

Pneumatic Actuators



Swagelok rack and pinion pneumatic actuators are compact, lightweight, easily mountable, and can be operated with standard shop air. They are available in spring-return and double-acting modes. On-off (2-way) valves require 90° actuation; switching (3-way) valves require 180° actuation.

For technical data, including pressure-temperature ratings and materials of construction, see the *Swagelok Ball Valve Actuation Options* catalog, MS-02-343.

⚠ 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	Actuator Model Designator	System Pressure psig (bar)	Actuation Modes			
				Double Acting		Spring Return	
				Single	Dual	Single	Dual
83 2-way	31 (90°)	-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 (90°)	-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)
83 3-way	51 (180°)	-51	1500 (103)	35 (2.5)	60 (4.2)	75 (5.2)	—
			6000 (413)	45 (3.2)	85 (5.8)	—	—
	53 (180°)	-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)	—

H83 Series Actuator Pressure at Maximum System Pressure

Based on valve performance using pressurized air or nitrogen.

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

Pneumatic Actuators

Ordering Information

Factory-Assembled Valves with Actuators

Typical Ordering Number

A B C D
SS - 83KF2 -31 D HT

A Valve Ordering Number

B Actuator Model

Based on valve series, flow pattern, and actuation mode, select an actuator designator. See **Actuator Pressure at Maximum System Pressure** tables, page 10.

- 31 = 90° actuation
- 33 = 90° actuation
- 51 = 180° actuation
- 53 = 180° actuation

C Actuation Mode

- C** = Spring return, normally closed
- D** = Double acting
- O** = Spring return, normally open
- S** = Spring return, 3-way valves

D Actuator Service

- HT** = High temperature
- LT** = Low temperature
- NF** = Nonfluorocarbon
- None** = Standard

*For dual-mounted assemblies (two valves mounted to one actuator), add **DM** to the ordering number.*

Example: SS-83KF2-31DDM

Kits for Field Assembly

Order one actuator kit and one mounting bracket kit for each valve.

Actuator Kit Typical Ordering Number

A B C
MS-1 31 - DA -HT

A Actuator Model

Based on valve series, flow pattern, and actuation mode, select an actuator designator. See **Actuator Pressure at Maximum System Pressure** tables, page 10.

- 31** = 90° actuation
- 33** = 90° actuation
- 51** = 180° actuation
- 53** = 180° actuation

B Actuation Mode

- DA** = Double acting
- SR** = Spring return

C Actuator Service

- HT** = High temperature
- LT** = Low temperature
- NF** = Nonfluorocarbon
- None** = Standard

Mounting Bracket Kits

Mounting bracket kits contain:

- 316 stainless steel mounting bracket
- carbon steel coupling
- stainless steel stop pin (90° actuation, 2 roll pins; 180° actuation, 1 roll pin)
- S17400 set screw
- instructions.

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