### VACUUM PRESSURE REGULATOR

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PRESSURE RANGE</th>
<th>CONNECTION</th>
<th>SERIES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. 22 l/min miniature</td>
<td>-850 ... 0 mbar</td>
<td>1/4” NPT</td>
<td>V800</td>
<td>7.02</td>
</tr>
<tr>
<td>max. 22 l/min miniature</td>
<td>-850 ... 0 mbar</td>
<td>10-32” and flange</td>
<td>V900</td>
<td>7.02</td>
</tr>
<tr>
<td>max. 70 l/min precise</td>
<td>-1 ... +0.4 / 10 bar</td>
<td>G 1/4</td>
<td>R250</td>
<td>7.03</td>
</tr>
<tr>
<td>max. 330 l/min precise</td>
<td>-990 ... 0 mbar</td>
<td>G 1/4 - G 1/2</td>
<td>V170</td>
<td>7.04</td>
</tr>
<tr>
<td>max. 800 l/min precise</td>
<td>-1 ... +0.7 / 10 bar</td>
<td>G 1/2 and G 3/4</td>
<td>R251</td>
<td>7.05</td>
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<tr>
<td>vacuum adjustment valve</td>
<td>-1 ... -0.3 / 0 bar</td>
<td>G 1/4 - G 1</td>
<td>V04/V05</td>
<td>7.06</td>
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</tbody>
</table>
MINIATURE VACUUM PRESSURE REGULATOR, MADE OF PLASTIC  V800 / V900

**Description**
Miniature precision vacuum regulator with diaphragm and high outlet pressure constancy, small dimensions, low weight. 20-turn hysteresis-free adjustment range allows sensitive pressure setting.

**Media**
compressed air or non-corrosive gases

**Supply pressure**
max. -1000 mbar

**Accuracy**
at supply pressure variation of 170 mbar: < 4 mbar pressure deviation
at supply pressure removal/reapplication: < 7 mbar pressure deviation
setting accuracy: < 2.5 mbar

**Air consumption**
0.3 l/min at -1000 mbar supply pressure

**Adjustment**
by plastic knob, adjusting screw or preset

**Gauge port**
not available

**Mounting position**
any

**Temperature range**
4 °C to 66 °C / 39 °F to 151 °F

**Material**
Body: polysulfone
Inner valve: stainless steel and acetal
Elastomer: NBR/Buna-N

---

**Dimensions**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Pressure adjustment</th>
<th>Flow rate</th>
<th>Vacuum range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>by</td>
<td>l/min</td>
<td>mbar</td>
<td></td>
</tr>
</tbody>
</table>

**Vacuum regulator 10-32˝**
supply pressure max. -1000 mbar, with constant bleed

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Pressure adjustment</th>
<th>Flow rate</th>
<th>Vacuum range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>78</td>
<td>8</td>
<td>adjusting knob</td>
<td>22</td>
<td>-350…0</td>
<td>V900-W</td>
</tr>
<tr>
<td>29</td>
<td>60</td>
<td>8</td>
<td>adjusting screw</td>
<td>22</td>
<td>-350…0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>43</td>
<td>8</td>
<td>preset</td>
<td>22</td>
<td>-850…0</td>
<td></td>
</tr>
</tbody>
</table>

**Vacuum regulator with flange**
supply pressure max. -1000 mbar, with constant bleed

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Pressure adjustment</th>
<th>Flow rate</th>
<th>Vacuum range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>78</td>
<td>8</td>
<td>adjusting knob</td>
<td>22</td>
<td>-350…0</td>
<td>V900-M</td>
</tr>
<tr>
<td>29</td>
<td>60</td>
<td>8</td>
<td>adjusting screw</td>
<td>22</td>
<td>-350…0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>43</td>
<td>8</td>
<td>preset</td>
<td>22</td>
<td>-850…0</td>
<td></td>
</tr>
</tbody>
</table>

**Special options**, add the appropriate letter or number

- ¼” NPT connection thread, width 40 mm
  
  V8-.. . . .

**Accessories**, enclosed

- mounting bracket made of steel
  
  BW15-01

---

Order example: V900-10WK

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MINIATURE VACUUM PRESSURE REGULATOR, MADE OF PLASTIC  V800 / V900

**Description**
Miniature precision vacuum regulator with diaphragm and high outlet pressure constancy, small dimensions, low weight. 20-turn hysteresis-free adjustment range allows sensitive pressure setting.

**Media**
compressed air or non-corrosive gases

**Supply pressure**
max. -1000 mbar

**Accuracy**
at supply pressure variation of 170 mbar: < 4 mbar pressure deviation
at supply pressure removal/reapplication: < 7 mbar pressure deviation
setting accuracy: < 2.5 mbar

**Air consumption**
0.3 l/min at -1000 mbar supply pressure

**Adjustment**
by plastic knob, adjusting screw or preset

**Gauge port**
not available

**Mounting position**
any

**Temperature range**
4 °C to 66 °C / 39 °F to 151 °F

**Material**
Body: polysulfone
Inner valve: stainless steel and acetal
Elastomer: NBR/Buna-N

---

**Dimensions**

<table>
<thead>
<tr>
<th>A</th>
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<th>Vacuum range</th>
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</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>by</td>
<td>l/min</td>
<td>mbar</td>
<td></td>
</tr>
</tbody>
</table>

**Vacuum regulator 10-32˝**
supply pressure max. -1000 mbar, with constant bleed

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
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<th>Flow rate</th>
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<td>8</td>
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<td>22</td>
<td>-350…0</td>
<td>V900-W</td>
</tr>
<tr>
<td>29</td>
<td>60</td>
<td>8</td>
<td>adjusting screw</td>
<td>22</td>
<td>-350…0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>43</td>
<td>8</td>
<td>preset</td>
<td>22</td>
<td>-850…0</td>
<td></td>
</tr>
</tbody>
</table>

**Vacuum regulator with flange**
supply pressure max. -1000 mbar, with constant bleed

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Pressure adjustment</th>
<th>Flow rate</th>
<th>Vacuum range</th>
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<tbody>
<tr>
<td>29</td>
<td>78</td>
<td>8</td>
<td>adjusting knob</td>
<td>22</td>
<td>-350…0</td>
<td>V900-M</td>
</tr>
<tr>
<td>29</td>
<td>60</td>
<td>8</td>
<td>adjusting screw</td>
<td>22</td>
<td>-350…0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>43</td>
<td>8</td>
<td>preset</td>
<td>22</td>
<td>-850…0</td>
<td></td>
</tr>
</tbody>
</table>

**Special options**, add the appropriate letter or number

- ¼” NPT connection thread, width 40 mm
  
  V8-.. . . .

**Accessories**, enclosed

- mounting bracket made of steel
  
  BW15-01

---

Order example: V900-10WK
**Description**
Diaphragm vacuum regulator ensuring high precision in both vacuum and positive pressure range.

**Media**
compressed air or non-corrosive gases

**Supply pressure**
max. 17 bar

**Accuracy**
response sensitivity: < 2 mbar

**Adjustment**
by handwheel with locknut

**Air consumption**
max. 2.8 l/min in positive pressure range

**Flow rate**
70 l/min*¹ in vacuum range, 900 l/min*² in positive pressure range

**Gauge port**
G1/4 on both sides of the body, screw plugs supplied

**Mounting position**
any

**Temperature range**
-40 °C to 90 °C / -40 °F to 194 °F

**Material**
Body: aluminium die-cast
Inner valve: stainless steel and brass

### Accessories, enclosed

| Pressure gauge | Ø 63 mm, -1...0 bar, G1/4 | MA6302-00 |
| Mounting bracket | made of steel | BW00-33 |

### Special options, add the appropriate letter

- NPT connection thread: R250-0...N
- Tamper-proof cap: made of aluminium, adjustment by screwdriver, total height 189 mm: R250-0...T

### Dimensions

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>K, value</th>
<th>Flow rate</th>
<th>Connection thread</th>
<th>Vacuum range</th>
<th>Order number</th>
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<tbody>
<tr>
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<td>mm</td>
<td>mm</td>
<td>m³/h</td>
<td>m³/h</td>
<td>G</td>
<td>bar</td>
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<td>68</td>
<td>184</td>
<td>20</td>
<td>65</td>
<td>0.78</td>
<td>4</td>
<td>70</td>
<td>G1/4</td>
<td>R250-020</td>
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<td></td>
<td>-1 ... +7.0</td>
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<td>-1 ... + 10</td>
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<td></td>
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<td>R250-02D</td>
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</table>

### Bypass regulation
Upstream installation is preferred when rapid exhaust of a tank or system is required. That way the vacuum pump acts directly upon the tank and is not being throttled by the vacuum regulator.

### Downstream regulation
The regulator is located between the pump and the tank. The vacuum pump is energy-saving and it is easy to fill the tank to its optimal level with pressure or vacuum.

**Gauges:** see chapter for measuring devices

---

*¹ for compressed air at -0.98 bar supply pressure and 0 bar outlet pressure
*² for compressed air at 7 bar supply pressure and 1.4 bar outlet pressure
**Description**
High precision diaphragm vacuum regulator with high flow capacity. A balanced vacuum valve minimizes the effects of variation.

**Media**
compressed air or non-corrosive gases

**Accuracy**
response sensitivity: < 2 mbar

**Adjustment**
by handwheel with locknut

**Gauge port**
G¼ on both sides of the body, screw plugs supplied

**Mounting position**
any

**Temperature range**
0 °C to 90 °C / 32 °F to 194 °F for appropriately conditioned compressed air down to -40 °C / -40°F

**Material**
Body: aluminium die-cast
Elastomer: NBR/Buna-N, optionally FKM
Inner valve: stainless steel, brass, aluminium and steel

### Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>Kν-value (m³/h)</th>
<th>Flow rate (l/min*)</th>
<th>Connection thread</th>
<th>Pressure range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precision vacuum regulator</td>
<td>67</td>
<td>152</td>
<td>25</td>
<td>1.1</td>
<td>20</td>
<td>330</td>
<td>G¼</td>
<td>-170 ... 0</td>
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<td>-500 ... 0</td>
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<td></td>
<td></td>
<td>-990 ... 0</td>
</tr>
</tbody>
</table>

### Special options
- **NPT**
connection thread
- **Verstellsicherung**
made of aluminium, adjustment by screwdriver, total height 160 mm
- **FKM-Elastomere**
V170-0... N

### Accessories
- **pressure gauge**
Ø 63 mm, 0 bar down to -1 bar, G¼
- **mounting bracket**
made of steel

**Order example:**
V170-02A

Precision vacuum regulator (V170) with tamper proof cap.

![Connection diagram of V170](connection_diagram.png)

**Media**
- compressed air or non-corrosive gases

**Accuracy**
- response sensitivity: < 2 mbar

**Adjustment**
- by handwheel with locknut

**Gauge port**
- G¼ on both sides of the body, screw plugs supplied

**Mounting position**
- any

**Temperature range**
- 0 °C to 90 °C / 32 °F to 194 °F for appropriately conditioned compressed air down to -40 °C / -40°F

**Material**
- Body: aluminium die-cast
- Elastomer: NBR/Buna-N, optionally FKM
- Inner valve: stainless steel, brass, aluminium and steel

**Dimensions**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>Kν-value (m³/h)</th>
<th>Flow rate (l/min*)</th>
<th>Connection thread</th>
<th>Pressure range</th>
<th>Order number</th>
</tr>
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<tr>
<td>Precision vacuum regulator</td>
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<td>152</td>
<td>25</td>
<td>1.1</td>
<td>20</td>
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<td>G¼</td>
<td>-170 ... 0</td>
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<td></td>
<td></td>
<td>-990 ... 0</td>
</tr>
</tbody>
</table>

**Special options**
- **NPT**
connection thread
- **Verstellsicherung**
made of aluminium, adjustment by screwdriver, total height 160 mm
- **FKM-Elastomere**
V170-0... N

**Accessories**
- **pressure gauge**
Ø 63 mm, 0 bar down to -1 bar, G¼
- **mounting bracket**
made of steel

**Order example:**
V170-02A

- vacuum supply
- regulated vacuum

**Connection diagram**

Vacuum

**Gauges:** see chapter for measuring devices
Description: Diaphragm vacuum regulator ensuring high precision in both vacuum and positive pressure range.

Media: Compressed air or non-corrosive gases

Supply pressure: Max. 17 bar

Accuracy: Response sensitivity: < 2.5 mbar

Adjustment: By handwheel with locknut

Air consumption: Without constant bleed

Flow rate: 800 l/min\(^*1\) in vacuum range, 4200 l/min\(^*2\) in positive pressure range

Gauge port: G\(\frac{1}{2}\) on both sides of the body, screw plugs supplied

Mounting position: Any

Temperature range: -40 °C to 90 °C / -40 °F to 194 °F

Material: Body: aluminium die-cast

Elastomer: NBR/Buna-N

Dimensions

<table>
<thead>
<tr>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>K(\text{value})</th>
<th>Flow rate (\text{G}(\text{bar}))</th>
<th>Connection</th>
<th>Vacuum range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>238</td>
<td>40</td>
<td>98</td>
<td>2,5</td>
<td>48 800 G(\frac{1}{2})</td>
<td>-1 ... +0,7</td>
<td>R251-04A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1 ... +2,0</td>
<td>-1 ... +10</td>
<td>R251-04B</td>
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<td></td>
<td>-1 ... +0,7</td>
<td>R251-04D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special options, add the appropriate letter

NPT connection thread: R251-0...N

Tamper-proof cap: Made of aluminium, adjustment by screwdriver, total height 240 mm R251-0...T

FKM elastomer: R251-0...V

Accessories, enclosed

Pressure gauge: Ø 63 mm, -1 ... 0 bar, G\(\frac{1}{4}\) MA6302-00

Mounting bracket: Made of steel BW00-47

Order example: R251-04A

Gauges: see chapter for measuring devices

Bypass regulation: Upstream installation is preferred when rapid exhaust of a tank or system is required. That way the vacuum pump acts directly upon the tank and is not being throttled by the vacuum regulator.

Vacuum tank

Note: A strainer is provided on the atmospheric or pressure side, but an additional filter is recommended.

Downstream regulation: The regulator is located between the pump and the tank. The vacuum pump is energy-saving and it is easy to fill the tank to its optimal level with pressure or vacuum.

Order example: R251-04A

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VACUUM ADJUSTMENT VALVES

**Description**
When these valves reach a certain precalibrated vacuum degree, they introduce atmospheric air into the circuit to prevent the increase of the set value and keep it constant.

**Application**
They are used as safety valves on non-commissioned tanks or containers at high vacuum level and on vacuum cup lifting systems.

**Media**
compressed air or non-corrosive gases

**Adjustment**
V04: by rotating the knurled bush in both directions
V05: by knurled head screw or adjusting knob on spindle with fine thread

**Mounting position**
any

**Temperature range**
-20 °C to 80 °C / -4 °F to 176 °F

**Material**
Body: nickel-plated brass
Inner valve: spring steel and brass
Elastomer: NBR/Buna-N

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Flow rate</th>
<th>Connection thread</th>
<th>Vacuum-range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  B  SW</td>
<td>m³/h</td>
<td>l/min</td>
<td>G</td>
<td>bar</td>
</tr>
<tr>
<td>45 7 12</td>
<td>4</td>
<td>60</td>
<td>G1/8</td>
<td>-1 ... -0.3</td>
</tr>
<tr>
<td>57 15 24</td>
<td>20</td>
<td>330</td>
<td>G1/2</td>
<td>-1 ... -0.3</td>
</tr>
<tr>
<td>60 12 30</td>
<td>40</td>
<td>660</td>
<td>G3/4</td>
<td>-1 ... -0.3</td>
</tr>
<tr>
<td>65 12 35</td>
<td>70</td>
<td>1100</td>
<td>G1</td>
<td>-1 ... -0.3</td>
</tr>
</tbody>
</table>

**Vacuum adjustment valve, precise**
Vacuum regulator with external leakage

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Flow rate</th>
<th>Connection thread</th>
<th>Vacuum-range</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  B  SW</td>
<td>m³/h</td>
<td>l/min</td>
<td>G</td>
<td>bar</td>
</tr>
<tr>
<td>63 26 25</td>
<td>4</td>
<td>260</td>
<td>G1/4</td>
<td>-1 ... 0</td>
</tr>
<tr>
<td>82 52 32</td>
<td>20</td>
<td>700</td>
<td>G1</td>
<td>-1 ... 0</td>
</tr>
</tbody>
</table>

**Order example:**
V04-01

---

**G1/8 up to G1 vacuum -1 ... 0 bar**

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**Description**
When these valves reach a certain precalibrated vacuum degree, they introduce atmospheric air into the circuit to prevent the increase of the set value and keep it constant.

**Application**
They are used as safety valves on non-commissioned tanks or containers at high vacuum level and on vacuum cup lifting systems.

**Media**
compressed air or non-corrosive gases

**Adjustment**
V04: by rotating the knurled bush in both directions
V05: by knurled head screw or adjusting knob on spindle with fine thread

**Mounting position**
any

**Temperature range**
-20 °C to 80 °C / -4 °F to 176 °F

**Material**
Body: nickel-plated brass
Inner valve: spring steel and brass
Elastomer: NBR/Buna-N

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**Vacuum tank**

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**Order example:**
V04-01