

Eurocode 3  
Design of steel structures  
EN 1993-1-9 Fatigue

$$\Delta\sigma_c := \begin{matrix} 36 \\ 45 \\ 50 \\ 56 \\ 63 \\ 71 \\ 80 \\ 90 \\ 100 \\ 112 \\ 125 \\ 140 \\ 160 \end{matrix} \frac{N}{mm^2}$$

$$N_R := 1000, 10000 \dots 1 \cdot 10^8$$

$$\Delta\sigma_R(\Delta\sigma_c, N_R) := \text{if} \left( N_R \leq 5 \cdot 10^6, \sqrt[3]{\frac{\Delta\sigma_c^3 \cdot 2 \cdot 10^6}{N_R}}, \sqrt[5]{\frac{\left(\left(\frac{2}{5}\right)^{\frac{1}{3}} \Delta\sigma_c\right)^5 \cdot 5 \cdot 10^6}{N_R}} \right)$$

