

Bellows-Sealed Valves

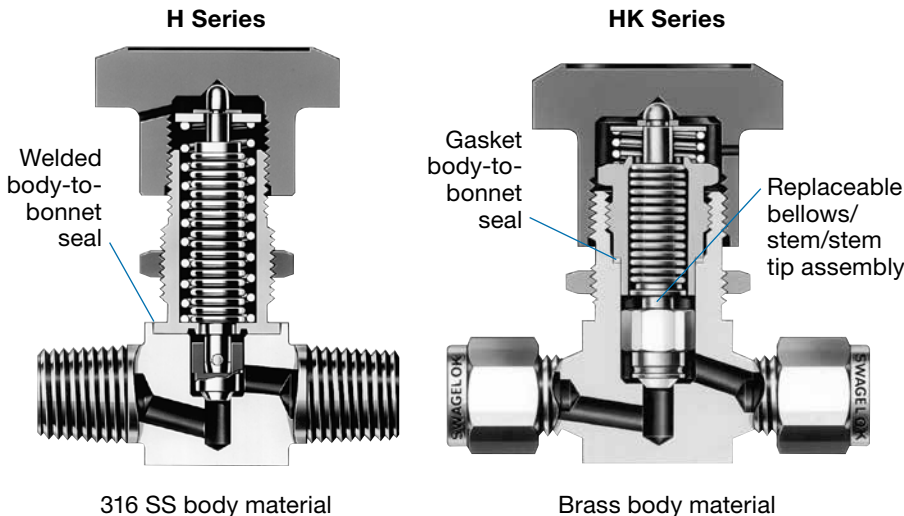


H and HK Series

- Compact size
- Working pressures up to 1000 psig (68.9 bar)
- Temperatures up to 600°F (315°C)

Features

- Flow coefficients (C_v) from 0.11 to 0.28
- Precision-formed metal bellows and nonrotating stem tip for reliable, repetitive shutoff
- Variety of end connections—Swagelok® tube fittings, female and male NPT, integral male and welded female VCR® fittings, tube socket and tube butt weld ends, and tube extensions
- Panel and bottom mounting
- Pneumatic actuator for HK series available



Technical Data

Body-to-Bellows Seal	Valve Body Material	Stem Tip	C_v	Internal Volume ^① in. ³ (cm ³)	Series
Weld	316 SS	Stainless steel	0.11	0.08 (1.3)	2H
			0.20		2H2
			0.28		4H
Gasket	Brass	PCTFE	0.28	0.10 (1.6)	HK

① Determined using valves with Swagelok tube fitting end connections.

Pressure-Temperature Ratings

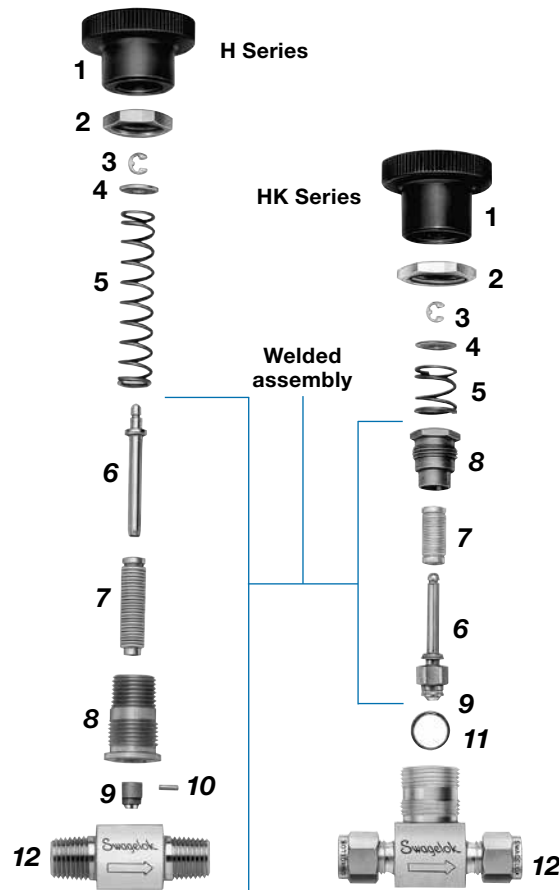
Material	316 SS	Brass
Series	H	HK
Temperature, °F (°C)	Working Pressure, psig (bar)	
-80 (-62) to -40 (-40)	1000 (68.9)	—
-20 (-28) to 100 (37)	1000 (68.9)	1000 (68.9)
200 (93)	1000 (68.9)	500 (34.4)
300 (148)	1000 (68.9)	—
400 (204)	1000 (68.9)	—
500 (260)	1000 (68.9)	—
600 (315)	1000 (68.9)	—

Materials of Construction

Component	H Series	HK Series
	Material Grade/ASTM Specification	
1 Handle	Green-anodized aluminum/B211	
2 Panel mount nut	316 SS/A479	Brass 360/B16
3 Retaining ring	S15700	Beryllium copper
4 Washer	316 SS/A240	Phosphor bronze C51000/B103
5 Spring	S17700/AMS 5678	
6 Stem	316 SS/A479	Phosphor bronze C51000/B139
7 Bellows	321 SS/A269	Phosphor bronze C51900
8 Bonnet adapter	316 SS/A479	Phosphor bronze C51000/B139
9 Stem tip	S17400/A564	PCTFE 6060/D1430
10 Stem pin	420 SS	—
11 Gasket	—	PTFE-coated copper 110/B152
12 Body	316 SS/A479	Brass CDA 356 or 360/B16
Nonwetted lubricant	Molybdenum disulfide-based paste	
Wetted lubricant	—	Fluorinated-based

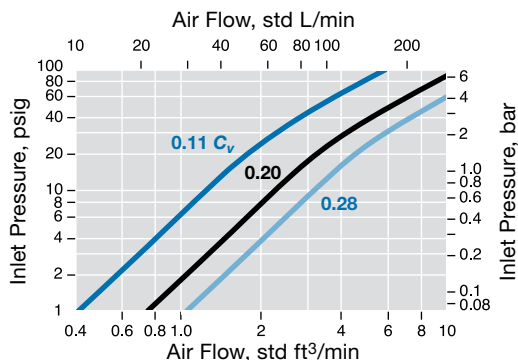
Wetted components listed in *italics*.

- ⚠ To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.
- ⚠ Lubricate threads on bonnet and handle periodically for increased valve life.

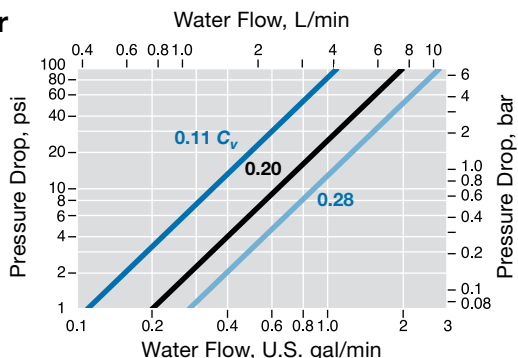


Flow Data at 70°F (20°C)

Air



Water



Testing

Every H and HK series valve is helium leak tested to a maximum leak rate of 4×10^{-9} std cm³/s at the seat, envelope, and all seals.

Cleaning and Packaging

Swagelok H series valves with VCR end connections are processed in accordance with Swagelok *Special Cleaning and Packaging (SC-11)* (MS-06-63), to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C.

Swagelok H series valves with other end connections are processed in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)* (MS-06-62); special cleaning and packaging are available as an option.

All Swagelok HK series valves are cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)* (MS-06-62).

Oxygen Service Hazards

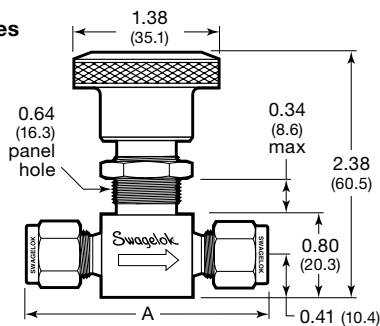
For more information about hazards and risks of oxygen-enriched systems, see the Swagelok *Oxygen System Safety* technical report (MS-06-13).

Ordering Information and Dimensions

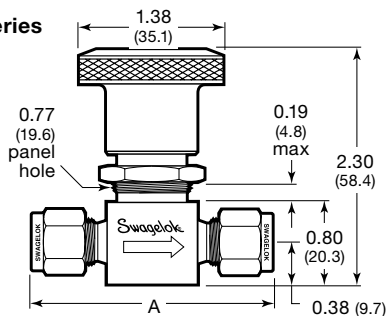
Select an ordering number.

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

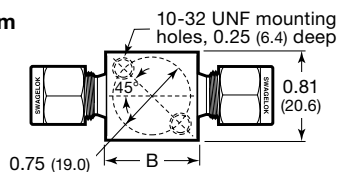
H Series



HK Series



Bottom



End Connections		C _v	Ordering Number	Series	Dimensions, in. (mm)			
Type	Size				Orifice		A	B
H series								
Swagelok tube fitting	1/8 in.	0.11	SS-2H	2H	0.148 (3.8)	0.082 (2.1)	2.09 (53.1)	0.88 (22.3)
	1/4 in.	0.28	SS-4H	4H		0.156 (4.0)	2.27 (57.7)	
	6 mm	0.28	SS-6H-MM	4H		1.94 (49.3)	1.04 (26.4)	
Female NPT	1/4 in.	0.28	SS-4H4	4H		0.125 (3.2)	1.57 (39.9)	0.81 (20.6)
	1/8 in.	0.20	SS-2H2	2H2		1.94 (49.3)	0.82 (20.8)	
Male NPT	1/4 in.	0.28	SS-4H2	4H		2.12 (53.8)	0.88 (22.3)	
	1/4 in.	0.28	SS-4H-VCR	4H		3.68 (93.5)		
Integral male VCR fitting	1/4 in.	0.28	SS-4H-V13	4H		0.156 (4.0)	2.57 (65.3)	0.82 (20.8)
Socket welded female VCR fitting	1/4 in.	0.28	SS-4H-V51	4H		1.50 (38.1)		
Butt welded female VCR fitting	1/4 in.	0.28	SS-4H-TW	4H		7.06 (179)		
Tube socket and tube butt weld	1/4 and 3/8 in.	0.28	SS-4H-TH3	4H	7.47 (190)			
	1/4 × 0.049 in.	0.28	SS-4H-TN3	4H				
Tube extension, 3 in. (76.3 mm) long	3/8 × 0.065 in.	0.28		4H				
HK series								
Swagelok tube fitting	1/4 in.	0.28	B-4HK	HK	0.168 (4.3)	0.156 (4.0)	2.26 (57.4)	0.87 (22.1)
	6 mm	0.28	B-6HK-MM	HK			1.94 (49.3)	0.82 (20.8)
Female NPT	1/4 in.	0.28	B-4HK4	HK				
Male NPT	1/4 in.	0.28	B-4HK2	HK				

Dimensions shown with Swagelok tube fitting nuts finger-tight.

Options and Accessories

H Series

Cobalt-Based Alloy Stem Tip



- For severe service applications
- Spherical stem tip is welded to stem
- Fluorinated-based lubricant is applied to stem tip

To order, add **S** to the valve ordering number. Example: SS-2HS

Special Cleaning and Packaging (SC-11)

Swagelok H series valves with VCR end connections are processed in accordance with Swagelok *Special Cleaning and Packaging (SC-11)* (MS-06-63), to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C.

To order special cleaning and packaging for H series valves with other end connections, add **-SC11** to the valve ordering number. Example: SS-2H-**SC11**

HK Series

Copper Stem Tip

- For temperatures up to 400°F (204°C) at 150 psig (10.3 bar)
- Includes copper gasket for body-to-bonnet seal



To order, replace **K** in the valve ordering number with **G**.

Example: B-4HG2

Special Alloy Material

HK series valves are available in alloy 400 body material for system compatibility. Contact your authorized Swagelok sales and service representative.

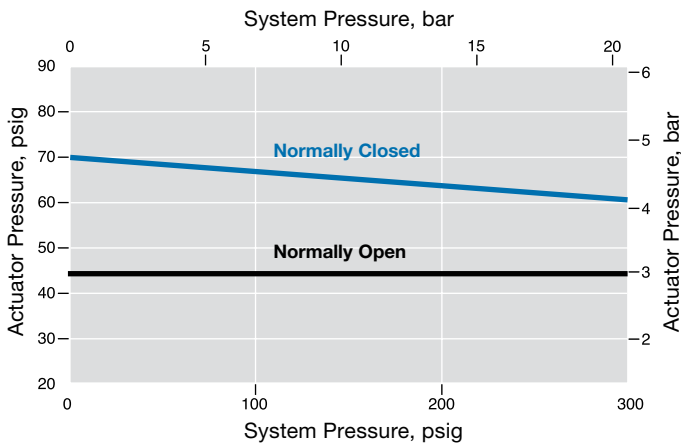
Pneumatic Actuators

Features

- Two modes of operation: normally closed and normally open
- Low actuation pressure
- Available factory-assembled or as a kit for field assembly

Pneumatic Actuator Performance

Use the minimum air pressure required for a given system to reduce air consumption and increase valve life. Increase air pressure to speed up response time.



Technical Data

Pressure Rating psig (bar)	Temperature Rating °F (°C)	Air Displacement in. ³ (cm ³)
45 to 150 (3.1 to 10.3)	-10 to 300 (-23 to 148)	0.068 (1.11)

Materials of Construction

Component	Material
Housing	Aluminum
External hardware	Stainless steel
O-rings	Fluorocarbon FKM

Ordering Information and Dimensions

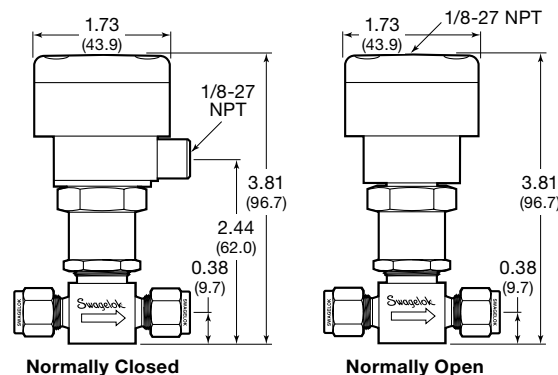
Add an actuator designator to an HK series valve ordering number.

Example: B-4HK-10

Actuator Model	Designator
Normally open	-1O
Normally closed	-1C

To order a pneumatic actuator kit, use ordering number **MS-HK-1C** for the normally closed model or **MS-HK-1O** for the normally open model.

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



Caution: Do not mix or interchange parts with those of other manufacturers.

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Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit your Swagelok Web site or contact your authorized Swagelok representative.

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