

硬質塩化ビニル管の流速および流量

水理公式

●マンニング式

$$\left. \begin{aligned} Q &= V \cdot A \\ V &= \frac{1}{n} \cdot R^{\frac{2}{3}} \cdot I^{\frac{1}{2}} \end{aligned} \right\} \dots\dots\dots (2 \cdot 1)$$

ここに、

Q : 流量 (m³/s)

V : 流速 (m/s)

A : 流水の断面積 (m²)

$$A = \frac{1}{8} (\theta - \sin \theta) d^2$$

θ : 中心角 (rad.)

d : 内径 (m)

n : 粗度係数 (= 0.010)

R : 径深 (m) (= A/P)

P : 流水の潤辺長 (m)

$$P = \frac{1}{2} \theta \cdot d$$

I : こう配 (分数又は小数)

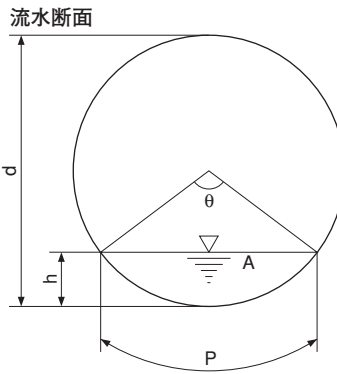
●クッター式

$$\left. \begin{aligned} Q &= V \cdot A \\ V &= \frac{23 + \frac{1}{n} + \frac{0.00155}{I}}{1 + (23 + \frac{0.00155}{I}) \frac{n}{\sqrt{R}}} \cdot \sqrt{R \cdot I} = \frac{N \cdot R}{\sqrt{R + D}} \end{aligned} \right\} (2 \cdot 2)$$

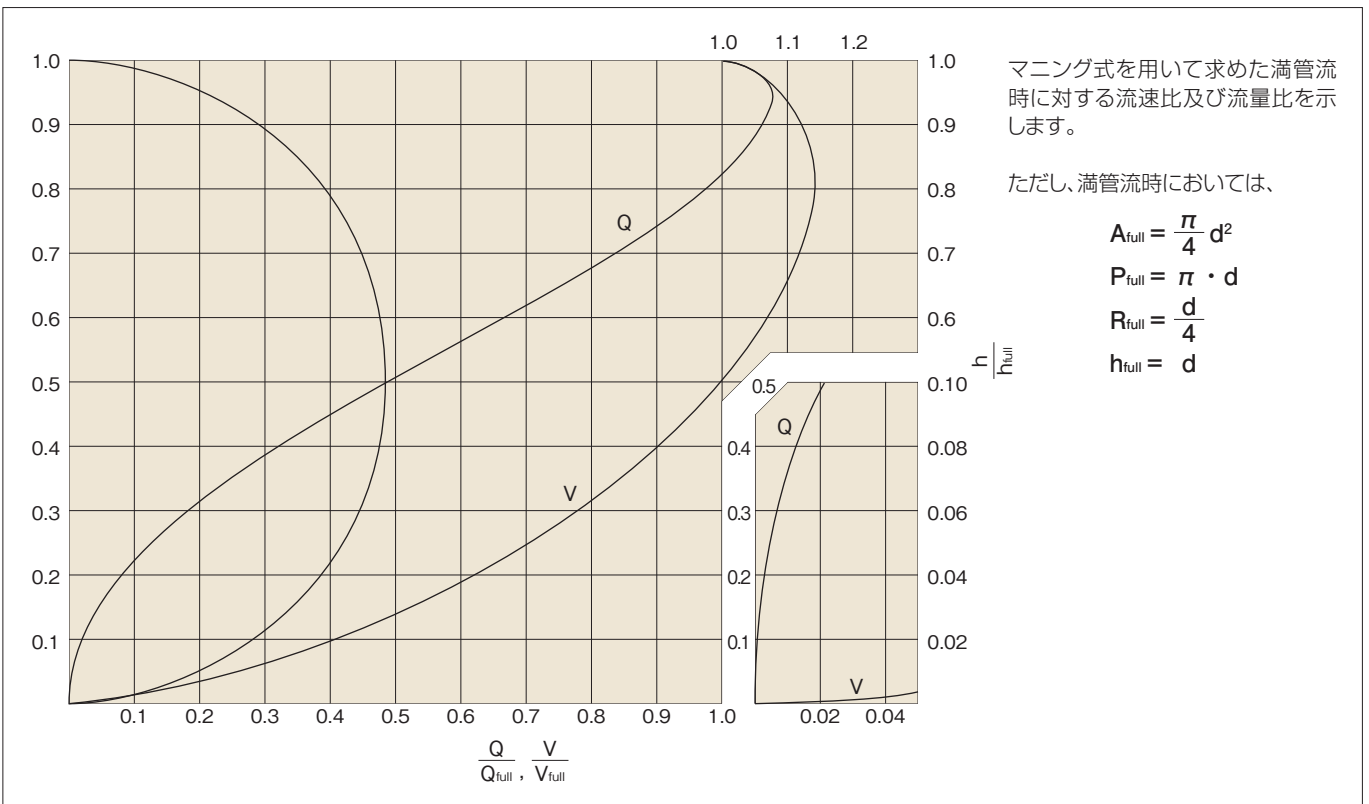
ここに、

$$N : (23 + \frac{1}{n} + \frac{0.00155}{I}) \sqrt{I}$$

$$D : (23 + \frac{0.00155}{I}) n$$



●水理特性曲線(マンニング式)



流速および流量〈マンニング式・満管流〉

Table with columns for pipe size (サイズ), flow rate (Q), velocity (V), and slope (I) for diameters 75 to 600 mm. The table is organized into three main sections for diameters 75-300, 350-500, and 550-600 mm.