BRITISH STANDARD

BS EN
274-1:2002
Incorporating
Corrigendum No. 1

Waste fittings for sanitary appliances —

Part 1: Requirements

The European Standard EN 274-1:2002 has the status of a British Standard

ICS 91.140.70

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 274-1:2002. Together with BS EN 274-2:2002 and BS EN 274-3:2002 it supersedes BS EN 274:1993, BS EN 329:1997, BS EN 411:1995, BS 3380:1982 and BS 3943:1979, which are withdrawn. The obsolescent BS 1184:1976 is also withdrawn.

WARNING. The national foreword to BS EN 274:1993 cautioned that the incorrect use of products conforming to that standard in a UK waste water system could result in a health hazard. This is still true for some of the products under the scope of this standard. To be used satisfactorily with traditional UK installations having 1¼",1½" and 2" Imperial-sized threaded outlets, the internal diameter of the threaded end of the waste outlet should be not less than 36 mm, 41.7 mm or 51.9 mm respectively, this to extend for a least 7 mm from the threaded end of the waste outlet.

The UK participation in its preparation was entrusted to Technical Committee B/505, Wastewater engineering, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Building and Civil Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 4 September 2002

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments
14959 Corrigendum No. 1	9 February 2004	Correction to title and revision of national foreword

ISBN 0 580 40336 X

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 274-1

January 2002

ICS 91.140.70

Supersedes together with EN 274-2:2002 and EN 274-3:2002 the EN 274:1992, EN 329:1994 and EN 411:1995

English version

Waste fittings for sanitary appliances - Part 1: Requirements

Dispositifs de vidage des appareils sanitaires - Partie 1: Exigences

Ablaufgarnituren für Sanitärausstattungsgegenstände - Teil 1: Anforderungen

This European Standard was approved by CEN on 23 December 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 274-1:2002 E

Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 165, "Wastewater engineering", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2002, and conflicting national standards shall be withdrawn at the latest by July 2002.

Together with Parts 2 and 3 of this standard, this European Standard supersedes EN 274:1992, EN 329:1994 and EN 411:1995.

The other parts of the European Standard contain the necessary statements on testing and quality control of waste fittings for sanitary appliances.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the dimensional, performance, materials and marking requirements for waste outlets, traps and overflows for kitchen sinks, shower trays, wash basins, bidets and baths which are connected to gravity drainage systems, whatever the purpose of the building.

This standard does not specify requirements for waste outlets, traps and overflows which are integral with sanitary appliances.

NOTE All figures in this standard are diagrammatic only.

This standard does not cover the possible effect of aggressive drain cleaning materials on products.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 248, *Sanitary tapware - General specification for electrodeposited coatings of NiCr.*

EN 274-2:2002, *Waste fittings for sanitary appliances - Part 2: Test methods.*

EN 274-3, *Waste fittings for sanitary appliances – Part 3: Quality control.*

EN 476:1997*, General requirements for components used in discharge pipes, drains and sewers for gravity systems.*

EN 12056-1, *Gravity drainage systems inside buildings - Part 1: General and performance requirements.*

EN 12056-2, *Gravity drainage systems inside buildings - Part 2: Sanitary pipework, layout and calculation.*

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation.*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
waste outlet
fitting through which the water is evacuated from the sanitary appliance, which can be sealed by means of a flap or plug and can be equipped with a fixed or a removable grille

3.2
overflow
fitting which allows the evacuation of excess water when a sanitary appliance is filled above a certain level

3.3
trap
fitting which provides a hydraulic seal between the waste outlet and the discharge pipe in order to prevent the entry of foul air from the discharge pipe into the building, without obstructing the discharge of the wastewater

4 Requirements

4.1 General

Waste outlets, traps and overflows enable the functioning of sanitary appliances. They shall be capable of being connected to drainage pipework systems in accordance with EN 12056-1 and EN 12056-2.

4.2 Appearance of surfaces

When viewed without magnification, the internal and external surfaces of the waste fittings shall be smooth, free from grooving, blistering or any other surface defects likely to impair their functioning.

The appearance of visible electrodeposited NiCr coatings shall comply with EN 248.

4.3 Materials

Waste outlets and traps shall be manufactured from materials which withstand intermittent contact with domestic waste water with a temperature range from (20 ± 5) °C to $95\,^{0}_{-2}$ °C when tested in accordance with clause 3 of EN 274-2:2002. Waste outlets and traps made of only metallic materials are deemed to satisfy this requirement.

The materials used shall be such that the finished products meet the requirements of this standard. It is the responsibility of the manufacturer of the waste fittings to employ materials which are fit for this purpose. This requirement does not cover the use of aggressive drain cleaning materials. The use of such materials is beyond the scope of this standard.

4.4 Design

4.4.1 Waste outlets

Waste outlets may be manufactured in one piece or may comprise various pieces joined together mechanically, either with or without an overflow. They can include a trap.

Waste outlets not fitted with a trap shall have a threaded or a plain outlet dimensioned as given in Table 1.

Waste outlets can be fitted with a fixed or removable grille.

4.4.2 Traps

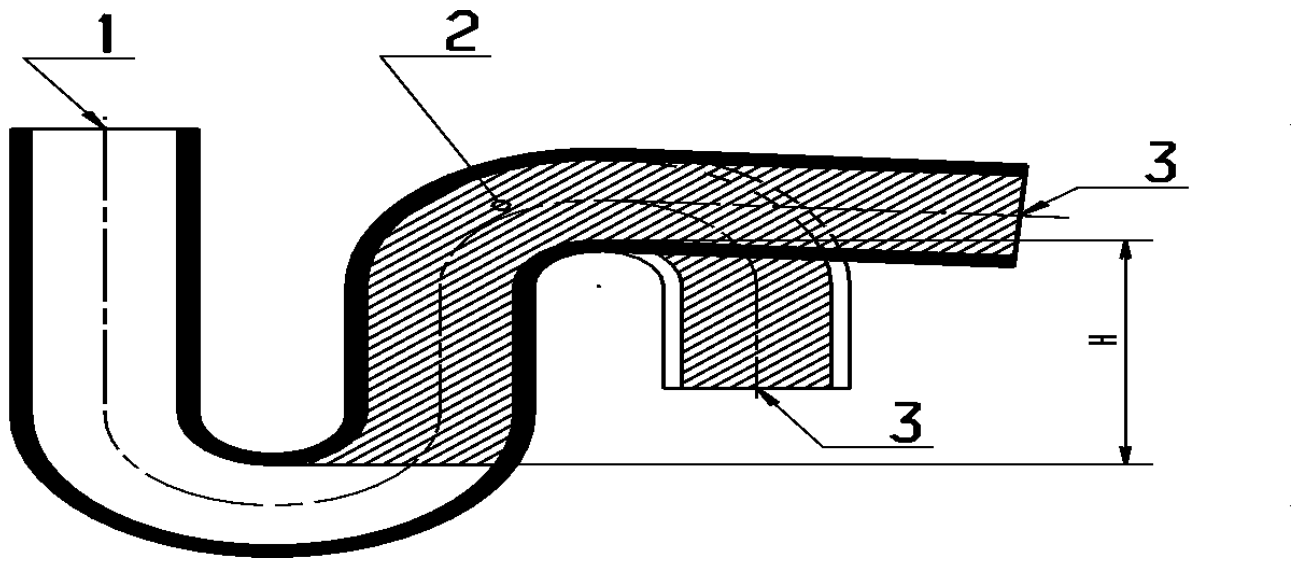
Traps may be either tubular or bottle type, the latter having either a division or diptube. All traps shall be capable of being cleaned. Other designs are permissible, provided that they meet all the requirements of this standard.

In all cases it shall not be possible to reduce the depth of the water seal below the minimum as given in Table 2.

Trap inlets shall be such that they can be connected to waste outlets of the appropriate size when the trap is supplied as a separate item.

Additional inlets and overflows shall be connected in such a way that the depth of water seal *H*, in accordance with Table 2, is ensured.

Any overflow connection incorporated into a trap shall be positioned as specified in Figure 1. This requirement shall apply to all types of trap.



Key

1 Inlet
2 No overflow connections in hatched area
3 Outlet

Figure 1 — Connection zone

4.5 Dimensions

The waste fittings dimensions specified in Tables 1 and 2 ensure that the waste fittings can be assembled to the appropriate sanitary appliances in accordance with EN 31, EN 32, EN 35, EN 36, EN 111, EN 232, EN 251 and EN 695 and connection to drainage pipework systems.

Table 1 — Dimensions of waste outlets and overflows (see Figures 2 to 7, 15, 16)

Dimension	Symbol	Values (mm)	Remarks
Diameter of waste outlet	G	≤ 42	Wash basin, bidet waste outlet hole diameter 46 mm
		≤ 49	Shower tray, kitchen sink waste outlet hole diameter 52 mm
		≤ 59	Kitchen sink, shower tray waste outlet hole
			- diameter 60 mm for stainless steel sinks
			- diameter 62 mm for sinks and shower trays
		≤ 87	Shower ray, kitchen sink waste outlet hole diameter 90 mm
External diameter of flange	E	63 0/-3	Wash basin, bidet waste outlet hole diameter 46 mm
		70 0/-1	Bath, shower tray, kitchen sink waste outlet hole diameter 52 mm / 60 mm
		85 0/-5	Kitchen sink, shower tray waste outlet hole diameter 60 mm/62 mm
		115 0/-5	Kitchen sink, shower tray waste outlet hole diameter 90 mm
Height of cylindrical part of flange	Z	≤ 1 [a)]	--
Cone angle of contact of waste outlet	α	≥ 110° [a)]	Wash basin, bidet
		≥ 120° [a)]	Bath, shower tray, kitchen sink
Clamping height of waste outlet	h	8 to 20	Wash basin, bidet without integral overflow
		≥ 40	Wash basin, bidet with integral overflow
		6 to 16	Bath, shower tray waste outlet hole 52 mm
		6 to 25	Shower tray made of ceramics, waste outlet hole 62 mm or 90 mm
		1 to 6	Kitchen sink - small clamping height
		2 to 26	Kitchen sink - large clamping height
		44 to 66	Kitchen sink made of other materials with integral overflow
Outlet connection thread	A	ISO 228-1-G 1 1/4 B	Wash basin, bidet
		ISO 228-1-G 1 1/2 B	Bath, shower tray, kitchen sink
		ISO 228-1-G 2 B	Kitchen sink
Connection distances	V_1	adjustable up to 280	Two-bowl sink
	V_2	adjustable up to 400	
Useful length of thread of waste outlet	r	≥ 11 [b)]	--

Table 1 *(continued)*

Dimension	Symbol	Values (mm)	Remarks
Contact diameter of clamping flange	C	≥ 60	Wash basin, bidet waster outlet hole diameter 46 mm
		≥ 65	Bath, shower tray waste outlet hole diameter 52 mm
		≥ 70	Kitchen sink waste outlet hole diameter 60 mm
		≥ 85	Kitchen sink, shower tray waste outlet hole diameter 62 mm
		≥ 110	Kitchen sink waste outlet hole 60 mm
			Kitchen sink, shower tray waste outlet hole diameter 90 mm
Horizontal length from axis of waste outlet to axis of overflow	L_1	≥ 120	Kitchen sink
		110 to 170	Shower tray, baths of special type
		170 to 230	Bath of standard type
		> 230	Bath with central waste outlet hole
Vertical length from waste outlet to axis of overflow	L_2	110 to 180	Kitchen sink
		165 to 260	Shower tray
		330 to 390	Bath of standard type
		230 to 330	Bath of low type
		390 to 520	Bath of high type
Thickness of over-flow	X	≤ 35	Kitchen sink, wash basin
		≤ 60	Shower tray, bath
External dimensions of rectangular over-flow	a	$30\,^{0}_{-0,2}$	Kitchen sink, wash basin
	b	$58\,^{0}_{-0,2}$	
External diameter of round overflow	e	$36\,^{0}_{-0,2}$	Kitchen sink, wash basin
		$65\,^{0}_{-0,2}$	Bath, shower tray
Diameter of overflow barrel	J	≤ 30	Kitchen sink, wash basin, if provided
		≤ 49	Bath, shower tray, if provided
External diameter of overflow grille	q	$36\,^{0}_{-0,2}$	Kitchen sink, wash basin
		65 to 80	Bath, shower tray
External dimensions of rectangular overflow grille	c	≤ 30	Kitchen sink, wash basin
	d	≤ 58	
Clamping height of overflow	n	10 to 25	Kitchen sink, wash basin made of ceramics
		1 to 12	Kitchen sink, wash basin made of other materials
		2 to 10	Bath, shower tray
Thread of nuts	B	ISO 228-1 G 1 1/4	Wash basin, bidet
		ISO 228-1 G 1 1/2	Bath, kitchen sink, shower tray
		ISO 228-1 G 2	Kitchen sink, shower tray with waste outlet hole 90 mm
Useful length of thread of nuts in Figure 14	m	6,5 to 10	Nut made of metallic materials
		8 to 11	Nut made of plastic material

[a] If the manufacturer supplies dedicated waste fitting with the kitchen sink, then the values of α and Z are not compulsory

[b] The first full diameter thread shall start within 2 mm from the end of the spigot.

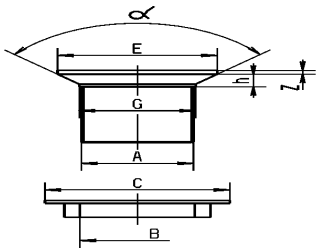


Figure 2 — Waste outlet without overflow access and with nut

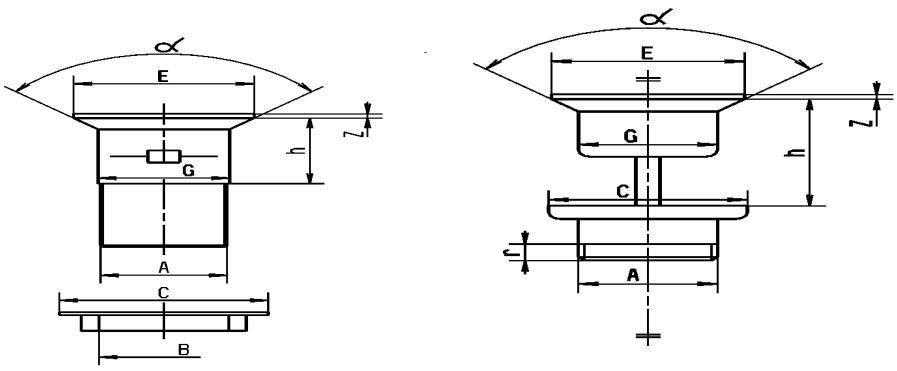


Figure 3 — Waste outlet with overflow access

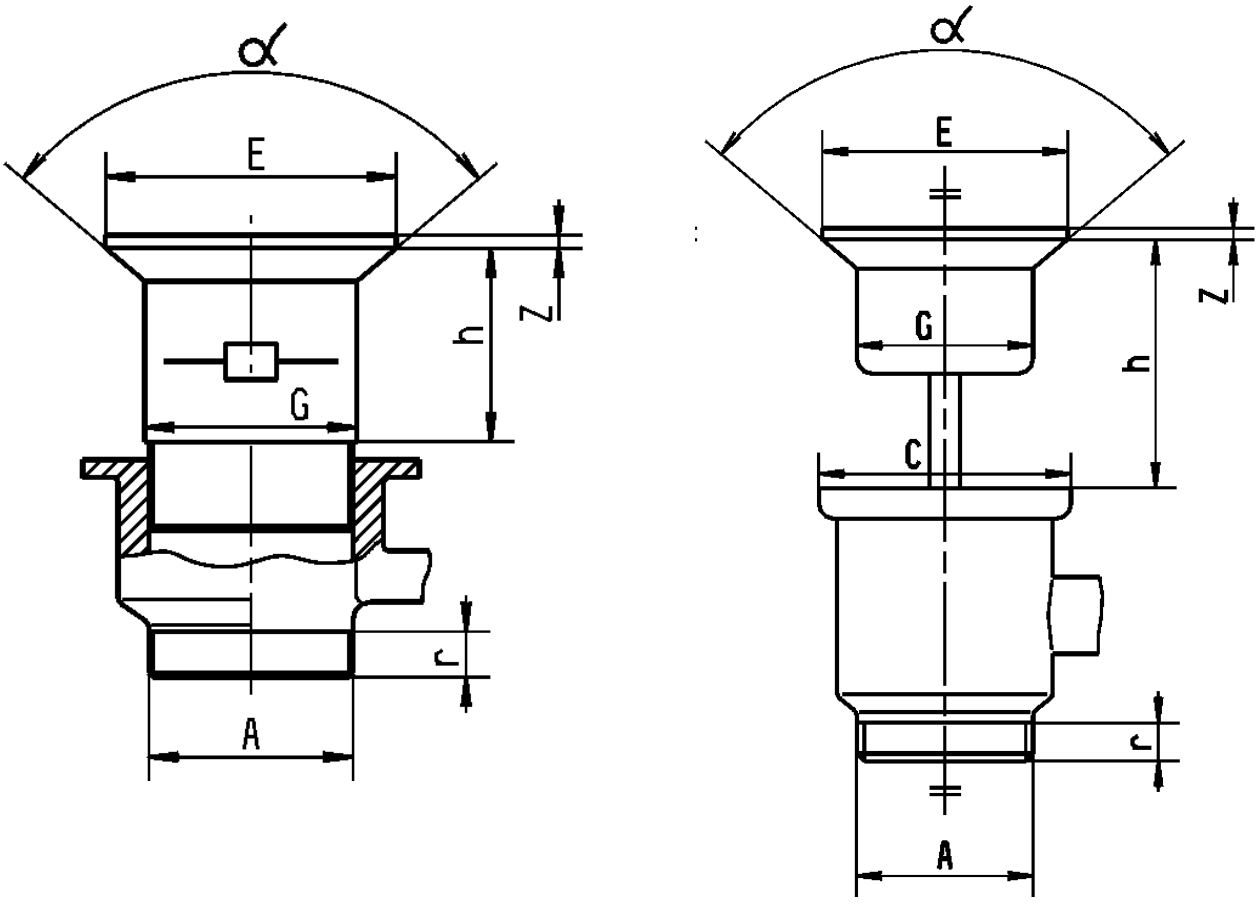


Figure 4 — Waste outlet for lever action plug and overflow access

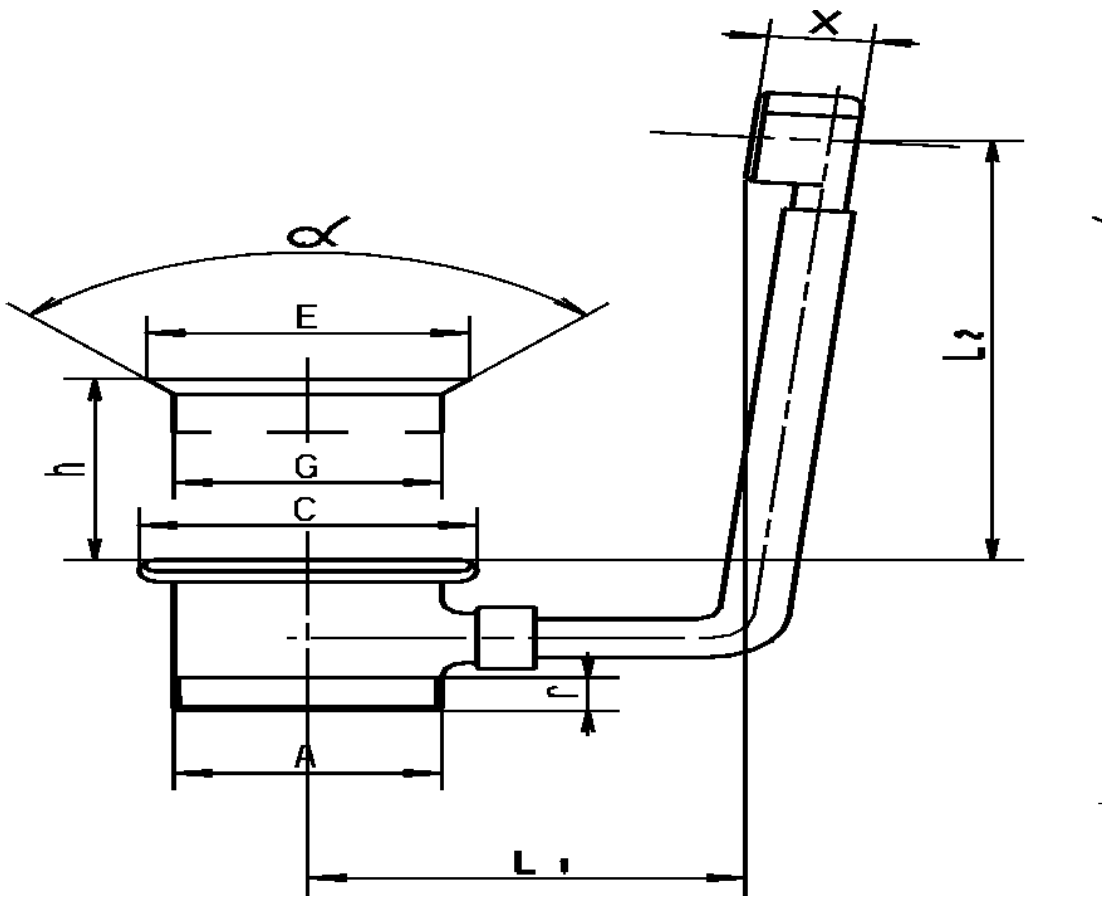


Figure 5 — Waste outlet with overflow

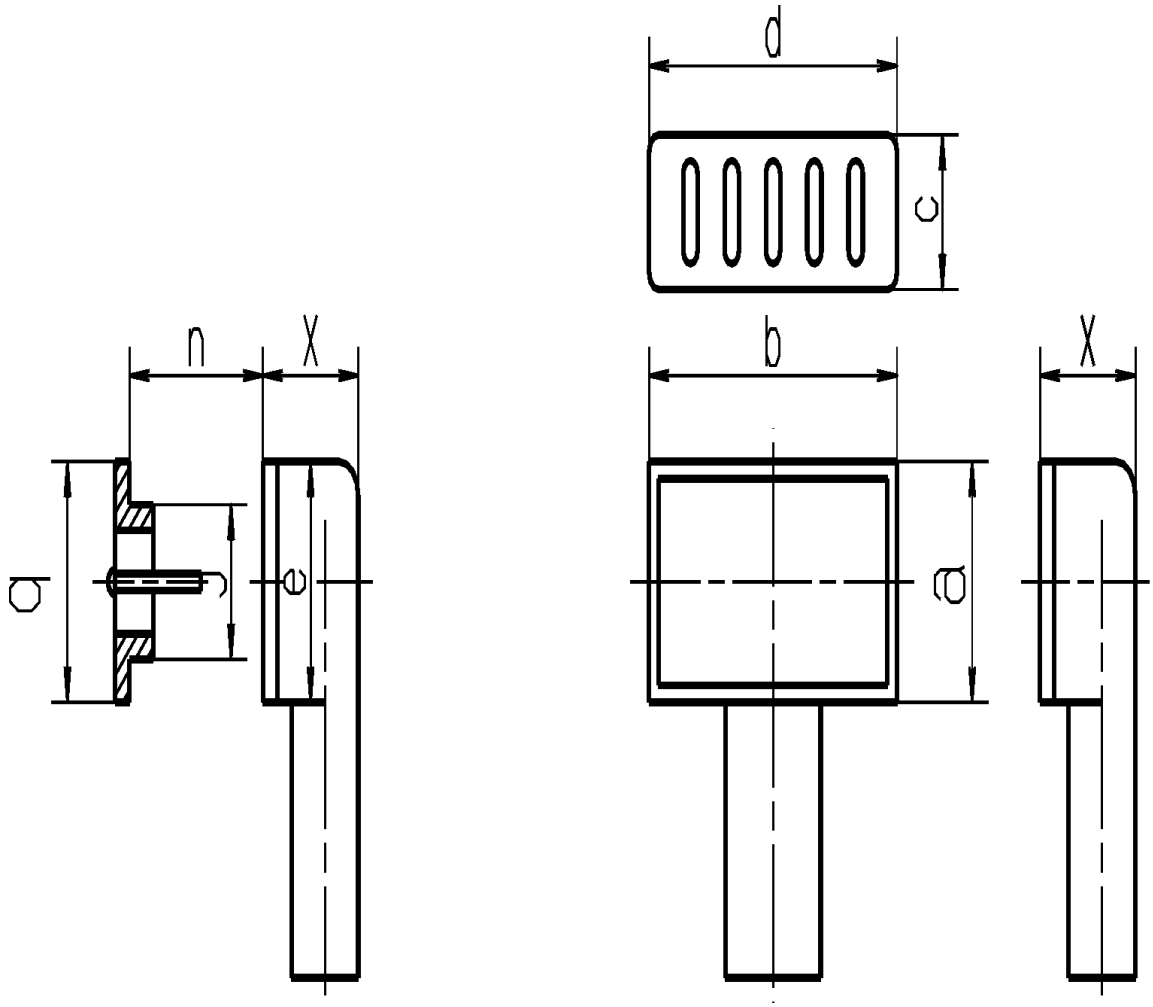


Figure 6 — Overflows for kitchen sinks and wash basins

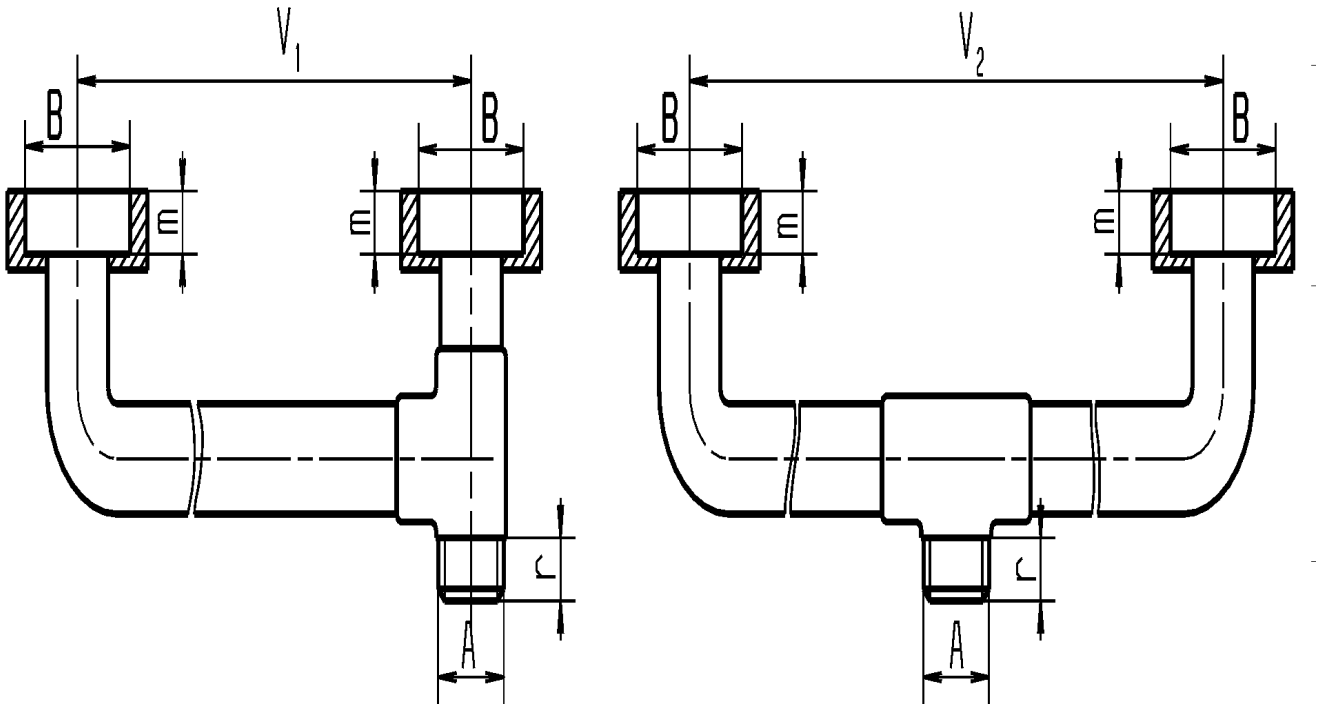


Figure 7 — Waste outlet connections for kitchen sinks with two bowls[1]

[1]Other arrangements are permissible, including those for more than two bowls which may be at different levels.

Table 2 — Dimensions of traps (see Figures 8 to 16)

Dimension	Symbol	Values (mm)	Remarks
Depth of water seal	H	≥ 50	For partly filled discharge branches in accordance with EN 12056-2 (type I and II)
		≥75	For full bore discharge branches in accordance with EN 12056-2 (type III)
Connection to the discharge pipe	D	ISO 228-1 G 1 1/4 B	Wash basin, bidet
		ISO 228-1 G 1 1/2 B	Kitchen sink, bath, shower tray
		ISO 228-1 G 2 B	Kitchen sink
		DN/ID 30, 40, 50, 60	In accordance with EN 476:1997
		DN/OD 32, 40, 50, 63	In accordance with EN 476:1997
Length of straight part of plain ended trap outlet	L	≥ 30	--
Length for connection through walls	K	≥ 245	--
Thread of nuts	B	ISO 228-1 G 1 1/4	Wash basin, bidet
		ISO 228-1 G 1 1/2	Bath, kitchen sinks, shower tray
		ISO 228-1 G 2	Kitchen sink
Useful length of thread	m	6,5 to 10	Nut made of metallic materials
		8 to 11	Nut made of plastics materials
Total height of waste outlet with trap	M	≤ 83	Shower tray
		≤ 128	Bath, shower tray with overflow Shower tray with vertical outlet
Useful length of thread of waste outlet	r	≥ 11 [a)]	--

[a)] The first full diameter thread shall start with 2 mm from the end of spigot.

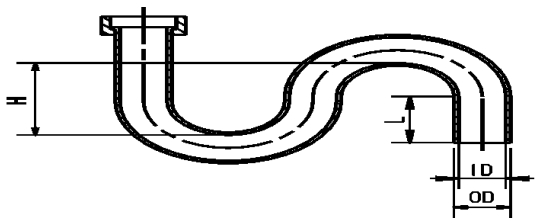


Figure 8 — Tubular trap type S

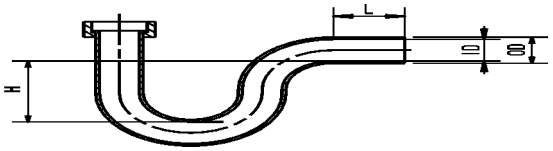


Figure 9 — Tubular trap type P

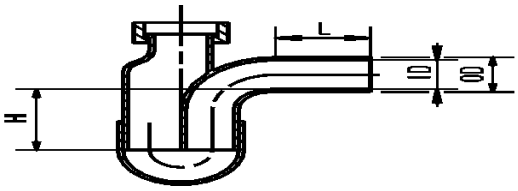


Figure 10 — Bottle trap with division

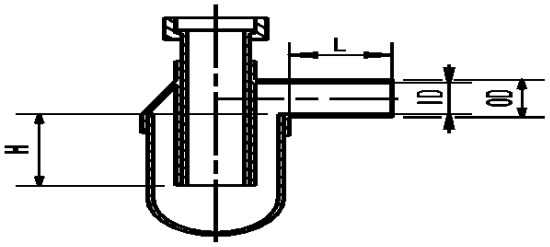
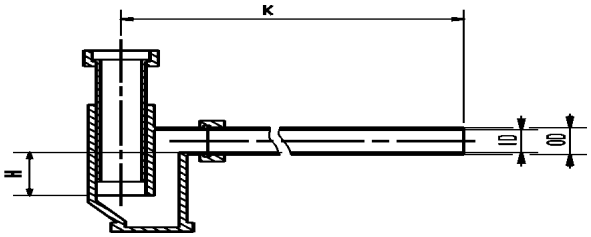


Figure 11 — Bottle trap with dip tube



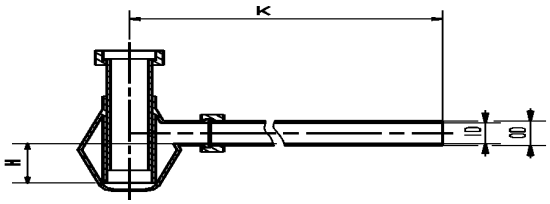


Figure 12 — Bottle traps for wall connection

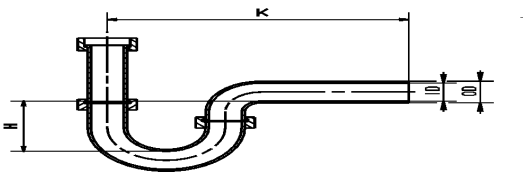


Figure 13 — P-trap for wall connection

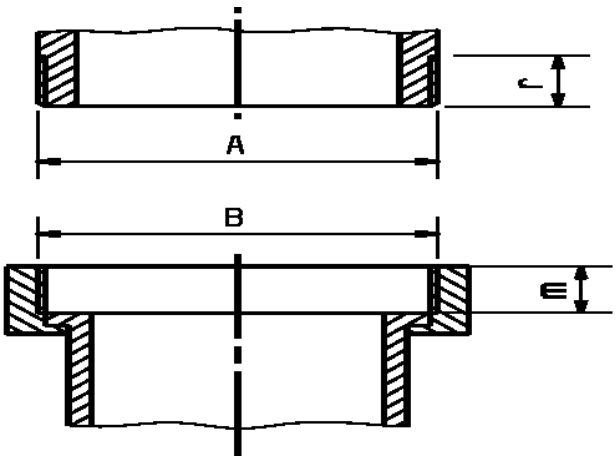
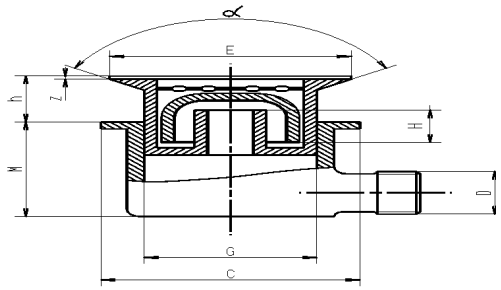


Figure 14 — Connection threads



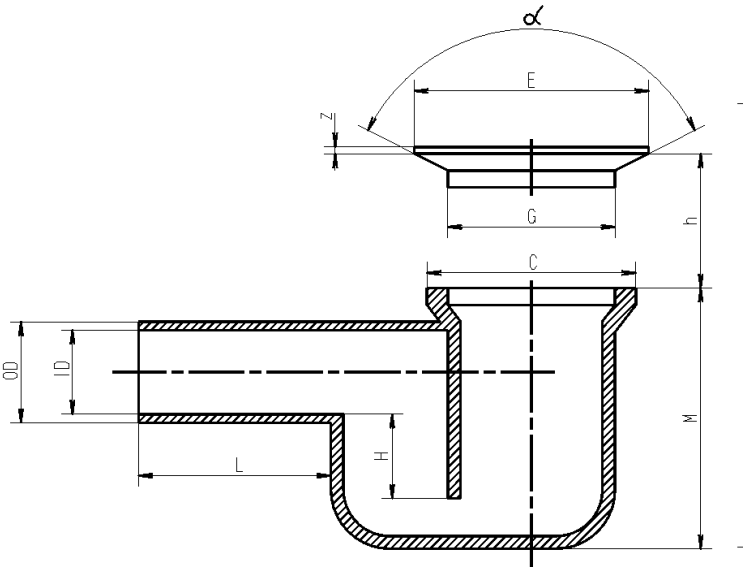


Figure 15 — Waste outlet with integral trap for shower trays

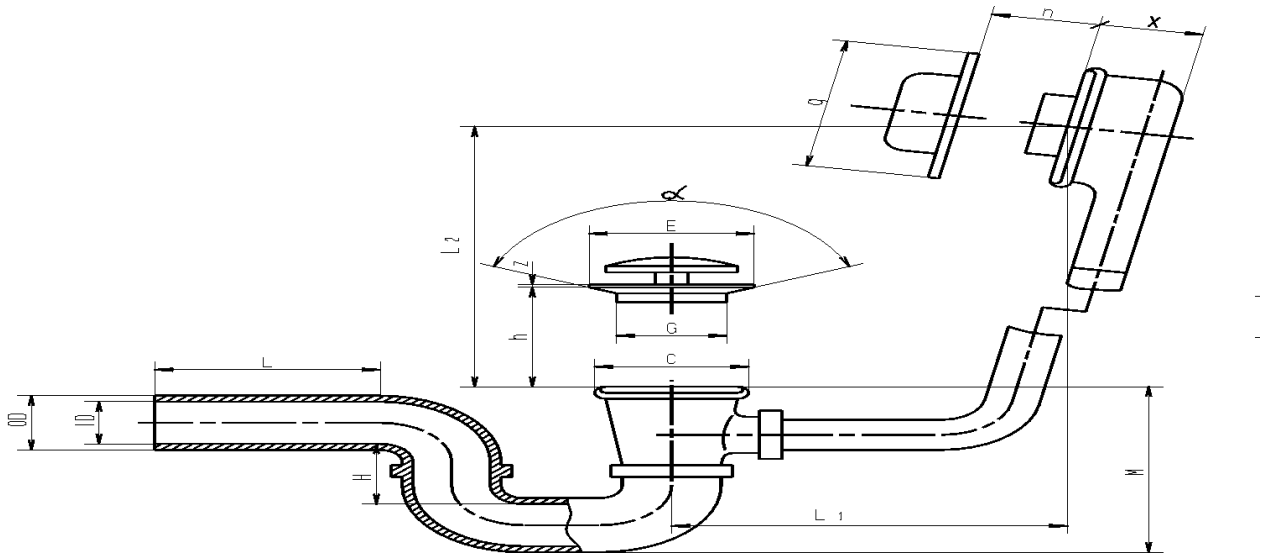


Figure 16 — Waste outlet with trap and overflow for baths

4.6 Hydraulic requirements

When tested in accordance with clause 5 of EN 274-2:2002 the flowrates of waste fittings shall not be less than the values given in Table 3.

Table 3 — Minimum flowrates

	Minimum flowrate for waste fitting/component for sanitary appliance				
Waste fitting/ component	Wash basin, bidet	Bath	Kitchen sink	Shower tray with waste outlet hole size 52 mm or 62 mm	Shower tray with waste outlet hole size 90 mm
	l/s				
Waste outlet	0,6	1,0	0,7	-	-
Waste outlet with trap	0,5	0,8	0,6	0,4	0,4
Trap alone	0,6	0,85	0,7	-	-
Overflow	0,25	0,6	0,25	0,35	-

4.7 Tightness

4.7.1 Tightness of waste outlet with plug or flap

When tested in accordance with 6.1 of EN 274-2:2002 the leakage shall be less than 1 l/h.

4.7.2 Tightness of waste fitting

When tested in accordance with 6.2 of EN 274-2:2002 there shall be no leakage during the test period.

5 Marking

All waste fittings shall be marked indelibly with at least:

- name or mark of manufacturer;
- EN 274.

If marking the product is not practical, the packaging shall carry this information.

6 Quality control

The quality control shall be provided as given in EN 274-3.

NOTE Annex A (informative) of EN 274-3 gives information in the case that third party control is carried out.

Annex A
(informative)

A-Deviation

A-deviation: National deviation due to regulation, the alteration of which is for the time being outside the competence of the CEN Member.

This European Standard is not covered by a European Directive. In the relevant CEN country this A-deviation is valid instead of the provisions of the European Standard until it has been removed.

National A-deviation with regard to this European Standard (Directive 90/531/EEC) has been requested by Denmark with reference to the following national regulation:

Danish Building Regulation BR 1995
(published by the National Building and Housing Agency)

Clause

4.3 Materials

According to legal approval condition of the Approval Board under the Danish Building Regulations BR 95 and BR S 98, VA 2.40/DK, clause 3, waste outlets and traps shall withstand intermittent contact with domestic wastewater with a temperature range from (10 ± 5) °C to (93 ± 2) °C when tested as follows:

1 (30 ± 3) l hot water of (93 ± 2) °C in a period of 60 s.

2 Rest period of 1 min.

3 (30 ± 3) l cold water of (10 ± 5) °C in a period of 60 s.

4 Rest period of 1 min.

Steps 1, 2, 3 and 4 shall be carried out for 1500 times.

After the test the waste outlets and traps and its components shall not show any signs of defects.

The test has to be done before strength and tightness tests according to clauses 4 and 5 of VA 2.40/DK respectively.

Bibliography

EN 31, *Pedestal wash basins - Connecting dimensions.*

EN 32, *Wall-hung wash basins - Connecting dimensions.*

EN 35, *Pedestal bidets with over-rim supply - Connecting dimensions.*

EN 36, *Wall-hung bidet with over-rim supply - Connecting dimensions.*

EN 111, *Wall-hung hand rinse basins - Connecting dimensions.*

EN 232, *Baths - Connecting dimensions.*

EN 251, *Shower trays - Connecting dimensions.*

EN 695, *Kitchen sinks - Connecting dimensions.*

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