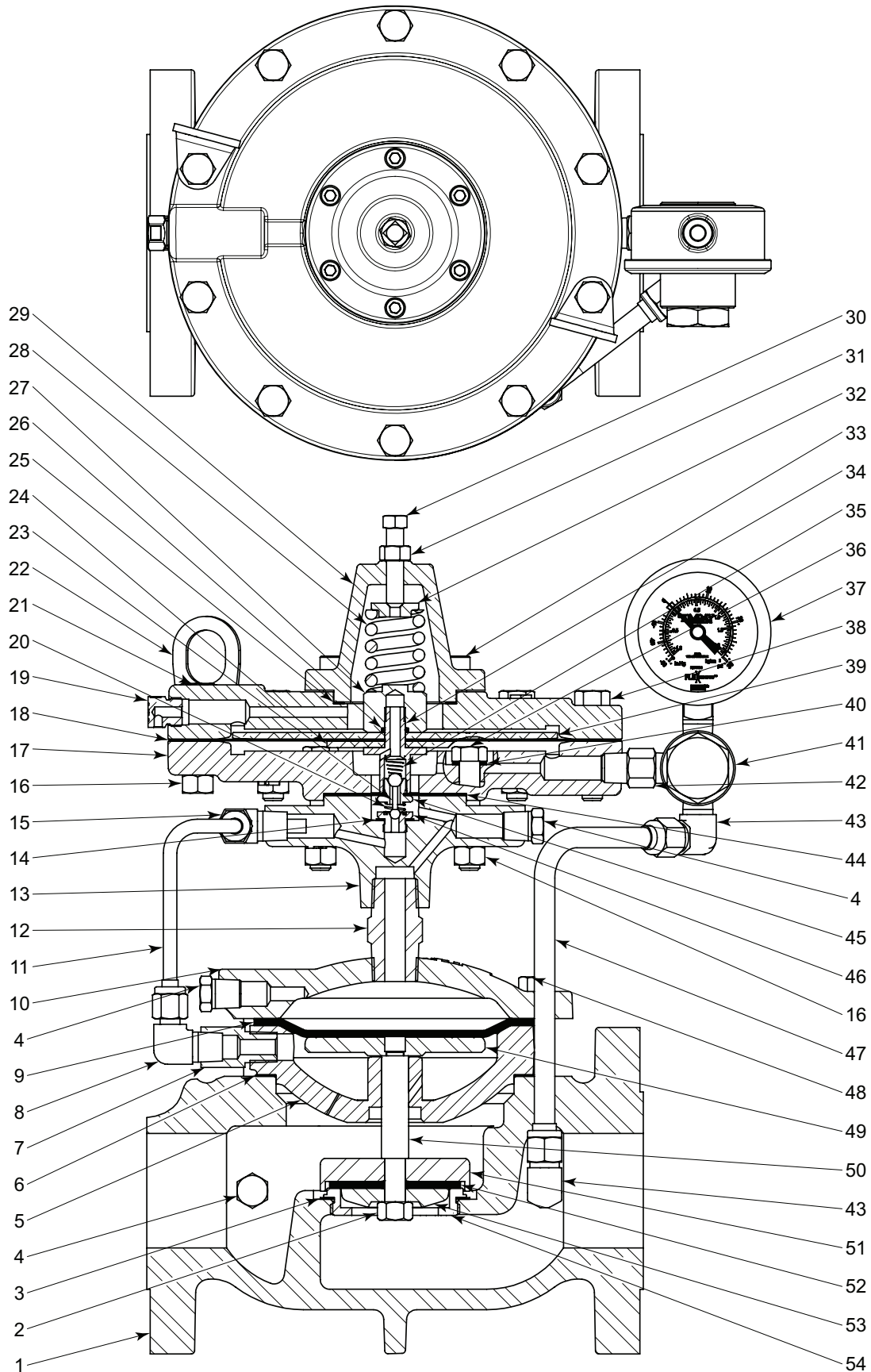


PRESSURE REGULATORS

STEEL GAS LOW PRESSURE BACK PRESSURE TO VACUUM
MODEL VB PARTS DRAWING



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



PRESSURE REGULATORS

**STEEL GAS LOW PRESSURE BACK PRESSURE TO VACUUM
MODEL VB PARTS LIST**

ITEM	QTY.	DESCRIPTION	PART NUMBER										
			STANDARD				CORROSIVE						
			2 INCH	3 INCH	4 INCH	6 INCH	2 INCH	3 INCH	4 INCH	6 INCH			
1	1	Body	2468	2469	2470	2959	2468 ‡	2469 ‡	2470 ‡	2959 ‡			
2	1	Nut	173	906		175	173SS6	174SS6		175SS6			
3	1	Gasket *	276	277	196	279	276	277	196	279			
4	3	Plug	699				699SS6						
5	1	Lower Housing	4211	4212	4213	4214	4211 ‡	4212 ‡	4213 ‡	4214 ‡			
6	1	Gasket *	196	197	198	199	196	197	198	199			
7	1	Adapter	7244				7244S6						
8	1	Elbow	875				875SS6						
9	1	Diaphragm *	1706	1640	2015	2140	1706	1640	2015	2140			
10	1	Bonnet	2487	2488	2489	2956	2487 ‡	2488 ‡	2489 ‡	2956 ‡			
11	1	Tubing	4050SS6	2505SS6		4312SS6	4050SS6	2505SS6		4312SS6			
12	1	Nipple	2516				2516SS6						
13	1	Base	4995				4995 ‡						
14	1	Gasket *	118				118						
15	1	Elbow / Connector	875		874	875	875SS6		874SS6	875SS6			
16	14	Nut	241				241						
17	1	Lower Pilot Housing	1356				1356 ‡						
18	1	Diaphragm *	1212				1212						
19	1	Vent Plug	147				147SS6						
20	1	Spring *	566				566HAC						
21	2	Lifting Ring (not shown)	7559			----	7559			----			
22	1	Upper Pilot Housing	1206				1206 ‡						
23	1	Pilot Plug *	112				112						
24	1	Lower Diaphragm Plate	1340				1340SS6						
25	1	Gasket *	1216				1216						
26	1	O-Ring *	265				265						
27	1	Nut	1337				1337S6						
28	1	Spring	4379 (Std 20 lbs.) 1527 (Opt 2.5 lbs.) 3061 (Opt 5 lbs.)				4379 (Std 20 lbs.) 1527 (Opt 2.5 lbs.) 3061 (Opt 5 lbs.)						
29	1	Bonnet	1336				1336 ‡						
30	1	Adjusting Screw	897				897						
31	1	Nut	922				922						
32	1	Spring Guide	7148S6 (Std. 20 lbs.) 636SS6 (Optional 2.5 & 5 lbs.)				7148S6 (Std. 20 lbs.) 636SS6 (Optional 2.5 & 5 lbs.)						
33	6	Screw	7531				7531						
34	1	Stem	1339				1339S6						
35	1	Spring *	1360				1360HAC						
36	4	Screw	191				191						
37	1	Pressure Gauge	7704				7704						
38	10	Screw	236				236						
39	1	Upper Diaphragm Plate	1208				1208SS6						
40	4	Gasket *	242				242						
41	1	Nipple	648				648SS6						
42	1	1/4 F30 Filter	YAS				YASS6						
43	2	Elbow	877			875	877SS6			875SS6			
44	1	Diaphragm *	110				110						
45	1	Pilot Seat *	565				565SS6						
46	1	Pilot Seat *	113				113SS6						
47	1	Tubing	4127	4129S6		2529SS6	4127SS6	4129S6		2529SS6			
48	(QTY)	Bolt	965 (8)	907(10)	907 (12)	2142 (16)	965 (8)	907(10)	907 (12)	2142 (16)			
49	1	Diaphragm Plate	2490	2491	2492	2958	2490SS6	2491SS6	2492SS6	2958SS6			
50	1	Valve Stem	138	139	140	141	138SS6	139SS6	140SS6	141SS6			
51	1	Seat Disc	2493SS6	2494SS6	2495SS6	2961SS6	2493SS6	2494SS6	2495SS6	2961SS6			
52	1	Seat *	164HSN	165V	166V	167HSN	164HSN	165V	166V	167HSN			
53	1	Standard Ratio Plug	177SS6	178	179	3079SS6	177SS6	3076SS6	3078SS6	3079SS6			
		Reduced Ratio Plug	4933	1228SS6	177SS6	3076SS6	4933SS6	1228SS6	177SS6	3076SS6			
54	1	Removable Seat	2496SS6K	2497SS6K	2498SS6K	3075SS6K	2496SS6K	2497SS6K	2498SS6K	3075SS6K			
Repair Kits			RSV	RSW	RBI	RBK	RSV	RSW	RBI	RBK			
			* These parts are recommended spare parts and are stocked as repair kits.										

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

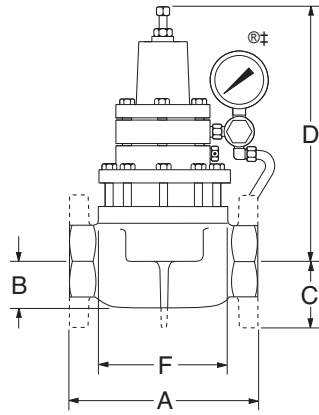
Kimray flow equations conform to ANSI/ISA - 75.01.01-2002
 Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

PRESSURE REGULATORS



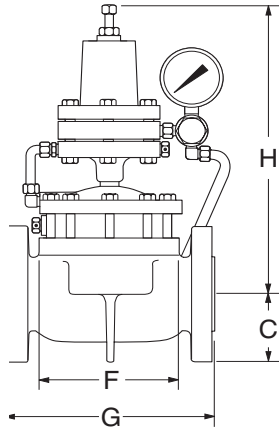
DIMENSIONS

BACK PRESSURE
UPSTREAM DIFFERENTIAL PRESSURE
PRESSURE REDUCING-BALANCED
PRESSURE REDUCING VACUUM

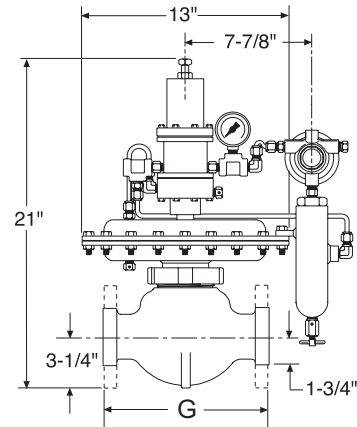


DUCTILE

PRESSURE DIFFERENTIAL
PRESSURE REDUCING
BACK PRESSURE VACUUM
LIQUID BACK PRESSURE

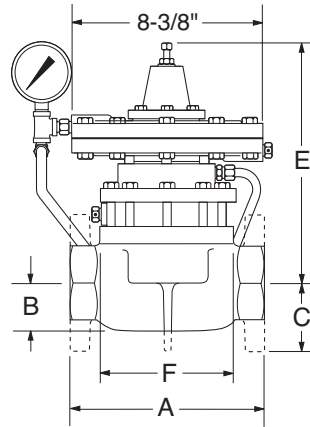


STEEL

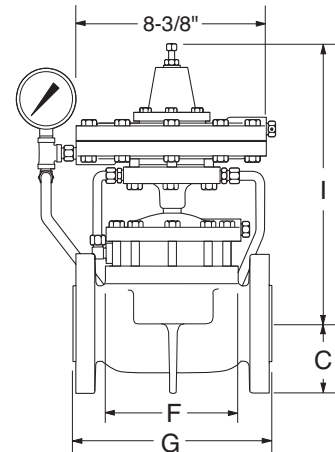


250 S/FGT-BP-S

LOW PRESSURE BACK PRESSURE
OUNCES BACK PRESSURE TO VACUUM
OUNCES PRESSURE REDUCING
OUNCES PRESSURE REDUCING VACUUM
VACUUM BACK PRESSURE TO VACUUM



DUCTILE



STEEL

LINE SIZE	BODY SIZE	A	B	C	D*	E	F	G	H*	I
1"	NPT	4 3/8"	1 1/8"		7 1/2"	11 5/8"	3 1/4"			
	FLANGED	7 1/4"	1 1/8"	2 1/8"	7 1/2"	11 5/8"	3 1/4"			
2"	NPT	8 1/2"	2 1/8"		11 1/2"	10 1/2"	6 1/2"			
	FLANGED	9"		3"	11 1/2"	10 1/2"	6 1/2"	9 1/8"	14 1/2"	14"
	GROOVED	8 3/4"	2 1/8"		11 1/2"	10 1/2"	6 1/2"			
250 S/FGT	NPT							10 1/2"		
	FLANGED							10 3/8"		
3"	NPT	12 1/16"	3 1/16"		13"	12"	8 1/2"			
	FLANGED	12 3/16"		3 3/4"	13"	12"	8 1/2"	12 3/8"	16 1/2"	15 1/2"
4"	NPT	15" 1/16"	4"		14 1/2"	13 3/16"	10 1/2"			
	FLANGED	15 1/16"		4 1/2"	14 1/2"	13 3/16"	10 1/2"	15 1/16"	18 1/2"	16 11/16"
6"	FLANGED	22"		5 1/2"	17"	17 7/8"	16"	21 15/16"	20 1/2"	18 3/8"

FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD. *Add 7/8" to Pressure Reducing Balanced and Up Stream Differential Pressure Regulators for this dimension.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.
‡ Configuration of Back Pressure Control Valve is a trademark of Kimray, Inc.

www.kimray.com

Table 2 - Seal Options		
Part	Standard Material	Optional Material
Seat	HSN	FKM, AFLAS®
O-rings	Nitrile	HSN, FKM, AFLAS®
All Diaphragms	Nitrile	HSN, FKM, AFLAS®

Table 3 - Seal Specifications				
	NITRILE	HIGHLY SATURATED NITRILE	FKM	AFLAS®
Kimray Suffix	-	HSN	V	AF
Resistance	Abrasion	G	G-E	G
	Acid	F	G-E	E
	Chemical	F	F	E
	Cold	G	G	P
	Flame	P	P	E
	Heat	G	E	E
	Oil	G-E	E	E
	Ozone	P	G	G-E
	Set	G	G	G-E
	Tear	F	F	F
	Water/Steam	F	E	P
	Weather	F	G	E
	CO2	F-G	G	G
	H2S	P	F	P
	Methanol	F	E	P
Properties	Dynamic	G	G	G
	Electrical	F	F	G-E
	Impermeability	G	G	G
	Tensile Strength	G	G-E	G
Temp. Range	-20° to +225°F	-20° to +250°F	-15° to +400°F	+15° to +450°F
	-29° to +107°C	-29° to +121°C	-26° to +204°C	-9° to +232°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT				

Table 4 - Material Options

Part Description	Valve Size	Standard Material	Corrosive Material
Ratio Plug	1" & 2"	316 Powdered Metal SS-316NI-25	
	1" & 2" Reduced Trim	Alloy Steel (ASTM A108)	316SS (ASTM A479)
	3"	Powdered Metal F-008	316SS (ASTM A479)
	4" & 6"	Ductile (ASTM A395)	316SS (ASTM A479)
Seat Disc	1"	Powdered Metal F-008	316SS (ASTM A479)
	2", 3" & 4"	Ductile (ASTM A395)	316SS (ASTM A351 CF8M)
	6"	Ductile (ASTM A395)	316SS (ASTM A 240)
Stem	1" thru 6"	303SS (ASTM A582)	316SS (ASTM A479)
Body	1" thru 6"	Ductile (ASTM A395)	WCB (ASTM A216) + Kimcoat
	2" thru 6"	WCB (ASTM A216)	316SS (ASTM A351 CF8M)
Tubing	1" thru 6"	304SS (ASTM A249)	316SS (ASTM A213)
Removable Seat	2" thru 6" Ductile Body	Ductile (ASTM A395)	316SS (ASTM A351 CF8M)
	2" thru 6" Steel Body	316SS (ASTM A351 CF8M)	

Series:
R = Pressure Regulator

Model: _____

Line Size:
1 = 1 NPS (VR & AB only)
2 = 2 NPS
3 = 3 NPS
4 = 4 NPS
6 = 6 NPS

End Connection:
SA = FNPT
AR = 150RF Flange (not available in 1 NPS)
GV = Grooved (2 NPS only)

Shell Material:
D = Ductile Iron
W = Steel (WCB) (VB, AB & LR only)

Inner Valve Size:
F = Full Port
R = Reduced Port

Control Range:
2 = 0-20 psig Spring
3 = 0-5 psig Spring
4 = 0-2.5 psig Spring

Service Type:
S = Standard
C = Corrosive
K = Corrosive with Coated Shell Components

R	BP	2	SA	D	F	2	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 the following product pages for available options
06:10.9 - 06:10.11, 06:30.5 - 06:30.9,
06:50.9 - 06:50.13, 06:90.1 - 06:90.13