



Product Test Report

Swagelok Company
29500 Solon Road
Solon, Ohio 44139 U.S.A.

PTR-5002
Ver 02
March 2022
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TITLE

Nitrogen Gas Seal Test with Repeated Reassembly of 1 1/2 Inch 316 Stainless Steel Swagelok® IPT Series Medium-Pressure Cone and Thread Fittings

PRODUCT TESTED

The following 316 stainless steel Swagelok IPT series medium-pressure cone and thread fitting components were tested.

| Ordering Number | Part Type | Size in. | Material |
|-----------------|--------------------------------|---------------------|-------------------------------------|
| CN24MF15 | Coupling | 1 1/2 | 316 strain-hardened stainless steel |
| GL24M | Gland | | |
| CL24M | Collar | | |
| PL24M | Plug | | |
| N24M15 | Coned and threaded tube nipple | 1 1/2 OD x 15/16 ID | |

PURPOSE

The components were assembled and tested under laboratory conditions to observe the performance of 1 1/2 inch 316 stainless steel Swagelok IPT series medium-pressure cone and thread fittings during a reassembly gas seal test.

TEST CONDITIONS

Original test date: September 2015

- Each sample consisted of a coupling body with a collar, gland, and coned and threaded tube nipple installed into one port, and a gland and plug installed into the opposing port.
- The male threads of the gland and tip of the plug and nipple cone were lightly coated with Silver Goop™ lubricant prior to assembly. The collar was installed on the tube nipple's threads until 1 to 2 full threads were exposed. The gland was tightened to 200 ft·lb (271 N·m) for both the nipple and plug end connections.
- Testing was conducted at ambient room temperature: 72°F (22°C).



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TEST METHOD

1. The test samples were attached to a gas test stand, submerged in water, pressurized to 1.25 times working pressure with nitrogen for 10 minutes and then monitored for leakage. The acceptance criterion was less than 1 bubble per minute at the applied pressure.
2. Pressure was reduced, and the fittings were disassembled. Lubricant was reapplied as necessary and the fittings were reassembled to 200 ft-lb (271 N·m).
3. Gas seal testing of the fittings was completed according to steps 1 and 2 at the initial, first, and fifth reassembly.
4. A total of 5 reassemblies were conducted on each test sample end.

TEST RESULTS

| Connection Type | Samples Tested | Working Pressure psig (bar) | Test Pressure psig (bar) | Results at Initial Assembly | Results at 1st Reassembly | Results at 5th Reassembly |
|-----------------|----------------|-----------------------------|--------------------------|-----------------------------|---------------------------|---------------------------|
| Tube Nipple | 22 | 15 000 (1034) | 18 750 (1292) | 22 / 22 Pass | 22 / 22 Pass | 22 / 22 Pass |
| Plug | 11 | 15 000 (1034) | 18 750 (1292) | 11 / 11 Pass | 11 / 11 Pass | 11 / 11 Pass |

This test was conducted beyond the product's recommended operating parameters and does not modify the published product ratings.

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.