TEST CODE SHEET

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1. TYPE OF TEST(S)

Deformation

2. BYELAW REQUIREMENT FOR FITTINGS

Byelaw 30 (2)

Every cistern….. shall - ….. (c) have a rigid, close fitting and securely fixed cover …….

Byelaw 32

Every storage cistern shall be adequately supported to avoid distortion or damage to it …..

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 …..

(c) internal water pressure;
(d) internal and external temperatures.

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

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:-

CISTERNS
Cold water storage (including feed and expansion), in plastics materials.

(A) COLD WATER STORAGE AND FEED AND EXPANSION CISTERNS (POLYOLEFIN OR OLEFIN COPOLYMER) - (CIRCULAR) (Derived from BS 4213 : Clause 8.1.1 : Appendix B)

TEST METHOD (i) Deformation Test

Note: These fittings are not suitable for continuous use in contact with hot water.

1. Place the cistern on a flat level base.
2. Make a circumference measurement parallel to the base and at a distance from the base of one-third the height, measured between the base and the water line.
3. Fill the cistern to the water line with water at ambient temperature and fit the cistern lid.
4. Maintain the temperature of the cistern and water at ambient temperature and after 10 days ± 1 day make a circumference measurement at the previously determined line.
5. Express the difference between the two measurements as a percentage of the original circumferential measurement.

5. ACCEPTANCE CRITERIA (i)

Circular cisterns shall have a difference between the circumferential measurements not greater than 2% of the original circumferential measurement.

(B) **COLD WATER STORAGE AND FEED AND EXPANSION CISTERNS (POLYOLEFIN OR OLEFIN COPOLYMER) - (NON-CIRCULAR)** (Derived from BS 4213 : Clause 8.1.2 : Appendix B)

TEST METHOD (i) Deformation Test

Note: These fittings are not suitable for continuous use in contact with hot water.

TEST METHOD

1. Place the cistern on a flat level base.
2. Measure the internal length and width of the cistern on the centrelines as indicated in Figure 2 at a point 100mm above the water line.
3. Fill the cistern to the water line with water at ambient temperature.
4. Maintain the temperature of the cistern and water at ambient temperature and after 10 days ± 1 day make a measurement of length and width at the previously determined centrelines.
5. Calculate the deformation in each direction as follows:

$$D_L = \frac{W_2 - W_1}{2L_1} \times 100 \qquad D_W = \frac{L_2 - L_1}{2W_1} \times 100$$

Where: D_L is the deformation of the longer side
D_W is the deformation of the shorter side
W_1 is the width at the start of the test (in mm)
W_2 is the width at the end of the test (in mm)
L_1 is the length at the start of the test (in mm)
L_2 is the length at the end of the test (in mm)

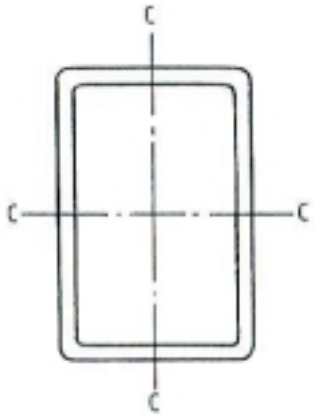

Figure 2. Centreline measurements

5. **ACCEPTANCE CRITERIA** (ii)

Non-circular cisterns shall have a deformation in either direction not greater than 2%.

(C) **ALL OTHER TYPES OF STORAGE CISTERNS NOT REFERRED TO IN THE FOREGOING TO BE ASSESSED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE: -**

TEST METHOD

Fittings, whether for continuous use in contact with hot water or not, shall be tested as in (A) above, except that the temperature of the water in the tank shall be maintained at the manufacturer's claimed operating temperature ± 5°C. Cisterns should be tested with a lid or integral top in place.

5. ACCEPTANCE CRITERIA

1. Circular cisterns shall have a difference between the circumferential measurements not greater than 2% of the original measurements.
2. Non-circular cisterns shall have a deformation in either direction not greater than 2%.