



PRODUCT TECHNICAL SPECIFICATION BARBI PEX-b PIPES with oxygen barrier (EVOH)

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1 Product Description

- PEX-b (silane method) cross-linked monolayer pipe, with oxygen barrier (EVOH), complying with the 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-b EVOH pipes

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

Because of it:

- The pipes with oxygen barrier (EVOH) have the same resistance to temperature, resistance to pressure and warranty years than 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, that 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 tridimensional, that is, they are stronger than the links obtained by other manufacturing methods, where those are bidimensional.

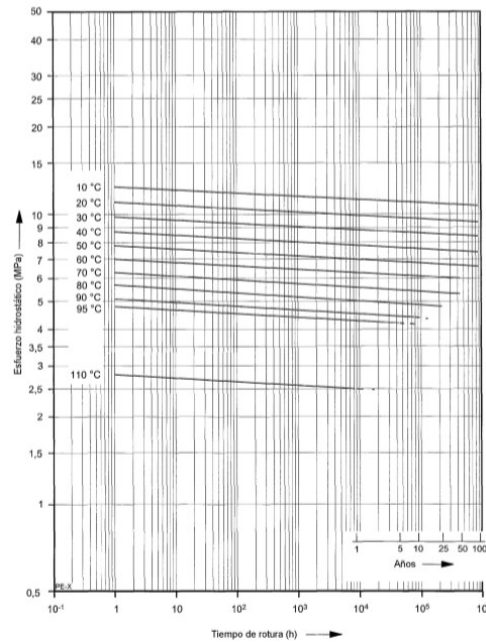
3 Technical Specification

Property	Rate
Density	0'945 g/cm ³
Linear dilatation	1'4x10 ⁻⁴ K ⁻¹
Max. Work Temperature	95°C – 203°F – 368'15°K
Max. Temperature (Tmal)	110°C – 230°F – 383'15°K
Max. Pressure (95°C-203°F-368'15°K)	4 bar
Thermal conductivity	0'38 W/m K
Roughness	0'007 mm

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

The expected resistance of the PEX-b EVOH pipes is shown in the next table:



5 Applications

- The main application of the BARBI PEX-b EVOH pipes is underfloor heating (application class 4), due to the excellent properties of the oxygen barrier. Additionally, classes 1,2 and 5 are applicable.
- The application classes, according to the norm UNE-EN-ISO 15875 are shown in the next table:

Clase de aplicación	Temperatura de diseño T_D °C	Tiempo a T_D^a Años	$T_{m\acute{a}x.}$ °C	Tiempo a $T_{m\acute{a}x.}$ Años	$T_{m\acute{a}l.}$ °C	Tiempo a $T_{m\acute{a}l.}$ h	Campo t\ipico de aplicaci3n
1 ^a	60	49	80	1	95	100	Suministro de agua caliente (60 °C)
2 ^a	70	49	80	1	95	100	Suministro de agua caliente (70 °C)
4 ^b	20	2,5	70	2,5	100	100	Calefacci3n por suelo radiante y radiadores a baja temperatura
	Seguido por 40	20					
5 ^b	Seguido por 60	25	90	1	100	100	Radiadores a alta temperatura
	Seguido por 80	10					
	Seguido por (véase la columna siguiente)	Seguido por (véase la columna siguiente)					

^a Cada pa\is puede elegir entre la clase 1 o la clase 2 de acuerdo con su reglamentaci3n nacional.

^b Cuando aparezca mas de una temperatura de dise\o para cualquier clase, los tiempos deben ser a\anidos (por ejemplo, el perfil de temperaturas para 50 a\os para la clase 5 es: 14 a\os a 20 °C seguido por 25 a\os a 60 °C, 10 a\os a 80 °C, 1 a\o a 90 °C y 100 h a 100 °C).

NOTA – Esta norma no es de aplicaci3n para valores de T_D , $T_{m\acute{a}x.}$ y $T_{m\acute{a}l.}$ superiores a los indicados en esta tabla.

Note:

Blansol recommends the use of the PEX-b BAO pipes exclusively for low temperature underfloor heating applications.



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6 Advantages of the BARBI PEX-b EVOH pipes

- Simplicity of installation. No welding or machining operations are necessary. The associated fittings give the system simplicity and savings.
- 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.
- Thermical 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.

7 Dimensions and presentation

Product presentation:

Dimension	Length (m)	Colour
12 x 1'1	240m	White / Blue / Red
16 x 1'5	240m	Blue / Red
20 x 1'9	120m	Blue / Red



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8 Labelling

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

- Industrial Blansol
- AENOR 001/506 - Our quality Brand, according to the AENOR Product Certificate
- CSTBat 60/1681 - Our quality Brand, according to the CSTBat Product Certificate
- Chile NCH 2086 – Reference Norm for pipes production and certification in Chile
- UNE-EN-ISO 15.875 - Reference norm for pipes production and certification in Europe
- Diameter x thickness (mm). (con barrera antioxidígeno)
- Application class and design pressure
- Made in Spain – pipe manufactured in Spain
- Lot (manufacturing date)
- Length

9 Regulations and Certification

- The BARBI PEX-b BAO pipes are certificated with AENOR, according to the norm UNE-EN-ISO 15.875, with the certificate number 001/506.
- The BARBI PEX-b BAO pipes are certificated with CSTBat, with the certificate number 60/1681

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 it's 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.