



## 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 diaphragm(s).

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

#### HOKE Incorporated

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

Phone (864) 574-7966 Fax (864) 587-5608

www.hoke.com • sales@hoke.com

diaphragm valves

# DV1 Series

## Manual 1/4-plus Turn Valves



### Technical Data

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

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

### Operating Pressures

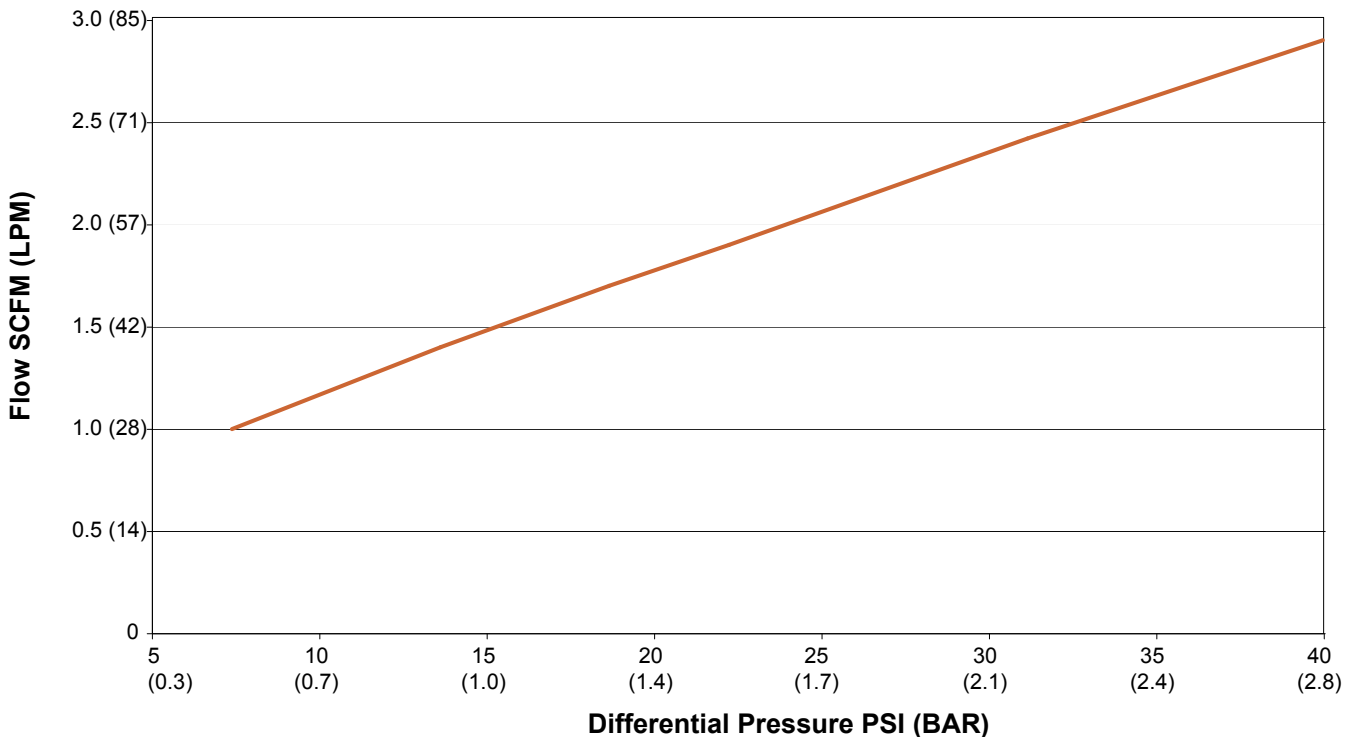
<b>OPERATING PRESSURE*</b>	Vacuum (50 torr) to 3600 psig (248 bar)
<b>PROOF PRESSURE</b>	7200 psig
<b>BURST PRESSURE</b>	14,400 psig (497 barg)

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

### Operating Temperatures

SEAT MATERIAL	1/4-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



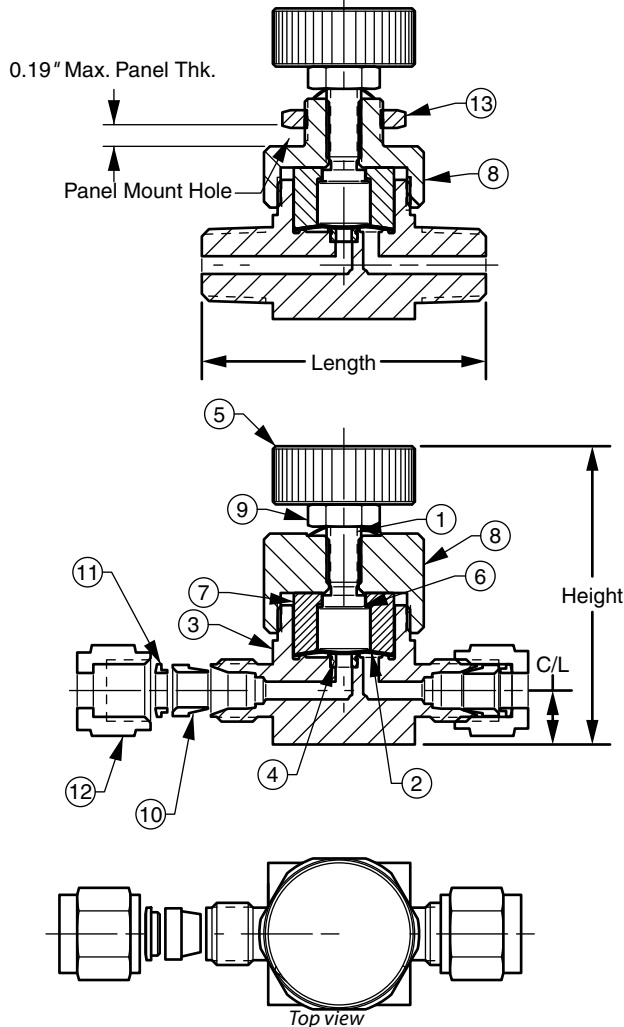
# DV1 Series

## Materials of Construction

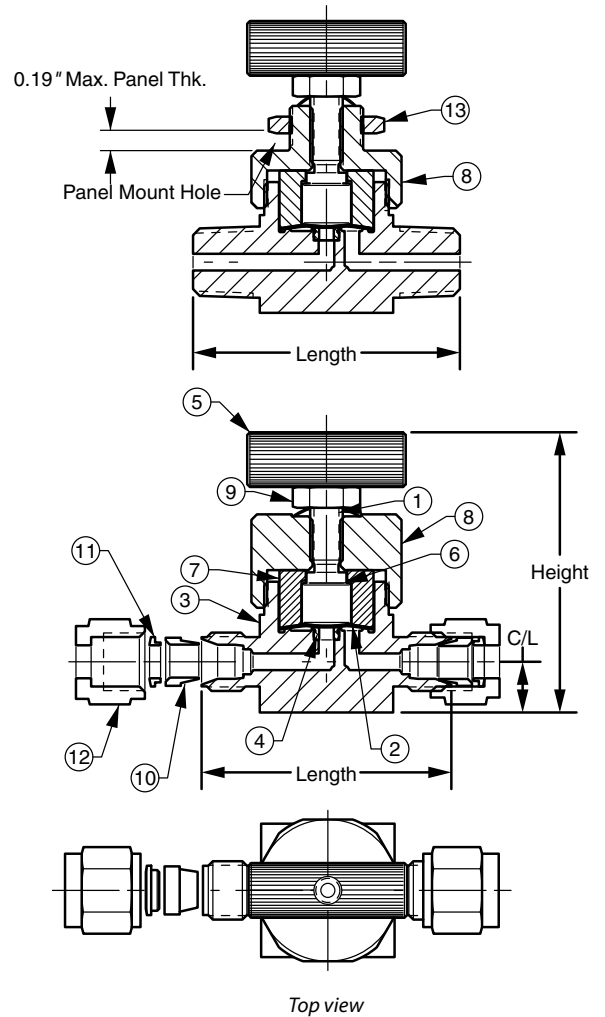
#	PART	MATERIALS
1	Stem	17-4PH stainless steel, condition H900
2	Diaphragm*	Elgiloy® AMS 5876
3	Body*	316L stainless steel, Monel®, Hastelloy® C-276
4	Seat*	PCTFE, PEEK™
5	Handle	316 stainless steel
6	Thrust plug	Brass
7	Diaphragm retainer	316 stainless steel
8	Bonnet	316L stainless steel, Monel®, Hastelloy® 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"
½" 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

<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	PCTFE, PEEK™
<b>DIAPHRAGMS</b>	Elgiloy® AMS 5876
<b>ORIFICE SIZE</b>	0.110" (2.8 mm)
<b>FLOW CAPACITY</b>	0.17 Cv
<b>VALVE INTERNAL VOLUME*</b>	0.16 cc
<b>LEAKAGE</b>	1 × 10 <sup>-9</sup> 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
<b>VALVE WORKING PRESSURE*</b>	Vacuum (50 torr) to 500 psig	Vacuum (50 torr) to 800 psig	Vacuum (50 torr) to 3600 psig
<b>VALVE PROOF PRESSURE</b>	1000 psig	1600 psig	7200 psig
<b>VALVE BURST PRESSURE</b>	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

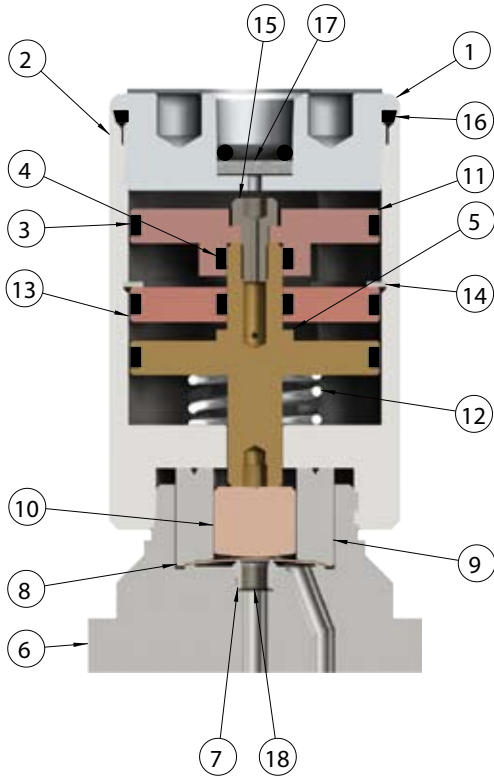
PRESSURE	SMALL DIAMETER	MEDIUM DIAMETER	LARGE DIAMETER
Valve Operating Pressure	Vacuum (50 torr) to 500 psig (Inlet)	Vacuum (50 torr) to 800 psig (Inlet)	Vacuum (50 torr) to 3600 psig (Inlet)
Actuation Pressure Normally Closed	40 psig (3 bar) (0–250 psig process pressure)	40 psig (3 bar) (0–250 psig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

# DV1 Series

## Dimensions & Materials of Construction

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

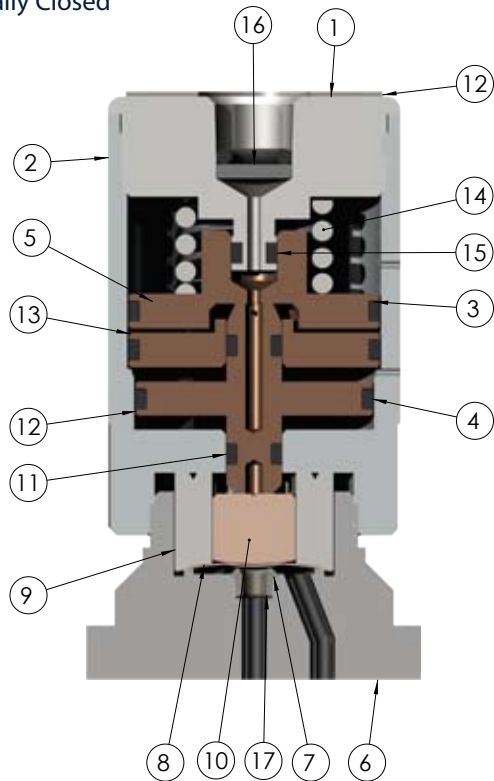
### Normally Open



#	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

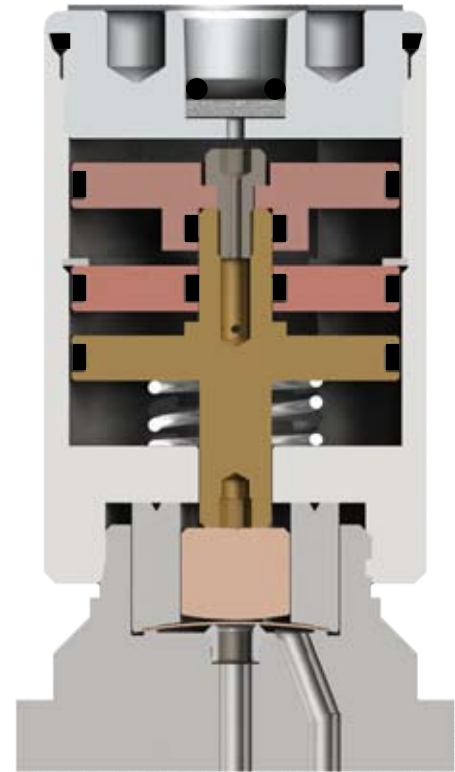
# DV1 Series

## 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)
⅝" 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

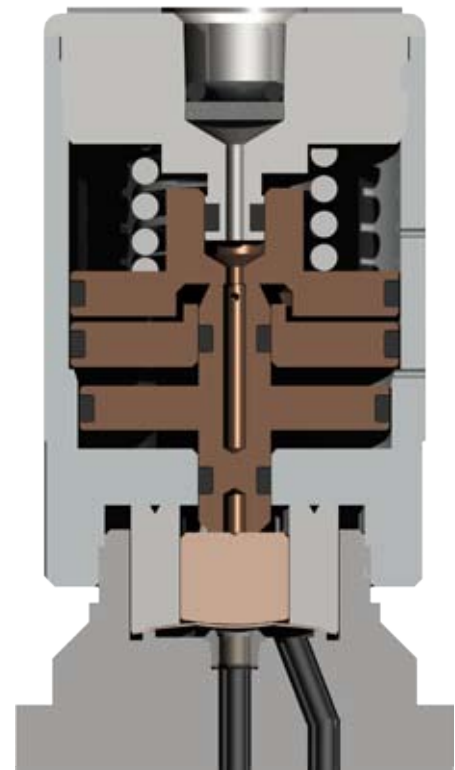
Normally Open



### 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)
⅝" 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)
⅝" 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® ⅙"
- G1** Gyrolok® ⅙"
- G2** Gyrolok® ⅙"
- 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® ⅙"
- G1** Gyrolok® ⅙"
- G2** Gyrolok® ⅙"
- 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](http://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.

Gyrolok® is a registered trademark of HOKE Incorporated.  
 Viton® is a registered trademark of DuPont Dow Elastomers.  
 Monel® is a registered trademark of Special Metals Corporation.  
 Hastelloy® is a registered trademark of Haynes International, Inc.  
 Elgiloy® is a registered trademark of Elgiloy Specialty Metals.  
 PEEK™ is a trademark of Victrex PLC.

[www.hoke.com](http://www.hoke.com)  
[www.dupont-dow.com](http://www.dupont-dow.com)  
[www.specialmetals.com](http://www.specialmetals.com)  
[www.haynesintl.com](http://www.haynesintl.com)  
[www.elgiloy.com](http://www.elgiloy.com)  
[www.victrex.com](http://www.victrex.com)