

VEEL GEBRUIKTE FORMULES

FORMULES EN SYMBOLEN UIT DE REGELTECHNIEK (FLUID CONTROL)

Formulae for calculating the k_v -value

Pressure drop

$$\text{undercritical, } p_2 > \frac{p_1}{2}$$

$$\text{overcritical, } p_2 < \frac{p_1}{2}$$

Liquids, k_v in m^3/h

$$= Q \cdot \sqrt{\frac{\rho}{\Delta p \cdot 1000}}$$

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Gases, k_v in m^3/h

$$= \frac{Q_N}{514} \cdot \sqrt{\frac{\rho_N \cdot T_1}{\Delta p \cdot p_1}}$$

$$= \frac{Q_N}{257 \cdot p_1} \cdot \sqrt{\rho_N \cdot T_1}$$

k_v = characteristic flow-rate in m^3/h

Q = flow-rate of the application in m^3/h

Q_N = standard flow-rate (1,013 bar and 273K/ 0°C) in m^3/h (Q_N at $\Delta p=1\text{bar}$, $p_1=6\text{bar}$ and $T_1=(273+20)\text{K}$)

p_1 = inlet pressure in bar(a)

p_2 = outlet pressure in bar(a)

Δp in bar

ρ = density in kg/m^3

ρ_N = standard density in kg/m^3

T_1 = medium temperature in (273+t) K

¹ bar(a) = pressure absolutely, bar(g) is the pressure over the atmosphere pressure (1,013 bar)

Circuit symbols

	WW A 2/2-way valve; normally closed		WW A Servo-assisted 2/2-way valve; normally closed, pilot channel inside
	WW B 2/2-way valve; normally open		WW B Servo-assisted 2/2-way valve; normally open, pilot channel inside
	WW C 3/2-way valve; normally closed, outlet A relieved		WW C Servo-assisted 3/2-way valve; outlet A normally relieved, pilot channel inside
	WW D 3/2-way valve; outlet B normally pressurized		WW D 3/2-way valve; outlet B normally pressurized, pilot channel inside
	WW E 3/2-way mixer valve; normally pressure port P2 connected to outlet A, P1 closed		
	WW F 3/2-way distributor valve; normally pressure port P connected to outlet B		
	WW T 3/2-way valve, universally usable		WW = Circuit function