

## GasMultiBloc®

Combined regulator and  
safety shut-off valves  
Two-stage function  
Integrated bypass valve

MB-ZRD(LE) 407 - 412 B07

7.25



### Technical description

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

- Dirt trap: Fine-mesh sieve
- One regulator, two main valves and one bypass valve: B07
- Two single-stage valves, one two-stage valve
- 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 Flange with pipe threads as per ISO 7/1 (DIN 2999)	MB-...407 B07 Rp 1/2, 3/4 and their combinations	MB-...410/412 B07 Rp 3/4, 1, 1 1/4 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> <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 dismounting the fitting.																	
Pressure switches	Types GW A5, GW A2, NB A2, ÜB A2 mountable as per DIN EN 1854. 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, fast closing																	
	<table border="1"> <thead> <tr> <th></th> <th>Valve V2 design</th> <th>Main volume restrictor</th> <th>Partial volume restrictor</th> </tr> </thead> <tbody> <tr> <td>MB-ZRD</td> <td>fast opening</td> <td>with</td> <td>with</td> </tr> <tr> <td>MB-ZRDLE</td> <td>slow opening</td> <td>with</td> <td>with</td> </tr> <tr> <td>MB-ZRLE</td> <td>slow opening</td> <td>with</td> <td>without</td> </tr> </tbody> </table>		Valve V2 design	Main volume restrictor	Partial volume restrictor	MB-ZRD	fast opening	with	with	MB-ZRDLE	slow opening	with	with	MB-ZRLE	slow opening	with	without	
	Valve V2 design	Main volume restrictor	Partial volume restrictor															
MB-ZRD	fast opening	with	with															
MB-ZRDLE	slow opening	with	with															
MB-ZRLE	slow opening	with	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 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	aluminium die casting																
	Diaphragms, seals	NBR basis, Silopren (silicone rubber)																
	Solenoid drive	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 to V2																	

Equipment variants GasMultiBloc®...B07 Two-stage function	407 B07	410 B07	412 B07	
MB-ZRD	•	•	•	
MB-ZRDLE	•	•	•	
MB-ZRLE	•	•	•	
Microfilter (standard) with sieve	•	•	•	
Gas pressure switch 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**  
**4 = Filter**  
**5 = Pressure switch, optional**  
**6 = Regulator**

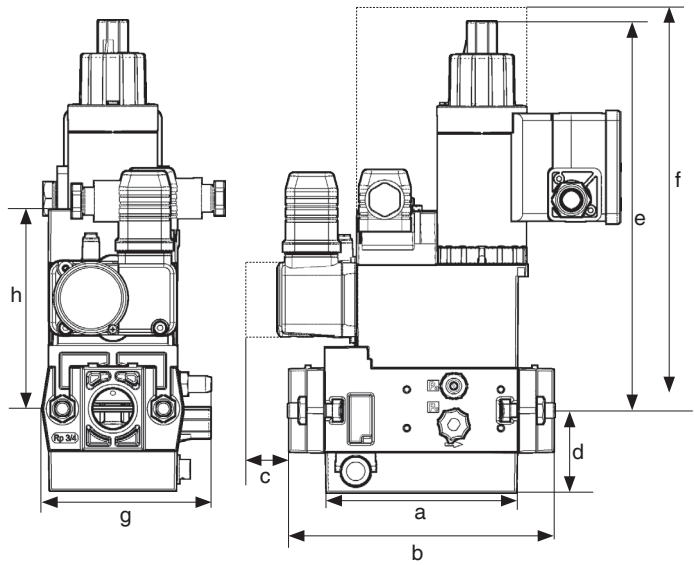
Mounting of VPS 504 valve proving system possible  
Mounting of K01/1 closed position signal contact possible

**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
  - 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

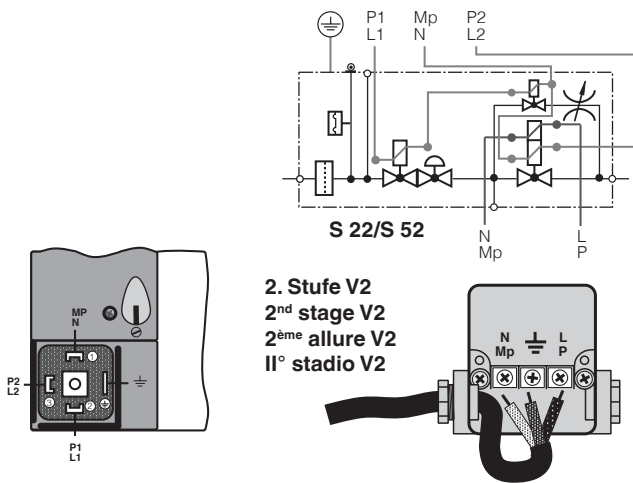
## Dimensions [mm]



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

Typ	Nominal rating [VA] ~(AC) 230 V; +20°C		Dimensions [mm]								Weight [kg]
	S22	S52	a	b	c	d	e	f	g	h	
MB-ZRD 407 B07	70	70	110	151	40	46	180	250	104	115	3,5
MB-ZRDLE 407 B07	70	70	110	151	40	46	220	250	104	115	3,6
MB-ZRD 410 B.../412 B07	134	134	140	185	40	55	220	300	120	135	6,8
MB-ZRDLE 410 B.../412 B07	134	134	140	185	40	55	260	300	120	135	6,9

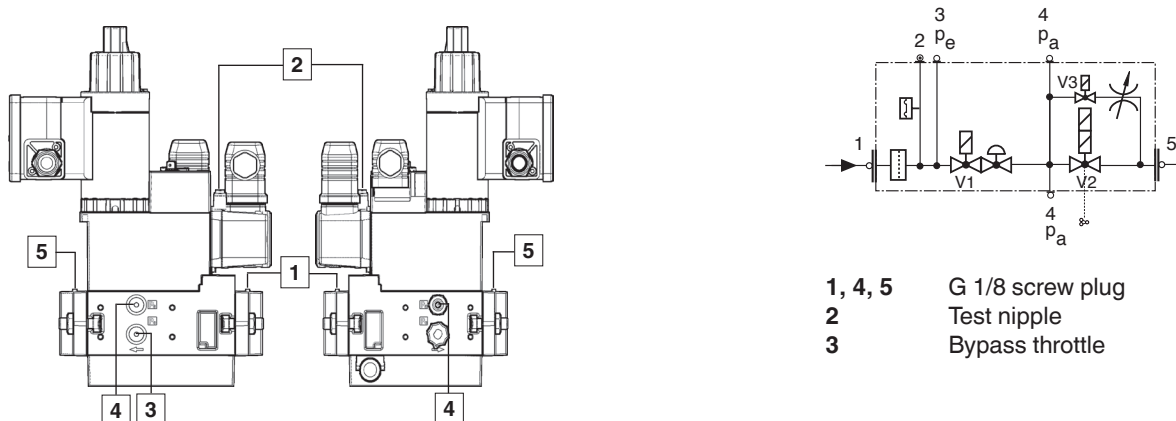
## Electrical connection



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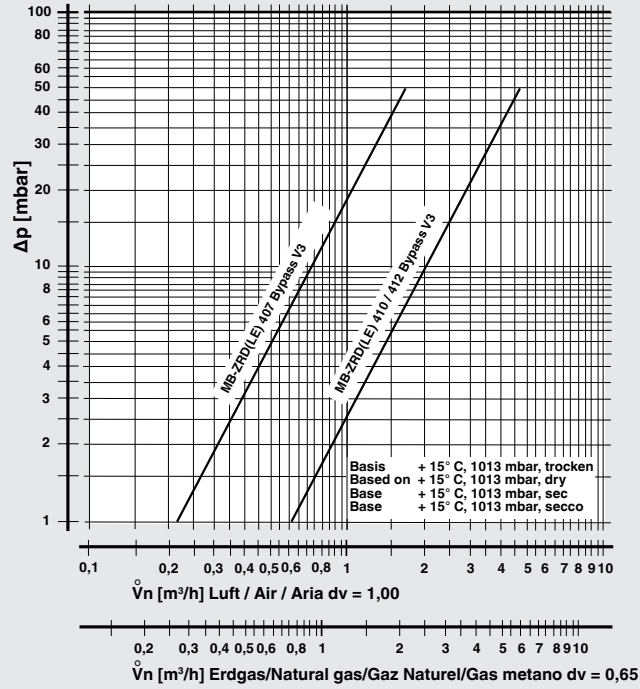
Импортер  
в Республику Беларусь  
8 (029) 11 915 11 INFO@SMARTFLAM.BY

## Pressure taps

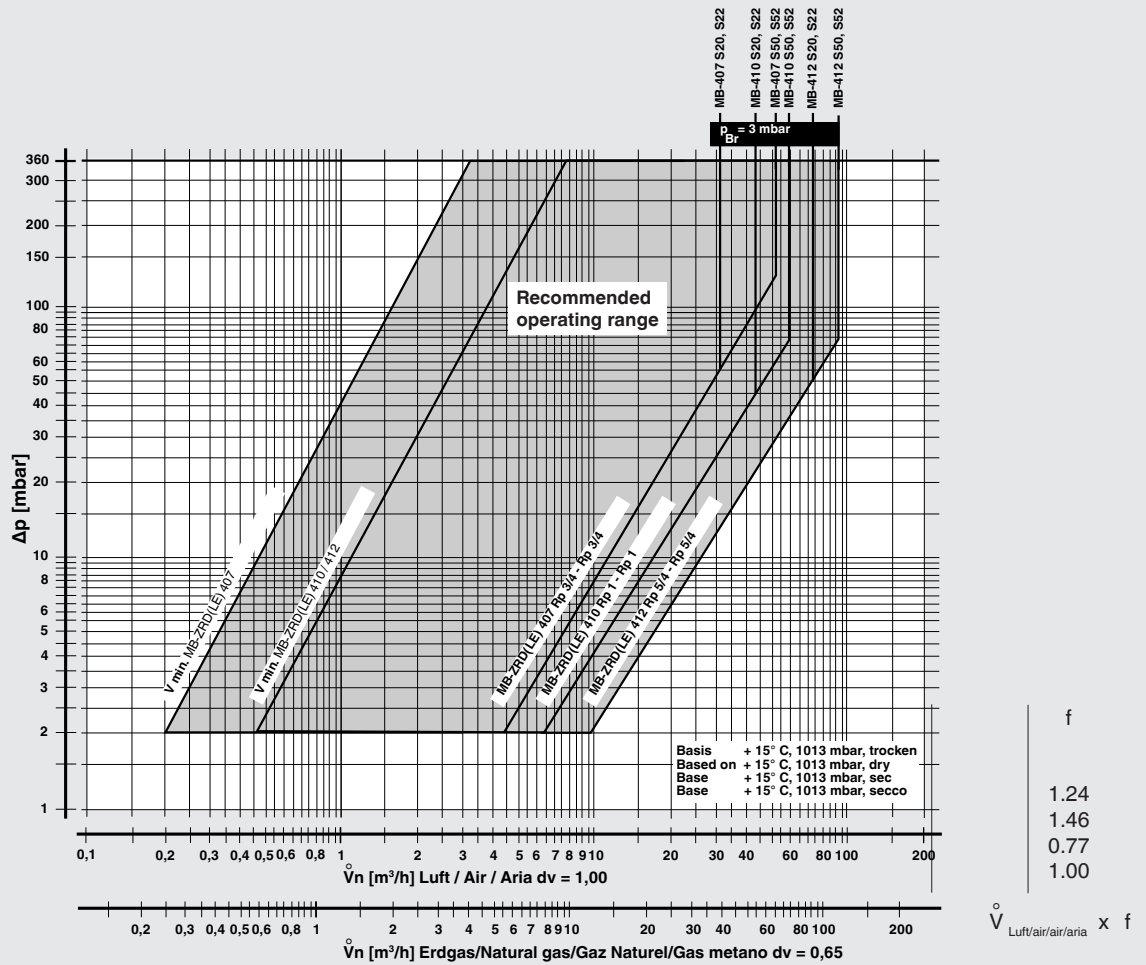


1, 4, 5 G 1/8 screw plug  
2 Test nipple  
3 Bypass throttle

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



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



$$f = \sqrt{\frac{\text{Dichte Luft}}{\text{Dichte des verwendeten Gases}}}$$

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
Nat. gas	0.81	0.65
City gas	0.58	0.47
LPG	2.08	1.67
Air	1.24	1.00

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

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**safety shut-off valves**  
**Two-stage function**  
**Integrated bypass valve**

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**DUNGS®**  
Combustion Controls

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

**WWW.SMARTFLAM.BY**   
**SmartFlam**  
Импортер  
в Республику Беларусь  
**8 (029) 11 915 11 INFO@SMARTFLAM.BY**

**Head Offices and Factory**  
**Karl Dungs GmbH & Co. KG**  
**Karl-Dungs-Platz 1**  
**73660 Urbach, Germany**  
**Telephone +49 7181-804-0**  
**Fax +49 7181-804-166**

**Postal address**  
**Karl Dungs GmbH & Co. KG**  
**Postfach 12 29**  
**D-73602 Schorndorf, Germany**  
**e-mail info@dungs.com**  
**Internet www.dungs.com**