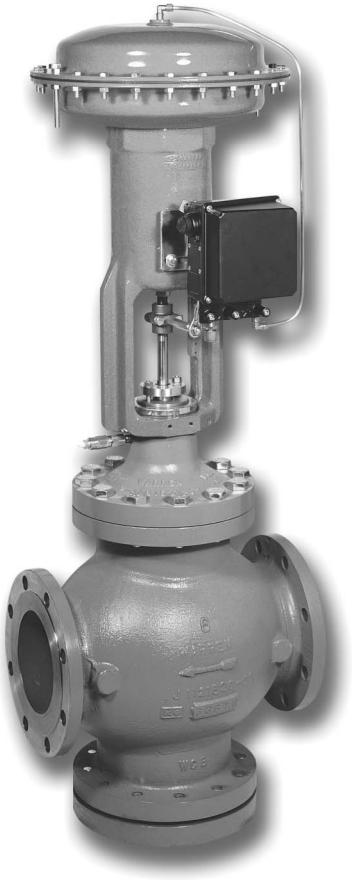
PRODUCT SPECIFICATION

March 2005

PNEUMATIC ACTUATED INDUSTRIAL VALVES

SERIES: 1800 SIZES 2-1/2 to 12 INCHES

Heavy Globe Control Valves



WARREN CONTROLS

Two-Way and Three-Way, Reciprocating Iron, Steel, or Stainless Steel Body Valves for Process and Utility Applications

2600 Emrick Blvd., Bethlehem, PA 18020-8010 www.WarrenControls.com
Tel: 800-922-0085 or 610-317-0800 Fax: 610-317-2989

WARREN CONTROLS

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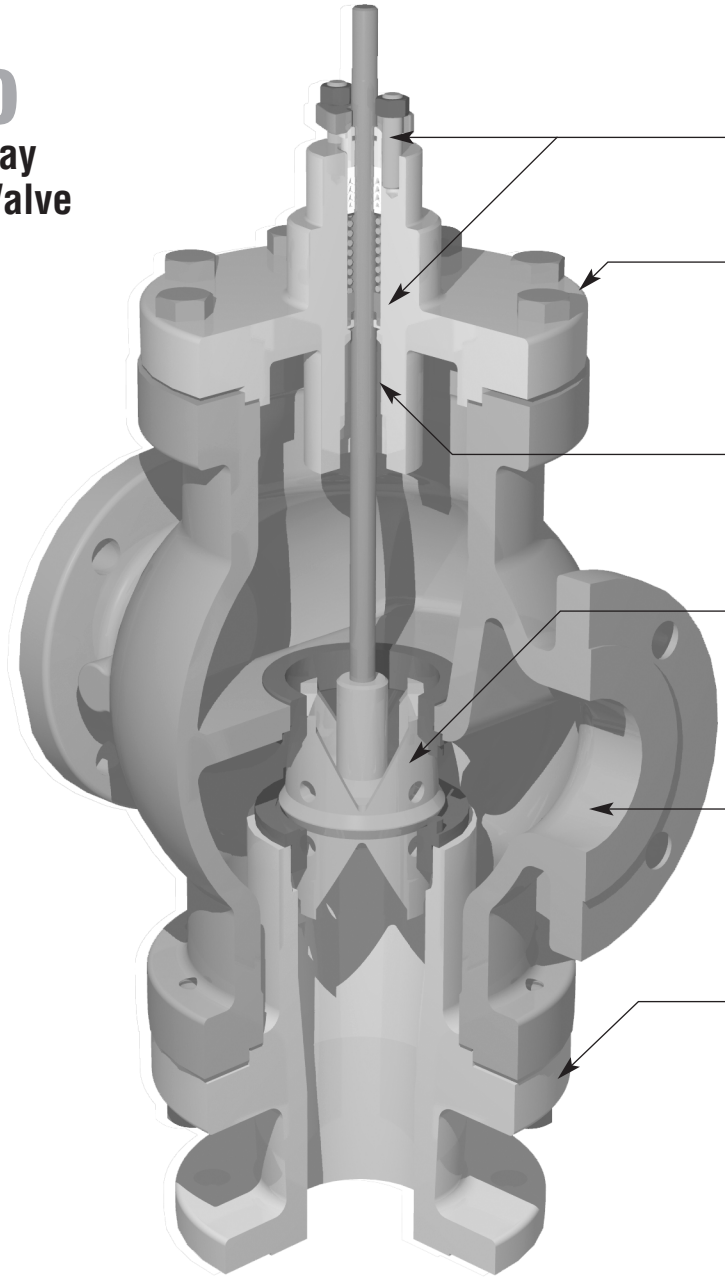
Three-Way Mixing Valve



Stem Wipers
provide outstanding packing protection.

Heavy Bolted Bonnet Construction
provides added durability and easy maintenance.

Large Guiding Surfaces
ensure smooth operation and stem stability.

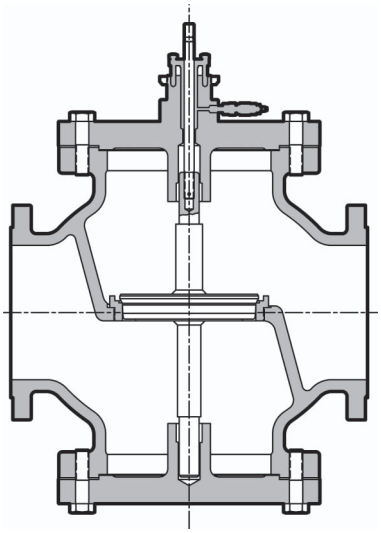
Skirt Guided Plug Assembly
provides stability and precision linear flow characteristic.

Large Internal Flow Patterns maximize CV capacities. Greater flow with smaller sizes reduces cost.

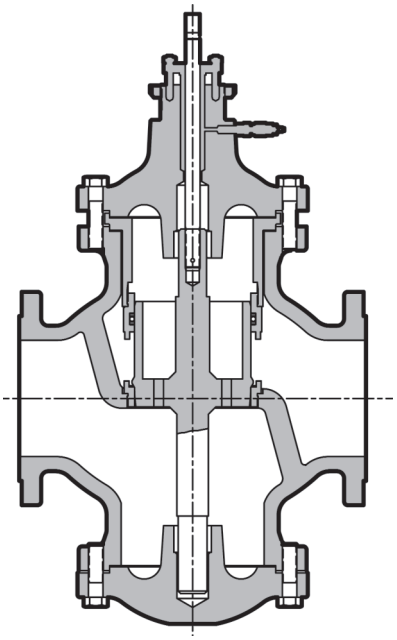
Lower Unit
disassembles for easy trim replacement or debris removal.

SERIES: 1800

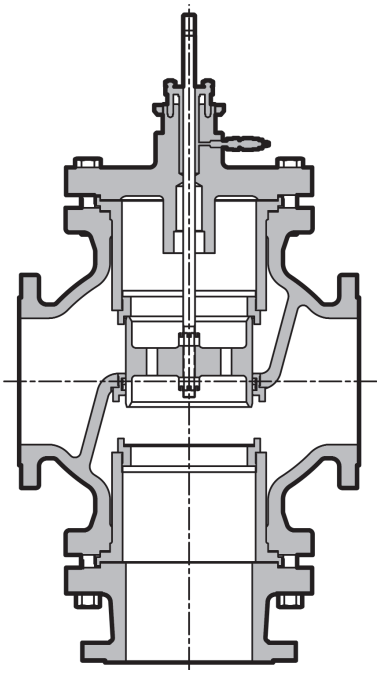
Heavy Globe Control Valves



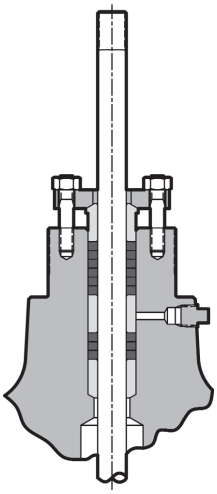
1840
Two-Way Single Seat Unbalanced Valve



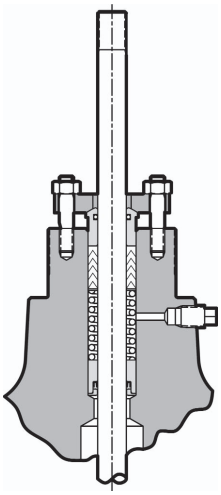
1843
Two-Way Single Seat Balanced Valve



1852
Three-Way Diverting Valve



Adjustable Graphite Packing



TFE V-Ring Packing Spring-Loaded

Stem lubricator is available as an option, but is not required for standard packing sets.

Description

Warren Controls Series 1800 Heavy Globe Control Valves feature rugged high capacity bodies of iron, steel, or stainless steel with a variety of trim materials and port sizes. The equal percentage and linear plugs in the 2-way valves and linear plugs in the 3-way valves provide excellent modulating control of a wide variety of fluids. The Series 1800 is ideally suited where value and long life are important objectives for applications including but not limited to the Chemical, Food & Beverage, General Service, Marine, Power, and Refining industries with temperatures from -20 to 800ºF, severe service, high pressure drops, and corrosive fluids.

Body Style Versus Application

2-Way Valves (Control of Liquids, Gases, and Steam)

1840 Two-Way Single Seat Unbalanced Valve

The most commonly applied solution with ANSI Class IV shut-off.

Sizes:	6, 8, 10, 12 inch (See 1843 or 5840 for smaller sizes)
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (6 thru 10) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (6 thru 12)
Trim:	EQ% or Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F) Adjustable Graphite w/Extension Bonnet (+32 to 800°F)
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 800°F (150 or 300 FLG)
Rangeability:	50:1

Flow direction is reversed when used with Cylinder Actuator Fail Closed.

1843 Two-Way Single Seat Cylinder Balanced Valve

A balanced valve that is an effective solution for higher pressures. It requires less force to operate than unbalanced valves so smaller actuators can be used. Its single seat o-ring seal design facilitates ANSI Class IV shut-off. It is limited to cleaner fluids.

Sizes:	2-1/2, 3, 4, 6, 8, 10, 12 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (6 thru 12) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (2-1/2 thru 12)
Trim:	EQ% or Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F)
O-Ring:	Fluoraz 797
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 500°F (150 or 300 FLG)
Rangeability:	50:1

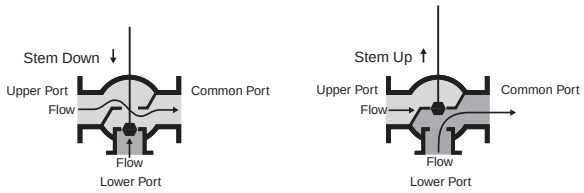
Flow direction is reversed when used with Cylinder Actuator Fail Closed.

3-Way Valves (Control of Liquids)

1850 Three-Way Mixing Valve

This valve has two inlets and one outlet, and is the simplest solution for mixing or bypass applications with ANSI Class IV shut-off. In normal applications the inlet pressures are near equal and control is possible from 5% to 95% of travel with inlet pressures up to 300 PSI.

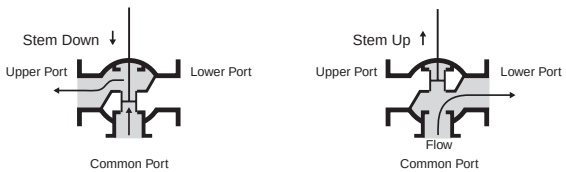
Sizes:	2-1/2, 3, 4, 6, 8, 10, 12 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (8 thru 12) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (2-1/2 thru 12)
Trim:	Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F) Adjustable Graphite w/Extension Bonnet (+32 to 800°F)
Temperature:	+32 to 350°F (125 FLG) +32 to 400°F (250 FLG) +32 to 800°F (150 or 300 FLG)
Rangeability:	50:1



1852 Three-Way Diverting/Mixing Valve

Designed as a diverting valve with one inlet and two outlets with ANSI Class II shutoff. However, flow can be reversed for mixing if this port configuration is desirable. The difference between the upper port and lower port pressure **must not** exceed 50PSID.

Sizes:	2-1/2, 3, 4, 6, 8, 10, 12 inch
Body:	ANSI B16.1 Iron 125LB Flange or 250LB Flange (8 thru 12) WCB Steel or CF8M Stainless Steel 150LB Flange or 300LB Flange (2-1/2 thru 12)
Trim:	Linear, 316 Stainless Steel or Alloy 6
Packing:	TFE V-Ring, Spring Loaded (+32 to 450°F) Adjustable Graphite (+32 to 500°F)
O-Ring:	Fluoraz 797 (2-1/2 thru 4) EPR (6 thru 12)
Temperature:	+32 to 150°F (125 or 250 FLG, 8 thru 12) +32 to 500°F (150 or 300 FLG, 2-1/2 thru 4) +32 to 150°F (150 or 300 FLG, 6 thru 12)
Rangeability:	50:1



Body Pressure-Temperature Ratings:						
Temperature (F)	125 FLG Iron	250 FLG Iron	150 FLG Steel	300 FLG Steel	150 FLG St Steel	300 FLG St Steel
+32° To 100°	175	400	285	740	275	720
150°	175	400	272	707	255	670
175°	170	385	266	691	245	645
200°	165	370	260	675	235	620
225°	157	355	252	670	230	605
250°	150	340	245	665	225	590
275°	145	325	237	660	220	575
300°	140	310	230	655	215	560
325°	130	295	222	650	210	548
350°	125	280	215	645	205	537
375°	-	265	207	640	200	526
400°	-	250	200	635	195	515
450°	-	-	185	617	182	497
500°	-	-	170	600	170	480
550°	-	-	155	575	155	465
600°	-	-	140	550	140	450
650°	-	-	125	535	125	445
700°	-	-	110	520	110	430
750°	-	-	95	505	95	425
800°	-	-	80	410	80	420

Pressure ratings are PSIG

For applications below 32º consult factory

Trim Materials	Flowing Differential Pressure Limit
316 Stainless Steel	100 PSID
Alloy 6	300 PSID

Flow Coefficients (Cv) Versus Travel

2-Way Valves (Control of Liquids, Gases, and Steam)

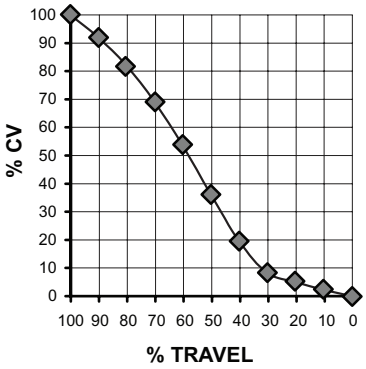
Valve — 1840 Flow Coefficients (Cv)
Two-Way Single Seat Unbalanced Valve

Valve Size (IN)	Trim Style	Port Size	%Travel 100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
6	EQ%	Full	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
		1SR	178	158	130	93.5	51.8	22.4	13.5	10.3	7.16	3.99
		2SR	98.0	80.8	56.8	31.9	20.7	13.2	8.96	7.01	5.04	3.06
	Linear	Full	375	362	322	276	228	188	145	102	60.3	15.8
8	EQ%	Full	600	528	427	293	142	60.7	38.1	23.4	16.3	9.23
		1SR	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
		2SR	178	158	130	93.5	51.8	22.4	13.5	10.3	7.16	3.99
	Linear	Full	594	541	479	413	353	292	230	171	107	39.9
10	EQ%	Full	1000	926	762	572	362	159	67.1	37.9	26.0	14.1
		1SR	600	528	427	293	142	60.7	38.1	23.4	16.3	9.23
		2SR	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
	Linear	Full	1000	900	800	700	600	500	400	300	200	100
12	EQ%	Full	1360	1228	1022	772	498	293	152	54.0	36.2	18.4
	Linear	Full	1360	1261	1119	968	821	683	542	397	261	119

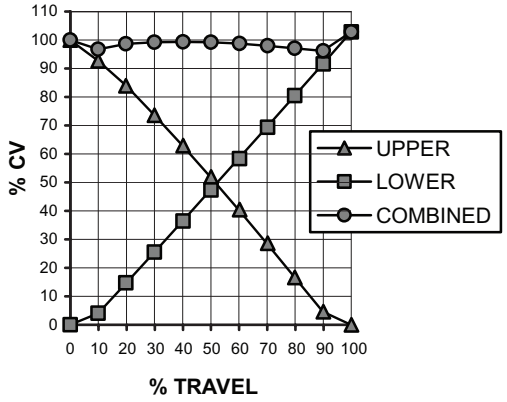
Valve — 1843 Flow Coefficients (Cv)
Two-Way Single Seat Cylinder Balanced Valve

Valve Size (IN)	Trim Style	Port Size	%Travel 100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-1/2	EQ%	Full	70.0	54.0	33.5	19.4	12.4	8.80	5.69	4.04	2.86	1.67
		1SR	44.0	33.9	21.1	12.2	7.79	5.53	3.58	2.54	1.80	1.05
		2SR	24.0	18.5	11.5	6.65	4.25	3.02	1.95	1.39	0.98	0.57
	Linear	Full	70.0	63.3	57.1	50.0	41.6	35.3	28.4	20.9	12.8	4.18
3	EQ%	Full	98.0	80.8	56.8	31.9	20.7	13.2	8.96	7.01	5.04	3.06
		1SR	70.0	54.0	33.5	19.4	12.4	8.80	5.69	4.04	2.86	1.67
		2SR	44.0	33.9	21.1	12.2	7.79	5.53	3.58	2.54	1.80	1.05
	Linear	Full	100	89.7	78.6	67.6	59.0	50.7	41.6	31.5	20.5	8.88
4	EQ%	Full	178	158	130	93.5	51.8	22.4	13.5	10.3	7.16	3.99
		1SR	98.0	80.8	56.8	31.9	20.7	13.2	8.96	7.01	5.04	3.06
		2SR	70.0	54.0	33.5	19.4	12.4	8.80	5.69	4.04	2.86	1.67
	Linear	Full	178	164	146	126	106	91.1	74.5	56.2	36.2	14.9
6	EQ%	Full	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
		1SR	178	158	130	93.5	51.8	22.4	13.5	10.3	7.16	3.99
		2SR	98.0	80.8	56.8	31.9	20.7	13.2	8.96	7.01	5.04	3.06
	Linear	Full	375	362	322	276	228	188	145	102	60.3	15.8
8	EQ%	Full	600	528	427	293	142	60.7	38.1	23.4	16.3	9.23
		1SR	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
		2SR	178	158	130	93.5	51.8	22.4	13.5	10.3	7.16	3.99
	Linear	Full	594	541	479	413	353	292	230	171	107	39.9
10	EQ%	Full	1000	926	762	572	362	159	67.1	37.9	26.0	14.1
		1SR	600	528	427	293	142	60.7	38.1	23.4	16.3	9.23
		2SR	375	358	303	228	136	49.1	30.5	18.0	9.57	5.33
	Linear	Full	1000	900	800	700	600	500	400	300	200	100
12	EQ%	Full	1360	1228	1022	772	498	293	152	54.0	36.2	18.4
	Linear	Full	1360	1261	1119	968	821	683	542	397	261	119

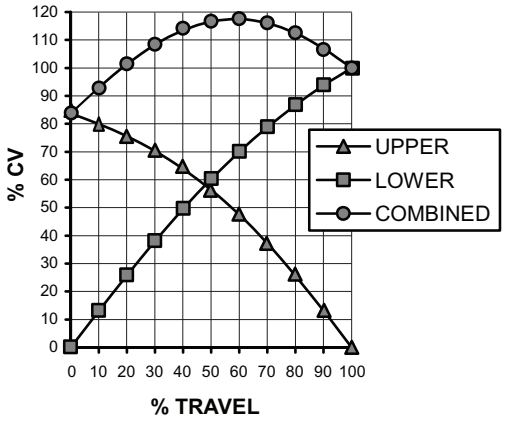
2-WAY VALVE
TYPICAL FLOW CURVE



1850
TYPICAL FLOW CURVE



1852
TYPICAL FLOW CURVE



3-Way Valves (Control of Liquids)

Valve — 1850 Flow Coefficients (Cv)
Three-Way Mixing Valve

Valve Size (IN)	Trim Style	Travel 100%
2-1/2	Linear	60
3	Linear	95
4	Linear	175
6	Linear	360
8	Linear	560
10	Linear	800
12	Linear	1360

Valve — 1852 Flow Coefficients (Cv)
Three-Way Diverting/Mixing Valve

Valve Size (IN)	Trim Style	Cv 100%
2-1/2	Linear	75
3	Linear	105
4	Linear	185
6	Linear	410
8	Linear	670
10	Linear	1280
12	Linear	1649

Steam Table

Steam Pressure PSIG	Temp. °F	Temp. °C	Sensible Heat BTU/Lb.	Latent Heat BTU/Lb.	Total Heat BTU/Lb.
0	212	100	180	971	1151
10	239	115	207	952	1159
25	266	130	236	934	1170
50	297	147	267	912	1179
75	320	160	290	896	1186
100	338	170	309	881	1190
125	353	178	325	868	1193
150	365	185	339	858	1197
200	387	197	362	838	1200
250	406	208	381	821	1202
300	422	217	399	805	1204
400	448	231	438	778	1216
500	470	243	453	752	1205
600	489	254	475	729	1204

Rectangular Tank Capacity in Gallons

$$\text{Gallons} = \frac{\text{Height x Width x Length (inches)}}{230}$$

or

Gallons = H x W x L (Ft.) x 7.5

Circular Tank Storage Capacity in Gallons

Storage = $6D^2$ x L (Gallons)

Where:
D = Tank Diameter in Feet
L = Length in Feet

Load Sizing Calculations

Glossary of Terms

t = Time in Hours
Cp = Specific Heat of Liquid
S = Specific Gravity of Fluid
W = Weight in Lbs.
ΔT = Temperature Rise or Fall in °F
h_{fg} = Latent Heat of Steam

Conversion Factors

1 Lb. Steam / Hr. =	1000 BTU / Hr.
1 Cubic Meter =	264 U.S. Gallons
1 Cubic Foot Water =	62.4 Lbs.
1 PSI =	2.04 Inches of Mercury
1 PSI =	2.3 Feet of Water
1 PSI =	27.7 Inches of Water
1 U.S. Gallon Water =	231 Cubic Inches
1 U.S. Gallon Water =	8.33 Lbs.

Heating Water with Steam

Quick Method

$$\text{Lbs./Hr.} = \frac{\text{GPM}}{2} \times \Delta T$$

Accurate Method

$$\text{Lbs./Hr.} = \frac{\text{GPM} \times 500 \times \Delta T}{h_{fg}}$$

Heating or Cooling Water with Water

$$GPM_1 = GPM_2 \times \frac{\text{°F water}_2 \text{ temp. rise or drop}}{\text{°F water}_1 \text{ temp. rise or drop}}$$

Heating or Cooling Water

$$\text{GPM} = \frac{\text{BTU / Hr.}}{\text{(°F water temp. rise or drop)} \times 500}$$

Heating Oil with Steam

$$\text{Lbs./Hr.} = \frac{\text{GPM}}{4} \times \text{(°F oil temp. rise)}$$

Heating Air with Water

$$\text{GPM} = 2.16 \times \frac{\text{CFM x (°F air temp. rise)}}{\text{1000 x (°F water temp. drop)}}$$

Heating Liquids with Steam

$$\text{Lbs./Hr.} = \frac{\text{GPM} \times 60 \times Cp \times W}{h_{fg}} \times \Delta T$$

Heating Liquids in Steam Jacketed Kettles

$$\text{Lbs./Hr.} = \frac{\text{GPM} \times Cp \times S \times 8.33}{h_{fg} \times t} \times \Delta T$$

General Liquid Heating

$$\text{Lbs./Hr.} = \frac{W \times Cp}{h_{fg} \times t} \times \Delta T$$

Heating Air with Steam

$$\text{Lbs./Hr.} = \frac{\text{CFM}}{900} \times \Delta T$$

Shut-Off ΔP Ratings

NOTES:

1) 1840 Seat closure ANSI Class IV.

2) Inlet pressure **cannot** exceed Body Pressure-Temperature Rating.

3) The 3-15 and 1-17 ranges apply to valves with diaphragm actuators and control signals coming directly from I/P transducers with matching ranges. The 0-30 and 0-40 ranges apply to valves with diaphragm actuators and a positioner or an I/P transducer of suitable range. The 0-60, 0-80, 0-100, and 0-120 ranges apply to valves with cylinder actuators and a positioner.

4) N/A indicates that the air signal is not capable of providing any shut-off or it exceeds the maximum air pressure.

   Maximum air pressure
   DL115 &115XR…40PSIG
   CL8 & 12…120PSIG

5) See Actuators, Positioners, and Accessories section for explanation of spring ranges.

Valve		Actuator		Shut-Off ΔP Two-Way Single Seat Unbalanced 1840							
				Maximum Shut-off ΔP in PSI							
				Fail Closed Reverse Acting				Fail Open Direct Acting			
				Air Signal to Actuator *See "Pneumatic Ranges"...bottom right*				Air Signal to Actuator *See "Pneumatic Ranges"...bottom right*			
Valve Size (IN)	Plug Travel (IN)	Pneumatic Actuator	Spring Range	Range 1	Range 2	Range 3	Range 4	Range 1	Range 2	Range 3	Range 4
6	2	DL115	Low	N/A	N/A	N/A	N/A	8	17	69	110
			Full	N/A	N/A	N/A	N/A	N/A	N/A	45	86
			High	8	17	21	21	N/A	N/A	45	86
		DL115XR	Xtra-High	N/A	N/A	45	45	N/A	N/A	N/A	N/A
		Cylinder 8"		41	58	72	86	50	85	121	156
		Cylinder 12"		101	131	N/A	N/A	160	229	N/A	N/A
8	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	2	7	37	59
			Full	N/A	N/A	N/A	N/A	N/A	N/A	23	46
			High	2	7	9	9	N/A	N/A	23	46
		DL115XR	Xtra-High	N/A	N/A	19	19	N/A	N/A	N/A	N/A
		Cylinder 8"		19	33	41	48	26	46	66	86
		Cylinder 12"		57	74	N/A	N/A	90	129	N/A	N/A
10	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	N/A	3	22	36
			High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		DL115XR	Xtra-High	N/A	N/A	11	11	N/A	N/A	N/A	N/A
		Cylinder 8"		12	21	26	31	15	28	40	53
		Cylinder 12"		36	47	N/A	N/A	58	83	N/A	N/A
12	3	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	14	24
			High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		DL115XR	Xtra-High	N/A	N/A	5	5	N/A	N/A	N/A	N/A
		Cylinder 8"		7	15	18	21	9	18	27	36
		Cylinder 12"		25	33	N/A	N/A	42	62	N/A	N/A

Pneumatic Ranges		
	Diaphragm	Cylinder
Range 1	3-15	0-60
Range 2	1-17	0-80
Range 3	0-30	0-100
Range 4	0-40	0-120

Valve		Actuator		Shut-Off ΔP Ratings Two-Way Single Seat Cylinder Balanced 1843							
				Maximum Shut-off ΔP in PSI							
				Fail Closed Reverse Acting				Fail Open Direct Acting			
				Air Signal to Actuator *See "Pneumatic Ranges"...bottom right*				Air Signal to Actuator *See "Pneumatic Ranges"...bottom right*			
Valve Size (IN)	Plug Travel (IN)	Pneumatic Actuator	Spring Range	Range 1	Range 2	Range 3	Range 4	Range 1	Range 2	Range 3	Range 4
2-1/2	1-1/2	DL84	Low	N/A	N/A	N/A	N/A	740	740	740	N/A
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	N/A
			High	740	740	740	N/A	N/A	N/A	740	N/A
		DL115	Low	N/A	N/A	405	405	740	740	740	740
			Full	N/A	N/A	405	405	N/A	N/A	740	740
			High	740	740	740	740	N/A	N/A	740	740
		Cylinder 6"		740	740	740	740	740	740	740	740
		Cylinder 8"		740	740	N/A	N/A	740	740	N/A	N/A
3	1-1/2	DL84	Low	N/A	N/A	N/A	N/A	740	740	740	N/A
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	N/A
			High	740	740	740	N/A	N/A	N/A	740	N/A
		DL115	Low	N/A	N/A	223	223	740	740	740	740
			Full	N/A	N/A	223	223	N/A	N/A	740	740
			High	740	740	740	740	N/A	N/A	740	740
		Cylinder 6"		740	740	740	740	740	740	740	740
		Cylinder 8"		740	740	N/A	N/A	740	740	N/A	N/A
4	1-1/2	DL84	Low	N/A	N/A	N/A	N/A	499	740	740	N/A
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	N/A
			High	499	740	740	N/A	N/A	N/A	740	N/A
		DL115	Low	N/A	N/A	N/A	N/A	740	740	740	740
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			High	740	740	740	740	N/A	N/A	740	740
		Cylinder 6"		740	740	740	740	740	740	740	740
		Cylinder 8"		740	740	N/A	N/A	740	740	N/A	N/A
6	2	DL115	Low	N/A	N/A	N/A	N/A	196	610	740	740
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			High	196	610	740	740	N/A	N/A	740	740
		DL115XR	Xtra-High	N/A	N/A	740	740	N/A	N/A	N/A	N/A
		Cylinder 8"		740	740	740	740	740	740	740	740
		Cylinder 12"		740	740	N/A	N/A	740	740	N/A	N/A
8	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	N/A	290	740	740
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			High	N/A	290	484	484	N/A	N/A	740	740
		DL115XR	Xtra-High	N/A	N/A	740	740	N/A	N/A	N/A	N/A
		Cylinder 8"		740	740	740	740	229	740	740	740
		Cylinder 12"		740	740	N/A	N/A	740	740	N/A	N/A
10	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			High	N/A	N/A	189	189	N/A	N/A	740	740
		DL115XR	Xtra-High	N/A	N/A	740	740	N/A	N/A	N/A	N/A
		Cylinder 8"		740	740	740	740	N/A	740	740	740
		Cylinder 12"		740	740	N/A	N/A	740	740	N/A	N/A
12	3	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			Full	N/A	N/A	N/A	N/A	N/A	N/A	740	740
			High	N/A	N/A	N/A	N/A	N/A	N/A	740	740
		DL115XR	Xtra-High	N/A	N/A	433	433	N/A	N/A	N/A	N/A
		Cylinder 8"		N/A	560	740	740	N/A	740	740	740
		Cylinder 12"		740	740	N/A	N/A	740	740	N/A	N/A

NOTES:

1) 1843 Seat closure ANSI Class IV.

2) Inlet pressure **cannot** exceed Body Pressure-Temperature Rating.

3) The 3-15 and 1-17 ranges apply to valves with diaphragm actuators and control signals coming directly from I/P transducers with matching ranges. The 0-30 and 0-40 ranges apply to valves with diaphragm actuators and a positioner or an I/P transducer of suitable range. The 0-60, 0-80, 0-100, and 0-120 ranges apply to valves with cylinder actuators and a positioner.

4) N/A indicates that the air signal is not capable of providing any shut-off or it exceeds the maximum air pressure.

   Maximum air pressure
   DL84…30PSIG
   DL115 & 115XR…40PSIG
   CL6, 8 & 12…120PSIG

5) See Actuators, Positioners, and Accessories section for explanation of spring ranges.

Pneumatic Ranges		
	Diaphragm	Cylinder
Range 1	3-15	0-60
Range 2	1-17	0-80
Range 3	0-30	0-100
Range 4	0-40	0-120

Shut-Off ΔP Ratings

NOTES:

1) 1850 Mixing Valves have two inlets and one outlet. Published shut-off values are with respect to worst case conditions with zero downstream pressure on the outlet port and zero upstream pressure on the opposing inlet port.

Diaphragm actuators used with the 1850 are direct acting. The upper port fails closed on loss of air pressure to the actuator.

Cylinder actuators used with the 1850 are double acting. Failure Position is a function of a variety of variables, including but not limited to fluid pressures, proximity of valve stroke to seat, flow rates, and flow turbulence. Contact factory with complete application information for details.

2) 1850 Seat closure ANSI Class IV.

3) Inlet pressure **cannot** exceed Body Pressure- Temperature Rating.

4) The 3-15 and 1-17 ranges apply to valves with diaphragm actuators and control signals coming directly from I/P transducers with matching ranges. The 0-30 and 0-40 ranges apply to valves with diaphragm actuators and a positioner or an I/P transducer of suitable range. The 0-60, 0-80, 0-100, and 0-120 ranges apply to valves with cylinder actuators and a positioner.

5) N/A indicates that the air signal is not capable of providing any shut-off or it exceeds the actuator's maximum air pressure.

Maximum air pressure
DL84 …30PSIG
DL115 & 115XR …40PSIG
CL6, 8, & 12 … 120PSIG

6) See Actuators, Positioners, and Accessories Section for explanation of Spring Ranges.

Valve / Actuator — Shut-Off ΔP Ratings — Three-Way Mixing — 1850

Maximum Shut-off ΔP in PSI

Valve Size (IN)	Plug Travel (IN)	Pneumatic Actuator	Spring Range	Upper Port Closed, Direct Acting, Air Signal to Actuator *See "Pneumatic Ranges"...bottom right* Range 1	Range 2	Range 3	Range 4	Lower Port Closed, Direct Acting, Air Signal to Actuator *See "Pneumatic Ranges"...bottom right* Range 1	Range 2	Range 3	Range 4
2-1/2	1-1/2	DL84	Low	N/A	N/A	9	N/A	44	79	301	N/A
			Full	N/A	N/A	9	N/A	N/A	N/A	198	N/A
			High	60	95	112	N/A	N/A	N/A	198	N/A
		DL115	Low	N/A	5	28	28	82	129	433	668
			Full	N/A	5	28	28	N/A	N/A	293	527
			High	98	145	169	169	N/A	N/A	293	527
		Cylinder 6"		319	429	539	650	180	295	410	526
		Cylinder 8"		590	740	N/A	N/A	439	644	740	N/A
3	1-1/2	DL84	Low	N/A	N/A	2	N/A	26	50	204	N/A
			Full	N/A	N/A	2	N/A	N/A	N/A	133	N/A
			High	38	61	73	N/A	N/A	N/A	133	N/A
		DL115	Low	N/A	N/A	15	15	53	85	296	459
			Full	N/A	N/A	15	15	N/A	N/A	199	362
			High	64	96	113	113	N/A	N/A	199	362
		Cylinder 6"		217	294	370	447	121	201	281	360
		Cylinder 8"		405	543	N/A	N/A	301	443	585	N/A
4	1-1/2	DL84	Low	N/A	N/A	N/A	N/A	10	23	110	N/A
			Full	N/A	N/A	N/A	N/A	N/A	N/A	70	N/A
			High	16	29	36	N/A	N/A	N/A	70	N/A
		DL115	Low	N/A	N/A	3	3	25	43	162	253
			Full	N/A	N/A	3	3	N/A	N/A	107	198
			High	31	49	58	58	N/A	N/A	107	198
		Cylinder 6"		117	160	203	246	63	108	153	198
		Cylinder 8"		223	301	N/A	N/A	164	244	324	N/A
6	2	DL115	Low	N/A	N/A	N/A	N/A	2	10	63	104
			Full	N/A	N/A	N/A	N/A	N/A	N/A	39	79
			High	8	17	21	21	N/A	N/A	39	79
		DL115XR	Xtra-High	N/A	N/A	45	45	N/A	N/A	10	51
		Cylinder 8"		108	142	177	212	44	79	115	150
		Cylinder 12"		233	311	N/A	N/A	176	256	336	N/A
8	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	33	56
			Full	N/A	N/A	N/A	N/A	N/A	N/A	19	42
			High	2	7	9	9	N/A	N/A	19	42
		DL115XR	Xtra-High	N/A	N/A	19	19	N/A	N/A	3	26
		Cylinder 8"		56	76	95	115	22	42	62	82
		Cylinder 12"		127	171	N/A	N/A	97	142	187	N/A
10	2-1/2	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	20	34
			Full	N/A	N/A	N/A	N/A	N/A	N/A	11	25
			High	N/A	3	4	4	N/A	N/A	11	25
		DL115XR	Xtra-High	N/A	N/A	11	11	N/A	N/A	N/A	15
		Cylinder 8"		34	47	59	72	13	25	38	51
		Cylinder 12"		80	108	N/A	N/A	60	89	118	N/A
12	3	DL115	Low	N/A	N/A	N/A	N/A	N/A	N/A	12	23
			Full	N/A	N/A	N/A	N/A	N/A	N/A	6	17
			High	N/A	N/A	2	2	N/A	N/A	6	17
		DL115XR	Xtra-High	N/A	N/A	5	5	N/A	N/A	N/A	9
		Cylinder 8"		22	30	39	48	8	16	25	34
		Cylinder 12"		53	73	N/A	N/A	41	61	81	N/A

Pneumatic Ranges

	Diaphragm	Cylinder
Range 1	3-15	0-60
Range 2	1-17	0-80
Range 3	0-30	0-100
Range 4	0-40	0-120

Valve		Actuator		Shut-Off ΔP Ratings Three-Way Diverting/Mixing 1852							
				Maximum Shut-off ΔP in PSI							
				Upper Port Closed Direct Acting				Lower Port Closed Direct Acting			
				Air Signal to Actuator				Air Signal to Actuator			
Valve Size (IN)	Plug Travel (IN)	Pneumatic Actuator	Spring Range	*See "Pneumatic Ranges"...bottom right*				*See "Pneumatic Ranges"...bottom right*			
				Range 1	Range 2	Range 3	Range 4	Range 1	Range 2	Range 3	Range 4
2-1/2	1-1/2	DL84	High	97	99	101	N/A	N/A	N/A	105	N/A
		DL115	High	99	101	103	103	N/A	N/A	110	113
		Cylinder 6"		104	108	113	115	99	101	106	110
		Cylinder 8"		108	113	N/A	N/A	103	106	N/A	N/A
3	1-1/2	DL84	High	95	97	99	N/A	N/A	N/A	103	N/A
		DL115	High	97	99	101	101	N/A	N/A	108	110
		Cylinder 6"		101	106	110	113	97	99	104	108
		Cylinder 8"		106	111	N/A	N/A	101	103	N/A	N/A
4	1-1/2	DL84	High	93	95	97	N/A	N/A	N/A	101	N/A
		DL115	High	95	97	99	99	N/A	N/A	106	108
		Cylinder 6"		99	104	108	110	95	97	102	106
		Cylinder 8"		104	108	N/A	N/A	99	101	N/A	N/A
6	2	DL115	High	91	93	95	95	N/A	N/A	101	104
		Cylinder 8"		99	104	108	110	95	97	102	106
		Cylinder 12"		104	108	N/A	N/A	99	101	N/A	N/A
8	2-1/2	DL115	High	89	91	93	93	N/A	N/A	99	101
		Cylinder 8"		97	102	106	108	93	95	99	104
		Cylinder 12"		101	106	N/A	N/A	97	99	N/A	N/A
10	2-1/2	DL115	High	N/A	89	91	91	N/A	N/A	97	99
		Cylinder 8"		95	99	103	106	91	93	97	101
		Cylinder 12"		99	103	N/A	N/A	95	97	N/A	N/A
12	3	DL115	High	N/A	N/A	89	89	N/A	N/A	95	97
		Cylinder 8"		93	97	101	103	89	91	95	99
		Cylinder 12"		97	101	N/A	N/A	92	95	N/A	N/A

Pneumatic Ranges		
	Diaphragm	Cylinder
Range 1	3-15	0-60
Range 2	1-17	0-80
Range 3	0-30	0-100
Range 4	0-40	0-120

NOTES:

1) 1852 Diverting Valves have one inlet and two outlets. Published shut-off values are for diverting applications. The values are worst case and based on the pressure difference between the inlet and the outlet that is closed. Consult the factory if the required shut-off exceeds the published value and the pressure at the inlet and both outlets is known. For proper operation in diverting applications, the pressure difference between both outlets must not exceed 50 psi. Consult the factory for shut-off values for 1852 mixing applications.

Diaphragm actuators used with the 1852 are direct acting. The upper port fails closed on loss of air pressure to the actuator.

Cylinder actuators used with the 1852 are double acting. Failure Position is a function of a variety of variables, including but not limited to fluid pressures, proximity of valve stroke to seat, flow rates, and flow turbulence. Contact factory with complete application information for details.

2) 1852 Seat closure ANSI Class II.

3) Inlet pressure cannot exceed Body Pressure- Temperature Rating.

4) The 3-15 and 1-17 ranges apply to valves with diaphragm actuators and control signals coming directly from I/P transducers with matching ranges. The 0-30 and 0-40 ranges apply to valves with diaphragm actuators and a positioner or an I/P transducer of suitable range. The 0-60, 0-80, 0-100, and 0-120 ranges apply to valves with cylinder actuators and a positioner.

5) N/A indicates that the air signal is not capable of providing any shut-off or it exceeds the actuator's maximum air pressure.

Maximum air pressure
DL84 …30PSIG
DL115 & 115XR …40PSIG
CL6, 8, & 12 … 120PSIG

6) See Actuators, Positioners, and Accessories Section for explanation of Spring Ranges.

Dimensions & Weights

Component 1840 To 500°F		Dimension (IN) by Valve Size (IN)			
		6	8	10	12
A	125 or 150FLG	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	18-5/8	23-3/8	27-7/8	30-1/2
B		11-7/8	13-3/4	15-1/4	15-1/4
C	DL115 Direct*	42-5/8	44	44-7/8	45-3/4
	DL115 or 115XR Reverse	CF	CF	CF	CF
	8" Cylinder	39-1/4	40-5/8	41-1/2	42-3/8
	12" Cylinder	40-7/8	42-1/4	43-1/8	44
H	DL115 Direct*	19-3/4	21-1/8	22	22-7/8
w/760	DL115 or 115XR Reverse	CF	CF	CF	CF
	8" Cylinder	14-5/8	16-1/4	17-1/8	18-1/4
	12" Cylinder	14-5/8	16-1/4	17-1/8	18-1/4

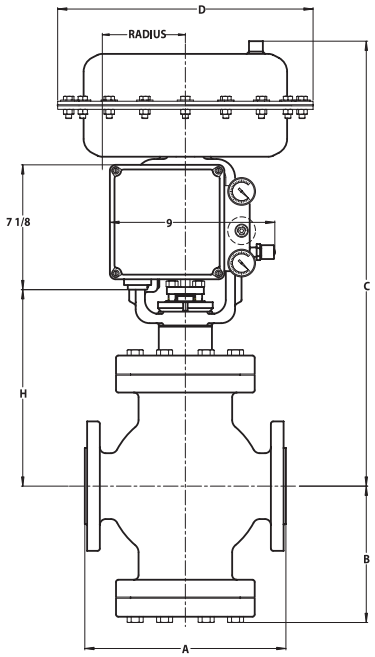
Component 1840 with extension bonnet above 500°F to 800°F		Dimension (IN) by Valve Size (IN)			
		6	8	10	12
C	DL115 Direct*	46-5/8	CF	CF	CF
	DL115 or 115XR Reverse	CF	CF	CF	CF
	8" Cylinder	43-1/4	CF	CF	CF
	12" Cylinder	44-7/8	CF	CF	CF
H	DL115 Direct*	23-3/4	CF	CF	CF
w/760	DL115 or 115XR Reverse	CF	CF	CF	CF
	8" Cylinder	18-5/8	CF	CF	CF
	12" Cylinder	18-5/8	CF	CF	CF

Valve Size (IN)	Weight (LB)	
	Standard	With Extension Bonnet
6	390	400
8	650	CF
10	1160	CF
12	CF	CF

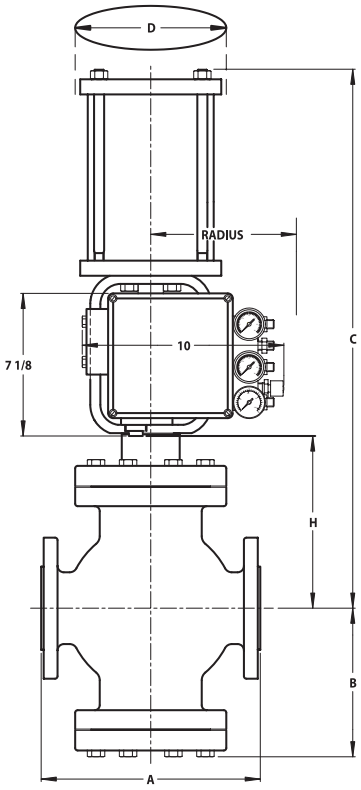
Actuator		Dimension (IN)
D	DL84 or 84XR	13-7/8
	DL115 or 115XR	16-3/4
	6" Cylinder	10
	8" Cylinder	12-3/4
	12" Cylinder	20
RADIUS	DL49	7-7/8
W/760	DL84 or 84XR	8-1/8
	DL115 or 115XR Direct	10-5/8
	DL115 or 115XR Reverse	CF
	6" Cylinder	9-5/8
	8" Cylinder (2-1/2 - 4)	9-5/8
	8" Cylinder (6-12)	11
	12" Cylinder	11

Actuator	Weight (LB)
DL84 or 84XR	48-1/2
DL115 Direct	105
DL115XR Direct	113
DL115 Reverse	CF
DL115XR Reverse	CF
6" Cylinder	28
8" Cylinder	41
12" Cylinder	177
Positioner	**Weight (LB)**
760	10

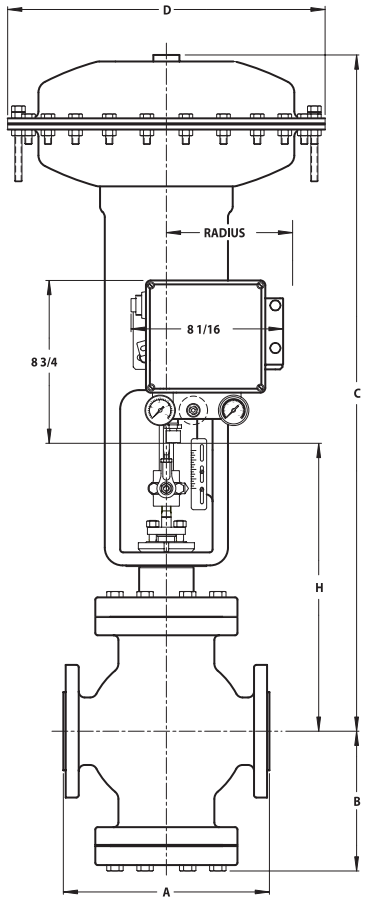
Face to face dimensions conform to ANSI/ISA S75.03



2-WAY w/DL84 or 84XR & 760 Positioner



2-WAY w/6", 8" or 12" Cylinder & 760 Positioner



2-WAY w/DL115 or 115XR & 760 Positioner

Component To 500°F	1843	Dimension (IN) by Valve Size (IN)						
		2-1/2	3	4	6	8	10	12
A	125 or 150FLG	10-7/8	11-3/4	13-7/8	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	11-1/2	12-1/2	14-1/2	18-5/8	22-3/8	27-7/8	30-1/2
B		7-5/8	8-5/8	9-1/2	11-7/8	13-3/4	15-1/4	15-1/4
C	DL84 Direct*	25-7/8	26-5/8	27-3/8	N/A	N/A	N/A	N/A
	DL84 or 84XR Reverse	25-1/4	26	26-3/4	N/A	N/A	N/A	N/A
	DL115 Direct*	38-1/4	39	39-3/4	43-1/4	44-5/8	45-1/2	46-1/2
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	27-1/2	28-1/4	29	N/A	N/A	N/A	N/A
	8" Cylinder	27-3/4	28-1/2	29-1/4	39-7/8	41	42-1/8	43-1/8
	12" Cylinder	N/A	N/A	N/A	41-1/2	42-7/8	43-3/4	44-3/4
H	DL84 Direct*	10-1/4	11	11-3/4	N/A	N/A	N/A	N/A
w/760	DL84 or 84XR Reverse	10-1/4	11	11-3/4	N/A	N/A	N/A	N/A
	DL115 Direct*	15-3/8	16-1/8	16-7/8	20-3/8	21-3/4	22-5/8	23-5/8
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	9-1/2	10-1/4	11	N/A	N/A	N/A	N/A
	8" Cylinder	9-1/2	10-1/4	11	15-1/4	16-3/4	17-3/4	19
	12" Cylinder	N/A	N/A	N/A	15-1/4	16-3/4	17-3/4	19

Valve Size (IN)	Weight (LB)
2-1/2	120
3	180
4	325
6	455
8	760
10	1360
12	CF

Face to face dimensions conform to ANSI/ISA S75.03

* Includes 1-3/8 inch for air fitting
H = Centerline of pipe to bottom of positioner
CF = Consult factory
N/A = Not Available

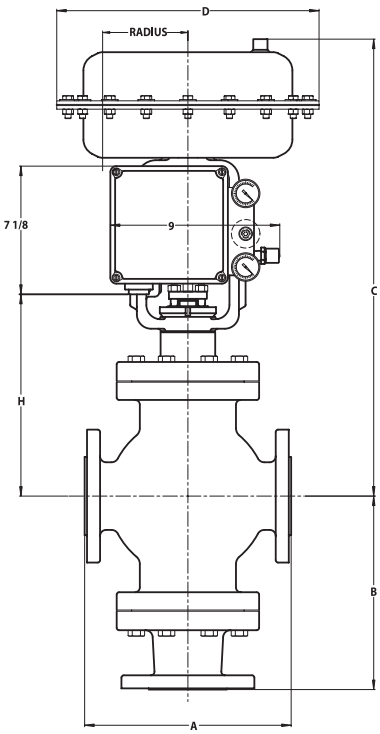
Consult factory for drawings, weights, and dimensions of configurations not shown.

RADIUS is from centerline of actuator to outside edge of positioner.

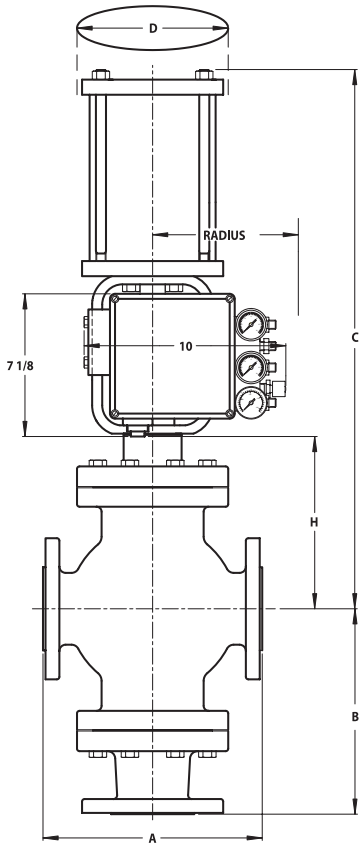
Positioner Removal Clearance
Allow 3-1/4 inch beyond 760 for cover removal/service.

Actuator Removal Clearance
Above DL84, 84XR, 115, 115RX, 6" & 8" cylinder on 2-1/2 thru 4 inch valve allow 5-5/8 inch.

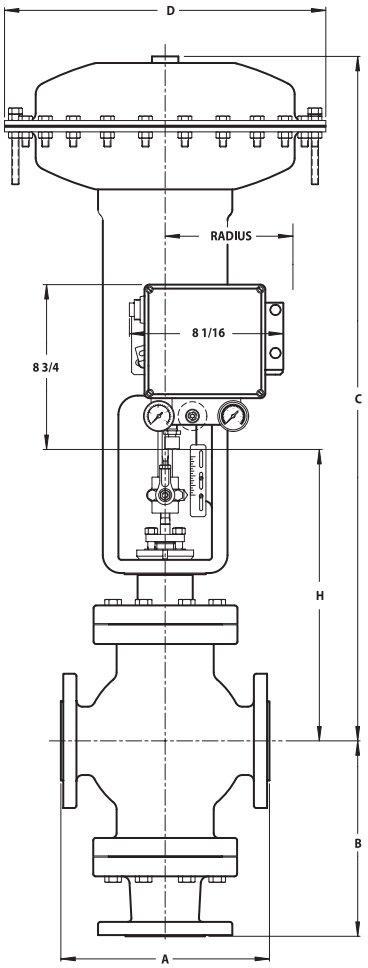
Above DL115, 115XR, 8" & 12" cylinder on 6 inch valve allow 6-5/8", on 8" & 10" valve allow 7-1/8 inch, on 12" valve allow 7-5/8 inch.



3-WAY w/DL84 or 84XR & 760 Positioner



3-WAY w/6", 8" or 12" Cylinder & 760 Positioner



3-WAY w/DL115 or 115XR & 760 Positioner

Dimensions & Weights

Component 1850 To 500°F		Dimension (IN) by Valve Size (IN)						
		2-1/2	3	4	6	8	10	12
A	125 or 150FLG	10-7/8	11-3/4	13-7/8	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	11-1/2	12-1/2	14-1/2	18-5/8	22-3/8	27-7/8	30-1/2
B	125 or 150FLG	10-1/4	11-1/4	13-7/8	15-7/8	17-3/4	21-1/8	20-3/8
	250 or 300FLG	10-5/8	11-5/8	14-1/8	16-1/4	18-1/4	21-3/4	21-1/8
C	DL84 Direct*	25-1/4	26	26-3/4	N/A	N/A	N/A	N/A
	DL84 or 84XR Reverse	24-5/8	25-3/8	26-1/8	N/A	N/A	N/A	N/A
	DL115 Direct*	37-5/8	38-3/8	39-1/8	42-5/8	44	44-7/8	45-3/4
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	27	27-3/4	28-1/2	N/A	N/A	N/A	N/A
	8" Cylinder	27-1/8	27-7/8	28-5/8	39-1/4	40-5/8	41-1/2	42-3/8
	12" Cylinder	N/A	N/A	N/A	40-7/8	42-1/4	43-1/8	44
H	DL84 Direct*	9-5/8	10-3/8	11-1/8	N/A	N/A	N/A	N/A
w/760	DL84 or 84XR Reverse	9-5/8	10-3/8	11-1/8	N/A	N/A	N/A	N/A
	DL115 Direct*	14-5/8	15-1/2	16-1/4	19-3/4	21-1/8	22	22-7/8
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	8-7/8	9-5/8	10-3/8	N/A	N/A	N/A	N/A
	8" Cylinder	8-7/8	9-5/8	10-3/8	14-5/8	16-1/4	17-1/8	18-1/4
	12" Cylinder	N/A	N/A	N/A	14-5/8	16-1/4	17-1/8	18-1/4

Valve Size (IN)	Weight (LB)	
	Standard	With Extension Bonnet
2-1/2	140	CF
3	210	215
4	390	CF
6	545	555
8	900	CF
10	1600	CF
12	CF	CF

Component 1850 with extension bonnet above 500°F to 800°F		Dimension (IN) by Valve Size (IN)						
		2-1/2	3	4	6	8	10	12
C	DL84 Direct*	CF	31-1/4	CF	N/A	N/A	N/A	N/A
	DL84 or 84XR Reverse	CF	30-5/8	CF	N/A	N/A	N/A	N/A
	DL115 Direct*	CF	43-5/8	CF	46-5/8	CF	CF	CF
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	CF	33	CF	N/A	N/A	N/A	N/A
	8" Cylinder	CF	33-1/8	CF	43-1/4	CF	CF	CF
	12" Cylinder	N/A	N/A	N/A	44-7/8	CF	CF	CF
H	DL84 Direct*	CF	15-5/8	CF	N/A	N/A	N/A	N/A
w/760	DL84 or 84XR Reverse	CF	15-5/8	CF	N/A	N/A	N/A	N/A
	DL115 Direct*	CF	20-5/8	CF	23-3/4	CF	CF	CF
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	CF	14-7/8	CF	N/A	N/A	N/A	N/A
	8" Cylinder	CF	14-7/8	CF	18-5/8	CF	CF	CF
	12"Cylinder	N/A	N/A	N/A	18-5/8	CF	CF	CF

Component 1852 To 500°F		Dimension (IN) by Valve Size (IN)						
		2-1/2	3	4	6	8	10	12
A	125 or 150FLG	10-7/8	11-3/4	13-7/8	17-3/4	21-3/8	26-1/2	29
	250 or 300FLG	11-1/2	12-1/2	14-1/2	18-5/8	22-3/8	27-7/8	30-1/2
B	125 or 150FLG	10-1/4	11-1/4	13-7/8	15-7/8	17-3/4	21-1/8	20-3/8
	250 or 300FLG	10-5/8	11-5/8	14-1/8	16-1/4	18-1/4	21-3/4	21-1/8
C	DL84 Direct*	25-7/8	26-5/8	27-3/8	N/A	N/A	N/A	N/A
	DL84 or 84XR Reverse	25-1/4	26	26-3/4	N/A	N/A	N/A	N/A
	DL115 Direct*	38-1/4	39	39-3/4	43-1/4	44-5/8	45-1/2	46-1/2
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	27-1/2	28-1/4	29	N/A	N/A	N/A	N/A
	8" Cylinder	27-3/4	28-1/2	29-1/4	39-7/8	41	42-1/8	43-1/8
	12" Cylinder	N/A	N/A	N/A	41-1/2	42-7/8	43-3/4	44-3/4
H	DL84 Direct*	10-1/4	11	11-3/4	N/A	N/A	N/A	N/A
w/760	DL84 or 84XR Reverse	10-1/4	11	11-3/4	N/A	N/A	N/A	N/A
	DL115 Direct*	15-3/8	16-1/8	16-7/8	20-3/8	21-3/4	22-5/8	23-5/8
	DL115 or 115XR Reverse	CF	CF	CF	CF	CF	CF	CF
	6" Cylinder	9-1/2	10-1/4	11	N/A	N/A	N/A	N/A
	8" Cylinder	9-1/2	10-1/4	11	15-1/4	16-3/4	17-3/4	19
	12" Cylinder	N/A	N/A	N/A	15-1/4	16-3/4	17-3/4	19

Valve Size (IN)	Weight (LB)
	Standard
2-1/2	140
3	210
4	390
6	545
8	900
10	1600
12	CF

* Includes 1-3/8 inch for air fitting
H = Centerline of pipe to bottom of positioner
CF = Consult factory
N/A = Not Available

Consult factory for drawings, weights, and dimensions of configurations not shown.

Face to face dimensions conform to ANSI/ISA S75.03

Diaphragm Actuators

Actuator		Spring Range (PSI)			
Size	Action	Low	Full	High	Xtra-High
DL84 & DL115	Direct	3-9	3-15	9-15	N/A
DL84 & DL115	Reverse	3-9	3-15	9-15	N/A
DL84XR &DL115XR	Direct	N/A	N/A	N/A	See Note
DL84XR & DL115XR	Reverse	N/A	N/A	N/A	See Note
Note: The spring range of XR (eXtended Range) actuators varies with travel. These actuators require positioners or I/P's for modulating control					

Effective Area: DL84 & 84XR (84 Sq In)
DL115 & 115XR (115 Sq In)
Springs: DL84 & 84XR Multiple
DL115 Single
DL115XR Dual
Max Air Supply: DL84 & 84XR 30PSIG
DL115 & 115XR 40PSIG
Air Connections: 1/4 NPT
Diaphragm: Buna-N Fabric Reinforced
Diaphragm Chambers: Steel
Yoke: Ductile Iron
Stem: 300 Series Stainless Steel
Finish: Acrylic Enamel
Ambient Temperature: -40 to 180°F
Mounting: Vertical Above or Below Valve
Handwheel: Yes

Cylinder Actuators

Piston Diameter: 6, 8, & 12 inch
Springs: Single
Max Air Supply: 120PSIG
Air Connections: 1/4 NPT
Piston: Aluminum
Cylinder: Aluminum
Heads: Aluminum, Black Anodized
Yoke: Steel, Acrylic Painted
Stem: 416 Series Stainless Steel
Hard Chromate Plated
Ambient Temperature: -25 to 250°F
Mounting: Vertical Above or Below Valve

Note: Cylinder Actuators require a positioner for modulating control.

Positioners

Split Ranging with Positioners

Positioners are sometimes used to "Split-Range" two control valves in a parallel configuration within a piping scheme. This technique is used to obtain higher rangeability than could otherwise be achieved with a single control valve. Typically one smaller valve supplying 15% to 35% of total flow is mated with a larger valve supplying 65% to 85% of total flow.

The best-matched pair will each be providing similar rangeability for each respective flow contribution to the manifold. Calculated as maximum flow /minimum controllable flow, the smaller valve should not be attempting to control flow below 5% of stroke. Estimate Cv from Cv tables vs. stroke to calculate this.

The chosen positioners would then have a Low Range signal for the smaller valve and a High Range Signal for the larger valve. With this, a single control signal can be sequentially applied to each valve. At mid-signal range, the little valve is completely open while the larger valve is just starting to open. Controllability for wide process set point ranges is dramatically improved.

BLX Models:

BLX Pneumatic

Models: BFP_: Full Range Signal (3-15 PSIG)
BLP_: Low Range Signal (3-9 PSIG)
BHP_: High Range Signal (9-15 PSIG)
Options 2SPDT Limit Switches, 4-20 mA Feedback
Ingress & Corrosion Protection: NEMA 4X, IP66
Supply Pressure: Pneumatic 145 PSIG Max **Not to exceed actuator rating**
Air Consumption: 0.19 SCFM at 30 PSIG, 0.25 SCFM at 40 PSIG
0.61 SCFM at 100 PSIG

BLX Electro-Pneumatic

Models: BFE_: Full Range Signal (4-20 mA)
BLE_: Low Range Signal (4-12 mA)
BHE_: High Range Signal (12-20 mA)
Options 2SPDT Limit Switches, 4-20 mA Feedback
Ingress & Corrosion Protection: NEMA 4X, IP66
Supply Pressure: 21.8 to 145 PSIG **Not to exceed actuator rating**
Air Consumption: 0.21 SCFM at 30 PSIG, 0.28 SCFM at 40 PSIG
0.69 SCFM at 100 PSIG

Positioners (Continued)

BLX Electro-Pneumatic Intrinsically Safe

Models: BFI_: Full Range Signal (4-20 mA)
BLI_: Low Range Signal (4-12 mA)
BHI_: High Range Signal (12-20 mA)
Options 2SPDT Limit Switches, 4-20 mA Feedback
Ingress & Corrosion Protection: NEMA 4X, IP66
Approvals & Ratings:
FM Intrinsically Safe: Class I II III, Div 1, Groups A, B, C, D, E, F, G
CSA Intrinsically Safe: Class I, Div 1, Groups A, B, C, D
Class II, Div 1, Groups E, F, G
Class III.
Class I, Div 2, Groups A, B, C, D
Class II, Div 2, Groups E, F, G
Supply Pressure: 30 to 145 PSIG **Not to exceed actuator rating**

Air Consumption: 0.21 SCFM at 30 PSIG, 0.28 SCFM at 40 PSIG
0.69 SCFM at 100 PSIG

BLX Electro-Pneumatic Explosion Proof

Models: BFX_: Full Range Signal (4-20 mA)
BLX_: Low Range Signal (4-12 mA)
BHX_: High Range Signal (12-20 mA)
Options 2SPDT Limit Switches, 4-20 mA Feedback
Ingress & Corrosion Protection: NEMA 4X, IP66
Approvals & Ratings:
FM Intrinsically Safe: Class I II III, Div 1, Groups A, B, C, D, E, F, G
Non-Incendive: Class I, Div 2, Groups A, B, C
Explosion Proof: Class I, Div 1, Groups B, C, D
Class I II III, Div 1, Groups E, F, G
CSA Intrinsically Safe: Class I, Div 1, Groups A, B, C, D
Class II, Div 1, Groups E, F, G
Class III
Class I, Div 2, Groups A, B, C, D
Class II, Div 2, Groups E, F, G
Explosion Proof: Class I, Div 1, Groups B, C, D
Class II, Div 1, Groups E, F, G
Supply Pressure: 30 to 145 PSIG **Not to exceed actuator rating**
Air Consumption: 0.21 SCFM at 30 PSIG, 0.28 SCFM at 40 PSIG
0.69 SCFM at 100 PSIG

BLX Electro-Pneumatic Fail Freeze

Models: BFF_: Full Range Signal (4-20 mA)
BLF_: Low Range Signal (4-12 mA)
BHF_: High Range Signal (12-20 mA)
Options 2SPDT Limit Switches, 4-20 mA Feedback
Ingress & Corrosion Protection: NEMA 4X, IP66
Supply Pressure: 20 to 100 PSIG Max **Not to exceed actuator rating**
Air Consumption: 0.21 SCFM at 30 PSIG, 0.28 SCFM at 40 PSIG
0.69 SCFM at 100 PSIG

Positioners (Continued)

All Models:

Construction: Aluminum Housing with Polyester Powder Coat
Action: Direct or Reverse
Media: Clean Dry Oil Free Air Filtered to 5 micron
Air Connections: 1/4 NPT
Flow Capacity: 9.8 SCFM at 30 PSIG, 13.1 SCFM at 40 PSIG
32.5 SCFM at 100 PSIG
Electrical Connection: 1/2 NPT
Gauges: Input 0-30 PSIG
Output 0-60 PSIG, Supply 0-60 PSIG (Diaphragm Actuator)
Output 0-100 PSIG, Supply 0-100 PSIG (Cylinder Actuator)
Housing Black Steel Case with Chrome Ring
Ambient Temperature: -40 to 185°F (Except Fail Freeze –4 to 158°F)
Mounting: Yoke Mounted
Limit Switches and Feedback Options are NEMA 4X, IP66 only, and are not suitable for hazardous locations.

Moore 760 Models:

760P Pneumatic

Models: 76P_: Full Range Signal (3-15 PSIG)
Options Limit Switches, 4-20 mA Feedback

760E Electro-Pneumatic

Models: 76E_: Full Range Signal (4-20 mA)
Options Limit Switches, 4-20 mA Feedback
Approvals & Ratings:

FM Intrinsically Safe: Class I, Div 1, Groups A, B, C, D
Class II, Div 1, Groups E, F, G
Class III, Div 1
Non-Incendive: Class I, Div 2, Groups A, B, C, D
Suitable for: Class II, Div 2, Groups F, G
Class III, Div 2
CSA Intrinsically Safe: Class I, Div 1, Groups A, B, C, D
Class II, Div 1, Groups E, F, G
Class III, Div 1
Suitable for: Class I, Div 2, Groups A, B, C, D
Class II, Div 2, Groups E, F, G
Class III, Div 2

760E Electro-Pneumatic (Continued)

All Models:

Construction:	Aluminum Housing with Epoxy/Polyester Powder Coat
Ingress & Corrosion Protection:	NEMA 4, 4X, IP65
Action:	Direct or Reverse
Supply Pressure:	150 PSIG Max **Not to exceed actuator rating**
Media:	Clean Dry Oil Free Air Filtered to 3 micron
Flow Capacity:	9.0 SCFM
Air Consumption:	0.5 SCFM Typical
Air Connections:	1/4 NPT
Electrical Connection:	3/4 NPT
Gauges:	Input 0-60 PSIG (Diaphragm Actuator) Output 0-100 PSIG (Cylinder Actuator) Housing Black Steel Case with Chrome Ring
Ambient Temperature:	760P -40 to 180°F, 760E –40 to 167°F
Mounting:	Yoke Mounted

Westlock ICoT Models:

Electro-Pneumatic

Models: 510_: Full Range Signal (4-20 mA)
Options 2SPDT Limit Switches

Intelligent with Keypad

Models: 520_: Full Range Signal (4-20 mA)
Calibration 3 Button Keypad
Options 2SPDT Limit Switches, 4-20 mA Feedback

Intelligent with HART

Models: 530_: Full Range Signal (4-20 mA)
Calibration 3 Button Keypad & HART
Options 2SPDT Limit Switches, 4-20 mA Feedback

Intelligent with Foundation Fieldbus

Models: 540_: Full Range Signal (4-20 mA)
Calibration 3 Button Keypad & Foundation Fieldbus
Options 2SPDT Limit Switches, 4-20 mA Feedback

All Models:

Construction:	Engineered Resin Housing
Ingress & Corrosion Protection:	NEMA 4, 4X
Approvals & Ratings:	Non-Incendive Groups A-G, Div 2
Action:	Direct or Reverse

Westlock ICoT Models (Continued)

Supply Pressure:	15 to 45 PSIG (Diaphragm Actuator) **Not to exceed actuator rating** 45 to 120 PSIG (Cylinder Actuator) **Not to exceed actuator rating**
Media:	Clean Dry Oil Free Air Filtered to 40 micron
Flow Capacity:	8.0 SCFM at 25 PSIG (Diaphragm Actuator) 16.2 SCFM at 90 PSIG (Cylinder Actuator)
Air Consumption:	0.003 SCFM at 20 PSIG (Diaphragm Actuator) 0.008 SCFM at 90 PSIG (Cylinder Actuator)
Air Connections:	1/4 NPT
Electrical Connection:	1/2 NPT
Gauges:	Supply 0-60 PSIG (Diaphragm Actuator) Output1 0-60 PSIG (Diaphragm Actuator) Output1 0-100 PSIG (Cylinder Actuator) Housing Black Steel Case with Chrome Ring
Ambient Temperature:	-40 to 180°F
Mounting:	Yoke Mounted

Position Indication Switches

Proximity Mark 1

Models:	2 SPDT Switches 4 SPDT Switches 6 SPDT Switches 2 SPDT Switches w/ 2K Potentiometer 2 SPDT Switches w/ 4-20 mA Feedback
Construction:	Aluminum Housing, Hard Anodized
Locations:	NEMA 1, 2, 3, 3R, 3S
Ambient Temperature:	-40 to 180°F
Electrical Connection:	3/4 NPT, Terminal Strip
Mounting:	Yoke Mounted

I/P's

Type 500X

Locations:	NEMA 4X
Construction:	Zinc Alloy Base with Aluminum Bonnet, Epoxy Painted
Ranges:	3-9, 9-15, 3-15, 1-17, or 6-30 PSI
Supply Pressure:	Minimum 3 PSIG Above Maximum Output Maximum 100 PSIG **Not to Exceed Actuator Rating**
Flow Capacity:	4.5 SCFM at 25 PSIG,12 SCFM at 100 PSIG
Air Consumption:	0.05 SCFM Midrange Typical
Ambient Temperature:	-20 to 140°F

Type 550X

Locations:	NEMA 4X (IP65)
Construction:	Chromate-treated Aluminum with Epoxy Paint
Ranges:	0-30, or 0-60 PSI
Supply Pressure:	Minimum 5 PSIG Above Maximum Output Maximum 100 PSIG **Not to Exceed Actuator Rating**
Flow Capacity:	12 SCFM at 100 PSIG
Air Consumption:	6.0 SCFH Midrange Typical
Ambient Temperature:	-20 to 150°F

Type 950X

Locations:	NEMA 4X (IP65), Explosion proof
Construction:	Chromate-treated Aluminum with Epoxy Paint
Ranges:	3-15 PSI
Supply Pressure:	Minimum 5 PSIG Above Maximum Output Maximum 100 PSIG **Not to Exceed Actuator Rating**
Flow Capacity:	4.5 SCFM at 25 PSIG
Air Consumption:	3.0 SCFH Midrange Typical
Ambient Temperature:	-40 to 160°F

Type 950X (Continued)

All Models:

Input:	4-20 mA Field Reversible
Air Connections:	1/4 NPT
Electrical Connection:	1/2 NPT, Pigtail Leads
Media:	Clean Dry Oil Free Air Filtered to 40 micron
Mounting:	Yoke Mounted

Air Filter Regulators

Models:	Type 300, Type 350SS
Output Ranges:	Type 300, 0-30, 0-60, or 0-120 PSIG Type 350SS, 0-100 PSIG
Supply Pressure:	Type 300, 250 PSIG Maximum Type 350SS, 290 PSIG Maximum
Construction:	Type 300, Die-Cast Aluminum with Irridite and Baked Epoxy Paint Type 350SS, 316 Stainless Steel
Gauge:	Type 300, Output, Housing Steel Painted Type 350SS, Output, Housing Stainless Steel
Air Connections:	1/4 NPT
Filter:	Type 300, 40 micron. Type 350SS, 25 micron
Mounting:	Chamber Mounted

Solenoids

Models:	<u>For use with Diaphragm Actuators or Positioners with Cylinder Actuators</u> 8320G184, EF8320G184 8320G202, EF8320G202 <u>For use with Cylinder Actuators without Positioners</u> 8342G1, EF8342G1 8342G701, EF8342G701
Construction:	(EF)8320G184, 3-Way Brass (EF)8320G202, 3-Way Stainless Steel (EF)8342G1, 4-Way Brass (EF)8342G701, 4-Way Stainless Steel

Solenoids (Continued)

Locations:	83206G184, 8320G202, 8342G1 and 8342G701 Watertight, Types 1, 2, 3, 3S, 4 & 4X EF8320G184 & EF8320G202, EF8342G1 & EF8342G701 Explosion proof and Watertight Types 3, 3S, 4, 4X 6, 6P, 7 & 9
Supply:	120VAC
Ambient Temperature:	+32 to 125°F
Air Connections:	1/4 NPT
Electrical Connection:	1/2 NPT, Pigtail Leads
Approvals:	CSA, UL, CE
Mounting:	Chamber Mounted

Air Tubing

Standard:	Copper
Optional:	Stainless Steel

Factory Default Settings

Positioners

Valve Type	Actuator Action	Input Signal			Failure Modes	
		Pneumatic	Electro-Pneumatic	Increasing Signal	Loss of Signal[1] Valve Fails…	Loss of Supply Valve Fails…
1840 & 43	Direct	3-15 PSI	4-20 mA	Closes Valve	Open	Open
	Reverse	3-15 PSI	4-20 mA	Opens Valve	Closed	Closed
1850 & 52	Direct	3-15 PSI	4-20 mA	Closes Lower Port/ Opens Upper Port	Upper Port Closed/ Lower Port Open	Upper Port Closed/ Lower Port Open[2]

[1] Valves with Fail Freeze Positioners Fail in Last Position on Loss of Signal.

[2] 1850 & 52 with Cylinder Actuator and Positioner Failure Position is a function of a variety of variables including but not limited to fluid pressures, proximity of valve stroke to seat, flow rates, and flow turbulence. Contact factory with complete application information for details.

Positioner Feedback

Valve Type	Actuator Action	Feedback Signal	Signal Increases as
1840 & 43	Direct	4-20 mA	Valve Closes
	Reverse	4-20 mA	Valve Opens
1850 & 52	Direct	4-20 mA	Lower Port Closes/ Upper Port Opens

Positioner Limit Switches

Valve Type	Position	Settings	
		Switch 1	Switch 2
1840 & 43	Valve Closed	Closed	Open
	Valve Open	Open	Closed
1850 & 52	Upper Port Closed	Closed	Open
	Lower Port Closed	Open	Closed

I/P's

Valve Type	Actuator Action	Input Signal	Increasing Signal	Failure Modes	
				Loss of Signal Valve Fails…	Loss of Air Supply Valve Fails…
1840 & 43	Direct	As Required For Shut-off	Closes Valve	Open	Open
	Reverse	As Required For Shut-off	Opens Valve	Closed	Closed
1850 & 52	Direct	As Required For Shut-off	Closes Lower Port/ Opens Upper Port	Upper Port Closed/ Lower Port Open	Upper Port Closed/ Lower Port Open

SOLENOIDS (without Positioners or I/P's)

Valve Type	Actuator Action	Solenoid Energized	Failure Modes		
			Loss of Signal Valve Fails…	Loss of Air Supply Valve Fails…	Solenoid De-energized Valve Fails…
1840 & 43	Direct	Closes Valve	Open	Open	Open
	Reverse	Opens Valve	Closed	Closed	Closed
1850 & 52	Direct	Closes Lower Port/ Opens Upper Port	Upper Port Closed/ Lower Port Open	Upper Port Closed/ Lower Port Open[3]	Upper Port Closed/ Lower Port Open

[3] 1850 & 52 with Cylinder Actuator and Solenoid Failure Position is a function of a variety of variables, including but not limited to fluid pressures, proximity of valve stroke to seat, flow rates, and flow turbulence. Contact factory with complete application information for details.

If the Solenoid is used with a Positioner or an I/P, refer to the Positioner or I/P listings for factory default settings and failure modes with the solenoid not failed.

Proximity MARK 1 Position Indication Switches Feedback

Valve Type	Actuator Action	Feedback Signal		Feedback Signal Increases as
		Potentiometer[4]	mA	
1840 & 43	Direct	0-350 ohm	4-20 mA	Valve Closes
	Reverse	0-350 ohm	4-20 mA	Valve Opens
1850 & 52	Direct	0-350 ohm	4-20 mA	Lower Port Closes/ Upper Port Opens

[4] Span varies from approx 155 to 350 ohm depending on actuator and travel.

Limit Switches

Valve Type	Position	Settings	
		Switch 1, 3, 5	Switch 2, 4, 6
1840 & 43	Valve Closed	Closed	Open
	Valve Open	Open	Closed
1850 & 52	Upper Port Closed	Closed	Open
	Lower Port Closed	Open	Closed

Air Filter Regulators

Actuator	Output Pressure
DL84 & 84XR	30PSIG
DL115 & 115XR	40PSIG
6", 8", & 12" Cylinder	100PSIG

Notes:

Configurations

1. SELECTIONS Please make a selection from each table of OPTIONS below to make a complete model number string.

18□ – □□ □□□ □ □ □ □ □ □ □ □

2. OPTIONS

VALVE BODY

Model	Valve Type	Size	Body Material	End Connection	Trim Style	Trim Material	Trim Cv	Packing Type	Bonnet Construction
18H 2-1/2" - 4" Bodies Diaphragm: 84" or 115" Cylinder: 6" or 8"	**40** 2-Way, Single Seat	**250** 2-1/2 inch	**W** WCB	**F** 125/150 lb. Flanged	**E** Equal %	**S** 316 SS	**F** Full Port	**T** Teflon	**S** 450 Tmax
18J 6" - 12" Bodies Diaphragm: 115" Cylinder: 8" or 12"	**43** 2-Way Cage-Balanced	**300** 3 inch	**F** CF8M	**G** 250/300 lb. Flanged	**L** Linear *Types 50/52 Linear only*	**6** Alloy 6 Wrapped	**1** 1st Port Reduction	**G** Graphite	**X** 800F Tmax w/Ext. Bonnet
	50 3-Way Mixing	**400** 4 inch	**R** Cast Iron only avail on 6" - 10" 40, 6" - 12" 43, 8" - 12" 50, 8" - 12" 52				**2** 2nd Port Reduction		*800ºF requires Graphite packing, only on WCB or CF8M bodies. Used for temp. up to 500ºF on types 40/90 bodies only.*
	52 3-Way Diverting	**600** 6 inch					**3** 3rd Port Reduction		
		800 8 inch					*Port reductions only available to Type 40 & 43. Check factory for availability of reductions.*		
		010 10 inch							
		012 12 inch							

TMAX

Valve Type	Body Material Code	End Connection Code	Bonnet Construction Code: Packing Type Code	Standard S	Extension Bonnet S
40 2-Way	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Teflon **T**	450ºF	N/A
Single Seat	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Graphite **G**	500ºF	800ºF
	Cast Iron **R**	125 lb **F**	Teflon **T,** Graphite **G**	350ºF	N/A
	Cast Iron **R**	250 lb **G**	Teflon **T,** Graphite **G**	400ºF	N/A
43 2-Way	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Teflon **T**	450ºF	N/A
Cage-Balanced	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Graphite **G**	500ºF	N/A
w/Fluoraz 797	Cast Iron **R**	125 lb **F**	Teflon **T,** Graphite **G**	350ºF	N/A
O-Ring	Cast Iron **R**	250 lb **G**	Teflon **T,** Graphite **G**	400ºF	N/A
50 3-Way	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Teflon **T**	450ºF	N/A
Mixing	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Graphite **G**	500ºF	800ºF
	Cast Iron **R**	125 lb **F**	Teflon **T,** Graphite **G**	350ºF	N/A
	Cast Iron **R**	250 lb **G**	Teflon **T,** Graphite **G**	400ºF	N/A
52 3-Way	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Teflon **T**	450ºF	N/A
Diverting	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Graphite **G**	500ºF	N/A
(2-1/2" - 4")					
w/Fluoraz 797					
O-Ring Seal					
52 3-Way	WCB **W**, CF8M **F**	150 lb **F**, 300 lb **G**	Teflon **T,** Graphite **G**	150ºF	N/A
Diverting	Cast Iron **R**	125 lb **F**, 250 lb **G**	Teflon **T,** Graphite **G**	150ºF	N/A
(6" - 12")					
w/EPR OCT					
O-Ring					

VALVE TYPE/TRIM MATERIAL COMBINATIONS:

SIZE	TRIM MATERIAL **S** 316 SS	**6** Alloy 6/316 SS
250 2 -1/2 inch	43, 50, 52	43
300 3 inch	43, 50, 52	43
400 4 inch	43, 50, 52	43
600 6 inch	40, 43, 50, 52	40, 43
800 8 inch	40, 43, 50, 52	40, 43
010 10 inch	40, 43, 50, 52	40, 43
012 12 inch	40, 43, 50, 52	40, 43

VALVE TYPE/ACTUATOR COMPATIBILITY:

VALVE STYLE	VALVE SIZES	ACTUATORS
Type 40	6" - 12"	DL115, DL115XR, Cylinder 8", & Cylinder 12"
Type 43	2-1/2" - 4"	DL84, DL115, Cylinder 6", & Cylinder 8"
Type 43	6" - 12"	DL115, DL115XR, Cylinder 8" & Cylinder 12"
Type 50	2-1/2" - 4"	DL84, DL115, Cylinder 6", & Cylinder 8"
Type 50	6" - 12"	DL115, DL115XR, Cylinder 8" & Cylinder 12"
Type 52	2-1/2" - 4"	DL84, DL115, Cylinder 6", & Cylinder 8"
Type 52	6" - 12"	DL115, Cylinder 8" & Cylinder 12"

ACTUATOR

Actuator Series

00 None

DIAPHRAGMS:

84 DL84 (84 Sq.In.)

8X DL84XR (84 Ext. Rng.)

15 DL115 (115 Sq.In.)

5X DL115XR

CYLINDERS:

C2 6" Spring Fail (for 18H)

C3 8" Spring Fail (for 18H)

C4 8" Spring Fail (for 18J)

C5 12" Spring Fail (for 18J)

NOTE: 5X & 8X Only on Xtra-High Spring Range

Action

0 None

R Reverse Stem Fail Down

D Direct Stem Fail Up

Spring Range

0 None or Cylinder

L Low 3-9psi R/D

F Full 3-15psi R/D

H High 9-15 psi R/D

X Xtra-High DL84XR & DL115XR

Handwheel

0 None

R Reverse

D Direct

NOTE: DL84; DL115; DL84XR & DL115XR only - Must match action.

ACCESSORIES

Positioners, I/P's & Limit Switches

0000 None

POSITIONERS:

B*x*P_ BLX Pneumatic

B*x*E_ BLX ElectroPneumatic

B*x*I_ BLX ElectroPneu. Intrn. Safe

B*x*X_ BLX ElectroPneu. Exp. Proof

B*x*F_ BLX ElectroPneu. Fail Freeze

76P_ Moore760 Pneumatic

76E_ Moore760 Electro-Pneumatic

510_ Westlock ICoT Electro-Pneumatic

520_ Westlock ICoT Intelligent-Keypad

530_ Westlock ICoT Intelligent-Hart

540_ Westlock ICot Found.Fieldbus

x digit spec.

F Full Range Signal, 3-15 PSI or 4-20mA

L Low of Split Range, 3-9 PSI or 4-12mA

H High of Split Range, 9-15 PSI or 12-20mA

4th digit spec.

0 No Additions

L w/Mech. Lmt Swtch's

F w/4-20 Feedback

B w/Swtch's & Feedback

PROXIMITY SWITCHES:

PX11 Mark 1 Series - 2 ea. SPDT

PX12 Mark 1 Series - 2 ea. SPDT w/2k Pot.

PX13 Mark 1 Series - 2 ea. SPDT w/4-20 Feedback

PX14 Mark 1 Series - 4 ea. SPDT

PX15 Mark 1 Series - 6 ea. SPDT

I/P's *Use with Diaphragm Only*

MAP1 Type 500X I/P, 3-9 PSI

MAP2 Type 500X I/P, 9-15 PSI

MAP3 Type 500X I/P, 3-15 PSI

MAP4 Type 500X I/P, 1-17 PSI

MAP5 Type 500X I/P, 6-30 PSI

MAP6 Type 550X I/P, 0-30 PSI

MAP7 Type 550X I/P, 0-60 PSI-*For 15 or 5X only*

MAP9 Type 950X I/P, 3-15 EXP

Air Filter Regulators

0 None

A Type 300, 0-30 PSI

B Type 300, 0-60 PSI

C Type 300, 0-120 PSI

D Type 350SS, 0-100 PSI

ASCO Solenoids

0 None

A 8320G184 3-Way Brass

B 8320G202 3-Way SS

J 8342G1 4-Way Brass

K 8342G701 4-Way SS

L EF8320G184 3-Way EXP Br.

M EF8320G202 3-Way EXP SS

V EF8342G1 4-Way EXP Br.

W EF8342G701 4-Way EXP SS

120 VAC Coils

Special Options

0 None

S Special Opts or Set-up

T SS Tubing

G SS Tagging

B SS Tubing and Tagging

Note: Standard pneumatic tubing is copper. SS tubing "**T**" is optional.
SS tagging "**G**" (Two lines, 24 characters/line) is optional.
SS tubing and tagging together "**B**" is optional.

FAILURE MODES:

MODE	VALVE TYPE	ACTUATOR ACTION
Closed	40/43	Reverse
Open	40/43	Direct
Upper Closed*	50/52	Direct
Upper Open	50/52	Reverse

*Standard

ACTUATOR / BODY COMPATIBILITY:

DIAPHRAGM	BODY
84 84 Sq.In. (DL84)	For 18H Body
8X DL84XR	For 18H Body
15 115 Sq.In. (DL115)	All Bodies
5X DL115XR	All Bodies
CYLINDERS	
C2 6" Spring Fail	For 18H Body
C3 8" Spring Fail	For 18H Body
C4 8" Spring Fail	For 18J Body
C5 12" Spring Fail	For 18J Body

WARREN CONTROLS

ACTUATED INDUSTRIAL VALVES

1800 SERIES
Heavy Globe Control Valves

styles:
- 2-way balanced
- 2-way unbalanced
- 3-way mixing
- 3-way diverting

sizes 2-1/2 to 12 in.
class 300
ends 150,300 RF flg
body Cast Iron, WCB,CF8M
trim 316 SST, Alloy 6
Cv up to 1649
temp. -20° to 800°F
body limit to 740 psi
shutoff class III, IV
rangeability 50:1

- Heavy Duty
- Severe Service
- High Pressure Differentials
- Corrosive Materials, Liquids, Gases & Steam
- Modulating or On/Off Control

2800 SERIES
Precision Globe Control Valves

styles:
- 2-way unbalanced
- 3-way mixing
- 3-way diverting

sizes 1/2 to 2 in.
class 250 & 300
ends Buttweld, NPT
body Bronze, CF8M
trim Bronze, 316SST 17-4pH, Alloy 6, TFE, PEEK
Cv up to 40
temp. -20° to 500°F
body limit to 720 psi
shutoff class III, IV, VI
rangeability 50:1

- Economical
- Precision Control
- Suited for Gases, Steam, or Liquids that are Not Viscous or Solids Bearing

2900 SERIES
High Capacity General Purpose Globe Control Valves

styles:
- 2-way balanced
- 2-way unbalanced
- 3-way mixing
- 3-way diverting

sizes 2-1/2 to 10 in.
class 125 & 250
ends Flange
body Cast Iron
trim Bronze, 300SS, 17-4pH, Alloy 6
Cv up to 960
temp. -20° to 400°F
body limit to 400 psi
shutoff class II, III, IV
rangeability 50:1

- High Capacity
- General Purpose
- Moderate Pressure Drops
- Compatible Liquids and Gas, Steam & Water
- Modulating or On/Off Control

3800 SERIES
E-Ball Rotary Control Valves

styles:
- 2-way rotary
  - flow to open
  - flow to close

sizes 1 to 8 in.
class 300
ends 150,300 RF flg
body WCB, CF8M
trim 316 SST, Alloy 6, Ceramic, TFE, PEEK
Cv up to 1420
temp. -20° to 800°F
body limit to 740 psi
shutoff class IV, VI
rangeability 100:1

- Eccentric, Segmented Ball
- Well Suited for Erosive Service
- Various Trim Options Include Ceramic for Slurries or Gritty Materials & Teflon® for Class VI Shutoff

5800 SERIES
Compact Globe Control Valves

styles:
- 2-way cage-retained seat

sizes 1 to 4 in.
class 300
ends 150,300 RF flg
body WCB, CF8M
trim 316 SST, Alloy 6, TFE, PEEK
Cv up to 170
temp. -20° to 800°F
body limit to 740 psi
shutoff class IV, VI
rangeability 50:1

- Highly Efficient, Compact Design
- High Pressure Drops
- Typically Suited for High Force Piston Actuators for Steam, Chemicals & Dirty Fluids
- Minimizes Cavitation or Flashing Effects

WARREN CONTROLS
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