DATA SHEET

EXPANSION BALANCE

PURPOSE

The main purpose of the expansion balance is to absorb longitudinal contractions and expansion movements of the pipes.

APPLICATIONS

The most common applications are: plumbing in general, heating, solar energy, natural gas networks, LPG networks, thermal networks, refrigeration networks, gasoil and petrol networks.
Through this innovating product it's not necessary to place any kind of sweep, reducing head loss, time of installation and space in networks. It's possible to place it in an already finished installation.
Las aplicaciones más comunes son: fontanería en general, calefacción, energía solar, instalaciones de gas natural y de GLP, instalaciones térmicas, instalaciones de frío, redes de gasóleos y gasolinas en general.

EXPANSION CALCULATION METHOD

Temperature fluctuations in pipes of an installation directly affect to their expansion and contractions and therefore, it's very important to consider this factor when choosing expansion balance that best adapts to the installation. Length variations must be always equal or less than the distance that expansion balance can move, never higher.
This requires considering the factors summarised in the following table, where the linear expansion formula is defined.

$$\Delta L = \alpha_{exp} \cdot L_o \cdot (T - T_o)$$

$\Delta L = Lenght\ variation\ (mm)$
$\propto_{exp} = Lineal\ expansion\ modulus\ (1/°C)$
$L_o = Pipe\ length\ with\ T_o\ (mm)$
$T = Fluid\ Temperature\ (°C)$
$T_o = Initial\ Temperature\ (°C)$

Lineal Expansion Coeficent	
Material	**α_{exp}**
Lead	3,0 x 10^{-5}
Copper	1,7 x 10^{-5}
Steel	12 x 10^{-6}
Iron	12 x 10^{-6}
Zinc	2,6 x 10^{-5}
Aluminium	2,4 x 10^{-5}
Brass	1,8 x 10^{-5}
Polyethylene (PE)	2,4 x 10^{-4}
PP-R	1,5 x 10^{-4}
Multilayer	0,35 x 10^{-4}

Expansion Balance	Copper Pipe		PP-R and Multilayer Pipe
ISO 228 Thread F-F (BSP)	**Diameter (mm)**		**Diameter (mm)**
1/2''	De Ø10 a Ø22		Ø20
3/4''	De Ø14 a Ø28		Ø25
1''	De Ø18 a Ø28		Ø32
1 1/4''	Ø28	Ø35	Ø40
1 1/2''	Ø35	Ø42	Ø50
2''	Ø54		Ø63

ISO228 F-F Threads (BSP)		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Sizes	Minimum Length	86,5 mm	92,5 mm	101 mm	110,5 mm	120,5 mm	131,5 mm
	Maximum Length	126,0 mm	135,5 mm	146,5 mm	157,0 mm	175,0 mm	184,0 mm
	Usable Length	19 mm	21 mm	22 mm	23 mm	25 mm	26 mm
Materials	Body	Brass					
	Joints	FPM *(Viton)*					
Working Temperatures		-25ºC / +200ºC					
Maximum Pressure Tested		100 bar					

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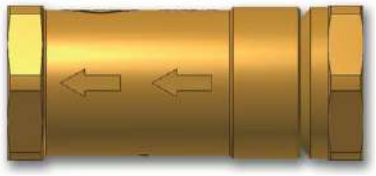
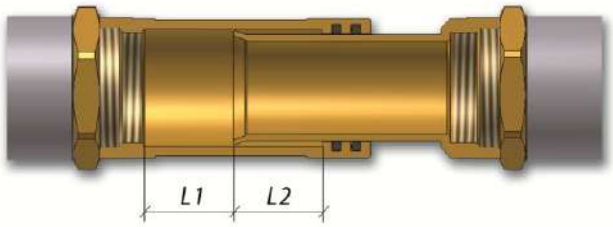
INSTRUCCIONES DE MONTAJE

For an ideal working, it should be respected fluid direction marked on the body of the product by arrows.



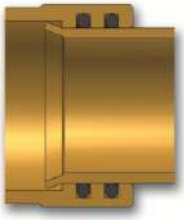
Respect arrows of fluid direction

When assembling, expansion balance should be in its half length, considering room temperature. In this way a correct working is obtained.



Correct installation at the half of their length
L1 = Pipe expansion usable length
L2 = Pipe contraction usable length

Inner mechanical stop only prevents that both telescopic bodies can be separated. It's not designed to bear any type of effort, mainly to the traction.



Inner mechanical stop