

DBC Series

Probe Blowback/Sample Line Calibration Valves



- Available as:
- Stand-alone: *page 40*
 - Surface mount (ANSI/ISA-76 μ MS³[™]): *page 43*

The DBC Series diaphragm valve is a probe blowback/sample line calibration valve. It is available in two configurations: 1) stand-alone, and 2) ANSI/ISA-76 compliant configuration. Stand-alone DBC valve assemblies can be easily integrated into the ANSI/ISA-76 compliant system with the use of a simple adapter plate (see our μ MS³[™] Modular Substrate System brochure for additional information). The DBC 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.

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 (1.04 cc)
- Pneumatic actuation
- Pressures from vacuum (50 torr) to 400 psig (27.5 BAR)
- Compact package (3" L x 2.6" H x 1.5" W)

* with μ MS³[™] adapter plate

Technical Data

BODY	316L stainless steel, Monel [®] or Hastelloy [®] C-276
SEATS	Tefzel [®] , PCTFE (Kel-F [®]), Polyimide (Vespel [®]), or PEEK [™]
DIAPHRAGMS	Elgiloy [®] AMS 5876
ORIFICE SIZE	0.110" (2.8 mm)
FLOW CAPACITY	0.13 Cv
VALVE INTERNAL VOLUME*	1.04 cc
LEAKAGE	1 x 10 ⁻⁵ cc/sec helium (inboard)
ACTUATION PRESSURE	35 psig (see chart page 42)

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

Operating Pressures

OPERATING PRESSURE	Vacuum (50 torr) to 400 psig (27.6 BAR)
PROOF PRESSURE	1,000 psig
BURST PRESSURE	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

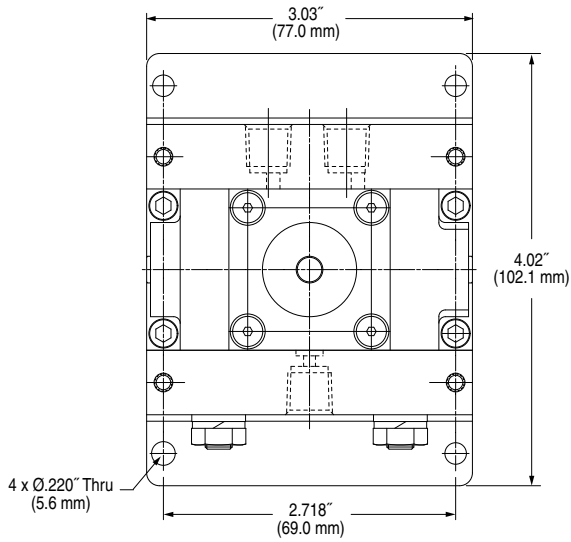
405 Centura Court • PO Box 4866 (29305) • Spartanburg, SC 29303
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diaphragm valves

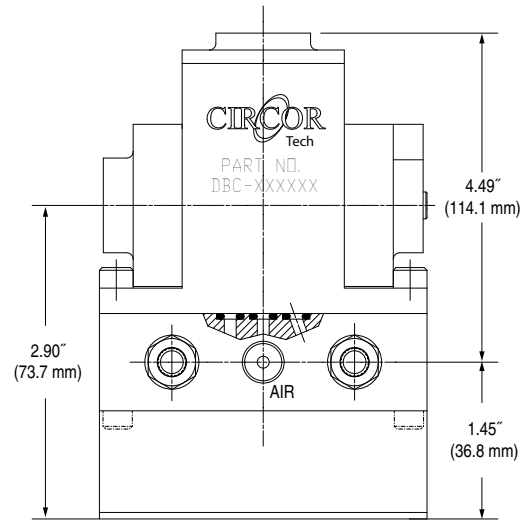
DBC Series

Dimensions

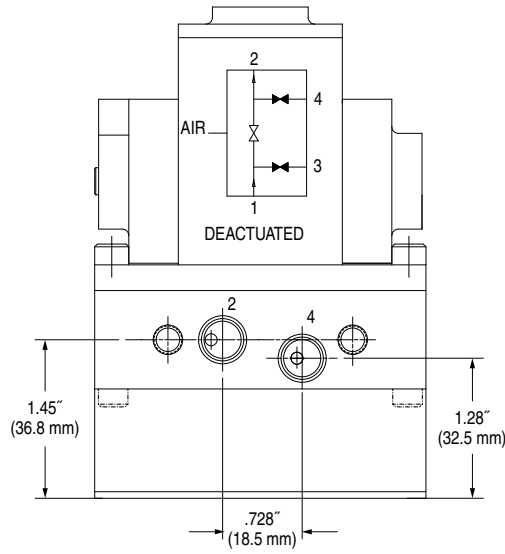
Stand-alone



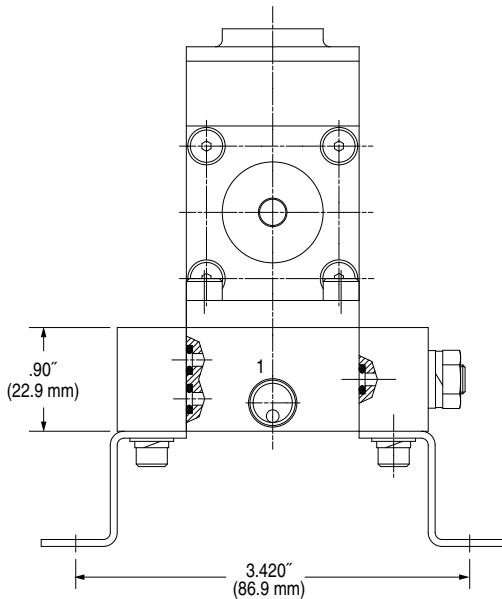
Top view



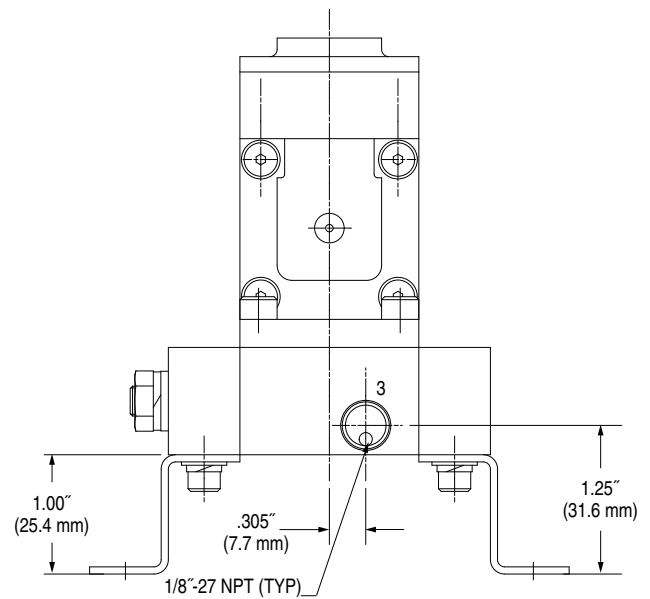
Front view



Back view



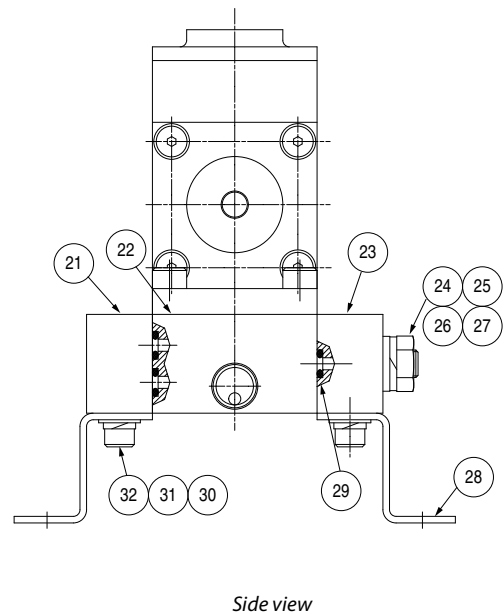
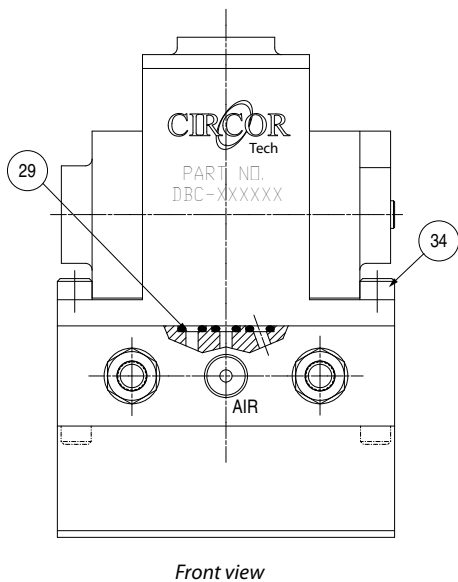
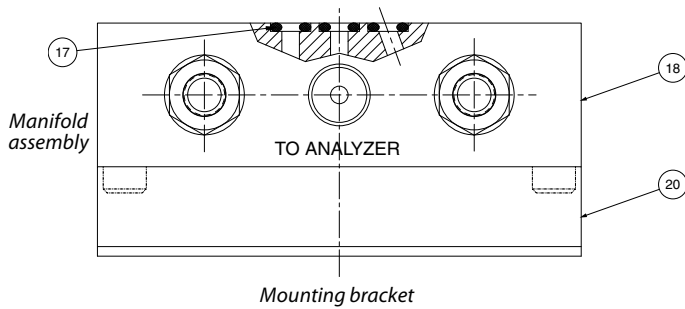
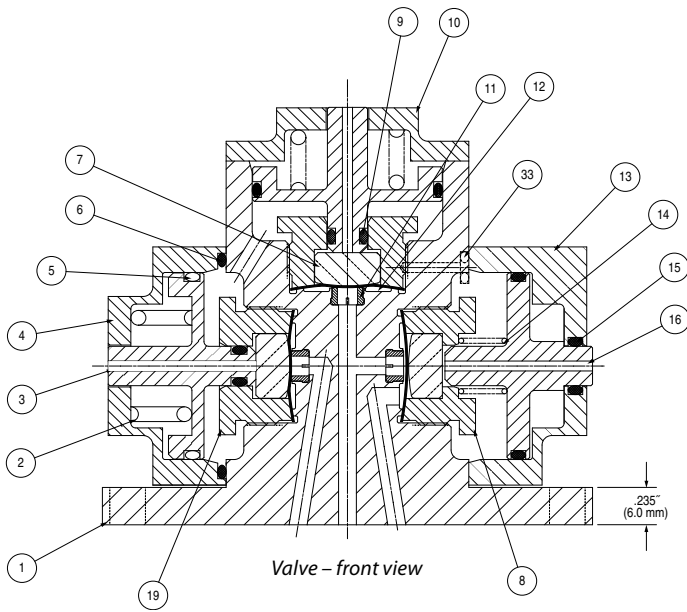
Side view



Backside view

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

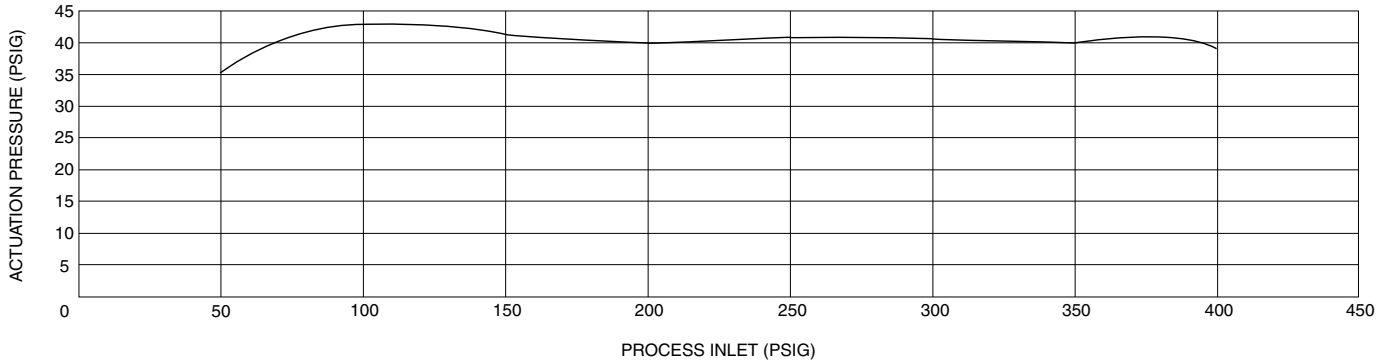
* Wetted components

DBC Series

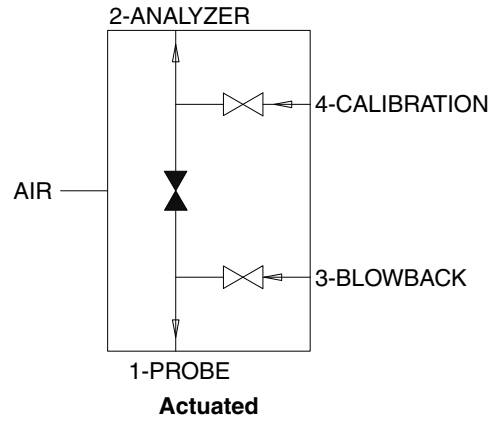
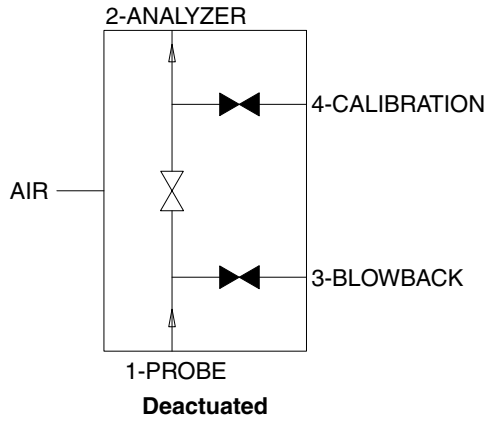
Actuation Pressure Curve

Stand-alone

Actuation Pressure at Fully Open



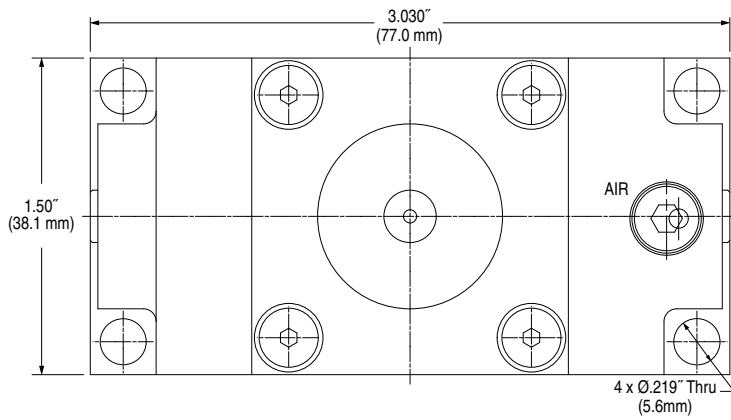
Typical Flow Schematic



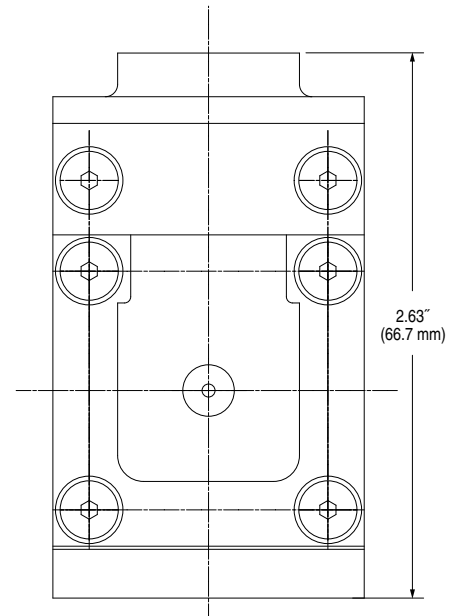
DBC Series

Dimensions

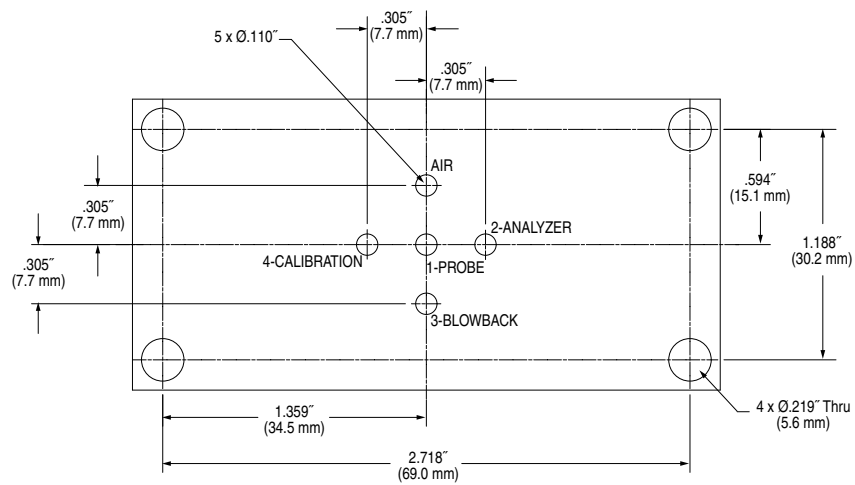
Surface Mount (ANSI/ISA-76 compliant)



Valve (with top air option) – top view



Valve – side view

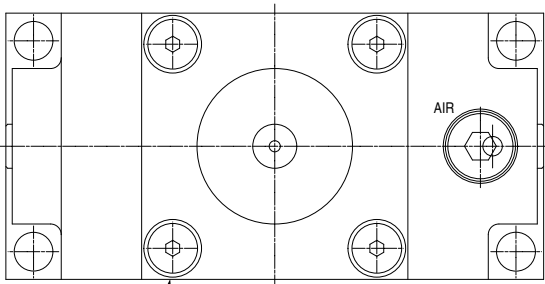
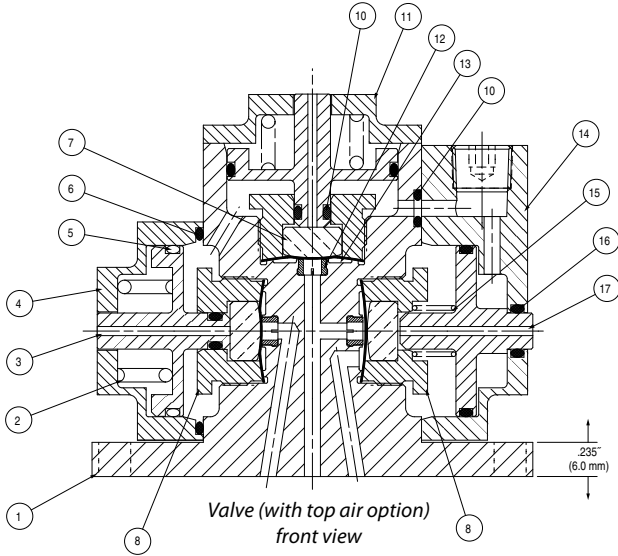


Valve – bottom view

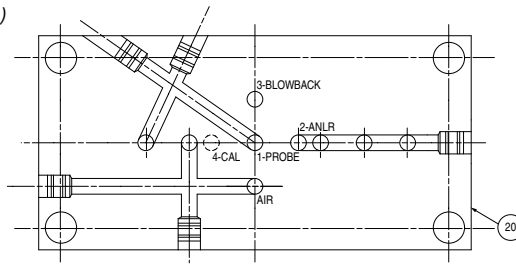
DBC Series

Dimensions & Materials of Construction

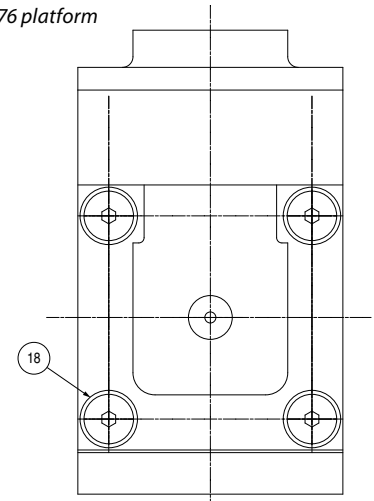
Surface Mount (ANSI/ISA-76 compliant)



9 Valve (with top air option) top view



Surface mount - top view
(ANSI/ISA-76 compliant)
µMS³™ Adapter plate Part # CT113559-[]



Valve - side view

#	PART	MATERIALS
1	Body*	316L stainless steel, Monel® & Hastelloy® C-276
2	Spring	17-7PH stainless steel
3	Piston	316 stainless steel
4	Cap	316 stainless steel
5	O-ring	Viton®
6	O-ring	Viton®
7	Thrust plug	Brass
8	Retainer	316 stainless steel
9	SHC screw	Stainless steel
10	O-ring	Viton®
11	Cap	316 stainless steel
12	Seat*	Tefzel®, PCTFE (Kel-F®), Polyimide (VespeI®), and PEEK™
13	Diaphragm*	Elgiloy® AMS 5876
14	Cap	316 stainless steel
15	Spring	316 stainless steel
16	O-ring	Viton®
17	Piston	316 stainless steel
18	SHC screw	18-8 stainless steel
19	Hex socket plug	316 stainless steel
20	µMS ³ ™ Adapter plate*† (ANSI/ISA-76 compliant) supplied separately	316L stainless steel
21	O-ring* - not shown	Viton®, Kalrez®, or Teflon®

* Wetted components

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

How to Order

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

DBC - 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 (VespeI®)
- H** PCTFE (Kel-F®)
- Q** PEEK™

OPTIONS

- 0** None
- 1** Cleaned for oxygen service
- 5** Silcosteel® passivated
- 8** Top air inlet

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.