

Dual Modular Safety Shutoff Valves

DMV-D/602 Series
DMV-DLE/602 Series

DUNGS[®]
Combustion Controls



Two normally closed safety shutoff valves in one housing; each with the following approvals.

UL Recognized

- UL 429
- File # MH16727

CSA Certified

- ANSI Z21.21
- CSA 6.5
- Marked C/I
- File # 1010989

FM Approved

- Class 7411
- File # J.I.1Z6A0.AF

Commonwealth of Massachusetts Approved Product

- Approval code G1-1107-35
- Gas Safety Shutoff Valve

US, Canadian and EU Models

- DMV-D 701/602, 702/602, 703/602
- DMV-DLE 701/602, 702/602, 703/602
- 1/2 in. NPT - 2 in. NPT
- Rp1/2 - Rp2

Codes and Standards

This product is intended for installations covered by but not limited to NFPA 37, NPFA 86, ANSI Z83.4, ANSI Z83.18, ANSI Z21.13, CSD-1, UL 795, CSA B149.1 and CSA B149.3.

DUNGS is an ISO 9001 manufacturing facility.



Description

The Dual Modular Valve (DMV) combines two automatic shutoff valves in one compact housing, which can be wired independently or in parallel.

Valve 1 (V1) of the DMV-D and DMV-DLE series is fast opening and fast closing. Valve 2 (V2) of the DMV-D is fast opening, while V2 of the DMV-DLE is slow opening for smoother light-off. Max. flow adjustment on V2 provides variable main flow on both models.

Internal profiles and compact design optimize flow and provide a low pressure drop. Three body styles reduce inventory.

Directly mounting the following accessories creates a compact valve train without additional piping:

- Pressure regulator
- High and low gas pressure switches
- Valve proving system
- Vent line adapter

Application

The DMV is recommended for industrial and commercial heating applications that require two safety shutoff valves. The DMV is suitable for dry natural gas, propane, butane, air and inert gases.

A "dry" gas has a dew point lower than +15 °F and its relative humidity is less than 60 %.

DMV-D.../602 Two normally closed safety shutoff valves in one housing. V1 and V2 are fast opening, fast closing. Adjustable max. flow with V2.

DMV-DLE.../602 Two normally closed safety shutoff valves in one housing. V1 fast opening, fast closing. V2 is slow opening, fast closing. Adjustable max. flow and adjustable initial lift with V2.

Specifications

Body sizes	DMV 701	DMV 702	DMV 703
Pipe size / Thread	1/2" - 1" NPT or Rp	1" - 2" NPT or Rp	1" - 2" NPT or Rp
Max. operating pressure	7 PSI (500 mbar) UL, FM	5 PSI (360 mbar) CSA	
Max. body pressure	15 PSI (1000 mbar)		
Max. close off pressure	7 PSI (500 mbar) UL, FM	5 PSI (360 mbar) CSA	
Electrical ratings (+10 % / -15 %)	110 - 120 VAC @ 50 - 60 Hz 24 VAC @ 50 - 60 Hz; 24 VDC		
Power ratings	DMV 701: 45 VA	DMV 702: 65 VA	DMV 703: 80 VA
	Ratings shown are total power consumption for both valves inclusive. Inrush and full load current have the same VA rating.		
Enclosure rating	NEMA Type 12		
Electrical connection	DIN-connector with 1/2" NPT conduit adapter (order separately)		
Operating time	100 % duty cycle		
Closing time	< 1 s		
Opening time (to max. flow)	DMV-D 525/11 DMV-DLE 525/11	V1 & V2 < 1 s V1 < 1 s; V2 Adjustable to approx. 10 to 20 s at 70 °F	
Initial lift adjustment	Adjustable on V2	DLE only; 0 to 70 % of total flow; 0 to 35% of stroke	
Max. flow adjustment	Adjustable on V2	<10 to 100 % of total flow; <10 to 100% of stroke	
Materials in contact with gas	Housing: Aluminium, Steel; free of non-ferrous metals Sealings on valve seats: NBR-based rubber		
Ambient temperature rating	-40 °F to +150 °F (-40 °C to +65 °C)		
Installation position	Safety shutoff valve from vertically upright to horizontal		
Gas filter (optional)	Replaceable integral gas filter (50 micron) in inlet of DMV or Pre-Mount Filter Block for DMV 702 and 703. (Cannot be used with FRI directly mounted to the DMV)		
Gas strainer (standard)	Installed in the housing upstream V1 (23 mesh)		
Position indication (order separately)	CPI 400 with indication lamps and SPDT interlock switch or Visual indicator (VI)		
Test ports / Pressure switch mounting ports	G 1/8 ISO 228 ports available on both sides. Each side has one port upstream V1, one between V1 and V2, one downstream V2, and one on each flange.		
Valve proving system	Requires VPS 504; mounts directly to either side of DMV		

FRI Gas pressure regulator

Mounting the FRI series gas pressure regulator directly to the DMV dual safety shutoff valve is possible with a mounting kit.

The FRI pressure regulator can be installed upstream or downstream of the DMV dual safety shutoff valve depending on application requirements.

Replacement FRI to DMV mounting kit

FRI 705 - 707/6 to DMV 701/602

Order No. 219-967

FRI 710-712/6 to DMV 702/602 & 703/602

Order No. 219-968

Additional Accessories

VPS 504

Valve proving system (approved by some authorities having jurisdiction in lieu of vent valve and "proof of closure").

Integral gas filter (optional)

50 micron gas filter

Pre-Mount Filter (optional)

50 micron gas filter

GAO/GMH/GML A2

gas pressure switch

Position indication

CPI 400 with indication lamps and SPDT interlock switch, or visual indicator (VI)

DMK butterfly control valve

Mounts directly downstream of DMV to modulate gas flow. Requires actuator. Use DMA actuator with DMK butterfly valve.

DMV D(LE) 7xx/602 VL (with vent line adapter)

Factory installed vent line adapter which integrates a vent line connection with the DMV series.

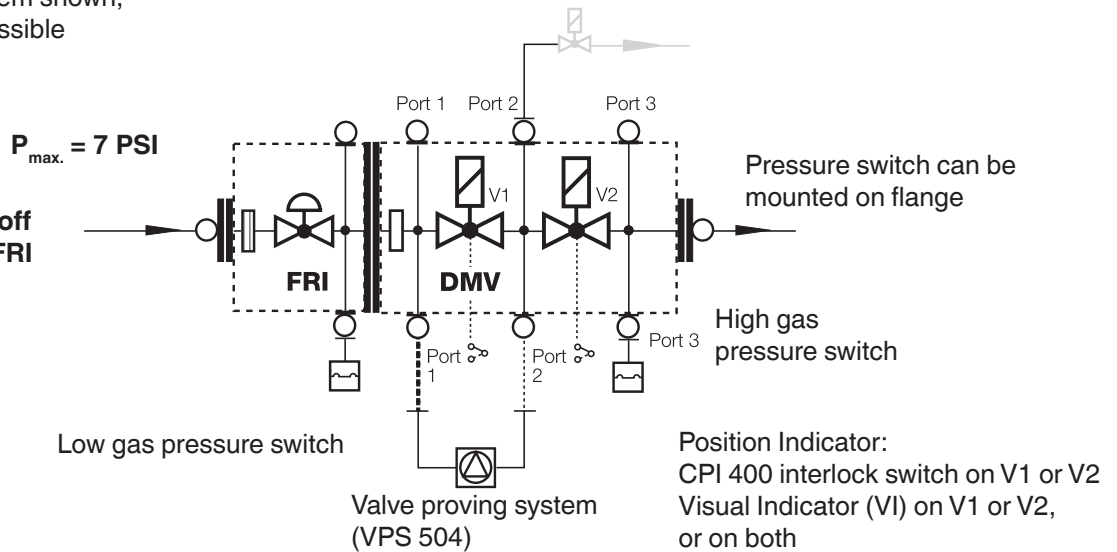
Adapters

- 1/4" NPT adapter (225-047)
- 1/2" NPT Pilot gas adapter; Check flow requirements. (225-043)
- G 1/8" Test nipple (219-008)
- Port 3 Pressure switch mounting adapter (214-975)

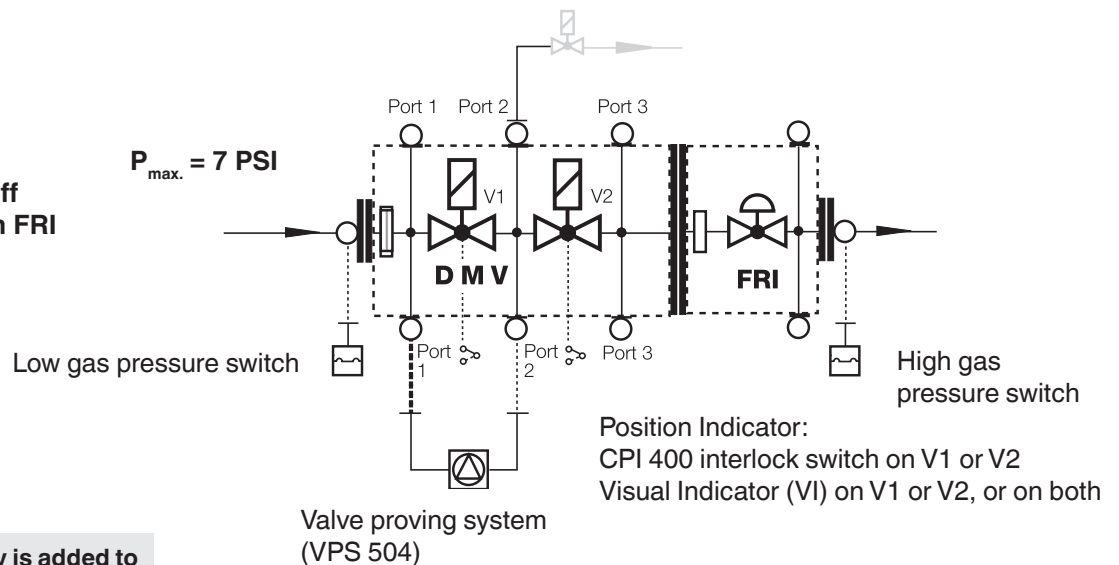
DMV dual safety shutoff valve modular system

Optional mounting system shown,
other configurations possible

DMV dual safety shutoff valve with upstream FRI pressure regulator



DMV dual safety shutoff valve with downstream FRI pressure regulator



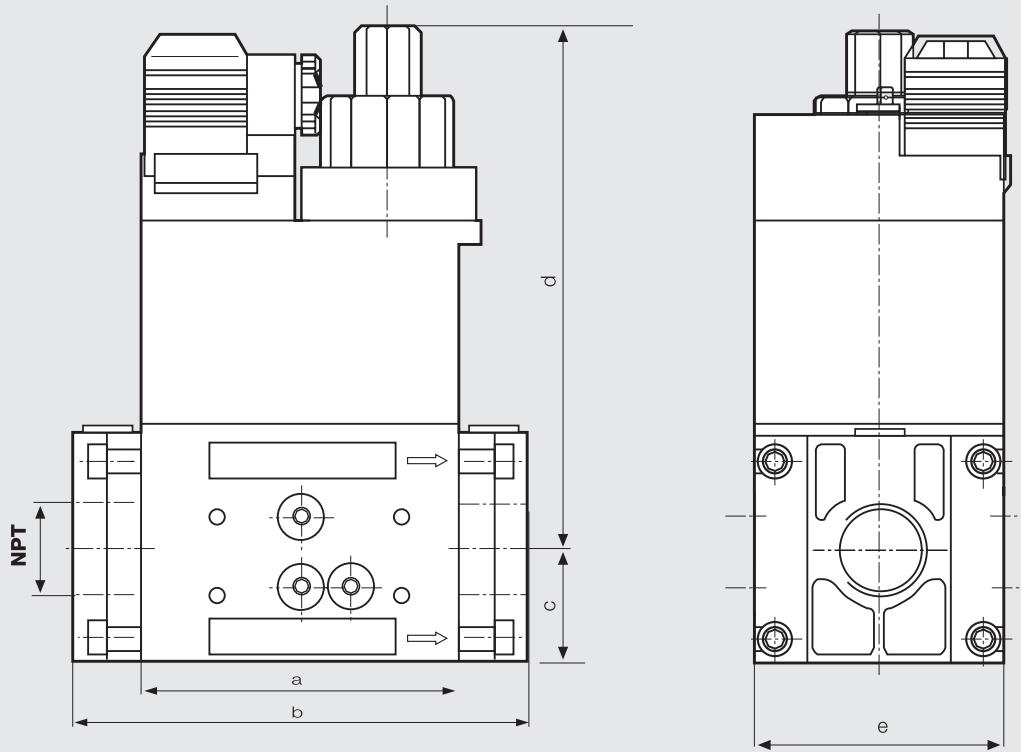
⚠ When an accessory is added to the DMV, it may not be possible to mount other devices.


Valve Description	Flange	NPT Part No.	Rp Part No.	O-ring and bolt kit P/N*	FRI mounting Kit P/N**	Integral filter & strainer replacement
DMV-701/602	1/2"	222-371	222-341	224-093	219-967	230-440
DMV-701/602	3/4"	222-368	222-342	224-093	219-967	230-440
DMV-701/602	1"	221-999	222-001	224-093	219-967	230-440
DMV-702/602 & 703/602	1"	222-369	222-343	224-094	219-968	230-441
DMV-702/602 & 703/602	1 1/4"	222-370	222-344	224-094	219-968	230-441
DMV-702/602 & 703/602	1 1/2"	222-003	221-884	224-094	219-968	230-441
DMV-702/602 & 703/602	2"	221-997	221-926	224-094	219-968	230-441

Accessories/Adapters	P/N
DIN-Electrical Connector	210-319
CPI 400 valve switch	224-253A
Visual indicator	217-665A
1/4" NPT adapter	225-047

Accessories/Adapters	P/N
1/2" NPT Pilot gas adapter: Check flow requirements	225-043
G1/8 Test nipple	219-008
Port 3 Pressure switch mounting adapter	214-975

Dimensions inch (mm)



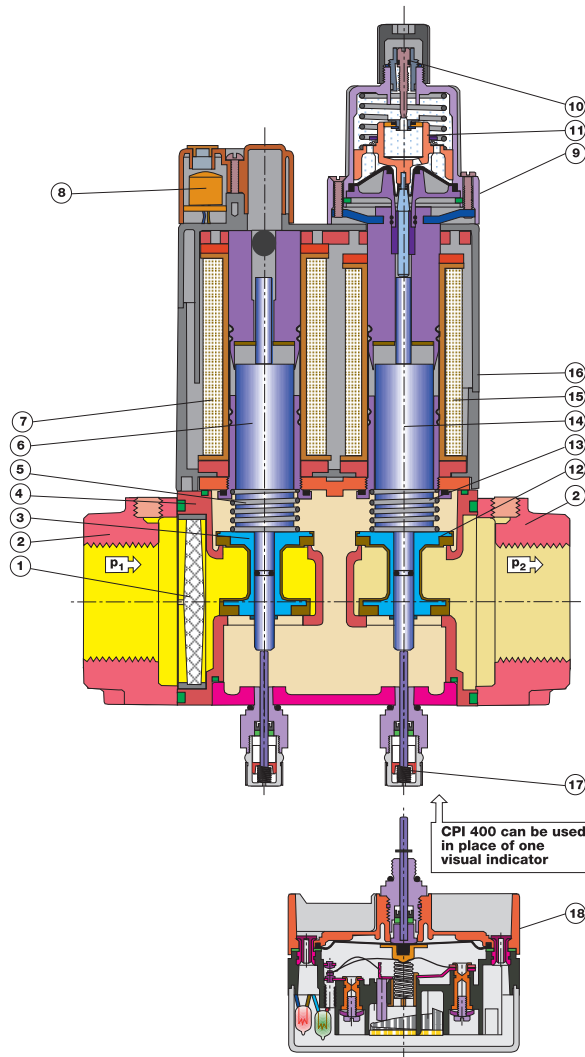
 Please order flanges, position indicators and gas filters separately

Type	110-120 VAC @ 50-60 Hz Order No.	24 VAC 50-60 Hz Order No.	24 VDC Order No.	Power* [VA]	Dimensions [inch] / Dimensions [mm]					Weight [lbs] / [kg]
					a	b**	c****	d	e	
DMV-D 701/602	224-842	228-220	226-990	45	3.7 93	5.6 141	1.4 35	5.3 134	2.9 73	4.6 2,1
DMV-D 702/602	224-843	228-221	226-991	65	4.9 124	6.9 / 7.9 174 / 201	1.8 45	5.9 150	3.9 101	10.1 4,6
DMV-D 703/602	224-844	228-222	226-992	90	4.9 124	6.9 / 7.9 174 / 201	1.8 45	7.5 190	3.9 101	12.1 5,6
DMV-DLE 701/602	224-845	228-223	226-993	45	3.7 93	5.6 141	1.4 35	6.4 160	2.9 73	4.8 2,2
DMV-DLE 702/602	224-846	228-224	226-994	65	4.9 124	6.9 / 7.9 174 / 201	1.8 45	6.7 179	3.9 101	10.3 4,7
DMV-DLE 703/602	224-847	228-225	226-995	90	4.9 124	6.9 / 7.9 174 / 201	1.8 45	8.6 218	3.9 101	12.3 5,7

* Inrush current and full load current have the same VA rating.
 ** DMV 702/703 with 1" or 1 - 1/4" flange: 6.9" / DMV 702/703 with 1 - 1/2" or 2" flange: 8.1"
 *** When using the CPI Closed Position Indicator switch add .3". When using with the vent line adapter assembly, add 1.65" to dimension c. (see vent line adapter information sheet)

Flow (CFH) of natural gas, s.g. 0.65 at 60 °F with 1 in. W.C. pressure drop @ 1.25 psi inlet pressure.						
	1/2 "	3/4"	1"	1-1/4"	1-1/2"	2"
DMV 701	345	429	457	-	-	-
DMV 702	-	-	1065	1277	1368	1430
DMV 703	-	-	1230	1532	1698	1795

DMV-D(LE).../602
sectional drawing



- 1 Strainer
- 2 Flange
- 3 Valve V1
- 4 Housing
- 5 Closing spring V1
- 6 Plunger V1
- 7 Solenoid V1
- 8 Electrical connection
- 9 Max flow adjustment
- 10 Initial lift adjustment (DMV-DLE)
- 11 Hydraulic brake (DMV-DLE)
- 12 Valve V2
- 13 Closing spring V2
- 14 Plunger V2
- 15 Solenoid V2
- 16 Solenoid housing
- 17 Visual indicator (VI)
- 18 CPI 400 interlock switch

Pressure drop for other gases

To determine the pressure drop when using a gas other than natural gas, use the flow formula below and f value located in the table below to determine

the “corrected” flow rate in CFH through the valve for the other gas used. For example, when using propane, divide the volume (CFH) of propane required for the application by the calculated value

f (f = 0.66 for propane). Use this “corrected” flow rate and the flow curve on the next page to determine pressure drop for propane.

Determining equivalent flow through valves using another gas

$$\dot{V}_{\text{gas used}} = \dot{V}_{\text{Natural gas}} \times f$$

$$f = \sqrt{\frac{\text{Density of Natural gas}}{\text{Density of gas used}}}$$

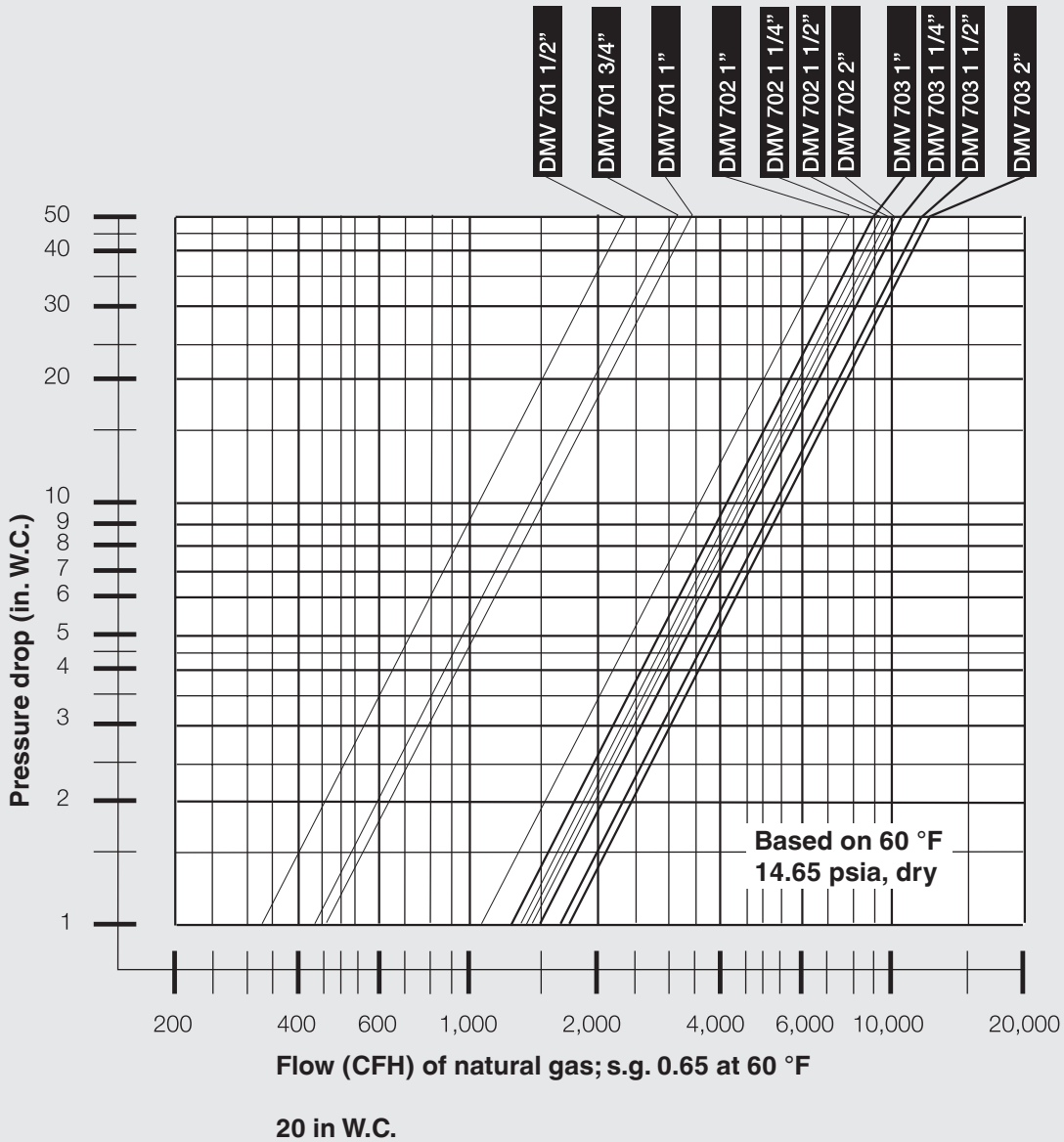
Type of gas	Density [kg/m ³]	s.g.	f
Natural gas	0.81	0.65	1.00
Butane	2.39	1.95	0.58
Propane	1.86	1.50	0.66
Air	1.24	1.00	0.80

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DMV-DLE/602 Series**



Flow curve



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



Karl Dungs Inc.
3890 Pheasant Ridge Drive NE
Suite 150
Blaine, MN 55449, U.S.A.
Phone 763 582-1700
Fax 763 582-1799
e-mail info@karldungsusa.com
Internet <http://www.dungs.com/usa/>

Karl Dungs GmbH & Co. KG
P.O. Box 12 29
D-73602 Schorndorf, Germany
Phone +49 (0)7181-804-0
Fax +49 (0)7181-804-166
e-mail info@dungs.com
Internet <http://www.dungs.com>