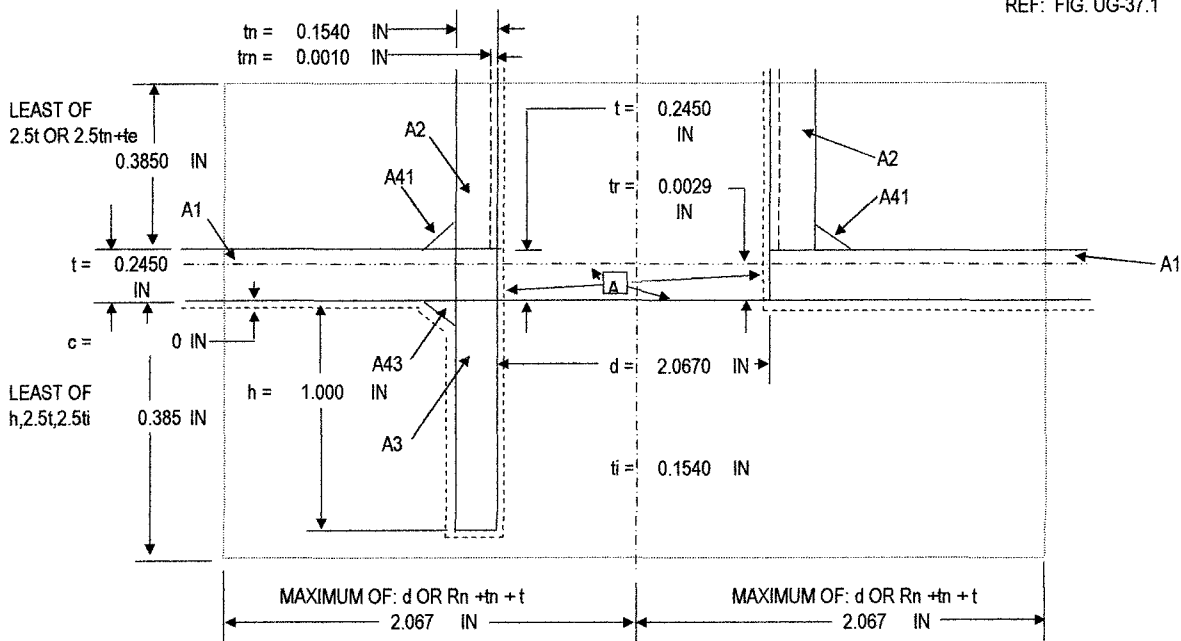


FOR NOZZLE:
LOCATED IN:

WINDOW
SHELL

NO REINFORCING PAD

REF: FIG. UG-37.1



AREAS:

A = TOTAL CROSS SECTIONAL AREA OF REINFORCEMENT
REQUIRED IN THE PLANE OF CONSIDERATION =

0.0060 SQ. IN.

CALCULATION USED PER FIG. UG-37.1

$$A = d \cdot t_r \cdot F + 2 \cdot t_n \cdot t_r \cdot F \cdot (1 - f_r1)$$

A1 = AREA IN EXCESS THICKNESS IN THE VESSEL
WALL AVAILABLE FOR REINFORCEMENT =

0.5004 SQ. IN.

USE: 0.5004 SQ. IN.
OR: 0.1932 SQ. IN.
WHICHEVER IS LARGER

$$A1 = d(E1 \cdot t - F \cdot t_r) - 2 \cdot t_n \cdot (E1 \cdot t - F \cdot t_r) \cdot (1 - f_r1)$$

$$A1 = 2 \cdot (t + t_n) \cdot (E1 \cdot t - F \cdot t_r) - 2 \cdot t_n \cdot (E1 \cdot t - F \cdot t_r) \cdot (1 - f_r1)$$

A2 = AREA IN EXCESS THICKNESS IN THE NOZZLE
WALL AVAILABLE FOR REINFORCEMENT =

0.1178 SQ. IN.

USE: 0.1874 SQ. IN.
OR: 0.1178 SQ. IN.
WHICHEVER IS SMALLER

$$A2 = 5 \cdot (t_n - t_r) \cdot f_r2 \cdot t$$

$$A2 = 5 \cdot (t_n - t_r) \cdot f_r2 \cdot t_n$$

A3 = AREA AVAILABLE FOR REINFORCEMENT WHEN
THE NOZZLE EXTENDS INSIDE THE VESSEL WALL =

0.1186 SQ. IN.

USE: 0.1887 SQ. IN.
OR: 0.1186 SQ. IN.
OR: 0.1186 SQ. IN.
WHICHEVER IS SMALLER

$$A3 = 5 \cdot t_i \cdot f_r2$$

$$A3 = 5 \cdot t_i \cdot f_r2$$

$$A3 = 2 \cdot h \cdot t_i \cdot f_r2$$

A41 = EXTERNAL WELD CROSS SECTIONAL AREA AVAILABLE
FOR REINFORCEMENT =

0.0625 SQ. IN.

$$A41 = (\text{leg})^2 \cdot f_r2$$

A43 = INTERNAL WELD CROSS SECTIONAL AREA AVAILABLE
FOR REINFORCEMENT =

0.0000 SQ. IN.

$$A43 = (\text{leg})^2 \cdot f_r2$$

TOTAL AREA AVAILABLE FOR REINFORCEMENT =

0.7993 SQ. IN.

$$A = A1 + A2 + A3 + A41 + A43$$

TOTAL AREA AVAILABLE = 0.7993
TOTAL AREA REQUIRED = 0.0060

<<THE OPENING IS ADEQUATELY REINFORCED>>