

# SERIES 3500

## 3-WAY TYPE GLOBE CONTROL VALVE

COMPREHENSIVE RANGE  
OF VALVES FOR THE  
ENERGY & PROCESS  
INDUSTRIES

4665 Interstate Drive Cincinnati, OH

45246 513-731-2900

[jflowcontrols.com](http://jflowcontrols.com)

**CONTENTS**

---

FEATURE	03
BODY STYLE	04
SPECIFICATION	06
NUMBERING SYSTEM	07

---

# MAIN PRODUCT FEATURE

- **High Capacity**

Broad and streamlined fluid passages allow for larger amounts of fluid versus other 3-Way valves of the same size.

- **Stable Operation**

Port and cage guiding make the operation of the plug stable regardless of plug travel.

- **Durability**

Rugged design and smooth operation guarantee a long maintenance - free service life.

## 3500 SERIES

- The 3500 Series valve is a 3-way design for use on blending two separate flows, by having two inlets and a common outlet port or dividing a flow into two proportional parts by having one common inlet and two outlet ports.
- The 3500 Series valve uses pneumatic or electric actuator with many extension possibilities and a wide range of applications. The basic equipment is fitted with a mixing or diverting plug and strong high capacity stem guiding and serves at the same time as basis for multiple types of applications.
- Seats are not welded and can be unscrewed and serviced even after years of operation. Exchanging of seat and plug can be completed within few minutes.
- This range of valves has been designed in two forms designated 3500 and 3501. The 3500 series conventional type is to provide an economic solution for all mixing and selected diverting services. The 3501 balanced trim is specially designed for high duty diverting service applications

## FLEXIBILITY

Various body and trim types provide design versatility for your needs.

- **3500**

This configuration features an unbalanced plug for simple maintenance and economical installation.

Designed with two side and one bottom pipeline connections.

- **3501**

This configuration uses a balanced plug design to minimize the actuator forces and provide stable control in large valve sizes with pneumatic actuators.

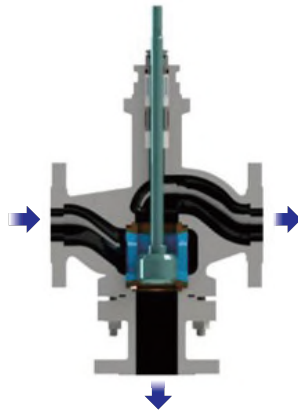
The quick change trim with the plug accessible from the bonnet allows for easy maintenance.

Designed with two side and one bottom pipeline connections.

## **BODY STYLES**



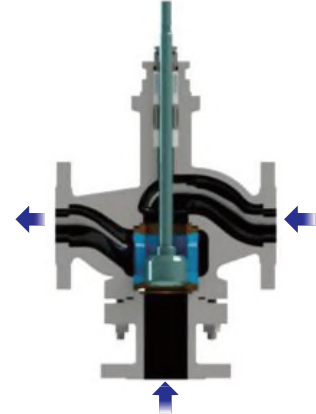
**CONVENTIONAL STYLE**



DIVERTING

**3501 SERIES**

1" - 4"



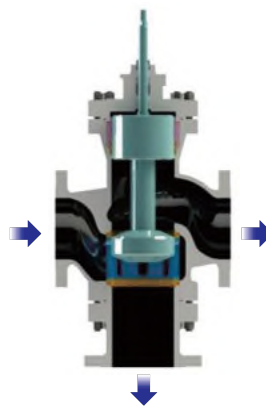
MIXING

**3500 SERIES**

1" - 12"



**HIGH CAPACITY STYLE**



DIVERTING

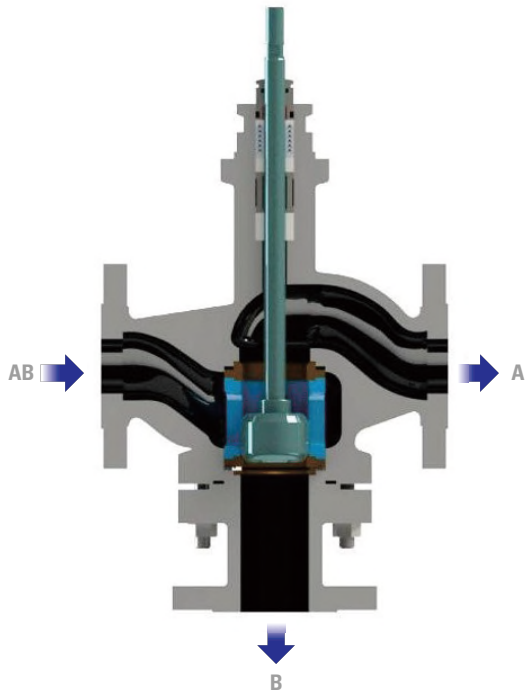
**3501 SERIES**

3" - 12"

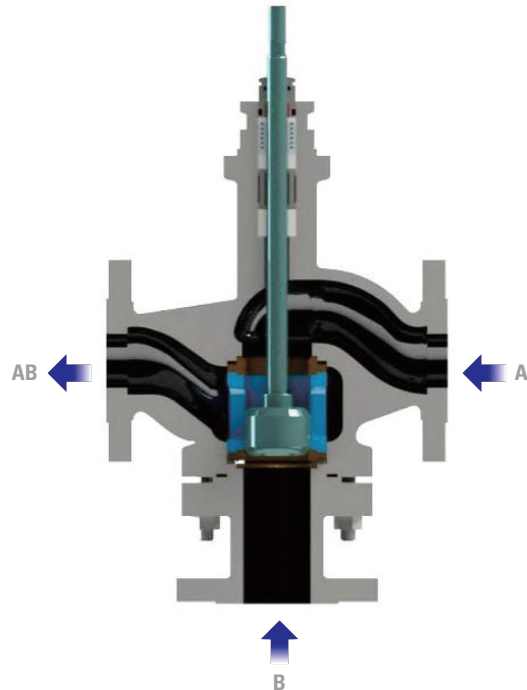
**Applications:**

**Reject Valves, Heat Transfer, By-pass, Chiller, HVAC, Heat Transfer, Blending, Controlling Temperature and Flow.**

## FLOW DIVERTING



## FLOW MIXING



The flow AB is divided into two exit flow A and B. In both series the direction of the flow is always against the plug. Standard diaphragm actuators can be used without special devices as for instance hydraulic brakes. The plugs are guided directly in the upper and seat, in the best way.

The entrance flows A and B are mixed to single exit flow AB. Typical application : temperature control.

Both types, mixing and diverting, are built from the same parts of the modular part system. The bodies are chosen from the standard straight-through valve bodies, which provides a quick delivery. The plugs for mixing and diverting are identical.



Three Way Valve  
with Diaphragm Actuator



Three Way Valve  
with Electric Actuator

# STANDARD SPECIFICATION

**3500 / 3501 Mixing & Diverting 3 Way Valve**

**3501 Balanced Plug Type Diverting 3 Way Valve**

	<b>3500 SERIES</b>	<b>3501 SERIES</b>
<b>BODY TYPE</b>	Bottom Flanged 3Way	Bottom Flanged 3Way
<b>BONNET</b>	Plain (Built in)	Plain (Standard), Fin & Extension, Bellows Seal
<b>SIZE RANGE</b>	Mixing : 1" to 12" (DN25 to DN300) Diverting : 1" to 4" (DN25 to DN100)	3" to 12" (DN80 to DN300)
<b>PRESSURE RATING</b>	ANSI 150LBS to 300LBS ( JIS 10K to 20K)	ANSI 150LBS to 600LBS (JIS 10K to 40K)
<b>OPERATING PRESSURE RANGE</b>	Up to 300psi (g) {Up to 20Kg/cm <sup>2</sup> (g)}	Up to 900psi (g) {Up to 63Kg/cm <sup>2</sup> (g)}
<b>OPERATING TEMPERATURE RANGE</b>	-58°F to +1,050°F (-50°C to +565°C)	
<b>END CONNECTION</b>	Socket Weld – ANSI B16.11, Butt Weld – ANSI B 16.25 FF/RF/RTJ Flange – ANSI B 16.5 (Option : JIS Flange, DIN Flange, NPT/PT Screw)	
<b>BODY MATERIALS</b>	Carbon Steel(WCB, WCC, A105) Chrome-moly Steel(WC6, WC9, C12A, F11, F22, F91) Stainless Steel(CF8, CF8M, CF3, CF3M, F304, F304L, F310, F316L) Duplex Stainless Steel, Monel, AL Bronze, Inconel 625 Hastelloy B/C, Other Alloy	
<b>TRIM MATERIALS</b>	316 SS, 316 SS + Stellite #6, Hardened 410 SS / 440C SS 17-4PH, F22(Nitride treatment), F51	
<b>ACTUATOR</b>	Pneumatic Diaphragm, Pneumatic Cylinder Electric Motorized, Electric Hydraulic	
<b>TRIM STYLE</b>	V-Port, Window Cage, Drilled Hole Cage	
<b>PLUG GUIDE METHOD</b>	Cage Guide	
<b>Cv RANGE</b>	Up to 1800	
<b>FLOW CHARACTERISTIC</b>	Linear, Equal %, Modified Equal %, Quick Open	
<b>SEAT LEAKAGE</b>	FCI-70.2, Standard : ANSI Class IV Option : ANSI Class V , ANSI Class VI (Soft Seat), MSS-SP61	

**RATED CV VALUE AND STROKE**

Trim Size (Inches)	Stroke (mm)	Cage (Window)			1-Stage Drilled Hole		2-Stage Drilled Hole		3-Stage Drilled Hole	
		Quick Opening	Linear	EQ-%	Linear	EQ-%	Linear	EQ-%	Linear	EQ-%
1"	20	16	12		12	12	10	9	9	8
1-1/4"	20	25	20		20	17				
	30						20	17	18	16
1-1/2"	20	33	28		26	22				
	30						25	21	22	20
2"	30	60	50		48	42				
	40						44	38	40	35
2-1/2"	30	80	70		66	58				
	40						75	60	70	55
3"	40	132	110		100	90	90	70	75	60
4"	40	210	180	160	150	130	120	94	110	90
5"	60	320	300	280	270	230	230	180	210	160
6"	60	430	400	360	340	290	280	210	250	190
7"	80	660	580	520	500	430	430	330	400	300
8"	80	860	720	640	600	520				
	90						540	420	500	380
9"	90	1000	900	800	780	600				
	100						690	540	640	490
10"	100	1400	1200	1100	940	800	780	600	720	540
12"	120	1900	1600	1400	1400	1200	1100	850	1000	760

**Note!**

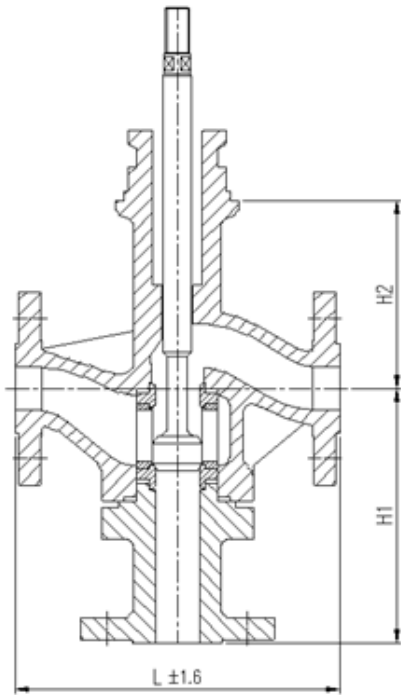
Trim size is variable per class rating.

# DIMENSIONS

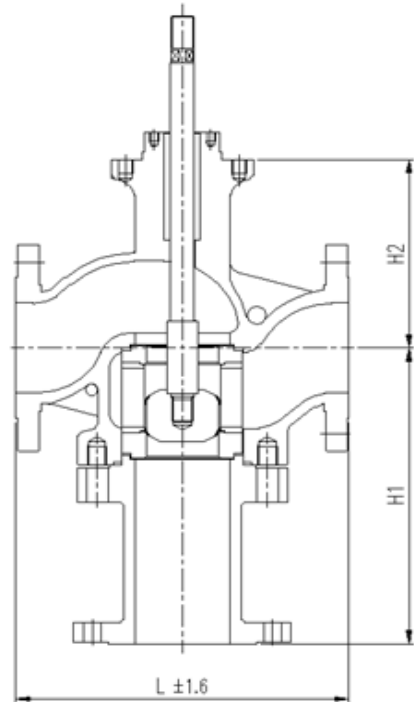
3-WAY		Rating	150 LBS						300 LBS						600 LBS							
		Bonnet	Standard		Extension		Bellows		Standard		Extension		Bellows		Standard		Extension		Bellows			
		Yoke	1,2	3	1,2	3	1,2	3	1,2	3	1,2	3	1,2	3	1,2	3	1,2	3	1,2	3		
1"	Unbalance	L	184						197						210							
		H1	145						145													
		H2	107																			
1.5"	Unbalance	L	222						235						251							
		H1	170						170						190							
		H2	124						124						124							
2"	Unbalance	L	254						267						286							
		H1	180						180													
		H2	152																			
2.5"	Unbalance	L	276						292						311							
		H1	260																			
		H2	160																			
	Balance	H1							260													
		H2							255													
3"	Unbalance	L	298						318						337							
		H1	248						248													
		H2	180							190				262								
	Balance	H1													270							
		H2													293							
4"	Unbalance	L	352						368						394							
		H1	330																			
		H2	180	210			300				210											
	Balance	H1							335													
		H2							340													
5"	Balance	L	403						425													
		H1	350						350													
		H2								386			486									
6"	Balance	L	451						473						508							
		H1	369						369													
		H2		398						398												
8"	Balance	L	543						568						610							
		H1	480						480						480							
		H2		510						510					510							
10"	Balance	L	673						708						752							
		H1													550							
		H2														550						
12"	Balance	L	737						775						819							
		H1	550																			
		H2		548																		



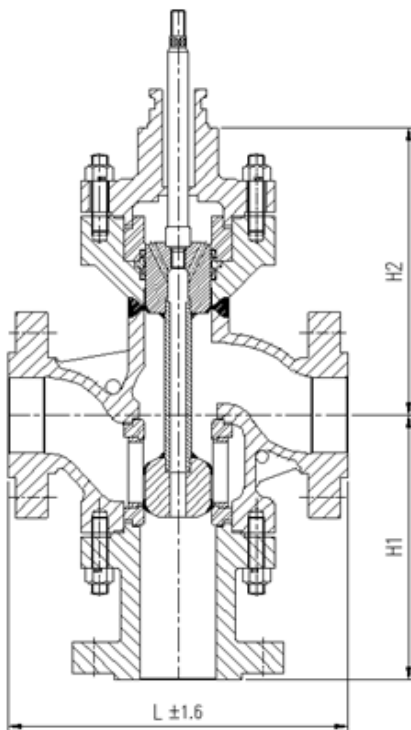
## SERIES 3500



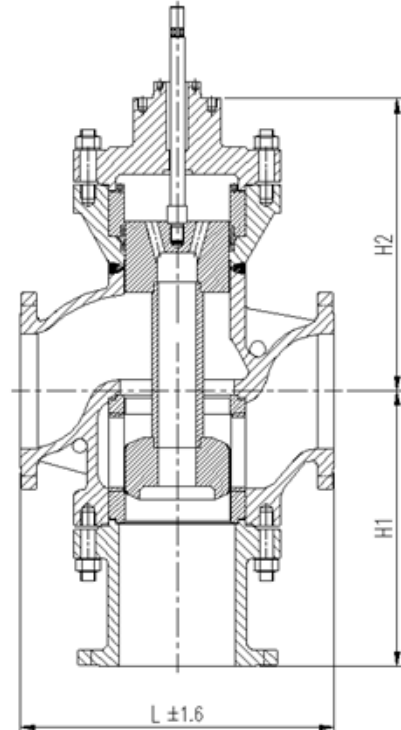
Unbalanced



Unbalanced



Balanced



Balanced

## 3500 Series Globe 3 Way Control Valve

### **HOW TO ORDER**

Actuator <sup>1</sup>	Series	Trim Type	Characteristic	Body Material <sup>2</sup>
<b>Spring Diaphragm</b>	<b>3500</b> Mixing	<b>1</b> Metal Seat	<b>1</b> Linear	<b>2</b> WCB/A105
<b>870</b> Air-to-Close				<b>3</b> 316
<b>880</b> Air-to-Open	<b>3501</b> Diverting	<b>2</b> Soft Seat		<b>A</b> 304
<b>Spring Cylinder</b>				<b>AL</b> 304L
<b>680</b> Air-to-Open				<b>3L</b> 316L
<b>670</b> Air-to-Close				<b>8</b> A350 LF2
<b>660</b> Double Acting				

Packing	Body Gasket	End Connection	Size
<b>T</b> Teflon	<b>S</b> Standard 400°F	<b>S</b> Socket Weld	1" - 12"
<b>G</b> Graphite	<b>H</b> High Temp 750°F	<b>BW</b> Butt Weld	
<b>LE</b> Low Emission	<b>ST</b> Super Temp 1050°F	<b>F1</b> 150	
		<b>F3</b> 300	
		<b>F6</b> 600	

<sup>1</sup>Electric Actuator - JFL  
 Bare Stem- XXX  
 MO - Manual Operator

<sup>2</sup> Please see the J Flow Controls Configurator for a full list of body materials

PARTS AND SERVICE CONTACT J FLOW CONTROLS.  
I-O MANUALS ARE AVAILABLE ONLINE.



4665 Interstate Drive  
Cincinnati, OH 45246  
513-731-2900  
[jflowcontrols.com](http://jflowcontrols.com)

