

Ask the Expert



The *Ask The Expert* column will give readers the opportunity to have their valve concerns addressed, find out the answers to their pressing valve challenges and ask for feedback on application issues. If you have a questions that you need answered, please feel free to contact s.bradley@kci-world.com with the email subject: Ask The Expert. If you are an individual with extensive valve expertise that you believe the Valve World readership could benefit from, please contact our Editor-in-Chief to become a future featured Expert.

This month our Experts are Rodney Roth, Strategic Account Manager/Stationary Equipment – A.W. Chesterton & Vance St. Jean: Senior Specialist/Stationary Equipment – A.W. Chesterton.

Q How does the use of live loading (Belleville Washers) Gland Flange Studs add value and longevity to packing sets?

A Live loading has been used on packing glands since the late 1970's. The first usage with major success was on main steam isolation valves in nuclear facilities. This success saved the nuclear industry millions in downtime and the technology of Live Loading was launched. Valve live loading provides consistent gland load to the packing set while maintaining the load over a sustained period of time. Additionally, it is common for live loading to increase gland flange stud travel by 15-20 times the travel of standard gland flange bolts. Also, the more consistent the gland load is to the packing set, the longer it will perform as required.

Q What applications benefit the most from live loading?

A In a typical refinery or petrochemical facility, 15-20% of the applications are candidates for live loading. Valves subjected to high cycling are the most common to have live loading recommended. Control valves, Motor operated valves, and some quarter turn valves fit into this category. This explains why many OEMs now offer live loading as a standard feature (all major control valve OEM's have their own design). In addition, high temperature and high pressure applications are also frequently live loaded. For the purpose of this discussion, we will define that as 600# class and 500F or higher. The primary reason live loading works well in these applications is because these conditions increase consolidation of the packing set. As packing set consolidation increases, leakage increases as well. The gland live loading maintains the required packing stress and thereby improves long term performance.

Q How does Live Loading improve your Valve Sealing Performance?

A It has been proven over the last four decades that valve live loading enhances valve sealing performance and reduces maintenance activities required. We can now provide turnaround to turnaround reliability on critical path applications such as hydrogen MOV's, high pressure ethylene services and 1500# and 2500# steam applications. By stopping packing set leakage, you also reduce leak path damage in the stuffing box which ultimately leads to reduced repair costs. When considering the use of live loaded packing, there are many packing designs and material options to choose from, so success truly depends on making correct and accurate material choices.

Q How can Live Loading be used as part of your Low Emission/Consent Decree Compliance?

A If your site is operating under a Consent Decree, live loading can provide a critical benefit to your success. You can select applications in operating units where fugitive emissions have been a long term chronic issue. This can also be addressed through you piping codes by determining where live loading can provide the best results by pressure class, temperature, or process stream. Valve live loading can be a tremendous asset to any site when used in a logical and cost effective manner.



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