

HYDROTECHNICKÝ VÝPOČET

Vtokové potrubí

r = 0.45 m

...poloměr

D = 900 mm

...DN potrubí

n = 0.013

...drsnost betonového potrubí

i = 0.0363

...sklon potrubí

$$\varphi = 2\pi - 2 \cdot \arccos\left(\frac{h-r}{r}\right)$$

$$\varphi = 2 \cdot \arccos\left(\frac{r-h}{r}\right)$$

$$A = \frac{r^2}{2} \cdot (\varphi - \sin \varphi)$$

$$C = \frac{1}{n} \cdot R^{\frac{1}{6}}$$

$$v = C \cdot \sqrt{R \cdot i}$$

h [m]	r [m]	φ [rad]	A [m ²]	O [m]	R [m]	C [m ^{0.5} /s]	v [m/s]	Q [m ³ /s]
0.00	0.45	0.00	0.00	0.000	0.000	0.000	0.000	0.00
0.10	0.45	1.36	0.04	0.612	0.063	48.544	2.326	0.09
0.20	0.45	1.96	0.11	0.884	0.119	53.959	3.550	0.37
0.30	0.45	2.46	0.19	1.108	0.168	57.115	4.456	0.83
0.40	0.45	2.92	0.27	1.314	0.208	59.210	5.147	1.41
0.45	0.45	3.14	0.32	1.414	0.225	59.991	5.424	1.73
0.50	0.45	3.36	0.36	1.514	0.240	60.630	5.659	2.05
0.60	0.45	3.82	0.45	1.720	0.262	61.533	6.004	2.70
0.70	0.45	4.32	0.53	1.944	0.273	61.961	6.172	3.28
0.80	0.45	4.92	0.60	2.216	0.270	61.830	6.120	3.66
0.90	0.45	6.28	0.64	2.827	0.225	59.991	5.424	3.45

$$O = \varphi \cdot r$$

$$R = \frac{A}{O}$$

$$Q = A \cdot v$$

Konzumční křivka vtokového potrubí
závislost Q na h
závislost v na h

