RCB-7.134 TUBESHEET FORMULA - TUBESHEET FLANGED EXTENSION

This paragraph is applicable only when bolt loads are transmitted, at the bolt circle, to the extended portion of a tubesheet. The peripheral portion extended to form a flange for bolting to heads or shells with ring type gaskets may differ in thickness from that portion inside the shell calculated in Paragraph RCB-7.132. The minimum thickness of the extended portion may be calculated from the following paragraphs.

**RCB-7.1341 FIXED TUBESHEET OR FLOATING TUBESHEET EXCHANGERS**

\[
T_r = 0.98 \left[ \frac{M}{S} \left( r^2 - 1 + 3.7 \left( \frac{r}{r_0} - \frac{1}{r_2} \right) \right) \right]^{1/2}
\]

where

- \( T_r \) = Minimum thickness of the extended portion, inches (mm)
- \( A \) = Outside diameter of the tubesheet, inches (mm)
- \( r = \frac{A}{G} \)
- \( M = \) the larger of \( M_1 \) or \( M_2 \) as defined in Paragraph RCB-7.162

Note: The moments may differ from the moments acting on the attached flange.

\( S \) and \( G \) are defined in Paragraph RCB-7.132

**RCB-7.1342 U-TUBE TUBESHEET EXCHANGERS**

\[
T_r = 1.38 \left[ \frac{M^* + M + 0.39 P C^2}{w} \left( \frac{A - G}{S} \right) \right]^{1/2}
\]

where

- \( T_r \) = Minimum thickness of the extended portion, inches (mm)
- \( M^* = \frac{0.069}{\eta} w F^3 P G^3 \left( \frac{T_r}{T} \right)^3 - MG - 0.39 w P G^3 \)
- \( T = \) Effective tubesheet thickness calculated from Paragraph RCB-7.132, inches (mm)
- \( w = \frac{(A - G)}{2} \)
- \( M = \) the larger of \( M_1 \) or \( M_2 \) as defined in Paragraph RCB-7.162

Note: The moments may differ from the moments acting on the attached flange.

\( F, G \) and \( \eta \) are defined in Paragraph RCB-7.132

\( P = P_2 \) or \( P_1 \), or maximum differential pressure, as applicable.

Note: See Paragraph RCB-7.13421 for procedure.