DV1 Series

2-Way Diaphragm Valves

The DV1 Series Diaphragm Valves are totally free of springs, bellows, packing, 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 valve life.

Typical Applications

- Analytical Instrumentation
- Petrochemical
- Pharmaceutical
- Chemical

Features & Benefits

- 2-way on/off control
- Metal-to-metal seals to atmosphere to prevent leakage
- Wide variety 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)*
- Manual ¼-plus turn or pneumatic actuation
- Pressures from vacuum (50 torr) to 3600 psig (248 bar)**
- 40µ sintered stainless steel air inlet filter extends life of pneumatic actuator

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

** *Valves cleaned for oxygen service are limited to 3000 psig (207 bar).*

diaphragm valves

HOKE Inc.
PO Box 4866 • Spartanburg, SC 29305-4866
Phone (864) 574-7966 Fax (864) 587-5608
www.hoke.com • Sales-hoke@circor.com

DV1 Series

Manual 1/4-plus Turn 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	0.17 Cv
VALVE INTERNAL VOLUME*	0.16 cc
LEAKAGE	1×10^{-9} cc/sec helium (inboard)

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

Operating Pressures

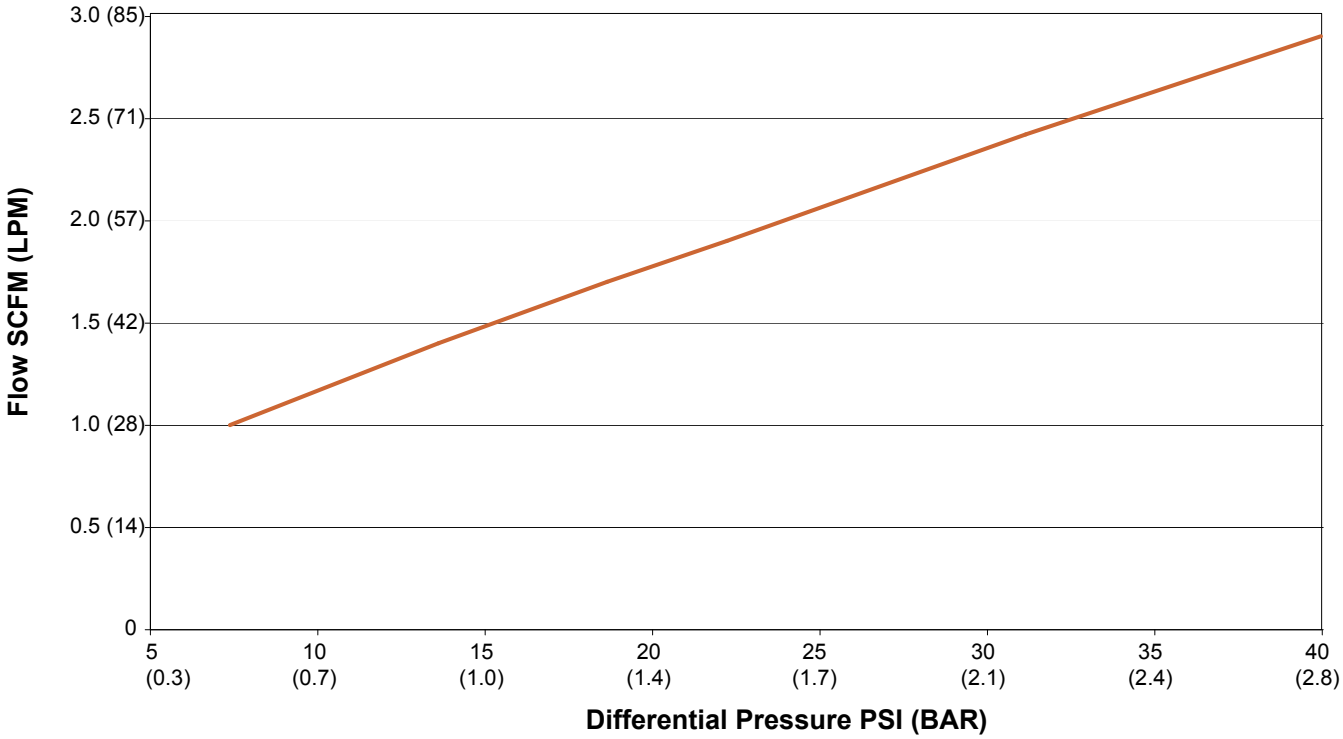
OPERATING PRESSURE*	Vacuum (50 torr) to 3600 psig (248 bar)
PROOF PRESSURE	7200 psig
BURST PRESSURE	14,400 psig (497 barg)

** Valves cleaned for oxygen service are limited to 3000 psig (207 bar).*

Operating Temperatures

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

Pressure vs. Flow Curve



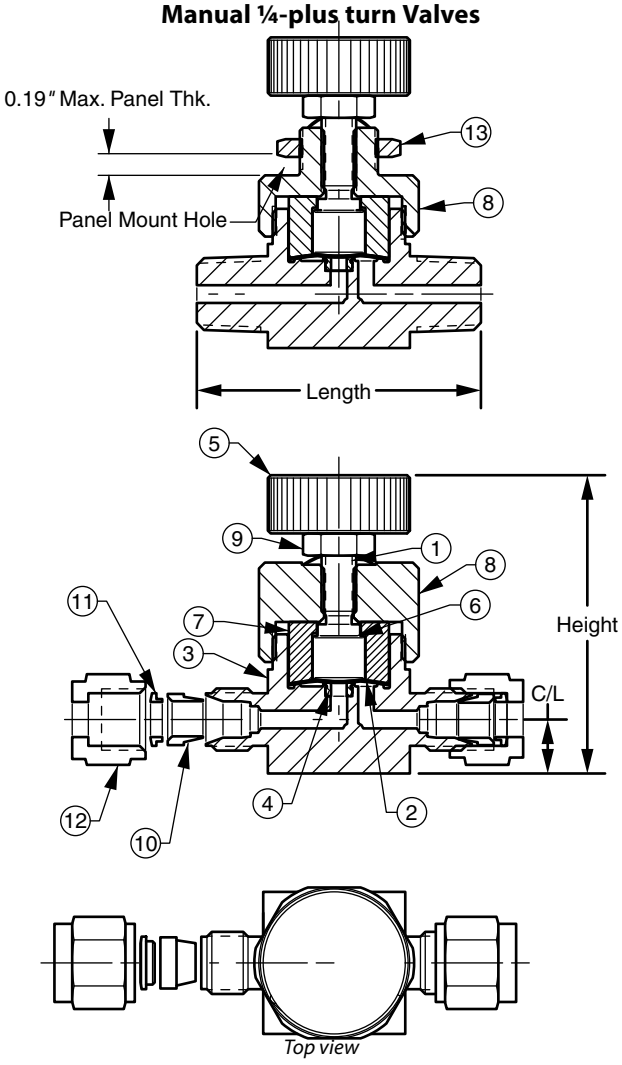
DV1 Series

Materials of Construction

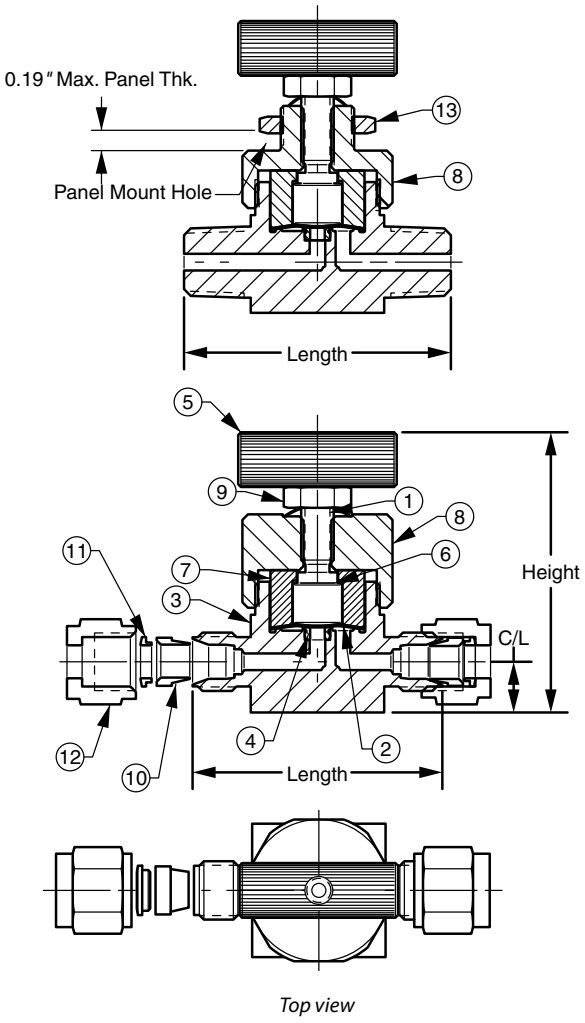
#	PART	MATERIALS
1	Stem	17-4PH stainless steel, condition H900
2	Diaphragm*	Elgiloy® AMS 5876
3	Body*	316L stainless steel, Monel® , Hastelloy® C-276
4	Seat*	PCTFE, PEEK™
5	Handle	316 stainless steel
6	Thrust plug	Brass
7	Diaphragm retainer	316 stainless steel
8	Bonnet	316L stainless steel, Monel®, Hastelloy® C-276
9	Handle nut	18-8 stainless steel
10	Front ferrule*	316L stainless steel, Monel®, Hastelloy® C-276
11	Rear ferrule	316L stainless steel, Monel®, Hastelloy® C-276
12	Nut	316L stainless steel, Monel®, Hastelloy® C-276
13	Panel-mount nut	316L stainless steel, Monel®, Hastelloy® C-276

**Wetted components*

Manual ¼-plus turn Valves



Optional T-handle Valves



Dimensions

Manual ¼-plus Turn Valves

END CONNECTION	LENGTH	HEIGHT	HANDLE RADIUS	C/L CENTER LINE	PANEL MOUNT HOLE	PANEL MOUNT THICK
¼″ MNPT	2.00″	2.44″	0.90″	0.38″	0.57″	0.19″
¼″ FNPT	2.00″	2.44″	0.90″	0.38″	0.57″	0.19″
⅛″ **GYROLOK®**	1.71″	2.44″	0.90″	0.38″	0.57″	0.19″
¼″ **GYROLOK®**	1.87″	2.44″	0.90″	0.38″	0.57″	0.19″
¼″ NPT extended	3.15″	2.44″	0.90″	0.38″	0.57″	0.19″
6mm **GYROLOK®**	47.5mm	61.98mm	22.86mm	9.65mm	14.48mm	4.83mm
8mm **GYROLOK®**	47.5mm	61.98mm	22.86mm	9.65mm	14.48mm	4.83mm

DV1 Series

Pneumatic Actuated Valves

Technical Data

BODY	316L stainless steel, Monel® and Hastelloy® C-276
SEATS	PCTFE, PEEK™
DIAPHRAGMS	Elgiloy® AMS 5876
ORIFICE SIZE	0.110˝ (2.8 mm)
FLOW CAPACITY	0.17 Cv
VALVE INTERNAL VOLUME*	0.16 cc
LEAKAGE	1×10^{-9} cc/sec helium (inboard)

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

Operating Pressures Ratings

	SMALL DIAMETER	MEDIUM DIAMETER	LARGE DIAMETER
VALVE WORKING PRESSURE*	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

** Valves cleaned for oxygen service are limited to 3000 psig (207 bar).*

Operating Temperatures

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

Air Actuation Pressure Requirements

psig nominal

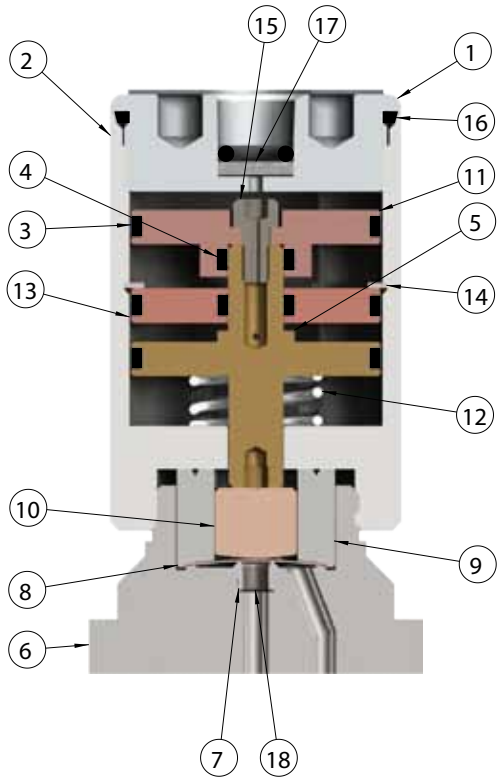
PRESSURE	SMALL DIAMETER	MEDIUM DIAMETER	LARGE DIAMETER
Valve Operating Pressure	Vacuum (50 torr) to 500 psig (Inlet)	Vacuum (50 torr) to 800 psig (Inlet)	Vacuum (50 torr) to 3600 psig (Inlet)
Actuation Pressure Normally Closed	40 psig (3 bar) (0–250 psig process pressure) 40 psig (3 bar) (251–500 psig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

DV1 Series

Dimensions & Materials of Construction

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

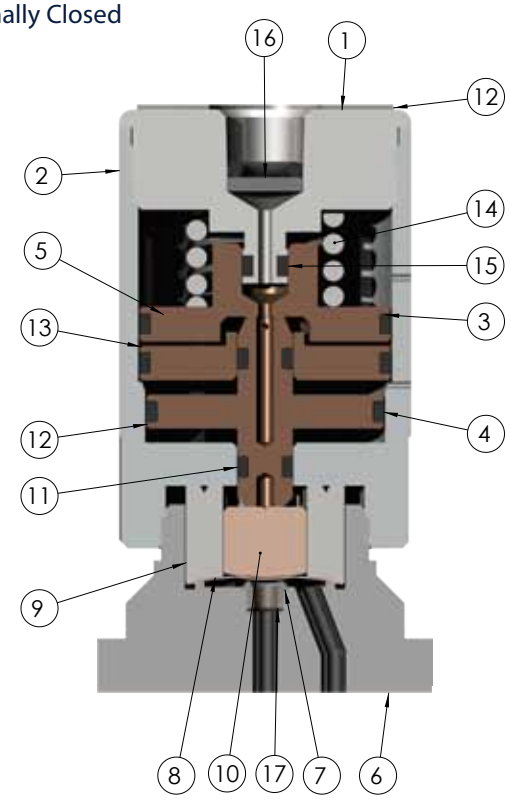
Normally Open



#	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*

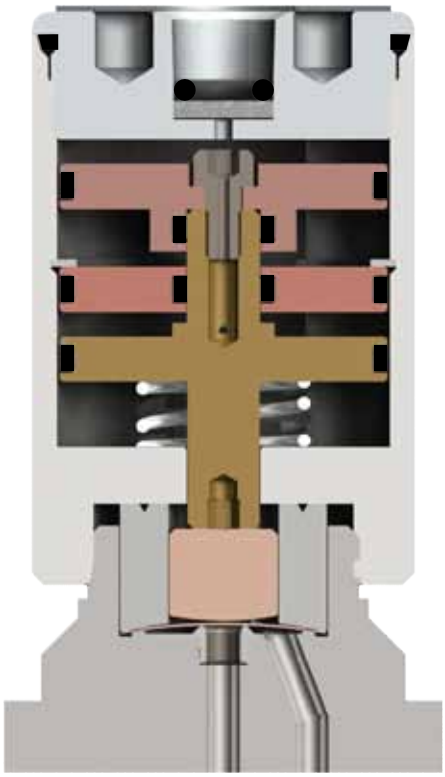
DV1 Series

Dimensions

Pneumatic Small Diameter Actuator

END CONNECTION	LENGTH	HEIGHT	ACTUATOR DIAMETER	C/L CENTER LINE
¼″ MNPT	2.00″ (5.1 cm)	2.75″ (7.0 cm)	1.31″ (3.3 cm)	0.38″ (1.0 cm)
¼″ FNPT	2.00″ (5.1 cm)	2.75″ (7.0 cm)	1.31″ (3.3 cm)	0.38″ (1.0 cm)
⅛″ **GYROLOK®**	1.71″ (4.3 cm)	2.75″ (7.0 cm)	1.31″ (3.3 cm)	0.38″ (1.0 cm)
¼″ **GYROLOK®**	1.87″ (4.8 cm)	2.75″ (7.0 cm)	1.31″ (3.3 cm)	0.38″ (1.0 cm)
¼″ NPT extended	3.15″ (8.0 cm)	2.75″ (7.0 cm)	1.31″ (3.3 cm)	0.38″ (1.0 cm)
6mm **GYROLOK®**	47.5mm	69.85mm	33.27mm	9.65mm
8mm **GYROLOK®**	47.5mm	69.85mm	33.27mm	9.65mm

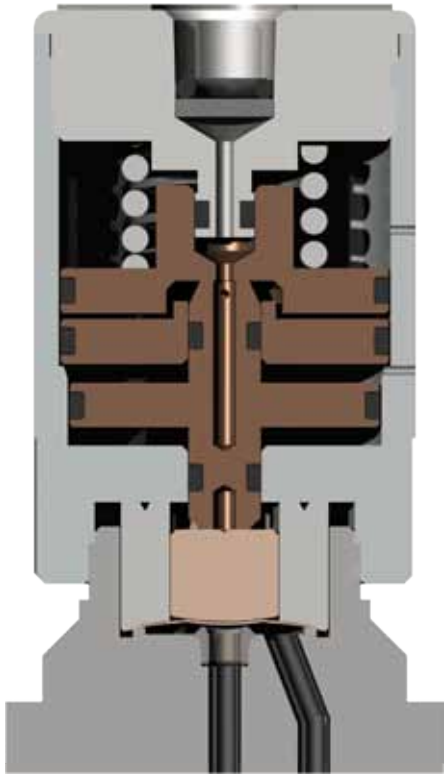
Normally Open



Pneumatic Medium Diameter Actuator

END CONNECTION	LENGTH	HEIGHT	ACTUATOR DIAMETER	C/L CENTER LINE
¼″ MNPT	2.00″ (5.1 cm)	2.75″ (7.0 cm)	1.56″ (4.0 cm)	0.38″ (1.0 cm)
¼″ FNPT	2.00″ (5.1 cm)	2.75″ (7.0 cm)	1.56″ (4.0 cm)	0.38″ (1.0 cm)
⅛″ **GYROLOK®**	1.71″ (4.3 cm)	2.75″ (7.0 cm)	1.56″ (4.0 cm)	0.38″ (1.0 cm)
¼″ **GYROLOK®**	1.87″ (4.8 cm)	2.75″ (7.0 cm)	1.56″ (4.0 cm)	0.38″ (1.0 cm)
¼″ NPT extended	3.15″ (8.0 cm)	2.75″ (7.0 cm)	1.56″ (4.0 cm)	0.38″ (1.0 cm)
6mm **GYROLOK®**	47.5mm	69.85mm	39.62mm	9.65mm
8mm **GYROLOK®**	47.5mm	69.85mm	39.62mm	9.65mm

Normally Closed



Pneumatic Large Diameter Actuator

END CONNECTION	LENGTH	HEIGHT	ACTUATOR DIAMETER	C/L CENTER LINE
¼″ MNPT	2.00″ (5.1 cm)	3.25″ (8.3 cm)	2.36″ (6.0 cm)	0.38″ (1.0 cm)
¼″ FNPT	2.00″ (5.1 cm)	3.25″ (8.3 cm)	2.36″ (6.0 cm)	0.38″ (1.0 cm)
⅛″ **GYROLOK®**	1.71″ (4.3 cm)	3.25″ (8.3 cm)	2.36″ (6.0 cm)	0.38″ (1.0 cm)
¼″ **GYROLOK®**	1.87″ (4.8 cm)	3.25″ (8.3 cm)	2.36″ (6.0 cm)	0.38″ (1.0 cm)
¼″ NPT extended	3.15″ (8.0 cm)	3.25″ (8.3 cm)	2.36″ (6.0 cm)	0.38″ (1.0 cm)
6mm **GYROLOK®**	47.5mm	82.55mm	59.94mm	9.65mm
8mm **GYROLOK®**	47.5mm	82.55mm	59.94mm	9.65mm

DV1 Series

How to Order

Standard items in bold

DV1 – 1 C 2 5 C F4 F4 H 0 H

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

ACTUATION METHOD
- **C** Air actuated—normally closed
- **M** Manual ¼-plus turn round handle
- **O** Air actuated—normally open
- **T** Manual ¼-plus turn T-handle

ACTUATOR SIZE
- **X** Manually operated
- **1** Air actuated—small (500 psig max.)
- **2** Air actuated—medium (800 psig max.)
- **3** Air actuated—large (3,600 psig max.)

ACTUATOR MATERIAL
- **X** Manually operated
- **1** 316L stainless steel
- **5 Aluminum**

MAXIMUM PROCESS PRESSURE
- **A** 250 psig
- **B** 500 psig
- **C** 800 psig
- **D** 3,600 psig (surface mount only)
- **E** 2,000 psig

INLET CONNECTION TYPE*
- **C1** Male **GYROLOK®** 1/16″
- **G1 GYROLOK®** 1/16″
- **G2 GYROLOK®** ⅛″
- **G4 GYROLOK®** ¼″
- **T6 GYROLOK®** 6mm
- **T8 GYROLOK®** 8mm
- **F4 Female NPT ¼″**
- **M4** Male NPT ¼″
- **B4** Female BSP/ISO 7/1 ¼″
- **D4** Male BSP/ISO 7/1 ¼″
- **X4** Extended, ¼″ male NPT
- **SM** Surface mount (ANSI/ISA SP76 compliant)
- **V4** ¼″ VCR®-compatible swivel female
- **R4** ¼″ VCR®-compatible fixed male
- **W4** ¼″ Tube stub
- **S4** ¼″ Tube socket weld

OPTION
- **0** None
- **1** Cleaned for oxygen service**
- **4** Panel mount (manual valves only)
- **6** Panel mount & cleaned for oxygen service (manual valves only)**

SEAT MATERIAL
- **H PCTFE**
- **Q** PEEK™

OUTLET CONNECTION TYPE*
- **C1** Male **GYROLOK®** 1/16″
- **G1 GYROLOK®** 1/16″
- **G2 GYROLOK®** ⅛″
- **G4 GYROLOK®** ¼″
- **T6 GYROLOK®** 6mm
- **T8 GYROLOK®** 8mm
- **F4 Female NPT ¼″**
- **M4** Male NPT ¼″
- **B4** Female BSP/ISO 7/1 ¼″
- **D4** Male BSP/ISO 7/1 ¼″
- **X4** Extended, ¼″ male NPT
- **SM** Surface mount (ANSI/ISA SP76 compliant)
- **V4** ¼″ VCR®-compatible swivel female
- **R4** ¼″ VCR®-compatible fixed male
- **W4** ¼″ Tube stub
- **S4** ¼″ Tube socket weld

** Note with the exception of male NPT and female NPT, inlet and outlet connections must be of the same type.*

*** Valves cleaned for oxygen service are limited to 3000 psig (207 bar). Body will be marked "cleaned for oxygen".*

NOTE: The choices above represent an abbreviated list of the more commonly ordered options. For a complete listing of all available options, please see the Selection Wizard on the GO website at www.goreg.com or contact the factory.

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. 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.