

The Original KG2000

All the benefits of our
multi-professional at a glance.

According to
DIN EN 14758-1

KG2000: The powerful and modern system for a wide range of applications!



SN 10 SN 16 SN 16

Pipes for waste water and rainwater



SN 10 and SN 16

Welded pipe system for JGS and LAU systems



slotted perforated

Drainage pipes for hydraulic engineering and tunnelling

The multi-professional pipe system for underground installation!

The reinforced material PP-MD shows all its advantages here

- High temperature resistance
- High E-module of 3600 MPa
- Impact resistant to -20° C
- Various connection methods: plug-in and welding
- Minimal linear expansion
- High linear rigidity
- High chemical resistance pH-value 1 – 13





SN 10 and SN 16
**Ventilation and
air-conditioning systems**



SN 10 and SN 16
**Wall and floor
recesses**



SN 10
Double pipe system



e-line SN 4 SN 10
Cable protection pipes



Stability has a name: **KG2000**



True facts about PP-MD: The material of the future

Polypropylene is a thermoplastic material from the polyolefin group. This plastic is also used in the automotive industry and in tank systems to meet high safety standards. Functional, natural minerals optimise the standard PP for every application.

The reinforcing materials, e.g. magnesium carbonate or magnesium silicate hydrate, are used specifically to improve the mechanical, physical and chemical properties of the material. This makes the PP-MD pipe system very robust and completely recyclable.

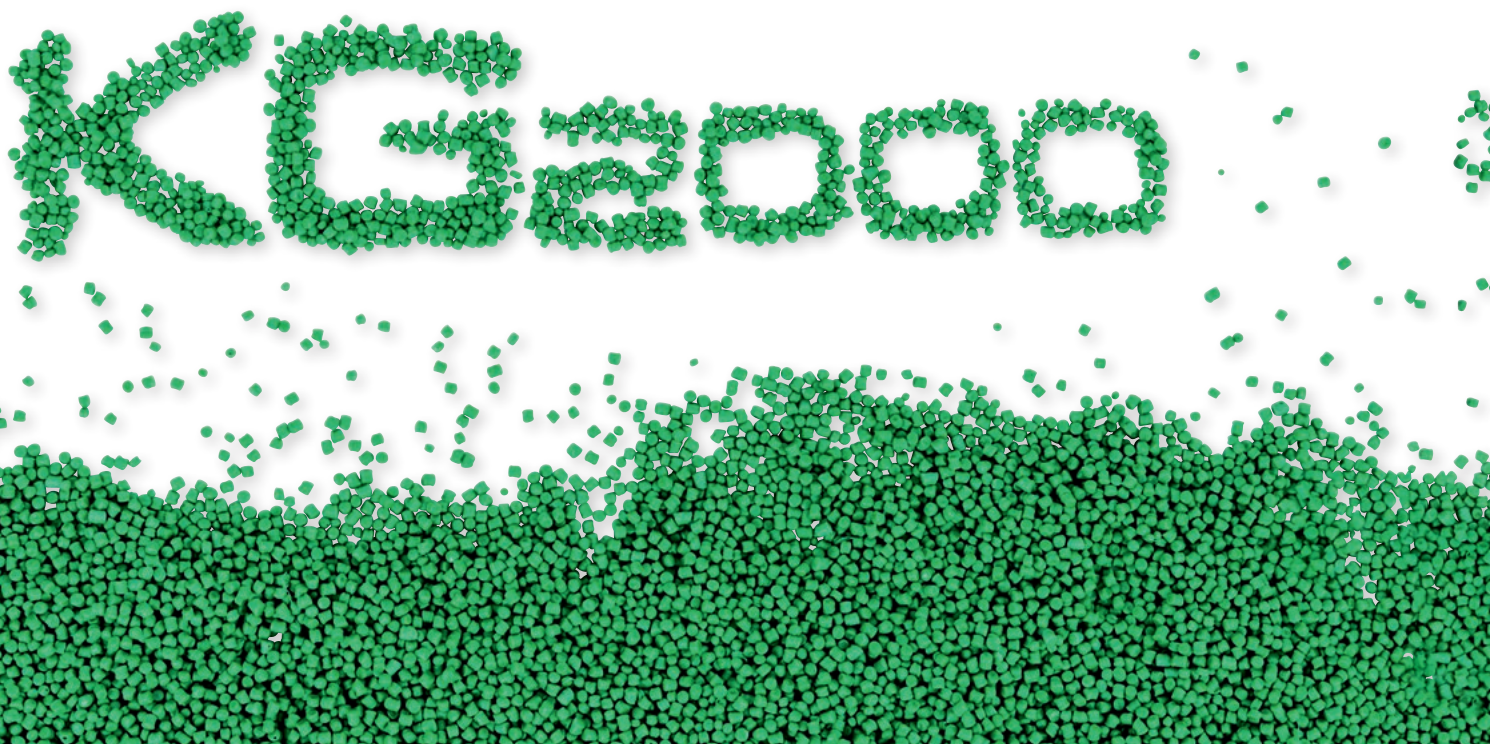
Its hygienic standard, corrosion resistance, good processing properties and many other aspects offer excellent qualities for a wide range of applications.



MPA Darmstadt confirms the refinement of the polypropylene and the resulting improved mechanical and physical properties.

Reinforced solid wall pipe according to DIN EN 14758-1

- ➔ Optimal wall thickness with high ring rigidity
- ➔ Guaranteed operating reliability
- ➔ Service life of more than 100 years



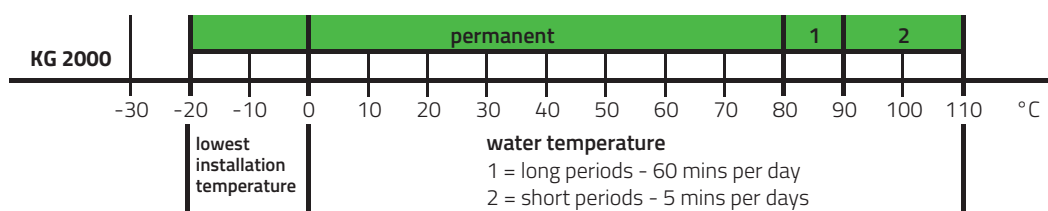


The result: Use state-of-the-art production technology and decades of experience to create a high-quality compound.

The perfect material for a sturdy sewer pipe system!

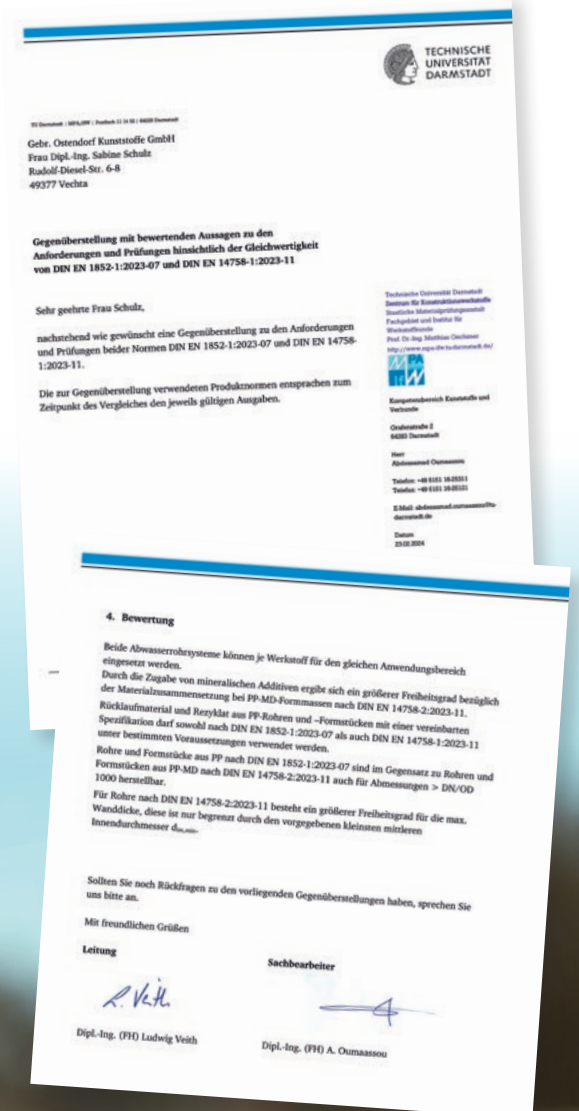
- High E-module according to DIN EN 14758-1 to 3600 MPa
- High chemical resistance; pH 1–pH 13 (acidic - alkaline)
- Resistant to biogenic sulphuric acid corrosion
- Outstanding temperature properties
- Outstanding impact resistance and toughness, tested with -20°C
- High abrasion resistance tested with 200,000 load cycles
- Robust under mechanical stress (e. g. high-pressure flushing)
- Smooth surfaces, no incrustation, optimum hydraulics
- Self-cleaning and less maintenance
- Approved material bonding welding

Temperature application areas



DIN EN 14758-1 is a **recognised and officially approved** standard for non-pressurised underground sewage pipe systems.

Government tested: MPA Darmstadt confirms that waste water pipes according to DIN EN 14758-1 can be used for the **same application area** as pipes according to DIN EN 1852-1.



Comparison of standardised sewer pipes according to DIN EN 1852-1 and DIN EN 14758-1

DIN EN 1852-1	DIN EN 14758-1	Equivalence/comments
NORM TITLE		
Plastic piping systems for non-pressurised underground drains and sewers Polypropylene (PP) Part 1: Requirements for pipes, fittings and the piping system.	Plastic piping systems for non-pressurised underground sewers and drains Polypropylene with mineral additives (PP-MD) Part 1: Requirements for pipes, fittings and the piping system.	Title supplement with Polypropylene or PP-MD. ✓
SCOPE OF APPLICATION		
Specifies requirements for solid wall pipes made of PP that are suitable for use in non-pressurised underground sewers and pipes.	Specifies requirements for solid wall pipes and fittings made of polypropylene with mineral additives (PP-MD) that are used for sewers and pipes in underground gravity drainage systems.	Identical application area. DIN EN 14758-1 allows optional additional coloured markings (inside or outside) or external UV protection. ✓
MATERIAL		
A PP base polymer without additional mineral additives must be used as the final moulding compound for pipes and fittings. Additives that are required for the manufacture of components and, where applicable, materials other than virgin material are permitted. The proportion of mineral substances in the final moulding compound must not exceed 3.0 % by mass.	To produce pipes and fittings, mineral additives of known specification and/or additives required to simplify production are added to a PP. Circulating material or recycle material may be used in accordance with the standard. The mineral additive content must be between 3.0 % and 50 %.	According to DIN EN 1852, mineral additives of up to 3 % are permitted. DIN EN 14758-1 permits between 3 % and 50 %. Both norms generally allow additives. The use of mineral reinforcing agents significantly increases the E-module. PP as an E-module of approx. E _{1 min} 1250 MPa to 2500 MPa. Mineral reinforced PP (PP-MD) has an E-module of E _{1 min} : 1600 MPa to 3600 MPa. ✓
CREEP RUPTURE BEHAVIOUR		
80 °C; 4.2 MPa; 140h or 95 °C; 2.5 MPa; 1000h		no difference ✓
RING STIFFNESS (CLASSES)		
Pipes: SN 2, 4, 8, 16 Fittings: SN 2, 4, 8	Pipes: SN 4, 8, 16 Fittings: SN 4, 8, 16	DIN EN 14758 does not include ring rigidity of SN 2 ✓
RESISTANCE TO EXTERNAL IMPACT STRESS		
Testing at 0 °C each according to DN 1.0 kg – 3.2 kg at 1.6 m – 2.0 m drop height Testing at -10 °C each according to DN 4.0 kg – 12.5 kg at > 1.0 m drop height		no difference ✓
IMPACT RESISTANCE (DROP TEST)		
At 0 °C, drop height depending on DN 1.0 m - 0.5 m, no damage		no difference ✓
TIGHTNESS OF ELASTOMER SEALING RING CONNECTIONS		
No leakage with deformation of 10 % tip, 5 % sleeve; with angle of 2°, 1.5° or 1° depending on DN. Water pressure 0.05 bar and 0.5 bar. Air pressure -0.3 bar		no difference ✓
USE OF MATERIAL THAT IS NOT VIRGIN MATERIAL		
Circulation material from pipes and moulded parts is permitted. Return material and recycling is permitted if it comes from PP pipes and fittings and has defined specifications. Material from products other than PP pipes and moulded parts is not permitted.		no difference ✓
CHEMICAL RESISTANCE		
Piping systems made of PP in accordance with this standard are resistant to corrosion, domestic waste water, rainwater, surface water and groundwater.		no difference ✓
ABRASION RESISTANCE		
Pipes and fittings are abrasion-proof according to this norm.		no difference ✓

Last update of standards: 2023



Equivalence was not enough.
KG2000 is more than just »**NORMAL**«!



Tested like no other system, with requirements that go far beyond the standard.

	Topic	Testing requirement	Accredited testing centre
Standard norm requirements	Resistance to impact, temperature test - 10°C	ÖNORM EN ISO 3127 + ÖNORM EN ISO 1173	TGM
	Service life (proof of creep rupture strength)	ÖNORM EN ISO 1167-1 and -2	TGM
	Tightness when angled	ÖNORM EN ISO 13259	TGM

+++ Additional tests +++	Tightness up to 13 bar**	EN ISO 13259	Eurofins
	Testing long-term sealing behaviour (straw test)	DIN EN 14741	iro GmbH Oldenburg
	Fittings SN 16 ring rigidity	DIN EN ISO 13967	MPA-DA
	Chemical resistance pH 1 to 13	DIN EN ISO 175	MPA-DA
	RLT (ventilation and air-conditioning systems)	VDI 6022	Hygiene-Institut Gelsenkirchen
		DIN EN ISO 846	Hygiene-Institut Gelsenkirchen
	JGS/LAU approval DIBt	Z-40.23-577	DIBt/MPA/MFPA
	Radon tightness	Determination of the radon diffusion coefficient and the diffusion length	IAF Radioecology Radeberg
	Root resistance	DIN 4060	TGM/MPA
	Thermal conductivity according to THB	Transient Hot Bridge	Linseis Selb
	National certification	Vers. Country standards	internal doc.
	Externally watertight	DIN EN 13259	MPA-DA
	Impact resistance - 20°C	based on EN ISO 3127	internally tested, external proof of testing under preparation

* Selection of standard norm requirements. **KG2000 also fulfils all other norm requirements!**

** Area of application according to DIN EN 14758-1

All norm requirements and other tests and proof on request!
All contact partners can be found here



Now also confirmed by a SKZ study: **KG2000, according to DIN EN 14758-1, is the winner in the considered impact categories in the life cycle assessment in relation to the reference pipe system according to DIN EN 1852!**

* Under consideration of a material recycling scenario

The TOP-5 tests

1 Maximum sealing reliability up to 13 bar pressure and 0.9 bar vacuum

- High-performance triple lip seal – successfully tested to 13 bar. Testing requirement according to EN ISO 13259 – root resistance according to DIN 4060
- 0.9 bar tightness according to DIN EN 13259 against external overpressure (corresponds to a 9-metre water column)
- In accordance with DIN EN 1610, applies to all unpressurised sewer pipes, 0.5 bar test pressure on site and unpressurised operation

2 All KG2000 fittings are proven to be SN 16

- Testing of all fittings by MPA Darmstadt
- Each fitting item tested



- All dimensions
- Every fitting type

3 Root resistance and long-term tightness

Two different tests are available for testing root resistance. The shear load test in accordance with DIN 4060 only checks the connection under one-sided load. The so-called straw test in accordance with DIN EN 14741 provides a long-term test (100 years) and a more practical test. KG2000 has been successfully tested with both tests for safety reasons and can therefore be described as root-resistant and long-term leak-proof.

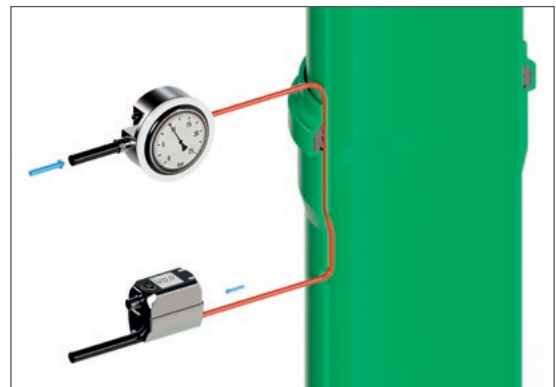


Illustration of the straw test according to DIN EN 14741

4 Approval for JGS¹ and LAU² systems

JGS and LAU systems are subject to the Water Resources Act (WHG) and the AwSV. Special regulations apply to systems, including pipe systems, which are described in the DWA regulations, among others. TRwS DWA - A 779 (Technical Rules for Substances Hazardous to Water - General Technical Regulations) applies as a general regulation. In the more detailed regulations, the linear bond welded connection is required for pipe connections, among other things. Furthermore, the specifications of the DIBt (e.g. test conditions and media lists) must be complied with. For systems in the AwSV area, the systems must therefore have DIBt approval. KG2000 fulfils these requirements in conjunction with the IP-Plus welding ring from Sabug GmbH.

¹JGS = manure, slurry, silage effluent ²LAU = facilities for storing, filling and handling substances that pose a risk of wastewater contamination

5 Creep rupture test

To check the material on the finished product and to determine the service life, the creep rupture test is carried out in accordance with DIN EN ISO 1167-2. KG2000 pipes and fittings have been successfully tested by several recognised, independent institutes.

In addition, this test is regularly carried out by accredited institutes as part of external monitoring, thus continuously confirming the high quality of the original KG2000.

**Passed
and verified**

KG2000: A special connection

The basic requirements in private and communal drainage is that the pipes do not leak. The design of the triple lip seal made of SBR (NBR seal available as an option) offers secure fixing during transport and installation.

This warrants quick installation and absolutely secure sealing even under the most adverse conditions.



The concept of our high-performance triple lip seal



1. The **fixing lip** is pushed against the beaded edge by the pipe tip and gives the seal a secure hold during the insertion process.



2. The **wiping lip** serves to keep back any dirt on the pipe.



3. The **sealing lip** ensures a permanently secure pipe connection.



The norm **DIN EN 14741** specifies a method for determining the long-term sealing pressure, the so-called straw test. Small hoses are pulled through the connection at a pressure of 10 bar and the entire system (pipe, sleeve and seal) is tested for up to 2000 hours.

Depending on the result, the connection can be declared as long-term tight (100 years). At the same time, the connection is then secure against root ingrowth.

More than required by the norm!

- Unpressurised pipe system with proven leak-tightness up to 13 bar
- Externally watertight up to 0.9 bar vacuum
- Leak tests under an angle of 2° and pipe deformation of 10%
- Can be used in drinking water protection zones 2 + 3 according to DWA A 142
- Proven root resistance according to DIN 4060 (shear load) **and** DIN EN 14741 (straw test)
- Long-term tightness 100 years according to DIN EN 14741

Only the Original KG2000 – the perfect solution for any application.

KG2000 is the universal waste water pipe system with maximum freedom of choice! Plugged or welded – both options remain open to you up until installation.

- Simple replacement of the seal
- Welding ring is inserted on-site
- Welding with Sabug IP-Plus welding ring system
- All the benefits of a material-bonded welded connection
- DIBt approved welding connection for LAU and JGS systems

High flexibility, plugged or welded – both options remain open to you up until installation.



Removal of the seal inserted in the factory.



Insertion of the welding ring.



Unbeatable as a waste water pipe system

The original KG2000 heavy-duty solid wall pipe system in accordance with DIN EN 14758-1 for the discharge of private, municipal (main sewer) and industrial waste water.

- Full system, pipes and fittings in DN/OD 110 to DN/OD 630
- All pipes include a factory inserted seal for easy connection
- Suitable for heavy duty areas (SLW 60 and Eurocode LM 1)
- Pipes in SN 10 or SN 16 according to DIN EN ISO 9969
- For clear identification, all SN 16 pipes are white on the inside
- All fittings are SN 16 tested
- DN/OD dimensioning makes it compatible with all common, standardised systems such as manholes and transitions
- Nationwide availability via a broad dealer network
- SBR seal inserted at the factory, welding optional with IP-plus welding system from Sabug GmbH

Inner pipe wall signature markings
Already available from DN/OD 315

Unbeatable as a rainwater pipe

Ideal for all applications where absolute premium quality and unmistakable colour differentiation need to be combined.

- Separating system for private and communal disposal
- All pipes in SN 16
- Pipes white on the inside, blue outside
- Compatible with the standard fitting programme
- All properties identical to the original KG2000-System



Unbeatable as a welding system

Where special requirements must be met or welded systems are required, KG2000 used in conjunction with the IP-Plus welding ring (available in DN/OD 110 - 630) from Sabug GmbH is the perfect solution.



Our original KG2000 is the **first and only** plastic pipe system to have received building authority system approval from the German Institute for Building Technology (DIBt) for use as a JGS pipe and in LAU systems.

- Wide application range:
 - Approved for slurry, liquid manure, silage seepage
 - Authorised for facilities for the storage, filling and handling of substances hazardous to waste water
 - Especially for AwSV systems
 - For chemical industrial waste water
 - Linear bonded connections for pipes in downhill sections
- Economical system thanks to the simple use of original KG2000 pipes and fittings
- WHG-AwSV-DWA¹ is fulfilled

¹ WHG: The Water Resources Act

AwSV: Ordinance on Facilities Handling Substances that are Hazardous to Water

DWA: The German Association for Water, Wastewater and Waste



Further information / price comparisons can be found at www.sabug.de.

KG2000 meets PE! Impossible? Not at all!

Nothing less than a world first: KG2000 pipes can now be welded securely and permanently to PE pipes for the first time. Available now with the new PEPP ring from Sabug GmbH

DN/OD 160, other dimensions to follow.



Unbeatable as a drainage pipe – KG2000 perforated or slotted

Structures must be protected against water accumulation and water pressure. But completely reliable drainage is also absolutely essential in tunnelling, civil engineering and hydraulic engineering, as well as in numerous other applications.

Our KG2000 pipe system made of mineral-reinforced polypropylene has been established for use in waste water technology for decades and, thanks to its unique properties, now also combines perfect function with extremely long durability as a drainage system.

We offer KG2000 in a perforated version and various slotted versions, which are of course fully compatible with each other. In this way, you can not only plan different water entry areas with pinpoint accuracy, but even combine them.



Properties

- Basic pipe KG2000 SN 10 according DIN EN 14758-1
- Slotted pipes according to DIN 4262-1
- Smooth inside and outside
- Plug-in sleeve with high ring stiffness
- Factory installed triple lip seal made of SBR according to DIN EN 681
- Colour: May green
- Material: Polypropylene (PP-MD)
- High-pressure flush resistant
- Statics SLW 60 with 50 cm overlap
- Eurocode LM 1

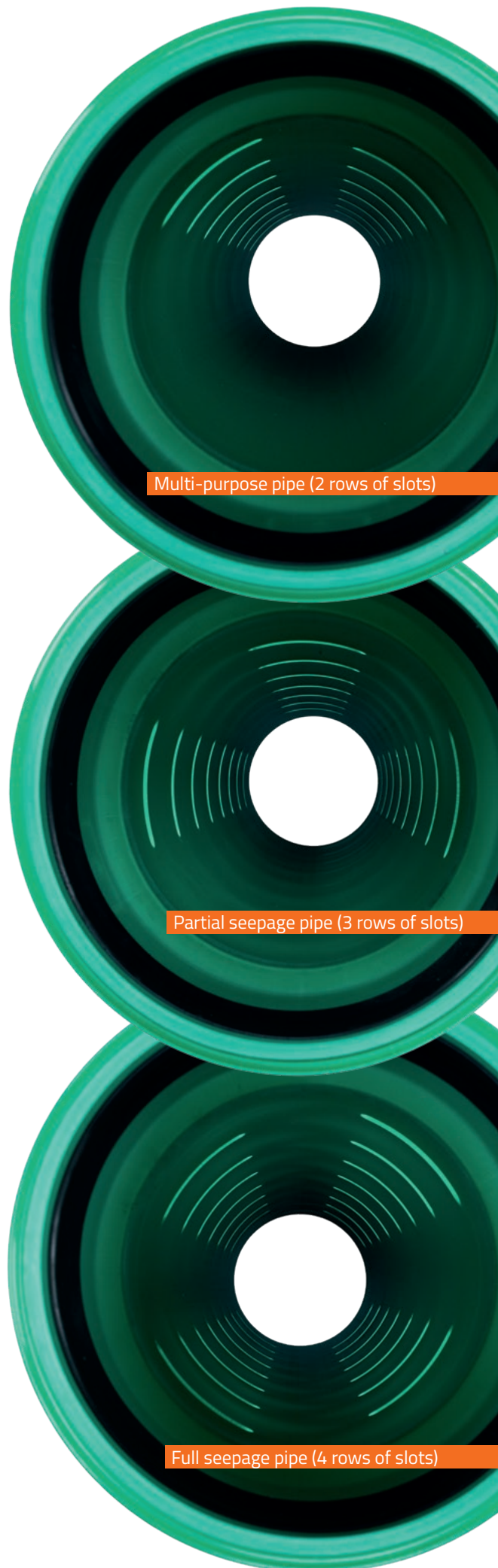
Application areas

- For road construction
- For tunnel building
- For earthworks, civil engineering and hydraulic engineering
- For sport pitches

Availability

- Perforated pipes in DN/OD 110 + 125 + 160 + 200 as multi-purpose pipe in 5000 mm
- Slotted pipes in DN/OD 110 + 160 as multi-purpose pipe, partial seepage pipe and full seepage pipe in 3000 mm (only with TSR) and 6000 mm

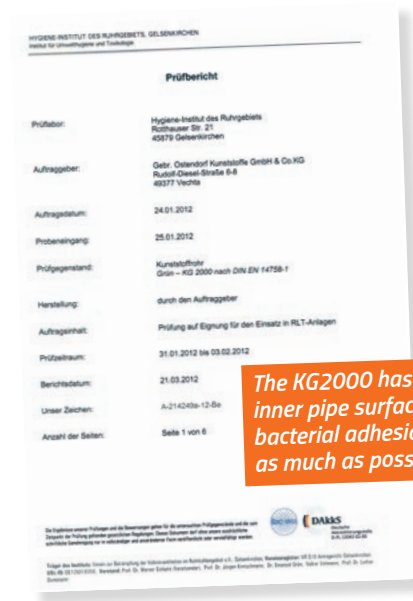
Further information can be found in our KG2000 supply programme.



Unbeatable for special applications

Ventilation and air-conditioning systems

- Hygienically tested for fresh air according to VDI 6022
- PP-MD solid wall pipe SN 10 for low-loss heat distribution
- High linear rigidity for reliable condensate removal
- Radon tightness test with triple lip seal



The KG2000 has an extremely smooth inner pipe surface. This minimises bacterial adhesion and incrustations as much as possible.

The reliable KG2000 double pipe system

- Including for drinking water protection zones
- Fully welded with IP-Plus system
- Matching spacers
- With electronic leakage monitoring system if required

If you have any questions, please contact Sabug GmbH.



Unbeatable as a cable protection programme

- KG2000 can be used directly as a cable protection pipe in accordance with DIN 16878.

Our other cable protection pipe programmes:

- KG2000 e-line cable protection pipe according to DIN 16878
- PP SN 4 cable protection pipe according to DIN 16878
- PE100 Power-line RT RC according to DIN 16833
- PE-HD cable protection pipes can be obtained from our subsidiary Ostendorf Simplex GmbH (www.simplex.gmbh)

Information on our other cable protection pipe programmes can be found in the separate documentation.



Unbeatable safety in installation

KG2000 is incredibly versatile and adaptable without any special requirements. Installation is quick and easy in accordance with DIN EN 1610!

Discover the numerous advantages of the original KG2000!

- Easy to insert with up to 30% lower insertion forces due to the three-stage design of the seal. (Internal testing compared to conventional pipe systems.)
- Quick to install as it is lightweight and does not require heavy equipment.
- Safe to install as no special requirements or equipment are necessary.

TEPPFA (The European Plastic Pipes and Fittings Association) clearly demonstrates the ease of installation of plastic pipes compared to other materials.



Practical installation advantages of KG2000

- Proven suitability for **use inside the building structure**. Marked with UD. For use in and under concrete!
- Best suited to **use in liquid floors**. It has successfully met the high requirements for installation in many applications.

The original KG2000 is therefore suitable for all installation methods using the open construction method!



Unbeatable in operation

KG2000 offers safe and long-term operation for the next 100 years. The smooth inner surface of the pipes enables a constant flow rate for life and optimum hydraulic performance. Biogenic sulphuric acid corrosion does not occur with KG2000 and the pipe system offers excellent chemical resistance.

Use the Original KG2000 for the next 100 years!

- Less maintenance due to smooth surfaces
- No incrustations and therefore easy to clean
- Low abrasion due to high-strength and reinforced PP-MD

ORIGINAL KG2000 = DOUBLE THE PROOF FOR OVER 100 YEARS OF SERVICE LIFE!

Independent testing by approved institutes

The Original KG2000

Creep rupture test according to DIN EN ISO 1167. By testing under various conditions, the service life can be extrapolated to over 100 years.



Long-term sealing behaviour of connections with elastomer seals in accordance with DIN EN 14741 (straw test) allows statements to be made about tightness over 100 years.



KG2000 can therefore fully fulfil the LAWA depreciation recommendations over 100 years and is therefore an economical system with which the costs of municipal drainage can be reduced in the long term.

True sustainability!

100% recyclable

100-year service life

100-year operating reliability





What you can depend on: **Our Guarantee.**

Gebr. Ostendorf Kunststoffe GmbH (hereafter referred to as „Ostendorf“) guarantees that its product brands are free of design, material, manufacturing and instructional defects as a result of faulty manufacturer’s instructions. Most relevant herewith is the state of the generally accepted rules of technology at the time of manufacture.

Our warranty is valid for 25 years from the date of manufacture. It refers to Ostendorf products purchased worldwide (with exception to the USA and Canada). The warranty period is not extendable or renewable as a result of services under this warranty, in particular when repairing or replacing current product.

The guarantee covers

- free replacement of products.
- the costs of necessary removal and installation in the event of damage up to an amount of 50,000 € per incident.

The guarantee is limited to / void if

- damage is due to standard wear and tear.
- during installation, the rules of technology in force at the time of execution were not observed or installation was carried out by non-qualified persons.
- the product is not used for its original intended purpose.
- the damages that occur are a result of force majeure or natural disasters to the products.

The rights from the Ostendorf Manufacturer’s Guarantee are to be sent via written notification of defects within the warranty period towards Ostendorf and the affected products are to be returned upon request. Ostendorf will verify whether there is a valid warranty claim within the definition of the manufacturer’s guarantee. The written notification of defect must be made within 7 days after the error has been detected or could have been detected. It is the clients responsibility to prove that there is no evidence, case limitation and/or exclusion in regards to the terms of the guarantee. For this purpose, the contacting party must provide full proof of the date of manufacture and installation date in a suitable form.

After expiry of this period, the assertion of the rights under the guarantee are no longer valid.

The statutory rights remain unaffected by the Ostendorf manufacturer’s warranty. The Ostendorf manufacturer’s warranty is governed by German law excluding the validity of the UN Sales Convention. The place of performance for the obligation from the guarantee is Oldenburg (Oldb), Germany. To the extent permitted by law, the place of jurisdiction is the seat of Ostendorf. The above guarantee conditions apply to all products manufactured from 01.01.2017.



www.ostendorf-kunststoffe.com/services/statikberechnung-objektbogen

Statics calculation? Easy and simple online with us!

As a service we offer you statics calculation SLW 60 (LM 1) according to ATV-DVWK-A 127 online directly from our homepage.

The installation should be carried out according to the standard of DIN EN 1610. You may find further information on the installation process in our installation instructions.

If you have any special requirements, please contact our service department.





Control statics for sewage pipes and lines for KG2000 SN 10 and SN 16

Before beginning any construction work, the conditions for installation and their static calculations must be checked. This is done in accordance with ATV-DVWK-A 127. Our control statics are based on the following installation parameters:

Material: KG2000 PP-MD

Street traffic load: SLW 60

Duration of traffic: 0,1 h

Slope angle: 90°

Groundwater: Not available

Support angle: 180°

Surface ground: G 3 → **Proctor density:** 95 %

Embedment-filling: G 1 → **Proctor density:** 95 % ← **Installation conditions:** B 1

Cover material filling: G 3 → **Proctor density:** 92 % ← **Covering conditions:** A 1

The maximum allowable deformation according to ATV-DVWK-A 127 is 6%.

The values provided in the table are the calculated vertical long-term deformations of the pipe in %.

Control statics KG2000 SN 10

Nominal size DN/OD x wall thickness	Overlap h over the pipe		0,50 m	0,80 m	1,00 m	2,00 m	5,00 m	6,00 m	8,00 m	9,00 m
110 x 3,4	Trench width	b = 0,60 m	3,3	1,9						
		b = 0,80 m	3,3	1,9	1,5					
		b = 0,90 m	3,3	1,9	1,5	1,0				
		b = 1,00 m	3,3	1,9	1,5	1,0	1,0	1,0	1,0	1,1
125 x 3,9	Trench width	b = 0,60 m	3,2	1,9						
		b = 0,80 m	3,2	1,9	1,5					
		b = 0,90 m	3,2	1,9	1,5	1,0				
		b = 1,00 m	3,2	1,9	1,5	1,0	0,9	0,9	1,0	1,1
160 x 4,9	Trench width	b = 0,60 m	3,4	2,1						
		b = 0,80 m	3,2	1,9	1,5					
		b = 0,90 m	3,2	1,9	1,5	1,0				
		b = 1,00 m	3,2	1,9	1,5	1,0	1,0	1,0	1,0	1,1
200 x 6,2	Trench width	b = 0,60 m	4,0	2,4						
		b = 0,80 m	3,1	1,9	1,5					
		b = 0,90 m	3,0	1,8	1,5	1,0				
		b = 1,00 m	3,0	1,8	1,5	1,0	0,9	0,9	1,0	1,1
250 x 7,7	Trench width	b = 0,75 m	3,8	2,4						
		b = 0,80 m	3,7	2,3	1,8					
		b = 0,90 m	3,3	2,1	1,6	1,2				
		b = 1,00 m	3,0	1,8	1,5	1,0	1,0	1,0	1,0	1,1
315 x 9,7	Trench width	b = 0,81 m	4,1	2,6	2,1					
		b = 0,90 m	3,8	2,4	2,0	1,5				
		b = 1,00 m	3,5	2,2	1,8	1,4	1,7	1,8	2,2	2,4
400 x 12,3	Trench width	b = 1,10 m	3,7	2,5	2,0	1,6	2,1	2,4	2,9	3,2
500 x 15,3	Trench width	b = 1,20 m	3,8	2,6	2,2	1,8	2,5	2,9	3,6	4,0
630 x 19,3	Trench width	b = 1,40 m	3,8	2,7	2,2	1,9	2,7	3,1	4,0	4,4



Material: KG2000 PP-MD
Street traffic load: SLW 60

Duration of traffic: 0,1 h
Slope angle: 90°

Groundwater: Not available
Support angle: 180°

Surface ground: G 3 → **Proctor density:** 95 %
Embedment-filling: G 1 → **Proctor density:** 95 % ← **Installation conditions:** B 1
Cover material filling: G 3 → **Proctor density:** 92 % ← **Covering conditions:** A 1

*The maximum allowable deformation according to ATV-DVWK-A 127 is 6%.
The values provided in the table are the calculated vertical long-term deformations of the pipe in %.*

Control statics KG2000 SN 16

Nominal size DN/OD x wall thickness	Overlap h over the pipe	0,50 m	0,80 m	1,00 m	2,00 m	5,00 m	6,00 m	8,00 m	9,00 m	
110 x 4,2	Trench width	b = 0,60 m	2,6	1,5						
		b = 0,80 m	2,6	1,5	1,2					
		b = 0,90 m	2,6	1,5	1,2	0,8				
		b = 1,00 m	2,6	1,5	1,2	0,8	0,8	0,8	0,9	0,9
125 x 4,8	Trench width	b = 0,60 m	2,5	1,5						
		b = 0,80 m	2,5	1,5	1,1					
		b = 0,90 m	2,5	1,5	1,1	0,8				
		b = 1,00 m	2,5	1,5	1,1	0,8	0,8	0,8	0,9	0,9
160 x 6,2	Trench width	b = 0,60 m	2,7	1,6						
		b = 0,80 m	2,4	1,4	1,1					
		b = 0,90 m	2,4	1,4	1,1	0,8				
		b = 1,00 m	2,4	1,4	1,1	0,8	0,7	0,8	0,8	0,9
200 x 7,7	Trench width	b = 0,60 m	3,2	1,9						
		b = 0,80 m	2,4	1,4	1,1					
		b = 0,90 m	2,3	1,4	1,1	0,8				
		b = 1,00 m	2,3	1,4	1,1	0,8	0,7	0,8	0,9	0,9
250 x 9,6	Trench width	b = 0,75 m	3,1	1,9						
		b = 0,80 m	2,9	1,8	1,5					
		b = 0,90 m	2,6	1,6	1,3	0,9				
		b = 1,00 m	2,3	1,4	1,1	0,8	0,8	0,8	0,9	0,9
315 x 12,1	Trench width	b = 0,81 m	3,3	2,1	1,7					
		b = 0,90 m	3,1	2,0	1,6	1,2				
		b = 1,00 m	2,8	1,8	1,4	1,1	1,3	1,4	1,7	1,8
400 x 15,3	Trench width	b = 1,10 m	3,0	2,0	1,6	1,3	1,6	1,8	2,2	2,4
500 x 19,1	Trench width	b = 1,20 m	3,1	2,1	1,8	1,4	1,9	2,1	2,7	3,0
630 x 24,1	Trench width	b = 1,40 m	3,1	2,2	1,8	1,5	2,1	2,3	2,9	3,3



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** Noise emission at 4 liter volume flow as measured with Bismat 1000 (P-BA 222/2016)

