


## **SoftTouch 2** Characterized Ball Valves 2-Way & 3-Way • 1/2" - 2"

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LOOKING FOR MORE	Close-Off Charts
	
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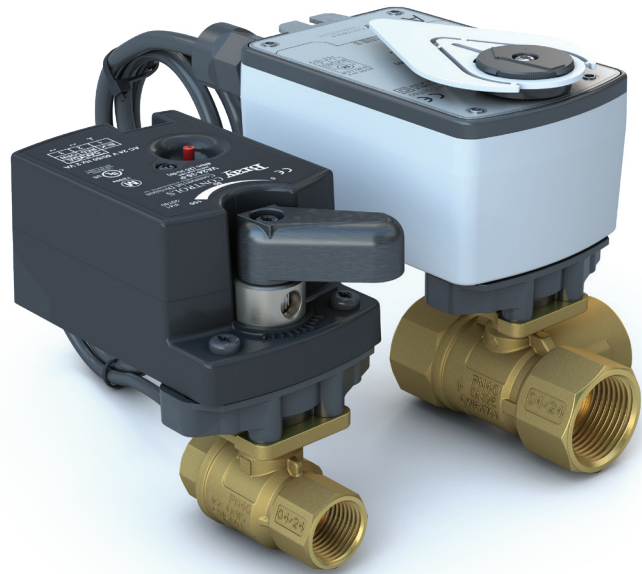
### Application

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.



### System Types

Fan Coils, VAV Reheat Coils, Chilled Beams, Computer Room Air Conditioning Units and Air Handling Units.

### 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*

- **Warranty**

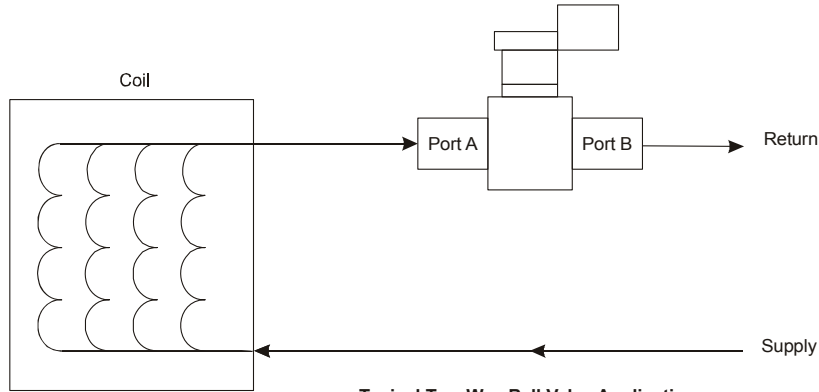
*5 Years.*

## SoftTouch 2 - Valve Body Specifications

Technical Specifications - Valve Body			
Service	Hot Water, Chilled Water, Condenser Water up to 50% Glycol 15 PSIG (103 kPa) Saturated Steam for HVAC Systems		
Size Range	2-Way & 3-Way - 1/2" through 2" (DN 15 to 50)		
Valve Body Pressure/ Temperature Rating	Cold Working Pressure	580 PSI (PN 40)	
	Water (with Standard Mounting)	-22°F to 203°F (-30°C to 95°C)	
	Water (with "High Temp" Mounting)	-22°F to 284°F (-30°C to 140°C)	
	Steam (with "High Temp" Mounting)	15 PSIG (103 kPa) at 284°F (140°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	2-Way	Equal Percentage	
	3-Way	Equal Percentage Port A, Linear Port B (Bypass)	
Rangeability	Greater than 500:1		
Ambient Conditions	See Actuator Specifications		
Close-Off	200 PSI		
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 Threaded		
Materials	Body	Forged Brass	
	Ball	300 Series Stainless Steel	
	Stem		
	Seats	Graphite-Reinforced PTFE with EPDM O-Ring backing	
	Stem Seals	EPDM Double O-Rings	
	Characterizing Disk	AMODEL® AS-1145HS Polyphthalamide Resin	
Weights (Valve Body Only)	Size	2-Way	3-Way
	1/2"	0.8 lb. (.36 kg)	1.3 lb. (.57 kg)
	3/4"	1.0 lb. (.45 kg)	1.5 lb. (.68 kg)
	1"	1.8 lb. (.82 kg)	2.8 lb. (1.3 kg)
	1-1/4"	2.3 lb. (1.0 kg)	4.3 lb. (1.9 kg)
	1-1/2"	3.8 lb. (1.7 kg)	6.3 lb. (2.8 kg)
	2"	5.0 lb. (2.3 kg)	8.2 lb. (3.7 kg)
Compliance CRN	OC16910.5		
Warranty	5 Years limited from time of shipment.		

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

## SoftTouch 2 - 2-Way Piping Schematics

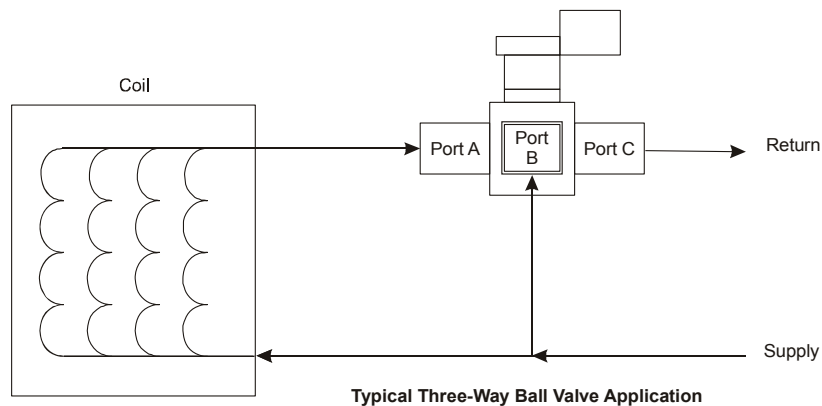


**Note:** Mount the valve downstream from the coil to minimize heat transfer to the actuator.

2-Way - Default Configuration for ST2 Ball Valves			
Valve Position at Actuator Position	2-Way Non-Spring Return	2-Way Spring Return N.O. (Normally Open)	2-Way Spring Return N.C. (Normally Closed)
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
Modulating 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 **MODULATING** actuators include a switch to field convert from Direct Acting to Reverse Action

## SoftTouch 2 - 3-Way Piping Schematics

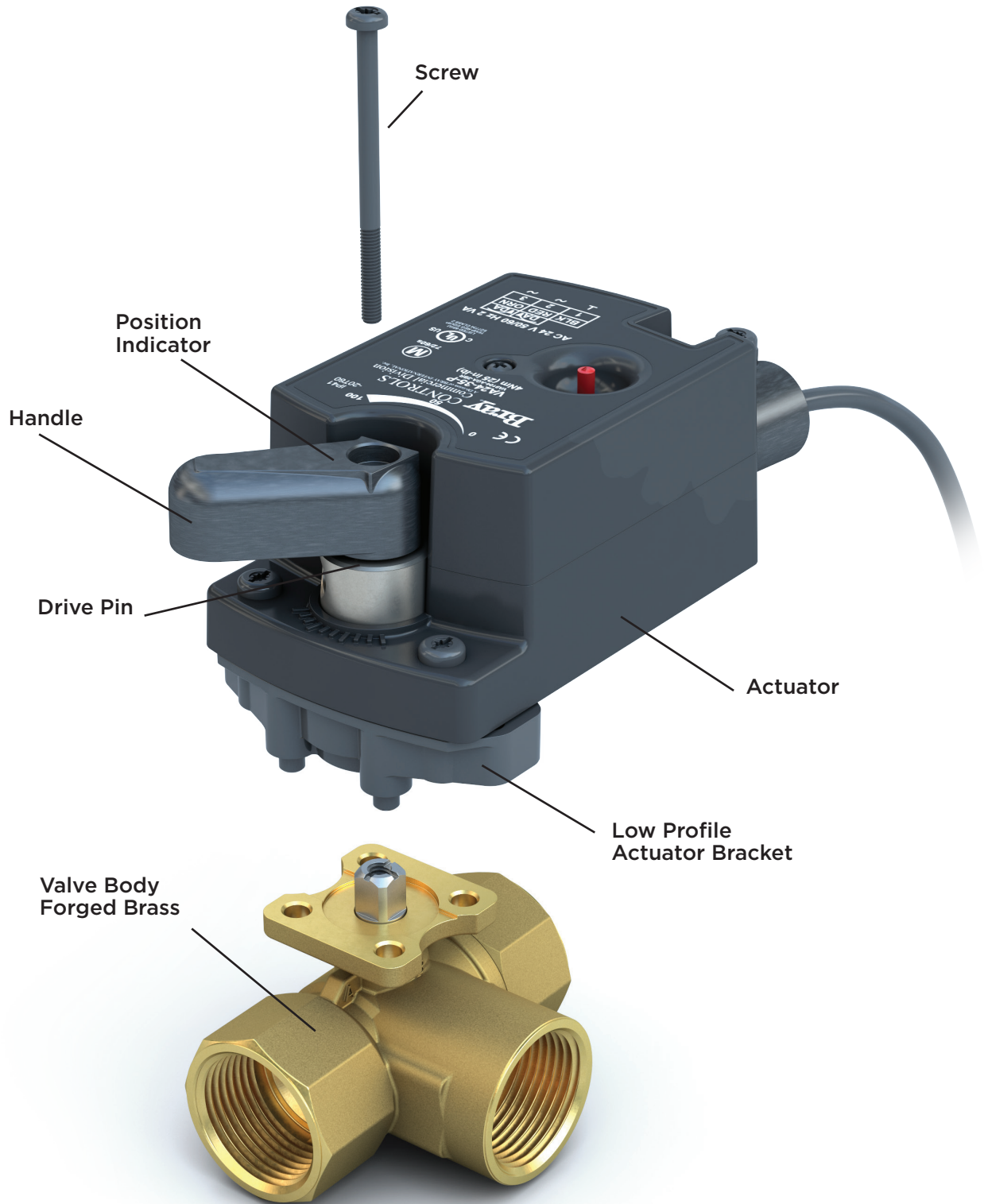


**Note:** Mount the valve downstream from the coil to minimize heat transfer to the actuator. For pure diverting applications (one inlet/two outlets), only the standard port (no characterization disc) versions will work.

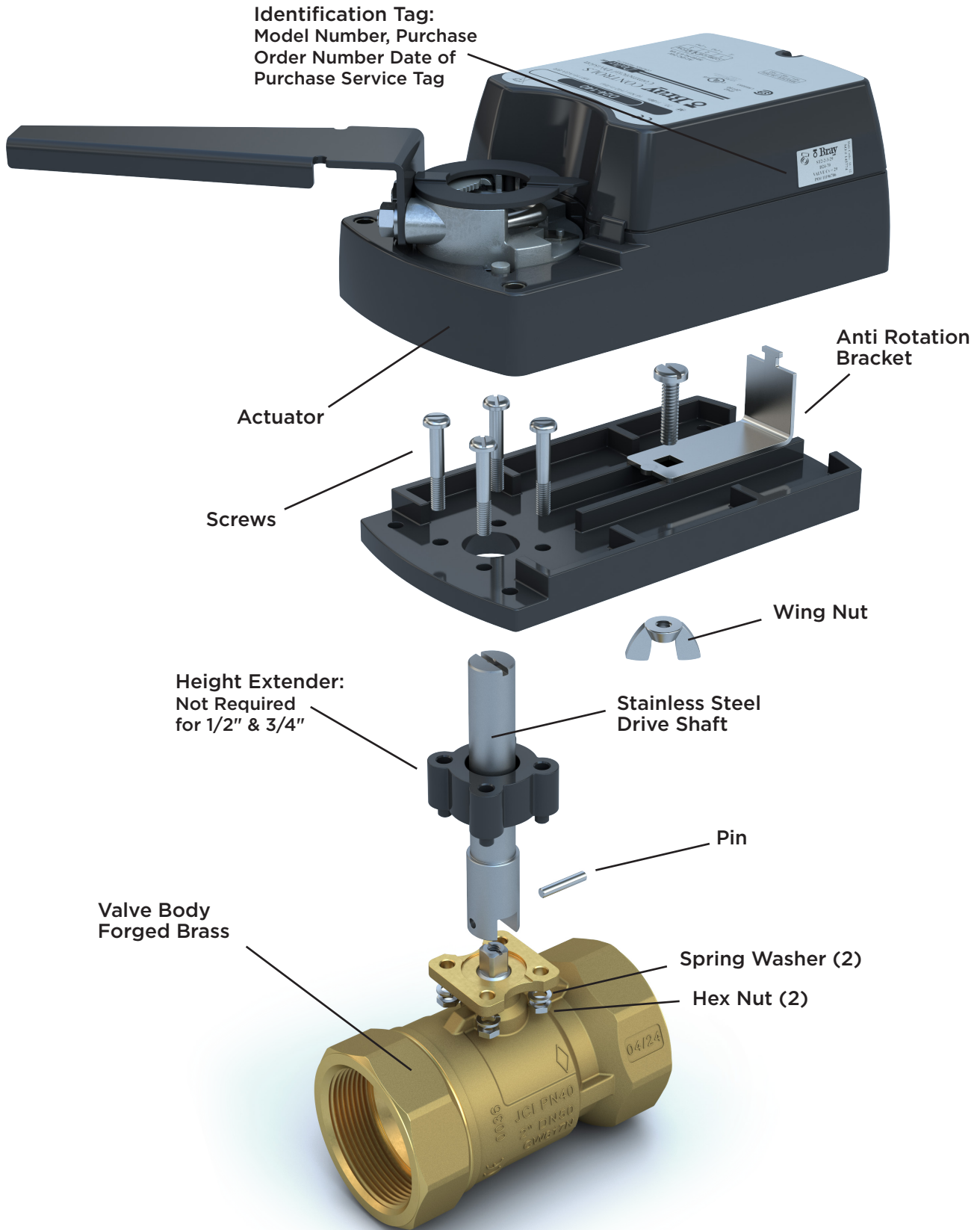
3-Way - Default Configuration for ST2 Ball Valves			
Valve Position at Actuator Position	3-Way Non-Spring Return	3-Way Spring Return N.O. (Normally Open)	3-Way Spring Return N.C. (Normally Closed)
Valve Position w/ Act CCW	A open to C	A open to C	A open to C
Valve position w/Act CW	B open to C	B open to C	B open to C
Valve Position w power removed	Last Position	A open to C	B open to C
Modulating 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 **MODULATING** actuators include a switch to field convert from Direct Acting to Reverse Action

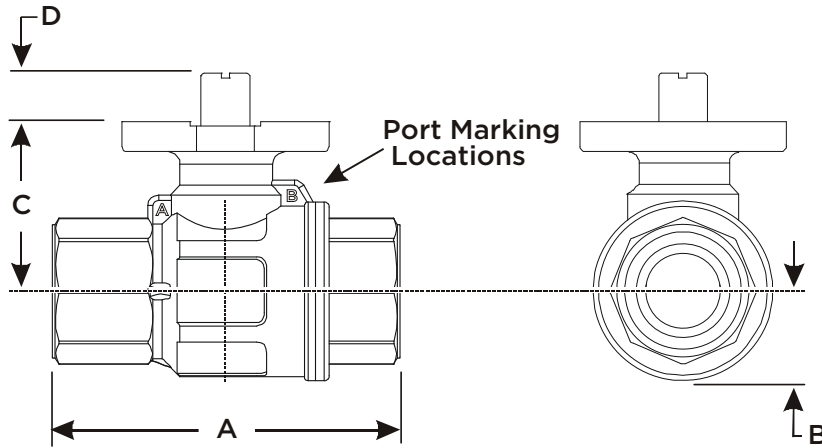
## SoftTouch 2 - 3-Way Exploded View - Direct Mount Actuators



## SoftTouch 2 - 2-Way Exploded View - Universal Mount Actuators

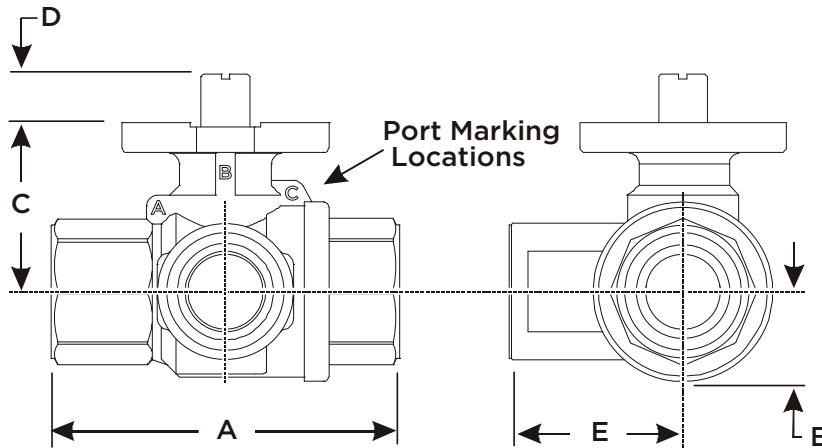


## SoftTouch 2 - Valve Dimensions



**2-WAY - VALVE BODY DIMENSIONS in. (mm)**

ST2 Valve Model # Prefix	Size		A	B	C	D
	in.	mm				
ST2-05-2-...	0.5	15	2-1/2 (64)	5/8 (17)	1-7/32 (31)	11/32 (9)
ST2-75-2-...	.75	20	2-13/16 (71)	5/8 (17)	1-7/32 (31)	11/32 (9)
ST2-1-2-...	1.0	25	3-7/16 (87)	3/4 (19)	1-5/16 (33)	11/32 (9)
ST2-125-2-...	1.25	32	3-15/16 (100)	1 (26)	1-23/32 (44)	11/32 (9)
ST2-150-2-...	1.5	40	4-5/16 (109)	1-1/8 (29)	1-7/8 (48)	11/32 (9)
ST2-2-2-...	2.0	50	4-7/8 (124)	1-1/2 (37)	2-1/16 (53)	11/32 (9)



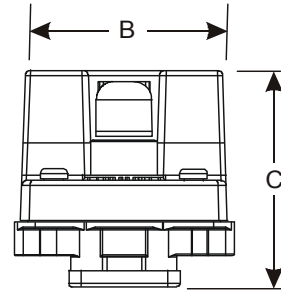
**3-WAY - VALVE BODY DIMENSIONS in. (mm)**

ST2 Valve Model # Prefix	Size		A	B	C	D	E
	in.	mm					
ST2-05-3-...	0.5	15	2-1/2 (64)	5/8 (17)	1-7/32 (31)	11/32 (9)	1-1/4 (32)
ST2-75-3-...	.75	20	2-13/16 (71)	5/8 (17)	1-7/32 (31)	11/32 (9)	1-13/32 (36)
ST2-1-3-...	1.0	25	3-7/16 (87)	3/4 (19)	1-5/16 (33)	11/32 (9)	1-45/64 (43)
ST2-125-3-...	1.25	32	3-15/16 (100)	1 (26)	1-23/32 (44)	11/32 (9)	1-31/32 (50)
ST2-150-3-...	1.5	40	4-5/16 (109)	1-1/8 (29)	1-7/8 (48)	11/32 (9)	2-11/64 (55)
ST2-2-3-...	2.0	50	4-7/8 (124)	1-1/2 (37)	2-1/16 (53)	11/32 (9)	2-27/64 (62)

## SoftTouch 2 - Actuator Dimensions

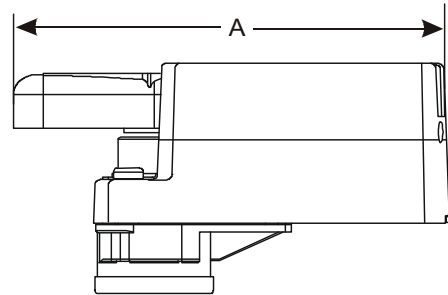
### COMMERCIAL ACTUATOR DIMENSIONS in. (mm)

Direct Mount Actuator Model Number	A Length	B Width	C Height	Weight lbs. (kg)
VA(M)-35 Series	5.2 (132)	2.8 (71)	2.1 (53)	1.3 (0.59)
VA(M)S-27 Series	6.4 (163)	3.3 (84)	2.3 (58)	2.0 (0.9)
VAM-90 Series	5.4 (137)	3.2 (81)	2.4 (62)	2.0 (0.9)
VA(M)S-70 Series	6.3 (160)	3.9 (99)	2.3 (58)	3.8 (1.7)



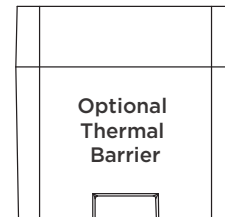
### COMMERCIAL ACTUATOR DIMENSIONS in. (mm)

Universal Mount Actuator Model Number	A Length	B Width	C Height	Weight lbs. (kg)
D(M)-70 Series	7.1 (180)	3.9 (99)	2.5 (64)	2.9 (1.3)

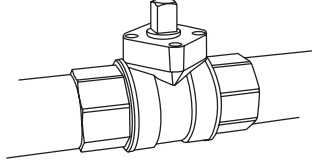
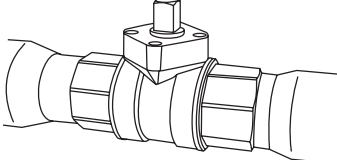


### Thermal Barrier Dimensions in. (mm)

High Temperature Thermal Barrier	A Length	B Width	C Height
HT	-	-	1.4 (35)



## SoftTouch 2 - Valve Sizing Tips

ST2 - Valve Sizing Tips						
<b>Step One</b>	Determine the designed Cv by using the following equation. <span style="float: right;"><math>Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}</math></span>					
	<b>Where</b> <b>Q</b> = Flow in gallons per minute (GPM) required to pass through the valve <b>G</b> = Specific gravity of fluid * <b>ΔP</b> = Designed pressure drop across the valve in PSI <b>Cv</b> = Flow coefficient					
	<b>Notes</b> * 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 <sub>2</sub> O mixture will not be affected by the specific gravity.					
	<b>Example</b> The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2): <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;"><math>\frac{1}{\text{Specific Gravity}}</math></td> <td style="padding: 5px;"><math>= \frac{0.5}{1.0} + \frac{0.5}{1.113}</math></td> <td style="padding: 5px;"><math>= 1.05</math></td> </tr> <tr> <td style="padding: 5px;"><math>\frac{1}{G_{\text{soln}}}</math></td> <td style="padding: 5px;"><math>\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}</math></td> <td></td> </tr> </table>	$\frac{1}{\text{Specific Gravity}}$	$= \frac{0.5}{1.0} + \frac{0.5}{1.113}$	$= 1.05$	$\frac{1}{G_{\text{soln}}}$	$\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$
$\frac{1}{\text{Specific Gravity}}$	$= \frac{0.5}{1.0} + \frac{0.5}{1.113}$	$= 1.05$				
$\frac{1}{G_{\text{soln}}}$	$\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$					
<b>Step Two</b>	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.)					
	<b>Option 1</b> <b>LINE SIZE</b> Go to page S2-9, 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. 					
	<b>Option 2</b> <b>SIZE FOR PRECISE CONTROL</b> Go to pages S2-10 (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. 					
<b>Step Three</b>	Determine the actual pressure drop using the below equation. <span style="float: right;"><math>\Delta P = \left( \frac{Q\sqrt{G}}{Cv} \right)^2</math></span>					
	If the pressure drop is acceptable†, go to Step 4. If not, repeat Steps 2 and 3, selecting an alternate valve.					
<b>Step Four</b>	Check to be sure that the close-off requirements are met. Refer to Page S2-11 - S2-14.					

† 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.



## SoftTouch 2 - GPM - Quick Reference Sizing and Selection Table

2-Way GPM - Quick Reference Chart												
Valve Size	Model Number	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"	ST2-05-2-005	0.46	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.2	1.5
	ST2-05-2-007	0.73	0.9	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.9	2.3
	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

3-Way GPM - Quick Reference Chart												
Valve Size	Model Number	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.

## SoftTouch 2 - Adjusted Cv Charts for Piping Geometry Factor (Fp)

2-Way PIPING GEOMETRY CHART - Adjusted Cv										
Valve Size	Model Number	Nominal Cv	Pipe Size							
			3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	
1/2"	ST2-05-2-005	0.46	.46	.46						
	ST2-05-2-007	0.73	.73	.73						
	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	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			
1-1/2"	ST2-125-3-29*	29.2				28.7	27.3			
	ST2-150-3-19	18.7					18.6	18.4		
	ST2-150-3-29	29.2					28.7	28.1		
2"	ST2-150-3-47*	46.8					44.8	42.8		
	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	

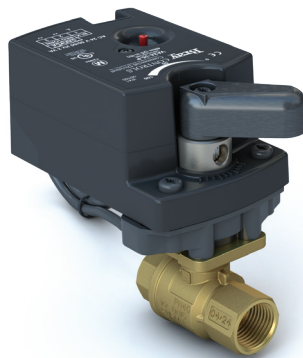
**EXAMPLE** What is the correct Cv rating for a (1-1/2") ST2-125-3-19 valve when placed on a 2" pipe? First go to the 2" pipe column and follow this down until you reach the ST2-125-3-19 row. The value where they meet is the corrected Cv rating, which is 18.6.

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

2-Way, Non-Spring Return Actuators - (200 PSI - Close Off)									
Actuator Model Details									
		Time Out			■	■			
		Auxiliary Switches Available				■			■
		Enclosed Terminal Strip				■			
		Conduit Size - Flex(F)/NPT(N)		3/8 F	3/8 F	1/2 N	3/8 F	1/2 N	
		Cable - Standard(S)/Plenum(P)		P	P		P		
		Direct Mount		■	■		■		
Model Number	Valve Size		Flow Coefficient		24 VAC On/Off & Floating		24 VAC/DC On/Off & Floating	24 VAC Modulating	24 VAC/DC Modulating
	In.	mm	Cv	Kv	VA24-35-P•	VA24-35-PTO•	D24-70-A	VAM24-35-P	DM24-70-A
ST2-05-2-005	0.5	15	0.46	0.4	X	X	-	X	-
ST2-05-2-007			0.73	0.6					
ST2-05-2-01			1.2	1.0					
ST2-05-2-02			1.9	1.6					
ST2-05-2-03			2.9	2.5					
ST2-05-2-05			4.7	4.1					
ST2-05-2-12*			11.7	10.1					
ST2-75-2-05	.75	20	4.7	4.1	X	X	-	X	-
ST2-75-2-07			7.4	6.4					
ST2-75-2-12*			11.7	10.1					
ST2-1-2-07	1	25	7.4	6.4	X	X	-	X	-
ST2-1-2-12			11.7	10.1					
ST2-1-2-19*			18.7	16.2					
ST2-125-2-12	1.25	32	11.7	10.1	X	X	X	X	X
ST2-125-2-19			18.7	16.2					
ST2-125-2-29*			29.2	25.3					
ST2-150-2-19	1.5	40	18.7	16.2	X	X	X	X	X
ST2-150-2-29			29.2	25.3					
ST2-150-2-47*			46.8	40.5					
ST2-2-2-29	2	50	29.2	25.3	X	X	X	X	X
ST2-2-2-47			46.8	40.5					
ST2-2-2-74*			73.7	63.8					

**Options/Adders**

1. For optional auxiliary switches, add -A to the end of the actuator part number.
  2. Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA series only).
- \* Reduced port valve - No characterizing disc
  - Relay Required for On/Off

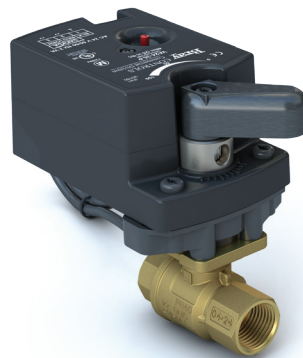


## SoftTouch 2 - 2-Way - Spring Return Close-Off Chart (PSI)

2-Way, Spring Return Actuators - (200 PSI - Close Off)								
Actuator Model Details								
Auxiliary Switches Available		■	■	■	■	■	■	
Conduit Size - Flex(F)/NPT(N)		1/2 N	1/2 N	1/2 N	3/8 F			
Cable - Standard(S)/Plenum(P)		S	S	P	P			
Direct Mount		■	■	■	■			
Model Number	Valve Size		Flow Coefficient		120/240 VAC On/Off	24 VAC/DC On/Off	24 VAC/DC On/Off & Floating	24 VAC/DC Modulating
	In.	mm	Cv	Kv	VASU20-27	VAS24-27	VAS24-27-T	VAMS24-27
ST2-05-2-005	0.5	15	0.46	0.4	X	X	X	X
ST2-05-2-007			0.73	0.6				
ST2-05-2-01			1.2	1.0				
ST2-05-2-02			1.9	1.6				
ST2-05-2-03			2.9	2.5				
ST2-05-2-05			4.7	4.1				
ST2-05-2-12*			11.7	10.1				
ST2-75-2-05	.75	20	4.7	4.1	X	X	X	X
ST2-75-2-07			7.4	6.4				
ST2-75-2-12*			11.7	10.1				
ST2-1-2-07	1	25	7.4	6.4	X	X	X	X
ST2-1-2-12			11.7	10.1				
ST2-1-2-19*			18.7	16.2				
ST2-125-2-12	1.25	32	11.7	10.1	X	X	X	X
ST2-125-2-19			18.7	16.2				
ST2-125-2-29*			29.2	25.3				
ST2-150-2-19	1.5	40	18.7	16.2	X	X	X	X
ST2-150-2-29			29.2	25.3				
ST2-150-2-47*			46.8	40.5				
ST2-2-2-29	2	50	29.2	25.3	X	X	X	X
ST2-2-2-47			46.8	40.5				
ST2-2-2-74*			73.7	63.8				

### Options/Adders

1. For optional auxiliary switches, add -A to the end of the actuator part number.
  2. Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA series only).
  3. For normally Closed, add a "C" to the end of the valve part number, i.e. ST2-05-2-005C, otherwise normally open. Spring return models only.
- \* Reduced port valve - No characterizing disc

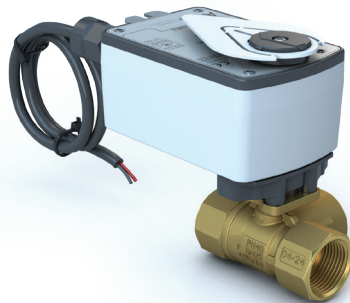


## SoftTouch 2 - 3-Way - Non Spring Return Close-Off Chart (PSI)

3-Way, Non-Spring Return Actuators - (200 PSI - Close Off)									
Actuator Model Details									
		Time Out			■	■			■
		Auxiliary Switches Available				■			■
		Enclosed Terminal Strip				■			
		Conduit Size - Flex(F)/NPT(N)		3/8 F	3/8 F	1/2 N	3/8 F	1/2 N	
		Cable - Standard(S)/Plenum(P)		P	P		P	P	
		Direct Mount		■	■		■	■	
Model Number	Valve Size		Flow Coefficient		24 VAC On/Off & Floating		24 VAC/DC On/Off & Floating	24 VAC Modulating	24 VAC/DC On/Off, Floating & Modulating
	In.	mm	Cv	Kv	VA24-35-P*	VA24-35-PTO*	D24-70	VAM24-35-P	VAM24-90-P
ST2-05-3-01	0.5	15	1.2	1.0	X	X	-	X	-
ST2-05-3-02			1.9	1.6					
ST2-05-3-03			2.9	2.5					
ST2-05-3-05			4.7	4.1					
ST2-05-3-12*			11.7	10.1					
ST2-75-3-05	.75	20	4.7	4.1	X	X	-	X	-
ST2-75-3-07			7.4	6.4					
ST2-75-3-12*			11.7	10.1					
ST2-1-3-07	1	25	7.4	6.4	X	X	-	X	-
ST2-1-3-12			11.7	10.1					
ST2-1-3-19*			18.7	16.2					
ST2-125-3-12	1.25	32	11.7	10.1	-	-	X	-	X
ST2-125-3-19			18.7	16.2					
ST2-125-3-29*			29.2	25.3					
ST2-150-3-19	1.5	40	18.7	16.2	-	-	X	-	X
ST2-150-3-29			29.2	25.3					
ST2-150-3-47*			46.8	40.5					
ST2-2-3-29	2	50	29.2	25.3	-	-	X	-	X
ST2-2-3-47			46.8	40.5					
ST2-2-3-74*			73.7	63.8					

### Options/Adders

- For optional auxiliary switches, add -A to the end of the actuator part number.
  - Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA series only).
- \* Reduced port valve - No characterizing disc
- Relay Required for On/Off



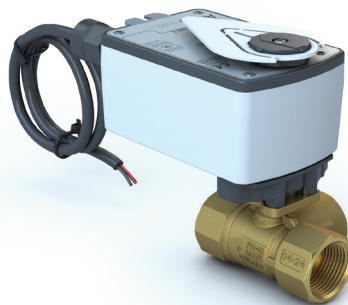
## SoftTouch 2 - 3-Way - Spring Return Close-Off Chart (PSI)

### 3-Way, Spring Return Actuators - (200 PSI - Close Off)

Actuator Model Details												
Auxiliary Switches Available				■	■	■	■	■	■	■	■	
Conduit Size - Flex(F)/NPT(N)				1/2 N	3/8 F	1/2 N	3/8 F	1/2 N	3/8 F	1/2 N	3/8 F	
Cable - Standard(S)/Plenum(P)				S	S	S	S	P	S	P	S	
Direct Mount				■	■	■	■	■	■	■	■	
Model Number	Valve Size		Flow Coefficient		120/240 VAC On/Off	120 VAC On/Off	24 VAC/DC On/Off		24 VAC/DC On/Off & Floating		24 VAC/DC Modulating	
	In.	mm	Cv	Kv	VASU20-27	VAS120-70	VAS24-27	VAS24-70	VAS24-27-T	VAS24-70-T	VAMS24-27	VAMS24-70
ST2-05-3-01	0.5	15	1.2	1.0	X	-	X	-	X	-	X	-
ST2-05-3-02			1.9	1.6								
ST2-05-3-03			2.9	2.5								
ST2-05-3-05			4.7	4.1								
ST2-05-3-12*			11.7	10.1								
ST2-75-3-05	.75	20	4.7	4.1	X	-	X	-	X	-	X	-
ST2-75-3-07			7.4	6.4								
ST2-75-3-12*			11.7	10.1								
ST2-1-3-07	1	25	7.4	6.4	X	-	X	-	X	-	X	-
ST2-1-3-12			11.7	10.1								
ST2-1-3-19*			18.7	16.2								
ST2-125-3-12	1.25	32	11.7	10.1	-	X	-	X	-	X	-	X
ST2-125-3-19			18.7	16.2								
ST2-125-3-29*			29.2	25.3								
ST2-150-3-19	1.5	40	18.7	16.2	-	X	-	X	-	X	-	X
ST2-150-3-29			29.2	25.3								
ST2-150-3-47*			46.8	40.5								
ST2-2-3-29	2	50	29.2	25.3	-	X	-	X	-	X	-	X
ST2-2-3-47			46.8	40.5								
ST2-2-3-74*			73.7	63.8								

#### Options/Adders

- For optional auxiliary switches, add -A to the end of the actuator part number.
  - Add "HT" to the end of the valve body part number for the High Temperature mounting option. (VA series only).
  - For normally Closed, add a "C" to the end of the valve part number, i.e. ST2-05-3-01C, otherwise normally open. Spring return models only.
- \* Reduced port valve - No characterizing disc



## SoftTouch 2 - Valve Comparison Chart

### The Benefits of Ball Valves in Commercial Applications

Ball valves are generally a superior alternative to globe valves where precise control is required. Ball valves tend to offer higher close-offs and rangeability ratios while providing smaller size, weights and costs. Ball valves also offer more Cv options in order to more closely match your specifications.

Bray offers two distinct lines that come in both threaded and flanged sizes. These characterized ball valves provide superior control characteristics, low torque requirements years of trouble free service and multiple actuator options.

NTP Threaded Comparative Valve Specifications		
	ST2 Series	BV Series
Valve Body Pressure Rating	580 PSI	1000 PSI
Max Water Temperature	284 °F @ 36 PSI	225 °F @ 1000 PSI
Steam	15 PSIG	150 PSIG
Max Recommended Operating Pressure Drop	50 PSI	80 PSI
Leakage	0.01%	Bubble Tight

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

## SoftTouch 2 - Model Number Matrix

ST2	Prefix: SoftTouch 2	Valve Series
-	-	-
1	Valve Size (1/2" to 2")	Valve Size
-	-	-
3	Configuration (2 = 2-Way & 3 = 3-Way)	Configuration
-	-	-
07	Cv	Cv
HT	Optional Thermal Barrier	Optional
C	C= Closed (3-Way Only) - Otherwise no indicator shown	C
/	/	/
VAS24-27	Actuator Series - Refer to Close-Off Charts	Actuator Series
ST2 - 1 - 3 - 07 HT C / VAS24-27	1" SoftTouch 2 Body, 3-Way Configuration, .07 Cv, Normally Closed, w/ Thermal Barrier / VAS24-27 Actuator	Example

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**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

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- Government and Municipal
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