GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 055 D01

Technology

Multifunctional gas control as per EN 126 for fully automatic operation.

- Single-stage operation or two-stage operation with ignition gas
- Fast or slow-opening with adjustable start gas quantity
- Constant air flow thanks to pressure regulator with servo-controller
- Inlet pressures up to max. 65 mbar (6.5 kPa)
- Different device versions possible depending on application

Application

- For gas heating boilers and gas air heaters with atmospheric burners and fan-assisted burners.
- Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
## Data sheet
GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 055 D01

### Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Servo pressure regulator</th>
<th>Valve type class (acc. to EN 161) V1</th>
<th>Valve type class (acc. to EN 161) V2</th>
<th>Pressure regulator</th>
<th>Slow-opening</th>
<th>Fast-opening</th>
<th>Cut-off</th>
<th>Ignition gas connection</th>
<th>Gas pressure monitor</th>
<th>Start gas setting</th>
<th>Socket</th>
<th>MPA 10x</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-LE 055 D01</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>●</td>
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<td>GB-LEP 055 D01</td>
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<td>GB-P 055 D01</td>
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</tbody>
</table>

### GasBloc type key

- **GB-XXXXX XXX XXX SXX**

- **Actuation of V1 and V2**
  0 = Joint
  2 = Separate

- **Outlet pressure**
  0 = 0 mbar  up to 65 mbar
  2 = 1.5 – 20 mbar  up to 65 mbar
  4 = 3 – 40 mbar  up to 65 mbar

- **Series production (not type-specific)**
  S = Series production

- **Gas train schematic diagram**
  1 = Two B-valves with servo pressure regulator
  2 = Two B-valves without servo pressure regulator

- **Valve design**
  0 = Double safety valve
  1 = Single safety valve, right corner
  2 = Single safety valve, straight

- **Design type (generation): D, E, F**

- **Size**
  Nominal diameter
  05 = p_{max} = 65 mbar
  3 = Rp 1/4
  5 = Rp 1/2
  7 = Rp 3/4

- **Opening behavior and main flow throttle**
  Without = Fast-opening, fast-closing
  L = Slow-opening
  E = Adjustable start gas
  E = Pilot gas connection
  G = Gas-air composite system
  D = Main flow setting
  N = Zero pressure regulator
  M = Electric modulation
  W = WhirlWind version
  Z = Two-stage

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**Data sheet**

**GasBloc Multifunctional gas control**

**Single-stage atmospheric operation**

**GB-(LEP) 055 D01**

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**Description of main components**

**Pressure regulator:** The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure.

**"Slow opening" function:** For slow start-up of the burner. The start gas quantity can be set to up to 80% of the main gas quantity.

**Pressure regulator shutdown:** Shutdown by turning adjustment device 25 x in clockwise direction until a faint "click" is heard (attention: no stop).

**Safety valves:** Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

**Safety valve operating modes:**
- **Mode 1**
  Safety valves V1 and V2 can be actuated and opened jointly or separately.
- **Mode 2**
  Safety valves V1 and V2 are opened separately and actuated separately. Ignition gas outlet enabled, V1 opens. When flame is lit, enabling takes place and V2 opens.

**Dirt trap:** Fine-meshed strainer to protect the fitting.

**Gas pressure monitor (optional):** Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

**Ignition gas:** Ignition gas connection between the safety valves V1 and V2

**Pressure test nipple:** On inlet and outlet side

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**Block diagram of GB-(LEP) 055 D01**

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**Key**

1. Dirt trap, strainer
2. Housing
3. Safety valve V1
4. Closing spring V1
5. Armature V1
6. Test nipple
7. Solenoid V1
8. Safety valve V2
9. Start gas pre-setting
10. Solenoid V2
11. Working diaphragm
12. Return spring
13. Operating valve
14. Electrical hookup
15. Servo pressure regulator
16. Ignition gas connection
Data sheet
GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 055 D01

Safety valve operating modes GB-(LEP) 055 D01

Mode 1
Start-up characteristics for slow start without ignition gas

Mode 2
Start-up characteristics for slow start with ignition gas

Setting instructions – start gas and adjustment device

Start gas adjustment range
Slow starting requires the main valve of the pressure regulator to be closed on starting. Prior to restart, a waiting time of at least 45 s must therefore always be allowed.

Example:
Start gas = 0.5 x Q_{max}
max. ≈ 4s

Output adjustable. Time invariable.
GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 055 D01

Engineering drawing

Ignition gas connection
M8 x 1
Sealing surface

Dimensions in mm.

Electrical hookup:
Standard:
Molex Crimp 3001 system
Optional:
Box with cable connection IP40

Air flow/pressure gradient curve GB-(LEP) 055 D01

- Recommended operating range
- Conditions +15°C, p=1013 mbar
### Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal diameter</strong></td>
<td>DN 15</td>
</tr>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 1/2 ISO 7/1, G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 1/2 ISO 7/1 internal, G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Ignition gas connection</strong></td>
<td>M8 x 1, dia. 4 mm</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td><strong>Specified pressure range</strong></td>
<td>2.5 mbar (0.25 kPa) up to 38 mbar (3.8 kPa)</td>
</tr>
<tr>
<td><strong>Nominal flow rate</strong></td>
<td>3.3 m³/h (air) with Δp 5 mbar (0.5 kPa), regulated</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>0°C to +70°C for LPG (family 3)</td>
</tr>
<tr>
<td><strong>Design lifetime</strong></td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB)</td>
</tr>
<tr>
<td></td>
<td>depending on the time/temperature profile</td>
</tr>
<tr>
<td><strong>Automatic shut-off valves</strong></td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Pressure regulator</strong></td>
<td>Class C</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>Opening time</strong></td>
<td>Fast-opening &lt; 1 s, Slow-opening &lt; 10 s</td>
</tr>
<tr>
<td><strong>Closing time</strong></td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td><strong>ON time</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Voltage / frequency / activation</strong></td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red)</td>
</tr>
<tr>
<td></td>
<td>230 V RAC / 50/60 Hz / separate (coil color: black)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / simultaneous (coil color: yellow)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / separate (coil color: orange)</td>
</tr>
<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / simultaneous (coil color: grey)</td>
</tr>
<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / separate (coil color: blue)</td>
</tr>
<tr>
<td></td>
<td>24 V DC / simultaneous (coil color: green)</td>
</tr>
<tr>
<td><strong>Coil load (24 V, 230 V)</strong></td>
<td>2 x 5.5 VA</td>
</tr>
<tr>
<td><strong>Electrical hookup</strong></td>
<td>Coil connection Molex system or connection box with integrated cable</td>
</tr>
<tr>
<td><strong>Optional equipment</strong></td>
<td>Electrical connections in RAST 5</td>
</tr>
<tr>
<td></td>
<td>Combustion controller MPA 109x</td>
</tr>
<tr>
<td></td>
<td>Gas pressure monitor GW…A5</td>
</tr>
<tr>
<td><strong>Installation position</strong></td>
<td>Coil from vertically upright to horizontal.</td>
</tr>
<tr>
<td></td>
<td>Coil facing downwards not permissible</td>
</tr>
<tr>
<td><strong>Maximum installation elevation</strong></td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
Data sheet
GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 057 D01

Technology
Multifunctional gas control as per EN 126 for fully automatic operation.
- Single-stage operation or two-stage operation with ignition gas
- Fast or slow-opening with adjustable start gas quantity
- Constant air flow thanks to pressure regulator with servo-controller
- Inlet pressures up to max. 65 mbar (6.5 kPa)
- Different device versions possible depending on application

Application
- For gas heating boilers and gas air heaters with atmospheric burners and fan-assisted burners.
- Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals
EU prototype test certificate in accordance with EU gas appliance regulation.
CE-0085 CM 0036
CSA 240 9198
Approvals in other important gas-consuming countries.
# GasBloc Multifunctional gas control

## Single-stage atmospheric operation

**GB-(LEP) 057 D01**

## Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Servo pressure regulator</th>
<th>Valve class V1 (acc. to EN 161)</th>
<th>Valve class V2 (acc. to EN 161)</th>
<th>Pressure regulator fast-opening</th>
<th>Out tap</th>
<th>Servo gas connection</th>
<th>Pressure regulator slow-opening</th>
<th>Gas pressure monitor</th>
<th>Start gas setting</th>
<th>Socket</th>
<th>MPV 10x</th>
</tr>
</thead>
<tbody>
<tr>
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<td>●</td>
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<tr>
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<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

## GasBloc type key

**GB-XXXXX XXX XXX SXX**

- Actuation of V1 and V2
  - 0 = Joint
  - 2 = Separate

- Outlet pressure
  - 0 = 0 mbar up to 65 mbar
  - 2 = 1.5 – 20 mbar up to 65 mbar
  - 4 = 3 – 40 mbar up to 65 mbar

- S = Series production (not type-specific)

- Gas train schematic diagram
  - 1 = Two B-valves with servo pressure regulator
  - 2 = Two B-valves without servo pressure regulator

- Valve design
  - 0 = Double safety valve
  - 1 = Single safety valve, right corner
  - 2 = Single safety valve, straight

- Design type (generation): D, E, F

- Size Nominal diameter
  - 05 = \( p_{\text{max}} = 65 \text{ mbar} \)
  - 3 = \( Rp \text{ 1/4} \)
  - 5 = \( Rp \text{ 1/2} \)
  - 7 = \( Rp \text{ 3/4} \)

- Opening behavior and main flow throttle
  - Without = Fast-opening, fast-closing
  - L = Slow-opening
  - E = Adjustable start gas
  - P = Pilot gas connection
  - G = Gas-air composite system
  - D = Main flow setting
  - N = Zero pressure regulator
  - M = Electric modulation
  - W = WhirlWind version
  - Z = Two-stage

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Hofmark-Aich-Str. 25  84030 Landshut  Phone: +49 871 707-0  Fax: +49 871 707-464  info3@de.ebmpapst.com  www.ebmpapst.com
Description of main components

Pressure regulator: The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure.

"Slow opening" function: For slow start-up of the burner. The start gas quantity can be set to up to 80% of the main gas quantity.

Pressure regulator shutdown: Shutdown by turning adjustment device 25 x in clockwise direction until a faint "click" is heard (attention: no stop).

Safety valves: Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

Safety valve operating modes:
- **Mode 1**: Safety valves V1 and V2 can be actuated and opened jointly or separately.
- **Mode 2**: Safety valves V1 and V2 are opened separately and actuated separately. Ignition gas outlet enabled, V1 opens. When flame is lit, enabling takes place and V2 opens.

Dirt trap: Fine-meshed strainer to protect the fitting.

Gas pressure monitor (optional): Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

Ignition gas: Ignition gas connection between the safety valves V1 and V2

Pressure test nipple: On inlet and outlet side

Block diagram of GB-(LEP) 057 D01

Key
- 1: Dirt trap, strainer
- 2: Housing
- 3: Safety valve V1
- 4: Closing spring V1
- 5: Armature V1
- 6: Test nipple
- 7: Solenoid V1
- 8: Safety valve V2
- 9: Start gas pre-setting
- 10: Solenoid V2
- 11: Working diaphragm
- 12: Return spring
- 13: Operating valve
- 14: Electrical hookup
- 15: Servo pressure regulator
- 16: Ignition gas connection
Safety valve operating modes GB-(LEP) 057 D01

Mode 1
Start-up characteristics for slow start without ignition gas

Mode 2
Start-up characteristics for slow start with ignition gas

Setting instructions – start gas and adjustment device

Start gas adjustment range
Slow starting requires the main valve of the pressure regulator to be closed on starting. Prior to restart, a waiting time of at least 45 s must therefore always be allowed.

Example:
Start gas = 0.5 x Q_{max} max. ≈ 4 s

Output adjustable.
Time invariable.
GasBloc Multifunctional gas control

Single-stage atmospheric operation
GB-(LEP) 057 D01

Engineering drawing

Electrical hookup:
Standard:
Molex Crimp 3001 system
Optional:
Box with cable connection IP40

Dimensions in mm.

Air flow/pressure gradient curve GB-(LEP) 057 D01

Recommended operating range
Conditions: +15°C, p=1013 mbar

\[ \dot{V}_n [m^3/h] \text{ Luft / Air / Air } \Delta p = 1,00 \]

\[ \dot{V}_n [m^3/h] \text{ Erdgas / Natural gas / Gaz Naturel / Gas metano } \Delta p = 0,65 \]
## Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td><strong>Nominal diameter</strong></td>
<td>DN 20</td>
</tr>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 3/4 ISO 7/1</td>
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<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 3/4 ISO 7/1 internal</td>
</tr>
<tr>
<td><strong>Ignition gas connection</strong></td>
<td>M8 x 1 dia. 4 mm</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td><strong>Specified pressure range</strong></td>
<td>2.5 mbar (0.25 kPa) up to 38 mbar (3.8 kPa)</td>
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<tr>
<td><strong>Nominal flow rate</strong></td>
<td>5.3 m³/h (air) with Δp 5 mbar (0.5 kPa), regulated</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2) 0°C to +70°C for LPG (family 3)</td>
</tr>
<tr>
<td><strong>Design lifetime</strong></td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB) depending on the time/temperature profile</td>
</tr>
<tr>
<td><strong>Automatic shut-off valves</strong></td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Pressure regulator</strong></td>
<td>Class C</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>Opening time</strong></td>
<td>Fast-opening &lt; 1 s</td>
</tr>
<tr>
<td></td>
<td>Slow-opening &lt; 10 s</td>
</tr>
<tr>
<td><strong>Closing time</strong></td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td><strong>ON time</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Voltage / frequency / activation</strong></td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red)</td>
</tr>
<tr>
<td></td>
<td>230 V RAC / 50/60 Hz / separate (coil color: black)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / simultaneous (coil color: yellow)</td>
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<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / separate (coil color: orange)</td>
</tr>
<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / simultaneous (coil color: grey)</td>
</tr>
<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / separate (coil color: blue)</td>
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<tr>
<td></td>
<td>24 V DC / simultaneous (coil color: green)</td>
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<tr>
<td><strong>Coil load (24 V, 230 V)</strong></td>
<td>2 x 12.5 VA</td>
</tr>
<tr>
<td><strong>Electrical hookup</strong></td>
<td>Coil connection Molex system or connection box with integrated cable</td>
</tr>
<tr>
<td><strong>Optional equipment</strong></td>
<td>Electrical connections in RAST 5</td>
</tr>
<tr>
<td></td>
<td>Combustion controller MPA 109x</td>
</tr>
<tr>
<td></td>
<td>Gas pressure monitor GW…A5</td>
</tr>
<tr>
<td><strong>Installation position</strong></td>
<td>Coil from vertically upright to horizontal</td>
</tr>
<tr>
<td></td>
<td>Coil facing downwards not permissible</td>
</tr>
<tr>
<td><strong>Maximum installation elevation</strong></td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
Data sheet
GasBloc Multifunctional gas control

Electric modulation GB-M(P) 055 D01
Two-stage operation GB-(LEP)Z 055 D01

Technology

Multifunctional gas control as per EN 126 with electromagnetically influenced control element for modulating or two-stage operation:
- Modulator with adjustable minimum and maximum limitation
- Ignition gas optional
- Constant air flow thanks to pressure regulator with servo-controller
- Maximum operating pressure 65 mbar (6.5 kPa)
- Different device versions possible depending on application

Application

- For gas heating boilers and hot air generators with fan-assisted burners and premixing burners.
- Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
## Data sheet
GasBloc Multifunctional gas control

**Electric modulation**
GB-M(P) 055 D01

**Two-stage operation**
GB-(LEP)Z 055 D01

### Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Electromagnetically influenced regulator</th>
<th>Two-stage servo pressure regulator</th>
<th>Valve class (acc. to EN 161) V1</th>
<th>Valve class (acc. to EN 161) V2</th>
<th>Minimum modulator current (mA)</th>
<th>Maximum modulator current (mA)</th>
<th>Min. and max. burner pressure, adjustable</th>
<th>Actuation of V1 and V2</th>
<th>Outlet pressure</th>
<th>Inlet pressure</th>
<th>Gas train schematic diagram</th>
<th>Valve design</th>
<th>Design type (generation): D, E, F</th>
<th>Size</th>
<th>Opening behavior and main flow throttle</th>
<th>GasBloc</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-M 055 D01</td>
<td>●</td>
<td>-</td>
<td>B</td>
<td>B</td>
<td>50</td>
<td>165</td>
<td>-</td>
<td>0</td>
<td>0 - 2 mbar</td>
<td>up to 65 mbar</td>
<td>1 = Two B-valves with servo pressure regulator</td>
<td>0 = Double safety valve</td>
<td></td>
<td>05</td>
<td>Fast-opening, fast-closing</td>
<td></td>
</tr>
<tr>
<td>GB-MP 055 D01</td>
<td>●</td>
<td>-</td>
<td>B</td>
<td>B</td>
<td>50</td>
<td>165</td>
<td>-</td>
<td>2</td>
<td>1.5 - 20 mbar</td>
<td>up to 65 mbar</td>
<td>2 = Two B-valves without servo pressure regulator</td>
<td>1 = Single safety valve, right corner</td>
<td></td>
<td>3</td>
<td>Delayed-opening</td>
<td></td>
</tr>
<tr>
<td>GB-Z 055 D01</td>
<td>-</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>3 - 40 mbar</td>
<td>up to 65 mbar</td>
<td></td>
<td>2 = Single safety valve, straight</td>
<td></td>
<td>7</td>
<td>Slow-opening</td>
<td></td>
</tr>
</tbody>
</table>

### GasBloc type key

- ● = Standard
- ○ = Optional
- - = Not available
**Description of main components**

**Pressure regulator and modulator:** The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. The nozzle pressure can be regulated by actuating an electric modulator between an adjustable maximum and minimum value. With two-stage operation, actuation switches between the maximum and minimum value.

**Safety valves:** Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

**Safety valve operating modes:**
- **Mode 1 – without ignition gas**
  Safety valves V1 and V2 can be actuated and opened jointly or separately.
- **Mode 2 – with ignition gas**
  Safety valves V1 and V2 are opened separately and actuated separately. Ignition gas outlet enabled, V1 opens. When flame is lit, enabling takes place and V2 opens.

**Dirt trap:** Fine-meshed strainer to protect the fitting.

**Gas pressure monitor (optional):** Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

**Ignition gas:** Ignition gas connection between the safety valves V1 and V2

**Pressure test nipple:** On inlet and outlet side

---

**Block diagram of GB-M(P) 055 D01**

[Block diagram image]

**Key**

1. Dirt trap, strainer
2. Housing
3. Safety valve V1
4. Closing spring V1
5. Armature V1
6. Test nipple
7. Solenoid V1
8. Safety valve V2
9. Ignition gas connection
10. Solenoid V2
11. Working diaphragm
12. Return spring
13. Operating valve
14. Electrical hookup
15. Servo pressure regulator
16. Modulator coil
Data sheet
GasBloc Multifunctional gas control

Electric modulation GB-M(P) 055 D01
Two-stage operation GB-(LEP)Z 055 D01

Current/pressure curve GB-M(LEP) 055 D01

for GB-(LEP)Z 055 D01: on/off only

![Pressure curve graph]

Adjusting device

- Set value setting
- min. and max. burner pressure
- Solenoid coils
- Pressure test nipple P1
- Pressure test nipple P2
Data sheet
GasBloc Multifunctional gas control

Electric modulation     GB-M(P) 055 D01
Two-stage operation    GB-(LEP)Z 055 D01

Engineering drawing

Electrical hookup:
Standard: Molex Crimp 3001 system
Optional: Box with cable connection IP40

Air flow/pressure gradient curve GB-M(P) 055 D01 / GB-(LEP)Z 055 D01

Recommended operating range
Conditions +15°C, p=1013mbar

Dimensions in mm.
## Technical data

<table>
<thead>
<tr>
<th><strong>Nominal diameter</strong></th>
<th>DN 15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 1/2 ISO 7/1, G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 1/2 ISO 7/1 internal, G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Ignition gas connection</strong></td>
<td>M8 x 1; dia. 4 mm</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td><strong>Controller outlet pressure range</strong></td>
<td>1.5 mbar (0.15 kPa) up to 20 mbar (2.0 kPa) with natural gas, 3.0 mbar (0.30 kPa) up to 37 mbar (3.7 kPa) with LPG</td>
</tr>
<tr>
<td><strong>Nominal flow rate</strong></td>
<td>3.3 m³/h (air) with Δp 5 mbar (0.5 kPa), regulated</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2), 0°C to +70°C for LPG (family 3)</td>
</tr>
<tr>
<td><strong>Design lifetime</strong></td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB) depending on the time/temperature profile</td>
</tr>
<tr>
<td><strong>Automatic shut-off valves</strong></td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Pressure regulator</strong></td>
<td>Class C</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>Opening time</strong></td>
<td>Fast-opening &lt; 1 s</td>
</tr>
<tr>
<td><strong>Closing time</strong></td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td><strong>ON time</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Voltage / frequency / activation</strong></td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red), 230 V RAC / 50/60 Hz / separate (coil color: black), 120 V RAC / 50/60 Hz / simultaneous (coil color: yellow), 120 V RAC / 50/60 Hz / separate (coil color: orange), 24 V RAC / 50/60 Hz / simultaneous (coil color: grey), 24 V RAC / 50/60 Hz / separate (coil color: blue), 24 V DC / simultaneous (coil color: green)</td>
</tr>
<tr>
<td><strong>Coil load (24 V, 230 V)</strong></td>
<td>2 x 5.5 VA</td>
</tr>
<tr>
<td><strong>Electrical data of modulator GB-M</strong></td>
<td>Max. operating voltage (DC) 28 V, Max. operating current 165 mA, Resistance at +20°C 125 Ω</td>
</tr>
<tr>
<td><strong>Electrical data of modulator GB-Z</strong></td>
<td>Operating voltage 230 V AC Operation with ebm-papst plug only, Resistance at +20°C 9800 Ω</td>
</tr>
<tr>
<td><strong>Electrical hookup</strong></td>
<td>Coil connection Molex system or connection box with integrated cable Modulator connection 6.3 x 0.8 mm flat push-on receptacles</td>
</tr>
<tr>
<td><strong>Optional equipment</strong></td>
<td>Electrical connections in RAST 5, Combustion controller MPA 109x, Gas pressure monitor GW…A5</td>
</tr>
<tr>
<td><strong>Installation position</strong></td>
<td>Coil from vertically upright to horizontal, Coil facing downwards not permissible</td>
</tr>
<tr>
<td><strong>Maximum installation elevation</strong></td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
Technology

Multifunctional gas control as per EN 126 with electromagnetically influenced control element for modulating or two-stage operation:
- Modulator with adjustable minimum and maximum limitation
- Ignition gas optional
- Constant air flow thanks to pressure regulator with servo-controller
- Maximum operating pressure 65 mbar (6.5 kPa)
- Different device versions possible depending on application

Application

- For gas heating boilers and hot air generators with fan-assisted burners and premixing burners.
- Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
# GasBloc Multifunctional gas control

## Electric modulation
**GB-M(P) 057 D01**

## Two-stage operation
**GB-(LEP)Z 057 D01**

### Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>B-emagnetically influenced servo</th>
<th>Two-stage servo</th>
<th>Valve class acc. to EN 161 V1</th>
<th>Valve class acc. to EN 161 V1</th>
<th>Minimum modulator current (mA)</th>
<th>Maximum modulator current (mA)</th>
<th>Two-stage actuation 230 V AC</th>
<th>Min. and max. burner pressure, adjustable</th>
<th>Ignition gas connection</th>
<th>Gas pressure monitor</th>
<th>Socket</th>
<th>MPA, 10 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-M 057 D01</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>50</td>
<td>165</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
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<tr>
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<td>B</td>
<td>50</td>
<td>165</td>
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</tr>
<tr>
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<td>●</td>
<td>B</td>
<td>B</td>
<td>●</td>
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<td>●</td>
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<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Key**
- ● = Standard
- ○ = Optional
- } = Not available

### GasBloc type key

- **GB-XXXXX XXX XXX SXX**

  - Actuation of V1 and V2
    - 0 = Joint
    - 2 = Separate
  - Outlet pressure
    - 0 = 0 mbar, up to 65 mbar
    - 2 = 1.5 – 20 mbar, up to 65 mbar
    - 4 = 3 – 40 mbar, up to 65 mbar
  - S = Series production (not type-specific)
  - Gas train schematic diagram
    - 1 = Two B-valves with servo pressure regulator
    - 2 = Two B-valves without servo pressure regulator
  - Valve design
    - 0 = Double safety valve
    - 1 = Single safety valve, right corner
    - 2 = Single safety valve, straight
  - Design type (generation): D, E, F
  - Size
    - Nominal diameter
      - 05 = $p_{\text{max}} = 65$ mbar
      - 3 = Rp 1/4
      - 5 = Rp 1/2
      - 7 = Rp 3/4
  - Opening behavior and main flow throttle
    - Without = Fast-opening, fast-closing
    - L = Slow-opening
    - m = Adjustable start gas
    - P = Pilot gas connection
    - G = Gas-air composite system
    - D = Main flow setting
    - N = Zero pressure regulator
    - M = Electric modulation
    - W = WhirlWind version
    - Z = Two-stage

---

**Data sheet**

**GasBloc Multifunctional gas control**

**Electric modulation** **GB-M(P) 057 D01**

**Two-stage operation** **GB-(LEP)Z 057 D01**

**Combinations**

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<tr>
<th>Product</th>
<th>B-emagnetically influenced servo</th>
<th>Two-stage servo</th>
<th>Valve class acc. to EN 161 V1</th>
<th>Valve class acc. to EN 161 V1</th>
<th>Minimum modulator current (mA)</th>
<th>Maximum modulator current (mA)</th>
<th>Two-stage actuation 230 V AC</th>
<th>Min. and max. burner pressure, adjustable</th>
<th>Ignition gas connection</th>
<th>Gas pressure monitor</th>
<th>Socket</th>
<th>MPA, 10 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-M 057 D01</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>50</td>
<td>165</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>GB-MP 057 D01</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>50</td>
<td>165</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>GB-Z 057 D01</td>
<td>●</td>
<td>B</td>
<td>B</td>
<td>●</td>
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<td>●</td>
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<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Key**
- ● = Standard
- ○ = Optional
- } = Not available

**GasBloc type key**

- **GB-XXXXX XXX XXX SXX**

  - Actuation of V1 and V2
    - 0 = Joint
    - 2 = Separate
  - Outlet pressure
    - 0 = 0 mbar, up to 65 mbar
    - 2 = 1.5 – 20 mbar, up to 65 mbar
    - 4 = 3 – 40 mbar, up to 65 mbar
  - S = Series production (not type-specific)
  - Gas train schematic diagram
    - 1 = Two B-valves with servo pressure regulator
    - 2 = Two B-valves without servo pressure regulator
  - Valve design
    - 0 = Double safety valve
    - 1 = Single safety valve, right corner
    - 2 = Single safety valve, straight
  - Design type (generation): D, E, F
  - Size
    - Nominal diameter
      - 05 = $p_{\text{max}} = 65$ mbar
      - 3 = Rp 1/4
      - 5 = Rp 1/2
      - 7 = Rp 3/4
  - Opening behavior and main flow throttle
    - Without = Fast-opening, fast-closing
    - L = Slow-opening
    - m = Adjustable start gas
    - P = Pilot gas connection
    - G = Gas-air composite system
    - D = Main flow setting
    - N = Zero pressure regulator
    - M = Electric modulation
    - W = WhirlWind version
    - Z = Two-stage
Description of main components

Pressure regulator and modulator: The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. The nozzle pressure can be regulated by actuating an electric modulator between an adjustable maximum and minimum value. With two-stage operation, actuation switches between the maximum and minimum value.

Safety valves: Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

Safety valve operating modes:
- Mode 1 – without ignition gas
  Safety valves V1 and V2 can be actuated and opened jointly or separately.
- Mode 2 – with ignition gas
  Safety valves V1 and V2 are opened separately and actuated separately. Ignition gas outlet enabled, V1 opens. When flame is lit, enabling takes place and V2 opens.

Dirt trap: Fine-meshed strainer to protect the fitting.

Gas pressure monitor (optional): Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

Ignition gas: Ignition gas connection between the safety valves V1 and V2

Pressure test nipple: On inlet and outlet side

Block diagram of GB-M(P) 057 D01
Data sheet
GasBloc Multifunctional gas control

Electric modulation GB-M(P) 057 D01
Two-stage operation GB-(LEP)Z 057 D01

Current/pressure curve GB-M(LEP) 057 D01

for GB-(LEP)Z 057 D01: on/off only

Adjusting device
Data sheet
GasBloc Multifunctional gas control

Electric modulation GB-M(P) 057 D01
Two-stage operation GB-(LEP)Z 057 D01

Engineering drawing

Electrical hookup:
Standard: Molex Crimp 3001 system
Optional: Box with cable connection IP40

Dimensions in mm.

Air flow/pressure gradient curve GB-M(P) 057 D01 / GB-(LEP)Z 057 D01

Recommended operating range
Conditions +12°C, p=1013mbar

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## Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal diameter</strong></td>
<td>DN 15</td>
</tr>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 3/4 ISO 7/1</td>
</tr>
<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 3/4 ISO 7/1 internal</td>
</tr>
<tr>
<td><strong>Ignition gas connection</strong></td>
<td>M8 x 1; dia. 4 mm</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
</tbody>
</table>
| **Controller outlet pressure range**             | 1.5 mbar (0.15 kPa) up to 20 mbar (2.0 kPa) with natural gas  
2.0 mbar (0.20 kPa) up to 37 mbar (3.7 kPa) with LPG  
$p_{2\text{max}} - p_{2\text{min}} \geq 3$ mbar (0.3 kPa) |
| **Nominal flow rate**                            | $5.3 \text{ m}^3/\text{h}$ (air) with $\Delta p 5 \text{ mbar}$ (0.5 kPa), regulated |
| **Ambient temperature range**                    | $-15^\circ \text{C}$ to $+$70$^\circ \text{C}$ for town or natural gas (family 1 and 2)  
$0^\circ \text{C}$ to $+$70$^\circ \text{C}$ for LPG (family 3) |
| **Design lifetime**                              | 500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB)  
depending on the time/temperature profile |
| **Automatic shut-off valves**                    | Class B in accordance with EN 126            |
| **Group**                                        | 2                                            |
| **Pressure regulator**                           | Class C                                      |
| **Degree of protection**                         | IP 40                                        |
| **Opening time**                                 | Fast-opening $< 1$ s                         |
| **Closing time**                                 | $< 1$ s                                      |
| **ON time**                                      | 100%                                         |
| **Voltage / frequency / activation**             | $230 \text{ V RAC} / 50/60 \text{ Hz}$ / simultaneous (coil color: red)  
$230 \text{ V RAC} / 50/60 \text{ Hz}$ / separate (coil color: black)  
$120 \text{ V RAC} / 50/60 \text{ Hz}$ / simultaneous (coil color: yellow)  
$120 \text{ V RAC} / 50/60 \text{ Hz}$ / separate (coil color: orange)  
$24 \text{ V RAC} / 50/60 \text{ Hz}$ / simultaneous (coil color: grey)  
$24 \text{ V RAC} / 50/60 \text{ Hz}$ / separate (coil color: blue)  
$24 \text{ V DC}$ / simultaneous (coil color: green) |
| **Coil load (24 V, 230 V)**                      | $2 \times 12.5 \text{ VA}$                   |
| **Electrical data of modulator GB-M**            | Max. operating voltage (DC) 28 V  
Max. operating current 165 mA  
Resistance at $+20^\circ \text{C}$ 125 $\Omega$ |
| **Electrical data of modulator GB-Z**            | Operating voltage 230 V AC  
Operation with ebm-papst plug only  
Resistance at $+20^\circ \text{C}$ 9,800 $\Omega$ |
| **Electrical hookup**                            | Coil connection Molex system or connection box with integrated cable  
Modulator connection 6.3 x 0.8 mm flat push-on receptacles |
| **Optional equipment**                           | Electrical connections in RAST 5  
Combustion controller MPA 109x  
Gas pressure monitor GW...A5 |
| **Installation position**                        | Coil from vertically upright to horizontal.  
Coil facing downwards not permissible |
| **Maximum installation elevation**               | 2,000 m above sea level (EN 60664-1)         |
| **Pollution degree**                             | 2 (EN 60730-1)                               |
Data sheet
GasBloc Multifunctional gas control

GB-WND 055 D01 with WhirlWind as well as control and safety function

Technology

Multifunctional gas control with high power density based on ebmpapst zero pressure multifunctional control GB-ND 055 D01 as per EN 126 for modulating or multi-stage operation:

- Composite pneumatic system with zero pressure mode and integrated signal amplification
- Modulation range up to 1:10 breaks up flow pattern and reduces resonance
- Offset correction of gas-air ratio at servo-controller
- Limitation of maximum flow by throttle with low hysteresis, no nozzle change on switching to other gas families
- Inlet pressure up to max. 65 mbar (6.5 kPa)
- Adaptation of system components permits optimization for specific application and design conditions. Left and right design of the valve possible.

Application

- For premixing burners and fan-assisted burners.
- Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
Data sheet
GasBloc Multifunctional gas control

GB-WND 055 D01 with WhirlWind as well as control and safety function

Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Zero pressure servo-controller</th>
<th>Valve class (acc. to EN 615) V1</th>
<th>Valve class (acc. to EN 615) V2</th>
<th>Maximum throttle</th>
<th>Offset correction</th>
<th>Deflection insert for signal amplification</th>
<th>Blower adapter</th>
<th>Dirt trap</th>
<th>Gas pressure</th>
<th>Socket</th>
<th>MPA option</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-WND 055 D01</td>
<td></td>
<td>B</td>
<td>B</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key
- **Standard**
- **Optional**
- **Not available**

GasBloc type key

- **GB-XXXXXX XXX XXX SXX**

- Actuation of V1 and V2
  - 0 = Joint
  - 2 = Separate

- Outlet pressure / Inlet pressure
  - 0 = 0 mbar up to 65 mbar
  - 2 = 1.5 – 20 mbar up to 65 mbar
  - 4 = 3 – 40 mbar up to 65 mbar

- S = Series production (not type-specific)

- Gas train schematic diagram
  - 1 = Two B-valves with servo pressure regulator
  - 2 = Two B-valves without servo pressure regulator

- Valve design
  - 0 = Double safety valve
  - 1 = Single safety valve, right corner
  - 2 = Single safety valve, straight

- Design type (generation): D, E, F

- Size
  - Nominal diameter
    - 05 = p\(_{max}\) = 65 mbar
    - 3 = Rp 1¼
    - 5 = Rp 1½
    - 7 = Rp 3¼

- Opening behavior and main flow throttle
  - Without = Fast-opening, fast-closing
  - L = Slow-opening
  - E = Adjustable start gas
  - P = Pilot gas connection
  - G = Gas-air composite system
  - D = Main flow setting
  - N = Zero pressure regulator
  - M = Electric modulation
  - W = WhirlWind version
  - Z = Two-stage

GasBloc
**Description of main components**

**Valve and pressure regulator:** The valve can be optionally supplied with side outlet to the left or right. This permits optimum adaptation of the WhirlWind system to the design conditions of the application. The pressure regulator with servo pressure regulator provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. The servo-controller regulates the nozzle pressure at the valve outlet to zero depending on the vacuum generated.

**Safety valves:** Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

**Side cover with nozzle:** Side-mounted cover plate between valve and deflection insert for supply air routing and sound insulation. The nozzle is held between valve and cover plate and can be exchanged for switching between gas families if required.

**Dirt trap:** Fine-meshed strainer to protect the fitting.

**Gas pressure monitor (optional):** Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

**Deflection insert:** The integrated deflection insert provides two-stage cascaded signal amplification and permits reliable operation over a modulation range of up to 1:10. In addition, the specially designed guide blades break up flow patterns and prevent resonance.

**Blower adapter:** Forms the interface with the selected blower and ensures defined flow conditions at the inlet as well as design flexibility with regard to the valve/blower arrangement.

**Air/differential pressure monitor (optional):** The system offers the option of connecting an air or differential pressure monitor for monitoring the blower function. The air or differential pressure monitor can be pre-set to suit customer requirements and sealed.

**Pressure test nipple:** On inlet and outlet side

**Safety valve operating modes:** Safety valves V1 and V2 can be actuated and opened either jointly or separately.
GasBloc Multifunctional gas control

GB-WND 055 D01 with WhirlWind as well as control and safety function

Block diagram of GB-WND 055 D01

Key

1. Dirt trap, strainer
2. Housing
3. Safety valve V1
4. Closing spring V1
5. Armature V1
6. Test nipple
7. Solenoid V1
8. Safety valve V2
9. Main flow throttle
10. Solenoid V2
11. Working diaphragm
12. Return spring
13. Operating valve
14. Electrical hookup
15. Servo pressure regulator
16. Nozzle
17. Deflection insert
18. Blower adapter
19. Side cover

Setting instructions – offset, CO₂ curve and adjustment device GB-WND 055 D01

Setting

- Offset correction by way of adjusting screw at servo-controller
- Maximum flow by way of throttling screw

Offset correction adjustment range:
± 20 Pa (± 0.2 mbar)

CO₂ curve

<table>
<thead>
<tr>
<th>CO₂ [%]</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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<tbody>
<tr>
<td>Emissions</td>
<td>[ ]</td>
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<td>[ ]</td>
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<td>[ ]</td>
<td>[ ]</td>
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</tr>
</tbody>
</table>

Setting by offset adjustment
Setting by main flow throttle

Adjusting device

Pressure test nipple P₂
Offset adjustment
Pressure regulator

GasBloc Multifunctional gas control

GB-WND 055 D01 with WhirlWind as well as control and safety function

**Engineering drawing**

- Integrated venturi
- 2nd signal amplification
- Helical blades
- 1st signal amplification
- Molex Crimp 3001 system
- Box with cable connection IP40

**Electrical hookup:**
- Standard:
- Optional:

**Dimensions in mm.**

Sealing surface

4 x M4 – 7 deep
GB-WND 055 D01 with WhirlWind as well as control and safety function

**Air flow/pressure gradient curve GB-WND 055 D01**

Permissible deviation
Controller class C

\[ p_2 \pm 10\% \text{ in accordance with EN 126} \]
## Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal diameter</strong></td>
<td>DN 15</td>
</tr>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 1/2 ISO 7/1 G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 1/2 ISO 7/1 internal G 3/4 DIN ISO 228 external</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td><strong>Nominal flow rate</strong></td>
<td>7.2 m³/h (air) with Δp 30 mbar (3.0 kPa), regulated</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2) 0°C to +70°C for LPG (family 3)</td>
</tr>
<tr>
<td><strong>Design lifetime</strong></td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB) depending on the time/temperature profile</td>
</tr>
<tr>
<td><strong>Automatic shut-off valves</strong></td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Pressure regulator</strong></td>
<td>Class C</td>
</tr>
<tr>
<td><strong>Proportional adjustment range V</strong></td>
<td>$V = \frac{p_{\text{Gas}}}{p_{\text{Air}}} = 0.45-1$</td>
</tr>
<tr>
<td><strong>Minimum signal pressure</strong></td>
<td>0.3 mbar (0.03 kPa) with $\Delta p_{\text{offset}} = 0$ Pa</td>
</tr>
<tr>
<td><strong>Offset correction</strong></td>
<td>± 0.2 mbar (0.02 kPa)</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>Opening time</strong></td>
<td>Fast-opening &lt; 1 s</td>
</tr>
<tr>
<td><strong>Closing time</strong></td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td><strong>ON time</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Voltage / frequency / activation</strong></td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red) 230 V RAC / 50/60 Hz / separate (coil color: black) 120 V RAC / 50/60 Hz / simultaneous (coil color: yellow) 120 V RAC / 50/60 Hz / separate (coil color: orange) 24 V RAC / 50/60 Hz / simultaneous (coil color: grey) 24 V RAC / 50/60 Hz / separate (coil color: blue) 24 V DC / simultaneous (coil color: green)</td>
</tr>
<tr>
<td><strong>Coil load (24 V, 230 V)</strong></td>
<td>2 x 5.5 VA</td>
</tr>
<tr>
<td><strong>Electrical hookup</strong></td>
<td>Coil connection Molex system or connection box with integrated cable</td>
</tr>
<tr>
<td><strong>Optional equipment</strong></td>
<td>Electrical connections in RAST 5 Combustion controller MPA 109x Air pressure monitor LGW…A1 or A2</td>
</tr>
<tr>
<td><strong>Installation position</strong></td>
<td>Coil from vertically upright to horizontal. Coil facing downwards not permissible</td>
</tr>
<tr>
<td><strong>Maximum installation elevation</strong></td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
Data sheet
GasBloc Multifunctional gas control

GB-WND 057 D01 with WhirlWind as well as control and safety function

Technology

Multifunctional gas control with high power density based on ebmpapst zero pressure multifunctional control GB-ND 057 D01 as per EN 126 for modulating or multi-stage operation:

- Composite pneumatic system with zero pressure mode and integrated signal amplification
- Modulation range up to 1:10 breaks up flow pattern and reduces resonance
- Offset correction of gas-air ratio at servo-controller
- Limitation of maximum flow by throttle with low hysteresis, no nozzle change on switching to other gas families
- Inlet pressure up to max. 65 mbar (6.5 kPa)
- Adaptation of system components permits optimization for specific application and design conditions. Left and right design of the valve possible.

Application

For premixing burners and fan-assisted burners.
Suitable for gases as per EN 437 and other neutral combustion gases.

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.
CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
### Data sheet

**GasBloc Multifunctional gas control**

**GB-WND 057 D01 with WhirlWind as well as control and safety function**

#### Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Zero pressure servo-</th>
<th>Valve class (acc. to EN 161) V1</th>
<th>Valve class (acc. to EN 161) V2</th>
<th>Shockproofing</th>
<th>Deflection limit for</th>
<th>Blower adapter</th>
<th>Diff top</th>
<th>Gas pressure</th>
<th>Gas train schematic</th>
<th>Supply air collector</th>
<th>MPA 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-WND 057 D01</td>
<td></td>
<td>B</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### GasBloc type key

```
GB- XXXXX XXX XXX SXX
```

- **Actuation of V1 and V2**
  - 0 = Joint
  - 2 = Separate

- **Outlet pressure**
  - 0 = 0 mbar up to 65 mbar
  - 2 = 1.5 – 20 mbar up to 65 mbar
  - 4 = 3 – 40 mbar up to 65 mbar

- **Inlet pressure**
  - S = Series production (not type-specific)

- **Gas train schematic diagram**
  - 1 = Two B-valves with servo pressure regulator
  - 2 = Two B-valves without servo pressure regulator

- **Valve design**
  - 0 = Double safety valve
  - 1 = Single safety valve, right corner
  - 2 = Single safety valve, straight

- **Design type (generation): D, E, F**

- **Size**
  - Nominal diameter
    - 05 = p_max = 65 mbar
    - 3 = Rp 1/4
    - 5 = Rp 1/2
    - 7 = Rp 3/4

- **Opening behavior and main flow throttle**
  - Without = Fast-opening, fast-closing
  - L = Slow-opening
  - E = Adjustable start gas
  - P = Pilot gas connection
  - G = Gas-air composite system
  - D = Main flow setting
  - N = Zero pressure regulator
  - M = Electric modulation
  - W = WhirlWind version
  - Z = Two-stage

**GasBloc**
### Description of main components

**Valve and pressure regulator:** The pressure regulator with servo pressure regulator provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. The servo-controller regulates the nozzle pressure at the valve outlet to zero depending on the vacuum generated.

**Safety valves:** Safety valves in accordance with EN 161, class B. DC coils, protected against voltage peaks.

**Side cover with nozzle:** Cover plate between valve and deflection insert for supply air routing and sound insulation. The nozzle is held between valve and cover plate and can be exchanged for switching between gas families if required.

**Dirt trap:** Fine-meshed strainer to protect the fitting.

**Gas pressure monitor (optional):** Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

**Deflection insert:** The integrated deflection insert provides two-stage cascaded signal amplification and permits reliable operation over a modulation range of up to 1:10. In addition, the specially designed guide blades break up flow patterns and prevent resonance.

**Blower adapter:** Forms the interface with the selected blower and ensures defined flow conditions at the inlet as well as design flexibility with regard to the valve/blower arrangement.

**Air/differential pressure monitor (optional):** The system offers the option of connecting an air or differential pressure monitor for monitoring the blower function. The air or differential pressure monitor can be pre-set to suit customer requirements and sealed.

**Pressure test nipple:** On inlet and outlet side

**Safety valve operating modes:** Safety valves V1 and V2 can be actuated and opened either jointly or separately.
Data sheet
GasBloc Multifunctional gas control

GB-WND 057 D01 with WhirlWind as well as control and safety function

Block diagram of GB-WND 057 D01

Key
1  Dirt trap, strainer
2  Housing
3  Safety valve V1
4  Closing spring V1
5  Armature V1
6  Test nipple
7  Solenoid V1
8  Safety valve V2
9  Main flow throttle
10 Solenoid V2
11 Working diaphragm
12 Return spring
13 Operating valve
14 Electrical hookup
15 Servo pressure regulator
16 Nozzle
17 Deflection insert
18 Blower adapter
19 Side cover

Setting instructions – offset, CO₂ curve, adjustment device GB-WND 057 D01

Setting
- Offset correction by way of adjusting screw at servo-controller
- Maximum flow by way of throttling screw

Offset correction adjustment range:
± 20 Pa (± 0.2 mbar)

CO₂ curve

Offset by offset adjustment
Setting by main flow throttle

Adjusting device
Solenoid coils
Pressure test nipple P₁
Offset adjustment
Pressure regulator
Maximum throttle
Pressure test nipple P₂
GB-WND 057 D01 with WhirlWind as well as control and safety function

Engineering drawing

Electrical hookup:
Standard:
Molex Crimp 3001 system
Optional:
Box with cable connection IP40

Deflection insert GB-WND 057 D01

Integrated venturi
2nd signal amplification

Helical blades
1st signal amplification
Data sheet
GasBloc Multifunctional gas control

GB-WND 057 D01 with WhirlWind as well as control and safety function

**Air flow/pressure gradient curve GB-WND 057 D01**

Permissible deviation
Controller class C

\[ p_2 \pm 10\% \text{ in accordance with EN 126} \]
## Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal diameter</strong></td>
<td>DN 15</td>
</tr>
<tr>
<td><strong>Main gas connection (inlet)</strong></td>
<td>Rp 3/4    ISO 7/1</td>
</tr>
<tr>
<td><strong>Flanges with pipe thread</strong></td>
<td>Rp 3/4    ISO 7/1 internal</td>
</tr>
<tr>
<td><strong>Max. inlet pressure</strong></td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td><strong>Nominal flow rate</strong></td>
<td>15.4 m³/h (air) with Δp 30 mbar (3.0 kPa), regulated</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2)</td>
</tr>
<tr>
<td><strong>Design lifetime</strong></td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB) depending on the time/temperature profile</td>
</tr>
<tr>
<td><strong>Automatic shut-off valves</strong></td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Pressure regulator</strong></td>
<td>Class C</td>
</tr>
<tr>
<td><strong>Proportional adjustment range V</strong></td>
<td>$V = \frac{p_{\text{Gas}}}{p_{\text{Air}}} = 0.45-1$</td>
</tr>
<tr>
<td><strong>Minimum signal pressure</strong></td>
<td>0.3 mbar (0.03 kPa) with Δp_{\text{offset}} = 0 Pa</td>
</tr>
<tr>
<td><strong>Offset correction</strong></td>
<td>± 0.2 mbar (0.02 kPa)</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>Opening time</strong></td>
<td>Fast-opening &lt; 1 s</td>
</tr>
<tr>
<td><strong>Closing time</strong></td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td><strong>ON time</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Voltage / frequency / activation</strong></td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red)</td>
</tr>
<tr>
<td></td>
<td>230 V RAC / 50/60 Hz / separate (coil color: black)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / simultaneous (coil color: yellow)</td>
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<td></td>
<td>120 V RAC / 50/60 Hz / separate (coil color: orange)</td>
</tr>
<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / simultaneous (coil color: grey)</td>
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<tr>
<td></td>
<td>24 V RAC / 50/60 Hz / separate (coil color: blue)</td>
</tr>
<tr>
<td></td>
<td>24 V DC / simultaneous (coil color: green)</td>
</tr>
<tr>
<td><strong>Coil load (24 V, 230 V)</strong></td>
<td>2 x 12.5 VA</td>
</tr>
<tr>
<td><strong>Electrical hookup</strong></td>
<td>Coil connection Molex system or connection box with integrated cable</td>
</tr>
<tr>
<td><strong>Optional equipment</strong></td>
<td>Electrical connections in RAST 5</td>
</tr>
<tr>
<td></td>
<td>Combustion controller MPA 109x</td>
</tr>
<tr>
<td></td>
<td>Air pressure monitor LGW…A3</td>
</tr>
<tr>
<td></td>
<td>Supply air collector</td>
</tr>
<tr>
<td><strong>Installation position</strong></td>
<td>Coil from vertically upright to horizontal.</td>
</tr>
<tr>
<td></td>
<td>Coil facing downwards not permissible</td>
</tr>
<tr>
<td><strong>Maximum installation elevation</strong></td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td><strong>Pollution degree</strong></td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
## Technology
Multifunctional gas control as per EN 126 for modulating and multi-stage operation.
- Composite pneumatic system with air signal or zero pressure mode
- Offset correction of gas-air ratio at servo-controller
- Limitation of maximum flow by throttle
- Inlet pressure up to max. 65 mbar (6.5 kPa)
- Different device versions possible depending on application

## Application
- For premixing burners and fan-assisted burners
- Suitable for gases as per EN 437 and other neutral gaseous media

## Approvals
EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
GasBloc Multifunctional gas control

GB-GD 055 D01 for Gas-air composite system
GB-ND 055 D01 Zero pressure regulator

Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Servo pressure regulator</th>
<th>Valve class (acc. to EN 161) V1</th>
<th>Valve class (acc. to EN 161) V2</th>
<th>Gas-air regulator</th>
<th>Zero pressure regulator</th>
<th>Maximum throttle</th>
<th>Offset correction</th>
<th>Drift trap</th>
<th>Gas pressure monitor</th>
<th>Socket</th>
<th>MPA 105</th>
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<tbody>
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<tr>
<td>GB-ND 055 D01</td>
<td>B</td>
<td>B</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

GasBloc type key

GB- XXXXX XXX XXX SXX

- Adaption of V1 and V2
  0 = Joint
  2 = Separate

- Outlet pressure
  0 = 0 mbar up to 65 mbar
  2 = 1.5 – 20 mbar up to 65 mbar
  4 = 3 – 40 mbar up to 65 mbar

- S = Series production (not type-specific)

- Gas train schematic diagram
  1 = Two B-valves with servo pressure regulator
  2 = Two B-valves without servo pressure regulator

- Valve design
  0 = Double safety valve
  1 = Single safety valve, right corner
  2 = Single safety valve, straight

- Design type (generation): D, E, F

- Size
  05 = p_{max} = 65 mbar
  3 = Rp 1/4
  5 = Rp 1/2
  7 = Rp 3/4

- Opening behavior and main flow throttle
  Without = Fast-opening, fast-closing
  L = Slow-opening
  E = Adjustable start gas
  P = Pilot gas connection
  G = Gas-air composite system
  D = Main flow setting
  N = Zero pressure regulator
  M = Electric modulation
  W = WhirlWind version
  Z = Two-stage

- GasBloc

Description of main components

Pressure regulator: The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. With the gas-air composite system valve GB-GD 055, the nozzle pressure follows the signal pressure applied to the servo-diaphragm in a ratio of 1:1. The zero pressure valve GB-ND regulates the nozzle pressure at the valve outlet to zero depending on the vacuum generated.

Safety valves: In accordance with EN161, class B. DC coils, protected against voltage peaks

Safety valve operating modes: Safety valves V1 and V2 can be actuated and opened jointly or separately.

Dirt trap: Fine-meshed strainer to protect the fitting.

Gas pressure monitor (optional): Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

Pressure test nipple: On inlet and outlet side
**Data sheet**

**GasBloc Multifunctional gas control**

**GB-GD 055 D01 for Gas-air composite system**

**GB-ND 055 D01 Zero pressure regulator**

---

**Block diagram of GB-GD 055 D01/GB-ND 055 D01**

**Key**

1. Dirt trap, strainer
2. Housing
3. Safety valve V1
4. Closing spring V1
5. Armature V1
6. Test nipple
7. Solenoid V1
8. Safety valve V2
9. Main flow throttle
10. Solenoid V2
11. Working diaphragm
12. Return spring
13. Operating valve
14. Electrical hookup
15. Servo pressure regulator
16. Connection for signal

---

**Setting instructions – offset and gas-air ratio**

**Setting**

– Offset correction by way of adjusting screw at servo-controller
– Maximum flow by way of throttling screw

**GB-ND adjustment range**

(Zero pressure)

Offset correction ± 20 Pa (± 0.2 mbar)

**GB-GD adjustment range**

(Gas-air ratio)

Offset correction ± 20 Pa (± 0.2 mbar)

---

**Adjusting device**
Data sheet
GasBloc Multifunctional gas control

GB-GD 055 D01 for Gas-air composite system
GB-ND 055 D01 Zero pressure regulator

Engineering drawing

Electrical hookup:
Standard:
Molex Crimp 3001 system
Optional:
Box with cable connection IP40

Air flow/pressure gradient curve (GB-…055 D01 – pneumatic in accordance with DIN EN 126)

Dimensions in mm.
# Data sheet

## GasBloc Multifunctional gas control

GB-GD 055 D01 for Gas-air composite system  
GB-ND 055 D01 Zero pressure regulator

## Technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal diameter</td>
<td>DN 15</td>
</tr>
<tr>
<td>Main gas connection (inlet)</td>
<td>Rp 1/2 ISO 7/1</td>
</tr>
<tr>
<td></td>
<td>G 3/4 DIN ISO 228</td>
</tr>
<tr>
<td></td>
<td>Rp 1/2 ISO 7/1</td>
</tr>
<tr>
<td></td>
<td>G 3/4 DIN ISO 228</td>
</tr>
<tr>
<td>Flanges with pipe thread</td>
<td>Rp 1/2 ISO 7/1</td>
</tr>
<tr>
<td></td>
<td>G 3/4 DIN ISO 228</td>
</tr>
<tr>
<td>Max. inlet pressure</td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td>Nominal flow rate GB-GD 055</td>
<td>3.3 m³/h (air)</td>
</tr>
<tr>
<td></td>
<td>with Δp 5 mbar (0.5 kPa), regulated</td>
</tr>
<tr>
<td>Nominal flow rate GB-ND 055</td>
<td>7.2 m³/h (air)</td>
</tr>
<tr>
<td></td>
<td>with Δp 30 mbar (3.0 kPa), regulated</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-15°C to +70°C for town or natural gas (family 1 and 2)</td>
</tr>
<tr>
<td></td>
<td>0°C to +70°C for LPG (family 3)</td>
</tr>
<tr>
<td>Design lifetime</td>
<td>500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB) depending on the time/temperature profile</td>
</tr>
<tr>
<td>Automatic shut-off valves</td>
<td>Class B in accordance with EN 126</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
</tr>
<tr>
<td>Pressure regulator</td>
<td>Class C</td>
</tr>
<tr>
<td>Proportional adjustment range V</td>
<td>( V = p_{\text{Gas}} - p_{\text{Air}} = 0.45-1 )</td>
</tr>
<tr>
<td>Minimum signal pressure</td>
<td>0.3 mbar with Δp_{\text{Offset}} = 0 Pa</td>
</tr>
<tr>
<td>Offset correction</td>
<td>± 0.2 mbar (0.02 kPa)</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 40</td>
</tr>
<tr>
<td>Opening time</td>
<td>Fast-opening &lt; 1 s</td>
</tr>
<tr>
<td>Closing time</td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td>ON time</td>
<td>100%</td>
</tr>
<tr>
<td>Voltage / frequency / activation</td>
<td>230 V RAC / 50/60 Hz / simultaneous (coil color: red)</td>
</tr>
<tr>
<td></td>
<td>230 V RAC / 50/60 Hz / separate (coil color: black)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / simultaneous (coil color: yellow)</td>
</tr>
<tr>
<td></td>
<td>120 V RAC / 50/60 Hz / separate (coil color: orange)</td>
</tr>
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<td>Electrical hookup</td>
<td>Coil connection Molex system or connection with integrated cable</td>
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<td>Combustion controller MPA 109x</td>
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<td>Installation position</td>
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<td>Coil facing downwards not permissible</td>
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<tr>
<td>Maximum installation elevation</td>
<td>2,000 m above sea level (EN 60664-1)</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2 (EN 60730-1)</td>
</tr>
</tbody>
</table>
Data sheet
GasBloc Multifunctional gas control

GB-GD 057 D01 for Gas-air composite system
GB-ND 057 D01 Zero pressure regulator

Technology

Multifunctional gas control as per EN 126 for modulating and multi-stage operation.
- Composite pneumatic system with air signal or zero pressure mode
- Offset correction of gas-air ratio at servo-controller
- Limitation of maximum flow by throttle
- Inlet pressure up to max. 65 mbar (6.5 kPa)
- Different device versions possible depending on application

Application

- For premixing burners and fan-assisted burners.
- Suitable for gases as per EN 437 and other neutral gaseous media

Approvals

EU prototype test certificate in accordance with EU gas appliance regulation.

CE-0085 CM 0036
CSA 240 9198

Approvals in other important gas-consuming countries.
Data sheet
GasBloc Multifunctional gas control

GB-GD 057 D01 for Gas-air composite system
GB-ND 057 D01 Zero pressure regulator

Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Valve class (acc. to EN 161) V1</th>
<th>Valve class (acc. to EN 161) V2</th>
<th>Gas-air regulator</th>
<th>Safety valves</th>
<th>Dirt trap</th>
<th>Gas pressure monitor</th>
<th>Socket</th>
<th>MPA 10s</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-GD 057 D01</td>
<td>B</td>
<td>B</td>
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</tr>
</tbody>
</table>

GasBloc type key

GB-XXXXX XXX XXX XXX

Adaption of V1 and V2
0 = Joint
2 = Separate

Outlet pressure
0 = 0 mbar up to 65 mbar
2 = 1.5 – 20 mbar up to 65 mbar
4 = 3 – 40 mbar up to 65 mbar

S = Series production (not type-specific)

Gas train schematic diagram
1 = Two B-valves with servo pressure regulator
2 = Two B-valves without servo pressure regulator

Valve design
0 = Double safety valve
1 = Single safety valve, right corner
2 = Single safety valve, straight

Design type (generation): D, E, F

Size
05 = Pmax = 65 mbar
3 = Rp 1/4
5 = Rp 1/2
7 = Rp 3/4

Opening behavior and main flow throttle
Without = Fast-opening, fast-closing
L = Slow-opening
E = Adjustable start gas
P = Pilot gas connection
G = Gas-air composite system
D = Main flow setting
N = Zero pressure regulator
M = Electric modulation
W = WhirlWind version
Z = Two-stage

Description of main components

Pressure regulator: The pressure regulator with servo-controller provides compensation for pressure fluctuations in the supply network. This ensures a uniform air flow with constant nozzle pressure. With the gas-air composite system valve GB-GD 057, the nozzle pressure follows the signal pressure applied to the servo-diaphragm in a ratio of 1:1. The zero pressure valve GB-ND regulates the nozzle pressure at the valve outlet to zero depending on the vacuum generated.

Safety valves: In accordance with EN161, class B. DC coils, protected against voltage peaks

Safety valve operating modes: Safety valves V1 and V2 can be actuated and opened jointly or separately.

Dirt trap: Fine-meshed strainer to protect the fitting.

Gas pressure monitor (optional): Monitors the inlet-side gas pressure to guard against gas failure. The pressure monitor can be pre-set to suit customer requirements and sealed.

Pressure test nipple: On inlet and outlet side
Data sheet
GasBloc Multifunctional gas control

GB-GD 057 D01 for Gas-air composite system
GB-ND 057 D01 Zero pressure regulator

Block diagram of GB-GD 057 D01/GB-ND 05 D01

Key
1  Dirt trap, strainer
2  Housing
3  Safety valve V1
4  Closing spring V1
5  Armature V1
6  Test nipple
7  Solenoid V1
8  Safety valve V2
9  Main flow throttle
10 Solenoid V2
11 Working diaphragm
12 Return spring
13 Operating valve
14 Electrical hookup
15 Servo pressure regulator
16 Connection for signal (GB-GD only)

Setting instructions – offset and gas-air ratio

Setting:
- Offset by way of adjusting screw at servo-controller
- Maximum flow by way of main flow throttling screw

GB-ND adjustment range (zero pressure)
Offset correction ± 20 Pa (± 0.2 mbar)

GB-GD adjustment range (gas-air ratio)
Offset correction ± 20 Pa (± 0.2 mbar)
GasBloc Multifunctional gas control

GB-GD 057 D01 for Gas-air composite system
GB-ND 057 D01 Zero pressure regulator

Engineering drawing

Dimensions in mm.

Electrical hookup:
Standard:
Molex Crimp 3001 system
Optional:
Box with cable connection IP40

Air flow/pressure gradient curve (GB-…057 D01 – pneumatic in accordance with DIN EN 126)
**GasBloc Multifunctional gas control**

**GB-GD 057 D01** for Gas-air composite system  
**GB-ND 057 D01** Zero pressure regulator

### Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal diameter</td>
<td>DN 15</td>
</tr>
<tr>
<td>Main gas connection (inlet)</td>
<td>Rp 3/4 ISO 7/1</td>
</tr>
<tr>
<td>Flanges with pipe thread</td>
<td>Rp 3/4 ISO 7/1 internal</td>
</tr>
<tr>
<td>Max. inlet pressure</td>
<td>65 mbar (6.5 kPa)</td>
</tr>
<tr>
<td>Nominal flow rate GB-GD 055</td>
<td>5.3 m³/h (air) with Δp 5 mbar (0.5 kPa), regulated</td>
</tr>
<tr>
<td>Nominal flow rate GB-ND 055</td>
<td>7.2 m³/h (air) with Δp 30 mbar (3.0 kPa), regulated</td>
</tr>
</tbody>
</table>
| Ambient temperature range                     | -15°C to +70°C for town or natural gas (family 1 and 2)  
  0°C to +70°C for LPG (family 3)               |
| Design lifetime                               | 500,000 cycles or 10 years in accordance with EN 126/EN161 (Afecor/VHB)  
  depending on the time/temperature profile   |
| Automatic shut-off valves                     | Class B in accordance with EN 126                  |
| Group                                         | 2                                                  |
| Pressure regulator                             | Class C                                           |
| Proportional adjustment range V               | $V = \frac{p_{\text{gas}}}{p_{\text{air}}} = 0.45$ |
| Minimum signal pressure                       | 0.3 mbar with Δ$p_{\text{offset}} = 0$ Pa          |
| Offset correction                              | ± 0.2 mbar (0.02 kPa)                              |
| Degree of protection                          | IP 40                                              |
| Opening time                                  | Fast-opening < 1 s                                 |
| Closing time                                  | < 1 s                                              |
| ON time                                       | 100%                                               |
| Voltage / frequency / activation               | 230 V RAC / 50/60 Hz / simultaneous (coil color: red)  
  230 V RAC / 50/60 Hz / separate (coil color: black)  
  120 V RAC / 50/60 Hz / simultaneous (coil color: yellow)  
  120 V RAC / 50/60 Hz / separate (coil color: orange)  
  24 V RAC / 50/60 Hz / simultaneous (coil color: grey)  
  24 V RAC / 50/60 Hz / separate (coil color: blue)  
  24 V DC / simultaneous (coil color: green)          |
| Coil load (24 V, 230 V)                       | 2 x 12.5 VA                                        |
| Electrical hookup                             | Coil connection Molex system or connection with integrated cable |
| Optional equipment                             | Electrical connections in RAST 5                   
  Combustion controller MPA 109x                  
  Gas pressure monitor GW...A5                    |
| Installation position                         | Coil from vertically upright to horizontal.        
  Coil facing downwards not permissible           |
| Maximum installation elevation                 | 2,000 m above sea level (EN 60664-1)               |
| Pollution degree                              | 2 (EN 60730-1)                                     |