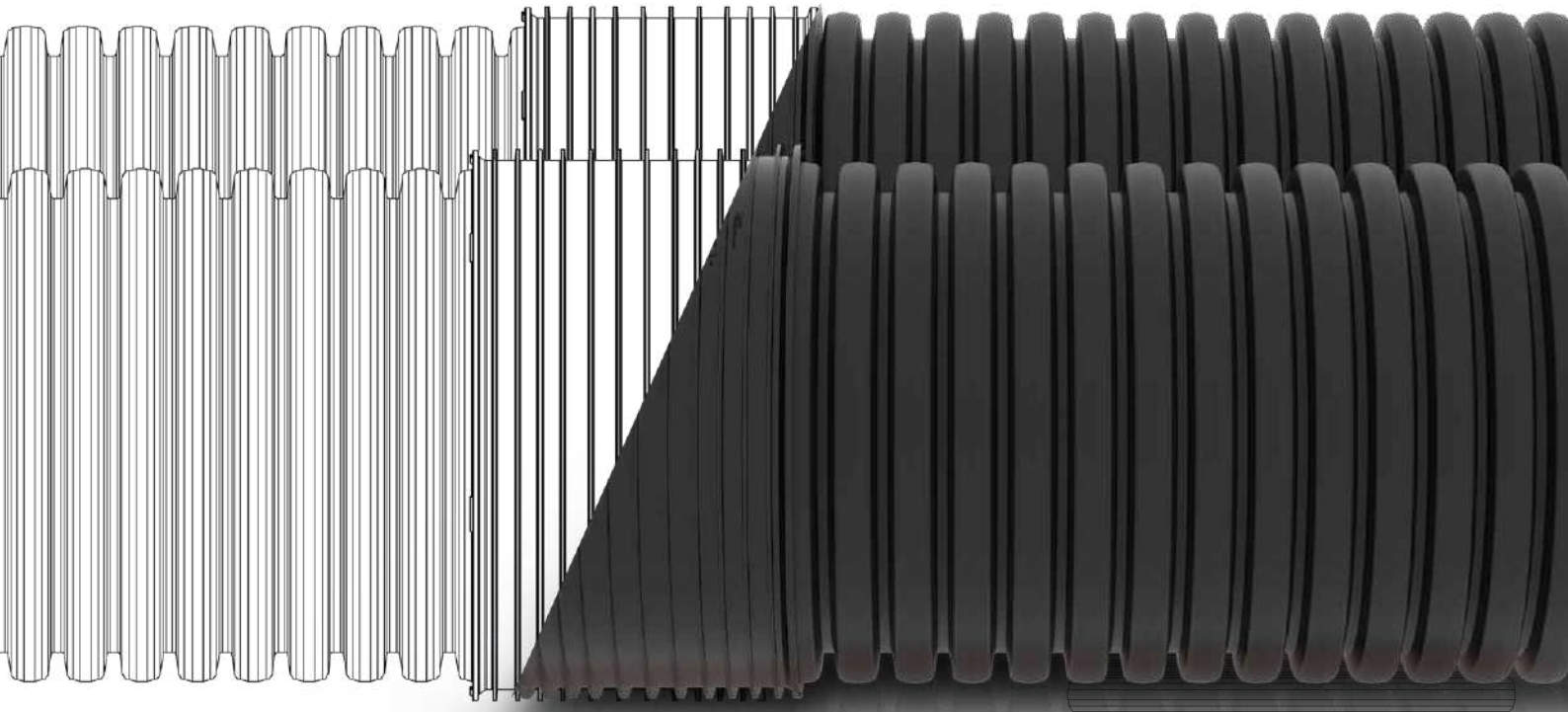
INTER CONSTRUCTION

NEW



INTERCOR

Sewage pipes

inter-construction.com.mk

INTRODUCTION

In response to the increasing demand for efficient and durable sewerage systems—and in line with global advancements in plastic pipe manufacturing—we have developed and launched a new system of double-layer corrugated pipes and fittings made from polypropylene (PP) and polyethylene (PE).

These products are engineered to meet high technical and functional requirements, offering a modern solution tailored to the infrastructure challenges of the 21st century.

The double-layer corrugated PP/PE pipes combine high quality, low weight, and exceptional structural strength, delivering:

- improved efficiency and optimal hydraulic flow
- reduced installation time and overall project costs
- reliable, long-term performance under a wide range of conditions

PRODUCT DESCRIPTION

Pipeline systems made with INTERCOR pipes are intended for sewerage, stormwater, and drainage applications, and are fully compliant with European and international standards.

INTERCOR pipes meet the requirements of EN 13476-3, and their profiled outer wall provides a ring stiffness class from SN4 to SN16 kN/m².

Injection-molded couplings, combined with elastomeric sealing elements, ensure superior stability and strength throughout the entire system.INTERCOR pipes are available in a wide diameter range from OD 110 to DN 1200 mm, making them suitable for diverse project types and varying site conditions.

INTERCOR pipes are commonly used in:

- Sewerage networks
- Stormwater drainage
- Subsurface drainage
- Highway construction
- Industrial and commercial installations

PRODUCTION TECHNOLOGY

INTERCOR pipes are manufactured as a double-layer system using polypropylene (PP) or polyethylene (PE) through an advanced extrusion process. During continuous production, the two layers are fused together through thermal bonding, creating a strong and durable connection.

Thanks to the innovative corrugated profile, INTERCOR pipes offer reduced weight while maintaining high mechanical strength, ensuring improved stability once installed in the soil.

The extrusion process for PP/PE pipes is highly sophisticated and operates through two parallel extruders that simultaneously produce:

- the inner layer (smooth — white, turquoise, or other colors)
- the outer layer (corrugated — black, terracotta, or other colors)

The two layers are merged in the extrusion head, where they are shaped together before entering the corrugator. Immediately after extrusion, the material moves into the corrugator, where:

- the outer layer is formed into its corrugated shape using molds
- the inner layer remains smooth to ensure optimal hydraulic performance

MATERIAL CHARACTERISTICS

Inter Construction uses only certified raw materials sourced from reputable manufacturers. These materials offer excellent mechanical performance and high impact resistance.

The efficient selection and combination of raw materials ensures optimal resource use while contributing to environmental protection.

PROPERTIES	VALUE	STANDARD
DENSITY	**900 kg/m³**	**ISO 1183**
MFR	**0.3 GR/10 min (230 / 2.16)**	**ISO 1133**
FLEXURAL MODULUS	**1500 / 2000 MPA**	**ISO 527**
TENSILE STRENGHT	**32 MPa**	**ISO 527**
IMPACT STRENGHT CHARPY TEST	**+23C 70 kJ/m2 - 23C 7 kJ/m2**	**ISO 179/1EA**

CHARACTERISTICS OF INTERCOR PIPES

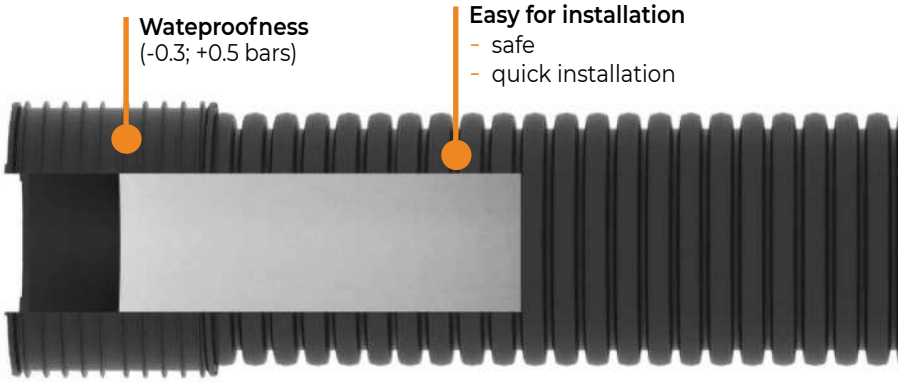
The structural geometry of the specially designed pipe walls, together with the materials used – polypropylene (PP) and polyethylene (PE) – ensure an optimal balance between ring stiffness and flexibility. Regular static load tests confirm the suitability of INTERCOR pipes for dynamic loads at various installation depths ranging from 0.8 to 8 m.

Due to their high ring stiffness, resistance to low temperatures, and the engineered design of the outer wall, INTERCOR pipes are an excellent solution for road construction. The pipes and fittings are designed for underground gravity sewer and drainage systems at various depths. Their high thermal and chemical resistance makes them suitable for non-pressure industrial applications.

The pipes are highly resistant to cracking and mechanical shock. Recent research confirms a minimum service life of 100 years, while performance testing indicates that their actual operational lifespan will be several times longer.

INTERCOR pipes are used in the construction of:

- sewer systems
- stormwater drainage
- sewer channels
- solutions required for industrial and commercial applications



Temperature range

The requirements of EN standards regarding long-term temperatures and stress levels must be met up to +45°C. The temperature operating range is between –25°C and +60°C.

Length

- The standard pipe lengths are 6 m and 12 m, but
- custom lengths can be produced according to project needs.

Almost all thermoplastics can be recycled and reprocessed. Thanks to advanced corrugation technology, profile design, and the selection of the right material, INTERCOR pipes are lightweight yet strong. This enables the production of pipes with a high stiffness class. Ring stiffness is calculated according to EN 9969.

CHARACTERISTICS OF INTERCOR PIPES

The profile of the INTERCOR corrugated co-extruded pipe consists of:

- OD: outer diameter, standardized according to EN 13476-3
- ID: inner diameter
- e5: minimum standard wall thickness
- P: pitch

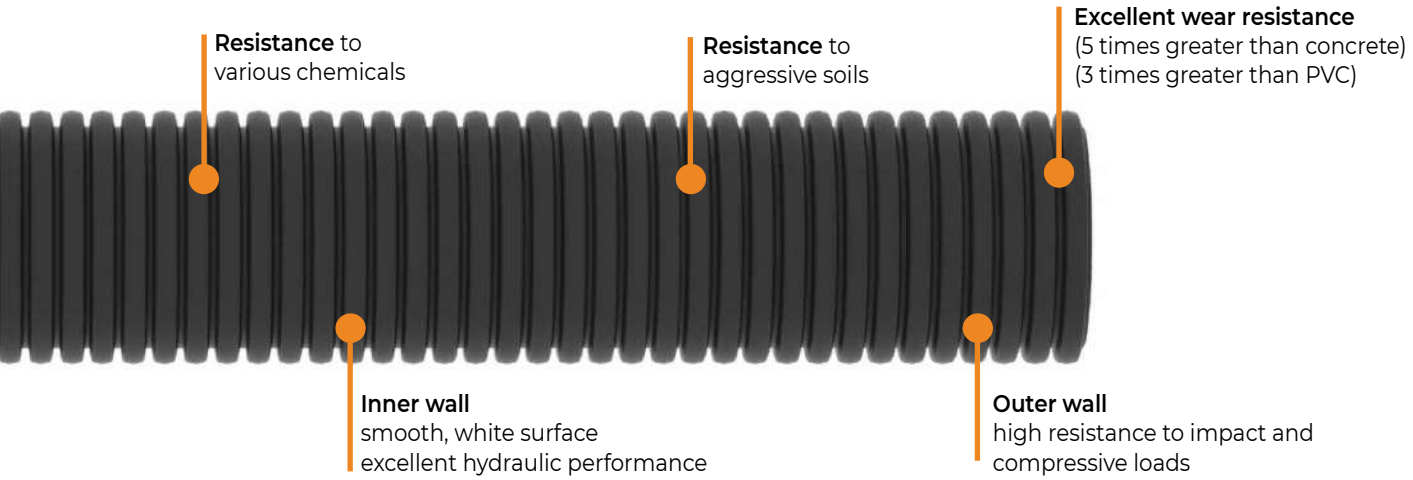
According to the EN 13476-3 standard, an essential property for sewer pipes is their resistance to external loading, referred to as stiffness (SN).

The peripheral stiffness of the pipes characterizes their elasticity and is determined by the relationship between the geometric parameters and material properties:

SN = ExI/Dn3

Where:

- E – modulus of elasticity
- Dn – nominal diameter in meters
- I – moment of inertia



The standard pipe classes manufactured by the company include the following stiffness classes: SN4 kN/m², SN 8 kN/m², SN 10 kN/m² and SN 16 kN/m².

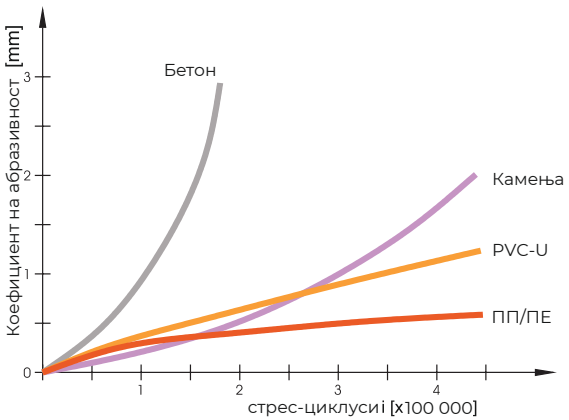
All products of INTER CONSTRUCTION are continuously tested in the company's own laboratory, and the results are certified by authorized accredited institutions.

The tests show that pipes, if properly stored and unused for an extended period, can still be safely used.

When placing pipes on the ground, care should be taken to avoid sharp edges that could damage them. The best practice for storage and transportation is to lay the pipes on flat surfaces, ensuring they are in full contact along their entire length, with a clean and clear base.

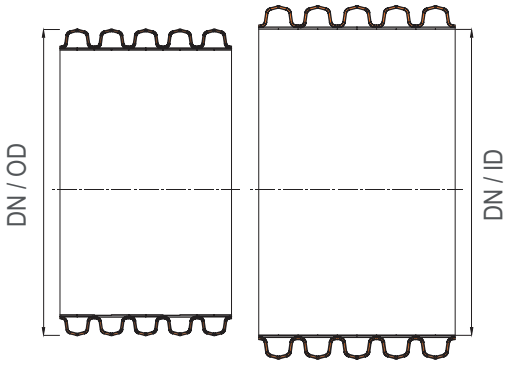
COMPARISON OF INTERCOR PIPES

Compared to smooth-walled pipes (solid, foamed, or Type A structural pipes), Type B structural pipes (corrugated/ribbed) have a significantly greater overall wall height. As a result, the thin wall thickness— which varies depending on the required stiffness— has no considerable impact on the internal diameter of the pipes and does not affect the hydraulic performance.



One of the standards, EN ISO 13968, requires the preservation of structural integrity and material flexibility in the event of deformation of up to 30%.

In modern construction and infrastructure planning, the selection of an appropriate system for the drainage of wastewater and storm water is of critical importance. Increasing demands for efficiency, sustainability, and long – term durability further highlight the advantages of corrugated pipe systems.



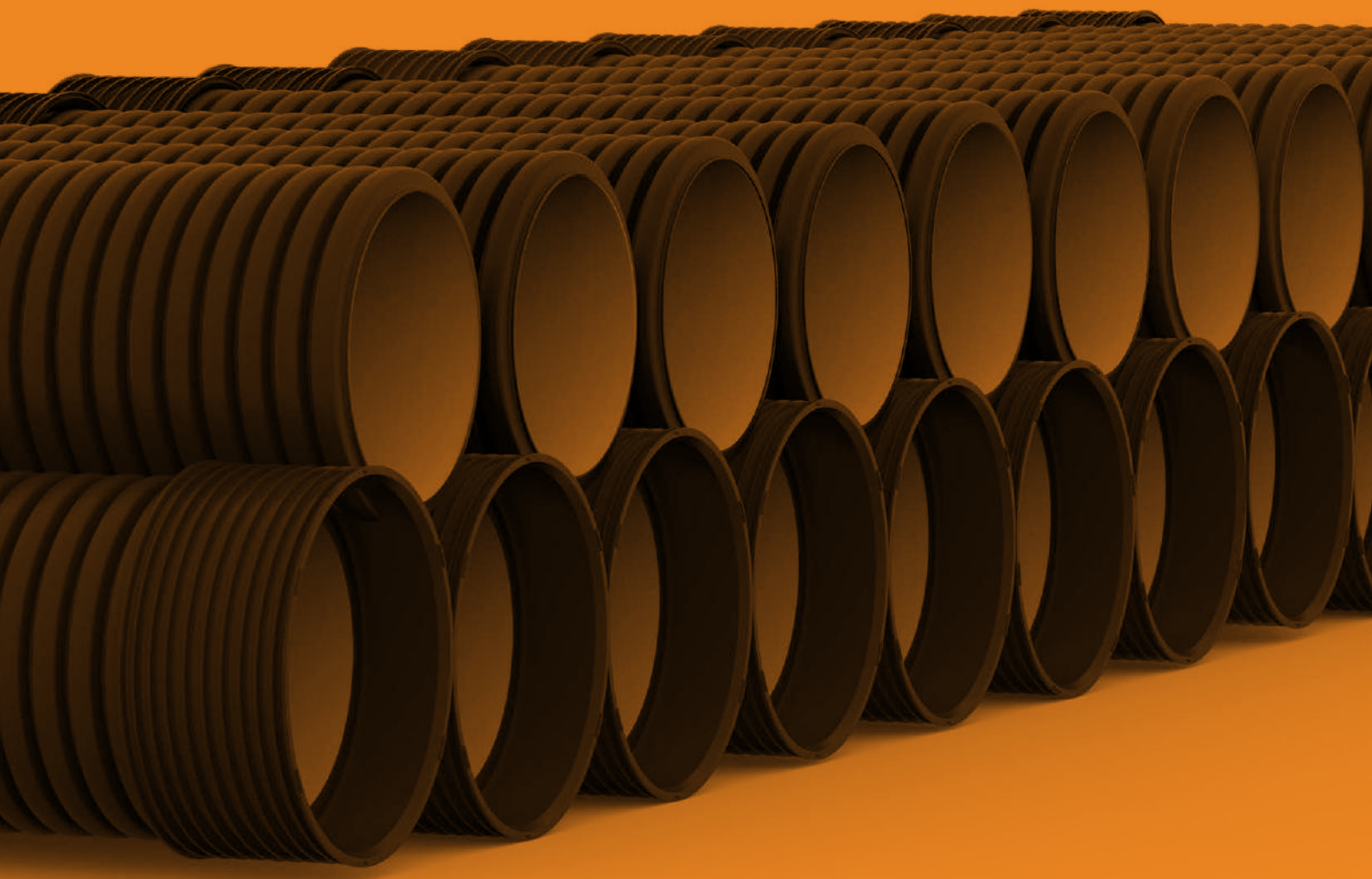
- INTERCOR pipes have a lightweight design compared to pipes made from other materials. Benefit: Fast, reliable, and easy installation – reduced installation costs.
- PE/PP pipes are a sustainable and environmentally friendly solution for safe and long-lasting sewer networks. Benefit: PE/PP materials have a significantly lower CO_2 footprint (emissions released into the atmosphere) compared to traditional materials.
- PE/PP pipes adapt to soil movements thanks to their flexibility and ensure watertight performance. Benefit: Lower maintenance costs compared to traditional materials.
- PE/PP pipes have a smooth inner surface and high hydraulic capacity. Benefits: Low risk of deposits forming inside the pipes, which means there is almost no need for cleaning.

The pipes are classified as Type B structured (profiled) pipes in accordance with the European standard EN 13476-3. One of the construction advantages is the reinforcement, which enables the absorption of point loads directly on the external wall of the pipe, preventing deformation of the inner wall.

The external wall has a wide and low corrugated geometry with narrow and deep grooves, where an elastomeric sealing ring is placed in the last groove to ensure a secure connection.

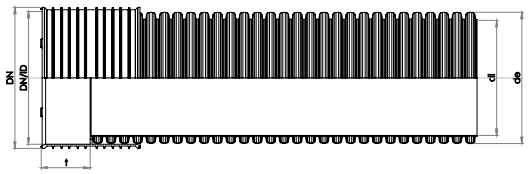
This type of construction allows a proportional increase in ring stiffness by increasing the thickness of the external wall, while the internal wall remains at a constant thickness. Depending on the thickness of the external layer, a stiffness range of SN = (2–16) kN/m^2 can be achieved.

EN 13476-1	Part 1 – General requirements and performance characteristics
EN 13476-3	Part 3 – Specifications for pipes and fittings with smooth internal and profiles external surfaces and for Type B systems
EN 13476-4	Part 4 - Assessment of conformity
EN ISO 13968	Plastic piping and ducting systems - Thermoplastic pipes - Test method for resistance to external blows by the round - the - clock method
EN ISO 13254	Thermoplastic piping systems for non - pressure applications - Test method for watertightness
EN ISO 13259	Plastic piping systems - Thermoplastic piping systems for non - pressure applications - Test method for elastomeric sealing ring joint tightness
EN ISO 9969	Plastic pipes - Determination of ring stiffness
EN ISO 9967	Plastic pipes - Determination of creep ratio
ISO 12091	Structured wall thermoplastic pipes - Oven test
ISO 13967	Thermoplastic fittings - Determination of ring stiffness / flexibility
EN 681-2	Elastomeric seals - Material requirements for pipe joints used for water and drainage - Part 2: Thermoplastic elastomers
EN 1610	Construction and testing of drains and sewers



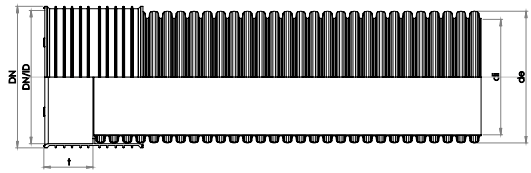
INTERCOR
ID - SERIES

Sewer Pipe DN/ID	PP/PE Intercor ID / ring stiffness SN 4	Standard: EN 13476 -3	Color according to projects



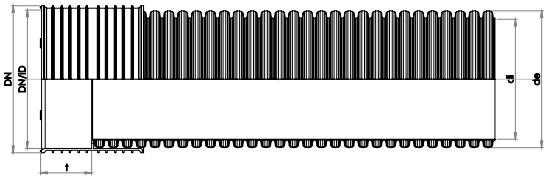
DN (ID) [mm]	Code	di	de	DN	DN/ID	t
DN (ID) 200	610001	198	226	253	232	92
DN (ID) 250	610006	249	283	304	285	94
DN (ID) 300	610011	298	340	365	344	127
DN (ID) 400	610016	398	450	487	456	161
DN (ID) 500	610021	497	562	604	567,5	180
DN (ID) 600	610026	596	677	726	685	190
DN (ID) 800*	610031	800	905	970	920	300
DN (ID) 1000*	610036	1000	1135	1212	1120	380
DN (ID) 1200*	610041	1195	1340	1485	1360	450

Sewer Pipe DN/ID	PP/PE Intercor ID / ring stiffness SN 8	Standard: EN 13476 -3	Color according to projects



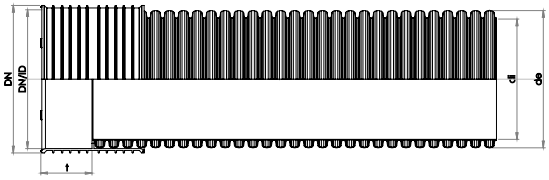
DN (ID) [mm]	Code	di	de	DN	DN/ID	t
DN (ID) 200	610002	198	226	253	232	92
DN (ID) 250	610007	249	283	304	285	94
DN (ID) 300	610012	298	340	365	344	127
DN (ID) 400	610017	398	450	487	456	161
DN (ID) 500	610022	497	562	604	567,5	180
DN (ID) 600	610027	596	677	726	685	190
DN (ID) 800*	610032	800	905	970	920	300
DN (ID) 1000*	610037	1000	1135	1212	1120	380
DN (ID) 1200*	610042	1195	1340	1485	1360	450

Sewer Pipe DN/ID	PP/PE Intercor ID / ring stiffness SN 10	Standard: EN 13476 -3	Color according to projects



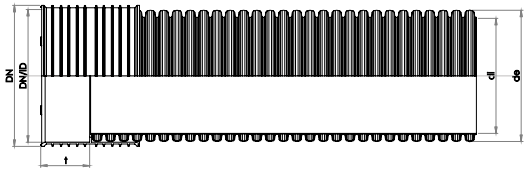
DN (ID) [mm]	Code	di	de	DN	DN/ID	t
DN (ID) 200	610003	198	226	253	232	92
DN (ID) 250	610008	249	283	304	285	94
DN (ID) 300	610013	298	340	365	344	127
DN (ID) 400	610018	398	450	487	456	161
DN (ID) 500	610023	497	562	604	567,5	180
DN (ID) 600	610028	596	677	726	685	190
DN (ID) 800*	610033	800	905	970	920	300
DN (ID) 1000*	610038	1000	1135	1212	1120	380
DN (ID) 1200*	610043	1195	1340	1485	1360	450

Sewer Pipe DN/ID	PP/PE Intercor ID / ring stiffness SN 12	Standard: EN 13476 -3	Color according to projects



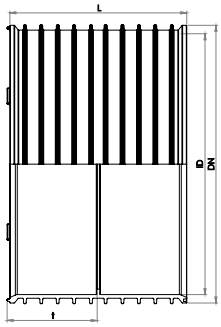
DN (ID) [mm]	Code	di	de	DN	DN/ID	t
DN (ID) 200	610004	198	226	253	232	92
DN (ID) 250	610009	249	283	304	285	94
DN (ID) 300	610014	298	340	365	344	127
DN (ID) 400	610019	398	450	487	456	161
DN (ID) 500	610024	497	562	604	567,5	180
DN (ID) 600	610029	596	677	726	685	190
DN (ID) 800*	610034	800	905	970	920	300
DN (ID) 1000*	610039	1000	1135	1212	1120	380
DN (ID) 1200*	610044	1195	1340	1485	1360	450

Sewer Pipe DN/ID	PP/PE Intercor ID / ring stiffness SN 16	Standard: EN 13476 -3	Color according to projects



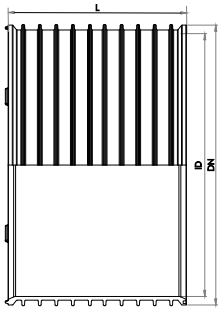
DN (ID) [mm]	Code	di	de	DN	DN/ID	t
DN (ID) 200	610005	198	226	253	232	92
DN (ID) 250	610010	249	283	304	285	94
DN (ID) 300	610015	298	340	365	344	127
DN (ID) 400	610020	398	450	487	456	161
DN (ID) 500	610025	497	562	604	567,5	180
DN (ID) 600	610030	596	677	726	685	190
DN (ID) 800*	610035	800	905	970	920	300
DN (ID) 1000*	610040	1000	1135	1212	1120	380
DN (ID) 1200*	610045	1195	1340	1485	1360	450

Double socket	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



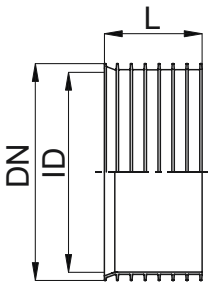
DN (ID) [mm]	Code	DN	ID	L	t
200	620001	253	232	184	92
250	620002	304	285	194	94
300	620003	365	344	125	127
400	620004	487	456	160	161
500	620005	604	570	351	180
600	620006	685	717	365	190
800*	620007	970	920	560	300
1000*	620008	1250	1120	740	380
1200*	620009	1485	1360	900	450

Slide socket	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



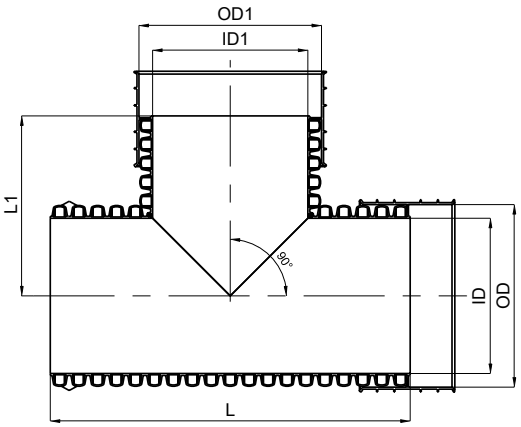
DN (ID) [mm]	Code	DN	ID	L	t
200	620019	253	232	184	92
250	620020	304	285	194	94
300	620021	365	344	125	65
400	620022	487	456	160	80
500	620023	604	570	351	170
600	620024	685	717	365	180
800*	620025	970	920	560	300
1000*	620026	1250	1120	740	380
1200*	620027	1485	1360	900	450

Single socket	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



DN (ID) [mm]	Code	DN	ID	L
200	620010	253	232	92
250	620011	304	285	94
300	620012	365	344	125
400	620013	487	456	161
500	620014	604	570	170
600	620015	685	717	180
800*	620016	970	920	300
1000*	620017	1250	1120	380
1200*	620018	1485	1345	450

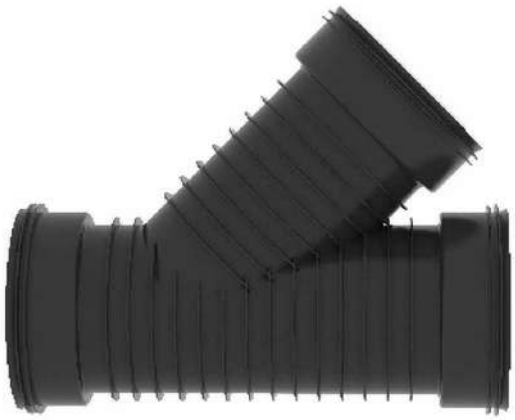
T branch PP 90°	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects

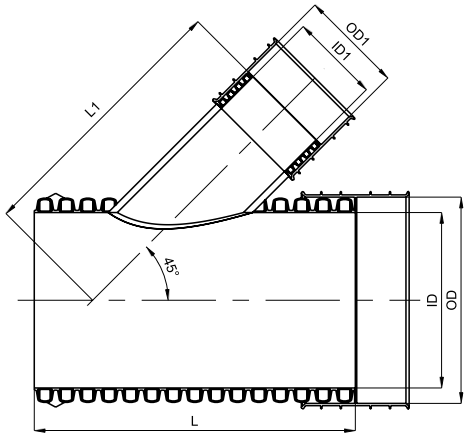


DN (ID) [mm]	Code	ID	OD	ID 1	OD 1	L	L1
200/160		198	232	138	161	500	200
200/200		198	232	198	232	500	260
250/200		249	285	198	232	535	272
250/250		249	285	249	285	535	272
300/200		298	344	198	232	607	300
300/250		298	344	249	285	607	325
300/300		298	344	298	340	607	317
400/200		398	456	198	232	673	374
400/250		398	456	249	285	722	375
400/300		398	456	398	456	770	400
400/400		398	456	398	456	1106	553
500/200		497	568	198	232	729	315
500/250		497	568	249	285	785	340
500/300		497	568	298	344	850	365
500/400		497	568	398	456	950	415
500/500		497	568	497	568	1200	600
600/200		596	685	198	232	740	483
600/250		596	685	249	285	740	510
600/300		596	685	298	344	808	535
600/400		596	685	398	456	942	585
600/500		596	685	497	568	1100	600
600/600		596	685	596	685	1350	650
800/300		800	970	298	344	1200	685
1000/300		1000	1212	298	344	1400	750
1200/300		1195	1360	298	344	1450	850

T branch and T branch reducers are also available for smooth wall connection.

Y branch / Y branch reducer	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects

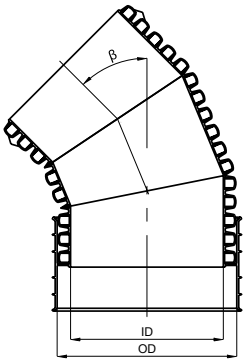




DN (ID) [mm]	Code	ID	OD	ID 1	OD 1	L	L1
200/160		198	232	138	161	500	260
200/200		198	232	198	232	500	260
250/200		249	285	198	232	535	272
250/250		249	285	249	285	55	272
300/200		298	344	198	232	876	600
300/250		298	344	249	285	815	725
300/300		298	344	298	344	690	355
400/200		398	456	198	232	965	685
400/250		398	456	249	285	1060	720
400/300		398	456	298	344	1100	790
400/400		398	456	398	456	1300	870
500/200		497	568	198	232	1000	750
500/250		497	568	249	285	1050	800
500/300		497	568	298	344	1150	850
500/400		497	568	398	456	1500	1050
500/500		497	568	497	568	1460	1070
600/200		596	685	198	232	1000	840
600/250		596	685	249	285	1080	810
600/300		596	685	298	344	1250	940
600/400		596	685	398	456	1350	1000
600/500		596	685	497	568	1100	620
600/600		596	685	596	685	1350	650
800/300		800	970	298	344	1200	685
1000/300		1000	1212	298	344	1400	750

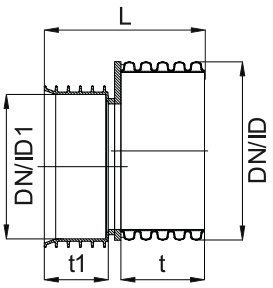
Y branch/ Y branch reducer reducers are also available for smooth wall connection.

Elbow	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



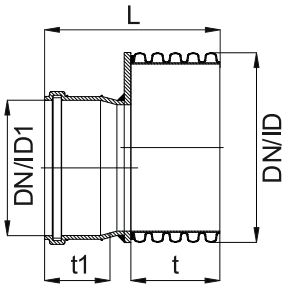
DN (ID) [mm]	Code	ID	OD
150 / 15°		198	232
150 / 30°		198	232
150 / 45°		198	232
150 / 90°		198	232
200 / 15°		249	285
200 / 30°		249	285
200 / 45°		249	285
200 / 90°		249	285
250 / 15°		296	340
250 / 30°		296	340
250 / 45°		296	340
250 / 90°		296	340
300 / 15°		398	456
300 / 30°		398	456
300 / 45°		398	456
300 / 90°		398	456
400 / 15°		497	568
400 / 30°		497	568
400 / 45°		497	568
400 / 90°		497	568
500 / 15°		596	685
500 / 30°		596	685
500 / 45°		596	685
500 / 90°		596	685
600 / 15°		800	970
600 / 30°		800	970
600 / 45°		800	970
600 / 90°		800	970
800 / 15°		1000	1212
800 / 30°		1000	1212
800 / 45°		1000	1212
800 / 90°		1000	1212

Reducer	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



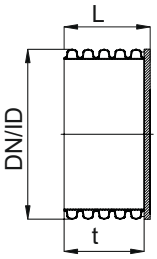
DN (ID) [mm]	Code	DN/ID	DN/ID1	L
200/160		226	161,6	130
250/200		283	232	185
300/200		340	232	221
300/250		340	285	251
400/250		450	285	256
400/300		450	344	292
500/300		562	344	311
500/400		562	455	341
600/400		677	456	351
600/500		677	567	370
800/600		905	970	720
1000/800		1135	1212	850
1200/800		1195	970	900

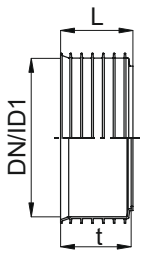
Reducer	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



DN (ID) [mm]	Code	DN/ID	DN/ID1	L
200/160		198	161	130
250/200		249	161	185
300/160		298	161	250
300/200		298	201	130
300/250		298	251	130
400/200		450	201	150
400/250		450	251	140
400/315		450	322	180
500/200		562	201	140
500/250		562	251	150
500/315		562	322	180
500/400		562	401	250
600/200		677	201	140
600/250		677	251	150
600/315		677	322	180
600/400		677	401	250
600/500		677	501	300
800/315		905	322	180
1000/315		1135	322	180
1200/315		1350	322	180

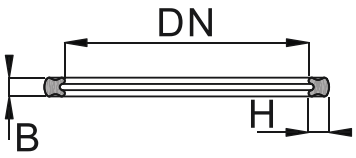
End cap	PP/PE Intercor ID / Without seal	Standard: EN 13476-3	Color according to projects



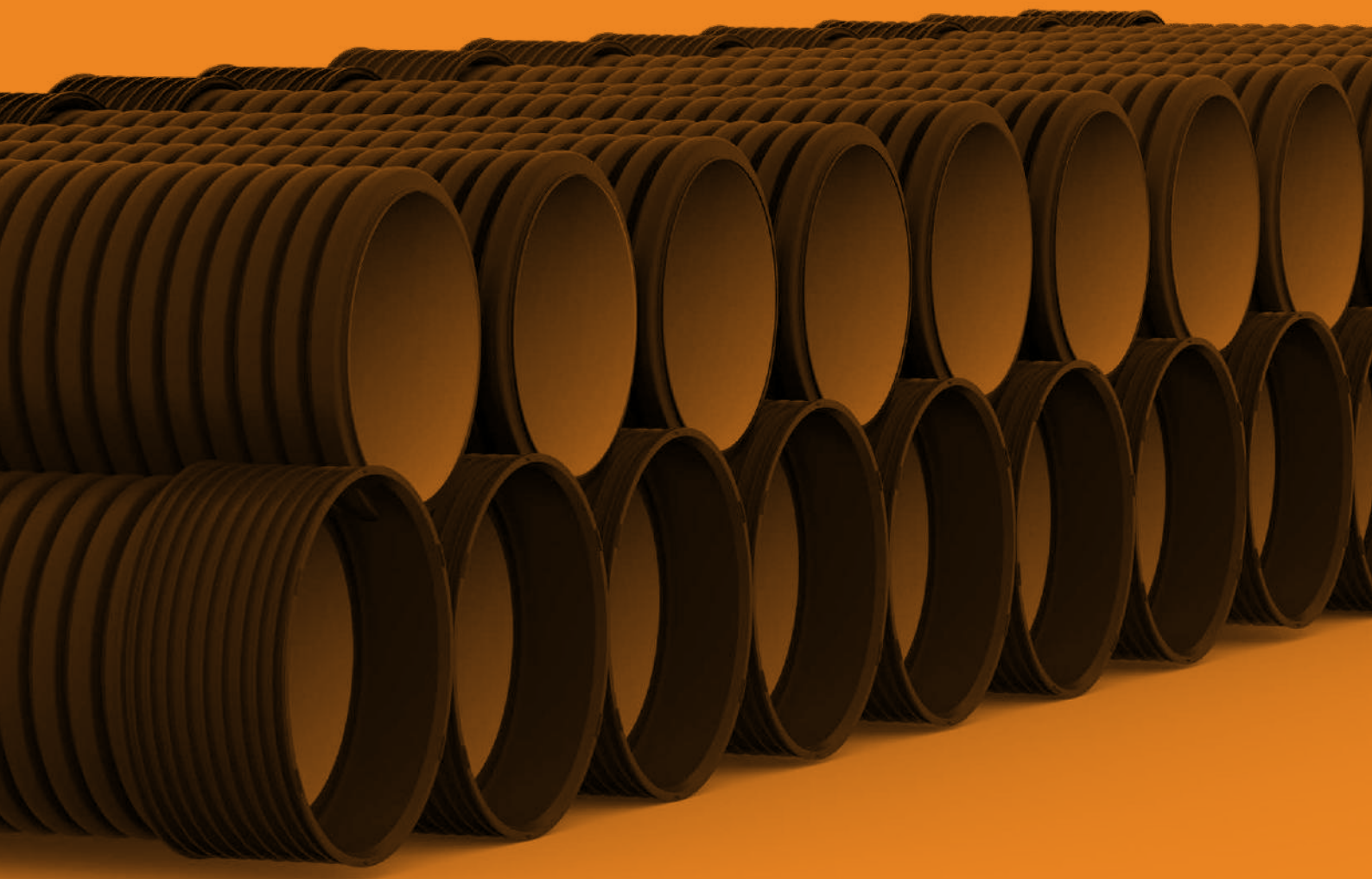


DN (ID) [mm]	Code	DN/ID	DN/ID1	L	t
200		226	232	105	100
250		283	285	105	105
300		340	344	140	140
400		450	456	180	180
500		562	567	190	190
600		677	685	190	200
800 *		905	970	280	310
1000 *		1135	1212	370	390
1200 *		1360	1340	450	460

Seal	Intercor ID / seal	Standard: EN 13476-3	Color according to projects



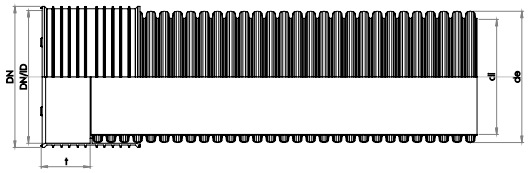
DN (ID) [mm]	Code	H	B
ID200		18	19
ID250		19	21,5
ID300		26	25
ID400		34	33
ID500		38	40
ID600		55	49
ID800*		62	63
ID1000*		69	68
ID1200*		53	95



2

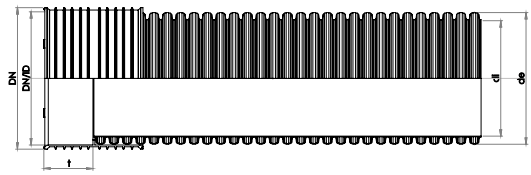
INTERCOR
OD - SERIES

Sewer Pipe DN/OD	PP/PE Intercor OD / ring stiffness SN 4	Standard: EN 13476 -3	Color according to projects



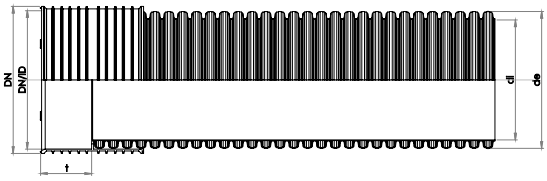
DN (OD) [mm]	Code	d_i	d_e	DN	DN / ID	t
DN(OD) 110	610091	94	110	125	111	70
DN(OD) 160	610096	138	160	178	162	100
DN(OD) 200	610101	173	200	220	202	107,5
DN(OD) 250	610106	216	250	275	253	110
DN(OD) 315	610111	270	315	344	318	126
DN(OD) 400	610116	345	400	431	404	160
DN(OD) 500	610121	430	500	539	505	165
DN(OD) 630	610126	545	630	676	636	180
DN(OD) 800*	610131	769	800	855	805	350
DN(OD) 1000*	610136	850	1000	1055	1010	275
DN(OD) 1200*	610141	1025	1200	1225	1150	330

Sewer Pipe DN/OD	PP/PE Intercor OD / ring stiffness SN 8	Standard: EN 13476 -3	Color according to projects



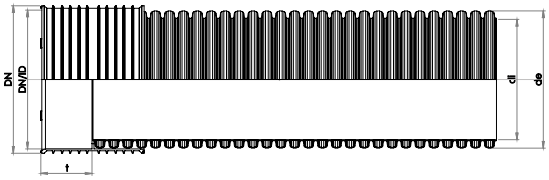
DN (OD) [mm]	Code	d_i	d_e	DN	DN / ID	t
DN(OD) 110	610092	94	110	125	111	70
DN(OD) 160	610097	138	160	178	162	100
DN(OD) 200	610102	173	200	220	202	107,5
DN(OD) 250	610107	216	250	275	253	110
DN(OD) 315	610112	270	315	344	318	126
DN(OD) 400	610117	345	400	431	404	160
DN(OD) 500	610122	430	500	539	505	165
DN(OD) 630	610127	545	630	676	636	180
DN(OD) 800*	610132	769	800	855	805	350
DN(OD) 1000*	610137	850	1000	1055	1010	275
DN(OD) 1200*	610142	1025	1200	1225	1150	330

Sewer Pipe DN/OD	PP/PE Intercor OD / ring stiffness SN 10	Standard: EN 13476 -3	Color according to projects



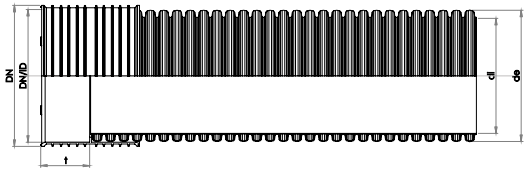
DN (OD) [mm]	Code	d_i	d_e	DN	DN / ID	t
DN(OD) 110	610093	94	110	125	111	70
DN(OD) 160	610098	138	160	178	162	100
DN(OD) 200	610103	173	200	220	202	107,5
DN(OD) 250	610108	216	250	275	253	110
DN(OD) 315	610113	270	315	344	318	126
DN(OD) 400	610118	345	400	431	404	160
DN(OD) 500	610123	430	500	539	505	165
DN(OD) 630	610128	545	630	676	636	180
DN(OD) 800*	610133	769	800	855	805	350
DN(OD) 1000*	610138	850	1000	1055	1010	275
DN(OD) 1200*	610143	1025	1200	1225	1150	330

Sewer Pipe DN/OD	PP/PE Intercor OD / ring stiffness SN 12	Standard: EN 13476 -3	Color according to projects



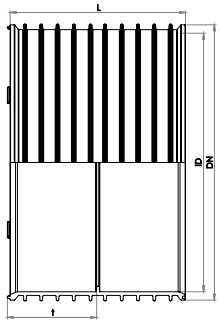
DN (OD) [mm]	Code	d_i	d_e	DN	DN / ID	t
DN(OD) 110	610094	94	110	125	111	70
DN(OD) 160	610099	138	160	178	162	100
DN(OD) 200	610104	173	200	220	202	107,5
DN(OD) 250	610109	216	250	275	253	110
DN(OD) 315	610114	270	315	344	318	126
DN(OD) 400	610119	345	400	431	404	160
DN(OD) 500	610124	430	500	539	505	165
DN(OD) 630	610129	545	630	676	636	180
DN(OD) 800*	610134	769	800	855	805	350
DN(OD) 1000*	610139	850	1000	1055	1010	275
DN(OD) 1200*	610144	1025	1200	1225	1150	330

Sewer Pipe DN/OD	PP/PE Intercor OD / ring stiffness SN 16	Standard: EN 13476 -3	Color according to projects



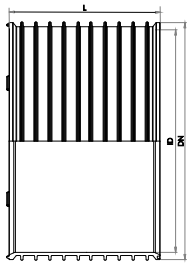
DN (OD) [mm]	Code	d_i	d_e	DN	DN / ID	t
DN(OD) 110	610095	94	110	125	111	70
DN(OD) 160	610100	138	160	178	162	100
DN(OD) 200	610105	173	200	220	202	107,5
DN(OD) 250	610110	216	250	275	253	110
DN(OD) 315	610115	270	315	344	318	126
DN(OD) 400	610120	345	400	431	404	160
DN(OD) 500	610125	430	500	539	505	165
DN(OD) 630	610130	545	630	676	636	180
DN(OD) 800*	610135	769	800	855	805	350
DN(OD) 1000*	610140	850	1000	1055	1010	275
DN(OD) 1200*	610145	1025	1200	1225	1150	330

Double socket	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



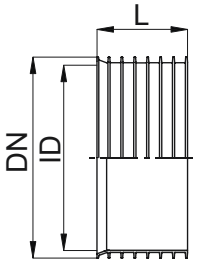
DN (OD) [mm]	Code	DN	ID	L	t
OD110	620028	125	111	140	70
OD160	620029	178	162	202	100
OD200	620030	220	202	215	110
OD250	620031	275	252	220	110
OD315	620032	344	318	252	125
OD400	620033	431	404	320	160
OD500	620034	539	505	330	480
OD630	620035	676	636	360	180
OD800	620036	855	805	500	250
OD1000	620037	1055	1010	550	275
OD1200	620038	1225	1150	660	330

Slide socket	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



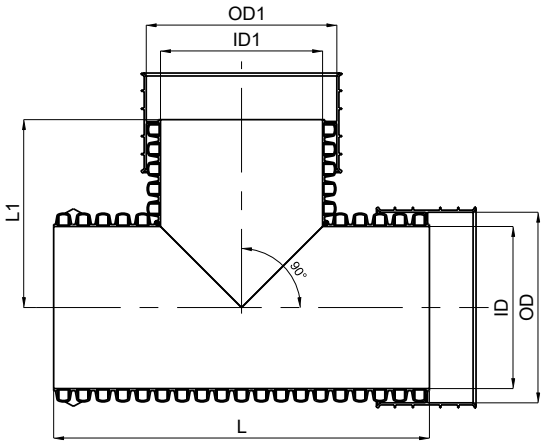
DN (OD) [mm]	Code	DN	ID	L	t
OD110	620050	125	111	140	70
OD160	620051	178	162	202	100
OD200	620052	220	202	215	110
OD250	620053	275	252	220	110
OD315	620054	344	318	252	125
OD400	620055	431	404	320	160
OD500	620056	539	505	330	480
OD630	620057	676	636	360	180
OD800	620058	855	805	500	250
OD1000	620059	1055	1010	550	275
OD1200	620060	1225	1150	660	330

Single socket	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



DN (OD) [mm]	Code	DN	ID	L
OD110	620039	125	111	70
OD160	620040	178	162	100
OD200	620041	220	202	110
OD250	620042	275	252	110
OD315	620043	344	318	125
OD400	620044	431	404	160
OD500	620045	539	505	480
OD630	620046	676	636	180
OD800	620047	855	805	250
OD1000	620048	1055	1010	275
OD1200	620049	1225	1150	330

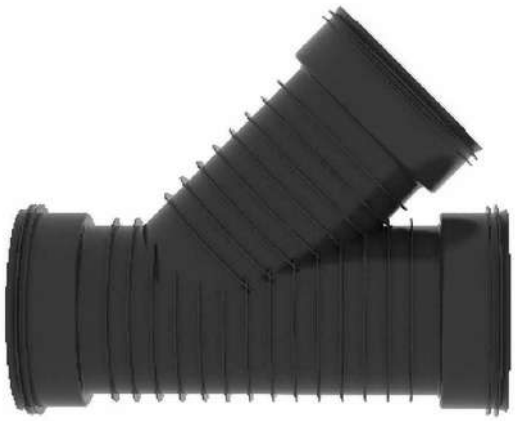
T branch PP 90°	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects

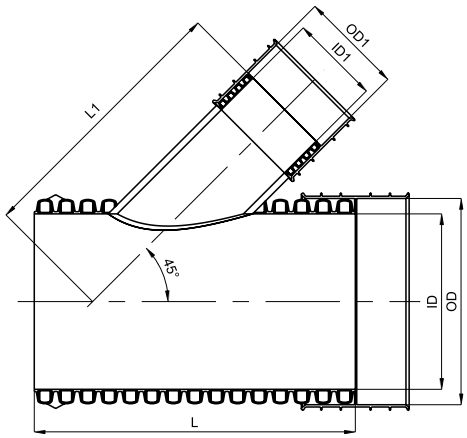


DN (OD) [mm]	Code	ID	OD	ID 1	OD 2	L	L1
160/110		138	162	94	111	350	250
200/160		173	202	138	162	460	225
200/200		173	202	173	202	460	230
250/200		216	253	173	202	500	250
250/250		216	253	216	253	500	260
315/160		270	318	138	162	500	250
315/200		270	318	173	202	550	300
315/250		270	318	216	253	550	300
315/315		270	318	270	318	600	330
400/200		345	404	173	202	500	330
400/250		345	404	216	253	550	350
400/315		345	404	270	318	580	380
400/400		345	404	345	404	630	450
500/200		430	505	173	202	550	400
500/250		430	505	216	253	600	430
500/315		430	505	270	318	650	450
500/400		430	505	345	404	750	400
500/500		430	505	430	505	1000	500
630/200		545	636	173	202	650	450
630/250		545	636	216	253	680	450
630/315		545	636	270	318	750	480
630/400		545	636	345	404	850	500
630/500		545	636	430	505	900	550
630/630		545	636	545	636	1250	630
800/315		769	318	270	318	650	590
1000/315		850	318	270	318	700	690
1200/315		1025	318	270	318	1200	1200

T branch and T branch reducers are also available for smooth wall connection.

Y branch / Y branch reducer	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects

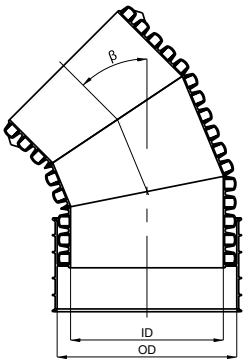




DN (OD) [mm]	Code	ID	OD	ID 1	OD 2	L	L1
160/110		138	162	94	111		
200/160		173	202	138	162	400	350
200/200		173	202	173	202	500	450
250/200		216	253	173	202	540	350
250/250		216	253	216	253	630	550
315/160		270	318	138	162	630	450
315/200		270	318	173	202	750	600
315/250		270	318	216	253	750	600
315/315		270	318	270	318	750	600
400/200		345	404	173	202	500	350
400/250		345	404	216	253	550	350
400/315		345	404	270	318	650	350
400/400		345	404	345	404	850	750
500/200		430	505	173	202	550	400
500/250		430	505	216	253	600	400
500/315		430	505	270	318	650	420
500/400		430	505	345	404	800	420
500/500		430	505	430	505	600	400
630/200		545	636	173	202	660	450
630/250		545	636	216	253	700	470
630/315		545	636	270	318	800	500
630/400		545	636	345	404	850	520
630/500		545	636	430	505	1500	1000
630/630		545	636	545	636	1050	1010
800/315		769	318	270	318	1150	1120
1000/315		850	318	270	318	1200	1150
1200/315		1025	318	270	318	1250	1200

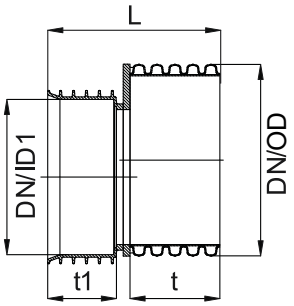
Y branch/ Y branch reducer reducers are also available for smooth wall connection.

Elbow	PP/PE Intercor OD / Without seal	Standard: EN: 13476-3	Color according to projects



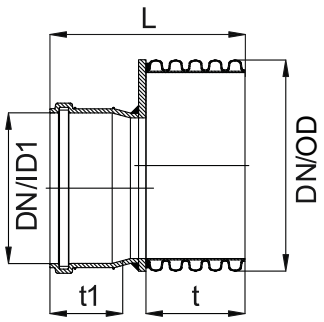
DN (OD) [mm]	Code	ID	OD
160 / 15°		111	125
160 / 30°		162	178
160 / 45°		202	220
160 / 90°		202	220
200 / 15°		253	272
200 / 30°		253	272
200 / 45°		253	272
200 / 90°		253	272
250 / 15°		318	344
250 / 30°		318	344
250 / 45°		318	344
250 / 90°		318	344
300 / 15°		404	431
300 / 30°		404	431
300 / 45°		404	431
300 / 90°		404	431
400 / 15°		505	538
400 / 30°		505	538
400 / 45°		505	538
400 / 90°		505	538
500 / 15°		636	674
500 / 30°		636	674
500 / 45°		636	674
500 / 90°		636	674
600 / 15°		768,5	805
600 / 30°		768,5	805
600 / 45°		768,5	805
600 / 90°		768,5	805
800 / 15°		850	1010
800 / 30°		850	1010
800 / 45°		850	1010
800 / 90°		850	1010

Reducer	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



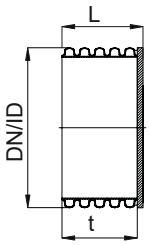
DN (OD) [mm]	Code	DN/OD	DN/ID	L
160/110		160	111	82
200/160		200	162	100
250/200		250	202	100
315/200		315	202	100
315/250		315	253	120
400/200		400	202	120
400/250		400	253	150
400/315		400	318	300
500/200		500	202	290
500/250		500	253	330
500/315		500	318	360
500/400		500	404	400
630/200		630	202	480
630/250		630	253	450
630/315		630	318	500
630/400		630	404	450
630/500		630	505	500
800/630		800	636	1200
1000/800		1000	805	1200
1200/800		1200	805	1200

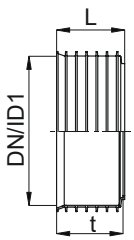
Reducer	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



DN (OD) [mm]	Code	DN/OD	DN/ID1	L
160/110		160	111	82
200/160		200	161	100
250/200		250	201	100
315/200		315	201	100
315/250		315	251	120
400/200		400	201	120
400/250		400	251	150
400/315		400	322	300
500/200		500	201	290
500/250		500	251	330
500/315		500	322	360
500/400		500	401	400
630/200		630	201	480
630/250		630	251	450
630/315		630	322	500
630/400		630	401	450
630/500		630	501	500
800/630		800	322	1250
1000/800		1000	322	1300

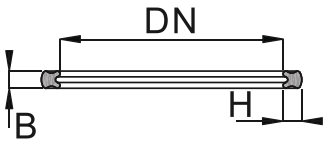
End cap	PP/PE Intercor OD / Without seal	Standard: EN 13476-3	Color according to projects



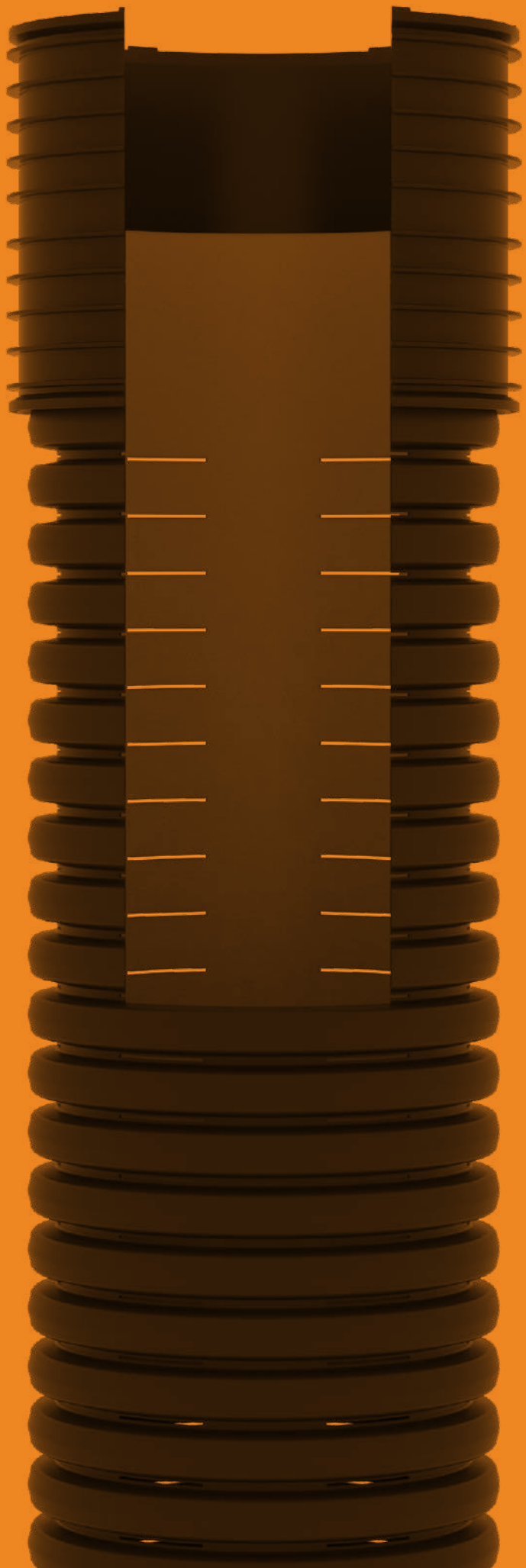


DN (OD) [mm]	Code	DN/OD	DN/ID1	L	t
110		110	111	90	80
160		160	162	120	110
200		200	202	120	110
250		250	252	130	120
315		315	318	150	140
400		400	404	180	170
500		500	505	200	185
630		625	636	210	200
800*		800	805	310	300
1000*		1000	1010	330	315
1200*		1200	1150	370	350

Seal	Intercor OD / seal	Standard: EN 13476-3	Color according to projects



DN (OD) [mm]	Code	H	B
OD110		4,8	12
OD160		6,5	17,3
OD200		14	15
OD250		11	23
OD315		17	25
OD400		33,5	23,5
OD500		42,5	32
OD630		43,5	47
OD800		53	54
OD1000		65	69
OD1200		69	74



3

Intercor
Drainage

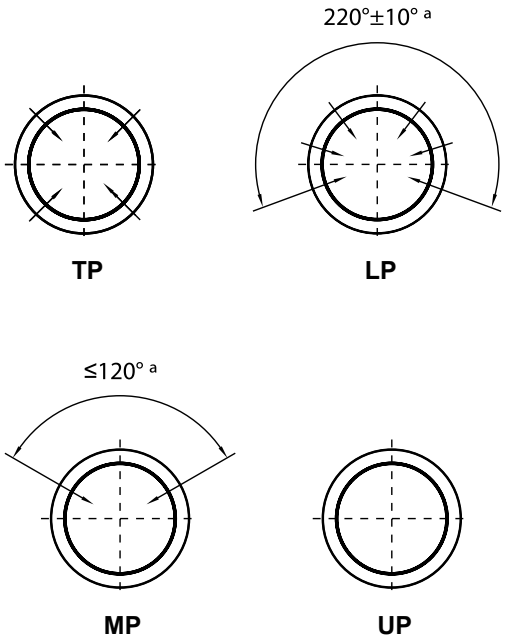
INTERCOR DRAINAGE

Special requirements require an appropriate drainage solutions.

Intercor drainage pipes are used for rainwater drainage:

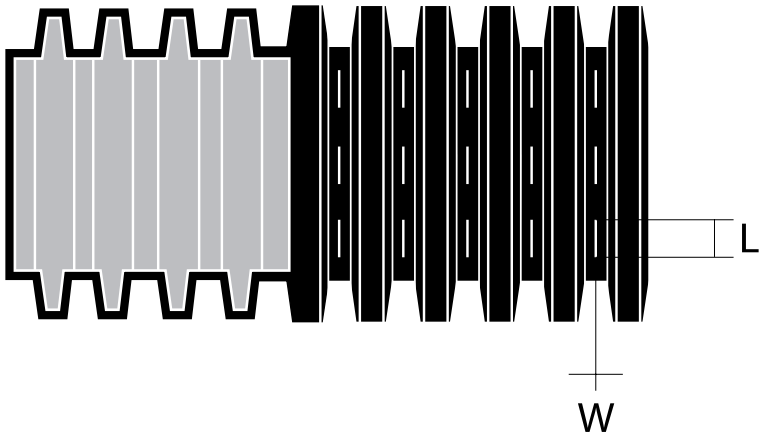
- road and railway drainage networks
- infiltration systems

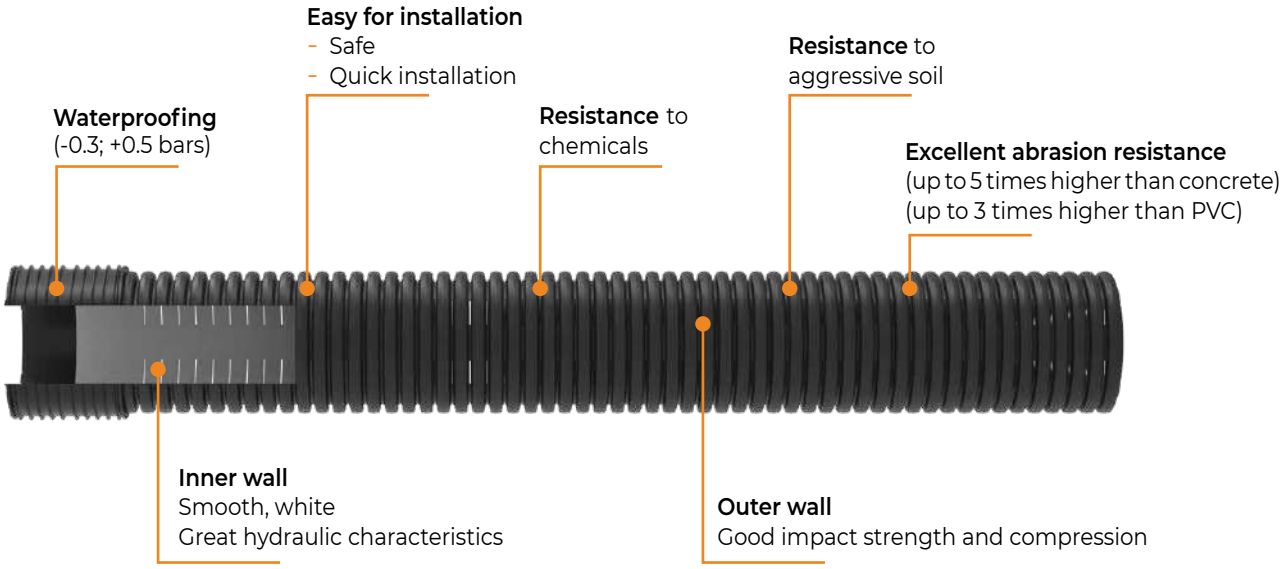
Perforation pattern:



Fully perforated (TP) over the entire cross – section of the pipe (360°)

- Partially perforated (LP) with perforations at approximately 220° of the section
- Multi-purpose (MP) perforations at approximately 120 maximum of 160° of the cross section
- Not perforated (UP) transport pipes (waterproof with O-ring, for covering drainage water)





USAGE
— Golf courses
— Landfills
— Parks
— Land developing and landscaping
— Agriculture
— Retaining walls
— Highways and roads

ADVANTAGES
— Lightweight
— High structural strength
— Long pipe length
— Easy installations
— Flexibility
— Chemical inertness
— Abrasion resistance
— Cost – effective

Product Standard: EN 13476-3
Drainage pipe standard: BS 4962:1989; DIN4262-1
Material: HDPE/PP
Dimensions: DN/OD

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 2
Perforation type: LP

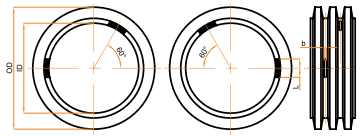


TABLE 1

220°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD110/2P	110	94	88,8	1,3	148
OD160/2P	160	138	142,8	1,2	102
OD200/2P	200	173	140,4	0,7	78
OD250/2P	250	216	158,4		72
OD315/2P	315	270	134,4		56
OD400/2P	400	345	91,2		38

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 3
Perforation type: TP

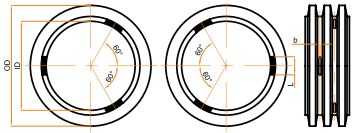


TABLE 2

360°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD110/3P	110	94	133,2	1,9	222
OD160/3P	160	138	214,2	1,8	153
OD200/3P	200	173	210,6	1,1	117
OD250/3P	250	216	237,6		108
OD315/3P	315	270	201,6		84
OD400/3P	400	345	136,8		57

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 2
Perforation type: MP

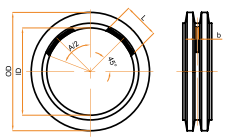


TABLE 3

130°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD200/2D	200	173	124	2.3	89
OD250/2D	250	216	142	2.1	74
OD315/2D	315	270	153	1.8	60
OD400/2D	400	345	160	1.4	50

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 3
Perforation type: MP

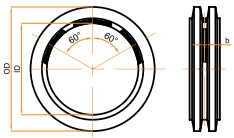


TABLE 4

160°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD400/3D	400	345	335	3.0	75
OD500/3D	500	430	402	2.9	58
OD630/3D	630	545	436	2.5	45

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 2
Perforation type: LP

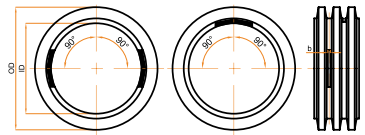


TABLE 5

220°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD200/2.1D	200	173	149	2.7	67
OD250/2.1D	250	216	142	2.1	56
OD315/2.1D	315	270	129	1.5	45
OD400/2.1D	400	348	120	1.1	38

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 3
Perforation type: LP

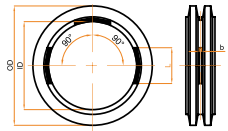


TABLE 6

220°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD200/2D	200	173	149	2.7	67
OD250/2D	250	216	142	2.1	56
OD315/2D	315	270	129	1.5	45
OD400/2D	400	348	120	1.1	38

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 4
Perforation type: TP

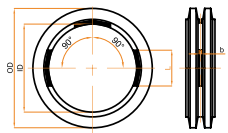


TABLE 7

360°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD200/4D	200	173	164	3.0	178
OD250/4D	250	216	204	3.0	148
OD315/4D	315	271	260	3.0	119
OD400/4D	400	344	336	3.0	100

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 6
Perforation type: TP

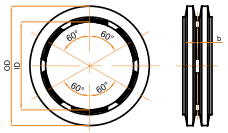


TABLE 8

360°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
OD500/6D	500	430	415	3.0	115
OD630/6D	630	545	524	3.0	91

Product Standard: EN 13476-3
Drainage pipe standard: BS 4962:1989; DIN4262-1
Material: HDPE/PP
Dimensions: DN/ID

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 2
Perforation type: LP

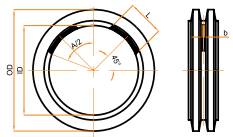


TABLE 9

130°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID200/2P	226	200	171,6	1,4	78
ID250/2P	283	250	172,8	1	72
ID300/2P	340	300	145,6	1,4	56
ID400/2P	450	400	98,8		38

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 3
Perforation type: TP

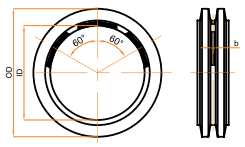


TABLE 10

160°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID200/3P	226	200	257,4	3	117
ID250/3P	283	250	259,2	2,5	108
ID300/3P	340	300	218,4	2,5	84
ID400/3P	450	400	148,2		57

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 2
Perforation type: LP

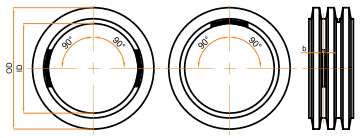


TABLE 11

220°

Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID200/2.ID	226	198	139	2.2	62
ID250/2.ID	283	249	130	1.6	58
ID300/2.ID	340	298	100	1.1	45

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 3
Perforation type: LP

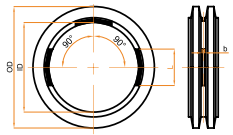


TABLE 12

220°					
Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID200/3D	226	198	191	3.0	124
ID250/3D	249	283	237	3.0	116
ID300/3D	340	298	171	1.8	89

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 4
Perforation type: TP

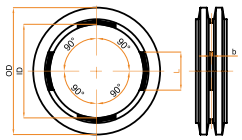


TABLE 13

220°					
Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID200/3D	226	198	191	3.0	124
ID250/3D	249	283	237	3.0	116
ID300/3D	340	298	171	1.8	89

Pipe type: R2
Length: 6m straight pipe
Number of slots per rib: 6
Perforation type: TP

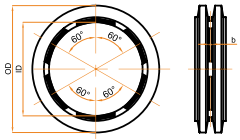


TABLE 14

360°					
Pipe code	Outside diameter [mm]	Inside diameter [mm]	Room temperature		Number of slots per meter
			Cm ²	%/m	
ID400/6D	450	398	383	3.0	36
ID500/6D	562	497	471	3.0	36
ID600/6D	677	596	564	3.0	36

In – Situ connection

Dimensions for In – Situ connections:

OD/ID Diameter of blade [mm]		
OD	110	114
OD	160	125
OD	200	208
ID	200	240
OD	250	262
ID	250	295
OD	315	337
ID	300	355

In – Situ connector is used for connections to collectors or manholes

1) Determine the required connection diameter
2) Cut an appropriate opening in the manhole wall
3) Insert the In – Situ connector into the opening
4) Connect the pipe to the connector

SEALING RING

A specially designed watertight elastomeric sealing ring is available for the following opening dimensions: OD 110, OD 160, ID/OD 200, ID/OD 250 and ID 300/ OD 315. The opening in the manhole base must be made using a dedicated cutting tool for each diameter, ensuring precise positioning of the opening and achieving 100% water tightness. The sealing is installed in the prepared opening. Before inserting the pipe, the sealing ring must be lubricated using Neutrex lubricant or an equivalent product.

Installation of connections and elastomeric sealing rings

Installation of Intercor pipes

There are two basic methods of laying pipes:

- Laying directly on natural, unprocessed soil;
- Laying on a base layer (substrate) made of special material that is compacted to the required stability.

With this in mind, during each laying of a pipeline, the project designer must define the following conditions:

- Characteristics of the soil and its suitability for use as a substrate;
- Geotechnical properties of the soil to be used as a substrate, side and top layer, as well as the method of their installation
- Appropriate pipe stiffness class

Installation conditions for Intercor pipes

When determining the minimum required trench width (depending on pipe dimensions and installation depth), it is essential to comply with applicable standards for sewer pipeline installation, such as EN 1610.
It is important to consider the following:

- A trench that is too narrow may negatively affect proper pipe installation, as it restricts adequate compaction and stabilization of the surrounding soil;
- A trench that is too wide leads to increased material consumption and higher installation costs.

In both cases, an improperly defined trench width results in increased loads on the pipe system and reduced overall performance. Therefore, selecting an appropriate trench width is a key factor in achieving high – quality installation.

The trench width must provide sufficient pace for correct pipe placement and proper compaction of the backfill material around the pipe.

The minimum clearance between the outer pipe wall and the trench side wall shall be at least $b_{min} = 30$ cm.

The minimum total wrench width (B) at pipe installation level is calculated at follows:

$B = D + (2 \times b_{min})$ where D is the external diameter of the pipe.

If the natural soil has lower stiffness than required by the design, the trench width shall be increased accordingly;

$B \geq 1.4 \times DN$ where DN is the nominal internal diameter of the pipe.

Pipe bedding installation

Installing pipes on a prepared bedding layer is required in the following cases:

1. When the trench bottom has been accidentally excavated deeper than the design installation level;
2. When working in rocky soils, cohesive soils (such as clay), or soils containing a high proportion of fines;
3. In soils with low bearing capacity, such as organic sediments and peat;
4. In all other cases where bedding is specified by the project documentation.

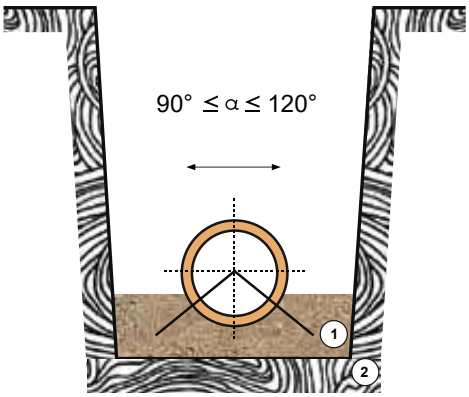


Figure: Pipe installation on natural ground

1. Trench bottom
2. Uncompacted levelling layer

When the pipeline is installed on two layers of sand and gravel material with a thickness of approximately 15cm (but not less than 15cm).

The base (foundation) layer shall consist of well – compacted material with a thickness of approximately 25cm (but not less than 15cm).

Above this, a levelling layer with a thickness of 10 to 15cm is places, which shall not be compacted.

In cases of soils with low bearing capacity, two solutions may be applied depending on the thickness of the weak soil layer below the planned pipeline level:

1. If the thickness of the weak soil layer is <10m:
   - The weak soil is excavated and the trench is backfilled with a well-compacted mixture of crushed stone and sand (mixing ratio 10:3).
   - The foundation layer is places on geotextile
2. If the thickness of the weak soil layer is > 10m:
   - A foundation layer of 25cm made of a well – compacted crushed stone and sand mixture is installed. (No geotextile is required, in accordance with the described installation method.)

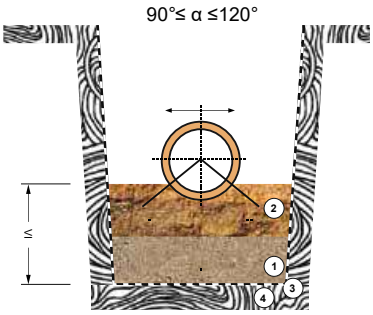


Figure: Example of pipe installation where the thickness of the load-bearing soil layer is less than 10m

1. Levelling layer
2. Geotextile
3. Well-compacted layer
4. Trench bottom

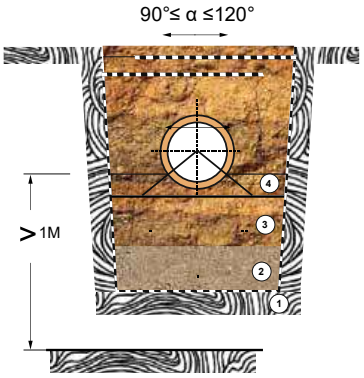


Figure: Example of pipe installation where the thickness of the load-bearing soil layer is greater than or equal to 10m

1. Levelling layer
2. Crushed stone
3. Compacted base layer
4. Sand

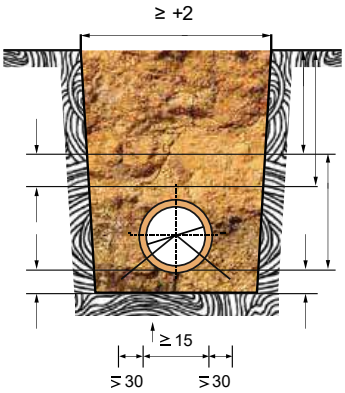


Figure: Cross-section of the trench

In addition to the correct installation of the foundation and levelling layers to ensure safe pipe installation, equal attention must be given to the type (material class) and the degree of compaction of the soil used for side fill and backfill (along the sides of the pipe and above it).

The section of suitable back fill material depends on its ability to achieve sufficient soil strength after compaction.

Materials suitable for this type of backfilling include:

- Natural granulated materials with a wide particle size distribution (well-graded materials), provided that the maximum particle size does not exceed:

- 10% of the nominal pipe diameter
- 60mm whichever value is smaller.

Materials containing snow, ice or frozen soil shall not be used, as they may significantly reduce the quality of compaction and compromise the stability of the entire pipeline system.

MATERIAL INSPECTION

Before installation, pipes and fittings must be inspected for any damage. Damaged pipes or fittings shall not be installed.

INSTALLATION OF INTERCOR PIPES

- At temperature below 0°C, pipes must be installed with particular care.
- Changes in direction by bending are not permitted. Direction changes shall be made using welded fittings or manholes
- Pipe connections and fittings without factory-installed seals must be cleaned prior to installation
- INTERCOR drainage pipes shall be installed with the socket oriented opposite to the flow direction. For perforated and non-perforated pipes, ensure that sealing rings are used when connecting sockets.
- A suitable lubricant must be used when connecting drainage pipes. Oils or grease must not be used.

PIPE CUTTING

Pipes can be easily cut to length using a handsaw or a dedicated pipe cutting tool, ensuring a straight cut. Cutting shall be performed according to the required length. Cut surfaces and any irregularities must be removed using a scraper or knife. Pipe ends without factory finishing must be properly processed before installation.

PREPARATION OF THE INSTALLATION ARE FOR DRAINAGE PIPES

The installation zone (from the excavation area to the beginning of the openings) starts with placing pipes with the least available perforations into the soil compacted with a high proportion of fine particles (< 10-6m/s), incorporating aggregate with a maximum particle size of 32mm.
Depending on the configuration and purpose of the drainage system, the drainage zone may include partially perforated (LP) pipes or non-perforated (MP) pipes. In areas with partially perforated (LP) pipes, compaction shall be performed manually. For non-perforated (MP) pipes, the installation zone shall be filled with the same soil as the surrounding trench and compacted manually.
After compaction, it must be ensured that the pipe has not been damaged by the hand compactor.

COMPACTION EQUIPMENT

The compaction process must be carried out with particular care. Contamination of the perforations may prevent proper water infiltration into the drainage layer, thereby impairing system performance.

- In areas with groundwater presence, the use of fully perforated (TP) pipes is recommended.
- Backfilling shall be carried out in layers with a thickness of 15cm
- Compaction of the layer directly above the pipe, up to 30cm, must be performed manually.

- To avoid pipe damage, compaction of the soil directly above the pipe using mechanical equipment must be avoided.
- Backfill compaction shall be carried out in layers. The subgrade shall be removed gradually.
- The backfill material shall consist of non-cohesive soil, soil group G1 (according to ATV DVWK A127 = GE, GW, GI, SE, SW, SI). The crushed aggregate used shall have a maximum particle size of 16mm.
- The degree of compaction shall be at least 95%.

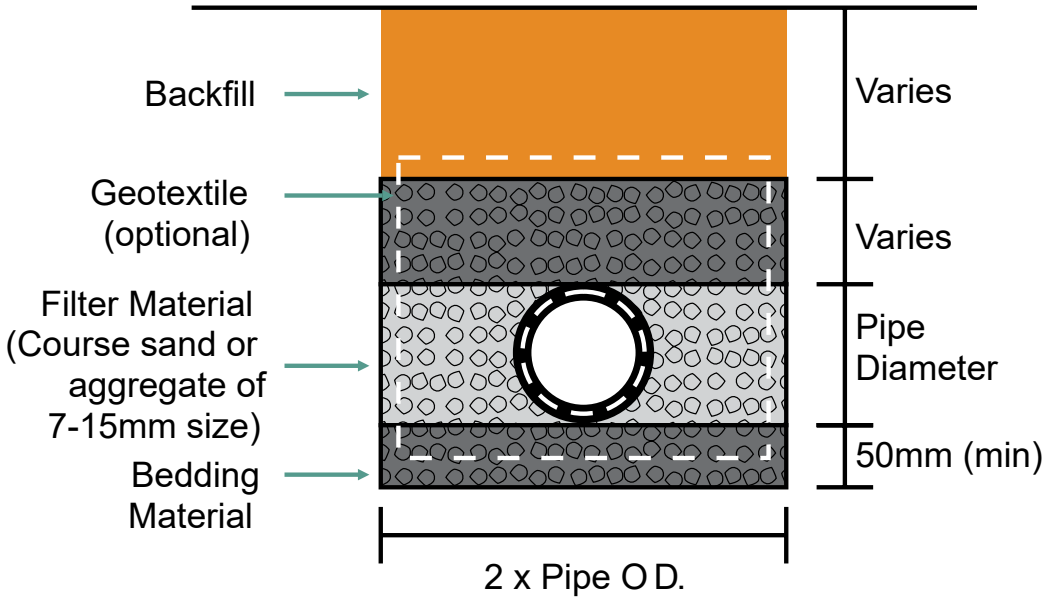
TRENCH BACKFILLING

Trench backfilling shall be carried out in accordance with DIN EN 1610 and performed in layers. For cover depths from 0.3m to 1.0m, only light compaction equipment may be used. Subsequently, standard compaction equipment shall be applied.

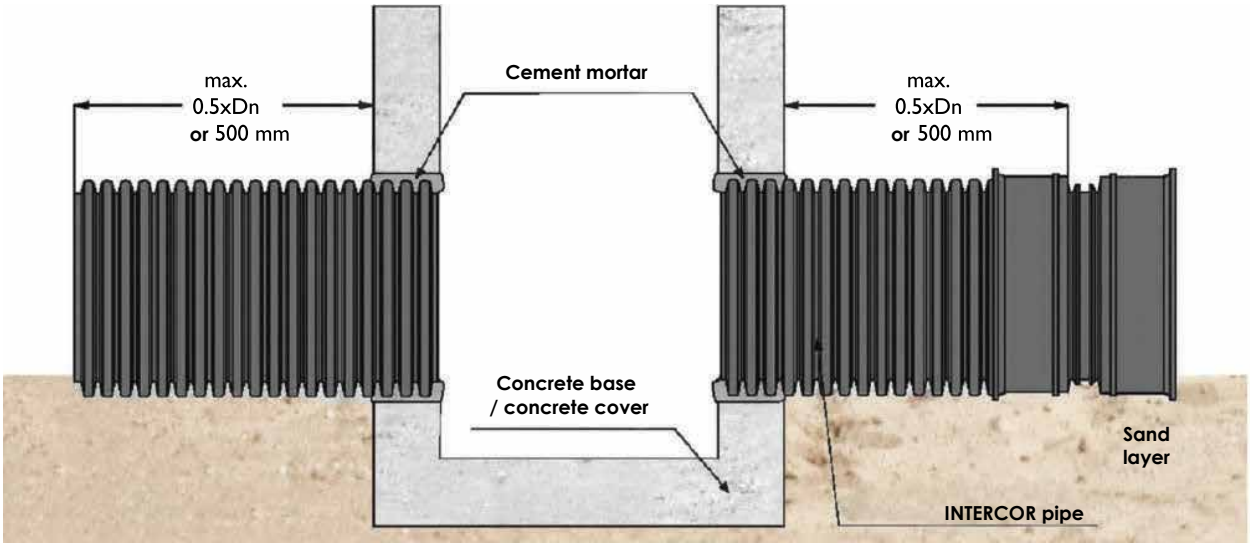
ПРОВЕРКА И ЧИСТЕЊЕ НА ИНСТАЛИРАНА ЦЕВКА

Процесот на инсталација се завршува откако со ротирачка камера и слика во боја ќе се провери интегритетот на поврзувањата и ќе се провери текот. Пред проверката со камера, цевководот треба да се исчисти со испирање под висок притисок.

STANDARD TRENCH



Connection of INTERCOR pipes with concrete manholes



Connection of INTERCOR pipes to plastic manholes