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LEAK TEST SERVICES

HELIUM LEAK TEST Chambers, Heat Exchangers, Components, Valves, Roll Metallizers etc.

Ref :HLT/REYNOLD-VALVE/179 Date : 27 Feb 2014

HELIUM LEAK TEST REPORT

1) Manufacturer : Reynold Valves Ltd
2) Client : Reliance Industries Limited
3) Purchase Order No : MMO/7477506 dated 12-09-2013
4) Item Description : 150mm DI PFA Line Ball Valve
5) Serial Number : S 3557
6) Instrument/Machine : Helium Leak Detector, Pfeiffer, Germany, Model 560
7) Calibrated Standard Leak : 5.24 X 10^{-7} mbar lit / sec, Serial No.117/08
8) Reference Document : ASME Sec V, Article 10 & EIL 6835-6-44-0005
9) Test Method : Sniffer Probe
10) Test Pressure : 6 kg/cm^2
11) Test Medium : Helium
12) Test pressure Hold Duration : 6 minutes
13) Acceptable leak Rate : 1 X10^{-4} mbar lit / sec

Note : -
- Valve filled with Helium Gas at 6 kg/cm^2
- Sniffer probe moved around Body Joint, Gland Seal of the Valve

Observations and result :-

	Background Reading mbar lit / sec	Maximum Observed Reading mbar lit / sec	Leak Rate mbar lit / sec
Body Seal	3.6 X 10^{-6}	9.6 X 10^{-6}	6.0 X 10^{-6}
Gland Seal	3.6 X 10^{-6}	8.6 X 10^{-6}	5.0 X 10^{-6}

RESULT : HELIUM LEAK TEST SATISFACTORY

Test performed by Leak Test Services	Witnessed by Reynold Valves Ltd	Reviewed by
ANIL JOSHI	MILAP DESAI	

27/02/2014

REYNOLD VALVES LTD. BOISAR

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LEAK TEST SERVICES

HELIUM LEAK TEST Chambers, Heat Exchangers, Components, Valves, Roll Metallizers etc.

Ref :HLT/REYNOLD-VALVE/180 Date : 27 Feb 2014

HELIUM LEAK TEST REPORT

1) Manufacturer : Reynold Valves Ltd
2) Client : Reliance Industries Limited
3) Purchase Order No : MMO/7477506 dated 12-09-2013
4) Item Description : 200mm DI PFA Line Ball Valve
5) Serial Number : S 3559
6) Instrument/Machine : Helium Leak Detector, Pfeiffer, Germany, Model 560
7) Calibrated Standard Leak : 5.24 X 10^{-7} mbar lit / sec, Serial No.117/08
8) Reference Document : ASME Sec V, Article 10 & EIL 6835-6-44-0005
9) Test Method : Sniffer Probe
10) Test Pressure : 6 kg/cm^2
11) Test Medium : Helium
12) Test pressure Hold Duration : 9 minutes
13) Acceptable leak Rate : 1 X10^{-4} mbar lit / sec

Note : -
- Valve filled with Helium Gas at 6 kg/cm^2
- Sniffer probe moved around Body Joint, Gland Seal of the Valve

Observations and result :-

	Background Reading mbar lit / sec	Maximum Observed Reading mbar lit / sec	Leak Rate mbar lit / sec
Body Seal	3.5 X 10^{-6}	9.2 X 10^{-6}	5.7 X 10^{-6}
Gland Seal	3.5 X 10^{-6}	9.6 X 10^{-6}	6.1 X 10^{-6}

RESULT : HELIUM LEAK TEST SATISFACTORY

Test performed by Leak Test Services	Witnessed by Reynold Valves Ltd	Reviewed by
ANIL JOSHI	MILAN DESAI	

Equipped with Varian and Pfeiffer Helium Leak Detector

LACO TECHNOLOGIES
CREATING VACUUM AND LEAK TESTING SOLUTIONS

Certificate of Calibration

Calibration Number 340070

ACCREDITED
Calibration Cert. No. 1530.01

Calibration Date: 11 Jun 2013
Calibration Due: 11 Jun 2015

Prepared for

Leak Test Services
Nupur Hall, Near Devi Chowk
Shastri Nagar, Dombivli (W) - 421 202
India

Item Identification

Item/Type: Leak Standard
Model Number: HSL-102
Serial Number: 117/08

Calibration Data

Calibration Gas: **Helium**

	Condition	Leak Rate (mbarL/sec into vacuum)	Uncertainty† (±% of Leak Rate)	Pressure (atm.)	Temperature (°C)
As Received:	Normal	5.24 x 10-8	8.0	1	24.5
As Returned:	Normal	5.24 x 10-8	8.0	1	24.5

Previous Cal Data: leak rate, 5.56 x 10-8 mbarL/sec; uncertainty, ±8.0%; pressure, 1 atm.; temperature, 23.4°C
†Expanded uncerteinty, 95% confidence interval, coverage factor, k=2.

Environmental Conditions/Effects

The leak rate of this item increases/decreases at a factor of 4.0%/°C deviation from the calibration temperature(s) listed above. Relative humidity has negligible effect on the performance of this item. Barometric pressure has no effect on the performance of this item.

Traceability and Conformance

All calibration procedures, equipment maintenance, and training of technicians are in accordance to LACO Quality Manual QM-100, which meets the requirements of ISO/IEC 17025 and ANSI/NCSL Z540-1-1994. All reference standards used in this calibration (see table at right) are traceable to the National Institute of Standards and Technology (NIST). This calibration was performed according to procedure number LSP-102, a direct comparison method.

Reference Standards

Measurement Parameter	Serial Number	Expires
Leak Rate	9903091	Aug 24, 2013
Temperature	4G8217	Jun 19, 2013

Leak Standard Stability

The leak rate of this leak standard depletes at an estimated 1.4%/year. This and all leak standards are sensitive to moisture, oils, and particles; proper use and storage is important for preventing contamination and maintaining leak rate stability. This certificate does not guarantee this item to be in tolerance at the end of the calibration interval.

Calibration Technician: _____ Rick Asper

Quality Control: _____ Ron Brown

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