



# KEPNER PRODUCTS COMPANY

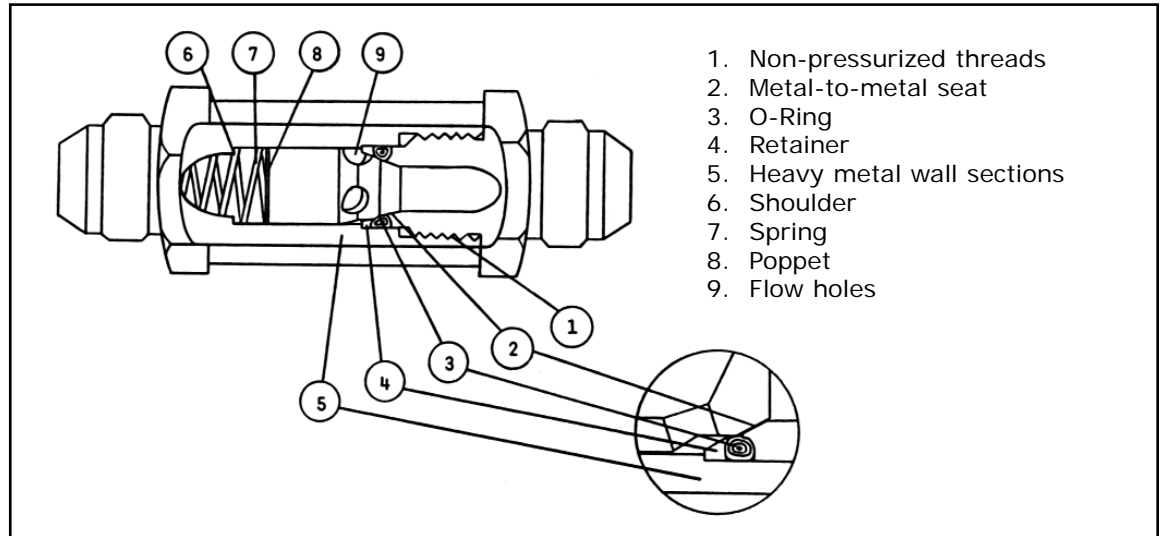
ESTABLISHED IN 1948

TIPS#12

## Check Valve Features - FAQ

Page 1 of 2

Kepner Products Company has always stressed the Zero Leakage feature in the valves we manufacture. But, it is by no means the only benefit Kepner valves provide. To explain the other main features in the Kepner Check Valve design, we are providing the answers to frequently asked questions.



**Q: With the poppet striking the O-Ring, doesn't the O-Ring wear out quickly?**

A: No, because the *Flexible Seal Seat™* design allows the poppet to impact only slightly on the O-Ring in the closed position. The metal-to-metal contact between the poppet and end cap serves as a mechanical seat. Under reverse pressure, the O-Ring simply flexes just as much as is needed to seal around the nose of the poppet and foreign particles on the poppet. As a result, the O-Rings have been proven to have long service life.

**Q: What keeps the O-Ring from being forced downstream at high pressures and under surge conditions?**

A: The retainer, in conjunction with the body and end cap, holds the seal in place and prevents fluid flow from getting behind the O-Ring to dislodge it. Therefore, the O-Ring is protected from the possibility of being forced out during surge flow conditions.

**Q: What O-Ring seal compounds can Kepner provide?**

A: Virtually any compound necessary to insure fluid compatibility. Our standard seating material is Buna-N, (Nitrile), but we also stock compounds as listed in the O-Ring Seal Selection Guide, (Tips: #18). If a customer requires a material other than those listed, it can generally be supplied, (i.e., Kalrez, Polyurethane, etc.), since, in most cases, tolerances are within standard commercial O-Ring sizes. Kepner Products Company does caution, however, that only high quality O-Rings be used as replacements, because even small irregularities, such as flashing, will affect the operation of the *Flexible Seal Seat™* design.

**Q: Your standard cracking pressure is 1-2 PSI. Can you supply other cracking pressures?**

A: Yes. Our Relief Check Valve line offers standard cracking pressures of 5, 10, 25, 50 and 65 PSI by simply replacing the spring in a check valve with another precisely calibrated stock spring. Custom settings up to 3,000 PSI are also available in most sizes.

Valve performance is dependent on proper selection, application, installation and maintenance. Consult Factory.

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Page 2 of 2

**Q: How does media flow through Kepner valves?**

A: The five large flow holes in the poppet cone are positioned to provide a streamlined flow path through the valve. The combined area of these holes is always greater than the area of either the inlet or outlet ports. Also, the flow is directed through the center of the spring, not through the coils, so that as the spring compresses the flow is not hampered.

**Q: What has Kepner included in its design to accommodate surge flows?**

A: The design has a number of features which protect Kepner valves under most surge conditions. First, as previously discussed, the O-Ring is protected from being severely impacted or extruded. Secondly, the design includes a shoulder machined into the body of the valve. This provides a solid metal stop to prevent the poppet from "bottoming out" on the spring. The spring itself is made of extra heavy wire with many turns to provide a low spring rate to minimize increase in back pressure with increased flow. Kepner valves incorporate the strength and durability needed to withstand most surge conditions.

**Q: What materials do you use in making your valves?**

A: Standard construction materials are Aluminum, Commercial Brass, Zinc Plated Steel, Type 303 and 316 Stainless Steel. All components in a particular valve, except the spring and O-Ring, are made of the same material unless otherwise specified. Consult factory for availability of other materials.

**Q: Do you give valves made of aluminum or brass lower pressure ratings?**

A: No. Not only does the seal flex around the poppet, but it also flexes to prevent external leakage. This keeps the end cap threads from becoming pressurized and thus prevents high stress in this vulnerable area. *The Flexible Seal Seat™* design also allows for heavy metal wall sections where internal pressures are the greatest. This gives added strength where it is needed most.

**Q: Into which industries can Kepner valves be sold?**

A: The wide variety of construction materials, sealing compounds, sizes and connection combinations allow Kepner valves to be utilized in any industry requiring check valves. Our products have been used successfully in a broad variety of applications in multiple industries from agriculture to aerospace, road equipment to robotics, industrial machinery to medical equipment, instrumentation and controls to chemical processing and handling. Consult the factory for any restrictions in hazardous applications such as nuclear, aircraft or life support applications.

**Q: How do Kepner Valves compare in value to competitors?**

A: Very favorably. There are valves that are less expensive, but they cannot begin to approach the quality and performance of Kepner valves. Valves with similar features tend to cost more. If a customer wants a quality product which will provide leak-tight control, good repeatability, long service life, dependability and a wide choice of configurations, Kepner valves provide the most value on the market.

*Kepner valves are the first in 'Zero Leakage' liquid and gas control and offer superior performance in rugged and ultra-sensitive applications. More than 50 years of service to this industry and continual refinement of Kepner valve products are your assurance of the best in performance, quality and dependability.*

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