

Control Valves

CONTROL
VALVES



W910 COMPACT
CONTROL VALVE

Control Valves



TA901
I/P TRANSDUCER



ELECTRONIC
TEMPERATURE
SENSOR
RTD or THERMOCOUPLE



TA890
ELECTRONIC
PID CONTROLLER



TA987
AIR FILTER/REGULATOR

CONTROL
VALVES

Control Valves

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W910 Series Compact Control Valve

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The **W910 Series Pneumatic Control Valve** offers high quality at an economical price, incorporating many features found only on more expensive units. Models are available to provide the proper flow response required by the application.

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CONTROL VALVES

W910 Series

Compact Control Valve

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Models	W910A, W910B, W910C, W910TB, W910EPA, W910EPC
Service	Water, Steam, Other Liquids
Sizes	1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4"
Connections	Union Ends, 125# Flanged, 250# Flanged (optional)
Body Material	1/2" – 2" Bronze, 2 1/2" – 4" Cast Iron
Seat Material	Stainless Steel
Max. Inlet Pressure	250 PSIG

DESIGN PRESSURE/TEMPERATURE RATING – PMA/TMA

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



Description

A control valve is a device capable of modulating flow at varying degrees between minimal flow and full capacity in response to a signal from an external control device. The control valve, often referred to as "the final control element," is a critical part of any control loop, as it performs the physical work and is the element that directly affects the process.

Principles 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 actuator, which can be pneumatically or electrically operated, directs the movement of the stem as dictated by the external control device.

Pneumatic/Diaphragm Actuated

Watson McDaniel Pneumatic Actuators are direct acting and utilize an air signal from an external control device to create a modulating control action. The force of the air signal is received into the actuator through a top port and distributed across the full area of the actuator's diaphragm. The diaphragm presses down on the diaphragm plate and spring return assembly, which then moves the valve stem and plug assembly downward to stroke the valve. This actuator will move to a stem-out position in the event of air signal failure. The choice of valve action (stem-In-To-Close or stem-In-To-Open) will determine its signal failure position.

The **W910 Series Pneumatic Control Valve** offers high quality at an economical price, incorporating many features found only on more expensive units. The following Models are available to provide the proper flow response required by the application:

- ▶ The **W910A, W910B & W910C** are used for On/Off control applications, providing a quick-opening flow response when used with single or double seated valves.
- ▶ The **W910TB** is used for proportional or PID control applications, providing a throttling flow response when used with double seated or 3-way valves.
- ▶ The **W910EPA & W910EPC** are used for proportional or PID control applications, providing equal percentage flow response when used with single seated valves.

CONTROL VALVES

W910 Series

Compact Control Valve

Specifications

Actuator Model	Diaphragm Size	Control Action	Input Signal
W910A	7"	On/Off	15 PSIG
W910B	10"	On/Off	15 PSIG
W910C	12"	On/Off	15 PSIG
W910TB	10"	Throttling*	3-15 PSIG
W910EPA	7"	Equal Percentage	3-15 PSIG
W910EPC	12"	Equal Percentage	3-15 PSIG

* Includes 3-Way Valves

Actuator Housing

Die cast aluminum, epoxy powder coated blue finish.

Setting Scale

Integral to housing

Adjustment Screw

Brass

Adjustment Screw Bushing

Lubricant impregnated sintered bronze

Range Adjustment Spring

Cadmium plated

Pressure Plate

Aluminum

Diaphragm

Nylon reinforced EDPM

Air Pressure to Diaphragm

30 PSIG maximum

Air Pressure Connection

1/8" NPT Female

Operating Temperature

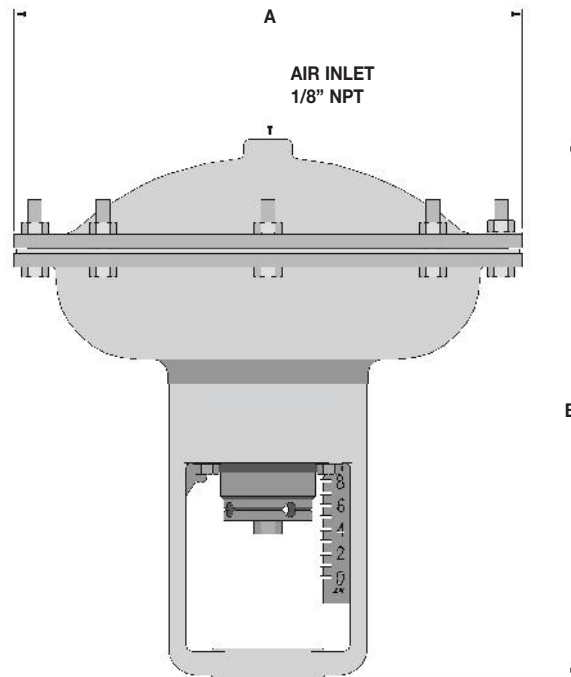
Ambient:

-40°F (-40°C) to 180°F (82°C)

Process Flow:

-40°F (-40°C) to 410°F (210°C)

Units: inches [mm]



Actuator Number	A	B	Approx. Shipping Weight
W910A	7.0 [178]	9.8 [249]	6.6 lbs [2.97 kg]
W910B	9.3 [236]	9.8 [249]	8.5 lbs [3.83 kg]
W910C	11.4 [290]	9.8 [249]	12.0 lbs [5.41 kg]
W910TB	9.3 [236]	9.8 [249]	9.6 lbs [4.32 kg]
W910EPA	7.0 [178]	9.8 [249]	7.6 lbs [3.42 kg]
W910EPC	11.4 [290]	9.8 [249]	13.1 lbs [5.90 kg]

Actuator

- W910 Series Pneumatic Actuators are used in conjunction with the W910 Series Control Valve. Choose the appropriate Actuator model based on the intended service.

HOW TO ORDER

Sample Order Number: **W910TB - A56**

Actuator Model	Control Action	Valve Body Number
W910A W910B W910C	On/Off	Refer to pages 188-190
W910TB	Throttling	Refer to pages 191-193
W910EPA W910EPC	Equal Percentage	Refer to page 188

Procedure:

- Determine the Actuator Model (W910A, W910B, W910C, W910TB, W910EPA or W910EPC) required.

Note: Refer to the maximum close-off pressure columns in the Valve Body Selection tables to determine the Actuator size required by your application.

- Determine the Valve Body Number based on the Valve Size, style and material required by the application.

Note: Consult the Valve Selection tables on the following pages to determine the required Valve Body Number.

CONTROL VALVES

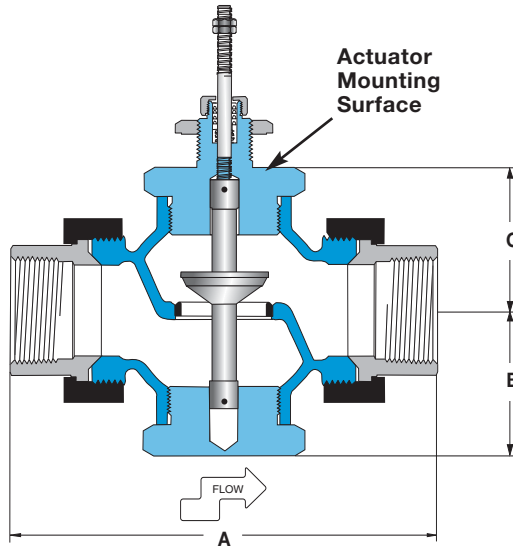
W910 Series

Valve Body for W910A, W910B, W910C, W910EPA & W910EPC

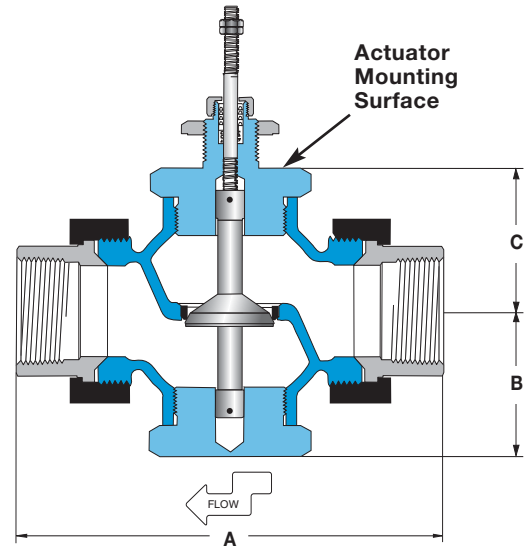
BRONZE

Single Seat • 1/2" – 2"

**Stem In-To-Close
(normally open)**



**Stem In-To-Open
(normally closed)**



CONTROL VALVES

Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Bronze	Stainless Steel	ML or EP	NPT with Malleable Iron Union Ends	250 PSI @ 410°F (210°C)

ML = Modified Linear (On/Off); EP = Equal Percentage

Valve Body Selection

In-To-Close (Normally Open)				Maximum Close-Off Pressure (PSI ΔP)				Dimensions			Approximate Shipping Wt.
Valve Body No. ML	EP	Size Connection (NPT)	C _v	W910A	W910B	W910C	W910EPC	A	B	C	
A14	E14	1/2"	2.8	250	x	x	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]
A19	E19	3/4"	5.6	250	x	x	250	5.6 [142]	2.3 [58]	2.3 [58]	4.9 lbs [2.21 kg]
A26	E26	1"	8.4	200	250	x	200	6.0 [152]	2.3 [58]	2.3 [58]	6.0 lbs [2.70 kg]
A36	E36	1 1/4"	15	100	250	x	150	7.2 [183]	2.6 [66]	2.6 [66]	9.7 lbs [4.37 kg]
A47	E47	1 1/2"	21	50	150	250	100	7.7 [196]	2.6 [66]	2.6 [66]	10.8 lbs [4.86 kg]
A58	E58	2"	33	25	50	250	50	8.6 [218]	3.1 [79]	3.1 [79]	16.3 lbs [7.34 kg]

In-To-Open (Normally Closed)				Maximum Close-Off Pressure (PSI ΔP)				Dimensions			Approximate Shipping Wt.
Valve Body No. ML	EP	Size Connection (NPT)	C _v	W910A	W910B	W910C	W910EPA	A	B	C	
A15	E15	1/2"	2.8	250	x	x	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]
A22	E22	3/4"	5.6	250	x	x	250	5.6 [142]	2.3 [58]	2.3 [58]	4.9 lbs [2.21 kg]
A30	E30	1"	8.4	200	x	x	200	6.0 [152]	2.3 [58]	2.3 [58]	6.0 lbs [2.70 kg]
A41	E41	1 1/4"	15	150	x	x	150	7.2 [183]	2.6 [66]	2.6 [66]	9.7 lbs [4.37 kg]
A52	E52	1 1/2"	21	100	x	x	100	7.7 [196]	2.6 [66]	2.6 [66]	10.8 lbs [4.86 kg]
A63	E63	2"	33	50	x	x	50	8.6 [218]	3.1 [79]	3.1 [79]	16.3 lbs [7.34 kg]

All dimensions are inches [mm].

CONTROL VALVES

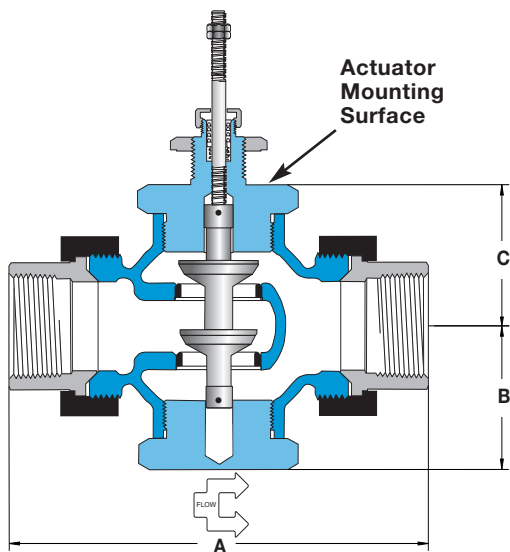
W910 Series

BRONZE

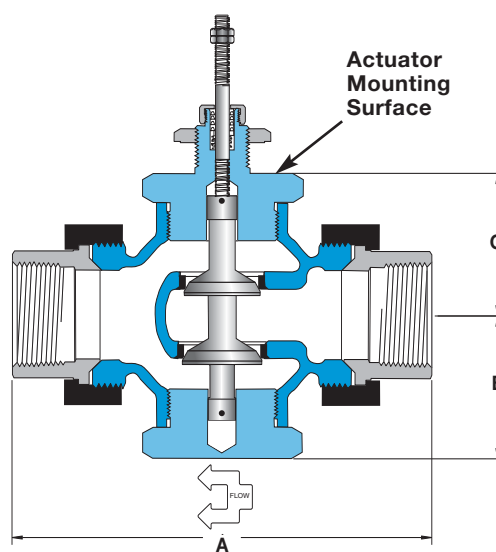
Valve Body for W910A, W910B & W910C

Double Seat • 3/4" – 2"

**Stem In-To-Close
(normally open)**



**Stem In-To-Open
(normally closed)**



CONTROL VALVES

Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Bronze	Stainless Steel	Modified Linear	NPT with Malleable Iron Union Ends	250 PSI @ 410°F (210°C)

Valve Body Selection

In-To-Close (Normally Open)				Maximum Close-Off Pressure (PSI ΔP)			Dimensions			Approximate Shipping Wt.
Valve Body Number	Size		C _v	W910A	W910B	W910C	A	B	C	
	Connection (NPT)	Nominal Port								
A21	3/4"	3/4"	8	250	x	x	5.6 [142]	2.3 [58]	2.3 [58]	5.0 lbs [2.25 kg]
A29	1"	1"	12	250	x	x	6.0 [152]	2.3 [58]	2.3 [58]	6.1 lbs [2.75 kg]
A39	1 1/4"	1 1/4"	21	250	x	x	7.2 [183]	2.6 [66]	2.6 [66]	10.1 lbs [4.55 kg]
A50	1 1/2"	1 1/2"	30	250	x	x	7.7 [196]	2.6 [66]	2.6 [66]	11.1 lbs [5.00 kg]
A61	2"	2"	47	200	x	x	8.6 [218]	3.1 [79]	3.1 [79]	17.0 lbs [7.65 kg]

In-To-Open (Normally Closed)				Maximum Close-Off Pressure (PSI ΔP)			Dimensions			Approximate Shipping Wt.
Valve Body Number	Size		C _v	W910A	W910B	W910C	A	B	C	
	Connection (NPT)	Nominal Port								
A24	3/4"	3/4"	8	250	x	x	5.6 [142]	2.3 [58]	2.3 [58]	5.0 lbs [2.25 kg]
A33	1"	1"	12	250	x	x	6.0 [152]	2.3 [58]	2.3 [58]	6.1 lbs [2.75 kg]
A44	1 1/4"	1 1/4"	21	250	x	x	7.2 [183]	2.6 [66]	2.6 [66]	10.1 lbs [4.55 kg]
A55	1 1/2"	1 1/2"	30	250	x	x	7.7 [196]	2.6 [66]	2.6 [66]	11.1 lbs [5.00 kg]
A66	2"	2"	47	200	x	x	8.6 [218]	3.1 [79]	3.1 [79]	17.0 lbs [7.65 kg]

All dimensions are inches [mm].

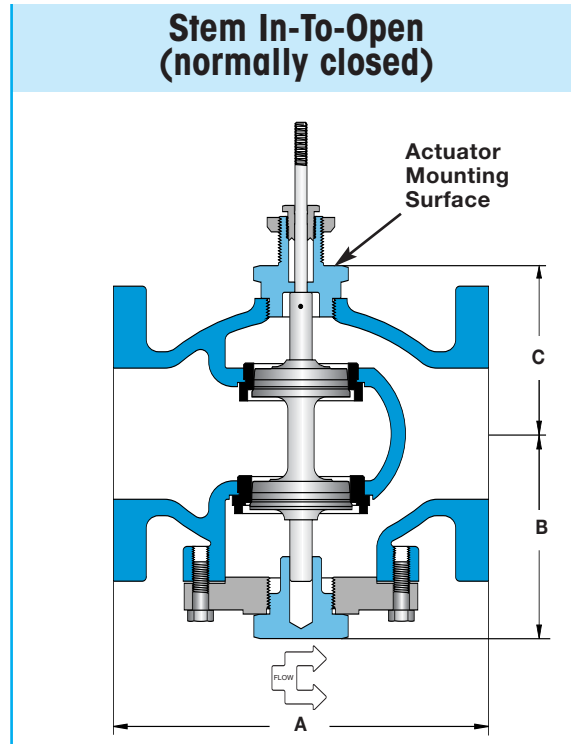
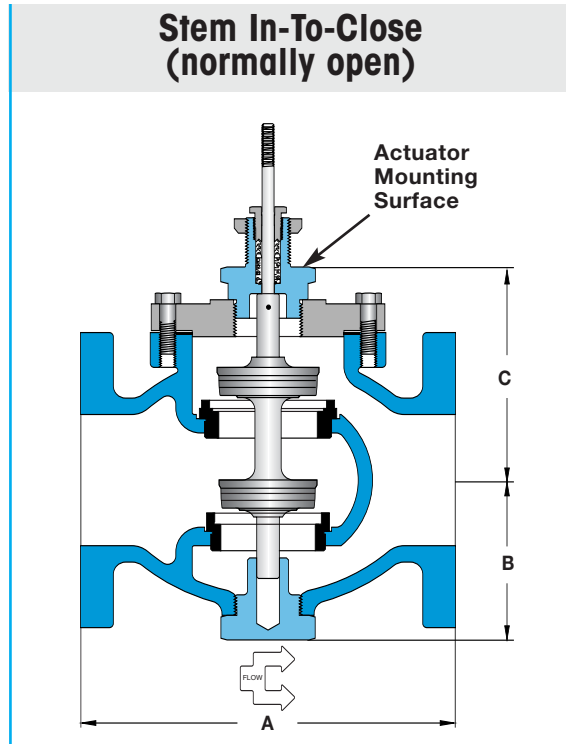
CONTROL VALVES

W910 Series

Valve Body for W910A, W910B & W910C

CAST IRON

Double Seat • 2 1/2" – 4"



CONTROL VALVES

Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Cast Iron	Stainless Steel	Modified Linear	125# Flanged	125 PSI @ 350°F (176°C)

Valve Body Selection

In-To-Close (Normally Open)				Maximum Close-Off Pressure (PSI ΔP)			Dimensions			Approximate Shipping Wt.
Valve Body Number	Size		C _v	W910A	W910B	W910C	A	B	C	
B73	2 1/2"	2 1/2"	69	125	x	x	7.8 [198]	4.8 [122]	5.4 [137]	45 lbs [20 kg]
B78	3"	3"	90	125	x	x	9.0 [229]	5.0 [127]	5.6 [142]	70 lbs [32 kg]
B83	4"	4"	196	125	x	x	11.4 [290]	6.3 [160]	6.5 [165]	100 lbs [45 kg]

In-To-Open (Normally Closed)				Maximum Close-Off Pressure (PSI ΔP)			Dimensions			Approximate Shipping Wt.
Valve Body Number	Size		C _v	W910A	W910B	W910C	A	B	C	
B74	2 1/2"	2 1/2"	69	125	x	x	7.8 [198]	4.8 [122]	5.4 [137]	45 lbs [20 kg]
B79	3"	3"	90	125	x	x	9.0 [229]	5.0 [127]	5.6 [142]	70 lbs [32 kg]
B84	4"	4"	196	125	x	x	11.4 [290]	6.3 [160]	6.5 [165]	100 lbs [45 kg]

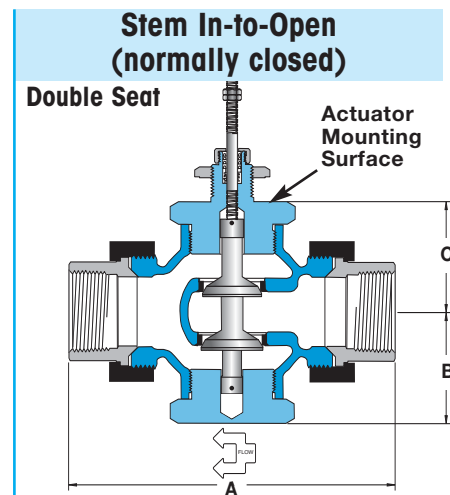
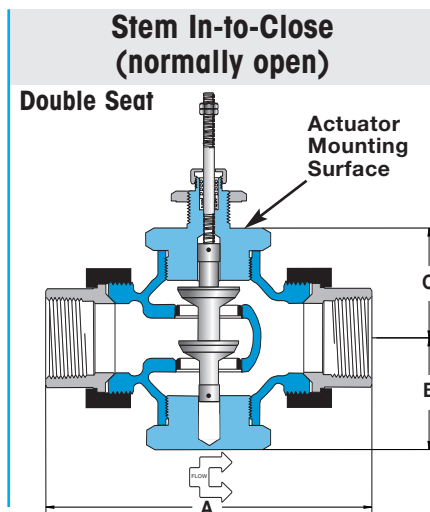
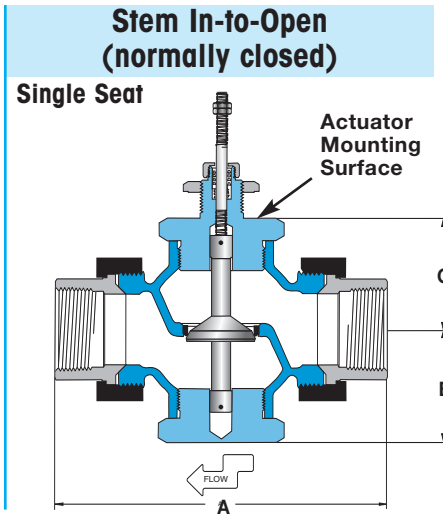
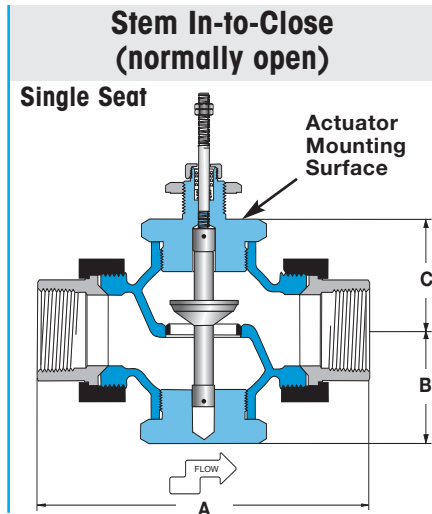
All dimensions are inches [mm].

W910 Series

Valve Body for W910TB

BRONZE

Single or Double Seat
1/2" – 2"



CONTROL VALVES

Specifications

Body Material	Trim Material	Trim Style	Connection	Pressure & Temperature Rating
Bronze	Stainless Steel	Modified Linear	NPT with Malleable Iron Union Ends	250 PSI @ 410°F (210°C)

Valve Body Selection

Valve Body Number	ITC Normally Open	ITO Normally Closed	Size		Number of Seats	C _v	Maximum Close-Off Pressure (PSI ΔP) Actuator W910TB	Dimensions			Approximate Shipping Wt.
			Connection (NPT)	Nominal Port				A	B	C	
A02	A03	1/2"	1/8"	1	0.17	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]	
A05	A06	1/2"	3/16"	1	0.35	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]	
A08	A09	1/2"	1/4"	1	0.7	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]	
A11	A12	1/2"	3/8"	1	1.4	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]	
A14	A15	1/2"	1/2"	1	2.8	250	4.8 [122]	1.8 [46]	1.8 [46]	3.0 lbs [1.35 kg]	
A21	A24	3/4"	3/4"	2	8	250	5.6 [142]	2.3 [58]	2.3 [58]	5.0 lbs [2.25 kg]	
A29	A33	1"	1"	2	12	250	6.0 [152]	2.3 [58]	2.3 [58]	6.1 lbs [2.75 kg]	
A39	A44	1 1/4"	1 1/4"	2	21	250	7.2 [183]	2.6 [66]	2.6 [66]	10.1 lbs [4.55 kg]	
A50	A55	1 1/2"	1 1/2"	2	30	250	7.7 [196]	2.6 [66]	2.6 [66]	11.1 lbs [5.00 kg]	
A61	A66	2"	2"	2	47	250	8.6 [218]	3.1 [79]	3.1 [79]	17.0 lbs [7.65 kg]	

All dimensions are inches [mm].

CONTROL VALVES

W910 Series

Valve Body for W910TB

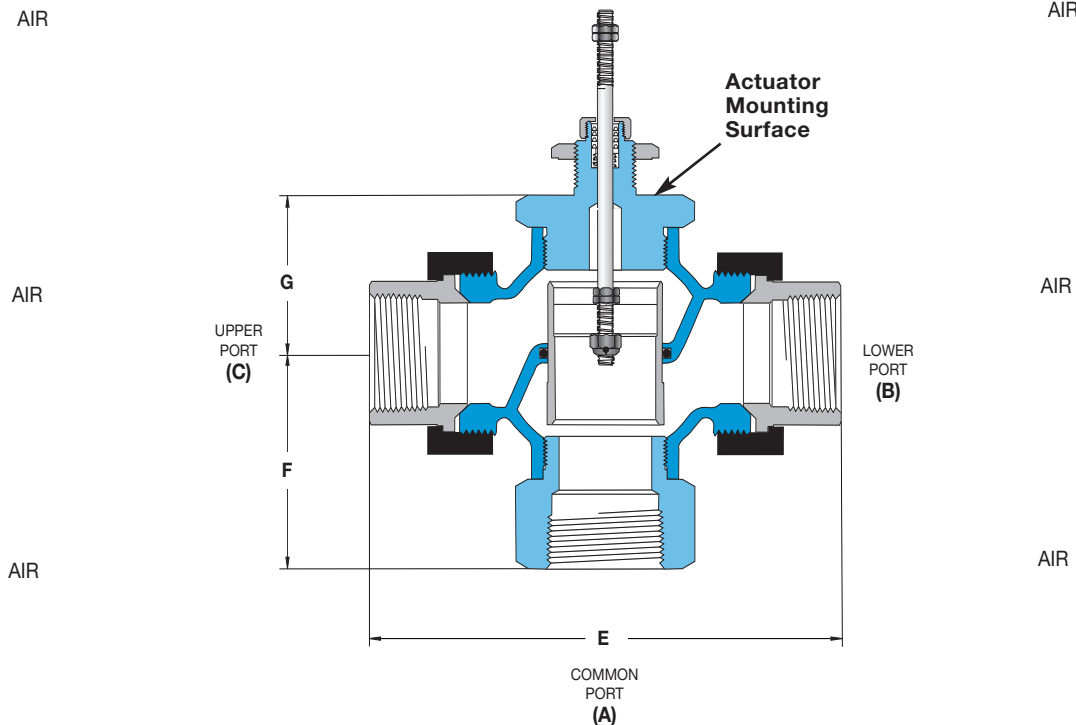
BRONZE

3-Way • 1/2" – 2"

for Mixing or Diverting

**MIXING
FLOW DIAGRAM**

**DIVERTING
FLOW DIAGRAM**



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 PSI @ 300°F (149°C)

Valve Body Selection

Mixing or Diverting				Maximum Close-Off Pressure (PSI ΔP)				
Valve Body Number	Size		C _v	Actuator W910TB	Dimensions			Approximate Shipping Wt.
	Connection (NPT)	Nominal Port			E	F	G	
A18	1/2"	1/2"	2.8	250	4.8 [122]	1.8 [46]	1.8 [46]	2.9 lbs [1.31 kg]
A25	3/4"	3/4"	5.6	250	5.6 [142]	2.3 [58]	2.3 [58]	4.7 lbs [2.12 kg]
A34	1"	1"	8.4	250	6.0 [152]	2.3 [58]	2.3 [58]	5.7 lbs [2.57 kg]
A45	1 1/4"	1 1/4"	15	250	7.2 [183]	2.8 [71]	2.6 [66]	9.5 lbs [4.28 kg]
A56	1 1/2"	1 1/2"	21	250	7.7 [196]	3.5 [89]	2.6 [66]	11.1 lbs [5.00 kg]
A67	2"	2"	33	250	8.6 [218]	4.1 [104]	3.1 [79]	16.7 lbs [7.55 kg]

All dimensions are inches [mm].

CAST IRON

CONTROL VALVES

W910 Series

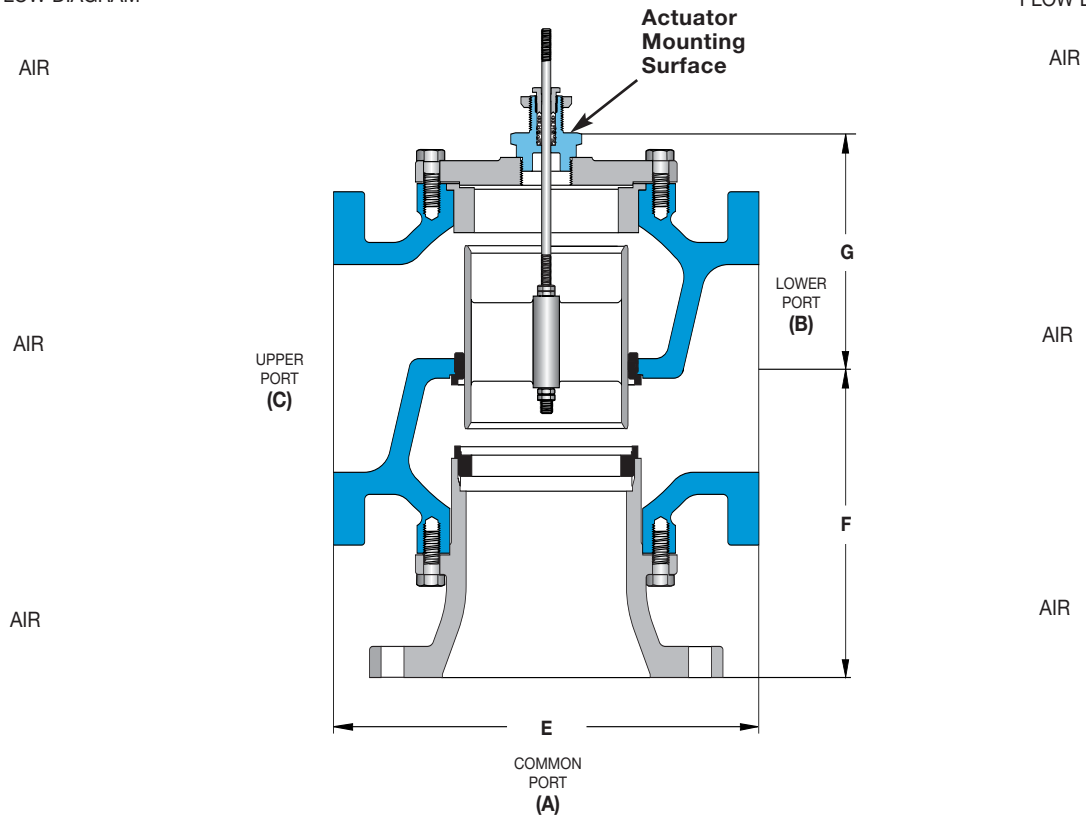
Valve Body for W910TB

3-Way • 2 1/2" – 4"

for Mixing or Diverting

MIXING
FLOW DIAGRAM

DIVERTING
FLOW DIAGRAM



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
Cast Iron	Bronze	Modified Linear	125# Flanged	125 PSI @ 300°F (149°C)

Valve Body Selection

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

All dimensions are inches [mm].

CONTROL VALVES

W910 Series

Capacity Charts

CAPACITIES – Steam (lbs/hr)		SINGLE SEATED VALVES					
Inlet Pressure (PSIG)	Size, Body Number & Coefficient (Cv)						
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
	A14/E14 ITC Cv = 2.8	A19/E19 ITC Cv = 5.6	A26/E26 ITC Cv = 8.4	A36/E36 ITC Cv = 15	A47/E47 ITC Cv = 21	A58/E58 ITC Cv = 33	
1	80	160	240	428	599	942	
3	90	180	270	483	676	1062	
5	100	201	301	537	752	1182	
10	126	252	377	674	943	1482	
15	151	302	454	810	1134	1782	
20	177	353	530	946	1325	2082	
25	202	404	606	1083	1516	2382	
30	228	455	683	1219	1701	2682	
40	279	557	838	1492	2089	3283	
50	329	659	988	1765	2471	3883	
60	380	761	1141	2038	2853	4483	
70	431	863	1294	2310	3235	5083	
80	482	964	1447	2583	3617	5683	
90	533	1066	1599	2856	3999	6283	
100	584	1168	1752	3129	4380	6884	
125	711	1423	2134	3811	5335	8384	
150	839	1677	2516	4493	6290	9884	
175	966	1932	2898	5175	7245	11385	
200	1093	2187	3280	5857	8200	12885	
250	1348	2696	4044	7221	10109	15886	

Note:
Verify that Maximum Close-Off Pressure does not exceed max rating for selected valve body number and actuator. (Refer to Valve Body No. charts for Single Seated Valves.)

Note: All steam capacities based on Critical Drop (Choked Flow).

CAPACITIES – Water (GPM)		SINGLE SEATED VALVES					
Pressure Drop (PSI ΔP)	Size, Body Number & Coefficient (Cv)						
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
	A14/E14 ITC A15/E15 ITO Cv = 2.8	A19/E19 ITC A22/E22 ITO Cv = 5.6	A26/E26 ITC A30/E30 ITO Cv = 8.4	A36/E36 ITC A41/E41 ITO Cv = 15	A47/E47 ITC A52/E52 ITO Cv = 21	A58/E58 ITC A63/E63 ITO Cv = 33	
1	2.8	5.6	8.4	15	21	33	
3	4.8	10	15	26	36	57	
5	6.3	13	19	34	47	74	
10	8.9	18	27	47	66	104	
15	11	22	33	58	81	128	
20	13	25	38	67	94	148	
25	14	28	42	75	105	165	
30	15	31	46	82	115	181	
40	18	35	53	95	133	209	
50	20	40	59	106	148	233	
60	22	43	65	116	163	256	
70	23	47	70	125	176	276	
80	25	50	75	134	188	295	
90	27	53	80	142	199	313	
100	28	56	84	150	210	330	
125	31	63	94	168	235	369	
150	34	69	103	184	257	404	
175	37	74	111	198	278	437	
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:
Verify that Maximum Close-Off Pressure does not exceed max rating for selected valve body number and actuator. (Refer to Valve Body No. charts for Single Seated Valves.)

ITC = In-to-Close; ITO = In-to-Open

CONTROL VALVES

W910 Series

Capacity Charts

CAPACITIES – Steam (lbs/hr)		DOUBLE SEATED VALVES						
Inlet Pressure (PSIG)	Size, Body Number & Coefficient (Cv)							
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
	A21 ITC Cv = 8	A29 ITC Cv = 12	A39 ITC Cv = 21	A50 ITC Cv = 30	A61 ITC Cv = 47	B73 ITC Cv = 69	B78 ITC Cv = 90	B83 ITC Cv = 196
1	288	343	599	856	1342	1970	2569	5595
3	257	386	676	965	1513	2221	2896	6308
5	287	430	752	1075	1684	2472	3224	7021
10	359	539	943	1347	2111	3099	4042	8803
15	432	648	1134	1620	2538	3726	4861	10585
20	505	757	1325	1893	2966	4354	5679	12368
25	578	866	1516	2166	3393	4981	6497	14150
30	650	975	1707	2439	3820	5609	7316	15932
40	796	1194	2089	2984	4675	6864	8953	19497
50	941	1412	2471	3530	5530	8119	10589	23080
60	1087	1630	2853	4075	6385	9380	12240	26650
70	1232	1848	3235	4621	7240	10640	13870	30210
80	1378	2067	3617	5167	8094	11890	15510	33780
90	1523	2285	3999	5712	8949	13150	17150	37350
100	1669	2503	4380	6258	9804	14400	18790	40920
125	2032	3049	5335	7622	11941	17540	22880	49830
150	2396	3594	6290	8986	14078			
175	2760	4140	7245	10350	16215			
200	3124	4685	8200	11714	18352			
250	3851	5777	10109	14442	22625			

Note: All steam capacities based on Critical Drop (Choked Flow).

CAPACITIES – Water (GPM)		DOUBLE SEATED VALVES						
Pressure Drop (PSI ΔP)	Size, Body Number & Coefficient (Cv)							
	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
	A21 ITC A24 ITO Cv = 8	A29 ITC A33 ITO Cv = 12	A39 ITC A44 ITO Cv = 21	A50 ITC A55 ITO Cv = 30	A61 ITC A66 ITO Cv = 47	B73 ITC B74 ITO Cv = 69	B78 ITC B79 ITO Cv = 90	B83 ITC B84 ITO Cv = 196
1	8	12	21	30	47	69	90	196
3	14	21	36	52	81	120	156	339
5	18	27	47	67	105	154	201	438
10	25	38	66	95	149	218	285	620
15	31	46	81	116	182	267	349	759
20	36	54	94	134	210	309	402	877
25	40	60	105	150	235	345	450	980
30	44	66	115	164	257	378	493	1074
40	51	76	133	190	297	436	569	1240
50	57	85	148	212	332	488	636	1386
60	62	93	163	232	364	534	697	1518
70	67	100	176	251	393	577	753	1640
80	72	107	188	268	420	617	805	1753
90	76	114	199	285	446	655	854	1859
100	80	120	210	300	470	690	900	1960
125	89	134	235	335	525	771	1006	2191
150	98	147	257	367	576			
175	106	159	278	397	622			
200	113	170	297	424	665			
225	120	180	315	450	705			
250	126	190	332	474	743			

ITC = In-to-Close; ITO = In-to-Open

CONTROL VALVES

CONTROL VALVES

W910 Series

Capacity Charts

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.

CONTROL VALVES

CAPACITIES – Steam (lbs/hr) SINGLE SEATED

Inlet Pressure (PSIG)	Size, Body Number & Coefficient (Cv)			
	1/8"	3/16"	1/4"	3/8"
	Reduced Port A02 ITC Cv = 0.17	Reduced Port A05 ITC Cv = 0.35	Reduced Port A08 ITC Cv = 0.7	Reduced Port A11 ITC Cv = 1.4
1	4.9	10	20	40
3	5.5	11	23	45
5	6.1	13	25	50
10	7.6	16	31	63
15	9.2	19	38	76
20	11	22	44	88
25	12	25	51	101
30	14	28	57	114
40	17	35	70	139
50	20	41	82	165
60	23	48	95	190
70	26	54	108	216
80	29	60	121	241
90	32	67	133	267
100	35	73	146	292
125	43	89	178	356
150	51	105	210	419
175	59	121	241	483
200	66	137	273	547
250	82	168	337	674

Note: All steam capacities based on Critical Drop (Choked Flow).

CAPACITIES – Water (GPM) SINGLE SEATED

Pressure Drop (PSI ΔP)	Size, Body Number & Coefficient (Cv)			
	1/8"	3/16"	1/4"	3/8"
	Reduced Port A02 ITC A03 ITO Cv = 0.17	Reduced Port A05 ITC A06 ITO Cv = 0.35	Reduced Port A08 ITC A09 ITO Cv = 0.7	Reduced Port A11 ITC A12 ITO Cv = 1.4
1	0.2	0.4	0.7	1.4
3	0.3	0.6	1.2	2.4
5	0.4	0.8	1.6	3.1
10	0.5	1.1	2.2	4.4
15	0.7	1.4	2.7	5.4
20	0.8	1.6	3.1	6.3
25	0.9	1.8	3.5	7.0
30	0.9	1.9	3.8	7.7
40	1.1	2.2	4.4	8.9
50	1.2	2.5	4.9	10
60	1.3	2.7	5.4	11
70	1.4	2.9	5.9	12
80	1.5	3.1	6.3	13
90	1.6	3.3	6.6	13
100	1.7	3.5	7.0	14
125	1.9	3.9	7.8	16
150	2.1	4.3	8.6	17
175	2.2	4.6	9.3	19
200	2.4	4.9	10	20
250	2.7	5.5	11	22

ITC = In-to-Close; ITO = In-to-Open