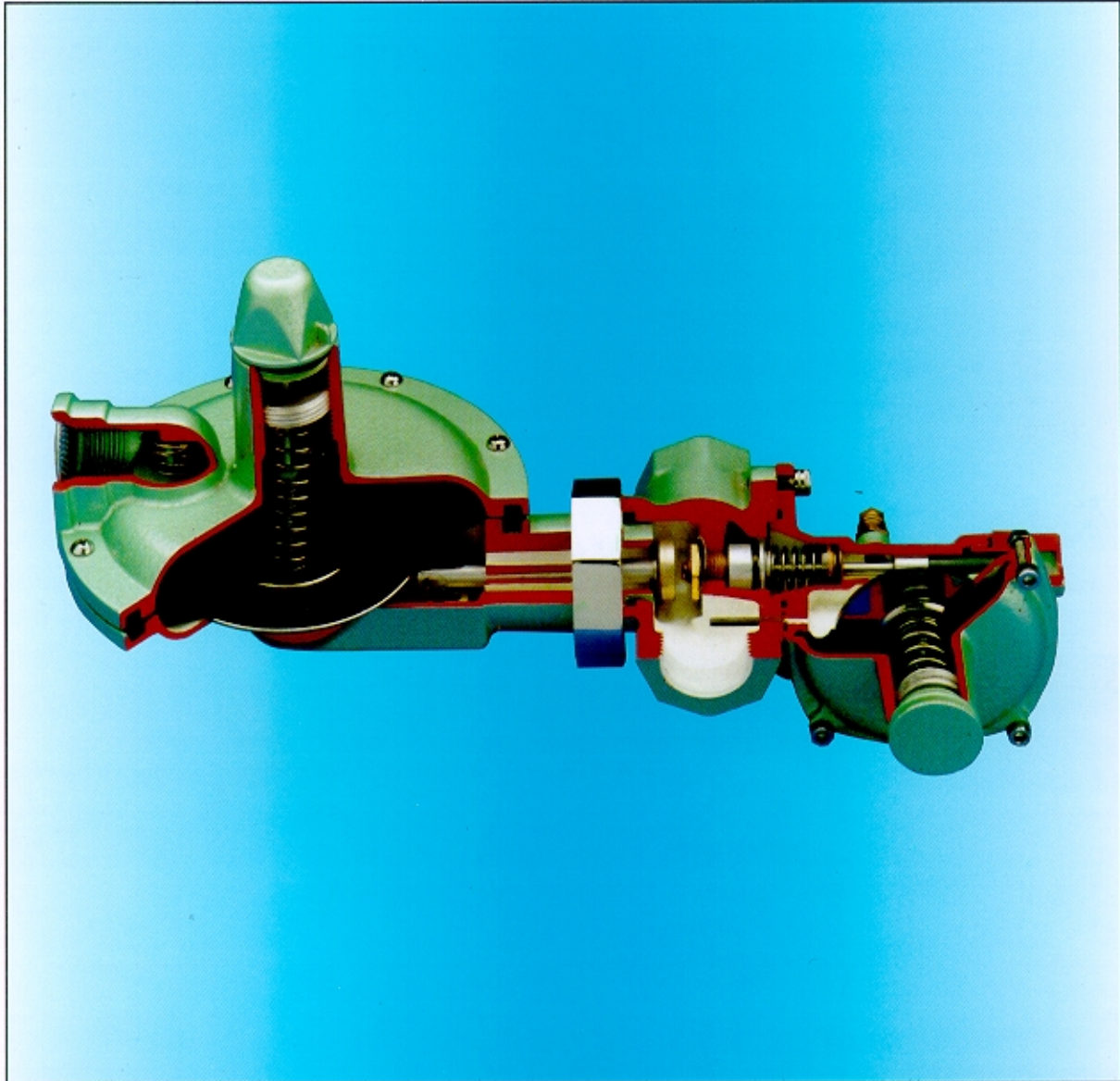


Gas Pressure Regulator SERIES 240



CHRYSSAFIDIS

ΡΥΘΜΙΣΤΗΣ ΠΙΕΣΗΣ ΑΕΡΙΩΝ



Technical Data



R.240.00.498

Technical Data


CHRYSSAFIDIS

Introduction

The Series 240 is a direct acting, single diaphragm, spring loaded open, lever operated regulator for use on gas pressure reduction systems.

Control of varying inlet pressure and capacity applications is ensured by utilising a range of interchangeable orifices of varying size.

Use with confidence on natural and manufactured gases of non-aggressive nature, including Nitrogen, Carbon Dioxide, Propane and Butane.

Application

Designed for use on gas pressure reduction services to domestic, business premises and small industrial feeds to burners, heater units, boilers and other items of equipment where an accurate, safe and dependable pressure controlled supply is required.

Size Range

3/4", 1", 1 1/4" & 1 1/2" Screwed BS21 Rc, Rp, & NPT

Installation

The regulator may be mounted in any orientation to suit site conditions, moisture or debris must not ingress the vent hole. For optimum performance the recommended operating position is with diaphragm casing horizontal and spring housing pointing vertically upwards.

It is important when installing equipment that pipeline stresses are kept to a minimum and no undue external forces are placed on the connections.

Service Conditions

Maximum Inlet Pressure: (dependent upon orifice size fitted)	Up to 10.3 bar g (150psig)
Outlet Pressure Range: Series 240	10 to 210 mbar g (4" to 84" wg)
Series 240 PH	70 to 350 mbar g (28" to 140" wg)
Internal Relief Valve Setting:	20 mbar g (8" wg) (above regulator outlet pressure set point)
Temperature Range:	-20°C to +60°C

Features

- ❑ Completely independent operation of regulator and safety cut-off valve.
- ❑ Diaphragm casing can be rotated through 360° relative to regulator body and can be positioned at any angle to assist servicing and installation in confined spaces.
- ❑ Both regulator casing/valve head and safety cut-off valve can be removed from the body as cartridges, ensuring straightforward maintenance without removing the body from the pipeline.
- ❑ Wide operational pressure range.
- ❑ Regulator can be fitted with Over pressure (OPCO) or Under/Over (UPCO/OPCO) pressure safety cut-off valve. These devices protect the downstream system in the event that a dangerous gas pressure condition develops.

Regulator Range

Option	Description	240P	240LR	240R	240PH
P	No Internal Relief	■			
LR	With Limited Internal Relief		■		
R	With Internal Relief			■	
OPCO - MK2	MK2 - Standard Over Pressure Cut-Off Valve	■	■	■	
S.309LP - OPCO	Series 309LP Over Pressure Cut-Off Valve (OPCO)	■	■	■	
S.309LP UPCO/OPCO	Series 309LP combined Under/Over pressure safety cut-off valve	■	■	■	
SD	Safety Diaphragm to comply with DVGW	■			
SD-OPCO	Safety Diaphragm + over pressure cut-off	■			
PH	High outlet pressure model, no internal relief				■
K-ECL	Monitor with external control line (ECL)	■			
K-ECL-OPCO - MK2	As K-ECL with MK2 - Standard Over Pressure Cut-Off Valve	■			

Example: 240-P-OPCO: Series 240 Regulator with no internal relief, with over pressure cut-off valve



Spring Selection

Regulator Spring Ranges (Series 240)

Spring		Outlet Pressure Range	
Number	Colour	mbar g	ins wg
126	Red	10 - 20	4 - 8
131	Self	15 - 35	6 - 14
127	Green	25 - 43	10 - 17
392	White	40 - 75	16 - 30
393	Blue	70 - 140	28 - 56
394	Grey	140 - 210	28 - 84

For details on SD regulator spring ranges, please contact BD-RMG

OPCO MK2: Over Pressure Cut-Off Valve

Spring		Outlet Pressure Range	
Number	Colour	mbar g	ins wg
861	Brown	35 - 70	14 - 28
868	Green	60 - 175	24 - 70
869	Silver	160 - 260	64 - 104

For details on SD OPCO spring ranges, please contact BD-RMG

S.309LP-OPCO Safety Cut-Off Valve

Spring		Cut-Off Range	
Number	Colour	mbar g	ins wg
861	Brown	35 - 90	14 - 36
1103	Gold	80 - 130	32 - 52
1104	Purple	120 - 250	48 - 100
1105	Black	200 - 350*	80 - 140*

* Maximum Over pressure set point: 260mbar (104" wg) on S.240 regulator

S.309LP UPCO/OPCO Safety Cut-Off Valve

	Spring		Cut-Off Range	
	Number	Colour	mbar g	ins wg
OPCO	1109	Grey	40 - 55	16 - 22
	1110	Green	50 - 110	20 - 44
	1111	Silver	110 - 200	44 - 80
	1140	Silver/Red	150 - 240	60 - 96
UPCO	1138	Blue/Green	10 - 30	4 - 12

Regulator Spring Ranges (Series 240PH)

Spring		Cut-Off Range	
Number	Colour	mbar g	ins wg
394	Grey	70 - 210	28 - 84
1166	Yellow	140 - 350	56 - 140

Minimum differential between regulator outlet and safety cut-off pressure:

- P - Type: 35 mbar (14" wg) or 10% above regulator set point, whichever is the higher
- R/LR - Type: 55 mbar (22" wg) when internal relief fitted
- When UPCO/OPCO is fitted then minimum differential for P-Type is 45 mbar (18" wg) and 65 mbar (26" wg) for R/LR-Type (with internal relief)

Materials of Construction

REGULATOR	
Body & body cover	Cast Iron: BS.1452
Lower/Upper diaphragm casing & spring housing	Aluminium Alloy: BS.1490
Diaphragm carrier and vent plate	Nylon 11
Vent pin, spring and gauze ring	Stainless Steel: BS.970
Orifice	Brass: BS.249
Valve seat & 'O' rings	Nitrile
Diaphragm	Nitrile
Valve head, stem, spring adjuster and cap	Aluminium: BS.1476
Lever, pins, diaphragm plate and spindle	Carbon Steel: BS.4360 (Anti-corrosion plated)

SAFETY CUT-OFF VALVE (MK2)	
Lower/Upper diaphragm casing & spring housing	Aluminium Alloy: BS.1490
Diaphragm spindle and reset spindle	Stainless Steel: BS.970 (nylon bearing surface)
Diaphragm plate, pins, loading & valve spring	Carbon Steel: BS.4360 (Anti-corrosion plated)
Diaphragm and 'O' rings	Nitrile and Viton
Valve seat	Polyurethane

S.309LP UPCO/OPCO SAFETY CUT-OFF VALVE	
Body	Aluminium: BS.1490 LM6
Spindle	Stainless Steel: BS.970 Grade 316 S31
Valve	Aluminium: BS.1474 Grade 6082TF
Valve seating	Polyurethane: BS.1449 CS4
Diaphragm & 'O' rings	Nitrile
Spring Adjuster	Brass: BS.249 Grade CZ 121
Spring	Spring Carbon Steel: BS.5216 Grade HS3

Orifice Selection

Orifice Size		Maximum Inlet Pressure	
mm	ins	bar	psi
2.5	-	10.3	150
-	1/8"	8.6	125
3.5	-	8	116
5	3/16"	6	87
7	1/4"	3	43.5
9	5/16" & 3/8"	2	29.0
11	7/16" & 1/2"	1	14.5

** Use only metric size orifice when fitting safety cut-off valve

Capacities



CHRYSSAFIDIS

IN scmh (15°C: 1013.25 mbar) OF NATURAL GAS (SG = 0.6)
IN scfh (60°F: 14.69 psig) OF NATURAL GAS (SG = 0.6)

SPRING No. & OUTLET PRESSURE	INLET PRESSURE		ORIFICE SIZE – MILLIMETRES/INCHES													
	mbar	P.S.I.G.	2.5	1/8	3.5	3/16 (5)	1/4	7	5/16	9	3/8	7/16 (11)	1/2			
SPRING No. 126 10-20 mbar (4-8" W.G.) SET TO 15 mbar (6" W.G.) DROOP 2.5 mbar (1" W.G.)	20	8" W.G.						2.4 85	2.5 90	2.7 95	2.8 100	3.1 108	3.8 135	4.1 144		
	25	10" W.G.					1.9 68	2.5 90	2.7 95	3.2 112	3.4 120	3.7 130	4.4 157	4.8 171		
	45	18" W.G.					2.5 90	3.4 121	4.0 140	4.2 148	4.6 164	4.8 171	5.9 207	6.4 225		
	69	1 p.s.i.g.	1.2 42	2.3 80	2.4 84	3.7 130	5.1 180	5.5 194	6.1 216	6.5 230	7.1 252	8.2 288	8.7 306			
	207	3	1.8 65	3.8 135	4.4 155	6.0 212	6.7 238	8.9 315	9.3 328	11.3 400	12.1 427	20.4 720	21.7 765			
	345	5	3.0 108	5.5 193	5.8 206	8.8 310	12.2 432	14.4 510	14.8 522	17.5 620	18.5 652	25.5 900	31.9 1125			
	690	10	6.2 219	8.7 306	9.8 348	15.8 558	22.9 810	24.2 855	31.9 1125	35.4 1250	40.8 1440	44.6 1575	51.0 1800			
	1 bar	14.7	7.8 277	12.1 427	13.8 490	19.1 675	25.5 900	30.4 1075	38.2 1350	41.0 1450	44.6 1575	51.0 1800				
	1.5	22	10.4 368	14.8 522	19.5 690	38.2 1350	51.0 1800	51.0 1800	51.0 1800	51.0 1800						
	2.0	29.7	12.6 445	16.6 585	26.4 935	44.6 1575	51.0 1800	51.0 1800	51.0 1800	51.0 1800						
	2.5	37	15.0 529	18.5 652	31.0 1096	46.7 1650	51.0 1800	51.0 1800								
	3.0	44	17.0 600	22.9 810	34.7 1226	51.0 1800	51.0 1800	51.0 1800								
	4.0	59	20.8 735	25.5 900	37.4 1322	51.0 1800										
	6.0	88	29.7 1050	31.9 1125	38.3 1354	51.0 1800										
7.0	103	35.7 1260	38.2 1350	40.2 1420												
8.0	117.5	41.0 1450	44.6 1575	46.0 1625												
8.6	125	46.7 1650	51.0 1800													
10	150	46.7 1650														
SPRING No. 131 15-35 mbar (6-14" W.G.) SET TO 25 mbar (10" W.G.) DROOP 3.7 mbar (1.5" W.G.)	45	18" W.G.						2.2 76	2.8 99	3.0 105	3.6 126	4.0 140	4.1 144	5.1 180	5.4 189	
	69	1 p.s.i.g.	1.5 55	1.8 63	2.4 85	3.1 108	4.1 144	5.0 177	5.1 180	5.7 202	5.9 207	8.0 283	8.3 292			
	210	3	2.5 90	3.7 130	4.2 148	6.1 216	6.4 225	9.0 322	8.7 306	10.9 385	11.2 396	16.6 585	17.8 630			
	345	5	4.3 152	5.0 175	6.4 226	8.3 292	11.5 405	14.3 506	13.8 486	16.9 598	17.2 607	25.5 900	26.8 945			
	690	10	6.2 219	8.3 292	8.6 303	15.3 540	21.7 765	22.1 780	30.6 1080	31.3 1107	38.2 1350	42.1 1485	48.4 1710			
	1 bar	14.7	8.4 297	11.5 405	12.4 439	18.9 666	25.5 900	30.1 1064	38.2 1350	40.2 1420	44.6 1575	51.0 1800				
	1.5	22	10.8 381	14.5 513	19.0 670	36.8 1300	51.0 1800	51.0 1800	51.0 1800	51.0 1800						
	2-8.6 bar (29.7-125 p.s.i.g.) CAPACITIES ARE IDENTICAL TO THOSE FOR SPRING No. 126 GIVEN ABOVE															
	SPRING No. 127 25-43 mbar (10-17" W.G.) SET TO 37.5 mbar (15" W.G.) DROOP 5.6 mbar (2.25" W.G.)	45	18" W.G.						2.2 76	2.4 86	2.8 99	3.0 106	3.2 112	3.9 139	4.2 148	
		69	1 p.s.i.g.						2.8 99	3.8 135	4.4 158	4.7 166	5.2 185	5.5 193	7.5 265	7.6 270
		210	3	2.4 84	3.7 130	5.5 194	6.1 216	6.4 225	8.4 298	8.7 306	10.9 385	11.2 396	16.6 585	17.8 630		
		345	5	4.2 148	5.0 175	6.9 245	8.3 292	11.5 405	13.4 475	13.8 486	16.7 590	17.2 607	25.5 900	26.8 945		
		690	10	6.9 245	8.3 292	10.4 368	15.3 540	21.7 765	26.5 935	30.6 1080	36.5 1290	38.2 1350	42.1 1485	48.4 1710		
		1 bar	14.7	8.4 297	11.5 405	14.6 516	18.9 666	25.5 900	37.1 1310	38.2 1350	43.8 1548	44.6 1575	51.1 1800			
1.5		20	10.6 374	14.5 513	20.1 710	36.8 1300	51.0 1800	51.0 1800	51.0 1800	51.0 1800						
2-8.6 bar (29.7-125 p.s.i.g.) CAPACITIES ARE IDENTICAL TO THOSE FOR SPRING No. 126 GIVEN ABOVE																
SPRING No. 392 40-75 mbar (16-30" W.G.) SET TO 60 mbar (24" W.G.) DROOP 9.5 mbar (3.8" W.G.)		69	1	1.2 44	1.5 52	1.7 60	2.0 72	3.8 134	4.0 142	4.7 166	5.2 185	5.6 198	6.7 237	6.9 244		
		210	3	2.4 85	2.7 96	3.2 113	3.7 130	6.2 218	6.6 232	7.5 265	9.7 345	10.8 380	13.7 485	15.1 535		
		345	5	3.4 120	3.9 139	4.8 168	5.6 198	10.1 356	12.7 450	13.5 478	14.0 495	14.6 514	20.1 711	22.4 791		
		690	10	6.6 232	7.4 260	8.5 300	9.6 340	15.2 538	17.7 625	21.4 756	24.1 850	26.3 930	38.2 1350	41.9 1480		
		1 bar	14.7	9.1 322	11.4 401	11.7 414	15.9 562	19.3 682	26.7 942	29.6 1044	36.4 1287	37.4 1322	40.9 1445	54.7 1930		
		1.5	22	11.1 402	13.4 472	15.0 530	30.7 1050	37.1 1310	42.1 1485	44.3 1565	47.6 1680	55.8 1970	73.6 2600			
	2.0	29.5	14.0 495	18.7 660	19.5 688	35.7 1260	44.3 1565	50.4 1780	51.8 1830	73.6 2600						
	2.5	37	15.6 550	22.7 802	23.5 830	43.2 1525	51.5 1820	65.1 2300	73.6 2600							
	3.0	44	18.6 658	25.1 885	25.6 905	44.7 1580	58.6 2072	73.6 2600								
	4.0	59	20.4 722	29.6 1045	32.6 1150	46.8 1652										
	6.0	88	32.3 1140	47.0 1660	59.5 2100	65.1 2300										
	7.0	103	43.2 1525	49.3 1742	65.1 2300											
	8.0	117.5	48.7 1720	51.5 1820	65.1 2300											
	8.6	125	52.4 1850	54.7 1930												
10	150	52.4 1850														
SPRING No. 393 70-140 mbar (1-2 p.s.i.g.) SET TO 105 mbar (42" W.G.) DROOP 16 mbar (6.3" W.G.)	210	3	1.0 35	3.0 107	3.3 115	4.1 145	7.4 262	7.8 277	8.7 307	10.0 354	10.5 370	12.8 452	15.0 530			
	345	5	2.5 89	5.9 208	6.2 218	7.0 247	12.0 424	12.3 436	14.0 494	14.6 515	15.0 530	21.0 740	23.9 845			
	690	10	5.1 180	8.9 316	9.8 346	12.9 454	16.3 575	17.7 625	21.9 774	29.2 1032	31.3 1105	33.3 1178	40.3 1425			
	1 bar	14.7	6.6 235	12.2 430	13.3 471	17.3 610	20.3 718	23.2 820	28.5 1005	36.2 1277	37.1 1310	38.6 1364	53.8 1900			
	1.5	22	9.1 322	15.0 528	18.3 645	24.9 878	29.4 1040	35.0 1235	37.2 1315	48.5 1712	54.4 1920	73.6 2600				
	2.0	29.5	10.9 384	18.0 635	22.5 796	34.7 1225	40.1 1416	40.7 1437	48.9 1726	60.5 2135						
	2.5	37	13.2 464	22.0 779	27.4 968	42.9 1516	47.4 1675	48.8 1722	57.6 2034	73.6 2300						
	3.0	44	14.9 526	26.2 925	30.6 1080	44.7 1578	55.2 1952	57.2 2020								
	4.0	59	18.3 645	30.4 1075	37.4 1322	44.9 1585										
	6.0	88	26.5 935	43.0 1518	48.0 1700	50.4 1780										
	7.0	103	34.7 1225	49.3 1740	52.4 1850	55.2 1950										
	8.0	117.5	45.3 1600	50.4 1780	65.1 2300											
	8.6	125	45.3 1600	51.0 1800	65.1 2300											
	10	150	45.3 1600													
SPRING No. 394 140-210 mbar (2-3 p.s.i.g.) SET TO 175 mbar (70" W.G.) DROOP 26 mbar (10.5" W.G.)	210	3	1.6 58	2.7 94	2.8 97	2.9 102	4.6 161	5.0 178	6.3 222	6.6 235	7.0 248	9.3 328	11.0 387			
	345	5	2.9 102	4.6 162	4.8 169	5.0 177	8.0 282	8.7 309	11.0 390	11.4 404	12.0 425	15.9 560	19.0 670			
	690	10	5.0 175	7.5 264	8.9 315	11.9 420	14.1 498	17.4 613	22.4 792	23.4 826	26.5 935	27.4 967	33.6 1185			
	1 bar	14.7	7.1 252	10.2 359	10.6 375	14.2 502	16.2 573	20.0 707	24.4 861	29.7 1048	33.5 1184	37.4 1320	45.7 1614			
	1.5	22	9.1 322	11.8 418	13.6 482	24.1 852	30.0 1061	36.2 1280	39.2 1385	43.0 1518	43.2 1525	57.5 2030				
	2.0	29.5	10.9 384	14.0 495	15.0 530	30.2 1065	35.4 1252	40.4 1426	44.6 1575	46.7 1650	49.7 1755					
	2.5	37	12.8 452	19.2 678	20.4 722	33.8 1195	42.3 1493	46.2 1630	51.4 1815	61.2 2160						
	3.0	44	14.7 519	20.9 737	23.5 830	35.1 1238	45.4 1604	50.8 1795	54.4 1920							
	4.0	59	18.3 645	26.3 928	31.0 1095	38.5 1360										
	6.0	88	26.5 935	36.7 1296	40.0 1412	42.1 1485										
	7.0	103	32.6 1150	41.4 1462	45.7 1615	45.0 1590										
	8.0	117.5	39.5 1395	48.4 1708	51.7 1825											
	8.6	125	40.4 1425	49.2 1737	52.4 1850											
	10	150	40.4 1425													

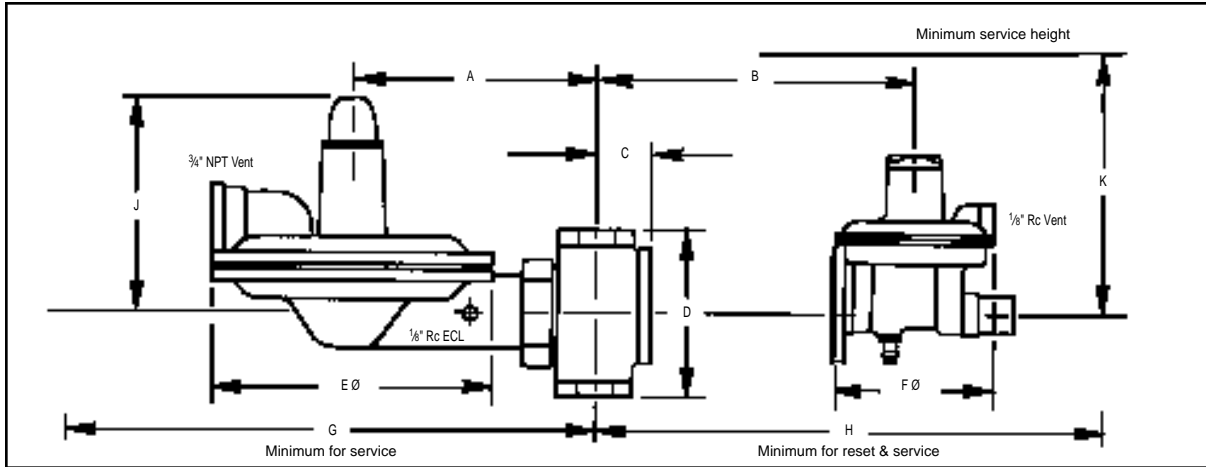
Types of Gases:
The capacities shown in the table are given in terms of natural gas SG 0.6. For all other gases multiply by the following correction factor:

$$\frac{0.6}{\text{SG of gas handled}}$$

Dimensions & Sectional Arrangement



Dimensions & Weights



Size & Model	A	B	C	D	E	F	G	H	J	K	WT.Kg
3/4" & 1"	153	-	40	102	172	-	270	-	145	205	2.5
3/4" & 1" c/w Mk2 OPCO	153	76	-	102	172	108	270	165	145	205	2.8
3/4" & 1" c/w S.309LP OPCO	153	100	-	102	172	115	270	230	145	205	3.2
1 1/4" & 1 1/2"	153	-	53	127	172	-	270	-	145	205	3.0
1 1/4" & 1 1/2" c/w Mk2 OPCO	153	89	-	127	172	108	270	178	145	205	3.3
1 1/4" & 1 1/2" c/w S.309LP OPCO	153	110	-	127	172	115	270	230	145	205	3.6
3/4" & 1" Series 240PH	153	-	41	102	172	-	270	-	165	205	3.25

All Dimensions in MM

Sectional Arrangement

