

Delivery Range

KG-System (PVC-U)

SN 4/SN 8 Coex, SN 10 Full wall

Drainage pipes and fittings



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KG-System (PVC-U)

Nature is an important part of our lives and, as such, it is natural for us to protect it. The KG System (PVC) is a drainage system that complies with all the requirements on water resistance, service life and easy handling. In this way the system ensures protection of the environment from contamination by waste water.

Benefits and Advantages of the System

- HIGH DEGREE OF STRENGTH
- ELASTIC RESPONSE
- LONG-TERM STABILITY
- LIFE TIME UP TO 100 YEARS
- RESISTANCE TO CHEMICALLY AGGRESSIVE MEDIA
- ABRASION RESISTANCE
- WITHSTANDS GROUND SUBSIDENCES
- EXCELLENT HYDRAULIC CHARACTERISTICS
- 100 % TIGHTNESS IN THE CONNECTION
- ROOT RESISTANCE
- HIGH DEGREE OF PROTECTION
- QUICK INSTALLATION
- EASY LAYING
- LOW-COST INSTALLATION

Quality without compromise

Material Properties KG-System (PVC-U)

Drainage Pipes and Fittings

Commercial Name

Ostendorf Kanalgrundrohr
(underground drainage pipe)

Material

PVC-U (Polyvinylchloride, unplasticized)

Production

co-extruded pipes: DIN EN 13476-2
full wall pipes SN 10: DIN EN 1401
fittings: DIN EN 1401

Application

underground drainage

Nominal diameters DN(OD)

110, 125, 160, 200, 250, 315, 400, 500

Colour

orange brown RAL 8023

Seal

Factory inlaid SBR lip seal acc. to DIN 681 for SN 4 coex pipes and all fittings.

The coex pipes SN 8 and the full wall pipes SN 10 come with a fixed - seal (factory inlaid). The lip seal is also according to DIN 681.

Chemical Resistance

Discharge of aggressive media in the range of pH2 – pH12
see also www.ostendorf-kunststoffe.com

Marking

Pipes and Fittings

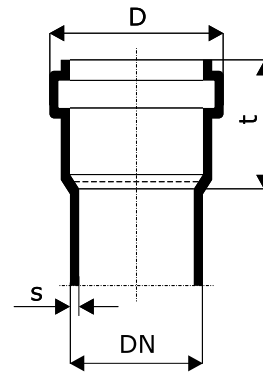
Permanent marking with manufacturer label, nominal diameter, DIN standard (DIN EN 13476-2 / DIN EN 1401-1), date of manufacture
(Fittings additionally bear information about the nominal angle.)

Pipe Structure

co-extruded pipes with multi-layer wall structure
full wall pipes with homogenous wall structure

Ring Stiffness

co-extruded pipes SN 4 / SN 8
full wall pipes SN 10 (acc. to MPA report: > 10kN/m² acc. to DIN ISO 9969)
usable in heavy load area SLW 60



KGEM – Coex pipes SN 4

DN(OD)	s [mm]	D [mm]	t [mm]
110	3,2	127	66
125	3,2	144	68
160	4,0	182	84
200	4,9	225	106
250	6,2	287	128
315	7,7	355	162
400	9,8	445	194
500	12,3	567	219

KGEM – Coex pipes SN 8

DN(OD)	s [mm]	D [mm]	t [mm]
160	4,7	182	84
200	5,9	225	106
250	7,3	287	128
315	9,2	355	162
400	11,7	445	194
500	14,6	567	219

KGEM – Full wall pipes SN 10

DN(OD)	s [mm]	D [mm]	t [mm]
160	4,7	183	81
200	5,9	226	99
250	7,3	287	125
315	9,2	355	135
400	11,7	445	180
500	14,6	567	210

PRODUCT RANGE KG-SYSTEM (PVC-U)

KG COEX SN 4 — rote Linie = AK Sohle

KG COEX SN 8

KG FULL WALL SN 10

Bemaßung der Durchfläche in der Sohle bezogen auf Aussenkante Fundament.

Alle Höhen bezogen auf OKFF
OKFF = ± 0.00

Schmutzwasserleitungen unter der Sohle KG DN 125

Sohle Leerrohr
DN 200 - 107 cm

Rev.-
Schacht
ø 40 cm

Sohle Leerrohr
DN 200 - 119 cm

Rev.-
Schacht
ø 40 cm

Sohle Grundleitung
DN 150 - 128 cm

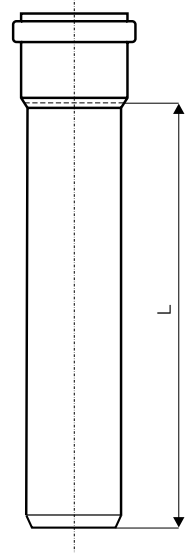
zum Übergabe
Schacht



KG Coex SN 4 – Pipe

KGEM – Single socket pipe (push-fit) SN 4 COEX

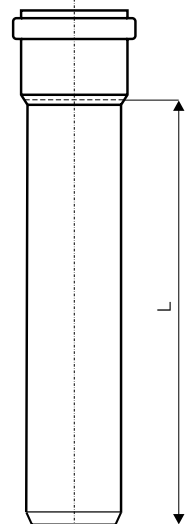
	No.	DN(OD)	L [mm]	Unit
	220000	110	500	96
	220010	110	1000	86
	220020	110	2000	86
NEW!	220030	110	3000	86
	220050	110	5000	86
	221000	125	500	70
	221010	125	1000	60
	221020	125	2000	60
NEW!	221030	125	3000	60
	221050	125	5000	60
	222000	160	500	40
	222010	160	1000	40
	222020	160	2000	40
NEW!	222030	160	3000	40
	222050	160	5000	0
	223000	200	500	25
	223010	200	1000	25
	223020	200	2000	25
NEW!	223030	200	3000	25
	223050	200	5000	25
	224010	250	1000	1/16
	224020	250	2000	1/16
	224050	250	5000	1/16
	225010	315	1000	1/9
	225020	315	2000	1/9
	225050	315	5000	1/9
	226010	400	1000	1/6
	226020	400	2000	1/6
	226050	400	5000	1/6
	227010	500	1000	1/4
	227020	500	2000	1/4
	227050	500	5000	1/4



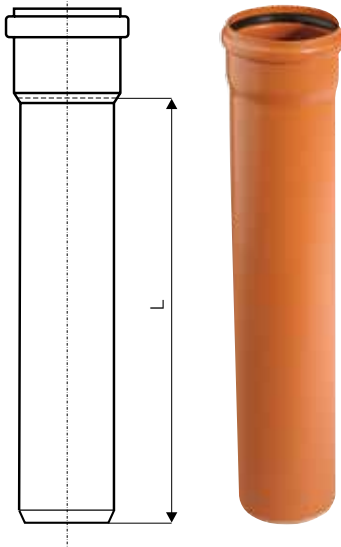
KG Coex SN 8 – Pipe

KGEM – Single socket pipe (push-fit) SN 8 COEX

	No.	DN(OD)	L [mm]	Unit
	222170	160	1000	1/40
	222180	160	3000	1/40
	222190	160	5000	1/40
	223170	200	1000	1/25
	223180	200	3000	1/25
	223190	200	5000	1/25
	224170	250	1000	1/16
	224180	250	3000	1/16
	224190	250	5000	1/16
	225170	315	1000	1/9
	225180	315	3000	1/9
	225190	315	5000	1/9
	226170	400	1000	1/6
	226180	400	3000	1/6
	226190	400	5000	1/6
	227170	500	1000	1/4
	227180	500	3000	1/4
	227190	500	5000	1/4

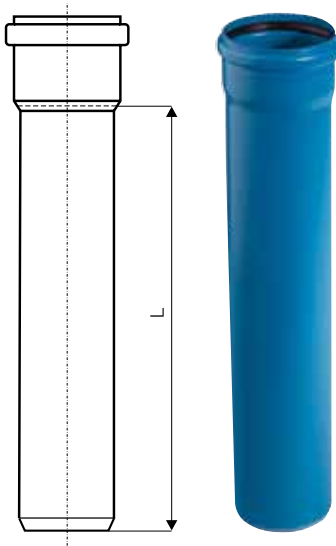


KG Full wall pipe SN 10



KGEM – Single socket pipe (push-fit) SN 10 Full wall

No.	DN(OD)	L [mm]	Unit
220110	110	1000	1/50
220130	110	3000	1/50
220160	110	6000	1/50
222110	160	1000	1/35
222130	160	3000	1/35
222160	160	6000	1/35
223110	200	1000	1/25
223130	200	3000	1/25
223160	200	6000	1/25
224130	250	3000	1/16
224160	250	6000	1/16
225130	315	3000	1/9
225160	315	6000	1/9
226130	400	3000	1/6
226160	400	6000	1/6
227130	500	3000	1/4
227160	500	6000	1/4



KGEM – Single socket pipe (push-fit) SN 10 Full wall **BLUE** for rain water

No.	DN(OD)	L [mm]	Unit
222920	160	1000	1/40
222930	160	3000	1/40
222940	160	6000	1/40

KG-System – Fitting

KGB – Bend 15°

No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
220200	110	15°	9	14	69	1/320
221200	125	15°	10	15	83	1/230
222200	160	15°	13	19	94	1/110
223200	200	15°	15	23	114	1/50
224200	250	15°	19	30	153	1/24
225200	315	15°	23	38	167	1/12
226200	400	15°	29	48	184	1/5 *
227200	500	15°	37	59	215	1/2 *

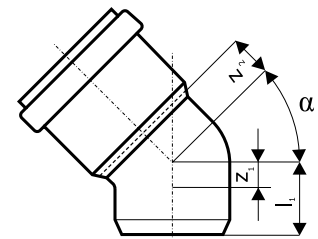
Unit changed

KGB – Bend 30°

No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
220210	110	30°	17	21	86	1/288
221210	125	30°	19	23	92	1/208
222210	160	30°	24	30	105	1/100
223210	200	30°	30	38	129	1/50
224210	250	30°	37	49	171	1/24
225210	315	30°	47	61	191	1/12
226210	400	30°	59	78	214	1/6 *
227210	500	30°	74	97	252	1/2 *

Unit changed

Unit changed



KGB – Bend 45°

No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
220220	110	45°	25	29	85	1/264
221220	125	45°	28	33	95	1/180
222220	160	45°	36	42	117	1/92
223220	200	45°	46	54	145	1/45
224220	250	45°	57	69	191	1/24
225220	315	45°	72	86	216	1/12
226220	400	45°	91	110	246	1/6 *
227220	500	45°	114	137	292	1/2 *

Unit changed

Unit changed

Unit changed



KGB – Bend 67°

No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
220230	110	67°	40	44	100	1/228
221230	125	67°	46	50	113	1/150
222230	160	67°	58	64	139	1/76
223230	200	67°	72	80	171	1/40 *

Unit changed

Unit changed

KGB – Bend 87°

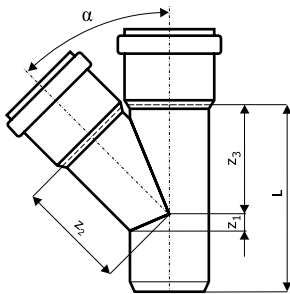
No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
220240	110	87°	59	61	119	1/200
221240	125	87°	65	70	132	1/140
222240	160	87°	83	89	164	1/70
223240	200	87°	105	113	204	1/30
224240	250	87°	132	143	266	1/18
225240	315	87°	166	180	310	1/9
226240	400	87°	211	229	366	1/4 *
227240	500	87°	263	286	441	1/1 *

KG – Fitting

KGB – Bend **BLUE** for rain water

No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	l_1 [mm]	Unit
222950	160	15°	13	19	94	1/110
222955	160	30°	24	30	105	1/100
222960	160	45°	36	42	117	1/90

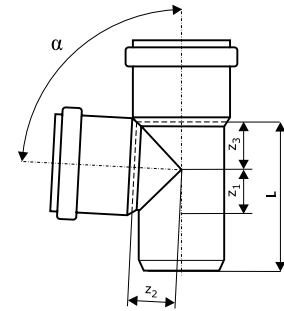
KGEA – Branch 45°



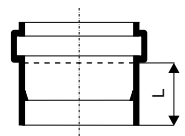
No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	L [mm]	Unit
220300	110/110	45°	25	134	134	219	1/100
221310	125/110	45°	18	144	141	226	1/70
221300	125/125	45°	28	152	152	247	1/70
222320	160/110	45°	2	166	159	242	1/50
222310	160/125	45°	13	176	170	262	1/45
222300	160/160	45°	36	194	194	311	1/36
223330	200/110	45°	-14	197	182	261	1/30
223320	200/125	45°	-3	205	197	282	1/31 *
223310	200/160	45°	21	223	216	332	1/25
223300	200/200	45°	48	243	243	386	1/20
224340	250/110	45°	-37	288	206	303	1/20 *
224330	250/125	45°	-27	236	217	324	1/15 *
224320	250/160	45°	-3	254	241	372	1/14
224310	250/200	45°	24	274	268	426	1/12
224300	250/250	45°	20	265	292	485	1/8
225350	315/110	45°	-66	272	240	318	1/10 *
225340	315/125	45°	-56	279	251	339	1/10 *
225330	315/160	45°	-33	297	275	386	1/10
225320	315/200	45°	-5	318	302	441	1/8 *
225310	315/250	45°	28	344	335	507	1/5 *
225300	315/315	45°	72	378	378	594	1/4 *
226360	400/110	45°	-105	340	360	510	1/5 *
226350	400/125	45°	-94	400	400	550	1/5 *
226340	400/160	45°	-70	355	319	404	1/5 *
226330	400/200	45°	-43	375	346	458	1/5 *
226320	400/250	45°	-10	480	450	660	1/3 *
226310	400/315	45°	34	540	500	780	1/2 *
226300	400/400	45°	91	550	500	850	1/1 *
227360	500/110	45°	-150	440	435	550	1/2 *
227350	500/160	45°	-115	420	370	600	1/2 *
227340	500/200	45°	-88	470	510	650	1/2 *
227330	500/250	45°	-55	550	530	680	1/1 *
227320	500/315	45°	-11	560	583	810	1/1 *
227310	500/400	45°	47	580	550	840	1/1 *
227300	500/500	45°	114	650	680	880	1/1 *

KGEA – Branch 87°

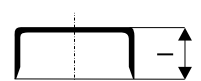
No.	DN(OD)	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	L [mm]	Unit
220400	110/110	87°	59	62	62	197	1/120
221410	125/110	87°	59	70	63	204	1/126 *
221400	125/125	87°	66	70	70	218	1/88 *
222420	160/110	87°	60	87	65	225	1/60
222410	160/125	87°	67	87	72	239	1/45
222400	160/160	87°	84	89	89	273	1/45
223430	200/110	87°	61	106	67	248	1/38 *
223420	200/125	87°	69	106	75	264	1/36 *
223410	200/160	87°	86	108	91	297	1/32 *
223400	200/200	87°	107	113	113	336	1/24 *
224440	250/110	87°	64	160	130	330	1/20 *
224430	250/125	87°	72	170	130	360	1/24 *
224420	250/160	87°	88	165	135	390	1/16 *
224410	250/200	87°	107	160	160	420	1/14 *
224400	250/250	87°	131	160	180	460	1/10
225450	315/110	87°	67	200	130	390	1/10 *
225430	315/160	87°	90	200	160	440	1/10 *
225420	315/200	87°	110	170	180	490	1/7 *
225410	315/250	87°	134	220	210	540	1/6 *
225400	315/315	87°	166	260	220	550	1/5 *
226460	400/110	87°	70	250	100	470	1/5 *
226440	400/160	87°	95	210	150	510	1/5 *
226430	400/200	87°	114	230	200	560	1/4 *
226420	400/250	87°	139	230	220	610	1/4 *
226410	400/315	87°	114	300	220	630	1/3 *
226400	400/400	87°	210	310	240	650	1/2 *
227450	500/160	87°	100	220	280	550	1/2 *
227430	500/250	87°	144	260	150	650	1/2 *
227420	500/315	87°	175	330	300	660	1/2 *
227410	500/400	87°	216	267	226	730	1/1 *
227400	500/500	87°	262	270	270	780	1/1 *

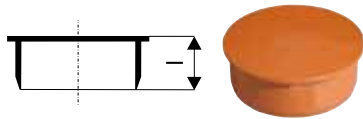

KGAM – Single socket

No.	DN(OD)	L [mm]	Unit
220810	110	76	1/450
221810	125	82	1/336 *
222810	160	100	1/180 *
223810	200	120	1/100 *


KGK – Cap

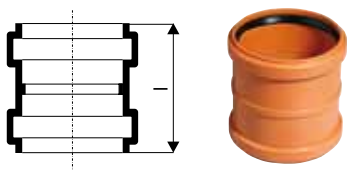
No.	DN(OD)	l [mm]	Unit
220630	110	43	10/1150
221630	125	44	10/840
222630	160	52	10/430
223630	200	64	8/224
224630	250	68	1/150 *
225630	315	77	1/80 *
226630	400	90	1/44 *
227630	500	118	1/19 *





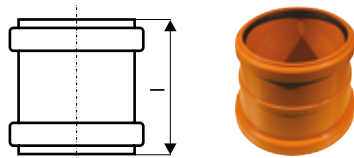
KG-M – Plug

No.	DN(OD)	l [mm]	Unit
220620	110	40	10/1360
221620	125	42	10/870
222620	160	49	8/368
223620	200	65	8/224
224620	250	89	1/96
225620	315	92	1/60
226620	400	95	1/32 *
227620	500	98	1/14 *



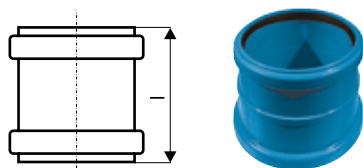
KGMM – Double socket

No.	DN(OD)	l [mm]	Unit
220510	110	125	1/320
221510	125	138	1/240
222510	160	172	1/110
223510	200	212	1/60
224510	250	250	1/32
225510	315	293	1/16

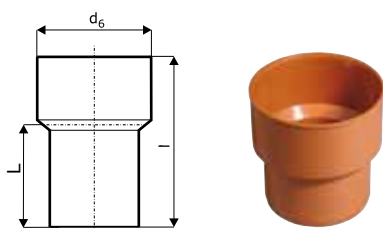


KGU – Coupler

No.	DN(OD)	l [mm]	Unit
220500	110	125	1/320
221500	125	138	1/240
222500	160	172	1/110
223500	200	212	1/60
224500	250	250	1/32
225500	315	293	1/16
226500	400	324	1/10 *
227500	500	362	1/4 *

KGU – Coupler **BLUE** for rain water

No.	DN(OD)	l [mm]	Unit
222980	160	172	1/110



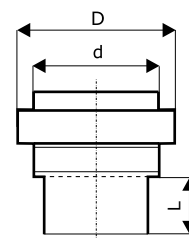
KGUG – Connection piece to cast-iron pipes

No.	DN(OD)	d ₆ [mm]	l [mm]	L [mm]	Unit
220820	110	131	133	76	1/600 *
221820	125	158	151	87	1/360 *
222820	160	185	165	98	1/210 *
223820	200	236	220	130	1/100 *

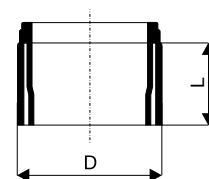
KGUS – Connection piece to stoneware pipe (spigot end)

No.	DN(OD)	d [mm]	D [mm]	L [mm]	Unit
220830	110	138	156	60	1/288
221830	125	164	186	67	1/180 *
222830	160	194	217	81	1/100
223830	200	250	279	99	1/48 *
224830*	250	335	352	180	1/36 *
225830*	315	390	430	225	1/18 *

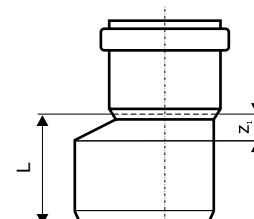
* without gasket, has to be ordered separately. See also page 13 accessories.


KGUSM – Connection piece to stoneware pipe (socket)

No.	DN(OD)	D [mm]	L [mm]	Unit
220840	110	132	70	1/455 *
221840	125	160	70	1/320 *
222840	160	187	70	1/226 *
223840	200	242	70	1/120 *
224840	250	298	70	1/30 *
225840	315	354	70	1/20 *

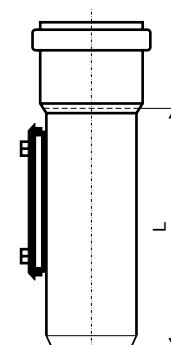

KGR – Reducer, eccentric

No.	DN(OD)	z ₁ [mm]	L [mm]	Unit
221700	125/110	20	87	1/300
222700	160/110	33	134	1/250
222710	160/125	31	121,5	1/240
223700	200/160	31	130	1/130
224700	250/200	38	172	1/54
225700	315/250	50	194	1/30
226700	400/315	64	219	1/12 *
227700	500/400	76	254	1/2 *


KGRE – Inspection pipe, angular

No.	DN(OD)	L [mm]	Unit
220600	110	288	1/102
221600	125	300	1/70 *
222600	160	360	1/44
223600	200	435	1/22 *

* see page 13 for inspection pipe (round) DN(OD) 250, 315 and 400



NEW! Sika Watering cap - universal watering cap made of aluminium for tree and plant watering with connectivity to watering pipe DN(OD) 80/110

No.	DN(OD)	Unit
662400	80/110	12/660

Further information see installation instruction No. 6

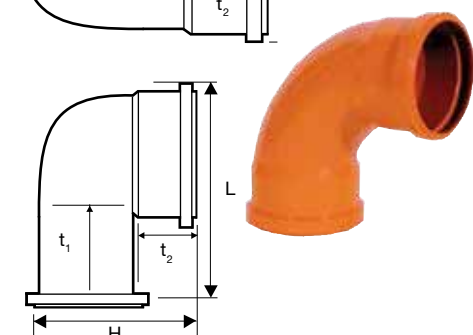
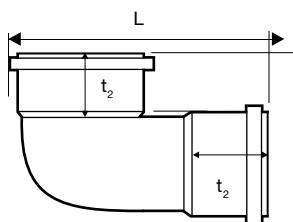


NEW! KG – Special fittings "Export"



KGBD – Bend 2M

No.	DN(OD)	α	H [mm]	t_1 [mm]	t_2 [mm]	L [mm]	Unit
228070	110	15°	129	58	58	174	15/180
228075	110	30°	144	58	58	196	15/180
228080	110	45°	164	58	58	213	15/180



KGB – Bend SW

No.	DN(OD)	α	H [mm]	t_1 [mm]	t_2 [mm]	L [mm]	Unit
228088*	110	87°	225	57	57	225	10/120
228085**	110	87°	235	58	58	235	10/120

* Bend with one socket

** Bend with two socket

KG – Accessories



KG – Lip seal

No.	DN(OD)	Unit
880060	110	-
880075	125	-
880090	160	-
880100	200	-
880110	250	-
880120	315	-
880130	400	-
880140	500	-



KG – NBR gasket (resistant against oils, petrol and fats (animal, vegetable, mineral))

No.	DN(OD)	Unit
880260	110	-
880275	125	-
880290	160	-
880300	200	-
880310	250	-
880320	315	-
880330	400	-
880340	500	-



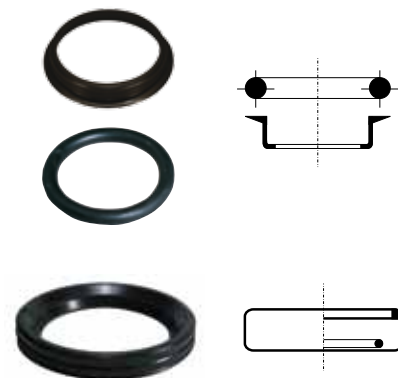
NEW! KG – GA-Gasket

No.	DN(OD)	Unit
881025	110	16/1344

KG-Accessories

KG – GA-Set gasket

No.	DN(OD)	Unit
881030	125	14/1176
881040	160	10/840
881050	200	10/840



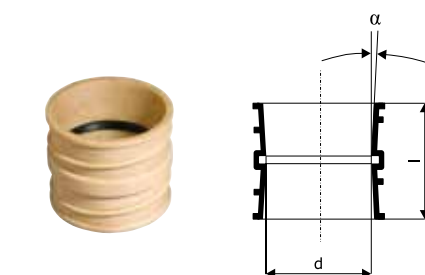
KG – Profile gasket for KGUS

No.	DN(OD)	Unit
881100	110	-
881120	160	-
881130	200	-
881140	250	-
881150	315	-



KGF PU – Chamber lining

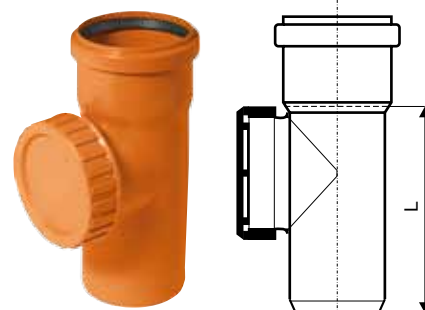
No.	DN(OD)	α	d [mm]	l [mm]	Unit
820900	110	3°	110,4	110	1/360
821900	125	3°	125,4	110	1/270
822900	160	3°	160,5	110	1/168
823900	200	3°	200,6	110	1/114
820910	110	3°	110,4	240	1/144
821910	125	3°	125,4	240	1/135
822910	160	3°	160,5	240	1/72
823910	200	3°	200,6	240	1/45
824910	250	3°	250,8	240	1/33
825910	315	3°	316,0	240	1/18
826910	400	3°	401,2	240	1/15
827910	500	3°	501,5	240	1/12



KGRE – Inspection pipe, round *

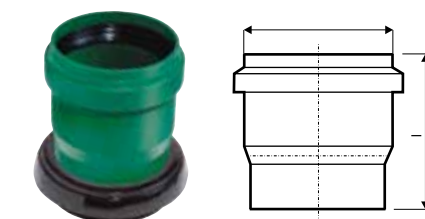
No.	DN(OD)	L [mm]	Unit
824600	250	351	1/15
825600	315	492	1/10
826600	400	573	1/5

* Return of old stocks not possible.



KG2000BA – Connection to concrete pipe

No.	DN(OD)	l [mm]	Unit
877570	150	165	1/90
877670	200	197	1/40



KG – Lubricant

No.	ml	Unit
881800	150	50/1750
881810	250	50/1800
881820	500	24/864
881830	1000	12/432



* Deviations possible. Subject to technical modifications.

A yellow excavator bucket is shown dumping a large amount of brown soil into a deep trench. The excavator's arm and bucket are the central focus, with the bucket tilted downwards. The background is a clear blue sky with a few wispy clouds. The trench walls are made of compacted earth.

INSTALLATION INSTRUCTIONS KG-SYSTEM (PVC-U)

KG COEX SN 4

KG COEX SN 8

KG FULL WALL SN 10

Installation -Instructions

1. SCOPE AND AREA OF APPLICATION

1.1 SCOPE

The following instructions apply for the utilisation and installation of KG SN 4 pipes and fittings made of PVC-U in accordance with DIN EN 1401, or DIN EN 13476-2(pipes). Colour: orange/brown, RAL 8023, which, as a buried ground sewer system, sewer connection and sewer piping system serves to drain off waste water. In the case of piping within buildings, the guidelines on the application of combustible building materials in building construction and the respective assembly instructions for building drainage pipe installations are to be observed.

1.2 AREA OF APPLICATION

Sewer pipes and sewer fittings made of PVC-U are used to drain away waste water. In the case of DN(OD) 110 to 200, temperatures may not be constantly higher than 45° C, and in the case of DN(OD) 250 to 600 they may not be constantly higher than 35° C. PVC sewer pipes and fittings are suitable for the drainage of chemically aggressive water in the region of pH 2 (acid) to pH 12 (basic). They are resistant to household waste water in accordance with DIN 1986-3. For the drainage of industrial waste water, both DIN 16929 and the supplement sheet no. 1 for DIN 8061 are to be observed.

1.2.1 AREA OF APPLICATION WITHOUT A STATIC INDICATION

Utilisation of KG SN 4 pipes and fittings made of PVC-U without static indication is permissible under the following conditions:

- Traffic load does not exceed bridge category 30 in accordance with DIN 1072.
- Minimum cover of 1.00 m under traffic surfaces and a minimum cover of 0.80 m under traffic-free surfaces or such surfaces which are only sometimes subject to light traffic.
- Maximum cover of 6.00 m on bedding in ditches with a width of at least those which are in compliance with DIN 4124 without traffic load; a maximum cover of 4.00 m in far wider ditches and under embankments without traffic load; and a maximum cover of 3.50 in far wider ditches and under embankments under traffic surfaces.
- Bedding material in the area of the pipes: $\gamma < 20.5 \text{ kN/m}^3$, $\gamma \geq 22.5^\circ$ soil constants in accordance with DIN 1055, Part 2, Tables 1 and 2 taking into consideration binding mixed soils as in sections 5 and 6. In unfavourable cases, the following soils in accordance with DIN 18196 may be included as far as this aspect is concerned: Gravel and silt mixture, Gravel and clay mixture, Sand and silt mixture, Sand and clay mixture.
- Requirement in accordance with DIN EN 1610; see here too section 5 of the special regulations in the general construction supervision authorisation of the German Institute of Construction Technology (ItBt). Bedding in the region of ground water may only be carried out when it has been ensured that no movement of the filling material can occur (e.g. bedding in a gravel filter layer or concrete).

1.2.2 AREA OF APPLICATION WITH A STATIC INDICATION

Should there be any deviations from the abovementioned conditions, a static indication has to be made, and the project questionnaire has to be filled out (see page 15). A structural analysis may show that DN(OD) 110 to 600 pipes with a wall thickness in accordance with DIN EN 1401 are not necessary or not sufficient. In such cases pipes with a wall thickness equivalent to another line in accordance with DIN 8062 can, or must, be selected. Vertical deformation of the pipes once they have been installed and are under stress may, in accordance with DIN EN 1610, not exceed 6%.

Deformation values according to ISO/TR 7073

	deformation in %	
	medium	maximum
short-term (up to 3 month after installation)	5	8
long-term	8 - 10	15

These are the maximum values at each place of the pipe zone.

2. TRANSPORTING AND STORING PVC PIPES AND PIPING COMPONENTS

The piping components are to be transported with suitable vehicles and are to be properly loaded and unloaded. During transport, the entire length of the pipes should be supported if possible, in order to avoid sagging. Severe impact stress is to be avoided, particularly in temperatures around freezing point. Pipes and fittings may be stored outdoors. The following measures must be observed on storing pipes:

- The pipes must be stored in such a manner that perfect support is ensured and that no deformation can occur.
- The layers of pipes can be stored both with or without wood in between the layers.
- On storing, pipe sockets should be horizontally and vertically unhampered.
- The stack height should not exceed 2 m. Rubber sealing elements, insofar as these are not protected by a coat of finishing varnish, may not be stored outdoors for a long period.

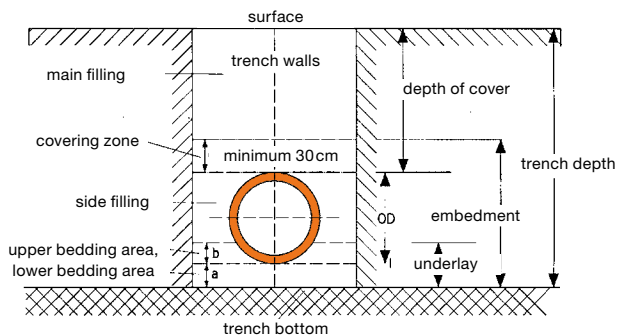
2.1 SUPPORTING AND EMBEDDING

The supporting and embedding of pipes and fittings made of PVC-U in the case of buried ground piping are of vital significance and must therefore be carried out with great care in accordance with DIN EN 1610. In the case of concrete casings for PVC pipes, it must be ensured that the casing is produced in such a manner that it can support itself alone without the pipe.

When bedding the pipes in the region of groundwater, care must be taken that the filling material does not move (e.g. embedding in a gravel filter layer or in concrete).

On bedding in soil under foundations, there must be a minimum cover of 150 mm over the socket. In the case of direct burdening by construction components, protective pipes must be laid if necessary.

Demonstration of the terms



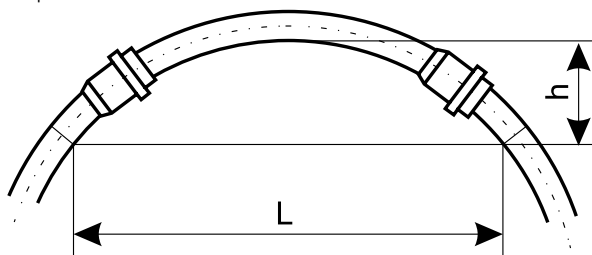
2.2 INSTALLATION PROCEDURE

Each pipe and fitting is to be levelled according to drop and direction. A straight, continuous path in the stipulated slope is to be observed. In exceptional cases DN(OD) 110 to 200 pipes can be installed as indicated in the following diagram. The data indicated on the following tables, may, however not be exceeded.

Gauges h max. or bending radius R in m at a length L of:

DN(OD)	100	125	150	200
8 m	0,24	0,21	0,17	0,13
12 m	0,54	0,28	0,38	0,30
16 m	0,97	0,85	0,67	0,53
R	33	38	47	61

Pipe course



From DN(OD) 250 pipes must be laid straight and free of tension.

2.3 EMBEDDING IN CONCRETE

Pipes and fittings made of hard PVC may be embedded direct in concrete. However, the following instructions are to be observed:

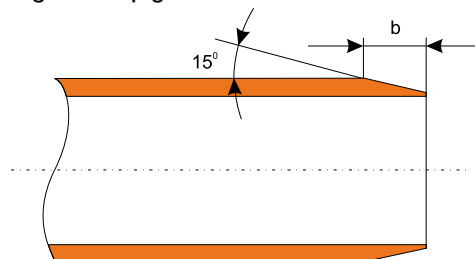
- Cover the socket gap with adhesive tape so that no grout can seep in, which may then hinder the subsequent functioning of the sliding socket.
- Protect the pipes against uplifting. The intervals between fixing points are to be carried out in such a manner that unduly substantial sagging can occur (formation of water traps).
- Take into consideration any thermal changes in length, both on instalment and also in use (plastic pipes which have been cemented in react in the same manner as those which are not covered).

2.4 CUTTING TO LENGTH AND SLANTED CUTTING

If necessary, the pipes may be cut to length (fittings may not be shortened since there is no guarantee that they will still be watertight) with a suitable plastic cutter or a finetoothed saw. By means of guiding the saw through a cutting frame as illustrated, a right-angled cut can be achieved. For larger pipe cuttings, a cutting disc suitable for PVC can be used. The cutting edges must be trimmed. The pipe ends must be slanted at an angle of approx. 15° in accordance with the diagram, using suitable tools for slanting or a coarse file.



Bevelling of the spigot end



APPROXIMATE MEASUREMENT								
DN(OD)	100	125	150	200	250	300	400	500
b	6	6	7	9	9	12	15	18

3. PRODUCING A CONNECTION FOR PIPES AND FITTINGS SLIDING SOCKET

3.1 GLUED SOCKETS (SINGLE SOCKETS)

For other uses, lengths of pipes can be fitted with glued sockets. The following is to be observed:

- Removal of the sawing burr
- Cleaning any dirt off the pipe from the outside and the single socket from the inside.
- Applying the special glue to the cleaned surfaces
- Pushing the glued socket onto the pipe until it resists
- Wiping off any excessive glue

The glue will take about one hour to set. However, the pipes should only be subjected to tension (pressure testing) after 3-4 hours. The THF glue must comply with DIN 16970.

3.2 SLIDING SOCKET

- Remove any dirt from the outside of the inserting end (spigot end), from the inside of the sockets and sealing chamber (corrugation) and from the sealing ring itself with a cloth.
- Insert the sealing ring into the corrugation (should this not already have been done at the plant).
- Coat the slant of the inserting end evenly with a lubricant. Do not use any oils or greases!
- Push the inserting end into the sliding socket until it resists and make a marking on the edge of the socket with a pencil or a felt-tip pen.

Finally the pipe end must be pulled out of the socket approx. 3mm per metre of installed total length, but must be pulled out at least 10mm. Installing sleeve sockets and twin sockets is carried out in the same manner.

3.3 CONNECTION TO CONSTRUCTIONS

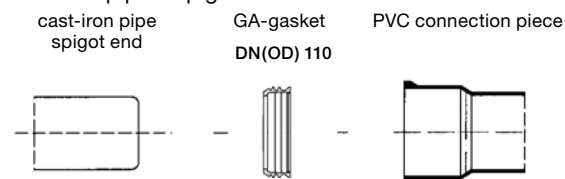
Connections to constructions (shafts, etc.) are to be carried out with joints using shaft inner linings (KGF). Sealing between the shaft lining and the sewer pipe is carried out by means of the rubber sealing ring.

4. CONNECTION WITH PIPES MADE OF OTHER MATERIALS

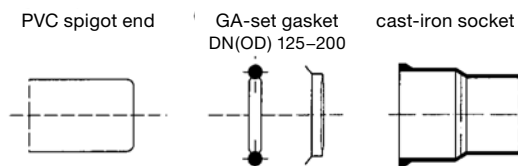
4.1.1 Connecting PVC sewer pipes and fittings to cast pipe sockets

If cast piping ends with a socket, the insertion end of the pipes or fittings made of hard PVC are connected with double sealing.

cast-iron pipe – spigot end



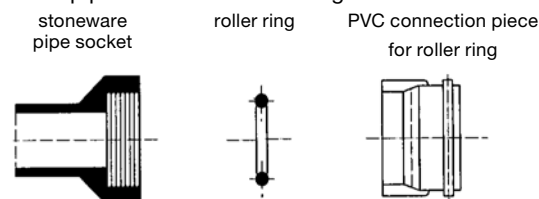
Cast-iron pipe – socket



4.1.2 Connecting cast pipe insertion ends to PVC sewer pipes and fittings

If cast piping ends with an insertion end, the PVC piping is connected to the cast pipe insertion end (KGUG) with a connection piece. The connection is sealed with a double seal.

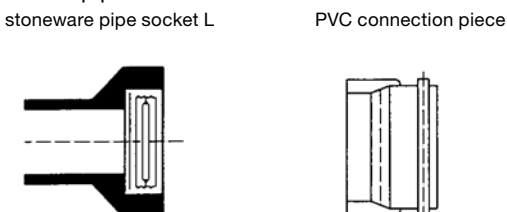
stoneware pipe – socket for roller ring



4.1.3 Connecting PVC sewer pipes and fittings to clay pipes with an L sliding socket

If clay piping ends with an L sliding socket, the PVC piping is connected to the clay pipe socket (KGUSM) with a connecting piece. The connecting piece is pushed into the sliding socket and no additional sealing is required.

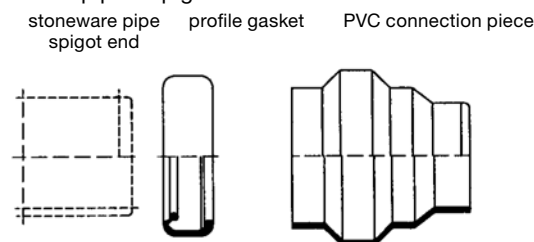
stoneware pipe – socket L



4.1.4 CONNECTING CLAY PIPE INSERTION ENDS TO PVC SEWER PIPES AND FITTINGS

If clay piping ends with an insertion end, the PVC piping is connected to the clay pipe insertion end (KGUS) with a connecting piece. Sealing takes place with a KGUS sleeve.

stoneware pipe – spigot end



4.2 CHECK OF WATERPROOFNESS FOR WATERTIGHTNESS

Vertical pipes or suitable pressure meters are to be used in order to carry out checks. Readings are to be taken at the lowest point on the area to be tested. Non-pressure pipes are to be tested with 0.5 bar excess pressure, measured at the lowest point in the area of piping to be tested which is covered by water. Testing time is 15 minutes. The test is to be carried out on piping which has not yet been covered. In order to secure the location, the piping can be embedded and partly covered (filling cone), with pipe connections remaining uncovered. If necessary, the piping is to be protected against floating. All openings of the section of piping to be checked, including all branches and junctions, are to be closed in such a manner that they are watertight and secure against pressure.

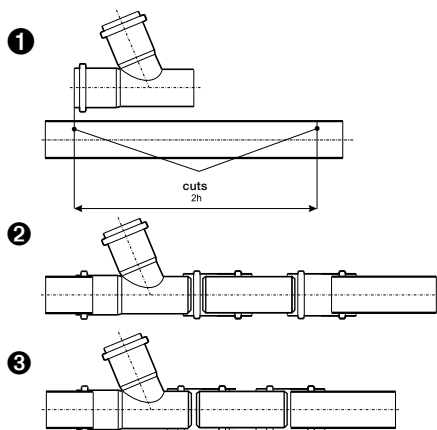
4.3 Filling and sealing

On both sides of the piping, stone-free, compressible soil (maximum granule size 20 mm Ø) is to be layered up to 0.30 m and compressed either manually or with the help of light machines. The piping may not be pushed to the side. If necessary, soil should be filled in and compressed simultaneously from both sides. The vertical position of smaller DN(OD) pipes is to be secured during the embedding procedure. The degree of compaction of the soil in the region of the pipes presumed in the structural analysis is to be produced by means of adequate compression. This is to be proved on request (for example, by means of gauging the Proctor density or by means of driving bores). In exceptional cases, for example when ditches are narrow and do not permit sufficient compressing of the embedding in the supporting area, the piping can be partly or fully installed with concrete or similar materials. Further filling in is then to take place layer-by-layer up to a height of 0.30 m over the pipe crown.

5. SUBSEQUENT CONNECTION TO PVC SEWER PIPES

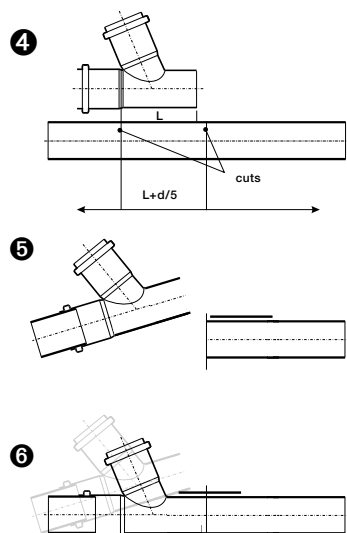
5.1 Installing a branch (procedure I)

In order to install a branch, a sufficiently long piece of pipe (length of the fittings + 2 d) is removed ❶, the pipe-ends are trimmed, cut at an angle and the branch is inserted. Sleeve sockets, with which the piping is once again closed, are pushed over both the other half of the pipe and over the adjusting piece to be inserted ❷ + ❸.



5.2 Inserting a branch (procedure II)

A piece of pipe equivalent to the total length of the branch plus a length approximately equivalent to $d/5$ is cut out of the piping at hand by means of cross section cuts ❹.

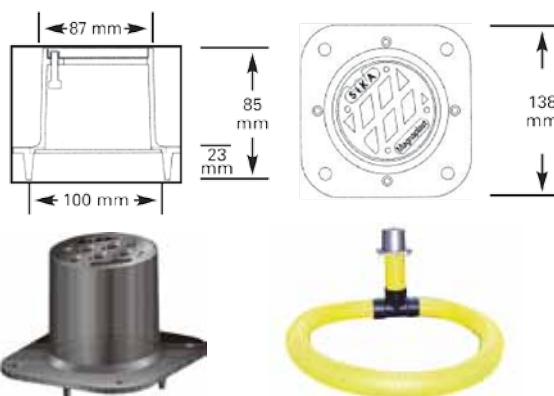


Both pipe ends are trimmed and slanted. A sleeve socket is then pushed over one end and the other pipe end is cautiously levered out, the branch is pushed on ❺ and the end of the pipe with the branch is brought back into the original position. The connection is made by means of pushing back the sleeve socket on the cut between the pipe and the fittings spigot end ❻.

5.3 GENERAL REQUIREMENTS ON PIPES, FITTINGS AND CONNECTIONS

If pipes without factory-made sockets, for example rest lengths or cutted pipes, are installed, it is recommended to use double sockets as connection piece. Couplers are only to be used for renovation resp. repair purposes. In case that within one pipe line components of different product standards are used please note that they have to be connected by standardized or approved adaptor pieces and sealings.

6. SIKA WATERING CAP / APPLICATION



The Sika Watering Cap is used in connection with watering pipe DN(OD) 80/110.

The laying of the pipe is carried out ringlike around the root ball of the plants. So the water is distributed very fast around the complete root area and leaks from the outlets into the ground.

The supply by tank lorries is simplified and a tree population is possible without any problems in a paved area.

In these areas (as for example in pedestrian zones) the trees can be supplied not only with water but also with the necessary quantity of nutrients.



LIFE TIME UP TO 100 YEARS

HIGH DEGREE OF STRENGTH, EASY LAYING

LONG-TERM STABILITY

Products by **Gebr. Ostendorf Kunststoffe GmbH**

HT-System (PP)

Discharge Pipes and Fittings DN(OD) 32–DN(OD) 160 acc. to DIN EN 1451-1

Skolan dB

Soundproof Pipe System DN(OD) 58–DN(OD) 200 acc. to Z-42.1-217

KG 2000 SN 10

Waste Water Pipes and Fittings DN(OD) 110–DN(OD) 500 acc. to DIN 14758

KG-System SN 4 (PVC-U) - Coex SN 8 (PVC-U) - Full Wall SN 10 (PVC-U)

Drainage Pipes and Fittings DN(OD) 110–DN(OD) 500 acc. to DIN EN 13476-2 and DIN EN 1401

Ostendorf Chamber System DN 400 (PP) (PVC-U)

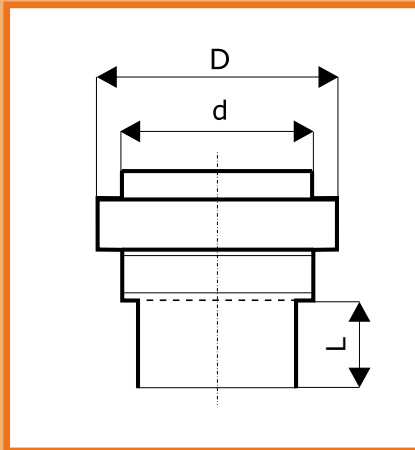
Chamber bases, Riser pipes and Telescopic covers DN 400 acc. to DIN 13598

Ostendorf Chamber System DN 600 (PP)

Chamber bases, Riser pipes and Telescopic covers DN 600 acc. to DIN 13598

PE Pressure Pipes Drinking Water

Pressure Pipes for Drinking Water DN(OD) 20–DN(OD) 63 acc. to DIN EN 12201



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