

# Dual Modular Safety Shutoff Valves

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

**DUNGS**<sup>®</sup>  
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 flow 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<br>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.<br>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<br>DMV-DLE 525/11   | V1 & V2 < 1 s<br>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<br>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

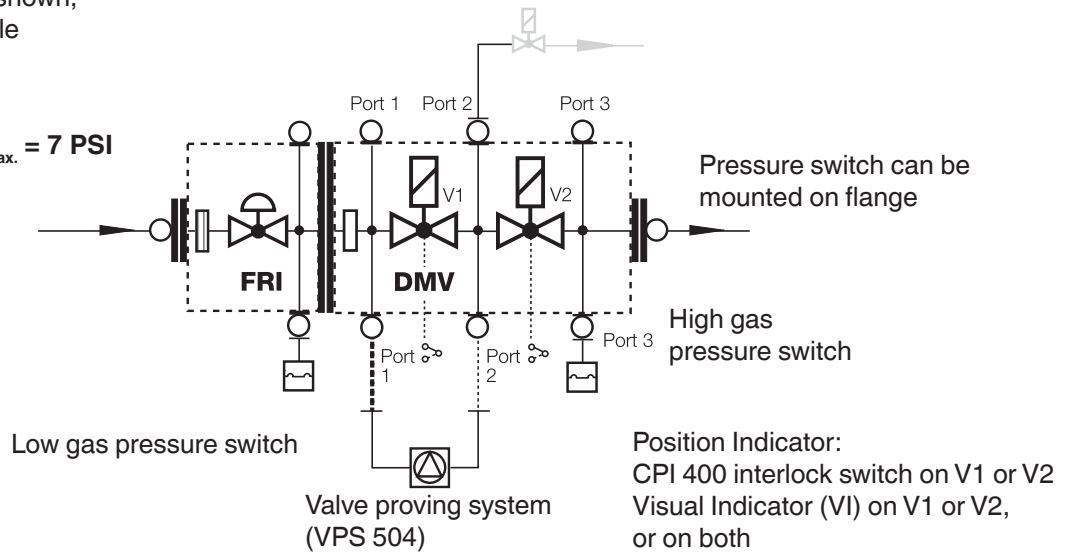
- 1/4" NPT adapter (225-047)
- 1/2" NPT Pilot gas adapter; Check flow requirements. (225-043)
- G 1/8" Test nipple (219-008)
- Port 3 Pressure switch mounting adapter (214-975)

## DMV dual safety shutoff valve modular system

Optional mounting system shown,  
other configurations possible

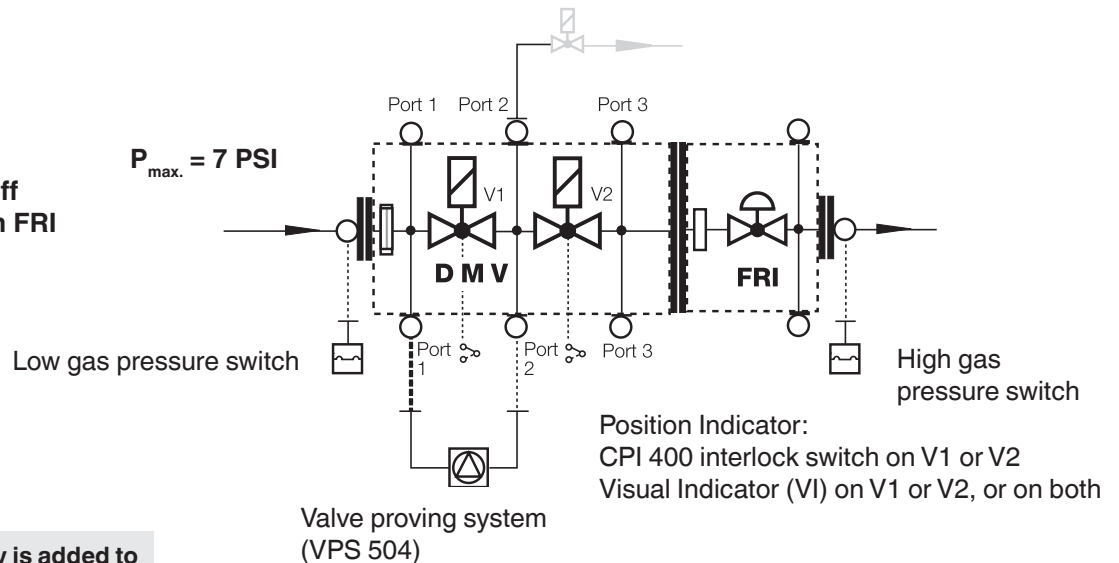
**DMV dual safety shutoff valve with upstream FRI pressure regulator**

$P_{max.} = 7 \text{ PSI}$



**DMV dual safety shutoff valve with downstream FRI pressure regulator**

$P_{max.} = 7 \text{ PSI}$



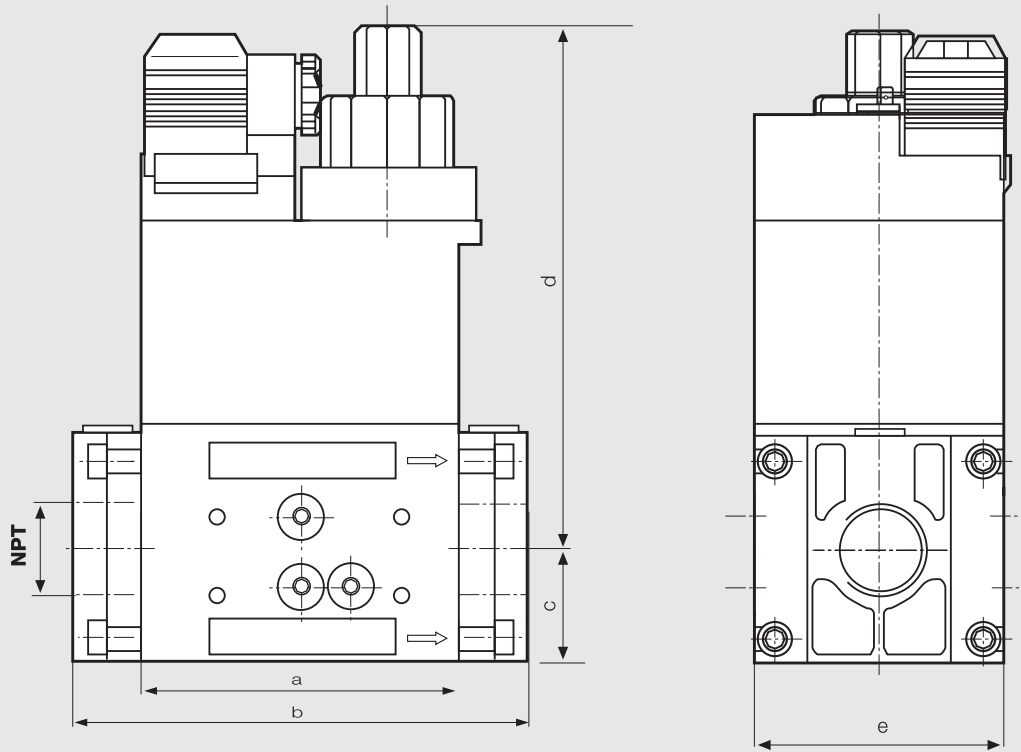
**⚠ When an accessory is added to the DMV, it may not be possible to mount other devices.**


| 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:<br>Check flow requirements | 225-043 |
| G1/8 Test nipple                                       | 219-008 |
| Port 3 Pressure switch mounting adapter                | 214-975 |

Dimensions inch (mm)



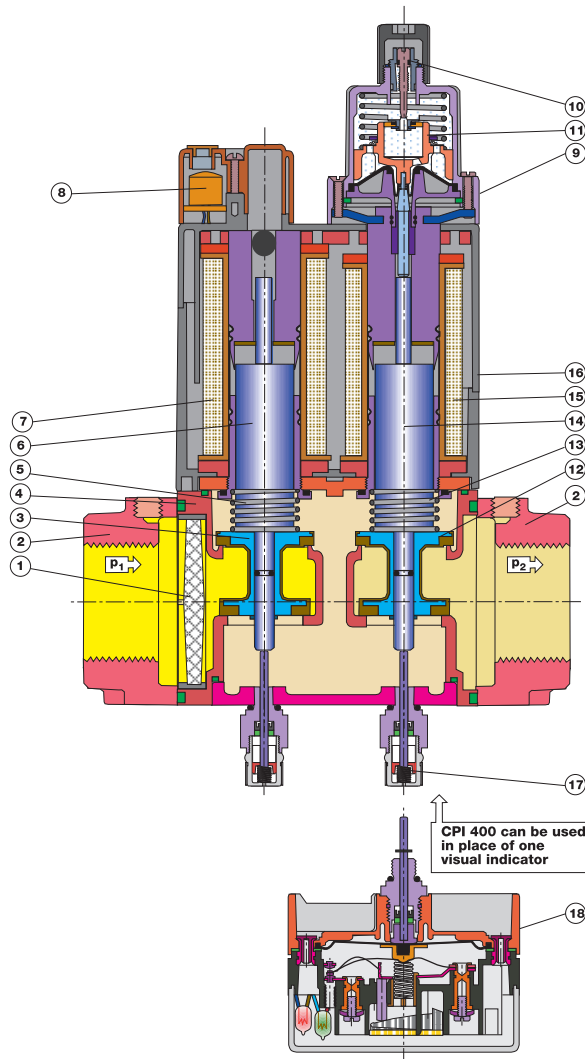
 Please order flanges, position indicators and gas filters separately

| 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<br>93                           | 5.6<br>141             | 1.4<br>35 | 1.4<br>35  | 1.4<br>35  | 4.6<br>2,1          |
| DMV-D 702/602   | 224-843                          | 228-221                   | 226-991          | 65          | 4.9<br>124                          | 6.9 / 7.9<br>174 / 201 | 1.8<br>45 | 5.9<br>150 | 3.9<br>101 | 10.1<br>4,6         |
| DMV-D 703/602   | 224-844                          | 228-222                   | 226-992          | 90          | 4.9<br>124                          | 6.9 / 7.9<br>174 / 201 | 1.8<br>45 | 7.5<br>190 | 3.9<br>101 | 12.1<br>5,6         |
| DMV-DLE 701/602 | 224-845                          | 228-223                   | 226-993          | 45          | 3.7<br>93                           | 5.6<br>141             | 1.4<br>35 | 5.9<br>160 | 2.9<br>73  | 4.8<br>2,2          |
| DMV-DLE 702/602 | 224-846                          | 228-224                   | 226-994          | 65          | 4.9<br>124                          | 6.9 / 7.9<br>174 / 201 | 1.8<br>45 | 6.7<br>179 | 3.9<br>101 | 10.3<br>4,7         |
| DMV-DLE 703/602 | 224-847                          | 228-225                   | 226-995          | 90          | 4.9<br>124                          | 6.9 / 7.9<br>174 / 201 | 1.8<br>45 | 8.6<br>218 | 3.9<br>101 | 12.3<br>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**

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

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

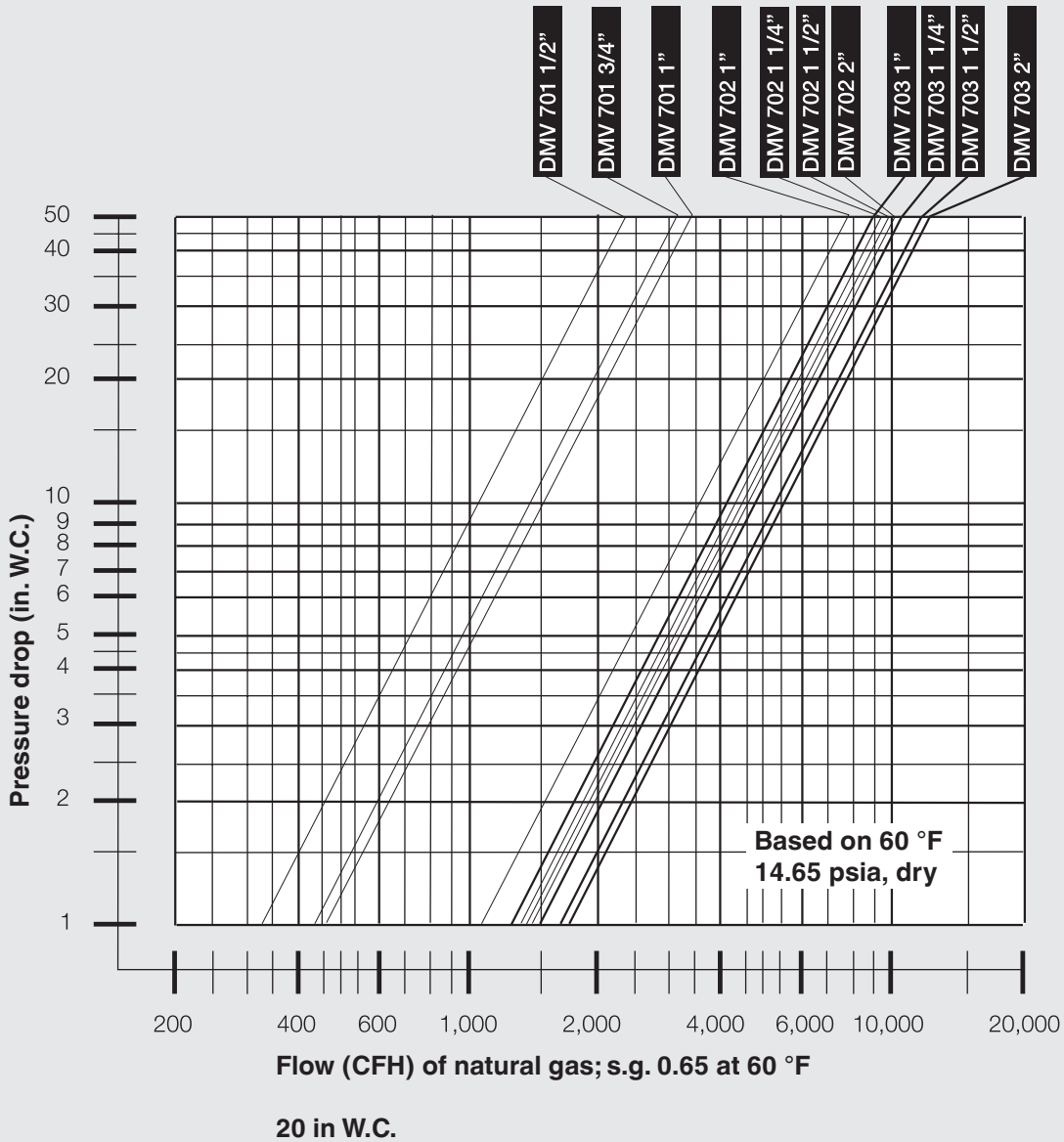
| Type of gas | Density [kg/m <sup>3</sup> ] | s.g. | f    |
|-------------|------------------------------|------|------|
| Natural gas | 0.81                         | 0.65 | 1.00 |
| Butane      | 2.39                         | 1.95 | 0.58 |
| Propane     | 1.86                         | 1.50 | 0.66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

**Dual Modular Safety  
Shutoff Valves**

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



**Flow curve**



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



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