



Uponor

RADIANT HEATING AND COOLING SYSTEMS

2" WIRSBO hePEX™ EXPANSION JOINT KIT

INSTRUCTION SHEET

2" Wirsbo hePEX™ Expansion Joint Kit

Expansion Compensating Devices

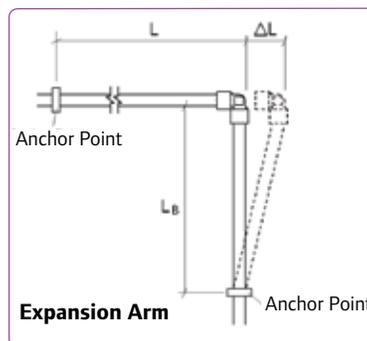
- Install expansion joints every 50 feet of straight-length tubing.
- Always install the joint at the midpoint of two fixed points.
- An expansion joint may not be required for installations where the tubing does not penetrate a fire-rated assembly (which constrains movement of the tubing), or where there are no restraining devices.

Example:

The tubing runs the length of a hallway, without in-line tees, and turns a corner at the end. In this case, the tubing is not fixed; it can expand without restriction. Use the expansion arm formula to calculate the minimum distance to the next fixed point. In this same application using in-line tees, it may be necessary to install an expansion joint to minimize the movement of the tees.

Expansion Arm

Ensure the flexible arm is long enough to prevent damage. Place support clamps far enough from the wall to allow for longitudinal thermal expansion.



Use the formula below to calculate the minimum length of the expansion arm: $L_B = C \times \sqrt{(D \times \Delta L)}$

"L" is the total distance of tubing run from a fixed point to a corner, or in the case of an expansion joint, from a fixed point to another fixed point.

The thermal expansion rate of PEX tubing is 1.1 inches per 100 feet per 10°F (12.2°C) temperature rise. The following is an example of an expansion arm calculation using 2" Wirsbo hePEX tubing.

Parameters

Tubing type	2" Wirsbo hePEX
Tubing OD	2.125"
Tubing length	50 feet
Supply fluid temperature	160°F (71.1°C)
Ambient temperature	60°F (15.6°C)

Calculation

$$L_B = C \times \sqrt{(D \times \Delta L)}$$

$$L_B = 12 \times \sqrt{2.125 \times [(1.1 \times 10) \div (100 \div 50)]}$$

$$L_B = 12 \times \sqrt{2.125 \times 5.5}$$

$$L_B = 12 \times \sqrt{11.6875}$$

$$L_B = 12 \times 3.419$$

$$L_B = 41.03 \text{ inches}$$

The required arm length is 41" to prevent excessive stress on the fittings and support clamps.

Key

L_B = the length of the flexible arm in inches

C = the material constant (PEX is 12)

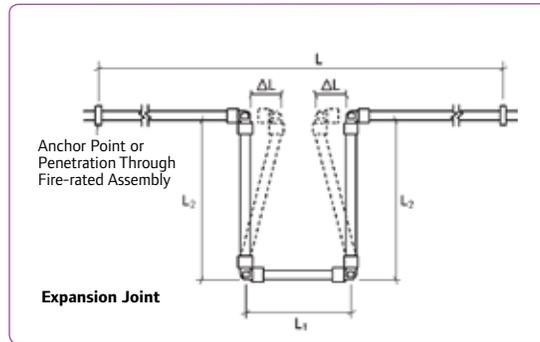
$\sqrt{\quad}$ = square root

D = the outside diameter of the tubing

ΔL = the thermal expansion length in inches

Expansion Joint

The same equation applies for an expansion joint. However, the arm length (L_B) must be divided into three sections (L_1 , and L_2 , see diagram at right) using the following formulas. For demonstration purposes, use the L_B value from the previous example.



$$L_1 = L_B \div 5$$

$$L_1 = 41 \div 5$$

$$L_1 = 8.2 \text{ inches}$$

$$L_2 = L_1 \times 2$$

$$L_2 = 8.2 \times 2$$

$$L_2 = 16.4 \text{ inches}$$

2" Wirsbo hePEX Expansion Joint Kit

Uponor offers a 2" Wirsbo hePEX Expansion Joint Kit (A1982000). The kit includes a pre-formed loop made from 2" Wirsbo hePEX tubing, two 2" ProPEX® Brass Elbows (Q4712000) and four 2" ProPEX Rings (Q4682000). Install this kit as described in this instruction sheet.