

Pipes and fittings of longitudinally-welded hot-dip galvanized steel pipes with spigot and socket for waste water systems —

Part 2: Dimensions

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British Standard

ICS 77.140.75; 91.140.80; 93.030

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 46, an inside back cover and a back cover.

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This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 August 1999

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Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 32084 7

ICS 23.040.10; 23.040.40; 23.040.60

Descriptors: water removal, sewage, water pipelines, non-pressure pipes, steel pipes, welded tubes, pipe fittings, pipe sockets, steels, hot-dip galvanizing, dimensions, dimensional tolerances, dimensional deviations

English version

Pipes and fittings of longitudinally-welded hot-dip galvanized steel pipes with spigot and socket for waste water systems — Part 2: Dimensions

Tubes et raccords de tube soudés longitudinalement
en acier galvanisé à chaud, à manchon enfichable
pour réseaux d'assainissement — Partie 2:
Dimensions

Rohre und Formstücke aus längsnahtgeschweißtem,
feuerverzinktem Stahlrohr mit Steckmuffe für
Abwasserleitungen — Teil 2: Maße

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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by July 1999, and conflicting national standards shall be withdrawn at the latest by July 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

Part 1 of this European Standard contains requirements for the testing and quality control of components covered by all parts of EN 1123.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This standard applies to pipes and fittings of longitudinally-welded, hot-dip galvanized steel pipes with spigots and sockets for waste water systems.

It specifies dimensions and tolerances for pipes, fittings, pipe connectors and seals and establishes a system of designations for the different pipe and fitting types that conform to the stated requirements.

This standard is only valid in connection with EN 1123-1.

This standard does not apply to the marking of products. EN 1123-1 applies to marking.

2 Normative references

This European Standard incorporates by dated or undated references, 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.

EN 295, *Vitrified clay pipes and fittings and pipe joints for drains and sewers*.

prEN 877, *Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings — Requirements, test methods and quality assurance*.

EN 1123-1:1999, *Pipes and fittings of longitudinally-welded, hot-dip galvanized steel pipes with spigot and socket for waste water systems — Part 1: Requirements, testing, quality control*.

prEN 1329, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly(vinyl chloride) (PVC-U)*.

prEN 1451, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polypropylene (PP)*.

prEN 1453, *Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings — Unplasticized poly(vinyl chloride) (PVC-U)*.

prEN 1455, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Acrylonitrile-butadiene-styrene (ABS)*.

prEN 1519, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polyethylene (PE)*.

prEN 1565, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Styrene-Copolymer-Blends (SAN + PVC)*.

prEN 1566, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Chlorinated poly(vinyl chloride) (PVC-C)*.

3 Definitions

For application of this standard, the definitions of EN 1123-1 apply.

4 Symbols

DN/ID	Nominal size with regard to the inside diameter
DN/OD	Nominal size with regard to the outside diameter
d	Diameter
t	Socket depth
s	Wall thickness
l	Effective length
r	Radius
a	Angle
e	Offset dimension (shift)
t_5	Least insertion depth

5 Dimensions

5.1 General and tolerances

The figures in this standard are simplified drawings. The dimensions given shall be followed.
 Where no dimensions are given in this standard, tolerances for linear dimensions shall be as given in Table 1, tolerances for radii shall be as given in Table 2, tolerances for angular dimensions referring to the smaller side length shall be as given in Table 3 and tolerances for elastomer parts shall be as given in Table 4.

Table 1

Dimensions in millimetres

Dimensional range	Tolerances for linear dimensions
From 0 up to 300	±5
More than 300	±8

Table 2

Dimensions in millimetres

Dimensional range	Tolerances for radii
More than 26 and up to 181	±3
More than 181 and up to 378	±4
More than 378 and up to 457	±5

Table 3

Side length (referring to the smaller side length) mm	Tolerances for angles degrees
More than 10 and up to 120	±3
More than 120 and up to 400	±2
Above 400	±1,5

Table 4

Range of nominal size mm	Tolerances for elastomer parts	
	Form bound (F) %	Form fitting bound (C) %
More than 25 and up to 40	±0,6	±1,0
More than 40 and up to 63	±0,8	±1,3
More than 63 and up to 100	±1,0	±1,6
More than 100 and up to 160	±1,3	±2,0
Above 160	±0,8	By agreement with the manufacturer of the components

5.2 Sockets

The socket dimensions according to Figure 1 shall conform to Table 5. Fittings are generally fabricated with socket type 1 A if the designation of the fitting does not specify the socket type.
 Dimensions not specified shall be chosen appropriately.

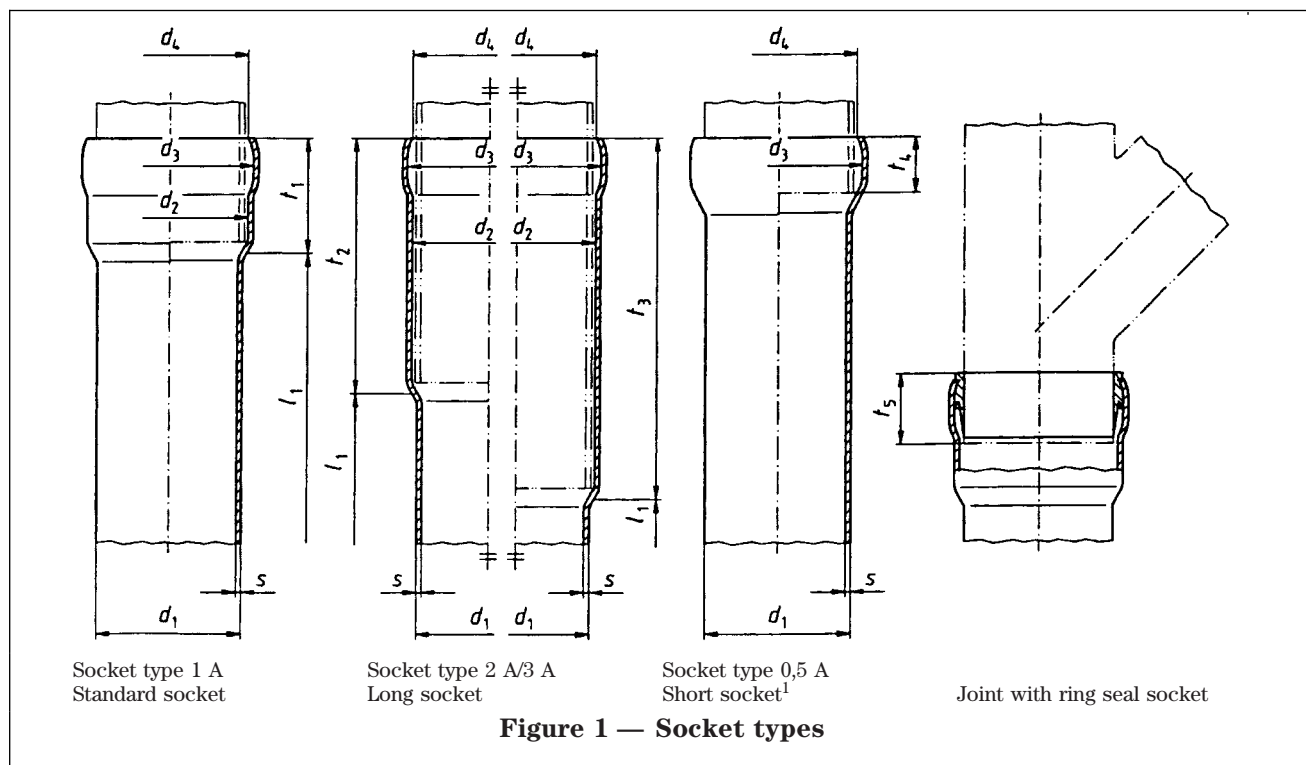


Table 5

Nominal size DN/ID	Type	d_1^2	s^3	Socket dimensions										Dimensions in millimetres	
				d_2	d_3	d_4	Tolerances for d_1 to d_4	t_1	t_2	t_3	t_4 min.	t_5^1	Tolerances for t_1 to t_4		
40		42	$1,5 \pm 0,15$	45	48	45	$\pm 0,6$	30	70	100	16	20	$+4$ -2		
50		53	$1,5 \pm 0,15$	56	60	56	$\pm 0,6$	38	90	130	19	28	$+4$ -2		
70		73	$1,6 \pm 0,16$	76	81	76	$\pm 0,7$	55	120	175	27	35	$+4$ -2		
80	A	89	$1,6 \pm 0,16$	92	99	92	$\pm 0,9$	60	130	190	31	40	$+4$ -2		
	B	89	$1,8 \pm 0,18$	92	99	92	$\pm 0,9$	60	130	190	31	40	$+4$ -2		
100		102	$2,0 \pm 0,20$	106	114	107	$\pm 1,0$	70	150	220	38	45	$+4$ -2		
125		133	$2,5 \pm 0,25$	138	147	140	$\pm 1,3$	75	160	235	41	50	$+4$ -2		
150		159	$2,5 \pm 0,25$	164	176	168	$\pm 1,6$	80	170	250	46	55	$+4$ -2		
200		219	$3,0 \pm 0,35$	224	241	227	$\pm 2,2$	120	250	370	76	85	$+4$ -2		
250	A	273	$3,0 \pm 0,36$	280	298	284	$\pm 2,7$	130	270	400	90	100	$+5$ -3		
	B	273	$4,0 \pm 0,45$	280	298	284	$\pm 2,7$	130	270	400	90	100	$+5$ -3		
300	A	324	$3,0 \pm 0,36$	331	350	336	$\pm 3,2$	130	270	400	90	100	$+5$ -3		
	B	324	$4,0 \pm 0,45$	331	350	336	$\pm 3,2$	130	270	400	90	100	$+5$ -3		

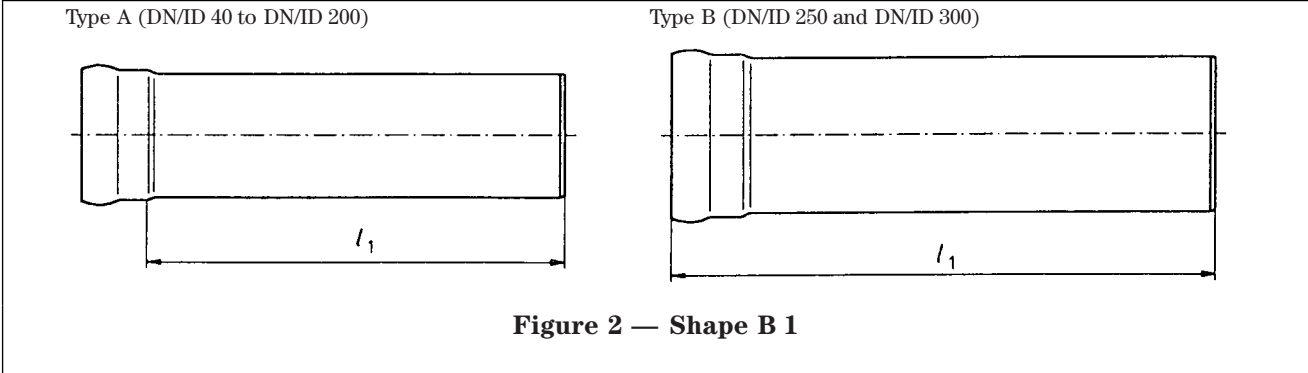
¹ Installation instructions only (necessary least insertion depth for tightness of connection), — except short socket.
² Pipe ends slightly retracted.
³ The indications on wall thickness refer to the ungalvanized pipe.

¹ For use of the short socket, national regulations should be taken into account.

5.3 Pipes

The effective length of pipes shall comply with Table 6 or Table 7.
 If the pipes have additional corrosion protection (*P*) according to clause 9 of EN 1123-1:1999, this shall be added to the designation.

5.3.1 Pipe with one socket — Shape B 1

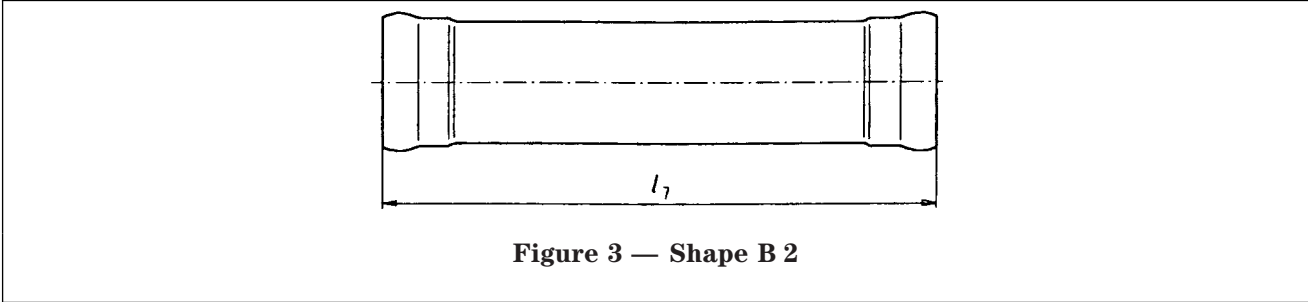


Designation of a drainage steel pipe (B 1) with a standard socket (1 A) of nominal size DN/ID 100 with an effective length $l_1 = 1\,000$ mm:
 Pipe EN 1123-2 – B 1 – 1 A – 100 – 1 000

Table 6

Nominal size DN/ID	Effective length $l_1 \pm 5$							
	250	500	750	1 000	1 500	2 000	3 000	4 000
40								
50								
70								
80								
100								
125								
150								
200								
250	—	500	750	1 000	1 500	2 000	3 000	4 000
300								

5.3.2 Pipe with two sockets — Shape B 2



Designation of a drainage steel pipe (B 2) with standard socket (1 A) of nominal size DN/ID 100 and an effective length $l_7 = 1\,000$ mm:
 Pipe EN 1123-2 – B 2 – 1A – 100 – 1 000

Table 7

Dimensions in millimetres

Nominal size DN/ID	Effective length $l_7 \pm 5$						
40	250	500	750	1 000	1 500	2 000	3 000
50							
70							
80							
100	—	—	—	—	—	—	—
125							
150							
200							

5.4 Bends

If required, type (A) or (B) and the additional corrosion protection (*P*) according to EN 1123-1 shall be added to the designation (see 5.3).

5.4.1 Bend with large radius — Shape C 1

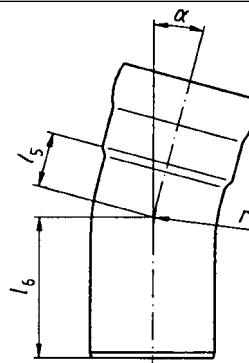


Figure 4 — Shape C 1

Designation of a bend (C 1) of nominal size DN/ID 100 and $\alpha = 45^\circ$ of type A:

Bend EN 1123-2 – C 1 – 100 – 45 A

Table 8

Nominal size DN/ID	Type	Dimensions in millimetres														
		$\alpha = 15^\circ$			$\alpha = 30^\circ$			$\alpha = 45^\circ$			$\alpha = 70^\circ$			$\alpha = 87^\circ$		
		r	l_5	l_6	r	l_5	l_6	r	l_5	l_6	r	l_5	l_6	r	l_5	l_6
40	—	67,5	37	67	67,5	46	76	67,5	56	86	67,5	75	105	67,5	92	122
50	—	82,5	53	81	82,5	64	92	82,5	76	104	82,5	100	128	82,5	120	148
70	—	117,5	50	89	117,5	66	105	117,5	83	122	117,5	118	157	117,5	146	185
80	A	133,5	68	98	133,5	86	116	133,5	104	135	133,5	144	173	133,5	177	207
	B	—	25	85	114,5	56	116	114,5	72,5	132,5	114,5	105	165	114,5	134	194
100	A	70	34	104	70	44	114	70	54	124	70	74	144	70	91	161
	B	150	45	115	150	65	135	150	87	157	150	130	200	150	167	237
125	—	200	51	126	200	79	154	200	108	183	200	165	240	200	215	290
150	A	225	55	135	225	85	165	225	118	198	225	183	263	225	239	319
	B	225	55	135	225	60	140	225	83	162	225	125	205	225	170	250
200	A	305	45	165	305	122	227	305	166	270	305	254	360	305	345	450
	B	—	45	165	—	45	165	305	166	270	305	254	360	305	330	435
250	A	—	100	230	—	153	283	381	209	339	381	318	448	381	413	543
	B	—	102	232	—	153	283	381	209	339	381	318	448	381	413	543
300	A	—	110	240	—	173	303	457	240	370	457	371	501	457	485	615
	B	457	112	242	457	173	303	457	239	369	457	370	500	457	484	614

5.4.2 Bend with small radius — Shape C 2

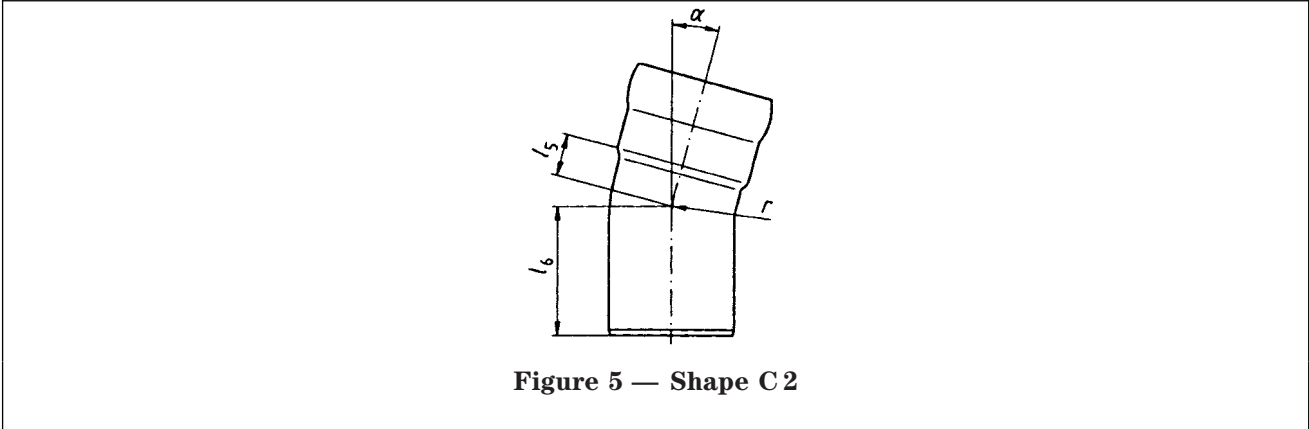


Figure 5 — Shape C 2

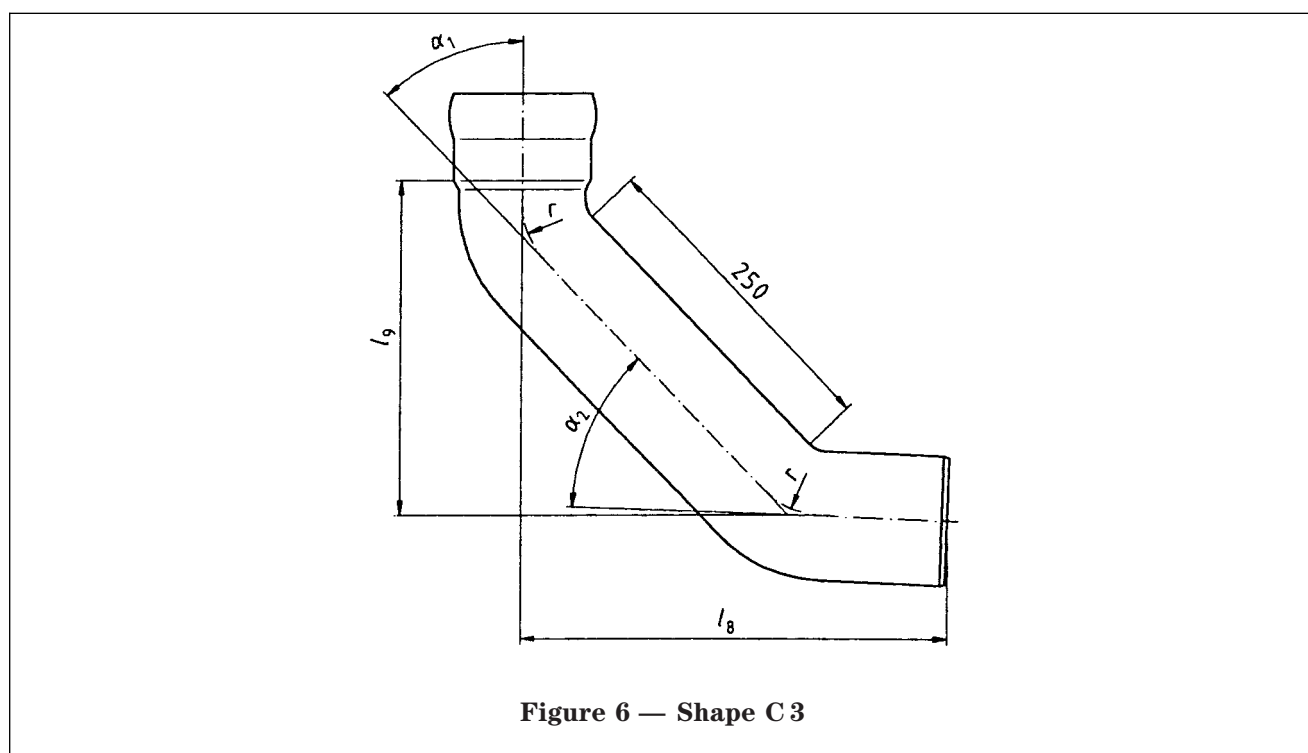
Designation of a bend (C 2) of nominal size DN/ID 125 and $\alpha = 45^\circ$ of type B:
 Bend EN 1123-2 – C 2 – 125 – 45 B

Table 9

Dimensions in millimetres

Nominal size DN/ID	Type	$\alpha = 15^\circ$			$\alpha = 30^\circ$			$\alpha = 45^\circ$			$\alpha = 70^\circ$			$\alpha = 87^\circ$		
		r	l_5	l_6	r	l_5	l_6	r	l_5	l_6	r	l_5	l_6	r	l_5	l_6
40	—	—	—	—	—	—	—	27	19	65	27	26	72	27	33	79
50	—	—	—	—	—	—	—	35,5	24	79	35,5	35	89	35,5	44	98
70	—	—	—	—	—	—	—	50	32	91	50	47,5	105	50	59	117
80	—	—	—	—	82,5	47	107	82,5	59	119	82,5	83	143	82,5	103	163
100	—	70	34	104	70	44	114	70	54	124	70	74	144	70	91	161
125	A	—	37	112	125	54	129	125	72	147	125	108	183	125	139	214
	B	—	35	110	90	47	122	90	58	135	90	84	161	90	107	184
150	A	—	40	120	150	60	140	150	82	162	150	125	205	150	163	243
	B	—	45	125	150	65	145	150	87	167	150	130	210	150	167	247

5.4.3 Bend with stilling section — Shape C 3



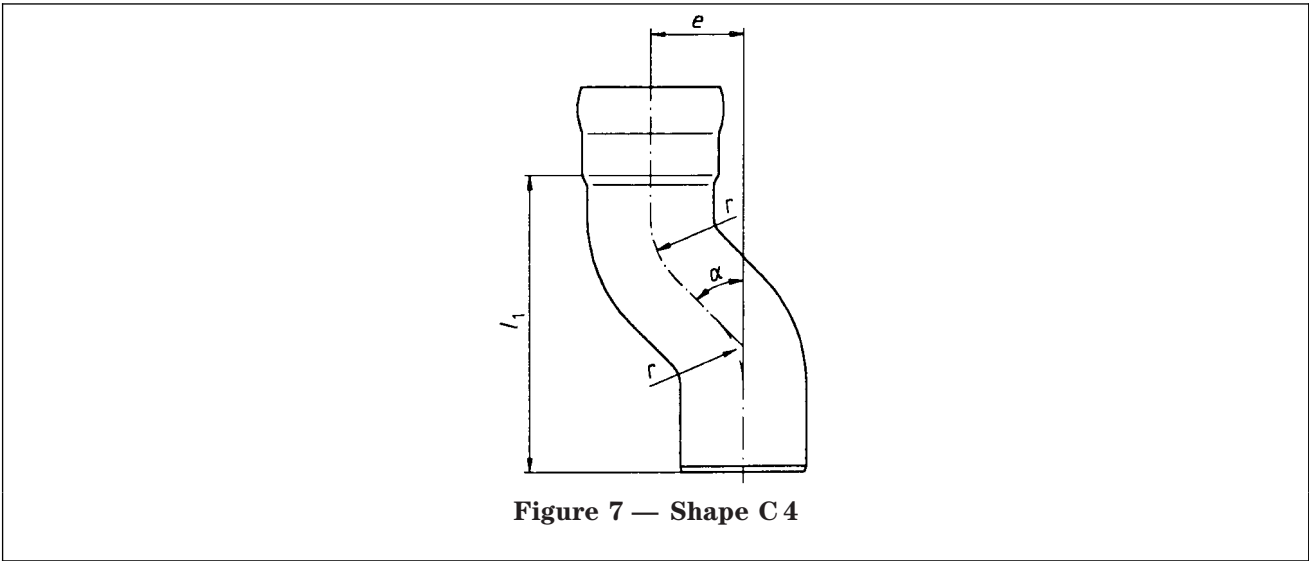
Designation of a bend with stilling section (C 3) of nominal size DN/ID 100 of type A:

Bend EN 1123-2 – C 3 – 100 A

Table 10

Nominal size DN/ID mm	Type	a_1 degrees	a_2 degrees	r mm	l_8 mm	l_9 mm
80	—	44	44	114,5	370	320
100	A			70	331	269
	B			70	335	275
125	A			125	389	323
	B			90	355	290

5.4.4 Offset pipe — Shape C 4



Designation of an offset pipe (C 4) of nominal size DN/ID 100 and an offset dimension $e = 75$ of type A:

Offset pipe EN 1123-2 – C 4 – 100 – 75 A

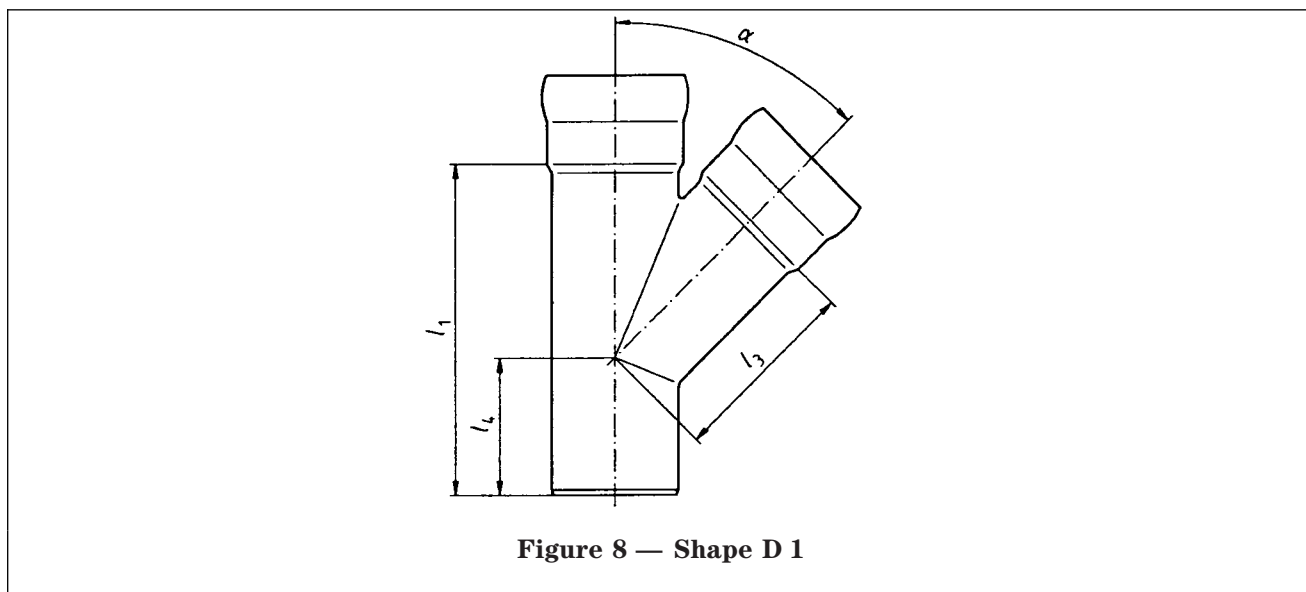
Table 11

Nominal size DN/ID mm	Type	$e = 75$			$e = 130$			$e = 200$		
		r mm	l_1 mm	a degrees	r mm	l_1 mm	a degrees	r mm	l_1 mm	a degrees
70		117,5	300	30 ± 3	117,5	335	$45 \pm 4,5$	117,5	359	60 ± 6
80	A	133,5	351	30 ± 3	133,5	390	$45 \pm 4,5$	133,5	405	60 ± 6
	B	114,5	280	$47,5 \pm 4,5$	114,5	335	$45 \pm 4,5$	114,5	405	$45 \pm 4,5$
100	A	70	245	$45 \pm 4,5$	70	300	$45 \pm 4,5$	70	370	$45 \pm 4,5$
	B	70	250	$47,5 \pm 4,5$	70	300	$47,5 \pm 4,5$	70	370	$47 \pm 4,5$
125	A	125	292	$45 \pm 4,5$	125	348	$45 \pm 4,5$	125	418	$45 \pm 4,5$
	B	90	270	$45 \pm 4,5$	90	325	$45 \pm 4,5$	90	395	$45 \pm 4,5$

5.5 Branches

If required, type (A) or (B) and the additional corrosion protection (P) according to EN 1123-1 shall be added to the designation (see 5.3).

5.5.1 Single branch — Shape D 1



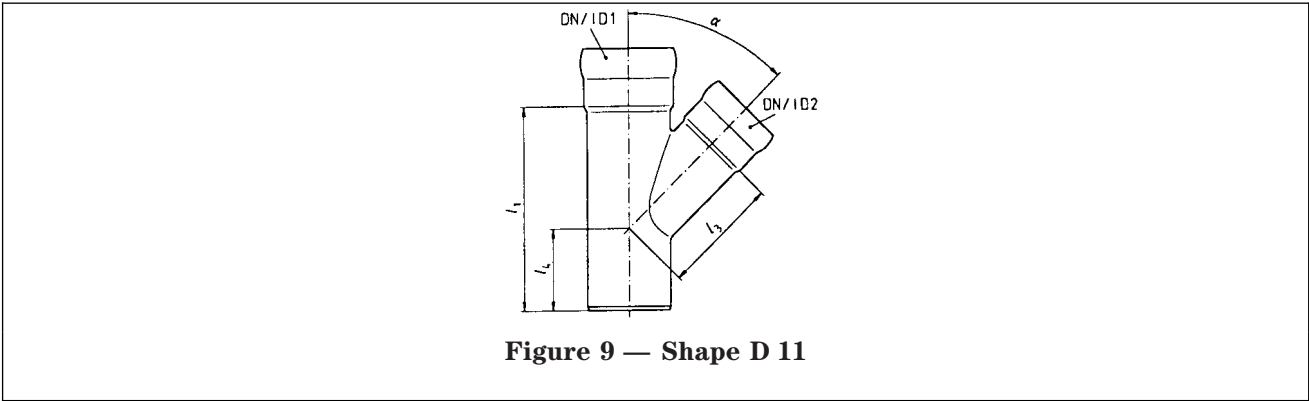
Designation of a branch (D 1) of nominal size DN/ID 100 and $\alpha = 45^\circ$:
Branch EN 1123-2 – D 1 – 100 – 45

Table 12

Dimensions in millimetres

Nominal size DN/ID	Type	$\alpha = 45^\circ$			$\alpha = 70^\circ$			$\alpha = 87^\circ$		
		l_1	l_3	l_4	l_1	l_3	l_4	l_1	l_3	l_4
40	—	125	70	55	110	50	60	110	40	70
50	—	150	90	65	130	60	70	130	50	80
70	—	200	115	85	175	75	95	175	65	110
80	A	235	138	97	205	91	117	205	78	135
	B	235	138	97	200	90	110	200	75	126
100	—	265	155	110	230	110	125	230	90	140
125	—	340	210	130	285	145	150	285	120	170
150	—	380	240	140	320	160	160	320	135	190
200	—	500	320	190	420	210	220	420	170	260
250	—	620	370	230	—	—	—	500	190	310
300	—	690	420	240	—	—	—	550	220	330

5.5.2 Reducing single branch — Shape D 11



Designation of a reducing single branch (D 11) of nominal size DN/ID 1 = 100 and nominal size DN/ID 2 = 50 and $\alpha = 45^\circ$:
 Branch EN 1123-2 – D 11 – 100 – 50 – 45

Table 13

Nominal size		Type	$\alpha = 45^\circ$			$\alpha = 70^\circ$			$\alpha = 87^\circ$		
DN/ID 1	DN/ID 2		l_1	l_3	l_4	l_1	l_3	l_4	l_1	l_3	l_4
50	40	—	130	79	50	120	57	65	120	46	75
70	40	—	150	95	60	140	69	80	140	57	95
	50	—	175	106	75	150	72	85	150	61	100
80	50	A	185	117	72	155	80	83	155	69	103
		B	185	117	72	165	80	94	165	69	109
100	40	—	180	116	65	175	84	100	175	72	115
	50	—	200	127	75	180	87	95	180	76	115
	70	—	230	136	90	200	90	110	200	80	125
	80	A	250	145	100	210	95	115	210	85	135
		B	265	147	110	220	97	120	220	81	135
125	50	—	225	148	75	200	103	105	200	91	125
	70	—	255	157	90	225	106	120	225	95	140
	100	—	290	176	105	255	126	135	255	105	155
150	70	—	255	177	80	225	121	115	225	109	140
	100	—	290	195	95	255	141	130	255	119	155
	125	—	340	230	120	290	160	150	290	134	175
200	100	—	325	240	100	295	174	160	295	150	195
	125	—	380	274	130	325	193	175	325	165	210
	150	—	420	284	150	355	193	190	355	166	225
250	100	—	370	279	110	—	—	—	330	178	220
	125	—	420	313	140	—	—	—	360	193	240
	150	—	450	323	150	—	—	—	390	198	260
	200	—	540	359	190	—	—	—	450	198	280
300	100	—	380	315	90	—	—	—	330	204	220
	125	—	420	349	110	—	—	—	360	219	240
	150	—	480	359	120	—	—	—	390	220	250
	200	—	540	395	170	—	—	—	450	224	280
	250	—	620	406	210	—	—	—	500	216	310

5.5.3 Reducing double branch — Shape D 21

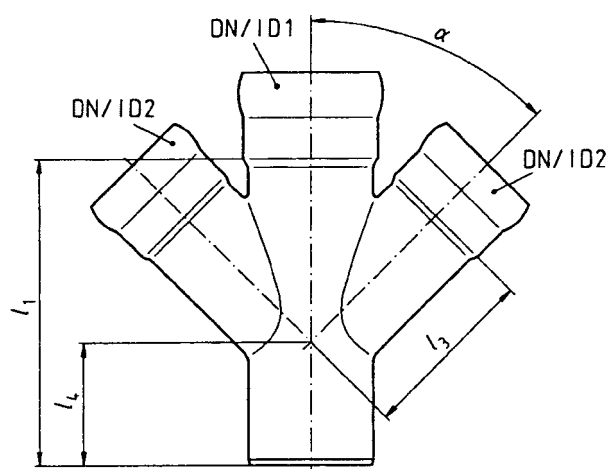


Figure 10 — Shape D 21

Designation of a reducing double branch (D 21) of nominal size DN/ID 1 = 100, nominal size DN/ID 2 = 80 and $\alpha = 45^\circ$ of type B:

Branch EN 1123-2 – D 21 – 100 – 80 – 45 B

Table 14

Dimensions in millimetres

Nominal size		Type	$\alpha = 45^\circ$			$\alpha = 70^\circ$			$\alpha = 87^\circ$		
DN/ID 1	DN/ID 2		l_1	l_3	l_4	l_1	l_3	l_4	l_1	l_3	l_4
70	50	—	175	106	75	150	72	85	150	61	100
80	50	A	185	117	72	155	80	83	155	69	103
		B	185	117	72	165	80	94	165	69	109
100	70	—	230	136	90	200	90	110	200	80	125
	80	A	250	145	100	210	95	115	210	85	135
		B	265	147	110	220	97	120	220	81	135
125	100	—	290	176	105	255	126	135	255	105	155
150	100	—	290	195	95	255	141	130	255	119	155
	125	—	340	230	120	290	160	150	290	134	175
200	125	—	380	274	130	325	193	175	325	165	210
	150	—	420	284	150	355	193	190	355	166	225
250	150	—	450	323	150	—	—	—	390	198	260
	200	—	540	359	190	—	—	—	450	198	280
300	200	—	540	395	170	—	—	—	450	224	280
	250	—	620	406	210	—	—	—	500	216	310