean Air Act Amendment's Hazardous Organic NESHAPP** (HON) emission requirement for virtually all solvents.

Conclusion

What price can you put on safety? All these products create a safer, cleaner, more reliable and cost effective environment to produce your products. In an era where facilities are already short-handed, these products reduce maintenance, lost days due to accidents, and emissions that cost in lost product and environmental damage. All it takes is a little investment of time to see where you can upgrade your system to a cleaner, more reliable, and safer system.

For more information

To learn more about how your facility can benefit from sealless pumps or dry-disconnect couplings, just call 215-364-3400

** National Emission Standards for Hazardous Air Pollutants

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