

Applications

Direct Acting

- Bottle Washers
- Steam Tables
- Plating Tanks
- Heating Ducts
- Sterilizers
- Fuel Oil Heaters
- Cooking Vats
- Water Heaters
- Heat Exchangers
- Parts Washers

Reverse Acting

- Induction Furnaces
- Industrial Compressors
- Engine Jacket Cooling
- Cooling Ducts
- Liquid Chillers
- Fuel Oil Heaters

Three Way Acting

- Fire Tube Boilers
- Internal Combustion Engine
- Coolers
- Filters

Series 2000 Temperature Regulator

**Pressures To 250 PSIG
Temperatures to 406°F**

Positionable Temperature Indicator
(indicating regulators only) may be turned in direction of easiest reading. Highly accurate with stainless steel case and bayonet lock ring.

Overtemperature Protection
prevents damage to regulator from inadvertent overheating.

Thermal System
is heavy duty bronze bellows with bronze spiral armored copper capillary, copper bulb and epoxy coated bellows housing. Other line and bulb materials available.

Extra Long Adjustment Spring
permits adjustment over a wide range of temperatures.

Packing Assembly
with spring loaded self adjusting chevron type teflon packing eliminates the human factor of improper adjustment.

Epoxy Coated Compact Single Piece Channel Frame
permits installation in tight locations.

Full Scale Adjustment
makes repeat settings easy and accurate.

Double Guided Stainless Steel Monolithic Disc Assembly
maintains proper alignment of all moving parts.

Stainless Steel Seat Rings
are threaded and bonded to eliminate any possibility of leakage through seat ring threads.

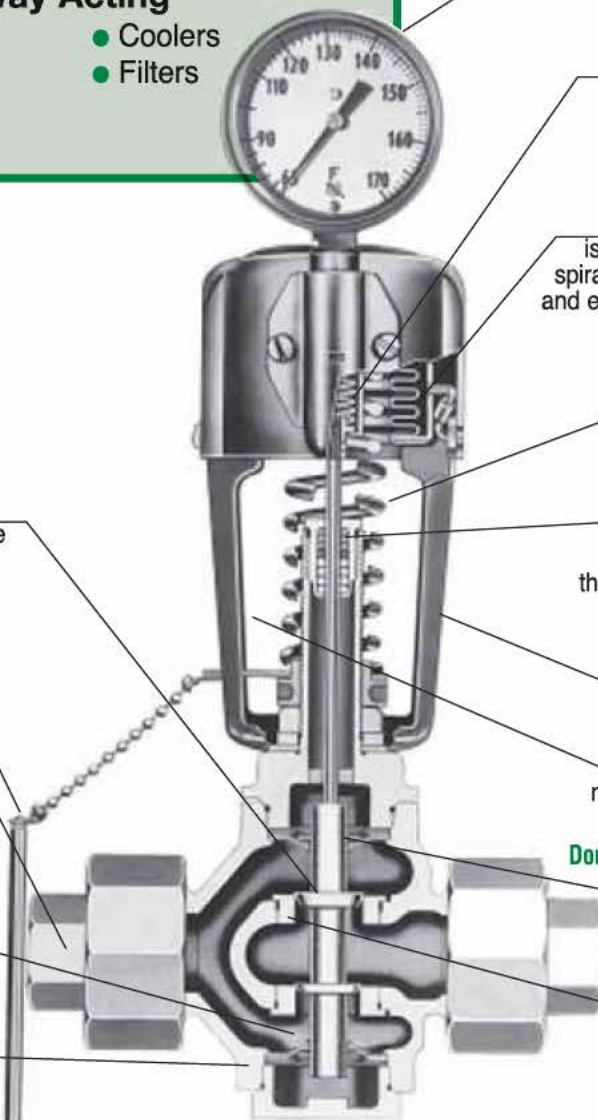
Stainless Steel Disc
is self aligning to assure accurate seating, long wear and tight closure.

Adjusting Key
is conveniently located and always there when settings have to be changed.

Galvanized Iron Union Ends
for sturdiness and ease of installation.

Full Ported and Full Flow Bronze Valve Body
provides maximum capacity for each valve size.

Heavy Section Valve Body
is tough, solid, durable and will withstand severe piping strains for pressures to 250 psig at 406°F.



DIRECT OPERATED VALVES

SERIES 2000 TEMP. REGULATOR



SERIES 2000 TEMPERATURE REGULATOR

SIZES 1/2" – 2"
CONTROLS -25 to 400°F

SERIES 2000 TEMPERATURE REGULATOR

APPLICATION DATA

DIRECT ACTING

- Bottle Washing Machinery
- Steam Tables
- Plating Tanks
- Heating Ducts
- Fuel Oil Heaters
- Cooking Vats
- Water Heaters
- Heat Exchangers
- Parts Washer

THREE-WAY MIXING

- Fire Tube Boiler
- Internal Combustion Engine

REVERSE ACTING

- Induction Furnaces
- Industrial Compressors
- Cold Storage Boxes
- Cooling Ducts
- Engine Jacket Cooling
- Liquid Chillers

GAS SERVICE

- Oil Treaters
- Line Heaters
- Separators
- Glycol Dehydrators
- Storage Tanks

VALVE RATINGS

Valve Ends ASME/ANSI	Pressure PSIG (bar)	Temperature °F (°C)
Class 250 NPT	250 (17.2)	400 (204)

Canadian Registration # OC 0591.9C

- Self-actuated
- Two and Three Way Valve Bodies
- Single or Double Seat
- Overtemperature Protection
- Spring Loaded Teflon Chevron Type Packing Assembly
- Double Guided Stainless Steel Monolithic Disc Assembly
- Stainless Steel Seat Rings and Disc
- Adjusting Key Attached
- Galvanized Iron Union Ends
- Full Ported and Full Flow Bronze Body
- Copper Bulb with 8' Armored Capillary

MODELS

- Type 2010 – Single Seat, Direct Acting
- Type 2020 – Single Seat, Reverse Acting
- Type 2030 – Double Seat, Direct Acting
- Type 2040 – Double Seat, Reverse Acting
- Type 2050 – Three-way Mixing and Diverting
- Type 2060 – Gas Service-15 psig maximum. If pressure exceeds 15 psi, a pressure reducing regulator should be used ahead of the temperature regulator.

OPTIONS

- Dial Temperature Gage (Indicating)
- Stainless Steel Bulb
- Stainless Steel Armored Capillary
- Capillary lengths greater than 8'
- Extra Large Bulb
- Union Bushings & Wells

SERIES 2000 TEMPERATURE REGULATOR

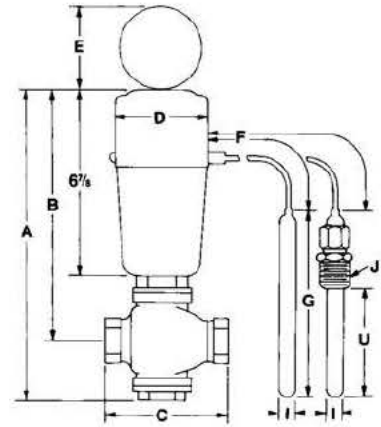
SPECIFICATION

The valve shall be self-operated, requiring no external energy source. It shall have single or double stainless steel seats with double guided monolithic disc assembly for proper alignment. The valve shall be direct acting (heating) or reverse acting (cooling) and have two way or three way operation. The packing assembly shall be spring loaded, self adjusting with chevron type teflon packing. The thermal system line and bulb assembly shall be partially filled with a liquid/gas combination and in a range selected for fast response. The valve rating shall be 250 PSIG at 400°F. Body materials shall be bronze.

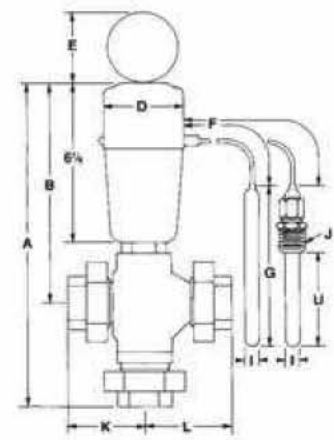
MODEL 2060 FOR GAS SERVICE ONLY: The valve shall be self-operated, requiring no external energy source and designed to control process temperature by regulating gas flow. It shall be normally open and close with increased temperature. "Bubble tight" dead end shutoff shall be provided by Buna-N vulcanized to disc backing. The packing assembly shall be spring loaded, self adjusting with chevron type teflon packing. The thermal system line and bulb assembly shall be partially filled with a liquid/gas combination and in a range selected for fast response. The valve rating shall be 15 PSIG. Body materials shall be nodular iron.

MATERIALS OF CONSTRUCTION

ITEM	TYPE 2010-2050	TYPE 2060
Body	Bronze ASTM B62 C83600	Ductile Iron ASTM A536 65-45-12
Trim	Stainless Steel	Buna-N
Packing	Teflon	Buna-N
Unions	Iron	Iron
Yoke	Steel	Steel
Cap	Aluminum	Aluminum
Bellows	Bronze	Bronze
Spring	Steel	Steel
Capillary	Copper	Copper
Bulb	Copper	Copper
Armor	Bronze	—
Stem	304 Stainless Steel	304 Stainless Steel
Disc	304 Stainless Steel	Buna-N
Seat	303 Stainless Steel	—



TYPE 2010-2040 DIRECT & REVERSE ACTING

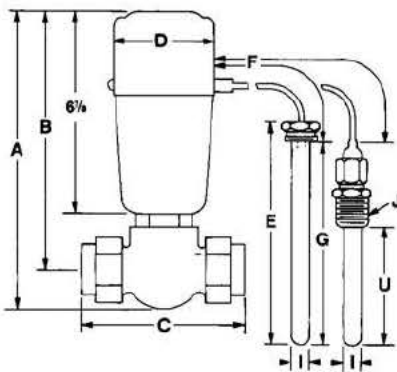


TYPE 2050 THREE WAY

SERIES 2000 TEMP. REGULATOR

**TYPE 2010-2040 DIRECT & REVERSE ACTING
DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)**

Size	Type No.	Dimensions						F†	Shipping Weight (Approx.)
		A	B	C	D	E			
1/2" (A, B, C, D, E) 1/2, 3/4"	2010	9 3/4 (248)	8 1/2 (216)	5 1/2 (140)	3 1/2 (89)	2 13/16 (71)	8 Ft.	10 (4.5)	
	2020							13 (5.9)	
3/4"	2030	12 7/16 (316)	9 3/4 (248)	7 3/16 (182)	3 1/2 (89)	2 13/16 (71)	8 Ft.	13 (5.9)	
	2040							13 (5.9)	
1"	2010	12 7/16 (316)	9 3/4 (248)	7 3/16 (182)	3 1/2 (89)	2 13/16 (71)	8 Ft.	20 (9.1)	
	2020							25 (11)	
	2040	12 7/8 (327)	9 31/32 (253)	8 15/16 (227)	3 1/2 (89)	2 13/16 (71)		30 (14)	



TYPE 2060 GAS SERVICE

**TYPE 2060 GAS SERVICE DIMENSIONS
inches (mm) AND WEIGHTS pounds (kg)**

Size	Dimensions					Shipping Weight (Approx.)
	A	B	C	D	F†	
1/2"	9 3/4 (248)	8 1/2 (216)	5 5/8 (143)	3 1/2 (89)	10 Ft.	8 (3.6)
3/4"					3 m.	
1"						

F† See following pages for standard lengths, ranges, bulb sizes and maximum line lengths.

**TYPE 2050 THREE WAY
DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)**

Size	Dimensions						Shipping Weight (Approx.)	
	A	B	D	F†	K	L		
1/2"	13 7/8 (352)	9 3/4 (248)	3 1/2 (89)	8 Ft.	3 5/16 (84)	3 5/8 (92)	12 (5.5)	
3/4"								12 (5.5)
1"								13 (5.9)
1 1/4"	14 21/32 (372)	9 31/32 (253)	3 1/2 (89)	8 Ft.	4 1/8 (105)	4 11/16 (119)	27 (12)	
1 1/2"	14 7/8 (378)	9 31/32 (253)	3 1/2 (89)	8 Ft.	4 3/16 (106)	4 7/8 (124)	33 (15)	
2"								



SERIES 2000 TEMPERATURE REGULATOR SELECTION

DIRECT & REVERSE ACTING & THREE WAY FLOW AND PRESSURE RATINGS psig (bar)

Size	Single Seat				Double Seat				Three Way		
	Type Number		Flow Coefficient C _v	Max. Upstream Pressure	Type Number		Flow Coefficient C _v	Max. Upstream Pressure	Type Number	Flow Coefficient C _v	Max. Difference Between Inlet Pressures*
	Direct	Reverse			Direct	Reverse					
1/2" C			.40								
1/2" D			1.00								
1/2" E			1.80								
1/2" A			3.29								
1/2" B			4.29	250 (17.2)							
1/2" T			5.22	140 (9.7)			7.93		5.22	140 (9.7)	
3/4" T	2010	2020	6.85	90 (6.2)			10.4		6.85	90 (6.2)	
1" T			9.15	65 (4.5)	2030	2040	12.9	250 (17.2)	9.15	65 (4.5)	
1 1/4" T			14.3	40 (2.8)			20.6		14.3	40 (2.8)	
1 1/2" T			15.1	30 (2.1)			24.8		15.1	30 (2.1)	
2" T			17.2	20 (1.4)			33.0		17.2	20 (1.4)	

SIZING INFO
PAGE 91

How to Select Range & Bulb Size

- Select a temperature range with the control point in the upper half of the temperature range.
- Determine line length required (8' is standard).
- Use line length and temperature range to find correct bulb size in chart at right.

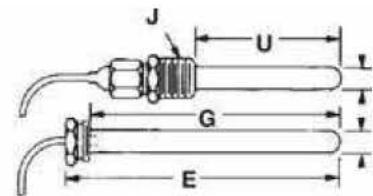
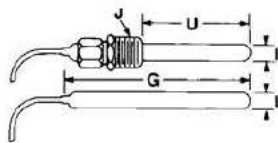
EXAMPLE:
Control point: 130°F.
Temperature range: 65/140°F.
Line length: 15'

SOLUTION:
Bulb size: extra large – G = 15 5/8"

RANGES, BULB SIZES & MAXIMUM LINE LENGTHS

Short Ranges (Gold Spring)		Long Ranges (Silver Spring)		Bulb Size	†Max. Line Length	Maximum Over-Temperature	
°F	°C	°F	°C			°F	°C
45 to 115	7.2 to 46	45 to 145	7.2 to 63	X Large	40 Ft.	450	232
65 to 140	18 to 60	65 to 170	18 to 77	X Large	40 Ft.	450	232
120 to 200	49 to 93	120 to 230	49 to 110	Small	40 Ft.	300	149
240 to 310	116 to 154	240 to 340	116 to 171	Small	40 Ft.	350	177
280 to 375	138 to 190	280 to 415	138 to 212	Small	40 Ft.	450	232

†Standard line lengths are 25' and 40'.



BULB DIMENSIONS* inches (mm)

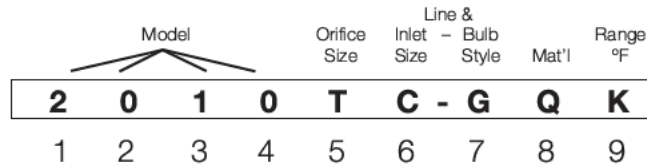
Bulb Sizes	G			U	I			J (NPT)
	Copper	Stain. Stl.	Coated		Plain	Union	Well	
Small	13 3/8 (340)	13 1/4 (337)	11 3/8 (289)	10 1/2 (267)	5/8 (16)	5/8 (16)	3/4 (19)	3/4 or 1
Large	15 5/8 (397)	15 1/8 (384)	13 1/4 (337)	12 1/2 (317)	1 (25)	1 (25)	1 1/8 (29)	1
Extra Large	19 (483)	18 5/8 (473)	19 (483)	16 (406)	1 (25)	1 (25)	1 1/8 (29)	1

GAS SERVICE BULB & WELL DIMENSIONS inches (mm)

E	G	I		U	J (NPT)
		Bulb	Well		
8 1/4 (210)	7 3/8 (187)	25/32 (20)	15/16 (24)	7 11/16 (195)	1

SERIES 2000 TEMPERATURE REGULATOR

CODE SELECTION CHART



SERIES 2000 TEMP. REGULATOR

Model -
 Position 1, 2, 3 & 4
 2010 = Single Seat, Direct Acting
 2020 = Single Seat, Reverse Acting
 2030 = Double Seat, Direct Acting
 2040 = Double Seat, Reverse Acting
 2050 = Three Way

Orifice -
 Position 5
 A
 B
 C
 D
 E
 T = Standard

Inlet Size -
 Position 6
 C = 1/2
 D = 3/4
 E = 1
 F = 1 1/4
 G = 1 1/2
 H = 2

Line & Bulb Style -
 Position 7
 G = Indicating
 N = Non-indicating

Material† -
 Position 8
 Q = Copper Bz Armor 8'
 R = Copper Bz Armor 15'
 N = Copper Bz Armor 25'
 P = Copper Bz Armor 40'
 T = SS Unarmored 8'
 V = SS Unarmored 15'
 W = SS Unarmored 25'
 X = SS Unarmored 40'
 Z = Other

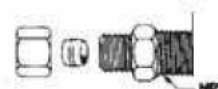
Range °F -
 Position 9
 C = 45/115
 D = 45/145
 E = 65/140
 F = 65/170
 J = 120/200
 K = 120/230
 L = 240/310
 M = 240/340
 N = 280/375
 P = 280/415
 Z = Other

† For SS Armored Thermal Assembly Material, add (-TV) at the end of the code (ex.: 2010TC-NTH-TV)
 † Small bulb standard for J-1 range and higher.
 Extra large bulb standard for D range and lower.
 Large bulb standard for E and F range

THERMOWELL



UNION BUSHINGS



WELLS

Cat. No.	Bulb Size	Material	Inches (mm)			
			Bulb Dia.	NPT	U	Well Dia.
99A	S	Brass	3/8 (16)	3/4 (19)	10 1/2 (267)	3/4 (19)
99B	S	Brass		1 (25)		
99G	S	316 St. St.		3/4 (19)		
99H	S	316 St. St.		1 (25)		
99J	L	Brass	1 (25)	12 1/2 (318)		1 1/8 (29)
99K	X	Brass		1 (25)	16 (406)	
99Q	L	316 St. St.		1 (25)	12 1/2 (318)	
99R	X	316 St. St.		1 (25)	16 (406)	

UNION BUSHINGS

Cat. No.	Bulb Size	Material	Inches (mm)	
			Bulb Dia.	NPT
98A	S	Brass	5/8 (16)	3/4
98B	S	Brass		1
98C	S	St. St.		3/4
98D	S	St. St.		1
98E	L & X	Brass	1 (25)	1
98F	L & X	St. St.	1 (25)	1

Thermowells and union bushings are utilized as separate items and should be specified on separate lines.



RATED STEAM CAPACITY TABLE

SERIES 2000 TEMPERATURE REGULATOR

**SERIES 2000
CAPACITY TABLE**

VALVE SIZE		SINGLE SEATED VALVES										DOUBLE SEATED VALVES						
Inlet Pressure PSIG	Outlet Pressure PSIG	1/2C	1/2D	1/2E	1/2A	1/2B	1/2	3/4	1	1 1/4	1 1/2	2	1/2	3/4	1	1 1/4	1 1/2	2
DRY SATURATED STEAM—LBS. OF STEAM/HR																		
5	UP to 9" HG.VAC.	12	30	53	97	130	155	200	270	420	450	510	235	305	380	610	735	975
	6" HG.VAC. 2	11	29	52	95	125	150	195	265	415	440	500	230	300	375	600	720	960
10	UP to 3" HG.VAC.	15	35	65	120	160	195	255	340	530	565	635	295	385	480	765	920	1220
	3	13	33	60	110	145	175	230	305	480	510	575	265	345	430	690	830	1100
20	UP to 4	21	52	95	170	225	270	355	475	745	790	895	415	540	670	1070	1290	1720
	10	19	47	85	155	200	245	325	430	675	715	810	375	490	610	970	1170	1550
30	UP to 10	27	67	120	220	290	350	460	615	960	1020		530	695	865	1380	1660	2210
	15	25	63	115	210	270	330	435	580	905	960		500	660	815	1300	1570	2090
40	UP to 15	33	82	150	270	350	430	560	750	1170			650	885	1060	1690	2030	2710
	20	32	79	140	260	340	415	540	725	1130			625	820	1020	1630	1960	2610
50	UP to 20	39	97	175	320	415	505	665	890				770	1010	1250	2000	2400	3200
	30	36	90	160	295	385	470	615	820				710	935	1150	1850	2220	2960
60	UP to 25	45	112	200	370	480	585	770	1020				890	1160	1440	2310	2780	3700
	30	44	110	198	360	470	575	755	1000				870	1140	1410	2260	2720	3620
70	UP to 30	51	127	230	420	545	665	870					1010	1320	1640	2610	3150	4190
	40	49	122	220	400	520	635	830					965	1260	1570	2500	3010	4010
80	UP to 35	57	140	255	465	610	740	975					1120	1470	1830	2920	3520	4690
	50	53	130	240	435	565	690	905					1050	1370	1705	2720	3280	4360
90	UP to 41	65	155	285	515	675	820	1070					1240	1630	2020	3230	3890	5180
	60	57	140	255	465	610	740	975					1120	1470	1830	2790	3520	4680
100	UP to 46	70	170	310	565	740	900						1360	1790	2220	3540	4260	5680
	60	65	165	295	540	705	855						1300	1700	2110	3380	4060	5410
110	UP to 52	75	185	335	615	800	975						1480	1940	2410	3850	4640	6170
	70	70	175	315	575	750	910						1380	1810	2250	3590	4330	5760
120	UP to 57	80	200	365	665	865	1050						1600	2100	2600	4160	5010	6670
	80	75	185	330	605	790	965						1460	1920	2380	3800	4580	6090
130	UP to 62	85	215	390	715	930	1130						1720	2250	2800	4470	5380	7160
	80	80	205	370	680	885	1080						1630	2140	2660	4250	5120	6810
140	UP to 68	95	230	420	765	995	1215						1840	2410	2990	4780	5750	7660
	90	85	215	390	715	930	1130						1720	2250	2800	4470	5380	7160
150	UP to 72	100	245	445	815	1060	1320						1960	2570	3180	5090	6120	8150
	100	95	230	420	765	995	1220						1850	2460	3070	4900	5950	7980
160	UP to 78	105	260	470	860	1120	1400						2080	2720	3380	5400	6500	8650
	100	100	250	450	820	1070	1350						1970	2590	3210	5120	6170	8210
170	UP to 83	110	275	500	910	1190	1480						2190	2880	3570	5700	6870	9140
	100	105	270	485	885	1150	1450						2130	2790	3470	5540	6660	8870
180	UP to 89	115	290	525	960	1250	1550						2310	3030	3760	6010	7240	9640
	120	110	270	485	890	1150	1450						2140	2800	3480	5550	6690	8900
190	UP to 95	125	305	555	1010	1310	1610						2430	3190	3960	6320	7610	10100
	120	115	290	525	960	1250	1550						2310	3030	3760	6000	7220	9610
200	UP to 100	130	320	580	1060	1380	1700						2550	3350	4150	6630	7980	10600
	120	125	310	560	1020	1330	1650						2470	3240	4010	6410	7720	10300
210	UP to 105	135	335	605	1110	1450	1780						2670	3500	4350	6940	8360	11100
	120	130	330	595	1080	1400	1750						2620	3430	4260	6800	8190	10900
220	UP to 110	140	350	635	1160	1520	1870						2790	3660	4540	7250	8730	11600
	140	135	335	600	1100	1450	1800						2640	3470	4300	6870	8270	11000
230	UP to 115	145	365	660	1210	1580	2000						2910	3810	4730	7560	9100	12100
	140	140	355	635	1160	1520	1950						2800	3680	4560	7290	8780	11700
240	UP to 120	155	380	690	1250	1650	2100						3030	3970	4930	7870	9470	12600
	160	140	355	640	1160	1520	1950						2810	3690	4570	7300	8790	11700
250	UP to 126	160	395	715	1300	1700	2150						3150	4130	5120	8180	9840	13100
	180	150	375	675	1240	1620	2080						2980	3910	4850	7750	9330	12400
	220	100	250	455	830	1080	1380						1990	2620	3240	5180	6240	8300



SIZING SERIES 2000 TEMPERATURE REGULATORS

PERFORMANCE VARIABLE

EXAMPLE FOR HEATING SERVICE

The maximum anticipated flow requirements for a regulator on heating service is 500 lbs. of steam per hour. The unit steam pressure is 50 psig and the downstream pressure is essentially zero because the steam downstream is discharged into an open drain.

ANSWER: Locate 50 psi on the inlet pressure scale on the left side of the Series 2000 Capacity Chart. Choose the outlet pressure line "up to 20" psig because the downstream pressure is essentially zero. Follow the "up to 20" outlet pressure line until you come to the value closest to 500 lbs. of steam per hour (in this case, 505). Read upward to the valve size and we see that the 1/2" single seated valve is the correct size. To size for three-way valves, use single seated capacities 1/2" through 2" size.

NOTE: FORMULAS FOR EXACT CALCULATIONS.

If the outlet pressure is equal to or less than 53% of the absolute inlet pressure:

$$Q (\text{lbs steam/hr}) = 1.5 \times C_v \times \text{inlet pressure (psia)}$$

If the outlet pressure is greater than 53% of the absolute inlet pressure:

$$Q (\text{lbs steam/hr}) = 3 \times C_v \times \sqrt{\text{pressure drop (psi)} \times \text{outlet pressure (psia)}}$$

30°F span from fully open to fully closed
Oversized valve can provide narrower spans—Consult Factory

CAPACITY CHART SEE PAGE 90

STEAM FLOW REQUIREMENTS

Temp. Rise °F	GALLONS OF WATER HEATED PER HOUR										
	25	50	75	100	150	200	300	400	500	750	1000
	LBS. OF STEAM PER HOUR										
10	2	4	6	8	12	17	25	33	42	63	83
20	4	8	12	17	25	33	50	67	83	120	167
30	6	12	19	25	37	50	70	100	120	190	250
40	9	17	25	33	50	66	100	130	170	250	330
50	11	21	31	42	63	84	125	170	210	310	420
60	13	25	37	50	75	100	150	200	250	370	500
80	17	33	50	67	100	130	200	270	330	500	670
100	21	42	63	83	120	170	250	330	420	630	830
120	25	50	75	100	150	200	300	400	500	750	1000
140	29	58	88	117	175	230	350	470	580	880	1170
160	33	66	100	133	200	270	400	530	660	1000	1330

STEAM FLOW REQUIREMENTS

Use the top chart on this page to determine the pounds of steam per hour required to raise the temperature in tank of known capacity to the required temperature. Determine the rise in temperature (control temp. - room temp.) on the left hand column, read the corresponding pounds of steam per hour under the corresponding gallons of water to be heated. Use the lbs. steam/hr. figure in the chart on the opposite page to determine valve size.

Formula for converting the length, width and depth of solutions (all measured in feet) to gallons of solution: Gallons=7.48 x length x width x depth.

EXAMPLE FOR COOLING SERVICE

Find the correct regulator valve size that will feed a compressor intercooler that requires 100 gallons of water per minute under maximum operating conditions. The supply (inlet) pressure (P1) is 60 psi and the downstream pressure (P2) under maximum flow conditions is 20 psi. The 20 psi pressure is required to force the full flow of water through the compressor's cooling system. Inlet pressure must not exceed maximum upstream pressure, per the Series 2000 Temperature Regulator Product Pages.

ANSWER: The pressure drop permitted across the regulator is P1 minus P2 (40 psi). In the Water Capacity Table (right), locate 40 psi in the differential pressure column and read across to the required gallons per minute. Read to the highest value (in this case, 130 GPM). The chart indicates that a 1 1/4" double seated valve is required. To size 3-way valve, use single seated capacities 1/2" through 2" size.

RATED WATER CAPACITY TABLE

PSIG	SINGLE SEATED VALVES						DOUBLE SEATED VALVES					
	1/2	3/4	1	1 1/4	1 1/2	2	1/2	3/4	1	1 1/4	1 1/2	2
Diff. Press.	WATER FLOW—U.S. GALLONS PER MINUTE											
5	12	15	20	32	34	38	18	23	29	46	55	74
10	17	22	29	45	48	54	25	33	41	65	78	104
15	20	27	35	55	59	67	31	40	50	80	96	128
20	23	31	41	64	68	77	35	47	58	92	111	148
25	26	34	46	72	76	86	40	52	65	103	124	165
30	29	38	50	78	83		43	57	71	113	136	181
40	33	43	58	90			50	66	82	130	157	209
50	37	48	65				56	74	91	146	175	233
60	40	53	71				61	81	100	160	192	256
70	44	57					66	87	108	172	207	276
80	47	61					71	93	115	184	222	295
90	50	65					75	99	122	195	235	313
100	52						79	104	129	206	248	330
110	55						83	109	135	216	260	346
120	57						87	114	141	226	272	361
130	60						90	119	147	235	283	376
140	62						94	123	153	244	293	390
150							97	127	158	252	304	404
160							100	132	163	261	314	417
170							103	136	168	269	323	430
180							106	140	173	276	333	443
190							109	143	178	284	342	455
200							112	147	182	291	351	467
210							115	151	187	299	359	478
220							118	154	191	306	368	489
230							120	158	196	312	376	500
240							123	161	200	319	384	511
250							125	164	204	326	392	522



D50 PRESSURE REDUCING VALVE



TYPE D50 DIRECT ACTING PRESSURE REDUCING VALVE

TYPE D50 PRESSURE REDUCING VALVE

PRESSURES to 300 PSIG at 420°F

- **Direct Acting**
- **Steam, Water or Gas**
- **Spherical Seating Surface on Floating Stainless Steel Disc for Tight Shutoff**
- **Four Spring Ranges**
- **Integral Stainless Steel Strainer**
- **ANSI/FCI 70 Class IV Shutoff**
- **Turndown is 5:1**

OPTIONS

- Teflon® Disc for Dead-end Service for Liquid and Gas

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
Consult factory for pricing and availability

APPLICATION DATA

- Steam Irons
- Autoclaves
- Laundry Mangles
- Single Radiators
- Steam Tables
- Vulcanizers

VALVE RATINGS

Body Material	Pressure PSIG (bar)	Temperature °F (°C)
WITH ST. STL. DISC		
Cast Iron	200 (13.8)	@ 400 (204.4)
Bronze	300 (21.0)	@ 430 (215.6)
Stainless Steel	300 (21.0)	@ 420 (215.6)
WITH TEFLON® DISC		
Cast Iron	300 (21.0)	@ 300 (148.9)
Bronze	200 (13.8)	@ 400 (204.4)

SPRING RANGES

3-15	All Sizes	75-140	1/2-1 1/4"
10-30	1/2-1"	30-100	1 1/2-2"
25-80	1/2-1 1/4"	10- 40	1 1/2-2"

Canadian Registration # OC 0591.9C

RATED FLOW COEFFICIENTS (Cv)

VALVE SIZE					
1/2	3/4	1	1 1/4	1 1/2	2
2.2	3.3	4.9	5.0	10.1	10.8

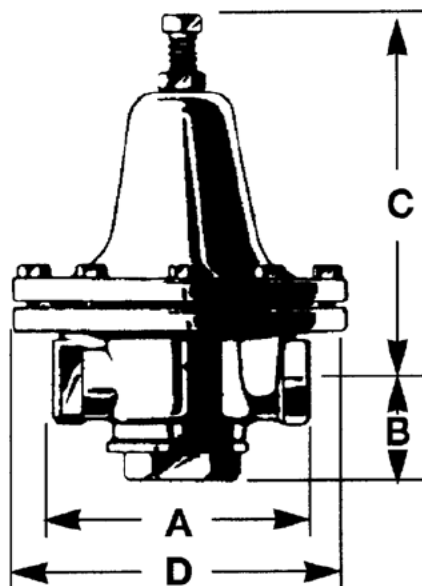
TYPE D50 PRESSURE REDUCING VALVE

SPECIFICATION

The valve shall be self operated, requiring no external energy source. The valve shall operate quickly and provide dead end shut-off. The body materials and rating shall be cast iron for 200 psig and 400°F, Bronze or Stainless Steel for 300 psi and 420°F. Valve trim material is to be stainless steel. Valve to have a standard aspirator to allow for adjustment of operation.

MATERIALS OF CONSTRUCTION

Body, Cast IronASTM 126 Cl. B
 Body, BronzeASTM B61-80 UNS C92200
 Body, St. Stl.....ASTM 743 CF-8M
 Stem304 St. Stl ASTM 276 Cond. A
 Disc.....316 St. Stl. ASTM 276 Cond. A
 Seat304 St. Stl ASTM 276 Cond. A
 Gasket.....Teflon
 Diaphragm304 St. Stl ASTM 276 Cond. A
 Spring302 St. Stl.



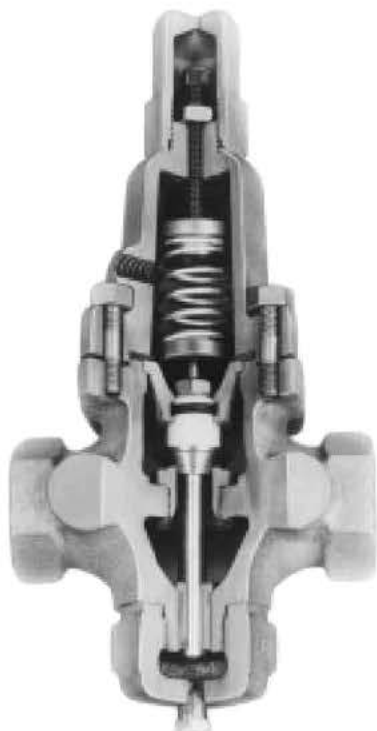
D50 PRESSURE REDUCING VALVE

**TYPE D50 DIRECT ACTING
PRESSURE REDUCING VALVE**

**DIMENSIONS inches (mm)
AND WEIGHTS pounds (kg)**

Body Mat'l.	Size	Dimensions, Inches				Weight (lbs.)
		A	B	C	D	
C.I. & Brz	1/2, 3/4 (13, 19)	4 5/8 (143)	1 3/4 (44)	6 7/8 (175)	6 (152)	12 (5.5)
C.I.	1, 1 1/4 (25, 32)	5 5/8 (143)	2 (51)	7 1/4 (184)	7 1/2 (191)	19 (8.6)
C.I.	1 1/2, 2 (38, 51)	6 5/8 (168)	2 3/4 (70)	11 1/2 (292)	9 (229)	30 (13.6)
St. Stl.	1/2 (13)	5 (127)	1 5/8 (41)	5 1/2 (140)	4 7/8 (124)	8 (3.6)
St. Stl.	3/4, 1 (19, 25)	5 5/8 (143)	2 1/4 (57)	6 1/2 (165)	7 7/16 (191)	22 (10)

N6 DIFFERENTIAL PRESSURE VALVE



TYPE N6 DIFFERENTIAL PRESSURE VALVE

SIZES 3/4" – 2"
PRESSURES to 250 PSIG at 350°F

- Maintains Constant Differential Pressure
- Stainless Steel Valve Trim
- High Temperature Sealing Ring
- Polished Stainless Steel Piston
- ANSI/FCI 70-2 Class IV Shutoff

RATED FLOW COEFFICIENTS (Cv)

VALVE SIZE					
3/4	1	1 1/4	1 1/2	2	2 1/2
7.1	13.3	22.0	32.5	51.0	88.0

TYPE N6 DIFFERENTIAL PRESSURE VALVE

APPLICATION DATA

- Maintain Pump Discharge Pressure
- Pump Bypass Valve
- Boiler Feedwater Valve

VALVE RATINGS

Valve Ends ASME/ANSI	Pressure PSIG (bar)	Temperature °F (°C)
B16.4 Class 250 NPT	250 (17.2)	@ 350 (176.7)
B16.1 Class 250 Flanged	250 (17.2)	@ 350 (176.7)

SPRING RANGES (Differential Pressure, psi)

5-50	100-200
40-125	

Canadian Registration # OC 0591.9C

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
Consult factory for pricing and availability

N6 DIFFERENTIAL PRESSURE VALVE

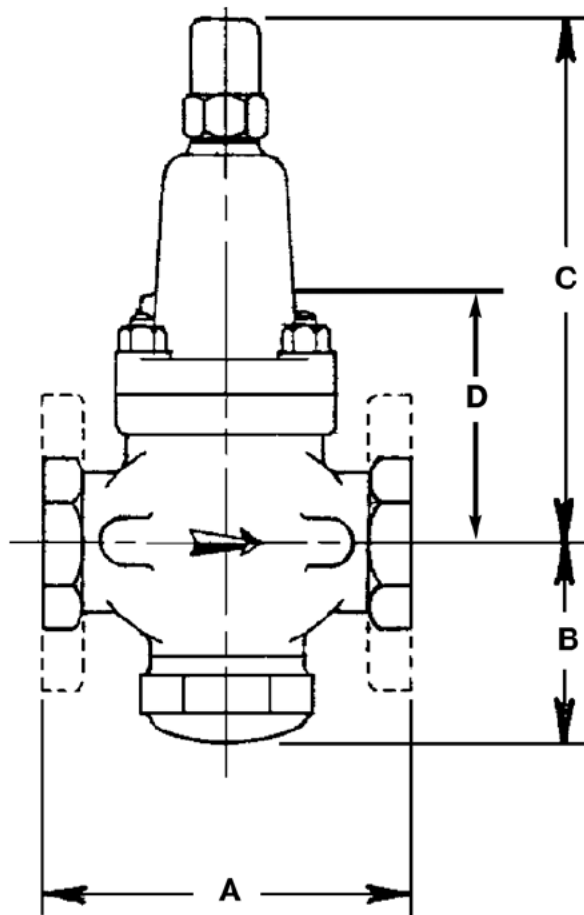
TYPE N6 DIFFERENTIAL PRESSURE VALVE

SPECIFICATIONS

Valve to maintain pump discharge pressure at a constant differential. Valve to be suitable for 250 psig and 350°F. Body to be of cast iron. Trim to be stainless steel. Spring to be enclosed to prevent contamination. Adjusting screw shall be protected by cap and to be easily accessible. Piston and disc to be balanced construction.

MATERIALS OF CONSTRUCTION

Body, Cast Iron	ASTM 126 C. B
Stem	303 St. Stl. ASTM 582 Cond. A
Disc.....	420 St. Stl. ASTM 276 Cond. A
Seat Ring	420 St. Stl. ASTM 276 Cond. A
Piston	303 St. Stl. ASTM 582 Cond. A
Sealing Ring.....	Viton
Gasket	Graphite
Spring	St. Stl. 17-4



TYPE N6 DIFFERENTIAL PRESSURE VALVE

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

SIZE	A		B	C	D	APPROX. WT.	
	ANSI NPT	ANSI 250				ANSI NPT	ANSI 250
3/4 (19)	4 3/4 (121)	—	2 3/4 (70)	7 1/2 (190)	3 (76)	10 (4.5)	—
1 (25)	5 3/8 (137)	—	3 (76)	8 1/2 (216)	3 5/8 (92)	12 (5.5)	—
1 1/4 (32)	6 1/2 (165)	—	3 5/8 (92)	9 3/8 (238)	3 7/8 (98)	19 (8.6)	—
1 1/2 (38)	7 1/4 (184)	—	3 3/4 (95)	10 7/8 (276)	4 1/4 (108)	26 (12)	—
2 (51)	7 1/2 (191)	—	4 3/8 (111)	11 7/8 (302)	4 7/8 (124)	39 (18)	—
2 1/2 (64)	—	10 (254)	4 1/2 (114)	14 3/8 (365)	5 3/8 (136)	—	74 (34)



D & D2 PRESSURE REDUCING VALVE



TYPE D & D2 PRESSURE REDUCING VALVE

SIZES 1/4" – 1/2"
PRESSURES to 600 PSIG at 750°F

- **Self-contained**
- **Direct Operated**
- **Normally Open**
- **Packless Construction**
- **Accurate Regulation Unaffected by Service Conditions**
- **Easy In-line Maintenance**
- **Five Spring Ranges for Improved Control**
- **Utilizes Many Standard D/D2 Pilot Components**

APPLICATION DATA

- Pressure Regulating for Steam Distribution
- Regulating for Fluid, Gas and Vapor Process Control
- Processes with Small, Relatively Steady Flow Rates

VALVE RATINGS

Construction	Pressure PSIG (bar)	Temperature °F (°C)
Cast Iron	250 (17.2)	@ 400 (204)
Cast Steel	600 (41.4)	@ 750 (400)

SPRING PRESSURE RANGES (PSIG)

TYPE D	TYPE D2
3-20	100-300
5-50	
10-100	
20-150	

Canadian Registration # OC 0591.9C

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
Consult factory for pricing and availability

MODELS

- **TYPE D VALVE** for ±1 PSI control of delivery pressure between 3 and 150 PSI
- **TYPE D2 VALVE** for ±2 PSI control of delivery pressure between 100 and 300 PSI

OPTIONS

- Enclosed Spring Chamber
- Composition Disc
- Wall Bracket
- Adjusting Handwheel
- Locking Device

TYPICAL CONFIGURATIONS

PRESSURE REDUCINGTYPE D VALVE
PRESSURE REDUCINGTYPE D2 VALVE

RATED FLOW COEFFICIENTS (Cv)

		VALVE SIZE		
Cv	1/4	1/2	3/8	
		0.25	0.32	0.32

TYPE D & D2 PRESSURE REDUCING VALVE

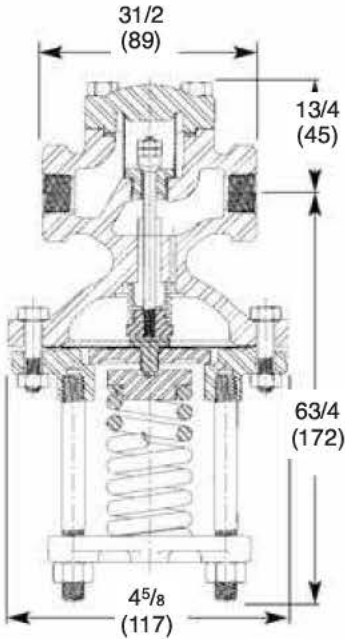
SPECIFICATION

The Valve shall be of normally open design with packless construction. A strainer Screen shall be built into the valve inlet. The valve shall be single- seated, spring loaded and diaphragm actuated.

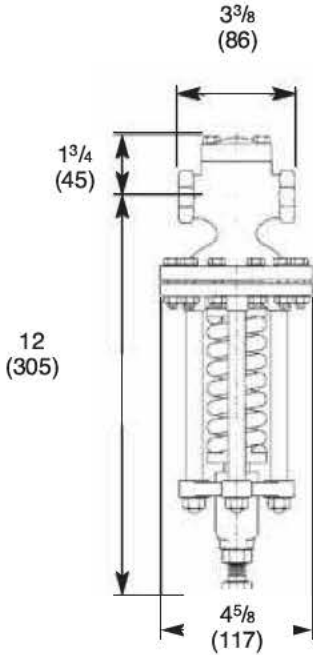
MATERIALS OF CONSTRUCTION

Body, Cast Iron	ASTM A126 CI B
Body, Cast Steel	ASTM A216 GR. WCB
Stem	303 St. Stl. ASTM A582 COND A
Disc	440 St. St. ASTM A276-75 COND A
Seat	420 St. Stl ASTM A276 COND A
Gasket	Non-Asbestos
Diaphragm	301 St. Stl. MIL-5-5059C
Spring	Inconel

D & D2 PRESSURE REDUCING VALVE

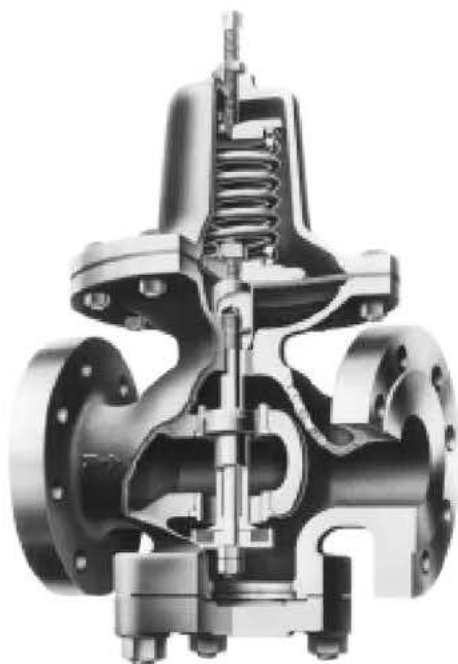


**D VALVE
7.3 LBS.
(3.3 KG)**



**D2 VALVE
10.6 LBS.
(4.8 KG)**





TYPE D34 WATER PRESSURE REDUCING VALVE

SIZES 1" – 6"
PRESSURES to 200 PSIG at 200°F

- Self-contained
- Closes Tight on Dead-end Shutoff
- Fast Acting for Rapid Changes in Flow
- Sediment Settles away from Control Ports when Installed Horizontally
- ANSI/FCI 70-2 Class VI Shutoff

**TYPE D34
WATER PRESSURE REDUCING VALVE**

APPLICATION DATA

- Dead-end water service where flow is intermittent and changes rapidly
- Flushometers
- Snap cocks

VALVE RATINGS

Valve Ends ASME/ANSI	Pressure PSIG (bar)	Temperature °F (°C)
-------------------------	------------------------	------------------------

CAST IRON

B16.4 Class 250 NPT	200 (13.8) @	200 (93)
B16.1 Class 125 Flanged	165 (11.4) @	200 (93)
B16.1 Class 250 Flanged	200 (13.8) @	200 (93)

SPRING RANGES (psi)

10-40	30-80	70-140
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Canadian Registration # OC 0591.9C

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
Consult factory for pricing and availability

RATED FLOW COEFFICIENTS (Cv)

	VALVE SIZE									
	1	1¼	1½	2	2½	3	4	5	6	
Cv	5.5	12.5	17.3	24	36	53	86	139	196	

TYPE D34 WATER PRESSURE REDUCING VALVE

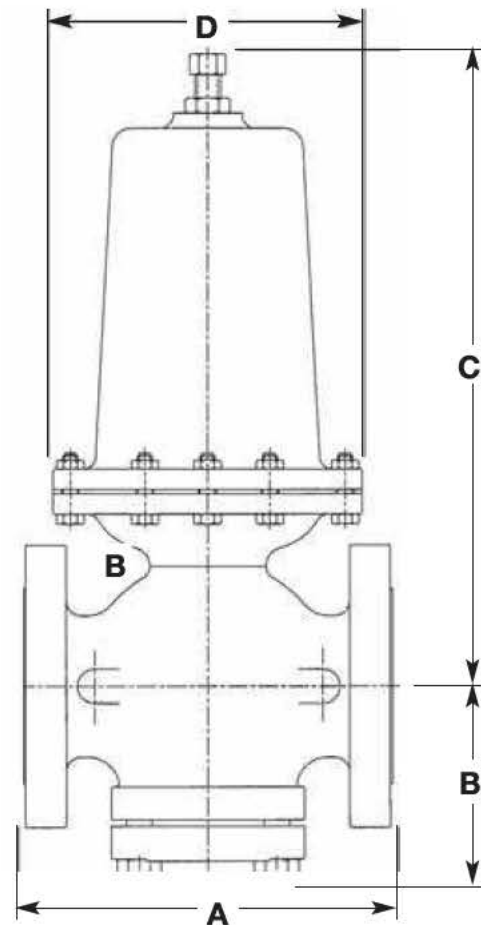
SPECIFICATION

The Valve shall be adjustable, direct operated, packless, diaphragm actuated, balanced and single seated. The valve shall close tight on dead end shutoff and shall maintain a discharge pressure which will not vary more than 1 psig for each 10 psig inlet pressure variation. Delivery pressure variations from zero flow to rated flow shall not exceed 15% of the maximum spring pressure rating. The valve shall be suitable for 200°F service temperature.

Valve body shall be cast iron. Sizes 2-1/2" and larger shall have flanged ends. Trim shall be stainless steel. Valve shall be equipped with a reversible composition disc and diaphragms and discs shall be nitrile. All working parts shall be easily accessible without removal of valve from the line.

MATERIALS OF CONSTRUCTION

Body	Cast Iron ASTM 126 Cl. B
Stem	303 St. Stl. ASTM 582 Cond. A
Disc	Nitrile
Seat	304 St. Stl. ASTM 276 Cond. A
Gasket	Non-asbestos
Diaphragm	Nitrile
Spring	Steel



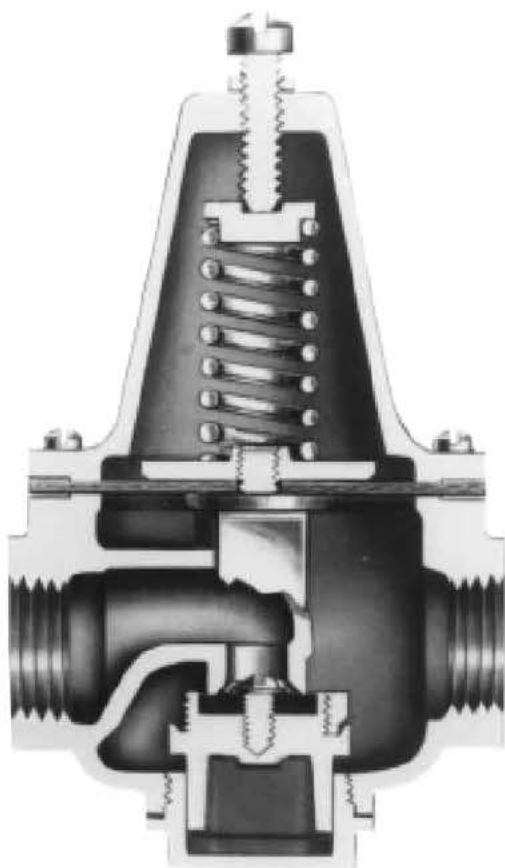
D34 PRESSURE VALVE

**TYPE D34
WATER PRESSURE REDUCING VALVE**

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

SIZE	FACE TO FACE			OTHER DIMENSIONS			APPROX. WT.		
	ANSI NPT	ANSI 125	ANSI 250	B	C	D	ANSI NPT	ANSI 125	ANSI 250
1 (25)	5 ⁷ / ₈ (136)	—	—	3 ³ / ₈ (86)	12 ¹ / ₈ (308)	5 ¹ / ₂ (140)	22 (10)	—	—
1 ¹ / ₄ (32)	6 ¹ / ₂ (165)	—	—	3 ³ / ₈ (92)	12 ¹ / ₂ (316)	5 ¹ / ₂ (140)	24 (11)	—	—
1 ¹ / ₂ (38)	7 ¹ / ₄ (184)	—	—	4 ¹ / ₄ (108)	13 ³ / ₈ (340)	6 (152)	34 (15)	—	—
2 (51)	7 ¹ / ₂ (191)	8 ¹ / ₂ (216)	9 (228)	4 ⁵ / ₈ (117)	14 ³ / ₄ (375)	6 ³ / ₄ (171)	44 (20)	51 (23)	57 (26)
2 ¹ / ₂ (64)	—	9 ³ / ₈ (238)	10 (254)	5 ¹ / ₂ (140)	18 ³ / ₄ (476)	8 (203)	—	78 (35)	89 (40)
3 (76)	—	10 (254)	10 ³ / ₄ (273)	6 (152)	21 ³ / ₄ (552)	9 (229)	—	108 (49)	128 (58)
4 (102)	—	11 ⁷ / ₈ (302)	12 ¹ / ₂ (318)	6 ⁵ / ₈ (168)	26 ⁵ / ₈ (676)	11 ¹ / ₄ (283)	—	198 (90)	225 (102)
5 (127)	—	13 ³ / ₈ (346)	14 ¹ / ₂ (268)	7 ⁵ / ₈ (194)	33 ¹ / ₈ (841)	14 ¹ / ₄ (362)	—	352 (160)	394 (252)
6 (152)	—	15 ¹ / ₈ (384)	16 (406)	9 ⁵ / ₈ (232)	35 ⁷ / ₈ (911)	16 (406)	—	500 (227)	550 (250)

D36 WATER PRESSURE REDUCING VALVE



**TYPE D36
WATER PRESSURE REDUCING VALVE**

TYPE D36 WATER PRESSURE REDUCING VALVE

SIZES 1/2" – 2"
PRESSURES to 300 PSIG at 160°F

- **High Capacity**
- **Sensitive Spring and Large Diaphragm Area for Accurate Pressure Control**
- **Renewable Stainless Steel Single Seat**
- **Watertight Cage Assembly**
- **Soft Seat for Tight Shutoff**
- **Quiet Operation due to Opening in Direction of Flow**
- **ANSI/FCI 70-2 Class VI Shutoff**

OPTIONS

- **Strainer and nipple**

APPLICATION DATA

- Liquid pressure reduction in industrial, commercial and domestic applications

VALVE RATINGS

Valve Ends ASME/ANSI	Pressure PSIG (bar)	Temperature °F (°C)
-------------------------	------------------------	------------------------

CAST BRONZE

B16.15 Class 250 NPT 300 (21.0) @ 160 (71)

SPRING RANGES (psi)

10-35	75-100
25-75	

Canadian Registration # OC 0591.9C

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
Consult factory for pricing and availability

SIZING INFO
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RATED FLOW COEFFICIENTS (Cv)

VALVE SIZE					
1/2	3/4	1	1 1/4	1 1/2	2
4.6	6.0	8.7	12.2	16.7	34.0

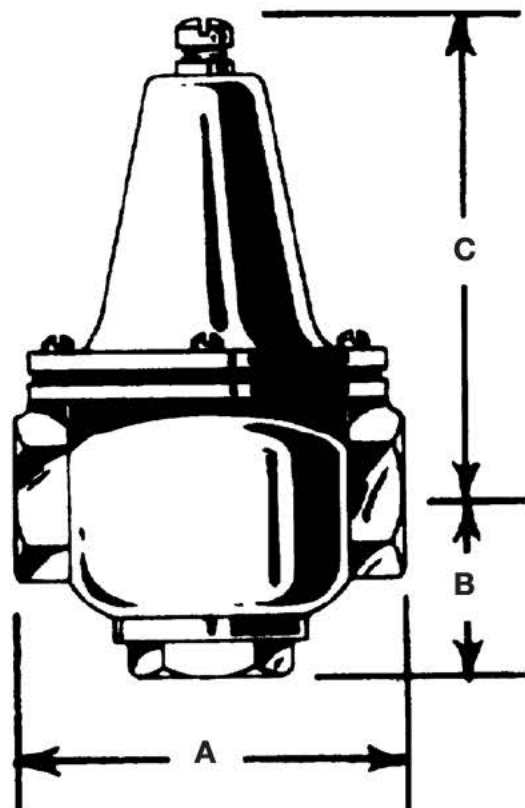
TYPE D36 WATER PRESSURE REDUCING VALVE

SPECIFICATION

Valve shall be self operated requiring no external energy source. Valve shall have a bronze body and stainless steel renewable seat. Diaphragm shall be suitable for water service. Valve rated to 300 psi at 160°F. Disc to be removable without disassembly of the valve. Valve to meet A.S.S.E. Standard 1003, Southern Standard Plumbing Code and I. A. P. M O. Military Standard MIL-V-18146A Type I.

MATERIALS OF CONSTRUCTION

BodyBronze ASTM B61-80 UNS C92200
 StemBronze ASTM B61-80 UNS C92200
 DiscBuna N
 Seat304 St. Stl ASTM 276 Cond. A
 GasketNylatron-GS
 DiaphragmBuna N
 Spring302 St. Stl.



D36 WATER PRESSURE REDUCING VALVE

**TYPE D36
WATER PRESSURE REDUCING VALVE**

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	Dimensions, Inches			Weight (lbs.)
	A	B	C	
1/2 (13)	4 1/4 (108)	2 (51)	6 1/4 (159)	5.25 (2.4)
3/4 (19)	4 1/4 (108)	2 (51)	6 1/4 (159)	5.25 (2.4)
1 (25)	4 3/4 (121)	2 1/8 (54)	6 1/2 (165)	8 (3.5)
1 1/4 (32)	5 (127)	2 3/4 (70)	6 3/4 (171)	10 (4.4)
1 1/2 (38)	6 3/4 (171)	2 3/4 (70)	9 7/8 (251)	20 (9.1)
2 (51)	8 (203)	3 1/4 (83)	10 3/4 (273)	33 (15)

NOTES: