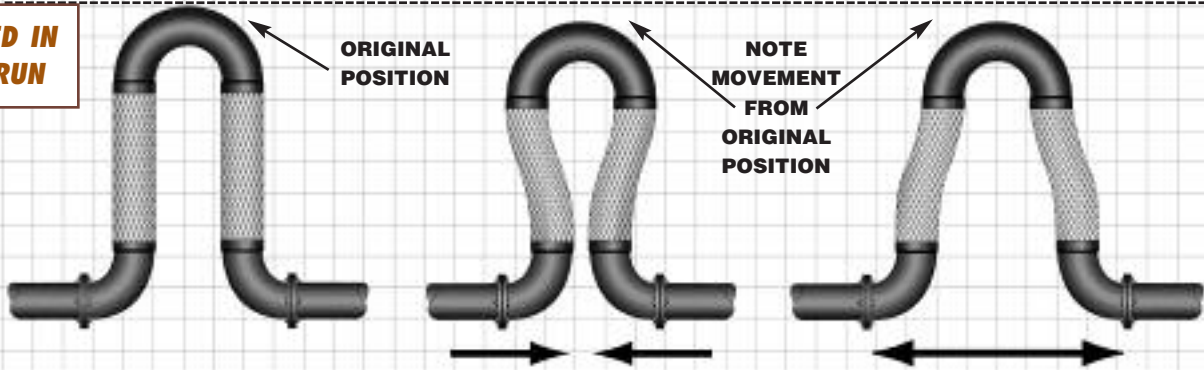


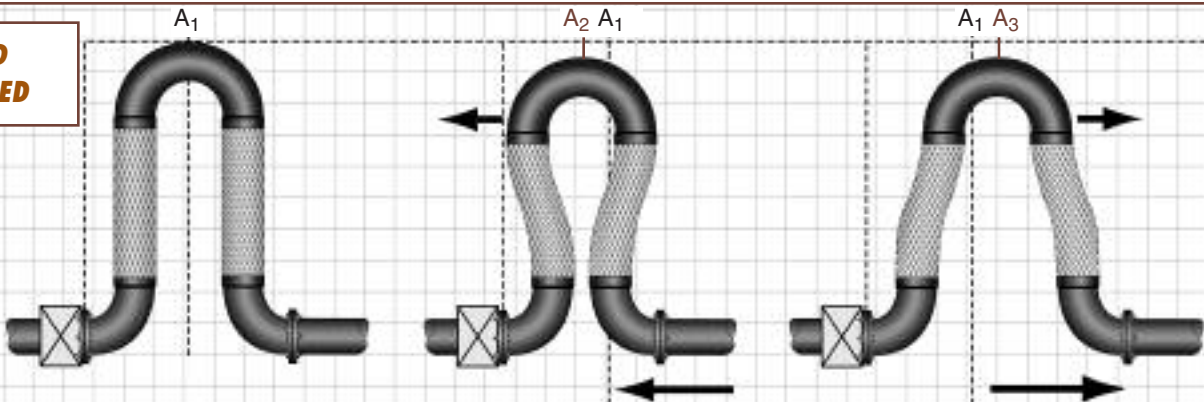
INSTALLATION/GUIDING CONSIDERATIONS

CENTERED IN A PIPE RUN



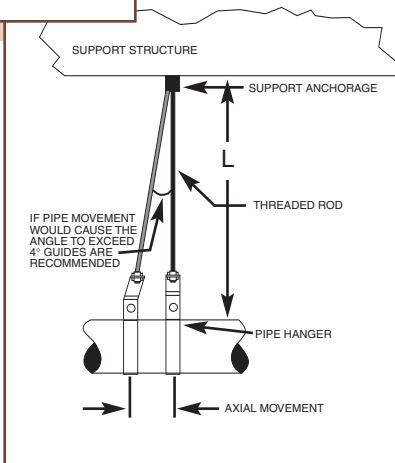
Centered in a pipe run: when the loop is installed in the middle of a pipe run, the loop will flex symmetrically and the 180 will move toward and away from the pipe. The 180 support should be designed with enough slack to allow the 180 to move 10% of the loops designed movement. For example a loop designed for ± 4 inches of axial movement will see the 180 return bend move 4 tenths (0.4") of an inch.

ONE END ANCHORED



One end anchored: When installed at or near an anchor the 180 will have a lateral component to its movement, in addition to the movement shown above ("Centered in a pipe run"). The lateral movement will be 50% of the thermal expansion or contraction and it will be in the same direction as the pipe movement. Again a sufficiently slack hanger rod or slide support is all that is required.

GUIDING REQUIREMENTS



MINIMUM 'L' REQUIRED TO ELIMINATE GUIDES	
AXIAL MOVEMENT	ROD 'L' LENGTH
1"	14"
2"	28"
4"	57"
6"	85"

Guiding Requirements: Thermal Movement - Being the most flexible component of your piping system, the MetraLoop is the path of least resistance. And unlike other expansion joint devices, bellows, hard pipe loops, ball or slip type joints, the loop will absorb any thermal expansion before your pipe develops a tendency to bow out of position. As long as the loops design parameters are not exceeded the loop does not need guides.

However, the Mechanical Contractors Association of America "Guidelines for Quality Piping Installations" section 3 Pipe Hangers and Supports, suggests to ensure movement is directed as expected and if your piping is supported on pipe hangers that will swing more than 4 degrees from vertical when the pipe moves it is recommended that a pipe guide be installed anywhere within 15 pipe diameters on each side of the MetraLoop. Loops anchored on one side need only one guide on the traveling side.

Guiding Requirements - Seismic Movement - When spanning a buildings seismic expansion joint, guides are not required. See page 11.