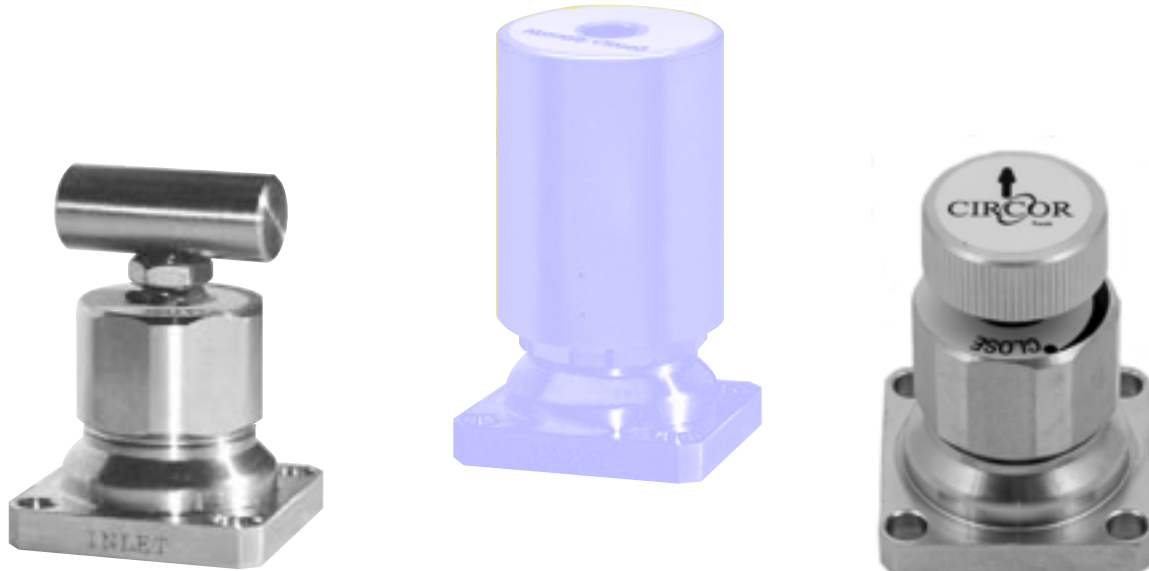


## DV1 Series

### 2-way Diaphragm Valves



The DV1 Series diaphragm valves are totally free of springs, bellows, packing, dynamic o-rings and lubricants in the process wetted area. Metal-to-metal seals to atmosphere ensure that there is no leaching of undesirable elements into the flow stream and no leakage of process material into the atmosphere. Elgiloy® diaphragms ensure the utmost in corrosion resistance and life span. For Elgiloy® chemical compatibility information, visit the *Technical Support* section of the CIRCOR Tech website ([www.circortech.com](http://www.circortech.com)).

#### Features & Benefits

- 2-way on/off control
- Metal-to-metal seals to atmosphere
- Wide variety of materials for virtually all applications
- No dynamic o-rings, springs, or lubricant in wetted flow path
- Very low internal volume (0.16 cc)
- Manual ¼-plus turn or pneumatic actuation
- Pressures from vacuum (50 torr) to 3,600 psig (248 BAR)

diaphragm valves

#### CIRCOR Tech

405 Centura Court • PO Box 4866 (29305) • Spartanburg, SC 29303  
Phone (864) 574-7966 • Fax (864) 574-5608  
[www.circortech.com](http://www.circortech.com)

# DV1 Series

## Technical Data

### Manual 1/4-plus turn Valves



<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	Tefzel®, PCTFE (Kel-F®), Polyimide (Vespel®) and PEEK™
<b>DIAPHRAGMS</b>	Elgiloy® AMS 5876
<b>ORIFICE SIZE</b>	0.110" (2.8 mm)
<b>FLOW CAPACITY</b>	0.17 Cv
<b>VALVE INTERNAL VOLUME*</b>	0.16 cc
<b>LEAKAGE</b>	1 × 10 <sup>-5</sup> cc/sec helium (inboard)

\* Dead volume in machined passages of the valve body between mounting surface and sealing diaphragm(s).

### Operating Temperatures

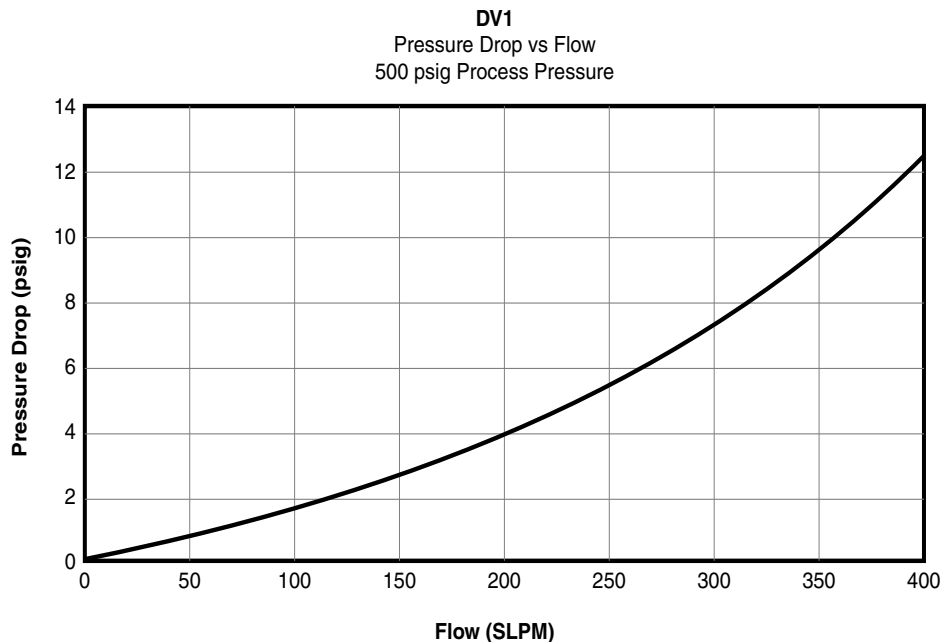
SEAT MATERIAL	1/4-PLUS TURN TEMPERATURE	
Tefzel®	-40° F to +140° F	-40° C to +60° C
PCTFE (Kel-F®)	-40° F to +300° F	-40° C to +149° C
Polyimide (Vespel®)	-40° F to +400° F	-40° C to +204° C
PEEK™	-40° F to +400° F	-40° C to +204° C

### Operating Pressures

<b>OPERATING PRESSURE</b>	Vacuum (50 torr) to 3,600 psig (248 BAR)
<b>PROOF PRESSURE</b>	7,200 psig
<b>BURST PRESSURE</b>	14,400 psig



## Pressure vs. Flow Curve

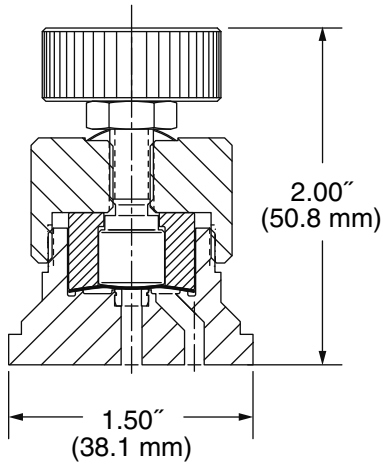


Note: Flow chart applies to all 2-way DV1 Series diaphragm valves

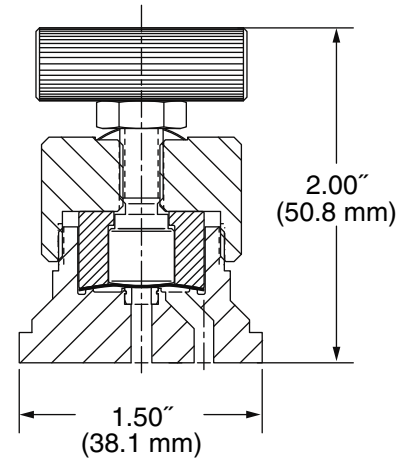
# DV1 Series

## Dimensions

**Circular Handle  
Manual ¼-plus turn Valves**



**T-handle  
Manual ¼-plus turn Valves**

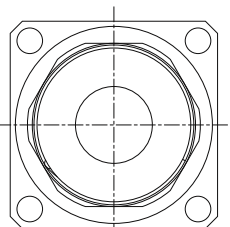
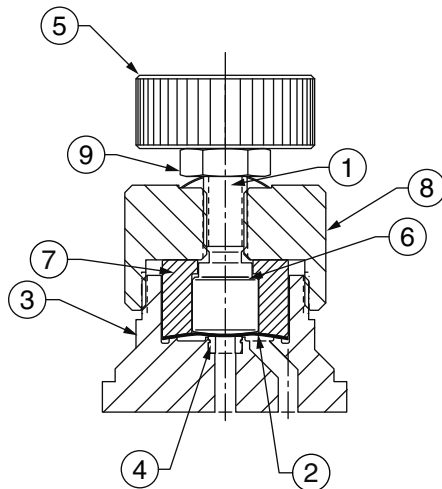


## Materials of Construction

#	PART	MATERIALS
1	Stem	17-4PH stainless steel, condition H900
2	Diaphragm*	Elgiloy® AMS 5876
3	Body*	316L stainless steel, Monel®, brass, Hastelloy® C-276
4	Seat*	Tefzel®, PCTFE (Kel-F®), Polyimide (VespeI®) and PEEK™
5	Handle	316 stainless steel
6	Thrust plug	Brass
7	Diaphragm retainer	316 stainless steel
8	Bonnet	316L stainless steel, Monel®, brass, Hastelloy® C-276
9	Handle nut	18-8 stainless steel

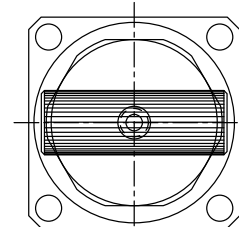
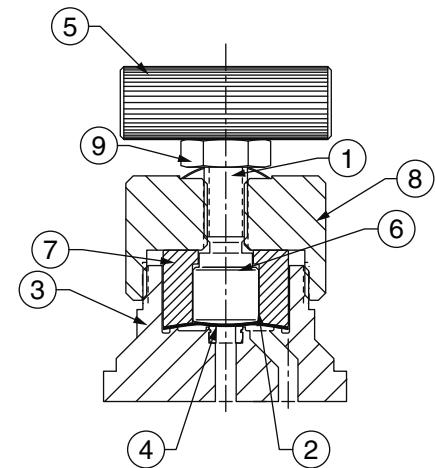
\* Wetted components

**Circular Handle  
Manual ¼-plus turn Valves**



Top view

**T-handle  
Manual ¼-plus turn Valves**



Top view

# DV1 Series

## Technical Data

### Pneumatic Actuated Valves



<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	Tefzel®, PCTFE (Kel-F®), Polyimide (Vespel®) and PEEK™
<b>DIAPHRAGMS</b>	Elgiloy® AMS 5876
<b>ORIFICE SIZE</b>	0.110" (2.8 mm)
<b>FLOW CAPACITY</b>	0.17 Cv
<b>VALVE INTERNAL VOLUME*</b>	0.16 cc
<b>LEAKAGE</b>	1 × 10 <sup>-5</sup> cc/sec helium (inboard)
<b>PNEUMATIC ACTUATOR</b>	Anodized aluminum standard (other materials optional) 40µ sintered stainless steel inlet air filter

\* Dead volume in machined passages of the valve body between mounting surface and sealing diaphragm(s).

### Operating Pressures Ratings

	SMALL DIAMETER
<b>VALVE WORKING PRESSURE</b>	Vacuum (50 torr) to 500 psig (34.5 BAR)
<b>VALVE PROOF PRESSURE</b>	1,000 psig
<b>VALVE BURST PRESSURE</b>	2,000 psig

### Operating Temperatures

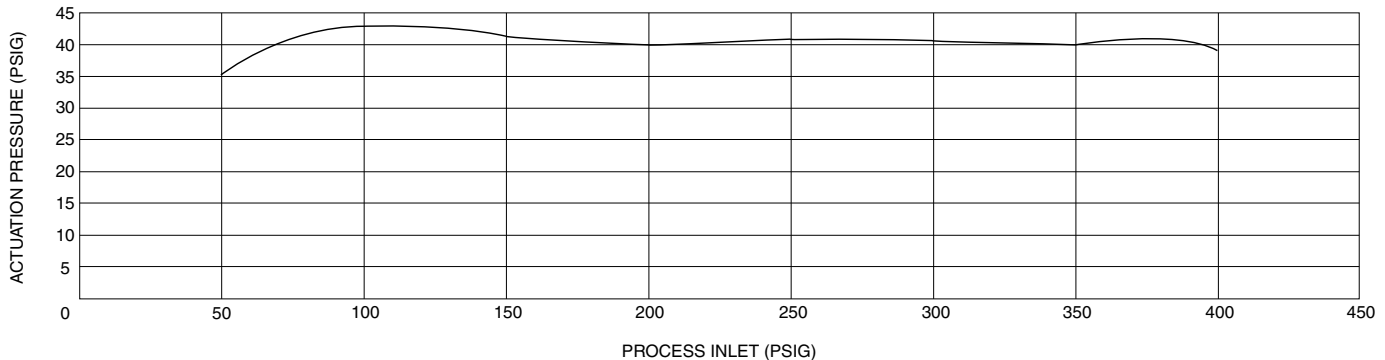
SEAT MATERIAL	¼-PLUS TURN TEMPERATURE	
Tefzel®	-40° F to +140° F	-40° C to +60° C
PCTFE (Kel-F®)	-40° F to +300° F	-40° C to +149° C
Polyimide (Vespel®)	-40° F to +400° F	-40° C to +204° C
PEEK™	-40° F to +400° F	-40° C to +204° C

### Air Actuation Pressure Requirements (psig nominal)

	SYSTEM PRESSURE	ACTUATION PRESSURE
<b>NORMALLY CLOSED</b>	0-250 psig	19 psig
<b>NORMALLY OPEN</b>	251-500 psig	39 psig

## Actuation Pressure Curve

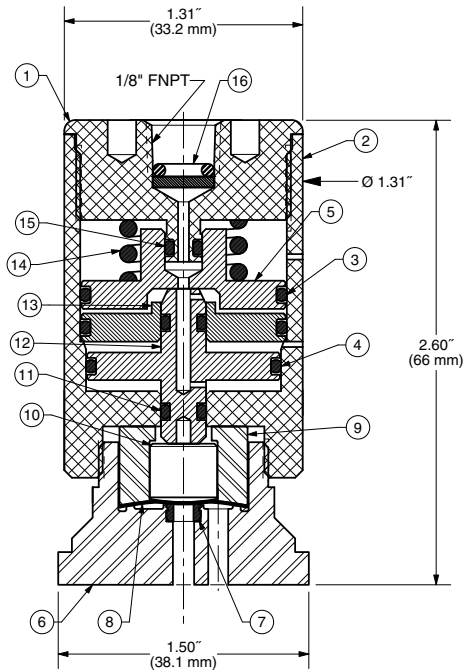
Actuation Pressure at Fully Open



# DV1 Series

## Dimensions & Materials of Construction

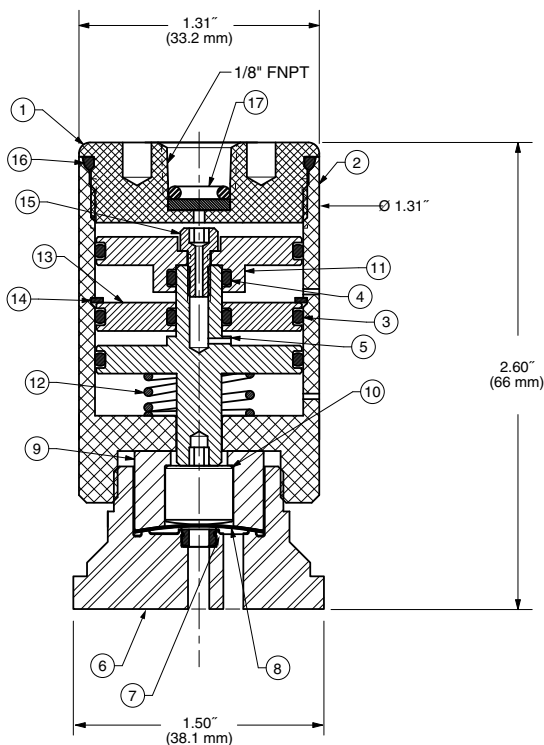
### Normally Closed



#	PART	MATERIALS
1	Housing cap	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
2	Housing	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
3	O-rings	Viton®
4	O-rings	Viton®
5	Upper piston	Brass
6	Body*	316L stainless steel, brass, Monel® & Hastelloy® C-276
7	Seat*	Tefzel®, PCTFE (Kel-F®), Polyimide (Vespel®) and PEEK™
8	Diaphragm*	Elgiloy® AMS 5876
9	Diaphragm retainer	316 stainless steel
10	Thrust plug	Brass
11	O-ring	Viton®
12	Lower piston	Brass
13	Chamber separator	Brass
14	Spring	NISSPAN
15	O-ring	Viton®
16	Sintered filter	316 stainless steel, 40µ

\* Wetted components

### Normally Open



#	PART	MATERIALS
1	Housing cap	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
2	Housing	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
3	O-rings	Viton®
4	O-rings	Viton®
5	Piston	Brass
6	Body*	316L stainless steel, brass, Monel® & Hastelloy® C-276
7	Seat*	Tefzel®, PCTFE (Kel-F®), Polyimide (Vespel®), and PEEK™
8	Diaphragm*	Elgiloy® AMS 5876
9	Diaphragm retainer	316 stainless steel
10	Thrust plug	Brass
11	Upper piston	Brass
12	Spring	302 stainless steel
13	Chamber separator	Brass
14	Retaining ring	302 stainless steel
15	Cap screw	Alloy steel
16	O-ring	Viton®
17	Sintered filter	316 stainless steel, 40µ

\* Wetted components

# DV1 Series

## How to Order

**STANDARD ITEMS IN BOLD.** Consult Customer Service for pricing and lead times for non-standard items.

**DV1 - 1 C 1 5 A SM SM H 0**

### BODY MATERIAL

- 1 316L stainless steel**
- 4 Monel®
- 6 Hastelloy® C-276

### ACTUATION METHOD

- C** Air actuated – normally closed
- M** Manual ¼-plus turn round handle
- O** Air actuated – normally open
- T** Manual ¼-plus turn T-handle

### ACTUATOR SIZE

- X** Manually operated
- 1** Air actuated – (500 psig max.)

### ACTUATOR MATERIAL

- X** Manually operated
- 1** 316L stainless steel
- 4 Monel®
- 5 Aluminum**
- 6 Hastelloy® C-276

### OPTION

- 0 None**
- 1** Cleaned for oxygen service
- 5** Silcosteel® passivated\*\*

### SEAT MATERIAL

- A** Tefzel® (800 psig max.)
- C** Polyimide (Vespel®)
- H PCTFE (Kel-F®)**
- Q** PEEK™

### OUTLET CONNECTION TYPE

- SM Surface mount (ANSI/ISA-76 compliant)**

### INLET CONNECTION TYPE

- SM Surface mount (ANSI/ISA-76 compliant)**

### MAXIMUM PROCESS PRESSURE

- A 250 psig**
- B 500 psig**
- D 3600 psig (manual valves only)**

\*\* Other Restek Corp. coatings (Sulfinert®, Silcosteel®-CR) available on request.