Lungimea navei: $L := 196$ (m)

Latimea navei: $B := 32$ (m)

Pescajul avei: $T := 12$ (m)

Lungimea pe compartiment: $L_i := 35$ (m) $\qquad L_i = 35$ $\quad m$

Viteza minima a fluidului: $v_{min} := 2.5$ $\left(\dfrac{m}{s}\right)$

$d := 1.68 \cdot \sqrt{L \cdot (B + T) + 25}$ $\qquad d = 156.24$ $\quad (mm)$ $\qquad d' := 10^{-3} \cdot d$ $\qquad d' = 0.1562 \quad m$

$d_i := 2.14 \cdot \sqrt{L_i \cdot (B + T) + 25}$ $\qquad d_i = 84.66$ $\quad (mm)$ $\qquad d'_i := 10^{-3} \cdot d_i$ $\qquad d'_i = 0.0847 \quad m$

$Q_{min} := \dfrac{\pi \cdot d'^2 \cdot v_{min}}{4}$ $\qquad Q_{min} = 0.0479$ $\quad \left(\dfrac{m^3}{s}\right)$

Alegem $\qquad Q := 0.05$ $\qquad \dfrac{m^3}{s}$

$d_{tol} := \dfrac{d}{25.4}$ $\qquad d_{tol} = 6.15$ $\qquad$ standardizam $\qquad d_{tol} := 6$ $\quad (tol)$

$d_{itol} := \dfrac{d_i}{25.4}$ $\qquad d_{itol} = 3.33$ $\qquad$ standardizam $\qquad d_{itol} := 3.5$ $\quad (tol)$

$d := d_{tol} \cdot 25.4$ $\qquad d = 152.4$ $\quad mm$ $\qquad d'' := 10^{-3} \cdot d$ $\qquad d'' = 0.1524$ $\quad m$

$d_i := d_{itol} \cdot 25.4$ $\qquad d_i = 88.9$ $\quad mm$ $\qquad d''_i := 10^{-3} \cdot d_i$ $\qquad d''_i = 0.0889$ $\quad m$

$V_m := 4 \cdot \dfrac{Q}{\pi \cdot d''^2}$ $\qquad V_m = 2.741$ $\quad \dfrac{m}{s}$

Q $\qquad\qquad m$

$$V_r := 2 \cdot \frac{\cancel{}}{\pi \cdot d''{}_i^2} \qquad\qquad V_r = 4.028 \qquad \frac{\cdots}{s}$$

densitatea : $\qquad\qquad \rho := 1025 \qquad \dfrac{kg}{m^3}$

acceleratia gravitationala: $\qquad g := 9.81 \qquad \dfrac{m}{s^2}$

$$v := 1.057 \cdot 10^{-6} \qquad \frac{m^2}{s}$$

$$k := 0.15$$

$$l_{cr} := 80 \qquad m$$

$$l_{cam} := 180 \qquad m$$

$$l_{car} := 55 \qquad m$$

$$z_a := \frac{L - 40}{0.57} + 40 \cdot B + 3500 \cdot \frac{T}{L} \qquad\qquad z_a = 1767.97 \qquad mm \quad \rightarrow ? \quad z_a := 1.8 \qquad m$$

$$z_r := T - z_a \qquad\qquad z_r = 10.2 \qquad m$$

$$Re := \frac{V_m \cdot d''}{v} \qquad\qquad Re = 3.95 \cdot 10^5$$

$$\varepsilon := \frac{k}{d} \qquad\qquad \varepsilon = 0.001$$

$$Re1 := \frac{10}{\varepsilon} \qquad\qquad Re1 = 10160$$

$$Re2 := \frac{500}{\varepsilon} \qquad\qquad Re2 = 5.08 \cdot 10^5$$

$$\lambda := 0.11 \cdot \left(\varepsilon + \frac{68}{Re} \right)^{\frac{1}{4}} \qquad \lambda = 0.02$$

$$h_{ref} := \frac{\lambda \cdot l_{cr} \cdot \rho \cdot V_m{}^2}{d''} \qquad h_{ref} = 8.2 \cdot 10^4 \qquad \frac{N}{m^2}$$

$$h_{asp} := \frac{\lambda \cdot l_{cam} \cdot \rho \cdot V_m{}^2}{2 \cdot d''} + \frac{2 \cdot \lambda \cdot l_{car} \cdot \rho \cdot V_m{}^2}{2 \cdot d''} \qquad h_{asp} = 1.49 \cdot 10^5 \qquad \frac{N}{m^2}$$

$$Q' := Q \cdot 3600 \qquad Q' = 180 \qquad \frac{m^3}{h}$$

$$H_r := \rho \cdot g \cdot z_r + h_{ref} \qquad H_r = 1.85 \cdot 10^5 \qquad \frac{N}{m^2}$$

$$H_a := \rho \cdot g \cdot z_a + h_{asp} \qquad H_a = 1.67 \cdot 10^5 \qquad \frac{N}{m^2}$$

$$H := H_r + H_a \qquad H = 351286.5 \qquad \frac{N}{m^2}$$

$$H' := H \cdot 10^{-4} \qquad H' = 35.13 \qquad mcolH2O$$

$$Q' = 180 \qquad \frac{m^3}{h}$$

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