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WBS TEST & ACCEPTANCE CRITERIA PD.

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TEST CODE SHEET

1. TYPE OF TEST(S)

Flow rate.

2. BYELAW REQUIREMENT FOR FITTINGS

Byelaw 85

(1) Every bath, wash basin, sink or similar apparatus shall be(b) provided with a watertight and readily accessible plug or some other device capable of closing the water outlet.

(2) Paragraph (1)(b) shall not apply to any(b) apparatus to which water is delivered at a rate not exceeding 3.6 litres a minute.....

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

(See Water Supply Byelaw Guide)

BS 5779. Clause 10 & 12 & Appendices D, E, & F.

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

4. TEST PROCEDURE

4.1 Tests applicable to the following fittings: -

SPRAY MIXING TAPS

(A) SPRAY MIXING TAPS (Derived from BS 5779)

TEST METHOD

Carry out test described in BS 5779, but solely to determine the maximum rate of discharge of the fitting,

Clause 10 - Flow restrictor.

A flow restrictor shall be provided in the spray mixing tap. The flow restrictor shall be either manually adjustable or of the self-adjusting type and shall satisfy the flow requirements specified in Clause 12, and appendix D.....

Clause 12 - Rate of flow test

When tested by the method given in appendix E or appendix F, spray mixing taps shall deliver water at a rate of not more than 0.06 litres/s. Manually adjustable flow restrictors shall be capable of being adjusted..... (see Appendix E). Self-adjustable flow restrictors shall be flow tested at running pressures of between 0.27 bar and 3 bar. In all cases flows shall be achievable in the cold mixed, and hot positions throughout the specified pressure range. In the case of two handed control mixers using conventional screw down (BS 1010 type) taps, the specified flow shall be reached when the handles have been turned through 180° maximum from the commencement of flow.

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APPENDIX D

Method of setting manually adjustable restrictors.

D.1 General

The setting procedure for manually adjustable restrictors described in this appendix shall be carried out before the restrictors are tested in accordance with Appendices E, F, H and K.

D.2 Setting procedure for mixing taps with single sequential control (see 3.2).

D.2.1 With inlet restrictor. The procedure is as follows.

- (a) Open control to maximum hot flow position.
- (b) Isolate cold supply and adjust hot supply to 0.27 bar.
- (c) Maintaining 0.27 bar, adjust hot restrictor to give flow of 0.045 litre/s.
- (d) Maintaining 0.27 bar, adjust control towards cold and identify the position where the flow is 0.004 litre/s (10% of flow in (c)).
- (e) At this position isolate hot supply, turn cold supply and adjust to 0.27 bar.
- (f) Maintaining 0.27 bar, adjust cold restrictor to give flow of 0.045 litre/s (same as in (c)).
- (g) The position of the control handle in (f) represents the full cold position referred to in subsequent test procedures.

D.2.2 With outlet restrictor. The procedure is as follows.

- (a) Open control to maximum hot flow position.
- (b) Isolate cold supply, and adjust hot supply pressure to 0.27 bar.
- (c) Maintain 0.27 bar, adjust restrictor to give flow of 0.045 litre/s.
- (d) Open cold supply, isolate hot supply.
- (e) Maintaining 0.27 bar on cold inlet, adjust the control to check that the tap is capable of delivering a cold flow of 0.045 litre/s \pm 20%.

D.3 Setting procedure for mixing taps with twin (or dual) control for flow and temperature, (see 3.3) and mixing taps with single control, twin (or dual) function, for flow and temperature (see 3.4).

D.3.1 With inlet restrictor. The procedure is as follows.

- (a) Open flow control fully.
- (b) Adjust temperature control to full cold, and with hot supply isolated adjust cold supply to 0.27 bar.
- (c) Maintaining pressure of 0.27 bar, adjust cold restrictor to give a flow of 0.045 litre/s.
- (d) Isolate cold supply and adjust temperature control to full hot.
- (e) Turn on hot supply and adjust to 0.27 bar. Maintaining this pressure, adjust hot restrictor to give a flow of 0.045 litre/s.

D.3.2 With outlet restrictor. The procedure is as follows.

- (a) Open flow control fully.
- (b) Adjust temperature control to full cold and with hot supply isolated, adjust cold supply to 0.27 bar.
- (c) Maintaining 0.27 bar, adjust restrictor to give a flow of 0.045 litre/s.
- (d) Isolate cold supply and adjust temperature control to full hot.
- (e) Turn on hot supply and adjust to 0.27 bar. Measure the flow rate, which shall be between 0.03 litre/s and 0.054litre/s.

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D.4 Setting procedure for combination spray mixing taps with separate controls for hot and cold water (see 3.5).

D.4.1 With inlet restrictor. The procedure is as follows.

- (a) Open cold fully and close hot fully.
- (b) Adjust cold supply to 0.27 bar.
- (c) Maintaining 0.27 bar, adjust cold restrictor to give 0.045 litre/s.
- (d) Close cold control fully and open hot control fully.
- (e) Adjust hot supply to 0.27 bar.
- (f) Maintaining 0.27 bar, adjust hot restrictor to give 0.045 litre/s.

D.4.2 With outlet restrictor. The procedure is as follows.

- (a) Open cold control fully and close hot control fully.
- (b) Adjust cold supply to 0.27 bar.
- (c) Maintaining 0.27 bar, adjust cold restrictor to give 0.045 litre/s.
- (d) Close cold control fully and open hot control fully.
- (e) Adjust hot supply to 0.27 bar and check that the hot flow rate is 0.045 litre/s \pm 10%.

APPENDIX E

Method of measuring the rate of flow through spray mixing taps fitted with manually adjustable flow restrictors.

E.1 Object

The flow rate test is for the purpose of ensuring that the spray mixing tap under test is capable of being adjusted to deliver water at the specified rates.

E.2 Apparatus

The following apparatus is required.

- E.2.1 A cold water supply system consisting of a water supply having minimum pressure of 4.5 bar and a minimum rate of flow when the supply pipes are open to atmosphere of 0.2 litre/s (0.1 litre/s each side).
- E.2.2 Two pressure gauges, graduated with a suitable scale and having an accuracy of \pm 2%, at the test pressure. A suitable scale is one indicating one hundredths of bar.
- E.2.3 Two flow meters (or other means of measuring flow) graduated with a suitable scale and having an accuracy of \pm 2% of the test flow rate. A suitable scale is one indicating one hundredths of a litre per second.
- E.2.4 Two pressure take-off tees suitable for 15mm tube (see figure 5 and table 1).
- E.2.5 Two 15mm control valves capable of fine regulation.
- E.2.6 Two lengths of copper tube, in accordance with table X of BS 2871: Part 1: 1971, to be connected to the inlets of the mixing valve under test, having the following features:
 - (a) the length dimensions as shown in figure 6;
 - (b) external diameter and thickness 15mm x 0.7mm;
 - (c) radius of pipe bends $\text{\textcircled{R}}$ to the centreline equal to 60 ± 10 mm.

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E.3 Procedure

- E.3.1 Connect test apparatus as shown in figure 6 to the cold water supply.
- E.3.2 Connect the mixing tap to be tested to the test apparatus as shown in figure 6.
- E.3.3 Open the spray mixing tap under test and adjust the control handle (s) ensuring that flows and pressures on both sides are within 10% of each other. Adjustable restrictors shall have been set in accordance with the requirements of appendix D.
- E.3.4 Adjust the control handle(s) of the spray mixing tap to obtain full flow through the cold water port, i.e. minimum or no hot water flow. Adjust the water supply so that the pressure gauge indicates the required minimum test pressure (0.27 bar).

Record rate of flow in litres per second on the cold side, which shall be between 0.03 litre/s and 0.06 litre/s.

- E.3.5 Open the mixing tap to obtain full flow through the hot water port, i.e. minimum, or no cold water flow. Adjust the water supply so that the pressure gauge indicated the required minimum test pressure (0.27 bar).

Record the rate of flow in litres per second on the hot side, which shall be between 0.03 litre/s and 0.06 litre/s.

- E.3.6 Reset restrictors as specified in appendix D but use a test pressure of 3 bar.
- E.3.7 Repeat E.3.3 at a test pressure of 3 bar.
- E.3.8 Repeat E.3.4 at a test pressure of 3 bar.
- E.3.9 Repeat E.3.5 at a test pressure of 3 bar.

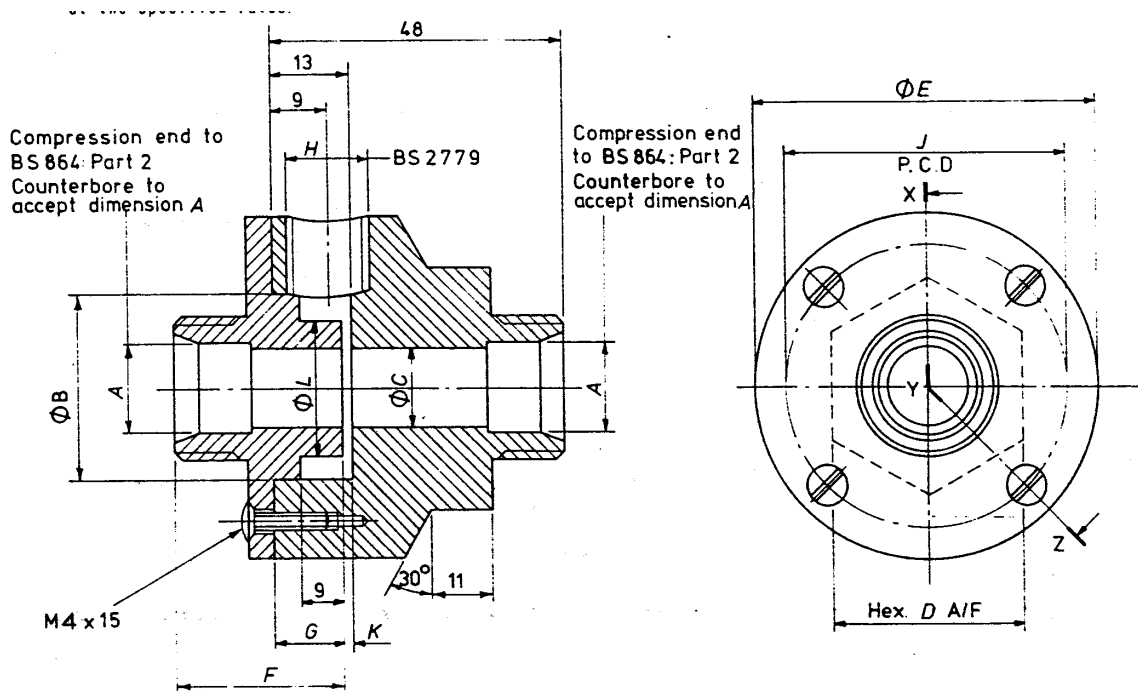
E.4 Recording

Record whether or not the spray mixing tap, with the manually adjustable flow restrictor, will deliver water at the specified rates.

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Dimensions are in millimetres.
NOTE. Drawings are diagrammatic only.
Figure 5. Details of pressure take-off tee

Table 1 - Dimensions of pressure take-off tee

Size	A (BS 864: Part 2)	B	C	D	E	F	G	H	J	K	L
1/2	15	31	12.7	33	55	27	12.5	G1/4	43	0.5	21

NOTE All dimensions are in millimeters except where otherwise indicated.

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Method of measuring the rate of flow through spray mixing taps fitted with self-adjusting restrictors.

F.1 Object

The object of the test is to determine whether or not the specimen spray mixing tap will deliver water at the specified rates.

F.2 Apparatus

The apparatus is as specified in E.2.

F.3 Procedure

F.3.1 Connect test apparatus as shown in figure 6 to the water supply.

F.3.2 Connect spray mixing tap to be tested to the test apparatus as shown in figure 6.

F.3.3 Adjust the supply pressure to 0.27 bar. Open spray mixing tap by rotating the handle(s) to the cold position and record the rate of flow in litres per second.

F.3.4 Adjust the handle(s) to the mid position and adjust the supply pressures to 0.27 bar and record the rate of flow in litres per second.

F.3.5 Adjust the handle(s) to the fully open position. Adjust the supply pressure to 0.27 bar and record the rate of flow in litres per second.

F.3.6 Repeat the above procedure using a supply pressure of 3 bar.

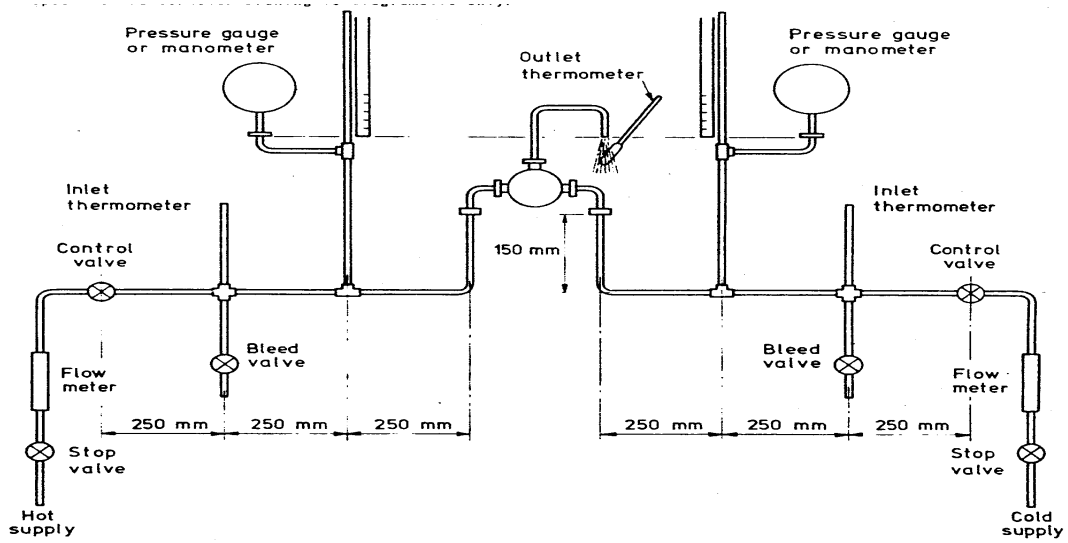
F.4 Recording

Record whether or not the spray mixing tap with self-adjusting flow restrictor will deliver water at the specified rates.

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NOTE: Drawing is diagrammatic only.
Figure 6. Blended water temperature test apparatus

NOTE Drawing is diagrammatic only.

5. ACCEPTANCE CRITERIA

The maximum rate of discharge of the fitting shall not exceed 3.6 litres a minute.