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TNO-report

91M/09660/MAA/EWI

Date: 22-08-1991

TESTING OF TUBE FITTINGS

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Order number : 15.2.1039

Your ref.nr. : 2017/91

Copies : 5

LLOYD'S REGISTER

J. R. van der Molen

REVIEWED VERIFIED
 WITNESSED DATE

[Handwritten signature] 03.09.91

FOR W. VERKROOST

Netherlands organization for
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1 ORDER

The order was to test stainless steel tube fittings according to BS 4368 Part 4: 1984
"Compression coupling for tubes".

2 SAMPLES

The necessary samples were delivered by HAM-LET Metal Products Ltd. surveyed by Lloyd's Register, Mr. S. Tesler Surveyor in Haifa, Israel.

	<u>CONTENTS</u>	<u>Page</u>
1	ORDER	1
2	SAMPLES	1
3	PERFORMANCE OF THE TEST	2
4	RESULTS	3
4.1	Hydraulic proof pressure test	3
4.2	Minimum hydraulic burst pressure test	4
4.3	Dismantling and reassembly test	4
4.4	Minimum static gas pressure (vacuum) test	4
4.5	Maximum static gas pressure test	4
4.6	Hydraulic impulse and vibration test	5

3 PERFORMANCE OF THE TESTS

The tests were performed by using testing equipment of which the calibration procedures meet the requirements in NEN 2649, as described in the NKO acknowledgement.

The tests are carried out, witnessed by a Surveyor of Amsterdam Lloyd's Register.

The test requirements and procedures of the tests are described in annex 1.

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
- 7.6 Maximum static gas pressure test
- 7.7 Hydraulic impulse and vibration test.

4 RESULTS

4.1 Hydraulic proof pressure test (7.2)

All tested samples meet the requirement of 1.5 times the maximum permissible working pressure. See table 1.

TABLE 1

CODE	Tube wall thickness		Working pressure		Test pressure	Time
	mm	inch	bar	psi	bar	min.
768 Lss 1.1/6	0.5	0.02	475	6881	713	5
768 Lss 12.1/2	2.0	0.078	462	6696	693	5
768 Lss 25.3/4	2.5	0.098	378	5483	567	5

4 RESULTS**4.1 Hydraulic proof pressure test (7.2)**

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768 Lss 25.3/4	2.5	0.098	378	5483	567	5

4.2 Minimum hydraulic burst pressure test (7.3)

All tube fittings have satisfactorily passed the requirements of four times the permissible working pressure. See table 2.

TABLE 2

CODE	Working pressure		Min. burst pressure bar	Test pressure bar	Time min.
	Bar	psi			
768 Lss 1.1/6	475	6881	1900	2000	5
768 Lss 12.1/2	462	6696	1848	2000	5
768 Lss 25.3/4	378	5483	1512	1600*	5

* The assembled tube failed in this test by a testpressure of 1250 bar. A different tube (wall thickness 5 mm) passed the test procedure satisfactorily.

4.3 Dismantling and reassembly test (7.4)

All tube fittings passed the test satisfactorily.

4.4 Minimum static gas pressure (vacuum) test (7.5)

All tested assemblies passed the test satisfactorily.

4.5 Maximum static gas pressure test (7.6)

All tested assemblies passed the test satisfactorily.

4.6 Hydraulic impulse and vibration test (7.7)

All tube fittings passed the requirements of this test satisfactorily. See table 3.

CODE	Working pressure		Pressure impulse			Vibration	Times
	bar	psi	Hz	min.bar	max.bar	Hz	hours
768 Lss 1.1/6	475	6881	0,5	45	450	23	278
768 Lss 12.1/2	462	6696	0,5	45	450	23	278
768 Lss 25.3/4	378	5483	0,5	45	450	23	278

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