

## DSS Series

*GC Diaphragm Valve,  
Normally Open,  
with Atmospheric Reference*



Available as:

- Stand-alone: *page 34*
- Surface mount (ANSI/ISA-76  $\mu$ MS<sup>3</sup>™): *page 37*

The DSS Series diaphragm valve is a GC module with two normally open shut-off valves and an atmospheric reference. It is available in two configurations: 1) stand-alone, and 2) ANSI/ISA-76 compliant configuration. Stand-alone DSS valve assemblies can be easily integrated into the ANSI/ISA-76 compliant system with the use of a simple adapter plate (see our  $\mu$ MS<sup>3</sup>™ Modular Substrate System brochure for additional information). The DSS Series 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 leaching of undesirable elements into the flow stream. Elgiloy® diaphragms ensure the utmost in corrosion resistance and life span. For Elgiloy® chemical compatibility see the *Technical Support* section of the CIRCOR Tech website at [www.circortech.com](http://www.circortech.com).

### Features & Benefits

- Stream select
- Surface mount ANSI/ISA-76 compliant\*
- 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 (1.00 cc)
- Pneumatic actuation
- Pressures from vacuum (50 torr) to 400 psig (27.6 BAR)
- Compact package (3" L × 2.6" H × 1.5" W)

\* with  $\mu$ MS<sup>3</sup>™ adapter plate

### Technical Data

<b>BODY</b>	316L stainless steel, Monel® or Hastelloy® C-276
<b>SEATS</b>	Tefzel®, PCTFE (Kel-F®), Polyimide (Vespel®), or PEEK™
<b>DIAPHRAGMS</b>	Elgiloy® AMS 5876
<b>ORIFICE SIZE</b>	0.110" (2.8 mm)
<b>FLOW CAPACITY</b>	0.13 Cv
<b>VALVE INTERNAL VOLUME*</b>	1.00 cc
<b>LEAKAGE</b>	1 × 10 <sup>-5</sup> cc/sec helium (inboard)
<b>ACTUATION PRESSURE</b>	35 psig (see chart page 37)

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

### Operating Pressures

<b>OPERATING PRESSURE</b>	Vacuum (50 torr) to 400 psig (27.6 BAR)
<b>PROOF PRESSURE</b>	1,000 psig
<b>BURST PRESSURE</b>	2,000 psig

### Operating Temperatures

SEAT MATERIAL	TEMPERATURE	
Tefzel®	-40° F to +140° F	-40° C to +60° C
PCTFE (Kel-F®)	-40° F to +175° F	-40° C to +79° C
Polyimide (Vespel®)	-40° F to +400° F	-40° C to +204° C
PEEK™	-40° F to +400° F	-40° C to +204° C

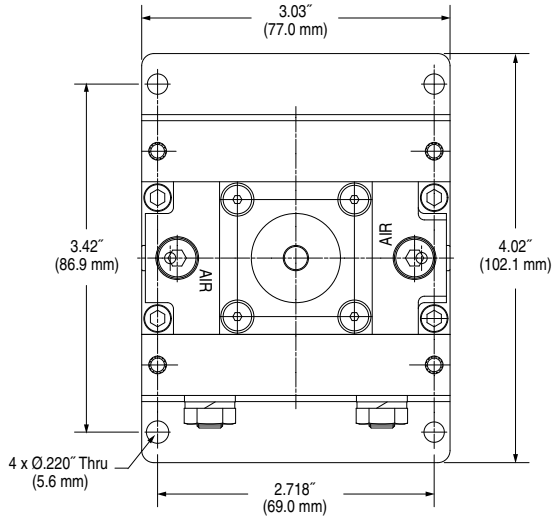
### CIRCOR Tech

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)

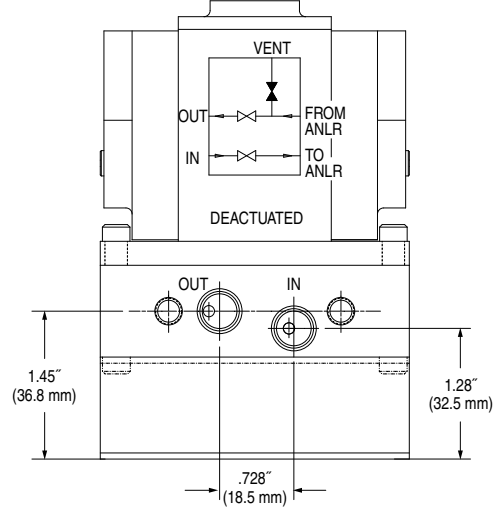
# DSS Series

## Dimensions

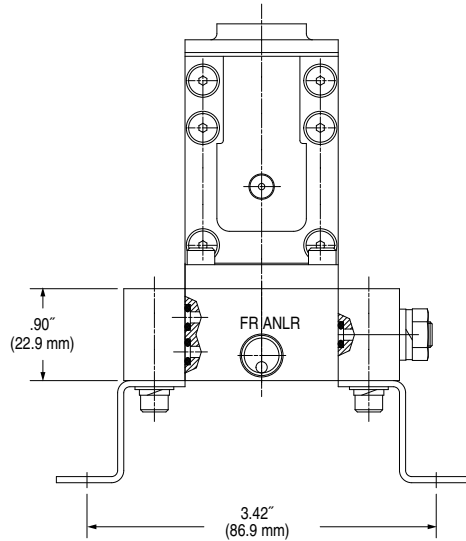
### Stand-alone



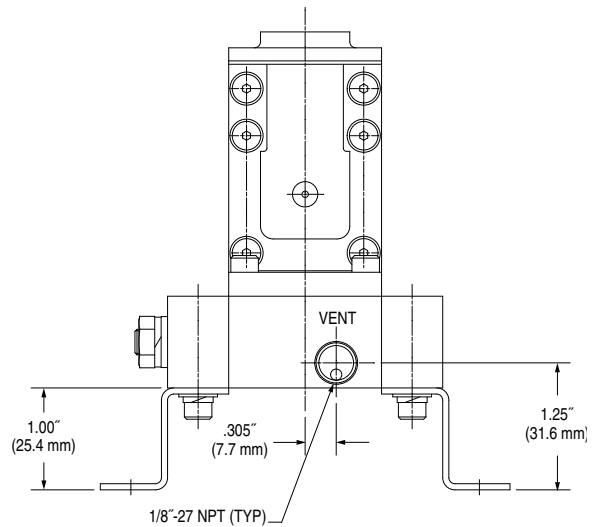
Top view



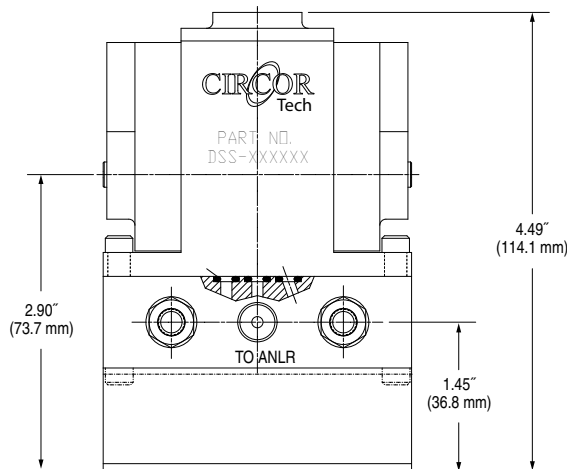
Back view



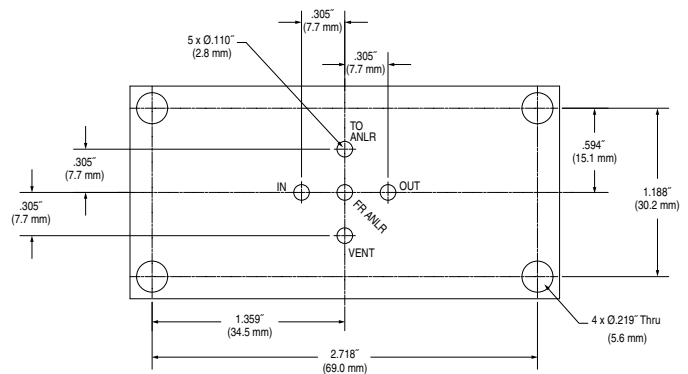
Side view



Back side view



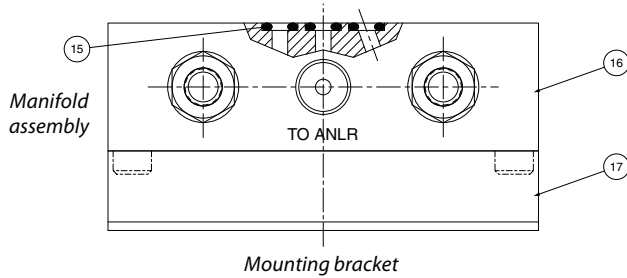
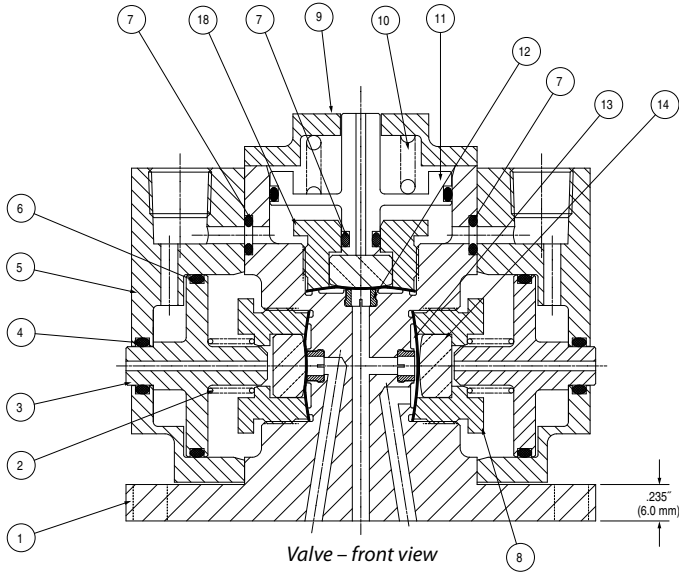
Front view



Valve - bottom view

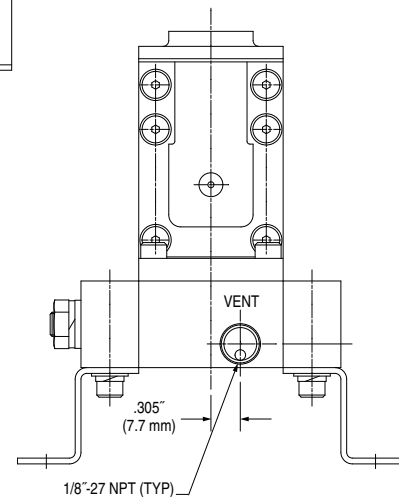
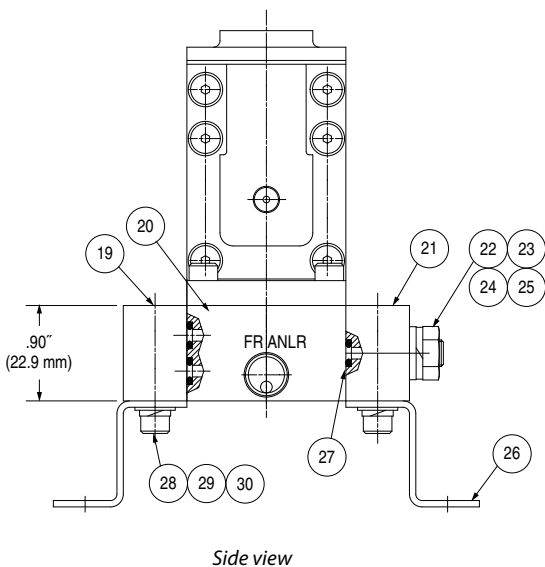
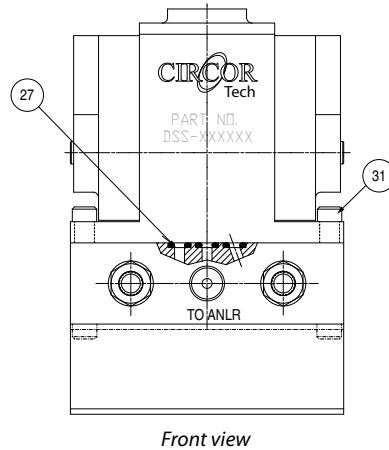
# DSS Series

## Materials of Construction



#	PART	MATERIALS
1	Body*	316L stainless steel, Monel® & Hastelloy® C-276
2	Spring	17-7PH stainless steel
3	Piston	316 stainless steel
4	O-ring	Viton®
5	Cap	316 stainless steel
6	O-ring	Viton®
7	O-ring	Viton®
8	Retainer	316 stainless steel
9	Cap	316 stainless steel
10	Spring	316 stainless steel
11	Piston	316 stainless steel
12	Seat	Tefzel®, PCTFE (Kel-F®), Polyimide (VespeI®), and PEEK™
13	Diaphragm*	Elgiloy® AMS 5876
14	Thrust plug	Brass
15	O-ring*	Viton®, Kalrez®, or Teflon®
16	Manifold baseplate*	316L stainless steel, Monel® & Hastelloy® C-276
17	Mounting bracket	316 stainless steel
18	Retainer	316 stainless steel
19	End plate*	316L stainless steel, Monel®, Hastelloy® C-276
20	Manifold baseplate*	316L stainless steel, Monel®, Hastelloy® C-276
21	End plate*	316L stainless steel, Monel®, Hastelloy® C-276
22	Flat washer	18-8 stainless steel
23	Lock washer	18-8 stainless steel
24	Nut	18-8 stainless steel
25	Threaded rod	18-8 stainless steel
26	Mounting bracket	316 stainless steel
27	O-ring*	Viton®, Kalrez®, or Teflon®
28	Screw	18-8 stainless steel
29	Flat washer	18-8 stainless steel
30	Lock washer	18-8 stainless steel

\* Wetted components

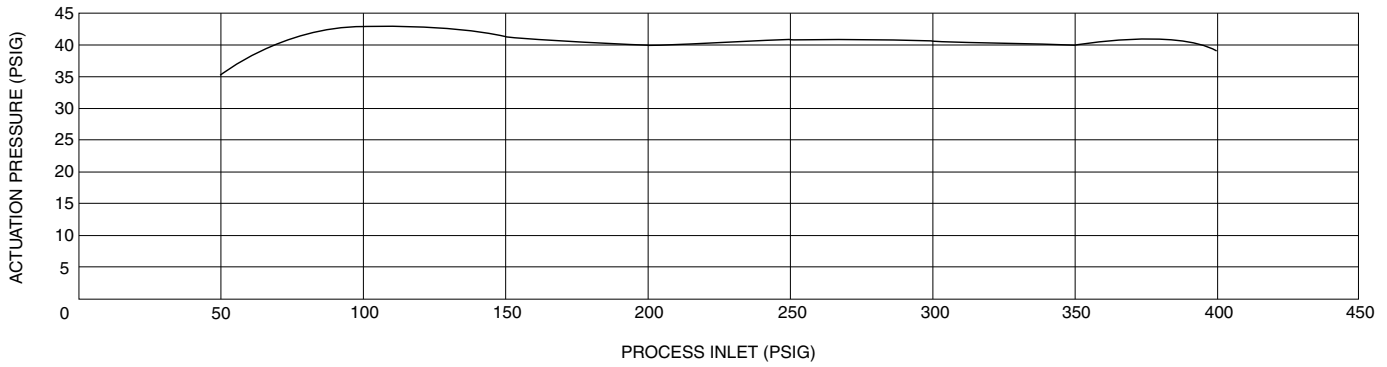


# DSS Series

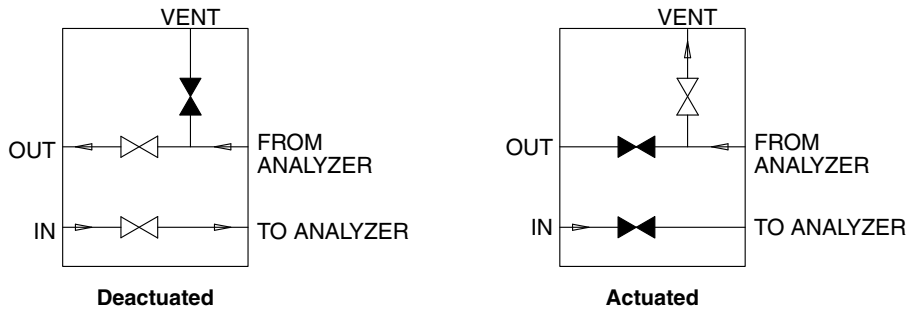
## Actuation Pressure Curve

Stand-alone

Actuation Pressure at Fully Open



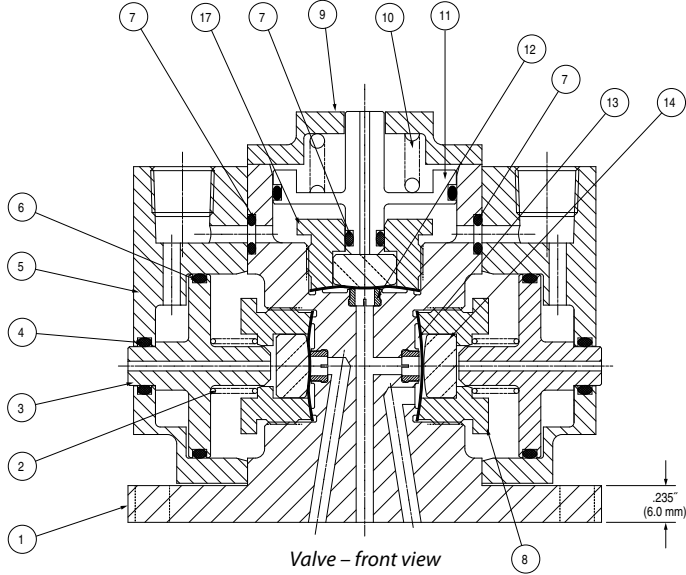
## Typical Flow Schematic



# DSS Series

## Dimensions & Materials of Construction

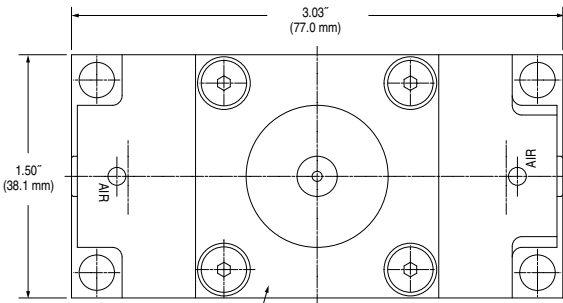
### Surface Mount (ANSI/ISA-76 compliant)



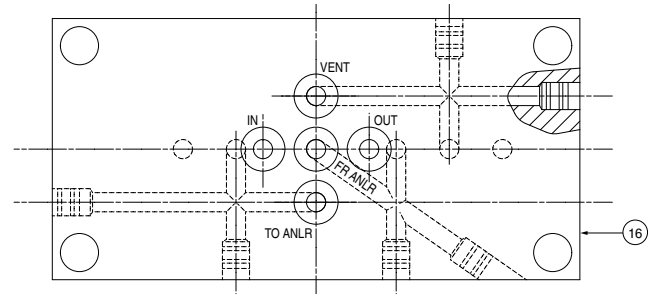
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4	O-ring	Viton®
5	Cap	316 stainless steel
6	O-ring	Viton®
7	O-ring	Viton®
8	Retainer	316 stainless steel
9	Cap	316 stainless steel
10	Spring	316 stainless steel
11	Piston	316 stainless steel
12	Seat*	Tefzel®, PCTFE (Kel-F®), Polyimide (VespeI®), and PEEK™
13	Diaphragm*	Elgiloy® AMS 5876
14	Thrust plug	Brass
15	SHC screw	18-8 stainless steel
16	μMS <sup>3</sup> ™ Adapter plate*† (ANSI/ISA-76 compliant) supplied separately	316L stainless steel
17	Retainer	316 stainless steel

\* Wetted components

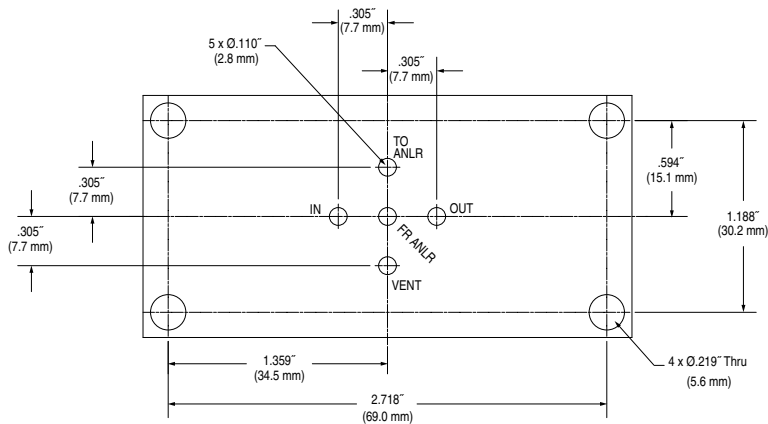
† Required when mounting to an ANSI/ISA-76 platform.



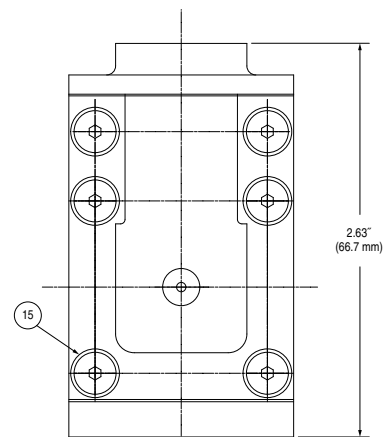
Valve - top view



Top view - Surface mount  
ANSI/ISA-76 compliant  
μMS<sup>3</sup>™ Adapter plate - Part # CT113560-[]



Valve - bottom view



Valve - side view

# DSS Series

## How to Order

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

**DSS - 1 F2 H D 0 01**

**BODY MATERIAL**

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

**CONNECTION TYPE**

- 00** Surface mount only\*\*
- F2** 1/8" female NPT

**SEAT MATERIAL**

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

**OPTIONS**

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

**O-RING MATERIAL**

- D** Viton®
- F** Teflon®\*
- K** Kalrez®
- X** Surface mount o-ring\*\*  
(supplied with valve)

\* Available as special (not suitable for all applications)

\*\* Required for surface mount units.