

Installation Instructions

D300899X012

ENVIRO-SEAL Graphite Rotary Valve Packing Outboard End Packing Arrangement for 8510

March 2013

Use these instructions to install ENVIRO-SEAL™ packing in valves that have standard packing or when inspecting or replacing ENVIRO-SEAL packing.

⚠ WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve. Drain the process media from both sides of the valve.**
- **Vent the pneumatic actuator loading pressure and relieve any actuator spring precompression.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**

Pressures and Temperatures

Maximum to Maintain Leakage of Less Than 100 ppm: Full ASME Class rating of the valve up to 316°C (600°F).

If you are installing the system in a valve that is still connected to an actuator, remove the actuator from the valve to provide sufficient space to install the packing assembly. If a spring-return actuator is used, be sure the actuator spring is resting on its travel stop. If the shaft cannot rotate fully, it is possible that disconnecting the shaft connector will allow the spring to force the actuator to the end of its rotation. Refer to the appropriate valve and actuator instruction manuals to remove the actuator.

Remove old packing parts from the packing box by using the valve instruction manual procedures. The valve shaft and packing box surface condition is critical in obtaining a good seal. If the valve shaft or packing box is scratched, nicked, or worn, replace before installing the ENVIRO-SEAL Packing System. Refer to the appropriate valve instruction manual to replace the valve shaft.

If the piping and valve are insulated, do not allow the insulation to cover the ENVIRO-SEAL springs.

1. If you are converting an existing valve to this packing, remove existing packing box studs from the valve body, and replace them with the longer studs (key 100) provided in the retrofit kit.

2. With the shaft in place in the valve, install the packing parts into the valve packing box. (Note: Be sure to install the packing rings in the sequence shown in figure 1.)

Note

Ensure that the Belleville springs are stacked properly and packing box parts are assembled in the correct order (see figure 1). Packing parts cannot function properly if the Belleville springs or other packing parts are not stacked correctly.

3. Install the spring pack assembly (key 104) with the attached springs arranged as shown in figure 1.
4. Install the packing flange (key 102) on the shaft, and install the packing box nuts (key 101). Hand tighten them.

Note

Lubrication is required for the packing studs and nuts. Although it is important to properly lubricate the stud threads and internal nut threads, it is also important to properly lubricate the contacting face of the nut.

5. You will obtain maximum benefit from your ENVIRO-SEAL packing system when you tighten the packing flange nuts and compress the Belleville springs to their “target load”. The target load is the point where the Belleville springs are designed for optimum performance, when they are compressed to 85% of their maximum deflection, or nearly flat. (Maximum deflection is when the springs are 100% compressed, or completely flat.)

To obtain the target load of 85% compression of maximum deflection, perform the following:

- Tighten the packing flange nuts alternately and evenly, keeping the packing flange parallel with the valve flange, until the Belleville springs are compressed 100% (or completely flat).
- For graphite packing, loosen each packing flange nut 1/4 turn (90° of rotation).

The “target load” of 85% compression has now been reached.

6. Refer to the appropriate valve and actuator instruction manuals when connecting the valve to the actuator. Under normal conditions, the packing nuts should not require re-tightening.

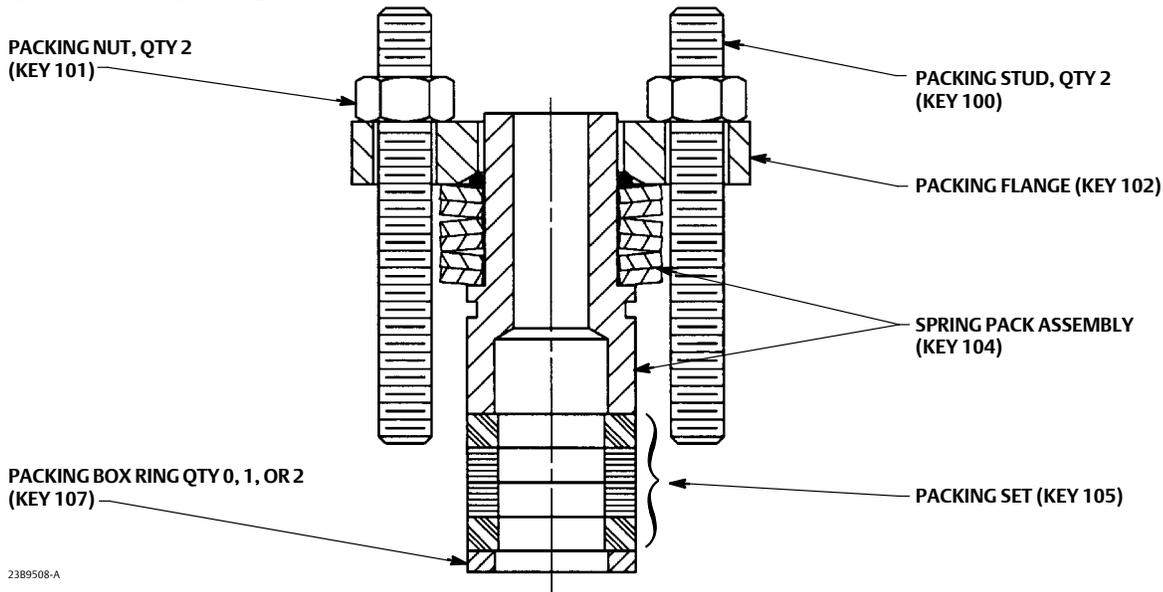
However, when servicing, if the springs do not remain nearly flat, retighten the packing box nuts until the springs are almost completely compressed (see step 5 above).



Packing Retrofit	Shaft Size Diameter, In. (mm)	Packing Retrofit	Shaft Size Diameter, In. (mm)
RRTYXRT0382	1/2 (12.7)	RRTYXRT0902	1-3/4 (44.5)
RRTYXRT0392	5/8 (15.9)	RRTYXRT0912	2 (50.8)
RRTYXRT0402	3/4 (19.1)	RRTYXRT0922	2-1/2(63.5)
RRTYXRT0412	1 (25.4)	RRTYXRT0932	3 (76.2)
RRTYXRT0422	1-1/4 (31.8)	RRTYXRT0942	3-1/2 (88.9)
RRTYXRT0432	1-1/2 (38.1)		

For additional information concerning the installation of this packing kit, please consult the appropriate Fisher product instruction manual.

Figure 1. Packing Arrangement



Notes:

The number of Belleville spring washers in the spring pack assembly varies as follows:

Key Number	Spring Washer Quantity
RRTYXRT0382, RRTYXRT0392	10
RRTYXRT0402, RRTYXRT0412, RRTYXRT0422, RRTYXRT0432, RRTYXRT0902, RRTYXRT0912, RRTYXRT0922, RRTYXRT0932, RRTYXRT0942	6

Worn shafts and packing box bores and shafts or components not manufactured by Emerson Process Management to Fisher finish specifications, dimensional tolerances, and design specifications, will adversely alter the performance of this kit.

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