



# AC-FIX PIPES



**CROSS-LINKED POLYETHYLENE  
(PEX-a) AND  
MULTILAYER PIPES**

## AC-FIX PEX-a PIPES

The **AC-FIX PEX-a** and **evalPEX-a** pipes are made of high density polyethylene according to the **Engel** process. This process gives the pipe exceptional properties of flexibility, elasticity and resistance to pressure and temperature. The Engel process is the best manufacturing method that guarantees 100% that the pipe can expand and contract correctly in total safety with the AC-FIX PLASTIC RING EXPANSION fittings.

The AC-FIX PEX-a pipes are composed of a layer of PEX-a according to the UNE-EN ISO 15875-1 standard for hot and cold water installations (sanitary water installations and heating installations \*).

The AC-FIX eval-PEX-a pipes are composed of three layers: a layer (base tube) of PEX-a, an intermediate adhesive layer and an outer layer of Ethylvinyl-Alcohol (abbreviated as "EVAL" or "EVOH") which serves as an anti-oxygen diffusion barrier.

Product certified by AENOR according to the standards UNE-EN ISO 15875-1 and UNE-EN ISO 15875-2.

The AC-FIX PEX-a and evalPEX-a pipes are compatible with the fittings and valves AC-FIX PLASTIC EXPANSION RING, PRESS, PRESS DUO and SLIDING RING. They are also compatible with UPO-NOR® Quick and Easy® fittings and valves \*\*

The AC-FIX PEX-a pipes 16x1,5 are only compatible with the fittings and valves AC-FIX PRESS and SLIDING RING, neither with the PLASTIC EXPANSION RING nor PRESS DUO.

## FIELDS OF APPLICATION FOR A DESIGN PERIOD OF 50 YEARS (UNE-EN ISO 15875)

Application class	Design temperature $T_D$ °C	Time at $T_D$ (Years)	$T_{max}$ °C	Time at $T_{max}$ (years)	$T_{mal}$ °C	Time at $T_{mal}$ (hours)	Typical field of application
1 <sup>a</sup>	60	49	80	1	95	100	Hot water supply (60°C)
2 <sup>a</sup>	70	49	80	1	95	100	Hot water supply (70°C)
4 <sup>b</sup>	20	2,5	70	2,5	100	100	Underfloor heating and and low temperature radiators
	Followed by 40	20					
	Followed by 60	25					
5 <sup>b</sup>	20	14	90	1	100	100	High temperature radiators
	Followed by 60	25					
	Followed by 80	10					

$T_D$ : Design temperature (normal work)     $T_{max}$ : Maximum temperature     $T_{mal}$ : Malfunction temperature

<sup>a</sup> A country may select either class 1 or class 2 to conform to its national regulations.

<sup>b</sup> Where more than one design temperature appears for any class, the times should be aggregated (for example: the design temperature profile for 50 years of class 5 is: 20°C for 14 years, followed by 60°C for 25 years, 80°C for 10 years, 90°C for 1 year and 100°C for 100 hours). This allows to simulate approximate real temperatures and times during a useful life of 50 years.

The design pressures of each application are:

PEX-a and evalPEX-a

Series 5,0: class 1 / 6 bar; class 2 / 6 bar; class 4 / 8 bar; class 5 / 6 bar. Cold water: (20 °C) 15 bar.

Series 4,0: class 1 / 8 bar; class 2 / 8 bar; class 4 / 10 bar; class 5 / 8 bar. Cold water: (20 °C) 18 bar.

Series 5,0: 16x1,5, 20x1,9, 25x2,3, 32x2,9, 40x3,7, 50x4,6, 63x5,8, 75x6,8

Series 4,0: 16x1,8

\*\* : Trademark(s) belonging to a third party wich has no link to AC-FIX group of companies.

## ADVANTAGES OF PEX-a:

- Very high flexibility due to the production type of PEX-a according to the Engel method.
- Very high degree of crosslinking (> 80%) and consequently, higher resistance to pressure and temperature.
- Low pressure drop and low acoustic transmission.
- Drinking water quality. Completely non-toxic.
- Resistance to the actions applied in the prevention and control of legionellosis.

\* For underfloor heating systems and radiators, it is more advisable to use AC-FIX evalPEX-a pipes (with antioxygen barrier).

## PEX-a PROPERTIES:

MECHANICAL PROPERTIES		UNIT OF MEASURE	VALUE
Density	-	kg/m <sup>3</sup>	938
Strangulation tension	(20 °C)	N/mm <sup>2</sup>	20-26
	(100 °C)	N/mm <sup>2</sup>	9-13
Coefficient of elasticity	(20 °C)	N/mm <sup>2</sup>	1180
	(80 °C)	N/mm <sup>2</sup>	560
Elongation at break	(20 °C)	%	300-450
	(100 °C)	%	500-700
Break by impact	(20 °C)	kJ/m <sup>2</sup>	Not break
	(-140 °C)	kJ/m <sup>2</sup>	Not break
Water absorption	(22 °C)	mg/4d	0,01
Coefficient of friction	-	-	0,08-0,1

THERMAL PROPERTIES	UNIT OF MEASURE	VALUE
Thermal conductivity	W/m °C	0,35
Coefficient of linear expansion (20 °C/ 100 °C)	m/m °C	1,4·10 <sup>-4</sup>
	m/m °C	2,05·10 <sup>-4</sup>
Softening temperature	°C	+133
Specific heat	KJ/kg °C	2,3
Mount minimum temperature	°C	-15

## RECOMMENDED BEND RADII IN MILLIMETERS:

DN	HOT BENDING	COLD BENDING
16	35	35
20	45	90
25	55	125
32	-	256
40	-	320

## BURSTING PRESSURE A +20 °C:

PIPE DIAMETER	APPROXIMATE PRESSURE
16 x 1,8	50,7 kg/cm <sup>2</sup>
20 x 1,9	42 kg/cm <sup>2</sup>
25 x 2,3	35 kg/cm <sup>2</sup>
32 x 2,9	40 kg/cm <sup>2</sup>

PEX-a PIPE IN COIL (white colour)  
Unit of sale (article): 1 coil



DIMENSIONS Ø ext. x Thickness (mm)	LENGTH (m)	CODE	COILS BY COMPLETE PALLET
16 x 1,8	25	073.161825B	*
	100	073.161810B	22
	200	073.161820B	20
20 x 1,9	25	073.201925B	*
	80	073.201980B	*
	120	073.201912B	16 or 18
	200	073.201920B	12
25 x 2,3	50	073.252350B	16
	100	073.252310B	10
32 x 2,9	25	073.322925B	20
	50	073.322950B	14
40 x 3,7	25	073.403725B	*
	50	073.403750B	*
50 x 4,6	25	073.504625B	*
	50	073.504650B	*
63 x 5,8	25	073.635825B	*
	50	073.635850B	*
75 x 6,8	25	073.756825B	*
	50	073.756850B	*

SPECIAL DIMENSION Ø ext. x Thickness (mm)	LENGTH (m)	CODE	COILS BY COMPLETE PALLET
** 16 x 1,5	100	073.161510B	*

PEX-a PIPE IN BAR (white colour)  
Unit of sale (article): 1 package

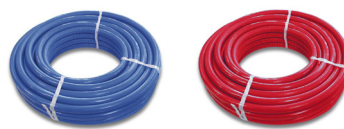


DIMENSIONS Ø ext. x Thickness (mm)	BAR LENGTH (m)	BARS PER PACKAGE	CODE
16 x 1,8	5	25	073.161805B
20 x 1,9	5	16	073.201905B
25 x 2,3	5	10	073.252305B
32 x 2,9	5	7	073.322905B
40 x 3,7	5	3	073.403705B
50 x 4,6	5	2	073.504605B
63 x 5,8	5	1	073.635805B
75 x 6,8	5	1	073.756805B
90 x 8,2	5	1	073.908205B
110 x 10,0	5	1	073.111005B

\* To consult

\*\* Only for PRESS and SLIDING RING fittings and valves.

PRE-INSULATED PEX-a PIPE IN COIL  
 PEX-a pipe white. Insulation: blue or red.  
 Unit of sale (article): 1 coil  
 Coefficient of conductivity of insulation  $\lambda=0,040$  W/m\*k



DIMENSIONS Ø ext. x Thickness (mm)	THICKNESS INSULATION (mm)	COLOUR	LENGTH (m)	CODE	COILS BY COMPLETE PALLET
16 x 1,8	6	BLUE	50	074.161850A	15
16 x 1,8	6	RED	50	074.161850R	15
20 x 1,9	6	BLUE	50	074.201950A	15
20 x 1,9	6	RED	50	074.201950R	15
25 x 2,3	6	BLUE	25	074.252325A	12
25 x 2,3	6	RED	25	074.252325R	12
25 x 2,3	6	BLUE	50	074.252350A	12
25 x 2,3	6	RED	50	074.252350R	12
32 x 2,9	6	BLUE	50	074.322950A	12
32 x 2,9	6	RED	50	074.322950R	12

NEW

## PIPES AC-FIX evalPEX-a

### Pipes with antioxygen barrier.

Ideal for underfloor heating and radiators.

evalPEX-a PIPE IN COIL (white colour)  
 Unit of sale (article): 1 coil



DIMENSIONS Ø ext. x Thickness (mm)	LENGTH (m)	CODE	COILS BY COMPLETE PALLET
16 x 1,8	240	073.V161824B	14
16 x 1,8	640	073.V161864B	*
20 x 1,9	240	073.V201924B	*
25 x 2,3	60	073.V252360B	14

NEW

evalPEX-a PIPE IN BAR (white colour)  
 Unit of sale (article): 1 package

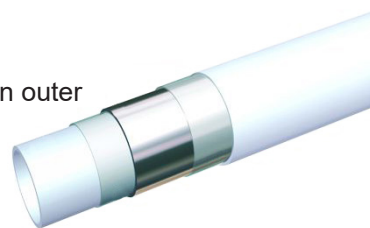


DIMENSIONS Ø ext. x Thickness (mm)	LENGTH BAR (m)	BARS PER PACKAGE	CODE
16 x 1,8	5	25	073.V161805B
20 x 1,9	5	16	073.V201905B
25 x 2,3	5	10	073.V252305B
32 x 2,9	5	7	073.V322905B

\* To consult.

## AC-FIX MULTILAYER PEX/AL/PE PIPES

**AC-FIX MULTILAYER** pipes are composed of an inner layer of PEX, an outer layer of PE and an intermediate layer of aluminum. These layers are bonded together with a special adhesive for high temperatures.



**AC-FIX MULTILAYER** pipes are manufactured according to the UNE-EN ISO 21003 standard and certified by AENOR according to said standard.

**AC-FIX MULTILAYER** pipes are compatible with AC-FIX PRESS-MULTI AND PRESS DUO FITTINGS AND VALVES.

## FIELDS OF APPLICATION OF 50 YEARS (UNE-EN ISO 21003)

Application class	Design temperature $T_D$ °C	Time at $T_D$ (Years)	$T_{max}$ °C	Time at $T_{max}$ (Years)	$T_{mal}$ °C	Time at $T_{mal}$ (hours)	Typical field of application
1 <sup>a</sup>	60	49	80	1	95	100	Hot water supply (60°C)
2 <sup>a</sup>	70	49	80	1	95	100	Hot water supply (70°C)
4 <sup>b</sup>	20	2.5	70	2,5	100	100	Underfloor heating and and low temperature radiators
	40	20					
	60	25					
5 <sup>b</sup>	20	14	90	1	100	100	High temperature radiators
	60	25					
	80	10					

$T_D$ : Design temperature (normal work)     $T_{max}$ : Maximum temperature     $T_{mal}$ : Malfunction temperature

<sup>a</sup> A country may select either class 1 or class 2 to conform to its national regulations.

<sup>b</sup> Where more than one design temperature appears for any class, the times should be aggregated (for example: the design temperature profile for 50 years of class 5 is: 20°C for 14 years, followed by 60°C for 25 years, 80°C for 10 years, 90°C for 1 year and 100°C for 100 hours). This allows to simulate approximate real temperatures and times during a useful life of 50 years.

## ADVANTAGES OF AC-FIX MULTILAYER PEX/AL/PE PIPES

**AC-FIX MULTILAYER** pipes combine the advantages of metal pipes and plastic pipes: dimensional stability, flexibility and resistance to corrosion.

- Very high flexibility. They can be bent manually while maintaining permanent shapes and curvatures.
- It is impermeable to the diffusion of oxygen.
- Low pressure drop and low acoustic transmission.
- Resistance to corrosion, abrasion and attack by chemical products.
- There are no adhesions and incrustations.
- Sanitary quality. Plastic pipes are totally non-toxic, not changing the properties of the fluid that goes inside (color, taste, smell).
- Resistance to all actions applied in the prevention and control of legionellosis.
- Its low coefficient of thermal conductivity reduces condensation and heat losses.
- Low coefficient of linear thermal expansion, allowing to be at the level of the metal tubes on that aspect.
- Aesthetics in visible heating and / or plumbing installations.
- AC-FIX MULTILAYER pipes comply with the provisions of Royal Decree 140/2003 "Criteria Hygienic-Sanitary of the quality of water for human consumption".
- They comply with the established precepts regarding construction materials of the CTE point 6.1. of the HS4 health document.

## PROPERTIES OF AC-FIX MULTILAYER PEX/AL/PE PIPES:

MECHANICAL PROPERTIES	UNIT OF MEASUREMENT	VALUE	RULE
Linear dilation	mm/m °K	0.025	ASTM D-696
Thermal conductivity at 60°C	W/m°K	0.40	DIN 52612-1
Coefficient of thermal expansion	10 <sup>-4</sup> /K	1.8	DIN 53752 A
Tensile adhesion	N/cm	≥ 25	UNE-EN ISO 21003
Tensile adhesion after temperature cycling	N/cm	≥ 15	UNE-EN ISO 21003
Elongation at break	%	400	DIN 53455
Rugosity	mm	0.007	
O2 permeability	g/m3d	< 0.001	
Burst pressure	bar	80	
Induction time to oxidation	min	> 20	UNE-EN 728
Density	Kg/m3	> 947	ISO 1183
Thermal stability (110°, 1,9MPa, 8760h)	bar	Not break	UNE-EN 921
Melt index (mass)	%	+/- 20	UNE-EN ISO 1133
Volatile mass content	mg/Kg	< 350	UNE-EN 12099
Specific weight	g/cm2	2.7	EN 485-2
Breaking strain	N/mm <sup>2</sup>	90 - 140	EN 485-2
Elongation A50	%	30	EN 485-2
R <sub>p0.2</sub>	MPa	> 30	EN 485-2

## PEX/AL/PE PIPE IN COIL

Unit of sale (article): 1 coil

Packaging: Each roll is supplied wrapped in strong kraft paper



DIMENSIONS Ø ext. x Thickness (mm)	LENGTH (m)	CODE	COILS/METERS BY COMPLETE PALLET	
16 x 2	100	075.162010	20	2000
	200	075.162020	14	2800
18 x 2	100	075.182010	*	*
	200	075.182020	*	*
20 x 2	100	075.202010	18	1800
	200	075.202020	12	1200
25 x 2,5	50	075.252550	12 ó 14	600
32 x 3	50	075.323050	10	500

## PEX/AL/PE PIPE IN BAR

Unit of sale (article): 1 package

Packaging: Each pack of bars is supplied in a sturdy cardboard cylinder with lids



DIMENSIONS Ø ext. x Thickness (mm)	LENGTH BAR (m)	BARS PER PACKAGE	PACKAGE CODE	PACKAGE CODE
			4m length	5m length
16 x 2	4 / 5	50	-	075.162005
18 x 2	4 / 5	50	-	075.182005
20 x 2	4 / 5	35	-	075.202005
25 x 2,5	4 / 5	20	075.252504	075.252505
32 x 3	4 / 5	12	075.323004	075.323005
40 x 4	5	5	-	075.404005
50 x 4,5	5	5	-	075.504505
63 x 6	5	3	-	075.636005
75 x 7,5	5	*	-	075.757505

Note: Each coil and each bar are supplied with protective caps on their ends



# AC-FIX PIPES

## PRE-INSULATED MULTILAYER PIPE IN COIL

Multilayer pipe white. Insulation: blue or red.

Unit of sale (article): 1 coil

Coefficient of conductivity of insulation  $\lambda=0,035 \text{ W/m}^{\circ}\text{K}$



- Multilayer pipes with thermal insulation for heating installations.
- Available with insulation in red and blue colors to distinguish between supply and return.

DIMENSIONS Ø ext. x Thickness (mm)	THICKNESS INSULATION (mm)	COLOUR	Thickness (m)	CODE	COILS BY COMPLETE PALLET
16 x 2	6	BLUE	50	076.162050A	22
16 x 2	6	RED	50	076.162050R	22
NEW 18 x 2	6	BLUE	50	076.182050A	20
18 x 2	6	RED	50	076.182050R	20
20 x 2	6	BLUE	50	076.202050A	20
20 x 2	6	RED	50	076.202050R	20
25 x 2,5	10	BLUE	25	076.252525A	20
25 x 2,5	10	RED	25	076.252525R	20
NEW 32 x 3	10	BLUE	25	076.323025A	15
32 x 3	10	RED	25	076.323025R	15

Note: Each coil and each bar are supplied with protective caps on their ends

