

GasMultiBloc® Combined regulator and safety shut-off valves Single-stage function

MB-D(LE) 405 - 412 B01

DUNGS®
Combustion Controls

7.21



Technical description

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

- Dirt trap: Fine mesh-sieve
- One regulator and two valves: B01
- Two valves are fast opening
- One valve is fast opening and 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
- Hydraulic opening delay
- Flange connections with pipe threads as per ISO 7/1
- Simple mounting, compact, lightweight

The modular system permits individual solutions by using external ignition gas tap in connection with separately controlled valves, by adding a valve proving system, mini/maxi pressure switches, pressure limiters, limit switch 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

EC type test approval as per EC Gas Appliance Directive:

MB...405-412 B01 CE-0085 AP 3156
EC type test approval as per EC Pressure Equipment Directive:
MB...405-412 B01 CE0036

Approvals in other important gas consuming countries.

Specifications

Nominal diameters Flange with pipe threads as per ISO 7/1 (DIN 2999)	MB-...405/407 B01 Rp 1/2, 3/4 and their combinations	MB-...410/412 B01 Rp 3/4, 1, 1 1/4 and their combinations																				
Max. operating pressure	360 mbar (36 kPa)																					
Output pressure ranges	MB-... S20/S22 p_a: 4 mbar (0.4 kPa) to 20 mbar (2 kPa) MB-... S50/S52 p_a: 4 mbar (0.4 kPa) to 50 mbar (5 kPa)																					
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																					
	<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																			
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Measuring/ignition gas connection	For G 1/8 as per DIN ISO 228, refer to Pressure taps on page 4																					
Burner pressure monitor p _{Br}	Connection downstream of valve V2, pressure switch A2 mountable on adapter laterally																					
Voltage / frequency	50-60 Hz 220-230 V AC - 15% + 10% Other preferred voltages: 240 VAC, 110-120 VAC, 48 VDC, 24-28 VDC																					
Electrical connection	Plug connection as per DIN EN 175301-803 for valves and pressure switches																					
Rating/power consumption Switch-on duration Degree of protection Radio interference	Refer on page 4 100% IP 54 as per IEC 529 (EN 60529) Interference degree N																					
Materials of gas-conveying parts	Housing Diaphragms, seals Solenoid drive	aluminium die casting NBR basis, Silopren (silicone rubber) 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 GasMultiBloc®...B01 Single-stage function	405 B01	407 B01	410 B01	412 B01	
MB	•	•	•	•	
MB-D	•	•	•	•	
MB-DLE	•	•	•	•	
MB-LE	•	•	•	•	
Microfilter with sieve	•	•	•	•	
Gas pressure switch downstream of filter downstream of valve V2 on adapter laterally downstream of valve V2 on flange with adapter	• • •	• • •	• • •	• • •	
Pressure regulator	•	•	•	•	
Valve V1, double seat Valve V2, single seat Valve V2, double seat	• • -	• - •	• • -	• - •	
Valves controlled together Valves controlled separately	• •	• •	• •	• •	S 20, S 50 S 22, S 52
Flange Rp 1/2 Rp 3/4 Rp 1 Rp 1 1/4	• • - -	• • - -	- • • •	- • • •	• = possible (•) = on request - = not possible

MB-...B01 version

V1 = Valve 1
V2 = Valve 2
3 = Dirt trap
4 = Pressure switch
5 = Regulator

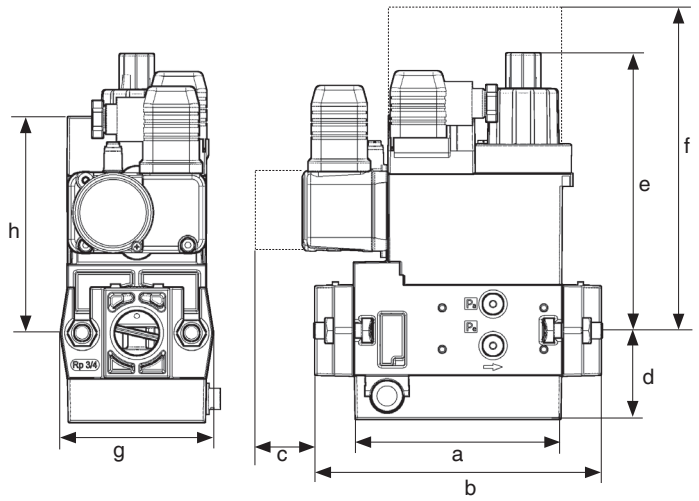
Mounting of VPS 504 valve proving system possible
Mounting of K01/1 closed position signal contact possible

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

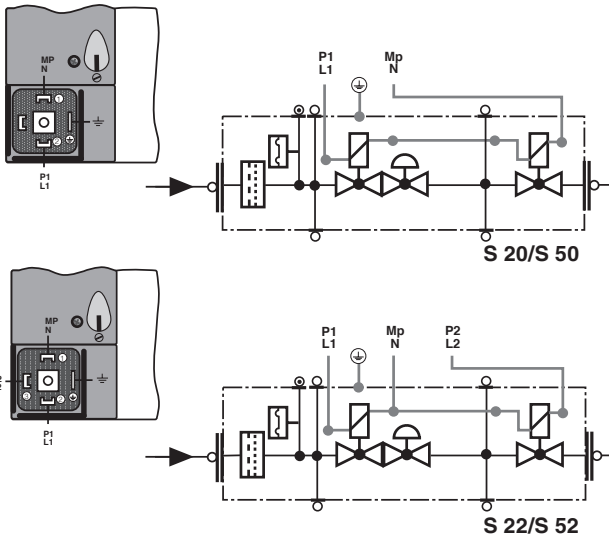
Dimensions [mm]



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

Typ	Rp	Opening time	Dimensions [mm]								Weight [kg]
			a	b	c	d	e	f	g	h	
MB-D 405 B.../407 B...	Rp 1/2	< 1 s	110	151	40	46	100	185	74	115	2,5
MB-DLE 405 B.../407 B...	Rp 3/4	< 20 s	110	151	40	46	140	185	74	115	2,6
MB-D 410 B.../412 B...	Rp 1	< 1 s	140	185	40	55	125	245	90	135	4,9
MB-DLE 410 B.../412 B...	Rp 1 1/4	< 20 s	140	185	40	55	160	245	90	135	5,0

Electrical connection

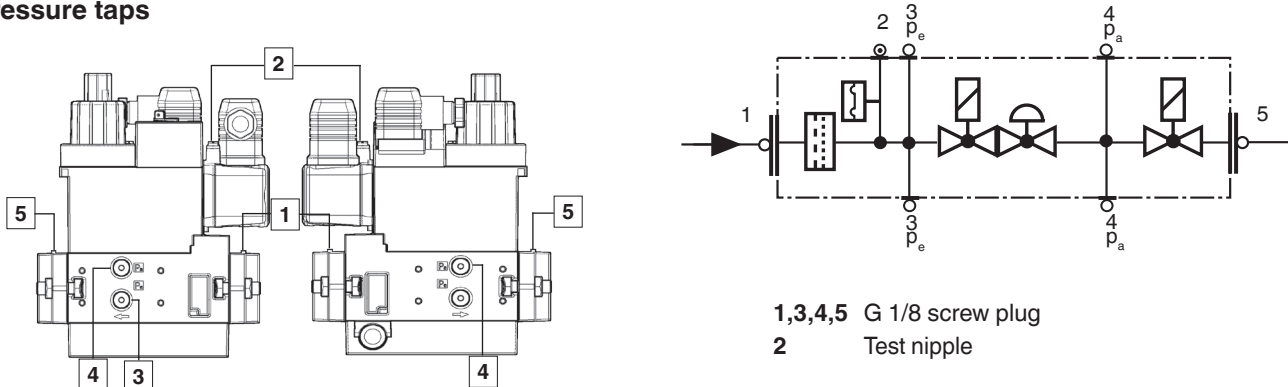


Rating / power consumption

[VA] ~(AC) 230 V; +20 °C:

MB 405/407 S 20	32
MB 405/407 S 50	36
MB 405/407 S 22	46
MB 405/407 S 52	46
MB 410/412 S 20	55
MB 410/412 S 50	55
MB 410/412 S 22	96
MB 410/412 S 52	96

Pressure taps

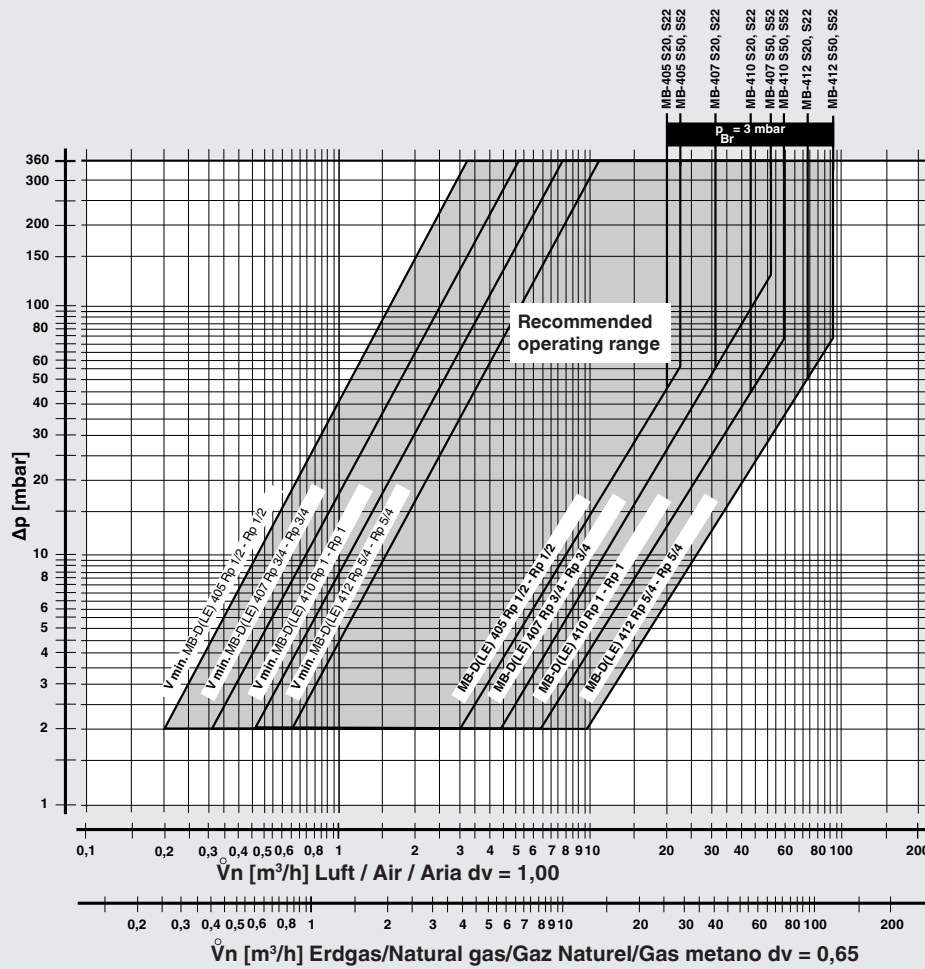


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Combined regulator and
safety shut-off valves
Single-stage function

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



$$f = \sqrt{\frac{\text{Dichte Luft / Spec. weight air / poids spécifique de l'air / peso specifico aria}}{\text{Dichte des verwendeten Gases / Spec. weight of gas used / poids spécifique du gaz utilisé / peso specifico del gas utilizzato}}}$$

Gas type	Spec. Wgt. [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

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

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