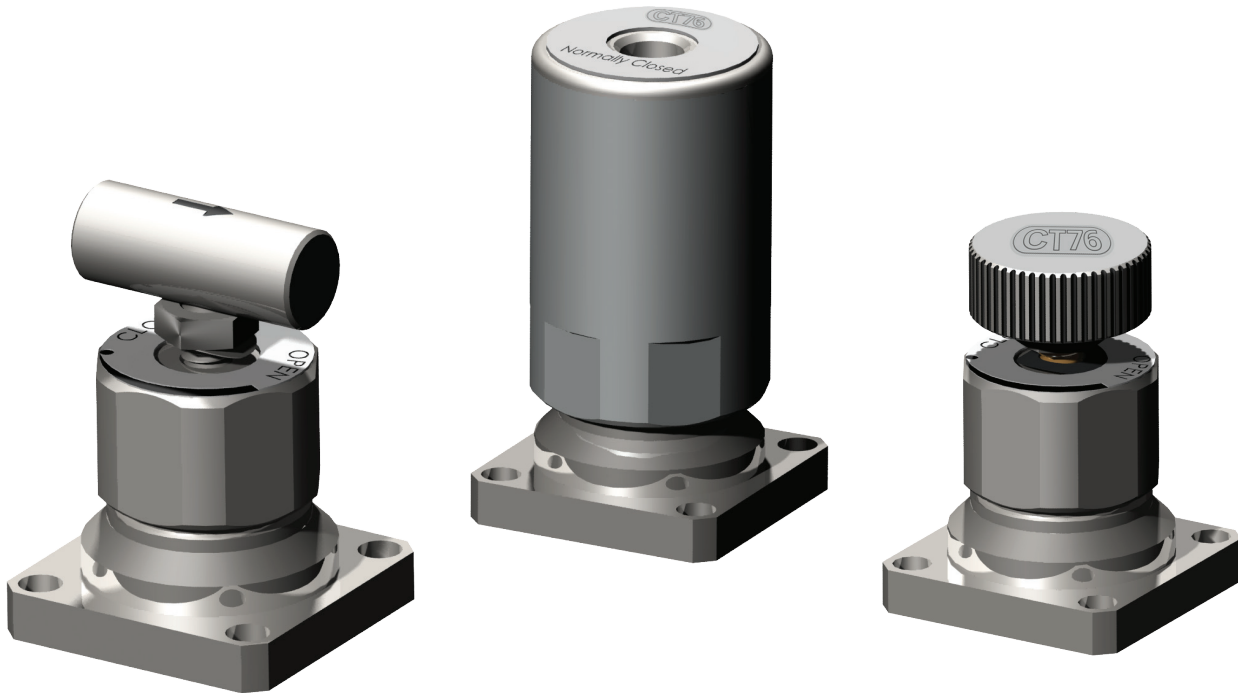




## DV1 SERIES

2-Way Diaphragm Valves



The DV1 Series<sup>1</sup> 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 transport of undesirable elements into the flow stream and no escaping of process material into the atmosphere. Elgiloy<sup>®</sup> diaphragms ensure the utmost in corrosion resistance and extend overall life. For Elgiloy<sup>®</sup> chemical compatibility information, visit the Technical Support section of the CT76 website ([www.CT76.com](http://www.CT76.com)).

<sup>1</sup> Patent pending

### Features & Benefits

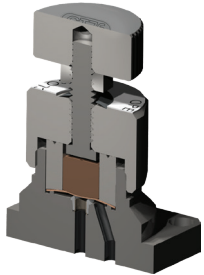
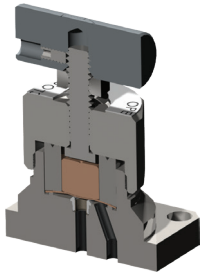
- 2-Way on/off control
- Metal-to-metal seals to atmosphere to prevent leakage
- Wide choice of materials for virtually all applications
- No dynamic o-rings, springs, or lubricant in wetted flow path to eliminate sample contamination
- Very low internal volume (0.16 cc) for low purge time
- Replaceable valve seats for longer service life
- Manual ¼-plus turn or pneumatic actuation
- Multiple stacked diaphragms for extended service life and added safety
- Pressures from vacuum (50 torr) to 500 psig (34 barg)  
Consult factory for higher pressures

diaphragm valves



Crane Instrumentation & Sampling

## TECHNICAL DATA



<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	PCTFE or 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>EXTERNAL LEAKAGE</b>	1 × 10 <sup>-5</sup> cc/sec helium (inboard)

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

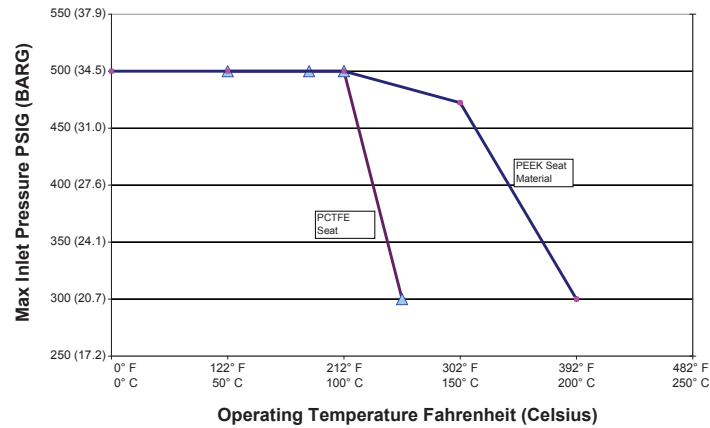
### Operating Temperatures

SEAT MATERIAL	1/4-PLUS TURN TEMPERATURE	
PCTFE	-40° F to +212° F	-40° C to +100° C
PEEK™	0° F to +400° F	-18° C to +204° C

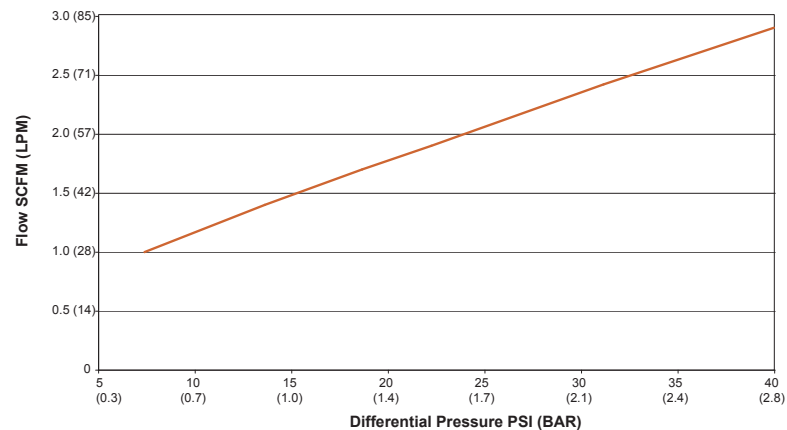
### Operating Pressures

<b>OPERATING PRESSURE</b>	Vacuum (50 torr) to 500 psi (34 bar)
<b>PROOF PRESSURE</b>	2000 psig (138 barg)
<b>BURST PRESSURE</b>	8000 psig (552 barg)

## PRESSURE VS. TEMPERATURE CURVE



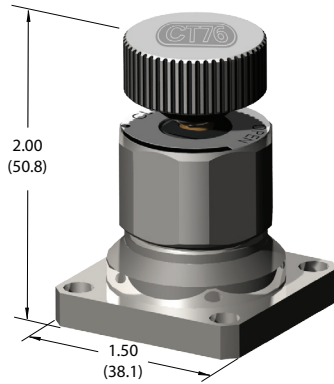
## PRESSURE VS. FLOW CURVE



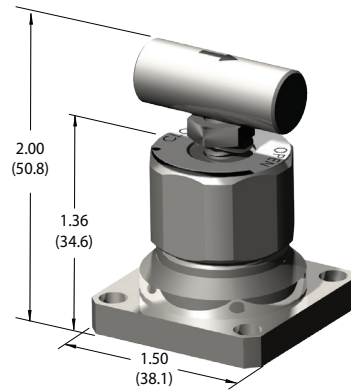
## DIMENSIONS

Dimensions are in inches (millimeters) for reference only and are subject to change.

**Circular Handle  
Manual 1/4-plus turn Valves**



**T-handle  
Manual 1/4-plus turn Valves**

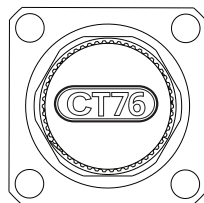
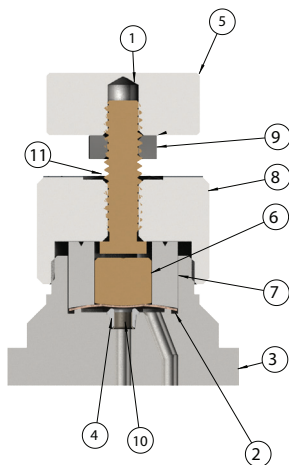


## MATERIALS OF CONSTRUCTION

#	PART	MATERIALS
1	Stem	17-4PH stainless steel, condition H900
2	Diaphragm*	Elgiloy® AMS 5876
3	Body*	316L stainless steel, Monel®, Hastelloy® C-276
4	Seat*	PCTFE or PEEK™
5	Handle	316 stainless steel
6	Thrust plug	Brass
7	Diaphragm retainer	316 stainless steel
8	Bonnet	316L stainless steel, Monel®, Hastelloy® C-276
9	Handle nut	18-8 stainless steel
10	Seat Retainer	316 stainless steel or Inconel®
11	Spring Washer	18-8 stainless steel

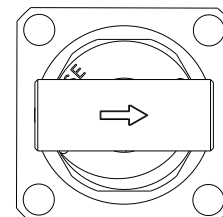
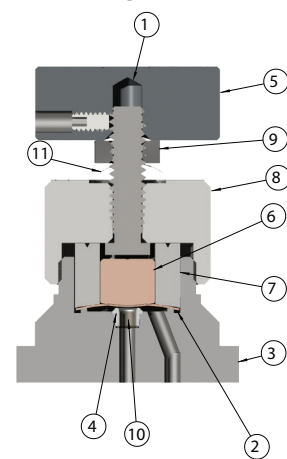
\* Wetted components

**Circular Handle  
Manual 1/4-plus turn Valves**



Top view

**T-handle  
Manual 1/4-plus turn Valves**



Top view

## TECHNICAL DATA



<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	PCTFE or 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>EXTERNAL 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

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

### Operating Pressures Rating

	SMALL DIAMETER	MEDIUM DIAMETER	LARGE DIAMETER
<b>VALVE WORKING PRESSURE*</b> (INLET)	Vacuum (50 torr) to 500 psig	Vacuum (50 torr) to 800 psig	Vacuum (50 torr) to 3600 psig
<b>VALVE PROOF PRESSURE</b>	1000 psig	1600 psig	7200 psig
<b>VALVE BURST PRESSURE</b>	2000 psig	3600 psig	14,400 psig

### Operating Temperatures

SEAT MATERIAL	¼-PLUS TURN TEMPERATURE	
PCTFE	-40° F to +212° F	-40° C to +100° C
PEEK™	0° F to +400° F	-18° C to +204° C

## AIR ACTUATION PRESSURE REQUIREMENTS

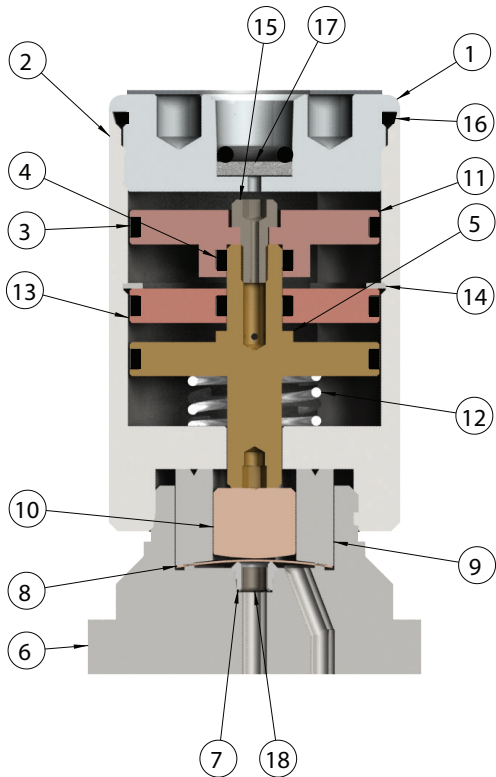
psig nominal

PRESSURE	SMALL DIAMETER	MEDIUM DIAMETER	LARGE DIAMETER
Valve Operating Pressure	Vacuum (50 torr) to 500 psig (Inlet)	Vacuum (50 torr) to 800 psig (Inlet)	Vacuum (50 torr) to 3600 psig (Inlet)
Actuation Pressure Normally Closed	40 psig (3 bar) (0–250 psig process pressure)  40 psig (3 bar) (251–500 psig process pressure)	40 psig (3 bar) (0–250 psig process pressure)  40 psig (3 bar) (251–500 psig process pressure)  40 psig (3 bar) (501–800 psig process pressure)	50 psig (0–3600 psig process pressure)
Actuation Pressure Normally Open	40 psig (3 bar) (500 psig process pressure)	40 psig (3 bar) (800 psig process pressure)	N/A

## DIMENSIONS & MATERIALS OF CONSTRUCTION

Dimensions are in inches (millimeters) for reference only and are subject to change.

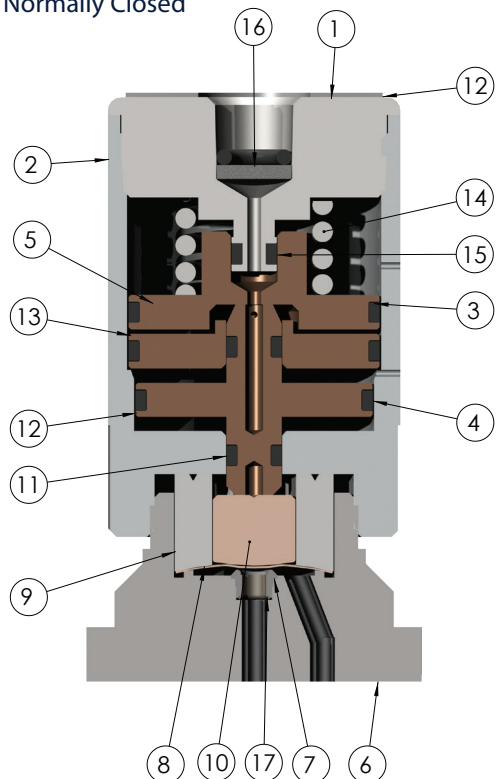
### Normally Open



#	PART	MATERIALS
1	Actuator cap	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
2	Actuator	Aluminum, 316L stainless steel
3	O-ring	Viton®
4	O-ring	Viton®
5	Piston	Brass
6	Body*	316L stainless steel, Monel® & Hastelloy® C-276
7	Seat*	PCTFE or 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

### Normally Closed



#	PART	MATERIALS
1	Actuator cap	Aluminum, 316L stainless steel, Monel® & Hastelloy® C-276
2	Actuator	Aluminum, 316L stainless steel
3	O-rings	Viton®
4	O-rings	Viton®
5	Upper piston	Brass
6	Body*	316L stainless steel, Monel® & Hastelloy® C-276
7	Seat*	PCTFE (formerly Kel-F®) or 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	302 stainless steel
15	O-ring	Viton®
16	Sintered filter	316 stainless steel, 40µ

\* Wetted components

## HOW TO ORDER

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

Product Family	Material Designator	Actuation Method	Actuator Size	Actuator Material	Max Process Pressure	Inlet Outlet Conditions	Seat Material	Options	Description
DV1	-								2 way diaphragm valve
	1								SST
	4								Montel
	6								Hastelloy
		C							Air actuated - Normally closed
		M							Manual round handle
		O							Air actuated - Normally open
		T							Manual T-handle
			X						Manual
			1						Air actuated (500 PSI max)
			2						Air actuated (800 PSI max)
			3						Air actuated (3,600 PSI max)
				X					Manually operated
				1					316 Stainless Steel
				5					Aluminum
					A				250 psig (17 bar)
					B				500 psig (34 bar)
					C				800 psig (55 bar)
					D				3600 psig (248 bar)
						SMSM			Surface mount inlet/outlet connection (ANSI/ISA-76)*1
							H		PCTFE seat
							Q		PEEK seat
								0	None
								1	Cleaned for oxygen service
								5	SilcoSteel Coating*2
								9	Sulfinert Coating*2

## PART NUMBER EXAMPLE CONFIGURATION

Part Number	Description
DV1-1015BSMSMQ0	Normally open air actuated DV1 valve with maximum operating pressure of 500 psig, aluminum actuator and Peek seat.
Note *1	Other DV1 connection options are available upon request, please consult with <a href="http://www.goreg.com">www.goreg.com</a> or the factory.
Note *2	Provided by Silconert Coatings





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