Dual Modular Safety Shutoff Valves with Proof of Closure

DMV-D/622 Series
DMV-DLE/622 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 Recognized
- UL 429
- File #MH16727

CSA Certified
- ANSI Z21.21
- CSA 6.5
- Marked C/I
- File # 157406

FM Approved
- Class 7411
- File # J.I. 3004006

Commonwealth of Massachusetts Approved Product
- Approval code G1-1107-35
- Gas Safety Shutoff Valve

US and Canadian Models
- DMV-D 702/622 and 703/622
- DMV-DLE 702/622 and 703/622
- 1/2 in. NPT - 2 in. NPT

Codes and Standards
This product is intended for installations covered by but not limited to NFPA 86, NFPA 37, NFPA 160, ANSI Z83.4/ CSA 3.7, ANSI Z83.18/CSA 4.9, ANSI Z21.13, CSD-1, UL 795, UL 2200, CAN1-3.1, CGA 3.2, CSA 3.8 or CSA B149.1 and CSA B149.3.

DUNGS is an ISO 9001 manufacturing facility.

Description
The Dual Modular Valve DMV/622 combines two automatic shutoff valves in one compact housing. Valve 2 (V2) incorporates "proof of closure" valve seal overtravel and interlock. 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 pressure 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
- Butterfly control valve

Application
The DMV/622 is recommended for industrial and commercial heating applications that require two safety shutoff valves and "proof of closure" valve seal overtravel and interlock. The DMV Dual Modular Valve is suitable for dry natural gas, propane, butane, air and inert gases.

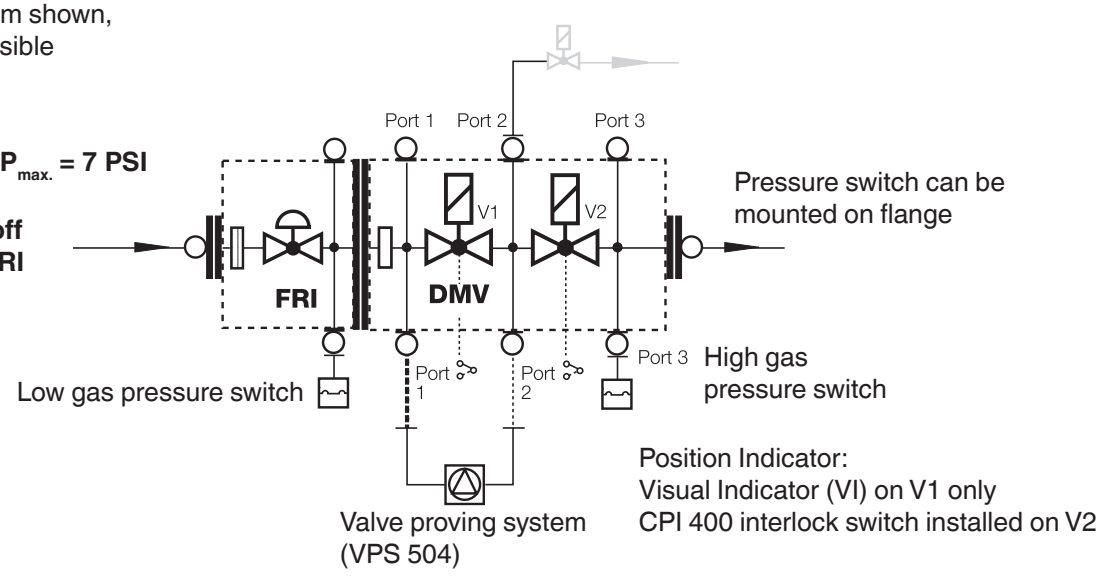
A "dry" gas has a dew point lower than +15 °F and its relative humidity is less than 60 %.

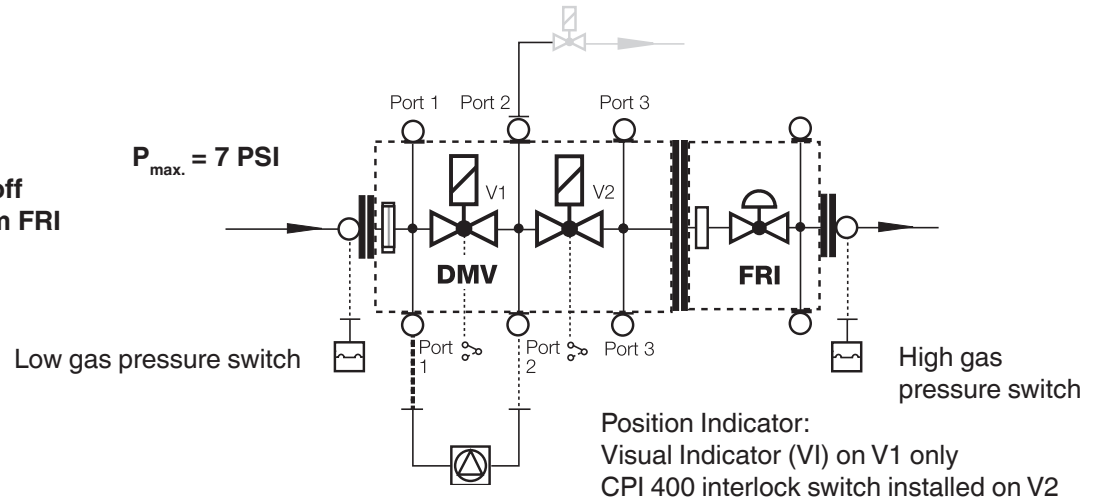
DMV-D/622	Two normally closed automatic shutoff valves in one housing. Valve 2 (V2) incorporates "proof of closure". V1 and V2 are fast opening, fast closing. Adjustable max flow with V2.
DMV-DLE/622	Two normally closed automatic shutoff valves in one housing. Valve 2 (V2) incorporates "proof of closure". 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 701 1/2" - 1" NPT	DMV 702 1" - 2" NPT	DMV 703 1" - 2" NPT
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 Ratings shown are total power consumption for both valves inclusive. Inrush and full load current have the same VA rating.	DMV 702: 65 VA	DMV 703: 80 VA
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.../622 DMV-DLE.../622	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: Aluminium, Steel Sealings on valve seats: NBR-based rubber		
Ambient temperature rating	-20 °F to +150 °F (-29 °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)		
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)		
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		

DMV dual safety shutoff valve modular system
Optional mounting system shown,
other configurations possible





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

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 safey shutoff valve depending on application requirements.

FRI mounting kit for DMV
FRI 705 - 707/6 to DMV 701/622
Order No. 219967

FRI 710-712/6 to DMV 702/6220 + DMV 703/622
Order No. 219968

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, IRI).

Integral gas filter (optional)
50 micron gas filter

Pre-Mount Filter (optional)
50 micron gas filter

GAO/GMH/GML A2
gas pressure switch

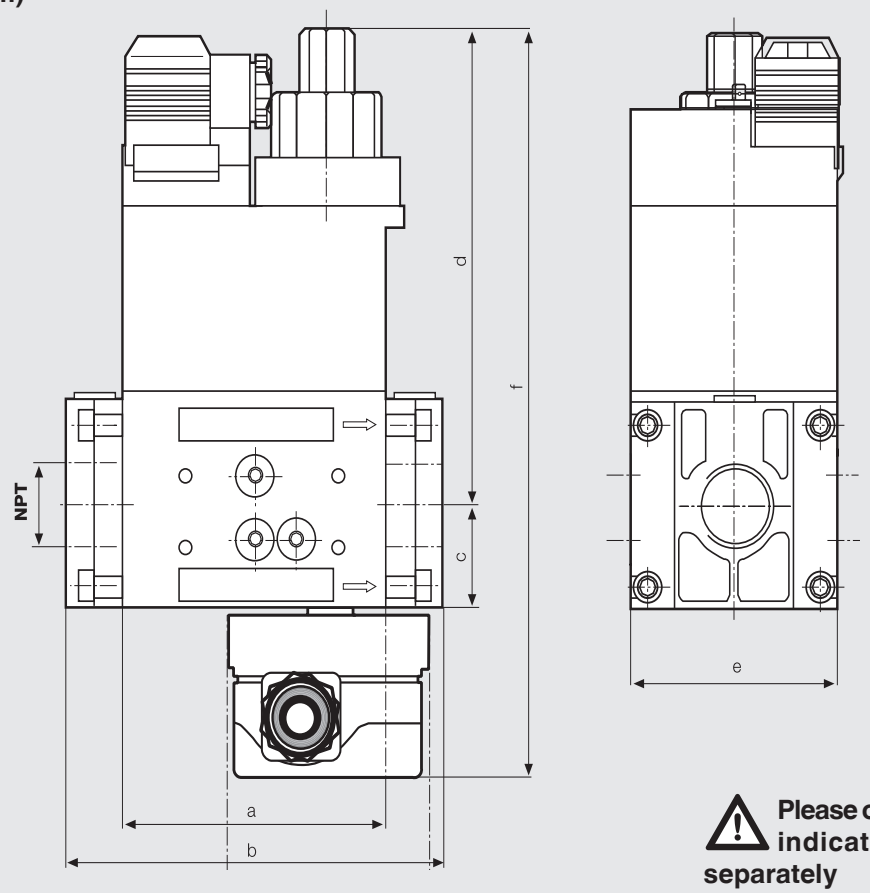
Position indication
Visual indicator (VI)

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/622 VLA (with vent line adapter)
Factory installed vent line adapter which integrates a vent line connection with the DMV series.

Adapters
- 1/4” NPT adapter (225047)
- 1/2” NPT Pilot gas adapter; Check flow requirements. (225043)
- G 1/8” Test nipple (219008)
- Port 3 Pressure switch mounting adapter (273777)

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] a	b**	c	d	e	f	Weight [lbs] [kg]
DMV-D 701/622	267061	upon request	upon request	45	**3.7** 93	**5.6** 141	**1.4** 35	**5.3** 134	**2.9** 73	**9.5** 241	**4.6** 2,1
DMV-D 702/622	267016	upon request	upon request	65	**4.9** 124	**6.9 / 7.9** 174 / 201	**1.8** 45	**5.9** 150	**3.9** 101	**10.4** 263	**10.1** 4,6
DMV-D 703/622	267022	upon request	upon request	80	**4.9** 124	**6.9 / 7.9** 174 / 201	**1.8** 45	**7.5** 190	**3.9** 101	**12.0** 303	**12.1** 5,6
DMV-DLE 701/622	267067	upon request	upon request	45	**3.7** 93	**5.6** 141	**1.4** 35	**6.3** 160	**2.9** 73	**10.5** 267	**4.8** 2,2
DMV-DLE 702/622	267019	upon request	upon request	65	**4.9** 124	**6.9 / 7.9** 174 / 201	**1.8** 45	**6.7** 179	**3.9** 101	**11.2** 310	**10.3** 4,7
DMV-DLE 703/622	267025	upon request	upon request	80	**4.9** 124	**6.9 / 7.9** 174 / 201	**1.8** 45	**8.6** 218	**3.9** 101	**13.1** 331	**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: 7.9"

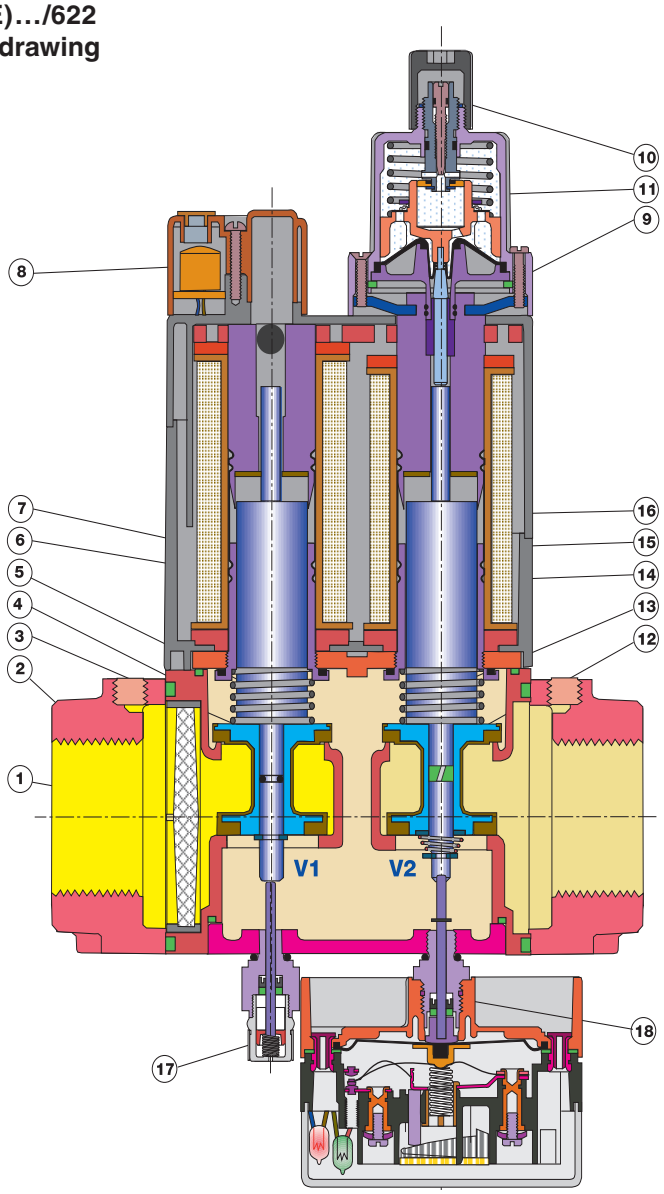
Valve Description	Flange	NPT	Rp
DMV-701/602	**1/2"**	222371	222341
DMV-701/602	**3/4"**	222368	222342
DMV-701/602	**1"**	221999	222001
DMV-702/6 & 703/602	**1"**	222369	222343
DMV-702/6 & 703/602	**1 1/4"**	222370	222344
DMV-702/6 & 703/602	**1 1/2"**	222003	221884
DMV-702/6 & 703/602	**2"**	221997	221926

DIN-Connector	210319
Visual indicator	266949

Integral gas filter (50 micron)	P/N
DMV-701/602	214276
DMV-702/602	214525
DMV-703/602	214525

Pre-Mount Filter	P/N
DMV-701/602	232440
DMV-702/602	226342
DMV-703/602	226342
Pre-Mount replacement filter	**P/N**
DMV-701/602	238653
DMV-702/602	226997
DMV-703/602	226997

DMV-D(LE)…/622 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 Proof of closure 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

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

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

Type of gas	Density [kg/m³]	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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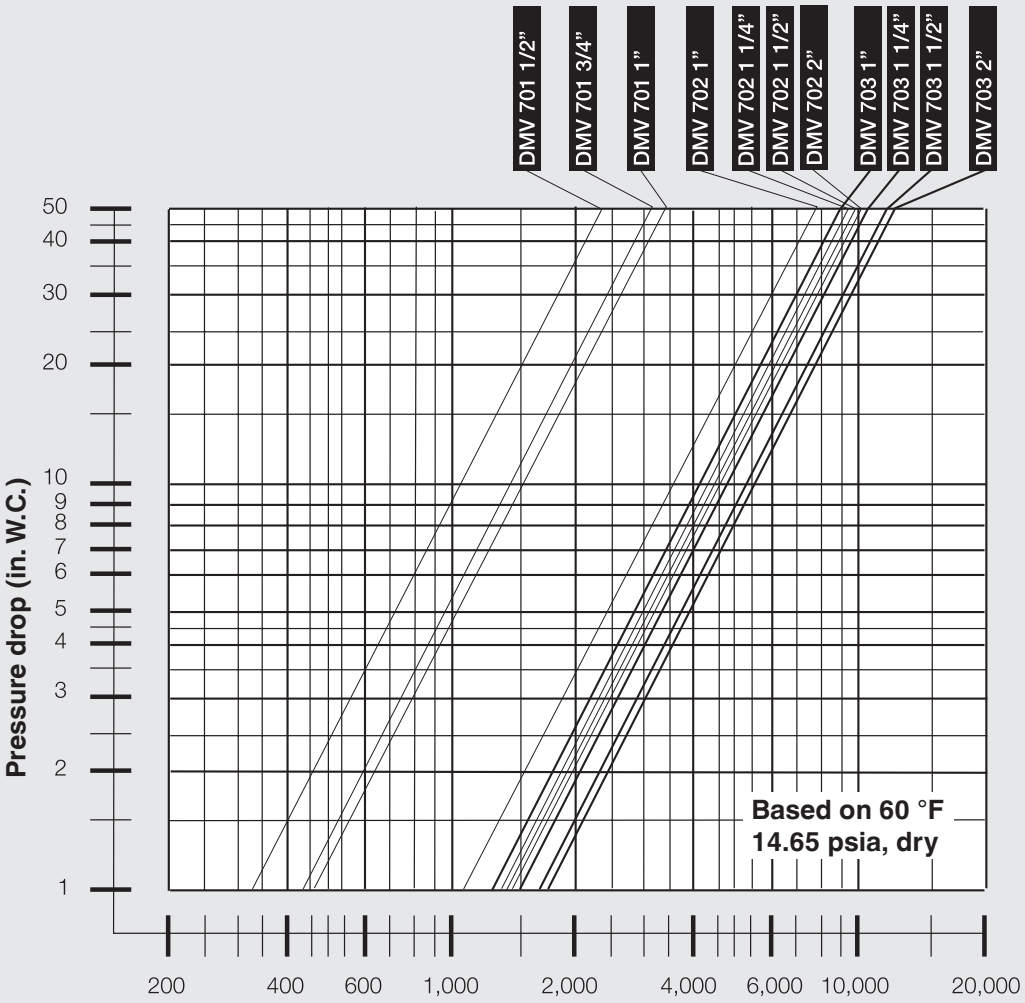
Flow curve



Flow (CFH) of natural gas; s.g. 0.65 at 60 °F

20 in W.C.

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

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