

Dual Disc Check Valve Pressure Drop – Liquids (Sizes 2”-30”)

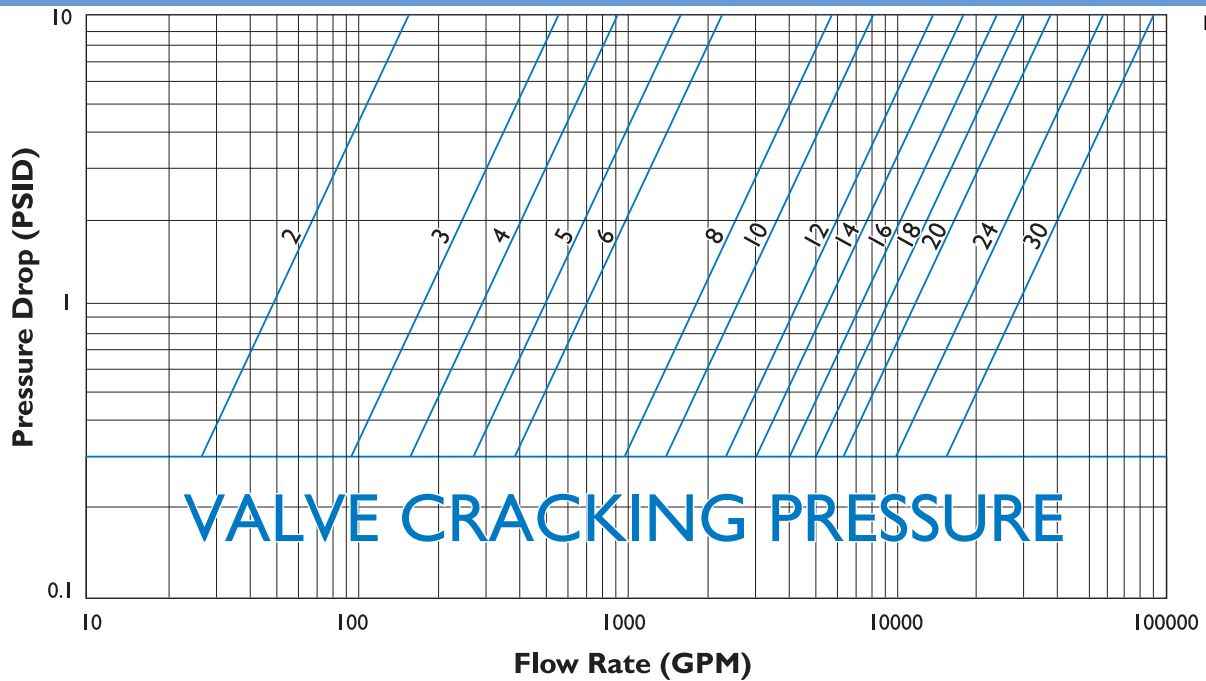


FIGURE 9

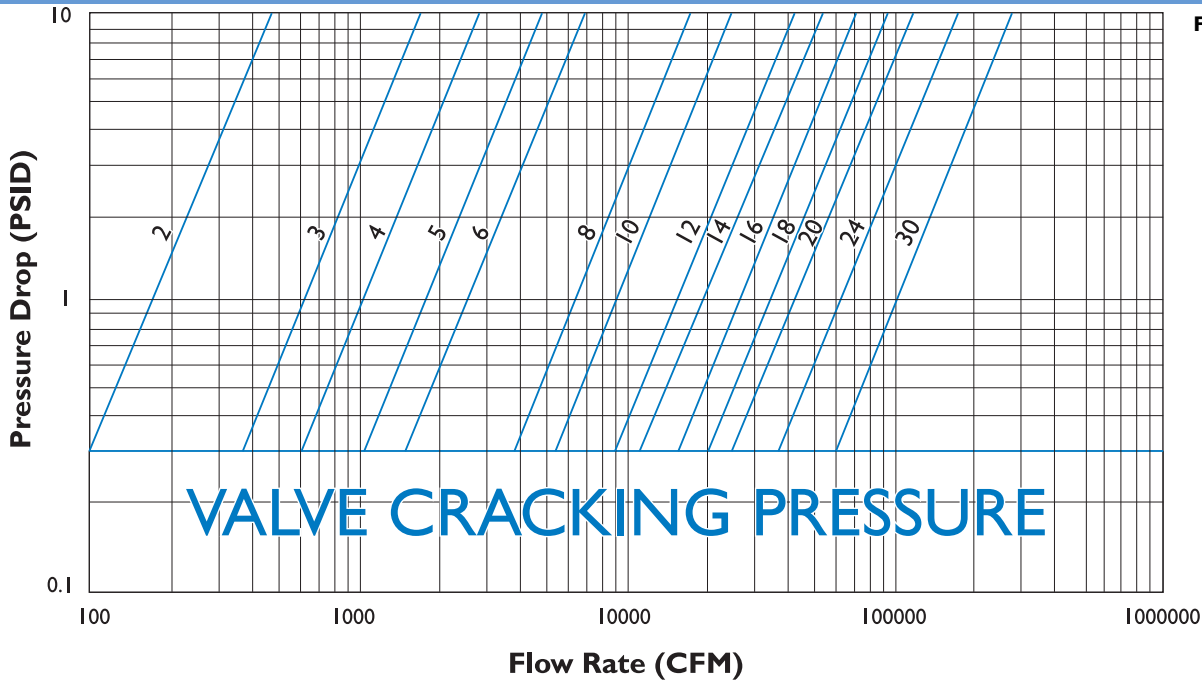
- Notes:**
1. Pressure drop curves are based on water flow.
 2. Valve cracking pressure is equal to or less than 0.3 psid.
 3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Cv Values (US-GPM @ 1 PSID)

Valve Size - in (mm)	Cv	Valve Size - in (mm)	Cv
2" (50mm)	48	12" (300mm)	4295
3" (75mm)	171	14" (350mm)	5463
4" (100mm)	291	16" (400mm)	7355
5" (125mm)	494	18" (450mm)	9537
6" (150mm)	705	20" (500mm)	12004
8" (200mm)	1795	24" (600mm)	17804
10" (250mm)	2563	30" (750mm)	28660

Dual Disc Check Valve Pressure Drop–Air @ 60°F, 1 ATM (Sizes 2”– 30”)

FIGURE 10



- Notes:**
1. Pressure drop curves are based on air flow at 60°F and 1 ATM pressure.
 2. Valve cracking pressure is equal to or less than 0.3 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

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

Gas Flow

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

Saturated Vapour

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

Superheated Vapour

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

Variables

C_v = Valve Coefficient
ΔP = (P₁ - P₂) Pressure Drop
P₁ = Inlet Pressure (PSIA)
P₂ = 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