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| <p>Type "REK®" <i>[Reduced Emission-Kalrez®]</i> Packing System Style 1A through 3C</p> | <p>Special Chevron Ring Packing For Reduced Fugitive Emissions RESEARCH® Control Valves</p> | <p>Technical Brief</p> |
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DESCRIPTION

The REK® optional packing system utilizes the special capabilities of Kalrez® perfluoroelastomer chevron rings to reduce fugitive emissions in RESEARCH® and Series 9000 control valves.

The combination of various Teflon® components and Kalrez self-energized packing rings provides high sealability, low hysteresis and long life.

Packing configurations have been designed to fit the three types of existing packing cavity of both the RESEARCH and Series 9000 valves. This allows for retrofit of existing valves provided it is done within the same type and size of cavity.

COMPONENT MATERIAL

Standard chevron ring packing is normally made of virgin PTFE. Optional glass or moly/glass reinforced rings are frequently utilized for applications requiring a tougher material. Although this is not an improvement in sealability, packing life can be enhanced.

The development of Kalrez chevron rings and Zymaxx® components by Du Pont has greatly increased the sealing capability of chevron style packing.

Kalrez is a perfluoroelastomer possessing similar chemical resistance and friction coefficient to Teflon. Zymaxx is carbon fiber reinforced Teflon PFA.

Teflon PFA is superior to virgin Teflon in the area of creep resistance and has been successfully used as bushings, bearings and backup rings.

The addition of carbon fiber to Teflon PFA even further enhances its toughness and resistance to extrusion.

Note: Components and materials used in the REK packing system described here are similar to those found in Du Pont KVSP valve packing. Information on Kalrez, Zymaxx and KVSP packing is available from E.I. DuPont de Nemours & Co. of Wilmington, Delaware.

For assistance on valve packing, contact your local RESEARCH/Series 9000 valve representative or our factory sales department at:

TEL: (918) 836-8411

FAX: (918) 832-9962

Kalrez® is a registered trademark of DuPont Dow Elastomers.
Krytox® is a registered trademark of E.I. du Pont de Nemours and Company.
REK® is a registered trademark of Badger Meter, Inc.
RESEARCH® is a registered trademark of Badger Meter, Inc.
Zymaxx® is a registered trademark of E.I. du Pont de Nemours and Company.

PACKING SET DESCRIPTION

All REK packing sets described in this technical brief utilize at least two chevron rings of Kalrez.

Packing Style "1" incorporates a single set of packing consisting of: a bottom adapter, three chevron rings and a packing follower. This arrangement is designed to fit the standard single cavity bonnet.

Packing Style "2" incorporates two sets of packing separated by a center lantern ring. This arrangement is designed to fit bonnets with a double-deep cavity.

Packing Style "3" is essentially the same as Style 2 except that the lantern ring is functional.

This arrangement fits bonnets with a double deep cavity and 1/8" NPT alarm/purge port.

With this type bonnet the side port can be used to alert the user of leakage of the lower set of packing.

The side port can also be used to purge or pressurize the area between the two sets of packing. Provided the purge pressure exceeds the system pressure, the only potential for leakage is purge gas into the system rather than system fluid to the atmosphere.

This packing arrangement is a viable alternative when a bellows sealed bonnet is desired but cannot be used due to other factors.

APPLICATION

Packing Style "A" utilizes two Kalrez rings in combination with Teflon and Teflon PFA backup rings. It is suitable for most clean non-sticky fluid and gas applications.

Packing Style "B" utilizes double Kalrez rings sandwiched between Teflon PFA backup rings. The center ring is made of moly/glass reinforced Teflon. It is recommended for applications on fluids that tend to cake or stick to the valve stem. The moly/glass rings are harder and provide a wiping action to clean the stem, reducing potential damage to the Kalrez sealing ring. This packing should not be used when the fluid is not compatible with fiberglass or the molybdenum disulfide lubricant embedded in the ring.

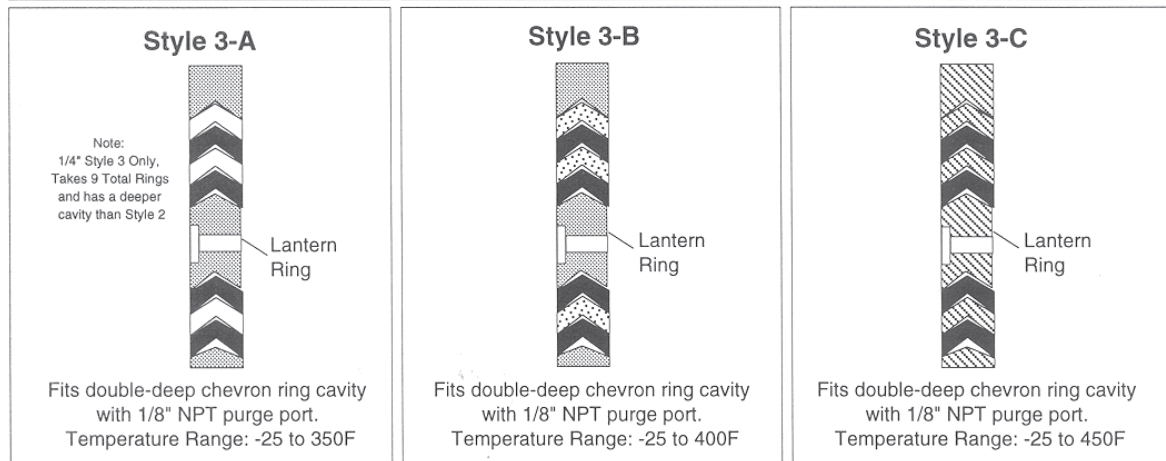
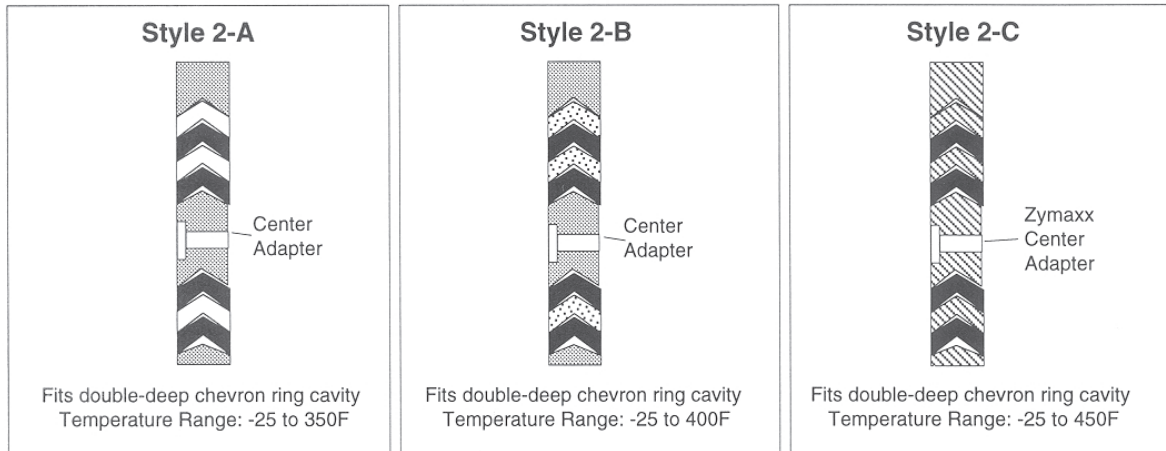
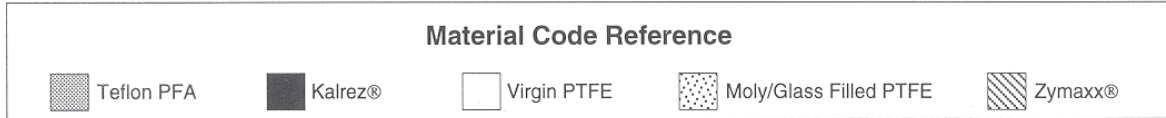
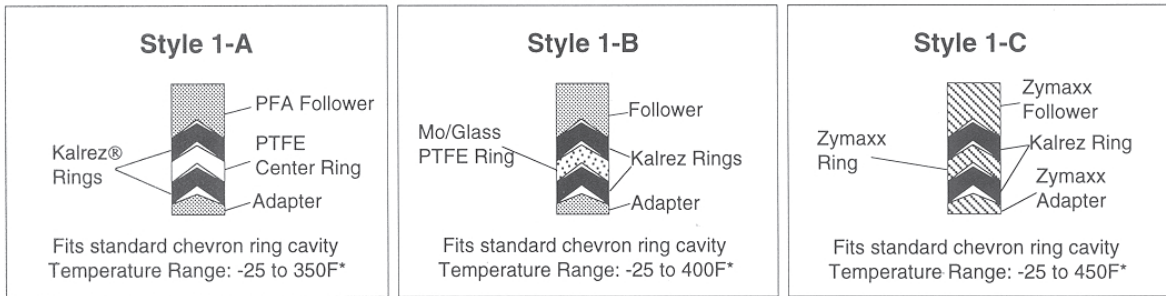
Packing Style "C" is essentially the same as Style B except that all non Kalrez parts are made of Zymaxx. This arrangement is the ultimate in chemical compatibility and durability.

The Zymaxx components provide toughness, low friction and wear resistance along with excellent chemical compatibility.

Type "REK"

When ordering spare packing, always give valve serial number

Du Pont recommends the use of Krytox[®] lubricant on Kalrez components. A mini-container [1/4oz] is available from Badger.



Spring loaded packing is available in the Style "2" bonnet cavity. This arrangement utilizes a stainless steel spring and a special set of either style A, B or C packing. The packing consists of: an adapter, a chevron ring, a Kalrez ring, a chevron ring, another Kalrez ring, another chevron ring, and a follower. It will be designated "Style 4" A, B, or C depending on material. *Temperatures listed are actual packing temperatures. Extended bonnets can increase the operating range. Consult the factory for packing installation tools.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding bid obligation exists.