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WBS TEST & ACCEPTANCE CRITERIA

Issue No: 1
Date of issue: August 1994

TEST CODE SHEET

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1. TYPE OF TEST(S)

Tension - (Resistance to pull-out of assembled joints – single pull).

2. BYELAW REQUIREMENT FOR FITTINGS

Byelaw 52

Every water fitting shall be constructed of materials, the nature, the strength and thickness of which (including any internal lining or external coating) will prevent, so far as is reasonably practicable, damage from

- (a) any external load;
- (b) stress.

3. BRITISH STANDARDS OR WATER SPECIFICATION, DEEMED TO SATISFY BYELAW REQUIREMENTS

There are no British Standards requirements for this test.

4. TEST PROCEDURE

Note: Unless otherwise stated the temperature of the test fluid shall be 20 ± 10°C.

4.1 Tests applicable to the following fittings:-

FITTINGS FOR USE WITH TUBE AND PIPE

- Compression, Metal or Plastics.

Manipulative / Non-Manipulative compression type - Type 'A' and 'B' for use with 'half-hard' and 'hard drawn' copper tubes to BS 2871 : Part 1 - Above and below ground.

(A) MANIPULATIVE / NON-MANIPULATIVE COMPRESSION FITTINGS - TYPE 'A' AND 'B' FOR USE WITH 'HALF HARD' AND 'HARD DRAWN' COPPER TUBES - ABOVE GROUND

TEST METHOD

The test specimen shall consist of the fitting or fittings to be tested, assembled with one or more pieces of 'hard drawn' copper pipe of the size and quality for which the fitting is designed. Each piece of pipe shall be at least 300mm in length. Assembly of the fittings shall be in accordance with TCS 1315.2.

Mount the test specimens securely to the tensile test apparatus in accordance with setting-up procedure IGN 1-50-72. Select from Table 'A' the appropriate test force for pipe size and fitting under test.

Apply the tensile force gradually over a period of 15 - 30 seconds. Hold specimen in constant tension for a period of 5 minutes + 30, - 0 seconds and at a temperature of 23 ± 2°C.

Nominal pipe size (mm)	12 < 16	16 < 20	20 < 25	25 < 32	32 < 40	40 < 50	50 < 63	63
Test Force (KN)	0.60	0.94	1.26	1.97	3.23	5.00	7.80	12.40

Table 'A' - ABOVE GROUND (Derived from BS 7291 : Part 4 : Table 3)

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After removal, examine the specimen for pull-out from the compression ring and / or fracture / tearing of the pipe. If appropriate, the cap nut shall be removed to permit examination.

5. ACCEPTANCE CRITERIA

The pipe shall not fracture within the fitting or separate from the fitting during the period of the test.

(B) MANIPULATIVE / NON-MANIPULATIVE COMPRESSION FITTINGS - TYPE 'A' AND 'B' FOR USE WITH 'HALF HARD' AND 'HARD DRAWN' COPPER TUBES - BELOW GROUND

TEST METHOD

Set up the test specimen as for (A) above, except that 'half hard' copper tube is used for the test. Select from Table 'B' the appropriate test force for pipe size and fitting under test.

Apply the tensile force gradually over a period of 15 - 30 seconds. Hold the specimen in constant tension for a period of 5 minutes + 30, - 0 seconds and at a temperature of 23 ± 2 °C.

Nominal pipe size (mm)	15 - 20	22 - 25	28 - 32	42 - 54	67
Test Force (KN)	1.9	2.5	4.1	9.8	15.6

Table 'B' - BELOW GROUND (Derived from BS 864 : Part 5 : Table 5)

After removal, examine the specimen for pull-out from the compression ring and / or fracture / tearing of the pipe, if appropriate, the cap nut shall be removed to permit examination.

5. ACCEPTANCE CRITERIA

The pipe shall not fracture within the fitting or separate from the fitting during the period of the test.