

# Gas Pressure Regulator Series 680-684



PRODUCT INFORMATION

**Serving the Gas Industry  
Worldwide**





### Introduction

- The Series 680-684 is a comprehensive range of double beat balanced valve regulators and have been developed over a number of years to comprise of fall-open/fall-closed main regulators from simple direct-acting models to operation by utilising auxiliary or power pilot control systems.
- Use with confidence on natural and manufactured gases of non-aggressive nature, including Nitrogen, Carbon Dioxide, Propane and Butane.

### Application

- The Series 680-684 embrace a wide span of applications, principal amongst these is district governing requiring high peak flow capacity and wide rangeability, together with industrial and commercial gas utilisation applications, either as supply regulators at the factory gate, ring main off-take regulators within the factory premises or directly as burner pressure or process gas control regulators.
- Some installations adopt the simple direct-acting models, others call for the fine control and tight lock-up qualities conferred by auxiliary control systems, in which additional features such as automatic outlet pressure change, volume flow over-ride etc., may readily be incorporated as desired.
- Whichever control form is used all models are designed to accept line gas as the actuating medium, most control systems are arranged to 'bleed-to-line', avoiding discharge to atmosphere and all units are amenable to single or multi-stage pressure reduction and monitor/active modes of installation.

### Features

- Fully balanced internal double beat valves assembly
- Extremely high flow capacities
- Positive, accurate and sensitive control
- Wide operational pressure range
- Stainless steel internals
- Full or Reduced bore valves

### Models Available

#### • Series 680 MK1, 680H MK1, 680-EVA, 680H-EVA

Regulators within this group are inherently self-acting, these are spring loaded, fall-open, rapid response models. The 680-EVA and 680H-EVA include the facility for external valve adjustment while the regulator remains on stream. An auxiliary control system is often applied to these models in a way that imparts the benefit of positive lock-up at minimal outlet pressure increment whilst still permitting the main regulator to work in self-acting form over the working flow range.

With such an arrangement shown in Diagram 1, page 10, the inlet pressure capability of certain sizes of these models can be increased.

#### • Series 681 and 681-EVA

The Series 681 and 681-EVA are spring-closed main regulators requiring a minimum pressure differential for operation of 70 mbar (28" wg) and are extremely stable and straightforward to commission, a typical auxiliary arrangement is shown in Diagram 3, page 11.

#### • Series 682 and 682-EVA

These are fall-open main regulators and are dependent on an auxiliary control system as a functional necessity, the Series 682-EVA has the additional benefit of external valve adjustment. The control system shown in Diagram 2, page 10, incorporates an inspirator which enables the installation to operate on low differential pressures.

#### • Series 683

These models are powerfully spring loaded closed and require power pilot operation and a minimum pressure differential of 500 mbar (7psig).

#### • Series 684

The Series 684 is a high pressure self-acting, fall-open main regulator. An auxiliary control system can be applied to give the added benefit of fine control and positive lock-up qualities.

#### • Relief Valves

Relief valves are also available in this series, these are: • Series 680R • Series 684R

## GAS PRESSURE REGULATOR SERIES 680 - 684

Technical Data

REGULATOR SELECTION GUIDE														
Maximum Inlet Pressure	Outlet Pressure Range mbar/bar ("wg/psi)	Model(s) Applicable	Mode of Operation	Valve Position at Rest	BRANCH SIZES									
					Full Bore Valves					Reduced Bore Valves				
					2"	3"	4"	6"	8"	2"	3"	4"	6"	8"
2.07 bar (30psi)	15 - 210 mbarg (6"wg - 3 psig)	680 MK1 680-EVA	Self-Acting or Auxiliary Controlled	OPEN	•	•	•	•	•	•	•	•	•	•
	125 - 415 mbarg (1.8 - 6 psig)	680H MK1 680H-EVA		OPEN	•	•	•	•	•	•	•	•	•	•
4.5 bar (65 psi)	15 - 70 mbarg (6" - 28" wg)	682-EVA	Auxiliary Controlled	OPEN	•	•				•	•	•		
	15 - 90 mbarg (6" - 38" wg)	680-EVA		OPEN	•	•				•	•	•		
	12.5 - 120 mbarg (5" - 48" wg)	681-EVA		CLOSED	•	•				•	•	•		
	15 - 310 mbarg (6"wg - 4.5 psig)	680H-EVA		OPEN	•	•				•	•	•		
7 bar (100 psi)	15 - 70 mbarg (6" - 28" wg)	682	Auxiliary Controlled	OPEN	•	•	•			•	•	•	•	•
	15 - 90 mbarg (6" - 36" wg)	680 MK1		OPEN	•	•	•			•	•	•	•	•
	12.5 - 120 mbarg (5" - 48" wg)	681		CLOSED	•	•	•			•	•	•	•	•
	15 - 310 mbarg (6"wg - 4.5 psig)	680H-MK1		OPEN	•	•	•			•	•	•	•	•
12 bar (175 psi)	0.2 - 6.9 barg (3 - 100 psig)	684	Self-Acting	OPEN	•	•	•			•	•	•	•	
16 bar (232 psig)	0.2 - 15.0 bar (3 - 218 psig)	683	Pilot Operated	CLOSED				•	•				•	•
0.5 bar (7.5 psi)	15 - 350 mbarg (6"wg - 5 psig)	680R - Relief Valve	Self-Acting	CLOSED	•	•	•	•	•	•	•	•	•	•
8.6 bar (125 psi)	0.2 - 6.9 bar (3 - 100 psig)	684R - Relief Valve	Self-Acting	CLOSED	•	•	•			•	•	•	•	

Key: EVA - External Valve Adjustment, R - Relief Valve

### Connections

All body sizes have flanged connections to PN16: BS EN 1092-2:1997

### Installation

The regulator may be mounted in any orientation to suit site conditions, moisture or debris must not ingress the vent valve. For optimum performance the recommended operating position is with diaphragm casing horizontal and spring housing pointing vertically upwards, e.g. regulators installed in other than the vertical position in a horizontal main will give a reduced outlet pressure depending on gravitational forces.

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.

### Temperature Range

-20°C to +60°C

## GAS PRESSURE REGULATOR SERIES 680 - 684

Spring Selection Regulators

SERIES 680 & 680H - MK1/EVA REGULATOR						
Outlet Pressure Range		Regulator Size				Model
		DN 50	DN 80	DN 100	DN 150 & DN 200	
Based on 5% Capacity Setting		SPRING	SPRING	SPRING	SPRING	
mbar	"wg	Number & Colour	Number & Colour	Number & Colour	Number & Colour	
15 - 20	6 - 8	368 White/Orange	378 White/Maroon	409 White/Gold	417 White/Light Blue	680 MK1 680-EVA
20 - 30	8 - 12	369 Black/Orange	402 Black/Maroon	410 Black/Gold	418 Black/Light Blue	
30 - 40	12 - 16	370 Dark Green/Orange	403 Dark Green/Maroon	411 Dark Green/Gold	419 Dark Green/Light Blue	
40 - 50	16 - 20	371 Yellow/Orange	404 Yellow/Maroon	412 Yellow/Gold	420 Yellow/Light Blue	
50 - 60	20 - 24	374 Red/Orange	405 Red/Maroon	413 Red/Gold	421 Red/Light Blue	
60 - 90	24 - 36	375 Brown/Orange	406 Brown/Maroon	414 Brown/Gold	422 Brown/Light Blue	
90 - 140	36 - 56	376 Grey/Orange	407 Grey/Maroon	415 Grey/Gold	423 Grey/Light Blue	
100 - 210	40 - 84	857 Stone/Maroon	857 Stone/Maroon	857 Stone/Maroon	856 Purple/Light Blue	
125 - 205	1.8 - 3 psi	523 Mauve/Orange	523 Mauve/Orange	523 Mauve/Orange	520 (x2) Mauve/Light Blue	
185 - 275	2.7 - 4 psi	525 Pink/Orange	525 Pink/Orange	525 Pink/Orange	521 (x2) Pink/Light Blue	680H MK1 680H-EVA
255 - 350	3.7 - 5 psi	522 Stone/Orange	522 Stone/Orange	522 Stone/Orange	544 (x2) Stone/Light Blue	
345 - 415	5 - 6 psi	935 Blue/Orange	935 Blue/Orange	935 Blue/Orange	-	
330 - 415	4.8 - 6 psi	-	-	-	1006 (x2) Self	

SERIES 683 REGULATOR - Pilot Type: RMG RS10d					
Load Limiting Unit			Final Control Unit		
Unit Type	Load Limiting Pressure Range		Unit Type	Load Limiting Pressure Range	
	barg	psig		barg	psig
M	0.1 - 1.5	1.45 - 27.75	N	0.01 - 0.04	0.145 - 0.58
				0.02 - 0.06	0.29 - 0.87
				0.04 - 0.12	0.58 - 1.74
				0.08 - 0.2	1.16 - 2.9
				0.1 - 0.5	1.45 - 7.25
M	0.5 - 5	7.25 - 72.5	M	0.3 - 1.5	4.3 - 21.75
				1 - 2.5	14.5 - 36.25
				2 - 3.5	29 - 50.75

Pilot Type: RMG 650				
	Spring Number	Spring Colour	Outlet Pressure Range	
			barg	psig
<b>Control stage with diaphragm type measuring unit</b>	1	Blue	0.5 - 2	7.25 - 29
	2	Black	1 - 5	14.5 - 72.5
	3	Grey	2 - 10	29 - 145
	4	Brown	5 - 20*	72.5 - 290*

\* Note: Maximum outlet pressure restricted to 15 barg (217 psig) on 683

SERIES 684 REGULATOR		
Outlet Pressure Range		Spring Number & Colour
barg	psig	
0.207 - 0.414	3 - 6	655 Yellow
0.414 - 0.621	6 - 9	656 Grey
0.621 - 1.034	9 - 15	657 Blue
1.034 - 2.068	15 - 30	658 Red
2.068 - 3.793	30 - 55	659 Brown
3.793 - 5.172	55 - 75	660 Black
5.172 - 6.9	75 - 100	659 & 661 Brown & White

Spring ranges applicable to sizes, DN50 to DN150

SERIES 681/682 REGULATOR				
Spring			Model	
Range	Number	Colour	S.681	S.682
7.5 - 15 mbar (3 - 6" wg)	289	Blue		•
12.5 - 22 mbar (5 - 9" wg)	275	Self	•	•
20 - 35 mbar (8 - 14" wg)	276	Green	•	•
30 - 70 mbar (12 - 28" wg)	277	Yellow	•	•
62 - 120 mbar (25 - 48" wg)	495	Orange	•	

Note: Spring ranges based on Series 226K pilot regulator in conjunction with an auxiliary control system

## GAS PRESSURE REGULATOR SERIES 680 - 684

Spring Selection: Relief Valves

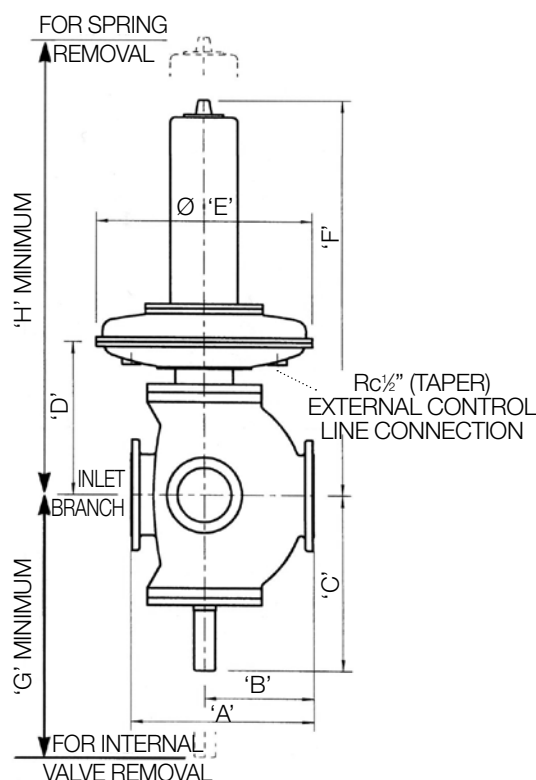
SERIES 680R RELIEF VALVE						
Relief Pressure Range		Regulator Size				
mbar	"wg	DN 50	DN 80	DN 100	DN 150	DN 200
15 to 20	(6 to 8)	-	-	410 Black/Gold	-	-
15 to 40	(6 to 16)	371 Yellow/Orange	404 Yellow/Maroon	-	-	-
17 to 40	(7 to 16)	-	-	-	447 Silver/Light Blue	-
20 to 30	(8 to 12)	-	-	-	-	428 Yellow/Light Green
20 to 40	(8 to 16)	-	-	412 Yellow/Gold	-	-
25 to 40	(10 to 16)	-	-	-	-	456 Silver/Light Green
35 to 50	(14 to 20)	-	-	-	421 Red/Light Blue	457 Stone/Light Green
35 to 90	(15 to 36)	415 Grey/Gold	415 Grey/Gold	415 Grey/Gold	-	-
45 to 65	(18 to 26)	-	-	-	-	430 Brown/Light Green
45 to 90	(18 to 36)	-	-	-	423 Grey/Light Blue	-
60 to 90	(24 to 36)	-	-	-	-	431 Grey/Light Green
85 to 210	(35 to 83)	454 Mauve/Maroon	454 Mauve/Maroon	454 Mauve/Maroon	446 Mauve/Light Blue	446 Mauve/Light Blue
190 to 350	(2.75 to 5psi)	445 Stone/Orange	445 Stone/Orange	445 Stone/Orange	448 Stone/Light Blue	448 Stone/Light Blue

SERIES 684R RELIEF VALVE			
Relief Pressure Range		Spring	
barg	psig	Number	Colour
0.207 to 0.414	3 to 6	655	Yellow
0.414 to 0.621	6 to 9	656	Grey
0.621 to 1.034	9 to 15	657	Blue
1.03 to 2.06	15 to 30	658	Red
2.06 to 3.79	30 to 55	659	Brown
3.793 to 5.172	55 to 75	660	Black
5.17 to 6.9	75 to 90	659 & 661	Brown/White

Spring ranges applicable to sizes, DN50 to DN150

## GAS PRESSURE REGULATOR SERIES 680 - 684

Dimensions & Weights



Regulator		Dimensions in mm								Wt kgs
Model	Size	A	B	C	D	E	F	G	H	
680 MK1	DN 50	267	143	223	211	451	664	458	826	80
680-EVA		267	143	255	211	451	664	420	826	80
680H MK1		267	143	223	211	451	930	458	1340	97
680H-EVA		267	143	255	211	451	930	420	1340	97
681 & 682		267	143	223	211	451	354	458	554	70
681 & 682 - EVA		267	143	255	211	451	354	420	554	70
684		267	143	223	238	223	613	458	743	49
680 MK1	DN 80	318	178	264	250	451	702	508	864	98
680-EVA		318	178	278	250	451	702	458	864	98
680H MK1		318	178	264	250	451	968	508	1378	111
680H-EVA		318	178	278	250	451	968	458	1378	111
681 & 682		318	178	264	250	451	393	508	593	88
681 & 682 - EVA		318	178	278	250	451	393	458	593	88
684		318	178	264	276	223	651	508	781	68
680 MK1	DN 100	369	208	315	296	451	740	559	902	133
680-EVA		369	208	304	296	451	740	496	902	133
680H MK1		369	208	315	296	451	1006	559	1416	151
680H-EVA		369	208	304	296	451	1006	496	1416	151
681 & 682		369	208	315	296	451	439	559	639	123
681 & 682 - EVA		369	208	304	296	451	439	496	639	123
684		369	208	315	308	223	683	559	813	102
680 MK1	DN 150	473	276	410	411	559	1020	674	1182	268
680-EVA		473	276	430	411	559	1020	674	1182	268
680H MK1		473	276	410	411	559	1442	674	2032	305
680H-EVA		473	276	430	411	559	1442	674	2032	305
681 & 682		473	276	410	411	559	573	674	773	238
681 & 682 - EVA		473	276	430	411	559	573	674	773	238
683		473	276	315	429	508	791	674	953	336
684		473	276	410	381	223	756	674	886	193
680 MK1	DN 200	569	340	470	475	559	1080	712	1245	350
680-EVA		569	340	475	475	559	1080	712	1245	350
680H MK1		569	340	470	475	559	1505	712	2096	388
680H-EVA		569	340	475	475	559	1505	712	2096	388
681 & 682		569	340	470	475	559	637	712	837	320
681 & 682 - EVA		569	340	475	475	559	637	712	837	320
683		569	340	375	493	508	854	712	1016	431

## GAS PRESSURE REGULATOR SERIES 680 - 684

Capacities in SCMH for Natural Gas SG:0.6

CAPACITIES						
Inlet Pressure	Outlet Pressure	Regulator Size				
		mbar/bar	DN 50	DN 80	DN 100	DN 150
69 mbar	20	446	1,250	4,360	5,090	8,380
	40	341	960	1,780	3,890	6,410
	60	197	550	1,030	2,250	3,710
	65	135	380	700	1,540	2,530
138 mbar	20	708	1,990	3,690	8,080	13,310
	50	623	1,750	3,250	7,100	11,690
	69	558	1,570	2,910	6,360	10,470
	103	390	1,100	2,040	4,450	7,330
	131	174	490	910	1,990	3,270
207 mbar	20	859	2,420	4,480	9,800	16,140
	69	762	2,140	3,970	8,690	14,310
	103	674	1,890	3,510	7,680	12,650
	138	571	1,610	2,980	6,520	10,730
	200	181	510	940	2,070	3,400
345 mbar	20	1,130	3,190	5,910	12,900	21,290
	69	1,060	2,990	5,550	12,100	19,980
	138	950	2,660	4,940	10,800	17,800
	207	790	2,230	4,140	9,000	14,920
	276	590	1,660	3,080	6,700	11,080
	338	190	540	990	2,200	3,570
483 mbar	20	1,350	3,790	7,020	15,400	25,300
	138	1,240	3,490	6,470	14,100	23,300
	276	1,020	2,870	5,330	11,700	19,200
	414	620	1,750	3,250	7,100	11,700
	448	440	1,240	2,300	5,000	8,300
690 mbar	69	1,590	4,470	8,280	18,100	29,800
	207	1,500	4,220	7,820	17,100	28,200
	345	1,350	3,790	7,020	15,400	25,300
	483	1,100	3,080	5,720	12,500	20,600
	621	670	1,890	3,510	7,700	12,700
	655	470	1,330	2,470	5,400	8,900
1.03 bar	69*	1,970	5,520	10,200	22,400	36,900
	207	1,930	5,420	10,000	22,000	36,200
	345	1,880	5,290	9,800	21,500	35,300
	690	1,460	4,110	7,600	16,700	27,500
	966	700	1,960	3,600	7,900	13,100
	1.0	520	1,450	2,700	5,900	9,700
1.38 bar	241*	2,280	6,400	11,900	26,000	42,800
	345	2,230	6,270	11,600	25,400	41,900
	690	2,110	5,940	11,000	24,100	39,700
	1.03 bar	1,630	4,570	8,500	18,500	30,500
	1.31 bar	740	2,090	3,900	8,500	14,000
2.07 bar	621*	2,930	8,230	15,300	33,400	55,000
	1.03 bar	2,840	7,970	14,800	32,400	53,400
	1.38 bar	2,490	6,990	13,000	28,300	46,700
	1.72 bar	1,910	5,350	9,900	21,700	35,800
	2.0 bar	840	2,350	4,400	9,500	15,700

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

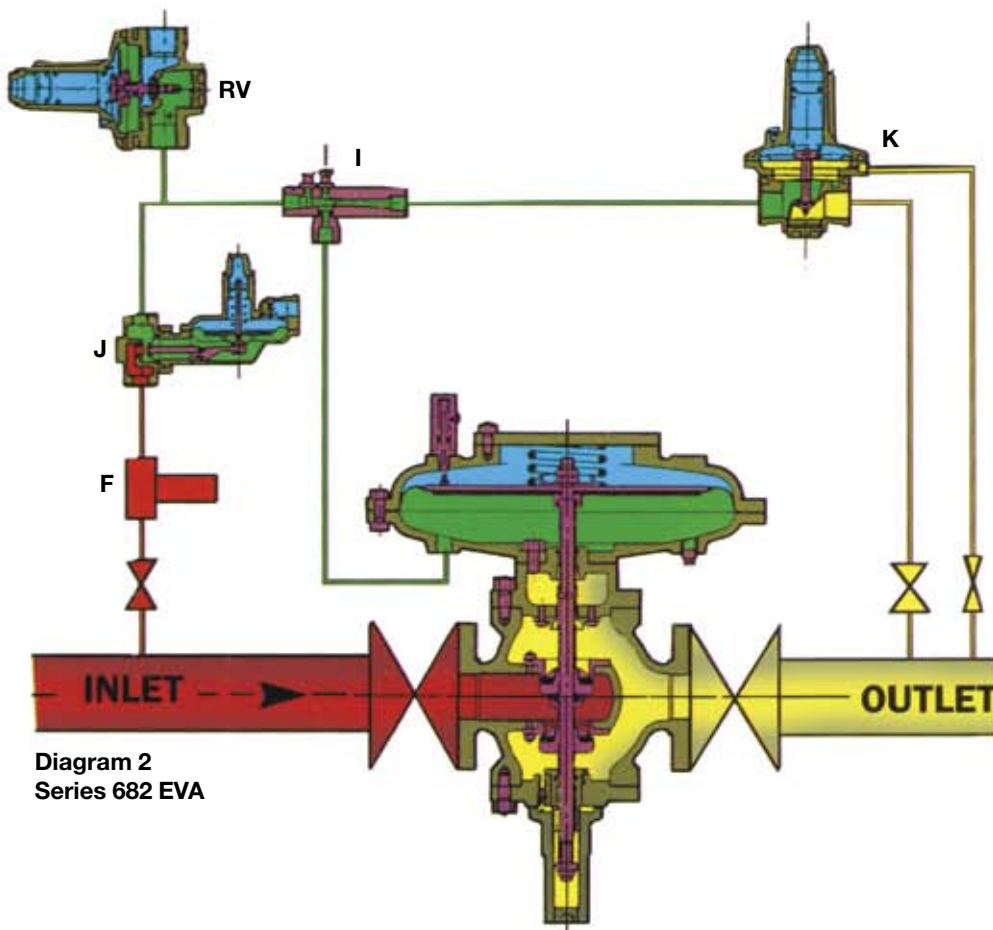
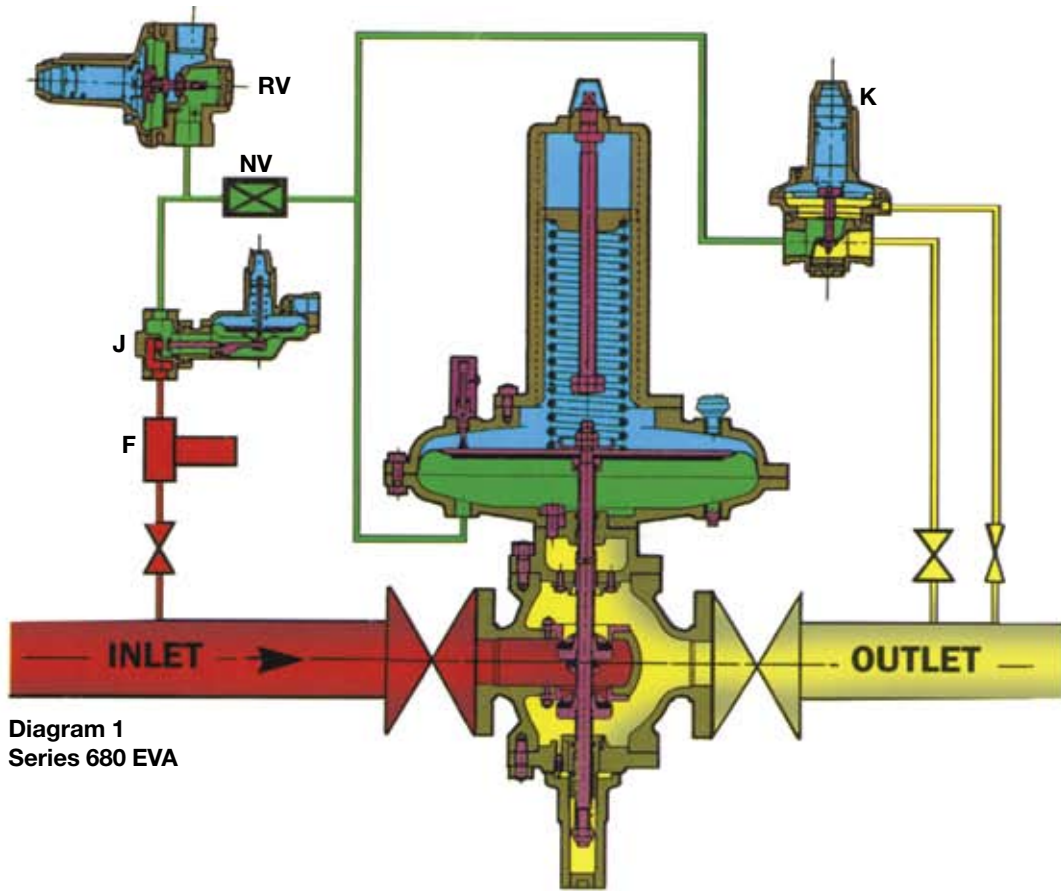
## GAS PRESSURE REGULATOR SERIES 680 - 684

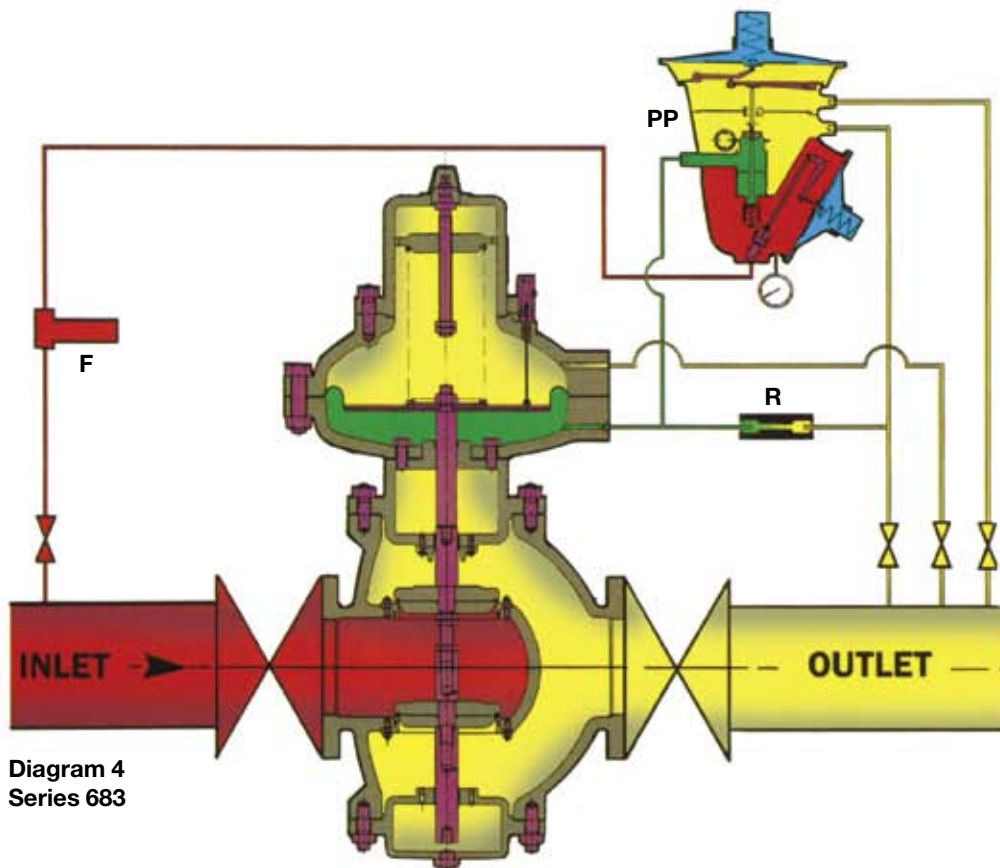
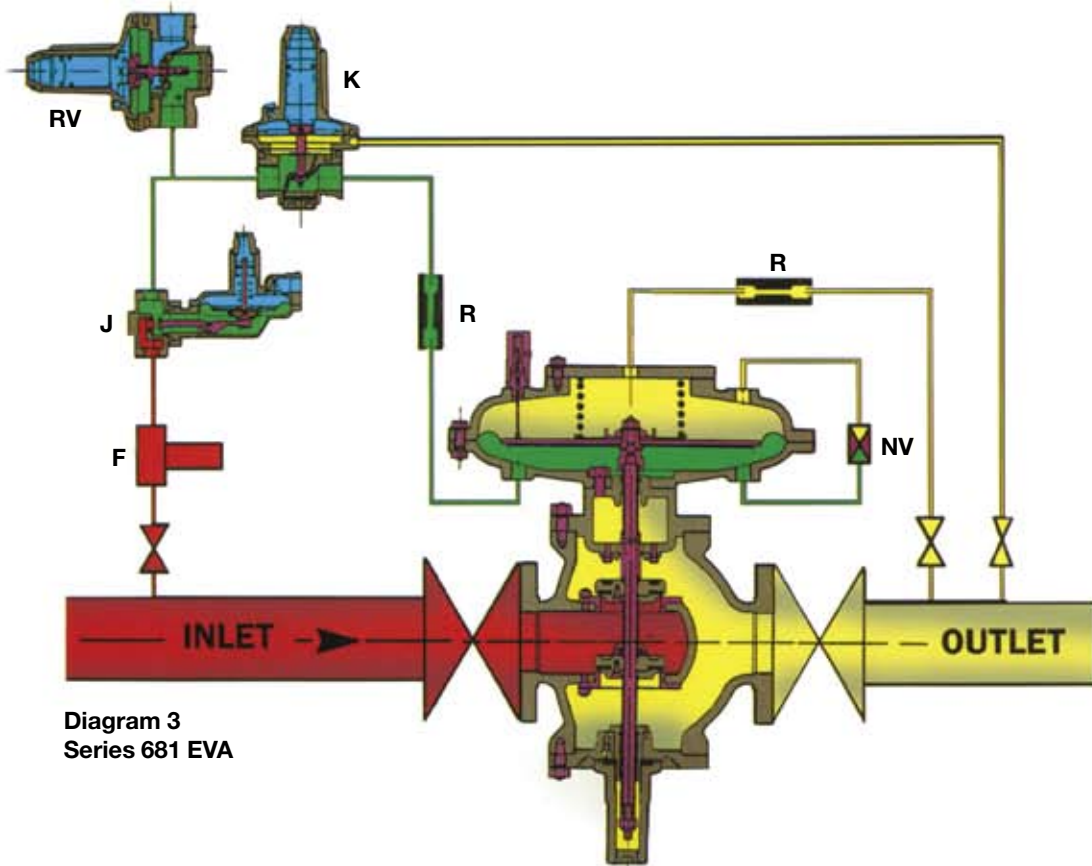
Capacities in SCMH for Natural Gas SG:0.6

CAPACITIES						
Inlet Pressure	Outlet Pressure bar	Regulator Size				
		DN 50	DN 80	DN 100	DN 150	DN 200
2.76 bar	0.97*	3,600	10,100	18,800	41,100	67,600
	1.38	3,510	9,900	18,300	40,000	65,900
	2.07	2,830	8,000	14,800	32,300	53,200
	2.41	2,140	6,000	11,100	24,400	40,100
3.45 bar	1.38*	4,250	11,900	22,200	48,500	79,800
	2.07	4,060	11,400	21,200	46,400	76,300
	2.76	3,160	8,900	16,500	36,000	59,300
	3.10	2,370	6,700	12,400	27,000	44,500
4.5 bar	1.72*	5,140	14,400	26,800	58,600	96,100
	2.28	5,060	14,200	26,300	57,600	95,000
	2.76	4,790	13,200	24,500	53,700	88,500
	3.45	4,000	11,200	20,800	45,600	75,200
	4.14	2,530	7,100	13,200	28,800	47,500
5.17 bar	2.28*	5,940	16,700	31,000	67,700	111,500
	2.76	5,710	16,100	29,800	65,200	107,500
	3.45	5,250	14,800	27,400	59,900	98,500
	4.14	4,530	12,700	23,600	51,700	85,000
	4.83	2,740	7,700	14,300	31,300	51,500
6.9 bar	3.17*	7,600	21,400	39,600	86,600	142,500
	3.45	7,550	21,200	39,400	86,100	142,000
	4.14	7,270	20,400	37,900	82,900	136,500
	4.83	6,810	19,100	35,500	77,600	128,000
	5.52	5,900	16,600	30,800	67,300	111,000
	6.21	4,370	12,300	22,800	49,800	82,000
8.62 bar	4.07*	9,220	25,900	48,100	105,000	173,000
	4.83	8,990	25,300	46,900	102,500	169,000
	5.52	8,590	24,200	44,800	98,000	161,500
	6.90	7,270	20,400	37,900	82,900	136,500
	8.28	3,530	9,900	18,400	40,300	66,300
10.34 bar	5.03*	10,900	30,600	56,700	124,000	204,000
	6.21	10,400	29,400	54,500	119,000	196,500
	6.90	10,000	28,200	52,300	114,500	188,500
	8.28	8,600	24,200	44,800	98,000	161,500
	9.66	5,300	15,000	27,900	61,000	100,000
12.07 bar	5.96*	12,500	35,300	65,400	143,000	235,500
	6.90	12,300	34,500	64,100	140,000	231,000
	8.62	11,300	31,700	58,700	128,500	211,500
	10.34	8,700	24,500	45,400	99,000	163,500
	11.72	4,000	11,200	20,800	45,500	75,000
16 bar	9*	15,600	43,700	81,000	177,300	292,300
	10.34	14,900	41,700	77,400	169,400	279,200
	11.72	13,700	38,600	71,500	156,500	258,000
	13.8	10,800	30,200	56,000	122,600	202,100
	15.17	7,000	19,600	36,400	79,700	131,400
Standard Valve Diameter		50mm	80mm	100mm	150mm	191mm
Reduced Valve Diameter		41mm	50mm	80mm	100mm	150mm
Capacity Multiplication Factor for Reduced Bore Bvalves		0.762	0.59	0.667	0.556	0.734
<p>* The capacities give alongside outlet pressures marked * also apply to outlet pressures lower than those indicated.</p> <p>The tabulated capacities are for full open conditions and apply to the entire Series 680 range of regulators. However, to ensure optimum performance we recommend that only 85% of these capacities be used when sizing direct acting regulators e.g. Series 680/680H MKI/E.V.A. Capacities stated are for appropriately sized expanded outlets.</p>						

# GAS PRESSURE REGULATOR SERIES 680 - 684

## Typical Control Systems



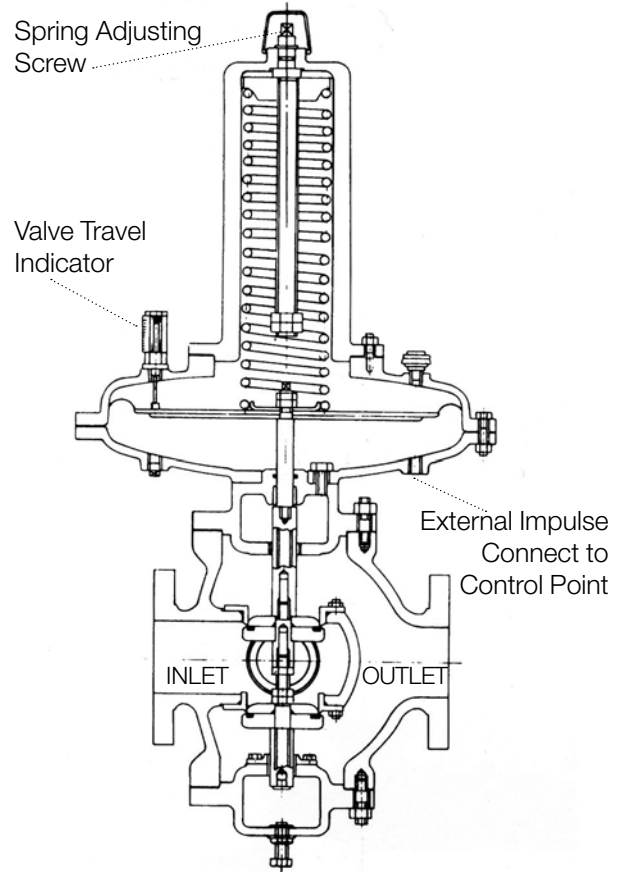


## GAS PRESSURE REGULATOR SERIES 680 - 684

### Construction

#### Series 680 MK1 Pressure Regulator

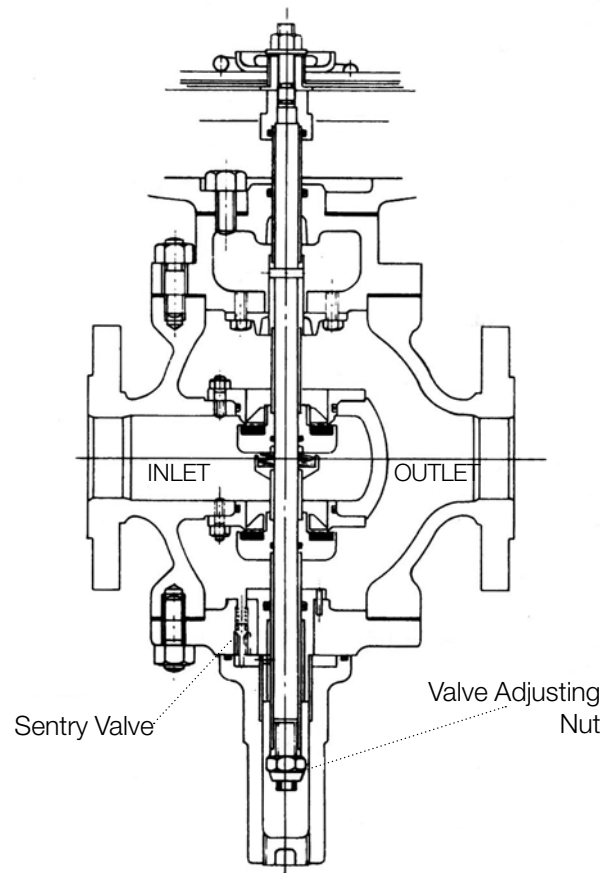
- The Series 680 Mk1 is based on a ductile iron, modular construction design enabling a common body to accept different internal valve arrangements and differently pressure-rated diaphragm heads applied to it. Thus the internal valves, which are stem-guided, may be arranged to fall open or fall closed and operate on full-bore or reduced bore orifices which may be changed or renewed in the field. While diaphragm heads are rarely changed in the field without a major change of usage, spring housings may be substituted readily and, if necessary a full scale conversion may be carried out to create a different model for fresh service conditions.
- All units are of robust and enclosed construction, suitable for outdoor location and most models may be installed in any mounting attitude.



#### Series 680 EVA Regulator

(MkII design "EVA" - external valve adjustment)

- A major refinement on models working on inlet pressures at 65psig (4.5 bar) or lower is the facility to adjust the internal valve seating accuracy while the regulator remains on stream. This design of External Valve Adjustment, designated E.V.A. may be fitted retrospectively to Mk1 models.
- How the mechanism works is simple. The upper valve abuts to a sleeve shoulder on the stem and thus is fixed. The lower valve is moveable axially up and down the stem by a sleeve below it being advanced or retracted by the adjusting nut against the compression of the Belleville washer stack separating the two valves.
- Valve setting is carried out simply by removing the cap from the bottom cover of the body and slowly rotating the adjusting nut until optimum valve closure performance is achieved. The operation is obviously best carried out when a standby supply stream or a bypass is available to meet gas demand in order to enable the regulator to be temporarily isolated and its lock-up tested against a closed outlet.
- The great advantage of this system is the avoidance of a total shutdown and purging the installation.

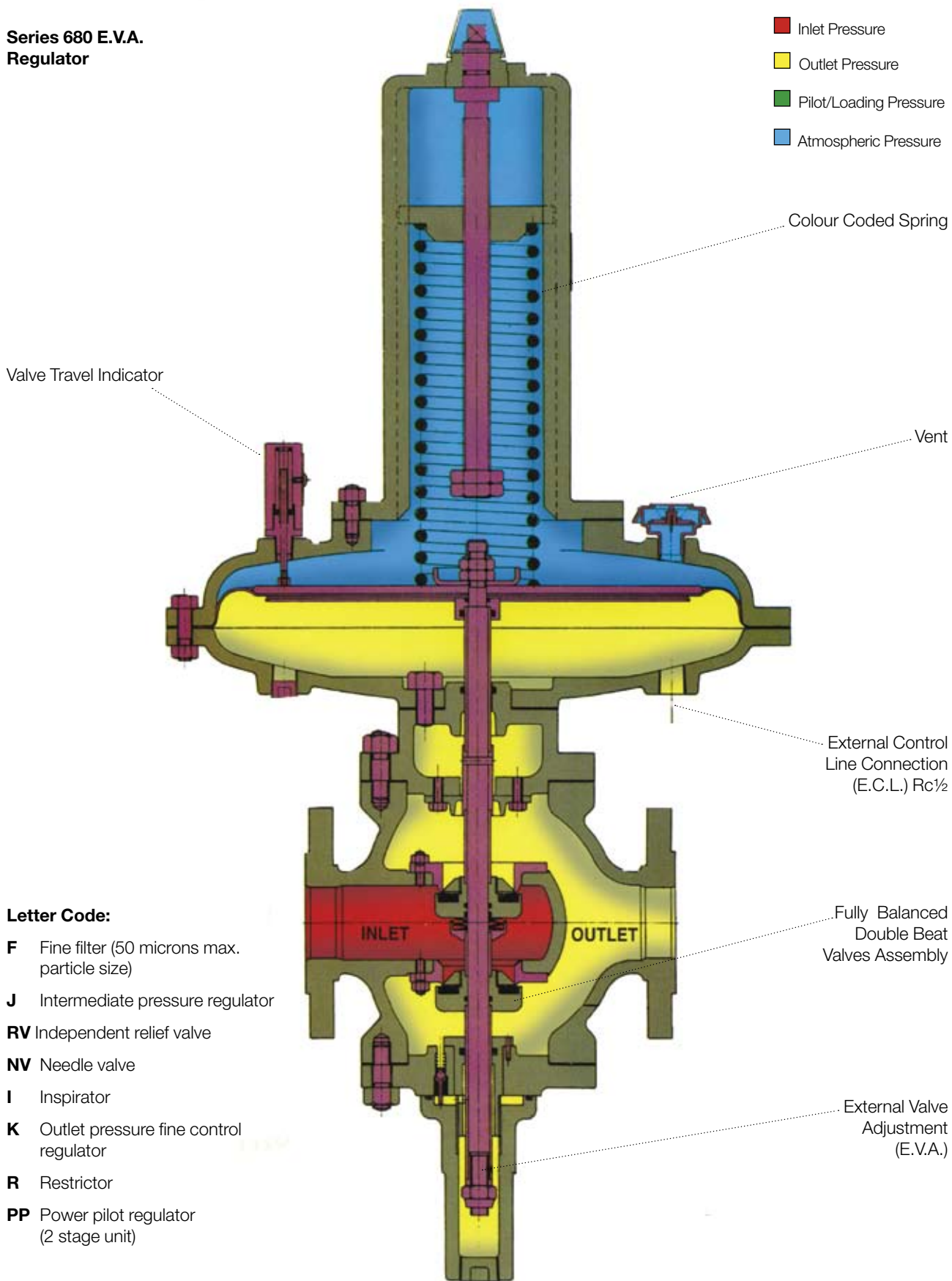


# GAS PRESSURE REGULATOR SERIES 680 - 684

## Sectional Arrangement

### Series 680 E.V.A. Regulator

- Inlet Pressure
- Outlet Pressure
- Pilot/Loading Pressure
- Atmospheric Pressure



Valve Travel Indicator

Colour Coded Spring

Vent

External Control Line Connection (E.C.L.) Rc1/2

Fully Balanced Double Beat Valves Assembly

External Valve Adjustment (E.V.A.)

#### Letter Code:

- F** Fine filter (50 microns max. particle size)
- J** Intermediate pressure regulator
- RV** Independent relief valve
- NV** Needle valve
- I** Inspirator
- K** Outlet pressure fine control regulator
- R** Restrictor
- PP** Power pilot regulator (2 stage unit)

## GAS PRESSURE REGULATOR SERIES 680 - 684

### Materials of Construction

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SERIES 680/680H - Mk1	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	Stainless Steel BS.970 - 416S29
Diaphragm	Nitrile reinforced
'O' Rings	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20 Polyurethane filled

SERIES 680/680H - EVA	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	
Diaphragm	Nitrile reinforced
'O' Rings & Valve Seat	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20

SERIES 681/682 - Mk1	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	Stainless Steel BS.970 - 416S29
Diaphragm	Nitrile reinforced
'O' Rings	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20 Polyurethane filled

SERIES 681/682 - EVA	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	
Diaphragm	Nitrile reinforced
'O' Rings & Valve Seat	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20

SERIES 683	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	Stainless Steel BS.970 - 416S29
Diaphragm	Nitrile reinforced
'O' Rings	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20 Polyurethane filled

SERIES 684	
Component	Material
Body, Diaphragm Casing, Spring Housing, Inspection Plates and Bottom Cover	Ductile Iron to BS EN 1563 Grade: EN-GJS-400-18
Spring	Carbon Steel: BS.5216
Valve Seats, Diaphragm Spindle, Bush, Valve Spindle and nut	
Diaphragm	Nitrile reinforced
'O' Rings & Valve Seat	Nitrile
Adjusting Screw & Spring Button	Carbon Steel: BS.970 - 070M20
Valve Back	Carbon Steel: BS.970 - 070M20

Relief Valves:

Series 680R - see 680/680H regulator

Series 684R - see Series 684 regulator



### **For More Information**

To learn more about RMG's advanced gas solutions, contact your RMG account manager or visit [www.rmg.com](http://www.rmg.com)

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