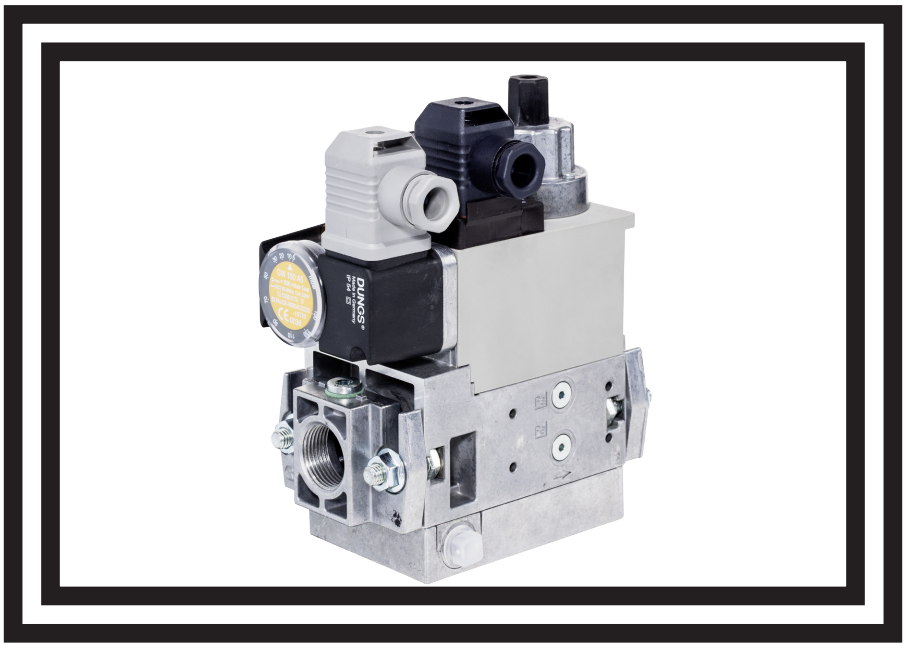
Flam®

Heating Technology

User Manual

MB-D(LE) 405 - 412 B01



Dungs Gas Valve

English

Flam®
Heating Technology

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, 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 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 pa: 4 mbar (0.4 kPa) to 20 mbar (2 kPa)
MB-… S50/S52 pa: 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

	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 gas connection

For G 1/8 as per DIN ISO 228, refer to Pressure taps on page 4

Burner pressure monitor pBr

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: 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

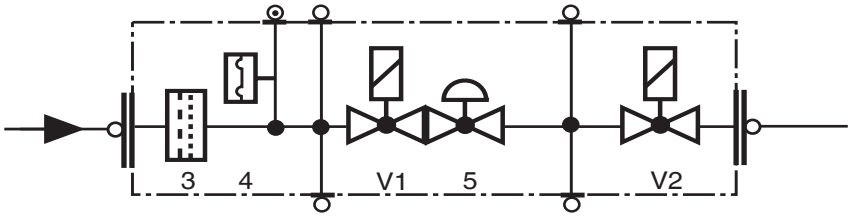
Installation position
Solenoid vertically upright or lying horizontally as well as its intermediate positions

Closed position signal contact
Closed position signal contact, type K01/1 (DIN-tested), mountable 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	•	•	•	•	S 20, S 50
Valves controlled separately	•	•	•	•	S 22, S 52
Flange Rp 1/2	•	•	–	–	
Rp 3/4	•	•	•	•	• = possible
Rp 1	–	–	•	•	(•) = on request
Rp 1 1/4	–	–	•	•	- = not pos

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

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

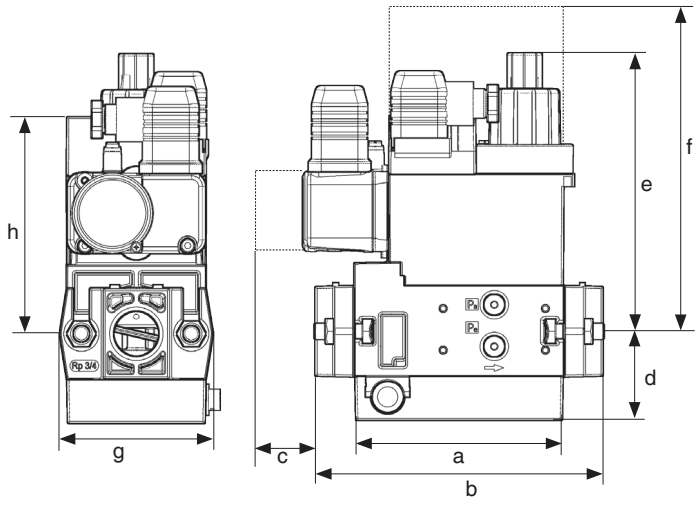
Construction size, nominal diameter
403 = DN 10, V2 = Single-seat valve
405 = DN 15, V2 = Single-seat valve
407 = DN 20, V2 = Double-seat valve
410 = DN 25, V2 = Single-seat valve
412 = DN 32, V2 = Double-seat valve
415 = DN 40, V2 = Double-seat valve
420 = DN 50, V2 = Double-seat valve

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

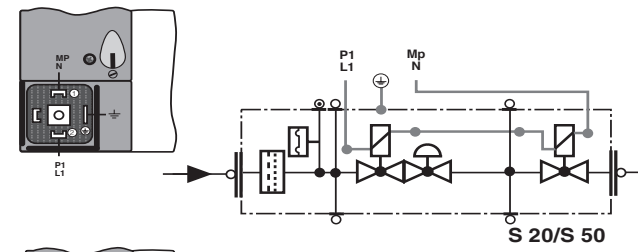
Dimensions [mm]



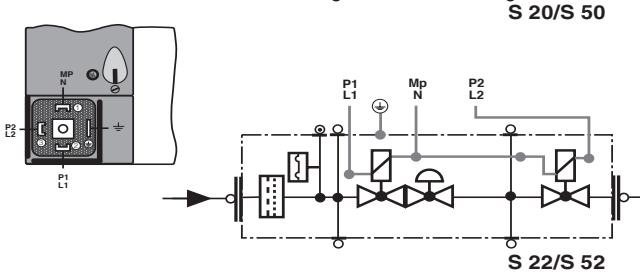
c = Space requirement for cover of pressure switch
f = Space requirement for exchanging the solenoid

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



S 20/S 50



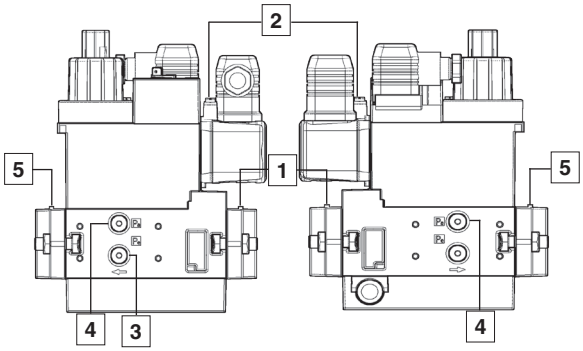
S 22/S 52

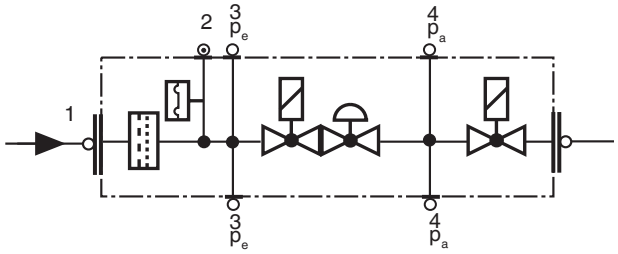
Rating / power consumption

[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

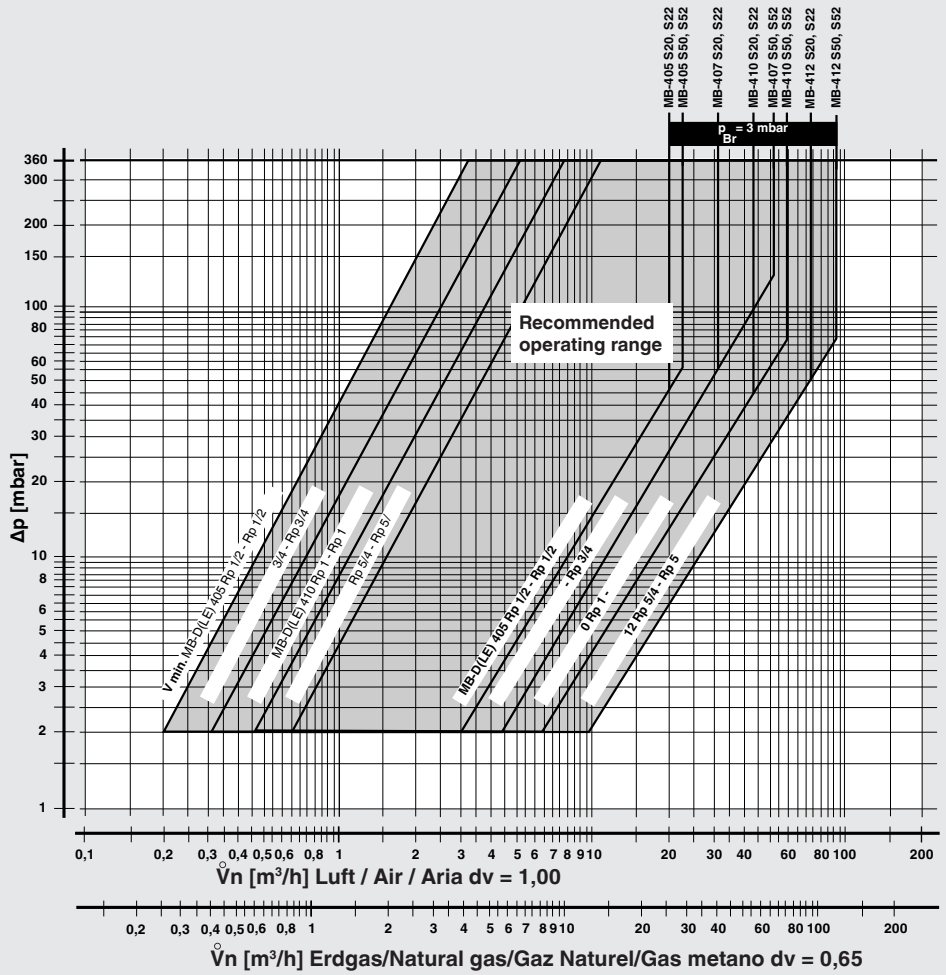
Pressure taps





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

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

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

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

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

MB-D(LE) 405 - 412 B01