

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

$$360^\circ \times 2 \pi r = \text{min length of hose to make bend}$$

$r = \text{given bend radius}$

Example:

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

90°

$$360^\circ \times 2 \times 3.14 \times 36$$

$$.25 \times 2 \times 3.14 \times 36 = 56.52 \text{ inches (1664.21mm)}$$

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

$$(360^\circ \times 2 \pi r) + (2L + \text{hose ID}) = \text{min length of hose to make bend}$$

$L = \text{Length of coupling}$

$r = \text{given bend radius}$

Example:

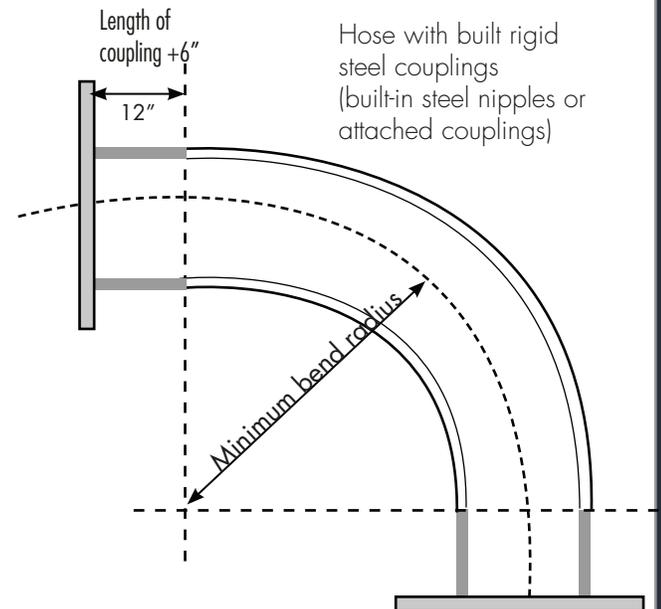
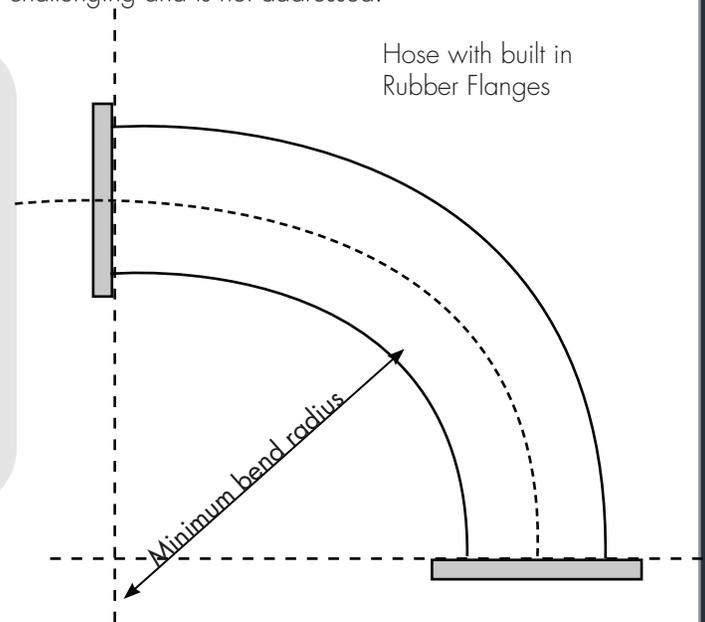
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 $r = 36 \text{ inches (941.4mm)}$

90°

$$(360^\circ \times 2 \times 3.14 \times 36) + (2 \times 12 + 2 \times 6)$$

$$(.25 \times 2 \times 3.14 \times 36) + (24 + 12) = 92.52 \text{ inches (2350mm)}$$

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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