Case N-XXX

Alternative Rules for Fillet Weld Dimensions for Socket Welded Fittings

Inquiry: What alternative rules may be used for fillet weld dimensions for Section III, Division 1, Class 1, 2, and 3 socket welded fittings not meeting the requirements of Figure NB-4427-1(d) note 4, or Figure NCD-4427-1(c-3) note 4?

Reply: It is the opinion of the Committee that the following rules may be used as an alternative for fillet weld dimensions for Section III, Division 1, Class 1, 2, and 3 socket welded fittings not meeting the requirements of Figure NB-4427-1(d) note 4 or Figure NCD-4427-1(c-3) note 4.

Nomenclature:

\[ t_n = \text{Nominal pipe wall thickness} \]
\[ C_X = \text{Actual fillet weld leg length} \]

(1) The minimum fillet weld leg length, \( C_X \), shall be 0.82 \( t_n \), but shall be a minimum of 1/8" for nominal pipe sizes greater than ½".

(2) For Class 1 piping, the \( B_1, B_2, C_1, \) and \( C_2 \) indices shall be determined per NB-3683.4(c). The formulas result in an increase in the value of the stress indices when \( C_X < 1.09 \ t_n \).

(3) For Class 2 and 3 piping, the \( B_1 \) and \( B_2 \) indices shall be determined per Table NCD-3673.2(b)-1. The \( C_2 \) index shall be determined per NB-3683.4(c). The stress intensification factor shall be:

\[ i = 2.1 \left( \frac{t_n}{C_X} \right) \geq 1.3 \quad \text{for} \quad C_X < 1.09 \ t_n \]

All other requirements of Section III, Division 1, Subsections NB or NCD, as applicable, shall be met. The use of this Case number shall be identified on the applicable Data Report Form.