



# F & R EXPANSION SYSTEM

PEX-a PIPE  
+  
EXPANSION ACCESSORIES



## CLASS / FIELD OF APPLICATION

**CLASS 1:** Hot water 60° C.

**CLASS 2:** Hot water 70° C.

**CLASS 4:** Underfloor heating / cooling and radiators at low temperature.

**CLASS 5:** Heating by radiators at high temperature.

## DESIGN PRESSURE

Ø 16 : 1/8; 2/8; 4/10; 5/8

Ø 20, Ø 25, Ø 32, : 1/6; 2/6; 4/8; 5/6

According to the norm UNE-EN ISO 15875



## EXPANSION F & R SYSTEM

### CHARACTERISTICS:

The Expansion F & R system is formed by Pex-a Pipe and Brass or PPSU fitting. This system is designed exclusively for the conduction of cold and hot water in installations of plumbing, heating and air conditioning.

The Expansion F & R System is based on the great elasticity of the Pex-a pipes that, after their expansion, and thanks to their thermal memory, contract to recover their initial dimensions, pressing on the body of the accessory getting a safe and lasting union.

### ADVANTAGES :

1. Maximum profitability due to its speed of installation and simplicity of assembly, which provides a reduced labor cost.
2. Greater flow and less pressure drop since these accessories have an upper internal diameter, achieving a water flow of up to 20% more than most systems and guaranteeing minimum pressure drops.
3. Perfect sealing without the need for O-rings, ensuring a long and secure connection.
4. The compression force is applied equally to the entire surface of the fitting.
5. For the installation it is not necessary to calibrate / ream the pipe.
6. These accessories support in a safety way the modifications of pipe dimension that may suffer both for their manufacturing tolerances and for the temperature differences of the liquids they transport.
7. Absence of incrustations and resistance to corrosion.

### SYSTEM COMPONENTS:

#### Pex-a pipe

The Pex-a pipe is manufactured with high quality polyethylene and crosslinked by the PERÓXIDO Xa system. They are manufactured according to Standard UNE-EN-ISO 15875. Especially recommended for hydraulic and heating installations.



#### Plastic Rings

These rings are made of high quality polymers and injection molded. The design of these rings that in turn include a system of stops allows a greater dimensional accuracy and ease in assembly. They can be found in three colors (red, blue and white) to more easily identify the networks of the pipes.



#### Brass and PPSU Accessories

The F & R brass expansion fittings are manufactured according to the UNE-ISO-15875 standard and made with high quality brass CW617N.

The F & R brass expansion fittings are manufactured according to the UNE-ISO-15875 standard and made with high quality brass CW617N.



*The main advantages of these PPSU accessories compared to brass accessories are:*

1. Less weight, which makes them lighter.
2. Better thermal and acoustic insulation
3. Better resistance to contact with chemical products.
4. They do not rust or corrode and are resistant to water.
5. Less pressure drop due to its low internal roughness.
6. Does not add metallic oxides to water.
7. Resistant to impacts, at high pressures as they can raise their length before breaking.

*These accessories are compatible with Pex-a tubes of the following dimensions:*

External diameter(mm)	Thickness (mm)
16	1,8
20	1,9
25	2,3
32	2,9

*These accessories are supplied protected with a protective cap to prevent them from being damaged before installation.*







ASSEMBLY INSTRUCTIONS FOR EXPANSION F & R SYSTEM

Before starting the assembly check that the tubes are not broken, bent, damaged or apparently not suitable for installation. It is also necessary to check that the accessories to be used appear without any dirt residues in any of their components or present any anomaly or deterioration that prevents their correct use.

**VERY IMPORTANT:** THE USE OF DETERIORATED TUBES AND / OR ACCESSORIES, IN POOR CONDITION OR IN CONDITIONS OF CONSERVATION OR MAINTENANCE NOT SUITABLE FOR INSTALLATION, EXCLUDES THE WARRANTY. (see warranty page and general conditions)



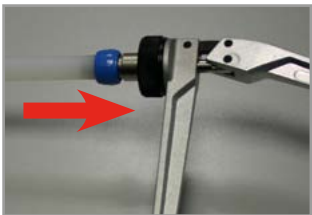
All assembly processes in our channel YouTube



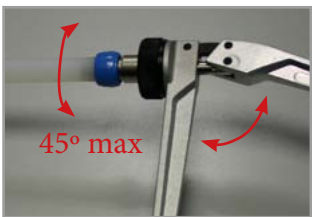
Cut the tube perpendicular to its length, using a tool that guarantees a clean and precise cut.



Insert the ring into the tube, until it reaches the inner stops.



Open the expander levers in their entirety and insert the head as far as possible into the pipe.



Slowly press the levers until they are joined and wait for 3 seconds. Open the levers, bring the tool back a few millimeters, rotate the tool with a maximum of 45° and reinsert the segments of the expander head in the pipe. Repeat until the expander head is completely inside the pipe.



Remove the tool and insert the accessory without delay maintaining the pressure for a few seconds until the pipe contracts and adequately holds the accessory.

NUMBER OF RECOMMENDED EXPANSIONS:

Dimensions	16x1,8	20x1,9	25x2,3	32x2,9
Nº Expansions	4	5	7	13

PRESSURE TEST:

In accordance with current regulations, a leakproofness test of the installations must be carried out before embedding and commissioning. To perform this test it is necessary to wait for the pipe to contract and properly hold the fitting as the expansion joint is based on the plastic memory of the pipe.

MINIMUM WAITING TIMES:

Temperature	+10°C	+6°C a 10°C	+1°C a +5°C	-4°C a 0°C	-9°C a 5°C	-15°C a -10°C
Wait time	30 min.	45 min.	2 hours	3 hours	4 hours	12 hours

FIELDS OF APPLICATION:

These accessories are suitable for use with PEX-a pipes in the following applications defined in the UNE-EN-ISO 15875 standard

Class of application	Design Temperature (TD) °C	Time to TD Years	Maximum temperature (Tmax) °C	Time to Tmax Years	Malfunction temperature (Tmail) °C	Time to Tmail Years	Field of typical use
1	60	49	80	1	95	100	Hot water supply (60°)
2	70	49	80	1	95	100	Hot water supply (70°)
4	20	2,5	70	2,5	100	100	Underfloor heating and radiators at low temperature
	more accumulated						
	40	20					
	more accumulated						
5	60	25	90	1	100	100	High temperature radiators
	20	14					
	more accumulated						
	80	10					

DESIGN PRESSURE

Series4 Ø16x1,8: 1/8 bar; 2/8 bar; 4/10 bar; 5/8 bar

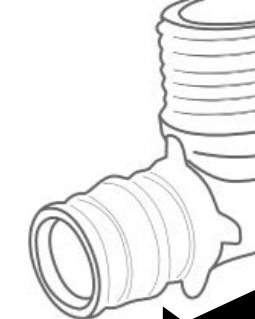
Series 5 Ø20x1,9 Ø25x2,3, Ø32x2,9: 1/6 bar; 2/6 bar; 4/8 bar; 5/6 bar



THE PEX-A PIPE (Crosslinked by Peroxide) IS CERTIFIED BY AENOR  
ACCORDING TO NORMA UNE-EN-ISO 15875

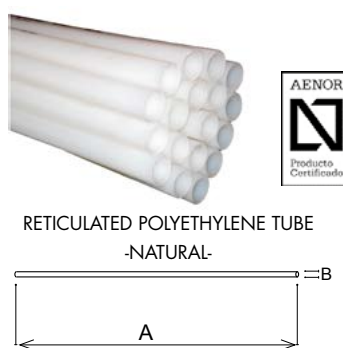
## PEX-α PIPE

EXPANSION ACCESSORIES  
For tube PEX-α 16x1.8, 20x1.9, 25x2.3, 32x2.9



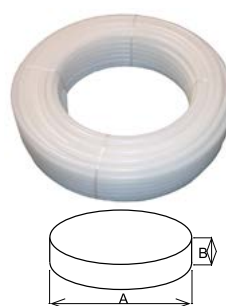
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### PEX-α PIPE BAR- 4 meters -



Reference	Ø Tube	Measurements Bar		Weight Bar	PACKAGE			PALET 410x100x80 cm	
		A	B		n° Bars	Meters	Weight	n° Bars..	Weight
PEX16-B	16 x 1,8	400	1,6	0,42	50	200	21,00	1000	420,00
PEX20-B	20 x 1,9	400	2,0	0,54	35	140	18,90	700	378,00
PEX25-B	25 x 2,3	400	2,5	0,86	20	80	17,20	400	344,00
PEX32-B	32 x 2,9	400	3,2	0,86	14	56	12,04	280	240,80
		cm	cm	kg	uns.	mts.	kg	uns.	kg

### PEX-α PIPE IN ROLL



Reference	Ø Tube	Meters Roll	Measurements Roll		Weight Roll	PALET	
			A	B		n° Rolls	Weight
PEX16-R100	16 x 1,8	100	63,0	17,5	7,60	24	182,4
PEX20-R100	20 x 1,9	100	67,0	21,5	10,20	22	224,4
PEX20-R200	20 x 1,9	200	77,0	25,0	20,40	16	326,4
PEX25-R50	25 x 2,3	50	83,0	20,0	7,70	16	123,2
PEX32-R50	32 x 2,9	50	93,0	17,0	12,45	16	199,2
		mts.	cm	cm	kg	uns.	kg

EXPANSION ACCESSORIES  
For tube PEX-α 16x1.8, 20x1.9, 25x2.3, 32x2.9

### BRASS UNION



Reference	Measure		
FRU16	16	45	360
FRU20	20	30	240
FRU25	25	15	120
FRU32	32	10	80
	Ø	uns.	uns.

### PPSU UNION



Reference	Measure		
FRPU16	16	45	360
FRPU20	20	30	240
FRPU25	25	15	120
FRPU32	32	10	80
	Ø	uns.	uns.

### BRASS REDUCER



Reference	Measure		
FRR2016	20 - 16	37	296
FRR2516	25 - 16	20	160
FRR2520	25 - 20	20	160
FRR3225	32 - 25	12	96
	Ø	uns.	uns.

### PPSU REDUCER



Reference	Measure		
FRPR2016	20 - 16	37	296
FRPR2516	25 - 16	20	160
FRPR2520	25 - 20	20	160
FRPR3225	32 - 25	12	96
	Ø	uns.	uns.

### BRASS ELBOW



Reference	Measure		
FRC16	16	32	256
FRC20	20	22	176
FRC25	25	11	88
FRC32	32	6	48
	Ø	uns.	uns.

### PPSU ELBOW



Reference	Measure		
FRPC16	16	32	256
FRPC20	20	22	176
FRPC25	25	11	88
FRPC32	32	6	48
	Ø	uns.	uns.

## EXPANSION ACCESSORIES

For tube PEX-a 16x1.8, 20x1.9, 25x2.3, 32x2.9



### BRASS TEE

Reference	Measure		
FRT16	16	20	160
FRT20	20	14	112
FRT25	25	6	48
FRT32	32	4	32
Ø		uns.	uns.



### PPSU TEE

Reference	Measure		
FRPT16	16	20	160
FRPT20	20	14	112
FRPT25	25	6	48
FRPT32	32	4	32
Ø		uns.	uns.



### BRASS REDUCER TEE

Reference	Measure		
FRTR201616	20-16-16	20	160
FRTR201620	20-16-20	14	112
FRTR202016	20-20-16	18	144
FRTR251625	25-16-25	9	72
FRTR252020	25-20-20	10	80
FRTR252025	25-20-25	8	64
FRTR252520	25-25-20	7	56
FRTR322532	32-25-32	5	40
Ø		uns.	uns.



### PPSU REDUCER TEE

Reference	Measure		
FRPTR201616	20-16-16	20	160
FRPTR201620	20-16-20	14	112
FRPTR202016	20-20-16	18	144
FRPTR251625	25-16-25	9	72
FRPTR252020	25-20-20	10	80
FRPTR252025	25-20-25	8	64
FRPTR252520	25-25-20	7	56
FRPTR322532	32-25-32	5	40
Ø		uns.	uns.

## EXPANSION ACCESSORIES

For tube PEX-a 16x1.8, 20x1.9, 25x2.3, 32x2.9



### BRASS FEMALE ELBOW

Reference	Measure		
FRCH1612	16X1/2	14	112
FRCH2012	20X1/2	12	96
FRCH2034	20X3/4	10	80
FRCH2534	25X3/4	10	80
Ø		uns.	uns.



### BRASS MALE ELBOW

Reference	Measure		
FRCM1612	16X1/2	25	200
FRCM2012	20X1/2	20	160
FRCM2534	25X3/4	12	96
Ø		uns.	uns.



### BRASS WALL PLATED FEMALE ELBOW

Reference	Measure		
FRCSH1612	16X1/2	14	112
FRCSH2012	20X1/2	12	96
FRCSH2534	25X3/4	10	80
Ø		uns.	uns.



### BRASS WALL PLATED FEMALE ELBOW LONG

Reference	Measure		
FRCSHL1612	16X1/2	14	112
FRCSHL2012	20X1/2	12	96
Ø		uns.	uns.



## EXPANSION ACCESSORIES

For tube PEX-a 16x1.8, 20x1.9, 25x2.3, 32x2.9



### BRASS FEMALE TEE

Reference	Measure		
FRTH1612	16X1/2	16	128
FRTH2012	20X1/2	12	96

Ø

uns.

uns.



### BRASS MALE UNION

Reference	Measure		
FREM1612	16X1/2	40	320
FREM2012	20X1/2	35	280
FREM2034	20X3/4	30	240
FREM2534	25X3/4	20	160
FREM321	32X1	12	96

Ø

uns.

uns.



### BRASS FEMALE UNION

Reference	Measure		
FREH1612	16X1/2	40	320
FREH2012	20X1/2	35	280
FREH2034	20X3/4	20	160
FREH2534	25X3/4	20	160
FREH321	32X1	12	96

Ø

uns.

uns.



### DESMOUNTABLE FEMALE UNION

Reference	Measure		
FRRM1612	16X1/2	48	384
FRRM2012	20X1/2	30	240
FRRM2034	20X3/4	24	192
FRRM2534	25X3/4	18	144

Ø

uns.

uns.



### BRASS ADAPTER

Reference	Measure		
FRAD1516	15-16	50	400
FRAD1816	18-16	45	360
FRAD2220	22-20	20	160
FRAD1820	18-20	30	240

Ø

uns.

uns.

## EXPANSION ACCESSORIES

For tube PEX-a 16x1.8, 20x1.9, 25x2.3, 32x2.9



### BRASS BALL VALVE

Reference	Measure		
FRVAL16	16	5	40
FRVAL20	20	5	40
FRVAL25	25	5	40
FRVAL32	32	4	32

Ø

uns.

uns.



### BRASS LINE VALVE

Reference	Measure		
FRVALLIN16	16	5	40
FRVALLIN20	20	5	40
FRVALLIN25	25	5	40
FRVALLIN32	32	4	32

Ø

uns.

uns.



### "U" BRASS BALL VALVE

Reference	Measure		
FRVALU20	20	4	32
FRVALU25	25	4	32

Ø

uns.

uns.



### PLASTIC RING

Reference	Measure	Colour		
FRCR16	16	Red	25	-
FRCA16	16	Blue	25	-
FRCB16	16	White	25	-
FRCR20	20	Red	25	-
FRCA20	20	Blue	25	-
FRCB20	20	White	25	-
FRCR25	25	Red	25	-
FRCA25	25	Blue	25	-
FRCB25	25	White	25	-
FRCR32	32	Red	25	-
FRCA32	32	Blue	25	-
FRCB32	32	White	25	-

Ø

uns.

uns.





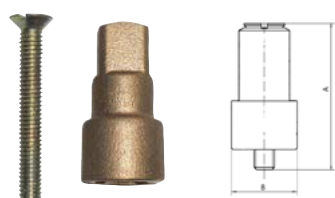
## EXPANSION ACCESSORIES

For tube PEX-a 16x1.8, 20x1.9, 25x2.3, 32x2.9



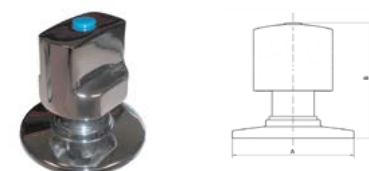
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### EXTENSION



Reference	Measure	A	B	Weight		
ALAR	20	30,00	13,00	18	125	1000
	mm	mm	mm	g	uns.	uns.

### ROUND HANDLE AND SHIELD FOR VALVES Ref. FRVAL / FRVALU



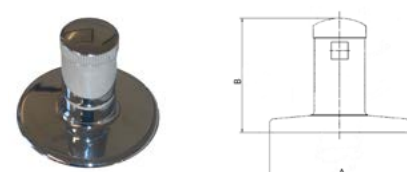
Reference	A	B	Weight		
MR	70,00	68,00	122	5	150
	mm	mm	g	uns.	uns.

### LEVER HANDLE AND SHIELD FOR VALVES Ref. FRVAL / FRVALU



Reference	A	B	C	Weight		
MP	70,00	57,00	62,00	126	5	150
	mm	mm	mm	g	uns.	uns.

### OCCULT HANDLE AND SHIELD FOR VALVES Ref. FRVAL / FRVALUE



Reference	A	B	Weight		
MO	69,00	52,50	98	5	150
	mm	mm	g	uns.	uns.

### EXPANDER



Reference	Measure		
FREXPAN	16-20-25-32	-	1
	Ø	uds.	uds.

### EXPANDER WITH BATTERY



Referencia	Medida		
KEF&R	16-20-25-32	-	1
	Ø	uds.	uds.



F &amp; R EXPANSION SYSTEM