

# GIL Type Test Report as per MSS SP-99



**Germanischer Lloyd**

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## INSPECTION REPORT

Report No. - GLIS/PAN/RR/00701

Dated 12.1.2007

This is to certify that the components as described hereunder have been inspected.

Client: - M/S PANAM ENGINEERS  
Client's P.O. No./Contract No: -  
Project:-  
Item: 316SS COMPRESSION TUBE FITTINGS  
Supplier: -  
Manufacturer: M/S PANAM ENGINEERS  
Place of Inspection: R-628 TTC INDUSTRIAL AREA  
MIDC, RABALE  
NAVI MUMBAI : 400 705 - INDIA.  
Date/Period of Inspection: 29.01.2007 TO 10.02.2007

### The Following Material was inspected

#### 1 Order

The order was the test stainless steel tube fittings according to BS 4368 Part4, 1984  
"Compression coupling for tubes"

#### 2 Samples

The necessary samples were delivered by M/s Panam Engineers surveyed by M/s Germanischer Lloyds Industries & Services, GmbH, Mr. Rajesh Raikar of Mumbai India

Managing Directors: Lutz Wittenberg (Spokesman) Hans Böttg  
Germanischer Lloyd Industrial Services GmbH, Registered Office Hamburg, HR 898804, Amtsgericht Hamburg  
City DVC Energy Services Pvt Ltd 1<sup>st</sup> Floor, Dakhsh Building, Sector 11, Plot No.3, CBD Gallopur, Near Mumbai - 400 614  
Place of performance and installation is Hamburg. The client agrees to the General Terms and Conditions of Germanischer Lloyd's Insurance  
German law applies





**4.2. Minimum Hydraulic Burst Pressure Test**

All Tube fittings have satisfactory passed the requirement of four times the permissible working pressure.

CODE	Tube wall thickness	Working Pressure		Min Burst Test Pressure		Actual Test Pressure		Time
	Inch	Bar	Psi	Bar	Psi	Bar	Psi	
PAN 001-1/4"	0.049	421	6000	1799	24000	1850	26399	5
PAN 002-3/8"	0.065	421	6000	1799	24000	1820	27398	5
PAN 003-1/2"	0.083	421	6000	1799	24000	1825	26042	5

**4.3. Dismantling and Reassembly Test (7.4)**

All tube fitting passed the test satisfactory.

**4.4. Minimum Static Gas Pressure (vacuum) Test (7.5)**

All tube fitting passed the test satisfactory.

**4.5. Maximum Static Gas Pressure Test (7.6)**

All tube fitting passed the test satisfactory.

**4.6. Hydraulic Impulse and Vibration Test (7.7)**

CODE	Tube wall thickness	Working Pressure		Pressure Impulse			Vibration	Time
	Inch	Bar	Psi	Hz	Min Bar	Max Bar	Hz	
PAN 001-1/4"	0.049	421	6000	0.5	45	450	23	278
PAN 002-3/8"	0.065	421	6000	0.5	45	450	23	278
PAN 003-1/2"	0.083	421	6000	0.5	45	450	23	278

**Attached documents:-**

- 1) All Loop Drawing
- 2) Pressure Gauge Calibration List



12-1-2007

Place

Date

Manager to Germanischer Lloyd  
Industrial Services GmbH.  
(printed/signature/stamp)



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Sl no	Content
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4.3	Dismantling and Reassembly Test
4.4	Minimum Static Gas Pressure ( vacuum test) Test
4.5	Minimum Static Gas Pressure Test
4.6	Hydraulic Impulse and Vibration Test

### 3: Performance of the test

The tests were performed by using the testing equipments and calibrated pressure gauges.

The test are carried out, witnessed by the surveyor of Germanischer Lloyds Industries & Services, GmbH, Mr Rajesh Raikar of Mumbai India

The following tests were performed:

- 7.2 Hydraulic Proof pressure test
- 7.3 Minimum hydraulic burst pressure test
- 7.4 Dismantling and reassembly test
- 7.5 Minimum static gas pressure (vacuum test) test
- 7.6 Minimum static gas pressure test
- 7.7 Hydraulic impulse and vibration test

### 4: RESULTS

#### 4.1 Hydraulic Proof Pressure Test

All tested samples meet the requirement of 1.5 times the maximum permissible working pressure.

CODE	Tube wall thickness	Working Pressure		Test Pressure		Time
		Bar	Psi	Bar	Psi	
PAN 001-14"	0.049	42.1	6000	63.1	9000	5
PAN 002-3/8"	0.065	42.1	6000	63.1	9000	5
PAN 003-1/2"	0.083	42.1	6000	63.1	9000	5

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## Germanischer Lloyd

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### INSPECTION REPORT

Report No. GLIPAN/RR/07/01 Dated - 06.02.2007

This is to certify that the components as described hereunder have been inspected.

Client: **M/s Panam Engineers**  
Client's P.O. No./Contract No: -  
Project: -  
Item: **Instrument Valves and Manifolds**  
Supplier: -  
Manufacturer: **M/s Panam Engineers**  
Place of Inspection: **R 628, TTC Industrial Area , MIDC Rabale , Thane –  
Belapur Road , Navi Mumbai 400 701-INDIA**  
Date/Period of Inspection: **30.1.2007**

The Following Material was Inspected:-

S.No	Quantity		Description	Remarks
	Inspected	Outstanding		
1	3 Nos	Nil	1/4" Needle Valve # 6000 psi	
2	3 Nos	Nil	1/2" Needle Valve# 6000 psi	
3	3 Nos	Nil	3 -Valve Manifold # 6000 psi	
4	3 Nos	Nil	5 -Valve Manifold # 6000 psi	



Managing Director: Lutz Wittenberg (Spokesman) Hans Berg  
Germanischer Lloyd Industrial Services GmbH, Registered Office Hamburg, HR 288204, Amtsgericht Hamburg  
C/o GYC Energy Services Pvt Ltd 1<sup>st</sup> Floor, Dakshin Building, Sector 11, Post No.2, CBD Belapur, Navi Mumbai - 400 654  
Place of performance and jurisdiction is Hamburg. The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable.  
German law applies.



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Industrial Services

**INSPECTION REPORT**

Report No. GL/PAN/RR/07/01 Dated :- 06.02.2007

**Applicable Specification / Drawings**

Document Name	Document Number	Rev.	Dated
Instrument Valves	MSS SP -99-1994		2001
Drawings	PAN-005, PAN-006 PAN-007 PAN-008		01-01-2007
Manufacture Test Procedure	PE/PR/007		01-01-2007

**Scope of Inspection:-**

(Brief description of details of inspections, tests etc. carried out/witnessed)

**Qualification Tests as per MSS SP -99 for Instrument Valves and Manifolds**

- 1) Review of Manufacture test procedure and Material Test Certificate
- 2) Witness of Pneumatic test
- 3) Witness of Hydro test
- 4) Witness of Proof Test
- 5) Witness of Burst Test.

**Inspection Details:-**

Following inspections carried out and found complying with requirements of

- 1) Reviewed the Hydrostatic Test procedure
- 2) Reviewed the material test certificate
- 3) Visual and Dimensional carried out for overall finish, workmanship, NPT thread check at random selected as per drawing.
- 4) Witnessed Pneumatic Air test for shell and seat carried out at a pressure of 80 psi with holding time of 15 seconds and found satisfactory.
- 5) Witnessed Pneumatic test with Nitrogen as media tested shell and seat at a pressure of 1000 psi with holding time of 15 seconds and found satisfactory.
- 6) Witnessed Hydro static test for shell and seat carried out. Shell hydro test pressure of 9000 psi and holding time of 15 sec and for seat hydro test pressure of 6600 psi and holding time of 15 sec and found satisfactory
- 7) Witnessed Hydro static shell proof test with a pressure of 12000 psi with a holding time of 60 seconds and found satisfactory.

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Dated : 06.02.2007

8) Witnessed of Burst test was carried out. The pressure required for test is 24000 psi. The pressure recorded for all the three samples as below :-

a) 1/4" Needle Valve Sample No :- (1)PNV-IB-S-4FF -001 (2)PNV-IB-S-4FF -002 (3)PNV-IB-S-4FF -002

$P \leq 0.25 B \cdot T_m / T_a$   
P = CWP Rating  
B = the lowest burst test pressure  
T<sub>a</sub> = Actual tensile strength  
T<sub>m</sub> = Specified minimum tensile strength  
B = 24000 psi = 24000 / 1000 = 24 ksi  
T<sub>a</sub> = 804.20 N/mm<sup>2</sup> = 804.20 x 0.145 = 87.60 ksi  
T<sub>m</sub> = 515 N/mm<sup>2</sup> = 515 x 0.145 = 74.67 ksi

$P \leq 0.25 \cdot 24 \cdot 74.67 / 87.60$

**P ≤ 5116 psi**

b) 1/2" Needle Valve Sample No : (1) PNV-H-S-8-FF -SG-001 (2)PNV-H-S-8-FF -SG-002 (3) PNV-H-S-8-FF -SG-003

$P \leq 0.25 \cdot T_m / T_a$   
P = CWP Rating  
B = the lowest burst test pressure  
T<sub>a</sub> = Actual tensile strength  
T<sub>m</sub> = Specified minimum tensile strength  
B = 24000 psi = 24000 / 1000 = 24 ksi  
T<sub>a</sub> = 591.75 N/mm<sup>2</sup> = 591.75 x 0.145 = 85.80 ksi  
T<sub>m</sub> = 515 N/mm<sup>2</sup> = 515 x 0.145 = 74.67 ksi

$P \leq 0.25 \cdot 24 \cdot 74.67 / 85.80$

**P ≤ 5220 psi**





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c) 3-Valve Manifold Sample No - (1) 3 VM-SS-8-T-SG-001 (2) 3VM-SS-8-T-SG-002  
(3) 3VM-SS-8-T-SG-003

$P \leq 0.25 B Tm / Ta$   
P = CWP Rating  
B = the lowest burst test pressure  
Ta = Actual tensile strength  
Tm = Specified minimum tensile strength  
B = 24000 psi = 24000 / 1000 = 24 ksi  
Ta = 595.40 N/mm<sup>2</sup> = 595.40 x 0.145 = 86.33 ksi  
Tm = 515 N/mm<sup>2</sup> = 515 x 0.145 = 74.67 ksi

$P \leq 0.25 \times 24 \times 74.67 / 86.33$

**P ≤ 5180 psi**

d) 5-Valve Manifold Sample No - (1) 5 VM-SS-8-T-SG-001 (2) 5 VM-SS-8-T-SG-002  
(3) 5 VM-SS-8-T-SG-003

$P \leq 0.25 B Tm / Ta$   
P = CWP Rating  
B = the lowest burst test pressure  
Ta = Actual tensile strength  
Tm = Specified minimum tensile strength  
B = 24000 psi = 24000 / 1000 = 24 ksi  
Ta = 595.40 N/mm<sup>2</sup> = 595.40 x 0.145 = 86.33 ksi  
Tm = 515 N/mm<sup>2</sup> = 515 x 0.145 = 74.67 ksi

$P \leq 0.25 \times 24 \times 74.67 / 86.33$

**P ≤ 5180 psi**

**Associated Documents:-**

- 1) Manufacture Test Procedure
- 2) Calibration of the Pressure Gauge
- 3) Material Test Certificate
- 4) Drawings for all the valves and Manifolds



*[Handwritten Signature]*  
Manager to Germanischer Lloyd  
Industrial Services India Pvt. Ltd.  
(printed/signature/stamp)

Place \_\_\_\_\_ Date 6.02.07