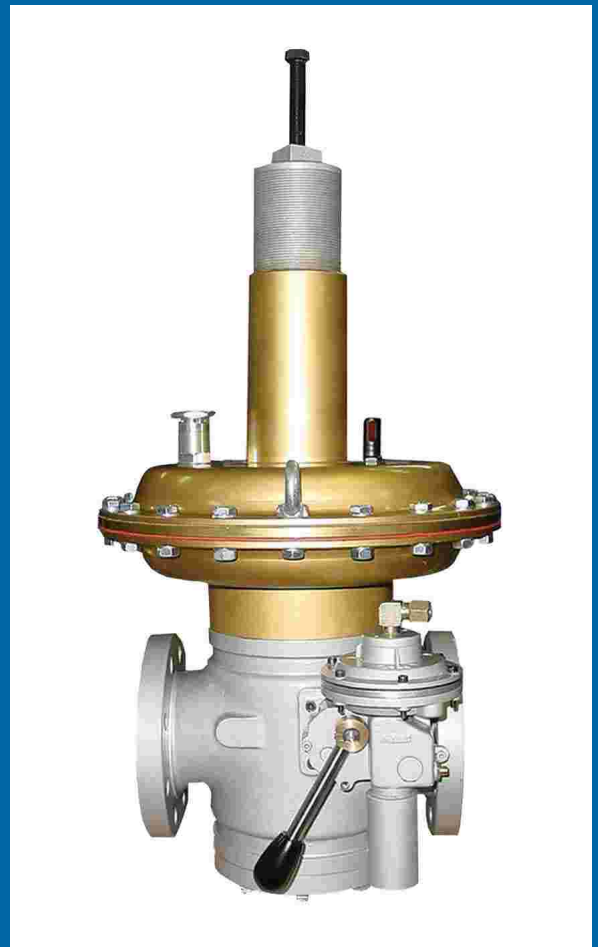


PRESSURE REGULATOR ALTON SERIES

- 1 FAIL TO OPEN REGULATOR
- 1 BALANCED VALVE
- 1 HIGH FLOW COEFFICIENT
- 1 WIDE PRESSURE-REGULATION RANGE
- 1 FULL SEAL AT ZERO FLOW
- 1 CAN BE SUPPLIED WITH MINIMUM / MAXIMUM PRESSURE SLAM-SHUT VALVE
- 1 HIGH PRECISION REGULATION
- 1 SIMPLE MAINTENANCE; NO NEED TO REMOVE FROM GAS LINE
- 1 CONNECTIONS DN65 PN25
DN80 PN25
2 1/2" ANSI 150
3" ANSI 150
- 1 SUITABLE UP TO Pe 20 bar



APQ

ALTON/S

Use

Due to their characteristics, ALTON series regulators are used with optimum results both in high gas pressure reducing stations and in industrial facilities where a fast response is required for quick changes in flow. They can work with natural or manufactured gas, propane, air and other gases that do not contain a high percentage of benzol.

Construction characteristics

ALTON series regulators are direct acting, with regulation by spring and balanced valve. They can be supplied with incorporated shut-off valve.

This series of regulators has been designed with easy, practical maintenance in mind and any element can be substituted without having to remove the regulator from the gas line.

The products are equipped with an anti-pump device in order to slow up the flow and backflow of gas and air in the regulation head.

The /S models have a minimum and/or maximum safety shut-off valve included, with a self-adjusting lock-up plug.

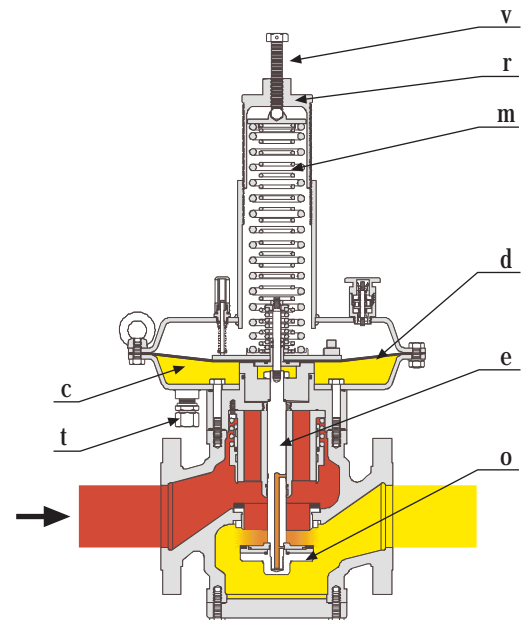
Control operations

Movement in the membrane or diaphragm (d) via the shaft (e) is transmitted to the self-adjusting plug (o). The exit pressure is transferred to the chamber (c) via the port (t) and increases the force on the membrane (d); this is countered by the decreasing pressure exercised by the calibration spring (m).

The increase in exit gas pressure in the chamber (c) lifts the membrane (d) and gradually closes off the flow of gas by means of the self-adjusting plug (o). The force exercised by the calibration spring (m) gradually opens the gas flow. The balance between these two forces results in the different flows having a constant exit pressure.

Versions

Type	Entry ANSI 150	Entry DIN PN 25	Exit ANSI 150	Exit DIN PN 25	Shut-off Valve
ALTON 65	2 1/2"	65	2 1/2"	65	No
ALTON 65/S	2 1/2"	65	2 1/2"	65	Yes
ALTON 80	3"	DN 80	3"	DN 80	No
ALTON 80/S	3"	DN 80	3"	DN 80	Yes



Setting up the regulator

To set up the ALTON regulator, create a small consumption by slightly opening the exit valve or a purge valve located downstream from the ports. Then slowly open the entry valve until it is fully open. Check that the regulator stabilises itself and then slowly open the exit valve until it's fully open.

To ensure the regulator operates effectively and lasts has a long service life, the gas reaching the regulator should be perfectly filtered and dry.

If the regulator has an incorporated safety shut-off valve:

Open the entry valve fully but carefully. Slightly turn the release lever to allow a small amount of gas to flow. Check that the exit pressure increases then stabilises at a level close to that of the regulation level, then continue turning the lever until it is totally reset.

Then slowly open the exit valve until it is fully open.

Adjusting the regulator

To increase outlet pressure, the calibration spring (m) must be compressed until the desired pressure is reached, which should be checked by means of a manometer installed behind the regulator.

To increase the pressure, turn the dial (r2) clockwise until you notice significant resistance, then turn the pin (v) in the same direction until the desired pressure is reached.

To decrease the pressure, turn above-mentioned adjustment pin (v) anti-clockwise.

APQ supplies the regulator with the settings requested by the client and these values are indicated on both the regulator label and the quality certificate.

Safety valve

ALTON regulators can be supplied with a minimum and/or maximum pressure safety valve, in this case being known as ALTON.../S.

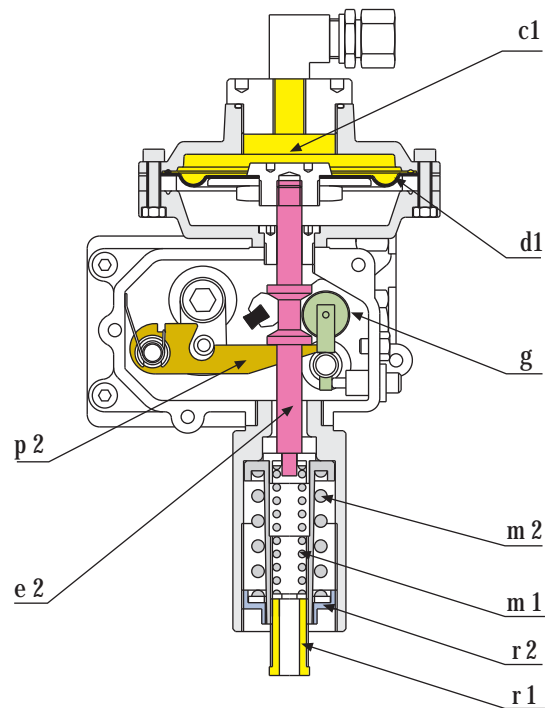
The function of this valve is to cut off the gas flow when the regulator outlet pressure doesn't reach or exceeds the pre-adjusted minimum or maximum pressure values.

Safety valves act totally independently of the pressure regulation system.

Safety valve operations

The outlet pressure arrives at the chamber (c1) via the port and exercises a force on the membrane or diaphragm (d1), gradually moving it. This membrane also is subjected to a counterforce exercised by the minimum (m1) and maximum (m2) calibration springs.

Under these balanced conditions, the lever (p2) is operated by the contact unit (g). Any movement of the shaft (e2) due to an excess or shortage of pressure in the chamber (c1) moves the contact unit (g), releasing the lever (p2) and consequently closing the lock-up plug.



Safety adjustment limits

Type	Actuation pressure in mbar	
	By minimum	By maximum
S-BP	15 ÷ 100	40 ÷ 200
S-MP	50 ÷ 300	150 ÷ 500
S-AP	200 ÷ 2500	400 ÷ 5000

Reset of the safety valve

To reset the safety valve, slowly pull the reset lever (p) clockwise, checking that the gas passes through the regulator and that the outlet pressure rises slowly, reaches the regulation pressure and then stabilises. Continue pulling the lever until it has reached the end and snaps in.

For checks or to lock the valve quickly, there is a button that activates the safety valve, stopping the gas from passing through.

Setting the safety valve

The safety valve is adjusted at the factory at the value indicated on the label of the valve itself and on the quality certificate. Should you wish to modify the value of the safety maximum or minimum, proceed as described below: If the safety valve has a minimum setting, you should always start with this. Turn the minimum dial (r1) clockwise to increase the minimum value and anti-clockwise to reduce it. If you wish to cancel the minimum, simply remove the minimum spring and dial (r1).

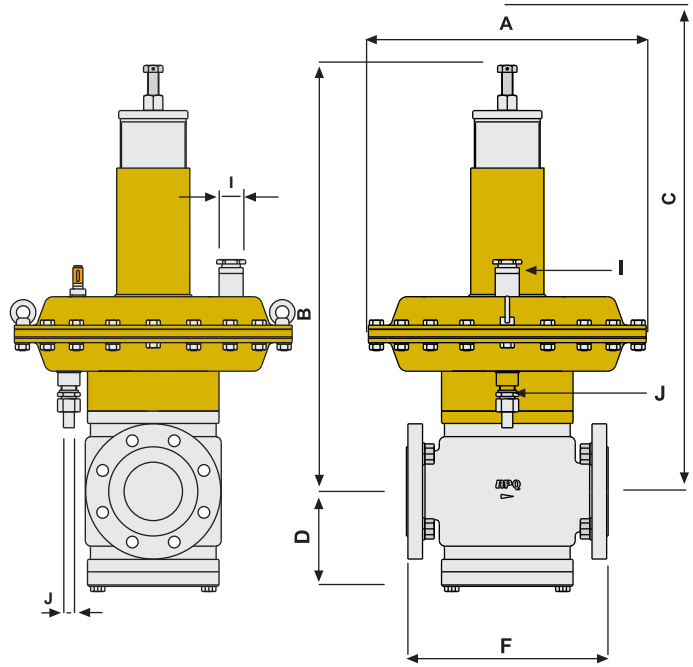
To set the safety maximum, turn the dial (r2) clockwise to increase the value and anti-clockwise to reduce it. To cancel the safety maximum, turn the dial (r2) clockwise to a value where actuation would be illogical.

TECHNICAL CHARACTERISTICS

Response	On opening
Body design pressure	Pzul 20 bar
Maximum entry pressure	Pemx 20 bar
Entry pressure field	bpe 0.2 ÷ 20 bar
Regulation field	Wh 20 ÷ 5000 mbar
Regulation accuracy	RG 5
Closure overpressure	SG 10
Entry connection	DIN PN25 or ANSI 150
Exit connection	DIN PN25 or ANSI 150
Operational temperature	-10° ÷ 60 °C

MATERIALS

Regulator body	Spheroid cast iron
Servomotor body	Pressed steel
Balanced valve	Steel
Valve seat	Stainless steel
Membranes	Woven nitrile
Joints	Nitrile, Viton
Regulation shaft	Steel
Lock-up valve cover	Injected aluminium



DIMENSIONS

Regulator Type	Connection Entry/Exit	A	B	C	D	F	I	J	Weight
ALTON 65	DN 65 or 2 1/2"	380/500	600/570	670/640	130	276	1/2"	10/15	84,0 Kg
ALTON 65/S	DN 65 or 2 1/2"	380/500	600/570	670/640	130	276	1/2"	10/15	87,0 Kg
ALTON 80	DN 80 or 3"	380/500	600/570	670/640	130	298	1/2"	10/15	87,0 Kg
ALTON 80/S	DN 80 or 3"	380/500	600/570	670/640	130	298	1/2"	10/15	90,0 Kg

The measurements are in mm
C = Distance required to change the regulation spring

FLOW COEFFICIENT Cg

Type	Regulator w/o lock-up valve	Regulator with lock-up valve
ALTON 65	2220	2120
ALTON 80	3350	3200

C1= 28

Flow conversion

For other gases, the flow must be converted to natural gas, in accordance with the following formula:

$$\text{Nm}^3/\text{h natural gas} = \text{Nm}^3/\text{h gas to be converted} / \text{factor f of gas to be converted}$$

Conversion factor f			
Butane	0.55	Methane	1.08
Propane	0.64	City gas	1.23
Bio gas	0.85	Oxygen	0.76
Air	0.80	Nitrogen	0.81
Carbon Monoxide	0.81	Hydrogen	3.04

INSTALLATION

- Install in a gas line that is sufficiently strong to bear the weight of the regulation unit.
- Ensure that there is a cut-off valve, a manometer with the suitable range and filter at the entry point.
- Ensure that there is a manometer with the suitable range, a 1/2" port and cut-off valve at the exit point.
- Install the regulator following the flow indicated on the regulator body.
- Verify that the port for outlet pressure in the pipe is at least 5 times the pipe diameter from the outlet flange of the regulator. Do not install cut-off valve in the ports.
- Verify that the gas entry speed and especially exit speed do not exceed that requested or recommended by the gas company. In no case should the following conditions be exceeded:

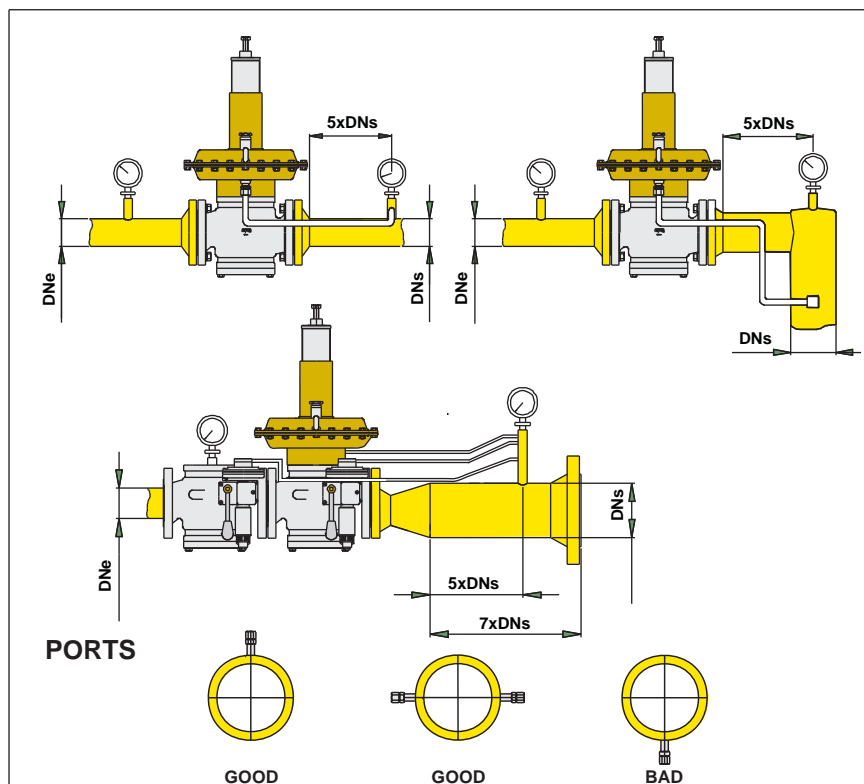
Gas speed at regulator outlet, especially in ports:

Pa < 0.5 bar; V.max 15m/sec
Pa < 1.5 bar; V max 20 m/sec
Pa > 5.0 bar; V max 25m/sec

- In fast switch-off installations with on-off electro valves, the exit lung must be the correct size and at least 0.02% of the flow in Nm³/h.

Example:

Flow 1000 Nm³/h; Pa 50 mbar
Necessary diameter DN 150
Necessary volume 0.2 m³
Resulting length 12 metres



The data contained in this catalogue may be modified without prior notice.

APQ

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