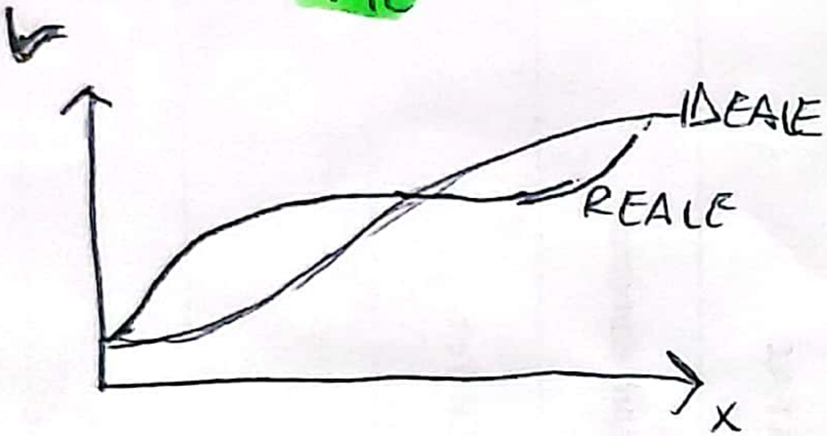
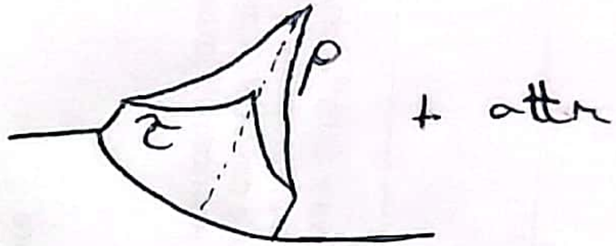
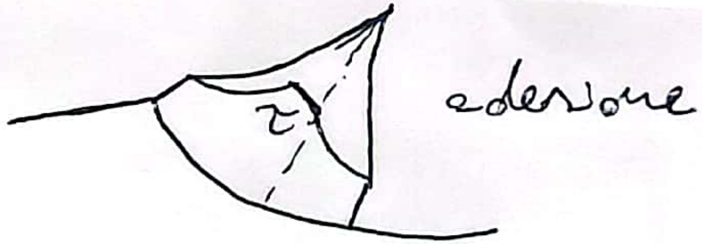
LAMINAZ.

$$s = \frac{V_f - V_r}{V_r}$$ slittam

$$\frac{h_0}{2} = \frac{h_f}{2} + (R - R\cos\alpha)$$







LAMINAZ. IMB. E TRASC.

$F_{N0} = F_N \operatorname{sen}\alpha$ $\qquad F_T = \mu F_N$

$F_{T0} = F_T \cos\alpha$

$\mu \geq tg\,\alpha$

$\mu \geq \alpha$

$\mu = \tan\theta$

$\theta > \alpha$

$l = R\alpha$

$\Delta h : l = l : R$

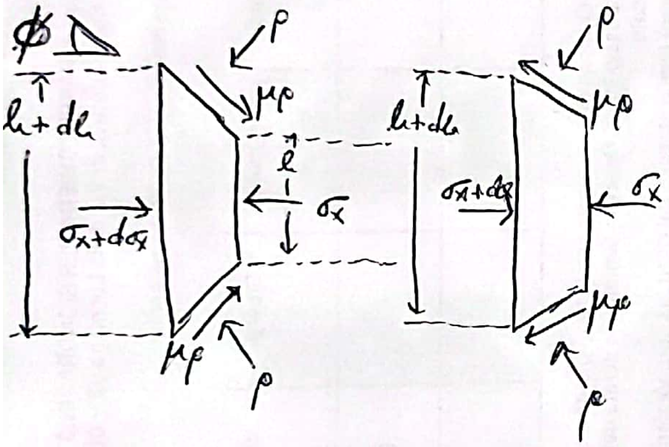
$tg\,\alpha \simeq \alpha \simeq \sqrt{\frac{\Delta h}{R}}$

$\Delta h = \frac{l^2}{R}$

trasc: $\theta \geq \frac{\alpha}{2}$

$\mu \geq \sqrt{\frac{\Delta h}{R}}$

LAMINAZ. SLAB



$(\sigma_x + d\sigma_x)(h + dh) - 2pR\,d\phi \operatorname{sen}\phi$

$-\sigma_x h \pm 2\mu p R\, d\phi \cos\phi = 0$

$$\frac{d(\sigma_x h)}{d\phi} = 2pR(\operatorname{sen}\phi \mp \mu\cos\phi)$$

α piccolo $\rightarrow \begin{cases} \operatorname{sen}\phi = \phi \\ \cos\phi = 1 \end{cases}$

$$V.M. \rightarrow \frac{d[(p - Y_f)h]}{d\phi} = 2pR(\phi \mp \mu)$$

$$Y_f h \frac{d}{d\phi}\left(\frac{p}{Y_f}\right) + \left(\frac{p}{Y_f} - 1\right)\underbrace{\frac{d}{d\phi}(Y_f h)}_{=0;\ Y_f h = cost} = 2pR(\phi \mp \mu)$$

$$\frac{\frac{d}{d\phi}\left(\frac{p}{Y_f}\right)}{\frac{p}{Y_f}} = \frac{2R}{h}(\phi \mp \mu)$$

$$H = 2\sqrt{\frac{R}{h_f}}\, tg^{-1}\left(\sqrt{\frac{R}{h_f}} \cdot \phi\right)$$

$$p = Y_f \frac{h}{h_0} e^{\mu(H_0 - H)}$$

$$p = Y_f \frac{h}{h_f} e^{\mu H}$$

+ C.C.

ingresso $\phi = \alpha \rightarrow H = H_0;\ p = Y_f$

uscita $\phi = 0 \rightarrow H = H_f = 0;\ p = Y_f$

$$\phi_n = \sqrt{\frac{h_f}{R}}\, tg\left(\sqrt{\frac{h_f}{R}} \cdot \frac{H_n}{2}\right)$$