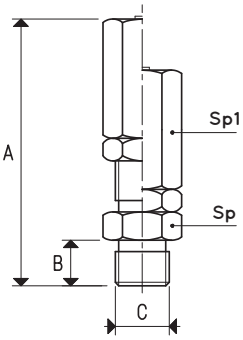
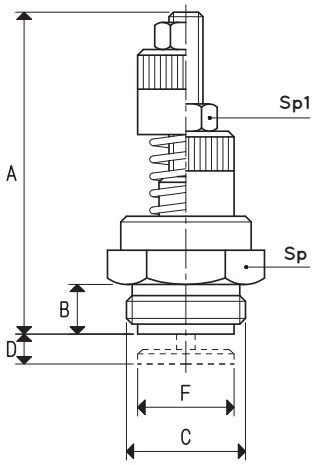
# VACUUM ADJUSTMENT VALVES

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 +120 °C.

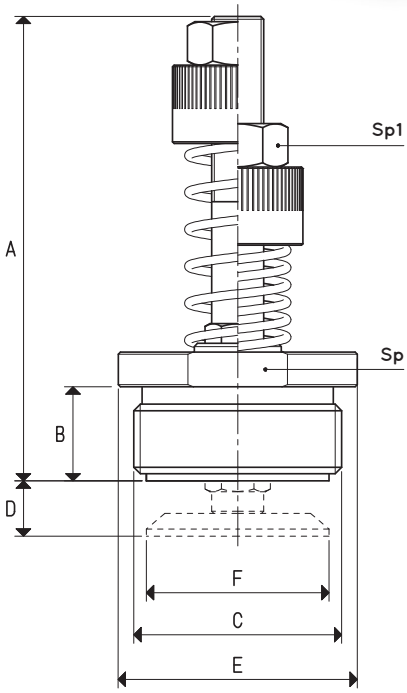




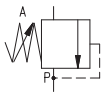

Item 04 01 10




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 | Max flow rate of the pump m³/h | Weight g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **04 01 10** | 670 ÷ 1 | 45 | 8 | G1/8" | - | - | - | 12 | 12 | nickel-plated brass | 4 | 30 |
| **04 01 10 I** | 670 ÷ 1 | 45 | 8 | G1/8" | - | - | - | 12 | 12 | stainless steel | 4 | 30 |
| **04 02 10** | 670 ÷ 1 | 57 | 9 | G1/2" | 5 | - | 17 | 24 | 10 | nickel-plated brass | 20 | 78 |
| **04 02 10 I** | 670 ÷ 1 | 57 | 9 | G1/2" | 5 | - | 17 | 24 | 10 | stainless steel | 20 | 78 |
| **04 03 10** | 670 ÷ 1 | 60 | 11 | G3/4" | 5 | - | 23 | 30 | 17 | nickel-plated brass | 60 | 150 |
| **04 03 10 I** | 670 ÷ 1 | 60 | 11 | G3/4" | 5 | - | 23 | 30 | 17 | stainless steel | 60 | 150 |
| **04 04 10** | 670 ÷ 1 | 65 | 14.5 | G1" | 7 | - | 29 | 35 | 17 | nickel-plated brass | 100 | 212 |
| **04 04 10 I** | 670 ÷ 1 | 65 | 14.5 | G1" | 7 | - | 29 | 35 | 17 | stainless steel | 100 | 212 |
| **04 05 10** | 670 ÷ 1 | 104 | 22 | G1" 1/2 | 15 | 55 | 42 | 50 | 20 | nickel-plated brass | 250 | 490 |
| **04 05 10 I** | 670 ÷ 1 | 104 | 22 | G1" 1/2 | 15 | 55 | 42 | 50 | 20 | stainless steel | 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 1.130

# 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.

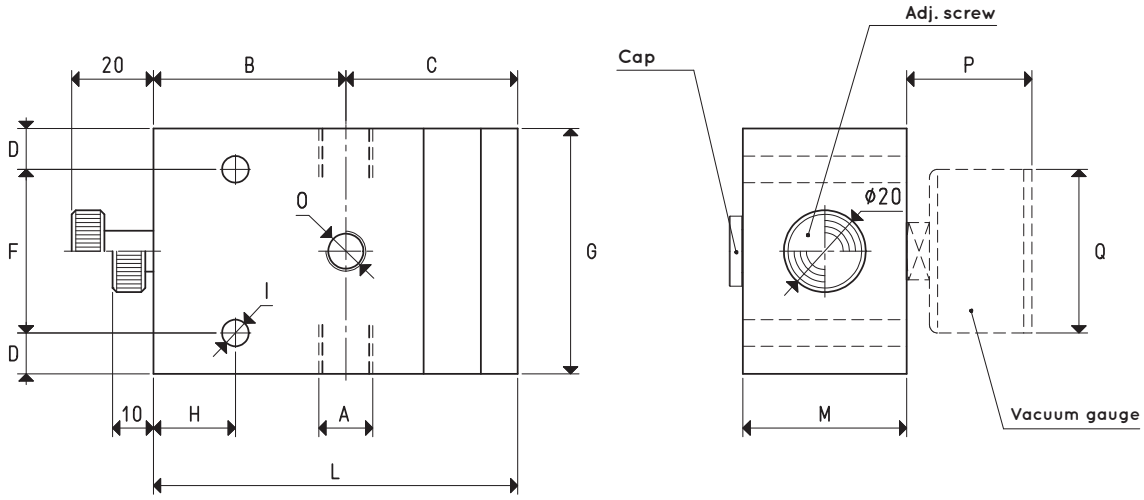
**Technical features**

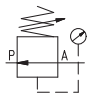
- Operation: membrane-piston regulator
- Adjustable operating pressure: from 800 to 1 mbar abs.
- Flow rate : from 2 to 160 m³/h.
- Room temperature: from -10 to +80 °C
- Installation position: any

**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. m³/h | B | C | D | F | G | H | I Ø | L | M | O Ø | P | Q Ø | Vacuum gauge item | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11 01 10** | G1/4" | 6 | 47 | 42.0 | 10 | 40 | 60 | 20 | 6.5 | 89.0 | 40 | G1/8" | 30 | 40 | 09 03 15 | 0.60 |
| **11 02 10** | G3/8" | 10 | 47 | 42.0 | 10 | 40 | 60 | 20 | 6.5 | 89.0 | 40 | G1/8" | 30 | 40 | 09 03 15 | 0.58 |
| **11 03 10** | G1/2" | 20 | 53 | 52.0 | 15 | 55 | 85 | 25 | 8.5 | 105.0 | 50 | G1/4" | 36 | 63 | 09 03 10 | 1.15 |
| **11 04 10** | G3/4" | 40 | 55 | 55.5 | 15 | 70 | 100 | 30 | 8.5 | 110.5 | 50 | G1/4" | 36 | 63 | 09 03 10 | 1.39 |
| **11 05 10** | G1" | 80 | 60 | 58.0 | 15 | 90 | 120 | 30 | 8.5 | 118.0 | 60 | G1/4" | 36 | 63 | 09 03 10 | 2.08 |
| **11 06 10** | G1" 1/2 | 160 | 54 | 77.5 | 15 | 130 | 160 | 20 | 8.5 | 131.5 | 99 | G1/4" | 36 | 63 | 09 03 10 | 5.49 |

Note: The vacuum gauges 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 1.130

# 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.

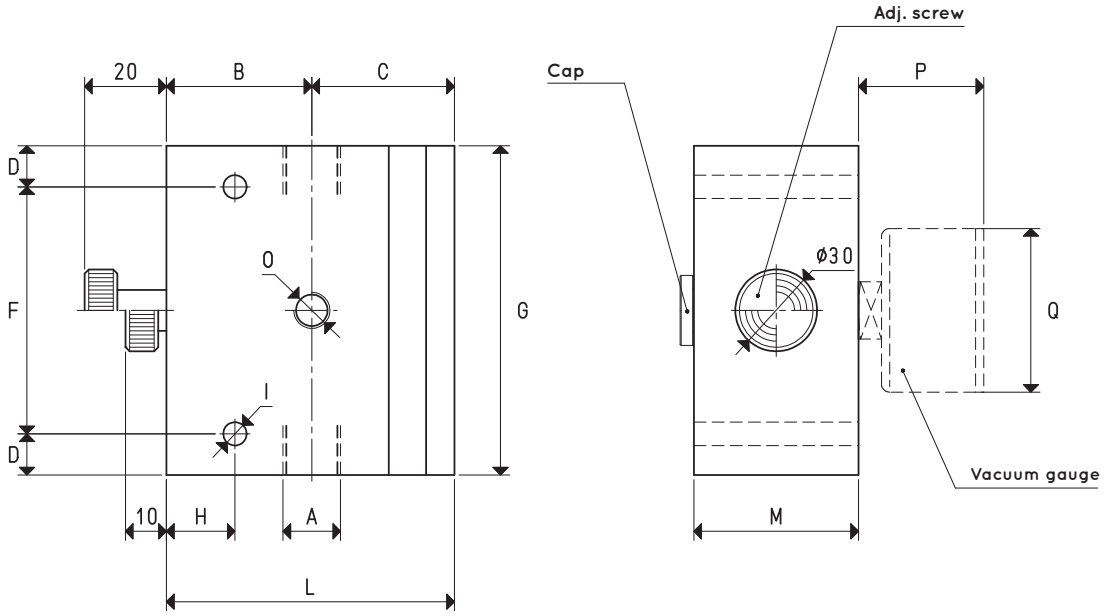
**Technical features**

- 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 | P | Q Ø | Vacuum gauge item | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11 03 50** | G1/2" | 20 | 53 | 52.0 | 15 | 90 | 120 | 25 | 8.5 | 105.0 | 60 | G1/4" | 36 | 63 | 09 03 10 | 2.07 |
| **11 05 50** | G1" | 80 | 60 | 58.0 | 15 | 90 | 120 | 30 | 8.5 | 118.0 | 100 | G1/4" | 36 | 63 | 09 03 10 | 3.74 |
| **11 06 50** | G1" 1/2 | 160 | 54 | 77.5 | 15 | 130 | 160 | 20 | 8.5 | 131.5 | 99 | G1/4" | 36 | 63 | 09 03 10 | 5.54 |

Note: The vacuum gauges 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 1.130

# 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.

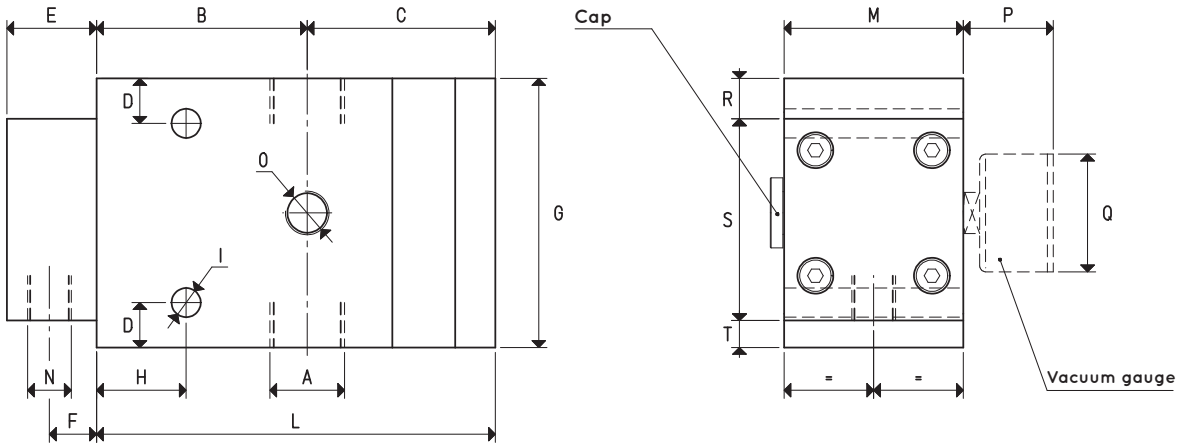

**Technical features**

- 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.





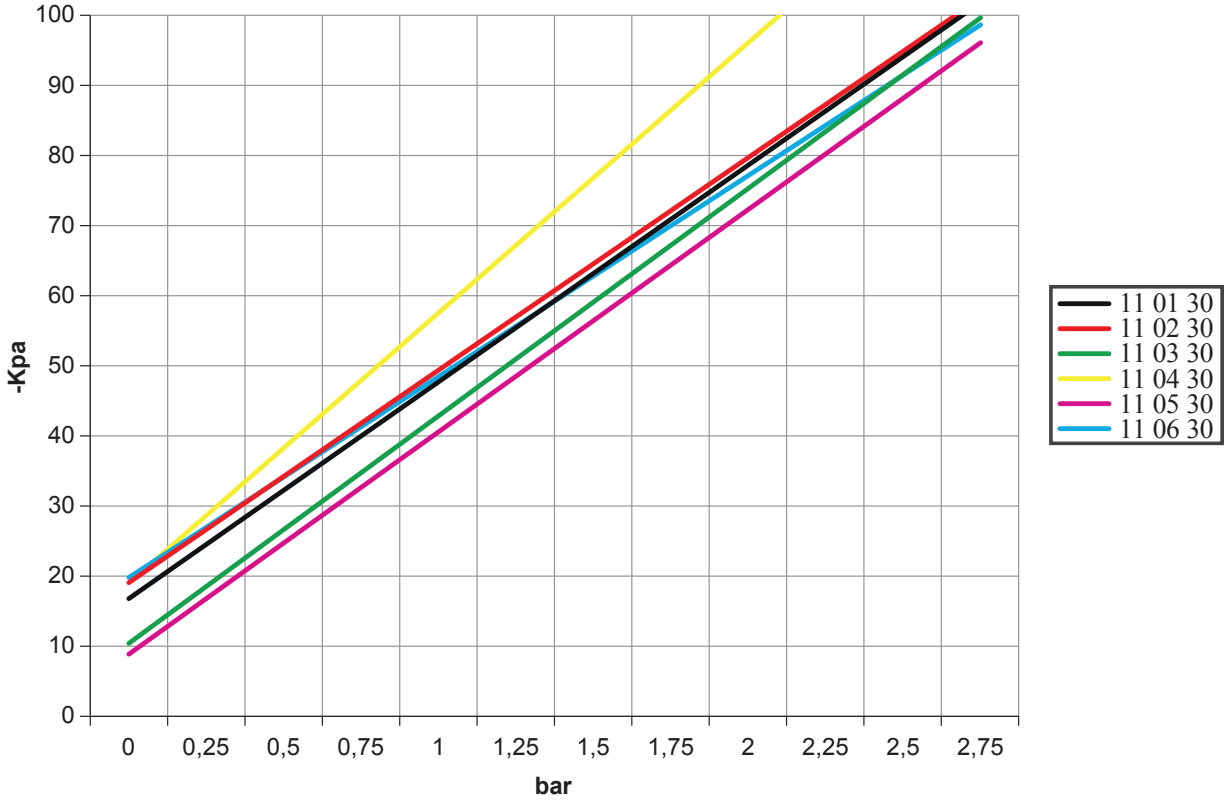


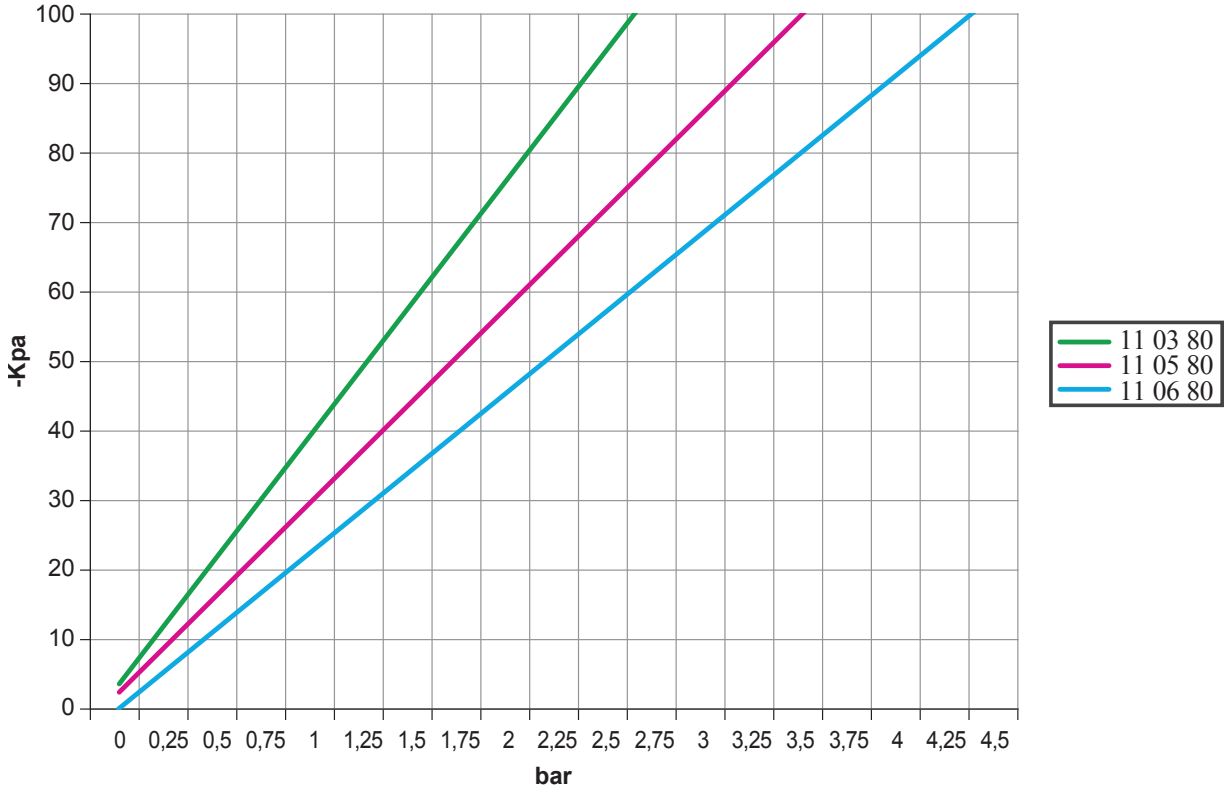
| Item | A Ø | Max capac. $m^3/h$ | B | C | D | E | F | G | H | I Ø | L | M | N Ø | O Ø | P | Q Ø | R | S | T | Vacuum gauge item | Weight Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **11 01 30** | G1/4" | 6 | 47 | 42.0 | 10 | 20 | 10.5 | 60 | 20 | 6.5 | 89.0 | 40 | G1/8" | G1/8" | 30 | 40 | 9.0 | 45 | 6.0 | 09 03 15 | 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" | 30 | 40 | 9.0 | 45 | 6.0 | 09 03 15 | 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" | 36 | 63 | 16.5 | 58 | 10.5 | 09 03 10 | 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" | 36 | 63 | 24.0 | 58 | 18.0 | 09 03 10 | 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" | 36 | 63 | 34.0 | 58 | 28.0 | 09 03 10 | 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" | 36 | 63 | 37.5 | 80 | 42.5 | 09 03 10 | 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" | 36 | 63 | 34.0 | 58 | 28.0 | 09 03 10 | 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" | 36 | 63 | 34.0 | 58 | 28.0 | 09 03 10 | 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" | 36 | 63 | 37.5 | 80 | 42.5 | 09 03 10 | 5.60 |

Note: The vacuum gauges 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 1.130




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

| Item | Vacuum regulator<br>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 04 50 |
| **00 11 121** | 11 05 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 |