DN 80
ALTON REGULATOR 8000A3
ALTON REGULATOR 8000D3

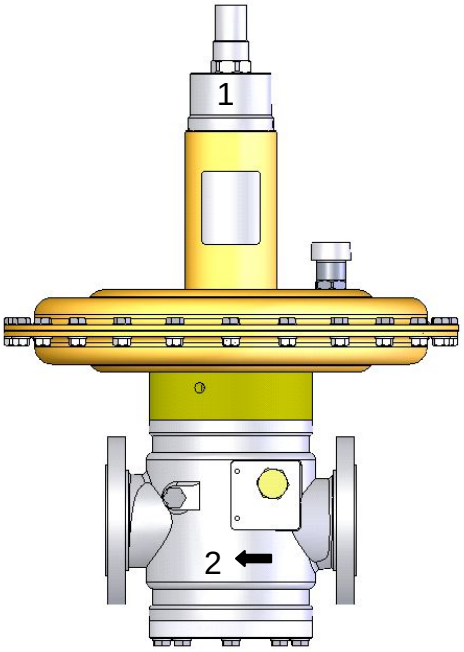
cod. RIALT8000A3
cod. RIALT8000D3

DESCRIPTION
RIALT8000☐3 regulators are designed for gas regulation in networks with high and medium pressure.

They are made with connections using DN-80 PN-25 (ALTON 8000D3) flanges and 3" ANSI 150 (ALTON 8000 A3) flanges.

They are formed by the regulation head (1) with the regulation spring and body (2) which connects to the gas pipe.

They can also come with a minimum (UPSO) and/or maximum pressure (OPSO) safety device fitted against the regulation housing. If it has the safety devices, the regulator is named ALTON 8010 ☐3.



MODELS
Three models are manufactured to cover the most common pressure range in gas installations:

MP model (ALTON 8000 ☐3, present Technical Sheet)
with output pressure adjustment from 50 to 350 mbar

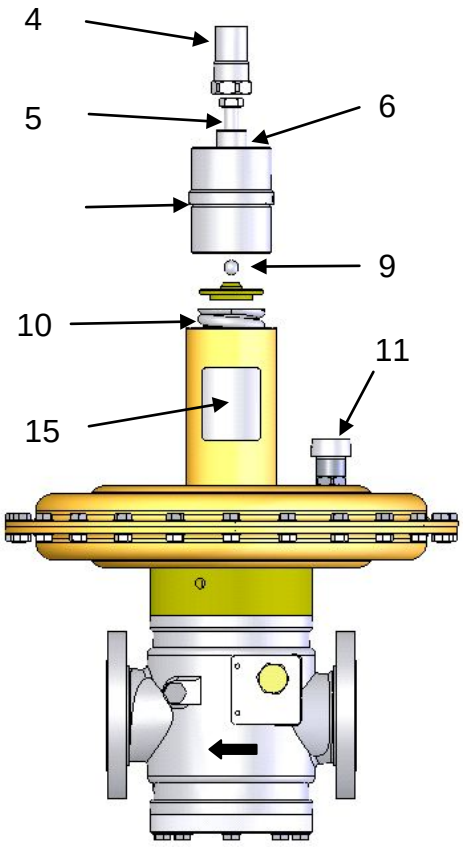
AP model (see ALTON 8000 ☐5 Technical Sheet)
with output pressure adjustment from 350 to 1800 mbar

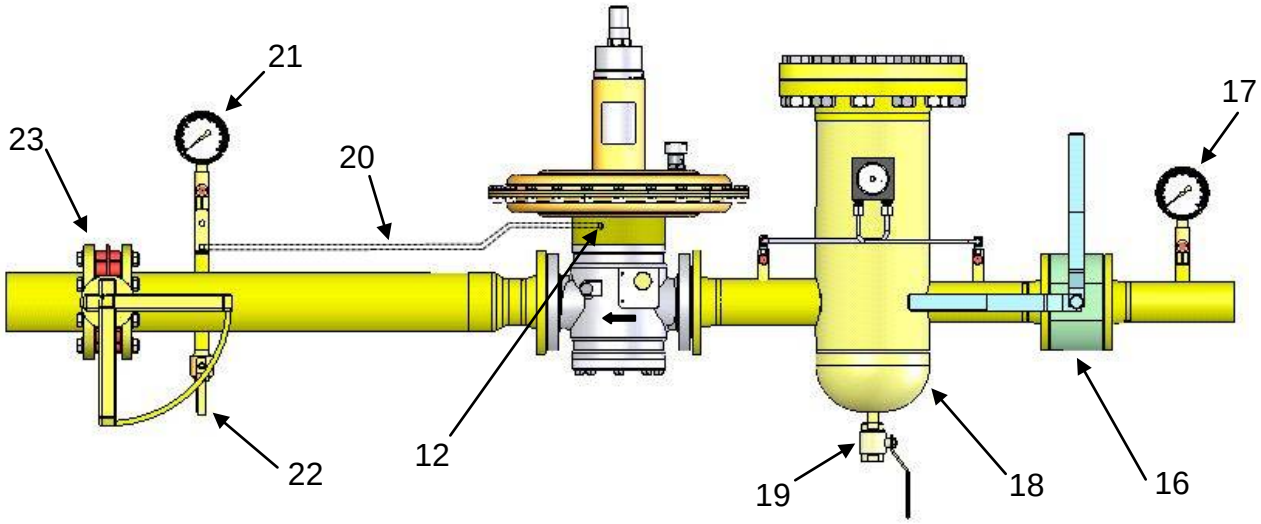
APA model (see ALTON 8000 ☐7 Technical Sheet)
with output pressure adjustment from 1500 to 4000 mbar

CONNECTIONS
Model ALTON 8000 A3 is with 3" ANSI-150 flanges
Model ALTON 8000 D3 is with DN-80 PN-25 flanges

ASSEMBLY (fig. 1)

- Before assembly, it must be ensured that the characteristics indicated on the regulator label (15) match the requirements of the installation.
- Make sure that the fluid goes through the regulator housing in the right direction, following the arrow (14)
- Connect the regulator drive socket (12) to a straight section of the gas pipe without turbulence downstream of the regulator (5 times the diameter of the output pipe). The drive socket pipe must be Ø 15 and totally free of valves to cut or obstruct the gas pressure signal.
- The regulator must be located so that there is sufficient space for maintenance work and for adjusting the output pressure.
- The optional mechanism triggering the maximum and/or minimum safety device is fitted on the side of the regulator, and is totally independent of it.
- The optional triggering mechanism can be fitted to the regulator before delivery or be fitted later. However, given the complexity of its assembly, it is recommended to have it fitted in factory.





START-UP

- Produce a slight loss of gas downstream of the regulator, for example on purge valve 22
- Slightly and slowly open gas valve 16 downstream of the regulator.
- Using manometer 17, make sure that the gas pressure on the input is correct.
- Using output manometer 21, make sure that the pressure is stabilized.
- Slowly open stopcock 16 on filter 18 input until it is completely open.
- Slowly open stopcock 23 downstream of the regulator.
- If the regulator has an optional triggering mechanism, the indications of the “start-up” chapter must be taken into account.

ADJUSTMENT

- To adjust the output pressure, remove the aluminum stopper (4) on the top of the regulation head (1).
- To increase the output pressure, turn the screw (5) clockwise with a 24 mm spanner or socket.
- Turning anticlockwise will reduce the output pressure.
- Refit the aluminum protective stopper (4) on top of the regulator, making sure that the o-ring is in place (6).

The adjuster springs (10) have their own adjustment range, so in some cases if the output pressure is to be significantly altered, the spring will have to be changed.

Causes of malfunctioning

- Drive socket pipe (20) not connected, obstructed or leaking.
- Drive socket pipe (20) too narrow or connected to a section with turbulence.
- Required output pressure beyond the range of the installed spring.
- Regulator flow required beyond the range of the regulator.
- Venting stopper (11) obstructed.

If the regulator fails to close properly

- Obturator rubber damaged (O)
- Dirt on the obturator rubber (O)
- Damaged shell (P)
- Internal o-ring damaged (several)
- Obturator unit wear compensated

If the safety valve fails to close properly

- See the Technical Sheet of the installed safety valve.

To prevent dirt or damage to the regulator seal, a gas filter must be fitted before the regulator with a minimum 5-micra filtering grade (18).

REGULATOR SPRING REPLACEMENT

Removal

- Close the gas valve (16) on the installation input.
- Close the gas valve (23) on the regulator output.
- Open the purge valve (19) of the filter (18) on the regulator input until the area is depressurized.
- Open the purge valve (22) on the regulator output until the area is depressurized.
- Remove the stopper (4) to get at the adjuster screw (5)
- Using a 24 mm. spanner or socket, turn the screw (5) anticlockwise and remove it.
- Use a 90-155 mm. hook spanner inserted on the hole (8) and turns the housing anticlockwise (7) until it is completely released.
- Remove the adjuster spring.

Fitting

- Choose the right spring for the required output pressure from the list below.
- Carry out the operations described in "Removal" in reverse order, taking care in refitting the previously greased steel sphere (9).
- Take care to install only the springs indicated in the table below. Any other spring might cause damage the regulator to malfunction.

COMPENSATED OBTURATOR REPLACEMENT

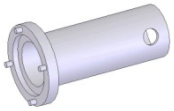
Removal

- Close the gas valves 16 and 23 on the input and output of the regulator.
- Open purge valves 19 and 22 on the regulator input and output until the gas in the regulator is completely depressurized.
- With a 19 mm. spanner, disconnect the pressure pipe (20) connected to the sealed unit (12)
- Remove screws 25 and open the adjuster cover.
- Remove connector screws 26 and reach the compensation membrane.

Fitting

- Carry out the operations described in "Removal" in reverse order.

TOOLS FOR MAINTAINING THE ALTON 8000 □3 REGULATOR

 Hook spanner 90-155	 O-ring extractor	 Male hexagonal spanner 4 - 5 - 6	 Hexagonal socket spanner 22 - 26 - 27- 30
 Spanner 13-14-15-16-22-24-47	 Screwdriver 10 x 1.6	 Tweezers	 Special shell extractor

OUTPUT PRESSURE ADJUSTER SPRINGS FOR THE ALTON 8000 □3 REGULATOR

Spring code	Spring color	Thread Ø (mm)	L (mm)	Ø e (mm)	no. spirals	Adjustment field in mbar	
						Screw 70 mm *	Screw 130 mm
ZM363300061A	Zinc + white line	63	300	6.5	15.5	50 ÷ 67	66 ÷ 84
ZM363300071A	Zinc + yellow line	63	300	7.0	15.5	58 ÷ 84	75 ÷ 100
ZM365300081A	Zinc + blue line	65	300	8.0	15.5	92 ÷ 133	125 ÷ 166
ZM368300091A	Zinc + black line	68	300	9.0	15.5	117 ÷ 184	166 ÷ 225
ZM369300101A	Zinc + violet line	69	300	10	15.5	184 ÷ 275	260 ÷ 290
ZM371300111A	Zinc + orange line	71	300	11	15.5	275 ÷ 360	To consult

* Habitual screw

FLOW

Table 1. Regulator flow in (n)m³/h natural gas, with internal signal (12).
Table 2. Regulator flow in (n)m³/h natural gas, with internal signal (12) + external signal (25).
The speed of the gas flowing through the outlet pipe where the pressure is taken to drive the regulator (25), (and Shut-off valve) must be less than 12 m/s.
The accuracy class is AC10 / SG20

ALTON 8000 □3
Table 1

P_a (bar)	P_e (bar)															
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
0.10	1076	1639	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
0.15	1030	1621	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082	2082
0.20	975	1601	2119	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173	2173
0.30	914	1704	2273	2792	2943	2943	2943	2943	2943	2943	2943	2943	2943	2943	2943	2943
0.35	809	1671	2258	2792	3056	3056	3056	3056	3056	3056	3056	3056	3056	3056	3056	3056

Flow in (n)m³/h natural gas

Flow with other gases

In the tables above, the flow is in (n)m³/h natural gas with a density 0.61 and temperature 15º C

To convert to other gas flow, using the following formula:

Q (n)m³/h natural gas x Fc = Q (n)m³/h n gas

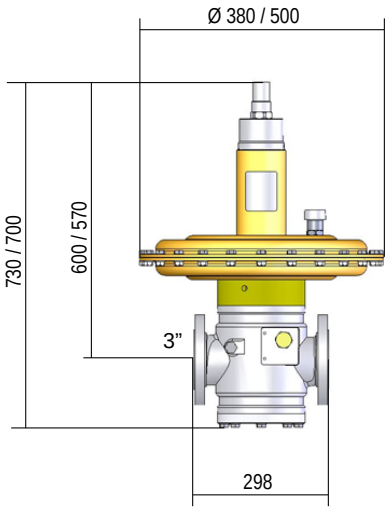
Example:

Q (n)m³/h natural gas x 0.78 = Q (n)m³/h air

1 (n)m³/h natural gas = 0.78 (n)m³/h air

Correction factor Fc at 15ºC	
Butane	0.55
Propane	0.64
Oxygen	0.76
Air	0.78
Nitrogen	0.81
Biogas	0.85
Town gas	1.23
Hydrogen	3.04

DIMENSIONS AND WEIGHTS



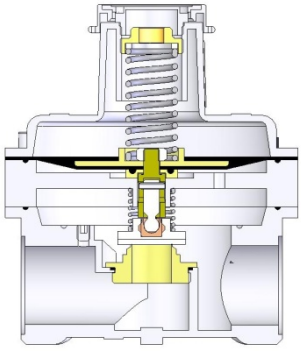
8000/10 □3

Technical features of ALTON 8000 □3

bpu	0.2 ÷ 25 bar	(inlet pressure range)
Ps	25 bar	(design pressure)
Pu	25 bar	(maximum inlet pressure)
Wd		(outlet pressure range)
ALTON 8000 □3	50 ÷ 350 mbar	
Wdo	200 ÷ 700 mbar	(OPSO range)
Wdu	50 ÷ 300 mbar	(UPSO range)
Wrv	+10 ÷ +20% Pd	(Relief valve range)
Ac	until 10 %	(accuracy class)
Sg	until 20 %	(accuracy class)
T	-20ºC ÷ 60ºC	(working temperature)
Inlet connection		3” ANSI or DN-80 PN-25
Outlet connection		3” ANSI or DN-80 PN-25
Connections position		Axial
Weight ALTON-8000 □3		87 Kg
Weight ALTON-8010 □3		90 Kg

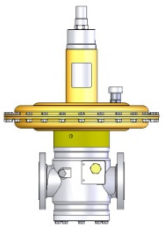
RELIEF VALVE

For installations ON-OFF, the output of the regulator should be sufficiently large lungs to absorb water hammer. It is recommended that lung mounted external relief valve capable of removing pressure peaks.
The quantity of gas released by pressure relief valve is related to the difference of inlet pressure and his calibrated.
In the attached image is shown as an example, the relief valve VS 25 model. In which its operation is based on the confrontation of forces on both sides of the membrane.
On one side of the membrane, the gas pressure acts, on the opposite side and the spring force adjustment.

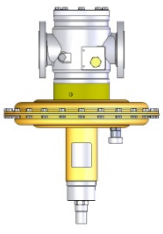


External relief valve VS-25

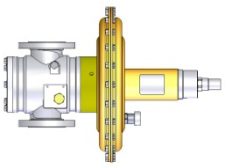
MOUNTING POSITION



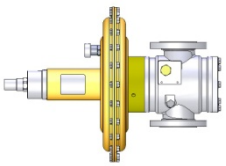
A) Standard position



B) Inverted position

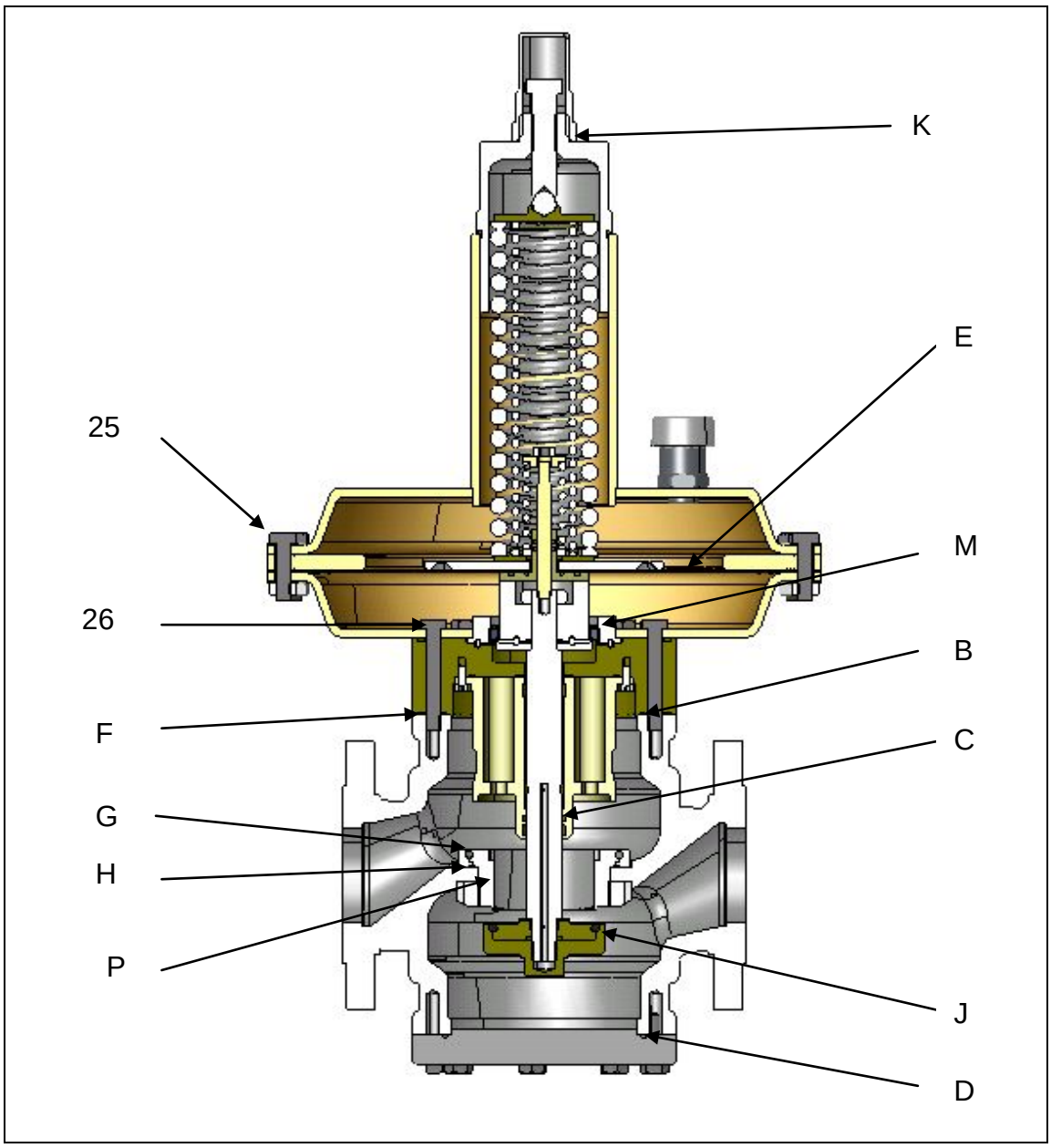


C) Lateral position

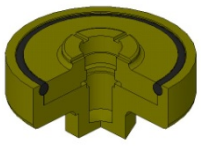


D) Lateral position

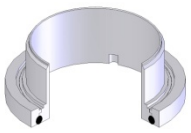
For correct operation, the regulator must be mounted according to the above figures; the first image (A) is the usual position of mounting. There should be enough space for the maintenance work.



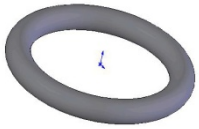
SPARES FOR REGULAR MAINTENANCE OF THE ALTON 8000 □3



Obturator (O)
Code ZM1001878 +ZM 1001836

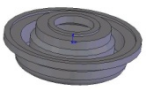


Shell (P)
Code ZM1001876



Position Code

B	ZM1001821
C	ZM1001640V
D	ZM1001821
F	ZM1001821
G	ZM1002011
H	ZM1001821
J	ZM1002036
K	ZM1000843



Compens. membrane (M)
Code ZM10018701

Membrane (E)
Code ZM10013531

SAFETY SHUT-OFF DEVICE (SAV)

The ALTON 8000☐3 regulator, is available with built-in safety valve (SAV) RI.VSA.8012 formed by the UPSO and the OPSO, with the code ALTON 8010☐3.

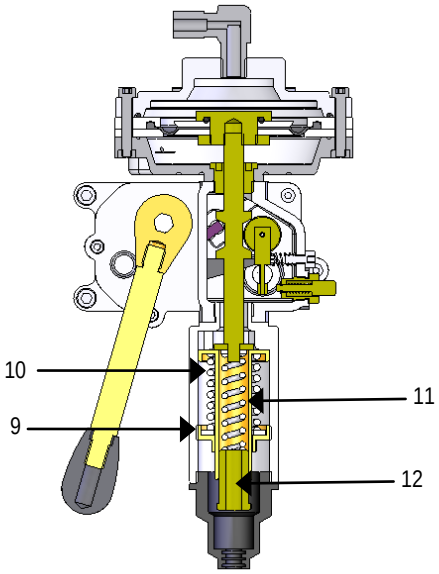
REGULATOR SETUP

Over pressure shut-off (OPSO)
The two main elements used to set the over pressure shut-off are the screwed ring (9) and the OPSO spring (10). To increase the shut-off point to its maximum level, use a 22mm hexagonal tube spanner and turn the screwed ring (9) clockwise. Turning it in the opposite direction reduces the over pressure shut-off point.

The adjustment spring (10) has a defined range of pressures, so when the over pressure shut-off varies significantly the spring should be changed (see springs table).

Under pressure shut-off (UPSO)
The screwed cap (11) and the UPSO spring (12), are the elements used to set the under pressure shut-off. To reduce the shut-off point to its minimum level, use a 16mm hexagonal tube spanner to turn the bolt (11) clockwise. Turning it in the opposite direction rises the under pressure shut-off point.

The adjustment spring (12) has a defined range of pressures, so when the under pressure shut-off varies significantly the spring should be changed (see springs table).



UPSO ADJUSTMENT SPRINGS

Spring code	Spring color	Ø Wire (mm)	Length (mm)	Ø Outside (mm)	Spring Range in kPa (mbar)
ZM313055151A	Yellow	1.5	55	12	2 ÷ 9 (20 ÷ 90)
ZM312055201A	Blue	2	55	12.75	8 ÷ 30 (80 ÷ 300)

OPSO ADJUSTMENT SPRINGS

Spring code	Spring color	Ø Wire (mm)	Length (mm)	Ø Outside (mm)	Spring Range in kPa (mbar)
ZM330060201	Yellow	2	60	30	10 ÷ 18 (100 ÷ 180)
ZM330060221	Red	2.25	60	30	13 ÷ 25 (130 ÷ 250)
ZM330060251	Green	6.5	60	30	15 ÷ 34 (150 ÷ 340)
ZM330060271	Silver	2.75	60	30	20 ÷ 47 (200 ÷ 470)
ZM330060321		3.25	60	30	32 ÷ 75 (320 ÷ 750)

WARNING! It is potentially dangerous to manipulate a gas installation and its components. Therefore all start-up, adjustments and maintenance of the regulator must be carried out by duly authorized people with sufficient technical knowledge.

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