## **GIL Type Test Report as per MSS SP-99**

# Germanischer Lloyd Industrial Services Section 9 20109 Fluenburg / Germany Phone - 49 49 36149 - 7700 Fair + 49 20 36149,1110 ghirligh-prosp.com www.ghgrodp.com

### INSPECTION REPORT

Report No. - GLIS/PAN/RR/007/01 Diated 12.1,2007

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

Client: :-	M/S PANAM ENGINEERS
Client's P.O. No./Contract No:	
Project:-	5
lterm:	316S5 COMPRESSION TUBE FITTINGS
Supplier:	
Manufacturer:	MIS 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 Partil, 1984

"Compression coupling for tubes"

### 2 Samples

The necessary samples were delivered by Mis Panam Engineers surveyed by Mis Germanischer Lloyds Industries & Services, GmbH, Mr. Rajesh Rakar of Mumbai India

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### 4.2 Minimum Hydraulic Burst Pressure Test

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

COOE	Tube wall thokness	Working Pressure			int Test Isaré	Actual Test Pressure		Time
an and an and a second second	Inch	Bar	PB.	0ar	Psi	Bar	P <sub>10</sub>	min
PAN 001-144*	0.049	421	6300	1799	24000	1850	26399	5
PAN 002-3/8*	0.065	421	6000	1799	24000	1920	27398	5
PAN 003-1/2"	0.063	421	6000	1799	24000	1625	25042	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 lube 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 wait thickness	1.000	rking soure	Pressure Impulse		Vibration	Time	
and a second	Inch	Bar	Pa	Hz	Min Bac	Max Bar	Hz	Hrs
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



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### SI no Content

1)	Order
2)	Samples
2) 3) 4)	Performance of the Test
4)	Results
4.1	Hydraulic Proof Pressure Test
4.2	Minimum Hydraulic Burst Pressure Test
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 performent

- 72 Hydraulic Proof pressure test
- 7.3 Minimum hydraulic burst pressure test
- 7.4 Domantling and reessembly test
- 7.5 Minimum static gas pressure (vacuum teel) leet
- 7.6 Minimum static gas pressure test 7.7 Hydraulic expulse and vibration tast
- 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
	Inch	Bar	Psi	Bar	Pai	min
PAN 001-14*	0.049	421	6000	631	9000	5
PAN 002-3/8"	0.065	421	6000	631	9000	5
PAN-003-1/2"	0.083	421	60.00	631	9000	5
			1	1994 2 18 3	11-2555	COLUMN T

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INSPECTION REPORT

Report No. GLI/PAN/RR/07/01 Dated - 06,02.2007

This is to certify that the components as described hereunder have been inspected. M/s Panam Engineers Client:

	1. N N N N N N N N N N N N N N N N N N N
Client's P.O. No./Contract No:	0.4.0
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 -

5.No Qu		antity	Description	(Constant)
9.140	Inspected	Outstanding	Description	Remarks
1	3 Nos	Ni	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	Nit	5 -Valve Manifold # 6000 psi	



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### 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.
  - 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.
  - 5) 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.
  - 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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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≤0.25 B Tm/ Ta

- $\begin{array}{ll} P \le 0.25 B \mbox{ Tra} \\ P &= CWP \mbox{ Rating} \\ B &= the low "t burst test pressure \\ Ta &= Actual & nsile strength \\ Tm &= Spach & tminimum tensile strength \\ B &= 24000 \ sic = 24000 \ / 1000 = 24 \ kai \\ Ta &= 6^{\circ} 4.24 \ \ tmm 2 = 604.20 \ \times 0 \ \ 145 = 87.60 \ \ Kai \\ Tm &= 5 \ \ N_{e} \ \ m2 = 515 \ x \ 0 \ \ 145 = 74.67 \ \ kai \end{array}$
- P≤0.26 24 74.67/87.60
- P≤5116 s
- b) %\* Needle Valve mple 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 ≤ 0.25 x 24 x74.67 / 85.80

P ≤ 5220 pai



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### INSPECTION REPORT

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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 ≤ 0.25 B Tm/ Ta

- P ≤ 0.25 B Triv/Ta P = CWP Rating 6 = the lowest burst test pressure Ta = Actual tensile strength Tm = Specified minimum tensils strength 8 = 24000 pai = 24000 / 1000 = 24 ksl Ta = 595.40 N/mm2 = 595.40 x 0.145 = 86.33 ksl Tm = 515 N/mm2 = 515 x 0.145 = 74.67 ksl

P≤0.25 x 24 x 74.67 / 86.33

### $P \le 5180 \text{ psi}$

# 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 = 0.25 B Tm/ Ta

- P \$ 0.25 B Tm/ Ta P = CWP Rating 8 = the lowest burst fest pressure Ta = Actual tensile strength Tm = Specified minimum tensile strength 8 = 24000 psi = 24000 / 1000 = 24 ksl Ta = 595.40 N/mm2 = 595.40 x 0.145 = 86.33 ksl Tm = 515 N/mm2 = 515 x 0.145 = 74.67 ksl

### P = 0.25 x 24 x 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

Place



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Page 40% Managing Directors: Liste WWeedwarg (Spakesimae) Mans: Berg Garmanischer Lloyd Industrial Services Getter, Registered Office Hamborg, HR Bällible, Amtigeticht Hamburg Cro GMC Energy Services IV: LIM (\* Proc. Damme Building: Bastar 11, Plot Nu. J. OBD Bolgan, Han Manetaal – 440 414 Place et zahrzenen and Europhia. Er temperaturg . Pro Ideat action of the Daneal Terms and Coordinate defenses/the Layd II Garman wardenen. · Layer is approxim