PEŠTAN

we build trust

piping solutions

WE ARE

a private company Peštan, leader in the Balkans in the production and distribution of products and solutions from the polymers.
Company was founded in 1989 and has been producing water pipes made of polyethylene. Over time, we introduced new materials (polypropylene and PVC) and expanded product range. Today, in our offer you may find more than 6500 products, divided into four categories:

PIPING SOLUTIONS

DRAIN SOLUTIONS

AGRICULTURE SOLUTIONS

HOUSEHOLD SOLUTIONS

Edition 5

Production facilities of company Peštan are located in Arandjelovac, Serbia. Annual revenue exceeding 70 million EUR, which is realized with the help of 1,000 employees. Peštan has a direct presence, through its daughter companies, in Bosnia and Herzegovina, as well as in Romania and through its representative offices in Albania, Croatia and the United Arab Emirates. Peštan operates in more than 70 countries worldwide through a global network of agents and distributors. Primarily export-oriented, the company is present in the market of Europe, Russia, Middle East, North Africa, Latin America and the United States. The entire production is adjusted to European standards which is proved by international certificates for quality products: DVGW, MPA, SABS, IMS, IGH, ZIK, VUPS, EMI, and certificates of quality process ISO 9001, ISO 14001, OHSAS 1800. For maximum satisfaction of customer needs, the company is constantly innovating and improving personnel and equipment. Since 2009, the company introduced the SAP ERP modules MM, SD, PP, FI CO, and since 2012 have extended functionality and WMS was included. The introduction of WCM and WMS system has increased the efficiency, contributed to the allocation of costs and professional maintenance. Central warehouse is located in Serbia, Arandjelovac, which is sized and designed to meet the requirements of the most demanding customers who want efficient and reliable delivery of products.

To respond to these requirements, Peštan has 14 000 m2 of closed storage space for finished and semi-finished products, 5,000 m2 warehouse for raw materials and intermediate goods, and approximately 50,000 m2 of open storage space. Indoor storage space is equipped with shelves with over 21,000 pallet positions. Our vision is to be recognized as a leader in the Balkans, which provides customers with diversified solutions and products in one place. Our mission is creating a competitive advantage in our customers' businesses with the help of first-class solutions, services and products. We provide our company's success by consistently meeting the needs of clients, stakeholders and employees.

KEY FACTS

70

AND MORE
COUNTRIES
WHERE WE EXPORT
OUR PRODUCTS

6,500

DIFFERENT PRODUCTS
IN OUR PRODUCTION
ASSORTMENT

50,000

TONS OF MATERIAL
PROCESSED
ANNUALLY

TYPES OF PIPING SOLUTIONS

WATER & HEATING

FLUIDTHERM

PP-R pipes & fittings for warm and cold water supply

PP-R and PP-RCT pipes are intended to be used for installation of hot and cold hygienic portable water, for heating and cooling systems, radiator connections, as well as for gray and reclaimed water transportation.

They are also intended to be used for the transportation of alimentary liquids, irrigation of the greenhouses and gardens, shipment of pressure air, vacuum installations, for the flow of various fluids in chemical industry, as well as for the transportation of the sea water and highly abrasive fluids. Their low weight and high tolerance to vibrations makes them suitable for various applications related to trains, ships, trucks and camping trailers, both in aggressive environment and on unstable ground.

SPECIFICATION OF MATERIAL

Polypropylene random copolymer [PP-R]
Polypropylene random copolymer with modified crystalinity [PP-RCT]

Polypropylene Random Copolymer has been used in the domestic plumbing and mechanical applications for more than 20 years. With its long history and proven performance PP-R material made an excellent fit to the demand for pressure resistance at high temperatures. Increase of the ecological awareness contributed to the final recognition of our product as the superior one in the world of liquid engineering. New generation of material named as PP-RCT is Polypropylene-Random-Copolymer with improved temperature resistance and enhanced crystalline structure brought about by a special nucleation. Proof of excellent performance characteristics of PP-RCT is categorized required strength (CRS) of 5 MPa at 70° C and 50 years in comparison to a value of 3,21 MPa for standard PP-R. Offering more than 50% improved long-term strength PP-RCT enables designers to achieve higher pipe hydraulic capacity and gives them possibility to apply higher pressure than with standard PP-R with MRS 10.0 MPa. Quality of raw material is being controlled by the Health and Care State Institute.

ADVANTAGES OF MATERIAL

Welding properties

During the welding material suffers neither changes nor burnings thus connections between pipes and fittings are both strong and safe.

Burning cautery

PP-R and PP-RCT is classified as normal flammable material which under ideal burning conditions turns into carbon monoxide and water.

Polymer is protected during processing

Material can be processed several times without changes in molecular structure and without deterioration of physical and chemical characteristics and thermo- mechanical properties.

Impact strength

Impact strength of PP-R and PP-RCT pipes significantly decreases at temperatures below 5°C which is common for polypropylene pipes

Resistance to chemical substances and metals

PP-R and PP-RCT is completely resistant to hydrolysis. Due to non- polar PP-R and PP-RCT behavior and specially designed additive package PP-R and PP-RCT are also suitable for transportation of the most of the chemicals.

Opacity

Light transmission through PP-R and PP-RCT is less than 0.2% which prevents growth of algae on the inside surface of pipes and fittings meant for drinking water.

* For more informations regarding the applications for transportation of special fluids, operation conditions please contact Pestan's technical support.

PERMISSIBLE OPERATING PRESSURE DEPENDING ON TEMPERATURE AND THE EXPECTED LIFE OF THE TUBE IN ACCORDANCE WITH DIN 8077

PP-RCT

TEMPERATURE °C	SERVICE LIFE, YEARS	PERMISSIBLE OPERATING PRESSURE, BAR (SF=1,5)			
		S			
		5	4	3,2	2,5
		SDR			
		11	9	7,4	6
10	1	19,0	24,0	30,2	38,0
	5	18,4	23,3	29,3	36,8
	10	18,3	22,9	28,9	36,4
	25	17,9	22,6	28,4	35,8
	50	17,7	22,3	28,0	35,3
	100	17,4	21,9	27,7	34,8
20	1	16,6	20,8	26,3	33,1
	5	16,1	20,2	25,4	32,1
	10	15,8	19,9	25,1	31,6
	25	15,5	19,6	24,7	31,0
	50	15,3	19,3	24,3	30,6
	100	15,1	19,0	24,0	30,2
30	1	14,3	18,1	22,8	28,7
	5	13,8	17,4	22,0	27,7
	10	13,7	17,2	21,7	27,3
	25	13,4	16,8	21,3	26,8
	50	13,2	16,6	20,9	26,3
	100	13,0	16,4	20,7	26,0
40	1	12,3	15,5	19,6	24,7
	5	11,9	15,0	18,8	23,8
	10	11,8	14,8	18,6	23,4
	25	11,5	14,4	18,2	22,9
	50	11,3	14,3	17,9	22,6
	100	11,1	14,0	17,7	22,3
50	1	10,5	13,3	16,8	21,1
	5	10,2	12,8	16,1	20,3
	10	10,0	12,6	15,8	19,9
	25	9,8	12,3	15,5	19,5
	50	9,6	12,1	15,3	19,2
	100	9,4	11,9	15,0	18,8
60	1	8,9	11,3	14,2	17,8
	5	8,6	10,8	13,6	17,2
	10	8,4	10,6	13,3	16,8
	25	8,3	10,3	13,1	16,5
	50	8,1	10,2	12,8	16,2
70	1	7,5	9,4	11,9	15,0
	5	7,2	9,1	11,4	14,4
	10	7,1	8,9	11,3	14,1
	25	6,9	8,7	10,9	13,8
	50	6,8	8,5	10,8	13,5
80	1	6,3	7,9	9,9	12,5
	5	6,0	7,5	9,5	12,0
	10	5,8	7,4	9,3	11,8
	25	5,8	7,2	9,1	11,4
95	1	4,7	5,9	7,4	9,3
	5	4,4	5,6	7,1	8,9
	10	4,3	5,5	6,9	8,8

PP-R

TEMPERATURE °C	SERVICE LIFE, YEARS	PERMISSIBLE OPERATING PRESSURE, BAR (SF=1,5)		
		S		
		5	3,2	2,5
		SDR		
		11	7,4	6
10	1	17,6	27,8	35,1
	5	16,5	26,3	33,1
	10	16,1	25,6	32,2
	25	15,6	24,8	31,2
	50	15,2	24,1	30,0
	100	14,8	23,5	29,6
20	1	15,0	23,8	29,9
	5	14,1	22,3	28,1
	10	13,7	21,8	27,3
	25	13,3	21,0	26,4
	50	12,8	20,4	25,8
	100	12,5	19,9	25,1
30	1	12,8	20,2	25,4
	5	11,9	18,9	23,8
	10	11,6	18,4	23,2
	25	11,2	17,8	22,3
	50	10,8	17,3	21,8
	100	10,6	16,8	21,2
40	1	10,8	17,2	21,6
	5	10,1	16,0	20,2
	10	9,8	15,6	19,6
	25	9,4	15,0	18,8
	50	9,2	14,5	18,3
	100	8,9	14,1	17,8
50	1	9,2	14,5	18,3
	5	8,5	13,5	17,0
	10	8,3	13,1	16,5
	25	7,9	12,6	15,8
	50	7,7	12,3	15,4
	100	7,5	11,8	14,9
60	1	7,7	12,3	15,4
	5	7,2	11,3	14,3
	10	6,9	11,0	13,8
	25	6,7	10,6	13,3
	50	6,4	10,3	12,9
70	1	6,5	10,3	12,9
	5	6,0	9,5	12,0
	10	5,8	9,3	11,6
	25	5,0	8,0	10,1
	50	4,3	6,8	8,5
80	1	5,4	8,6	10,8
	5	4,8	7,6	9,6
	10	4,0	6,4	8,1
	25	3,3	5,2	6,5
95	1	3,8	6,1	7,7
	5	2,6	4,1	5,2
	10	2,2	3,4	4,3

CHARATERISTICS AND TECHNICAL DATA

- Long durability, thanks to it's resistance to environment, IT DOESN'T CORODE.
- Mpossibility of damage breaching caused by unpredictable currents
- Small pressure loss because of the smooth surface, which prevents sediments to get caught on the pipe wall, prevents turbulence and friction.
- They don't contain poisonous ingredients and are completely in accordance with standards of the flow for drinking water.
- Great thermal and sound insulator.
- Risk of condensation diminished to minimum, which is the characteristic of metal pipes.
- Energy savings.
- Al insertions implemented in fitting are made of MS bar guarantied chemical composition, which provides waterproofness of the joints.
- Excellent availability for welding. All parts can be connected with welding tool or electric muff.
- Very light, even 9 times lighter than steel which facilitates transortation and handleing.

PP-R pipes are used with installations for hot and cold water and sanitary water. They can completely step in place of the zinced pipes for use of the potable water even in cases of high concentration of calcium. They are also used in outflow of the potable liquids, irrigation in gardens, delivery of pressured air, vacuum installations, chemical industry with flow of diverse liquids, also with conduct of sea water and highly abrasive liquids. It is frequently used with radiant heating also with floor heating and air conditioning. Their small weight and high tolerance to vibration are good for appliance in trains, ships, trucks, trailers, in aggressive enviornment and unstable grounds.

Pipes with glass fibers

Diletation diminishing can be realized by using composite PP-R and PP-RCT pipes with glass fibers. They are 3 layer pipes which middle layer has coextruded glass fibers. PESTAN recommends that glass fiber pipes be used for hot potable water and heating applications. Standard PP-R and PP-RCT fittings can be used for joining pipes with glass fibers by welding method.

Installation of PP-R and PP-RCT pipe systems

Process of head-to-head welding of pipes and fittings is very quick and simple. Joint of pipe and fitting is safe and strong, ready for use after couple of minutes.

Drinking water belongs to the best controlled foodstuffs

Home pipe system for supplying sanitary water should not affect the quality of drinking water. The choice of sanitary pipe system and the quality of materials, which is used for their production, it is therefore of crucial importance. The system of pipes for drinking water of PP-R and PP-RCT is due to its physico-chemical feature environmental friendly and hygienic. The technical suitability of PP-R and PP-RCT is proven around the world for more than 20 years.

Pipe insulation

Pipe insulation is done to prevent dew and heat loss. PP-R pipes have a relatively low coefficient of thermal conductivity (0.24 W/mK), much lower than steel pipe, which allows significant energy savings. According to coefficient thermal conductivity, minimum insulation thickness is prescribed. When transporting cold liquids condensation may be possible ("sweating tube "), and is therefore desirable to insulate the pipe. Dew happens because of the differences between temperatures of transported fluid and ambient temperature.

INSTALLER BENEFITS

Air testing convenient
With their remarkable characteristics, pipes made by Peštan successfully undergo the pressure test. Beside air pressure, the system can be tested using water air or water mix. Being very convenient, PEŠTAN pipes save time and prevent possible mess in case of a leak during the test.

Long-lasting material
PP-R and PP-RCT is both chemically and physically durable material which proves to be unbreakable in cases of incidental damage.

Compatible piping system
Due to the great compatibility of pipes made by Peštan which provides a wide range of edge connections and most advanced PP-R and PP-RCT, connecting systems and equipment are easily and quickly installed on safe way.

Time-saving fusion
Pipes and fittings made by Peštan are assembled with heat fusion and, as mentioned earlier, heat fusion is a process used to join pipes and fittings together by heating the materials and inserting them together which results in a perfect bond every time. It can save up to 50% of labor time compared to traditional welding and soldering.

Inflexible hanging pipe
Inflexible and rigid on their hangers, pipes made by Peštan appear to be clean and conventional with elbows and tees. That is why an installer can assemble more pipes while the final product is left to a craftsman.

Consistent outcomes
Using of PP-R and PP-RCT and heat fusion resulted in consistency and reliability of the piping system. The whole system can work without a single leak anywhere.

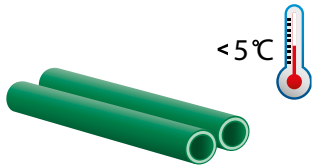
Expansion control
There is no need for additional expansion control since linear expansion is reduced by the fiber layer. The pipe itself absorbs its own stresses when fixed or buried so the expansion loops can be in use for longer period of time.

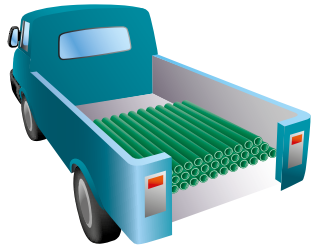
Flexible bonds and extent
Heat fusion bonds share the same properties with the pipes and fittings. This means that an assembled pipe is flexible enough to be prefabricated and moved without risking joints to crack or leak. Such an advantage also contributes to pipe protection from seismic activity but also gives the pipes even wider field of application.

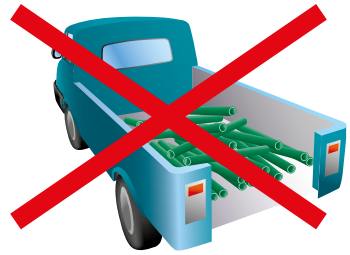
TRANSPORT AND STORAGE

When storing PP-R pipes, make sure that they are separate from areas where solvents, adhesives, paint and similar products.

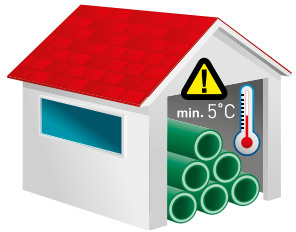
If the area where the tube occupied by moderate heating to 50 ° C, it is necessary that the distance between the tube and the heating body, of at least 1m. Storage should be chosen so that the pipe is always placed against it over the entire surface. One should avoid bending in storage and in transit. During transport pipes are not allowed to lay on the flat, truck or deck. Also, the pipes must be protected from mechanical damage and provided in a way that they are not exposed to dirt, solvents or direct heat.

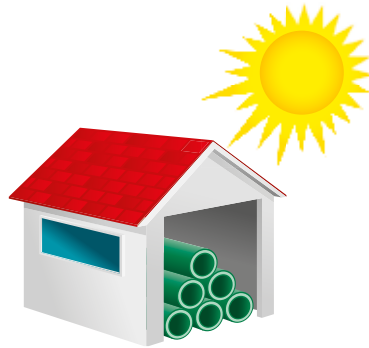


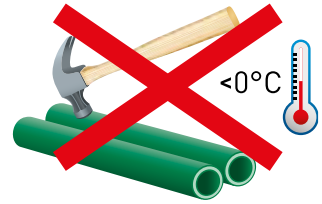


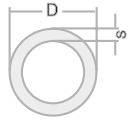
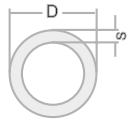
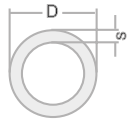


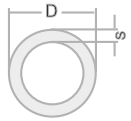
- Fluidtherm tubes can be stored at a temperature of at least 50 °C.
- PP-R pipes should be protected from direct UV radiation
- Storage PP-R pipe
- Pipes at low temperatures become fragile
- Right and wrong transporting PP-R pipe







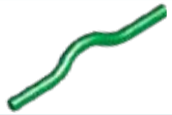
ITEM DESCRIPTION	PICTURE	SDR	CODE			OD, MM	S, MM	DINN, MM
MECHANICAL FIBER PIPE PP-RCT / PP-RCT-FG FIBER COMPOSITE LAYER/PP-RCT								
		SDR 9	10000660			32	3,6	24,8
			10000661			40	4,5	31
			10000662			50	5,6	38,8
			10000663			63	7,1	48,8
			10000664			75	8,4	58,2
			10000665			90	10,1	69,8
			10000666			110	12,3	85,4
			10000667			125	14	97
FIBER PIPE PP-R/P-PR-FG/PP-R			**GREEN**	**WHITE**	**GRAY**			
		SDR 6 [PN25]	10000720	10010720	10020720	20	3,4	13,2
			10000721	10010721	10020721	25	4,2	16,6
			10000722	10010722	10020722	32	5,4	21,2
			10000723	10010723	10020723	40	6,7	26,6
			10000724	10010724	10020724	50	8,3	33,4
			10000725	10010725	10020725	63	10,5	42
			10000726	10010726	10020726	75	12,5	50
			10000727	10010727	10020727	90	15	60
			10000728	10010728	10020728	110	18,3	73,4
			10000729	10010729	10020729	125	20,8	83,4
		SDR 7.4 [PN20]	10000700	10010710	10020700	20	2,8	14,4
			10000701	10010711	10020701	25	3,5	18
			10000702	10010712	10020702	32	4,4	23,2
			10000703	10010703	10020703	40	5,5	29
			10000704	10010704	10020704	50	6,9	36,2
			10000705	10010705	10020705	63	8,6	45,8
			10000706	10010706	10020706	75	10,3	54,4
			10000707	10010707	10020707	90	12,3	65,4
			10000708	10010708	10020708	110	15,1	79,8
			10000709	10010709	10020809	125	17,1	90,8
		SDR11 [PN10]	10000690	10010690	10020690	20	1,9	16,2
			10000691	10010691	10020691	25	2,3	20,4
			10000692	10010692	10020692	32	2,9	26,2
			10000693	10010693	10020693	40	3,7	32,6
			10000694	10010694	10020694	50	4,6	40,8
			10000695	10010695	10020695	63	5,8	51,4
			10000696	10010696	10020696	75	6,8	61,4
			10000697	10010697	10020697	90	8,2	73,6
			10000698	10010698	10020698	110	10	90
			10000699	10010699	10020699	125	11,4	102,2
PURPLE PIPE PP-R								
		SDR 7.4	10000740			20	2,8	14,4
			10000741			25	3,5	18
		SDR 11	10000750			32	2,9	26,2
			10000751			40	3,7	32,6
			10000752			50	4,6	40,8
			10000753			63	5,8	51,4
			10000754			75	6,8	61,4
			10000755			90	8,2	73,6
			10000756			110	10	90
			10000757			125	11,4	102,2

ITEM DESCRIPTION	PICTURE	SDR	CODE	OD, MM	S, MM	DINN, MM
FLUIDTHERM PPR PIPE [PP-R]						
		SDR 6 [PN20]	10000220	16	2,7	10,6
			10000230	20	3,4	13,2
			10000240	25	4,2	16,6
			10000250	32	5,4	21,2
			10000260	40	6,7	26,6
			10000270	50	8,3	33,4
			10000280	63	10,5	42
			10000290	75	12,5	50
			10000300	90	15	60
			10000310	110	18,3	73,4
			10000315	125	20,8	83,4
		SDR 7.4 [PN16]	10000120	16	2,2	11,6
			10000130	20	2,8	14,4
			10000140	25	3,5	18
			10000150	32	4,4	23,2
			10000160	40	5,5	29
			10000170	50	6,9	36,2
			10000180	63	8,6	45,8
			10000190	75	10,3	54,4
			10000200	90	12,3	65,4
			10000210	110	15,1	79,8
			10000215	125	17,1	90,8
		SDR 11 [PN10]	10000020	16	1,8	12,4
			10000030	20	1,9	16,2
			10000040	25	2,3	20,4
			10000050	32	2,9	26,2
			10000060	40	3,7	32,6
			10000070	50	4,6	40,8
			10000080	63	5,8	51,4
			10000090	75	6,8	61,4
			10000100	90	8,2	73,6
			10000110	110	10	90
			10000115	125	11,4	102,2
PIPE W. ALUMINIUM PPR/AL/PPR						
		SDR 6	10000540	20	3,4	13,2
			10000550	25	4,2	16,6
			10000560	32	5,4	21,2
			10000570	40	6,7	26,6
			10000580	50	8,3	33,4
			10000590	63	10,5	42

ITEM DESCRIPTION	PICTURE	CODE	ND-OD
COUPLING			
		10001601	1/2"-20 mm
		10001602	3/4" -25 mm
		10001603	1"-32 mm
		10001604	1¼"-40 mm
		10001605	1½"-50 mm
		10001606	2"-63 mm
		10001607	2½"-75 mm
		10001608	3"-90 mm
		10001610	4" - 125 mm
REDUCER			
		10002200	3/4" to 1/2"-25 to 20 mm
		10002205	1" to 1/2"-32 to 20 mm
		10002206	1" to 3/4"-32 to 25 mm
		10002210	1¼" to 1/2"-40 to 20 mm
		10002211	1¼" to 3/4"-40 to 25 mm
		10002212	1¼" to 1"-40 to 32 mm
		10002221	1½" to 3/4"-50 to 25 mm
		10002222	1½" to 1"-50 to 32 mm
		10002223	1½" to 1¼"-50 to 40 mm
		10002240	2" to 1/2"-63 to 20 mm
		10002241	2" to 3/4"-63 to 25 mm
		10002242	2" to 1"-63 to 32 mm
		10002243	2" to 1¼"-63 to 40 mm
		10002244	2" to 1½"-63 to 50 mm
		10002260	2½" to 1¼"-75 to 40 mm
		10002261	2½" to 1½"-75 to 50 mm
		10002262	2½" to 2"-75 to 63 mm
		10002263	2½" to 1/2"-75 to 20 mm
		10002264	2½" to 3/4"-75 to 25 mm
		10002265	2½" to 1"-75 to 32 mm
		10002280	3" to 1½"-90 to 50 mm
		10002281	3" to 2"-90 to 63 mm
		10002282	3" to 2½"-90 to 75 mm
		10002320	4" to 2½"-125 to 75 mm
		10002291	3 ½" to 2"-110 to 63 mm
		10002293	3 ½" to 3"-110 to 90 mm
		10002321	4" to 3"-125 to 90 mm
ELBOW 90°			
		10001020	1/2"-20 mm
		10001021	3/4" -25 mm
		10001022	1"-32 mm
		10001023	1¼"-40 mm
		10001024	1½"-50 mm
		10001025	2"-63 mm
		10001026	2½"-75 mm
		10001027	3"-90 mm
		10001028	3½" - 110mm
		10001029	4"-125 mm

ITEM DESCRIPTION	PICTURE	CODE	ND-OD
ELBOW 45°			
		10001000	1/2"-20 mm
		10001001	3/4" -25 mm
		10001002	1"-32 mm
		10001003	1¼"-40 mm
		10001004	1½"-50 mm
		10001005	2"-63 mm
		10001006	2½"-75 mm
		10001007	3"-90 mm
		10001009	4"-125 mm
TEE			
		10001900	1/2"-20 mm
		10001901	3/4" -25 mm
		10001902	1"-32 mm
		10001903	1¼"-40 mm
		10001904	1½"-50 mm
		10001905	2"-63 mm
		10001906	2½"-75 mm
		10001907	3"-90 mm
		10001908	3 1/2" - 110mm
		10001909	4"-125 mm
REDUCING TEE			
		10002160	1/2" x 1/2" x 3/4" - 20 x 20 x 25 mm
		10002161	3/4" x 3/4" x 1/2" - 25 x 25 x 20 mm
		10002162	1" x 1/2" x 1/2" -- 32 x 20 x 20 mm
		10002167	1" x 1" x 1/2"-32 x 32 x 20 mm
		10002163	1" x 3/4" x 3/4" - 32 x 25 x 25 mm
		10002168	1" x 1" x 3/4"-32 x 32 x 25 mm
		10002169	1¼" x 1¼" x 1/2"-40 x 40 x 20 mm
		10002170	1¼" x 1¼" x 3/4"-40 x 40 x 25 mm
		10002171	1¼" x 1¼" x 1"-40 x 40 x 32 mm
		10002172	1½" x 1½" x 3/4"-50 x 50 x 25 mm
		10002173	1½" x 1½" x 1"-50 x 50 x 32 mm
		10002174	1½" x 1½" x 1¼"-50 x 50 x 40 mm
		10002175	2" x 2" x 3/4"- 63 x 63 x 25 mm
		10002176	2" x 2" x 1"-63 x 63 x 32 mm
		10002177	2" x 2" x 1¼"-63 x 63 x 40 mm
		10002178	2" x 2" x 1½"-63 x 63 x 50 mm
		10002330	2½" x 2½" x 3/4"-75 x 75 x 25mm
		10002331	2½" x 2½" x 1"-75 x 75 x 32 mm
		10002332	2½" x 2½" x 1¼"-75 x 75 x 40 mm
		10002333	2½" x 2½" x 1½"-75 x 75 x 50 mm
		10002334	2½" x 2½" x 2"-75 x 75 x 63 mm
		10002335	3" x 3" x 1"-90 x 90 x 32 mm
		10002336	3" x 3" x 1¼" -90 x 90 x 40 mm
		10002337	3" x 3" x 1½"- 90 x 90 x 50 mm
		10002338	3" x 3" x 2"-90 x 90 x 63 mm
		10002339	3" x 3" x 2½"-90 x 90 x 75 mm
		10002345	4" x 4" x 2½"-125 x 125 x 75 mm
		10002346	4" x 4" x 3"-125 x 125 x 90 mm

ITEM DESCRIPTION	PICTURE	CODE	ND-OD
STREET 90° (FEMALE/MALE)			
		10001550	1/2" - 20 mm
END CAP			
		10002400	1/2"-20 mm
		10002401	3/4" -25 mm
		10002402	1"-32 mm
		10002403	1¼"-40 mm
		10002404	1½"-50 mm
		10002405	2"-63 mm
		10002406	2½"-75 mm
		10002407	3"-90 mm
		10002409	4"-125 mm
SADDLE			
		10002500	1¼" x 1/2" - 40 x 20 mm
		10002501	1¼" x 3/4" - 40 x 25 mm
		10002502	1½" x 1/2" - 50 x 20 mm
		10002503	1½" x 3/4" - 50 x 25 mm
		10002504	2" x 1/2" - 63 x 20 mm
		10002505	2" x 3/4" - 63 x 25 mm
		10002506	2" x 1" - 63 x 32 mm
		10002507	2½" x 1/2" - 75 x 20 mm
		10002508	2½" x 3/4" - 75 x 25 mm
		10002509	2½" x 1" - 75 x 32 mm
		10002510	2½" x 1¼" - 75 x 40 mm
		10002511	3" x 1/2" - 90 x 20 mm
		10002512	3" x 3/4" - 90 x 25 mm
		10002513	3" x 1" - 90 x 32 mm
		10002514	3" x 1¼" - 90 x 40 mm
		10002515	4" x 1/2" - 125 x 20 mm
		10002516	4" x 3/4" - 125 x 25 mm
		10002517	4" x 1" - 125 x 32 mm
		10002518	4" x 1¼" - 125 x 40 mm
		10002519	4" x 1½" - 125 x 50 mm
		10002520	4" x 2" - 125 x 63 mm
CROSS TEE			
		10002150	(1/2" - 20 mm) x (1/2" - 20 mm) x (1/2" - 20 mm) x (1/2" - 20 mm)
		10002151	(3/4" - 25 mm) x (3/4" - 25 mm) x (3/4" - 25 mm) x (3/4" - 25 mm)

ITEM DESCRIPTION	PICTURE	CODE	ND-OD
3 WAY ELBOW			
		10001050	(1/2" - 20 mm) x (1/2" - 20 mm) x (1/2" - 20 mm)
		10001051	(3/4" - 25 mm) x (3/4" - 25 mm) x (3/4" - 25 mm)
CROSS OVER (INJECTED)			
		10003050	(1/2" - 20 mm) x (1/2" - 20 mm)
		10003051	(3/4" - 25 mm) x (3/4" - 25 mm)
		10003052	(1" - 32 mm) x (1" - 32 mm)
CROSS OVER			
		10003000	1/2'' - 20mm
		10003001	3/4" - 25mm
		10003002	1''-32mm
CROSS OVER SHORT			
		10003053	1/2'' - 20mm
		10003054	3/4" - 25mm
ADJUSTER			
		10003100	1/2'' - 20mm
DRAINING VRANCH			
		10003730	1/2'' - 20 mm
		10003731	3/4'' - 25 mm
SCREW DOWN STOP GLOBE VALVE			
		10003300	1/2'' - 20mm
		10003301	3/4" - 25mm
		10003302	1'' - 32 mm
CONCEALED VALVE (CHROMIUM PLATED)			
		10003200	1/2'' - 20mm
		10003201	3/4" - 25mm
		10003202	1'' - 32 mm

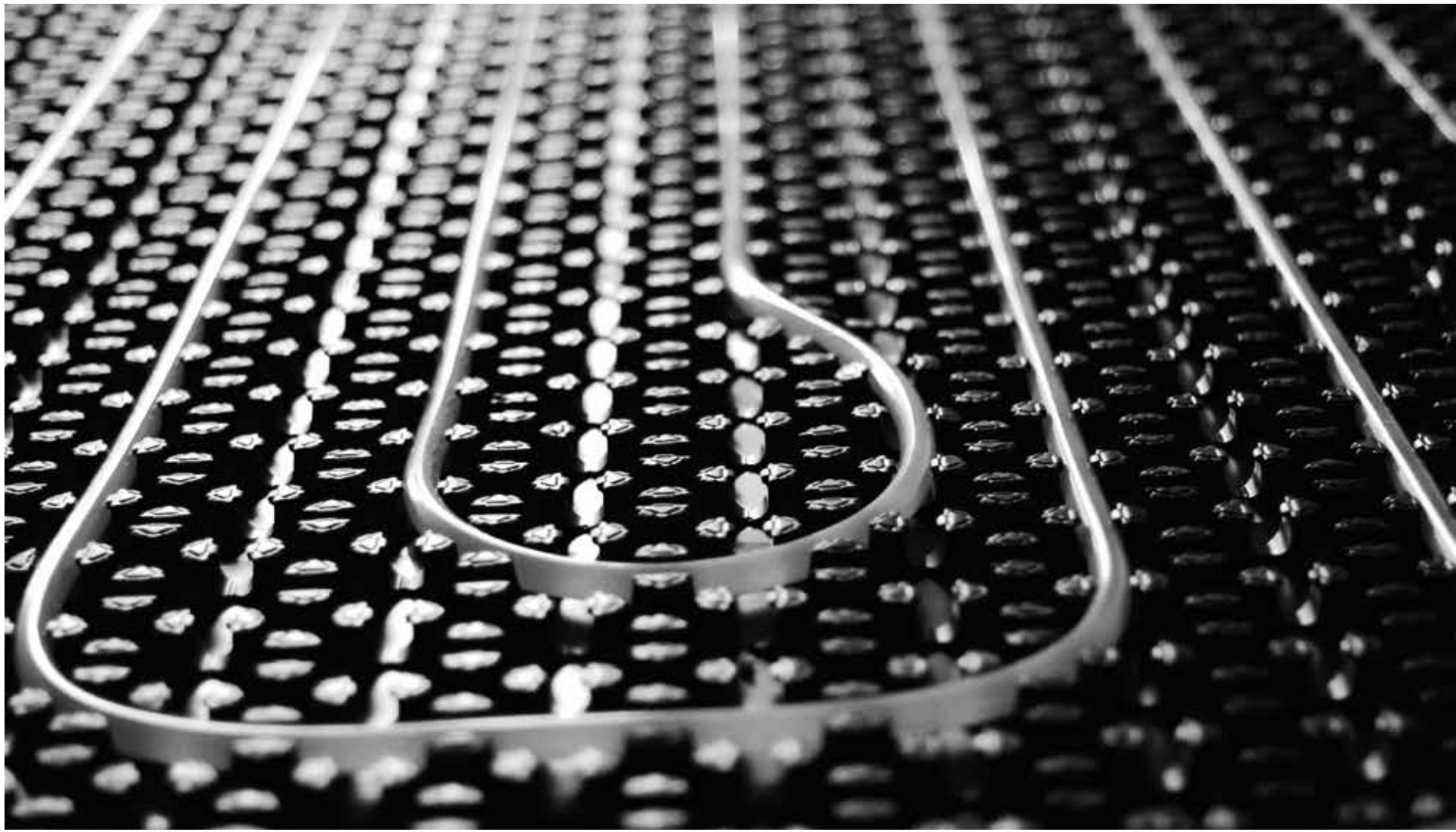
ITEM DESCRIPTION	PICTURE	CODE	ND-OD
VALVE WITH FIXING SCREW (CAP)			
		10005400	1/2"-20mm
		10005401	3/4"-25mm
		10005402	1" - 32 mm
HAND KNOB			
		10003800	1/2"-20mm
		10003801	3/4"-25mm
FLANGE ADAPTER			
		10004002	1½" - 50 mm
		10004003	2" - 63 mm
		10004004	2½" - 75 mm
		10004005	3" - 90 mm
		10004007	4" - 125 mm (nije za kugla ventil)
FLANGE RINGS			
		TBA	ANSI metalna prirubnica 1½" - 50 mm
		TBA	ANSI metalna prirubnica 2" - 63 mm
		TBA	ANSI metalna prirubnica 2½" - 75 mm
		TBA	ANSI metalna prirubnica 3" - 90 mm
		TBA	ANSI metalna prirubnica 4" - 125 mm (nije za kugla ventil)
METAL PIPE CLAMP WITH RUBBER RING			
		10005050	1/2"-20 mm
		10005051	3/4" -25 mm
		10005052	1"-32 mm
		10005053	1¼"-40 mm
		10005054	1½"-50 mm
		10005055	2"-63 mm
		10005056	2½"-75 mm
		10005057	3"-90 mm
		10005059	4" - 125 mm
MARKING GUIDE			
		10005001	
REPAIR PLUG			
		10005000	
PAD			
		10001300	

ITEM DESCRIPTION	PICTURE	CODE	ND-OD
LONG PLUG FOR PRESSURE			
		10003600	1/2" - 20 mm
		10003601	3/4" - 25 mm
SHORT PLUG FOR PRESSURE			
		10002450	1/2" - 20 mm
		10002451	3/4" - 25 mm
CLAMP			
		10002900	1/2" - 20mm
		10002901	3/4" - 25mm
		10002902	1"-32mm
		10002903	1¼"- 40 mm
ELBOW MASK			
		10001350	
PLASTIC - PLASTIC NUT CONNECTOR			
		10002600	1/2" - 20mm
		10002601	3/4" - 25 mm
ADAPTOR METAL PLASTIC MALE			
		10002650	1/2" - 20mm
		10002651	3/4" - 25 mm
ADAPTOR METAL PLASTIC FEMALE			
		10002630	1/2" - 20mm
		10002631	3/4" - 25 mm
"UNIVERSAL" ADAPTOR METAL-PLASTIC MALE			
		10002690	1/2" - 20mm
"UNIVERSAL" ADAPTOR METAL-PLASTIC FEMALE			
		10002670	1/2" - 20mm

ITEM DESCRIPTION	PICTURE	CODE DIN EN 10226	CODE NPT	ND-OD
TRANSITION PIECE (ROUND FEMALE THREAD)				
		10001651	18000450	(1/2" - 20 mm) x 1/2"Female
		10001800	18000451	(1/2" - 20 mm) x 3/4"Female
		10001801	18000452	(3/4" - 25 mm) x 1/2"Female
		10001652	18000453	(3/4" - 25 mm) x 3/4"Female
		10001802	18000454	(1" - 32 mm) x 3/4"Female
TRANSITION PIECE (W/ROUND MALE THREAD)				
		10001701	18000530	(1/2" - 20 mm) x 1/2" Male
		10001851	18000531	(3/4" - 25 mm) x 1/2" Male
		10001702	18000532	(3/4" - 25 mm) x 3/4" Male
		10001852	18000533	(1" - 32 mm) x 3/4" Male
TRANSITION PIECE (W/HEX FEMALE THREAD)				
		10001660	18000500	(1/2" - 20 mm) x 1/2"Female HEX
		10001803	18000501	(3/4" - 25 mm) x 1/2"Female HEX
		10001661	18000502	(3/4" - 25 mm) x 3/4"Female HEX
		10001804	18000503	(1" - 32 mm) x 3/4"Female HEX
		10001662	18000504	(1" - 32 mm) x 1" Female HEX
		10001805	18000505	(1¼" - 40 mm) x 1" Female HEX
		10001663	18000506	(1¼" - 40 mm) x 1¼"Female HEX
		10001664	18000507	(1½" - 50 mm) x 1½"Female HEX
		10001665	18000508	(2" - 63 mm) x 2" Female HEX
TRANSITION PIECE (W/ HEX MALE THREAD)				
		10001710	18000550	(1/2" - 20 mm) x 1/2" Male HEX
		10001711	18000551	(3/4" - 25 mm) x 3/4" Male HEX
		10001712	18000552	(1"-32 mm) x 1" Male HEX
		10001713	18000554	(1¼"- 40 mm) x 1¼" Male HEX
		10001714	18000555	(1½"- 50 mm) x 1½" Male HEX
		10001715	18000556	(2" - 63 mm) x 2" Male HEX
TRANSITION ELBOW (W/FEMALE THREAD)				
		10001100	18000570	(1/2" - 20 mm) x 1/2" Female
		10001101	18000571	(3/4" - 25 mm) x 3/4" Female
		10001451	18000572	(3/4" - 25 mm) x 3/4" Female
		10001102	18000574	(1" - 32 mm) x 1" Female
TRANSITION ELBOW (W/MALE THREAD)				
		10001150	18000590	(1/2" - 20 mm) x 1/2" Male
		10001151	18000591	(3/4" - 25 mm) x 3/4" Male
		10001152	18000592	(1" - 32 mm) x 1" Male
TRANSITION TEE (W/FEMALE TREAD)				
		10001930	18000630	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"Female
		10002091	18000631	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"Female
		10001931	18000632	(3/4" - 25 mm) x (3/4" - 25 mm) x 3/4"Female

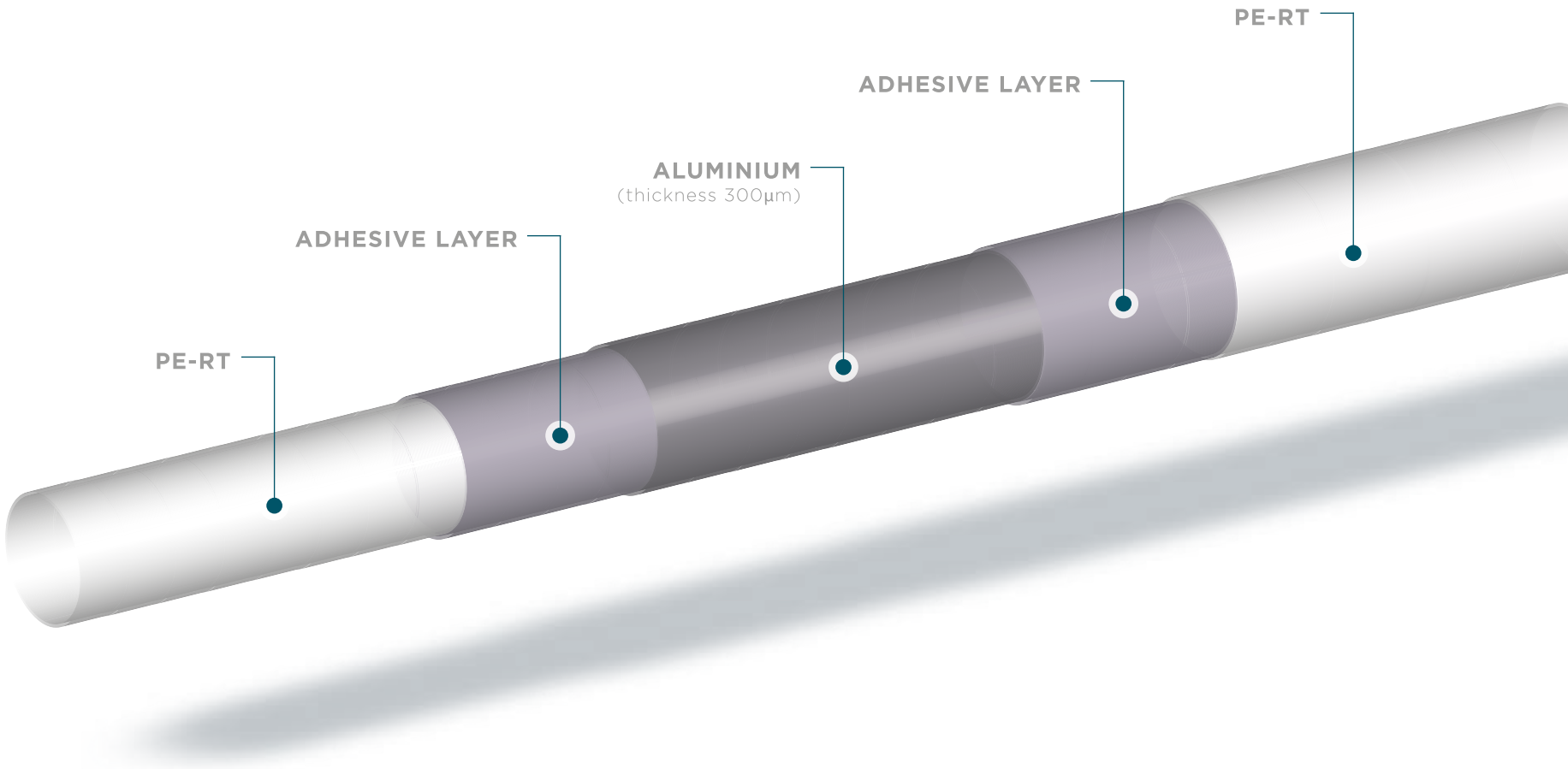
ITEM DESCRIPTION	PICTURE	CODE DIN EN 10226	CODE NPT	ND-OD
SADDLE TRANSITION PIECE (W/FEMALE THREAD)				
		10002552	18000650	(1½" / 3/4" - 50 / 25 mm) x 1/2"Female
		10002554	18000651	(2" / 3/4" - 63 / 25 mm) x 1/2"Female
		10002556	18000652	(2½" / 3/4" - 75 / 25 mm) x 1/2"Female
		10002559	18000653	(3" / 3/4" - 90 / 25 mm) x 1/2"Female
		10002562	18000654	(4" / 3/4" - 125 / 25 mm) x 1/2"Female
		10002553	18000655	(1½" / 3/4" - 50 / 25 mm) x 3/4"Female
		10002555	18000656	(2" / 3/4" - 63 / 25 mm) x 3/4"Female
		10002557	18000657	(2½" / 3/4" - 75 / 25 mm) x 3/4"Female
		10002560	18000658	(3" / 3/4" - 90 / 25 mm) x 3/4"Female
		10002563	18000659	(4" / 3/4" - 125 / 25 mm) x 3/4"Female
SADDLE TRANSITION PIECE (W/MALE THREAD)				
		10002586	18000692	(2½" / 3/4" - 75 / 25 mm) x 1/2"Male HEX
		10002589	18000693	(3" / 3/4" - 90 / 25 mm) x 1/2"Male HEX
		10002592	18000694	(4" / 3/4" - 125 / 25 mm) x 1/2"Male HEX
		10002587	18000697	(2½" / 3/4" - 75 / 25 mm) x 3/4"Male HEX
		10002590	18000698	(3" / 3/4" - 90 / 25 mm) x 3/4"Male HEX
		10002593	18000699	(4" / 3/4" - 125 / 25 mm) x 3/4"Male HEX
BACK PLATE TRANSITION ELBOW (W/FEMALE THREAD)				
		10001202	18000400	(1/2" - 20 mm) x 1/2" Female
BACK PLATE TRANSITION ELBOW (FEMALE THREAD)				
		10001200	18000970	(1/2" - 20 mm) x 1/2" Female
		10001201	18000971	(1/2" - 20 mm) x 3/4" Female
BACK PLATE TRANSITION ELBOW (MALE THREAD)				
		10001250	18000990	(1/2" - 20 mm) x 1/2" Male NPT
		10001251	18000991	(1/2" - 20 mm) x 3/4" Male
TRANSITION ELBOW 90° FOR GYPSUM WALL MOUNTING				
		10001070	18000890	(1/2" - 20 mm) x 1/2" Female

ITEM DESCRIPTION	PICTURE	CODE DIN EN10226	CODE NPT	ND-OD
BACK PLATE TRANSITION TEE				
		10002180	18000830	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"
		10002190	18000831	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"
BALL VALVE				
		10003700	18000730	1/2" - 20 mm
		10003701	18000731	3/4" - 25 mm
		10003702	18000732	1" - 32 mm
		10003703	18000733	1¼" - 40 mm
		10003704	18000734	1½" - 50 mm
		10003705	18000735	2" - 63 mm
VALVE WITH TWO OUTLETS				
		10003750		1/2" - 20 mm
		10003751		3/4" - 25 mm
STOP VALVE BODY				
		10002350	18001030	(1/2"-20mm) x 1/2'
		10002351	18001031	(3/4"-25mm) x 3/4"
		10002352	18001032	(1"-32mm) x 1"
TRANSITION MOUNTAGER				
		10003500	18000770	1/2" - 20 mm



PERT-AL-PERT

Distribution of hot and cold water / Radiator connections / Underfloor heating



STRUCTURE OF PERT-AL PIPES

- Inner PE-RT layer
- Adhesive layer
- Aluminium
- Adhesive layer
- Outer layer made of PE-RT

PROPERTIES OF PERT-AL PIPES

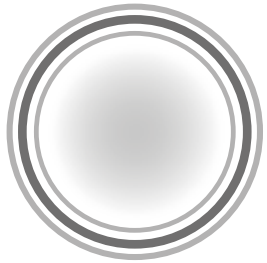
The pipe posses high resistance to temperature and pressue as well as dimensional stability impearbility to oxygen and low thermal expansion.

- The same system for all applications
- Lasting and tight connections
- 100 % oxygen barrier
- Low linear thermal expansion
- Time scale or oxidation will not occure
- Suitable for drinking water supply

CARACTERISTICS OF PERT-AL PIPES

- Good resistance at elevated temperatures
- Shape stability
- Butt - welding process
- Aluminium thickness is 300µm
- Coefficient of thermal expansion is 0.024mm/mK
- Pipes have been tested at 95°C at 3.9 MPa hydrostatic stress for 22h

CROSS SECTION OF PERT-AL PIPES

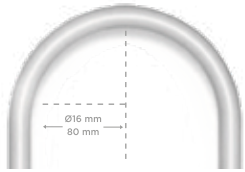


FIELD OF APPLICATION PERT-AL PIPES

- Hot and cold water distribution
- Radiator connections
- Underfloor heating

Available products PERT-AL pipes **Ø16, Ø20, Ø25, Ø32**

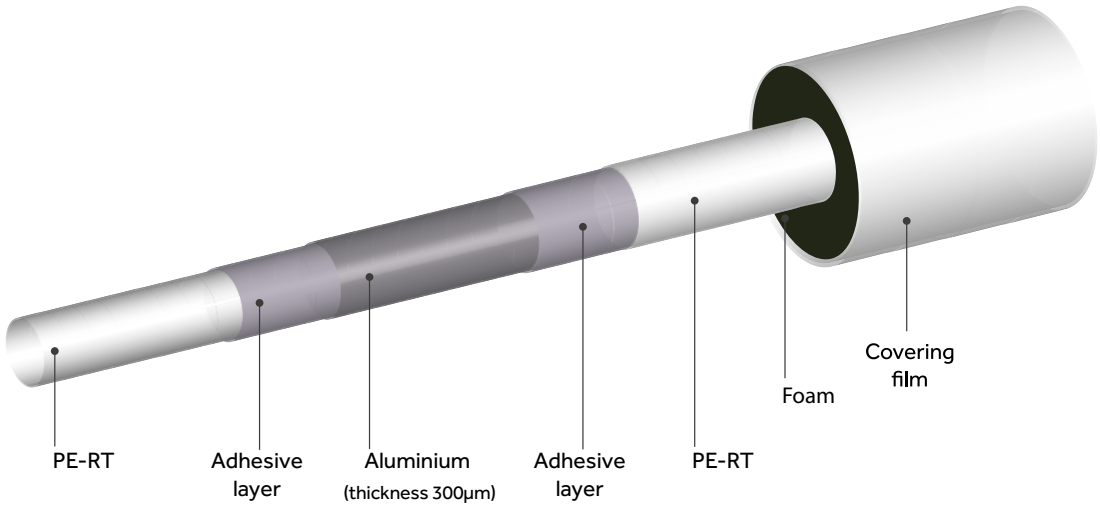
BENDING RADIUS OF
ALUPEX PIPES IS 5*OD



APPLICATION CLASS	T_D (°C)	TIME ON T_D (YEAR)	T_{max} (°C)	TIME ON T_{max} (GODINA)	T_{mal} °C	TIME ON T_{mal} (SATI)	FIELD OF APPLICATION	PERMISSIBLE OPERATING PRESSURE
1	60	49	80	19	51	00	Hot water (60 °C)	10 bar
2	70	49	80	19	51	00	Hot water (70 °C)	8 bar
4	20	2,5	70	2,51	00	100	Underfloor heating and low temperature radiators	8 bar
	+							
	40	20						
	+							
	60	2,5						
5	20	14	90	11	00	100	High temperature radiators	8 bar
	+							
	60	25						
	+							
	80	10						

PRE-INSULATED PERT-AL-PERT

- Hot and cold water transport
- Central heating (radiator connections)



Technical data:

Material: Neumreženi polietilen

Cell structure: Closed cells structure

Thermal conductivity of insulation: <0,040W/MK at 0C according to EN12667

Aerated water pass trough > according to EN13469

Insulation thickness: 24 ± 10% kg/m³ (ISO 845)

Insulation color: Grey

Insulation width: 6 ± 1 mm according to EN14313:2009+A1: 2013

Insulation work temperature up to: +85 °C.

Markings: Peštan, EPE Pipe 16/6, datum.

Available diameters: Ø16, Ø20, Ø25, Ø32

Package: 50 m rolls

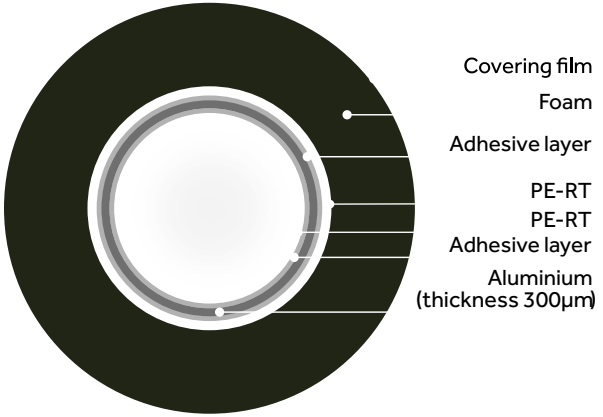
Pestan PERT – AL – PERT pipes are being used for radiating heating installations and potable water transportation. Depending on the client's wish they can be produced with or without protective isolation.

Isolation tube is made of expanded polyethylene foam of closed cells structure. It is meant for thermal insulation of pipe systems and complies with all the most important criteria for thermo-isolation of pipe systems by temperatures up to 85 °C.

Pestan pre-isolated PERT-AL-PERT consists of isolation tube and pipe.

Isolation tube is made of expanded polyethylene foam of grey color and doesn't contain CFC nor HCFC. Product must be stored in covered and dry area in it's original package.

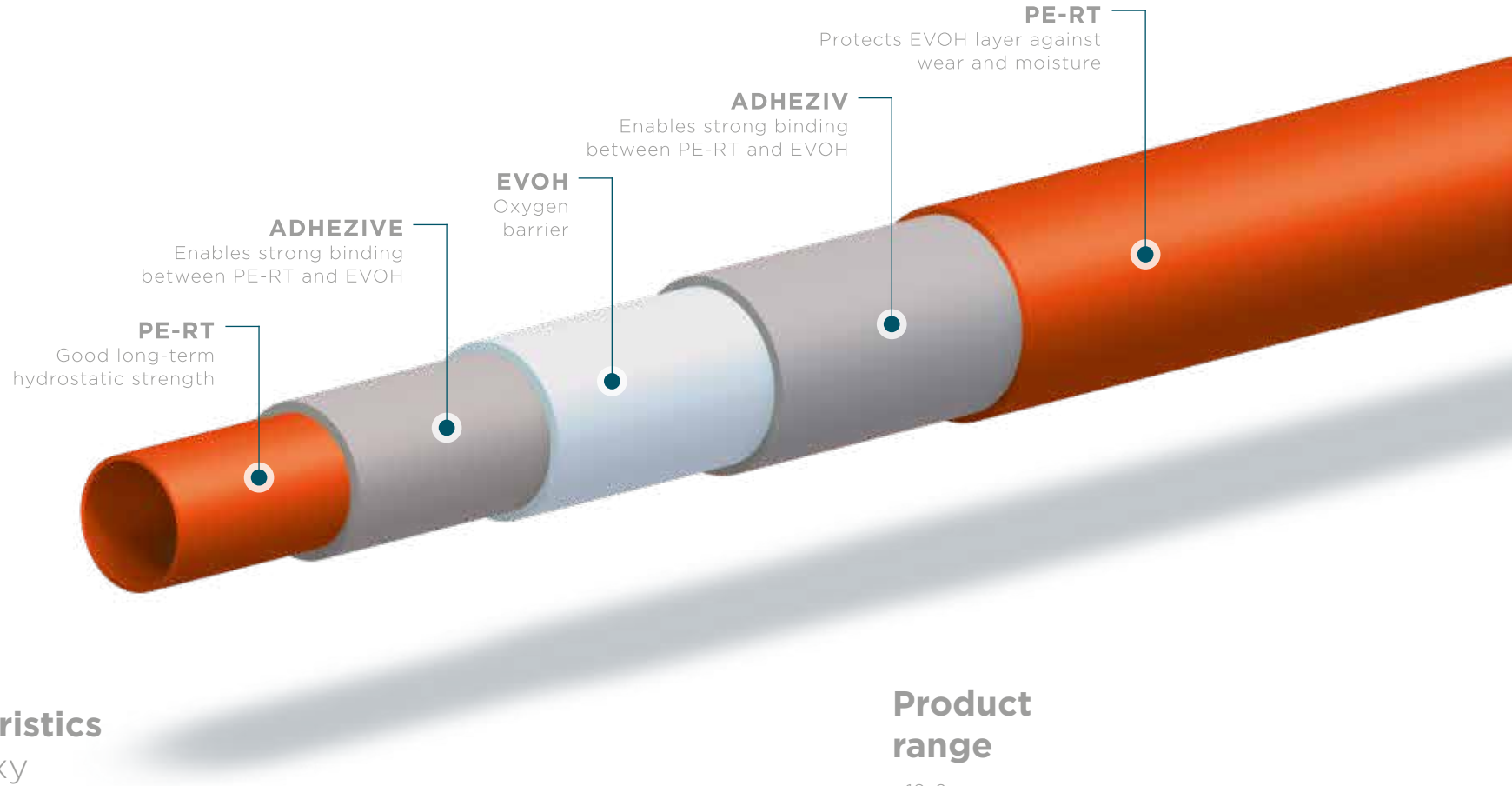
Pestan PERT-AL-PERT pipes are made of high temperature resistant polyethylene and it has the rest of the high quality components al in accordance with standard and SKZ certificate to support it.



PE-RT OXY

Five layer pipe with evoh oxygen barrier

PE-RT Oxy five layer pipe is made of polyethylene with raised temperature resistance (PE-RT Type II), which possess good long term hydrostatic strength. PE-RT Type II protect damage of EVOH layer from wear and moisture during transport and construction which ensure the full efficiency of EVOH oxygen barrier during the long period e.g. proposed service life of pipe. EVOH layer doesn't allow
diffusion of oxygen into the heating system therefore prevent corrosion of metal parts and devices .



Characteristics
PE-RT Oxy

Good long term hydrostatic strength without crosslinking. Fusible with all know welding methods.Very high stress crack resistance. High flexibility.Good creep behavior.It melts on temperatures above 140°C.It burns on the open flame and turn into CO_2 and water.

Application
PE-RT Oxy

Underfloor heating.For
hot and cold water distribution
Radiator connection

Product range

- 16x2mm
- 17x2mm
- 18x2mm
- 20x2mm
- 22x3mm
- 28x3mm
- 28x4mm

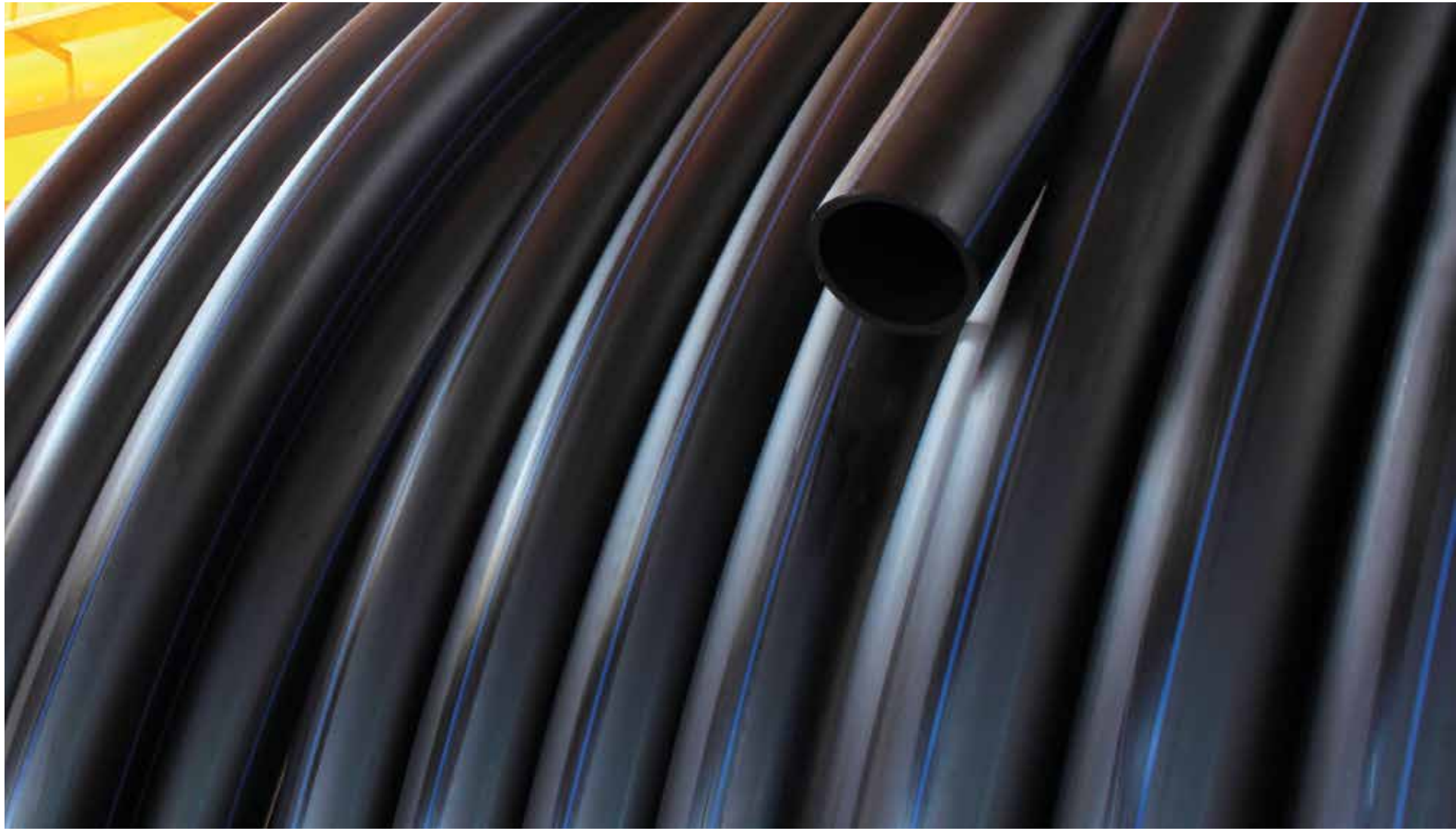
EVOH layer is in the middle of the pipe so it is fully protected from wear and moisture during transport and construction which ensure the full efficiency of EVOH oxygen barrier during the long period e.g. proposed service life of pipe.

Outer layer of pipe is made of EVOH. Therefore, EVOH is directlly exposed to wear and humidity. Oxygen impermeability will decrease with humidity increas.

APPLICATION CLASSES OF PESTAN PE-RT OXY PIPES (IN ACCORDANCE WITH ISO 22391)

APPLICATION CLASSES	TD (°C)	TIME ON TD (YEARS)	TMAX (°C)	TIME ON TMAX (YEARS)	TMAL (°C)	TIME ON TMAL (SATI)	FIELD OF APPLICATION	ALLOWED OPERATING PRESSURE
1	60	49	80	1	95	100	Hot water (60°C)	10 bar
2	70	49	80	1	95	100	Hot water (70°C)	8 bar
4	20 + 40 + 60	2,5 + 20 + 2,5	70	2,5	100	100	Underfloor heating and low temperature radiators	8 bar
5	20 + 60 + 80	14 + 25 + 10	90	1	100	100	High temperature radiators	8 bar

TD - projected temperature
Tmax - maximum temperature
Tmal -malfunction temperature



HDPE WATER PIPES

High Density Polyethylene water pipes PE-80 and PE-100

HDPE water pipes are being manufactured from original High Density Polyethylene PE 80 and PE 100. MRS- classification is MRS=8Mpa, respectively MRS=10Mpa, meaning that pipe will tolerate the same stress 50 years after.

PEŠTAN is using the best raw materials of well-known worldwide raw material suppliers. Quality of products is being monitoring in modern control quality department laboratory. Used materials have a proof of independent European laboratory for MRS classification. Safety coefficient of pipes is 1,25.

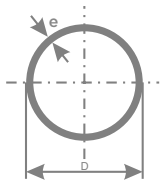
Pipes are completely in accordance with SRPS-EN 12201
Marking of pipes corresponds to European standards.

Advantages of PE-80 and PE-100 pipes

- Material is absolutely non-toxic and completely inert in contact with water
- Easy for transport and handling
- Easy connection by welding or with couplings
- Life time above 50 years
- No impact on water taste and smell
- Tartar free that helps reduction water flow during the time
- Very flexible and extremely resistant to vibration, seismic strikes and ground movements HDPE 80 pipes are more flexible
- Pipeline can follow configuration of the ground because of its elasticity that reduces couplings needed
- Bending radius is 20d
- Pipes are UV resistant and resistant to temperatures from -30 °C up to +60 °C
- High abrasion resistance
- Very low pressure losses since coefficient friction are 10 times less than with steel pipes
- Transition from PE80 to PE100 is being done with electric coupling

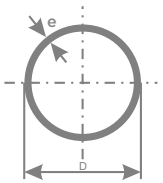
	SDR 6 (S-2,5) PN		SDR 7,4 (S-3,2) PN25		SDR 9 (S-4) PN20		SDR 11 (S-5) PN16		SDR 13,6 (S-6,3) PN12,5		SDR17 (S-8) PN10		SDR21 (S-10) PN8		SDR 26 (S-12,5) PN 5		SDR33 (S-16) PN5		SDR41 (S-20) PN4	
D (MM)	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M
16	3,0	0,15	2,3	0.1	2	0.09														
20	3,4	0,18	3,0	0,154	2.3	0.13	2	0.12												
25	4,2	0,278	3,5	0,240	3	0.21	2.3	0.17	2,0	0,151	1.9	0.14								
32	5,4	0,454	4,4	0,386	3.6	0.33	3	0.28	2,4	0,228	2	0.2								
40	6,7	0,701	5,5	0,600	4.5	0.51	3.7	0.43	3,0	0,354	2.4	0.29	2,0	0,251						
50	8,3	1,09	6,9	0,936	5.6	0.79	4.6	0.67	3,7	0,550	3	0.45	2,4	0,372	2,0	0,317				
63	10,5	1,73	8,6	1,47	7.1	1.26	5.8	1.06	4,7	0,869	3.8	0.72	3,0	0,586	2,5	0,482				
75	12,5	2,44	10,3	2,09	8.4	1.78	6.8	1.47	5,6	1,23	4.5	1.02	3,6	0,826	2,9	0,682				
90	15,0	3,51	12,3	3,0	10.1	2.56	8.2	2.14	6,7	1,76	5.4	1.46	4,3	1,19	3,5	0,987				
110	18,3	5,24	15,1	4,49	12.3	3.81	10	3.17	8,1	2,63	6.6	2.18	5,3	1,77	4,2	1,45				
125	20,8	6,75	17,1	5,77	14	4.3	11.4	4.11	9,2	3,39	7.4	2.78	6,0	2,28	4,8	1,86				
140	23,3	8,47	19,2	7,25	15.7	6.17	12.7	5.12	10,3	4,25	8.3	3.49	6,7	2,85	5,4	2,35				
160	26,6	11,0	21,9	9,44	17.9	8.04	14.6	6.73	11,8	5,54	9.5	4.55	7,7	3,73	6,2	3,08				
180	29,9	14,0	24,6	11,9	20.1	10.17	16.4	8.5	13,3	7,01	10.7	5.76	8,6	4,69	6,9	3,83				
200	33,2	17,2	27,4	14,8	22.4	12.58	18.2	10.49	14,7	8,65	11.9	7.11	9,6	5,81	7,7	4,74				
225	37,4	21,8	30,8	18,6	25.2	15.92	20.5	13.27	16,6	10,9	13.4	9.01	10,8	7,35	8,6	5,96				
250	41,5	27,0	34,2	23,0	27.9	19.57	22.7	16.33	18,4	13,5	14.8	11.05	11,9	9,03	9,6	7,38				
280	46,5	33,8	38,3	28,9	31.3	24.6	25.4	20.47	20,6	16,9	16.6	13.88	13,4	11,34	10,7	9,2				
315	52,3	42,7	43,1	36,5	35.2	31.11	28.6	25.9	23,2	21,4	18.7	17.57	15,0	14,3	12,1	11,7	9,7	9,7	7,7	7,60
355	59,0	54,3	48,5	46,3	39.7	39.5	32.2	32.88	26,1	27,2	21.1	22.36	16,9	18,2	13,6	14,8	10,9	12,1	8,7	9,6
400			54,7	58,8	44.7	50.12	36.3	41.75	29,4	35,2	23.7	28.27	19,1	23,6	15,3	19,1	12,3	15,7	9,8	12,5
450			61,5	74,4	50.3	62.7	40.9	52.87	33,1	44,6	26.7	35.81	21,5	29,8	17,2	24,2	13,8	19,9	11,0	15,8
500					55.8	77.3	45.4	65.24	36,8	55,0	29.7	44.25	23,9	36,9	19,1	29,9	15,3	24,4	12,3	19,4
560					62.5	97	50.8	80.8	41,2	69,0	33.2	55.43	26,7	46,2	21,4	37,5	17,2	30,7	13,7	24,4
630					71	127.6	57.2	102	46,3	87,3	37.4	70.21	30,0	52,9	24,1	47,4	19,3	38,7	15,4	30,8
710					80*	162*	64.5	130	52,2	110,8	42.1	89	33,9	74,2	27,2	60,2	21,8	49,2	17,4	39,0
800					90.1*	205.7*	72.7	170.4	58,8	140,7	47.4	113	38,1	94,0	30,6	76,3	24,5	62,4	19,6	49,5

*other sizes are available upon request



HDPE PE-100

	SDR 6 (S-2,5) PN 25		SDR 7,4 (S-3,2) PN 20		SDR 9 (S-4) PN 16		SDR 11 (S-5) PN 12,5		SDR 13,6 (S-6,3) PN 10		SDR 17 (S-8) PN 8		SDR 21 (S-10) PN 6		SDR 26 (S-12,5) PN 5		SDR 33 (S-16) PN 4		SDR 41 (S-20) PN 3,2	
D (MM)	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M
16	3,0	0,15	2,3	0,1	2,0	0,09	1,9	0,9	1,8	0,08										
20	3,4	0,18	3,0	0,16	2,3	0,13	2,0	0,12	1,9	0,11										
25	4,2	0,278	3,5	0,24	3,0	0,21	2,3	0,17	2,0	0,15										
32	5,4	0,454	4,4	0,38	3,6	0,32	3,0	0,28	2,4	0,23	2,0	0,2								
40	6,7	0,701	5,5	0,6	4,5	0,56	3,7	0,43	3,0	0,36	2,4	0,29	2,0	0,24						
50	8,3	1,09	6,9	0,93	5,6	0,78	4,6	0,67	3,7	0,54	3,0	0,45	2,4	0,37	2,0	0,317				
63	10,5	1,73	8,6	1,47	7,1	1,25	5,8	1,06	4,7	0,87	3,8	0,72	3,0	0,58	2,5	0,482				
75	12,5	2,44	10,3	2,09	8,4	1,76	6,8	1,47	5,6	1,23	4,5	1,02	3,6	0,82	2,9	0,682				
90	15,0	3,51	12,3	2,99	10,1	2,54	8,2	2,14	6,7	1,76	5,4	1,46	4,3	1,18	3,5	0,987				
110	18,3	5,24	15,1	4,48	12,3	3,77	10,0	3,17	8,1	2,61	6,6	2,18	5,3	1,77	4,2	1,45				
125	20,8	6,75	17,1	5,77	14	4,86	11,4	4,11	9,2	3,36	7,4	2,78	6,0	2,27	4,8	1,86				
140	23,3	8,47	19,2	7,25	15,7	6,11	12,7	5,12	10,3	4,21	8,3	3,49	6,7	2,83	5,4	2,35				
160	26,6	11,0	21,9	9,44	17,9	7,95	14,6	6,73	11,8	5,29	9,5	4,55	7,7	3,72	6,2	3,08				
180	29,9	14,0	24,6	11,9	20,1	10,1	16,4	8,5	13,3	6,74	10,7	5,76	8,6	4,67	6,9	3,83				
200	33,2	17,2	27,4	14,8	22,4	12,4	18,2	10,49	14,7	8,3	11,9	7,11	9,6	5,78	7,7	4,74				
225	37,4	21,8	30,8	18,7	25,2	15,6	20,5	13,27	16,6	10,6	13,4	9,01	10,8	7,30	8,6	5,96				
250	41,5	27,0	34,2	2,3	27,9	19,4	22,7	16,33	18,4	13,4	14,8	11,05	11,9	8,93	9,6	7,38				
280	46,5	33,8	38,3	28,9	31,3	25	25,4	20,47	20,6	16,7	16,6	13,88	13,4	11,3	10,7	9,2				
315	52,3	42,7	43,1	36,6	35,2	30,8	28,6	25,9	23,2	21,2	18,7	17,57	15,0	14,2	12,1	11,7	9,7	9,7	7,7	7,60
355	59,0	54,3	48,5	46,3	39,7	39,1	32,2	32,88	26,1	26,9	21,1	22,36	16,9	18,0	13,6	14,8	10,9	12,1	8,7	9,6
400					44,7	49,6	36,3	41,75	29,4	34,1	23,7	28,27	19,1	22,9	15,3	19,1	12,3	15,7	9,8	12,5
450							40,9	52,87	33,1	43,2	26,7	35,81	21,5	28,9	17,2	24,2	13,8	19,9	11,0	15,8
500							45,4	65,24	36,8	53,4	29,7	44,25	23,9	35,7	19,1	29,9	15,3	24,4	12,3	19,4
560							50,8	80,8	41,2	66,9	33,2	55,43	26,7	44,7	21,4	37,5	17,2	30,7	13,7	24,4
630							57,2	102	46,3	84,6	37,4	70,21	30,0	56,4	24,1	47,4	19,3	38,7	15,4	30,8
710							64,5	130	52,2	109	42,1	89	33,9	71,8	27,2	60,2	21,8	49,2	17,4	39,0
800							72,7	170,4	58,8	138	47,4	113	38,1	91,8	30,6	76,3	24,5	62,4	19,6	49,5



HDPE PE-80


E01 015 DVGW DW 8146CLO495 Ø450 PN10 PE100 SD

HDPE RC WATER PIPES

Water pipes made out of high density polyethylene PE 100 - RC

POLYETHYLENE PIPES - BASIC DATA

Polyethylene is the most famous product made of plastic in mass production. It is classic member of polyolefin material family. Chemical formula of PE is -(CH2 - CH2) which makes it ecologically compatible hydro-carbonic product. Pestan uses for it's production of PE pipes PE-HD, polyethylene of high density that is.

PE-HD pipes are of very high quality for which the tests under the norms DIN EN ISO 12162 and ISO/TR 9080 have proven their life time to be more than 100 years. Practical use also confirms the same, in application in gas, water or sewage networks. PE-HD pipeline systems, some of which are in function for over the 40 years, are characterized by great security in it's usage, low costs of maintenance.

Pestan is offering a wide range of PE pressure pipe systems, designed for potable water, gas (EN 1555 and EN 12201). Pestan pressure pipes are made of polyethylene HD: PE- 100.

Positive characteristics of polyethylene pipes are undoubtable. They are firm, resistant in touch with aggressive enviorment, resistant to corrosion and mechanical impacts. Advantage of PE pipes comparing them to others are: light weight, flexibility, very small pressure loss during friction, toughness in low temperatures, high chemical resistance, good connectivity and low price. PE has a great resistance to acids and greasy substances, insoluble in organic or non organic solvents in temperatures from 20C. They are very light and flexible so they offer economical application. Due to it's flexibility very long lines can be layed without using the fittings because pipes can follow the configuration of the grounds, like horizontal turnings of the pipeline routes. By applying PE pipes during the construction of the pipelines the share of fittings and armature in works is minimal. Also the length of pipes can be delivered by special requests for projects, that can diminish building expenses.

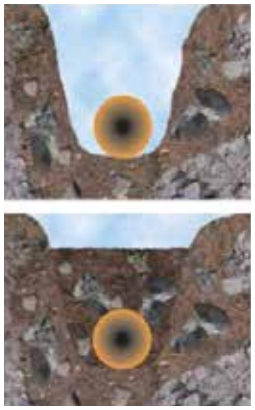
ADVANTAGES OF PE PIPES:

- High reliability and proven performance of functionality make PE a great choice, especially with buried systems.;
- Resistance to low temperatures - because of it's great expandability Pestan PE pipes do not make problems during application and works in low temperatures.;
- High resistance to impact - huge resistance to hydraulic impact, fraying and weariness eliminate the need for greater nominal pressures and decreases the values of investment;
- Comparations have shown that PE pies have greater resistance to abrasion then the other material, so PE is most wanted for this characteristics when transport of solutes is in question;
- Great hydraulic characteristics - smooth surface and resistance to turbulent flow which allows the flow to be greater;
- High chemical resistance - resistance to vast number of chemicals;
- Ability to get weld - Because of the good flexibility PE pipelines of greater longitude can be connected out of the trench and layed afterwards (which decreases the width of the trench) and welded connections will be strong and reliable.
- Wide spectre of application methods - PE pipes offer to the workers numerous solutions of integration , that can save time and money, for example it is prefered the installation without the trench or with very narrow trench.

HOW DOES THE NEED FOR REINFORCED AND ENHANCED HDPE PE - 100 APPEAR

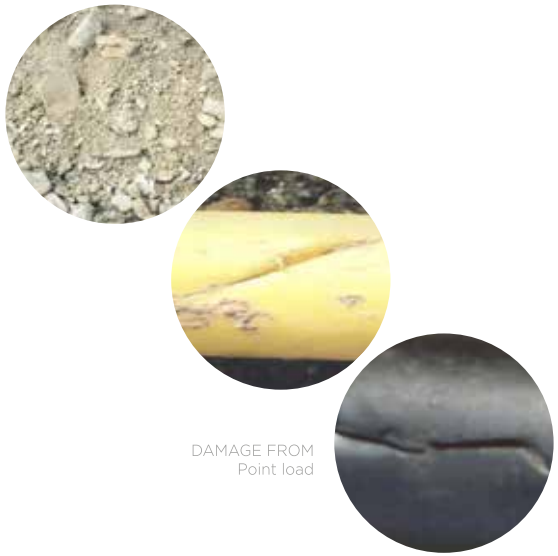
Sand coat around the pipe provides simple laying and protection from the rocks and stones. Conventional techniques of pipe placement are proven to be safe and reliable and they guarantee long term function of PE 80 and PE 100.

In last years the workers are more and more turning to new pipe laying techniques. Economic crysis and need for rationalization of spending made numerous producers question the price of making the sand coating for new pipelines and analyzing their necessity.
If it is possible put in the dirt dug out from the trench hole it can be used for filling instead of the sand.



Peštan RC - resistant to crack

Rejecting the sand coat can result in scratches on the surface of newly placed pipeline. (Permitted damage is 10% of wall thickness) Besides that it is possible that rocks do the pointy or linear pressure the outer wall for a longer period - along with workload such as working pressure , weight f the dirt, or traffic so it could make damage.
If the protective sand coat is rejected it is necessary that chosen pipeline is protected from superficial damage derived from scratches, especially from pointy pressure so it wouldn't make cracks during the strain. So the condition for applying the pipe like this is that the pipe is made of material who can handle the load.



DAMAGE FROM
Point load

New unconventional techniques have been developed, however, damaging pipes during these techniques can always be avoided which led to the evaluation of pointy load/pressure during the works. New and unconventional techniques are:

- Open trench without sand coating for decreasing spending.;
- Laying the pipeline by plowing;
- Directed drilling ;
- Relining, breaking the pipeline

Installation without digging an open trench, method of pipe laying - ploughing.

Installation without sand bedding

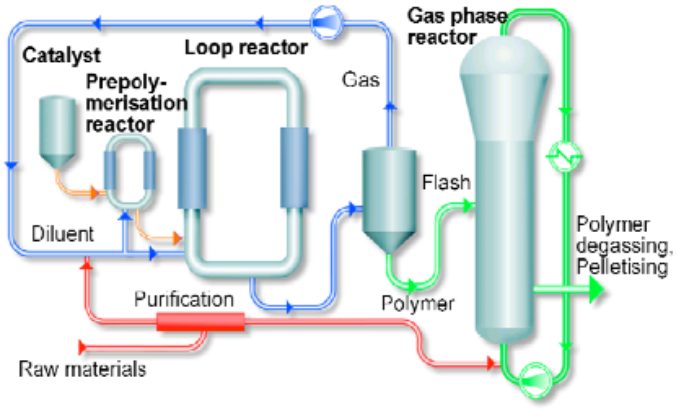
ADVANTAGES OF UNCONVENTIONAL METHODS ARE:

- Unconventional methods of installation bring significant decrease of spendings. Decrease of digging costs, bringing the sand and transport... It can all be decreased up to 50%;
- Problems of local inhabitants, decrease of incomes of local stores, redirection and slowed traffic represent indirect spendings of local community that don't occur with unconventional techniques.;
- Programs of efficient CO2 emission are necessary for solving the climate change problems in future. Emission of CO2 made from bringing the sand and putting away extra dirt from digging the site can be avoided with unconventional methods.
- Time means money and comfort. Swiftness in executing the works makes the difference in the eyes of local inhabitants. Projects too long can be often seen as troublesome and hard baring while swift projects with unconventional techniques can be done very fast and often unnoticed;
- In total unconventional techniques are good for the enviornment because of the decreased emission of CO2, landscape preservation, trees, land structures...

PE 100 RC

In manner of responding to challenges of unconventional methods in laying pipes PE 100, to empower resistance to pointy load and pressure and fast spreading of a crack, Borealis has developed new and advanced grain BorSafe HE3490-LS-H. This is the compound that Pestan uses in producing the PE 100 RC pipes.

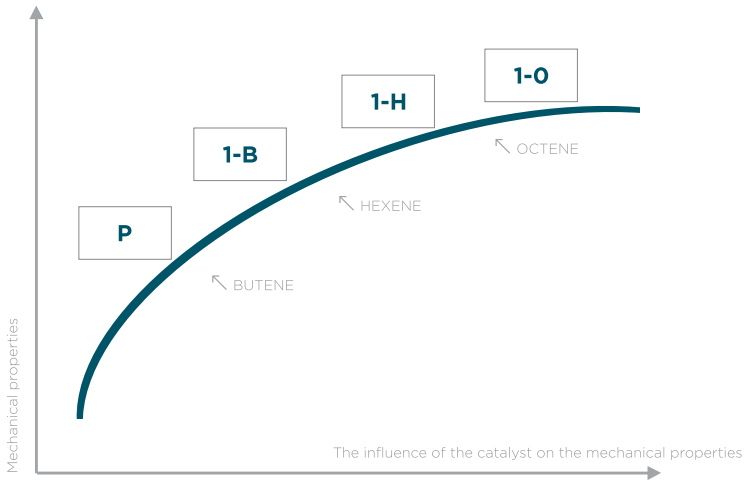
In business of pipes production the flexibility od two way or multi way process of producing PE material has provided a vast space for production of custom materials. The choice of catalysts, content and selective distribution in their content of polymer chains like the choice of parameters of process in every reactor affect the development of polymer structures and characteristics of final product. Two way process consists of two polymer reactors in row. In picture 1 it is shown the simplified view at basic principle of two way process. On illustration can be seen Borstar® drives with low pressure solution loop and gas phase reactor process. Catalyst enters the first reactor, where the polymer is formed as powder particles and through the polymerization of ethylene monomers and appropriate quantities of the comonomers, continuing in sequence mode in the second reactor.



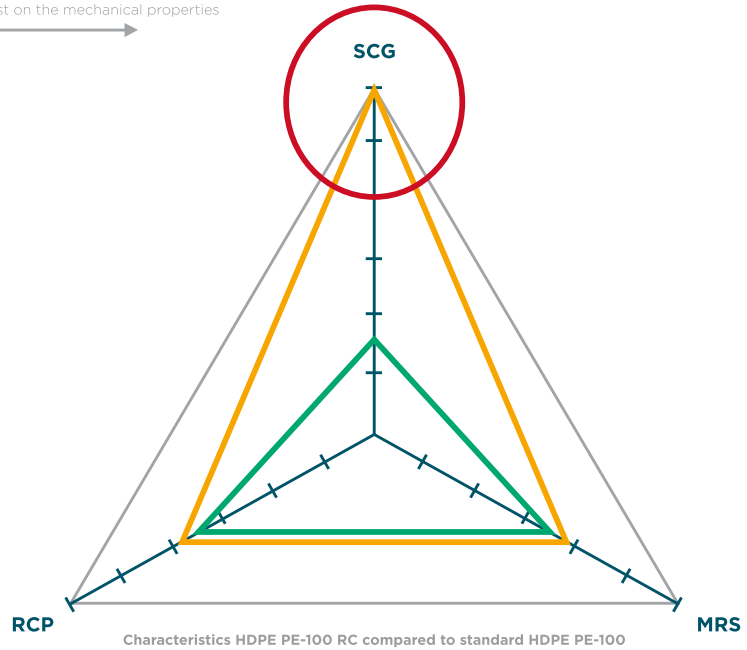
Bimodal polymerisation process Borealis Borstar technology

THE MAIN ADVANTAGES OF THE PROCESS ARE:

- Applies independent control of the reactor that operates distribution and comonomer adjust the molecular weight distribution (MVD);
- Blink between the reactors guarantee independent reaction mixtures. This may have produced a wide range of densities, from LLDPE to HDPE;
- Various comonomers can be incorporated in accordance with the needs, for example. butene and hexene;
- MFR2 of different reactors can vary within a wide range, from 0.1 to << more than 1000 g / 10 min;
- The process offers great flexibility as to the type of comonomer that can be incorporated in the correct regions of the polymer. For example, the use of the bimodal comonomer Hacken drives Borstar process results in polymers having an extremely high resistance slow crack growth.



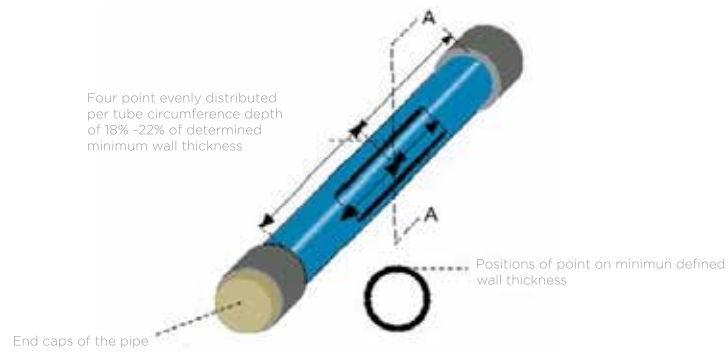
SCG
slow crack growth
RCP
rapid crack propagation
MRS
minimum reqired strength



Characteristics HDPE PE-100 RC compared to standard HDPE PE-100

ESTABLISHIN THE CHARACTERISTICS OF PE 100 RC PIPES

Therefore, PE-HDPE RC 100 is an enhanced HDPE PE-100, which has improved mechanical properties. Improved mechanical properties are the result of a shift catalyst in the process production. Namely, the catalyst for the production of HDPE PE-100 is a butene, and the catalyst is for the production of PE-100 HDPE RC hexene. The assays are described below, indicate the excellent properties RC PE 100 tubing. NPT - notch pipe test, indicating the resistance tube to the recesses that may arise in the trench due exposure pipe stone or the rest of the old pipeline. PLT - point load test demonstrates thinkable tube to point loading, simulating the load that occurs when the tube. Functioning exposed stone walls or a longer period. FNCT - full notch Creep test is the test of raw materials that are produced by PE 100 RC pipe.



Section AA

- **Notch test**

is the test method that is used in accordance with EN 12201, EN 1555, ISO4427 and ISO4437, formeasuring the resistance to slow crack growth. Notch test is performed according to ISO 13478 by what a piece of pipe defined cuts and then be tested by releasing water temperature 80 ° C under a pressure of 9.2 bar (SDR 11, PE 100) to the moment of cracking.
The results of this test indicate excellent properties HDPE PE 100 RC pipes. The requirements of the standard is more than 500 h, time of cracking of the standard HDPE PE-100 pipe is 1000-2000 h, and at this time in HDPE PE-100 pipe RC increased to 8670 h (one day), which is 4,3 more!

EN1555 / EN12201, ISO 4427 / ISO 4437: >500h

Tipičan HDPE PE-100 1000 – 2000 h

BorSafe HE3490-LS-H: > godinu dana (8760 h)

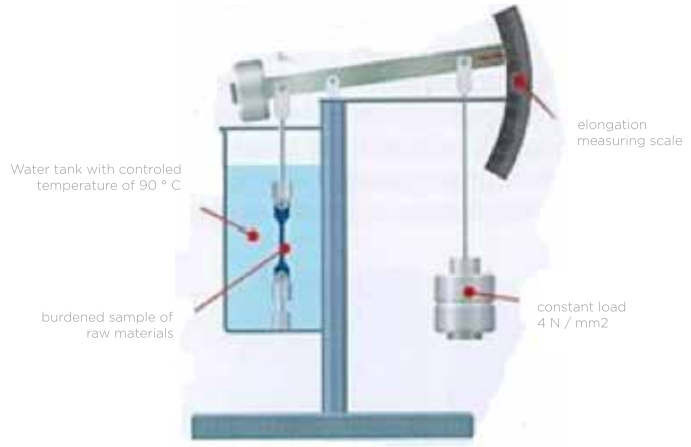
- **Point-Load Test method (PLT)**

is a testing method that simulates stones in a trench without sand cots. Test is perfomed on a way that the tube, which is exposed to internal pressure, is loaded with the external force (Simulation of a stone). This test was developed by the institute Dr Hassel. In order to shorten the time of cancellation pipes, the medium that is used in this test is not the water, but it is detergent Akropal N 100. Detergent that is placed at a temperature of 80 °C is released under the pressure, and under these conditions the pipe is loaded with external force from 4 N / mm_2. Under these conditions the time of cancellation HDPE PE 100 RC pipe is> 8760 h which means that in the case of loading the water at a temperature of 20 ° C, life of the pipe HDPE PE-100 RC is more than 100 years. (Taken from the publication Dr Hassel).

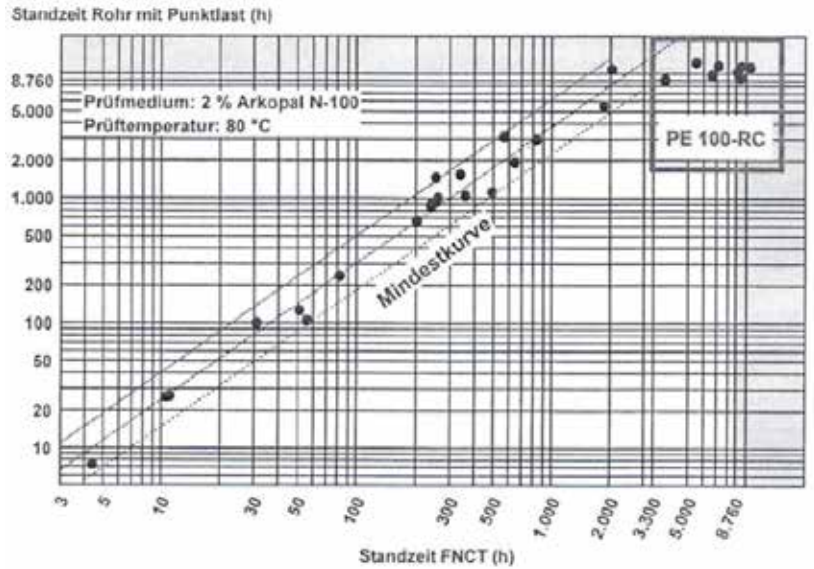
Point load test according to dr. Hessel

- **Full Notched Creep Test**

Test stretching of nicked raw material - is a test in which the test of rod material are cut sharply, and then when it is exposed to the water pool at a temperature of 90°C with constant stretching, tightening strain of a force is 4N/mm2 until they burst. Test simulates local stress concentrations and implemented according to ISO 16770th. How we may have estimate the predicted lifetime of pipes that are under additional point load, Dr.Hessel's engineering and technical testing of pipes are under internal pressure, with additional point load compared with the results of the FNCT test (3RInternational 4/2001 and 6/2001).



FNCT test - Full Notch Creep-Test (test istezanja) (ISO 16770)



Research Dr Hessel-a is covered with at least 30 test series in three decades with the target size of 8760 hours FNCT test. The correlation coefficient should be> 0.9 (dispersion results) with minimum requirements for the lower confidence limit of 2.5% (97.5% points must be above the line). Correlation is accredited in accordance with EN 17025, ISO / IEC. Based on this correlation, the stability of the FNCT-in for at least 2000 hours is taken as proof of the 100-year life of the pipe under concentrated load (Dr.Hessel in the journal 3R International 6/2001).

PEŠTAN RC

Peštan RC is a compact (full wall) tube made of an innovative, extremely robust plastic BorSafe HE3490-LS-H. Tube prepared like this provides increased security and longer lifetime of pipes compared to traditional PE pipes, even when it comes to extreme loads, such as notching pipes, gutters and spotty loads.

Peštan RC can be easily installed, as well as traditional PE pipes with equal ability. Welding and PE - 100 Pipes and fittings can be connected by connecting areas or electrofusion as well as other standard techniques for joining PE pipes. Peštan RC pipes are compatible with the world's leading manufacturers of fittings. Peštan RC does not require special material for the installation of which is its biggest advantage.

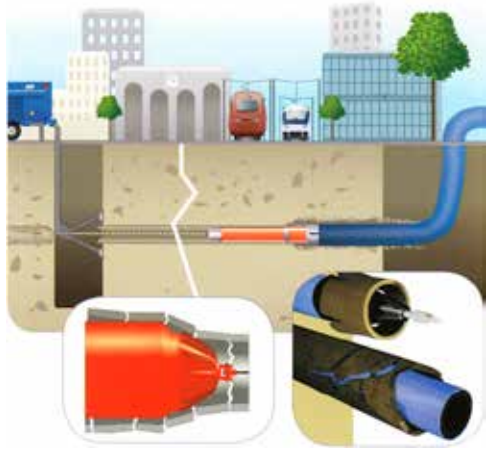
Peštan RC hose thanks to its excellent resistance to stress cracking insensitive to-point loads and therefore did not need her sandy bed.

Peštan's RC tube is flexible and mobile. These properties allow laying in the proceedings of milling. Because of its high resistance to point loading Peštan RC tube is suitable for laying technique in which the soil is excavated and used as fill material.

Open trenches for pipelines threaten undisturbed running of road traffic and disturb nearby residents. Permanently damaging the asphalt on roads. For these reasons technique of laying without digging of a trench is facing the increasing acceptance, since in addition to provide the possibility of laying pipes under rivers, lakes and traffic routes.

APPLICATION TECHNIQUES FOR PE PIPES

As mentioned earlier a number of techniques have been developed by laying, in order to exploit the benefits of using polyethylene, these techniques are briefly described in text below.



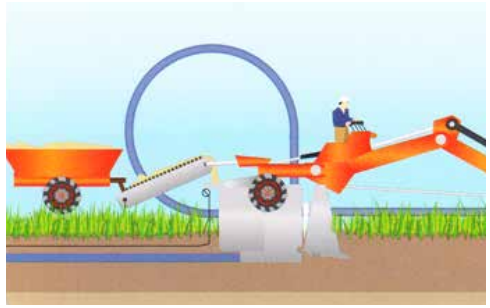
- **Laying in narrow trenches**

This is a modification of the classic pipe laying in the trench. By using short or long ditches you have to dig the trenches that are 100 mm wider than the pipe which is to be installed into ground. Coiled or pre-welded pipes are laid in this passage. Significant savings can be achieved with less excavation volume, the less broth material (sand for bedding) and reduced labor.

- **Pipe bursting**

This is an increasingly popular method for rehabilitation of existing pipeline in places where excavation method is unacceptable. With pipe bursting metode the existing tube is destroyed and a new PE 100 RC pipe is drawn into the resulting hole that provides a replacement with the same diameter pipe or with the help of destroyers, pipe diameter can increase compared to the replased tube

If the situation so requires, Today's hydraulic tools for bursting are capable for damaging the pipe and fittings, and with the further adaptation of tools it is possible to destroy even ductile and steel pipes.



NOTE. This method is technically challenging and requires expert trained staff and appropriate equipment. Depending on the material and the status of the old pipe, it may cause scratches and notches on the new pipe. Debris and stones are causing concentrated loads during the exploitation.

- **Laying plowing**

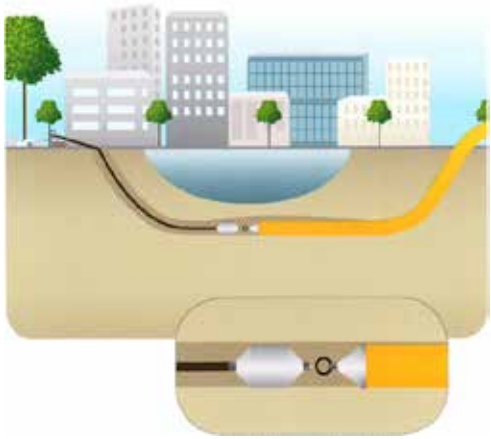
The technique were developed on the basis of Agricultural technology for laying and drain. This method is used for laying of the pipes for water and gas routes between settlements.

- **Slip lining**

Inserting of a small diameter of PE pipes, slip-lining in the existing Pipeline is one of many techniques for trenchless rehabilitation and repair of old pipeline.

With a slip lining it is inevitable to reduce the pipe diameter, although this can be minimized by thorough cleaning of old pipeline and selecting the largest possible diameter pipe for insertion..

The smaller diameter is compensated by an improved hydraulic characteristics of polyethylene, in some instances we have even higher throughput of the new pipeline.



- **Drilling**

Driling has become a frequently used method for trenchless setting of small diameters, and can deliver significant savings in relation to the installation of pipes from the excavation. Excavation is carried out for inbound and outbound caves, and it is ideal for passages, drilling pipeline under the road and out of sidewalk construction, gardens and places where there can be disrupted excavation of soils and plants.

Tool driling is percussion tool with pneumatic motor, that drilled a hole (the tunnel) and in most cases dragges a new PE pipe.

Experienced works contractors are required to perform these techniques installations, in order not to exceed a pre-allowed voltages welded pipe or the spool during threading.

- **Directional drilling**

This technique has also become an established method of installation for polyethylene pipes and it is used for passages under the road, rail railways and rivers and in places where excavation is difficult, expensive or impossible.

BENDING OF PIPES

One of the main advantages of PE is its flexibility and it can be used as an advantage for buried pipelines. Gradual changes of direction to point of 11.5 ° can be easily derived through bending of pipes without the need for additional valves and connecting costs.

Accepted rule for Pestan PE pipe systems (in hot conditions for SDR 11 pipes) is bending radius = 15 x JV (Outer diameter) of pipe. In cold conditions safe bending radius for SDR 17 pipes is 25xS.P.For very cold winter, weather conditions of this value increases to 35 x JV pipe.If you have a pipe with a thin wall, SDR 26 and SDR 33 you should increase this value up to 50%. Fittings and connections should not be installed on sections where the pipe is bent.

DETECTION OF TUBES

For detection of PE pipeline, the simplest and most economical method is to put in a trench and set with marker tapes that contains wire-track detection. Marker strips should be placed 300 mm above the top of the pipe.

CHARACTERISTICS AND ADVANTAGES OF THE HDPE PE-100 RC:

- Optimum protection against point source and surface pressure;
- Ideal for trenchless installation and without sand.
- Suitable for all modern welding technology, that can be applied with conventional joining methods used for PE 100;
- A simple and low cost-effective installation, similar to a traditional PE without a need for “Imported" backfill material
- Very long service of lifetime, even with external damages; excavated earth could be used as backfill material and significantly reduces installation costs;
- Other benefits. All other advantages of standard PE pipe systems are also applicable to Peštan RC, such as for example, cold bending, resistance to hydraulic shock and fatigue of material.

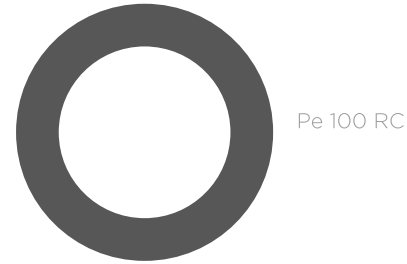
All BorSafe LS-H are certified as PE 100-RC (resistant to crack):

- Approved by independent institutes,
- Recorded in KRV in Germany,
- Regular testing and quality control

TYPES OF RC PIPES

Classification of pipe PE 100 RC CEV

There are several combinations of materials for the production of tubes, which allow the PE 100-RC material, and this combination is over minimum requirements applicable to PE 100th.

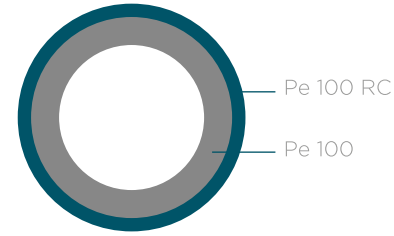


Type 1 Solid made of solid wall PE 100-RC

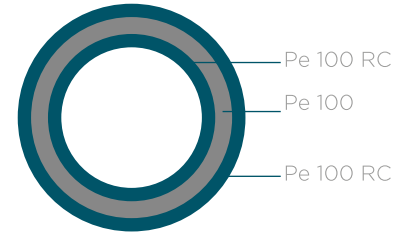
Pipes solid wall of one layer wall are made of PE 100-RC as defined by ISO 4065. These tubes can be made of full-color, blue or black water pipes with blue stripes to the applications which are made of such PE 100 RC materials.

Type 2 Pipe with dimensionally integrated protective layer made of PE 100-RC

The dual-layered tube is dimensionally integrated with protective layers which are made of PE 100 or PE-100 RC and they have a coextruded layer made of PE 100-RC.

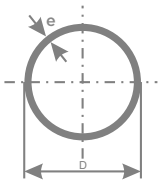


Three-layer pipes with dimensionally integrated protective layers are composed of PE 100 and PE 100 -R c and have inner and outer co-extruded layer made of PE 100-RC. This production is based on a two-layer and three-layer tube with a different outer layer in blue color for water.



CATALOG OF PRODUCTS

	SDR 6 (S-2,5) PN		SDR 7,4 (S-3,2) PN25		SDR 9 (S-4) PN20		SDR 11 (S-5) PN16		SDR 13,6 (S-6,3) PN12,5		SDR17 (S-8) PN10		SDR21 (S-10) PN8		SDR 26 (S-12,5) PN 5		SDR33 (S-16) PN5		SDR41 (S-20) PN4	
D (MM)	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M
16	3,0	0,15	2,3	0.1	2	0.09														
20	3,4	0,18	3,0	0,154	2.3	0.13	2	0.12												
25	4,2	0,278	3,5	0,240	3	0.21	2.3	0.17	2,0	0,151	1.9	0.14								
32	5,4	0,454	4,4	0,386	3.6	0.33	3	0.28	2,4	0,228	2	0.2								
40	6,7	0,701	5,5	0,600	4.5	0.51	3.7	0.43	3,0	0,354	2.4	0.29	2,0	0,251						
50	8,3	1,09	6,9	0,936	5.6	0.79	4.6	0.67	3,7	0,550	3	0.45	2,4	0,372	2,0	0,317				
63	10,5	1,73	8,6	1,47	7.1	1.26	5.8	1.06	4,7	0,869	3.8	0.72	3,0	0,586	2,5	0,482				
75	12,5	2,44	10,3	2,09	8.4	1.78	6.8	1.47	5,6	1,23	4.5	1.02	3,6	0,826	2,9	0,682				
90	15,0	3,51	12,3	3,0	10.1	2.56	8.2	2.14	6,7	1,76	5.4	1.46	4,3	1,19	3,5	0,987				
110	18,3	5,24	15,1	4,49	12.3	3.81	10	3.17	8,1	2,63	6.6	2.18	5,3	1,77	4,2	1,45				
125	20,8	6,75	17,1	5,77	14	4.3	11.4	4.11	9,2	3,39	7.4	2.78	6,0	2,28	4,8	1,86				
140	23,3	8,47	19,2	7,25	15.7	6.17	12.7	5.12	10,3	4,25	8.3	3.49	6,7	2,85	5,4	2,35				
160	26,6	11,0	21,9	9,44	17.9	8.04	14.6	6.73	11,8	5,54	9.5	4.55	7,7	3,73	6,2	3,08				
180	29,9	14,0	24,6	11,9	20.1	10.17	16.4	8.5	13,3	7,01	10.7	5.76	8,6	4,69	6,9	3,83				
200	33,2	17,2	27,4	14,8	22.4	12.58	18.2	10.49	14,7	8,65	11.9	7.11	9,6	5,81	7,7	4,74				
225	37,4	21,8	30,8	18,6	25.2	15.92	20.5	13.27	16,6	10,9	13.4	9.01	10,8	7,35	8,6	5,96				
250	41,5	27,0	34,2	23,0	27.9	19.57	22.7	16.33	18,4	13,5	14.8	11.05	11,9	9,03	9,6	7,38				
280	46,5	33,8	38,3	28,9	31.3	24.6	25.4	20.47	20,6	16,9	16.6	13.88	13,4	11,34	10,7	9,2				
315	52,3	42,7	43,1	36,5	35.2	31.11	28.6	25.9	23,2	21,4	18.7	17.57	15,0	14,3	12,1	11,7	9,7	9,7	7,7	7,60
355	59,0	54,3	48,5	46,3	39.7	39.5	32.2	32.88	26,1	27,2	21.1	22.36	16,9	18,2	13,6	14,8	10,9	12,1	8,7	9,6
400			54,7	58,8	44.7	50.12	36.3	41.75	29,4	35,2	23.7	28.27	19,1	23,6	15,3	19,1	12,3	15,7	9,8	12,5
450			61,5	74,4	50.3	62.7	40.9	52.87	33,1	44,6	26.7	35.81	21,5	29,8	17,2	24,2	13,8	19,9	11,0	15,8
500					55.8	77.3	45.4	65.24	36,8	55,0	29.7	44.25	23,9	36,9	19,1	29,9	15,3	24,4	12,3	19,4
560					62.5	97	50.8	80.8	41,2	69,0	33.2	55.43	26,7	46,2	21,4	37,5	17,2	30,7	13,7	24,4
630					71	127.6	57.2	102	46,3	87,3	37.4	70.21	30,0	52,9	24,1	47,4	19,3	38,7	15,4	30,8
710					80*	162*	64.5	130	52,2	110,8	42.1	89	33,9	74,2	27,2	60,2	21,8	49,2	17,4	39,0
800					90.1*	205.7*	72.7	170.4	58,8	140,7	47.4	113	38,1	94,0	30,6	76,3	24,5	62,4	19,6	49,5



ARMO

Armored to provide pure quality

PAS 1075 type 3

The pipes for transporting water with pressure

ARMO WATER PIPES

HDPE RC type 3 pipes for transporting water under pressure

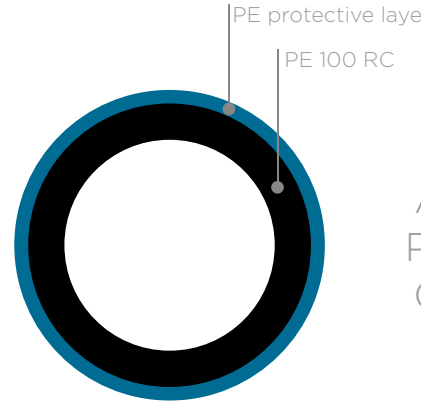
We have additionally reinforced the existing PE 100 RC pipes with a protective layer, thereby expanding the polyethylene pipe family with a new member called ARMO.

ARMO pipes represent the latest generation of development of polyethylene solutions. ARMO pipes are intended for alternative pipeline installation methods and are manufactured in accordance with PAS 1075, Type 3 standard.

TYPES OF PIPES

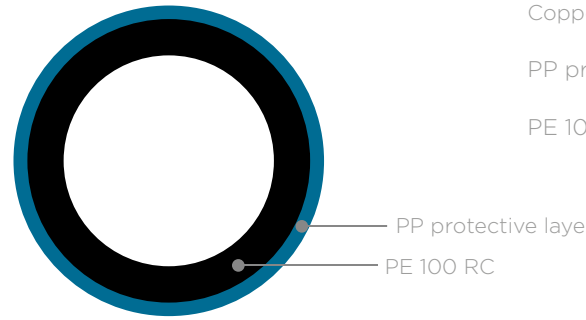
Armo is a double-walled tube made of innovative, highly robust PE 100 RC plastic with an extra protective layer made of polyethylene or polypropylene. This tube provides increased safety and longer life compared to traditional PE pipes, even when it comes to extreme loads such as pipe notches, grooves and point loads.

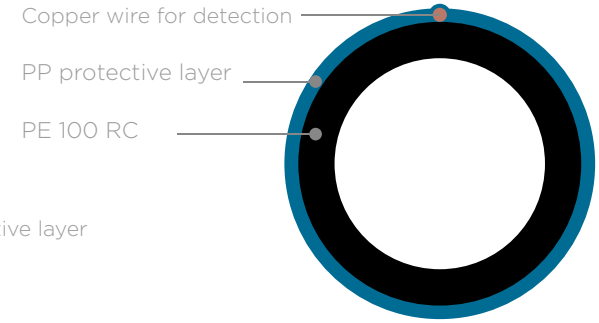
Pipes are with dimensionally added protective outer sheath of polyethylene or polypropylene. Armo tubes, as required by ISO 4065 for tubes with an outer protective layer, consist of a core tube of one-layer PE-100-RC standard dimension and a protective sheath of polypropylene or polyethylene. The minimum thickness of the sheath shall be 0.8 mm. The thickness of the sheath depends on the dimension of the pipe. Large pipes have a thicker liner due to the larger loads the pipes are designed for.



ARMO TUBES WITH PROTECTIVE LAYER OF POLYETHYLENE

ARMO TUBES WITH PROTECTIVE LAYER OF POLYPROPYLENE





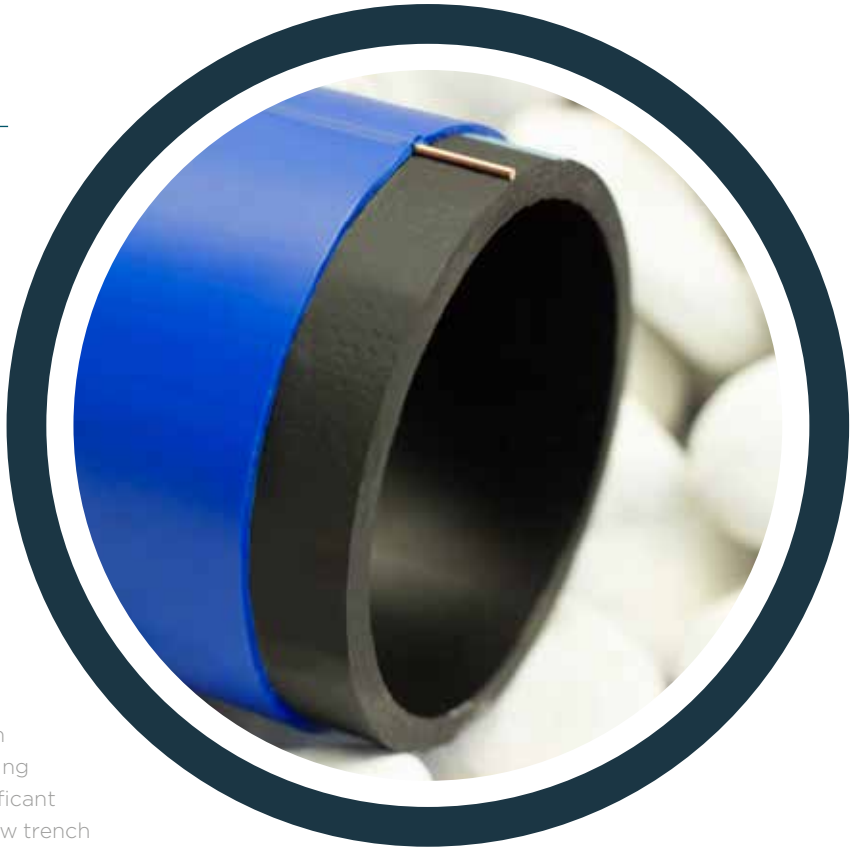
ADVANTAGES

ARMO pipes have high reliability and proven performance thanks to the materials they are made of, which makes them an excellent choice, especially for pipe systems intended for civil engineering projects. Due to their high stretchability, toughness and elasticity, PESTAN ARMO pipes do not cause problems during installation and operation at low temperatures.

High resistance to hydraulic shock, fatigue and wear eliminates the need for higher nominal pressures and reduces the value of the investment. Comparisons have shown that polyethylene pipes have a higher abrasion resistance than other materials, making PE the most desirable material for pipe transport of solutes.

Excellent hydraulic characteristics (low absolute roughness) - Smooth surface and resistance to turbulent fluid flow allow for greater flow and give excellent hydraulic characteristics to ARMO pipes. ARMO pipes are resistant to a large number of chemical agents.

Due to their good weldability and elasticity, long length PE pipelines can be connected outside the trench and then laid (which reduces the required trench width) and the welds will be strong and reliable. A wide range of PE pipe fitting methods offer installers numerous installation solutions that can provide significant time and cost savings, for example PE pipes are preferred for trenchless or narrow trench installations.



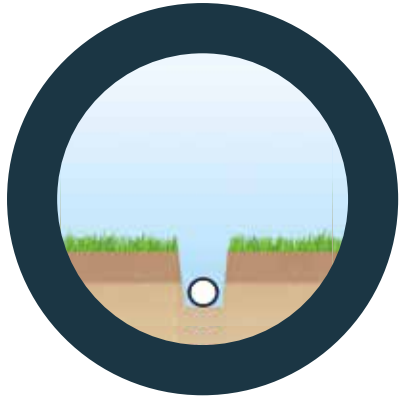
ARMO pipe look without protective layer

TECHNIQUES OF INSTALLATION

The methods used to incorporate ARMO tubes may be unconventional because of their reinforced structure over “ordinary” HDPE tubes.

Laying in narrow trenches

This is a modification of the classic pipe laying in a trench. Using short or long trenches, trenches that are 100 mm wider than the laying pipe are dug. Piped or pre-welded pipelines are laid in this trench. Significant savings can be achieved with a much smaller volume of excavation, less imported material (sand for bedding) and reduced work.



Plowing

A technique developed on the basis of agro-cultural techniques for laying and drainage. This method is used for laying water and gas pipes on the tracks between settlements.

Pipe bursting

This is an increasingly popular method for the rehabilitation of existing pipelines, where excavation is unacceptable. With pipe bursting, the existing pipe is destroyed and the new ARMO pipe is retracted into the resulting hole, providing replacement with the same pipe diameter, or with the help of a destroyer, the pipe diameter can be increased relative to the replaced pipe. Today’s bursting hydraulic tools are capable of destroying both pipes and fittings, if the situation so requires, and with further tool adaptation even ductile and steel pipes can be destroyed.

Pipes are with dimensionally added protective outer sheath of polyethylene or polypropylene. Armo tubes, as required by ISO 4065 for tubes with an outer protective layer, consist of a core tube of one-layer PE-100-RC standard dimension and a protective sheath of polypropylene or polyethylene. The minimum thickness of the sheath shall be 0.8 mm. The thickness of the sheath depends on the dimension of the pipe. Large pipes have a thicker liner due to the larger loads the pipes are designed for.

This method is technically demanding and requires skilled personnel and appropriate equipment. Depending on the material and condition of the old pipe, scratches and cuts may occur on the new pipe. Debris and stones cause concentrated loads during exploitation.

Moling

Moling has become a commonly used non-excavation method for smaller diameter pipe fitting, and can provide significant savings over excavation pipe fitting. Excavation is done only for entry and exit pits, so moling is ideal for underpasses and expensive sidewalks or sidewalks, gardens and gardens where excavation would disrupt land and plants. The moling tool is a percussion tool with a pneumatic motor, which drills a hole (tunnel) and in most cases pulls a new PE tube. Experienced contractors are required to perform this installation technique so as not to exceed the permissible stresses of a pre-welded pipeline or coil when drawn.

Directional drilling

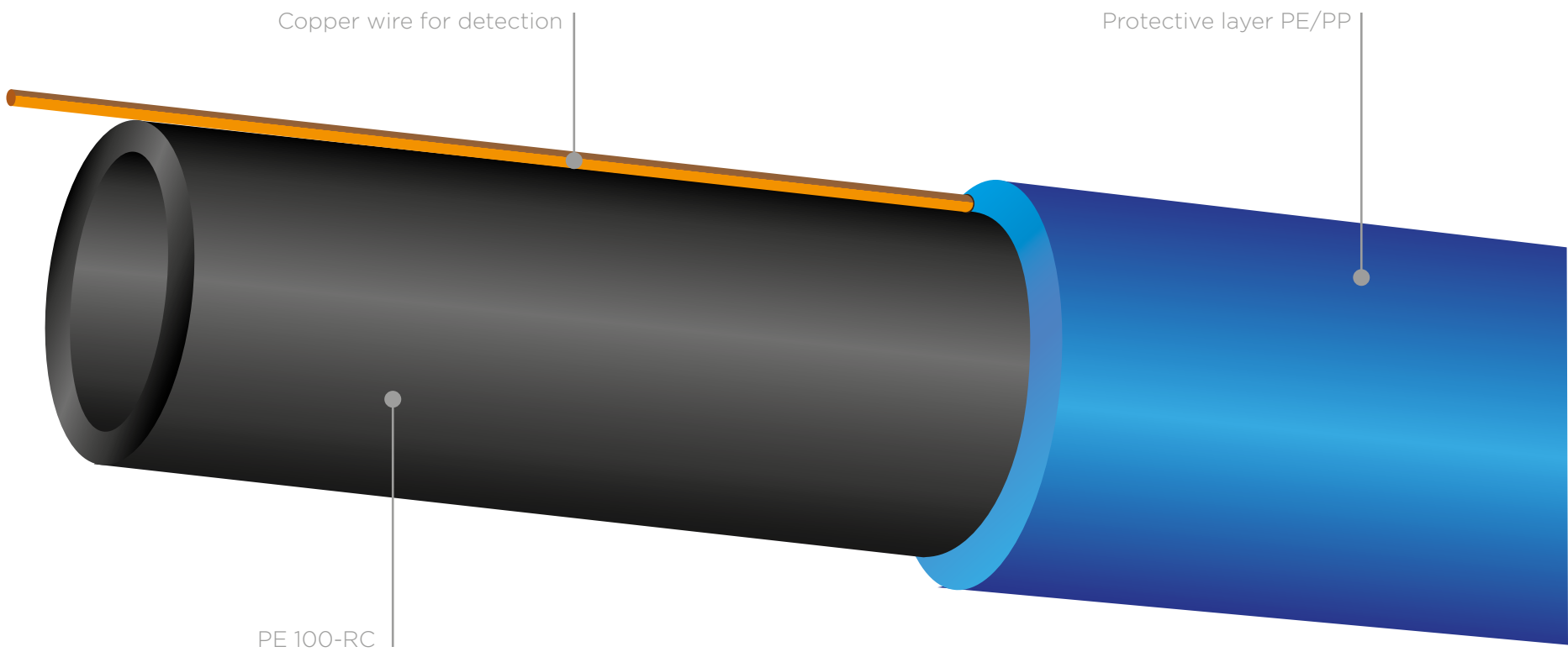
This technique also became a conventional one and is used as an installation method for polyethylene pipes and is used for underpasses, railways and rivers, in places where excavation is difficult, expensive or impossible.

Slip-lining

Inserting smaller diameter ARMO pipes, slip-lining, into an existing pipeline is one of many techniques without excavation for rehabilitation - rehabilitation of old pipelines. With slip-lining a reduction in pipe diameter is inevitable, though this can be reduced to a minimum by thoroughly cleaning the old pipeline and choosing the largest possible pipe diameter for insertion. The smaller diameter is offset by the improved hydraulic performance of polyethylene, and in some cases we even have the higher throughput of the new pipeline.

PIPE DETECTION

For the detection of the ARMO pipeline, the simplest and most economical method is to place in the trench a tube containing in its structure a marker, a copper wire for monitoring - detection. A marker wire is placed between the center and outer layers of the pipe.



PIPE CONNECTION

These pipes can be connected with conventional welding (like other PE pipes), with the difference to pay attention if the pipes have copper wire in their structure. Pipes and fittings can be connected by welding the ends with standard techniques for joining PE pipes. Pestan Armo pipes are compatible with the fittings of leading manufacturers and do not require special material for installation which is their biggest advantage. Joining methods of Armo tubes are electrofusion welding, butt welding, and mechanical joining.

During electrofusion pipe welding, it is mandatory to remove the protective layer, whether made of PE or PP. The minimum length of removal of an additional protective layer from PP or PE, for a given pipe diameter, should be according to the dimensions shown in the table 1.

Armo pipes are compatible with fusion welding connectors of all worldwide leader manufacturers.

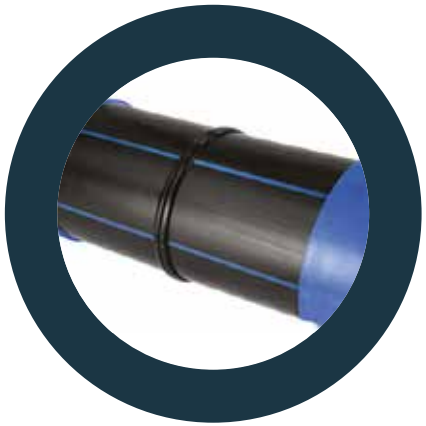
If ARMO pipes, which have an integrated copper wire for detection, are connected by electro-fusion, the copper wire must be moved to the side after removal of the protective layer, until the pipes are connected and then the ends of the copper wire are connected by an electric coupler. After that, it is imperative to protect the junction point of the ARMO pipe with a heat-shrink film and / or a butyl rubber-based self-bonding strip (to prevent corrosion and electrical insulation on pipes and metal parts).

Length of removal of the protective layer

*table No 1

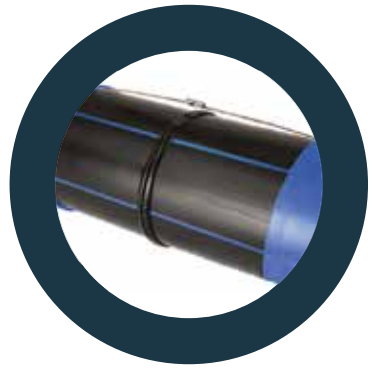
DN [mm]	[mm]
110	90
125	95
140	105
160	110
180	115
200	120
225	125
250	135
280	150
315	160
355	160
400	170
450	180
500	190
560	200
630	220

The butt welding of the pipes without copper wire for detection is done in the following steps:

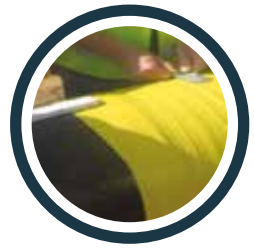


- If the **outer layer is made of polyethylene,** the welding is carried out without removing of the protective layer.
- If the **outer layer is polypropylene,** it is necessary to peel the outer layer according to Table 1 and connect the pipes. Finally, the junction point of the ARMO pipe is insulated with a heat shrink film and / or butyl rubber based self-adhesive tape.

The butt welding of the tube with the copper wire for detection is done in the following steps:



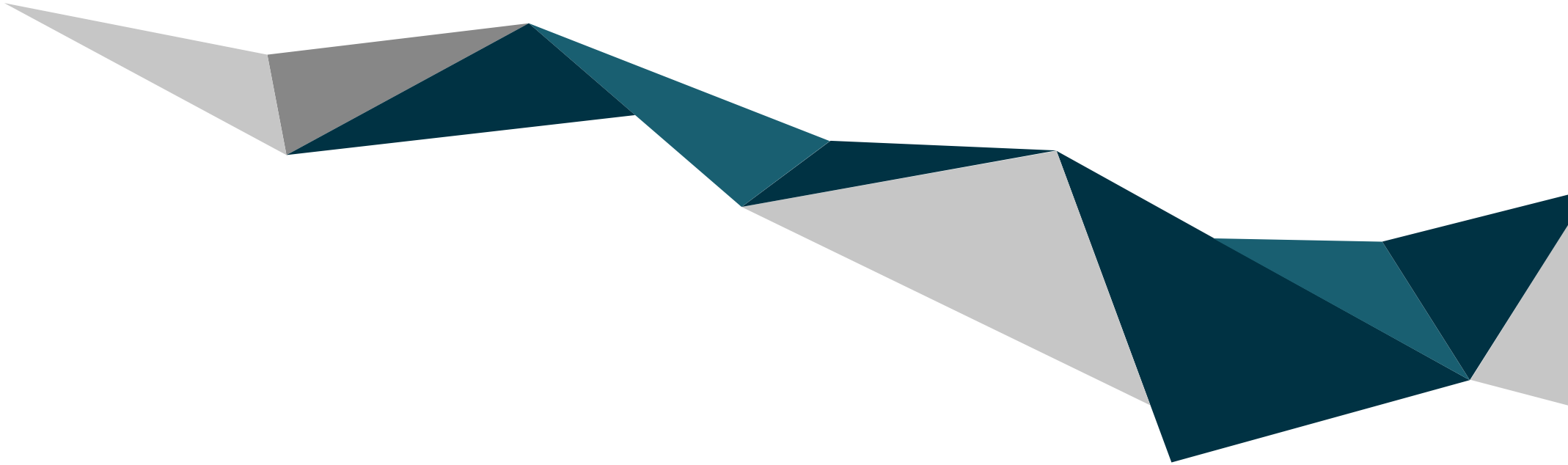
- Peel the outer PP layer of the pipe in accordance with Table 1 with care not to damage the copper wire and the middle layer.
- Move copper wire to the side (usually "pulled" backwards) and the middle layer will be bonded with the butt welding machine. After that, the two ends of the copper wire are connected by an electrical connector.



- Finally, the junction point of the ARMO middle layer and the copper wire junction is insulated with a heat shrink film and / or butyl rubber based self-adhesive tape (to prevent corrosion and electrical insulation on pipes and metal parts).

DN [mm]	SDR 41	SDR 33	SDR 26	SDR 21	SDR 17	SDR 13.6	SDR 11	SDR 9	SDR 7.4	SDR 6
	PN 4	PN 5	PN 6	PN 8	PN 10	PN 12.5	PN 16	PN 20	PN 25	PN 32
	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]	e_{min} [mm]
110			4.2 + APL*	5.3 + APL*	6.6 + APL*	8.1 + APL*	10.0 + APL*	12.3 + APL*	15.1 + APL*	18.3 + APL*
125			4.8 + APL*	6.0 + APL*	7.4 + APL*	9.2 + APL*	11.4 + APL*	14.0 + APL*	17.1 + APL*	20.8 + APL*
140			5.4 + APL*	6.7 + APL*	8.3 + APL*	10.3 + APL*	12.7 + APL*	15.7 + APL*	19.2 + APL*	23.3 + APL*
160			6.2 + APL*	7.7 + APL*	9.5 + APL*	11.8 + APL*	14.6 + APL*	17.9 + APL*	21.9 + APL*	26.6 + APL*
180			6.9 + APL*	8.6 + APL*	10.7 + APL*	13.3 + APL*	16.4 + APL*	20.1 + APL*	24.6 + APL*	29.9 + APL*
200			7.7 + APL*	9.6 + APL*	11.9 + APL*	14.7 + APL*	18.2 + APL*	22.4 + APL*	27.4 + APL*	33.2 + APL*
225			8.6 + APL*	10.8 + APL*	13.4 + APL*	16.6 + APL*	20.5 + APL*	25.2 + APL*	30.8 + APL*	37.4 + APL*
250			9.6 + APL*	11.9 + APL*	14.8 + APL*	18.4 + APL*	22.7 + APL*	27.9 + APL*	34.2 + APL*	41.5 + APL*
280			10.7 + APL*	13.4 + APL*	16.6 + APL*	20.6 + APL*	25.4 + APL*	31.3 + APL*	38.3 + APL*	46.5 + APL*
315	7.7 + APL*	9.7 + APL*	12.1 + APL*	15.0 + APL*	18.7 + APL*	23.2 + APL*	28.6 + APL*	35.2 + APL*	43.1 + APL*	52.3 + APL*
355	8.7 + APL*	10.9 + APL*	13.6 + APL*	16.9 + APL*	21.1 + APL*	26.1 + APL*	32.2 + APL*	39.7 + APL*	48.5 + APL*	59.0 + APL*
400	9.8 + APL*	12.3 + APL*	15.3 + APL*	19.1 + APL*	23.7 + APL*	29.4 + APL*	36.3 + APL*	44.7 + APL*	54.7 + APL*	66.5 + APL*
450	11.0 + APL*	13.8 + APL*	17.2 + APL*	21.5 + APL*	26.7 + APL*	33.1 + APL*	40.9 + APL*		61.5 + APL*	
500	12.3 + APL*	15.3 + APL*	19.1 + APL*	23.9 + APL*	29.7 + APL*	36.8 + APL*	45.4 + APL*			
560	13.7 + APL*	17.2 + APL*	21.4 + APL*	26.7 + APL*	33.2 + APL*	41.2 + APL*	50.8 + APL*			
630	15.4 + APL*	19.3 + APL*	24.1 + APL*	30.0 + APL*	37.4 + APL*	46.3 + APL*	57.2 + APL*			

***APL - additional protective layer** (PP/PE), minimum 0.8 mm, depending on pipe dimensions, conditions of application and type of the project.



HDPE GAS PIPES

Polyethylene gas pipes

The need for PE pipes is increasing throughout the whole world. There small weight allows easy handling, and simple, swift and reliable assembling. They are flexible and can be delivered in the rollers of 200m. They are extremely resistant to chemical, therefore they can be easily placed into the aggressive ground. They have a very high impact resistance even at very low temperatures, especially if made of network like polyethylene. These pipes do not corrode and have a lifespan of over 50 years.

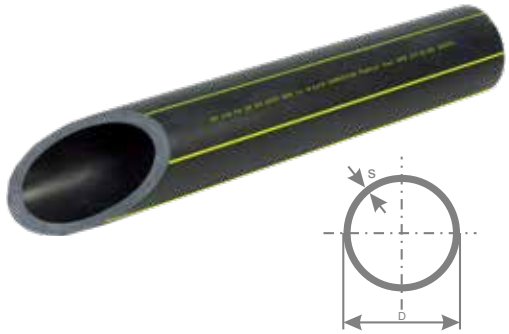
Pipes are entirely in accordance with SRPS-EN1555, ISO 4437 (DIN8074).

PREFERENCES

Pipes PE80 - products are available in black with yellow longitudinal lines.
The material used in the manufacture of the gas pipe is approved by the European Union for this application.
Wall thickness for both PE80 and PE100 gas pipes is the same, but with the difference in working pressure is 1,4,6,6,2 and 10 bar..

TECHNOLOGY

The pipes are entirely in accordance with EN 1555, ISO 4437 (DIN 8074) standards. PEŠTAN uses materials made by the world known companies, which have been checked and approved by its own laboratory. The production itself is monitored and controlled by the contemporary scanners. At the same time PEŠTAN controls the quality of its products in the independent international laboratories.



	SDR17 (S-8) PN1			SDR11 (S-5) PN4		
D(MM)	CODE	S	KG/M	CODE	S	KG/M
20	11600001	2.3	0.133	11600101	3	0.163
25	11600002	2.3	0.171	11600102	3	0.211
32	11600003	2.3	0.224	11600103	3	0.279
40	11600004	2.3	0.285	11600104	3.7	0.43
50	11600005	2.9	0.44	11205105	4.6	0.666
63	11600006	3.6	0.688	11600106	5.8	1.05
75	11600007	4.3	0.976	11600107	6.8	1.47
90	11600008	5.2	1.41	11600108	8.2	2.12
110	11600009	6.3	2.08	11600109	10	3.14
125	11600010	7.1	2.66	11600110	11.4	4.08
140	11600011	8	3.34	11600111	12.7	5.08
160	11600012	9.1	4.35	11600112	14.6	6.67
180	11600013	10.3	5.53	11600113	16.4	8.42
200	11600014	11.4	6.79	11600114	18.2	10.4
225	11600015	12.8	8.55	11600115	20.5	13.1
250	11600016	14.2	10.6	11600116	22.7	16.2
280	11600017	15.9	13.2	11600117	25.4	20.3
315	11600018	17.9	16.7	11600118	28.6	25.6
355	11600019	20.2	21.3	11600119	32.3	32.6
400	11600020	22.8	27	11600120	36.4	41.4
450	11600021	25.6	34.23	11600121	41	52.83
500	11600022	28.5	42.34	11600122	45.5	65.15
560	11600023	31.9	53.08	11600123	51	81.78
630	11600024	35.8	67.02	11600124	57.3	103.38

FITTING

Peštan is able to offer complete program of welded accessories made in all diameters and in all working pressures. Also other working pressures are available by the request.

HDPE PE-80

SDR11 (S-5) PN10				SDR17,6 (S-8.3) PN6				SDR17 (S-8) PN6			
D(MM)	CODE	S	KG/M	D(MM)	CODE	S	KG/M	D(MM)	CODE	S	KG/M
16	11700500	3.0c	0.126	16	11700000	2.3c	/	16	11700260	2.3c	/
20	11700501	3.0c	0.165	20	11700001	2.3c	0,133	20	11700261	2.3c	0,133
25	11700502	3.0c	0.213	25	11700002	2.3c	0,171	25	11700262	2.3c	0,171
32	11700503	3.0	0.281	32	11700003	2.3c	0,224	32	11700263	2.3c	0,224
40	11700504	3.7	0.434	40	11700004	2.3	0,285	40	11700264	2.4	0,295
50	11700505	4.6	0.672	50	11700005	2.9	0,440	50	11700265	3.0	0,454
63	11700506	5.8	1.062	63	11700006	3.6	0,688	63	11700266	3.8	0,722
75	11700507	6.8	1.483	75	11700007	4.3	0,976	75	11700267	4.5	1,02
90	11700508	8.2	2.149	90	11700008	5.2	1,41	90	11700268	5.4	1,466
110	11700509	10.0	3.187	110	11700009	6.3	2,08	110	11700269	6.6	2,182
125	11700613	11.4	4.134	125	1700112	7.1	2,66	125	10700342	7.4	2,783
140	11700623	12.7	5.153	140	11700123	8.0	3,34	140	11700352	8.3	3,494
160	11700633	14.6	6.762	160	11700133	9.1	4,35	160	11700362	9.5	4,56
180	11700643	16.4	8.541	180	11700142	10.3	5,53	180	11700372	10.7	5,768
200	11700653	18.2	10.539	200	11700153	11.4	6,79	200	11700382	11.9	7,118
225	11700663	20.5	13.342	225	11700163	12.8	8,55	225	11700392	13.4	9,028
250	11700673	22.7	16.406	250	11700173	14.2	10,60	250	11700402	14.8	11,063
280	11700683	25.4	20.036	280	11700183	15.9	13,20	280	11700412	16.6	13,899
315	11700693	28.6	26.036	315	11700193	17.9	16,70	315	11700422	18.7	17,601
355	11700703	32.2	33.141	355	11700203	20.2	21,30	355	11700432	21.1	22,403
400	11700713	36.3	42.057	400	11700213	22.8	27,00	400	11700442	23.7	28,312
450	11700723	40.9	53.132	450	11700223	25.6	34,23	450	11700452	26.7	35,869
500	11700733	45.4	65.684	500	11700233	28.4	42,34	500	11700462	29.7	44,32
560	11700743	50.8	82.273	560	11700243	31.9	53,08	560	11700472	33.2	55,523
630	11700753	57.2	104.22	630	11700253	35.8	67,02	630	11700482	37.4	70,322

HDPE PE-100

Registration control number: DVGW DG8106BR0083 DG8111BR0084

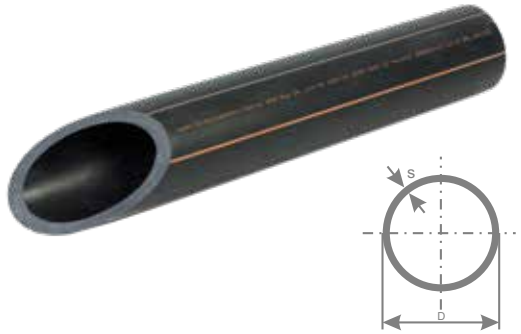
PREFERENCES

PE100 pipes are made in black color with orange longitudinal lines.

PACKAGING & TRANSPORT

When transporting and storing the pipes, they must not be dragged in the dirt or on sharp objects; also they must not come in contact with mineral oils, emollients or various coatings.

The pipes should be placed on the flat surface. The can be stored for the period of up to two years in the open.




PVC-U PN 10 DN 110x5.3

PVC WATER PIPES

PVC water pipes type 100

CHEMICAL PROPERTIES

Pipes are resistant to salt and tap water, herbal and animal oil, alcohols, chlorine compounds, alkaloid acids, alkalis or detergents. Pipes have no influence on clearness, color or the taste of the water or its chemical composition....

The pipes are entirely in accordance with DIN 8061-8062 standards.

MATERIAL

- PVC type 100 with the addition of the stabilizers
- Lubricants and color (dark grey RAL 7011) without emollient or filler

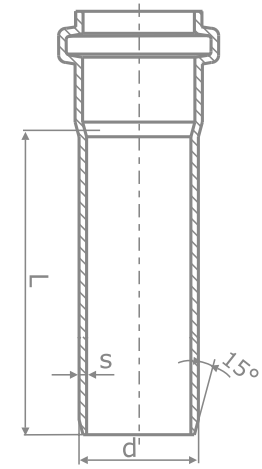
CONSTITUTIVE PROPERTY

- Physical properties : - specific weight 1,38- 1,42 g/cm3
- Hardness at break: 500-550 kg/cm2
- Extension at break: 10-50%
- Tenacity on impact: doesn't break
- Hardness: 90 Sh
- Softening point 85°C
- Linear coefficient of thermal elongation : 0,08 m/m/°C
- Maximum application temperature: 40°C

ADDITIONAL FEATURES

- Small specific weight compared to classic pipe which makes it easier to transport and handle.
- Small coefficient of the hydraulic resistance (small losses), good thermal insulation which prevents the overheating in the summer or in winter weather conditions.
- Resistant to ageing.
- Easy to assemble

Working preassure 6 bar					Working preassure 10 bar					Working preassure 16 bar				
CODE	D	DN	S	KG/M	CODE	D	DN	S	KG/M	CODE	D	DN	S	KG/M
10600004	63	50	1,9	0,56	10600104	63	50	3,0	0,85	10600204	63	50	4,7	1,3
10600005	75	65	2,2	0,78	10600105	75	65	3,6	1,22	10600205	75	65	5,5	1,8
10600006	90	80	2,7	1,13	10600106	90	80	4,6	1,73	10600206	90	80	6,6	2,6
10600007	110	100	3,2	1,63	10600107	110	100	5,3	2,61	10600207	110	100	8,1	3,8
10600009	140	125	4,1	2,64	10600109	140	125	6,7	4,17	10600209	140	125	10,3	6,2
10600010	160	150	4,7	3,44	10600110	160	150	7,7	5,5	10600210	160	150	11,8	8,2
10600012	200	180	5,9	5,5	10600112	200	180	9,6	8,5					
10600013	225	200	6,6	6,8	10600113	225	200	10,8	10,8					
10600014	250	230	7,3	7,42	10600114	250	230	11,9	13,3					
10600015	280	260	8,2	10,5	10600115	280	260	13,4	16,8					
10600016	315	300	9,2	13,3	10600116	315	300	15,0	22,0					



CONNECTING THE PIPES

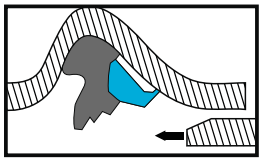
The pipes are connected with the rubber seal, which is placed into the muff of the socket and is greased with the potassium soap. Pipe connection, with the outer diameter of up to ø200, is done manually or with the use of leverage.

When connecting the pipes of the larger diameter it is necessary to use the appropriate tool, such as dented bar, as presented on the figure bellow. The socket length is larger than the length of the spot of the introduction with the beveled pipe.

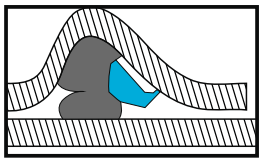
The difference between these lengths has been mathematically calculated, which also allows the correction of the length in the case of the changing of the water temperatures.

MINIMUM STRENGTH FOR THE INSERTION

"ANGER-LOCK" seals are designed to make it easier for the employee to assemble it inside the trench, it is also impossible for the rubber bend to fall out or to turn itself upside down, that is why the risk of improper assembly practically does not exists. It is just necessary to lubricate the pipe ring. The gap is designed in such matter that it is not necessary to put to much energy into insertion, centering or the connection of the pipes, with the reduction of the risk of shifting of the rubber bend, even pipes with a larger diameters can be connected without special tools or equipment. Pipes and fittings can be connected quickly and easily.

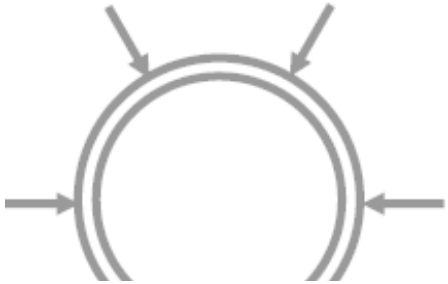


Positions of the rubber bend before the pipe insertion



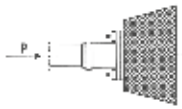
Appearances of the rubber bend upon insertion

EPDM RUBBER (ETHYLENE PROPYLENE DIENE METHYLENE)
Is the ideal material for the seals which must be resistant to UV-beams, ageing, weather changes, oxidation and ozone, also they must be resistant to various types of acids and alcohol groups. Such material, with its magnificent features, guarantees perfect durability of the rubber bends for the period of 100 years.

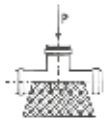


SETTING THE PIPE

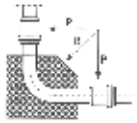
For the correct and swift assembling it is necessary to prepare the laying trench in the right way. The depth of the trench depends on the weather conditions of the terrain, which should be just enough to prevent the freezing of the water or its overheating (cca 1m). Pipe has to lie in a trench with its entire length, on specific materials such as send, clay or similar materials but without the presence of the larger peaces of stone. While burring the pipeline, the first layer which is placed above the pipe, has to be out of the same material. Both layers should be tamped tightly before the burial of the trench. b=d+2x2000 b-width of the trench.



PLACING END OF PIPE



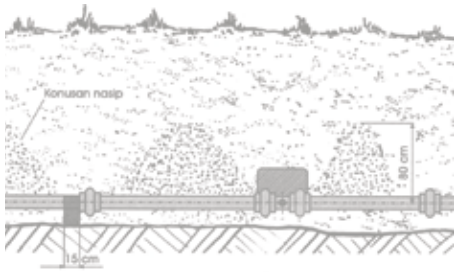
PLACING OF BRANCH



PLACING OF BEND

PRESSURE TESTING

Before the filling with water, the pipe line has to be completely anchored in order to reduce the shifting, which will prevent the water leakage at the coupling during the testing or the exploitation. The instruments used for pressure testing are two manometers with the division of 0,1 kp/cm2. The manometer is usually placed on the lowest point of the section. The testing lasts for 2h. The pipe line should be filled with water with the obligatory release of the air. The testing of the pipe line must be done before the exploitation. Test pressure is usually 1,3 times bigger than the working pressure. The sections of up to 500m are used for testing. If there is a great difference in height of the terrain, the section must be long enough to reach at least the value of the working pressure during the testing at the highest point of the pipe line. The couplings should not be buried until the completion of the testing.



HYDRAULIC PIPE DIMENSIONING

The data for pipeline losses are given in the tables below. The following equations have been used for the calculation:

$$I = \frac{\Delta p}{\gamma} = \lambda \frac{L}{d} \cdot \frac{v^2}{2g} \qquad \frac{1}{\sqrt{\lambda}} = -2\log\left(\frac{2{,}513}{Re\sqrt{\lambda}} + \frac{k}{3{,}715 d_u}\right)$$

- I - preassure losing (mVS)
- Δp - preassure losing (kp/m^2)
- γ - specific weight (kp/m^3)
- λ - frictional resistance
- L - pipe length (m)
- d_u - inner dimeter (m)
- v - middle speed (m/s)
- g - gravity (m/s^2)
- Re - Reinolds NUMBER $Re = \frac{vd}{\nu}$ $\nu = 1{,}31 \cdot 10^{6}$ (m^2/s)
- K - coefficient (K=0,007 mm)

Table 1

The pipes intended for the working pressure of 6 bar

D-d	110-103,6		140-131,8		160-150,2		225-211,8		315-296,6	
V	Q	L	Q	L	Q	L	Q	L	Q	L
m/s	l/s	m/100m	l/s	m/100m	l/s	m/100m	l/s	m/100m	l/s	m/100m
0,1	0,84	0,015	1,36	0,014	1,78	0,012	3,52	0,008	6,91	0,004
0,2	1,68	0,06	2,73	0,04	3,56	0,035	7,05	0,024	13,82	0,016
0,3	2,53	0,124	4,1	0,062	5,34	0,072	10,57	0,045	20,73	0,031
0,4	3,37	0,187	5,46	0,144	7,12	0,122	14,1	0,078	27,64	0,048
0,5	4,21	0,272	6,82	0,208	8,90	0,18	17,62	0,114	34,55	0,075
0,6	5,06	0,385	8,20	0,282	10,68	0,244	21,14	0,16	41,46	0,108
0,7	5,90	0,515	9,55	0,375	12,47	0,322	24,66	0,214	48,36	0,138
0,8	6,74	0,645	10,9	0,478	14,25	0,41	28,2	0,265	55,27	0,176
0,9	7,59	0,785	12,28	0,586	16,03	0,49	31,71	0,335	62,18	0,220
1,0	8,43	0,995	13,64	0,725	17,81	0,60	35,23	0,404	69,1	0,268
1,2	10,12	1,382	16,37	0,996	21,38	0,825	42,27	0,545	82,91	0,372
1,4	11,80	1,738	19,1	1,315	24,94	1,12	49,32	0,735	96,73	0,492
1,6	13,49	2,242	21,83	1,66	28,5	1,42	56,37	0,94	110,55	0,632
1,8	15,17	2,750	24,55	2,05	32,06	1,76	63,42	1,05	124,36	0,774
2,0	16,86	3,30	27,29	2,48	33,6	2,12	70,46	1,42	138,2	0,944
2,5	21,10	5,05	34,11	3,75	44,5	3,18	88,1	2,10	172,7	1,42
3,0	25,29	7,02	40,93	5,26	53,44	4,48	105,7	2,98	207,3	2,00
4,0	33,72	11,85	34,87	8,82	71,25	7,60	140,9	5,08	276,4	3,4

Table 2

The pipes intended for the working pressure of 10 bar

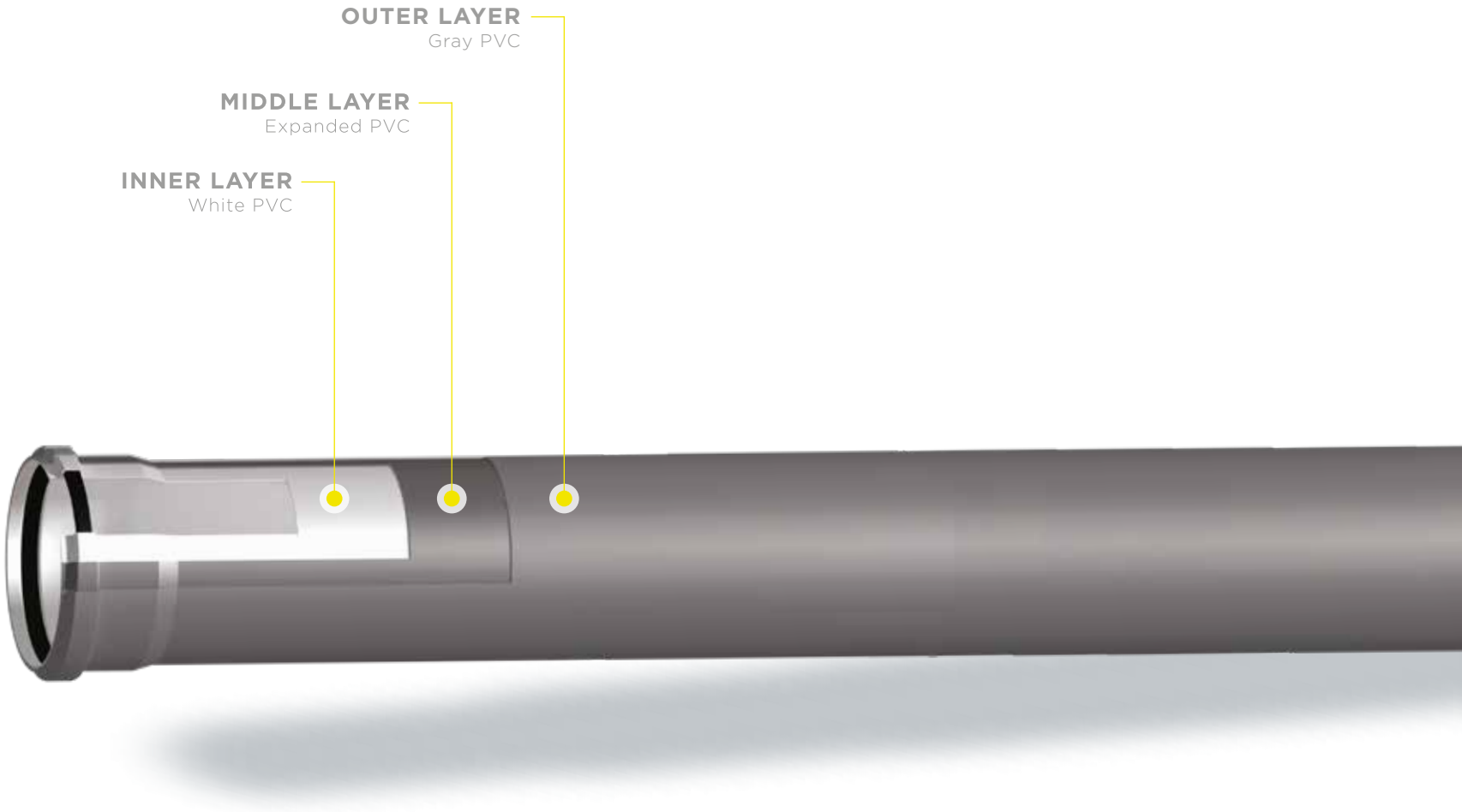
D-d	110-99,4		140-126,6		160-144,6		225-205,4		315-285	
V	Q	L	Q	L	Q	L	Q	L	Q	L
m/s	l/s	m/100m	l/s	m/100m	l/s	m/100m	l/s	m/100m	l/s	m/100m
0,1	0,78	0,18	1,26	0,016	1,64	0,012	3,25	0,009	6,38	0,004
0,2	1,55	0,06	2,52	0,04	3,28	0,038	6,50	0,025	12,76	0,014
0,3	2,32	0,12	3,78	0,08	4,92	0,08	9,75	0,050	19,14	0,03
0,4	3,1	0,20	5,04	0,14	5,56	0,12	13,0	0,08	25,5	0,05
0,5	3,88	0,30	6,29	0,21	8,2	0,18	16,25	0,120	31,9	0,08
0,6	4,65	0,40	7,54	0,28	9,84	0,25	19,5	0,16	38,28	0,11
0,7	5,43	0,51	8,8	0,38	11,48	0,33	22,74	0,21	44,66	0,14
0,8	6,2	0,62	10,0	0,45	13,13	0,42	26	0,28	51	0,18
0,9	6,98	0,78	11,32	0,58	14,77	0,52	29,24	0,35	57,4	0,23
1,0	7,76	0,96	12,58	0,75	16,42	0,63	32,5	0,42	63,8	0,28
1,2	9,31	1,25	15,1	0,99	19,7	0,86	39	0,57	76,55	0,38
1,4	10,86	1,8	17,6	1,35	22,8	1,14	45,5	0,78	89,3	0,52
1,6	12,41	2,3	20,1	1,70	26,26	1,46	52	0,98	102	0,66
1,8	13,96	2,7	22,64	2,1	29,54	1,81	58,5	1,22	114,8	0,8
2,0	15,52	3,2	25,16	2,5	32,82	2,24	63	1,45	127,6	0,98
2,5	19,4	5,0	31,45	3,9	41,03	3,36	81,23	2,20	159,5	1,58
3,0	23,28	6,8	37,74	5,4	49,24	4,65	97,5	3,1	191,4	2,1
4,0	31	12	50,2	9,2	55,6	7,5	130	5,3	255,2	3,5

SEWAGE


32-160
CAMERA INSPECTION
ANTIBACTERIAL LAYER
0°C-60°C
PEŠTAN
PREMIUM
PIPE

PVC PIPES - 3P

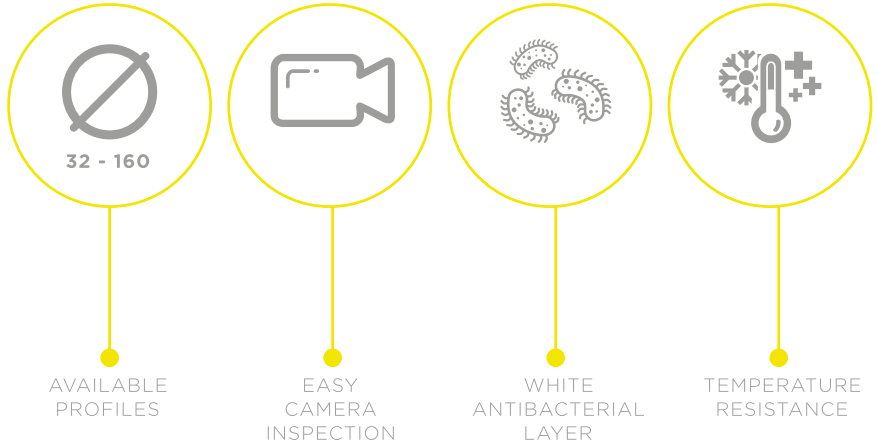
Production program Pestan PVC pipes for home system sewage-3p pipes- represents the pipes made of supreme quality polivynil chloride PVC-U in diameters Ø32 do Ø160.
Also these pipes are produced in lenghts of 250mm, 500mm, 1000mm, 2000mm, 3000mm, 4000mm.


OUTER LAYER
Gray PVC
MIDDLE LAYER
Expanded PVC
INNER LAYER
White PVC

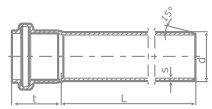
Peštan PVC pipes are produced as three layered with innner white layer which is very smooth thanks to special tecnology and because of that the sedimenting on inner layers is decreased. White color makes easier inspections of pipeline.

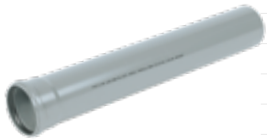
It should be highlighted that using special technology these pipes manage to reduce noise level more than regular PVC pipes during the flow.

Next to the standard sizes Pestan produces also 3P pipe diameter 110 with an increased wall thickness (3.2mm) - PEŠTAN PREMIUM PIPE ULTRA



KG PIPE SDR51 SN2





10100004	32	1,8	41
10100024	40	1,8	47
10100044	50	1,8	48
10100104	75	1,8	55
10100204	110	2,2	61
10100224	125	2,5	72


PREMIUM
product
24dB (A)
Sound Insulation Level II
Highest Quality

HT (PP) PIPES

& fittings for domestic & street sewage systems

The pipes for domestic sewerage systems together with the appropriate coupling sleeves are intended to be used for the removal of all kinds of waste water.

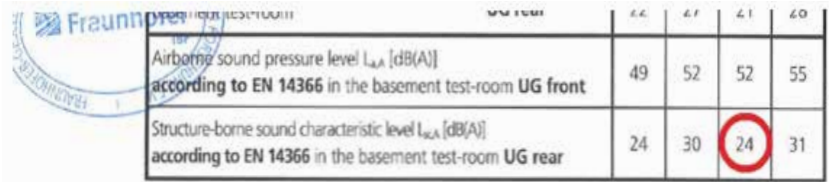
Assembly of the pipeline is extremely easy, pipes are connected to one another with fitings while complete seal is achieved with use of rubber bands. Maximum temperature of application is +90°C. Pipes are resistant to salt water, alcohol, acids, alkalis, sulphates, aggressive gas and all kinds of detergents. On the other hand, they cannot be used for the transport of water which contains high percentage of benzene, benzine (petrol) or acetone.

Advantages & owner benefits

- Very light material
- Simple and easy way of both transport and manipulation
- Fast and cheap assembling
- Pipe connections are resistant to water and other type of fluids
- They are resistant to corrosion in alkaline, acid or aggressive environment
- They are fine electrical insulator, and also resistant to mechanical impact
- Guaranteed life time of more than 50 years
- Practically no costs of pipeline maintenance
- Connection with muffs and gaskets made of EPDM or rubber (EN 681)
- SRPS-EN 1451

Acoustic insulation

According to DIN 4109 noise generated from the pipeline, built-in sound-protected areas should not exceed 35 dB (A). At the same time, the norm VDI 4100 guideline shows that the noise should not exceed 30dB (A). From the above mentioned reasons, Peštan and its HT PP pipes were put on testing at the renowned Institute in Stuttgart, where is obtained confirmation of our quality. According to studies, Peštan HT PP pipes and related fittings can be classified into LEVEL II sound insulation with results of 24dB (A), obtained in the tests (Test Report P-BA 95/2016). Test was performed on standard commercial collars.



Airborne sound pressure level L_{aA} [dB(A)] **according to EN 14366** in the basement test-room **UG front**	49	52	52	55
Structure-borne sound characteristic level L_{eqA} [dB(A)] **according to EN 14366** in the basement test-room **UG rear**	24	30	24	31

TEST WAS PERFORMED ON STANDARD COMMERCIAL COLLARS.

According to VDI 4100, there are three levels of sound insulation, depending on the purpose of the facility in which the pipes are installed:

- Level I sound insulation - requirements according to DIN 4109 corresponding to 30 dB (A)
- Level II sound insulation - a higher level of sound insulation corresponds to 25 dB (A)
- Level III sound insulation - the highest level of sound insulation corresponds to 20 dB (A)

Test was performed on standard commercial collars.

PREMIUM product

24dB (A)

Sound Insulation Level II

Highest Quality

VDI levels of sound insulation and classification:

Level I sound insulation - family houses

Level II sound insulation - apartment buildings, residential and commercial buildings with few floors

Level III sound insulation - hotels, hospitals, libraries, reading rooms, residential complexes...

On family houses

Sound insulation level I or on agreement

Apartment bulidings, residential and office buildings, comfort apartments

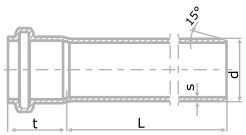
Sound insulation level II or higher

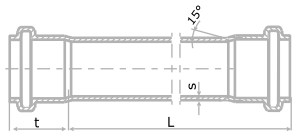
Hotels, hospitals, residential complexes

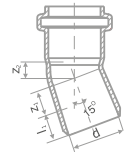
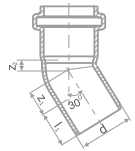
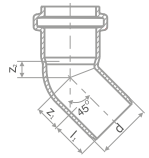
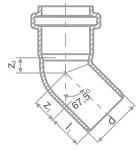
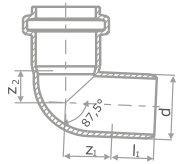
Sound insulation level III enhanced agreements

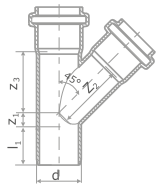
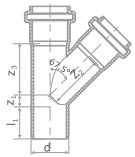
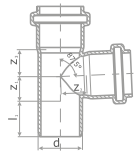
HT (PP) pipes & fittings

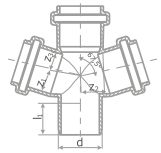
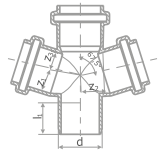
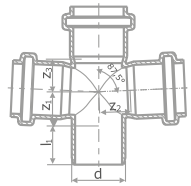
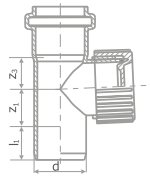
Product range from Ø32 up to Ø160

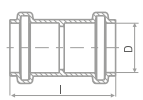
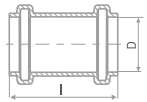
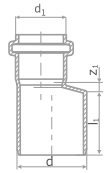
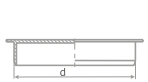
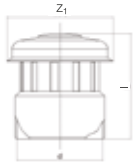
ITEM DESCRIPTION	PICTURE	CODE	D	D1	D2	S
HTEM PIPE SDR41						
		10200004	32	32,3	38,6	1,8
		10200024	40	40,3	49,6	1,8
		10200044	50	50,3	59,6	1,8
		10200104	75	75,3	84,5	1,9
		10200154	90	90,4	99,5	2,2
		10200204	110	110,3	120,5	2,7
		10200224	125	125,3	137,5	3,1
		10200244	160	160,3	174,3	3,9

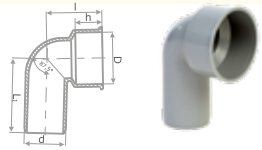
ITEM DESCRIPTION	PICTURE	CODE	D	D1	D2	S
HTEM CEV SDR41						
		19906500	32	32,3	38,6	1,8
		19906511	40	40,3	49,6	1,8
		19906521	50	50,3	59,6	1,8
		19906531	75	75,3	84,5	1,9
		19906642	90	90,4	99,5	2,2
		19906541	110	110,3	120,5	2,7
		19906551	125	125,3	137,5	3,1
		19909561	160	160,3	174,3	3,9

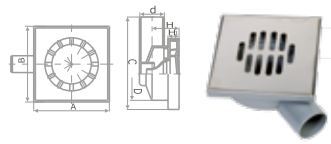
ITEM DESCRIPTION	PICTURE	CODE	D	Z1	Z2	L1MIN
HTB BEND 15°						
	 	10200300	KYC	3	5	39
		10200301	40	4	7	44
		10200302	50	5	9	46
		10200304	75	7	11	51
		10200308	110	9	14	58
		10200309	125	10	14	82
HTB BEND 30°						
	 	10200500	32	8	13	39
		10200501	40	14	14	44
		10200502	50	9	12	46
		10200508	110	17	21	58
		10200509	125	10	15	15
		10200510	160	29	23	23
HTB BEND 45°						
	 	10200600	32	9	12	42
		10200601	40	10	14	44
		10200602	50	12	16	46
		10200604	75	18	21	51
		10200637	90	47	23	37
		10200608	110	25	29	58
		10200609	125	28	33	64
		10200610	160	42	36	94
HTB BEND 67.5°						
	 	10200700	32	13	16	42
		10200701	40	16	19	44
		10200702	50	19	23	46
		10200704	75	28	32	51
		10200708	110	40	46	58
		10200709	125	45	50	82
		10200710	160	64	58	94
HTB BEND 87.5°						
	 	10200800	32	19	23	42
		10200801	40	23	26	44
		10200802	50	28	31	46
		10200804	75	40	43	51
		10200837	90	49	46	49
		10200808	110	57	57	58
		10200809	125	65	65	64
		10200810	160	89	83	94

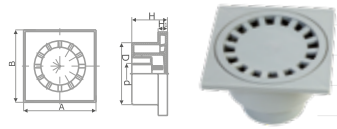
ITEM DESCRIPTION	PICTURE	CODE	D	Z1	Z2	Z3	L1MIN
HTEA BRANC 45°							
	 	10200900	32/32	9	40	40	42
		10200901	40/32	5	46	44	44
		10200902	40/40	10	49	49	44
		10200903	50/32	-1	53	49	46
		10200904	50/40	5	56	54	46
		10200905	50/50	12	61	61	46
		10200912	75/50	-1	79	74	51
		10200914	75/75	18	91	91	51
		10200986	90/90	17	110	161	56
		10200938	110/50	-17	104	91	58
		10200940	110/75	1	116	109	58
		10200944	110/110	25	134	134	58
		10200953	125/110	18	144	141	64
		10200954	125/125	28	152	152	64
		10200963	160/110	1	168	159	81
		10200965	160/160	36	194	194	81
HTEA BRANC 67.5°							
	 	10201000	32/32	13	27	27	42
		10201002	40/40	16	33	33	44
		10201005	50/50	19	40	40	46
		10201038	110/50	9	72	52	58
		10201044	110/110	40	85	85	58
HTEA BRANC 87.5°							
	 	10201100	32/32	19	21	21	42
		10201101	40/32	19	25	21	44
		10201102	40/40	23	25	25	44
		10201103	50/32	19	30	21	46
		10201104	50/40	23	30	25	46
		10201105	50/50	28	30	30	46
		10201112	75/50	27	43	31	51
		10201114	75/75	40	43	43	51
		10201196	90/90	43	52	103	66
		10201138	110/50	28	60	32	58
		10201140	110/75	40	60	45	58
		10201144	110/110	57	62	62	58
		10201153	125/110	58	69	63	64
		10201154	125/125	65	70	70	64
		10201164	160/125	66	87	71	81
		10201165	160/160	83	89	89	81

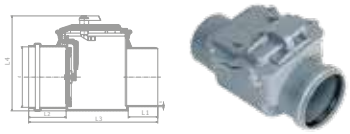
ITEM DESCRIPTION	PICTURE	CODE	D	Z1	Z2	Z3	L1MIN
HTDA DOUBLE BRANC 45°							
		10201505	50/50/50	12	61	61	46
		10201538	50/110/50	-17	104	91	58
		10201544	110/110/110	25	134	134	58
HTDA DOUBLE BRANC 67,5°							
		10201605	50/50/50	19	40	40	46
		10201638	50/110/50	9	72	52	58
		10201644	110/110/110	40	85	85	58
HTDA DOUBLE BRANC 87,5°							
		10201738	50/50/50	28	30	30	46
		10201744	50/110/50	28	60	32	58
HTRE INSPECTION PIPE							
		10201402	50	32		30	46
		10201404	75	48		43	51
		10201408	110	58		62	58
		10201409	125	58		62	64

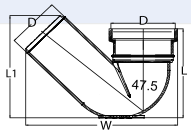
ITEM DESCRIPTION	PICTURE	CODE	D	Z1	l
HTU DOUBLE SOCKET					
	 	10202300	32		94
		10202301	40		103
		10202302	50		103
		10202304	75		109
		10202308	110		122
		10202309	125		138
HTU SLIP COUPLER					
	 	10202400	32		94
		10202401	40		103
		10202402	50		103
		10202404	75		109
		10202408	110		122
		10202409	125		138
HTR EXCENTRIC REDUCER					
	 	10201200	40/32	10	44
		10201201	50/32	16	46
		10201202	50/40	12	46
		10201208	75/50	20	51
		10201230	110/50	40	58
		10201232	110/75	26	58
		10201244	125/110	15	64
		10201253	160/110	34	81
		10201254	160/125	27	81
HTM END CAP					
	 	10202200	32		
		10202201	40		
		10202202	50		
		10202204	75		
		10202208	110		
		10202209	125		
		10202210	160		
		10202211	200		
HT VENTILATION CAP					
	 	10202705	50	106	94
		10202700	75	143	119
		10202701	110	168	110
		10202703	160	253	150

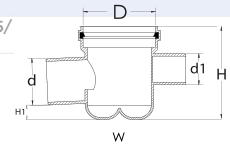
ITEM DESCRIPTION	PICTURE	CODE	D	D	H	L	L1
HTSW FLOOR WASTE GULLE							
		10202104	50	50,6	32,8	71	80
HTSW FLOOR WASTE GULLE							
		10202101	32	46	26	51	61
		10202103	40	46	26	51	75
HTSW FLOOR WASTE GULLEY TYPE 1							
		10202100	32	53,7	26	51	61
		10202102	40	53,7	26	51	75

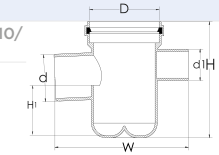
ITEM DESCRIPTION	PICTURE	CODE (METAL GRID)	CODE (PLASTIC GRID)	D	A	B	C	D	H	H1
HTSW FLOOR WASTE GULLEY										
		10299910	10299000	50	150	150	192	139,5	46,5	12,5
		10299920	10299002	75	150	150	195	160	56,5	12,5

ITEM DESCRIPTION	PICTURE	CODE (METAL GRID)	CODE (PLASTIC GRID)	D	A	B	C	D	H	H1
HTSW FLOOR WASTE GULLEY TYPE 2										
		10299911	10299001	50	150	150		125	60	12,5
		10299921	10299003	75	200	200		160	130	9
		-	10299005	110	200	200		160	130	9
		-	10299010	110	250	250		200	85	12

ITEM DESCRIPTION	PICTURE	CODE	D	S	L1	L2	L3	L4
NON-RETURN VALVE								
		10202500	50	2,2	50	40	197	98
		10202501	75	2,5	70	54	265	139
		10202502	110	4,0	64	64	320	189
		10202503	125	4,0	68	65	318	226
		10202504	160	4,0	68	103	350	248

CODE	ITEM DESCRIPTION	PICTURE	Size D (mm)	L (mm)	L1 (mm)	W (mm)	Std Pck
40006635	HTPP P TRAP,GREY,DN110 MM	 	110	167	269	176	10

CODE	ITEM DESCRIPTION	PICTURE	Size D (mm)	d (mm)	d1 (mm)	h (mm)	H1 (mm)	W	Std Pck
40006637	HTPP FLOOR TRAP,GREY,DN 110/DN75/ DN50	 	110	75	50	141	50	213	10

CODE	ITEM DESCRIPTION	PICTURE	Size D (mm)	d (mm)	d1 (mm)	h (mm)	H1 (mm)	W	Std Pck
40006638	HTPP DEEP FLOOR TRAP,GREY, DN110/ DN75/DN50	 	110	75	50	175	72	213	10


12 dB (A)
Sound Insulation
Level III
Let
the **silence**
be the only
thing you hear
S·LINE

S-LINE

Low noise pipes & fittings

Provides reduction in noise and vibrations up to level of 12dB

S LINE SILENT SEWAGE SYSTEM

The pipes for domestic sewerage systems together with the appropriate coupling sleeves are intended to be used for the removal of all kinds of waste water.

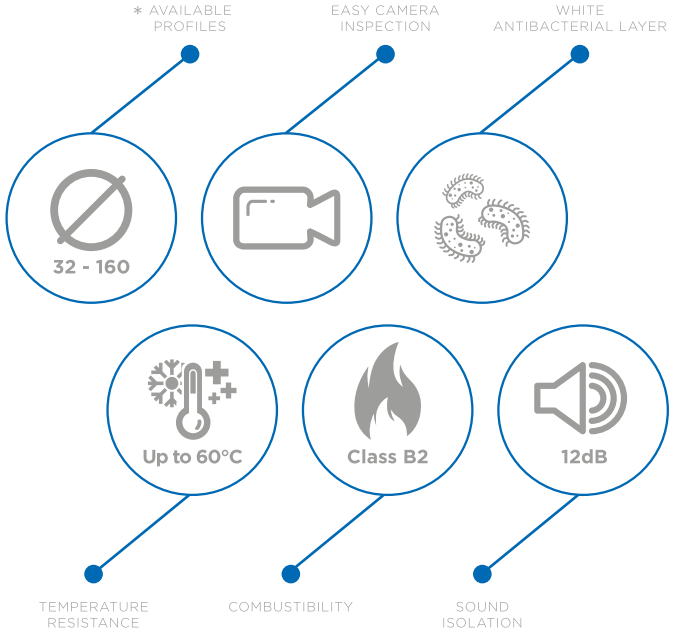
Peštan silent piping system is a promoted version of Peštan HTPP home sewage system and it is specially designed for installation in places where sound insulation is taken into account.

* In case of special request we offer diameters of 160 (200, 250, 315, 400 i 500)

Installed with special pipe clamps (with profiled rubber ring) provides reduction in noise and acoustic vibrations up to level of 12dB(A)*.

The latest technology of three-layer extrusion pipe and materials modified with mineral additives have raised disposal of waste water systems within the building structure on a higher level.

* LSC,A [dB(A)] Fraunhofer test report P-BA 213/2016e



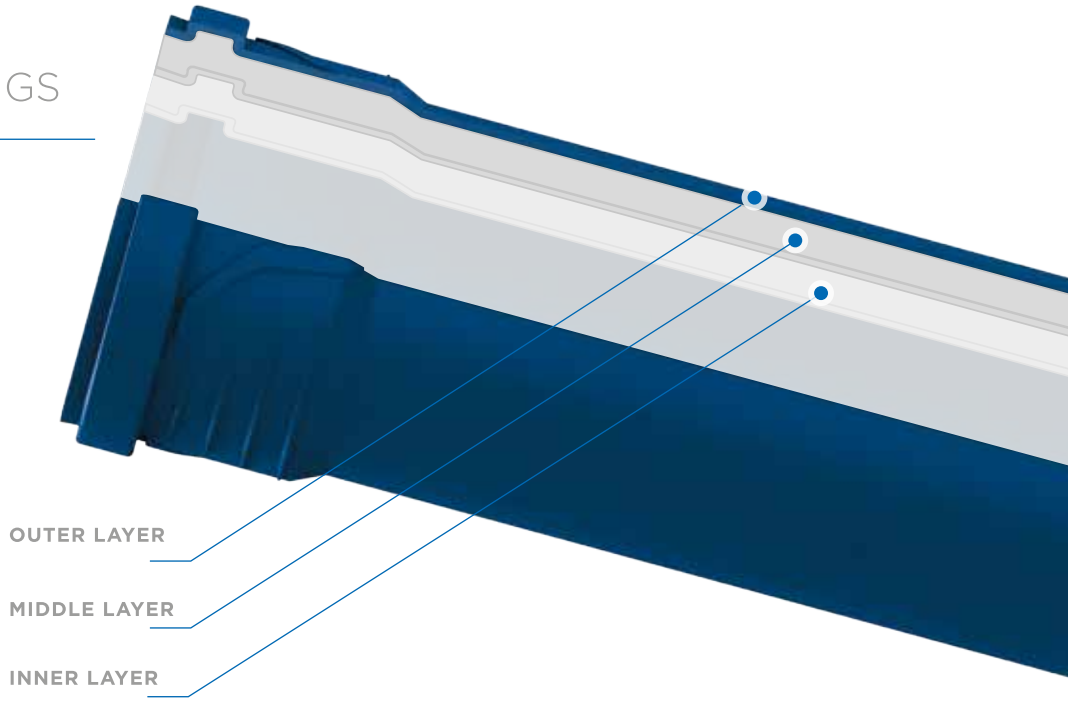
SPECIFICATION OF SILENT PIPES & FITTINGS

Peštan S LINE pipes are consisted of three layers, where each layer contributes to the desired characteristics of the product.

Inner layer: Made of polypropylene copolymer, smooth white inner surface prevents the buildup of sludge and reduces abrasion on the pipes. It allows easy inspection of the pipeline as it is white. It is resistant to high temperatures and chemicals.

Middle layer: Made of polypropylene copolymer and strengthened mineral filler, gives to pipes strength and flexibility.

External layer: Made of polypropylene copolymer, blue. Provides better impact resistance to the pipes, and greater safety when handling and installing products.



SUPPORTED STANDARDS:
EN 1451 • EN 1411 • EN 14366 • EN 681 • EN 12056

Material	PP-H (polypropylene copolymer)
Pipe structure	Three-layer composite pipe PPC-PPM-PPC
Density	pipes (Ø32-Ø160) - 1.3 g/cm^3 fitting - 1.4 g/cm^3
Hot water resistance	short term up to 95 °C long term up to 60 °C
Linear expansion coefficient	0.05 mm/m °C
Chemical resistance	pH 2- pH 12
E - modulus	2400-3100 MPa
Jointing method	Push-fit sockets with inserted rubber ring - resistant to leakage up to pressure of 0.5bar
Application category	BD (instalation in buildings and in building construction)
Fire classification	B2 - normal inflamability
Sound insulation level	12 dB(A) sound insulation Level III

NOISE FROM WASTE WATER INSTALLATIONS

There are two types of noise in waste water installation systems:

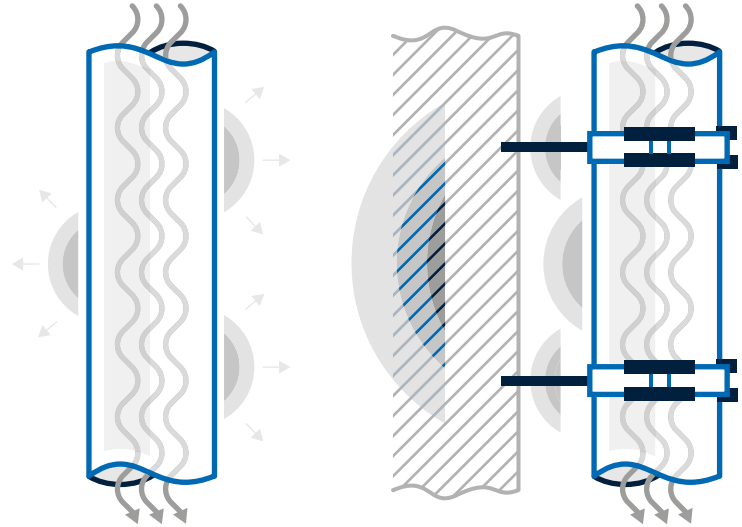
- Airborn noise
- Structure-borne noise

Airborn noise

Is consequence of waste water flowing within piping system. With special design of Peštan silent pipes airborne sound is limited and kept inside pipes preventing anoying noise to leave the system.

Structure-borne noise

Are vibrations created by flowing waste water inside pipes. From pipes it is transmitted to pipe clamps and finally to walls of the buildings creating irritating sounds. With special pipe clamps and with correct installation of the pipes this type of noise can be reduced to minimum.



ACOUSTIC INSULATION

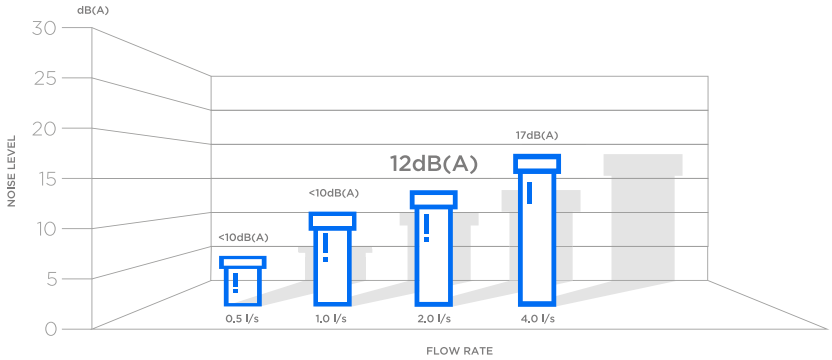
According to DIN 4109 noise generated from the pipeline, built-in sound-protected areas should not exceed 35 dB (A). At the same time, the norm VDI 4100 guideline shows that the noise should not exceed 30dB (A). From the above mentioned reasons, Peštan and its S LINE system were put on testing at the renowned Institute in Stuttgart, where is obtained confirmation of our quality.

According to studies, Peštan S LINE pipes and related fittings can be classified into LEVEL III of sound insulation with results of 12dB(A)*, obtained in the tests**.

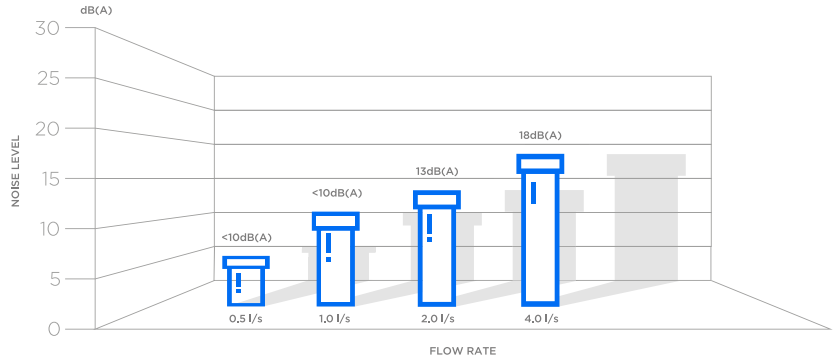
Confirmation of the effective elimination of mentioned problems is done in special acoustic laboratory for measuring noise from wastewater installation systems of Fraunhofer institute Stuttgart. The obtained value from testing of 12dB(A)* makes Peštan S LINE system suitable for installation on places where sound insulation is taken into account (hospitals, hotels, apartment buildings, universities, libraries, dormitories etc).

* LSC,A [dB(A)] Fraunhofer test report P-BA 213/2016e
** Test was performed on bismat 1000l collars.

Noise level of the PESTAN S LINE system in accordance with EN 14366



Noise level of the PESTAN S LINE system in accordance with VDI 4100



LEVEL OF SOUND ISOLATION AND CALSSIFICATION

According to VDI 4100, there are three levels of sound insulation, depending on the purpose of the facility in which the pipes are installed:

- Level I sound insulation - requirements according to DIN 4109 corresponding to 30 dB (A)
- Level II sound insulation - a higher level of sound insulation corresponds to 25 dB (A)
- Level III sound insulation - the highest level of sound insulation corresponds to 20 dB (A)

VDI sound insulation clasification:

- Level I sound insulation - family houses
- Level II sound insulation - apartment buildings, residential and commercial buildings with few floors
- Level III sound insulation - hotels, hospitals, libraries, reading rooms, residential complexes...

12 dB (A)

Sound Insulation Level III

On family houses

Sound insulation level I or on agreement

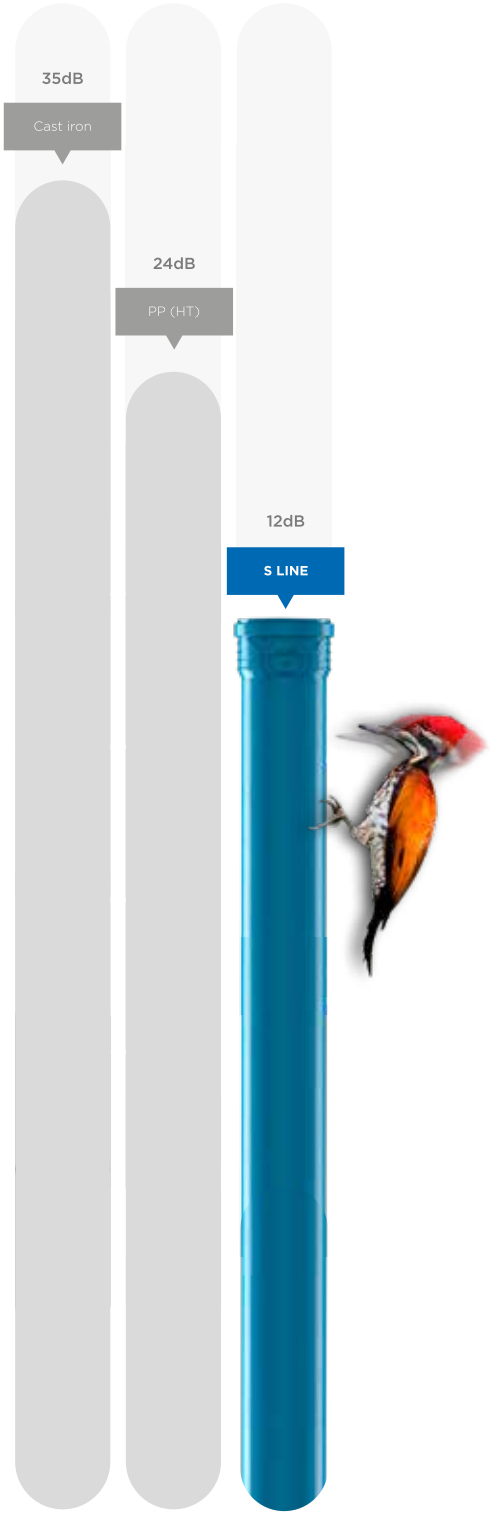
Apartment bulidings, residential and office buildings, comfort apartments

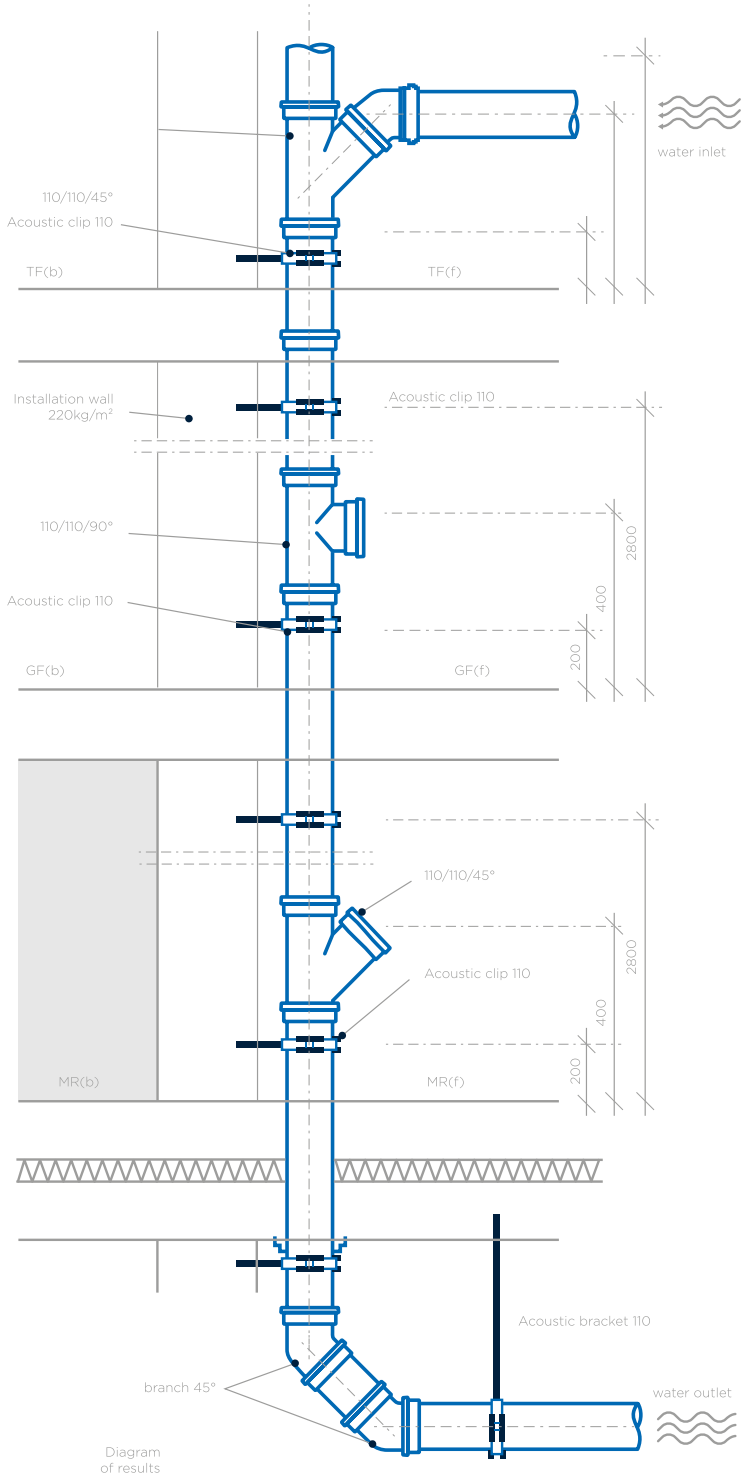
Sound insulation level II or higher

Hotels, hospitals, residential complexes

Sound insulation level III enhanced agreements

Testing of S LINE piping system





VENTOS

VENTILATION BRANCH

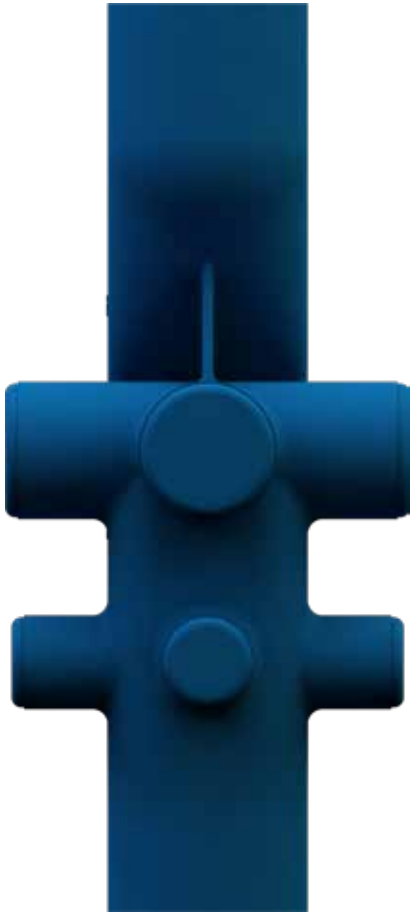
Apliance:

- Waste water drainage in buildings
- For buildings higher then 5 floors
- Six possible ways for connections

Tech. specification
Maximum capacity outflow 17l/s

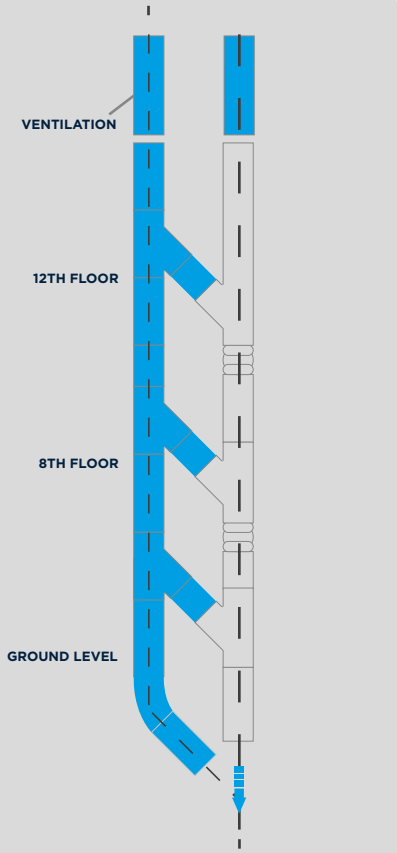
VERTICAL CONNECTION PIECE FOR VALVES

LEFT



FRONT

RIGHT



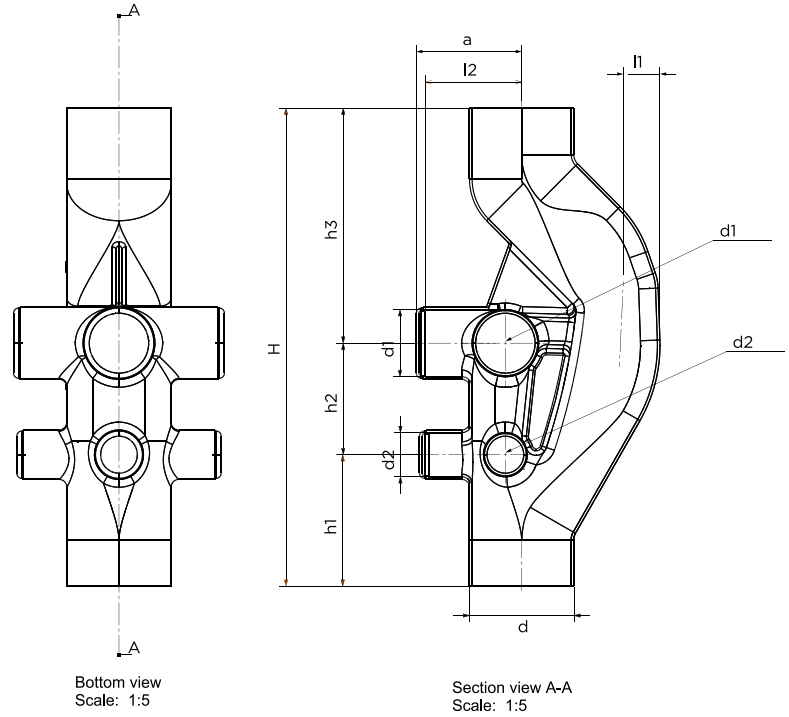
Ventilation in high buildings

VENTILATION BRANCH

PARALLEL VENTILATION

During the construction of high buildings with traditional verticals the sudden change of pressure can happened in those verticals, that can lead to appearance of the subpressure that can pull the content out of the horizontal pipes attached to the vertical and that can lead to pipe cracking. Also great pressure can blow the content out of the pipes and because of those reasons during the construction the wider verticals are taken into account. Also parallel ventilation that is connected to vertical in regular spacings.

Maximum capasity for outflow is
DN 110 - 12 l/s
DN 160- 17 /s



Bottom view
Scale: 1:5

Section view A-A
Scale: 1:5

DN	d, Ø	d1 Ø	d2 Ø	a	b	h	h1	h2	l	l1	l2
	[mm]	[mm]	[mm]	[cm]	[cm]	[cm]	[cm]	[cm]	[cm]	[cm]	[cm]
160	160	110	75	13,39	9,5	19	17	35	13	8	11
110	110	110	75	13	8	21.5	17	35.5	10.5	5.5	9.5

CONNECTABLE VERTICAL PIECE - PIECE WITH GREATER CAPACITY

OPTIMIZATION OF FLOW IN HIGH BUILDINGS

Pestan vertical piece with greater flow enables increase of the capacity on verticals up to multiple times. Also removes the necessity for creating the parallel ventilation.

MODERN AND ECONOMICAL SOLUTION - REPLACEMENT FOR TRADITIONAL WAY OF DRAINAGE AND VENTILATION

Thanks to Pestan ventilation branch you can let go of traditional ways of projecting and placing of the drainage systems in buildings. Now there is economically and technically reliable solution. Besides that it provides undisturbed flow of the air between horizontal and vertical pipes Pestan ventilation branch removes any possibility of creating of air pockets in the vertical. All this enables projecting and placing of the verticals without creating parallel ventilations which decreases the costs of the constructions.

COMPATIBILITY WITH PESTAN SYSTEMS

Pestan ventilation branch is made for verticals in diameters Ø 110 and Ø 160 with lateral insertions 110 and 75. It is compatible with S-line, HTPP and PVC systems.

TRADITIONAL WAY OF CONNECTING HORIZONTAL FLOOR PIPE AND VERTICAL

When water from vertical pipe reaches the horizontal subpressure can appear that can lead to unwanted consequences such as blow out of the pipe content.

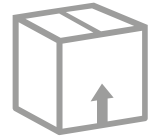
PESTAN VENTILATION BRANCH

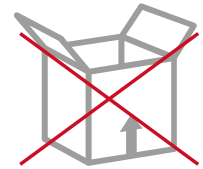
This hydraulically optimized piece for floor attachments enables that dimensions of verticals be smaller and it eliminates parallel vents which saves time, space and money.

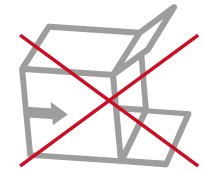
- Modern technical solution
- Economical construction solution
- Increase of vertical capacity
- Compatibility with all Pestan sewage systems

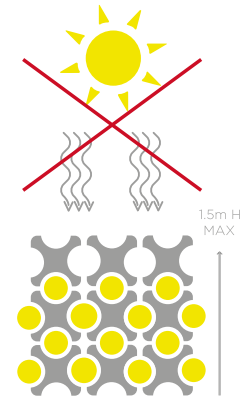
PACKING, STORAGE AND TRANSPORTATION:

All the fittings are packed in cardboard boxes. All pipes are packed in bundles. In order to prevent damage during transport, all Peštan pipes and fittings must not be transported unpacked and in horizontal position. During unloading they must be protected against damage, particularly at temperatures below freezing. Never throw, drag or bend pipes and fittings. Pipes should be stored horizontally on even surfaces up to 1.5m high, protected against sunlight.









SILENCE IS CLOSER THAN EVER

Peštan silent system provides reduction in noise and acoustic vibrations up to level of 12dB. Silence and piece in your home is closer than ever

12 dB (A)

Sound Insulation Level III

NEW - IMPROVED design of fitting socket

MARKER for determining angle of rotation of the fitting.

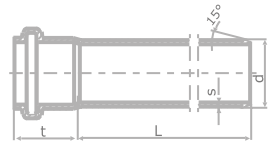
REINFORCEMENT ribs for strenghtening the fitting

Peštan logo „**THE HOUSE**" on the bottom of the fitting is used as a marker for the depth of insertion of the fitting into the socket of a pipe or other fitting.

S LINE PIPES AND FITTINGS PRODUCT RANGE

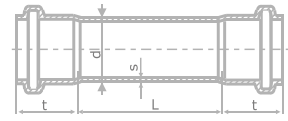
In case of special requests, we offer possibility of building pipes above DN 160 (DN 200, DN 250, DN 315, DN 400 and DN 500).

Pipe with single socket



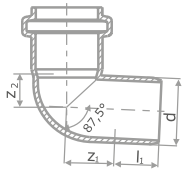
	D	L	S		D	L	S
10304500	32	150	1,8	10304580	90	150	2,8
10304501		250		10304581		250	
10304502		500		10304582		500	
10304503		750		10304583		750	
10304504		1000		10304584		1000	
10304505		1500		10304585		1500	
10304506		2000		10304586		2000	
10304507		2500		10304587		2500	
10304508		3000		10304588		3000	
10304509		4000		10304589		4000	
10304520	40	150	1,8	10304600	110	150	3,4+0,4
10304521		250		10304601		250	
10304522		500		10304602		500	
10304523		750		10304603		750	
10304524		1000		10304604		1000	
10304525		1500		10304605		1500	
10304526		2000		10304606		2000	
10304527		2500		10304607		2500	
10304528		3000		10304608		3000	
10304529		4000		10304609		4000	
10304540	50	150	1,8	10304620	125	150	3,9
10304541		250		10304621		250	
10304542		500		10304622		500	
10304543		750		10304623		750	
10304544		1000		10304624		1000	
10304545		1500		10304625		1500	
10304546		2000		10304626		2000	
10304547		2500		10304627		2500	
10304548		3000		10304628		3000	
10304549		4000		10304629		4000	
10304560	75	150	2,3	10304640	160	150	4,9
10304561		250		10304641		250	
10304562		500		10304642		500	
10304563		750		10304643		750	
10304564		1000		10304644		1000	
10304565		1500		10304645		1500	
10304566		2000		10304646		2000	
10304567		2500		10304647		2500	
10304568		3000		10304648		3000	
10304569		4000		10304649		4000	
10304700	200	500	6,2	10304730	250	500	7,7
10304701		750		10304731		750	
10304702		100		10304732		1000	
10304703		1500		10304733		1500	
10304704		2000		10304734		2000	
10304705		2500		10304735		2500	
10304706		3000		10304736		3000	
10304707		4000		10304737		4000	

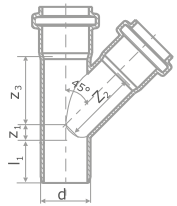
Pipe with double socket

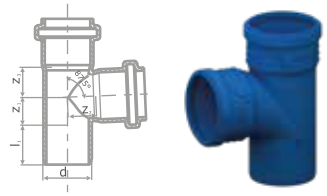


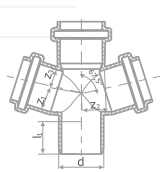
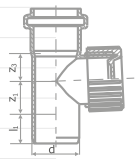
	D	L	S		D	L	S
10305000	32	500	1,8	10305080	90	500	2,8
10305001		750		10305081		750	
10305002		1000		10305082		1000	
10305003		1500		10305083		1500	
10305004		2000		10305084		2000	
10305005		2500		10305085		2500	
10305006		3000		10305086		3000	
10305007		4000		10305087		4000	
10305020	40	500	1,8	10305100	110	500	3,4+0,4
10305021		750		10305101		750	
10305022		1000		10305102		1000	
10305023		1500		10305103		1500	
10305024		2000		10305104		2000	
10305025		2500		10305105		2500	
10305026		3000		10305106		3000	
10305027		4000		10305107		4000	
10305040	50	500	1,8	10305120	125	500	3,9
10305041		750		10305121		750	
10305042		1000		10305122		1000	
10305043		1500		10305123		1500	
10305044		2000		10305124		2000	
10305045		2500		10305125		2500	
10305046		3000		10305126		3000	
10305047		4000		10305127		4000	
10305060	75	500	2,3	10305140	160	500	4,9
10305061		750		10305141		750	
10305062		1000		10305142		1000	
10305063		1500		10305143		1500	
10305064		2000		10305144		2000	
10305065		2500		10305145		2500	
10305066		3000		10305146		3000	
10305067		4000		10305147		4000	
10305160	200	500	6,2	10305180	250	500	7,7
10305161		750		10305181		750	
10305162		100		10305182		1000	
10305163		1500		10305183		1500	
10305164		2000		10305184		2000	
10305165		2500		10305185		2500	
10305166		3000		10305186		3000	
10305167		4000		10305187		4000	

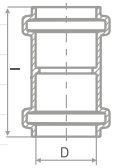
CODE	DESCRIPTION	PICTURE	Z_1	Z_2	$L_{1\ MIN}$	D
	S LINE BEND 15°					
10304000	Silent bend HTB 32/15°		25	8.45	25	32
10304001	Silent bend HTB 40/15°		26.5	8.97	26.5	40
10304002	Silent bend HTB 50/15°		29.005	8,26	29.005	50
10304003	Silent bend HTB 75/15°		31.79	12.01	37.79	75
10304004	Silent bend HTB 90/15°		33.5	13.83	33.5	90
10304005	Silent bend HTB 110/15°		40.885	16.34	40.885	110
10304006	Silent bend HTB 125/15°		43.84	19.52	43.84	125
10304007	Silent bend HTB 160/15°		47.915	23.05	47.915	160
10304008	Silent bend HTB 200/15°		12.18	27.11	100	200
10304009	Silent bend HTB 250/15°		15.23	34.95	120.5	250
	S LINE BEND 30°					
10304020	Silent bend HTB 32/30°		25	10.4	25	32
10304021	Silent bend HTB 40/30°		26.5	11.5	26.5	40
10304022	Silent bend HTB 50/30°		30.57	11.24	30.57	50
10304023	Silent bend HTB 75/30°		29.5	16.69	29.5	75
10304024	Silent bend HTB 90/30°		33.5	19.58	33.5	90
10304025	Silent bend HTB 110/30°		44.385	21.66	44.385	110
10304026	Silent bend HTB 125/30°		47.81	27.06	47.81	125
10304027	Silent bend HTB 160/30°		53.01	32.43	53.01	160
10304028	Silent bend HTB 200/30°					
10304029	Silent bend HTB 250/30°					
	S LINE BEND 45°					
10304040	Silent bend HTB 32/45°		27.88	11.97	27.88	32
10304041	Silent bend HTB 40/45°		30.205	14.64	30.205	40
10304042	Silent bend HTB 50/45°		32.245	14.89	32.245	50
10304043	Silent bend HTB 75/45°		36.705	22.05	36.705	75
10304044	Silent bend HTB 90/45°		42.18	25.7	42.18	90
10304045	Silent bend HTB 110/45°		48.145	30.92	48.145	110
10304046	Silent bend HTB 125/45°		52.075	35.6	52.075	125
10304047	Silent bend HTB 160/45°		58.47	44.24	58.47	160
10304048	Silent bend HTB 200/45°		38.31	55.25	102	200
10304049	Silent bend HTB 250/45°		47.92	69.09	123	250
	S LINE BEND 67,5°					
10304060	Silent bend HTB 32/67,5°		29.645	16.03	29.645	32
10304061	Silent bend HTB 40/67,5°		32.48	18.71	32.48	40
10304062	Silent bend HTB 50/67,5°		35.15	21.03	35.15	50
10304063	Silent bend HTB 75/67,5°		41.125	30.49	41.125	75
10304064	Silent bend HTB 90/67,5°		47.5	36.39	47.5	90
10304065	Silent bend HTB 110/67,5°		54.67	43.68	54.67	110
10304066	Silent bend HTB 125/67,5°		59.475	51.07	59.475	125
10304067	Silent bend HTB160/67,5°		67.955	63.7	67.955	160
10304068	Silent bend HTB 200/67,5°		61.81	80.74	104	200
10304069	Silent bend HTB 250/67,5°		77.31	101.03	125.5	250

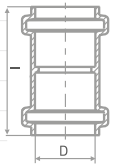
CODE	DESCRIPTION	PICTURE	Z_1	Z_2	$L_{1\ MIN}$	D
	S LINE BEND 87,5°					
10304080	Silent bend HTB 32/87,5°	 	31.655	20.09	31.655	32
10304081	Silent bend HTB 40/87,5°		35.07	23.77	35.07	40
10304082	Silent bend HTB 50/87,5°		38.46	27.59	38.46	50
10304083	Silent bend HTB 75/87,5°		46.155	40.69	46.155	75
10304084	Silent bend HTB 90/87,5°		54.055	48.65	54.055	90
10304085	Silent bend HTB 110/87,5°		62.1	58.545	62.1	110
10304086	Silent bend HTB 125/87,5°		67.905	68.15	67.905	125
10304087	Silent bend HTB 160/87,5°		43	84.73	43	160
10304088	Silent bend HTB 200/87,5°		88.55	109.48	107	200
10304089	Silent bend HTB 250/87,5°		110.76	137.98	128.1	250

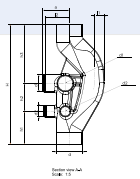
CODE	DESCRIPTION	PICTURE	Z_1	Z_2	Z_3	$L_{1\ MIN}$	D
	S LINE BRANCH 45°						
10304100	Silent branch HTEA 32/32/45°	 	6.78	47.68	47.6	47.22	32
10304101	Silent branch HTEA 40/32/45°		2.64	54.48	53.64	52	40
10304102	Silent branch HTEA 40/40/45°		8.28	59.24	59.41	49.72	40
10304103	Silent branch HTEA 50/32/45°		2.14	61.09	57.72	48.1	50
10304104	Silent branch HTEA 50/40/45°		3.59	64.95	64.5	55	50
10304105	Silent branch HTEA 50/50/45°		10.36	70.52	70.49	63	50
10304106	Silent branch HTEA 75/40/45°		9.22	84.015	78.12	46.5	75
10304107	Silent branch HTEA 75/50/45°		2.14	88.4	85.84	54	75
10304108	Silent branch HTEA 75/75/45°		15.53	103.97	103.79	70	75
10304109	Silent branch HTEA 90/50/45°		9.64	98.49	90.32	54	90
10304110	Silent branch HTEA 90/75/45°		8.03	113.31	110.37	72	90
10304111	Silent branch HTEA 90/90/45°		18.64	120.98	120.94	81.5	90
10304112	Silent branch HTEA 110/40/45°		26.72	107.36	96.65	42	110
10304113	Silent branch HTEA 110/50/45°		19.64	112.46	120.74	49	110
10304114	Silent branch HTEA 110/75/45°		1.97	127.72	121.75	67	110
10304115	Silent branch HTEA 110/90/45°		8.64	136.75	132.65	76	110
10304116	Silent branch HTEA 110/110/45°		22.78	146.67	145.67	92.5	110
10304117	Silent branch HTEA 125/90/45°		1.14	146.65	140.05	75	125
10304118	Silent branch HTEA 125/110/45°		15.28	159.68	156.64	89	125
10304119	Silent branch HTEA 125/125/45°		25.89	169.58	170.03	100	125
10304120	Silent branch HTEA 160/110/45°		2.22	185.82	174.3	78	160
10304121	Silent branch HTEA 160/125/45°		8.39	193.75	188.78	89	160
10304122	Silent branch HTEA 160/160/45°		33.14	213.57	213.49	114	160
10304123	Silent branch HTEA 200/160/45°		13.14	221.15	215.35	99	200
10304124	Silent branch HTEA 200/200/45°		41.42	240.35	240.35	99.58	200
10304125	Silent branch HTEA 250/160/45°		11.86	253.15	241.53	118.86	200
10304126	Silent branch HTEA 250/200/45°		16.42	277.35	269.53	119.58	200
10304127	Silent branch HTEA 250/250/45°		49.84	301.53	301.53	121.16	200

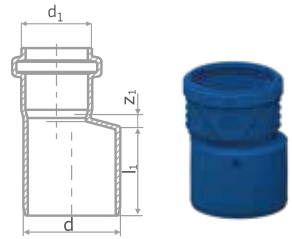
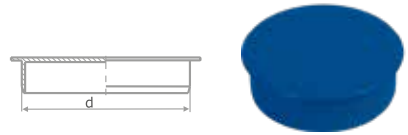
CODE	DESCRIPTION	PICTURE	Z_1	Z_2	Z_3	$L_{1\ MIN}$	D
	S LINE BRANCH 87,5°						
10304130	Silent branch HTEA 32/32/87.5°		15.3	22.51	22.53	47.86	32
10304132	Silent branch HTEA 40/40/87.5°		19.08	27.3	27.62	49.92	40
10304134	Silent branch HTEA 50/40/87.5°		19.96	30.47	27.35	50.06	50
10304135	Silent branch HTEA 50/50/87.5°		23.93	31.37	31.57	52.07	50
10304136	Silent branch HTEA 75/40/87.5°		16.84	42.925	29.66	55.58	75
10304137	Silent branch HTEA 75/50/87.5°		23.39	43.57	35.96	55.47	75
10304138	Silent branch HTEA 75/75/87.5°		35.9	46.23	46.72	56.1	75
10304139	Silent branch HTEA 90/50/87.5°		23.06	51.07	68.31	64.44	90
10304140	Silent branch HTEA 90/75/87.5°		35.57	53.17	47.06	63.63	90
10304141	Silent branch HTEA 90/90/87.5°		43.08	55.3	55.41	63.42	90
10304142	Silent branch HTEA 110/40/87.5°		17.62	61.475	30.465	68.53	110
10304143	Silent branch HTEA 110/50/87.5°		22.62	62.2	35.82	69.4	110
10304144	Silent branch HTEA 110/75/87.5°		35.13	63.11	47.49	69.75	110
10304145	Silent branch HTEA 110/90/87.5°		42.6	63.32	56.25	70.75	110
10304146	Silent branch HTEA 110/110/87.5°		52.65	65.19	65.96	70.84	110
10304147	Silent branch HTEA 125/90/87.5°		42.31	72.485	70.79	73.79	125
10304148	Silent branch HTEA 125/110/87.5°		52.48	75.05	66.48	73.19	125
10304149	Silent branch HTEA 125/125/87.5°		59.83	73.99	74.55	73.17	125
10304150	Silent branch HTEA 160/110/87.5°		51.67	89.79	70.39	80.45	160
10304151	Silent branch HTEA 160/125/87.5°		59.07	93.12	77.12	80.06	160
10304152	Silent branch HTEA 160/160/87.5°		76.58	98.97	98.44	80.42	160
10304153	Silent branch HTEA 200/160/87,5°		75.71	113.15	97.35	99.29	250
10304154	Silent branch HTEA 200/200/87,5°		96.08	117.35	117.35	99.27	250
10304155	Silent branch HTEA 250/160/87,5°		74.62	138.02	103.03	119.38	250
10304156	Silent branch HTEA 250/200/87,5°		94.99	142.35	122.53	119.36	250
10304157	Silent branch HTEA 250/250/87,5°		120.26	144.53	144.53	119.34	250
	S LINE BEND BRANCH 87,5°						
10304240	Silent bend branch HTEA 90/90/87.5°		52.13	65.85	53	63.07	90
10304241	Silent bend branch HTEA 110/90/87.5°		49.89	77.35	53.42	74.9	110
10304242	Silent bend branch HTEA 110/110/87.5°		60.53	80.51	61.35	74.54	110

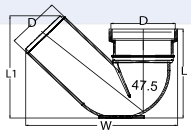
CODE	DESCRIPTION	PICTURE	Z_1	Z_2	Z_3	$L_{1\ MIN}$	D
	S LINE DOUBLE BRANCH 45°						
10304190	Silent double branch HTDA 50/90/50-45°	 	25.25	45	25.25	54	90
10304191	Silent double branch HTDA 50/110/50-45°		25.25	55.45	25.25	49	110
	S LINE INSPECTION BRANCH						
10304178	Silent inspection branch HTRE 50	 	25		31.46	51	50
10304179	Silent inspection branch HTRE 75		37.5		46.74	54.5	
10304180	Silent inspection branch HTRE 90		46.44		55.83	62.06	90
10304181	Silent inspection branch HTRE 110		55		66.15	68.5	110
10304182	Silent inspection branch HTRE 125		62.5		75.53	70.5	125
10304183	Silent inspection branch HTRE 160		80		98.78	77	160

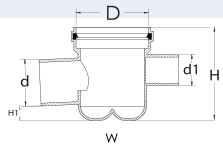
CODE	DESCRIPTION	PICTURE	L	D
	S LINE DOUBLE SOCKET			
10304200	Silent double socket HTM 32	 	96.9	32.7
10304201	Silent double socket HTM 40		104	40.7
10304202	Silent double socket HTM 50		110	50.7
10304203	Silent double socket HTM 75		119	76
10304204	Silent double socket HTM 90		131	90
10304205	Silent double socket HTM 110		147	111
10304206	Silent double socket HTM 125		157	126
10304207	Silent double socket HTM 160		176	161
10304208	Silent double socket HTM 200		212	201
10304209	Silent double socket HTM 250		251	251.5

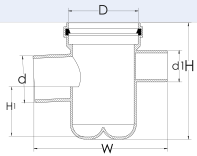
DESCRIPTION	PICTURE	CODE	L	D
S LINE SLIP COUPLER				
Silent slip coupler HTU 32	 	10304220	96.9	32.7
Silent slip coupler HTU 40		10304221	104	40.7
Silent slip coupler HTU 50		10304222	110	50.7
Silent slip coupler HTU 75		10304223	119	76
Silent slip coupler HTU 90		10304224	131	90
Silent slip coupler HTU 110		10304225	147	111
Silent slip coupler HTU 125		10304226	157	126
Silent slip coupler HTU 160		10304227	176	161
Silent slip coupler HTU 200		10304228	212	201
Silent slip coupler HTU 250		10304229	251	251.5

CODE	DESCRIPTION	PICTURE	DN	d, ø	d1 ø	d2 ø	a	b	h	h1	h2	l	l1	l2
	VENTOS VENTILATION BRANCH	 												
40006502	VENTOS VENTILATION BRANCH ø160/ø110/ø75		160	160	110	75	13,39	9,5	19	17	35	13	8	11
40006918	VENTOS VENTILATION BRANCH ø110/ø110/ø75		110	110	110	75	13	8	21.5	17	35.5	10.5	5.5	9.5

CODE	DESCRIPTION	PICTURE	Z1	L1MIN	D	D_1
	S LINE EXCENTRIC REDUCER					
10304160	Silent reducer HTR 40/32		15.19	54.88	40	32.7
10304161	Silent reducer HTR 32/40		10.435	54.88	40	36.9
10304163	Silent reducer HTR 40/50		17.32	57.88	50	40.7
10304164	Silent reducer HTR 50/40		17.32	57.88	50	40.7
10304165	Silent reducer HTR 75/50		20.94	62.26	75	50.7
10304177	Silent reducer HTR 90/40		19.17	71.16	90	44.9
10304166	Silent reducer HTR 90/50		16.34	70.36	90	54.9
10304167	Silent reducer HTR 90/75		19.1	71.54	90	81
10304168	Silent reducer HTR 90/110		13.025	77.48	110	96.8
10304169	Silent reducer HTR 90/125		13.365	81.51	125	96.8
10304170	Silent reducer HTR 110/40		9.95	77.63	110	44.9
10304171	Silent reducer HTR 110/50		16.89	76.81	110	50.7
10304172	Silent reducer HTR 110/75		19.79	77.54	110	76
10304173	Silent reducer HTR 125/110		19.03	82.63	125	111
10304175	Silent reducer HTR 160/125		22.94	92.09	160	126
10304184	Silent reducer HTR 200/160		27.15	99	200	172
10304185	Silent reducer HTR 250/200		34.47	120	250	214.6
CODE	DESCRIPTION	PICTURE	Z1	L1MIN	D	D_1
	S LINE CAP FOR SOCKET					
10304260	Sline pp Cap for socket ø32 (box)		15.19	54.88	40	32.7
10304261	Sline pp Cap for socket ø40 (box)		10.435	54.88	40	36.9
10304262	Sline pp Cap for socket ø50 (box)		17.32	57.88	50	40.7
10304263	Sline pp Cap for socket ø75 (box)		17.32	57.88	50	40.7
10304264	Sline pp Cap for socket ø90 (box)		20.94	62.26	75	50.7
10304265	Sline pp Cap for socket ø110 (box)		19.17	71.16	90	44.9
10304266	Sline pp Cap for socket ø125 (box)		16.34	70.36	90	54.9
10304267	Sline pp Cap for socket ø160 (box)		19.1	71.54	90	81

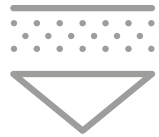
CODE	DESCRIPTION	PICTURE	SIZE D (MM)	L (MM)	L1 (MM)	W (MM)	STD PCK
40006639	S LINE P TRAP,BLUE DN 110 MM	 	110	167	269	176	10

CODE	DESCRIPTION	PICTURE	SIZE D (MM)	D (MM)	D1 (MM)	H (MM)	H1 (MM)	W	STD PCK
40006640	S LINE FLOOR TRAP,BLUE DN 110/DN75/ DN50 MM	 	110	75	50	141	50	213	10

CODE	DESCRIPTION	PICTURE	SIZE D (MM)	D (MM)	D1 (MM)	H (MM)	H1 (MM)	W	STD PCK
40006641	S LINE DEEP FLOOR DN110/75/50 MM	 	110	75	50	175	72	213	10

PVC (KG) PIPES

BELOW GROUND



For domestic & street sewage systems

The pipes for domestic and street sewerage systems together with the appropriate coupling sleeves are intended to be used for the removal of all kinds of waste water.

Assembly of the pipeline is extremely easy , pipes are connected to one another with fitings while complete seal is achieved with use of rubber bands. Maximum temperature of application is +600 °C. Pipes are resistant to salt water, alcohol, acids, alkalis, sulphates, aggressive gas and all kinds of detergents. On the other hand, they cannot be used for the transport of water which contains high percentage of benzene, benzine (petrol) or acetone.

Technical data & characteristics

- Very light material
- Simple and easy way of both transport and manipulation
- Fast and cheap assembling
- Pipe connections are resistant to water and other type of fluids
- They are resistant to corrosion in alkaline, acid or aggressive environment
- They are fine electrical insulator, and also resistant to mechanical impact
- Guaranteed life time of more than 50 years
- Practically no costs of pipeline maintenance
- Connection with muffs and gaskets made of EPDM or rubber (EN 681)
- SRPS EN 1401 / SRPS EN 13476*

*SRPS EN 1401 - European norm for production of full wall compact PVC pipes. SRPS EN 13476 - European norm for production of three layer PVC pipes.

Material characteristics:

- Specific mass 1,38 ÷ 1,45gr/cm^3
- Tensile strenght 50-60 MPa
- Thermal stability: according to Vicat min 79 °C
- Thermal conductivity 0,54 KJ/mh/°C
- Linear ratio of thermal extension 0,08 mm/m/°C
- Water absorption 4 mg/cm^2

APPLICATION AND STATIC RECOMENDATION

What pipe series should be used depends on location, ground quality and type of foundation, other various conditions, etc.

Pipe series S-20 and S-16 are used in normal conditions, i.e. for normal type of ground, trenches, burial methods and ground compression.

Pipe series S-25 are laid in terrains with extremely incoherent material. Deformation of the cross section is checked after one to three months from laying of pipeline.

With pipe series S-20 and S-16 deformation cannot be higher than 5% of outer pipe diameter, while the maximum deformation after two years cannot be higher than 10% of diameter.

With pipe series S-25, after one to three months from laying of pipeline, maximum deformation will not be higher than 5%, while deformation after 2 years is allowed to be up to 8%.

Laying of sewerage pipes and fittings is allowed without any specific static evidence, and in accordance with the following conditions:

- Bellow traffic surfaces with traffic loading up to 30 tons, minimum covering layer should be 1,5 m.
- Bellow non-traffic surfaces or surfaces which are temporarily exposed to light vehicle traffic, minimum covering layer should be 0,8m.
- While laying the pipeline bellow the buildings, covering layer above the pipe socket must be at least 150mm.
- Protection pipes should be used if the loading from the mounted construction parts cannot be avoided.
- While laying the pipeline in the trenches with minimum width, covering layer must not be higher than 6m; on the other hand, while laying the pipeline below the protective dam and in wide trenches, covering layer should not be higher than 4m.
- Filling soil should have the following approximate characteristics: 8≤20,5KN/m2 8≤22,50 (angleø)
- Laying the pipeline in the area with ground water is allowed only if the removal of the filling material is prevented. Removal is prevented by laying the pipeline in the filter layer made of gravel or concrete.
- If not acting completely in accordance with these norms it is necessary to calculate the pipe carrying ability, while standard conditions of filling and ground compression should be provided (DIN 4033, EN); this means that in the pipeline zone, from the bottom of the trench up to at least 30cm above the vertex of the pipe the following ground compression values should be achieved:
  - 97% density of un shoveled soil for binding ground.
  - 95% density of unshoveled soil for binding ground.

All values of ground compression should be proven during handling.

- Pipeline zone (from the bottom of the trench up to at least 30cm above the vertex of the pipe) is filled with material which does not contain stones and at the same time can be compressed. Filling material, which will be in direct contact with the pipe, can be taken from the ground pile came from shoveled trench, which should be previously cleared from large pieces. Ground compression around the pipe can be done manually or by using hydraulic tools. Each time material is filled only up to vertex of the pipe while the ground compression is being done sidewise, never in the zone occupied by the pipe. Filling material is being compressed until well sidewise support of the sewerage trench is provided. Material is being filled above the vertex of the pipe in layers, in a way that the higher layers are compressing the lower ones.

PIPE SERIES SPECIFICATION

Pipe series S-25 (SDR 51) SN 2 KN/m

- Depth of pipe trench min 1,2 ÷ 4 m max
- Maximum loading max 12t/axel
- Ring stiffness SN 2 KN/m^2
- Connection with EPDM or rubber (EN 681) seal in socket
- Length 1 ÷ 6m

Pipe series S-20 (SDR 41) SN 4 KN/m2

- Depth of pipe trench min 1,2 ÷ 6 m max
- Maximum loading max 18t/axel
- Ring stiffness SN 4 KN/m^2
- Connection with EPDM or rubber (EN 681) seal in socket
- Length 1 ÷ 6m

Pipe series S-16 (SDR 34) SN 8 KN/m2

- Depth of pipe trench min 1,2 ÷ 6 m max
- Maximum loading max 18t/axel
- Ring stiffness SN 8 KN/m^2
- Connection with EPDM or rubber (EN 681) seal in socket
- Length 1 ÷ 6m

FITTING OF SN4 CLASS CAN BE USED WITH PIPES SN8,
BECAUSE OF THEIR GEOMETRY THEY HAVE STRENGHT OF SN8.

SADDLE AFTER GRIP (SAG)

Saddle after grip is new, modern product, with great performance.

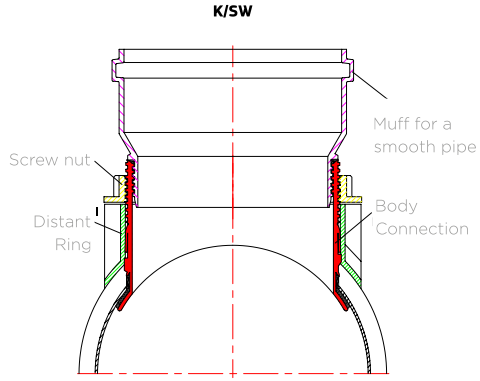
It is intended for subsequent connection to an existing pipeline for smooth as well as corrugated pipes. Using this system, combined with a great range of Peštan fittings, production of new lines of home, street and drain sewer, as well as connecting to existing lines becomes satisfaction.

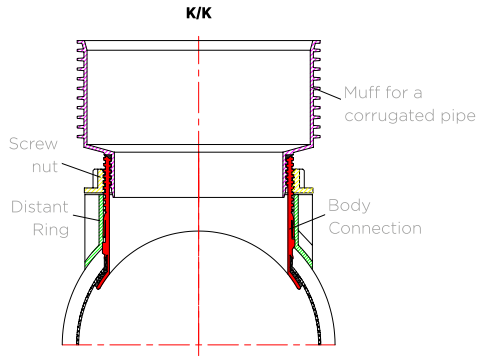
Peštan latest product main purpose is to be subsequently attached to an existing pipeline with a connection to smooth and corrugated pipes. The connection is safe and waterproof. It is made of ABS by injection molding technology.

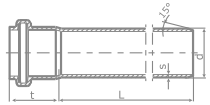
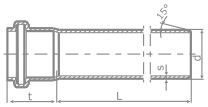
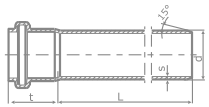
SIZES

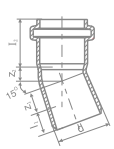
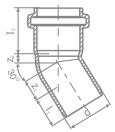
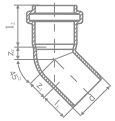
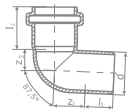
Sizes are given in the following table:

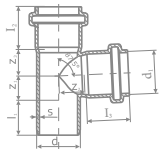
K/K CODE	K/SW CODE	
10799210	10799110	250/160
10799211	10799111	300/160
10799212	10799112	400/160
10799213	10799113	500/160
10799214	10799114	600/160
K/K CODE	**K/SW CODE**	
10799200	10799100	250/200
10799201	10799101	300/200
10799202	10799102	400/200
10799203	10799103	500/200
10799204	10799104	600/200

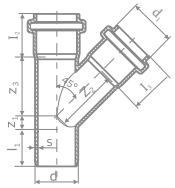


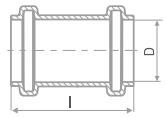
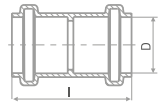


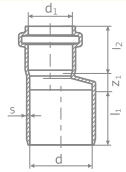
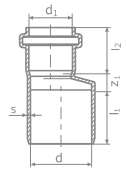
DESCRIPTION	PICTURE	CODE	D	S	T
KG PIPE SDR51 SN2					
		10400044	160	3,2	86
		10400054	200	3,9	106
		10400074	250	4,9	128
		10400104	315	6,2	155
		10400144	400	7,9	183
		10400184	500	9,8	210
		10410560	630	12,3	188
KG PIPE SDR41 SN4					
		10400304	110	3,2	61
		10400324	125	3,2	72
		10400344	160	4,0	86
		10400364	200	4,9	106
		10400384	250	6,2	128
		10400404	315	7,7	155
		10400444	400	9,8	183
		10400484	500	12,3	210
		10410360	630	15,4	188
KG PIPE SDR34 SN8					
		10400604	110	3,2	61
		10400624	125	3,7	72
		10400644	160	4,7	86
		10400664	200	5,9	106
		10400684	250	7,3	128
		10400704	315	9,2	155
		10400744	400	11,7	183
		10400784	500	14,6	210
		10410160	630	18,4	188

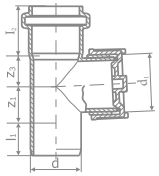
DESCRIPTION	PICTURE	CODE	D	S	Z1	Z2	L1MIN	L2
KGB BEND 15°								
	 	10401362	110	3,2	6,1	20	61	49,1
		10401363	125	3,2	7,9	21	68	54,6
		10401360	160	4	10,1	26,2	81	86
		10401361	200	4,9	26	30	99	106
		*11500002	250	6,2	18	30	125	128
		*11500003	315					
		*11500005	400					
		*11500007	500					
KGB BEND 30°								
	 	10401020	110	3,2	14,7	27,1	61	49,6
		10401021	125	3,2	16,7	29,1	68	54,6
		10401022	160	4	24	30	81	86
		10401023	200	4,9	30	39	99	106
		*11500102	250	6,2	37	49	125	128
		*11500103	315					
		*11500105	400					
		*11500107	500					
KGB BEND 45°								
	 	10401120	110	3,3	22,9	34,7	61	49,1
		10401121	125	3,3	26	37,8	68	54,6
		10401102	160	4	36	44	81	86
		10401103	200	4,9	46	55	99	106
		10401104	250	6,2	57	69	125	128
		10401105	315	7,7	72	86	132	155
		10401106	400	9,8	83,3	117,9	150	119
		*11500205	500					
KGB BEND 87.5°								
	 	10401320	110	3,3	53,2	62,8	61	49,1
		10401321	125	3,3	60,4	70	68	54,6
		10401302	160	4	83	89	81	86
		10401303	200	4,9	105	114	99	106
		10401304	250	6,2	131	143	125	128
		10401305	315	7,7	165	180	132	155
		10401326	400	9,8	193,3	121,2	150	119
		*11500405	500					

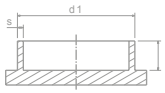
DESCRIPTION	PICTURE	CODE	D/D1	S	Z1	Z2	Z3	L1MIN	L2	L3
KGEA BRANCH 87,5°										
	 	10401630	110/110	3,3	52,7	67,3	67,3	61	49,1	49,1
		10401631	125/110	3,3	52,4	67,6	67,6	68	54,6	49,1
		10401632	125/125	3,3	59,9	75,1	75,1	68	54,6	54,6
		10401603	160/110	4	58	86	64	81	86	61
		10401604	160/125	4	66	87	71	81	86	72
		10401605	160/160	4	83	89	89	81	86	86
		10401606	200/110	4,9	62	105	64	99	106	61
		10401607	200/125	4,9	69	75	101	75	106	72
		10401608	200/160	4,9	86	108	90	99	106	86
		10401609	200/200	4,9	106	111	111	99	106	106
		10401619	250/110	6,2	90	132	100	120	128	61
		10401620	250/125	6,2	90	132	100	120	128	72
		10401610	250/160	6,2	89	132	91	125	128	86
		10401611	250/200	6,2	108	134	111	125	128	106
		10401612	250/250	6,2	131	138	138	125	128	128
		10401618	315/110	7,7	93	162	104	134	155	61
		10401617	315/125	7,7	93	162	104	134	155	72
		10401613	315/160	7,7	93	164	104	134	155	86
		10401614	315/200	7,7	111	165	113	132	155	106
		10401615	315/250	7,7	134	169	139	132	155	128
		10401616	315/315	7,7	165	173	173	132	155	155
		10401621	400/110	9,8	106	206,5	131,8	150	124,2	51,3
		10401622	400/160	9,8	106	209,7	131,8	150	124,2	65
		10401623	400/200	9,8	106	214,5	131,8	150	124,2	77,5
		*11501232	400/110							
		*11501233	400/125							
		*11501234	400/160							
		*11501235	400/200							
		*11501236	400/250							
		*11501237	400/315							
		*11501239	400/400							
		*11501249	500/110							
		*11501250	500/125							
		*11501251	500/160							
		*11501252	500/200							
		*11501253	500/250							
		*11501254	500/315							
		*11501256	500/400							
		*11501258	500/500							
		*11501056	500/400							
		*11501058	500/500							

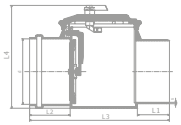
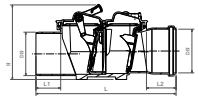
DESCRIPTION	PICTURE	CODE	D/D1	S	Z1	Z2	Z3	L1MIN	L2	L3
KGEA BRANCH 45°										
		10401430	110/110	3,3	22,8	138,2	138,2	61	49,1	49,1
		10401431	125/110	3,3	15,3	148,8	145,7	68	54,6	49,1
		10401432	125/125	3,3	25,9	156,3	156,3	68	54,6	54,6
		10401403	160/110	4	1	168	159	81	86	61
		10401404	160/125	4	12	176	169	81	86	72
		10401405	160/160	4	36	194	194	81	86	86
		10401406	200/110	4,9	-16	195	177	99	106	61
		10401407	200/125	4,9	7	212	201	81	106	72
		10401408	200/160	4,9	19	220	213	99	106	86
		10401409	200/200	4,9	46	241	241	99	106	106
		10401419	250/110	6,2	32	228	209	165	128	61
		10401420	250/125	6,2	21	236	220	154	128	72
		10401410	250/160	6,2	-4	253	236	125	128	86
		10401411	250/200	6,2	23	274	264	125	128	106
		10401412	250/250	6,2	57	300	300	125	128	128
		10401418	315/110	7,7	2	272	244	160	155	61
		10401417	315/125	7,7	-8	279	254	154	155	72
		10401413	315/160	7,7	-32	297	278	126	155	86
		10401414	315/200	7,7	-6	318	295	132	155	106
		10401415	315/250	7,7	28	344	331	132	155	128
		10401416	315/315	7,7	72	378	378	132	155	155
		10203703	400/160	15,3	22	370	255	178	155	75
		10203703	400/200	15,3	62	390	215	178	155	90
		*11501032	400/110							
		*11501033	400/125							
		*11501034	400/160							
		*11501035	400/200							
		*11501036	400/250							
		*11501037	400/315							
		*11501039	400/400							
		*11501049	500/110							
		*11501050	500/125							
		*11501051	500/160							
		*11501052	500/200							
		*11501053	500/250							
		*11501054	500/315							
		*11501056	500/400							
		*11501058	500/500							
		*11501258	500/500							
		*11501056	500/400							
		*11501058	500/500							

DESCRIPTION	PICTURE	CODE	D(D/D1)	L1MIN
KGU SLEEVE SOCKET				
	 	10402720	110	122,2
		10402721	125	131,2
		10402702	160	158
		10402703	200	158
		10402704	250	250
		10402705	315	293
		10402706	400	244
		*11502310	500	
KGU DOUBLE SOCKET				
	 	10402620	110	122,2
		10402621	125	131,2
		10402602	160	158
		10402604	250	250
		10402605	315	293
		10402626	400	244
		*11502410	500	

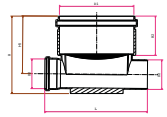
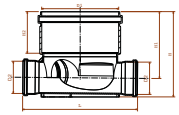
DESCRIPTION	PICTURE	CODE	(D/D1)	S	Z1	L1MIN	L2
KGR EXCENTRIC REDUCER							
	 	10401730	125/110	3,3	23,3	67	49,1
		10401701	160/110	4	34	81	61
		10401702	160/125	4	27	81	72
		10401703	200/110	4,9	26	125	61
		10401705	200/160	4,9	32	99	86
		10401709	250/200	6,2	38	125	106
		10401714	315/250	7,7	46	132	128
KGR REDUCER							
	 	*10401750	110/200	4,9	5	61	59
		*10401800	110/250	6,1	7	61	90
		*10401810	110/315	7,7	40	61	93
		*10401820	110/400	6	40	61	95
		*10401751	125/200	4,9	5	72	59
		*10401801	125/250	6,1	7	72	90
		*10401811	125/315	7,7	40	72	93
		*10401821	125/400	9,8	40	72	95
		*10401802	160/250	6,1	8	86	90
		*10401812	160/315	7,7	7	86	93
		*10401822	160/400	9,8	50	86	95
		*10401813	200/315	7,7	7	106	93
		*10401823	200/400	9,8	50	106	95
		*10401824	250/400	9,8	50	128	95
		*11503027	315/400				
		*11503044	400/500				

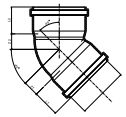
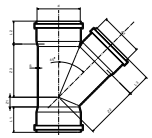
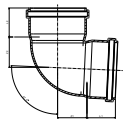
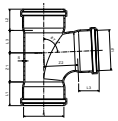
DESCRIPTION	PICTURE	CODE	(D/D1)	S	Z1	Z2	L1MIN	L2
INSPECTION PIPE								
		10401920	110/110	3,3	51,7	52,68	67	49,1
		10401921	125/110	3,3	51,7	51	72	54,6
		10401902	160/160	4	83	89	81	86
		10401903	200/160	4,9	86	111	99	106
		10401904	250/160	6,2	89	91	125	128
		10401905	315/160	7,7	93	104	134	155
		*11502603	400/160					

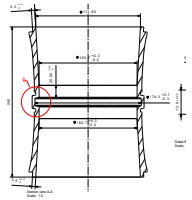
DESCRIPTION	PICTURE	CODE	D	S	L
KG END CAP					
		10402904	200	4,9	51,5
		10402900	250	6,2	90
		10402901	315	7,7	92,5
		10402902	400	9,8	95
		*11502504	500	12,3	120

DESCRIPTION	PICTURE	CODE	D	S	L1	L2	L3	L4
NON-RETURN VALVE								
		10202502	110	4,0	64	64	320	189
		10202503	125	4,0	68	65	318	226
		10202504	160	4,0	68	103	350	248
		10402000	200	4,5	100	86	455	300
		10402001	250	6,2	144	104	566	365
		10402002	315	7,7	160	116	728	454
NON-RETURN VALVE WITH TWO CLAPS								
		10202505	110	4,0	62	62	355	190
			160					
			200					

DESCRIPTION	PICTURE	CODE	(D/D1)
SAG K/K			
		10799210	250/160
		10799211	300/160
		10799212	400/160
		10799213	500/160
		10799214	600/160
		10799200	250/200
		10799201	300/200
		10799202	400/200
		10799203	500/200
		10799204	600/200
SAG K/SW			
		10799110	250/160
		10799111	300/160
		10799112	400/160
		10799113	500/160
		10799114	600/160
		10799100	250/200
		10799101	300/200
		10799102	400/200
		10799103	500/200
		10799104	600/200

DESCRIPTION	PICTURE	CODE	(D/D1)	H	H1	H2	L
NON-RETURN VALVE							
	 	10799224	315/160	384	281	190	479
		10799220	400/160	420	315	207	554
		10799221	400/200	470	340	207	586
DRAIN MANHOLES							
	 	10799225	315/160	395	309	185	490
		10799222	400/160	420	319	207	559
		10799223	400/200	470	344	207	584

DESCRIPTION	PICTURE	D	D1	S	Z1	Z2	L1MIN	L2	L3
KGB BEND 110/45°	 	110		3.1	33.02	33.02	58.53	58.53	
KGB BEND 125/45°		125		3.6	36.92	36.92	64.46	64.46	
KGB BEND 160/45°		160		4.5	45.46	45.46	79.42	79.42	
KGB BEND 110/87.5°		110		3.1	61.15	61.15	58.53	58.53	
KGB BEND 125/87.5°	 	125		3.6	68.85	68.85	64.46	64.46	
KGB BEND 160/87.5°		160		4.5	86.35	86.35	79.42	79.42	
KGEA BRANCH 110/110-45°		110	110	3.1	24.94	133.47	58.53	58.53	58.53
KGEA BRANCH 125/110-45°		125	110	3.7	16.07	146.47	64.46	64.46	58.53
KGEA BRANCH 125/125-45°		125	125	3.7	26.07	152.53	64.46	64.46	64.46
KGEA BRANCH 160/110-45°	 	160	110	4.7	1.15	173.97	90	79.42	58.53
KGEA BRANCH 160/125-45°		160	125	4.7	11.15	178.53	88.85	79.42	64.46
KGEA BRANCH 160/160-45°		160	160	4.7	36.15	195.57	88.85	79.42	79.42
KGEA BRANCH 110/110-87.5°		110	110	3.2	79.94	91.47	65.06	58.53	58.53
KGEA BRANCH 125/110-87.5°		125	110	3.7	68.07	93.65	140	64.46	58.53
KGEA BRANCH 125/125-87.5°		125	125	3.7	83.07	95.61	71.93	64.46	64.45
KGEA BRANCH 160/110-87.5°	 	160	110	4.7	66.15	123.62	88.85	79.42	58.53
KGEA BRANCH 160/125-87.5°		160	125	4.7	69.15	111.65	88.85	79.42	64.45
KGEA BRANCH 160/160-87.5°		160	160	4.7	101.15	120.57	88.85	79.42	79.42

DESCRIPTION	PICTURE	CODE
KGF FLOOD GATE Ø110	 	10203680
KGF FLOOD GATE Ø125		10203681
KGF FLOOD GATE Ø160		10203682
KGF FLOOD GATE Ø200		10203683
KGF FLOOD GATE Ø250		10203684
KGF FLOOD GATE Ø315		10203685
KGF FLOOD GATE Ø400 WELDED		11502908
KGF FLOOD GATE Ø500 WELDED		11502909

PP CORUGATED ID PIPES

Double layered corrugated PP ID pipes and fittings

PRODUCTION AND PURPOSES

Peštan Company supplies for its corrugated pipes only certified materials from top manufacturers.

These raw materials are satisfying properties of high impact resistance that have polypropylene copolymer PP-B.
It is very important to make the correct choice of pipe by the type of fluid and by conditions of exploitation, in accordance with the characteristics of the material from which they are made of.

CHARACTERISTICS	VALUE		EN
Density	900kg/m3		EN 1183
MFR	0,3gr/10 min(230/2,16)		EN1133
Modulus of elasticity	1500/2000MPa		EN527
Tensile strength at yield point	32 MPa		EN527
Impact toughness by Sharp with a comma	+23 °C	70kJ/m2	EN179/1eA
	-23 °C	7 kJ/m2	EN179/1eA

MATERIAL

Material properties and temperature application are given in the following table:

MATERIAL	MIN.	MAX.	SHORT-TERM
PP	-20 °C	60°C	95°C
PE-HD	-40°C	40°C	70°C
PVC-U	0°C	40°C	60°C

PRODUCTION

Pipes are manufactured in accordance with SRPS-EN13476 and EN1440

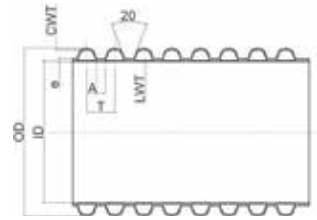
- Classified according to the inner light diameter DN/ID
- Life expectancy is 100 years
- Excellent hydraulic properties
- Excellent chemical stability
- High temperature stability at 60˚C, short term up to 90˚C
- High resistance to abrasion
- Pipes are lightweight
- Easy handling and installation
- Good mechanical properties
- Good impact resistance at low temperatures
- Good pipe flexibility
- Pipes can be completely recycled
- Pipes do not contain heavy metals or other disputed matter
- Friction coefficient is - Kb = 0.25 mm

The pipes are manufactured as class SN4 and SN8, pipes according to customer's request can be produced in class SN12 and SN16

CONNECTING METHODS

The pipes are produced in accordance with SRPS-EN13476 and EN1440

Connecting with angle fitting, connecting many pipelines with T branches and connecting over the saddle after grip (SAG).



CODE	DN		OD	ID	E	CWT	LWT	T	A	KG/M
10702000	Ø140	SN4	Ø160	139.8	1.2	0.5-0.9	0.9	17.44	3.5	0.8-1.1
10702020		SN8	Ø160	139	1.6	0.9-1.2	1.1	17.44	3.5	1.1-1.4
10702001	Ø200	SN4	Ø227	199	1.7	0.9-1.2	1.2	22.43	4.5	1.8-2.0
10702021		SN8	Ø227	198	2.2	1.2-1.6	1.4	22.43	4.5	2.1-2.5
10702002	Ø250	SN4	Ø283	249	2.2	1.2-1.4	1.5	26.17	5.1	2.8-3.1
10702022		SN8	Ø283	248	2.7	1.6-2.0	1.6	26.17	5.1	3.6-3.85
10702003	Ø300	SN4	Ø340	298.2	2.6	1.3-1.5	1.7	31.4	5.5	3.8-4.2
10702023		SN8	Ø340	297	3.2	1.7-2.2	1.8	31.4	5.5	4.5-5.2
10702004	Ø400	SN4	Ø453	397.8	3.2	1.4-1.7	2.2	39.25	7.9	5.8-6.6
10702024		SN8	Ø453	396	4.1	2.2-2.6	2.5	39.25	7.9	8.1-8.9
10702005	Ø500	SN4	Ø567	497.6	4.2	1.8-2.2	3.0	52.78	9.4	9.8-10.7
10702025		SN8	Ø567	495	5.5	2.4-3.1	3.3	52.78	9.4	12.6-13.5
10702006	Ø600	SN4	Ø680	597	5.2	2.6-3.0	3.5	65.97	13.2	15.0-16.5
10702026		SN8	Ø680	594	6.7	3.4-3.8	3.8	65.97	13.2	18.7-19.3
10702007	Ø800	SN4	Ø906	796	6.5	2.8-3.2	4.5	89.97	19.3	24.0-25.8
10702027		SN8	Ø906	792	8.5	4.3-5.1	4.7	89.87	19.3	31.6-33.4

SADDLE AFTER GRIP (SAG)

Saddle after grip is new, modern product, with great performance.

It is intended for subsequent connection to an existing pipeline for smooth as well as corrugated pipes. Using this system, combined with a great range of Peštan fittings, production of new lines of home, street and drain sewer, as well as connecting to existing lines becomes satisfaction.

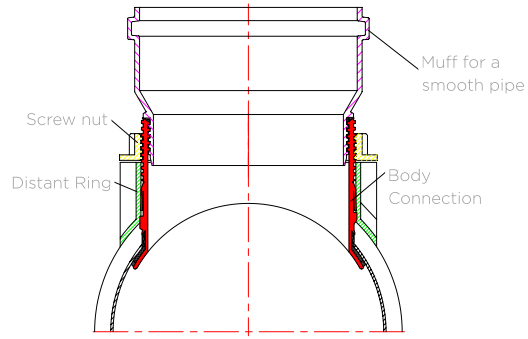
Peštan latest product main purpose is to be subsequently attached to an existing pipeline with a connection to smooth and corrugated pipes. The connection is safe and waterproof. It is made of ABS by injection molding technology.

SIZES

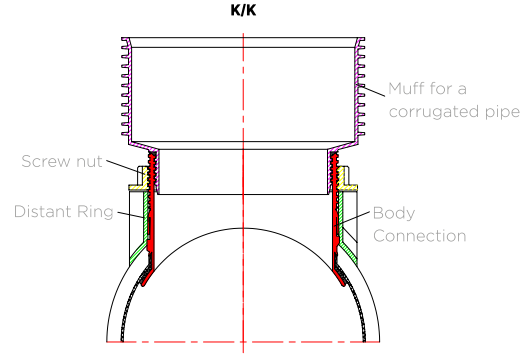
Sizes are given in the following table:

K/K CODE	K/SW CODE	
10799210	10799110	250/160
10799211	10799111	300/160
10799212	10799112	400/160
10799213	10799113	500/160
10799214	10799114	600/160
K/K CODE	**K/SW CODE**	
10799200	10799100	250/200
10799201	10799101	300/200
10799202	10799102	400/200
10799203	10799103	500/200
10799204	10799104	600/200

K/SW



K/K



MONTAGE OF SAG THROUGH PHASES

1. Tools required

2. Determining position for montage

3. Drilling holes for the guided crown saw

4. Drilling holes with crown saw

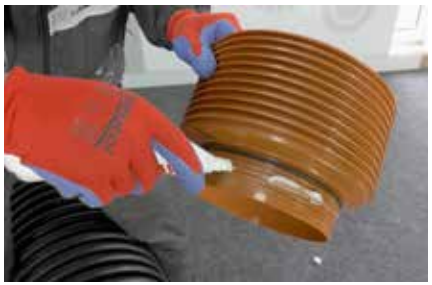
5. Cleaning chips and forming a clear hole

6. Lubricating rubber bands on the body of sag

7. Inserting body og sag through pre-prepared opening and setting int in the appropriate position

8. setting the spacer ring

9. Tightening the sag



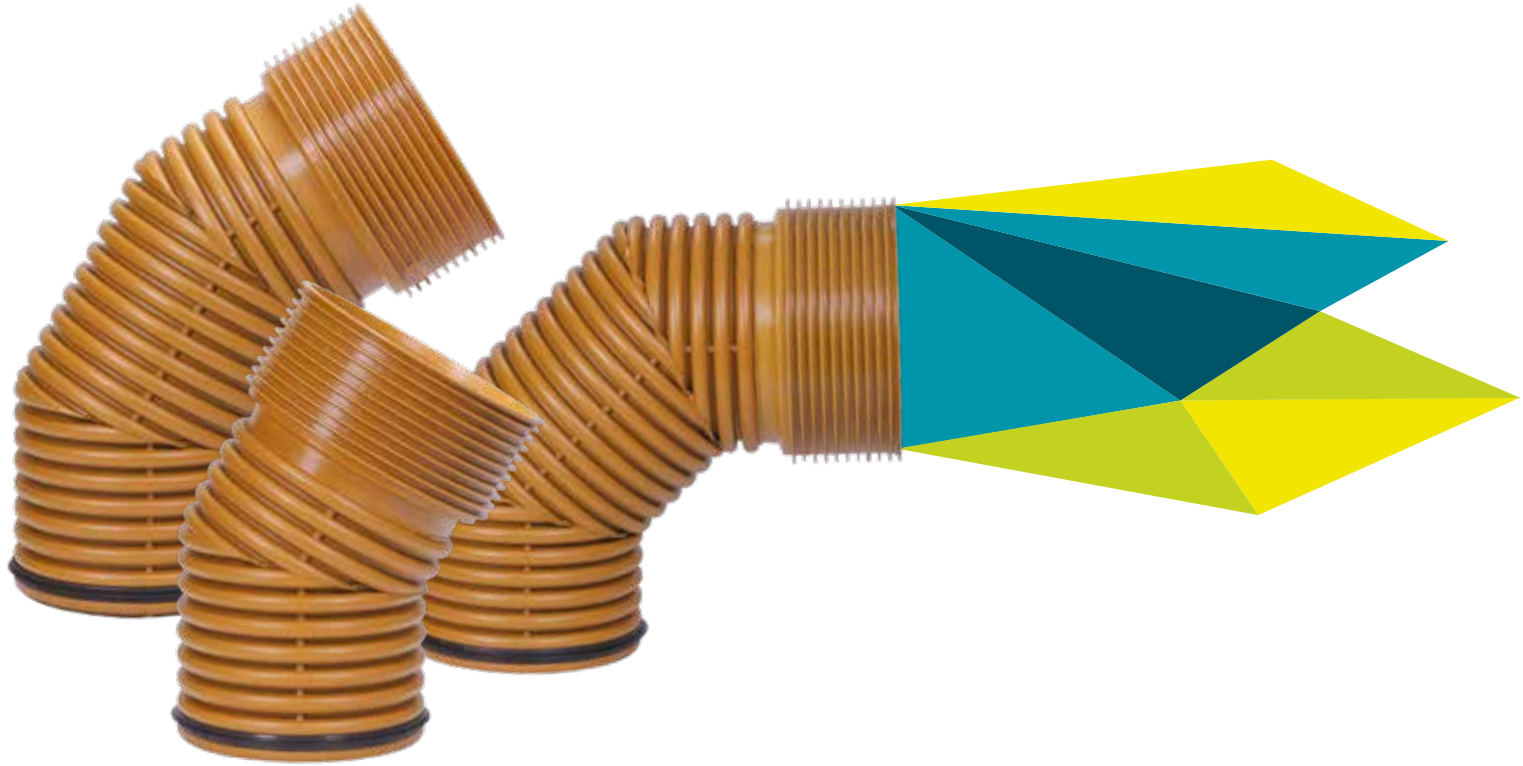
10. Lubricating appropriate connection of sag

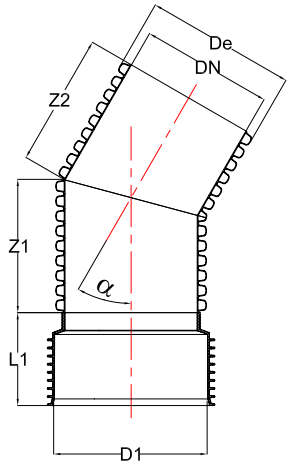
11. Setting the selected connection

12. Final tightening of sag

BENDS 30°, 45°, 60°, 90°

Bends are side fittings which main purpose is connecting pipes at certain angle in accordance with requirements (30°,45°,60°,90°).It is made in the technology of welding pipe segments and semi joints which has the function of integrated socket.



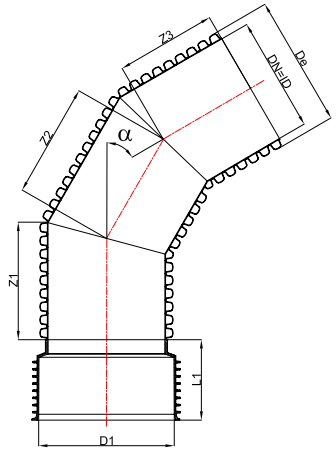


BEND 30°

CODE	DN	DE	D1	A	L1	Z1	Z2
10799250	140	160	162	30°	95	180	165
10799251	200	227	230	30°	140	200	180
10799252	250	283	286	30°	170	235	210
10799253	300	340	346	30°	180	280	250
10799254	400	453	458	30°	230	355	315
10799255	500	567	575	30°	255	475	425
10799256	600	680	686	30°	300	595	525

BEND 45°

CODE	DN	DE	D1	A	L1	Z1	Z2
10799260	140	160	162	45°	95	210	210
10799261	200	227	230	45°	140	225	225
10799262	250	283	286	45°	170	260	260
10799263	300	340	346	45°	180	315	315
10799264	400	453	458	45°	230	395	395
10799265	500	567	575	45°	255	530	530
10799266	600	680	686	45°	300	660	660



BEND 60°

CODE	DN	DE	D1	A	L1	Z1	Z2	Z3
10799270	140	160	162	60°	95	165	210	165
10799271	200	227	230	60°	140	180	225	180
10799272	250	283	286	60°	170	210	235	210
10799273	300	340	346	60°	180	250	285	250
10799274	400	453	458	60°	230	315	350	315
10799275	500	567	575	60°	255	420	475	420
10799276	600	680	686	60°	300	525	595	525

BEND 90°

CODE	DN	DE	D1	A	L1	Z1	Z2	Z3
10799280	140	160	162	90°	95	165	210	165
10799281	200	227	230	90°	140	180	225	180
10799282	250	283	286	90°	170	210	260	210
10799283	300	340	346	90°	180	250	315	250
10799284	400	453	458	90°	230	315	390	315
10799285	500	567	575	90°	255	425	530	425
10799286	600	680	686	90°	300	525	660	525

Measurements are given in milimeters (mm)

TEE

This fitting was obtained by welding pipe segments at an angle of 90° with the appropriate extension in the form of semi joint. Available for pipe diameters Ø140-Ø600.

EXCENTRIC REDUCER

Fitting which main purpose is connecting pipes of different diameters. It is made of polypropylene injection molding technology. This fitting is available in sizes listed in the table.

TRANSITION FROM CORRUGATED TO SMOOTH PIPE

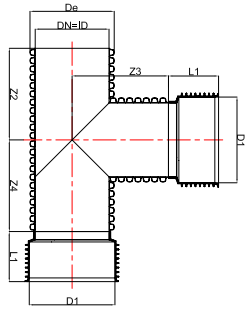
The purpose of this product is transition from smooth to corrugated pipe. It is made of polypropylene injection molding technology or welding. It is available in sizes that are given in the table.

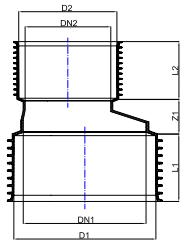
END CAP

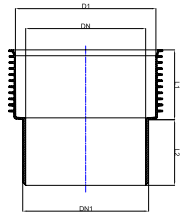
This product has a function of closing the pipes and fittings while installing pipes and different types of testing as well as for any other purpose. It is made in the technology of injection molding and welding polypropylene.

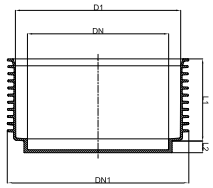
DOUBLE MUFF

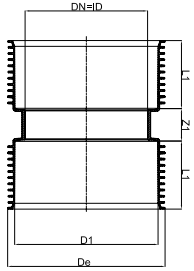
Fitting designed for linear connection of pipe with same diameter. The product is obtained by polypropylene injection molding.











TEE

CODE	DN	DE	D1	L1	Z2	Z3	Z4
10799350	140	160	162	91	220	215	220
10799351	200	227	230	140	245	245	245
10799352	250	283	286	168	285	300	285
10799353	300	340	344	182	345	360	345
10799354	400	453	458	235	430	460	430
10799355	500	567	574	299	580	600	580
10799356	600	680	686	310	725	735	725

EXCENTRIC REDUCER

CODE	DN1	DN2	D1	D2	Z1	L1	L2
10799300	200	140	230	160	58	115	91
40000760	250	200	286	230	129	145	110
40000763	300	250	344	286	136	153	137
40000812	400	300	458	344	146	200	150
40000764	500	400	574	458	159	262	200
40000814	600	500	686	574	171	270	262

TRANSITION FROM CORRUGATED TO SMOOTH PIPE

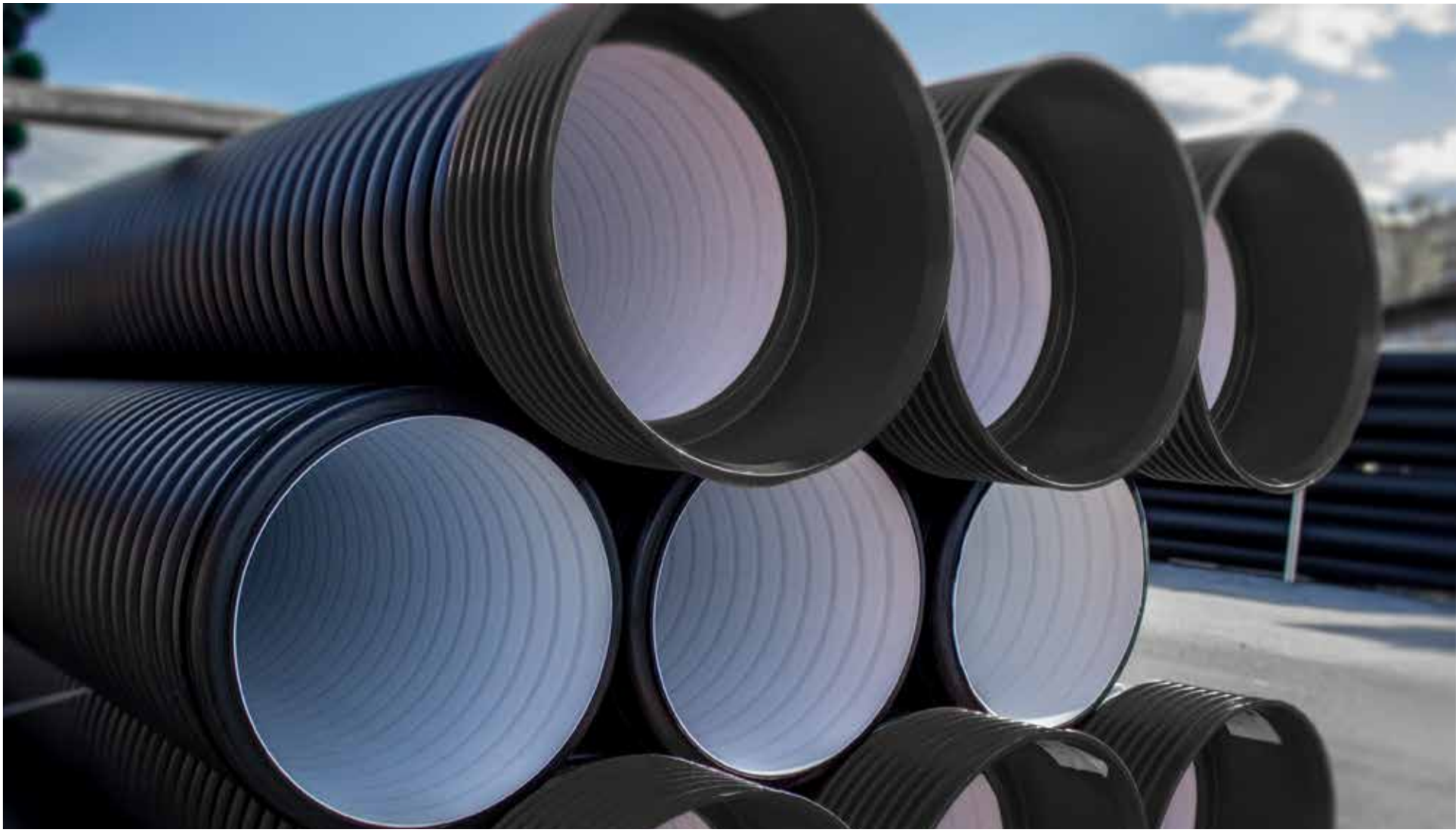
CODE	DN	DN1	D1	L1	L2
10799500	140	160	162	90	90
40000771	200	200	230	115	120
40000772	250	250	286	145	143
40000773	300	315	346	153	155
40000774	400	400	459	235	200

END CAP

CODE	DN	DN1	D1	L1	L2
10799400	140	176	162	90	25,5
10799401	200	200	230	115	30
10799402	250	250	286	145	31
10799403	300	300	346	153	32
10799404	400	400	459	235	35
10799405	500	574	624	262	37
10799406	600	686	748	270	40

DOUBLE MUFF

CODE	DN	DE	D1	L1	Z1
10799000	140	176	162	90	51
10799001	200	252	230	115	60
10799002	250	312	286	145	62
10799003	300	375	346	153	64
10799004	400	498	459	200	70
10799005	500	624	575	262	74
10799006	600	748	690	270	80
40000792	800	960	919	325	90



PP CORUGATED OD PIPES

Double layered corrugated PP OD pipes and fittings

PRODUCTION AND PURPOSES

Peštan Company supplies for its corrugated pipes only certified materials from top manufacturers.

These raw materials are satisfying properties of high impact resistance that have polypropylene copolymer PP-B.
It is very important to make the correct choice of pipe by the type of fluid and by conditions of exploitation, in accordance with the characteristics of the material from which they are made of.

CHARACTERISTICS	VALUE		EN
Density	900kg/m3		EN 1183
MFR	0,3gr/10 min(230/2,16)		EN1133
Modulus of elasticity	1500/2000MPa		EN527
Tensile strength at yield point	32 MPa		EN527
Impact toughness by Sharp with a comma	+23 °C	70kJ/m2	EN179/1eA
	-23 °C	7 kJ/m2	EN179/1eA

MATERIAL

Material properties and temperature application are given in the following table:

MATERIAL	MIN.	MAX.	SHORT-TERM
PP	-20 °C	60 °C	95 °C
PE-HD	-40 °C	40 °C	70 °C
PVC-U	0 °C	40 °C	60 °C

PRODUCTION

Pipes are manufactured in accordance with SRPS-EN13476 and EN1440

- Classified according to outside diameter DN/OD
- Life expectancy is 100 years
- Excellent hydraulic properties
- Excellent chemical stability
- High temperature stability at 60˚C, short term up to 90˚C
- High resistance to abrasion
- Pipes are lightweight
- Easy handling and installation
- Good mechanical properties
- Good impact resistance at low temperatures
- Good pipe flexibility
- Pipes can be completely recycled
- Pipes do not contain heavy metals or other disputed matter
- Friction coefficient is - Kb = 0.25 mm
- Standard lenght is 6 or 12 m

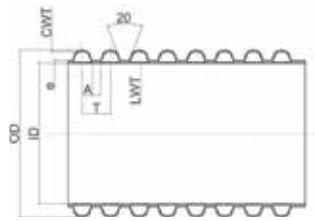
The pipes are manufactured as class SN4 and SN8, pipes according to customer's request can be produced in class SN12 and SN16.

Pipe diameters from DN 200 up to DN 500 are produced with welded socket.
Smaller diameters are produced with double socket alredy mounted on the pipe.

CONNECTING METHODS

The pipes are produced in accordance with SRPS-EN13476 and EN1440

Connecting with angle fitting, connecting many pipelines with T branches and connecting over the saddle after grip (SAG).



DN		OD (MM)	ID (MM)	E (MM)	CWT (MM)	LWT (MM)	T (MM)	A (MM)	KG/M
Ø75	SN4	75	56	0,55	0,4	0.5	10,5	3	0,55
	SN8			0,6	0,6	1,71			0,6
Ø90	SN4	90	67	0,6	0,5	0,55	11,5	3,5	0,6
	SN8			0,9	0,7	0,8			0,65
Ø110	SN4	110	93	1,6	0,5	0,5	12,5	6,5	0,65
	SN8			2,1	0,9	0,9			0,76
Ø125	SN4	125	107	1,7	0,7	0,6	12,5	6,5	0,8
	SN8			2,3	1,1	1			0,94
Ø160	SN4	160	138	1,9	1	0,7	12,5	6,5	1,2
	SN8			2,3	1,4	1,1			1,4
Ø200	SN4	200	176	2,1	1,2	0,8	16,5	8,5	1,5
	SN8			2,5	1,6	1,2			1,75
Ø250	SN4	250	222	3	1,3	1,3	37	14	2,5
	SN8			3,6	1,9	1,7			2,9
Ø315	SN4	315	278	3,2	1,6	1,5	42	16	3,5
	SN8			3,8	2,1	1,9			4,1
Ø400	SN4	400	348	4,3	2	1,8	49	20	6,2
	SN8			4,9	2,5	2,2			7,25
Ø500	SN4	500	432	4,6	2,2	1,9	58	23	10,5
	SN8			5,2	2,7	2,3			12,28

BELOW GROUND

HDPE CORRUGATED ID PIPES

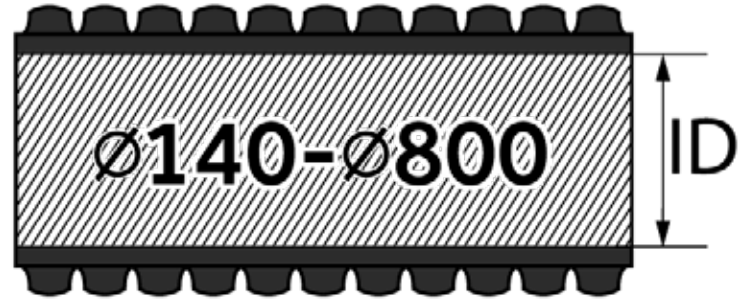
For domestic & street sewage systems

HDPE CORRUGATED PIPES FOR SEWERAGE SYSTEM

Connection method is via the socket with rubber which is inserted into the third channel of corrugated pipe between the ribs and the lubricated socket is pulled over the rubber on tube. Pipes can be shortened by ordinary knife or saw, and all the pieces of pipe can be used as extensions.

HDPE pipes are lighter than PVC pipes for the same purpose, allowing easier handling and installation, and they have excellent chemical resistance to aggresive environment and the surrounding soil. Laying and using of HDPE pipelines is between -40˚C to +60˚C. The smooth inner surface has a low coefficient of friction so the pipes have very good hydraulic characteristics. They have excellent resistance to abrasion and excellent mechanical and physical properties.

Pipes are resistant to UV rays, and can stand in the open for an year. Beyond that period they should be protected. During transportation and installation, protection must be ensured by keeping the pipes away from sharp edges because they can damage the pipe while they are very resistant to the impacts with a blunt object. The pipes are certified by the Institute for Materials of Republic of Serbia.



FEATURES AND SPECIFICATIONS

- Material: PE-HD (polyethylene high-density)
- Pipes can be embed at a depth of at least 0.8 m to 8m max. Concrete protection is required above 0.8 m
- Quick and cheap installation
- Ring stiffness SN=4KN/m2 and SN=8KN/m2
- Standard lenght is 6 or 12m, or coil 50m+100m
- Standard color is black and can be different by demand
- Standard packing:

  Ø110-Ø200 Bar 6 and 12m, or coil 50 i 100m Ø250-Ø315 bar 6 and 12m

INSTALLATION

INSTALLATION OF PIPES
The pipes must be professionally installed respecting the appropriate guidelines specified by standard 1610 and DIN4033, which means that in an area of the pipeline from the bottom of the trench to at least 30cm above the vertex, following compression values should be achieved.

ACCORDING TO PROCTOR:
- All values should be proven during operation
- 97% density of shoveled land for non-bonding soil
- 95% density of unshoveled land for bonding soil

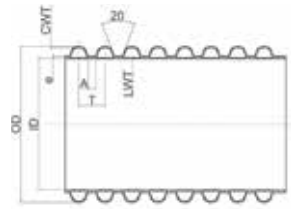
DN /ID (nominal diameter is inside diameter) double layer corrugated HDPE pipes are classified by the inner diameter of the pipe.

They are made without integrated socket, and connection is achieved though the sockets made of the same material.

Range of production is from ø140-ø800 with ring stiffnes of sn4 and sn8, and even stronger by special order.

ID SN4

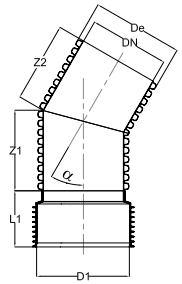
ID SN8



DN		OD (MM)	ID (MM)	E (MM)	CWT (MM)	LWT (MM)	T (MM)	A (MM)	KG/M
Ø140	SN4	Ø160	139.8	1.2	0.5-0.9	0.9	17.44	3.5	0.8-1.1
	SN8	Ø160	139	1.6	0.9-1.2	1.1	17.44	3.5	1.1-1.4
Ø200	SN4	Ø227	199	1.7	0.9-1.2	1.2	22.43	4.5	1.8-2.0
	SN8	Ø227	198	2.2	1.2-1.6	1.4	22.43	4.5	2.1-2.5
Ø250	SN4	Ø283	249	2.2	1.2-1.4	1.5	26.17	5.1	2.8-3.1
	SN8	Ø283	248	2.7	1.6-2.0	1.6	26.17	5.1	3.6-3.85
Ø300	SN4	Ø340	298.2	2.6	1.3-1.5	1.7	31.4	5.5	3.8-4.2
	SN8	Ø340	297	3.2	1.7-2.2	1.8	31.4	5.5	4.5-5.2
Ø400	SN4	Ø453	397.8	3.2	1.4-1.7	2.2	39.25	7.9	5.8-6.6
	SN8	Ø453	396	4.1	2.2-2.6	2.5	39.25	7.9	8.1-8.9
Ø500	SN4	Ø567	497.6	4.2	1.8-2.2	3.0	52.78	9.4	9.8-10.7
	SN8	Ø567	495	5.5	2.4-3.1	3.3	52.78	9.4	12.6-13.5
Ø600	SN4	Ø680	597	5.2	2.6-3.0	3.5	65.97	13.2	15.0-16.5
	SN8	Ø680	594	6.7	3.4-3.8	3.8	65.97	13.2	18.7-19.3
Ø800	SN4	Ø906	796	6.5	2.8-3.2	4.5	89.97	19.3	24.0-25.8
	SN8	Ø906	792	8.5	4.3-5.1	4.7	89.87	19.3	31.6-33.4

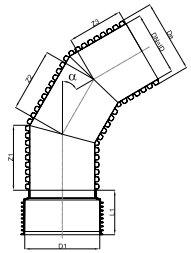
COUPLING ELEMENTS AND FITTINGS

An integral part of any piping system are the various joints, branches and manholes. Peštan products and the entire program of coupling elements and fittings. These include: Branches, Bends, Reducirs, Drain manholes, End caps, Couplings.



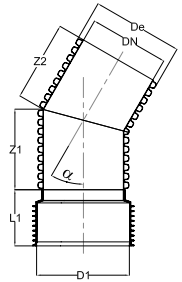
BEND 30°

DN	DE	D1	α	L1	Z1	Z2
140	160	162	30°	95	180	165
200	227	230	30°	140	200	180
250	283	286	30°	170	235	210
300	340	346	30°	180	280	250
400	453	458	30°	230	355	315
500	567	575	30°	255	475	425
600	680	686	30°	300	595	525



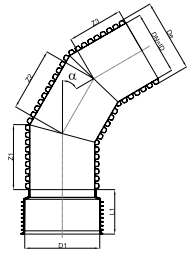
BEND 60°

DN	DE	D1	α	L1	Z1	Z2	Z3
140	160	162	60°	95	165	210	165
200	227	230	60°	140	180	225	180
250	283	286	60°	170	210	235	210
300	340	346	60°	180	250	285	250
400	453	458	60°	230	315	350	315
500	567	575	60°	255	420	475	420
600	680	686	60°	300	525	595	525



BEND 45°

DN	DE	D1	α	L1	Z1	Z2
140	160	162	45°	95	210	210
200	227	230	45°	140	225	225
250	283	286	45°	170	260	260
300	340	346	45°	180	315	315
400	453	458	45°	230	395	395
500	567	575	45°	255	530	530
600	680	686	45°	300	660	660

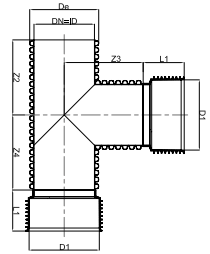


BEND 90°

DN	DE	D1	α	L1	Z1	Z2	Z3
140	160	162	90°	95	165	210	165
200	227	230	90°	140	180	225	180
250	283	286	90°	170	210	260	210
300	340	346	90°	180	250	315	250
400	453	458	90°	230	315	390	315
500	567	575	90°	255	425	530	425
600	680	686	90°	300	525	660	525

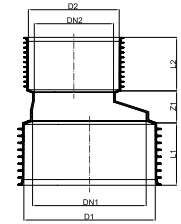
TEE

DN	DE	D1	L1	Z2	Z3	Z4
140	160	162	91	220	215	220
200	227	230	140	245	245	245
250	283	286	168	285	300	285
300	340	344	182	345	360	345
400	453	458	235	430	460	430
500	567	574	299	580	600	580
600	680	686	310	725	735	725



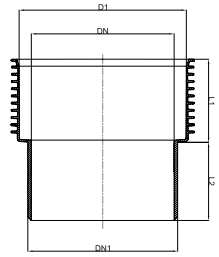
EXCENTRIC REDUCER

DN1	DN2	D1	D2	Z1	L1	L2
200	140	230	160	58	115	91
250	200	286	230	129	145	110
300	250	344	286	136	153	137
400	300	458	344	146	200	150
500	400	574	458	159	262	200
600	500	686	574	171	270	262



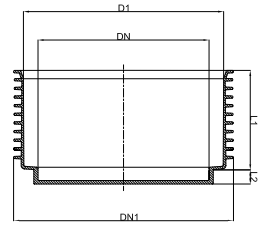
TRANSITION FROM CORRUGATED TO SMOOTH PIPE

DN	DN1	D1	L1	L2
140	160	162	90	90
200	200	230	115	120
250	250	286	145	143
300	315	346	153	155
400	400	459	235	200



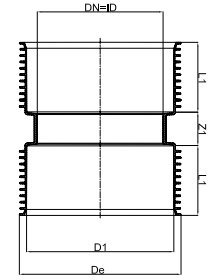
END CAP

DN	DN1	D1	L1	L2
140	176	162	90	25,5
200	200	230	115	30
250	250	286	145	31
300	300	346	153	32
400	400	459	235	35
500	574	624	262	37
600	686	748	270	40



DOUBLE MUFF

DN	DE	D1	L1	Z1
140	176	162	90	51
200	252	230	115	60
250	312	286	145	62
300	375	346	153	64
400	498	459	200	70
500	624	575	262	74
600	748	690	270	80
800	960	919	325	90



BELOW GROUND

HDPE CORRUGATED OD PIPES

For street sewage systems

HDPE CORRUGATED PIPES FOR SEWERAGE SYSTEM

Connection method is via the socket with rubber which is inserted into the third channel of corrugated pipe between the ribs and the lubricated socket is pulled over the rubber on tube. Pipes can be shortened by ordinary knife or saw, and all the pieces of pipe can be used as extensions.

HDPE pipes are lighter than PVC pipes for the same purpose, allowing easier handling and installation, and they have excellent chemical resistance to aggresive environment and the surrounding soil. Laying and using of HDPE pipelines is between -40 ˚C to +60 ˚C. The smooth inner surface has a low coefficient of friction so the pipes have very good hydraulic characteristics. They have excellent resistance to abrasion and excellent mechanical and physical properties.

Pipes are resistant to UV rays, and can stand in the open for an year. Beyond that period they should be protected. During transportation and installation, protection must be ensured by keeping the pipes away from sharp edges because they can damage the pipe while they are very resistant to the impacts with a blunt object. The pipes are certified by the Institute for Materials of Republic of Serbia.

FEATURES AND SPECIFICATIONS

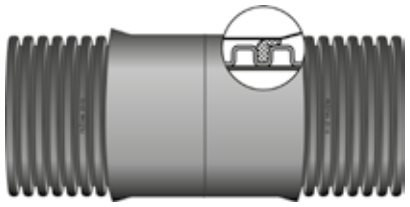
- Material: PE-HD (polyethylene high-density)
- Pipes can be embed at a depth of at least 0.8 m to 8m max. Concrete protection is required above 0.8 m
- Quick and cheap installation
- Ring stiffness SN=4KN/m2 and SN=8KN/m2
- Standard lenght is 6 or 12m, or coil 50m+100m
- Standard color is black and can be different by demand
- Standard packing:

  Ø110-Ø200 Bar 6 and 12m, or coil 50 i 100m Ø250-Ø315 bar 6 and 12m

PACKAGING AND INSTALLATION

INSTALLATION OF PIPES
The pipes must be professionally installed respecting the appropriate guidelines specified by standard 1610 and DIN4033, which means that in an area of the pipeline from the bottom of the trench to at least 30cm above the vertex, following compression values should be achieved.

ACCORDING TO PROCTOR:
- All values should be proven during operation
- 97% density of shoveled land for non-bonding soil
- 95% density of unshoveled land for bonding soil



CONNECTING THE PIPE
WITH THE SOCKET

HDPE corrugated pipes defined by the outher diametar (DN/OD)
DN / OD (nominal diameter is outside diameter) double layer corrugated HDPE pipes are classified by the outer diameter of the pipe.

They are made without integrated socket, and connection is achieved though the sockets made of the same material.

Range of production is from ø140-ø500 with ring stiffnes of sn4 and sn8, and even stronger by special order.

OD SN4

OD SN8

DN		OD (MM)	ID (MM)	E (MM)	CWT (MM)	LWT (MM)	T (MM)	A (MM)	KG/M
Ø75	SN4	75	56	0,55	0,4	0.5	10,5	3	0,55
	SN8			0,6	0,6	1,71			0,6
Ø90	SN4	90	67	0,6	0,5	0,55	11,5	3,5	0,6
	SN8			0,9	0,7	0,8			0,65
Ø110	SN4	110	93	1,6	0,5	0,5	12,5	6,5	0,65
	SN8			2,1	0,9	0,9			0,76
Ø125	SN4	125	107	1,7	0,7	0,6	12,5	6,5	0,8
	SN8			2,3	1,1	1			0,94
Ø160	SN4	160	138	1,9	1	0,7	12,5	6,5	1,2
	SN8			2,3	1,4	1,1			1,4
Ø200	SN4	200	176	2,1	1,2	0,8	16,5	8,5	1,5
	SN8			2,5	1,6	1,2			1,75
Ø250	SN4	250	222	3	1,3	1,3	37	14	2,5
	SN8			3,6	1,9	1,7			2,9
Ø315	SN4	315	278	3,2	1,6	1,5	42	16	3,5
	SN8			3,8	2,1	1,9			4,1
Ø400	SN4	400	348	4,3	2	1,8	49	20	6,2
	SN8			4,9	2,5	2,2			7,25
Ø500	SN4	500	432	4,6	2,2	1,9	58	23	10,5
	SN8			5,2	2,7	2,3			12,28


PPSTRONG
pipes and fittings
Proven **strenght.**
High level of **durability.**

PP STRONG

Compact high strenght Polypropylene pipes

PP STRONG pipes and fittings

Peštan PP Strong pipes and fittings are produced of PP material by the newest technology of pipe extrusion and fitting injection. PP STRONG pipe system for all kinds of waste water is made as homogeneous fully-walled pipe without mineral additives with extremely smooth inner surface according to EN 1852.

Both pipe and fitting in the PP STRONG range are intended for areas with great static pressure, such as airports, highways and railroads. PP STRONG system is universal and can be used for removing all types of waste waters in low construction.

Installation and manipulation of the pipeline elements is very simple and is described in the following chapters of this technical manual. Pipes are connected with fittings, while the waterproofing in connections is provided by rubber rings (safety lock) made of EPDM rubber with plastic reinforcement. Inner layer of PP STRONG pipe is very smooth, which results with excellent hydraulic characteristics, high resistance to abrasion, and preventing subsidence on inner layer of the pipe.

PP STRONG pipes are resistant to corrosion and their life span is 50 years if used properly.

PP STRONG pipes are resistant to corrosion and their life span is 50 years if used properly.

Pipes and fitting have excellent thermal stability and are resistant to:
-Short term exposure up to 90°C
-Continuous thermal exposure up to 60°C

Chemical resistance of PP STRONG:
Salt water, alcohol, acids, alkali, sulphates, aggressive gases and all kinds of detergents. They are well suited for drainage of aggressive chemical wastes, Ph values between 2 and 12.

PP STRONG is sensitive to waste waters that contain high percentage of gasoline, benzene and acetone. For detailed chemical resistance of pipeline please consult the table on our web page.

Fittings are 100% resistant to leaking up to the pressure of 0.5bar with usage of classic rubber ring of EPDM rubber. While using the special safety lock rubber with plastic reinforcement, leaking resistance goes up to 2bar short term.
Pipes aren't intended for outside appliance because of the instability to UV radiation. PP STRONG is intended for underground appliance and under great loads. Do not install the pipeline in temperature below -10 °C.

PP STRONG goes under the B2 class of fire stability by standard DIN 4102, they belong to the group of normal burning materials.

CHARACTERISTICS:

- Absolute impermeability
- Minimal wasting
- Stable functioning during the whole life span of the pipe
- Higher ring stiffness
- Higher longitudinal rigidity
- Available pipe with coupling or with integrated socket
- High ring flexibility

ADVANTAGES:

- Wide range of fittings
- Great resistance to static and dynamic pressures
- Great resistance to work damage
- High impact resistance
- Without mineral additives
- Stability to chemical and thermal pressure
- Very tight lock in connections
- Very long term life

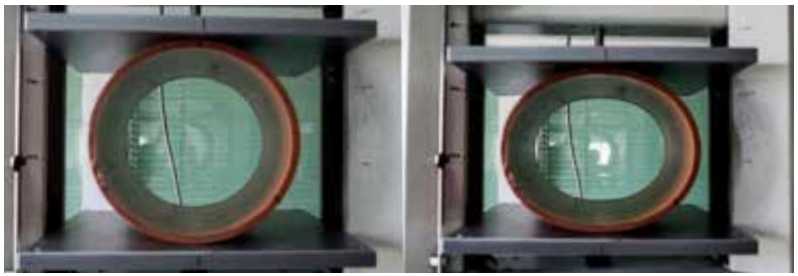
FIELDS OF APPLIANCE:

- Communal drainage
  - New buildings or replacements of old sewage

- Chemical and machine industry
  - Excellent chemical stability (ph 2-12)

- Food industry
  - Great stability to temperatures and cycle work resistance
  - Stability to cleaning products

- Roads
  - Great resistance to static and dynamic loads and pressures



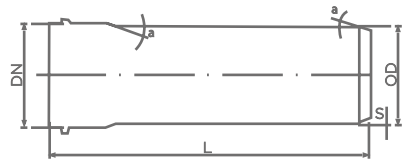
Pipes withhold deformations up to 30% to inner diameter. According to EN ISO 13968

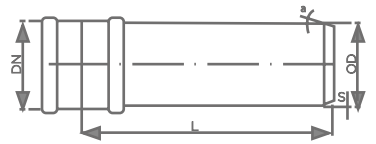
EN 1852

PP STRONG pipes

Peštan PP STRONG pipes and fittings are produced in:
-Diameters Ø110 to Ø500
-Ring stiffnesses SN4, SN8, SN10, SN12, SN16 in accordance EN1852

PP STRONG pipes are produced in standard lengths 1 - 6m.
PP STRONG in classes SN4, SN8 SN10 and SN12 are produced with socket, while class SN16 are produced with integrated coupling.
PP STRONG coupling stiffness class is SN16 and as such resistant to big static pressures.

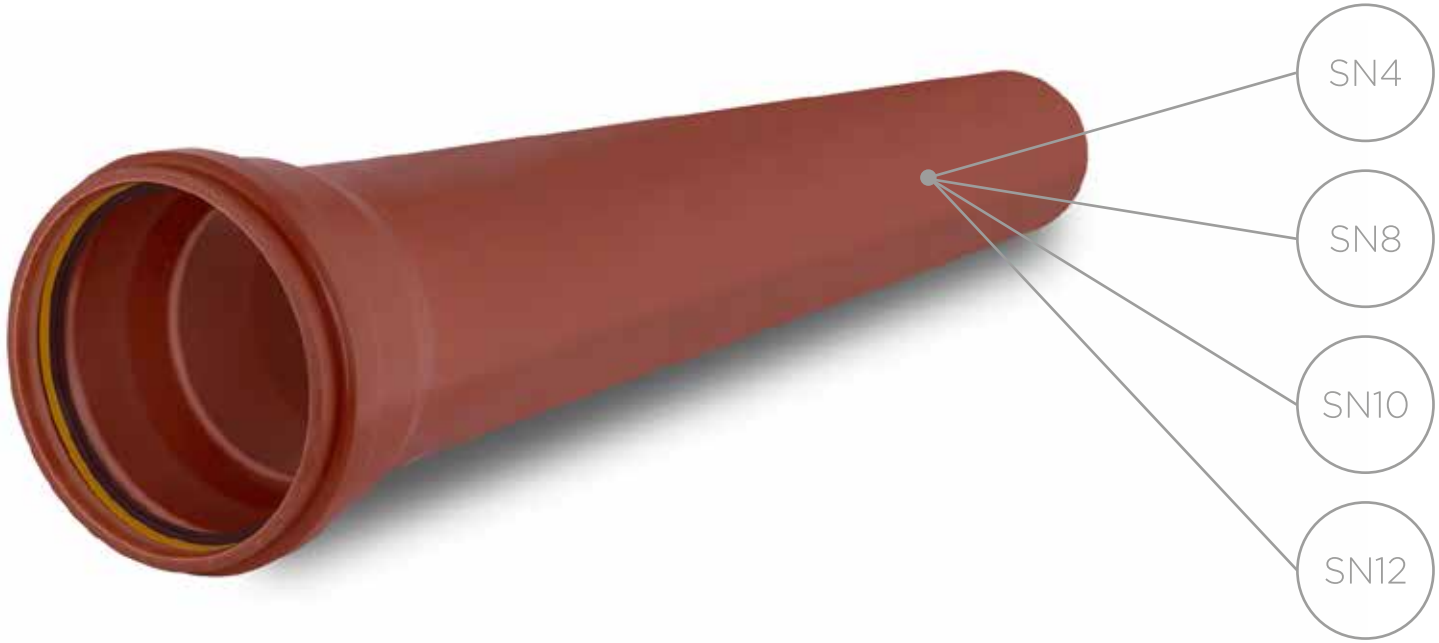




SN 4			SN 8			SN 10			SN 12			SN 16		
DN [mm]	S [mm]	L [mm]	DN [mm]	S [mm]	L [mm]	DN [mm]	S [mm]	L [mm]	DN [mm]	S [mm]	L [mm]	DN [mm]	S [mm]	L [mm]
110	3,4	1000	110	3,8	1000	110	4,2	1000	110	4,5	1000	110	5	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
125	3,9	1000	125	4,3	1000	125	4,8	1000	125	5,1	1000	125	5,7	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
160	4,9	1000	160	5,5	1000	160	6,2	1000	160	6,5	1000	160	7,3	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
200	6,2	1000	200	6,9	1000	200	7,7	1000	200	8,1	1000	200	9,1	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
250	7,7	1000	250	8,6	1000	250	9,6	1000	250	10,2	1000	250	11,4	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
315	9,7	1000	315	10,8	1000	315	12,1	1000	315	12,8	1000	315	14,4	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
400	12,3	1000	400	13,7	1000	400	15,4	1000	400	16,3	1000	400	18,2	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000
500	15,3	1000	500	17,1	1000	500	19,2	1000	500	20,3	1000	500	22,8	1000
		3000			3000			3000			3000			3000
		6000			6000			6000			6000			6000

PP STRONG pipes with socket

The tubes are produced in ring stiffness of: SN4, SN8, SN10, SN12.

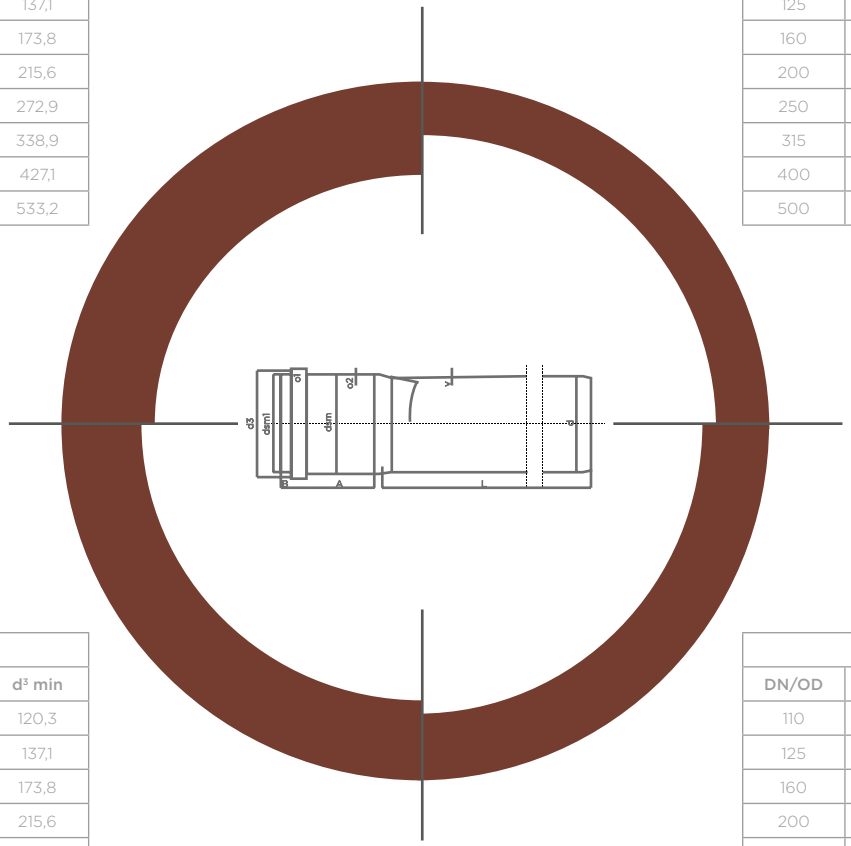


PIPE MARKING

EAN, Peštan logo, PP DN_OD SDR EN1852 SN PP Strong CT UD www.pestan.net SRB date time *

SDR 20,6 SN12				
DN/OD	e min	A min	B min	d³ min
110	4,5	40	6	120,3
125	5,1	43	7	137,1
160	6,5	50	9	173,8
200	8,1	58	12	215,6
250	10,2	68	18	272,9
315	12,8	81	20	338,9
400	16,3	98	24	427,1
500	20,3	118	28	533,2

SDR 33 SN 4				
DN/OD	e min	A min	B min	d³ min
110	3,4	40	6	120,3
125	3,9	43	7	137,1
160	4,9	50	9	173,8
200	6,2	58	12	215,6
250	7,7	68	18	272,9
315	9,7	81	20	338,9
400	12,3	98	24	427,1
500	15,3	118	28	533,2



SDR 33 SN 4				
DN/OD	e min	A min	B min	d³ min
110	4,2	40	6	120,3
125	4,8	43	7	137,1
160	6,2	50	9	173,8
200	7,7	58	12	215,6
250	9,6	68	18	272,9
315	12,1	81	20	338,9
400	15,4	98	24	427,1
500	19,2	118	28	533,2

SDR 33 SN 4				
DN/OD	e min	A min	B min	d³ min
110	3,8	40	6	120,3
125	4,3	43	7	137,1
160	5,5	50	9	173,8
200	6,9	58	12	215,6
250	8,6	68	18	272,9
315	10,8	81	20	338,9
400	13,7	98	24	427,1
500	17,1	118	28	533,2

PP STRONG pipes with integrated coupling

The tube is produced in ring stiffness of: SN16

SDR 22 SN 16				
DN/OD	e min	A min	B min	d^3 min
110	5	40	6	120,3
125	5,7	43	7	137,1
160	7,3	50	9	173,8
200	9,1	58	12	215,6
250	11,4	68	18	272,9
315	14,4	81	20	338,9
400	18,3	98	24	427,1
500	22,8	118	28	533,2

Class and pipe stiffness

SN 4	S 16	SDR 33
SN 8 S	14	SDR 29
SN 10	S 12,5	SDR 26
SN 12	S 11,8	SDR 24,6
SN 16	S 10,5	SDR 22

Material characteristics	Value	Standard
Density	900 kg/m^3	ISO 1183
MFR (230 °C/2,16 kg)	≤1,5 g/10 min	ISO 1183
Internal pressure test (80 °C, 4,2 MPa)	» 140 h	ISO 1167-1
Internal pressure test (95 °C, 2,5 MPa)	» 1000 h	ISO 1167-2
Rensile Strain at Yield (50 mm/min)	6,5 %/33 MPa	ISO 527-1 ISO 527±2
Charpy Impact Strength (23 °C/-20 °C)	29/2 kJ/m^2	ISO 179/1 eA
Ring stiffness, SN	4, 8, 10, 12, 16	ISO 9969
Chemical resistance	2... 12 pH	ISO/TR 10 358
Temperature resistance (short term/longterm)	80/60 °C	
Temperature conductivity	0,2 W/mK	DIN 52612
Linear coefficient of stretching	0,14 mm/Km	DIN 52328
Module of elasticity	2000 MPa	ISO 178
Connection technique	Socket and rubber	
Rubber ring	Rubber ring with plastic strengthened in different color and with closing surfaces	

PP STRONG fittings

Within the Peštan production program there is a complete fitting program made in diameters from from Ø110 to Ø315 produced in ring stiffness of SN8 and class S13.3, while fitting Ø400 is produced in stiffness of SN4 and classS16.

The coupling is produced in the class SN16. with 10.5 in all dimensions.

Rubber rings are made of EPDM rubber with plastic reinforcement

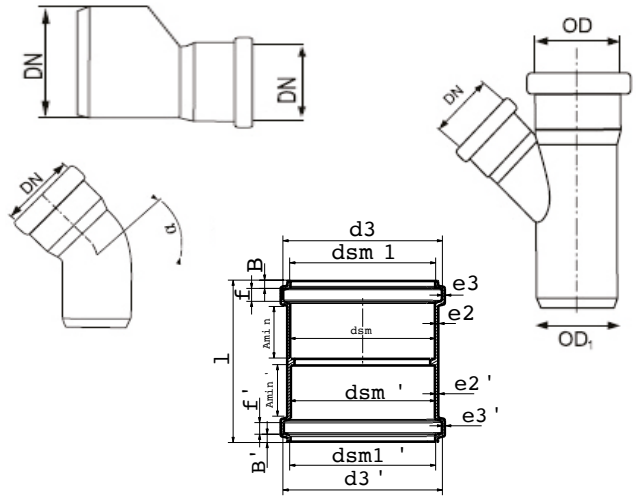
PP Strong fitting marking

Reinforced ribs for higher fitting strength

Fittings class according to the 1852 standard

Nazivni prečnik DN/OD	Nazivni spoljašnji prečnik DN	Minimum wall thickness		
		SN 2 S 20 SDR 41	SN 4 S 16 SDR 33	**SN 8 S 13,3 SDR 27,6**
110	110	-	3,4	**4,0**
125	125	-	3,9	**4,6**
160	160	-	4,9	**5,8**
200	200	-	5,2	**7,3**
250	250	6,2	7,7	**9,1**
315	315	7,7	9,7	**11,4**
400	400	9,8	12,3	
Vrednost e min u skladu sa ISO 4065				

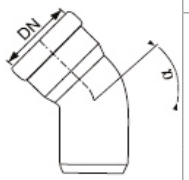
EN 1852 (SDR 27,6) - SN8							
mm	DN 110	DN 125	DN 160	DN 200	DN 250	DN 215	DN 400
Dem (mm)	110,0	125,0	160,0	200,0	250	315,0	400,0
e min (mm)	4,0	4,6	5,8	7,3	9,1	11,4	14,5
D3 min (mm)	120,3	137,1	173,8	215,6	272,9	338,9	427,1
B min (mm)	6	7	9	12	18	20	24
A min (mm)	40	43	50	58	68	81	98
L1 min (mm)	62	68	82	98	118	144	178



The coupling is produced in the class SN16 with 10.5 in all dimensions

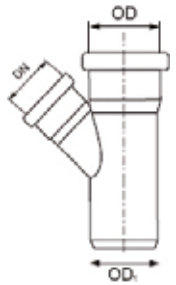
1852 (SDR 22) - SN 16								
mm	DN 110	DN 125	DN 160	DN 200	DN 250	DN 215	DN 400	DN 500
Dem (mm)	110,4	125,4	160,5	200,6	250,9	316,0	401,2	501,5
e min (mm)	4,5	5,2	6,6	8,2	10,3	113	16,4	16,4
D3 min (mm)	120,3	137,1	173,8	215,6	272,9	338,9	427,1	533,2
B min (mm)	6	7	9	12	18	20	24	28
A min (mm)	40	43	50	58	68	81	98	118

PP STRONG BEND



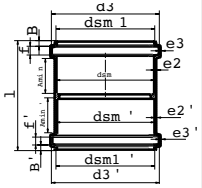
DN [mm]	ANGLE [°]
110	15
	30
	45
	67,5
	87,5
125	15
	30
	45
	67,5
	87,5
160	15
	30
	45
	67,5
	87,5
200	15
	30
	45
	67,5
	87,5
250	15
	30
	45
	67,5
	87,5
315	15
	30
	45
	67,5
	87,5
400	45
	87,5

PP STRONG BEND



DN [mm]	ANGLE [°]
110/ 110	45
	87,5
125/125	45
	87,5
160/160	45
	87,5
200/160	45
	87,5
200/200	45
	87,5
250/160	45
	87,5
250/200	45
	87,5
250/250	45
	87,5
315/160	45
	87,5
315/200	45
	87,5
315/250	45
	87,5
315/315	45
	87,5
400/160	45
400/200	45

PP STRONG SOCKET



DN [mm]
110
125
160
200
250
315
400
500

PP STRONG REDUCTION

DN [mm]
200/160
250/200
315/250

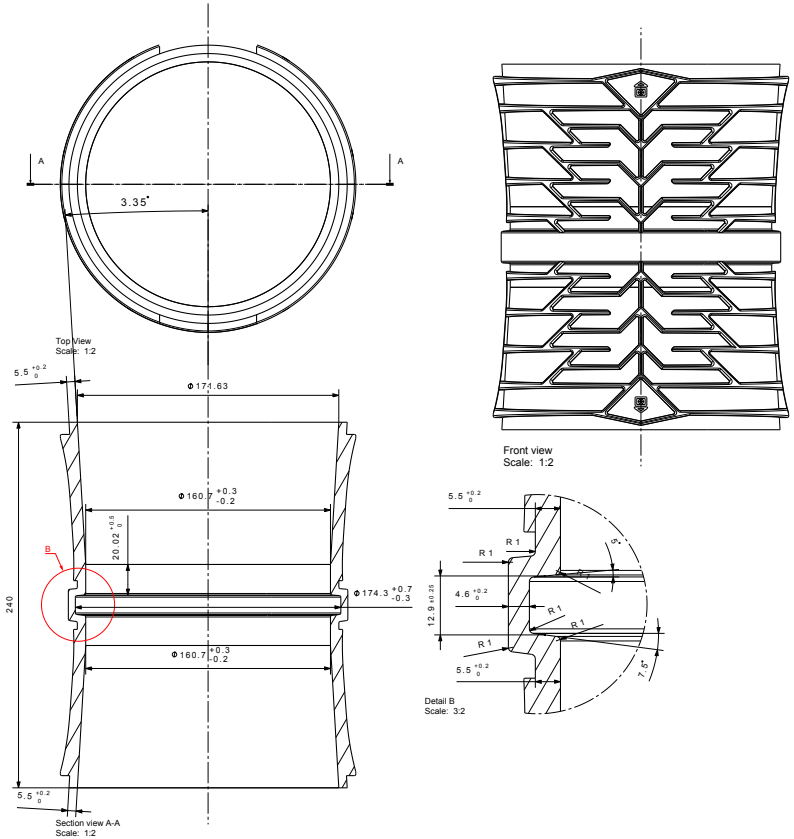
KGF Flood gate for manhole. For smooth PP, PVC and PE pipes.

Class S13.3 SN8

The ribs on the fitting provide a connection between the concrete manhole and the KGF element.

ø315
ø250
ø200
ø160
ø125
ø110

10203680	PVC KGF FLOOD GATE ø110
10203681	PVC KGF FLOOD GATE ø125
10203682	PVC KGF FLOOD GATE ø160
10203683	PVC KGF FLOOD GATE ø200
10203684	PVC KGF FLOOD GATE ø250
10203685	PVC KGF FLOOD GATE ø315
11502908	KGF FLOOD GATE Ø400 WELDED
11502909	KGF FLOOD GATE Ø500 WELDED



Internal slope 3%.
(interior fitting)

Packaging of pipes and fittings

Peštan PP Strong pipes and fittings are packaged in transport packages (unit and pallet) in a way favorable to customers. The packaging ensures the customer safety during storage and easy handling with the same.
Pipes in lengths of 1m all up to 6m are packed in packages which, depending on the diameter and length, contain a certain number of pieces both in unit packaging and whole packages.

The look of packed package with 3 frames

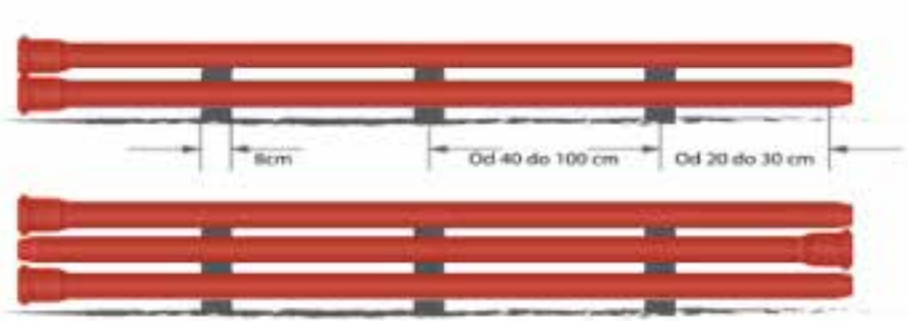
Note:
For exact information on the dimensions of the package and the number of pieces on unit and transport package, contact Peštan on email: office@pestan.net

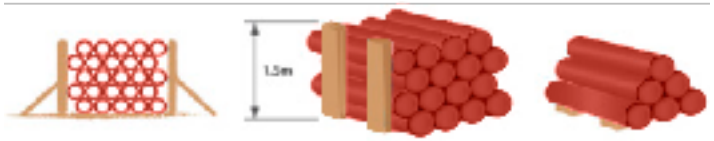
Standard packages of coupling elements (fittings) are in cardboard packaging in specified dimensions, which represent unit packages.

Transport and manipulation:
Peštan PP Strong pipes and all connecting elements should be transported with appropriate transport vehicles. The loading area of the transport vehicle must be solid, flat, without sharp protrusions and without any waste parts (both on the floor and on all sides of the inner part of the transport vehicle). The dimensions of the pallets and packages are such that the loading space of the vehicle is maximally filled.
When it comes to loading pipes outside the transport package, the pipes must rest on a flat surface with their entire length in order not to cause deformation of the pipes. The couplers must therefore be alternately rotated and pulled out for their entire length. This should primarily be taken into account with the pipe of large lengths, because for them improper handling it can come to bending at their ends.
When loading and unloading both pipes and fittings should be handled with care, they should not be thrown, pulled, pushed, especially on concrete and other rough surfaces.

Note:
When manipulating and transporting at the temperatures of less than 0°C, be especially careful to avoid striking stresses in order to avoid mechanical damage to pipes and fittings.

Storage:
Peštan Strong PP fittings, which are packed in a cardboard packaging, are stored exclusively indoors (preferably, one pallet - one pallet place). If there is no regal warehouse, it is recommended that this type of transport packaging is stored in a closed space on a flat surface and in one level (do not place a pallet on the pallet).
The transport packaging should be stored in a dry, clean and closed environment with temperatures between 10 and 30°C and a relative humidity between 50 and 60%. Packages should be protected from the direct influence of sunlight, moisture and heat. When the pipe warehouse outdoors they should be protected from direct influence of sunlight with UV protective foil or eaves.
Also, when storing, the pipes must not be stored near the heated surfaces and should be kept in mind not to come in contact with fuels, solvents.
Also, when storing pipes under the pipe, lay wooden billets so that the joints at the ends of the pipe do not rely on the surface and therefore deform.





Installation and connection

Peštan Strong PP pipes and fittings are installed in accordance with EN 1601 Gravity drainage system of street sewers.

If there is a specific regulation within certain countries which deviates from the above mentioned norms, be sure to consult Peštan technical support before installing the system.

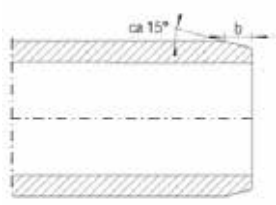
introduction

The first step in the design of sewage systems is geotechnical investigations along the entire route of the pipeline, while the most important condition for achieving a satisfactory pipe installation systems interactions of the pipe and the surrounding soil. The greatest support for embedded pipes gives the soil around the lower half of the pipe in both directions. Therefore, it is very important what kind of soil is done by laying as well as a procedure that is done in the field of soil compaction around the pipe.

Cutting

Connection of the PP Strong sewage elements are interconnected with rubber sockets for the SN4, SN8, SN10 and SN12 pipes that provide a watertight base of elements, while in the pipe class SN16 pipes connect with other elements via the SN16 class coupling.
All pipes and fittings have a socket coupling in at least one end. Pipes can be cut either with a special pipe section or with a handsaw.
When cutting pipe, cutting must be carried out perpendicular to the axis of the tube, the cut end must be clean and skew.

The table can find the necessary fixings in relation to the diameter of the pipe.



View the required punctuation

DN/OD	b [mm]
110	7
125	7
160	9
200	10
250	14
315	17
400	20
500	23

Connecting pipes and fittings

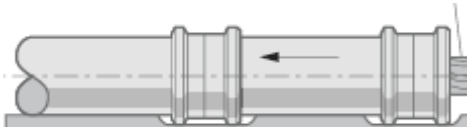
When connecting pipes and fittings, all steps must be taken to ensure a secure connection to avoid leaking due to further installation and subsequent use.

In order to connect pipes and fittings, it takes a few steps to execute before that:

1. Clean the pipe fitting and straight end of the pipe.
2. After cleaning the pipes and fittings, check the condition of the sealing elements.
3. After cleaning the check of the condition of the sealing elements, it is necessary to lubricate the flat end of the pipe and the rubber fitting. Peštan lubricants are recommended for this purpose. Lubricants based on oil must not be used. Socket and the sealing rubber bands must be dry and clean. They must also be lubricated.

Laying pipe in a trench

Peštan Strong PP pipes can be placed in a relatively loose ground. When laying the pipes must be taken into account that in places where the socket coupling or the section is deeper so that coupling aligns along its length, and when it does not disturb the drop tube. Illustrated explanation is below.



When laying pipes and fittings on steep sections, measures should be taken due to the operation of the longitudinal force. In practice, this is most often achieved by the production of concrete resistor blocks.

Filling and compacting

The filling (30 cm above the tube's head) is followed in layers. Lightweight and medium compacting devices can be used up to 1 m covering. Heavy machines can only be used afterwards.

The filling material must be compacted in layers of thickness from 10 to 30cm, and the required thickness of the overtemperature is:

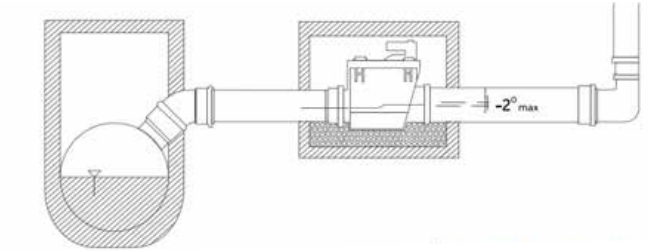
• Minimum 15cm for diameter DN> 400

• Minimum 30cm for diameter DN <400

For these surfaces, a minimum compression of the main overfill of 90% is required according to the modified Procter's Density.

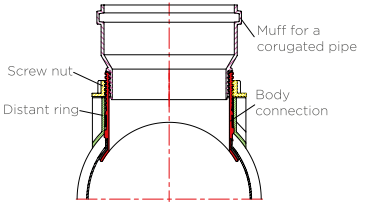
Installation of flood prevention device - non-return valve

When installing a PP strong pipeline, the designer can foresee the installation of a non-return valve on certain sections. In places where there is the possibility of returning water from the street sewer to the facilities, as well as preventing the entry of rodents and other animals through the pipeline. Non-return valves are equipped with automatic valves for closing the flow of water and are opposite to the intended flow of water.

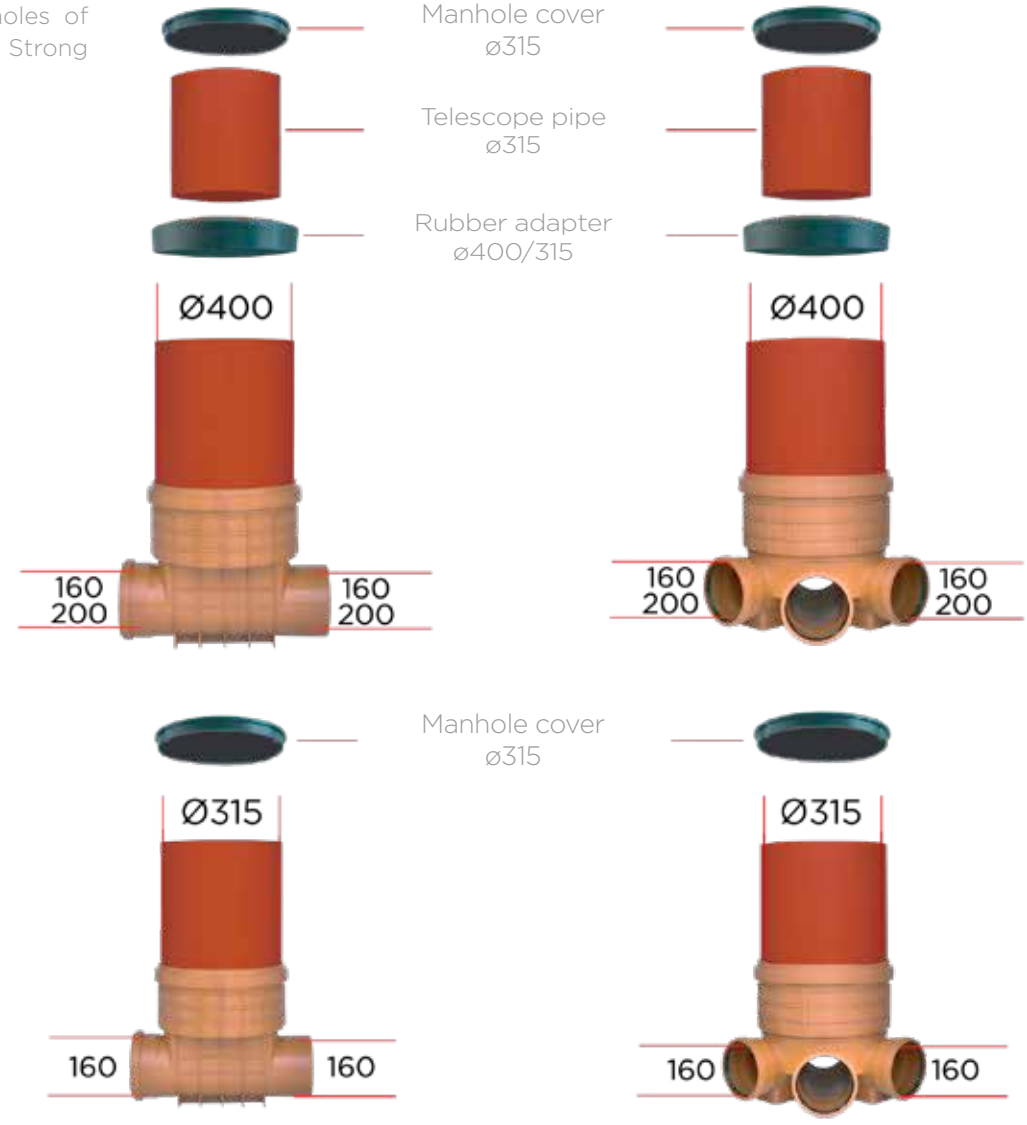


SAG - Saddle After Grip

SAG - Saddle After Grip is used for subsequent connection to the existing pipeline and in combination with PP Strong pipes gives quick and easy solution. The joint is safe and waterproof, which is provided by the EPDM rubber on the inside of SAG.



Possibility of making drain manholes of diameter ø315 and ø400 of PP Strong pipes.



PVC ULTRA

Pipes for a modern sewerage system - PVC ULTRA SN 10, SN 12 i SN 16

PEŠTAN PVC ULTRA SEWERAGE SYSTEM

PEŠTAN PVC ULTRA is a modern sewerage system, which exceeds most of the products of company Peštan.

Peštan development team, after years of research, has developed a new system of sewerage pipes, higher quality and more innovative than previously offered.

ULTRA system (which is a synonym forultra-modern, innovation and quality) is complementing theexisting PP STRONG system, but is based on the PVC as basic raw material.

Peštan PVC ultra are 3-layer sewerage pipes with ring stiffness SN 12. Pipes are produced and tested in accordance with EN 1401. These pipes have a diameter from DN160 to DN400 and have extruded socket which, unlike duble sockets or sleeve sockets, reduces posibility of leaks of pipeline for 100%.

PURPOSE

The purpose of these pipes is in field of high static load such as airports, highways and railways. Pipes can be used in areas where there are underground water.

	DN	D1	S	LENGTH (M)						D2	D3	E	F1	U	LB
				1	2	3	4	5	6						
SN10	160	160.4	4,7	√	√	√	√	√	√	160.3	174.4	12.5	12.5	50.8	75.9
	200	200	5,9	√	√	√	√	√	√	200.4	216.3	15.7	13.6	60.3	89.5
	250	250	7,3	√	√	√	√		√	250.4	272.8	19.8	20.9	72.4	112.9
	300	315	9,2	√	√	√	√	√	√	315.5	339	24.9	22.8	87.8	135.5
	400	400	11,7	√	√	√	√	√	√	400.7	427.1	31.6	25.7	108.4	165.5
	500	500	14,6	√	√	√	√	√	√	500.7					
	630	630	18,4	√	√	√	√	√	√	630.8					

	DN	D1	S	LENGTH (M)						D2	D3	E	F1	U	LB
				1	2	3	4	5	6						
SN12	160	160	5.5	√	√	√	√	√	√	160.4	174.4	12.5	12.5	50.8	75.9
	200	200	6.7	√	√	√	√	√	√	200.5	216.3	15.7	13.6	60.3	89.5
	250	250	8.1	√	√	√	√		√	250.5	272.8	19.8	20.9	72.4	112.9
	300	315	10.5	√	√	√	√	√	√	315.6	339	24.9	22.8	87.8	135.5
	400	400	12.7	√	√	√	√	√	√	400.8	427.1	31.6	25.7	108.4	165.5
	500	500	16.7	√	√	√	√	√	√	500.8					
	630	630	20.7	√	√	√	√	√	√	630.9					

	DN	D1	S	LENGTH (M)						D2	D3	E	F1	U	LB
				1	2	3	4	5	6						
SN16	160	160	6.1	√	√	√	√	√	√	160.5	174.4	12.5	12.5	50.8	75.9
	200	200	7.7	√	√	√	√	√	√	200.6	216.3	15.7	13.6	60.3	89.5
	250	250	9.6	√	√	√	√		√	250.6	272.8	19.8	20.9	72.4	112.9
	300	315	12.1	√	√	√	√	√	√	315.7	339	24.9	22.8	87.8	135.5
	400	400	15.4	√	√	√	√	√	√	400.8	427.1	31.6	25.7	108.4	165.5
	500	500	19.2	√	√	√	√	√	√	500.8					
	630	630	24.2	√	√	√	√	√	√	630.9					

PVC ULTRA

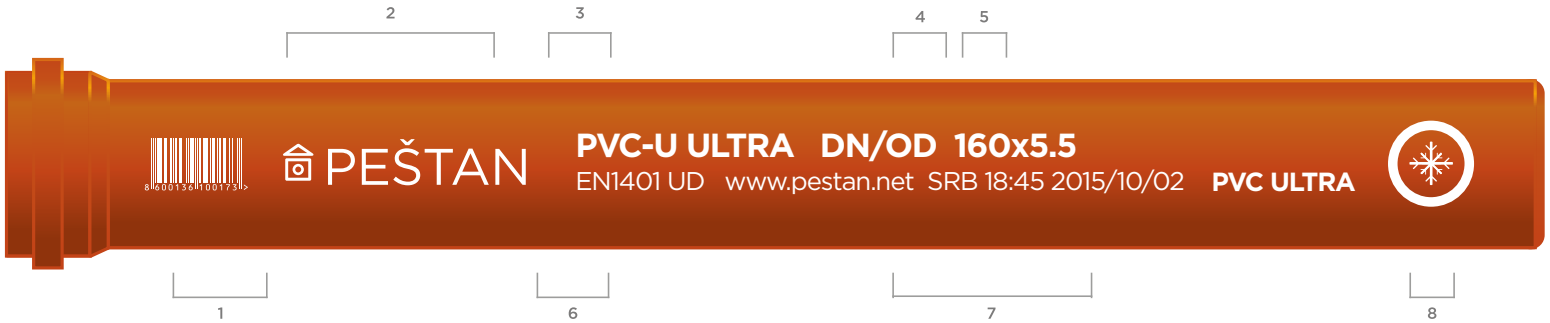
Compared to other plastics suitable for the manufacture of pipes, PVC is characterized by a high modulus of elasticity and good crack resistance. Excellent impact resistance of Pestan PVC Ultra system allows installation at temperatures as low as -10° C. Pipes can be used to distribute hot water to a maximum of 60°C.

Pipes carry a label with snowflake in accordance with EN 1401. The pipes are tested in accordance with EN 744 and EN 1411, which unlike of EN 1401 go a step further. This standard stipulates the release of metal weight of 8 kg with a height of at least one meter to the pipe, at a temperature of -10°C (for diameter DN160).

Since there were no cracks or deformation as result of testing of Pestan PVC Ultra, the mark of snowflake is allowed to be used on pipes. This test simulates the real situation on the construction site where large pieces of stone can fall onto the pipe until it is in a trench.

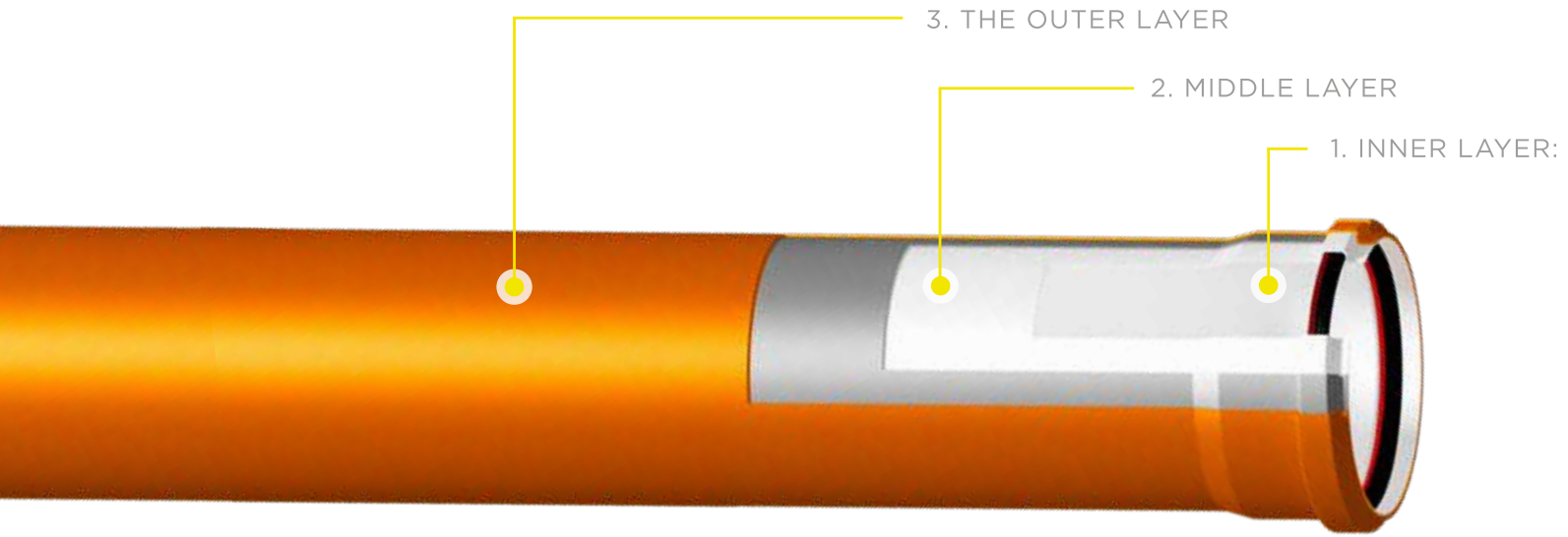
CHARACTERISTIC	REQUESTS	TESTING PARAMETERS		TEST METHOD
impact resistance (method stairs)	H50≥1m Max. A layout below 0,5m	Test/temperature/ tipe of stroke	-10 0C ∂90 in accordance with EN 1411:1996	EN 1411:1996
		Stroke mass for:		
		dn = 110mm	4kg	
		dn = 125mm	5kg	
		dn = 160mm	8kg	
		dn = 200mm	10kg	
		dn = 250mm	12,5kg	

1. Bar code, 2. Peštan logo, 3. Material, 4.Diameter, 5. wall thickness, 6. Dimensions according to standard EN 1401,
7. Date and time of manufacture, 8. Snowflake (Installation at low temperatures)



In socket, the rubber ring is placed, with two sealing surfaces and additional short plastic ring that is made in a different color. Rubber ring has a unique design that rubber parts and plastic manufactures together in order to obtain a sealing element. Soft plastic armature allows easy installation of ring, by bending inside to the place where the four notches. After that very easily corrected to the previous position thanks to the notches on the plastic part Rubber ring is firmly mounted in the socket of the pipe making seal through whole pipe and eliminating many disadvantages of other types of rubber. The sealing rubber is mounted in socket of pipe and so reaches the customer. When the two pipes are connected, the rubber ring is designed to be deformed to a real pressure on the sleeve and the pipe and thus achieves an ideal combination. The pressure in the tubes can vary. The pressure in the pipes may vary, and in these conditions rubber ring must follow these deformations.
Design of rubber ring facilliates the worker installation in a trench, and it is impossible to drop the eraser or turned upside down, so that the risk of incorrect assembly practically does not exist. All that is needed is to lubricate the pipe ring. Opening modes have been designed so that it requires very little force to setup, alignment and connection of the pipes, reducing the risk of shifting of ring, even larger diameters even larger diameters can be connected without special tools and equipment to connect. Pipes fittings can be connected together easily and quickly.

THE INTERSECTION OF PVC ULTRA PIPES



1. UINNER LAYER:

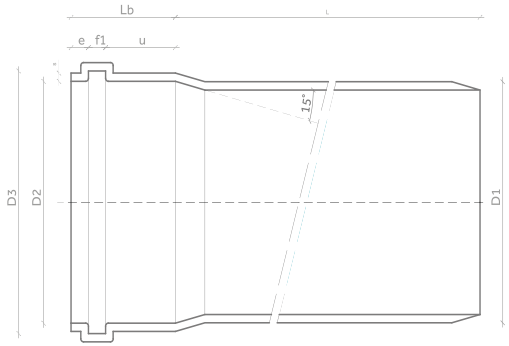
White color provides a better reflection when shooting camera

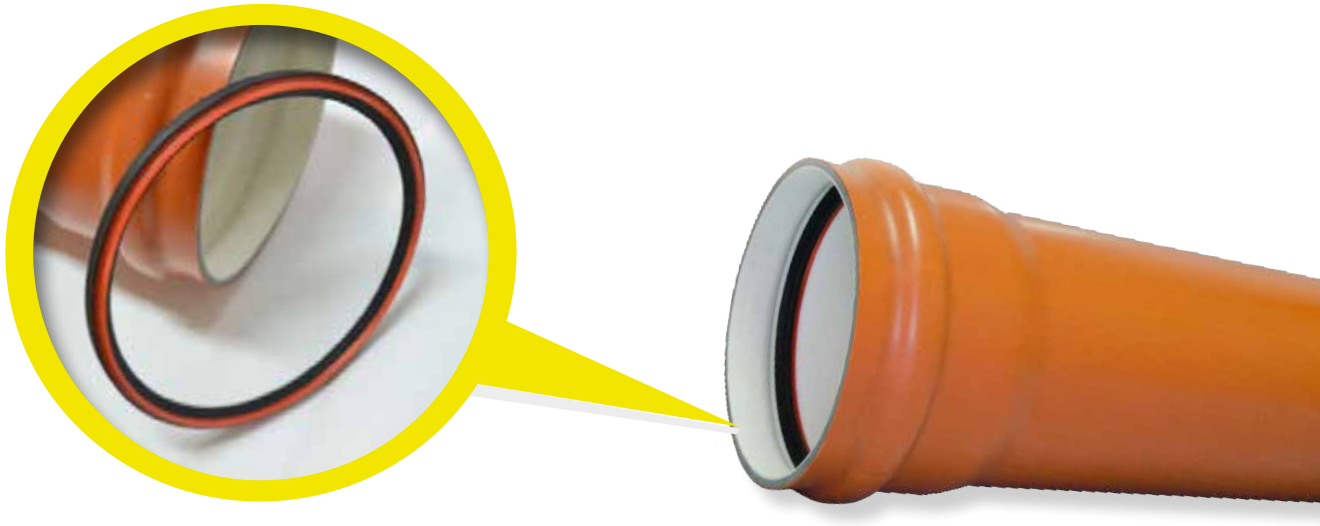
2. MIDDLE LAYER:

Gray filled with additional mineral reinforced
It absorbs blows
Increases static of pipes

3. THE OUTER LAYER:

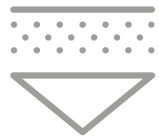
Dark orange colour
Shockproof to stone





PARAMETER	CHARACTERISTICS
Material	polyvinyl chloride (PVC)
The structure of the pipe	Three-layer compact PVC pipes
The ring stiffness of the pipe	SN 10, SN 12, SN 16
Dostupne dužine cevi	1, 2, 3, 4, 5, 6 metara
Seal	Rubber and plastic reinforcement in a different color and with two sealing surfaces
The temperature when installing	minimum -10 ° C, maximum 50 ° C
Compacting soil during assembly	90 % - 98 % PS
The depth of the liner	min. 0,5 m, max. 10 m (on the basis of a detailed statistical calculation)

BELOW GROUND



PE AND PP SPRIAL PIPES - SPIROPIPE

For street sewage systems

Spiral corrugated pipes are double-layer corrugated pipes made of high density polyethylene and consist of a smooth inner wall and the outer corrugated spiral wall. The pipe is manufactured by winding of profiled outer layer of high density polyethylene with a corrugated profile on the smooth inner layer which is extruded and welded continuously.

The outer layer consists of a profiled metal strip which is coated with polyethylene, and the inner layer consists of high density polyethylene. The presence of the profiled metal strips in the outer layer significantly improves the strength of the pipe itself. For this reason PEŠTAN spiral corrugated pipes are produced in strength class SN 8 or greater.

PE SPIRAL PIPES - SPIROPIPE

Spiral pipes are two-layer corrugated pipes made of high-density polyethylene and consist of an inner smooth wall and external corrugated spiral wall. The tube is produced by winding profiled outer layerreinforcement of high-density polyethylene with corrugated profile on a smooth inner layer that is extruded and welded in continuity.

The outer layer consists of smaller ribs high-intensity hose coated with polyethylene, and the inner layer consists of high-density polyethylene. Presence of profiled hose in the outer layer significantly improves the strength of the pipe itself. Production technology makes possible different steps (profiles) during the winding of the profiled outer layer, which provides different pipe stiffness.

For this reason, PEŠTAN spiral corrugated pipes can be produced in different classes of stiffness.

CONSTITUTIVE PROPERTY OF MATERIALS

Resistance of crack

High stress crack resistance, even at low temperatures, wich is a feature of this materials, guarantees compactness and the stiffness of products that are fully made out of the best quality materials. Reference procedure for the determination of impact resistance is a EN 744.

Better hydraulic characteristics

Inner diameter and hydraulic characteristics of Peštan PE and PP SPIRAL SPIROPIPE remain the same over the time, regardless of the type of profile, thanks to the strong reduced roughness and low adhesion of the inner pipe walls. The nominal diameter corresponds to the effective inner diameter of the pipe, with tolerances allowed according to reference standards.

UV resistance

Black polyethylene pipes are resistant to atmospheric effects and UV radiation, thanks to the addition of soot which is equally scattered on a polymeric basis. So such tubes can be used and stored outdoors, for an appropriate period of time, without damaging the material.

Blue pipies are partially resistant to UV radiation and they can be stored outdoors, but in limited period of time (up to 6 months).

Physical properties of materials PE

- The density 959 gr/cm^3, according to ISO 1183
- Moduls of stretching 1050 MPa, according to ISO 527
- MRS Classification 10 MPa, according to ISO12162
- Impact strength to Sharpie 23 MPa, according to ISO 179
- Vicat softening temperature 71 °C, according to ISO 306
- Coefficient of linear thermal elongation of 0.13 mm/m °C

Physical properties of materials PP

- The density 900 gr/cm^3, according to ISO 1183
- Moduls of stretching 1300 MPa, according to ISO 527
- Tensile load 28 MPa, according to ISO 527
- Impact strength to Sharpie 70 kJ/m^2, according to ISO 179

Chemical resistance of materials

Peštan PE SPIRAL SPIROPIPE pipes are resistant to salty water, alcohol, acids, alkalines, sulfates, aggressive gases and all kinds of detergents. On the other hand, can not be used for the transport of water which contains high percentage of benzene, benzine (petrol) or acetone.

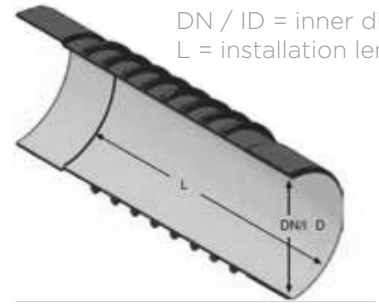
Temperature resistance of materials

PE SPIRAL SPIROPIPE pipes are resistant to temperatures up to 60 degrees short-term and 40 degrees long-term.

Polypropylene has high temperature resistance, therefore the pipes made of this material also have heightened temperature load resistance. PP SPIRAL SPIROPIPE pipes are resistant to temperatures up to 95 degrees short-term and 60 degrees long-term.

PROGRAM

- Production program Peštan PE SPIRAL pipes SPIROPIPE for large sewer systems or non-critical transport of water includes pipes made of the highest quality polyethylene PE 100 with profiled ones with reinforcement in the ribs, in diameters of Ø300 up to Ø1200, and in the coming period will begin with the production of pipes in diameters to Ø3000.



DN / ID = inner diameter [mm]
L = installation length [mm]

Also, these pipes are produced in standard length of 6 m. They can also be produced in other lengths according to project specification.

Nominal and inner pipe diameter

DN (mm)	DN/ID (mm)
300	300
400	400
500	500
600	600
700	700

DN (mm)	DN/ID (mm)
800	800
900	900
1000	1000
1100	1100
1200	1200

- Peštan SPIRAL pipes SPIROPIPE are produced in more variants of strength (resistance) to the external load (depending on the step of the profiled outer layer of reinforcement, as well as on diameter):

SN 2 KN/m² **SN 8 KN/m²** **SN 16 KN/m²**

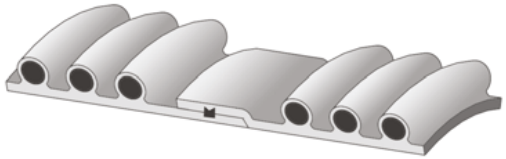
SN 4 KN/m² **SN 12.5 KN/m²**

Application and installation

Inner diameter and hydraulic characteristics of Peštan SPIRAL SPIROPIPE pipes remain the same over the time, regardless of the type of profile, thanks to the strong reduced roughness and low adhesion of the inner pipe walls. The nominal diameter corresponds to the effective inner diameter of the pipe, with tolerances allowed according to reference standards.

Connection of the PE SPIRAL pipes

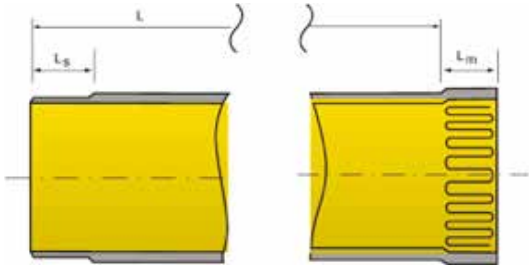
- Peštan PE SPIRAL pipes SPIROPIPE connected in two ways. The smaller diameters are connected over the header into which the EPDM rubber is mounted.

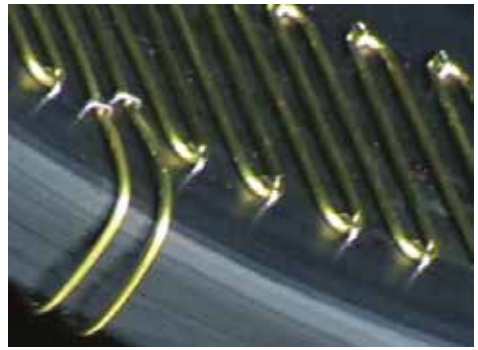


This type of compound is most widespread due to its own simplicity and speed of performance. At the female's end of pipe, the rubber was inserted during the production and it is homogeneously coupled with a muff. The male and female parts of the compound are performed in accordance with the parameters by the EN standard 13476.

The rubber is made in accordance with EN 681-1.

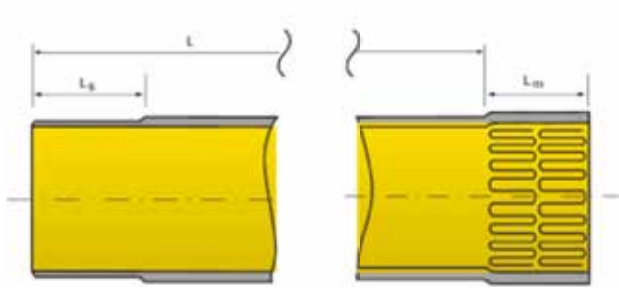
The larger diameters are connected either with the rubber band or electrofusion welding.





TECHICAL

Peštan PE SPIRAL SPIROPIPE pipes are produced with extended socket into which it is possible to insert two electrodes for electrofusion welding that provides additional security and an increase of system resistance to internal pressure (up to 3 bar).

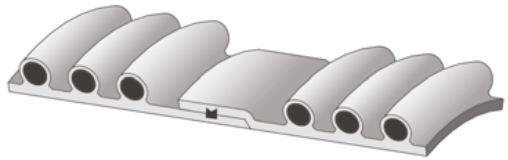


CONNECTION OF THE PE SPIROPIPE (DN)	
MUF AND RUBBER	ELECTROFUSION
300	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000
1100	1100
1200	1200

CONNECTION OF THE PE SPIROPIPE (DN)	
MUF AND RUBBER	ELECTROFUSION
	1400
	1600
	1800
	2000
	2500
	3000

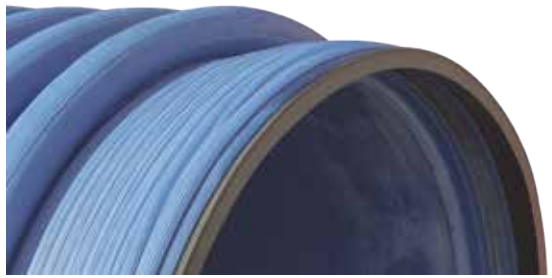
TECHICAL

- Peštan PP SPIRAL pipes SPIROPIPE are connected over the header into which the EPDM rubber is mouthed.



This type of connection is most widespread due to its own simplicity and speed of performance. At the female's end of pipe, the rubber was inserted during the production and it is homogeneously coupled with a muff. The male and female parts of the connection are performed in accordance with the parameters by the EN standard 13476.

The rubber is made in accordance with EN 681-1.



CONNECTION OF THE PP SPIROPIPE (DN)	
MUF AND RUBBER	ELECTROFUSION
300	
400	
500	
600	
700	
800	
900	
1000	
1100	
1200	

Standards that correspond with PE and PP SPIRAL SPIROPIPE pipe system

PE and PP SPIRAL SPIROPIPE pipe system is produced and corresponds the requirements of the standard SRPS EN 13476-3: 2008 "Plastics piping systems mass for underground drainage and sewage without pressure - Piping systems with stainless steel polyvinyl chloride (U-PVC), polypropylene (PP) and polyethylene (PE) - Part 3: Specifications of pipes and fittings with smooth inner and molded outer surface and system, type B" and DIN 16961.

It is applicable with existing standards and regulations for the design of sewerage systems: "SRPS EN 752:2008 - Drain and sewer systems outside buildings", and also with the standard for the installation of pipelines SRPS EN 1610: 2006 Design and testing of lines and channels for wastewater.

TECHICAL

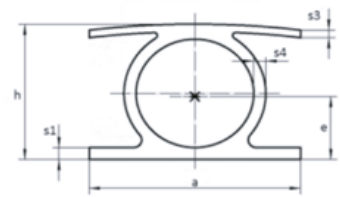
Types of profiles

Peštan currently offers three basic pipe profile products to its customers:

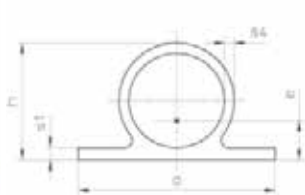
1. Peštan Spiro PR
2. Peštan Spiro CPR
3. Peštan Spiro OP

Depending on the needs of the project and the desired stiffness, these three profiles can be further modified by adding more levels of reinforcement and modification of diameter of the tube. The goal is to complete the optimization of the pipes for the project needs, with full quality guarantee.

CPR profil



PR profil



OP profil

ADVANTAGES OF PESTAN PE SPIRAL SPIROPIPE PIPES

- Durability

  Reduced investment costs and work life expectancy for at least 50 years reduce costs of use.

- Saving time

  Significant time saving can be achieved in pipeline placement due to the length and the low mass of the pipe, as well as due to easy and quick way of mounting and joining.

- Maintenance

  Inner smooth sides of the walls, comactness and increased electrical, chemical and biological resistance, significantly reduce the costs of cleaning and maintenance.

- Hydraulics

  Due to the improved hydraulic properties, they can be used in smaller diameters than in traditional pipes.

- Waterproof

  100% leakproofness of joints: removal of penetration or leakage of fluid, and the penetration of roots due to welded joints.

- Lengths

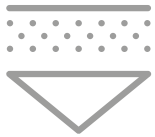
  Standard pipe length of 6m, as well as possibility of production of pipes in lengths according to the specification, significantly reduce the amount of connections.

- Usage

  Possibilities of using Peštan SPIRAL SPIROPIPE tubes are numerous. Main application is found in the construction of underground sewers network, but excellent characteristics of this tube materials make it possible to create various systems where fast and easy assembly is required, chemical resistance, as well as the safety of the compounds.


DN110x6.6 PE100 PN10 SDR17
DN110x6.6 PE100 PN10

BELOW GROUND



HDPE PIPES FOR SEWAGE

Pipes for pressure sewerage systems made from high-density polyethylene

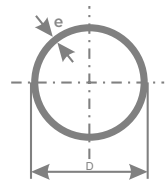
Pipes for pressure sewerage systems are produced in "PEŠTAN" exclusively from the original high-density PE, PE80 and PE100. MRS classification = 8Mpa or MRS = 10MPa means that the pipes after 50 years can handle the the same strain.
"PEŠTAN" uses the best raw materials from renowned manufacturers. The quality of our products "PEŠTAN" maintaines with the quality department, in its modern laboratories. The materials have proof of independent European laboratory for MRS classification.

Benefits of pipes PE80 and PE100

- The material is absolutely non-toxic and completely inert in contact with wastewater.
- Easy for transport and handling.
- Easy to connect by welding or joints.
- The transition from PE-80 to PE-100 should be performed by electro-socket
- The lifespan is more than 50 years.
- On the inner walls of the pipes, layers of stones nor deposits of dirt can be stuck, and consequently there is no reduction in flow during long-term use.
- Very flexible and extremely resistant to vibrations, seismic shocks and the movement of soil.
- Greater flexibility with pipes of PE-80.
- Due to the elasticity of the pipeline route can follow the configuration of the terrain, so there is no need for many fittings.
- The bending radius is 20d.
- Pipes are resistant to UV rays and to temperatures of -30 °C to + 60 °C.
- They have a high resistance to abrasion.
- Very low pressure losses because the friction coefficient 10 times less than that of steel pipes.

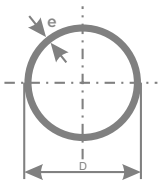
	SDR 6 (S-2,5) PN		SDR 7,4 (S-3,2) PN25		SDR 9 (S-4) PN20		SDR 11 (S-5) PN16		SDR 13,6 (S-6,3) PN12,5		SDR17 (S-8) PN10		SDR21 (S-10) PN8		SDR 26 (S-12,5) PN 5		SDR33 (S-16) PN5		SDR41 (S-20) PN4	
D (MM)	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M
16	3,0	0,15	2,3	0.1	2	0.09														
20	3,4	0,18	3,0	0,154	2.3	0.13	2	0.12												
25	4,2	0,278	3,5	0,240	3	0.21	2.3	0.17	2,0	0,151	1.9	0.14								
32	5,4	0,454	4,4	0,386	3.6	0.33	3	0.28	2,4	0,228	2	0.2								
40	6,7	0,701	5,5	0,600	4.5	0.51	3.7	0.43	3,0	0,354	2.4	0.29	2,0	0,251						
50	8,3	1,09	6,9	0,936	5.6	0.79	4.6	0.67	3,7	0,550	3	0.45	2,4	0,372	2,0	0,317				
63	10,5	1,73	8,6	1,47	7.1	1.26	5.8	1.06	4,7	0,869	3.8	0.72	3,0	0,586	2,5	0,482				
75	12,5	2,44	10,3	2,09	8.4	1.78	6.8	1.47	5,6	1,23	4.5	1.02	3,6	0,826	2,9	0,682				
90	15,0	3,51	12,3	3,0	10.1	2.56	8.2	2.14	6,7	1,76	5.4	1.46	4,3	1,19	3,5	0,987				
110	18,3	5,24	15,1	4,49	12.3	3.81	10	3.17	8,1	2,63	6.6	2.18	5,3	1,77	4,2	1,45				
125	20,8	6,75	17,1	5,77	14	4.3	11.4	4.11	9,2	3,39	7.4	2.78	6,0	2,28	4,8	1,86				
140	23,3	8,47	19,2	7,25	15.7	6.17	12.7	5.12	10,3	4,25	8.3	3.49	6,7	2,85	5,4	2,35				
160	26,6	11,0	21,9	9,44	17.9	8.04	14.6	6.73	11,8	5,54	9.5	4.55	7,7	3,73	6,2	3,08				
180	29,9	14,0	24,6	11,9	20.1	10.17	16.4	8.5	13,3	7,01	10.7	5.76	8,6	4,69	6,9	3,83				
200	33,2	17,2	27,4	14,8	22.4	12.58	18.2	10.49	14,7	8,65	11.9	7.11	9,6	5,81	7,7	4,74				
225	37,4	21,8	30,8	18,6	25.2	15.92	20.5	13.27	16,6	10,9	13.4	9.01	10,8	7,35	8,6	5,96				
250	41,5	27,0	34,2	23,0	27.9	19.57	22.7	16.33	18,4	13,5	14.8	11.05	11,9	9,03	9,6	7,38				
280	46,5	33,8	38,3	28,9	31.3	24.6	25.4	20.47	20,6	16,9	16.6	13.88	13,4	11,34	10,7	9,2				
315	52,3	42,7	43,1	36,5	35.2	31.11	28.6	25.9	23,2	21,4	18.7	17.57	15,0	14,3	12,1	11,7	9,7	9,7	7,7	7,60
355	59,0	54,3	48,5	46,3	39.7	39.5	32.2	32.88	26,1	27,2	21.1	22.36	16,9	18,2	13,6	14,8	10,9	12,1	8,7	9,6
400			54,7	58,8	44.7	50.12	36.3	41.75	29,4	35,2	23.7	28.27	19,1	23,6	15,3	19,1	12,3	15,7	9,8	12,5
450			61,5	74,4	50.3	62.7	40.9	52.87	33,1	44,6	26.7	35.81	21,5	29,8	17,2	24,2	13,8	19,9	11,0	15,8
500					55.8	77.3	45.4	65.24	36,8	55,0	29.7	44.25	23,9	36,9	19,1	29,9	15,3	24,4	12,3	19,4
560					62.5	97	50.8	80.8	41,2	69,0	33.2	55.43	26,7	46,2	21,4	37,5	17,2	30,7	13,7	24,4
630					71	127.6	57.2	102	46,3	87,3	37.4	70.21	30,0	52,9	24,1	47,4	19,3	38,7	15,4	30,8
710					80*	162*	64.5	130	52,2	110,8	42.1	89	33,9	74,2	27,2	60,2	21,8	49,2	17,4	39,0
800					90.1*	205.7*	72.7	170.4	58,8	140,7	47.4	113	38,1	94,0	30,6	76,3	24,5	62,4	19,6	49,5

*other sizes are available upon request



HDPE PE-100

	SDR 6 (S-2,5) PN 25		SDR 7,4 (S-3,2) PN 20		SDR 9 (S-4) PN 16		SDR 11 (S-5) PN 12,5		SDR 13,6 (S-6,3) PN 10		SDR 17 (S-8) PN 8		SDR 21 (S-10) PN 6		SDR 26 (S-12,5) PN 5		SDR 33 (S-16) PN 4		SDR 41 (S-20) PN 3,2	
D (MM)	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M	e_{min}	KG/M
16	3,0	0,15	2,3	0,1	2,0	0,09	1,9	0,9	1,8	0,08										
20	3,4	0,18	3,0	0,16	2,3	0,13	2,0	0,12	1,9	0,11										
25	4,2	0,278	3,5	0,24	3,0	0,21	2,3	0,17	2,0	0,15										
32	5,4	0,454	4,4	0,38	3,6	0,32	3,0	0,28	2,4	0,23	2,0	0,2								
40	6,7	0,701	5,5	0,6	4,5	0,56	3,7	0,43	3,0	0,36	2,4	0,29	2,0	0,24						
50	8,3	1,09	6,9	0,93	5,6	0,78	4,6	0,67	3,7	0,54	3,0	0,45	2,4	0,37	2,0	0,317				
63	10,5	1,73	8,6	1,47	7,1	1,25	5,8	1,06	4,7	0,87	3,8	0,72	3,0	0,58	2,5	0,482				
75	12,5	2,44	10,3	2,09	8,4	1,76	6,8	1,47	5,6	1,23	4,5	1,02	3,6	0,82	2,9	0,682				
90	15,0	3,51	12,3	2,99	10,1	2,54	8,2	2,14	6,7	1,76	5,4	1,46	4,3	1,18	3,5	0,987				
110	18,3	5,24	15,1	4,48	12,3	3,77	10,0	3,17	8,1	2,61	6,6	2,18	5,3	1,77	4,2	1,45				
125	20,8	6,75	17,1	5,77	14	4,86	11,4	4,11	9,2	3,36	7,4	2,78	6,0	2,27	4,8	1,86				
140	23,3	8,47	19,2	7,25	15,7	6,11	12,7	5,12	10,3	4,21	8,3	3,49	6,7	2,83	5,4	2,35				
160	26,6	11,0	21,9	9,44	17,9	7,95	14,6	6,73	11,8	5,29	9,5	4,55	7,7	3,72	6,2	3,08				
180	29,9	14,0	24,6	11,9	20,1	10,1	16,4	8,5	13,3	6,74	10,7	5,76	8,6	4,67	6,9	3,83				
200	33,2	17,2	27,4	14,8	22,4	12,4	18,2	10,49	14,7	8,3	11,9	7,11	9,6	5,78	7,7	4,74				
225	37,4	21,8	30,8	18,7	25,2	15,6	20,5	13,27	16,6	10,6	13,4	9,01	10,8	7,30	8,6	5,96				
250	41,5	27,0	34,2	2,3	27,9	19,4	22,7	16,33	18,4	13,4	14,8	11,05	11,9	8,93	9,6	7,38				
280	46,5	33,8	38,3	28,9	31,3	25	25,4	20,47	20,6	16,7	16,6	13,88	13,4	11,3	10,7	9,2				
315	52,3	42,7	43,1	36,6	35,2	30,8	28,6	25,9	23,2	21,2	18,7	17,57	15,0	14,2	12,1	11,7	9,7	9,7	7,7	7,60
355	59,0	54,3	48,5	46,3	39,7	39,1	32,2	32,88	26,1	26,9	21,1	22,36	16,9	18,0	13,6	14,8	10,9	12,1	8,7	9,6
400					44,7	49,6	36,3	41,75	29,4	34,1	23,7	28,27	19,1	22,9	15,3	19,1	12,3	15,7	9,8	12,5
450							40,9	52,87	33,1	43,2	26,7	35,81	21,5	28,9	17,2	24,2	13,8	19,9	11,0	15,8
500							45,4	65,24	36,8	53,4	29,7	44,25	23,9	35,7	19,1	29,9	15,3	24,4	12,3	19,4
560							50,8	80,8	41,2	66,9	33,2	55,43	26,7	44,7	21,4	37,5	17,2	30,7	13,7	24,4
630							57,2	102	46,3	84,6	37,4	70,21	30,0	56,4	24,1	47,4	19,3	38,7	15,4	30,8
710							64,5	130	52,2	109	42,1	89	33,9	71,8	27,2	60,2	21,8	49,2	17,4	39,0
800							72,7	170,4	58,8	138	47,4	113	38,1	91,8	30,6	76,3	24,5	62,4	19,6	49,5



HDPE PE-80

MANHOLES

MANHOLES WITH SLUDGE TRAP

Peštan produces manholes with sludge trap as a integral part of the collector in gravity sewer systems, waste water systems, storm water or combined. These manholes are made of polypropylene.
Manholes are made of monolithic stuctures composed of a flat bottom, manhole body (PP corrugated pipe) and connections as specified by projects. The elements of each manhole are welded to each other by extrusion welded.

Manholes are made by order or project specification.

Dimensions
DN 800mm

Material
Polypropylene

Standards
SRPS EN 13589

Fields of application
Gravity sewer systems
Waste water systems, storm water and combined
Various industrial application.

DESCRIPTION

Peštan produces manholes with sludge trap as a integral part of the collector in gravity sewer systems, waste water systems, storm water or combined.

They are used as revision manholes, cascading manholes, manholes with sludge trap or manholes for sewer flushing.

Manholes are made of monolithic stuctures composed of a flat bottom, manhole body (PP corrugated pipe) and connections as specified by projects.

The elements of each manhole are welded to each other by extrusion welded.

Advantages

- Long durability
- Water tightness
- Resistance to aggressive chemicals
- Easy handling
- Quick installation
- Easy hight adjustment

DRAIN MANHOLES

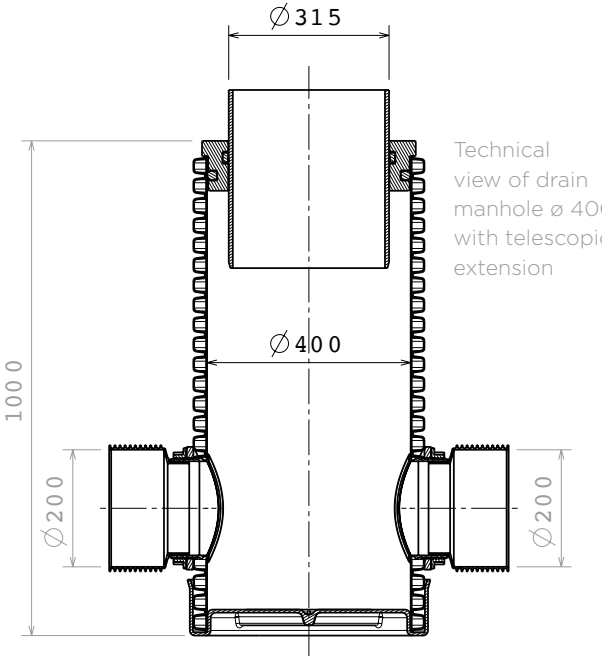
Peštan company has included
DRAIN MANHOLES in its product range.

- Drain manholes ø400 ID
- Drain (revision) manholes ø500 ID
- Drain (revision) manholes ø600 ID

*ID - Inner diameter

PURPOSE

These products are mainly designed to collect rainwater in the rainwater sewage systems for individual home installations and also in systems of civil engineering (collecting rain water from and near the roads, etc.) In addition it is possible to use drain manholes ø 600 (sometimes ø 500 too) as revision as well which is particularly important during installation of home sewer and connection of multiple objects before joining the main line etc.
With this, relevant joining standards are met, with additional reductions in joining costs and installation time, while corrections of the mistakes on terrain (such as axel and angle issues as well as height of connecting lines) are facilitated by its flexibility.



Technical view of drain manhole ø 400 with telescopic extension

CONSTRUCTION

Construction of drain manholes is usually performed with the Sedimentation, and in this system the height of sedimentation can be modified and adapted to specific customer requirements.Manhole height can be easily adjusted on the ground and by reducing the vertical which is always PP double layer corrugated pipe SN 8 it can be fully adapted to the situation before setting of cover grids.

Construction consists of:

- Drain bottom
- PP corrugated pipe SN 8 vertical
- Appropriate number of SAG's used to form one output and one or more inputs.

Using SAG's enables the various versions of connecting smooth or corrugated pipe diameters in the 140 ID corr. 160 OD corr. 160 SW, and also ID 200 corr. and 200 SW. It is possible to form the manhole on the spot, which is a huge advantage because the drilling and installation of SAG's can be performed at the site of installation with simultaneous correction of alignment errors and regular deviations from the projected documents. Due to the extremely high ring stiffness of used PP corr. pipes, recommended height of manhole can range up to 5 m.

The table below contains the basic data related to drain manholes:

	DRAIN MANHOLE 400 MM	DRAIN REVISION MANHOLE 500MM	DRAIN REVISION MANHOLE 600 MM
Minimal angle between the terminal	60	45	45
Maximal height of the manhole - h	5000	5000	5000
Minimal height to the port axis - h1	260	300	310
Maximal number of input ports	2	3	4

The seal between the vertical and manhole bottom is achieved by using common rubber ring which is used for PP corr. pipes which allows sealing up to 0.5 bar and 5 m height of the water column which defined maximum height of the manhole.

Drain manhole is supplied as a telescopic too. In this version base is upgraded with coupling ring and PVC ø 315 OD.

This is a very popular and sought option for designers and contractors because this structure results in greater depth of installation with a flexible coupling ring connection and in case of heavy loads due to increased surface pressure or increased construction depth, transmission of loads based on the manhole is prevented. Building the concrete ring around the PVC pipe is required.

DELIVERY

At the request of the customer, manhole can be supplied in kit-form which is particularly popular with final customers because of lower prices and a relatively simple and rapid preparation of manholes users, which leaves them with possibility of corrections and changes.

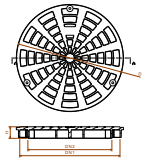
These products can be delivered and fully assembled on the basis of data obtained from our customers. This can significantly speed up the delivery of the alignment setting but reduces the possibility of correcting possible deviations on terrain.

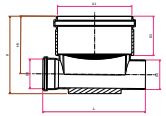
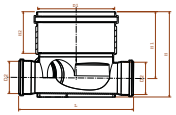
PVC MANHOLES

Manholes with a gutter at the bottom, are made of PVC (the bottom of the manhole). The body of manholes and telescopic extension are made of PVC pipe and are joined with rubhber seal for complete waterproofing. Manhole cover is made of composite materials in the class A 150th.

Available in the following dimensions:

- Drain manholes ø315/160
- Drain manholes ø400/160
- Drain manholes ø400/200

DESCRIPTION	PICTURE	CODE	DN	DN1	DN2	H
DRAIN MANHOLES LINEAR TRAY						
	 	10204560	315	346,7	292,4	39,9

DESCRIPTION	PICTURE	CODE	(D/D1)	H	H1	H2	L
DRAIN MANHOLES							
	 	10799224	315/160	384	281	190	479
		10799220	400/160	420	315	207	554
		10799221	400/200	470	340	207	586
DRAIN MANHOLES							
	 	10799225	315/160	395	309	185	490
		10799222	400/160	420	319	207	559
		10799223	400/200	470	344	207	584

ASSEMBLING OF THE MANHOLE IN STAGES

1. Preparation of necessary tools

Drill

Saw

Scalpel

Protective devices for work

The manhole body made of Peštan's corrugated pipe ID with appropriate diameter.

Drain bottom of the manhole of the appropriate diameter which is mounted on the pipe and within the pipe provides watertight connection.

Telescopic extension for drain manhole Ø400. This extension allows easy adjustment of drain manhole's height.
*is made only for drain manhole Ø 400

Saddle connection that corresponds to the vertical (Ø400, Ø500, Ø600)
With the appropriate connector (Ø160 and Ø200) for a smooth or corrugated pipe.

3. Installationof the bottom ofcorrespodenting diameter drain manhole

At the bottom of the drain manhole impress the pipes with rubber gasket. Rubber gasket must be placed behind the first rib of the pipe and not after second one which is the case with connecting pipes with standard socket.

4. Installation of the connector

In accordance with instructions for installation of SAG, set the connections to the height required in order to adapt to the terrain, considering the requested depth of sedimentation. It is possible to set up connection anywhere along the perimeter of pipes. With this method it is possible to make cascading connections.

5. Installation of the manhole in a trench

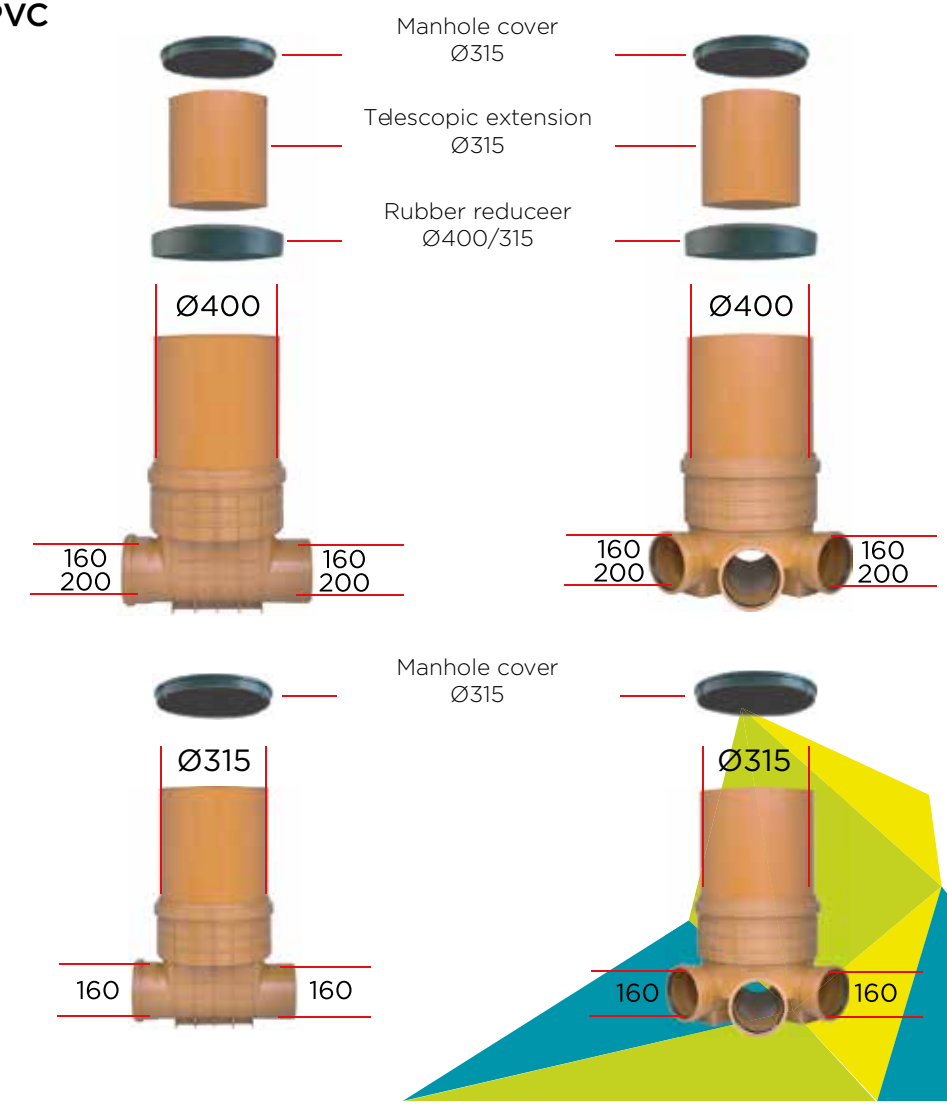
In case of drain (revision) manhole Ø 500 or Ø 600, after setting the connectors, the manhole is placed into the trench, the height is being set by cutting of the excess of the pipe (if necessary) and finally, standard cover is being set whether from concrete or casting one with note that the load on the cover must not be transferred to the vertical of the manhole, but to the surrounding soil.

6. Installation of telescopic coupling on drain manhole Ø 400

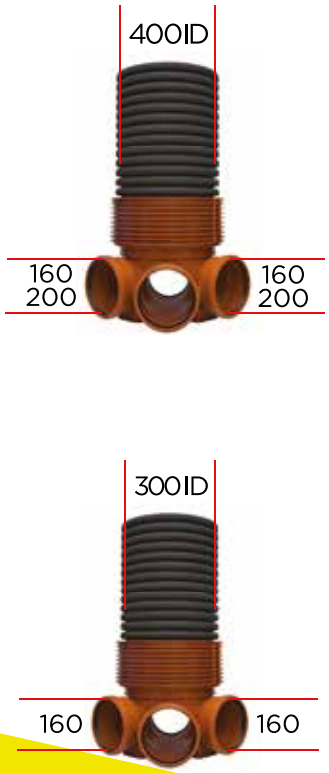
When installing a drain manhole Ø 400, telescopic extension can be used in order to facilitate height adjustment. This extension is set in the body of the manhole Ø 400 with gasket which provides come seal. Pipe Ø 315 is telescopic extension which provides easy adjustment of manhole height considering present relief. Manhole cover is set so that the load is transferred to the surrounding soil and not on vertical of manhole body.

Manholes with a gutter at the bottom, are made of PP. The body of manholes and telescopic extencions are made of PVC pipe and PP corugated pipe. These segments are joined with rubber seal for complete watherproofing. Manhole cover is made of composite materials in the class A 150.

PVC

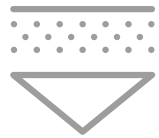


PP corugated



DRAINAGE

BELOW GROUND



HDPE OD DRAINAGE PIPES

HDPE drainage corrugated pipes

HDPE DRAINAGE CORRUGATED PIPES

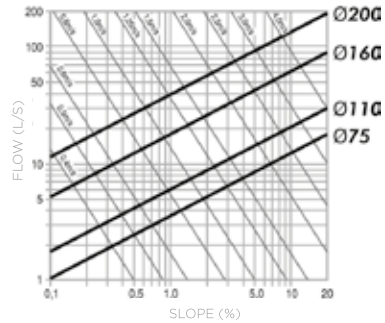
The need for water is a basic life requirement. But the uncontrolled flow of water can often cause problems, because efective drainage plays an important role in agriculture and construction of sports facilities, roads and buildings. If appropriate pipes are not placed in proper accordance with the present water and land management, for example while building brick buildings, irreparable damage can be done in a short time. As a result, drainage systems are necessary aspect of any construction work especially in agriculture and construction of roads and buildings, where we have the optimum protection and treatment of ground water resources.
Corrugated pipes are characterized by their "sandwich" structure. Outer wall of the corrugated pipes provides high rigidity and stability of these pipes, while the smooth inner wall provides optimum water flow speed. Inner and outer wall are connected homogeneous. Water

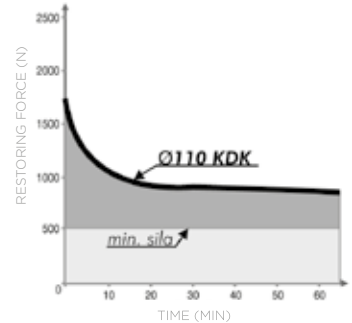
HDPE DRAINAGE CORRUGATED PIPES FEATURES

- MMaterial: HDPE
- Standard: DIN 4262/1
- Density: >0,945Kg/m3
- MFI 190˚C/5Kg 0,35-1,3gr/10'
- Elasctic modulus >800MPa
- Thermal expansion coefficients: 0,17mm/m˚K
- Coefficients of thermal conductivity: na 23˚C ~ 0,36-0,5W/mk
- Surface Resistivity: >1013Ω
- Type of connection through socket without rubber
- Laying of pipelines and the use of HDPE pipelines is between -40˚C to +60˚C.
- Ring stiffness SN=4KN/m2 (EN ISO 9969)
- Standard color is black

HYDRAULIC CHARACTERISTICS

The diagram shows the hydraulic characteristics based on the coefficient of rigidness kb = 0.5





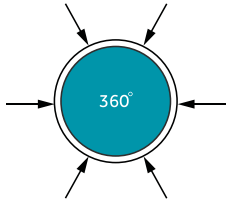
TYPES OF PIPES

There are three types of drainage pipes made of polyethylene, defined through outside diameter - pipe OD:

- KD – rigid drainage pipes (fully perforated)
- KDK - rigid drainage – sewerage pipes (partially perforated)
- FDK - flexible drainage pipes (fully perforated)

KD – RIGID DRAINAGE PIPES (FULLY PERFORATED)

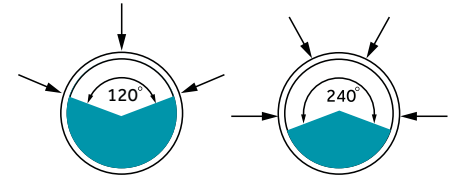
KD pipes function is to provide optimum drainage podstepena and anti-freeze layer. This applies both during construction and completion of the works site by entering the existing water and transporting it to the exit spot. The joints are impermeable to sand. It is not necessary to place a rubber. Standard implies 6 slots along the scope with angle of 60˚.



CODE	OUTTER DIAMETER (MM)	INNER DIAMETER (MM)	STANDARD GAP (MM)	SPACE FOR WATER INLET (CM²/M)	STANDARD LENGTH (M)
10800000	Ø75	Ø62	1 - 1,4	>50	6
10800001	Ø90	Ø75	1 - 1,4	>50	6
10800002	Ø110	Ø92	1 - 1,4	>50	6
10800003	Ø125	Ø108	1 - 1,4	>50	6
10800004	Ø160	Ø138	1 - 1,4	>50	6
10800005	Ø200	Ø176	1 - 1,4	>50	6
00000000	Ø250	Ø222	1 - 1,4	>50	6
00000000	Ø315	Ø278	1 - 1,4	>50	6
00000000	Ø400	Ø348	1 - 1,4	>50	6
00000000	Ø500	Ø432	1 - 1,4	>50	6

KDK – RIGID DRAINAGE – SEWERAGE PIPES (PARTIALLY PERFORATED)

Partially perforated KDK rigid drainage-sewerage pipes are perfect combination of perforated and collecting pipe. If requested, they must be able to collect and transport any surface water that occurs, the short and long distances. Joints are impervious to water and sand because of the transport. Rubber is inserted into the third channel of the corrugated pipe and the socket is slipped over the lubricated rubber. The pipes must be professionally installed by respecting the guidelines for laying of pipelines specified 1610 DIN4033.



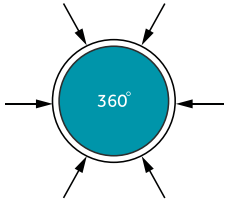
CODE 220°	CODE 150°	OUTTER DIAMETER (MM)	INNER DIAMETER (MM)	STANDARD GAP (MM)	SPACE FOR WATER INLET (CM²/M)	STANDARD LENGTH (M)
10800100	10800200	Ø75	Ø62	1 - 1,4	>50	6
10800101	10800201	Ø90	Ø75	1 - 1,4	>50	6
10800102	10800202	Ø110	Ø92	1 - 1,4	>50	6
10800103	10800203	Ø125	Ø108	1 - 1,4	>50	6
10800104	10800204	Ø160	Ø138	1 - 1,4	>50	6
10800105	10800205	Ø200	Ø176	1 - 1,4	>50	6
00000000	00000000	Ø250	Ø222	1 - 1,4	>50	6
00000000	00000000	Ø315	Ø278	1 - 1,4	>50	6
00000000	00000000	Ø400	Ø348	1 - 1,4	>50	6
00000000	00000000	Ø500	Ø432	1 - 1,4	>50	6

FDK – FLEXIBLE DRAINAGE PIPES (FULLY PERFORATED)

These pipes are light, highly flexible, resistant to UV light, solid and economical, easy to assemble. Due to special production process, the inner side of the pipe is smooth while the outter side is corrugated. The pipes are continued with coupling, which is impervious to sand. Application temperature is from -40˚C to +60˚C. They are made of a material HDPE / LDPE. Gaps make > 50cm2 / m of the water entrance surface. The slots are placed symmetrically in each channel of corrugated pipe. They are laid faster and better automaticly. While settling, the pipes can be encased with filter material. The role of filters is to increase throughput and prevent rapid clogging pipes. It is possible to choose the number of slots for entry of water. Standard color is black and yellow-black. Other colors are possible by demand. They are packed and shipped in 50m long coils.

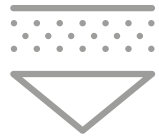
IT IS POSSIBLE TO CHOOSE THE NUMBER OF SLOTS FOR ENTRY OF WATER.

On request peštan is able to produce rigid drainage – sewerage pipes (partially perforated) with bigger perforation 50-200cm2/m for diametres from ø75-ø315



CODE	OUTTER DIAMETER (MM)	INNER DIAMETER (MM)	STANDARD GAP (MM)	SPACE FOR WATER INLET (CM²/M)	STANDARD LENGTH (M)
10800500	Ø75	Ø62	1 - 1,4	>50	100
10800501	Ø90	Ø75	1 - 1,4	>50	100
10800502	Ø110	Ø92	1 - 1,4	>50	50
10800503	Ø125	Ø108	1 - 1,4	>50	50
10800504	Ø160	Ø138	1 - 1,4	>50	50
10800505	Ø200	Ø176	1 - 1,4	>50	50
00000000	Ø250	Ø222	1 - 1,4	>50	6
00000000	Ø315	Ø278	1 - 1,4	>50	6
00000000	Ø400	Ø348	1 - 1,4	>50	6
00000000	Ø500	Ø432	1 - 1,4	>50	6

BELOW GROUND



HDPE ID DRAINAGE PIPES

Polietylene corrugated ID drainage pipes

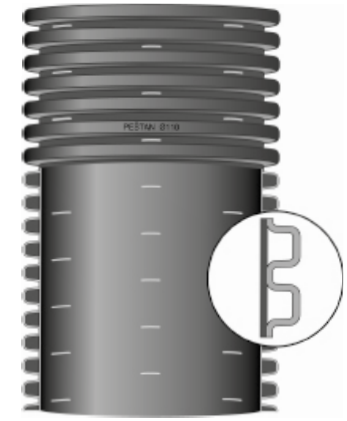
Excess water in the soil can cause serious problems on land and objects in landslides and in very short period of time until their complete destruction. Therefore, the proper drainage of the terrain is extremely important before we have to designe and prepare the ground for construction. Having in mind the need for drainage of excess water from the soil Peštan in its production program it is included a large range of diameters in accordance with DIN 4262/1 corrugated drainage and polyethylene (PE) pipe to drain excess water from the soil. Thanks to its large hydraulic capacity and a wide range of diameters these pipes are fully able to respond to any request and to provide a reliable and long-term drainage field.

HDPE pipes are lighter than PVC pipes and they are used for the same purpose, which allows easier handling and installation,they have excellent chemical resistance to aggressive environments and the surrounding land. Placing and use of HDPE pipeline is from -40 ° C up to + 60 ° C. The smooth inner surface has a low coefficient of friction so the pipes have very good hydraulic characteristics. They have excellent resistance to abrasion and they have excellent mechanical and physical properties.

Pipes are resistant to UV rays, they can stand a year outdoors and they should be protected. It is necessary to take into account that during transport and installation the pipes must not be dragged over sharp edges because sharp edges can damage the pipe while they are impact-resistant on blunt instrument.

CHARACTERISTICS AND SPECIFICATIONS

- Material: PE-HD (high-density polyethylene)
- Fast and inexpensive assembling
- Standard: DIN 4262/1
- Density:> 0,945 Kg / m3
- Index dispensing MFI 190 ° C / 5kg 0,35-1,3 gr / 10 '
- Modulus of elasticity:> 800 MPa
- The coefficient of linear thermal expansion: 0,17mm / mK
- The coefficient of thermal conductivity at 23 ° C ~ 0,36-0,5W / mk
- Surface electrical resistance:> 1013Ω
- Connection through via a socket
- Ring hardness SN = 4KN / m2 I = SN 8 kN / m2
- Color: Black standard (at the request of the customer as well as some other color)
- Standard length 6 and 12m



PEŠTAN has all the necessary fittings for installation of pipes

TYPES OF HDPE ID DRAINAGE PIPES

DN / ID (nominal diameter is inner diameter of the inside-diameter) double wall corrugated HDPE pipes are classified according to internal diameter.

They are manufactured with integrated socket.

They can work in a range from Ø140 to Ø800, stiffness SN 4 and SN 8th

ID SN4

ID SN8

DN		OD (mm)	ID (mm)	e (mm)	CWT (mm)	LWT (mm)	T (mm)	A (mm)	Kg/m
Ø140	SN4	Ø160	139.8	1.2	0.5-0.9	0.9	17.44	3.5	0.8-1.1
	SN8	Ø160	139	1.6	0.9-1.2	1.1	17.44	3.5	1.1-1.4
Ø200	SN4	Ø227	199	1.7	0.9-1.2	1.2	22.43	4.5	1.8-2.0
	SN8	Ø227	198	2.2	1.2-1.6	1.4	22.43	4.5	2.1-2.5
Ø250	SN4	Ø283	249	2.2	1.2-1.4	1.5	26.17	5.1	2.8-3.1
	SN8	Ø283	248	2.7	1.6-2.0	1.6	26.17	5.1	3.6-3.85
Ø300	SN4	Ø340	298.2	2.6	1.3-1.5	1.7	31.4	5.5	3.8-4.2
	SN8	Ø340	297	3.2	1.7-2.2	1.8	31.4	5.5	4.5-5.2
Ø400	SN4	Ø453	397.8	3.2	1.4-1.7	2.2	39.25	7.9	5.8-6.6
	SN8	Ø453	396	4.1	2.2-2.6	2.5	39.25	7.9	8.1-8.9
Ø500	SN4	Ø567	497.6	4.2	1.8-2.2	3.0	52.78	9.4	9.8-10.7
	SN8	Ø567	495	5.5	2.4-3.1	3.3	52.78	9.4	12.6-13.5
Ø600	SN4	Ø680	597	5.2	2.6-3.0	3.5	65.97	13.2	15.0-16.5
	SN8	Ø680	594	6.7	3.4-3.8	3.8	65.97	13.2	18.7-19.3
Ø800	SN4	Ø906	796	6.5	2.8-3.2	4.5	89.97	19.3	24.0-25.8
	SN8	Ø906	792	8.5	4.3-5.1	4.7	89.87	19.3	31.6-33.4

There are two types of drainage pipes made of polyethylene, defined through inside diameter - pipe ID:

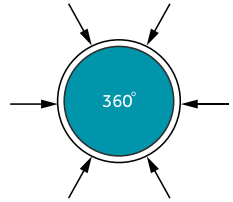
- **KD** – RIGID DRAINAGE PIPES (FULLY PERFORATED)
- **KDK** - RIGID DRAINAGE-SEWERAGE PIPES (PARTLY PERFORATED)

KD – RIGID DRAINAGE PIPES (FULLY PERFORATED)

KD pipes has to assure the function of optimum drainage degree and anti-freeze layer.

This is applied for both during the construction and completion of work construction site by entering of the existing water and transporting it to the main dumping. The joints are impermeable on sand . Installation of rubber for compounds for these pipes are not necessary.

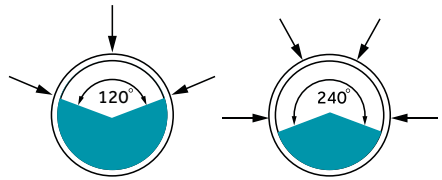
Standard are 6 slots per Celma diameter volume distributed up to 60˚.

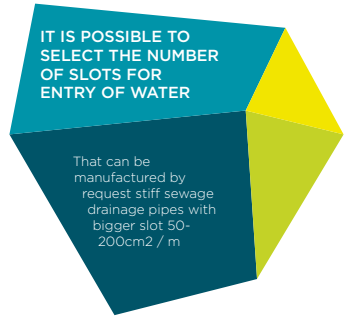


KDK - RIGID DRAINAGE PIPES (PARTIALLY PERFORATED)

Partially perforated KDK stiff drainage-sewerage pipes represent the ideal combination of perforated and collected pipes. If its necessary, they must be able to collect and transport any surface water which at short and long distances. Joint is impermeable to water and sand because of water transport. Eraser is inserted into the third channel of corrugated pipes. The greased socket is inserted over the greased rubber.

The pipes must be professionally installed respecting the directions for laying of the pipeline given in 1610 and DIN 4033.





The slots on both types of pipes are located between the ribs.Pipe has to be symmetrically in volume over the length of the tube which does not allows impeded access of water to the slit. During the construction of drainage systems it is recommended to put the pipe in the stone filter layer except if is placed in an additional protective layer of geotextile filter to prevent leaching of the soil and the possible blocking of the hole on the tube impurities and therefore I reduced efficiency of the pipeline.

PP ID DRAINAGE PIPES

Polypropilene corrugated drainage pipes ID

Excess of water in the soil can cause serious problems on land and objects until their complete destruction in landslides in a very short period of time. Therefore, the proper drainage of the terrain is extremely important to consider when designing and preparing the ground for construction.

Bearing in mind the need for drainage of excess water from the soil, Peštan included corrugated drainage and polypropylene (PP) pipes in its prodcution portfolio . Peštan provides a large range of diameters in accordance with DIN 4262/1. These pipes ,thanks to their large hydraulic capacity and a wide range of diameters, are fully able to respond to any request and provide a reliable and long-term drainage of ground. In addition, thanks to the chemical resistance of polypropylene, these pipes are used even in the presence of chemically aggressive liquids.

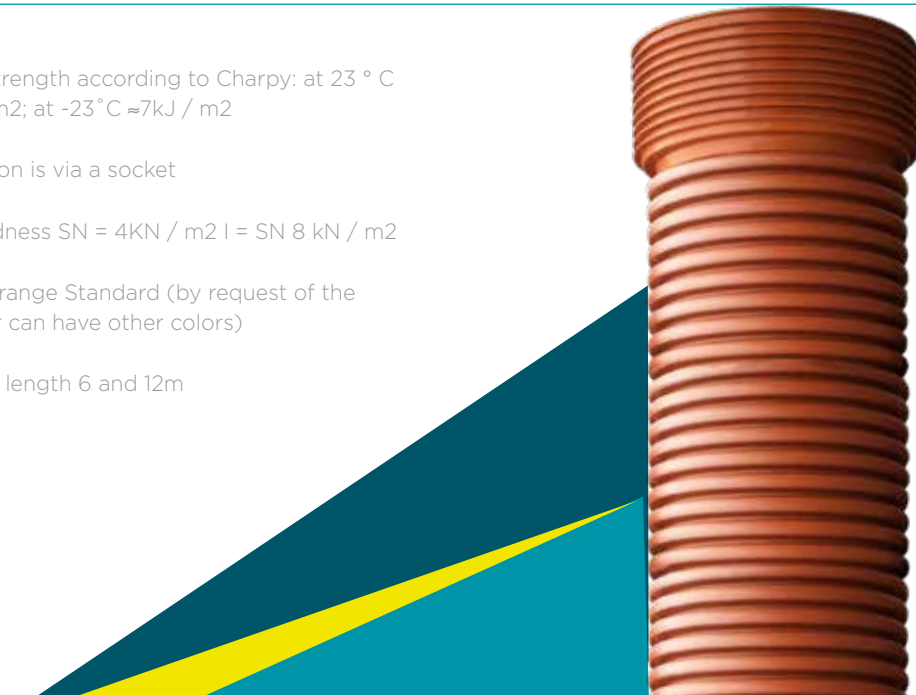
Peštan polypropylene corrugated drainage pipes are made from standard PP corrugated pipes. The pipes are passing through perforation process in accordance with DIN 4262/1.

PP pipes are lighter than PVC pipes for the same purpose, which provides easier handling and installation. They have excellent chemical resistance to aggressive environment and the surrounding land. The smooth inner surface has a low coefficient of friction so that the pipes have very good hydraulic characteristics. They have excellent resistance to abrasion, mechanical and physical properties.

Pipes are resistant to UV rays- they can stand outdoors for one year.They should be protected. It is necessary to take into account that during transport and installation pipes shouldn't be dragged over sharp edges, sharp edges can damage the pipe while they are impact-resistant to blunt instrument.

FEATURES AND TECHNICAL DATA

- Material: PP-B copolymer
- Fast and inexpensive mounting
- Standard: DIN 4262/1
- Density:> 0,900Kg / m3
- Pour Index: MFR 230C / 2.16 0,30gr / 10 '
- Modulus of elasticity: MPa 1500/2000
- Tensile strength: 32 MPa
- Impact strength according to Charpy: at 23 ° C ≈70kJ / m2; at -23˚C ≈7kJ / m2
- Connection is via a socket
- Ring hardness SN = 4KN / m2 I = SN 8 kN / m2
- Colour: orange Standard (by request of the customer can have other colors)
- Standard length 6 and 12m



TYPES OF PP ID DRAINAGE PIPES

Double-layer corrugated PP pipe have been classified by the internal diameter of DN / ID (nominal diameter is the inner diameter/ inside-diameter).

They are manufactured with integrated socket.They can be produced in a range from Ø140 to Ø800, of ring stiffness SN 4 and SN 8.

DN		OD (MM)	ID (MM)	E (MM)	CWT (MM)	LWT (MM)	T (MM)	A (MM)	KG/M
Ø140	SN4	Ø160	139.8	1.2	0.5-0.9	0.9	17.44	3.5	0.8-1.1
	SN8	Ø160	139	1.6	0.9-1.2	1.1	17.44	3.5	1.1-1.4
Ø200	SN4	Ø227	199	1.7	0.9-1.2	1.2	22.43	4.5	1.8-2.0
	SN8	Ø227	198	2.2	1.2-1.6	1.4	22.43	4.5	2.1-2.5
Ø250	SN4	Ø283	249	2.2	1.2-1.4	1.5	26.17	5.1	2.8-3.1
	SN8	Ø283	248	2.7	1.6-2.0	1.6	26.17	5.1	3.6-3.85
Ø300	SN4	Ø340	298.2	2.6	1.3-1.5	1.7	31.4	5.5	3.8-4.2
	SN8	Ø340	297	3.2	1.7-2.2	1.8	31.4	5.5	4.5-5.2
Ø400	SN4	Ø453	397.8	3.2	1.4-1.7	2.2	39.25	7.9	5.8-6.6
	SN8	Ø453	396	4.1	2.2-2.6	2.5	39.25	7.9	8.1-8.9
Ø500	SN4	Ø567	497.6	4.2	1.8-2.2	3.0	52.78	9.4	9.8-10.7
	SN8	Ø567	495	5.5	2.4-3.1	3.3	52.78	9.4	12.6-13.5
Ø600	SN4	Ø680	597	5.2	2.6-3.0	3.5	65.97	13.2	15.0-16.5
	SN8	Ø680	594	6.7	3.4-3.8	3.8	65.97	13.2	18.7-19.3
Ø800	SN4	Ø906	796	6.5	2.8-3.2	4.5	89.97	19.3	24.0-25.8
	SN8	Ø906	792	8.5	4.3-5.1	4.7	89.87	19.3	31.6-33.4

There are two types of drainage pipes made of polypropylene, defined through the inner diameter – ID pipes:

- **KD** – RIGID DRAINAGE PIPES (FULLY PERFORATED)
- **KDK** - RIGID DRAINAGE-SEWERAGE PIPES (PARTLY PERFORATED)

KD - RIGID DRAINAGE PIPES (FULLY PERFORATED)

KD pipes function is to assure the optimum drainage sub-degree and anti-freeze layer.

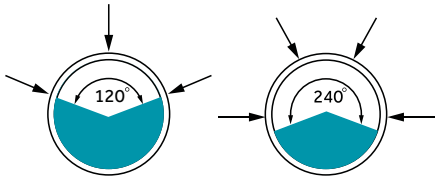
This applies both during the construction and completion of the work site by entering the existing water and transporting it to the main dumping.

The joints are impermeable to sand.

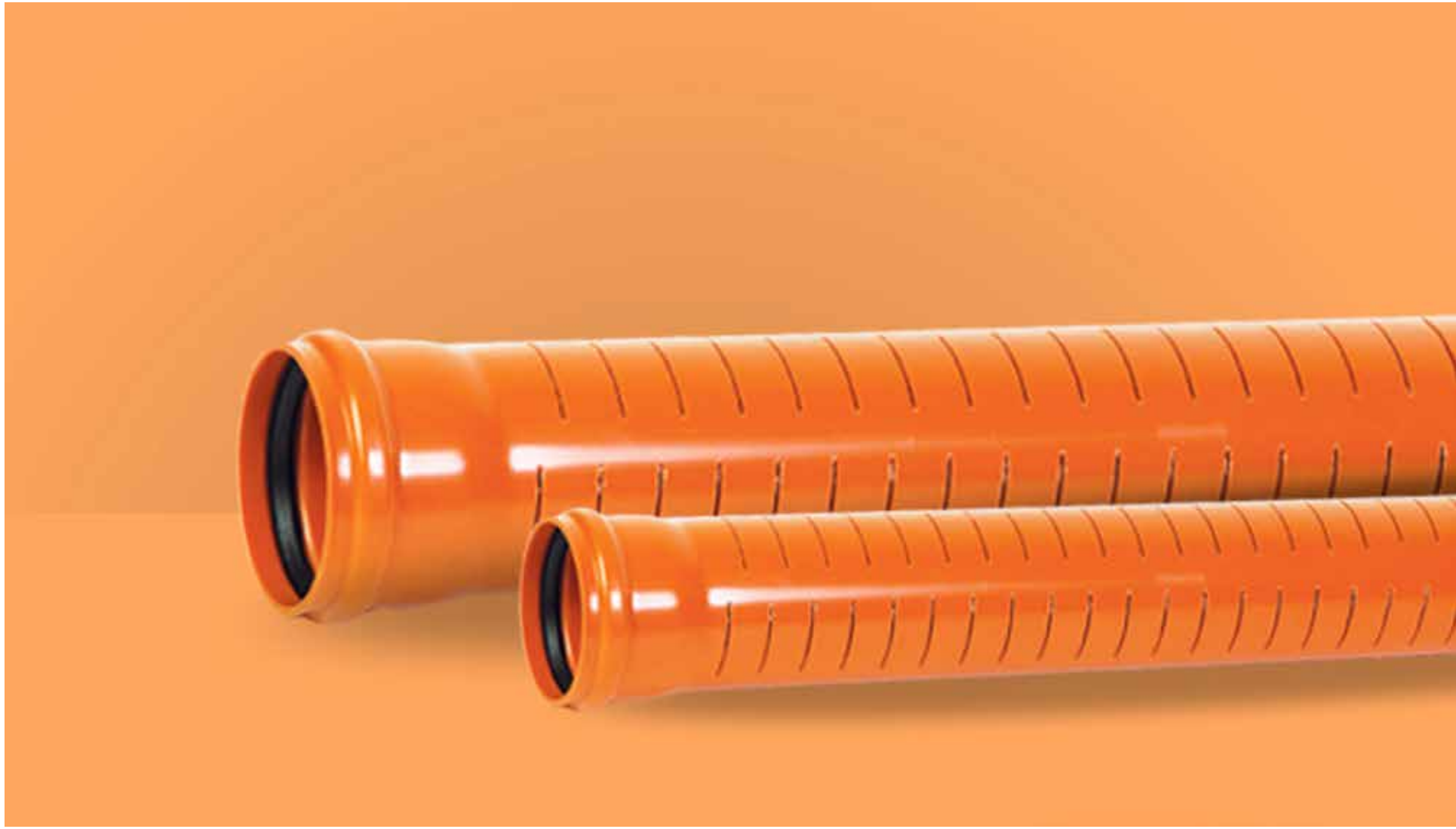
Installation of rubber rings to such pipes is not necessary. 6 slots are standard per wholevolume and they are distributed to 60˚.

KDK - RIGID SOLID DRAINAGE PIPES (PARTIALLY PERFORATED)

Partially perforated KDK solid drainage-sewerage pipes represent the ideal combination of perforated and collecting pipes. If requested, they must be able to collect and transport any surface water at short and long distances. Because of water transport, sockets are impermeable to water and sand. Rubber ring is inserted into the third channel of the corrugated pipe and socket, which is first lubricated, is wrapped around lubricated rubber. The pipes must be professionally installed respecting the guidelines for laying the pipeline given in EN1610 and DIN4033.



The slots on both types of pipes are located between the ribs of pipe, symmetrically over whole volume of the pipe which allows a smooth access of water to the slot. During the construction of drainage systems it is recommended to place a pipe, in addition to the stone filter layer, in an additional protective layer of geotextile filter to prevent leaching of the soil and the possible blocking of the hole on the pipe impurities and therefore reduction of efficiency of the pipeline.



PVC DRAINAGE PIPES

PVC perforated drainage pipes

KG (PVC) PERFORATED PIPES

Perforated PVC pipes for drainage have been manufactured according to DIN 4262 standard.

Assembly of the pipeline is extremely easy , pipes are connected to one another with fitings while complete seal is achieved with use of rubber bands. Maximum temperature of application is +60 ° C. Pipes are resistant to salt water, alcohol, acids, alkalis, sulphates, aggressive gas and all kinds of detergents. On the other hand, they cannot be used for the transport of water which contains high percentage of benzene, benzine (petrol) or acetone.

ADVANTAGES & OWNER BENEFITS

- Very light material
- Simple and easy way of both transport and manipulation
- Fast and cheap assembling
- Pipe connections are resistant to water and other type of fluids
- They are resistant to corrosion in alkaline, acid or aggressive environment
- They are fine electrical insulator, and also resistant to mechanical impact
- Guaranteed life time of more than 50 years
- Connection with muffs and gaskets made of EPDM or rubber (EN 681)
- SRPS EN 1401 - compact; SRPS EN 13476 - Three-Layered

The method of producing perforations in the PVC pipes

SPECIFICATION OF MATERIAL

PVC-pipes and fittings are made from compound of non-softened PVC material with = 10MPa mixed withnecessary additives.
Specific mass 1,38 ÷ 1,45gr/cm3

- Typical weight 1.38 ÷ 1.45 g / cm3
- Tensile strenght 50-60 MPa
- Thermal stability:
  according to Vicat min 79°C
- Thermal conductivity 0,54 KJ/mh/°C
- Linear ratio of thermal
  extension 0,08 mm/m/°C
- Water absorption 4 mg/cm2

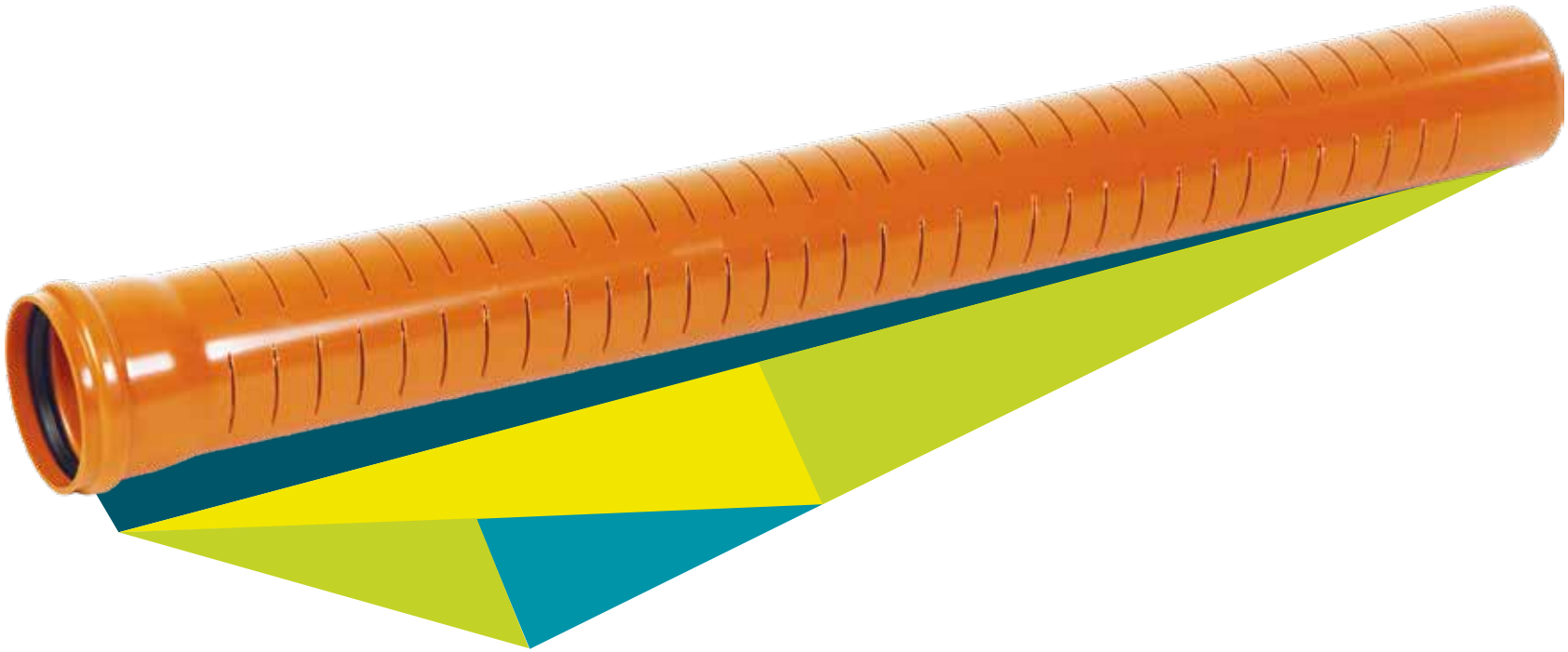
PIPE SERIES SPECIFICATION

Pipe series S-20
(SDR 41) SN 4 KN/m2

- Depth of pipe trench min 1,2 ÷ 6 m max
- Maximum loading max 18t/axel
- Ring stiffness SN 4 KN/m2
- Connection with EPDM or rubber (EN 681) seal in socket
- Length 1 ÷ 6m

Pipe series S-16
(SDR 34) SN 8 KN/m2

- Depth of pipe trench min 1,2 ÷ 6 m max
- Maximum loading max 18t/axel
- Ring stiffness SN 8 KN/m2
- Connection with EPDM or rubber (EN 681) seal in socket
- Length 1 ÷ 6m



Ø 110 pipe - perforated in 3 rows

Ø 125 pipe - perforated in 3 rows

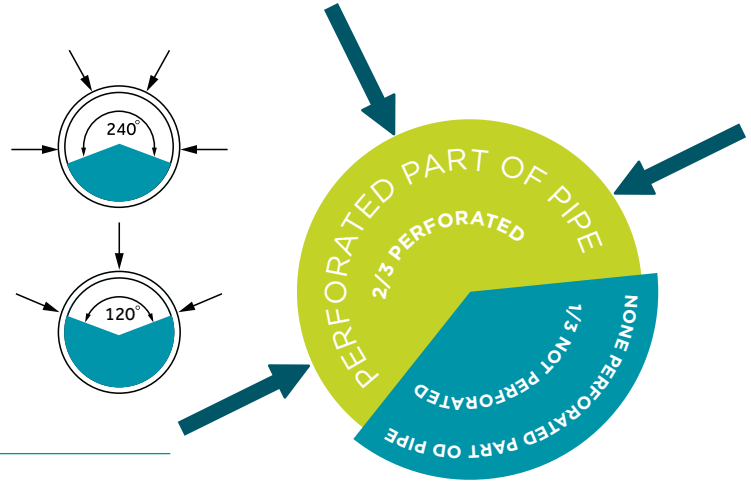
Ø 160 pipe - perforated in 3 rows

Ø 200 pipe - perforated in 4 rows

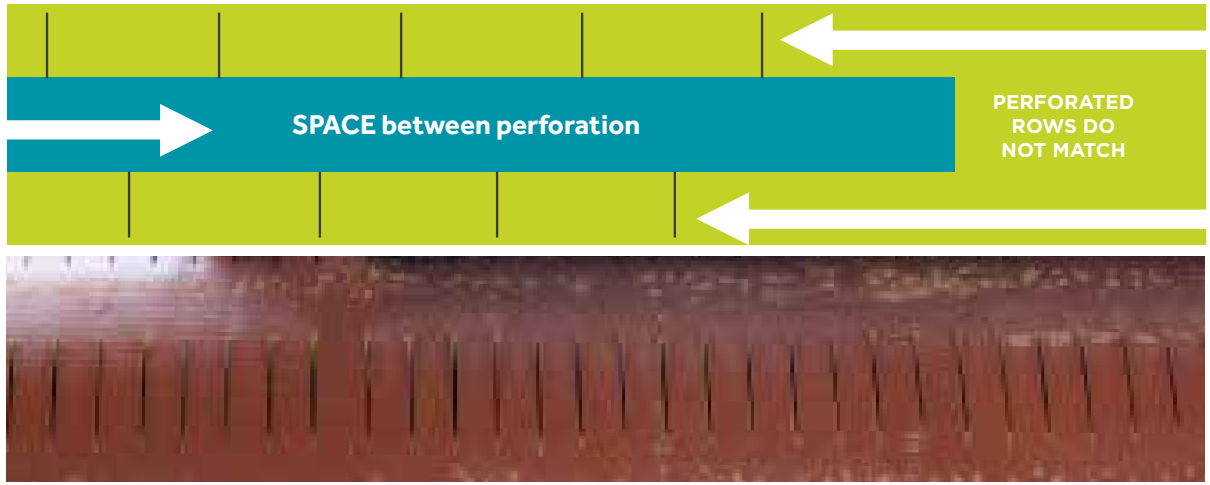
Ø 250 pipe - perforated in 5 rows

Ø 315 pipe - perforated in 6 rows

Ø 400 pipe - perforated in 7 rows



ILLUSTRATED EXAMPLE OF PERFORATED PIPE



The slots are such as to allow unrestricted entry of water into the pipe. Their position is normal to the axis of the tube. Slot width in the perforated pipe is from 2.5 to 3mm. Area slit the water intake is greater than 50cm/m2.

DISTANCE BETWEEN CUTS

From 15mm to 20mm on pipes Ø 110 and Ø 125

From 20mm to 25mm on pipes Ø 160

From 25mm to 30mm on pipes Ø 200 and Ø250

From 35mm to 40mm on pipes Ø 315

From 45mm to 50mm on pipes Ø 400

PIPES ACCORDING TO DIN 4262 STANDARD SHALL BE CATEGORIZED IN THE FOLLOWING WAYS ACCORDING TO THEIR ARRANGEMENT OF THE SLOTS AS SHOWN IN PICTURE :

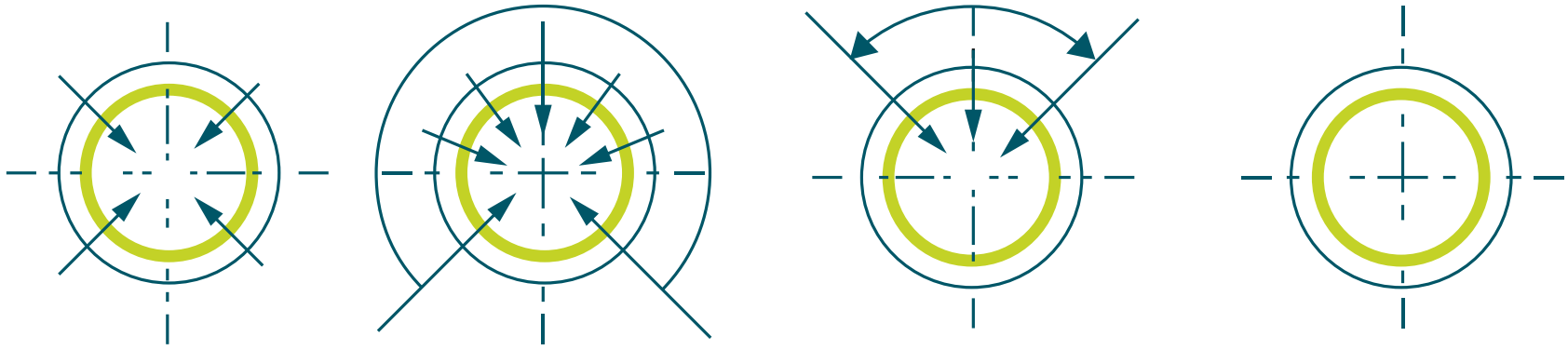
a) Totally perforated pipes (TP) are arranged uniformly over the entire circumference of the water inlet opening and having at least four rows of slots. They may be used in all sizes. Tubes of the type C1 and C2 are not produced as pipes.

b) Locally perforated pipes (LP) in which the water inlet opening is arranged over a range of about 220 degrees +/-10 at the pipe apex symmetrically to the vertical axis of the pipe, and the sole is unslotted. It must have at least three rows of slots. They are usually available in nominal sizes DN100 eingestetzt to DN200.

c) Multi purpose pipes (MP) in which the water inlet opening is arranged on top of the pipe symmetrically to the vertical pipe axis evenly over a range of maximum 120 degrees, have at least two rows of slots and have a watertight connection. The lower part of the MP-pipe can be used as transport pipe for all of the water. They are used in nominal diameters from DN200.

d) Unperforated transport pipe (UP)

THE INSTALLATION POSITION OF THE TP AND MP-PIPES MUST BE RECOGNIZABLE EITHER BY THE SHAPE OF THE PIPE OR BY A CROWN MARK.



TP
Totally perforated pipe

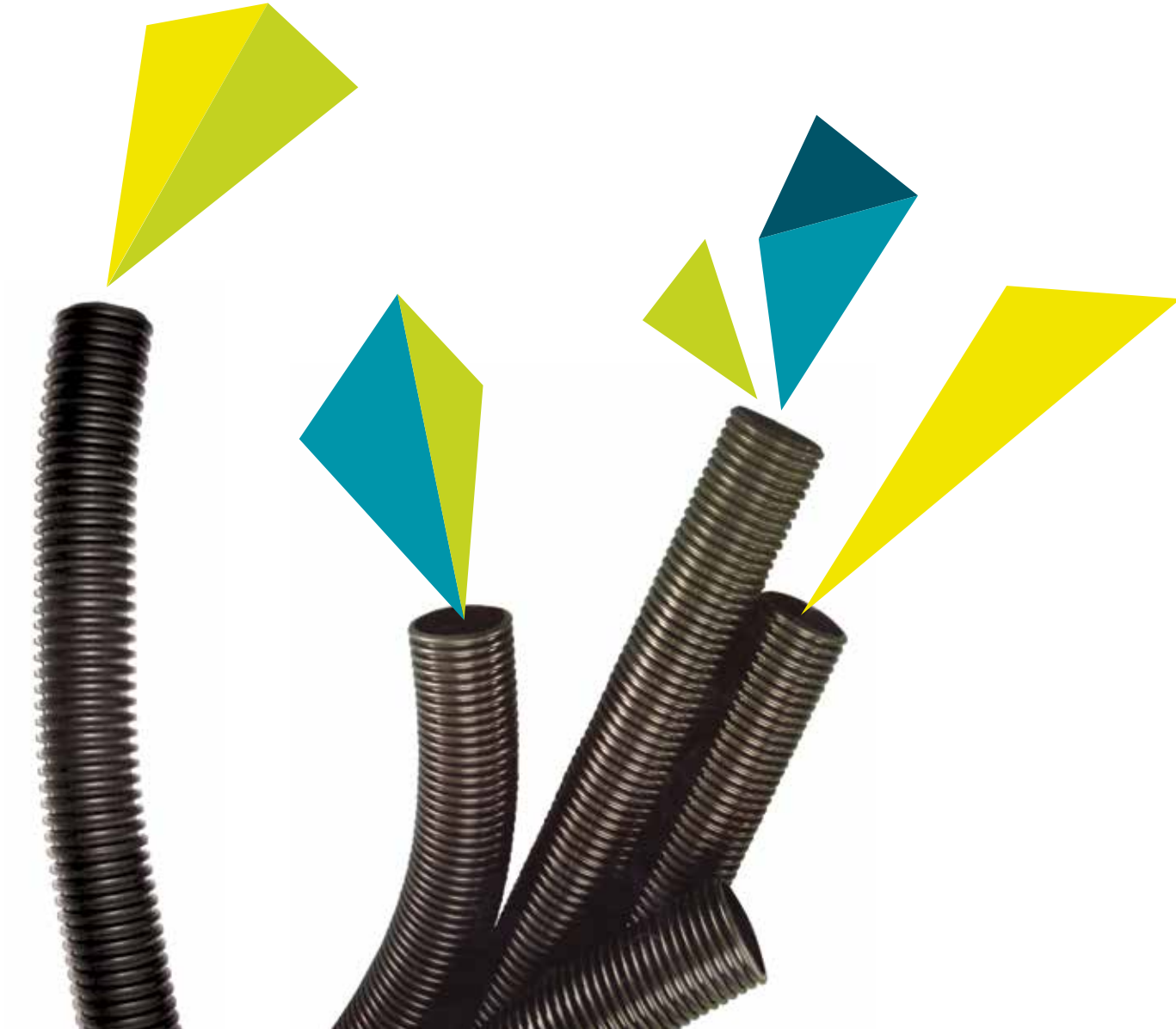
LP
Localy perforated pipe

MP
Multipurpose pipe

UP
Unperforated pipe

CABLE PROTECTION

SINGLE LAYER CORRUGATED PIPES



SINGLE LAYER ELECTRO INSULATING CORRUGATED ''THROAT'' PIPES

They are used for power and PTT installations in industrial and construction building. They are placed in the mortar and in concrete layer. Cables can be inserted quickly and easily inside the pipes, even on curved surface. These pipes are produced in accordance with DIN49018

CODE	OUTSIDE DIAMETER MM	INSIDE DIAMETER MM	MIN INSIDE DIAMETER WHEN BENDED MM
10900101	Ø20	Ø14	100
10900102	Ø25	Ø19	50
10900103	Ø32	Ø25	50


PVC-U EL.EN DN 110x3.2 Peštan SRB C2.E-04 12:01 06320

PVC PTT AND EL-EN PIPES

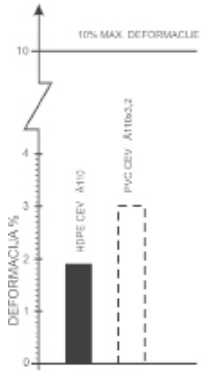
PVC Pipes for cable protection

PVC PIPES FOR CABLE SYSTEMS

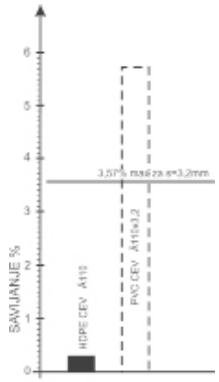
- Light material, easy and quickly to storage and manipulate
- Easy to transport, simple and cheap assembling process
- The process of connecting two PVC pipes doesn't last for more than 1 minute, there for the interruptions of the traffic do not last very long
- They have thin walls, so that the laying of the cables inside the pipes is very swift and simple
- In the same trench a large number of pipes can be laid next and on top of each other
- Connections are impermeable to water and any other fluids
- They are resistant to corrosion in alkaline, acid or any other aggressive environment
- They are fine electrical insulators and also resistant to stray currents
- They're resistant to impact
- They are resistant to ageing (with the life time of more than 50 years)
- Pipe dimensions are 110mm, 125mm, 160mm 200mm with the length of 6m
- They're produced in yellow and red color

These pipes are produced out of PVC, according to EN 1401.Standard production length is 6m. They can be continued with the socket and rubber bend which is water, sand and dust impermeable. Pipes are produced in standard colors, yellow -for PTT cables, and red– for electro energetic installations

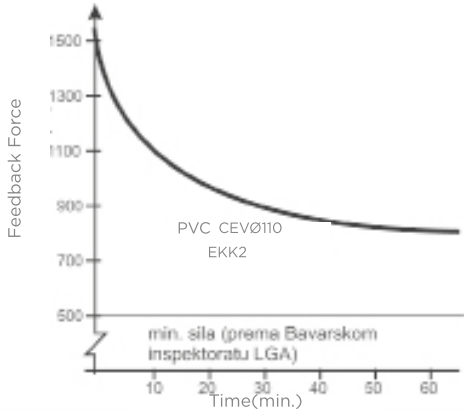
PVC PIPES				
CODE	COLOR	OUTSIDE DIAMETER (DC)	INSIDE DIAMETER	WALL THICKNESS (S)
11400011	Red	110+0,3	110,6-0,2	3,2+0,5
		125	118,6	3.7
		160	152	4.7
		200	190,2	5.9
	Yellow	110+0,3	110,6-0,2	3,2+0,5
		125	118,6	3.7
		160	152	4.7
		200	190,2	5.9

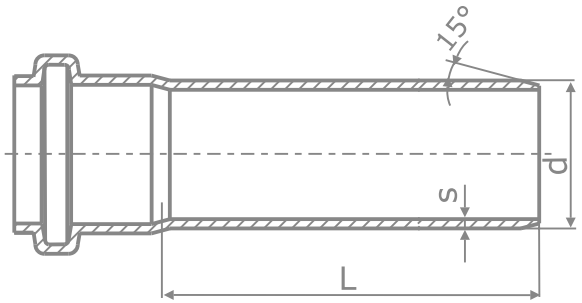


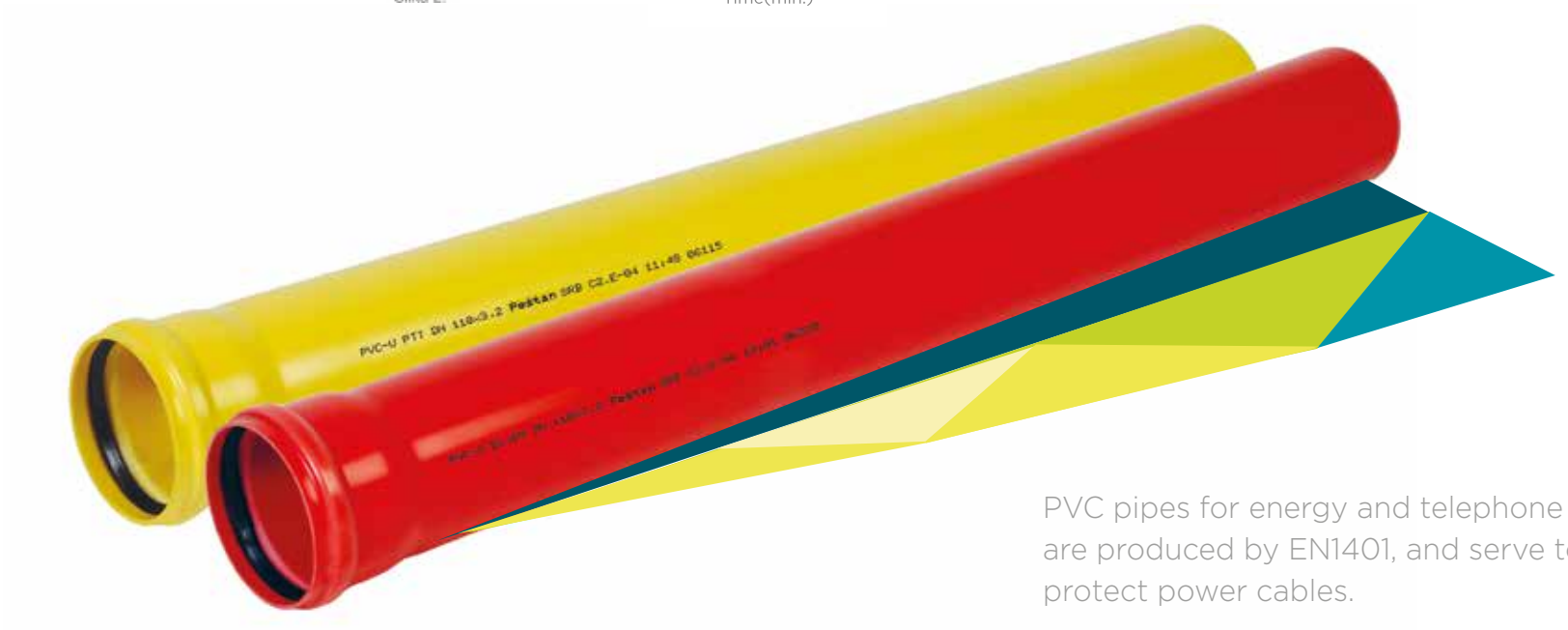
Slika 1.



Slika 2.







PVC pipes for energy and telephone cables are produced by EN1401, and serve to protect power cables.

HDPE CORRUGATED CABLE PROTECTION PIPES

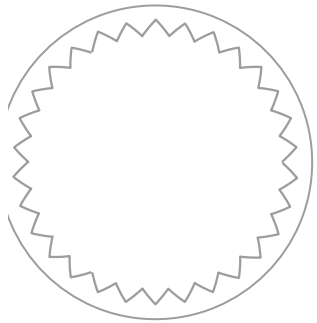
Polyethylene corrugated pipes for cable protection

Are prepared by SRPS-EN12201, DIN8074-8075, ISO 4427 and ISO 4065

HDPE PE-80	
CODE	D (MM)
11199202	Ø50
0000000	Ø75
11199205	Ø90
11199206	Ø110

SMOOTH PIPES FOR CABLE PROTECTION

Polyethylene smooth pipes for cable protection



Are prepared by SRPS-EN12201, DIN8074-8075, ISO 4427 and ISO 4065

HDPE PE-80	
CODE	D (MM)
11199198	Ø20
11199200	Ø32
11199201	Ø40
11199202	Ø50
00000000	Ø63
00000000	Ø75
11199205	Ø90
11199206	Ø110

CONTENT

BRAND MANIFESTO

We do not only sell pipes, we combine reliability with quality for the ultimate benefit of our clients.

We do not build short-term client relationships, but long-term and genuine partnerships.

Everything we do, we do with one thing in mind - to create ideas to perfectly match
all our client needs and the best way for us to achieve this goal is to constantly educate our clients
provide solutions that meet their specific needs and support them throughout the entire process.

Because our success is as big as your trust in us.

PEŠTAN

we build trust

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