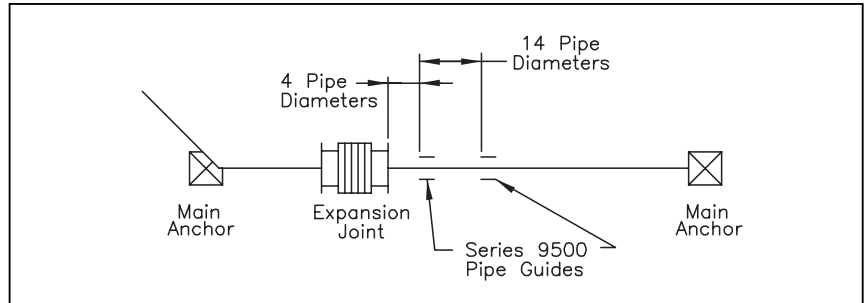


Applications

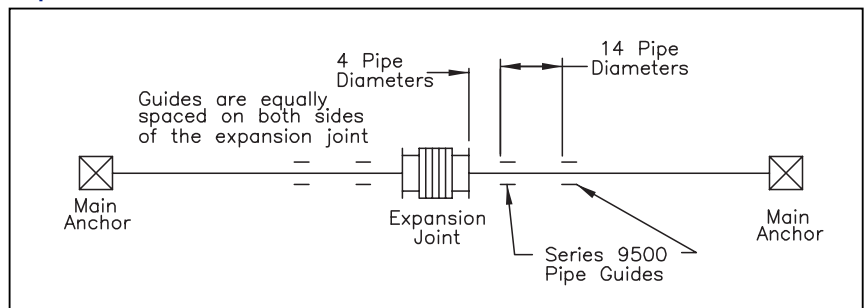
Series 1500 Laminated Bellows Expansion Joints are designed for installations where the principal movement is axial. Standard joints are designed for 2" or 3" axial compression (pipe expansion) and 0.5" and 0.75" extension respectively. If the primary movement is extension (pipe contraction) the joint can be preset at the factory. The piping system must include anchors to react the force produced by pressure thrust and the bellows spring constant, supports to react the weight of the pipe and media, and guides to ensure that the pipe alignment is maintained.

See Hyspan Series 9500 Catalog 1004 for guide spacing in the center of pipe runs.

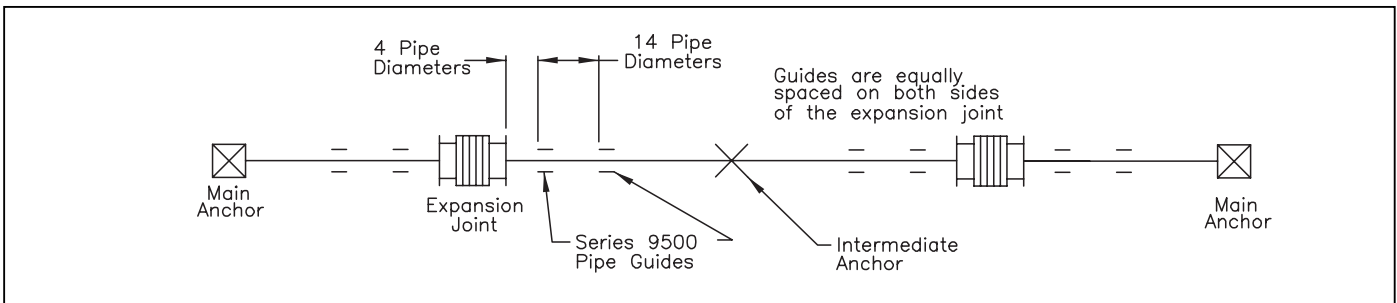
Expansion Joint Adjacent to Main Anchor



Expansion Joint Located in the Middle of a Run



Two or More Expansion Joints with Intermediate Anchors



Anchor Forces

In order to ensure that the pipe movement is absorbed by the expansion joint, the end of the runs must have a rigid structural reaction or main anchor. Main anchors must

react the pressure thrust and bellows spring force. Ideally intermediate anchors have balanced forces on each side of the anchor (if the pipe size is unchanged), however, it is

recommended that the minimum design force should be equal to the bellows spring force at full travel.

$$\text{Main Anchor Force (lbs)} = \left\{ \begin{array}{l} \text{Pressure Thrust*} \\ \text{Force (lbs.) Table 1} \end{array} \right\} + \left\{ \begin{array}{l} \text{Spring Rate (lbs./in.)} \\ \text{Column 3 Table 2 or 3} \end{array} \right\} \times \left\{ \begin{array}{l} \text{Axial Travel (inches)} \\ \text{Column 2 Table 2 or 3} \end{array} \right\}$$

$$\text{Intermediate Anchor Force (lbs.)} = \left\{ \begin{array}{l} \text{Spring Rate (lbs./in.)} \\ \text{Column 3 Table 2 or 3} \end{array} \right\} \times \left\{ \begin{array}{l} \text{Axial Travel (inches)} \\ \text{Column 2 Tables 2 or 3} \end{array} \right\}$$

*Use maximum pressure – including test pressure