

APPLICATION:

Self-contained, pilot-operated regulator used on vent lines for separators, heat treaters, compressor stations, gas gathering systems.

FEATURES:

- Tight shut-off - Class VI
- Single soft seat
- Removable valve seat
- Minimum maintenance
- All internal parts can be removed with valve in line
- Single-point adjustment of setpoint
- Utilizes upstream pressure as actuation pressure
- Efficient 3-way plug accurately maintains setpoint

CERTIFICATIONS:

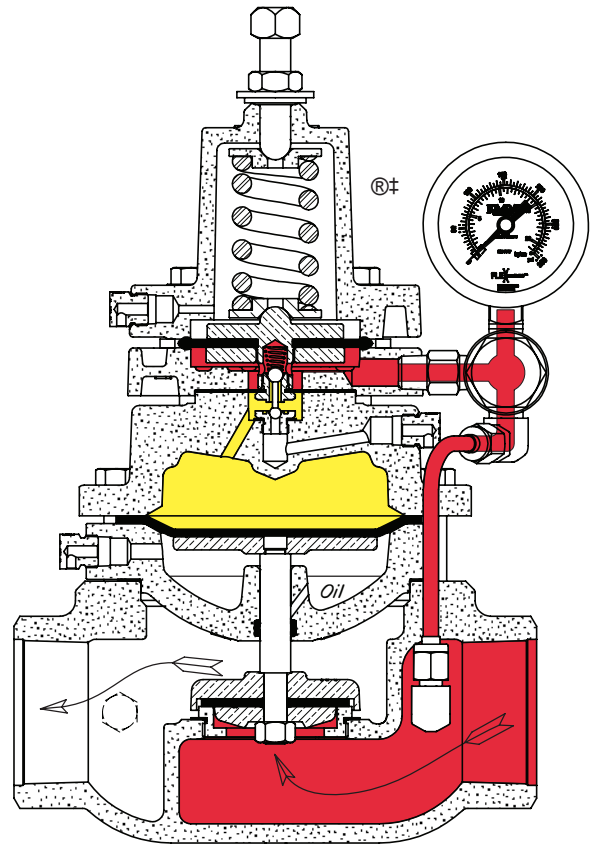
Canadian Registration Number (CRN):
0C16234.24567890NTY (Ductile)
0C15604.24567890NTY (Steel)

Kimray is an ISO 9001- certified manufacturer.

CLASSIFICATIONS:

Non-Bleed / Intermittent Vent

-  Pilot Assembly
-  Motor Valve Stem Assembly
-  Upstream Pressure
-  Motor Valve Diaphragm Pressure



	Standard Configuration Code †	Order Code	Line Size	Connection Type	Oper. Press. psig	Max. W.P. psig ††	Cv	Cf
Ductile	RBP1SADF1S	AKB	1"	NPT	10-300	300	13.2	0.74
	RBP2SADF1S	AAR	2"	NPT	10-300	300	47.0	0.84
	RBP2ARDF1S	AAS		150RF	10-250	250		
	RBP3SADF1S	AAT	3"	NPT	10-300	300	117	0.75
	RBP3ARDF1S	AAU		150RF	10-250	250		
	RBP4SADF1S	AAW	4"	NPT	10-300	300	210	0.75
	RBP4ARDF1S	AAX		150RF	10-250	250		
	RBP4ARDF1S	AAY	6"	150RF	10-250	250	480	0.75
Steel	RBP1SAWF1S	AKC	1"	150RF	10-285	285	47.0	0.84
	RBP2ARWF1S	AGB	2"	150RF	10-285	285	117	0.75
	RBP3ARWF1S	AGC	3"	150RF	10-285	285	210	0.75
	RBP4ARWF1S	AGD	4"	150RF	10-285	285	480	0.75
	RBP6ARWF1S	AGE	6"	150RF	10-285	285	480	0.75

NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 06:I - 06:IV

† For Corrosive service remove last "S" & replace with "C"

† For KimCoat option remove last "S" & replace with "K"

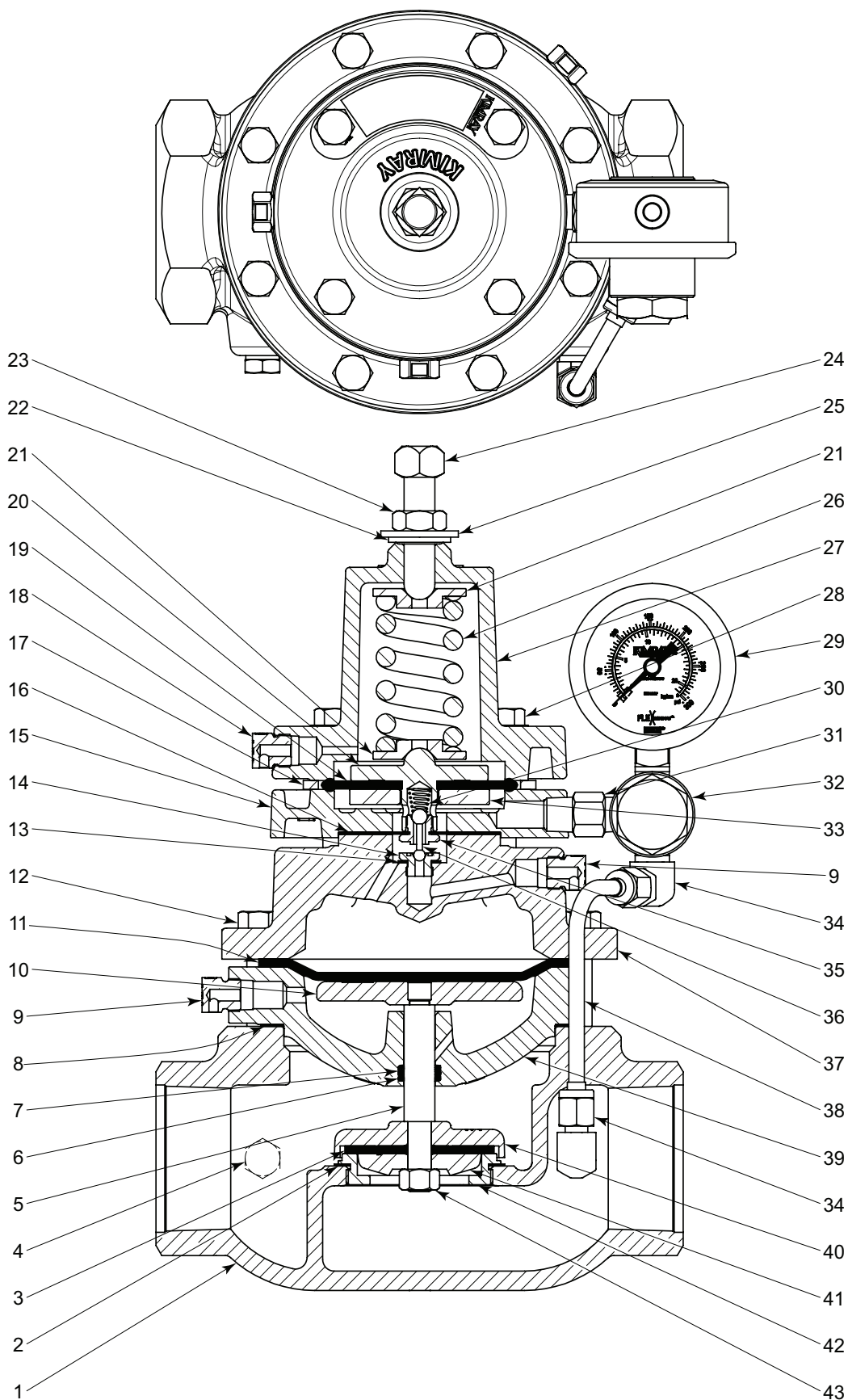
† For code builder see page 06:00.2

†† Max W.P. values based on -20°F to 100°F.

PRESSURE REGULATORS

DUCTILE GAS BACK PRESSURE MODEL BP PARTS DRAWING

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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.
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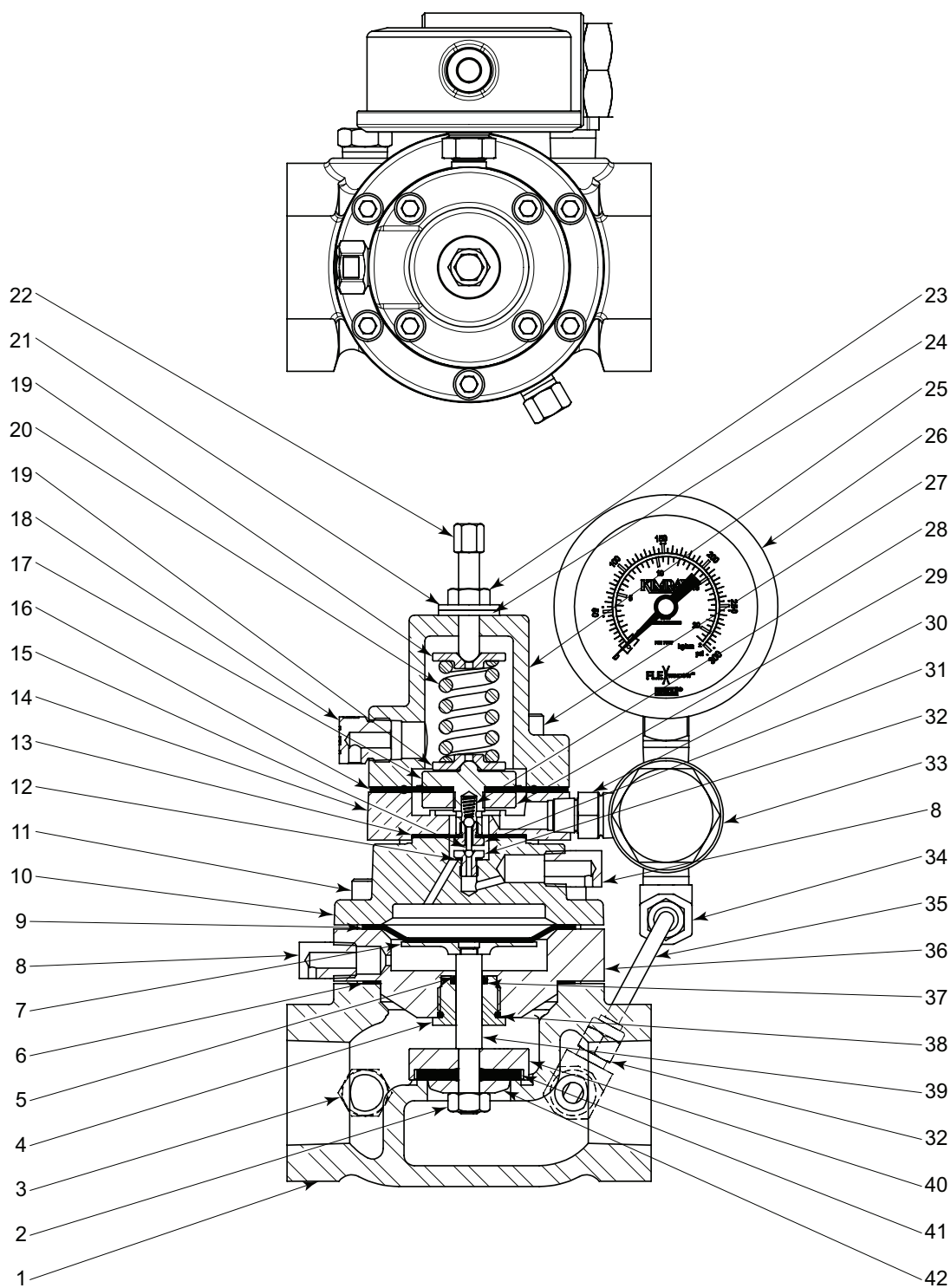
ITEM	QTY.	DESCRIPTION	PART NUMBER									
			STANDARD					CORROSIVE				
			1 INCH	2 INCH	3 INCH	4 INCH	6 INCH	1 INCH	2 INCH	3 INCH	4 INCH	6 INCH
1	1	Body										
		NPT Thru	2033	1709	1634	2001	----	2033 ‡	1709 ‡	1634 ‡	2001 ‡	----
		150RF Thru	----	1913	1914	2002	2466	----	1913 ‡	1914 ‡	2002 ‡	2466 ‡
		Grooved Thru	----	2964	----	----	----	----	2964 ‡	----	----	----
		NPT Angle	----	4999	----	----	----	----	4999 ‡	----	----	----
2	1	Gasket *	----	276	277	196	279	----	276	277	196	279
3	1	Seat *	163HSN	164HSN	165HSN	166HSN	167HSN	163HSN	164HSN	165HSN	166HSN	167HSN
4	2	Plug			699					699SS6		
5	1	Valve Stem	137	138	139	140	141	137SS6	138SS6	139SS6	140SS6	141SS6
6	2	Back Up *	148T	149T	150T	151T	152T	148T	149T	150T	151T	152T
7	1	O-Ring *	153	154	155	156	157	153	154	155	156	157
8	1	Gasket *	195	196	197	198	199	195	196	197	198	199
9	1	Vent Plug	1357		147			1357SS6		147SS6		
10	1	Diaphragm Plate	132SS6	133	134	135	136	132SS6	133	134	135	136
11	1	Diaphragm *	127	1706	1640	2015	2140	127	1706	1640	2015	2140
12	(QTY)	Bolt	4318 (6)	965 (8)	907 (10)	907 (12)	2142 (16)	4318 (6)	965 (8)	907 (10)	907 (12)	2142 (16)
13	1	Gasket *	3018		118			3018		118		
14	1	Pilot Seat *	3016		113			3016SS6		113SS6		
15	1	Pilot Housing	3013		1701			3013SS6		1701 ‡		
16	1	Diaphragm *	3014		110			3014		110		
17	1	Spacer Ring *	----		7437			----		7437		
18	1	Vent Plug			147					147SS6		
19	1	Diaphragm *	3011P		5259P			3011P		5259P		
20	1	Diaphragm Plate	3009		105			3009SS6		105SS6		
21	2	Spring Guide	4484SS6		2612			4484SS6		2612SS6		
22	1	Thread Seal	4542		4488			4542		4488		
23	1	Nut	1676		2377			1676SS6		2377SS6		
24	1	Adjusting Screw	6976		5163			6976SS6		5163SS6		
25	1	Washer	4543		4491			4543		4491S6		
26	1	Spring	4323		2611			4323		2611		
27	1	Bonnet	4525		2610			4525		2610 ‡		
28	4	Bolt	6972		907			6972		907		
29	1	Pressure Gauge			7707					7707		
30	1	Spring *	3008		108			3008		108HAC		
31	1	Nipple	6890		648			6890SS6		648SS6		
32	1	1/4 F30 Filter			YAS					YASSS6		
33	1	Diaph. Nut	3010		107			3010SS6		107SS6		
34	2	Elbow			875					875SS6		
35	1	Pilot Seat *	3015		565			3015SS6		565SS6		
36	1	Pilot Plug *	3017		112			3017		112		
37	1	Upper Housing	3019	1719	1636	2003	2177	3019SS6	1719 ‡	1636 ‡	2003 ‡	2177 ‡
38	1	Tubing	263S6	123SS6	124SS6	125SS6	126SS6	4416S6	123SS6	124SS6	125SS6	126SS6
39	1	Lower Housing	142	1704	1632	145	146	142 ‡	1704 ‡	1632 ‡	145 ‡	146 ‡
40	1	Seat Disc	158	159	160	161	162	158SS6	2493SS6	2494SS6	2495SS6	2961SS6
41	1	Standard Ratio Plug	176SS6	177SS6	178	179	180	176SS6	177SS6	3076SS6	3078SS6	3079SS6
		Reduced Ratio Plug	4932	4933	1228SS6	177SS6	178	4932SS6	4933SS6	1228SS6	177SS6	3076SS6
42	1	Removable Seat	----	272K	273K	274K	275K	----	2496SS6K	2497SS6K	2498SS6K	3075SS6K
43	1	Nut *	172	173	906		175	172SS6	173SS6	174SS6		175SS6
	2	Lifting Ring (not shown)	----	----	7559		----	----	----	7559		----
Repair Kits			RRU	RDG	RDH	RDI	RDJ	‡ Coated Parts available with "K" service type				
								RRU	RDG	RDH	RDI	RDJ

* These parts are recommended spare parts and are stocked as repair kits.

PRESSURE REGULATORS

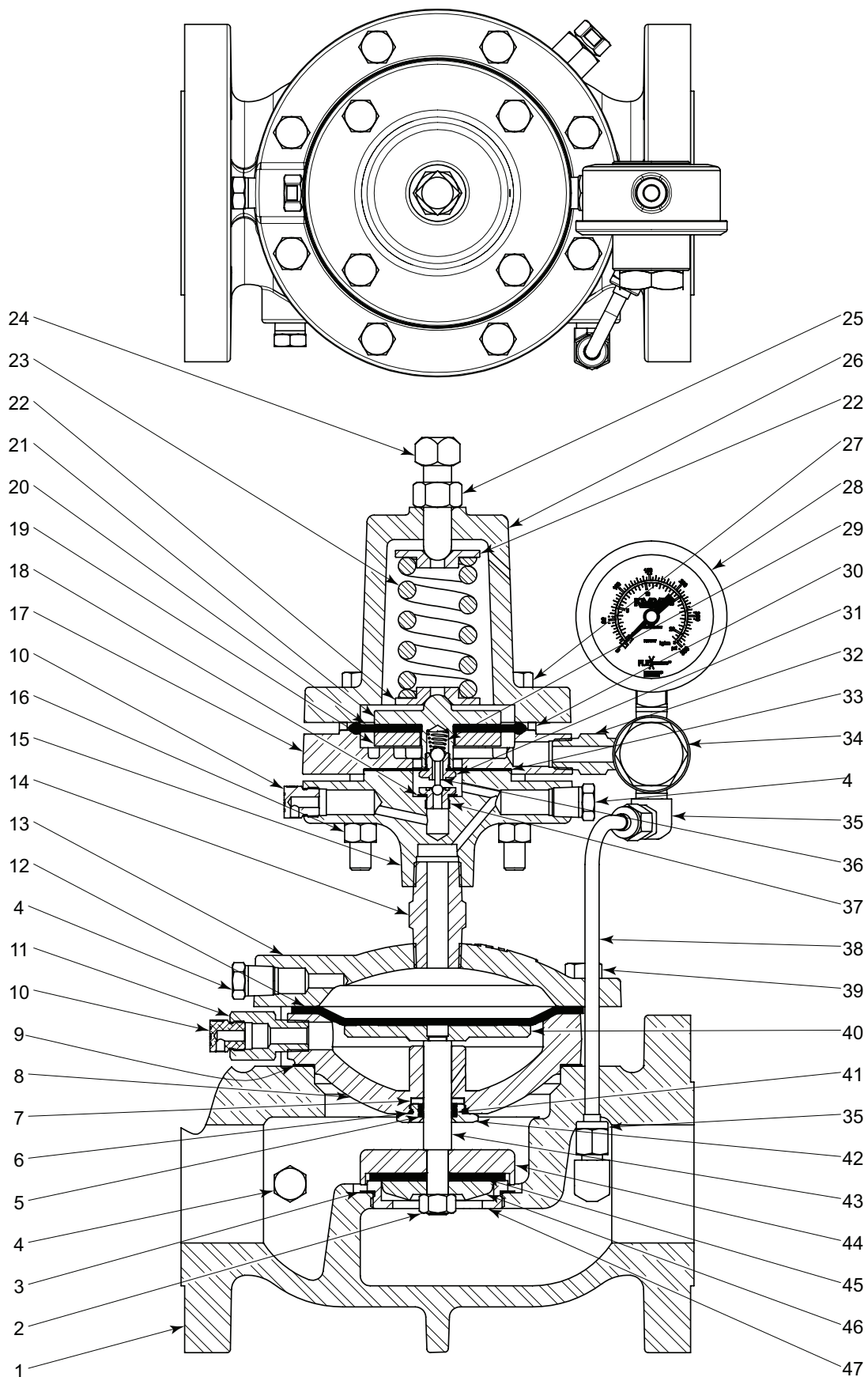
1 INCH STEEL GAS BACK PRESSURE MODEL BP PARTS DRAWING

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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	Full Port Body		
		NPT Thru	4942	4942 ‡
		150RF Thru	7354	7354 ‡
		Reduced Port Body		
		NPT Thru	4603	4603 ‡
		150RF Thru	5292	5292 ‡
		Removable Seat (not shown)	1349	1349SS6
2	1	Nut *	172	172SS6
3	1	Plug	699	699SS6
4	1	Bushing	4632A	4632A
5	1	Seal	4551C	4551C
6	1	Gasket *	195	195
7	1	Diaphragm Plate	132SS6	132SS6
8	2	Vent Plug	1357	1357SS6
9	1	Diaphragm *	127	127
10	1	Upper Housing	3019	3019SS6
11	6	Bolt	4318	4318
12	1	Gasket *	3018	3018
13	1	Diaphragm *	3014	3014
14	1	Pilot Housing	3013	3013SS6
15	1	Pilot Plug *	3017	3017
16	1	Diaphragm *	3011P	3011P
17	1	Diaphragm Plate	3009	3009SS6
18	1	Vent Plug	147	147SS6
19	2	Spring Guide	4484SS6	4484SS6
20	1	Spring *	4323	4323
21	1	Washer *	4543	4543
22	1	Adjusting Screw	6976	6976S6
23	1	Nut	1676	1676SS6
24	1	Thread Seal *	4542	4542
25	1	Bonnet	4525	4525 ‡
26	1	Pressure Gauge	7707	7707
27	4	Bolt	6972	6972
28	1	Spring *	3008	3008
29	1	Diaph. Nut	3010	3010SS6
30	1	Nipple	6890	6890S6
31	1	Pilot Seat *	3016	3016SS6
32	1	Pilot Seat *	3015	3015SS6
33	1	1/4 F30 Filter	YAS	YASSS6
34	2	Elbow	875	875SS6
35	1	Tubing	263S6	263S6
36	1	Lower Housing	4551BSS6	4551BSS6 ‡
37	1	O-Ring *	153V	153V
38	1	O-Ring *	4552	4552
39	1	Valve Stem	137	137SS6
40	1	Seat Disc	158	158SS6
41	1	Seat	163HSN	163HSN
42	1	Standard Ratio Plug	176SS6	176SS6
		Reduced Ratio Plug	4932	4932SS6
‡ Coated Parts available with "K" service type				
Repair Kits			RRT-TB	RRT-TB
* These parts are recommended spare parts and are stocked as repair kits.				



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

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	2	Back Up *	149T	150T	151T	152T	149T	150T	151T	152T
6	1	O-Ring *	5225	5226	5227	4086	5225	5226	5227	4086
7	1	Spacer	4557DS6	4561DS6	4566DS6	4571DS6	4557DS6	4561DS6	4566DS6	4571DS6
8	1	Lower Housing	2481	2482	2483	2957	2481 ‡	2482 ‡	2483 ‡	2957 ‡
9	1	Gasket *	196	197	198	199	196	197	198	199
10	2	Vent Plug	147				147SS6			
11	1	Adapter	7244			----	7244SS6			----
12	1	Diaphragm *	1706	1640	2015	2140	1706	1640	2015	2140
13	1	Bonnet	2487	2488	2489	2956	2487 ‡	2488 ‡	2489 ‡	2956 ‡
14	1	Nipple	2516				2516SS6			
15	1	Base	4995				4995 ‡			
16	4	Nut	241				241			
17	1	Pilot Housing	2514				2514 ‡			
18	1	Gasket	118				118			
19	1	Diaphragm Nut	107				107SS6			
20	1	Diaphragm *	5259P				5259P			
21	1	Diaphragm Plate	105				105SS6			
22	2	Spring Guide	2612				2612SS6			
23	1	Spring	2611				2611			
24	1	Adjusting Screw	2613				2613			
25	1	Nut	2377				2377			
26	1	Bonnet	2671				2671 ‡			
27	4	Bolt	1232				1232			
28	1	Pressure Gauge	7707				7707			
29	1	Spring *	108				108HAC			
30	1	Spacer Ring	7437				7437			
31	1	Pilot Seat *	565				565SS6			
32	1	Nipple	648				648SS6			
33	1	Diaphragm *	110				110			
34	1	1/4 F30 Filter	YAS				YASSS6			
35	2	Elbow	875				875SS6			
36	1	Pilot Plug	112				112			
37	1	Pilot Seat	113				113SS6			
38	1	Tubing	2505SS6	2552SS6	2529SS6	5061SS6	2505SS6	2552SS6	2529SS6	5061SS6
39	(QTY)	Bolt	965 (8)	907 (10)	907 (12)	2142 (16)	965 (8)	907 (10)	907 (12)	2142 (16)
40	1	Diaphragm Plate	2490	2491	2492	2958	2490SS6	2491SS6	2492SS6	2958SS6
41	1	O-Ring *	154	807	156	157	154	807	156	157
42	1	Retainer	4557ES6	4561ES6	4566ES6	4571ES6	4557E26	4561E26	4566ES6	4571ES6
43	1	Valve Stem	138	139	140	141	138SS6	139SS6	140SS6	141SS6
44	1	Seat Disc	2493SS6	2494SS6	2495SS6	2961SS6	2493SS6	2494SS6	2495SS6	2961SS6
45	1	Seat *	164HSN	165HSN	166HSN	167HSN	164HSN	165HSN	166HSN	167HSN
46	1	Ratio Plug	177SS6	178	179	3079SS6	177SS6	3076SS6	3078SS6	3079SS6
47	1	Removable Seat	2496SS6K	2497SS6K	2498SS6K	3075SS6K	2496SS6K	2497SS6K	2498SS6K	3075SS6K
	2	Lifting Ring (not shown)	7559				7559			
Repair Kits			RAE	RAF	RAG	RAH	RAE	RAF	RAG	RAH
			* 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

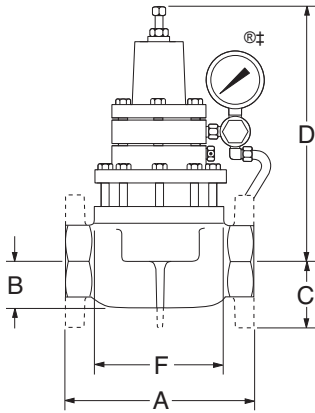
Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

PRESSURE REGULATORS

DIMENSIONS

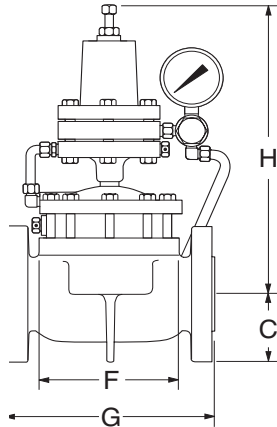
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BACK PRESSURE
UPSTREAM DIFFERENTIAL PRESSURE
PRESSURE REDUCING-BALANCED
PRESSURE REDUCING VACUUM

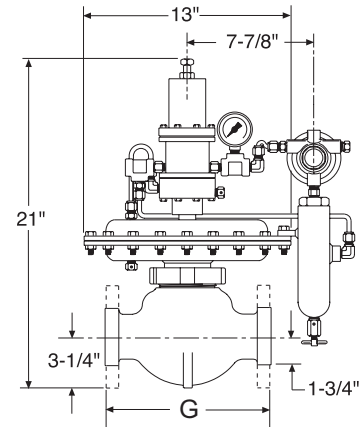


DUCTILE

PRESSURE DIFFERENTIAL
PRESSURE REDUCING
BACK PRESSURE VACUUM
LIQUID BACK PRESSURE

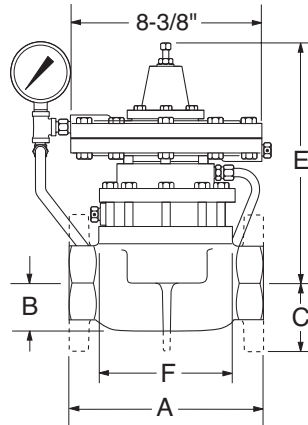


STEEL

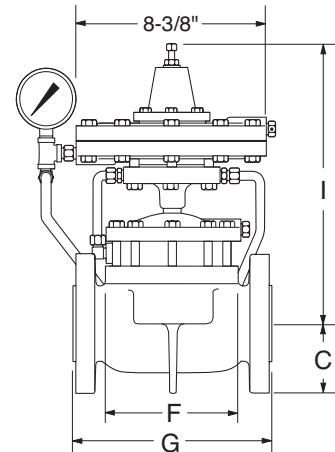


250 S/FGT-BP-S

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.

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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

Table 3 - Seal Specifications						
		NITRILE	HIGHLY SATURATED NITRILE	FKM	AFLAS®	
Resistance	Kimray Suffix	-	HSN	V	AF	
	Abrasion	G	G-E	G	G	
	Acid	F	G-E	G-E	E	
	Chemical	F	F	E	E	
	Cold	G	G	P	P	
	Flame	P	P	E	E	
	Heat	G	E	E	E	
	Oil	G-E	E	E	E	
	Ozone	P	G	G-E	E	
	Set	G	G	G-E	P	
	Tear	F	F	F	P	
	Water/Steam	F	E	P	G	
	Weather	F	G	E	E	
	CO2	F-G	G	G	G	
	H2S	P	F	P	E	
	Methanol	F	E	P	P	
	Properties	Dynamic	G	G	G	G
		Electrical	F	F	F	G-E
Impermeability		G	G	G	G	
Tensile Strength		G	G-E	G	F	
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)	

PRESSURE REGULATORS



CODE BUILDER

HIGH PRESSURE R SERIES

Series:

R = Pressure Regulator

Model:

Line Size:

1 = 1 NPS
2 = 2 NPS
3 = 3 NPS
4 = 4 NPS
6 = 6 NPS

End Connection:

SA = FNPT

AR = 150RF Flange

GV = Grooved (2 NPS only)

Shell Material:

D = Ductile Iron

W = Steel (WCB)

Inner Valve Size:

F = Full Port

R = Reduced Port

Control Range:

1 = 10 - 300 psig Spring

Service Type:

S = Standard

C = Corrosive

K = Corrosive with Coated Shell Components

R	BP	2	SA	D	F	1	S	
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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

06:10.1 - 06:10.7, 06:20.1 - 06:20.5,
06:30.1 - 06:30.3, 06:40.1 - 06:40.5,
06:50.1 - 06:50.7, 06:60.1 - 06:60.5,
06:70.1 - 06:70.5, 06:80.1 - 06:80.5,