

Valtek SafeGuard and SureGuard Fugitive Emissions Packing

GENERAL INFORMATION

The following instructions are designed to assist in unpacking, installing and performing maintenance as required on Valtek SafeGuard™ and Valtek SureGuard™ fugitive emissions packing sets for Valtek® control valves. Product users and maintenance personnel should thoroughly review this bulletin prior to working on the valve. Separate maintenance instructions cover control valves, actuators and positioners.

To avoid possible injury to personnel or damage to valve parts, WARNING and CAUTION notes must be strictly adhered to. Modifying this product, substituting nonfactory parts, or using maintenance procedures other than outlined could drastically affect performance, be hazardous to personnel and equipment, and may void existing warranties.

WARNING: Standard industry safety practices must be adhered to when working on this, or any other, process control product. Specifically, personal protective and lifting devices must be used as warranted.

Unpacking

1. While unpacking the packing set, check the packing list against the materials received. Lists describing the packing set are included in each package.

VALTEK SAFEGUARD

Valtek SafeGuard is designed to be a low maintenance, fugitive emission packing, which can be directly retrofitted into standard Valtek linear and rotary control valves. Valtek SafeGuard uses a combination of carbon-filled PTFE and virgin PTFE V-rings with specially designed, disc spring live-loading.

Valtek SafeGuard utilizes a different set of packing spacers than standard Valtek PTFE packing sets. Retrofit kits include these spacers as well as the packing and the live-loading kit.

When retrofitting a Valtek SafeGuard packing set into a valve, the bonnet bore should be free of scratches and have a 16 R_a surface finish in the area where the packing makes contact. The stem should also be free of scratches and be polished with an 8 R_a surface finish. In valves supplied with guide liners, the liners should be inspected to ensure a tight fit against the stem is achievable. Replace the guides or liners if damaged or worn.

Valtek SafeGuard Installation

Be certain the packing bore and plug stem have been properly re-worked and installed in the valve according to the valve's installation, operation, maintenance instructions. To install the Valtek SafeGuard packing, refer to Figure 1 and proceed as follows.

1. Place the lower stem guide (with liner, if applicable) in the bonnet bore. Next, place the thin, stainless

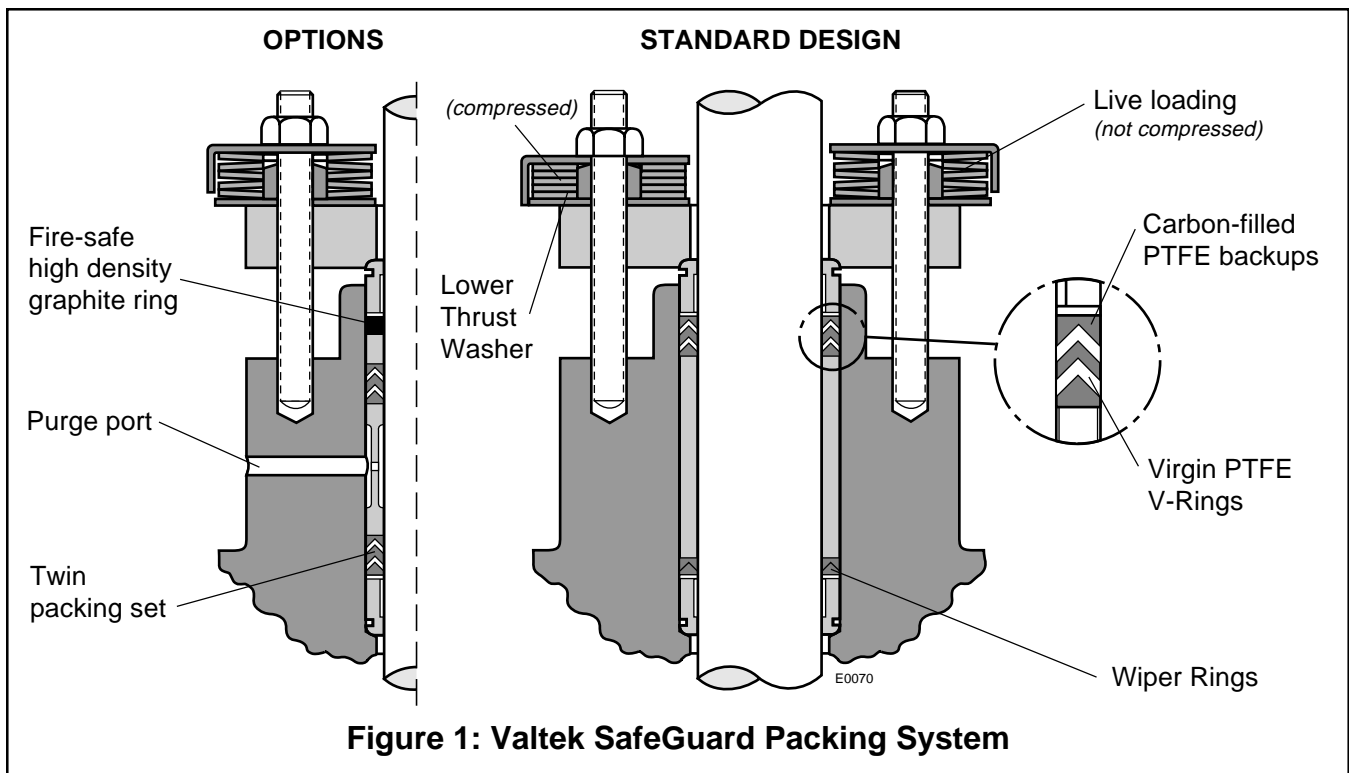


Figure 1: Valtek SafeGuard Packing System

steel, anti-extrusion washer into the bore followed by a male and then female carbon-filled PTFE adapter ring.

NOTE: Wiper rings are not provided for rotary valve packing boxes, with twin packing sets, or recommended for extended bonnets in high temperature services. Twin packing includes a duplicate set of packing instead.

Place the provided spacers into the bonnet bore except for the second anti-extrusion ring.

2. Next, place Valtek SafeGuard sealing set, as an entire set, carefully into the packing box in the following order:

- 1 carbon-filled PTFE male adaptor,
- 1 virgin PTFE V-ring,
- 1 carbon-filled PTFE V-ring,
- 1 virgin PTFE V-ring,
- 1 carbon-filled female adaptor.

NOTE: Although lubricating this packing set is not required for good performance, doing so will increase the packing life and decrease the friction. The lubricant should be a fluorinated-type grease.

NOTE: Extreme care should be taken to not damage the V-rings on the plug stem threads.

3. Place the stainless steel anti-extrusion washer and the upper stem guide on top of the packing set. The gland flange will be installed with the actuator.

4. Follow the appropriate actuator installation, operation, maintenance instructions and attach the plug stem to the actuator stem.

5. Before the packing is assembled, the live loading disc spring sets should be assembled. The extended gland flange bolt should be lubricated and put in place.

6. Next, the lower thrust washer, which is a round stamping, is placed over the bolt and onto the gland flange. The internal sleeve is then put over the bolt so that the 30 degree angle is on top. The first disc spring is next placed over the internal sleeve so the inside diameter of the spring makes contact with the lower thrust washer. The other four springs should be placed alternately so that the last disc spring's outside diameter will make contact with the upper thrust washer. (See Figure 1)

7. Next, place the upper indication thrust washer on the disc washers so that indication arm is pointed down. Before putting the gland flange nut on the bolt, lubricate the surface of the nut that will come in contact with the upper thrust washer and make sure the indicating arm on the upper thrust washer is located on the opposite side of the valve stem.

8. When tightening the live-loading configuration, sequentially alternate the turns on each disc set until the indicating arm becomes flush with the bottom of the lower thrust washer. If the upper thrust washer turns while tightening, hold the thrust washer steady with pliers. As the packing consolidates due

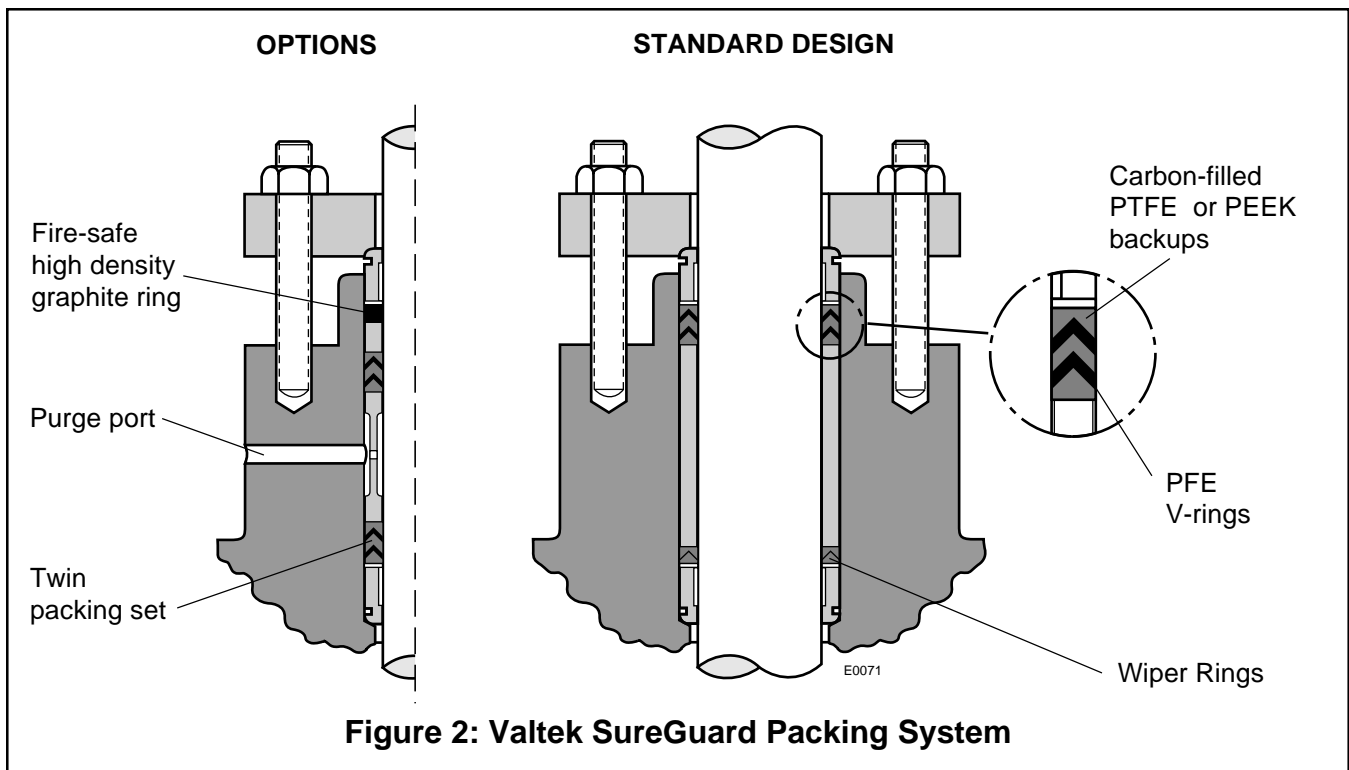


Figure 2: Valtek SureGuard Packing System

to wear and cold flow, the indicating arm will show the magnitude of that consolidation.

NOTE: To increase packing longevity on high-cycle applications, the disc springs should only be compressed until the indicating arm becomes flush with the top of lower thrust washer.

Valtek SafeGuard Maintenance

At least once every six months the Valtek SafeGuard indicating arm should be inspected.

If the lower washer travels down below the end of the indicating arm due to consolidation, the live-loading disc springs should be retightened to ensure sufficient loading for the PTFE seals.

NOTE: The torque required to compress the two disc spring stacks will be higher than usual because of the additional friction and axial loads being produced by the disc stack.

VALTEK SUREGUARD AND VALTEK SUREGUARD XT

Valtek SureGuard and its high temperature counterpart, Valtek SureGuard XT, are designed to be low maintenance, fugitive emission packing sets, which can be directly retrofitted into standard Valtek linear and rotary valves. Valtek SureGuard uses carbon-filled PTFE while Valtek SureGuard XT uses PEEK backup rings.

Valtek SafeGuard utilizes a different set of packing spacers than standard Valtek PTFE packing sets. Retrofit kits include these spacers as well as the packing and the live-loading kit.

When retrofitting a Valtek SafeGuard packing set into a valve, the bonnet bore should be free of scratches and have a 16 R_a surface finish in the area where the packing makes contact. The stem should also be free of scratches and be polished with an 8 R_a surface finish. In valves supplied with guide liners, the liners should be inspected to ensure a tight fit against the stem is achievable. Replace the guides or liners if damaged or worn.

Valtek SureGuard Installation

To install Valtek SureGuard and Valtek SureGuard XT packing into a valve, refer to Figure 2 and Table I, and proceed as follows.

1. Coat the packing set with a thin film of a fluorinated high temperature grease (including between V-rings) prior to installation.
2. Place the lower stem guide into the bonnet bore, followed by a thin stainless steel anti-extrusion ring. Next, place a male followed by a female carbon-filled PTFE or PEEK adaptor ring into the packing box as shown in Figure 2.

NOTE: Wiper rings are not provided for rotary valve packing boxes, with twin packing sets, or recommended for extended bonnets in high temperature services. Twin packing includes a duplicate set of packing instead.
3. The provided packing spacers should next be placed in the packing box except for the second anti-extrusion ring.

- Place the Valtek SureGuard packing set over the valve stem as an entire lubricated set in the following order:

- 1 carbon-filled PTFE or PEEK male adaptor,
- 1 PFE V-ring,
- 1 carbon-filled PTFE or PEEK V-ring,
- 1 PFE V-ring,
- 1 carbon-filled PTFE or PEEK female adaptor.

- Finally, the stainless steel anti-extrusion washer and upper stem guide are placed on top of the packing set.

- Follow the appropriate actuator installation, operation, maintenance instructions and attach the plug stem to the actuator stem.

The compression of Valtek SureGuard packing sets is critical to packing performance. For this reason, the proper torque on the gland flange nuts must be applied. The torque values shown in Table I are provided as a reference for compressing standard Valtek SureGuard packing sets with any type of backup material for packing temperatures between 0° F and 350° F (-18° C and 177° C). For Valtek SureGuard packing temperatures between 350° F and 550° F (177° C and 288° C), the torque on each stud should be decreased 20 to 25 percent less than those listed in Table I. If the fire-safe Valtek SureGuard XT option is being used, the above referenced torque values should be increased by 10 percent.

- Torque the gland flange nuts to the value listed in Table I.

Valtek SureGuard Maintenance

At least once every six months, check that the above torque values are still being maintained by the valve. Although consolidation (resulting in torque reduction) is not likely with the Valtek SureGuard sets, the above torque values should be verified. Where large process

**Table I:
Valtek SureGuard Packing Torque Values**

Stem (Shaft) Diameter		Stud Diameter		Torque* Value	
(in)	(cm)	(in)	(cm)	(in-lb)	(Nm)
0.5	1.27	0.312	0.792	22	2.5
0.562	1.43	0.375 0.5	0.953 1.27	24 32	2.75 3.6
0.625	1.587	0.312 0.375	0.792 0.953	24 25	2.75 2.8
0.75	1.905	0.375	0.953	26	3.0
0.875	2.222	0.375 0.5	0.953 1.27	28 37	3.15 4.15
1.0	2.54	0.375 0.5	0.953 1.27	35 46	4.0 5.2
1.125	2.857	0.5 0.625	1.27 1.587	64 80	7.25 9.0
1.5	3.81	0.5 0.625 0.75	1.27 1.587 1.905	78 102 123	8.8 12.0 14.0
2.0	5.08	0.5 0.625 0.75	1.27 1.587 1.905	105 131 158	12.0 15.0 18.0
2.5	6.35	0.625 0.75	1.587 1.905	161 193	18.0 22.0
3.0	7.62	0.625 0.75	1.587 1.905	296 356	33.0 40.0

* Listed torque values are for temperatures between 0° F and 350° F (-18° C and 177° C). For temperatures between 350° F and 550° F, decrease torque by 20 to 25 percent. If XT packing is used, increase torque by 10 percent.

temperature swings are experienced in the valve, Flowserve recommends live-loading be applied to the packing sets. Often, the Valtek SafeGuard live-loading kit will fulfill this need.

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

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For more information, contact:

For more information about Flowserve, contact www.flowserve.com or call USA 972 443 6500

Regional Headquarters

1350 N. Mt. Springs Prkwy.
Springville, UT 84663
Phone 801 489 8611
Facsimile 801 489 3719

12, av. du Québec, B.P. 645
91965, Courtaboeuf Cedex,
France
Phone (33 1) 60 92 32 51
Facsimile (33 1) 60 92 32 99

104 Chelsea Parkway
Boothwyn, PA 19061 USA
Phone 610 497 8600
Facsimile 610 497 6680

12 Tuas Avenue 20
Republic of Singapore 638824
Phone (65) 862 3332
Facsimile (65) 862 4940

Quick Response Centers

5114 Railroad Street
Deer Park, TX 77536 USA
Phone 281 479 9500
Facsimile 281 479 8511

1300 Parkway View Drive
Pittsburgh, PA 15205 USA
Phone 412 787 8803
Facsimile 412 787 1944



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