ME 360 21.12.03

$$T_{UP} = \frac{P d_p}{2} \frac{(\mu \cos\lambda + \sin\lambda)}{(\cos\lambda - \mu \sin\lambda)}$$ Eq 15.4d

$\Sigma F_x = 0 \quad \Sigma F_y = 0 \quad f = \mu N$

μ = friction on threads

$$T_{DOWN} = \frac{P d_p}{2} \frac{(\mu \cos\lambda - \sin\lambda)}{(\cos\lambda + \mu \sin\lambda)}$$ Eq ???

square

Acme

friction in collar

$$T_{UP} = \frac{P d_p}{2} \frac{(\mu + \tan\lambda \cos\alpha)}{(\cos\alpha - \mu \tan\lambda)} + \frac{P \mu_c d_c}{2}$$

Eq 15.5a

ok for square threads $\alpha = 0$

Acme threads $\alpha = 14.5°$

$$\tan\lambda = \frac{L}{\pi d_p} = \frac{p\, N_{THR}}{\pi d_p}$$

ok for machine screws and bolts $\alpha = 30°$

$$\tan\lambda = \frac{p}{\pi d_p}$$

Norton use $\mu = 0.15$

d_c = mean diameter of nut $\mu_c = 0.15$

used that Equation for all entries in

Table 15-1

and got $K_i = 0.21$ or $K_i = 0.22$

Table 15-11