

magnoplast

CATALOGUE



KG 2000



SN10 & SN16 POLYPROPYLENE

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POLYPROPYLENE
OUTDOOR
SEWAGE SYSTEM

KG2000



**NATURE-
FRIENDLY**

TECHNICAL DATA

Material

Polypropylene (PP), mineral-reinforced.

Design

Pipes with full (solid) walls of homogeneous structure

Joining

By means of couplers with factory-fitted proprietary gasket. The pipe socket has a specially formed groove for fitting with a triple lip gasket to increase the tightness and reliability of the connection.

Sealing

Rubber rings compliant with DIN EN 681.

Colour

May green RAL 6017.

Approval

Pipes and fittings are manufactured according to technical approval ITB AT-15-9456/2015 issued by the Building Research Institute.

Quality requirements

DIN EN 14758. The basis for production of pipes and fittings laid in the ground include the requirements of DIN 19550 standard as well as the general quality requirement of DIN 8078 standard.

Comprehensive programme

The KG 2000 SN10 & SN16 system consists of pipes and fittings with sizes from DN110 to DN500 and is suitable for the construction of private and municipal drainage systems, while providing flexibility in their design and assembly.

Area of use

Drains and sewers laid in the ground, both under and away from the road, and used as culverts. The pipes are resistant to common sewage (pH2-pH12). In special cases, refer to the information on chemical resistance in Annex 1 to DIN 8078.

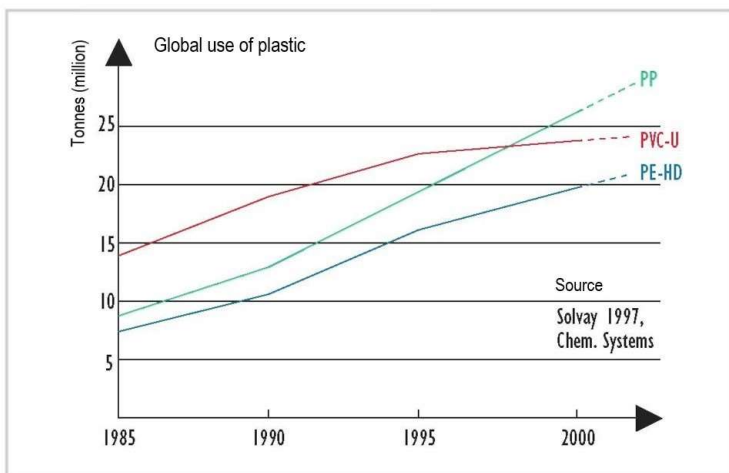
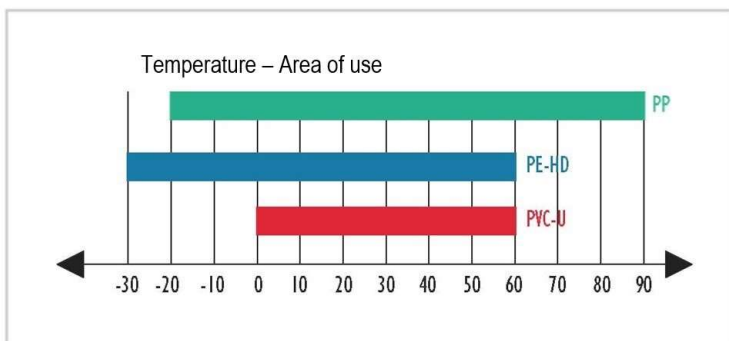
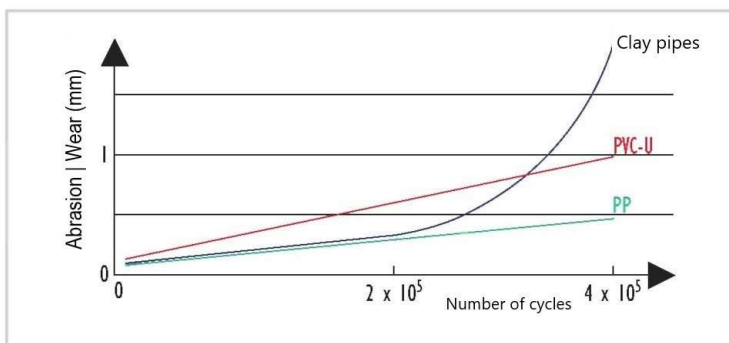
Elements of the KG 2000 SN10 & SN16 system can be used in accordance with the generally accepted principles of design and assembly.

POLYPROPYLENE – THE MATERIAL OF THE FUTURE

Plastic has been successfully used in the production of pipes for decades. The pipes and fittings of the KG 2000 system are made of polypropylene, which is a thermoplastic material from the group of polyolefins. Polypropylene has excellent mechanical, chemical, physical and ecological properties. No hygienic objections, corrosion resistance, good processing properties and many other aspects are essential for a wide range of applications. Under high safety requirements, polypropylene is also used in the automotive industry and in the production of fuel tanks.

DURABILITY

The KG 2000 System is designed to last for centuries. A service life of over 100 years is not unrealistic. This is an important reason for the future use of KG 2000 because, thanks to the use of polypropylene for the production of pipes with a solid wall, this system is characterised with high resistance to abrasion.



JOINING IS CRUCIAL

An important assumption in the private and municipal drainage of buildings is a permanently tight connection of the sewage and groundwater piping. The new, innovative and patented seal is the result of a long development process. The decisive improvement is the special shape of the ring.

SEALING



- 1 – tension edge
- 2 – retaining edge
- 3 – scraper edge
- 4 – sealing ring

FUNCTIONS

tension edge – prevents deposits from gathering between the pipe wall and the gasket.

retaining edge – causes the lip seal to be pressed against the pipe edge and prevents the sealing ring from slipping out or rolling up.

scraper edge – used to eliminate impurities depositing on the pipe.

sealing ring – permanently seals the pipe connection. Firstly, it ensures that sewage does not get into the groundwater (penetration), and secondly, that the groundwater does not enter the pipeline network (infiltration). Pipe tightness testing in accordance with DIN EN 1610 is carried out with air and water at a pressure of 0.05 bar to 0.5 bar and in vacuum.

The KG 2000 system is also suitable for installation in drinking water protection zone II. Appropriate testing of the system according to ATV A142 at a pressure of 2.4 bar has been confirmed by MPA Darmstadt.

FORCES ACTING IN THE COURSE OF PRESS FITTING

The forces acting in the course of press fitting are considerably reduced by the special shape of the ring. This makes the pipe assembly much easier compared to traditional sewer pipe systems. It saves time and money during assembly and increases the fitting safety and tightness.



ENVIRONMENTALLY FRIENDLY

- polypropylene PP material
- neutral to groundwater
- permanent tightness of connections
- 100% recyclable

Excellent resilience

The dynamic strength and resilience prove profitable not only thanks to the ability of withstanding mechanical stress during operation, but also when laying at freezing temperatures. There is no risk of breakage, even at -20°C .

Optimum hydraulic performance

Polypropylene has a smooth surface that is extremely abrasion resistant. No deposits may build up on the almost pore-free inner wall. On the one hand, this means optimum hydraulic performance; on the other hand, self-cleaning (extended maintenance intervals).

Polypropylene is the material of the future. PP is produced and processed in an environmentally friendly manner with reduced CO₂ emissions. It is not poisonous! 100% recyclable.

TRANSPORT AND STORAGE OF KG 2000 SN10 & SN16 PIPES AND PIPELINE CARRIERS

Elements of the KG 2000 system must be protected against damage. During transport, pipes should lie over their entire length to prevent bending. Exposure to impact must be avoided, especially at low temperatures. Pipes and fittings can be stored outdoors.

However, the following rules must be followed when storing pipes:

- The pipes should be stored in a way that guarantees their correct layering and prevents deformations.
- Pipes can be stored with or without wooden spacers.
- Pipe couplings should lie freely in horizontal and vertical directions during storage.
- The height of the stored pipes should not exceed 2 m.



LAYING INSTRUCTIONS

SCOPE OF APPLICATION

The following instructions apply to the use of the polypropylene (PP) KG 2000 system with general approval from the construction supervision. Pipes and fittings in May green RAL 6017 colour can be used as the main installation buried in the ground or as a sewage system according to DIN 1986-4 and DIN EN 1610.

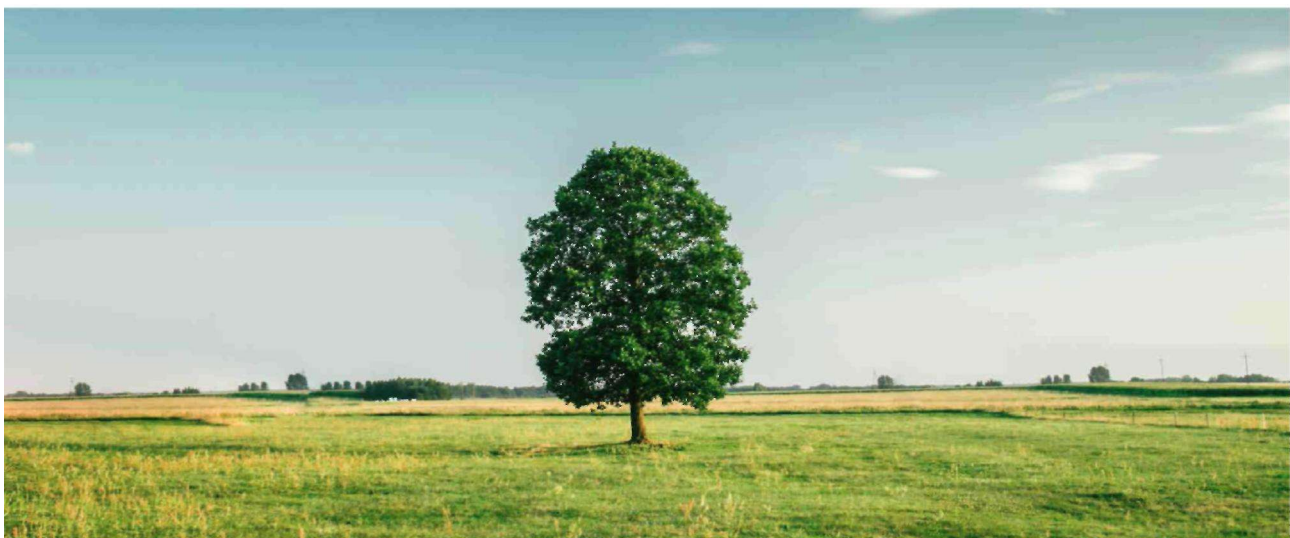
AREAS OF APPLICATION

KG 2000 sewage pipes and KG 2000 fittings made of polypropylene are suitable for installation in the ground and for transporting waste water in accordance with DIN 1986, part 3. In special cases, refer to the information on chemical resistance in Annex 1 to DIN 8078.

Pipes and pipeline parts can be used in the following areas of application:

- Main installation
- Connected channel

In addition, in heavy-duty load areas (SLW 60) with a minimum cover of 0.8 m, the maximum cover of 6 m and in groundwater areas.



CONCRETING

Polypropylene pipes and fittings can be concreted directly. However, the following instructions should be observed when doing so:

- Cover the coupling with adhesive tape so that cement milk cannot penetrate inside, which could later interfere with the functioning of the plug-in/put-on coupling.
- Secure the pipes against lift. The fastening distances must be selected so that there are no unacceptable bends (formation of water pockets).
- The thermally conditioned changes in length must be taken into account, both for the assembly and practical use.

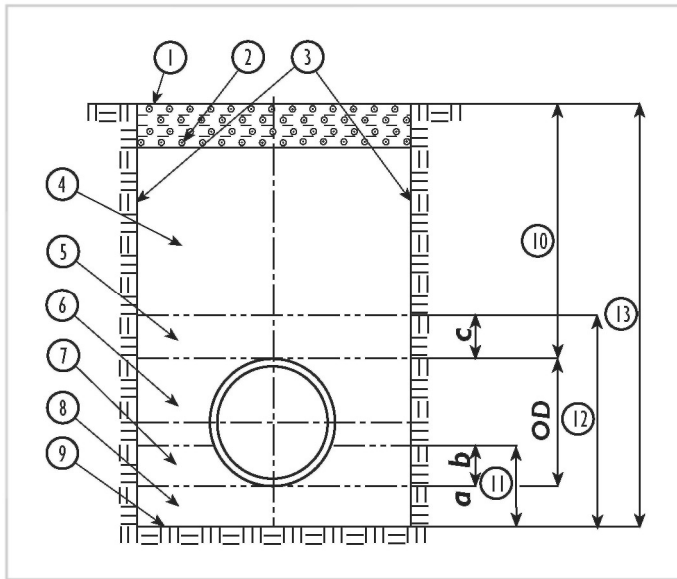
SUPPORT AND LAYING IN THE GROUND/EARTHING UP

Pipes can be laid on even, relatively loose, fine-grained substrates as they allow the pipes to be supported over their entire length. In the coupling area, recesses must be provided in the lower area of the substrate so that a correct connection can be formed. The recess must not be larger than necessary for proper joining. When the existing substrate is not suitable to provide support, the bottom should be dug deeper and a support should be prepared. The thickness of the bottom layer of the substrate must not exceed the following lower limit values:

- 100 mm under normal soil conditions;
- 150 mm for rocky or hard soils.

The substrate top layer thickness should comply with the static calculation conditions to obtain the support angle of 180° , i.e. $0.5 \times DA$ in general.

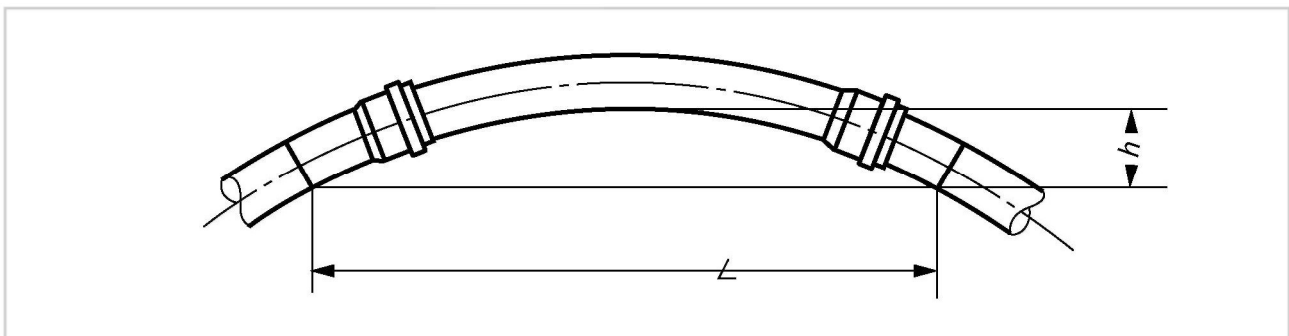
If the bottom has insufficient bearing capacity, special measures are necessary. If, due to construction technology, a concrete slab is required in the support area, it is recommended to provide a suitable layer between the pipe and the concrete slab, approx. 150 mm thick under the pipes and approx. 100 mm under the connection. If, for static reasons, additional measures are considered necessary, a concrete slab in place of the concrete cover is recommended to distribute the weight above the covering zone. If a concrete cover is provided, it must be constructed in such a manner that it can absorb the entire static load.



- 1. surface
 - 2. bottom edge of the road or rail structure, if present
 - 3. ditch walls
 - 4. main infill (3.6)
 - 5. cover (3.5)
 - 6. side infill (3.12)
 - 7. top pack layer
 - 8. bottom pack layer
 - 9. bottom
 - 10. cover height
 - 11. pack thickness
 - 12. transmission zone thickness
 - 13. ditch depth
- a. bottom pack layer thickness
 - b. top pack layer thickness
 - c. cover thickness

LAYING PROCESS

KG 2000 SN10 & SN16 pipes and pipeline parts must be properly inspected for possible damage before assembly. Each pipe and fitting must be measured for slope and direction. Keep a straight, direct course within the recommended slope.



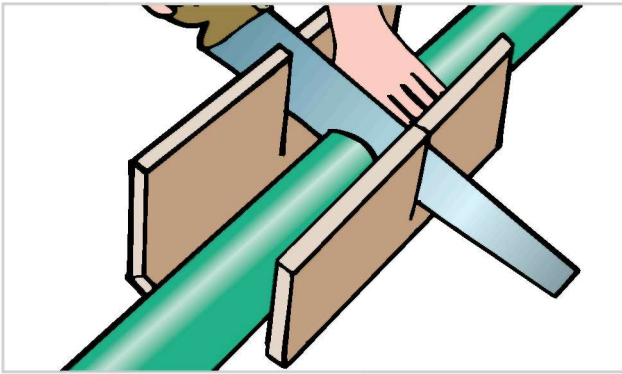
In exceptional cases, the line routing can be made from DN/OD 110 to DN/OD 200 as shown in the above sketch. The values in the following table must not be exceeded.

DN	h 110	h 125	h 160	h 200
8 m	0.24	0.21	0.17	0.13
12 m	0.54	0.28	0.38	0.3
16 m	0.97	0.85	0.67	0.53
R[m]	33	38	47	61

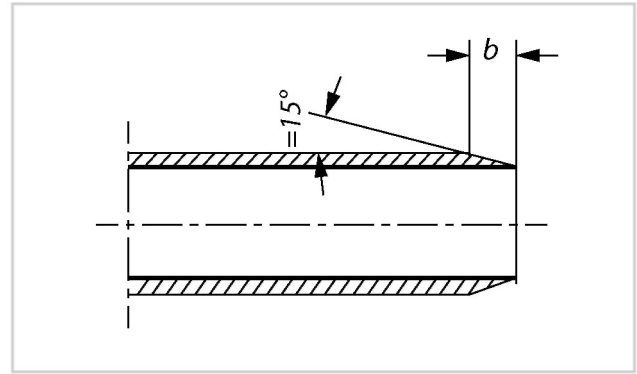
Maximum heights (h) or the bending radii (R) in metres for the length (L)

CUTTING TO LENGTH AND CHAMFERING

If necessary, the pipes should be cut to length using a suitable plastic cutter or fine tooth saw. The cut should be made perpendicularly to the pipe axis. Cutter boxes may be helpful. All burrs that have appeared on the edges in the course of cutting must be removed. The pipe ends should be chamfered with a chamfering tool or a coarse file at an approx. angle of 15° as shown in the figure.



Cutting to length with a cutter box



Chamfering

DN/OD	110	125	160	200	250	315
b mm ca.	6	6	7	9	9	12

JOINING

- Remove dirt from the ends of pipes to be joined (tips) and the coupling, as well as from the sealing elements.
- Check the position and integrity of the sealing elements.
- Insert the pipe end into the coupling up to the stop and mark it at the edge of the coupling with a pencil or felt-tip pen. Then pull the pipe end out of the coupling by approx. 3 mm per 1 m of the working length of the laid pipe, but not more than 10 mm.

CONNECTING TO BUILDINGS

Connections to buildings (shafts, etc.) must be articulated and performed with the use of shaft lining. The sealing between the shaft lining and the channel pipe is achieved with a rubber gasket.

PACKING AND SEALING

Both the existing substrate and externally delivered material can be used as construction material for the transmission zone, as long as neither the pipe packing material nor the groundwater are disturbed. Suitable packing material may consist of diversely sized, granular, unbound substrate with the largest grains < 22 mm or broken/crushed building materials with the largest grain size of up to 11 mm. Hydraulically bound building materials such as stabilised substrate, lightweight concrete, matured concrete etc. are not recommended.

When forming the substrate in the transmission zone up to 30 cm above the pipeline peak point, it is especially necessary to ensure that:

- pipelines do not deviate from their direction and position; a sand cone or other auxiliary measures may be helpful,
- the formation of cavities under the pipe is prevented and the support angle serving as the basis for static calculations is achieved by layered shaping of the proper substrate and intensive sealing up to the support height.

The sealing and the introduced material contribute directly to the stability of the equilibrium. Each intermediate layer of the backfilled substrate must be sealed - manually, using light sealing devices. Then, further backfilling should be performed in accordance with the planned process and set parameters to avoid surface subsidence.

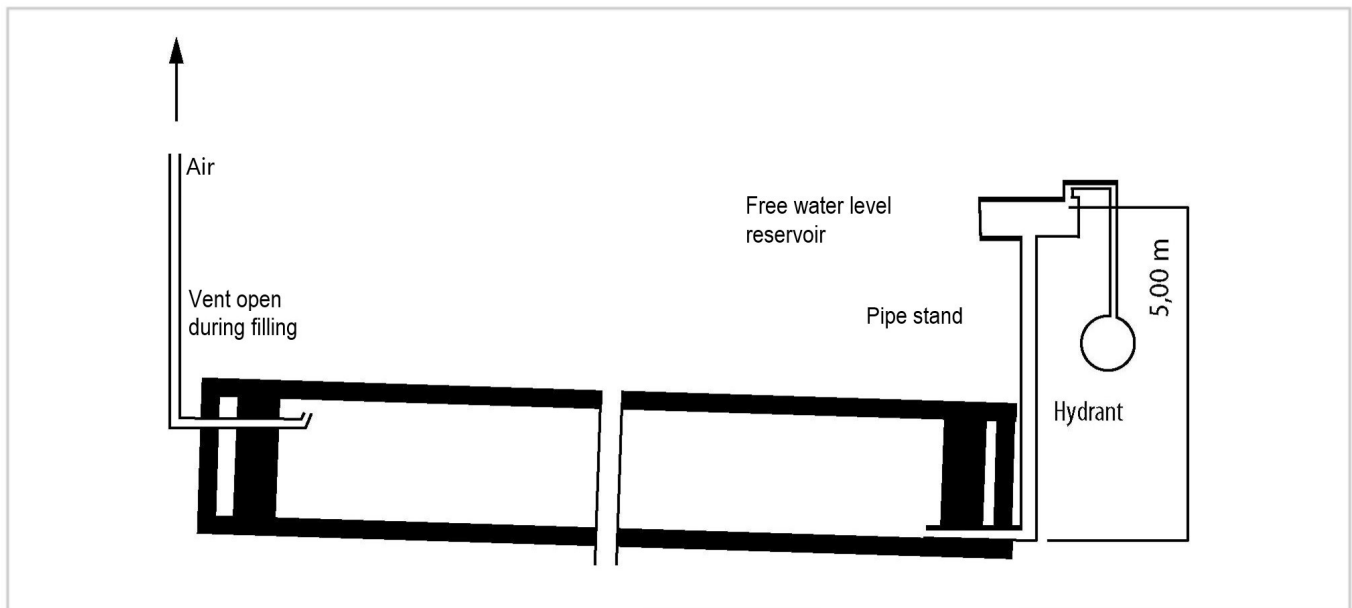
INSPECTION AND TIGHTNESS

The checking of pipeline, shaft and inspection opening tightness must be carried out either using air ("L" method) or water ("W" method). With the "L" method, the number of corrective measures and re-checks in the event of failure is unlimited. For one-off or repeated inspections using the air method, it is acceptable to switch to the water method and the result of the water method inspection is decisive.

INSPECTION USING WATER

All openings in the section of the installation subjected to inspection, including all branches and outlets, must be tightly closed and secured. It is recommended – especially in built-up areas – to secure the fittings by driving piles or by using appropriate securing bands to avoid dislocation. Even in simple installations, the pipes and test plugs must be adequately supported against pressure forces acting in a horizontal direction. The pipeline is to be protected against dislocation, as long as it is not already covered. The installation is to be filled with water so that there is no air in it.

Therefore, it must be filled slowly so that the air contained in the pipeline escapes from appropriately sized vents located at the highest point of the installation.



Allow sufficient time (1 hour) between filling and inspecting the system to allow any air contained in the system to slowly escape during the filling process. The test pressure should be related to the deepest point of the inspected section. Free water level installations should be controlled with overpressure of 0.5 bar. The test pressure, which must be established before starting the test, is to be maintained in accordance with DIN EN 1610 for 30 minutes. In this case, the amount of water needed for its intake should be topped up and measured by continuous refilling. The inspection requirement for the pipeline is met when the volume of refilled water does not exceed 0.15 l/m² within 30 minutes. Note: m² describes the moist inner surface.

AT LEAST 100 YEARS OF SAFE FUNCTIONING

Due to its technical properties, the KG 2000 SN10 & SN16 system is recommended as the sewage system of the future – for at least the next 100 years.



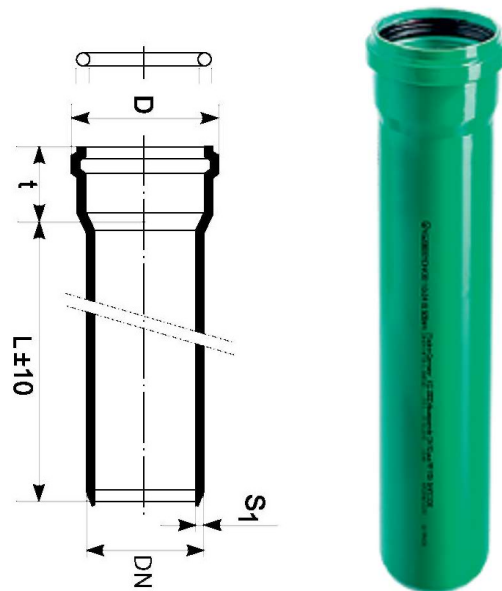


PRODUCT
CATALOGUE

KG2000

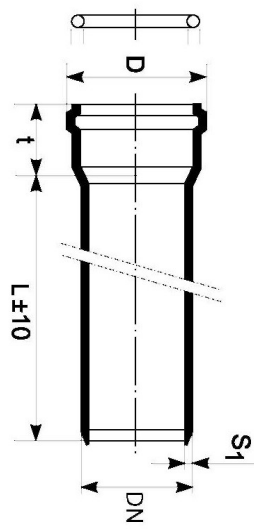
PIPES WITH SOCKET SN10 (KGEM)

DN [mm]	s [mm]	D [mm]	t [mm]	L [mm]	Art. no.
110	3.4	128.4	72	500	70320
110	3.4	128.4	72	1000	70340
110	3.4	128.4	72	2000	70360
110	3.4	128.4	72	3000	70370
110	3.4	128.4	72	5000	70380
125	3.9	146.0	80	500	70420
125	3.9	146.0	80	1000	70440
125	3.9	146.0	80	2000	70460
125	3.9	146.0	80	3000	70470
125	3.9	146.0	80	5000	70480
160	4.9	186.6	95	500	70520
160	4.9	186.6	95	1000	70540
160	4.9	186.6	95	2000	70560
160	4.9	186.6	95	3000	70570
160	4.9	186.6	95	5000	70580
200	6.2	236.0	123	500	70620
200	6.2	236.0	123	1000	70640
200	6.2	236.0	123	2000	70660
200	6.2	236.0	123	3000	70670
200	6.2	236.0	123	5000	70680
250	7.7	287.2	133	1000	70740
250	7.7	287.2	133	3000	70770
250	7.7	287.2	133	6000	70790
315	9.7	358.8	155	1000	70840
315	9.7	358.8	155	3000	70870
315	9.7	358.8	155	6000	70890
400	12.3	455.0	180	1000	70940
400	12.3	455.0	180	3000	70970
400	12.3	455.0	180	6000	70990
500	15.3	565	317	1000	71040
500	15.3	565	317	3000	71070
500	15.3	565	317	6000	71090

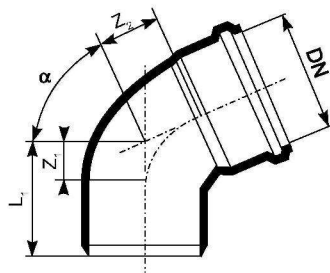


PIPES WITH SOCKET SN16 (KGEM)

DN [mm]	s [mm]	D [mm]	t [mm]	L [mm]	Art. no.
110	4.2	128.4	72	1000	780340
110	4.2	128.4	72	3000	780370
110	4.2	128.4	72	6000	780390
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125	4.8	146.0	80	1000	780440
125	4.8	146.0	80	3000	780470
125	4.8	146.0	80	6000	780490
<hr/>					
160	6.2	186.6	95	1000	780540
160	6.2	186.6	95	3000	780570
160	6.2	186.6	95	6000	780590
<hr/>					
200	7.7	236.0	123	1000	780640
200	7.7	236.0	123	3000	780670
200	7.7	236.0	123	6000	780690
<hr/>					
250	9.6	287.2	133	1000	780740
250	9.6	287.2	133	3000	780770
250	9.6	287.2	133	6000	780790
<hr/>					
315	12.1	358.8	155	1000	780840
315	12.1	358.8	155	3000	780870
315	12.1	358.8	155	6000	780890
<hr/>					
400	15.3	455.0	180	1000	780940
400	15.3	455.0	180	3000	780970
400	15.3	455.0	180	6000	780990
<hr/>					
500	19.1	565	317	1000	781040
500	19.1	565	317	3000	781070
500	19.1	565	317	6000	781090

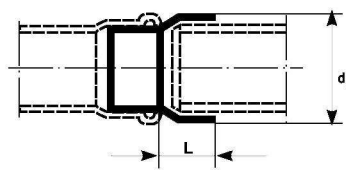


BENDS (KGB)



DN [mm]	Angle α	Z1 [mm]	Z2 [mm]	L1 [mm]	Art. no.
110	15°	9	16	87	71300
110	30°	17	23	95	71310
110	45°	26	29	94	71320
110	67°	41	47	119	71330
110	87°	59	65	137	71350
125	15°	10	19	93	71400
125	30°	19	27.5	102	71410
125	45°	29	36	112	71420
125	67°	44	54	127	71430
125	87°	66	72	145	71450
160	15°	24	19	120	71500
160	30°	24	34	125	71510
160	45°	37	45	144	71520
160	67°	56	69	161	71530
160	87°	84	91	180	71550
200	15°	15	31	158	71600
200	30°	29	46	162	71610
200	45°	46	57	189	71620
200	87°	84	91	215	71655
250	15°	23	44	163	71700
250	45°	59	77	199	71720
250	87°	92	109	224	71720
315	15°	28	56	188	71800
315	45°	73	98	233	71820
400	15°	29	67	220	71900
400	45°	92	120	283	71920
500	15°	78	90	395	71100
500	30°	95	116	415	71110
500	45°	110	140	440	71120

CAST IRON PIPE CONNECTORS (KGUG)

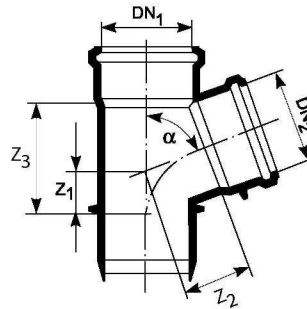


DN [mm]	d _i [mm]	L [mm]	Art. no.
110	125	60	78320
125	152	65	78420
160	177	70	78520

BRANCHES (KGEA)

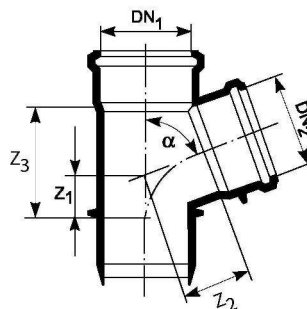
FITTINGS MUST NOT BE SHORTENED!

DN1/DN2 [mm]	Angle α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Art. no.
110/110	45°	26	134	134	72330
125/110	45°	81	91	91	72340
125/125	45°	29	152	152	72440
160/110	45°	2	168	162	72350
160/125	45°	10	179	175	72450
160/160	45°	37	194	194	72550
200/110	45°	5	172	188	72360
200/160	45°	19	221	218	72560
200/200	45°	46	244	244	72660
250/160	45°	57	258	311	72760
250/250	45°	57	311	311	72770
315/160	45°	40	301	250	72850
315/200	45°	72	325	393	72860
315/315	45°	72	393	393	72880
400/160	45°	82	394	526	72940
400/200	45°	55	417	555	72960
400/315	45°	72	447	642	72970
400/400	45°	78	683	683	72990
500/160	45°	290	460	400	71130
500/315	45°	315	542	608	71150
500/500	45°	380	712	720	71140
110/110	87.5°	59	64	64	74330
160/110	87.5°	15	141	140	74350
160/160	87.5°	81	91	91	74550



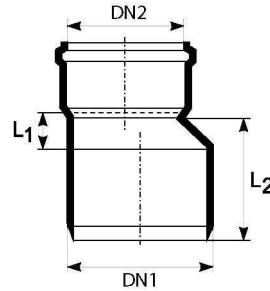
TEES (KGEA)

DN1/DN2 [mm]	Angle α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Art. no.
110/110	87.5°	59	64	64	74330
160/110	87.5°	15	141	140	74350
160/160	87.5°	81	91	91	74550
200/110	87.5°	109	94	232	74630
200/160	87.5°	143	121	257	74660
315/160	87.5°	90	220	320	74850
315/315	87.5°	135	275	370	74880
400/160	87.5°	80	320	370	74940
400/315	87.5°	145	335	430	74870
400/400	87.5°	180	350	460	74990

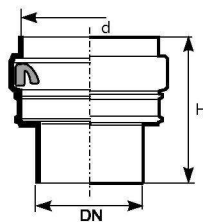


REDUCERS (KGR)

DN1/DN2 [mm]	L ₁ [mm]	L ₂ [mm]	Art. no.
125/110	15	99	75340
160/110	34	135	75350
160/125	26	129	75450
200/160	32	175	75560
250/200	49	181	75670
315/250	63	215	75780
400/315	91	271	75880
500/400	158	475	71190

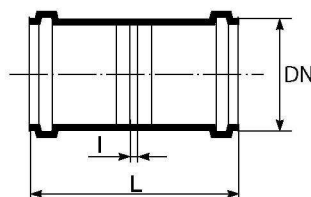


CLAY PIPE CONNECTORS (KGUS)



DN [mm]	d [mm]	H [mm]	Art. no.
110	138	168	77380
125	164	172	77480
160	194	226	77580

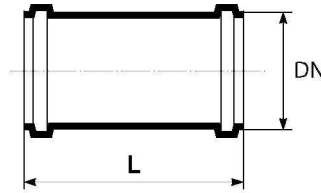
DOUBLE SOCKET CONNECTORS (KG-ERMM)



DN [mm]	L [mm]	Art. no.
110	136	77300
125	152	77400
160	185	77500
200	239	77600
250	275	77700
315	299	77800
400	345	77900
500	400	71170

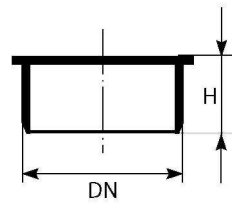
COUPLINGS (KGU)

DN [mm]	L [mm]	Art. no.
110	136	78300
125	152	78400
160	185	78500
200	239	78600
250	275	78700
315	299	78800
400	345	78900
500	377	71160



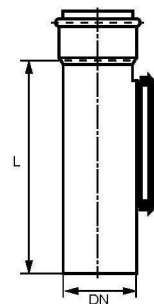
PLUGS (KGM)

DN [mm]	H [mm]	Art. no.
110	55	77320
125	55	77420
160	70	77520
200	85	77620
250	88	77720
315	98	77820
400	116	77920
500	115	71180



ACCESS PIPES (KGRE)

DN [mm]	L [mm]	Art. no.
110	308	78310
125	313	78410
160	380	78510
200	410	78610





SOLUTIONS TO LAST

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