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PVC pipes

for protection of telecommunication and electric power cables



Pipes for protection of telecommunication and electric power cables

In a rapidly developing world and increasingly densely populated areas, where additional needs for the development and expansion of communication links and power lines grow day by day, it is necessary to look for solutions that more easily and permanently solve the problems of extraordinary expansion of information and electricity infrastructure

PVC cable protection pipes play an important role in the expansion of the communication and information networks, enabling easy and fast installation of cables and offering excellent protection against mechanical and other harmful environmental influences. They are used in the construction of roads, tunnels, railways and other traffic, residential or industrial facilities, to protect existing cables laid in the ground.

In case further expansion of the communication or electricity network is expected in the near future, it is possible to lay empty pipes and therefore avoid later excavation and more extensive construction interventions. PVC pipes are suitable for various types of cables, such as:

- telephone cables
- cables for television cable network,
- optical cables,
- high and low voltage electric cables,
- cables for road, rail and other traffic signals.

Properties



PVC pipe systems have a number of good properties, among which it is worth mentioning:

- ideally smooth inner surface that allows easy installation of cables,
- low weight, which allows easier transport and easier installation,
- extreme corrosion resistance,
- high insulation capacity and high voltage breakdown strength,
- quick and easy installation of pipe systems,
- high durability of pipelines and minimal maintenance costs,
- easy achievement of pipeline tightness.

Standards: SIST EN 61386

Material



Pipes and fittings are made of unplasticized polyvinyl chloride (PVC-U), which is a thoroughly tested material as it has been used successfully for many years in various pipelines. Various additives (lubricants, pigments, stabilizers) are added to the polyvinyl chloride to achieve the desired physical and chemical properties.

Pipes are made of raw material with the following characteristics:					
Gostota	1,38 - 1,45	g/cm³			
tensile strength	≥45	N/mm²			
softening point temperature(<i>Vicat</i>)	≥79	°C			
modulus of elasticit (Ebc)	≥3600	N/mm²			
coefficient of linear thermal expansion	~0,8x10 ⁻⁴	K-1			
thermal conductivity coefficient (pri 23°C)	~0,16	W/mK			
surface electrical resistance	1012	Ω			
tensile breakdown strength	~200	kV/cm			



Stigma PVC TK

pipes for protection of telecommunication cables

The pipes are manufactured in accordance with the applicable regulations and standards currently in force in the territory of the Republic of Slovenia, and also meet the requirements for the use of telecommunications equipment and materials in the Telekom

Nominal diameter DN (mm)	Outer diameter d (mm)	Wall thickness s (mm)	Inner diameter d ₂ (mm)	Outer diameter d₃ (mm)	Plug-in depth t (max) (mm)	Plug-in depth t _e (min) (mm)	Recording width b (mm)	Pipe length l (m)
110	110	2,2	110,4	123,4	114	97	5	6
110	110	3,2	110,4	125,2	114	97	5	6
125	125	2,5	125,4	140,8	114	96	5	6



The color of the pipe is yellow.



Stigma PVC EL

pipes for protection of power cables

The pipes are manufactured in accordance with the applicable regulations and standards currently valid in the territory of the Republic of Slovenia or the European Union according to the standard EN (European Norm).

Nominal diameter DN (mm)	Outer diameter d (mm)	Wall thickness s (mm)	Inner diameter d ₂ (mm)	Outer diameter d ₃ (mm)	Plug-in depth t (max) (mm)	Plug-in depth t _e (min) (mm)	Recording width b (mm)	Pipe length l (m)
110	110	2,2	110,4	123,4	114	97	5	6
110	110	3,2	110,4	125,2	114	97	5	6
125	125	2,5	125,4	140,8	114	96	6	6
160	160	3,2	160,5	178,6	100	74	6	6

Pipe Connection



Pipes and various shaped pieces are joined quickly and easily by inserting the plug end into the advertisement. The joints of pipes and shaped pieces do not allow the intrusion of sand or earth. In case that water tightness is required, a rubber seal must be inserted into the groove of the head.

Prior to joining pipes and moldings, the contact surfaces must be clean and undamaged.

If the required pipe length is shorter than the standardized one, the pipe is cut straight (with a fine-toothed saw) and the end edge is ground at an angle of ~ 15 °. The chamfered edge is lubricated with a suitable anti-friction agent (rubber sealant grease, silicone oil, soapy water), which must not damage the seal or pipe.

Push the plug end of the pipe into the nozzle of the adjacent pipe or piece with a slight rotation to the limit. The final position on the pipe is marked with a pen, and then the pipe is pulled out by about 2 mm for each running meter between the joints, but not more than 10 mm, which allows to compensate the stretches of the



Quality Assurance

PVC TK pipes for the protection of telecommunication cables are manufactured and tested in accordance with the applicable regulations for the use of telecommunication equipment and materials in the telecommunication network, as defined by Telekom Slovenije.

PVC EL pipes are manufactured in accordance with the applicable regulations and standards currently valid in the territory of the Republic of Slovenia or the European Union according to the standard EN (European Norm). The pipes are regularly inspected during the production process and tested in our own testing laboratory, in order to adapt the quality level to the ever-increasing requirements of technical regulations and the wishes of users.

In parallel with the internal testing, we obtained approvals from the competent institutions for PVC TK and PVC EL pipes for the protection of telecommunication and electricity cables, as evidenced by the issued test reports.

The pipes are regularly inspected during the production process and tested in our own testing laboratory.

Transport and Storage



PVC-U pipes, due to their considerable resistance to wear and impact and low weight, enable uncomplicated transport and storage procedures and practically do not require special protective measures. Nevertheless, careful handling is required, as attention must be paid to sharp objects and edges that can permanently damage the pipe, so transport vehicles and storage areas must be cleaned of sharp objects and sharp edges protected. Greater attention should also be paid to the transport of pipes at temperatures below 5 ° C, when PVC pipes become less resistant to shocks.

The pipes should be folded along their entire length and should be protected against slipping. The loading height should not exceed one meter. In case of palletized pipes and multi-storey storage, it is necessary to ensure that the wooden frames of one pallet rest on the wooden frames of the pallet below it (wood on wood).

When loading or unloading, the pipe must not be pulled over sharp edges or on the ground.

The material from which the pipes are made is UV stabilized, but we recommend that the pipes be stored unprotected from the weather for a maximum of one year. In case of prolonged storage, the pipes must be protected from the sunbeams.

Nominal diameter DN (mm)	Number of pipes per pallet	Total length of pipes in pallet
110	76	456
125	60	360
160	33	198



Pipe Installation



Pipe installation must be carried out by qualified workers under professional supervision. When installing the pipe, it is necessary to follow the general guidelines for laying pipelines that are laid in the ground and are roughly defined in the standard SIST EN 1610. Special requirements for the installation of PVC TK pipes for protection of telecommunications cables are defined in the Instructions for construction of PVC ducts



Installation procedure

With proper preparation of the bed (thickness 15 cm) with sand or other soil that can be hardened and not containing stones (grains up to 20 mm), good and gradual hardening of the backfill (degree of compaction according to Proctor Dpr> 95%) next to the pipe and 30 cm above the top of the pipe, it is achieved that pipes covered with earth from 0.8 m to 8 m do not deform above the permissible limit of 6% even under the heaviest traffic load SLW 60 (according to DIN 1072). If the pipe overlap is less than 0.8 m, it is necessary to take care of load distribution (by concreting).

When laying in a multi-layer pipe trench, it is recommended that the pipes be fixed with spacers, and it must be ensured that each layer of pipe is separately backfilled and hardened before the next layer is laid on it.

More detailed installation instructions can be found in the "Downloads" category, where, in addition to catalogs, you will find guidelines for laying pipelines, which deal with excavation of the trench, construction of the bed, covering and main backfilling of the pipeline. General guidelines for testing the tightness of laid pipelines in accordance with SIST EN 1610 are also available.



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