BS 1212-4:2016

BSI Standards Publication

Float operated valves

Part 4: Specification for compact type float operated valves for WC flushing cisterns (including floats)

bsi.

...making excellence a habit.™

Publishing and copyright information

Published by BSI Standards Limited 2016

ISBN 978 0 580 87608 0

ICS 91.140.60

The following BSI references relate to the work on this document:
Committee reference B/504
Draft for comment 15/30310921 DC

Publication history

First published October 1991
Second (present) edition February 2016

Amendments issued since publication

Date	Text affected

Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 18, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 1212 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 29 February 2016. It was prepared by Technical Committee B/504, *Water Supply*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 1212 supersedes BS 1212-4:1991, which is withdrawn.

Relationship with other publications

This part of BS 1212 is part of a series that contains the following parts:

- Part 1: *Specification for piston type float operated valves (copper alloy body) (excluding floats)*;
- Part 2: *Specification for diaphragm type float operated valves (copper alloy body) (excluding floats)*;
- Part 3: *Specification for diaphragm type float operated valves (plastics bodied) for cold water services only (excluding floats)*;
- Part 4: *Specification for compact type float operated valves for WC flushing cisterns (including floats)*.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

- updated throughout to allow for the state of the art currently used in the field e.g. push fit connectors;
- introduction of a specific delayed action inlet test.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Requirements in this standard are drafted in accordance with *Rules for the structure and drafting of UK standards*, subclause **J.1.1**, which states, "Requirements should be expressed using wording such as: 'When tested as described in Annex A, the product shall ...'". This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

Terms of measurement are expressed in metric units except for the designations of pipe threads which are retained in imperial units in accordance with BS 2779.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This part of BS 1212 specifies requirements for materials, connecting dimensions, overall size limitations and performance of compact float operated valves, incorporating a float designed for use at operating pressures of between 0.1 bar and 10 bar [1)] and intended for use in WC flushing cisterns.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 21, *Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads (metric dimensions)*

BS 417-2:1987, *Specification for galvanized low carbon steel cisterns, cistern lids, tanks and cylinders – Metric units*

BS 5154, *Specification for copper alloy globe, globe stop and check, check and gate valves*

BS 6100-5:2009, *Building and civil engineering – Vocabulary – Civil engineering – Water engineering, environmental engineering and pipe lines*

BS 6100-7:2008, *Building and civil engineering – Vocabulary – Services*

BS 6920-1, *Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Specification*

BS EN 1057:2006+A1:2010, *Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications*

BS EN ISO 7686:2005, *Plastics pipes and fittings – Determination of opacity*

3 Terms and definitions

For the purposes of this part of BS 1212 the definitions given in BS 6100-5:2009 and BS 6100-7:2008 apply, together with the following.

3.1 float operated valve
valve, operated by a float, to control flow into a vessel

3.2 compact type float operated valve
float operated valve, incorporating a float, with a suitable inlet connection having an overall space limitation [and having a size not greater than (160 × 145) mm], intended not to foul any outlet device

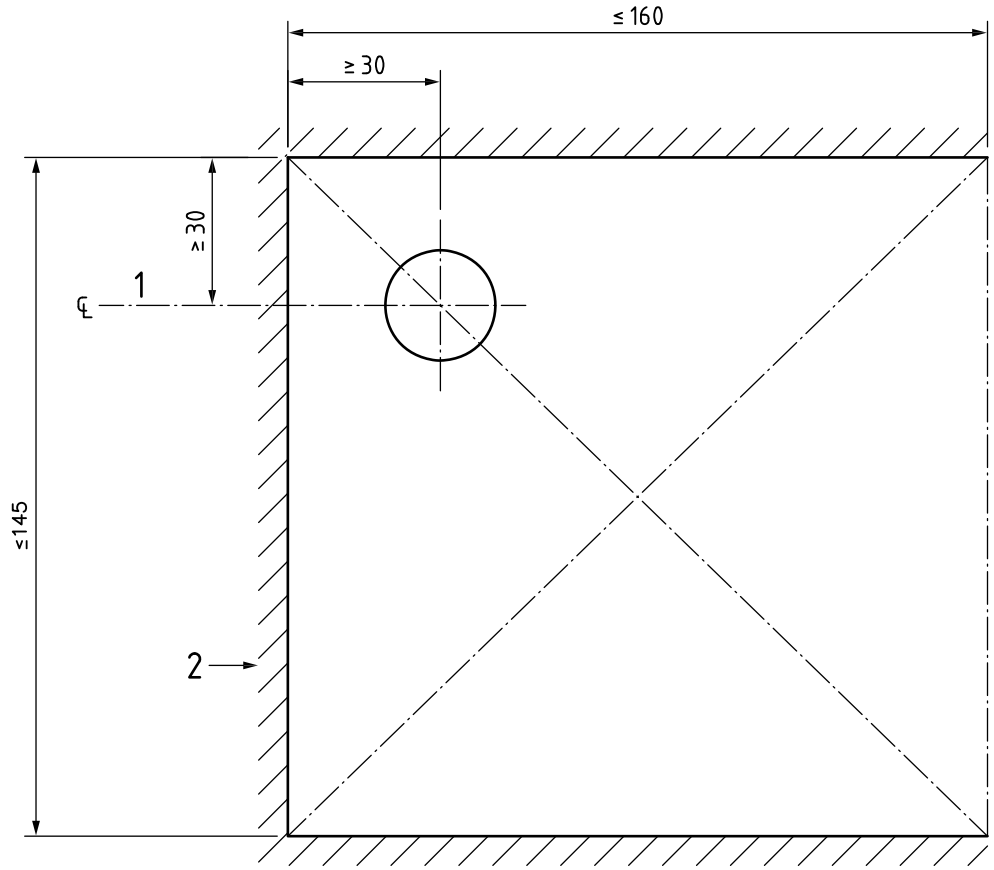
NOTE 1 The size requirement also applies to combined inlet and outlet flush mechanisms for the inlet aspect of these devices only.

NOTE 2 See Figure 1 for an example of a typical flushing cistern showing size limitations for compact valves.

[1)] 1 bar = 10^5 N/m^2 = 100 kPa.

Figure 1 **Example of a typical flushing cistern showing size limitations for compact valves**

All dimensions in millimetres



Key
1 Side feed
2 Inside face of cistern walls

3.3 combined fill and flush valve
inlet valve that incorporates an integral flushing mechanism

NOTE The combined fill and flush mechanism cannot be separated and the function of the fill and flush are linked.

3.4 datum level
line marked on the product to be used as a reference mark when undertaking backflow prevention tests (see Figure 2)

3.5 delayed action inlet valve

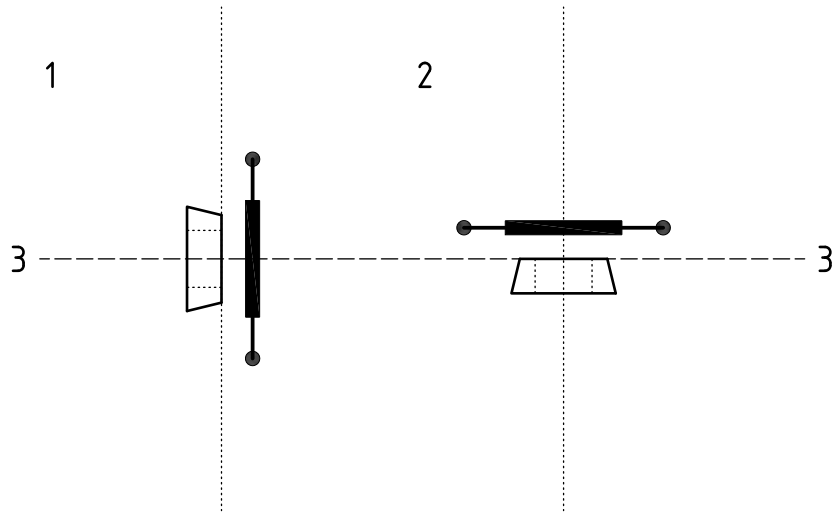
inlet valve designed so that the flow of water into the cistern is delayed on activation of the outlet valve, until all or most of the flush is completed thus preventing or reducing the addition of incoming water to the volume of water flushed

3.6 waterline

level of water at the maximum operational level

NOTE Level achieved with maximum float adjustment.

Figure 2 **Datum level**



Key
1 Horizontal seat centre line
2 Vertical seat centre line
3 Datum level

4 Materials

4.1 Non-metallic materials

When used under the conditions for which they are designed, non-metallic materials in contact with, or likely to come into contact with, wholesome water shall conform to BS 6920-1.

Components subject to direct natural light shall conform to the opacity test specified in BS EN ISO 7686:2005.

4.2 Metals

Components manufactured from metals shall be resistant to corrosion.

5 Design, construction and dimensions

5.1 General dimensional requirements

Valves shall be capable of functioning within a space as indicated in Figure 1.

5.2 Inlet connections

5.2.1 General

Valves shall incorporate an inlet assembly with a connection designed for use with either spigot, compression type connectors or other equally effective methods, e.g. push fit connections.

Where the valve is designed to be connected through the wall of the flush cistern a suitable means shall be provided to secure the valve to the flush cistern to a wall thickness not greater than 12 mm.

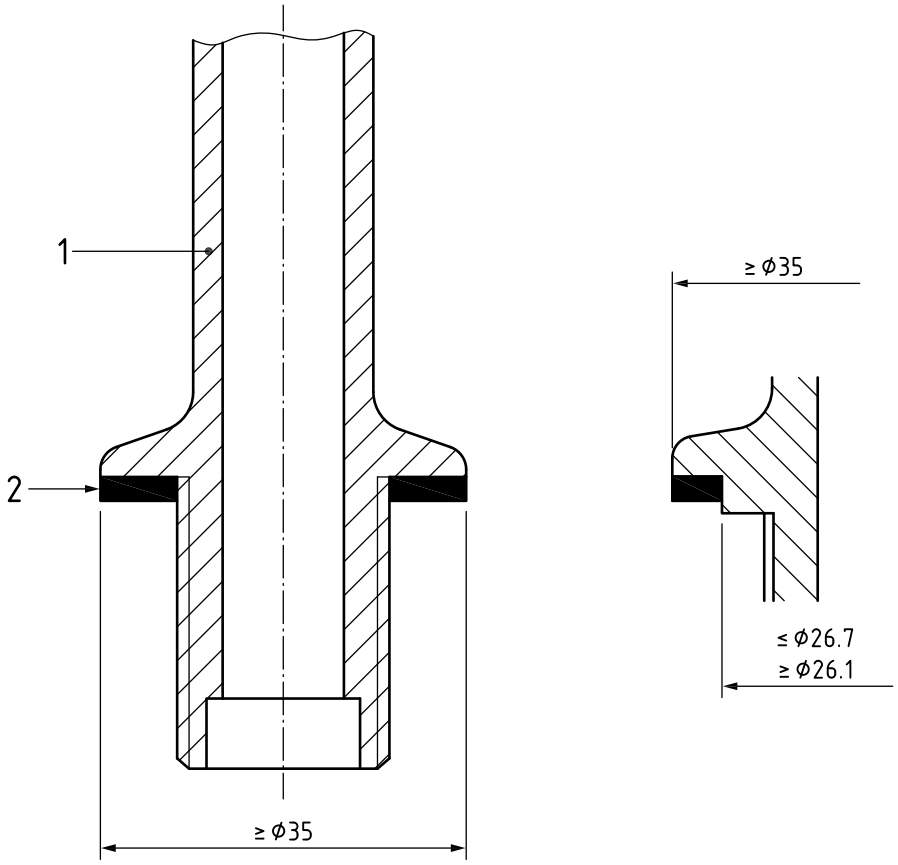
5.2.2 Bottom inlet connection

A bottom inlet assembly shall incorporate an integral flange either with or without a spigot and shall have a flange of not less than 35 mm diameter to allow a washer to be fitted and to create effective sealing to the flushing cistern.

NOTE See Figure 3 for an example of a bottom entry valve inlet arrangement.

Figure 3 **Example of a bottom entry valve inlet arrangement**

All dimensions in millimetres



Key

1 Inlet assembly

2 Typical sealing washer

5.3 Backnuts

When tested in accordance with Annex A, where backnuts are used to secure the valve to a flushing cistern the valve shall withstand a torque of 15 N·m without distortion that will affect the efficiency of the assembly.

5.4 Water level adjustment

The design of a compact type float operated valve shall incorporate a readily accessible method of adjustment and securing to set the water level in the cistern into which the valve is fitted.

5.5 Discharge arrangements

Where the discharge arrangement outlet point is above the datum level for backflow prevention test purposes, the construction shall not allow the subsequent fitting of any pipe or device to conduct water to a lower level.

NOTE Valves with silencing tubes are deemed to discharge above the datum level.

6 Performance

6.1 Hydraulic pressure

6.1.1 Static pressure

Whilst held in the closed position, a compact type float operated valve shall be capable of withstanding a pressure of $(20^{+0.25}_{0})$ bar for a period of $(60^{+5}_{0.5})$ s without leaking.

NOTE The manufacturer's recommendations on the use of flow restrictors should be followed when undertaking this test.

6.1.2 Shut-off pressure

When tested in accordance with Annex B and Annex C, the valve shall withstand the shut-off pressure without passing water and shall show no increase in water level.

6.1.3 Dynamic pressure

When tested in accordance with Annex D, a compact type float operated valve with its discharge arrangement, and fitted with any restrictor supplied for use at high pressure, shall show no permanent deformation or separation of any component part.

6.2 Vacuum testing for backflow prevention

*COMMENTARY ON **6.2***

Vacuum testing for backflow prevention as detailed in Annex E is pertinent to validating only an independent inlet valve. When an independent inlet valve is used in conjunction with a cistern to form an independent flushing cistern or to form a WC suite, additional verification to validate backflow prevention arrangements might be required.

When tested in accordance with Annex E, a compact type float operated valve of either side or bottom inlet together with its discharge arrangement shall deliver no water into the catchpot (see Figure E.1).

NOTE 1 Where the discharge arrangement outlet is below the datum level for backflow prevention test purposes it is permissible to incorporate one or more constantly open air inlets or backflow prevention devices.

NOTE 2 Testing is required on all inlet variants where the water pathways differ, e.g. side entry and bottom entry.

6.3 Flow

When tested in accordance with Annex F, a compact type float operated valve with its discharge arrangement fitted, but having any restrictor supplied for use at high pressure removed, shall deliver a minimum flow rate of 3.0 L/min.

6.4 Endurance

When tested in accordance with Annex G, a compact type float operated valve shall complete 200 000 cycles and subsequently satisfy the hydraulic pressure requirements at 10 bar and 0.1 bar of Annex B and Annex C.

6.5 Delayed action inlet valves

Where inlet valves are designed to delay the inlet of water they shall be tested in accordance with Annex H. The delayed action shall prevent incoming water into the cistern for not less than 4 s or until the flush cycle is complete.

7 Marking

A compact type float operated valve shall be permanently and legibly marked with the following information in such a way as not to deform any working part:

a) the number or number and date of this British Standard, e.g. BS 1212-4 or BS 1212-4:2016 [2)];

b) the manufacturer's name, mark or trade name;

c) the datum level of the valve if it is not specified in the technical data sheet;

d) for combined fill and flush valves the minimum and maximum operating values, if it is not specified in the technical data sheet.

[2)] Marking BS 1212-4:2016 or BS 1212-4 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

Annex A (normative) Distortion test for backnuts and inlet shanks

A.1 Apparatus

A.1.1 *Test plate*, as shown in Figure A.1, manufactured from a suitably rigid material, e.g. stainless steel, that will not deform during testing.

A.1.2 *Open ended spanner*, which is a snug fit on the flats of the backnut.

A.2 Procedure

A.2.1 Using a clean cloth and cleaning fluid, clean the inlet shank, backnut(s) and test plate.

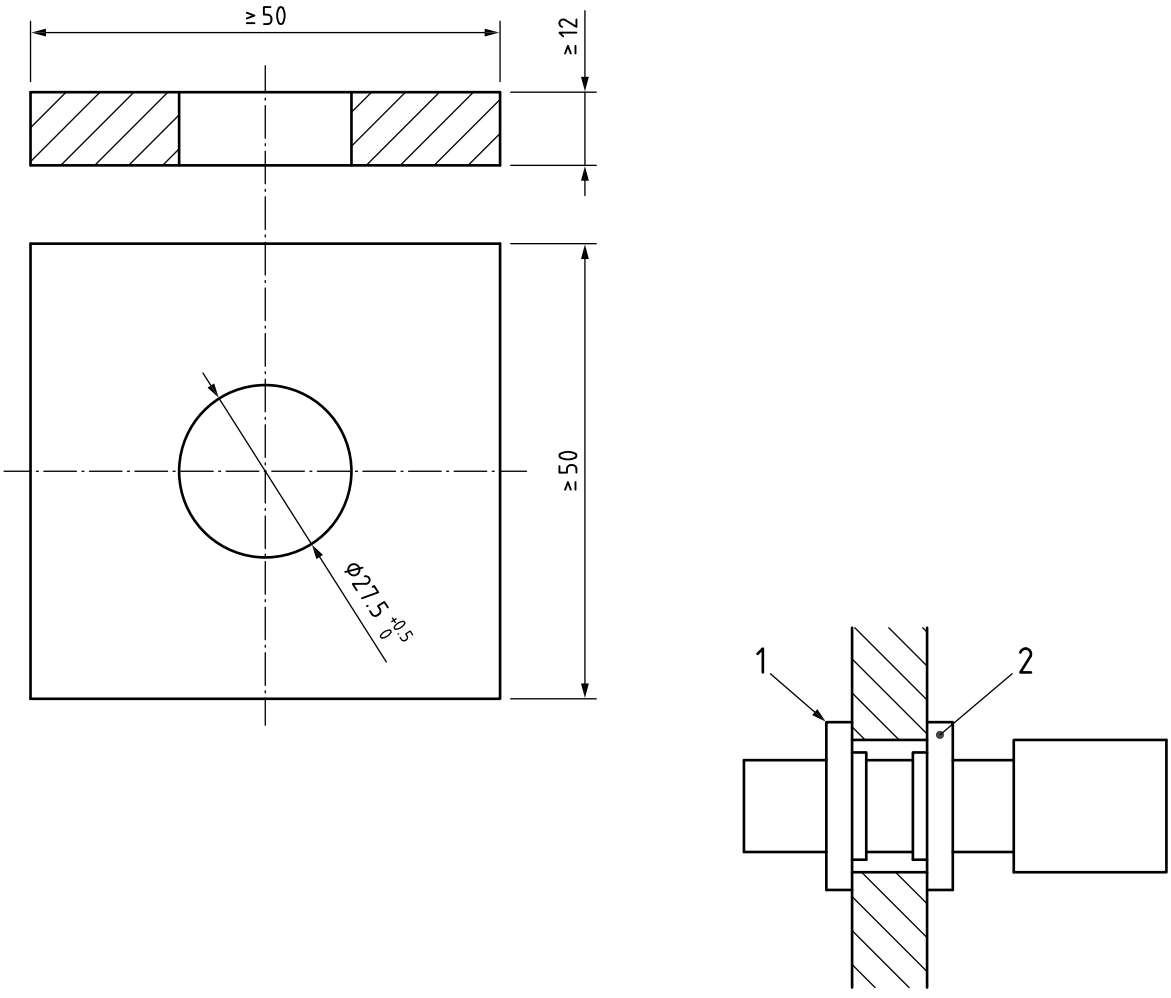
A.2.2 Insert the assembly through the test plate (A.1.1) with backnut(s) as shown in Figure A.1. Apply a torque of 15 N·m to the backnut on the opposite side of the test plate to the valve with the open ended spanner (A.1.2).

A.3 Result

Record any visible distortion of the threads of either the inlet shank or the backnut(s) and the flats of the backnut(s), of the flange.

Figure A.1 **Example of a test plate**

All dimensions in millimetres



Key

1 Backnut to which torque is applied

2 Backnut or integral flange

NOTE Other test dimensions might be required dependent upon the specific size and type of inlet connection.

Annex B (normative) High pressure shut-off test

B.1 Apparatus

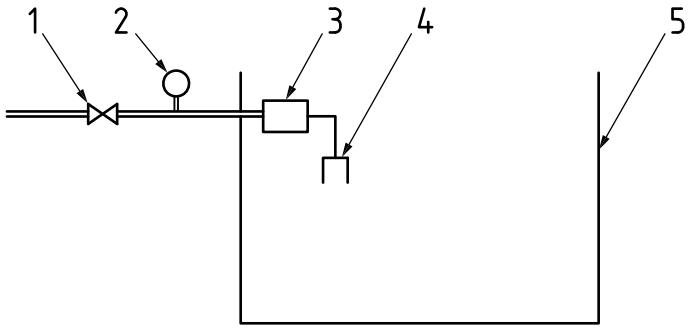
NOTE See Figure B.1.

B.1.1 *Cistern*, in which the float operated valve can be installed and which allows the attached float to be totally immersed in water, with a water surface area of maximum 50 000 mm^2.

B.1.2 *Water supply*, capable of providing the required pressure.

B.1.3 *Pressure gauge*, installed immediately upstream of the valve on test.

Figure B.1 **Apparatus for high pressure shut-off test**



Key

1 Issolation valve
2 Pressure gauge
3 Valve under test
4 Float
5 Cistern (max. surface area 50 000 mm2)

B.2 Procedure

B.2.1 Install the float operated valve in the cistern.

NOTE The manufacturer's recommendations on the use of flow restrictors should be followed when undertaking this test.

B.2.2 Fill the cistern with water through the inlet valve until the valve is closed with a static pressure of $(10_0^{+0.05})$ bar.

B.2.3 Mark the water level for reference purposes.

B.2.4 Maintain the pressure of $(10_0^{+0.05})$ bar for a period of (10_0^{+5}) min.

B.2.5 Check for evidence of the valve passing water by visual inspection of movement against the reference waterline marked earlier.

B.2.6 Close the isolation valve.

B.2.7 Manually add more water to the cistern (not through the valve) to 20 mm above the marked line and leave for 28 days.

B.2.8 Drain the water from the cistern until the cistern is empty and repeat **B.2.1** to **B.2.5**.

B.3 Result

Record any occurrence of the valve passing water or any increase in level, as appropriate to the test procedure.

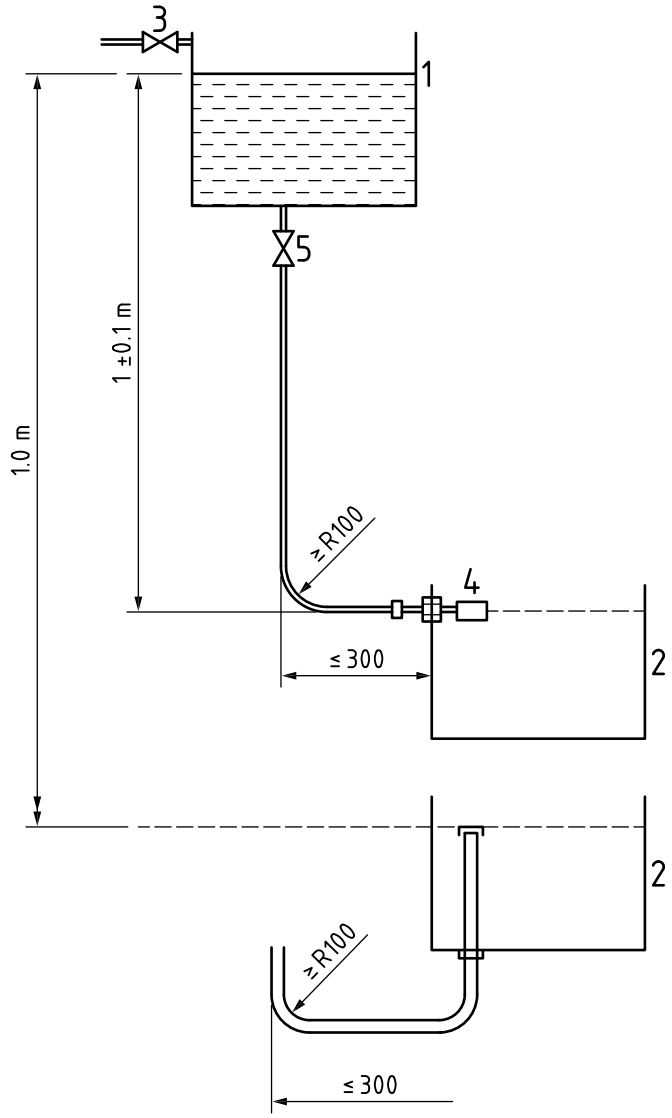
Annex C (normative) Low pressure shut-off test

C.1 Apparatus

Test apparatus, as shown in Figure C.1.

Figure C.1 **Low pressure shut-off test apparatus**

All dimensions in millimetres except where otherwise shown



Key

1 Cistern
2 Cistern with a maximum 50,000 mm² surface area
3 Stop valve capable of maintaining level at 1 m
4 Fitting under test
5 Gate valve (conforming to BS 5154)

*NOTE See **C.2.5** for combined fill and flush mechanisms.*

C.2 Procedure

C.2.1 Connect the inlet valve and cistern to a header tank as detailed in Figure C.1.

NOTE The manufacturer's recommendations on the use of flow restrictors should be followed when undertaking this test.

C.2.2 Allow the cistern to fill naturally through the inlet valve ensuring all air is purged from the system until it shuts off the supply.

C.2.3 Mark the water level for reference purposes.

C.2.4 Leave for 120 min.

C.2.5 Check for evidence of the valve passing water by visual inspection of movement against the reference waterline marked earlier.

NOTE Where inlet valves are designed as a combined unit in conjunction with an outlet valve, they might have a higher minimum pressure requirement for the flush function to operate and therefore are not suitable to be tested at 0.1 bar. They should be tested to the minimum pressure requirement as stated by the manufacturer to operate the flush function.

C.3 Result

Record any occurrence of the valve passing water or any increase in level, as appropriate to the test procedure.

Annex D (normative) Dynamic pressure test

D.1 Apparatus

D.1.1 *Cold water supply*, capable of providing a dynamic pressure of 10 bar.

D.1.2 *Pressure gauge*, installed immediately upstream of the valve under test.

D.2 Procedure

Connect the valve to be tested to the water supply. With the valve held in the fully open position, gradually increase the supply pressure to 10 bar. Maintain this pressure for (60^{+5}_{0}) s.

D.3 Result

Record any permanent deformation or separation of components.

Annex E (normative) Vacuum test

E.1 Apparatus

NOTE See Figure E.1.

E.1.1 *Vacuum pump* (marked "1" on Figure E.1), with a means for producing and maintaining an absolute pressure of 0.2 bar within a vacuum vessel (e.g. pump or injector).

E.1.2 *50 mm full way gate valve* (marked "2" on Figure E.1), conforming to BS 5154.

E.1.3 *A vacuum vessel* (marked "3" on Figure E.1), comprising a galvanized mild steel cylinder, type reference Y58 conforming to BS 417-2:1987, with modified connection on the side to take G2, conforming to BS 21 pipe with other connections for vacuum line, pressure gauge and drain valve if fitted.

E.1.4 *A calibrated vacuum gauge* (marked "4" on Figure E.1), to measure negative pressures from 0 bar to 1.0 bar.

E.1.5 *A 50 mm full way quick action valve* (marked "5" on Figure E.1).

E.1.6 *A water trap* (marked "6" on Figure E.1), with catchpot and drain valve.

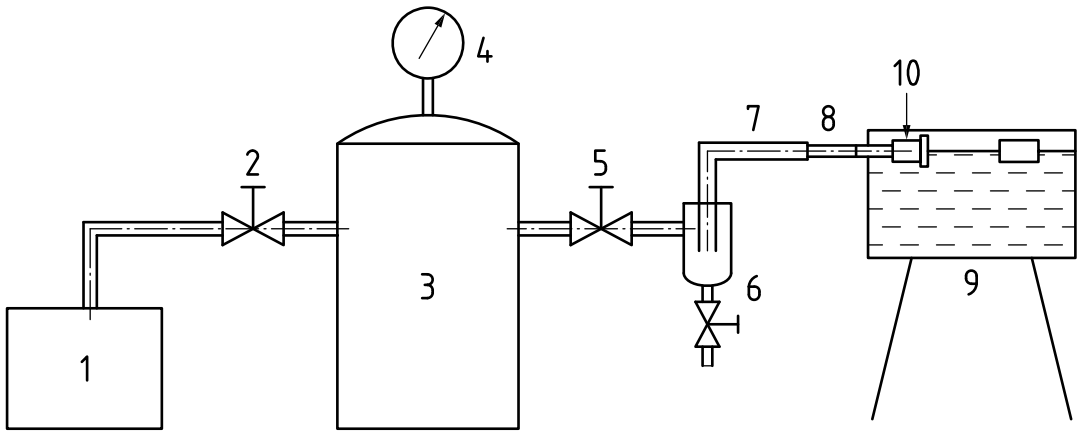
E.1.7 *Pipework* (marked "7" on Figure E.1), of 50 mm nominal bore and not greater than 2 m in the total length connecting the vacuum vessel, full way quick action valve, water trap and connecting pipe to the float operated valve under test.

E.1.8 *A 15 mm copper pipe*, (marked "8" on Figure E.1) conforming to BS EN 1057:2006+A1:2010, Table 3, not longer than 200 mm in length, connecting the float operated valve under test to the 50 mm pipework "7".

E.1.9 *A cistern* (marked "9" on Figure E.1) (side or bottom entry), with the warning pipe stoppered.

E.1.10 *A water supply*.

Figure E.1 **Typical arrangement of apparatus for backflow prevention test**



Key

1	Vacuum pump (see **E.1.1**)	6	Water trap with catchpot and drain valve (see **E.1.6**)
2	50 mm full way gate valve (see **E.1.2**)	7	50 mm pipework (see **E.1.7**)
3	Vacuum vessel (see **E.1.3**)	8	15 mm copper pipe (see **E.1.8**)
4	Pressure gauge 0 bar to 1.0 bar absolute (see **E.1.4**)	9	A cistern (see **E.1.9**)
5	50 mm full way quick action valve (see **E.1.5**)	10	Float operated valve under test

E.2 Procedure

E.2.1 Install the float operated valve complete with its float in the cistern (**E.1.9**).

E.2.2 Connect the float operated valve to the pipework and associated equipment as shown in Figure E.1, ensuring that no residual water is present within the system.

E.2.3 Set the float so as to produce the maximum water level when the float operated valve shuts off. Add water into the cistern (**E.1.9**) from an external device until the water level is at the datum level for backflow prevention test purposes (See Figure 2).

E.2.4 Close the full way quick action valve (**E.1.5**) and the water trap drainage valve (**E.1.6**) and open the full way gate valve (**E.1.2**).

E.2.5 Activate the means of producing a vacuum (**E.1.1**) until the gauge reading (**E.1.4**) on the vacuum vessel (**E.1.3**) is not more than 0.2 bar absolute. Close the full way gate valve (**E.1.2**)

E.2.6 Quickly open the full way quick action valve (**E.1.5**) and allow it to remain open for 60 s. Close the full way quick action valve (**E.1.5**).

E.2.7 Open the water trap drain valve (**E.1.6**) to ascertain whether any water was present in the catchpot.

E.3 Result

In accordance with **6.2**, the compact type float operated valve of either side or bottom inlet together with its discharge arrangement shall deliver no water into the catchpot (see Figure E.1).

Annex F (normative) Flow test

F.1 Apparatus

F.1.1 *Test rig* (see Figure F.1), capable of maintaining (2 ± 0.1) m head of water at the inlet of the valve under test, comprising a cistern connected, through 15 mm copper pipework (conforming to BS EN 1057:2006+A1:2010, Table 3) to the specimen valve via a controlling gate valve.

F.2 Procedure

F.2.1 Fit the float operated valve as appropriate for side or bottom mounting (see Figure F.1), together with its discharge arrangement.

F.2.2 Remove the float.

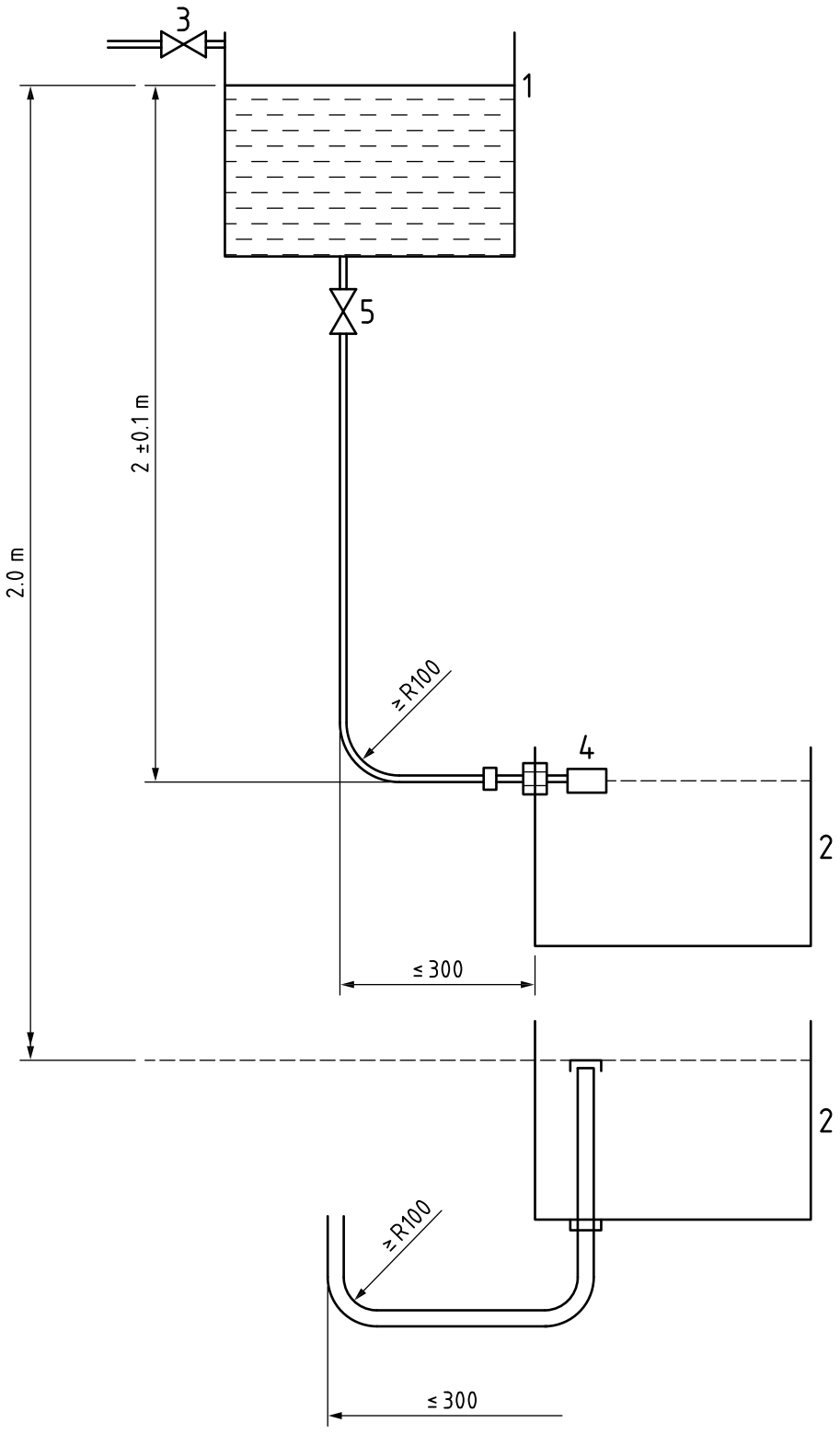
F.2.3 Cause the valve to discharge water from cistern 1 into container 2 for a period of not less than 60 s whilst maintaining the water level in cistern 1 at a height of $(2^{+0.1}_{0})$ m above the centre of the inlet of the valve for the duration of the test.

F.3 Result

Record the amount of water in container 2. Calculate a flow rate.

Figure F.1 **Flow test apparatus**

All dimensions in millimetres except where otherwise shown



Key

1 Cistern
2 Water container
3 Stop valve capable of maintaining level at 2 m
4 Fitting under test
5 Gate valve (conforming to BS 5154)

Annex G (normative) Endurance test

G.1 Apparatus

G.1.1 *Test equipment*, capable of operating the float arm or float arm assembly to open fully and to close fully the valve on an automatic cycle.

G.1.2 *A water supply,* to the valve to be maintained at (1.5 ± 0.1) bar. The water temperature shall not exceed 30 °C.

G.2 Procedure

NOTE The inlet endurance can also be tested in accordance with BS EN 997:2012+A1:2015, ***6.17.5.***

G.2.1 Install the valve onto the test rig.

G.2.2 Fully open the valve.

G.2.3 Allow the valve to remain in the open position for a minimum of 2 s.

G.2.4 Fully close the valve.

G.2.5 Allow the valve to remain closed for a minimum of 2 s after the water has ceased to flow.

G.2.6 Procedure **G.2.2** to **G.2.5** constitutes one cycle of not less than 6 s duration.

G.3 Result

On completion of the 200 000 cycles, satisfy the hydraulic pressure requirements at 10 bar and 0.1 bar of Annex B and Annex C, omitting the twenty eight day test.

Annex H (normative) Delayed action inlet valve test

H.1 Apparatus

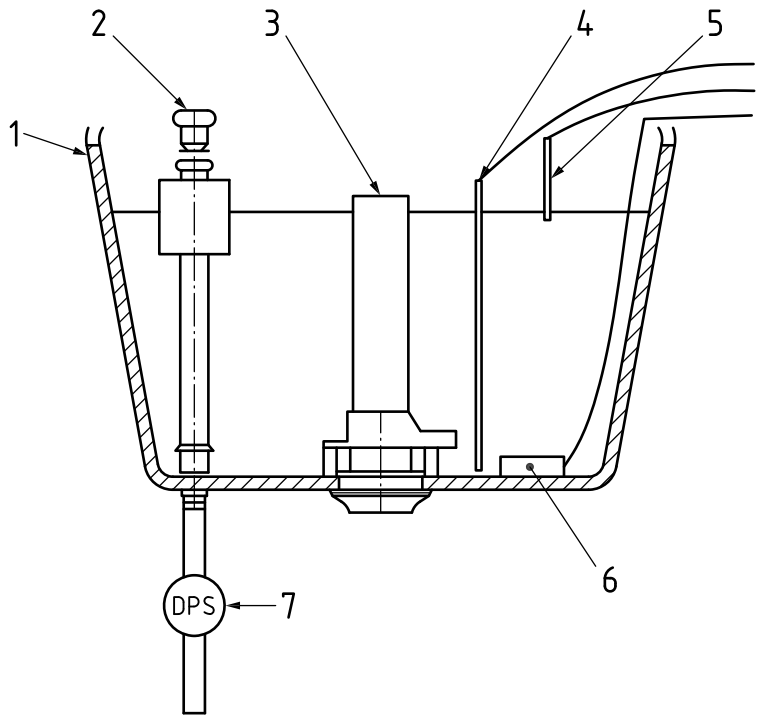
H.1.1 *A test rig* (see Figure H.1), capable of maintaining the dynamic pressure specified.

H.1.2 *A water supply to the valve*, to be maintained at (1.5 ± 0.1) bar. The water temperature shall not exceed 30 °C.

H.1.3 *Electronic timer.*

H.1.4 *Flow sensor*.

Figure H.1 **Test rig for delayed action fill valves**



Key

1 Test cistern
2 Float operated inlet valve
3 Flush valve
4 Low level probe
5 High level probe
6 Earth
7 Pressure switch

H.2 Procedure

H.2.1 Connect the inlet valve to the flush cistern.

H.2.2 Connect to supply that is maintained at (1.5 ± 0.1) bar.

H.2.3 Fill the flush cistern through the inlet valve that is to be tested.

H.2.4 Flush the cistern and allow to refill and for the inlet valve to stop the flow back into the cistern.

H.2.5 Check water level is at 6 L mark.

H.2.6 Repeat as necessary.

H.2.7 Install the fluid level sensing device so it senses the change in water level 10 mm below the 6 L mark.

H.2.8 Operate the flush mechanism.

H.2.9 Start measuring at the point that the water level drops below the sensor point.

H.2.10 Stop the timer when flow is detected on the supply pipe to the inlet valve.

H.2.11 Repeat 5 times and ensure all tests meet the minimum requirement i.e. not less than 4 s.

H.2.12 In the event of combined products, validate that the fill through the inlet valve to the test cistern is delayed until the completion of the flush cycle.

H.3 Results

All tests meet the minimum requirement, i.e. not less than 4 s, or until the flush cycle is complete, in accordance with **6.5**.

Bibliography

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

BS 2779, *Specification for pipe threads for tubes and fittings where pressure-tight joints are not made on the threads (metric dimensions)*

BS EN 997:2012+A1:2015, *WC pans and WC suites with integral trap*

Further reading

BS 6100-0, *Building and civil engineering – Vocabulary – Introduction and index*

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.