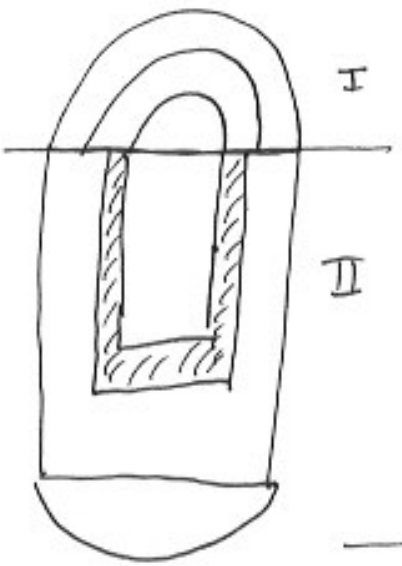
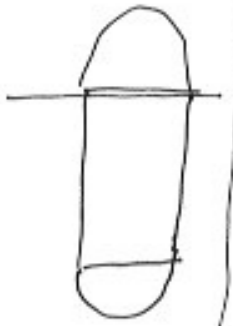


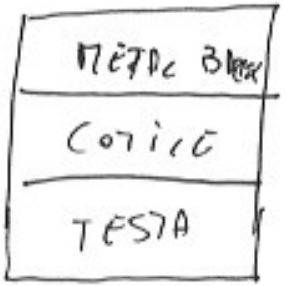
I Omogonittazione parziale
Omogonittazione totale
Puntuale parziale
II Puntuale Totale

1° passo



$$\begin{cases} \frac{1}{E_z} = \frac{f_{PPL}}{E_{OS}} + \frac{f_{diaf}}{E_{oc}^z} + \frac{f_{PP2}}{E_{OS}} \\ E_{xy} = f_{PP1} E_{OS} + f_{diaf} E_{oc}^{xy} + f_{PP2} E_{OS} \\ f_{PP1} + f_{PP2} + f_{diaf} = 1 \end{cases}$$

Blocco I



$$\begin{cases} \frac{1}{E_z} = \frac{f_{MB}}{E_{MB}} + \frac{f_{CON}}{E_{CON}} + \frac{f_{TEST}}{E_{TEST}} \\ E_{xy} = f_{MB} E_{MB} + f_{CON} E_{CON} + f_{TEST} E_{TEST} \\ f_{MB} + f_{CON} + f_{TEST} = 1 \end{cases}$$

$$V_{epp1} = \frac{2}{3} \pi R_{pp1}^3$$

$$f_{MB} = \frac{\frac{2}{3} \pi R_{MB2}^3 - \frac{2}{3} \pi R_{MB1}^3}{\frac{2}{3} \pi R_{pp1}^3}$$

$$f_{COT} = \frac{\frac{2}{3}\pi R^3_{COTest} - \frac{2}{3}\pi R^3_{COTin}}{\frac{2}{3}\pi R^3_{epi}}$$

$$f_{TEST} = \frac{\frac{2}{3}\pi R^3_{TEST}}{\frac{2}{3}\pi R^3_{epi}}$$

$R_{estino} = R_{CA}$

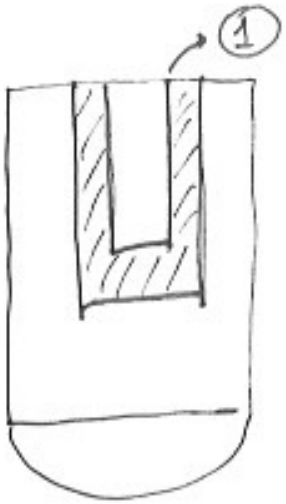
$R_{inTB} = R_{estCOT}$

$R_{inCOT} = R_{TEST}$

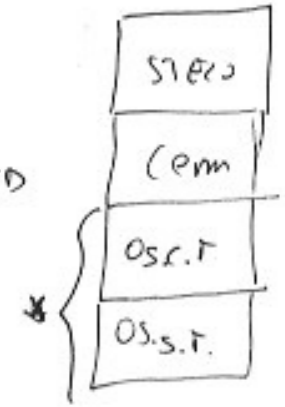
I $t_{osso\,sen}$

II $t_{oss.\,sen}$

$$\frac{1}{\varepsilon_{os}} = \frac{f_I}{\varepsilon_{o^2}} + \frac{f_{II}}{\varepsilon_{o\,t}} =$$



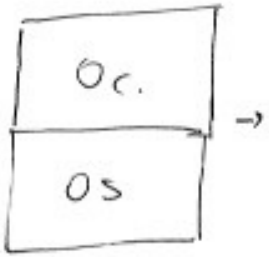
⇒



$$\begin{cases} \dfrac{1}{E_z} = \dfrac{f_{ST}}{E_{ST}} + \dfrac{f_{cem}}{E_{cem}} + \dfrac{f_{osc.r}}{E_{osc.r}} + \dfrac{f_{ossp.r}}{E_{os.r.}} \\ E_{xy} = f_{ST}E_{ST} + f_{cem}\cdot E_{cem} + f_{osc.r}E_{osc.r} + f_{ossp.r}E_{ossp.r} \\ f_{ST} + f_{cem} + f_{osc.r} + f_{os.spr} = 1 \\ \dfrac{R_z}{\pi R^2 s t} = \dfrac{R_{xy}}{2\pi R s t h s t} \end{cases}$$

$$E_{oc.r} = E_o (1-p)^{\alpha} A^{\beta} \dot{\varepsilon}^{\gamma}$$

$$E_{osr} = E_{oso}(1-p)^{\alpha} A^{\beta} \dot{\varepsilon}^{\gamma}$$



$$\frac{1}{E^1_{zo}} = \frac{f_{oc.}}{E_z^{o.c}} + \frac{f_{os}}{E'_{os}}$$

$$E^1_{xyo} = f_{oc} E^{oc}_{x,1} + f_{os} E_{os}$$

$$E^1_z = E^{-1}_{zo} (1-p)^{\alpha} A^{\beta} \dot{\varepsilon}^{\gamma}$$

70% — 15

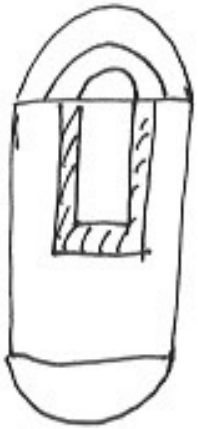
$$f_{oc} + f_{os} = 1$$

$100 : 85 = 70 : x \quad f'_{os}$

$100 : 85 = 15 : x \quad f'_{os.}$

$$\begin{cases} \dfrac{1}{E_t} = \dfrac{f_{ST}}{E_{ST}} + \dfrac{f_{cem}}{E_{cem}} + \dfrac{f_{OST}}{E_{OT}} \\ E_{xy} = f_{ST} E_{ST} + f_{cem} E_{cem} + f_{OST} E_{OT} \\ f_{ST} + f_{cem} + f_{OST} = 1 \end{cases}$$

Omogeneizzazione Completa



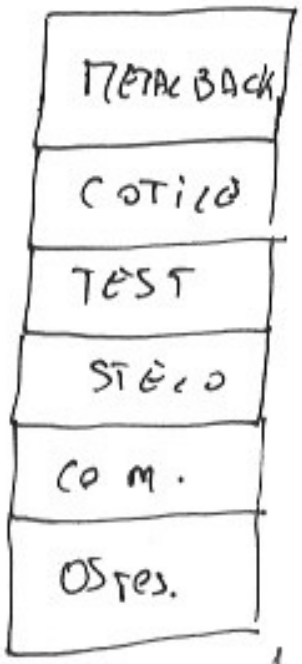
1° passo $\dfrac{1}{E_z} = \dfrac{f_{ap1}}{E_{p1}} + \dfrac{f_{oc}}{E_{oc}^{xy}} + \dfrac{f_{ap2}}{E_{p2}}$

$$E_{xy} = f_{ap1} E_{p1} + f_{oc} E_{oc}^{xy} + f_{ap2} E_{p2}$$

$$E_{appos}^{z} = E_z (1-p)^{\alpha} A^{\beta} \dot{\varepsilon} \int^{\gamma}$$

$$E_{oppos}^{xy} = E_{xy} (1-p)^{\alpha} A^{\beta} \dot{\varepsilon} \int^{\gamma}$$

$$p = f_{cem} + f_{ST}$$

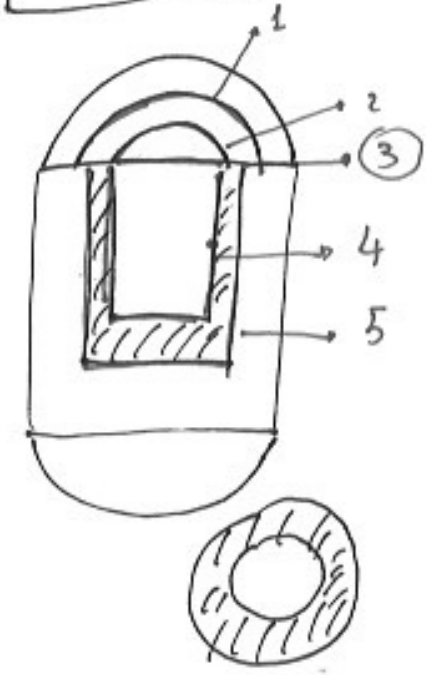


$$\frac{1}{E_z} = \frac{f_{MB}}{E_{MB}} + \frac{f_{COT}}{E_{COT}} + \frac{f_{TEST}}{E_{TEST}} + \frac{f_{STEMO}}{E_{ST}} + \frac{f_{CEM}}{E_{CEM}} + \frac{f_{OS.RES}}{E_{OS.R.}}$$

$$E_{xy} = f_{MB} E_{MB} + f_{COT} E_{COT} + f_{TEST} E_{TEST} + f_{STEMO} E_{STEMO} + f_{CEM} E_{CEM} + f_{OSR} E_{OSR}^{x,y}$$

$$f_{MB} + f_{COT} + f_{TEST} + f_{STEMO} + f_{CEM} + f_{OS.R} = 1$$

$$6_4) \quad \frac{R_z}{\pi R^2_{ST}} = \frac{R_{xy}}{2\pi R_{st} h_{st}}$$



$$6_5) \quad \frac{R_z}{\pi (R_{ST} + \delta_{cem})^2 - \pi R_{st}^2} = \frac{R_{xy}}{2\pi (R_{st} + \delta_{cem})(h_{st} + \delta_{cem})}$$

$$6_1) \quad \frac{R_z}{2\pi R^2_{COT}} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{COT}}{h_{COT}}}$$

Incognite
R_{MDest}, R_{BMant}
R_{coest}, R_{comt}
R_{TEST}
R_{STEMO}, h_{STEMO}
Spessore

$R_{OTBEST} = R_{C.A}$

$R_{OTBINT} = R_{COTEST}$

$R_{COTINT} = R_{TESTINA}$

$\delta_{COT} = 10.2.\,mm.$

Incognite

R_{TEST}

h_{STERO}, R_{STERO}

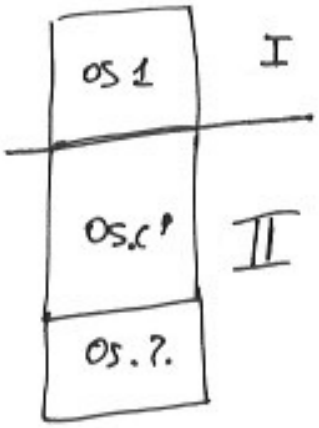
Sp cem.

$$E = E_0(1-p)^5 = E_0(1-p)^2(1-p)^3 =$$

$$= E_0(1-p)^2 \qquad 1-3p'-3p-p^3$$

$$E = E_0[(1-5p)+o(x^2)]$$

Puntuale parziale



blocco I

$$\varepsilon_z = \frac{R_z}{2\pi R^2_{ep1}} \cdot \frac{1}{\bar{E}_{P1}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep1}}{h_{ep1}}} \cdot \frac{1}{\bar{E}_{P1}}$$

$$\varepsilon_z = \frac{R_z}{2\pi R^2_{mB}} \cdot \frac{1}{\bar{E}_{mB}} + \frac{R_z}{2\pi R^2_{cot}} \cdot \frac{1}{\bar{E}_{cot}} + \frac{R_z}{2\pi R^2_{test}} \frac{1}{\bar{E}_{test}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{mB}}{h_{mB}}} \cdot \frac{1}{\bar{E}_{mB}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{cot}}{n_{cot}}} \cdot \frac{1}{\bar{E}_{cot}} + \frac{R_{xy}}{2\pi \frac{R^3_{test}}{h_{test}}} \cdot \frac{1}{\bar{E}_{test}}$$

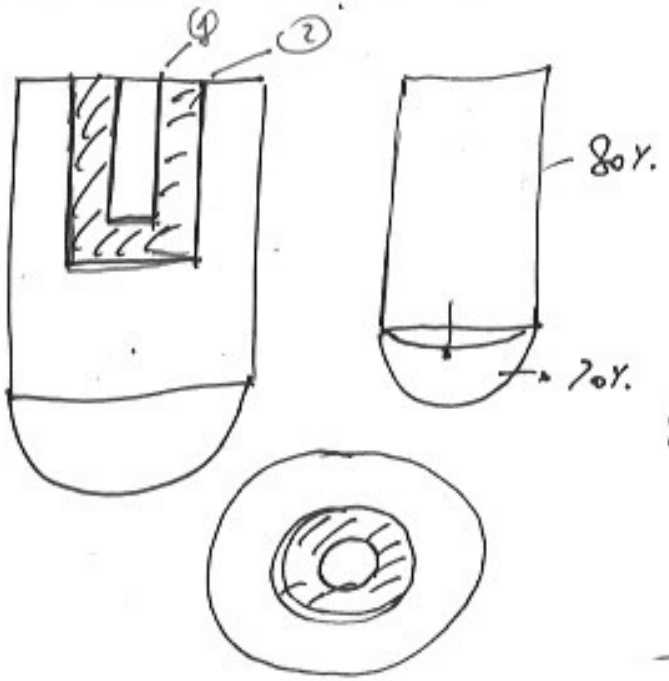
$R_{mB\,est} = R_{CA}$

$R_{mB\,int} = R_{cot\,est}$

$R_{cot\,int} = R_{test}$

$\delta_{cot} = 1a?\,mm.$

6.1) $$\frac{R_z}{2\pi R^2_{mB_{int}}} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{mB_{int}}}{h_{mB}}} \qquad \frac{R_z}{2\pi R^2_{cot}} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{cot}}{n_{cot}}}$$



blocco II

$$\varepsilon_z = \frac{R_z}{\pi R_f^2} \cdot \frac{1}{\bar{\varepsilon}_{oc}^z} + \frac{R_z}{2\pi R_{ap_1}^2} \cdot \frac{1}{\bar{\varepsilon}_{os}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{2\pi R_f h_f} \frac{1}{\bar{\varepsilon}_{oc}^{xy}} + \frac{R_z}{\frac{2}{3}\pi \frac{R_{ap_1}^3}{h_{ap_1}}} \cdot \frac{1}{\bar{\varepsilon}_{os}}$$

$$\varepsilon_z = \frac{R_z}{\pi R_{st}^2} \cdot \frac{1}{\bar{\varepsilon}_{ST}} + \frac{R_z}{\pi (R_{st} + \delta_{cem})^2 - \pi R_{ST}^2} \cdot \frac{1}{\bar{\varepsilon}_{cem}} + \frac{R_z}{\pi R_f^2 - \pi (R_{ST} + \delta_{rem})^2} \frac{1}{\bar{\varepsilon}_{os}}$$

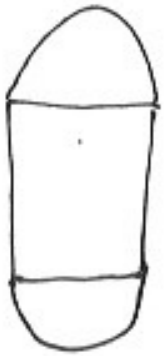
$$+ \frac{R_z}{2\pi R_{ap}^2} \cdot \frac{1}{\bar{\varepsilon}_{os}^z}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{2\pi R_f h_f} \cdot \frac{1}{\bar{\varepsilon}_{oc}^{xy}} + \frac{R_{xy}}{2\pi (R_{st} + \delta_{rem}) \cdot (h_{st} + c_{em})} \cdot \frac{1}{\bar{\varepsilon}_{cem}} + \frac{R_{xy}}{2\pi R_{st} h_{st}} \cdot \frac{1}{\bar{\varepsilon}_{ST}} +$$

$$+ \frac{R_{xy}}{\frac{2}{3}\pi \frac{R_{ap_1}^3}{h_{ap_1}}} \cdot \frac{1}{\bar{\varepsilon}_{os}}$$

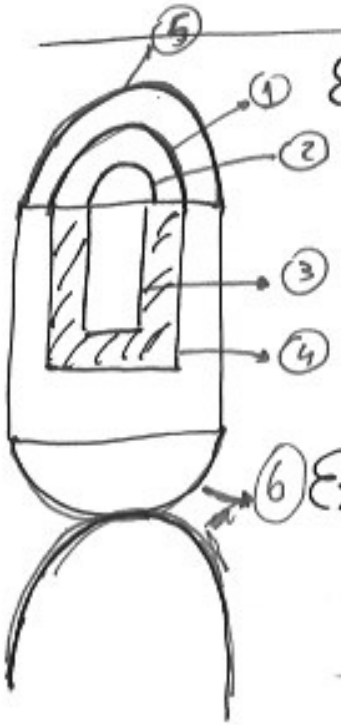
61) $\frac{R_z}{\pi R_{ST}^2} = \frac{R_{xy}}{2\pi R_{st} h_{st}}$

Metodo Puntuale Totale



$$\varepsilon_z = \frac{R_z}{2\pi R^2_{ep1}} \cdot \frac{1}{E_{os}} + \frac{R_z}{\pi R^2 f_{am}} \cdot \frac{1}{E^z_{oc}} + \frac{R_z}{2\pi R^2_{ep1}} \cdot \frac{1}{E_{os}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep1}}{h_{ep1}}} \cdot \frac{1}{E_{os}} + \frac{R_{xy}}{2\pi R_f . h_{fam}} \cdot \frac{1}{E^{xy}_{oc}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep1}}{h_{ep..}}} \cdot \frac{1}{E_{os}}$$



$$\varepsilon_z = \frac{R_z}{2\pi R^2_{mB}} \cdot \frac{1}{E_{mB}} + \frac{R_z}{2\pi R^2_{cor}} \cdot \frac{1}{E_{cor}} + \frac{R_z}{2\pi R^2_{test}} \cdot \frac{1}{E_{test}} + \frac{R_z}{\pi R^2_{st}} \cdot \frac{1}{E_{st}} +$$

$$+ \frac{R_z}{\pi (R_{st}+\delta_{cem})^2 - \pi R^2_{st}} \cdot \frac{1}{E_{cem}} + \frac{R_z}{\pi R^2_f - \pi (R_{st}+\delta_{cem})^2} \cdot \frac{1}{E^z_{oct}} + \frac{R_z}{2\pi R^2_{ep1}} \cdot \frac{1}{E_{osres}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{mB}}{h_{mB}}} \cdot \frac{1}{E_{mB}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{cor}}{h_{cor}}} \cdot \frac{1}{E_{cor}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{test}}{h_{test}}} \cdot \frac{1}{E_{test}} + \frac{R_{xy}}{2\pi R_f . h_f} \cdot \frac{1}{E^{xy}_{oct}}$$

$$+ \frac{R_{xy}}{2\pi (R_{st}+\delta_{cem})(h_{st}+h_{cem})} \cdot \frac{1}{E_{cem}} + \frac{R_{xy}}{2\pi R_{st} h_{st}} \cdot \frac{1}{E_{st}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep1}}{h_{ep1}}} \cdot \frac{1}{E_{osres}}$$

$R_{MB_{est}} = R_{CA}$

$R_{MB,INT} = R_{COT\,EST}$

$R_{COT\,INT} = R_{TEST}$

$\delta_{COT} = 10.2$ mm.

Incognite

R_{TEST}

R_{STEEL}

h_{STEEL}

$\delta_{CEM.}$