

# Safety Shutoff Valve MV/6 Series

**DUNGS**<sup>®</sup>  
Combustion Controls



Normally closed safety shutoff valve with the following approvals.

#### UL Listed

- UL 429
- File # MH16727

#### CSA Certified

- ANSI Z21.21 / CSA 6.5
- File # LR 112901
- Marked C/I

#### FM Approved

- Class 7411
- File # J.I.0V9A8.AF

#### US and Canadian Models

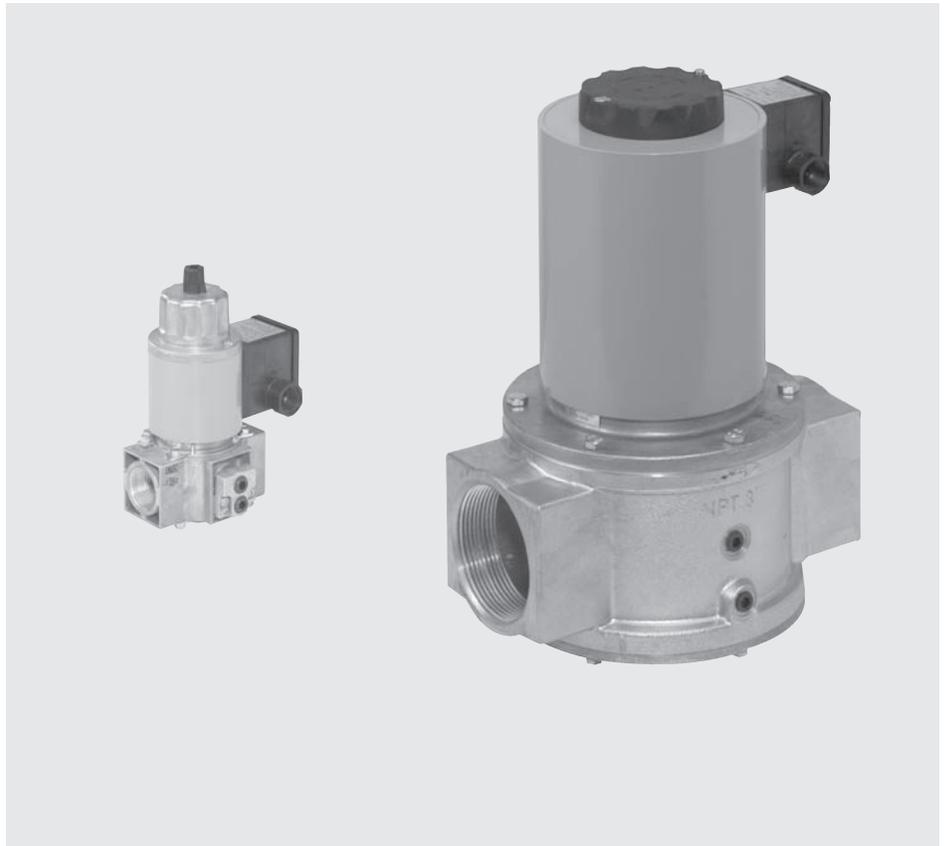
- 1/2" - 3" NPT

#### Codes and Standards

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

**European models tested to EN161 per Gas Appliance Directive 90/396/EEC.**

**DUNGS is an ISO 9001 manufacturing facility.**



#### Description

The DUNGS MV series are electrically operated normally closed, automatic safety shutoff valves for gas burners and gas appliances.

- Closing time <1 s
- Max. operating pressure up to 7 PSI (500 mbar) on MV/6
- Max. close off pressure 15 PSI (1000 mbar) on all models
- MV/6: fast opening/fast closing
- 120 VAC @ 60 Hz in all models, 24 VAC @ 60 Hz (in some models)
- 1/2" NPT conduit connection
- Optional field installable visual indicator (VI) or CPI 400 with indication lamps and SPDT interlock switch for valve position.
- Reliable, quiet operation; rugged and low maintenance.

#### Application

The DUNGS MV safety shutoff valves are recommended for industrial and commercial heating applications that require one safety shutoff valve or two safety shutoff valves in series. This safety shutoff valve is suitable for use with 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 %.

<b>MV</b>	Normally closed automatic safety shutoff valve, fast opening, fast closing.
<b>MV-D</b>	Normally closed automatic safety shutoff valve, fast opening, fast closing. Adjustable max. flow.
<b>MV-DLE</b>	Normally closed automatic safety shutoff valve, slow opening, fast closing. Adjustable initial lift. Adjustable max. flow.

### Specifications

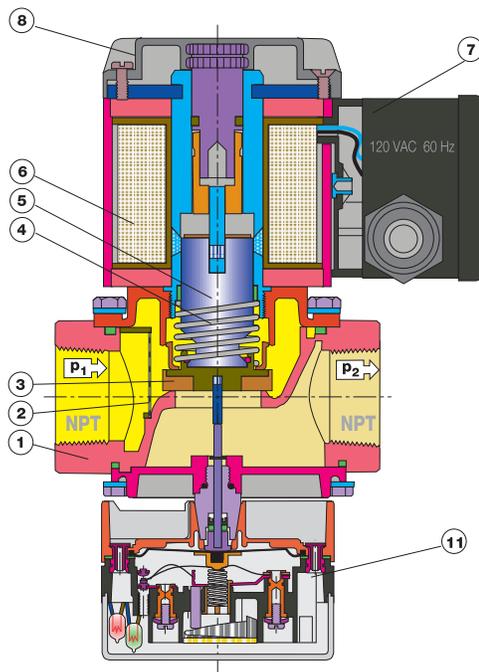
Pipe thread (NPT)	1/2" 3/4" 1" 1 1/4" 1 1/2" 2" 2 1/2" 3"
Max. operating pressure	MV and MVD are 7 PSI (500 mbar) / MVDLE is 3 PSI (200 mbar), see page 3
Max. body pressure	15 PSI (1000 mbar)
Max. close off pressure	15 PSI (1000 mbar)
Electrical ratings (-10 % to +15 %)	120 VAC @ 60 Hz, 24 VAC @ 60 Hz (available in some models) see page 3 and 4
Power ratings	Refer to type overview page 4
Enclosure ratings	NEMA 12
Electrical connection	Screw terminals with 1/2" NPT conduit connection
Operating time	100 % duty cycle
Closing time	< 1 s
Opening time (to max. flow)	MV and MVD < 1 s MVDLE Adjustable to approx. 10 to 20 s at 70 °F
Initial lift adjustment	MVDLE only - 0 to 70% of total flow; 0 to 35% of stroke
Max. flow adjustment	Adjustable from <10 to 100 % of total flow; <10 to 100 % of stroke
Materials in contact with gas	Aluminium, steel, brass / Seals: NBR-based rubber
Ambient temperature rating	See also page 3
Installation position	Safety shut off valve from vertically upright to horizontal
Test ports	Two 1/4" NPT upstream and two 1/4" NPT downstream ports
Gas strainer (standard)	Installed in the housing upstream (23 mesh)
Position indication (order separately)	CPI 400 with indication lamps and SPDT interlock switch or Visual indicator (VI)
Valve proving system (requires two safety shutoff valves in system)	Type VDK 200, mounts externally using valve side ports or pipe "T"s.

Approvals	Model	Temperature Rating	MOPD (PSI)**	Max. Close Off (PSI)	Electrical Ratings (Volts / Hz)
 <b>UL 429</b>	MV	-20 °F to 120 °F	7	7	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	7	7	120/60 (+10% -15%)
	MVDLE	-20 °F to 120 °F	3	7	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	7	7	24/60 (+10% -15%)*
	MVDLE	-20 °F to 120 °F	3	7	24/60 (+10% -15%)*
 <b>APPROVED FM 7411</b>	MV	-20 °F to 120 °F	7	15	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	7	15	120/60 (+10% -15%)
	MVDLE	-20 °F to 120 °F	3	15	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	7	15	24/60 (+10% -15%)*
	MVDLE	-20 °F to 120 °F	3	15	24/60 (+10% -15%)*
 <b>ANSI Z21.21/ CSA 6.5 C/I</b>	MV	-20 °F to 120 °F	5	5	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	5	5	120/60 (+10% -15%)
	MVDLE	-20 °F to 120 °F	2	5	120/60 (+10% -15%)
	MVD	-20 °F to 120 °F	5	5	24/60 (+10% -15%)*
	MVDLE	-20 °F to 120 °F	2	5	24/60 (+10% -15%)*

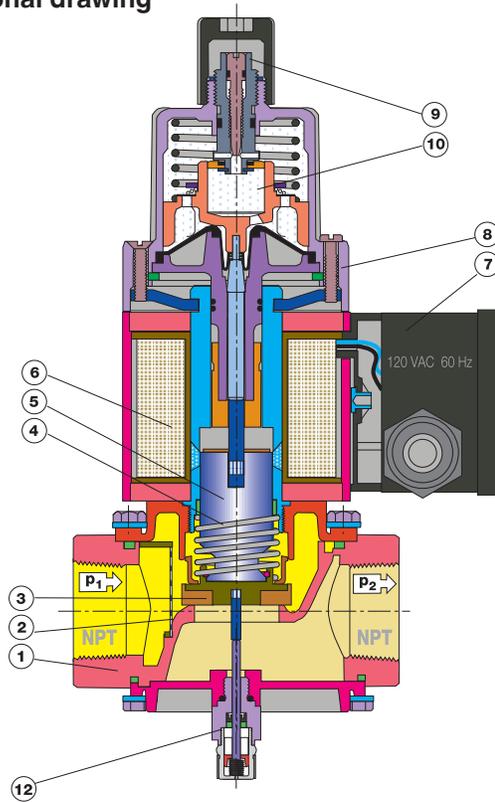
\* 24 VAC available in some models (See page 4)

\*\* Maximum Operating Pressure Differential

**Type MV and MVD sectional drawing**



**Type MVDLE sectional drawing**



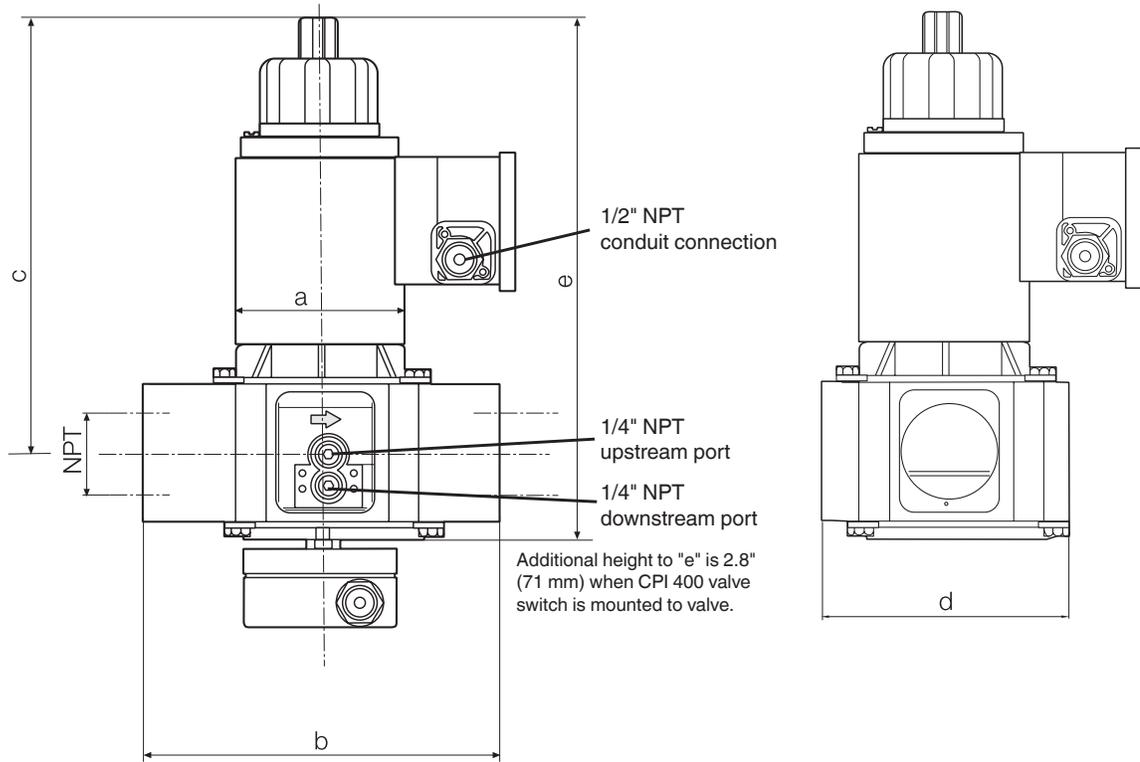
- |   |                |   |                         |    |                                   |
|---|----------------|---|-------------------------|----|-----------------------------------|
| 1 | Housing        | 6 | Solenoid                | 10 | Hydraulic brake MVDLE/6           |
| 2 | Strainer       | 7 | Electrical connection   | 11 | CPI 400 position interlock switch |
| 3 | Valve disc.    | 8 | Max flow adjustment     | 12 | Visual indicator (VI)             |
| 4 | Closing spring | 9 | Initial lift adjustment |    |                                   |
| 5 | Plunger        |   | MVDLE/6                 |    |                                   |

Type	Ending x = 6 is NEMA Type 12 Order No.	Size	P <sub>max.</sub> ** [VA] Inrush and Full Load	Dimensions [inch]					Weight [lbs] [kg]
				a	b	c	d	e	
MVDLE 205/6*	216-870 217-320*	NPT 1/2"	15	<b>1.97</b>	<b>2.95</b>	<b>5.31</b>	<b>2.76</b>	<b>6.10</b>	<b>2.43</b>
				50	75	135	70	155	1,10
MVDLE 207/6*	216-589 217-321*	NPT 3/4"	25	<b>2.95</b>	<b>3.94</b>	<b>6.50</b>	<b>3.15</b>	<b>7.48</b>	<b>5.62</b>
				75	100	165	80	190	2,55
MVDLE 210/6*	216-590 217-322*	NPT 1"	25	<b>2.95</b>	<b>4.33</b>	<b>6.50</b>	<b>3.54</b>	<b>7.68</b>	<b>6.06</b>
				75	110	165	90	195	2,75
MVDLE 212/6	217-250	NPT 1 1/4"	60	<b>3.74</b>	<b>5.91</b>	<b>8.07</b>	<b>4.57</b>	<b>9.65</b>	<b>9.70</b>
				95	150	205	116	245	4,40
MVDLE 215/6	217-631	NPT 1 1/2"	60	<b>4.52</b>	<b>5.91</b>	<b>8.07</b>	<b>4.57</b>	<b>9.65</b>	<b>12.13</b>
				115	150	205	116	245	5,50
MVDLE 220/6	216-632	NPT 2"	60	<b>4.52</b>	<b>6.69</b>	<b>8.07</b>	<b>5.12</b>	<b>9.84</b>	<b>13.67</b>
				115	170	205	130	250	6,20
MVDLE 225/6	216-633	NPT 2 1/2"	80	<b>4.52</b>	<b>9.06</b>	<b>11.61</b>	<b>6.50</b>	<b>13.78</b>	<b>25.13</b>
				115	230	295	165	350	11,40
MVDLE 230/6	217-251	NPT 3"	90	<b>5.12</b>	<b>10.43</b>	<b>14.21</b>	<b>7.87</b>	<b>16.97</b>	<b>38.14</b>
				130	265	361	200	431	17,31
MVD 505/6*	217-641 217-640*	NPT 1/2"	15	<b>1.97</b>	<b>2.95</b>	<b>3.54</b>	<b>2.76</b>	<b>4.45</b>	<b>2.20</b>
				50	75	90	70	113	1,00
MVD 507/6*	217-606 217-435*	NPT 3/4"	25	<b>2.95</b>	<b>3.94</b>	<b>5.31</b>	<b>3.15</b>	<b>6.30</b>	<b>5.29</b>
				75	100	135	80	160	2,40
MVD 510/6*	217-436 217-437*	NPT 1"	25	<b>2.95</b>	<b>4.33</b>	<b>5.31</b>	<b>3.54</b>	<b>6.50</b>	<b>5.73</b>
				75	110	135	90	165	2,60
MVD 512/6	217-438	NPT 1 1/4"	60	<b>3.74</b>	<b>5.91</b>	<b>6.89</b>	<b>4.57</b>	<b>8.27</b>	<b>11.91</b>
				95	150	175	116	210	5,40
MVD 515/6	217-439	NPT 1 1/2"	60	<b>3.74</b>	<b>5.91</b>	<b>6.89</b>	<b>4.57</b>	<b>8.27</b>	<b>11.91</b>
				95	150	175	116	210	5,40
MVD 520/6	217-440	NPT 2"	100	<b>4.53</b>	<b>6.69</b>	<b>6.89</b>	<b>5.12</b>	<b>9.25</b>	<b>19.40</b>
				115	170	175	130	235	8,80
MVD 525/6	217-441	NPT 2 1/2"	80	<b>5.12</b>	<b>9.06</b>	<b>8.46</b>	<b>6.50</b>	<b>10.63</b>	<b>31.97</b>
				130	230	215	165	270	14,50
MVD 530/6	217-442	NPT 3"	100	<b>5.91</b>	<b>10.43</b>	<b>11.22</b>	<b>7.87</b>	<b>13.94</b>	<b>55.11</b>
				150	265	285	200	354	25,00
MV 505/6	216 774	NPT 1/2"	15	<b>1.97</b>	<b>2.95</b>	<b>3.54</b>	<b>2.76</b>	<b>4.45</b>	<b>2.20</b>
				50	75	90	70	113	1,00
MV 507/6	216 775	NPT 3/4"	25	<b>2.95</b>	<b>3.94</b>	<b>5.31</b>	<b>3.15</b>	<b>6.30</b>	<b>5.29</b>
				75	100	135	80	160	2,40
MV 510/6	216 776	NPT 1"	25	<b>2.95</b>	<b>4.33</b>	<b>5.31</b>	<b>3.54</b>	<b>6.50</b>	<b>5.73</b>
				75	110	135	90	165	2,60
MV 512/6	216 777	NPT 1 1/4"	60	<b>3.74</b>	<b>5.91</b>	<b>6.89</b>	<b>4.57</b>	<b>8.27</b>	<b>11.91</b>
				95	150	175	116	210	5,40

\* Designates model is also available in 24 VAC/60 Hz. Part Number also shown.

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

**Dimensions inch (mm)**



**(MVDLE shown, see page 4 for all values)**

**Functional description  
(Reference page 3)**

The DUNGS MV, MVD, and MVDLE series valves are automatic safety shut-off valves. The electromagnetic drive opens against the force of the closing spring 4.

For the MVD and MVDLE series, the main flow through valve can be limited by the maximum flow adjustment 8.

On the MVDLE series, the hydraulic brake 10 permits slow opening. Initial lift can be adjusted 9. If power is interrupted (operating voltage), closing spring 4 closes the valve within 1 second.

The valve position can be visually monitored by using the field installed visual indicator (VI) 12, or it can be visually and electronically monitored by a field installed CPI 400, which includes valve position indication lamps and one SPDT interlock switch 11 (order separately).

**Determining equivalent flow through valves using another gas**

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

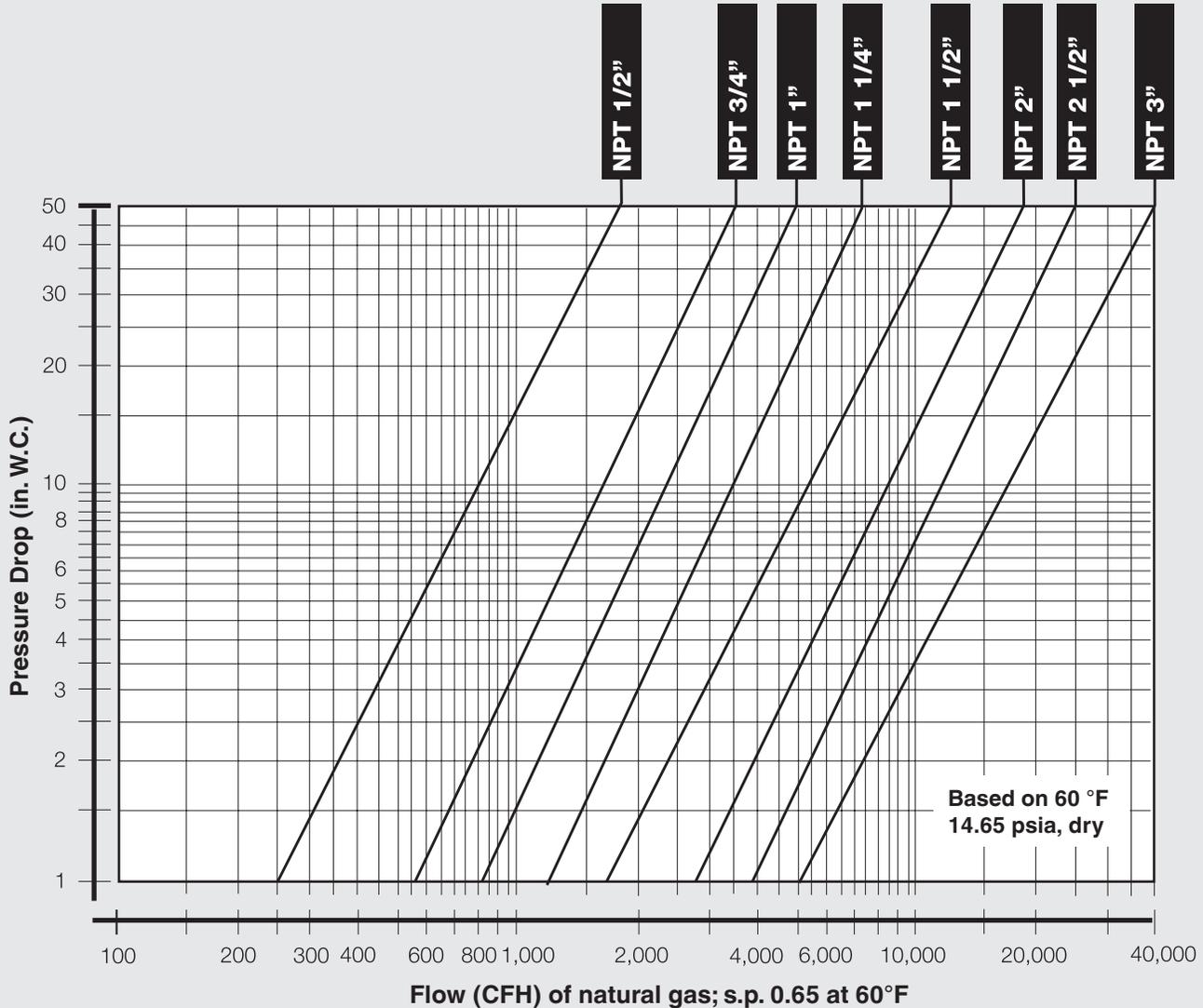
$$f = \sqrt{\frac{\text{Density of Natural gas}}{\text{Density of gas used}}}$$

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

**Safety Shutoff Valve  
MV/6 Series**



**Flow diagram**



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



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