Armo Pipes
Technical Datasheet

PEŠTAN
we build trust

Product description

ARMO is a double-walled pipe made of innovative, highly robust plastic BorSafe HE3490-LS-H. 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.

The dimension of pipes, 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.

Pipe design

PEŠTAN Armo pipes are designed to respond to any market requirements, and are therefore divided into the following categories:
- pipes without copper wire: black single layer PE-100-RC pipe, with painted blue stripe + additional PP / PP layer.
- copper wire pipes: black single layer PE-100-RC pipe with painted blue stripe + additional PP layer.

In accordance with EN 12201-2/ISO 4065, made as a single layer pipes from PE-100-RC according to PAS 1075 Type 3 with additional protection, with a layer of modified PP or PE material.

PEŠTAN Armo pipe is thanks to its excellent resistance on cracking under stress insensitive to point loads and therefore does not need a sand bed.

PEŠTAN Armo pipe is flexible and movable. Because of its greatness resistance to point load PEŠTAN Armo pipe is extremely suitable for laying techniques in which the ground excavation used as filling material.

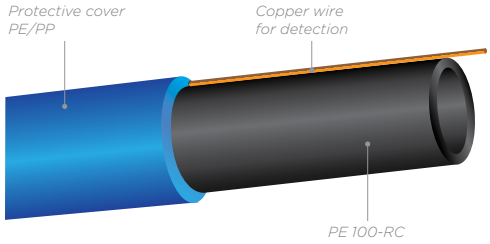
Open trenches for pipelines endanger uninterrupted flow road traffic and disturb the surrounding population. The asphalt on the roads is permanently damaged. For these reasons trench-free laying techniques are increasingly accepted since they also provide the possibility of taking the exam pipes under rivers, lakes and busy roads.

Advantages of PEŠTAN ARMO pipes

- High reliability and proven performance make PE an excellent choice, especially for buried pipe systems;
- Resistance to low temperature - due to its high extensibility, toughness and elasticity, PEŠTAN ARMO pipes do not create problems during installation and operation at low temperatures;
- High impact resistance - high hydraulic resistance shock, fatigue and wear eliminate the need for a higher nominal pressures and reduces the value of the investment;
- Comparisons have shown that polyethylene pipes have the larger wear resistance of other materials, so PE make the most desirable material for transporting soluble pipes matter;
- Excellent hydraulic characteristics (low absolute roughness) - smooth surface and turbulent flow resistance fluids allow greater flow;
- Excellent chemical resistance - resistance to large numbers chemical agents;
- Weldability - due to good weldability and elasticity, PE large length pipelines can be connected outside the trench and then laid (which reduces the required width of the trench) and welded the joints will be strong and reliable;
- Wide range of installation methods, PE pipes offer to installers numerous installation solutions that they can provide significant time and cost savings, for example PE pipes prefer in installations without a trench or with a narrow trench.

Pipe detection

For detecting PE-100-RC pipelines, the simplest and most economical the method is to place the pipe in a trench that is on its own the structure contains a marker copper wire for tracking-detection.



Connection of PEŠTAN ARMO pipes

Pipes can be connected by conventional connection (as well as other PE pipes) with the difference that care must be taken if the pipes in the structure have copper wire. Pipes and fittings can be connected by joining the ends by standard PE pipe joining techniques. Peštan ARMO pipes are compatible with fittings from the world's leading manufacturers and do not require special installation material, which is its biggest advantage. Methods of connecting PEŠTAN ARMO pipes are:
- butt welding (for RC | PE and for RC | PP);
- electrofusion finishing (for RC | PE and for RC | PP);
- mechanical connection.

The minimum allowed temperature for welding and installing ARMO pipes is 5°C.

PEŠTAN ARMO pipes are compatible with electrofusion couplings welding of renowned world manufacturers.

In electrofusion welding of pipes, the minimum removal of the added protective layer of PP or PE, for a certain diameter of the pipe, should be according to the dimensions shown in the table:

DN [mm]	Protective layer peeling length [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

1) Connection of pipes without copper wire for detection is done in the following steps:

- the outer PP layer is peeled off (example: pipe ø110 + 2mm PP / PE protective layer);
- connect the two ends of the pipe to one of the standard methods;
- Finally, the joint of the PE-100-RC middle layer is insulated with heat-shrinkable foil and/or self-adhesive tape based on butyl rubber (to prevent corrosion and electrical insulation on pipes and metal parts).

2) The connection of the pipe with the copper wire for detection is done in the following steps:

- peel off the outer PP layer of the pipe in the desired and/or design length (with care not to damage the copper wire and the middle layer);
- the copper wire will move to the side (usually “throw” back);
- the middle layer is joined to one of the standard methods;
- the two ends of the copper wire are connected by an electrical connector;
- Finally, the junction of the PE-100-RC middle layer and the junction of the copper wire is insulated with heat-shrinkable foil and/or self-bonding tape based on butyl rubber (to prevent corrosion and electrical insulation on pipes and metal parts).

Chemical resistance

They can be used to transport water, gas, industrial fluids. Resistant to salt and fresh water, vegetable and animal oils, alcohols, chlorine compounds, alkaloid acids, bases, and detergents. They do not contain heavy metals (eg Pb, Cd, Sn...).

* Plastic pipes and fittings - Combined classification table chemical resistance ISO/TR 10358

Availability of ARMO pipes

Available in dimensions from 110 mm to 630 mm, in pipes of 6, 12, 13.5, and 16 m.

Dimensions: SDR 41; SDR 33; SDR 21; SDR 17; SDR 13.6; SDR 11; SDR 9; SDR 7.4; SDR 6.

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*				
630	15.4 + APL*	19.3 + APL*	24.1 + APL*	30.0 + APL*	37.4 + APL*	46.3 + APL*				

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

Technical assistance

For more information, you can contact PEŠTAN technical support or a regional sales representative.

BELNIIS - Belarus

KIWA - Netherland

VUPS - Czech Republic

BELNIIS - Belarus

IMS - Serbia

GOST R - Russia

MPA - Germany

IGH - Croatia