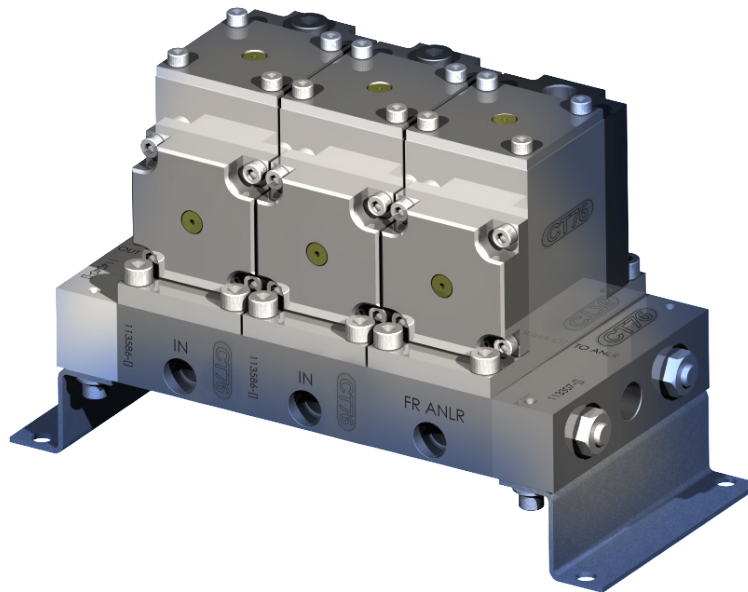
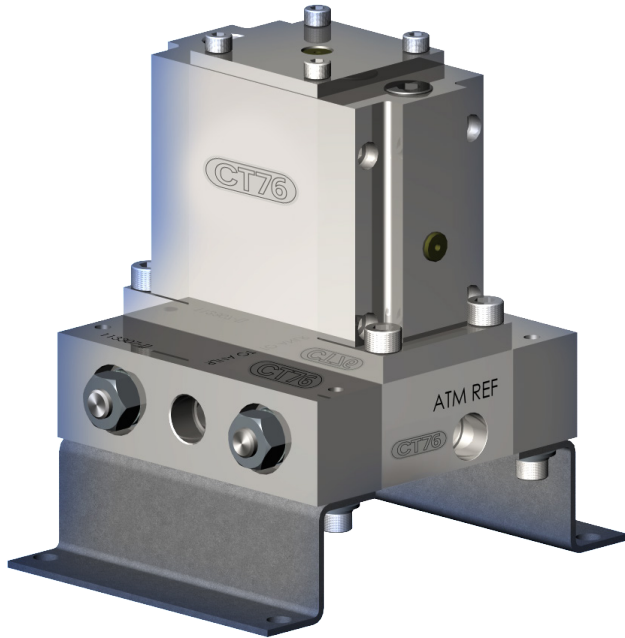




Diaphragm Valves

Index

| | |
|---|----|
| DV1 Series | 3 |
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| DBB Series | 17 |
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diaphragm valves



Crane Instrumentation & Sampling

FOR YOUR SAFETY

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. When selecting products, the total system design must be considered to ensure safe, trouble-free performance. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage. Contact your authorized HOKE® sales and service representative for information about additional sizes and special alloys.

SAFETY WARNING

HOKE® products are designed for installation only by professional suitably qualified licensed system installers experienced in the applications and environments for which the products are intended. These products are intended for integration into a system. Where these products are to be used with flammable or hazardous media, precautions must be taken by the system designer and installer to ensure the safety of persons and property. Flammable or hazardous media pose risks associated with fire or explosion, as well as burning, poisoning or other injury or death to persons and/or destruction of property. The system designer and installer must provide for the capture and control of such substances from any vents in the product(s). The system installer must not permit any leakage or uncontrolled escape of hazardous or flammable substances. The system operator must be trained to follow appropriate precautions and must inspect and maintain the system and its components including the product(s) and at regular intervals in accordance with timescales recommended by the supplier to prevent unacceptable wear or failure.



DV1 SERIES

2-Way Diaphragm Valves



The DV1 Series¹ 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[®] diaphragms ensure the utmost in corrosion resistance and extend overall life. For Elgiloy[®] chemical compatibility information, visit the Technical Support section of the CT76 website (www.CT76.com).

¹ Patent pending

Features & Benefits

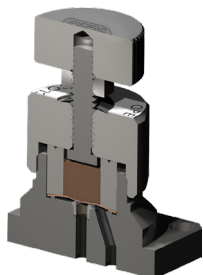
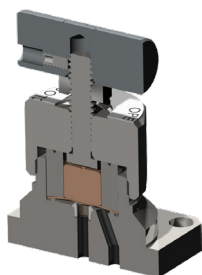
- 2-Way on/off control
- Metal-to-metal seals to atmosphere to prevent leakage
- Wide choice of materials for virtually all applications
- No dynamic o-rings, springs, or lubricant in wetted flow path to eliminate sample contamination
- Very low internal volume (0.16 cc) for low purge time
- Replaceable 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



| | |
|-------------------------------|---|
| BODY | 316L stainless steel, Monel® and Hastelloy® C-276 |
| SEATS | PCTFE or PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| FLOW CAPACITY | 0.17 Cv |
| VALVE INTERNAL VOLUME* | 0.16 cc |
| EXTERNAL LEAKAGE | 1 × 10 ⁻⁵ cc/sec helium (inboard) |

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

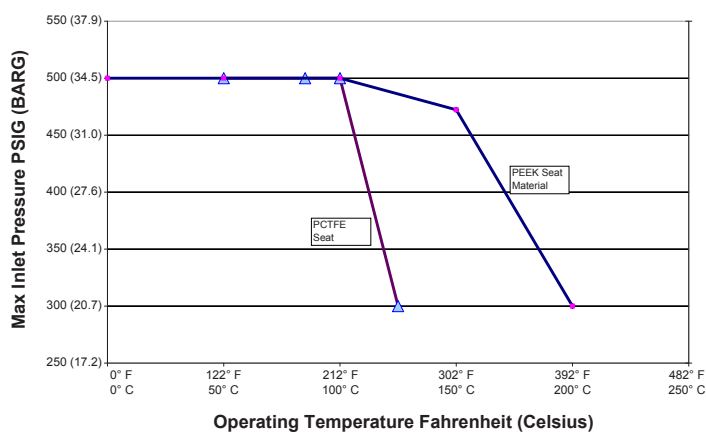
Operating Temperatures

| 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 |

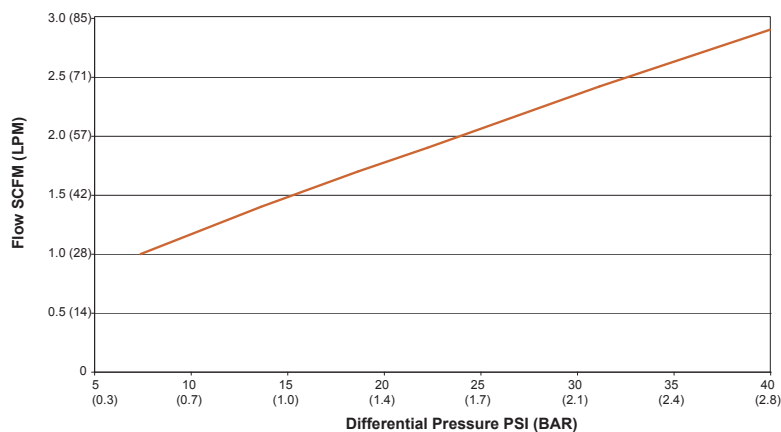
Operating Pressures

| | |
|---------------------------|--------------------------------------|
| OPERATING PRESSURE | Vacuum (50 torr) to 500 psi (34 bar) |
| PROOF PRESSURE | 2000 psig (138 barg) |
| BURST PRESSURE | 8000 psig (552 barg) |

PRESSURE VS. TEMPERATURE CURVE



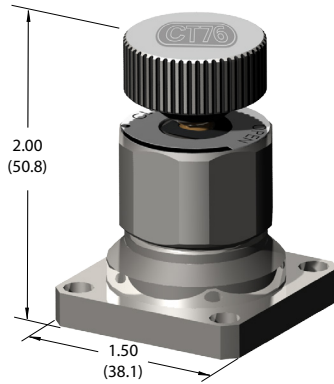
PRESSURE VS. FLOW CURVE



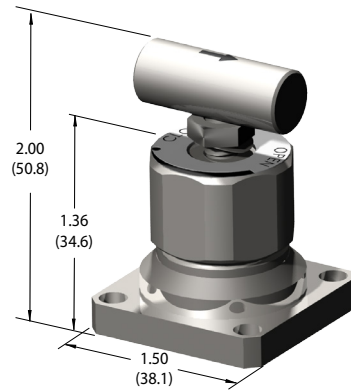
DIMENSIONS

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**

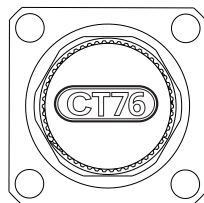
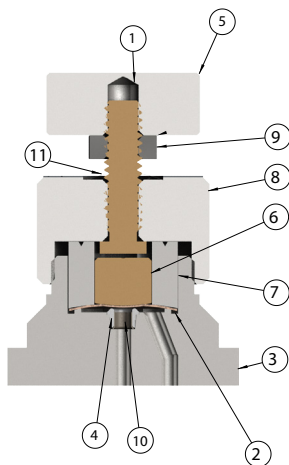


MATERIALS OF CONSTRUCTION

| # | 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 |

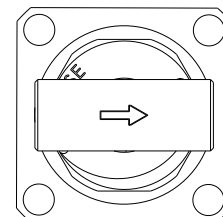
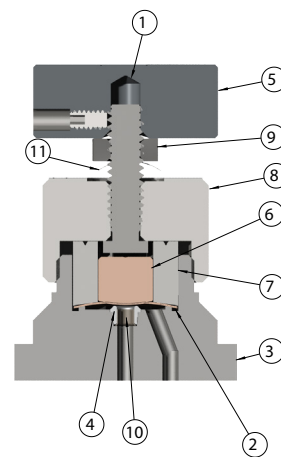
* Wetted components

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



Top view

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



Top view

TECHNICAL DATA



| | |
|-------------------------------|--|
| BODY | 316L stainless steel, Monel® and Hastelloy® C-276 |
| SEATS | PCTFE or PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| FLOW CAPACITY | 0.17 Cv |
| VALVE INTERNAL VOLUME* | 0.16 cc |
| EXTERNAL LEAKAGE | 1 × 10 ⁻⁵ cc/sec helium (inboard) |
| PNEUMATIC ACTUATOR | 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 |
|---|------------------------------|------------------------------|-------------------------------|
| VALVE WORKING PRESSURE* (INLET) | Vacuum (50 torr) to 500 psig | Vacuum (50 torr) to 800 psig | Vacuum (50 torr) to 3600 psig |
| VALVE PROOF PRESSURE | 1000 psig | 1600 psig | 7200 psig |
| VALVE BURST PRESSURE | 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

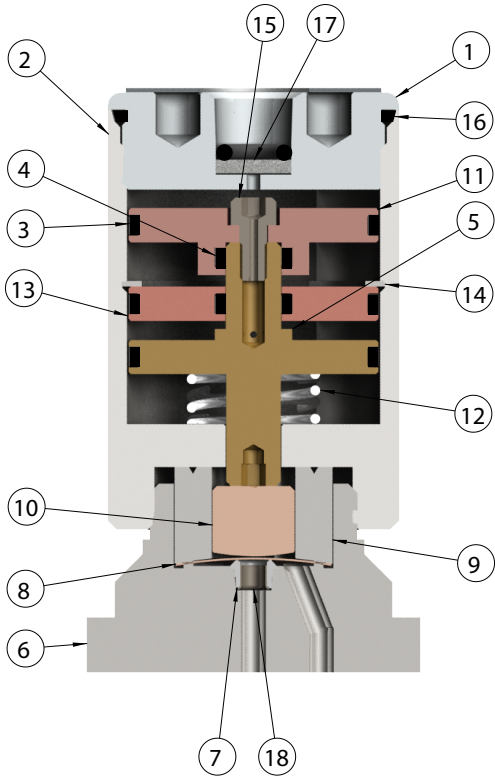
psig nominal

| 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) (0–250 psig process pressure) | 50 psig (0–3600 psig process pressure) |
| | 40 psig (3 bar) (251–500 psig process pressure) | 40 psig (3 bar) (251–500 psig process pressure) | |
| Actuation Pressure Normally Open | 40 psig (3 bar) (501–800 psig process pressure) | 40 psig (3 bar) (501–800 psig process pressure) | N/A |
| | 40 psig (3 bar) (500 psig process pressure) | 40 psig (3 bar) (800 psig process pressure) | |

DIMENSIONS & MATERIALS OF CONSTRUCTION

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

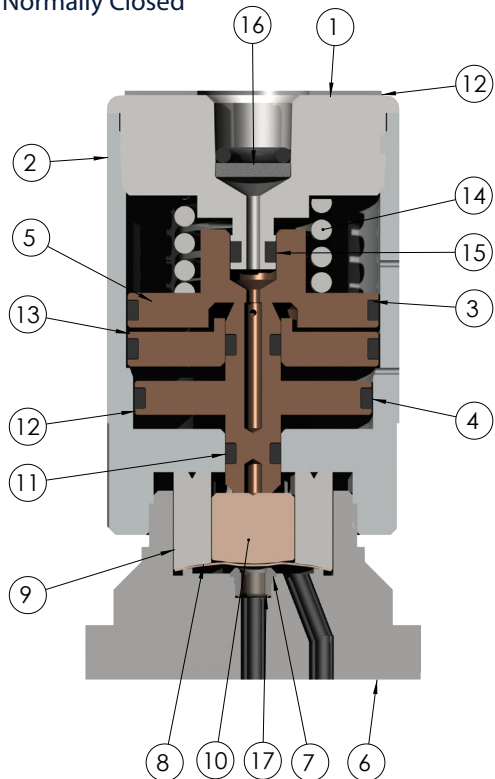
Normally Open



| # | 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 |

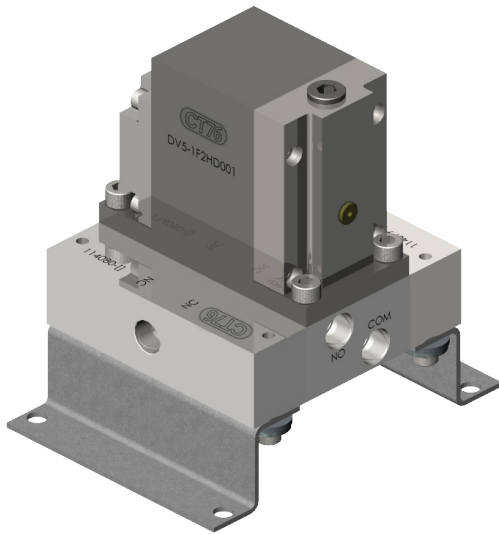
PART NUMBER EXAMPLE CONFIGURATION

| 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 www.goreg.com or the factory. |
| Note *2 | Provided by Silconert Coatings |



DV5 SERIES

3-Way Switching Diaphragm Valves



Available as...

- Stand-alone
- Multi-stream manifold
- Surface mount modular (ANSI/ISA-76 CT76 sampling system)

The DV5 Series¹ diaphragm valve is totally free of springs, bellows, packing 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. Elgiloy[®] diaphragms ensure the utmost in corrosion resistance and extended overall life span.

¹ Patent pending

Features & Benefits

- Integrated sweep loop in manifold
- 3-Way switching
- Surface mount ANSI/ISA-76 compliant*
- Metal-to-metal seals to atmosphere to prevent leakage
- Replaceable valve seats for extended service life
- Wide choice of materials for virtually all applications
- No o-rings, springs, or lubricant in wetted flow path
- Very low internal volume (0.64 cc)
- Pneumatic actuation from top of manifold
- Pressures from vacuum (50 torr) to 500 psig (34 bar)
- Compact valve body (3" L x 2.3" H x 1.5" W)
- Interlocking pins between valve body and manifold baseplate to ensure 100% correct reassembly (not applicable for surface mount models)

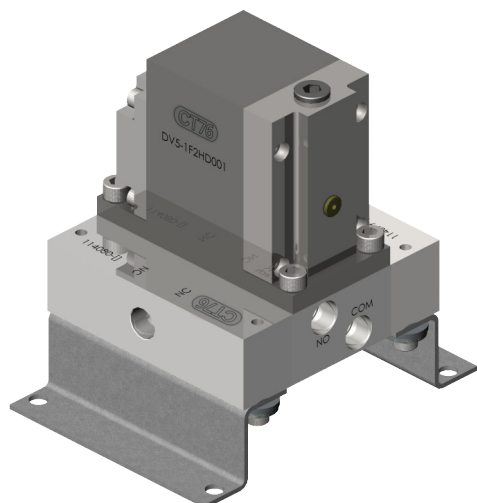
* CT76 Base adapter plate required for non-CT76 manufactured surface mount systems-consult factory



Crane Instrumentation & Sampling

diaphragm valves

TECHNICAL DATA



| | |
|--------------------------------|---|
| BODY | 316L stainless steel, Monel® and Hastelloy® C-276 |
| SEATS | PCTFE and PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| FLOW CAPACITY | 0.13 Cv |
| VALVE INTERNAL VOLUME* | 0.64 cc |
| EXTERNAL LEAKAGE | 1 × 10 ⁻⁵ cc/sec helium (inboard) |
| MIN. ACTUATION PRESSURE | 50 psig @ 50 psig process |

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

Operating Temperatures

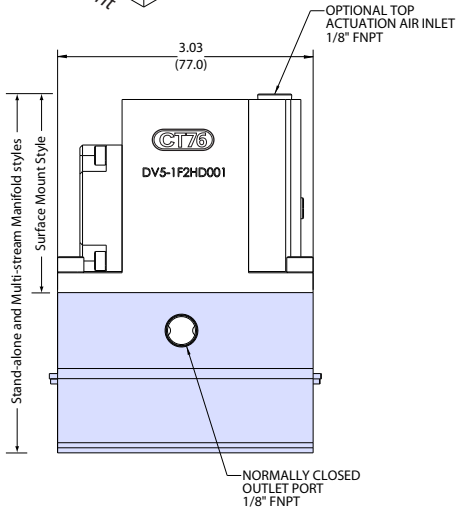
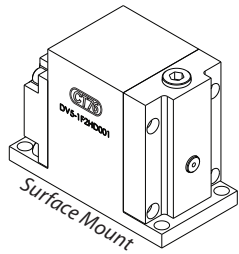
| SEAT MATERIAL | TEMPERATURE | |
|---------------|-------------------|-------------------|
| PCTFE | -40° F to +212° F | -40° C to +100° C |
| PEEK™ | 0° F to +400° F | -18° C to +204° C |

Operating Pressures

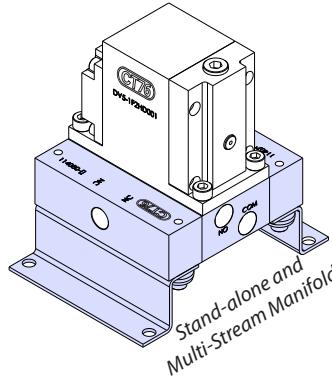
| | |
|---------------------------|--------------------------------------|
| OPERATING PRESSURE | Vacuum (50 torr) to 500 psi (34 bar) |
| PROOF PRESSURE | 2000 psig (138 barg) |
| BURST PRESSURE | 8000 psig (552 barg) |

DIMENSIONS-ALL STYLES

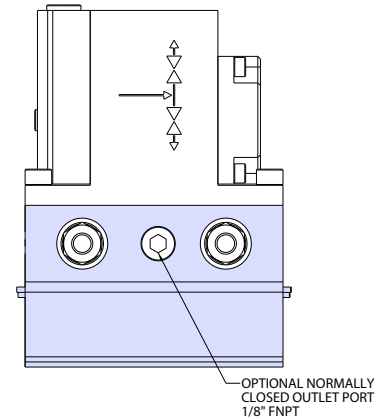
Dimensions are in inches (millimeters) for reference only and are subject to change.



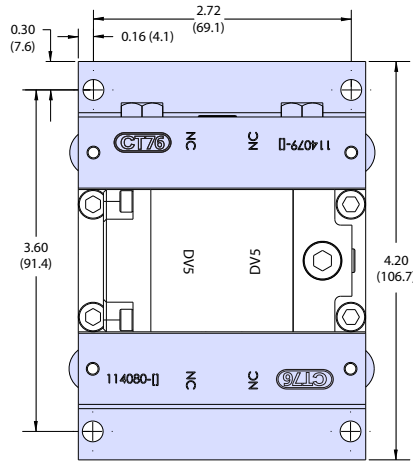
Front side view



Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.

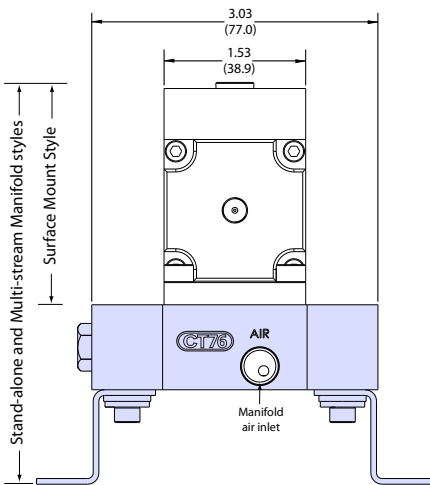


Back side view

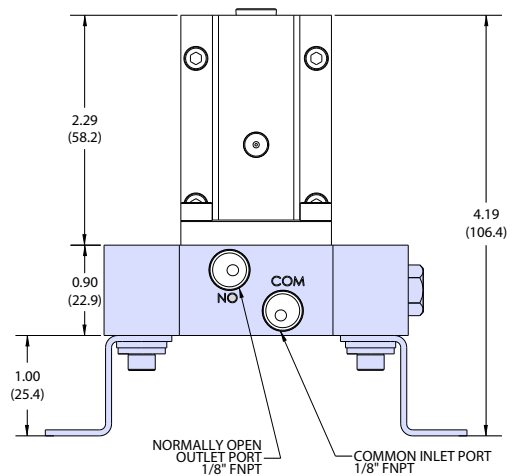


Top view

User can change from top air inlet to manifold air inlet by blocking top air inlet with 1/8" FNPT plug.



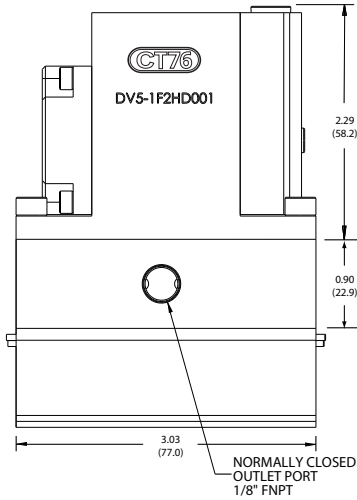
Left end view



Right end view

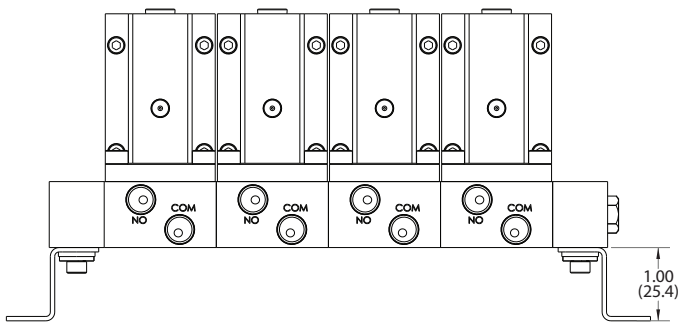
DIMENSIONS- MULTI-STREAM MANIFOLD

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

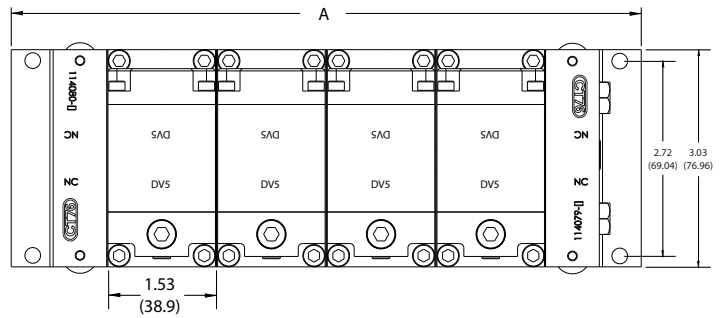


Front side view

| NUMBER OF VALVES | A DIMENSION | |
|------------------|-------------|-------|
| | INCHES | MM |
| 1 | 3.60 | 91.4 |
| 2 | 5.13 | 134.6 |
| 3 | 6.66 | 169.2 |
| 4 | 8.19 | 208.0 |
| 5 | 9.72 | 246.9 |
| 6 | 11.25 | 285.8 |
| 7 | 12.78 | 324.6 |
| 8 | 14.31 | 363.5 |
| 9 | 15.84 | 402.3 |
| 10 | 17.37 | 441.2 |
| 11 | 18.90 | 480.1 |
| 12 | 20.43 | 518.9 |



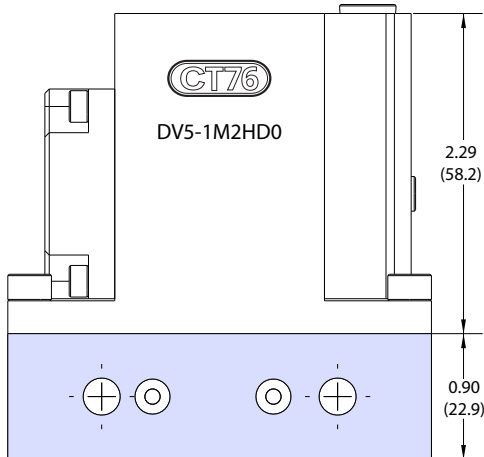
Right end view



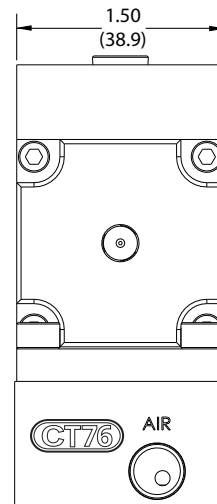
Top view

DIMENSIONS - M2 EXPANSION MODULE

This module is a turn-key package for adding streams to the DV5. M2 Expansion Module includes one (1) surface mount valve, one (1) manifold baseplate, four (4) mounting screws, and seven (7) O-rings.

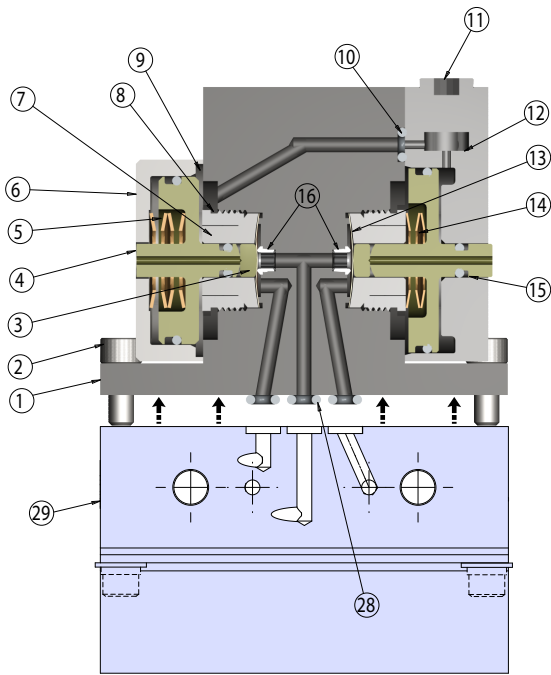


Front side view



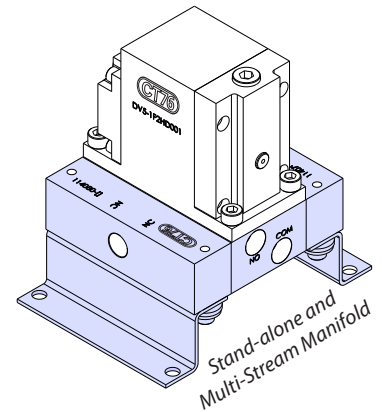
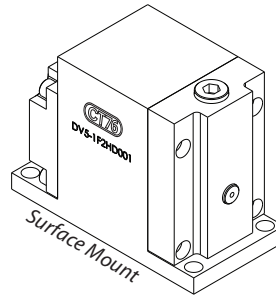
Left end view

MATERIALS OF CONSTRUCTION-ALL STYLES



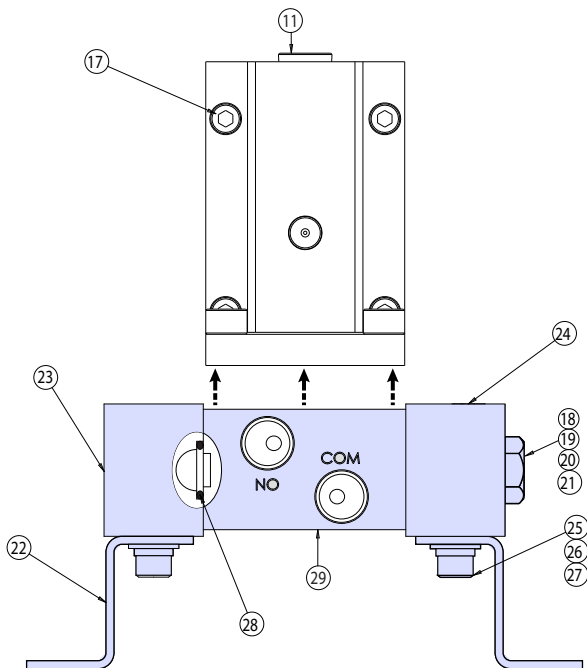
Front side view, sectioned

Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.



All Styles – Valve Body

| # | PART | MATERIALS |
|----|-----------------------|--|
| 1 | Body* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 2 | 10-32 x .50 SHC screw | 18-8 stainless steel |
| 3 | Thrust plug | Delrin® or PEEK™ |
| 4 | N.C. piston | Delrin® or PEEK™ |
| 5 | N.C. spring stack | 18-8 stainless steel |
| 6 | N.C. cap | 316L stainless steel |
| 7 | Compression collet | 316L stainless steel |
| 8 | Retainer nut | 316L stainless steel |
| 9 | O-ring | Viton® |
| 10 | O-ring | Viton® |
| 11 | Hex plug | 316 stainless steel |
| 12 | N.O. Cap | 316L stainless steel |
| 13 | Diaphragm* | Elgiloy® |
| 14 | N.O. spring stack | 18-8 stainless steel |
| 15 | N.O. piston | Delrin® or PEEK™ |
| 16 | Seat* | PCTFE or PEEK™ |
| 17 | 6-32 x .375 HSC Screw | 18-8 Stainless steel |



Right view

Stand-Alone and Multi-Stream Manifold Styles

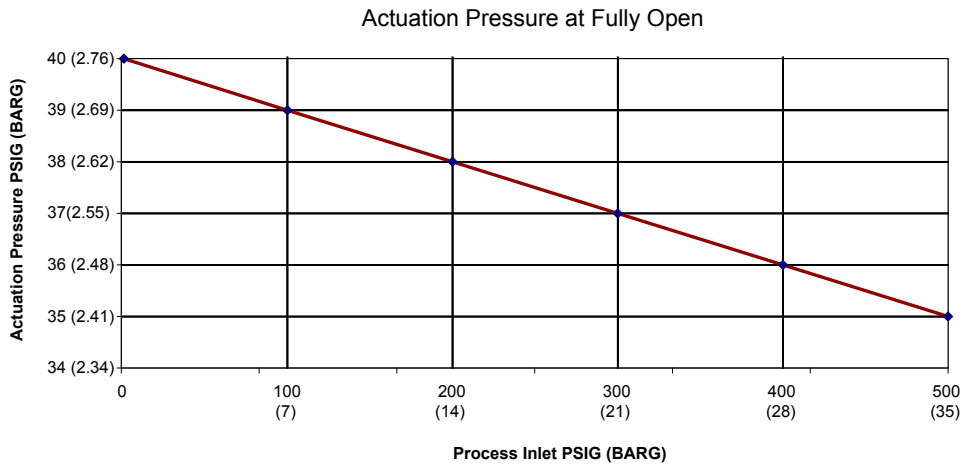
| | | |
|----|---------------------|--|
| 18 | Threaded rod | 18-8 stainless steel |
| 19 | .25" flat washer | 301 stainless steel |
| 20 | .25" lock washer | 18-8 stainless steel |
| 21 | Hex nut | 18-8 stainless steel |
| 22 | Mounting bracket | 316 stainless steel |
| 23 | Left end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 24 | Right end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 25 | 8-32 SHCS screw | 18-8 stainless steel |
| 26 | #8 flat washer | 18-8 stainless steel |
| 27 | #8 lock washer | 18-8 stainless steel |
| 28 | O-ring* | Viton® or Kalrez® |
| 29 | Manifold baseplate* | 316L stainless steel, Monel® or Hastelloy® C-276 |

* Wetted components

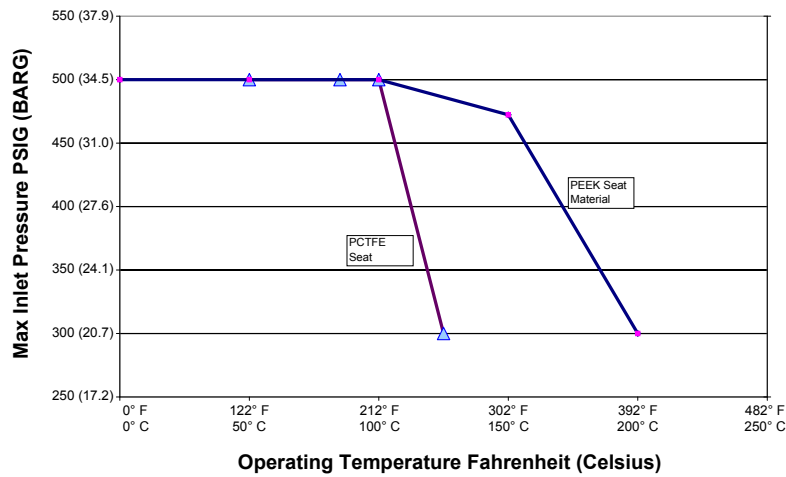
DV5 SERIES

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

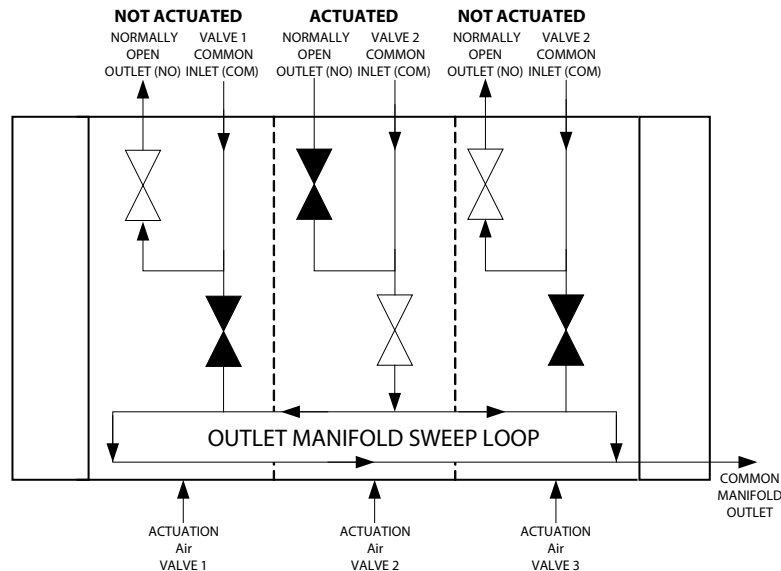
ACTUATION PRESSURE CURVE



PRESSURE TEMPERATURE CURVE



TYPICAL FLOW SCHEMATIC FOR 3-VALVE STACK



HOW TO ORDER

STANDARD ITEMS IN BOLD. Consult Customer Service for pricing and lead times for non-standard items. To order manifold components, see page 16.

| Product Family | Material Designator | Process Connection Type | Seat Material | Process O-Ring Material | Surface Treatment | # of Streams | Description |
|----------------|---------------------|-------------------------|---------------|-------------------------|-------------------|--------------|--------------------------------------|
| DV5 | - | | | | | | 3 - Way valve |
| | 1 | | | | | | SST |
| | 4 | | | | | | Monel |
| | 6 | | | | | | Hastelloy |
| | | 00 | | | | | Modular mount valve *1 |
| | | F2 | | | | | 1/8" FNPT process connection option |
| | | | H | | | | Kel-F Seat |
| | | | Q | | | | Peek Seat |
| | | | | X | | | Surface mount valve |
| | | | | D | | | Viton® o-rings |
| | | | | K | | | Perfluoroelastomer (Kalrez®) o-rings |
| | | | | F | | | PTFE o-rings *2 |
| | | | | | 0 | | Finish as processed |
| | | | | | 1 | | Cleaned for O2 |
| | | | | | 5 | | Silco Steel coated |
| | | | | | 9 | | Sulfinert coated |
| | | | | | | 01 | 1 Valve stack |
| | | | | | | 02 | 2 Valve stack |
| | | | | | | 03 | 3 Valve stack |
| | | | | | | 04 | 4 Valve stack |
| | | | | | | 05 | 5 Valve stack |
| | | | | | | 06 | 6 Valve stack |
| | | | | | | 07 | 7 Valve stack |
| | | | | | | 08 | 8 Valve stack |
| | | | | | | 09 | 9 Valve stack |
| | | | | | | 10 | 10 Valve stack |
| | | | | | | 11 | 11 Valve stack |
| | | | | | | 12 | 12 Valve stack |

PART NUMBER EXAMPLE CONFIGURATION

| Part Number | Description |
|--------------|---|
| DV5-1F2HD001 | 3 stream DV5 stack with 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings |
| DV5-100HX0 | Surface mount DV5 valve with Kel-F seats, and Viton process o-rings |
| Note *1 | The -100 part number designator is used to identify a surface mount valve. This valve will not contain the 1/8" FNPT connection or manifold. The only acceptable process o-ring selection for the -100 version of the DV5 valve is X. |
| Note *2 | PTFE o-rings are available however over time they exhibit some element of cold flow under the pressure of sealing which can potentially lead to flow restrictions or envelope leakage. If PTFE o-rings are desired it is suggested by CT76 that the valves be placed on an o-ring replacement preventative maintenance program to help offset unplanned down time due to the sample valves. |

DV5 SERIES

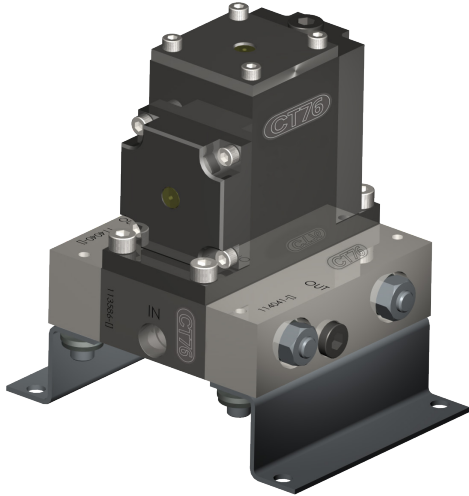
DV5 Manifold Parts

| IMAGE | DESCRIPTION | PART NUMBER | MATERIAL |
|---------------------------------------|--|---|--|
| <p>NC COM NO AIR Top view</p> | Manifold baseplate with pins | CT114085-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
| <p>Front side view</p> | Right end plate | CT114079-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
| <p>Top view</p> | Left end plate | CT114080-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
| <p>A</p> | Threaded rod: • 2-module • 3-module • 4-module • 5-module • 6-module • 7-module • 8-module • 9-module • 10-module • 11-module • 12-module | G111609-2 (A = 4.42") G111609-3 (A = 5.92") G111609-4 (A = 7.42") G111609-5 (A = 8.92") G111609-6 (A = 10.42") G111609-7 (A = 11.92") G111609-8 (A = 13.42") G111609-9 (A = 14.92") G111609-10 (A = 16.42") G111609-11 (A = 17.92") G111609-12 (A = 19.42") | 18-8 stainless steel |
| | Nut, 1/4"-28 | G074208 | 18-8 stainless steel |
| | Flat washer | G098023 | 18-8 stainless steel |
| | Lock washer | G098014 | 18-8 stainless steel |
| | O-ring | 58-006-[] | -50: Viton® -53: Kalrez® |
| | Mounting bracket | CT112609 | 316 stainless steel |



DBB SERIES

Double-Block-and-Bleed Diaphragm Valves



The DBB Series¹ diaphragm valve is a modular, double-block-and-bleed valve assembly. Stand-alone and multi-stream DBB Manifold assemblies can be easily integrated into an ANSI/ISA-76 compliant system with the use of a simple adapter plate. (see the CT76 Modular Substrate System CTMS3 catalog for additional information).

DBB series valves are totally free of springs, bellows, packing, and lubricants in the process wetted area. Metal-to-metal seals to atmosphere to prevent transport of undesirable elements into the flow stream.

Available as:

- Stand-alone
- Multi-stream manifold
- Surface mount modular (ANSI/ISA-76 CT76 *sampling system*)
- Base manifold with mounting brackets

Features & Benefits

- Integrated sweep loop in manifold
- Double-block-and-bleed on/off control
- Surface mount ANSI/ISA-76 compliant*
- Metal-to-metal seals to atmosphere to prevent leakage
- Replaceable seats for extended service life
- Wide choice of body and elastomer materials
- No dynamic o-rings, springs, or lubricant in process wetted area of valves to eliminate sample contamination
- Very low internal volume (0.16 cc)
- Pneumatic actuation from top or manifold
- Process pressure from vacuum (50 torr) to 500 psig (34 barg)
- Multiple stacked diaphragms for extended service life
- Compact valve body (3" L × 1.5" W × 2.56" H)
- Interlocking pins between valve body and manifold baseplate to ensure 100% correct reassembly (not applicable for surface mount models)

* μ MS3[®] base adapter plate CT11358-[] required for non-CT76 manufactured surface mount systems - consult factory

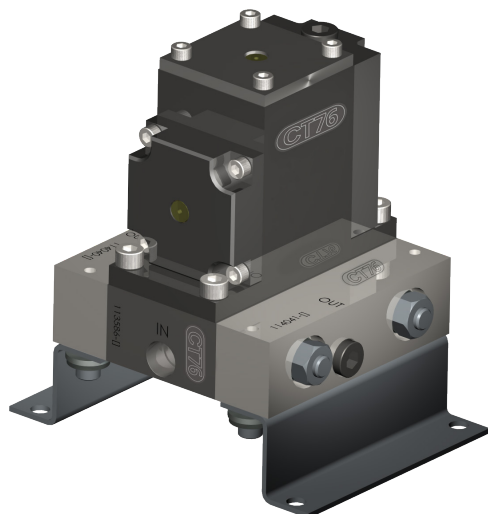
¹ Patent pending



Crane Instrumentation & Sampling

diaphragm valves

TECHNICAL DATA



| | |
|-------------------------|---|
| BODY | 316L stainless steel, Monel® and Hastelloy® C-276 |
| SEATS | PCTFE or PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| FLOW CAPACITY | 0.23 Cv |
| VALVE INTERNAL VOLUME** | 0.16 cc |
| EXTERNAL LEAKAGE | 1 × 10 ⁻⁵ cc/sec helium (inboard) |
| MIN. ACTUATION PRESSURE | 50 psig @ 50 psig process |

** Internal volume between double block valves.

Operating Temperatures

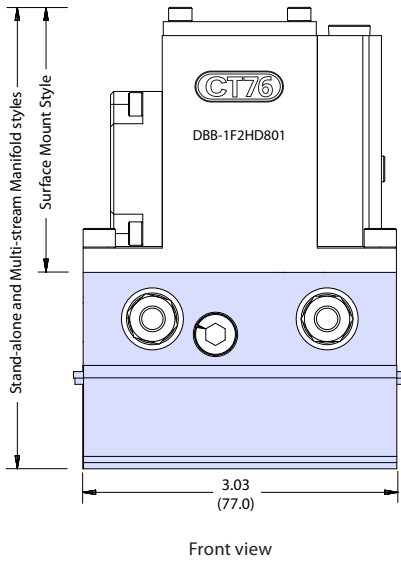
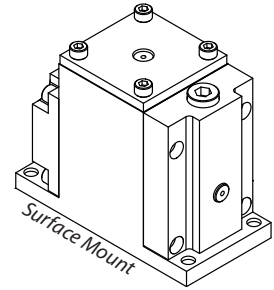
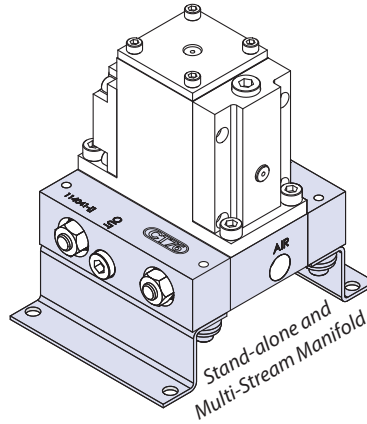
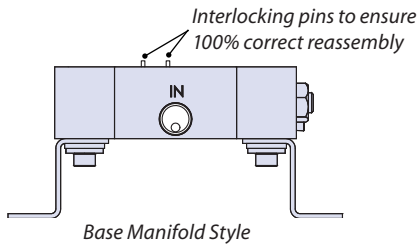
| SEAT MATERIAL | TEMPERATURE | |
|---------------|-------------------|-------------------|
| PCTFE | -40° F to +212° F | -40° C to +100° C |
| PEEK™ | 0° F to +400° F | -18° C to +204° C |

Operating Pressures

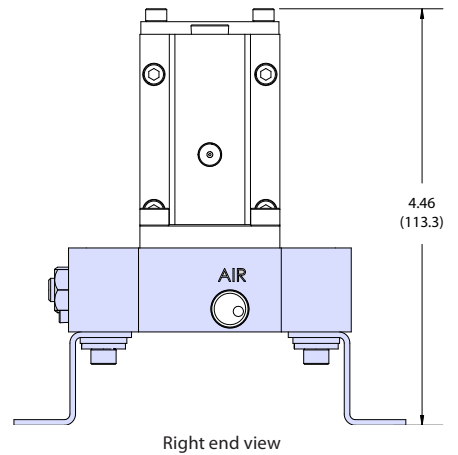
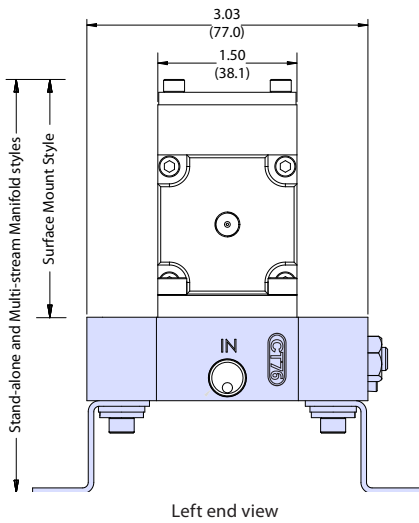
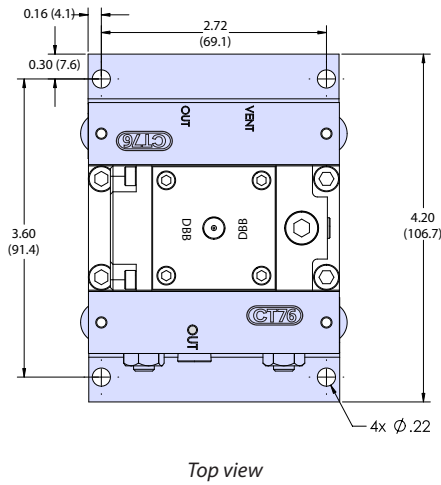
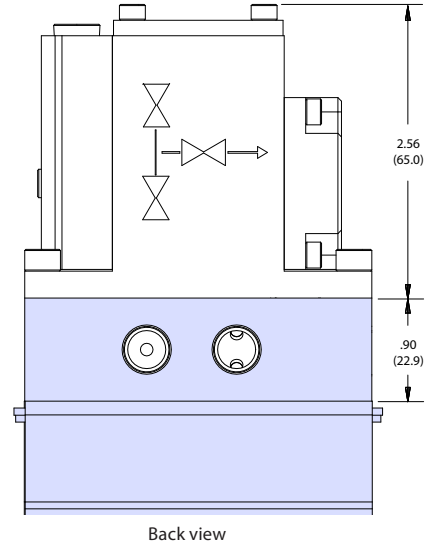
| | |
|--------------------|--------------------------------------|
| OPERATING PRESSURE | Vacuum (50 torr) to 500 psi (34 bar) |
| PROOF PRESSURE | 2000 psig (138 barg) |
| BURST PRESSURE | 8000 psig (552 barg) |

DIMENSIONS-ALL STYLES

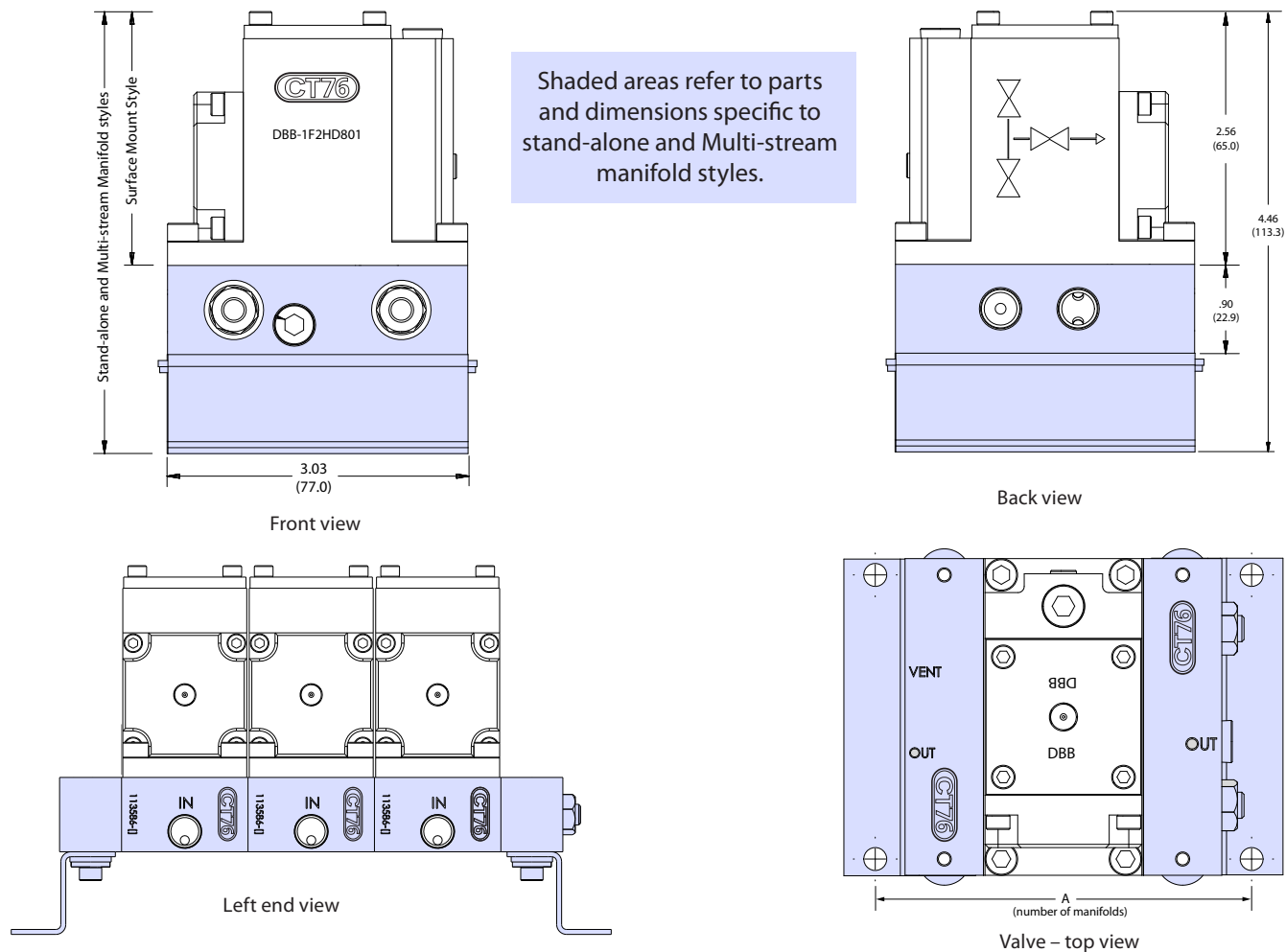
Dimensions are inches (millimeters) for reference only and are subject to change.



Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.



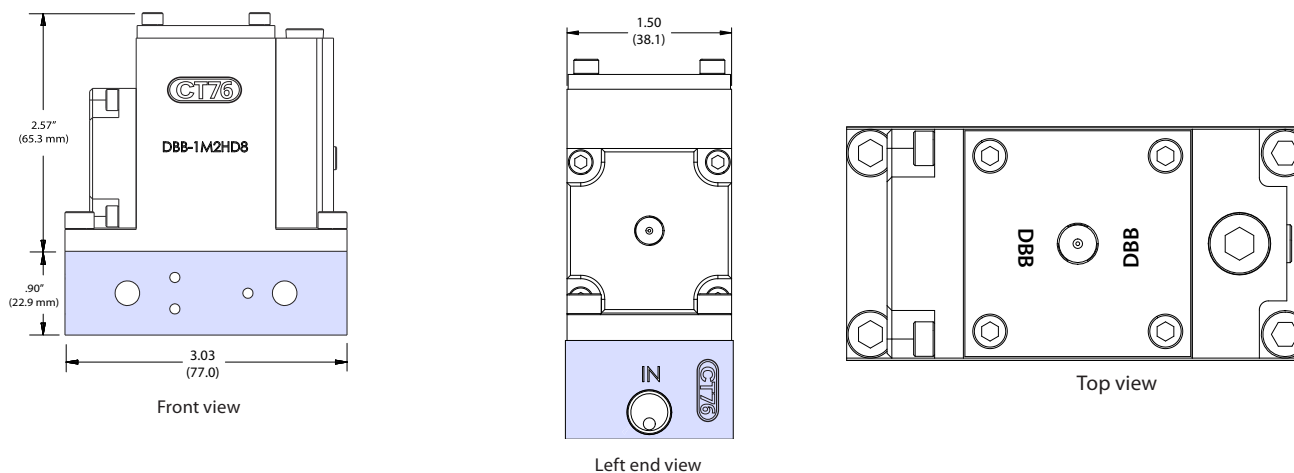
DIMENSIONS – MULTI-STREAM MANIFOLD & BASE MANIFOLD STYLES



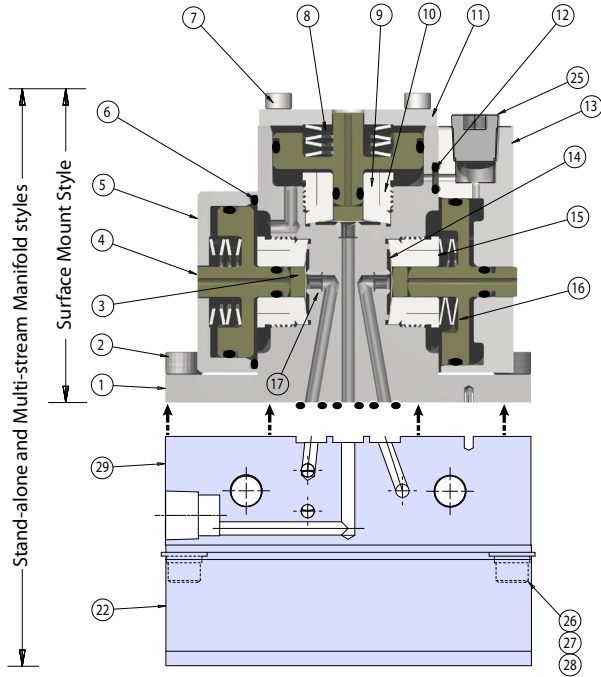
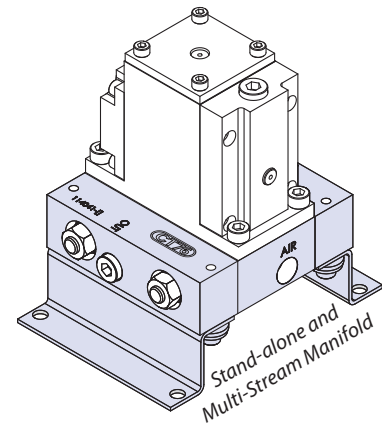
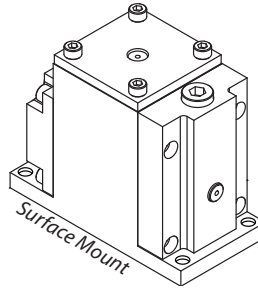
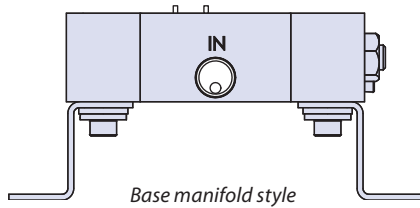
| NUMBER OF MANIFOLDS | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A | inches | 5.13 | 6.66 | 8.19 | 9.72 | 11.25 | 12.78 | 14.31 | 15.84 | 17.37 | 18.90 | 20.43 |
| | mm | 130.3 | 169.2 | 208.0 | 246.9 | 285.8 | 324.6 | 363.5 | 402.3 | 441.2 | 480.1 | 518.9 |

DIMENSIONS – M2 EXPANSION MODULE

This module is a turn-key package for adding streams to the DBB. M2 Expansion Module includes one (1) surface mount valve, one (1) manifold baseplate, four (4) mounting screws, and seven (7) O-rings.



MATERIALS OF CONSTRUCTION-ALL STYLES



Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.

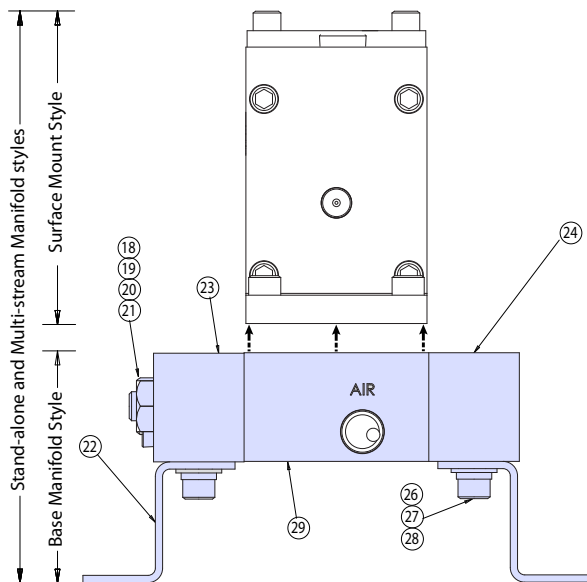
All Styles – Valve Body

| # | PART | MATERIALS |
|----|---------------------|--|
| 1 | Body* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 2 | 10-32 x .50 screw | 18-8 stainless steel |
| 3 | Thrust plug | Delrin® or PEEK™ |
| 4 | N. C. Piston | Delrin® or PEEK™ |
| 5 | N. C. Cap | 316 stainless steel |
| 6 | O-ring | Viton® |
| 7 | 6-32 x .375 screw | 18-8 stainless steel |
| 8 | N. C. spring stack | 316L stainless steel |
| 9 | Compression collet | 316L stainless steel |
| 10 | Retainer nut | 316L stainless steel |
| 11 | Top cap | 316L stainless steel |
| 12 | O-ring | Viton® or Kalrez® |
| 13 | N. O. cap | 316L stainless steel |
| 14 | Diaphragm* | Elgiloy® |
| 15 | N. O. spring washer | 18-8 stainless steel |
| 16 | N. O. piston | Delrin® or PEEK™ |
| 17 | Seat | PCTFE or PEEK™ |

Stand-alone, Multi-Stream Manifold, and Base Manifold styles

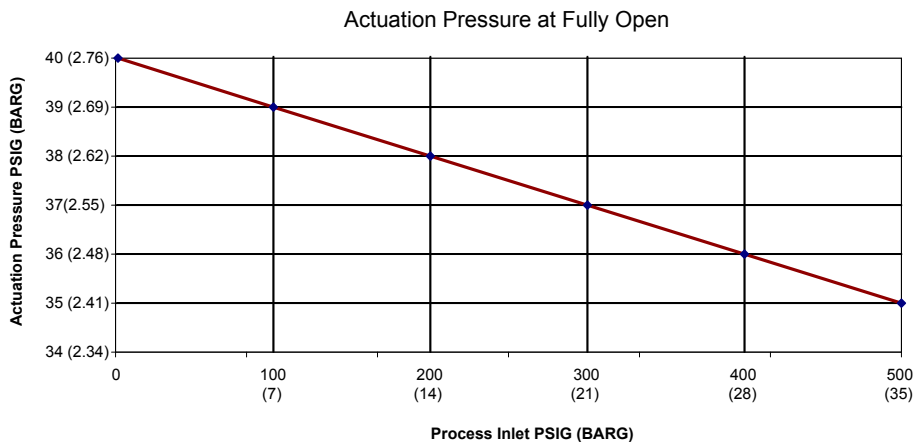
| | | |
|----|---------------------|--|
| 18 | Threaded rod | 18-8 stainless steel |
| 19 | .25" flat washer | 301 stainless steel |
| 20 | .25" lock washer | 18-8 stainless steel |
| 21 | .25" hex nut | 18-8 stainless steel |
| 22 | Mounting bracket | 316 stainless steel |
| 23 | Left end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 24 | Right end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 25 | Hex plug* | 18-8 stainless steel |
| 26 | 8-32 x .50 screw | 18-8 stainless steel |
| 27 | #8 flat washer | 18-8 stainless steel |
| 28 | #8 lock washer | 18-8 stainless steel |
| 29 | Manifold baseplate* | 316L stainless steel, Monel® or Hastelloy® C-276 |

* Wetted components



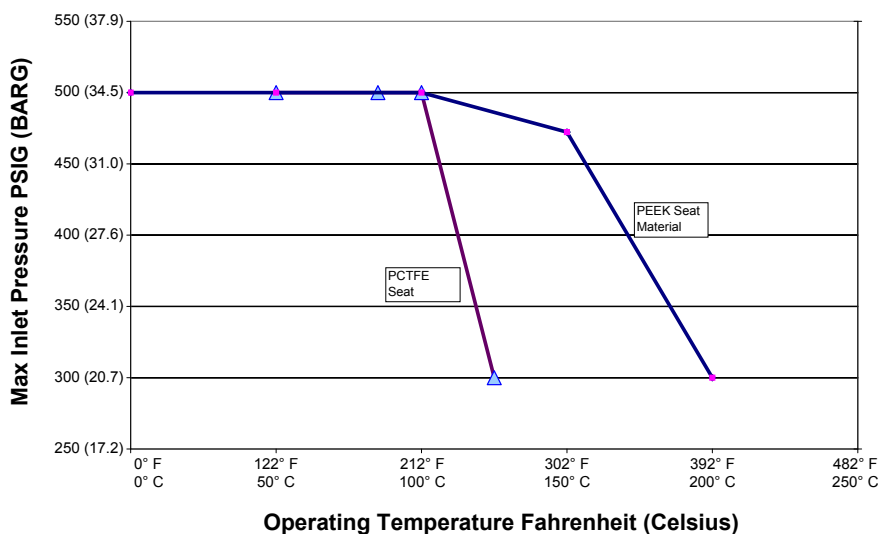
DBB SERIES

ACTUATION PRESSURE CURVE

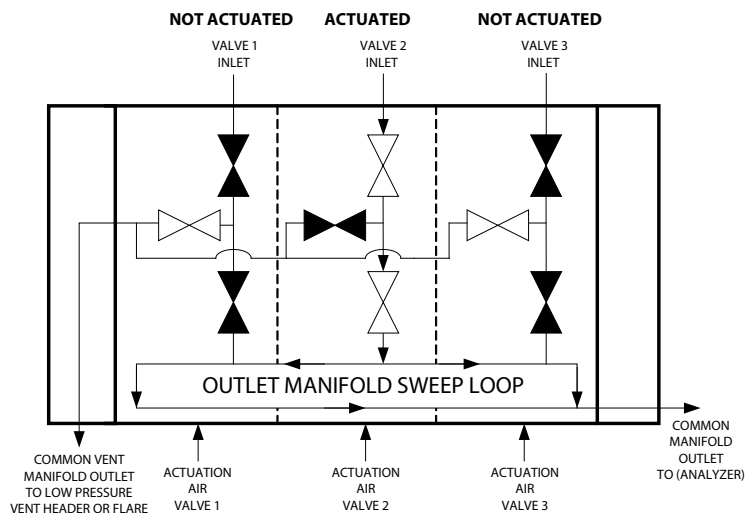


PRESSURE TEMPERATURE CURVE

Pressures in psig (barg)



TYPICAL FLOW SCHEMATICS



HOW TO ORDER

STANDARD ITEMS IN BOLD. Consult Customer Service for pricing and lead times for non-standard items. To order manifold components, see page 16.

| Product Family | Material Designator | Process Connection Type | Seat Material | Process O-Ring Material | Surface Treatment | # of Streams | Description |
|----------------|---------------------|-------------------------|---------------|-------------------------|-------------------|--------------|--------------------------------------|
| DBB | - | | | | | | Double Block and Bleed valve |
| | 1 | | | | | | SST |
| | 4 | | | | | | Monel |
| | 6 | | | | | | Hastelloy |
| | | 00 | | | | | Modular mount valve *1 |
| | | F2 | | | | | 1/8" FNPT process connection option |
| | | | H | | | | Kel-F Seat |
| | | | Q | | | | Peek Seat |
| | | | | X | | | Surface mount valve |
| | | | | D | | | Viton® o-rings |
| | | | | K | | | Perfluoroelastomer (Kalrez®) o-rings |
| | | | | F | | | PTFE o-rings *2 |
| | | | | | 0 | | Finish as processed |
| | | | | | 1 | | Cleaned for O2 |
| | | | | | 5 | | Silco Steel coated |
| | | | | | 9 | | Sulfinert coated |
| | | | | | | 01 | 1 Valve stack |
| | | | | | | 02 | 2 Valve stack |
| | | | | | | 03 | 3 Valve stack |
| | | | | | | 04 | 4 Valve stack |
| | | | | | | 05 | 5 Valve stack |
| | | | | | | 06 | 6 Valve stack |
| | | | | | | 07 | 7 Valve stack |
| | | | | | | 08 | 8 Valve stack |
| | | | | | | 09 | 9 Valve stack |
| | | | | | | 10 | 10 Valve stack |
| | | | | | | 11 | 11 Valve stack |
| | | | | | | 12 | 12 Valve stack |

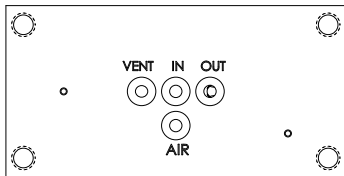
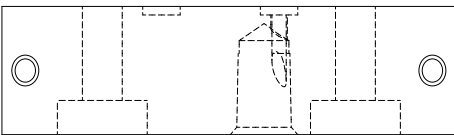
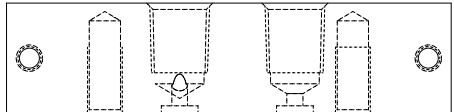
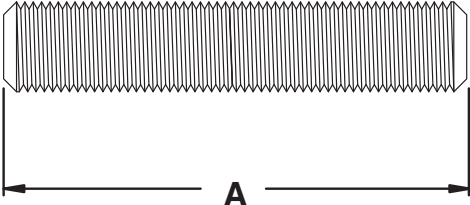




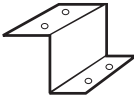
PART NUMBER EXAMPLE CONFIGURATION

| Part Number | Description |
|--------------|---|
| DBB-1F2HD003 | 3 stream DBB stack with 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings |
| DBB-100HD005 | 5 stream DBB stack with 1/4" tube stub connection, Kel-F seats, and Viton process o-rings |
| DBB-100HX0 | Surface mount DBB valve with Kel-F seats, and Viton process o-rings |
| Note *1 | The -100 part number designator is used to identify valves that will not contain the 1/8" FNPT connection for the valve. The valve can be purchased in stacks and is configured later in the part number starting with process o-ring material. If this value is anything but an X, the rest of the part number must be configured using the surface treatment as well as the # of streams. If this value is an X, the # of streams should be left blank. |
| Note *2 | PTFE o-rings are available however over time they exhibit some element of cold flow under the pressure of sealing which can potentially lead to flow restrictions or envelope leakage. If PTFE o-rings are desired it is suggested by CT76 that the valves be placed on an o-ring replacement preventative maintenance program to help offset unplanned down time due to the sample valves. |

DBB SERIES

Stand-alone Valve with Mounting Brackets

SPARE PARTS FOR BASE MANIFOLDS

| IMAGE | DESCRIPTION | PART NUMBER | MATERIAL |
|--|--|---|--|
|  <p>Top view</p> | DBB Manifold baseplate | 114024-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
|  <p>Top view</p> | Right end plate | 114020-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
|  <p>Top view</p> | Left end plate | 114019-[] | -1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276 |
|  | Threaded rod: • 2-module • 3-module • 4-module • 5-module • 6-module • 7-module • 8-module • 9-module • 10-module • 11-module • 12-module | G111609-2 (A = 4.42") G111609-3 (A = 5.92") G111609-4 (A = 7.42") G111609-5 (A = 8.92") G111609-6 (A = 10.42") G111609-7 (A = 11.92") G111609-8 (A = 13.42") G111609-9 (A = 14.92") G111609-10 (A = 16.42") G111609-11 (A = 17.92") G111609-12 (A = 19.42") | 18-8 stainless steel |
|  | Nut, 1/4"-28 | G074208 | 18-8 stainless steel |
|  | Flat washer | G098023 | 18-8 stainless steel |
|  | Lock washer | G098014 | 18-8 stainless steel |
|  | O-ring | 58-006-[] | -50: Viton® -53: Kalrez® |
|  | Mounting bracket | CT112609 | 316 stainless steel |



DSV SERIES

GC Diaphragm Valve Normally Closed, with Atmospheric Reference Normally Open

DSS SERIES

GC Diaphragm Valve Normally Open, with Atmospheric Reference Normally Closed



Available as:

- Stand-alone
- Surface mount modular (ANSI/ISA-76 CT76 analyzer system)

The DSV Series¹ diaphragm valve is a GC module with two normally closed shut-off valves and an atmospheric reference.

The DSS Series¹ diaphragm valve is a GC module with two normally open shut-off valves and an atmospheric reference.

This valve is available as stand-alone.

For ANSI/ISA-76 systems please contact the factory.

¹ Patent pending

Features & Benefits

- GC fast loop with atmospheric reference
- Surface mount ANSI/ISA-76 compliant*
- Metal-to-metal seals to atmosphere to prevent leakage
- Wide choice of materials for virtually all applications
- Replaceable seats for extended service life
- No dynamic o-rings, springs, or lubricant in wetted flow path to eliminate sample contamination
- Very low internal volume 0.231 cc
- Stacked diaphragms for extended service life
- Pneumatic actuation (top actuation only)
- Pressures from vacuum (50 torr) to 500 psig (34 barg)
- Compact package (3" L × 2.6" H × 1.5" W)
- Interlocking pins between valve body and manifold baseplate to ensure 100% correct reassembly

* CT-76 base adapter plate required for non-CT-76 manufactured surface mount systems

diaphragm valves



Crane Instrumentation & Sampling

TECHNICAL DATA



| | |
|--------------------------------|---|
| BODY | 316L stainless steel, Monel® or Hastelloy® C-276 |
| SEATS | PCTFE or PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| FLOW CAPACITY | 0.20 Cv |
| VALVE INTERNAL VOLUME** | 0.231 cc |
| EXTERNAL LEAKAGE | 1 × 10 ⁻⁵ cc/sec helium (inboard) |
| MIN. ACTUATION PRESSURE | 50 psig (3 barg) |

** Internal volume is defined as area from the main analyzer isolation valve to the analyzer outlet port.

Operating Temperatures

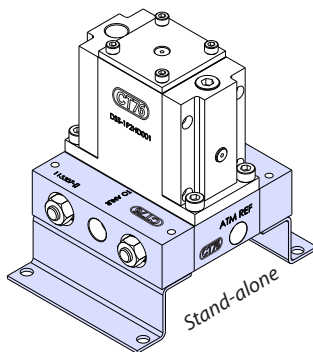
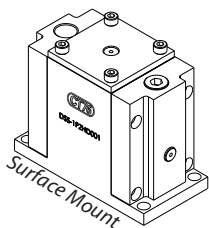
| SEAT MATERIAL | TEMPERATURE | |
|---------------|-------------------|-------------------|
| PCTFE | -40° F to +212° F | -40° C to +100° C |
| PEEK™ | 0° F to +400° F | -18° C to +204° C |

Operating Pressures

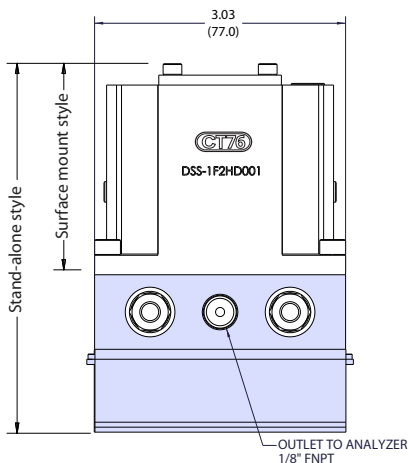
| | |
|---------------------------|--|
| OPERATING PRESSURE | Vacuum (50 torr) to 500 psig (34 barg) |
| PROOF PRESSURE | 2000 psig (138 barg) |
| BURST PRESSURE | 8000 psig (552 barg) |

DIMENSIONS-ALL STYLES

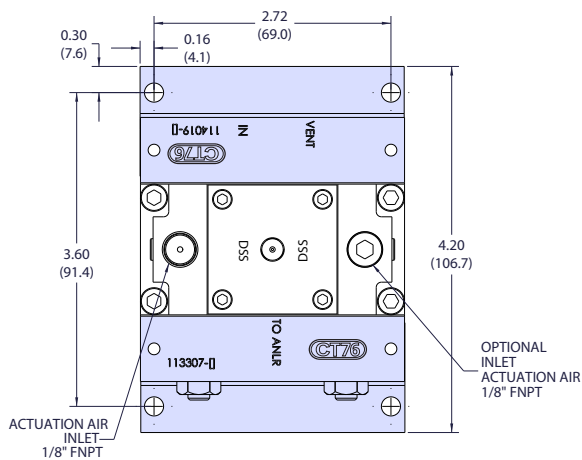
Dimensions are inches (millimeters) for reference only and are subject to change.



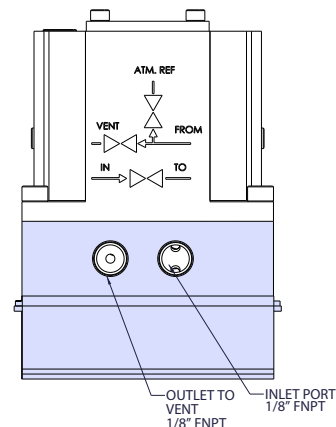
Shaded areas refer to parts and dimensions specific to stand-alone.



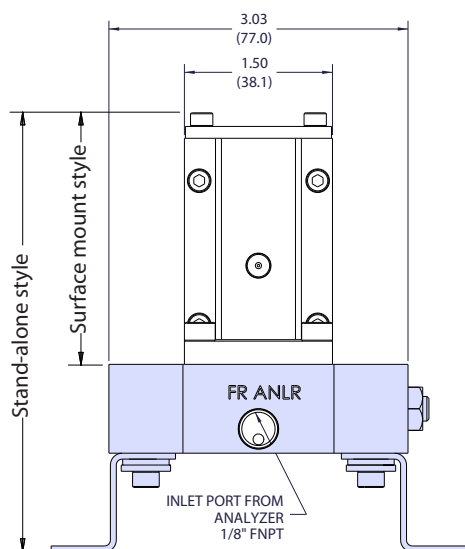
Front side view



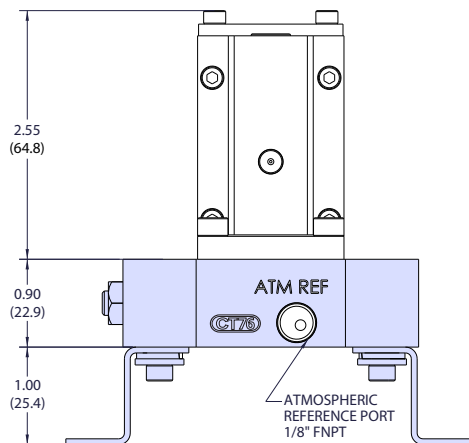
Top view



Back side view

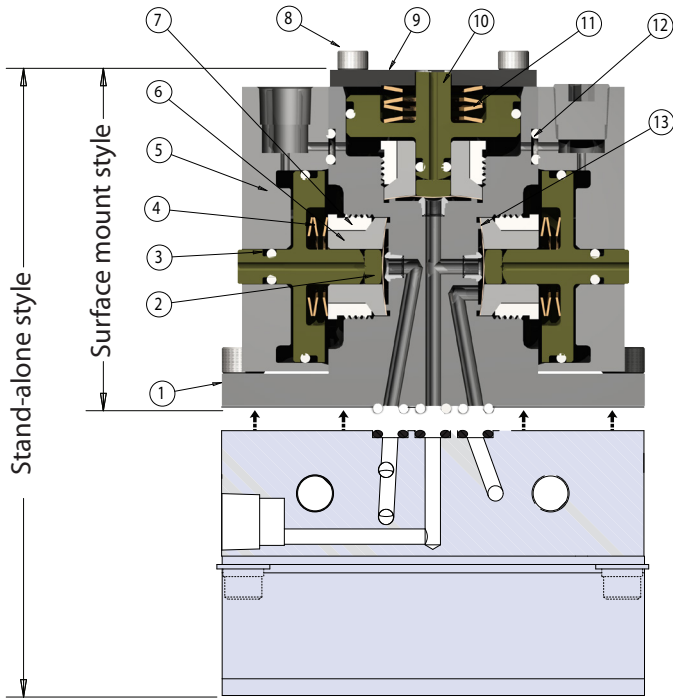


Left end view

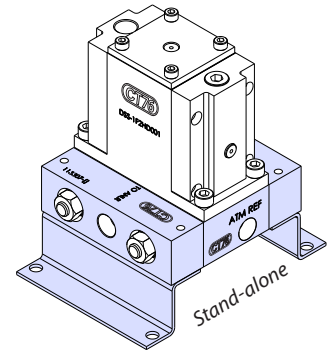
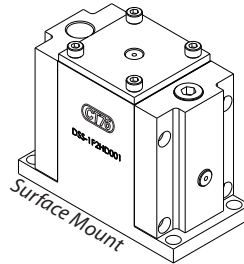


Right end view

MATERIALS OF CONSTRUCTION



Right side view



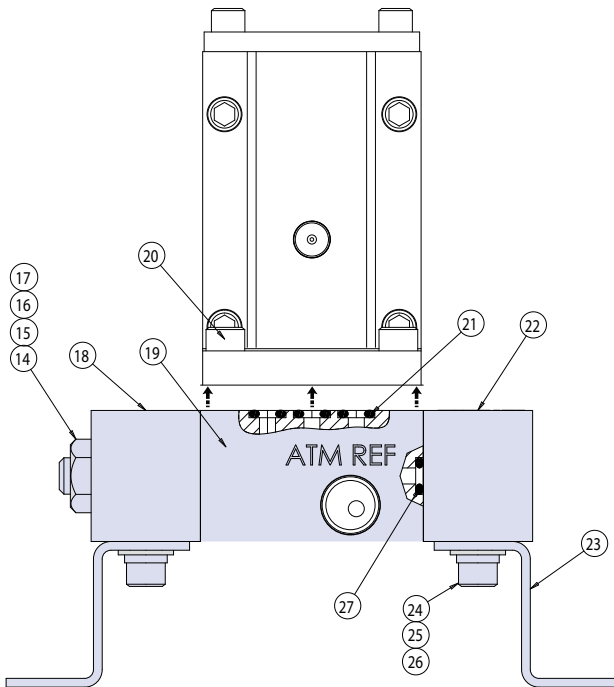
All Styles – Valve Body

| # | PART | MATERIALS |
|----|-----------------------|--|
| 1 | Body* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 2 | Thrust plug | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 3 | N.O. piston | Delrin® or PEEK™ |
| 4 | N.O. spring stack | 18-8 stainless steel |
| 5 | N.O. cap | 316L stainless steel |
| 6 | Compression collet | 316L stainless steel |
| 7 | Retainer nut | 316L stainless steel |
| 8 | 6-32 x .375 SHC screw | 18-8 stainless steel |
| 9 | Top cap | 316L stainless steel |
| 10 | N.C. piston | Delrin® or PEEK™ |
| 11 | N.C. spring stack | 18-8 stainless steel |
| 12 | O-ring | Viton® |
| 13 | Diaphragm* | Elgiloy® |

Stand-Alone and Multi-Stream Manifold Styles

| | | |
|----|------------------------|--|
| 14 | Threaded rod | 18-8 stainless steel |
| 15 | ¼" flat washer | 301, 302 stainless steel |
| 16 | ¼" flat washer | 18-8 stainless steel |
| 17 | Hex nut ¼-28 | 18-8 stainless steel |
| 18 | Left end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 19 | Manifold base plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 20 | 10-32 x .437 SHC screw | 18-8 stainless steel |
| 21 | O-ring | Viton® or Kalrez® |
| 22 | Right end plate* | 316L stainless steel, Monel® or Hastelloy® C-276 |
| 23 | Mounting bracket | 316 stainless steel |
| 24 | 8-32 x .437 SHC screw | 18-8 stainless steel |
| 25 | #8 flat washer | 18-8 stainless steel |
| 26 | #8 lock washer | 18-8 stainless steel |
| 27 | O-ring* | Viton® or Kalrez® |

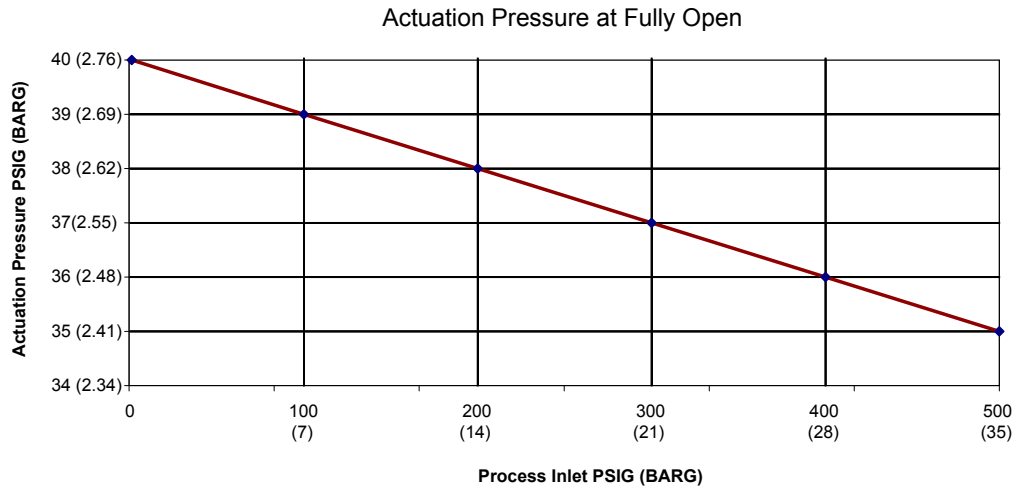
* Wetted components



Right end view

DSS SERIES

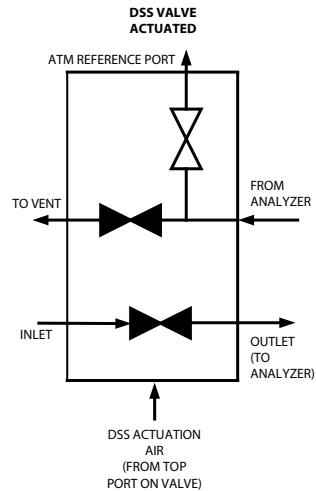
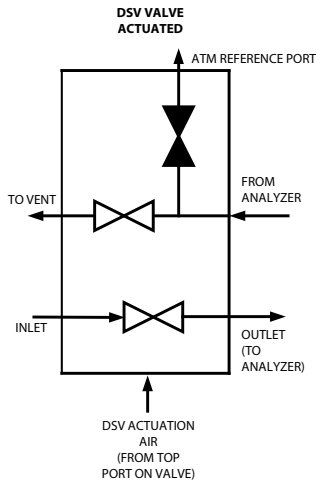
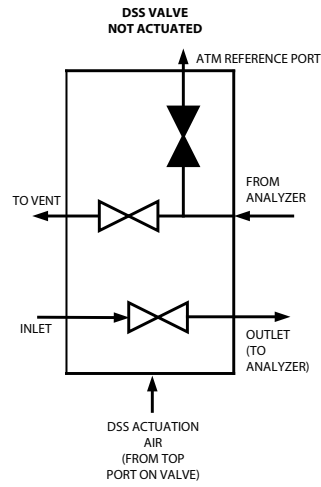
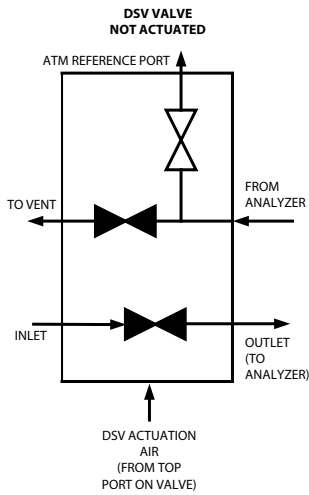
ACTUATION PRESSURE CURVE



TYPICAL FLOW SCHEMATICS

DSV

DSS



HOW TO ORDER

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

| Product Family | Material Designator | Process Connection Type | Seat Material | Process O-Ring Material | Surface Treatment | # of Streams | Description |
|----------------|---------------------|-------------------------|---------------|-------------------------|-------------------|--------------|--|
| DSV | - | | | | | | GC Diaphragm Valve Normally Closed, with atmospheric reference Normally Open |
| / | | | | | | | |
| DSS | | | | | | | GC Diaphragm Valve Normally Open, with atmospheric reference Normally Closed |
| | 1 | | | | | | SST |
| | 4 | | | | | | Monel |
| | 6 | | | | | | Hastelloy |
| | | 00 | | | | | Surface mount valve *1 |
| | | F2 | | | | | Stand alone valve with 1/8" FNPT |
| | | | H | | | | Kel-F Seat |
| | | | Q | | | | Peek Seat |
| | | | | X | | | Surface mount valve |
| | | | | D | | | Viton® o-rings |
| | | | | K | | | Perfluoroelastomer (Kalrez®) o-rings |
| | | | | F | | | PTFE o-rings *2 |
| | | | | | 0 | | Finish as processed |
| | | | | | 1 | | Cleaned for O2 |
| | | | | | 5 | | Silco Steel coated |
| | | | | | 9 | | Sulfinert coated |
| | | | | | | 01 | 1 Valve stack |

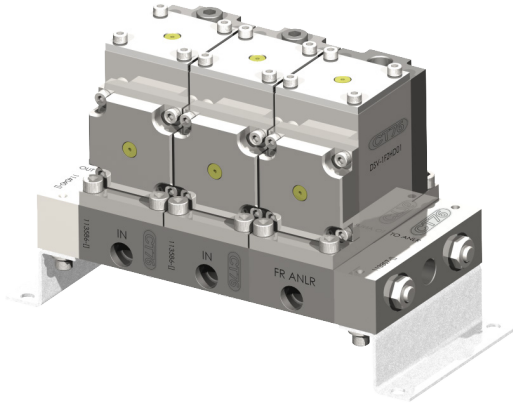
PART NUMBER EXAMPLE CONFIGURATION

| Part Number | Description |
|--------------|---|
| DSS-1F2HD001 | GC Diaphragm Valve Normally Open, with atmospheric reference Normally Closed with 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings |
| DSS-100HX0 | Surface mount DSS valve with Kel-F seats, and Viton process o-rings |
| Note *1 | The -100 part number designator is used to identify a surface mount valve. This valve will not contain the 1/8" FNPT connection or manifold. The only acceptable process o-ring selection for the -100 version of the DSS valve is X. |
| Note *2 | PTFE o-rings are available however over time they exhibit some element of cold flow under the pressure of sealing which can potentially lead to flow restrictions or envelope leakage. If PTFE o-rings are desired it is suggested by CT76 that the valves be placed on an o-ring replacement preventative maintenance program to help offset unplanned down time due to the sample valves. |



DBA SERIES

GC Manifold Assembly with DBB and DSV Series Atmospheric Reference Valve



The DBA and DBC Series¹ diaphragm valve is a modular, stream-switching, manifold assembly containing double-block-and-bleed valves and a fast loop shut-off with an atmospheric reference. The DBA Series consists of DBB Series valves stacked with a single DSV Series valve. The DBC Series consists of DBB Series valves stacked with a single DSS Series valve. The individual valves can easily be integrated into an ANSI/ISA-76 compliant system.

¹ Patent pending

DBC SERIES

GC Manifold Assembly with DBB and DSS Series Atmospheric Reference Valve

Combines:

- Multiple DBB Series (Double-Block-and-Bleed Diaphragm Valve)
- One DSV Series (GC Diaphragm Valve Normally Closed, with atmospheric reference Normally Open) or DSS Series (GC Diaphragm Valve Normally Open, with atmospheric reference Normally Closed)

Available as:

- Multi-stream manifold

Features & Benefits

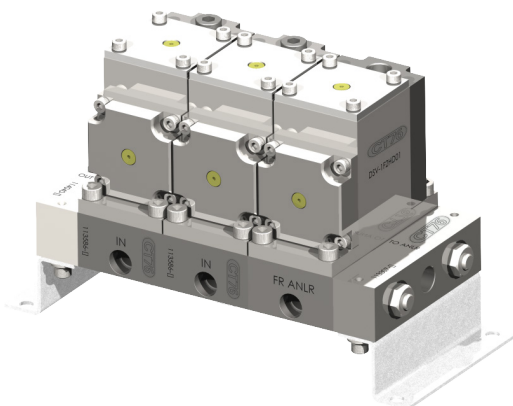
- Stream select manifold assembly
- Surface mount ANSI/ISA-76 compliant*
- Metal-to-metal seals to atmosphere to prevent leakage
- Wide choice of materials for virtually all applications
- Replaceable seats for extended service life
- No dynamic o-rings, springs, or lubricant in wetted flow path to eliminate sample contamination
- Stacked diaphragms for extended service life
- Integrated sweep loop in manifold
- Pneumatic actuation (DSV valve is top air only)
- Pressures from vacuum (50 torr) to 500 psig (34 barg)
- Compact package (3" L × 2.6" H × 1.5" W)

* CT-76 base adapter plate required for non-CT-76 manufactured surface mount systems



Crane Instrumentation & Sampling

diaphragm valves

TECHNICAL DATA

| | |
|-------------------------------|---|
| BODY | 316L stainless steel, Monel® or Hastelloy® C-276 |
| SEATS | PCTFE or PEEK™ |
| DIAPHRAGMS | Elgiloy® AMS 5876 |
| WORKING PRESSURE RANGE | Vacuum (50 torr) to 500 psig (34 bar) |
| ORIFICE SIZE | 0.110" (2.8 mm) |
| EXTERNAL LEAKAGE | 1x10 ⁻⁵ cc/sec helium (inboard) |
| ACTUATION PRESSURE | 50 psig |

Operating Temperatures

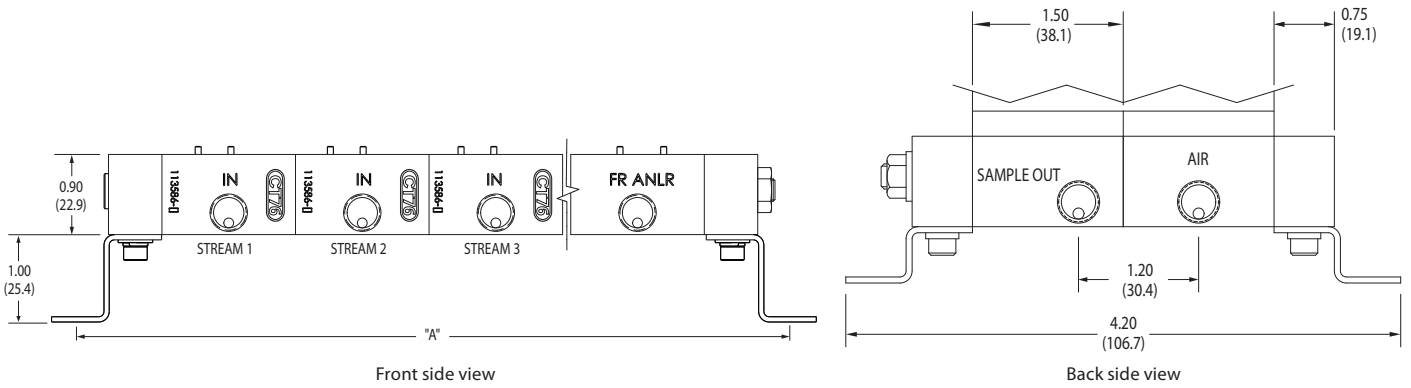
| SEAT MATERIAL | TEMPERATURE | |
|---------------|-------------------|-------------------|
| PCTFE | -40° F to +212° F | -40° C to +100° C |
| PEEK™ | 0° F to +400° F | -18° C to +204° C |

Operating Pressures

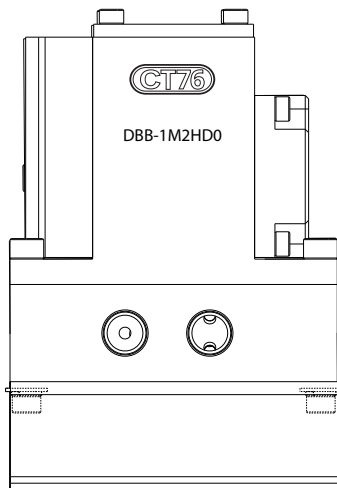
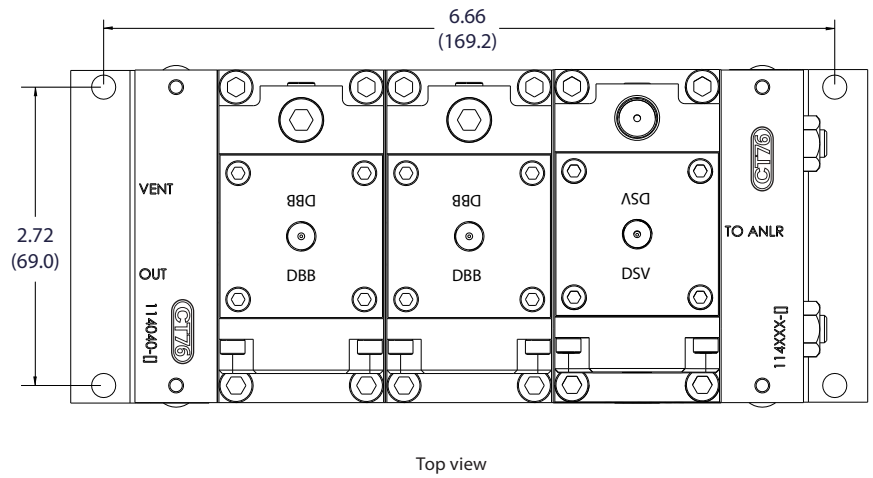
| | |
|---------------------------|--|
| OPERATING PRESSURE | Vacuum (50 torr) to 500 psig (34 barg) |
| PROOF PRESSURE | 2000 psig (138 barg) |
| BURST PRESSURE | 8000 psig (552 barg) |

DIMENSIONS

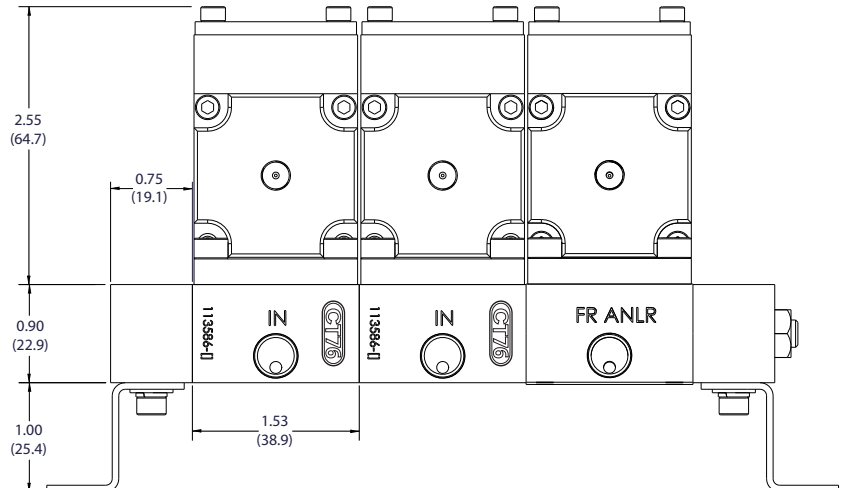
Dimensions are inches (millimeters) for reference only and are subject to change.



| NUMBER OF MANIFOLDS | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------------------|----|--------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| | A | inches | 5.13 | 6.66 | 8.19 | 9.72 | 11.25 | 12.78 | 14.31 | 15.84 | 17.37 | 18.90 |
| | mm | 135 | 169 | 208 | 247 | 286 | 325 | 364 | 402 | 441 | 480 | 519 |

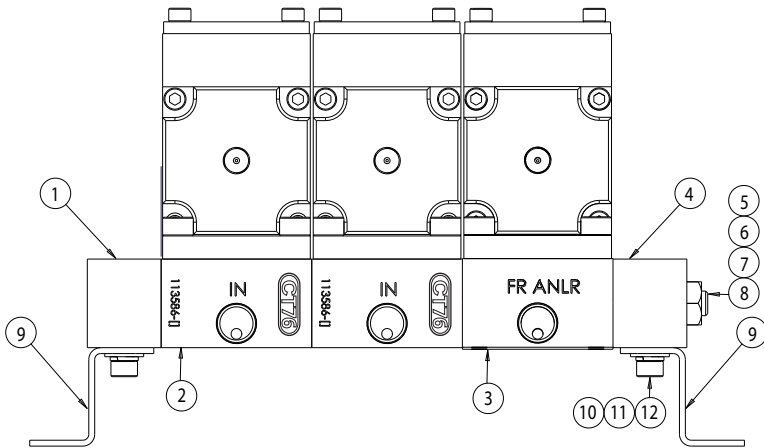


Front side view



Right end view

MATERIALS OF CONSTRUCTION

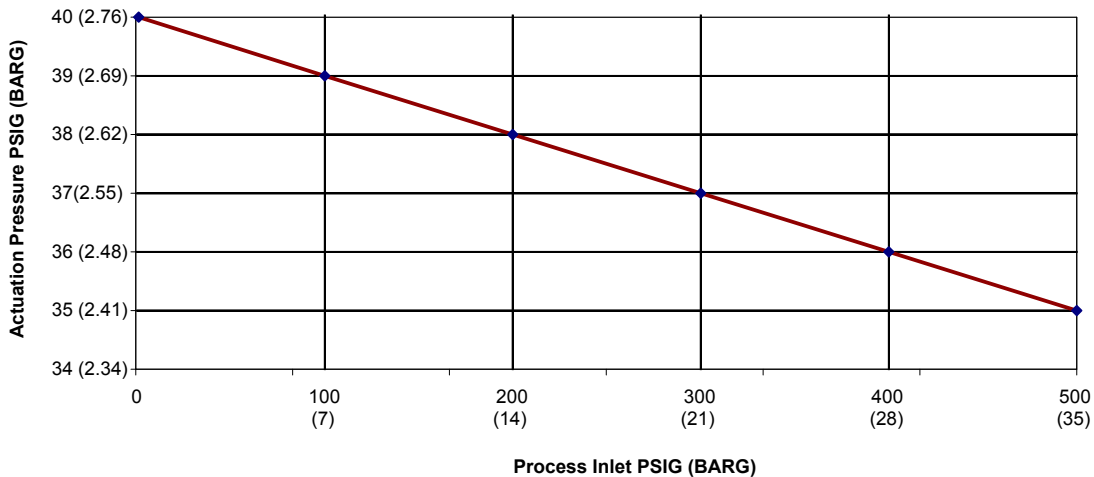


| # | PART | MATERIALS |
|----|---------------------------|---|
| 1 | End plate* | 316L stainless steel, Monel®, or Hastelloy® C-276 |
| 2 | Manifold baseplate (DBB)* | 316L stainless steel, Monel®, or Hastelloy® C-276 |
| 3 | Manifold baseplate (DSV)* | 316L stainless steel, Monel®, or Hastelloy® C-276 |
| 4 | End plate to analyzer | 316L stainless steel, Monel®, or Hastelloy® C-276 |
| 5 | Flat washer | 18-8 stainless steel |
| 6 | Lock washer | 18-8 stainless steel |
| 7 | Nut | 18-8 stainless steel |
| 8 | Threaded rod | 18-8 stainless steel |
| 9 | Mounting bracket | 18-8 stainless steel |
| 10 | Screw | 18-8 stainless steel |
| 11 | Flat washer | 18-8 stainless steel |
| 12 | Lock washer | 18-8 stainless steel |

* Wetted components

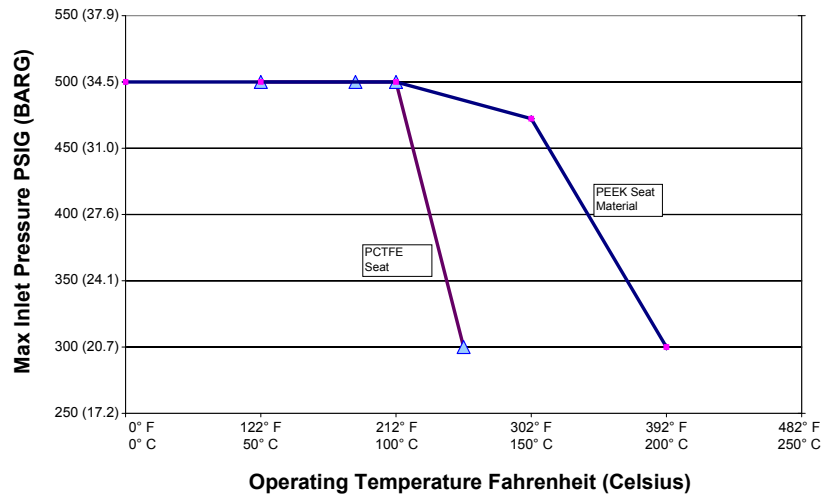
ACTUATION PRESSURE CURVE

Actuation Pressure at Fully Open



DBA SERIES

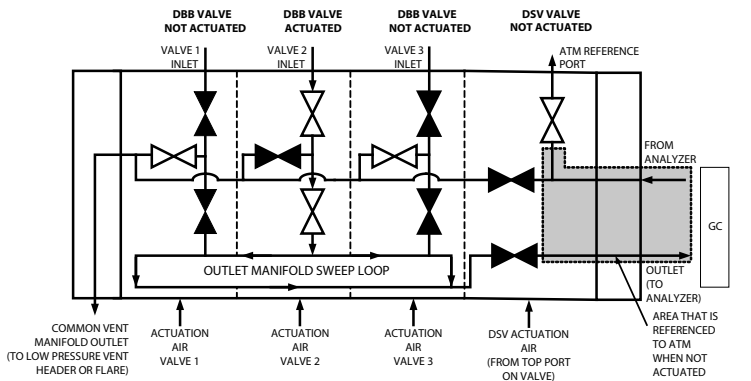
PRESSURE TEMPERATURE CURVE



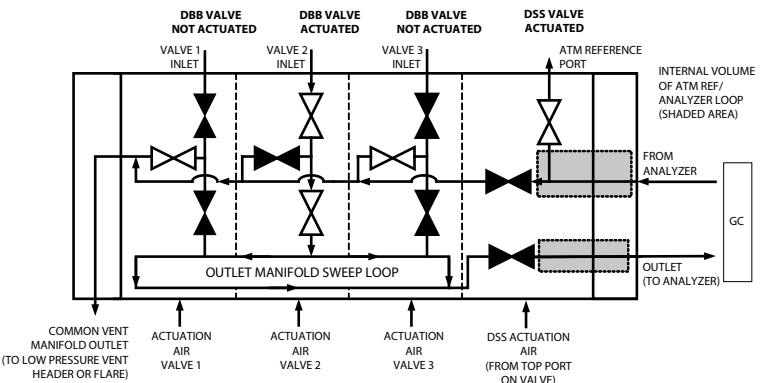
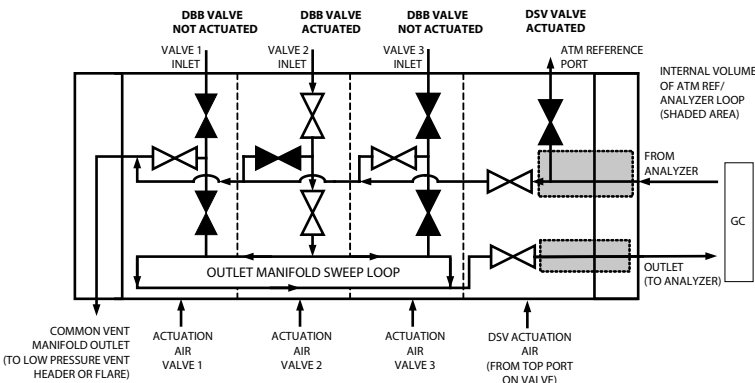
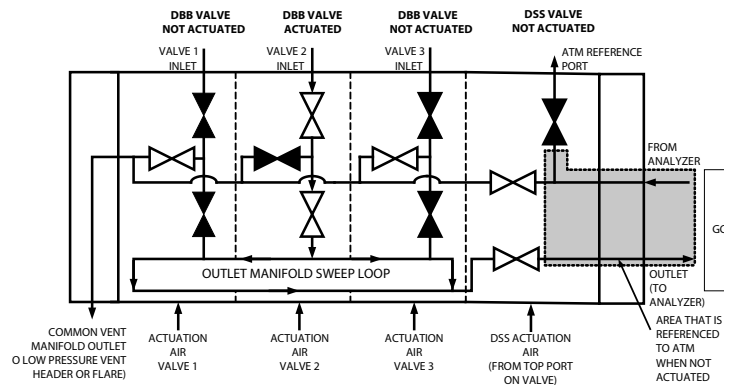
TYPICAL FLOW SCHEMATICS

Pressures in psig (barg)

DBA



DBC



HOW TO ORDER

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

| Product Family | Material Designator | Process Connection Type | Seat Material | Process O-Ring Material | Surface Treatment | # of Streams | Description |
|----------------|---------------------|-------------------------|---------------|-------------------------|-------------------|--------------|--|
| DBA | - | | | | | | Double Block and Bleed valve stack with DSV GC Valve |
| / | | | | | | | |
| DBC | | | | | | | Double Block and Bleed valve stack with DSS GC Valve |
| | 1 | | | | | | 316 Stainless Steel |
| | 4 | | | | | | Monel |
| | 6 | | | | | | Hastelloy |
| | | F2 | | | | | 1/8" FNPT process connection option |
| | | | H | | | | Kel-F Seat |
| | | | Q | | | | Peek Seat |
| | | | | D | | | Viton® o-rings |
| | | | | K | | | Perfluoroelastomer (Kalrez®) o-rings |
| | | | | F | | | PTFE o-rings *2 |
| | | | | | 0 | | Finish as processed |
| | | | | | 1 | | Cleaned for O2 |
| | | | | | 5 | | Silco Steel coated |
| | | | | | 9 | | Sulfinert coated |
| | | | | | | 01 | 1 DBB valve and 1 DSV or DSS valve |
| | | | | | | 02 | 2 DBB valves and 1 DSV or DSS valve |
| | | | | | | 03 | 3 DBB valves and 1 DSV or DSS valve |
| | | | | | | 04 | 4 DBB valves and 1 DSV or DSS valve |
| | | | | | | 05 | 5 DBB valves and 1 DSV or DSS valve |
| | | | | | | 06 | 6 DBB valves and 1 DSV or DSS valve |
| | | | | | | 07 | 7 DBB valves and 1 DSV or DSS valve |
| | | | | | | 08 | 8 DBB valves and 1 DSV or DSS valve |
| | | | | | | 09 | 9 DBB valves and 1 DSV or DSS valve |
| | | | | | | 10 | 10 DBB valves and 1 DSV or DSS valve |
| | | | | | | 11 | 11 DBB valves and 1 DSV or DSS valve |
| | | | | | | 12 | 12 DBB valves and 1 DSV or DSS valve |

PART NUMBER EXAMPLE CONFIGURATION

| Part Number | Description |
|--------------|---|
| DBA-1F2HD003 | 3 stream DBB stack with DSV GC Valve, 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings |
| Note *1 | PTFE o-rings are available however over time they exhibit some element of cold flow under the pressure of sealing which can potentially lead to flow restrictions or envelope leakage. If PTFE o-rings are desired it is suggested by CT76 that the valves be placed on an o-ring replacement preventative maintenance program to help offset unplanned down time due to the sample valves. |



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