

A broad standard lineup ranging from air filters to actuators that can be used safely and securely in food manufacturing processes





This logo represents our commitment to support food manufacturing processes with safe CKD products.

Total support for food manufacturing with total engineering capacity in packaging machines as well as pneumatic, fluid control, and electric-driven products

FP1 Series

Food-grade (NSF H1) lubricants are used for flow paths and sliding parts.

* Materials and dimensions are the same as the standard products.



FP2 Series

In addition to FP1, the flow path uses compliant materials (resin, rubber) compliant with the Food Sanitation Act.

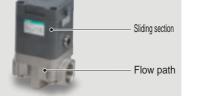
* Materials (excluding the flow path) and dimensions are the same as the standard products.



for foods, food additives, etc. (The Ministry of Health and Welfare Notification No. 34, 370)"



Diaphragm cylinder valve



FP3 Series

In addition to FP2, the component takes account lubrication, materials, shape, etc., in food manufacturing processes.



Reliable anti-bacterial and bacteria removing effects A modularized triple block

















Odor removal filter added

Uses fiber activated carbon. With a large activated carbon adsorption area, it realizes high suction performance and long life.



Push ring employed in SUS

Risk of contamination is reduced. and it can be installed safely near the point of use.



Maintenance

Elements are replaceable Elements are easy to replace.

Maintenance label equipped as standard-Included with product. Replacement period will be visible.



^{*} Antibacterial Activity Value and bacteria trapping performance are actual values from CKD's prescribed conditions

Anti-bacterial

Proprietary anti-bacterial filter



Non-woven fabric filter element that uses silver-based anti-bacterial agent

A silver-based anti-bacterial agent is used in the non-woven fabric element

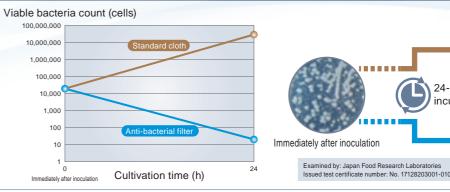
The silver ion present in the antibacterial filter adsorbs into the cells of bacteria, the bacteria's enzyme actions are obstructed, and they die out.





Bacteria die out

Anti-bacterial performance



JIS L 1902: Verification data from test done based on 2015

Proprietary bacteria removing filter

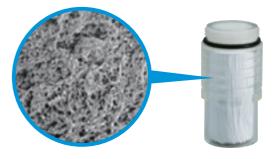


After cultivation

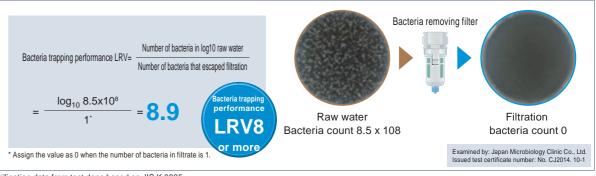
Removal rate 99.99999% hollow fiber membrane

Hollow fiber membrane

The straw-like fiber wall of the bacteria removing filter has numerous, special slit-like ultrafine pores. When compressed air passes through these holes, they capture bacteria.



Bacteria removing performance



Verification data from test done based on JIS K 3835

Nitrogen gas extraction unit NS Series Nitrogen Separators NS Series

Nitrogen gas can be extracted easily from compressed air.



Compatible with FP Series for secure food manufacturing processes

Safe and secure for food manufacturing processes.







This logo represents our commitment to support food manufacturing processes with safe CKD products.

A new recommendation for nitrogen supply

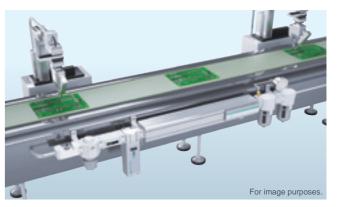
Flexibility in design



New horizontal mounting available

- > Installation in dead spaces.
- > Built-in installation into equipment.



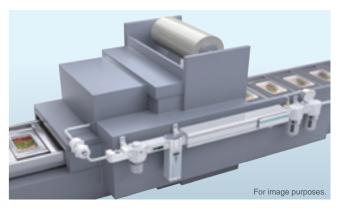








- > Nitrogen is now available from 90% concentration.
- > Nitrogen supply to low nitrogen concentration environments for explosion-proofing, etc.



* 99% Nitrogen concentration



Degrees of freedom in selection <



> Select the ideal model from the 17-flow rate and 25-lineup.

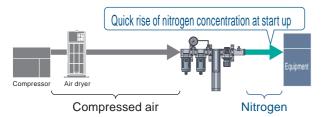
Inlet air pressure 0.7 MPa Inlet air temperature 25°C L/min 200.7 225.6 267.6 282.0 NSU: System 107.0 133.8 169.2 100

Install anywhere

Reduces processes, piping, and space

- Nitrogen-enriched gas can be obtained simply by supplying compressed air.
- **>** Design and piping are done easily by providing system Components.
- Its small size and light weight allows it to be installed near the device. No need for long piping work dedicated to nitrogen.

With NS Series

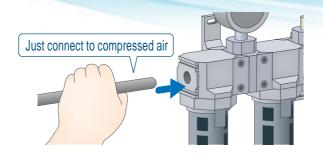


Freely select

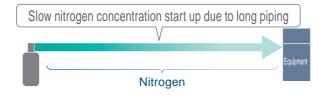
- **>** The ideal system can be selected according to the required flow rate and concentration.
- **)** Modular connection enables easy system changes such as expansion of stations after installation.

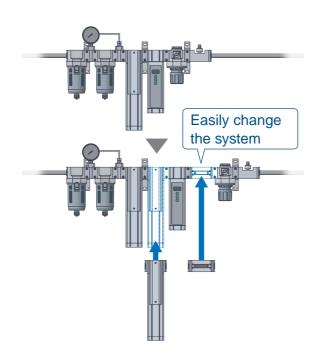
No power supply needed

- Usable even for explosion-proof atmospheres, different voltage regions, etc.
- > No malfunctions due to electrical noise.
- > Quiet, with no heat generation as there is no drive system.
 *Power supply will be required when oxygen monitor and flow rate sensor (option) are selected.

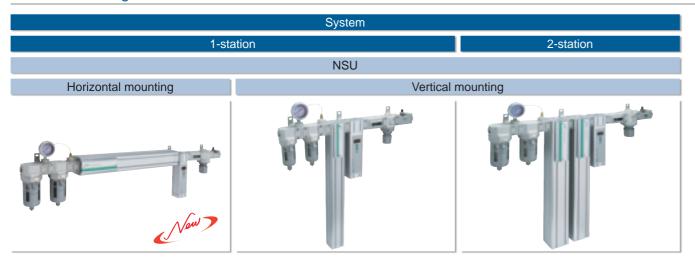


Conventional methods





NS Series configuration



Low cost and reduced processes

Running cost reduction

- Running cost is only the cost of electricity for the air compressor.
- Tank replenishments and other ongoing costs are not incurred.
 *Power supply will be required when oxygen monitor and flow rate sensor (option) are selected.

Nitrogen gas cylinder and gas unit price comparison Reduces costs by 90% or more NS Series Nitrogen gas cylinder 0 50 100

* Comparison assuming that the nitrogen gas concentration is 99% and the gas unit price is 100.

Reduced administrative processes

- > Nitrogen volume control is no longer required.
- > Oxygen monitor and flow rate sensor can be installed inline, enabling continuous control.

Control of oxygen concentration (nitrogen conc.) Nitrogen flow rate management





Management of supplied compressed air quality



*Modular connection enables easy Component connection. Please ask our Sales Representative for details.

Replacement not required

Troublesome tank management of remaining gases or replacement work is not required.



Easy maintenance

Sustainable reliability

- > Since there are no movable parts, stable performance can be maintained.
- > Parts replacement is possible without disassembling the piping.

Not subject to High Pressure Gas Safety Act

> There is no need for notifications or assignment of qualified personnel.



	Unit	
Single	cylinder	Double acting
	NS	
Horizontal mounting	Vertica	al mounting
Naw?		

Qty.: 1 unit

1			Flow rate(L/min(ANR)) and nitrogen conc.(%)	Flow rate(L/min(ANR)) and nitrogen concentration(%)					
Model No.	Quar	Appearance	10	20 40	60 80	120 160	200 260 320	Listed Page	
NSU-3S	1		99.9 99.5 99 98 97 96 95 94 93	92 91 90					
NSU-3L	1		99.9 99.5 99 98	97 96 95 94	93 92 91 90			205	
NSU-4S	1		99.9 99.5	99 98 97	96 95 94 9	3 92 91 90		295	
NSU-4L	1		99.9	99.5	99 98	97 96 95	94 93 92 91 90		

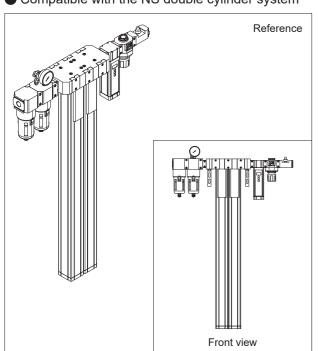
Qty.: 2 units

ntiity			Flow rate(L/min(ANR)) and nitrogen conc.(%)	Flow rate(L/min(ANR)) and nitrogen concentration(%)				Listed	
Model No.	Quan	Appearance	50 I	100 I	150 I	300 I	450 I	600	Page
NSU-4F	2		99.9 99.5 99 98	97 96 95	94 93 92 91	90			
NSU-4G	2		99.9 99.5 99	98	97 96 95 94	93 92	91 90		295
NSU-4H	2		99.9 99.5	99 98	97 96	95 94 93	92 91 90		

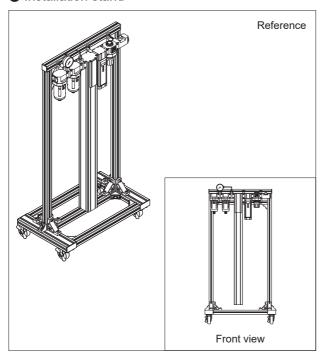
^{*} The above shows the outlet nitrogen gas flow rate when the inlet air pressure is 0.7 MPa and the inlet air temperature is 25 °C.

System example

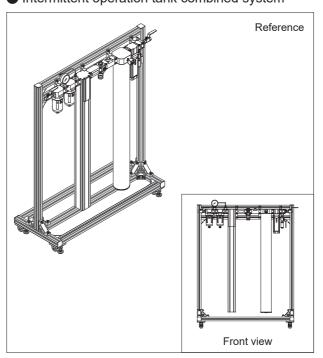
Compatible with the NS double cylinder system



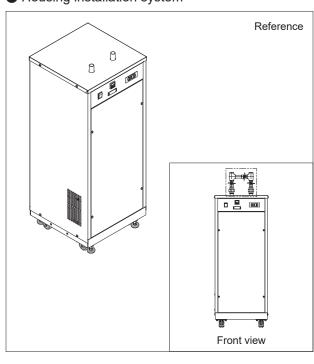
Installation stand



Intermittent operation tank combined system



Housing installation system



^{*}Contact CKD for details.

Supplement

The indication of the nitrogen concentration of nitrogen gas obtained from the nitrogen gas purification unit accurately represents the total concentration of components other than oxygen (O_2). In addition to nitrogen and oxygen, the raw air contains argon, carbon dioxide and water vapor. Therefore, the product's nitrogen gas contains approximately 1% argon, which has as much difficulty permeating the membrane as nitrogen, whereas the easy permeating carbon dioxide lowers to a concentration of 10 to 50ppm, and water vapor reduces to -40°C at atmospheric dew point conversion.

Single cylinder

		Flow rate(L/min(ANR)) and nitrogen concentration(%)	Flow rate(L/min(ANR)) a	and nitrogen concentration(%	%)	Listed
Model No.	Appearance	10	20	40 60	80 120 160	200 260 320	
NS-3S1		99.9 99.5 99 98 97 96 95 94	93 92 91 90				
NS-3L1		99.9 99.5 99	98 97	96 95 94 93 92 91	90		323
NS-4S1		99.9 99.5	99	98 97 96 95 9	94 93 92 91 90		323
NS-4L1	0	99.9		99.5 99	98 97 96 95	94 93 92 91 90	

■ Double cylinder

	tity	Flow rate(L/min(ANR)) and nitrogen concentration(%))	Flow rate(L/min(ANR)) and nitrogen concentration(%)									Listed			
Model No.	Model No. Appearance		5	0 10	00	150	30	00	450	600	750	900	1050	1300	2000	2700	Page
NS-4S2	2		99.9 99.5 99	98 97	96 95	94 93 92 91	90										
NS-4S3	3		99.9 99.	5 99 9	97	7 96 95 94	93 92	91 90									
NS-4L2	2		99.9	99.5	99	98 97	96 9	5 94 93	92 91	90							
NS-4L3	3		99.9		99.5	99	98 9	7 96	95	94 93	92 91	90					
NS-4L4	4			99.9		99.5	99 98	97	96	95	94 9	92	91	90			323
NS-4S6	6		99.9	99.5		99 98	97	96 95	94 93	92 9	90						323
NS-4S8	8		99.9		99.5	99	98	97 96	95	94 (92	91	90				
NS-4SA	10		g	9.9		99.5	99	98	97 96	95	94	93	92	91 90			
NS-4L6	6			99.9			99.5	99	98	97	96	95	94	93 92 9	91 90		
NS-4L8	8			99.9				99.5	99	98		97	96	95 94 9	93 92 91	90	

^{*} The above shows the outlet nitrogen gas flow rate when the inlet air pressure is 0.7 MPa and the inlet air temperature is 25 °C.

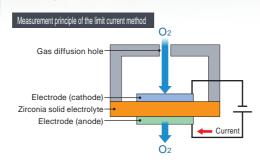
Oxygen Sensor PNA Series Inline Oxygen Monitor PNA Series

Oxygen concentration under pressurization can be known.



Limit current method

The PNA Series uses the limit current method. When voltage is applied to the zirconia element, an ion current flows with oxygen ions as carriers. When the oxygen concentration changes, the current characteristics change proportionally, enabling detection of the oxygen concentration. Durability and a long service life can be expected from this method.

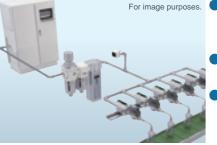


Inline oxygen monitor



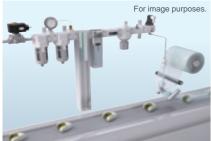
Examples of applications

Terminal concentration check



- Concentration check at start of operations
- Normal concentration check
 Understanding maintenance

Nitrogen filling concentration check



Concentration check during nitrogen filling

Concentration setting

Gas concentration check in explosion-proof areas



Checking gas for remaining oxygen removal



- Oxygen concentration check of removal gas
- Status monitoring

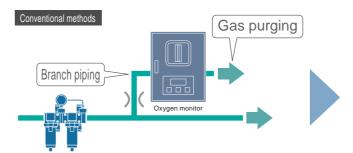
Saves energy, piping, and space

Realized pressure resistant structure for inline use.

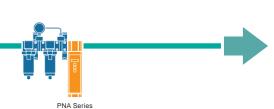
Modular structure saves piping space

Conventional gas purging is no longer necessary





- Gas purging not required
- Space saving via inline installation



Easy to use

Oxygen/inert gas concentration display is switchable

> With 100-oxygen concentration, the inert gas concentration is clear at a glance.



Upper/lower limit switch output setting and analog output are available

Alarms can be set for concentration changes, and status monitoring is possible.

With self-diagnostic function

Xeeps you posted about abnormalities in the detector element.

Degree of protection IP65 or equivalent

> Wet or dry, it still functions.



Inert gas concentration display

Pressure-resistant structure

) Usable at pressures from atmospheric pressure through 1.0 MPa.

Compatible with FP Series for secure food manufacturing processes

Safe and secure for food manufacturing processes.



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CKD after-sales service

Calibration certificates (with traceability series variation diagram) can be issued.

The sensor of the oxygen monitor may deteriorate depending on the working conditions.

Therefore, regular inspection and adjustment is required to maintain stable performance. For even longer consistent performance, we recommend the yearly inspection and adjustment service (with calibration certificate).



Inspection/calibration/repair Feel free to contact us for details.

Rod with built-in guide EBR-M Series Controller ECR Series





Easy maintenance

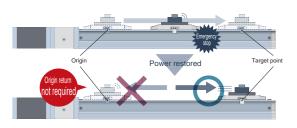
The product comes equipped with a lubrication port on both sides to allow direct lubrication from the exterior. Both the guide and ball screw can be maintained simply by lubricating from a single location, without disassembling the body.





Shorter equipment stop times

Equipped as standard with a battery-less absolute encoder The absolute encoder retains current position information without the use of a battery. The system does not need to return to origin when the power is turned ON, and there is no need to install an origin sensor. This allows quick recovery from an emergency stop or power outage. Because it uses no battery, there is no need to replace the encoder battery.







Food-grade (NSF H1) lubricants are used for flow paths and sliding parts.

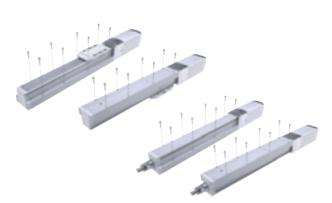
* The same grease is used for rod type EBR





Reduced installation time

Mounting holes provided on top and bottom of product The product structure allows direct installation from the top or bottom, without disassembly. This significantly reduces work time, especially when installing from the top.

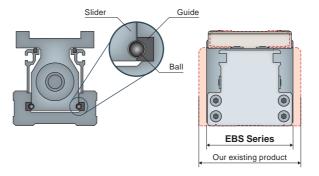


EBS

Smaller equipment footprint

Compact body with high rigidity

An outer rail is used for the guide which supports loads. The wide guide is integrated with the body to keep the system compact yet provide high rigidity.



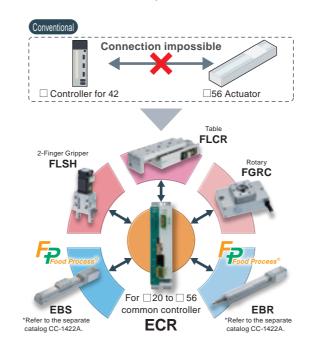
		Our existing product	EBS-05
Body width		64 mm	54 mm
Static	MP	25.7 N·m	103 N·m
allowable MY		25.7 N·m	103 N·m
moment	MR	58 N·m	144 N·m

ECR

Reduced initial work hours and stock

"One controller" that connects to any actuator size

The same controller operates with actuators of different sizes and models. Equipped with an automatic recognition function that reads actuator information, for less work during initial setting. Further, with a common controller, work hours for selection and ordering can be reduced as well as inventory.

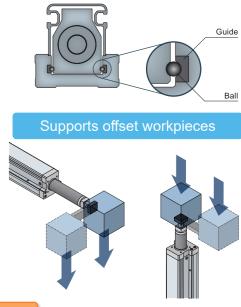


EBR

Reduces need for additional guides

Rod with built-in guide

Contains the same guide as the slider EBS. Provides a strong structure even for offset workpieces. It also provides a long stroke even greater than that of conventional products.



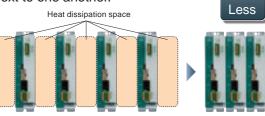
ECR

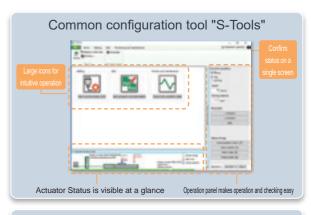
Reduced controller footprint

Compact, allowing adjacent installation The optimized design eliminates the need for heat dissipation space at the sides.

56%

This allows controllers to be installed next to one another.







A wide range of variations corresponding to a wide range of applications **ROBODEX** std.

Actuator Motorless specification



	Slider										
		Ball s	crew	Be	Rod						
	EBS	ETS	ECS	EKS	ETV	ECV	EBR				
	100			Service Servic		-	A				
Space saving											
Variation			\circ		\bigcirc	\bigcirc					
High speed			\circ								
Fast tact											
High rigidity	\bigcirc						\circ				
Long stroke length											
Low dust specification											

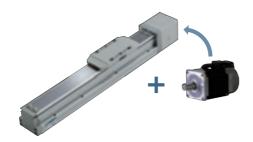
Top class motor manufacturers in the industry

List of motorless motor manufacturers

Supported servo motors Manufacturer list	EBS-L EBR-L	ETS/ECS/ ETV/ECV	EKS-L
Mitsubishi Electric Corporation			
Delta Electronics Co., Ltd.			
Sanyo Denki Co., Ltd.			
YASKAWA Electric Corporation			
Keyence Corporation			
Panasonic Corporation			
OMRON Corporation			
Fuji Electric Co., Ltd.			
FANUC CORPORATION			
Bosch Rexroth AG			
Rockwell Automation, Inc.			
SIEMENS AG			

Compatible stepping motor Manufacturer list	EBS-L EBR-L	ETS ECS
Oriental Motor Co., Ltd.		
MinebeaMitsumi Incorporated		
Dyadic Systems Co.,Ltd.		

^{*} For compatible models and capacity, refer to the Electric Actuator Motorless General Catalog (CB-055A).







- Utilizes outer rail guide
- 3 sizes
- NEW Servo motor 50 to 200W compatible NEW Supports stepping motors 42 to 60
- Max. load capacity: 50kg (horizontal)
- Max. stroke length: 1100mm





- 8 sizes
- Servo motor 50 to 750W compatible
- NEW Supports stepping motors 42 to 60

 Max. load capacity: 150kg (horizontal)
- Man atrales law attendance
- Max. stroke length: 1500mm





- Utilizes iron based outer rail guide
- 5 sizes
- Servo motor 50 to 750W compatible
- Max.workload: 118.5kg (horizontal)
- Max. stroke length: 1500mm
- * Max. load capacity at acceleration of 0.5 G.





- Full cover low dust specification
- 6 sizes
- Servo motor 100 to 750W compatible
- Max. load capacity: 85kg (horizontal)
- Max. stroke length: 3500mm





- Utilizes outer rail guide
- 3 sizes
- NEW Servo motor 50 to 200W compatible NEW Supports stepping motors 42 to 60
- Max. load capacity: 50kg (horizontal)
- Max. stroke length: 700mm





- Full cover low dust specification
- 7 sizes
- Servo motor 100 to 750W compatible
 NEW Supports stepping motors 42 to 60
- Max. load capacity: 150kg (horizontal)
- Max. stroke length: 1500mm





- 6 sizes
- Servo motor 100 to 750W compatible
- Max. load capacity: 85kg (horizontal)
- Max. stroke length: 3500mm

Powerful Arm PAW Series PowerArm PAW Series

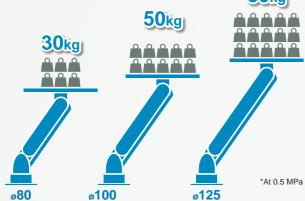
tuman Assistive devices. Transform workstyles with assistive devices.



Variation

Arm variations tailored to the workpiece

The arm can be selected from 3 types according to the workpiece load.



Safety

Holds position when motor power (air, electric power) is down In addition to a position-locking function (standard equipment) via block valve, a rotation lock can be mounted on the normally closed type (option). Position



Snag prevention

Fingers, etc., do not fit into the joint gaps.

In addition, the space remaining when the joints are closed keeps fingers from being snagged.





* European safety standard CE marking applies only to the PowerArm body.

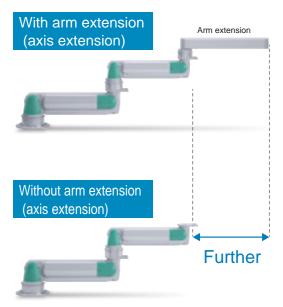
Simple

Simple assistive mechanism based on pneumatic pressure control Uses a pneumatic pressure cylinder in part of the body. The simple mechanism can be easily handled.

Wide

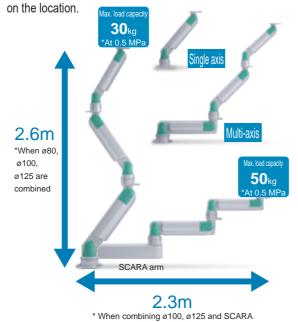
Achieving a wider range of movement

Arm extensions (axis extensions) can be used for multi-axis specification types to enable an even wider range of motion.



Wide movable range according to usage

Customers use these products for single-axis or multi-axis specifications. Flexible combinations are possible depending



Compact

Compact

Multi-axis specification enables fold away for more compact storage than the arm or belt types.



Flexible

Customers can easily incorporate arms With the simple structure, arm combinations can be flexibly changed by the customer.



PowerArm PAW Series Powerful Arm PAW Series

HumanAssist

Palletizing specification that saves space and enables stacking and unloading work.

Specialized

Focused on stacking and unloading tasks

A vertical axis is now equipped with this product to ensure easier use in the palletizing process while maintaining PowerArm signature features; a space-saving, compact design, and a light touch.

Wide

A wide moving range

The combination of the Ø125 single-axis and vertical axis provides a wider moving range.



Compact

Space saving storage

This product can be stored folded.



Variation

Simple combinations are possible

The vertical axis and SCARA arm can be combined and used if the product does not often make vertical strokes.





Prevents food contamination by lubricants. Food-grade (NSF H1) lubricants are used.









































Floating fitting

FJ Series











































P249













Pilot 2-port solenoid general purpose valve for dry air

ADK11-Z

Series

MXB/

MXG

Series

P379

P371



Pilot 2-port solenoid general purpose valve for dry air

LAD

Series

SPK

Series

P373











AB31/41

Series

P363













P377

Grease for pneumatic cylinder maintenance	P89
Standard model supports.	
Related products	