

#### APPLICATION:

Gas burner supply lines where line pressures are less than 45 psi.  
Any system which requires a valve to be electrically controlled with operating pressures up to 45 psi.




#### FEATURES

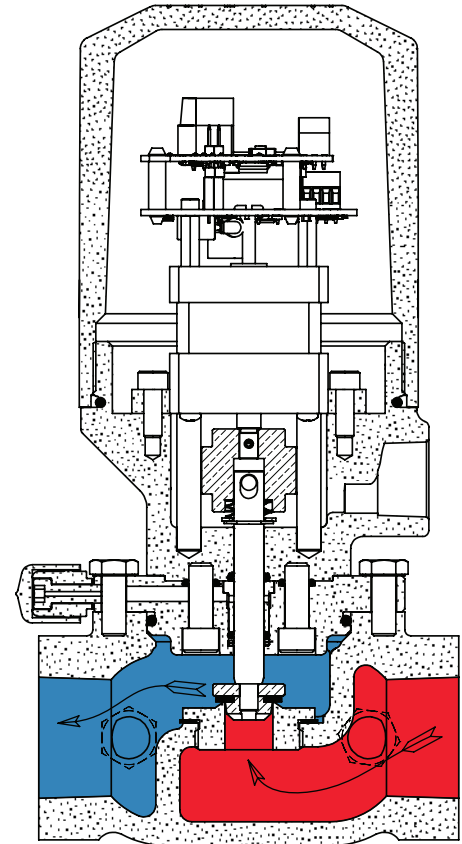
- Closed position indicator switch (NFPA 87)
- Single soft seat
- Mechanical overdrive to ensure full closure
- Removable valve seat
- Minimum maintenance
- All internal parts can be removed with valve in line
- Integrated double seal to isolate electronics from process gas/fluids
- Brushless Stepper motor design for precise control
- Modular Input Accessories
  - Analog 4-20mA module for proportional control
  - Discrete input module for on/off control
  - Optional RS485 module for MODBUS communication
- Dual Seal with Annunciation

#### CERTIFICATIONS:

- CSA HAZARDOUS LOCATION
- Class I, Div 1, Groups B, C, D
- Class II, Div 1, Groups E, F, G
- Class III, T6

Kimray is an ISO 9001- certified manufacturer.

-  Motor Valve Stem Assembly
-  Upstream Pressure
-  Downstream Pressure



ELECTRICAL RATINGS			
	Min	Max	Units
Input Voltage	10	28	VDC
Input Current	0.01	0.6	ADC
Ambient Temperature	-40	60	°C
	-40	140	°F
Analog input Module	4	20	mA
Discrete input Module	Dry Contacts only		
Communications Module	RS-485 (MODBUS RTU)		



Standard Order Code	Line Size	Connection Type	Inner Valve Size	Oper. Press psig	Max. W.P. †† psig	Cv	Cf
MXC	1"	THRU FNPT	1/2"	0-45 psig	300	5.60	0.86
MXD			1/8"			1.50	0.87
MXE			3/8"			3.20	0.86
Corrosive Order Code	Line Size	Connection Type	Inner Valve Size	Oper. Press psig	Max. W.P. †† psig	Cv	Cf
MXCS6	1"	THRU FNPT	1/2"	0-45 psig	300	5.60	0.86
MXDS6			1/8"			1.50	0.87
MXES6			3/8"			3.20	0.86

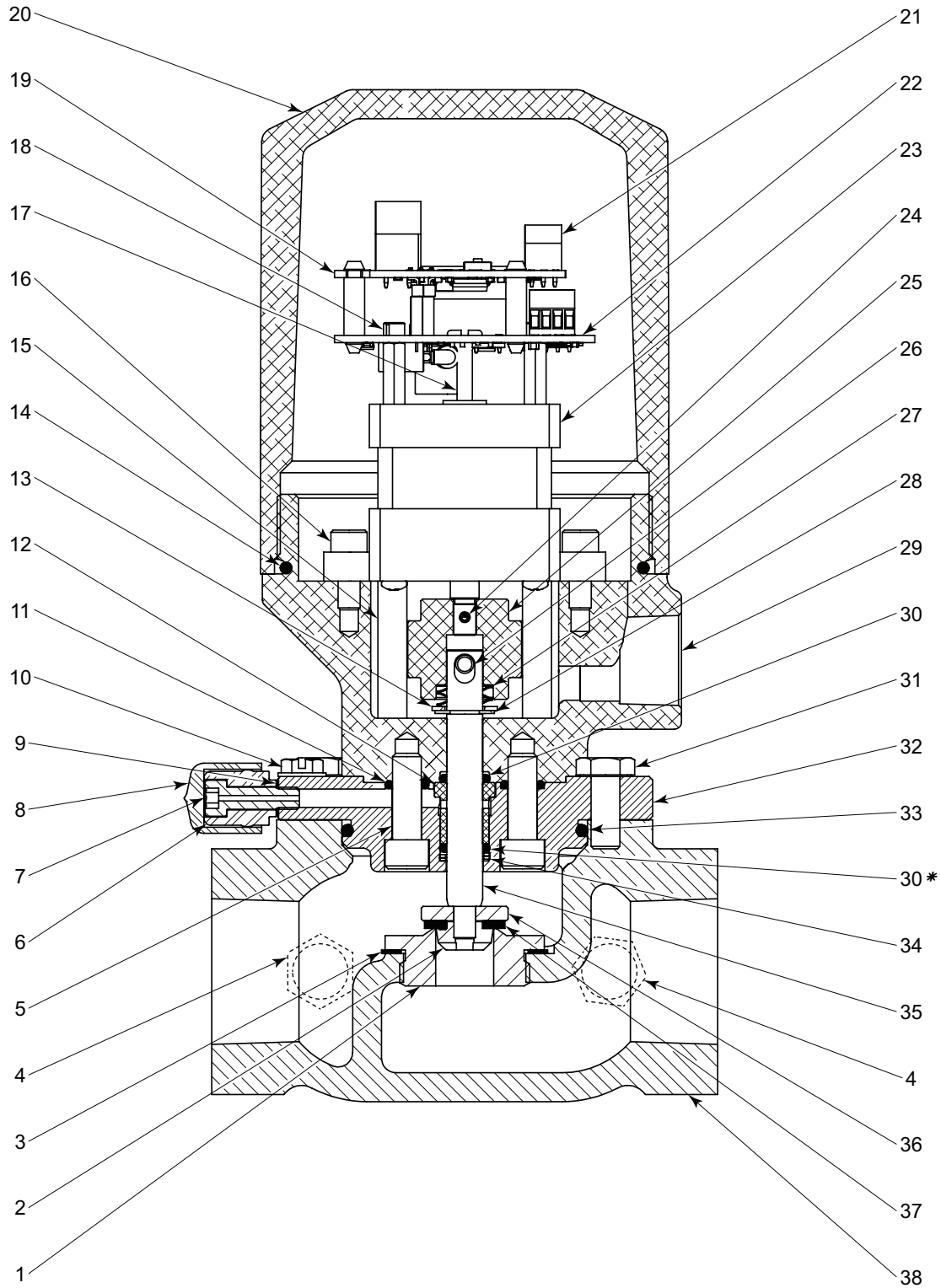
#### NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 02:1 - 02:VI  
†† Max W.P. values based on -20°F to 100°F.

# LOW PRESSURE CONTROL VALVES



## E-LO CONTROL VALVE PARTS LIST

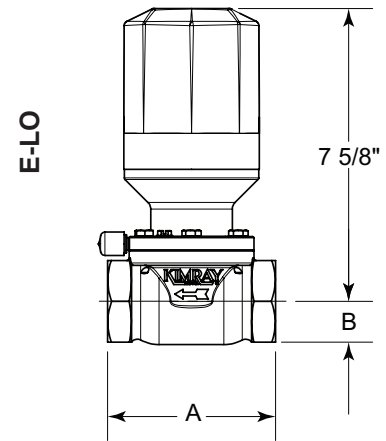
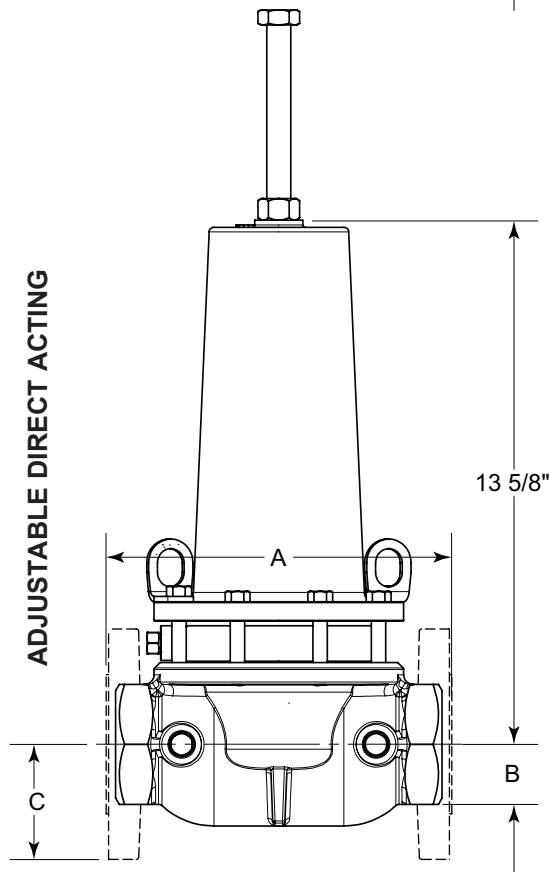
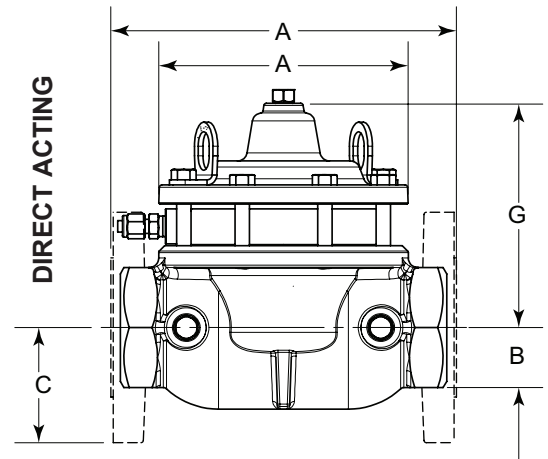
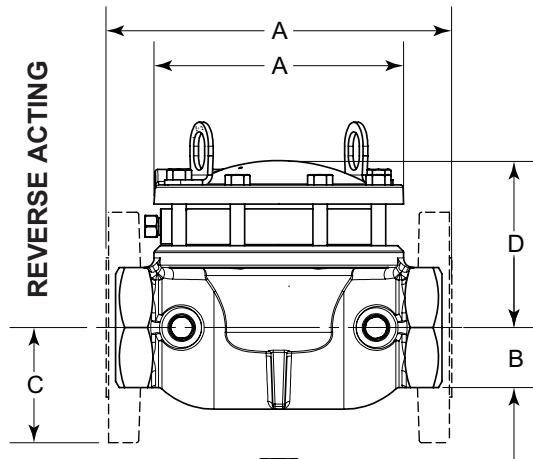


All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

ITEM	QTY.	DESCRIPTION	PART NUMBER	
			STANDARD	CORROSIVE
1	1	Removable Seat	1349	1349SS6
2	1	1/2" IV Ratio Plug	1346SS6	1346SS6
		1/8" IV Ratio Plug	7273S6	7273S6
		3/8" IV Ratio Plug	7714S6	7714S6
3	1	Gasket *	364	364
4	2	Plug	699	699SS6
5	2	Screw	7531S6	7531S6
6	1	Annunciation Stem	7552	7552
7	1	Vent Screw	7551	7551
8	1	Cap *	7555	7555
9	1	Gasket	3018	3018
10	1	Ground Screw	7462	7462
11	2	O-Ring *	638HSN	638HSN
12	1	Stem Bushing *	7442XP	7442XP
13	1	Felt Retainer	486	486
14	1	O-Ring *	7425HSN	7425HSN
15	2	Guide Pin	7419	7419
16	2	Screw	7491	7491
17	1	POC Switch Actuator	7439	7439
18	4	Screw	7492	7492
19	1	Module (One Required)		
		Discrete	KA7505	KA7505
		Analog 4-20	KA7506	KA7506
		RTD	KA7508	KA7508
20	1	Cover	7436	7436
21		Modbus Module (Optional)	KA7507	KA7507
22	1	Main PCB	KA7504	KA7504
23	1	Stepper Motor	7460	7460
24	1	Roll Pin	7420	7420
25	1	Stem Carrier	7440	7440
26	1	Dowel Pin	7422	7422
27	1	Spring *	7421	7421
28	1	Retaining Ring	7457	7457
29	1	Housing	7435XP	7435XP
30	2	O-Ring *	153LTNSN	153LTNSN
31	6	Screw	7423	7423
32	1	Bonnet	7441XP	7441XP
33	1	O-Ring *	7434HSN	7434HSN
34	2	Back Up *	148T	148T
35	1	Valve Stem	7438	7438S6
36	1	Seat Disc	1348SS6	1348SS6
37	1	Seat *	1347LTNSN	1347LTNSN
38	1	Body		
		NPT Thru	2343CPC	2343CPC ‡
			‡ Coated Parts available with "K" service type	
Repair Kits			RZJLTHSN	RZJLTHSN
* These parts are recommended spare parts and are stocked as repair kits.				

<b>Table 1 - Flow Coefficient(Cv) at % stem travel for Pilot Operated Regulators</b>											
<b>1" Pressure Regulator</b>											
Trim Size in. (mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
<b>1/2 in (12mm) Reduced</b>	<b>0.75</b>	0.4	0.7	0.9	1.3	1.8	2.5	3.2	3.9	4.5	5
<b>1 in (25mm) Full Port</b>	<b>0.74</b>	1.1	1.8	2.4	3.4	4.8	6.6	8.5	10.2	11.9	13.2
<b>2" Pressure Regulator</b>											
Trim Size in. (mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
<b>1 1/4 in (31 mm) Reduced</b>	<b>0.75</b>	1.8	2.8	3.9	5.4	7.7	10.5	13.6	16.2	19.0	21.0
<b>2 in Removable Full Port *</b>	<b>0.84</b>	4.0	6.2	8.6	12.1	17.2	23.5	30.4	36.3	42.5	47.0
<b>2 in (50 mm) Full Port *</b>	<b>0.75</b>	4.4	6.9	9.5	13.4	19.1	26.0	33.6	40.2	47.0	52.0
<b>3" Pressure Regulator</b>											
Trim Size in. (mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
<b>1 5/8 in (66 mm) Reduced</b>	<b>0.82</b>	2.9	4.5	6.2	8.8	12.5	17.0	22.0	26.3	30.7	34.0
<b>3 in (76 mm) Full Port</b>	<b>0.75</b>	9.9	15.6	21.5	30.2	42.9	58.6	75.7	90.4	105.7	117.0
<b>4" Pressure Regulator</b>											
Trim Size in. (mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
<b>2 in (50 mm) Reduced</b>	<b>0.80</b>	4.7	7.3	10.1	14.2	20.2	27.5	35.6	42.5	49.7	55.0
<b>4 in (100 mm) Full Port</b>	<b>0.75</b>	17.8	27.9	38.6	54.2	77.0	105.2	135.9	162.2	189.8	210.0
<b>6" Pressure Regulator</b>											
Trim Size in. (mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
<b>3 in (76 mm) Reduced</b>	<b>0.80</b>	10.2	16.0	22.0	30.9	44.0	60.1	77.7	92.7	108.4	120.0
<b>6 in (152 mm) Full Port</b>	<b>0.75</b>	40.6	63.8	88.1	123.8	176.0	240.4	310.6	370.7	433.7	480.0

Kimray flow equations conform to ANSI/ISA - 75.01.01-2002  
 Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985



LINE SIZE	BODY TYPE	A	B	C	D	E	F	G	H
1"	FNPT	4 3/8"	1 1/8"	----	2 3/4	3 3/8	3 3/8	3 3/8	8
2"	FNPT	8 1/2"	2 1/8"	----	4 3/8	5 7/8	6 7/8	6 7/8	18 1/2
	Flanged	9"	----	3"	4 3/8	5 7/8	6 7/8	6 7/8	18 1/2
	Grooved	8 3/4"	2 1/8"	----	4 3/8	5 7/8	6 7/8	6 7/8	18 1/2
3"	FNPT	12 1/16"	3 1/16"	----	5 7/8	8	8	8	20
	Flanged	12 3/16"	----	3 3/4"	5 7/8	8	8	8	20
4"	FNPT	15" 1/16	4"	----	7 1/2	9 3/4	9 1/2	9 1/2	----
	Flanged	15 1/16"	----	4 1/2"	7 1/2	9 3/4	9 1/2	9 1/2	----
6"	Flanged	22"	----	5 1/2"	11	16	15 1/4	----	----

FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Table 5 - Seal Options		
Part	Standard Material	Optional Material
Seat	HSN	FKM, AFLAS®
O-rings	HSN	FKM, AFLAS®
Diaphragm	HSN	FKM, AFLAS®

Table 6 - Seal Specifications				
		HIGHLY SATURATED NITRILE	FKM	AFLAS®
Kimray Suffix		HSN	V	AF
Resistance	Abrasion	G-E	G	G
	Acid	G-E	G-E	E
	Chemical	F	E	E
	Cold	G	P	P
	Flame	P	E	E
	Heat	E	E	E
	Oil	E	E	E
	Ozone	G	G-E	E
	Set	G	G-E	P
	Tear	F	F	P
	Water/Steam	E	P	G
	Weather	G	E	E
	CO2	G	G	G
	H2S	F	P	E
	Methanol	E	P	P
Properties	Dynamic	G	G	G
	Electrical	F	F	G-E
	Impermeability	G	G	G
	Tensile Strength	G-E	G	F
Temp. Range		-20° to +300°F	-15° to +400°F	+15° to +450°F
		-29° to +149°C	-26° to +204°C	-9° to +232°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT				

<b>Table 7 - Material Options</b>				
<b>Part Description</b>	<b>Valve Size</b>	<b>Standard Material</b>	<b>Erosive Material</b>	<b>Corrosive Material</b>
Body	1" thru 6"		Ductile (ASTM A395)	Ductile (ASTM A395) with Kimcoat
Stem	1" thru 6"		303SS (ASTM A582)	316SS (ASTM A479)
Ratio Plug	1" & 2"		316 Powdered Metal SS-316NI-25	
	3"		Powdered Metal F-008	316SS (ASTM A479)
	4" & 6"		Ductile (ASTM A395)	316SS (ASTM A479)
Reduced Ratio Plug	1"		316 Powdered Metal SS-316NI-25	
	2"		Alloy Steel (ASTM A108)	316SS (ASTM A479)
	3"		316SS (ASTM A479)	
	4" & 6"		Ductile (ASTM A395)	316SS (ASTM A479)
Seat Disc	1"		Powdered Metal F-0008-30	316SS (ASTM A479)
	2", 3" & 4"		Ductile (ASTM A395)	316SS6 (ASTM A351 CF8M)
	6"		Ductile (ASTM A395)	316SS (ASTM A 240)
Removable Seat	1" thru 6"		Ductile (ASTM A395)	316SS6 (ASTM A351 CF8M)

Valve Size Inches:	Full Inner Valve					Reduced Inner Valve					
	1	2	3	4	6	1	2	3	4	6	
Pressure Drop Across Valve psig	1	105	745	1,760	3,350	7,800	26	290	515	835	1,950
	2	150	1,060	2,500	4,900	11,000	37	410	735	1,225	2,750
	3	180	1,300	3,050	6,100	13,500	45	510	895	1,525	3,370
	4	210	1,500	3,500	7,000	15,600	52	590	1,025	1,750	3,900
	5	235	1,700	3,900	7,800	17,500	59	660	1,140	1,950	4,375
	10	330	2,300	5,600	11,000	24,700	82	900	1,640	2,750	6,175
	15	405	2,900	6,800	13,500	30,200	101	1,130	2,000	3,370	7,550
	20	465	3,300	7,900	15,600	34,900	116	1,290	2,320	3,900	8,725
	30	575	4,100	9,600	19,200	42,700	145	1,600	2,820	4,800	10,675
	40	660	4,700	11,100	22,100	49,300	165	1,840	3,260	5,500	12,300
	50	740	5,300	12,400	24,800	55,200	185	2,070	3,640	6,200	13,800
	60	810	5,800	13,600	27,100	60,500	200	2,260	4,000	6,750	15,100
	70	875	6,200	14,700	29,300	65,400	220	2,420	4,300	7,300	16,350
	80	935	6,700	15,700	31,300	69,800	230	2,620	4,600	7,800	17,450
	100	1,045	7,500	17,600	33,500	78,200	260	2,940	5,150	8,350	19,500
125	1,170	8,400	19,700	38,200	87,500	290	3,280	5,750	9,800	21,900	

Valve Size Inches:	Full Inner Valve					Reduced Inner Valve					
	1	2	3	4	6	1	2	3	4	6	
Pressure Drop Across Valve psig	1	405	1,520	3,150	5,830	13,150	101	740	1,080	1,650	3,740
	2	573	2,150	4,460	8,250	18,600	143	1,040	1,525	2,340	5,330
	3	702	2,630	5,450	10,700	22,800	175	1,280	1,860	2,860	6,530
	4	810	3,040	6,300	11,700	26,300	200	1,475	2,150	3,300	7,550
	5	905	3,400	7,030	13,100	29,400	225	1,650	2,400	3,700	8,400
	10	1,280	4,800	9,980	18,500	41,700	320	2,330	3,400	5,250	11,950
	15	1,570	5,880	12,200	22,600	50,900	390	2,875	4,150	6,400	14,600
	20	1,810	6,800	14,100	26,100	58,800	450	3,300	4,800	7,400	16,850
	30	2,220	8,320	17,300	31,900	72,000	555	4,050	5,900	9,050	20,600
	40	2,560	9,600	19,900	36,900	83,100	640	4,650	6,800	10,500	23,800
	50	2,860	10,750	22,300	41,300	93,000	710	5,200	7,600	11,700	26,600
	60	3,130	11,780	24,400	45,200	102,000	780	5,700	8,350	12,800	29,200
	70	3,380	12,700	26,400	48,800	110,000	845	6,150	9,000	13,800	31,500
	80	3,620	13,600	28,200	52,100	117,500	905	6,600	9,650	14,800	33,600
	100	4,050	15,200	31,500	58,300	131,500	1,010	7,375	10,800	16,500	37,400
125	4,520	16,900	35,200	65,100	147,000	1,105	8,200	12,000	18,450	42,000	

Valve Size Inches:	Full Inner Valve		Reduced Inner Valve	
	1	2	1	2
Pressure Drop Across Valve psig	1		101	
	2		143	
	3		175	
	4		200	
	5		225	
	10		320	
	15		390	
	20		450	
	30		555	
	40		640	
	50		710	
	60		780	
	70		845	
80		905		
100		1,010		
125		1,105		

For gravity correction, multiply the above figures by  $\sqrt{\frac{1}{G}}$   
 Where "G" is the specific gravity of the flowing liquid.



# LOW PRESSURE CONTROL VALVES



## CODE BUILDER B SERIES

Series:

**B = Low Pressure Control Valve**

Model:

**RA = Reverse Acting**  
**DA = Direct Acting**  
**AA = Adjustable Direct Acting**

Line Size:

**1 = 1 NPS**  
**2 = 2 NPS**  
**3 = 3 NPS (RA & DA only)**  
**4 = 4 NPS (RA & DA only)**  
**6 = 6 NPS (RA & DA only)**

End Connection:

**SA = FNPT**  
**AR = 150RF Flange**  
**GV = Grooved (2 NPS only)**

Shell Material:

**D = Ductile Iron**

Inner Valve Size:

**F = Full Port**  
**R = Reduced Port**

Service Type:

**S = Standard**  
**C = Corrosive**  
**K = Corrosive with Coated Shell Components**

**B RA 2 SA D F S**

Options: Additional cost and lead times will apply  
If multiple options required input in sequential order  
Leave blank if no options required

**1 = NACE Certification (Corrosive Option Only)**  
**2 = Hydrostatic Test Certification**  
**3 = MTR (Shell Components)**  
**A = AFLAS Elastomers**  
**H = HSN Elastomers**  
**V = FKM Elastomers**  
**X = Export (Hydrostatic test, MTR & 3.1)**

Not all selections available on all products listed.  
See product pages 02:10.1 - 02:30.3 for available options