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TEST CODE SHEET

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

Contamination - antisiphonage test.

2. **BYELAW REQUIREMENT FOR FITTINGS**

Byelaw 1

... backsiphonage means backflow caused by the siphonage of liquid from a cistern or appliance into the pipe feeding it ...

Byelaw 1

..... float-operated valve means a valve, for controlling the flow of water into a cistern, , the valve being operated by the vertical movement of a float riding on the surface of the water.....

Byelaws 24

.....(2).....(b)..... a float-operated valve of a reducing flowtype which will prevent backsiphonage through it if a vacuum occurs in the feed pipe.

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.

BS 1212 Part 2 Clauses 4.10.1 & 5.3 & Appendix A.  
BS 1212 Part 3 Clauses 22.1 & 25 Appendix D.

4. **TEST PROCEDURE**

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

4.1 Tests applicable to the following fittings-

**VALVES**

- float operated, diaphragm type, all materials.

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(A) **DIAPHRAGM TYPE FLOAT OPERATED VALVES (BRASS BODIED)** (Derived from BS 1212 : Part 2)

TEST METHOD

Discharge arrangements

Clause 4.10.1 - General - discharge arrangements shall conform to the following specifications:-

Every ballvalve shall be constructed so that it effectively prevents backsiphonage of water previously discharged by the ballvalve at all water levels up to the horizontal centre line of the ballvalve.

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If the discharge point is below the horizontal centre line of the valve, the discharge arrangements shall incorporate one or more constantly open air inlets or other anti-vacuum devices of such a design that the complete valve is capable of meeting the requirements of 5.3. The construction shall not facilitate the fitting of any pipe or device to conduct water at a lower level.

#### APPENDIX A

The antisiphonage test is intended for ballvalves with seats limited to a maximum of 9.5mm diameter.

Clause A.1 - Apparatus The following apparatus is required for the test:-

A galvanised mild steel cylinder, type reference Y58, complying with the requirements of BS 417\* with modified connection on the side to take 2 inch diameter BSP diameter pipework and with other connections for vacuum line, pressure gauge and, if fitted, a drain valve.

A transparent sight tube.

An accurately calibrated vacuum gauge to measure 0-1, 01 bar (0 - 762mmHg) vacuum.

A 2 inch quick opening valve.

A transparent catch pot.

A galvanised mild steel cistern of not less than 22.5 litres capacity, on a stand.

A full way valve of 2 inch dia.

A suitable shut-off valve.

A means of producing and maintaining a vacuum of not less than 0.98 bar (736mmHG) (e.g. pump or injector)

A drain valve.

Fitting under test.

Pipework between cylinder and fitting to connect the foregoing items as shown in Fig 9 to be 2 inch nominal bore and not exceeding 2 meters in length.

A water supply.

Clause A.2 - Procedure Procedure for the antisiphonage test the following procedure shall be followed.

Modify the ballvalve to be tested, by removing its diaphragm and substituting a rigid steel disc of the same diameter and a rubber packing ring which together make up the same thickness as the rubber diaphragm.

Install the modified ballvalve, together with its discharge assembly, in the cistern.

Connect up the apparatus as shown in Fig 9 (If desired the vacuum cylinder may be inverted and the connection on the dome used to fit a drain valve).

Run water into the cistern until the water level is 10mm below the horizontal centre line of the ballvalve.

Close valves Nos 4, 7 and 10, and open valve No 8.

Activate the means for producing the vacuum until the gauge reading on the cylinders is 0.95 bar (710mmHg) minimum.

Close valve No 8 and open valve No 7.

Quickly open valve No 4 and allow it to remain open for 60s.

Close valve No 4 and open valve No 10.

Examine the catch pot and report any water appearing during the test period.

## 5. ACCEPTANCE CRITERIA

Clause 5.3 - antisiphonage requirement

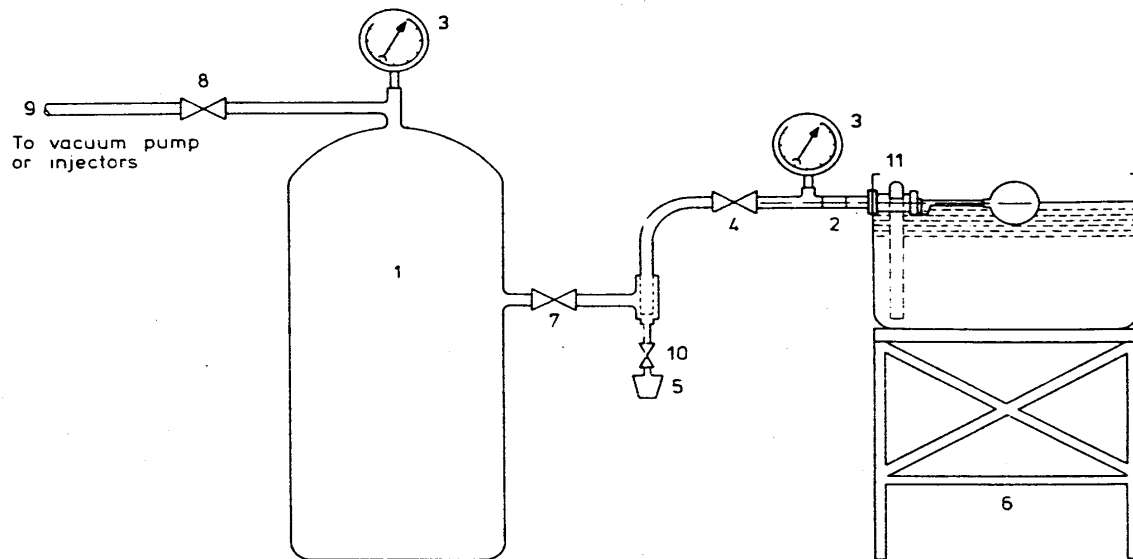
Every ballvalve shall satisfy the antisiphonage requirements of 4.10.1 and shall be deemed to satisfy them if no water can be seen in the catch pot if tested in accordance with Appendix A.

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NOTE. For key to numerals see Appendix A.  
Fig. 9. Diagrammatic representation of antisiphonage test apparatus.

(B) **DIAPHRAGM TYPE FLOAT OPERATED VALVES (PLASTIC BODIED)** (Derived from BS 1212 : Part 3)

**TEST METHOD**

**Discharge arrangements.**

**Clause 22.1** - General - discharges shall conform to the following specifications.

Every float operated valve (diaphragm type) shall be so constructed as to effectively prevent backsiphonage of water previously discharged by the float operated valve at all water levels up to the horizontal centre line of the float operated valve.

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#### APPENDIX D

Clause D.1 - Apparatus. The following apparatus is required.

A galvanised mild steel cylinder, type reference Y58, complying with the requirements of BS 417 with modified connection on the side to take 2 in diameter BSP pipework and with other connections for vacuum line, pressure gauge and drain valve if fitted.

A transparent sight tube.

An accurately calibrated vacuum gauge to measure 0 to 1.01 bar (0 to 762mmHg) vacuum.

A 50mm quick opening valve.

A transparent catchpot.

A galvanised mild steel cistern of not less than 225 litre capacity, on a stand.

A full way valve of 50mm diameter.

A suitable shut-off valve.

A means of producing and maintaining a vacuum of not less than 0.9 bar (675mmHg) (e.g. pump or injector)

A drain valve.

fitting under test.

Pipework between cylinder and fitting to connect the foregoing items, as shown in figure 3, to be 2 in nominal bore and not exceeding 2m in length

A water supply.

A length of 0.75mm diameter nylon thread.

Clause D.2 - Procedure. The following procedure shall be followed.

Foul the waterway over the whole passage from inlet to discharge by the insertion of the nylon thread.

Install the float operated valve and the appropriate float, in the cistern.

Connect up the apparatus as shown in figure 3. (If desired, the vacuum cylinder may be inverted and the connection on the dome used to fit a drain valve).

Run water into the cistern until the water level is at the horizontal centreline of the float operated valve.

Close valves (d) (g) and (k), and open valve (h).

Activate the means for producing the vacuum until the gauge reading on the cylinder is 0.9 bar (675mmHg) min.

Close valve (h) and open valve (g).

Quickly open valve (d) and allow it to remain open for 60 s.

Close valves (d) and (g), and open valve (k).

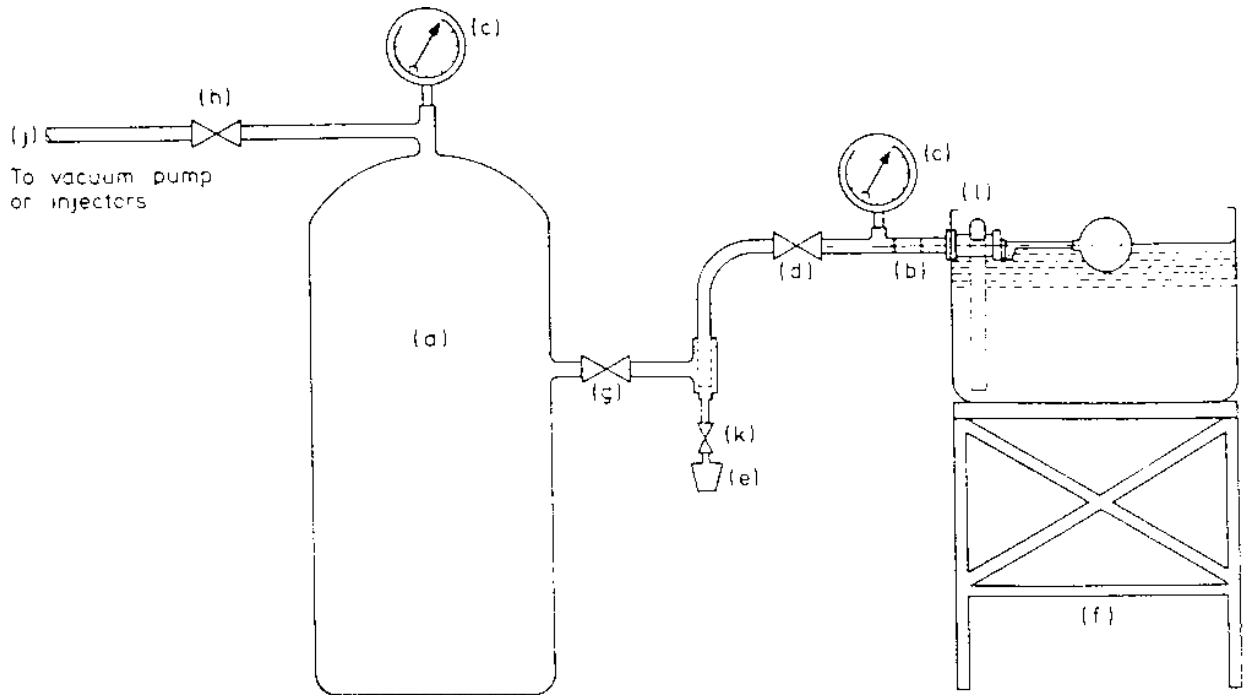
Examine the catchpot for the presence of any water (see clause 25).

Repeat the test, so that the full vacuum is obtained over a period of not less than 60s.

Adjust the water level in the cistern to 20mm below the centre line of the valve and repeat the tests described in (e) to (l).

Repeat the tests at 20mm intervals of level until the water level is at least 20mm below the bottom end of the discharge arrangement.

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NOTE: For key to letters, see appendix D.

Figure 3. Diagrammatic representation of antisiphonage test apparatus

5. **ACCEPTANCE CRITERIA**

Clause 25 - Antisiphonage requirement

Every float operated valve (diaphragm type) shall satisfy the antisiphonage requirement of 22.1(a) and shall be deemed to satisfy the requirement if no water can be seen in the catchpot when tested in accordance with the requirements of Appendix D. (See also figure 3).