

Test Report

Applicant. Hangzhou Haikuo Rubber And Plastic Products Co.,ltd
Address. 8 Floor,7A building, Xigang Xinjie, NO.206 Zhenhua Rd, Hangzhou,
Zhejiang Province, China.310030

The following merchandise was submitted and identified by the vendor as:

Sample Name. PU Hydraulic tubing
Sample Reference /
Material Inner tube PA nylon material, Middle layer of high strength fiber weave,
Outer tube PU material
Sample Description /
Application Field. Marine vessels
Buyer /
Supplier /
Quantity 10pcs

Received Date 2015.07.06

Testing Period. 2015.07.06~2015.07.22

Test Item. See the summary of test

Test Specification. SAE J343

***** to be continued*****

Written by _____

Inspected by _____

Approved by _____

Date _____

Test Report

SUMMARY OF TEST:

No.	Sample Name.	Test Item(s)	Testing Period	Test Specification	Test Results	Conclusion
1.	PU Hydraulic tubing	Burst test	2015.07.06~ 2015.07.22	Burst pressure $\geq 27.6\text{MPa}$	See P3-4	Pass
2.		Leakage test		Test sample should no leakage or failure	See P5-6	Pass
3.		Cold flex test		There shall be no cover cracks or leakage	See P7-8	Pass
4.		Oil resistance test		The change in volume of the test specimen shall be between -15% and +35% after 70 hours immersion at 212°F(100°C)	See P9	Pass
5.		Ozone resistance test		There shall be no evidence of cracking or deterioration	See P10-11	Pass
6.		Volumetric expansion test		Less than 1.25cc/ft	See P12-13	Pass

Photo of the sample before the test:



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Test Report

1. Test Item: Burst test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Burst pressure test bench	BPT-GD400WL-AH	2016-05-24

(2) Lab Environmental Conditions: Temperature:23℃,Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

(4) Test Conditions:

- 1) Fix the sample on the device, increased at a constant rate so as to attain the specified minimum burst pressure within a period of not less than 15 s nor more than 60 s.
- 2) Test requirements: Burst pressure ≥ 27.6 MPa

(5) Test Results:

Sample No.	Burst pressure (MPa)
1#	35.22

(6) Sample Photo During The Test:



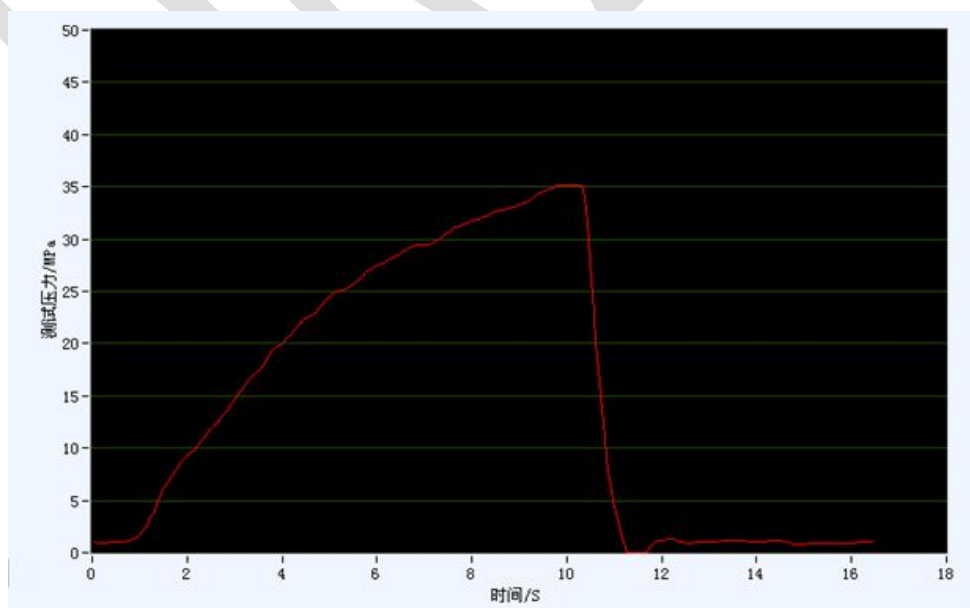
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Test Report

(7) Sample Photo After The Test:



(8) Test curve:



Test Report

2. Test Item: Leakage test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Burst pressure test bench	BPT-GD400WL-AH	2016-05-24

(2) Lab Environmental Conditions: Temperature:23℃,Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

(4) Test Conditions:

- 1) Fix the sample on the device, to a hydrostatic pressure of 70% of the specified minimum burst pressure (19.32MPa) for a period of between 5.0 to 5.5 min. Reduce the fluid pressure to 0 MPa. Re-apply the 70% of minimum burst hydrostatic pressure for another 5.0 to 5.5 min period. Reject assemblies showing leakage or failure
- 2) Test requirements: Test sample should no leakage or failure

(5) Test Results:

Sample No.	Test result
2#	No leakage or failure

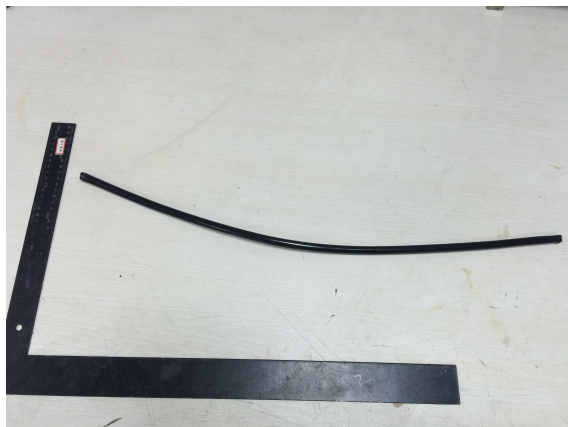
(6) Sample Photo During The Test:



***** to be continued*****

Test Report

(7) Sample Photo After The Test:



***** to be continued*****

Test Report

3. Test Item: Cold flex test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Ultra-low temperature thermostat humidity chamber	SHTH-Z-102U	2016-03-31

(2) Lab Environmental Conditions: Temperature:23℃, Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

(4) Test Conditions:

- 1) Subject hose assemblies to the specified temperature (-18℃) in a straight position for 24 h. Then, while still at the specified temperature, the samples shall be evenly and uniformly bent once over a mandrel having a diameter equal to twice the specified minimum bend radius. Bending shall be accomplished within a period of not less than 8 s nor more than 12 s. After bending, allow the sample to warm to room temperature, visually examine it for cover cracks and subject it to the proof test. There shall be no cover cracks or leakage
- 2) Test requirements: there shall be no cover cracks or leakage

(5) Test Results:

Sample No.	Test result
3#	No crack or leakage

(6) Sample Photo During The Test:



***** to be continued*****

Test Report

(7) Sample Photo After The Test:



***** to be continued*****

Test Report

4. Test Item: Oil resistance test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Heraeus oven	Thermo T6120	2015-12-09
2.	Precision scales	360ES 320A	2016-03-18

(2) Lab Environmental Conditions: Temperature:23℃,Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

(4) Test Conditions:

1) Test fluid: IRM 903

2) Test time: 70h

3) Temperature: 100℃

(5) Test Results:

Sample No.	Change in volume (%)	Average (%)
1	7.19	7.36
2	8.34	
3	6.55	

(6) Sample Photo During The Test:



***** to be continued*****

Test Report

5. Test Item: Ozone resistance test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Ozone aging test chamber	B-CY-120	2016-03-31

(2) Lab Environmental Conditions: Temperature:23℃,Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

(4) Test Conditions:

- 1) After exposure to an air/ozone mixture for 70h with ozone at a partial pressure 50mpa there shall be no evidence of cracking or deterioration
- 2) Test requirements:no evidence of cracking or deterioration

(5) Test Results:

Sample No.	Test result
1#	No evidence of cracking or deterioration
2#	No evidence of cracking or deterioration
3#	No evidence of cracking or deterioration

(6) Sample Photo During The Test:



***** to be continued*****

Test Report

(7) Sample Photo After The Test:



1#



2#



3#

***** to be continued*****

Test Report

6. Test Item: Volumetric expansion test

(1) Test Equipment(s):

No.	Name	Model	Valid Date to
1.	Brake hose volume expansion test machine	/	/

(2) Lab Environmental Conditions: Temperature:23℃,Humidity:50% (RH)

(3) Reference Standard: Selected test(s) as requested by applicant, refer to SAE J343

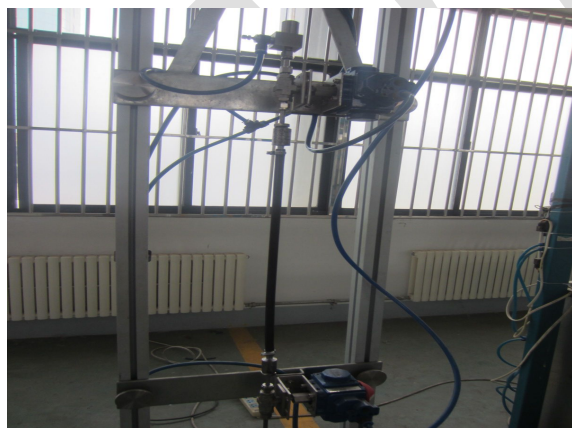
(4) Test Conditions:

- 1) Pressure rise rate: 180MPa/min,
- 2) Free length: 280mm

(5) Test Results:

Sample Name.	Average expansion quantity (cc)	Volumetric expansion (cc/ft)
PU Hydraulic tubing	0.033	0.036

(6) Sample Photo During The Test:



***** to be continued*****

Test Report

(7) Test curve:



***** The End of Test Report *****

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