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WBS TEST & ACCEPTANCE CRITERIA
PD.

Issue No: 2
Date of issue: January 1990

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TEST CODE SHEET

1. **TYPE OF TEST(S)**

Deformation

2. **BYELAW REQUIREMENT FOR FITTINGS**

Byelaw 52

Every water fitting shall be constructed of materials, the nature, the strength and thickness of which will prevent, so far as is reasonably practicable, damage from - (a) any external load; (b) stress or settlement; (c) internal water pressure

Byelaw 53

Every water fitting which - (a) is installed below ground; or(e) is in any other position which is inaccessible, or to which access is difficult; shall be - (I) constructed to withstand without bursting, buckling, fracture or leaking an internal hydraulic pressure twice that to which it would normally be subject.....

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

(See Water Supply Byelaw Guide)

BS 864 Part 4 This standard is under preparation and in the meantime use should be made of WAA IGN 4-22-01 Clause 11.3
BS 5114 Appendix B (but see WAA IGN 4-22-01 Clause 11.3)

3.1 Fittings with 'kitemarks' which are deemed to satisfy the requirements of byelaws are listed in the directory.

4. **TEST PROCEDURE**

Note Unless stated otherwise the temperature of the test fluid shall be $20 \pm 10^{\circ}\text{C}$.

Tests applicable to the following fittings

FITTINGS FOR USE WITH TUBE AND PIPE

Compression, metal and plastics

- for use with plastics tube (metric dimensions - such as BS 6572) for below ground use
 - for use with plastics tube (metric dimensions - such as BS 6730) for above ground use only
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(A) **NON-BS FITTINGS**

TEST METHOD

Fittings should be assembled with compatible pipe of adequate pressure rating and tested in accordance with BS 5114 Appendix B, except that the pressure shall be twice the claimed maximum operating pressure rating.

5. **ACCEPTANCE CRITERIA**

When tested in accordance with the method specified there shall be no visible indication of the leakage from the assembly.

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(B) BS FITTINGS

In accordance with the relevant extracts given below.

- (i) **COMPRESSION FITTINGS OF COPPER AND COPPER ALLOY FOR POLYETHYLENE PIPES WITH OUTSIDE DIAMETERS TO BS 5556 (METRIC)** (Derived from BS 864: Part 4)

TEST METHOD

Clause 11.3 - Hydrostatic test when subjected to bending stresses
When tested in accordance with Appendix B of BS 5114: 1975 at a pressure of 24 bar for one hour (subject to WBS working tolerances) neither the fitting nor the joint shall show any sign of leakage.

- (ii) **PERFORMANCE REQUIREMENTS FOR JOINTS AND COMPRESSION FITTINGS FOR USE WITH POLYETHYLENE PIPES**
(Derived from BS 5114)

TEST METHOD

Appendix B

Hydrostatic (hydraulic) pressure test when subjected to bending stresses

- B.1 Form of test specimen. The test specimen shall consist of a polyethylene pipe of the same size and pressure rating as the fittings to be tested, and of length such that the free length after the fitting has been connected is 10 times the pipe diameter.
- Two fittings of the type to be tested shall be mounted at the ends of the pipe according to the fittings manufacturer's specification, and in such a way as to be suitable for the pressure test described in appendix A.
- B.2 Apparatus. The apparatus shall consist of bending gauge having a bearing length 1 equal to three quarters of the free length L between fittings. The bearing shall have a radius R equal to a value in millimetres of 15 times the nominal diameter of the pipe under test for class C^x pipe and a value in millimetres of 20 times the nominal diameter for class 'D^x pipe. A suitable apparatus is shown in figure 2.
- B.3 Procedure. Set up the test specimens on the bending gauge in such a way that bending stresses are supported by the fittings. Fit the pipe to the bending gauge over its entire leaving equal free lengths of pipe at each end.

Apply the specified test pressure as described in Appendix A^x and inspect the specimens for any signs of leakage.

(^x See WAA IGN 4-22-01, Clause 11.3)

- 11.3 Hydrostatic test when subjected to bending stresses.
When tested in accordance with Appendix B of BS 5114: 1975 at a pressure of 24 bar for one hour, neither the fitting nor the joint shall show any sign of leakage.

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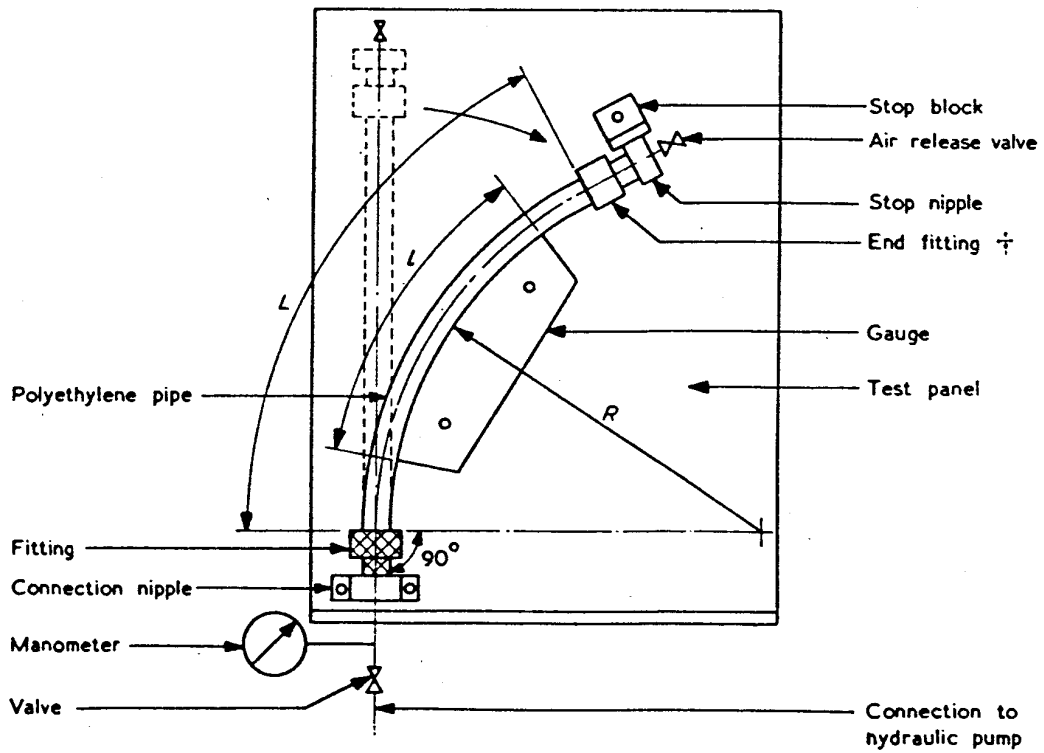
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Figure 2. Diagram of suitable apparatus for hydrostatic (hydraulic) pressure test when subjected to bending stresses

Delete the existing figure and substitute the following:

R is the bend radius
L is the free length



† The end fitting is only used for closing the test specimen and is not meant to be tested.

5. ACCEPTANCE CRITERIA

When tested in accordance with the method specified there shall be no visible indication of the leakage from the assembly.