

High density polyethylene (HDPE) pipes
and fittings for drains and sewers
Dimensions

DIN
19 537
Part 1

Rohre und Formstücke aus Polyethylen hoher Dichte (HDPE)
für Abwasserkanäle und -leitungen; Masse

Supersedes July 1979 edition

As it is current practice in standards published by the International Organization for Standardization (ISO), the comma has been used throughout as a decimal marker.

Dimensions in mm

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1 Field of application

This standard applies to extruded high density polyethylene (HDPE) pipes and fittings for drains and sewers which as a general rule are operated as buried free surface flow lines. They are to comply with the requirements specified in DIN 19 537 Part 2. The specifications relating to the pipe dimensions have been selected from DIN 8074 Part 1 and complemented.

Continued on pages 2 to 19

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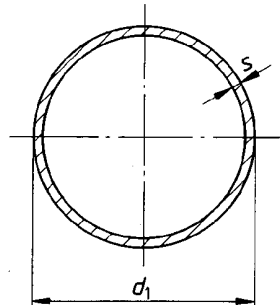
2 Types, dimensions and designation

2.1 Pipes

The pipes shall be manufactured with plain ends.

The outside diameters and wall thicknesses are laid down in table 1. The pipes are supplied in overall lengths (l) of 5, 6 and 12 m, or longer subject to agreement; the permissible deviation, measured at a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, shall be $\pm 2\%$.

Pipes shall be classified according to nominal size, overall length and pipe series.



Designation of a series 4 HDPE pipe of nominal size DN 500 and of overall length $l = 12$ m:

Pipe DIN 19 537 – DN 500 \times 12 – 4

By analogy to DIN 1986 Part 2, two outside diameters are specified for nominal size DN 125 within one series; the present standard also includes two further nominal sizes (DN 200 and DN 250) in respect of which two outside diameters are specified. When ordering such a pipe, the outside diameter d_1 shall be specified in addition.

In such a case, the designation shall read as follows, e.g. for a series 4 HDPE pipe of nominal size DN 125, outside diameter $d_1 = 140$ mm and overall length $l = 6$ m:

Pipe DIN 19 537 – DN 125 – 140 \times 6 – 4

2.2 Fittings

Diameter d_1 including the permissible deviations of fitting spigot ends shall be as specified in table 1.

The wall thickness of the fittings shall correspond at least to the wall thickness of the pipe of the corresponding series over their entire length. The z dimensions shall be regarded as guideline values.

The fittings need not correspond to the illustrations; only the specified dimensions shall be adhered to.

By analogy to DIN 1986 Part 2, two outside diameters are specified for some nominal sizes of series 2 and 3 fittings.

When ordering such fittings, the sizes diameters d_1 shall be specified in addition, and in the case of junctions and of adaptors d_2 shall be specified.

In such a case, the designation shall read as follows, e.g. for a series 2 HDPE (PEGEA) single junction of nominal size DN 1 = 200, $d_1 = 225$ mm and nominal size DN 2 = 125, $d_2 = 140$ mm:

Junction DIN 19 537 – PEGEA 200 \times 225 – 125 \times 140 – 2

2.2.1 Nomenclature of fittings

The following symbols are to be used for fittings:

Fitting

Type A bend, (15°, 30°, 45°, 88,5° 1))

Type B bend, (15°, 30°, 45°, 88,5° 1))

Type C bend, (15°, 30°, 45°, 88,5° 1))

45° single junction

Adaptor

Heater spiral welding socket (electric welding socket)

Socket

Flanged connection

Connector for PVC pipe spigot ends

Connector for cast iron pipe spigot ends

Connector for clayware pipe spigot ends

Connector for clayware pipe sockets

Connector for asbestos cement pipe spigot ends

Connector for asbestos cement pipe sockets

Access pipe

Shaft lining

Symbol

PEGB – A

PEGB – B

PEGB – C

PEGEA

PEGR

PEGME

PEGMS

PEGF

See socket (PEGMS)

PEGUG

PEGUS

PEGUSM

PEGUAS

PEGUASM

PEGRE

PEGSF

1) 88,5° bends may only be used for joining downpipes to the house drain. In the designation thereof, 88 is to be used as the code number.

Table 1. Pipe dimensions

Nominal size DN	Series 2					Series 3					Series 4				
	d_1		Inside diameter LW	s		d_1		Inside diameter LW	s		d_1		Inside diameter LW	s	
	Permissible deviation + ... 0			Permissible deviation + ... 0		Permissible deviation + ... 0			Permissible deviation + ... 0		Permissible deviation + ... 0			Permissible deviation + ... 0	
100	110	1	103	3,5	0,6	110	1	101,4	4,3	0,7	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	125	1,2	110,8	7,1	1,0
125	125	1,2	117,2	3,9	0,6	125	1,2	115,2	4,9	0,7	—	—	—	—	—
	140	1,3	131,2	4,4	0,7	140	1,3	129,2	5,4	0,8	140	1,3	124	8,0	1,0
150	160	1,5	150	5,0	0,7	160	1,5	147,6	6,2	0,9	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	180	1,7	159,6	10,2	1,3
200	200	1,8	187,6	6,2	0,9	—	—	—	—	—	—	—	—	—	—
	225	1,9	211	7,0	0,9	225	1,9	207,6	8,7	1,1	225	1,9	199,4	12,8	1,5
250	250	2,3	234,4	7,8	1,0	—	—	—	—	—	—	—	—	—	—
	280	2,6	262,6	8,7	1,1	280	2,6	258,4	10,8	1,3	280	2,6	248,2	15,9	1,8
300	315	2,9	295,4	9,8	1,2	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	355	3,2	327,6	13,7	1,6	355	3,2	314,8	20,1	2,3
400	450	3,8	422	14,0	1,6	450	3,8	415,2	17,4	2,0	450	3,8	399	25,5	2,8
500	560	4,3	525,2	17,4	2,0	560	4,3	516,8	21,6	2,4	560	4,3	496,6	31,7	3,4
600	630	4,6	590,8	19,6	2,2	630	4,6	581,4	24,3	2,7	630	4,6	558,6	35,7	3,8
700	710	4,9	665,8	22,1	2,5	710	4,9	655,2	27,4	3,0	710	4,9	629,6	40,2	4,3
800	800	5	750,2	24,9	2,7	800	5	738,4	30,8	3,3	800	5	709,4	45,3	4,8
900	900		844,0	28,0	3,0	900		830,6	34,7	3,7	—	—	—	—	—
1000	1000		937,8	31,1	3,4	1000		923,0	38,5	4,1	—	—	—	—	—
1200	1200		1125,4	37,3	4	1200		1107,6	46,2	4,9	—	—	—	—	—

The decision as to which pipe series is to be selected will depend on the result of the stress analysis carried out in accordance with *Arbeitsblatt* (Work Sheet) A 127 of the *Abwassertechnische Vereinigung (ATV) e. V.* (Sewage Engineering Association).

2.2.2 Free length of fitting spigot ends and of pipe joints

The length of fitting spigot ends and of pipe joints shall be designated as follows:

t_e for joints with heater spiral welding sockets (PEGME) (see subclause 2.2.9) or for joints manufactured by means of heated tool butt welding;

t_m for joints with sockets (PEGMS) (see subclause 2.2.10).

Table 2. Length of fitting spigot ends and of pipe joints

Outside diameter d_1	Length t_e 2) min.	Length t_m min.
110	29	58
125	32	64
140	32	69
160	32	73
180	32	79
200	75	85
225	75	105
250	75	110
280	75	116
315	75	124
≥ 355	Special sizes subject to agreement.	

2) The following increment a shall apply to t_2 and t_3 in the case of 45° single junctions in accordance with subclause 2.2.6:

$$a_{DN2} = b_2 - z_2$$

$$a_{DN1} = b_3 - z_3$$

$$b_2 = \frac{\frac{d_{3DN1}}{2}}{\cos \alpha} + \frac{d_{3DN2}}{2} \cdot \tan \alpha$$

$$b_3 = \frac{\frac{d_{3DN2}}{2}}{\cos \alpha} + \frac{\frac{d_{3DN1}}{2}}{2} \cdot \tan \alpha$$

For d_3 see table 8.
The subscripts DN 1 and DN 2 respectively apply to the reference nominal size of the single junction.

The spigot lengths are designated t_1, t_2, t_3 etc. in the illustrations on the following pages. Either t_e or t_m shall be inserted for these values, depending on whether a heater spiral welding socket, a heated tool butt weld or a socket is concerned.

Dimension $t_{m \min}$ can be calculated from the following equation:

$$t_{m \min} = u_{\min} + c_{\max}$$

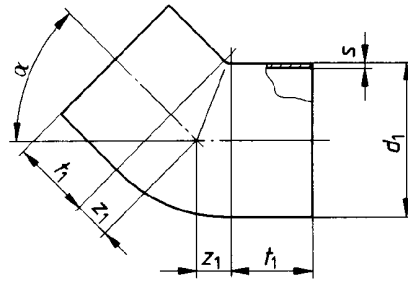
where the following values in accordance with table 9 are to be inserted for u_{\min} and c_{\max} :

for u_{\min} the values for pipe lengths of 2 m;

for c_{\max} up to $d_1 = 200$ mm, the values in accordance with type A;

for c_{\max} from $d_1 = 225$ mm the values in accordance with type B.

2.2.3 Type A bends



Designation of a series 2 type A HDPE (PEGB – A) bend, of nominal size DN 100 and with $\alpha = 45^\circ$:
 Bend DIN 19537 – PEGB – A 100 – 45 – 2

Table 3. z dimensions³⁾ for type A bends

Nominal size DN	Outside diameter			$\alpha = 15^\circ$	$\alpha = 30^\circ$	$\alpha = 45^\circ$	$\alpha = 88,5^\circ$ ¹⁾
	Series 2 d_1	Series 3 d_1	Series 4 d_1	z_1 ≈	z_1 ≈	z_1 ≈	z_1 ≈
100 100	110 –	110 –	– 125	8 9	17 19	26 29	60 66
125 125	125 140	125 140	– 140	9 10	19 21	29 33	68 77
150 150	160 –	160 –	– 180	12 14	24 28	37 42	88 99
200 200	200 225	– 225	– 225	15 17	30 34	47 52	109 123
250 250	250 280	– 280	– 280	19 21	38 42	58 65	– –
300 300	315 –	– 355	– 355	23 27	47 54	73 83	– –
≥ 400	Special sizes subject to agreement.						

For spigot length t_1 , see length t_e or t_m in table 2.

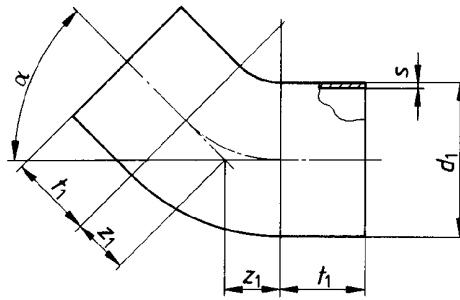
¹⁾ See page 2.

³⁾ Dimensions z_1 have been calculated in accordance with the following formula:

$$z_1 = \left(2s + \frac{d_1}{2} \right) \cdot \tan \frac{\alpha}{2}$$

Values have been rounded to the nearest full millimetre. s is the wall thickness of series 2 pipes.

2.2.4 Type B bends



Designation of a series 2 type B HDPE (PEGB – B) bend, of nominal size DN 100 and with $\alpha = 88,5^\circ$:
 Bend DIN 19 537 – PEGB – B 100 – 88 – 2

Table 4. z dimensions⁴⁾ for type B bends

Nominal size DN	Outside diameter			$\alpha = 15^\circ$	$\alpha = 30^\circ$	$\alpha = 45^\circ$	$\alpha = 88,5^\circ$ ¹⁾
	Series 2 d_1	Series 3 d_1	Series 4 d_1	z_1 ≈	z_1 ≈	z_1 ≈	z_1 ≈
100	110	110	–	14	29	46	107
100	–	–	125	16	33	52	122
125	125	125	–	16	33	52	122
125	140	140	140	18	38	60	136
150	160	160	–	21	43	66	156
150	–	–	180	24	49	75	176
200	200	–	–	26	54	83	195
200	225	225	225	30	60	93	219
250	250	–	–	33	67	104	–
250	280	280	280	37	75	116	–
300	315	–	–	41	84	130	–
300	–	355	355	47	96	148	–
≥ 400	Special sizes subject to agreement.						

For spigot length t_1 , see length t_e or t_m in table 2.
 Dimension t can however be made smaller than the dimension specified in table 2 if the manufacturer prescribes an appropriate welding jig.

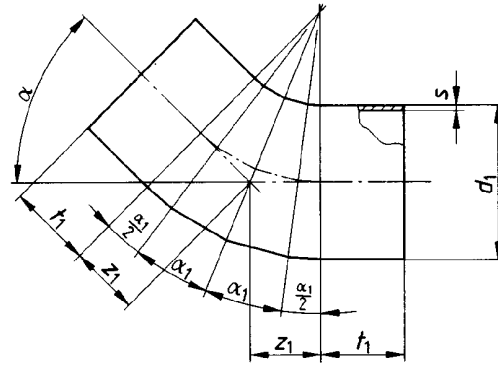
1) See page 2.

4) Dimensions z_1 have been calculated in accordance with the following formula:

$$z_1 = d_1 \cdot \tan \frac{\alpha}{2}$$

The values have been rounded to the nearest full millimetre.

2.2.5 Type C bends



$\alpha_1 \leq 15^\circ$

Designation of a series 2 type C HDPE (PEGB – C) bend, of nominal size DN 100 and with $\alpha = 45^\circ$:

Bend DIN 19 537 – PEGB – C 100 – 45 – 2

Table 5. z dimensions⁵⁾ for type C bends (segmental type)

Nominal size DN	Outside diameter			$\alpha = 15^\circ$	$\alpha = 30^\circ$	$\alpha = 45^\circ$	$\alpha = 88,5^\circ$ ¹⁾
	Series 2 d_1	Series 3 d_1	Series 4 d_1	$z_1 \approx$	$z_1 \approx$	$z_1 \approx$	$z_1 \approx$
200	200	—	—	39	80	124	292
200	225	225	225	44	90	140	329
250	250	—	—	49	100	155	—
250	280	280	280	55	113	174	—
300	315	—	—	62	127	196	—
300	—	355	355	71	143	221	—
≥ 400	Special sizes subject to agreement.						

For spigot length t_1 , see length t_e or t_m in table 2.

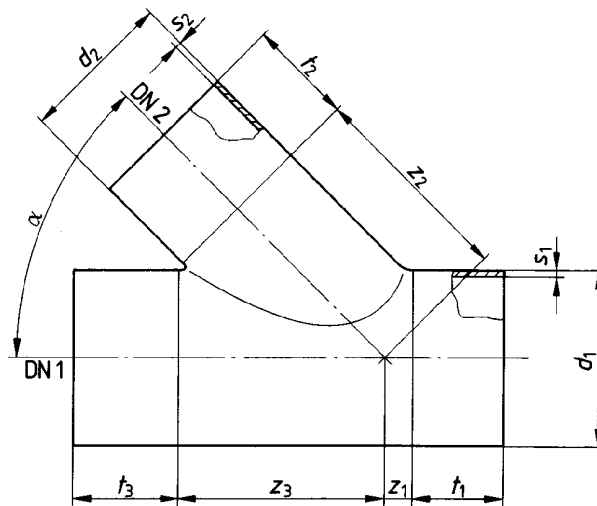
¹⁾ See page 2.

⁵⁾ Dimensions z_1 have been calculated in accordance with the following formula:

$$z_1 = \frac{3}{2} d_1 \cdot \tan \frac{\alpha}{2}$$

The values have been rounded to the nearest full millimetre.

2.2.6 45° single junctions 2)



Designation of a series 2 45° HDPE (PEGEA) single junction of nominal size DN 1 = 125 ($d_1 = 125$ mm) and nominal size DN 2 = 100:

Junction DIN 19 537 – PEGEA 125 × 125 – 2 – 100 – 2

Table 6. z dimensions 6) for junctions

Nominal size DN 1	Outside diameter			Nominal size DN 2	Outside diameter			$\alpha = 45^\circ$		
	Series 2 d_1	Series 3 d_1	Series 4 d_1		Series 2 d_2	Series 3 d_2	Series 4 d_2	z_1 \approx	z_2 \approx	z_3 \approx
100	110	110	—	100	110	110	—	26	137	137
100	—	—	125	100	—	—	125	29	156	156
125	125	125	—	100	110	110	—	19	148	145
125	140	140	—	100	110	110	—	13	159	153
125	—	—	140	100	—	—	125	23	167	164
125	125	125	—	125	125	125	—	29	156	156
125	140	140	140	125	140	140	140	33	174	174
150	160	160	—	100	110	110	—	5	174	164
150	—	—	180	100	—	—	125	5	197	185
150	160	160	—	125	125	125	—	14	182	174
150	160	160	—	125	140	140	—	24	189	185
150	—	—	180	125	—	—	140	15	204	196
150	160	160	—	150	160	160	—	37	199	199
150	—	—	180	150	—	—	180	42	224	224
200	200	—	—	100	110	—	—	-13	204	185
200	225	225	—	100	110	110	—	-24	223	199
200	—	—	225	100	—	—	125	-14	230	209
200	200	—	—	125	125	—	—	-3	211	196
200	200	—	—	125	140	—	—	7	219	206
200	225	225	—	125	125	125	—	-14	230	209
200	225	225	225	125	140	140	140	-4	238	220
200	200	—	—	150	160	—	—	20	229	221
200	225	225	—	150	160	160	—	9	248	234
200	—	—	225	150	—	—	180	23	258	248

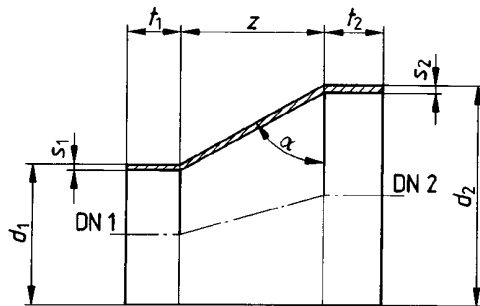
6) See page 9.

2) See page 4.

Table 6. (continued)

Nominal size DN 1	Outside diameter			Nominal size DN 2	Outside diameter			$\alpha = 45^\circ$		
	Series 2 d_1	Series 3 d_1	Series 4 d_1		Series 2 d_2	Series 3 d_2	Series 4 d_2	z_1 \approx	z_2 \approx	z_3 \approx
250	250	—	—	100	110	—	—	—35	241	212
250	280	280	—	100	110	110	—	—48	263	228
250	—	—	280	100	—	—	125	—38	271	239
250	250	—	—	125	125	—	—	—25	249	223
250	250	—	—	125	140	—	—	—15	255	233
250	280	280	—	125	125	125	—	—38	271	239
250	280	280	280	125	140	140	140	—28	278	250
250	250	—	—	150	160	—	—	—1	266	248
250	280	280	—	150	160	160	—	—14	288	264
250	—	—	280	150	—	—	180	—1	298	278
250	250	—	—	200	200	—	—	25	286	276
250	280	280	280	200	225	225	225	29	321	310
250	250	—	—	250	250	—	—	58	311	311
250	280	280	280	250	280	280	280	65	348	348
300	315	—	—	100	110	—	—	—63	290	247
300	—	355	—	100	—	110	—	—80	319	269
300	—	—	355	100	—	—	125	—70	327	279
300	315	—	—	125	125	—	—	—53	297	258
300	315	—	—	125	140	—	—	—43	305	268
300	—	355	—	125	—	125	—	—70	327	279
300	—	355	355	125	—	140	140	—60	334	290
300	315	—	—	150	160	—	—	—29	315	282
300	—	355	—	150	—	160	—	—47	344	304
300	—	—	355	150	—	—	180	—33	354	318
300	315	—	—	200	200	—	—	—3	335	311
300	315	—	—	200	225	—	—	14	347	328
300	—	355	355	200	—	225	225	—3	377	350
300	315	—	—	250	250	—	—	30	360	346
300	315	—	—	250	280	—	—	50	375	367
300	—	355	355	250	—	280	280	33	404	389
300	315	—	—	300	315	—	—	73	392	392
300	—	355	355	300	—	355	355	85	445	445
≥ 400	Special sizes subject to agreement.									
For spigot lengths t_1 , t_2 and t_8 , see length t_e or t_m in table 2.										
6) Dimensions z_1 , z_2 and z_3 have been calculated in accordance with the following formulae:										
$z_1 = \frac{d_2 - 2 s_2}{2 \cdot \sin \alpha} - \frac{d_1 - 2 s_1}{2 \tan \alpha} + 3 s_1 \cdot \tan \frac{\alpha}{2}$										
$z_2 = \frac{d_2 - 2 s_2}{2 \cdot \tan \alpha} + \frac{d_2 - 2 s_1}{2 \sin \alpha} + \frac{3 s_1}{2 \tan \frac{\alpha}{2}} - \frac{s_1 - s_2}{\tan \alpha}$										
$z_3 = \frac{d_2 - 2 s_2}{2 \sin \alpha} + \frac{d_1 - 2 s_1}{2 \tan \alpha} + \frac{3 s_1}{2 \tan \frac{\alpha}{2}} - \frac{s_1 - s_2}{\sin \alpha}$										
The values have been rounded to the nearest full millimetre.										

2.2.7 Adaptors



Designation of a series 2 HDPE (PEGR) adaptor with a transition from nominal size $DN\ 1 = 200$ ($d_1 = 200\text{ mm}$) to nominal size $DN\ 2 = 300$: Adaptor DIN 19 537 – PEGR 200 × 200 – 300 – 2

Table 7. z dimensions 7) for adaptors

Nominal size DN 1	Outside diameter			Nominal size DN 2	Outside diameter			$\alpha = 60^\circ$ z \approx
	Series 2 d_1	Series 3 d_1	Series 4 d_1		Series 2 d_2	Series 3 d_2	Series 4 d_2	
100	110	110	—	125	125	125	—	30
100	110	110	—	125	140	140	—	56
100	—	—	125	125	—	—	140	31
100	110	110	—	150	160	160	—	90
100	—	—	125	150	—	—	180	99
100	110	—	—	200	200	—	—	158
100	110	110	—	200	225	225	—	201
100	—	—	125	200	—	—	225	176
100	110	—	—	250	250	—	—	243
100	110	110	—	250	280	280	—	294
100	—	—	125	250	—	—	280	269
100	110	—	—	300	315	—	—	354
100	—	110	—	300	—	355	—	422
100	—	—	125	300	—	—	355	397
125	125	125	—	160	160	160	—	65
125	140	140	—	160	160	160	—	40
125	—	—	140	160	—	—	180	74
125	125	—	—	200	200	—	—	133
125	140	—	—	200	200	—	—	108
125	125	125	—	200	225	225	—	176
125	140	140	140	200	225	225	225	151
125	125	—	—	250	250	—	—	218
125	140	—	—	250	250	—	—	193
125	125	125	—	250	280	280	—	269
125	140	140	140	250	280	280	280	244
125	125	—	—	300	315	—	—	329
125	140	—	—	300	315	—	—	304
125	—	125	—	300	—	355	—	397
125	—	140	140	300	—	355	355	372
150	160	—	—	200	200	—	—	75
150	160	160	—	200	225	225	—	117
150	—	—	180	200	—	—	225	84
150	160	—	—	250	250	—	—	160
150	160	160	—	250	280	280	—	211
150	—	—	180	250	—	—	280	178
150	160	—	—	300	315	—	—	271
150	—	160	—	300	—	355	—	339
150	—	—	180	300	—	—	335	306

7) See page 11.

Table 7. (continued)

Nominal size DN 1	Outside diameter			Nominal size DN 2	Outside diameter			$\alpha = 60^\circ$ z \approx
	Series 2 d_1	Series 3 d_1	Series 4 d_1		Series 2 d_2	Series 3 d_2	Series 4 d_2	
200 200	200 225	— 225	— 225	250 250	250 280	— 280	— 280	93 109
200 200	200 —	— 225	— 225	300 300	315 —	— 355	— 355	205 230
250 250	250 —	— 280	— 280	300 300	315 —	— 355	— 355	121 139

For DN 1 from 300 and DN 2 from 400, subject to agreement.

For subject to lengths t_1 and t_2 , see length t_e or t_m in table 2.

7) Dimension z have been calculated in accordance with the following formula:

$$z = [(d_2 - s_2) - (d_1 - s_1)] \cdot \tan \alpha + 3 s_2 \cdot \tan \frac{\alpha}{4} + 2 s_1 \cdot \tan \frac{\alpha}{4}$$

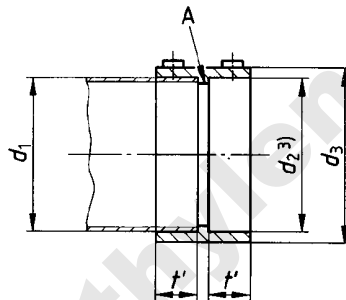
The values have been rounded to the nearest full millimetre.

2.2.8 Heated tool butt welded joint

Note. Heated tool butt welded joints shall be manufactured in accordance with *DVS-Merkblatt* (Instruction sheet) 2207.

2.2.9 Heater spiral welding socket (electric welding socket)

The inner stop (shoulder) A is not mandatory; if heater spiral welding socket (nomenclature used in the standard designation: HW welding socket) are provided with an inner stop, this stop shall be designed in such a way that it can be easily removed in case of necessity.



Designation of a heater spiral welding socket (PEGME) of nominal size DN 100:

HW welding socket DIN 19 537 – PEGME 100

Table 8. Dimensions of heater spiral welding sockets

Nominal size DN	Outside diameter of pipe d_1	Insertion depth t' max. 8)	Outside diameter d_3 max. 9)
100	110	29	125
125	125	32	142
125	140	32	156
150	160	32	180
150	180	32	180
200	200	75	230
200	225	75	230
250	250	75	285
250	280	75	285
300	315	75	350
≥ 400	Special sizes subject to agreement.		

8) The inside diameter d_2 and the permissible deviations shall be selected by the manufacturer in such a way that the connection of the socket to the pipes and fittings designated by the manufacturer can be accomplished flawlessly and effortlessly.

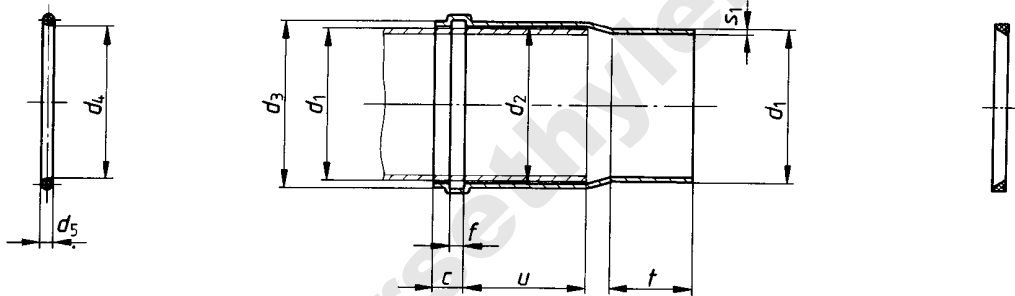
9) If dimension d_3 has to be exceeded for strength reasons, then suitable design modifications are to be made (chamfering of the outside diameters) to ensure that the insertion depth t'_{max} of the heater spiral welding sockets and the spigot lengths t'_{min} of the fittings (see subclause 2.2.2) are adhered to.

The welding jig prescribed by the manufacturer shall be used for making heater spiral welding socket joints.

2.2.10 Sockets

Floating ring seal for type A sockets,
only suitable for outside diameters
 d_1 not exceeding 200.

Special design seal for
type B sockets



Type A socket: with floating sealing ring in accordance with DIN 4060 Part 1 10).

Type B socket: with special design 11) built-in seal.

Designation of a series 2 type A HDPE (PEGMS) socket, of nominal size DN 100, for pipe lengths up to 6 m:

Socket DIN 19 537 – PEGMS – A 100 × 6 – 2

10) Sealing rings for type A sockets with dimensions suitable for outside diameters d_1 above 200 mm are not available.

11) In the case of built-in seals, or of special design seals supplied by the manufacturer together with the socket, the dimensions d_3 and f shall be specified by the manufacturer.

Table 9. Dimensions 12) of sockets

Nominal size DN	Outside diameter d_1	Inside diameter d_2 <small>(Per. dev. *) +0 0</small>	Length behind the groove to accommodate a pipe of the following lengths:						Type A socket				Type B 14) socket			
			2 m u min.	5 m u min.	6 m u min.	10 m u min.	12 m u min.	Inside diameter of groove d_3 <small>(Per. dev. *) +0 0</small>	Width of groove f <small>(Per. dev. *) +0 0</small>	c max.	Inside diameter d_4 <small>(Per. dev. *) +0 0</small>	Ring cord diameter 13) d_5 <small>(Per. dev. *) +0 0</small>	c max.			
100	110	111,1 0,5	36	71	83	131	155	120,6 +0,7 -0,3	9,1	2	22	109	1,4	7	0,4	40
100	125	126,3 0,5	38	73	85	133	157	137,5 +0,7 -0,4	10,4	2,2	26	124	1,6	8	0,4	42
125	125	126,3 0,5	38	73	85	133	157	137,5 +0,7 -0,4	10,4	2,2	26	124	1,6	8	0,4	42
125	140	141,1 0,5	39	74	86	134	158	152,5 +0,7 -0,4	10,4	2,2	30	139	1,6	8	0,4	45
150	160	161,6 0,5	41	76	88	136	160	174,3 +0,7 -0,5	11,7	2,4	32	159	1,6	9	0,4	48
150	180	181,8 0,5	43	78	90	138	162	196,2 +0,7 -0,6	13,0	2,8	36	179	1,8	10	0,5	51
200	200	202,2 0,5	45	80	92	140	164	216,2 +0,8 -0,6	13,0	2,8	40	199	2	10	0,5	53
200	225	227,3 1,2	48	83	95	143	167									57
250	250	252,5 1,2	50	85	97	145	169									60
250	280	282,8 1,2	53	68	100	148	172									63
300	315	318,2 1,3	57	92	104	152	176									67
300	355	358,6 1,3	59	96	108	156	180									71
≥ 400	Special sizes subject to agreement.															

12) Dimensions d_2 , u and c have been calculated in accordance with the following formulae:

$d_2 = 1,01 \cdot d_1 \cdot u_{\min} = 0,012 \cdot l + 0,1 \cdot d_1$ where l is the length of the pipe to be inserted, in millimetres. The factor 0,012 is designed to take into consideration a heat difference in the pipe wall of 60 °C and a linear thermal expansion coefficient of $2 \cdot 10^{-4}$.

For type B sockets, the following formula applies: $c_{\max} = 3,75 \sqrt{d_1}$.

For type A sockets, we have, as specified in document ISO/TC 138/WG1 N 501 "Pipes and fittings of polyethylene (PE 50) for underground drainage and sewerage; specification": $c_{\max} = 0,2 \cdot d_1$, 18 mm at least.

13) In accordance with DIN 19 534 Part 1.

14) Built-in seals may vary in shape and dimensions.

*) See table 1.

2.2.11 Flanged joints

The dimensions of the individual components are based on the specifications of DIN 16 963 Part 4*).

Designation of a series 2 flanged joint for HDPE (PEGF) drains or sewers, of nominal size 100:

Flanged joint DIN 19 537 – PEGF 100 – 2

2.2.12 Connectors for joining pipes made of different materials

2.2.12.1 Connectors for joining PVC pipe spigot ends to HDPE pipes

Sockets in accordance with subclause 2.2.10, with dimensions for a 2 m pipe length, shall be used for joining PVC pipes.

2.2.12.2 Connector for joining cast iron pipe spigot ends to series 2 HDPE pipes

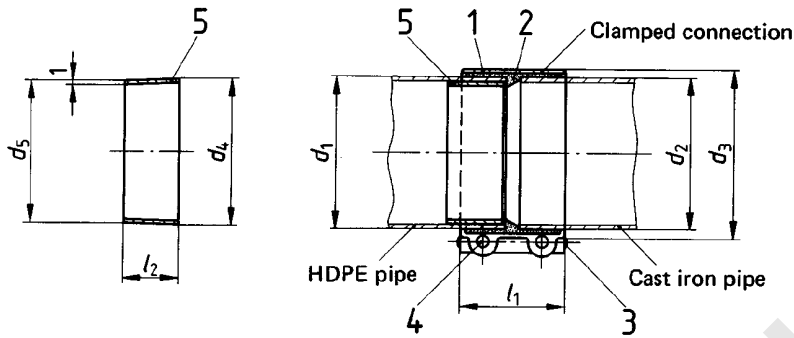


Table 10. Individual components

Item number (see illustration)	Item	Material
1	Coupling sleeve	CrNi 18/8
2	Gasket	Elastomer
3	Bolt	Cadmium plated steel
4	Hexagon socket head cap screw	Cadmium plated steel
5	Supporting ring	CrNi 18/8

Designation of a series 2 connector for joining cast iron pipe spigot ends to HDPE pipes (PEGUG), of nominal size DN 100:

Connector DIN 19 537 – PEGUG 100 – 2

Table 11. Dimensions of (PEGUG) connectors

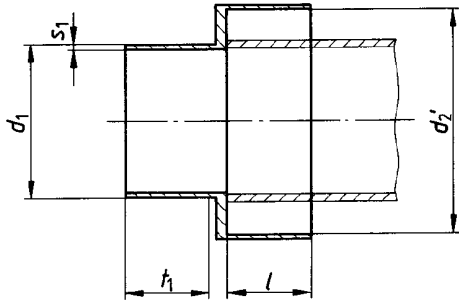
Nominal size DN	Outside diameter			Coupling		Supporting ring (for series 2 pipes)		
	HDPE pipe d_1	Cast iron pipe d_2 ¹⁵⁾	Per. dev.	Outside diameter d_3	Length l_1	Outside diameter d_4	d_5	Length l_2
100	110	110	± 2 -1	120	75	104	102	40
100	125	110	± 2 -1	145	90	118,2	116,2	40
125	125	135	± 2	145	90	118,2	116,2	40
125	140	135	± 2	152	90	130,2	128,2	40
150	150	160	± 2	175	90	151	149	40
200	200	210	± 2	225	90	188,6	186,6	40

¹⁵⁾ In accordance with DIN 19 500.

Sealant as recommended by the pipe manufacturer.

*) At present of the stage of draft.

2.2.12.3 Connectors for joining clayware pipe spigot ends to HDPE pipes



Designation of a series 2 connector (PEGUS) for joining clayware pipe spigot ends to HDPE pipes, of nominal size DN 100:

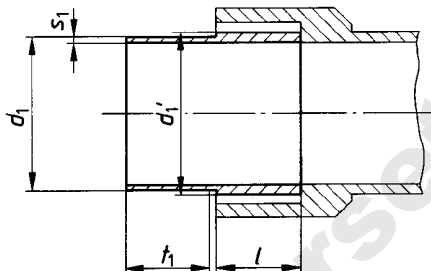
Connector DIN 19 537 – PEGUS 100 – 2

Table 12. Dimensions of PEGUS connectors

Nominal size DN	Outside diameter d_1	Inside diameter d_2'	Socket depth l min.
100 100	110 125	159 159	62 62
125 125	125 140	187 187	62 62
150 150	160 180	218 218	70 70
200 200	200 225	278 278	75 75

Sealant as recommended by the pipe manufacturer.

2.2.12.4 Connectors for joining HDPE pipes to clayware pipe sockets



Designation of a series 2 connector (PEGUSM) for joining HDPE pipes to clayware pipe sockets, of nominal size DN 100:

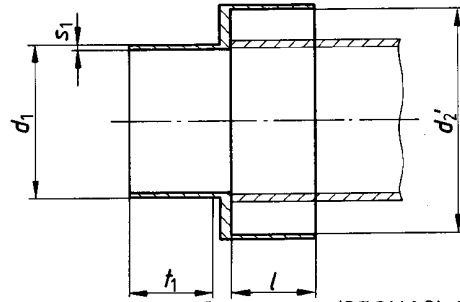
Connector DIN 19 537 – PEGUSM 100 – 2

Table 13. Dimensions of PEGUSM connectors

Nominal size DN	Outside diameter d_1	Outside diameter d_1'	Spigot end to be inserted l min.
100 100	110 125	131 131	62 62
125 125	125 140	159 159	62 62
150 150	160 180	186 186	70 70
200 200	200 225	242 242	75 75

Sealant as recommended by the pipe manufacturer.

2.2.12.5 Connectors for joining the spigot ends of asbestos cement pipes (AZ) to HDPE pipes



Designation of a series 2 connector (PEGUAS) for joining the spigot ends of AZ pipes to HDPE pipes, of nominal size DN 100:

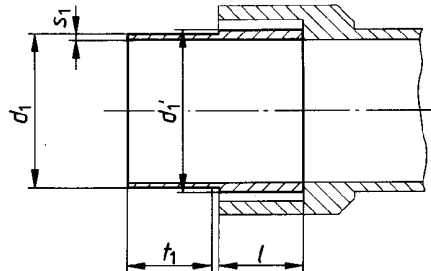
Connector DIN 19 537 – PEGUAS 100 – 2

Table 14. Dimensions of PEGUAS connectors

Nominal size DN	Outside diameter d_1	Inside diameter d_2'	Socket depth l min.
100 100	110 125	130 130	61 61
125 125	125 140	157 157	61 61
160 160	160 180	184 184	66 66
200 200	200 225	242 242	71 71

Sealant as recommended by the pipe manufacturer.

2.2.12.6 Connectors for joining the spigot ends of HDPE pipes to asbestos cement pipe sockets



Designation of a series 2 connector (PEGUASM) for joining HDPE pipes to AZ pipe sockets, of nominal size DN 100:

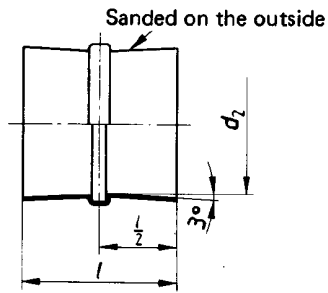
Connector DIN 19 537 – PEGUASM 100 – 2

Table 15. Dimensions of PEGUASM connectors

Nominal size DN	Outside diameter d_1	Outside diameter d_1'	Spigot end to be inserted l min.
100 100	110 125	116 116	61 61
125 125	125 140	141 141	61 61
160 160	160 180	168 168	66 66
200 200	200 225	220 220	71 71

Sealant as recommended by the pipe manufacturer.

2.2.13 Shaft linings



Length of shaft lining $l = 300$ mm

Table 16. Dimensions of shaft linings

Nominal size DN	Outside diameter of pipe d_1	Inside diameter of shaft lining d_2
100	110	120
125	125	135
125	140	150
150	160	170
150	180	190
200	200	210
200	225	235
250	250	260
250	280	290
300	315	325
300	355	365
≥ 400	Special features (e.g., tensionproof attachment to the wall) subject to agreement.	

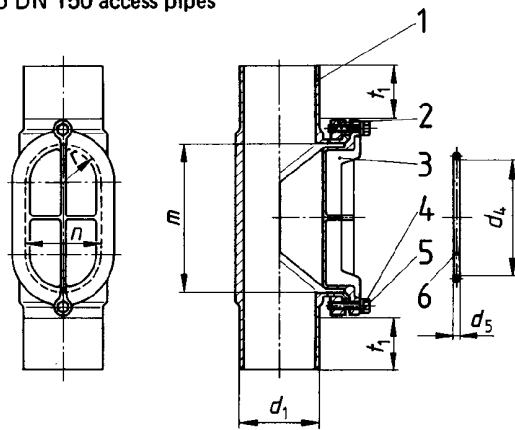
Designation of a series 3 shaft lining (PEGSF) for joining to or for the through passage of an HDPE pipe, of nominal size DN 150:

Shaft lining DIN 19 537 – PEGSF 150 – 3

www.parsethylene-kish.com

2.2.14 Access pipes

2.2.14.1 DN 100 to DN 150 access pipes



Nomenclature:

- 1 Access pipe
- 2 Supporting ring ¹⁶⁾
- 3 Cover ¹⁶⁾
- 4 Hexagon screw DIN 558 – M 10 X 40
- 5 Washer DIN 125 – A 10,5 St
- 6 Sealing ring

The edge of the aperture may be fully radiused:

$$r_{\max} = n/2$$

Designation of a complete series 3 HDPE access pipe with seal (PEGRE), of nominal size DN 100:

Access pipe DIN 19 537 – PEGRE 100 – 3

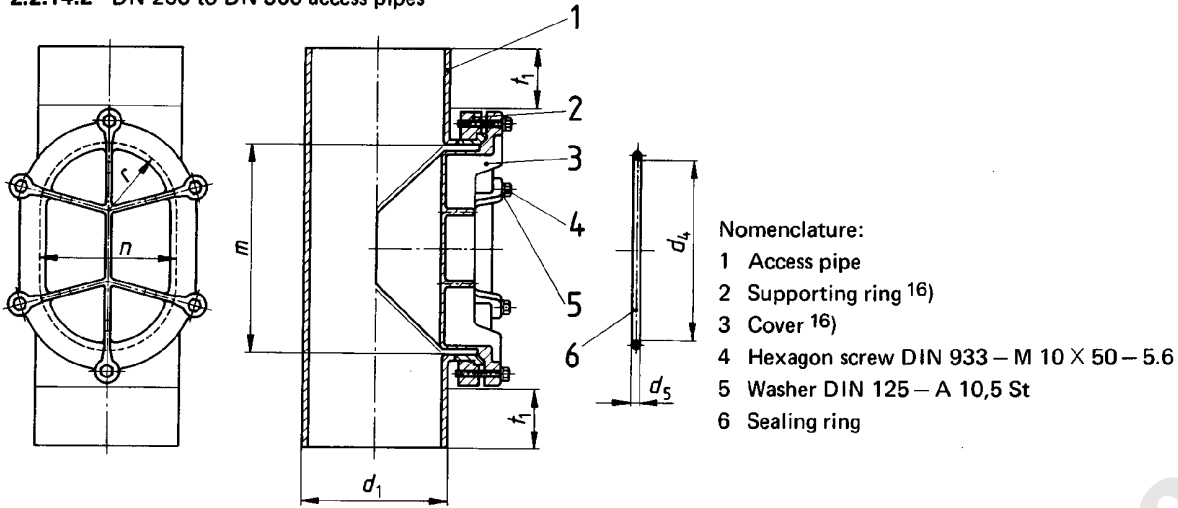
Table 17. Dimensions DN 100 to DN 150 access pipes ¹⁴⁾

Nominal size DN	Outside diameter d_1	Length of aperture m $+2$ 0	Width of aperture n $+2$ 0	Elastomeric sealing ring in accordance with DIN 4060 Part 1	
				Inside diameter d_4 $+2$ 0	Ring cord diameter d_5 $0,4$ 0
100	110	201	101	156	7,8
100	125	201	101	156	7,8
125	125	201	101	156	7,8
125	140	201	101	156	7,8
150	160	201	101	156	7,8
150	180	201	101	156	7,8

See table 2 for spigot length t_1 .
¹⁴⁾ See page 13.

¹⁶⁾ Material: GG-20 in accordance with DIN 1691, coated with bitumen.

2.2.14.2 DN 200 to DN 300 access pipes



The edge of the aperture may be fully radiused:

$$r_{\max} = n/2$$

Designation of a complete series 2 HDPE access pipe with seal (PEGRE), of nominal size DN 200:

Cleaning pipe DIN 19 537 – PEGRE 200 – 2

Table 18. Dimensions of DN 200 to DN 300 size pipes 14)

Nominal size DN	Outside diameter d_1	Length of aperture m $+2$ 0	Width of aperture n $+2$ 0	Elastomeric sealing ring in accordance with DIN 4060 Part 1	
				Inside diameter d_4 $+5$ 0	Ring cord diameter d_5 $+0,8$ 0
200	200	285	185	229	11,6
200	225	285	185	229	11,6
250	250	285	185	229	11,6
250	280	285	185	229	11,6
300	315	285	185	229	11,6
300	355	285	185	229	11,6
≥ 400	Spezial sizes subject to agreement.				

See table 2 for spigot length t_1 .
 14) See page 13.

16) See page 16.

Standards referred to and other documents

DIN 125	Washers; medium (previously bright) type, primarily for hexagon bolts and nuts
DIN 558	Hexagon screws; thread approximately to head, metric thread, type g
DIN 933	Hexagon screws; thread approximately to head, metric thread, designs m and mg
DIN 1691	Cast iron with lamellar graphite (grey cast iron)
DIN 1986 Part 2	Drainage and sewerage systems for buildings and plots of land; specifications for the determination of the internal diameters and nominal sizes of pipelines
DIN 4060 Part 1	Elastomer sealing rings for pipe joints in drains and sewers; circular and similar effective cross sections; requirements, tests, dimensioning
DIN 4263	Channels and pipelines in hydraulic engineering; shapes, dimensions and geometric values of closed cross sections
DIN 8074 Part 1	Unplasticized polyethylene (PE) pipes; type 1; dimensions
DIN 19 500	Cast iron waste soil pipes with socket (GA); socket dimensions, pipe diameters, wall thicknesses
DIN 19 534 Part 1	Unplasticized polyvinyl chloride (PVC) pipes and fittings with socket for drains and sewers; dimensions
DIN 19 537 Part 2	High density polyethylene rigid (PE) pipes and fittings for drains and sewers; technical delivery conditions
ISO/TC 138/WG 1 N 501	
DVS-Merkblatt 2207	<i>Schweißen von thermoplastischen Werkstoffen aus PE hart (Polyethylen hart); Rohre und Rohrleitungsteile für Gas- und Wasserleitungen</i> (Welding of thermoplastic materials of rigid polyethylene; pipes and fittings for gas and water mains)
A 127	(at present at the stage of draft) <i>Richtlinie für die statische Berechnung von Entwässerungskanälen und -leitungen</i> (Code of practice relating to the stress analysis of drains and sewers) published by the <i>Abwassertechnische Vereinigung e. V.</i> (Sewage Engineering Association), Bonn

Previous editions

DIN 19 537 Part 1: 07.79

Amendments

The following amendments have been made as compared with the July 1979 edition:

- a) The fittings previously not included in the standard have now been included.
- b) The standard has been revised editorially.

Explanatory notes

The manufacturer's laying instructions and guidelines must be followed in cases where connections are made at a subsequent date without the fitting of junctions. The values in the tables correspond to the z dimensions of draft International Standard ISO/DIS 265/1.

International Patent Classification

B 29 D 23-00
E 03 E 3-04