

Single-stage safety solenoid valves

MV/4
MVD, MVD/5,
MVDLE/5

DUNGS®
Combustion Controls

6.20



Technical description

The DUNGS safety solenoid valve MV/4, MVD, MVD/5, MVDLE/5 is a single-stage automatic shut-off valve as per EN 161 for gas burners and gas appliance.

- Max. operating pressure up to 200, 360 or 500 mbar (20, 36 or 50 kPa)
- normally closed
- MV, MVD: fast opening
- MVDLE: Slow opening with adjustable fast stroke for start gas volume
- Main volume adjustable (MVD/MVDLE)
- DC solenoid, rectifier wiring with radio interference suppression in terminal box with PG screw union
- Mountable closed position signal contact to monitor closed position of valve (.../5)
- Pipe thread as per ISO 7/1
- Flange connection as per DIN 2633, ISO 7005
- Reliable function, rugged and maintenance-free
- On request, design without non-ferrous metals

Application

The solenoid valve is used for securing, limiting, shutting off and releasing gas supply to gas burners and gas appliances.

MV/4 Range of application: for large breaking capacities, e.g. pulsed firing.

The DUNGS safety solenoid valve MV... is suitable for gases of families 1, 2, 3 and other neutral gaseous media.

Approval

EC type test approval as per EC Gas Appliance Directive:

MV... CE-0085 AO3219

EC type test approval as per EC Pressure Equipment Directive:

MV... CE0036

Approvals in other important gas consuming countries.

Special designs for the North American market with U_L, FM and CSA registrations.

MV/4, MV/5	Single-stage solenoid valve, normally when closed, fast opening, fast closing.
MVD/5	Single-stage solenoid valve, normally when closed, fast opening, fast closing, manual limitation of flowing gas volume by adjusting main volume.
MVDLE/5	One-stage solenoid valve, normally when closed, slow opening, fast closing. Opening time adjustment with fast stroke range. Main volume adjustment.

Specifications

Nominal diameters Pipe thread as per ISO 7/1, Rp Flange	10 15 20 25 40 50 65 80 100 125 150 200 3/8 1/2 3/4 1 1 1/2 2 2 1/2 Connection flange as per DIN EN 1092-1
Max. operating pressure	up to 200 mbar (20 kPa), 360 mbar (36 kPa) or up to 500 mbar (50 kPa) - refer to type overview
Solenoid valve	Valve as per EN 161, Class A, Group 2, single-stage mode
Closing time	< 1 s
Opening time	< 1 s for MVDLE approx. 20 s at room temperature 20 °C and without fast stroke
Fast stroke	Adjustable
Main volume adjustment	Manually adjustable on MVD and MVDLE
Materials of gas-conveying parts	Housing: aluminium, steel, brass Seals: NBR basis
Voltage/frequency	230 V AC (+10 % -15 %); 50-60 Hz - other voltages on request Solenoids 60E, 61E in 24-28 VDC external activation of solenoid coils required, see operating and mounting instructions
Rating / power consumption	Refer to type overview
Switch-on duration	100 %
Degree of protection	IP 54, IP 65 on request
Electrical connection	At screw terminals via PG* 11 cable gland (* = heavy-gauge conduit thread) Plug connection as per DIN 175 0301-803 can be retrofitted
Switching rate	MV/4, MVD.../5: max. 1000/h MVDLE.../5: max. 100/h MVD 2125/5, MVD 2150/5, MVD 5100/5, MVD 5125/5, MVD 5150/5: max. 20/h MV 5125/5 S, MV 5150/5 S, MVD 2200: max. 20/h
Measuring/ignition gas connection	G 1/4 ISO 118, on both sides in inlet section, additionally G 3/4 on input side, form size DN 40 (flange) upwards
Dirt trap	Sieve installed, mesh width 1 mm
Ambient temperature	-15 °C to +60 °C
Installation position	Solenoid from vertically upright to horizontally lying
Closed position signal contact	MV/5, MVD/5, MVDLE/5: Type K01/1, DIN-tested, mountable on DN 10 - DN 150
Valve proving system	Type VDK 200 A S02, mountable via G 1/4 test connection, Type VPS 504, mountable with adapter up to DN 80
Accessories	K01 closed position signal contact, see Datasheet 12.01 Equipment plug for line socket, DIN 175301-803 211 202 215 733

Type	P _{max.}	DN / Rp	Sole- noid No.	Order No.	P _{max.} [VA]	I _{max.} ~ (AC) 230 V	Opening time	Dimensions [mm]						Weight [kg]
								ø a	b	c	d	e	f	
MV 205/4	200	Rp 1/2	100	251 279	17	0.08	< 1 s	50	80	90	75	113	150	1.00
MV 207/4	200	Rp 3/4	200	251 280	30	0.15	< 1 s	75	100	135	85	160	200	1.75
MV 210/4	200	Rp 1	200	251 281	30	0.15	< 1 s	75	110	135	90	165	200	2.45
MV 215/4	200	Rp 1 1/2	300	251 282	65	0.26	< 1 s	95	150	170	116	215	260	4.30
MV 220/4	200	Rp 2	300	251 283	65	0.30	< 1 s	95	170	175	130	225	265	5.90
MVD 203/5	360	Rp 3/8	100	108 571	17	0.08	< 1 s	50	60	90	60	113	140	0.85
MVD 205/5	360	Rp 1/2	100	013 102	17	0.08	< 1 s	50	80	90	75	113	150	1.00
MVD 207/5	200	Rp 3/4	150	013 227	30	0.13	< 1 s	60	100	135	80	160	190	1.75
MVD 207/5	360	Rp 3/4	200	121 962	30	0.15	< 1 s	75	100	135	85	160	200	2.4
MVD 210/5	360	Rp 1	200	013 490	30	0.15	< 1 s	75	110	135	90	165	200	2.45
MVD 215/5	200	Rp 1 1/2	280	015 446	60	0.26	< 1 s	80	150	170	116	215	255	4.3
MVD 215/5	360	Rp 1 1/2	300	129 977	65	0.30	< 1 s	95	150	170	116	215	260	5.4
MVD 220/5	200	Rp 2	300	011 767	65	0.30	< 1 s	95	170	175	130	225	265	5.90
MVD 225/5	200	Rp 2 1/2	400	119 701	100	0.48	< 1 s	115	230	220	165	280	325	10.90
MVDLE 203/5	360	Rp 3/8	100	108 597	17	0.08	approx. 20 s	50	60	135	75	155	190	0.95
MVDLE 205/5	360	Rp 1/2	100	013 284	17	0.08	approx. 20 s	50	80	135	75	155	200	1.10
MVDLE 207/5	360	Rp 3/4	200	013 276	30	0.15	approx. 20 s	75	100	165	85	190	190	2.55
MVDLE 210/5	360	Rp 1	200	013 524	30	0.13	approx. 20 s	75	110	165	90	200	190	2.75
MVDLE 215/5	200	Rp 1 1/2	280	015 412	60	0.26	approx. 20 s	80	150	205	116	245	255	4.4
MVDLE 215/5	360	Rp 1 1/2	300	122 002	65	0.30	approx. 20 s	95	150	205	116	245	255	5.5
MVDLE 220/5	200	Rp 2	300	011 775	65	0.26	approx. 20 s	95	170	205	130	250	255	6.20
MVDLE 225/5	200	Rp 2 1/2	400	118 935	100	0.48	approx. 20 s	115	230	295	165	350	320	11.40
MVD 503/5	500	Rp 3/8	100	158 090	17	0.08	< 1 s	50	60	90	60	113	140	0.85
MVD 505/5	500	Rp 1/2	100	158 110	17	0.08	< 1 s	50	80	90	75	113	150	1.00
MVD 507/5	500	Rp 3/4	200	157 530	30	0.15	< 1 s	75	100	135	85	160	200	2.40
MVD 510/5	500	Rp 1	200	157 540	30	0.15	< 1 s	75	110	135	90	165	200	2.60
MVD 515/5	500	Rp 1 1/2	300	157 550	65	0.30	< 1 s	95	150	170	116	215	260	5.40
MVD 520/5	500	Rp 2	400	167 200	100	0.48	< 1 s	115	170	190	130	235	300	8.80
MVD 525/5	500	Rp 2 1/2	500	170 750	90	0.42	< 1 s	130	230	215	165	300	370	14.50
MVDLE 503/5	500	Rp 3/8	100	222 077	17	0.08	approx. 20 s	50	60	135	75	155	190	0.80
MVDLE 505/5	500	Rp 1/2	120	222 078	25	0.11	approx. 20 s	50	80	150	75	170	220	1.00
MVDLE 507/5	500	Rp 3/4	200	222 079	30	0.15	approx. 20 s	75	100	165	85	190	190	2.50
MVDLE 510/5	500	Rp 1	250	222 080	26	0.12	approx. 20 s	75	110	190	90	220	213	2.60
MVDLE 515/5	500	Rp 1 1/2	300	222 081	65	0.30	approx. 20 s	95	150	205	116	245	255	5.6
MVDLE 520/5	500	Rp 2	400	222 082	100	0.48	approx. 20 s	115	170	230	135	270	300	11.10
MVD 2040/5	200	DN 40	280	111 146	60	0.26	< 1 s	80	200	170	150	235	255	6.8
MVD 2040/5	360	DN 40	300	119 906	65	0.30	< 1 s	95	200	170	150	235	255	7.0
MVD 2050/5	200	DN 50	300	111 187	65	0.26	< 1 s	95	230	171	165	245	255	7.70
MVD 2065/5	200	DN 65	400	169 390	100	0.48	< 1 s	115	290	221	185	315	330	12.70
MVD 2080/5	200	DN 80	500	169 400	90	0.42	< 1 s	130	310	250	200	340	375	18.50
MVD 2100/5	200	DN 100	550	169 410	100	0.48	< 1 s	150	350	310	240	410	480	31.00
MVDLE 2040/5	200	DN 40	280	119 914	60	0.26	approx. 20 s	80	200	205	150	270	255	6.9
MVDLE 2040/5	360	DN 40	300	111 153	65	0.30	approx. 20 s	95	200	205	150	270	255	7.1
MVDLE 2050/5	200	DN 50	300	111 195	65	0.26	approx. 20 s	95	230	210	165	280	255	7.50
MVDLE 2065/5	200	DN 65	400	170 930	100	0.48	approx. 20 s	115	290	290	190	385	330	13.30
MVDLE 2080/5	200	DN 80	500	170 940	90	0.42	approx. 20 s	130	310	320	200	405	375	18.50
MVDLE 2100/5	200	DN 100	550	170 950	100	0.48	approx. 20 s	150	350	380	240	480	480	31.00
MVD 5040/5	500	DN 40	300	170 660	65	0.26	< 1 s	95	200	170	150	235	255	7.00
MVD 5050/5	500	DN 50	400	170 690	100	0.48	< 1 s	115	230	190	165	265	295	12.00
MVD 5065/5	500	DN 65	500	165 510	90	0.42	< 1 s	130	290	245	190	340	370	17.00
MVD 5080/5	500	DN 80	550	165 640	100	0.50	< 1 s	150	310	295	200	385	465	27.00
MVD 5100/5	500	DN 100	60E ¹⁾	166 150	80	7.5*	< 1 s	170	350	345	240	445	570	42.00
MVDLE 5040/5	500	DN 40	300	222 086	65	0.26	ca. 20 s	95	200	205	150	270	255	7.00
MVDLE 5050/5	500	DN 50	400	222 087	100	0.48	ca. 20 s	115	230	230	165	300	295	13.10

f = Space requirement for solenoid changing

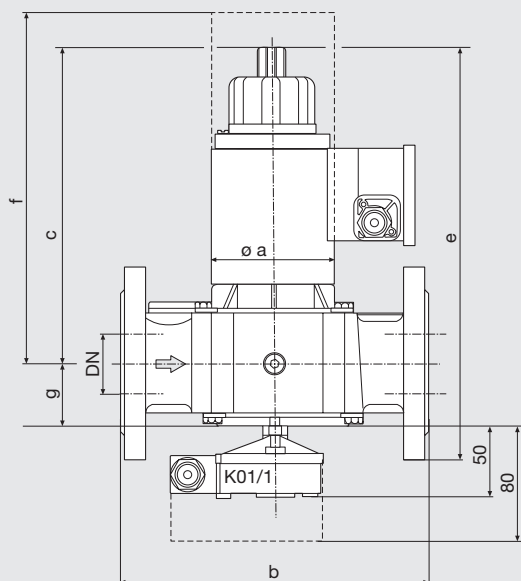
d = largest width

* = for max. 3 s

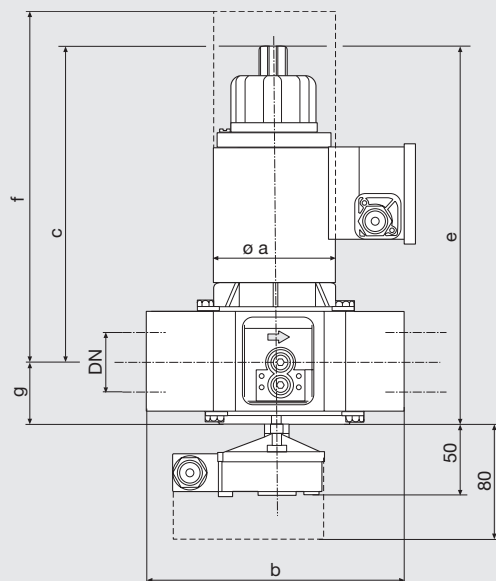
¹⁾ Solenoids 60E, 61E in 24-28 VDC

external activation of solenoid coils required, see operating and mounting instructions

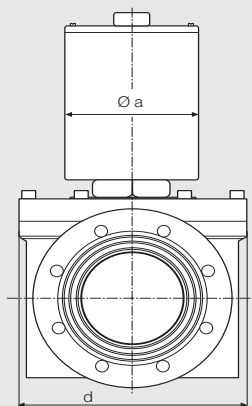
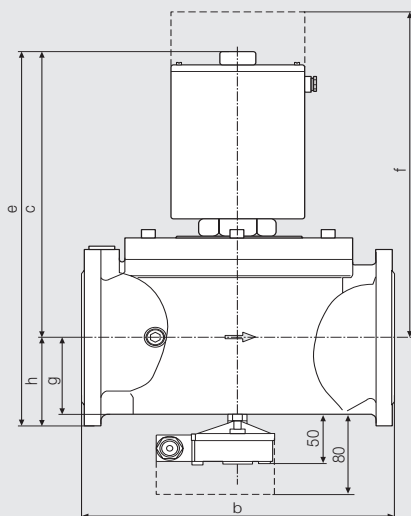
Dimensions [mm]
MV 205 - 220/4 *
MVD 203 - 525/5,
MVDLE 2020/5 - 5100/5



d = largest width
 Ignition gas valve, Type MV 502, refer to Datasheet 6.01
 * Mounting of a closed position signal contact not possible



Dimensions [mm]
MV 5100/5 - MVD 2200
MV 5125 S
MV 5150 S



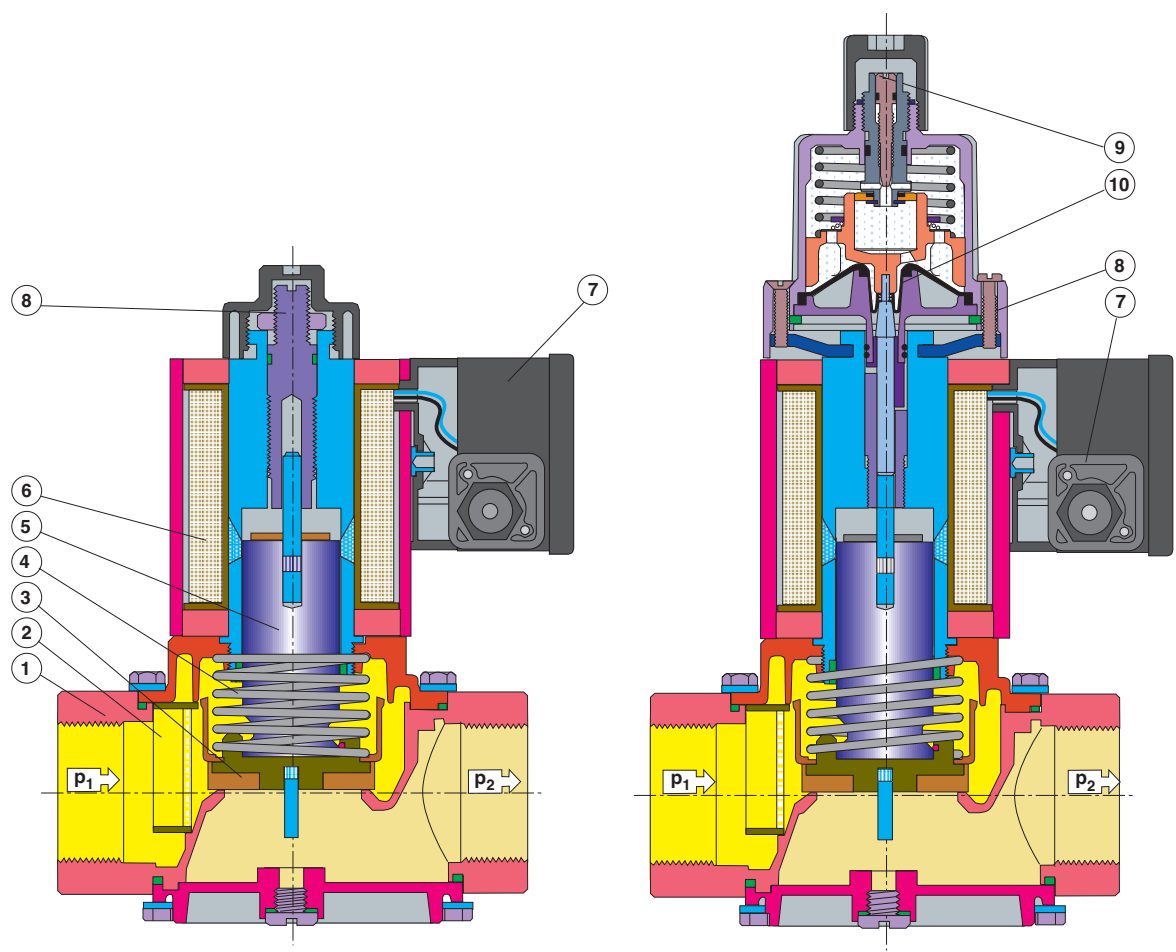
Type	p _{max.}	DN / Rp	Order No.	Solenoid No.	P _{max.} [VA]*	I _{max.} ~ (AC) 230 V [A]**	Opening time	Dimensions [mm]								Weight [kg]
								a	b	c	d	e	f	g	h	
MV 5125/5 S	200	DN 125	224 681	60S	90	7.5	< 1 s	170	400	406	290	531	514	112	125	56.0
MV 5150/5 S	200	DN 150	224 682	61S	90	10	< 1 s	170	480	439	290	582	547	125	143	62.0
MVD 2100/5	200	DN 100	169 410	550	90	7.5	< 1 s	170	350	365	240	465	498	80	100	39.0
MVD 5100/5	500	DN 100	160 150	60E ¹⁾	90	7.5	< 1 s	170	350	365	240	465	498	80	100	39.0
MVD 2125/5	200	DN 125	159 830	60E ¹⁾	90	7.5	< 1 s	170	400	406	290	531	514	112	125	56.0
MVD 5125/5	500	DN 125	159 840	60E ¹⁾	90	7.5	< 1 s	170	400	406	290	531	514	112	125	56.0
MVD 2150/5	200	DN 150	160 050	61E ¹⁾	90	10	< 1 s	170	480	439	290	582	547	125	143	62.0
MVD 5150/5	500	DN 150	160 350	61E ¹⁾	90	10	< 1 s	170	480	439	290	582	547	125	143	62.0
MVD 2200	200	DN 200	213 892	70E	90	10	< 1 s	170	600	590	415	760	587	160	170	123.0

* Electrical rating in open state

¹⁾ Solenoids 60E, 61E in 24-28 VDC

** Switch-on current for approx. 3 s

external activation of solenoid coils required, see operating and mounting instructions



- 1 Housing

2 Sieve

3 Valve plate

4 Closing spring

5 Armature

6 Solenoid coil

7 Electrical connection

8 - Main volume

9 - Fast stroke

10 - Hydraulic brake

Functional description

The DUNGS safety solenoid valve is an automatic shut-off valve operated with auxiliary power. The electromagnetic drive opens against the force of the closing spring 4.

The stroke of armature 5 can be limited by the setting screw 8. The hydraulic brake 10 permits slow opening. Fast stroke 9 can be adjusted.

If the auxiliary power is interrupted (operating voltage), closing spring 4 closes the valve within 1 second. The closed position of the valve can be monitored by a mountable closed position signal contact.

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

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

Spec. weight air
poids spécifique de l'air
peso específico aria

Spec. weight of gas used
poids spécifique du gaz utilisé
peso específico del gas utilizado

Gasart Type of gas Type de gaz Tipo di gas	Dichte Spec. Wgt. poids spécifique Peso específico [kg/m³]	dv	f
Erdgas/Nat. Gas/ Gaz naturel/Gas metano	0.81	0.65	1.24
Stadtgas/City gas/ Gaz de ville/Gas città	0.58	0.47	1.46
Flüssiggas/LPG/ Gaz liquide/Gas liquido	2.08	1.67	0.77
Luft/Air/ Air/Aria	1.24	1.00	1.00