Novaflex®

Engineering Data Sheet

Design Specifications

Hose Bend Radius Definition

The bend radius is the radius of the bent section of hose measured to the hose center-line of the curved portion. It is important because the minimum bend radius is the maximum amount a hose can be bent without being kinked or damaged (on a single plane). A hose that has multiple bends over the same length is extremely challenging and is not addressed.

General formula to calculate bend length:

Angle of Bend

360° x 2 π r = min length of hose to make bend
r = given bend radius

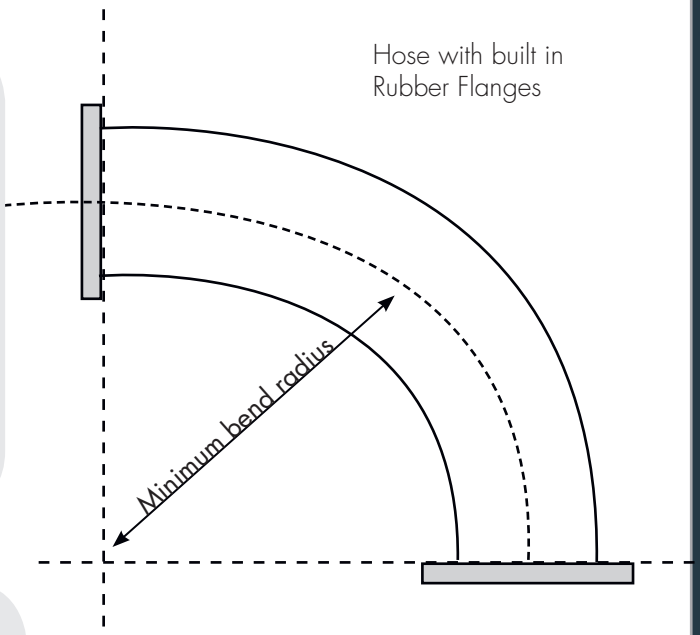
Example:

to make a 90° bend with a hose that has a 6" (152.4mm) I.D.
r = 36 inches (941.4mm)

$$\frac{90°}{360°} \times 2 \times 3.14 \times 36$$

.25 x 2 x 3.14 x 36 = 56.52 inches (1664.21mm)

56.52 inches is the minimum length the hose can be to bend it 90° without damaging it.



Formula to calculate bend length on a hose that has ridged couplings: (remember the hose bend should take place over the entire minimum bend length)

Angle of Bend

(360° x 2 π r)+ (2L + hose ID)= min length of hose to make bend
L = Length of coupling
r = given bend radius

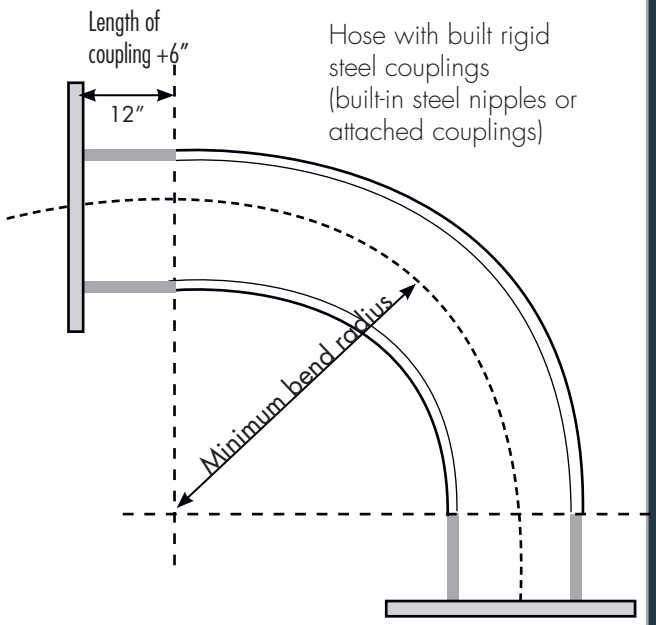
Example:

to make a 90° bend with a hose that has a 6" (152.4mm) I.D.
r = 36 inches (941.4mm)

$$\frac{90°}{(360° \times 2 \times 3.14 \times 36)+(2 \times 12 + 2 \times 6)}$$

(.25 x 2 x 3.14 x 36)+(24 + 12) = 92.52 inches (2350mm)

92.52 inches is the minimum length the hose assembly can be to bend it 90° without damaging it. It is always safe to add the flange thickness of each end if known.



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