CARDS OF PRODUCTS

INTERNAL SEWAGE SYSTEM

1. PRODUCT NAME

Pipes and fittings of polypropylene (PP) for the internal sewage system of the diameter range: Ø32-Ø160 mm.

2. PURPOSE AND FEATURES OF THE PRODUCT

Pipes and fittings made of PP, designed for:

a) installations for discharge of sewage and domestic waste;
b) ventilation ducts associated with a)
c) installation for rainwater inside the building structure.

Area of application: the symbol "B" inside the building structure.

The PP sewage system is characterized by high resistance to high temperatures (can be used at temperatures up to + 90 °C).

3. TECHNICAL SPECIFICATIONS

PN-EN 1451-1:2018-02 Plastics piping for soil and waste discharge (low and high temperature) within the building structure – Polypropylene (PP) – Part 1: Specifications for pipes, fitting and system.

4. DECLARED PERFORMANCE

Essential characteristics of the product for the intended use or uses	**Declared performance**
Mass flow rate (MFR) for the material	MFR(230/2,16) ≤ 3,0 g/10 min.
Oxidation induction time (OIT) for the material	OIT ≥ 8 min. (temperature 200 °C)
External appearance and the color	The external and internal surfaces of pipes and fittings should be smooth, clean, free of unevenness, bubbles, impurities. the pores and any heterogeneity of the surface; pipes and fittings should be homogeneously colored in all cross section
Dimensions	according to table 1 and 2
Impact resistance of the pipe [%]	TIR ≤ 10
Longitudinal shrinkage of the pipe [%]	≤ 2; there should not be bubbles or cracks on the pipes.
Effect of heating on the fitting	Around the point(s) of injection, traces of the cracks, delamination or blistering should not exceed 20% of the wall thickness. No part of the connect line should not be obtuse to a depth greater than 20% of the wall thickness.
The tightness of the system connections tested with water	No leaks
The tightness of the system connections tested with air	No leaks
Resistance of the system connections to cyclic high temperatures	No leaks

Table 1. The dimensions of the pipes and fittings

Nominal size DN/DO	Nominal outer diameter (d_n) [mm]	The average external diameter d_{em} [mm]		Wall thickness e [mm]	
		$d_{em,\ min}$	$d_{em,\ max}$	e_{min}	$e_{m.,\ max}$
32	32	32,0	32,3	1,8	2,2
40	40	40,0	40,3	1,8	2,2
50	50	50,0	50,3	1,8	2,2
75	75	75,0	75,4	1,9	2,3
110	110	110,0	110,4	2,7	3,2
125	125	125,0	125,4	3,1	3,7
160	160	160,0	160,5	3,9	4,5

Table 2. The dimensions of sockets used to connect using the sealing ring and the bare ends

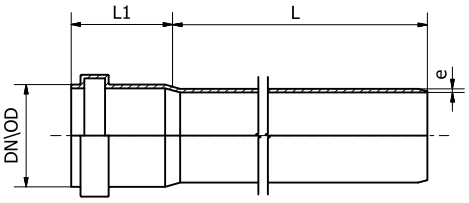
Nominal size DN/DO	Nominal external diameter d_n [mm]	Socket						Bare end
		$d_{sm,\ min}$ [mm]	$l_{1,\ min}$ [mm]	$d_{sm,\ min}$ [mm]	$d_{sm,\ min}$ [mm]	$d_{sm,\ min}$ [mm]	C_{max} [mm]	$l_{1,\ min}$ [mm]
32	32	32,3	1,6	1,0	24	5	18	42
40	40	40,3	1,6	1,0	26	5	18	44
50	50	50,3	1,6	1,0	28	5	18	46
75	75	75,4	1,7	1,1	33	5	18	51
110	110	110,4	2,4	1,5	36	6	22	58
125	125	125,4	2,8	1,8	38	7	26	64
160	160	160,5	3,5	2,2	41	9	32	73

$d_{sm,\ min}$ -the minimum average inside diameter of the socket
$e_{2,\ min}$ -minimum thickness of the wall of the socket
$e_{3,\ min}$ -minimum wall thickness in the groove zone
A_{min} -the minimum depth of the socket behind seal
B_{min} -the minimum length of the entry
C_{max} -the maximum depth of the sealing zone
$l_{1,\ min}$ -the minimum length of the bare end

5. ASSORTMENT

5.1 PIPES OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

PIPES

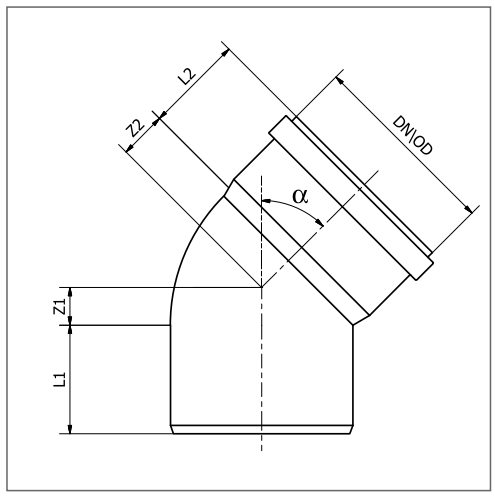


Diameter DN/OD (mm)	Wall thickness e (mm)	L (mm)	L 1 (mm)
32	1,8	250	48
32	1,8	315	48
32	1,8	500	48
32	1,8	1000	48
32	1,8	2000	48
32	1,8	3000	48
40	1,8	250	52
40	1,8	315	52
40	1,8	500	52
40	1,8	1000	52
40	1,8	2000	52
40	1,8	3000	52
40	1,8	4000	52
50	1,8	250	55
50	1,8	315	55
50	1,8	500	55
50	1,8	700	55
50	1,8	1000	55
50	1,8	1500	55
50	1,8	2000	55
50	1,8	3000	55
50	1,8	4000	55
75	1,9	250	57
75	1,9	315	57
75	1,9	500	57
75	1,9	1000	57
75	1,9	2000	57
75	1,9	3000	57
75	1,9	4000	57
110	2,7	250	63
110	2,7	315	63
110	2,7	500	63
110	2,7	700	63
110	2,7	1000	63
110	2,7	1500	63
110	2,7	2000	63
110	2,7	3000	63
110	2,7	4000	63
110	2,7	6000	63
125	3,1	500	62
125	3,1	1000	62
125	3,1	2000	62
125	3,1	3000	62
125	3,1	5000	62

5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

ELBOW

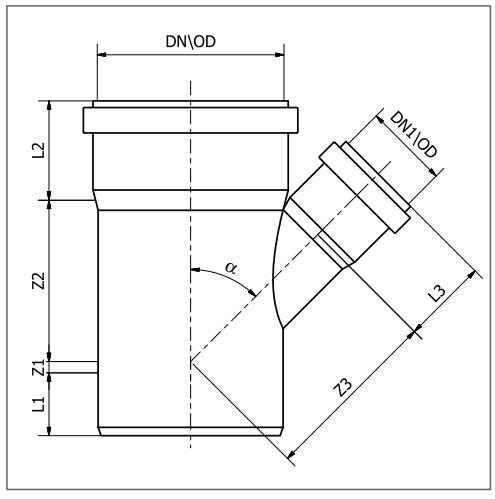


Diameter DN/OD (mm)	Angle α (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	L 1 (mm)	L 2 (mm)
32	15	1,8	3	5	48	47
32	22,5	1,8	4	6	48	47
32	30	1,8	5	9	48	47
32	45	1,8	8	12	48	47
32	67,5	1,8	13	17	48	47
32	87,5	1,8	16	24	48	47
40	15	1,8	2	10	52	50
40	30	1,8	5	12	52	50
40	45	1,8	7	16	52	50
40	67,5	1,8	14	20	52	50
40	87,5	1,8	22	26	52	50
50	15	1,8	3	7	54	51
50	22,5	1,8	6	10	54	51
50	30	1,8	7	11	54	51
50	45	1,8	11	16	53	51
50	67,5	1,8	18	23	54	51
50	87,5	1,8	26	32	54	51
75	15	1,9	6	9	56	55
75	30	1,9	7	18	56	55
75	45	1,9	14	23	56	55
75	67,5	1,9	26	31	56	55
75	87,9	1,9	30	39	56	55
110	15	2,7	4	17	65	60
110	22,5	2,7	9	20	65	60
110	30	2,7	15	22	65	60
110	45	2,7	21	33	65	60
110	67,5	2,7	38	45	65	60
110	87,5	2,7	55	62	65	60

5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

T-PIPE



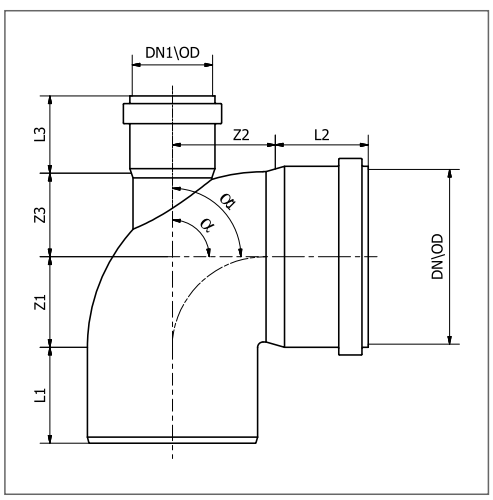
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
32	32	45	1,8	4	44	43	48	47	47
32	32	67,5	1,8	9	28	29	48	47	47
32	32	87,5	1,8	16	19	20	48	47	47
40	40	45	1,8	19	25	25	52	50	50
40	40	67,5	1,8	12	36	35	52	50	50
40	40	87,5	1,8	9	52	52	52	50	50
50	32	45	1,8	-2	52	56	53	51	47
50	32	67,5	1,8	6	30	34	47	45	40
50	32	87,5	1,8	16	22	25	53	51	47
50	50	45	1,8	10	62	61	53	51	51
50	50	67,5	1,8	15	43	42	53	51	51
50	50	87,5	1,8	27	27	26	54	51	51
75	50	45	1,9	-2	78	84	56	55	51
75	50	67,5	1,9	11	48	57	56	55	51
75	50	87,5	1,9	23	32	45	56	55	51
75	75	45	1,9	16	94	94	56	55	55
75	75	67,5	1,9	23	62	60	56	55	55
75	75	87,5	1,9	35	44	44	56	55	55
110	50	45	2,7	-19	93	106	67	60	51
110	50	67,5	2,7	2	57	76	64	60	51
110	50	87,5	2,7	22	34	62	67	60	51
110	75	45	2,7	-2	114	119	65	60	55
110	75	67,5	2,7	18	65	77	68	65	50
110	75	87,5	2,7	36	46	62	65	60	55
110	110	45	2,7	21	139	138	64	60	60
110	110	67,5	2,7	35	89	89	64	60	60
110	110	87,5	2,7	54	61	60	64	59	59

5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

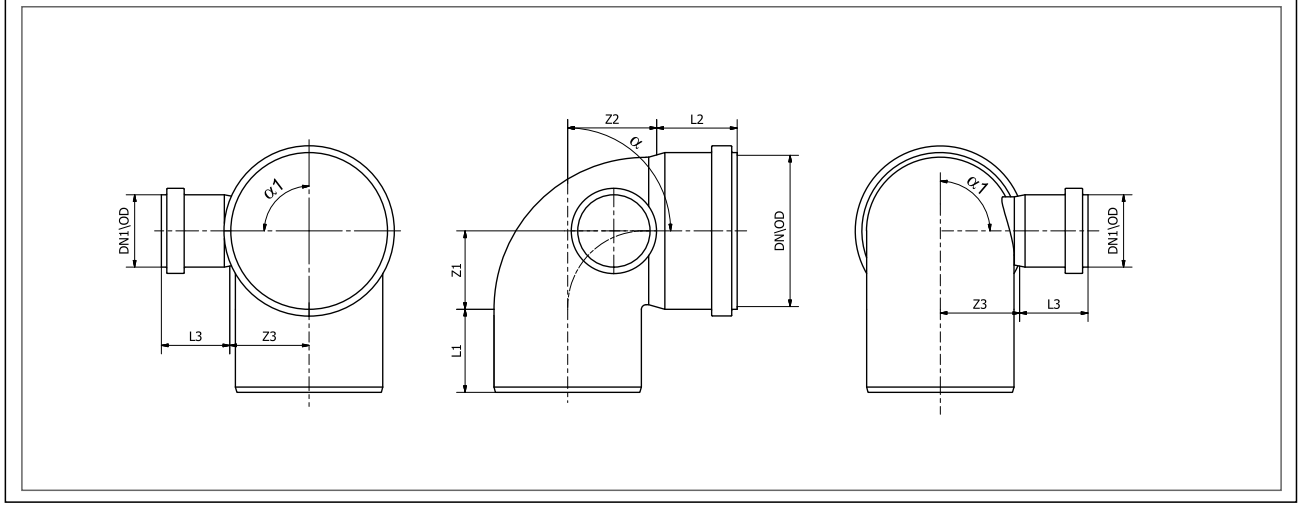
ELBOW SHAPE TEE FITTING 110/50/87,5/87,5

Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (˚)	Angle α1 (˚)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	87,5	87,5	2,7	53	64	60	65	60	50



ELBOW SHAPE TEE FITTING RIGHT 110/50/87,5/90

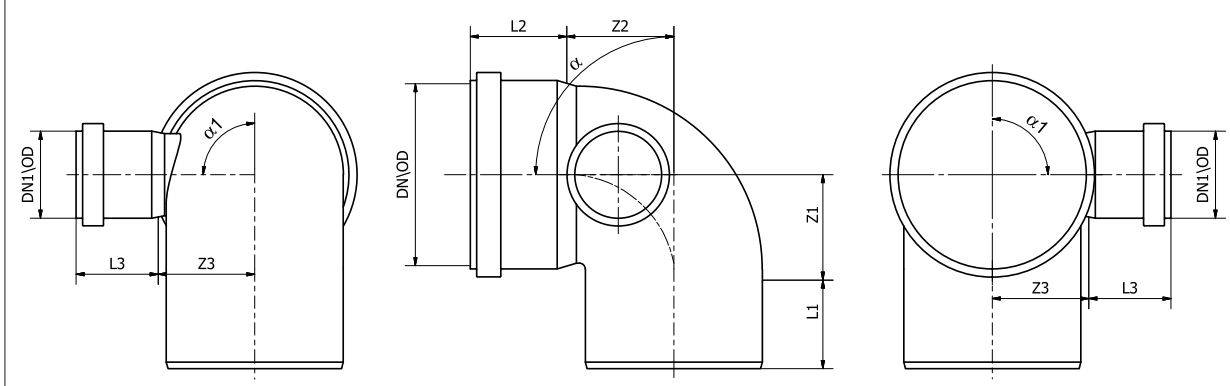
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (˚)	Angle α1 (˚)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	87,5	90	2,7	54	64	60	64	60	51



5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

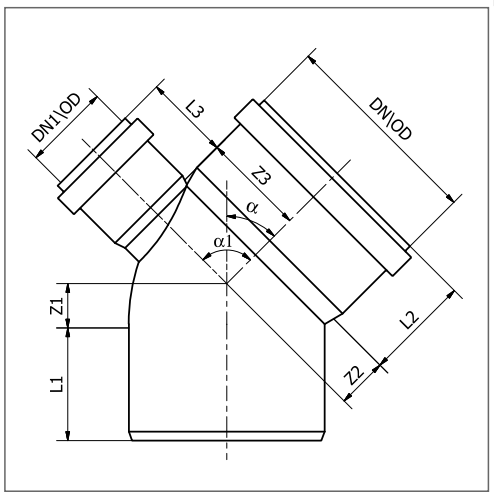
ELBOW SHAPE TEE FITTING LEFT 110/50/87,5/90

Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	87,5	90	2,7	54	64	60	64	60	51



ELBOW SHAPE TEE FITTING 110/50/45/90

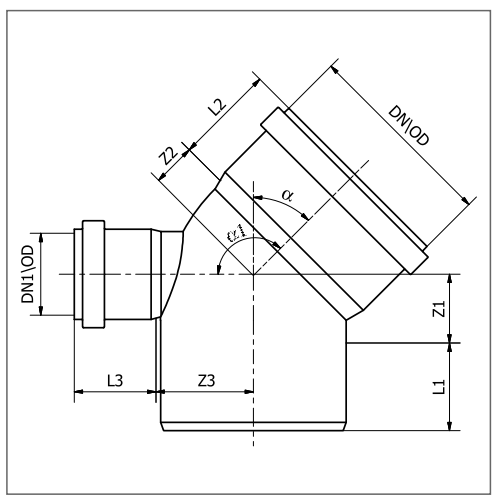
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	45	90	2,7	25	27	58	65	60	50



5. ASSORTMENT

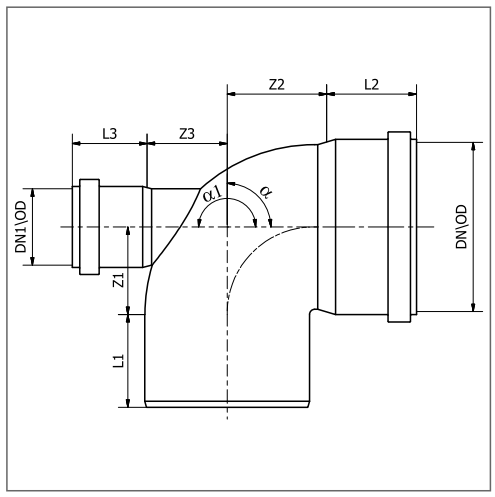
5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

ELBOW SHAPE TEE FITTING 110/50/45/135



Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	45	135	2,7	25	27	58	65	60	50

ELBOW SHAPE TEE FITTING 110/50/87,5/180



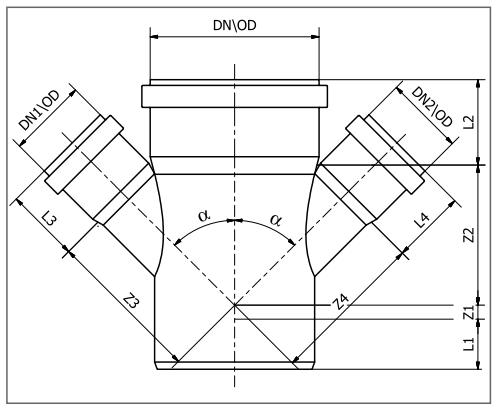
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	87,5	175	2,7	53	64	51	65	60	50

5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

CROSS

Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Diameter DN2/OD (mm)	Angle α (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	Z 4 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)	L 4 (mm)
50	50	50	45	1,8	9	62	63	63	54	49	49	49
50	50	50	87,5	1,8	26	27	27	27	55	51	51	51
110	50	50	45	2,7	-22	95	109	109	68	63	49	49
110	50	50	87,5	2,7	24	31	60	60	67	60	51	51
110	110	50	90	2,7	58	57	56	59	67	63	63	45
110	110	110	45	2,7	22	137	137	137	69	66	66	66
110	110	110	87,5	2,7	53	63	63	60	64	60	60	60

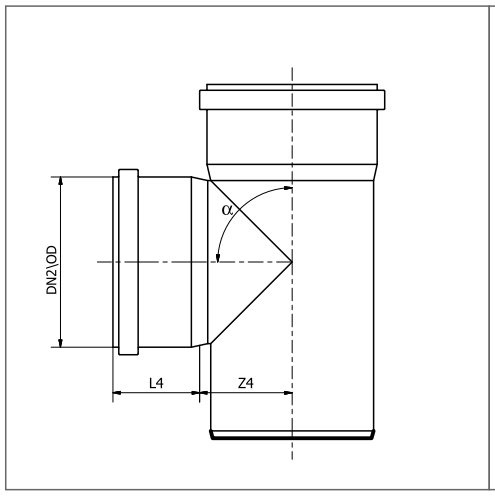


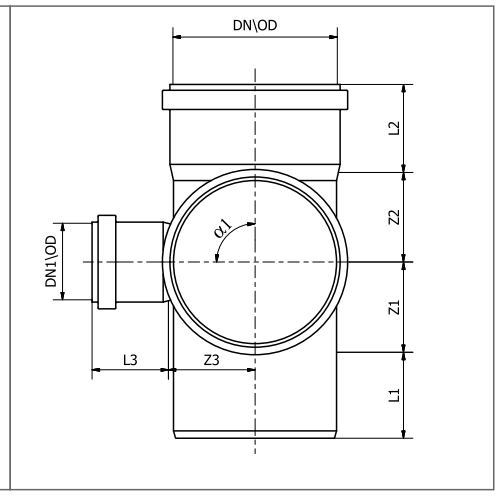
5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

CROSS
(TWO - PLANE) 110/50/110/87,5/87,5 RIGHT

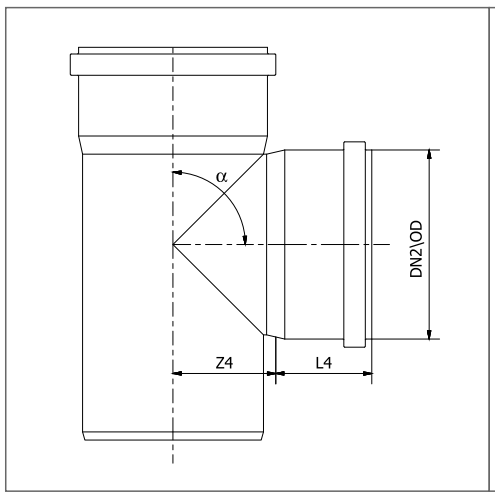
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Diameter DN2/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	Z4 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)	L 4 (mm)
110	50	110	87,5	87,5	2,7	54	61	60	60	64	59	47	59

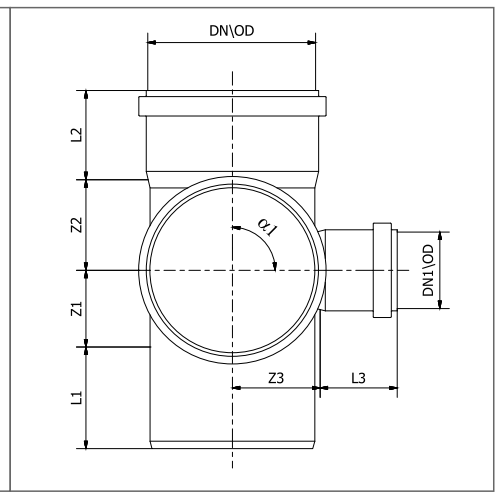




CROSS
(TWO - PLANE) 110/50/110/87,5/87,5 LEFT

Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Diameter DN2/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	Z4 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)	L 4 (mm)
110	50	110	87,5	87,5	2,7	54	61	60	60	64	59	47	59

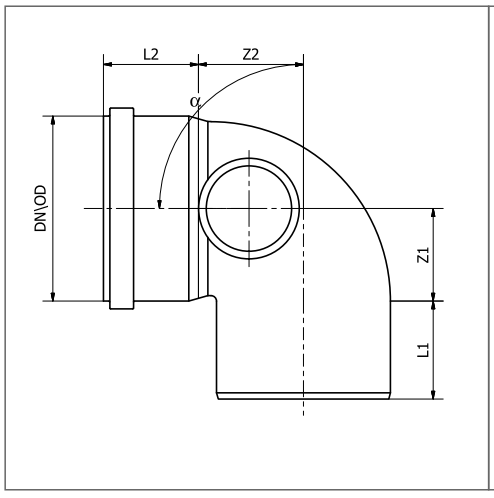


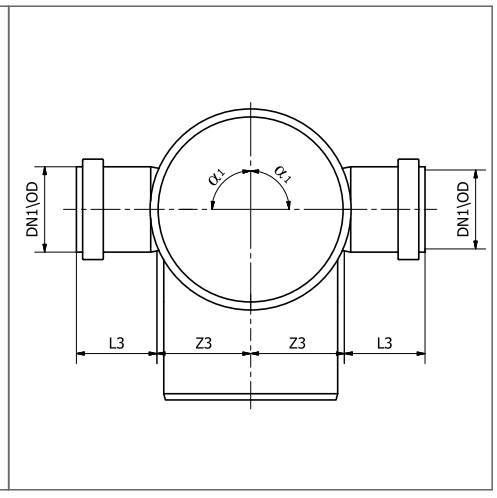


5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

ELBOW
SHAPE TEE FITTING

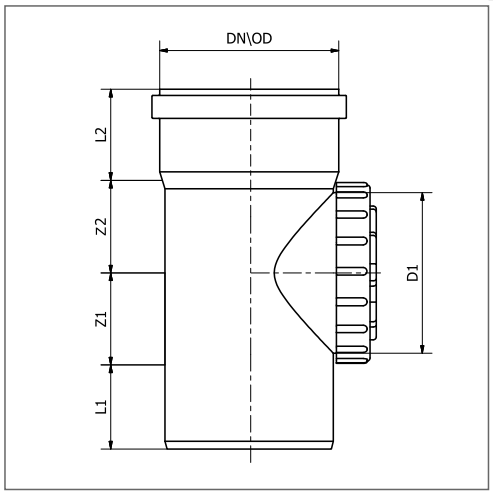
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Angle α1 (°)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	Z 3 (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)
110	50	87,5	90	2,7	54	64	60	64	60	51





CLEANOUT

Diameter DN/OD (mm)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	L 1 (mm)	L 2 (mm)	D 1 (mm)
50	1,8	27	30	56	51	45
75	1,9	39	43	61	47	70
110	2,7	53	61	63	60	99

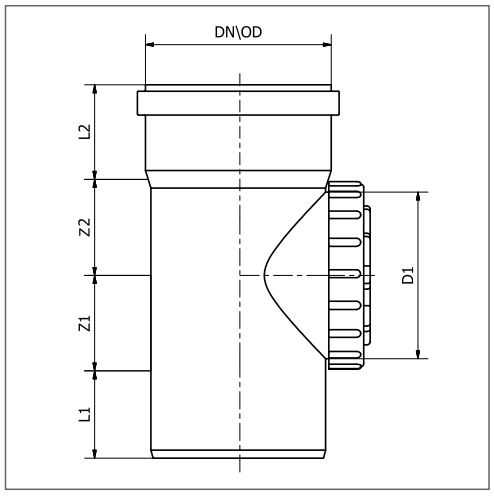


5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

CLEANOUT WITH SEPARATOR

Diameter DN/OD (mm)	Wall thickness (mm)	Z 1 (mm)	Z 2 (mm)	L 1 (mm)	L 2 (mm)	D1 (mm)
110	2,7	53	57	64	61	98

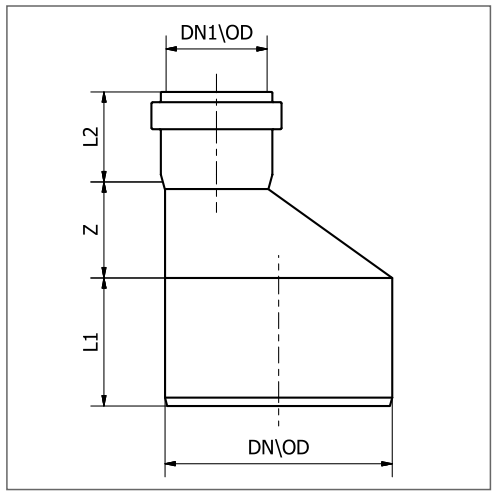


5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

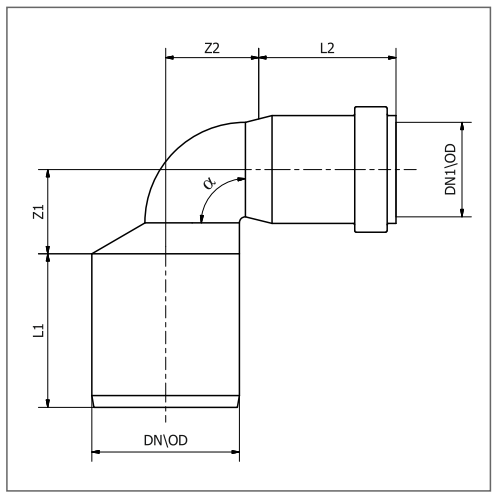
REDUCER

Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Wall thickness (mm)	Z (mm)	L 1 (mm)	L 2 (mm)
40	32	1,8	15	49	47
50	32	1,8	13	52	47
50	40	1,8	12	56	50
75	50	1,9	19	53	51
110	50	2,7	37	62	51
110	75	2,7	26	62	55



ANGULAR REDUCER

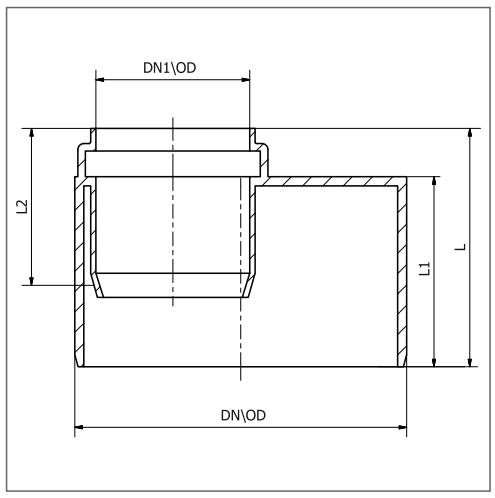
Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Angle α (°)	Wall thickness (mm)	Z1 (mm)	Z2 (mm)	L1 (mm)	L2 (mm)
50	32	90	1,8	27	32	52	47



5. ASSORTMENT

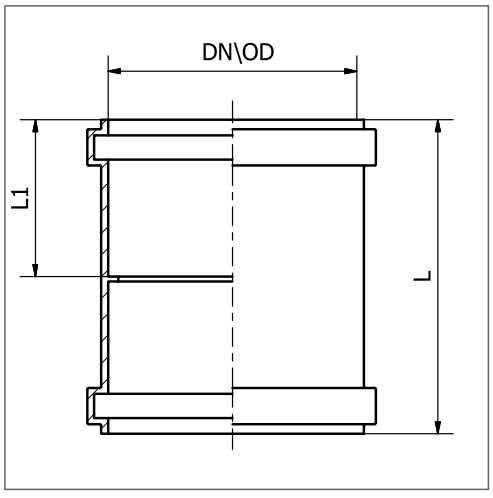
5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

SHORT
REDUCER



Diameter DN/OD (mm)	Diameter DN1/OD (mm)	Wall thickness (mm)	L (mm)	L1 (mm)	L2 (mm)
50	32	1,8	62	48	47
50	40	1,8	64	48	50
75	50	1,9	71	54	51
110	50	2,7	79	62	51
110	75	2,7	79	62	55

COUPLING



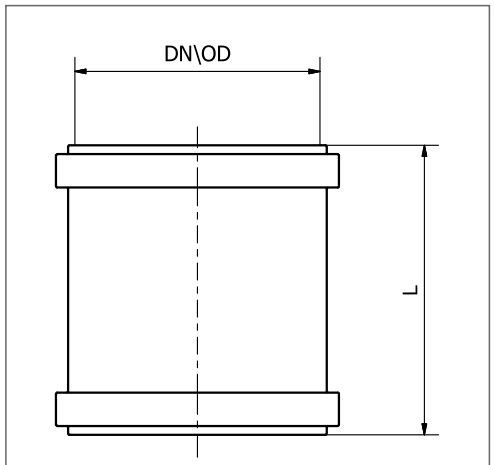
Diameter DN/OD (mm)	Wall thickness (mm)	L (mm)	L1 (mm)
32	1,8	85	41
40	1,8	89	43
50	1,8	105	51
75	1,9	108	52
110	2,7	130	63

5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

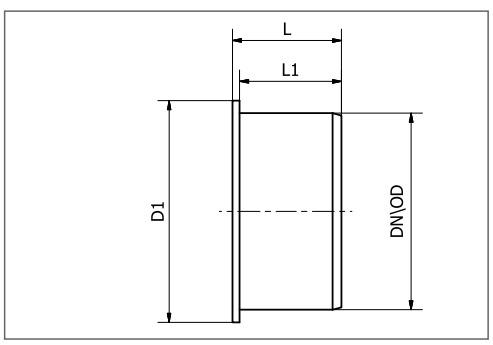
SLEEVE JOINT

Diameter DN/OD (mm)	Wall thickness (mm)	L (mm)
32	1,8	85
40	1,8	89
50	1,8	105
75	1,9	108
110	2,7	130



PLUG

Diameter DN/OD (mm)	Wall thickness (mm)	D1 (mm)	L (mm)	L1 (mm)
32	1,8	37	30	27
40	1,8	47	36	33
50	1,8	61	41	38
75	1,9	86	47	43
110	2,7	124	61	57

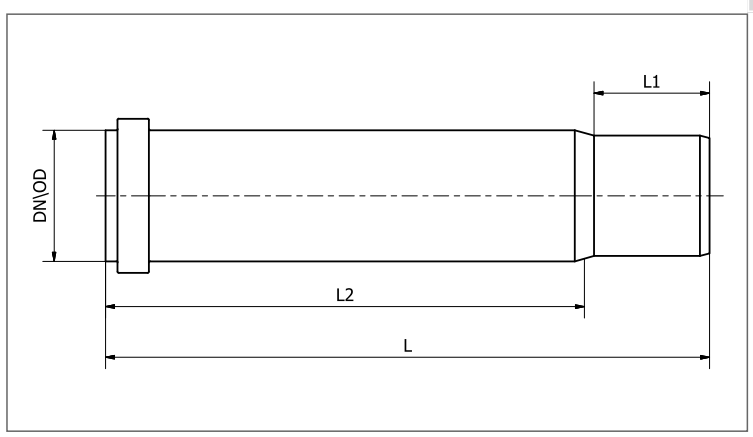


5. ASSORTMENT

5.2 FITTINGS OF POLYPROPYLENE (PP) FOR THE INTERNAL SEWAGE SYSTEM

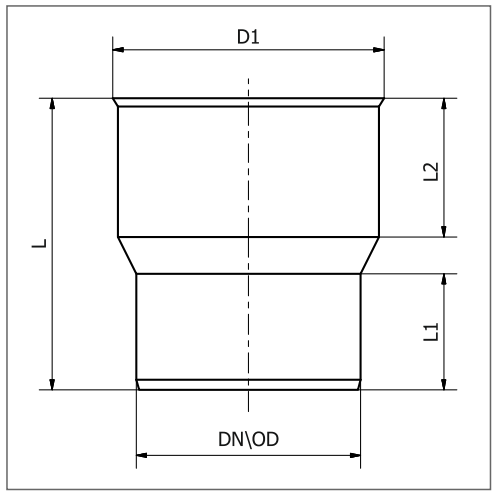
EXTENTENDED SOCKET STUB PIPE

Diameter DN/OD (mm)	Wall thickness (mm)	L (mm)	L1 (mm)	L 2 (mm)
50	1,8	251	47	200
110	2,7	250	63	182



CAST IRON COUPLING

Diameter DN/OD (mm)	Wall thickness (mm)	D1 (mm)	L (mm)	L1 (mm)	L2 (mm)
50	1,8	72	123	46	53
110	2,7	124	143	57	66



6. PACKING, STORAGE, TRANSPORT

6.1 PACKING

Fittings depending on the type and arrangements are packed in bags of various types and sizes, cartons or are tied together by using a string.
Depending on the length, the pipes are packed, in palette holders or on platforms. Products in white are placed in cartons or in handles, and they are packed in plastic bags.
Often the packaging method depends on individual arrangements with a recipient.

6.2 STORAGE

Pipes should be stored in a horizontal position, on an even surface, on wooden, or made of other material, pallets or platforms, spaced in distances from 0.7 to 2 m. Pipes and fittings during their storage, should be protected against mechanical impacts that would lead to damage or lower functional properties.
Because these plastics have limited resistance to elevated temperature and ultraviolet radiation, longer storage of products should take place in roofed or enclosed spaces, to protect them against direct and excessive sunlight.

6.3 TRANSPORT

Pipes should be transported in a horizontal position, means of transport of appropriate length. Avoid transporting pipes and fittings in bulk, together with other building materials, to avoid mechanical damage. During the reloading work, steel ropes should not be used. Products should not be dropped and pulled on the ground but carried.

7. MARKING

The marking on the pipes includes:
- the company sign - the company logo - ARMAKAN PVC;
- manufacturer's address - Wądoły 20, 56-400 Oleśnica;
- manufacturing plant address - Moniuszki 21, 56-400 Oleśnica
- trade name - e.g. Pipe;
- type of material - PP;
- dimensions - diameter X wall thickness e.g. 110X2,7;
- technical specification number – PN-EN 1451-1:2018-02;
- application area symbol - "B";
- construction mark together with the last two digits of the year, in which it was placed on the construction product for the first time 04
- date and time of production - dd.mm.yyyy hh:mm;
- production line number - e.g. L:7;
- no. of the national declaration of performance - e.g. KDWU No. 1/2018.

The marking on the fittings includes:
- the company sign - the company logo - ARMAKAN PVC;
- trade name - e.g. KL (elbow), TR (T- pipe), SLEEVE CONNECTOR;
- type of material - PP;
- dimensions - diameter / angle (when it is present);
- technical specification number – EN 1451;
- application area symbol - "B";
- construction mark together with the last two digits of the year, in which it was placed on the construction product for the first time 04
- production date - month and year.

8. SYSTEM INSTALLATION

When installing pipes and fittings, national and/or local requirements and technical regulations should be taken into account.
When assembling cup connections with an elastomer gasket, it is recommended to observe the following rules:

a) a bare end should be beveled;
b) bare ends of pipes should be cut at the construction site, they should be cut perpendicular and chamfered in the same way, like finished pipes and fittings supplied by F. P. H. U. "ARMAKAN" - PVC Kiebus Krzysztof;
c) bare ends, cups, and grooves for elastomer seals should be clean, and the gaskets should be properly placed;
d) only gaskets and lubricants supplied/recommended by the manufacturer of pipes and fittings should be used – F. P. H. U. "ARMAKAN" - PVC Kiebus Krzysztof;
e) The “SLIDER” sliding agent, which is used to facilitate the assembly and disassembly of plastic pipes and fittings, should be applied to the gasket and bare end of the pipe or fittings. This method significantly extends the service life of the gaskets. It is frost resistant and has the PZH attest (Państwowy Zakład Higieny - National Institute of Hygiene).
f) the bare ends should be axially aligned with the cups to be joined and inserted to the required depth.

Pipes and fittings, made of homopolymer PP, due to limited impact strength at low temperatures, are not intended for installation at temperatures lower than +5 ° C.

9. GUARANTEE

The company provides sewage systems produced by it with the statutory warranty and guarantee for a period of 20 years from the date of sale under the following conditions:

1. proper transport, storage;
2. using the product for its intended purpose;
3. assembly of the sewage system, taking into account the specific requirements and relevant national regulations, guidelines for the implementation of the installation and technical regulations.

1. PRODUCT NAME

Pipe for inside rain water drainage / sewage ventilation.

2. PURPOSE AND FEATURES OF THE PRODUCT

Sewage pipes ARMAKAN of PVC-U are intended for internal the rain water sewage system, for draining rain water from roofs, installed indoors without exposure to the direct action of atmospheric agents.
They may be also used as ventilation ducts in installation of sanitary sewage system inside buildings. The ventilation ducts of the sewage system should be run through rooms where the air temperature is higher than 0 ° C.
Area of application: the symbol "B" inside the building.

3. TECHNICAL SPECIFICATIONS

National technical assessment ITB-KOT-2017/0198 edition 1 dated of 18.08.2017, valid until 18.08.2022.

4. DECLARED PERFORMANCE

Essential characteristics of the product for the intended use or uses	Declared performance
Dimensional tolerances	according to table 1 and 2
Temperature of softening temperature by Vicat [°C]	≥ 79
Resistance to dichloromethane	The lack of impact
Longitudinal shrinkage [%]	≤ 5 no blisters, cracks and delamination
Impact resistance [%]	TIR ≤ 10
Tightness of the socket connections	No leaks during testing and after the test, the decrease in vacuum ≤-0.27 bar
The tightness of the system connections tested with water	No leaks
The tightness of the system connections tested with air	No leaks
Resistance to internal pressure	No damage

Table 1. Dimensions of the pipes

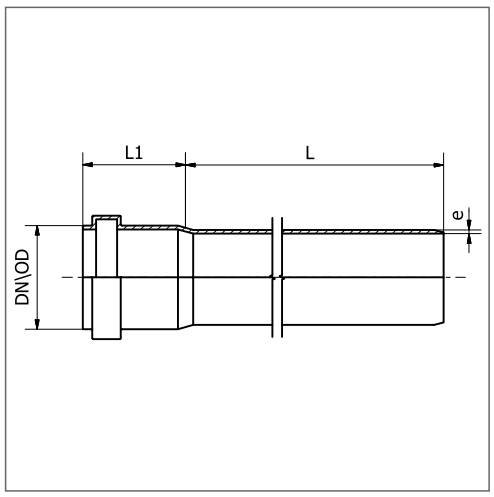
Nominal external diameter DN	Average outside diameter and tolerance (+) [mm]	Wall thickness e [mm]	
		e_{min}	e_{min}
32	32,0 + 0,3	1,8	2,2
40	40,0 + 0,3	1,8	2,2
50	50,0 + 0,3	1,8	2,2
75	75,0 + 0,4	1,9	2,3
110	110,0 + 0,4	2,2	2,6

Table 2. Dimensions of the sockets

Nominal external diameter DN	Dimensions of the socket [mm]		
	Min. inside diameter of the socket	Min. length of the socket to the beginning of a chamfer	Min. wall thickness of the socket
32	32,3	16	1,6
40	40,3	18	1,6
50	50,3	20	1,6
75	75,4	25	1,6
110	110,4	32	2,0

5. ASSORTMENT

PIPE
FOR INSIDE RAIN WATER DRAINAGE / SEWAGE VENTILATION



Diameter DN/OD (mm)	Wall thickness e (mm)	L (mm)	L 1 (mm)
32	1,8	250	42
32	1,8	315	42
32	1,8	500	42
32	1,8	1000	42
32	1,8	2000	42
32	1,8	3000	42
40	1,8	250	48
40	1,8	315	48
40	1,8	500	48
40	1,8	1000	48
40	1,8	2000	48
40	1,8	3000	48
40	1,8	4000	48
50	1,8	250	48
50	1,8	315	48
50	1,8	500	48
50	1,8	700	48
50	1,8	1000	48
50	1,8	1500	48
50	1,8	2000	48
50	1,8	3000	48
50	1,8	4000	48
75	1,9	250	56
75	1,9	315	56
75	1,9	500	56
75	1,9	1000	56
75	1,9	2000	56
75	1,9	3000	56
75	1,9	4000	56
110	2,2	250	62
110	2,2	315	62
110	2,2	500	62
110	2,2	700	62
110	2,2	1000	62
110	2,2	1500	62
110	2,2	2000	62
110	2,2	3000	62
110	2,2	4000	62
110	2,2	6000	62

6. PACKING, STORAGE, TRANSPORT

6.1 PACKING

The pipes are packed in bundles, handles or slats creating a palette (it depended at length and diameter of pipe).
Products in white are packed in plastic bags.
Often the packaging method depends on individual arrangements with a recipient.

6.2 STORAGE

Pipes should be stored in a horizontal position, on an even surface, on wooden, or made of other material, pallets or platforms, spaced in distances from 0.7 to 2 m. Pipes during their storage, should be protected against mechanical impacts that would lead to damage or lower functional properties.
Because these plastics have limited resistance to elevated temperature and ultraviolet radiation, longer storage of products should take place in roofed or enclosed spaces, to protect them against direct and excessive sunlight.

6.3 TRANSPORT

Pipes should be transported in a horizontal position, means of transport of appropriate length. Avoid transporting pipes in bulk, together with other building materials, to avoid mechanical damage. During the reloading work, steel ropes should not be used. Products should not be dropped and pulled on the ground but carried.
Special care should be taken at ambient temperatures low than +5 °C.

7. MARKING

The marking on the pipes includes:
- the company sign - the company logo - ARMAKAN PVC;
- manufacturer's address - Wądoły 20, 56-400 Oleśnica;
- manufacturing plant address - Moniuszki 21, 56-400 Oleśnica;
- trade name – Pipe for inside rain water drainage / sewage ventilation;
- type of material – PVC-U;
- dimensions - diameter X wall thickness e.g 110 X 2,2;
- technical specification number – ITB-KOT-2017/0198 wydanie 1;
- application area symbol - "B”;
- construction mark together with the last two digits of the year, in which it was placed on the construction product for the first time

- date and time of production - dd.mm.yyyy hh:mm;
- production line number - e.g. L:4;
- no. of the national declaration of performance - e.g. KDWU nr 7/2017.

8. SYSTEM INSTALLATION

When installing pipes and fittings, national and/or local requirements and technical regulations should be taken into account.
When assembling cup connections with an elastomer gasket, it is recommended to observe the following rules:

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3. assembly of the sewage system, taking into account the specific requirements and relevant national regulations, guidelines for the implementation of the installation and technical regulations.

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