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Question:

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Answer:

(i) efficiency of screw $\eta = \tan \alpha / \tan(\alpha + \phi)$ And for self locking screws, $\phi \geq \alpha$ or $\alpha \leq \phi$ Efficiency $\leq \tan(\phi) / \tan(\phi + \phi) \leq \tan \phi / \tan 2\phi \leq \tan \phi / (2 \tan \phi / (1 - \tan^2 \phi)) \leq \tan \phi \times (1 - \tan^2 \phi) / (2 \tan \phi) \leq \frac{1}{2} - \tan^2 \phi / 2$ From this expression efficiency of self locking screw is less than 50%
