

APPLICATION:

Self-contained, pilot-operated regulator used for regulation of inlet pressure to gas compressors and control of supply or distribution system pressures where the pressure to the regulator varies significantly and regulated pressure must remain constant.

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)
 0C15604.24567890NTY (Steel)
 Kimray is an ISO 9001- certified manufacturer.

SET POINT DRIFT RATIO:

100:1

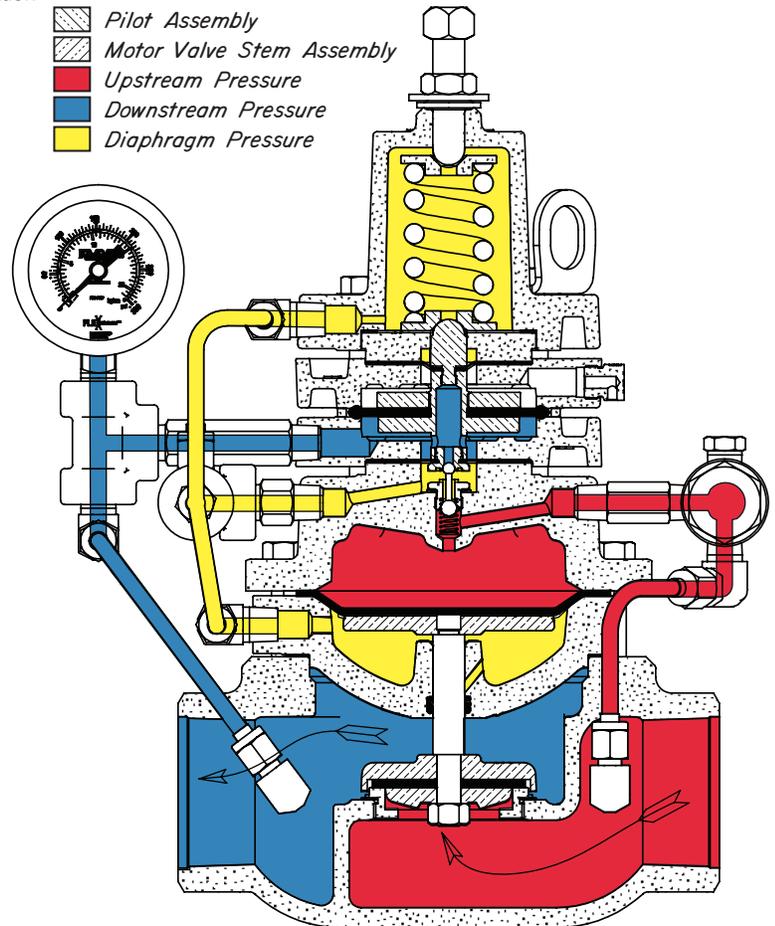
CLASSIFICATIONS:

Non-Venting

MIN. DIFFERENTIAL:

10 psig

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



	Standard Configuration Code †	Order Code	Line Size	Connection Type	Oper. Press. psig	Max. W.P. psig ††	Cv	Cf
Ductile	RPN1SADF1S	AVD	1"	NPT	10-300	300	13.2	0.74
	RPN2SADF1S	AVE	2"	NPT	10-300	300	47.0	0.84
	RPN2ARDF1S	AVF		150RF	10-250	250		
	RPN3SADF1S	AVH	3"	NPT	10-300	300	117	0.75
	RPN3ARDF1S	AVI		150RF	10-250	250		
	RPN4SADF1S	AVK	4"	NPT	10-300	300	210	0.75
	RPN4ARDF1S	AVL		150RF	10-250	250		
RPN6ARDF1S	AVN	6"	150RF	10-250	250	480	0.75	
Steel	RPN2ARWF1S	AVG	2"	150RF	10-285	285	47.0	0.84
	RPN3ARWF1S	AVJ	3"	150RF	10-285	285	117	0.75
	RPN4ARWF1S	AVM	4"	150RF	10-285	285	210	0.75
	RPN6ARWF1S	AVO	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 06:1 - 06:1V

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

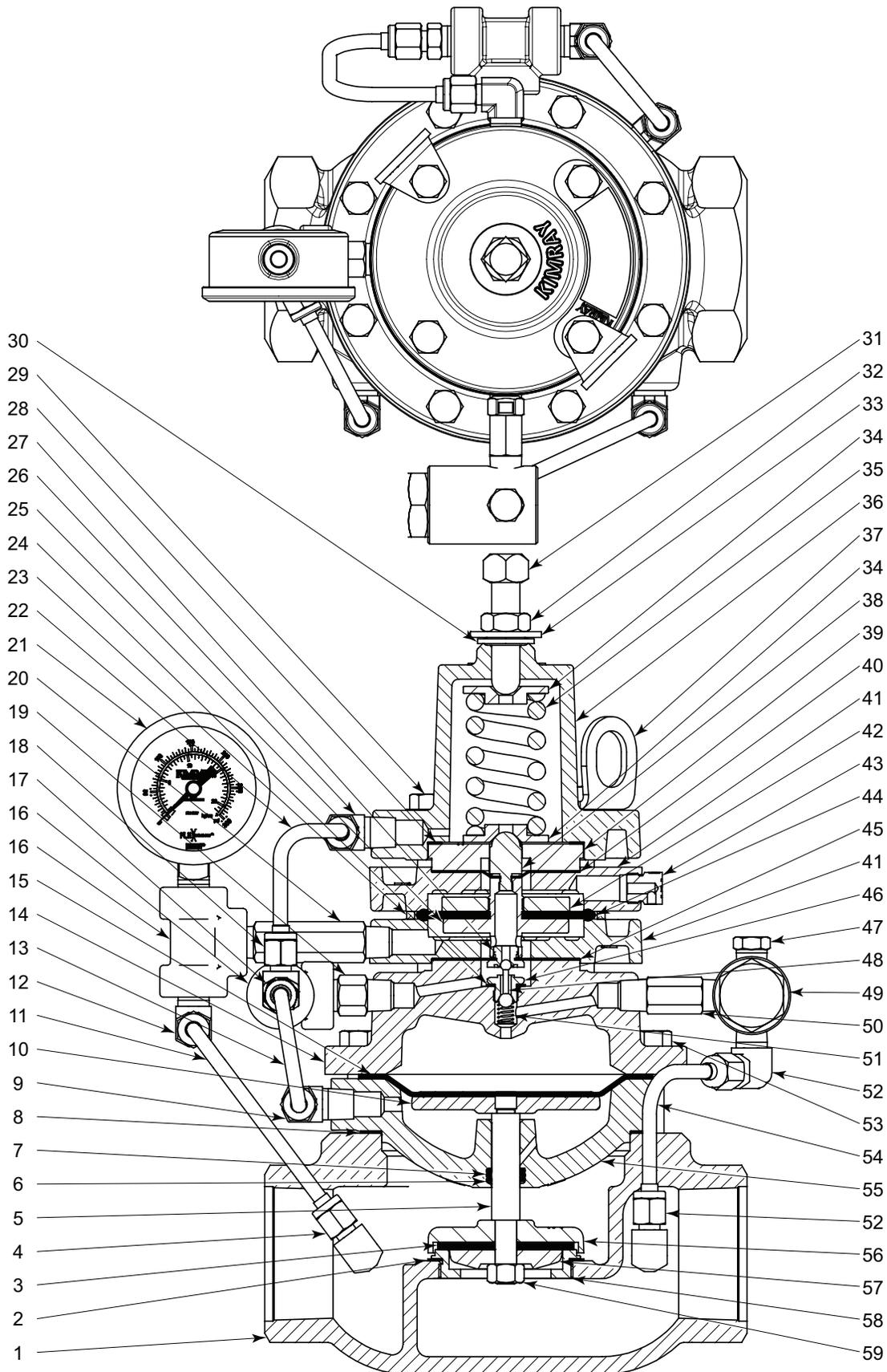
† For code builder see page 06:00.2

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

PRESSURE REGULATORS



GAS PRESSURE REDUCING BALANCED NON - VENTING MODEL PN PARTS DRAWING



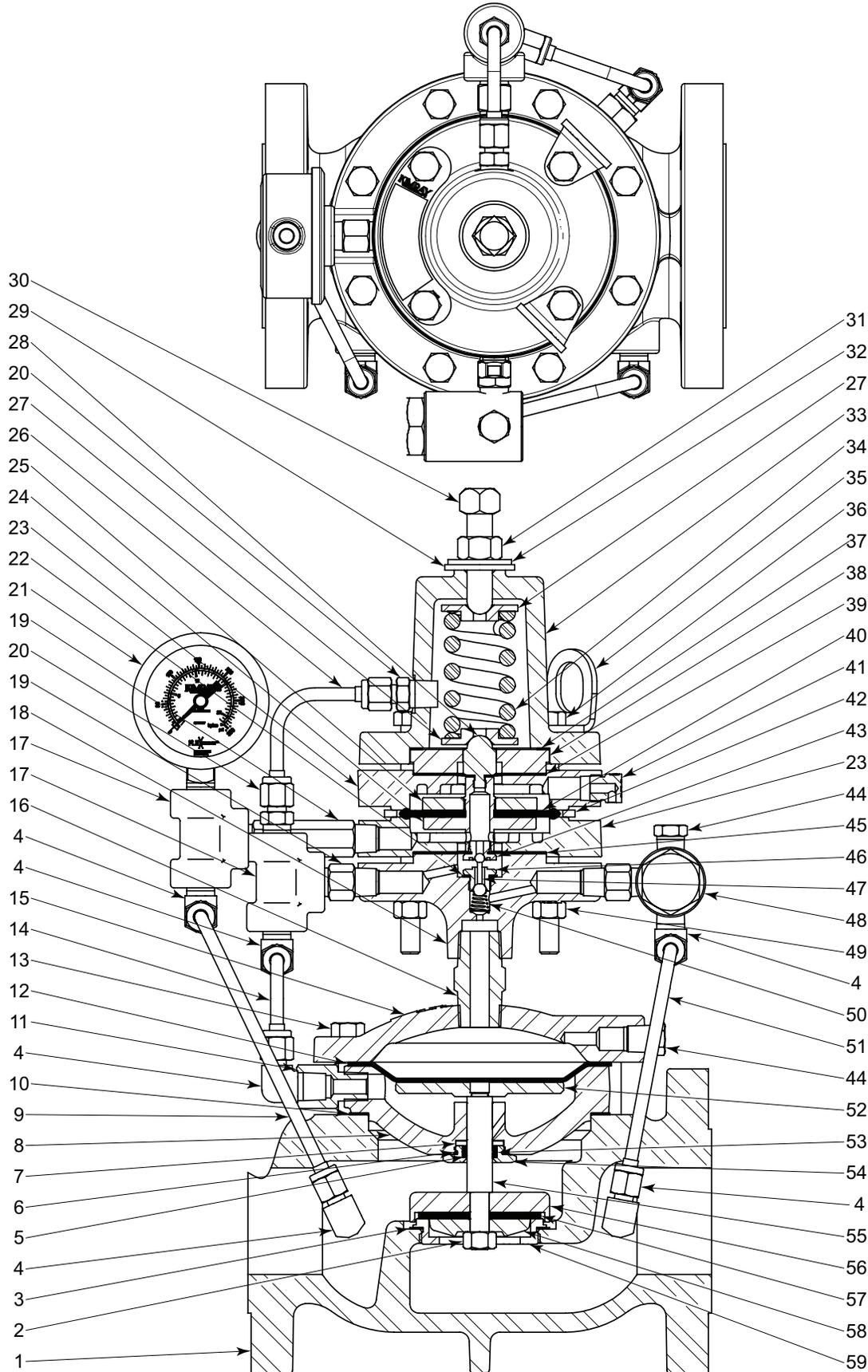
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GAS PRESSURE REDUCING BALANCED NON - VENTING MODEL PN PARTS LIST

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 ‡	----	----	----		
2	1	Gasket *	----	276	277	196	279	4554	276	277	196	279		
3	1	Seat	Standard *	163HSN	164HSN	165HSN	166HSN	167HSN	163HSN	164HSN	165HSN	166HSN	167HSN	
		Reduced *	163HSN	164HSN	1230HSN	164HSN	165HSN	163HSN	164HSN	1230HSN	164HSN	165HSN		
4	1	Elbow / Connector	874			875			874SS6			875SS6		
5	1	Valve	Standard	137	138	139	140	141	137SS6	138SS6	139SS6	140SS6	141SS6	
		Stem	Reduced	137	138	1222SS6	1223SS6	1224SS6	137SS6	138SS6	1222SS6	1223SS6	1224SS6	
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	Elbow	1605		875		1481	1605SS6		875SS6		1481SS6		
		Connector			----		874			----		874SS6		
		Nipple			----		262			----		262SS6		
10	1	Diaphragm Plate	132SS6	133	134	135	136	132SS6	133	134	135	136		
11	1	Tubing	123SS6	216SS6	217SS6	4251S6	218SS6	123SS6	216SS6	217SS6	4251S6	218SS6		
12	1	Elbow		875	874		875		875SS6	874SS6		875SS6		
13	1	Tubing	4416SS6	2511SS6		4011SS6	2247SS6	4416SS6	2511SS6		4011SS6	2247SS6		
14	1	Upper Housing	4015	1703	1639	2004	2178	4015SS6	1703 ‡	1639 ‡	2004 ‡	2178 ‡		
15	1	Diaphragm *	127	1706	1640	2015	2140	127	1706	1640	2015	2140		
16	2	Tee	219			2000		219SS6			2000SS6			
17	1	Elbow / Connector	875		874		875	874	875SS6		874SS6		875SS6	874SS6
18	1	Elbow / Connector	874		875		874		874SS6		875SS6		874SS6	
19	1	Nipple	6890	648		2600	648	6890SS6	648SS6		2600SS6	648SS6		
20	1	Nipple	6890			648		6890SS6			648SS6			
21	1	Pressure Gauge				7707					7707			
22	1	Tubing	4416SS6	2511SS6		4011SS6	4262SS6	4416SS6	2511SS6		4011SS6	4262SS6		
23	1	Spacer Ring *	----			7437		----			7437			
24	1	Gasket *	3018			118		3018			118			
25	1	Diaphragm Plate	7873			7872		7873S6			7872S6			
26	1	Elbow / Connector		875		874	875		875SS6		874SS6	875SS6		
27	1	Pilot Seat *	3016			113		3016SS6			113SS6			
28	1	Gasket *	4554			276		4554			276			
29	4	Bolt	4553			7671		4553			7671			
30	1	Thread Seal *	4542			4488		4542			4488			
31	1	Adjusting Screw	6976			5163		6976SS6			5163SS6			
32	1	Nut	1676			2377		1676SS6			2377SS6			
33	1	Washer	4543			4491		4543			4491S6			
34	2	Spring Guide	4484SS6			2612		4484SS6			2612SS6			
35	1	Spring	4323			2611		4323			2611			
36	1	Bonnet	4525			2610		4525			2610 ‡			
37	2	Lifting Ring	----			7559	----	----			7559	----		
38	1	Pivot Screw	4493			6524		4493			6524SS6			
39	1	Spacer	4494S6			2021		4494S6			2021			
40	1	Diaphragm *	3014			6520		3014			6520			
41	2	Pilot Housing	3013			1701		3013SS6			1701 ‡			
42	1	Diaph. Nut	3010			107		3010SS6			107SS6			
43	1	Vent Plug	1357			147		1357SS6			147SS6			
44	1	Diaphragm *	3011P			5259P		3011P			5259P			
45	1	Diaphragm *	3014			110		3014			110			
46	1	Pilot Seat	3015			565		3015SS6			565SS6			
47	1	Plug				699					699SS6			
48	1	Pilot Plug *	3017			112		3017			112			
49	1	1/4 F30 Filter				YAS					YASS6			
50	1	Nipple	6890	262		2600	648	6890S6	262SS6		2600SS6	648SS6		
51	1	Spring *	3008			585		3008			585HAC			
52	2	Elbow				875					875SS6			
53	(QTY)	Bolt	4318 (6)	965 (8)	907(10)	907 (12)	2142 (16)	4318 (6)	965 (8)	907(10)	907 (12)	2142 (16)		
54	1	Tubing	123SS6	1638SS6	1826SS6	1383SS6	2247SS6	123SS6	1638SS6	1826SS6	1383SS6	2247SS6		
55	1	Lower Housing	142	1704	1632	145	146	142 ‡	1704 ‡	1632 ‡	145 ‡	146 ‡		
56	1	Seat	Standard	158	159	160	161	162	158SS6	2493SS6	2494SS6	2495SS6	2961SS6	
		Disc	Reduced	158	159	1229	159	160	158SS6	2493SS6	2585SS6	2493SS6	2494SS6	
57	1	Ratio Plug	Standard	176SS6	177SS6	178	179	180	176SS6	177SS6	3076SS6	3078SS6	3079SS6	
		Reduced	4932	4933	1228SS6	177SS6	178	4932SS6	4933SS6	1228SS6	177SS6	3076SS6		
58	1	Rem. Seat	Standard	----	272K	273K	274K	275K	----	2496SS6K	2497SS6K	2498SS6K	3075SS6K	
		Reduced	----	4934K	1219DK	1220SSK	1221K	----	4934SS6K	1219SS6K	1220SSK	1221SS6K		
59	1	Nut	Standard *	172	173		906	175	172SS6	173SS6		174SS6	175SS6	
		Reduced *	172			173		906	172SS6			173SS6	174SS6	
Repair Kits			RYD	RYG	RYK	RYO	RYR	RYDS6	RYGS6	RYKS6	RYOS6	RYRS6		
* These parts are recommended spare parts and are stocked as repair kits.														

PRESSURE REGULATORS

STEEL GAS PRESSURE REDUCING BALANCED NON - VENTING
MODEL PN PARTS DRAWING



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



PRESSURE REGULATORS

**STEEL GAS PRESSURE REDUCING BALANCED NON - VENTING
MODEL PN 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
		Standard *		173		906		173SS6		174SS6
		Reduced *								
3	1	Gasket	276	277	196	279	276	277	196	279
4	6	Ell	875 (see note below)				875SS6 (see note below)			
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	2529SS6	2552SS6	2507SS6	4306SS6	2529SS6	2552SS6	2507SS6	4306SS6
10	1	Gasket	196	197	198	199	196	197	198	199
11	1	Adapter	7244			----	7244S6			----
12	1	Diaphragm	1706	1640	2015	2140	1706	1640	2015	2140
13	(QTY)	Bolt	965 (8)	907(10)	907 (12)	2142 (16)	965 (8)	907(10)	907 (12)	2142 (16)
14	1	Tubing	4416S6	263S6	4418S6	4251S6	4416S6	263S6	4418S6	4251S6
15	1	Bonnet	2487	2488	2489	2956	2487 ‡	2488 ‡	2489 ‡	2956 ‡
16	1	Nipple	2516			2516SS6				
17	2	Tee	2000			2000SS6				
18	1	Base	2515			2515 ‡				
19	3	Nipple	648			648SS6				
20	2	Connector	874			874SS6				
21	1	Pressure Gauge	7707			7707				
22	1	Gasket	118			118				
23	2	Pilot Housing	2514			2514 ‡				
24	1	Diaphragm Plate	7872S6			7872S6				
25	1	Diaphragm Nut	107			107SS6				
26	1	Tubing	4414S6	4050SS6	4666S6	4305S6	4414S6	4050SS6	4666S6	4305S6
27	2	Spring Guide	2612			2612SS6				
28	1	Pivot Screw	6524			6524SS6				
29	1	Packing Seal	4488			4488				
30	1	Adjusting Screw	5163		2613	5163SS6	2613SS6			
31	1	Nut	2377			2377SS6				
32	1	Washer	4491			4491				
33	1	Bonnet	2672			2672 ‡				
34	1	Spring	2611			2611				
35	2	Lifting Ring	7559		----	7559	----			
36	4	Bolt	4298			4298				
37	1	Gasket	276			276				
38	1	Spacer	2021			2021				
39	1	Diaphragm	6520			6520				
40	1	Diaphragm	5259P			5259P				
41	1	Breather Plug	147			147SS6				
42	1	Spacer Ring	7437			7437				
43	1	Pilot Seat	113			113SS6				
44	2	Plug	699			699SS6				
45	1	Diaphragm	110			110				
46	1	Pilot Seat	565			565SS6				
47	1	Pilot Plug	112			112				
48	1	1/4 F30 Filter	YAS			YASSS6				
49	4	Nut	241			241				
50	1	Spring	585			585HAC				
51	1	Tubing	2505SS6	4011SS6	2510SS6	5061SS6	2505SS6	4011SS6	2510SS6	5061SS6
52	1	Diaphragm Plate	2490	2491	2492	2958	2490SS6	2491SS6	2492SS6	2958SS6
53	1	O-Ring	154	807	156	157	154	807	156	157
54	1	Retainer	4557ES6	4561ES6	4566ES6	4571ES6	4557ES6	4561ES6	4566ES6	4571ES6
55	1	Valve Stem	Standard 138	139	140	141	138SS6	139SS6	140SS6	141SS6
		Reduced	138	1222SS6	1223SS6	1224SS6	138SS6	1222SS6	1223SS6	1224SS6
56	1	Seat Disc	Standard 2493SS6	2494SS6	2495SS6	2961SS6	2493SS6	2494SS6	2495SS6	2961SS6
		Reduced	2493SS6	2585SS6	2493SS6	2494SS6	2493SS6	2585SS6	2493SS6	2494SS6
57	1	Seat	Standard * 164HSN	165HSN	166HSN	167HSN	164HSN	165HSN	166HSN	167HSN
		Reduced *	164HSN	1230HSN	164HSN	165HSN	164HSN	1230HSN	164HSN	165HSN
58	1	Ratio Plug	Standard 177SS6	178	179	3079SS6	177SS6	3076SS6	3078SS6	3079SS6
		Reduced	4933	1228SS6	177SS6	178	4933SS6	1228SS6	177SS6	3076SS6
59	1	Removable Seat	Standard 2496SS6K	2497SS6K	2498SS6K	3075SS6K	2496SS6K	2497SS6K	2498SS6K	3075SS6K
		Reduced	4934SS6K	1219SS6K	1220SSK	1221SS6K	4934SS6K	1219SS6K	1220SSK	1221SS6K

‡ Coated Parts available with "E" shell material

Repair Kits

RYG RYK RYO RYR RYGS6 RYKS6 RYOS6 RYRS6

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

NOTE: 6 inch Lower Housing uses (1) 874, (1) 1481, & (1) 648 instead of 875

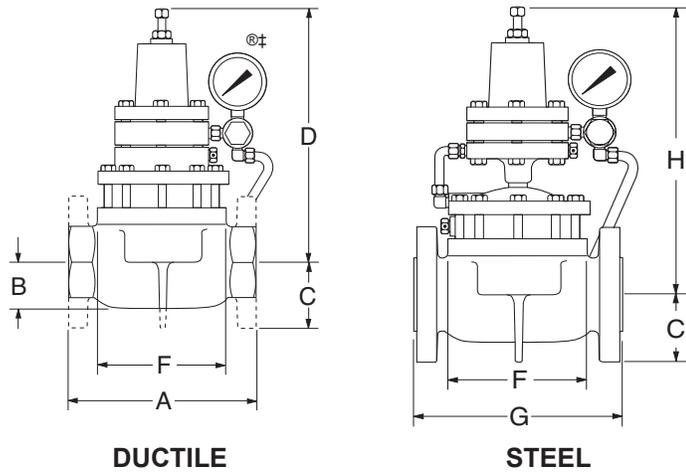
Table 1 - Flow Coefficient(Cv) at % stem travel for Pilot-operated Regulators											
1" Pressure Regulator											
Trim Size in.(mm)	Cf	Valve Opening Percentage									
		10	20	30	40	50	60	70	80	90	100
1/2 in (12mm) Reduced	0.75	0.4	0.7	0.9	1.3	1.8	2.5	3.2	3.9	4.5	5
1 in (25mm) Full Port	0.74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

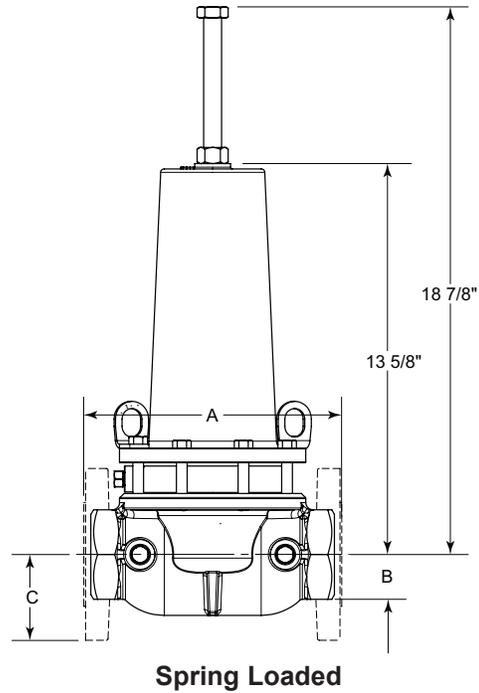
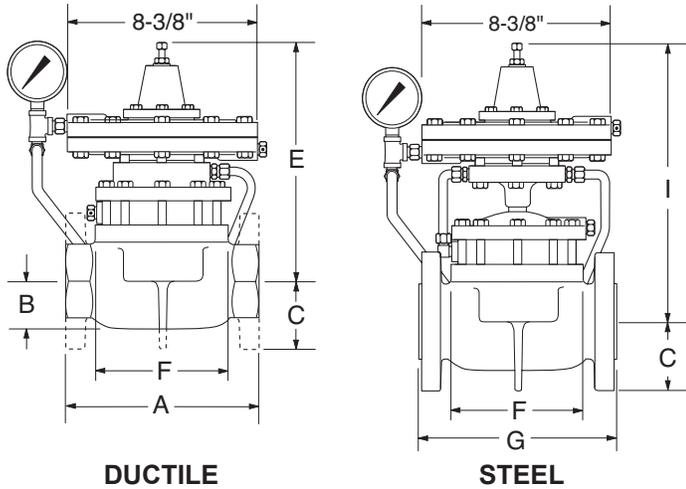


DIMENSIONS



- 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)	

PRESSURE REGULATORS



CODE BUILDER

STANDARD 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**
- E = Ductile Iron w/Coating**
- W = Steel (WCB)
- X = Steel (WCB) w/Coating

Inner Valve Size:

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

Control Range:

- 1 = **10 - 300 psig Spring**

Service Type:

- S = Standard**
- C = Corrosive

- BP = Back Pressure**
- BN = Back Pressure Non - Vent
- BV = Back Pressure Vacuum
- FB = Back Pressure Outside Supply
- PR = Pressure Reducing
- RN = Pressure Reducing Non - Vent
- FR = Pressure Reducing Outside Supply
- RB = Pressure Reducing Balanced
- PN = Pressure Reducing Balanced Non - Vent
- DP = Differential Pressure
- PA = Pneumatically Adjusted

R BP 2 SA D F 1 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
06:10.1 - 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,