

<https://www.tiv.com/global/NL/calculator/water-pressure-loss-through-piping.html?advanced=on>

Vergelijking(en)

$$\Delta p = \frac{\mu \cdot l \cdot v^2 \cdot \rho \cdot SG}{2d}$$

ρ : density of water
(1000 kg/m³)



d : Binnendiameter leiding (m)

l : Leidinglengte (m)

v : Watersnelheid (m/s)

Δp : Drukverlies (Pa)

μ : Wrijvingscoëfficiënt

SG: Watergravitatie

$$\text{deltap} = \frac{\mu \cdot l \cdot v^2 \cdot SG}{2d}$$

$$\text{flow} = v \cdot A$$

A = oppervlak slang binnenkant m²

flow = m³/s

$$v = \frac{\text{flow}}{A}$$

$$v = \frac{\text{flow}}{0.25 \cdot \pi \cdot d^2}$$

$$\text{deltap} = \frac{\mu \cdot l \cdot \left(\frac{\text{flow}}{0.25 \cdot \pi \cdot d^2} \right)^2 \cdot SG}{2d}$$

$$\text{deltap} = \frac{0.81056946913870217155 \cdot SG \cdot \mu \cdot \text{flow}^2 \cdot l}{d^5}$$

$$\mu := 0.05$$

$$SG := 1000$$

$$\text{flow} := 2000$$

l/uur

$$k1 := 3.7 \cdot 10^{-4}$$

$$\text{flow_l_p_s} := \text{flow}$$

$$d := 25$$

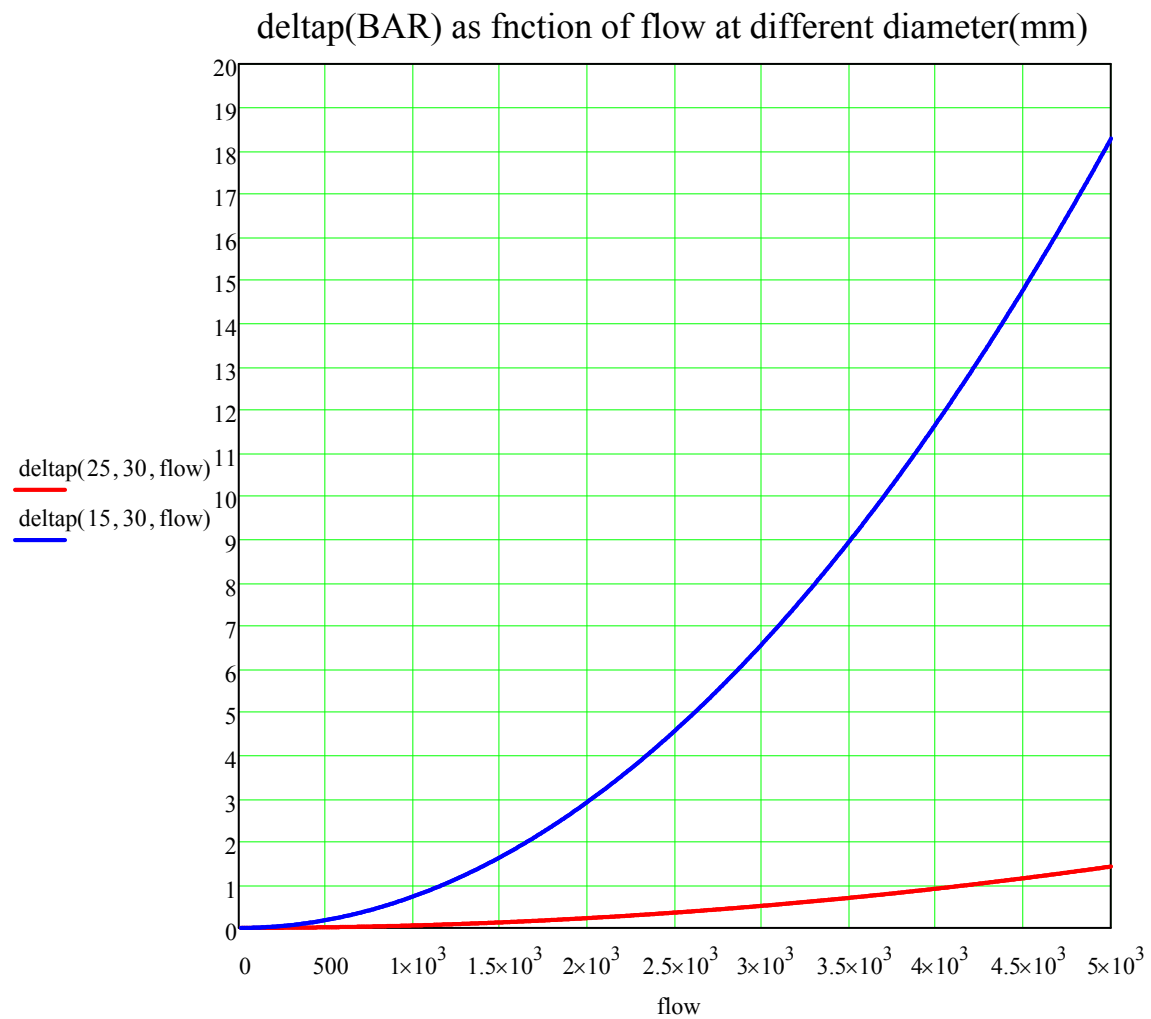
$$l := 30$$

k1 tuned with calculator tool

$$\text{deltap}(d, l, \text{flow}) := \frac{\text{flow}^2 \cdot \mu \cdot l \cdot SG \cdot k1}{d^5}$$

$$\text{deltap}(25, 30, \text{flow}) = 0.227$$

$$\text{flow} := 10, 20.. 5000$$



$$\text{deltap}(d, l, \text{flow}) := \frac{\text{flow}^2 \cdot \mu \cdot l \cdot SG \cdot k1}{d^5}$$

$$\text{deltap} = \frac{\text{flow}^2 \cdot \mu \cdot l \cdot SG \cdot k1}{d^5}$$

$$\text{flow}(\text{deltap}, d, l) := \sqrt{\frac{\text{deltap} \cdot d^5}{\mu \cdot l \cdot SG \cdot k1}}$$

$d := 10, 11 \dots 50$

