Flocculation in Different Forms

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Boruda Yumaklaşma Laminer Akım

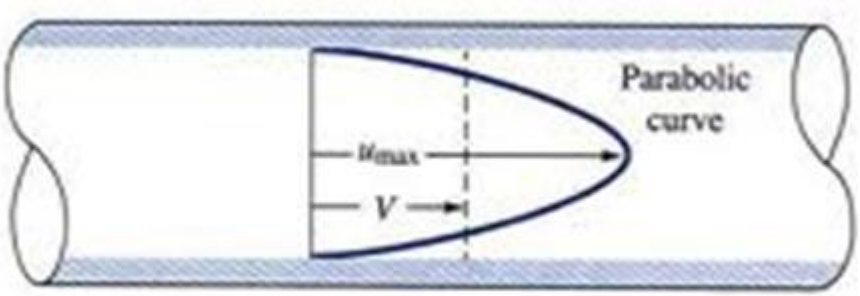
Hagen Poisuelle

$$\frac{\Delta P}{L} = \frac{32\mu}{d^2} V$$

$$\frac{\Delta P}{L} = e\,g\,\frac{H}{L}$$

$$\frac{H}{L} = \left[\frac{1}{eg}\frac{32\mu}{d^2}\right] V$$

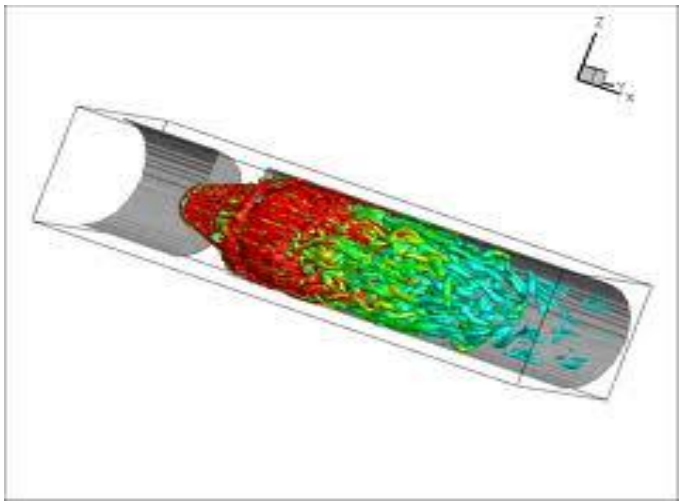
$$\frac{P_{ow}}{\forall} = \frac{Q}{A}\left(\frac{H}{L}\right)$$



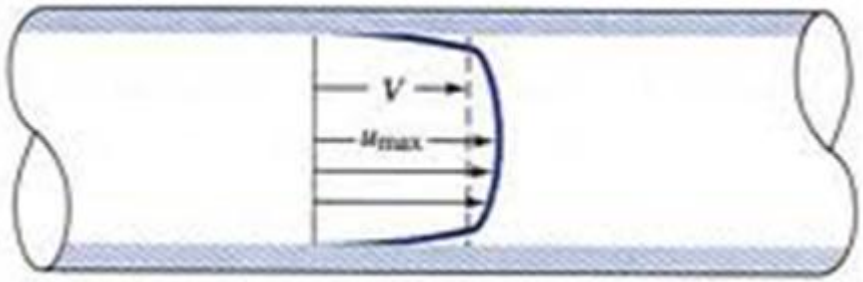
$$\frac{P_{ow}}{\forall} = egV\left(\frac{H}{L}\right)$$

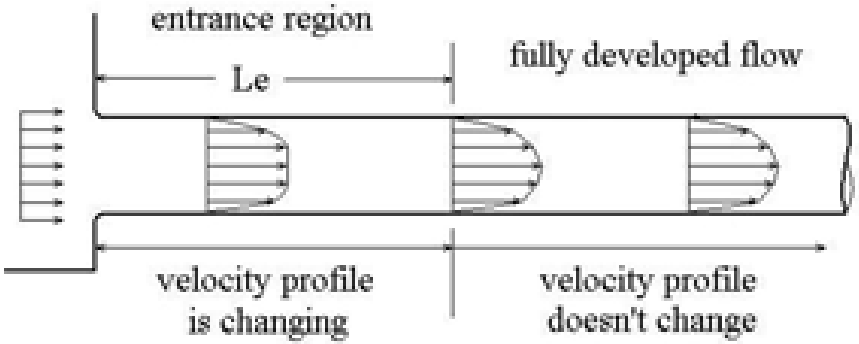
$$\frac{P_{ow}}{\forall} = 32\frac{V^2}{d^2}$$

$$G = (5.66)\frac{V}{d}$$



Türbulanslı Akım



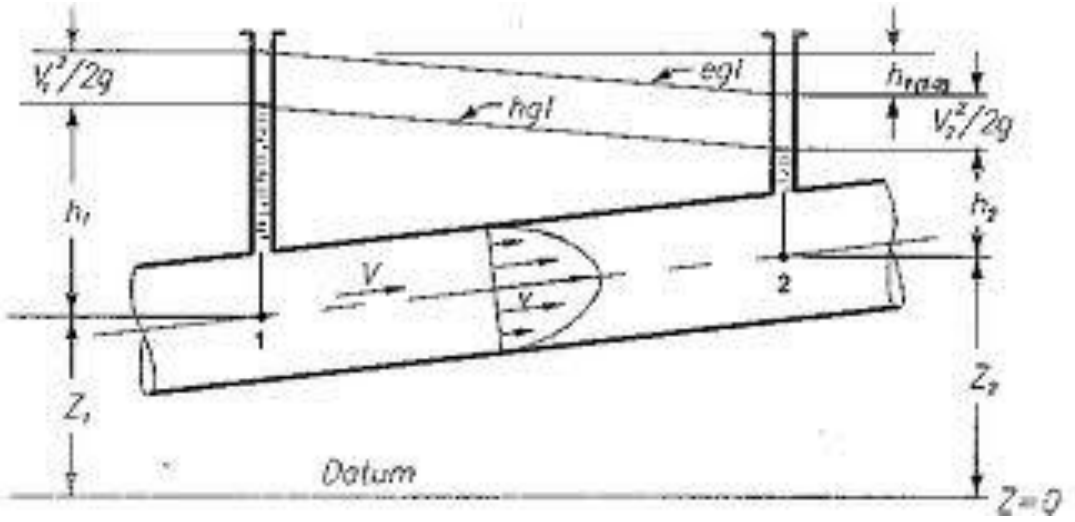


Darcy Weisb. $\left(\frac{H}{L}\right)=\frac{\lambda}{D}\frac{v^2}{2g}$

$$\frac{P_{ow}}{\forall}=\frac{egQ}{A}\left(\frac{H}{L}\right)=egv\left(\frac{H}{L}\right)$$

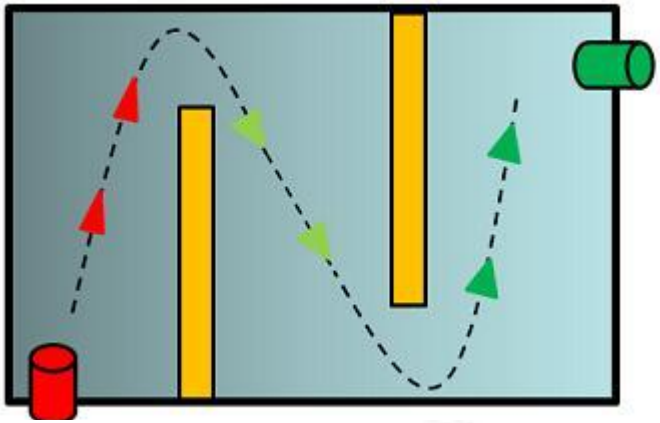
$$=\frac{e\lambda}{2}\frac{v^3}{D}$$

$$G=\sqrt{\frac{\lambda}{2V}=\frac{v^3}{D}}$$



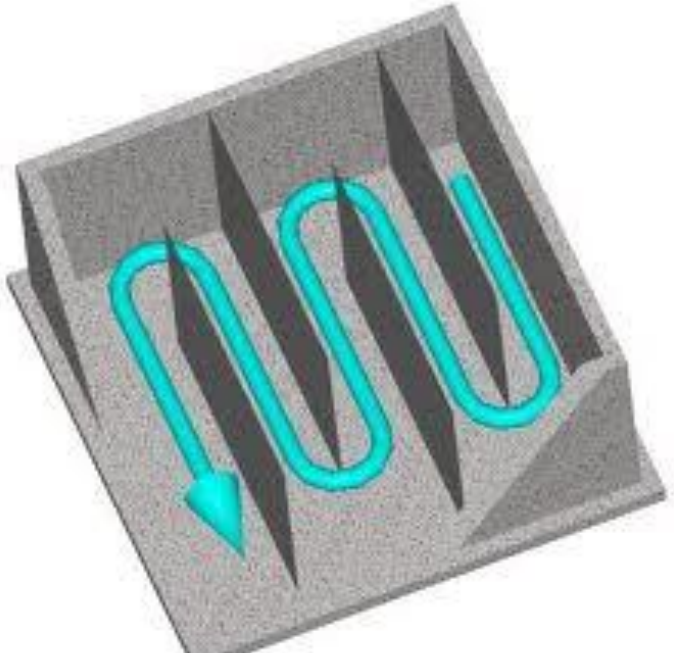
Perdeli (Baffle)
Turbulanslı

$$\left(\frac{H}{L}\right) = k\frac{v^2}{2g}$$



$$\frac{P_{ow}}{\forall} = \frac{\rho g Q}{A}\left(\frac{H}{L}\right) = \rho g v\left(\frac{H}{L}\right)$$

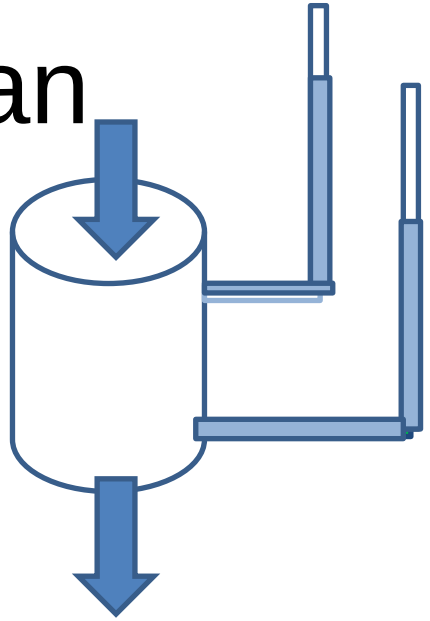
$$G = \sqrt{\frac{kv^3}{2V}}$$



Filtrelerde – Granüler Filtre

Kozeny - Carman

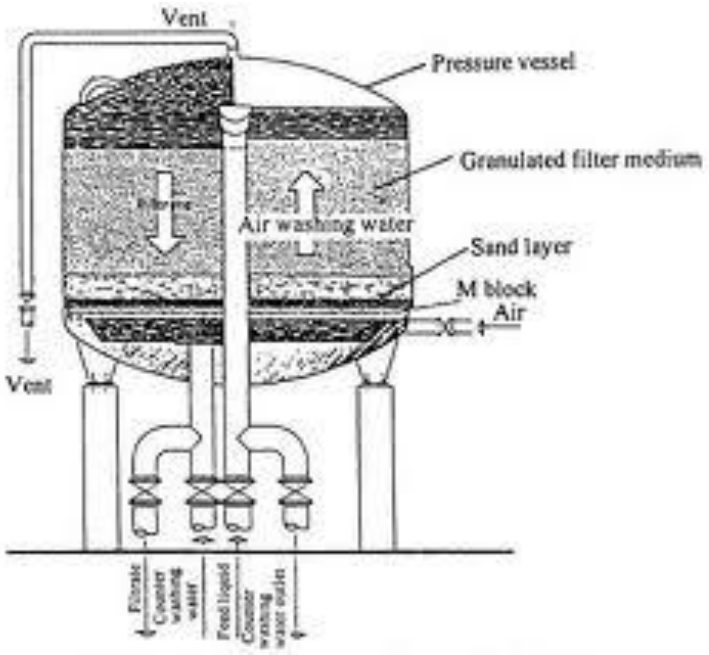
$$\left(\frac{H}{L}\right)=\left[\frac{FV}{g}\frac{(1-\varepsilon)^2}{\varepsilon^3}\left(\frac{6}{d_p}\right)^2\right]v$$



Filtredeki su hacmı = εAL

$$\frac{P_{ow}}{\forall ol}=\frac{eg}{\varepsilon}\frac{Q}{A}\left(\frac{H}{L}\right)$$

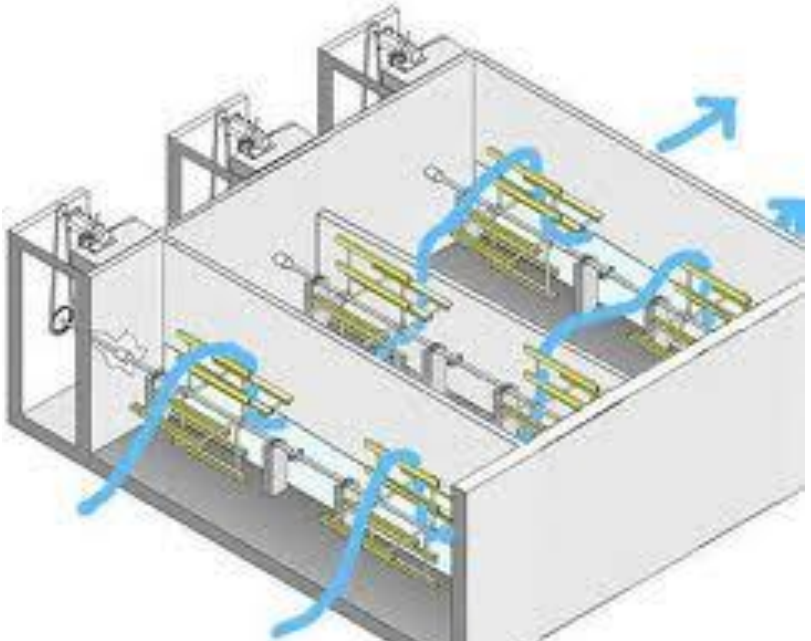
$$G=\left[13.4\frac{(1-\varepsilon)}{\varepsilon^2}\right]\frac{v}{d_p}$$



Paddle Flocculator

$$P_{ow} = F_b * v$$

$$P_{ow} = \frac{C_D}{2} A_{padd} \rho v^3$$



$$G = \sqrt{\frac{C_D A_{padd} \rho v^3}{2(WDL)}}$$

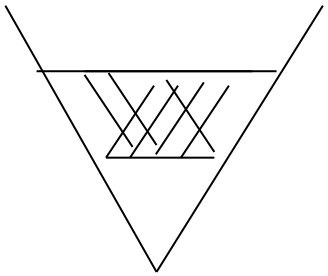
Floc Blanket Tanks. (Flok Battaniye Sistemleri)

$$\frac{Q}{A} = v_h = v_s(1 - KC) \Rightarrow C = \frac{1}{K}\left(1 - \frac{Q}{Av_s}\right)$$

$$\frac{P_{ow}}{\forall} = \frac{Floc\ Ağğirliğ^{*}\ Hıı}{\forall} = \frac{(\rho_s g C).v_s}{\forall}$$

$$\frac{P_{ow}}{\forall} = \frac{\rho_s g}{K}\left(1 - \frac{Q}{Av_s}\right)$$

$$G = \left(\frac{\rho_s g}{K\mu}\right)^{1/2}\left(1 - \frac{Q/A}{v_s^{1/3}}\right)^3$$



GCt = 100 – 500

$$t = \frac{\forall}{Q} = \int_{L_0}^{L} \frac{A}{Q} dL$$

MaxG

$$v_s = \frac{g}{13}\frac{\rho_s - \rho}{\mu} d_j^2$$

G<5s^{-1}
t=10 – 20 dak
C = 0.05 – 0.20