

2.12 | Calculating hose length

1

Offset Motion

Offset motion occurs when one end of the hose assembly is deflected in a plane perpendicular to the Longitudinal axis with the ends remaining parallel.

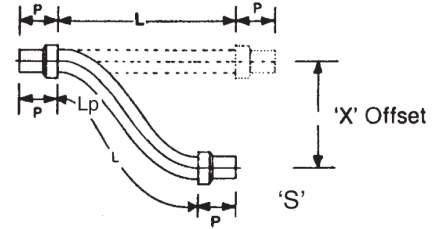
Formula: $L = \sqrt{6RS + S^2}$ $L_p = \sqrt{L^2 - S^2}$

L- Live Hose Length (inches)
 Lp- Projected Live Hose Length (inches)
 R- Minimum Centreline Bend Radius for constant flexing (inches)
 S- Offset Motion to one side of Centreline (inches)

Note 1: When the offset motion occurs to both sides of the hose centreline, use total travel in the formula; i.e. 2 times "S"

Note 2: The offset distance "S" for constant flexing should never exceed 25 percent of the centerline bend radius "R"

Note 3: If the difference between "L" and "Lp" is significant, exercise care at installation to avoid stress on hose and braid at the maximum offset distance.



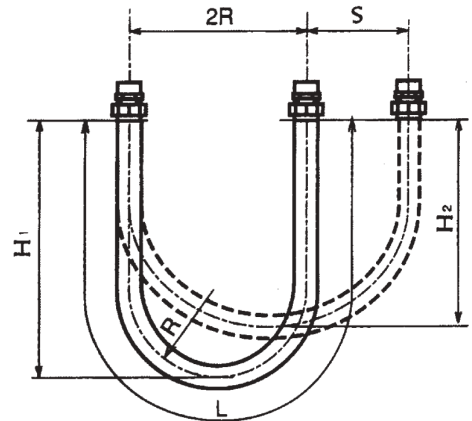
2

Horizontal movable pipe system

$$L = 4R + 1.57S$$

$$H = 1.43R + 0.785S$$

$$H_2 = 1.43R$$



3

Vertical movable pipe system

$$L = 4R + \frac{S}{2}$$

$$H = 1.43R + \frac{S}{2}$$

Illustration of mark

S: Volume of Variation
 L: Length of Flexible hose
 θ : Angle of Variation
 π : Pi 3.142
 R: Min Centre line bend radius for constant flex - see Table 1
 Lp: Project live hose length

