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2)

$$\text{BOLT DIAMETER} = 12 \text{ mm} = .012 \text{ m}$$

$$\text{BOLT AREA (A)} = \frac{\pi D^2}{4}$$

$$\gamma = 304 \text{ MPa} = 304 \times 10^6 \text{ Pa}$$

$$F = 165 \text{ kN} = 165 \times 10^3 \text{ N}$$

$$\frac{(\pi)(.012)^2}{4} = 1.13 \times 10^{-4} \text{ m}^2$$

↑
A

$$\gamma = \frac{F}{A} \quad \text{so} \quad A = \frac{F}{\gamma} \quad \text{so} \quad \frac{(165 \times 10^3)}{(304 \times 10^6)} = 542.76 \times 10^{-6} \text{ m}^2$$

$$\frac{(542.76 \times 10^{-6})}{(1.13 \times 10^{-4})} = 4.8 \leftarrow \text{THEREFOR, } \underline{5} \text{ BOLTS REQUIRED}$$