Silent Check Valve Engineering Data

SUBMITTAL DATA SHEET
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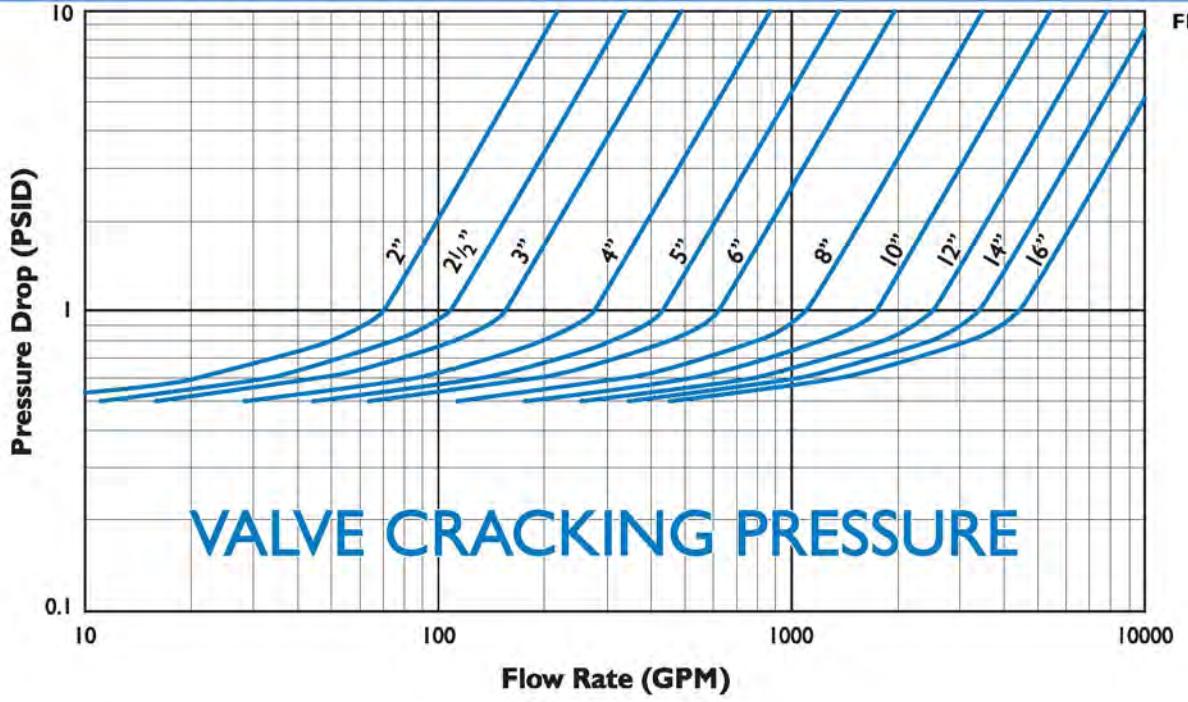
Wafer Silent Check Valve Pressure Drop – Liquids (Sizes 2" - 16")

FIGURE 13



Notes:

1. Pressure drop curves are based on water flow.
2. Valve cracking pressure is equal to or less then 0.5 psid.
3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Method of Calculating Flow

Liquid Flow

$$C_v = Q\sqrt{\frac{G}{\Delta P}} \qquad Q = C_v\sqrt{\frac{\Delta P}{G}} \qquad \Delta P = G\left(\frac{Q}{C_v}\right)^2$$

Gas Flow

$$C_v = \frac{Q}{963}\sqrt{\frac{GT}{\Delta P\,(P_1 + P_2)}} \qquad Q = 963C_v\sqrt{\frac{\Delta P\,(P_1 + P_2)}{GT}}$$

Saturated Vapour

$$C_v = \frac{W}{K}\sqrt{\frac{1}{\Delta P\,(P_1 + P_2)}} \qquad W = C_vK\sqrt{\Delta P\,(P_1 + P_2)}$$

Superheated Vapour

$$C_v = \frac{W(1+0.0007T_{SH})}{K}\sqrt{\frac{1}{\Delta P\,(P_1 + P_2)}} \qquad C_v = \frac{C_vK}{(1+0.0007T_{SH})}\sqrt{\Delta P\,(P_1 + P_2)}$$

Variables

Cv	=	Valve Coefficient
ΔP	=	$(P_1 - P_2)$ Pressure Drop
P_1	=	Inlet Pressure (PSIA)
P_2	=	Outlet Pressure (PSIA)
G	=	Specific Gravity
Water	=	1.0 at 60°F and 1 ATM
Air	=	1.0 at 60°F and 1 ATM

Q	=	Flow
Liquid	=	USGPM
Gas	=	SCFH
T	=	Absolute Temperature (°F + 460)
T_{SH}	=	Superheat (°F) Total Temperature Minus Saturation Temperature
W	=	lbs. Per Hour (LB/H)
K	=	Constant For Vapours