Liquid Flow Calculations

$$Cv = \frac{GPM}{\sqrt{\frac{\Delta P}{S.G.}}}$$

1. Find pressure differential on horizontal axis.

2. Draw vertical line to intersect with curve; at this point draw horizontal line to vertical axis. This is the flow for a valve with a Cv factor of 1.

3. Now, use KIP's Cv factor from the catalog listing, and multiply this Cv by the flow from step two above. This is the flow through the specific valve you have selected.

4. If the media is not water, multiply the flow by a correction factor. Examples of correction factors are:

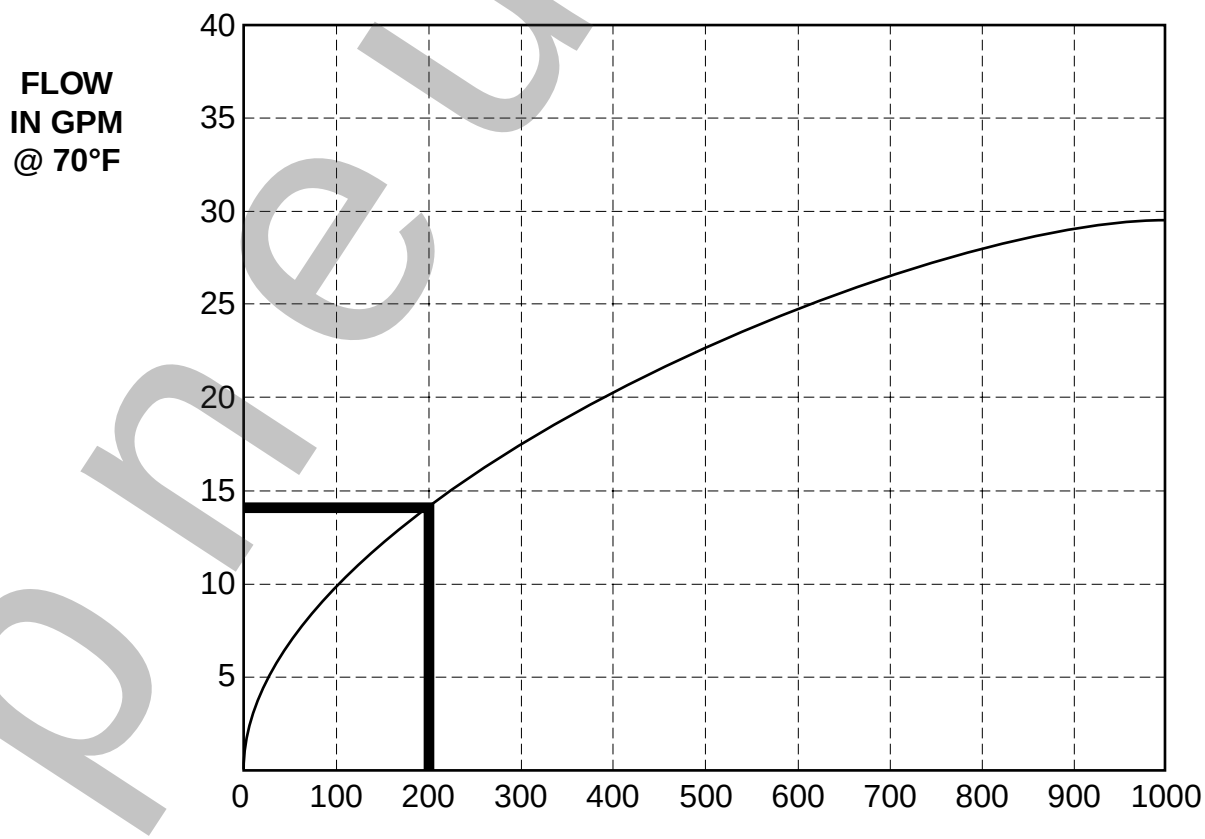
Gasoline	1.200
Ethyl Alcohol	1.120
MIL-H-5606A Hydro-oil	1.087

Other Fluids $= \sqrt{\frac{1}{S.G.}}$

EXAMPLE

Media: Gasoline
Pressure differential: 200
Cv factor - KIP Series 1 valve, 1/32 orifice, 2-Way Normally Closed:.035
Pressure Differential on Chart = 200
Water flow x Cv factor = 14 x .035 = 0.490
Valve Flow with water x Correction factor = 0.490 x 1.200 = .588 GPM

This is the flow of gasoline through a KIP PIN 141040 valve under these conditions.



Air/Gas Flow Calculations

1. Find back pressure on horizontal axis.

2. Draw vertical line to intersect with operating pressure curve; at this point draw horizontal line to vertical axis. This is the flow for a valve with a Cv factor of 1 in SCFM (standard cubic feet per minute).

3. Use the Cv factor from the catalog listing, and multiply this Cv by the flow from step two above. This is the air flow through the specific valve you have selected.

4. If the media is not air multiply the flow by a correction factor. Examples of correction factors are:

Helium	2.69
Hydrogen	3.85
Methane	1.33
Oxygen	.95
Propane	.80

Other Fluids = $\sqrt{\frac{1}{S.G.}}$

EXAMPLE

Media: Oxygen
Back Pressure: 100
Operating Pressure: 120
Cv factor - KIP Series 6 valve, 3/64 orifice, 2-Way Normally Closed:.050

Back Pressure on Chart = 100
Operating Pressure Curve = 120
Air flow x Cv factor = 50 x .050 = 2.50
Valve Flow with air
x Correction factor
= 2.50x.95 = 2.375 SCFM

This is the flow of oxygen through a KIP PIN 651111 valve under these conditions.