FORMULES ET SYMBOLES DU DOMAINE DE LA REGULATION (FLUID CONTROL)

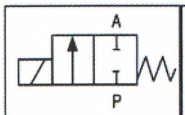
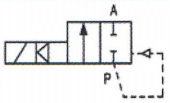
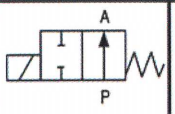
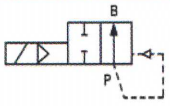
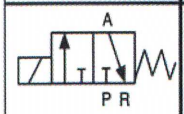
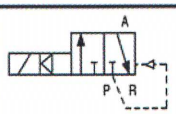
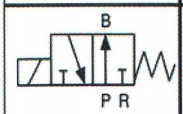
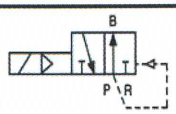
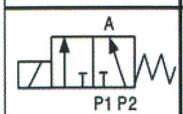
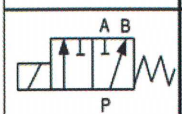
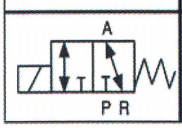
Formulae for calculating the k_v-value

Pressure drop	**Liquids, k_v in m^3/h**	**Gases, k_v in m^3/h**
undercritical, $p_2 > \frac{p_1}{2}$	$= Q \cdot \sqrt{\frac{\rho}{\Delta p \cdot 1000}}$	$= \frac{Q_N}{514} \cdot \sqrt{\frac{\rho_N \cdot T_1}{\Delta p \cdot p_2}}$
overcritical, $p_2 < \frac{p_1}{2}$	$= Q \times \sqrt{\frac{r}{Dp \times 1000}}$	——— $\sqrt{\quad}$

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_N^3/h (Q_{Nn} at Δp=1bar, p_1=6bar and T_1=(273+20)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 prot 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