



---

# MODERN WASTEWATER SYSTEMS

---







## The SINIKON Company is a Russian manufacturer of high-quality European pipe products!

The SINIKON company provides the Russian market with the integrated solutions for the sewerage systems made of modern polymeric materials and produced on its own facilities.

The SINIKON Company was founded in 1996 and is the leading manufacturer and seller of sewerage pipes in Russia.

The co-founder of the company is the Italian VALSIR plant, which is part of FONDITAL International Holding (one of the world's leading manufacturers of heating, water supply and sewerage systems).

SINIKON's production facilities are located in the city of Troitsk, New Moscow. Currently, we have completed construction of a second production line, which will allow the company to produce a wider range of polypropylene sewerage components, as well as UPVC pipes and fittings for outdoor sewerage systems.

SINIKON's work is based on the principle of constant improvement: we always upgrade production, introduce new technologies, and expand our range of products.

The company pays particular attention to the

educational programmes: we have a conference room and training halls; highly qualified staff members from SINIKON's Training Centre regularly organize lectures, seminars, and master classes for engineering systems' specialists.

Thanks to new technologies and an expanding product range, the SINIKON Company offers integrated solutions for water supply and sewerage systems made of modern polymeric materials. It ensures perfect compatibility of all system components, reliability, comfort and long-term faultless operations.

Now our factory has different lines and machines for producing pipes and fittings for internal sewerage systems:

- **SINIKON Standard** - polypropylene push-fit pipes and fittings for the drainage of domestic wastewater (low and high temperatures – up to 95°C).

- Soundproof **SINIKON Comfort** - Polypropylene push-fit pipes and fittings are produced with the addition of minerals and have an increased wall thickness therefore the product has a reduced noise level. Such systems are in high demand in hotels and hospitals.



# SINIKON Polypropylene Pipes and Fittings

## General information

Polypropylene sewer systems have a range of undeniable advantages when compared to systems made of conventional materials, such as cast iron, as well as systems made of other polymer materials (polyvinyl chloride (PVC), polyethylene (HDP)).

## Advantages of polypropylene systems are the following:

- increased resistance to most chemical substances;
- stable;
- smooth inner surface prevents formation of deposits and scale of clear opening;
- have light weight, which significantly reduces expenses for storage and transportation;
- flare joint with pre-installed O-ring significantly reduces mounting time with higher reliability and hermetic property of the connection;
- upper limit of acceptable operating temperatures (80°C) significantly outperforms acceptable temperature limit for PVC and HDP pipes (60°C);
- the widest range of fabricated shapes allows implementation of any design solutions.

## Purpose and application area

Polypropylene sewage pipes and fittings are designed to be used in household sewage system of buildings with maximum temperature of base flows of up to 80°C and short term (within 1 minute) flows with temperature of up to 95°C. They may be used for removal of chemically aggressive waste with pH value ranging between 2 (acid environment) and 12 (alkaline environment). When pipes and fabricated shapes are used to transport untreated industrial waste, chemical stability of pipe material shall be tested.

Pipes are manufactured based on Technical Specifications 4926-010-42943419-97, and fittings are manufactured based on Technical Specifications 4926-012-42943419-2004 developed by SINIKON LLC in accordance with European regulation EN1451. Application of the products is regulated under SNiP 2.04.03-85, CP 30.1333.0.2012, CR 40-102-2000, and CR 40-107-2003.

All products have valid GOST R compliance certificates for mass production and permit to use conformity sign for voluntary certification of products.

**Service life** of pipelines is not less than 50 years subject to compliance with current regulations and manufacturer's recommendations.

## Material

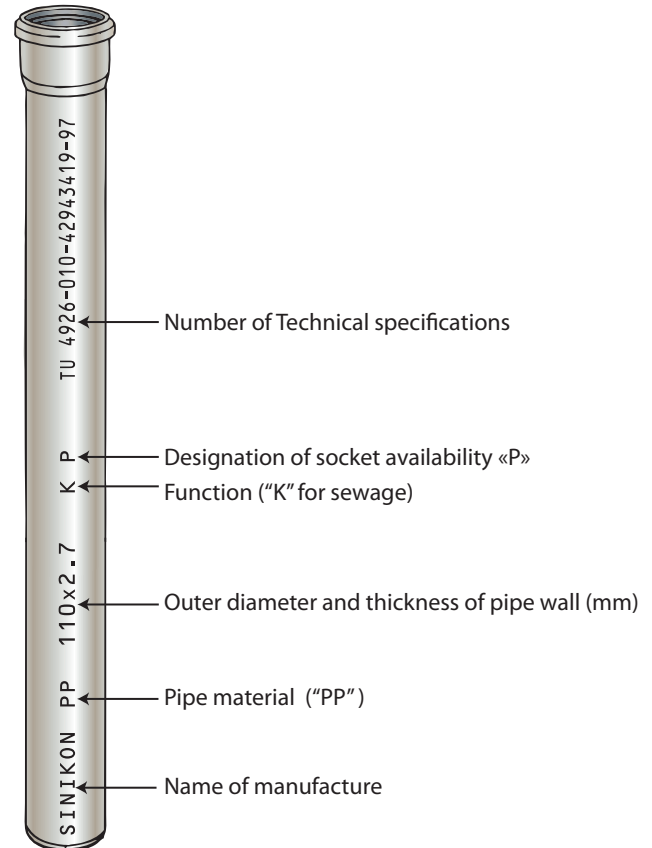
SINIKON polypropylene sewage pipes are manufactured by extrusion, and SINIKON fittings are manufactured by pressure casting from propylene homopolymer (type 1) PP-H. Basic properties of the material are specified in table.

Name	Measuring Unit		Method
Density	gr/cm <sup>3</sup>	0,9-0,95	ГОСТ 15139-69
Linear expansion coefficient	mm/m °C	0,15	ГОСТ 15173-70
Melting point	°C	>160	ГОСТ 21553-76
Thermal conductivity	Вт/м °C	0,26	ГОСТ 23630-79

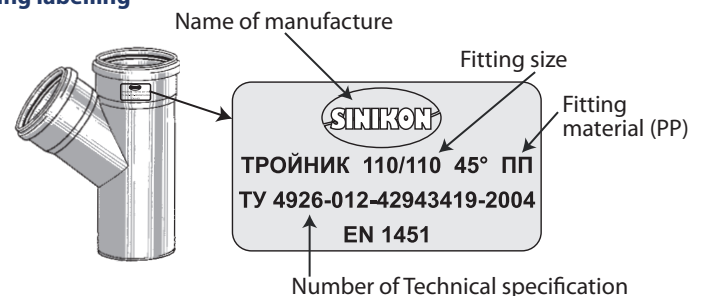
## Colour

Grey metallic

## Pipe labelling



## Fitting labelling



## Sealing

Double-lobe sealing from soft styrene butadiene rubber (SBR 40±5 IRDH) with plastic (polypropylene PP) spacer. It is designed for plastic pipes and fittings made of PP and PVC based of EN 1451-1 and EN 14-1-1 Regulations and corresponds to requirements of EN 681-1 WC/WCL and DIN 4060. Manufacturer: M.O.L. Gummivverarbeitung GmbH & Co.

## Coupling technique

Flare joint. Mounting does not require any special tools or machines.

## Pipes with sockets

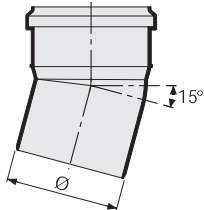


ø	COD.	e (mm)	L (mm)	Weight (kg)	Pcs in pack.
32	500003	1,8+0,4	250	0,055	120
32	500005	1,8+0,4	500	0,100	60
32	500009	1,8+0,4	1000	0,200	150
32	500013	1,8+0,4	2000	0,345	150
40	500023	1,8+0,4	250	0,075	30
40	500025	1,8+0,4	500	0,125	40
40	500029	1,8+0,4	1000	0,235	100
40	500033	1,8+0,4	2000	0,445	100
50	500041	1,8+0,4	150	0,060	75
50	500043	1,8+0,4	250	0,090	50
50	500045	1,8+0,4	500	0,160	30
50	500047	1,8+0,4	750	0,230	50
50	500049	1,8+0,4	1000	0,300	50
50	500051	1,8+0,4	1500	0,440	50
50	500053	1,8+0,4	2000	0,560	50
50	500055	1,8+0,4	3000	0,850	50
110	500081	2,7+0,5	150	0,210	90
110	500083	2,7+0,5	250	0,325	30
110	500085	2,7+0,5	500	0,535	30
110	500087	2,7+0,5	750	0,780	30
110	500089	2,7+0,5	1000	1,105	30
110	500091	2,7+0,5	1500	1,515	30
110	500093	2,7+0,5	2000	1,900	30
110	500095	2,7+0,5	3000	2,855	15



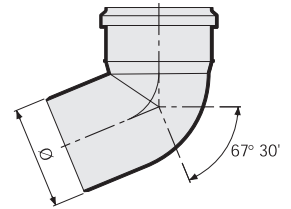
### Bend 15°

ø	COD.	Weight (kg)	Pcs in package
32	504001R	0,020	50
40	504013R	0,030	50
50	504025R	0,040	20
110	504049R	0,165	20



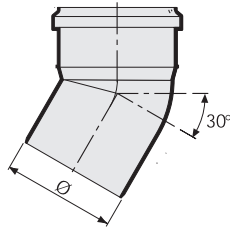
### Bend 67°30'

ø	COD.	Weight (kg)	Pcs in pack.
32	504007R	0,025	50
40	504019R	0,035	50
50	504031R	0,045	20
110	504055R	0,215	20



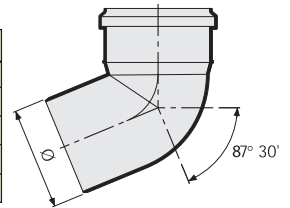
### Bend 30°

ø	COD.	Weight (kg)	Pcs in package
32	504003R	0,020	50
40	504015R	0,035	50
50	504027R	0,040	20
110	504051R	0,175	20



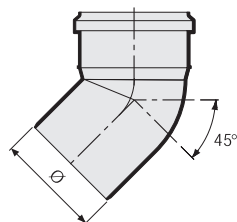
### Bend 87°30'

ø	COD.	Weight(kg)	Pcs in pack.
32	504011R	0,025	50
40	504023R	0,040	50
50	504035R	0,050	20
110	504059R	0,230	20



### Bend 45°

ø	COD.	Weight (kg)	Pcs in pack.
32	504005R	0,020	50
40	504017R	0,035	50
50	504029R	0,045	20
110	504053R	0,185	20



### Multi-purpose bend

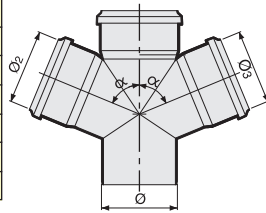
ø	COD.	Colour	Pcs in pack.
50	KU.050.G	grey	200
110	KU.110.G	grey	50





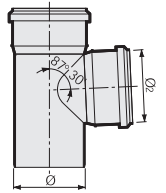
## Double branch

$\phi/\phi2/\phi3$	COD.	$\alpha$	Pcs in pack.
50/50/50	506000R	45°	15
50/50/50	506003R	87°30'	15
110/50/50	506011R	87°30'	20
110/110/50	506012R	87°30'	15
110/110/110	506016R	45°	10
110/110/110	506015R	87°30'	12



## Equal branch 87°30'

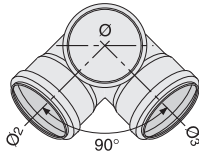
$\phi/\phi2$	COD.	Weight (kg)	Pcs in pack.
32/32	508005R	0,040	40
40/40	508011R	0,065	20
50/50	508017R	0,070	20
110/110	508029R	0,320	20



## Corner branch

$\phi/\phi2/\phi3$	COD.	$\alpha$	Weight (kg)	Pcs in pack.
110/50/110	512033R*	87°30'	0,400	10
110/110/50	512035R**	87°30'	0,400	10

\* - left, \*\* - right

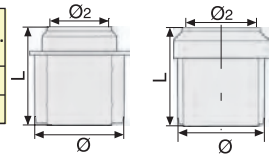


## Reducing branch

$\phi/\phi2$	COD.	$\alpha$	Pcs in pack.
110/50	510031R	45°	20
110/50	510035R	87°30'	20

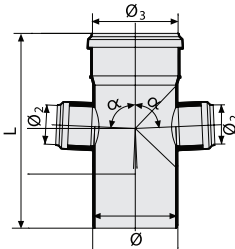
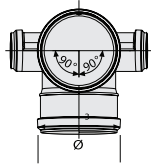
## Concentric reducer

$\phi/\phi2$	COD.	L (mm)	Weight (kg)	Pcs in pack.
50/40	513001R	57	0,025	50
50/32	513002R	55	0,025	50



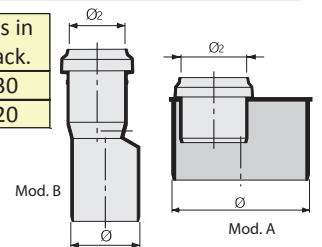
## Double-sided corner branch

$\phi/\phi2/\phi3$	COD.	$\alpha$	L (mm)	Pcs in pack.
110/110/50	512037R	87°30'	252	20



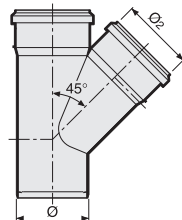
## Eccentric reducer

$\phi/\phi2$	COD.	Mod.	Weight (kg)	Pcs in pack.
40/32	514001R	B	0,020	30
110/50	514009R	A	0,100	20



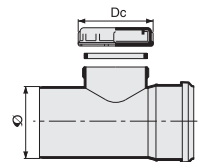
## Equal branch 45°

$\phi/\phi2$	COD.	Weight (kg)	Pcs in pack.
32/32	508001R	0,040	40
40/40	508007R	0,065	20
50/50	508013R	0,080	20
110/110	508025R	0,385	20



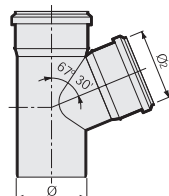
## Access pipe with cap

$\phi$	COD.	Dc (mm)	Weight (kg)	Pcs in pack.
50	516003R	90	0,110	20
110	516007R	115	0,370	20



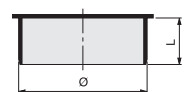
## Equal branch 67°30'

$\phi/\phi2$	COD.	Weight (kg)	Pcs in pack.
32/32	508003R	0,040	40
40/40	508009R	0,065	20
50/50	508015R	0,075	20
110/110	510027R	0,330	20



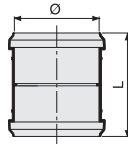
## Plugs

$\phi$	COD.	L (mm)	Weight (kg)	Pcs in pack.
40	524001R	28	0,012	50
50	524003R	28	0,014	20
110	524007R	32	0,066	10



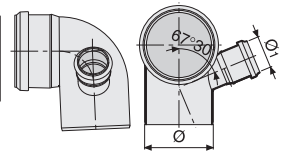
## Sliding sleeve

∅	COD.	L (mm)	Weight (kg)	Pcs in pack.
50	528003R	108	0,050	20
110	528007R	136	0,170	20



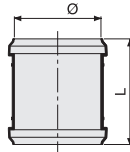
## Bend with left socket with ring seal

∅/∅1	COD.	α	Weight (kg)	Pcs in pack.
110/50	552003R	67°30	0,255	15



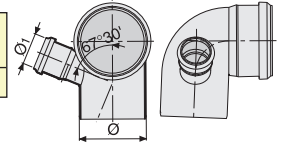
## Double socket coupling

∅	COD.	L (mm)	Weight (kg)	Pcs in pack.
32	526000R	85	0,250	40
40	526001R	108	0,040	20
50	526003R	108	0,045	20
110	526007R	136	0,170	20



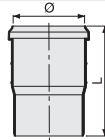
## Bend with right socket with ring seal

∅/∅1	COD.	α	Weight (kg)	Pcs in pack.
110/50	554003R	67°30	0,255	15



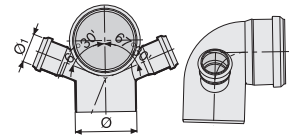
## Double socket

∅	COD.	L (mm)	Weight (kg)	Pcs in pack.
110	530007R	170	0,165	20



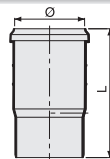
## Bend with double socket with ring seal

∅/∅1	COD.	α	Weight (kg)	Pcs in pack.
110/50	556003R	67°30	0,285	15



## Triple socket

∅	COD.	L (mm)	Weight (kg)	Pcs in pack.
50	531003R	165	0,050	20



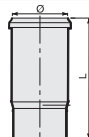
## Adaptor for cast iron pipes with OR and ring seal

∅	Артикул	∅1 (мм)	L (мм)	Вес (кг)	Кол-во/уп.
50	569001R	72	151	0,080	20
110	569005R	124	160	0,195	20



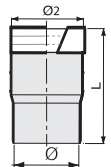
## Quadruple socket

∅	COD.	L (mm)	Weight (kg)	Pcs in pack.
110	531011R	245	0,250	15



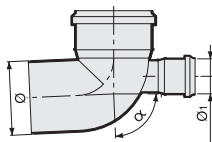
## WC coupling with ring seal

∅	Артикул	∅2	L (мм)	Weight (kg)	Pcs in pack.
110	536000R	102±5	152	0,192	10



## Bend with front attachment

∅/∅1	COD.	α	Weight (kg)	Pcs in pack.
110/50	551001R	87°30	0,255	15



# SINIKON Comfort low-noise domestic sewage system

## General

One of the most significant quality factors of sewage system is its noise level. Noise level in premises has considerable impact on physical and emotional condition of people. This is why developed countries place great priority on noise control. In accordance with DIN 4109 (Noise protection in multi-storey buildings), noise level must not exceed 30 dB, and according to more strict regulation VDI 4100, it must not exceed 25 dB. Russian Regulations SN 2.2.4/2.1.8.562-96 "Noise at work places, in residential and public buildings and at the territory of housing development" stipulate acceptable noise level at night time (from 23.00 till 7.00) of up to 30 dB. In most cases, such noise level is not possible even in properly designed sewage system using regular plastic pipes. This is why, in facilities with exclusive standards for living comfort, it is recommended to use a SINIKON Comfort low noise domestic sewage system.

## Noise level

To measure noise level, comparative tests of SINIKON Comfort system (Russia) and regular grey sewage system were conducted. The tests were conducted at the Acoustics Department of Lomonosov Moscow State University in November 2010. Stand-pipe 3-storey long with all elements was selected for the test. Results showed that under water flow of 4 litres per second, noise level in SINIKON Comfort was 4 dBA lower (1.5 times) than in standard polypropylene system. When water flow was reduced to 0.35 litre/sec, the said difference increased from 4 dBA to 7 dBA (2.2 times).

## Purpose and scope of application

SINIKON Comfort polypropylene sewage pipes are used for installation of gravity-feed pipeline systems of domestic household sewage. SINIKON Comfort sewage pipes completely correspond to CR 40-102-2000 and CR 40-107-2003. It is allowed to transport in domestic sewage pipeline system wastes with maximum temperature of up to 80°C and short-term (within 1 minute) wastes with temperature of up to 95°C. Waste waters may have pH value between 2 (acid environment) and 12 (alkaline environment). When pipes are used for sewage system of untreated industrial waste, chemical stability of pipe material shall be tested.

**Service life of pipelines** is not less than 50 years.

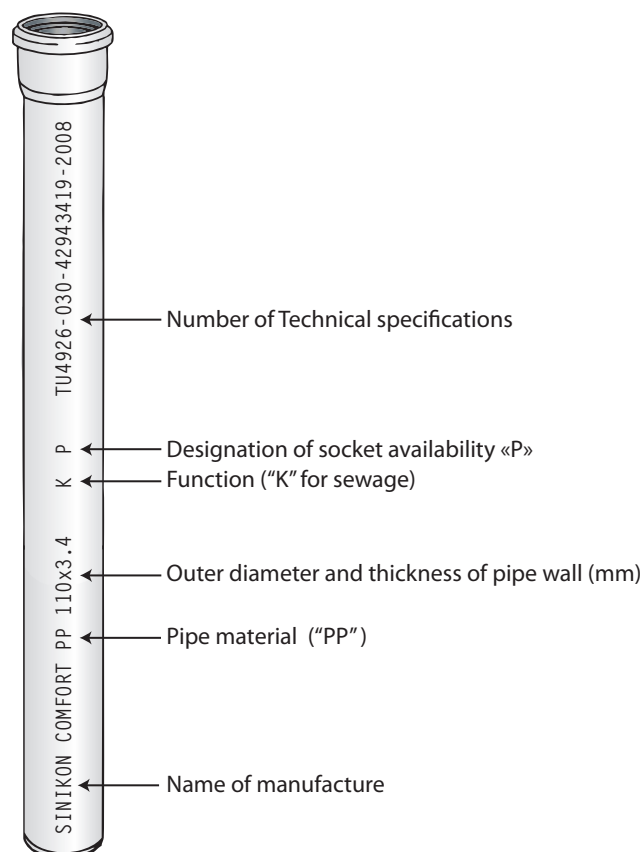
**Colour:** white grey

## Material

SINIKON Comfort polypropylene sewage pipes are manufactured by extrusion from propylene homopolymer (type 1) PP-H with mineral additives and have increased wall thickness as compared to standard polypropylene pipes (from 2.7 mm to 3.4 mm for DN 110 pipe). Basic properties of the material are specified in table:

Name	Measuring Unit	Quantity	Method
Density	g/cm <sup>3</sup>	1,25	GOST15139-69
Linear expansion coefficient	mm/m °C	0,15	GOST15173-70
Thermal conductivity	Wt/m °C	0,26	GOST 23630-79
Breaking elongation	%	>100	GOST 11262-80

## Labelling



## Sealing

Double-lobe sealing from soft styrene butadiene rubber (SBR 40±5 IRDH) by stretching ring. It is designed for plastic pipes and fittings made of PP and PVC based of EN 1451-1 and EN 14-01-1 regulations, it corresponds to requirements of EN 681-1 WC/WCL and DIN 406. Manufacturer – M.O.L. Gummiverarbeitung GmbH & Co.

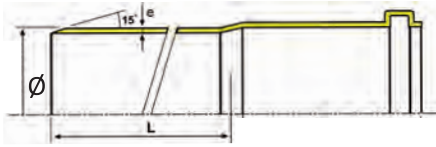
## Coupling technique

Flare joint. Mounting does not require any special tools or machines.





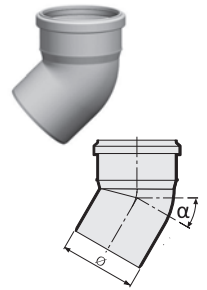
## Single socket pipe



ø	COD.	L (mm)	Pcs in pack.
50	500043.K	250	50
50	500045.K	500	30
50	500049.K	1000	50
50	500053.K	2000	50
110	500083.K	250	30
110	500085.K	500	30
110	500089.K	1000	30
110	500091.K	1500	15
110	500093.K	2000	15
110	500095.K	3000	15

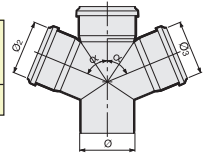
## Bend

ø	COD.	α	Pcs in pack.
50	504025.K	15°	20
50	504029.K	45°	20
50	504031.K	67°	20
50	504035.K	87°	20
110	504049.K	15°	20
110	504051.K	30°	20
110	504053.K	67°	20



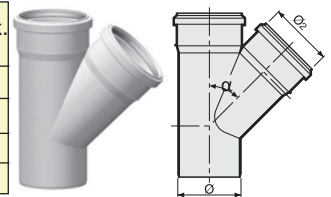
## Double branch

ø/ø2/ø3	COD.	α	Pcs in pack.
110/50/50	506011.K	87° 30'	20



## Equal branch

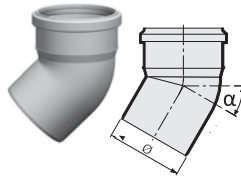
ø/ø2	COD.	α	Pcs in pack.
50x50	508013.K	45°	20
50x50	508017.K	87°30'	20
110x50	510035.K	87°30'	20
110x50	510031.K	45°	20



## НОВИНКА REINFORCED FITTINGS WITH WALL THICKNESS OF 3.4 mm

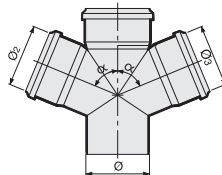
### Bend

ø	COD.	α	Pcs in pack.
110	504053.K	45°	20
110	504059.K	87°30'	20



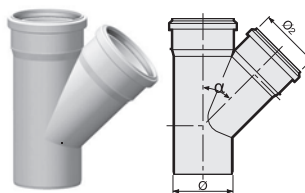
### Double branch

ø/ø2/ø3	COD.	α	Pcs in pack.
110/110/50	506012.K	87°30'	10
110/110/110	506015.K	87°30'	10



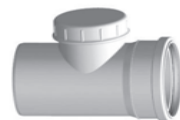
### Equal branch

ø/ø2	COD.	α	Pcs in pack.
110x110	508025.K	45°	12
110x110	508029.K	87°30'	10



### Access pipe with cap

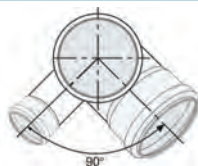
ø	COD.	Pcs in pack.
110	516007.K	10



### Corner branch

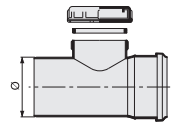
ø/ø2/ø3	COD.	α	Pcs in pack.
110/50/110	512033.K*	87°30'	10
110/110/50	512035.K**	87°30'	10

\* - left, \*\* - right



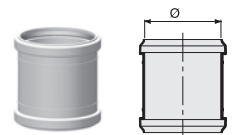
### Access pipe with cap

ø	COD.	Pcs in pack.
50	516003.K	20



### Double socket coupling

ø	COD.	Pcs in pack.
50	526003.K	20
110	526007.K	20



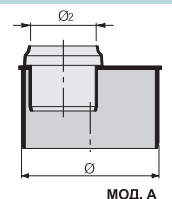
### Plug

ø	COD.	Pcs in pack.
50	524003.K	20
110	524007.K	40



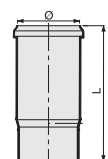
### Essentric reducer

ø/ø2	COD.	Мод.	Pcs in pack.
110x50	514009.K	A	20



### Quadruple socket

ø	COD.	Pcs in pack.
110	531011.K	15



# Reasons for noise generation in sewage system and ways to reduce it

Noise is generated inside the pipeline as it begins vibrating due to downfall of drained liquid, which:

- its walls of vertical stand pipe;
- hits walls of horizontal pipelines when direction of flow changes;
- can inhaust air on top and compress it at the bottom.

Most of noise power is transmitted from pipe wall over the air, but besides that sewage pipes vibration is transmitted through fixtures onto the wall and, as a result, the entire structure of the building.

Thus, sewage system noise level value depends on

- properties of fixing straps;
- number and properties (angle and cross-section of turning) of changes of waste water directions;
- type of system (ventilated or not ventilated), and on proper design and installation;
- materials used in building structure.

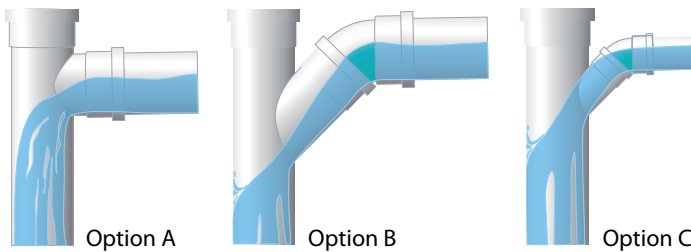
Finally, to reduce noise level in sewage systems, it is required:

- to select a pipe having properties that ensure low noise level,
- to properly design and install sewage system.

## Design and installation

The following shall be taken in consideration in design and installation:

- sewage stand pipe shall be of ventilated type;
- connection to stand pipe



### Option A

Direct bend features angles 87° - 88.5° and represents the most viable solution since it facilitates air circulation, provides low flow velocity and the lowest noise level comparing to other solutions.

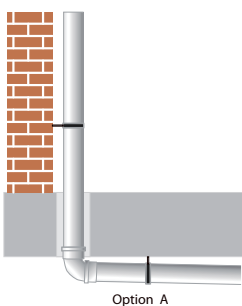
### Option B

Corner bend features smaller angles (for example, 45°) and provides higher flow volume (about 30% more than in Option A), but it is not recommended since it limits air circulation and increases noise level.

### Option C

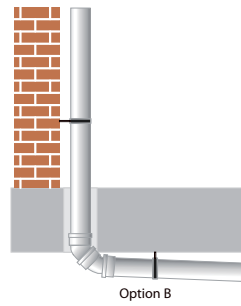
Corner bend with a reduced diameter shall be excluded if possible, since there is risk of draught and increasing of noise level.

- connection to horizontal pipelines



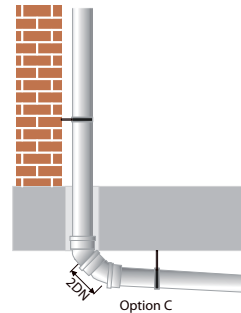
### Option A

When the stand pipe connects to horizontal pipeline, it is not allowed to use the 90° (87.3°) bend. Risk of draught is too high.



### Option B

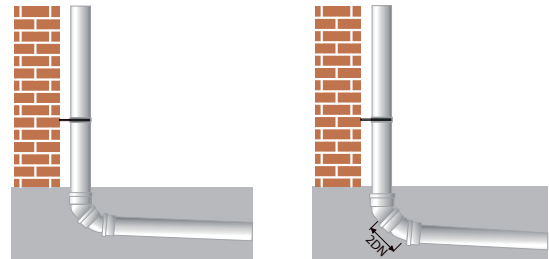
Two 15° bends placed in series may help reducing extremely high pressure and noise level, but this option should be used when there are issues with space.



### Option C

This configuration is the most suitable. A pipe segment 2D long is installed between two 45° bends. Such solution significantly reduces pressure and has low noise level, at least 30% lower than in Options A and B.

- In case of horizontal embedment of the pipeline, noise level in such configurations is reduced by 70 – 80% as compared to foregoing solutions.



- Pipes should pass through intermediate floors and interior walls (partitions) in elastic cases (made of porous polypropylene or other elastic materials), which bear expansion and pipe deformation without formation of cut-through cracks; fixtures shall be used only with a soundproof inner layer.

Insertion of low-noise pipes and fittings into "regular" pipe system, as a rule, does not result into a noticeable noise reduction. Thus, the system shall be originally designed and installed as low-noise system.

