





### ΘΕΜΑ Δ

**Δ1)**  $b_1 = 120 \text{ mm}$

$F = 150 \text{ daN}$

$$\sigma_{\text{επ}} = 30 \frac{\text{daN}}{\text{cm}^2}$$

$b = ;$

$s = ;$

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$$b_1 = 1,1 * b + 10\text{mm} \Rightarrow b = \frac{b_1 - 10\text{mm}}{1,1} \Rightarrow b = \frac{120\text{mm} - 10\text{mm}}{1,1} = \frac{110\text{mm}}{1,1} \Rightarrow \mathbf{b = 100 \text{ mm} \text{ ή } b = 10 \text{ cm}}$$

$$\sigma_{\text{επ}} = \frac{F}{b * s} \Rightarrow s = \frac{F}{\sigma_{\text{επ}} * b} = \frac{150\text{daN}}{\left(30 \frac{\text{daN}}{\text{cm}^2}\right) * 10\text{cm}} \Rightarrow s = \frac{150\text{daN}}{\left(30 \frac{\text{daN}}{\text{cm}^2}\right) * 10\text{cm}}$$

$\Rightarrow \mathbf{s = 0,5 \text{ cm} \text{ ή } s = 5 \text{ mm}}$

**Δ2)**  $w = 4,71\text{mm}$

$s = 4,71\text{mm}$

$a = 225\text{mm}$

$i = \frac{1}{2}$

$t = ; m = ; z_1 = ; z_2 = ;$

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$t = w + s = 4,71\text{mm} + 4,71\text{mm} \Rightarrow \mathbf{t = 9,42\text{mm}}$

$$m = \frac{t}{\pi} = \frac{9,42\text{mm}}{3,14} \Rightarrow \mathbf{m = 3\text{mm}}$$

$(d_{o1}/d_{o2})=i \Rightarrow (d_{o1}/d_{o2}) = \frac{1}{2} \Rightarrow d_{o2} = 2 * d_{o1}$

$\alpha = (d_{o1} + d_{o2})/2 = [d_{o1} + (2 * d_{o1})]/2 = (3 d_{o1}/2) \Rightarrow \alpha = (3 d_{o1}/2)$

$\Rightarrow d_{o1} = [(2 * \alpha)/3] = [(2 * 225\text{mm})/3] \Rightarrow \mathbf{d_{o1} = 150\text{mm}}$

$\Rightarrow d_{o2} = 2 * d_{o1} = 2 * 150\text{mm} \Rightarrow \mathbf{d_{o2} = 300\text{mm}}$

$\Rightarrow d_{o1} = m * z_1 \Rightarrow z_1 = (d_{o1}/m) = (150\text{mm}/3\text{mm}) \Rightarrow \mathbf{z_1 = 50 \text{ δόντια}}$

$\Rightarrow d_{o2} = m * z_2 \Rightarrow z_2 = (d_{o2}/m) = (300\text{mm}/3\text{mm}) \Rightarrow \mathbf{z_2 = 100 \text{ δόντια}}$