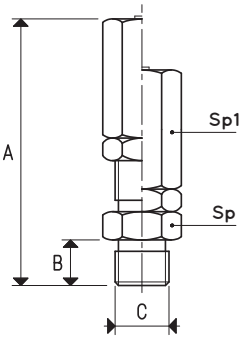
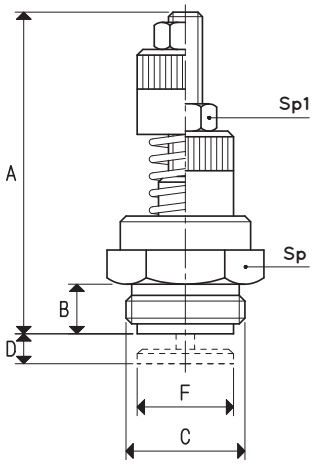
VACUUM ADJUSTMENT VALVES

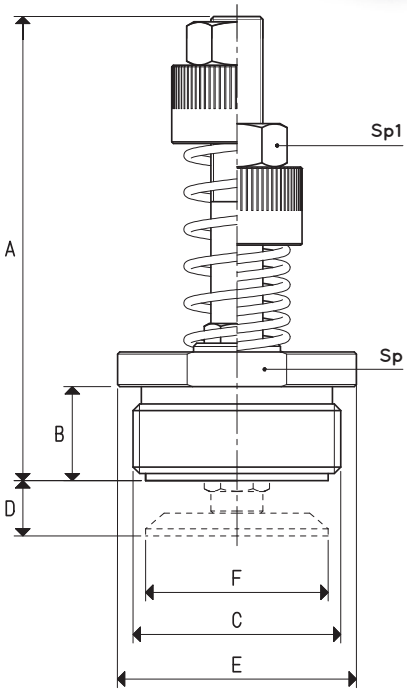
When these valves reach a certain pre-calibrated vacuum degree, they introduce atmospheric air into the circuit to prevent the increase of the set value and to keep it constant.
They can be used as regulators only on circuits having only one vacuum pump and only one use (or more uses but all working at the same vacuum degree).
In most cases, they are used as safety valves on non-commissioned tanks or containers at high levels of vacuum and on vacuum cup lifting systems.
The level of vacuum is adjusted by rotating the knurled bush in both directions. The fine thread with which the valve is provided ensures a very accurate calibration.
The temperature values within which the valves can operate go from -20 °C to +200 °C.



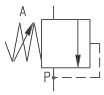
Item 04 01 10



Item 04 02 10
04 03 10
04 04 10



Item 04 05 10



Item	Vacuum adj. mbar abs.	A	B	C Ø	D	E Ø	F Ø	Sp	Sp1	Material	Sealing gasket	Max flow rate of the pump m³/h	Weight g
04 01 10	670 ÷ 1	45	8	G1/8"	-	-	-	12	12	nickel-plated brass	FKM	4	30
04 01 10 INOX	670 ÷ 1	45	8	G1/8"	-	-	-	12	12	stainless steel	FKM	4	30
04 02 10	670 ÷ 1	57	9	G1/2"	5	-	17	24	10	nickel-plated brass	FKM	20	78
04 02 10 INOX	670 ÷ 1	57	9	G1/2"	5	-	17	24	10	stainless steel	FKM	20	78
04 03 10	670 ÷ 1	60	11	G3/4"	5	-	23	30	17	nickel-plated brass	FKM	60	150
04 03 10 INOX	670 ÷ 1	60	11	G3/4"	5	-	23	30	17	stainless steel	FKM	60	150
04 04 10	670 ÷ 1	65	14.5	G1"	7	-	29	35	17	nickel-plated brass	FKM	100	212
04 04 10 INOX	670 ÷ 1	65	14.5	G1"	7	-	29	35	17	stainless steel	FKM	100	212
04 05 10	670 ÷ 1	104	22	G1" 1/2	15	55	42	50	20	nickel-plated brass	FKM	250	490
04 05 10 INOX	670 ÷ 1	104	22	G1" 1/2	15	55	42	50	20	stainless steel	FKM	250	490

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

3D drawings are available on **vuototecnica.net**

VACUUM REGULATORS

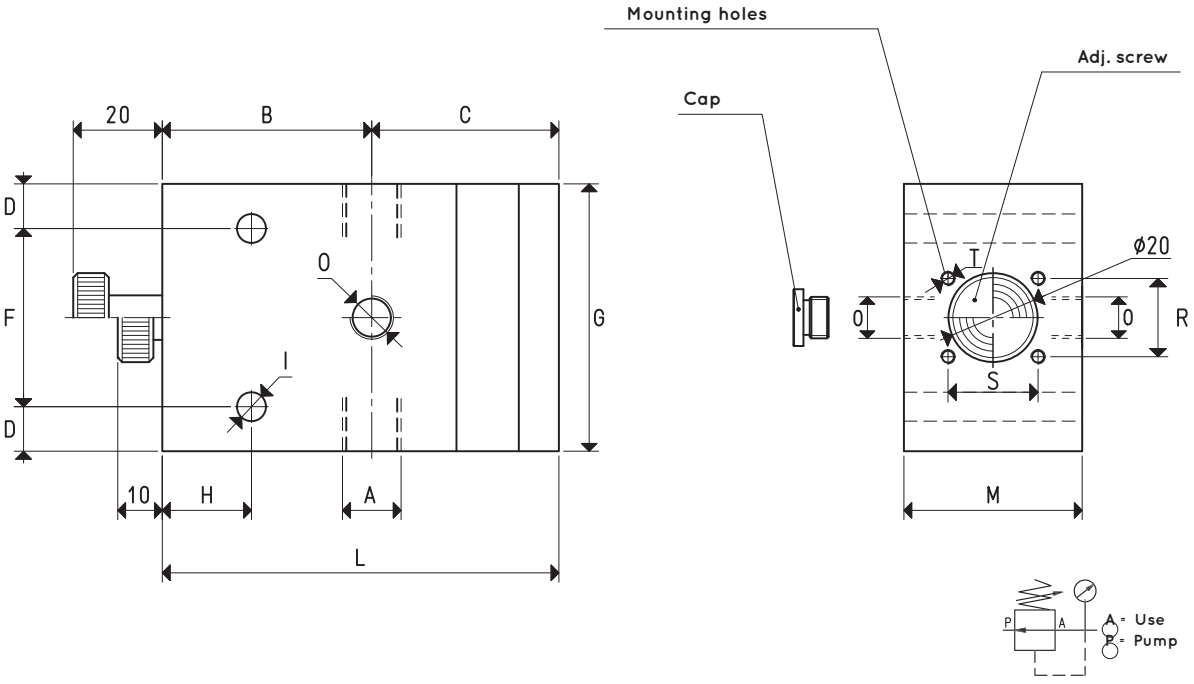
These devices control the level of vacuum, maintaining it constant at the pre-set value (secondary vacuum), regardless of the network's flow rate and the fluctuations in vacuum level (primary vacuum).
They operate by membrane-piston and exploit the pressure differential between the secondary vacuum and the atmospheric pressure.
Unlike the vacuum control valves, reducers do not release air into the circuit, thereby allowing for the creation more grip points taken at different degrees of vacuum, from a single vacuum source.
The level of vacuum is adjusted manually by turning the knurled thumb screw clockwise to increase it, and counter clockwise to decrease it.

Technical features

- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 800 to 1 mbar abs.
- Flow rate : from 2 to 160 m^3/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

The best use of vacuum reducers is in centralised plants where, regardless of the plant's level of vacuum, each outlet can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum.



Item	A Ø	Max capac. m^3/h	B	C	D	F	G	H	I Ø	L	M	O Ø	R	S	T	Weight Kg
11 01 10	G1/4"	6	47	42.0	10	40	60	20	6.5	89.0	40	G1/8"	28	24	M4	0.60
11 02 10	G3/8"	10	47	42.0	10	40	60	20	6.5	89.0	40	G1/8"	28	24	M4	0.58
11 03 10	G1/2"	20	53	52.0	15	55	85	25	8.5	105.0	50	G1/4"	38	34	M4	1.15
11 04 10	G3/4"	40	55	55.5	15	70	100	30	8.5	110.5	50	G1/4"	38	34	M5	1.39
11 05 10	G1"	80	60	58.0	15	90	120	30	8.5	118.0	60	G1/4"	38	34	M5	2.08
11 06 10	G1" 1/2	160	54	77.5	15	130	160	20	8.5	131.5	99	G1/4"	50	50	M6	5.49

Accessories and Parts		11 01 10	11 02 10	11 03 10	11 04 10	11 05 10	11 06 10
Sealing kit	item	00 11 113	00 11 114	00 11 115	00 11 116	00 11 117	00 11 118
Vacuum gauge	item	09 03 15	09 03 15	09 03 10	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

REGULATORS FOR ROUGH VACUUM LEVELS

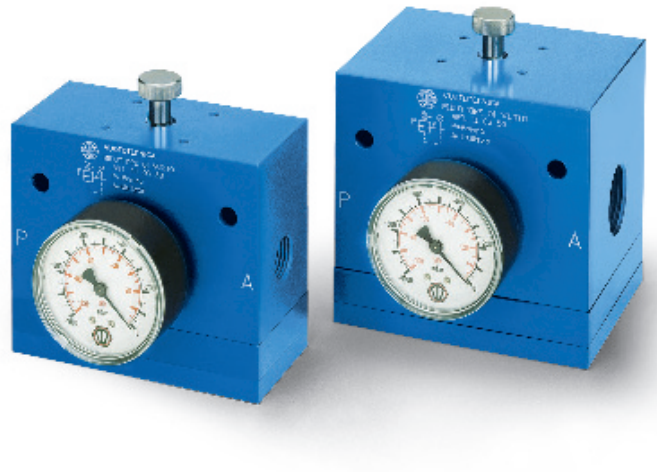
The regulators on this page are based on the same operation principle as the ones described in the previous page and have the same function. The only difference is that in these ones the minimum adjustable level of vacuum is close to the atmospheric pressure value.
The level of vacuum is adjusted manually by turning the knurled thumb screw clockwise to increase it, and counter clockwise to decrease it.

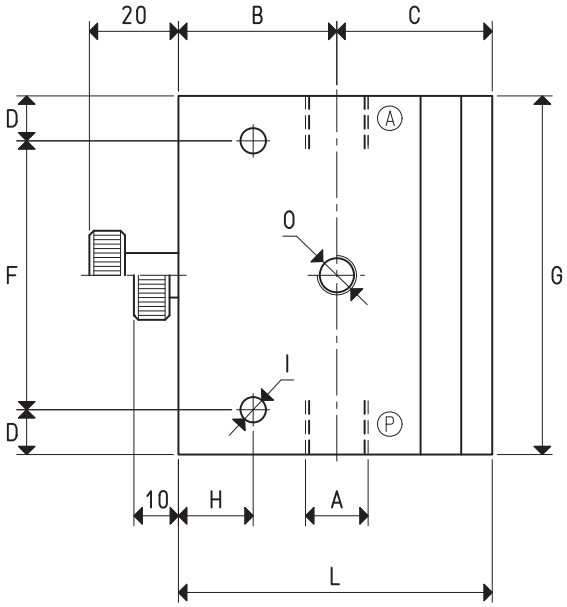
Technical features

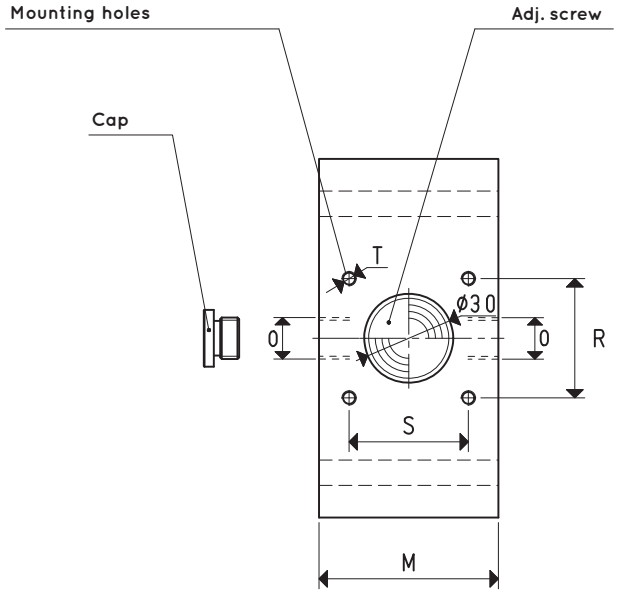
- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 980 to 1 mbar abs.
- Flow rate: from 20 to 160 m^3/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

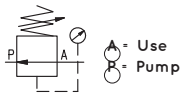
Usage

These regulators are used as the previously described ones, but they offer the additional advantage of regulating even levels of vacuum close to the atmospheric pressure.









Item	A Ø	Max capac. m^3/h	B	C	D	F	G	H	I Ø	L	M	O Ø	R	S	T	Weight Kg
11 03 50	G1/2"	20	53	52.0	15	90	120	25	8.5	105.0	60	G1/4"	38	34	M4	2.07
11 05 50	G1"	80	60	58.0	15	90	120	30	8.5	118.0	100	G1/4"	38	34	M5	3.74
11 06 50	G1" 1/2	160	54	77.5	15	130	160	20	8.5	131.5	99	G1/4"	50	50	M6	5.54

Accessories and Parts		11 03 50	11 05 50	11 06 50
Sealing kit	item	00 11 119	00 11 120	00 11 121
Vacuum gauge	item	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS WITH PNEUMATIC ADJUSTMENT

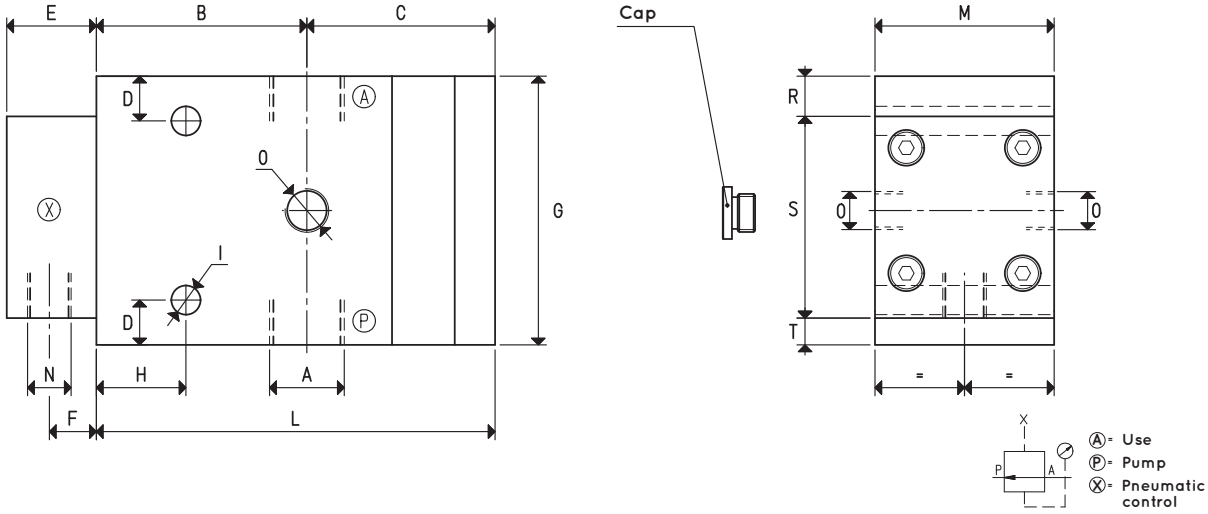
Vacuum regulators with pneumatic adjustment differ from the previous ones for the way they adjust the level of vacuum; in fact, instead of acting manually on the adjustment screw, it is necessary to act on the pneumatic cylinder compressed air supply: the higher the pressure, and the higher the level of vacuum and vice-versa.
Vacuum regulators are used to adjust the pre-set level of vacuum and keep it constant (secondary vacuum), regardless of the pump vacuum level or the vacuum level (primary vacuum).
Unlike the vacuum adjusting valves, regulators do not introduce atmospheric air into the circuit, thus producing more gripping points with different vacuum values,
from only one vacuum source.
Their operating principle is based on the contrasting action between a pneumatic cylinder with short stroke and a fluctuating piston driven by the pressure differential existing between the secondary vacuum and the atmospheric pressure.

Technical features

- Operation: membrane-piston regulator.
- Supply pressure: from 0 to 3 bar for regulators item 11 .. 30;
  from 0 to 5 bar for regulators item 11 .. 80.
- Adjustable working pressure: from 800 to 1 mbar abs. for regulators item 11 .. 30;
  from 980 to 1 mbar abs. for regulators item 11 .. 80.
- Flow rate: from 2 to 160 m^3/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

Vacuum regulators are mainly used on centralised plants where, regardless of the plant level of vacuum, each grip can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum and kept constant. Vacuum regulators with pneumatic adjustment can be installed away from the control point, since it is sufficient to have a pressure regulator on the control panel to act on them.



Item	A Ø	Max capac. m^3/h	B	C	D	E	F	G	H	I Ø	L	M	N Ø	O Ø	R	S	T	Weight Kg
11 01 30	G1/4"	6	47	42.0	10	20	10.5	60	20	6.5	89.0	40	G1/8"	G1/8"	9.0	45	6.0	0.71
11 02 30	G3/8"	10	47	42.0	10	20	10.5	60	20	6.5	89.0	40	G1/8"	G1/8"	9.0	45	6.0	0.69
11 03 30	G1/2"	20	53	52.0	15	26	16.5	85	25	8.5	105.0	50	G1/8"	G1/4"	16.5	58	10.5	1.32
11 04 30	G3/4"	40	55	55.5	15	26	16.5	100	30	8.5	110.5	50	G1/8"	G1/4"	24.0	58	18.0	1.94
11 05 30	G1"	80	60	58.0	15	26	16.5	120	30	8.5	118.0	60	G1/8"	G1/4"	34.0	58	28.0	2.35
11 06 30	G1" 1/2	160	54	77.5	15	30	19.5	160	20	8.5	131.5	99	G1/4"	G1/4"	37.5	80	42.5	5.56
11 03 80	G1/2"	20	53	52.0	15	26	16.5	120	25	8.5	105.0	60	G1/8"	G1/4"	34.0	58	28.0	2.28
11 05 80	G1"	80	60	58.0	15	26	16.5	120	30	8.5	118.0	100	G1/8"	G1/4"	34.0	58	28.0	3.96
11 06 80	G1" 1/2	160	54	77.5	15	30	19.5	160	20	8.5	131.5	99	G1/4"	G1/4"	37.5	80	42.5	5.60

Accessories and Parts		11 01 30	11 02 30	11 03 30	11 04 30	11 05 30	11 06 30	11 03 80	11 05 80	11 06 80
Sealing kit	item	00 11 122	00 11 123	00 11 124	00 11 125	00 11 126	00 11 127	00 11 128	00 11 129	00 11 130
Vacuum gauge	item	09 03 15	09 03 15	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS

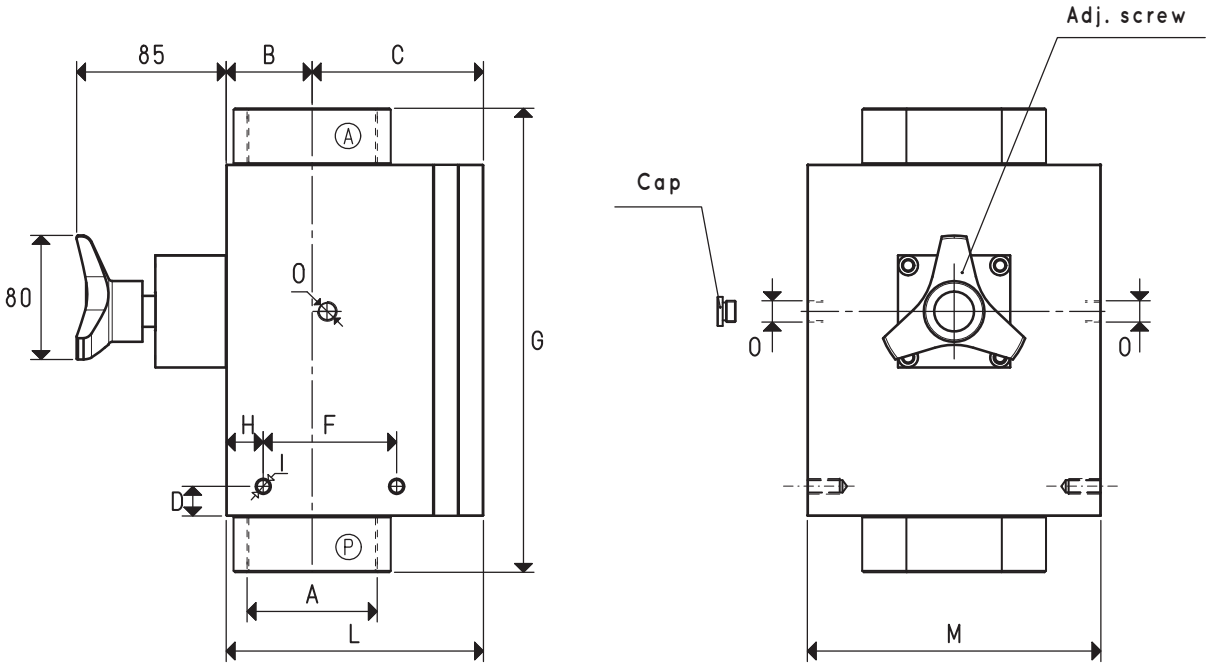
These devices control the level of vacuum, maintaining it constant at the pre-set value (secondary vacuum), regardless of the network's flow rate and the fluctuations in vacuum level (primary vacuum).
They operate by membrane-piston and exploit the pressure differential between the secondary vacuum and the atmospheric pressure.
Unlike the vacuum control valves, reducers do not release air into the circuit, thereby allowing for the creation more grip points taken at different degrees of vacuum, from a single vacuum source.
The level of vacuum is adjusted manually by turning the adjustment knob clockwise to increase it, and counter clockwise to decrease it.

Technical features

- Operation: membrane-piston regulator.
- Adjustable operating pressure: from 800 to 1 mbar abs.
- Flow rate : from 390 to 750 m^3/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

The best use of vacuum reducers is in centralised plants where, regardless of the plant's level of vacuum, each outlet can be adjusted within that value. Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum.



Item	A Ø	Max capac. m^3/h	B	C	D	F	G	H	I Ø	L	M	O Ø	Weight Kg
11 08 11	G2"	390	45	96.5	20	60	218	25	M8 x 15	141.5	128	G1/4"	7.2
11 09 11	G3"	750	58	115.5	20	90	313	25	M10 x 25	173.5	198	G1/4"	18.1

Accessories and Parts		11 08 11	11 09 11
Sealing kit	item	00 11 187	00 11 188
Vacuum gauge	item	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10

Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

VACUUM REGULATORS WITH PNEUMATIC ADJUSTMENT

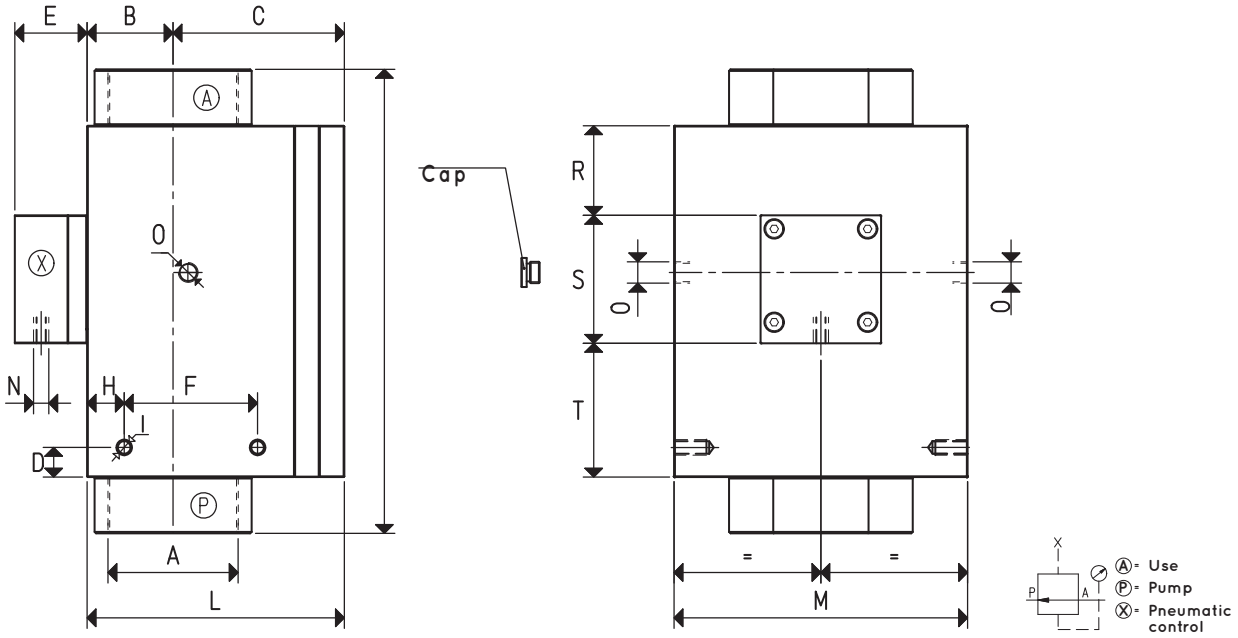
Vacuum regulators with pneumatic adjustment differ from the previous ones for the way they adjust the level of vacuum; in fact, instead of acting manually on the adjustment screw, it is necessary to act on the pneumatic cylinder compressed air supply: the higher the pressure, and the higher the level of vacuum and vice-versa.
Vacuum regulators are used to adjust the pre-set level of vacuum and keep it constant (secondary vacuum), regardless of the pump vacuum level or the vacuum level (primary vacuum).
Unlike the vacuum adjusting valves, regulators do not introduce atmospheric air into the circuit, thus producing more gripping points with different vacuum values, from only one vacuum source.
Their operating principle is based on the contrasting action between a pneumatic cylinder with short stroke and a fluctuating piston driven by the pressure differential existing between the secondary vacuum and the atmospheric pressure.

Technical features

- Operation: membrane-piston regulator.
- Supply pressure: from 0 to 5 bar for regulators item 11 .. 31.
- Adjustable working pressure:
  from 800 to 1 mbar abs. for regulators item 11 .. 31.
- Flow rate: from 370 to 750 m³/h.
- Room temperature: from -10 to +80 °C.
- Installation position: any.

Usage

Vacuum regulators are mainly used on centralised plants where, regardless of the plant level of vacuum, each grip can be adjusted within that value.
Moreover, they are necessary whenever the working vacuum must be lower than the primary vacuum and kept constant. Vacuum regulators with pneumatic adjustment can be installed away from the control point, since it is sufficient to have a pressure regulator on the control panel to act on them.



Item	A Ø	Max capac. m³/h	B	C	D	E	F	G	H	I Ø	L	M	N Ø	O Ø	R	S	T	Weight Kg
11 08 31	G2"	390	45	96.5	20	43	60	218	25	M8 x 15	141.5	128	G1/8"	G1/4"	62.5	70	85.5	7.0
11 09 31	G3"	750	58	115.5	20	48	90	313	25	M10 x 25	173.5	198	G1/8"	G1/4"	97.0	85	131.0	18.0

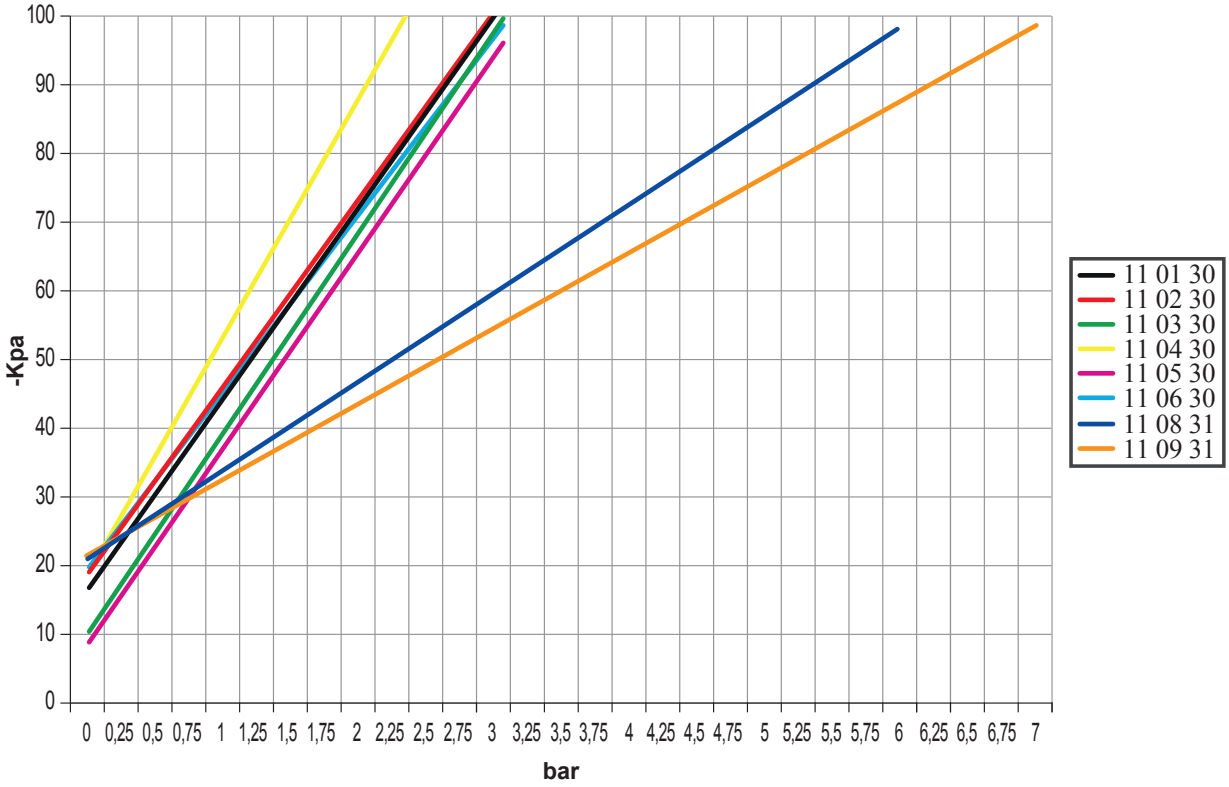
Accessories and Parts		11 08 31	11 09 31
Sealing kit	item	00 11 187	00 11 188
Vacuum gauge	item	09 03 10	09 03 10
Vacuum switch	item	12 40 10	12 40 10

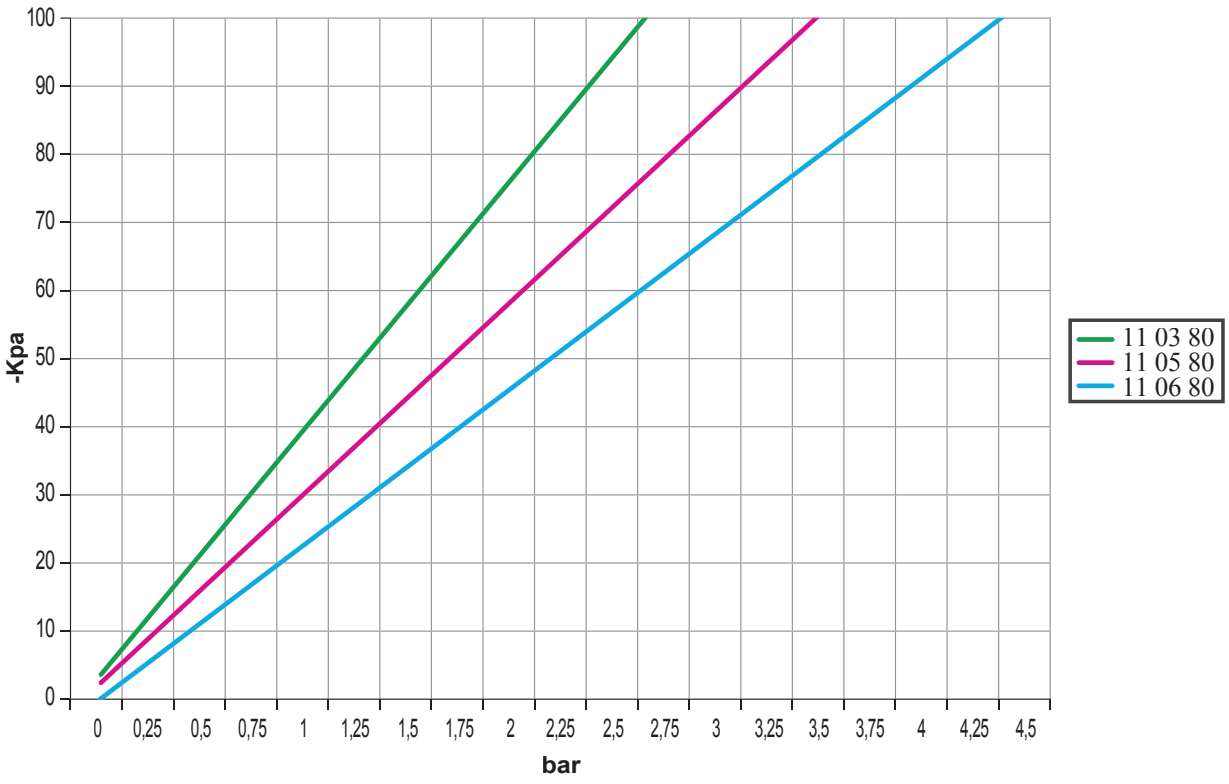
Note: The vacuum gauges and vacuum switches are not integral parts of the regulators and, therefore, must be ordered separately.

Transformation ratio: N (newton) = Kg x 9.81 (force of gravity) inch = $\frac{mm}{25.4}$; pounds = $\frac{g}{453.6} = \frac{Kg}{0.4536}$

Adapters for GAS - NPT threading available on page 1.134

DIAGRAMS REFERRING TO THE LEVEL OF VACUUM ACCORDING TO THE SERVO-CONTROL SUPPLY PRESSURE





Note: The values shown in the tables are purely indicative as they depend on atmospheric pressure, the flow rate of the vacuum source and the quality of the compressed air supply

SEALING KIT FOR VACUUM REDUCERS

Sealing kits are composed of a membrane, shutters and standard O-rings installed on our compressed air and vacuum 3-way valves and solenoid valves.
In presence of very hot fluids or corrosive fluids, we can supply sealing kits in special compounds. Please contact our technical department.

Item	**Vacuum regulator** item
00 11 113	11 01 10
00 11 114	11 02 10
00 11 115	11 03 10
00 11 116	11 04 10
00 11 117	11 05 10
00 11 118	11 06 10
00 11 119	11 03 50
00 11 120	11 05 50
00 11 121	11 06 50
00 11 122	11 01 30
00 11 123	11 02 30
00 11 124	11 03 30
00 11 125	11 04 30
00 11 126	11 05 30
00 11 127	11 06 30
00 11 128	11 03 80
00 11 129	11 05 80
00 11 130	11 06 80
00 11 187	11 08 11 - 11 08 31
00 11 188	11 09 11 - 11 09 31