



**DOUBLE RELIABILITY**  
**PP double-wall sewage system**



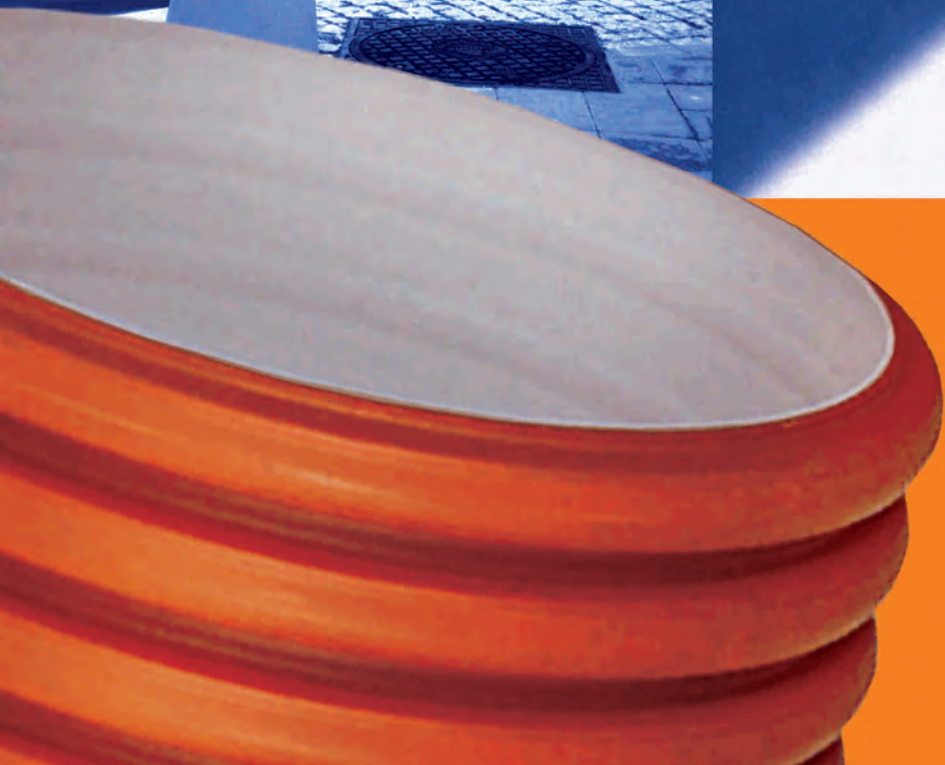
ecologically-sound solutions

ISO 14001

ISO 9001









**21st-century solutions**

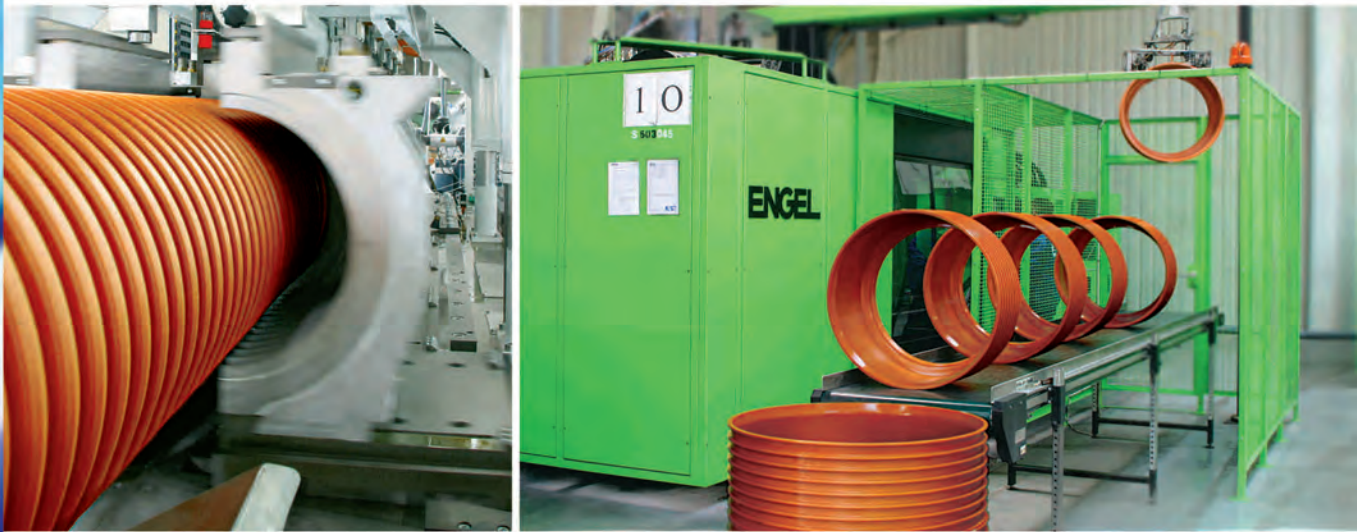




# 21st-CENTURY PRODUCT

## K2-Kan PP structured double-wall pipes and fittings for outdoor sewage systems

While searching for the best solutions to gravity underground sewage systems we followed the latest developments in plastic pipe production. After carefully analysing global trends and company manufacturing capacities **Barbara Kaczmarek has launched the production of K2-Kan PP structured double-wall pipes and fittings.** They are made in compliance with the highest technical requirements to meet the standards of the 21st century.



**K2-Kan is the trade name of the piping system** designed for underground sanitary, stormwater, combined, drainage and industrial sewer systems. Thanks to its properties and the installation technique connected with groundwork and pipe laying it is currently an optimal sewer system. It can be laid under heavily trafficked roads as well as in other areas. Its durability is estimated at minimum 100 years therefore the investment is very cost-effective.

## CREATING NEW QUALITY

### K2-Kan PP pipe production

**K2-Kan pipes** are produced by **coextrusion**. Two independent single screw extruders plasticise polypropylene granulate (of two different colours but similar properties) which is fed to the die forming two concentric pipes simultaneously. The inner pipe is smooth, the outer one is corrugated by means of a corrugator. In the process of hot moulding the two pipes weld together to form a double-wall.

**A major advantage of PP pipes** is the fact that despite little raw material used for their production and thereby low weight they exhibit high ring stiffness. According to PN-EN ISO 9969 standard, K2-Kan PP pipes usually have stiffness class SN 8 kN/m<sup>2</sup> (according to DIN 16961, it is  $\leq 31.5$  kN/m<sup>2</sup>).

K2-Kan pipes are made from polypropylene (PP), a thermoplastic polymer which (along with polyethylene and polybutene) belongs to polyolefins which are made from refinery-derived petroleum products. Polypropylene used in K2-Kan pipe production is manufactured from propylene (gaseous hydrocarbon) in the process of catalyst-stimulated block copolymerization. That is why the material is also called polypropylene block copolymer (PP-B)

### **Analysis of polypropylene (PP-B) properties reveals the following advantages:**

- **High chemical resistance** – resistance to household sewage with a pH value from 2 (acid) to 12 (alkaline), rainwater, groundwater contaminated with organic waste, good resistance to chemical-laden industrial effluent. Even though its resistance to some solvents is limited it is still much higher than that of PVC-U and PE. Polypropylene is particularly recommended in areas contaminated with chemical substances and industrial waste, e.g. in landfill sites where leachate is very aggressive.
- **Resistance to household sewage at a high, constant temperature of up to 95°C**, which means that there are practically no limitations as to the amount of high-temperature sewage conveyed to the outer sewer system.
- **High impact strength**-brittleness temperature by impact is estimated at below -20°C. At such low temperatures pipes must be handled with care. At temperatures over 20°C there are no limitations as to the transport and laying of pipes. It is a major advantage in our climate zone where temperatures below -20°C occur very rarely.
- **High modulus of elasticity**- much higher than that of PE (though lower than that of PVC-U) ensures both short- and long-term ring stiffness.
- **High aging resistance** under natural and artificial aging conditions.





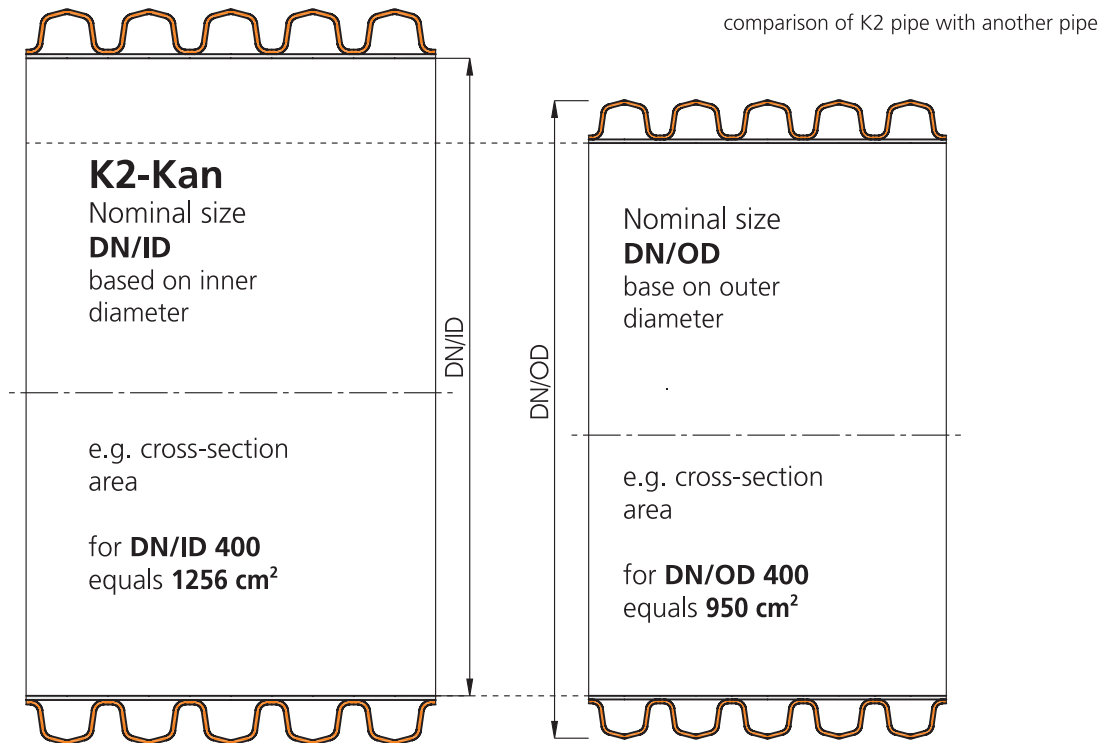
According to the draft European standard prEN 13476, **K2-Kan pipes** are structured-wall (profiled) pipes type B. The originality of their construction lies in the fact that the low, wide rib of the outer wall is topped with an extra roof-shaped reinforcement which transfers point loads from the inner wall to the external wall thereby preventing deformation of the former. The external wall resembles a low, wide wave with narrow grooves, the last of which contains an elastomeric sealing ring for pipe connection. Such pipe construction ensures an optimal increase in ring stiffness with different outer wall thickness while inner wall thickness stays constant. Depending on external wall thickness ring stiffness range  $SN=(8\div 16)$  kN/m<sup>2</sup> can be achieved.

**K2-Kan pipes** have a nominal size (DN) referring to the inner diameter (DN/ID). This means that the nominal size specified by the manufacturer is equal to the inner diameter of the pipe and should be adopted by designers as a basis for hydraulic calculations. In this respect K2-Kan pipes stand in stark contrast to other structured-wall pipes whose nominal size is based on the outer diameter.

All structured-wall pipes type B (corrugated or profiled) have very bulky wall height when compared to smooth pipes (solid, foamed or other structured-wall pipes type A) in which differences in internal diameters depending on varying ring stiffness are of no significance in hydraulic calculations.



The comparison of cross-sections of a **structured type B pipe** whose nominal size refers to the inner diameter (DN/ID) and a pipe whose nominal size refers to the outer diameter (DN/OD) shows that the cross-section area of the former is on average 32% bigger than that of the latter. Thus K2-Kan pipes have a considerably bigger inner diameter than other pipes of the same nominal size based on the outer diameter.



## 100% SATISFACTION

### Quality requirements for K2-Kan pipes

According to pr EN 13476-1 as well as Technical Approvals Nr AT/2003-03-1444 and AT/2003-02-1349-01 issued by Road and Bridge Research Institute and 'INSTAL' respectively, K2-Kan pipes and fittings shall meet the following test requirements:

- heat test, when tested at 150°C for 30-60 minutes there shall be no blisters and delamination
- determination of ring stiffness with 3% inside diameter deflection
- assessment of conformity (dimensions and appearance) against product specifications
- assessment of ring stiffness. At normal temperatures after 30% outside diameter deflection there shall be no cracking, ruptures or delamination.
- leaktightness of elastomeric sealing ring joints- tested at a normal temperature, under an internal pressure of 0.05 (for the lower pressure test), an internal pressure of 0.5 (for the higher pressure test), a negative internal pressure of 0.3 for socket connections with angular deflection of up to 2° and without it
- impact test conducted by dropping the test specimen preconditioned at 0°C onto a hard surface

**The company laboratory conducts tests at every production stage** beginning from checking granulate against its quality certificate through the manufacturing process itself to the finished product. Storage conditions are also subject to control.

**The company offers transport of pipes and fittings** to our warehouses or directly to the construction site when ordered in bulk. Along with the product the customer is provided with 'Manual on design and construction of K2-Kan PP outdoor sewage systems'.

**The quality of our products is ensured by the quality management system based on PN-EN-ISO 9001:2000** certificated by TÜV-Rheinland and Office of Technical Inspection. In our manufacturing plants we conform to strict environmental regulations. All trimmings from the production of PP pipes and fittings are reprocessed in our plants.



# PRACTICAL SOLUTIONS

## Major advantages of K2-Kan PP piping system

**K2-Kan pipes** come in lengths of 2, 3 and 6 metres (other lengths on request). Each pipe, irrespective of its length, has a factory-fitted seal and a double socket coupler at one end and another sealing ring in the last groove of the other end.

Our product range also includes pipes without a coupler which can be fitted with a double socket coupler. Supplementary products include DIAMIR 400, 425, 600, and 1000 sewer manholes with socket couplers adjusted to the K2-KAN pipes system.



**Pipe-pipe and pipe-fitting connections and DIAMIR sewer manholes** are made by pushing the pipe end with an integrated seal into the internally smooth socket. K2-Kan sizing system has been designed to guarantee **complete leaktightness of seal joints under pressure of at least 0.5 bar or negative pressure of 0.3 bar**. This practically eliminates the risk of sewage exfiltration into the ground or groundwater infiltration into the sewer pipe. Pipe sagging of up to 10% inner diameter deflection caused by earth loads does not affect pipe leaktightness. Socket joints have substantial reserve that compensates for pipe linear strain. In practice only 30 % of socket length is used to absorb pipe dimensional changes resulting from maximum temperature variations. **According to the Opinion issued by the Central Mining Institute in Katowice, socket lengths are sufficient to use K2-Kan pipes in mining-damaged areas.**

Both **K2-Kan pipe** walls are independently dyed throughout and have distinctive, uniform colouring. **The outer wall is orange-brown** (DN160-DN600) or black (DN800-DN1000) conforming to the generally accepted colour of underground sewage systems. **The inner wall is light grey** to enable good reflection when inspected underground with Closed Circuit Television (CCT) or video cameras.

The inspection involves:

### correctness of pipe laying

- if there are uniform gradients, any flow impediments

### during lifetime

- locating any potential system defects, checking for any unrecorded discharges of, e.g. rainwater into the household sewage system



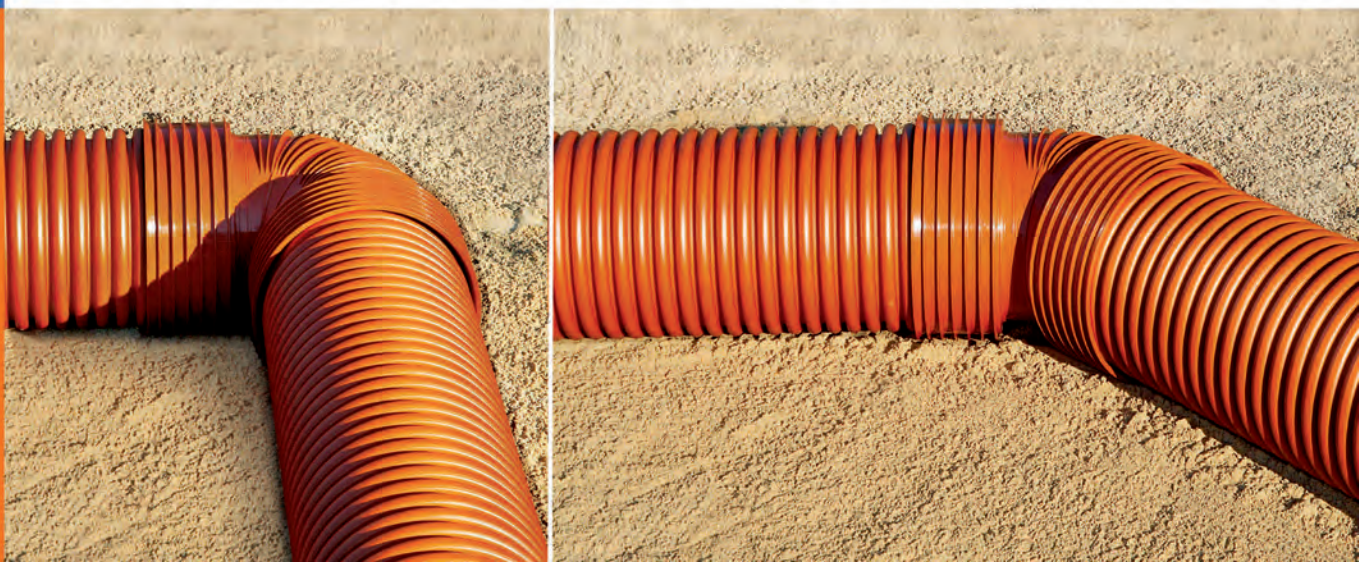
**K2-Kan pipes** have high ring stiffness  $SN\ 8\ kN/m^2$  and therefore can be laid at 0.8m-8m in unloaded areas and under roads with a maximum dynamic load of SLW 60. **In the case of heavy loads it is crucial that the bedding material should be carefully chosen and well compacted** to prevent excessive pipe sagging.

When groundwork is carried out properly pipe sagging should not exceed 3÷4% inner diameter deflection. Piping system designers should aim at sagging below 5%. The final maximum sagging on completing groundwork should not exceed 8%. In practice it does not affect the flow area which is over 99% of the inner diameter.

**Thanks to the construction of their outer wall K2-Kan pipes exhibit significant resistance to point loads** as the inner wall absorbs unevenly distributed loads.



Although **K2-Kan pipes** are not produced for a non-pressure gravity sewer system, they also exhibit high resistance to water pressure when high-pressure devices for pipe cleansing are used (120 bars). Although K2 – Kan pipes are produced for non-pressure work, even long prolonged water pressure of up to 2.5 bars does not damage them or decrease their durability.





**The inner surface of K2-Kan pipes is very smooth.** They have roughness coefficient of  $K=0.00011\text{mm}$ . (Tests carried out in Central Mining Institute in Katowice). Smooth walls prevent sedimentation and deposition. K2-Kan pipes also have a good self-cleansing capacity.

It can be said that such smooth walls will guarantee very good flow and the required drops will be minimal. The system of pipe fittings with no excessive hydraulic resistance also helps, as there are no natural barriers reducing the speed of flow. Smooth surfaces of the whole hydraulic system significantly decrease the maintenance requirements of pipelines through cleansing them sporadically. **Moreover, there are fewer inspection chambers used for putting cleansing devices.**

Such smooth surfaces of K2-Kan system also make it possible to lay pipes with smaller drops which means they don't have to be laid deep in the ground. It highly influences the construction costs and in difficult ground conditions it influences the decision whether to build an expensive sewage pumping station or to build a less risky gravity system of lower immersion.



**Low pipe weight** makes laying underground sewage systems much easier. **K2-Kan pipes are 2-3 times lighter than smooth solid plastic pipes and 15-20 times lighter than stoneware or concrete pipes.**

**K2-Kan pipes can be easily handled between trench bracing.**

Push-fit connections with elastomeric sealing rings are also very simple even at large diameters. In deep trenches, especially in areas with low groundwater levels where temporary groundwater lowering is required, groundwork can be carried out in short sections. To facilitate installation we produce standard pipe lengths of 2.3 and 6 metres.

Thanks to low pipe weight and easy joining, installation is less labour intensive and thereby cheaper by about 20-30%. **Groundwork and installation should be carried out in compliance with standards PN-EN 1610 and PN-EN 1046 as well as the manual on design and construction of K2-Kan PP outdoor sewage systems.**

# PIPE CULVERTS UNDER ROADS

Thanks to their high ring stiffness, resistance to low temperature and the construction of the outer wall ensuring the optimal cooperation with the ground, K2 – Kan pipes are ideal for making culverts under roads. The detailed information about designing and making culverts of plastic pipes can be found in “The designing and technological recommendations for flexible road engineering constructions made of plastic” which is the attachment to Directive No 30 by General Director for National Roads and Motorways from 2 November 2006.

According to them, **the pipe should be laid on the concrete strip footing of aggregate or the ground compacted with cement. In case of low bearing capacity of the ground, the footing should be reinforced with geosynthetic. The minimum height of concrete strip footings is 30 cm, and their density level is 0,98** according to the standard Proctor test.

**The bedding of sand should be made directly under the laid pipe. The minimum thickness of the bedding is 15 cm.** The upper layer of the bedding, which should have the thickness of minimum 5 cm, has to be laid loosely, so that pipe notches can penetrate in it easily. The lower layer of the bedding should be compacted to the value of 0.98 according to the standard Proctor test.

**The backfill** (to the level of the surface of the pipe) **is made of the aggregate which is in compliance with standards PN-S-02205:1998 and PN-B-11112:1996. The backfill should be made of layers up to 30 cm thick** and compacted, directly at the pipe to the value of 0.95, and the remaining space to the value of 0.98 according to the standard Proctor test. The backfill should not contain any clods, lumps or frozen ground.

**The initial backfill must be made of frostproof aggregate, with a fraction in the range from 0 – 40 mm and non-uniform graining, at least 15-30 cm high above the upper edge of the pipe. The maximum diameter of the grains of the aggregate laid directly on the pipe cannot be bigger than the external notch length of the pipe.**







**The surcharge height is the distance from the surface of the pipe to the formation line of the road.** It contains both road constructional layers and the initial backfill above the pipe. **The minimum surcharge height depends on the pipe diameter. For the pipes with the diameter of 600 – 1000 mm it is 0.5m. For the pipes with the diameter smaller than 600 mm it is 0.3 m**, but 0.2 m is accepted in the case of driveways to premises. In the case the road constructional layers are too high, the thickness of the initial backfill can be decreased to 0.1 m in order to reach the right surcharge height (static calculations must be made). The surcharge height can be additionally decreased by using a reinforced concrete slab or by reinforcing the initial backfill with a geogrid with stiff knots

In accordance with "The designing and technological recommendations for flexible road engineering constructions made of plastic", culverts made of plastic pipes having ring stiffness lower than  $8\text{kN/m}^2$ , can be made under all kinds of roads.



# MADE TO LAST

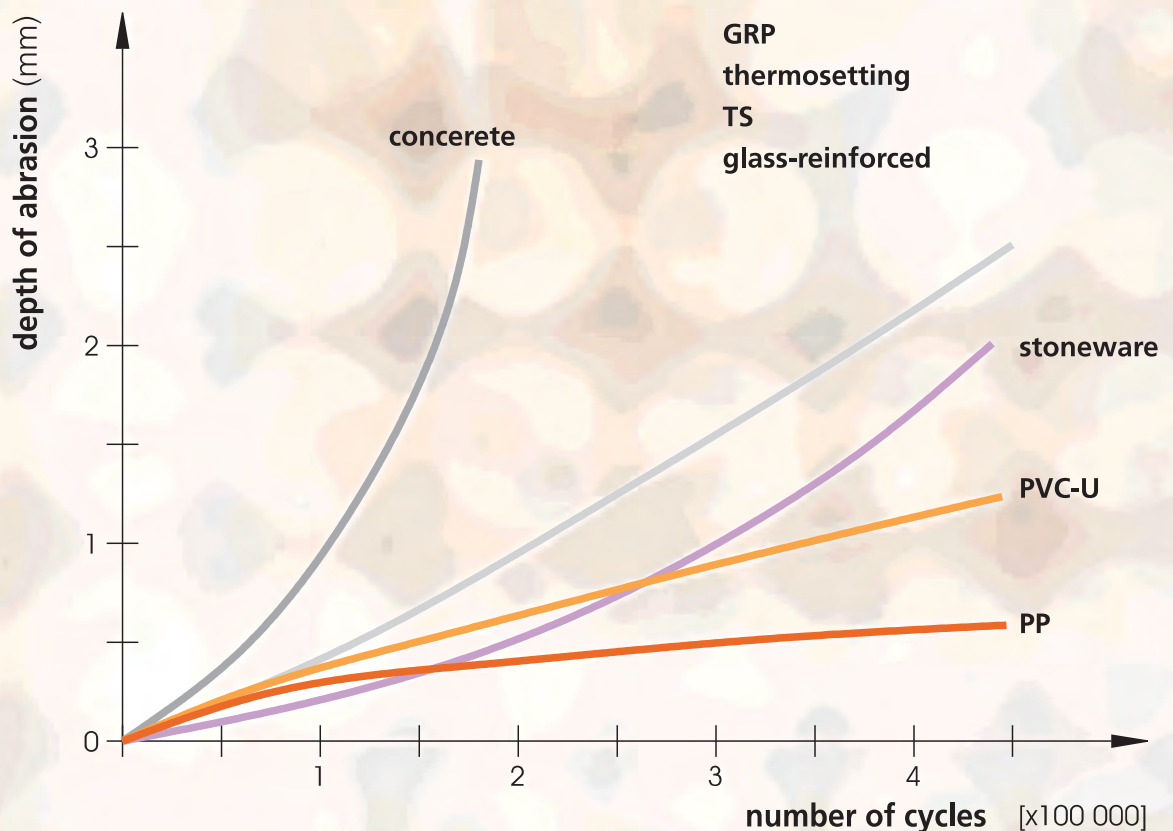
## K2-Kan high abrasion resistance

Wastewater, especially rainwater that washes off salt and sand used for winter road maintenance, contains considerable amounts of coarse sand. Technische Hochschule in Darmstadt has developed a method testing the abrasion resistance to a mixture of sand, gravel and water of sewage pipes made from various materials. The method is described in DIN V 19534-2:1992 standard.

In the test, a one-metre gutter (half pipe) is filled with an abrasive slurry of water, silica sand and gravel (with particular grain sizes and proportions). The specimen sample is tilted back and forth at 22.5° with a frequency of 20 cycles per minute. After over 100 cycles the depth of the abrasion is measured. Tests show that **PP pipes** have the lowest rate of abrasive wear. It is lower than that of PVC-U, glass-reinforced thermosetting plastic, concrete or stoneware pipes.

It proves that K2-Kan internal wall thickness guarantees long-term leaktighness and durability.

Abrasion resistance graph





# 100 YEARS OF RELIABILITY

## Durability prognosis of K2-Kan pipes

The longest experience of plastic pipe aging under natural conditions concerns polyvinyl pipes. In Germany it covers a period of about 100 years. Polypropylene has been used in Europe for about 40 years. However, laboratory accelerated aging methods are used and by comparing their results with the changes taking place under natural conditions the durability of PP underground sewer pipes has been estimated at minimum 100 years. This means that designers of K2-Kan sewage systems should avoid weak links made from traditional materials which could fail leakproof requirements or wear and tear faster. Longer durability also means that investment costs will be recovered through depreciation deductions over a longer period of time.





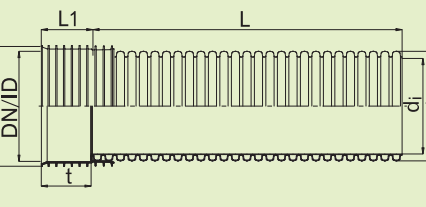

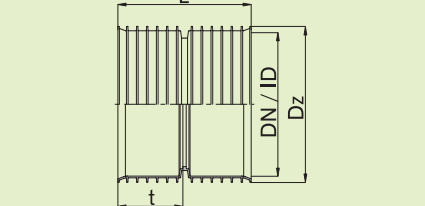
## Environment

All trimmings from the production process are 100% recycled directly in our plants. Under site conditions, any cut-offs from pipes can be utilised by simply adding a coupler to each end. Underground pipes and fittings are biologically and chemically neutral and resistant to aggressive sewage. The piping system is absolutely leakproof and does not allow any sewage exfiltration, which could cause environmental pollution.

As previously mentioned, PP waste is 100% recyclable. Designed for incineration or waste dumps but in the event of accidental burning it does not emit gases hazardous to health or the environment.


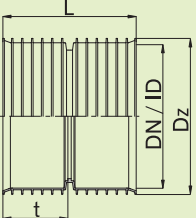
# K2-Kan PP pipes and fittings for outdoor sewage systems

## K2-Kan PP sewage pipe with coupling

	DN/ID	de	di	t	L1	L	product code
	*DN/OD	[mm]	[mm]	[mm]	[mm]	[mm]	
	*160	160	142	82	90	2000	0912343200
		160	142	82	90	3000	0912343300
		160	142	82	90	6000	0912343600
	200	225	200	101	110	2000	0922543200
		225	200	101	110	3000	0922543300
		225	200	101	110	6000	0922543600
	250	282	250	125	135	2000	0922743200
		282	250	125	135	3000	0922743300
		282	250	125	135	6000	0922743600
	300	340	300	149	158	2000	0922943200
		340	300	149	158	3000	0922943300
		340	300	149	158	6000	0922943600
	400	455	400	208	214	3000	0923143300
		455	400	208	214	6000	0923143600
	500	569	500	248	268	3000	0923343300
		569	500	248	268	6000	0923343600
	600	683	600	279	309	3000	0923543300
		683	600	279	309	6000	0923543600
	800	905	800	370	395	3000	0923743300
		905	800	370	395	6000	0923743600
	1000	1135	1000	456	480	3000	0923943300
		1135	1000	456	480	6000	0923943600

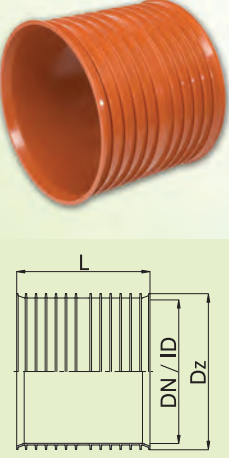
\* size referring to DN/OD outer diameter

## K2-Kan PP coupling

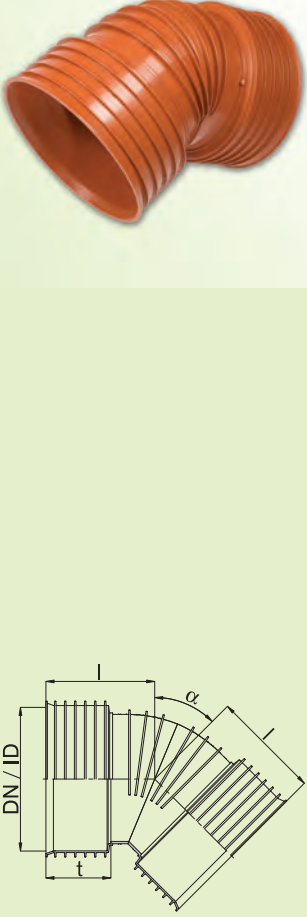
	DN/ID	Dz	t	L	product code
		[mm]	[mm]	[mm]	
	160	181	82	180	1003233000
	200	254	101	220	1003253000
	250	317	125	270	1003273000
	300	376	149	315	1003293000
	400	499	208	427	1003313000
	500	615	248	536	1003333000
	600	731	279	618	1003353000
	800	970	370	790	1003373000
	1000	1212	456	960	1003393000



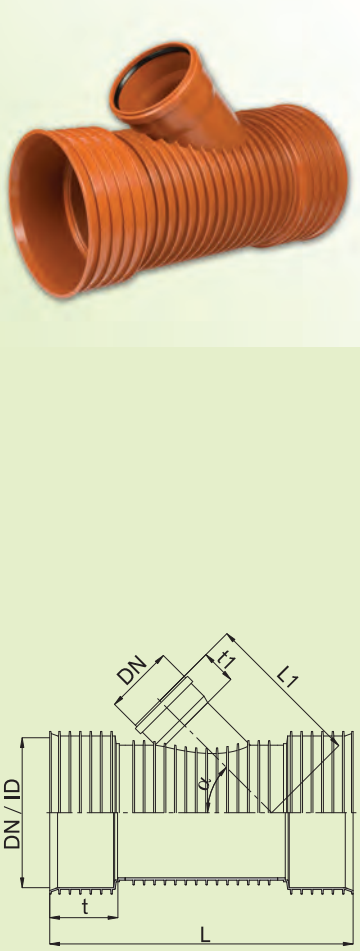
## K2-Kan PP sleeve

	DN/ID	Dz [mm]	L [mm]	product code
	160	181	180	1001233000
200	254	220	1001253000	
250	317	270	1001273000	
300	376	315	1001293000	
400	499	427	1001313000	
500	615	418	1001333000	
600	731	503	1001353000	
800	970	700	1001373000	
1000	1212	870	1001393000	

## K2-Kan PP bend

	DN/ID	$\alpha$	L [mm]	t [mm]	product code
	160	15°	114	82	1012233150
30°		121	82	1012233300	
45°		134	82	1012233450	
90°		170	82	1012233900	
200	15°	144	101	1012253150	
	30°	152	101	1012253300	
	45°	170	101	1012253450	
	90°	215	101	1012253900	
250	15°	176	125	1012273150	
	30°	192	125	1012273300	
	45°	210	125	1012273450	
	90°	273	125	1012273900	
300	15°	225	149	1012293150	
	30°	245	149	1012293300	
	45°	268	149	1012293450	
	90°	310	149	1012293900	
400	15°	290	208	1012313150	
	30°	317	208	1012313300	
	45°	347	208	1012313450	
	90°	404	208	1012313900	
500	15°	417	248	1012333150	
	30°	451	248	1012333300	
	45°	550	248	1012333450	
	90°	620	248	1012333900	
600	15°	450	279	1012353150	
	30°	494	279	1012353300	
	45°	650	279	1012353450	
	90°	735	279	1012353900	
800	15°	580	370	1012373150	
	30°	620	370	1012373300	
	45°	730	370	1012373450	
	90°	950	370	1012373900	
1000	15°	710	456	1012393150	
	30°	790	456	1012393300	
	45°	930	456	1012393450	
	90°	1180	456	1012393900	

## K2-Kan PP wye 45° / smooth pipe (PVC or PP)



DN/ID	DN [mm]	L [mm]	L1 [mm]	t [mm]	t1 [mm]	product code
160	160	449	294	82	78	1020153450
200	160	487	308	101	78	1020183450
	200	549	378	101	92	1020193450
250	160	555	470	125	90	1020223450
	200	555	450	125	108	1020233450
	250	555	450	125	135	1020243450
300	160	690	568	149	90	1020273450
	200	690	568	149	108	1020283450
	250	690	568	149	135	1020293450
	315	780	568	149	150	1020303450
400	160	890	702	208	90	1020333450
	200	890	682	208	108	1020343450
	250	890	660	208	135	1020353450
	315	890	637	208	150	1020363450
500	160	1170	647	248	90	1020403450
	200	1170	666	248	108	1020413450
	250	1170	684	248	135	1020423450
	315	1170	696	248	150	1020433450
600	160	1218	737	279	90	1020483450
	200	1218	756	279	108	1020493450
	250	1218	774	279	135	1020503450
	315	1218	786	279	150	1020513450
800	200	1218	900	370	108	1020583450
1000	200	1218	1180	456	108	1020683450

## K2-Kan PP wye 45°



DN/ID	DN1/ID [mm]	L [mm]	L1 [mm]	t [mm]	t1 [mm]	product code
160	160	449	298	82	82	1022153450
200	160	487	312	101	82	1022183450
	200	549	387	101	101	1022193450
250	160	555	430	125	82	1022223450
	200	555	430	125	101	1022233450
	250	555	430	125	125	1022243450
300	160	690	520	149	82	1022273450
	200	690	520	149	101	1022283450
	250	690	520	149	125	1022293450
	300	780	520	149	149	1022303450




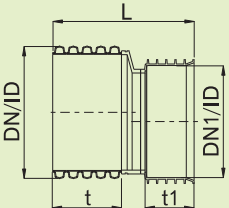
## K2-Kan PP wye 45°

	DN/ID	DN1/ID [mm]	L [mm]	L1 [mm]	t [mm]	t1 [mm]	product code
	400	160	890	642	208	82	1022333450
		200	890	642	208	101	1022343450
		250	890	645	208	125	1022353450
		300	890	645	208	149	1022363450
		400	890	645	208	208	1022373450
	500	200	1170	660	248	101	1022413450
		250	1170	685	248	125	1022423450
		300	1170	708	248	149	1022433450
		400	1170	737	248	208	1022443450
	600	200	1218	750	279	101	1022493450
		250	1218	775	279	125	1022503450
		300	1218	798	279	149	1022513450
		400	1218	827	279	208	1022523450
	800	300	1218	948	370	149	1022603450
	1000	300	1218	1224	456	149	1022703450


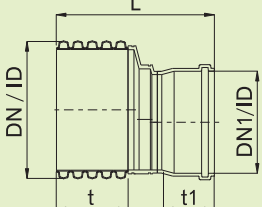
## K2-Kan PP eccentric reducer

	DN/ID	DN1/ID [mm]	L [mm]	t [mm]	t1 [mm]	product code
 	200	160	240	101	82	1030183000
	250	200	288	125	101	1030233000
	300	200	279	149	101	1030283000
	300	250	342	149	125	1030293000
	400	250	362	208	125	1030353000
	400	300	457	208	149	1030363000
	500	300	437	248	149	1030433000
	500	400	553	248	208	1030443000
	600	400	535	279	208	1030523000
	600	500	594	279	248	1030533000
	800	600	715	370	279	1030633000
	1000	800	880	456	370	1030743000

## K2-Kan BK / K2-Kan PP eccentric reducer

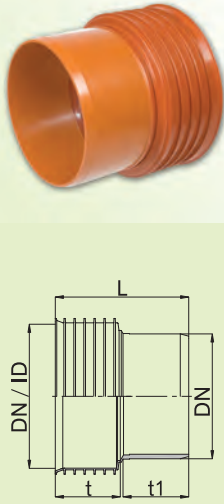
	DN/ID	DN1/ID [mm]	L [mm]	t [mm]	t1 [mm]	product code
		200	160	240	101	82
	250	200	254	132	101	1032233000
	300	200	298	176	101	1032283000
	300	250	323	176	125	1032293000
	400	250	387	240	125	1032353000
	400	300	409	240	149	1032363000
	500	300	462	293	149	1032433000
	500	400	518	293	208	1032443000
	600	400	555	330	208	1032523000
	600	500	610	330	248	1032533000
	800	600	761	440	279	1032633000
	1000	800	936	528	370	1032743000

## K2-Kan BK / KG PP eccentric reducer

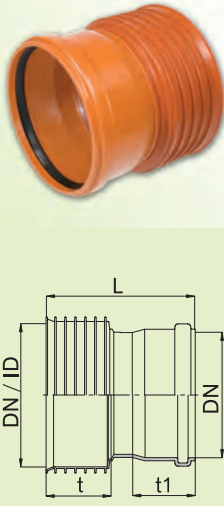
	DN/ID	DN1/ID [mm]	L [mm]	t [mm]	t1 [mm]	product code
		200	160	240	101	82
	250	160	244	132	81	1034223000
	300	160	284	176	81	1034273000
	400	160	252	240	81	1034333000
	400	315	402	240	144	1034363000
	500	160	405	293	81	1034403000
	500	315	455	293	144	1034433000
	600	160	442	330	81	1034483000
	600	315	492	330	144	1034513000



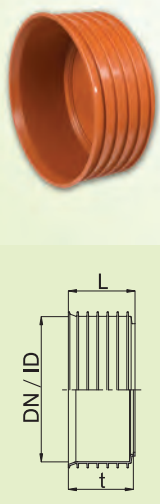
## K2-Kan PP coupling for socket (PVC or PP)

	DN/ID	DN [mm]	L [mm]	t [mm]	t1 [mm]	product code
	160	160	175	82	82	1038233000
	200	200	226	101	102	1038253000
	250	250	272	125	124	1038273000
	300	315	317	149	144	1038293000
	400	400	416	208	178	1038313000
	500	500	502	248	218	1038333000
	600	630	579	279	270	1038353000


## K2-Kan PP coupling for smooth pipe (PVC-U or PP)

	DN/ID	DN [mm]	L [mm]	t [mm]	t1 [mm]	product code
	160	160	175	82	78	1039233000
	200	200	235	101	102	1039253000
	250	250	282	125	124	1039273000
	300	315	328	149	144	1039293000
	400	400	430	208	178	1039313000
	500	500	525	248	218	1039333000

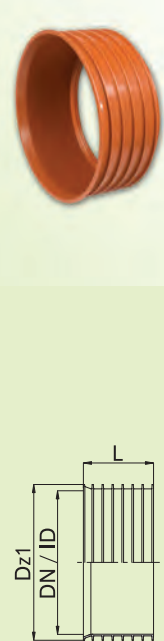
## K2-Kan PP plug

	DN/ID	L [mm]	t [mm]	product code
	160	90	82	1041233000
	200	118	101	1041253000
	250	143	125	1041273000
	300	172	149	1041293000
	400	228	208	1041313000
	500	284	248	1041333000
	600	324	279	1041353000

## K2-Kan PP inner plug

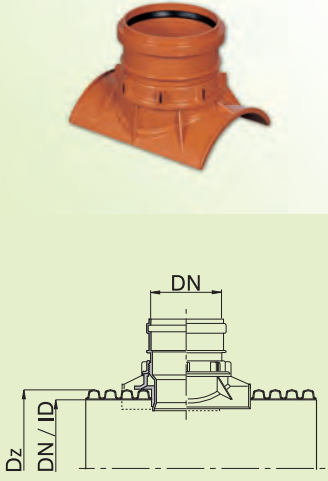
	DN/ID	L [mm]	product code
	160	95	1042233000
	200	120	1042253000
	250	142	1042273000
	300	186	1042293000
	400	252	1042313000
	500	305	1042333000
	600	342	1042353000

## K2-Kan PP tight transition to construction barriers (inspection chambers)

	DN/ID	Dz1 [mm]	L [mm]	product code
	160	181	90	1049233000
	200	254	110	1049253000
	250	317	135	1049273000
	300	376	158	1049293000
	400	499	214	1049313000
	500	615	268	1049333000
	600	731	309	1049353000
	800	968	395	1049373000
	1000	1200	480	1049393000

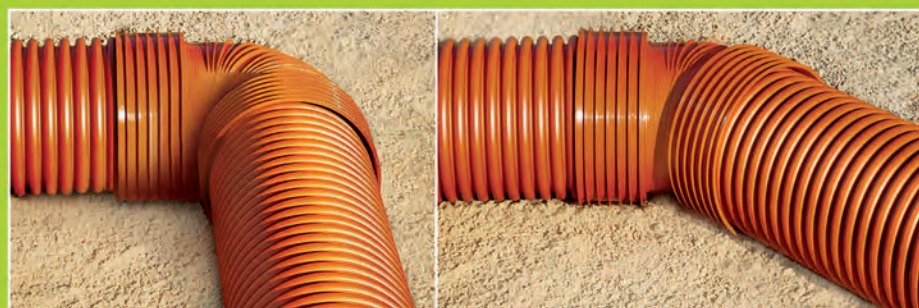


## K2-Kan saddle

	DN/ID	DN [mm]	Dz [mm]	product code
	250	200	282	1028233900
	300	200	340	1028283900
	400	200	455	1028343900

## K2-Kan seal

	DN/ID	H [mm]	B [mm]	product code
	160	11,1	10,2	5131231010
	200	14,5	11,9	5131251010
	250	17,3	14,3	5131271010
	300	21,9	18,4	5131291010
	400	31,2	27,5	5131311010
	500	36,6	31,6	5131331010
	600	45,5	35,3	5131351010
	800	57,6	47,6	5131371010
	1000	72,0	61,0	5131391010



## RELIABLE POLISH SYSTEMS



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