

APPLICATION:

Self-contained, low pressure pilot-operated regulator used for maintaining vapor pressure on storage tanks, controlling compressor by-pass for gas recirculation and maintaining low pressure head on flash separators.

FEATURES:

- Tight shut-off
- 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:

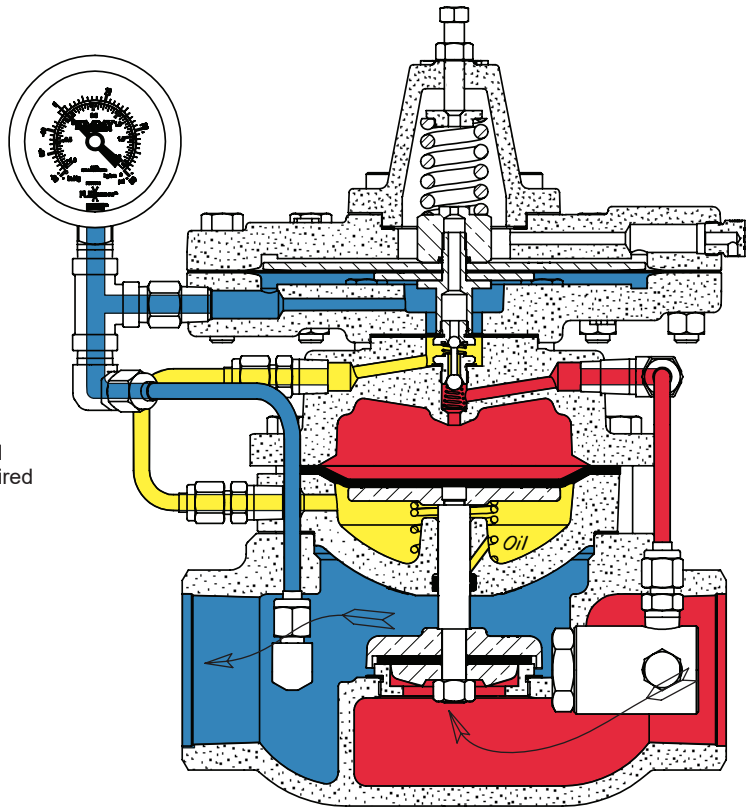
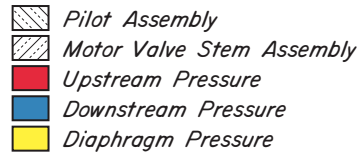
Canadian Registration Number (CRN):
0C16234.24567890NTY (Ductile)
Kimray is an ISO 9001- certified manufacturer.

CLASSIFICATIONS:

Non-Bleed / Intermittent Vent

UPSTREAM PRESSURE RANGE:

- 1 Inch valves:
Full port 10 psig min. or outside supply source is required
Reduced port 5 psig min. or outside supply source is required
- 2 thru 6 inch valves:
5 psig min. or outside supply source is required



	Standard Configuration Code †	Order Code	Line Size	Connection Type	Oper. Press. psig	Max. W.P. psig ††	Cv	Cf
Ductile	RLR2SADF2S	AOSD20	2"	NPT	1-20	300	47.0	0.84
	RLR2ARDF2S	AOTD20		150RF	1-20	250		
	RLR3SADF2S	AOVD20	3"	NPT	1-20	300	117	0.75
	RLR3ARDF2S	AOWD20		150RF	1-20	250		
	RLR4SADF2S	AOYD20	4"	NPT	1-20	300	210	0.75
	RLR4ARDF2S	AOZD20		150RF	1-20	250		
	RLR4ARDF2S	APCD20	6"	150RF	1-20	250	480	0.75
Steel	RLR2ARWF2S	AIA20	2"	150RF	1-20	285	47.0	0.84
	RLR3ARWF2S	AFC20	3"	150RF	1-20	285	117	0.75
	RLR4ARWF2S	AFD20	4"	150RF	1-20	285	210	0.75
	RLR6ARWF2S	AHH20	6"	150RF	1-20	285	480	0.75

NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 06:1 - 06:1V

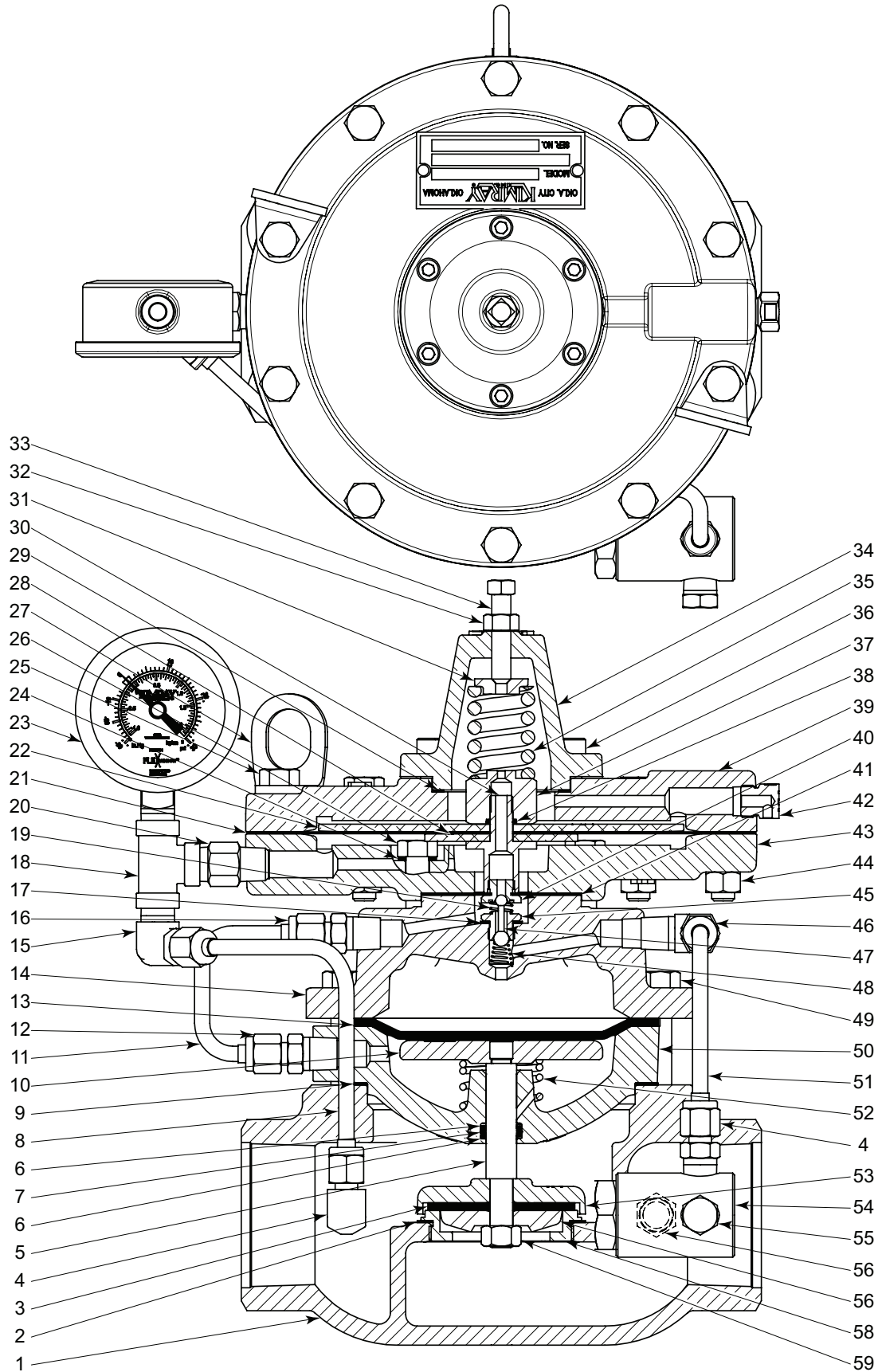
† For Corrosive service remove last "S" & replace with "C"

† For code builder see page 06:00.3

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

PRESSURE REGULATORS

GAS LOW PRESSURE PRESSURE REDUCING
MODEL LR PARTS DRAWING

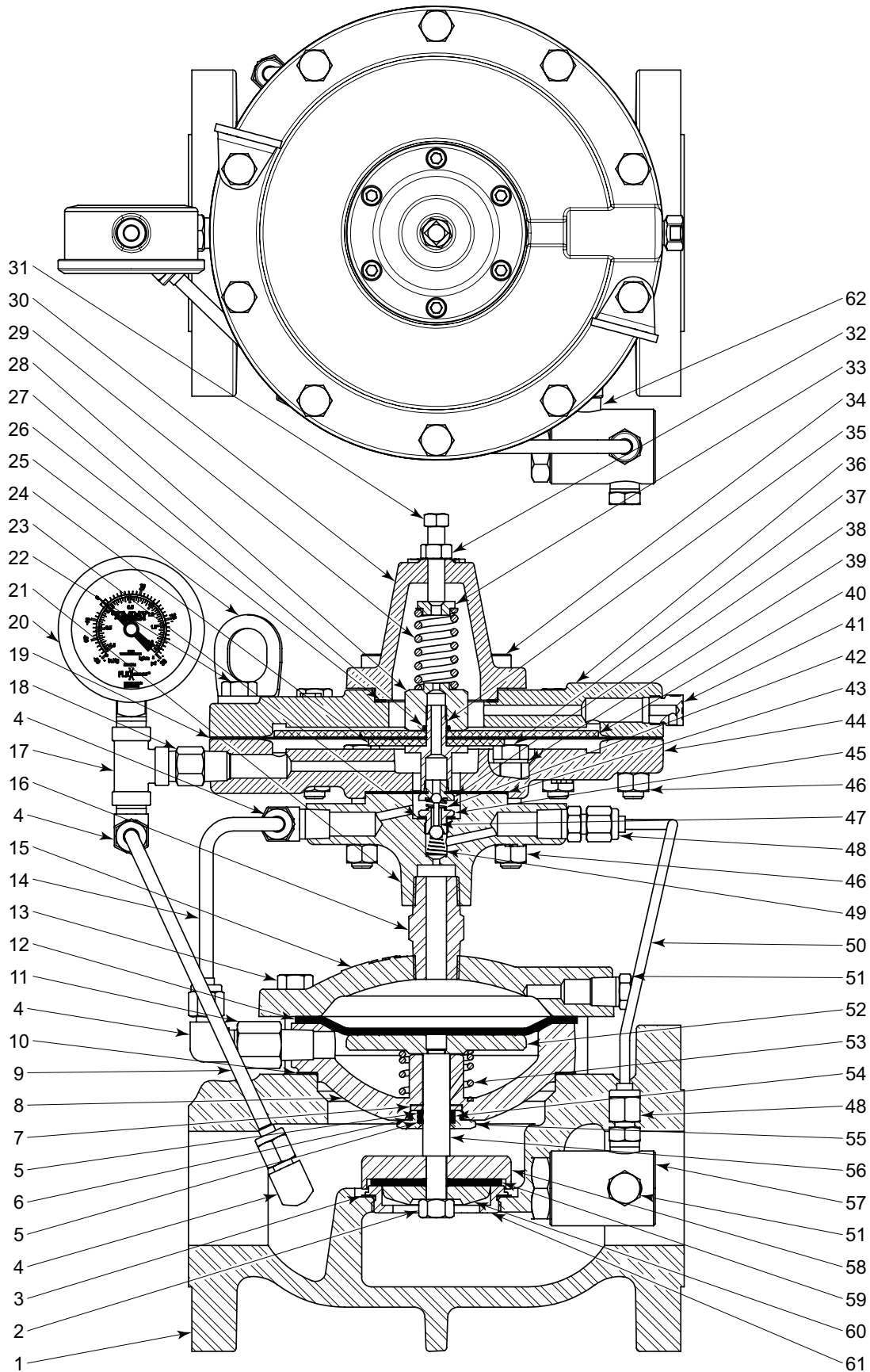


All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

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											
		NPT Thru	1709	1634	2001	----	1709 ‡	1634 ‡	2001 ‡	----			
		150RF Thru	1913	1914	2002	2466	1913 ‡	1914 ‡	2002 ‡	2466 ‡			
		Grooved Thru	2964	----	----	----	2964 ‡	----	----	----			
2	1	Gasket *	276	277	196	279	276	277	196	279			
3	1	Seat	Standard *	164HSN	165HSN	166HSN	167HSN	164HSN	165HSN	166HSN	167HSN		
			Reduced *	164HSN	1230HSN	164HSN	165HSN	164HSN	1230HSN	164HSN	165HSN		
4	2	Elbow			875								
5	1	Valve Stem	Standard	138	139	140	141	138SS6	139SS6	140SS6	141SS6		
			Reduced	138	1222SS6	1223SS6	1224SS6	138SS6	1222SS6	1223SS6	1224SS6		
6	2	Back Up *	149T	150T	151T	152T	149T	150T	151T	152T			
7	1	O-Ring *	154	155	156	157	154	155	156	157			
8	1	Tubing	1378SS6	2529SS6	4251S6	218SS6	1378SS6	2529SS6	4251S6	218SS6			
9	1	Gasket *	196	197	198	199	196	197	198	199			
10	1	Diaphragm Plate	133	134	135	136	133	134	135	136			
11	1	Tubing	4008SS6	213SS6	4251S6	2529SS6	4008SS6	213SS6	4251S6	2529SS6			
12	1	Elbow / Conn.		875		874		875SS6		874SS6			
	1	Nipple & Ell		----		648 & 1481		----		648SS6 & 1481SS6			
13	1	Diaphragm *	1706	1640	2015	2140	1706	1640	2015	2140			
14	1	Upper Housing	1703	1639	2004	2178	1703 ‡	1639 ‡	2004 ‡	2178 ‡			
15	1	Elbow / Conn.	875		874	875	875SS6		874SS6	875SS6			
16	1	Elbow / Conn.			874				874SS6				
17	1	Gasket *			118				118				
18	1	Tee			219				219SS6				
19	1	Spring *			566				566HAC				
20	1	Nipple			648				648SS6				
21	1	Diaphragm *			1212				1212				
22	1	Upper Diaphragm Plate			1208				1208SS6				
23	1	Pressure Gauge			7704				7704				
24	4	Gasket *			242				242				
25	10	Screw			236				236				
26	4	Screw			1672				1672SS6				
27	2	Lifting Ring		7559		----			7559	----			
28	1	Lower Diaphragm Plate			1340				1340SS6				
29	1	Gasket *			1216				1216				
30	1	Stem			2913				2913SS6				
31	1	Spring Guide		7148S6 (Std.)	636SS6 (Opt. 2.5 & 5 lbs.)				7148S6 (Std.)	636SS6 (Opt. 2.5 & 5 lbs.)			
32	1	Nut			922				922				
33	1	Adjusting Screw			897				897				
34	1	Bonnet			1336				1336 ‡				
35	1	Spring		4379 (Std.)	1527 (Opt. 2.5 lbs.) & 3061 (Opt. 5 lbs.)				4379 (Std.)	1527 (Opt. 2.5 lbs.) & 3061 (Opt. 5 lbs.)			
36	6	Screw			7531				7531				
37	1	Nut			2912				2912SS6				
38	1	O-Ring *			265				265				
39	1	Upper Pilot Housing			1206				1206 ‡				
40	1	Pilot Seat *			113				113SS6				
41	1	Diaphragm *			110				110				
42	2	Vent Plug			147				147SS6				
43	1	Lower Pilot Housing			1356				1356 ‡				
44	10	Nut			241				241				
45	1	Pilot Seat *			565				565SS6				
46	1	Elbow / Conn.		874		875			874SS6	875SS6			
47	1	Pilot Plug *			112				112				
48	1	Spring			108				108HAC				
49	(QTY)	Bolt	965 (8)	907(10)	907 (12)	2142 (16)	965 (8)	907(10)	907 (12)	2142 (16)			
50	1	Lower Housing	1704	1632	145	146	1704 ‡	1632 ‡	145 ‡	146 ‡			
51	1	Tubing	1826SS6	206SS6	126SS6	1385SS6	1826SS6	206SS6	126SS6	1385SS6			
52	1	Spring	1388	7132	1529	1575	1388	7132	1529	1575			
53	1	Seat Disc	Standard	159	160	161	162	2493SS6	2494SS6	2495SS6	2961SS6		
			Reduced	159	1229	159	160						
54	1	1/4 F30 Filter			YAS				YASSS6				
55	1	Plug			699				699SS6				
56	1	Nipple	262		648				262SS6	648SS6			
57	1	Ratio Plug	Standard	177SS6	178	179	180	177SS6	3076SS6	3078SS6	3079SS6		
			Reduced	4933	1228SS6	177SS6	178	4933SS6	1228SS6	177SS6	3076SS6		
58	1	Removable Seat	Standard	272K	273K	274K	275K	2496SS6K	2497SS6K	2498SS6K	3075SS6K		
			Reduced	4934K	1219DK	1220DK	1221K	4934SS6K	1219SS6K	1220SS6K	1221SS6K		
59	1	Nut	Standard *	173		906	175	173SS6		174SS6	175SS6		
			Reduced *		173		906			173SS6	174SS6		
Repair Kits			RYI	RYM	RYQ	RYT	‡ Coated Parts available with "E" shell material						
			* These parts are recommended spare parts and are stocked as repair kits.										

PRESSURE REGULATORS

STEEL GAS LOW PRESSURE PRESSURE REDUCING
MODEL LR PARTS DRAWING



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



PRESSURE REGULATORS

**STEEL GAS LOW PRESSURE PRESSURE REDUCING
MODEL LR 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	Standard *	173	906	175	173SS6	174SS6	175SS6			
			Reduced *		173	906						
3	1	Gasket	276	277	196	279	276	277	196	279		
4	4	Elbow	875				875SS6					
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	Tubing	2552SS6	213SS6	4251S6	5061SS6	2552SS6	213SS6	4251S6	5061SS6		
10	1	Gasket	196	197	198	199	196	197	198	199		
			7244				7244S6					
			----				----					
11	1	Elbow	----				1481					
			----				1481SS6					
			----				2600					
12	1	Diaphragm	1706	1640	2015	2140	1706	1640	2015	2140		
			965 (8)				907 (10)					
			907 (12)				2142 (16)					
13	(QTY)	Bolt	2511SS6	213SS6	4050SS6	5060SS6	2511SS6	213SS6	4050SS6	5060SS6		
14	1	Tubing	2487	2488	2489	2956	2487 ‡	2488 ‡	2489 ‡	2956 ‡		
15	1	Bonnet	2516				2516SS6					
16	1	Nipple	219	2000	219	219SS6	2000SS6	219SS6				
17	1	Tee	648				648SS6					
18	1	Nipple	1212				1212					
19	1	Diaphragm	7704				7704					
20	1	Pressure Gauge	2515				2515 ‡					
21	1	Base	236				236					
22	10	Screw	118				118					
23	1	Gasket	1340				1340SS6					
24	1	Lower Diaphragm Plate	7559				7559					
25	2	Lifting Ring	1216				1216					
26	1	Gasket	265				265					
27	1	O-Ring	2912				2912S6					
28	1	Nut	4379 (Std.) 1527 (Opt. 2.5 lbs.) & 3061 (Opt. 5 lbs.)				4379 (Std.) 1527 (Opt. 2.5 lbs.) & 3061 (Opt. 5 lbs.)					
29	1	Spring	1336				1336 ‡					
30	1	Bonnet	897				897					
31	1	Adjusting Screw	922				922					
32	1	Nut	7148S6 (Std.) 636SS6 (Opt. 2.5 & 5 lbs.)				7148S6 (Std.) 636SS6 (Opt. 2.5 & 5 lbs.)					
33	1	Spring Guide	7531				7531					
34	6	Screw	2913				2913SS6					
35	1	Stem	1206				1206 ‡					
36	1	Upper Pilot Housing	191				191					
37	4	Screw	113				113SS6					
38	1	Pilot Seat	242				242					
39	4	Gasket	1208				1208SS6					
40	1	Upper Diaphragm Plate	147				147SS6					
41	1	Vent Plug	566				566HAC					
42	1	Spring	110				110					
43	1	Diaphragm	1356				1356 ‡					
44	1	Lower Pilot Housing	565				565SS6					
45	1	Pilot Seat	241				241					
46	14	Nut	112				112					
47	1	Pilot Plug	874				874SS6					
48	2	Elbow / Conn.	1360				1360HAC					
49	1	Spring	2552SS6	213SS6	4251S6	2529SS6	2552SS6	213SS6	4251S6	2529SS6		
50	1	Tubing	699				699SS6					
51	2	Plug	2490	2491	2492	2958	2490	2491	2492	2958SS6		
52	1	Diaphragm Plate	1388	1528	1529	1575	1388	1528	1529	1575		
53	1	Spring	154	807	156	157	154	807	156	157		
54	1	O-Ring	4557ES6	4561ES6	4566ES6	4571ES6	4557ES6	4561ES6	4566ES6	4571ES6		
55	1	Retainer	138	139	140	141	138SS6	139SS6	140SS6	141SS6		
56	1	Valve Stem	Standard	138	1222SS6	1223SS6	1224SS6	138SS6	1222SS6	1223SS6	1224SS6	
57	1	1/4 F30 Filter	YAS									
58	1	Seat Disc	Standard	2493SS6	2494SS6	2495SS6	2961SS6	2493SS6	2494SS6	2495SS6	2961SS6	
			Reduced	2493SS6	2585SS6	2493SS6	2494SS6	2493SS6	2585SS6	2493SS6	2494SS6	
59	1	Seat	Standard *	164HSN	165HSN	166HSN	167HSN	164HSN	165HSN	166HSN	167HSN	
			Reduced *	164HSN	1230HSN	164HSN	165HSN	164HSN	1230HSN	164HSN	165HSN	
60	1	Ratio Plug	Standard	177SS6	178	179	3079SS6	177SS6	3076SS6	3078SS6	3079SS6	
			Reduced	4933	1228SS6	177SS6	178	4933SS6	1228SS6	177SS6	3076SS6	
61	1	Removable Seat	Standard	2496SS6K	2497SS6K	2498SS6K	3075SS6K	2496SS6K	2497SS6K	2498SS6K	3075SS6K	
			Reduced	4934SS6K	1219SS6K	1220SSK	1221SS6K	4934SS6K	1219SS6K	1220SSK	1221SS6K	
62	1	Nipple	262	648				262SS6	648SS6			
Repair Kits			RYI	RYM	RYQ	RYT	RYIS6	RYMS6	RYQS6	RYTS6		

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

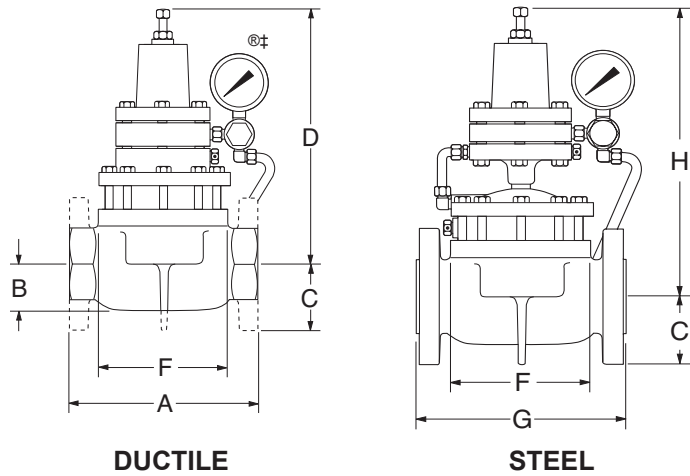
Table 1 - Flow Coefficient(Cv) at % stem travel for Pilot-operated Regulators											
1" Pressure Regulator											
Trim Size in.(mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
1/2 in (12mm) Reduced	0.75	0.4	0.7	0.9	1.3	1.8	2.5	3.2	3.9	4.5	5
1 in (25mm) Full Port	0.74	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

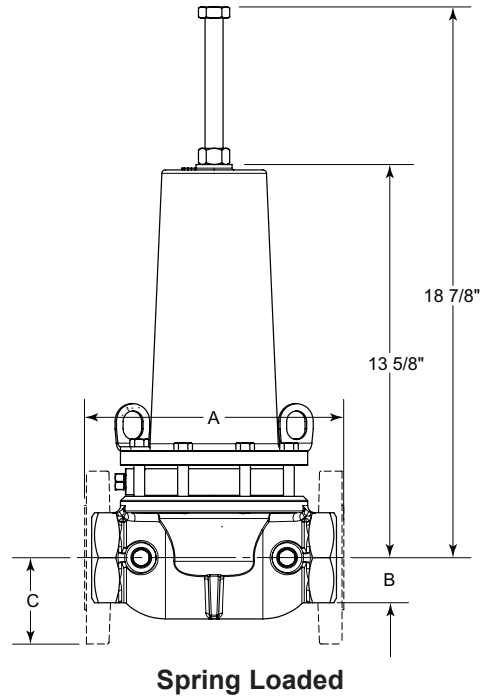
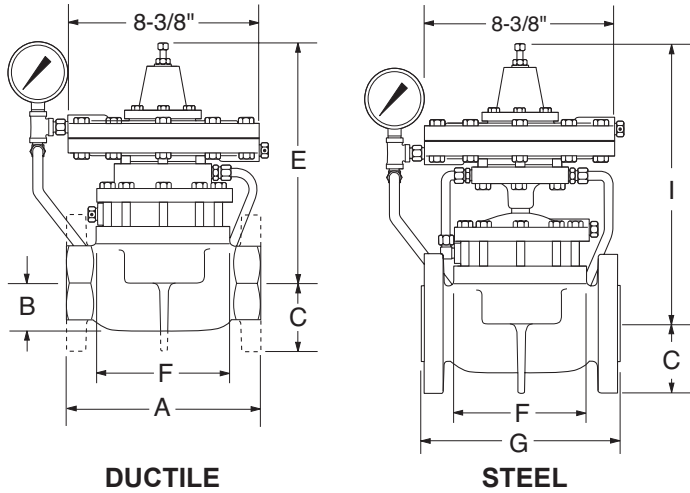


DIMENSIONS



- Back Pressure
- Back Pressure Vacuum
- Liquid Back Pressure
- Pressure Reducing
- Pressure Reducing Vacuum
- Pressure Reducing-Balanced
- Pressure Differential

- Low Pressure Back Pressure
- Ounces Back Pressure To Vacuum
- Ounces Pressure Reducing
- Ounces Pressure Reducing Vacuum
- Vacuum Back Pressure To Vacuum



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.

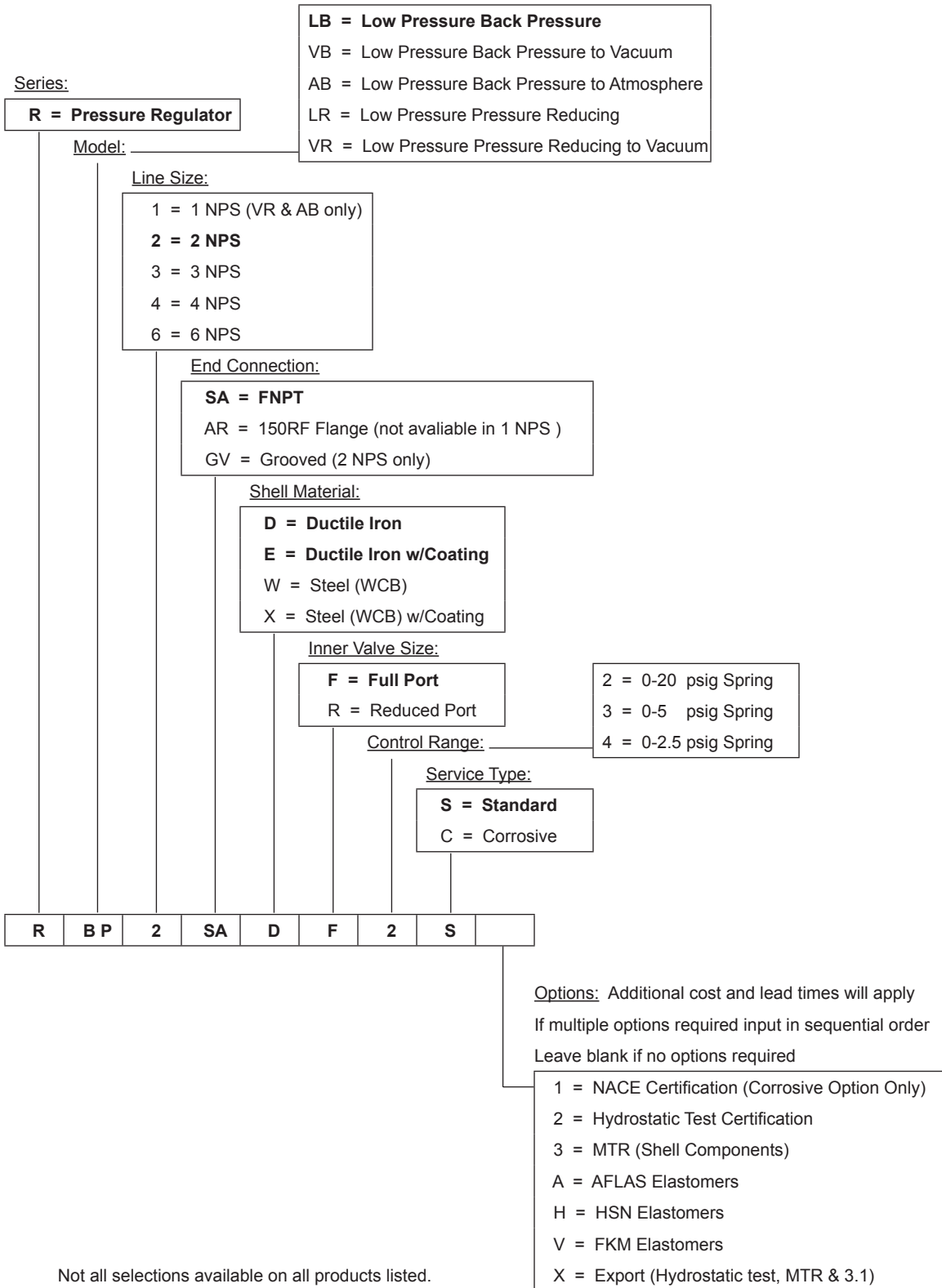
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Table 2 - Seal Options		
Part	Standard Material	Optional Material
Seat	HSN	FKM, AFLAS®
O-rings	Nitrile	HSN, FKM, AFLAS®
All Diaphragms	Nitrile	HSN, FKM, AFLAS®

Table 3 - Seal Specifications				
	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 +250°F	-20° to +300°F	-15° to +400°F	+15° to +450°F
	-29° to +121°C	-29° to +149°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)	Ductile (ASTM A395) + Kimcoat
	2" thru 6"	WCB (ASTM A216)	WCB (ASTM A216) + Kimcoat
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)	



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