British Standard

BRITISH STANDARD

BS 7358:1990

Specification for

Close coupled suites with flush capacity of 7.5 L maximum

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Building Services Standards Policy Committee (SEB/-) to Technical Committee SEB/1, upon which the following bodies were represented:

British Bathroom Council
British Plastics Federation
Clay Pipe Development Association Ltd.
Consumer Policy Committee of BSI
Department of Health
Department of the Environment (Building Research Establishment)
Department of the Environment for Northern Ireland
Department of the Environment (Property Services Agency)
Institute of Clerks of Works of Great Britain Inc.
Institute of Plumbing
Institute of Vitreous Enamellers
Institution of Environmental Health Officers
Institution of Water and Environmental Management
Metal Sink Manufacturers' Association
Royal Institute of British Architects
Vitreous Enamel Development Council
Water Services Association of England and Wales

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Amendments issued since publication

Amd. No.	Date	Comments

Contents

Foreword

BS 7358 has been prepared under the direction of the Building Services Standards Policy Committee in order to supplement a series of new British Standards for WC pans and cisterns designed to accommodate a 7.5 L flushing capacity.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1 Scope

BS 7358 specifies requirements for material, quality, functional and connecting dimensions, performance and design for close coupled or integrally cast pedestal washdown WC suites with horizontal outlet, having a flush capacity of 7.5 L max. and supplied with the appropriate seat, cover, siphon and float operated valve.

Float operated valves and methods of fixing suites do not form part of this standard.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the following definitions apply.

2.1
spill-over level

the level at which water in the flushing cistern will first spill over if the rate of inflow exceeds the rate of outflow through the warning pipe

2.2
water line

a level marked inside a cistern to indicate the highest water level at which the float operated valve is adjusted to shut off

2.3
flushing rim

device around the top of the pan designed to direct and disperse the water around the bowl during the flush

3 Marking

3.1 The suite shall be permanently marked with the following information:

a) the manufacturer's name or identification mark;

b) the manufacturer's model reference;

c) the number of this British Standard, i.e. BS 7358[1)].

3.2 Marking shall be capable of being seen after installation.

NOTE For the purposes of this standard marking by means of a label complying with BS 4781-1 is considered to be an acceptable permanent method of marking.

3.3 Any component of the suite supplied separately, not as an integral part of the suite, shall be marked with the manufacturer's model reference.

[1)] Marking BS 7358 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 therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

Section 2. Materials, design and construction

4 Suites

A WC suite shall be either:

a) an integrally cast pan and cistern having a compatible seat and cover; or

b) a separately cast pan and cistern with a system of coupling having a compatible seat and cover.

Both types shall comply with the dimensions and tolerances given in Table 1. See Figure 1.

NOTE The interior and exterior configuration of the suite should be designed so that any ridges, crevices, or grooves are kept to a minimum to facilitate routine cleaning after installation.

5 WC pans

The WC pan component of a close coupled suite shall be manufactured from vitreous china complying with BS 3402.

6 Cisterns (shells and covers)

The cistern component of a close coupled suite shall comply with the material, design and construction requirements for vitreous china and plastics close coupled cisterns specified in BS 7357 with the exception of the volume of discharge and rate of discharge requirements.

7 Seats

The seat component of a close coupled suite shall be manufactured from plastics or other materials and shall, with the exception of dimensions, exhibit the characteristics for WC seats specified in BS 1254[2)], including the hygienic shape requirements. The inside edge of the seat shall overhang the inside bottom edge of the flushing rim by 5 mm min. The seat when in the raised position shall not fall forward when installed in accordance with the manufacturer's instructions.

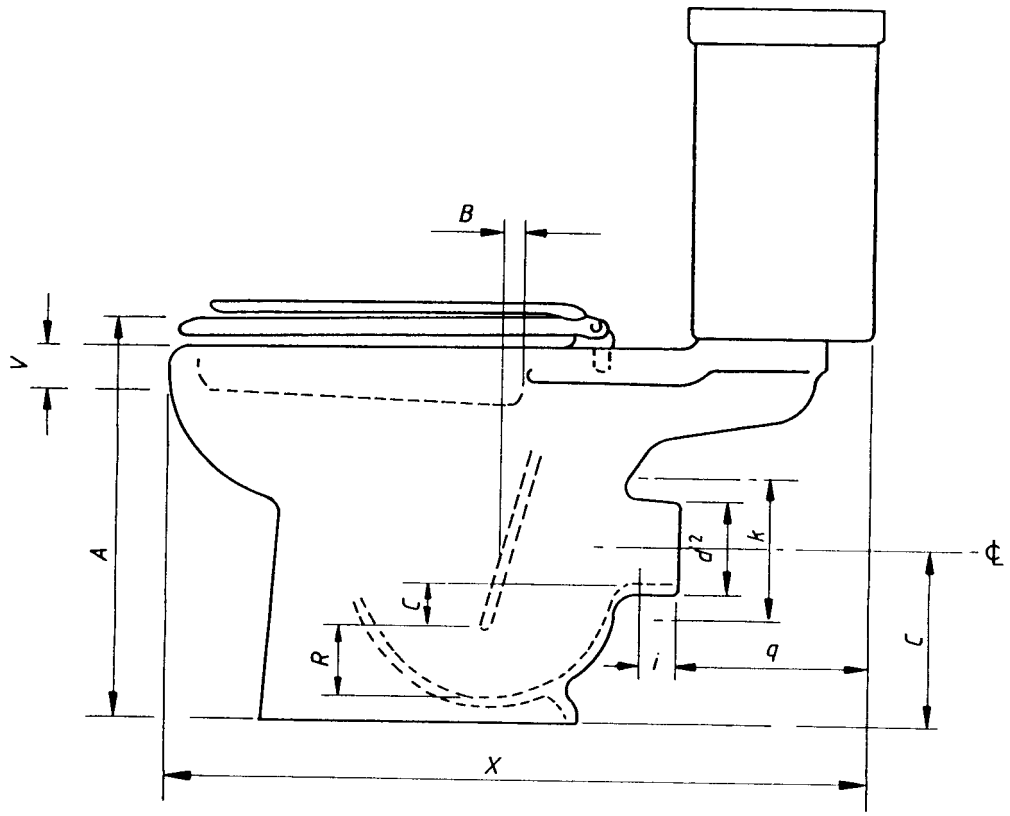

Figure 1 — Dimensions

[2)] BS 1254 is in the process of revision to include seats of materials other than plastics.

Table 1 — Functional dimensions (other than connecting dimensions)

Ref.	Descriptions	Dimensions
		mm
A	Height, base to top of seat (not including the cover) measured at the front	420 ± 15
B[a]	Distance between a vertical line from the water level on the back plate to the inside face of the flushing rim at back	65 max.
C	Depth of water seal	50 min.
R	Clearance below tip of back plate	65 min.
d_2	External diameter of outlet	102 ± 5
k	Diameter of the free space around the outlet	150 min.
i	Length of straight part of outlet glazed and without grooves	40 min.
q	Distance from end of outlet to furthest projection of suite towards wall	not integrally cast 150 ± 15
		integrally cast 240 ± 45
t	Height of centre line of outlet from base	190 ± 5
V	Depth of flushing rim if provided	95 max.
X	Overall length front to back	800 max.

[a] For the purposes of measuring WC pans, other than open or box rims, mark a datum level around the inside of the bowl 85 mm from the top surface of the pan.

Section 3. Performance

8 Flushing tests

When tested in accordance with Appendix A the pan of the suite shall meet the following requirements.

a) *Paper and ball tests*. The trap shall be completely cleared in four out of five operations.

b) *Sawdust test*. The total unflushed area between the water surface and the underside of the rim, or for rimless pans between the water surface and up to a distance of 85 mm from the top surface of the bowl, shall be not more than 5 000 mm^2.

9 Volume of discharge per flush

When tested in accordance with Appendix B, the cistern of the suite shall discharge a volume not more than 7.5 litres.

Appendix A Flushing test

A.1 Test apparatus

A.1.1 *A suite* to be tested complete with all its fittings connected in accordance with the manufacturer's instructions, placed on a firm flat horizontal surface with its outlet discharging freely into the air with no obstruction within a distance of 150 mm of the pan outlet measured in the direction of the axis of the outlet.

A.1.2 *Water supply* at a temperature of between 7 °C and 20 °C controlled by a stop valve and fitted, if necessary, with a pressure regulating valve to give a static pressure of 3 ± 0.5 bar[3)] at the inlet to the cistern float operated valve, with the float operated valve adjusted to close when the water level reaches the marked water line of the cistern.

A.1.3 *Soft paper for flushing tests* (see **A.2**).

A.1.4 *A ball*, of non-absorbent material, having a relative density of between 1.075 and 1.080 and a diameter of 43 ± 0.5 mm.

A.1.5 *Fine dry sawdust*, passing a 2 mm mesh.

A.2 Specification for soft paper for flushing tests

NOTE This specification is intended to standardize the paper used in the test. It is not intended as a specification for toilet paper for ordinary use.

A.2.1 *Specification*

Type	Soft tissue.
Sheet count	If the tissue comes from a roll or packet in twin-ply form then a twin-ply sheet shall be counted as one sheet.
Sheet area	Sheet area shall be between 14 000 mm^2 and 16 000 mm^2.
Grammage	12 sheets shall weigh between 6 g, and 8 g i.e. grammage of the paper shall be between 35 g/m^2 and 42 g/m^2.
Absorbency	The absorbency of the paper is measured using the basket method and shall fall within the range 10 s to 60 s.

A.2.2 *Apparatus for basket method*

A.2.2.1 *Basket*, 75 mm long, 50 mm in diameter and made of 0.75 mm wire.

The basket is made of 2 "U" shaped pieces measuring 50 mm × 75 mm, joined to form a cross of 50 mm × 50 mm in the lower part and two circles 50 mm in diameter spaced 50 mm and 75 mm respectively from the bottom, joined on all four sides. The basket is tared to a mass of 3 g.

A.2.2.2 *Water*, from the same source as that which is to be used for the flush test at a temperature within ± 2 °C of that recorded in **A.3.1**.

A.2.3 *Basket method for absorbency of paper*

Roll up 12 sheets of paper and place them into the basket. Place the inverted basket containing the paper into a cylindrical glass vessel containing water.

Measure the time taken for the paper to become saturated from placing it in the water to starting to sink. Repeat this test three times and record the average time taken.

A.3 Preparation

A.3.1 Fill the cistern and record the temperature of the water.

A.3.2 Flush the cistern in order to ensure that the trap is fully charged with water to the normal working level.

A.3.3 Allow the cistern to refill and close the stop valve, ensuring that no water enters the cistern during the test.

A.4 Methods and results

A.4.1 *Paper test*

For each flush operation drop 12 separate sheets of paper as specified in **A.1.3**, loosely crumpled, individually, into the WC pan and flush the cistern within 20 s of the start of the operation. Repeat the procedure five times ensuring the trap is completely cleared before each new flush operation.

A.4.2 *Result*

Record whether or not any paper remains in the trap at the end of each flush operation.

A.4.3 *Ball test*

For each flush operation place the ball into the WC pan to be tested and then flush the pan. Repeat the procedure five times ensuring the trap is cleared before each new flush operation.

A.4.4 *Result*

Record whether or not the trap has been cleared of the ball at the end of each flush operation.

[3)] 1 bar = 10^5 N/m^2 = 10^5 Pa.

A.4.5 ***Sawdust test***

Flush the WC pan and immediately sprinkle approximately 20 g of fine dry sawdust on the inside of the pan between the normal water level and the flushing rim (if provided) or, for rimless pans up to a distance of 85 mm from the top surface of the bowl, as completely and evenly as possible.

Allow the cistern to refill and flush the pan again.

A.4.6 ***Result***

Record the area of any unflushed sawdust.

Appendix B Volume of discharge test

B.1 Preparation

Set up the suite as in Appendix A.

B.2 Method

Fill the cistern and operate the flushing mechanism so that the WC pan sump is left primed at its normal working level. Allow the cistern to refill to the marked water level.

Place a vessel under the open end of the horizontal outlet of the pan.

Ensure that the water supply stop valve is closed, to prevent water entering the cistern during the test. Operate the flushing mechanism.

B.3 Result

On completion of the flush, determine and record either by measuring or weighing, the volume of water discharge.

Appendix C Bibliography of associated standards

BS 4118, *Glossary of sanitation terms.*

BS 5503, *Vitreous china washdown WC pans with horizontal outlet — Part 3: Specification for WC pans with horizontal outlet for use with 7.5 L maximum flush capacity cisterns.*

BS 5504, *Wall hung WC pans — Part 4: Specification for wall hung WC pans for use with 7.5 L maximum flush capacity cisterns.*

BS 5627, *Specification for plastics connectors for use with horizontal outlet vitreous china WC pans.*

BS 6465, *Sanitary installations.*

Publication(s) referred to

BS 1254, *Specification for WC seats (plastics).*
BS 3402, *Specification for quality of vitreous china sanitary appliances.*
BS 4781, *Specification for pressure-sensitive adhesive plastics labels for permanent use.*
BS 7357, *Specification for 7.5 L WC flushing cisterns.*
See also Appendix C.

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