TRIAD® process equipment

GENERAL DATA SHEET
TYPICAL VALVE FLOW RATES
BALL VALVES

Rate of flow through a valve depends upon the pressure drop. The most common method of presenting this information is by Cv. The Cv is the valve coefficient of flow and represents the flow of water in gallons per minute (GPM) with a 1 PSIG pressure drop through the valve. The higher the Cv the greater the flow and the better the control characteristics.

RATE OF FLOW CALCULATIONS FOR LIQUIDS:

To determine the flow rate of a liquid passing through a valve, use the following formula:

$$QL = Cv \times \sqrt{\frac{\Delta P}{SL}}$$

Where QL = flow of liquid in gallons per minute (GPM)
Cv = flow coefficient
ΔP = pressure drop (psi)
SL = Specific gravity of liquid

PRESSURE DROP CALCULATIONS:

$$\Delta P = SL \left(\frac{QL}{Cv}\right)^2$$

RATE OF FLOW CALCULATIONS FOR GASES:

For gases, the relationship between flow in standard cubic feet per hour Qg and pressure drop is described by the following formulas:

$$Qg = 1360 \times Cv \sqrt{\frac{\Delta P}{SL}} \times \sqrt{\frac{P1 + P2}{2}}$$

Where Qg = Volumetric flow of gas (SCFH)
Sg = Specific gravity of gas
(air @ 14.7 PSIA and 60°F = 1)
T = Absolute temperature of flowing medium
(°F + 460)
P1 = Inlet pressure (PSIA)
P2 = Outlet pressure (PSIA)
ΔP = (P1 - P2) Pressure drop (PSIA)
Cv = flow coefficient

TWO WAY BALL VALVES Cv VALUES:

SERIES	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
11	6	7	19	34	50	104	268	309	629	1018	1622	-	-	-	-	-
22 SS	6	7	10	25	35	46	80	110	-	-	-	-	-	-	-	-
22D BRASS	5	6	16	30	43	89	230	265	-	-	-	-	-	-	-	-
22D SS	8	10	19	34	50	103	267	307	-	-	-	-	-	-	-	-
50	6	7	10	25	35	46	80	110	310	360	820	-	-	-	-	-
50D	6	7	10	25	35	46	80	110	310	360	820	-	-	-	-	-
66	8	8	15	34	56	85	125	250	320	580	1020	-	-	-	-	-
9150/9300	-	-	28	50	95	132	260	485	800	1250	2250	3620	5400	10000	15000	21000
920-61	-	-	9	26	61	-	193	432	728	1125	1986	-	-	-	-	-
920D-61	-	-	9	26	61	-	193	432	728	1125	1986	-	-	-	-	-
60/70/80C/90C	5	8	19	35	50	110	200	350	-	1100	2100	-	-	-	-	-
VS360	5	7	35	61	105	210	285	425	750	1038	-	-	-	-	-	-
VS360ESW	5	7	35	61	105	210	285	425	-	-	-	-	-	-	-	-
XHP	5	7	35	61	105	-	-	-	-	-	-	-	-	-	-	-

THREE WAY BALL VALVES Cv VALUES:

SERIES	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
30-92061 L	-	-	11	18	29	-	63	132	198	288	473	-	-	-	-	-
30-92061 T	-	-	16	23	46	-	112	427	693	1170	2069	-	-	-	-	-
36 L	-	-	11	11	30	47	50	120	158	275	422	-	788	1828	3159	-
36 T	-	-	13	13	34	54	198	430	670	1170	2070	-	5000	8800	13500	-
33 L	4	4	5	8	14	20	31	49	-	-	-	-	-	-	-	-
33 T	3	4	4	7	13	19	30	44	-	-	-	-	-	-	-	-
46 L	7	7	11	11	30	47	50	120	158	275	422	-	788	1828	3159	4626
46 T	8	8	13	13	34	54	198	430	670	1170	2070	-	5000	8800	13500	20130
46 X	-	-	9	10	20	21	47	79	83	90	180	-	2500	4400	6750	-
XHP3W L	5	7	35	61	105	-	-	-	-	-	-	-	-	-	-	-
XHP3W T	5	7	35	61	105	-	-	-	-	-	-	-	-	-	-	-
HP3W L	-	-	-	-	-	210	285	425	-	-	-	-	-	-	-	-
HP3W T	-	-	-	-	-	210	285	425	-	-	-	-	-	-	-	-

THE TABLE ABOVE DEPICTS THE VALUE BASED ON THE POSITION OF THE VALVE: L PORT POSITION, T PORT POSITION & X PORT POSTION (WHEN AVAILABLE).

Triad Process Equipment 4922 Technical Dr. Milford, MI 48381
248.685.9938 www.triadprocess.com