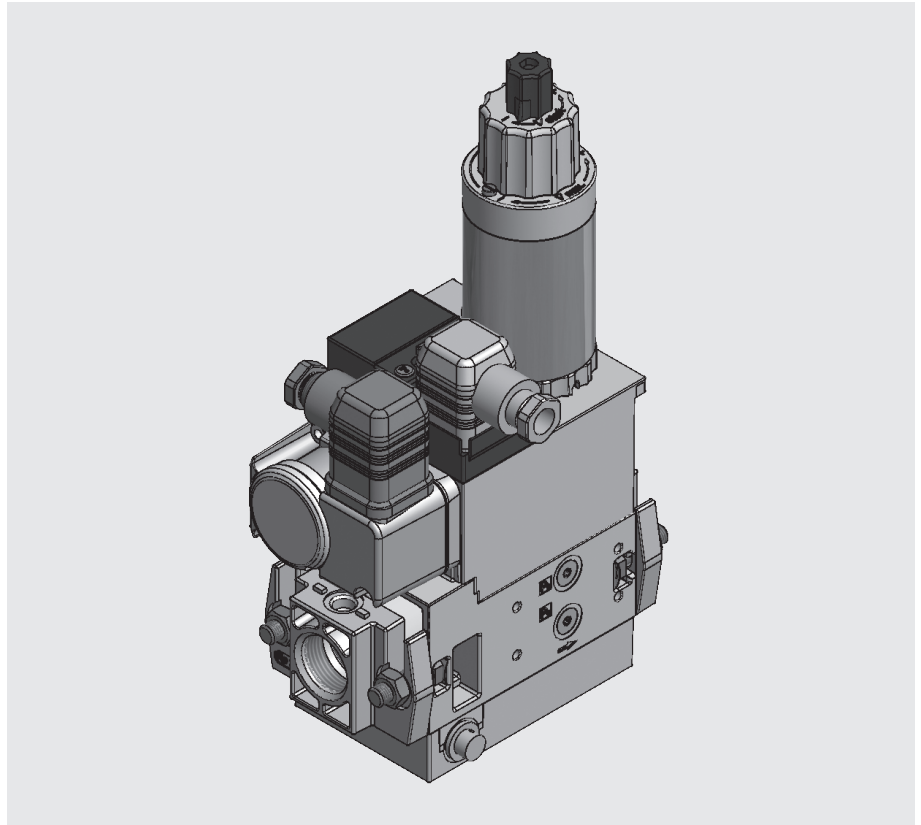


GasMultiBloc®
Combined regulator and
safety shut-off valves
Two-stage function

MB-ZRD(LE) 405 - 412 B01

DUNGS®
Combustion Controls

7.24



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 main valves: B01
- One one-stage valve and one two-stage valve
- One valve is fast opening, one valve is slow or fast 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 and partial volume restrictor at valve V2
- 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 external ignition gas tap in connection with separately controlled valves, by adding a valve proving system, mini/maxi pressure switches, pressure limiters, limit switch and closing stroke limiter at valve V2, regulator blocking for liquid gas applications.

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-ZR...405-412 B01 CE-0085 AP 3156
EC type test approval as per EC Pressure Equipment Directive:
MB-ZR...405-412 B01 CE0036
Approvals in other important gas consuming countries.

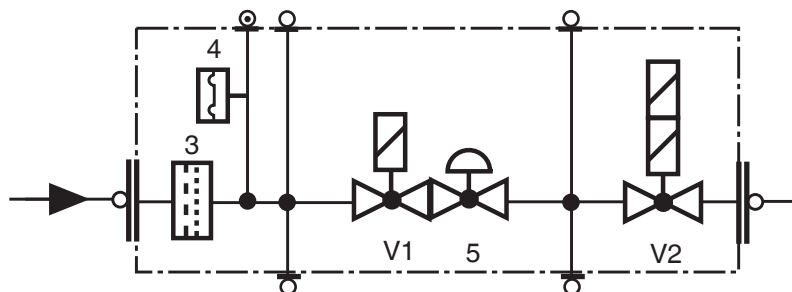
Specifications

Nominal diameters Flange with pipe threads as per ISO 7/1 (DIN 2999)	MB-ZR...405/407 B01 Rp 1/2, 3/4 and their combinations	MB-ZR...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 dismantling the fitting.																					
Pressure switches	Types GW...A5, ÜB...A2 / NB...A2 to DIN EN 1854 may be attached. For further information, refer to Datasheets 5.02 and 5.07 “Pressure Switches for DUNGS Multiple Actuators”																					
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><tr><td></td><td>Valve V2 design</td><td>Partial volume restrictor</td><td>Main volume restrictor</td></tr><tr><td>MB-ZR</td><td>fast opening</td><td>with</td><td>without</td></tr><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></table>		Valve V2 design	Partial volume restrictor	Main volume restrictor	MB-ZR	fast opening	with	without	MB-ZRD	fast opening	with	with	MB-ZRDLE	slow opening	with	with	MB-ZRLE	slow opening	with	without	
	Valve V2 design	Partial volume restrictor	Main volume restrictor																			
MB-ZR	fast opening	with	without																			
MB-ZRD	fast opening	with	with																			
MB-ZRDLE	slow opening	with	with																			
MB-ZRLE	slow opening	with	without																			
Measuring / Ignition gas connection	For G 1/8 as per DIN ISO 228, refer to Pressure taps on page 2																					
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 V AC, 110-120 V AC, 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 to Dimensions on page 5 100 % 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 Two-stage function	405 B01	407 B01	410 B01	412 B01	
MB-ZR	•	•	•	•	
MB-ZRD	•	•	•	•	
MB-ZRDLE	•	•	•	•	
MB-ZRLE	•	•	•	•	
Microfilter with sieve	•	•	•	•	
Gas pressure switch downstream of filter	•	•	•	•	
downstream of valve V2 on adapter laterally	•	•	•	•	
Pressure regulator	•	•	•	•	
Valve V1, double seat	•	•	•	•	
Valve V2, single seat	•	—	•	—	
Valve V2, double seat	—	•	—	•	
Valves opening together	•	•	•	•	S 20, S 50
Valves opening separately	•	•	•	•	S 22, S 52
Flange Rp 1/2	•	•	—	—	• = possible (•) = on request - = not possible
Rp 3/4	•	•	•	•	
Rp 1	—	—	•	•	
Rp 1 1/4	—	—	•	•	

MB-ZR...B01 version

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

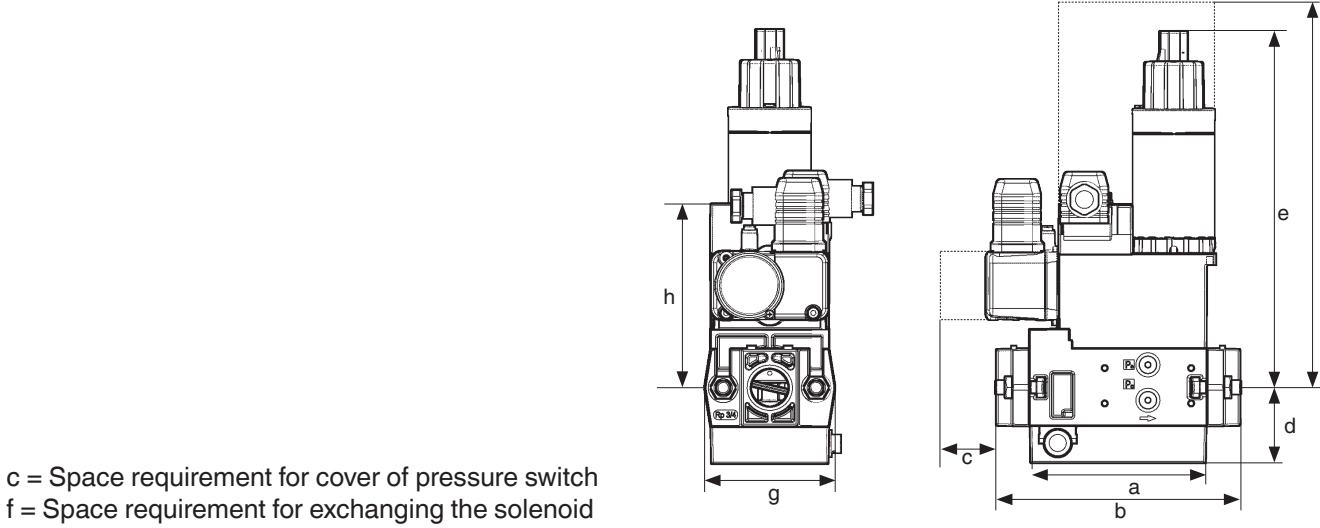


Mounting of VPS 504 valve proving system possible
 Mounting of K01/1 closed position signal contact possible

Type key of MultiBloc®

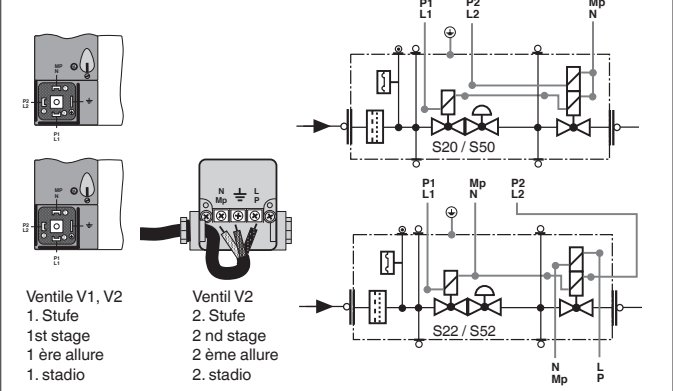
MB-	XX	XXX	XX	BOX	SXX	
						Control of V1 and V2 0 = common 2 = separated
						Outlet pressure Inlet pressure 2 = 4 - 20 mbar up to 360 mbar 5 = 4 - 50 mbar up to 360 mbar
						S = Series (type-independent)
						Gas train schematic diagram 1 = two A valves for main gas + regulator 7 = two A valves 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]



Typ	Rp	Opening time	Dimensions [mm]								Weight [kg]
			a	b	c	d	e	f	g	h	
MB-ZRD 405 B.../407	Rp 1/2	< 1 s	110	151	40	46	180	250	74	115	3,3
MB-ZRDLE 405 B.../407	Rp 3/4	< 20 s	110	151	40	46	220	250	74	115	3,4
MB-ZRD 410 B.../412	Rp 1	< 1 s	140	185	40	55	220	300	90	135	6,3
MB-ZRDLE 410 B.../412	Rp 1 1/4	< 20 s	140	185	40	55	260	300	90	135	6,4

Electrical connection

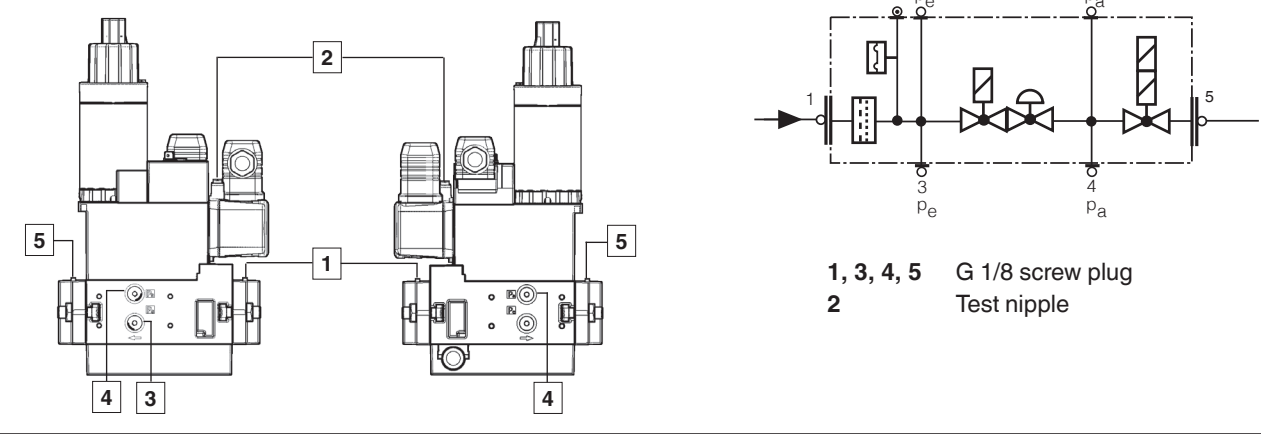


Rating/power consumption

[VA] ~(AC) 230 V; +20 °C:

MB 405/407 S 20	65
MB 405/407 S 50	65
MB 405/407 S 22	70
MB 405/407 S 52	70
MB 410/412 S 20	80
MB 410/412 S 50	80
MB 410/412 S 22	120
MB 410/412 S 52	120

Pressure taps

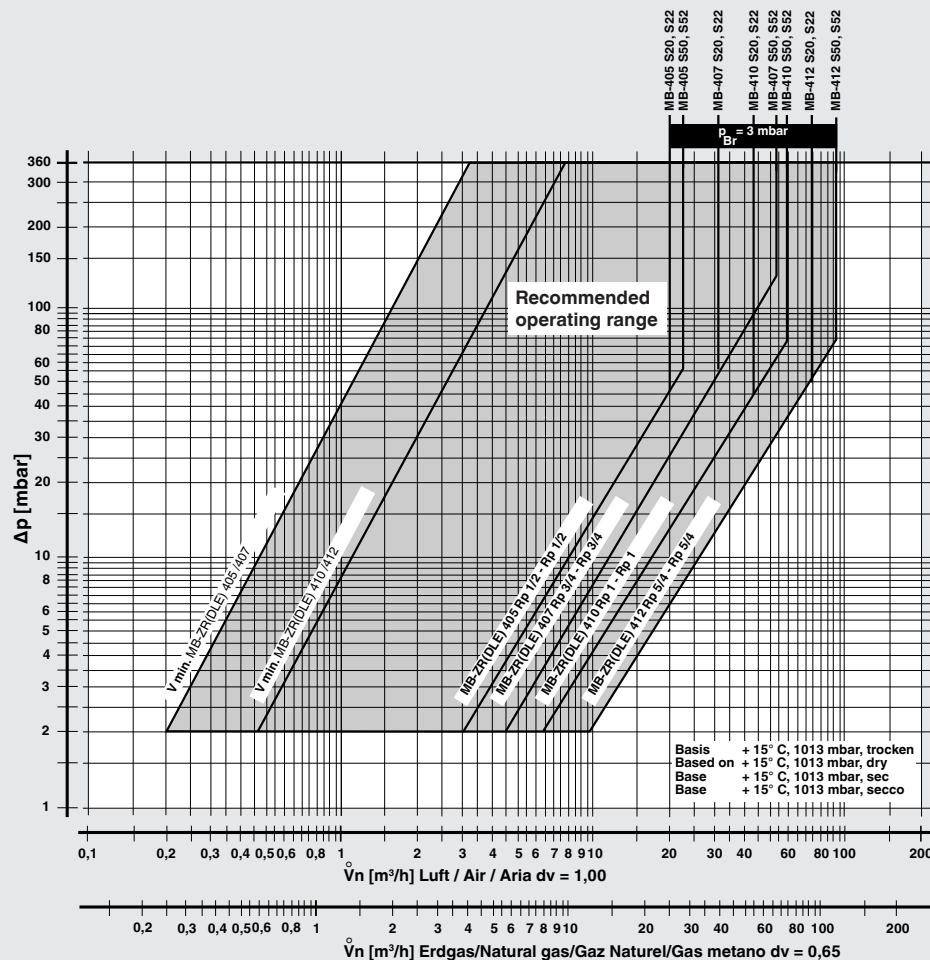


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Volumetric flow pressure loss characteristics in regulated state with fine-mesh sieve



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

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

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

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

Head Offices and Factory
Karl Dungs GmbH & Co. KG
Siemensstraße 6-1
D-73660 Urbach, Germany
Telephone +49 (0)7181-804-0
Fax +49 (0)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