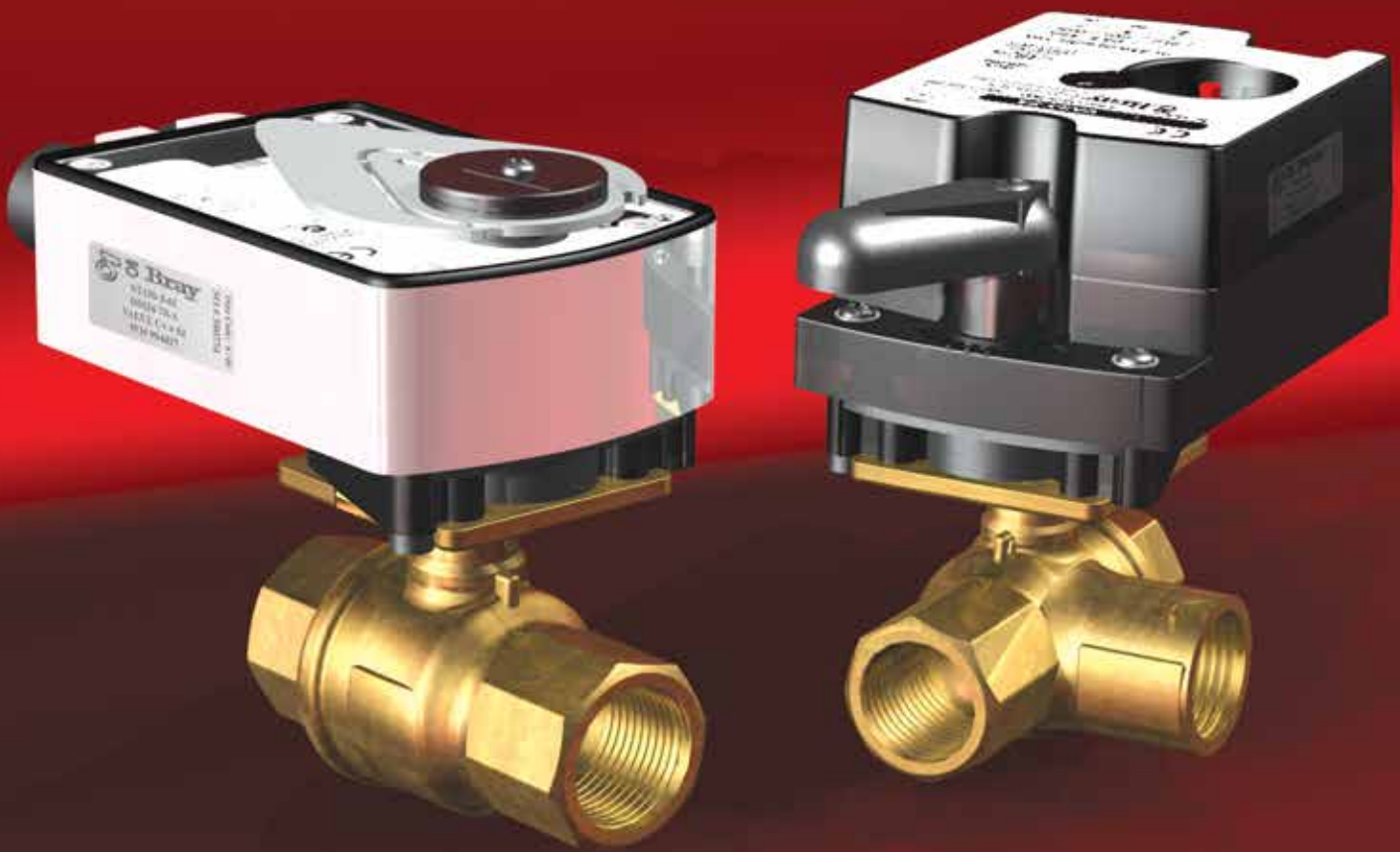


SoftTouch₂



1/2" - 2"
Ball Valves

Features ST2 Series 2-Way & 3-Way Assembly Features:

SoftTouch 2 Ball Valves

**Applications for Building Automation, Temperature Controls, HVAC
Two-Way and Three-Way Assemblies • Steam • Chilled Water • Hot Water**

The Soft Touch 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 284°F (140°C) and saturated steam up to 15 PSI.

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:

Features	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

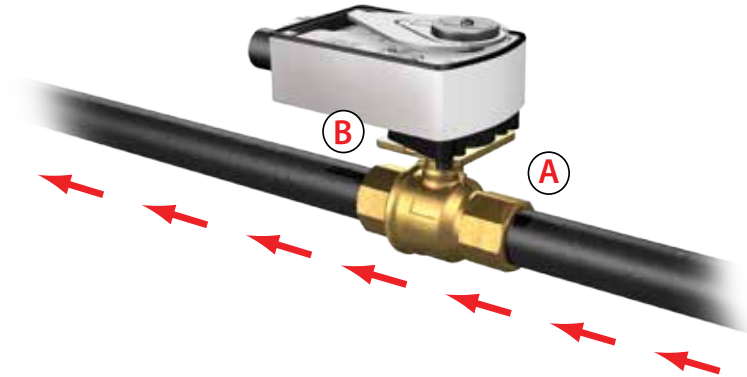
Service	Hot Water, Chilled Water, 50/50 Glycol Solutions, and 15 psig (103 kPa) Saturated Steam for HVAC Systems
Valve Body Pressure/Temperature	
Cold Working Pressure (CWP)	580 PSI (PN 40)
Water (with Standard Mounting)	23 to 203F (-5 to 95C)
Water (with "High Temp" Mounting)	-22 to 284F (-30 to 140C)
Steam (with "High Temp" Mounting)	15 PSIG (103 kPa) at 284F (140C)
Maximum Recommended Operating Pressure Drop	50 PSI Maximum Differential, 30 PSI for Quiet Service
Flow Characteristics	
Two-Way	Equal Percentage
Three-Way	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®

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



ST2 Series Piping and Installation Tips

2-Way Piping Schematics

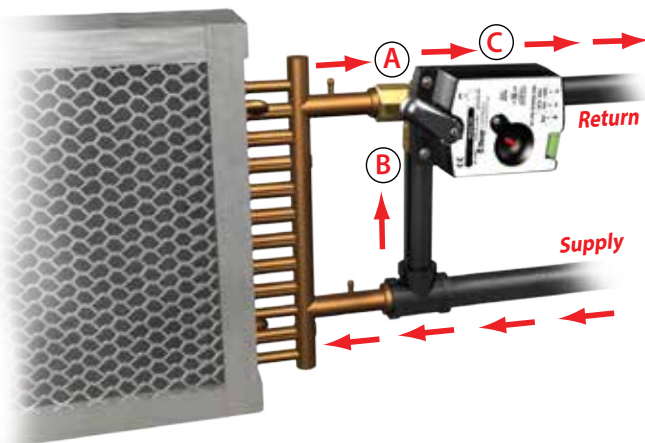


2-Way - Default Configuration for ST2 Ball Valves

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

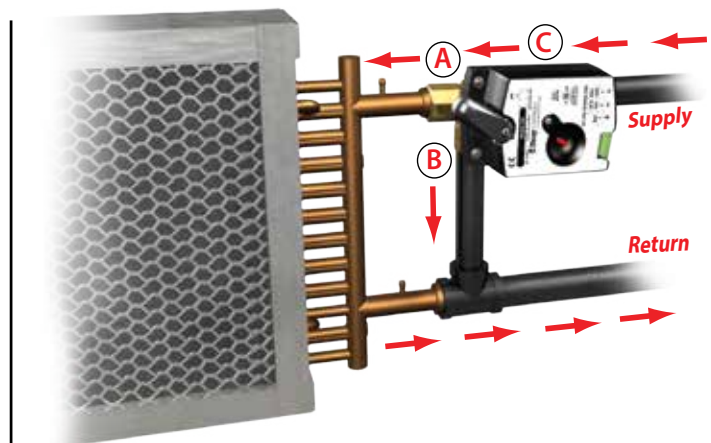
*Proportional actuators include a switch to field convert from Direct Acting to Reverse Action

3-Way Piping Schematics



Mixing Applications:

Fluid enters through two inlets (A, B) and exits through one outlet (C). A is service port. B is bypass port.



Diverting Applications: (Full Port Valves Only)

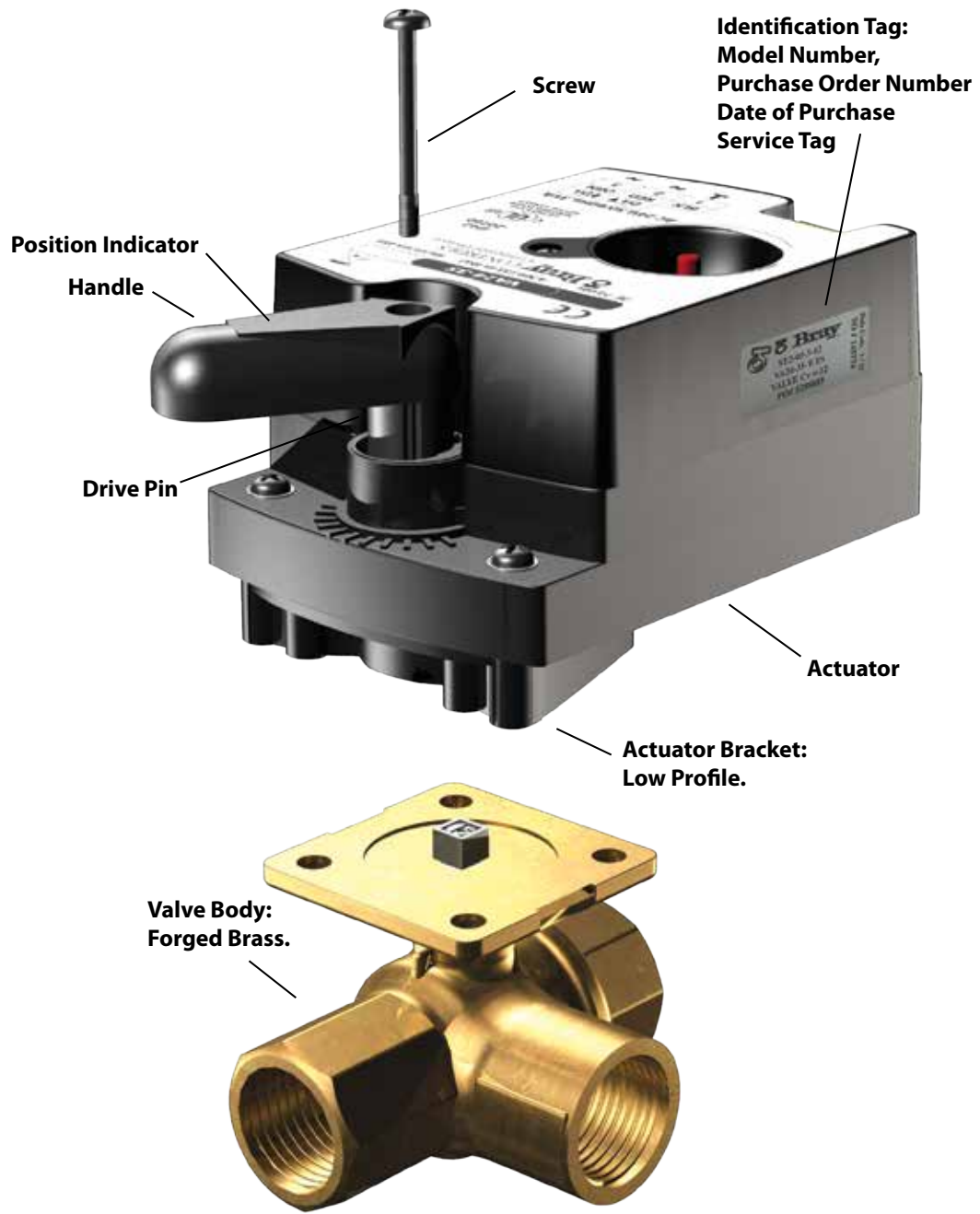
Fluid enters through one inlet (C) and exits through two outlets (A, B). A is service port. B is bypass port.

3-Way - Default Configuration for ST2 Ball Valves

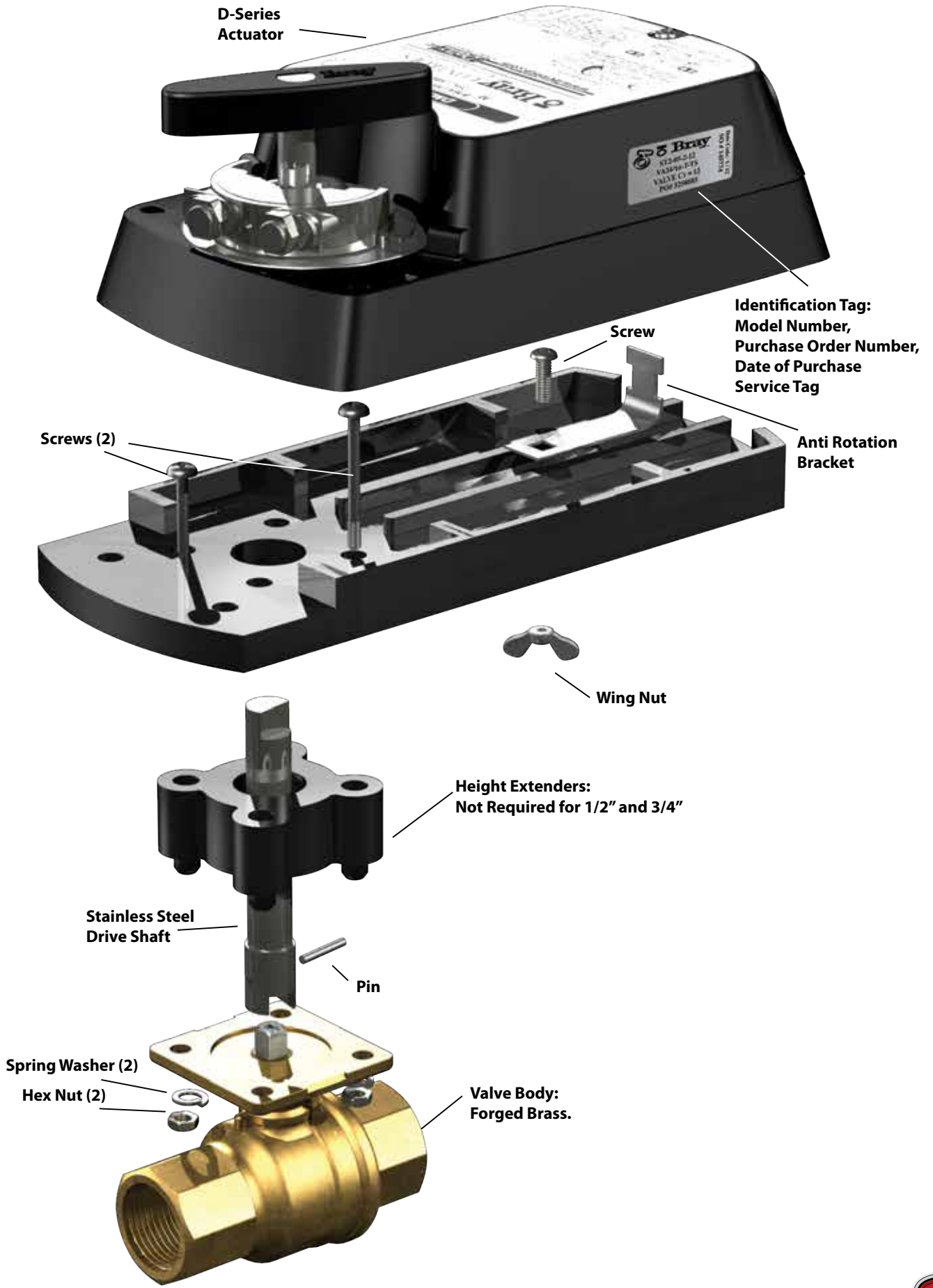
Valve Position at Actuator Position	3-Way Non Spring Return	3-Way Spring Return N.O	3-Way Spring Return N.C.
Valve Position w/ Act CCW	A open to C	A open to C	A open to C
Valve position w/Act CW	B open to C	B open to C	B open to C
Valve Position w power removed	Last Position	A open to C	B open to C
Proportional 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

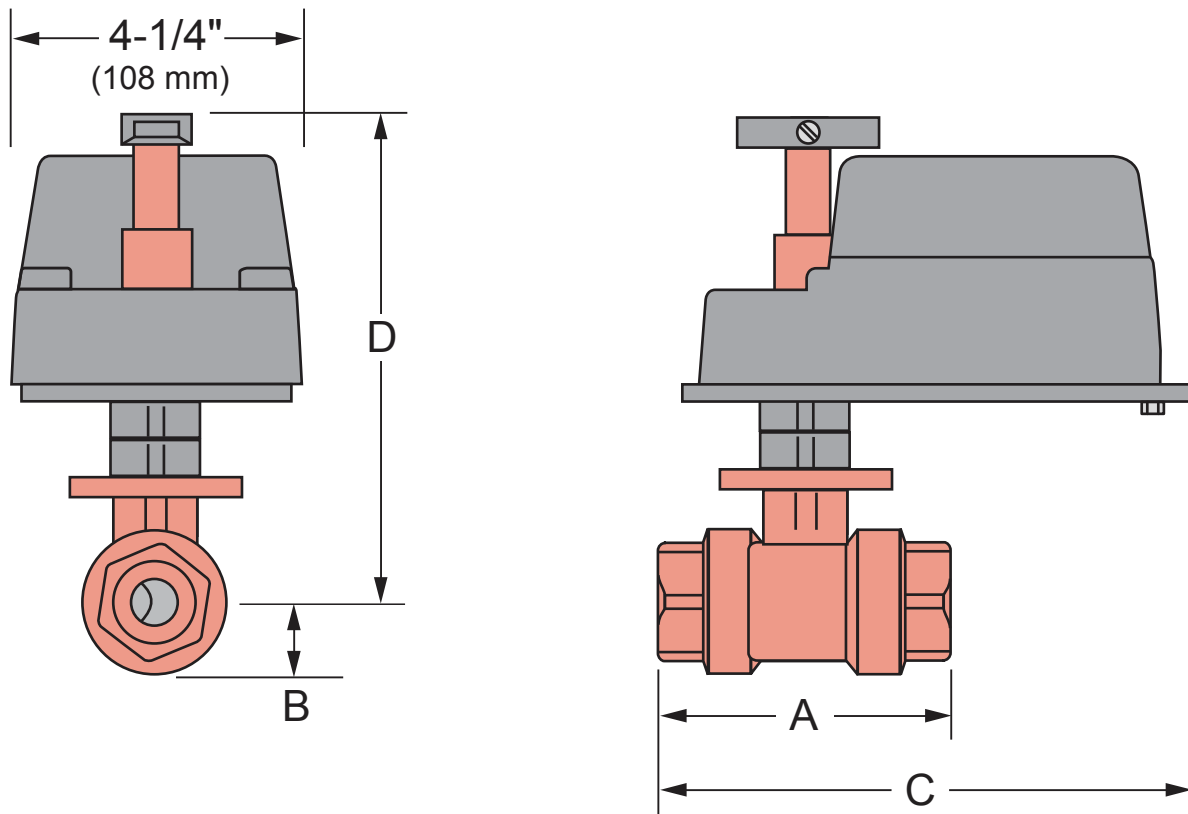
Exploded View
Direct Mount Actuators



Exploded View
Universal Mount for D Series Actuators



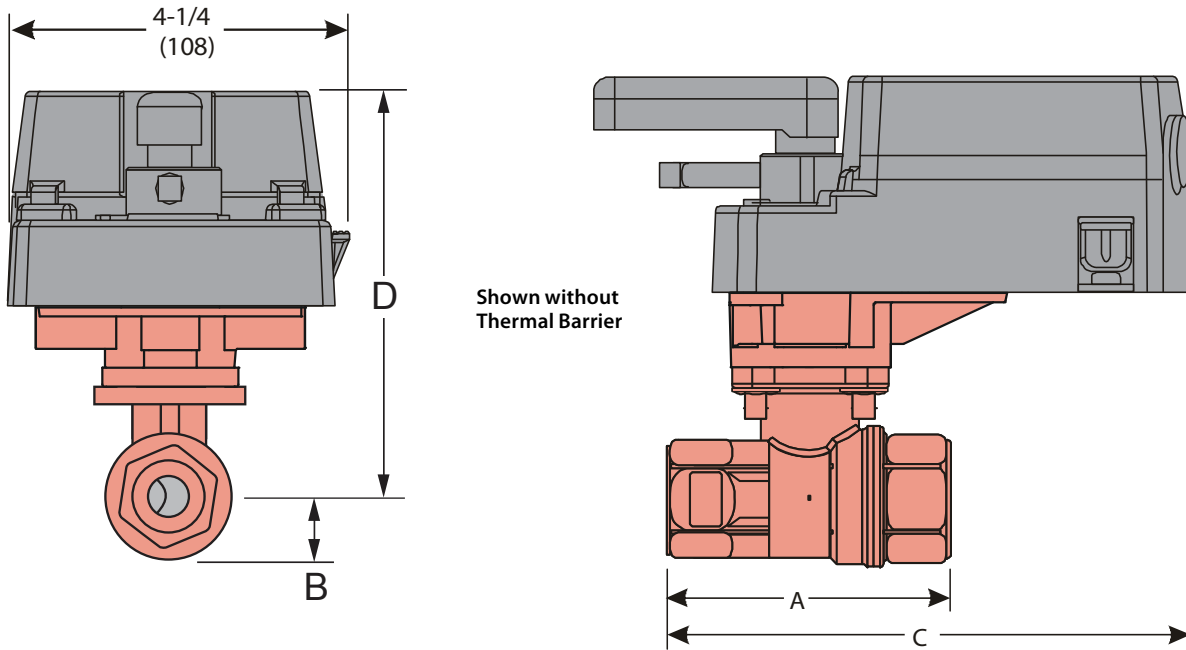
2-Way ST2 Series- Universal Mount (D Series)
Valve Assembly Dimensions



2-WAY DIMENSIONS, 1-1/4" - 2" - Universal Mount

ST2 VALVE MODEL # PREFIX ST2 Size-Way-Cv	Connection in. mm		Available Cv's	Please reference illustration above									
				A		B		C		D*		Weight	
				in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
ST2-125-2-...	1-1/4	32	11.7, 18.7, 29.2	3-15/16	100	1	26	7-7/8	175	6-7/16	164	4.4	2.0
ST2-150-2-...	1-1/2	40	18.7, 29.2, 46.8	4-5/16	110	1-1/8	29	8-1/16	180	6-5/8	168	5.2	2.4
ST2-2-2-...	2	50	29.2, 46.8, 73.7	4-13/16	123	1-1/2	38	8-5/16	186	6-3/4	171	7.0	3.2

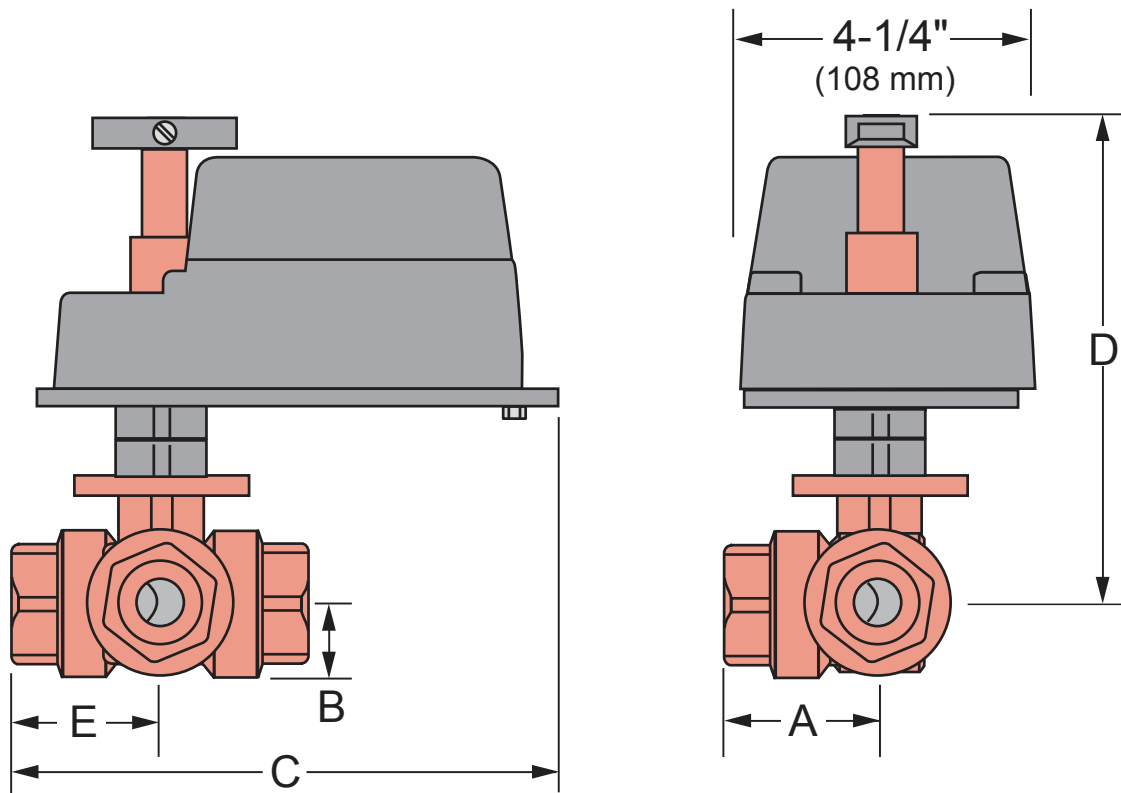
Dimensions may vary, depending on the actuator.
 Dimensions are shown for the largest spring return actuator currently available.
 Weights shown are for valve bodies only.
 Dimensions are shown in inches and are approximate.
 Allow 3.5" clearance for actuator removal.



2-WAY DIMENSIONS, 1/2" - 2" - Direct Mount

ST2 VALVE MODEL # PREFIX ST2 Size-Way-Cv	Connection		Available Cv's	Please reference illustration above									
				A		B		C		D*		Weight	
				in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
ST2-05-2-...	1/2	15	1.2, 1.9, 2.9, 4.7, 11.7	2-1/2	64	5/8	16	6-3/4	172	4-5/8	118	3.0	1.4
ST2-75-2-...	3/4	20	4.7, 7.4, 11.7	2-13/16	71	5/8	16	6-15/16	176	4-5/8	118	3.1	1.4
ST2-1-2-...	1	25	7.4, 11.7, 18.7	3-7/16	87	13/16	20	7-3/16	183	4-11/16	119	3.4	1.5
ST2-125-2-...	1-1/4	32	11.7, 18.7, 29.2	3-15/16	101	15/16	24	7-1/2	191	5-1/8	130	5.7	2.6
ST2-150-2-...	1-1/2	40	18.7, 29.2, 46.8	4-5/16	109	1-1/8	29	7-13/16	198	5-13/16	148	6.4	2.9
ST2-1-2-...	2	50	29.2, 46.8, 73.7	4-7/8	124	1-3/8	35	8-3/8	213	5-3/8	137	8.1	3.7

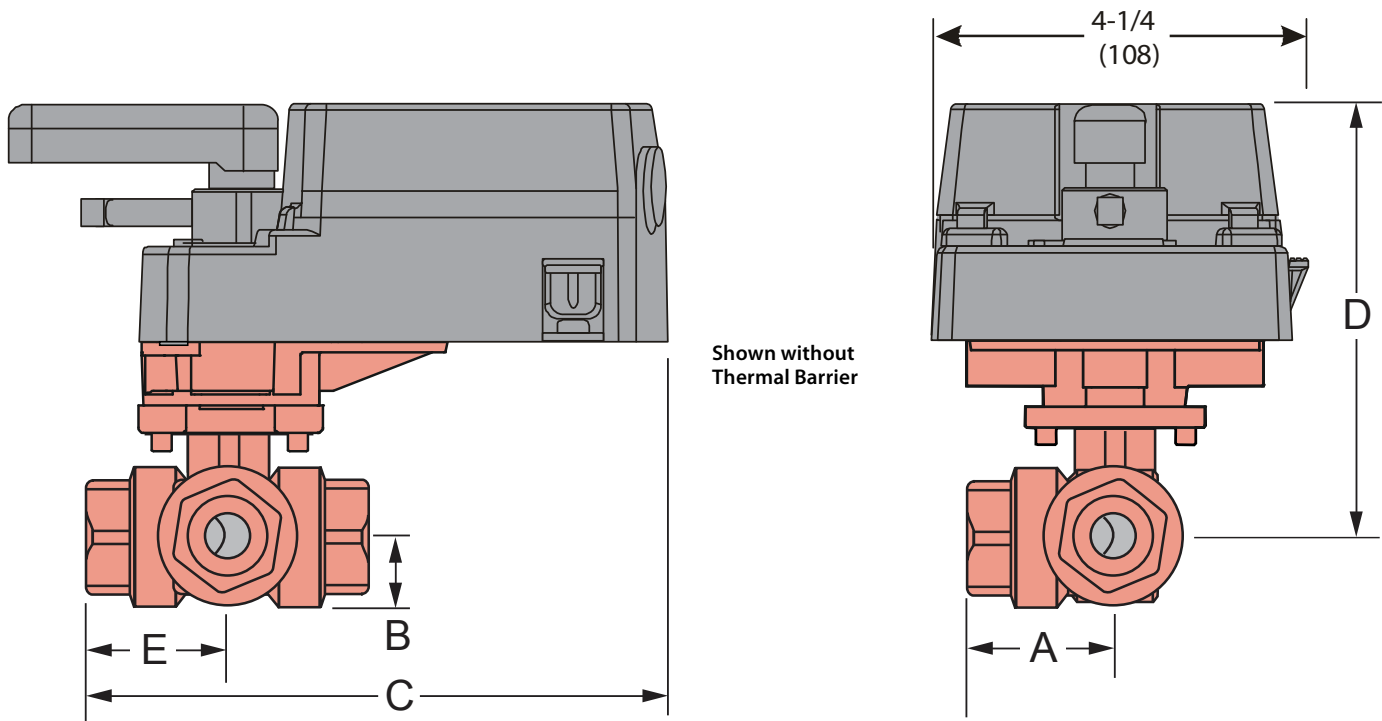
Dimensions may vary, depending on the actuator.
 Dimensions are shown for the largest spring return actuator currently available.
 Weights shown are for valve bodies only.
 Dimensions are shown in inches and are approximate.
 *Add 1.8" additional height for High Temp mounting kit. (-HT)
 Allow 3.5" clearance for actuator removal.



3-WAY DIMENSIONS, 1-1/4" - 2" - Universal Mount

ST2 VALVE MODEL # PREFIX ST2 Size-Way-Cv	Connection in. mm		Available Cv's	Please reference illustration above											
				A		B		C		D*		E		Weight	
				in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
ST2-125-3-...	1-1/4	32	11.7, 18.7, 29.2	2	51	1	25	7-7/8	175	6-7/16	164	1-15/16	50	5.0	2.3
ST2-150-3-...	1-1/2	40	18.7, 29.2, 46.8	2-1/8	54	1-1/8	29	8-1/16	180	6-5/8	168	2-3/16	55	5.8	2.6
ST2-2-3-...	2	50	29.2, 46.8, 73.7	2-9/16	65	1-1/2	38	8-5/16	186	6-3/4	171	2-7/16	62	7.7	3.5

Dimensions may vary, depending on the actuator.
 Dimensions are shown for the largest spring return actuator currently available.
 Weights shown are for valve bodies only.
 Dimensions are shown in inches and are approximate.
 Allow 3.5" clearance for actuator removal.



3-WAY DIMENSIONS, 1/2" - 2" - Direct Mount

ST2 VALVE MODEL # PREFIX	Connection		Available Cv's	Please reference illustration above											
				A		B		C		D*		E		Weight	
				in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
ST2-05-3-...	1/2	15	1.2, 1.9, 2.9, 4.7, 7.4, 11.7	1-1/4	32	5/8	16	6-3/4	172	4-5/8	118	1-1/4	32	3.0	1.4
ST2-75-3-...	3/4	20	4.7, 7.4, 11.7	1-13/32	36	5/8	16	6-15/16	176	4-5/8	118	1-3/8	36	3.2	1.5
ST2-1-3-...	1	25	7.4, 11.7, 18.7	1-11/16	43	13/16	20	7-3/16	183	4-11/16	119	1-11/16	43	3.3	1.5
ST2-125-3-...	1-1/4	32	11.7, 18.7, 29.2	1-15/16	49	5/16	24	7-1/2	191	5-1/8	130	1-15/16	50	6.1	2.8
ST2-150-3-...	1-1/2	40	18.7, 29.2, 46.8	2-1/4	57	1-1/8	29	7-13/16	198	5-3/16	148	2-3/16	55	6.9	3.1
ST2-2-3-...	2	50	29.2, 46.8, 73.7	2-5/8	67	1-3/8	35	8-3/8	213	5-3/8	137	2-7/16	62	9.5	4.3

Dimensions may vary, depending on the actuator.
 Dimensions are shown for the largest spring return actuator currently available.
 Weights shown are for valve bodies only.
 Dimensions are shown in inches and are approximate.
 *Add 1.8" additional height for High Temp mounting kit. (-HT)
 Allow 3.5" clearance for actuator removal.

VALVE SIZING STEPS

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 H₂O 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):

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

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

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

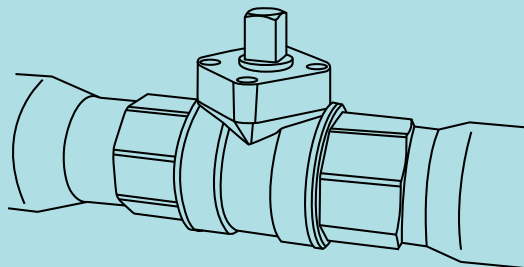
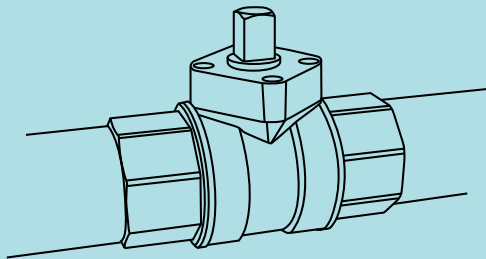
LINE SIZE

Go to page S2-12, 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 pages S2-13 & S2-14 (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 Page S2-15 - S2-18.

† 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.

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.

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

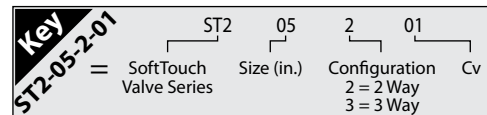
What is the correct Cv rating for a (1-1/2") ST2-125-3-19 valve when placed on a 2" pipe?
 First go to the 2" pipe column and follow this down until you reach the ST2-125-3-19 row
 The value where they meet is the corrected Cv rating, which is 18.6.

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			■	■	■	■			
3-wire On/Off or Floating with Time Out				■					
Proportional with Feedback							■	■	■
Optional Auxiliary Switches Available					■	■		■	■
Wiring Connections									
Enclosed Terminal Strip					■	■		■	■
1/2" NPT Conduit Fitting			3/8	3/8	■	■		■	■
Plenum Rated Leads (3 ft.)			■	■			■		
Direct Mount			■	■			■		
Actuator Model No.			VA24-35-P	VA24-35-PTO	D24-53-T	D24-70	VAM24-35-P	DM24-53	DM24-70
SIZE NPT	Flow Coefficient		MODEL #						
	Cv	Kv							
1/2"	1.2	1.0	ST2-05-2-01	200	200			200	
	1.9	1.6	ST2-05-2-02	200	200			200	
	2.9	2.5	ST2-05-2-03	200	200			200	
	4.7	4.1	ST2-05-2-05	200	200			200	
	11.7*	10.1	ST2-05-2-12	200	200			200	
3/4"	4.7	4.1	ST2-75-2-05	200	200			200	
	7.4	6.4	ST2-75-2-07	200	200			200	
	11.7*	10.1	ST2-75-2-12	200	200			200	
1"	7.4	6.4	ST2-1-2-07	200	200			200	
	11.7	10.1	ST2-1-2-12	200	200			200	
	18.7*	16.2	ST2-1-2-19	200	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.)
Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA/VAS series only)

- * Full Port Valve
- Relay Required



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

Actuators				120 VAC On/Off		24 VAC On/Off		24 VAC Floating		Modulating					
Control Input				2-wire On/Off		■	■	■	■	■	■				
				3-wire or Floating						■	■				
				Proportional with Feedback									■	■	
Optional Auxiliary Switches Available				■	■	■	■	■	■	■	■				
Wiring Connections 1/2" NPT Conduit Fitting				Plenum Rated Leads (3 ft.)		■	3/8	■	3/8	■	3/8	■	3/8		
										■		■			
Actuator Model No.															
SIZE NPT	Flow Coefficient		MODEL #	VASU20	VAS120	VAS24	VAS24	VAS24	VAS24	VAMS24	VAMS24				
	Cv	Kv		-27	-70	-27	-70	-27-T	-70-T	-27	-70				
1/2"	1.2	1.0	ST2-05-2-01_	200		200		200		200					
	1.9	1.6	ST2-05-2-02_	200		200		200		200					
	2.9	2.5	ST2-05-2-03_	200		200		200		200					
	4.7	4.1	ST2-05-2-05_	200		200		200		200					
	11.7*	10.1	ST2-05-2-12_	200		200		200		200					
3/4"	4.7	4.1	ST2-75-2-05_	200		200		200		200					
	7.4	6.4	ST2-75-2-07_	200		200		200		200					
	11.7*	10.1	ST2-75-2-12_	200		200		200		200					
1"	7.4	6.4	ST2-1-2-07_	200		200		200		200					
	11.7	10.1	ST2-1-2-12_	200		200		200		200					
	18.7*	16.2	ST2-1-2-19_	200		200		200		200					
1-1/4"	11.7	10.1	ST2-125-2-12_		200		200		200		200				
	18.7	16.2	ST2-125-2-19_		200		200		200		200				
	29.2*	25.3	ST2-125-2-29_		200		200		200		200				
1-1/2"	18.7	16.2	ST2-150-2-19_		200		200		200		200				
	29.2	25.3	ST2-150-2-29_		200		200		200		200				
	46.8*	40.5	ST2-150-2-47_		200		200		200		200				
2"	29.2	25.3	ST2-2-2-29_		200		200		200		200				
	46.8	40.5	ST2-2-2-47_		200		200		200		200				
	73.7*	63.8	ST2-2-2-74_		200		200		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.)

Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA/VAS series only)

* Full Port Valve

• Relay Required



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

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		■	■	■	■				
	3-wire on/off or Floating with Time Out									
	Proportional with Feedback						■	■	■	
Optional Auxiliary Switches Available										
Wiring Connections	Enclosed Terminal Strip				■	■		■	■	
	1/2" NPT Conduit Fitting		3/8	3/8	■	■	3/8	■	■	
	Plenum Rated Leads (3 ft.)		■	■			■			
	Direct Mount		■	■			■			
Actuator Model No.										
SIZE NPT	Flow Coefficient		MODEL #	VA24-35-P	VA24-35-PTO	D24-53-T	D24-70	VAM24-35-P	DM24-53	DM24-70
	Cv	Kv								
1/2"	1.2	1.0	ST2-05-3-01	200	200			200		
	1.9	1.6	ST2-05-3-02	200	200			200		
	2.9	2.5	ST2-05-3-03	200	200			200		
	4.7	4.1	ST2-05-3-05	200	200			200		
	11.7*	10.1	ST2-05-3-12	200	200			200		
3/4"	4.7	4.1	ST2-75-3-05	200	200			200		
	7.4	6.4	ST2-75-3-07	200	200			200		
	11.7*	10.1	ST2-75-3-12	200	200			200		
1"	7.4	6.4	ST2-1-3-07	200	200			200		
	11.7	10.1	ST2-1-3-12	200	200			200		
	18.7*	16.2	ST2-1-3-19	200	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.)
Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA/VAS series only)
Bypass Port Cv has a characterizing disk.

* Full Port Valve
• Relay Required



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

Actuators			120 On/Off		24 VAC On/Off		24 VAC Floating		Modulating		
Control Input	2-wire On/Off		■	■	■	■	■	■			
	3-wire or Floating						■	■			
	Proportional with Feedback								■	■	
Optional Auxiliary Switches Available			■	■	■	■	■	■	■	■	
Wiring Connections	1/2" NPT Conduit Fitting		■	3/8	■	3/8	■	3/8	■	3/8	
	Plenum Rated Leads (3 ft.)						■		■		
Actuator Model No.			VASU20	VAS120	VAS24	VAS24	VAS24	VAS24	VAMS24	VAMS24	
SIZE NPT	Flow Coefficient		MODEL #	-27	-70	-27	-70	-27-T	-70-T	-27	-70
	Cv	Kv									
1/2"	1.2	1.0	ST2-05-3-01_	200		200		200		200	
	1.9	1.6	ST2-05-3-02_	200		200		200		200	
	2.9	2.5	ST2-05-3-03_	200		200		200		200	
	4.7	4.1	ST2-05-3-05_	200		200		200		200	
	11.7*	10.1	ST2-05-3-12_	200		200		200		200	
3/4"	4.7	4.1	ST2-75-3-05_	200		200		200		200	
	7.4	6.4	ST2-75-3-07_	200		200		200		200	
	11.7*	10.1	ST2-75-3-12_	200		200		200		200	
1"	7.4	6.4	ST2-1-3-07_	200		200		200		200	
	11.7	10.1	ST2-1-3-12_	200		200		200		200	
	18.7*	16.2	ST2-1-3-19_	200		200		200		200	
1-1/4"	11.7	10.1	ST2-125-3-12_		200		200		200		200
	18.7	16.2	ST2-125-3-19_		200		200		200		200
	29.2*	25.3	ST2-125-3-29_		200		200		200		200
1-1/2"	18.7	16.2	ST2-150-3-19_		200		200		200		200
	29.2	25.3	ST2-150-3-29_		200		200		200		200
	46.8*	40.5	ST2-150-3-47_		200		200		200		200
2"	29.2	25.3	ST2-2-3-29_		200		200		200		200
	46.8	40.5	ST2-2-3-47_		200		200		200		200
	73.7*	63.8	ST2-2-3-74_		200		200		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.)

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