

Test Report No. S08MEC04638/CLC
dated 28 AUG 2008



PSB Singapore

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SUBJECT

Testing of ixPress pipes and fittings.

TESTED FOR

HIGASHIO MECH CO,LTD.
8-22 KIKUSUICHO, KAWACHINAGANO
OSAKA 586-0012, JAPAN

Attention : Mr Shingo Higashio

SAMPLE SUBMISSION DATE

05 Aug 2008

SAMPLE DESCRIPTION

Two sizes (ND 25 and ND 32) of ixPress multilayer pipes (PEX/AL/PEX) and fittings samples (Refer Figure 1) were received for the following tests:

- A. Burst Test
- B. Pull Test

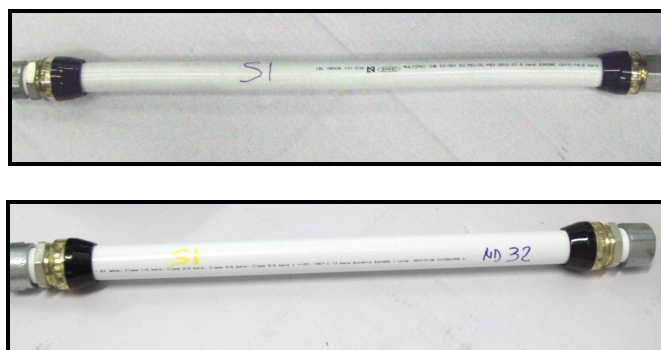


Figure 1 : Sample with fitting installed



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TEST METHOD

As agreed with client, the tests was carried out as follow,

1. Burst Test

1. Both ends of the test sample are connected with ixPress fittings; one end is capped while the other is connected to a water source.
2. With the testing ambience at 23 °C, water is introduced into the test sample.
3. Pressure is increased and held for three minutes with every increment of one bar of pressure until the sample fails.
4. The burst pressure is recorded and tabulated.
5. The test is repeated another two times for a total of three samples.


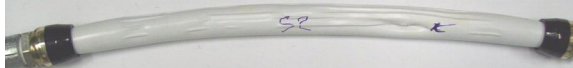
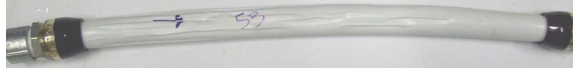
2. Pull Test

1. Both ends of the test sample are connected with ixPress fittings, and attached onto a Universal Tensile Machine (UTM).
2. With the testing ambience at 23 °C, force is applied with a crosshead speed of 10mm/minute onto the sample until failure.
3. The failure strength is recorded and tabulated.
4. The test is repeated another five times for a total of six samples with three samples at 23°C and three samples at 50°C.

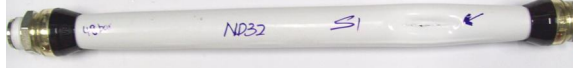
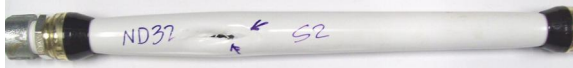
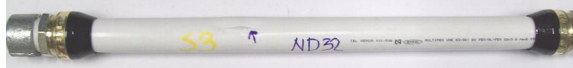


TEST RESULTS:

Burst Test (23 °C, ND 25)

Nominal size (ND25)	Burst Pressure (bar)	Photo after test
S1	59	
S2	59	
S3	58	

Burst Test (23 °C, ND 32)

Nominal size (ND32)	Burst Pressure (bar)	Photo after test
S1	48	
S2	47	
S3	47	


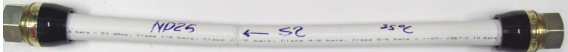

Note: The samples fail at the centre of the test piece.
No slippage or damage was observed on the ixPress fittings.

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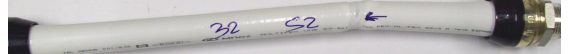
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TEST RESULTS: Con't

Pull Test (23°C, ND 25)

Nominal size (ND25)	Maximum Load (kN)	Photo after test
S1	4.90	
S2	4.98	
S3	4.99	

Pull Test (23°C, ND 32)

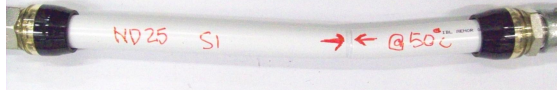

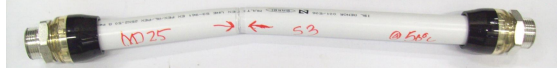
Nominal size (ND32)	Maximum Load (kN)	Photo after test
S1	7.65	
S2	7.49	
S3	7.39	

Note: The samples fail at the centre of the test piece.
No slippage or damage was observed on the ixPress fittings.

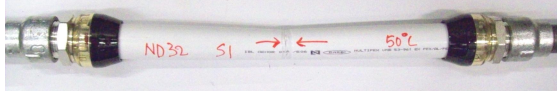
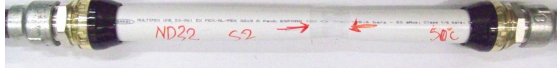
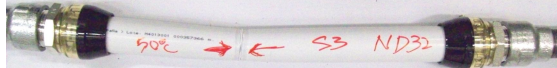
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TEST RESULTS: Con't

Pull Test (50°C, ND 25)

Nominal size (ND25)	Maximum Load (kN)	Photo after test
S1	3.46	
S2	3.76	
S3	3.61	

Pull Test (50°C, ND 32)

Nominal size (ND32)	Maximum Load (kN)	Photo after test
S1	4.90	
S2	4.83	
S3	4.40	

Note: The samples fail at the centre of the test piece.
No slippage or damage was observed on the ixPress fittings.


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Associate Engineer


Chua Peck Cheong
Product Manager
Building & Industrial Products
Testing Services

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PSB Singapore

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January 2008