



PROJECTNR:

DATUM:

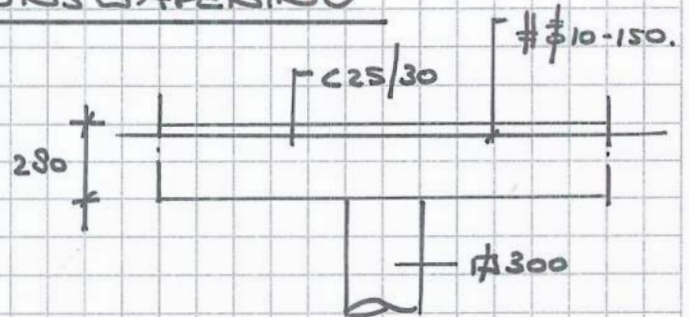
GEWIJZIGD:

BLZ.

BEREKENING PONSWAPENING

$$F_D = 640 \text{ kN.}$$

$$\beta = 1,15$$



$$\rho = A / b \cdot d = 524 / 1000 \times 250 = 0,002.$$

$$V_{rd,c} = 0,035 \times k^{3/2} \times \sqrt{f_{ck}} = 0,455 \text{ N/mm}^2 \leftarrow \text{M.G.}$$

$$V_{rd,c} = 0,12 \times k (100 \times \rho \times f_{ck})^{1/3} = 0,388 \text{ N/mm}^2$$

$$k = \sqrt{200 / 250} + 1 = 1,89.$$

$$U_0 = 300 \times 4 = 1200 \text{ mm}$$

$$U_1 = U_0 + 4 \times \pi \times d = 4342 \text{ mm.}$$

$$V_{ed} = 640 \cdot 10^3 \times 1,15 / 4342 \times 250 = 0,678 \text{ N/mm}^2$$

$$V_{ed} > V_{rd,c} \rightarrow \text{PONSWAP NODIG.}$$

$$U_{out} = V_{ed} \times \beta / V_{rd,c} \times d = 6470 \text{ mm.}$$

DETAILLERING.

$$s_r \leq 0,75d = 187,5 \rightarrow \text{KIES } 150 \text{ mm.}$$

$$k_d \leq 2 \times s_r = 300 \text{ mm.}$$

$$0,3d \leq l_1 \leq 0,5d$$

$$s_k \leq 1,5d = 375 \rightarrow \text{KIES } 375 \text{ mm.}$$



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WAARVENING

$A_{s;MIN}$ = MINIMALE DOORSNEDE VAN EEN
BENDELSTAAF.

$$A_{s;MIN} = 0,08 \times \frac{\sqrt{f_{ck}}}{f_{yk}} \times \frac{(s_r \times s_k)}{(1,5 \sin \alpha + \cos \alpha)}$$

$$A_{s;MIN} = 0,08 \times \frac{\sqrt{25}}{500} \times \frac{(150 \times 375)}{(1,5 \times \sin 90 + \cos 90)} = 30$$

KIES WAP $\nless 8$ (50 mm^2)

$$\begin{aligned} v_{rd,s} &= v_{ed} - 0,75 \times v_{rd,c} \\ &= 0,678 - 0,75 \times 0,455 = 0,337 \text{ N/mm}^2 \end{aligned}$$

$$f_{yd,ef} = 250 + 0,25d \leq f_{yd} \rightarrow 312 \text{ N/mm}^2$$

$$\begin{aligned} A_{sw} &= \frac{v_{rd,s} \times u \times d}{1,5 (d/s_r) \times f_{yd,ef} \times \sin \alpha} \\ &= \frac{0,337 \times 4342 \times 250}{1,5 (250/150) \times 312 \times \sin 90} = 469 \text{ mm}^2 \end{aligned}$$

6 bgl's $\nless 8$

(600 mm^2)



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$$D_{out} = 6470 / \pi = 2060 \text{ mm.}$$

$$D_{wap} = 2060 - 2 \times k_d = 1460 \text{ mm}$$

6 logs $\phi 8 \rightarrow$ WAPENING IN 12 HOEK LEGGEN

LENGTE VAN 1-ZIJDE BIJ 12-HOEK:

$$z_n = D \times \sin(180/n) \quad n = \text{AANTAL ZIJDE}$$

$$z_n = s_t = 1460 \times \sin(180/12) = 378 \text{ mm}$$

$s_t \leq 375 \text{ mm} \rightarrow$ KLEINE OVERSCHREIPIJNG
AKKOORD.

VOLDOET AAN DETAILLERING.

