



# Instructions for Installing Actuator Drive-Keys On 309 Series Ball Valves

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These instructions cover the conversion of manual (handle-operated) valves for actuated operation. In addition to the valve and actuator, a mounting kit is also necessary to complete the installation.

1. Turn valve handle so that it aligns with the pipe (or with long axis of loose valve).

2. See Figure 1. Remove valve handle nut, handle, stem nut, grounding spring, Belleville springs, socket-head screws and stop cup, without disturbing valve stem position.

3. See Figure 2. Replace Belleville springs on stem with concave faces together. Place drive key spacer on stem atop Belleville springs. Place the (3) drive keys in position atop drive key spacer and secure finger tight with nut (stem nut) from kit. Note: earlier models may have had a single thick drive key.

4. See Figure 3. Tighten stem nut with 1/2" wrench until Belleville springs have just become fully compressed (flattened). Secure the stem from turning while tightening nut; this may be accomplished by inserting a wooden or plastic dowel in the ball port of a loose valve, or by engaging the stem with the valve handle just removed. Although the nut spins freely when first run onto the stem, the torque needed to continue tightening will increase progressively after the stem nut contacts the drive key and the Belleville springs begin to deflect. The torque required to tighten further will increase sharply once the Belleville springs have become fully flattened. Tightening beyond this point should not be attempted as damage to the stem seal may result.

5. The correct orientation of the stem nut to the drive key is shown in Figure 3; this orientation is necessary to permit engagement with the twelve-point socket in the actuator pinion driver. In order to achieve the desired orientation, loosen the stem nut until the nut / drive key relationship corresponds to either 'A' or 'B' in Figure 3. This adjustment should require less than one-twelfth (1/12) turn of the nut.

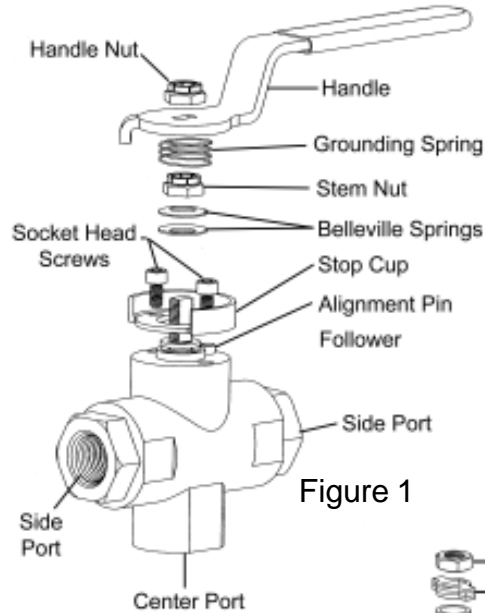


Figure 1

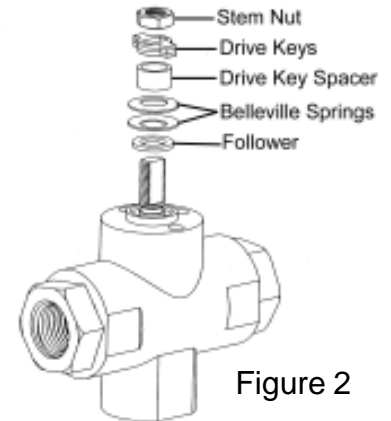


Figure 2

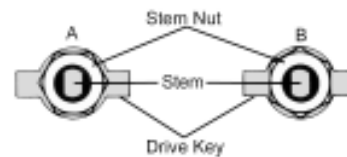


Figure 3