

# Installation Instructions

## Design CP ENVIRO-SEAL™ Graphite Packing



FISHER-ROSEMOUNT™

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.**

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, it is possible that disconnecting the stem connector will allow the spring to force the actuator to the end of its travel. Be sure the actuator spring is resting on its travel stop. Refer to the appropriate valve and actuator instruction manuals to remove the actuator.

### Pressures and Temperatures

**Maximum to Maintain Leakage of Less Than 500 ppm:** Up to maximum pressure drop capabilities of the Design CP valve to 600°F (316°C).

1. Carefully remove the old packing parts from the packing box. The surface condition of the valve stem and the packing box wall is critical in obtaining a good seal. If the valve stem needs to be replaced, or any other valve part, refer to the appropriate valve instruction manual for replacement procedures. Complete all valve maintenance before installing the ENVIRO-SEAL packing system into the bonnet.

2. The original studs used for standard packing arrangements should be long enough to accommodate the retrofit kit parts. If you determine that the existing studs and nuts should be replaced however, due to their condition, replace them with the studs and nuts (keys 200 and 212) supplied in the retrofit kit.

### Note

**Ensure that the packing box parts are assembled in the correct order. Packing parts can not function properly if the Belleville springs or other packing parts are not stacked correctly.**

3. Refer to figure 1 to ensure that the packing parts are assembled in the correct order. Install the ENVIRO-SEAL packing parts into the packing box.
4. Install the spring pack assembly (key 217), which includes the attached springs, and packing flange (key 201), on the stem. Install the nuts (key 212) and 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). Refer to the instruction manual for ENVIRO-SEAL packing systems for sliding stem valves if you need further assistance.
- For graphite packing, loosen each packing flange nut 1/4 turn (90° of rotation).

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

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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.

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

PACKING RETROFIT	PACKING REPAIR	VALVE SIZE, IN. (mm)	STEM DIAMETER, IN. (mm)
RCPXPKRT052	RCPXPACK072	1	1/2 (12.7)
RCPXPKRT062	RCPXPACK072	1-1/2, 2	1/2 (12.7)
RCPXPKRT202	RCPXPACK252	2	5/8 (15.9)
RCPXPKRT072	RCPXPACK082	3	3/4 (19.1)
RCPXPKRT152	RCPXPACK172	3	1 (25.4)
RCPXPKRT082	RCPXPACK082	4	3/4 (19.1)
RCPXPKRT162	RCPXPACK182	4	1-1/4 (31.8)

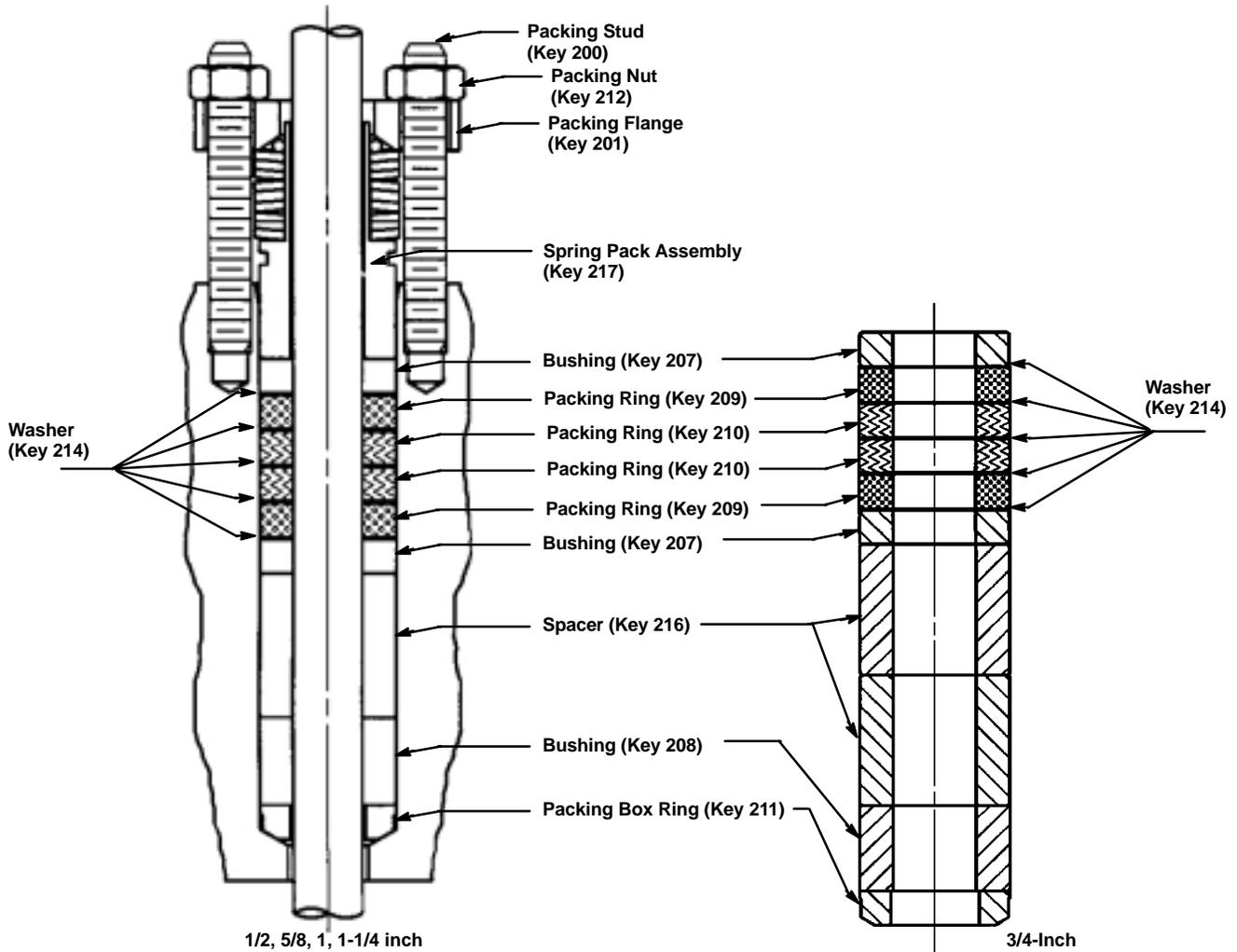


Figure 1. ENVIRO-SEAL GRAPHITE

Stems and packing box constructions that do not meet Fisher Controls stem finish specifications, dimensional tolerances, and design specifications, may adversely alter the performance of this packing kit.

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For information, contact Fisher Controls:  
 Marshalltown, Iowa 50158 USA  
 Cernay 68700 France  
 Sao Paulo 05424 Brazil  
 Singapore 0512

