

PRESSURE REGULATORS

Type A/100



A/100 Regulators

A/100 Series Pressure Regulator

The regulators of the A/100 series due to their operating specifications are mainly used in those system where sudden capacity variations are required, or else, where the cut-off of the gas distribution is controlled by solenoid valve, such as for the feeding of burners.

This product has been designed to be used with fuel gases of 1st and 2nd family according to EN 437, and with other non aggressive and non fuel gases. For any other gases, other than natural gas, please contact your local sales agent.

The A/100 series regulators are spring controlled single seated, whit not counterbalanced valve disc.

They are usually supplied with safety valve and built in filter and can be also provided with shut-off device for minimum pressure, maximum pressure or minimum and maximum downstream pressure.

The regulators of the series A/100 have been devised keeping in consideration the functionality of maintenance. In fact is possible to replace the seat or the seals without removing the body from the fine..

Main features:

- *Available with or without relief valve*
- *Overpressure and underpressure slam shut valve*
- *Manual reset*

Configurations

Version Without Shut-off Device



A/102



A/102-AP

Version With Shut-off Device



A/109



A/109-AP

Regulator Operation

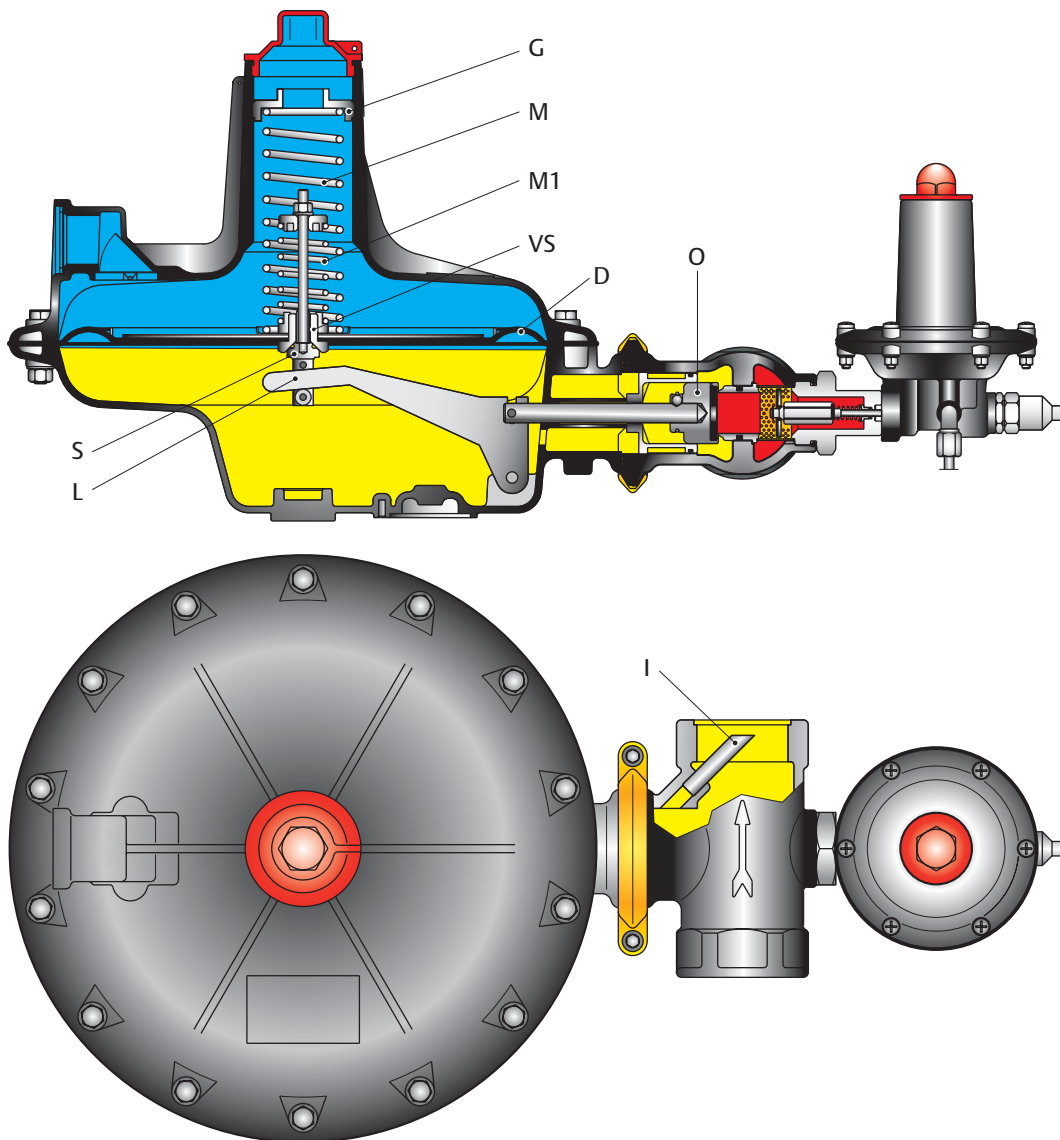
The movements of the diaphragm (D) are transmitted to the valve disc (O) by the stem (S) and the lever (L).

The downstream pressure through the pulse pipe (I) exerts a force under diaphragm (D) and this force is counteracted by the adjusting spring (M).

The gas pressure on the diaphragm tends to close the valve disc; the antagonist action of the adjustment spring tends to open it. Under normal conditions the balance between these antagonist actions positions the valve disc in such a way as to ensure a constant pressure and therefore the downstream capacity.

Upon any capacity variation tending to cause an increase or decrease of pressure in relation to the pre-set pressure, the moving unit reacts and finds a new balance, so re-establishing the pressure.

Upon request the regulator is also provided with safety valve (VS) incorporated in the diaphragm (D); the adjustment at the pre-set value is performed by means of spring (M1).



A/100 Regulators

Shut-off Device Operation

The A/100 series pressure regulators can be fitted with an OS/66 slam-shut valve.

This safety device operates independently of the regulator and, according to customer request, can be made to trigger by any pressure variation, whether above or below set point, or by both.

Outlet pressure acting upon diaphragm (D) is counteracted by maximum pressure spring (M2), thus overcoming the action of the minimum pressure valve (M3).

Under such conditions, the moving part (E) of the valve is held in balance so that lever (L) is aligned with the projecting part of lever (L1).

In addition, the balls (S) are held in their seat by bush (B) and, in turn, these hold the valve disc (O) open.

Any outlet pressure variation over and above preset value breaks the existing balance.

In fact, in case of an increase in outlet pressure, spring (M2) load is overcome by pressure load; in case of a decrease in outlet pressure, spring (M3) load overcomes pressure load.

In both cases, moving part (E) is activated, causing lever (L) to move with it so that lever (L) is no longer aligned with lever (L1).

In this way, lever (L1) releases balls (S), thereby allowing valve disc (O) to close under the action of spring (M4).

The safety device is fitted with an internal by-pass for easy resetting even in case of high inlet pressure. For resetting, proceed as follows: Remove rear cap (C), screw it to stem (H) and pull outwards. Allow a few moments for inlet pressure to flow downstream.

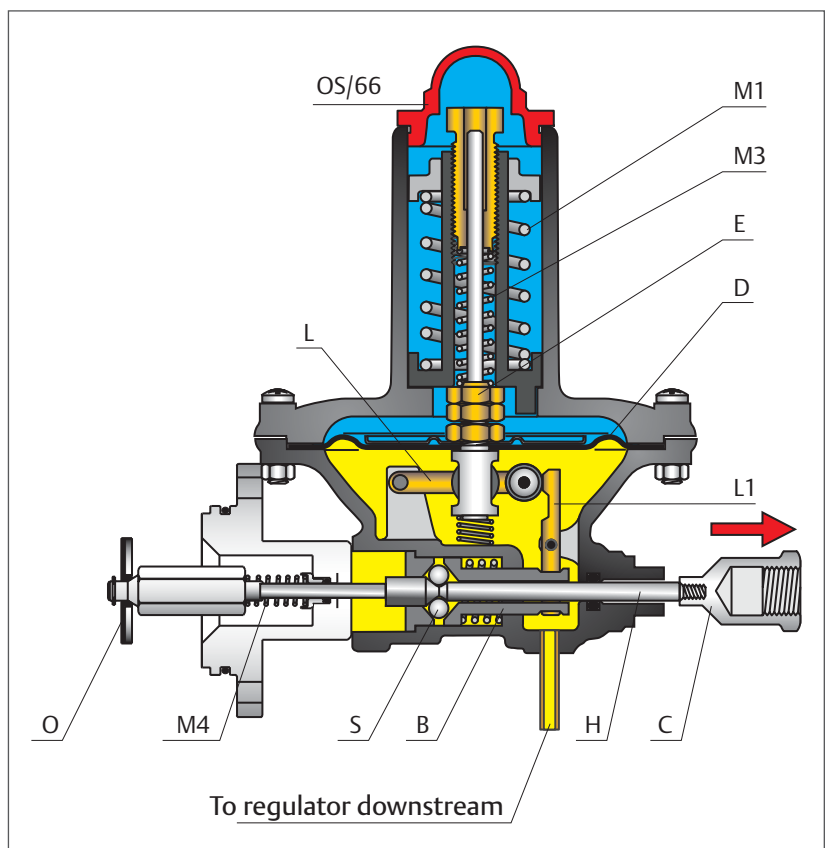
Next, pull cap fully outwards.

Allow a few moments for outlet pressure to stabilize.

Next, release cap and make sure that device remains in the reset position.

If not, repeat the above steps. Once reset, replace cap in its initial position.

The maximum and minimum trip values are independently set by springs (M2) and (M3), respectively.



Features

Technical Features

Body allowable pressure	PS	: up to 20 bar
Highest operating pressure	P _{max}	: 300 mbar
Maximum Operating Inlet Pressure	Pu _{max}	: 8 bar
Inlet pressure range	bpu	: 0.1 to 8 bar
Outlet Set Pressure Ranges	Wd	: 10 to 300 mbar

Functional Features

Accuracy class	AC	: up to $\pm 5\%$
Lock-up pressure class	SG	: up to $+10\%$
Maximum capacity	Q _{max}	: up to 600 Stm ³ /h

Shut-off device Independent pneumatic control

Accuracy class	AG	: $\pm 5\%$
Response time	ta	: ≤ 1 second

Orifice

1/2" - 5/8" - 3/4" - 1"

Body Sizes and End Connection Styles

Inlet and outlet 2" BSP

Temperature

Standard version	: Working -10° to 60°C
Low temperature version	: Working -20° to 60°C

Versions

Versions without relief valve available on request

Materials

Servomotor body	Aluminium
Cover	Aluminium
Body	Cast Iron
Sleeve	Brass
Seat	Brass
Diaphragm	Fabric Nitrile (NBR)
Gaskets	Nitrile (NBR) rubber

A/100 Regulators

Slam-Shut Device

The following slam-shut devices are used with A/100 series regulators with built-in shut-off device:

- OS/66 Spring loaded

Technical Features

Model	Servomotor Body Resistance (bar)	Overpressure Set Range W_{do} (bar)		Underpressure Set Range W_{du} (bar)	
		Min.	Max.	Min.	Max.
OS/66	6	0.022	0.6	0.007	0.450
OS/66-AP		0.2	5	0.1	2.5

Materials

Body Aluminium
Cover Steel
Diaphragm NBR Rubber



Flow Table Stm^3/h

Following flow tables (referred to Natural Gas) are advised for an optimal use of the A/100 series regulators.

For other gases with different densities, the flow rate must be multiplied by the correction factor:

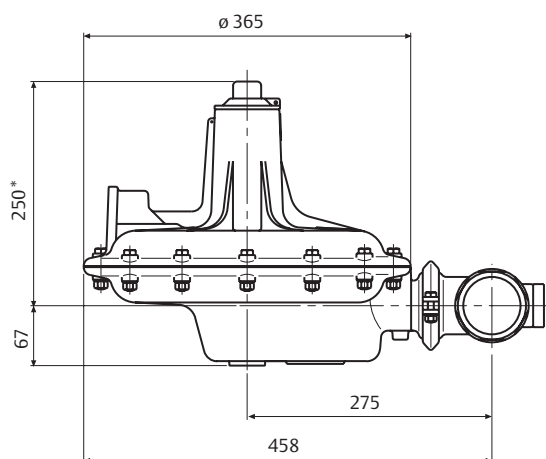
$$F = \sqrt{\frac{0.6}{d}}$$

Gas	Relative Density d	Factor F
Air	1	0.78
Butane	2.01	0.55
Propane	1.53	0.63
Nitrogen	0.97	0.79

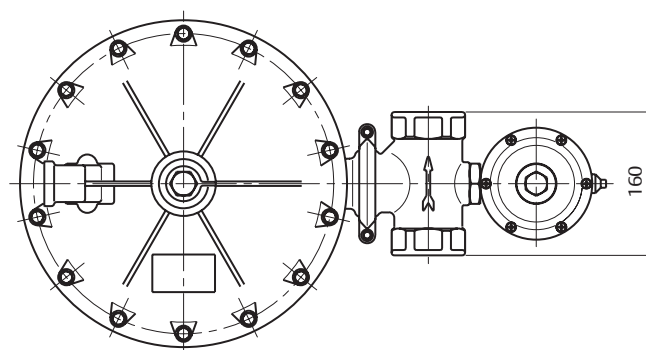
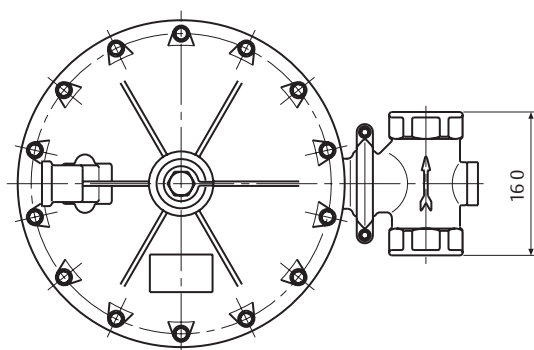
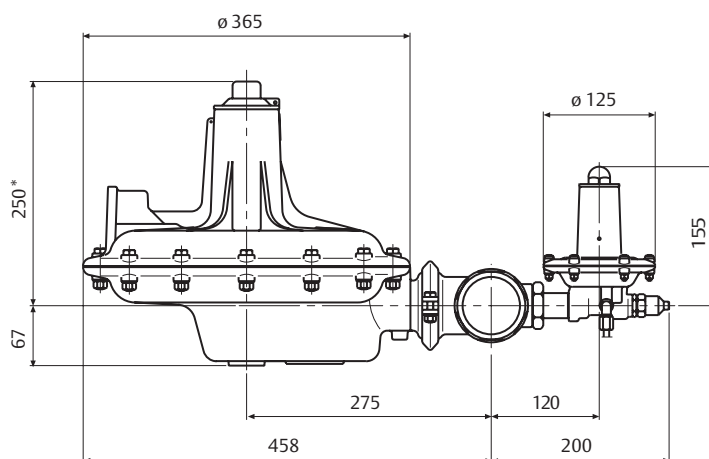
Outlet Pressure mbar		Inlet Pressure bar										Seat Diameter	
		0.03	0.07	0.3	0.5	1	1.5	2	3	4	8	mm	inches
Standard	10	-	45	65	100	110	120	130	140	140	-	12.7	1/2"
		-	-	90	110	120	130	140	140	140	-	15.8	5/8"
		50	85	125	150	170	180	180	-	-	-	19.5	3/4"
		70	100	150	180	190	210	230	-	-	-	25.4	1"
	20	-	40	90	100	140	140	150	160	160	160	12.7	1/2"
		-	50	80	110	150	200	230	230	230	-	15.8	5/8"
		35	80	120	180	200	210	210	-	-	-	19.5	3/4"
		55	80	160	200	210	220	250	-	-	-	25.4	1"
	50	-	40	80	100	180	200	260	350	420	480	12.7	1/2"
		-	-	90	130	220	300	350	400	480	540	15.8	5/8"
		-	90	170	200	250	300	380	440	-	-	19.5	3/4"
		-	80	150	250	270	350	400	-	-	-	25.4	1"
AP	100	-	-	40	80	120	190	230	370	500	600	12.7	1/2"
		-	-	90	150	200	260	350	540	600	600	15.8	5/8"
		-	-	90	170	260	320	520	600	600	-	19.5	3/4"
		-	-	120	200	300	340	360	-	600	-	25.4	1"
	200	-	-	50	70	110	170	190	330	470	600	12.7	1/2"
		-	-	90	120	200	240	300	480	600	600	15.8	5/8"
		-	-	100	160	250	350	440	600	-	-	19.5	3/4"
		-	-	120	210	320	540	600	-	-	-	25.4	1"
	300	-	-	-	50	120	150	180	230	300	350	12.7	1/2"
		-	-	-	65	150	200	250	300	350	400	15.8	5/8"
		-	-	-	80	175	250	300	-	-	-	19.5	3/4"
		-	-	-	100	200	300	400	-	-	-	25.4	1"

Dimensions (mm) and Weights (kg)

A/102 • A/102-AP



A/109 • A/109-AP



Note: The regulator can be installed with vertical or horizontal orientation of the actuator.

* In high pressure versions (AP), this dimension must be increased by 100 mm.

Weights:

A/102 • A/102-AP: 18 Kg

A/109 • A/109-AP: 19 Kg

Industrial Regulators

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters

McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside US: +1 972 548 3574

Europe

Bologna 40013, Italy
Tel: +39 051 419 0611

Asia-Pacific

Shanghai 201206, China
Tel: +86 21 2892 9000

Middle East and Africa

Dubai, United Arab Emirates
Tel: +971 4811 8100

Natural Gas Technologies

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters

McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside US: +1 972 548 3574

Europe

Bologna 40013, Italy
Tel: +39 051 419 0611
Chartres 28008, France
Tel: +33 2 37 33 47 00

Asia-Pacific

Singapore 128461, Singapore
Tel: +65 6770 8337

Middle East and Africa

Dubai, United Arab Emirates
Tel: +971 4811 8100

LP-Gas Equipment

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters

McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside US: +1 972 548 3574

TESCOM

Emerson Process Management Tescom Corporation

USA - Headquarters

Elk River, Minnesota 55330-2445
USA
Tel: +1 763 241 3238
+1 800 447 1250

Europe

Selmsdorf 23923, Germany
Tel: +49 38823 31 287

Asia-Pacific

Shanghai 201206, China
Tel: +86 21 2892 9499

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O.M.T. Officina Meccanica Tartarini S.R.L., Via P. Fabbri 1, I-40013 Castel Maggiore (Bologna), Italy

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Francel SAS, 3 Avenue Victor Hugo, CS 80125, Chartres 28008, France

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