Trunnion Ball Valves

83 Series and H83 Series

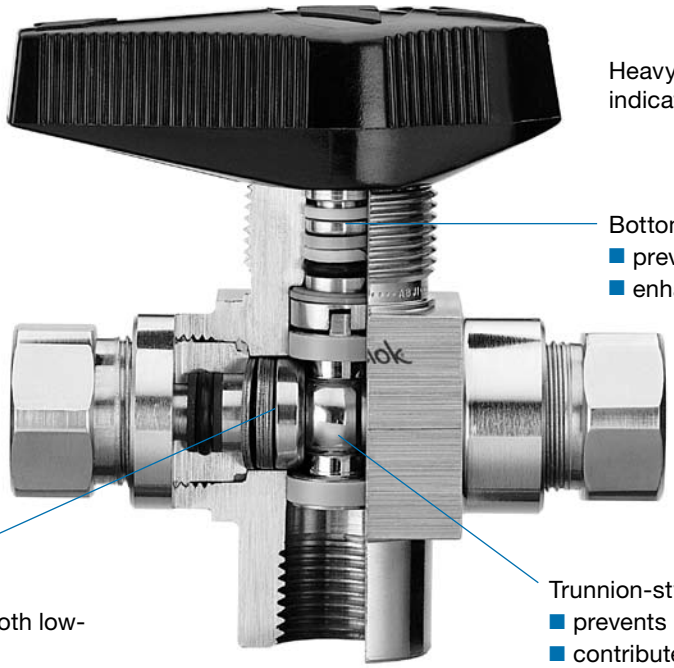
- Working pressures up to 10 000 psig (689 bar)
- 1/8 to 1/2 in. and 6 to 12 mm Swagelok® tube fitting or NPT end connections
- 316 stainless steel materials

Swagelok

Contents

Features

- Compact, maximum-flow design
- Low operating torque
- 2- or 3-way flow patterns
- Panel mounting
- Pneumatic and electric actuators available



Heavy-duty handle indicates flow direction.

Bottom-loaded stem:
- prevents stem blowout
- enhances system safety.

Spring-loaded seats:
- provide leak-tight integrity in both low- and high-pressure systems
- contribute to low operating torque
- reduce seat wear from pressure surges.

Trunnion-style ball:
- prevents ball blowout
- contributes to low operating torque.

Important Information About Ball Valves

⚠ **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.**

Technical Data

Seat Material	Temperature Rating °F (°C)	Pressure Rating at 100°F (37°C) psig (bar)		Flow Coefficient (C_v)
		Stainless Steel	Alloy 400	
83 Series				
PCTFE, reinforced nylon	0 to 250 (–17 to 121)	6000 (413)	5000 (344)	2-way valves—1.0 to 1.6 depending on end connection; 3-way valves—0.75
PEEK	0 to 450 (–17 to 232)	6000 (413)	5000 (344)	
PTFE		1500 (103)		
H83 Series				
PEEK	0 to 450 (–17 to 232)	6000 to 10 000 (413 to 689) depending on end connection	—	2-way valves—1.0 to 1.6 depending on end connection; 3-way valves—0.75

Pressure-Temperature Ratings

83 Series

Pressure-temperature ratings for 83 series valves are based on listed seat materials, fluorocarbon FKM O-rings, and reinforced PTFE backup rings.

Low-temperature L83 series ball valves are available. See page 9.

Material	316 SS			Alloy 400		
Seat Material	**PCTFE, Nylon**	**PTFE**	**PEEK**	**PCTFE, Nylon**	**PTFE**	**PEEK**
Temperature, °F (°C)	**Working Pressure,** psig (bar)					
0 (–17) to 100 (37)	6000 (413)	1500 (103)	6000 (413)	5000 (344)	1500 (103)	5000 (344)
150 (65)	3000 (206)	1125 (77.5)	5800 (399)	3000 (206)	1125 (77.5)	4690 (323)
200 (93)	2000 (137)	750 (51.6)	5000 (344)	2000 (137)	750 (51.6)	4390 (302)
250 (121)	1000 (68.9)	625 (43.0)	4100 (282)	1000 (68.9)	625 (43.0)	4100 (282)
300 (148)	—	500 (34.4)	3200 (220)	—	500 (34.4)	3200 (220)
350 (176)	—	375 (25.8)	2300 (158)	—	375 (25.8)	2300 (158)
400 (204)	—	250 (17.2)	1400 (96.4)	—	250 (17.2)	1400 (96.4)
450 (232)	—	125 (8.6)	500 (34.4)	—	125 (8.6)	500 (34.4)

H83 Series

Pressure-temperature ratings for H83 series valves are based on PEEK seats, fluorocarbon FKM O-rings, and reinforced PTFE backup rings.

Low-temperature LH83 series ball valves are available. See page 9.

Material	316 SS				
End Connections	**F2, F4, S4, S6MM**	**S10MM**	**S6, S8MM**	**S8**	**S12MM**
Temperature, °F (°C)	**Working Pressure,** psig (bar)				
0 (–17) to 100 (37)	10 000 (689)	8400 (578)	7500 (516)	6700 (461)	6600 (454)
150 (65)	7 500 (516)	7500 (516)	7500 (516)	6700 (461)	6600 (454)
200 (93)	5 000 (344)	5000 (344)	5000 (344)	5000 (344)	5000 (344)
250 (121)	4 100 (282)	4100 (282)	4100 (282)	4100 (282)	4100 (282)
300 (148)	3 200 (220)	3200 (220)	3200 (220)	3200 (220)	3200 (220)
350 (176)	2 300 (158)	2300 (158)	2300 (158)	2300 (158)	2300 (158)
400 (204)	1 400 (96.4)	1400 (96.4)	1400 (96.4)	1400 (96.4)	1400 (96.4)
450 (232)	500 (34.4)	500 (34.4)	500 (34.4)	500 (34.4)	500 (34.4)

Flow Data at 70°F (20°C)

83 Series 2-Way

0.187 in. (4.75 mm) orifice, 1.2 C_v

Pressure Drop to Atmosphere (Δ*p*) psi (bar)	Air Flow std ft³/min (std L/min)	Water Flow U.S. gal/min (L/min)
10 (0.68)	14 (390)	3.8 (14)
50 (3.4)	36 (1000)	8.5 (32)
100 (6.8)	64 (1800)	12 (45)

H83 Series 2-Way

0.187 in. (4.75 mm) orifice, 1.2 C_v

Pressure Drop to Atmosphere (Δ*p*) psi (bar)	Air Flow std ft³/min (std L/min)	Water Flow U.S. gal/min (L/min)
150 (10.3)	92 (2600)	15 (56)
600 (41.3)	340 (9600)	29 (100)
1000 (68.9)	570 (16 100)	38 (140)

83 Series 3-Way

0.187 in. (4.75 mm) orifice, 0.75 C_v

Pressure Drop to Atmosphere (Δ*p*) psi (bar)	Air Flow std ft³/min (std L/min)	Water Flow U.S. gal/min (L/min)
10 (0.68)	8.0 (220)	2.4 (9.0)
50 (3.4)	23 (650)	5.3 (20)
100 (6.8)	40 (1100)	7.5 (28)

H83 Series 3-Way

0.187 in. (4.75 mm) orifice, 0.75 C_v

Pressure Drop to Atmosphere (Δ*p*) psi (bar)	Air Flow std ft³/min (std L/min)	Water Flow U.S. gal/min (L/min)
150 (10.3)	57 (1600)	9.2 (34)
600 (41.3)	210 (5900)	18 (68)
1000 (68.9)	350 (9900)	24 (90)

Testing

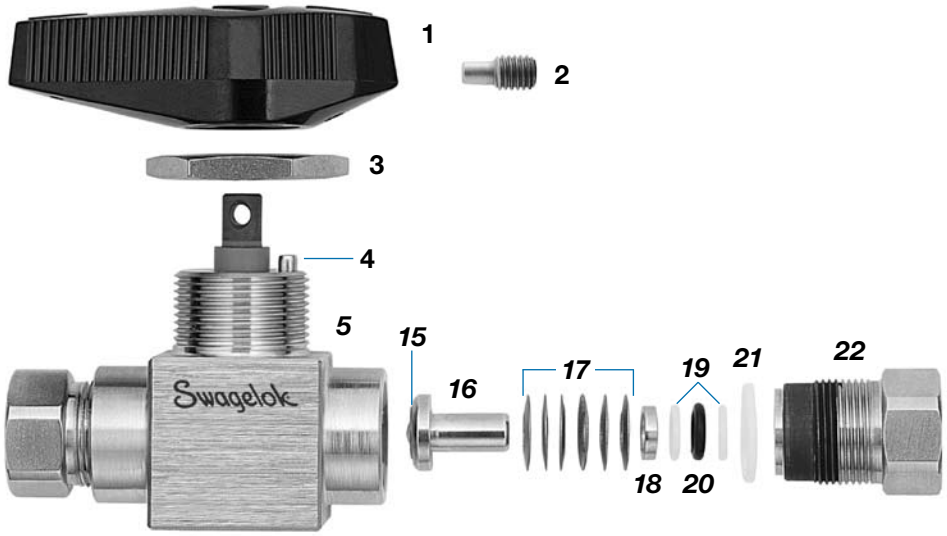
Every Swagelok trunnion ball valve is factory tested with nitrogen at 1000 psig (69 bar). Seats have a maximum allowable leak rate of 0.1 std cm³/min. Shell testing is performed to a requirement of no detectable leakage with a liquid leak detector.

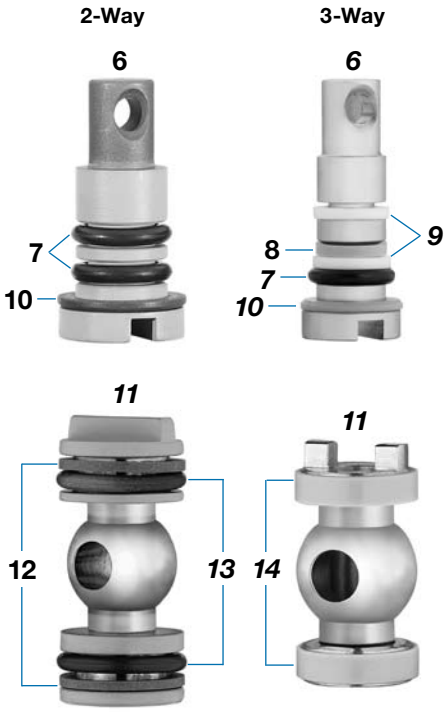
Cleaning and Packaging

All Swagelok trunnion ball valves are cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10),* MS-06-62. Cleaning and packaging 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 are available as an option for 83 series valves with PCTFE, PTFE, or reinforced nylon seats. See page 9.

Materials of Construction

83 Series





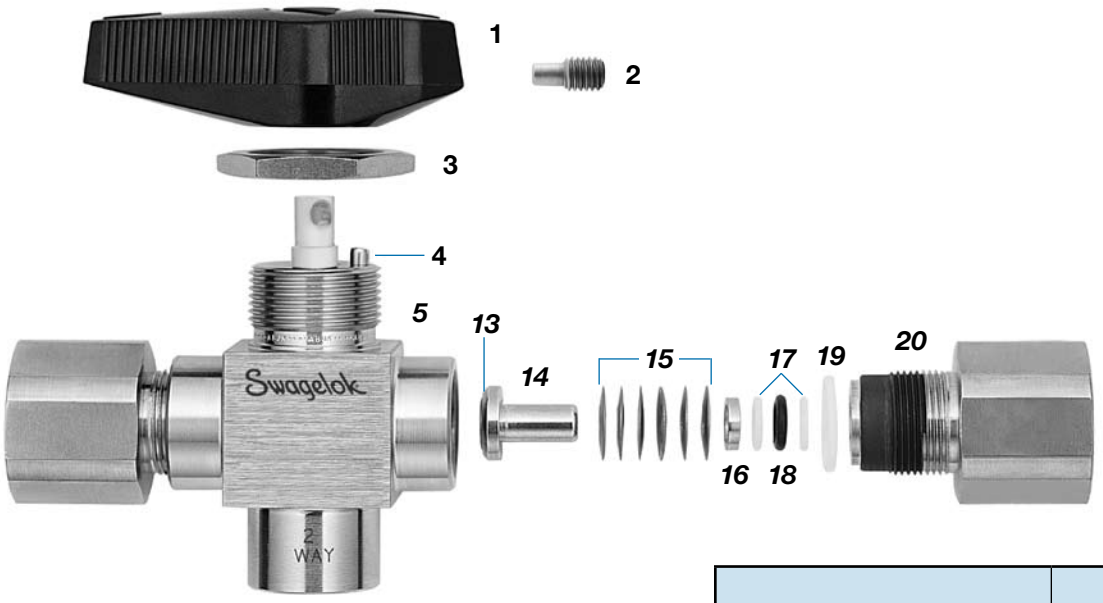
Component	Valve Body Material			
	Stainless Steel		Alloy 400	
	2-Way	3-Way	2-Way	3-Way
	Material Grade/ASTM Specification			
1 Handle	Phenolic with brass insert			
2 Set screw	S17400 SS			
3 Panel nut	316 SS/B783			
4 Stop pin (2-way—2; 3-way—1)	Stainless steel			
5 *Body*	*316 SS/A479*		*Alloy 400/B164*	
6 *Stem*	*316 SS/A276*		*Alloy 400/B164*	
7 *Stem O-rings (2-way—2; 3-way—1)*	*Fluorocarbon FKM*			
8 Primary stem backup ring	—	PEEK	—	PEEK
9 Secondary stem backup ring	—	PTFE/D1710	—	PTFE/D1710
10 *Stem bearing*	Reinforced PTFE	*PEEK*	Reinforced PTFE	*PEEK*
11 *Ball*①	*316 SS/A276*	*S21800/A276*	*Alloy 400/B164*	
12 Trunnion backup rings (2)	Reinforced PTFE	—	Reinforced PTFE	—
13 *Trunnion O-rings (2)*	*Fluorocarbon FKM*	—	*Fluorocarbon FKM*	—
14 *Trunnion bearings*	—	*PEEK*	—	*PEEK*
15 *Seats (2)*	*PCTFE/AMS 3650, PTFE/D1710, reinforced nylon, or PEEK*			
16 *Seat carriers (2)*	*316 SS/A276*		*Alloy 400/B164*	
17 *Seat springs (6 with PTFE; 12 with all others)*	*Alloy X-750/AMS 5542*			
18 *Seat carrier guides (2)*	*316 SS/A276*		*Alloy 400/B164*	
19 *Seat carrier backup rings (4)*	*Reinforced PTFE*			
20 *Seat carrier O-rings (2)*	*Fluorocarbon FKM*			
21 *End screw seals (2)*	*PTFE/D1710*			
22 *End screws (2)*	*316 SS/A479*		*Alloy 400/B164*	
Lubricants	*Fluorinated-based (all valves); tungsten disulfide additive (valves with PEEK seats)*			

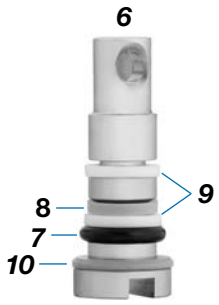
Wetted components listed in *italics*.

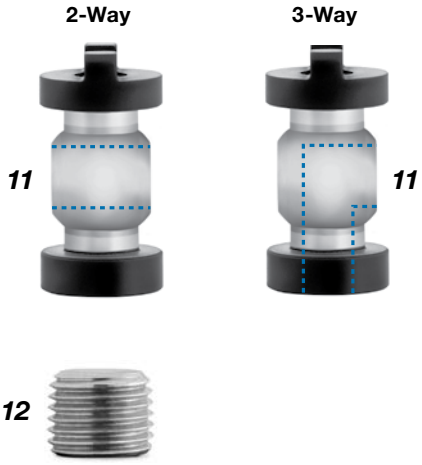
① Ball trunnions are PTFE coated in 83 series 2-way valve.

Materials of Construction

H83 Series







Component	2-Way	3-Way
	Material Grade/ ASTM Specification	
1 Handle	Phenolic with brass insert	
2 Set screw	S17400 SS	
3 Panel nut	316 SS/B783	
4 Stop pin (2-way—2; 3-way—1)	Stainless steel	
5 *Body*	*316 SS/A479*	
6 *Stem*	*316 SS/A276*	
7 *Stem O-ring*	*Fluorocarbon FKM*	
8 Primary stem backup ring	PEEK	
9 Secondary stem backup ring	PTFE/D1710	
10 *Stem bearing*	*PEEK*	
11 *Ball*①	*S21800/A276*	
12 *Plug (2-way only)*	*316 SS/A276*	—
13 *Seats (2)*	*PEEK*	
14 *Seat carriers (2)*	*316 SS/A276*	
15 *Seat springs (12)*	*Alloy X-750/AMS 5542*	
16 *Seat carrier guides (2)*	*316 SS/A276*	
17 *Seat carrier backup rings (4)*	*Reinforced PTFE*	
18 *Seat carrier O-rings (2)*	*Fluorocarbon FKM*	
19 *End screw seals (2)*	*PTFE/D1710*	
20 *End screws (2)*	*316 SS/A479*	
Lubricants	*Tungsten disulfide and fluorinated-based*	

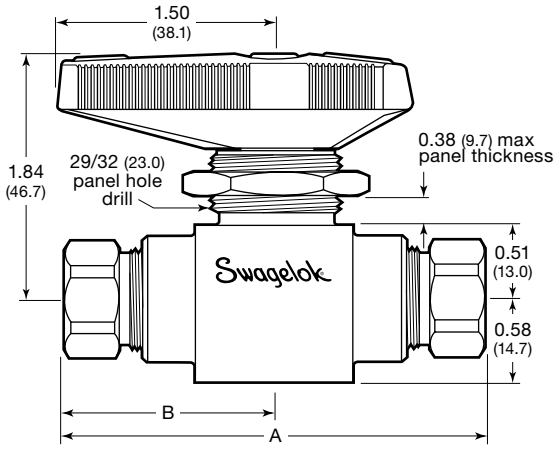
Wetted components listed in *italics*.

① Ball trunnions are Xylan® coated.

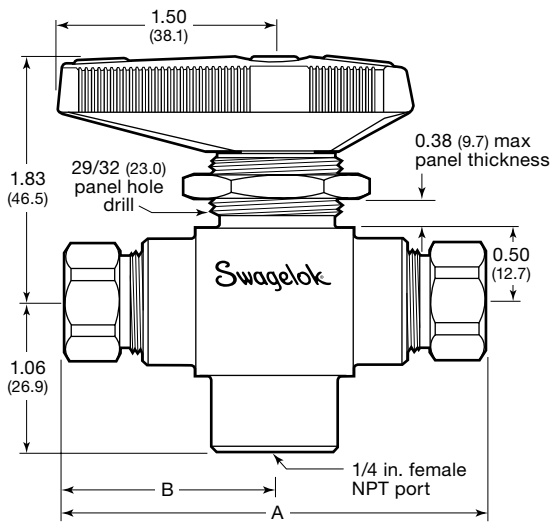
Ordering Information and Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change. Dimensions shown with Swagelok tube fitting nuts finger-tight.

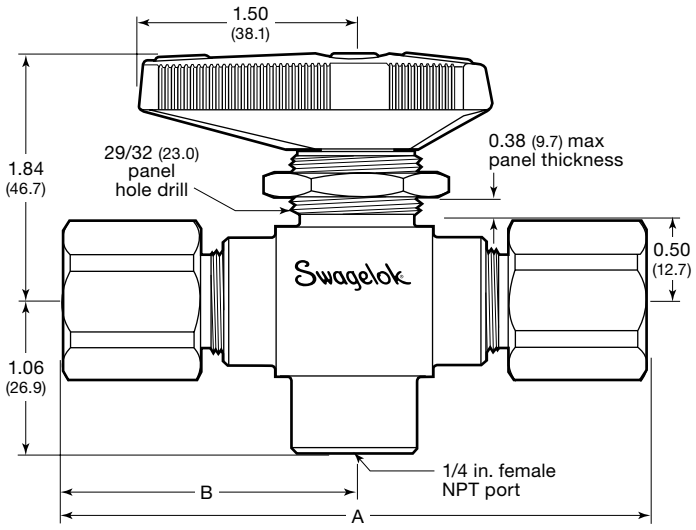
83 Series 2-Way



83 Series 3-Way



H83 Series



Ordering Information and Dimensions

83 Series

Select a valve ordering number from the table below.

Valve ordering numbers specify stainless steel material. To order valves of alloy 400 material, replace **SS** in the ordering number with **M.**

Example: **M**-83KF2

Valve ordering numbers specify a PCTFE seat. To order valves with other seat materials, replace **K** in the ordering number with a seat material designator.

Seat Material	Designator
PTFE	T
Reinforced nylon	N
PEEK	P

Example: SS-83**T**F2

H83 Series

Select a valve ordering number from the table below.

End Connections		Flow Coefficient (C_v)	83 Series Valve Ordering Number	H83 Series Valve Ordering Number	Dimensions, in. (mm)	
Type	Size				A	B
2-Way Valve, 0.187 in. (4.75 mm) Orifice						
Female NPT	1/8 in.	1.2	SS-83KF2	SS-H83PF2	2.94 (74.7)	1.47 (37.3)
	1/4 in.	1.0	SS-83KF4	—	2.94 (74.7)	1.47 (37.3)
			—	SS-H83PF4	3.93 (99.8)	1.97 (50.0)
	1/2 in.①	1.2	SS-83KF8	—	4.25 (108)	2.13 (54.1)
Fractional Swagelok tube fitting	1/4 in.	1.6	SS-83KS4	SS-H83PS4	4.14 (105)	2.07 (52.6)
	3/8 in.	1.4	SS-83KS6	SS-H83PS6	4.39 (112)	2.19 (55.6)
	1/2 in.①	1.0	SS-83KS8	SS-H83PS8	4.60 (117)	2.30 (58.4)
Metric Swagelok tube fitting	6 mm	1.6	SS-83KS6MM	SS-H83PS6MM	4.14 (105)	2.07 (52.6)
	8 mm	1.5	SS-83KS8MM	SS-H83PS8MM	4.15 (105)	2.07 (52.6)
	10 mm	1.3	SS-83KS10MM	SS-H83PS10MM	4.41 (112)	2.20 (55.9)
	12 mm①	1.0	SS-83KS12MM	SS-H83PS12MM	4.60 (117)	2.30 (58.4)
3-Way Valve, 0.187 in. (4.75 mm) Orifice						
Female NPT②	1/8 in.	0.75	SS-83XKF2	SS-H83XPF2	2.94 (74.7)	1.47 (37.3)
	1/4 in.		SS-83XKF4	—	2.94 (74.7)	1.47 (37.3)
			—	SS-H83XPF4	3.93 (99.8)	1.97 (50.0)
Fractional Swagelok tube fitting②	1/4 in.		SS-83XKS4	SS-H83XPS4	4.14 (105)	2.07 (52.6)
	3/8 in.		SS-83XKS6	SS-H83XPS6	4.39 (112)	2.19 (55.6)
	1/2 in.①		SS-83XKS8	SS-H83XPS8	4.60 (117)	2.30 (58.4)
Metric Swagelok tube fitting②	6 mm		SS-83XKS6MM	SS-H83XPS6MM	4.14 (105)	2.07 (52.6)
	8 mm		SS-83XKS8MM	SS-H83XPS8MM	4.15 (105)	2.07 (52.6)
	10 mm		SS-83XKS10MM	SS-H83XPS10MM	4.41 (112)	2.20 (55.9)
	12 mm①		SS-83XKS12MM	SS-H83XPS12MM	4.60 (117)	2.30 (58.4)

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.

Options and Accessories

83 and H83 Series Handles

Black phenolic handles are standard. Colored phenolic, oval, and 316 stainless steel bar handles are available. To order, add a handle designator to the valve ordering number.

Example: SS-83KF2-**RD**

Handle	Designator
Black phenolic	-BK
Blue phenolic	-BL
Green phenolic	-GR
Orange phenolic	-OG
Red phenolic	-RD
Yellow phenolic	-YW
Stainless steel bar	-SH
Oval	-K

Handle Kits

Handle kits contain a handle and set screw.

Standard black phenolic handle kit ordering number: **PH-5K-83-BK**

To order handles in other colors, replace **-BK** in the kit ordering number with a handle designator.

Example: PH-5K-83-**RD**

Oval handles are available factory assembled only.

Stainless steel bar handle kit ordering number: **SS-5K-83**

83 Series Vent Options

A downstream or upstream ball vent is available in 83 series 2-way valves. The vent port in the ball does not intersect the main flow passage, ensuring no leakage of system media from the vent port. When the valve is open, flow is straight through. The pressure rating with a ball vent is reduced to 500 psig (34.4 bar).

Downstream (DV) Vent

When a downstream-vented valve is closed, full shutoff occurs at the upstream seat. Downstream system media passes through the vent hole in the ball trunnion and vents to atmosphere through the bottom of the trunnion.

To order, insert **DV** into the valve ordering number.

Example: SS-83K**DV**F2

Upstream (UV) Vent

When an upstream-vented valve is closed, full shutoff occurs at the downstream seat. Upstream system media passes through the vent hole in the ball trunnion and vents to atmosphere through the bottom of the trunnion.

To order, insert **UV** into the valve ordering number.

Example: SS-83K**UV**F2

83 Series Seal Kits

Seal kits contain components of the same materials as new components. See **Materials of Construction,** page 4, or **Low-Temperature Service,** page 9.

For a complete ordering number, add a seat material designator to a basic seal kit ordering number.

Example: SS-9K-83**K**

Seat Material	Designator
PEEK	P
PCTFE	K
PTFE	T
Reinforced nylon	N

Valve Series	Basic Seal Kit Ordering Number	Kit Contents
83 2-way	SS-9K-83	Instructions, O-rings, stem bearing, ball, seat subassemblies (seats and seat carriers), seat springs, end screw seals, lubricant, and lubricant Material Safety Data Sheet (MSDS)
Low-temperature 83 2-way	SS-9K-L83	
83 3-way	SS-9K-83X	Instructions, stem, O-rings, backup rings, bearings, ball, seat subassemblies (seats and seat carriers), seat springs, end screw seals, lubricant, and lubricant MSDS
Low-temperature 83 3-way	SS-9K-L83X	

Seal kit ordering numbers specify stainless steel material. For alloy 400 material, replace **SS** with **M** for in the basic ordering number.

Example: **M**-9K-83K

H83 Series Seal Kits

Seal kits contain components of the same materials as new components. See **Materials of Construction,** page 5, or **Low-Temperature Service,** page 9.

Valve Series	Seal Kit Ordering Number
H83 2-way	SS-9K-H83P
Low-temperature H83 2-way	SS-9K-LH83P
H83 3-way	SS-9K-H83XP
Low-temperature H83 3-way	SS-9K-LH83XP

- instructions
- stem
- O-rings
- backup rings
- stem bearing
- ball
- seat subassemblies (seats and seat carriers)
- seat springs
- end screw seals
- lubricant
- lubricant MSDS.

Service Options

83 and H83 Series Low-Temperature Service

Trunnion ball valves for low-temperature service, with a temperature rating of –40 to 200°F (–40 to 93°C), are available. Low-temperature valves have low-temperature Buna C O-rings. All other materials and ratings are the same as those of standard valves.

To order a valve for low-temperature service, insert **L** into the valve ordering number.

Example: SS-**L**83KF2

Contact your authorized Swagelok sales and service representative for information about valves for service down to –65°F (–53°C).

L83 Series Pressure-Temperature Ratings

Material	**316 SS**		**Alloy 400**	
Seat Material	**PCTFE, Nylon, PEEK**	**PTFE**	**PCTFE, Nylon, PEEK**	**PTFE**
Temperature, °F (°C)	**Working Pressure,** psig (bar)			
–40 (–40) to 100 (37)	6000 (413)	1500 (103)	5000 (344)	1500 (103)
150 (65) 200 (93)	See **Pressure-Temperature Ratings**, page 3.			

LH83 Series Pressure-Temperature Ratings

Material	**316 SS**				
End Connections	**F2, F4, S4, S6MM**	**S10MM**	**S6, S8MM**	**S8**	**S12MM**
Temperature, °F (°C)	**Working Pressure,** psig (bar)				
–40 (–40) to 100 (37)	10 000 (689)	8400 (578)	7500 (516)	6700 (461)	6600 (454)
150 (65) 200 (93)	See **Pressure-Temperature Ratings**, page 3.				

83 Series Valves With ECE R110-Type Approval

–40 to 185°F (–40 to 85°C) Temperature Range

Stainless steel 83 series 2-way and 3-way valves with PEEK seats and Buna C O-rings are available with ECE R110-type approval for use in alternative fuel service.

- Temperature rating: –40 to 185°F (–40 to 85°C)
- Pressure rating within the range: 3770 psig (260 bar)

To order, add **-11354** to a PEEK-seated, low-temperature valve ordering number.

Examples: SS-L83PS8-**11354**
SS-L83XPS8-**11354**

–40 to 248°F (–40 to 120°C) Temperature Range

Stainless steel 83 series 2-way and 3-way valves with PEEK seats and low-temperature fluorocarbon FKM O-rings are available with ECE R110-type approval for use in alternative fuel service.

- Temperature rating: –40 to 248°F (–40 to 120°C)
- Pressure rating within the range: 3770 psig (260 bar)

To order, add **-21265** to a PEEK-seated, low-temperature valve ordering number.

Examples: SS-L83PS8-**21265**
SS-L83XPS8-**21265**

83 Series Special Cleaning and Packaging (SC-11)

To order optional cleaning and packaging 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 for 83 series valves with PCTFE, PTFE, or reinforced nylon seats, add **-SC11** to the valve ordering number.

Example: SS-83KF2-**SC11**

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.

Pneumatic Actuators

Swagelok rack and pinion pneumatic actuators are compact, lightweight, easily mountable, and can be operated with standard shop air.

For technical data, including pressure-temperature ratings and materials of construction, see the Swagelok *Rack and Pinion Pneumatic Actuators for Swagelok Ball Valves* catalog, MS-06-87.

⚠ **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.**

Pressure-Temperature Ratings

Actuator Service	Actuator Service Designator	Temperature Range °F (°C)	Maximum Actuator Pressure, psig (bar)	
			At 100°F (37°C)	At Maximum Temperature
Standard	—	–20 to 200 (–28 to 93)	200 (13.7)	165 (11.3)
High temperature	HT	0 to 400 (–17 to 204)		100 (6.8)
Low temperature	LT	–40 to 200 (–40 to 93)		165 (11.3)
Nonfluorocarbon	NF	–20 to 200 (–28 to 93)		165 (11.3)

83 Series Actuator Pressure at Maximum System Pressure

Based on valve performance using pressurized air or nitrogen.

Valve Series	Actuator Model	System Pressure psig (bar)	Actuation Modes			
			Double Acting		Spring Return	
			Single	Dual	Single	Dual
			Minimum Actuator Pressure, psig (bar)			
90° Actuation						
83 2-way	31	1500 (103)	30 (2.1)	50 (3.5)	70 (4.9)	80 (5.6)
		6000 (413)	35 (2.5)	60 (4.2)	75 (5.2)	—
	33	1500 (103)	15 (1.1)	20 (1.4)	65 (4.5)	70 (4.9)
		6000 (413)	20 (1.4)	25 (1.8)	75 (5.2)	75 (5.2)
180° Actuation						
83 3-way	51	1500 (103)	35 (2.5)	60 (4.2)	75 (5.2)	—
		6000 (413)	45 (3.2)	85 (5.8)	—	
	53	1500 (103)	15 (1.1)	25 (1.8)	70 (4.9)	75 (5.2)
		6000 (413)	20 (1.4)	35 (2.5)	75 (5.2)	—

90° actuation required for 2-way valves; 180° actuation required for 3-way valves.

H83 Series Actuator Pressure at Maximum System Pressure

Based on valve performance using pressurized air or nitrogen.

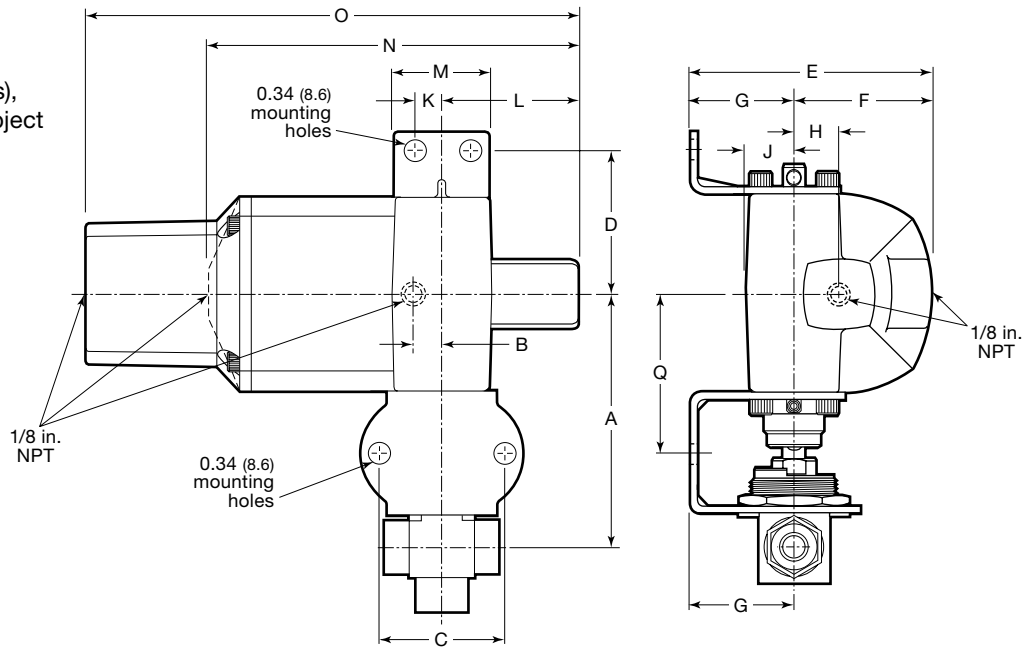
Valve Series	Actuator Model	System Pressure psig (bar)	Actuation Modes			
			Double Acting		Spring Return	
			Single	Dual	Single	Dual
			Minimum Actuator Pressure, psig (bar)			
90° Actuation						
H83 2-way	31	1 500 (103)	35 (2.5)	60 (4.2)	75 (5.2)	—
		6 000 (413)	45 (3.2)	85 (5.9)	—	
		10 000 (689)	55 (3.8)	100 (6.9)		
	33	1 500 (103)	15 (1.1)	25 (1.8)	70 (4.9)	75 (5.2)
		6 000 (413)	20 (1.4)	35 (2.5)	75 (5.2)	85 (5.9)
		10 000 (689)	25 (1.8)	45 (3.2)	80 (5.6)	90 (6.3)
180° Actuation						
H83 3-way	51	1 500 (103)	35 (2.5)	60 (4.2)	75 (5.2)	—
		6 000 (413)	45 (3.2)	85 (5.9)	—	
		10 000 (689)	55 (3.8)	100 (6.9)		
	53	1 500 (103)	15 (1.1)	25 (1.8)	70 (4.9)	75 (5.2)
		6 000 (413)	20 (1.4)	35 (2.5)	75 (5.2)	—
		10 000 (689)	25 (1.8)	45 (3.2)	80 (5.6)	

90° actuation required for 2-way valves; 180° actuation required for 3-way valves.

Pneumatic Actuators

Ordering Information and Dimensions

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



Actuator Model	Dimensions, in. (mm)														
	A	B	C	D	E	F	G	H	J	K	L	M	N (D)	O (S)	Q
31 (90°) 51 (180°)	3.17 (80.5)	0.34 (8.6)	2.00 (50.8)	1.75 (44.4)	3.04 (77.2)	1.73 (43.9)	1.31 (33.3)	0.60 (15.2)	0.52 (13.2)	0.31 (7.9)	1.46 (37.1)	1.25 (31.8)	4.09 (104)	4.91 (125)	1.89 (48.0)
33 (90°) 53 (180°)	4.08 (104)	0.48 (12.2)		2.31 (58.7)	4.07 (103)	2.32 (58.9)	1.75 (44.4)	0.75 (19.1)	0.81 (20.6)	0.44 (11.2)	2.16 (54.9)	1.56 (39.6)	5.89 (150)	7.86 (200)	2.56 (65.0)

(D) = double acting; **(S)** = spring return.

Factory-Assembled Actuators

1. Add an actuator model designator to the valve ordering number.

   Example: SS-83KF2-**31**
2. Add a *factory assembly* actuation mode designator.

   Example: SS-83KF2-31**D**
3. For dual-mounted assemblies (two valves mounted to one pneumatic actuator), add **DM** to the ordering number.

   Example: SS-83KF2-31D**DM**
4. Add an actuator service designator, if needed, from the table on page 10.

   Example: SS-83KF2-31DDM**HT**

Actuator Kits for Field Assembly

1. Identify the required actuator model designator.

   Example: **-31**
2. Replace the dash in the actuator designator with **MS-1**.

   Example: **MS-1**31
3. Add a *field assembly* actuation mode designator.

   Example: MS-131-**DA**
4. Add a dash and an actuator service designator, if needed, from the table on page 10.

   Example: MS-131-DA-**HT**

Valve Series	Actuator Model	Designator	Mounting Bracket Kit Ordering Number
83, H83 2-way	31 (90°)	-31	MS-MB-83-131
	33 (90°)	-33	MS-MB-83-133
83, H83 3-way	51 (180°)	-51	MS-MB-83-131
	53 (180°)	-53	MS-MB-83-133

Actuation Mode	Factory Assembly Designator	Field Assembly Designator
Double acting	D	-DA
Normally closed spring return	C	-SR
Normally open spring return	O	-SR
3-way valve spring return	S	-SR

Mounting Bracket Kits

Mounting bracket kits must be ordered separately. Kits contain:

- 316 stainless steel mounting bracket
- coupling
- roll pin
- set screw
- instructions.

Dual assemblies require two mounting bracket kits.

Pneumatic Actuators

Options for Pneumatic Actuators

For Field Assembly or Factory Assembly

- **Solenoid Valves**

  attach to the actuator to create an electropneumatically actuated ball valve assembly. For more information, see the Swagelok *Solenoid Valves for Electropneumatically Actuated Ball Valves* catalog, MS-02-41.

- **Position Indicators**

  provide visual status of a valve. For more information, contact your authorized Swagelok representative.

- **Limit Switches**

  indicate actuator position by means of an electrical signal. They meet a variety of NEMA ratings such as NEMA 4 (weatherproof) and NEMA 7 (explosion proof). For more information, see the Swagelok *Limit Switches* catalog, MS-06-39.

ISO 5211-Compliant Pneumatic Actuators

ISO 5211-compliant pneumatic actuators are available. See the *ISO 5211-Compliant Actuators for Swagelok Ball Valves* catalog, MS-02-337.

Mounting bracket kits for ISO 5211-compliant actuators are available. See the *Actuated Ball Valve Selection Guide—ISO 5211-Compliant Actuator Mounting Bracket Kits,* MS-02-136.

Electric Actuators

Electric actuators are available. See the Swagelok *Electric Actuators, 141 and 142 Series* catalog, MS-01-35.

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.

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

Warranty Information

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

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