

Calculation of Connection "Sweep Loss"

Formula for "Sweep Loss" Calculation of Integrally Reinforced Forged Connections:

$$\text{Sweep Loss} = R - \sqrt{R^2 - r^2}$$

NOTATION

- SL = Sweep loss, inches
- R = Inside radius of shell or head crown radius, inches
- r = Outside barrel radius of connection, inches
- L = Required overall connection length, inches
- P = Projection of connection from centerline of equipment, inches
- IP = Inside projection of connection, inches

Example:

See Fig.1

Determine the required overall connection length of a 16" - 300 # RFLWN set through a 60" ID Shell.

DESIGN DATA

- L = Required overall connection length, inches
- P = 40 inches projection of connection
- IP = 0.00 inches inside projection of connection
- R = 30 inches inside radius of shell
- r = 9.5 inches outside barrel radius of connection

From the "Sweep Loss" chart or by using the above formula determine the connection sweep loss.

$$SL = R - \sqrt{R^2 - r^2} = 30 - \sqrt{30^2 - 9.5^2} = 1.54 \text{ in.}$$

Determine the required overall connection length "L".

$$L = P - R + SL + IP = 40 - 30 + 1.54 + 0.0 = 11.54 \text{ in.}$$

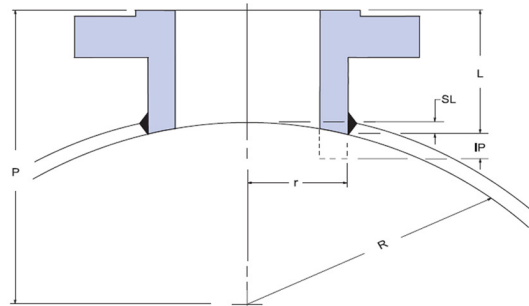


Fig. 1 Radially Installed Connection In Shell