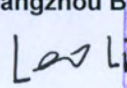
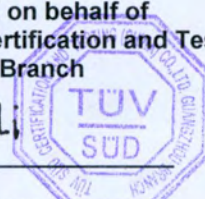


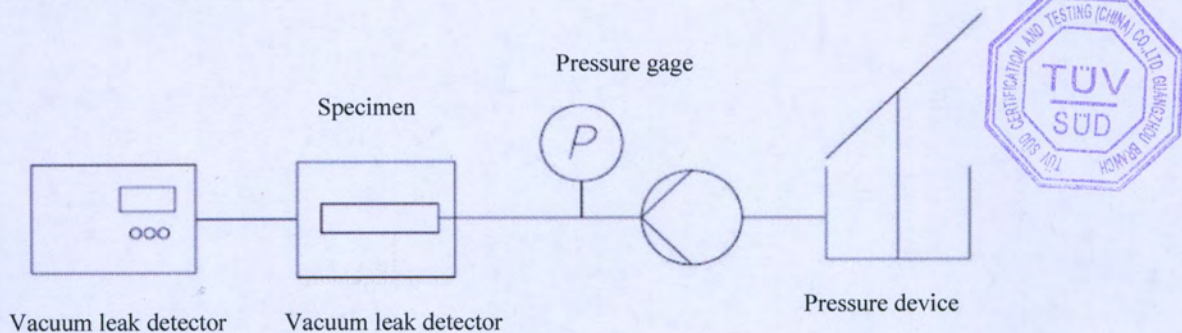
Prüfbericht - Nr.: 64.660.15.114.01		Seite 1 von 8	
<i>Test Report No.:</i>		<i>Page 1 of 8</i>	
Auftraggeber: <i>Client:</i>	FITOK GmbH Sprendlinger Landstr. 115, 63069 Offenbach, Germany.		
Hersteller: <i>Manufacturer:</i>	FITOK Incorporated Block C, Zone E, Yingtai Industrial Park, Dalang Street, Bao'an District, Shenzhen, Guangdong 518109, China.		
Gegenstand der Prüfung: <i>Test item:</i>	Components of Pressure Fitting	Datum der Prüfung: Nov., 18 th , 2015 <i>Date of Test:</i>	
Bezeichnung: <i>Identification:</i>	FITOK(FR) and Swagelok(VCR) FITOK(FO) and Swagelok(VCO)	Serien-Nr.: <i>Serial No.:</i>	Refer to the test numbers
Prüfart: <i>Testing location:</i>	Workshop of FITOK INCORPORATED in Shenzhen		
Prüfgrundlage: <i>Test specification:</i>	1. Reference SEMI F1 "Specification for leak integrity of high-purity gas piping systems and components 2. Test procedure provided by manufacturer.		
Prüfresultat: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). The test items passed the test specification(s). For more detail test content please refer to the following page(s).		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch		
Sign for and on behalf of TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch   Leo Li Project Engineer			
Sonstiges/ Other Aspects: We herewith certify that the signed representative of TÜV SÜD Group, did at the request of client, attended at the work site located at Block C, Zone E, Yingtailong Industrial Park, Dalang Street, Bao'an District, Shenzhen city, Guangdong province, China, on the day of Nov., 18, 2015 in order to witness the helium leak test and hydrostatic pressure test on components of pressure Fitting as independent inspection authority.			
Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.			

A. TEST INFORMATION:

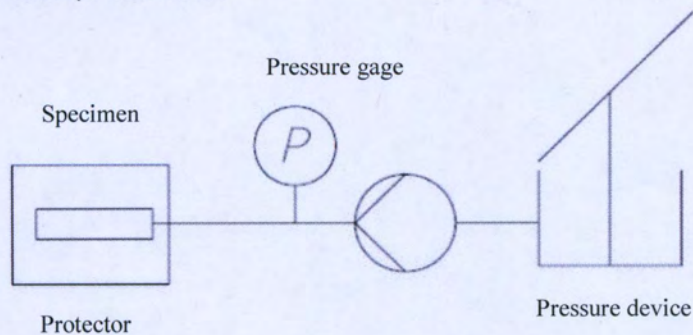
- Test purpose : To verify the sealing property of fittings whose components are selected from FITOK brand or Swagelok brand and combined with these two brands' units in any way.
- Sample description : 1. FITOK FR series and Swagelok VCR series:
1.1 Size 1/4" : 5 specimens
1.2 Size 1/2" : 5 specimens
2. FITOK FO series and Swagelok VCO series:
2.1 Size 1/4" : 5 specimens
2.2 Size 1/2" : 5 specimens
- Test specifications : 1. Reference SEMI F1 "Specification for leak integrity of high-purity gas piping systems and components
2. Test procedure provided by manufacturer.
- Test conditions : 1. Test temperature: Room temperature.
2. Test pressure: see below text.
3. Pressure holding time: 1 min for helium leak test; 3 minutes for hydrostatic pressure test
4. testing operated by FITOK INCORPORATED

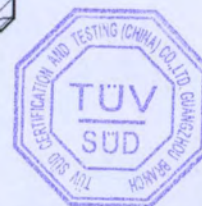
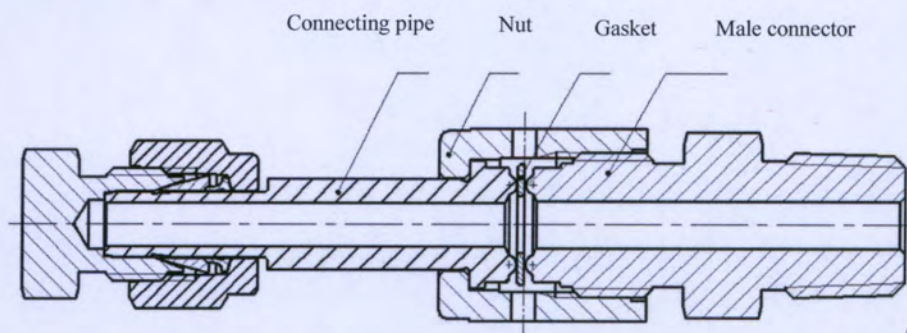
B. TESTING SETS DIAGRAM:

1. For helium leak test:



2. For hydrostatic pressure test:



C. SPECIMEN DRAWING:**D. TESTING RECORD:**

	Group ID Assembly unit	A	B	C	D	E
Testing Combination	Connecting pipe	FITOK	Swagelok	Swagelok	FITOK	FITOK
	Nut	FITOK	Swagelok	Swagelok	Swagelok	FITOK
	Gasket	FITOK	Swagelok	FITOK	Swagelok	Swagelok
	Male connector	FITOK	Swagelok	FITOK	FITOK	Swagelok
TEST DATA:						
FITOK FR series and Swagelok VCR : Size 1/4"	Test No.	1-1	1-2	1-3	1-4	1-5
	helium leak test pressure	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa
	Ammonia leakage rate	5.30×10^{-12}	2.45×10^{-12}	1.02×10^{-12}	1.17×10^{-12}	1.39×10^{-12}
	hydrostatic test pressure	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa
	Result	Pass	Pass	Pass	Pass	Pass
FITOK FR series and Swagelok VCR : Size 1/2"	Test No.	2-1	2-2	2-3	2-4	2-5
	helium leak test pressure	27.6Mpa	27.6Mpa	27.6Mpa	27.6Mpa	27.6Mpa
	Ammonia leakage rate	1.06×10^{-12}	1.00×10^{-12}	8.83×10^{-12}	1.01×10^{-12}	1.00×10^{-12}
	hydrostatic test pressure	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa
	Result	Pass	Pass	Pass	Pass	Pass
FITOK FO series and Swagelok VCO : Size 1/4"	Test No.	3-1	3-2	3-3	3-4	3-5
	helium leak test pressure	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa
	Ammonia leakage rate	1.35×10^{-12}	1.96×10^{-12}	1.00×10^{-12}	1.02×10^{-12}	1.00×10^{-12}
	hydrostatic test pressure	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa
	Result	Pass	Pass	Pass	Pass	Pass
FITOK FO series and Swagelok VCO : Size 1/2"	Test No.	4-1	4-2	4-3	4-4	4-5
	helium leak test pressure	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa	41.4Mpa
	Ammonia leakage rate	1.24×10^{-12}	1.15×10^{-12}	4.35×10^{-11}	1.00×10^{-12}	2.34×10^{-12}
	hydrostatic test pressure	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa	62.0Mpa
	Result	Pass	Pass	Pass	Pass	Pass

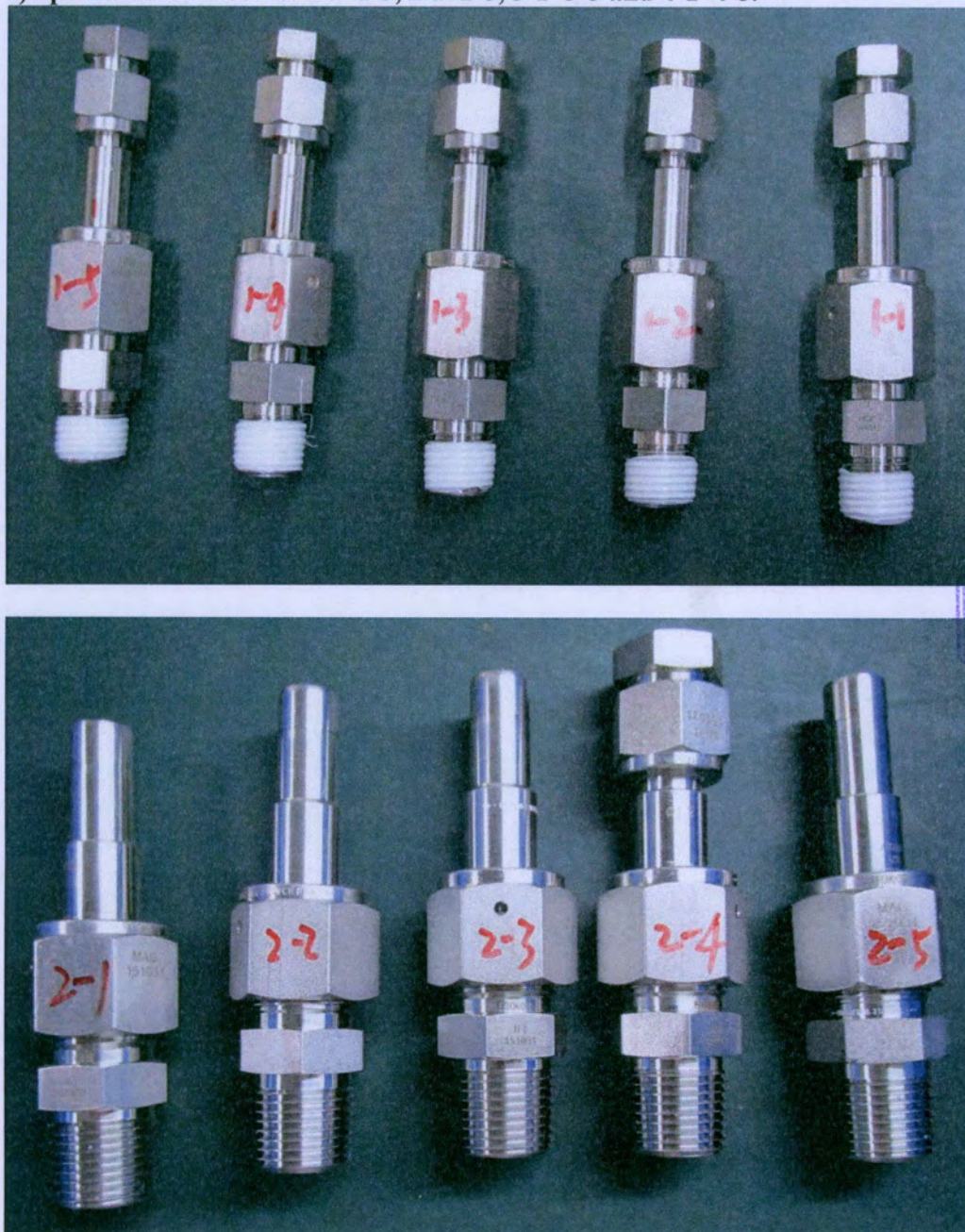
E. TEST RESULT:

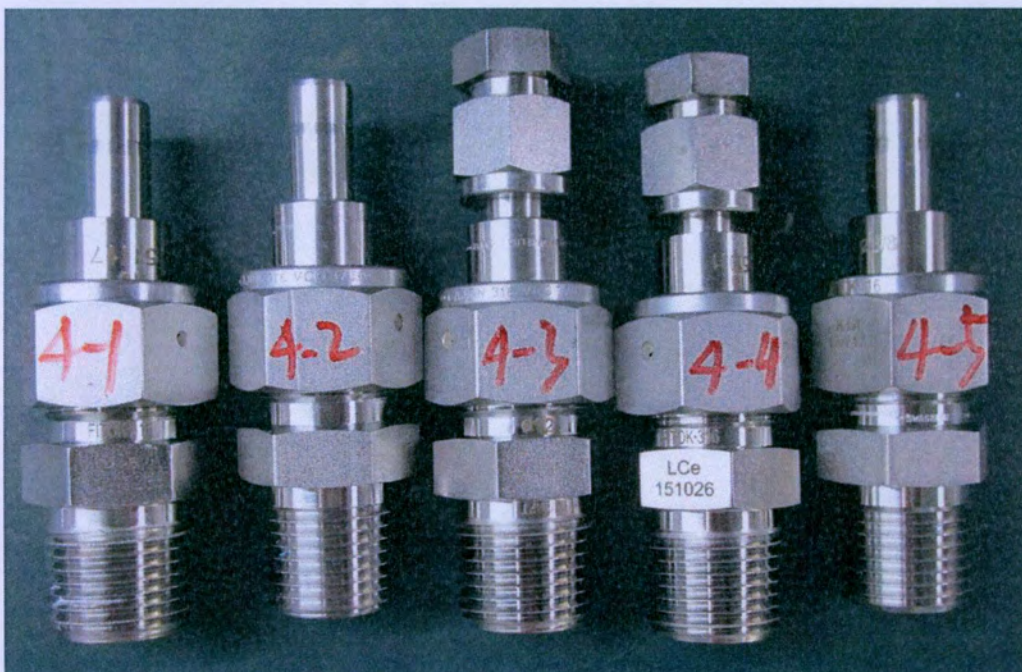
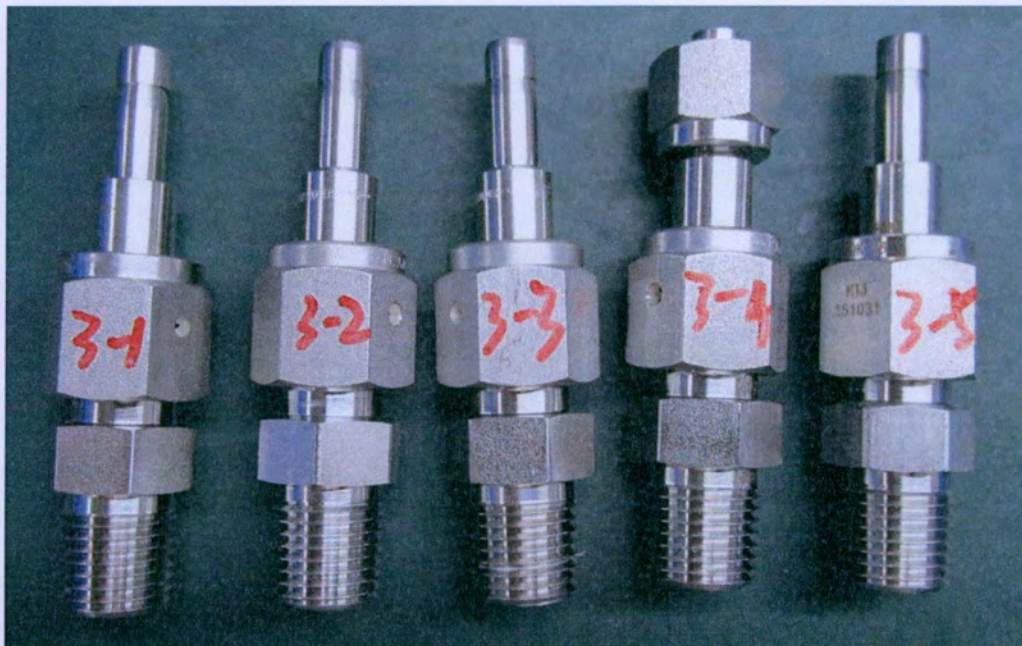
The helium leak tests and hydrostatic pressure tests were performed on these pressure Fittings whose components are selected from FITOK brand or Swagelok brand and combined with these two brands' units in any way, and these tests were witnessed by TÜV SÜD Engineer. During and after the helium leak test and hydrostatic pressure test, no leakage and deformation are found.

Result is acceptable.

F. PHOTOS ON SITE:

1) Specimens of Test No. 1-1~1-5, 2-1~2-5, 3-1~3-5 and 4-1~4-5.

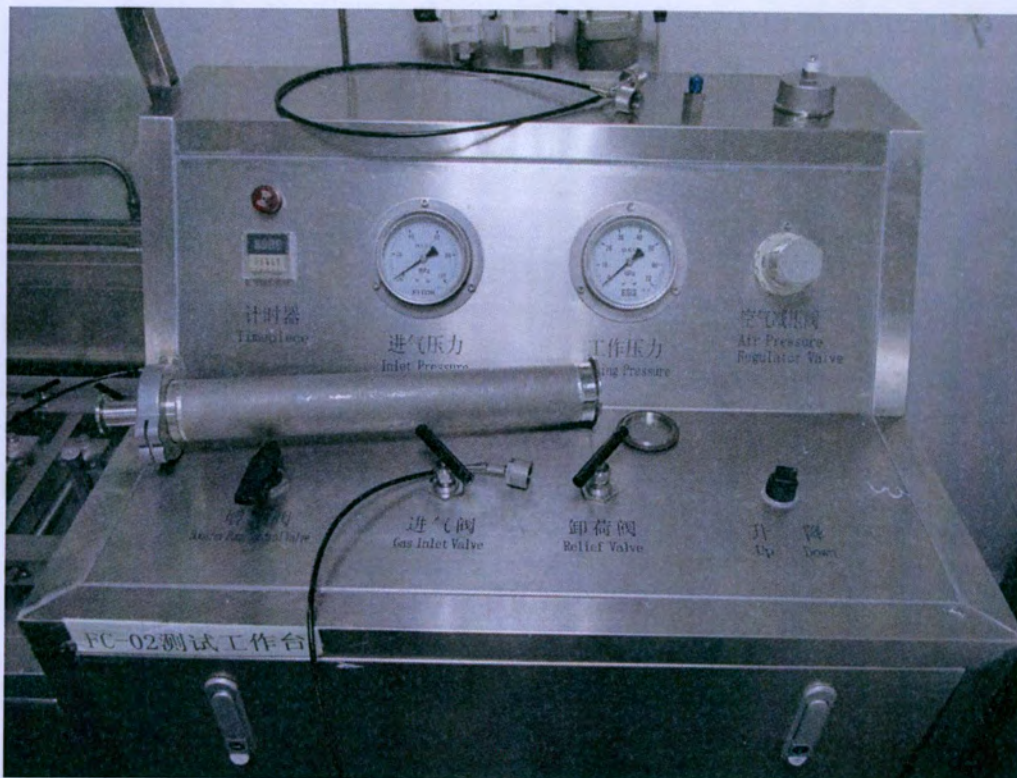




2) Helium leak test made and calibrated by INFICON GMBH

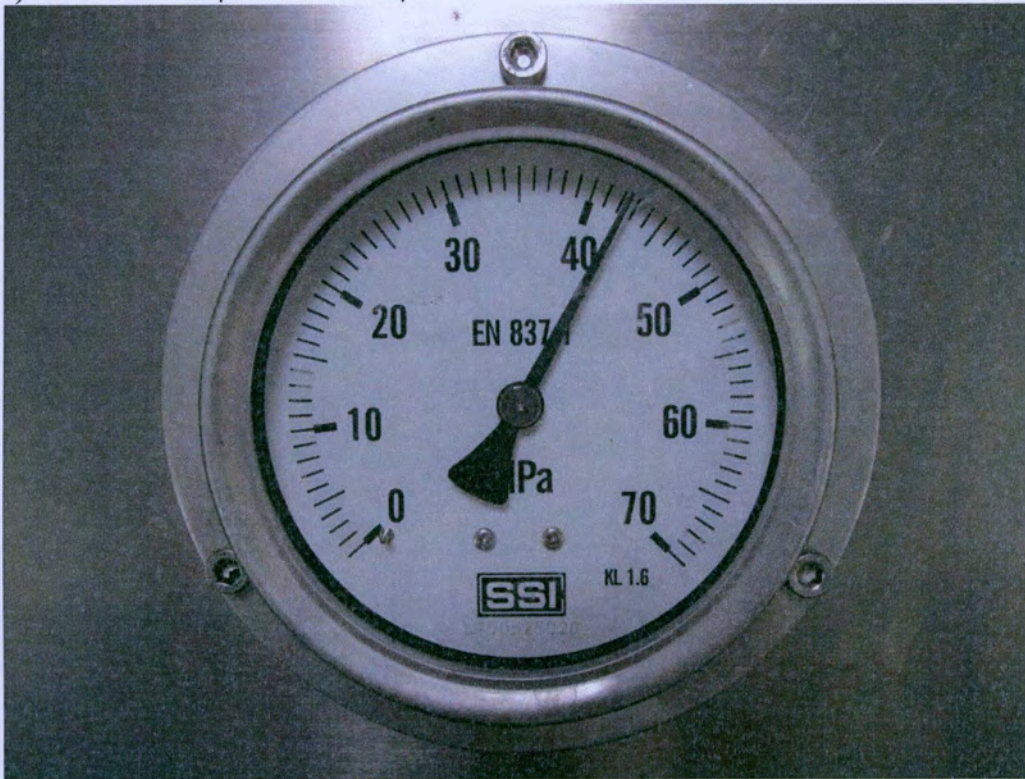


3) Pressure gages used in hydrostatic pressure test are calibrated and valid.

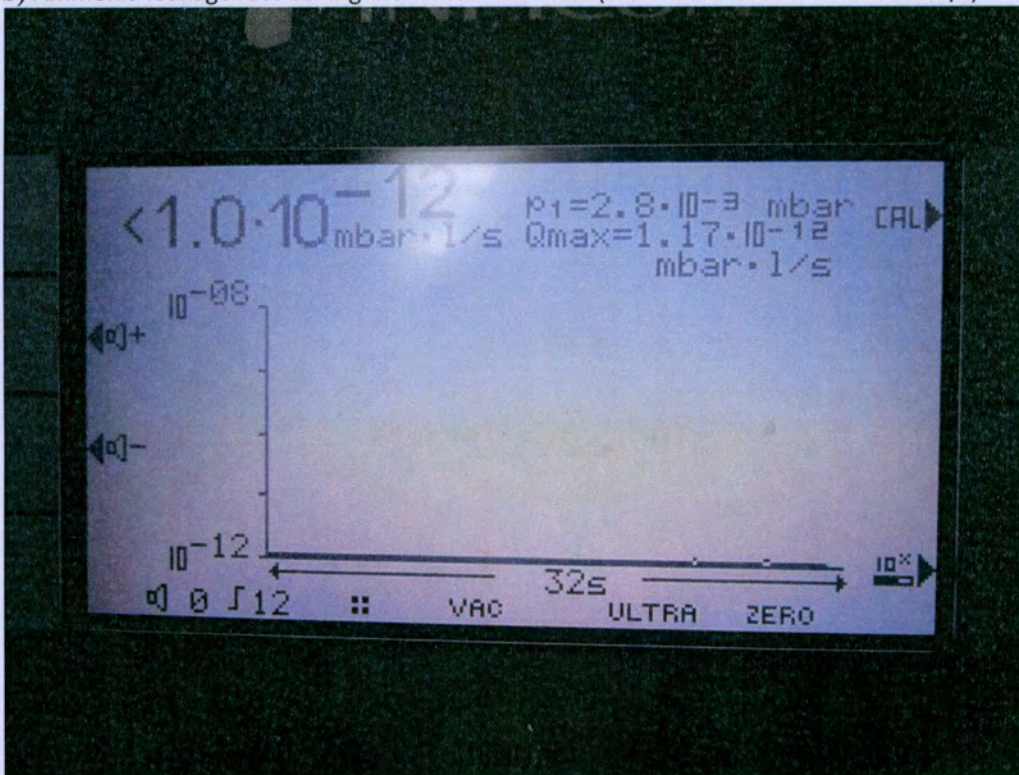


4) Test data obtained and recorded, take test No. 1-4 specimen for example.

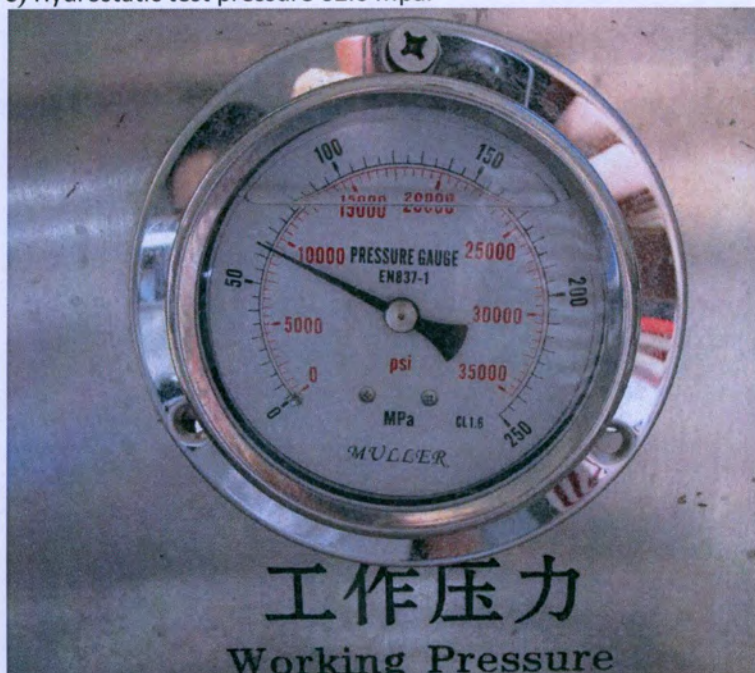
a) Helium leak test pressure 41.4 Mpa



b) Ammonia leakage rate during the Helium leak test (Max Value= 1.17×10^{-12} mbar. L/s)



c) Hydrostatic test pressure 62.0 Mpa.



5) Test on site



THIS REPORT ONLY REFLECTED OUR ACTUAL FINDINGS. THE INSPECTION WAS DONE TO THE BEST OF OUR KNOWLEDGE AND ABILITY AND WITH DUE CARE. THE FINDINGS ARE VALID AS FOR TIME AND PLACE OF INSPECTION.

End of Test Report