

1 Product Description

PEX-a (peroxide-method) cross-linked monolayer pipe, with oxygen barrier, complying with European Norm EN 1264-4.

The EVOH oxygen barrier is a thin layer of the co-polymer ethyl-vinyl-alcohol that avoids the permeability of the pipe to the oxygen diffusion, eliminating the problem of oxygen addition to the water flow and the corrosion of the metallic fittings of the installation that would occur, extending the lifespan of the installation.

2 Properties of the BARBI PEX-a EVOH Pipes

The BARBI PEX-a EVOH pipes combine the advantages of the PEX-a pipes (excellent high pressure and temperature, great flexibility,...) with the anti-diffusion properties of the EVOH barrier.

As a Result:

- The pipes with oxygen barrier (EVOH) have the **same resistance to temperature, resistance to pressure and warranty years** tan the PEX pipes without it.
- They show low oxygen permeability.
- The pipes with EVOH oxygen barrier use **the same fittings** as the pipes without it.
- The thermal memory effect of EVOH pipes is the same PEX pipes.
- The pipes with oxygen barrier (EVOH) can also be used for **water distribution and heating systems**, as they comply UNE-EN ISO 15875, to achieve a temperature of 95°C and even 110°C for short period of time

The BARBI cross-linked polyethylene pipes are manufactured using the Monosil technology, what comes from the optic fibre manufacturing, and ensures a resistance to pressure by 35% higher than obtained with other manufacturing methods.

This higher resistance of the MONOSIL method in relation to other manufacturing methods is achieved because the links between the polyethylene chains are three-dimensional, that is, they are stronger than the links obtained by other manufacturing methods, where those are bi-dimensional

3 Technical Specification

Property	Rate
Linear dilatation	$1.4 \times 10^{-4} \text{ K}^{-1}$
Thermal conductivity	0.38 W/mK
Max. Work Temperature	95 °C – 203°F – 368.15°K
Max. Temperature (Tpeak)	110°C – 230°F – 383.15°K
Max. Pressure (95°C-203°F-368.15°K)	6 bar (for series 5) *
	6 bar (for series 4) **
	10 bar (for series 3.5) ***
	10 bar (for series 3.2) ****
Roughness	0.007 mm
Density	0.945 g/cm ²

* Series 5 matches dimensions 16×1.8, 20×1.9, 25×2.3, 32×2.9

** Series 4 matches dimensions 18×2.0

*** Series 3,5 matches dimension 16×2.0

**** Series 3,2 matches dimensions 16×2.2, 20×2.8, 25×3.5, 32×4.4

4 Operating Conditions

Temperature (°C)-(°F)-(°K)	Service life (years)	Operating pressure	Safety coefficient
20 – 68 – 293,15	50	18.75	1.5
40 – 104 – 313,15	50	15.75	1.5
60 – 140 – 333,15	50	12.00	1.5
80 – 176 – 353,15	25	10.00	2.0
95 – 203 – 368,15	25	8.00	2.0

5 Advantages of the BARBI PEX-a Pipes

- Simplicity of installation. No welding or machining operations are necessary. The associated fittings give the system simplicity and savings.
- Flexibility. The PEX-a pipes show more flexibility than PEX pipes crosslinked by other methods. They can be cold bent easily, without special tools, saving connections and installation time.
- Resistance to high temperature. **BARBI pipes are suitable to be used at usual work temperatures up to 95°C and they are able to withstand accidental temperature peaks up to 110°C.**
- Resistance to frost. BARBI pipes don't burst for water freezing inside. The pipe, due to its flexibility, would simply expand.
- Resistance to high pressure. BARBI pipes, due to the manufacturing process, are more resistant to high pressure, exceeding by more than 35% the ones manufactured using other crosslinking methods.
- Low heat conductivity coefficient. Their low heat conductivity coefficient (**0'38W/m°C**) allows saving energy through the reduction of heat loss as well as the frequent water condensation on copper pipes.
- Resistance to corrosion. **BARBI pipes can't be attacked by most chemical substances (acid, base, anti-freeze, etc.) and are resistant to every kind of corrosion.**
- Higher flow. **Due to their smooth Surface, BARBI pipes show smaller pressure loss than metal ones. With them, it's achieved higher flow with the same inner diameter.**
- Lack of lime and other materials deposits. Also due to their extremely smooth surface, lime deposits, so frequent in metal pipes, are avoided. BARBI pipes ensure that the original flow will be upheld forever.
- No electricity conductive. BARBI pipes don't generate any kind of galvanic corrosion.
- Lightness. BARBI pipes are 4 times lighter than copper pipes in equivalent diameters, what makes them easy to handle and transport.
- Suitable for drinking water. BARBI pipes don't modify the organoleptic properties of water.
- They don't convey noise. **Due to they are manufactured with polyethylene** and its flexibility, it is achieved low transmission of acoustic waves, even at high water flow speed (up to 2'5 m/sg), compared with metal pipes.
- Thermal memory effect. BARBI pipes regain their original shape when it's applied hot air, what allows to correct installation mistakes and to carry out repairs more easily.
- Narrow bending radius. **Their largest bending radius is 10 times the external diameter when bent manually and 5 times using the outer foil pipes BARBI.**

6 Dimensions and Presentation

Dimension	Length (m)	Packaging
16×1.8	240	Pallet – 12 rolls
	500	Pallet – 6 rolls
16×2.0	240	Pallet – 12 rolls
	500	Pallet – 6 rolls
17×2.0	240	Pallet – 12 rolls
	500	Pallet – 6 rolls
18×2.0	240	Pallet – 12 rolls
	400	Pallet – 6 rolls
20×2.0	240	Pallet – 8 rolls
	400	Pallet – 7 rolls
25×2.3	50	Pallet – 12 rolls
32×2.9	50	Pallet – 9 rolls



7 Quality Controls

All PEX-a EVOH pipes are continuously tested to ensure that the products are correct.

Industrial Blansol has a laboratory equipped with the latest technology in quality control devices, which perform all the demandable tests to the pipes.

BARBI PEX-a pipes are manufactured complying with European Norm EN 15875. They have the Product Certificate issued by AENOR (Spanish standard)

8 Labelling

All pipes are labelled with permanent ink on every meter, showing the following message:

- BARBI – Commercial Brand
- AENOR 001/506 – Certification number
- PEX-a (CON BARRERA ANTIOXIGENO) - PEX-a cross-linked polyethylen pipe (with oxygen barrier)
- Diameter × thickness (mm)
- Application class and design pressure
- UNE-EN ISO 15875 – Reference norm for pipes production and certification
- Manufacturing date
- Length

9 Applications of BARBI PEX-a Pipes

- Water installations (cold and hot water)
- Radiators heating installations
- Radiant floor heating installations
- Air conditioned installations
- Other applications

10 Recommendations

- Keep the pipe in its original package. Avoid the exposure to direct sun, what may damage the product.

- Avoid contact with hard and cutting-edged materials that may damage the product during its transport and installation.
- **Cut the pipe with suitable scissors making sure that the cut is clean.**
- **Never use a direct flame to bend the pipe.**
- Use plastic material to fix the pipe (clips, etc.). Using metal materials (such as wire) may damage the product
- After installing the pipe, it is mandatory to carry out a pressure test, as it is indicated in the norm UNE-ENV 12108.