

Gas Pressure Regulator Series 280 - 284



PRODUCT INFORMATION

**Serving the Gas Industry
Worldwide**



GAS PRESSURE REGULATOR SERIES 280 - 284

Technical Data

Introduction

- The Series 280-284 are spring loaded, externally implused, high capacity regulators. The design incorporates a totally balanced, single ported valve which in conjunction with a streamlined body assures high flow capabilities. A two-way vent valve ensures excellent speed of response combined with stable control of outlet pressure.
- 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 distribution systems and for services to industrial and commercial premises. Also for industrial feeds to burners, heater units, boilers and other items of equipment where an accurate, safe and dependable pressure controlled supply is required.

Features

- Cartridge type construction allows easy unit withdrawal of all working parts ensuring straightforward maintenance without removing the body from the pipe line.
- Excellent control throughout entire working range.
- Positive lock-up, under no flow conditions.
- Balanced Valve gives excellent control over full inlet pressure range.
- Valve travel indicator.
- External control line (ECL) connection fitted with fixed stabilising jet.

Service Temperature

-20°C to +60°C

REGULATOR SELECTION GUIDE					
Regulator			Spring		
Maximum Inlet Pressure	Model	Size	12mbar (5"wg) to 225mbar (3.25psi)	10mbar (4"wg) to 200mbar (2.9psi)	140mbar (2psig) to 1.0bar (14.5psi)
4.5 barg (65 psig)	280	DN 100		•	
	280H	DN 50 DN 80	• •		
10.3 barg (150 psig)	282H*	DN 50	•		
4.5 barg (65 psig)	284	DN 50 DN 80			• •

* Suitable for inlet pressure up to 8 bar (116 psi) - direct acting, and 10.3 bar (150psi) when fitted with an auxiliary control system.

Connections

Flanged: PN16: BS EN 1092-2: 1997

* Alternative drilling may be considered on request.

Installation

The regulator may be mounted in any orientation to suit site conditions. Moisture or debris must be prevented from entering the vent valve. For optimum performance the recommended operating position is with diaphragm casing horizontal and spring housing pointing vertically upwards. For a regulator installed in the inverted position, the spring ranges are reduced by 12 mbarg (5" wg) on the Series 280H/282H.

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

Note: On some industrial and burner applications, where rapid changes in flow rates occur, it may be necessary to fit a variable jet into the regulator impulse line to tune the regulator to the downstream system.

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Spring Selection, Materials of Construction

SPRING SELECTION					
Size	Outlet Pressure Range		Spring		Regulator Model
	mbarg	ins wg	Number	Colour	
DN 50 FL & DN 80 FL	12 - 20	5 - 8	548	Self	280H/282H
	18 - 35	7 - 14	824	Light Green	280H/282H
	25 - 50	10 - 20	938	Light Blue	280H/282H
	30 - 70	12 - 28	546	Grey	280H/282H
	66 - 104	26.5 - 41.5	774	Brown	280H/282H
	96 - 138	38.5 - 55	775	Orange	280H/282H
	112 - 225	45 - 90	778**	Dark Blue	280H/282H
DN100 FL	10 - 20	4 - 8	378	White/Maroon	280
	18 - 30	7 - 12	402	Black/Maroon	280
	18 - 37	7 - 15	1007	Blue/Maroon	280
	28 - 40	11 - 16	403	Green/Maroon	280
	38 - 60	15 - 24	405	Red/Maroon	280
	55 - 80	22 - 32	406	Brown/Maroon	280
	75 - 140	30 - 56	407	Grey/Maroon	280
	112 - 200	45 - 80	857	Stone/Maroon	280
DN 50 FL	140 - 260	2.0 - 3.8 psig	849 & 848	Red - Black	284
	230 - 500	3.3 - 7.2 psig	851 & 850	Green - White	284
	460 - 1000	6.7 - 14.5 psig	853 & 852	Yellow - Blue	284
DN 80 FL	200 - 400	2.8 - 5.8 psig	1167	Grey	284
	400 - 725	5.7 - 10.4 psig	1168	Brown	284
	675 - 1000	9.7 - 14.5 psig	1169 & 1168	Orange - Brown	284

* These springs are nested, both being required for the pressure range stated, please contact BD-RMG for advice when changing springs.

** Spring No 778 requires special spring adjuster.

The pressure ranges given apply to regulators installed horizontally with the spring casing pointing vertically upwards.

MATERIALS OF CONSTRUCTION	
Component	Material
Valve Body	Ductile Iron to BS EN 1563 Grade EN-GJS-400-18
Diaphragm Casing (Top and Bottom)	Aluminium Alloy to BS.1490: Grade LM4
Valve Orifice	Stainless Steel to BS.970: Grade 416S21
Diaphragms	Terylene reinforced Nitrile rubber, Pentane Resistant
Valve Seat	Nitrile Rubber
Valve Travel Indicator	Polycarbonate

Ease of Maintenance

The illustration shows how quickly and easily the cartridge can be removed from the regulator body, leaving the valve body in the pipeline. By utilisation of a spare cartridge assembly, maintenance can be carried out with minimum interruption to the gas supply.



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Capacities for Series 280-284 Regulators

CAPACITY CHART				
Inlet Pressure	Capacities in s.c.m.h. of natural gas SG = 0.6			
	Outlet Pressure	REGULATOR SIZE		
		mbar	DN 50 FL	DN 80 FL
50 mbar	15	220	485	1160
	26	230	398	1050
75 mbar	15	300	550	1250
	26	330	465	1300
	50	225	310	1230
100 mbar	15	462	605	1400
	26	428	595	1500
	50	330	595	1450
	85	220	497	1000
150 mbar	15	550	805	2125
	26	520	720	2200
	50	478	795	1875
	85	330	875	1100
	117	250	566	700
200 mbar	15	703	980	2875
	26	662	835	2700
	50	560	995	2450
	85	565	1220	2000
	117	470	865	1725
250 mbar	15	831	1250	3000
	26	833	880	3050
	50	795	1120	2875
	85	598	1420	2650
	117	563	1150	2525
500 mbar	15	1221	2450	4600
	26	1283	1800	4600
	50	1260	2025	4400
	85	1183	2410	4100
	117	1150	2050	3650
750 mbar	15	1654	3100	5900
	26	1709	3180	5950
	50	1690	2980	5950
	85	1678	3420	5650
	117	1631	3300	4950
1.0 bar	50	2026	4145	6850
	117	1970	4145	6600
	140	1050	4145	6600
	260	855	-	-
	500	380	-	-

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Capacities for Series 280-284 Regulators

CAPACITY CHART				
Inlet Pressure	Capacities in s.c.m.h. of natural gas SG = 0.6			
	Outlet Pressure	REGULATOR SIZE		
	mbar	DN 50 FL	DN 80 FL	DN 100 FL
1.5 bar	50	2641	5325	8600
	117	2597	5295	8600
	140	1405	5290	8600
	260	1360	-	-
	500	815	-	-
	1000	1100	-	-
2.0 bar	50	3116	6430	10200
	117	3137	6430	10200
	140	1810	6420	10200
	260	1650	-	-
	500	1265	-	-
	1000	1330	-	-
3.0 bar	50	3913	8580	13360
	117	4149	8580	13360
	140	2250	8570	13360
	260	2250	-	-
	500	1800	-	-
	1000	1850	-	-
4.0 bar	50	4528	10710	16690
	117	5027	10700	16690
	140	2715	10700	16690
	260	2815	-	-
	500	2420	-	-
	1000	2510	-	-
5.0 bar	50	6102		
	117	6102		
6.0 bar	50	7129		
	117	7129		
7.0 bar	50	8153		
	117	8153		
8.0 bar	50	9177		
	117	9177		
9.0 bar	50	10094		
	117	10094		
10.0 bar	50	11150		
	117	11150		

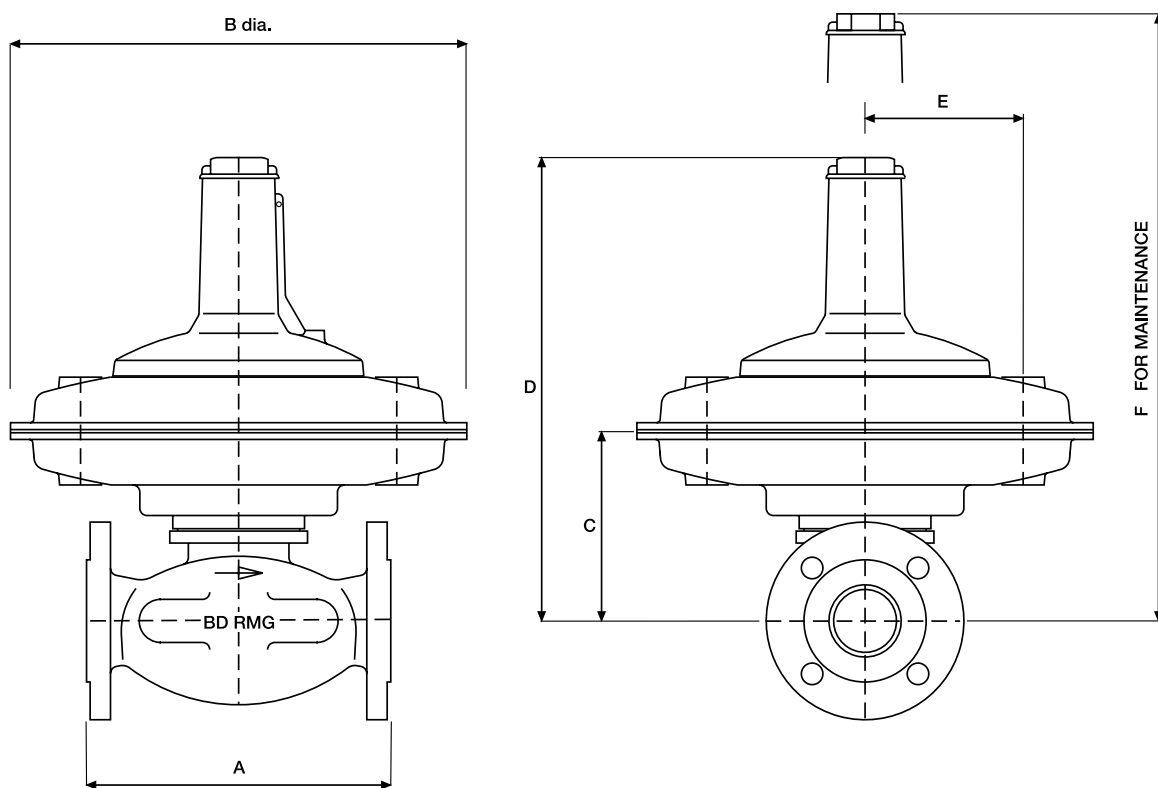
Types of Gases:
 The capacities shown in the tables are given in terms of natural gas SG 0.6. For all other gases multiply by the following correction factor:

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

The above figures are for appropriately sized expanded outlets, 10% droop.

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Dimensions & Weights

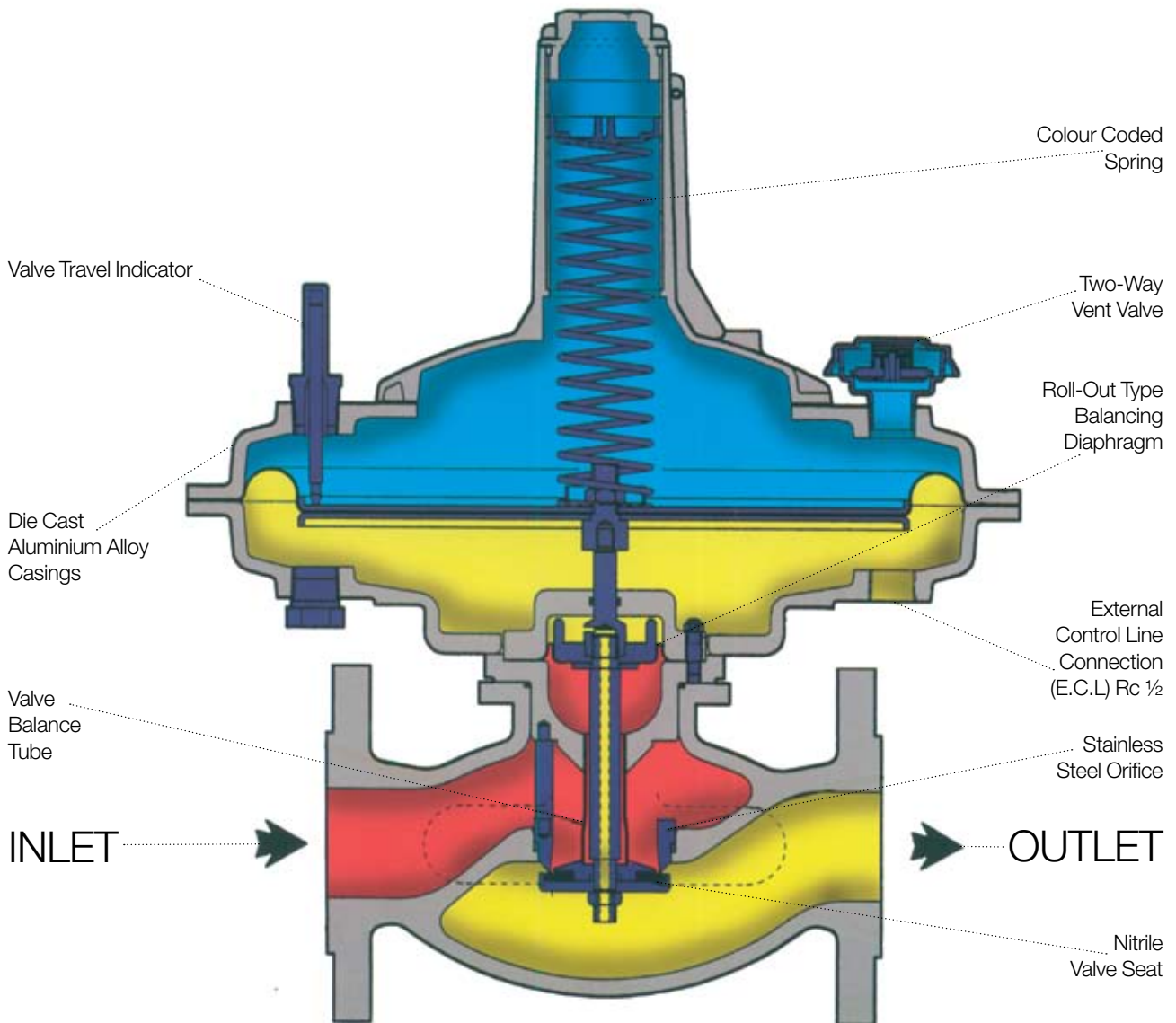
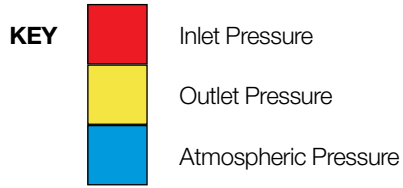


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DIMENSIONS AND WEIGHTS										
Regulator		Dimensions: mm						Weight: Kg		
Model	Size	A	B	C	D	E	F	Cartridge	Body	Total
280	DN 100	352	451	187	635	140	845	40.8	27.6	68.4
280H & 282H	DN 50	254	380	160	420	132	540	13.2	11.8	25.0
280H	DN 80	298	380	195	455	132	650	16.3	19.0	35.3
284	DN 50	254	210	142	354	Connection on the 284 is radial not parallel with axis	474	11.9	11.8	23.7
284	DN 80	298	290	176	450		640	29.0	19.0	48.0

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Sectional Arrangement



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