

Valves & Actuators

As seen in
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A New Twist on Ball Valve Innovation – Robert M. Donnelly

Designs of plastic lined ball valves haven't changed much over the last twenty years. There are still many reduced port valves with high pressure drops, conventional stuffing boxes with packing glands that require perpetual maintenance and non conforming ISO mounting flanges, which makes direct mounting of actuators and accessories impossible.

In addition, popular two-piece ball and stem designs lead to hysteresis and accounts for most failures, especially in high-temperature applications. Vibrations and pipe stresses also impact the performance of ball valves. However, all of these problems have been eliminated in a new design of lined ball valves.

Swissfluid has created a totally new innovative ball valve concept with new protective plastic linings made of high strength carbon steel WCB with epoxy-coating and stainless steel CF8-M for corrosive environments and/or high purity applications. Investment castings offer close tolerances and smooth outer surfaces, while inside wetted surfaces are

protected with thick linings made of Teflon PFA, PFA-AS or Tefzel ETFE.

Teflon PFA features the most universal chemical inertness at temperatures from -60°C to 220°C, while Tefzel ETFE provides good chemical resistance, low permeation rates and excellent abrasion resistance. All linings are transfer-molded and have mechanical locking devices to reduce cold-flow and improve temperature/vacuum resistance.

At a Chlor-Alkaly manufacturer where PFA-lined ball valves historically had only a 6 to 8 week life span due to high temperatures and an abrasive service with increased torques, **Swissfluids** high-performance ball valves were installed which resulted in eliminating the problem altogether.

In the same service with one and two inch 150-pound valves at 90 to 120 psi with 365°F (185°C) temperatures and hydrochloric acid, the ball valves have been in service now for over three years. The estimated savings on eight valves so far is

about \$124,000, not considering the reduction of shut down costs.

The unique virtually pocket-free one-piece ball and shaft, metal to metal joint and live-loaded stem-seal arrangement (all in combination) design has drastically improved the performance life of the valves. This manufacturer now has over 3,000 plastic lined valves in service.

On the ball valve design, the ISO mounting flange and neck have been extended to gain more space for multiple shaft seal designs and to avoid interference of direct mounted actuators with pipe flanges. To allow for direct mounting, packing glands have been replaced by live-loaded, integrated stem-seals which meet TA-luft requirements.

For More Information contact:

AMERICAN
STAINLESS & SUPPLY

Distributor of Swissfluid Valves
www.AmericanStainless.com
(800) 845-5511



SWISSfluid

Plastic lined valves for Corrosive Applications

- Made of carbon steel and/or stainless steel
- Protective linings PFA/PTFE/ETFE/PVDF/PP/UHMWPE, ...
- Exotic alloys Hastelloy/Titanium/Monel, ...
- Life loaded stem-seals, TA-Luft approved
- Sizes ½" thru 42" – ANSI150lbs
- Temperatures -40°F - +450°F



American Stainless & Supply, LLC

815 State Road

Cheraw SC 29520

(800) 845-5511