

## 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>