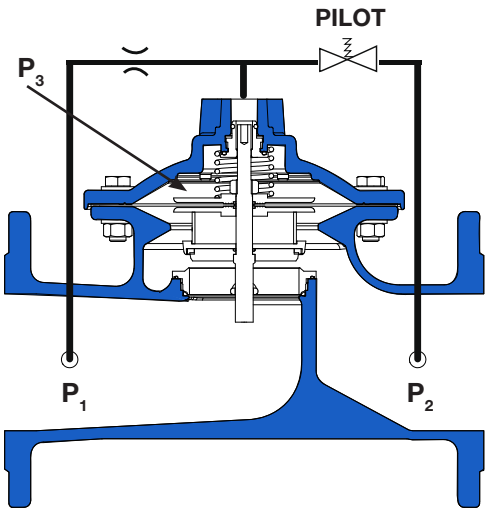
TECHNICAL INFORMATION - SERIES 879
AVK CONTROL VALVES



P_1: Inlet pressure/upstream pressure

P_2: Outlet pressure/downstream pressure

P_3: Control chamber pressure

Pressure Reducing Valve

Pre-set P_2 → P_2↑ →pilot valve ***closes***→ P_3↑ →main valve ***closes***→ P_2↓ → Pre-set P_2

Pre-set P_2 → P_2↓ →pilot valve ***opens***→ P_3↓ →main valve ***opens***→ P_2↑ → Pre-set P_2

Pressure Sustaining Valve

Pre-set P_1 → P_1↑ →pilot valve ***opens***→ P_3↓ →main valve ***opens***→ P_1↓ → Pre-set P_1

Pre-set P_1 → P_1↓ →pilot valve ***closes***→ P_3↑ →main valve ***closes***→ P_1↑ → Pre-set P_1

K_V values per DN

Model	DN													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Reduced bore (standard)	NA	53	83	119	135	202	435	734	990	1584	2221	2899	3865	4735
Full bore (optional)	44	76	116	175	NA	400	710	947	1355	2174	2734	3757	4548	6539

Formulae (only for water)

K_V: Cubic meters of water, at 18° flowing through the open valve in one hour with a Δp of one bar.
Q = m³/h P = bar

$$Q = K_V \sqrt{\Delta p} \quad , \quad K_V = \frac{Q}{\sqrt{\Delta p}} \quad , \quad \Delta p = \left(\frac{Q}{K_V}\right)^2$$

HEAD LOSS
Use the formula: $\Delta p = \left(\frac{Q}{K_V}\right)^2$

EXAMPLE: Pressure reducing valve

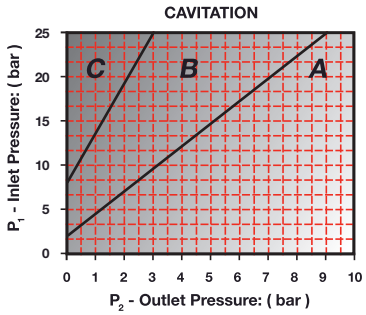
P1: 8 bar, P2: 3 bar
Flow: MAX – 130 m³/h , MED – 40 m³/hr , MIN – 10 m³/h
$K_V = Q/\sqrt{\Delta P}$ ΔP = 5 $K_V = 130/2.24$ $K_V = 58$

For proportional control valves use a 1.3 safety factor to avoid control failure at momentary high flows.
Safety factor 1.3 x 58 = 75
Valve DN 80 reduced bore

Referring to EN1074-5, the maximum continuous flow speed is 4 m/sec for PN16, and 3 m/sec for PN10.

Expect... AVK

Cavitation

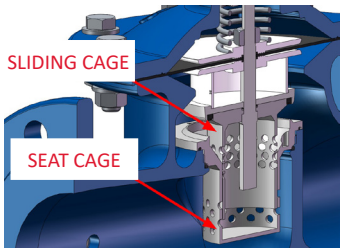


Locate inlet and outlet pressure on the cavitation chart. If point location falls in shaded area C or B, continued use of a standard valve can cause deterioration in valve body and produce more noise and vibration.

AREA A – standard valve
AREA B – valve with anti-cavitation trim
AREA C – valves in series

Please consult AVK for special applications.

Anti-cavitation trim



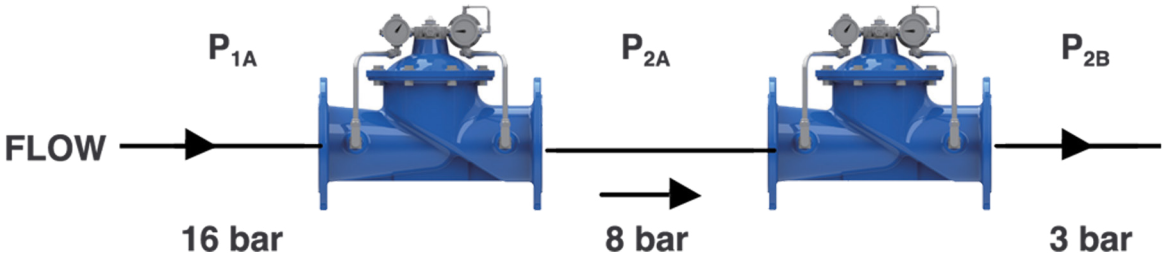
To reduce the risk of cavitation, a valve with anti-cavitation trim incorporates a double sliding cage design in stainless steel AISI 316.

The anti-cavitation trim controls the cavitation, protecting the valve and making sure the valve will not suffer from cavitation erosion.

The anti-cavitation trim reduces the flow significantly.

Valves in series

To prevent cavitation problems in applications with a high pressure difference between inlet and outlet, a series of two valves or more can be installed.



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