BRITISH STANDARD

BS 2879:1980

Incorporating Amendment Nos. 1, 2, and 3

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Specification for

Draining taps (screw-down pattern)

UDC 621.646.652

Cooperating organizations

The Building Services Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Association of District Councils
Bath Manufacturers Co-ordinating Committee
British Gas Corporation*
British Ironfounders' Association
British Plastics Federation*
British Plumbing Employers Council
British Precast Concrete Federation Ltd
Builders Merchants Federation*
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Institution of Production Engineers
National Association of Plumbing, Heating and Mechanical Services Contractors
Plastic Bath Manufacturers' Association
South London Consortium
Thames Water Authority Metropolitan Water Division
Water Research Centre

This British Standard, having been prepared under the direction of the Building Services Standards Committee, was published under the authority of the Executive Board and comes into effect on 31 January 1980

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The following BSI references relate to the work on this standard:
Committee reference SEB/2
Draft for comment 78/11626 DC

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Amendments issued since publication

Amd. No.	Date of issue	Comments
3715	July 1981	
4595	September 1984	
5477	June 1988	Indicated by a sideline in the margin

Contents

Foreword

This revision of this British Standard has been prepared under the direction of the Building Services Standards Committee following a request by the Department of the Environment to conform to impending changes in regulations.

Although it is recognised that other types and sizes of draining tap are used, it is thought that the screw-down pattern in 1/2 and 3/4 nominal sizes are the most satisfactory in service and this standard is accordingly limited to that pattern and size range.

The opportunity has been taken to metricate and up-date where necessary.

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

This British Standard specifies requirements for copper alloy bodied taps used for draining hot and cold water installations and heating systems. It covers nominal sizes of 1/2 and 3/4 only for use with water:

a) up to 70 °C with occasional excursions up to 90 °C max. for period of 1 h (type 1);

b) up to a maximum of 120 °C (type 2).

2 References

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

3 Definition

3.1
nominal size

the nominal size of the draining tap is the size of the inlet connection

4 Materials

The chemical composition of the various copper alloys and materials for component parts shall be not less suitable than those specified in the following British Standards, and they shall be corrosion resisting, free from toxic substances and shall not foster microbial growth nor give rise to taste, odour, cloudiness or discoloration of the water with which they are or could be in contact.

NOTE Attention is drawn to Water Authorities Association requirements in this respect.

a) Brass (cast), excluding diecasting, for bodies and components: alloys SCB1 or SCB3 in accordance with BS 1400.

b) Brass gravity diecastings for bodies and components: alloy DCB3 in accordance with BS 1400.

c) Brass pressure diecastings for bodies and components: alloy PCB1 in accordance with BS 1400.

d) Gunmetal (cast) for bodies and components: alloys LG1- or LG2-in accordance with BS 1400.

e) Brass for hot pressings for bodies and components: alloy CZ122 in accordance with BS 2872.

f) Brass rod for spindles, glands, washer plates, nuts etc.: alloy CZ122 in accordance with BS 2872 or alloy CZ121 in accordance with BS 2874.

g) Dezincification resistant brasses: alloy CZ132[1)] in accordance with BS 2872.

h) Rubber for washers:

for type 1: in accordance with clause **6** of BS 3457:1973.

for type 2: ethylene propylene suitable for use with water at 120 °C, complying with the minimum requirements given in Table 4.

i) Rubber for sealing rings:

for type 1: ethylene propylene or silicone in accordance with Appendix B of BS 2767:1972, or high nitrile.

for type 2: ethylene propylene in accordance with Appendix B of BS 2767:1972.

j) Plastics for washer plates:

for type 1 only: acetal copolymer in accordance with **9.4** of BS 5412/BS 5413-5:1976.

5 Marking

Every draining tap supplied as being in accordance with this British Standard shall be legibly and permanently marked with the following information:

a) nominal size;

b) manufacturer's name or identification mark;

c) the number of this British Standard followed by the temperature rating type, e.g. BS 2879-1, BS 2879-2;

d) 1/2 taps when fitted with 3/8 washer shall be marked with the letter "S" after the size e.g. 1/2 S.

NOTE Marking BS 2879 on or in relation to a product is a claim by the manufacturer that the product has been manufactured in accordance with the requirements of the standard. The accuracy of such a claim is therefore the manufacturer's sole responsibility. Enquiries as to the availability of third party certification to support such claims should be addressed to the Director, British Standards Institution, Maylands Avenue, Hemel Hempstead, Herts HP2 4SQ in the case of certification marks administered by BSI or to the appropriate authority for other certification marks.

Section 2. Design requirements

6 Nominal size

There shall be two nominal sizes of draining taps i.e. 1/2 and 3/4.

7 Pattern

Draining taps shall be of the screw-down pattern as shown in Figure 1.

[1)] Incorporated in BS 2872 by Amendment No. 1 which is in course of preparation.

The 1/2 tap shall be fitted with a 1/4 washer as defined in columns 3 and 4 of Table 1, Table 2 and Table 3 or a 3/8 washer as defined in columns 5 and 6 of Table 1, Table 2 and Table 3. The 1/4 washer shall be supplied unless the 3/8 washer is specifically ordered.

The 3/4 tap shall be fitted with a 1/2 washer as defined in columns 7 and 8 of Table 1, Table 2 and Table 3.

An undercut used for securing the washer plate (to lift with the spindle) shall have a diameter of not less than 80 % of the minimum diameter of the washer plate stem.

8 General requirements

Draining taps manufactured to the requirements of this standard shall be operated by a key located on a square on the top of a screwed spindle. The spindle shall be fitted with a renewable, non-metallic washer at its lower end which shuts, against the water pressure, on a seating at right angles to the axis of the spindle. Spindles shall be fitted with a toroidal "O" ring for sealing which shall be accessible for maintenance or replacement.

All draining taps shall be fitted with a gland or lockshield to prevent the removal of the spindle during normal operation. A sealing device shall be provided between body and gland or lockshield if necessary.

The body, spindle and other parts shall be such that when assembled, the parts are coaxial and provide freedom of spindle rotation. The surfaces shall be smoothly finished within the limits of size specified.

When the valve is fully open it shall provide a minimum lift to the washer of 4.5 mm and 6 mm for the 1/2 and 3/4 nominal sizes respectively (thereby giving an unrestricted waterway).

When the tap is in the normally closed position, the whole of the square section on top of the spindle shall be above the top of the gland, or the base of the lockshield recess if fitted

9 Seating

The body of the tap shall have a machined integral seating, which may be flat or raised at the option of the manufacturer. The arris or arrises of the seating shall be rounded as shown in Figure 2.

10 Washer plate

The washer plate with its stem and stud for the attachment of the washer shall be made in one piece. The stud shall either be screwed and provided with a locknut, or, if not screwed, shall be of such shape and size as will prevent the washer from becoming detached under working conditions. The washer plate shall be free to rotate in the hole in the spindle and shall be so secured as to lift with the spindle.

The washer plate shall be true all over and if a casting, it shall be machined all over.

If the seating of the tap is raised (see clause **9**) the washer plate shall be of either the shrouded or unshrouded type. The depth of shrouding shall not exceed the minimum thickness of the washer when new as specified in Table 2, line *Q*. With the washer resting on the seating the clearance between the leading edge of the shroud and the seat recess shall not be less than the minimum washer thickness.

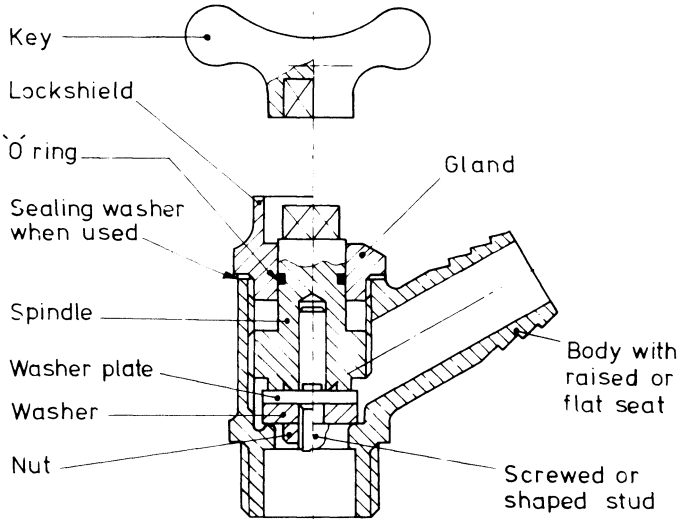

Figure 1 — Screw-down pattern draining tap: typical design

11 Lockshield

Where a lockshield is provided, it shall be designed so that the top of the spindle, when in the closed position, does not protrude above the shield.

12 Keys

Lockshield, spindle squares and keys when supplied shall comply with the dimensions specified in Table 2 and Table 3.

13 Inlet ends

The inlet end of the draining tap shall be screwed externally either with a thread complying with the requirements of BS 2779, class B, or, when so ordered, with a taper thread complying with the requirements of BS 21.

Either a hexagonal or octagonal shoulder shall be provided on the body adjacent to the screwed portion (see Table 1), or compression or capillary ends complying with the requirements of BS 864-2 shall be fitted.

14 Outlet ends

The outlet end of the draining tap shall be formed with external serrations or other means of affording a grip for attachment of a hose of the same nominal size bore. In all other respects the taps shall comply with the relevant dimensions specified in Table 1.

Section 3. Materials and dimensions

15 Castings

Castings shall be in all respects sound, free from laps, blow holes and pitting. Both the external and internal surfaces shall be clean, smooth and free from sand.

Castings shall be neatly dressed and shall not be burned, plugged, stopped or patched.

16 Hot pressings

All hot-pressed components shall be sound and solid, without laminations, and shall be smooth and well finished.

17 Dimensions

The dimensions of draining taps shall be as given in Figure 2, Figure 3 and Figure 4 and Table 1, Table 2 and Table 3.

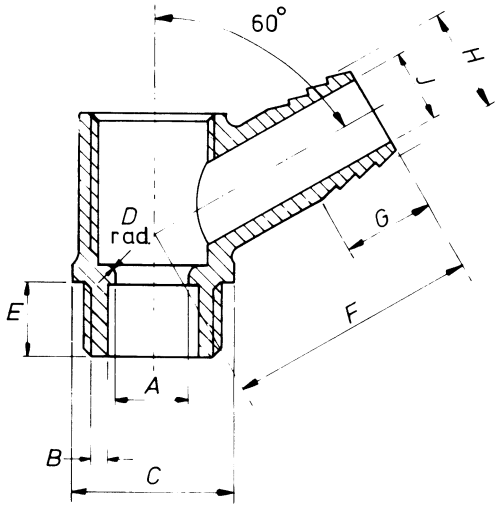

Figure 2 — Dimensions of draining tap bodies (see Table 1)

Table 1 — Dimensions of draining tap bodies (see Figure 2)

All dimensions are in millimetres unless otherwise stated.

Reference letter	Dimension	Nominal size of tap					
		1/2				3/4	
		1/4 washer		3/8 washer		1/2 washer	
		max.	min.	max.	min.	max.	min.
A	Bore of seating	9.6	9.4	11.4	9.6	14.4	14.1
B	Wall thickness (minor diameter to bore)	3.0	2.0	3.0	2.0	3.0	2.0
C	Size across flats of hexagon or octagon		24.0		24.0		32.0
D	Radius of arris on flat or raised seat	0.8	0.2	0.8	0.2	0.8	0.2
E	Inlet thread length (for parallel thread only)		12.0		12.0		15.0
F	Length of outlet nose		35.0		35.0		50.0
G	Length of serration		15.0		15.0		18.0
H	Outlet outside diameter		14.0		14.0		20.5
J	Outlet bore	9.8	9.3	9.8	9.3	14.5	14.0

Table 2 — Dimensions of draining tap spindle, washer plate, washer nut and key (see Figure 3)

All dimensions are in millimetres unless otherwise stated.

Reference letter	Dimension	Nominal size of tap					
		1/2				3/4	
		1/4 washer		3/8 washer		1/2 washer	
		max.	min.	max.	min.	max.	min.
A	Bore for washer plate stem	4.22	4.01	5.13	4.93	5.94	5.74
B	Depth of hole for washer plate stem	14.8	13.7	18.8	17.2	18.8	17.2
C	Washer plate clearance		0.8		0.8		0.8
D	Length of spindle thread		7.0		7.0		9.0
E	Length of square		7.0		7.0		7.0
F	Size across flats of square	7.9	7.4	8.7	8.1	8.7	8.1
G	Spindle diameter (nominal size)	10.0[a]		13.0[a]		13.0[a]	
H	Diameter of washer plate stem	3.96	3.81	4.88	4.7	5.69	5.51
J	Outside diameter of washer plate (flat type)		14.2		15.9		18.5
K	Outside diameter of washer plate (shrouded type)	16.9	16.6	18.5	18.2	21.2	20.9
L	Inside diameter of washer plate (shrouded type)	14.8	14.5	16.4	16.1	19.1	18.8
M	Thickness of washer plate		3.0		3.0		3.0
N	Length of washer plate stem	13.2	11.5	17.0	15.0	17.0	15.0
O	Size of nut, and stud when screwed	M3.5 × 0.6 – 6g in accordance with BS 3643 or 4B.A. normal class in accordance with BS 93				M4.5 × 0.75 – 6g in accordance with BS 3643 or 2B.A. normal class in accordance with BS 93	
P	Diameter of stud	5.0	4.5	5.0	4.5	6.0	5.5
Q	Washer outside diameter (when new)	14.4	14.0	16.0	15.6	18.7[b]	18.3
R	Diameter of Hole in washer	4.0	3.6	4.0	3.6	5.0	4.7
S	Thickness of washer (when new)	2.7	2.4	4.4	4.0	4.4	4.0
T	Key boss diameter	15.1		16.7		16.7	
U	Size across flats of square in key	8.6	8.1	9.4	8.9	9.4	8.9

[a] Adjust size to suit the "O" ring (recommended "O" rings are reference numbers 0071-16 and 0101-16 respectively as specified in BS 4518).

[b] It is permissible to use 19.2 until December 1985.

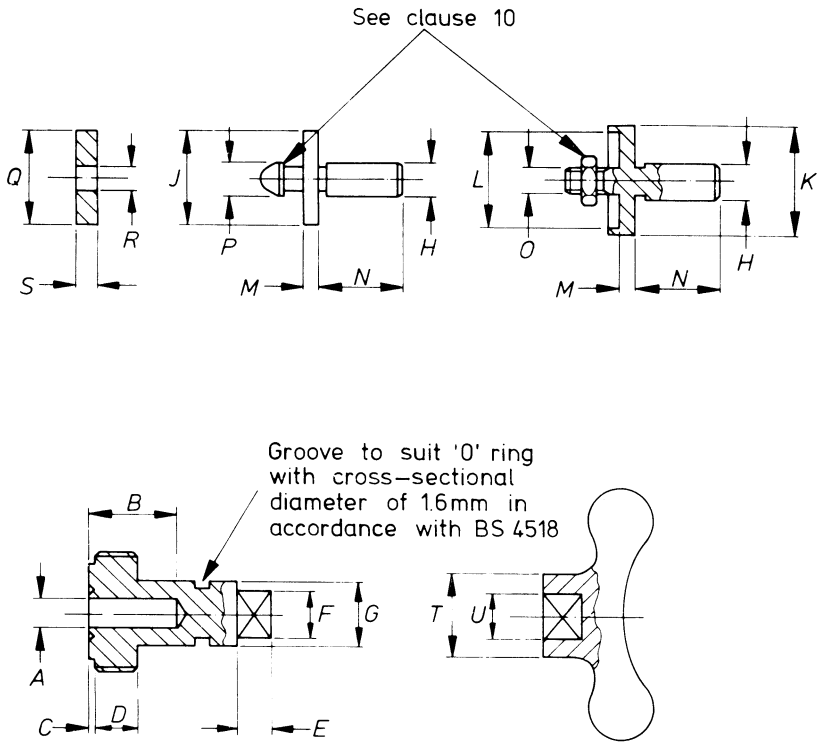

Figure 3 — Dimensions of draining tap spindle, washer plate, washer nut and key (see Table 2)

Table 3 — Dimensions of draining tap gland and lockshield (see Figure 4)

All dimensions are in millimetres unless otherwise stated.

Reference letter	Dimension	Nominal size of tap					
		1/2				3/4	
		1/4 washer		3/8 washer		1/2 washer	
		max.	min.	max.	min.	max.	min.
A	"O" ring housing bore (nominal size)	10.0[a]		13.0[a]		13.0[a]	
B	Thread length		4.8		4.8		4.8
C	"O" ring housing length		9.5		9.5		11.0
D	Recess for key		15.9		19.1		19.1

[a] Adjust size to suit the "O" ring recommended "O" rings are reference numbers 0071-16 and 0101-16 respectively as specified in BS 4518).

Section 4. Test requirements

18 Hydraulic type tests

Every draining tap manufactured to the requirements of this standard shall be capable of withstanding a hydraulic pressure of 20 bar[2)] for a period of 15 min when tested in the following manner.

Apply an internal hydraulic pressure of 20 bar under the seat when the draining tap is closed, with the other side open to atmosphere.

In addition, with the drain tap open and the outlet closed, every draining tap shall be capable of withstanding the following test.

Apply an internal hydraulic pressure of 5 bar, for a period of 1 min.

During the test the fitting shall neither leak nor sweat.

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

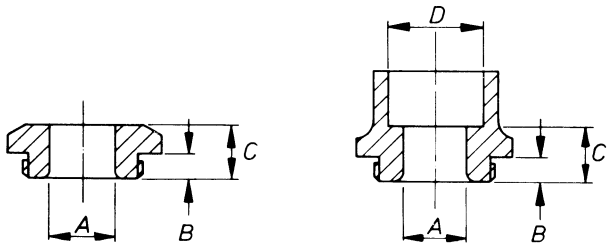

Figure 4 — Dimensions of draining tap gland and lockshield (see Table 3)

Table 4 — Test requirements for ethylene propylene rubber for type 2 washers

Name of test	Unit	Requirements	Method of test
Hardness	IRHD	80 to 95	BS 903-A26
Compression set 168 h at 100 °C	%	15 max.	BS 903-A6, method A constant strain, type 1 test piece, 25 % compression
Effect of distilled water 168 h at 100 °C			
a) Volume	% change	$^{+3}_{-1}$	BS 903-A16
b) Hardness	change in IRHD	± 3	BS 903-A26

Publications referred to

BS 21, *Pipe threads for tubes and fittings where pressure-tight joints are made on the threads.*
BS 93, *British Association (B.A.) screw threads with tolerances for sizes 0 B.A. to 16 B.A.*.
BS 864, *Capillary and compression tube fittings of copper and copper alloy.*
BS 864-2, *Metric units.*
BS 903, *Method of testing vulcanized rubber.*
BS 903-A6, *Determination of compression set after constant strain.*
BS 903-A16, *Determination of the effect of liquids.*
BS 903-A26, *Determination of hardness.*
BS 1400, *Copper alloy ingots and copper alloy castings.*
BS 2767, *Valves and unions for hot water radiators.*
BS 2779, *Pipe threads where pressure-tight joints are not made on the threads.*
BS 2872, *Copper and copper alloys. Forging stock and forgings.*
BS 2874, *Copper and copper alloys. Rods and sections (other than forging stock).*
BS 3457, *Materials for water tap and stopvalve seat washers.*
BS 3643, *ISO metric screw threads.*
BS 4518, *Metric dimensions of toroidal sealing rings ("O"-rings) and their housings.*
BS 5412, *Specification for the performance of draw-off taps with metal bodies for water services.*
BS 5413, *Specification for the performance of draw-off taps with plastics bodies for water services.*
BS 5413-5, *Physio-chemical characteristics, materials, coatings.*

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