

# Control Valves

## 3-Way Valve

# W910TB

for MIXING & DIVERTING • Water & Other Liquids

Models	<b>W910TB</b>
Service	<b>Water, Other Liquids</b>
Sizes	<b>1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4"</b>
Connections	<b>Union Ends, 125# Flanged 250# Flanged (optional)</b>
Body Material	<b>1/2" – 2" Bronze 2 1/2" – 4" Cast Iron</b>
Seat Material	<b>Stainless Steel</b>
Max Inlet Pressure	<b>250 PSIG</b>

### DESIGN PRESSURE/TEMPERATURE RATING – PMA/TMA

Union Ends 250 PSIG @ 450°F  
125# FLG 125 PSIG @ 450°F

### Typical Applications

**W910TB 3-way Pneumatically-Actuated** control valve can be used for mixing or diverting and are actuated by a 3-15 PSIG instrument air signal placed to the top of the actuator housing that will modulate the position of the valve.

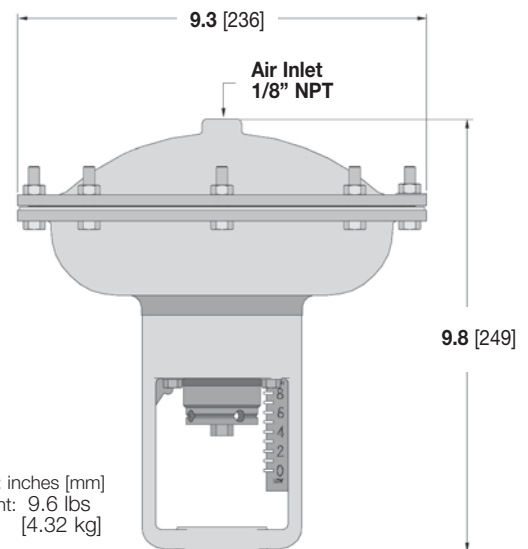
3-way valves are used for mixing two flows together, or for diverting a flow to or around a device (bypass). In order to produce a consistent flow quantity for stable operation, the pressure drop across both flow paths (inlet to outlet) must be nearly equal. The sleeve type design is constructed with an O-ring around the sleeve. The O-ring is suitable for water or glycol type service, up to a maximum of 300°F. A higher temperature O-ring for use with other fluids, such as oil or for temperatures up to 410°F, is available. Consult factory.

### Principle of Operation

A control valve is comprised of an actuator mounted to a valve. The valve modulates flow through movement of a valve plug in relation to the port(s) located within the valve body. The valve plug is attached to a valve stem, which, in turn, is connected to the actuator. The pneumatic actuator directs the movement of the stem as dictated by the external control device.



**NOT FOR USE WITH STEAM**



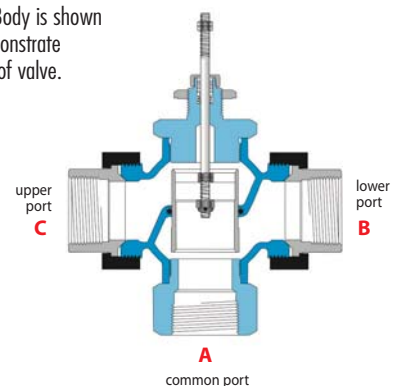
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### W910TB Actuator Specifications

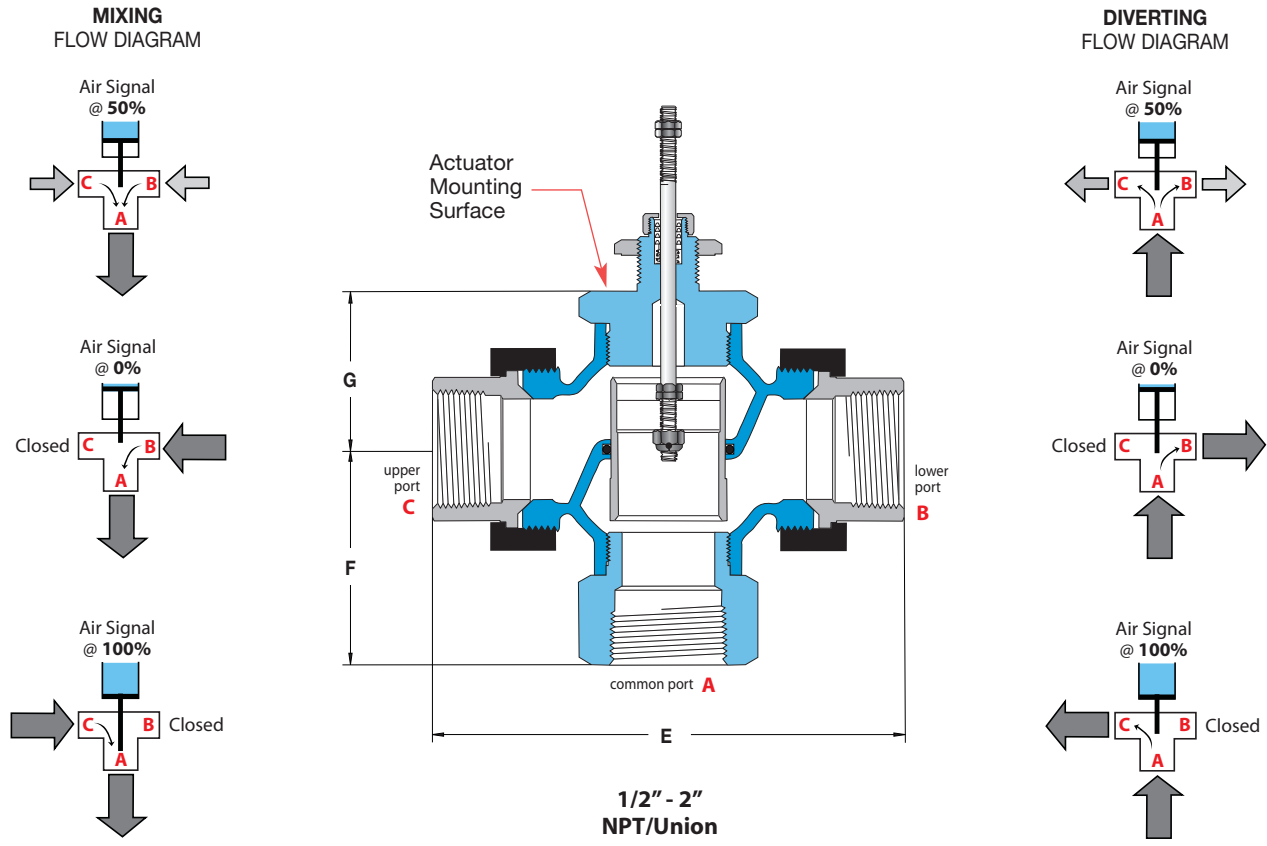
<b>Actuator Housing</b>	Die cast aluminum, epoxy powder coated blue finish.
<b>Setting Scale</b>	Integral to housing
<b>Adjustment Screw</b>	Brass
<b>Spring</b>	Cadmium plated
<b>Pressure Plate</b>	Aluminum
<b>Diaphragm</b>	Nylon reinforced EPDM
<b>Air Pressure to Diaphragm</b>	30 PSIG maximum
<b>Air Connection</b>	1/8 " NPT Female
<b>Operating Temperature</b>	Ambient: -40°F (-40°C) to 180°F (82°C) Process Flow: -40°F (-40°C) to 410°F (210°C)

### 3-WAY VALVE • Bronze - NPT

Valve Body is shown to demonstrate action of valve.



for Mixing or Diverting



CONTROL VALVES

**CAUTION:** 3-Way Valves are not designed for use in steam applications.

To properly control the mixing of two flows, inlet pressures at ports B and C should be as equal as possible.

Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Bronze	Bronze	Modified Linear	NPT with Malleable Iron Union Ends	250 PSIG @ 300°F (149°C)

Valve Body Selection

Mixing or Diverting									
Valve Body Number	Actuator & Valve Model #	Size (NPT)	C <sub>v</sub>	Maximum Close-Off Pressure (PSI ΔP)	Dimensions			Approximate Shipping Wt.	
					E	F	G		
A18	W910TB-A18	1/2"	2.8	250	4.8 [122]	1.8 [46]	1.8 [46]	13 lbs [5.9 kg]	
A25	W910TB-A25	3/4"	5.6	250	5.6 [142]	2.3 [58]	2.3 [58]	15 lbs [6.8 kg]	
A34	W910TB-A34	1"	8.4	250	6.0 [152]	2.3 [58]	2.3 [58]	16 lbs [7.2 kg]	
A45	W910TB-A45	1 1/4"	15	250	7.2 [183]	2.8 [71]	2.6 [66]	19 lbs [8.6 kg]	
A56	W910TB-A56	1 1/2"	21	250	7.7 [196]	3.5 [89]	2.6 [66]	21 lbs [9.5 kg]	
A67	W910TB-A67	2"	33	250	8.6 [218]	4.1 [104]	3.1 [79]	26 lbs [11.8 kg]	

All dimensions are inches [mm].

# Control Valves

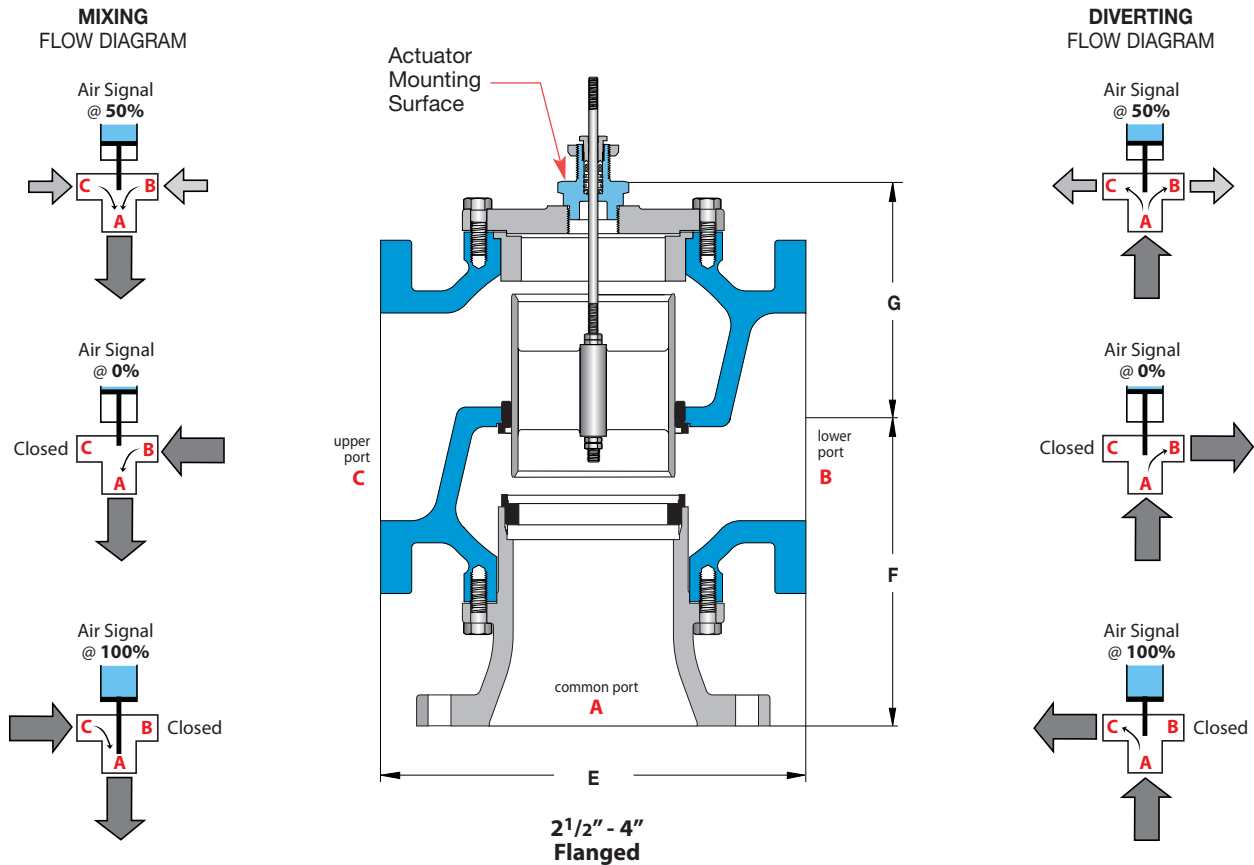
## 3-Way Valve Bodies - CAST IRON

for MIXING & DIVERTING • Water & Other Liquids

# W910TB

3-Way • 2 1/2" - 4"

### for Mixing or Diverting



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### Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Cast Iron	Bronze	Modified Linear	125# Flanged	125 PSIG @ 300°F (149°C)

### Valve Body Selection

Mixing or Diverting								
Valve Body Number	Actuator & Valve Model #	Size (FLG)	C <sub>v</sub>	Maximum Close-Off Pressure (PSI ΔP)	Dimensions			Approximate Shipping Wt.
					E	F	G	
B75	W910TB-B75	2 1/2"	58	125	9.0 [229]	7.1 [180]	5.2 [132]	62 lbs [28 kg]
B80	W910TB-B80	3"	72	125	10.0 [254]	8.0 [203]	6.0 [152]	80 lbs [36 kg]
B85	W910TB-B85	4"	102	125	13.0 [330]	10.0 [254]	6.9 [175]	140 lbs [64 kg]

All dimensions are inches [mm].

## Capacity Chart

for MIXING & DIVERTING • Water & Other Liquids

### W910TB Mixing & Diverting (3-Way Valves)

CAPACITIES – Water (GPM)

3-WAY VALVES

Inlet pressures should be within 5% of each other. Specify if service is for other than water.

Pressure Drop (PSI ΔP)	Size, Body Number & Coefficient (Cv)								
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
	A18 Cv = 2.8	A25 Cv = 5.6	A34 Cv = 8.4	A45 Cv = 15	A56 Cv = 21	A67 Cv = 33	B75 Cv = 58	B80 Cv = 72	B85 Cv = 102
1	2.8	5.6	8.4	15	21	33	58	72	102
3	4.8	10	15	26	36	57	100	125	177
5	6.3	13	19	34	47	74	130	161	228
10	8.9	18	27	47	66	104	183	228	323
15	11	22	33	58	81	128	225	279	395
20	13	25	38	67	94	148	259	322	456
25	14	28	42	75	105	165	290	360	510
30	15	31	46	82	115	181	318	394	559
40	18	35	53	95	133	209	367	455	645
50	20	40	59	106	148	233	410	509	721
60	22	43	65	116	163	256	449	558	790
70	23	47	70	125	176	276	485	602	853
80	25	50	75	134	188	295	519	644	912
90	27	53	80	142	199	313	550	683	968
100	28	56	84	150	210	330	580	720	1020
125	31	63	94	168	235	369	648	805	1140
150	34	69	103	184	257	404			
175	37	74	111	198	278	437			
200	40	79	119	212	297	467			
225	42	84	126	225	315	495			
250	44	89	133	237	332	522			

Note: Oil service or high temperature service requires special O-ring.

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