APPENDIX 8
APPLYING LINEAR INTERPOLATION TO THE SECTION II, PART D TABLES TO DETERMINE THE METRIC VALUES

01

Linear interpolation can be applied to the stress, yield strength, and tensile strength tables of this Code in order to determine the appropriate metric values that should be used.

An example of this is as follows: SA-516 Grade 60 is being used in a Section I application at a temperature of 300°C. Convert to degrees Fahrenheit by using the conversion formula $t_F = (t_C \times 1.8) + 32$. The temperature is approximately 570°F, which lies between 500°F and 600°F. The stress values are 17.1 ksi and 16.4 ksi, respectively. Apply linear interpolation using the formula:

$$C_{n+\delta n} = (1 - \delta n)C_n + (\delta n)C_{n+1}$$

$$= (1 - 0.7)16.4 + (0.7)17.1 = 16.9 \text{ ksi}$$

where

$C_{n+\delta n}$ = value of the point to be interpolated
C_n = lower value (e.g., stress)
C_{n+1} = higher value (e.g., stress)
δn = difference between the higher and lower values

The stress value at 300°C is calculated to be 16.9 ksi. Multiply the stress value by 6.895 in order to convert to MPa.

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