



Steinzeug | Keramo

RANGE OF PRODUCTS

02 - 2008



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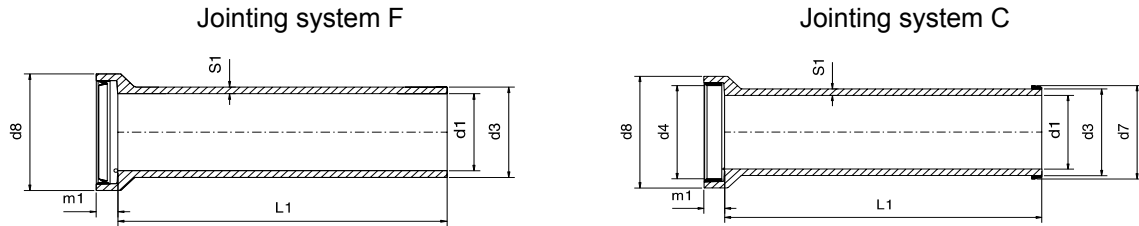
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Content subject to changes

Pipes

Dimensions



Nominal size DN	Joining system	Streight class	Crushing Streight FN (kN/m)	Dimensions (mm)						
				Barrel			Spigot-joint	Socket		
				Internal	External	Wallthickness		External	Depth	Internal
				d ₁	d ₃	S ₁ ⁽²⁾	d ₇ (± 0,5)	d ₈ max	m ₁	d ₄ (± 0,5)
100	F	-	34	100 ± 4	131 ± 3 (± 1,5 ⁽¹⁾)	15,5	-	200	max 70	-
125	F	-	34	126 ± 4	159 ± 3,5 (± 2)	16,5	-	230	max 70	-
150	F	-	34	151 ± 5	186 ± 4 (± 2)	17,5	-	260	max 75	-
200	F	160	32	200 ± 5	242 ± 5 (± 3)	21,0	-	340	max 85	-
200	F	160	40(48 ⁽³⁾)	200 ± 5	242 ± 5 (± 3)	21,0	-	340	max 85	-
200	C	240	48	200 ± 5	254 ± 5	27,0	278,4	360	70 ± 15	275,0
225	C	200	45	224 ± 5	278 ± 5	27,0	303,5	390	70 ± 15	300,0
250	C	160	40	250 ± 6	299 ± 6	24,5	320,5	400	70 ± 15	317,5
250	C	240	60	250 ± 6	318 ± 6	34,0	345,4	440	70 ± 15	341,5
300	C	160	48	300 ± 7	355 ± 7	27,5	374,8	470	70 ± 15	371,5
300	C	240	72	300 ± 7	376 ± 7	38,0	402,3	510	70 ± 15	398,5
350	C	160	56	348 ± 7	417 ± 7	34,5	436,5	525	70 ± 15	433,5
400	C	160	64	404 ± 8	486 ± 8	41,0	511,0	620	70 ± 15	507,5
400	C	200	80	398 ± 8	492 ± 8	47,0	519,4	650	70 ± 15	515,5
450	C	160	72	447 ± 8	548 ± 8	50,5	582,5	720	70 ± 15	579,0
500	C	120	60	496 ± 9	581 ± 9	42,5	608,5	730	75 ± 15	605,0
500	C	160	80	496 ± 9	609 ± 9	56,5	641,0	790	75 ± 15	637,0
600	C	95	57	597 ± 12	687 ± 12	45,0	723,7	860	80 ± 15	720,0
600	C	160	96	597 ± 12	725 ± 12	62,0	761,9	930	80 ± 15	758,0
700	C	200	140	697 ± 12	862 ± 12	84,5	896	1106	80 ± 15	892,0
800	C	160	128	792 ± 12	964 ± 12	83,5	1006,5	1209	80 ± 15	1001,5
1000	C	120	120	1056 ± 15	1273 ± 15	102	1307,0	1500	95 ± 15	1302,5
1200	VT ⁽⁴⁾	95	114	1249 ± 18	1457 ± 18	103	-	-	-	-
1400	VT ⁽⁴⁾	L	90	1400 ± 30	1600 ± 30	103	-	-	-	-

⁽¹⁾ Tolerances on the d₃ resulting from the measuring of the outside circumference.

⁽²⁾ Average dimension.

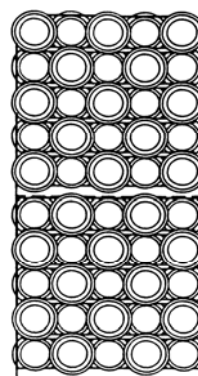
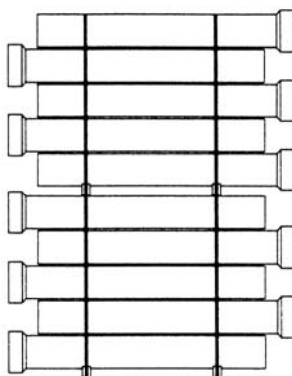
⁽³⁾ Delivery time on request

⁽⁴⁾ Pipes DN 1200, DN 1400: jointing system: stainless steel coupling (pipe without socket)

⁽⁵⁾ Pipes DN 900, DN 1000, DN 1200, Class L: on demand (minimum quantity 200 pieces)

Pipes

Weights, lengths and packaging



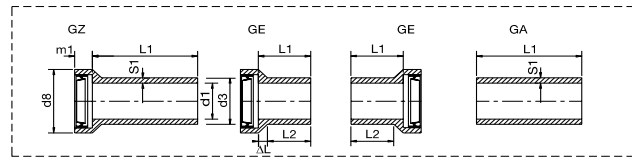
DN	Joining system	Strength class	Crushing strength FN (kN/m)	Weight per pipe and total length per pallet									
				L ₁ (m) and weight per pipe (kg)					Total length per pallet (m)				
				1,00 m	1,25 m	1,50 m	2,00 m	2,50 m	1,00 m	1,25 m	1,50 m	2,00 m	2,50 m
100	F	-	34	14	18	-	-	-	98 ⁽¹⁾	122,5 ⁽¹⁾	-	-	-
125	F	-	34	20	24	-	-	-	72 ⁽¹⁾	90 ⁽¹⁾	-	-	-
150	F	-	34	24	30	36	-	-	50 ⁽¹⁾	62,5 ⁽¹⁾	75,0 ⁽¹⁾	-	-
200	F	160	32	38	-	54	-	-	32 ⁽¹⁾	-	48,0 ⁽¹⁾	-	-
200	F	160	40(48)	-	-	-	-	92	-	-	-	-	80 ⁽¹⁾
200	C	240	48	-	-	-	91	107	-	-	-	56 ⁽¹⁾	70 ⁽¹⁾
225	C	200	45	-	-	-	108	-	-	-	-	36 ⁽¹⁾	-
250	C	160	40	-	-	-	-	122	-	-	-	-	45 ⁽¹⁾
250	C	240	60	-	-	-	-	188	-	-	-	-	37,5 ⁽¹⁾
300	C	160	48	-	-	-	-	181	-	-	-	-	37,5 ⁽¹⁾
300	C	240	72	-	-	-	-	250	-	-	-	-	40 ⁽¹⁾
350	C	160	56	-	-	-	202	-	-	-	-	30 ⁽¹⁾	-
400	C	160	64	-	-	-	-	350	-	-	-	-	20 ⁽¹⁾
400	C	200	80	-	-	-	-	379	-	-	-	-	20 ⁽¹⁾
450	C	160	72	-	-	-	392	-	-	-	-	12 ⁽¹⁾	-
500	C	120	60	-	-	-	-	435	-	-	-	-	22,5 ⁽²⁾
500	C	160	80	-	-	-	-	575	-	-	-	-	22,5 ⁽²⁾
600	C	95	57	-	-	-	-	560	-	-	-	-	22,5 ⁽²⁾
600	C	160	96	-	-	-	-	770	-	-	-	-	22,5 ⁽²⁾
700	C	200	140	-	-	-	-	1170	-	-	-	-	10 ⁽¹⁾
800	C	160	128	-	-	-	-	1370	-	-	-	-	10 ⁽¹⁾
1000	C	120	120	-	-	-	1743	-	-	-	-	4	-
1200	VT	95	114	-	-	-	1984	-	-	-	-	4	-
1400	VT	L	90	-	-	-	2484	-	-	-	-	4	-

⁽¹⁾ 2 partial packs per pallet

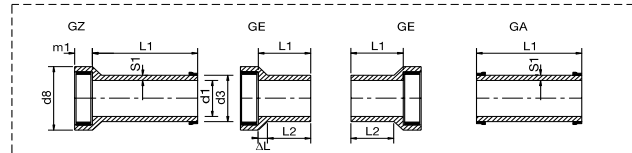
⁽²⁾ 3 partial packs per pallet

Connectors GE and articulations (GA Spigot plain end and GZ Socket/plain end rocker pipes) for inspection chambers ⁽¹⁾

Joining system F



Joining system C



DN	Joining system	Strength class	Crushing Strength FN (kN/m)	Weigth (kg) and number of pieces per packing								
				With socket					Without socket			
				GE ⁽²⁾ L2= 25cm kg	GE nbr./ packing	ΔL approximately mm	GZ ⁽³⁾ L1= 60 cm kg	GZ ⁽³⁾ L1= 75 cm kg	GZ nbr./ packing	GA ⁽³⁾ L1= 60 cm kg	GA ⁽³⁾ L1= 75 cm kg	GA nbr./ packing
100	F		34	6	50	30	9 (L1=50 cm)	-	-	-	-	-
125	F		34	7	-	35	11 (L1=50 cm)	-	-	-	-	-
150	F		34	10	27	35	19	-	15	16	-	24
200	F	160	32	14	15	50	25	-	15	24	-	15
200	C	240	48	21	18	60	36	-	9	31	-	9
225	C	200	45	31	(12)	65	56	-	(6)	35	-	(6)
250	C	160	40	20	12	60	41	-	6	34	-	6
250	C	240	60	35	16	70	65	-	8	48	-	8
300	C	160	48	31	6	65	56	-	6	45	-	6
300	C	240	72	46	10	75	84	-	5	66	-	5
350	C	160	56	37	(20)	80	-	83	5	-	71	5
400	C	160	64	61	4	85	-	115	4	-	95	4
400	C	200	80	67	4	95	-	128	4	-	111	4
450	C	160	72	87	(12)	80	-	170	2	-	135	3
500	C	120	60	84	4	90	-	146	2	-	117	2
500	C	160	80	123	2	105	-	208	2	-	163	2
600	C	95	57	118	2	95	-	197	2	-	160	2
600	C	160	96	176	2	110	-	279	2	-	214	2
700	C	200	140	243	2	115	-	420	1	-	328	1
800	C	160	128	299	2	130	-	496	1	-	380	1
1000	C	120	120	337	2	-	-	734	1	-	603	1

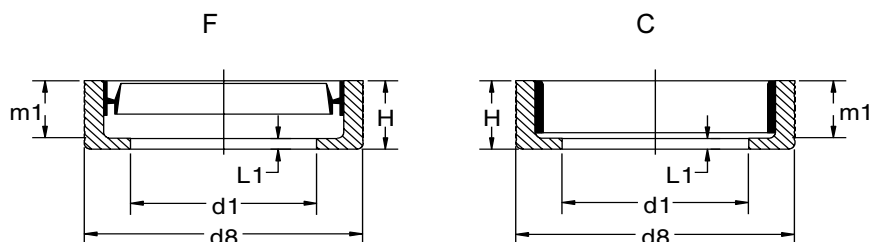
⁽¹⁾ For other dimensions of spigot and socket, see pipedimensions.
L1 = L2 + D L

⁽³⁾ GZ = articulation rocker pipe with socket, upstream
GA = articulation rocker pipe without socket, downstream

⁽²⁾ Connectors GE are flexible in/outlets, unglazed at the outside to be casted in concrete chambershafts.

Connector GM (short socket piece)

Short socket piece for casting into manholeshaft.



DN	Jointing system	Strength class	FN (kN/m)	m ₁ +0 -5	L ₁	H +0 -5	d ₈	Weight (kg)	Nbr./ Packing
150	F	-	34	60	10	70	240 ±4	5	100
200	F	160	32	75	10	90	320 ±4	6	60
200	C	240	48	75	10	90	320±4	8	50
225	C	200	45	75	10	90		8	
250	C	160	40	75	10	90	390 ±8	9	40
250 ⁽¹⁾	C	240	60	75	10	90	430 ±8	10	28
300 ⁽¹⁾	C	160	48	75	10	90	450 ±8	11	23
300 ⁽¹⁾	C	240	72	75	10	90	490 ±8	14	19
400 ⁽¹⁾	C	160	64	75	25	100	610 ±8	14	12

⁽¹⁾ Delivery time on request.

Connecting socket

Socket for connection by drilling on main pipes DN 250, DN 300 and DN 350.



To connect pipes of diameter				Internal diameter of the main sewer	Connecting socket			
DN	Jointing system	Strength class	FN kN/m	DN	Type	Weight (kg)	Drill hole (mm)	Number/ packing
150	F	-	34	≥250 - ≤350	F25 - 150	1	172 ± 1	30

Inserting device: see accessories

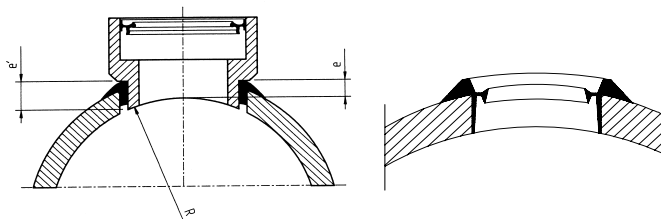
Connecting sockets in vitrified clay

Socket for connection by drilling on main pipes from DN 400 on

DN 150: with integrated joint



DN 200: in combination with B-ring



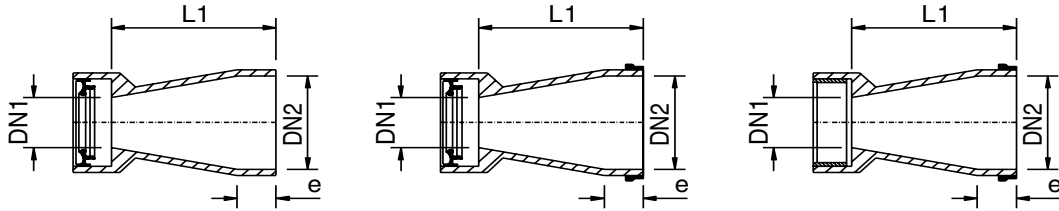
To connect pipes of diameter				Internal diameter of the main sewer	Connecting socket						
DN	Jointing system	Strength class	FN kN/m		DN	Type	e ⁽¹⁾	e'	Weight (kg)	Drill hole (mm) +0/-1	Nbr/ Packing
150	F	-	34	≥400	C40 - 150	40 +5 -0	59 +5 -0	6	201	56	
150	F	-	34	≥400	C70 - 150	70 +7 -0	89 +7 -0	8	201	42	
150	F	-	34	≥400	C100 - 150	100 +7 -0	-	8	201	42	
200	F	160	32	≥400	-	45 +5 -0	80 +5 -0	8	258	32	
200	F	160	32	≥400	-	70 +7 -0	110 +7 -0	9	258	24	

⁽¹⁾ With variable lengths according to the wall thickness of the main pipe, according to the valid prescriptions.

Inserting device: see accessories

Taper (enlarger) pipe ⁽¹⁾

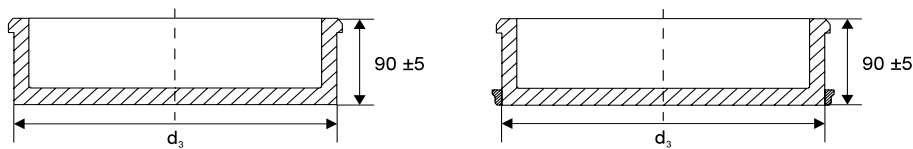
For connecting to a larger diameter.
The socket is always at the smaller diameter side.



DN1/DN2	Jointing system	For pipes of		L ₁ (mm)	e (mm) min	Nbr./Packing	Weight (kg)/Piece
		Strength class	Crushing strength (kN/m)				
100/125	F/F	-	34/34	250	70	48	6
100/150	F/F	-	34/34	250	75	45	7
125/150	F/F	-	34/34	250	75	37	8
150/200	F/F	-/160	34/32	250	85	24	11
200/250	F/C	160/160	32/40	250	85	Loose (14)	15
250/300	C/C	160/160	40/48	250	85	Loose (10)	21

End caps

Stoppers in vitrified clay for closing up pipes.



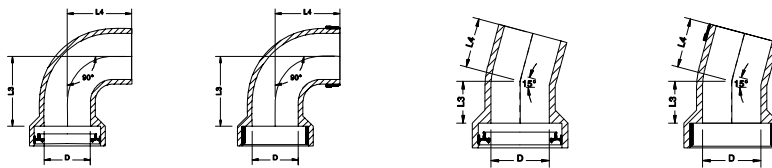
DN	Jointing system	For pipes of			Weight (kg)/Piece	Nbr./Packet ⁽²⁾
		Strength class	FN (kN/m)	d ₃ (mm)		
100	F	-	34	129 ± 2	1	384
125	F	-	34	157 ± 2,5	2	272
150	F	-	34	184 ± 3	3	161
200	F	160	32	242 ± 3	4	104
200	C	240	48	242 ± 3	8	63
250	C	160	40	299 ± 3	5	48
250 ⁽¹⁾	C	240	60	299 ± 3	12	60
300 ⁽¹⁾	C	160	48	355 ± 4	6	40
300 ⁽¹⁾	C	240	72	355 ± 4	14	20
400 ⁽¹⁾	C	160	64	486 ± 5	15	10

⁽¹⁾ Delivery time on request

⁽²⁾ Maximum quantity per packing

Bends

Dimensions ⁽¹⁾



DN	Joining system	Strength class	Crushing strength FN (kN/m)	Dimensions (mm)									
				90° (±5°)		60° (±5°)		45° (±5°)		30° (±4°)		15° (±3°)	
				L ₃	L ₄	L ₃	L ₄	L ₃	L ₄	L ₃	L ₄	L ₃	L ₄
100	F	-	34	200	200	150	160	140	150	135	145	125	135
125	F	-	34	200	200	-	-	150	160	140	150	125	135
150	F	-	34	220	220	160	170	150	160	145	155	140	150
200	F	160	32	250	250	-	-	170	180	160	170	150	160
200	C	240	48	-	-	-	-	170	180	160	170	150	160
250	C	160	40	-	-	-	-	190	200	170	180	155	165
250	C	240	60	-	-	-	-	190	200	170	180	155	165
300	C	160	48	-	-	-	-	215	225	215	225	200	210
300	C	240	72	-	-	-	-	215	225	215	225	200	210

⁽¹⁾ For dimensions of spigots and sockets see pipes

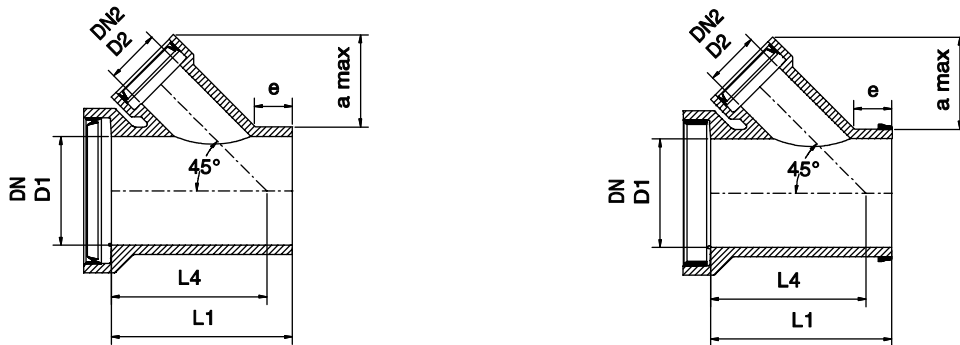
Bends

Weight and packing

DN	Joining system	Strength class	Crushing strength FN (kN/m)	90°		60°		45°		30°		15°	
				Weight/Piece (kg)	Nbr/Packing	Weight/Piece (kg)	Nbr/Packing	Weight/Piece (kg)	Nbr/Packing	Weight/Piece (kg)	Nbr/Packing	Weight/Piece (kg)	Nbr/Packing
100	F	-	34	6	40	6	45	6	50	6	55	6	55
125	F	-	34	7	30	-	-	7	40	7	45	7	45
150	F	-	34	10	20	10	20	10	24	10	24	10	30
200	F	160	32	15	10	-	-	15	13	15	14	15	14
200	C	240	48	-	-	-	-	22	6	22	6	22	6
250	C	160	40	-	-	-	-	25	4	25	5	25	5
250	C	240	60	-	-	-	-	45	3	45	3	45	3
300	C	160	48	-	-	-	-	37	3	37	3	37	3
300	C	240	72	-	-	-	-	59	2	59	2	59	2

Junctions 45°

Dimensions ⁽¹⁾



DN ₁ ⁽²⁾	Joining system	Strength class	Crushing strength FN (kN/m)	Dimensions in mm (approximate value)							
				DN ₂ ⁽³⁾ = 100, branch piece with joining system F FN = 34 kN/m				DN ₂ ⁽³⁾ = 125, branch piece with joining system F FN = 34 kN/m			
				L ₁	L _{4 max.}	a _{max.}	e _{min.}	L ₁	L _{4 max.}	a _{max.}	e _{min.}
100	F	-	34	400	275	240	70	-	-	-	-
125	F	-	34	400	290	240	70	400	285	260	70
150	F	-	34	400	310	240	75	400	300	260	75
200	F	160	32	500	340	250	85	500	365	260	85

DN ₁ ⁽²⁾	Joining system	Strength class	Crushing strength FN (kN/m)	Dimensions in mm (approximate value)							
				DN ₂ ⁽³⁾ = 150, branch piece with joining system F FN = 34 kN/m				DN ₂ ⁽³⁾ = 200, branch piece with joining system F Class 160			
				L ₁	L _{4 max.}	a _{max.}	e _{min.}	L ₁	L _{4 max.}	a _{max.}	e _{min.}
150	F	-	34	400	355	270	75	-	-	-	-
200	F	160	32	500	400	250	85	600	460	320	85
200	C	240	48	500	435	320	85	600	435	320	85
250	C	160	40	500	465	370	85	600	465	370	85
250	C	240	60	500	465	370	85	600	430	370	85
300	C	160	48	500	415	260	85	600	495	370	85
300	C	240	72	500	495	370	85	600	495	370	85

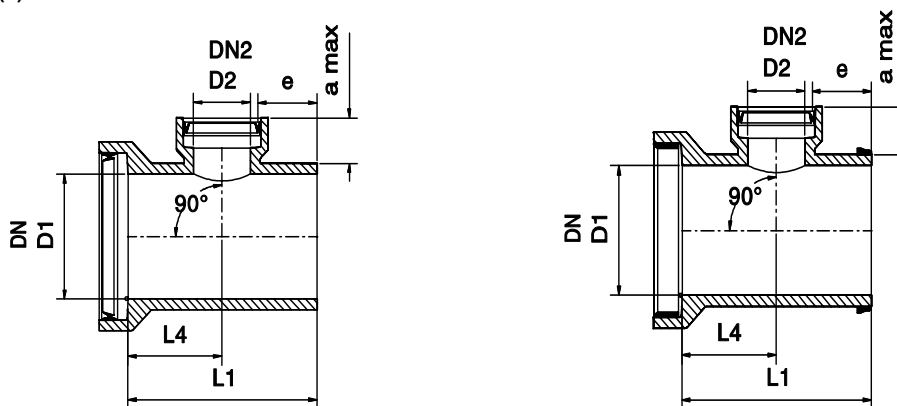
⁽¹⁾ For dimensions of spigots and sockets see pipes.

⁽²⁾ DN₁ = main pipe

⁽³⁾ DN₂ = branch piece

Junctions 90°

Dimensions ⁽¹⁾



DN ₁ ⁽²⁾	Joining system	Strength class	Crushing strength FN (kN/m)	Dimensions in mm (approximate value)							
				DN ₂ ⁽³⁾ = 100, branch piece with joining system F FN = 34 kN/m				DN ₂ ⁽³⁾ = 125, branch piece with joining system F FN=34 kN/m			
				L ₁	L ₄	a _{max.}	e _{min.}	L ₁	L ₄	a _{max.}	e _{min.}
100	F	-	34	400			70	-	-	-	-
125	F	-	34	400			70	400			70
150	F	-	34	400			75	400			75

DN ₁ ⁽²⁾	Joining system	Strength class	Crushing strength FN (kN/m)	Dimensions in mm (approximate value)							
				DN ₂ ⁽³⁾ = 150, branch piece with joining system F FN = 34 kN/m				DN ₂ ⁽³⁾ = 200, branch piece with joining system F Class 160			
				L ₁	L ₄	a _{max.}	e _{min.}	L ₁	L ₄	a _{max.}	e _{min.}
150	F	-	34	400	230	133	75	-	-	-	-
200	F	160	32	500	380	180	85	600	390	180	85
200	C	240	56	500	250	170	85	600	250	180	85
250	C	160	40	500	250	170	85	600	250	180	85
250	C	240	60	500	250	170	85	600	250	180	85
300	C	160	48	500	250	170	85	600	250	180	85
300	C	240	72	500	250	170	85	600	250	180	85
350	C	160	56	1000	250	70		1000	250	80	
400	C	160	48	1000	350	70		1000	350	80	
400	C	200	80	1000	350	70		1000	350	80	
450	C	160	72	1000	250	70		1000	250	80	
500	C	120	60	1000	350	70		1000	350	70	
500	C	160	80	1000	350	70		1000	350	70	
600	C	95	72	1000	350	70		1000	350	70	
600	C	160	96	1000	350	70		1000	350	70	

⁽¹⁾ For the dimensions of the spigots and sockets see pipes.

⁽²⁾ DN1 = main pipe

⁽³⁾ DN2 = branch piece

Junctions - Packing quantities

Junctions 45°

DN ₁ ⁽¹⁾	Joining system main pipe	Strength class	Crushing strength FN (kN/m)	DN ₂ ⁽²⁾ = 100, junction with fitting F		DN ₂ ⁽²⁾ = 125, junction with fitting F		DN ₂ ⁽²⁾ = 150, junction with fitting F		DN ₂ ⁽²⁾ = 200, junction with fitting F	
				Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet
100	F	-	34	12	25	-	-	-	-	-	-
125	F	-	34	15	17	15	15	-	-	-	-
150	F	-	34	16	15	18	12	20	11	-	-
200	F	160	32	28	8	30	8	32	8	40	4
200	C	240	48	-	-	-	-	36	8	42	6
250	C	160	40	-	-	-	-	54	6	48	5
250	C	240	60	-	-	-	-	55	5	64	5
300	C	160	48	-	-	-	-	49	5	60	4
300	C	240	72	-	-	-	-	73	4	86	4

Junctions 90°

DN ₁ ⁽¹⁾	Joining system main pipe	Strength class	Crushing strength FN (kN/m)	DN ₂ ⁽²⁾ = 100, junction with fitting F		DN ₂ ⁽²⁾ = 125, junction with fitting F		DN ₂ ⁽²⁾ = 150, junction with fitting F		DN ₂ ⁽²⁾ = 200, junction with fitting F	
				Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet	Weight/Piece (kg)	Nbr./Packet
100	F	-	34	12	25	-	-	-	-	-	-
125	F	-	34	15	20	15	19	-	-	-	-
150	F	-	34	18	15	18	14	18	14	-	-
200	F	160	32	28	10	30	10	32	10	40	10
200	C	240	48	-	-	-	-	36	8	42	8
250	C	160	40	-	-	-	-	41	8	48	7
250	C	240	60	-	-	-	-	55	6	64	6
300	C	160	48	-	-	-	-	49	5	60	5
300	C	240	72	-	-	-	-	73	5	86	5
350	C	160	56	-	-	-	-	105	6	105	6
400	C	160	48	-	-	-	-	145	6	145	6
400	C	200	80	-	-	-	-	172	6	172	6
450	C	160	72	-	-	-	-	219	6	219	6
500	C	120	60	-	-	-	-	190	2	190	2
500	C	160	80	-	-	-	-	270	2	270	2
600	C	95	72	-	-	-	-	258	2	258	2
600	C	160	96	-	-	-	-	360	2	360	2

⁽¹⁾ DN₁ = main pipe

⁽²⁾ DN₂ = junction

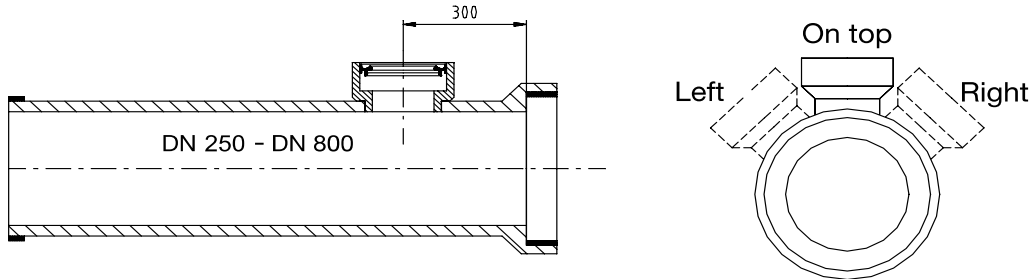
Pipes with branch pieces DN 150 and DN 200 at 90°

Pipes with branch pieces DN 150 or 200 sealed in at 90°.

For branch pieces DN 150: starting from main pipe DN 250.

For branch pieces DN 200: starting from main pipe DN 400.

Always indicate the branch position (45° left, on top, 45° right, compared to the flow direction) to maintain the flow level.



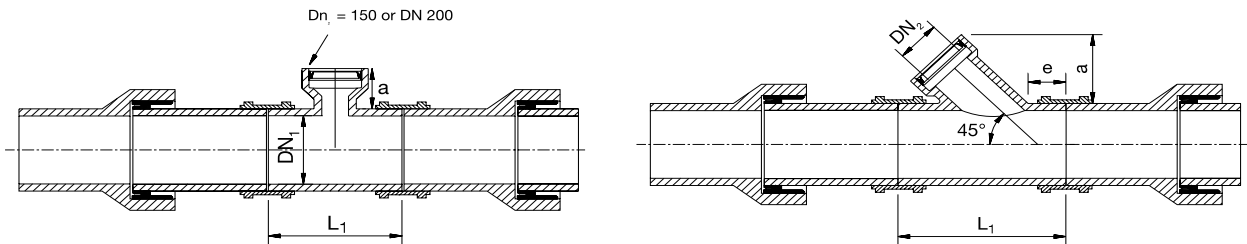
Junctions 45° and 90° without socket

Main pipe: normal strength without socket

Branch piece: normal strength with jointing system F

For connecting on existing pipes.

Connection with metal banded flexible couplings M.



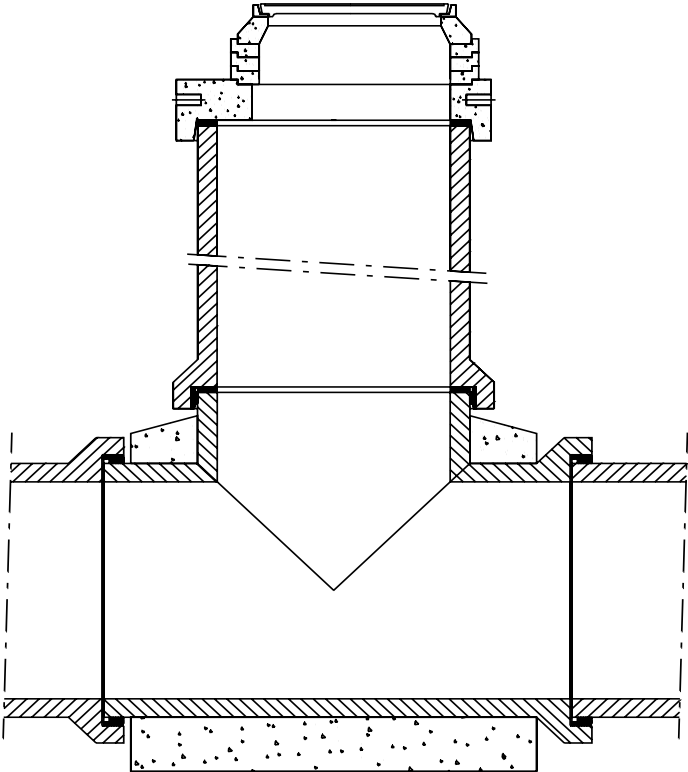
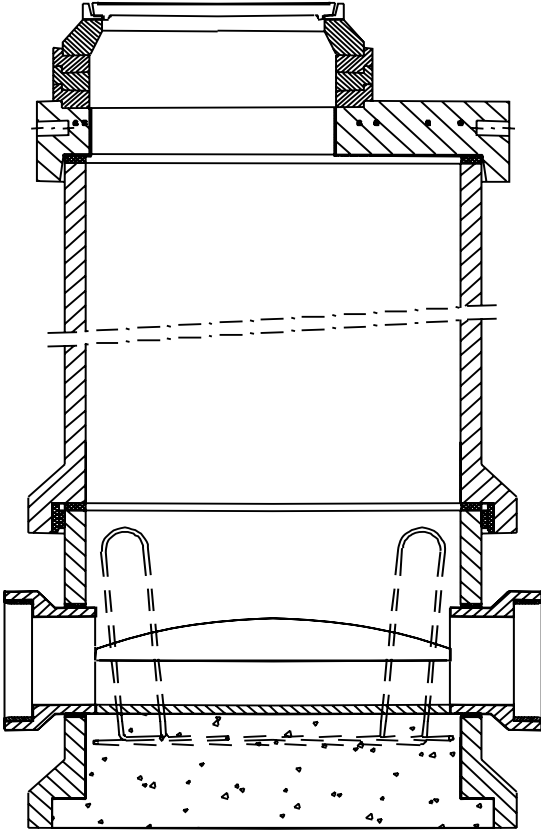
DN ₁ ⁽¹⁾	Strength Class	DN ₂ ⁽²⁾	Crushing strength FN = kN/m	Length L ₁ (mm)	45°	90°
					a max. (mm)	a max. (mm)
150	-	150	34/34	600	250	170
200	160	150	32/34	600	250	170
		200	32/32	600	300	180
250	160	150	40/34	600	250	170
		200	40/32	600	300	180
300	160	150	48/34	600	250	170
		200	48/32	600	300	180
400	160	150	64/34	750	250	170
		200	64/32	750	-	180
500	120	150	60/34	750	-	170
		200	60/32	750	-	180
600	95	150	57/34	750	-	170
		200	57/32	750	-	180

⁽¹⁾ DN₁ = main pipe

⁽²⁾ DN₂ = junction

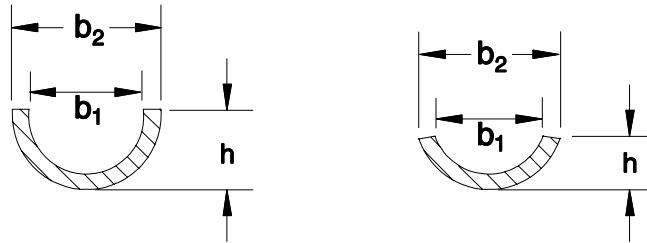
Inspection chamber in vitrified clay

Inspection chambers DN 600 - DN 800 - DN 1000 - DN 1200



Channels

Channels without socket: 1/2 section and 1/3 section

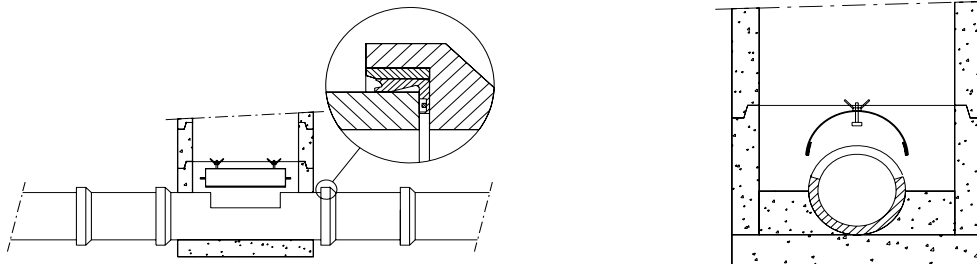


DN ⁽¹⁾	1/2 section channel (Length = 1000mm ± 20)				1/3 section channel (Length = 490mm ± 5)			
	b ₁ (mm)	b ₂ (mm)	h (mm)	weight/piece (kg)	b ₁ (mm)	b ₂ (mm)	h (mm)	weight/piece (kg)
100	100	131	65	6				
125	126	159	79	8				
150	151	186	93	10				
200	200	242	121	14				
250	250	299	148	20	217	259	87	13
300	300	355	176	28	260	307	103	18
350	348	417	209	35	301	361	122	22
400	404	486	243	45	350	421	142	28
450					387	475	162	37
500					430	503	167	42
600					517	595	194	57

⁽¹⁾ Other measures on demand.

Access pipes for inspection chambers

Pipe with a rectangular opening.



Dimensions of the opening: 75 cm x 25 cm measured on the pipe perimeter.

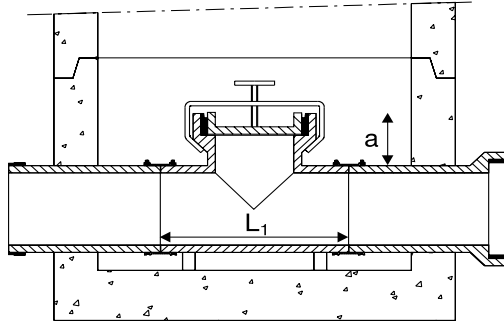
To be specified on the order: diameter, class, joint type, (possibly P joint), length.
Available with or without metal cover.

T inspection

The length for inserting the piece should be about 2 cm larger than the length L_1 of the T.

The lengths L_1 of the table must be specified on the order.

Connection to be made with metal banded flexible couplings M.

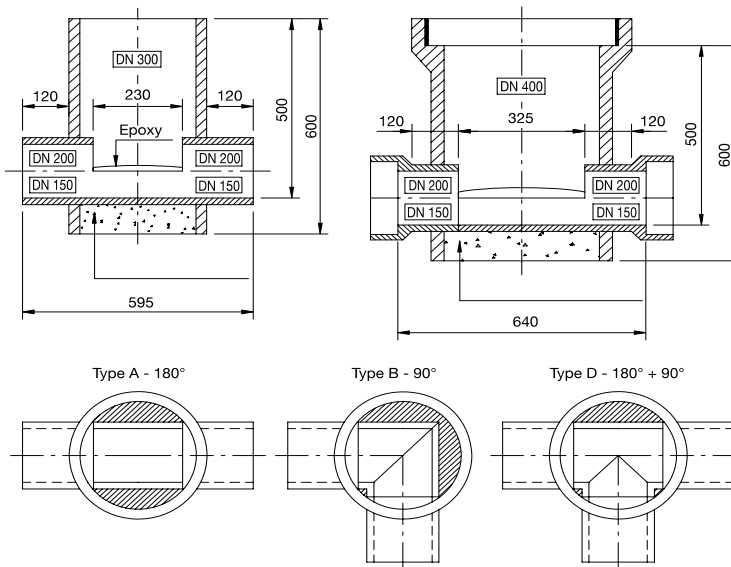


DN ₁ and DN ₂ of the T	Class	L ₁ ±10 (mm)	a (mm)	Internal minimum diameter of the chamber (mm)
200/200	160	542	227	800 circular
	240	554	283	800 circular
250/250	160	598	283	800 circular
	240	618	292	1000 circular
300/300	160	656	298	1000 circular
	240	676	300	1000 circular
400/400	160	784	307	1000 circular
	200	796	307	1000 circular
500/500	120	884		1200 circular or 1000 rectangular

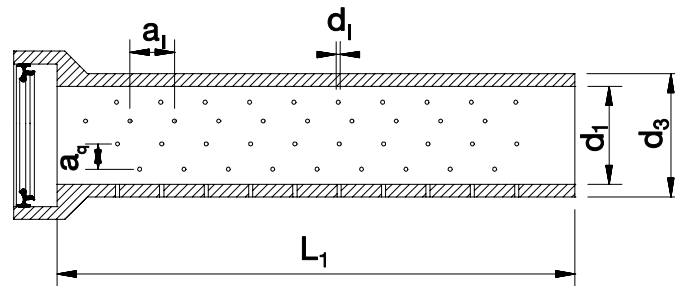
Access-connection-chamber

Possibilities:

- chamber DN 300 or DN 400 with socket or spigot connections for DN 150 and DN 200 with socket or spigot
- connections on 180° (for DN 150 and 200)
- connections on 135° (for DN 150)
- connections on 90° (for DN 150)
- connections on 180° and on 90° (for DN 150)



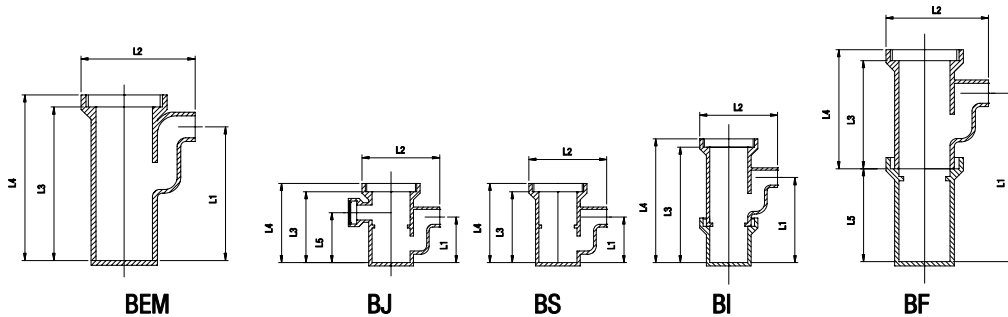
Drainage pipes



DN	Joining system	Crushing strength FN (kN/m)	d_1 (mm)	d_3 (mm)
150	F	28	151 +/-5	186 +/-4
200	F	24	200 +/-5	242 +/-5
250	C	30	250 +/-6	299 +/-6
300	C	36	300 +/-7	355 +/-7

Dimensions on demand

Siphon-road gully

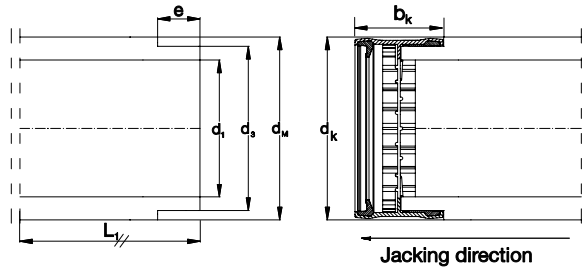


Type	DN	Diameter entrance/exit	Diameter exit	L_1 (mm)	L_2 (mm)	L_3 (mm)	L_4 (mm)	L_5 (mm)
Model BJ Strasburg	300	100/150	-	360	610	550	665	380
	300	150/150	-	375	665	550	665	380
Model BS Strasburg	300	-	100	360	610	550	665	-
	300	-	150	375	665	550	665	-
Model BI Strasburg	300	-	100	710	610	900	975	-
	300	-	150	725	665	900	975	-
Model BF	400	-	150	1325	810	800	875	800
Model BEM	400	-	150	900	810	1100	1175	-

Average dimensions.

Jacking pipes in vitrified clay DN 150⁽¹⁾

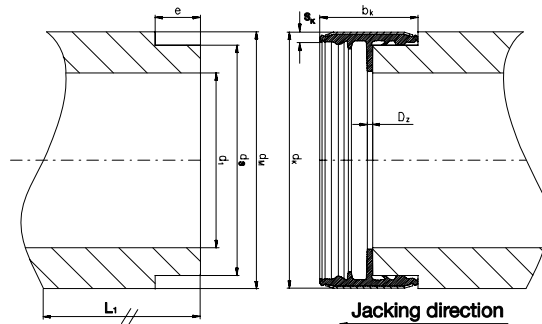
With polypropylene sleeve sliding couplings glass fibre reinforced, with rubber casing.



DN	Pipe dimensions					Coupling			Maximum permissible jacking force		Average weight
	Internal	Pipe end	Pipe body	Length		Dia-meter	Width	F1 ⁽³⁾	F2 ⁽⁴⁾		
	d ₁	d ₃ ⁽²⁾	d _M	l ₁	e	d _k	b _k	kN	kN	kg/m	
150	149 +/-2,5	186 +/-2	213 +0/-4	497 +/-2 997 +/-2	50 +3/-1	207 +/-1	103 +/-1	170	210	36	

Jacking pipes in vitrified clay DN 200 to DN 500⁽¹⁾

With V4A Type 1 stainless steel coupling.



DN	Pipe dimensions					Coupling				Maximum permissible jacking force	Average weight
	Internal	Pipe end	Pipe body	Length		d _k	b _k	S _k	D _Z	F2 ⁽⁴⁾	kg/m
	d ₁	d ₃ ⁽²⁾	d _M	l ₁	e	+/-1		+/-0,2	+/-1	kN	
200	199 +/-3	244 +/-2	276 +0/-6	996 ±2	50 +3/-1	267,8	103 ± 1,5	1,5	4	350	60
250	250 +/-3	322 +0/-1	360 +0/-6	995 1995	50 +3/-0	342,8	106 ± 1,5	1,5	5	810	105
300	299 +/-5	374 +0/-1	406 +0/-10	995 1995	50 +3/-0	395,8	106 ± 1,5	2,0	5	1000	125
400	400 +/-6	517 +0/-1	556 +0/-12	990 1990	50 +3/-0	536,5	111 ± 2	2,0	10 ⁽⁵⁾	2200	240
500	498 +/-7,5	620 +0/-1	661 +0/-15	984 1984	55 +3/-0	639,5	127 ± 2	2,5	16 ⁽⁵⁾	2700	295

⁽¹⁾ Dimensions in mm.

⁽²⁾ Tolerances on the d3 resulting from the measuring of the outside circumference.

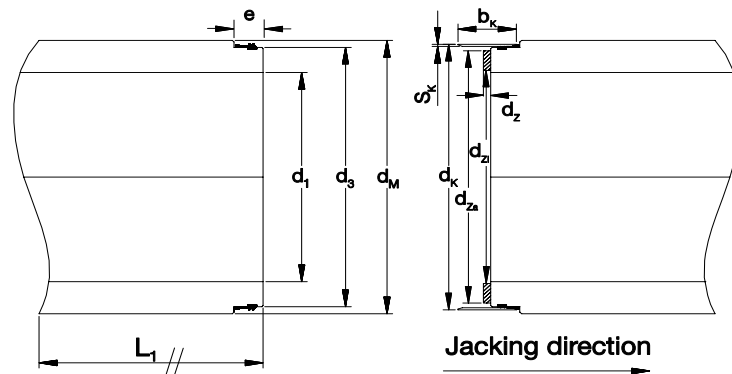
⁽³⁾ F1 permissible jacking force for manual recording, safety factors 2/2 (for standard dimensioning) being F2 -20%.

⁽⁴⁾ F2 permissible jacking force for automatic recording and control, safety factors 2/1,6.

⁽⁵⁾ Chip board (particle board packing ring).

Jacking pipes in vitrified clay DN 600 to DN 1200⁽¹⁾

With V4A Type 2 stainless steel coupling
and stainless steel tension ring (width: 30mm ± 0,5, thickness: 4 mm ± 0,2).



DN	Pipe dimensions					Coupling			Pressure transfer ring			Maximum permissible jacking force	Average weight
	Internal	Pipe end	Pipe body	Effective length		d_K	S_K	b_K	d_z	d_{za}	d_{zi}	$F_2^{(3)}$	kg/m
	d_1	d_3 +0/-1	d_M	l_1 ±1	e ±2	±1	± 0,2	±1	± 1	±1	±1	kN	
600	601 ± 9	723	766 +0/-18	1981	70	731	3	143	19	713	615	3100	350
700	695 ± 12	827	870 +0/-24	1981	70	837	4	143	19	816	715	3300	434
800	792 ± 12	921	970 +0/-24	1981	70	931	4	143	19	911	823	3700	507
1000	1056 ± 15	1218	1275 +0/-30	1981	70	1230	5	143	19	1208	1077	5700	855
1200	1249 ± 18	1408	1475 +0/-36	1981	70	1422	6	143	19	1397	1277	6400	990

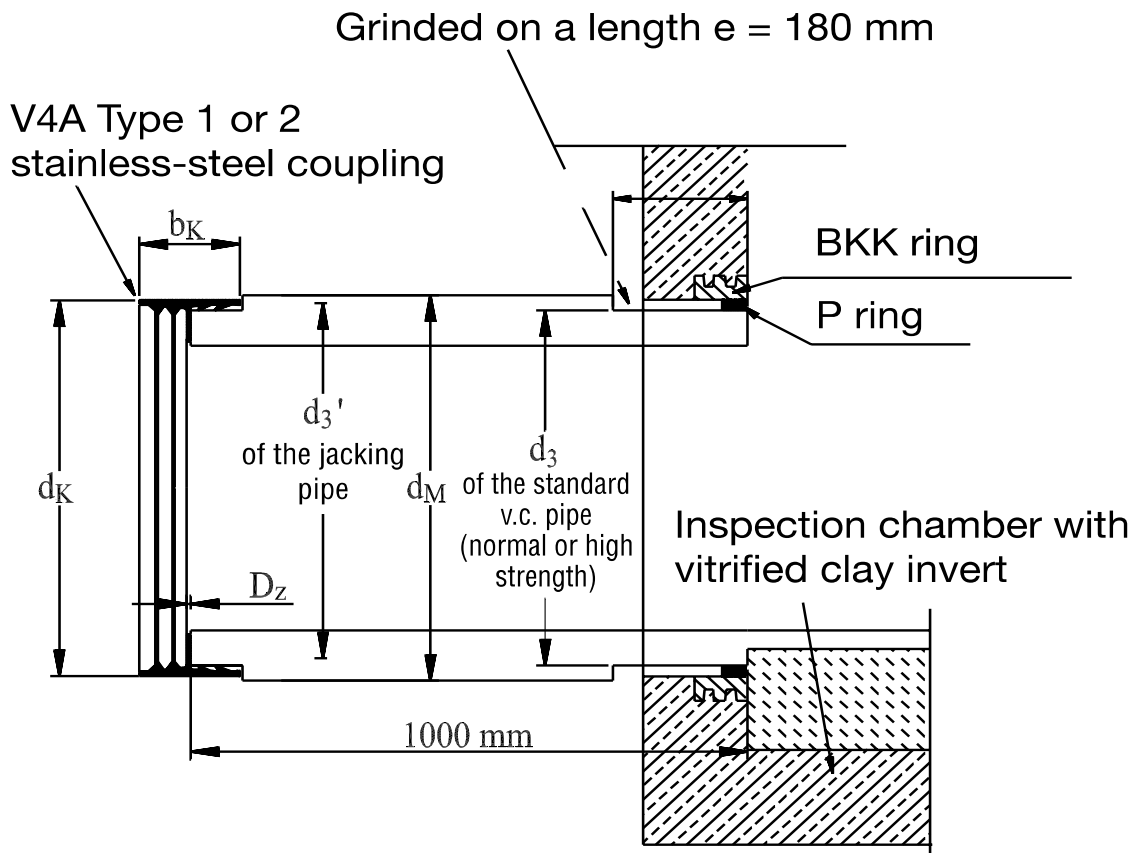
⁽¹⁾ Dimensions in mm.

⁽²⁾ F1 permissible jacking force for manual recording, safety factors 2/2 (for standard dimensioning) being F2 -20%.

⁽³⁾ F2 permissible jacking force for automatic recording and control, safety factors 2 / 1,6.

Rocker pipe for connection of jacking pipes to standard pipes with two different outside diameters at the end

For the connection to chambers or v.c. pipes normal or high strength.



Rocker pipes DN 200 - DN 600

On request with V4A coupling or stainless-steel coupling Type 1 or 2.
On request with diameter grinded on a d_3 dimension of the normal or high strength pipe.

DN	Diameter				Length	Average weight
	d_1	d_3 +0/-1 (N)	d_3 +0/-1 (H)	d_M	l_1 +/-1	kg/piece
250	250 +/-3	299	318	360 +/-6	1000	105
300	299 +/-5	355	376	406 +/-10	1000	125
400	400 +/-6	486	492	556 +/-12	1000	240
500	498 +/-7,5	581	609	661 +/-15	1000	295
600	601 +/-9	687	721	766 +/-18	1000	305

> 600: on request

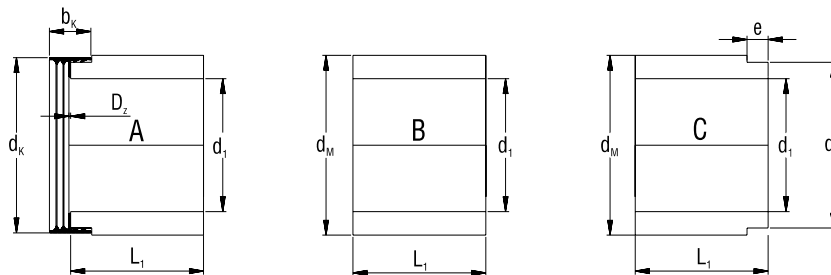
Short length pipes for jacking pipes with V4A coupling

For the connection of jacking pipes with inspection chambers.

Connection with the jacking sleeve coupling or with the metal banded flexible couplings M type 2B.

DN 200 up to DN 500 with coupling V4A Type 1.

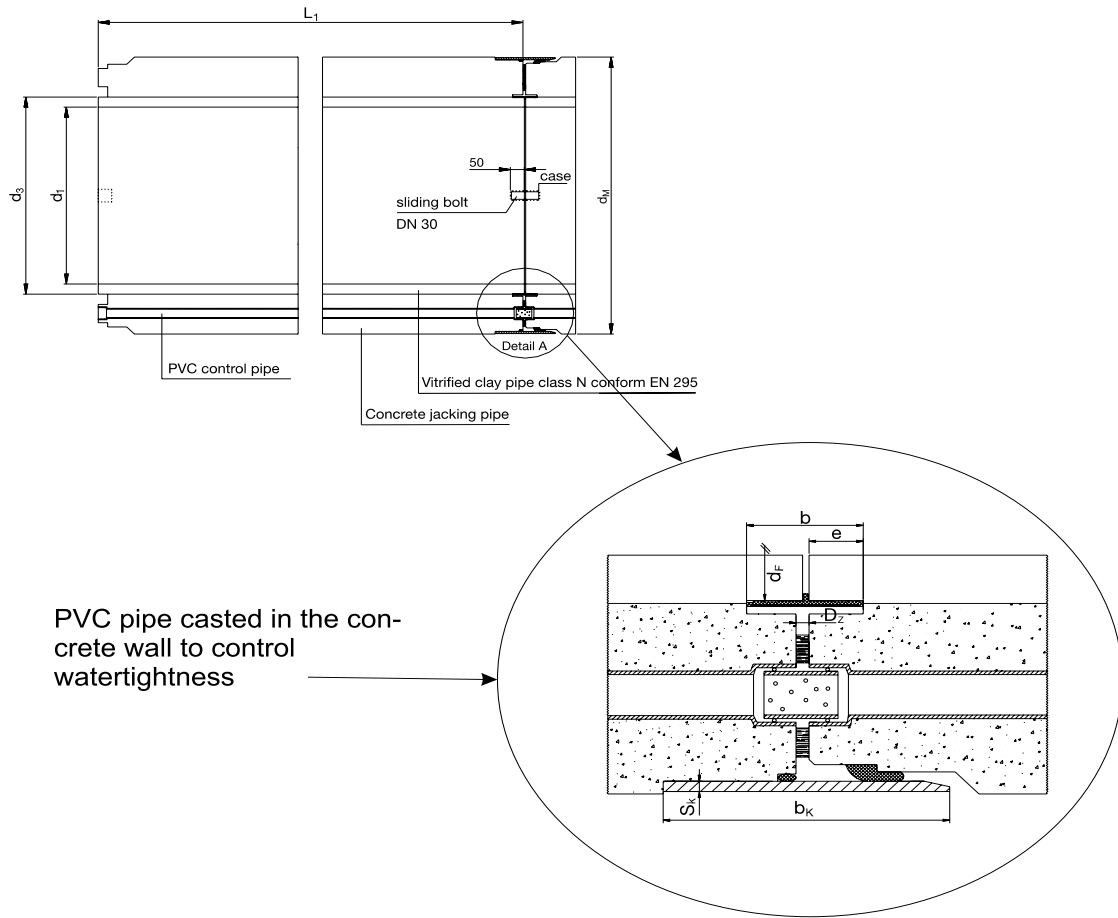
DN 600 up to DN 1000 with coupling V4A Type 2.



- A: with jacking sleeve coupling with integrated packing ring
 B: piece to be embedded in the concrete wall of the chamber
 C: spigot/plain end without coupling

DN	Diameter			Coupling				Lenght	Average weight
	d ₁	d ₃	d _M	e	d _K +/-1	b _K	D _Z +/-1	l ₁ +/-1	kg/pce
200	199 +/-3	244 +/-2	276 +0/-6	50 +3/-1	267,8	103 +/-1,5	4	333 500	20 30
250	250 +/-3	322 +0/-1	360 +0/-6	50 +3/-0	342,8	106 +/-1,5	5	333 500	35 53
300	299 +/-5	374 +0/-1	406 +0/-10	50 +3/-0	395,8	106 +/-1,5	5	333 500	42 63
400	400 +/-6	517 +0/-1	556 +0/-12	50 +3/-0	536,5	111 +/-2	10	333 500	80 120
500	498 +/-7,5	620 +0/-1	661 +0/-15	55 +3/-0	639,5	127 +/-2	16	333 500	99 148
600	601 +/-9	723 +0/-1	766 +0/-18	70+/-2	731	143 +/-1	19	333 500	117 175
700	695 +/-12	827 +0/-1	870 +0/-24	70+/-2	837	143 +/-1	19	333 500	145 217
800	792 +/-12	921 +0/-1	970 +0/-24	70 +/-2	931	143 +/-1	19	333 500	169 254
1000	1056 +/-15	1218 +0/-1	1275 +0/-30	70 +/-2	1230	143 +/-1	19	333 500	285 428
1200	1249 +/-18	1408 +0/-1	1475 +0/-36	70 +/-2	1422	143 +/-1	19	333 500	330 495

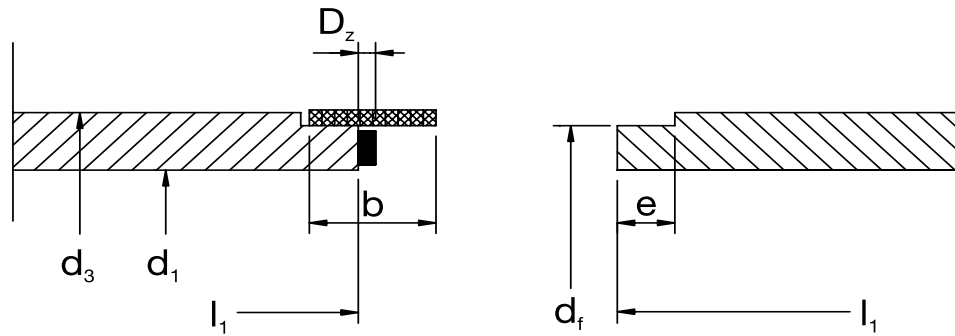
Jacking pipes with concrete casing



DN	Diameter of the interior pipe (1)						Outside coupling		Inside coupling	Packing ring	Max. permissible jacking force	Average weight
	d ₁	d ₃	d _F +0/-1	d _M +0/-10	e +0/-3	l ₁ +/-1	S _K min	b _K min	b +/-1	D _Z +/-1	F kN	kg/m
300	on request											
400	404 ±8	486 ±8	475	864/764	65	1980	8	200	132	19	2523/1900	1130/820
500	496 ±9	581 ±9	572	1105/965	65	1980	8	200	132	19	4750/2650	1850/1320
600	597 ±12	687 ±12	679	1105/965	65	1980	8	200	132	19	3774/2200	1630/1080
700	697 ±15	831 ±15	815	1285	65	1980	8	200	132	19	5413	2230
800	797 ±17	949 ±17	927	1285	65	1980	8	200	132	19	4006	1940
1000	998 ±23	1119 ±23	1074	1495	65	1980	8	200	132	19	4741	2400
1200	1198 ±28	1320 ±28	1290	1725	65	1980	8	200	132	19	6158	2900
1400	on request											

(1) Special pieces (connections, special lengths) on request.

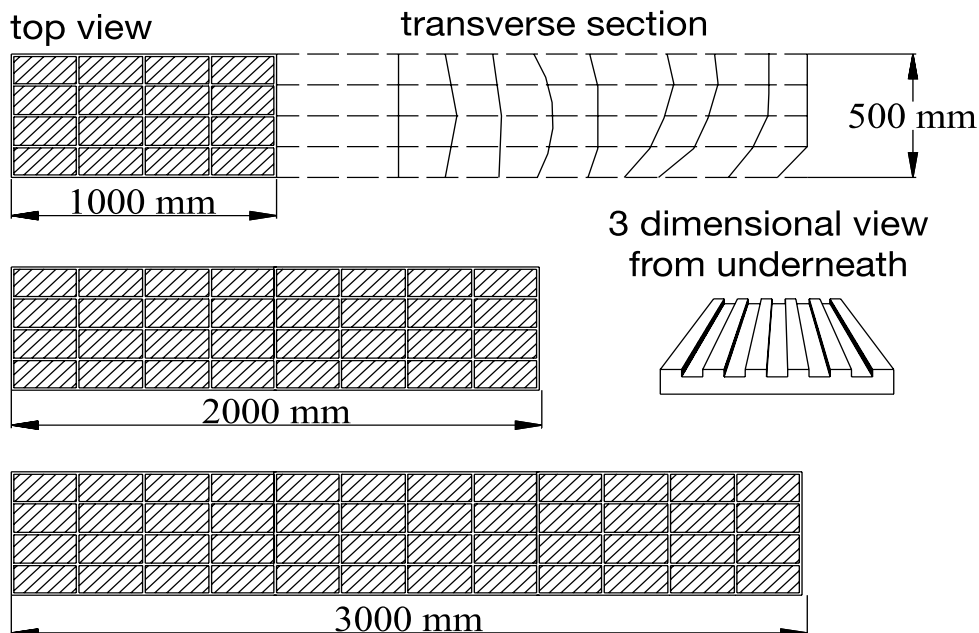
Relining pipes



DN	Dimensions					Coupling	Packing ring	Crushing strength
	d ₁	d ₃ max.	d _f +/-1	e +0/-3	l ₁ +/-1			
250	250 +/-6	324	287	65	1980	132	10	60
300	300 +/-7	383	342	65	1980	132	10	72
400	404 +/-8	556	475	65	1980	132	10	160
500	496 +/-9	618	572	65	1980	132	10	80
600	597 +/-12	737	697	65	1980	132	10	96
700	on demand							
800	on demand							
1000	on demand							
1200	on demand							

Keraline

Prefabricated plate elements consisting of ceramic tiles. Dimensions of the plates: width: 0,5m, length= 1.0, 2.0 and 3.0 m. Other lengths on demand. With special rear face for effective bonding. The contour can be matched to the desired profile. Radii from 70 cm on. Dimensions of the tiles = 242 x 117 x 13 mm - 242 x 75 x 13 mm - 242 x 55 x 13 mm.



Joint assemblies

Shrinkable sleeves for inserting and connecting

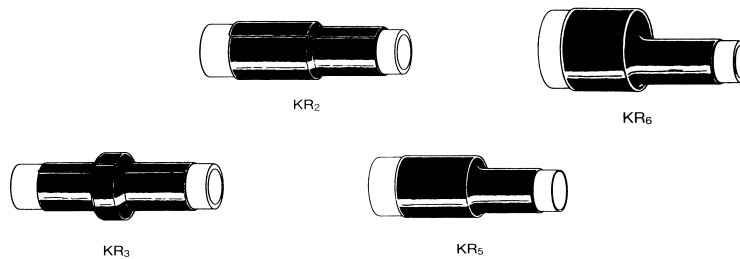
KR : open sleeve for spigot spigot connection

KR : open sleeve for spigot socket connection

KR : total sleeve shrinkage from 4 mm to 6 mm for spigot spigot connections

KR : total sleeve shrinkage from 4 mm to 6 mm for spigot spigot connections

When ordering KR and KR the pipe diameter must be specified.



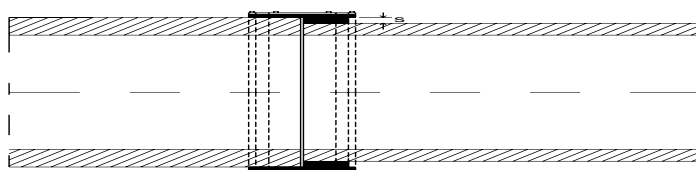
Nitrification class	Joining system	KR open sleeve	KR open sleeve	KR total sleeve	KR total sleeve
		Length before shrinkage L 4 mm	Length before shrinkage L 4 mm	Length before shrinkage L 4 mm	Length before shrinkage L 4 mm
		X	X	X	
		X	X	X	
		X	X	X	X
	of	X	X		X
		X	X		X
		X	X		
4		X			
4		X			
		X			
		X			

Bushes

Designed for use with metal and flexible couplings type 2B to connect different > 2mm outside diameters.

Bushes are assembled on demand for the pipes to be connected.

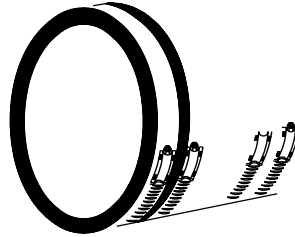
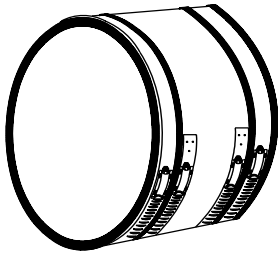
When ordering, the outside diameters must be specified.



Thickness mm	4	8	2	6	24	32
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Metal banded flexible couplings M

For spigot - spigot connection of pipes.



Type 2A

- difference outside diameters max. 8 mm

DN	Class	Type 2A	
		Outside diameter min.-max. (mm)	Width (mm)
100		120-135	100
125		150-165	100
150		175-190	100
200	160	235-250	100
200	240	250-265	100

Type 2B

- difference outside diameters max. 12 mm
- in combination with bushes

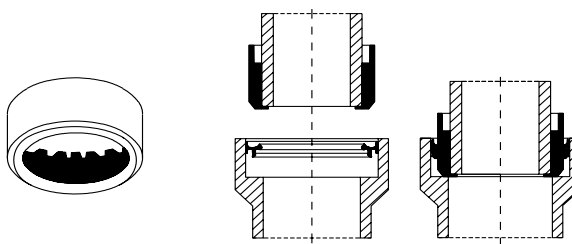
DN	Class	Type 2B	
		Outside diameter min.-max. (mm)	Width (mm)
400	160	460-490	190
400	200	480-510	190
		495-525	190
		510-540	190
		520-550	190
450	160	530-560	190
		555-580	190
500	120	570-600	190
500	160	590-620	190
		610-640	190
		630-660	190
		650-680	190
600	95	670-700	190
		685-715	190
600	160	705-735	190
		730-760	190
		750-780	190
700	L	775-805	190
		800-830	190
		820-850	190
700	200	845-875	190
		860-890	190
800	L	885-915	190
		900-930	190
		920-950	190
800	160	945-975	190
		970-999	190

DN	Class	Type 2B	
		Outside diameter min.-max. (mm)	Width (mm)
100		120-137	150
125		140-165	150
150		175-200	150
		190-215	150
		200-225	150
200	160	225-250	150
200	240	240-265	150
		265-290	150
250	160	285-310	190
		295-320	190
250	240	310-335	190
		315-345	190
300	160	335-360	190
300	240	355-385	190
		385-410	190
350	160	400-425	190
		405-430	190
350	200	420-445	190
		435-465	190

Other measures on request.

U ring

For the connection of spigots of other pipe materials to the socket of vitrified clay pipes with jointing system F p to D 2 . The U ring is attached to the spigot end of the pipe of the other material and inserted into the joint.

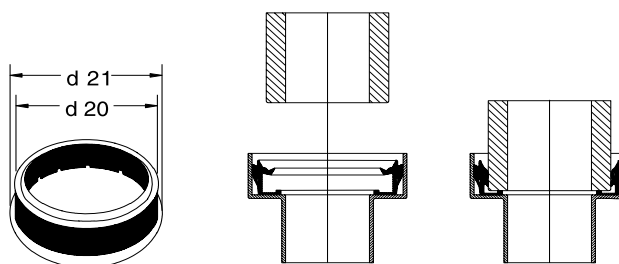


Vitrified clay pipe			Outside diameter of the other pipe diameter ⁽¹⁾ (mm)	Can be used for	
D	Jointing system	Strength class F (kN/m)		Cast iron ⁽¹⁾	PVC, PP, PE, ABS, ASA
100	F	34	±110	+	+
125	F	34	±135	+	-
125	F	34	±125	-	+
150	F	34	±160	+	+
150	F	34	170/168	+	-
200	F	32	±210	+	-
200	F	32	±200	-	+

⁽¹⁾ On the order, the outside diameter of the other connecting pipe must be specified.

A ring

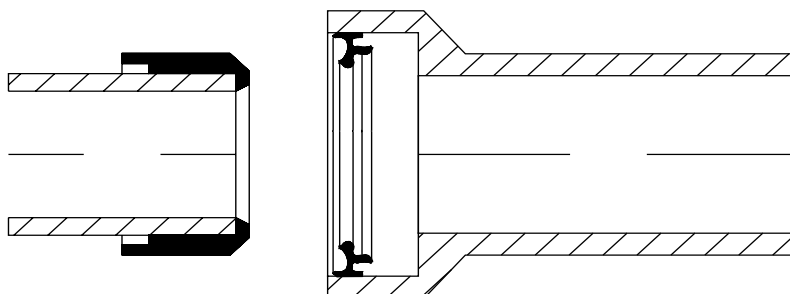
For the connection of spigots of vitrified clay pipes to sockets of cast iron pipes or pvc pipes. The A ring is placed into the cast-iron or plastic socket and the vitrified clay spigot is then inserted into the socket.



Vitrified clay pipe				Inside diameter of the ring (d20) (mm)	Outside diameter of the ring (d21) (mm)	Inside diameter of the socket (mm)
DN	Jointing system	Strength class	Crushing strength FN (kN/m)			
100	F		34	104 ± 1	183 ± 2	159 ± 2
125	F		34	130 ± 1	213 ± 2	187 ± 3,5
150	F		34	159 ± 1	245 ± 2	218 ± 3,5
200	F	160	32	215 ± 1	299 ± 2	278 ± 3,5

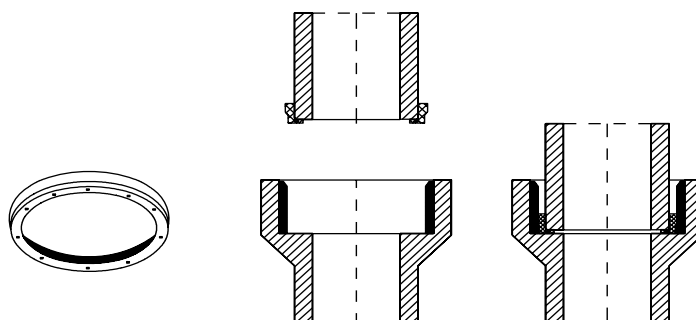
V ring (taper ring)

For the connection between vitrified clay pipes of DN 00 to DN 25 and DN 25 to DN 50.



P ring

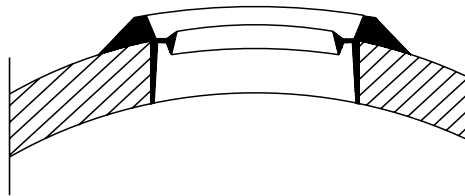
To replace the polyurethane sealing element on the spigot of vitrified clay pipes with jointing system C.



DN	Jointing system	Strength class	Crushing strength FN kN/m
200	C	60	32
200	C	240	48
250	C	60	40
250	C	240	60
300	C	60	48
300	C	240	72
400	C	60	64
400	C	200	80
450	C	60	72
500	C	20	60
500	C	60	60
600	C	95	57
600	C	60	96

B ring

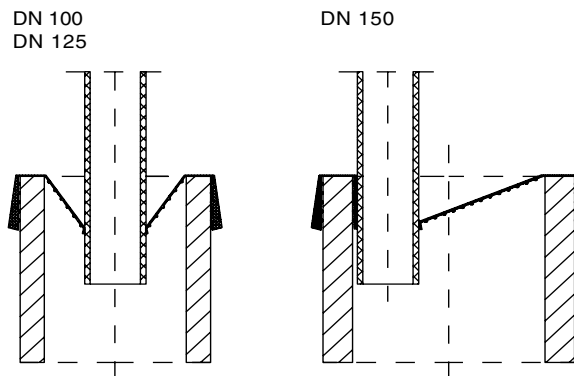
The B ring is used as a sealing ring combined with connection sockets DN 200 on main pipes with a diameter \geq DN 400.



B ring	DN	Jointing system	Strength class	Crushing strength FN (kN/m)	Ø Hole (mm)	Minimum diameter of the main pipe
	200	F	160	32	257 à 258	\geq 400 cl 160

Universal joint

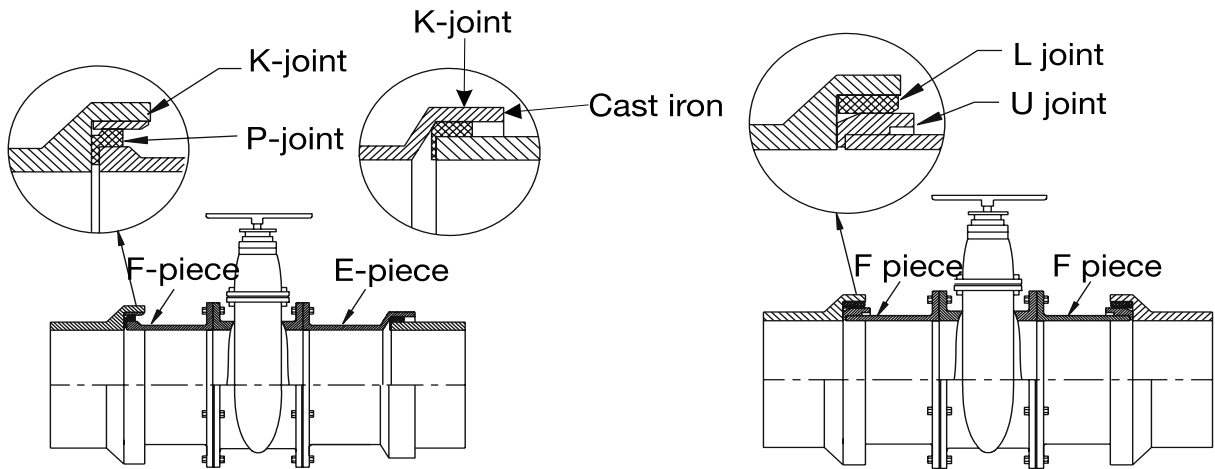
For the connection of small sanitary-pipes and rainwater fall pipes of the spigot of vitrified clay pipes in upright position.



DN	Jointing system	Crushing strength FN kN/m	Number/Packet
100	F	34	50
125	F	34	50
150	F	34	50

Flanged fittings

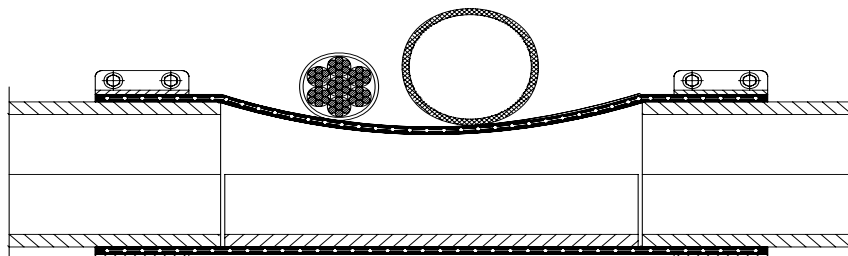
For the connection of valves to vitrified clay pipes.



Vitrified clay		Cast Iron					
DN	Jointing system	Length (mm)		Flens (mm)		Bolts	
		Spigot piece F	Socket piece E	Outside diameter	Diameter of the pitch	Type	Number
150	F	160		286	241	M20/80	8
200	C	150	105	340	295	M20/80	8
250	C	155	105	400	350	M20/80	12
300	C	152	110	455	400	M20/90	12
400	C	160	110	580	515	M24/100	16

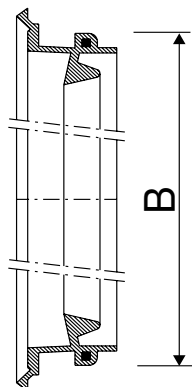
Keraflex

For crossing DN 150 and DN 200 v.c. pipes with other pipes, or cables in very narrow conditions. Available in lengths 30 cm and 40 cm.

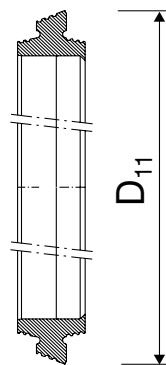


BKL, BKK sealing elements for prefabricated concrete inspection chambers ⁽¹⁾

These joints are built into the concrete walls of manholes in the concrete factory as a flexible connection to the v.c. pipes. The inside dimensions correspond to the dimensions of the joints of the vitrified clay sockets. The BKL joint allows a tight and flexible connection on the outside wall of the pipes with F jointing system, the BKK joint allows a tight and flexible connection with pipes with jointing system C (seals on the polyurethane sealing part of the spigot of the K or S joint or on the P joint).



BKL



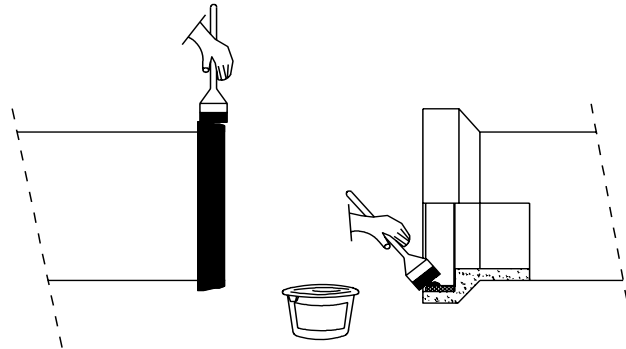
BKK

BKL ring ⁽¹⁾			BKK ring		
DN	Strength class	External diam. (B)	DN	Strength class	in polyurethane External diam. (D ₁₁)
150	-	210	200	160	335
200	160	268	200	240	351
			250	160	393
			250	240	418
			300	160	447
			300	240	476
			400	160	581
			400	200	591
			500	120	690
			500	160	730
			600	95	825
			600	160	845

⁽¹⁾ In order to prevent deformation the BKL ring must be held into place with a special polysterene ring mounted.

Lubricant

In pots of 1 kg and 3 kg.



Keramastic

Two component epoxy resin to stick and seal unglazed surfaces of vitrified clay pipes.

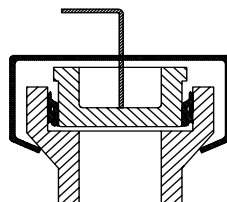


Adhesive

Two component adhesive for jointing saddles onto glazed surfaces of vitrified clay pipes.

Fixing hook

To secure vitrified clay stoppers during water testing.

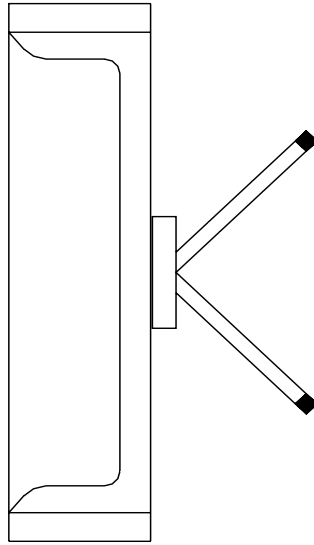


100	125	150	200	250	300	

technical data on request.

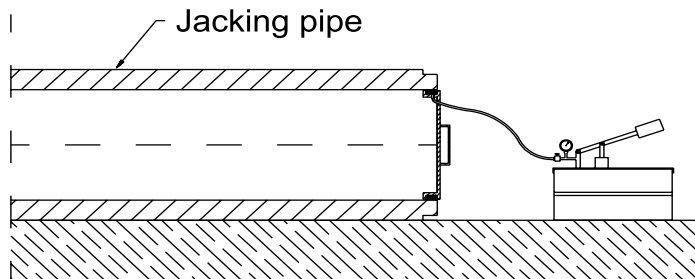
Quick-seal

To seal pipelines and manholes during water testing.



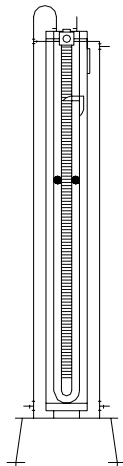
Testing device for jacking pipes

For testing pipe joints at the surface before installing the pipes in the jacking manhole.
For use to .



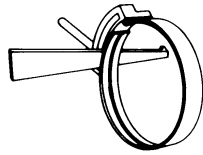
Testing device for air test

For air testing on site according to .



Cutting ring

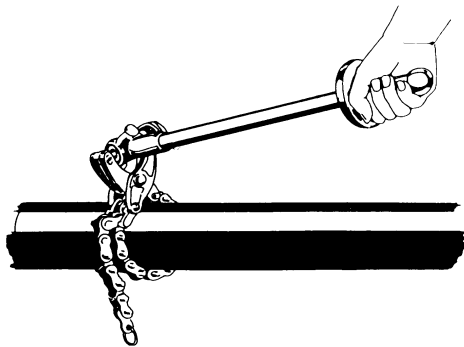
Cutting ring to shorten .c. pipes to the desired length.



DN		

Cutting chain

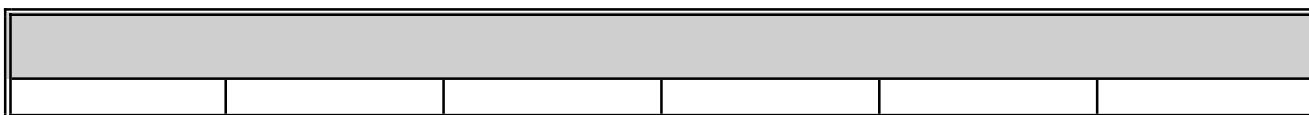
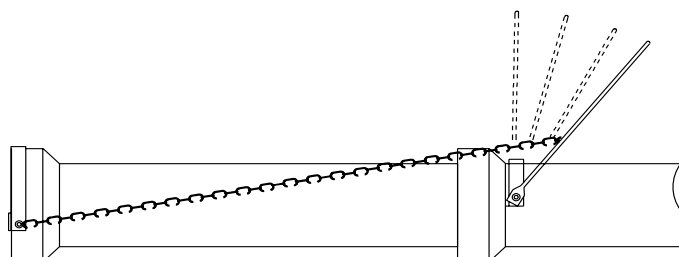
To shorten .c. pipes. One type can be used for all diameters indicated with .



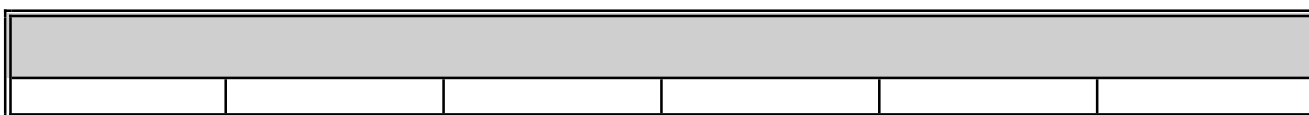
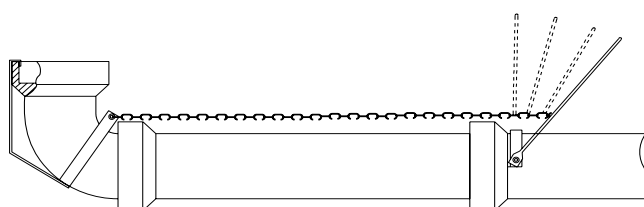
	DN						
Type	100	125	150	200	250	300	350
Type 246	X	X	X	-	-	-	-
Type 248	X	X	X	X	X	X	X

Device to pull pipes together

1. For pipes



2. For bends



Inserting device for connecting sockets

1. For type C40 -150, C70 -150, C100 - 150

2. For type F25 -150 154 161 169 173 181 189 190 199 205 206 216 221 225 226 235 236 242 243 245 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Service marker tape

Ahesive tape for marker pipes / sockets as to guarantee correct connections.
Waste water: red.
Rain water: green.





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