



บริษัท เอดีดี เฟอร์เนส จำกัด

ADD FURNACE CO.,LTD.

44 ซอยบรมราชชนนี 70 ถนนบรมราชชนนี แขวงศาลาธรรมสพน์ เขตทวีวัฒนา กรุงเทพฯ 10170

โทร: 02-888-3472 โทร: ออกแบบ:08-08-170-170 แฟกซ์: 02-888-3258

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

MB-D(LE) 403 B01

MB-D(LE) 053 B01

7.20

DUNGS®
Combustion Controls



Technical description

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

- Dirt trap: microfilter
- One regulator and two main valves: B01
- Two valves are fast opening
- One valve is fast opening, one valve is slow opening
- Solenoid valves up to 200 mbar (20 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, light-

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, partial volume setting by closing stroke limiter at valve V2 and 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-...403/053 B01 CE-0085 AQ 0810
Approvals in other important gas consuming countries.



Functional description of gas flow

1. When the valves V1 and V2 are closed, chamber A is under inlet pressure.
2. A hole D in the filter housing connects min. pressure switch with chamber A. If the inlet pressure applied to the pressure switch exceeds the incoming reference value, it switches through to the automatic burner control.
3. After release by the automatic burner control, valves V1 and V2 open. The gas flows through chambers A, B and C of the GasMultiBloc.

Operating method of valve-regulator combination on valve V1

A regulator, compensating for residual pressure is integrated in valve V1 (pressure regulating part). Armature 7 is not connected to valve plate unit 3. When it opens, armature 7 pretensions compression spring (V1) 5 and releases the valve plate unit. When the valve closes, the armature acts directly on the valve plate unit. The output pressure upstream of valve V2 is defined by pretensioning regulating spring 8 (tension spring) via setting screw 16. The output pressure acts via opening E on the working diaphragm of regulator

part 1. In regulated state, setting spring inlet pressure and pressure of working diaphragm are in force equilibrium.

Operating method of valve V2 Armature 13 of valve V2 is connected to valve plate unit 11. When it opens, armature 13 pretensions closing spring 12. The maximum valve opening can be set by limiting the armature stroke by means of the main volume restrictor 17.

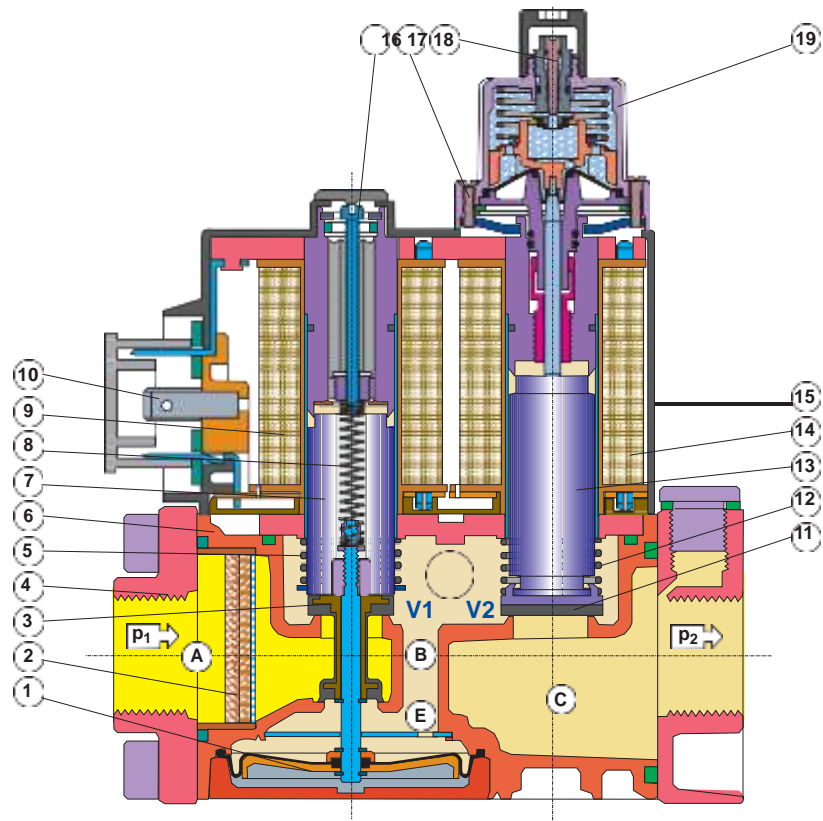
Min. opening (residual stroke) of valve (0.5 to 1.0 mm)

Main volume restrictor 17 is set by rotating the adjusting plate or the hydraulic brake 19. The fast and/or slow opening characteristic is influenced by setting the fast stroke 18 at the hydraulic brake 19 under the cover.

Closing function When the supply voltage to the solenoid coils of valves V1 and V2 is interrupted, they are closed within < 1 s by the compression springs.

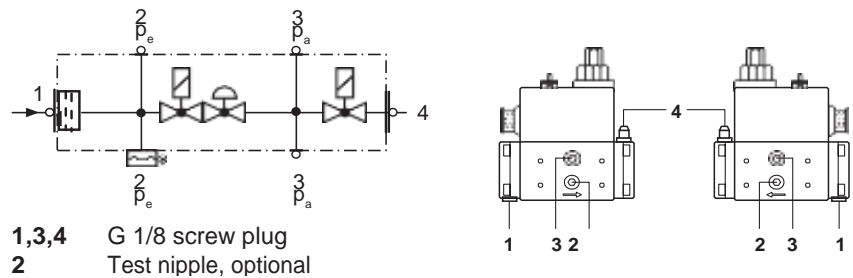
Closing stroke limitation (option) A partial volume setting is possible by means of a closing stroke limiter. Valve V2 becomes a regulating actuator without zero shut-off. Partial volume and main volume are adjustable.

Sectional drawing of MB-DLE...

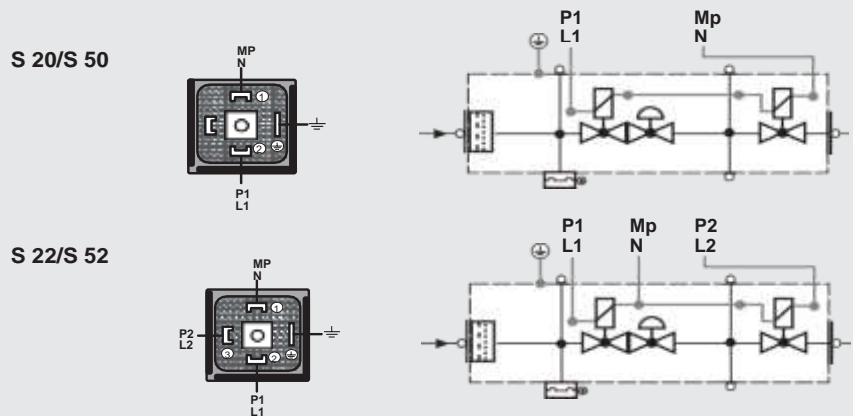


1 Pressure regulator	8 Regulating spring	15 Solenoid housing
2 Microfilter	9 Solenoid V1	Setting:
3 Valve V1	10 Electrical connection	16 - Gas pressure p_a
4 Connection flange	11 Valve V2	17 - Main volume
5 Closing spring V1	12 Closing spring V2	18 - Fast stroke
6 Housing	13 Armature V2	19 Hydraulic brake
7 Armature V1	14 Solenoid V2	

Pressure taps



Electrical connection





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Specifications

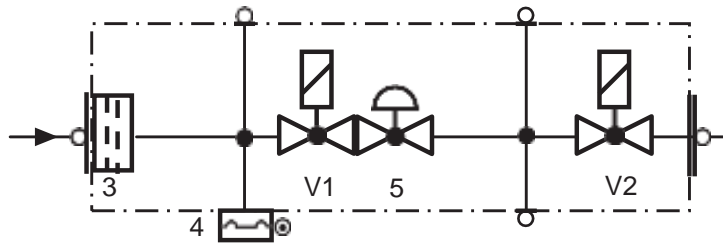
Nominal diameters	MB-...403/053 B01			
Flange with pipe threads as per ISO 7/1 (DIN 2999)	Rp 3/8, 1/2 and their combinations			
Max. operating pressure	MB-...403	p_{max.} = 200 mbar (20 kPa)		
	MB-...053	p_{max.} = 60 mbar (6 kPa)		
Output pressure ranges	MB-...403/053 B01 S20/S22	p_a: 4 mbar (0.4 kPa) to 20 mbar (2 kPa)		
	MB-...403/053 B01 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	Sieve with 0.8 mm mesh width, filter made of random laid nonwoven fabric, micro-filter, two-layer, changing the filter is possible by removing the valve.			
Pressureswitches	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			
		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
Measuring/ignition gasconnection	For G 1/8 as per DIN ISO 228, refer to Pressure taps on page 2			
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	Refer to Dimensions on page 5			
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.			



Equipment variants GasMultiBloc ...B01 Single-stage function	403 B01	053 B01	
MB	•	•	
MB-D	•	•	
MB-DLE	•	•	
MB-LE	•	•	
Microfilter (standard) with sieve	•	•	
Gas pressure switch downstream of filter	•	•	
Pressure regulator	•	•	
Valve V1, double seat	•	•	
Valve V2, single seat	•	•	
Closing stroke limitation	(•)	(•)	V2 becomes an actuator without shutoff
Valves opening together	•	•	S 20
Valves opening separately	(•)	(•)	S 22
Flange Rp 3/8 Rp 1/2	• •	• •	• = possible (•) = on request - = not possible

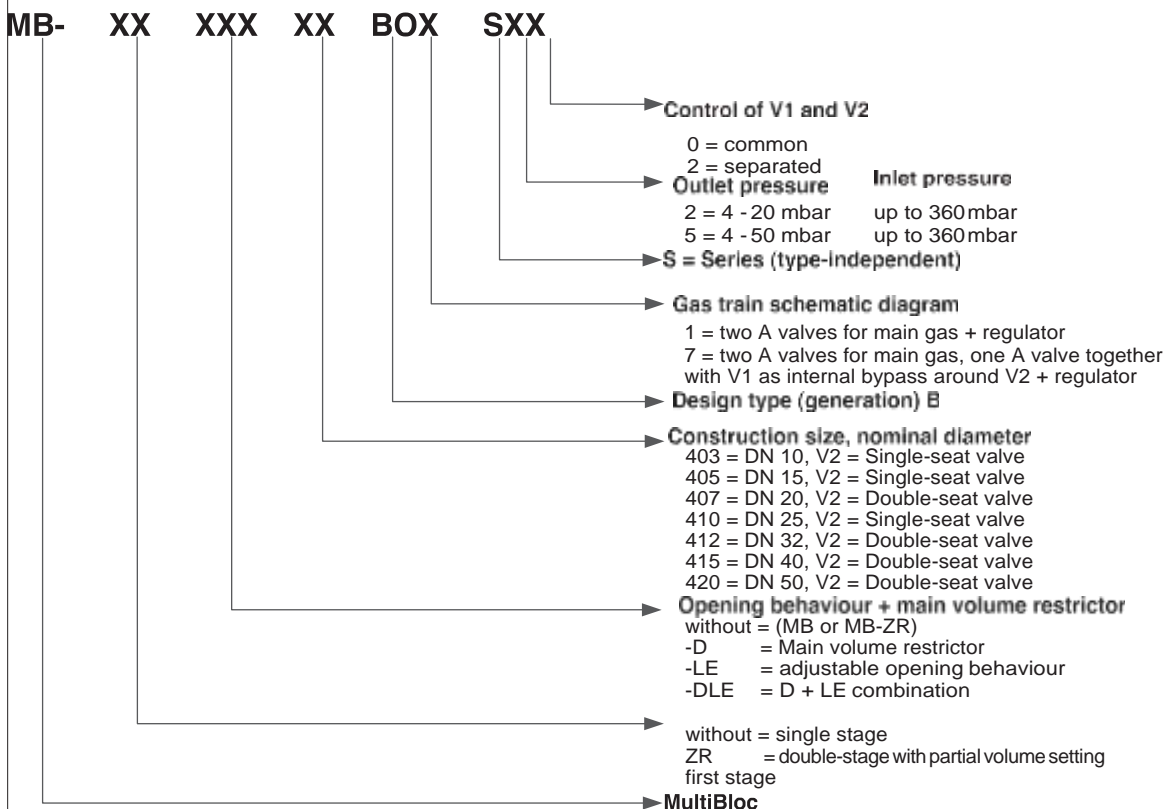
MB-...B01 version

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



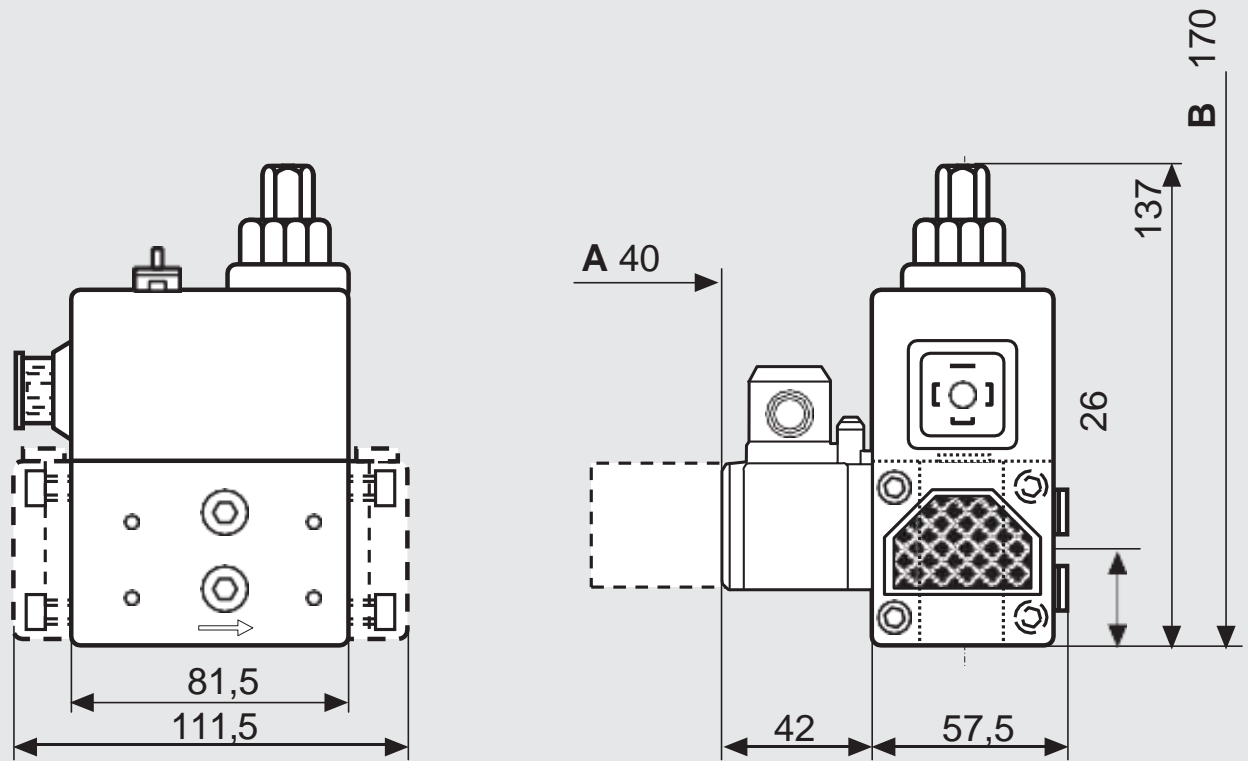
Mounting of VPS 504 valve proving system possible

Type key of MultiBloc





Dimensions [mm]



A = Space requirement for opening the cover of pressure switch

B = Space requirement for exchanging the solenoid

Type	Rp	Opening time	Weight [kg]
MB-D 403 B01	Rp 1/2	< 1 s	1.4
MB-DLE 403 B01	Rp 1/2	< 20 s	1.5
MB-D 053 B01	Rp 1/2	< 1 s	1.4
MB-DLE 053 B01	Rp 1/2	< 20 s	1.5

Rating / power consumption

[VA] 230 V AC; +20°C

MB...403 B01 S 20	24
MB...403 B01 S 22	36
MB...053 B01 S 20	24
MB...053 B01 S 22	36



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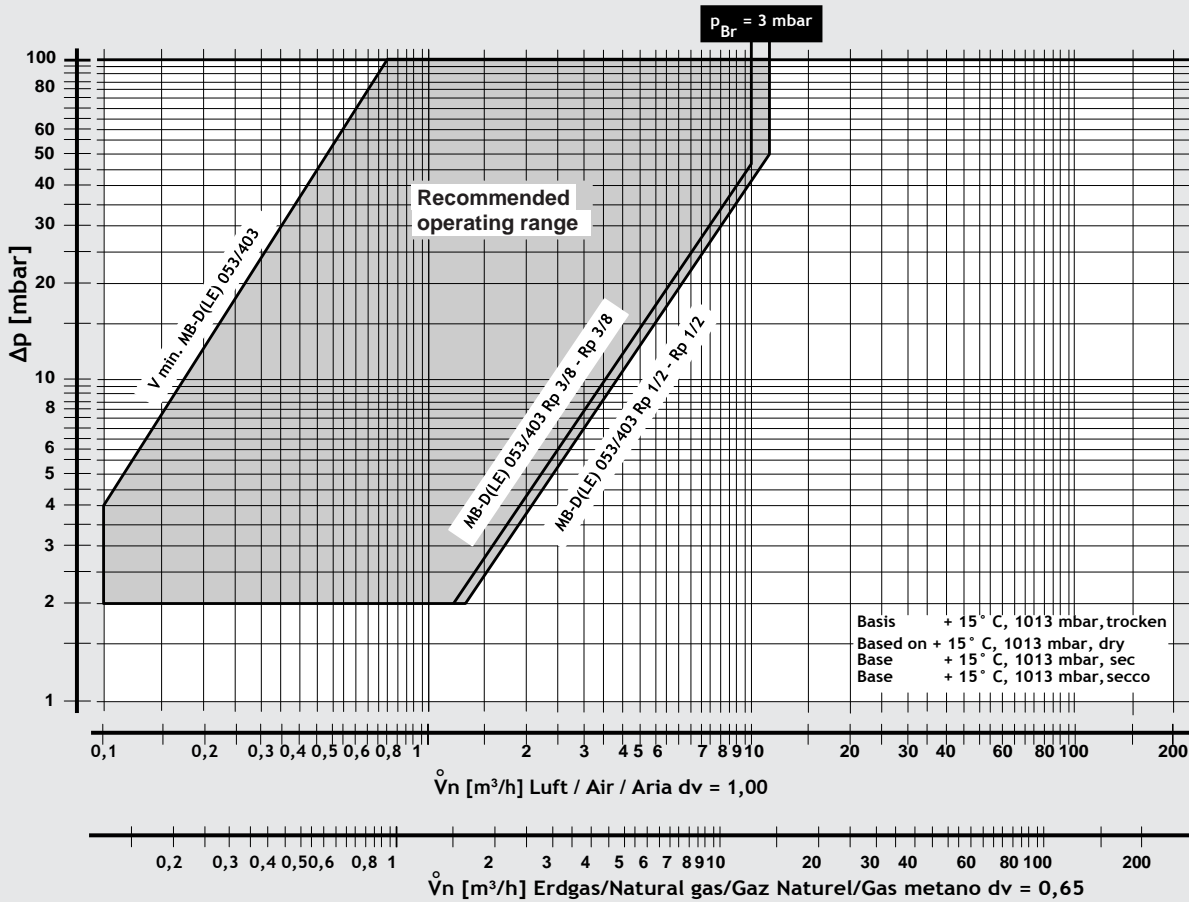
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Single-stage function

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MB-D(LE) 053 B01



Volumetric flow pressure loss characteristics in regulated state with microfilter



f =	Dichte Luft Spec. weight air	Gas type	Density	dv	f
$f = \sqrt{\frac{\rho_{\text{Luft}}}{\rho_{\text{gas}}}}$	peso specifico aria	Nat. gas	0.81	0.65	1.24
	Dichte des verwendeten Gases	City gas	0.58	0.47	1.46
	Spec. weight of gas used	LPG	2.08	1.67	0.77
	peso specifico del gas utilizzato	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.

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