TEST CODE SHEET

---

1. TYPE OF TEST(S)

Accelerated ageing.

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) vibration, stress; (c) internal water pressure; (d) internal... temperatures....

Byelaw 53

Every water fitting which ..... (c) is embedded in any wall or solid floors; or (d) is enclosed in any chase or duct; 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)

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

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-

PLASTIC PIPES AND FITTINGS, compatible
- plastics pipe, for use continuously in contact with hot water.

(A) PLASTIC PIPES AND FITTINGS

PRINCIPLE

An assembly of pipes and fittings is subjected to thermal cycling by the passage of water and then inspected for leakage.

APPARATUS

The apparatus shall be capable of alternately circulating hot and cold water through the test assembly, regulating the water pressure and of measuring the water temperature at the inlet and outlet from the test assembly. The equipment shall be capable of effecting each change between hot and cold sources within -0, +60 seconds.

TEST METHOD

Test Assembly

The assembly shall consist of pipe and fittings joined and clipped in accordance with the manufacturers recommended practise. This shall include;

(i) At least one pair of pre-stressed pipes linked by a straight connector, combined as shown in Figure 1 (See Branch A) and stressed as stated below, where the free length of the combination shall be 3m ± 5mm.

(ii) At least two straight pipes each free to move when combined in accordance with Figure 1 (see Branch B) and each having a freelength of 300mm ± 5mm.

Procedure

Prepare the assembly for testing and prime it with water so that all air is expelled.

Subject the test pieces to be pre-stressed to a sustained force. This force is calculated as follows;

$$\text{Load (kg)} = \frac{\text{Cross-section area x Tensile Stress}}{\text{Gravity}}$$

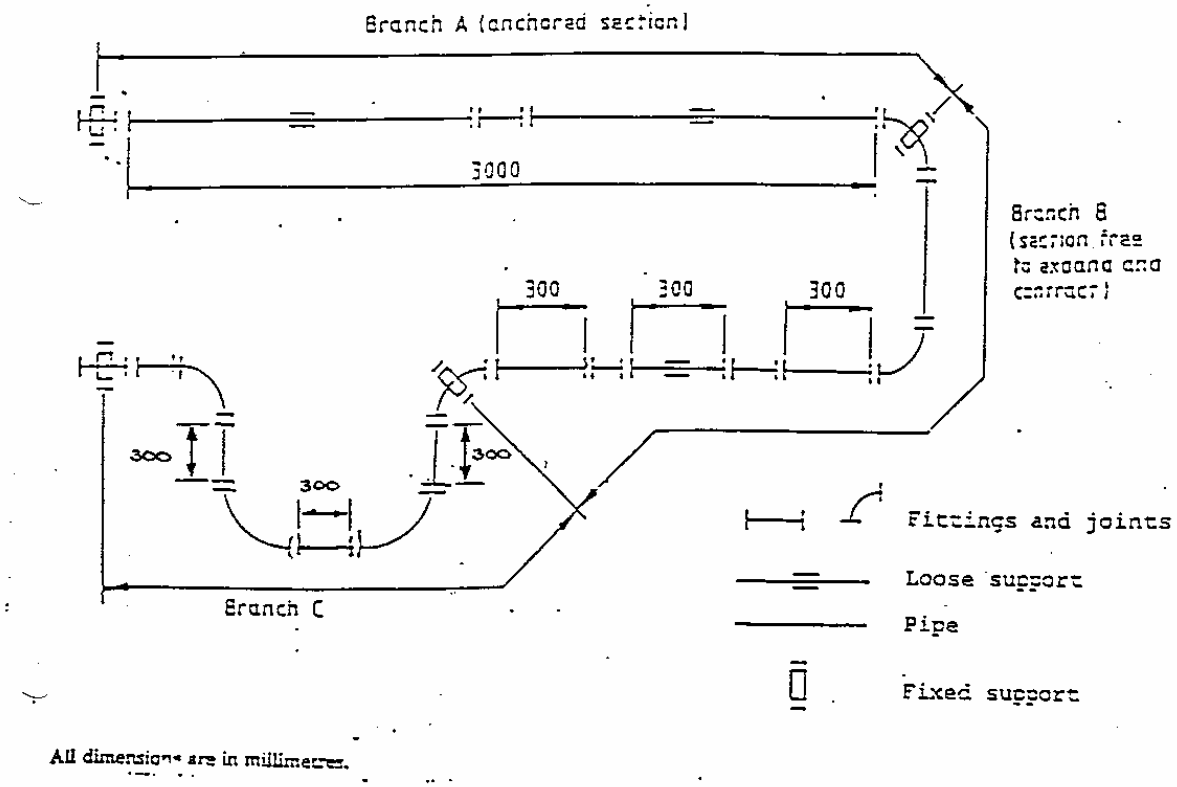
Where; Cross-sectional area is in $mm^{2.}$
Gravity = 9.812 m/s^2
Tensile stress for Polybutylene = 0.9 MPa
Tensile stress for Cross-linked Polyethylene = 2.4 MPa

(Note : Pre stressing is not applicable to PVC pipes or composite pipe systems). After allowing conditioning at the maximum test temperature (± 3°C) for 1 hour, subject the assembly to 5000 cycles of hot and cold water at the maximum pressure and temperature (measured at the sample inlet) stipulated by the manufacturer. A cycle consists of circulating water at maximum working temperature (± 3°C) for 15 mins ± 5 secs and at the maximum working pressure (± 0.3bar). Then at ambient temperature (20°C ± 3°C) for 15 mins ±5 secs at the maximum working pressure (± 0.3bar). Perform any desired tightening or adjustment of joints within the first 5 cycles.

Control the flow rate of the circulating water such that the measured temperature drop on the hot cycle from the inlet to the outlet of the test assembly does not exceed 5°C.

5 ACCEPTANCE CRITERIA

Upon completion of the test inspect all joints for signs of leakage. No leakage or deformation of the pipework shall have taken place.



All dimensions are in millimetres.

Figure 1 .Test assembly for systems based on rigid pipes