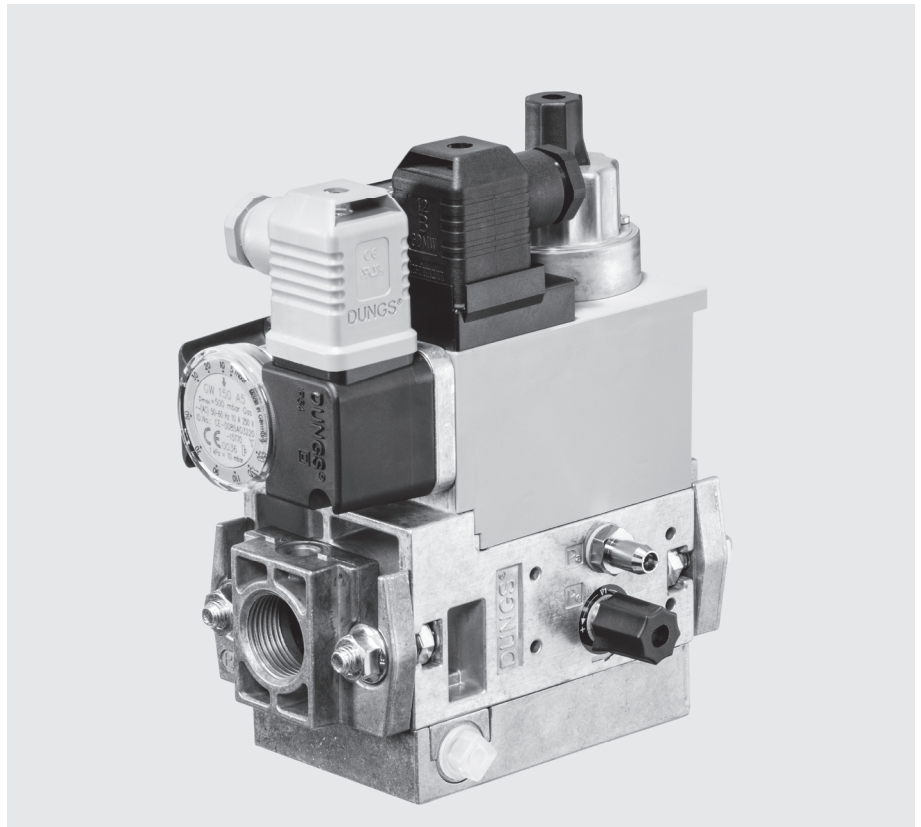


**GasMultiBloc®**  
**Combined regulator and**  
**safety shut-off valves**  
**Single-stage function**  
**Integrated bypass valve**

**DUNGS®**  
Combustion Controls

**MB-D(LE) 407 - 412 B07**

7.22



**Technical description**

The DUNGS GasMultiBloc® integrates filter, regulator, valves and pressure switches in one compact fitting.

- Dirt trap unit: Fine-mesh sieve
- One regulator, two main valves and one bypass valve: B07
- Two valves are fast opening, one valve is slow opening
- Solenoid valves up to 360 mbar (36 kPa) as per DIN EN 161 Class A Group 2
- Sensitive setting of output pressure by proportional regulator as per DIN EN 88 Class A Group 2
- High flow rates with low pressure drop
- DC solenoid drive interference degree N
- Main volume restrictor at valve V2, bypass restrictor at valve V3
- Hydraulic opening delay
- Flange connections with pipe threads as per ISO 7/1
- Simple mounting, compact, light-weight

The modular system permits individual solutions by using an internal bypass valve in connection with separately controlled valves, by adding a valve proving system, mini/maxi pressure switches, pressure limiters, limit switches at valve V2.

**Application**

The modular system permits individual solutions in gas safety and regulator engineering. Suitable for gases of families 1, 2, 3 and other neutral gaseous media.

**Approvals**

EU type testing certificate as per:

- EU-Gas Appliances Regulation
- EU-Pressure Equipment Directive

Approvals in other important gas consuming countries.

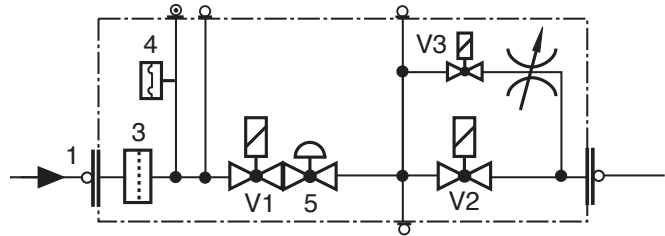
## Specifications

| Nominal diameters<br>Flange with pipe threads as per<br>ISO 7/1 (DIN 2999) | MB-...407 B07<br>Rp 1/2, 3/4<br>and their combinations   | MB-...410/412 B07<br>Rp 3/4, 1, 1 1/4<br>and their combinations                           |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
|--|--|---|------------------------|--|-----------------|--|------------------------|----|--------------|--------------|---------|------|--------------|--------------|------|--------|--------------|--------------|------|-------|--------------|--------------|---------|
| <b>Max. operating pressure</b>   | <b>360 mbar (36 kPa)</b>   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| <b>Output pressure ranges</b>  | <b>MB-... S22 p<sub>a</sub>: 4 mbar (0.4 kPa) to 20 mbar (2 kPa)</b><br><b>MB-... S52 p<sub>a</sub>: 4 mbar (0.4 kPa) to 50 mbar (5 kPa)</b>   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Media  | Gases of families 1, 2, 3 and other neutral gaseous media  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Ambient temperature  | -15 °C to +70 °C (Do not operate MB-D below 0 °C in liquid gas systems. Only suitable for gaseous liquid gas, liquid hydrocarbons destroy sealing materials.)  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Dirt trap  | Fine-mesh sieve. Replacement only possible by dismantling the fitting.   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Pressure switches  | Types GW A5, GW A2, NB A2, ÜB A2 mountable as per DIN EN 1854.<br>For further information, refer to Datasheet GW A2 No. 215 183 and Datasheet GW A5 No. 225 901.   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Pressure regulator   | Pressure regulator compensated for residual pressure, leakproof seal when switched off by means of valve V1 as per DIN EN 88 Class A. Setpoint spring permanently installed (no spring exchange possible). A vent line above roof is not required. Internal pulse tap provided.  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Solenoid valve V1  | Valve as per DIN EN 161 Class A Group 2, fast closing, fast opening  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Solenoid valve V2  | Valve as per DIN EN 161 Class A Group 2  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
|  | <table border="1"> <thead> <tr> <th></th> <th colspan="2">Valve V2 design</th> <th>Main volume restrictor</th> </tr> </thead> <tbody> <tr> <td>MB</td> <td>fast closing</td> <td>fast opening</td> <td>without</td> </tr> <tr> <td>MB-D</td> <td>fast closing</td> <td>fast opening</td> <td>with</td> </tr> <tr> <td>MB-DLE</td> <td>fast closing</td> <td>slow opening</td> <td>with</td> </tr> <tr> <td>MB-LE</td> <td>fast closing</td> <td>slow opening</td> <td>without</td> </tr> </tbody> </table> |   |                        |  | Valve V2 design |  | Main volume restrictor | MB | fast closing | fast opening | without | MB-D | fast closing | fast opening | with | MB-DLE | fast closing | slow opening | with | MB-LE | fast closing | slow opening | without |
|  | Valve V2 design  |   | Main volume restrictor |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| MB   | fast closing   | fast opening  | without                |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| MB-D   | fast closing   | fast opening  | with                   |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| MB-DLE   | fast closing   | slow opening  | with                   |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| MB-LE  | fast closing   | slow opening  | without                |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Solenoid valve V3 (bypass)   | Valve as per DIN EN 161 Class A Group 2, with volume restrictor  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Measuring/ignition gas connection  | For G 1/8 as per DIN ISO 228, refer to Pressure taps on page 4   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Burner pressure monitor p <sub>Br</sub>                                    | Connection downstream of valve V2, pressure switch mountable on adapter laterally  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Voltage / frequency  | 50-60 Hz ,220 - 230 V AC, -15% +10%  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Electrical connection  | Plug connection as per DIN EN 175301-803<br>for valves and pressure switches   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Rating/power consumption   | Refer on page 4  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Switch-on duration   | 100%   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Degree of protection   | IP 54 as per IEC 529 (EN 60529)  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Radio interference   | Interference degree N  |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Materials of gas conveying parts   | Housing<br>Diaphragms, seals<br>Solenoid drive   | aluminium die casting<br>NBR basis, Silopren (silicone rubber)<br>steel, brass, aluminium |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Installation position  | Solenoid vertically upright or lying horizontally as well as its intermediate positions.   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |
| Closed position signal contact   | Closed position signal contact, type K01/1 (DIN-tested), mountable on V2   |   |                        |  |                 |  |                        |    |              |              |         |      |              |              |      |        |              |              |      |       |              |              |         |

| Equipment variants<br>GasMultiBloc®...B07<br>Single-stage function | 407 B07 | 410 B07 | 412 B07 |  |
|--|---------|---------|---------|--|
| MB   | •       | •       | •       |  |
| MB-D   | •       | •       | •       |  |
| MB-DLE   | •       | •       | •       |  |
| MB-LE  | •       | •       | •       |  |
| Microfilter (standard) with sieve                                  | •       | •       | •       |  |
| Gas pressure switch<br>downstream of filter                        | •       | •       | •       |  |
| downstream of valve V2 on adapter                                  | •       | •       | •       |  |
| Pressure regulator   | •       | •       | •       |  |
| Valve V1, double seat  | •       | •       | •       |  |
| Valve V2, single seat  | —       | •       | —       |  |
| Valve V2, double seat  | •       | —       | •       |  |
| Valve V3, single seat with restrictor                              | •       | •       | •       |  |
| Valve opening separately   | •       | •       | •       | S...2 version  |
| Flange Rp 1/2  | •       | —       | —       | <ul style="list-style-type: none"> <li>• = possible</li> <li>(•) = on request</li> <li>- = not possible</li> </ul> |
| Rp 3/4   | •       | •       | •       |  |
| Rp 1   | —       | •       | •       |  |
| Rp 1 1/4   | —       | •       | •       |  |

### MB-...B07 version

- V1 = Valve 1
- V2 = Valve 2
- V3 = Valve 3
- 3 = Filter
- 4 = Pressure switch, optional
- 5 = Regulator



Mounting of VPS 504 valve proving system possible  
 Mounting of K01/1 closed position signal contact possible

### Type key of MultiBloc®

MB- XX XXX XX BOX SXX

#### Control of V1 and V2

0 = common  
2 = separated

**Outlet pressure**      **Inlet pressure**  
 2 = 4 - 20 mbar      up to 360 mbar  
 5 = 4 - 50 mbar      up to 360 mbar

#### S = Series (type-independent)

**Gas train schematic diagram**  
 1 = two A valves for main gas + regulator  
 7 = two A valves for main gas, one A valve together with V1 as internal bypass around V2 + regulator

#### Design type (generation) B

#### Construction size, nominal diameter

403 = DN 10, V2 = Single-seat valve  
 405 = DN 15, V2 = Single-seat valve  
 407 = DN 20, V2 = Double-seat valve  
 410 = DN 25, V2 = Single-seat valve  
 412 = DN 32, V2 = Double-seat valve  
 415 = DN 40, V2 = Double-seat valve  
 420 = DN 50, V2 = Double-seat valve

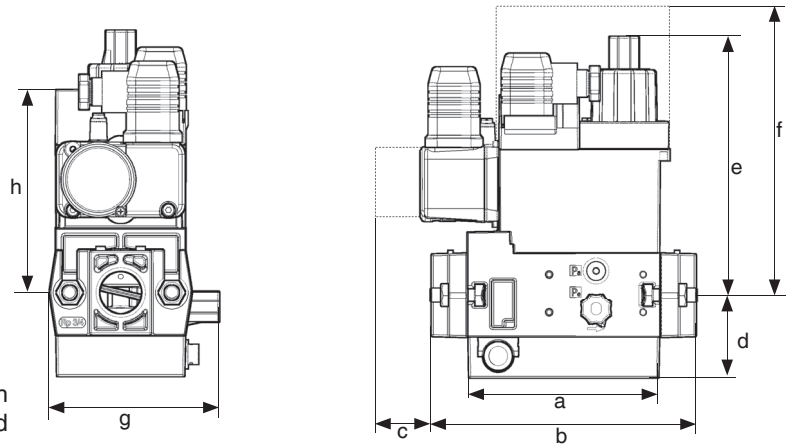
#### Opening behaviour + main volume restrictor

without = (MB or MB-ZR)  
 -D = Main volume restrictor  
 -LE = adjustable opening behaviour  
 -DLE = D + LE combination

without = single stage  
 ZR = double-stage with partial volume setting first stage

#### MultiBloc

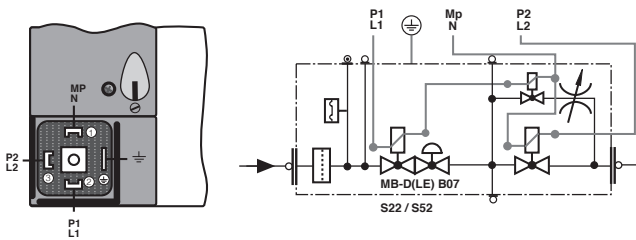
## Dimensions [mm]



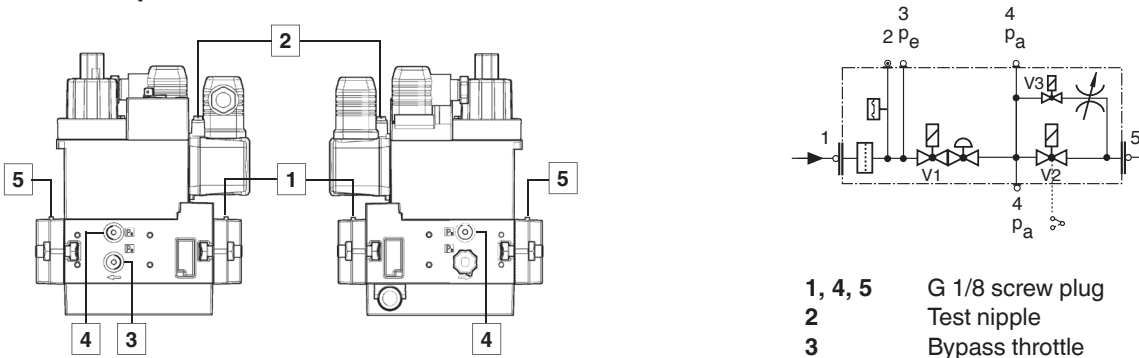
c = Space requirement for cover of pressure switch  
f = Space requirement for exchanging the solenoid

| Type                   | Nominal rating [VA]<br>~(AC) 230 V; +20°C |     | Dimensions [mm] |     |    |    |     |     |     |     | Weight [kg] |
|------------------------|---|-----|-----------------|-----|----|----|-----|-----|-----|-----|-------------|
|                        | S22                                       | S52 | a               | b   | c  | d  | e   | f   | g   | h   |             |
| MB-D 407 B07           | 46  | 46  | 110             | 151 | 40 | 46 | 100 | 185 | 104 | 115 | 2,7         |
| MB-DLE 407 B07         | 46  | 46  | 110             | 151 | 40 | 46 | 140 | 185 | 104 | 115 | 2,8         |
| MB-D 410 B07/412 B07   | 110                                       | 110 | 140             | 185 | 40 | 55 | 125 | 245 | 120 | 135 | 5,3         |
| MB-DLE 410 B07/412 B07 | 110                                       | 110 | 140             | 185 | 40 | 55 | 160 | 245 | 120 | 135 | 5,4         |

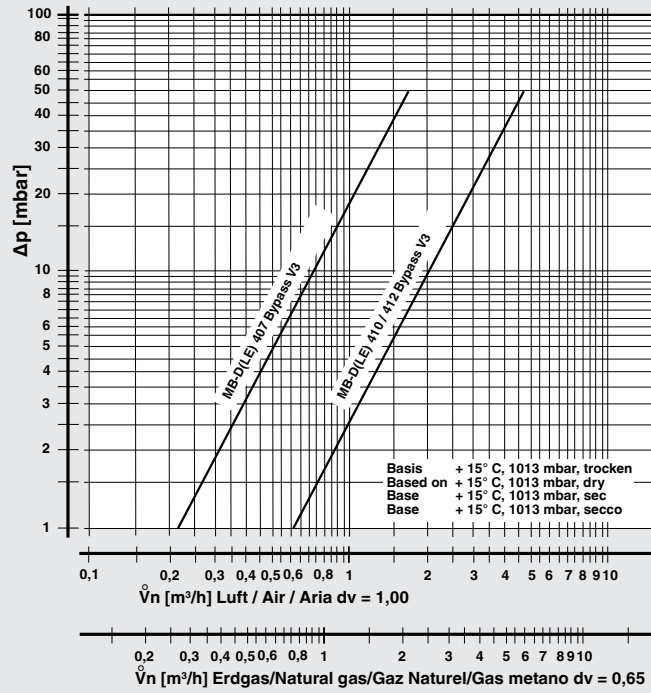
## Electrical connection



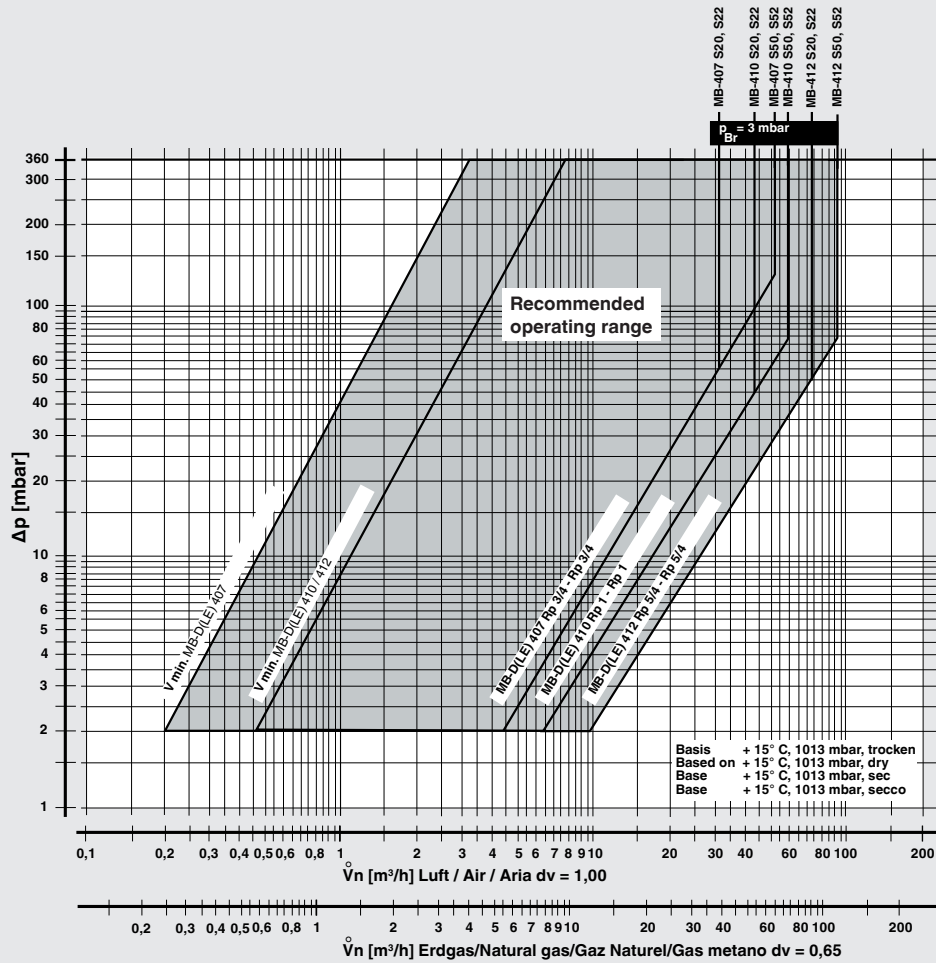
## Pressure taps



## Volumetric flow pressure loss characteristic via bypass valve V3, restrictor open



## Volumetric flow pressure loss characteristics in regulated state with fine-mesh sieve



f =

Dichte Luft  
Spec. weight air  
poids spécifique de l'air  
peso specifico aria

Dichte des verwendeten Gases  
Spec. weight of gas used  
poids spécifique du gaz utilisé  
peso specifico del gas utilizzato

| Gas type | Density [kg/m³] | dv   | f    |
|----------|-----------------|------|------|
| Nat. gas | 0.81            | 0.65 | 1.24 |
| City gas | 0.58            | 0.47 | 1.46 |
| LPG      | 2.08            | 1.67 | 0.77 |
| Air      | 1.24            | 1.00 | 1.00 |

$$\dot{V}_{\text{verwendetes Gas/gas used/ gaz utilisé/gas utilizzato}} = \dot{V}_{\text{Luft/air/aria}} \times f$$

**GasMultiBloc®**  
**Combined regulator and**  
**safety shut-off valves**  
**Single-stage function**  
**Integrated bypass valve**

**MB-D(LE) 407 - 412 B07**

**DUNGS®**  
Combustion Controls

We reserve the right to make any changes in the interest of technical progress.

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