Assignment 7: Using a Goodman Diagram

The objective of this assignment is to reinforce what you have learned about constructing and interpreting a Goodman diagram.

Given the following information, construct a **Goodman Diagram** and determine all relevant factors of safety against fatigue.

The **alternating bending moment** on a machine component is 2500 in-lb, and the **mean bending moment** is 3000 in – lb

The cross-sectional area of the component is rectangular with dimension $b x h = 2^{\circ} x 1^{\circ}$ and bending is across the 2° dimension.



The **theoretical stress concentration factor** is 1.180 and the **notch sensitivity** is 0.898.

The ultimate tensile strength, Sut, is 80 ksi and the yield strength, Sy, is 60 ksi.

Reliability is 99.9%

The surface finish on the part is machined.