

BS EN 1124-2:2014



BSI Standards Publication

# Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems

Part 2: System S, forms and dimensions

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**National foreword**

This British Standard is the UK implementation of EN 1124-2:2014. It supersedes BS EN 1124-2:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/110, Steel Tubes, and Iron and Steel Fittings.

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

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**EN 1124-2**

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2014

ICS 23.040.10; 23.040.40

Supersedes EN 1124-2:2007

English Version

## Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems - Part 2: System S, forms and dimensions

Tubes et raccords de tube soudés longitudinalement en  
acier inoxydable, à manchon enfichable pour réseaux  
d'assainissement - Partie 2: Système S, formes et  
dimensions

Rohre und Formstücke aus längsnahtgeschweißtem,  
nichtrostendem Stahlrohr mit Steckmuffe für  
Abwasserleitungen - Teil 2: System S, Formen und Maße

This European Standard was approved by CEN on 17 April 2014.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 1124-2:2014) has been prepared by Technical Committee CEN/TC 165 "Waste water 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 December 2014, and conflicting national standards shall be withdrawn at the latest by December 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1124-2:2007.

In relation to the previous version of the standard, the following main modifications have been made:

- a) due to the newest marked developments and new installation methods, several components of system S have been adjusted to these conditions (introduction of new products);
- b) dimensional requirements have been extended and specified for compatibility with gravity drainage systems for buildings.

EN 1124, *Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems*, consists of the following parts:

- *Part 1: Requirements, testing, quality control;*
- *Part 2: System S, forms and dimensions;*
- *Part 3: System X – Dimensions;*
- *Part 4: Components for vacuum drainage systems and drainage systems on ships.*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

Pipes and fittings of longitudinally welded, stainless steel pipes with spigot and socket for waste water systems as specified in this part of EN 1124 and EN 1124-3 are used in gravity drainage systems in buildings. For vacuum drainage systems and drainage systems on ships, it was necessary to specify additional requirements and further dimensional specifications for components and joints used in these systems. Components specified in EN 1124-4 are used for vacuum drainage systems and for drainage systems in shipbuilding.

## 1 Scope

This European Standard applies to pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems and specifies dimensions and tolerances for pipes, fittings and pipe connectors and establishes a system of designations for the different pipe and fitting types that conform to the stated requirements.

This part of EN 1124 is only valid in connection with EN 1124-1.

## 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.

EN 1124-1:1999, *Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems - Part 1: Requirements, testing, quality control*

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

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1124-1:1999 apply.

## 4 Symbols

DN/OD	Nominal size with regard to the outside diameter
$d$	Diameter
$t$	Socket construction depths
$s$	Wall thickness
$L$	Effective length
$l$	Construction lengths
$r$	Radius
$\alpha$	Angle
$e$	Off-set dimension (shift)
$t_5$	Least insertion depth
$o$	Ovality

## 5 Dimensions

### 5.1 General and tolerances

The figures in this document are simplified drawings. The dimensions given shall be followed.

Where no tolerances are given in this European Standard, tolerances for linear dimensions shall be followed in accordance with Table 1, tolerances for radii shall be followed in accordance with Table 2 and tolerances for angular dimensions, referring to the smaller side length, shall be followed in accordance with Table 3.

Table 1 — Tolerances for linear dimensions

Dimensions in millimetres

Dimensional range	Tolerances for linear dimensions
0 to 300	±5
> 300	±8

Table 2 — Tolerances for radii

Dimensions in millimetres

Dimensional range	Tolerances for radii
> 26 to 181	±3
> 181 to 378	±4
> 378 to 457	±5

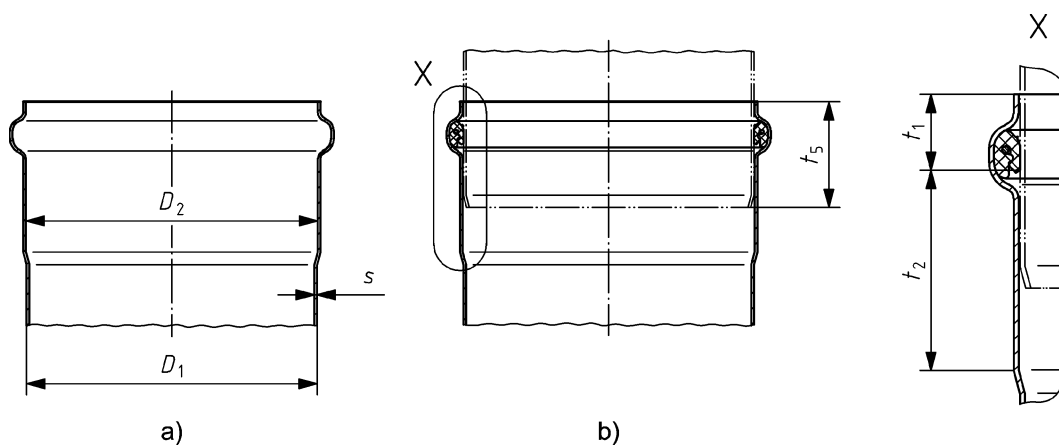
Table 3 — Tolerances for angles

Side length (referring to the smaller side) mm	Tolerances for angles degrees
> 10 to 120	±3
> 120 to 400	±4
> 400	±5

## 5.2 Sockets

The socket dimensions in accordance with Figure 1 shall conform to Table 4.

Details not specified shall be chosen appropriately.



### Key

- a standard socket
- b socket joint
- X effective sealing point

Figure 1 — Socket types



Table 4 — Dimensions and tolerances for sockets

Dimensions in millimetres

Nominal size DN/OD	Dimensions and tolerances						
	$D_1$	$D_2$	$o$	$s$	$t_1$ max	$t_2$ max	$t_5^a$
40	$40^{+0,2}_0$	$40,7^{+0,5}_0$	< 2 % of DN	$1,00 \pm 0,2$	18	18	30
50	$50^{+0,2}_0$	$50,5^{+0,6}_0$				20	
75	$75^{+0,3}_0$	$75,6^{+0,6}_0$			20	25	35
82	$82,4^{+0,3}_0$	$83,2^{+0,4}_0$				30	
90	$90^{+0,3}_0$	$90,8^{+0,5}_0$			24	30	40
110	$110^{+0,3}_0$	$110,6^{+0,7}_0$			26	32	
125	$125^{+0,3}_0$	$125,8^{+0,6}_0$		35		45	
160	$160^{+0,4}_0$	$160,7^{+0,8}_0$		$1,25 \pm 0,2$	32	42	50
200	$200^{+0,4}_0$	$200,8^{+0,8}_0$		$1,50 \pm 0,3$	40	50	55
250	$250^{+0,5}_0$	$251,0^{+0,8}_0$		$1,50^{+0,8}_{0,3}$	45	55	65
315	$315^{+0,6}_0$	$316,2^{+0,8}_0$		$1,50^{+0,8}_{0,3}$		62	

<sup>a</sup> Installation instructions only (necessary least insertion depth for tightness of pipe connection).

### 5.3 Pipes – Shape B 1

The effective length of pipes shall conform to Table 5.

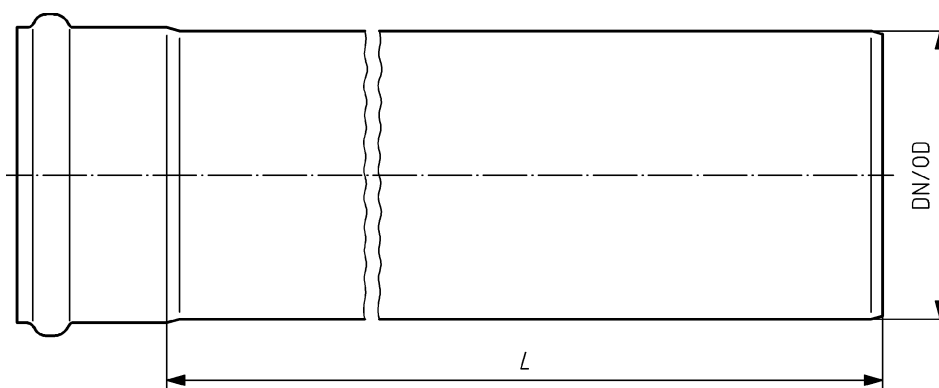


Figure 2 — Shape B 1

Designation of a drainage steel pipe (B 1) of nominal size DN/OD 110 with an effective length  $L = 1\ 000$  mm:

Pipe EN 1124-2 — B 1 – 110 – 1000

Table 5 — Dimensions for effective length  $L$

Dimensions in millimetres

Nominal size DN/OD	Effective length $L$										
	$\pm 5$										
40	150	250	500	750	1 000	1 500	2 000	3 000	4 000	5 000	6 000
50											
75											
82											
90											
110											
125											
160											
200											
250											
315											

## 5.4 Bends

### 5.4.1 Bends – Shape C 1 and C 2

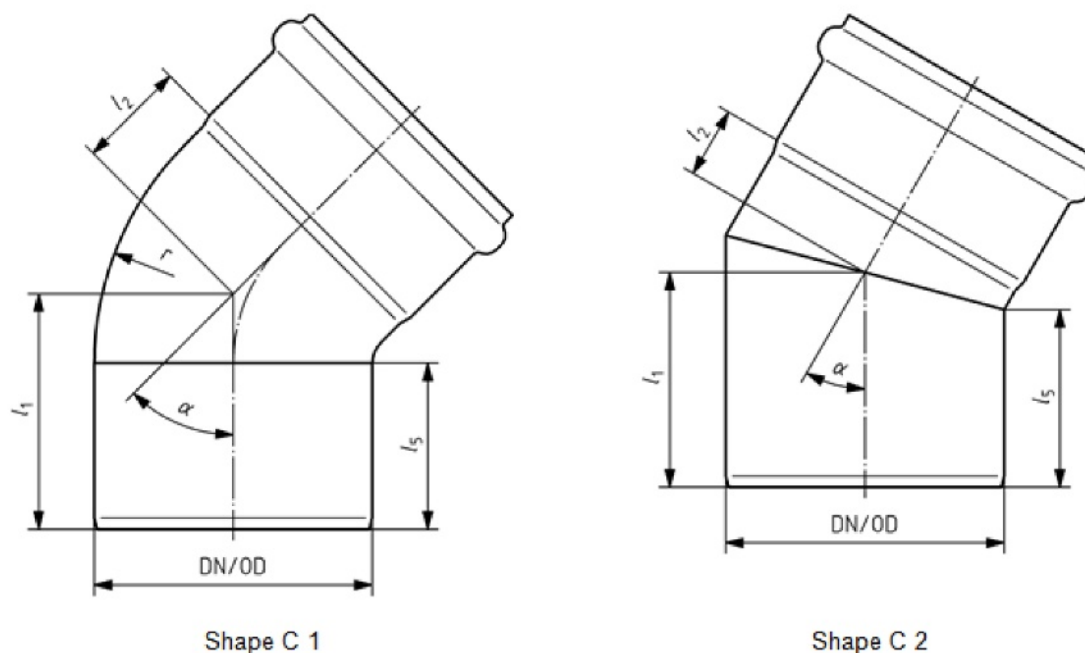


Figure 3 — Shapes C 1 and C 2

Designation of a bend (C 2) of nominal size DN/OD 110 and  $\alpha = 45^\circ$ :

Bend EN 1124-2 — C 2 — 110 — 45

Table 6 — Dimensions for shapes C 1 and C 2

Dimensions in millimetres

Nominal size DN/OD	$\alpha = 15^\circ$			$\alpha = 30^\circ$			$\alpha = 45^\circ$				$\alpha = 70^\circ$				$\alpha = 87,5^\circ$			
	$l_1$	$l_2$	$l_5$	$l_1$	$l_2$	$l_5$	$l_1$	$l_2$	$l_5$	$r$	$l_1$	$l_2$	$l_5$	$r$	$l_1$	$l_2$	$l_5$	$r$
40	53	11	$\geq t_1 + t_2$	55	14	$\geq t_1 + t_2$	58	21	$\geq t_1 + t_2$	$\geq D_1$	69	27	$\geq t_1 + t_2$	$\geq D_1$	79	32	$\geq t_1 + t_2$	$\geq D_1$
50	54	12		57	16		60	26			77	35			86	40		
75	66	16		71	21		76	33			95	45			107	53		
82	66	17		71	23		80	30			94	42			109	53		
90	72	19		78	25		84	38			—	—			120	63		
110	79	22		85	28		93	43			116	59			134	73		
125	84	19		98	28		110	88			136	76			161	93		
160	99	29		110	40		131	55			163	82			181	105		
200	123	31		136	45		154	61			320	230			213	120		
250	136	40		153	58		177	76			388	292			255	158		
315	151	46	172	68	199	91	—	—	290	186								

5.4.2 Bend with stilling section – Shape C 3

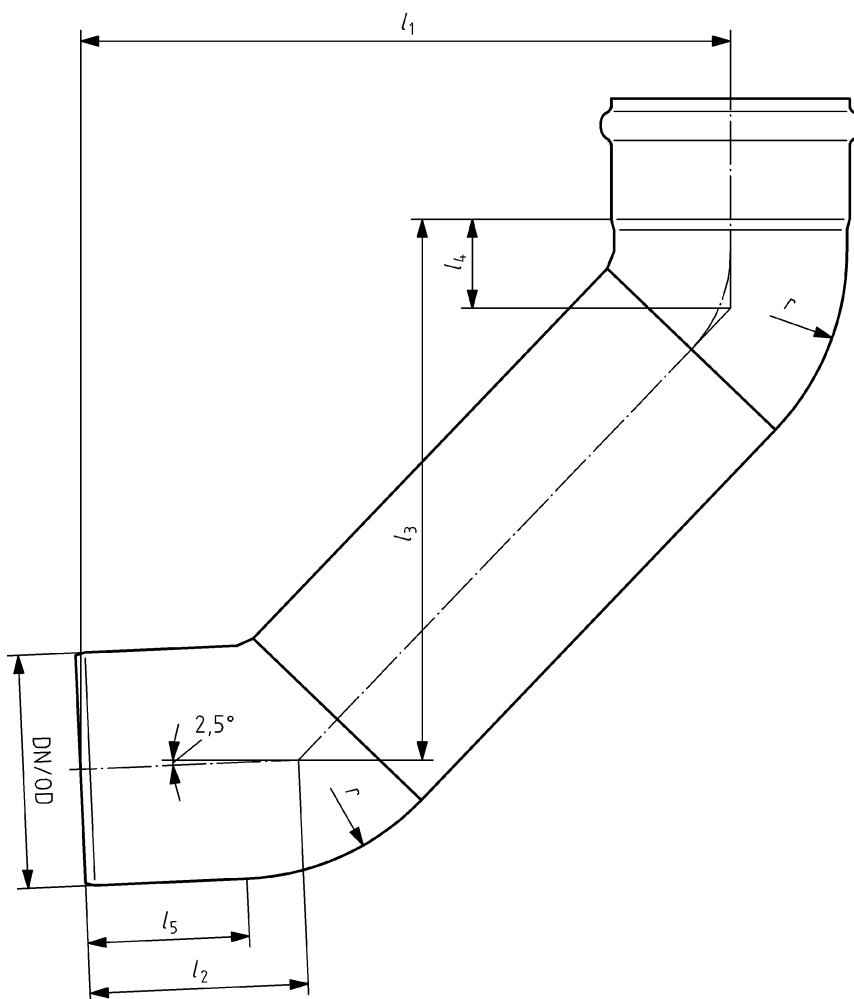


Figure 4 — Shape C 3

Designation of a bend with stilling section (C 3) of nominal size DN/OD 110:

Bend EN 1124-2 — C 3 – 110

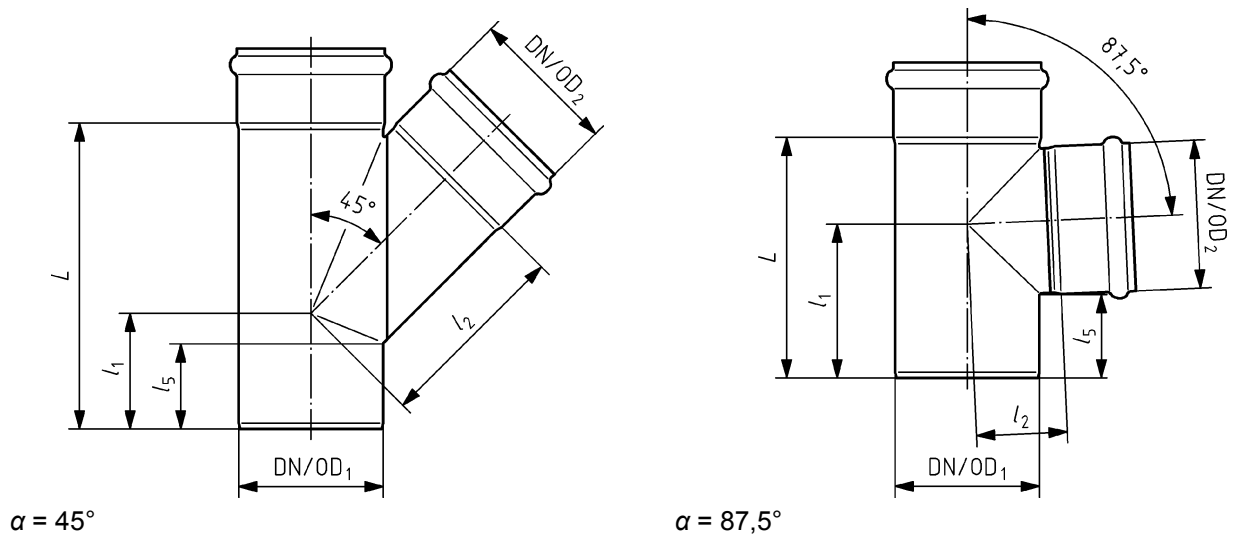
Table 7 — Dimensions for shape C 3

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$l_2$	$l_3$	$l_4$	$l_5$	$r$
50	259	72	217	22	$\geq t_1 + t_2$	$\geq D_1$
75	280	87	230	27		
110	307	103	250	38		
125	335	126	269	53		
160	354	130	282	48		

## 5.5 Branches

### 5.5.1 Single branch – Shape D 1 and reducing single branch – Shape D 11



**Figure 5 — Shape D 1 and Shape D 11**

Designation of a single branch (D 1) of nominal size  $DN/OD$  110 and  $\alpha = 87,5^\circ$ :

Branch EN 1124-2 — D 1 – 110 – 87,5

Designation of a reducing single branch (D 11) of nominal size  $DN/OD$  1 = 110, nominal size  $DN/OD$  2 = 50 and  $\alpha = 45^\circ$ :

Branch EN 1124-2 — D 11 – 110 – 50 – 45

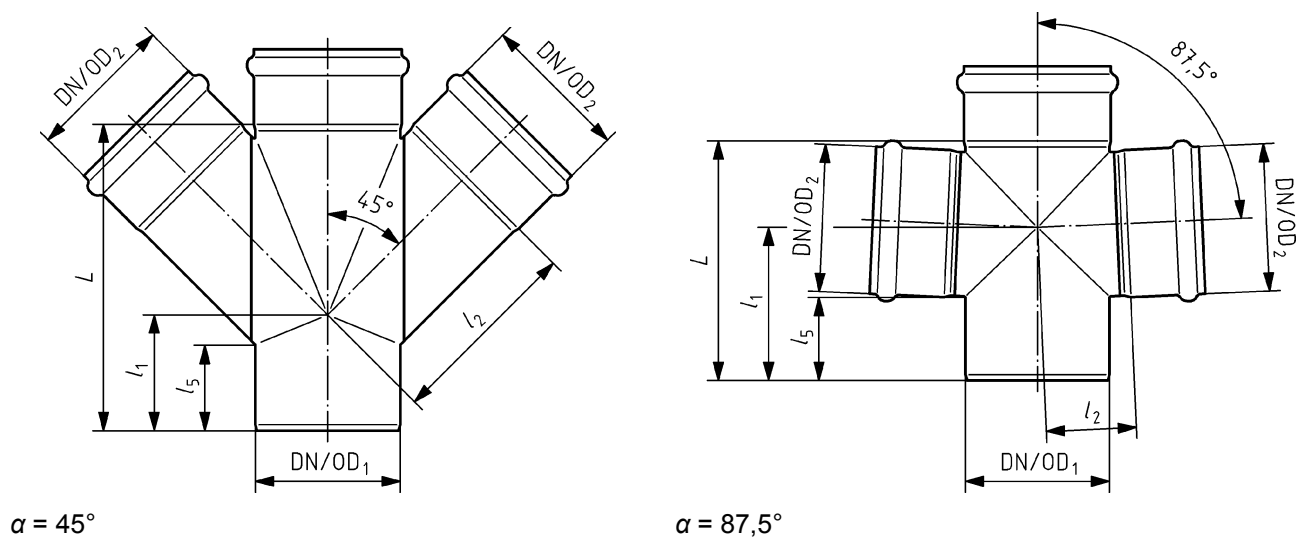
Table 8 — Dimensions for shape D 1 and D 11

Dimensions in millimetres

Nominal sizes		$\alpha = 45^\circ$				$\alpha = 70^\circ$				$\alpha = 87,5^\circ$			
DN/OD 1	DN/OD 2	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$
40	40	118	58	63	$\geq t_1 + t_2$	105	64	43	$\geq t_1 + t_2$	101	69	33	$\geq t_1 + t_2$
50	40	119	55	71		—	—	—		106	71	35	
50	50	128	57	76		118	69	51		106	71	36	
75	50	144	56	94		131	75	66		139	98	49	
	75	179	74	110		158	89	73		139	90	52	
82	50	144	57	102		131	74	71		128	86	52	
	75	185	75	114		159	88	76		154	99	55	
	82	195	80	118		166	91	78		162	102	55	
90	50	145	55	110		—	—	—		135	95	58	
	75	181	70	123		—	—	—		150	100	60	
	90	206	86	130		—	—	—		171	113	61	
110	50	147	42	119		137	75	85		132	93	66	
	75	182	60	135		164	88	91		152	104	69	
	90	207	74	142		—	—	—		167	111	69	
	110	233	88	149		201	107	97		183	117	69	
125	75	200	65	141		175	93	99		187	110	77	
	110	250	90	155		212	111	105		205	127	77	
	125	273	103	170		228	119	109		220	135	82	
160	110	258	80	186		223	115	124		236	152	94	
	160	328	115	222		278	143	135		288	184	104	
200	160	350	123	250	304	159	158	293	186	125			

	200	415	151	274		346	180	166		333	206	128	
250	200	429	136	307		365	186	196		349	215	155	
	250	509	172	336		419	213	206		404	240	154	
315	250	513	149	382		—	—	—		411	248	189	
	315	616	195	416		—	—	—		476	281	196	

**5.5.2 Double branch – Shape D 2 and reducing double branch – Shape D 21**



**Figure 6 — Shape D 2 and Shape D 21**

Designation of a double branch (D 2) of nominal size DN/OD 110 and  $\alpha = 87,5^\circ$ :

Branch EN 1124-2 — D 2 – 110 – 87,5

Designation of a reducing double branch (D 21) of nominal size DN/OD 1 = 110, nominal size DN/OD 2 = 50 and  $\alpha = 45^\circ$ :

Branch EN 1124-2 — D 21 – 110 – 50 – 45



Table 9 — Dimensions for shape D 2 and D 21

Dimensions in millimetres

Nominal sizes		$\alpha = 45^\circ$				$\alpha = 70^\circ$				$\alpha = 87,5^\circ$			
DN/OD 1	DN/OD 2	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$
50	50	128	57	76	$\geq t_1 + t_2$	118	69	51	$\geq t_1 + t_2$	106	71	36	$\geq t_1 + t_2$
75	50	144	56	94		131	75	66		139	98	49	
	75	179	74	110		158	89	73		139	90	52	
110	50	147	42	119		137	75	85		132	93	66	
	75	182	60	135		164	88	91		152	104	69	
	110	233	88	149		201	107	97		183	117	69	
125	110	250	90	155		212	111	105		205	127	77	
	125	273	103	170		228	119	109		220	135	82	
160	110	258	80	186		223	115	124		236	152	94	
	160	328	115	222		278	143	135		188	184	104	
200	200	415	151	274		346	180	166		333	206	128	
250	250	512	177	334		419	213	206		—	—	—	

5.5.3 Angular branch – Shape D 3 and reducing angular branch – Shape D 31

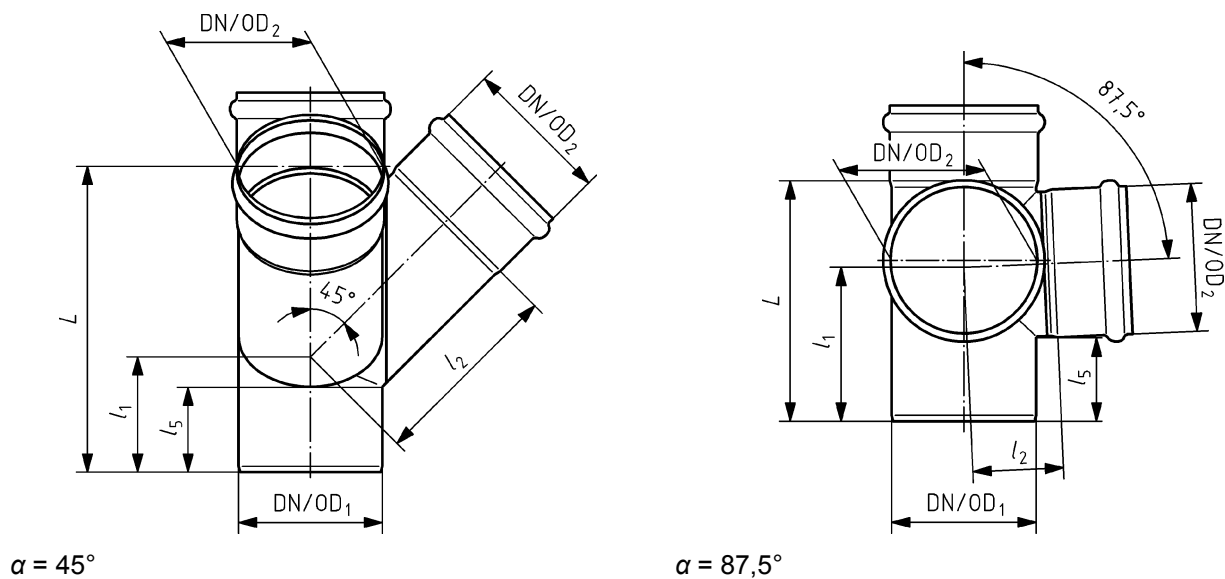


Figure 7 — Shape D 3 and Shape D 31

Designation of an angular branch (D 3) of nominal size DN/OD 1 = 110, nominal size DN/OD 2 = 75 and α = 87,5°:

Branch EN 1124-2 — D 3 – 110 – 75 – 87,5

Designation of a reducing angular branch (D 31) of nominal size DN/OD 1 = 110, nominal size DN/OD 2 = 50 and α = 45°:

Branch EN 1124-2 — D 31 – 110 – 50 – 45

Table 10 — Dimensions for shape D 3 and D 31

Dimensions in millimetres

Nominal sizes		$\alpha = 45^\circ$				$\alpha = 70^\circ$				$\alpha = 87,5^\circ$			
DN/OD 1	DN/OD 2	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$	L	$l_1$	$l_2$	$l_5$
50	50	128	57	76	$\geq t_1 + t_2$	118	69	51	$\geq t_1 + t_2$	106	71	36	$\geq t_1 + t_2$
75	50	144	56	94		131	75	66		139	98	49	
	75	179	74	110		158	89	73		139	90	52	
110	50	147	42	119		137	75	85		132	93	66	
	75	182	60	135		164	88	91		152	104	69	
	110	233	88	149		201	107	97		183	117	69	
160	110	258	80	186		223	115	124		236	152	94	
	160	328	115	222		278	143	135		288	184	104	

### 5.6 Transition pipe – Shapes F 1 and F 2

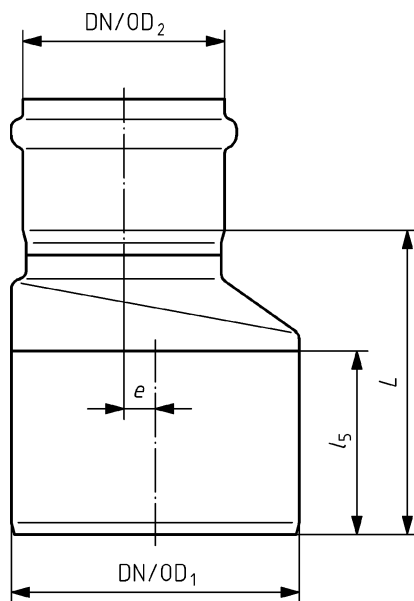


Figure 8 — Shape F 1

Designation of a transition pipe (F 1) of nominal size DN/OD 1 = 110 and nominal size DN/OD 2 = 50:

Transition pipe EN 1124-2 — F 1 – 110 – 50

Table 11 — Dimensions for shape F 1

Dimensions in millimetres

Nominal sizes		L	e	l <sub>5</sub>
DN/OD 1	DN/OD 2			
75	50	87	7	≥ t <sub>1</sub> + t <sub>2</sub>
82	50	97	14	
	75	85	—	
90	50	103	15	
	75	105	5	
110	50	113	25	
	75	116	12	
	82	110	11	
	90	89	5	
125	110	140	—	
	160	136	22	
160	110	136	22	
	125	150	—	
200	160	170	—	
250	200	180	—	
315	250	190	—	

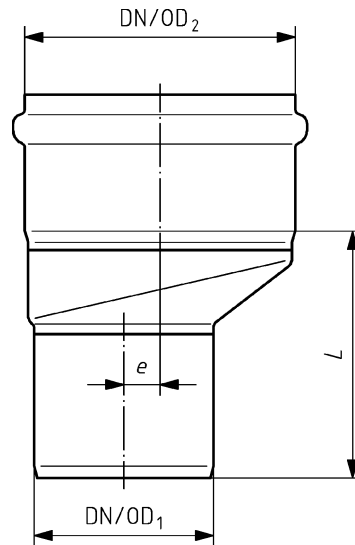


Figure 9 — Shape F 2 for use in siphonic drainage systems in buildings and vacuum drainage systems on ships

Table 12 — Dimensions for shape F 2

Dimensions in millimetres

Nominal sizes		$L$	$e$	$l_5$
DN/OD 1	DN/OD 2			
32	50	57	—	39
40	50	77	5	50
50	75	80	7	50
75	82	94	—	70
50	110	99	25	50
75	110	104	15	60
82	110	101	11	63
110	125	96	8	71
110	160	126	22	71
125	160	136	18	85
160	200	153	20	93
200	250	189	25	110

5.7 Double socket – Shape F 4

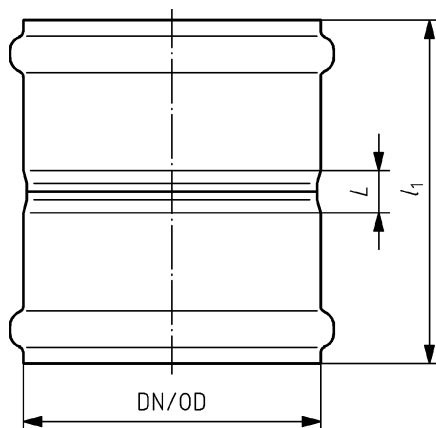


Figure 10 — Shape F 4

Designation of a double socket (F 4) of nominal size DN/OD 110:

Double socket EN 1124-2 — F 4 – 110

Table 13 — Dimensions for shape F 4

Dimensions in millimetres

Nominal size DN/OD	<i>L</i>	<i>l</i> <sub>1</sub>
40	20	104
50	14	97
75	19	119
82	20	124
90	18	130
110	16	130
125	20	140
160	20	162
200	20	200
250	30	242
315	30	258

### 5.8 Insertion coupling with long socket – Shape F 5

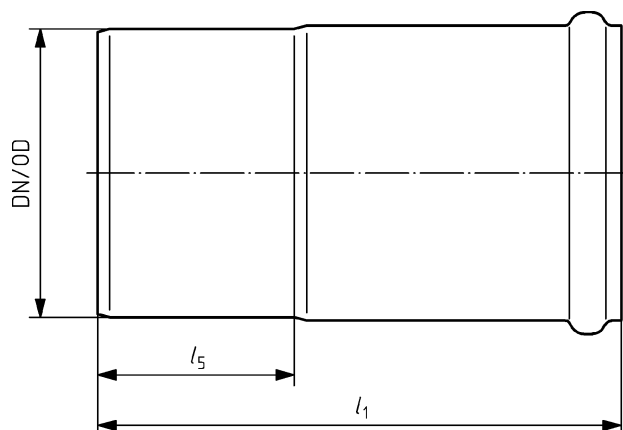


Figure 11 — Shape F 5

Designation of an insertion coupling with long socket (F 5) of nominal size DN/OD 110:

Insertion coupling EN 1124-2 — F 5 – 110

Table 14 — Dimensions for shape F 5

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$l_5$
40	150	$\geq t_1 + t_2$
50	159	
75	175	
82	180	
90	187	
110	200	
125	300	
160	292	
200	350	
250	400	
315	450	

5.9 Sliding ring-seal coupling – Shape F 41

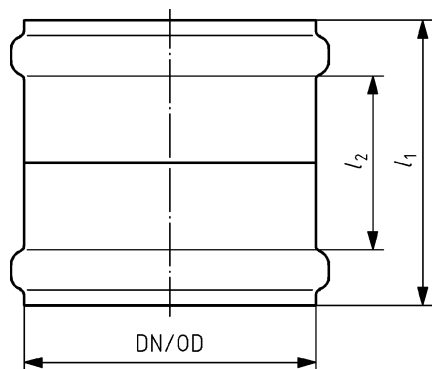


Figure 12 — Shape F 41

Designation of a sliding ring-seal coupling (F 41) of nominal size DN/OD 110:

Sliding ring-seal coupling EN 1124-2 — F 41 – 110

Table 15 — Dimensions for shape F 41

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$l_2$
40	104	78
50	97	69
75	120	92
82	124	96
90	126	76
110	130	96
125	140	104
160	160	118
200	200	148
250	242	167
315	258	176



5.10 Trap – Shapes G 1 and G 2

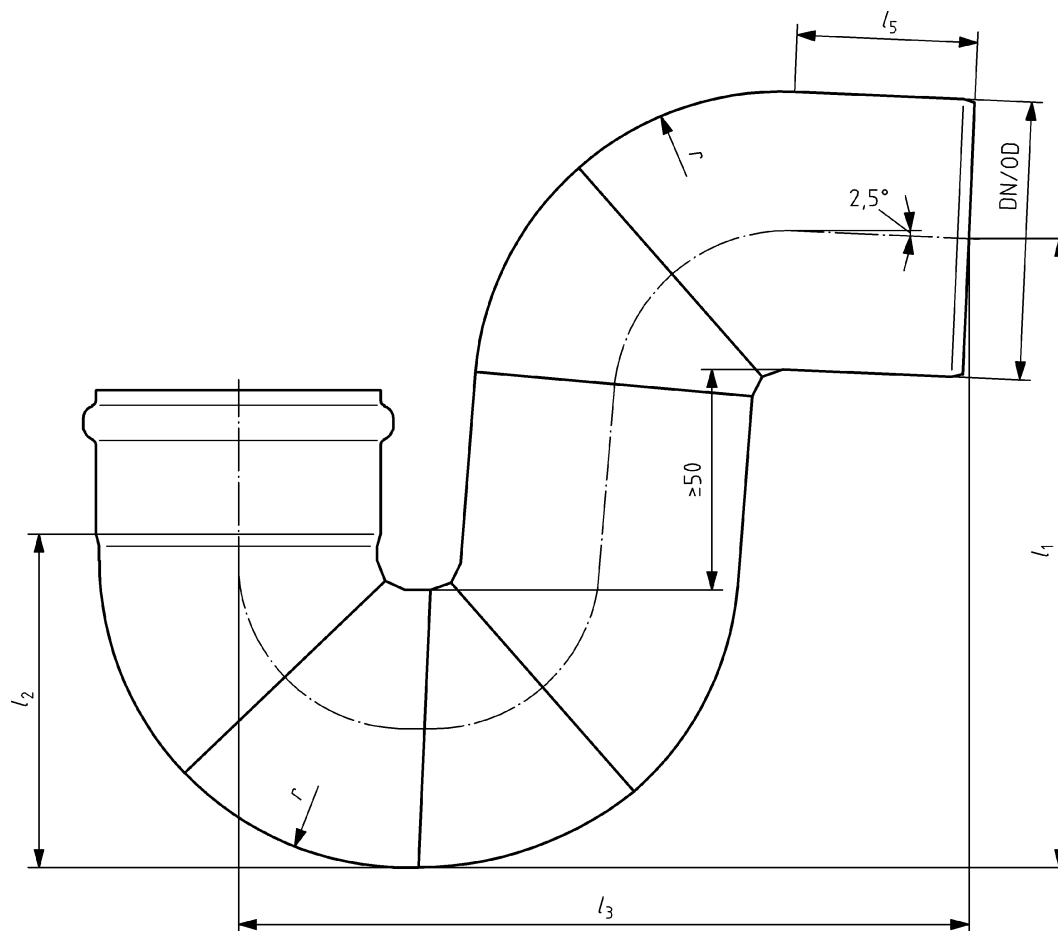


Figure 13 — Shape G 1

Designation of a trap (G 1) of nominal size DN/OD 110:

Trap EN 1124-2 — G 1 – 110

Table 16 — Dimensions for shape G 1

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$l_2$	$l_3$	$l_5$	$r$
50	145	67	175	$\geq t_1 + t_2$	$\geq D_1$
75	189	93	222		
110	249	132	289		
125	292	158	330		
160	338	184	388		

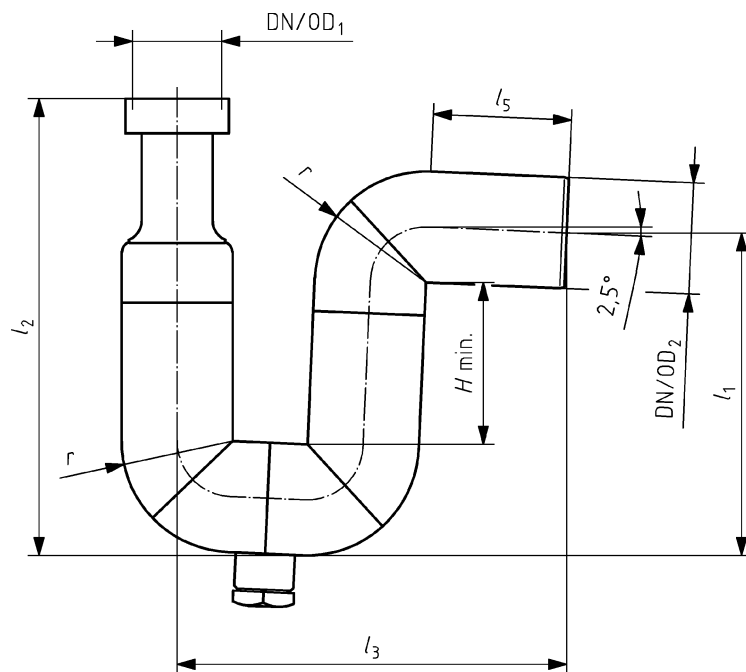


Figure 14 — Shape G 2

Table 17 — Dimensions for shape G 2

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$l_2$	$l_3$	$l_5$	$H_{\min}$	$r$	Threading in accordance with EN ISO 228-1
32	145	205	175	$\geq t_1 + t_2$	74	$\geq D_1$	G 1 1/4
40							G 1 1/2
50							G 2

## 5.11 Access pipes

### 5.11.1 Access pipe – Shape H 1

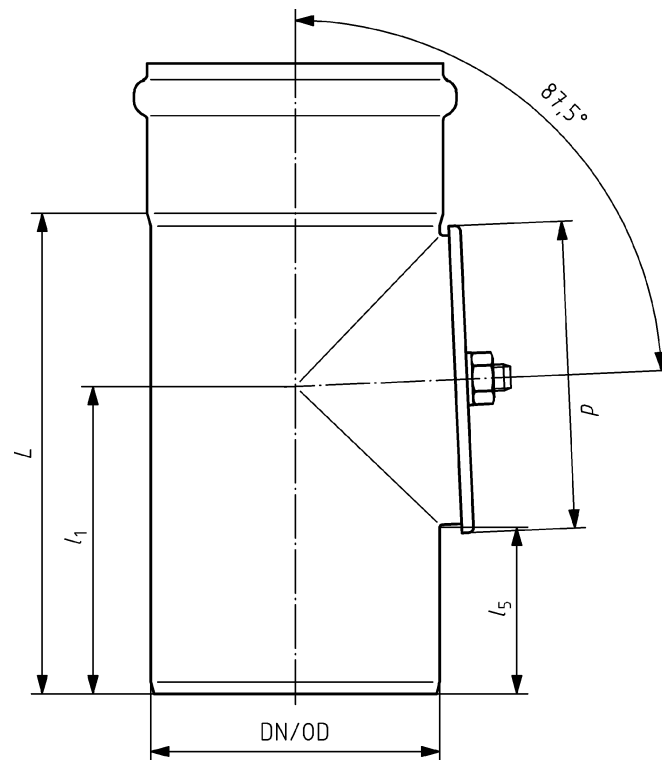


Figure 15 — Shape H 1

Designation of an access pipe (H 1) of nominal size DN/OD 110:

Access pipe EN 1124-2 — H 1 – 110

Table 18 — Dimensions for shape H 1

Dimensions in millimetres

Nominal size DN/OD	$L$	$l_1$	$l_5$	$d$
75	139	90	$\geq t_1 + t_2$	83
82	180	117		83
90	171	113		97
110	183	117		117
125	195	128		117
160	288	184		167
200	280	208		117
250	290	218		117
315	300	228		117

### 5.11.2 Rear access branch – Shape H 5

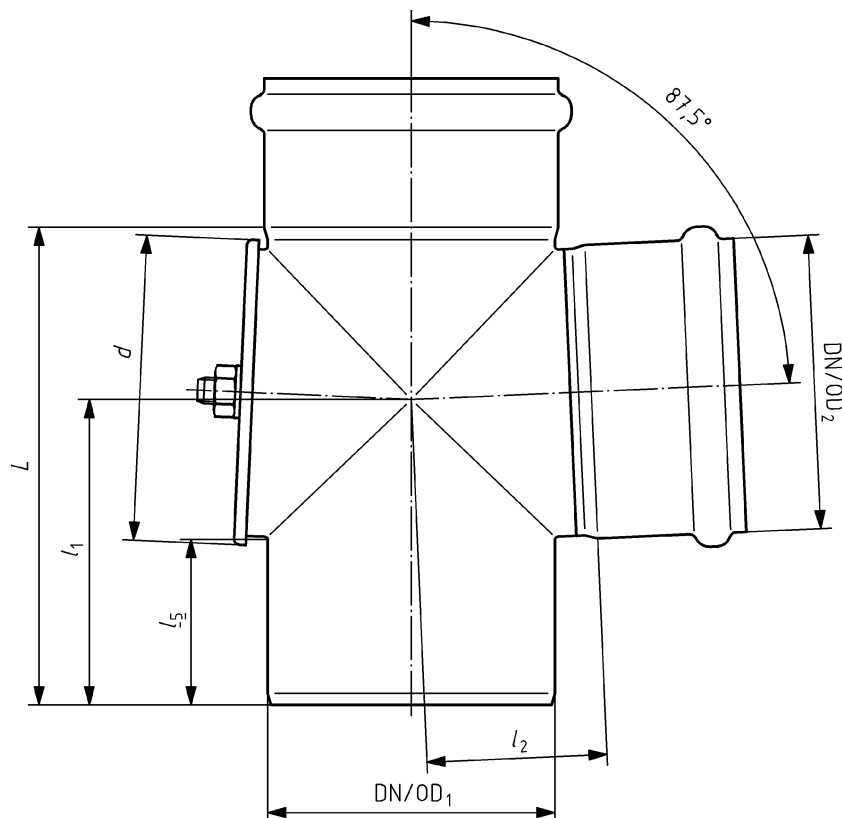


Figure 16 — Shape H 5

Designation of a rear access branch (H 5) of nominal size 110 for DN/OD 1 and 50 for DN/OD 2:

Access pipe EN 1124-2 — H 5 – 110 – 50

Table 19 — Dimensions for shape H 5

Dimensions in millimetres

Nominal sizes		<i>L</i>	<i>l</i> <sub>1</sub>	<i>l</i> <sub>2</sub>	<i>l</i> <sub>5</sub>	<i>d</i>
DN/OD 1	DN/OD 2					
75	50	139	98	49	≥ <i>l</i> <sub>1</sub> + <i>l</i> <sub>2</sub>	83
	75	139	90	52		83
110	50	183	143	66		117
	75	183	135	69		117
	110	183	117	69		117
160	110	288	204	94		167
	160	288	184	104	167	

### 5.12 Other fittings

Other types of fittings shall be designed to ensure their interchangeability and proper hydraulic function.

## 6 Socket plugs

### 6.1 Socket plug shape K 10

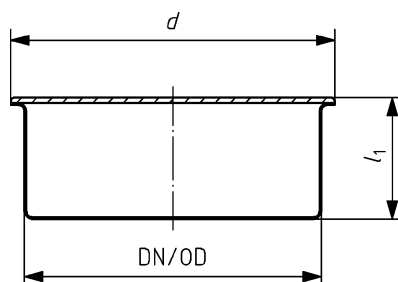


Figure 17 — Shape K 10

Designation of a socket plug (K 10) of nominal size DN/OD 110:

Socket plug EN 1124-2 — K 10 – 110

Table 20 — Dimensions for shape K 10

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$d$
40	35	50
50	50	58
75	45	85
82	45	92
90	45	100
110	45	120
125	45	135
160	45	170
200	50	210
250	70	260
315	70	325

6.2 Socket plug shape K 11

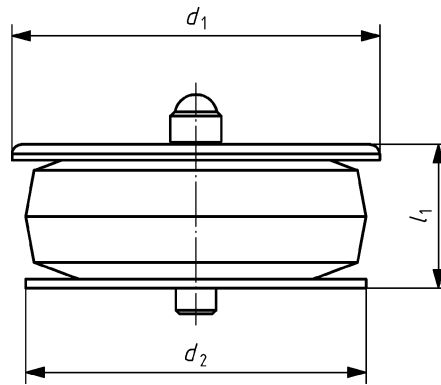


Figure 18 — Shape K 11

Table 21 — Dimensions for shape K 11

Dimensions in millimetres

Nominal size DN/OD	$l_1$	$d_1$	$d_2$
40	31	48	39
50	31	59	49
75	36	83	74
82	36	90	81
110	46	118	109

## 7 Ratstop — Shape R

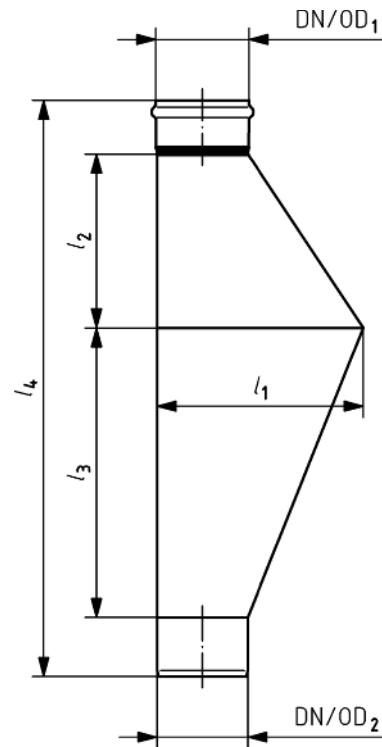


Figure 19 — Ratstop shape R

Designation of a ratstop (R) of nominal size DN/OD 110:

Ratstop EN 1124-2 — R — 110

Table 22 — Dimensions for shape R

Dimensions in millimetres

Nominal size		$l_1$	$l_2$	$l_3$	$l_4$
DN/OD 1	DN/OD 2				
75	110	250	210	350	672
110	110	250	210	350	635

8 WC adapter — Shape T

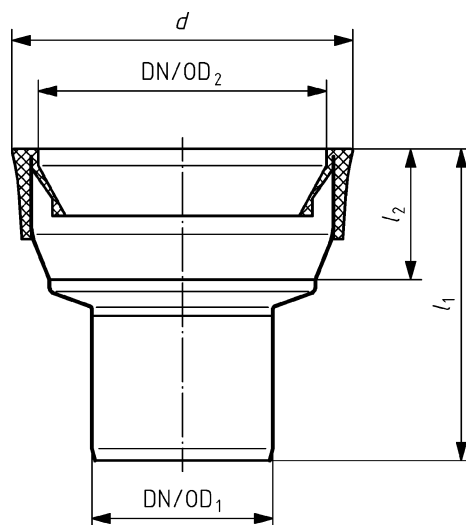


Figure 20 — Shape T

Designation of a WC adapter (T) of nominal size DN/OD 110:

WC adapter EN 1124-2 — T — 110

Table 23 — Dimensions for shape T

Dimensions in millimetres

Nominal size		<i>l</i> <sub>1</sub>	<i>l</i> <sub>2</sub>	<i>d</i>
DN/OD 1	DN/OD 2			
75	110	129	54	141
82	110	136	54	141
110	110	124	54	141





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