

Dual Safety Shutoff Valves with Proof of Closure and NEMA 4x Enclosure

DMV-D/624L Series DMV-DLE/624L Series

DUNGS[®]
Combustion Controls



Two normally closed automatic shutoff valves in one housing. Valve 2 (V2) incorporates proof of closure. Each valve has the following approvals.

UL Listed

- UL 429
- File #MH16727

CSA Certified

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

FM Approved

- Class 7411
- File # J.I. 3017969

Commonwealth of Massachusetts Approved Product

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

US and Canadian Models

- DMV-D 702/624 and 703/624
- DMV-DLE 702/624 and 703/624
- 1/2 in. NPT - 2 in. NPT

Codes and Standards:

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

DUNGS is an ISO 9001 manufacturing facility.



Description

The Dual Modular Valve DMV/624L combines two automatic shutoff valves in one compact housing. Valve 2 (V2) incorporates proof of closure. Both valves 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 pres-

sure drop. Two 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
- Butterfly control valve

Application

The DMV/624L is recommended for industrial and commercial heating applications that require two safety shutoff valves, one with proof of closure. The DMV Dual Modular Valve is suitable for natural gas, propane, butane, air and inert gases.

DMV-D/624L Two normally closed automatic shutoff valves in one housing. Valve 2 (V2) incorporates proof of closure. V1 and V2 are fast opening, fast closing. Adjustable max flow with V2.

DMV-DLE/624L Two normally closed automatic shutoff valves in one housing. Valve 2 (V2) incorporates proof of closure. V1 fast opening, fast closing. V2 is slow opening, fast closing. Adjustable max flow and Adjustable initial lift with V2.

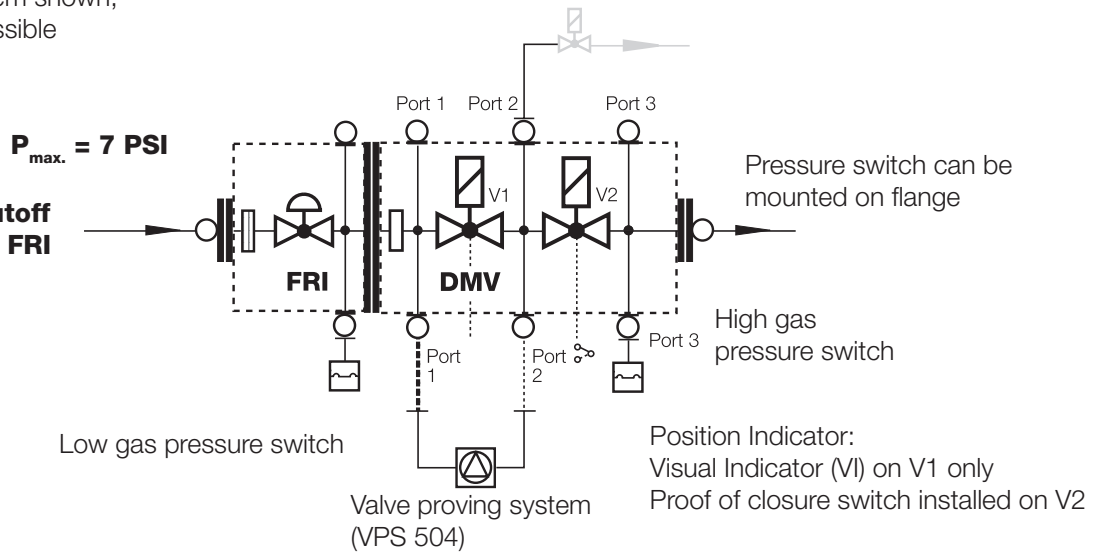
Specifications

Body sizes pipe size / thread	DMV 702/624 1" - 2" NPT	DMV 703/624 1" - 2" NPT
Max. operating pressure	7 PSI (500 mbar) FM, UL	5 PSI (360 mbar) CSA
Max. body pressure	15 PSI (1000 mbar)	
Max. close-off pressure	7 PSI (500 mbar) FM, UL	5 PSI (360 mbar) CSA
Electrical ratings (+10% / -15%)	110 - 120 VAC/50 - 60 Hz	
Power ratings	DMV 702: 60 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 4x	
Electrical connection	Screw terminals with 1/2" NPT conduit connection	
Operating time	100 % duty cycle	
Closing time	< 1 s	
Opening time (to max. flow)	DMV-D.../624 DMV-DLE.../624	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; approx. 0 to 70 % of total flow
Max. flow adjustment	Adjustable on V2	approx. 5 to 100 % of total flow
Materials in contact with gas	Housing: Sealings on valve seats:	Aluminium, Steel. NBR-based rubber
Ambient temperature rating	-20 °F to +150 °F (-30 °C to +65 °C)	
Installation position	Safety valve upright vertical to horizontal	
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.	
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)	
Proof of closure switch Factory mounted and calibrated	SPDT switch with indication lamps;	AC max. 10A resistive @ 120 Vac AC max. 8A inductive @ 120 Vac
Position indication	Visual indicator (VI), optional for valve #1	
Valve proving system	Requires VPS 504; mounts directly to either side of DMV. (NEMA Type 12 only)	

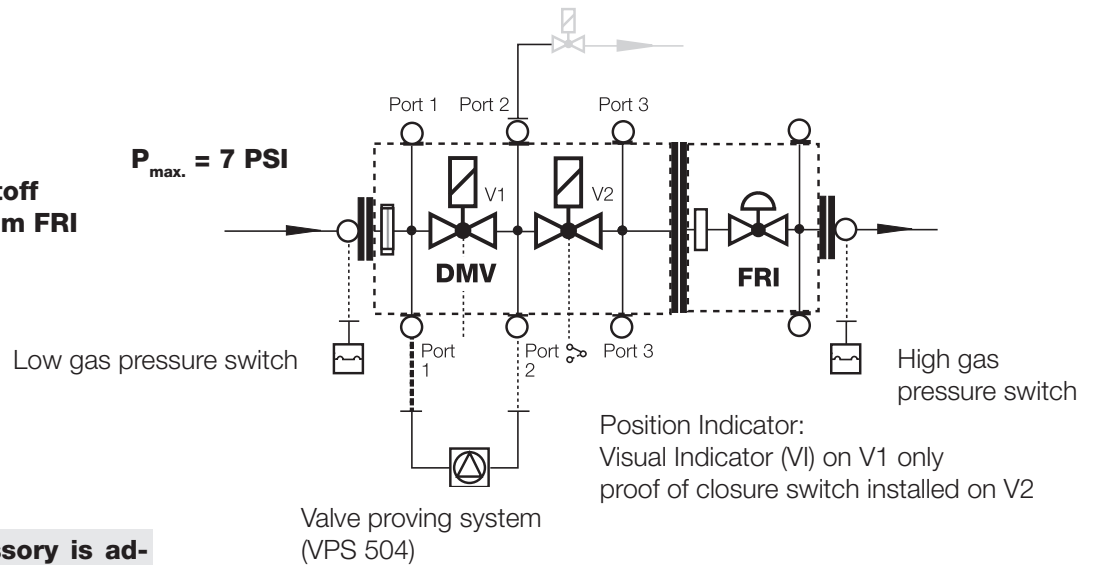
DMV dual safety shutoff valve modular system

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

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.

FRI mounting kit for DMV

FRI 705 - 707/6 to DMV 701/622

Order No. 219-967

FRI 710-712/6 to DMV 702/622 + DMV 703/622

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" e.g. FM and Swiss Re). NOTE: The VPS is a NEMA Type 12 enclosure.

DMK butterfly control valve

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

Integral gas filter (optional)

50 micron gas filter

Pre-Mount Filter (optional)

50 micron gas filter

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 D(LE) 7xx/624L VLA (with vent line adapter)

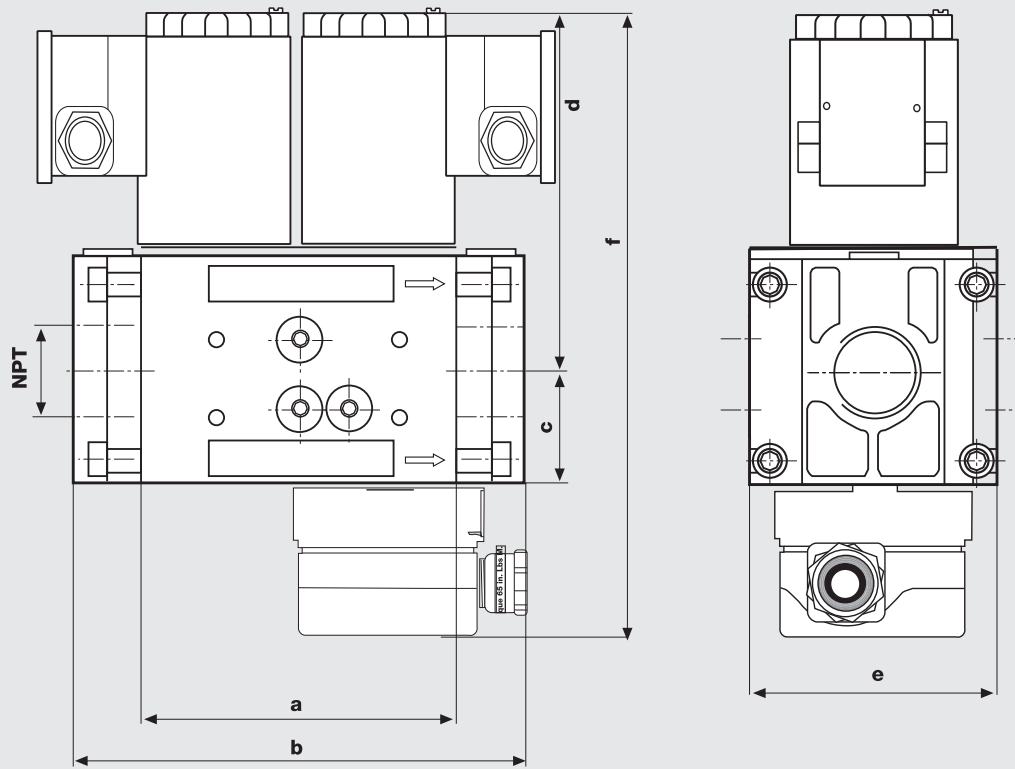
Factory installed vent line adapter which integrates a vent line connection with the DMV series.

GAO/GMH/GML A2 pressure switch

Position indication

CPI 400 with indication lamps and SPDT interlock switch, or Visual Indicator (VI).

Dimensions inch (mm)



Type	110-120 VAC 50-60 Hz Order No.	Power* [VA]	Dimensions [inch]						Weight [lbs] [kg]
			Dimensions [mm]						
			a	b**	c	d	e	f	
DMV-D 702/624L	244-167P	60	4.9	6.9 / 7.9	1.8	5.9	3.9	10.4	11.0
			124	172 / 201	45	150	101	263	5.0
DMV-D 703/624L	244-166P	80	4.9	6.9 / 7.9	1.8	7.5	3.9	12.0	13.0
			124	172 / 201	45	190	101	303	5.9
DMV-DLE 702/624L	244-168P	60	4.9	172 / 201	1.8	6.7	3.9	11.2	11.2
			124	6.9 / 7.9	45	197	101	310	5.1
DMV-DLE 703/624L	244-165P	80	4.9	172 / 201	1.8	8.6	3.9	13.1	13.2
			124		45	218	101	331	6.0

* Inrush current and full load current have the same VA rating.

** DMV 702/703 with 1" or 1 - 1/4" flange, "b" = 6.9". DMV 702/703 with 1 - 1/2" or 2" flange, "b" = 7.9".

Valve	Flange	NPT	Rp
DMV-702/624L & 703/624L	1"	222-369	222-343
DMV-702/624L & 703/624L	1 1/4"	222-370	222-344
DMV-702/624L & 703/624L	1 1/2"	222-003	221-884
DMV-702/624L & 703/624L	2"	221-997	221-926

Visual indicator
217-665

Replacement Coils (120Vac)
DMV-702/624L 246-515
DMV-703/624L 246-516

Integral gas filter (50 micron) and strainer

DMV-702/624L	230-441
DMV-703/624L	230-441

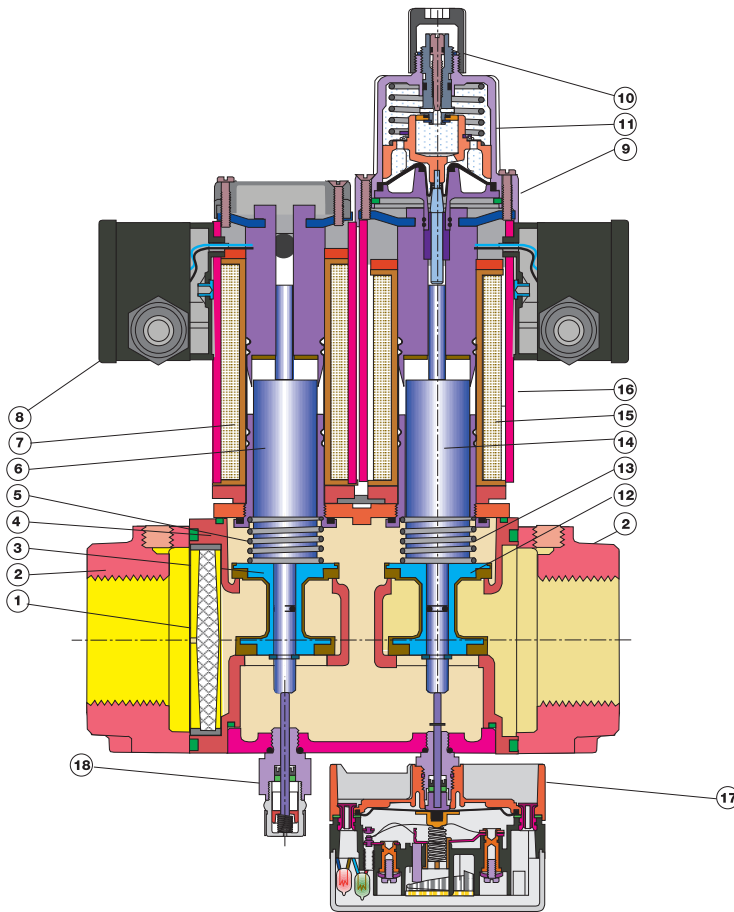
Replacement Hydraulic Brake for DLE versions

240-458



**Order flanges,
position indicators and
gas filters separately**

DMV-D(LE).../624L
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 Proof of closure switch
- 18 Visual indicator (optional)

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

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

f = correction factor to determine flow through valves with other gases.

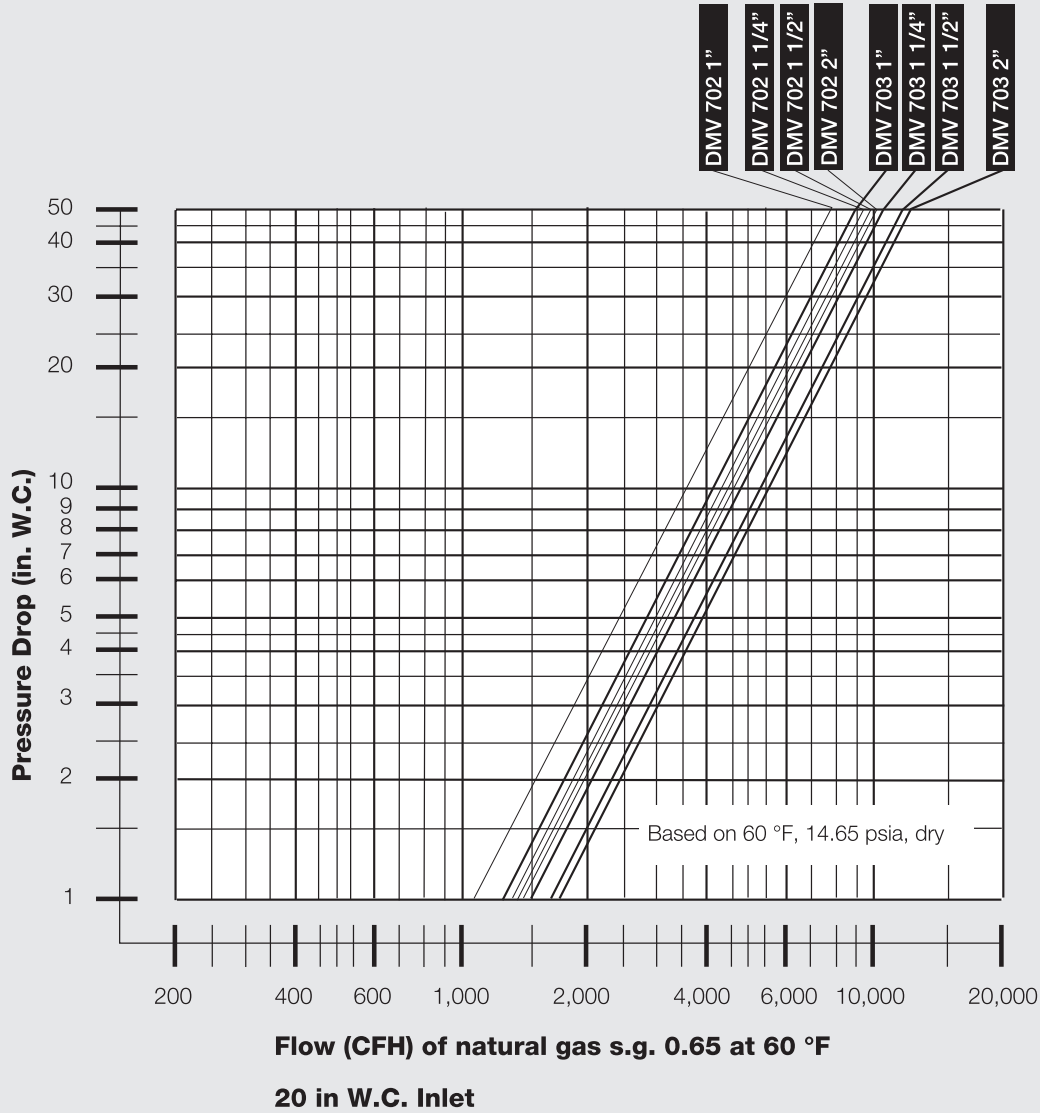
$$f = \sqrt{\frac{\text{Spec. gravity of Natural Gas}}{\text{Spec. gravity of gas used}}}$$

Type of gas	Density [kg/m ³]	sg	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

**Dual Safety Shutoff Valves
with Proof of Closure and
NEMA 4x Enclosure
DMV-D/624L, DMV-DLE/624L**



Flow curve



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

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