

#### DESCRIPTION

The REK® (Reduced Emission Kalrez®) optional packing system uses the special capabilities of Kalrez perfluoroelastomer chevron rings to reduce fugitive emissions in Research Control® 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 Control 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. Du Pont de Nemours & Co. of Wilmington, Delaware.

For assistance on valve packing, contact your local Research Control or Series 9000 valve representative or our factory sales department at: 800-876-3837 | 414-355-0400

#### 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 uses two Kalrez rings in combination with Teflon and Teflon PFA backup rings. It is suitable for most clean non-sticky fluid and gas applications.

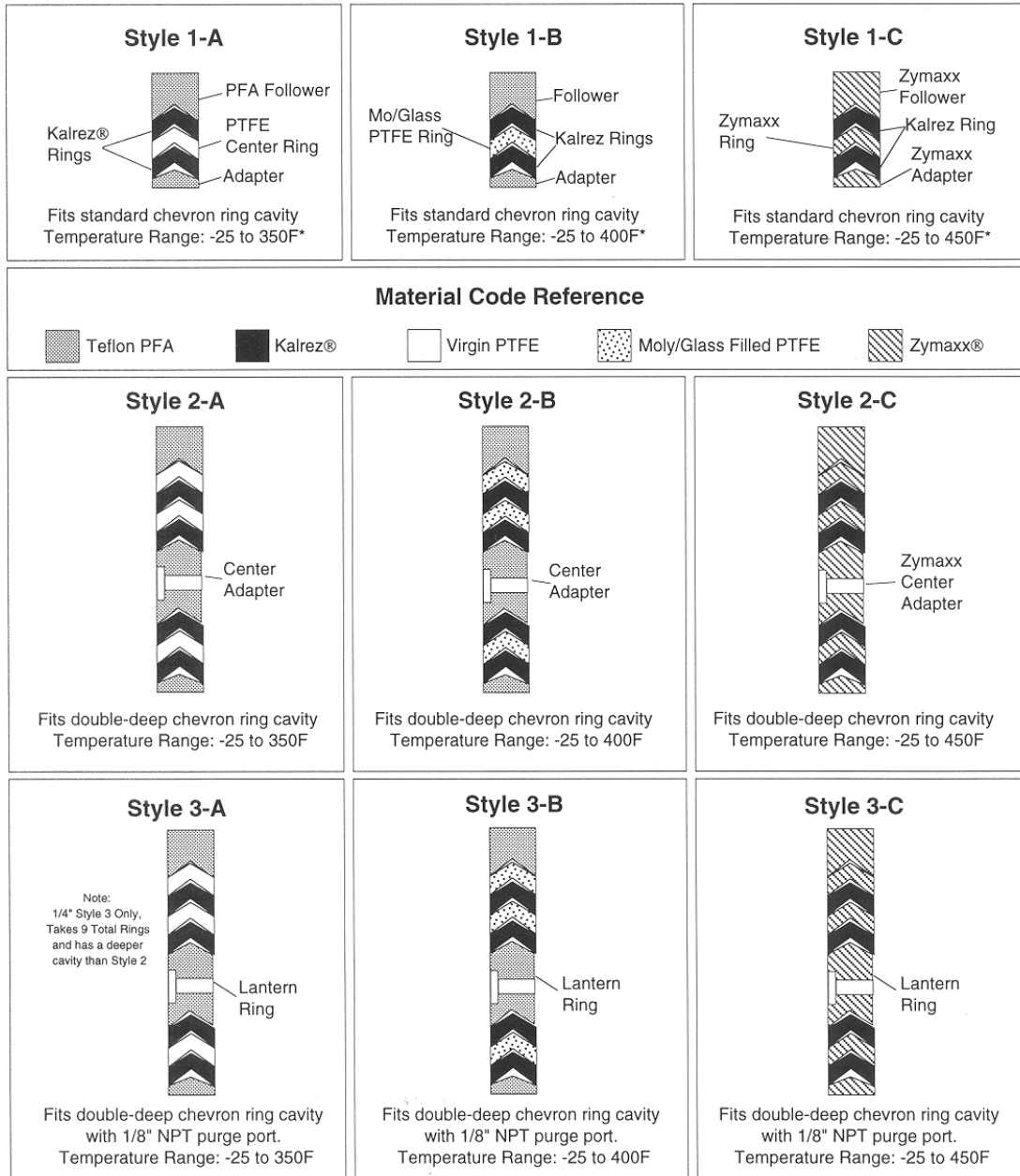
Packing Style B uses double Kalrez rings sandwiched between Teflon PFA backup rings. The center ring is made of moly/glass reinforced Teflon. It is recommended for applications on fluids that tend to cake or stick to the valve stem. The moly/glass rings are harder and provide a wiping action to clean 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 PACKING CONFIGURATIONS

When ordering spare packing, always give valve serial number. Du Pont recommends the use of Krytox® lubricant on Kalrez components. A mini-container (1/4 oz) is available from Badger Meter.



Spring-loaded packing is available in the Style 2 bonnet cavity. This arrangement uses a stainless steel spring and a special set of 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.

### Control. Manage. Optimize.

Research Control is a registered trademark of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. 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 contractual obligation exists. © 2014 Badger Meter, Inc. All rights reserved.

[www.badgermeter.com](http://www.badgermeter.com)