



## Product Test Report

**PTR-5023**

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

Ver 01  
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### TITLE

High Temperature Thermal Cycle Test of Swagelok® 8GB and 16GB Series General Service Ball Valves

### PRODUCT TESTED

(6) SS-8GBF8-SG  
(6) SS-A8GBF8-SG  
(6) SS-16GBS12-SG  
(6) SS-A16GBF16-SG

### PURPOSE

This test was performed to observe the effects on seat and shell seal performance of the GB series ball valve over five thermal cycles from 70°F to 250°F (20°C to 121°C).

### TEST CONDITIONS

Test pressure: 80 psig (5.5 bar) nitrogen  
4935 psig (340 bar) nitrogen  
Test temperature: 70°F to 250°F (20°C to 121°C)  
Seat leak threshold: 3.0 cm<sup>3</sup>/min or 3 consecutive readings over 0.33 cm<sup>3</sup>/min  
Seat leak test duration: 1 minute  
Shell leak threshold: pressure loss does not exceed 1000 psig  
Shell leak test duration: 5 minutes

### TEST METHOD

1. All test valves were assembled according to standard Swagelok specifications.
2. The test valves were placed into an environmental chamber with the inlet connected to pressure and the outlet to atmosphere.
3. The test valves were pressurized to 4935 psig (340 bar) at ambient temperature of 70°F (20°C). This is the maximum pressure allowed at the elevated test temperature.
4. The valves were individually opened and closed one time, ending in the closed position throughout one thermal cycle.
5. The environmental chamber was heated to 250°F (121°C). The test valves were then allowed to come to the test temperature.
6. Seat and shell testing were performed at 250°F (121°C). A stem packing adjustment was permitted if shell leakage was detected.
7. The environmental chamber was brought to ambient temperature of 70°F (20°C). The test valves were then allowed to come to the test temperature.
8. Seat and shell testing were performed at ambient temperature of 70° (20°C). A stem packing adjustment was permitted if shell leakage was detected.
9. Steps 1 through 8 completed one thermal cycle. The same steps were repeated for a total of five thermal cycles.



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### TEST RESULTS

At each test point, all valves performed successfully within the stated test conditions.

Note: SS-8GBF8-SG and SS-16GBS12-SG valves did not require any packing adjustments throughout the test procedure.

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. Test results are not offered as statistically significant. 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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