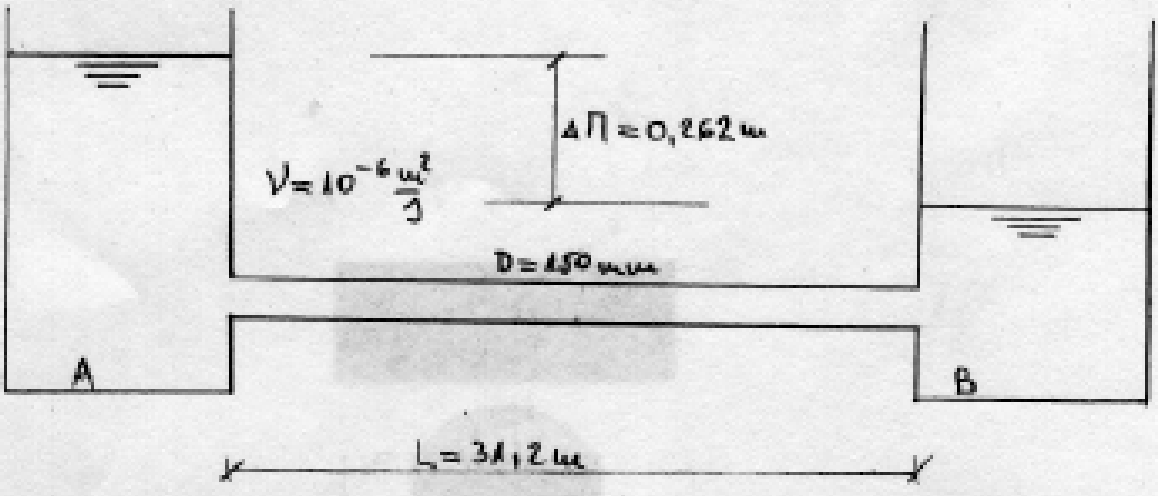

$\lambda = 0{,}1125\left(\frac{k}{D} + \frac{60}{Re}\right)^{1/4}$ $k = 0{,}1$ mm

LAMINARNO $d \leq 30$

$d > 30$ TURBULENTNO

$d = 26{,}2$ – LAMINARNO (PRIDPOSTAVKA)

(1) $\lambda = \frac{64}{Re}$ $Re = \frac{\rho D v}{\mu} = \frac{Dv}{\nu}$ $v = \frac{Re\,\nu}{D}$

$\Pi_A + \frac{v_A^2}{2g} = \Pi_B + \frac{v_B^2}{2g} + \lambda\frac{L}{D}\frac{v^2}{2g}$ $\Delta\Pi = \lambda\frac{L}{D}\frac{v^2}{2g}$ $v^2 = \frac{\Delta\Pi D 2g}{\lambda L}$

$Re = \frac{64}{\lambda}$ $\Sigma\lambda$ i Σ IZ ZAPISANEGA! $\Delta\Pi = \frac{64}{\frac{Dv}{\nu}}\frac{L}{D}\frac{v^2}{2g}$

$\Delta\Pi = \frac{64\nu}{D^2}\frac{Lv}{2g}$ $v = \frac{\Delta\Pi D^2 2g}{64\nu L}$

$Re = \frac{Dv}{\nu}$ $Re = 8688000 > 2000$ $v = 57{,}92$ m/s

⇒ predpostavka ni bila pravilna ✓

(2) predpostavimo turbulentno: vzamemo za prejšnjo Re! $\lambda = 0{,}1125\left(\frac{k}{D} + \frac{60}{Re}\right)^{1/4}$ $\lambda = 0{,}01885$ ✓

$v^2 = \frac{\Delta\Pi D 2g}{\lambda L}$ $v = 1{,}166$ m/s $Re = \frac{Dv}{\nu}$ $Re = 173\,400 \neq 8688000$

(3) prejšnja $\lambda = 0{,}1125\left(\frac{k}{D} + \frac{60}{Re}\right)^{1/4}$ $\lambda = 0{,}0205$ $v^2 = \frac{\Delta\Pi D 2g}{\lambda L}$ $v = 1{,}098$ m/s

$Re = 200\,400$ ← TRENJE OB 193400 ← $\lambda = 0{,}0203$

$Re = \frac{Dv}{\nu} = 164696$

$v = 1{,}098$ m/s

$Q = vA$ $Q = 0{,}019403\ m^3/s = 19{,}4$ l/s

100

Valentina Milavec 225/04