

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 & Foster Voelker, Project Manager – Stationary Equipment – A.W. Chesterton.



Q What gasket designs are most commonly found in the commodity valve market?

The common gasket designs used in the commodity valve market are Corrugated Metal with Graphite Cover, Spiral Wound, RTJ (ring joint type) and Pressure Seal. In addition to these common gasket types, Camprofile, PTFE, Graphite and RPTFE gaskets may be found as well.

A Gasket designs vary by pressure class with some pressure classes having more than one gasket design used. The typical design for 150# class valves is a corrugated metal with graphite as the sealing element. Spiral wound gaskets are typically used in 300# class valves. Spiral wounds and RTJ gaskets can be found in 600# class, while RTJ and Pressure Seals can be found in 900# class and higher.

Q How do the different gasket designs vary in terms of performance?

A Performance can be very similar with the various types of gaskets used when we are thinking of general leakage control. However, there are other things to be considered as important when discussing the overall performance of a bonnet gasket. For example, there designs used that require a gasket capable of sealing with lower bolts loads, thus the reason for using corrugated metal and camprofile style gaskets. On the other hand, if you are dealing with higher process pressure, RTJ and Pressure Seal gaskets become the products of choice. Additionally, there is also the need to comply with API 624 (50 ppm leakage level) bonnet containment requirements and the proper gasket combined with proper installation practices will insure the required performance.

Q What are the common materials of construction for the various gasket types?

A Corrugated gaskets can be made using a variety of metal core materials such as carbon, 304 SS, 316 SS etc., while using graphite, EPTFE, RPTFE and other materials as the sealing element materials. Spiral wound gasket are similar to corrugated gaskets as they can be made from a very wide range of metallurgies with, graphite, PTFE, Mica etc. as the filler material. RTJ gaskets are made from a wide variety of metallurgies in accordance with certain manufacturing standards. Pressure Seals can be made of solid metal or a combination of metal and graphite.

Q How do bolted bonnet designs differ from pressure seal designs?

A Bolted bonnet designs are similar to most flanged joints in that the load applied to the gasket is dependent on bolt tension. A calculated torque is applied to

each bolt to transfer a load adequate enough to maintain the gaskets required seating stress to seal. In a pressure seal design, an increase in pressure within the valve body will increase the load applied to the bonnet gasket thus, in theory, providing a stronger sealing force and increased joint integrity. However, due to this design, pressure seal bonnets may not perform as well in low pressure systems and are typically found in class 900# and above.

Q What are some common causes of gasket failure?

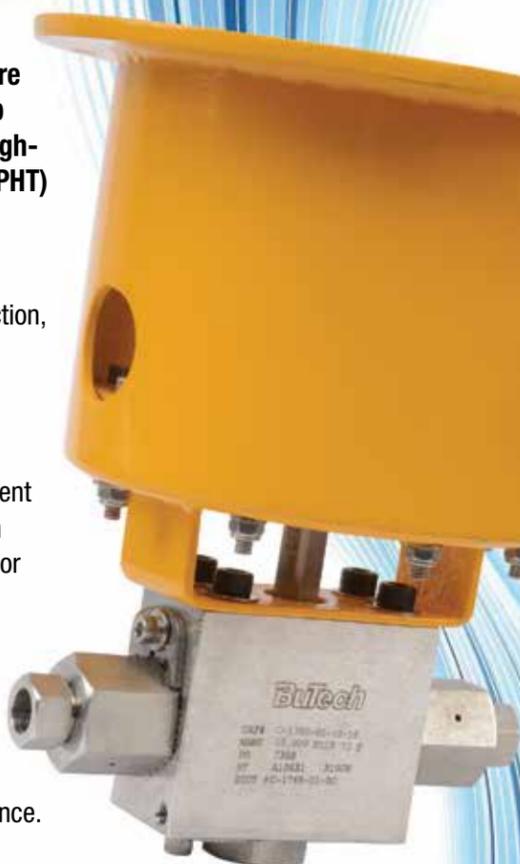
A Gasket failure can result from a variety of factors. Improper installation procedures, incorrect gasket selection and application, chemical compatibility, non-uniform load distribution, gasket relaxation, flange finish, flange parallelism and orientation, and even simple factors such as lubrication selection can all play a large role in the performance and reliability of a gasket. Knowledge of the many factors that can affect gasket performance can allow one to mitigate the risk of gasket failure.

Delivering Peak Performance

At the forefront of high-pressure technology, BuTech valves help companies safely operate in high-pressure, high-temperature (HPHT) environments.

Proven and reliable high-pressure valves for intervention and production, designed to meet the critical requirements of today's most severe applications.

BuTech products are in their element under extreme HPHT conditions in any application, including erosive or corrosive solids, liquids or gases. Rigid quality control procedures guide all of our manufacturing and assembly processes, including the application of non-destructive testing to ensure rigid specification compliance.



BuTech
an Accudyne Industries brand

www.butech-valve.com

Established 1946



DelTech Controls

PROVEN FIELD PERFORMANCE
IN ALL INDUSTRIES ACROSS THE GLOBE



LEADING THE INDUSTRY WITH INNOVATION BY DESIGN

- Complete line of valves and controls including Resilient Seated Butterfly Valves, Double and Triple Offset High Performance Butterfly Valves, Rack & Pinion Actuators, Scotch Yoke Actuators and Electric Actuators
- Highly engineered product lines with innovative features including the "CENTER-LOK™" Seat Design in the Resilient Seated Butterfly Valves
- Universal Insert Design in the Pneumatic Actuators enabling direct mounting to most quarter turn valves – NO BRACKETS & COUPLINGS!

TEL: (225) 744-4326 | FAX: (225) 744-4328

EMAIL: sales@deltechcontrol.com

WWW.DELTECHCONTROLS.COM