



**BE-LOK
INSTRUMENT
FITTINGS INC.**



Office Address: # V-13 A, Qureshi Estate, Zilu Parab Road,
Near Chinchotti Naka, Village-Chinchotti, Naigaon, District

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www.be-lok.com



GSTIN:

27AAYFB9849E1Z0

INTERCHANGEABILITY TEST REPORT

Report No: BE/ITR/001

Issue Date: 22.12.2023

Place: Mumbai

Applicant / Manufacturer: M/s. BE-LOK INSTRUMENT FITTINGS INC

Request for Service date: 12-11-2023

This Certificate is issued to M/s. BE-LOK INSTRUMENT FITTINGS INC. Mumbai to certify that the undersigned Surveyor at the request of the above applicant attended at their works for witnessing assembly and testing its tube fitting as per the stated procedure and guidelines for its Interchangeability, with relevant Swagelok products.

Component Under Tests:

| Quantity | Description | BE-LOK Parts No. | Swagelok fittings Part No. | BE-LOK Fittings Heat No. |
|----------|--------------------------------------|---------------------|-------------------------------|-----------------------------|
| 5 | 1/4" OD X 1/4" NPT Male connector | BMC-04-4N-SS | SS-400-1-4 | BE869 |
| 5 | 3/8" OD X 3/8" NPT Male connector | BMC-06-6N-SS | SS-600-1-6 | BE870 |
| 5 | 1/2" OD X 1/2" NPT Male connector | BMC-08-8N-SS | SS-810-1-8 | BE871 |
| 5 | 3/4" OD X 3/4" NPT Male connector | BMC-12-12N-SS | SS-1210-1-12 | BE872 |
| 5 | 1/4" OD UNION | BLK-04-4N-SS | SS-400-6 | BE873 |
| 5 | 3/8" OD UNION | BLK-06-6N-SS | SS-600-6 | BE874 |
| 5 | 1/2" OD UNION | BLK-08-8N-SS | SS-810-6 | BE875 |
| 5 | 3/4" OD UNION | BLK-12-12N-SS | SS-1210-6 | BE876 |
| 5 | 1/4" OD TUBE CAP | BTC-04-SS | SS-400-C | BE877 |
| 5 | 3/8" OD TUBE CAP | BTC-06-SS | SS-600-C | BE878 |
| 5 | 1/2" OD TUBE CAP | BTC-08-SS | SS-810-C | BE879 |
| 5 | 3/4" OD TUBE CAP | BTC-12-SS | SS-1210-C | BE880 |

Testing Procedure

1. The above items were assembled in various configuration with identical fittings of M/s. BE-LOK INSTRUMENT FITTINGS INC & Swagelok to check their interchangeability and function ability. These were assembled with suitable tubes, according to 'BE-LOK INSTRUMENT FITTINGS INC' arrangement drawing and instruction. The fitting was assembled into arrangement as shown below.





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Arrangement 1.

| | 1 | 2 | 3 | 4 |
|---------|----------------------|----------------------|----------------------|----------------------|
| Body | Swagelok | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings |
| Nut | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Swagelok | Be-Lok Ins. Fittings |
| Ferrule | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Swagelok |

Arrangement 2.

| | 1 | 2 | 3 | 4 |
|---------|----------------------|----------------------|----------------------|----------------------|
| Body | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Swagelok | Be-Lok Ins. Fittings |
| Nut | Swagelok | Be-Lok Ins. Fittings | Swagelok | Swagelok |
| Ferrule | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Be-Lok Ins. Fittings | Swagelok |

2. Verification of Calibration of the Test Equipment: Found within acceptable limits Samples Selection: At Random
Grade of Material of Fittings: Stainless Steel ASTM A479 or Equivalent, ASTM A182
Grade of Material for Tubes: ASTM A269 TP SS316 Seamless.
3. The fitting arrangements were then fitted into calibrated high-pressure test rigs.
4. The Hydraulic Pressure were raised in 2000 psi in stage to the maximum test pressure of 9000 psi.
5. At each stage the pressure was maintained for 5 minutes and the arrangement was inspected for leaks & displacements.
6. Pneumatic Proof Test at a pressure of 40kg/cm² (560Psig) was then carried out.
7. After completion of tests, the fittings were dis-assembled and inspected for any visible sign of damage and untoward features.
8. Subsequently, the fittings were re-assembled again and in accordance to the above steps, the tests were repeated for five times.

Result:

1. Both during testing and after completion of the testing in accordance with the above-mentioned testing procedure, the part of the prescribed fitting arrangement was inspected for leaks, displacement, damage and other untoward features.
2. The calibration of the test equipment was found within acceptable limits.
3. Hydrostatics and visual tests result were within the acceptable limit and found satisfactory.
No leakages, damages or untoward features were found on the fitting's arrangement tested.
4. It was found that the same size 'M/s. BE-LOK INSTRUMENT FITTINGS INC' & 'Swagelok fittings' submitted for testing Was completely Interchangeable, perfect tightness was found by exchanging parts of these two manufacturers. Exchanging of the parts intently or un-intently does not impact the function of the parts.



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Conclusion:

'M/s. BE-LOK INSTRUMENT FITTINGS INC' fittings were found perfectly compatible with M/s. Swagelok Fittings With respect to tube gripping and threads matches identically. Pressure testing was satisfactory with no visible sign of pressure drop.

'M/s. BE-LOK INSTRUMENT FITTINGS INC' & Swagelok fittings can be perfectly interchanged.

Witnessed By: Malcolm Dadina

For TUV Rheinland (India) Pvt Ltd

MR Dadina



Malcolm Dadina