



DSS SERIES

GC Diaphragm Valve, Normally Open, with Atmospheric Reference



Available as:

- Stand-alone
- Surface mount modular (ANSI/ISA-76 μ MS³[®] analyzer system)

The DSS Series¹ diaphragm valve is a GC module with two normally open shut-off valves and an atmospheric reference. This series is available in two configurations: 1) stand-alone, and 2) ANSI/ISA-76 compliant surface mount style. Stand-alone DSS valve assemblies can be easily integrated into an ANSI/ISA-76 compliant system with the use of a simple adapter plate (see our μ MS³[®] Modular Substrate System brochure CTMS3 for additional information).

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 x 2.6" H x 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

¹ Patent pending



Crane Instrumentation & Sampling

diaphragm valves

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

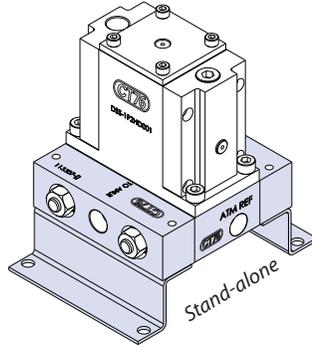
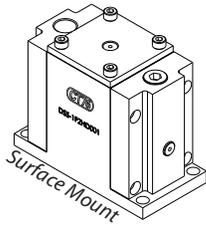
SEAT MATERIAL	TEMPERATURE	
PCTFE	-40° F to +212° F	-40° C to +100° C
PEEK™	0° F to +400° F	-18° C to +204° C

Operating Pressures

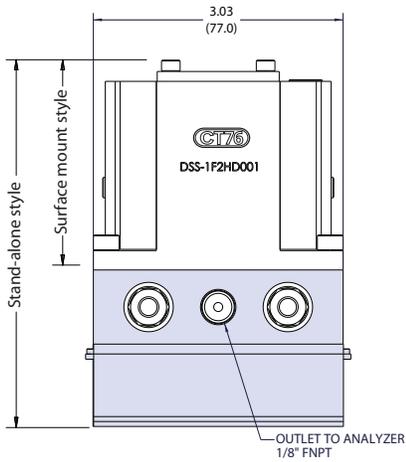
OPERATING PRESSURE	Vacuum (50 torr) to 500 psig (34 barg)
PROOF PRESSURE	2000 psig (138 barg)
BURST PRESSURE	8000 psig (552 barg)

DIMENSIONS-ALL STYLES

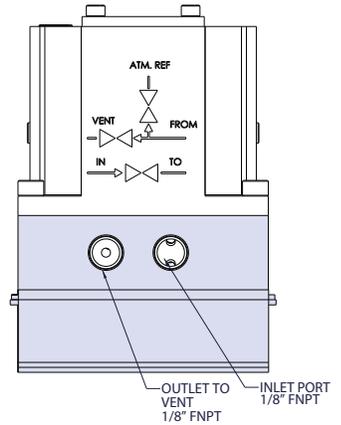
Dimensions are inches (millimeters) for reference only and are subject to change.



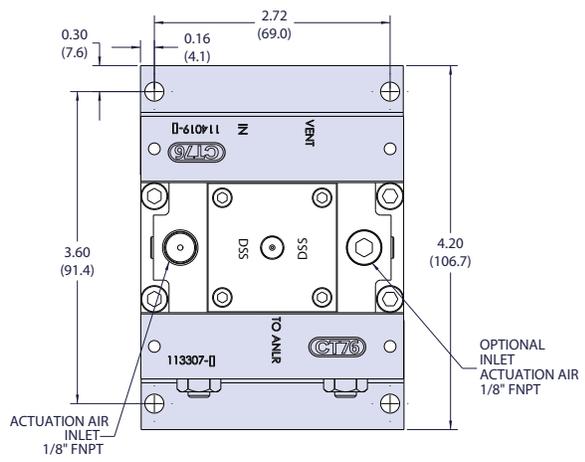
Shaded areas refer to parts and dimensions specific to stand-alone.



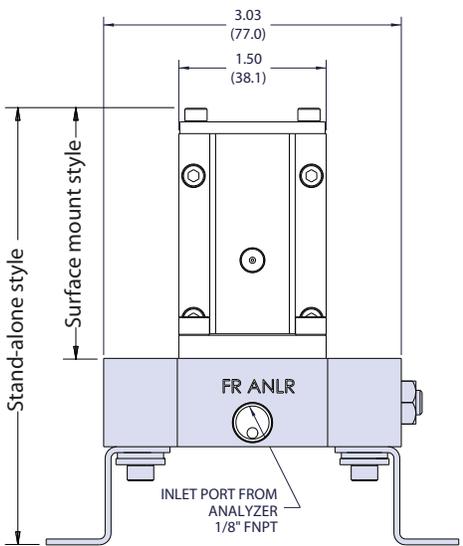
Front side view



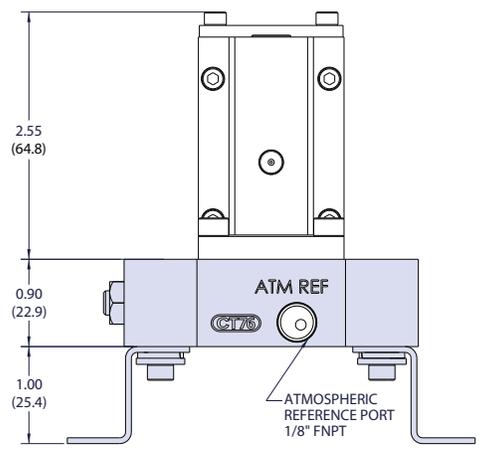
Back side view



Top view

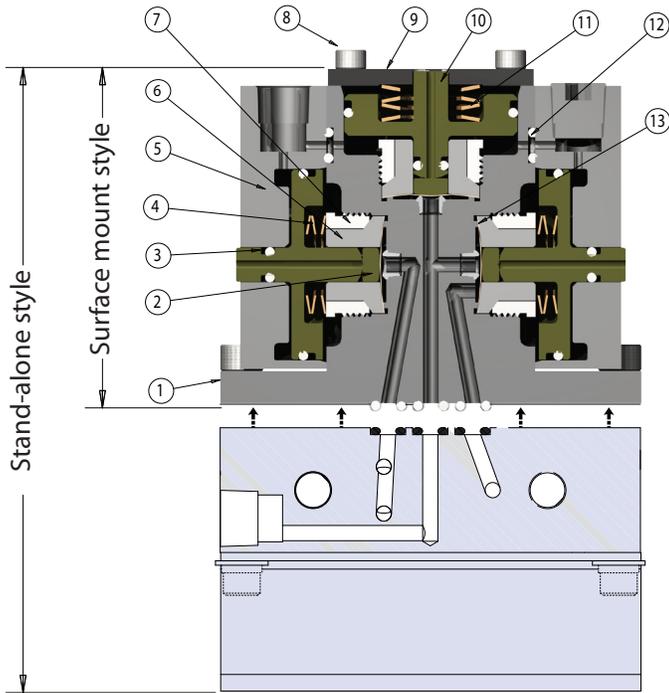


Left end view

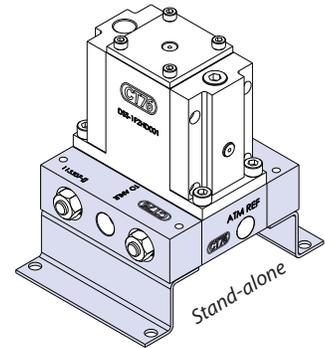
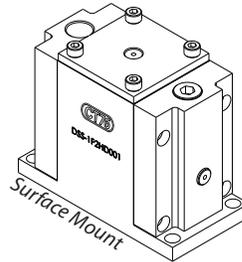


Right end view

MATERIALS OF CONSTRUCTION



Right side view



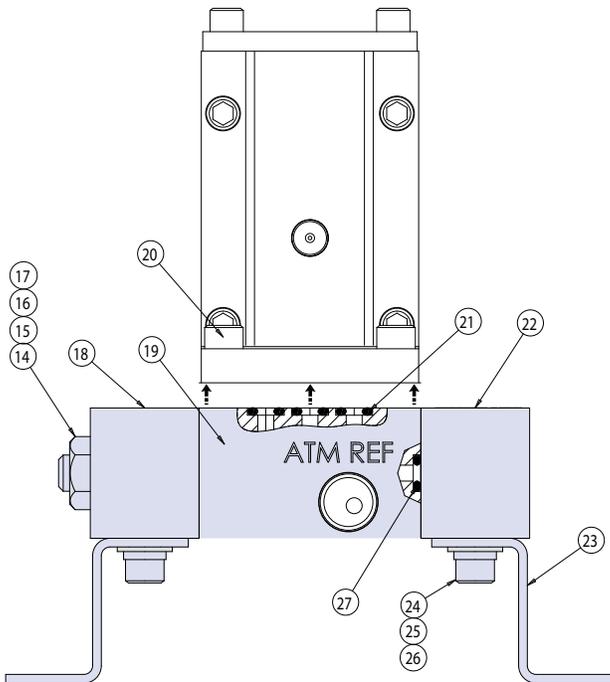
All Styles – Valve Body

#	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®

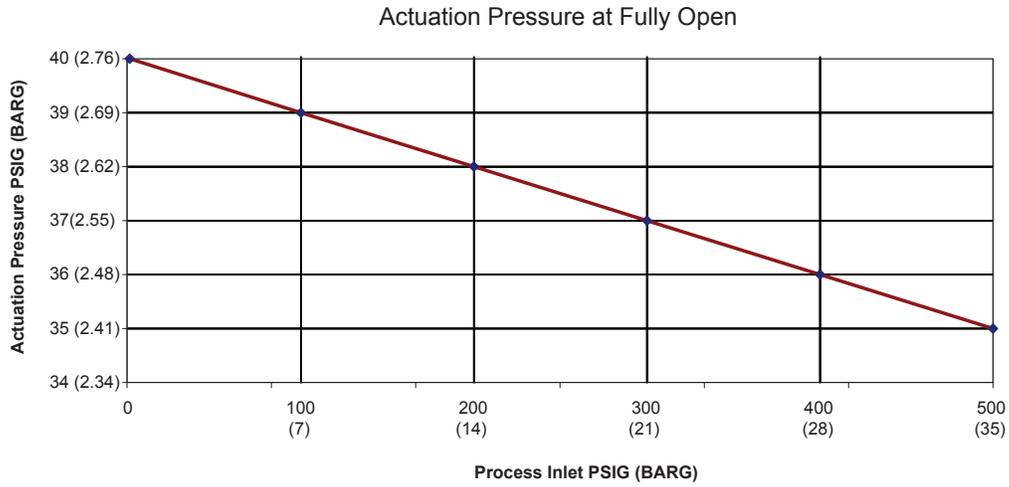
* Wetted components



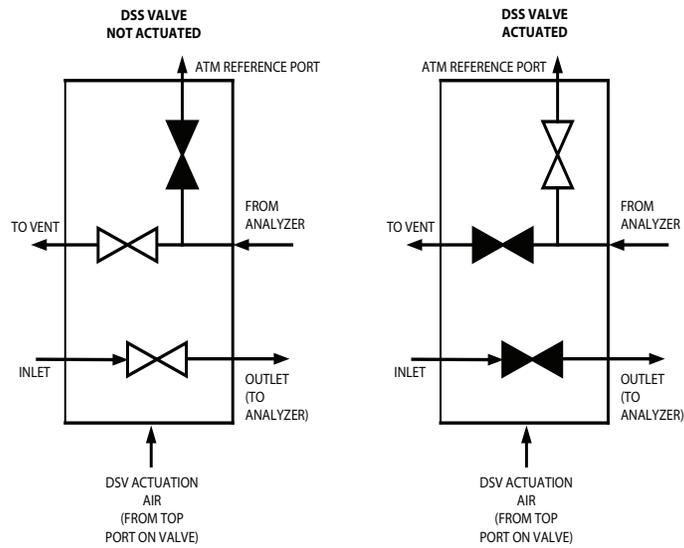
Right end view

DSS SERIES

ACTUATION PRESSURE CURVE



TYPICAL FLOW SCHEMATICS



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
DSS	-						GC Diaphragm Valve, N.O. with/atmospheric reference
	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	3 stream DBB stack with 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings
DSS-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 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.



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