SoftTouch2 Series Characterized Ball Valves

SoftTouch 2 (ST2) Series characterized ball valves provide accurate and cost effective control of a wide range of equipment in HVAC applications. The ST2 series features a forged brass 2-piece body with Stainless Steel balls and stems for water temperature up to 212˚ F (100˚ C).

Available in 2-Way and 3-Way • 1/2" - 2". (See page 2 for specifications, features & benefits)

Taco Comfort Solutions™
A Taco Family Company

Supersedes: New

Effective Date: 07/11/16
Printed in USA

Specifications

The Amodel® Flow Characterizing Disk maintains equal percentage Flow Characteristics for optimum temperature control. The blowout-proof stem and mounting flange, combined with an innovative double O-Ring stem seal and self-centering stem bushing design provides quick and easy electric actuator field mounting while ensuring long life and leak-free valve performance.

Graphite reinforced PTFE seats backed with EPDM O-rings significantly reduce operating torque, allowing the use of the most economical actuator to provide the torque required for the application. All valve and actuator assemblies provide 200 psig (1,379 kPa) close-off pressure while ensuring operation after long idle periods. Because of their cost-effective, reliable design, ST2 Series Ball Valves are maintenance free.

Features and Benefits

580 PSI (PN 40) Body Rating
Meets any HVAC application

• 200 PSI Close-Off Rating
Worry-free at high differential pressures

• ANSI Class IV (<.01%) Leakage
Energy efficient

Low Torque
Minimizes actuator costs/extends life

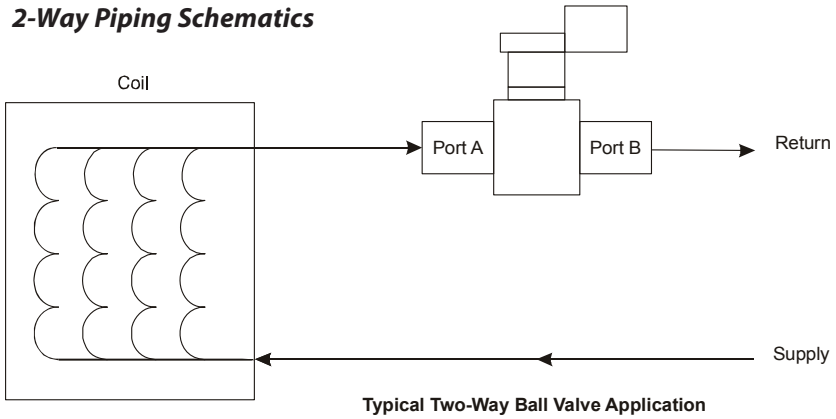
Greater than 500:1 Rangeability
Superior control accuracy and stability

5 Year Warranty

Technical Specifications		
Service		Hot Water, Chilled Water, 50/50 Glycol Solutions for HVAC Systems
Valve Body Pressure/ Temperature Rating	Cold Working Pressure (CWP) Water (with Standard Mounting)	580 PSI (PN 40) 23˚F to 203˚F (-5˚C to 95˚C)
Maximum Recommended Operating Pressure Drop		50 psi Maximum Differential Pressure for Valves with Characterized Flow Control Disk and 30 psi Maximum for Quiet Service Ball Valves
Flow Characteristics	Two-Way Three-Way	Equal Percentage Equal Percentage Port A, Linear Port B (Bypass)
Rangeability		Greater than 500:1
Minimum Ambient Operating		See Actuator Specifications
Leakage		.01% of Maximum Flow per ANSI/FCI 70-2, Class 4 1% of Maximum Flow for Three-Way Bypass Port
End Connections		NPT or BSP
Materials	Body	Forged Brass
	Ball	300 Series Stainless Steel
	Stem	300 Series Stainless Steel
	Seats	Graphite-Reinforced PTFE with EPDM O-ring backing
	Stem Seals	EPDM Double O-rings
	Characterizing Disk	Amodel®
Close-Off		200 PSI
Compliance CRN		OC16910.5

Piping & Installation Tips

2-Way Piping Schematics



Typical Two-Way Ball Valve Application

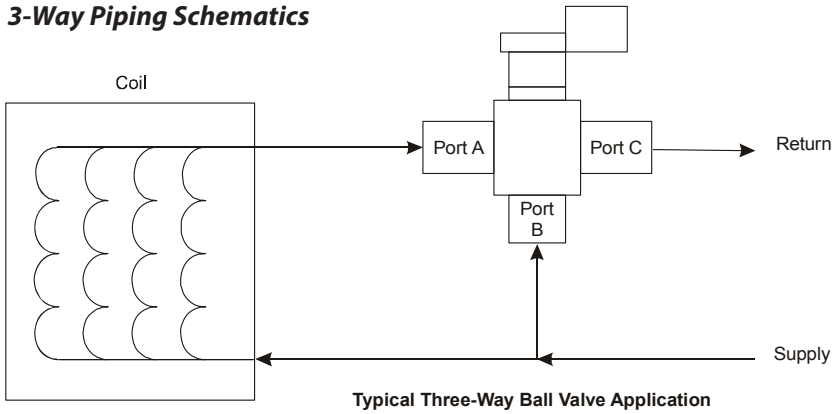
Note: Mount the valve downstream from the coil to minimize heat transfer to the actuator.

2-Way - Default Configuration for ST2 Ball Valves

Valve Position at Actuator Position	2-Way Non Spring Return	2-Way Spring Return N.O	2-Way Spring Return N.C.
Valve Position w/ Act CCW	Open	Open	Open
Valve position w/Act CW	Closed	Closed	Closed
Valve Position w power removed	Last Position	Open	Closed
Proportional actuator control signal Action (Direct Acting)*	CCW at 0; CW at Max	CCW at 0, CW at Max	CW at 0, CCW at Max

**Proportional actuators include a switch to field convert from Direct Acting to Reverse Action*

3-Way Piping Schematics



Typical Three-Way Ball Valve Application

Note: Mount the valve downstream from the coil to minimize heat transfer to the actuator.

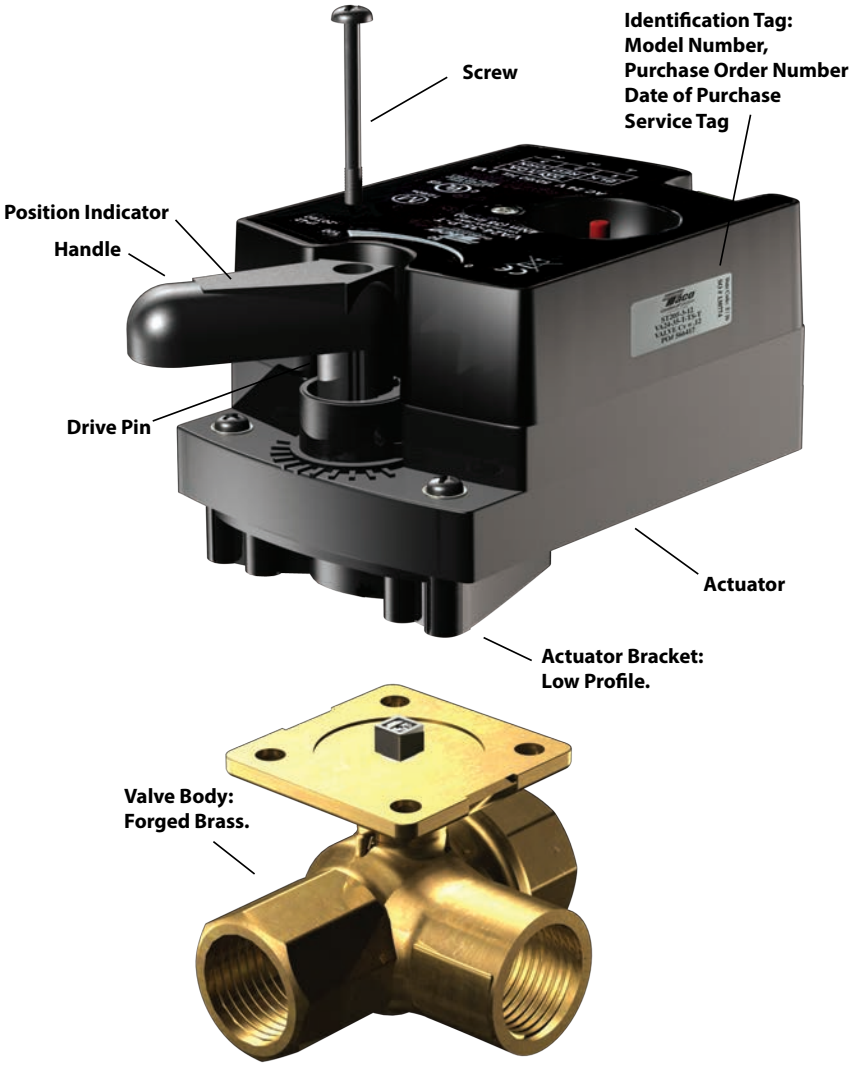
3-Way - Default Configuration for ST2 Ball Valves

Valve Position at Actuator Position	3-Way Non Spring Return	3-Way Spring Return N.O	3-Way Spring Return N.C.
Valve Position w/ Act CCW	A open to C	A open to C	A open to C
Valve position w/Act CW	B open to C	B open to C	B open to C
Valve Position w power removed	Last Position	A open to C	B open to C
Proportional actuator control signal Action (Direct Acting)*	CCW at 0; CW at Max	CCW at 0, CW at Max	CW at 0, CCW at Max

**Proportional actuators include a switch to field convert from Direct Acting to Reverse Action*

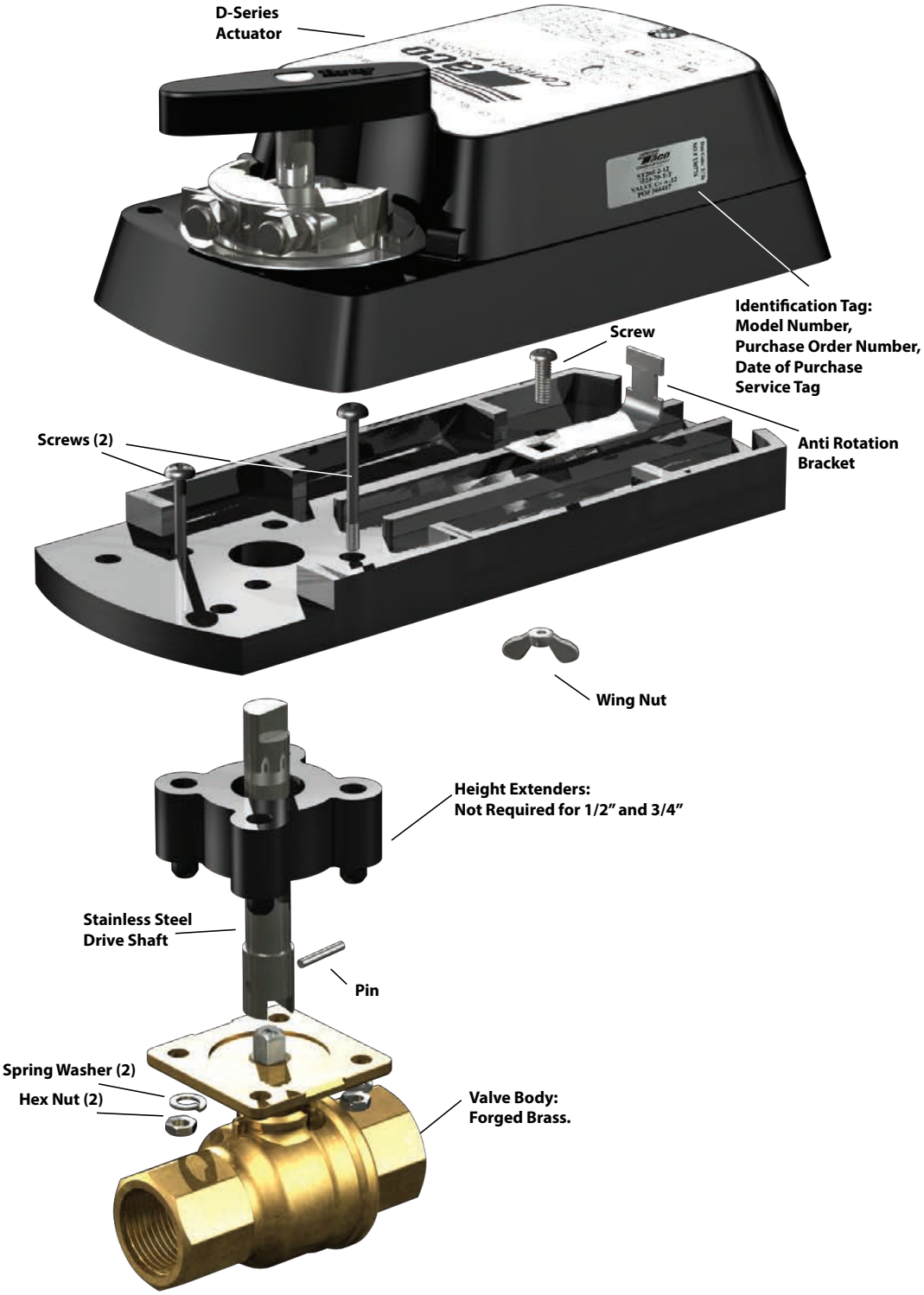
Exploded View

Direct Mount (VA Series) Actuators



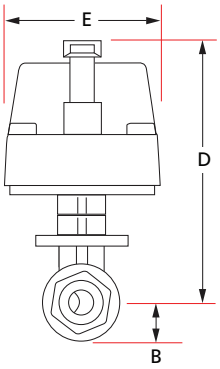
Exploded View

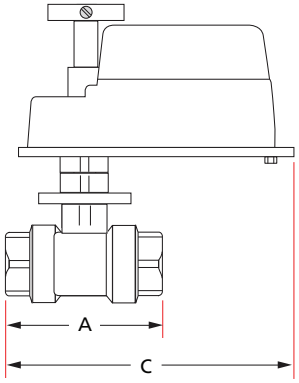
Universal Mount (D-Series) Actuators



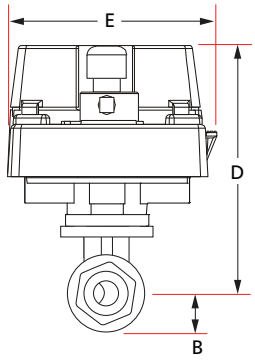
2-Way Dimensions

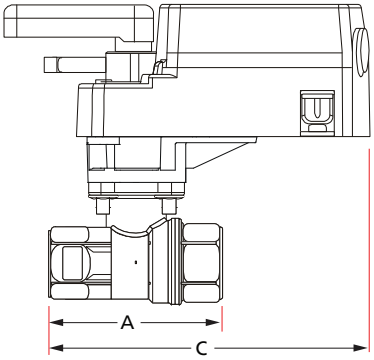
Universal Mount D-Series





Direct Mount VA-Series





ST2 Dimensions - 2-Way

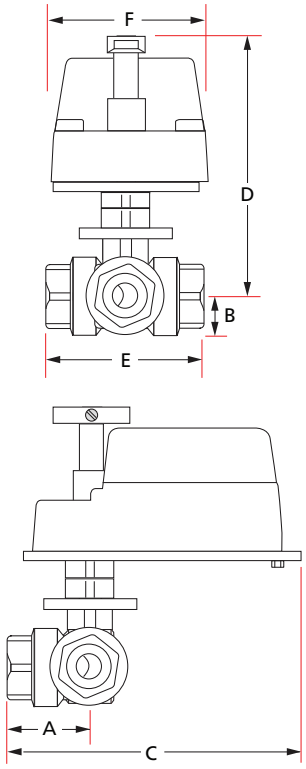
	ST2 VALVE MODEL # PREFIX ST2 Size-Way-Cv	Connection		Available Cv's	Please reference the illustration											
					A		B		C		D*		E		Weight	
		in.	mm		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
Direct Mount VAS 27 Series	ST2-05-2-…	1/2	15	1.2, 1.9, 2.9, 4.7, 11.7	2-33/64	64	21/32	17	6-23/32	171	4-1/4	108	3-1/4	82	3.0	1.4
	ST2-75-2-…	3/4	20	4.7, 7.4, 11.7	2-51/64	71	21/32	17	6-7/8	175	4-1/4	108	3-1/4	82	3.1	1.4
	ST2-1-2-…	1	25	7.4, 11.7, 18.7	3-13/32	87	3/4	19	7-7/64	181	4-9/32	109	3-1/4	82	3.4	1.5
Direct Mount VA 35 Series	ST2-05-2-…	1/2	15	1.2, 1.9, 2.9, 4.7, 11.7	2-33/64	64	21/32	17	5-7/64	129	3-7/8	98	2-13/16	71	3.0	1.4
	ST2-75-2-…	3/4	20	4.7, 7.4, 11.7	2-51/64	71	21/32	17	5-7/32	133	3-7/8	98	2-13/16	71	3.1	1.4
	ST2-1-2-…	1	25	7.4, 11.7, 18.7	3-13/32	87	3/4	19	5-9/16	141	3-11/16	100	2-13/16	71	3.4	1.5
Direct Mount VAS 70 Series	ST2-125-2-…	1-1/4	32	11.7, 18.7, 29.2	3-15/16	100	1-1/32	26	7-5/32	182	7-11/16	195	3-29/32	99	5.7	2.6
	ST2-150-2-…	1-1/2	40	18.7, 29.2, 46.8	4-5/16	110	1-9/64	29	7-3/8	187	7-7/8	200	3-29/32	99	6.4	2.9
	ST2-2-2-…	2	50	29.2, 46.8, 73.7	4-13/16	123	1-15/32	37	7-19/32	193	8-1/32	204	3-29/32	99	8.1	3.7
Universal Mount D 70 Series	ST2-125-2-…	1-1/4	32	11.7, 18.7, 29.2	3-15/16	100	1-1/32	26	7-7/8	175	6-7/16	164	4-1/4	108	5.7	2.6
	ST2-150-2-…	1-1/2	40	18.7, 29.2, 46.8	4-5/16	110	1-9/64	29	8-1/16	180	6-5/8	168	4-1/4	108	6.4	2.9
	ST2-2-2-…	2	50	29.2, 46.8, 73.7	4-13/16	123	1-15/32	37	8-5/16	186	6-3/4	171	4-1/4	108	8.1	3.7

Allow 3.5" clearance for actuator removal.

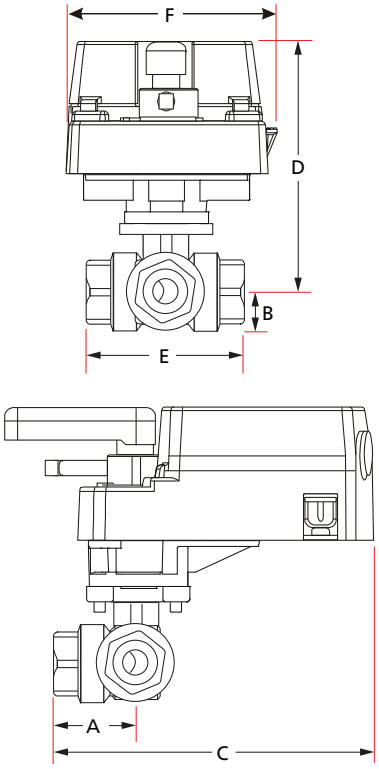
Weights shown are for valve/actuator assemblies

3-Way Dimensions

Universal Mount
D-Series



Direct Mount
VA-Series



ST2 Dimensions - 3-Way

	ST2 VALVE MODEL # PREFIX ST2 Size-Way-Cv	Connection		Available Cv's	Please reference the illustration													
					A		B		C		D*		E		F		Weight	
		in.	mm		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
Direct Mount VAS 27 Series	ST2-05-3-…	1/2	15	1.2, 1.9, 2.9, 4.7, 11.7	1-1/4	32	21/32	17	6-23/32	171	4-1/4	108	2-33/64	64	3-1/4	82	3.0	1.4
	ST2-75-3-…	3/4	20	4.7, 7.4, 11.7	1-13/32	36	21/32	17	6-7/8	175	4-1/4	108	2-51/64	71	3-1/4	82	3.2	1.5
	ST2-1-3-…	1	25	7.4, 11.7, 18.7	1-45/64	43	3/4	19	7-7/64	181	4-9/32	109	3-13/32	87	3-1/4	82	3.3	1.5
Direct Mount VA 35 Series	ST2-05-3-…	1/2	15	1.2, 1.9, 2.9, 4.7, 11.7	1-1/4	32	21/32	17	5-7/64	129	3-7/8	98	2-33/64	64	2-13/16	71	3.0	1.4
	ST2-75-3-…	3/4	20	4.7, 7.4, 11.7	1-13/32	36	21/32	17	5-7/32	133	3-7/8	98	2-51/64	71	2-13/16	71	3.2	1.5
	ST2-1-3-…	1	25	7.4, 11.7, 18.7	1-45/64	43	3/4	19	5-9/16	141	3-11/16	100	3-13/32	87	2-13/16	71	3.3	1.5
Direct Mount VAS 70 Series	ST2-125-3-…	1-1/4	32	11.7, 18.7, 29.2	1-31/32	50	1-1/32	26	7-5/32	182	7-11/16	195	3-15/16	100	3-29/32	99	6.1	2.8
	ST2-150-3-…	1-1/2	40	18.7, 29.2, 46.8	2-11/64	55	1-9/64	29	7-3/8	187	7-7/8	200	4-21/64	110	3-29/32	99	6.9	3.1
	ST2-2-3-…	2	50	29.2, 46.8, 73.7	2-27/64	62	1-15/32	37	7-7/8	200	8-1/32	204	4-27/32	123	3-29/32	99	9.5	4.3
Universal Mount D 70 Series	ST2-125-3-…	1-1/4	32	11.7, 18.7, 29.2	1-31/32	50	1-1/32	26	7-7/8	175	6-7/16	164	3-15/16	100	4-1/4	108	6.1	2.8
	ST2-150-3-…	1-1/2	40	18.7, 29.2, 46.8	2-11/64	55	1-9/64	29	8-1/16	180	6-5/8	168	4-21/64	110	4-1/4	108	6.9	3.1
	ST2-2-3-…	2	50	29.2, 46.8, 73.7	2-27/64	62	1-15/32	37	8-5/16	186	6-3/4	171	4-27/32	123	4-1/4	108	9.5	4.3

Allow 3.5" clearance for actuator removal.

Weights shown are for valve/actuator assemblies

Valve Sizing Chart

STEP ONE

Determine the designed Cv by using the following equation.

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

Where

Q = Flow in gallons per minute (GPM) required to pass through the valve
G = Specific gravity of fluid *
ΔP = Designed pressure drop across the valve in PSI
Cv = Flow coefficient

NOTES

* Specific gravity is negligible (equal to 1) for water below 200˚F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H_2O mixture will not be affected by the specific gravity.

EXAMPLE

The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2):

$$\frac{1}{\text{Specific Gravity}} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$$

$$\frac{1}{G_{soln}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$$

STEP TWO

Determine whether the valve should be line size or sized to match the designed pressure drop (typical for modulating applications where precise control is required.)

OPTION 1

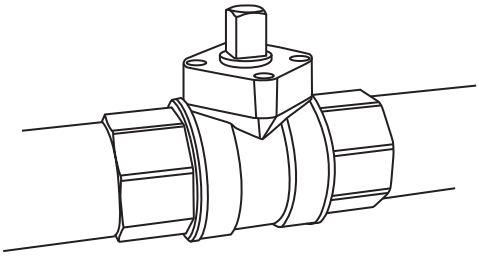
LINE SIZE

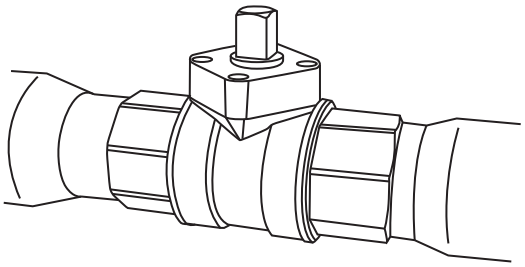
Go to page 9, ST2 Series Quick Reference Charts. Using the line size, find a valve of the same size with a Cv that best matches the one calculated in Step 1.

OPTION 2

SIZE FOR PRECISE CONTROL

Go to page 10 (2-Way or 3-Way), ST2 Series Piping Geometry Charts. Find the line size at the top of the chart. Scan down the page to the Cv that best matches the one calculated in Step 1.





STEP THREE

Determine the actual pressure drop using the below equation.

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

If the pressure drop is acceptable†, go to Step 4.
If not, repeat Steps 2 and 3, selecting an alternate valve.

STEP FOUR

Check to be sure that the close-off requirements are met. Refer to Pages 11 thrugh14.

† Recommended to be no higher than 35 PSI or match the designed pressure drop, 3, 4, 5, and 6 PSI are commonly accepted for modulating applications.

Quick Reference & Selection Table

2-WAY - GPM - Quick Reference Sizing Chart

VALVE SIZE	MODEL NO.	FULL PORT	Cv 1.0	DIFFERENTIAL PRESSURE (PSI) 1.5	2.0	2.5	3.0Δ	3.5Δ	4.0Δ	4.5Δ	5.0Δ	7.0	10.0
1/2″	ST2-05-2-01		1.2	1.5	1.7	1.9	2.1	2.2	2.4	2.5	2.7	3.2	3.8
	ST2-05-2-02		1.9	2.3	2.7	3.0	3.3	3.6	3.8	4.0	4.2	5.0	6.0
	ST2-05-2-03		2.9	3.6	4.1	4.6	5.0	5.4	5.8	6.2	6.5	7.7	9.2
	ST2-05-2-05		4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9
	ST2-05-2-12	●	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
3/4″	ST2-75-2-05		4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9
	ST2-75-2-07		7.4	9.1	10.5	11.7	12.8	13.8	14.8	15.7	16.5	19.6	23.4
	ST2-75-2-12	●	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
1″	ST2-1-2-07		7.4	9.1	10.5	11.7	12.8	13.8	14.8	15.7	16.5	19.6	23.4
	ST2-1-2-12		11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	ST2-1-2-19	●	18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
1-1/4″	ST2-125-2-12		11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	ST2-125-2-19		18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
	ST2-125-2-29	●	29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
1-1/2″	ST2-150-2-19		18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
	ST2-150-2-29		29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
	ST2-150-2-47	●	46.8	57.3	66.2	74.0	81.1	87.6	93.6	99.3	104.6	123.8	148.0
2″	ST2-2-2-29		29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
	ST2-2-2-47		46.8	57.3	66.2	74.0	81.1	87.6	93.6	99.3	104.6	123.8	148.0
	ST2-2-2-74	●	73.7	90.3	104.2	116.5	127.7	137.9	147.4	156.3	164.8	195.0	233.1

* Cv is the gallons per minute of water that the valve will pass with 1 PSI pressure drop.
Δ 3-5 PSI is typically the preferred pressure drop in a modulating application.

3-WAY - GPM - Quick Reference Sizing Chart

VALVE SIZE	MODEL NO.	FULL PORT	Cv 1.0	DIFFERENTIAL PRESSURE (PSI) 1.5	2.0	2.5	3.0Δ	3.5Δ	4.0Δ	4.5Δ	5.0Δ	7.0	10.0
1/2″	ST2-05-3-01		1.2	1.5	1.7	1.9	2.1	2.2	2.4	2.5	2.7	3.2	3.8
	ST2-05-3-02		1.9	2.3	2.7	3.0	3.3	3.6	3.8	4.0	4.2	5.0	6.0
	ST2-05-3-03		2.9	3.6	4.1	4.6	5.0	5.4	5.8	6.2	6.5	7.7	9.2
	ST2-05-3-05		4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9
	ST2-05-3-12	●	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
3/4″	ST2-75-3-05		4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9
	ST2-75-3-07		7.4	9.1	10.5	11.7	12.8	13.8	14.8	15.7	16.5	19.6	23.4
	ST2-75-3-12	●	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
1″	ST2-1-3-07		7.4	9.1	10.5	11.7	12.8	13.8	14.8	15.7	16.5	19.6	23.4
	ST2-1-3-12		11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	ST2-1-3-19	●	18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
1-1/4″	ST2-125-3-12		11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	ST2-125-3-19		18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
	ST2-125-3-29	●	29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
1-1/2″	ST2-150-3-19		18.7	22.9	26.4	29.6	32.4	35.0	37.4	39.7	41.8	49.5	59.1
	ST2-150-3-29		29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
	ST2-150-3-47	●	46.8	57.3	66.2	74.0	81.1	87.6	93.6	99.3	104.6	123.8	148.0
2″	ST2-2-3-29		29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
	ST2-2-3-47		46.8	57.3	66.2	74.0	81.1	87.6	93.6	99.3	104.6	123.8	148.0
	ST2-2-3-74	●	73.7	90.3	104.2	116.5	127.7	137.9	147.4	156.3	164.8	195.0	233.1

* Cv is the gallons per minute of water that the valve will pass with 1 PSI pressure drop.
Δ 3-5 PSI is typically the preferred pressure drop in a modulating application.

Adjusted Cv Charts

Adjusted Cv Charts for Piping Geometry Factor(Fp)

2-WAY - PIPING GEOMETRY CHART - Adjusted Cv

Valve Size	Valve Model Number	Nominal Cv	Pipe Size						
			3/4″	1″	1-1/4″	1-1/2″	2″	2-1/2″	3″
1/2″	ST2-05-2-01	1.2	1.2	1.2	---	---	---	---	---
	ST2-05-2-02	1.9	1.9	1.9	---	---	---	---	---
	ST2-05-2-03	2.9	2.8	2.8	---	---	---	---	---
	ST2-05-2-05	4.7	4.4	4.3	---	---	---	---	---
	ST2-05-2-12	11.7	8.8	7.6	---	---	---	---	---
3/4″	ST2-75-2-05	4.7	---	4.7	4.6	---	---	---	---
	ST2-75-2-07	7.4	---	7.3	7.1	---	---	---	---
	ST2-75-2-12	11.7	---	11.2	10.7	---	---	---	---
1″	ST2-1-2-07	7.4	---	---	7.4	7.3	---	---	---
	ST2-1-2-12	11.7	---	---	11.6	11.4	---	---	---
	ST2-1-2-19	18.7	---	---	18.2	17.7	---	---	---
1-1/4″	ST2-125-2-12	11.7	---	---	---	11.7	11.6	---	---
	ST2-125-2-19	18.7	---	---	---	18.6	18.2	---	---
	ST2-125-2-29	29.2	---	---	---	28.7	27.3	---	---
1-1/2″	ST2-150-2-19	18.7	---	---	---	---	18.6	18.4	---
	ST2-150-2-29	29.2	---	---	---	---	28.7	28.1	---
	ST2-150-2-47	46.8	---	---	---	---	44.8	42.8	---
2″	ST2-2-2-29	29.2	---	---	---	---	---	29.1	28.9
	ST2-2-2-47	46.8	---	---	---	---	---	46.3	45.7
	ST2-2-2-74	73.7	---	---	---	---	---	72.0	69.7

EXAMPLE *What is the correct Cv rating for a (1″) ST2-1-2-19 valve when placed on a 1-1/2″ pipe? First go to the 1-1/2″ pipe column and follow this down until you reach the ST2-1-2-19 row. The value where they meet is the corrected Cv rating, which is 17.7.*

3-WAY - PIPING GEOMETRY CHART - Adjusted Cv

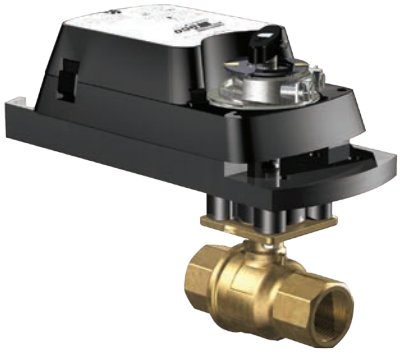
Valve Size	Valve Model Number	Nominal Cv	Pipe Size						
			3/4″	1″	1-1/4″	1-1/2″	2″	2-1/2″	3″
1/2″	ST2-05-3-01	1.2	1.2	1.2	---	---	---	---	---
	ST2-05-3-02	1.9	1.9	1.9	---	---	---	---	---
	ST2-05-3-03	2.9	2.8	2.8	---	---	---	---	---
	ST2-05-3-05	4.7	4.4	4.3	---	---	---	---	---
	ST2-05-3-12	11.7	8.8	7.6	---	---	---	---	---
3/4″	ST2-75-3-05	4.7	---	4.7	4.6	---	---	---	---
	ST2-75-3-07	7.4	---	7.3	7.1	---	---	---	---
	ST2-75-3-12	11.7	---	11.2	10.7	---	---	---	---
1″	ST2-1-3-07	7.4	---	---	7.4	7.3	---	---	---
	ST2-1-3-12	11.7	---	---	11.6	11.4	---	---	---
	ST2-1-3-19	18.7	---	---	18.2	17.7	---	---	---
1-1/4″	ST2-125-3-12	11.7	---	---	---	11.7	11.6	---	---
	ST2-125-3-19	18.7	---	---	---	18.6	18.2	---	---
	ST2-125-3-29	29.2	---	---	---	28.7	27.3	---	---
1-1/2″	ST2-150-3-19	18.7	---	---	---	---	18.6	18.4	---
	ST2-150-3-29	29.2	---	---	---	---	28.7	28.1	---
	ST2-150-3-47	46.8	---	---	---	---	44.8	42.8	---
2″	ST2-2-3-29	29.2	---	---	---	---	---	29.1	28.9
	ST2-2-3-47	46.8	---	---	---	---	---	46.3	45.7
	ST2- 2-3-74	73.7	---	---	---	---	---	72.0	69.7

EXAMPLE *What is the correct Cv rating for a (1-1/2″) ST2-125-3-19 valve when placed on a 2″ pipe? First go to the 2″ pipe column and follow this down until you reach the ST2-125-3-19 row. The value where they meet is the corrected Cv rating, which is 18.6.*

Quick Reference & Selection Table

2-Way - Non Spring Return Close-Off Chart (PSI)

Key ST2-05-2-01 = ST2 (SoftTouch Valve Series) 05 (Size (in.)) 2 (Configuration 2 = 2 Way 3 = 3 Way) 01 (Cv)



2-WAY -Non Spring Return - Close-Off Chart (PSI)

Actuators		24 VAC On/Off or Floating		Modulating	
Control Input	2-wire On/Off	■•	■		
	3-wire On/Off or Floating	■	■		
	3wire On/Off or Floating with Time Out				
	Proportional with Feedback			■	■
Optional Auxiliary Switches Available			■		■
Wiring Connections	Enclosed Terminal Strip		■		■
	NPT Conduit Fitting	3/8	1/2	3/8	1/2
	Plenum Rated Leads (3 ft.)	■		■	
	Direct Mount	■		■	

Actuator Model No.				VA24-35-P-T	D24-70-T	VAM24-35-P-T	DM24-70-T
SIZE NPT	Flow Coefficient Cv	Flow Coefficient Kv	MODEL #				
1/2″	1.2	1.0	ST2-05-2-01	200		200	
	1.9	1.6	ST2-05-2-02	200		200	
	2.9	2.5	ST2-05-2-03	200		200	
	4.7	4.1	ST2-05-2-05	200		200	
	11.7*	10.1	ST2-05-2-12	200		200	
3/4″	4.7	4.1	ST2-75-2-05	200		200	
	7.4	6.4	ST2-75-2-07	200		200	
	11.7*	10.1	ST2-75-2-12	200		200	
1″	7.4	6.4	ST2-1-2-07	200		200	
	11.7	10.1	ST2-1-2-12	200		200	
	18.7*	16.2	ST2-1-2-19	200		200	
1-1/4″	11.7	10.1	ST2-125-2-12		200		200
	18.7	16.2	ST2-125-2-19		200		200
	29.2*	25.3	ST2-125-2-29		200		200
1-1/2″	18.7	16.2	ST2-150-2-19		200		200
	29.2	25.3	ST2-150-2-29		200		200
	46.8*	40.5	ST2-150-2-47		200		200
2″	29.2	25.3	ST2-2-2-29		200		200
	46.8	40.5	ST2-2-2-47		200		200
	73.7*	63.8	ST2-2-2-74		200		200

Refer to the Actuator Section for a list of actuators with additional options (i.e. auxiliary switches etc.)

* Full Port Valve

• Relay Required

Quick Reference & Selection Table

2-Way - Spring Return Close-Off Chart (PSI)

Key ST2-05-2-01 =

ST2	05	2	01	C
SoftTouch Valve Series	Size (in.)	Configuration 2 = 2 Way 3 = 3 Way	Cv	C=Closed otherwise no indicator shown

2-WAY - Spring Return - Close-Off Chart (PSI)

Actuators		24 VAC Floating		Modulating	
Control Input	2-wire On/Off	■	■		
	3-wire or Floating	■	■		
	Proportional with Feedback			■	■
Optional Auxiliary Switches Available		■	■	■	■
Wiring Connections	NPT Conduit Fitting	1/2	3/8	1/2	3/8
	Plenum Rated Leads (3 ft.)	■		■	
Actuator Model No.		VAS24 -27-T-T	VAS24 -70-T-T	VAMS24 -27-T	VAMS24 -70-T

SIZE NPT	Flow Coefficient Cv	Kv	MODEL #				
1/2″	1.2	1.0	ST2-05-2-01_	200		200	
	1.9	1.6	ST2-05-2-02_	200		200	
	2.9	2.5	ST2-05-2-03_	200		200	
	4.7	4.1	ST2-05-2-05_	200		200	
	11.7*	10.1	ST2-05-2-12_	200		200	
3/4″	4.7	4.1	ST2-75-2-05_	200		200	
	7.4	6.4	ST2-75-2-07_	200		200	
	11.7*	10.1	ST2-75-2-12_	200		200	
1″	7.4	6.4	ST2-1-2-07_	200		200	
	11.7	10.1	ST2-1-2-12_	200		200	
	18.7*	16.2	ST2-1-2-19_	200		200	
1-1/4″	11.7	10.1	ST2-125-2-12_		200		200
	18.7	16.2	ST2-125-2-19_		200		200
	29.2*	25.3	ST2-125-2-29_		200		200
1-1/2″	18.7	16.2	ST2-150-2-19_		200		200
	29.2	25.3	ST2-150-2-29_		200		200
	46.8*	40.5	ST2-150-2-47_		200		200
2″	29.2	25.3	ST2-2-2-29_		200		200
	46.8	40.5	ST2-2-2-47_		200		200
	73.7*	63.8	ST2-2-2-74_		200		200

C= Normally Closed, otherwise Normally Open

Refer to the Actuator Section for a list of actuators with additional options (i.e. auxiliary switches etc.)

* Full Port Valve

• Relay Required

Quick Reference & Selection Table

3-Way - Non Spring Return Close-Off Chart (PSI)

Key ST2-1-3-12 = ST2 (SoftTouch Valve Series) | 1 (Size (in.)) | 3 (Configuration: 2 = 2 Way, 3 = 3 Way) | 12 (Cv)

3-WAY - Non Spring Return - Close-Off Chart (PSI)

Actuators		24 VAC On/Off or Floating		Modulating	
Control Input	2-wire On/Off	■•	■		
	3-wire On/Off or Floating	■	■		
	3wire on/off or Floating with Time Out				
	Proportional with Feedback			■	■
Optional Auxiliary Switches Available			■		■
Wiring Connections	Enclosed Terminal Strip		■		■
	NPT Conduit Fitting	3/8	1/2	3/8	1/2
	Plenum Rated Leads (3 ft.)	■		■	
	Direct Mount	■		■	

Actuator Model No.				VA24-35-P-T	D24-70-T	VAM24-35-P-T	DM24-70-T
SIZE NPT	Flow Coefficient Cv	Flow Coefficient Kv	MODEL #				
1/2″	1.2	1.0	ST2-05-3-01	200		200	
	1.9	1.6	ST2-05-3-02	200		200	
	2.9	2.5	ST2-05-3-03	200		200	
	4.7	4.1	ST2-05-3-05	200		200	
	11.7*	10.1	ST2-05-3-12	200		200	
3/4″	4.7	4.1	ST2-75-3-05	200		200	
	7.4	6.4	ST2-75-3-07	200		200	
	11.7*	10.1	ST2-75-3-12	200		200	
1″	7.4	6.4	ST2-1-3-07	200		200	
	11.7	10.1	ST2-1-3-12	200		200	
	18.7*	16.2	ST2-1-3-19	200		200	
1-1/4″	11.7	10.1	ST2-125-3-12		200		200
	18.7	16.2	ST2-125-3-19		200		200
	29.2*	25.3	ST2-125-3-29		200		200
1-1/2″	18.7	16.2	ST2-150-3-19		200		200
	29.2	25.3	ST2-150-3-29		200		200
	46.8*	40.5	ST2-150-3-47		200		200
2″	29.2	25.3	ST2-2-3-29		200		200
	46.8	40.5	ST2-2-3-47		200		200
	73.7*	63.8	ST2-2-3-74		200		200

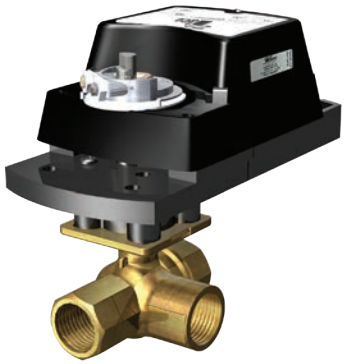
Refer to the Actuator Section for a list of actuators with additional options (i.e. auxiliary switches etc.)
Bypass Port Cv has a characterizing disk.
** Full Port Valve*
• Relay Required

Quick Reference & Selection Table

3-Way - Spring Return Close-Off Chart (PSI)

Key ST2-05-3-01 =

ST2	05	3	01	C
SoftTouch Valve Series	Size (in.)	Configuration 2 = 2 Way 3 = 3 Way	Cv	C=Closed otherwise no indicator shown



3-WAY - Spring Return - Close-Off Chart (PSI)

Actuators		24 VAC Floating		Modulating	
Control Input	2-wire On/Off	■	■		
	3-wire or Floating	■	■		
	Proportional with Feedback			■	■
Optional Auxiliary Switches Available		■	■	■	■
Wiring Connections	NPT Conduit Fitting	1/2	3/8	1/2	3/8
	Plenum Rated Leads (3 ft.)	■		■	

Actuator Model No.				VAS24 -27-T-T	VAS24 -70-T-T	VAMS24 -27-T	VAMS24 -70-T
SIZE NPT	Flow Coefficient Cv	Flow Coefficient Kv	MODEL #				
1/2″	1.2	1.0	ST2-05-3-01_	200		200	
	1.9	1.6	ST2-05-3-02_	200		200	
	2.9	2.5	ST2-05-3-03_	200		200	
	4.7	4.1	ST2-05-3-05_	200		200	
	11.7*	10.1	ST2-05-3-12_	200		200	
3/4″	4.7	4.1	ST2-75-3-05_	200		200	
	7.4	6.4	ST2-75-3-07_	200		200	
	11.7*	10.1	ST2-75-3-12_	200		200	
1″	7.4	6.4	ST2-1-3-07_	200		200	
	11.7	10.1	ST2-1-3-12_	200		200	
	18.7*	16.2	ST2-1-3-19_	200		200	
1-1/4″	11.7	10.1	ST2-125-3-12_		200		200
	18.7	16.2	ST2-125-3-19_		200		200
	29.2*	25.3	ST2-125-3-29_		200		200
1-1/2″	18.7	16.2	ST2-150-3-19_		200		200
	29.2	25.3	ST2-150-3-29_		200		200
	46.8*	40.5	ST2-150-3-47_		200		200
2″	29.2	25.3	ST2-2-3-29_		200		200
	46.8	40.5	ST2-2-3-47_		200		200
	73.7*	63.8	ST2-2-3-74_		200		200

C= Normally Closed, otherwise Normally Open

Refer to the Actuator Section for a list of actuators with additional options (i.e. auxiliary switches etc.)
Bypass Port Cv has a characterizing disk.
** Full Port Valve*
• Relay Required

Notes

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