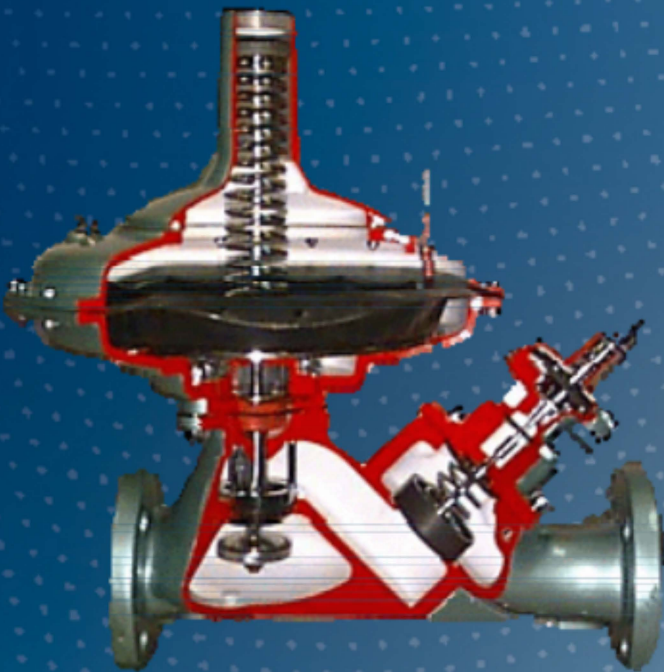


SERVING THE GAS INDUSTRY WORLDWIDE

Technical Description

GAS PRESSURE REGULATOR SERIES 280-309



Bryan Donkin RMG Gas Controls Limited

GAS PRESSURE REGULATOR SERIES 280-309

Technical Data

Introduction

- The Series 280-309 is a spring loaded, externally impulsed, high capacity regulator with integral safety cut-off valve. The design incorporates a totally balanced, single ported valve which in conjunction with a streamlined body ensures high flow capabilities.
- A two-way vent valve ensures excellent speed of response combined with stable control.
- Use with confidence on natural and manufactured gases of non-corrosive nature, including Nitrogen, Carbon Dioxide, Propane and Butane.

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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 system is required.

Features & Benefits

- Balanced valve gives excellent pressure control.
- Both regulator casing/valve head and safety cut-off valve can be removed from the body as cartridges, reducing maintenance downtime.
- Can be fitted with the Series 309 Overpressure (OPCO) or Under/Over pressure (UPCO/OPCO) Safety Cut-Off Valve.
- Valve travel indicator.
- Regulator external control line fitted with fixed jet.
- Positive lock-up under no flow conditions.
- Safety Cut-Off Valve can be fitted with micro-switch for remote indication (Optional extra)

Service Conditions:

SERVICE CONDITIONS		
Model	Outlet Pressure Range – mbarg	Max. Inlet Pressure – barg
280H – 309	12 – 225	4.5
282H – 309	12 – 225	10.0*
284 – 309	140 – 1000	4.5
Temperature Range	-20°C to + 60°C	
Connections	Flanged: PN16 - BS EN 1092-2: 1997	

* Suitable for inlet pressures up to 8 barg – direct acting and 10.3 barg when fitted with an auxiliary control system.

GAS PRESSURE REGULATOR SERIES 280-309

Spring Selection & Materials of Construction

REGULATOR: SERIES 280H/282H – 309LP		
Spring		Spring Range
Number	Colour	mbarg
548	Self	12 – 20
824	Lt. Green	18 – 35
938	Lt. Blue	25 – 50
546	Grey	30 – 70
774	Brown	66 – 104
775	Orange	96 – 138
778*	Dark Blue	112 – 225

* requires special spring adjuster

SAFETY CUT-OFF VALVE: 309LP OPCO		
Spring		Trip Range
Number	Colour	mbarg
861	Brown	39 – 90
1103	Gold	80 – 130
1104	Purple	120 – 250
1105	Black	200 – 350

SAFETY CUT-OFF VALVE: 309LP UPCO/OPCO			
TYPE	Spring		Trip Range
	Number	Colour	mbarg
OPCO	1109	Grey	40 – 55
	1110	Green	50 – 110
	1111	Silver	110 – 200
	1140	Silver/Red	150 – 250
UPCO	1138	Blue/Green	10 – 30

Recommended Settings

- Minimum OPCO Setting is 35 mbarg or 10% above Regulator setting, whichever is the higher.
- Minimum Differential Pressure between UPCO & OPCO Setting is: 30 mbarg (LP), 45 mbarg (MP1) & 85 mbarg (MP2 & MP4).
- Minimum Reset Pressure UPCO/OPCO is: UPCO Setting plus: 10 mbarg (LP), 45 mbarg (MP1) & 80 mbarg (MP2 & MP4).

REGULATOR: SERIES 284-309 MP2 OPCO		
Spring		Spring Range
Number	Colour	mbarg
849 & 848	Red & Black	140 – 260
851 & 850	Green & White	230 – 500
853 & 852	Yellow & Blue	460 – 1000

SAFETY CUT-OFF VALVE: 309 MP2 OPCO		
Spring		Trip Range
Number	Colour	mbarg
1132	White/Blue	0.5 – 0.8
1133	White/Red	0.7 – 1.1
1134	White/Grey	1.0 – 1.8
1135	White/Brown	1.5 – 2.9

SAFETY CUT-OFF VALVE: 309 MP2 UPCO		
1192	White/Purple	50 – 150 mbar

MATERIALS OF CONSTRUCTION	
Regulator:	
Body	Ductile Iron to BSS EN 1563 Grade EN-GJS-400-18
Diaphragm Casing	Aluminium Alloy: BS 1490 Grade LM4
Valve Orifice	Stainless Steel: BS 970 Grade 416S21
Diaphragms	Terylene Reinforced Nitrile Rubber Pentane Resistant
Valve Seat	Nitrile Rubber
'O' Rings	Nitrile
Safety Cut-Off Valve (309LP)	
Body	Aluminium: BS 1490 Grd. LM6
Spindle	Stainless Steel: BS 970 Grade 316 S31
Valve	Aluminium: BS 1474 Grade 6082TF
Valve Seating	Polyurethane
Diaphragm & 'O' Rings	Nitrile
Spring Adjuster	Brass: BS 2874 - Grade CZ 121
Spring	Spring Steel: BS 5216 Grade HS3

GAS PRESSURE REGULATOR SERIES 280-309

Capacities in SCMH, natural gas SG:0.6

INLET PRESSURE	OUTLET PRESSURE		
mbarg/Bar	15 mbar	26 mbar	50 mbar
50	100	90	-
75	130	150	150
100	280	200	220
150	330	370	330
200	420	450	400
250	470	510	410
350	-	-	610
750	690	680	700
1.0 Bar			1200
1.5 Bar			1650
2.0 Bar			2000
3.0 Bar			2500
4.0 bar			2900
5.0 Bar			4100
6.0 Bar			4550
7.0 Bar			5200
8.0 bar			5400

NB: For Series 284-309 Capacities - Contact BD-RMG for details

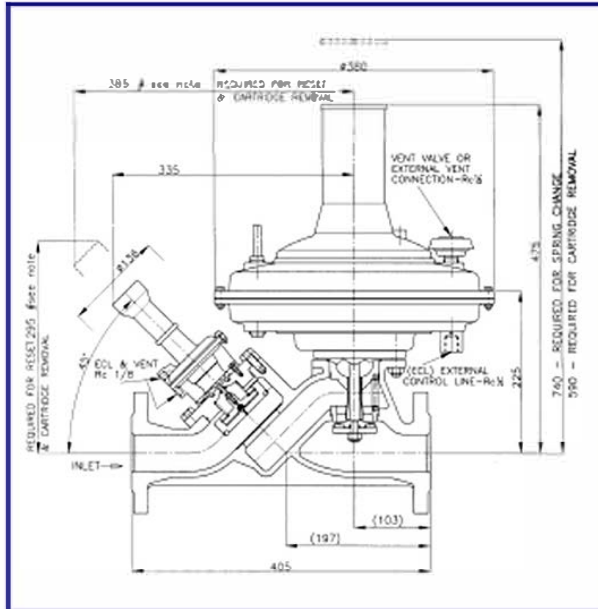
Installation

- The regulator may be mounted in any orientation to suit site conditions; moisture or debris must not ingress the vent valves. For optimum performance the recommended position is in a horizontal pipeline with the spring housing pointing vertically upwards.
- Note: On some burner applications, where rapid changes in flow rate occur, it may be necessary to fit a variable jet into the regulator impulse line to tune the regulator to the downstream system.

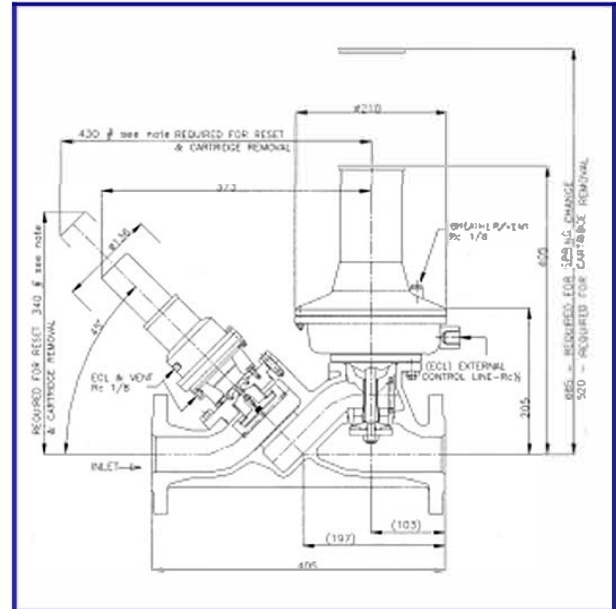
GAS PRESSURE REGULATOR SERIES 280-309

Dimensions & Weights, Sectional Arrangement

SERIES 280H/282H - 309LP

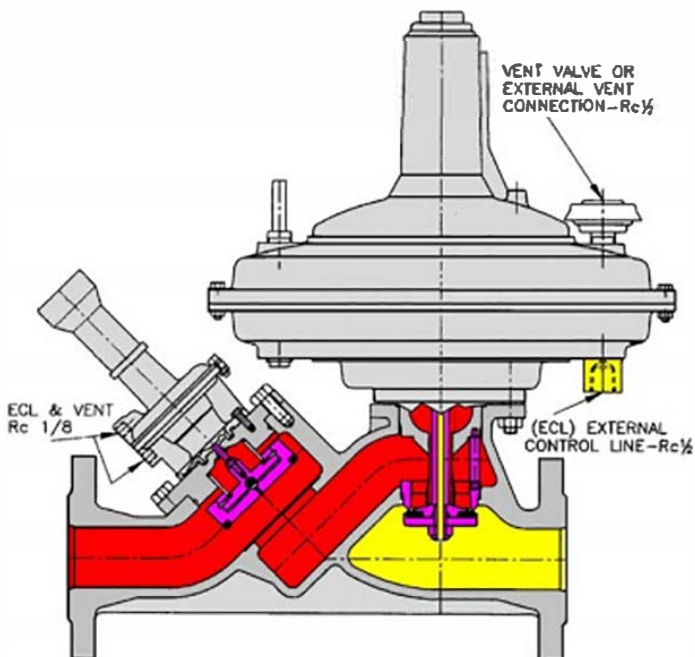


SERIES 284 - 309 MP2



All Dimensions in MM, # will be increased by 50mm when a Micro-Switch is fitted.

SECTIONAL ARRANGEMENT



KEY:

- Inlet Pressure
- Outlet Pressure