

Improving fluid-transfer connections

The ongoing surge in oil and natural gas production in the US has not only led to record levels of production and supply, but also had a positive effect in many other areas. One group involved in the oil and gas industry that has specifically benefitted from the increase in production are oilfield equipment manufacturers. It goes to reason that an increase in the amount of production and the number of drilling sites – whether conventional or unconventional – will result in increased demand for oilfield equipment.

In fact, a report released by the research group MarketsAndMarkets.com states that demand within the oilfield equipment rental market will reach a global value of \$46.8 billion (€35.5 billion) by 2018. Driving this growth over the next five years will be North America, with its continuing focus on unconventional shale plays and the overall growth of the domestic oil and gas market.

Just as increased oilfield activity means growing demand for equipment, increased production means a higher amount of crude oil, natural gas and other petroleum and chemicals that must be handled safely, for both oilfield personnel and storage terminal operators. This means the need for flow-control equipment that can adequately and reliably prevent any leaks or spills when handling, storing, transferring or transporting petroleum products.

Staying high and dry

Throughout all stages of oil and gas supply change, operators are taking special precautions to prevent unnecessary contamination of the environment, while helping to ensure the safety of their employees.

Whereas quick-disconnect technology has traditionally been the coupling style of choice, today dry-disconnect couplers have become a front-of-mind technology option where safeguarding people and the environment are paramount concerns. The effectiveness of dry-disconnect technology dovetails nicely with the wishes of operators, who are placing a heightened emphasis on reducing liquid discharge at hose connection points.

Dry-disconnect couplings have been designed and tested to be an automatic, highly reliable mechanism that seals off both the



The Kamvalok dry disconnect coupler

hose and the fixed pipe end when the hose is disconnected. These couplings can be used in any liquid-transfer application where loss of fluid upon disconnection cannot be tolerated because of environmental regulations, worker

safety considerations, the high value of the fluid or where cleanliness is a concern.

Although dry-disconnect products are not necessarily newcomers to the connection business, the demand for these products has



The Drylok dry disconnect coupler

continued to rise sharply as environmental consciousness and compliance have become more prevalent. Additionally, the engineering, design and materials of construction found in dry disconnects have become more and more advanced, offering the optimum connect/disconnect solution at a reasonable price point.

Recognising the desires and demands of operators for an increased level of liquid containment throughout the supply chain, OPW Engineered Systems offers several types of dry disconnects, each offering unique benefits depending on the type of liquids being handled or the level of protection required, most notably:

- 'Kamvalok' dry disconnect couplers use a unique poppet-action design that provides a solution to prevent spillage during connection or disconnection. Connections and disconnections are accomplished by simply closing and opening two cam arms, which lock into the machined groove around the circumference of the mating adaptor.

This design enhances flow while simultaneously reducing the risk of unacceptable product loss. A foolproof safety interlock prevents accidental opening, and a sealing arrangement results in a drip-free dry disconnect. Kamvaloks are also designed to automatically shut off in the event of accidental disconnection.

- 'Drylok' dry disconnect couplers are the industry's driest disconnect technology, as the coupler's flat face helps allow as low as 1cc of fluid loss from a 3" unit. An interlocking handle prevents uncoupling while the valve is open. Drylocks are also ideal for high-pressure line applications because they can be opened and closed against 150-psi maximum head pressure. Their 360° orientation ensures proper seating and alignment, and with no clamps, clips, loops or tabs, the potential for human error is vastly reduced.

Conclusion

With the rapid production growth in the oil and natural gas industry comes a corresponding growth in risk for both personnel and the environment. One primary area of risk is the increased chance of leaks or spills of raw materials or finished products during their handling, transfer or transport. One way to effectively minimise this risk is to pair advanced dry-disconnect couplers with all transfer hoses and fittings. Using dry-disconnect couplers will not only minimise the risk associated with hazardous-liquid transfer, but ensure that high-value commodities are not lost to costly leak or spill incidents. ♦

For more information:

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Why are dry disconnects better than quick disconnects?

Various styles of couplers and hose/pipe fittings are used throughout the supply chain every day. However, the chance for a leak increases if using quick-disconnect technology versus a dry-disconnect coupler.

The basic quick-disconnect technology is not always able to offer total product containment, which is a major concern for site personnel and the environment when handling hazardous liquids. Traditional quick disconnects can also be hard to handle, with connections oftentimes difficult to complete and hard to verify.

The goal of any dry-disconnect technology, such as the OPW Drylok dry disconnect coupler, is to optimise environmental protection, while allowing operators to perform safer, cleaner and faster connections and disconnections throughout the supply chain. OPW Drylok couplers are designed to be easy to use and are operated in the following manner:

1. Push coupler onto adaptor by first engaging lower jaw of coupler under lip of adaptor and tilting the coupler upward to engage top jaw (Fig. 1).
2. Turn handle counter-clockwise until lock engages. Coupler and adaptor are locked together but valve is closed (Fig. 2).
3. Press down button on coupler and turn handle counter-clockwise until it locks. Valve is now open and product will flow (Fig. 3).
4. To disconnect – press button on coupler and rotate handle clockwise until it locks. Valve is now closed.
5. Press button on coupler down and turn handle clockwise to the 'in-line' position. Press tab on opposite side of coupler to release the upper jaw and move coupler away (Fig.4).

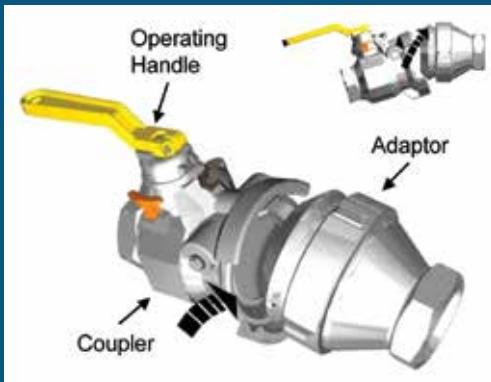


Figure 1



Figure 2

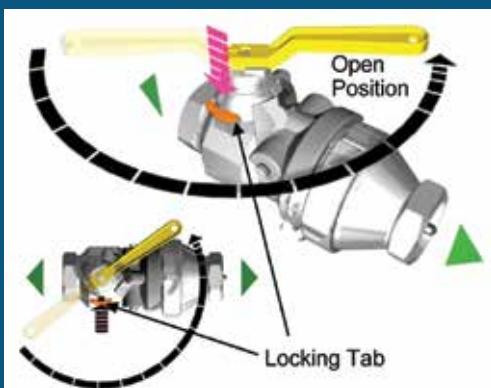


Figure 3

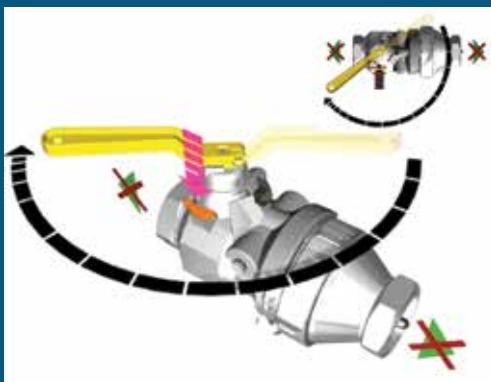


Figure 4