Swagelok Company
29495 F.A. Lennon Drive
Solon, Ohio 44139 U.S.A.

TITLE

Actuation Cycle Test of Stainless Steel Swagelok® 43G Series Ball Valve with Spring Return Handle

PRODUCT TESTED

Ordering Number	Description	Quantity
SS-43GS4-A-D	43G valve with spring return handle	23
SS-43GS4-A MS-5K-43GD-BK	43G valve with spring return handle kit installed	23

PURPOSE

This test was performed under laboratory conditions to observe the effects of 7300 cycles on the functionality and threaded joint torque of the 43G spring return handle assembly.

TEST CONDITIONS

Test temperature: room temperature laboratory environment
Test cycle rate: 10 rpm with one-second dwell between opening and closing
Test cycles: 7300

TEST METHOD

1. The test valves with spring return handles were assembled according to standard Swagelok specifications.
   Note: Twenty-three samples were assembled according to the Swagelok internal assembly specifications, and 23 samples were assembled from kits according to the Swagelok *Instructions for Installing Spring Return Handles,* MS-CRD-0280.
2. The test valves were mounted on automated rotary (cycle) rigs with custom aluminum couplings used to cradle the handles.
3. Each cycle rig was set to rotate the handle 90° to open the valve and then rotate the handle back to the closed position. This was counted as one cycle.
4. At defined intervals, the break forward torque of each of the following threaded joints was measured:
   - Handle set screw
   - Hex nut
   - Stem extension set screw
   - Spring cartridge (to valve body)
5. For 23 randomly selected test samples, a single packing adjustment was made as specified in the Swagelok *40G Ball Valve Packing Adjustment,* MS-INS-40G. Additional single packing adjustments were performed and break forward torques were measured. This was done every 2000 cycles and upon test completion of 7300 cycles.
6. No packing adjustments were made on the remaining 23 test samples. Break forward torques were measured upon test completion of 7300 cycles.

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TEST RESULTS

All test valves and handles completed 7300 cycles without failure. All measured break forward torque values were within acceptable Swagelok specifications.

This test was performed to consider a specific set of conditions and should not be considered valid outside those conditions. Swagelok Company makes no representation or warranties regarding these selected conditions or the results attained. Laboratory tests cannot duplicate the variety of actual operating conditions. See the product catalog for technical data.

SAFE PRODUCT SELECTION

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

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