Dopomcemú úloha

3-18

$h_2 - h_1 = 16.7\ m$ $p_1 = p_2$ $v_1 = v_2 \approx 0$

$L = 100\ m$ $\lambda = 0.038$

$d = 0.1$ $\xi = 6 + 3 + 3 \cdot 1.26 = 12.78$

$$\frac{p_1}{\varrho} + \frac{v_1^2}{2} + h_1 g + e_c^- = \frac{p_2}{\varrho} + \frac{v_2^2}{2} + h_2 g + e_{dis} \qquad e_{dis} = \lambda \frac{L}{d} \frac{v^2}{2} + \xi \frac{v^2}{2}$$

$$\frac{e_c}{g} = (h_2 - h_1) + \frac{1}{g} \cdot \left(\lambda \frac{L}{d} + \xi\right) \frac{v^2}{2}$$

$$\frac{e_c}{g} = 16.7 + \frac{1}{9.81} \left(50.78/2\right) v^2$$

$$H_c = \frac{e_c}{g} = 16.7 + 2.588\ v^2$$

$$v = \frac{\dot{V}}{A} \qquad A = \frac{\pi d^2}{4} = 0.007854\ m^2$$

$\dot{V}$ /l/min	0	200	400	600	800	1000	1200
v m/s	0	0.42	0.849	1.273	1.698	2.122	2.546
H_c /m	23	23,5	23.8	23.9	21.8	~~21.8~~ 19.8	17
H_p /m			18.57	20.89	24.16		

$$H_p = 20.89 + \frac{24.16 - 20.89}{800 - 600} \cdot (\dot{V} - 600)$$

$$H_p = 11.08 + 0.01635\ \dot{V}$$

$$H_c = 23 + \frac{21.8 - 23}{800 - 600} \cdot (\dot{V} - 600)$$

$$H_c = 26.6 - 0.006\ \dot{V}$$

23
24.16
20.89
21.8
$\dot{V}$ 600   800