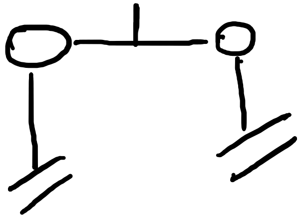
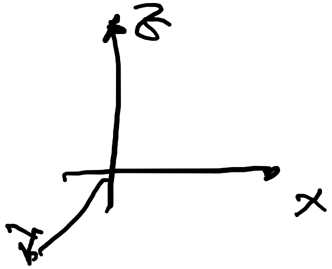
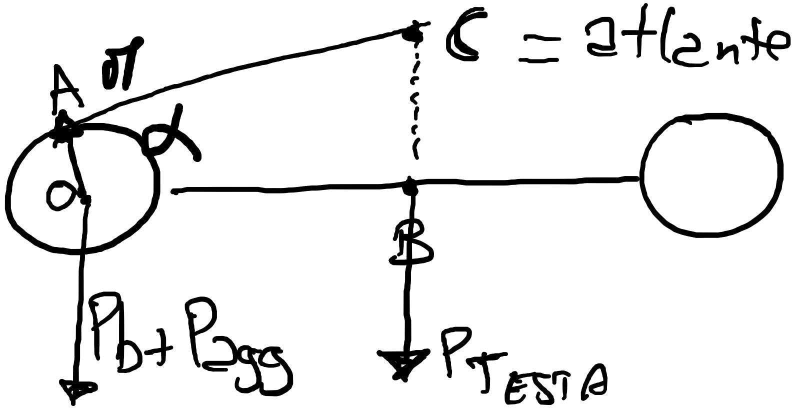






$\alpha = 30°$

$m_{ogg} = 10\,kg$

$P_{ogg} = 100\,N$

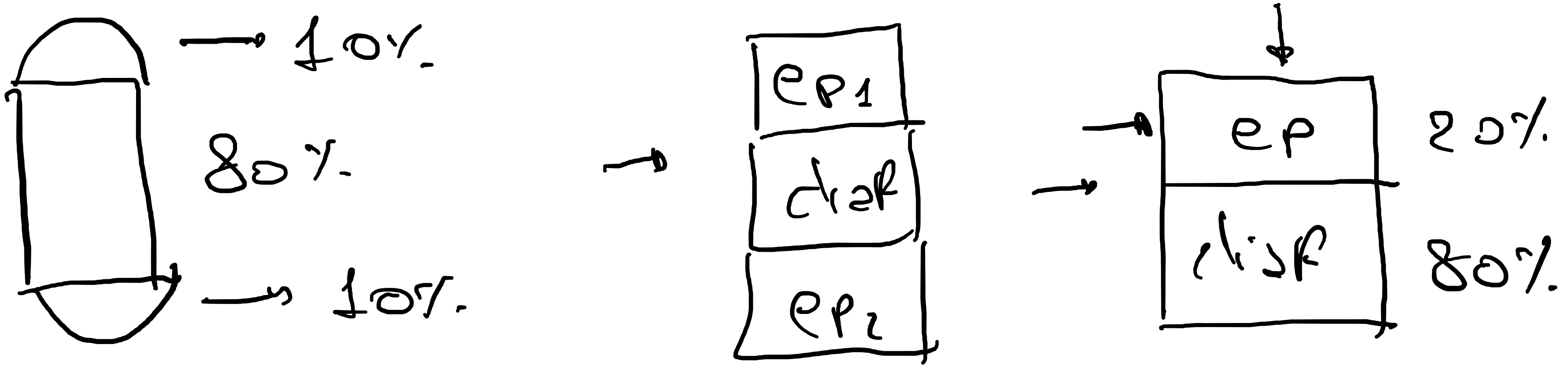
$$M \cdot OA = P_T \cdot OB \qquad M = P_T \frac{OB}{OA} = P_T \cdot K \qquad OB \Rightarrow 3 - 10\ cm$$

$$OA \Rightarrow 1 - 1.5\ cm$$

$$R_z = -P_T - P_b - P_{agg} - M \sin\alpha = -P_T - P_b - P_{agg} - K P_T \sin\alpha$$

$$R_{xy} = -M \cos\alpha = -P_T K \cos\alpha$$

$$R = \sqrt{R_z^2 + R_{xy}^2}$$



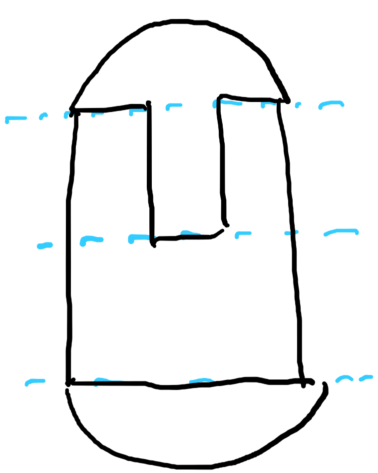
Osso sano

$$E_z = \frac{E_p \cdot E_d^{z}}{0.8\, E_p + 0.2\, E_d^{z}} = \frac{0.5 \cdot 17}{0.8 \cdot 0.5 + 0.2 \cdot 17} \simeq \frac{8.5}{0.4 + 3.4} \simeq$$

$$\simeq \frac{8.5}{3.8} \simeq 2.2 \text{ GPa.}$$

$$E_{xy} \simeq 0.2 \cdot E_p + 0.8\, E_d^{xy} = 0.2 \cdot 0.5 + 0.8 \cdot 12 = 0.1 + 9.6 \simeq$$

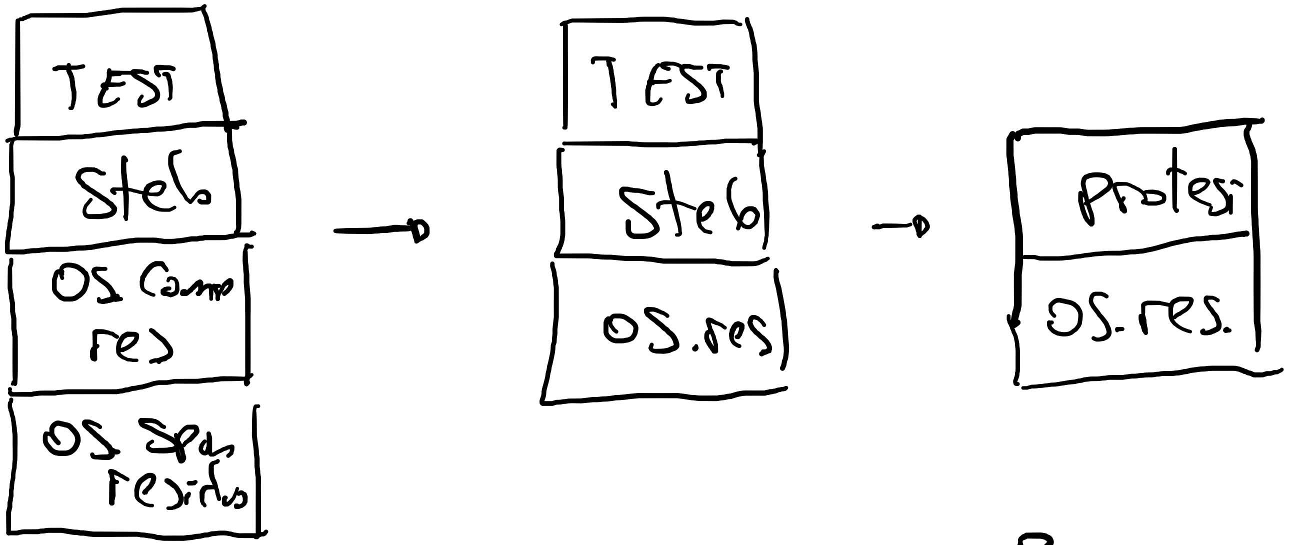
$$\simeq 9.7 \text{ GPa.}$$



h stelo

l stelo

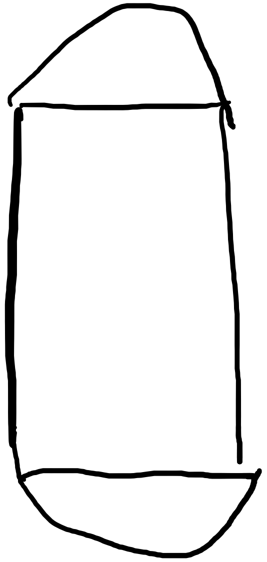
l testina



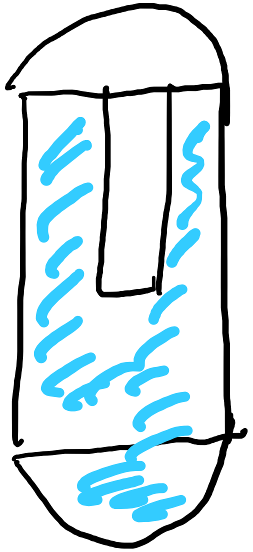
$$E_{o,r} = E_o (1-p)^{\alpha} \cdot A^{\beta} \dot{\varepsilon} \delta^{\gamma}$$

$$E_{o,r} = E_o (1-f_{ST})^{\alpha}$$

$$\begin{cases} E_o^{z} = \dfrac{E_p \cdot E_{osres}^{z}}{f_p \cdot E_{osres}^{z} + f_{osres} E_p} \\ E_o^{xy} = f_p E_p + f_{osres} E_{os.res}^{xy} \\ f_p + f_{osres} = 1 \end{cases}$$



$$V_{TOT} = \frac{4}{3}\pi r^3_{om} + \pi r^2_{om} \cdot h_{om}$$

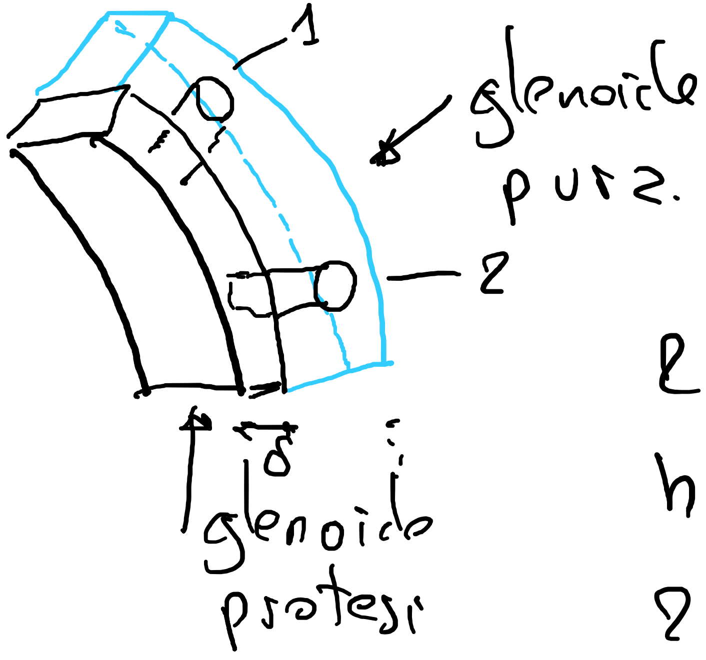


$$V_{proteji} = \pi r^2_{st} h_{st} + \frac{2}{3}\pi r^3_{test}$$

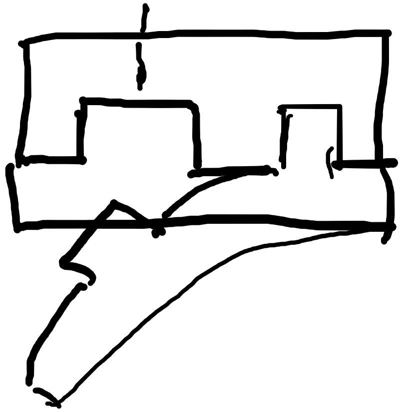
$$f_{Prot} = \frac{\pi r^2_{st} h_{st} + \frac{2}{3}\pi r^3_{test}}{\frac{4}{3}\pi r^3_{om} + \pi r^3_{om} h_{om}}$$

$$V_{oss.\,res} = \frac{2}{3}\pi r^3_{om} + \left(\pi r^2_{om} \cdot h_{om} - \pi r^2_{st} h_{st}\right)$$

$$f_{oss\,res} = \frac{\frac{2}{3}\pi r^3_{om} + \left(\pi r^2_{om} \cdot h_{om} - \pi r^2_{st} h_{st}\right)}{\frac{4}{3}\pi r^3_{om} + \pi r^2_{om} \cdot h_{om}}$$



$E_g^z = 17$ GPa $\quad E_g^{xy} = 12$ GPa.



l_{p1}

h_{p1}

l_{p2}

h_{p2}.

d_{gle}

$l_{int\ glenoi}$

l_p

h_p

d_{gle}

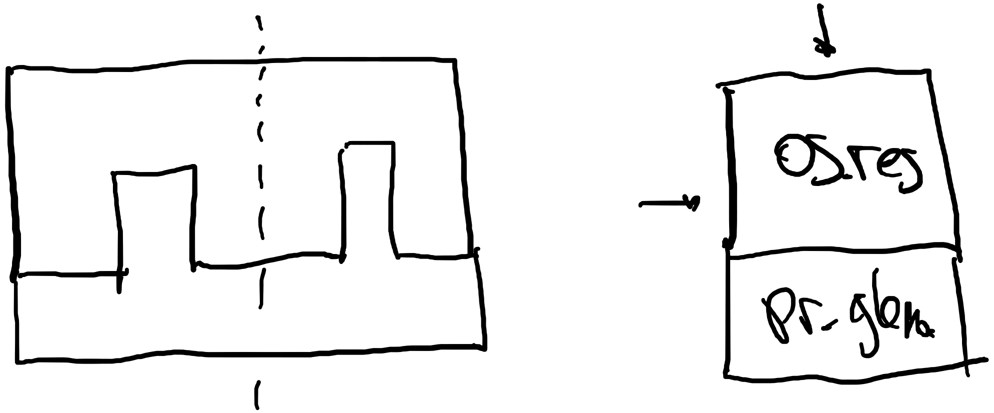
l_{int} glenoide.

$l_{p1} = l_{p2}$

$h_{p1} = h_{p2}$

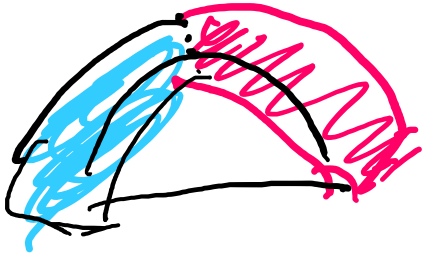
l_{int} glenoide $=$

l_{test}

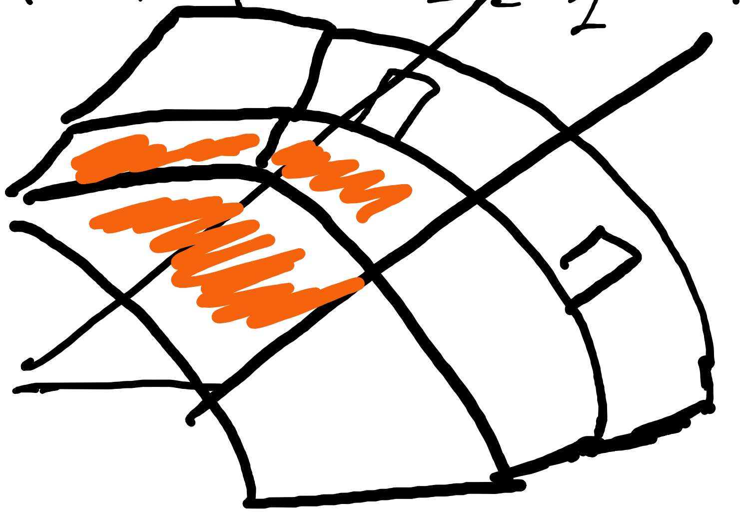


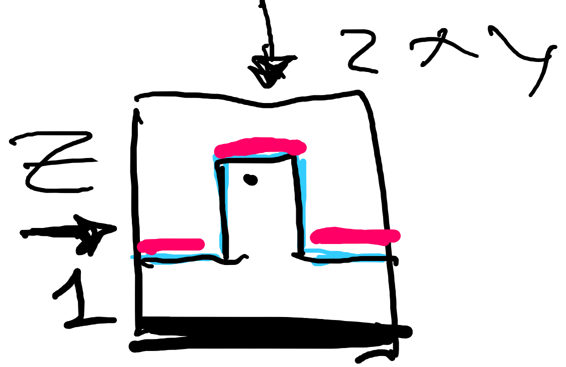
$$\begin{cases} E_z = \dfrac{E_{os.res}^z \cdot E_{pr}}{f_{os.res} E_{pr} + f_{pr} \cdot E_{os.res}^z} \\ E_{xy} = f_{pr} E_{pr} + f_{os.res} E_{os.res}^{xy} \\ f_{pr} + f_{os.res} = 1 \end{cases}$$

$$V_{TOT} = \frac{1}{3}\pi r_{e.}^3 8 - \frac{1}{3}\pi r_{om}^3$$



$$V_{TOT}^{eff} = \frac{1}{2} V_{TOT}$$





$$f_p = \frac{V_p}{V_{poi}^{eff}} = \frac{\pi r_p^2 h_p + \frac{1}{6}\pi\left(2 r_{int\,g} + \delta_{gle}\right)^3 - \frac{1}{6}\pi\left(2 r_{int\,g}\right)^3}{V_{poi}^{eff}}$$

$$f_{losses} = \frac{\frac{1}{6}\pi\, 2 r_{ext\,g}^{3} - \frac{1}{6}\pi\left(2 r_{int\,g} + \delta_{gle}\right)^3 - \pi r_p^2 h_p}{V_{poi}^{eff}}$$

$$\sigma_z = \sigma_{xy} \Longrightarrow \frac{R_z}{2\pi r_p h_p} = \frac{R_{xy}}{\frac{\pi}{2}\left(R_{int\,g} + \delta_g\right)^2}$$

Se la parte glenoidea è tutto in materiale polimerico, considero il tasso di usura e quindi fisso il glenoideo, gli unici parametri da dimensionare sono r_p, h_p.