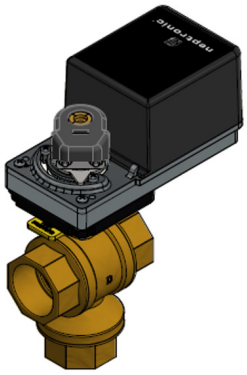
3-Way Contoured Port Valves
Specification and Installation Instructions

Models

STAxxxxYP1, 3-way, 1/2" (DN15), female NPT
STBxxxxYP1: 3-way, 3/4" (DN20), female NPT
STCxxxxYP1: 3-way, 1" (DN25), female NPT
STDxxxxYP1: 3-way, 1 1/4"(DN32), female NPT
STExxxxYP1: 3-way 1 1/2" (DN40), female NPT
STFxxxxYP1: 3-way 2" (DN50), female NPT
STGxxxxYP1: 3-way 2 1/2"(DN65), female NPT



With B Series Actuators

Features

- 3-way valves available in 1/2" (DN15), 3/4" (DN20), 1" (DN25), 1 1/4" (DN32), 1 1/2" (DN40), 2" (DN50) and 2 1/2" (DN65)
- Compatible with Neptronic B series (50 in.lb [5.6 Nm]) actuators
- Close-off pressure: 50 psig (for ½" to 1"), 40 psig (for 1¼" to 2½")
- Small dimensions allow for easier installation
- Cv range from 0.3 to 99 (Kv 0.26 to 85)
- 3 Way control of hot water or chilled water up to 50%Glycol

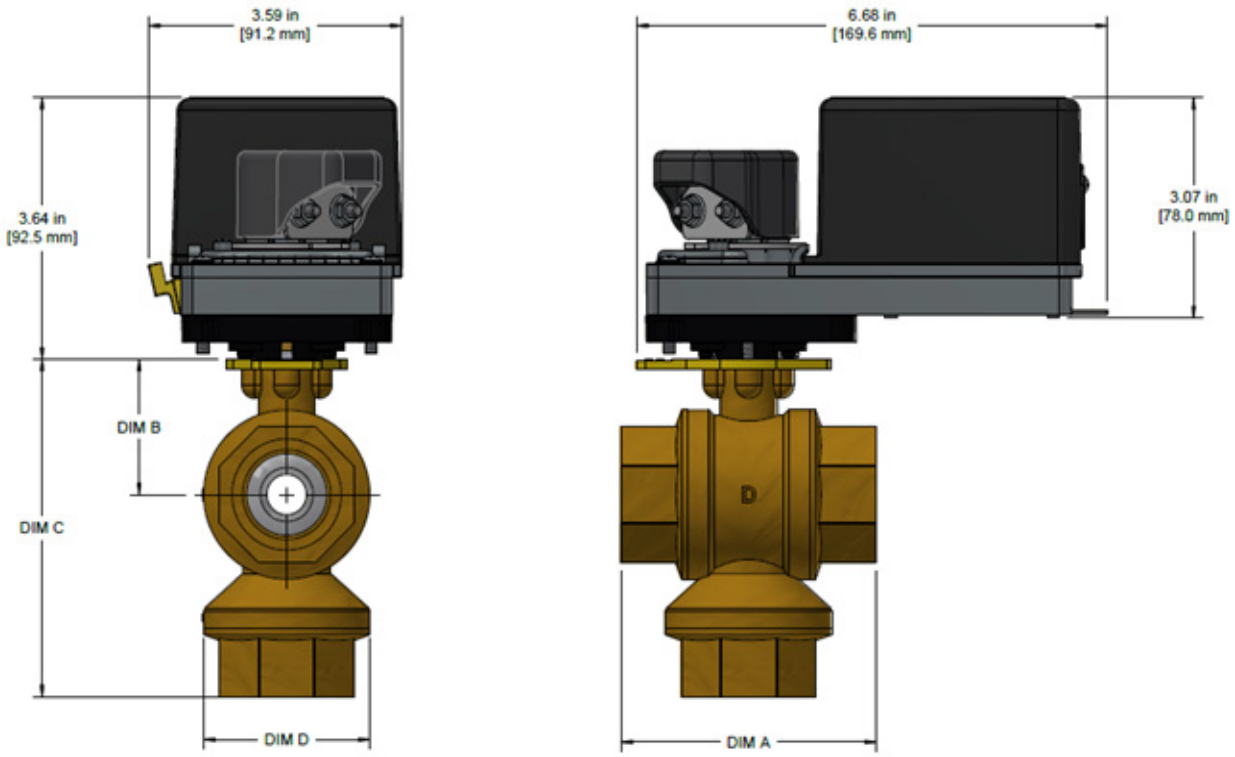
Models

Size	2-Way Models	Cv	Kv	Close Off PSI
1/2" [DN15]	STA0003YP1	0.3	0.2	50
	STA0006YP1	0.6	0.5	50
	STA0010YP1	1.0	0.8	50
	STA0024YP1	2.4	2.0	50
	STA0043YP1	4.3	3.7	50
3/4" [DN20]	STB0038YP1	3.8	3.2	50
1" [DN25]	STC0086YP1	8.6	7.4	50
1-1/4" [DN32]	STD0127YP1	12.7	10.9	40
1-1/2" [DN40]	STE0235YP1	23.5	20.3	40
2" [DN50]	STF0380YP1	38.0	32.0	40
2-1/2" [DN65]	STG0740YP1	74.0	64.0	40

Technical Data

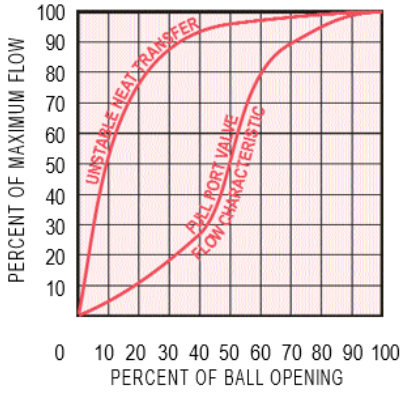
Specification		All Models
Actuator Compatibility		All Neptronic B series actuators
Sizes		1/2" to 2-1/2" [DN15 to DN65]
Range Cv [Kv]		0.3 to 99 [0.26 to 85]
Static Pressure and Temperature		361 PSI, -22°F to +250°F (-30°C to +121°C)
Pressure	Close-Off	40 PSIG Maximum (50 PSIG max. for 1/2", 3/4" and 1")
	Differential	35 PSIG Maximum
Materials	Body	Forged Brass ASTM B283
	Ball and Stem	Nickel Plated Brass & Brass
	Seats	Reinforced Teflon Seals with EPDM "O" Rings
Flow Contoured Insert		Glass Filled Polymer
Stem Seals		EPDM
End Connections		Female NPT

Dimensions

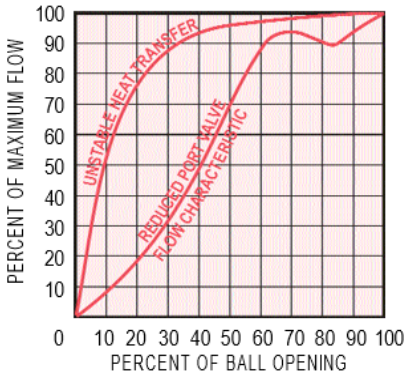


Valve Size	1/2" [DN15]	3/4" [DN20]	1" [DN25]	1-1/4" [DN32]	1-1/2" [DN40]	2" [DN50]	2-1/2" [DN65]
A	2.37" [60mm]	2.76" [70mm]	3.04" [77mm]	3.62" [92mm]	4.06" [103mm]	5.0" [12mm]	5.35" [136mm]
B	1.47" [37mm]	1.47" [37mm]	1.67" [42mm]	1.89" [48mm]	2.22" [56mm]	2.51" [64mm]	2.51" [64mm]
C	3.34" [85mm]	3.54" [90mm]	4.09" [104mm]	4.70" [120mm]	5.38" [137mm]	6.36" [162mm]	6.59" [167mm]
D	1.71" [43mm]	1.71" [43mm]	1.81" [46mm]	2.36" [60mm]	2.83" [72mm]	3.50" [89mm]	3.50" [89mm]

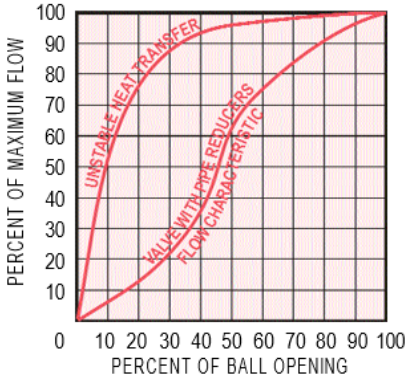
Benefits of Contoured Port Valves



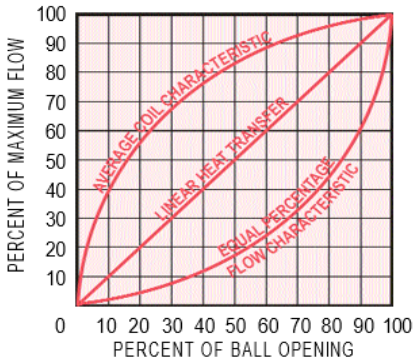
The large Cv rating of **FULL PORT VALVES** is caused by the shape and size of the orifice and results in a distorted flow characteristic, an unstable heat transfer and an "all or nothing" flow. The valve opens quickly and has an exceedingly small pressure drop. This is used for 2 position control where a low-pressure drop is desirable. It is not recommended for proportional control.



Using the **REDUCED PORT VALVE** results in a smaller opening through the ball and gives a smaller Cv with a higher-pressure differential yet the flow characteristic is still distorted. A stable control under these conditions will be difficult to achieve.



PIPE REDUCERS reduce the Cv due to the piping geometry, but this also distorts the characteristic. As in the full and reduced port ball valves, pipe reducers cause unstable heat output that increases far too quickly as the valve opens.



The **NEPTRONIC SOLUTION** is the **CONTOURED PORT BALL VALVE.** The characterized "V" style port allows for a more gradual equal percentage curve that is controllable for the full stroke of the valve. This results in a high rangeability and a greater turn down ratio for more accurate flow control.

As you can see in the graph on the left, the equal percentage characteristic of the **CONTOURED PORT BALL VALVE** mirrors the average coil characteristic resulting in linear heat transfer.