

## 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

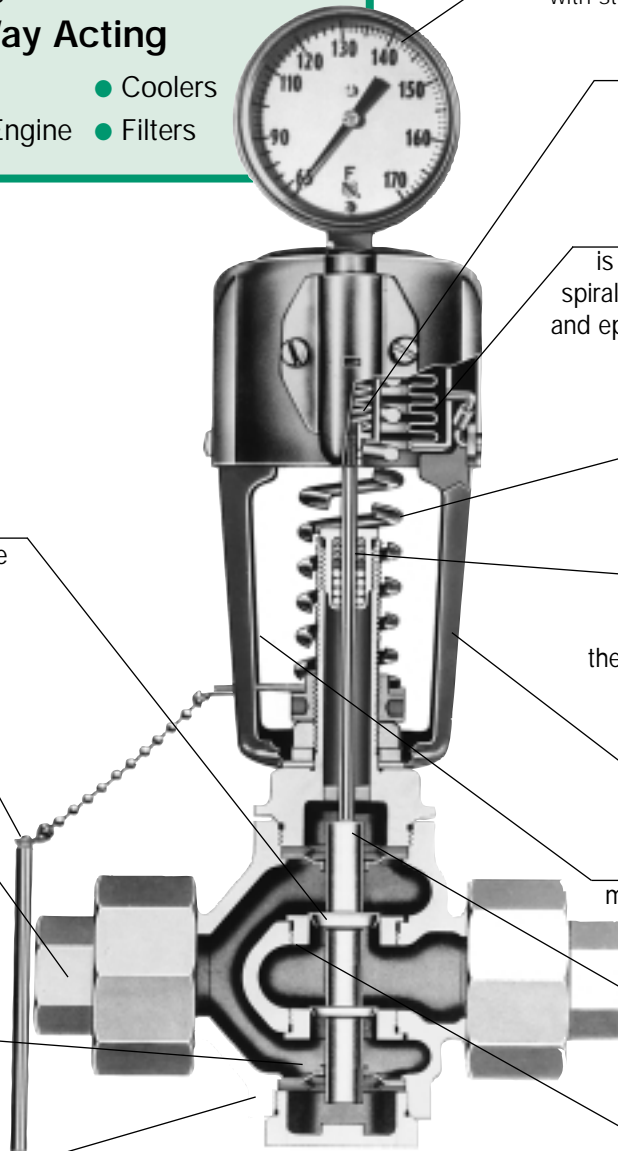
for sturdiness and ease of installation.

#### 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 TEMPERATURE REGULATOR

SIZES 1/2" – 2"  
CONTROLS -25 to 400°F

- 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

## 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

### 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

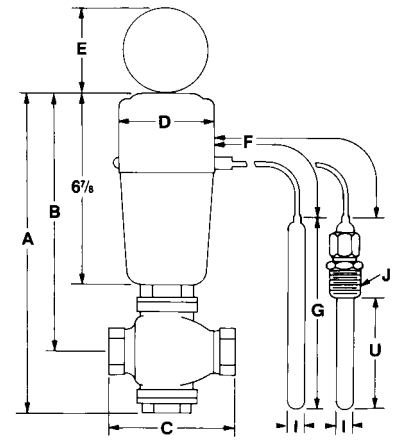
## SPECIFICATION

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.

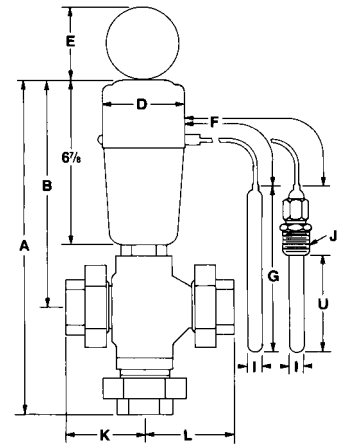
**MODEL 2060 FOR GAS SERVICE ONLY:** The valve shall be self-operated, requiring no external energy source and designed to control process temperature by regulating gas flow. It shall be normally open and close with increased temperature. "Bubble tight" dead end shutoff shall be provided by Buna-N vulcanized 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	—



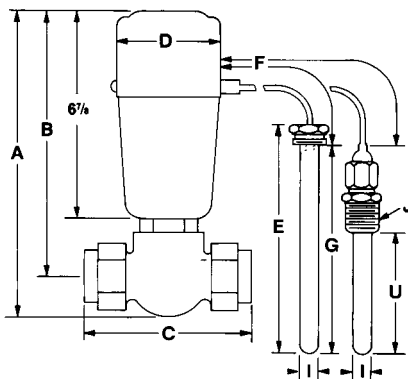
**TYPE 2010-2040 DIRECT & REVERSE ACTING**



**TYPE 2050 THREE WAY**

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

Size	Type No.	Dimensions						Shipping Weight (Approx.)
		A	B	C	D	E	F†	
1/2" (A, B, C, D, E) 1/2, 3/4	2010	9 3/4	8 1/2	5 1/2	3 1/2	2 13/16	8 Ft.	10 (4.5)
	2020	(248)	(216)	(140)	(89)	(71)		
1/2" 3/4"	2030	12 7/16	9 3/4	7 3/16	3 1/2	2 13/16	8 Ft.	13 (5.9)
	2040	(316)	(248)	(182)	(89)	(71)		
1"	2010	12 7/16	9 3/4	7 3/16	3 1/2	2 13/16	8 Ft.	13 (5.9)
	2020	(316)	(248)	(182)	(89)	(71)		
1 1/4" 1 1/2" 2"	2030	12 7/8	9 31/32	8 15/16	3 1/2	2 13/16	8 Ft.	20 (9.1)
	2040	(327)	(253)	(227)	(89)	(71)		25 (11)
								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	8 1/2	5 5/8	3 1/2	10 Ft.	8
3/4"	(248)	(216)	(143)	(89)	(3 m.)	(3.6)
1"						

† 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	9 3/4	3 1/2	8 Ft.	3 5/16	3 5/8	12 (5.5)
3/4"	(352)	(248)	(89)		(84)	(92)	12 (5.5)
1"							13 (5.9)
1 1/4" 1 1/2"	14 21/32	9 31/32	3 1/2	8 Ft.	4 1/8	4 11/16	27 (12)
	(372)	(253)	(89)		(105)	(119)	
2"	14 7/8	9 31/32	3 1/2	8 Ft.	4 3/16	4 7/8	33 (15)
	(378)	(253)	(89)		(106)	(124)	

SERIES 2000 TEMP. REGULATOR

# 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 <sub>v</sub>	Max. Upstream Pressure	Type Number		Flow Coefficient C <sub>v</sub>	Max. Upstream Pressure	Type Number	Flow Coefficient C <sub>v</sub>	Max. Difference Between Inlet Pressures*
	Direct	Reverse			Direct	Reverse					
1/2"C	2010	2020	.40	250 (17.2)	NOT AVAILABLE IN DOUBLE SEAT				NOT AVAILABLE IN THREE WAY		
1/2"D			1.00								
1/2"E			1.80								
1/2"A			3.29								
1/2"B			4.29	200 (13.8)							
1/2"T			5.22	140 (9.7)	2030	2040	250 (17.2)	2050	5.22	140 (9.7)	
3/4"T			6.85	90 (6.2)					6.85	90 (6.2)	
1"T			9.15	65 (4.5)					9.15	65 (4.5)	
1 1/4"T			14.3	40 (2.8)					14.3	40 (2.8)	
1 1/2"T			15.1	30 (2.1)					15.1	30 (2.1)	
2"T	17.2	20 (1.4)	17.2	20 (1.4)							

SIZING INFO  
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### 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'

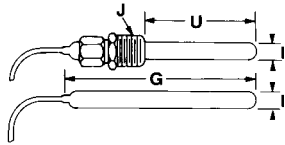
**SOLUTION:**

Bulb size: extra large – G = 15 5/8"

### RANGES, BULB SIZES & MAXIMUM LINE LENGTHS

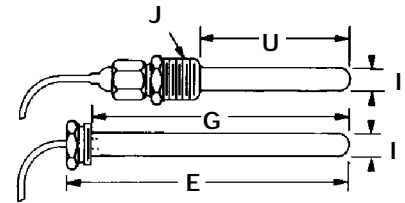
Short Ranges (Gold Spring)		Long Ranges (Silver Spring)		Bulb Size	†Max. Line Length	Maximum Over-Temperature	
°F	°C	°F	°C			°F	°C
-15 to 50	-26 to 10	-15 to 75	-26 to 24	X Large	40 Ft.	450	232
45 to 115	7.2 to 46	45 to 145	7.2 to 63	X Large	40 Ft.	450	232
65 to 140	18 to 60	65 to 170	18 to 77	Large X Large	15 Ft. 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



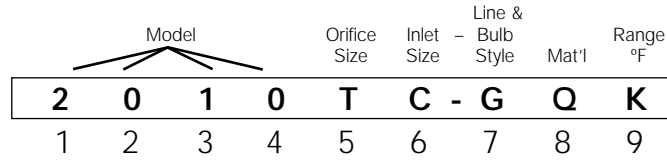
**GAS SERVICE BULB & WELL DIMENSIONS** inches (mm)

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

SERIES 2000 TEMP. REGULATOR

## CODE SELECTION CHART



**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

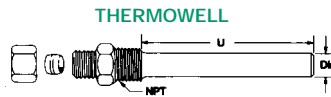
**Inlet Size -**  
 Position 6  
 C = 1/2  
 D = 3/4  
 E = 1  
 F = 1 1/4  
 G = 1 1/2  
 H = 2

**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

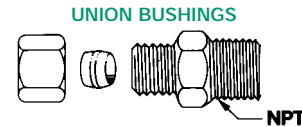
**Range °F -**  
 Position 9  
 A = 15/50  
 B = 15/75  
 C = 45/115  
 D = 45/145  
 E = 65/140  
 F = 65/170  
 J = 120/200  
 K = 120/230  
 L = 240/310  
 M = 240/340  
 N = 280/375  
 P = 280/415  
 Z = Other

† 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



### WELLS

Cat. No.	Bulb Size	Material	Inches (mm)			
			Bulb Dia.	NPT	Well Dia.	
99A	S	Brass	5/8 (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)	1 (25)	12 1/2 (318)	1 1/8 (29)
99K	X	Brass			16 (406)	
99Q	L	316 St. St.			12 1/2 (318)	
99R	X	316 St. St.			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	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.





# SIZING SERIES 2000 TEMPERATURE REGULATORS

## 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:

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

## 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.

## PERFORMANCE VARIABLE

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

CAPACITY CHART SEE PAGE 94

## 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

## 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





**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 70-2 Class IV Shutoff

### OPTIONS

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

*Installation Tip:* Add Uniflex Pipe Coupling for ease of maintenance  
SEE PAGE 374

### APPLICATION DATA

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

### VALVE RATINGS

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

### SPRING RANGES

3-15	All Sizes	75-140	1/2-1 1/4"
10-50	1/2-1 1/4"	30-100	1 1/2-2"
25-80	1/2-1 1/4"	10-40	1 1/2-2"

Canadian Registration # OC 0591.9C

SIZING INFO  
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### 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

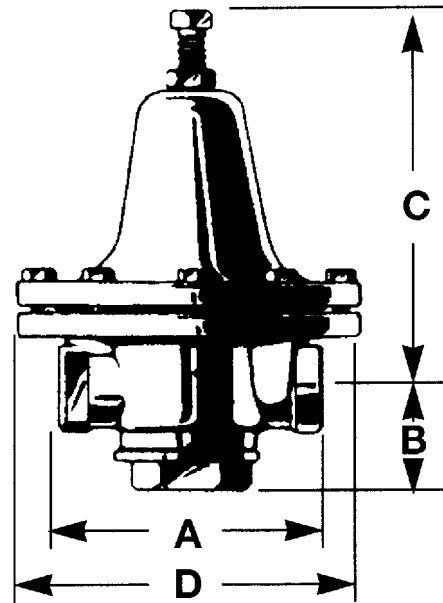
# TYPE D50 PRESSURE REDUCING VALVE

## 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 Iron	ASTM 126 Cl. B
Body, Bronze	ASTM B61-80 UNS C92200
Body, St. Stl.	ASTM 743 CF-8M
Stem	304 St. Stl ASTM 276 Cond. A
Disc	316 St. Stl. ASTM 276 Cond. A
Seat	304 St. Stl ASTM 276 Cond. A
Gasket	Teflon
Diaphragm	304 St. Stl ASTM 276 Cond. A
Spring	302 St. Stl.

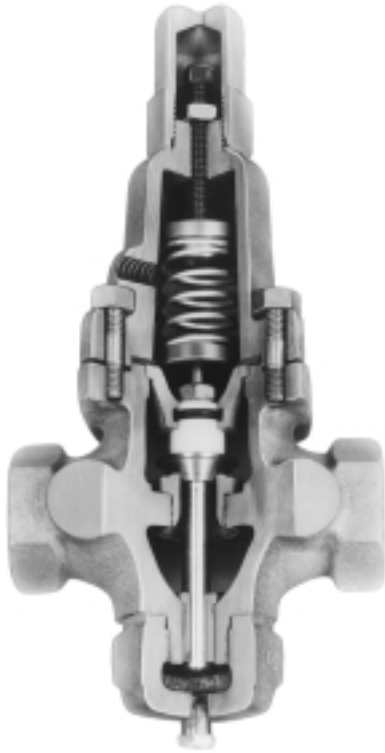


**TYPE D50 DIRECT ACTING  
PRESSURE REDUCING VALVE**

### 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)

D50 PRESSURE REDUCING 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
5.3	9.2	14.3	20.8	37.5	60

## 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  
SEE PAGE 374

SIZING INFO  
PAGE 108

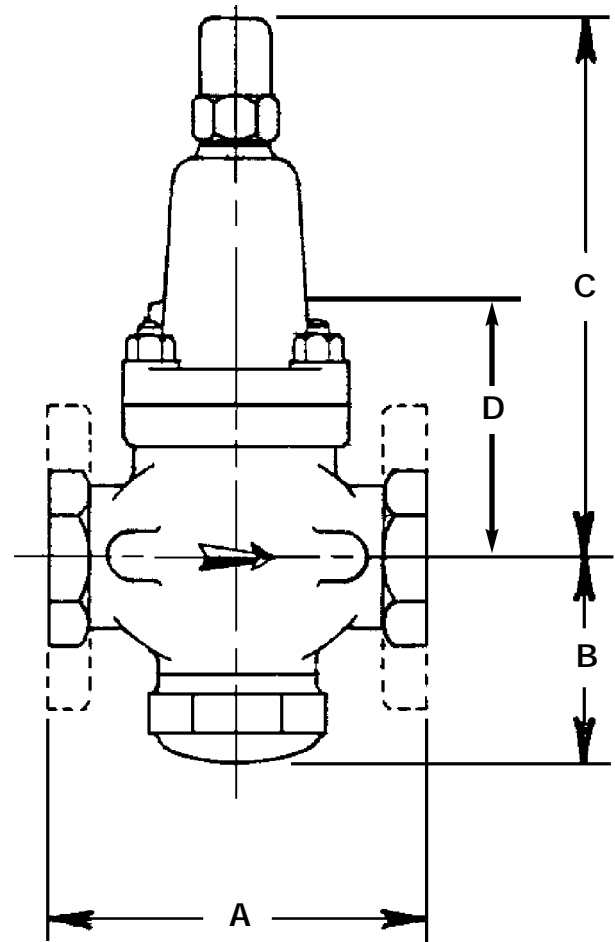
# TYPE N6 DIFFERENTIAL PRESSURE VALVE

## 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  
 Body, Carbon Steel ..... ASTM 216 Gr. WCB  
 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



N6 DIFFERENTIAL PRESSURE VALVE

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)



# TYPE D & D2 DIFFERENTIAL PRESSURE 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

## MODELS

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

## OPTIONS

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

## TYPICAL CONFIGURATIONS

PRESSURE REDUCING .....TYPE D VALVE  
PRESSURE REDUCING .....TYPE D2 VALVE

*Installation Tip:* Add Uniflex Pipe Coupling for ease of maintenance  
SEE PAGE 374

# TYPE D & D2 DIFFERENTIAL PRESSURE VALVE

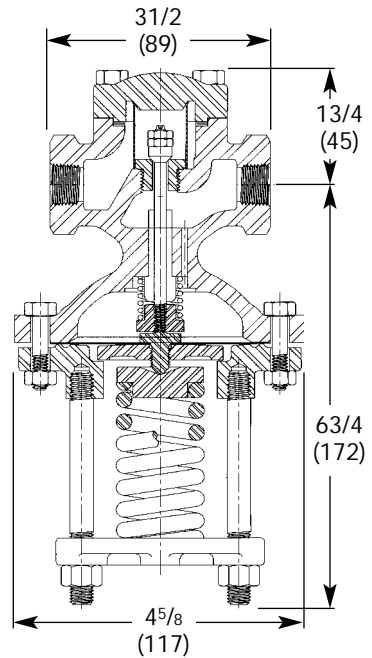
## SPECIFICATION

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.

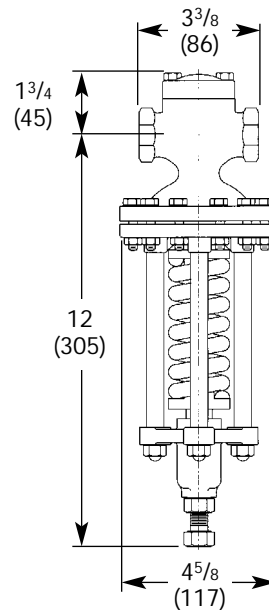
## MATERIALS OF CONSTRUCTION

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

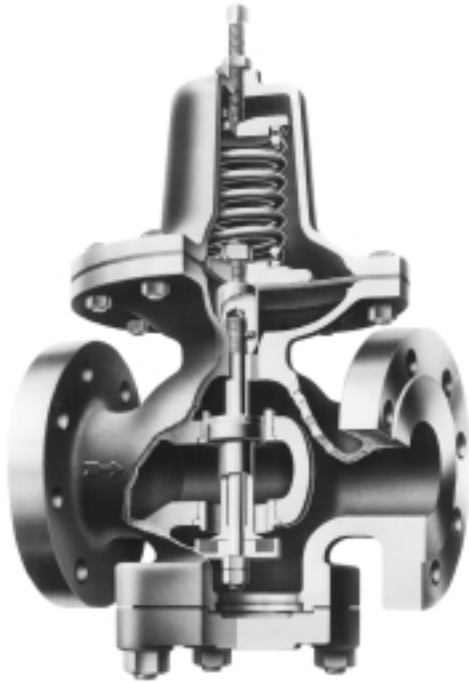
**D & D2 PRESSURE REDUCING VALVE**



**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
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Canadian Registration # OC 0591.9C

*Installation Tip:* Add Uniflex Pipe Coupling for ease of maintenance  
SEE PAGE 374

SIZING INFO  
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### RATED FLOW COEFFICIENTS (Cv)

	VALVE SIZE									
	1	1¼	1½	2	2½	3	4	5	6	
Cv	3.3	7.5	10.4	14.4	21.6	32	52	84	118	



# TYPE D34 WATER PRESSURE REDUCING VALVE

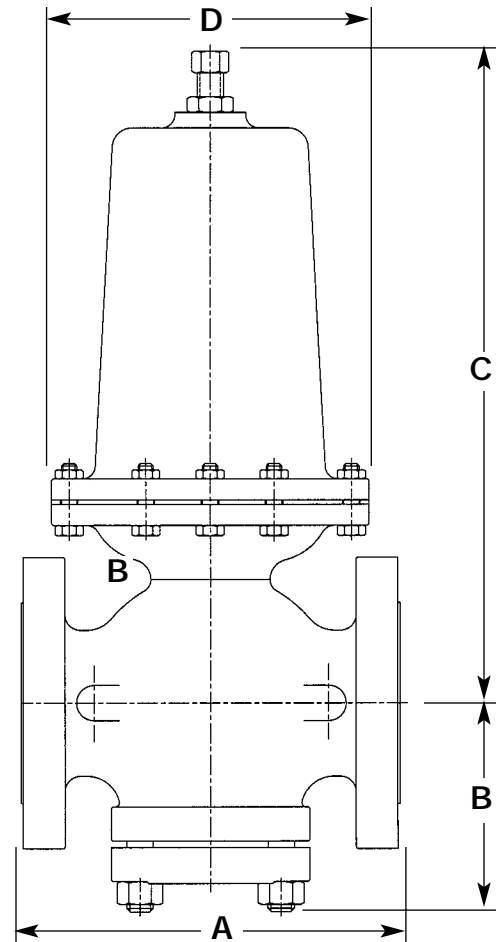
## SPECIFICATION

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

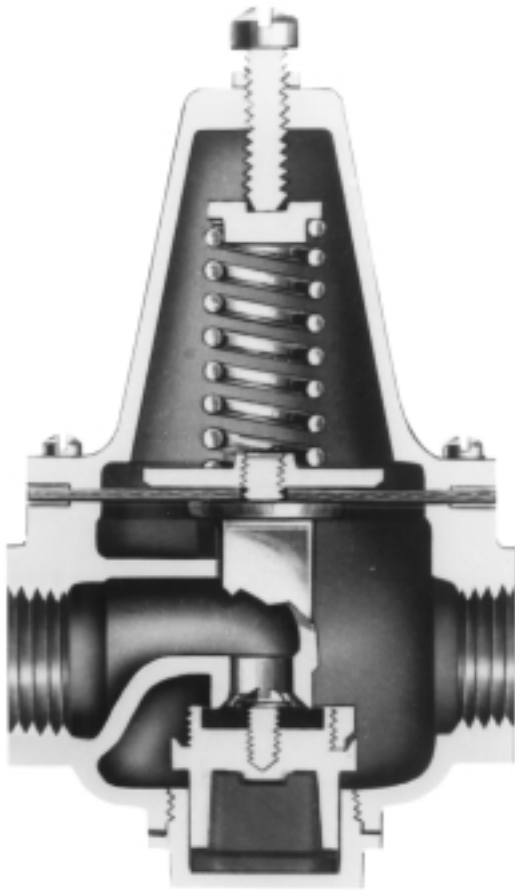
Body .....	Cast Iron ASTM 126 Cl. B
Stem .....	303 St. Stl. ASTM 582 Cond. A
Disc .....	304 St. Stl. ASTM 276 Cond. A
Seat .....	304 St. Stl. ASTM 276 Cond. A
Gasket .....	Non-asbestos
Diaphragm .....	Hycar
Spring .....	Steel



**TYPE D34  
WATER PRESSURE REDUCING VALVE**

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

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



**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)
<b>CAST BRONZE</b> 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  
SEE PAGE 374

SIZING INFO  
PAGE 108

### RATED FLOW COEFFICIENTS (Cv)

VALVE SIZE					
1/2	3/4	1	1 1/4	1 1/2	2
2.5	3.6	5	9	14	17

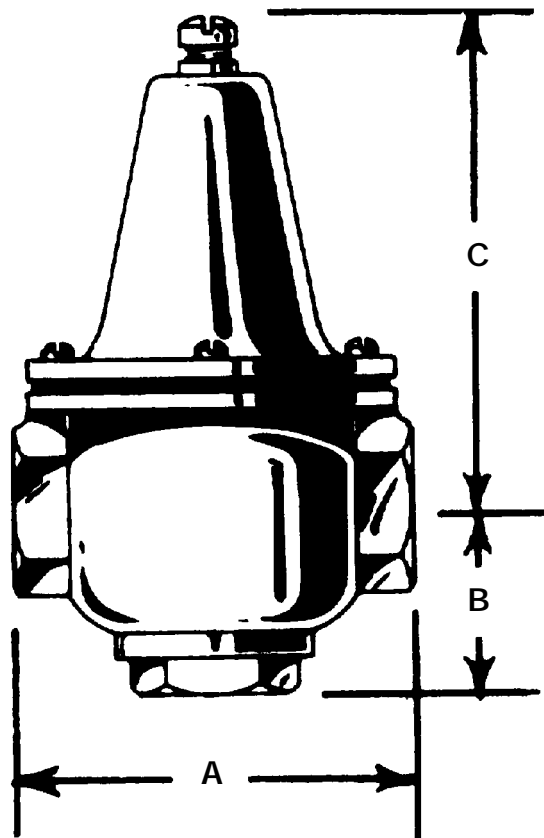
# TYPE D36 WATER PRESSURE REDUCING VALVE

## 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-1846A Type I. City of Los Angeles and W.P.O.A. Uniform Plumbing Code.

## MATERIALS OF CONSTRUCTION

Body .....Bronze ASTM B61-80 UNS C92200  
 Stem .....Bronze ASTM B61-80 UNS C92200  
 Disc .....Buna N  
 Seat .....304 St. Stl ASTM 276 Cond. A  
 Gasket .....Nylatron-GS  
 Diaphragm .....Buna N  
 Spring .....302 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: