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An Installer's Pocket Guide for Swagelok® Valves

Swagelok

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Introduction

Swagelok® valves provide consistent, high-quality performance in a wide variety of applications. This easy-to-use pocket guide was designed to give you the reference information you need in compact form on our most popular valves. It includes a variety of helpful information and tools to help make your valve selection experience as seamless as possible . For the most current information on our complete valve line, please contact your authorized Swagelok sales and service center or visit our website at www.swagelok.com.

About Swagelok Company

Swagelok is a worldwide leader in industrial fluid systems—founded in 1947 on the merits of its revolutionary, leak-tight tube fitting. With customer-focused solutions and a passion for making high-quality products, the company serves industries requiring safe and efficient movement of liquids and gases. An approximately $2 billion company headquartered in Northeast Ohio, Swagelok operates more than 20 manufacturing facilities, and customers rely on local fluid system expertise through nearly 200 authorized sales and service center locations around the globe. Swagelok's values shape its dedication to customers, associates, and the community, and the company is consistently recognized for workplace excellence.
Discover more at www.swagelok.com.

Flow Control

O, 1, 18, 20, and 26 Series

Integral-Bonnet Needle Valves

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	up to 600°F (315°C)
Size Range	1/8 to 3/4 in. Tube Fittings 1/8 to 1/2 in. NPT 1/4 to 1/2 in. ISO
Materials	316 SS, Brass, Steel, Alloy 400
Catalog Reference	MS-01-164

Features

- Both regulating and shut-off stems
- Soft seats available
- Straight, angle, and cross flow patterns

Ordering Information

0, 1, and 18 Series

End Connections		C_v	Orifice in. (mm)	Ordering Number
Inlet/Outlet	Size			
Fractional Swagelok tube fittings	1/8 in.	0.09	0.080 (2.0)	SS-ORS2
	1/4 in.	0.37	0.172 (4.4)	SS-1RS4
	3/8 in.	0.73	0.250 (6.4)	SS-1RS6
	1/2 in.			SS-1RS8
	1/2 in.	1.80	0.375 (9.5)	SS-18RS8
	3/4 in.			SS-18RS12
Metric Swagelok tube fttings	3 mm	0.09	0.080 (2.0)	SS-ORS3MM
	6 mm	0.37	0.172 (4.4)	SS-1RS6MM
	8 mm			SS-1RS8MM
	10 mm	0.73	0.250 (6.4)	SS-1RS10MM
	12 mm			SS-1RS12MM
	12 mm	1.80	0.375 (9.5)	SS-18RS12MM
	18 mm			SS-18RS18MM
Female NPT	1/8 in.	0.09	0.080 (2.0)	SS-ORF2
	1/8 in.	0.37	0.172 (4.4)	SS-1RF2
	1/4 in.	0.73	0.250 (6.4)	SS-1RF4
	3/8 in.	1.80	0.375 (9.5)	SS-18RF6
	1/2 in.			SS-18RF8
Male NPT	1/8 in.	0.09	0.080 (2.0)	SS-ORM2
	1/8 in.	0.37	0.172 (4.4)	SS-1RM2
	1/4 in.			SS-1RM4
	3/8 in.	0.73	0.250 (6.4)	SS-1RM6
	1/2 in.	1.80	0.375 (9.5)	SS-18RM8
Male NPT/ Swagelok tube fittings	1/8 in.	0.09	0.080 (2.0)	SS-ORM2-S2
	1/4 in.	0.37	0.172 (4.4)	SS-1RM4-S4
	1/4 / 3/8 in.	0.73	0.250 (6.4)	SS-1RM4-S6
	3/8 in.			SS-1RM6-S6
	3/8 / 1/2 in.			SS-1RM6-S8
Male/female NPT	1/4 in.	0.73	0.250 (6.4)	SS-1RM4-F4
	1/2 in.	1.80	0.375 (9.5)	SS-18RM8-F8
Female ISO①	1/4 in.	0.73	0.250 (6.4)	SS-1RF4RT
	3/8 in.	1.80	0.375 (9.5)	SS-18RF6RT
	1/2 in.			SS-18RF8RT

① See specifications ISO 7/1, BS EN 10226-1, DIN-2999, JIS B0203.

20 Series With Soft-Seat Stem and PCTFE Stem Tip

End Connections		C_v	Orifice in. (mm)	Ordering Number
Inlet/Outlet	Size			
Female NPT	1/4 in.	0.09	0.080 (2.0)	SS-20KF4
Male NPT	1/4 in.			SS-20KM4
Male/female NPT	1/4 in.			SS-20KM4-F4

20 and 26 Series With Vee Stem

End Connections		C_v	Orifice in. (mm)	Ordering Number
Inlet/Outlet	Size			
Swagelok tube fittings	1/4 in.	0.21	0.125 (3.2)	SS-20VS4
	3/8 in.	0.73	0.250 (6.4)	SS-26VS6
	1/2 in.			SS-26VS8
Female NPT	1/4 in.	0.21	0.125 (3.2)	SS-20VF4
	3/8 in.	0.73	0.250 (6.4)	SS-26VF6
	1/2 in.			SS-26VF8
Male NPT	1/4 in.	0.21	0.125 (3.2)	SS-20VM4
Male NPT/ Swagelok tube fittings	1/4 in.			SS-20VM4-S4
Male/female NPT	1/4 in.			SS-20VM4-F4
	3/8 in.	0.73	0.250 (6.4)	SS-26VM6-F6
	1/2 in.			SS-26VM8-F8
	3/4 to 1/2 in.			SS-26VM12-F8
Female ISO①	1/4 in.	0.21	0.125 (3.2)	SS-20VF4RT
	1/2 in.	0.73	0.250 (6.4)	SS-26VF8RT

① See specifications ISO 7/1, BS EN 10226-1, DIN-2999, JIS B0203.

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **Valves that have not been cycled for a period of time may have a higher initial actuation torque.**

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

N and HN Series

Severe-Service Union-Bonnet Needle Valves

Working Pressure	up to 10 000 psig (689 bar)
Temperature Range	–65° to 450°F (–53° to 232°C) PTFE up to 1200°F (648°C) with Grafoil® packing
Size Range	1/4 to 1 in. Tube Fittings 1/8 to 1 in. NPT 1/4 to 3/4 in. Tube Socket Weld 1/4 to 1/2 in. Pipe Socket Weld 1/4 to 1/2 in. VCR Fittings 1/4 to 3/4 in. VCO Fittings
Materials	316 SS, 316/316L SSD, Alloy 400, Alloy 600, Alloy C-276, Titanium
Catalog Reference	MS-01-168

Features

- ASME Class 2500
- Large orifice for high flow
- High-pressure and temperature capabilities

Ordering Information

3N Series: 0.156 in. (4.0 mm) Orifice

End Connections		C_v	Ordering Number
Inlet/Outlet	**Size**		
Female NPT	1/8 in.	0.35	SS-3NBF2
	1/4 in.		SS-3NBF4
Male NPT	1/4 in.		SS-3NBM4
Male/female NPT	1/4 in.		SS-3NBM4-F4
Swagelok tube fittings	1/4 in.		SS-3NBS4
	6 mm		SS-3NBS6MM
	8 mm		SS-3NBS8MM
Tube socket welds	1/4 in.		SS-3NBSW4T
Male VCO® fittings	1/4 in.		SS-3NBVC04
Male VCR® fittings	1/4 in.		SS-3NBVCR4

6N Series: 0.250 in. (6.4 mm) Orifice

End Connections		C_v	Ordering Number
Inlet/Outlet	**Size**		
Female NPT	1/4 in.	0.86	SS-6NBF4
	3/8 in.		SS-6NBF6
Swagelok tube fittings	3/8 in.		SS-6NBS6
	1/2 in.		SS-6NBS8
	10 mm		SS-6NBS10MM
	12 mm		SS-6NBS12MM
Tube socket welds	3/8 in.		SS-6NBSW6T
	1/2 in.		SS-6NBSW8T
Pipe socket welds	1/4 in.		SS-6NBSW4P
Male VCO fittings	1/2 in.		SS-6NBVC08
Male VCR fittings	1/2 in.		SS-6NBVCR8

12N Series: 0.437 in. (11.1 mm) Orifice

End Connections			Ordering Number
Inlet/Outlet	Size	C_v	
Female NPT	1/2 in.	2.4	SS-12NBF8
	3/4 in.		SS-12NBF12
	1 in.		SS-12NBF16
Male/ female NPT	1/2 in.	1.9	SS-12NBM8-F8
	3/4 in.		SS-12NBM12-F12
	1 in.		SS-12NBM16-F16
Swagelok tube fittings	1/2 in.	2.1	SS-12NBS8
	3/4 in.	2.4	SS-12NBS12
	1 in.		SS-12NBS16
	12 mm	1.9	SS-12NBS12MM
Tube socket welds	1/2 in.	2.2	SS-12NBSW8T
	3/4 in.		SS-12NBSW12T
Pipe socket welds	1/2 in.	2.4	SS-12NBSW8P
Male VCO fittings	3/4 in.	2.2	SS-12NBVCO12
Male VCR fittings	1/2 in.	1.9	SS-12NBVCR8

3HN Series: 0.156 in. (4.0 mm) Orifice; 0.35 C_v

End Connections		Ordering Number
Inlet/Outlet	Size	
Female NPT	1/8 in.	SS-3HNRF2
	1/4 in.	SS-3HNRF4
Male NPT	1/4 in.	SS-3HNRM4
Male/female NPT	1/4 in.	SS-3HNRM4-F4
Swagelok tube fittings	1/4 in.	SS-3HNRS4
Tube socket welds	1/4 in.	SS-3HNRSW4T

6HN Series: 0.250 in. (6.4 mm) Orifice; 0.86 C_v

End Connections		
Inlet/Outlet	**Size**	**Ordering Number**
Female NPT	1/4 in.	SS-6HNRF4
	1/2 in.	SS-6HNRF8
Male NPT	1/2 in.	SS-6HNRM8
Male/female NPT	1/2 in.	SS-6HNRM8-F8

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **Valves that have not been cycled for a period of time may have a higher initial actuation torque.**

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

On/Off Control (Ball/Plug) Valves

40 and 40G Series

One-Piece Instrumentation Ball Valves

Working Pressure	up to 3000 psig (206 bar)
Temperature Range	–65° to 300°F (–53° to 148°C)
Size Range	1/16 to 3/4 in. Tube Fittings 1/8 to 1/2 in. NPT
Materials	316 SS, Brass, Alloy 400
Catalog Reference	MS-02-331

Features

- On/Off, switching, and crossover flow paths
- Low-temperature models available
- Capsule seat packing for better sealing on the ball

Ordering Information

On-Off (2-Way) Valves

End Connections		C_v			Ordering Number	
Inlet/ Outlet	Size	Straight	Angle	Orifice in. (mm)	40G Series	40 Series
Fractional Swagelok tube fittings	1/16 in.	0.10	-	0.052 (1.32)	SS-41GS1	SS-41S1
	1/8 in.	0.20	0.15	0.093 (2.36)	SS-41GS2	SS-41S2
	1/4 in.	0.60	0.35	0.125 (3.18)	SS-42GS4	SS-42S4
		1.4	0.90	0.187 (4.75)	SS-43GS4	SS-43S4
	3/8 in.	1.5	0.90	0.187 (4.75)	SS-43GS6	SS-43S6
		6.0	2.0	0.281 (7.14)	–	SS-44S6
	1/2 in.	1.1	-	0.187 (4.75)	SS-43GS8	
		12	4.60	0.406 (10.3)	–	SS-45S8
	3/4 in.	6.4	3.80	0.406 (10.3)	–	SS-45S12
Metric Swagelok tube fittings	3 mm	0.20	0.15	0.093 (2.36)	SS-41GS3MM	SS-41S3MM
	6 mm	0.60	0.35	0.125 (3.18)	SS-42GS6MM	SS-42S6MM
		1.4	0.90	0.187 (4.75)	SS-43GS6MM	SS-43S6MM
	8 mm	1.5	0.90	0.187 (4.75)	SS-43GS8MM	SS-43S8MM
	10 mm	6.0	2.0	0.281 (7.14)	–	SS-44S10MM
	12 mm	12	4.6	0.406 (10.3)	–	SS-45S12MM
Female NPT	1/8 in.	0.50	0.30	0.125 (3.18)	SS-42GF2	SS-42F2
		1.2	0.70	0.187 (4.75)	SS-43GF2	SS-43F2
	1/4 in.	0.90	0.75	0.187 (4.75)	SS-43GF4	SS-43F4
		3.0	1.7	0.281 (7.14)	–	SS-44F4
	3/8 in.	2.6	1.5	0.281 (7.14)	–	SS-44F6
	1/2 in.	6.3	3.5	0.406 (10.3)	–	SS-45F8
Female ISO/BSP tapered	1/4 in.	0.90	–	0.187 (4.75)	SS-43GF4RT	SS-43F4RT
	3/8 in.	2.6		0.281 (7.14)	–	SS-44F6RT
	1/2 in.	6.3		0.406 (10.3)	–	SS-45F8RT
Male NPT	1/4 in.	1.2	0.75	0.187 (4.75)	SS-43GM4	SS-43M4
Male NPT/ Swagelok tube fittings	1/4 in.	1.6	0.75	0.187 (4.75)	SS-43GM4-S4	SS-43M4-S4
VCO fittings	1/4 in.	0.60	0.35	0.125 (3.18)	SS-42GVCO4	SS-42VC04
		2.4	0.90	0.187 (4.75)	SS-43GVCO4	SS-43VC04
Integral Male VCR① fittings	1/4 in.	0.60	0.35	0.125 (3.18)	SS-42GVCR4	SS-42VCR4
		2.4	0.90	0.187 (4.75)	SS-43GVCR4	SS-43VCR4
	1/2 in.	6.0	–	0.281 (7.14)	–	SS-44VCR8①
		12	–	0.406 (10.3)	–	SS-45VCR8①

① Not recommended for panel mounting.

Switching (3-Way Valves)

End Connections				Ordering Number	
Side/ Bottom	Size	C_v	Orifice in. (mm)	40GX Series	40X Series
Fractional Swagelok tube fittings	1/16 in.	0.08	0.052 (1.32)	SS-41GXS1	SS-41XS1
	1/8 in.	0.15	0.093 (2.36)	SS-41GXS2	SS-41XS2
	1/4 in.	0.35	0.125 (3.18)	SS-42GXS4	SS-42XS4
		0.90	0.187 (4.75)	SS-43GXS4	SS-43XS4
	3/8 in.	2.0	0.281 (7.14)	–	SS-44XS6
	1/2 in.	4.6	0.406 (10.3)	–	SS-45XS8
	3/4 in.	3.8	0.406 (10.3)	–	SS-45XS12
Metric Swagelok tube fittings	3 mm	0.15	0.093 (2.36)	SS-41GXS3MM	SS-41XS3MM
	6 mm	0.35	0.125 (3.18)	SS-42GXS6MM	SS-42XS6MM
		0.90	0.187 (4.75)	SS-43GXS6MM	SS-43XS6MM
	8 mm	0.80	0.187 (4.75)	SS-43GXS8MM	SS-43XS8MM
	10 mm	2.0	0.281 (7.14)	–	SS-44XS10MM
	12 mm	4.6	0.406 (10.3)	–	SS-45XS12MM
Female NPT	1/8 in.	0.30	0.125 (3.18)	SS-42GXF2	SS-42XF2
	1/4 in.	0.75	0.187 (4.75)	SS-43GXF4	SS-43XF4
		1.7	0.281 (7.14)	–	SS-44XF4
	3/8 in.	1.5	0.281 (7.14)	–	SS-44XF6
	1/2 in.	3.5	0.406 (10.3)	–	SS-45XF8
Female ISO/BSP tapered	1/4 in.	0.75	0.187 (4.75)	SS-43GXF4RT	SS-43XF4RT
	3/8 in.	1.5	0.281 (7.14)	–	SS-44XF6RT
	1/2 in.	3.5	0.406 (10.3)	–	SS-45XF8RT
Swageok tube fittings/ male NPT	1/4 in.	0.80	0.187 (4.75)	SS-43GXS4-S4-M4	SS-43XS4-S4-M4
Integral male VCR fittings	1/4 in.	0.35	0.125 (3.18)	SS-42GXVCR4	SS-42XVCR4
		0.90	0.187 (4.75)	SS-43GXVCR4	SS-43XVCR4

5-Way Valves

End Connections		C_v	Orifice in. (mm)	40 Series Ordering Number
Inlet/Outlet	Size			
Female Swagelok tube fittings	1/8 in.	0.07	0.062 (1.57)	-43ZFS2①
Female NPT	1/8 in.	0.07	0.062 (1.57)	-43ZF2①
	1/2 in.	3.5	0.406 (10.3)	-45ZF8-ND②

① Cross-port flow may occur during switching. If cross-port flow is unacceptable, specify a 0.049 in. ball orifice. Example: SS-43ZF2-**049**

② Cross-port flow may occur during switching. If cross-port flow is unacceptable, specify a 0.093 in. ball orifice. Example: SS-45ZF8-ND-**093**

7-Way Valves

End Connections		C_v	Orifice in. (mm)	40 Series Ordering Number
Inlet/Outlet	Size			
Female Swagelok tube fittings	1/16 in.	0.05	0.052 (1.32)	-43Z6FS1
	1/8 in.	0.07	0.062 (1.57)	-43Z6FS2

4-Way Valves

End Connections		C_v	Orifice in. (mm)	40 Series Ordering Number
Inlet/Outlet	Size			
Female Swagelok tube fittings	1/16 in.	0.06	0.052 (1.32)	-43YFS1①
	1/8 in.	0.08	0.062 (1.57)	-43YFS2①
Female NPT	1/8 in.	0.08	0.062 (1.57)	-43YF2①
	1/2 in.	1.6	0.281 (7.14)	-45YF8②

① Cross-port flow may occur during switching. If cross-port flow is unacceptable, specify a 0.049 in. ball orifice. Example: SS-43YFS2-**049**

② Cross-port flow may occur during switching. If cross-port flow is unacceptable, specify a 0.093 in. ball orifice. Example: SS-45YF8-**093**

6-Way Valves

End Connections		C_v	Orifice in. (mm)	40 Series Ordering Number
Inlet/Outlet	Size			
Female Swagelok tube fittings	1/16 in.	0.06	0.052 (1.32)	-43Y6FS1
	1/8 in.	0.08	0.062 (1.57)	-43Y6FS2

⚠ **Swagelok ball valves are designed to be used in a fully open or fully closed position.**

⚠ **Valves that have not been cycled for a period of time may have a higher initial actuation torque.**

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

Important Information About Swagelok Instrumentation Ball Valves

- Service instructions are shipped with each 40G series valve.
- 40G and 40 series valves are factory tested with nitrogen at 1000 psig (69 bar), or the rated pressure if lower than 1000 psig (69 bar).
- 40 series valve packing must be readjusted for service at higher than test pressure.
- Instrumentation ball valves exposed to dynamic temperature conditions before installation may lose their initial packing load. Packing adjustment may be needed.
- 41G and 42G series valves require an 8 mm deep-well socket and 43G series valves require a 9 mm deep-well socket to adjust the packing bolt.
- 41 and 42 series valves require a 3/8 in. open-ended wrench; 44 series valves require a 1/2 in. open-ended wrench; and 45 series valves require a 5/8 in. open-ended wrench to adjust the packing bolt.
- 43 series valves require an adapter to adjust the packing bolt. Ordering number: MS-WK-43.

60 Series

General Purpose and Special Application

Working Pressure	up to 3000 psig (206 bar)
Temperature Range	–65˚ to 450˚F (–53˚ to 232˚C)
Size Range	1/8 to 2 in. NPT 1/8 to 2 in. Tube Fittings
Materials	316 SS, Brass, Special Alloys, Carbon Steel
Catalog Reference	MS-01-146

Features

- General purpose and special applications (steam, fire, thermal)
- On/Off and switching capability
- Wide variety of packing and seat materials available

Ordering Information

Switching (3-Way) Valves

Valve Series	Bottom End Connection	Designator
62	1/4 in. female NPT 1/4 in. female ISO tapered 1/4 in. Swagelok tube fitting	-F4 -F4RT -S4
63	3/8 in. Swagelok tube fitting 1/2 in. female NPT 1/2 in. female ISO Tapered 1/2 in. Swagelok tube fitting	-S6 -F8 -F8RT -S8
65	3/4 in. female NPT 3/4 in. female ISO tapered 1 in. female NPT 1 in. female ISO tapered	-F12 -F12RT -F16 -F16RT
67	1 1/2 in. female NPT	-F24
68	2 in. female NPT	-F32

Swagelok Tube Fitting End Connections

Size	C_v	Orifice in. (mm)	Ordering Number
1/4 in.	1.2	0.188 (4.8)	SS-62TS4
3/8 in.	3.8	0.281 (7.1)	SS-62TS6
1/2 in.	7.5	0.406 (10.3)	SS-63TS8
3/4 in.	13.6	0.516 (13.1)	SS-63TS12
1 in.	40	0.875 (22.2)	SS-65TS16
1 1/2 in.	100	1.250 (31.8)	SS-67TS24
2 in.	130	1.500 (38.1)	SS-68TS32
6 mm	1.2	0.188 (4.8)	SS-62TS6MM
8 mm	2.5	0.250 (6.4)	SS-62TS8MM
10 mm	3.8	0.281 (7.1)	SS-62TS10MM
12 mm	7.5	0.375 (9.5)	SS-63TS12MM
18 mm	13.6	0.516 (13.1)	SS-63TS18MM
25 mm	40	0.875 (22.2)	SS-65TS25MM

Female Pipe Thread End Connections

Female NPT

Size	C_v	Orifice in. (mm)	Ordering Number
1/8 in.	3.8	0.281 (7.1)	SS-62TF2
1/4 in.	3.8	0.281 (7.1)	SS-62TF4
3/8 in.	12	0.516 (13.1)	SS-63TF6
1/2 in.	12	0.516 (13.1)	SS-63TF8
3/4 in.	31	0.875 (22.2)	SS-65TF12
1 in.	38	0.875 (22.2)	SS-65TF16
1 1/4 in.	90	1.250 (31.8)	SS-67TF20
1 1/2 in.	100	1.250 (31.8)	SS-67TF24
2 in.	130	1.500 (38.1)	SS-68TF32

Female ISO Tapered

Size	C_v	Orifice in. (mm)	Ordering Number
1/4 in.	3.8	0.281 (7.1)	SS-62TF4RT
1/2 in.	12	0.516 (13.1)	SS-63TF8RT
3/4 in.	31	0.875 (22.2)	SS-65TF12RT
1 in.	38	0.875 (22.2)	SS-65TF16RT
1 1/2 in.	100	1.250 (31.8)	SS-67TF24RT
2 in.	130	1.500 (38.1)	SS-68TF32RT

Male Lagging Extension to Female NPT With Gauge Ports

Size	C_v	Orifice in. (mm)	Ordering Number
1/2 to 1/2 in.	7.5	0.411 (10.4)	SS-63TM8L-GF8
3/4 to 1/2 in.	11.3	0.500 (12.7)	SS-63TM12L-GF8

⚠ **Swagelok ball valves are designed to be operated in a fully open or fully closed position.**

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **CAUTION**
Actuated assemblies must be properly aligned and supported. Inadequate alignment or improper support of the actuated assembly may result in leakage or premature valve failure.

83 and H83 Series

High-Pressure Trunnion Ball Valves

Working Pressure	up to 10 000 psig (689 bar)
Temperature Range	0° to 450°F (–17° to 121°C)
Size Range	1/8 to 1/2 in. NPT 1/8 to 1/2 in. Tube Fittings
Materials	316 SS, Alloy 400
Catalog Reference	MS-01-166

Features

- High-pressure design (up to 10 000 psig)
- On/Off and switching designs
- Compact maximum flow design

Ordering Information

2-Way Valve, 0.187 in. (4.75 mm) Orifice

End Connections			Ordering Number	
Type	Size	C_v	83 Series	H83 Series
Female NPT	1/8 in.	1.2	SS-83KF2	SS-H83PF2
	1/4 in.	1.0	SS-83KF4	–
			–	SS-H83PF4
	1/2 in.①	1.2	SS-83KF8	–
Fractional Swagelok tube fittings	1/4 in.	1.6	SS-83KS4	SS-H83PS4
	3/8 in.	1.4	SS-83KS6	SS-H83PS6
	1/2 in.①	1.0	SS-83KS8	SS-H83PS8
Metric Swagelok tube fittings	6 mm	1.6	SS-83KS6MM	SS-H83PS6MM
	8 mm	1.5	SS-83KS8MM	SS-H83PS8MM
	10 mm	1.3	SS-83KS10MM	SS-H83PS10MM
	12 mm.①	1.0	SS-83KS12MM	SS-H83PS12MM

① Not recommended for panel mounting.

3-Way Valve, 0.187 in. (4.75 mm) Orifice

End Connections			Ordering Number	
Type	Size	C_v	83 Series	H83 Series
Female NPT②	1/8 in.	0.75	SS-83XKF2	SS-H83XPF2
	1/4 in.		SS-83XKF4	–
			–	SS-H83XPF4
Fractional Swagelok tube fittings①	1/4 in.		SS-83XKS4	SS-H83XPS4
	3/8 in.		SS-83XKS6	SS-H83XPS6
	1/2 in.①		SS-83XKS8	SS-H83XPS8
Metric Swagelok tube fittings①	6 mm		SS-83XKS6MM	SS-H83XPS6MM
	8 mm		SS-83XKS8MM	SS-H83XPS8MM
	10 mm		SS-83XKS10MM	SS-H83XPS10MM
	12 mm①		SS-83XKS12MM	SS-H83XPS12MM

For more information about pressure ratings of valves with tube fitting end connections, see Swagelok *Tubing Data*, MS-01-107.

① Not recommended for panel mounting.

② Bottom port of all 3-way valves is 1/4 in. female NPT.

⚠ Swagelok ball valves are designed to be used in a fully open or fully closed position.

⚠ Valves that have not been cycled for a period of time may have a higher initial actuation torque.

⚠ CAUTION
Actuated assemblies must be properly aligned and supported. Improper alignment or inadequate support of the actuated assembly may result in leakage or premature valve failure.

SK Series

Multipurpose Ball Valves

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–40° to 302°F (–40° to 150°C)
Size Range	1/4 to 3/8 in.
Materials	316 SS
Catalog Reference	MS-02-345

Features

- Medium-pressure design (up to 6000 psig)
- Low torque quarter-turn actuations
- Bidirectional flow

Ordering Information

0.188 in. (4.8 mm) Orifice

End Connections[1]		C_v	Ordering Number
Type	Size		
Swagelok tube fittings	1/4 in.	1.3	SS-4SKPS4
	3/8 in.	1.4	SS-4SKPS6
	6 mm	1.3	SS-4SKPS6MM
	8 mm	1.3	SS-4SKPS8MM
Female NPT	1/4 in.	1.2	SS-4SKPF4
Female ISO[2]	1/4 in.	1.2	SS-4SKPF4RT
Male NPT	1/4 in.	1.1	SS-4SKPM4
Male VCO fitting[3]	1/4 in.	0.9	SS-4SKPVCO4

① SK series valves can be ordered with two different end connections. Contact your authorized Swagelok sales and service center for ordering information.

② See specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.

③ VCO fittings on standard valves include low-temperature fluorocarbon FKM O-rings.

⚠ Swagelok ball valves are designed to be used in a fully open or fully closed position.

⚠ Valves that have not been cycled for a period of time may have a higher initial actuation torque.

⚠ CAUTION
Actuated assemblies must be properly aligned and supported. Improper alignment or inadequate support of the actuated assembly may result in leakage or premature valve failure.

AFS Series

High-Pressure, High-Flow Applications

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–40° to 250°F (–40° to 121°C)
Size Range	3/8 to 1 in. Tube Fittings 12 to 16 mm Tube Fittings 3/8 to 3/4 in. NPT 1/2 in. ISO Tapered
Materials	316 SS
Catalog Reference	MS-02-303

Features

- High-flow capability
- Medium-pressure design (up to 6000 psig)
- Low operating torque

Ordering Information

AFS Series

End Connections①				
Inlet/Outlet	Size	C_v	Orifice in. (mm)	Ordering Number
Fractional Swagelok tube fittings	3/8 in.	4.0	0.281 (7.1)	SS-AFSS6
	1/2 in.	7.2	0.406 (10.3)	SS-AFSS8
	3/4 in.	7.1	0.472 (12.0)	SS-AFSS12
	1 in.	6.5	0.472 (12.0)	SS-AFSS16①
Metric Swagelok tube fittings	12 mm	5.2	0.406 (10.3)	SS-AFSS12MM
	16 mm	12.4	0.472 (12.0)	SS-AFSS16MM
Female NPT	3/8 in.	11.0	0.472 (12.0)	SS-AFSF6
	1/2 in.	13.8		SS-AFSF8
	3/4 in.	7.8		SS-AFSF12②
Female ISO tapered③	1/2 in.	13.8	0.472 (12.0)	SS-AFSF8RT

① Valves can be ordered with two different end connections. Contact your authorized Swagelok sales and service center.

② Not available with AGA, IAS, and ECE R110 certifications; not recommended for panel mounting; not available with pneumatic actuator.

③ Thread type ISO/BSP (tapered), based on DIN 3852, Swagelok RT fittings. See specifications ISO 7/1, BS EN ISO 10226-1, and JIS B0203.

⚠ Swagelok AFS ball valves are designed to be used in a fully open or fully closed position.

⚠ Valves that have not been cycled for a period of time may have a higher initial actuation torque.

⚠ CAUTION
Actuated assemblies must be properly aligned and supported. Improper alignment or inadequate support of the actuated assembly may result in shorter valve life.

P4T and P6T Series

Plug Valves

Working Pressure	up to 3000 psig (206 bar)
Temperature Range	–10° to 400°F (–23° to 204°C)
Size Range	1/8 to 1/2 in. Tube Fittings 1/8 to 1/2 in. NPT 1/4 to 1/2 in. ISO
Materials	316 SS, Brass
Catalog Reference	MS-01-59

Features

- 1/4 turn actuation
- Throttling capability
- Simple design, easy to maintain

Ordering Information

Plug Valves: P4T Series and P6T Series

End Connections		Series	Ordering Number	
Inlet/Outlet	Size		Stainless Steel	Brass
Fractional Swagelok tube fittings	1/8 in.	P4T	SS-2P4T	B-2P4T
	1/4 in.	P4T	SS-4P4T	B-4P4T
	3/8 in.	P4T	SS-6P4T	B-6P4T
		P6T	SS-6P6T	B-6P6T
	1/2 in.	P6T	SS-8P6T	B-8P6T
Metric Swagelok tube fittings	6 mm	P4T	SS-6P4T-MM	B-6P4T-MM
	8 mm	P6T	SS-8P6T-MM	B-8P6T-MM
	10 mm	P6T	SS-10P6T-MM	B-10P6T-MM
	12 mm	P6T	SS-12P6T-MM	B-12P6T-MM
Female NPT	1/8 in.	P4T	SS-2P4T4	B-2P4T4
	1/4 in.	P4T	SS-4P4T4	B-4P4T4
		P6T	SS-4P6T4	B-4P6T4
	1/2 in.	P6T	SS-8P6T4	B-8P6T4
Male NPT	1/8 in.	P4T	SS-2P4T2	B-2P4T2
	1/4 in.	P4T	SS-4P4T2	B-4P4T2
	1/2 in.	P6T	SS-8P6T2	B-8P6T2
Male NPT/ Swagelok tube fittings	1/4 in.	P4T	SS-4P4T1	B-4P4T1
Male/female NPT	1/4 in.	P4T	SS-4P4T5	B-4P4T5
Female ISO①	1/4 in.	P4T	SS-4P4T4-RT	B-4P4T4-RT
	1/2 in.	P6T	SS-8P6T4-RT	B-8P6T4-RT

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, and JIS B0203.

Testing

Every Swagelok plug valve is factory tested for shutoff at 600 psig (41.3 bar).

Cleaning and Packaging

Every Swagelok plug valve is cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

Directional Control (Check Valves)

C and CA Series

Working Pressure	up to 3000 psig (206 bar)
Temperature Range	–10° to 375°F (–23° to 190°C)
Size Range	1/8 to 1 in. Tube Fittings 1/8 to 1 in. NPT
Materials	316 SS, Brass
Catalog Reference	MS-01-176

Features

- Adjustable and fixed cracking pressures
- Variety of end connections
- 316SS and brass materials available

Ordering Information

Fixed Cracking Pressure, C Series

End Connections		Ordering Number
Inlet/Outlet	**Size**	
Fractional Swagelok tube fittings	1/8 in.	SS-2C-
	1/4 in.	SS-4C-
	3/8 in.	SS-6C-
	1/2 in.	SS-8C-
	3/4 in.	SS-12C-
	1 in.	SS-16C-
Metric Swagelok tube fittings	6 mm	SS-6C-MM-
	10 mm	SS-10C-MM-
	12 mm	SS-12C-MM-
Female NPT	1/8 in.	SS-2C4-
	1/4 in.	SS-4C4-
	3/8 in.	SS-6C4-
	1/2 in.	SS-8C4-
	3/4 in.	SS-12C4-
	1 in.	SS-16C4-
Male NPT	1/8 in.	SS-2C2-
	1/4 in.	SS-4C2-
	3/8 in.	SS-6C2-
	1/2 in.	SS-8C2-
	3/4 in.	SS-12C2-
	1 in.	SS-16C2-
Male NPT/Swagelok tube fittings	1/4 in.	SS-4C1-
Male VCR fittings	1/4 in.	SS-4C-VCR-
	1/2 in.	SS-8C-VCR-
	3/4 in.	SS-12C-VCR-
	1 in.	SS-16C-VCR-

Refer to page 36 for completing the ordering number.

Adjustable Cracking Pressure, CA Series

End Connections		
Inlet/Outlet	**Size**	**Ordering Number**
Swagelok tube fittings	1/4 in.	SS-4CA-
	6 mm	SS-6CA-MM-
	8 mm	SS-8CA-MM-
Male NPT/Swagelok tube fittings	1/4 in.	SS-4CA1-
Male VCR fitting	1/4 in.	SS-4CA-VCR-

Refer to page 36 for completing the ordering number.

Technical Data

Cracking pressure: the inlet pressure at which the first indication of flow occurs (steady stream of bubbles).

Reseal pressure: the pressure at which there is no indication of flow.

Back pressure: the differential pressure between the inlet and outlet pressures.

⚠ **For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.**

⚠ **Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.**

CH Series

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–10° to 400°F (–23° to 204°C)
Size Range	1/8 to 1 in. Tube Fittings 1/4 to 1 in. NPT
Materials	316 SS
Catalog Reference	MS-01-176

Features

- Wide range of cracking pressures
- Working pressures up to 6000 psig
- Wide variety of tube and pipe end connections

Ordering Information

CH Series

End Connections		Ordering Number
Inlet/Outlet	Size	
Fractional Swagelok tube fittings	1/8 in.	SS-CHS2-
	1/4 in.	SS-CHS4-
	3/8 in.	SS-CHS6-
	1/2 in.	SS-CHS8-
	3/4 in.	SS-CHS12-
	1 in.	SS-CHS16-
Metric Swagelok tube fittings	6 mm	SS-CHS6MM-
	8 mm	SS-CHS8MM-
	10 mm	SS-CHS10MM-
	12 mm	SS-CHS12MM-
	22 mm	SS-CHS22MM-
	25 mm	SS-CHS25MM-
Female NPT	1/4 in.	SS-CHF4-
	3/8 in.	SS-CHF6-
	1/2 in.	SS-CHF8-
	3/4 in.	SS-CHF12-
	1 in.	SS-CHF16-
Male NPT	1/8 in.	SS-CHM2-
	1/4 in.	SS-CHM4-
	3/8 in.	SS-CHM6-
	1/2 in.	SS-CHM8-
	3/4 in.	SS-CHM12-
	1 in.	SS-CHM16-
Female ISO①	1/4 in.	SS-CHF4RT-
	1/2 in.	SS-CHF8RT-
	3/4 in.	SS-CHF12RT-
	1 in.	SS-CHF16RT-
Male ISO①	1/4 in.	SS-CHM4RT-
	1/2 in.	SS-CHM8RT-
	3/4 in.	SS-CHM12RT-
	1 in.	SS-CHM16RT-
Female SAE/MS	1/2 in.	SS-CHF8ST-
Male SAE/MS	1/2 in.	SS-CHM8ST-
Male VCO fittings	1/4 in.	SS-CHVC04-
	1/2 in.	SS-CHVC08-
	3/4 in.	SS-CHVC012-
	1 in.	SS-CHVC016-
Male VCR fittings	1/4 in.	SS-CHVCR4-
	1/2 in.	SS-CHVCR8-
	3/4 in.	SS-CHVCR12-

Refer to page 36 for completing the ordering number.

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, JIS B0203.

Technical Data

Cracking pressure: the inlet pressure at which the first indication of flow occurs (steady stream of bubbles).

Reseal pressure: the pressure at which there is no indication of flow.

Back pressure: the differential pressure between the inlet and outlet pressures.

⚠ **For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.**

⚠ **Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.**

CP and CPA Series

Working Pressure	up to 3000 psig (206 bar)
Temperature Range	–10° to 375°F (–23° to 190°C)
Size Range	1/4 to 1/2 in. NPT 1/4 to 1/2 in. ISO
Materials	316 SS, Brass
Catalog Reference	MS-01-176

Features

- Overpressure protection up to 600 psig
- Male and female threaded ends available
- Easily adjusted with hex wrenches

Ordering Information

Fixed Cracking Pressure, CP series

End Connections		Ordering Number
Inlet/Outlet	Size	
Female NPT	1/4 in.	SS-4CP4-
	1/2 in.	SS-8CP4-
Male NPT	1/4 in.	SS-4CP2-
	1/2 in.	SS-8CP2-
Female/male NPT	1/4 in.	SS-4CP6-
Male/female NPT	1/4 in.	SS-4CP5-
	1/2 in.	SS-8CP5-
Female ISO①	1/4 in.	SS-4CP4-RT-
Male ISO①	1/4 in.	SS-4CP2-RT-

Refer to page 36 for completing the ordering number.

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, JIS B0203.

Adjustable Cracking Pressure, CPA series

End Connections		Ordering Number
Inlet/Outlet	Size	
Female NPT	1/4 in.	SS-4CPA4-
Male NPT	1/4 in.	SS-4CPA2-
	1/2 in.	SS-8CPA2-
Male ISO①	1/4 in.	SS-4CPA2-RT-
	1/2 in.	SS-8CPA2-RT-

Refer to page 36 for completing the ordering number.

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, JIS B0203.

Technical Data

Cracking pressure: the inlet pressure at which the first indication of flow occurs (steady stream of bubbles).

Reseal pressure: the pressure at which there is no indication of flow.

Back pressure: the differential pressure between the inlet and outlet pressures.

⚠ **For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.**

⚠ **Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.**

C/CP Series

To order, add a cracking pressure designator to the basic ordering number.

Example: SS-2C-**1/3**

Cracking Pressure psig (bar)	**Designator**
1/3 (0.03)	1/3
1 (0.07)	1
10 (0.69)	10
25 (1.8)	25

CH Series

To order, add a cracking pressure designator to the basic ordering number.

Example: SS-CHS2-**1/3**

Cracking Pressure psig (bar)	**Designator**
1/3 (0.03)	1/3
1 (0.07)	1
5 (0.35)	5
10 (0.69)	10
25 (1.8)	25

CA/CPA Series

To order, add a cracking pressure designator to the basic ordering number.

Example: SS-4CA-**3**

Cracking Pressure psig (bar)	**Designator**
3 to 50 (0.21 to 3.5)	3
50 to 150 (3.5 to 10.4)	50
150 to 350 (10.4 to 24.2)	150
350 to 600 (24.2 to 41.4)	350

50 Series Lift Check Valves

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–65° to 900°F (–53° to 482°C)
Size Range	1/4 to 3/4 in. Tube Fittings 1/8 to 1/2 in. NPT 1/4 to 1/2 in. Tube Socket Weld or Pipe Butt Weld
Materials	316 SS
Catalog Reference	MS-01-98

Features

- High-temperature applications
- All-metal design
- Better chemical compatibility due to no elastomers

Ordering Information

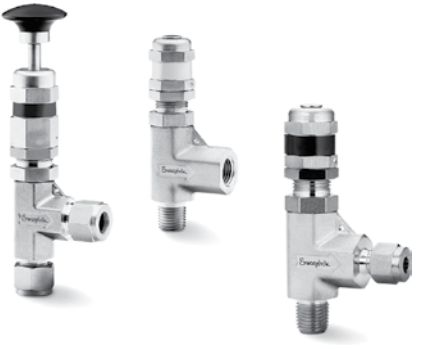
50 Series Lift Check Valves

End Connections		C_v	Orifice in. (mm)	Ordering Number
Inlet/Outlet	Size			
Swagelok tube fittings	1/4 in.	0.30	0.156 (4.0)	SS-53S4
	3/8 in.	0.64	0.250 (6.4)	SS-56S6
	1/2 in.	2.20	0.437 (11.1)	SS-58S8
	3/4 in.			SS-58S12
	6 mm	0.30	0.156 (4.0)	SS-53S6MM
Female NPT	1/8 in.	0.30	0.156 (4.0)	SS-53F2
	1/4 in.			SS-53F4
	1/4 in.	0.64	0.250 (6.4)	SS-56F4
	3/8 in.	2.20	0.437 (11.1)	SS-58F6
	1/2 in.			SS-58F8
Tube socket weld or pipe butt weld	1/4 in.	0.30	0.156 (4.0)	SS-53SW4T
	3/8 in.	0.64	0.250 (6.4)	SS-56SW6T
	1/2 in.			SS-56SW8T
	1/2 in.	2.20	0.437 (11.1)	SS-58SW8T
Swagelok tube fitting/female NPT	1/4 in.	0.30	0.156 (4.0)	SS-53S4-F4

The lift check valve is gravity assisted and must be mounted horizontally, with bonnet nut on top.

Overpressure Protection

R Series Proportional Relief Valves



Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–40° to 300°F (–40° to 148°C)
Size Range	1/4 to 1/2 in. Tube Fittings 1/4 to 1/2 in NPT 1/4 in. ISO
Materials	316 SS
Catalog Reference	MS-01-141

Features

- Compact overpressure protection
- Set pressures 10 to 6000 psig
- 1/4 and 1/2 in. designs

Ordering Information

Low-Pressure Valves (RL3 and RL4 Series)

RL3 Series: 0.19 in. (4.8 mm) Fully Open Orifice

End Connections		Ordering Number
Inlet/Outlet	Size	
Swagelok tube fittings	1/4 in.	SS-RL3S4
	6 mm	SS-RL3S6MM
	8 mm	SS-RL3S8MM
Male NPT/Swagelok tube fittings	1/4 in.	SS-RL3M4-S4
Male NPT/female NPT	1/4 in.	SS-RL3M4-F4
Male ISO/female ISO①	1/4 in.	SS-RL3M4F4-RT

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, JIS B0203.

RL4 Series: 0.25 in. (6.4 mm) Fully Open Orifice

End Connections		Ordering Number
Inlet/Outlet	Size	
Swagelok tube fittings	1/2 in.	SS-RL4S8
	12 mm	SS-RL4S12MM
Male NPT/Swagelok tube fittings	1/2 in.	SS-RL4M8S8
Male NPT/female NPT	1/2 in.	SS-RL4M8F8

High-Pressure Valves (R3A and R4 Series)

R3A Series: 0.14 in. (3.6 mm) Fully Open Orifice

End Connections		Ordering Number
Inlet/Outlet	Size	
Swagelok Tube Fittings	1/4 in.	SS-4R3A
	6 mm	SS-6R3A-MM
	8 mm	SS-8R3A-MM
Male NPT/Swagelok Tube Fittings	1/4 in.	SS-4R3A1
Male NPT/Female NPT	1/4 in.	SS-4R3A5
Male ISO/Female ISO①	1/4 in.	SS-4R3A5-RT

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, JIS B0203.

R4 Series: 0.25 in. (6.4 mm) Fully Open Orifice

End Connections		Ordering Number
Inlet/Outlet	Size	
Swagelok tube fittings	1/2 in.	SS-R4S8
	12 mm	SS-R4S12MM
Male NPT/Swagelok tube fittings	1/2 in.	SS-R4M8S8
Male NPT/female NPT	1/2 in.	SS-R4M8F8
Male NPT/female NPT	1/2 in.	SS-RL4M8F8

Replacement Spring Kits (RL3 and RL4 Series)

Available with springs factory-set to a specified set pressure. To order, add -SET to the valve ordering number and specify the desired set pressure.

Series	Spring Kit Ordering Number	Set Pressure Rang psig (bar)
RL3	177-13K-RL3	10 to 225 (0.68 to 15.5)
RL4	177-13K-RL4	

Spring Kits (R3A Series)

Select a spring kit basic ordering number and add the spring designator for the desired set pressure range.

Basic Ordering Number 177-R3A-K1-

Set Pressure Rang psig (bar)	Spring Designator	Spring Color
50 to 350 (3.4 to 24.1)	A	Blue
350 to 750 (24.1 to 51.7)	B	Yellow
750 to 1500 (51.7 to 103)	C	Purple
1500 to 2250 (103 to 155)	D	Orange
2250 to 3000 (155 to 206)	E	Brown
3000 to 4000 (206 to 275)	F	White
4000 to 5000 (275 to 344)	G	Red
5000 to 6000 (340 to 413)	H	Green

Spring Kits (R4 Series)

Select a spring kit basic ordering number and add the spring designator for the desired set pressure range.

Basic Ordering Number 177-13K-R4-

Set Pressure Rang psig (bar)	Spring Designator	Spring Color
50 to 350 (3.4 to 24.1)	A	Blue
350 to 750 (24.1 to 51.7)	B	Yellow
750 to 1500 (51.7 to 103)	C	Purple

Applications

R series relief valves are proportional relief valves that open gradually as the pressure increases. Consequently, they do not have a capacity rating at a given pressure rise (accumulation), and they are not certified to ASME or any other codes.

⚠ **Some system applications require relief valves to meet specific safety codes. The system designer and user must determine when such codes apply and whether these relief valves conform to them.**

⚠ **Swagelok proportional relief valves should never be used as ASME Boiler and Pressure Vessel Code safety relief devices.**

⚠ **Swagelok proportional relief valves are not "Safety Accessories" as defined in the Pressure Equipment Directive 97/23/EC.**

Operation

R series relief valves OPEN when system pressure reaches the set pressure and CLOSE when the system pressure falls below the set pressure.

- High-pressure R3A and R4 series—select and install the spring that covers the required set pressure; apply the matching label to the cap.
- Low-pressure RL3 and RL4 series—the spring is already installed.

⚠ **For valves not actuated for a period of time, initial relief pressure may be higher than the set pressure.**

Instrument Isolation

V Series Single/Double Block and Bleed

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	up to 1200°F (648°C)
Size Range	1/2 to 3/4 in. NPT
Materials	316 SS
Catalog Reference	MS-02-445

Features

- Pressures up to 6000 psig
- Temperature up to 1200°F (648°C) with Grafoil packing
- Compact and integral design
- Non-rotating ball design for consistent sealing

Ordering Information

V Series Block and Bleed Valves

Inlet End Connection	Ordering Number
1/2 in. male NPT	SS-V2NBM8-F8-11486
3/4 in. male NPT	SS-V2NBM12-F8-11486

V Series Double Block and Bleed Valves

Inlet End Connection	Ordering Number
1/2 in. male NPT	SS-V3NBM8-F8-11421
3/4 in. male NPT	SS-V3NBM12-F8-11421

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **Valves that have not been cycled for a period of time may have a higher initial actuation torque.**

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

4P and 5P Series

Rising Plug Valves

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–20° to 400°F (–28° to 204°C)
Size Range	1/4 to 3/4 in. NPT
Materials	316 SS, Alloy 400
Catalog Reference	MS-01-49

Features

- Roddable, straight-through orifice design
- Lagging extension for insulation clearance
- Replaceable seat and stem tip
- Non-rotating stem tip provides consistent seal
- NACE MR0175 option available

Ordering Information

Rising Plug Valves

End Connections		C_v	Orifice in. (mm)	Series	Model	Ordering Number
Inlet/ Outlet	Size					
Female NPT	1/4 in.	0.63	0.187 (4.8)	4P	Standard	SS-4PDF4
				4P	Gauge port①	SS-4PDGF4
	1/2 in.	1.80	0.250 (6.4)	5P	Standard	SS-5PDF8
				5P	Gauge port①	SS-5PDGF8
Male/ female NPT	1/4 in.	0.63	0.187 (4.8)	4P	Standard	SS-4PDM4-F4
	1/2 to 1/4 in.			4P	Standard	SS-4PDM8-F4
				4P	Gauge port①	SS-4PDGM8-F4②
	1/2 in.	1.80	0.250 (6.4)	5P	Standard	SS-5PDM8-F8
				5P	Gauge port①	SS-5PDGM8-F8②
	3/4 to 1/2 in.			5P	Standard	SS-5PDM12-F8
				5P	Gauge port①	SS-5PDGM12-F8②

① Gauge ports on 316 SS bodies match outlet size; alloy 400 bodies have 1/4 in. gauge ports.

② Has 2 in. (50.8 mm) lagging extension body for insertion through pipe insulation.

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

Gauge Valves

Working Pressure	up to 6000 psig (413 bar)
Temperature Range	–65° to 1200°F (–53° to 648°C)
Size Range	1/2 to 3/4 in. NPT
Materials	316 SS
Catalog Reference	MS-01-52

Features

- Non-rotating ball and stem tip design provides consistent seal
- Lagging extension available for insulation clearance
- Replaceable seat and stem tip
- NACE MR0175 option available

Ordering Information

Gauge Valves

Stem Design	Inlet/Outlet (Male to Female NPT) in.	Seat	Ordering Number
Ball Tip	1/2	316 SS	SS-6PNBGM8-F8
	Lagging 1/2 to 1/2		SS-6PNBGM8L-F8
	3/4 to 1/2		SS-6PNBGM12-F8
	Lagging 3/4 to 1/2		SS-6PNBGM12L-F8
Plug	1/2 to 1/2	Acetal	SS-6PNDGM8-F8
	3/4 to 1/2		SS-6PNDGM12-F8
	1/2 to 1/2	PFA	SS-6PNTGM8-F8
	3/4 to 1/2		SS-6PNTGM12-F8
	1/2 to 1/2	PEEK	SS-6PNPGM8-F8
	3/4 to 1/2		SS-6PNPGM12-F8

⚠ **A packing adjustment may be required periodically to increase service life and to prevent leakage.**

⚠ **To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

References

Filters

Filters, FW, F, and TF Series, MS-01-92

Fittings

Gaugeable Tube Fittings and Adapter Fittings, MS-01-140

Hose and Flexible Tubing

Hose and Flexible Tubing, MS-01-180

Leak Detectors, Lubricants, and Sealants

Leak Detectors, Lubricants, and Sealants, MS-01-91

Measurement Devices

Temperature Measurement Devices, Bimetal Thermometers and Thermowells, MS-02-353

Pressure Gauges, Industrial and Process, PGI Series, MS-02-170

Modular Platform Components (MPC)

Modular Platform Components, MPC, Surface-Mount Components, Substrates, Manifolds, Mounting Components, and Assembly Hardware, MS-02-185

Pre-Engineered Subsystems

Field Station Module, FSM Application Guide, MS-02-359

Fluid Distribution Header, FDH Application Guide, MS-02-358

Calibration and Switching Module CSM, Application Guide, MS-02-360

Fast Loop Module, FLM Application Guide, MS-02-361

Sample Probe Module Application Guide, MS-02-425

Quick-Connects

Quick-Connects, QC, QF, QM, and QTM Series, MS-01-138

Regulators

Pressure Regulators, K Series, MS-02-230

Pressure Regulators, RHPS Series, MS-02-430

Process Regulators, MS-02-492

Sample Cylinders, Accessories, and Outage Tubes

Sample Cylinders, MS-01-177

Tubing Tools and Accessories

Tubing Tools and Accessories, MS-01-179

Welding Systems

Swagelok Welding System M200 Power Supply, MS-02-342

Glossary

Actuate
To open, close, or change the throttle position of a valve.

Actuator
The method of actuation; can be a valve handle or an electric- or pneumatic driven actuator.

Angle Valve
Has at least one 90° change in flow direction and less flow capacity than a straight-through flow path.

Ball
The spherical component that either blocks flow or, when turned by an actuator, allows fluid to flow through.

Flow Coefficient
C_v, or flow coefficient, of a device is a relative measure of its efficiency at allowing fluid flow. It describes the relationship between the pressure drop across an orifice, valve, or other assembly and the corresponding flow rate.

Full Port
The port or orifice size is equal to or larger than the ID of the line size.

Live Loaded Packing
Packing that is under constant pressure via a spring load mechanism to ensure better sealing.

Needle
The component that regulates flow on a needle valve; may also be called a stem; available in different shapes to allow different flow characteristics.

Orifice Size
The physical size of the opening of a valve. Usually expressed in inches. **Working Pressure**
The normal operating pressure of a fluid system.

Packing
The part of the valve that sits around the stem of the valve that creates a seal between the valve body and the stem.

Reduced Port
The port or orifice size is smaller than the ID of the line size.

Safety Factor
The ratio between normal working pressure and the absolute failure point at which a valve may fail or present significant leakage.

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. The complete catalog contents must be reviewed to ensure that the system designer and user make a safe product selection.

⚠ WARNING
Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty, MS-13-123. For a copy, visit swagelok.com or contact your authorized Swagelok sales and service center.

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