

Test Code Sheet Number	2	2	1	2	20
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TEST CODE SHEET

1. TYPE OF TEST(S)

Backflow prevention. Regulator's specification for WC suites.

2. WATER REGULATIONS REQUIREMENTS FOR FITTINGS

Schedule 2

25 (1) Subject to the following provisions of this paragraph

(a) every water closet pan shall be supplied with water from a flushing cistern, pressure flushing cistern or pressure flushing valve, and shall be so made and installed that after normal use its contents can be cleared effectively by a single flush, or, where the installation is designed to receive flushes of different volumes, by the largest those flushes;

(b) no pressure flushing valve shall be installed

(i) in a house, or

(ii) in any building not being a house where a minimum flow rate of 1.2 litres per second cannot be achieved at the appliance.

(c) where a pressure flushing valve is connected to a supply pipe or distributing pipe, the flushing arrangement shall incorporate a backflow prevention device consisting of a permanently vented pipe interrupter located not less than 300mm above the spillover level of the WC pan or urinal;

(d) no flushing device installed for use with a WC pan shall give a single flush exceeding 6 litres;

(e) no flushing device designed to give flushes of different volumes shall have a lesser flush exceeding two-thirds of the largest flush volume;

(f) every flushing cistern, other than a pressure flushing cistern, shall be clearly marked internally with an indelible line to show the intended volume of flush, together with an indication of that volume.

(g) a flushing cistern designed to give flushes of different volumes

(i) shall have a readily discernible method of actuating the flush of different volumes; and

(ii) shall have instructions, clearly and permanently marked on the cistern or displayed nearby, for operating it to obtain the different volumes of flush.

(h) every flushing cistern, not being a pressure flushing cistern or a urinal cistern, shall be fitted with a warning pipe or with a no less effective device;

(i) every urinal that is cleared by water after use shall be supplied with water from a flushing device which

(ii) in the case of a flushing cistern, is filled at a rate suitable for the installation;

(iii) in all cases, is designed or adapted to supply no more water than is necessary for effective flow over the internal surface of the urinal and for replacement of the fluid in the trap; and

(j) except in the case of a urinal which is flushed manually, or which is flushed automatically by electronic means after use, every pipe which supplies water to a flushing cistern or trough used for flushing a urinal shall be fitted with an isolating valve controlled by a time switch and a lockable isolating valve, or with some other equally effective automatic device for regulating the periods during which the cistern may fill.

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No: 1
Date of issue: November 2000

Sheet 2 of 8

(2) Every water closet, and every flushing device designed for use with a water closet, shall comply with a specification approved by the regulator for the purposes of this schedule.

(3) The requirements of the sub-paragraphs (1) and (2) do not apply where faeces or urine are disposed of through an appliance that does not solely use fluid to remove the contents.

(4) The requirement in sub-paragraph (1)(i) shall be deemed to satisfied

(a) in the case of an automatically appeared flushing cistern servicing urinals which is filled with water at a rate not exceeding

(i) 10 litres per hour for a cistern serving a single urinal;

(ii) 7.5 litres per hour per urinal bowl or stall, or as the case may be, for each 700mm width of urinal slab, for a cistern serving two or more urinals;

(b) in the case of a manually or automatically operated pressure flushing valve used for a flushing urinals which delivers not more than 1.5 litres per bowl or position each time the device is operated.

(5) Until 1 January 2001 paragraphs (1) (a) and (d) shall have effect as if they provided as follows

(a) every water closet pan shall be supplied with water from a flushing cistern or trough of the valveless type which incorporates siphonic apparatus;

(b) no flushing device installed for use with a WC pan shall give a single flush exceeding 7.5 litres.

(6) Notwithstanding sub-paragraph 1(d), a flushing cistern installed before 1st July 1999 may be replaced by a cistern which delivers a similar volume and which may be either single flush or dual flush; but a single flush cistern may not be so replaced by a double flush cistern.

(7) In this paragraph

‘PRESSURE FLUSHING CISTERN’ means a WC Flushing device that utilises the pressure of water within the cistern supply pipe to compress air and increase the pressure of water available for flushing a WC pan.

‘PRESSURE FLUSHING VALVE’ means a self closing valve supplied with water directly from a supply pipe or a distributing pipe which when activated will discharge a pre determined flush volume.

‘TRAP’ means a pipe fitting or part of a sanitary appliance, that retains liquid to prevent the passage of foul air; and

‘WARNING PIPE’ means an overflow pipe whose outlet is located in a position where the discharge of water can be readily seen.

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No: 1
Date of issue: November 2000

Sheet 3 of 8

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

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

4. TEST PROCEDURE

4.1 Tests are applicable to the following fittings:

FLOAT OPERATED INLET VALVES FOR USE WITH WC CISTERNS

(A) DIAPHRAGM TYPE FLOAT OPERATED VALVES (Derived from BS 1212 Part 3).

4.2 BS 1212 Part 3 Clause 15

When tested as described in appendix F a diaphragm type float operated valve of either side or bottom inlet together with its discharge arrangement shall deliver no water into the catchpot.

Appendix F: Backflow prevention test.

- F.1 Apparatus (See figure 9)
 - F.1.1 A means for producing and maintaining an absolute pressure within a vacuum vessel of 0.2 bar, (marked (a) on figure 9).
 - F.1.2 A 50 mm full way gate valve, (marked (b) on figure 9).
 - F.1.3 A vacuum vessel (marked (c) on figure 9), comprising a galvanised mild steel cylinder, with connections for vacuum line, pressure gauge and drain valve (if fitted).
 - F.1.4 A calibrated pressure gauge (marked (d) on figure 9), to measure absolute pressures from 0 bar to 1.0 bar.
 - F.1.5 A 50 mm full way quick action valve (marked (e) on figure 9).
 - F.1.6 A water trap with catchpot and drain valve (marked (f) on figure 9).
 - F.1.7 Pipework (marked (g) on figure (9), of the 50 mm nominal bore and not exceeding 2 m in total length connecting the vacuum vessel, full way quick action valve, water trap and the connecting pipe to the float operated valve under test.
 - F.1.8 A 15 mm copper pipe (marked (h) on figure 9), no longer than 200 mm in length connecting the float operated valve under test to the 50 mm nominal bore pipework.
 - F.1.9 A cistern complying with BS 1125 (side or bottom entry) with warning pipe stoppered (marked (j) on figure 9).
 - F.1.10 A Water Supply.
 - F.1.11 A length of 0.75 mm nominal diameter nylon thread.

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No:1
Date of issue: November 2000

Sheet 4 of 8

F.2 Procedure

- F.2.1 Foul the waterway of the float operated valve under test, over the whole passage from inlet shank to discharge arrangement outlet, by inserting the nylon thread (F.1.11)
- F.2.2 Install the float operated valve completed with its float in the cistern.
- F.2.3 Connect the float operated valve to the pipework and associated equipment as shown in figure 9 ensuring that no residual water is present within the system.
- F.2.4 Set the float so as to produce the maximum water level when the float operated valve shuts off. Run water into the cistern until the water level is at datum level for the backflow prevention test purposes.
- F.2.5 Close the full way quick action valve (F.1.5) and the water trap drainage valve (F.1.6) and open the fullway gate valve (F.1.2).
- F.2.6 Activate the means of producing a vacuum until the gauge reading (F.1.4) on the vacuum vessel (F.1.3) is not more than 0.2 bar absolute. Close the fullway valve.
- F.2.7 Quickly open the fullway quick action valve and allow it to remain open for 60 ± 10 secs. Close the fullway quick action valve.
- F.2.8 Open the water trap drain valve to ascertain if any water was present in the catchpot (see Clause 15).
- F.2.9 Lower the water level in the cistern to 20 mm below the datum level for backflow test purposes and repeat the procedures described in F.2.5 to F.2.8 inclusive.
- F.2.10 Repeat F.2.9 at 20 mm intervals of level until the water level is at least 20 mm below the lowest point of the discharge arrangement or until the cistern is empty.

5. ACCEPTANCE CRITERIA

When tested in accordance with the backflow prevention requirements of BS 1212 Part 3 clause 15 there shall be no evidence of backflow.

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No: 1
Date of issue: November 2000

Sheet 5 of 8

(B) COMPACT TYPE FLOAT OPERATED VALVES (Derived from BS 1212 Part 4)

4.3 BS 1212 Part 4 Clause 17

When tested in accordance with appendix D a compact type float operated valve of either side or bottom inlet together with its discharge arrangement shall deliver no water into the catchpot.

Appendix D. Method of test for backflow prevention.

- D.1 Apparatus (see figure 7).
- D.1.2 Vacuum pump (marked (a) on figure 7) i.e. a means for producing and maintaining an absolute pressure of 0.2 bar within a vacuum vessel (e.g. pump or injector).
- D.1.3 A vacuum vessel (marked (c) on figure 7) comprising a galvanised mild steel cylinder, with connections for vacuum line, pressure gauge and drain valve if fitted.
- D.1.4 A calibrated pressure gauge, (marked (d) on figure 7) to measure absolute pressures from 0 bar to 1.0 bar.
- D.1.5 A 50 mm full way quick action valve (marked (e) on figure 7).
- D.1.6 A water trap, (marked (f) on figure 7) with catchpot and drain valve.
- D.1.7 Pipework, (marked (g) on figure 7) of 50 mm nominal bore and not exceeding 2 m in the total length connecting the vacuum vessel, full way quick action valve, water trap and connecting pipe to the float operated valve under test.
- D.1.8 A 15 mm copper pipe, (marked (h) on figure 7), no longer than 200 mm in length connecting the float operated valve under test to the 50mm pipework (g).
- D.1.9 A cistern, (marked (j) on figure 7) to BS 1125 (side or bottom entry) with the warning pipe stopped.
- D.1.10 A Water supply.
- D.1.11 Nylon thread, of 0.75 mm nominal diameter.
- D.2 Procedure
- D.2.1 Foul the waterway of the float operated valve under test over the whole passage from inlet shank to discharge arrangement outlet, by inserting the nylon thread D.1.11).
- D.2.2 Install the float operated valve complete with its float in the cistern.
- D.2.3 Connect the float operated valve to the pipework and associated equipment as shown in figure 7 ensuring that no residual water is present within the system.
- D.2.4 Set the float so as to produce the maximum water level when the float operated valve shuts off. Run water in the cistern (D.1.9) until the water level is at the datum level for backflow prevention test purposes.

Test Code Sheet Number	2	2	1	2	20
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Issue No: 1
Date of issue: November 2000

Sheet 6 of 8

- D.2.5 Close the full way quick action valve (D.1.5) and the water trap drainage valve (D.1.6) and open the full way gate valve (D.1.2).
- D.2.6 Activate the means of producing a vacuum (D.1.1) until the gauge reading (D.1.4) on the vacuum vessel (D.1.3) is not more than 0,2 bar absolute. Close the full way valve (D.1.5).
- D.2.7 Quickly open the full way quick action valve (D.1.5) and allow it to remain open for 60 ± 10 secs. Close the full way quick action valve (D.1.5).
- D.2.8 Open the water trap drain valve (D.1.6) to ascertain whether any water was present in the catchpot. See Clause 17.
- D.2.9 Lower the water level in the cistern (D.1.9) to 20 mm below the datum level for backflow test purposes and repeat procedures D.2.5 to D.2.8 inclusive.
- D.2.10 Repeat D.2.9 at 20 mm intervals of water level until the water level is at least 20 mm below the lowest point of the discharge arrangement or the cistern is empty.

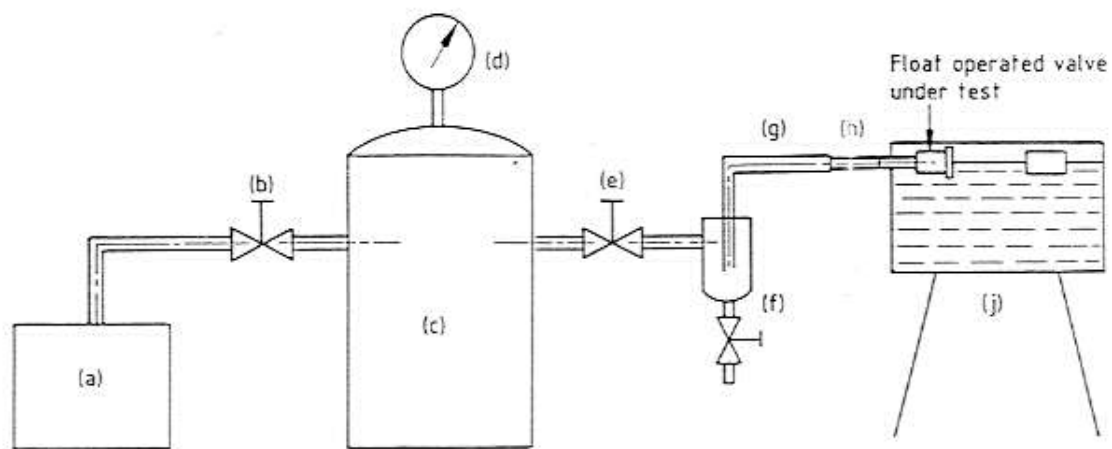
5. **ACCEPTANCE CRITERIA**

When tested in accordance with the backflow prevention requirements of BS 1212 Part 4 Clause 17, there shall be no evidence of backflow.

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No: 1
Date of issue: November 2000

Sheet 7 of 8



Key

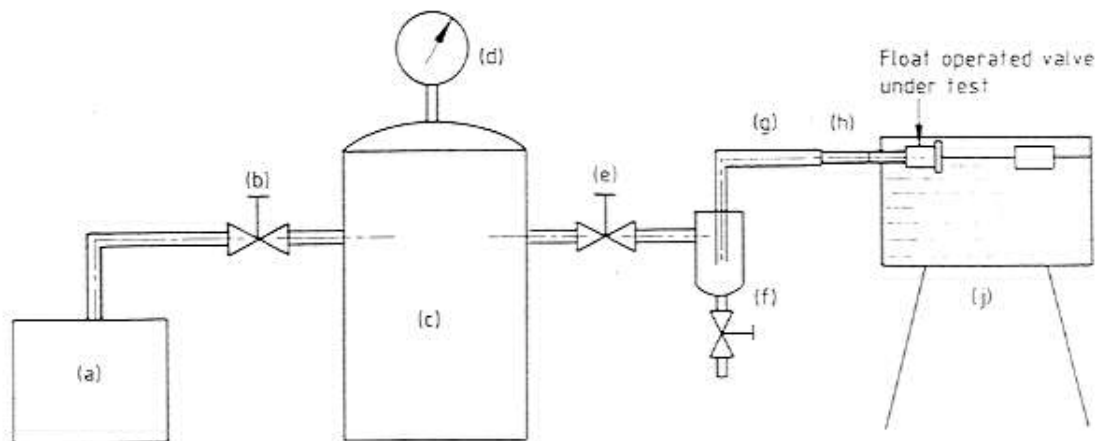
- (a) Vacuum pump (see D.1.1)
- (b) 50 mm full way gate valve (see D.1.2)
- (c) Vacuum vessel (see D.1.3)
- (d) Pressure gauge 0 to 1.0 bar absolute (see D.1.4)
- (e) 50 mm full way quick action valve (see D.1.5)
- (f) Water trap with catchpot and drain valve (see D.1.6)
- (g) 50 mm pipework (see D.1.7)
- (h) 15 mm copper pipe (see D.1.8)
- (j) A cistern to BS 1125 (see D.1.9)

Figure 7. Typical arrangement of apparatus for backflow prevention test

Test Code					
Sheet	2	2	1	2	20
Number					

Issue No: 1
Date of issue: November 2000

Sheet 8 of 8



Key

- (a) Vacuum pump (see F.1.1)
- (b) 50 mm full way gate valve (see F.1.2)
- (c) Vacuum vessel (see F.1.3)
- (d) Pressure gauge (see F.1.4)
- (e) 50 mm full way quick action valve (see F.1.5)
- (f) Water trap with catchpot and drain valve (see F.1.6)
- (g) 50 mm pipework (see F.1.7)
- (h) 15 mm copper pipe (see F.1.8)
- (j) A cistern (see F.1.9)

Figure 9. Typical arrangement of apparatus for backflow prevention test