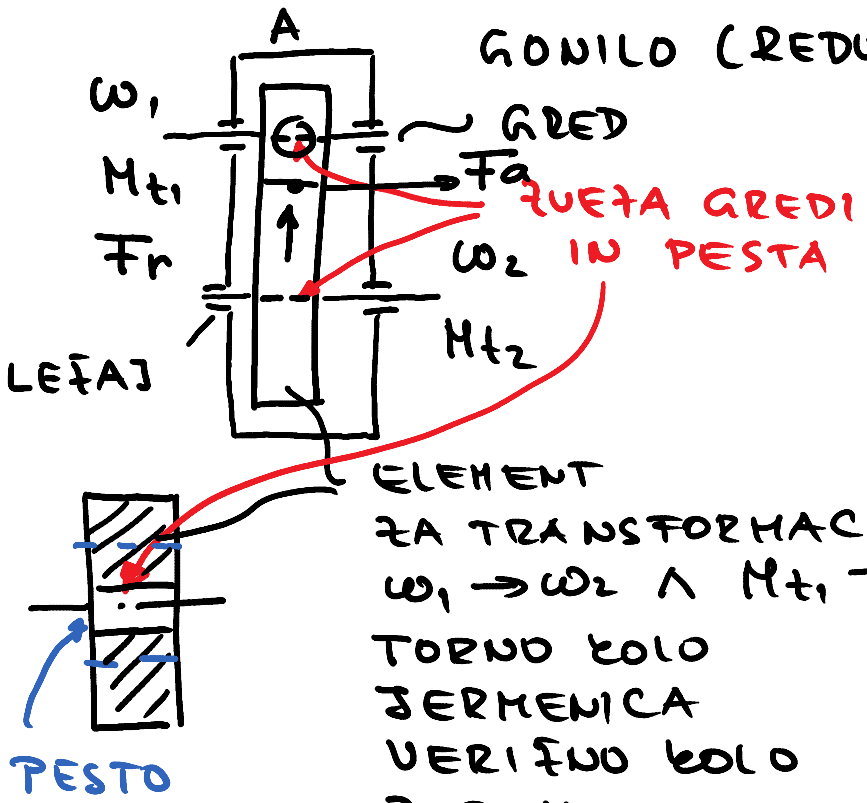
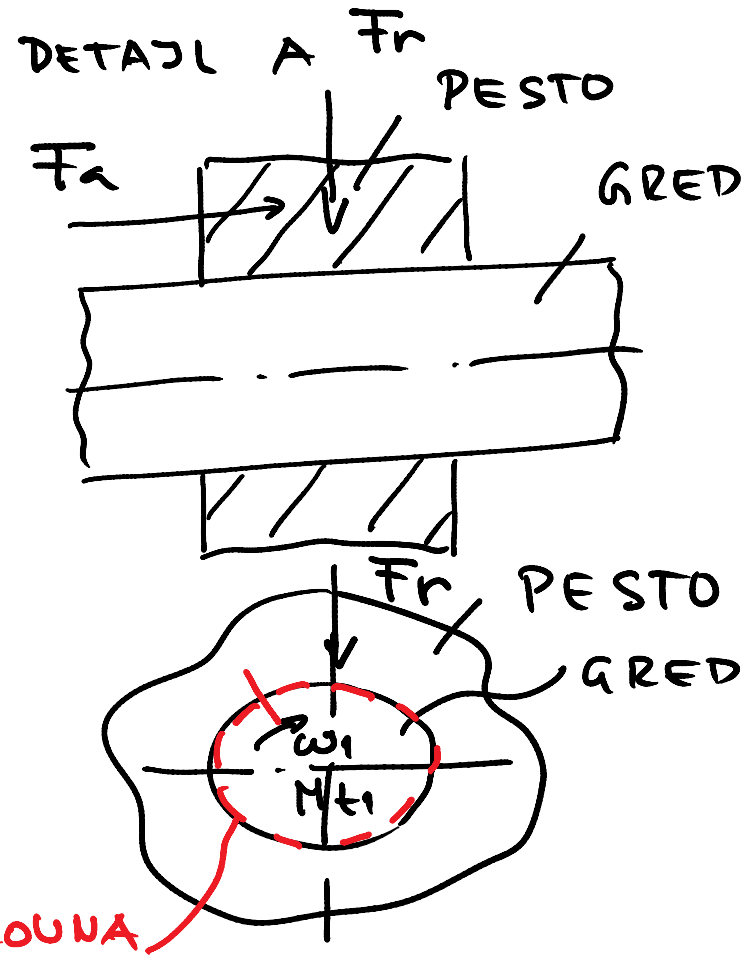
ZUEŽE GREDI IN PESTA

GONILO (REDUKTOR, MULTIPLIKATOR)





OMOGOČA : PRENOS M_{t1}
PRENOS F_a
PRENOS F_r

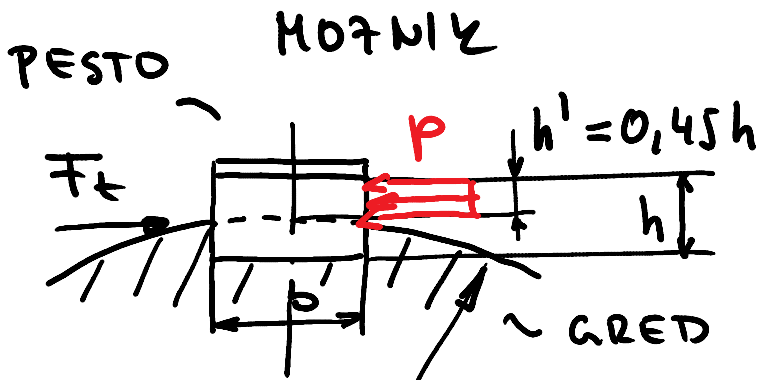
ŽUEŽE GREDI IN PESTA DELIMO :

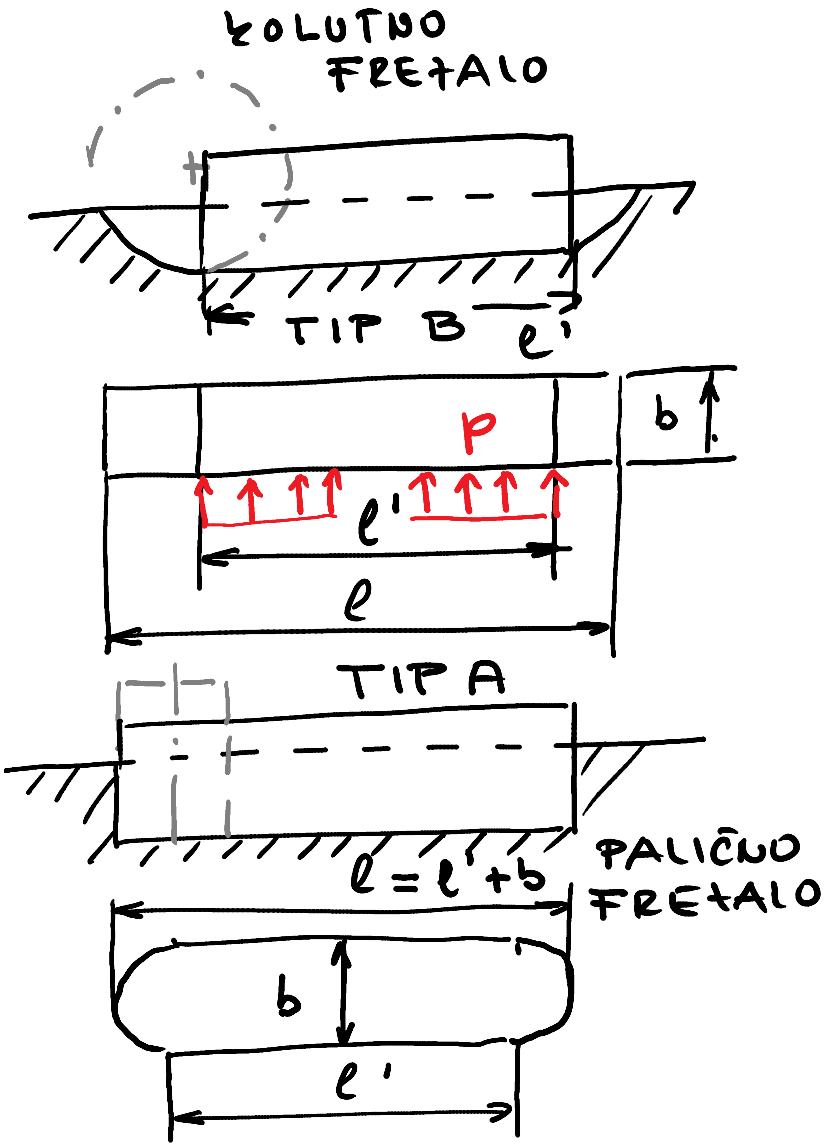
OBLI ŁOUNE : MOŽNIŁ ✓
UTORNA ŽUEŽA ✓
POLIGONSŁA GRED ✗
ŽOBATA GRED ✗

} REŠUŽETO PROBLEM PRENOSA HŁ ZA Fa POSŁEBIMO LOČENO

TORNE : STOŽČASTI NASED ✓
STOŽČASTI OBROČI ✓
SPENJALNA ŽUEŽA ✓
ŽAGOŽDE ✓
ŁRČNI NASED ✗

} REŠUŽETO PROBLEM PRENOSA HŁ IN Fa





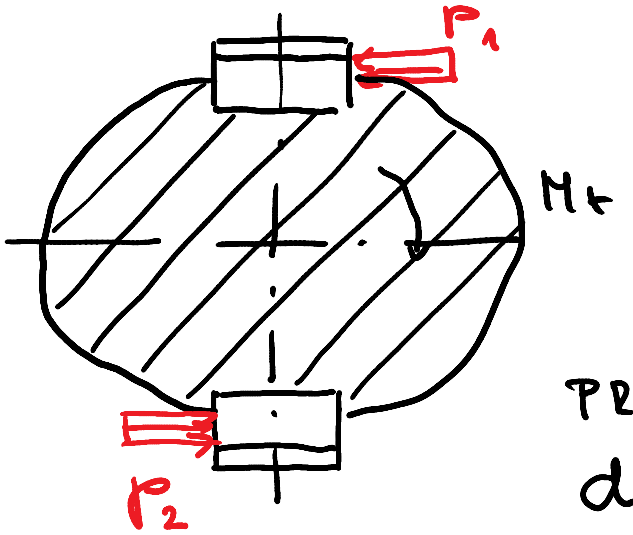
$$M_t = \frac{F_t \cdot d}{2}$$

$$p = \frac{F_t}{A} = \frac{2\,M_t}{d} \cdot \frac{1}{h'\,l'\,n\,\varphi} \leq p_{dop}$$

$n = 1,2$ ŠTEVILO MOTNIKOV

$\varphi = 1$ ČE JE $n = 1$

$\varphi = 0{,}75$ ČE JE $n = 2$



$p_1 \neq p_2$ ZER IMAMO ODSTOPANJA HER

$m = 2$ $\quad m \cdot \varphi = 2 \cdot 0{,}75 = 1{,}5$

$\varphi = 0{,}75$

PREDPISANI SO OJEMI:

d - PESTO POMIČNO ALI FIKSNO NA GREDI

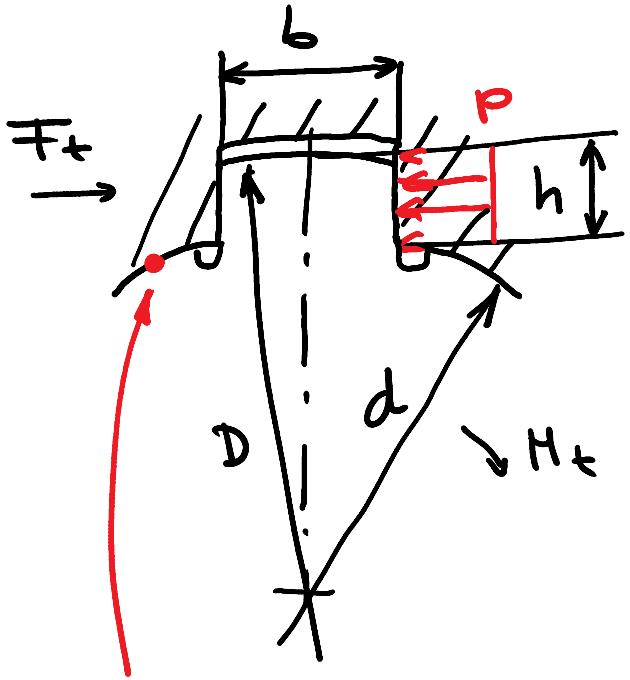
b - PESTO POMIČNO ALI FIKSNO NA GREDI

MOZNIK REŠUJE PROBLEM PRENOSA Mt.

POTREBNI SO DODATNI UKREPI ZA PRENOS Fa.

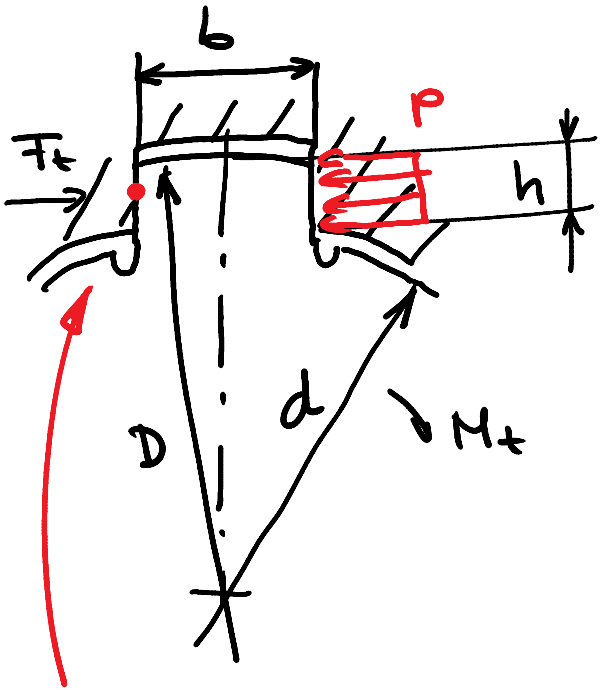
MOZNIK IZBEREMO GLEDE NA d.

UTORNA ZVEZA



NOTRANJE CENTRIRANJE

$m = 6, 8, 10$



BOČNO CENTRIRANJE

$m = 8, 10, 16, 20$

$$D_m = \frac{d+D}{2} \qquad M_t = F_t \cdot \frac{D_m}{2} \qquad h = \frac{D-d}{2}$$

$$p = \frac{F_t}{A} = \frac{2\,M_t}{D_m\, h \cdot l' \, n \, 0{,}75} \leq p_{dop}$$

PREDPISANI SO OTEMI:

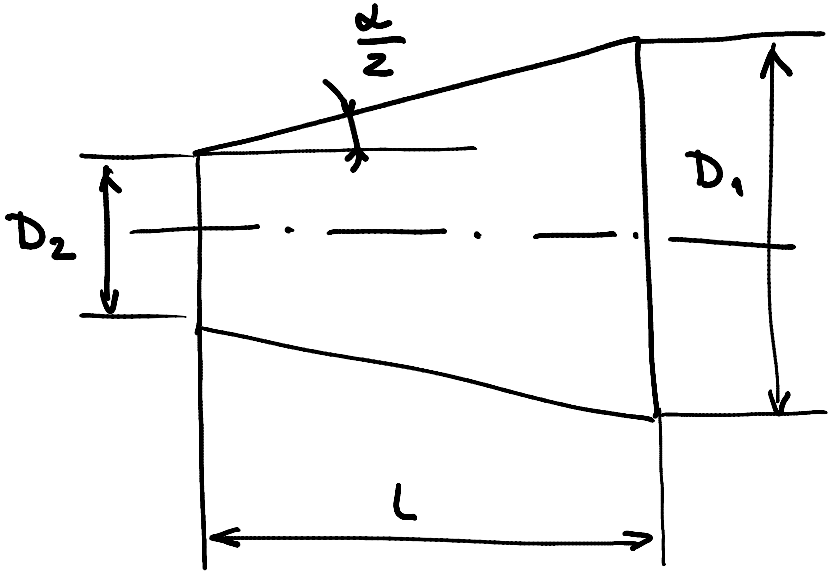
NOTRANJE CENTRIRANJE: d, b

BOČNO CENTRIRANJE: b

PESTO FIKSNO ALI POMIČNO NA GREDI

PRENOS M_t. ZA PRENOS F_a SO POTREBNI DODATNI VIJAKI.

STOŽČASTI NASED



$$C = 1 : X = \frac{D_1 - D_2}{l}$$

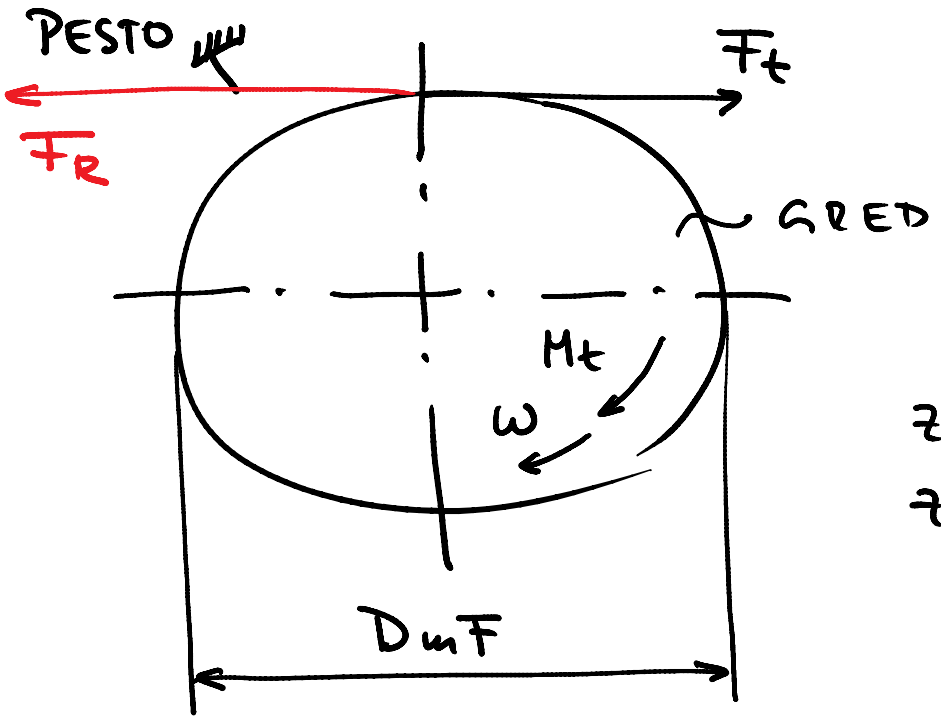
$$\operatorname{tg}\frac{\alpha}{2} = \frac{D_1 - D_2}{2\,l}$$

◁ 1 : 20 OZNAČEVANJE KONUSA

$C \leqslant 1 : 5$ JE KONUS SAMOZAPOREN

UREDNOTENJE STOŽČASTEGA NASEDA

RAZMERE MED OBRATOVANJEM



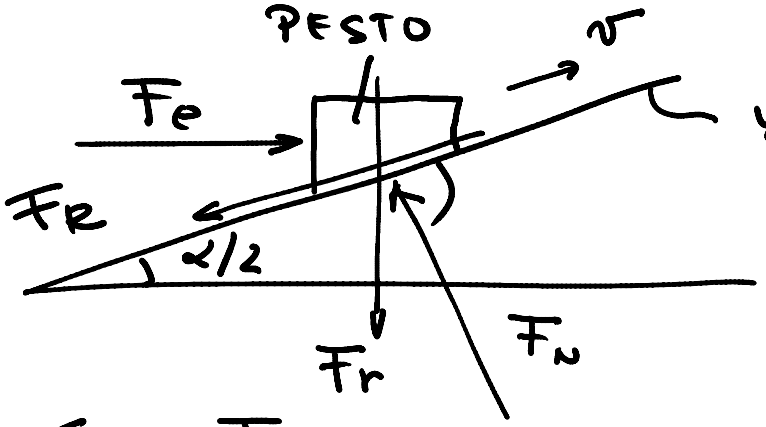
$$D_{mF} = \frac{D_1 + D_2}{2}$$

$$F_t = \frac{M_t \cdot 2}{D_{mF}}$$

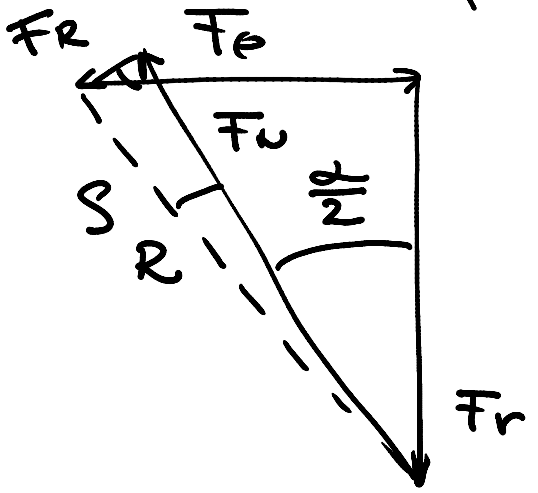
ZOBNIK DELUJE BREZ ZDRSA, ČE JE

$$F_t \leq F_R$$

RAMMERE MED MONTAŽO



$$\mu = tg\rho = \frac{\sin\rho}{\cos\rho}$$



$$F_R = F_N \cdot \mu$$

$$\cos\rho = \frac{F_N}{R} \; ; \; \sin\left(\frac{\alpha}{2}+\rho\right) = \frac{F_e}{R}$$

$$F_N = R \cdot \cos\rho$$

$$R = \frac{F_e}{\sin(\alpha/2+\rho)}$$

$$F_R = R \cdot \cancel{\cos\rho} \cdot \frac{\sin\rho}{\cancel{\cos\rho}} = \frac{F_e \sin\rho}{\sin\left(\frac{\alpha}{2}+\rho\right)}$$

$$F_t \leq F_R$$

$$\frac{2M_t}{D_{mF}} \leq \frac{F_e \sin\rho}{\sin\left(\frac{\alpha}{2}+\rho\right)}$$

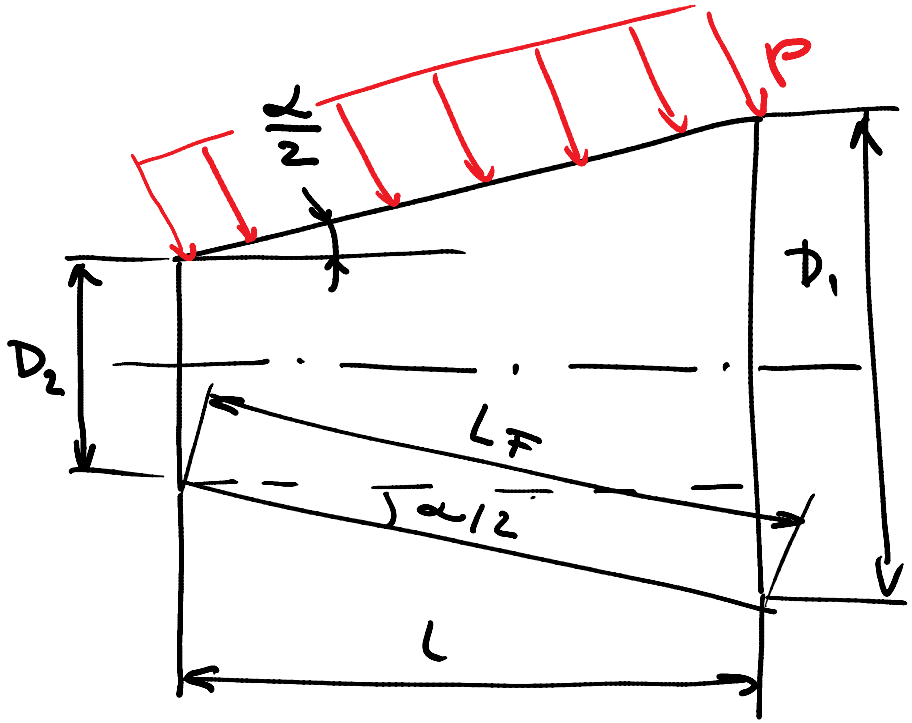
$$F_e \geq \frac{2M_t}{D_{mF}} \cdot \frac{\sin\left(\frac{\alpha}{2}+\rho\right)}{\sin\rho}$$

$F_e = F_v$ JE SILA V STEBLU VIJAKA, KI ZAGOTAVLJA, DA BO ZVEZA OBRATOVALA BREZ ZDRSA.

$$F_R = \frac{F_e \sin\rho}{\sin\left(\frac{\alpha}{2}+\rho\right)} = F_N \cdot \mu = F_N \cdot \frac{\sin\rho}{\cos\rho}$$

$$F_N = \frac{F_e \cos\rho}{\sin(\alpha/2+\rho)}$$

KONTROLA TIAŽA



$$\cos\frac{\alpha}{2} = \frac{l}{l_F} \rightarrow l_F = \frac{l}{\cos\frac{\alpha}{2}}$$

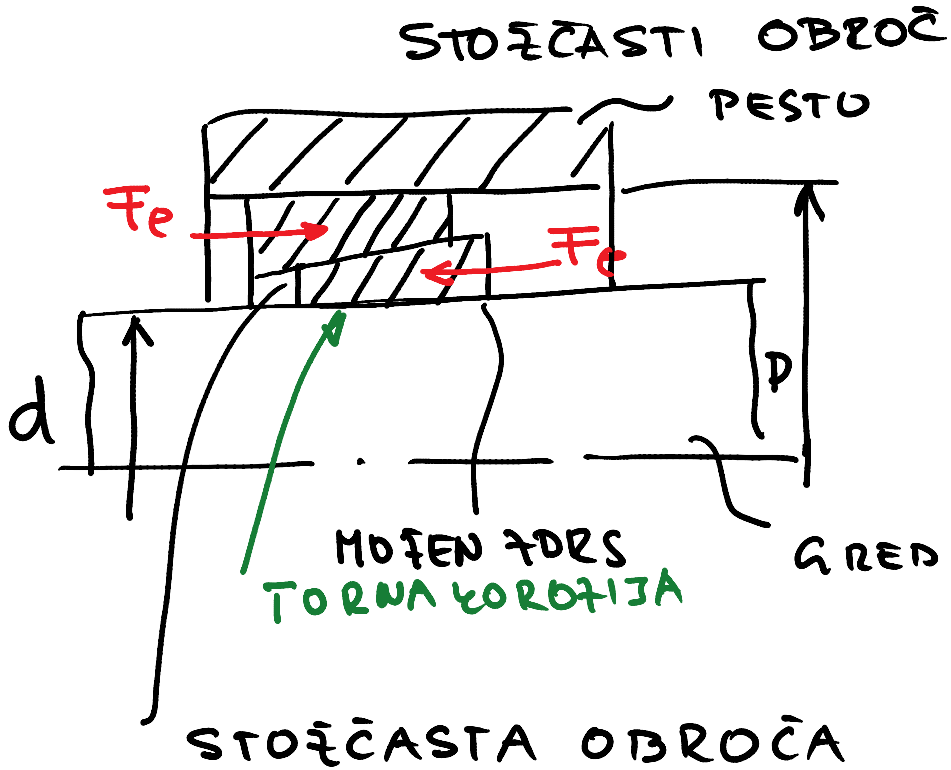
$$A = \pi D_{mF} \cdot l_F$$

$$p = \frac{F_N}{A}$$

$$p = \frac{F_e \cdot \cos\varphi}{\pi D_{mF} \cdot l_F \sin\left(\frac{\alpha}{2}+\varphi\right)}$$

$$p \leq p_{dop}$$

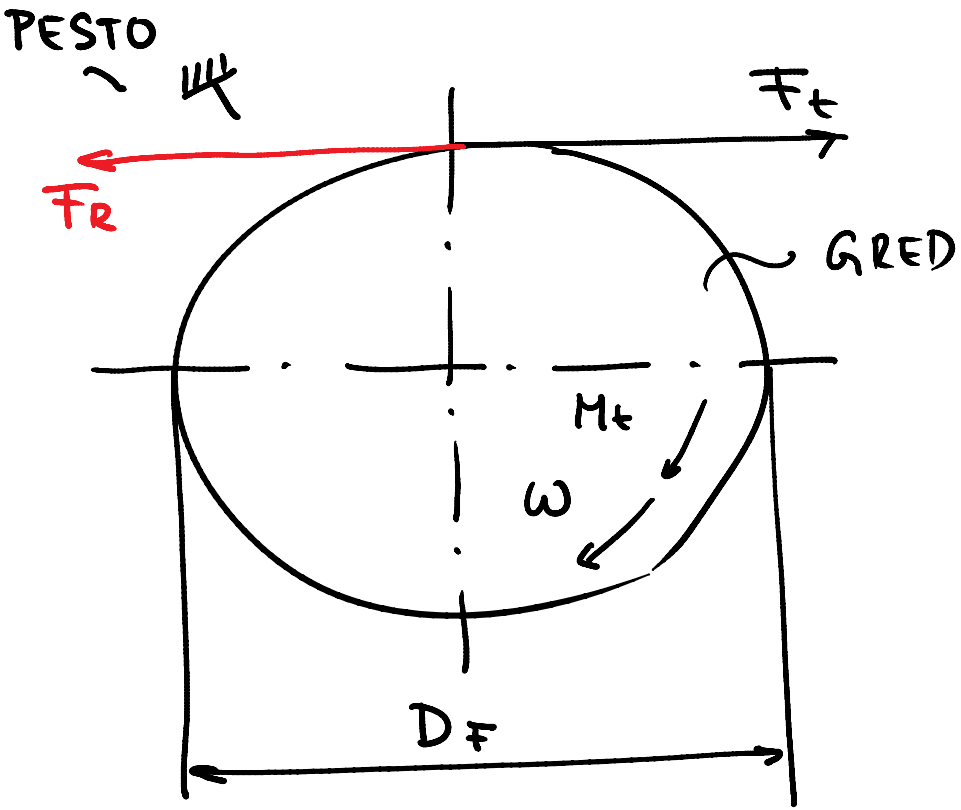
REŠUJE PROBLEM PRENOSA M_t IN F_a.



POTREBNO JE DOLOČITI SILO Fe.

SPENJALNA ZVEZA

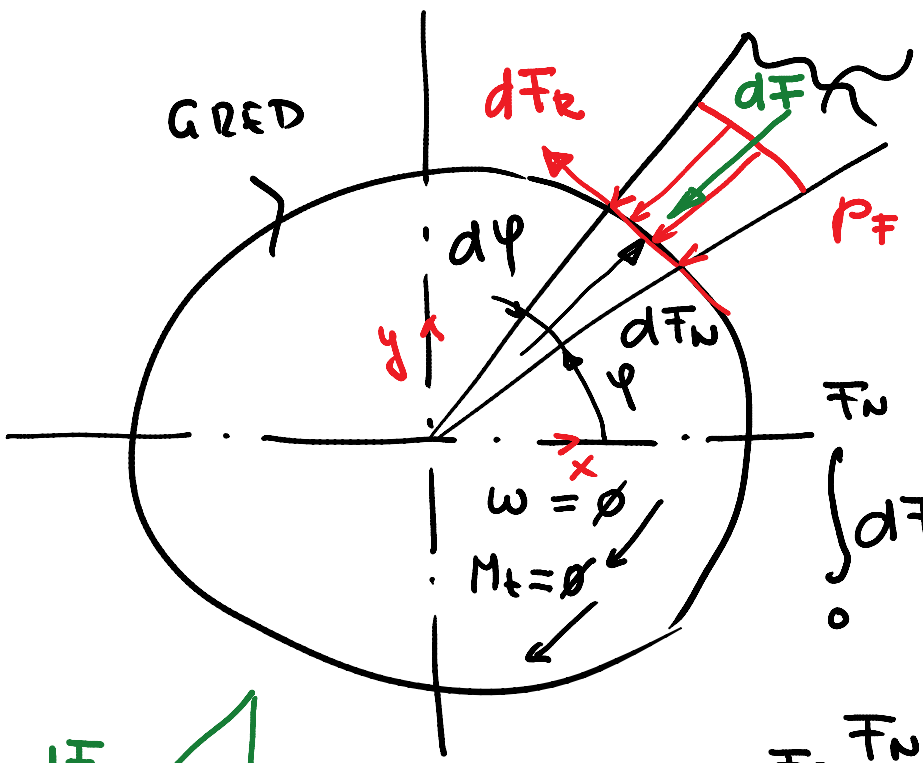
RAZMERE MED OBRATOVANJEM



$$F_t = \frac{M_t 2}{D_F}$$

$$F_t \leq F_R$$

RAZMERE MED MONTAŽO



$dF_N = p_F \frac{D_F}{2} d\varphi \, l$

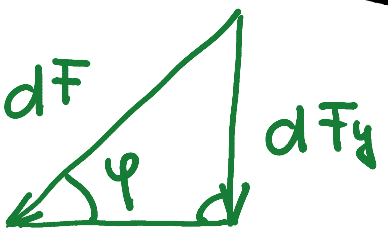
L DOLŽINA SPENJALNE ŽUETE

$dF_R = d\frac{F_N}{2\pi} \mu$

$\int_0^{F_N} dF_N = p_F \frac{D_F}{2} l \int_0^{\pi} d\varphi$

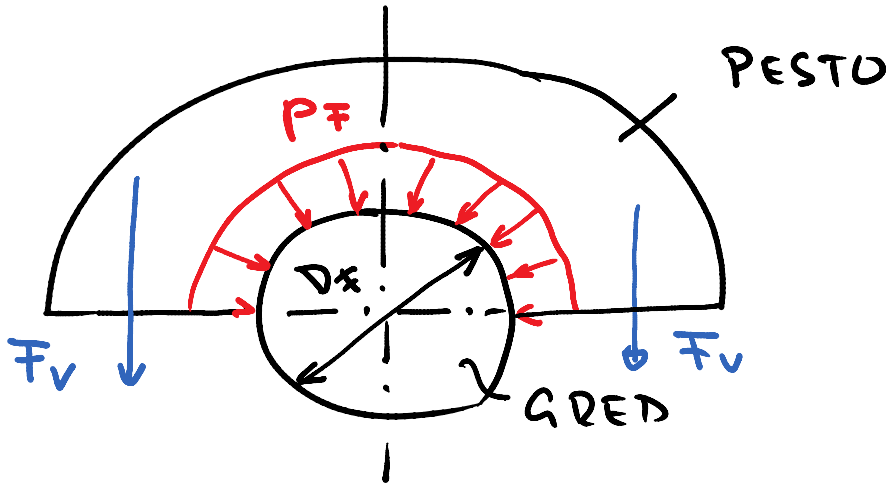
$F_R \quad F_N = p_F \, D_F \cdot l \, \pi$

$\int_0^{F_R} dF_R = \mu \int_0^{F_N} dF_N$



$dF_y = dF \sin\varphi$

$$F_R = F_N \cdot \mu = p_F \cdot D_F \, l \, \pi \, \mu$$



n ŠTEVILO VIJAČOV

$$F_V = \frac{F_y}{n} = \frac{p_F \cdot D_F \cdot l}{n}$$

$$dF_N = dF = \frac{dF_y}{\sin\varphi} = p_F \frac{D_F}{2} d\varphi \cdot L$$

F_y

$$\int_0^{\pi} dF_y = p_F \frac{D_F}{2} L \int_0^{\pi} \sin\varphi \, d\varphi$$

$$F_y = p_F \frac{D_F}{2} l \left(-\cos\varphi\right)\Big|_0^{\pi} = p_F D_F \cdot l$$

$-\frac{-}{2}\frac{-}{-}$

$$F_t \leq F_R$$

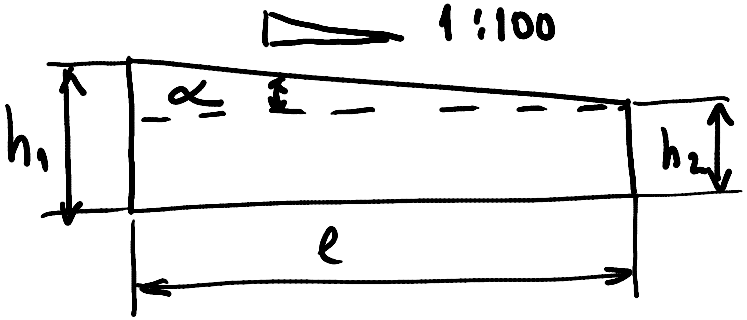
$$\frac{M_t \cdot 2}{D_F} \leq p_F D_F \cdot l \pi \mu$$

$$p_F \geq \frac{2 M_t}{D_F^2 l \pi \mu}$$

$$\frac{F_U \cdot n}{\cancel{D_F \cdot X}} \geq \frac{2 M_t}{D_F^{\cancel{2}} \cancel{X} \pi \mu} \rightarrow F_U \geq \frac{2 M_t}{D_F \cdot \pi \mu \cdot n}$$

$$p_F = \frac{F_U \cdot n}{D_F \cdot l} \leq p_{zul}$$

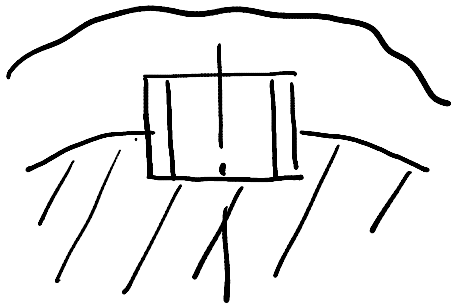
ZAGOZDE



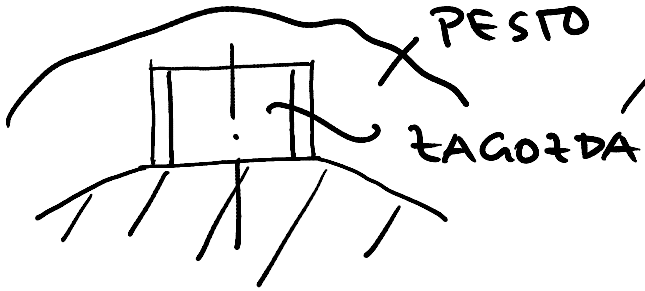
NAGIB $C = 1:x = \frac{h_1 - h_2}{\ell}$

ZAGOZDE $C = 1:100$

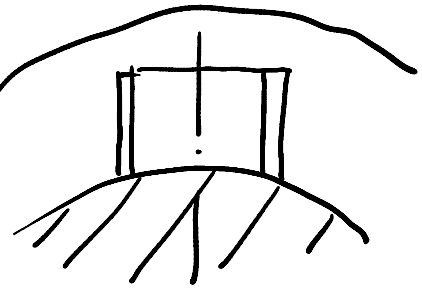
$C = tg\alpha$



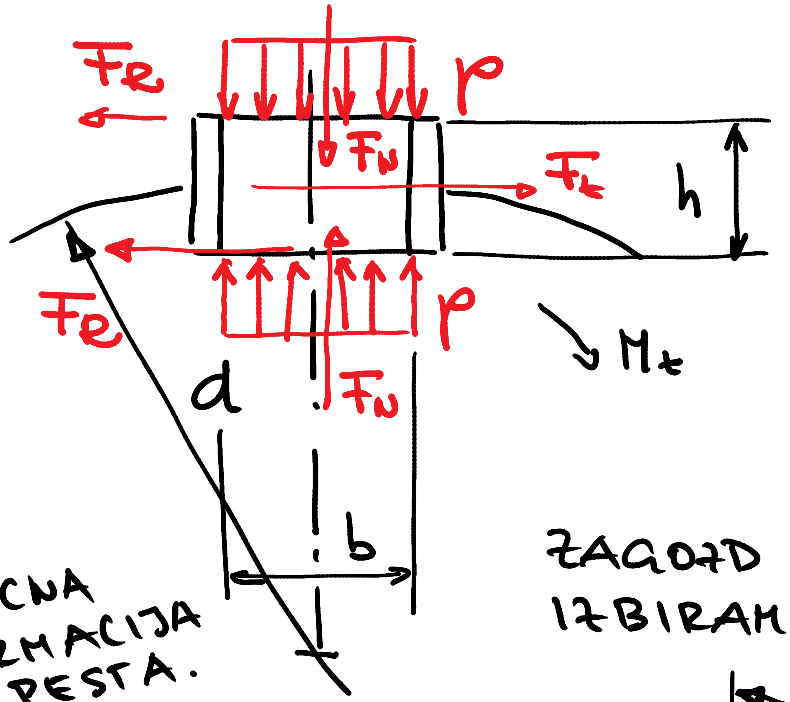
UTOR



PLANO OBDELANA GRED



BREZ OBDELAVE



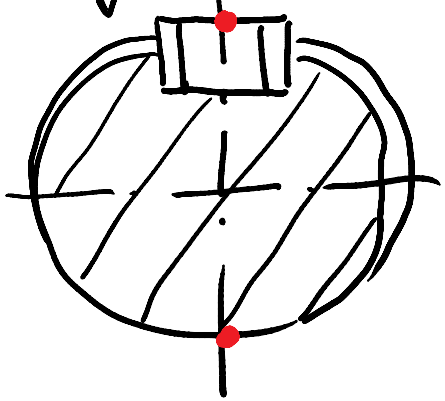
$F_R \geq F_t$

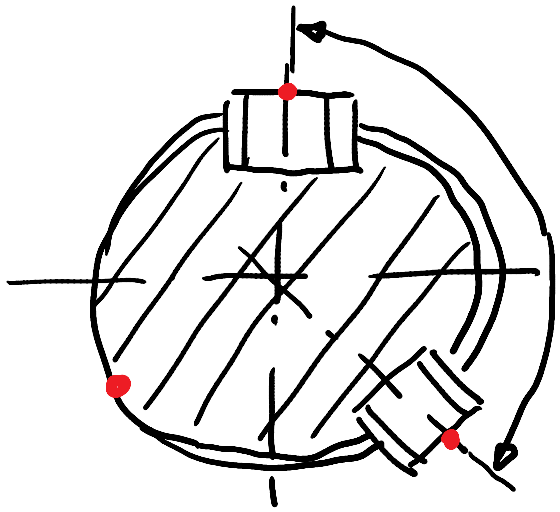
ZAGOZDA PRENAŠA OBREMENITEV S TRENJEM.

$F_N = ?$

ZAGOZD NE UREDNOTIMO, JIH IZBIRAMO GLEDE N d.

ELASTIČNA DEFORMACIJA PESTA.





ZAGOZDO IZBEREMO GLEDE NA d.