J814 SERIES SERVOVALVES

Highly-Responsive Nozzle Flapper Type
Compact Pneumatic Servo Valves.

Rev. C, March 2026

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J814 Series Pneumatic Servo Valves are highly responsive and accurate 3- and 4-way pneumatic servo valves. With excellent reproducibility between command signal and control pressure, these valves are suitable for pressure or force control, vibration control, and position control in pneumatic systems. The 3-way valves can also be used when a vacuum is applied.

The 3-way valves are single stage and available in both standard and high flow types. The standard type has rated flow of 1 ~ 50 NL/min with valve pressure drop of 0.5 MPa, while the high flow type has rated flow up to 200 NL/min. The valve is driven by a torque motor which has a pair of nozzles and a flapper with air gaps. The design is simple and durable for long term reliability.

The 4-way valves have an orifice in the upper stream of each nozzle, providing two control ports. These valves are also single-stage, with a rated flow of 1 ~14 NL/min, with a valve pressure drop of 0.5 MPa.

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The left image is the high flow type

Note: The information and contents provided in this document may change without notice. Please contact Moog for the most up-to-date information.

Operating principle

- Input current flows through the coils of a torque motor, providing magnetic power and polarity to the armature.
- Due to the magnetic relationship between the upper and lower poles, the armature inclines depending on the size of the input current and the polarity (torque generation).
- The flapper is located between the left and right nozzles and is joined with the armature. Therefore, a change in the inclination of the armature changes the flapper position, changing the aperture of the left and right nozzles.
- In 3-way valves, the control pressure changes from the supply pressure to the air pressure according to the aperture of the left and right nozzles. Therefore, these valves can output control pressure according to the input current.
- In 4-way valves, two control ports provide output that is roughly proportional to the input current.

Characteristics

- Single-stage type nozzle flapper valves with torque motors
- High resolution and low hysteresis
- Compact and light
- Low power consumption
- High responsiveness
- Sturdy long-life design free of sliding surfaces

Features and Benefits

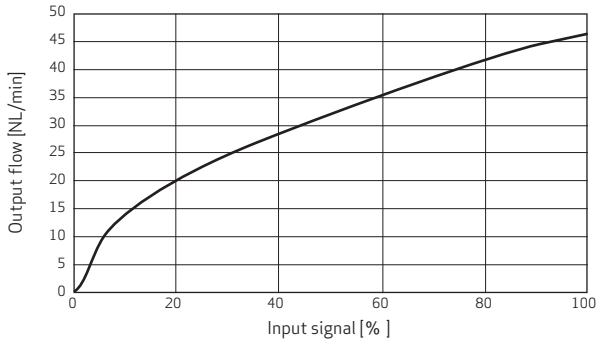
Features	Benefits
Single-stage nozzle flapper design with torque motor	Simple, durable construction for long-term reliability and stable performance
Available in 3-way and 4-way configurations	Flexible integration for pressure, flow, and position control applications
Optional high-flow type (up to 200 NL/min for 3-way type)	Supports demanding pneumatic applications that require higher flow capacity
High resolution and low hysteresis (≤ 3%)	Precise, repeatable control for accurate pressure and force regulation
Excellent command-to-pressure reproducibility	Consistent output performance and improved process-control stability
Compact and lightweight design (-400 g)	Easy installation in space-constrained systems
Low power consumption (0–100 mA rated current)	Energy-efficient operation with reduced heat generation
High responsiveness	Ideal for dynamic applications such as vibration control and active damping
Sturdy design free of sliding surfaces	Reduced wear, extended service life, and lower maintenance needs
Wide pressure capability (0–1,000 kPa controlled pressure range)	Suitable for a broad range of pneumatic control applications
Vacuum-compatible (3-way version)	Expanded functionality for vacuum and specialty pneumatic systems
Supply/return proof pressureup to 1,500 kPa	Reliable operation in higher-pressure environments
Operating temperature range –10°C to 60°C	Stable performance across typical industrial environments

General Technical Data (standard type)

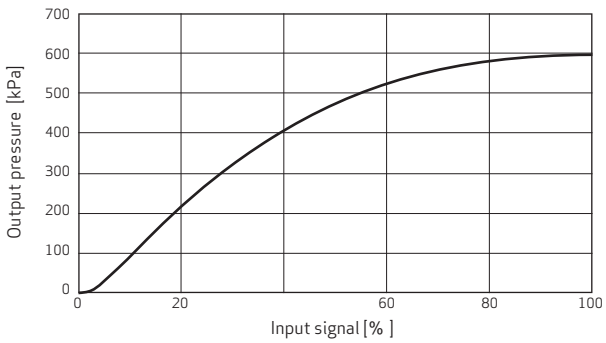
Item	J814 (3-way type)	J814 (4-way type)
Rated flow @valve pressure drop 500 kPa (71 PSI)	1 ~ 50 NL/min (0.04-1.8 SCFM)	1 ~ 14 NL/min (0.04-0.5 SCFM)
Rated pressure	1,000 kPa (145 PSI)	
Range of controlled pressure	0 ~ 1,000 kPa (0 ~ 145 PSI)	
Supply-side proof pressure	1,500 kPa (214 PSI)	
Return-side prood pressure	1,500 kPa (214 PSI)	
Rated current	0 ~ 100 mA	± 100 mA
Hysteresis	≦3.0 %	
Operating temperature range	-10 - 60° C (14 -140° F)	
Fluid types	Compressed air Vacuum air	
Mass	Approximately 400 g	

High flow valves with a rated flow of up to 200 NL/min are available.

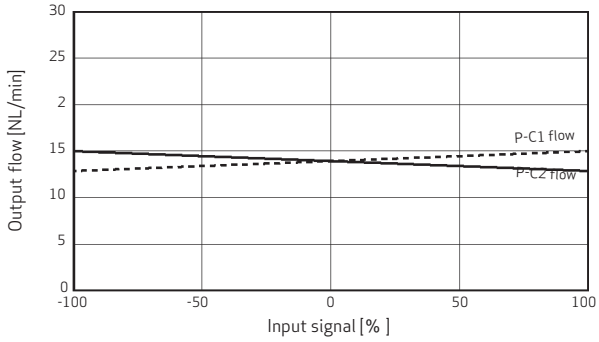
Servovalve flow characteristics (3-way valves)



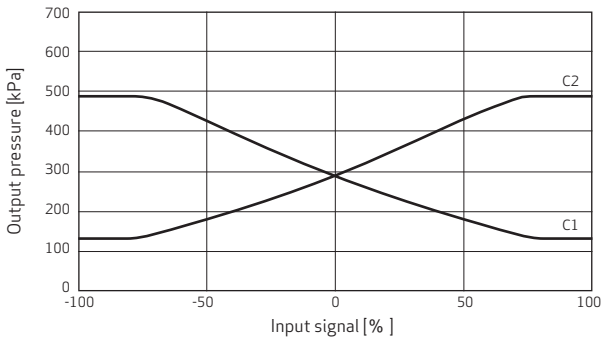
Servovalve pressure characteristics (3-way valves)



Servovalve flow characteristics (4-way valves)

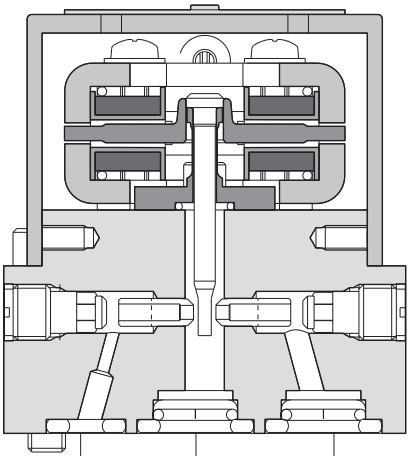


Servovalve pressure characteristics (4-way valves)



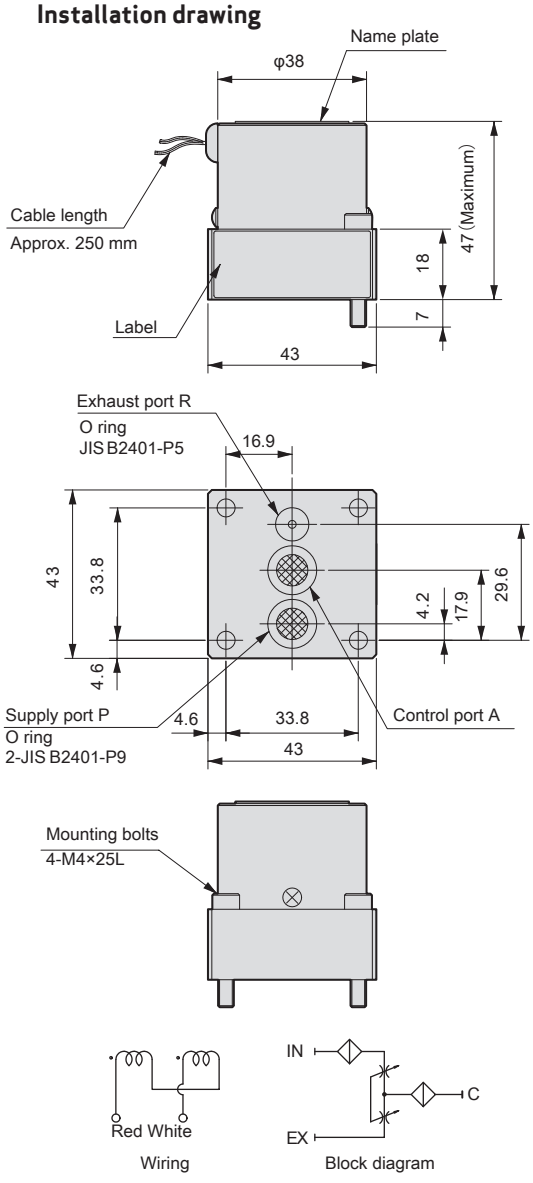
3-way valves

Cross section (nozzle flapper valve)



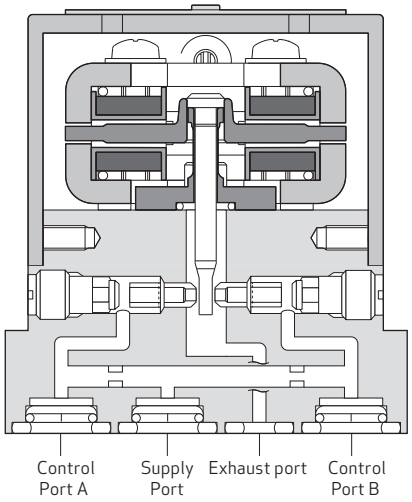
*Parentheses show conditions for vacuum use

Installation drawing

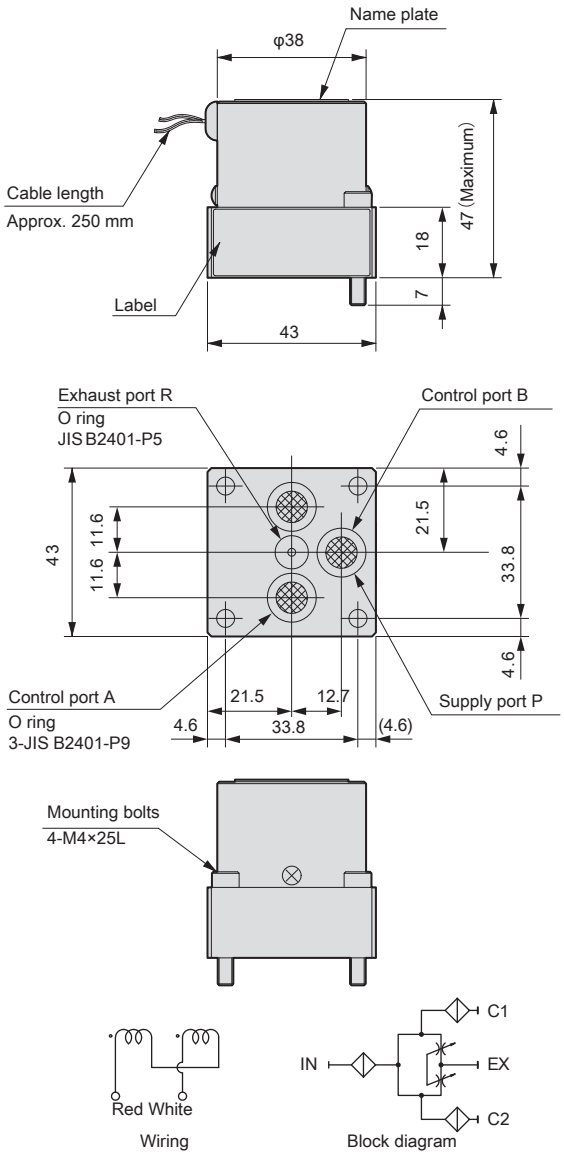


4-way valves

Cross section (nozzle flapper valve)

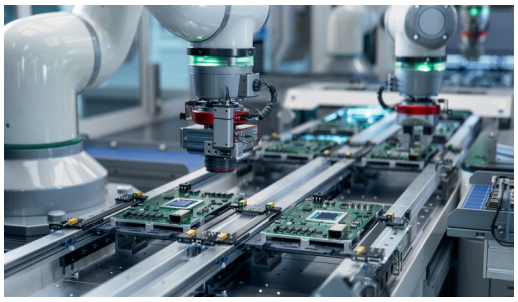


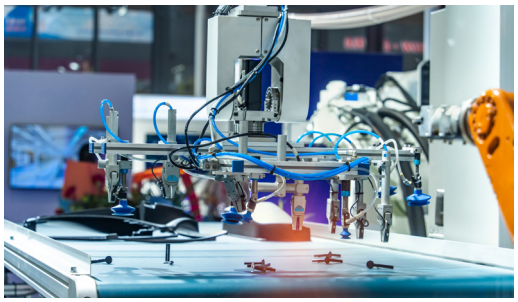
Installation drawing



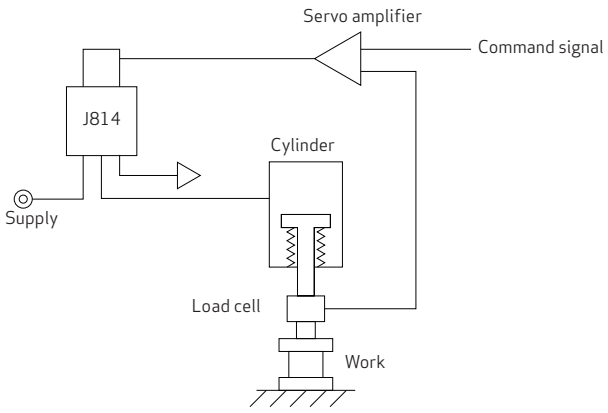
Typical applications

- Robotics
- Active vibration isolators
- Load testing machines
- Internal pressure control equipment
- Semiconductor manufacturing equipment
- Animatronics
- Pressing force control equipment

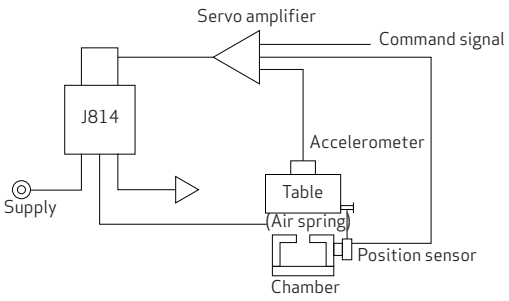




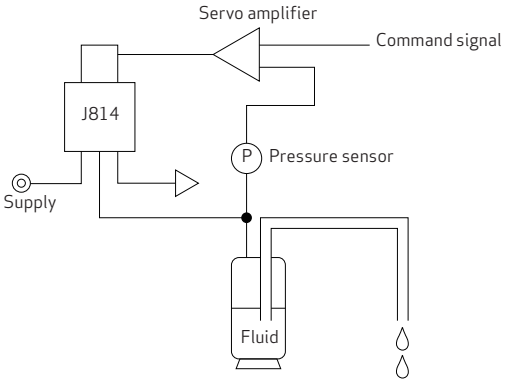
Load testing equipment



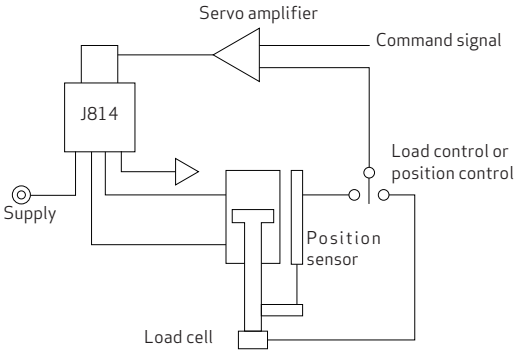
Active damping isolators



Chamber internal pressure control



Position or load control equipment



Model Number (assigned at the factory)

J814 [ ] [ ][ ][ ][ ] [ ]

- Series specification

Model ascension number (factory assigned)

Model revision (factory assigned)

Type Designation

Position:	1	2	3	4	5	6	7	8	9	10
Code:	S	__	_	_	D	M	0	V	_	Z

Position		Description		Type		Code
1	Model	N-F 1st stage				S
				3-Way	4-Way	
2	Rated Flow @500kPa (71PSI)	At Air	9 NL/min (0.32 SCFM)	-	●	01
			18 NL/min (0.64 SCFM)	-	●	02
			15 NL/min (0.53 SCFM)	●	-	03
			38 NL/min (1.35 SCFM)	●	-	04
			50 NL/min (1.77 SCFM)	●	-	05
			100 NL/min (3.6 SCFM)	●	-	10
			200 NL/min (7.1 SCFM)	●	-	20
3	Max Operating Pressure	1MPa (142 PSI)		●	●	R
		-0.1MPa (-14.2 PSI)		●	-	S
4	Main Spool Type	3-Way or 4-Way	4-Way	-	●	A
			3-Way	●	-	B
5	Pilotvalve	Nozzle flapper w/o MFB		●	●	D
6	Spool Position	P-A close (also available normal open)		●	●	M
7	Pilot Connect	Internal		●	●	0
8	Seal	Viton		●	●	V
9	Connector	2 or 4 lead pigtail	2 Lead	●	●	6
			4 Lead	●	●	7
10	Signal	200 mA		●	●	Z

Preferred Models

3-Way	Type code	Rated flow		Rated current mA
		NL/min	SCFM	
J814-0101	S02RBDM0V6Z	15	0.53	200
J814-0102	S04RBDM0V6Z	38	1.34	200
J814-0103	S05RBDM0V6Z	50	1.77	200
J814-0201	S10RBDM0V6Z	100	3.6	200
J814-0202	S20RBDM0V6Z	200	7.1	200

4-Way	Type code	Rated flow		Rated current mA
		NL/min	SCFM	
J814-0401	S01RADM0V6Z	9	0.32	200
J814-0402	S02RADM0V6Z	18	0.64	200

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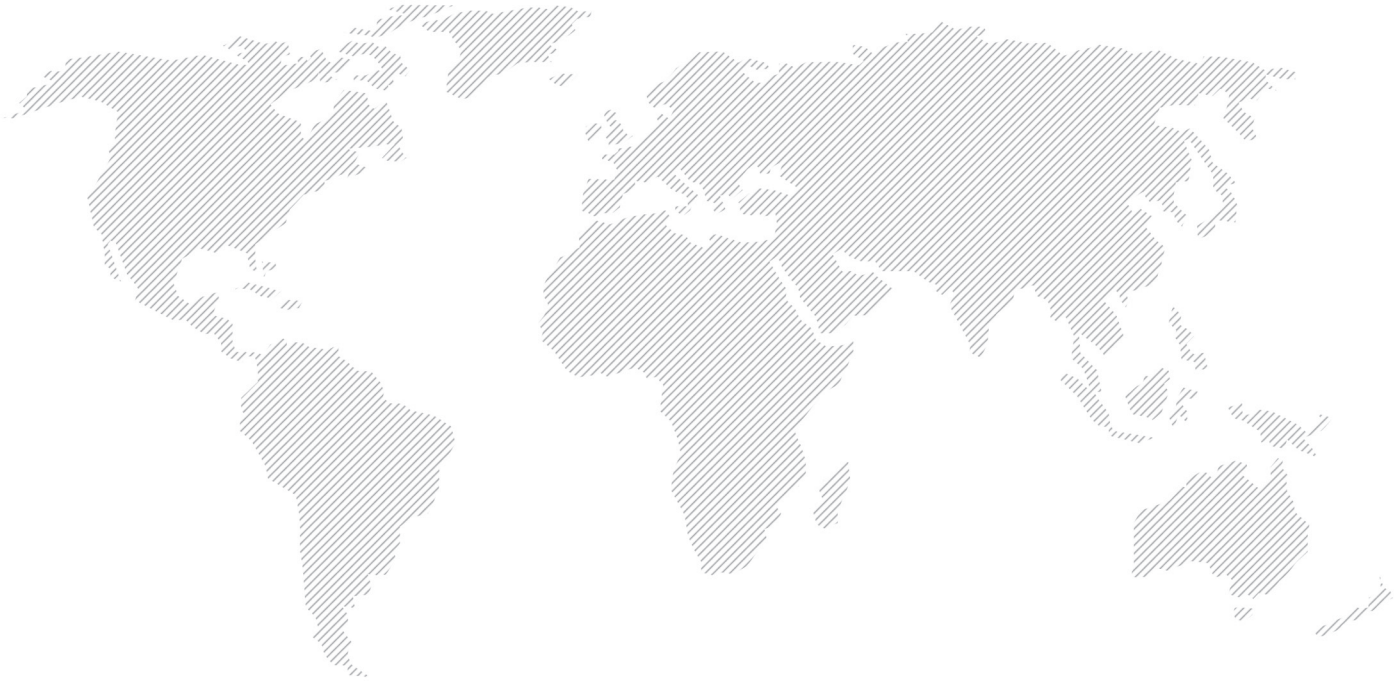

For more information,
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