High-Speed Fuse Sizing
Effect of Frequency on Fuse Voltage Rating

Example:
Application Voltage Rating (E) = 480Vac
Application Frequency= 25Hz
What is the Min. Fuse Voltage Rating?

\[ E_n \geq \frac{E}{E_f} \]

Where,
- \( E \) – Application Voltage Rating
- \( E_n \) – Rated Voltage of the Fuse
- \( E_f \) – Frequency Correction Factor

\[ \frac{E}{E_f} \geq \frac{480\text{Vac}}{0.9} \geq 533\text{Vac} \]

And thus, the recommendation would be to use a 550Vac or 600Vac rated fuse.
High-Speed Fuse Sizing
Effect of Frequency on Fuse Current Rating

Example:

Adjusted Normal Full-load Current Rating ($I_{AL}$) = 185A
Application Frequency= 5kHz (5000 Hz)
What is the Min. Fuse Rating to be selected?

Frequency correction factor ($E_f$)= 0.8

Min. Fuse Current Rating: $I_N \geq \frac{I_{AL}}{F_{HZ}} \geq \frac{185}{0.8} \geq 231.25$

And thus, the recommendation would be to use a 250A rated fuse.