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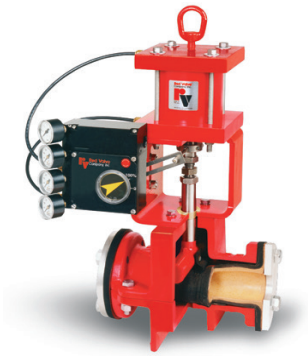
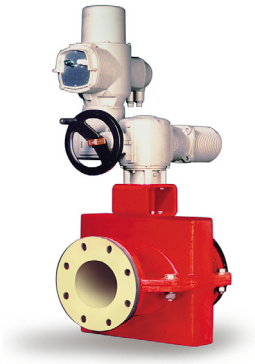
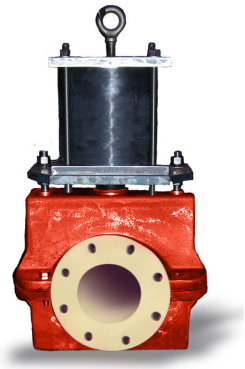









Red Valve

Control Pinch Valve Sizing Guide

Sizing Control Valves

Sizing control valves to provide desirable operating parameters ranks among the most important factors in determining the stability and longevity of a process system. This sizing guide addresses the key points in the sizing process. Red Valve is committed to providing the utmost in quality equipment to achieve that goal.

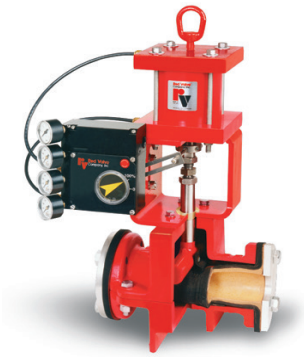
Red Valve has a technical team of experienced valve specialists who are dedicated to ensuring the selection of control valves meets the needs of the application. Our specialists have experience with control valves in systems ranging from wastewater, mining and chemical, to bulk handling applications.

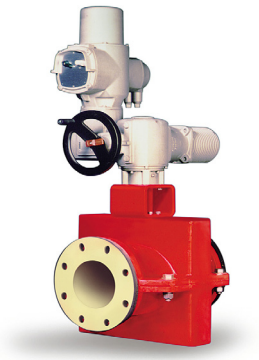
We have computerized the selection process to evaluate multiple system parameters and valve configurations to provide an optimized solution for the application.

Red Valve evaluates the flow conditions and potential for cavitation and will recommend a pinch valve and actuator. Our experience and computer systems are here to support your projects.

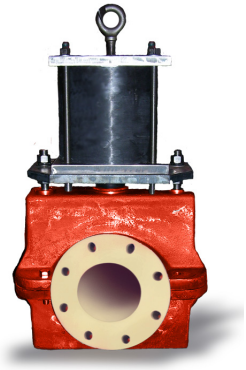
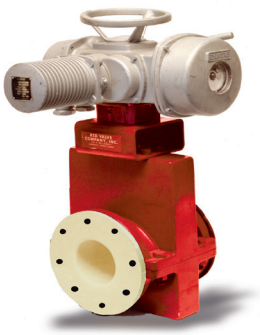
The first step in engaging Red Valve's technical services is to complete the **Control Valve Data Sheet** (click here to download an online copy) and provide a simple sketch or description of the system layout. We will evaluate the conditions and discuss the results, then recommend solutions for you to review.

Red Valve's global representative network stands ready to work with you to solve your toughest control applications. We are committed to achieving your satisfaction.







Flow Data

Data Required for Sizing:

- Pipe diameter
- Flow Q Maximum in gallons per minute GPM
- Flow Q Minimum in gallons per minute GPM
- Flow Q Normal in gallons per minute GPM
- P_1 Inlet Pressure PSIG at minimum, maximum and normal flow
- ΔP Pressure Drop through the valve at minimum, maximum and normal flow
- G Specific Gravity of fluid at operating temperatures
- P_V Vapor Pressure PSIA of fluid at operating temperatures

The basic equation for sizing Red Valve's Control Pinch Valves for non-compressible fluids and liquids is as follows:

$$C_v = Q\sqrt{\frac{G}{\Delta P}}$$

Where: Q = Flow Rate in GPM

G = Specific Gravity

ΔP = Pressure Drop = $P_1 - P_2$

P_1 = Inlet Pressure in PSIG

P_2 = Outlet Pressure in PSIG

Flow Coefficient (C_V)

Valve flow coefficient indicates capacity. It is the flow in GPM of 60°F water through the valve with 1 psi pressure drop, at a stated upstream pressure.

Leakage

Leakage references the allowable quantity of fluid passing through a valve when fully closed. This leakage rate is defined by ANSI/FCI 70-2.

Flow Characteristics

Flow Characteristics of the valve refer to the relationship between the flow through the valve and the percentage of travel or opening, as the latter is varied from 0% to 100%.

Rangeability

Rangeability refers to the ratio of maximum to minimum flows to be controlled.

Differential Pressure Drop

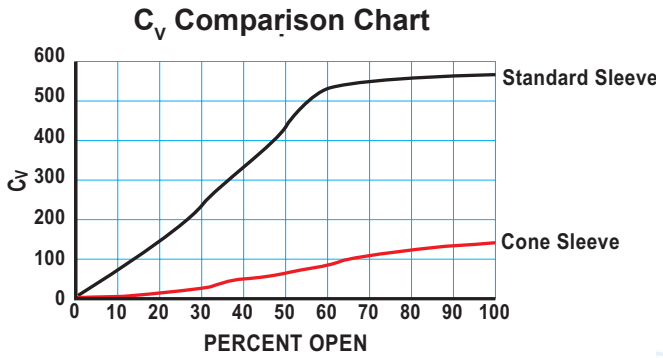
A point of confusion regarding control valve sizing is the difference between assigned ΔP and actual ΔP.

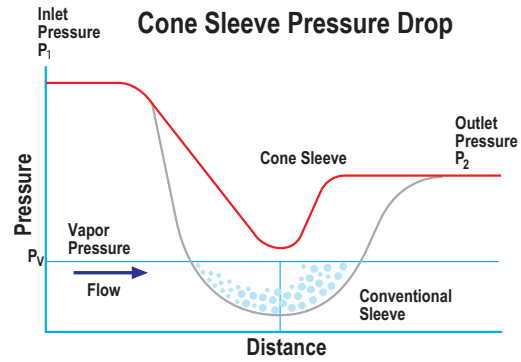
Assigned ΔP is actually the pressure drop added to the system resistance during design to assure that sufficient ΔP is available to permit the control valve to perform its function. This is considered a theoretical value and has no meaning under actual operating conditions. It is needed during the design stage for tasks such as estimating pump size.

The actual ΔP is the difference between the control valve inlet pressure and control valve outlet pressure for a given flow. A control valve does not dictate the ΔP in a system. Rather, the fluid system dictates what the ΔP across a control valve is for a given flow.

Cone Sleeve Benefits

The Cone Sleeve maintains a smooth streamline flow pattern when modulating slurry fluids. It has a maximum allowable pressure drop of 20% to 25% higher than standard sleeve trim. The Cone Sleeve offers a high rangeability for modulating service. It has the highest rangeability and pressure recovery factor of all the Red Valve sleeve trims and provides accurate, repeatable control over a wide range of flow conditions.





Control Valve Sizing Example

Below is the mathematical calculation used in correctly sizing a control valve. All the information necessary to calculate valve size is listed on the following pages. Designers can also submit a sizing request using the Control Valve Design Data Form online at RedValve.com.

Example

Line Size:	3" diameter, ASME 125 flanged
Flow:	137 gallons per minute GPM maximum
	125 gallons per minute GPM minimum
P_1:	25 PSIG maximum
	20 PSIG minimum
T_1:	120°F
ΔP:	12 PSI maximum
	7.5 PSI minimum
G:	1.2 Specific Gravity
Viscosity:	50 SSU

Process media is lime slurry, throttling service.

Solve for C_{VMAX}: $C_{VMAX} = Q_{MAX}\sqrt{\frac{G}{\Delta P}}$

$$C_{VMAX} = 137\sqrt{\frac{1.2}{7.5}}$$

$$C_{VMAX} = 54.8$$

Solve for C_{VMIN}: $C_{VMIN} = Q_{MIN}\sqrt{\frac{G}{\Delta P}}$

$$C_{VMIN} = 125\sqrt{\frac{1.2}{12}}$$

$$C_{VMIN} = 39.5$$

Select the Control Pinch Valve Size:

If there is a 3" line and a 54.8 C_{VMAX} and a 39.5 C_{VMIN} is required for this application, review the C_V charts to determine the appropriate sleeve trim selection. This selection dictates the valve size.

Note: A 3"x1.5" cone sleeve has a maximum C_V of 58. This would be the best selection, as maximum valve C_V equals 58. Control would be between 56% open and 80% open.

Solve for ΔP Allowable:

ΔP Allowable = $F_L^2 \times (P_1 + 14.7 - rc \times P_V)$

ΔP Allowable =	Maximum Allowable Pressure Drop
F_L =	Pressure Recovery Factor (see table for F_L factor)
P_1 =	Inlet Pressure PSIG
14.7 =	Conversion to PSIA
rc =	Critical Pressure Ratio (.94 constant)
P_V =	Vapor Pressure at Flow Temperature (see Vapor Pressure table)

ΔP Allowable = $.70^2 \times (25 + 14.7 - .94 \times 1.69)$

ΔP Allowable = 18.7 PSI

Note: Actual Max ΔP = 12 PSI

When the Actual ΔP is smaller than the ΔP Allowable, cavitation will not occur.

Solve for Reynold's Number:

$$Re = 3160 \times \frac{Q}{d \times k}$$

Re =	Reynold's Number
Q =	Flow GPM
d =	Internal Diameter Square Inches
k =	Viscosity Centistokes (see Viscosity Conversion table)

$$Re = 3160 \times \frac{137}{(3 \times 7.4)}$$

$$Re = 19{,}501$$

Note: The Reynold's Number is much higher than 3500, no correction to the C_V is required.

Generally, if the calculated Reynold's Number is 3500 or greater, no correction to the C_V is required.

Solve for Valve Inlet Velocity:

$$V = \frac{Q}{3.12 \times A}$$

V =	Velocity
Q =	Flow GPM
A =	Valve Inlet Cross Section Area Square Inch

$$V = \frac{137}{(3.12 \times 7)}$$

V = 6.3 Feet per Second

Note: Velocity is below 14 feet per second which is ideal. Velocity should not exceed 22 feet per second.

Choose Appropriate Accessories: limit switches, positioners, solenoids, etc.

Pressure Recovery Factor (F_L)

Liquid Pressure Recovery Factor F_L

The pressure recovery factor, F_L, is a dimensionless expression of the pressure recovery ratio in a control valve. F_L is an ISA nomenclature.

$$F_L = \sqrt{\frac{P_1 - P_2}{P_1 - P_{VC}}}$$

F_L = Pressure recovery factor
P_1 = Inlet pressure PSIA
P_2 = Outlet pressure PSIA
P_{VC} = Pressure at Vena Contracta

F_L Cone Sleeve - Series 5200

VALVE SIZE (")		PORT SIZE (")	% OF TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
1	x	0.33	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
1	x	0.5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
1	x	0.75	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
1.5	x	0.5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
1.5	x	0.25	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
1.5	x	1	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
2	x	0.75	0.86	0.88	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
2	x	1	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
2	x	1.5	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
2.5	x	1	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
2.5	x	1.5	0.66	0.66	0.66	0.65	0.68	0.66	0.64	0.62	0.60	0.58
2.5	x	2	0.45	0.45	0.47	0.50	0.60	0.62	0.62	0.61	0.61	0.60
3	x	1	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
3	x	1.5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
3	x	2	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
4	x	1.5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
4	x	2	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
4	x	3	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
6	x	3	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
6	x	4	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
6	x	5	0.43	0.43	0.44	0.47	0.50	0.60	0.61	0.62	0.61	0.61
8	x	4	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
8	x	5	0.63	0.63	0.63	0.63	0.65	0.66	0.64	0.62	0.60	0.58
8	x	6	0.49	0.49	0.51	0.53	0.58	0.62	0.63	0.62	0.61	0.60
10	x	5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
10	x	6	0.66	0.66	0.66	0.65	0.68	0.66	0.64	0.62	0.60	0.58
10	x	8	0.45	0.45	0.46	0.49	0.54	0.61	0.62	0.62	0.61	0.61
12	x	6	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
12	x	8	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
12	x	10	0.43	0.43	0.45	0.47	0.50	0.60	0.61	0.62	0.61	0.61
14	x	8	0.74	0.74	0.74	0.72	0.72	0.68	0.65	0.62	0.60	0.58
14	x	10	0.52	0.52	0.53	0.54	0.60	0.63	0.63	0.62	0.61	0.60
14	x	12	0.42	0.42	0.43	0.44	0.47	0.54	0.59	0.61	0.62	0.61
16	x	8	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
16	x	12	0.49	0.49	0.50	0.52	0.57	0.62	0.63	0.62	0.61	0.60
16	x	14	0.41	0.41	0.42	0.45	0.47	0.56	0.60	0.61	0.62	0.61
18	x	12	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
18	x	14	0.47	0.47	0.49	0.50	0.56	0.61	0.62	0.62	0.61	0.61
18	x	16	0.40	0.40	0.41	0.44	0.46	0.55	0.60	0.61	0.61	0.61
20	x	14	0.52	0.52	0.53	0.55	0.62	0.63	0.63	0.61	0.60	0.59
20	x	16	0.45	0.45	0.46	0.49	0.54	0.61	0.62	0.62	0.61	0.61
20	x	18	0.40	0.40	0.41	0.43	0.46	0.54	0.60	0.61	0.61	0.61
24	x	16	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
24	x	18	0.49	0.49	0.51	0.53	0.59	0.62	0.62	0.62	0.61	0.60
24	x	20	0.43	0.43	0.45	0.47	0.51	0.60	0.61	0.62	0.61	0.61
30	x	18	0.66	0.66	0.66	0.65	0.68	0.66	0.64	0.62	0.60	0.58
30	x	20	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
30	x	24	0.45	0.45	0.46	0.49	0.54	0.61	0.62	0.62	0.61	0.61

F_L Standard and Double Wall Sleeve

VALVE STYLE & VALVE SIZE (")	% OF TOTAL TRAVEL									
	10	20	30	40	50	60	70	80	90	100
Series 5200 0.5 - 4	0.36	0.36	0.39	0.43	0.56	0.60	0.61	0.61	0.61	0.61
Series 5200 6 - 36	0.36	0.36	0.36	0.38	0.41	0.46	0.55	0.58	0.60	0.61
Series 5400 All Sizes	0.36	0.36	0.39	0.43	0.56	0.60	0.61	0.61	0.61	0.61

F_L Cone Sleeve - Series 5400

VALVE SIZE (")		PORT SIZE (")	% OF TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
4	x	1.5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
4	x	2	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
4	x	3	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
6	x	3	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
6	x	4	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
6	x	5	0.43	0.43	0.46	0.48	0.59	0.61	0.62	0.61	0.61	0.60
8	x	4	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
8	x	5	0.63	0.63	0.63	0.63	0.65	0.66	0.64	0.62	0.60	0.58
8	x	6	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
10	x	5	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
10	x	6	0.66	0.66	0.66	0.65	0.68	0.66	0.64	0.62	0.60	0.58
10	x	8	0.45	0.45	0.47	0.50	0.60	0.60	0.62	0.61	0.61	0.60
12	x	6	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
12	x	8	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
12	x	10	0.43	0.43	0.46	0.48	0.59	0.61	0.62	0.61	0.61	0.60
14	x	8	0.74	0.74	0.74	0.72	0.72	0.68	0.65	0.62	0.60	0.58
14	x	10	0.52	0.52	0.53	0.55	0.62	0.63	0.63	0.61	0.60	0.59
14	x	12	0.42	0.42	0.44	0.47	0.58	0.61	0.62	0.61	0.61	0.60
16	x	8	0.86	0.86	0.84	0.80	0.76	0.70	0.66	0.62	0.59	0.56
16	x	12	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
16	x	14	0.41	0.41	0.44	0.47	0.58	0.61	0.62	0.61	0.61	0.60
18	x	12	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
18	x	14	0.47	0.47	0.49	0.51	0.60	0.62	0.62	0.61	0.61	0.60
18	x	16	0.40	0.40	0.43	0.46	0.58	0.61	0.61	0.61	0.61	0.61
20	x	14	0.52	0.52	0.53	0.55	0.62	0.63	0.63	0.61	0.60	0.59
20	x	16	0.45	0.45	0.47	0.50	0.60	0.62	0.62	0.61	0.61	0.60
20	x	18	0.40	0.40	0.43	0.46	0.58	0.61	0.61	0.61	0.61	0.61
24	x	16	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
24	x	18	0.49	0.49	0.51	0.53	0.61	0.63	0.62	0.61	0.60	0.60
24	x	20	0.43	0.43	0.46	0.48	0.59	0.61	0.62	0.61	0.61	0.60
30	x	18	0.66	0.66	0.66	0.65	0.68	0.66	0.64	0.62	0.60	0.58
30	x	20	0.57	0.57	0.58	0.58	0.64	0.64	0.63	0.61	0.60	0.59
30	x	24	0.45	0.45	0.47	0.50	0.60	0.60	0.62	0.61	0.61	0.60

For larger sizes up to 72", consult factory.

Flow Coefficient (C_v)

Valve Flow Coefficient (C_v) indicates valve capacity. It is the flow in gallons per minute of water at 60°F through the valve with 1 psi pressure drop at a stated upstream pressure. In most on/off valve applications, a high C_v is important. The high C_v of a full-port sleeve results in low pressure loss through the valve, which increases capacity and reduces pumping costs. However, high C_v is a disadvantage in throttling or control applications where the valve is used to absorb pressure.

To maintain a pressure drop across a full-port sleeve, the valve must be positioned in a partially closed position. This results in increased sleeve wear and reduces the control range of the sleeve. If the valve has to be positioned at 50% open to obtain the correct pressure drop at maximum flow, the control range is cut in half, as the valve position above 50% is useless.

Red Valve Cone Sleeves solve this problem with a flow restriction that is designed into the sleeve. This allows the valve to operate at positions closer to 100% open.

How To Use The Flow Coefficient (C_v) Charts:

- From the example on page 4, the line size is 3".
- Select the proper valve size from the left-hand column of the C_v charts. In the example, the valve size is 3".
- Note the calculated C_v from the example on page 4 is 54.8.
- Locate from the 3 charts, under 100% open, the closest value to calculated C_v. Closest value for the example is 58.
- Use this value to determine sleeve trim. In the example, 58 is the C_v value for a 3"x 1.5" cone sleeve.

Note: For modulating service select C_v values between 20% and 80% to allow for good control.

C_v Standard and Double Wall Sleeve - Series 5200

VALVE SIZE (")	VALVE OPENING - % OF TOTAL TRAVEL									
	10	20	30	40	50	60	70	80	90	100
1	9.00	18.00	28.00	41.00	50.00	61.00	64.00	85.00	66.00	67.00
1.5	19.00	40.00	62.00	91.00	112.00	137.00	142.00	145.00	147.00	147.00
2	34.00	70.00	109.00	159.00	198.00	240.00	252.00	255.00	257.00	260.00
2.5	53.00	108.00	169.00	247.00	304.00	372.00	390.00	395.00	398.00	402.00
3	74.00	152.00	237.00	347.00	427.00	523.00	548.00	554.00	560.00	565.00
4	110.00	235.00	389.00	562.00	656.00	759.00	791.00	803.00	811.00	817.00
6	160.00	358.00	601.00	941.00	1214.00	1417.00	1513.00	1567.00	1609.00	1643.00
8	284.00	635.00	1065.00	1670.00	2155.00	2514.00	2682.00	2779.00	2853.00	2913.00
10	444.00	993.00	1666.00	2613.00	3370.00	3931.00	4168.00	4345.00	4460.00	4552.00
12	724.00	1619.00	2716.00	4260.00	5494.00	6411.00	6841.00	7085.00	7272.00	7422.00
14	967.00	2163.00	3629.00	5691.00	7340.00	8566.00	9142.00	9464.00	9710.00	9911.00
16	1263.00	2824.00	4740.00	7433.00	9587.00	11,186.00	11,939.00	12,360.00	12,682.00	12,944.00
18	1611.00	3604.00	6049.00	9485.00	12,234.00	14,275.00	15,236.00	15,773.00	16,184.00	16,519.00
20	2384.00	5332.00	8949.00	14,033.00	18,100.00	21,119.00	22,542.00	23,337.00	23,944.00	24,440.00
24	2951.00	6601.00	11,079.00	17,373.00	22,407.00	26,145.00	27,906.00	28,890.00	29,641.00	30,255.00

C_v Standard and Double Wall Sleeve - Series 5400

VALVE SIZE (")	VALVE OPENING - % OF TOTAL TRAVEL									
	10	20	30	40	50	60	70	80	90	100
4	110.00	235.00	389.00	562.00	656.00	759.00	791.00	803.00	811.00	817.00
6	229.00	552.00	1038.00	1390.00	1527.00	1594.00	1643.00	1670.00	1691.00	1700.00
8	405.00	979.00	1843.00	2466.00	2706.00	2827.00	2913.00	2961.00	2998.00	3014.00
10	634.00	1531.00	2883.00	3856.00	4233.00	4420.00	4552.00	4629.00	4686.00	4710.00
12	1034.00	2496.00	4701.00	6288.00	6902.00	7207.00	7422.00	7548.00	7641.00	7680.00
14	1381.00	3335.00	6280.00	8400.00	9224.00	9824.00	9911.00	10,083.00	10,209.00	10,260.00
16	1804.00	4355.00	8202.00	10,971.00	12,047.00	12,569.00	12,944.00	13,170.00	13,333.00	13,400.00
18	2302.00	5558.00	10,467.00	14,000.00	15,373.00	16,040.00	16,519.00	16,806.00	17,015.00	17,100.00
20	3405.00	8223.00	15,486.00	20,713.00	22,745.00	23,731.00	24,440.00	24,865.00	25,174.00	25,300.00
24	4215.00	10,180.00	19,171.00	25,642.00	28,157.00	29,738.00	30,255.00	30,781.00	31,164.00	31,320.00
30	6737.00	16,270.00	30,641.00	40,983.00	45,003.00	46,954.00	48,356.00	49,197.00	49,809.00	50,058.00
36	9882.00	23,866.00	44,945.00	60,116.00	66,013.00	68,875.00	70,931.00	72,164.00	73,062.00	73,428.00
42	15,103.00	36,477.00	68,694.00	91,881.00	100,893.00	105,268.00	108,411.00	110,296.00	111,668.00	112,227.00
48	23,457.00	56,654.00	106,690.00	142,703.00	156,699.00	163,494.00	168,375.00	171,302.00	173,434.00	174,302.00
54	34,423.00	83,137.00	156,564.00	209,411.00	229,951.00	239,922.00	247,084.00	251,380.00	254,508.00	255,782.00

For larger sizes up to 72", consult factory.

Flow Coefficient (C_v)

C_v Cone Sleeve - Series 5200 Control Pinch Valve

VALVE SIZE (")		PORT SIZE (")	% OF TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
1	x	0.33	0.10	0.44	0.88	1.52	1.92	2.46	2.80	3.00	3.24	3.44
1	x	0.5	0.20	0.90	1.80	3.10	3.90	5.00	5.70	6.10	6.60	7.00
1	x	0.75	1.10	2.80	5.60	7.70	11.70	14.50	17.00	18.90	21.00	23.30
1.5	x	0.5	0.31	1.56	2.49	3.74	4.67	4.98	5.60	6.23	6.54	6.85
1.5	x	0.25	1.00	5.00	8.00	12.00	15.00	16.00	18.00	20.00	21.00	22.00
1.5	x	1	3.00	6.00	10.00	16.00	20.00	28.00	32.00	36.00	37.00	38.00
2	x	0.75	0.50	2.00	4.00	7.00	9.00	11.50	13.00	14.00	15.00	16.00
2	x	1	1.00	4.00	8.00	14.00	18.00	23.00	26.00	28.00	30.00	32.00
2	x	1.5	4.00	7.00	15.00	26.00	43.00	57.00	65.00	72.00	78.00	84.00
2.5	x	1	0.74	1.29	2.78	4.81	7.92	10.53	11.98	13.30	14.38	15.50
2.5	x	1.5	2.20	3.80	8.20	14.20	23.40	31.10	35.40	39.30	42.50	45.80
2.5	x	2	10.70	24.00	49.30	63.40	79.70	93.00	118.00	132.00	137.00	153.00
3	x	1	0.89	1.78	3.56	6.52	10.38	12.46	14.83	16.01	16.61	17.20
3	x	1.5	3.00	6.00	12.00	22.00	35.00	42.00	50.00	54.00	56.00	58.00
3	x	2	8.00	17.00	32.00	51.00	70.00	92.00	118.00	131.00	143.00	152.00
4	x	1.5	1.47	2.94	5.88	10.30	19.61	25.99	30.89	34.33	37.76	40.70
4	x	2	3.00	6.00	12.00	21.00	40.00	53.00	63.00	70.00	77.00	83.00
4	x	3	15.00	32.00	63.00	131.00	159.00	197.00	231.00	253.00	286.00	315.00
6	x	3	10.00	17.00	35.00	79.00	101.00	115.00	134.00	148.00	170.00	187.00
6	x	4	23.00	41.00	85.00	190.00	242.00	277.00	322.00	357.00	410.00	450.00
6	x	5	46.00	94.00	174.00	311.00	484.00	618.00	748.00	862.00	948.00	1028.00
8	x	4	14.00	27.00	54.00	95.00	180.00	239.00	284.00	315.00	347.00	374.00
8	x	5	32.00	57.00	121.00	216.00	346.00	453.00	517.00	573.00	624.00	673.00
8	x	6	58.00	143.00	280.00	396.00	578.00	747.00	884.00	998.00	1102.00	1215.00
10	x	5	22.00	38.00	80.00	178.00	226.00	259.00	301.00	334.00	384.00	421.00
10	x	6	34.00	59.00	127.00	220.00	363.00	482.00	549.00	609.00	659.00	710.00
10	x	8	123.00	271.00	523.00	741.00	914.00	1091.00	1263.00	1514.00	1709.00	1787.00
12	x	6	25.00	51.00	101.00	177.00	337.00	447.00	532.00	590.00	649.00	700.00
12	x	8	86.00	153.00	317.00	709.00	904.00	1034.00	1202.00	1333.00	1531.00	1680.00
12	x	10	144.00	296.00	548.00	975.00	1519.00	1942.00	2349.00	2707.00	2979.00	3229.00
14	x	8	67.00	142.00	267.00	426.00	585.00	768.00	985.00	1094.00	1194.00	1269.00
14	x	10	144.00	303.00	553.00	877.00	1215.00	1589.00	2019.00	2378.00	2604.00	2803.00
14	x	12	193.00	397.00	693.00	1156.0	1940.00	2548.00	3107.00	3637.00	4109.00	4431.00
16	x	8	54.00	114.00	215.00	343.00	470.00	618.00	793.00	880.00	961.00	1021.00
16	x	12	205.00	433.00	778.00	1226.00	1713.00	2228.00	2817.00	3438.00	3771.00	4078.00
16	x	14	271.00	558.00	1003.00	1731.00	2819.00	3619.00	4394.00	5103.00	5695.00	6138.00
18	x	12	146.00	260.00	539.00	1205.00	1536.00	1757.00	2043.00	2265.00	2602.00	2855.00
18	x	14	283.00	596.00	1082.00	1712.00	2381.00	3181.00	4040.00	4707.00	5158.00	5567.00
18	x	16	454.00	949.00	1640.00	2674.00	4243.00	5232.00	6435.00	7671.00	8731.00	9431.00
20	x	14	305.00	646.00	1213.00	1936.00	2657.00	3493.00	4478.00	4972.00	5427.00	5768.00
20	x	16	504.00	1060.00	1900.00	2995.00	4189.00	5536.00	7124.00	8446.00	9264.00	10,019.00
20	x	18	480.00	987.00	1735.00	2919.00	4865.00	6347.00	7730.00	9030.00	10,186.00	10,964.00
24	x	16	381.00	678.00	1405.00	3142.00	4007.00	4583.00	5327.00	5908.00	6786.00	7446.00
24	x	18	543.00	1152.00	2213.00	4433.00	5792.00	7058.00	8340.00	9318.00	1030.00	11,447.00
24	x	20	692.00	1452.00	2553.00	4002.00	5644.00	7333.00	9596.00	11,507.00	12,840.00	13,915.00
30	x	18	440.00	934.00	1754.00	2800.00	3840.00	5280.00	6472.00	7188.00	7845.00	8337.00
30	x	20	611.00	1088.00	2254.00	5041.00	6428.00	7352.00	8546.00	9478.00	10,886.00	11,945.00
30	x	24	1646.00	3647.00	7058.00	9946.00	12,278.00	14,638.00	17,024.00	29,760.00	22,934.00	23,903.00
36	x	20	511.00	1081.00	2030.00	3239.00	4446.00	5843.00	7490.00	8318.00	9079.00	9649.20
36	x	24	894.00	1592.00	3299.00	7379.00	9408.00	10,761.00	12,509.00	13,873.00	15,933.00	17,484.00
36	x	30	1906.00	3929.00	7291.00	13,012.00	20,185.00	25,795.00	31,189.00	35,919.00	39,471.00	42,799.00

For larger sizes up to 72", consult factory.

Flow Coefficient (C_v)

C_v Cone Sleeve - Series 5400 Control Pinch Valve

VALVE SIZE (")		PORT SIZE (")	% OF TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
4	x	1.5	1.47	2.94	5.88	10.30	19.61	25.99	30.89	34.33	37.76	40.70
4	x	2	3.00	6.00	12.00	21.00	40.00	53.00	63.00	70.00	77.00	83.00
4	x	3	15.00	32.00	63.00	131.00	159.00	197.00	231.00	253.00	286.00	315.00
6	x	3	9.56	17.04	35.32	78.96	100.56	115.11	133.81	148.35	170.38	187.00
6	x	4	23.00	41.00	85.00	190.00	242.00	277.00	322.00	357.00	410.00	45.00
6	x	5	54.50	113.00	231.00	452.00	612.00	766.00	899.00	987.00	1089.00	1210.00
8	x	4	13.50	27.00	54.00	94.60	180.00	239.00	284.00	315.00	347.00	374.00
8	x	5	32.00	57.00	121.00	216.00	346.00	453.00	517.00	573.00	624.00	673.00
8	x	6	62.00	156.00	311.00	427.00	653.00	810.00	948.00	1055.00	1173.00	1300.00
10	x	5	22.00	38.00	80.00	178.00	226.00	259.00	301.00	334.00	384.00	421.00
10	x	6	33.80	59.20	127.00	220.00	363.00	482.00	549.00	609.00	659.00	710.00
10	x	8	140.00	315.00	648.00	834.00	1047.00	1222.00	1547.00	1732.00	1805.00	2010.00
12	x	6	25.00	51.00	101.00	177.00	337.00	447.00	532.00	590.00	649.00	700.00
12	x	8	85.90	153.00	317.00	709.00	904.00	1034.00	1202.00	1333.00	1531.00	1880.00
12	x	10	171.00	355.00	726.00	1418.00	1923.00	2407.00	2824.00	3101.00	3420.00	3800.00
14	x	8	67.18	142.16	266.98	426.03	584.66	768.42	985.12	1093.91	1194.02	1269.00
14	x	10	155.00	328.00	616.00	983.00	1349.00	1773.00	2273.00	2524.00	5755.00	2928.00
14	x	12	250.00	520.00	1063.00	2077.00	2816.00	3525.00	4136.00	4541.00	5008.00	5565.00
16	x	8	53.95	114.43	214.85	342.82	470.33	618.16	792.61	880.18	960.75	1021.00
16	x	12	231.00	490.00	920.00	1468.00	2014.00	2647.00	3394.00	3769.00	4114.00	4372.00
16	x	14	336.00	699.00	1428.00	2791.00	3784.00	4737.00	5558.00	6102.00	6730.00	7478.00
18	x	12	146.00	260.00	539.00	1205.00	1536.00	1757.00	2043.00	2265.00	2602.00	2855.00
18	x	14	310.00	658.00	1236.00	1973.00	2708.00	3721.00	4561.00	5065.00	5528.00	5875.00
18	x	16	573.00	1218.00	2343.00	4324.00	5534.00	7195.00	8619.00	9503.00	10,562.00	11,437.00
20	x	14	305.00	646.00	1213.00	1936.00	2657.00	3493.00	4478.00	4972.00	5427.00	5768.00
20	x	16	570.00	1209.00	2271.00	3626.00	4973.00	6838.00	8382.00	9308.00	10,159.00	10,797.00
20	x	18	614.00	1277.00	2609.00	5100.00	6915.00	8656.00	10,156.00	1151.00	12,298.00	13,665.00
24	x	16	381.00	678.00	1405.00	3142.00	4007.00	4583.00	5327.00	5908.00	6786.00	7446.00
24	x	18	575.00	1226.00	2415.00	5022.00	6095.00	7552.00	8856.00	9699.00	10,964.00	12,076.00
24	x	20	818.00	1735.00	3260.00	5204.00	7138.00	9815.00	12,031.00	13,360.00	14,581.00	15,497.00
30	x	18	440.00	934.00	1754.00	2800.00	3840.00	5280.00	6472.00	7188.00	7845.00	8337.00
30	x	20	611.00	1088.00	2254.00	5041.00	6428.00	7352.00	8546.00	9478.00	10,886.00	11,945.00
30	x	24	1869.00	4204.00	8649.00	11,132.00	13,975.00	16,310.00	20,648.00	23,117.00	24,092.00	26,828.00
36	x	20	511.00	1081.00	2030.00	3239.00	4446.00	5843.00	7490.00	8318.00	9079.00	9649.00
36	x	24	894.00	1592.00	3299.00	7379.00	9408.00	10,761.00	12,509.00	13,873.00	15,933.00	17,484.00
36	x	30	2259.00	4689.00	9590.00	18,731.00	25,402.00	31,795.00	37,304.00	40,963.00	45,176.00	50,196.00
42	x	24	766.00	1622.00	3046.00	4860.00	6670.00	8766.00	11,238.00	12,479.00	13,622.00	14,477.00
42	x	30	1665.00	3522.00	6615.00	10,557.00	14,487.00	19,040.00	24,410.00	27,105.00	29,586.00	31,444.00
42	x	36	3781.00	7865.00	16,078.00	31,414.00	42,592.00	53,315.00	62,557.00	68,682.00	75,745.00	84,170.00
48	x	30	1215.00	2132.00	4558.00	8125.00	13,023.00	17,055.00	19,460.00	21,586.00	23,485.00	25,347.00
48	x	36	2705.00	5739.00	10,775.00	17,193.00	23,587.00	31,001.00	39,749.00	68,682.00	48,181.00	51,203.00
48	x	42	6527.00	13,578.00	27,738.00	54,213.00	73.502.00	92,013.00	107,961.00	118,527.00	130,726.00	130,726.00
54	x	36	2066.00	3681.00	7626.00	17,056.00	21,747.00	24,874.00	28,916.00	32,067.00	36,831.00	40,415.00
54	x	42	4102.00	8708.00	16,356.00	26,109.00	35,809.00	49,241.00	60,357.00	67,027.00	73,154.00	77,746.00
54	x	48	10,407.00	22,122.00	42,556.00	78,537.00	100,514.00	130,682.00	156,546.00	172,602.00	191,837.00	191,837.00

For larger sizes up to 72", consult factory.

Viscosity

C_V is useful in sizing for water flow or the flow of liquids that behave like water. However, when the liquid is extremely viscous, particular attention must be paid to the effects the viscosity may have on the size of the valve that is controlling the process fluid.

Although the majority of valve applications have Reynold's Numbers above 5000 and will involve fluids where viscosity corrections can be ignored or where corrections are relatively small, fluid viscosity should be considered with each valve selection.

Viscosity Conversion Table

Kinematic Viscosity Centistikes	Seconds Saybolt Universal	Seconds Saybolt Furol
1.00	31.00	-
2.56	35.00	-
4.30	40.00	-
5.90	45.00	-
7.40	50.00	-
8.83	55.00	-
10.20	60.00	-
11.53	65.00	-
12.83	70.00	12.95
14.10	75.00	13.33
15.35	80.00	13.70
16.58	85.00	14.10
17.80	90.00	14.44
19.00	95.00	14.85
20.20	100.00	15.24
31.80	150.00	19.30
43.10	200.00	23.50
54.30	250.00	28.00
65.40	300.00	32.50
76.50	350.00	35.10
87.60	400.00	41.90
98.60	450.00	46.80
110.00	500.00	56.60
121.00	550.00	56.60
132.00	600.00	61.40
143.00	650.00	66.20
154.00	700.00	71.10
165.00	750.00	76.00
176.00	800.00	81.00
187.00	850.00	86.00
198.00	990.00	91.00
209.00	950.00	95.80
220.00	1000.00	100.70
330.00	1500.00	150.00
440.00	2000.00	200.00
550.00	2500.00	250.00
660.00	3000.00	300.00
770.00	3500.00	350.00
880.00	4000.00	400.00
990.00	4500.00	450.00
1100.00	5000.00	500.00
1210.00	5500.00	550.00
1320.00	6000.00	600.00
1430.00	6500.00	650.00
1540.00	7000.00	700.00
1650.00	7500.00	750.00
1760.00	8000.00	800.00
1870.00	8500.00	850.00
1980.00	9000.00	900.00
2090.00	9500.00	950.00
2200.00	10,000.00	1000.00

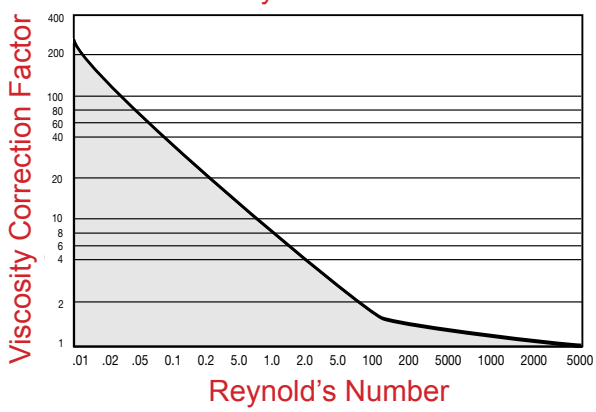
Calculating Reynold's Number

$$Re = 3160 \times \frac{Q}{d \times K}$$

Re = Reynold's Number
Q = Flow GPM
d = Internal diameter in inches
K = Viscosity, centistokes

If the calculated Reynold's Number is lower than 3500, then the flow is considered laminar and the viscosity must be corrected according to the Viscosity Conversion Table. This correction factor should be multiplied by the original C_V value to arrive at the "corrected" C_V that accounts for viscosity.

Viscosity Correction Table



Vapor Pressure/Water

°F	Vapor Pressure (lb/in² asb)	°F	Vapor Pressure (lb/in² asb)
32	0.08859	59	0.24713
33	0.09223	60	0.25611
34	0.09600	62	0.27494
35	0.09991	64	0.29479
36	0.010395	66	0.31626
37	0.10815	68	0.33889
38	0.11249	70	0.36292
39	0.11698	75	0.42964
40	0.12163	80	0.50683
41	0.12645	85	0.59683
42	0.13143	90	0.69813
43	0.13659	95	0.81534
44	0.14192	100	0.94924
45	0.14744	110	1.2750
46	0.15314	120	1.6927
47	0.15904	130	2.2230
48	0.16514	140	2.8892
49	0.17144	150	3.7184
50	0.17796	160	4.7414
51	0.18469	170	5.9926
52	0.19165	180	7.5110
53	0.19883	190	9.340
54	0.20625	200	11.526
55	0.21332	210	14.123
56	0.22183	220	17.186
57	0.23000	230	20.779
58	0.23843	240	24.968

Velocity and Pressure Drop

Discharge		Pressure Drop Per 100 Feet and Velocity in Schedule 40 Pipe for Water at 60° F															
Gallons per Minute	Cubic Feet per Second	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.	Velocity Feet per Second	Pressure Drop lbs per sq in.
		0.5"															
0.30	0.000668	0.317	0.061														
0.40	0.000891	0.422	0.086	0.75"													
0.50	0.00111	0.528	0.167	0.301	0.333												
0.60	0.00134	0.633	0.240	0.361	0.041												
0.80	0.00178	0.844	0.408	0.481	0.102	1"											
1.00	0.00223	1.060	0.60	0.602	0.155	0.371	0.048										
2.00	0.00446	2.110	2.10	1.20	0.526	0.743	0.164	1.5"									
3.00	0.00668	3.170	4.33	1.81	1.09	1.114	0.336	0473	00.43								
4.00	0.00891	4.220	7.42	2.41	1.83	1.49	0.565	0.630	00.71								
5.00	0.0111	5.280	11.20	3.01	2.75	1.86	0.835	0.788	0.107	2"							
6.00	0.0134	6.330	15.80	3.61	3.84	2.23	1.17	0.946	0.145	0.574	0.044						
8.00	0.0178	8.450	27.70	4.81	6.60	2.97	1.99	1.26	0.241	0.765	0.073	2.5"					
10.00	0.0223	10.56	42.40	6.02	9.99	3.71	2.99	1.58	0.361	0.959	0.108	0.670	0.046				
15.00	0.0334			9.03	21.60	5.57	6.36	2.37	0.755	1.43	0.224	1.01	0.094	3"			
20.00	0.0446			12.03	37.80	7.43	10.90	3.16	1.28	1.91	0.375	1.34	0.156	0.868	0.056		
25.00	0.0557					9.28	16.70	3.94	1.93	2.39	0.561	1.68	0.234	1.09	0.086		
30.00	0.0668					11.14	23.80	4.73	2.72	2.87	0.786	2.01	0.327	1.30	0.114	4"	
35.00	0.0780					12.99	32.20	5.52	3.64	3.35	1.05	2.35	0.436	1.52	0.151	0.882	0.041
40.00	0.0891					14.85	41.50	6.30	4.65	3.83	1.35	2.68	0.556	1.74	0.192	1.01	0.052
45.00	0.10							7.09	5.85	4.30	1.67	3.02	0.668	1.95	0.239	1.13	0.064
50.00	0.11							7.88	7.15	4.78	2.03	3.35	0.839	2.17	0.288	1.26	0.076
60.00	0.13	5"						9.47	10.21	5.74	2.87	4.02	1.18	2.60	0406	1.51	0.107
70.00	0.16	1.12	0.047					11.05	13.71	6.70	3.84	4.69	1.59	3.04	0.540	1.76	0.143
80.00	0.18	1.28	0.060					12.62	17.59	7.65	4.97	5.36	2.03	3.47	0.687	2.02	0180
90.00	0.20	1.44	0.074	6"				14.20	22.00	8.60	6.20	6.03	2.53	3.91	0.861	227	0.224
100.00	0.22	1.60	0.090	1.11	0.036			15.78	26.90	9.56	7.59	6.70	3.09	4.34	1.05	2.52	0.272
125.00	0.28	2.01	0.135	1.39	0.055			19.72	41.40	11.97	11.76	8.38	4.71	5.43	1.61	3.15	0.415
150.00	0.33	2.41	0.190	1.67	0.077					14.36	16.70	10.05	6.69	6.51	2.24	4.41	0.580
175.00	0.39	2.81	0.253	1.94	0.102					16.75	22.30	11.73	8.97	7.60	3.00	5.04	0.774
200.00	0.45	3.21	0.323	2.22	0.130	8"				19.14	28.80	13.42	11.68	8.68	3.87	5.67	0.985
225.00	0.50	3.61	0.401	2.50	0.162	1.44	0.043					15.09	14.63	9.77	4.83	6.30	1.23
250.00	0.56	4.01	0.495	2.78	0.195	1.60	0.051							10.85	5.93	6.93	1.46
275.00	0.61	4.41	0.583	3.05	0.234	1.76	0.061							11.94	7.14	7.56	1.79
300.00	0.67	4.81	0.683	3.33	0.275	1.92	0.072							13.00	8.36	8.19	2.11
325.00	0.72	5.21	0.797	3.61	0.320	2.08	0.083							14.12	9.89	8.82	2.47
350.00	0.78	5.62	0.919	3.89	0.367	2.24	0.095									9.45	2.84
375.00	0.84	6.02	1.05	4.16	0.416	2.40	0.108									10.08	3.25
400.00	0.89	6.42	1.19	4.44	0.471	2.56	0.121									10.71	3.68
425.00	0.95	6.82	1.33	4.72	0.529	2.73	0.136									11.34	4.12
450.00	1.00	7.22	1.48	5.00	0.590	2.89	0.151									11.97	4.60
475.00	1.06	7.62	1.64	5.27	0.653	3.04	0.166									12.60	5.12
500.00	1.11	8.02	1.81	5.55	0.720	3.21	0.182	10"								13.85	5.65
550.00	1.23	8.82	2.17	6.11	0.861	3.53	0.219	1.93	0.054							15.12	6.79
600.00	1.34	9.63	2.55	6.66	1.02	3.85	0.258	2.03	0.059								8.04
650.00	1.45	10.43	2.98	7.22	1.18	4.17	0.301	2.24	0.071								
700.00	1.56	11.23	3.43	7.78	1.35	4.49	0.343	2.44	0.083								
750.00	1.67	12.03	3.92	8.33	1.55	4.81	0.392	2.64	0.097	12"							
800.00	1.78	12.83	4.43	8.88	1.75	5.13	0.443	2.85	0.112	2.01	0.047						
850.00	1.89	13.64	5.00	9.44	1.96	5.45	0.497	3.05	0.127	2.15	0.054						
900.00	2.01	14.44	5.58	9.90	2.18	5.77	0.554	3.25	0.143	2.29	0.061	14"					
950.00	2.12	15.24	6.21	10.55	2.42	6.09	0.613	3.46	0.160	2.44	0.068	2.02	0.042				
1000.00	2.23	16.04	6.84	11.10	2.68	6.41	0.675	3.66	0.179	2.59	0.075	2.13	0.047				
1100.00	2.45	17.65	8.23	12.22	3.22	7.05	0.807	3.86	0.198	2.72	0.083	2.25	0.052				
1200.00	2.67			13.33	3.81	7.70	0.948	4.07	0.218	2.87	0.091	237	0.057				
1300.00	2.90			14.43	4.45	8.33	1.11	4.48	0.260	3.15	0.110	2.61	0.068	16"			
1400.00	3.12			16.66	5.13	8.98	1.28	4.88	0.306	3.44	0.128	2.85	0.080	2.18	0.042		
1500.00	3.34			16.66	5.85	9.62	1.46	5.29	0.355	3.73	0.150	3.08	0.093	2.36	0.048		
1600.00	3.57			17.77	6.61	10.26	1.65	5.70	0.409	4.01	0.170	3.32	0.107	2.54	0.055		
1800.00	4.01			19.99	8.37	11.54	2.08	6.10	0.466	4.30	0.195	3.56	0.122	2.72	0.063		
2000.00	4.46			22.21	10.30	12.82	2.55	6.51	0.527	4.59	0.219	3.79	0.138	2.90	0.071	18"	
2500.00	5.57	20"				16.03	3.94	7.32	0.663	5.16	0.276	4.27	0.172	3.27	0.088	2.58	0.050
3000.00	6.68	3.46	0.075			19.24	5.59	8.14	0.808	5.73	0.339	4.74	0.209	3.69	0.107	2.87	0.060
3500.00	7.80	4.04	0.101	24"		22.44	7.56	10.17	1.24	7.17	0.515	5.93	0.312	4.54	0.163	3.59	0.091
4000.00	8.91	4.62	0.129	3.19	0.052	25.65	9.80	12.20	1.76	8.60	0.731	7.11	0.451	5.45	0.232	4.30	0.129
4500.00	10.03	5.20	0.162	3.59	0.065	28.87	12.20	14.24	2.38	10.03	0.982	8.30	0.607	6.35	0.312	5.02	0.173
5000.00	11.14	5.77	0.199	3.99	0.079			16.27	3.08	11.47	1.27	9.48	0.787	7.26	0.401	5.70	0.222
6000.00	13.37	6.93	0.280	4.79	0.111			18.31	3.87	12.90	1.60	10.67	0.99	8.17	0.603	6.46	0.280
7000.00	15.60	8.08	0.376	5.59	0.150			20.35	4.71	14.33	1.95	11.85	1.21	9.08	0.503	7.17	0.340
8000.00	17.82	9.23	0.488	6.38	0.192			24.41	6.74	17.20	2.77	14.23	1.71	10.89	0.617	8.61	0.483
9000.00	20.05	10.39	0.608	7.18	0.242			28.49	9.11	20.07	3.74	16.60	2.31	12.71	0.877	10.04	0.652
10,000.00	22.28	11.54	0.739	7.98	0.294					22.93	4.84	18.96	2.99	14.52	1.18	11.47	0.839
12,000.00	26.74	13.85	1.06	9.58	0.416					25.79	6.09	21.34	3.76	16.34	1.51	12.91	1.05
14,000.00	31.19	16.16	1.43	11.17	0.562					28.66	7.46	23.71	4.61	18.15	1.90	14.34	1.28
16,000.00	35.65	18.47	1.85	12.77	0.723					34.30	10.70	28.45	6.59	27.79	2.34	17.21	1.83
18,000.00	40.10	20.77	2.32	14.36	0.907							33.19	8.89	25.42	3.33	20.08	2.45
20,000.00	44.56	23.08	2.86	15.96	1.120									29.05	4.49	22.95	3.18
														32.68	5.83	25.82	4.03
														36.61	7.31	28.69	4.93

Red Valve

July 2023

Control Valve Design Data Form

Please complete the form to define the project and operating parameters. Include as much information as possible.

Email your inquiry to support@redvalve.com.

CUSTOMER		PHONE	
CONTACT PERSON		EMAIL	
PROJECT REFERENCE	DELIVERY REQUIRED	DRAWING APPROVAL	
LINE SIZE	BODY MATERIAL Select One	FLANGE CLASS DRILLING Select One	
PIPE SCH.			
MODEL Select One	SLEEVE MATERIAL Select One	FLOW MEDIUM (Describe):	
FUNCTION Select One			

FLOW DATA	MINIMUM FLOW TO BE CONTROLLED	NORMAL FLOW TO BE CONTROLLED	MAXIMUM FLOW TO BE CONTROLLED	SHUTOFF ☐ YES ■ NO
Q (Flow Rate in U.S. GPM)				
P1 (Inlet Pressure at Controlled Flow Rate) psig				Maximum Shutoff Pressure Required (psig):
P (Outlet Pressure at Controlled Flow Rate) psig				
SPECIFIC GRAVITY				
cP (Dynamic Viscosity)				
INLET TEMPERATURE (ºF)				
Cv (Flow Coefficient)				
ΔP MAX (Calculated)				
MAXIMUM ALLOWABLE APPROACH VELOCITY (fps)				
ATMOSPHERIC PRESSURE (psig)				

SLEEVE STYLE	Select One	**ACTUATOR TYPE**	Select One
ACTUATOR BRAND			

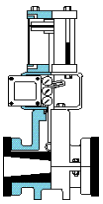
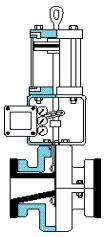
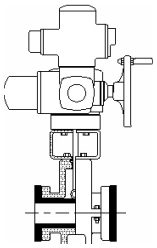
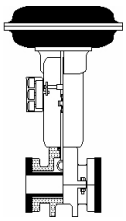
TYPE SPECIFICATION Pneumatic Type: Plant Air Supply: psi minimum Voltage: V Frequency: Hz Phase: Hydraulic Pressure: psi minimum	OPTIONS Other - Write in Space Below

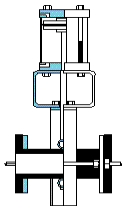
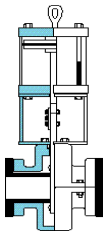
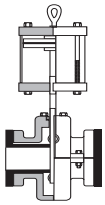
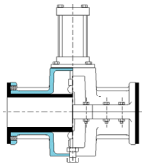
Please use separate form for each control valve.

PREPARED BY: **DATE:**

CUSTOMER APPROVAL: **DATE:**

Red Valve, 750 Holiday Drive, Suite 400, Pittsburgh, PA 15220, 412-279-0044, support@redvalve.com

BODY STYLE	 Series 5200	 Series 5200 D-Port	 Series 5200E Electrically Actuated	 Series 5200 Diaphragm Actuated
Sizes	1 - 4"	6 - 48"	1 - 48"	1 - 3"
Flange Drilling	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150
Body Materials	Ductile Iron A536 65-45-12	Ductile Iron A536 65-45-12	Ductile Iron A536 65-45-12	Ductile Iron A536 65-45-12
Actuator	ATO/ATC ATO/FCS ATC/FOS	ATO/ATC ATO/FCS ATC/FOS	Pneumatic Hydraulic Electric Modulating	ATO/ATC ATO/FCS ATC/FOS
Cv	Pre-pinched	Pre-pinched	Pre-pinched	Pre-pinched

BODY STYLE	 Series 5300	 Series 5400	 Series 5700	 Series 9000
Sizes	2 - 48"	4 - 48"	2 - 48"	1 - 12"
Flange Drilling	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150	ASME B16.1 Class 125 ASME B16.5 Class 150
Body Materials	Steel Fabricated Stainless Steel Fabricated	Ductile Iron A536 65-45-12	Ductile Iron A536 65-45-12	Ductile Iron A536 65-45-12
Actuator	Pneumatic Hydraulic Electric Modulating	Pneumatic Hydraulic Electric	Pneumatic Hydraulic Electric Modulating	Manual Hydraulic Electric Modulating
Cv	Pre-pinched	Centerline Pinch	Centerline Pinch	Pre-pinched

Red Valve offers a worldwide, world-class custom service network. With corporate offices in Pittsburgh, PA, manufacturing facilities in Gastonia, NC, and a network of sales representatives around the globe, Red Valve has the sales engineering team to help you select the best choice of valves and related products for your applications.

Red Valve®

The World Leader in Pinch and Check Valve Technology™

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