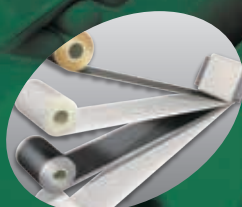
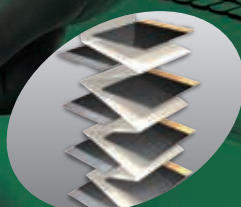


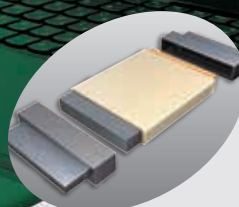
Equipment related to rechargeable batteries P4* Series



Winding



Stacking



TAB Welding



Immersion

Each manufacturing process in the manufacturing of rechargeable batteries requires support for a variety of environments, such as dust/explosion-proof/vacuum/ultra-dry and material restrictions.

1 Electrode material

1 Electrode material 2 Electrolyte 3 Separator

2 Electrode manufacturing process

4 Weighing/Kneading
The cathode/anode materials are measured in proper amounts and mixed into pastes.

5 Coating/Drying/Rolling
The electrode material is uniformly applied to the metal foil. It is speed dried by hot air and moisture is evaporated. The electrode is rolled with a roller to enhance density.

6 Slitting
Rolls of electrode material and separator are cut into the appropriate size.

3 [A] Cell assembly [Laminate type]

7 Electrode punching
The positive and negative electrode plates are punched into a predetermined size with a mold.

8 Stacking
The electrode and separator are alternately stacked with high speed and high-precision.

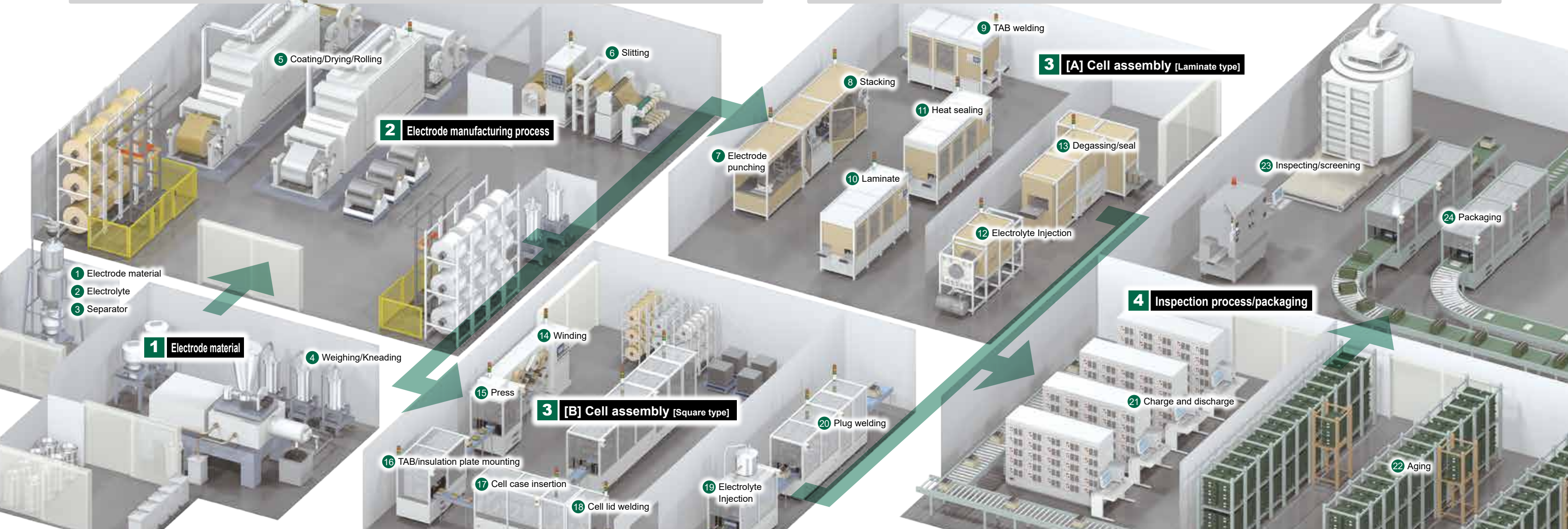
9 TAB welding
The connection terminals (TAB) are joined for power input and output.

10 Laminate
The electrode laminate is wrapped with exterior coating.

11 Heat sealing
Heat is applied to adhere the 3 sides of the cell.

12 Electrolyte Injection
Electrolyte is injected into the battery.

13 Degassing/seal
The generated gas is removed, and heat is applied to seal the battery cell.



3 [B] Cell assembly [Square type]

14 Winding
Separators are sandwiched between the anode and cathode elements and wound.

15 Press
The wound elements are pressed.

16 TAB/Insulated plate mounting
The terminals (TAB) and insulating plates are joined for power input and output.

17 Cell case insertion
The wound body is inserted into the cell case.

18 Cell lid welding
The cell case and lid are laser-welded.

19 Electrolyte Injection
Electrolyte is injected into the battery.

20 Welding of the filler plug
The filler plug is welded to completely seal the battery cell.

4 Inspection process/Packaging

21 Charge / Discharge
The battery is activated by repeatedly charging and discharging.

22 Aging
The fully charged battery cell is left at a predetermined temperature for a fixed period.

23 Inspection/Screening
Various performances as a product are determined.

24 Packaging
Battery cells are stacked and sealed in the case.

Contributes to "Stable operation" and "Long service life components" for equipment that never stops.

With the progress of rechargeable and next-generation battery development, we have responded to the demand for components with improved dry environmental performance. Our products are compatible with the production stability of the manufacturing process and consistently meet the needs of rechargeable battery manufacturing, from electrode production to packaging.

Make Progress!!

P4 Series



Series Zoning

Compatible models are available in 2 grades (P4 Series, P40 Series) according to the atmosphere and installation location of the device.

B ZONE

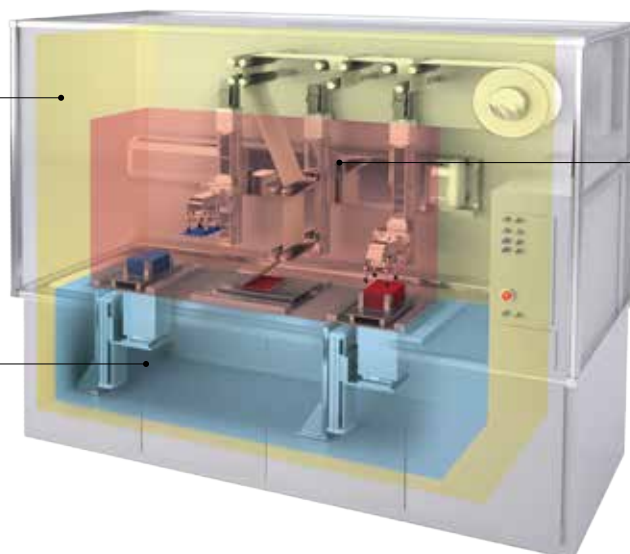
Zone above but removed from the workpiece

>> -P4 Series

C ZONE

Zone below the workpiece

>> -P4 Series



A ZONE

Zone immediately above and close to the workpiece

>> -P40 Series

>> -P42 Series

Places used with high frequency or where high durability is required

>> Refer to HP Series General Catalog (Catalog No.CC-1421AA)

HP HIGH PRODUCTIVITY

life components" for equipment that never stops.

Material restrictions



Restrict materials for component parts.

Restricts the use of materials and surface treatments inappropriate for the rechargeable battery manufacturing process.



Limited copper material



Limited zinc material



Limited nickel-based material



Limited zinc plating



Limited electrolytic nickel plating

Environment/supply air

DEW POINT
-80°C

Long service life even in ADP-80°C dew point environments



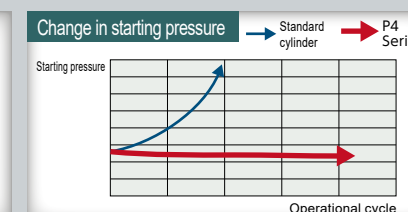
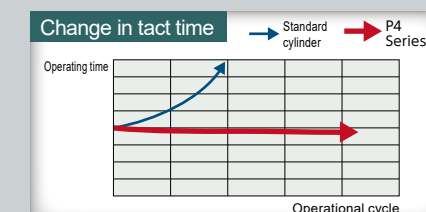
A diverse lineup compatible with ultra-low dew point atmospheres (including supply air). We develop grease suitable for next-generation battery processes to maximize performance. Lubrication of the sliding part is maintained for long periods, even in dry environments.

Stable operation



Contributing to a system that never stops

Uses a special grease that supports low dew points and high frequency use. Contributes to stable operation of equipment.



Fights dust generation



Suppresses dust generation of metal wear powder

Equipped with a local exhaust function (vacuum treatment port). Prevents contamination of the electrodes or cell by not leaking the metal wear powder outside.

Counters dust



Long service life in dusty environments

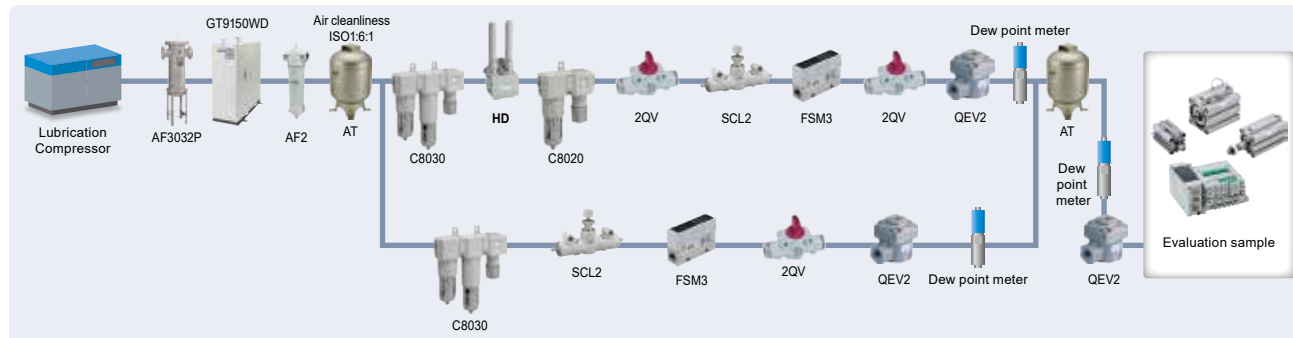
Equipped with a heavy duty scraper and lube keeper to prevent intrusion of dust and to maintain lubrication. This greatly improves durability in dusty environments.

Low dew point ambient test circuit

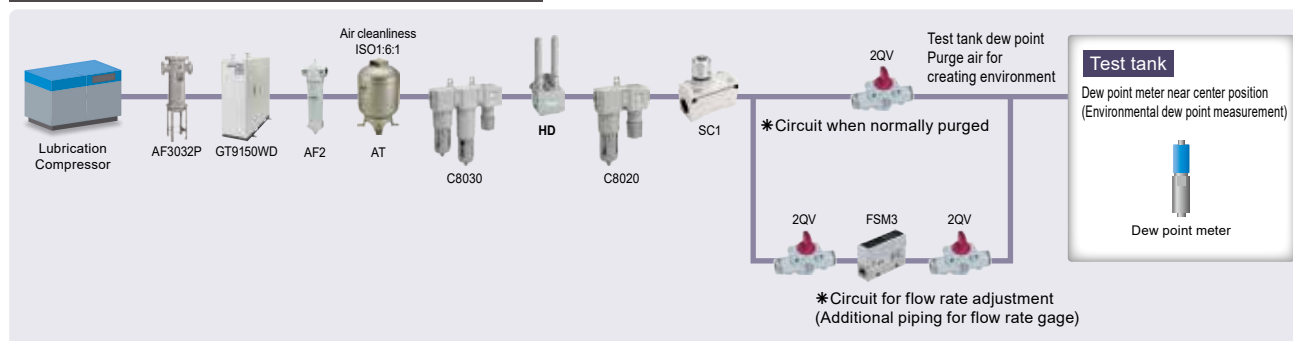
Supply air dew point: ADP-80°C / Tank environment: ADP-80°C

CKD's P4* Series has been certified for durability by using low dew point environmental test units. test performance We develop and adopt the optimal grease in low dew point environments, enabling optimized functions and performance in all next-generation battery manufacturing processes, including all-solid-state batteries. This diagram is based on the actual circuit. Contact the CKD Sales for test data.

Air supply circuit for cylinder operation



Air supply circuit for purging inside the test tank



Material limitations for all parts

-P40 Series

The use of copper, zinc, and nickel-based materials, zinc plating, and electrolytic nickel plating is limited in the construction of all parts.

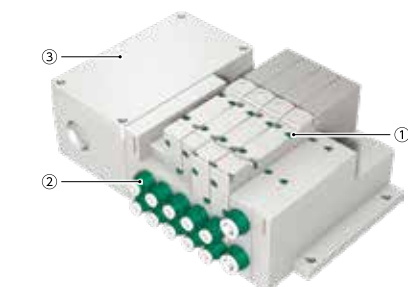
Cylinder

- (1) Electroless Ni plating



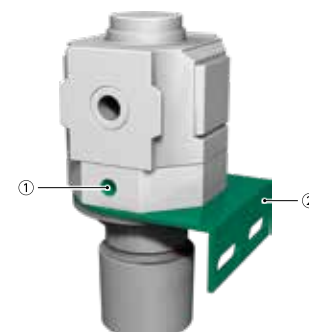
Pneumatic valves

- (1) SUS screw
- (2) SUS Fitting
- Electric circuit unit IP65*
- *D-sub-connector specifications are IP40.



Regulator

- (1) Exhaust port
- (2) Electroless Ni plating



Contributes to all the needs of rechargeable batteries and next-generation battery manufacturing processes.

Material limitations for the flow path part/sliding part

*Trace amounts present in the alloy are excluded.

Same mounting size as standard

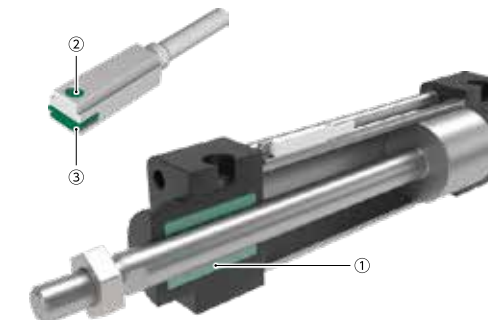
-P4 Series



The use of copper, zinc, and nickel-based materials and electrolytic nickel plating is limited in the construction of the flow path part and sliding part.

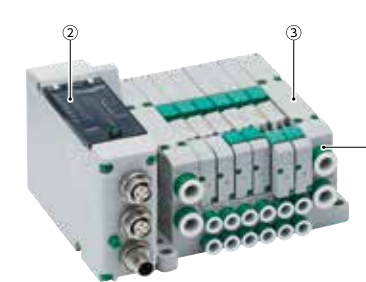
Cylinder

- (1) Copper-based bearing → Cast iron-based bearing
- (2) SUS screw
- (3) SUS plate



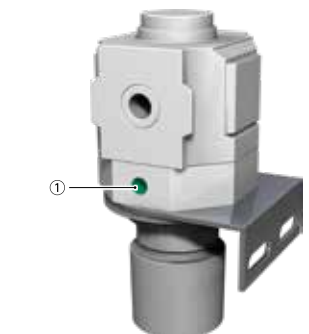
Pneumatic valves

- (1) SUS Fitting
- Electric circuit unit IP65/67
- Flow path part Material restrictions



Regulator

- (1) Exhaust port



Electric Actuator

We offer a wide range of motor equipped (stepping motor) and motorless (servo motor/stepping motor) variations.



Same mounting size as standard

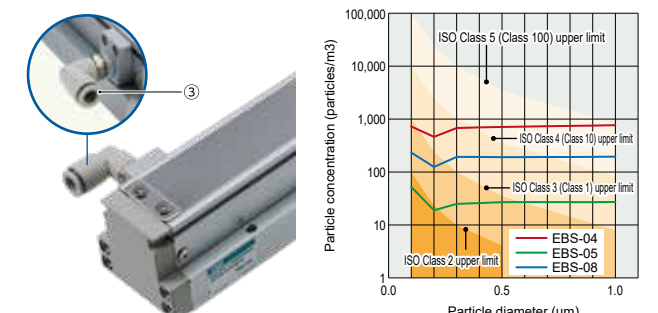
Grease dedicated for low dew point
Anti-rust treatment (option)
Vacuum treatment port (option)

Motorless specifications

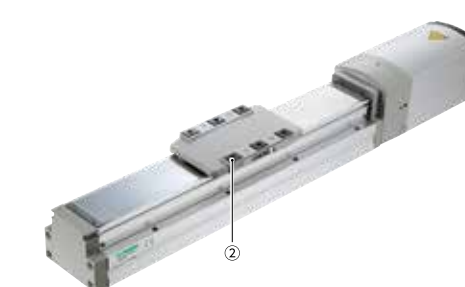


Motorless specifications

Class 100 or equivalent with vacuum treatment port.



Motor specifications



Motor specifications



1/5 or less dust generation rate achieved *Our standard cylinder comparison

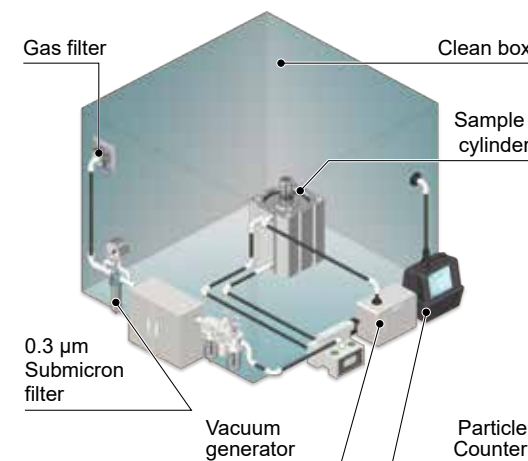
-P42 Series

Local exhaust function (vacuum treatment port) is added to P40 specifications. Prevents metal powder from contaminating the electrode and cell, and reduces product failure of rechargeable batteries. In addition, SUS is used in piston rods.

Cylinder

(1) Vacuum treatment

*Dimensions differs from the standard.



Test method

The cylinder is operated in a clean box, and dust generation rate is measured.

Test conditions

Supply pressure	0.5 MPa
Cylinder speed	200 mm/s
Frequency	30cpm
Load	No Load

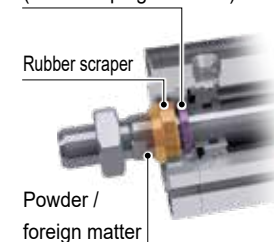
Long service life even in harsh environments

*Compatible with rechargeable batteries is handled by the Special Specification Product. Contact CKD for details.

G-HP1 Series

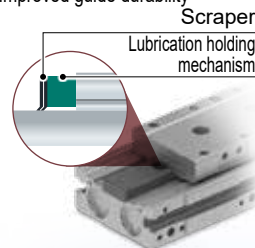
Equipped with a heavy duty scraper and lube keeper to prevent intrusion of dust and to maintain lubrication. Durability in dusty environment has been greatly improved.

Fiber assembly
(Lube keeping structure)



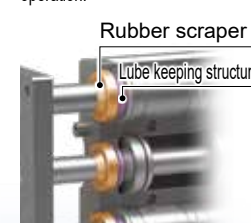
LCR guide

Seal structure and lubrication mechanism have been added. Improved guide durability

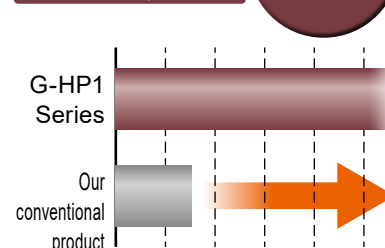


STG, STS/L guide

Countermeasures for dust also be applied to the guide rod section to contribute to long-term stable operation.



Number of Operations



*The durability of the HP Series is the service life under our specified conditions. As it differs under working conditions or ambient environment, it is not guaranteed to be more than 4 times under all conditions.

Momentary stops greatly reduced
Improved environmental resistance
Number of replacements greatly reduced
Durability count 5 million cycles and over
Subject to CKD prescribed conditions



For more stable operation Rechargeable battery support + Longer life

P4-HP1 Series

Longer service life in -80°C dew point environments. Also helps reduce CO₂

The same dimensions as the P4 Series have been achieved by optimizing the packing design, seal function and adopting grease compatible with high frequency that is suitable for ultra-low dew point environments extending the service life.

Proposals for further stable long-term operation using CKD's proprietary sliding technology



Realizes long-term stable operation in the rechargeable battery manufacturing process



Compatible with rechargeable batteries long service life cylinder

P4-HP1 Series

Momentary stops greatly reduced
Number of replacements greatly reduced
Durability 10 million cycles or more
Subject to CKD prescribed conditions

Further Progress!!
P4-HP1 Series







Compact cylinder	Guided cylinder	Rodless cylinder	Compact cylinder	Twin rod cylinder	Linear slide cylinder
SSD2 Series	STG Series	SRL3 Series	SMG Series	STR2 Series	LCR Series
					
Table rotary actuator	Linear Slide Hand (Grippers)	Parallel Hand (Grippers)	Compact Wide Parallel Hand (Grippers)	Ultra Low Profile Parallel Hand (Grippers)	Cylinder switch
GRC Series	LSH Series	LHAG Series	HMF Series	HLD Series	
					
Precision Suction Plate	Fine Buffer	Air Bearing Actuator	Pilot operated 3, 5-port valve	Direct Acting 3-Port Valves	Pilot operated 3, 5-port valve Plug-in Block Manifolds
PVP Series	FBU2 Series	LBC Series	4G Series	3QR Series	TVG Series
					

Electric Actuator

EJSG, EBS-G/L, EBR-G/L, FLCR, ETS, ECS, EKS-L Series

*EBS-G/EBR-G is only available when a ECG-A controller is connected.



Suction Pad	Vacuum Ejector	Vacuum Filter	Vacuum Regulator
VSP Series	VSX/VSXM Series	VSFU Series	VRA2000 Series
			

Super heatless dryer	Polymer Membrane Air Dryer	Super dryer (High polymer membrane air dryer)	Nitrogen Extraction Unit	Medium Size Main Line Filters	Air Filter
SHD Series	SU Series	SD Series	NS Series	AF2 Series	F3000 Series
					
Precision Regulator	Electro pneumatic regulators	Pressure	Digital Pressure Sensor	Compact flow rate sensor	With spool position detection Residual pressure exhaust valve
RP/RPE Series	EVD Series	G40D/G41D/G49D/G50D Series	PPX Series	FSM3 Series	SNS Series
					
Speed Controllers with Dials	Speed controller, elbow	Fittings, Tubes	2, 3-port solenoid valve for dry air		
DSC Series	SC3F Series				
					
Valve for high vacuum	Air operated valve for chemical liquids	Clean cylinder valve	Air operated ball valve	Diaphragm Cylinder Valves	
AVB Series	AMD Part 3R Series	LAD Series	CHB/CHG Series	NAD Series	
					

Compatible with more than 100 models
A line-up that contribute to the evolving
Rechargeable battery manufacturing processes

Pneumatic actuator

Note: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

General type

*1: Zinc plating is used for the sealing washer.

*2: Zinc plating is used for the cushion packing. (Excluding SCM ø50 and ø63)

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable


SCPD3

Pencil shaped cylinder



Model No. indication		SCPD3-[Variation]-[mounting style]- [Bore size]-[stroke]- [Switch]-[Number]- [Option]P4□[Accessory]										
Applicable bore size		Double acting/ single rod	Double acting/high load	Single Acting / Extrusion Type	Single acting / pull	Double acting/ double rod	Double acting/fine speed	Double acting/low speed	Double acting/heat resistant	Double acting/ rubber-air cushioned	Double acting/ rotation-stop	Double acting with valve
			K	SCPS3	SCPH3	D	F	O	T	*C	M	V
ø6 to 16	P4	●		○	○	○				○	○	
	P 40	●		○	○	○				○	○	
	P 42	▲				▲				▲		

For details:



For details:



CMK2




Small bore size cylinder



Model No. indication		CMK2-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□[Accessory]															
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single Acting / Extrusion Type	Single acting/pull	Double acting/ double rod	Double acting/ back to back	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ fine speed	Double acting/ heat resistant	Double acting/ rubber-air cushioned	Double acting with speed controller	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/ low hydraulic	Double acting/air cushion
		Q	S	SR	D	B	P	R	F	T	*C	Z	M	G2/G3	H	C	
ø20 to 40	P4	●	●	○	○	○	○	○	○			○	○	▲			○
	P 40	●	●	○	○	○	○	○	○*1			○	▲	▲			○*2
	P 42																

For details:



For details:



SCM




Round shaped cylinder



Model No. indication		SCM-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]-[Switch mounting][Option]P4□[Accessory]																
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single Acting / Extrusion Type	Single acting/pull	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ low speed	Double acting/ low friction	Double acting/ heat resistant	Double acting/heavy duty scraper	Double acting/ tandem	Double acting/ direct foot	Double acting/ rotation-stop	
		Q	X	Y	D	B	W	P	R	O	U	T	G	W4	LD	M		
ø20 to 100	P4	●	●	○	○	○	○	○	○	○				○ ø40 and over	○	○	▲	
	P 40	●*2	●*2	○	○	○*2	○	○	○	○*1				○*2 ø40 and over	○	○	▲	
	P 42	▲*2	▲*2			▲*2	▲	▲	▲	▲*1					▲	▲		

For details:



For details:



SCG




Tie rod cylinder



Model No. indication		SCG-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□[Accessory]								
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ double rod	Double acting/ low speed	Double acting/ low friction	Double acting/heavy duty scraper	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/anti- spatter adherence
			Q	D	O	U	G	M	G2/G3	G1/G4
ø32 to 100	P4	●	●	○			○			
	P 40	●*2	●*2	○*2			○*2			

For details:



For details:



SCS2

Medium bore size cylinder



Model No. indication		SCS2-N-[mounting style]- [Bore size][Cushion]-[stroke]-[Option]P4[Accessory]									
Applicable bore size		Double acting/ lubrication	Double acting/no lubrication	Double acting with switch	Stroke adjustable (push)	Double acting/heat resistant	Double acting/double rod	Double acting/ back to back	Double acting/ two-stage	Double acting/ low hydraulic	Double acting/ rubber scraper
			N	LN	P	T	D	B	W	H	G
ø125 to 250	P4		○	○	▲		▲	▲	▲		▲

For details:




SCA2

Medium bore size cylinder



Model No. indication		SCA2-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]-P4/[Accessory]	
Applicable bore size			Double acting/ single rod
ø40 to ø100	P4	▲	
	P 40	▲▲*2	

For details:



For details:

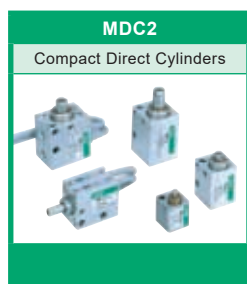


Pneumatic actuator

Note: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Space saving structure

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Model No. indication		MDC2-L-[Bore size]-[stroke]-[Switch]-[Number]-P4□				
Applicable bore size		Double acting/ single rod	Single Acting/ Extrusion Type	Single acting / pull	Double acting/fine speed	
			X	Y	F	
ø6 to 10	P4	●	○	○		
	P 40	●	○	○		
	P 42	▲				

For details:




Click!



Model No. indication		SSD2-[Variation] L-[Bore size]-[stroke]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]																
Applicable bore size		Double acting/ single rod	Double acting/ single rod high load	Double acting/ single rod long stroke	Single Acting / Extrusion Type	Single acting/ pull	Double acting/ rubber-air cushioned/light load	Double acting/ position locking	Double acting/ double rod	Double acting/ back to back	Double acting/ two-step type	Double acting/ fine speed	Double acting/ low speed	Double acting/low friction/high load	Double acting/ heat resistant	Double acting/ packing fluoro rubber	Double acting/ heavy duty scraper	Double acting/ rotation-stop
		K		X	Y	KC	Q	D	B	W	F	0	KU	T1	T2	G	M	
ø12 to 200	P4	●	●	○	○	○	○	○	○	○	○					○	○	▲
	P 40	●	●	○	○	○	○	○	○	○	▲					○	○	▲
	P 42	▲	▲	▲			▲	▲	▲	▲	▲					▲		

For details:



For details:



Click!



Model No. indication		SSD-[Variation]L-[Bore size]-[stroke]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]														
Applicable bore size		Double acting/ single rod	Double acting/ position boring	Single Acting / Extrusion Type	Single acting/pull	Double acting/ double rod	Double acting/ back to back	Double acting/two- stage	Double acting/fine speed	Double acting/low speed	Double acting/heat resistant	Double acting/heavy duty scraper	Double acting/anti- spatter adherence	Double acting/ coolant proof	Double acting/double rod/anti-spatter adherence type	Double acting/ rotation-stop
			Q	X	Y	D	B	W	F	O	T	G	G1/G4	G2/G3	DG1 DG4	M
ø12 to 160	P4	●	●	○	○	○	○	○				○				▲
	P 40	●	●	○	○	○	○	○				○				▲
	P 42	▲	▲			▲	▲	▲								

For details:



Click!



Model No. indication		SSD-K[Variation] L-[Bore size]-[stroke]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]						
Applicable bore size		Double acting/ single rod	Double acting/ fine speed	Double acting/ low friction	Double acting/ rubber-air cushioned	Double acting/heavy duty scraper	Double acting/anti- spatter adherence	Double acting/ coolant proof
			F	U	*C	G	G1/G4	G2/G3
ø12 to 160	P4	●			○	○		
	P 40	●			○	○		
	P 42	▲			▲			

For details:



Click!



Model No. indication		SSG-L-[Bore size]-[stroke]-[Switch]-[Number]-P4□		
Applicable bore size		Double acting		
ø12 to 100	P4	●		
	P 40	●		
	P 42			

For details:



Click!



Model No. indication		MSD/MSDG-L-[Bore size]-[stroke]-[Switch]-[Number]- [Piping port position]P4□				
Applicable bore size		Double acting/ single rod	Double acting/ single rod high load	Single Acting / Extrusion Type	Single acting / pull	Double acting/fine speed
			K	X	Y	F
MSD ø6 to 16	P4	●	●	○	○	
	P 40	●	●	○	○	

Applicable bore size		Double acting/ guided	Double acting/ guided/fine speed
			F
MSDG ø6 to 16	P4	●	
	P 40	●	

For details:



Click!

Pneumatic actuator

Note: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Space saving structure

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

SMG

Compact cylinder



Model No. indication		SMG-L-[mounting style]- [Bore size]-[stroke] -[Switch]-[Number]-P4□					
Applicable bore size		Double acting / single rod	Single Acting / Extrusion Type	Single acting / pull	Double acting / fine speed	Double acting / rotation-stop	
			X	Y	Ǝ	M	
ø6 to 32	P4	●	○	○		○	
	P 40	●	○	○		○	
	P 42	▲				▲	

For details:



Click!

FC*

Flat cylinder



Model No. indication		FCD/FCS/FCH-L-[Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□			
Applicable bore size		Double acting / single rod	Single Acting / Extrusion Type	Single acting / pull	Double acting / double rod
		FCD	FCS	FCH	FCD-D
ø25 to 63	P4	○	○	○	○
	P 40	○	○	○	○

For details:



Click!

STK

Stopper cylinder



Model No. indication		STK-[I.D.]-[stroke] -[Switch]-[Number]- [Option]P4□			
Applicable bore size		Double acting / single rod	Single Acting / Extrusion Type	Single acting / pull	
			X	Y	
ø20 to 50	P4	●		○	Please consult us for other variations.
	P 40	●		○	

For details:



Click!

MVC

Compact cylinder with suction pad



Model No. indication		MVC-[I.D.]-[stroke] -[Switch]-[Number]- [Pad type]-[Buffer]-P4□			
Applicable bore size		Double acting			
ø6, ø10	P4	●			
	P 40	●			

For details:



Click!

With brake

Dew point -80°C non-compatible

ULK

Brake cylinder



Model No. indication		ULK-[mounting style]- [Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□[Accessory]			
Applicable bore size		Double acting	Double acting with solenoid valve		
			V		
ø16 to 40	P4	▲			
	P 40	▲			

Note: Standard grease used

For details:



Click!

USSD

Position locking compact cylinder



Model No. indication		USSD-L-[Bore size]- [stroke] - [Lock direction]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]			
Applicable bore size		Double acting	Double acting / high load		
			K		
ø20 to 100	P4	▲	▲		
	P 40	▲	▲		

Note: Standard grease used

For details:




Click!

Pneumatic actuator

Note: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Combined functions

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

STG-B/M 

Guided cylinder



Model No. indication		STG-[Bearing]- [Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□							
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ rubber-air cushioned	Double acting/air cushioned	Double acting/heavy duty scraper	Double acting/coil scraper	Double acting/ coolant proof	Double acting/anti-splatter adherence
		Q	*C	C	G	G1	G2/G3	G4	
ø12 to 100	P4	●	●	○	○	○			
	P 40	●	●	○	○	○			
	P 42	▲	▲	▲	▲				

* 1: STG-K is not applicable.

For details:



Click!

STM-B/M

Guided cylinder



Model No. indication		STM-[Bearing]- [Bore size]-[stroke]-[Switch]-[Number]-[Option]-P4/							
Applicable bore size		Double acting/ single rod							
ø6/10	P4	○							
	P 40	○							
	P 42	▲							

For details:



Click!


STS/L-B/M

Guided cylinder



Model No. indication		STS/STL-[Bearing]- [Bore size]-[stroke]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/air cushioned	Double acting/heavy duty scraper
			Q	C	G
ø8 to 100	P4	●	▲	▲	▲
	P 40	●	▲	▲	▲
	P 42	▲	▲	▲	

For details:



Click

For details:



Click!


LCR 

Linear slide cylinder



Model No. indication		LCR-[Variation]-[Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□			
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed	
			Q	F	
ø6 to 25	P4	●	●		* 1: Even when P40 is selected as an option with an external stopper, electrolytic nickel plating is used for the stopper portion.
	P 40	●	●		
	P 42	▲	▲		

For details:




Click

* 1: Even when P40 is selected as an option with an external stopper, electrolytic nickel plating is used for the stopper portion.


For details:



Click!

LCG 

Linear slide cylinder



Model No. indication		LCG-[Variation]-[Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□							
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Q					
ø6 to 25	P4	●	●						
	P 40	●	●						
	P 42	▲	▲						

* 1: Even when P40 is selected for the external stopper option, Electrolytic nickel plating is used for the stopper W o r k i n g made of aluminum.
* 2: If P4 is chosen, rust proofing (option code: U) is recommended for LCG-20, 25. (P40 of ø20 and ø25 is rust-proofed.)

For details:



Click!


STR2

Twin rod cylinder



Model No. indication		STR2-[Bearing][Variation]-[Bore size]-[stroke] -[Switch]-[Number]- [Option]P4				
Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed	Double acting/ low speed	Double acting/ double rod
			Q	F	O	D
ø6 to 32	P4	●	●			○
	P 40	●	●			○
	P 42	▲	▲			▲

For details:




Click


For details:



Click!

UCA2 

Unit cylinder



Model No. indication		UCA2-[Fixing method]- [Bore size]-[stroke] -[Switch]-[Number]- [Option]P4□							
Applicable bore size		Metal bush bearing	Ball bearing						
		B							
ø10 to 32	P4	●	●						
	P 40	●	●						

For details:



Click!

Pneumatic actuator

Note: To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Rodless

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



SRL3

Rodless cylinder

Model No. indication		SRL3-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□				
Applicable bore size		Double acting/standard	Double acting/position locking	Double acting/resin guide	Resin guide/position locking	
			Q	G	GQ	
ø12 to 100	P4	●	●			
	P 40	●	●			

For details:



Click!



SRM3

Rodless cylinder with high precision guide

Model No. indication		SRM3-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□				
Applicable bore size		Double acting/standard	Double acting/position locking			
			Q			
ø25/32 40/63	P4	●	●			
	P 40	●	●			

* 1: Square nut, a standard attachment, is not included.

* 2: The grease nipple is not assembled.

* 3: If the switch model No. is not selected, select "CO" (for reed switch), "C1" (for proximity [stroke]).

For details:



Click!



MRL2

Magnet rodless cylinder

Model No. indication		MRL2-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□				
Applicable bore size		Double acting/basic				
ø6 to 32	P4	●				
	P 40	●				

* 1: Electrolytic nickel plating is used in the magnet.

For details:



Click!



MRG2

High precision guide with magnet rodless cylinder

Model No. indication		MRG2-[Variation]-[mounting style]- [Bore size][Cushion]-[stroke]-[Switch]-[Number]- [Option]P4□				
Applicable bore size		Double acting/basic				
ø10/16/25	P4	●				
	P 40	▲				

* 1: Electrolytic nickel plating is used in the magnet.

For details:



Click!

Rotary actuator



GRC

Table Rotary actuator

Model No. indication		GRC-[K]-[Torque size]-[Angle]-[Switch]-[Number]- [Option]P4□				
Applicable size		Standard	High accuracy	Fine speed	High accuracy/fine speed	
			K	F	KF	
Torque 0.5 to 8.1 N·m	P4	●	●			
	P 40	●(*1)	●(*1)			
	P 42	▲	▲			

* 1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.

* 2: Zinc plating is used in part of the bearings - the sealing washer of the angle adjustment unit.

For details:



Click!

Air Bearing Actuator



LBC

Air Bearing Actuator

Model No. indication		LBC-[Thrust]				
Applicable size		LBC				
P4		Standard compliance				

For details:



Click!

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Hand/Chuck

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

LSH-HP1

Linear Slide Hand (Grippers)



Model No. indication		LSH-[Rubber cover][Bore size][Actuation Method][Finger] [Positioning hole]-[Switch] -[Number]-HP1-P4□			
Applicable bore size		Standard stroke		Long stroke	
		LSH		LSHL	
ø6 to 32	P4	●		●	
	P 40	●		●	

For details:



Click!

HAP

Parallel Hand (Grippers)



Model No. indication		HAP-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø20 / 25 / 40	P4	●		●	●
	P 40	●		●	●

For details:



Click!

BHA

Compact Cross Roller Parallel Hand (Grippers)



Model No. indication		BHA-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø12 / 16 / 20 / 25	P4	●		●	●
	P 40	●		●	●

For details:



Click!

LHA

Linear Guide Hand (Grippers)



Model No. indication		LHA-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø6 to 32	P4	●		●	●
	P 40	●		●	●

For details:



Click!

LHAG

(with rubber cover)



Model No. indication		LHAG-[Size]-[Option]-[Switch]-[Number]P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø12 to 32	P4	●		●	●
	P 40	●		●	●

For details:



Click!

BHG

(with rubber cover)



Model No. indication		BHG-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø12 / 16 / 20 / 25	P4	●		●	●
	P 40	●		●	●

For details:



Click!

HKP

Cross Roller Parallel Hand (Grippers)



Model No. indication		HKP-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting		Single acting Normally open	
				O C	
ø32 to 80	P4	●		●	●
	P 40	●		●	●

For details:



Click!

Note: 80 cs is double-acting only

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Hand/Chuck

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

HCP

Horizontal Parallel Hand (Grippers)



Model No. indication HCP-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/20/32	P4	●
	P 40	●

For details:



Click!

HLB

Low Profile Parallel Hand Bearing-type barbed



Model No. indication HLB-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/15/20	P4	▲
	P 40	▲

For details:



Click!

HLBG

Low Profile Parallel Hand Bearing-type barbed (With rubber cover)



Model No. indication HLBG-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/15/20	P4	●
	P 40	●

For details:



Click!

HMF

Compact Wide Parallel Hand (Grippers)



Model No. indication HMF-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting		
		Standard	Long stroke 1	Long stroke 2
			L1	L2
ø12 x 2 to ø40x2	P4	●	●	●
	P 40	●	●	●

For details:



Click!

HLC

Low Profile Long Stroke Parallel Hand (Grippers)



Model No. indication HLC-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8 x 2 to ø30 x 2	P4	●
	P 40	●

For details:



Click!

HLD

Ultra Low Profile Parallel Hand (Grippers)



Model No. indication HLD-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8×4 to ø20×4	P4	●
	P 40	●

For details:



Click!

HLF2

Low Profile Long Stroke Hand (Grippers)



Model No. indication HLF2-[Size]-[stroke]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8×2 to ø20×2	P4	▲
	P 40	▲

For details:



Click!

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Hand/Chuck

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

HMD

Thin Wide Angle Hand (Grippers)



Model No. indication		HMD-[Size]-[Switch]-[Number]-P4□	
Applicable bore size		Double acting	
		Standard	
ø16/25	P4	●	
	P 40	●	

For details:



For details:



BHE

Centering Hand (Grippers)



Model No. indication		BHE-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting			
			Standard	Open stroke adjustment mechanism	Close stroke adjustment mechanism
ø12 to 32	P4	●	●	●	●
	P 40	●	●	●	●

For details:



CKG

3-way finger bearing chuck (With rubber cover)



Model No. indication		CKG-[Size]-[Option]G-[Switch]-[Number]-P4□			
Applicable bore size		Double acting			
			Single acting Normally open	Single acting Normally closed	
ø16 / 25 / 32 / 40 / 50	P4	●	●	●	
	P 40	●	●	●	

For details:



CKL2

Powerful Chucks



Model No. indication		CKL2-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting			
			Single acting Normally open	Single acting Normally closed	
ø20 / 25 / 32 / 40 / 50 / 63 / 80 / 100	P4	●	●	●	
	P40	●	●	●	

For details:



CKLB2

2-way Powerful Chuck



Model No. indication		CKLB2-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting			
			Single acting Normally open	Single acting Normally closed	
ø20 / 25 / 32 / 40 / 50 / 63 / 80 / 100	P4	●	●	●	
	P 40	●	●	●	

For details:



CKF

Hollow Chucks



Model No. indication		CKF-[Size]-[Option]-[Switch]-[Number]-P4□			
Applicable bore size		Double acting			
			Single acting Normally open	Single acting Normally closed	
ø30 to 80	P4	▲	▲	▲	
	P 40	▲	▲	▲	

For details:



Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 25 to 28 and order using the listed order model No.

Related products

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Model No. indication		
NCK-[mounting style]-[Series]-[Option]-P4□		
Applicable size		Basic
All sizes	P4	●
	P 40	●

For details:



Click!

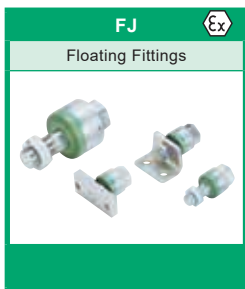


Model No. indication		
FCK-[Series]-[Option]-P4		
Applicable size		Low speed
		Medium speed
		High speed
FCK-※-0.15 to 8.1	P4	L
		M
		H
		●
		●
		●

For details:



Click!



Model No. indication		
FJ-※-3-P4/FJ-※-4-P4/FJ-※-5-P4		
Applicable size		Basic
		Foot
		Flange
FJ-※-3 FJ-※-4 FJ-※-5	P4	●
	P 40	▲
FJ-※-6 to 45	P4	Standard compliance
	P 40	▲

For details:



Click!



Model No. indication		FK-[Thread size]-P 40	
Applicable size		Male thread	Female thread
		N	
All sizes	P4	Standard compliance	
	P 40	●	●

For details:

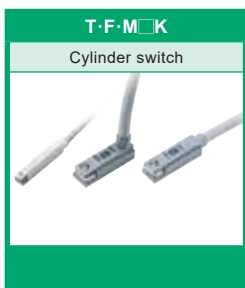


For details:



Click!

Cylinder switch



[How to order switch]

If you order switches for the P4 Series separately, do as follows.

SW-※-P4 Example SW-T2H-P4

(※1) When ordering Low-Voltage Directive compliant products separately, do as follows.

SW-※-ST-P4 Example SW-T5H-ST-P4

(※2) Contact CKD for resin connector specifications.

[Incorporated switch]

For cylinder specification P4 and P40, switch indicating "P4" is supplied. Cylinder mountable switch differs according to each cylinder. Refer to the switch compatibility table on pages 25 to 28.

Example) GRC: Reed switch T0 ※, T5 ※ cannot be installed.

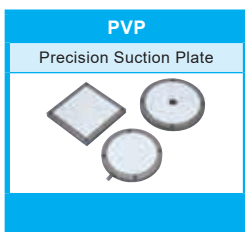
SRM3: 1-color display proximity T2 ※ and T3 ※ cannot be mounted.

For details:



Click!

Vacuum Equipment



Model No. indication		
PVP-[Shape]- [Porous material size]- [Vacuum port position]- [Option]		
Applicable size		PVP
P4		Standard compliance

For details:



Click!

Vacuum Equipment

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Model No. Indication	Suction Pad	VSP-[Holder shape][Pad diameter/pad size] [stroke option] [Pad shape][Pad Material][Surface Treatment]- [Port size/shape]-[Pad swinging]-P4
	Pad rubber only	VSPG-[Pad diameter/pad size][Pad shape][Pad Material][Surface Treatment]
	Pad rubber + set with fixing screw	VSPG-[Pad diameter/pad size][Pad shape][Pad Material][Surface Treatment]A-P4

	Suction Pad	Pad rubber only	Pad rubber +Set with fixing screw
	VSP	VSPG	VSPG * A
P4	●	Standard compliance	●

- *1: Holder shape: LFC, LFD is not supported.
- *2: Holder shape: For models other than HC, only stroke option: Blank is available.
- *3: Holder shape: HD, HDW, HE, HEW are pad shape: L, LB only.
- *4: Pad material: N, E, NE, G and NH are not supported.
- *5: Port sizes/shapes: 2, 8, 10 and 12 are not supported.
- *6: Free holders (F1, F2) and position locking valve (V) are not supported.
- *7: Surface treatment: -NF, -SF, and -ER are not supported.

For details:



Click!



Model No. indication	FBU2-[shape]- [Bearing precision]- [Pressure]-[Buffer stroke]- [Tail shape]- [Head shape]
----------------------	---

	FBU2
P4	Standard compliance

For details:



Click!



Dew point -80°C non-compatible

Model No. Indication	Single unit	VSX-[Vacuum characteristics][Nozzle diameter][Valve]-[Port]-3-[Switch specifications]- [Mounting method]-P4
	Manifold	VSXM-[Vacuum characteristics][Nozzle diameter][Valve]-[Port]-3-[Station No.]- [Switch specifications]-P4

	VSX	VSXM
Connection Bore	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

*1: Applicable only for common exhaust.

For details:



Click!



Dew point -80°C non-compatible

Model No. Indication	Single unit	VSXP-[Valve]-[Port]-3-[Switch specifications]- [Mounting method]-P4
	Manifold	VSXPM-[Valve]-[Port]-3-[Station No.]- [Switch specifications]-P4

	VSXP	VSXPM
Connection Bore	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

*1: Applicable only for 2-way valve.

For details:



Click!



Model No. indication	VFA1000/3000/4000-[Bore size]- [Option]P4- [Attachment]
----------------------	---

	VFA1000	VFA3000	VFA4000
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8	Rc3/8, 1/2
P4	●	●	●

Note: Metal bowls are not supported.

For details:



Click!



Model No. indication	VRA2000-[Bore size]- [Option]P4
----------------------	---------------------------------

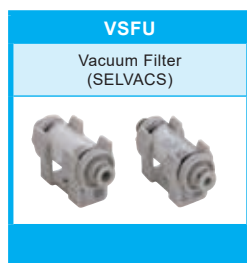
	VRA2000
Connection Bore	Rc1/4, 3/8
P4	●

- *1: Available pressure gauge is PPX only.
- *2: pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)

For details:



Click!



Model No. indication	VSFU-[Filter size]-[Bore size]-P4, FSL[Filter size]-[Bore size]- [Bracket]-P4
----------------------	---

	VSFU	FSL
Connection Bore	ø4, ø6, ø8, ø10	ø4, ø6, ø8, ø10
P4	●	▲

For details:



Click!

Pneumatic valves

How to order P4 Series

[-P4]: Indicates the Standard Product Fittings whose SUS needs to be modified for P4 specifications.

P4 compliant as standard: Indicates Standard Products compatible with P4 specifications that do not require "-P4" at the end of the model number.

P4 Series (flow path, sliding part material restrictions)

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

Pilot operated 3, 5-port valves



Item		TVG1	TVG2
Valve width [mm]		10	15
Flow characteristics [dm ³ /(s·bar)]	P → A/B	0.77 to 1.1	1.7 to 2.6
	A/B → R	1.0 to 1.3	2.2 to 2.9
Max. working pressure [MPa]		0.7	
Min. working pressure [MPa]	2-position double	0.1	
	2-position single, 3-position	0.2	
	Two 3-port valves integrated	0.2	
Proof Pressure [MPa]		1.05	
Ambient Temperature [°C]		-5 to 55 (no freezing)	
Fluid Temperature [°C]		5 to 55	
Rated voltage [V]		24 DC	

How to order	Manifold with solenoid valve	TVG[Size]M-[Switching section]B [Bore size]3 [Wiring]- [Station No.][Option]-P4-HP1
	Discrete solenoid valve (for base mounting)	TVG[Size]-[Switching section]B00XX3-[Option]-P4-HP1

- *1: Copper-free material applies to flow rate part.
- *2: Refer to CKD components product site (<https://www.ckd.co.jp/kiki/en/>) → "Model No." for serial communication specifications.
- *3: Product with connection interface is not available.
- *4: Push-in fitting elbow is not supported.
- *5: The following are not supported for push-in fitting straight.
TVG1:0ACS, 0ACA, 0ACF
- *6: Inch Fittings No. is available.
- *7: Type with integrated silencer (atmospheric release) cannot be selected for wiring block, end block and intermediate supply and exhaust block.
- *8: The following port sizes of air supply spacer and exhaust spacer are not available.
TVG1P-P:06CS
TVG1P-R:06CS
- *9: The spacer pilot check valve is not compatible with residual pressure exhaust function.



Click!



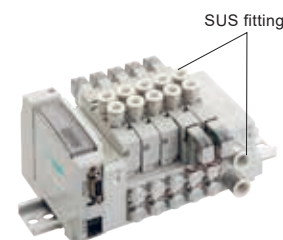
Item		4GA/B1	4GA/B2	4GA/B3	4GA/B4
Valve width [mm]		10	15	18	24.3
Flow Rate Characteristics [dm ³ /(s·bar)]	P → A/B	0.86 to 1.4	1.7 to 2.6	2.9 to 4.5	6.3 to 11.0
	A/B → R	0.7 to 1.3	2.1 to 2.9	3.3 to 4.2	6.8 to 13.9
Max. working pressure [MPa]		0.7			
Min. working pressure [MPa]		0.2			
Proof pressure [MPa]		1.05			
Ambient temperature [°C]		-5 to 55 (no freezing)			
Fluid temperature [°C]		5 to 55			
Rated voltage [V]		12 DC, 24 DC, 3 DC, 5 DC, 100 AC, 200 AC			

Note: For 4G4 Series, 3 VDC, 5 VDC, and 200 VAC are not supported.

For details:



Click!

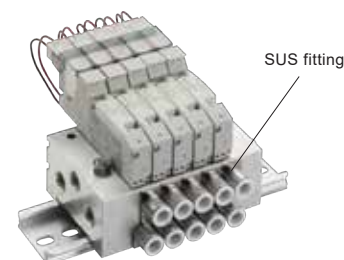


Item		4GD/E1	4GD/E2	4GD/E3
Valve width		10	15	18
Flow Rate Characteristics [dm ³ /(s·bar)]	P → A/B	0.86 to 1.4	1.7 to 2.5	3.0 to 4.5
	A/B → R	0.7 to 1.3	2.1 to 2.9	3.3 to 4.2
Max. working pressure [MPa]		0.7		
Min. working pressure [MPa]		0.2		
Proof pressure [MPa]		1.05		
Ambient temperature [°C]		-5 to 55 (FreezingNo)		
Fluid temperature [°C]		5 to 55		
Rated voltage [V]		12 DC, 24 DC, 100 AC		

For details:



Click!



How to order	Single unit	$\frac{3}{4} G \frac{A}{D}$ [Size] [Switching section]0R-[Bore size]- [Wiring][Option]-[Voltage]-P4
	Manifold Replacement valve	$\frac{3}{4} G \frac{A}{D}$ [Size] [Switching section]9R-[Bore size]- [Wiring][Option]-[Voltage]-P4
	M4G Series (Metal base)	$M \frac{3}{4} G \frac{A/D}{B/E}$ [Size] [Switching section]0R-[Bore size]- [Wiring][Option][Mount type]-[Station No.]- [Voltage]-P4
	MN4G Series (Block manifold)	$MN \frac{3}{4} G \frac{A/D}{B/E}$ [Size] [Switching section]0R-[Bore size]- [Wiring][Option]-[Station No.]- [Voltage]-P4
	Discrete (Large flow rate)	$4 G \frac{A}{B}$ [Size] [Switching section]0-[Bore size]- [Wiring][Option]-[Voltage]-P4

	4G Series		M4G Series *5) *6)			MN4G Series *7) *9)	
	Push-in fitting Straight (Model No.: C*)	Screw-in (Model No.: M5, 06, 08)	Push-in fitting Straight (Model No.: C*)	Push-in fitting Elbow (Model No.: CL/CD/)	Screw-in (Model No.: M5, 06, 08)	Push-in fitting Straight (Model No.: C*)	Push-in fitting Elbow (Model No.: CL/CD/)
P4	● *8)	●	● *8)		●	● *8)	

- *1: Base piping (B) Discrete and 4GA/D1-M5 are Standard Product and equivalent to P4 specifications.
- *2: Copper-free material applies to flow rate part.
- *3: Refer to CKD components product site (<https://www.ckd.co.jp/kiki/en/>) → "Model No." for serial communication specifications.
- *4: Push-in fitting elbow is not supported.
- *5: Due to the attached M5 plug change, external pilot is available with P4 specification with or without fitting.
- *6: In-stop valve spacer and spacer pilot check valve are not supported.

- *7: External pilot specification is not available as standard.
- *8: The following are not supported for push-in fitting straight.
 $\frac{3}{4} G \frac{A}{D} 1, MN4G \frac{A}{D} 1:CF, C18$
GA/D3: C6, C10
GB/E3: C6
GA4: C10, C12
- *9: MN4G Atmosphere opening type cannot be selected for end block and supply and exhaust block.
- *10: Contact CKD for European Standards compliant products.

Pneumatic valves

How to order P4 Series

[-P4]: Indicates the Standard Product Fittings whose SUS needs to be modified for P4 specifications.

P4 compliant as standard: Indicates Standard Products compatible with P4 specifications that do not require "-P4" at the end of the model number.

P4 Series (flow path, sliding part material restrictions)

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

Pilot check valves

4G2R-PCS

Pilot check valve



Item	4G2R-PCS-P4
Flow characteristics [dm ³ /(s·bar)]	2.2
Max. working pressure [MPa]	0.7
Min. working pressure [MPa]	0.2
Proof pressure [MPa]	1.05
Ambient temperature [°C]	-5 to 55 No freezing
Fluid temperature [°C]	5 to 55

For details:



Click!

4G1R-PC/4G2R-PC

Pilot check valve



Item	4G1R-PC	4G2R-PC
Valve width [mm]	10	16
Flow Rate Characteristics [dm ³ /(s·bar)]	0.3	1.7
Max. working pressure [MPa]	0.7	0.7
Min. working pressure [MPa]	0.2	0.2
Proof pressure [MPa]	1.05	1.05
Ambient temperature [°C]	-5 to 55 (FreezingNo)	-5 to 55 (FreezingNo)
Fluid temperature [°C]	5 to 55	5 to 55

For details:



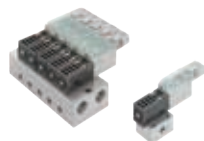
Click!

Direct Acting 3-Port Valves

The Direct Acting 3-Port Valves 3QR Series supports the P4 Series as standard.

3QRA/B

Direct acting 3-port solenoid valve



Item	Standard	Large flow
Flow characteristics [dm ³ /(s·bar)]	P→A 0.3	0.36
	A→R 0.32 to 0.36	0.38 to 0.4
Max. working pressure [MPa]	0.7	
Min. working pressure [MPa]	-0.1	
Proof pressure [MPa]	1.05	
Ambient temperature [°C]	0 to 50	
Fluid temperature [°C]	5 to 50	
Rated voltage [V]	12 DC, 24 DC	

3QB

Direct acting 3-port solenoid valve



Item	3QB1-H	3QB1-HP	3QB1-HV
Flow Rate Characteristics [dm ³ /(s·bar)]	P→A 0.11	0.11	0.18
	A→R 0.11	0.11	0.11
Max. working pressure [MPa]	0.3	0.65	0
Min. working pressure [MPa]	-0.1	0.1	-0.1
Proof pressure [MPa]	1.05		
Ambient temperature [°C]	0 to 50		
Fluid temperature [°C]	5 to 50		
Rated voltage [V]	24 DC		

How to order	Single unit	3QRB1 [solenoid position]0-M5 - [Electrical connections][Flow rate]- [Voltage]
	Replacement valve	3QRA1 [solenoid position]9-M5 - [Electrical connections][Flow rate]- [Voltage]
		3QRB1 [solenoid position]9-00- [Electrical connections][Flow rate]- [Voltage]
	Manifold	M3QRA1 [Solenoid position]0-M5 - [Electrical connections][Flow rate]- [Station No.]- [Voltage]

For details:



Click!

How to order	Single unit	3QB1 [Solenoid position]0-M5 - [Electrical connections]H [Pressure specification]- [Voltage]
	Manifold replacement valve	3QB1 [Solenoid position]9-00- [Electrical connections]H [Pressure specification]- [Voltage]
	Manifold	M3QB1 [Solenoid position]0-M5-[Electrical connections]H [Pressure specification]- [Station No.]- [Voltage]

Note: Supports P4 specifications as standard

For details:



Click!

Note: Supports P4 specifications as standard

Explosion-proof 3, 5-port valve

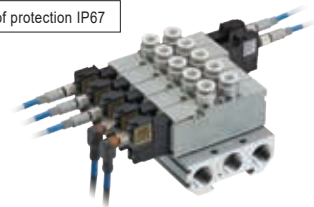
4G EJ/EX

Intrinsically safe explosion-proof pilot 3, 5-port valve 4G EJ/EX Series



Item	4GD/E1	4GD/E2	4GD/E3	4GD/E4
Valve width	10	15	18	24.3
Flow Rate Characteristics [dm ³ /(s·bar)]	P → A/B 0.86 to 1.4	1.7 to 2.5	3.0 to 4.5	6.3 to 11.0
	A/B→R 0.7 to 1.3	2.1 to 2.9	3.3 to 4.2	6.8 to 13.9
Max. working pressure [MPa]	0.7			
Min. working pressure [MPa]	0.2			
Proof pressure [MPa]	1.05			
Ambient temperature [°C]	-5 to 55°C (no freezing)			
Fluid temperature [°C]	5 to 55 °C			
Rated voltage [V]	12 DC			
Explosion-proof grade	EX ib IIC T4 GB			
Applicable standards	JPEX (Japan), IECEx (International), GBEx (China), KCs (Korea)			
Protection structure	IP67			

Degree of protection IP67



4G EJ

For details:



Click!

4G EX

For details:



Click!

How to order	Single unit	3 G 2 [Size] [Solenoid position] 0 EJ EX -[ConnectionBore size]- [Electric wireConnection][Option]-4-P4
	Manifold Replacement valve	3 G 2 [Size] [Solenoid position] 9 EJ EX -[ConnectionBore size]- [Electric wireConnection][Option]-4-P4
	Manifold	M 3 G 2 [Size] [Solenoid position] 0 EJ EX -[ConnectionBore size]- [Electric wireConnection][Option][Mount type]-[Station No.]-4-P4

Pneumatic valves

P40 Series (Material restrictions for all parts)

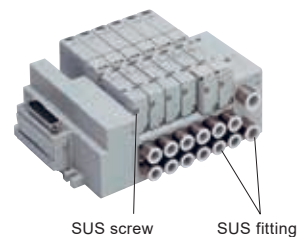
Contact CKD for product details.

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Item		W4G2	W4G4
Valve width		15	24.3
Flow Rate Characteristics [dm ³ /(s·bar)]	P → A/B	1.7 to 2.4	6.4 to 7.7
	A/B → R	1.7 to 2.5	6.4 to 8.3
Max. working pressure [MPa]		0.7	1.0
Min. working pressure [MPa]		0.2	0.2
Proof pressure [MPa]		1.05	1.5
Ambient temperature [°C]		-5 to 55°C (no freezing)	
Fluid temperature [°C]		5 to 55 °C	
Rated voltage [V]		12 DC, 24 DC	
Protection structure		IP65	

Degree of protection IP65



How to order	Single unit	W4G $\frac{B}{2}$ [Size] [Switching section]0-[Bore size]- [Wiring][Option]-[Voltage]-P40
	Manifold Replacement valve	W $\frac{3}{4}$ G $\frac{A}{2}$ [Size] [Switching section]9-[Bore size]-[Option] -[Voltage]-P40
	Individual wiring manifold	MW $\frac{3}{4}$ G $\frac{A}{2}$ [Size] [Switching section]0-[Bore size]- [Wiring][Option]-[Station No.]- [Voltage]-P40
	Reduced wiring manifolds	

	MW4G ^A ₂ 2 Series	MW4G ^B ₄ 4 Series	
Electrical connections	R1, T10, T20, T30, T51, T8D *, T8G *	R1, T10	
Manual device	Blank, M		
Available options	H, A, F, Z6	H, A, F, Z1, Z3	
	W4G2 Series	W4G4 Series	
	Push-in fitting Straight (Model No.: C*)	Fittings Screw-in (Model No.: 08, 10)	Push-in fitting Straight (Model No.: C*)
P 40	●	●	●*Excluding C12

* 1: Refer to CKD components product website (<https://www.ckd.co.jp/kiki/en/>)→Refer to "Model No."

* 2: M12 connector is resin connector.

* 3: End block atmosphere release/common exhaust type is not available.

* 4: Manifold external pilot specification is not available as standard.

* 5: Maximum size is C10 for push-in fitting straight.

* 6: Push-in fitting elbow is not applicable.

* 7: T30 and T51 have a degree of protection equivalent to IP40.

* 8: The M12 connector is used for the T7EC *, and the T8G * has copper-based metal + nickel plating for the FG terminalis attached.

* 9: Contact CKD when ordering parts only.

* 10: Contact CKD for other options.

* 11: Attachments cannot be selected from the manifold specifications sheet. Contact CKD separately.

* 12: Contact CKD for European Standards compliant products.



Item	W4G2-PC-P40
Flow characteristics [dm ³ /(s·bar)]	0.8
Max. working pressure [MPa]	0.7
Min. working pressure [MPa]	0.2
Proof pressure [MPa]	1.05
Ambient temperature [°C]	-5 to 55 (FreezingNo)
Fluid temperature [°C]	5 to 55

Pneumatic auxiliary components

Note: The photos on this page are standard products. Appearance may differ from the actual P4 specification products.

Clean air components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

SU300_E-W/SU400_E-W

Super dryer (High polymer membrane air dryer)



Model No. Indication	SU301 _E /302 _E /401 _E /402 _E - [Inlet air pressure]-W-[Unit]-[Option]-P4□	
	SU	●
Connection Bore	Rc3/8	●
P4		●
P 40		▲

- * 1: Applicable only for common exhaust.
- * 2: Auto-drain is not available.
- * 3: When unit option C3 is selected, zinc die-casting is used in the diaphragm part of the Regulators. For P40, pressure adjustment springs without Regulators gas contact and pressure adjustment screws, zinc plating is used.

For details:



Click!

SD300_E-W/SD400_E-W

Super dryer (High polymer membrane air dryer)



Model No. Indication	SD30□□/SD40□□-[Inlet air pressure]-W-[Option]-P4□	
	SD	●
Connection Bore	Rc3/8	●
P4		●
P 40		▲

- * 1: Applicable only for common exhaust.

For details:



Click!

SU3000-W/SU4000-W

Super dryer (High polymer membrane air dryer)



Model No. Indication	SU30 .. /SU40 ...-[Outlet air atmospheric dew point]- [Inlet air pressure]-W-[Option]-P4□	
	SU	●
Connection Bore	Rc3/8, 1/2	●
P4		●
P 40		▲

- * 1: Applicable only for common exhaust.
- * 2: Auto-drain is not available.
- * 3: When unit option C3 is selected, zinc die-casting is used in the diaphragm part of the Regulators. For P40, pressure adjustment springs without Regulators gas contact and pressure adjustment screws, zinc plating is used.

For details:



Click!

SD3000/4000

Super dryer (High polymer membrane air dryer)



Model No. Indication	SD30□□/SD4□□□-[Outlet air atmospheric dew point]- [Inlet air pressure]-[Option] -P4□	
	SD	●
Connection Bore	Rc3/8, 1/2	●
P4		●
P 40		▲

- * 1: Applicable only for common exhaust.

For details:



Click!

SHD

Desiccant air dryers



Model No. Indication	Contact CKD for model numbers.	
	SHD	●
P4		▲

For details:



Click!

AF2

Medium Size Main Line Filters



Model No. Indication	AF2-[Flow rate classification][Element] [Bore size]-P4	
	AF2	●
Connection Bore	Rc1, 1 1/4, 1 1/2, 2, 2 1/2	●
P4		▲

Note: Auto-drain is not available.

For details:



Click!

AF3000/AF5000

Large main line filter



Model No. Indication	AF3/.../AF5/...-[Bore size]-[Option] -P4	
	AF3000/AF5000	●
Connection Bore	Flange 2B, 3B, 4B, 6B, 8B	●
P4		▲

Note: Auto-drain is not available.

AF3000
For details:

Click!

AF5000
For details:

Click!

Pneumatic auxiliary components

Clean air components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

RB500

Compact Regulators



Model No. Indication RB500-[Direction][Bore size]-NT [option]P4□

	RB500
Connection Bore	Push-in fitting ø4/ø6
P4	●
P 40	▲

- *1: pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T" only)
- *2: Non-relief only is available.
- *3: Only straight direction is available.
- *4: P40 pressure adjustment springs without gas contact and pressure adjustment screw units use zinc plating.

For details:



Click!

RP1000/2000

Precision Regulators



Model No. Indication RP1000/2000-[Bore size]- [Pressure range]P4□- [Bracket]

	RP1000	RP2000
Connection Bore	Rc1/4	Rc3/8
P4	●	●
P 40	▲	▲

- *1: pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)
- *2: P40 pressure adjustment springs without gas contact use zinc plating.
- *3: Dimensions differs from Standard Product. There are mounting restrictions because of bleed port connection. Check the dimensions for each case.

For details:



Click!

RPE

Precision Regulators



Model No. Indication RPE1000-[Port size]- [Pressure range] P4-[Bracket]

	RPE1000
P4	●

- *1: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)
- *2: RPE1000 dimensions are different from the standard dimensions.

For details:



Click!

EVD



Electro pneumatic regulators



Model No. Indication Standard: EVD-1/3 [pressure control range]- [Input signal][Connection Bore][Output signal]-[Option]-3-P4
IO-Link type: EVD-1/3 [Pressure control range]-C [Port size][Unit change]-[Option]-3-P4

	EVD-1100/1500/1900	EVD-3100/3500/3900
Connection Bore	Rc1/4	Rc1/4, Rc3/8
P4	●	●

Note: The bracket option for EVD-1 *00-*Fittings -P4 is blank or L11 (L type, wall mounted for exhaust).
Standard B1 and L1 types cannot be selected.

For details:



Click!

F1000/F2000/F3000/ F4000/F6000/F8000

Filter



Model No. Indication F1000/2000/3000/4000/6000/8000-[Bore size]-W-[Option]P4□- [Bracket]

	F1000-W	F2000-W	F3000-W	F4000-W	F6000-W	F8000-W
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1	Rc3/4, 1
P4	●	●	●	●	●	●
P 40		●	●	●	●	

- *1: Auto-drain is not available.
- *2: Metal bowl is not available.
- *3: Y element is not available for P40.

For details:



Click!

M1000/M2000/M3000/ M4000/M6000/M8000

Oil Mist Filter



Model No. Indication M1000/2000/3000/4000/6000/8000-[Bore size]-W-[Option]P4□- [Bracket]

	M1000-W	M2000-W	M3000-W	M4000-W	M6000-W	M8000-W
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1	Rc3/4, 1
P4	●	●	●	●	●	●
P 40		●	●	●	●	

- *1: Auto-drain is not available.
- *2: Metal bowl is not available.
- *3: With differential pressure indicator option is not available.

For details:



Click!

R1000/R2000/R3000/ R4000/R6000/R8000

Regulator Reverse regulator



Model No. Indication R1/00/2 / 00/3 / 00/4 / 00/6 / 00/8 / 00- [Bore size]-W-[Option]P4□- [Pipe adaptor set] [Bracket]

	R1000-W R1100-W	R2000-W R2100-W	R3000-W R3100-W	R4000-W R4100-W	R6000-W R6100-W	R8000-W R8100-W
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1	Rc3/4, 1
P4	●	●	●	●	●	●
P 40		▲	▲	▲	▲	

- *1: pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
- *2: R6000 Dimensions is different from the standard.
- *3: P40, pressure adjustment springs without gas contact and pressure adjustment screw units use zinc plating.
- *4: R2 option is not available.
- *5: R1000, R1100, R8000, and R8100 are only available for non-relief (option code: N).
- *6: R3000 to R8000 and R3100 to 8100 use zinc die-casting in the diaphragm part.

For details:



Click!

Pneumatic auxiliary components

Clean air components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

W1000/W2000/W3000/ W4000/W8000

Filter/regulator
Reverse filter/regulator



Model No. Indication	W100/2/00/3/00/4/00/8/00-[Bore size]-W-[Option]P4□- [Pipe adaptor set] [Bracket]				
	W1000-W W1100-W	W2000-W W2100-W	W3000-W W3100-W	W4000-W W4100-W	W8000-W W8100-W
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	●	●	●	●	●
P 40	□	▲	▲	▲	□

- *1: pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
 *2: Metal bowl is not available.
 *3: R1 option is not available.
 *4: P40, pressure adjustment springs without gas contact and pressure adjustment screw units use zinc plating.
 *5: R2 option is not available.
 *6: W1000, W1100, W8000, and W8100 are only available for non-relief (option code: N).
 *7: W3000 to W8000 and W3100 to W8100 use zinc die-casting in the diaphragm part.
 *8: Y element is not available for P40.

For details:



Click!

FX

Drain Separators



Model No. Indication	FX1004/1011/1037-[Port size]-W-[Option]-P4-[Attachment]		
	FX1004	FX1011	FX1037
Connection Bore	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	●	●	●
P 40	▲	▲	▲

- *1: Auto-drain is not available.
 *2: Metal bowl is not available.

For details:



Click!

G40D/G41D/G49D/G59D

Pressure Gauge



Model No. Indication	G40D/G41D/G49D/G59D-[Bore size]-P [Pressure]-P4			
	G40D	G41D	G49D	G59D
	Display ø42.5 with safety marker	Display ø42 with limit marker	Indicator ø42	Indicator ø52
Connection Bore	R1/8	R1/8, 1/4	R1/8	1/4
P4	●	●	●	●

For details:



Click!

FCS500/FCS1000

Inline clean filter



Model No. Indication	FCS500/FCS1000-[H push-in fitting bore size]- [Attachment]-P 40			
	FCS500		FCS1000	
Connection Bore	Push-in fitting ø4 to 8	Screw type/ SUS type (P9)	Push-in fitting ø8 to 12	Screw type/ SUS type (P9)
P4	□	Supports P4 specifications as standard	□	Supports P4 specifications as standard
P 40	▲	Supports P40 specifications as standard	▲	Supports P40 specifications as standard

For details:



Click!

FAC

Clean Exhaust Filters



Model No. Indication	FAC10/100/200-[Port size] FAC3000-[Port size]- [Attachment]			
	FAC10	F100 AC	F200 AC	FAC3000
Connection Bore	ø4, 6, 8, 10	R1/8, 1/4	R3/8, 1/2	Rc3/8, 1/2
P4	Standard compliance			

For details:



Click!

P1100/P4100/P8100

Pressure Switch



Model No. Indication	P1100/P4100/P8100-[Bore size][Branch direction]-W-P4- [Attachment]- [Lead wire length]		
	P 1100	P 4100	P 8100
Connection Bore	Rc1/8, 1/4	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	▲	●	▲

- *1: The atmospheric pressure inlet port is M5.
 *2: The included option for the atmospheric release port is not available.

For details:



Click!

APS

Compact Mechanical Pressure Switches



Model No. Indication	APS-[Piping port position/bore size/scale plate direction] [Lead wire length]-W-[Option]-P4	
	APS	
Connection Bore	Rc1/8	
P4	●	

- *1: The atmospheric pressure inlet port is M5.
 *2: Fitting attachment option for atmospheric introduction port is not available.

For details:



Click!

Pneumatic auxiliary components

Clean air components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Model No. Indication	PPX-[Pressure range][Output]-[Piping shape]-[Connector cable]- [Unit change]
	PPX
P4	Standard compliance
P 40	● Product is limited to the following model numbers

*1: P40 bracket mounting is not possible.
*2: P40 is compatible only with PPX-R10P-6M-J-P40/PPX-R10N-6M-J-P40.
*3: P40 Connector must be ordered separately. PPX-C2-FL401967-P40

For details:



Model No. Indication	FSM3-[Display][Flow rate range] [Flow direction][Body material/applicable fluids][Connection Bore][Piping specifications][Output specifications][Unit Specification]N [Lead wire] [Mounting attachments] [Included documents]- [Clean-room specifications]
	FSM3
P4	Standard compliance

*1: Stainless steel body is P4 compatible as standard.
*2: Resin body and products with needle valve are not P4 compatible.

For details:



Model No. Indication	V3301-[Bore size]-W-FL□
	V3301
Connection Bore	Rc1/4 to Rc1/2
P4	▲
P 40	▲


Note: Only LS is available for electrical connection.

For details:



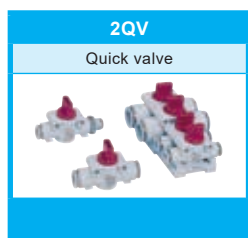
Model No. Indication	V3000/V3010/V6010-[Bore size]-W-[Option]P4□- [Attachment]	
	V3000, V3010	V6010
Connection Bore	Rc1/4 to Rc1/2	Rc3/4, Rc1
P4	●	●
P 40	▲	▲

For details:



*1: P40 uses zinc plating for the exhaust air flow path.

For details:



Model No. Indication	2QV-[Bore size]-P4
	2QV
Connection Bore	ø4, ø6, ø8, ø10, ø12
P4	●

For details:



Model No. Indication	SNS-[Station No.]- [Bore size]-[Option]-3
	SNS
Connection Bore	Rc3/8, Rc1/2
P4	Standard compliance

Safety standard ISO13849-1 certified product

For details:



Speed controllers



Model No. Indication	SCL2-[Body size]-[Compatible tube O.D.]-P4	*needle valve is not available at present.
	SCL2/SCD2	
Connection Bore	ø4, ø6, ø8, ø10	
P4	●	

Note: Only ● part of the table below is supported.

		Body Size			
		04	06	08	10
Applicable tube O.D.	H44	●			
	H66		●		
	H88			●	
	H1010				●

For details:



Pneumatic auxiliary components

Speed controllers

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

SC3W

Speed controller, elbow



Model No. Indication	SC3W-[Port size]- [Compatible tube O.D.]-[Option] -P4
	SC3W
Connection Bore	M3, M5, R1/8, 1/4, 3/8, 1/2
P4	●

*1: The Dimensions of pipe size M5 is different from the standard SC3W.

*2: Compatible tube O.D. 3 (ø3, 2) is not available.

*3: Option is meter-in only.

For details:



Click!

DSC

Speed Controllers with Dials



Model No. Indication	Standard	DSC-[Port size]- [Compatible tube O.D.]- [Control method][Flow rate]-P4
	Compact	DSC-C-[Port size]- [Compatible tube O.D.]- [Control method][Flow rate]-P4
	DSC	DSC-C
Connection Bore	M5, R1/8, 1/4, 3/8, 1/2	M5, R1/8
P4	●	▲

For details:



Click!

SC3F/SCLF

Speed controller
Polypropylene resin



Dew point -80°C non-compatible

Model No. Indication	SC3F/SCLF-[Piping size]-[Compatible tube O.D.]-[Option] -P4	
	SC3F	SCLF
Connection Bore	M3, M5, R1/8, R1/4, R3/8, R1/2	ø4, ø6, ø8, ø10, ø12
P4	●	●

SC3F
For details:



Click!

SCLF
For details:



Click!

Fittings

FTS4-FPL

Miniature fitting



Model No. Indication	FTS4-M3-P4, FPL-M5-P4	
	FTS4	FPL
Connection Bore	M3	M5
P4	▲	▲

Note: M3 gasket dimensions are different from the standard dimensions.

For details:



Click!

ZW

Fittings
Stainless steel



Model No. Indication	ZW-[Shape][Compatible tube O.D.]- [Piping size] -P4	
	ZW	
Connection Bore	ø4, ø6, ø8, ø10, ø12	
P4	●	

For details:



Click!

ZSF

Fitting
(Polypropylene resin)



Dew point -80°C non-compatible

Model No. Indication	ZSF-[Shape][Compatible tube O.D.]- [Piping size] -P4	
	ZSF	
Connection Bore	ø4, ø6, ø8, ø10, ø12	
P4	●	

For details:



Click!

Auxiliary valves

QEL

Quick exhaust valve inline type



Model No. Indication	QEL-[Tube O.D.]-P4	
	QEL	
Connection Bore	ø4, ø6	
P4	▲	

Fittings *1: Applicable only for type with exhaust port.

For details:



Click!

Pneumatic auxiliary components

Auxiliary valves

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

QEV2

Quick Exhaust Valves



Model No. Indication	QEV2-[Port size]- [Option] [Accessory]
	QEV2
Connection Bore	Rc1/8 to 1
P4	Standard compliance

For details:



SHV2

Shuttle Valves



Model No. Indication	SHV2-[Port size]- [Option] [Accessory]
	SHV2
Connection Bore	Rc1/8 to 1
P4	Standard compliance

For details:



Note: Select a fluoro rubber specification

CHV2

Check valve



Model No. Indication	CHV2-[Port size]- [Flow rate] - [Option] [Accessory]
	CHV2
Connection Bore	Rc1/8 to 1 1/2
P4	Standard compliance

For details:



Note: Select a fluoro rubber specification

Silencers

SMW2

Metering Valves with Silencers



Model No. Indication	SMW2-[Port size]
	SMW2
Connection Bore	R1/8, 1/4
P4	Standard compliance

For details:



FA

Exhaust Cleaners



Model No. Indication	FA [Series classification]31-[Port size]- [Option]
	FA
Connection Bore	Rc3/8 to 2
P4	Standard compliance

For details:



Tubes

ET

Fluoro resin tube



Model No. Indication	ET-[Size]- [Option]
	ET
Outer diameter	ø4, ø6, ø8, ø10, ø12
P4	Standard compliance

For details:



PFH/S

Polyolefin tube



Model No. Indication	PF[type]-[Size]- [Option]]-P 4
	PFH/S
Outer diameter	ø4, ø6, ø8, ø10, ø12
P4	●

For details:



Dew point -80°C non-compatible

Pneumatic auxiliary components

Tube

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

UP/F/U/NU/KX/SR2

Tube



Dew point -80°C non-compatible

Model No. Indication	Tube type-[Size] -[Option]
	UP/F/U/NU/KX/SR2
Outer diameter	ø1.8, ø3.2, ø4, ø6, ø8, ø10, ø12, ø15
P4	Standard compliance

For details:



Click!

Gas Generators

NS

Nitrogen Extraction Unit



Model No. Indication	NS-[Body size][Membrane unit size][Number of units][Bore size][Option] [Installation direction]-P 4
Connection Bore	Rc3/8, Rc3/4, Rc1
P4	▲

*1: Applicable only for common exhaust.

For details:



Click!

Fluid Control Components

Fluid Control Components

AB3/AB4-Z GAB3/GAB4-Z

General purpose valves For dry air



Model No. Indication	Single unit	AB [Model No.]- [Port size]- [Orifice size]-M[Coil][Option]ZP4□- [Voltage]
	Manifold	GAB [Model No.][Thread]- [Orifice size]- [Station No.]-M[Coil][Option]ZP4□- [Voltage]
		AB3/AB4-Z GAB3/GAB4-Z
Classification		Direct acting 2-port valve for dry air
Body material		Stainless steel
P4		●
P 40		●

*1: Body material/Seal combination code M only.
*2: Pipe material is SUS316.

For details:



Click!

AG3/AG4-Z GAG3/GAG4-Z

General purpose valves For dry air



Model No. Indication	Single unit	AG [Model No.][Connection Bore]- [Orifice size]-M[Coil][Option]ZP4□- [Voltage]
	Manifold	GAG [Model No.][NO port size]- [Orifice size]- [Station No.]-M[Coil][Option]ZP4□- [Voltage]
		AG3/AG4-Z GAG3/GAG4-Z
Classification		Direct Acting 3-Port Valves for dry air
Body material		Stainless steel
P4		●
P 40		●

*1: Body material/Seal combination code M only.
*2: Pipe material is SUS316.

For details:



Click!

ADK11-Z

General purpose valves For dry air



Model No. Indication	ADK11-[Port size]-M[Coil][Option]ZP4□- [Voltage]
	ADK11-Z
Classification	Pilot kick 2-port valve for dry air
Body material	Stainless steel
P4	●
P 40	●

*1: Body material/Seal combination code M only.
*2: Pipe material is SUS316.

For details:



Click!

EXA

For air Pilot operated 2-port solenoid valve



Model No. Indication	EXA-[Port size]- [Sealant material][Coil][Option]-[Voltage]
	EXA
Connection Bore	Rc1/4, 3/8, G1/4, 3/8, 1/4NPT, 3/8NPT
P4	Standard compliance

For details:



Click!

Fluid Control Components

Fluid Control Components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

CHB

Air operated
2-port ball valve



Model No. Indication	CHB-[Port size]- [Body material]-P4
	CHB-N
Connection Bore	Rc3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

Note: Body material code N only.

For details:



Click!

CHG

Air operated
3-port ball valve



Model No. Indication	CHG-[Port size]- [Body material]-P4
	CHG-N
Connection Bore	Rc1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

Note: Body material code N only.

For details:



Click!

SAB/SVB

Air Operated 2-Port Valves



Model No. Indication	SAB [Actuation][Working fluid]- [Port size][Thread/flange] - [Body/sealant combination] [Other options] - [Assembly direction]-P4	SVB [Actuation][Working fluid]- [Port size][Thread/flange]-[Body/sealant combination][Coil][Other options]-[Assembly direction]- [Voltage]-P4
	SAB	SVB
Connection Bore	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	●	▲

*1: Body/sealant combination code E only.

*2: Voltage: 24VDC only.

For details:



Click!

NAB/GNAB

Air Operated 2-Port Valves



Model No. Indication	Single unit	NAB [Actuation][Working fluid]- [Port size]- [Cylinder cover/body/sealant combination] [Option]-P4 *1
	Manifold	GNAB [Actuation][Working fluid]- [Air supply category]- [Manifold station No.]- [Cylinder cover/sub-plate/body/sealant combination] - P4Note 2
	NAB/GNAB	
Connection Bore	Rc1/4, Rc3/8	
P4	●	

*1: Cylinder cover/body/sealant combination code E only.

*2: Cylinder cover/body/sealant combination code 7 or E only.

For details:



Click!

NAD/GNAD

Diaphragm
Cylinder Valve



Model No. Indication	Single unit	NAD [Actuation][Working fluid]- [Port size]- [Body/sealant combination] [Option]-P4
	Manifold	GNAD [Actuation][Working fluid]- [Air supply category]- [Manifold station No.]- [Sub-plate/body/sealant combination] - P4 *1
	NAD	
Connection Bore	Rc3/8	
P4	●	

*1: Sub-plate/body/sealant combination code R only.

For details:



Click!

LAD

Diaphragm
Cylinder Valve



Model No. Indication	LAD [Actuation]- [Port size]- [Material combination] [Option]-P4
	LAD
Connection Bore	Rc3/8, 1/2, 3/4, 1
P4	●

For details:



Click!

NP13/NP14

Pneumatic
3-Port Solenoid Valve



Model No. Indication	NP1 [Actuation]- [Port size]-1[Coil housing] [Option]-[Voltage]-P4
	NP13/NP14
Bore size	Rc3/8 to Rc2
P4	●

*1: Coil option is 2G, 2H, 2GS, 2HS only.

*2: Voltage: 24VDC only.

*3: Rc1 1/4 to Rc2 are made-to-order products.

For details:



Click!

Fluid Control Components

Fluid Control Components

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



Model No. Indication	NAP11-[port size]- [Body/sealant combination] -P4	
	NAP11	
Connection Bore	Rc3/8 to 2	
P4	●	

For details:



Click!



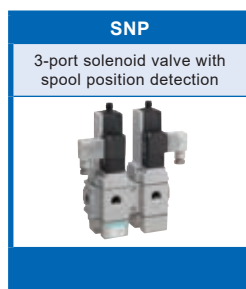
Model No. Indication	NVP11-[port size]- [Body/sealant combination] [Coil housing] [Option]]-[Voltage]-P4	
	NVP11	
Connection Bore	Rc3/8 to 2	
P4	●	

* 1: Coil option is 2G, 2H, 2GS, 2HS only.
* 2: Voltage: 24VDC only.
* 3: Rc1 1/4 to Rc2 are made-to-order products.

For details:



Click!



Model No. Indication	SNP-[Station No.]- [Port size]- [Sealant material][Coil option] [Limit Switches] [Bracket] [Silencer] - [Voltage]-P 4	
	SNP	
Connection Bore	Rc3/8, 1/2, 3/4	
P4	●	

For details:



Click!



Model No. Indication	HVB2 to 5 Series: HVB[Series size]12-[Connection method]- [Orifice size]- [Coil option] [Mounting plate]- [Voltage] HVB6, 7 Series:HVB[Series size]12-[Connection method]- [OrificeDiameter][Thermal class]-[Option]-[Voltage]	
	HVB2 to 5	HVB6, 7
P4	Standard compliance	

* 1: Fluorine grease is used.

For details:



Click!

Wet Fine components



Model No. Indication	AMD[Size][Actuation]3R-[Connection method]- [Actuator option] [Body option] [Operating port direction][Mounting Method]				
	AMDZ**3R	AMD0**3R	AMD3**3R	AMD4**3R	AMD5**3R
P4	Standard compliance				

* 1: AMDZ For specifications of *3R, *0 3R, *4 3R, *5 3R, etc., refer to CKD components product site (<https://www.ckd.co.jp/kiki/en/>)→ "Model No."

For details:



Click!

Dry Fine systems



Model No. Indication	AVB **7-X*****,AVB **3-X*****	
	AVB**7	AVB**3
Connection Bore	NW16, NW25, NW40, NW50, NW63	NW25, NW40, NW50, NW80
P4	▲	

Note: Use after checking the compatibility of the working fluid with the gas-contacting materials.

For details:



Click!

Electric Actuators

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable

EJSG

Electric Actuators



Model No. Indication	EJSG-[Body size][Motor mounting direction][Screw lead][stroke Fittings][Brake][Encoder]N-[C [Relay cable]-P4
	EJSG
P4	●

For details:



Click!

EBS-G

Electric Actuators



Model No. Indication	EBS-[Body size] G [Motor mounting direction]- [Screw lead] [stroke] [Brake] [Encoder] N-C [Relay cable] - [Anti-rust treatment][Fitting]-P 4
	EBS-G
P4	●

For details:



Click!

FLCR

Electric Actuators



Model No. Indication	FLCR-[Size]G[Screw lead][stroke][Brake]CN-[Connector leadout direction][Relay cable]-[Fitting]-P4
	FLCR
P4	●

For details:



Click!

EBR-G

Electric Actuators



Model No. Indication	EBR-[Body size] G [Motor mounting direction]- [mounting style]- [Screw lead] [stroke] [Brake] [Encoder] N-C Fittings [Relay cable] - [Kai]-P 4
	EBR-G
P4	●

For details:



Click!

EBS-L

Electric Actuators



Model No. Indication	EBS-[Body size] L [Motor mounting direction]- [Screw lead] [stroke] [Brake] NN-[Mounted motor specification][Motor size] [Origin sensor][Limit sensor]-[Anti-rust treatment]-P 4
	EBS-L
P4	●

Note: The supplied origin sensor and limit sensor do not restrict the materials of the components.

For details:



Click!

EBR-L

Electric Actuators



Model No. Indication	EBR-[Body size] L [Motor mounting direction]-00-[Screw lead][stroke][Brake] NN-[Mounted motor specification][Motor size] [Origin sensor] [Limit sensor]-P4
	EBR-L
P4	●

Note: The supplied origin sensor and limit sensor do not restrict the materials of the components.

For details:



Click!

Electric Actuators

●: Target models ○: Semi Applicable models ▲: Please contact us □: Not applicable



ETS

Electric Actuators

Model No. Indication	ETS-[Body size]-[Screw lead][stroke]-[Motor mounting direction][Mounting motor specifications][Motor size][Brake][Origin sensor][Limit sensor][Grease nipple][Positioning pin hole]- [Anti-rust treatment]-P 4
	ETS
P4	●

Note: The supplied origin sensor and limit sensor do not restrict the materials of the components.

For details:



Click!



ECS

Electric Actuators

Model No. Indication	ECS-[Body size]-[Screw lead][stroke]-[Motor mounting direction][Mounting motor specifications][Motor size][Brake][Origin sensor][Limit sensor][Grease nipple][Positioning pin hole]- [Anti-rust treatment]-P 4
	ECS
P4	●

Note: The supplied origin sensor and limit sensor do not restrict the materials of the components.

For details:



Click!



EKS

Electric Actuators

Model No. Indication	EKS-[Body size][Motor][Motor mounting direction]- [Screw lead] [stroke] [Brake] NN-[Mounted motor specification][Motor size] [Motor shaft fixing method][Origin sensor][Limit sensor]-[Anti-rust treatment][Fitting]-P4□
	EKS
P4	●
P 40	●

* 1: The attached origin sensor and limit sensor do not restrict the materials of components.
* 2: Anti-rust treatment is only for P40.

For details:



Click!

*1: The cylinder equipped model No. is the order model No. in the table below.
 *2: For single switch model numbers, add -P4 to the end of the basic switch model number in the table below.
 *3: SSD is not available for F switch.

5 CKD CKD

*1: The cylinder equipped model No. is the order model No. in the table below.
 *2: For single switch model numbers, add -P4 to the end of the basic switch model number in the table below.
 *3: SSD is not available for F switch.

Not compatible with Rechargeable Battery Components P4 Series.

Electric motion components

Wireless components (IO-Link Wireless)

ABSODEX

Direct drive actuator

AX*R Series

Direct drive actuator ideal for indexing table drives

Max. torque: 1.2 N·m to 1000 N·m



ROBODEX Std.

Slider types

ETV/ECV Series

- Motorless specifications
- Low dust specification (ECV)
- 3 sizes
- Supports servo motors 200 to 750W
- Max. payload: 85 kg (horizontal)
- Max. stroke: 3500 mm



ROBODEX Pulse

2-Finger Gripper

FLSH Series

- Sliding screw drive
- 3 sizes
- Manual finger position adjustment
- Self-lock mechanism



Rod/guided/stopper/3-Finger Gripper

GSSD2/GSTG/GSTS/GSTL/GSTK/GCKW Series

- Air components and common body
- Total of 6 types
- With stepping motor



DISC Servo Motor

Direct drive actuator

DISC Series

Direct drive actuator compatible with various high-end processing stages

Max. torque: 8.5 N·m to 3700 N·m



Rotary type

FGRC Series

- Worm gear + belt drive
- 3 sizes
- Manual table position adjustment
- Self-lock mechanism



ROBODEX Pulse

Rotary type



ROBODEX Pulse

Low-profile 2-Finger Gripper

FFLD Series

- 5 sizes
- Built-in controller
- 1 cable
- Max. stroke length 80mm (one side)
- Max. gripping power 500N (one side)
- Interface IO-Link



ROBODEX Pulse

Plug-in valve

TVG Series



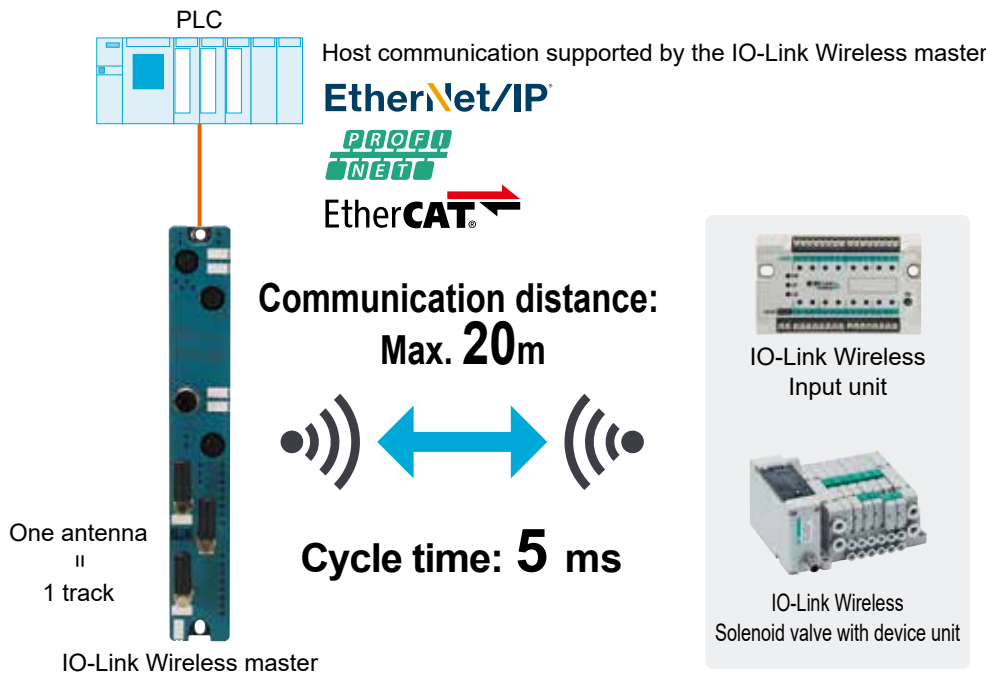
Input unit

WD Series

[Japan-EU-USA Only Release]



- Wireless, uninterruptable! (Error rate is 1/1 billion.)
- IO-Link Wireless provides I/O control at movable and oscillating sections, which was previously abandoned
- Reduces signal wires up to the PLC, realizing reduced wiring in the unit



Usage Examples

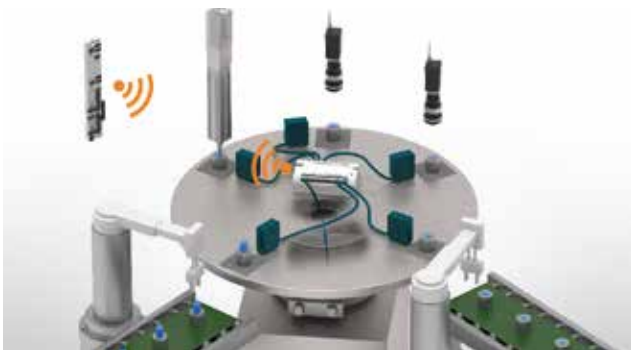
Wireless Conversion of Cylinder Switch for Robot Hands

The switch for operation confirmation of a robot end effector that picks up multiple workpieces will be made wireless. Since power is supplied from the robot's internal wiring to the IO-Link Wireless input unit, external wiring is eliminated, reducing the risk of disconnections.



Assembly/inspection (rotating table)

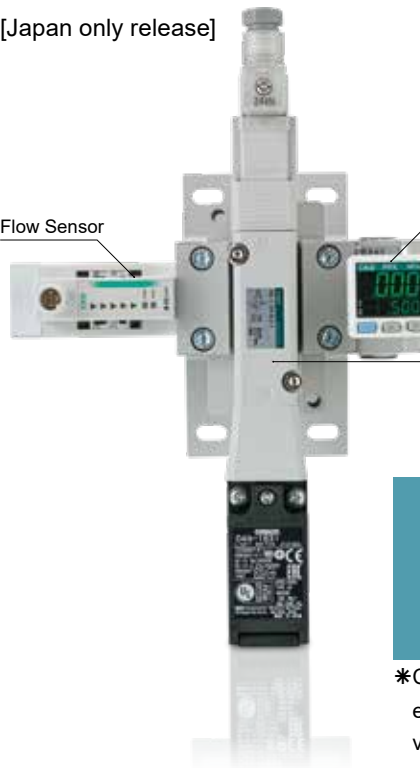
Since the signal line is wireless, it is possible to install a photoelectric sensor on the rotating table. Contributes to improved workpiece positioning accuracy.



For carbon neutral/energy saving

Air monitoring unit

CVU Series
[Japan only release]



Flow Sensor


Pressure Sensor

Residual pressure exhaust valve
When equipment is stopped
Air supply OFF

Detection

- Instantaneous flow rate
- Accumulated flow
- Pressure
- CO₂ Emissions
- Electric energy

*CO₂ emissions and energy are converted values.



Click!

Pulsed blow valve

BNP Series
Gun BNP-G



Easy-to-Aim gun

Easy-to-grip design

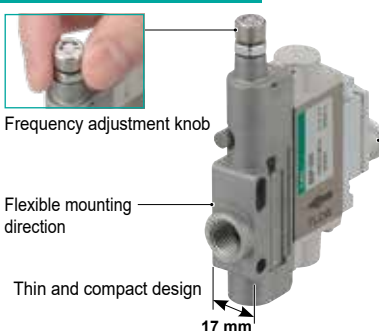
Frequency adjustment knob

With needle protective cover



Click!

Unit BNP-U



Frequency adjustment knob

Flexible mounting direction

Thin and compact design
17 mm

Air supply side
With push-in fitting

Power Supply
Unnecessary

With mounting plate
*Option

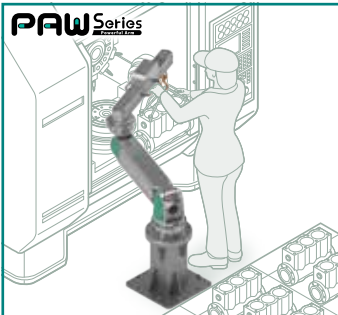
Assistance devices

CKD's Human Assist, which can be selected in a variety of situations

PowerArms

PAW Series

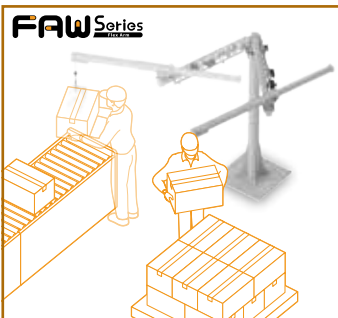
To load/unload workpieces from the machine tool opening and transport heavy items from the workbench to the conveyor in a narrow assembly area.



Flex Arms

FAW Series

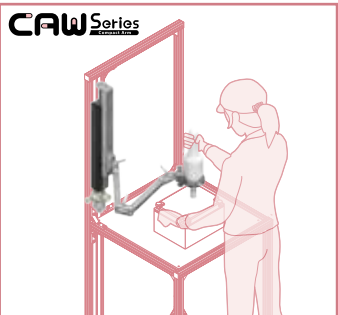
To transfer cardboard boxes and material bags from pallets to a conveyor in a work area with low ceilings.



Compact Arms

CAW Series

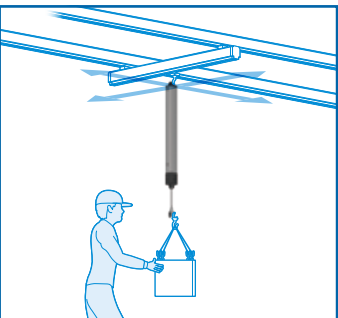
To reduce the burden on shoulders, arms, and wrists during tightening work such as air impact and nutrunners



Balancer unit

BBS Series

To transport heavy objects far away in a large work area.



Guide to the CKD catalog

Learn more about each product category in the booklet catalog



In the "digest catalog"
Search the summary of the
components you're looking for

Detailed specifications can be
found in the booklet catalogs
and WEB catalogs

Pneumatic cylinders①
General Type
RJ-002AA

Pneumatic cylinders②
Space saving structure
RJ-003AA

Pneumatic cylinders③
With linear guide
With guide
RJ-004AA

Pneumatic cylinders④
Rodless With brake
Clamp Oscillation/rotation
RJ-005AA

Pneumatic cylinders⑤
Hand Chuck Gripper
RJ-006AA

**Air Preparation Units
Auxiliary components**
Filter Regulator
Pressure Gauge
Speed controller
Silencer Fitting Tube
RJ-007AA

**Sensors/
Controllers**
Pressure Switch
Flow Sensor
Flow rate controller
Air sensor
RJ-008AA

**Main line components
Gas Generator**
Air Dryer
Main Line Filter
Drain discharger
Nitrogen Extraction Unit
RJ-009AA

**Precision Equipment
Vacuum Equipment**
Air Bearing
Ejector System
Vacuum Pump System
Suction Pad
RJ-010AA

**Directional Control
Valves ①**
Plug-in Block manifolds
3, 4, 5-port valve
Remote I/Os
RJ-011AA

**Directional Control
Valves ②**
2, 3, 5-port valve
Explosion-proof
Air operated valve
Manual selector valve
RJ-012AA

**Fluid Control
Valves**
Solenoid valve
Air operated valve
Ball valve
RJ-013AA

Electric Actuator
ROBODEX Pulse
RJ-014AA

Electric Actuator
ROBODEX Std.
RJ-015AA

**Wet Fine System/high purity
chemical liquid system**
CB-031ASA

**Dry Fine System/high purity gas
control system components**
RJ-016AA

Electric Actuator
ROBODEX Servo
CC-1275AA CC-1436AA

ABSODEX
ABSODEX
CC-1614AA

**Image Processing Visual
Programming tool**
Facilea
CC-1548AA
Facilea AI
CC-1623AA

**Device visual
Programming tool**
ExiaStudio
CC-1579AA

Learn more about each product category in the booklet catalog

<https://www.ckd.co.jp/kiki/en/>





Red cube icon: Distributors

CKD Corporation

Website <https://www.ckd.co.jp/en/>

ASIA

喜開理(上海)機器有限公司

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- 寧波支店(NINGBO BRANCH OFFICE)
- 杭州支店(HANGZHOU BRANCH OFFICE)
- 無錫支店(WUXI BRANCH OFFICE)
- 昆山支店(KUNSHAN BRANCH OFFICE)
- 蘇州支店(SUZHOU BRANCH OFFICE)
- 常州支店(CHANGZHOU BRANCH OFFICE)
- 南京支店(NANJING BRANCH OFFICE)
- 合肥支店(HEFEI BRANCH OFFICE)
- 成都支店(CHENGDU BRANCH OFFICE)
- 武漢支店(WUHAN BRANCH OFFICE)
- 鄭州支店(ZHENGZHOU BRANCH OFFICE)
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- 東莞支店(DONGGUAN BRANCH OFFICE)
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