



Technical data sheet of multilayer pipes for axial press fittings

Contents

DESCRIPTION	3
ADVANTAGES	4
PIPE COMPOSITION	5
CROSS-LINKED POLYETHYLENE (PEX)	6
PERMEABILITY TO OXYGEN	6
ADHESIVE PRIMER	6
APPLICATION CLASSES	7

Multilayer pipes for axial press fittings



DESCRIPTION

The multilayer pipe of the TB00.20 SYLVER series is characterized by a 5-layer structure in which a butt-welded aluminum layer is enclosed between two layers of cross-linked polyethylene (PEX) and fixed to the latter by two layers of adhesive.

Thanks to this feature, TB00.20 SYLVER pipe represents a perfect combination of the properties of plastic (cross-linked polyethylene with high mechanical resistance) and ductile metal (highly flexible aluminum), in which the qualities of PEX are added to those of aluminum, giving life to a product with extraordinary and multiple qualities.

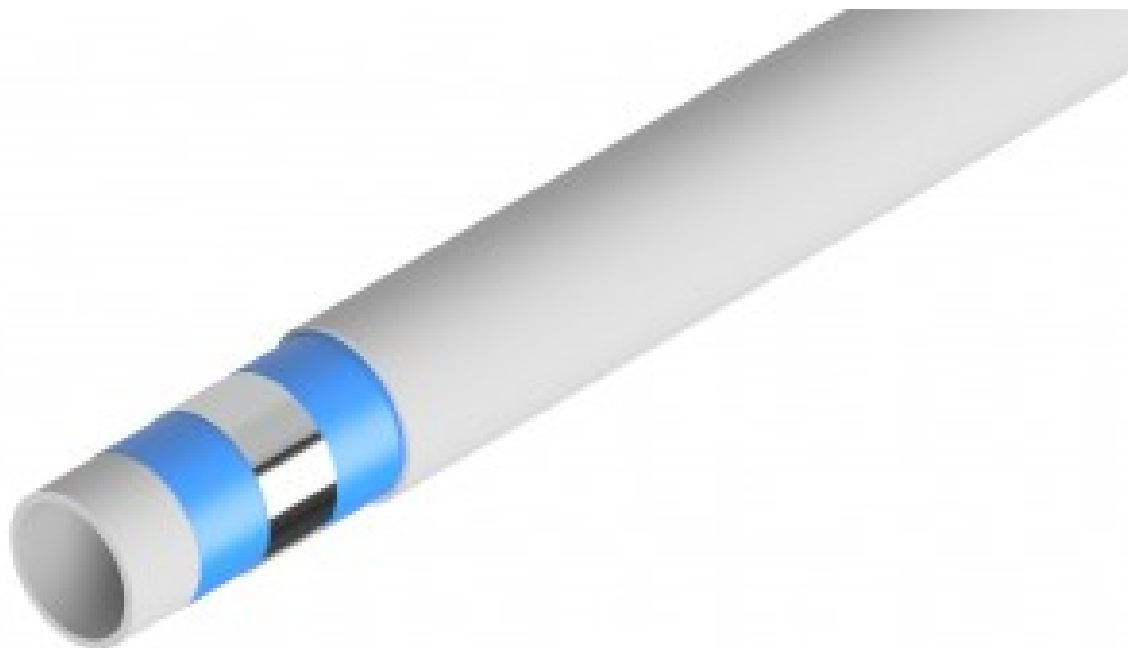
PEX confers chemical resistance, corrosion resistance, lightness, hygiene and guarantees a very smooth and polished surface in contact with the transported fluid such as to reduce pressure drops and avoid encrustations.

The presence of aluminum allows the pipe to be modeled very easily in order to significantly speed up installation and prevent the passage of oxygen inside the pipeline. The pipe is suitable for sanitary, heating, cooling and compressed air systems.

ADVANTAGES

- Excellent sound insulation: the elasticity of the cross-linked polyethylene allows for excellent absorption of vibrations
- Corrosion resistance
- Lightness: pipes are much lighter than metal pipes
- Hygiene: the materials used are non-toxic and certified for the transport of drinking water
- Hygiene, absence of encrustations and fungi (the extreme smoothness of the internal surface reduces the possibility of obstructions caused by the growth of encrustations and fungi)
- Reduced pressure drops: the smooth and polished internal surface reduces pressure drops and avoids the formation of encrustations
- Flexibility: the presence of aluminum with a high degree of yield allows the tube to be modeled very easily
- Ideal for seismic areas thanks to its flexibility and ability to attenuate vibrations
- Chemical and electrochemical resistance (PEX being a bad electrical conductor it is not subject to destructive phenomena of stray currents)
- Barrier to oxygen: the butt-welded aluminum layer forms an oxygen barrier that promotes the formation of algae, fungi and corrosion

PIPE COMPOSITION



LAYER COMPOSITION

A cross-linked polyethylene (PEX) inner pipe

A layer of high quality glue to ensure a homogeneous connection between the aluminum pipe and the internal PE-X pipe

An aluminum tube, longitudinally welded and electronically controlled

A layer of high quality glue to ensure a homogeneous connection between the aluminum pipe and the external PEX pipe

A cross-linked polyethylene (PEX) outer pipe

CROSS-LINKED POLYETHYLENE (PEX)

Polyethylene is a thermoplastic polymeric material composed of numerous long molecules that, even at moderately high temperatures (still below the melting point), begins to have a significant degree of fluidity. With the cross-linking process, the polyethylene molecules are bonded together to form a more complex three-dimensional structure: the chemical cross-linking reaction transforms the product from thermoplastic to thermosetting.

The material undergoes a structural modification that improves its characteristics such as abrasion, chemical resistance, mechanical resistance over time, resistance to ageing and high temperatures. The mechanical performance of the material is significantly increased.

Cross-linked polyethylene can be produced by different technologies recognised by international standards and identified by methods A (peroxides), B (silanes), and C (radiation). The method used is indicated after the abbreviation of the material: PE-Xa, PE-Xb, PE-Xc.

All the above methods are valid: it is not the cross-linking process that defines the quality of the product, but its ability to pass the physical and mechanical tests defined by the standards.

PERMEABILITY TO OXYGEN

General Fittings pipe is impermeable to any diffusion phenomenon, as the intermediate aluminum structure guarantees a zero passage of gases inside the tube itself.

This feature makes it the perfect solution in any heating system that includes aluminum exchangers or metal tube bundles sensitive to oxygen diffusion.

General Fittings multilayer pipes can also be used in underfloor heating systems in compliance with the provisions of the UNI EN1264 standard which prescribes an oxygen diffusion barrier on the pipes for radiant floor heat systems, limiting it to 0.32 mg / m² per day in order to avoid the reduction of the useful life of the pipe itself.

ADHESIVE PRIMER

The aluminum tape is attached to the inner and outer PEX layers by two layers of glue.

The latter was specifically developed to maximize the adhesion between PEX and aluminum and to ensure that the bond strength does not decline with time and with high temperatures.

Thanks to the adhesive, the two layers of PEX and the aluminum layer form a whole with superior properties compared to the single component.

APPLICATION CLASSES

Class	Design Temperature	TIME _b at TD	T _{max}	Time at T _{max}	T _{mal}	Time at T _{mal}	Typical Field of application
1a	60	49	80	1	95	100	Hot water supply (60 °C)
2a	70	49	80	1	95	100	Hot water supply (70 °C)
4b	20 plus cumulative	2.5	70	2.5	100		Underfloor heating and low temperatures radiators
4b	40 plus cumulative	20	70	2.5	100		Underfloor heating and low temperatures radiators
4b	60	25	70	2.5	100		Underfloor heating and low temperatures radiators
5b	20 plus cumulative	14	90	1	100		High temperatures radiators
5b	60 plus cumulative	25	90	1	100		High temperatures radiators
5b	80	10	90	1	100		High temperatures radiators



GENERAL FITTINGS SPA

Via Golgi 73/75, 25064 Gussago (BS) - ITALY

te. +39 030 3739017

www.generalfittings.it