



Components for industrial automation

CKD Corporation
CC-667A

CKD

Our vast experience and comprehensive capabilities can solve problems in many fields and enhance the convenience of modern life. We will continue to work hard to embed our emerging technologies in factory automation and to meet the ever more sophisticated needs of our customers as their industries advanced into the future.



CKD is a global provider of quality products based on cutting-edge manufacturing techniques.

CKD has developed production systems to swiftly supply both domestic and overseas markets with quality products. The production plants also have their production systems geared to efficiently produce quality products while considering environmental friendliness.

Production System



ISO9001-certified "Creating products" with superior quality. Overseas production base for Europe, America, Oceania, Middle East, Russia, India, etc.

All of our divisions, from sales to manufacturing, have ISO14001 certification. (Achieved)

Head Plant (Komaki City)

Main plant producing automatic machinery and FA systems



Kasugai Plant
Producing fluid control components for semiconductor manufacturing



Yokkaichi Plant
Meeting the needs of pneumatic components for inside and outside the country



Inuyama Plant
Producing high-function and high-performance cylinders



CKD (CHINA) CORPORATION
Strategic supply base of global products



CKD THAI CORPORATION LTD.
Overseas production base to cover the ASEAN area



CKD KOREA CORPORATION
Korean production base mainly for semiconductor-related components

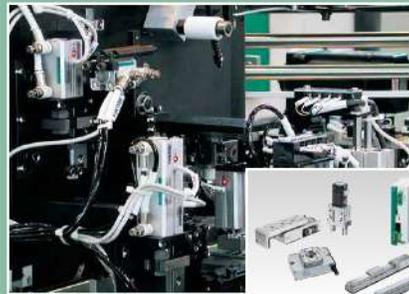


M-CKD PRECISION SDN. BHD.
Malaysian base providing quick and reliable response for customers



PT CKD MANUFACTURING INDONESIA
Indonesian production base meeting the needs of the Indonesian market

ACTUATORS



Satisfying the demand for automation with electric actuators and a variety of pneumatic cylinders from miniature to large bore sizes.



● Electric actuator ● Compact direct mounting cylinder ● Guided cylinder ● Super rodless cylinder

- ACTUATOR
- PNEUMATIC VALVES
- PNEUMATIC AUXILIARY COMPONENTS
- PNEUMATIC AUXILIARY COMPONENTS (MAIN LINE UNITS)
- PNEUMATIC FILTER, REGULATOR, LUBRICATOR (F.R.L. UNITS)
- RELATED PNEUMATIC PRODUCTS
- DIRECT DRIVE MOTOR/INDEX
- GENERAL PURPOSE VALVES
- HIGH PURITY CHEMICAL OIL/LIQUID CONTROL SYSTEMS
- FP W P4 P7
- SERIES BY INDUSTRY



PNEUMATIC VALVES



CKD is meeting increasingly diverse market requirements by the continual application of our compressed air technologies.



● Compact pneumatic valves (Reduced wiring valve)



● Pneumatic valves (Reduced wiring valve)



● Pneumatic valves (Plug-in method)



RELATED PNEUMATIC PRODUCTS



Leave it to CKD "Clean Air System" to deliver total quality control for your compressed air.



● Refrigeration air dryers



● F.R.L. combination



● SELVACS (Vacuum system equipment)



● Speed controllers



DIRECT DRIVE MOTOR/INDEX



In every type of drive system for processing, assembly, machining, CKD's labor saving machines provide robust performance at manufacturing sites everywhere.



● ABBODEX (DD actuator)



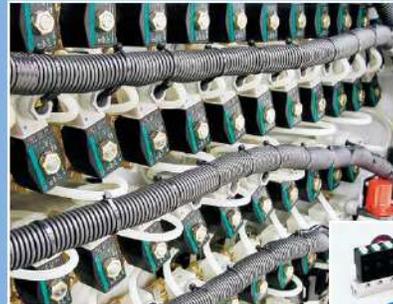
● Roller gear cam units



● Direct P&P unit
● Linear P&P unit: Arm A, Table B



GENERAL PURPOSE VALVES



Superb quality and product variety represent CKD's philosophy for fluid control devices.



● Pilot operated solenoid valves



● General purpose valves



● Cylinder valves



To control high purity fluids in semiconductor and liquid crystal fabrication, CKD's fluid control devices meet your toughest requirements in a super clean environment.



Pneumatic refining components (main line units)

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ACTUATORS

Succession and evolution,

Stepper motor drive, a new product that is compact and highly rigid Catalog CC-1422A

Slider EBS-M Series

- Ball screw drive, 3 sizes
- Equipped as standard with a battery-less absolute encoder
- Replaceable motor unit
- Motor mounting: 4 directions
- Max. load capacity: 80 kg (horizontal)
- Max. stroke: 1,100 mm
- Max. speed: 1,100 mm/s

Significantly improved basic performance with new controller

- Max. load capacity: 45 kg (compared with conventional models 4.5x)
- Max. speed: 1,100 mm/s (1.8x)

Wide guide that is integrated with the body. Achieves both compactness and high rigidity simultaneously.

	EBSL-90 (conventional product)	EBS-95
Body width	64 mm	54 mm
Static allowable moment	MP 25.7 N·m MY 25.7 N·m MR 58 N·m	103 N·m 103 N·m 144 N·m

Rod with built-in guide EBR-M Series

- Ball screw drive, 3 sizes
- Equipped as standard with a battery-less absolute encoder
- Replaceable motor unit
- Motor mounting: 4 directions
- Max. load capacity: 80 kg (horizontal)
- Max. stroke: 700 mm
- Max. speed: 900 mm/s

Rod with built-in guide

Supports offset workpieces

Stepper motor drive. A new product that is compatible with pneumatic equipment and has the same capacity Catalog CC-1444A

2-Finger Gripper FLSH Series

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

Dimensions are compatible with the Air Hand LSH Series

Table FLCR Series

- Ball screw + Belt drive
- 3 sizes
- Built-in motor saves space

Dimensional compatibility with the Air type LCR Series

No shock absorber required, conserves space

Rotary FGRC Series

- Worm gear + Belt drive
- 3 sizes
- Manual table position adjustment
- Self-locking mechanism

Conserves more space than the Air type GRC Series

No shock absorber required, compact body

Capacity equal to that of air components

Ease of use equivalent to air components

wider possibilities and new options

"One controller" connects everything

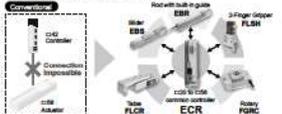
Catalog CC-1422A Catalog CC-1444A



ACTUATORS

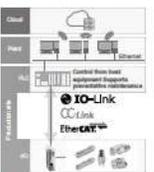
Controller ECR Series

- Reduced initial work hours and stock**
- One controller that connects to any actuator
 - Equipped with an automatic recognition function that reads actuator information
 - With a common controller, work hours for selection and ordering can be reduced as well as inventory



Supports IoT

- Our product is compatible with all types of industrial networks
- This allows control from host equipment over Ethernet, and also enables preventative maintenance



- Reduced controller footprint**
- Compact, allowing adjacent installation
 - The optimized design eliminates the need for heat dissipation space at the sides
 - This allows controllers to be installed next to one another



Reduces adjustment time

- Easy setup with "D-Tools" software inherits the operational feel of the popular AX-Tools software for ABSODEX. D-Tools can be downloaded from our website.



Stepper motor drive

Catalog CC-1219A

ERL2/ESD2 Series

- Slider/rod types available
- Motor mounting 4 directions
- Ultra-easy teaching
- Three types of controllers (63-point and 7-point positioning, pulse train)



Stepper motor drive Built-in controller

Catalog CC-1002A

ESSD/ELCR Series

- Built-in controller
- Table/rod types available



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Electric actuator with servo motor drive

Flexible space and time at high speed

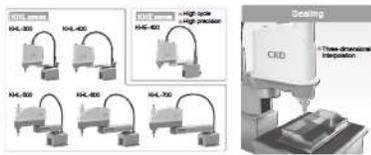
Catalog CC-1436A



Horizontal articulated (SCARA) robot: Standard KHL / High-precision KHE Series

- Compact with high operating performance
- Ideal for light press-fitting and screw tightening
- Easy-to-use PC software
- Can be connected to image processing systems from various manufacturers
- Compatible with all types of networks

Ethernet / DeviceNet / CC-Link / EtherCAT / EtherNet/IP



Combination method using one to four axes

Electric actuator KBX Series

- All models feature an absolute system
- Servo motor: 50 to 750 W
- Ball screw drive, 5 sizes, Max. stroke: 1,700 mm, Max. load capacity: 250 kg
- Belt drive, 4 sizes, Max. stroke: 4,450 mm, Max. load capacity: 200 kg
- Easy-to-use PC software
- IO (NPN, PNP), CC-Link, DeviceNet
- Abundant variations can be constructed by combining standard modules



Catalog CC-1275A



Pioneering. A new way to select linear models.

Catalog CC-1467A



Electric actuator EKS-M Series / Driver NXD Series

- Servo motor: 100 to 750 W
- 5 sizes
- Max. stroke: 1,500 mm
- Max. load capacity: 118.5 kg
- Max. speed: 2,500 mm/s

- Shortened tact time**
- Acceleration/deceleration: 2 G supported
- Smaller equipment footprint**
- Iron body that is highly resistant to load and moment



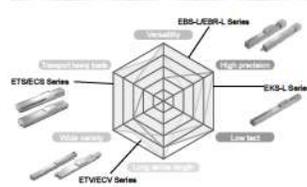
- Compatible with all types of networks**
- Four types of interfaces are available
 - Adjust in real time while monitoring the waveform
 - Setting tool "DES" with extensive functionality

CC-Link EtherCAT MECHATROLINK Parallel I/O (NPN)

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ACTUATORS

Wide motorless variations



Supported Motor Manufacturers List	EBS-L/EBR-L	ETS/ECG/ETV/ECV	EKS-L
Asahi Electric Co., Ltd.	●	●	●
Chuo Electric Co., Ltd.	●	●	●
Daikin Industrial Co., Ltd.	●	●	●
Denki Seiki Co., Ltd.	●	●	●
ETEK Electric Corporation	●	●	●
Eveready Corporation	●	●	●
Estimote Corporation	●	●	●
CHIRON Corporation	●	●	●
FGI Electric Co., Ltd.	●	●	●
FMK Co., Ltd.	●	●	●
GENCO MVS Incorporated	●	●	●
Good Health AG	●	●	●
Omron Corporation	●	●	●
SIMOTA AG	●	●	●

* Refer to the catalog of each model for details about supported models and capacity
*1 Only compatible with metal stopper specifications (ETS-K)

EBS-M/EBR-M Series Motorless

Catalog CB-055A

Slider EBS-L Series

- Ball screw drive, 3 sizes
- Servo motor: Supports 50 to 200 W
- Max. load capacity: 50 kg (horizontal)
- Max. stroke: 1,100 mm
- Max. speed: 1,000 mm/s



Rod with built-in guide EBR-L Series

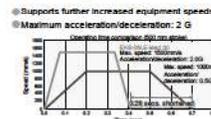
- Ball screw drive, 3 sizes
- Servo motor: Supports 50 to 200 W
- Max. load capacity: 50 kg (horizontal)
- Max. stroke: 700 mm
- Max. speed: 1,000 mm/s



High-precision and high-tact motorless

EKS-L Series

- Ball screw drive, 5 sizes
- Outer rail with iron base used
- Servo motor: Supports 50 to 750 W
- Max. load capacity: 118.5 kg (horizontal)
- Max. stroke: 1,500 mm
- Max. speed: 2,500 mm/s



Wide motorless variations

ETS/ECG Series

- Ball screw drive, 5 sizes
- Servo motor: Supports 50 to 750 W
- Max. load capacity: 150 kg (horizontal)
- Max. stroke: 1,500 mm
- Max. speed: 2,000 mm/s
- ECG: Full cover low dust specification



Motorless with long stroke length

ETV/ECV Series

- Belt drive, 5 sizes
- Servo motor: Supports 100 to 750 W
- Max. load capacity: 85 kg (horizontal)
- Max. stroke: 3,500 mm
- Max. speed: 2,000 mm/s
- ECV: Full cover low dust specification



Electric shuttle mover

ESM Series

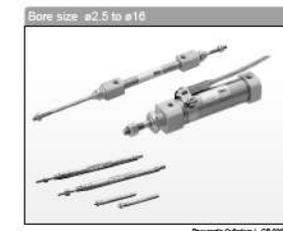
- Three-dimensional transport P&P system
- Belt drive
- Motors from various manufacturers can be mounted (motorless type)



ACTUATORS

Pencil shaped cylinders

- SCP³ Series
- Lightweight and downsizing
 - The following types are provided: double acting, single acting/push, pull, low speed, and heat resistance
 - Space saving with compact standard switch T Series
 - Copper and PTFE free as standard
 - 5 bore sizes from ø2.5 to ø16



Pneumatic Cylinders I CB-026A

Medium bore size cylinders

- CMK2 Series
- No lubrication, highly corrosion resistant, long life
 - Diverse variation including double acting, single acting/push, pull, low speed, and heat resistance
 - A variety of options, including bellows and rod material change
 - Cylinder switch can be mounted as it is onto the standard cylinder
 - 4 bore sizes: ø20, ø25, ø32, ø40
 - Stainless steel material used for exterior



Pneumatic Cylinders I CB-026A

Medium bore size cylinders

- CMA2 Series
- No lubrication, long life
 - 2 variations: double acting and direct mounting types
 - A variety of options, including bellows and rod material change
 - Cylinder switch can be mounted as it is onto the standard cylinder
 - 3 bore sizes: ø20, ø30, ø40



Pneumatic Cylinders I CB-026A

Round shaped cylinders

- SCM Series
- The total length dimensions are short.
 - Easy mounting
 - Simple design
 - Band method that allows cylinder switch to be desirably mounted or moved
 - 8 bore sizes from ø20 to ø100



Pneumatic Cylinders I CB-026A

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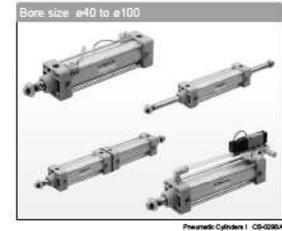
Tie rod air cylinders

- SCG Series**
- Global environment-friendly cylinder
 - Port and needle on the same side, achieving easy mounting and adjustment
 - The sizes of heavy duty scraper, coolant proof, and anti-spatter adherence are the same as the standard for easier installation
 - A wide range of cylinder switch types
 - 6 bore sizes from $\phi 32$ to $\phi 100$



Medium bore size cylinders

- SCA2 Series**
- No lubrication and highly reliable, with a wide range of series variations
 - Lighter weight, higher corrosion resistance and shock resistance
 - A wide range of cylinder switch types
 - Cylinder switch can be mounted as it is onto the standard cylinder
 - 5 bore sizes from $\phi 40$ to $\phi 100$



ACTUATORS

Cylinder with valves

- CAV2/COV'2 Series**
- Cylinder/solenoid valves integrated
 - Select between lubrication and no lubrication
 - For solenoid valves, single and double types are available.
 - Standard and short overall length types are available.
 - A wide range of cylinder switch types



Compact cylinders

- SSD2 Series**
- Cylinder switch grooves provided on four surfaces
 - A variety of stroke settings enables ideal model selection according to the design.
 - Option with rubber cushion of the same size
 - A wide range of cylinder switch types
 - 15 bore sizes from $\phi 12$ to $\phi 200$



Large bore size cylinders

- SCS2 Series**
- Select between no lubrication and lubrication
 - A wide range of series variations, including high reliability, double rod, two-stage, low hydraulic, and heat resistant
 - A wide range of cylinder switch types
 - 6 bore sizes from $\phi 125$ to $\phi 250$



Compact cylinders with valves

- CKV2 Series**
- High corrosion resistance and long life by the use of stainless steel tubes
 - Easy operation with piping, wiring, speed adjustment, and manual override all on the top
 - Common exhaust available
 - Easy speed adjustment
 - 2 variations: double acting and rotation-stop type



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Compact cylinder

- SSD Series**
- Space saving and downsizing of total length dimensions
 - Miniature cylinder switch is neatly integrated into the body.
 - Can be mounted directly with hexagon socket head cap screw.
 - A wide range of cylinder switch types
 - 13 bore sizes from $\phi 12$ to $\phi 160$



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Guided super compact cylinder

- SSG Series**
- The SSD2 series is equipped with a guide rod, improving the lateral load resistance and rotation performances.
 - Equipped with user-friendly plate
 - Cylinder switch grooves provided on four surfaces
 - 10 bore sizes from $\phi 12$ to $\phi 100$



Compact direct mounting cylinders

- MDV Series**
- Rod metal rim is threaded for direct installation.
 - Total length dimension and outside dimension are minimized to reduce installation space.
 - Miniature switch equipped



Cartridge cylinders

- CAT Series**
- Miniature single acting cylinder with the thumb size of total length
 - Flat-tread exterior for easy mounting onto a panel
 - 3 bore sizes: $\phi 5$, $\phi 10$, and $\phi 15$



ACTUATORS

Compact cylinders

- SMG Series**
- Space saving and lightweight with integration of mount block (33% lighter and 23% less space compared with conventional models)
 - Direct mounting from 5 surfaces freely as standard
 - Improved maintainability with new mounting method
 - Addition of rotation-stop type (M), fine speed (F), and clean-room specifications (P7-/IPS*)



Small compact cylinders

- MSD/MSDG Series**
- Axial direction length reduced. Mounting space reduced
 - Design with long service life 4 times greater than conventional models
 - Oil-impregnated copper alloy bearing for rod bearing section to increase abrasion resistance
 - Select between body side surface and bottom surface for piping
 - Can be mounted directly from 3 directions



Compact direct mounting cylinders

- MDC2 Series**
- Square body for direct mounting
 - Minimized total length dimension and outside dimension for smaller installation space
 - Spigot provided in the rod metal section. Easy centering
 - Select between double acting and single acting depending on the use
 - Miniature reed/proximity switch can be mounted.



Small cylinders with suction pads

- MVC Series**
- Workpiece suction portion and vacuum path are provided on the guide rod as standard.
 - Guide rod for rotation-stop is provided as standard.
 - Socket type suction pad ($\phi 2$ to $\phi 10$) can be mounted on the rod end.
 - Square body allows it to be mounted directly from 2 directions.
 - Miniature cylinder switch is integrated into the body groove.



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Flat compact cylinders

- FC' Series**
- Rectangle flat cylinder with 50% reduction in dimension in the cylinder width direction
 - Easy mounting in narrow spaces
 - Has rotation-stop function as standard for flat type
 - A wide range of cylinder switch types
 - 5 bore sizes from $\phi 25$ to $\phi 63$



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Free position flat cylinders with position locking

- UFCD Series**
- Can be locked at any position as long as the piston rod remains still
 - Easy to remove even with workpiece clamped as the cylinder moves freely in the reverse lock direction
 - Space saving-simple design
 - No need to provide a separate rotation-stop mechanism because the cylinder body has a rotation-stop function due to the oval piston structure
 - 5 bore sizes from $\phi 25$ to $\phi 63$



Pneumatic Cylinders | CB-026A

Brake cylinders

With brake

ULKPI/ULK Series

- Use of newly developed swash plate providing surface contact, significantly raising rod holding force
- Easy brake release. Simply return the brake plate to the original angle
- Stopping accuracy ±1 mm or less (300 mm/s without load)
- A wide range of cylinder switch types
- 5 bore sizes: ø16, ø20, ø25, ø32, ø40

Bore size: ø16 to ø40



Pneumatic Cylinders I CB-0305A

Brake cylinders

With brake

JSK2/JSM2 Series

- No lubrication cylinder equipped with unique mechanical brake
- In the case of pressure drop or power off, the rod is immediately locked to ensure safety.
- Stopping accuracy ±1 mm or less (300 mm/s without load)
- A wide range of cylinder switch types
- 4 bore sizes for JSK2: ø20, ø25, ø32, ø40. 3 bore sizes for JSM2: ø20, ø30, ø40.

Bore size: ø20 to ø40



Pneumatic Cylinders I CB-0305A

ACTUATORS

Brake cylinders

With brake

JSC4 Series

- Compact switch equipped
- Smaller T switch than the conventional. Saves space by eliminating protrusions when mounted.
- Magnet provided as standard [LN, LH]
- Now all models (LN, LH) can handle additionally mounted switches.
- Port and needle on the same surface
- The air supply/exhaust ports and cushion needle are positioned on the same surface. Easier installation and adjustment of the cylinder.
- Dimensional compatibility [except LH]
- Dimensional compatibility with the conventional model (JSC3) facilitates maintenance. (* The piping port positions are different.)

Bore size: ø125 to ø180



Pneumatic Cylinders I CB-0305A

Position locking compact cylinders

With brake

USSD Series

- Compact cylinder with free position locking mechanism as standard
- Can be locked at any position in the stroke including the end of the stroke.
- Select between forward lock and backward lock
- The rod moves freely in the lock's reverse direction.
- Easy lock release. Simply return the lock plate to the original angle

Bore size: ø20 to ø100



Pneumatic Cylinders I CB-0305A

Tie rod cylinders with brake

With brake

JSG Series

- Use of the same brake mechanism as that of the highly reputed JSG3 Series
- Strong rod holding force equivalent to twice the thrust due to unique locking mechanism
- Compact and reliable brake section
- A wide range of cylinder switch types
- 5 bore sizes from ø40 to ø100

Bore size: ø40 to ø100



Pneumatic Cylinders I CB-0305A

Brake cylinders

With brake

JSC3 Series

- Highly reliable medium bore size cylinder equipped with unique mechanical brake
- In the case of pressure drop or power off, the rod is immediately locked to ensure safety.
- Stopping accuracy ±1 mm or less (300 mm/s without load)
- A wide range of cylinder switch types
- 5 bore sizes from ø40 to ø100

Bore size: ø40 to ø100



Pneumatic Cylinders I CB-0305A

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Free position locking medium bore size cylinders

With brake

USC Series

- Medium bore size cylinder with free position locking mechanism as standard
- Can be locked at any position in the stroke including the end of the stroke.
- Select between forward lock and backward lock
- Easy lock release. Simply return the lock plate to the original angle

Bore size: ø40 to ø100



Pneumatic Cylinders I CB-0305A

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Brake units

With brake

JSB3 Series

- New independent series of the brake section of brake cylinder
- Powerful holding force of 580 N to 19608 N provided according to ø16 to ø45 rod diameter
- Stopping accuracy ±1 mm or less (300 mm/s without load)

Rod diameter: ø16 to ø45



Pneumatic Cylinders I CB-0305A

Linear guide locks

With brake

LML/LMB Series

- Compact but powerful holding force.
- Very little backlash when locked
- Unit available for holding when stopped, stopping in emergencies, or position locking
- Unlocked by air supply (Manual release is also available)
- Dust-proofing handled by a scraper provided as standard in front of and behind the lock unit



Pneumatic Cylinders I CB-0305A

Guided cylinders

Combined functions

STM Series

- Rigid and lateral load resisting cylinder with excellent rod non-rotating accuracy
- Super compact space saving type in guided cylinders
- Supports rear piping and side mounting
- Two types: metal bush bearing and ball bearing

Bore size: ø9, ø10



Pneumatic Cylinders I CB-0305A

ACTUATORS

Linear slide cylinders

Combined functions

LCW Series

- Specs most used by customers are provided as standard
- 3 bore sizes (ø12, 16, 20) and 3 stroke types (30, 50, 75)
- Stroke length adjustment function provided as standard
- Inherits the DNA of LCR, achieving high rigidity and light weight
- 3-surface mounting
- Use of an innovative L-shaped table, greatly improving flexibility in design
- Piping and wiring direction on the same surface
- Neat wiring and piping, improving workability and visibility
- Compact, space saving
- Reduction of axial direction by 27% and area ratio by 20%.

Bore size: ø12, ø16, ø20



Pneumatic Cylinders I CB-0305A

Linear slide cylinders Standard models

Combined functions

LCR Series

- Up to 10% lighter compared with previous models by using an aluminum table
- The highly rigid linear guide and side table improve rigidity, surpassing the conventional models in rigidity
- More flexible designs with laterally symmetrical stoppers, multi-side piping, and positioning hole availability

Bore size: ø6 to ø25



Pneumatic Cylinders I CB-0305A

Guided cylinders

Combined functions

STG Series

- Environment compatible products
- Lighter weight, resource saving
- Piping in two directions: front and side. Mounting on 3 surfaces: front, side, and bottom
- 10 bore sizes from ø12 to ø100



Pneumatic Cylinders I CB-0305A

Guided cylinders

Combined functions

STS/L Series

- Max. stroke length of 400 mm ø20 to ø80
- Increases equipment accuracy when embedded
- Two guide rods with metal bush bearing or ball bearing
- Sleek design. No protrusion. Space saving
- Can be used with heavy loads. Has two guide rods
- End plate material options

Bore size: ø8 to ø100



Pneumatic Cylinders I CB-0305A

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Linear slide cylinders Thin/Lightweight/High rigidity

Combined functions

LCX Series

- Low-profile design
- About 50% thinner than the conventional model. The thickness has been reduced from 60 mm to 34 mm, which is ideal for saving space.
- Efficient, energy-saving
- 50% lighter than the conventional model, enabling the movable part to be reduced in weight
- High precision/high rigidity
- Uses a separated linear guide.
- Components can be combined as desired. Select from various options such as position locking, long stroke length and type with positioning hole.

Bore size: ø20, ø32



Pneumatic Cylinders I CB-0305A

Linear slide cylinder Ultra-high rigidity models

Combined functions

LOG Series

- Use of the widest guide in the industry, achieving the industry's first ultra-high rigidity
- Up to 10% lighter compared with previous models by using an aluminum table
- The highly rigid linear guide and side table improve rigidity, surpassing the conventional models in rigidity
- More flexible designs with laterally symmetrical stoppers, multi-side piping, and positioning hole availability

Bore size: ø6 to ø25



Pneumatic Cylinders I CB-0305A

22

Linear slide cylinder
Miniature models

LCM Series

- High precision positioning
- The compact body can fit in a narrow, small space, allowing for more flexible piping.
- A workpiece can be directly mounted on the top and side.
- The cylinder body and slide table are corrosion-resistant stainless steel.
- Uses linear guide with contact at four points. Withstands load from all directions.

Bore size: $\varnothing 4.5$ to $\varnothing 8$



Pneumatic Cylinders I CB-0305A

Twin rod cylinder

STR2 Series

- High level of non-rotating accuracy
- Bearing options
- Two types are available: metal bush bearing and ball bearing.
- Space saving
- Switch fits neatly into cylinder body.
- Ultra-compact type is available.
- Miniature $\varnothing 6$ bore size has been added.
- Piping ports can be installed on either side.

Bore size: $\varnothing 6$ to $\varnothing 32$



Pneumatic Cylinders I CB-0305A

ACTUATORS

Stopper cylinders

STA2 Series

- Adjustable shock absorber is adopted to support various loads.
- Select either resin or steel for roller material
- Select either double acting or double acting spring integrated for actuation

Bore size: $\varnothing 50$



Stopper cylinder STA2 Series CB-1005A

High speed cylinders

HCA Series

- High-speed drive with a new packing
- Speed: 3,000 mm/s. Meets a wide range of conditions
- Smooth shock absorption even at 3,000 mm/s
- 8 bore sizes from $\varnothing 20$ to $\varnothing 100$

Bore size: $\varnothing 20$ to $\varnothing 100$



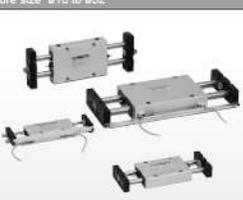
Pneumatic Cylinders I CB-0305A

Unit cylinder

UCA2 Series

- Ideal for simple robots
- Modular design enables simple robots for assembling and conveying.
- Two fixing methods
- Two fixing methods are available: body fixing and end plate fixing.
- High position accuracy
- The double rod has excellent track position accuracy.

Bore size: $\varnothing 10$ to $\varnothing 32$



Pneumatic Cylinders I CB-0305A

Stopper cylinders

STK Series

- Design for high load
- Uses 1-rank thicker rod than the normal rod diameter.
- Direct mounting. Can be mounted directly with hexagon socket head cap screw.
- Space saving/square shape
- 3 types of actuation
- Double acting, single acting pull, or double acting/poring integrated are available depending on the usage.
- Nozzle shape options. Round rod, chamfered, and roller are available.

Bore size: $\varnothing 20$ to $\varnothing 50$



Pneumatic Cylinders I CB-0305A

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High energy absorption cylinders

HCM Series

- New cushion mechanism enables the stroke end to smoothly stop.
- Speed: 2,000 mm/s. Meets a wide range of conditions. Easy adjustment mechanism
- Five times higher impact absorption than conventional cylinder
- Floating method provided for cushion packing. Pop-out prevention at the start
- 6 bore sizes from $\varnothing 20$ to $\varnothing 63$

Bore size: $\varnothing 20$ to $\varnothing 63$



Pneumatic Cylinders I CB-0305A

Rodless cylinders

SRL3 Series

- Thin design achieving very low table with flat piston
- Piston is flat, with a structure allowing it to receive load. Highly load-resistant, with rotation-stop mechanism also provided.
- High-speed use is available with high-speed packing
- Select between common port (one-side piping) and standard port
- A wide range of variations including guided, position locking type, and dust cover type
- 10 bore sizes from $\varnothing 12$ to $\varnothing 100$

Bore size: $\varnothing 12$ to $\varnothing 100$



Pneumatic Cylinders I CB-0305A

High precision guided rodless cylinders

SRG3 Series

- Rodless cylinder with 1-axis high precision guide integrated
- 4 bore sizes from $\varnothing 12$ to $\varnothing 25$
- High-speed use is available with high-speed packing
- Select between common port (one-side piping) and standard port
- A wide range of cylinder switch types

Bore size: $\varnothing 12$ to $\varnothing 25$



Pneumatic Cylinders I CB-0305A

High precision guided rodless cylinders

SRM3 Series

- Rodless cylinder with 2-axis high precision guide integrated
- A tube can be directly fixed to top or bottom surface. The bottom surface is equipped with T groove.
- Select between common port (one-side piping) and standard port
- A wide range of cylinder switch types
- 4 bore sizes: $\varnothing 25$, $\varnothing 32$, $\varnothing 40$, and $\varnothing 53$

Bore size: $\varnothing 25$ to $\varnothing 53$



Pneumatic Cylinders I CB-0305A

ACTUATORS

Magnet rodless cylinders with high precision guides

MRG2 Series

- High precision and high rigidity with linear guide
- A thin design with a low side table. Direct mounting
- Single surface common piping is possible
- 2 surfaces for workpiece mounting
- A wide range of cylinder switch types
- Bore sizes: $\varnothing 10$, $\varnothing 16$, and $\varnothing 25$

Bore size: $\varnothing 10$ to $\varnothing 25$



Pneumatic Cylinders I CB-0305A

Shuttle mover

SM-25 Series

- Combination of units enables flexible three-dimensional transport.
- Use of O-ring for the connection part of each unit achieves no air leakage and simple structure for easy assembly.

Bore size: $\varnothing 25$



Pneumatic Cylinders I CB-0305A

Rodless cylinders with brake

SRT3 Series

- Rodless cylinder with newly developed surface-contact swash plate integrated
- Easy brake release. Simply return the brake plate to the original angle
- Stopping accuracy ± 1 mm or less (300 mm/s without load)
- A wide range of cylinder switch types
- 8 bore sizes from $\varnothing 12$ to $\varnothing 53$

Bore size: $\varnothing 12$ to $\varnothing 53$



Pneumatic Cylinders I CB-0305A

Magnet rodless cylinders

MRL2 Series

- Thin design with a low side table. Direct mounting
- Two types of pistons are available: single (1 piston) and twin (2 pistons).
- For piping, axial direction or side surface can be selected.
- Twin (2 pistons) type has twice the cylinder thrust.
- Proximity cylinder switch can be mounted.
- 6 bore sizes from $\varnothing 6$ to $\varnothing 32$

Bore size: $\varnothing 6$ to $\varnothing 32$



Pneumatic Cylinders I CB-0305A

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Clamp cylinders

CAC4 Series

- Cylinder dedicated for clamp
- A variety of switches can be mounted including reed, proximity, 2-color display, and strong magnetic field.
- 4 bore sizes: $\varnothing 40$, $\varnothing 50$, $\varnothing 63$, and $\varnothing 80$
- Two types of switch mounting methods are available: band method, which enables flexible adjustment of rotation and travel of the switch, and tie rod method.

Bore size: $\varnothing 40$ to $\varnothing 80$



Pneumatic Cylinders I CB-0305A

Position locking clamp cylinders

UCAC2 Series

- Clamp cylinder with free position locking mechanism as standard
- Can be locked at any position.
- Select between forward lock and backward lock
- The rod moves freely in the lock's reverse direction.
- Easy lock release. Simply return the lock plate to the original angle.
- Two types of switch mounting methods are available: band method, which enables flexible adjustment of rotation and travel of the switch, and tie rod method.

Bore size: $\varnothing 50$, $\varnothing 63$



Pneumatic Cylinders I CB-0305A

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Lightweight clamp cylinders/lightweight position locking clamp cylinders

- CAC-N32/40 Series**
- For the cylinder main unit, highly reliable, lightweight CMK2 Series is used.
 - A variety of switches can be mounted including reed, proximity, 2-color display, and strong magnetic field.
- UCAC-N32/40 Series**
- CAC-N Series with free position locking mechanism
 - Can be locked at any position when the cylinder is stationary.
 - Lock reverse direction is free.



Rotary clamp cylinders

- RCS Series**
- RCC2 Series**
- Space saving/square shape
 - Two guide grooves are provided on all bore sizes to improve the abrasion resistance of the grooves.
 - 6 bore sizes from $\phi 16$ to $\phi 63$.



ACTUATORS

Balancer units

- BBS Series**
- Up to 5 kg of load balance for a load maximum of 200 kg, raising workpieces with less force.
 - Brake as standard equipment. Safety mechanisms preventing a workpiece from falling even if air is shut off.
 - Auto recognition of the change in weight of each workpiece, holding ideal balance (BBS-A).
 - All air method available with no electricity required. Available in explosion-proof conditions.



Ultra low sliding balance cylinder

- BBS Series**
- Balance cylinder that prevents operator stress
 - Has position locking mechanism for safety concerns (BBS-OU)
 - Special packing and treatment for low sliding
 - Compatible with lateral load as well (BBS-OD/OU-B)



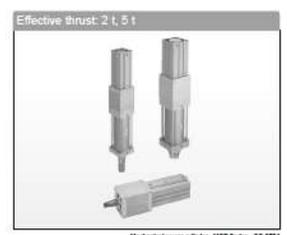
Lifter cylinder

- LFC-KL Series**
- Allowable eccentric load and allowable torque improved
 - Rubber air cushion to effectively reduce impact noise and collision acceleration at stroke end is equipped as standard
 - Improved usability with a larger table surface.
- CKD direct drive actuator ABSODEX Series can be mounted.



Mechanical power cylinders

- MCP Series**
- 2 t or 5 t high thrust power at your desired position with a pneumatic source alone
 - An environmentally considerate cylinder using a pneumatic circuit that does not allow waste oil to occur
 - Both the travel and booster cylinders have almost the same bore size for saving space
 - Flexible mounting direction



ACTUATORS

Rotary actuators (Rack and pinion)

- RRC Series**
- Rotary actuator of rack and pinion type
 - Adjustable angle type is also available.
 - Torque: 0.7, 3.1, 5.6 N·m, Angle: 90° - 270°



High precision rotary actuators

- GRC Series**
- Table type rotary actuator of rack and pinion type
 - Standard and high accuracy type are available with the same dimensions.
 - 90° and 180° specifications are available.
 - Select from among 3 surfaces for piping port leadout directions.
 - 6 torque sizes: 0.5, 1, 2, 3, 5.2, 8.1 N·m



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Rotary actuators (vane)

- RV3* Series**
- Compact, lightweight, and excellent durability
 - The oscillating origin can be selected from 45° or 90°, increasing the options for equipment installation.
 - A wide range of variations in types including with valve, angle variable type, and low hydraulic
 - Switch provided
 - Torque: 0.12 - 206 N·m



New handling system

- NHS Series**
- Just like model kits! Flexible combination of transport systems to match applications
 - High rigidity/high precision X-axis module uses rodless cylinder for the drive system, equipped with a built-in linear guide.
 - Compact and easy to assemble Integrated air ports for piping enable easy assembly even in narrow spaces.
 - Reduced design and assembling processes X and Z axes and attachments are appropriately selected according to applications.



ACTUATORS

Hybrid robot

- HR Series**
- Thin types with high rigidity.
 - Ball bearing is used for the bearing section.
 - Position detection switch, shock absorber and speed controller are provided as standard.



Cylinder/hand with length measuring sensors

- LN-A, BHA/BHG/BHE-LN Series**
- This is the next dimension of pneumatic components, with length measuring sensor incorporated compact cylinders and hand devices that enable actuator function, length measurement and prehension detection at the same time.
 - The analog output type enables linear voltage output in the specified stroke range, achieving the measurement of a workpiece at the same time as the actuator work.
 - Since workpiece intermediate gripping can be detected, a variety of workpiece transport needs are met, such as detecting differently shaped workpieces and abnormal gripping detection.



ACTUATORS

Hands (parallel hands)

Product name	Model No.	Finger movement	Bore size (mm)	Gripping power (N)	Stroke length (mm)
Linear Slide Hand (HP Series)	LSH-HP1 LSHL-HP1		$\phi 6$ to $\phi 32$	3.3 to 158	4 to 22
Length measurement function Linear Slide Hand (HP Series)	LSHM-HP2		$\phi 10$ to $\phi 25$	11 to 65	4 to 14
Linear Slide Hand (Standard)	LSH		$\phi 10$ to $\phi 25$	11 to 65	4 to 14
Feather hand (Mini-parallel hand)	FH100		$\phi 10$ to $\phi 25$	6 to 30	8 to 20
Ultra-compact cross roller parallel hand	BSA2		$\phi 6$	3.5	4
Compact cross roller parallel hand	BHA		$\phi 12$ to $\phi 25$	15 to 80	5 to 15
Compact cross roller parallel hand with rubber cover	BHG		$\phi 12$ to $\phi 25$	15 to 80	5 to 15
Linear guide hand	LHA		$\phi 6$ to $\phi 32$	5.5 to 145	4 to 20
Linear guide hand with rubber cover	LHAG		$\phi 12$ to $\phi 32$	18 to 145	5 to 20
Parallel hand	HAP-1C		$\phi 15$	18	8
Parallel hand	HAP		$\phi 20$ to $\phi 40$	20 to 100	16 to 41
Cross roller parallel hand	HKP		$\phi 32$ to $\phi 60$	160 to 1480	24 to 60
Lateral parallel hand	HCP		$\phi 12$ to $\phi 32$	12 to 75	20 to 40
Long stroke length parallel hand	HGP		$\phi 25$	17	56

*Gripping force is the value with an air pressure of 0.5 MPa on the closed side.

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Chucks

Product name	Model No.	Finger movement	Bore size (mm)	Gripping power* (N)	Stroke length (mm)
● Long stroke length thin hand	HLF2		ø8 X 2 to ø20 X 2	20 to 135	12 to 95
● Thin parallel hand	HLA/HLB		ø12 to ø20	21 to 70	13 to 25
● Thin parallel hand with rubber cover	HLAG/HLBG		ø12 to ø20	21 to 70	13 to 25
● Thin long stroke length parallel hand	HLC		ø8 X 2 to ø30 X 2	18 to 310	20 to 140
● Ultra thin parallel hand	HLD		ø8 X 4 to ø20 X 4	35 to 250	12 to 30
● Compact wide parallel hand	HMF		ø12 X 2 to ø40 X 2	32 to 430	20 to 200
● Compact wide parallel hand with coolant proof specifications	HMF-G		ø16 X 2 to ø25 X 2	66 to 170	30 to 120
● Large wide parallel hand with linear guide	HMF-D		ø25 X 2 to ø40 X 2	120 to 310	100 to 200
● Wide parallel hand	HFP		ø16 X 2 to ø40 X 2	20 to 255	20 to 60
● Feather hand (Mini-vacuum hand)	FH500		ø10 to ø20	2 to 15	Opening angle 20°
● Fulcrum hand	HBL		ø15 to ø40	10 to 125	Opening angle 20°
● Toggle hand	HJL		ø32 to ø63	250 to 1800	Opening angle 28°
● 180 degree open/close thin wide angle hand	HMD		ø12 to ø25	16 to 120	Opening angle 194°
● 180 degree open/close wide angle hand	HDL		ø25 to ø40	10 to 50	Opening angle 192°
● 180 degree open/close high gripping wide angle hand	HJD		ø32 to ø63	200 to 1250	Opening angle 194°
● Centering hand	BHE		ø12 to ø32	15 to 125	7 to 22

*Gripping force is the value with an air pressure of 0.5 MPa on the closed side.

Pneumatic Cylinders II CB-0305A

ACTUATORS

Product name	Model No.	Finger movement	Bore size (mm)	Gripping power* (N)	Stroke length (mm)
● Powerful chuck	CKL2		ø16 to ø100	17 to 680	5 to 40
● Powerful chuck with rubber cover	CKLG2		ø20 to ø100	28 to 680	5 to 23
● Position locking powerful chuck	CKL2-HC		ø32 to ø80	75 to 510	8 to 20
● High gripping power powerful chuck	CKH2		ø50 to ø100	290 to 1250	6 to 12
● Bi-directional powerful chuck (Parallel hand)	CKLB2		ø20 to ø100	35 to 1050	5 to 23
● 3-way jaw bearing chuck	CKG		ø16 to ø50	13 to 160	6 to 16
● 3-way jaw long stroke chuck	CK		ø25/ø44	15 to 65	20 to 40
● Trivalent thin chuck	CKA		ø16 to ø100	4 to 600	6 to 36
● Thin chuck	CKS		ø8 x 3 to ø32 x 3	17 to 320	10 to 32
● Thin chuck (Hollow type)	CKS-F		ø16 x 3 to ø50 x 3	75 to 800	16 to 50
● Hollow chuck	CKF		ø30 to ø80	12 to 112	5 to 16
● Ultra long stroke chuck	CKJ		ø12 x 6 to ø50 x 6	86 to 1550	40 to 130

*Gripping force is the value with an air pressure of 0.5 MPa on the closed side.

Pneumatic Cylinders II CB-0305A

Linear guide hand

- LSH-HP1 Series**
- Increased linear guide performance
 - Increased flexibility in design
 - Long service life
 - Reduced processes on site
- LSH-HP2 Series**
- High precision: Repeatability ±0.02 mm, linearity F0 ±0.2%
 - A displacement sensor is built into the body, achieving a high-precision integrated structure
 - Environmental resistance: IP65 equivalent amplifier and rubber cover



Linear guide hand LSH-HP Series CC-1496

Shock absorber

- SKL Series**
- Shorter operating time for high tact
 - Improvement of durability
 - Direct stop
 - External stopper not required
- NCK Series**
- Optimum for impact absorption of thrust and low speed energy
 - Simple design and compact size
 - Slot orifice for linear stop
 - Easy installation without adjuster due to wide suction range
 - A wide range of selection of max. absorbed energy between 1 J and 200 J
- SCK Series**
- Optimal capacity adjustment due to adjuster
 - Use of the detent mechanism prevents the adjuster from moving during use.
 - Usable in a wide temperature range between -10°C and +80°C
 - Wider range of selection: 17 types
 - A wide range of selection of max. absorbed energy between 0.049 J and 598 J
- FKK Series**
- 3 speeds: low speed (1 m/s), medium speed (2 m/s), and high speed (3 m/s)
 - 3 types of orifice: single hole, porous irregular, and porous
 - Usable in a wide temperature range between 5°C and 70°C
 - Optimal capacity adjustment due to adjuster
 - A wide range of selection of max. absorbed energy between 1.5 J and 720 J



Pneumatic Cylinders II CB-0305A
Shock absorber SKL Series CC-1284

Simplified floating fitting

- FK Series**
- Simplified floating fitting that can easily eliminate misalignment and parallelism defects during cylinder mounting
 - 2 types of threads: 8 types of male threads and 13 types of female thread



Pneumatic Cylinders II CB-0305A

ACTUATORS

Magnet suction hands

- MHC2 Series**
- Secure suction of oil adhered steel plate or steel plate with punch holes
 - Three suction forces: 50, 100 and 200 N
 - No air consumption when held with suction, energy saving as compared to general vacuum pads
 - Equipped as standard with suction workpiece anti-slip rubber



Magnet suction hand MHC2 Series CC-1284

Flexible support

- FSB Series**
- Molds itself to the shape of any workpiece for holding
 - Changeover is easy even with different workpiece shapes.
 - Also usable as a robot hand



Flexible support FSB Series CC-1254

Floating fitting

- FJ Series**
- This fitting eliminates misalignment and parallelism defects during cylinder mounting, and realizes smooth rod actuation.
 - 3 types are available: basic shape, flange, and foot.
 - 18 screw sizes from M3 to M45



Pneumatic Cylinders I CB-0305A

Free position lock unit

- FPL Series**
- Just press on the mating surface for parallel adjustment.
 - Proprietary locking mechanism holds the angle.
 - Dedicated jig is no longer required.
 - Holds workpiece up to ±20° range.



Free position lock unit FPL Series CC-1214A

Lock unit

- UB Series**
- Lightweight, slim
 - While locked, neither electrical nor pneumatic power is needed.
 - As conventional gas purging is no longer necessary, it contributes to energy saving
 - Manual release is possible even without air when embedding or during maintenance
 - Uses uni-direction locking, bi-direction locking



Lock unit UB Series CC-1064

High-function type
Low friction cylinders

- U Series**
- Newly developed special sliding packing adopted
 - Smooth following due to pressure fluctuation from low pressures to high pressures
 - Stable and smooth operation even at the low speed of 10 mm/s
 - Various models and sizes are available.
 - A variety of switches can be mounted including reed, proximity, and 2-color display.



Pneumatic Cylinders CC-0285A

High-function type
Fine speed cylinders

- F Series**
- Realizes smooth operation without stick-slip at the ultra speed of up to 1 mm/s.
 - Smooth operation/stop at the timing of startup and end of stroke.
 - 10 types of models and bore sizes from ø6 to ø100
 - A variety of switches can be mounted including reed, proximity, and 2-color display.



Fine Speed Cylinders CC-0124A

High-function type
Cylinders with rubber-air cushions

- C Series**
- Reduction in the collision noise level
 - Reduction in collision acceleration
 - No need for adjustment by cushion needle or other items
 - Same dimension as standard for all models



Pneumatic Cylinders CC-0285A CC-0285A

High-function type
Air bearing actuators

- LBC Series**
- Air static pressure type soft actuator based on non-contact air bearing mechanism with zero sliding resistance
 - Clean environment-friendly
 - Due to allowable minimum load control of 0.01 N, soft touch on a workpiece is possible.
 - Optimal load for workpieces
 - Compact and space saving
 - Combination with an electro pneumatic regulator enables high precision linear control of load.



Air bearing actuator LBC Series CC-054A

ACTUATORS

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ACTUATORS

Assistive device
PowerArm (Assistive device)

PAW Series
Human assist developed for workers in production sites
Assistive device based on the concept of "for working people" that contributes to improved work environments and to ensuring safety. The assistive device uses pneumatic pressure as a motive force to lift up from beneath, and you can freely combine them according to your application and location. With its compact and light operation feel, its global design suited to its CE marking, and its ability to mount safety mechanisms, it is used by customers in a variety of business sectors, beginning with automobiles and foodstuffs.
* Only the shaft body conforms with the European Safety Standards CE marking.

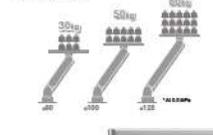


Model No. CC-418A

Received the 2019 Good Design Awards

Variation

Arm variations tailored to the workpiece



Safety

Holds position when motor power (air, electric power) is down



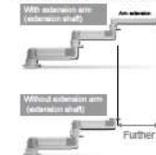
Snag prevention



The PowerArm has been designed to prevent snagging when the job is raised.
* The European Safety Standards CE marking applies only to the PowerArm body.

Wide

Achieving a wider range of movement



Simple

Pneumatic pressure control in a simple assistive device



Compact

Compact

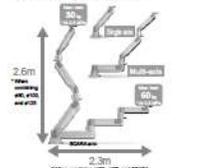


Flexible

Customers can easily combine arms

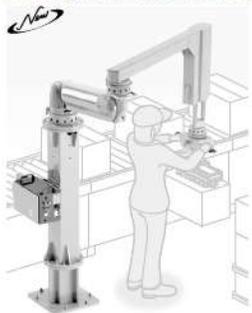


Wide movable range suited to the usage method



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Palletizing specifications PAW-A achieves space-saving in stacking/unstacking operations

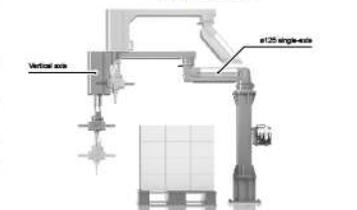


Wide

Wide movable range
A combined function at 125 single axis + vertical axis enables an even wider range of motion.

Specialized

Specializing in stacking/unstacking operations
The conventional PowerArm space-saving/compact/light touch characteristics are brought into the palletizing process for even more ease of use by being mounted on the vertical axis.



Compact

Space-saving storage
Can be folded away for storage.



Variation

Simple combinations possible
In operations where there are few up-and-down strokes, the vertical axis and SCARA arm can be used in combination.



Compatible as an assistive system

In addition to the assistive components as single units, we address requests including attachments, controllers, and movable type dollies. Contact CKD for details.

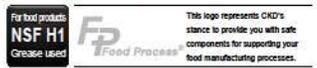
Controller design and manufacture

We propose ideal air circuits for various assistive devices. Easy transport is possible with the ideal control method for your transported items.



Example of controller interior. Let us go over your needs with you.

Compatible with FP Series for secure food manufacturing processes*



* Contact CKD for details.

Introduction to PowerArm on the Web

We have prepared a PowerArm introductory site.
* Depending on your smartphone environment, it may not be displayed correctly.



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PNEUMATIC VALVES

Small pilot operated 3, 4-port valve
Compact pneumatic valves (Reduced wiring valve)

- MNE00/MNE10 Series**
- Environmental conservation
Lighter weight and reduced material usage by downsizing/saving energy.
We were among the earliest to reduce chemical substances affecting the environment, including using lead-free solder and materials compatible with JIG-101A level A.
 - Compact space saving
Introducing MN34E00 Series of 7 mm valve block width and 7 mm pitch manifold in addition to the MN34E0 Series of 10 mm valve block width.
Use the compact 7 mm pitch manifold to downsize the system and increase density.
 - Energy saving
MN34E0 Series: 0.6 W
MN34E00 Series: 0.4 W
With energy saving (Option E), it further reduces power consumption.
 - ø3 push-in fitting is available
Along with reduction of piping volume and ensuring flow rate, it supports ø3 tubes, as well as ø1.8 tubes and contributes to the space saving of tube piping.
 - Variety
A wide range of electrical connections and options
A wide range of electrical connections such as serial transmission corresponding to various connectors and networks are available.
Easy pluggable regulator blocks are also available.
 - High performance
● 12 ms responsiveness for balancing ports A and B. (Our data valve with N3E2 two 3-port valves integrated)
● Cumbersome wiring work is not required
With connector, wiring is completed at the same time as assembling.
The regularity of the connector pin array remains undisturbed by electrical connections from both the left and right wiring blocks or by an increase or decrease in the valves.
 - Safety
● Prevents malfunctions
Exhaust check valve, manual override cover to prevent misoperation and air supply filter to prevent entry of foreign matter are provided as standard.
Pursuing safety to prevent valve malfunction.

Applicable cylinder bore size: to ø32



Pneumatic Valves CC-0202A

Small/medium pilot operated 3, 4, 5-port valve
Metal or resin base pneumatic valves

- 4G11/RM4G11/RM4G11 R Series**
- Compatible with up to a 100 cylinder drive with a valve width of 10 mm, 15 mm, or 18 mm
NEW 3, 4, 5-port reduced wiring valve equipped with safety function
 - Meticulous response enhances safety.
The manual override equipped with a protective cover as standard, and the built-in exhaust check valve, as well as the air supply port with a filter as standard
 - Enhanced reliability
More than 100 million operations, responsiveness of 12 ms x2 ms, and low wattage of 0.35 W
 - Enhanced usability
Top and side wiring connector, reduced wiring rotating connector, and manual override without tools
 - A wide range of variations
Single item, metal base manifold, block manifold, individual wiring/reduced wiring
 - A wide range of serial communication

Applicable cylinder bore size: to ø100



Pneumatic Valves CC-0202A

Large pilot operated 5-port valve
Metal or resin base pneumatic valves

- 4G14 Series**
- Pilot operated 5-port valve for large flow rate (metal base)
The properties of the 4GA12/3 Series have been passed on to enhance 4G Series.
 - Enhanced operability
Manual override without tools, top and side wiring connector, port P/R outlet from front surface, and a variety of electrical connections
 - Enhanced reliability
Service life is further extended by improvements in structure of sliding section, packing, etc. Also, a filter is installed in the air supply port to prevent entry of foreign matter.
 - Enhanced safety
The protective cover prevents misoperation of manual devices due to external force, etc.

Applicable cylinder bore size: to ø160



Pilot operated 5-port valve 4GA1400B Series CC-045A

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Medium pilot operated 3, 5-port valve
Plug-in type block manifolds

W4G2 Series

"4G/4M4G Series" is more friendly to the "environment" and "people".

- Improved environmental friendliness
 - Environment-friendly halogen-free lead wires have been adopted for internal wiring.
 - Material names are shown on the major resin parts.
- Improved environmental friendliness
 - Degree of protection IP65
 - A variety of serial transmissions
 - Enhanced usability
 - The adopted plug-in method enables easy replacement of valves.
 - Connector interface is adopted between the manifold blocks, eliminating wiring work for expansion (DC specifications).
- Compatible with up to ø30 cylinder drive with the valve width of 15 mm
- NEW 3, 5-port reduced wiring valve equipped with safety function

Applicable cylinder bore size: to ø30



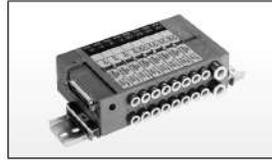
Pneumatic Valves CB-0254

Small pilot operated 3, 4-port valve
Pneumatic valves (reduced wiring valve)

MN4S0 Series

- Effective use of space by eliminating dead space
- One-sided solenoid 3, 4-port reduced wiring manifold valve
- This contributes to equipment space saving. 40 mm-high flat top, block manifolds
- Manifold pitch 11 mm
- Compatible with up to ø40 cylinder drive
- C (dm³/S-bar): 0.57 to 0.80 *1
- Helps save energy with low wattage
- Power consumption 0.5 W
- Two 3-port valves integrated

Applicable cylinder bore size: to ø40



Pneumatic Valves CB-0254

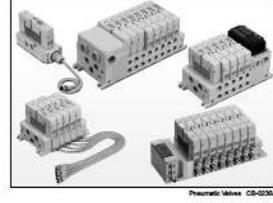
*1 Effective cross-sectional area S can be obtained by S-SC.

Large pilot operated 5-port valve
Plug-in type block manifolds

W4G4 Series

- Compatible with up to ø125 cylinder drive with the valve width of 25 mm
- Performance increase in installation area, workability, life, power consumption, etc.
- A wide range of electrical connections and options
- Serial transmission, I/O cable connector, spacer regulator, connector, etc.
- Improved safety and reliability
- Manual button with a rubber cover attached, preventing intake of foreign matter leading to misoperation
- Degree of protection of IP65 or equivalent

Applicable cylinder bore size: to ø125



Pneumatic Valves CB-0254

Pneumatic valves

Network compatible solenoid valves

OPP* Series

A solenoid valve slave unit is created on the network of various manufacturers.



Pneumatic Valves CB-0254

PLC manufacturer	Communication system	Wiring block model No.	Slave unit series	Incorporated valve
CC-Link Partner Association Mitsubishi Electric	CC-Link (ver.1.10)	T6G1	OPP2 Series	MW4G4
		T6G1	OPP3 Series	MN4S0, MN4E, MN4G, M4G
		T7G1	OPP4 Series	MN4G
		T8G1/2/7	OPP5 Series	MW4G2
		T7G1/2	OPP6 Series	MN4E0, MN4E0D
		T8G1/2	OPP7 Series	M4G, MN4G
		T8GP1/2	OPP7 Series	M4G, MN4G
		T8EB1/2	OPP7 Series	M4G, MN4G
		T7E1/2	OPP8 Series	MW4G
		T7D1/2	OPP2 Series	MW4G4
ODVA TAG JAPAN OMRON Corporation	DeviceNet	T6D1	OPP4 Series	MN4G
		T8D1/2/7	OPP5 Series	MW4G2
		T7D1/2	OPP6 Series	MN4E0, MN4E0D
		T7D1/2	OPP7 Series	M4G, MN4G
		T7DP1/2	OPP7 Series	M4G, MN4G
		T8EN1/2	OPP7 Series	M4G, MN4G
		T8ENP1/2	OPP7 Series	M4G, MN4G
		T7ENP1/2	OPP8 Series	MW4G2, MW4G4
		T8P1/2	OPP7 Series	M4G, MN4G
		T8FP1/2	OPP7 Series	M4G, MN4G
Japan Profibus Association SIEMENS Corporation	PROFIBUS-DP	T8FP1/2	OPP7 Series	M4G, MN4G
	PROFINET	T8EP1/2	OPP7 Series	M4G, MN4G
		T7EP1/2	OPP8 Series	MW4G
		T8EC1/2	OPP7 Series	M4G, MN4G
EtherCAT Technology Group (ETG) OMRON Corporation Beckhoff Automation	EtherCAT	T7EC1/2	OPP8 Series	MW4G
		T7EC1/2	OPP8 Series	MN4E0, MN4E0D
		T7EC1/2	OPP8 Series	MN4E0, MN4E0D
		T7EC1/2	OPP8 Series	MN4E0, MN4E0D
		T7EC1/2	OPP8 Series	MN4E0, MN4E0D
		T7EC1/2	OPP8 Series	MN4E0, MN4E0D
Omtec	SAVENET	TL1	OPP4 Series	MN4G

* Contact CXD for information on compatibility with other networks.

I/O block		
Product name	Model No.	Supported slave units
Input block	W4G-IN	T6C1/T6C5
Output block	W4G-OUT	T8S1/T8D1/T8D7
		T8S1/T8G2/T8G7
T8M5/T8MA		

I/O block is compatible with *1.

General purpose pilot operated 3, 4, 5-port valve
Pneumatic valves

4K1/M4K1/MN4K1 Series

- Compact 3, 4, and 5-port valves with a broad lineup of valve widths of 15 mm, 18 mm, 23 mm, and 29 mm
- Compatible with up to ø160 cylinder drive
- C (dm³/S-bar): 0.60 to 13 *1
- Helps save energy with low wattage
- Power consumption 1.8 W
- 2 types of piping specifications
 - Body piping/base side piping
- 2 types of manifolds
- Metal base manifold/block manifold

Applicable cylinder bore size: to ø160



Pneumatic Valves CB-0254

General purpose pilot operated 5-port valve
Pneumatic valves

4F1/M4F1 Series

- Available for a variety of fields
- 5-port valve
- Compatible with up to ø250 cylinder drive
- 4F1 to 6 : C (dm³/S-bar): 0.51 to 18 *1
- 4F7 : Effective cross-sectional area: 160 mm²
- The soft spool method with proven performance
- Compatible with long term use, low frequency use, and high environmental resistance (rough air)
- A wide range of variations
 - Single valve, manifold
- Outdoor options

Applicable cylinder bore size: to ø250



Pneumatic Valves CB-0254

Pneumatic valves

Miniature direct acting 3-port valve
Small pneumatic valves

3MAD/3MB0 Series

- Contributes to equipment downsizing. Valve width of 10 mm, space-saving miniature direct acting spool 3-port valve
- Compatible with up to ø15 cylinder drive
- 0.1 to 0.15 mm²
- Helps save energy with low wattage
- Power consumption 0.6 W
- A variety of electrical connections
- Lead wires, O-connectors connectors, and D-connectors connectors
- A wide range of variations
- Single valve, manifold

Applicable cylinder bore size: to ø10



Pneumatic Valves CB-0254

Direct acting 3-port valves

3QR1A/3QR81 Series

- Lightweight
 - 19 g Best-in-class lightness, contributing to equipment optimization
- Compact
 - Boltonoid valve body width of 10 mm. This contributes to equipment space saving.
- Large flow rate
 - Compact, lightweight, and large flow rate with the effective cross-sectional area of 2.0 cm² (C value 0.4)
- Responsivity
 - High-speed vacuum achievement/burst at 4 ms ±1 ms (ONV) 1.5 ms ±1 ms (OFF)
- Long service life
 - More than 100 million operations under strict durability test conditions, contributing to long life of the equipment
- Conformity
 - Conformity with the standards of RoHS, low ozone, and rechargeable battery manufacturing process
- The operation state can be retained at the time of power failure (Self-Holding)
- Does not require continuous energization, which reduces electric power consumption and heat generation (Self-Holding)

Applicable cylinder bore size: to ø25



Pneumatic Valves CB-0254

*1 Effective cross-sectional area S can be obtained by S-SC.

Miniature pilot operated 5-port valve
Small pneumatic valves

4SAD/4SB0 Series

- Contributes to space saving and reducing equipment weight. Miniature 5-port valve with a valve width of 10 mm
- Compatible with up to ø25 cylinder drive
- C (dm³/S-bar): 0.3 *1
- Helps save energy with low wattage
- Power consumption 0.5 W
- A variety of electrical connections
- Lead wires, O-connectors connectors, and D-connectors connectors
- Compatible with reduced wiring for PLC control
- Flat cable/D sub-connector

Applicable cylinder bore size: to ø25

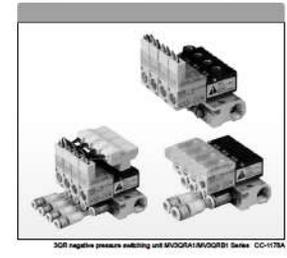


Pneumatic Valves CB-0254

Small direct acting 3-port valve: Vacuum suction unit
3QR negative pressure switching units

MV3QR1A/MV3QR81 Series

- Ideal for suction transport of small articles
- Making use of large flow rate and high responsibility of 3QR, high speed for suction transport process without positive pressure is stabilized.
- Footprint minimized
- With minimum and ideal functions focused on, thin and lightweight manifolds are achieved without using a valve for vacuum burst.
- A vacuum pressure sensor can be mounted on the unit depending on the application.
- Push-in vacuum filter with excellent maintainability can be equipped



3QR negative pressure switching unit MV3QR1A/MV3QR81 Series CO-1174

ISO compliant valve pilot operated 5-port valve
ISO valves

PV5G/PV5I/GMF Series

- Compact body size
- Improvement of operability
 - With a design for easy pressing and better visibility, operability has improved in adjustment and maintenance when installing.
- Uses 2-color display lamp
- Improvement of reliability and safety
 - Manual button with a rubber cover attached, preventing intake of foreign matter leading to misoperation
- Simple, easy piping
 - Increase in work efficiency without the valve body protruding from the base

Applicable cylinder bore size: to ø160



ISO compliant valve PV5G/PV5I/GMF Series CO-024

*1 Effective cross-sectional area S can be obtained by S-SC.

Pilot operated air/0.1mm socket valve
Large flow rate 3-port valves

NP NAP NVP Series

- 3-port pneumatic pressure/low vacuum valve for large flow rate
- Select from 2 types according to the use.
- Internal pilot : NP Series
- External pilot : NAP/NVP Series
- Compact and lightweight design
- Large flow rate design
- 10A/25A : C (dm³/S-bar) : 15 to 18
- 20A to 50A : Effective cross-sectional area: 195 to 560 mm²

Port size: Rc3/8 to Rc2



Pneumatic Valves CB-0254

Solenoid valve manifold with two 3-port valves mounted

- MINIQ Series**
- Compact
 - Low height (34 mm) of the manifold enables installation to a narrow space
 - Installation
 - Select mounting method: DIN rail mounting or direct mounting
 - Piping
 - The take-out position of the supply/exhaust port can be selected, increasing flexibility of piping.



Small direct acting balance poppet 3-port valve

- 3PA/3PB Series**
- A variety of uses under low pressure/vacuum
 - Equipped with valve widths of 15 mm and 22 mm small direct acting balance poppet 3-port valve
 - Compatible with up to ø40 cylinder drive
 - C (dm² (8 bar)) : 0.33 to 1.1 *1
 - Helps save energy with low wastage
 - Power consumption 1.8 W
 - A variety of electrical connections
 - Lead wires, terminal box, C-connectors connectors, and D-connectors connectors
 - A wide range of variations
 - Single valve, manifold



Pneumatic valves

Explosion-proof 3/5-port valve

- Intrinsically safe explosion-proof pilot operated 3/5-port valve**
- 4G***0EJ Series**
- Explosion-proof performance: Ex ib II C T4 Gb (Certification country: Japan)
 - Usable in Class 1 Danger Zone (Class 1 Zone), Class 2 Danger Zone (Class 2 Zone)
 - Space saving/lightweight
 - Realizes 10 mm smallest in explosion-proof class width in addition to discrete unit, manifold available, and ideal for narrow explosion-proof areas
 - Wide-ranging series lineup
 - Valve width: in four widths, 10 mm, 16 mm, 20 mm, and 24 mm
 - High durability with 50 million or more operations
 - Prevents unexplained stoppages, and provides stable facilities operations
 - Degree of protection IP67



Explosion-proof 5-port valve

- Pilot operated pressure-resistant explosion-proof 5-port valve**
- 4F***0E Series**
- Explosion-proof performance d2G4
 - Pressure and explosion-proof construction/flame-proof grade
 - 2-gigability G4
 - NAMUR standards options
 - Compatible with up to ø250 cylinder drive
 - 4F3 to 6 : C (dm² (8 bar)) : 3.9 to 18 *1
 - 4F7 : Effective cross-sectional area: 160 mm²
 - Easy wiring
 - Pilot solenoid valve can be manually rotated 360°, and wire inlet can be changed by 90°
 - Wide wiring box
 - A wide range of variations
 - Single valve, manifold block, and manual knob with lock mechanism as standard equipment



*1 Effective cross-sectional area S can be obtained by S=SC.

Pilot operated poppet 3-port valve

- Miniature pneumatic valves**
- P/M/B Series**
- Block manifolds are used, facilitating assembly, piping, and maintenance
 - Small 2, 3, 5-port valve with a valve width of 15 mm
 - Compatible with up to ø16 cylinder drive
 - C (dm² (8 bar)) : 0.15 *1
 - Helps save energy with low wastage
 - Power consumption 1.8 W
 - A variety of electrical connections
 - Lead wires, terminal box, C-connectors connectors, and D-connectors connectors
 - A wide range of variations
 - Single valve, metal base manifold, block manifold



Shock absorbing valve

- SKH Series**
- Bound phenomenon is suppressed at the end of the cylinder stroke
 - Compatible with up to ø125 cylinder drive
 - C (dm² (8 bar)) : 4.3 to 16.3 *1
 - A wide range of variations
 - Variable speed unit, deceleration unit, one sided deceleration unit



Explosion-proof 5-port valve

- Pilot operated pressure-resistant explosion-proof 5-port valve (International explosion-proof valve)**
- 4F***DEX Series**
- Compliant with International explosion-proof guidelines
 - Explosion-proof performance Ex d IIB T4
 - Pressure and explosion-proof construction d/Cable IIB/ Temperature characteristics T4
 - Test model qualification No. : TC20523
 - NAMUR standards options
 - Compatible with outdoor use
 - Degree of protection IP65 (dust-proof/proof)
 - Detachable cable diameter range expanded
 - Line-up of ø7.5 to ø13.5



Manual override switching 4-port valve

- Manual selector valves**
- HMV/HSV Series**
- Simple ease of operation with lower sliding
 - Detent embedded rotary system, sliding lever system
 - Compatible with up to ø160 cylinder drive
 - C (dm² (8 bar)) : 1.6 to 10.2 *1
 - Port size
 - Rc1/4 to Rc3/4
 - A wide range of variations
 - Miniature, standard



Master valve 4, 5-port valve

- Pneumatic valves**
- 4G1 to 3R Series**
- Compatible with up to ø100 cylinder drive
 - C (dm² (8 bar)) : 0.66 to 4.5 *1
 - Equipped with safety function for improved reliability/ usability.



*1 Effective cross-sectional area S can be obtained by S=SC.

Master valve 4, 5-port valve

- Pneumatic valves**
- 4K Series**
- Compatible with up to ø160 cylinder drive
 - C (dm² (8 bar)) : 0.50 to 13 *1
 - Compact with a broad lineup of valve widths of 15 mm, 18 mm, 23 mm, and 29 mm



Pneumatic valves

Needle valves with adjusting dials

- Needle valves with adjusting dials**
- DVL Series**
- Linear flow characteristics
 - Use for visual inspection of flow rate management
 - Use as a speed controller
 - Oil prohibited available
 - Unrestricted mounting



Speed controllers with adjusting dials

- Speed controllers with adjusting dials**
- DSC Series**
- Flow characteristics in proportion to dial indicator value
 - Equalized speed setting
 - Push locking method is adopted
 - Prevents adjustment errors
 - Reduces man-hours
 - Compact inline type added



Master valve 4, 5-port valve

- Pneumatic valves**
- 4F Series**
- Compatible with up to ø250 cylinder drive
 - 4F0 to 6 : C (dm² (8 bar)) : 0.61 to 18 *1
 - 4F7 : Effective cross-sectional area: 160 mm²
 - Excellent total performance for a variety of fields
 - High environmental resistance (rough air)



*1 Effective cross-sectional area S can be obtained by S=SC.

Unit valve

- 4GR unit valve**
- Unit valve with three functions (valve, speed controller, silencer) integrated
 - Reduction in device selection, purchase procedure, and assembling processes
 - Reduction in installation area due to unitized system (reduced by 66%)
 - Lighter weight due to unitized system (weight reduced by 61%)
 - Compared with valve 4GE210R + speed controller 3C1-S + silencer SLW-SA assembly
 - Reduction in operation speed adjustment processes using the speed controller with 10-level scale.



Speed controllers

- Miniature speed controllers**
- SC Series**
- Four-type series including straight, elbow, flat, and adjustable
 - Lineup of low speed and fine speed types



Speed controllers

- Miniature meter-in meter-out speed controllers**
- SCD Series**
- Flow rate control for both air supply and exhaust available
 - Lineup of fine speed types that enable fine adjustment of flow rate



Speed controllers

Speed controllers with direct piping

SC3R, SC3W, SC3U Series

- Lineup of L-shape rotation and universal that allow 360-degree piping
- Great variety of series



Pneumatic, vacuum and auxiliary components CD-026A

Speed controllers

Speed controllers - Stainless steel, corrosion resistance

SC3P Series

- Speed control valve with anti-corrosive stainless steel body
- Ozone-resistant material is used for check packing to prevent degradation as standard.
- All substances which adversely affect the global environment have been eliminated from the materials



Pneumatic, vacuum and auxiliary components CD-026A

Speed controllers

Speed controllers - medium/large bore sizes

SC1 Series (Medium bore size)

- Enabled disassembly while being piped
- Two-way installation to the bottom and side
- Sizes from Rc1/8 to 1/2

SC Series (Large bore size)

- Sizes from Rc3/4 to 2



Pneumatic, vacuum and auxiliary components CD-026A

Speed controllers

Inline speed controllers

SCL2, SCD2 Series

- Line speed controller convenient for remote or centralized control
- 350-degree rotary mounting hole enables flexible installation without brackets
- Meter-in and meter-out integrated also available, which effectively prevents popping out and stabilizes speed
- Compact, but has a large flow rate of one class higher
- Fine speed for fine adjustment in a low speed available optionally
- Ozone-resistant materials used as standard for packing



Pneumatic, vacuum and auxiliary components CD-026A

PNEUMATIC AUXILIARY COMPONENTS

Silencers

Metering valves with silencers

SMW2 Series

- Compact, lightweight, and high flow rate
- Reducing 50% of the volume and 80% of the weight compared with CKD's SMW Series, this series achieved a maximum effective cross-sectional area in this class.
- Noise reduction effect of 23 dB(A) or higher
- P, P sintered element with high noise reduction effect integrated into the body to maintain low noise level.
- Uses a push-lock needle
- Knob with push lock mechanism enables easy and secure locking.
- Environmental friendly design
- By using plastic material only, sorting at disposal is eliminated.



Pneumatic, vacuum and auxiliary components CD-026A

Silencers

Silencers

SL, SLW, SLM Series

- Excellent noise reduction effect
- Flame-resistant resin used for the body (SLW Series)



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Quick manual valve/shuttle valve

QEV2 Series

- Wide variety of pipe size from Rc1/8 to 1
- Large effective cross-sectional area
- Mounting bracket available (small bore)

SHV2 Series

- Low cracking pressure
- Large effective cross-sectional area
- Flexibility in mounting direction
- Mounting bracket available (small bore)



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Quick exhaust valve inline type

QEL Series

- Inline -
- Small-space saving
- Ozone-resistant materials are used as standard to prevent degradation of the valving element
- All substances which adversely affect the global environment have been eliminated from the materials
- Plug -
- The elegant design is compact and saves space
- Uses the compact actuator high-speed drive, to be effective as a target for condensation due to likely adiabatic expansion
- The plug shape allows easy mounting near the actuator



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Compact check valves with push-in fittings

CHL Series

- Small-space saving inline
- #4 and #5 push-in fitting are integrated to downsize pipe length and increase workability
- Flame-resistant resin materials are used for resin parts



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Check valves

CHV2 Series

- Full variety of piping bore size from Rc1/8 to Rc11/2
- 34% smaller and 25% lighter compared with our conventional products
- Fluoro rubber specifications and oil-prohibited specifications available as options
- Mounting plate available for small bore size types



Pneumatic, vacuum and auxiliary components CD-026A

PNEUMATIC AUXILIARY COMPONENTS

Auxiliary valves

Threshold sensor

PWS Series

- Detect exhaust pressure near stroke ends with a high accuracy
- Electric or pneumatic output signal selectable



Pneumatic, vacuum and auxiliary components CD-026A

Fittings/Tubes

Rotary fittings

RJF Series

- Built-in bearing for high rigid/low sliding resistance
- Can be selected from 4/6/8/12/16 circuits
- Space saving types available for 12 and 16 circuits
- Port size Rc1/8 is available as well as M5 (4/6/8 circuits)



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Block valves

FPV Series

- Compact valves ideal for cylinder position locking and braking
- 34% smaller and 25% lighter compared with our conventional products
- Cylinder can be directly mounted with wide variety of bore sizes from M5 to R1/2
- White body that matches the equipment
- Products with speed controller also available (custom order)
- Products with manual button for residual pressure exhaust also available (custom order)



Pneumatic, vacuum and auxiliary components CD-026A

Auxiliary valves

Quick valves

2QV/3QV Series

- Straight flow path and large effective cross-sectional area
- Flame-resistant resin used as standard (UL94 Standards V-0 equivalent)
- Manifold enabled by optional bracket
- 2-port and 3-port valves are available.



Pneumatic, vacuum and auxiliary components CD-026A

Fittings/Tubes

Miniature fittings

F Series

- Unique structure with guide for easy insertion and disconnection prevention
- Common for soft nylon and urethane tubes



Pneumatic, vacuum and auxiliary components CD-026A

Fittings/Tubes

Fittings

GW, GWJ Series

- Full flow up to the bore size
- Flame-resistant resin used as standard for the white body, which blends in with any work environment
- V-shaped packing is used for the seal between the tube and fitting. The tube can be inserted with a light push and still obtain a secure seal
- Wide variety of applicable port O.D. from #3.2 to #12



Pneumatic, vacuum and auxiliary components CD-026A

Fittings, stainless steel series

- ZWZSP Series**
- Compact size saves space
 - Smooth connection and disconnection of tubes
 - Secure seal for anti-leakage
 - Flame-resistant resin incorporated in white body and push ring
 - Stainless steel incorporated as standard for all metal parts



Pneumatic, vacuum and auxiliary components CD-046A

Tightening fittings

- MJ, JL Series (by Aoi Co., Ltd.)**
- Reliable double-chuck fitting
 - Use for copper tubes and other tubes
 - Full flow up to the bore size



Pneumatic, vacuum and auxiliary components CD-046A

Tubes

- F, U, NU, KX, SR Series (F (white not included), U, KX, and SR are manufactured by Aoi Co., Ltd.)**
- Tubes can be selected according to purpose or application



Pneumatic, vacuum and auxiliary components CD-046A

Fiber tubes

- Extremely fine tubes are as fine and flexible as lead wire
- O.D. ø1.8 and min. bending radius 4 mm
- Volume resistance ratio approx. 1 x 10⁸ Ω-cm or less
- Ideal for piping of fine speed cylinders
- A variety of tube colors and fittings available



Pneumatic, vacuum and auxiliary components CD-046A

Antistatic tubes

- UP ** -F1 Series (ø8 to 12)**
UP ** -F2 Series (ø3.2 to ø6)
- Resistant to static electricity and dust build-up
 - Volume resistance ratio for black color: 10⁷ to 10⁸ Ω-cm
 - For other colors: 10⁹ to 10¹⁰ Ω-cm
 - Fully antistatic and prevent accumulation of static electricity and dust
 - Flexible piping (ø3.2, ø4, ø6)
 - These antistatic tubes are highly bendable and flexible in mounting, enabling easy piping in narrow spaces. (To use them with the push-in fitting, optional insert ring is necessary.)
 - Variety of colors
 - Available in black, white, transparent, transparent blue, transparent green, transparent red (-F2). Choose the color suitable for your purpose.
 - Diverse lineup
 - Six diameters are available: ø3.2, ø4, ø5, ø6, ø10, and ø12.



Pneumatic, vacuum and auxiliary components CD-046A

Air blow nozzles

- BN * Series**
- Wide variation
 - Line of various models to match industries and applications.
 - Energy saving
 - Employs a special structure that sucks in the surrounding air and amplifies it. Blows air strongly even with little air consumption.
 - Uniformity
 - Employs a special structure that injects air to a more uniformly directed spot. Achieves stable quality of workpieces.
 - Low noise
 - In addition to a work environment-friendly silent design that reduces turbulence, there are also flat types and round types for the appropriate situations.



Air Blow Nozzle BN * Series CD-1347A

PNEUMATIC AUXILIARY COMPONENTS

PNEUMATIC AUXILIARY COMPONENTS (MAIN LINE UNIT)

Refrigeration air dryers

- Xeroqua dryer GX Series**
- GX3200D/GX5200D Series**
- High quality and high reliability
 - Operating ambient temperature up to 45°C, (40°C in conventional models). Uses stainless steel heat exchanger compatible with oil-free air.
 - Energy saving
 - Low energy consumption design that reduces air loss at drain discharge. The compact design reduces power consumption.
 - Thin and compact body
 - Easy maintenance
 - Causes of abnormal stops are determined by the flashing pattern of the alarm lamp.



Xeroqua Dryer GX Series CD-109A

Refrigeration air dryers

- Xeroqua dryer GT Series**
- GT9000(D)/GT9000W(D)/GT9000WV Series**
- Uses stainless steel heat exchanger that supports oil-free air
 - Energy saving
 - Air cooling types GT9300 to 9450, water cooling types GT9300W to 9450W
 - Ideal for piping of fine speed cylinders
 - Operation with 50% energy-saving by limiting the numbers of unit
 - (Water cooling GT9000WV Series)
 - Dew point temperature setting is available. Operation with 50% energy-saving at the maximum by inverter control. Continuous operation available even when lightly loaded



Pneumatic, vacuum and auxiliary components CD-046A

Large refrigeration air dryer Xeroqua Dryer G20GT Series CD-109A

Desiccant air dryers

- Heatless dryer**
- HD/SHD Series**
- Energy-saving control reduces purge rate by up to 96%
 - Variable exhaust greatly reduces noise level by approx. 35 dB(A) (compared with conventional models)
 - Electronic control system enables 1/3 energy consumption of the body (compared with conventional models)
 - Digital display of pressure dew point assures reliable performance check
 - Multi-tower structure significantly reduces installation area (1/3 to 1/2 compared with conventional models)
 - Equipped with inlet/outlet filters as standard



Pneumatic, vacuum and auxiliary components CD-046A

High polymer membrane air dryers

- Super dryer**
- SD/SU/SDM Series**
- Eco-friendly iron-free dryer
 - With no movable parts, long-term clean dry air supply is possible
 - Lighter, more compact, and easily built into equipment
 - Using no electricity, there is no noise or effects thereof
 - Ultra low dew point of max. -60°C
 - Compatible with 75 kW grade large flow rate compressors



Pneumatic, vacuum and auxiliary components CD-046A

PNEUMATIC AUXILIARY COMPONENTS (MAIN LINE UNIT)

PNEUMATIC AUXILIARY COMPONENTS (MAIN LINE UNIT)

Air filters (medium)

- Medium main line filters**
- AF2 Series**
- Pleated structure of the element achieves low pressure loss
 - Pop-up indicator enables differential pressure checking from all directions
 - A simplified modular connection
 - Piping adapter also available (made-to-order product)



Pneumatic, vacuum and auxiliary components CD-046A

Air filters (medium)

- Medium main line filters**
- AF4000 Series**
- High performance main line filter with stainless steel housing for clean environments, which is ideal for oil-free air lines
 - With residual pressure release function
 - A band method adopted for tightening the housing does not require tools for element replacement
 - Time management of element replacement by indication of blinking lamp



Pneumatic, vacuum and auxiliary components CD-046A

Air filters (large)

- Large main line filters**
- AF3000 Series**
- Low pressure loss element is used to contribute to energy saving
 - Differential pressure gauge provided as standard
 - Plumbing is easy with the stand provided as standard
 - Easy maintenance
 - Easy replacement of element by removing top of flange and rotating.
 - Diverse lineup for wide application



Pneumatic, vacuum and auxiliary components CD-046A

Air filters (large)

- Large main line filters**
- AF5000 Series**
- Stainless steel vessel incorporated for all models. (SUB304)
 - Long-life low pressure loss element is used to contribute to energy saving
 - Equipped with forced discharge sub-drain
 - Equipped on P and S types as standard
 - Remote control possible
 - Element replacement time is informed by differential pressure switch outputting alarm signal.
 - Simple element replacement
 - Remove the top flange, and just turn the screw on the element.



Pneumatic, vacuum and auxiliary components CD-046A

Automatic drains

DT Series

- Snap-action mechanism enabling 15 times more durability (compared to our products)
- Compact & lightweight
- Upward piping and side piping available
- Manual cock provided as standard
- NDNIC both available

Compatible compressor 0.75 to 75 kW



Pneumatic, vacuum and auxiliary components CS-0484

Automatic drains

DB Series

- Prevents wasteful discharge of compressed air (energy saving)
- Drain level sensor to control open/close of solenoid valve
- Abnormal discharge is notified by alarm output
- Discharge made sure by adopting diaphragm valve with large bore size
- Manual discharge also available with TEST button
- IP65



Pneumatic, vacuum and auxiliary components CS-0484

Portable Air Supply Unit

ASU-S Series

- Easy to carry
- It is shaped like a carry case, making it easy for anyone to carry it around
- Supplies clean air
- Compressed air is cooled with the after-cooler. Supplies drain, and clean air that has been filtered of foreign matter
- Continuous use possible
- Heat resistance around the pump is increased, preventing temperature rise from long periods of use



Pneumatic, vacuum and auxiliary components CS-0484

Nitrogen gas extraction unit

NS Series

- Install anywhere
- Design and piping are done easily by providing system components
- With no power supply required, it is usable even in explosion-proof atmospheres, different voltage areas, etc.
- Low cost
- Running cost is only the cost of electricity for the compressor
- Troublesome cylinder management of remaining gases or replacement work is not required.
- Easy maintenance
- Component replacement is possible without disassembling the piping.
- Not subject to High Pressure Gas Safety Act



Nitrogen gas extraction unit CO-1384A

Oxygen concentration monitor

PNA Series

- Inline, Pressure-resistant structure can be used under pressure up to 1.0 MPa
- A modular structure that can be connected to the Nitrogen Extraction Unit NSU Space saving piping is possible
- As conventional gas purging is no longer necessary, it contributes to energy saving
- Because the protective structure is IP65 equivalent, there are no worries even when wet with water
- Uses material compatible with the Food Sanitation Act, to enable safe and secure use even in food manufacturing processes



Pneumatic, Vacuum and Auxiliary Components CS-0484

PNEUMATIC AUXILIARY COMPONENTS (MAIN LINE UNIT)

[Combination]

Series	Combination/application						Model No.	
	F Filter	R Regulator	L Lubricator	W Rotary actuator	M Reverse Filter/regulator	Oil mist filter		
● F.R.L. combination P1 = 0.1 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa	F1000-W	R1000-W	L1000-W				C1000-W	
	F2000-W	R2000-W	L3000-W				C2000-W	
	F3000-W	R2000-W	L3000-W				C3000-W	
	F3000-W	R3000-W	L3000-W				C3000-W	
	F4000-W	R4000-W	L4000-W				C4000-W	
	F5000-W	R5000-W	L8000-W				C5000-W	
	F8000-W	R5000-W	L8000-W				C8000-W	
				W1000-W				C1010-W
			W2000-W				C2010-W	
			W3000-W				C3010-W	
			W4000-W				C4010-W	
			W8000-W				C8010-W	
● F.R. combination P1 = 0.1 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa	F1000-W	R1000-W					C1020-W	
	F2000-W	R2000-W					C2020-W	
	F3000-W	R2000-W					C2020-W	
	F3000-W	R3000-W					C3020-W	
	F4000-W	R4000-W					C4020-W	
	F5000-W	R5000-W					C5020-W	
	F8000-W	R5000-W					C8020-W	
					M1000-W			C1030-W
● F.M.R. combination P1 = 0.1 MPa	F1000-W	R1000-W					C1030-W	
	F2000-W	R2000-W					C2030-W	
	F3000-W	R2000-W					C2030-W	
	F3000-W	R3000-W					C3030-W	
	F4000-W	R4000-W					C4030-W	
	F5000-W	R5000-W					C5030-W	
	F8000-W	R5000-W					C8030-W	
					M1000-W			C1040-W
● W.M. combination P2 = 0.7 MPa				W1000-W			C1040-W	
				W2000-W			C2040-W	
				W3000-W			C3040-W	
				W4000-W			C4040-W	
				W8000-W			C8040-W	
					M1000-W			C1050-W
					M2000-W			C2050-W
					M3000-W			C3050-W
● R.M. combination P2 = 0.1 MPa		R1000-W					C1060-W	
		R2000-W					C2060-W	
		R2000-W					C2060-W	
		R3000-W					C3060-W	
		R4000-W					C4060-W	
		R5000-W					C5060-W	
		R5000-W					C8060-W	
					M1000-W			C1070-W
● F.F.M. combination P1 = 0.1 MPa	F1000-W						C1080-W	
	F2000-W						C2080-W	
	F3000-W						C3080-W	
	F4000-W						C4080-W	
	F5000-W						C5080-W	
	F8000-W						C8080-W	
	F8000-W (0.5 μm)						C8070-W	
	F8000-W (0.3 μm)						C8070-W	

* P1 = primary pressure, P2 = secondary pressure, ΔP2 = differential pressure

Port size	Port size												Max. flow rate m³/min (Reference)	
	ø4	ø6	ø8	1/4"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"		
				●	●									0.45/0.63
				●	●									1.217
				●	●									1.217
				●	●									1.281.75
				●	●									1.432/43.0
				●	●									4.95.0
				●	●									7.07.5
				●	●									0.45/0.63
				●	●									1.217
				●	●									1.281.75
				●	●									1.432/43.0
				●	●									777.5
				●	●									0.77/1.1
				●	●									1.75/2.5
				●	●									1.75/2.5
				●	●									2.0/2.6
				●	●									2.5/4.4/5.0
				●	●									777.7
				●	●									10
				●	●									0.15
				●	●									0.26
				●	●									0.36
				●	●									0.36
				●	●									0.825
				●	●									1.27
				●	●									2.6
				●	●									0.15
				●	●									0.26
				●	●									0.36
				●	●									0.36
				●	●									0.825
				●	●									1.27
				●	●									2.6
				●	●									0.15
				●	●									0.26
				●	●									0.36
				●	●									0.36
				●	●									0.825
				●	●									1.27
				●	●									2.6
				●	●									0.225
				●	●									0.5
				●	●									0.8
				●	●									1.1

* Piping adaptor is mounted.

[Combination]

Series name	Compatible product(s)	Model No.
● F.R.L. kit P1 = 0.1 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa	Set (with accessory)	K8670

[Filter/regulators]

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Lubricator	W Rotary actuator	M Reverse Filter/regulator	Oil mist filter	
● Filter/regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa							WS500 (small)
							W1500-W
							W2500-W
							W5000-W
							W4000-W
							W8000-W
							W5000-G4
							W6000-G4
● Filter/regulator Flame-resistant Series P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa							
							W5000-G4
							W6000-G4
							W8000-G4
							WW4000
							WW8000
							W1100-W
							W2100-W
● Reverse filter/regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa							
							W1100-W
							W2100-W
							W3100-W
							W4100-W
							W8100-W
							W1100-G4
							W4100-G4
● Compact filter/regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa							
							WS500
● 7000 Series P1 = 0.1 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa							
							87018-AC

* P1 = primary pressure P2 = secondary pressure ΔP2 = differential pressure

Port size											Max. flow rate m³/min (Reference)	
a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
			●	●								0.20.3

Port size											Max. flow rate m³/min (Reference)	
a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
●	●											0.290.18
			●	●								0.831.15
				●	●	●						1.52.0
				●	●	●	●					2.152.43
				●	●	●	●	●				2.54.354.75
									●	●		10
									●	●		2.152.43
									●	●		2.54.354.75
											●	10
											●	2.152.43
											●	2.54.354.75
											●	10.0
											●	2.152.43
											●	2.54.354.75
											●	10.0

Port size											Max. flow rate m³/min (Reference)	
a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
●	●											0.090.18

Port size											Max. flow rate m³/min (Reference)	
a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
			●	●								0.50.9

PNEUMATIC FILTERS, REGULATORS, LUBRICATORS (F. R. L. UNITS)

[Filters]

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Lubricator	W Filter/regulator	M Reverse Filter/regulator	M Oil mist filter	
● Filter P1 = 0.7 MPa ΔP = 0.02 MPa	●						F1000-W F2000-W F3000-W F4000-W F5000-W F6000-W
● Filter/flame-resistant series P1 = 0.7 MPa ΔP = 0.02 MPa	●						F3000-G4 F4000-G4 F5000-G4
● Filter/outdoor series P1 = 0.7 MPa ΔP = 0.02 MPa	●						FW4000 FW5000
● Filter/medium pressure series P1 = 1.3 MPa ΔP = 0.02 MPa	●						FM5000-W FM4000-W FM5000-W FM6000-W

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Lubricator	W Filter/regulator	M Reverse Filter/regulator	M Oil mist filter	
● In-line type clean filter P1 = 0.7 MPa ΔP = 0.02 MPa	●						FC5000 FC51000

Series name	Compatible product(s)	Model No.
● Air filter P1 = 0.7 MPa ΔP2 = 0.02 MPa	Wide variation Filtration rating 5 µm	A1018-FC 1128-E 1128-AE
● Heavy duty air filter P1 = 0.7 MPa ΔP2 = 0.02 MPa	High moisture removal Filtration rating 5 µm	A1338 1328
● Substation air filter P1 = 0.7 MPa ΔP2 = 0.01 MPa	Tar removing Filtration rating 0.3 µm	1128-FC-EY A1338-FC-Y 1128-FC-EY 1328-FC-Y
● Micro aerosol micro naught P1 = 0.7 MPa ΔP2 = 0.01 MPa	Oil removing Oil removing ratio 0.1 PPM/W	1218-2C 1238-8C 1238-8C 1128L-FC
● Micro aerosol/rod naught P1 = 0.7 MPa ΔP2 = 0.01 MPa	For deodorizing	1238-8C-X 1229-8C-X 1226L-FC-X

Pneumatic, vacuum and auxiliary components CB-045A

* P1 = primary pressure P2 = secondary pressure ΔP2 = differential pressure

Port size											Max. flow rate m³/min (Reference)		
a4	a6	a8	a10	1/8	1/4	3/8	1/2	3/4	1	1 1/4		1 1/2	2
				●	●								0.460.61
				●	●	●							1.31.7
				●	●	●	●						1.231.5
				●	●	●	●	●					1.320.143.0
									●	●			5.66.2
									●	●			6.46.8
									●	●			1.231.5
									●	●			5.66.2
									●	●			6.46.8
									●	●			1.320.143.0
									●	●			6.46.8
									●	●			1.62.0
									●	●			1.92.93.8
									●	●			6.78.1
									●	●			8.19.0

Port size											Max. flow rate m³/min (Reference)			
a4	a6	a8	a10	a12	1/8	1/4	3/8	1/2	3/4	1		1 1/4	1 1/2	2
●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05 (04, 05, 10) / 0.06 (06, 14)
														0.3 to 0.4

Port size											Max. flow rate m³/min (Reference)		
a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2	
			●	●									0.550.7
				●	●								5.97.0
									●	●			1821.25
									●	●			1.55
									●	●			5.8
									●	●			1.55
									●	●			1.55
									●	●			4.9
									●	●			4.9
									●	●			0.056
									●	●			1.27
									●	●			2.49
									●	●			4.8
									●	●			1.27
									●	●			2.49
									●	●			4.9

PNEUMATIC FILTERS, REGULATORS, LUBRICATORS (F. R. L. UNITS)

[Oil mist filters]

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Lubricator	W Filter/regulator	M Reverse Filter/regulator	M Oil mist filter	
● Oil mist filter (S type) P1 = 0.7 MPa ΔP = 0.01 MPa ● Filtration: 0.3 µm ● Secondary side of concentration: 0.5 mg/m³						●	M1000-W-3 M2000-W-3 M3000-W-3 M4000-W-3 M5000-W-3 M6000-W-3
● Oil mist filter (M type) P1 = 0.7 MPa ΔP = 0.01 MPa ● Filtration: 0.01 µm ● Secondary side of concentration: 0.01 mg/m³						●	M1000-W M2000-W M3000-W M4000-W M5000-W M6000-W
● Oil mist filter (X type) P1 = 0.7 MPa ΔP = 0.01 MPa ● Nominal filtration rating: By way of active carbon, suction ● Secondary side of concentration: 0.002 mg/m³						●	M1000-W-X M2000-W-X M3000-W-X M4000-W-X M5000-W-X M6000-W-X
● High-performance oil mist filter P1 = 0.7 MPa ΔP = 0.01 MPa ● Filtration: 0.01 µm ● Secondary side of concentration: 0.001 mg/m³						●	MX1000-W MX2000-W MX3000-W MX4000-W MX5000-W MX6000-W
● Oil mist filter outdoor (S type) P1 = 0.7 MPa ΔP = 0.01 MPa ● Filtration: 0.3 µm ● Secondary side of concentration: 0.5 mg/m³						●	MW1000-S MW5000-S
● Oil mist filter outdoor (M type) P1 = 0.7 MPa ΔP = 0.01 MPa ● Filtration: 0.01 µm ● Secondary side of concentration: 0.01 mg/m³						●	MW4000-M MW5000-M
● Oil mist filter medium pressure (S type) P1 = 1.4 MPa ΔP = 0.01 MPa ● Filtration: 0.3 µm ● Secondary side of concentration: 0.5 mg/m³						●	MS2000-WP-3 MS4000-WP-3 MS6000-WP-3 MS8000-WP-3
● Oil mist filter medium pressure (M type) P1 = 1.4 MPa ΔP = 0.01 MPa ● Filtration: 0.01 µm ● Secondary side of concentration: 0.01 mg/m³						●	MS1000-W MS2000-W MS3000-W MS5000-W
● Oil mist filter medium pressure (X type) P1 = 1.4 MPa ΔP = 0.01 MPa ● Filtration rating: suction by activated carbon ● Secondary side of concentration: 0.002 mg/m³						●	MS2000-WP-X MS4000-WP-X MS6000-WP-X MS8000-WP-X

Pneumatic, vacuum and auxiliary components CB-045A

* P1 = primary pressure P2 = secondary pressure ΔP2 = differential pressure

Port size	Port size											Max. flow rate min/m (reference)	
	a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
				•	•								0.15
			•	•	•								0.25
			•	•	•	•							0.45
			•	•	•	•	•						1
			•	•	•	•	•	•					1.4
			•	•	•	•	•	•	•				2.9
			•	•	•	•	•	•	•	•			0.15
			•	•	•	•	•	•	•	•			0.25
			•	•	•	•	•	•	•	•			0.36
			•	•	•	•	•	•	•	•			0.825
			•	•	•	•	•	•	•	•			1.27
			•	•	•	•	•	•	•	•			2.6
			•	•	•	•	•	•	•	•			0.15
			•	•	•	•	•	•	•	•			0.25
			•	•	•	•	•	•	•	•			0.45
			•	•	•	•	•	•	•	•			1.0
			•	•	•	•	•	•	•	•			1.4
			•	•	•	•	•	•	•	•			2.9
			•	•	•	•	•	•	•	•			0.075
			•	•	•	•	•	•	•	•			0.18
			•	•	•	•	•	•	•	•			0.37
			•	•	•	•	•	•	•	•			0.67
			•	•	•	•	•	•	•	•			1.48
			•	•	•	•	•	•	•	•			0.825
			•	•	•	•	•	•	•	•			2.6
			•	•	•	•	•	•	•	•			1
			•	•	•	•	•	•	•	•			2.9
			•	•	•	•	•	•	•	•			0.61
			•	•	•	•	•	•	•	•			1.37
			•	•	•	•	•	•	•	•			1.92
			•	•	•	•	•	•	•	•			3.98
			•	•	•	•	•	•	•	•			0.49
			•	•	•	•	•	•	•	•			1.13
			•	•	•	•	•	•	•	•			1.74
			•	•	•	•	•	•	•	•			3.56
			•	•	•	•	•	•	•	•			0.61
			•	•	•	•	•	•	•	•			1.37
			•	•	•	•	•	•	•	•			1.92
			•	•	•	•	•	•	•	•			3.98

PNEUMATIC FILTERS, REGULATORS, LUBRICATORS (F. R. L. UNITS)

[Regulators]

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Reverse regulator	W Lubricator	W Regulator	M Oil mist filter	
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa		•					R1000-W R2000-W R3000-W R4000-W R5000-W R6000-W
● Regulator/flame-resistant series P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa		•					R2000-G4 R3000-G4 R5000-G4
● Regulator for outdoor series P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa		•					RM4000 RM8000 RM2000-W RM4000-W RM6000-W
● Regulator oil-prohibition series P1 = 0.7 MPa P2 = 0.5 MPa		•					RM2000-W RM4000-W RM6000-W
● Regulator medium pressure series P1 = 1.8 MPa P2 = 0.5 MPa		•					RM2000-W RM4000-W RM6000-W
● Reverse regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			R1100-W R2100-W R3100-W R4100-W R5100-W R6100-W
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			RANK RAM (manifold) RAB00 RBD00
● Block manifolds Regulator							MNFR500A MNF04000
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			RUB500
● Block manifolds Regulator							MNFR500A MNFUB500B
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			RP2000
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			RPE1000
● Clean regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			RC2000
● Clean regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa				•			2818

Pneumatic, vacuum and auxiliary components CS-045A

* P1 = primary pressure P2 = secondary pressure ΔP2 = differential pressure

Port size	Port size											Max. flow rate min/m (reference)	
	a4	a6	a8	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2		2
				•	•								0.771.35
			•	•	•								1.752.5
			•	•	•	•							2.02.6
			•	•	•	•	•						2.54.45.0
			•	•	•	•	•	•					77.7
			•	•	•	•	•	•	•				14.011.0
			•	•	•	•	•	•	•				2.02.6
			•	•	•	•	•	•	•				2.54.45.0
			•	•	•	•	•	•	•				14.011.0
			•	•	•	•	•	•	•				2.54.45.0
			•	•	•	•	•	•	•				14.011.0
			•	•	•	•	•	•	•				1.62.6
			•	•	•	•	•	•	•				2.43.0/3.0
			•	•	•	•	•	•	•				4.56
			•	•	•	•	•	•	•				2.0
			•	•	•	•	•	•	•				3.0
			•	•	•	•	•	•	•				0.771.35
			•	•	•	•	•	•	•				1.752.5
			•	•	•	•	•	•	•				2.02.6
			•	•	•	•	•	•	•				2.54.45.0
			•	•	•	•	•	•	•				77.7
			•	•	•	•	•	•	•				14.011.0
			•	•	•	•	•	•	•				0.1
			•	•	•	•	•	•	•				0.35
			•	•	•	•	•	•	•				0.10.2
			•	•	•	•	•	•	•				0.10.2
			•	•	•	•	•	•	•				0.10.2
			•	•	•	•	•	•	•				0.060.08
			•	•	•	•	•	•	•				0.060.08
			•	•	•	•	•	•	•				0.060.08
			•	•	•	•	•	•	•				0.1
			•	•	•	•	•	•	•				0.8
			•	•	•	•	•	•	•				0.180.18

PNEUMATIC FILTERS, REGULATORS, LUBRICATORS (F. R. L. UNITS)

[Regulators]

Series name	Compatible product(s)	Model No.
● Regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa	Extensive models	B2018-FC 2216-FC
● Reverse regulator P1 = 0.7 MPa P2 = 0.5 MPa ΔP2 = 0.1 MPa	Check valve integrated, no bypass circuit required	2418-FC 2416-FC
● Dial air regulator P1 = 0.7 MPa P2 = 0.5 MPa	With setting dial	2302-FC 2303-FC 2304-FC
● Remote dial air regulator P1 = 0.7 MPa P2 = 0.5 MPa	For remote control	2302-FC-R 2303-FC-R 2304-FC-R
● Relief valve Set pressure 0.7 MPa Resp. pressure 0.08 MPa	For maintaining the set pressure	B9811-FC

[Lubricators]

Series	Compatible product(s)						Model No.
	F Filter	R Regulator	L Reverse regulator	W Lubricator	W Regulator	M Oil mist filter	
● Lubricator P1 = 0.5 MPa ΔP = 0.3 MPa				•			L1000-W L2000-W L4000-W L8000-W
● Lubricator P1 = 0.5 MPa ΔP = 0.3 MPa							A3018-FC 3003E-FC 3004E-FC
● Lubricator auto-fill							3003E-FC-V

Pneumatic, vacuum and auxiliary components CS-045A

[Drain separator]

Series name	Compatible product(s)	Model No.
● Drain separator	Lightweight compact drain separator	FX1004 FX1011 FX1087

Electro pneumatic regulator

Components for pressure control on which input and output are proportional.

- High precision/quick response system that enables continuous air pressure control according to the usage. These fluid control components are ideal for push pressure controller and tension controller.
- Perfect for automatization. Flexible continuous operation is made available with more advanced electronic control.
- EV32 Series Compact, lightweight, and energy saving.
- Low pressure electro pneumatic regulator EVL Series Flexible and high precision proportional control from 0 kPa to 50 kPa.



Pneumatic, vacuum and auxiliary components CB-045A

Thin electro pneumatic regulator

MEVT Series

Manifold thin electro pneumatic regulator compatible with PC control and reduced wiring. Ideal for pressure control and the speed cylinder control, etc., in semiconductor fields and precise processing fields, etc.

- 14 mm thin and 80 g lightweight
- Network-compatible
- 2-color display of the operational status
- Easy piping and wiring work
- 2 installation directions
- High precision, high responsiveness
- Eco-friendly product



Pneumatic, vacuum and auxiliary components CS-054A

High precision electro pneumatic regulators

EVR Series

- High precision pressure control
 - Hysteresis: 0.3% F.S., linearity: ±0.5% F.S., resolution: 0.1% F.S., repeatability: 0.2% F.S.
- Improved temperature stability and durability
 - Zero point fluctuation: 0.06% F.S., span fluctuation: 0.26% F.S., durability: 3 times longer (compared with conventional models)
- New functions introduced
 - Residual pressure D when the input signal is 0% F.S. Pressure control pattern selectable.
- Easy operation
 - Two buttons enables operations for zero point adjustment, span point adjustment, and pressure control.
- Compatibility and installation
 - Compatible mounting with the conventional product (EV250).
 - Two types of connectors are available. (Straight and L type, 1 m and 3 m each)



Electro pneumatic regulator EVR Series CO-105A

Digital electro pneumatic regulators

EVD Series

- Superior usability and installability
 - Digital display allows confirmation of control status at a glance
 - Parallel input is equipped as standard
 - Compact design
 - D-sub connector enables 2-way connection
 - Enabling module connection
- Higher functionality with built-in microcomputer
 - Error display function
 - Zero/span adjustment function
 - Direct memory function
 - Switch output function
- High precision/high response pressure control is possible
- Eco-friendly design
 - Lead-free and vinyl chloride-free
 - Material indication
 - Automatic power off function employed for energy saving
 - IO-Link compatible



Pneumatic, vacuum and auxiliary components CB-054A

PNEUMATIC FILTERS, REGULATORS, LUBRICATORS (F, R, L UNITS)

[Vacuum system equipment SELVACS]

● Ejector system compatible

Model	Series		
Ejector single unit	VSJ Series Single unit with vacuum burst function <ul style="list-style-type: none"> Ejector and vacuum burst function are integrated. Compact and lightweight, it can be used at the end of vacuum piping. 		
	VSH Series Single unit solenoid valve direct mounting <ul style="list-style-type: none"> Supply port sizes from M5 to R1/4, to which solenoid valve can be directly mounted. A wide range of nozzle diameter variations from ø0.5 to ø2.0. 		
	VSU Series Tubular single unit <ul style="list-style-type: none"> Installable in the middle of piping since the vacuum port and supply port form a straight line. Dedicated bracket is available. 		
	VSB Series Square single unit <ul style="list-style-type: none"> Square silencer built in, enabling body mounting and fixing. Option for mechanical vacuum switch can be selected. 		
	VSC Series Pad direct mounting single unit <ul style="list-style-type: none"> Vacuum port sizes from M5 to R3/8, to which vacuum pads can be directly mounted. A wide range of nozzle diameter variations from ø0.5 to ø2.0. 		
Ejector system compatible	VSG Series 20 mm width dedicated single unit <ul style="list-style-type: none"> Comprehensive single unit dedicated width that emphasizes basic performance. Valve, vacuum pressure switch and vacuum filter are unitized and made selectable according to the application. 		
	VSK/VSKM Series 16 mm width comprehensive unit <ul style="list-style-type: none"> Modularization of each unit enables optimal unit selection. Built-in check valve and air timer burst are selectable options. 		
	VSJ/VSNM Series 20 mm width comprehensive unit <ul style="list-style-type: none"> Flow rate and pressure of burst air can be controlled. Vacuum burst circuit relief function realizes shortening of vacuum burst time. 		
	VSN/VSNM Series 10.3 mm width small unit <ul style="list-style-type: none"> Compact and lightweight vacuum unit. Achieves fast and stable response. 		
	VSK/VSKM Series 10.5 mm width comprehensive unit <ul style="list-style-type: none"> Compact and thin vacuum unit. Two installation types available: direct fixing or DIN rail mount. 		
	VSQ Series 31.5 mm width dedicated single unit <ul style="list-style-type: none"> Large vacuum unit ideal for controlling large flow rates. Standardized three types of nozzle: single, double and twin. 		
	VSZM Series 11 mm pitch manifold dedicated unit <ul style="list-style-type: none"> Manifold dedicated reduced wiring vacuum unit. Power consumption of the valve reduced to 0.55 W, effectively saving energy. A wide range of applications are supported by wide variations of the vacuum pressure switch. 		

[Vacuum system equipment SELVACS]

● Vacuum pump system compatible

Model	Series	
Vacuum pump system compatible	VSJ/PVSJ/PM Series 20 mm width comprehensive unit <ul style="list-style-type: none"> Flow rate and pressure of burst air can be controlled. Vacuum burst circuit relief function realizes shortening of vacuum burst time. Standardized self-holding type of solenoid valve for vacuum. 	
	VSNP/VSNPM Series 10.3 mm width small unit <ul style="list-style-type: none"> Compact and lightweight vacuum unit. Achieves fast and stable response. 	
	VSKP/VSKPM Series 10.5 mm width comprehensive unit <ul style="list-style-type: none"> Compact and thin vacuum unit. Two installation types available: direct fixing or DIN rail mount. Vacuum 3-port valve (option) enables high cycles. 	
	VSQP Series 31.5 mm width dedicated single unit <ul style="list-style-type: none"> Large vacuum unit ideal for controlling large flow rates. Solenoid valve for vacuum with standardized normally open/normally closed. 	
	VSZPM Series 11 mm pitch manifold dedicated unit <ul style="list-style-type: none"> Manifold dedicated reduced wiring vacuum unit. Power consumption of the valve reduced to 0.55 W, effectively saving air. A wide range of applications are supported by wide variations of the vacuum switch. 	

Vacuum system equipment SELVACS CO-706A

RELATED PNEUMATIC PRODUCTS

● Standard equipment ○ Option

Model No.	Piping method		Components							Nozzle diameter ø (1/10 mm)						
	Single unit	Manifold	Vacuum generating valve	Vacuum break valve	Vacuum pressure switch	Vacuum pressure filter	Silencer	Check valve	04	05	06	07	10	12	15	20
VSJ	●							○	○							
VSH	●															
VSU	●															
VSB	●							●								
VSC	●															
VSG	●		○	○	○	●	●									
VSK	●															
VSKM	●															
VSJ	●		●	●	○	●	○									
VSNM	●		●	●	○	●	○									
VSK	●		●	●	○	●	○									
VSKM	●		●	●	○	●	○									
VSQ	●		●	●	○	●	○									
VSZM	●		●	●	○	●	○									

[Vacuum system equipment SELVACS]

● Suction pad

Pad shape - pad size/pad material/option list

Pad shape	Pad shape code	Pad sizes																	
		0.7	1	1.5	2	3	3.5	4	5	6	8	10	15	20	25	30	35	40	50
Standard	Standard	R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Deep	A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Compact	RM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sponge	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Belows	B	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Multi-stage belows	W	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oral	E	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Soft	L	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Soft belows	LB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Anti-slip	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Type for thin object	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat	F	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Suction mark prevention	Q	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● indicates a new additional variation.

Pad shape - holder shape list

Pad shape	Holder shape												
	VSP-A	VSP-B	VSP-C	VSP-D	VSP-E	VSP-F	VSP-HC	VSP-HD	VSP-HDW	VSP-HE	VSP-HEW	VSP-AE	VSP-BE
Standard	●	●	●	●	●	●	●	●	●	●	●	●	●
Sponge	●	●	●	●	●	●	●	●	●	●	●	●	●
Belows	●	●	●	●	●	●	●	●	●	●	●	●	●
Multi-stage belows	●	●	●	●	●	●	●	●	●	●	●	●	●
Oral	●	●	●	●	●	●	●	●	●	●	●	●	●
Soft	●	●	●	●	●	●	●	●	●	●	●	●	●
Soft belows	●	●	●	●	●	●	●	●	●	●	●	●	●
Anti-slip	●	●	●	●	●	●	●	●	●	●	●	●	●
For thin object	●	●	●	●	●	●	●	●	●	●	●	●	●
Flat	●	●	●	●	●	●	●	●	●	●	●	●	●
Suction mark prevention	●	●	●	●	●	●	●	●	●	●	●	●	●

● indicates a new additional variation.

RELATED PNEUMATIC PRODUCTS

● Standard equipment ○ Option

Model No.	Piping method			Components						Nozzle diameter ø (1/10 mm)				
	Single unit	Manifold	Individual wiring	Valve for vacuum	Burst valve	Vacuum switch	Vacuum filter	Shlecker	Check valve	05	07	10	12	15
VSJP	●			●	●	○	●			Effective cross-sectional area of vacuum valve 3.5 mm ² (ø4), 5 mm ² (ø6)				
VSJPM		●		●	●	○	●							
VSNP	●			●	●	●				Effective cross-sectional area of vacuum valve 0.4 mm ²				
VSNPM		●		●	●	●								
VSNP	●			●	●	○	●			Effective cross-sectional area of vacuum valve 2-way valve specification: 3.5 mm ² (ø4), 4.5 mm ² (ø6) 3-way valve specification: 3.0 mm ² (ø4), 3.5 mm ² (ø6)				
VSNPM		●		●	●	○	●							
VSGP	●			●	●	○	●			Effective cross-sectional area of vacuum valve 16.5 mm ²				
VSGPM		●		●	●	○	●							
VSZPM			●	●	●	○	●			Effective cross-sectional area of vacuum valve 4.5 mm ²				

RELATED PNEUMATIC PRODUCTS

[Vacuum system equipment SELVACS]

● Position locking valve

Series	Model No.	Port size		Remarks
		Vacuum generator side	Workpiece side	
VSECV Series ● Even if the workpiece comes off, vacuum is maintained for workpieces in other circuits. ● Compatible with SELVACS suction pad series.	VSECV-M3	ø3	M3	
	VSECV-M4	ø4	M4	
	VSECV-M5	ø5	M5	
	VSECV-M6	ø6	M6	
	VSECV-6A	ø6	R(c) 1/8	

● Compact vacuum regulator

Series	Model No.	Port size		Remarks
		ø6	ø8	
VSRVV Series ● Both source pressure and terminals can be controlled. ● Vacuum pressure switch with digital display or pressure gauge for vacuum can also be selected.	VSRVV-A*	○	○	Elbow (output: male thread)
	VSRVV-B*	○	○	Elbow (supply: male thread)
	VSRVV-U*	○	○	Union

● Vacuum burst unit

Series	Model No.	Port size		Remarks
		Vacuum generator side	Workpiece side	
VSLF Series ● Controls the vacuum burst air while maintaining the vacuum characteristics of the vacuum ejector. ● Vacuum burst circuit relief function realizes shortening of vacuum burst time.	VSLF-64	ø4	ø4	
	VSLF-66	ø6	ø6	
	VSLF-65A	ø4	R1/8	
	VSLF-66A	ø6	R1/8	

Vacuum system equipment SELVACS CC-186A

RELATED PNEUMATIC PRODUCTS

	Pad materials										Option																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	60	70	80	100	150	200	EPDM rubber	Silicone rubber	Urethane rubber	Fluorocarbon rubber	Chloroprene rubber	Phenolic resin	SKR	SKM	SKL	SKH	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY	SKZ	SKA	SKB	SKC	SKD	SKE	SKF	SKG	SKH	SKI	SKJ	SKK	SKL	SKM	SKN	SKO	SKP	SKQ	SKR	SKS	SKT	SKU	SKV	SKW	SKX	SKY

Vacuum filters

Series	Model No.	Port size					Remarks
		M5	ø4	ø6	ø8	ø10	
VSBF Series Large capacity union ● Dust and water droplets are removed by cyclone effect and element. ● Dust scattering is prevented because the entire dust case can be detached with one touch.	VSBF-66			●			Filtration area: 20 cm ²
	VSBF-88			●			Filtration area: 20 cm ²
	VSBF-1010				●		Filtration area: 20 cm ²
	VSBF-1212					●	Filtration area: 20 cm ²
VSFU Series Compact union ● Replacement and cleaning of element requires no tools. ● Inline that can be easily installed in the middle of piping.	VSFU-18	○	○	○			Filtration area: 2.6 cm ²
	VSFU-1L	○	○	○			Filtration area: 4.7 cm ²
	VSFU-2	○	○	○			Filtration area: 7.5 cm ²
	VSFU-3		○	○	○		Filtration area: 12.5 cm ²
	VSFJ-44	●					Filtration area: 0.8 cm ²
VSFJ Series Compact socket ● Ideal for single ejector without built-in vacuum filter.	VSFJ-46			●			Filtration area: 1.1 cm ²

Inline filters

Series	Model No.	Port size				Remarks
		ø4	ø6	ø8	ø10	
FSL Series ● Compact, lightweight and space saving inline. ● Use either positive or negative pressure. ● Easy maintenance.	FSL100	●	●			Filtration area: 4.7 cm ²
	FSL200	●	●			Filtration area: 7.5 cm ²
	FSL600	●	●	●	●	Filtration area: 12.7 cm ²

Vacuum pressure switch

Series	Model No.	Port size					Remarks
		M5	ø4	ø6	ø8	ø10	
VBUS Series ● 2-point output and analog output are available. ● Three types of pipe connection are available: push-in fitting, M5 female thread and direct mount.	VBUS-NW	○	○	○	○	○	NPN: 2-point output
	VBUS-NA	○	○	○	○	○	NPN: Analog output
	VBUS-PW	○	○	○	○	○	PNP: 2-point output
	VBUS-PA	○	○	○	○	○	PNP: Analog output

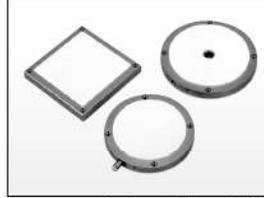
Air tweezers

Series	Model No.	Pad diameter				Rubber Material	Holder shape
		ø2	ø4	ø6	ø8		
VST Series ● Built-in suction pad and ejector in pen type body. ● Ideal for assembling small parts. ● Package type is also available.	VAT-A'N	○	○	○	○	Nitrile rubber	Without valve
	VAT-A'S	○	○	○	○	Silicone rubber	Without valve
	VAT-B'N	○	○	○	○	Nitrile rubber	Integrated valve
	VAT-B'S	○	○	○	○	Silicone rubber	Integrated valve

RELATED PNEUMATIC PRODUCTS

Precise suction plates

PVP Series
 Vacuum suction plate using porous fluorine resin for workpiece contact area.
 High precision machining of the suction surface enables high suction force and high precision workpiece holding.
 ● High precision
 Suction surface flatness: 2 μm, parallelism with mounting surface: 5 μm
 ● Soft Suction surface of Shore D60 hardness
 ● Dureness: Large suction force of 40% porosity
 ● Light
 For porous materials, apparent specific gravity 1.3, base (Al) specific gravity 2.7



Pneumatic, vacuum and auxiliary components CB-Q26A

Vacuum regulators

VRA2000 Series
 ● □30 x 90 compact size
 ● Large flow rate of 180 L/min
 ● High repetitive pressure accuracy ±4 kPa



Pneumatic, vacuum and auxiliary components CB-Q26A

Vacuum filters

VFA1000, VFA3000, VFA4000 Series
 ● Using the product for long periods does not increase pressure loss
 ● More than 80% of the moisture is removed with the lower's centrifugal separation effect
 ● If contaminated with dust, the element is simply washed for reuse



Pneumatic, vacuum and auxiliary components CB-Q26A

Glass float modules

GFM Series
 ● By adopting a new porous material, stable floating is achieved.
 ● New antistatic material suppresses static electricity
 ● Achieves class 10 level



Glass float module GFM Series CB-Q26A

Electronic pressure switches (pressure switch)

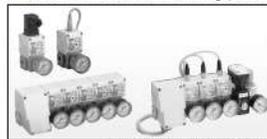
This product precisely detects the level of pneumatic vacuum pressure, and displays the result on a digital display
 ● **PPK Series**
 Enables simultaneous confirmation of the current and set pressure values with dual displays, a 3-color display, setting details copy function, 3 mode settings
 IO-Link compatible
 ● **PPG Series**
 Degree of protection IP65
 2-color display
 With pressure unit change function
 ● **PPE Series**
 Compact pressure SW that allows piping connection.
 ● **PPW Series**
 High reliability and long durability pressure switch with semiconductor pressure sensor.



Pneumatic, vacuum and auxiliary components CB-Q26A
 Electronic pressure sensor with digital display PPG-2 Series CO-1345A

Contact confirmation switches (gap switch)

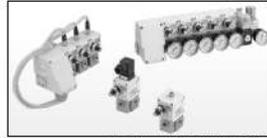
GPS2 Series
 ● Air bridge circuit prevents the effect of fluctuations in the supply pressure
 ● Sensitivity easily adjustable with the scale on the sensitivity adjustment dial
 ● Non-contact measurement that does not damage products



Pneumatic, vacuum and auxiliary components CB-Q26A

Close contact confirmation switches

HPS Series
 ● Highly accurate variable adjustment with the precise linear potentiometer
 ● Can be used with low pressure and air consumption is reduced
 ● Lock mechanism with dial scale allows easy position adjustment with no deviation



Pneumatic, vacuum and auxiliary components CB-Q26A

Cutting tool breakage detection switches

TLP Series
 ● Non-contact detection enables detection while the tool is rotating, and shortens fact time compared to conventional methods
 ● Self-cleaning by the air nozzle enables use even in environments where coolant or swarf scatter
 ● ø0.3 small-diameter drill
 Chips are detected even on 1 mm drill tip.



Pneumatic, vacuum and auxiliary components CB-Q26A

RELATED PNEUMATIC PRODUCTS

PEL systems

Switching element, detection nozzle, PL switch, SEPEL switch
 ● All models are compact size. Space saving, high precision and quick response
 ● Non-contact detection does not damage the workpiece and enables detection of almost any object
 ● Various applications such as presence confirmation and position/dimension confirmation



Pneumatic, Vacuum and Auxiliary Components CB-Q26A

Compact flow rate sensors (RAPIFLOW)

FSM3 Series
 ● IO-Link compatible
 ● Five types of gases can be measured with just one unit
 ● Reduction of pressure loss
 ● High precision/high-speed response
 ● Bi-directional fluid measurement
 ● Rotatable LCD display
 ● Variety of fitting variations



Compact flow rate sensor RAPIFLOW FSM3 Series CO-288A

Miniature flow rate switches (RAPIFLOW)

FSM-X Series
 ● Miniature and lightweight
 Space saving with separate sensor head. Realized weight of 4 g and ultra-thin 8 mm
 ● Bi-directional flow rate measurement available in addition to the bi-directional flow rate detection, a uni-directional type has been introduced. The bi-directional allows for confirmation of suction/release
 ● Broad flow rate range
 Bi-directional flow: ø0.5, ø1, ø5, ø10 L/min
 Uni-directional flow: 0.5, 1, 5, 10 L/min, 8 types lineup
 Miniature size yet available for large flow rate (10 L/min)



Miniature flow rate switch RAPIFLOW FSM-X Series CO-1320A

Compact flow rate sensors (RAPIFLOW) Ultra-low flow type

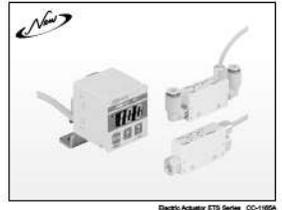
FSM-H Series
 ● Fine flow rate
 ● High speed detection of fine flow rate of 1 mL/min or less
 ● Optimum for leakage inspections/pinhole inspections
 ● Flow rate range: 5, 10, 50, 100 mL/min



Compact flow rate sensor RAPIFLOW FSM-H Series CO-267A

Ultra-compact flow rate sensors (RAPIFLOW)
Analog/switch output type

- FSM-V Series**
- Ultra-compact (Main body: 133 X 10 X 17)
 - Mounting is possible even in the slightest intervals
 - Ultra-high speed response (sensor unit: 5 ms or less)
 - Analog output/switch output types are available
 - Uses flow rate proportional analog output (linearity ± 5% F.S.)
 - Wide variation
 - Flow rate range: 6 types, Piping fittings: 4 types, Output format: 3 types, Lead wiring: 2 types



Electric Actuator ETS Series CC-1156A

Compact flow rate controllers (RAPIFLOW)

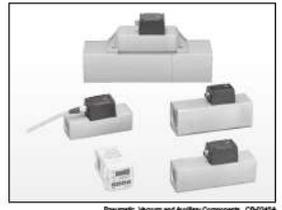
- FCM Series**
- Compact, high speed and high precision
 - Compatible with various fluids
 - High speed controlling at 0.5 seconds
 - Equipped digital display makes control status visible at a glance
 - Multiple models realized with built-in microcomputer
 - IO-Link compatible



Pneumatic, Vacuum and Auxiliary Components CB-D26A

Pneumatic flow rate sensors (FLUEREX)

- PFD and PFK Series (display separated)**
- A wide range of output variations
 - Digital direct-reading, correction not needed
 - High precision of total accuracy ±4% F.S.
 - Uses portable and convenient kit



Pneumatic, Vacuum and Auxiliary Components CB-D26A

Multi-monitors

- MD Series**
- Compatible with any flow rate and pressure regardless of the sensor
 - Analog output proportional to the displayed value available
 - Easy-to-read 2-color display
 - Locking function to prevent misoperation
 - Saves power with the energy saving mode function
 - Scaling function enables conversion of displayed values of sensor input into any unit



Multi-monitor MD Series CC-128A

RELATED PNEUMATIC PRODUCTS

Capacitance electromagnetic flow sensor

- WFC Series**
- The Flo-Thru structure allows even water of poor quality to be used
 - The capacitance structure eliminates detection failures caused by foreign matter deposited onto the electrode
 - Ensures slow piping repeatability
 - No stabilized power supply and anti-noise ferrite core are required
 - Allows zero point adjustment by external input
 - With 180° invertible display
 - Reverse flow detection function equipped
 - IO-Link compatible



Capacitance type electromagnetic flow sensor WFC Series CC-129A

Karman's vortex FLUEREX

- WFK2 Series**
- IO-Link compatible
 - Compatible with a wide range of flow rates (0.4 to 250 L/min)
 - All models equipped as standard with water temperature measuring function
 - Manual valve available as an option for easy flow rate adjustment
 - Handles water up to 35°C
 - The LCD display can be rotated 90° in each direction without moving the body
 - Displays the setting value or temperature, etc., simultaneously with an easy-to-read 2-screen color liquid crystal
 - ATEX compatibility



Pneumatic, Vacuum and Auxiliary Components CB-D26A

MEMO

DIRECT DRIVE MOTOR/INDEX

Ideal for electronic indexing

DD Motor ABSODEX

Three points for ease of selection



Support for various types of FA fieldbuses
 ■ Various interfaces
 CC-Link DeviceNet EtherCAT
 Ethernet/IP Parallel IO (NPN, PNP)

Compatible with global standards
 ■ International standard compliance *2
 CE UL US LIMITED TÜV

*1. Only AX1000T, AX2000T, AX4000T, AX8000T, AX10000 are compatible
 *2. Only AX1000T, AX2000T, AX4000T are compliant

A driver that features numerous convenient functions in use

TH type / TS type / XS type

- A common controller can be used for output torque (75 N·m or less / 150 N·m or more)
- Equipped with LED that displays alarm details *1
- Separate main power and control power
- Monitoring of position information, etc., using serial communication

MU type

- For AX6000M
- Compact

Examples of applications

- Flexible indexing table**: Indexing numbers can be changed!
- Arm pick & place**: Oscillation angle can be changed!
- Intelligent conveyor**: Feed pitch can be changed!

Best-in-industry high performance direct drive motor



Compatible with various high-end processing stages

Standard ND-S Series High speed rotating type ND-S HS Series High rigidity/high precision type DD-S Series

<p>Rated torque: 3.4 to 500 N·m 15 sizes Table drive, rotary drive</p>	<p>Rated torque: 8 to 24 N·m 4 sizes High-speed pick & place drive</p>	<p>Rated torque: 10 to 2000 N·m 11 sizes High precision roll drive + gantry synchronous drive</p>
<p>High response type HD-S Series Rated torque: 27 to 68 N·m 3 sizes High-speed index drive</p>	<p>Large hollow diameter type FD-S Series Rated torque: 17 to 600 N·m 8 sizes Large inertia load rotation drive</p>	<p>High performance Servo driver VPH Series Developed exclusively for direct drive Maximizes motor performance Output capacity 100 W to 7 kW System support tool full of functions</p>

Various interfaces
Also compatible with motion networks



Pioneering. A new way to rotate. Catalog CC-1458A

ABSODEX NX4 Series / Driver NXD Series

Max. torque: 22 to 300 N·m 5 sizes

Ideal for assembly and transport

- Easy installation and centering
- Convenient hollow bore
- High-rigidity bearings
- Built-in absolute resolver

Compatible with all types of networks

Five types of interfaces are available

Adjust in real time while monitoring the waveform
Setting tool "NX-Tools" with extensive functionality



DIRECT DRIVE MOTOR/INDEX

DIRECT DRIVE MOTOR/INDEX

Cam unit that realizes

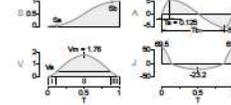
Three characteristics of the cam unit

Synchronized motion of multiple axes

- Synchronization characteristics
- Multiple cam units can be operated with one drive

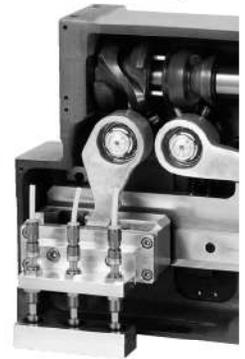
High-speed and high frequency output shaft swivel and stop are possible

- Motion characteristics
- Realizes a smooth motion curve thanks to the cam



High-precision repeated motion is possible using uniform rotation speed

- Repeat characteristics
- By applying uniform rotation speed to the input shaft, motion sequences can be repeated with superb accuracy



Three cam unit motions

Continuous swivel and stop at the specified angle with the output shaft as center point

Index

Examples of applications

Repeated reciprocal swivel at the specified angle with the output shaft as center point

Oscillations

Examples of applications

Speed reducing mechanism with a reduction ratio that corresponds to the indexing No.

Reducer

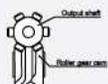
Examples of applications

mechanical motion/control (clockwork)

Wide variation

Ideal for indexing table drives

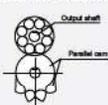
- Roller gear cam units
- Compact/high-speed/high output/high precision/high rigidity



<p>Compact R01S 040 to 012</p>	<p>Standard R01S 040 to 250</p>	<p>Wide angle R01L 040 to 250</p>
<p>Table R01T 040 to 250</p>	<p>Basic R01B 250</p>	

Ideal for conveyor drive

- Parallel cam units
- Input shaft/output shaft are parallel



Ideal for indexing table drives

- Pick & place
- Realizes tact time of max. 0.1 sec cycles (high speed)
- High precision/high rigidity
- Compact/min.space saving

Swivel pick & place unit

<p>Standard PFX/PPFX 050 to 180</p>	<p>High speed PFC/PPFC 040 to 080</p>	<p>Compact/high-precision/high-rigidity PFM 050 to 110</p>
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Examples of applications

Forward motion pick & place unit

<p>Arm A type PFLX 040 to 080</p>	<p>Table B type PFLX 040 to 080</p>
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Examples of applications

DIRECT DRIVE MOTOR/INDEX

GENERAL PURPOSE VALVES

Pilot operated 2-port solenoid valve for compressed air
Compact air blow valves

- EXA Series
- Achieves large flow rate and low power consumption
 - Employs a pilot actuator with a low power consumption (0.5 W) 3-way valve, enabling a large flow rate and low power consumption. (PC direct drive available)
 - Compact and lightweight
 - Optimizes materials used to achieve light weight. Also reduces volume by a maximum of 30% and weight by approximately 70% compared with conventional CKD models
 - Easy piping connection
 - Connection is made easy with push-in fitting. The aluminum body supports metal piping.
 - Oil-prohibited specifications (options)
 - Ideal for an environment not suited to oil
 - Manifold
 - Achieves a variety of pipe layouts to contribute to saving space.



Compact pilot operated solenoid valve for water
Compact pilot operated solenoid valves for water

- FWD Series
- Low power consumption
 - Compact and lightweight
 - Optimizes materials used to achieve light weight.
 - Large flow rate
 - More than 1.3x compared with conventional models
 - Sealant
 - Fluoro rubber available as option.



Pilot kick solenoid valve for steams
Pilot kick solenoid valves for steams

- SPK Series
- Durability count 1 million times. This is a substantial increase
 - Low power consumption (1/2 compared with CKD's conventional models) contributes to energy saving
 - Improved exterior sealing performance by adopting square ring seal made from PTFE that is resistant to high-temperature steam
 - Improved maintenance performance by employing IUP terminal box with high maintainability for terminal box options
 - Contaminant and scale resistant using the conventional proven special-structured piston ring



Compact direct acting 2, 3-port solenoid valves
Compact direct acting 2, 3-port solenoid valves

- HNB/HNG USB/USG Series
- Compact direct acting 2, 3-port solenoid valves that save space
 - Contributes to equipment space saving.
 - Multi-fluid control available
 - The solenoid valves are suitable for controlling multiple types of fluid including air, water, and low vacuum.
 - Compact, but with a long service life
 - The special structure of the movable part improves abrasion resistance. (HN Series)



Dedicated fluid control direct acting 2, 3-port solenoid valves

Special purpose valves for compressed air

FAB/FAG GFAB/GFAG Series

- Easy to use all-port body
- A wide range of series and variations
Five types with coil width 18 to 40 mm are available. Series variation with different port sizes, orifice sizes, and working pressure.
- Low wattage design
- Improved reliability
The special structure adopted in the movable part prevents abrasion and significantly elongates the service life.
- Light-weight aluminum die-casting body

Port size: M5, Rc1/8 to Rc1/2



Fluid control valves CB-03-15A

Dedicated fluid control direct acting 2, 3-port solenoid valves

Special purpose valves for dry air

FGB/FGG GFGB/GFGB Series

- Easy to use all-port body
- A wide range of series and variations
Four types with coil width 22 to 40 mm are available. Series variation with different port sizes, orifice sizes, and working pressure.
- Low wattage design
- Improved reliability
The special structure adopted in the movable part prevents abrasion and significantly elongates the service life, even when ultra dry fluid is used.
- Light-weight aluminum die-casting body

Port size: Rc1/8 to Rc1/2



Fluid control valves CB-03-15A

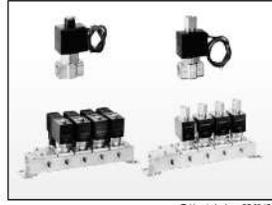
Dedicated fluid control direct acting 2, 3-port solenoid valves

Special purpose valves for water

FWB/FWG GFWB/GFWG Series

- A wide range of series and variations
Four types with coil width 22 to 40 mm are available. Series variation with different port sizes, orifice sizes, and working pressure.
- Low wattage design
- Improved reliability
Improved corrosion resistance with the adoption of a special magnetic substance.

Port size: Rc1/8 to Rc1/2



Fluid control valves CB-03-15A

Dedicated fluid control direct acting 2, 3-port solenoid valves

Special purpose valves for medium vacuum

FVB GFVB Series

- 2-port solenoid valve for medium vacuum controlling (1.33 X 10⁻² Pa(abs))
- A wide range of series and variations
Four types with coil width 22 to 40 mm are available. Series variation with different port sizes, orifice sizes, and working pressure.
- Low wattage design
- Achieved low leakage
The leakage is 1.33 X 10⁻² Pa·m³/sec He or less.

Port size: Rc1/8 to Rc1/2



Fluid control valves CB-03-15A

GENERAL PURPOSE VALVES

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Multi-type fluid control direct acting 2, 3-port solenoid valves

Direct acting general purpose valves

ABI/AG GAB/GAG Series

- Multi-type fluid control 2, 3-port solenoid valve
The solenoid valves are suitable for controlling multiple types of fluid including air, water, gas, oil, and vacuum.
- A wide variety of options and variations
Varieties of options including wetted parts material and coil housing are available.
- A wide range of series and variations
A widely varied series of different 2-port valves and 3-port valves, port sizes, orifice sizes, and working pressure.
- DC low wattage series
Power consumption 7 W. Saves energy substantially compared with 11 W of conventional models.

Port size: Rc1/8 to Rc1



Fluid control valves CB-03-15A

Multi-type fluid control direct acting 2, 3-port solenoid valves

Pilot/pilot kick operated general purpose valves

API/AD APK/ADK Series

- Multi-fluid control 2-port solenoid valve
The solenoid valves are suitable for controlling multiple types of fluid including air, water, gas, oil, and vacuum.
- A wide variety of options and variations
Varieties of options including wetted parts material and coil housing are available.
- A wide range of series and variations
A widely varied series including piston, diaphragm, different port sizes, orifice sizes, and working pressure.
- DC low wattage series
Power consumption 7 W. Saves energy substantially compared with 11 W of conventional models.

Port size: Rc1/4 to Rc2, 32 to 50 flange



Fluid control valves CB-03-15A

Multi-type fluid control direct acting 2, 3-port solenoid valves

Explosion-proof general purpose valves

AB41EX/E AG41EX/E AP1EX/E AD1EX/E ADK1EX/E Series

- Solenoid valve for multi-fluid control in dangerous zones
Explosion-proof structure: Ex d IIB T4, Ex d IIB T2, d2G4, d2G2
- Multi-type fluid control 2, 3-port solenoid valve
The solenoid valves are suitable for controlling multiple types of fluid including air, water, gas, oil, and steam.
- A wide variety of options and variations
Varieties of options including wetted parts material and wire inlet are available. Lineup of products compliant with international explosion-proof guidelines.
- A wide range of series and variations
A widely varied series from direct acting Rc1/4 (port size) to pilot diaphragm piston valve large 50 flange.

Port size: Rc1/4 to Rc2, 32 to 50 flange



Fluid control valves CB-03-15A

Coolant check valve

Check valves

CCH Series

- Foreign matter proof internal structure and large flow rate structure
- FKM sealant for high reliability
- Internal sealing with O-ring + metal touch
- High working pressure up to 7.0 MPa can be used
- Wetted metal material using stainless steel
Higher corrosion resistance and wider applications.
- CN Series (Nozzle type)
 - Improved workability
 - Compact and space saving
 - Long service life
 - Corrosion-resistant material
 - Resistant to foreign matter
 - Injection direction adjustment function
 - Ample connection variations

Port size: Rc3/8 to Rc3/4



Check valve CCH Series CC-1317A
Check valve (nozzle) CCH Series CC-1456A

Pilot operated air drive poppet valves

Coolant valve/Modular coolant valves

CVE2/CVSE2 CVE3/CVSE3 Series

- For coolant control
This valve is for cutting oil/coolant control of machine tools that incorporate a metal seal to prevent the entry of cutting chips, abrasive grains and foreign matter, and ensures high reliability.
- Using highly corrosion-resistant material
- Wide variation
Air operated, solenoid valve equipped, and signal retrieval with switch are available.

GCVE2/GCVSE2 Series

- Enabling module connection (5 stations max.)
- Compact
- Port thread with no piping interference (embedded connection)
- A single unit can also be used as a branch valve
- Easy expansion after installation

Port size: Rc3/8 to Rc2, 32 to 80 flange



Fluid control valves CB-03-15A

Modular coolant valve GCVE2 Series (air operated), GCVSE2 Series (pilot solenoid valve) CC-083A

Pilot operated air drive poppet valves

Cylinder valves

SAB/SVB NAB/GNAB Series

- Multi-fluid control 2-port valve
In addition to air, water, gas, low vacuum and steam, high viscosity fluids and powder mixed fluids are also supported.
- Wide variation
A wide range of variations from Rc1/4 to 80 flange are available for various bore sizes.
- A model with switch equipped with operation detector sensor also available

Port size: Rc1/4 to Rc2, 32 to 80 flange



Fluid Control Valves CB-03-15A

Weir diaphragm valve

Weir diaphragm valves

SWD/MWD Series

- Pursuit for highly aseptic conditions (sterility)
Adopts a sealing structure to eliminate gaps between diaphragm and body. A flow path with high efficiency of washing has been achieved by thorough analysis work.
- Space and energy saving
Air consumption can be reduced significantly by the downsized actuator with highly-efficient diaphragm that operates at a low pilot pressure.

Port size: Ferrule connection 8 A to 40 A



Fluid Control Valves CB-03-15A
Weir type diaphragm valve SWD/MWD Series CC-096A

Pilot operated air drive poppet valves

Diaphragm cylinder valves

LAD Series

- Particle reduced
By using only resin for the wetted parts and assembling in a special environment, particles can be reduced significantly.
- Port thread employed
Free selection of pipes to be connected to fit the usage.
- Flow path to reduce pressure loss
The flow path design substantially reduces pressure loss and increases effective cross-sectional area, as well as contributes to energy saving.

Port size: Rc3/8 to Rc1



Fluid Control Valves CB-03-15A

GENERAL PURPOSE VALVES

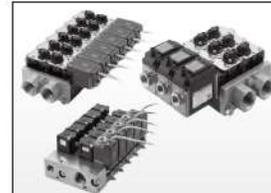
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Cooling water control units

Integrated units for water control

WXU Series

- Space saving without piping
The unitized design without piping has greatly reduced the installation space compared with the discrete type. 80% smaller footprint than conventional models (two fluid control)
- High quality
With no piping screw-in between equipments, eliminates external leakage.
No entry of foreign substance during installation.
- Reduced work processes
Significantly reduces pipe designs, pipework, and part material orders.



Integrated unit for water control WXU Series CC-1116A

External pilot operated air drive ball valves

Compact rotary valves

CHB/CHG/CHBF CSB/CSBF Series

- Multi-fluid control 2, 3-port valve
Supports various fluid including air, water, hot water, oil, and steam.
- New structure for guaranteed actuation
An air operated double piston rack and pinion method, conventionally unheard of, has been incorporated. It is highly reliable and ensures precise operation.
- Compatible with pilot operated valve
- A design resistant to foreign material and scale
This valve operates both forward and in reverse, enabling foreign matter to be easily removed even if it enters the valve.
- Low pressure loss/large flow rate

Port size: Rc3/8 to Rc2



Fluid control valves CB-03-15A

Motor-driven ball valves

Motor valves

MXB/MXG Series

- Multi-fluid control 2, 3-port valve
Supports various fluid including air, water, hot water, oil, and steam.
- Forward and reverse rotation (except for some series)
- Low pressure loss/large flow rate
- Motorized proportional control valves are also available

Port size: Rc3/8 to Rc2



Fluid control valves CB-03-15A

External pilot operated air drive ball valves

3-port solenoid valves

SNP Series

- Serves as a shut-off valve for pneumatic systems
- Signal output of valve open/close available with the limit switch
- Two modules connected to create a double breaker circuit can be configured compactly
- Can be modular-integrated into the F.R.L. unit

Port size: Rc3/8 to Rc3/4



Fluid control valves CB-03-15A

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Pilot operated air drive poppet valves

Large flow rate 3-port valves

- NP NAP NVP Series**
- 3-port pneumatic/low vacuum large flow rate valve
 - Selectable from two types according to the application.
 - Internal pilot NP Series
 - External pilot NAP/NVP Series
 - Compact & lightweight design
 - Large flow rate
 - 10 A/25 A: C (dm³/s bar): 15 to 18
 - 20 A to 50 A: Effective cross-sectional area: 195 to 660 mm²



Fluid control valves CB-03-15A

Large port size dust collector valves for air

Large port size dust collector control components

- PD3/PD33 PD2/PD22 PJV8 PDVE4 OMC2 Series**
- Fluid control components for large flow rate air for brushing, dusting, and blowing off
 - A large volume of air can be injected instantly.
 - Ideal for dust removal of bag filter dust collector, and behavior control of ceramic, medicine, agricultural chemicals, fertilizer, chemical raw materials, building materials, and foods
 - Compact and high-function controller with built-in microcomputer OMC Series
 - Double-striking control for valves and intermission time setting can also be made easily.
 - Control box manifold solenoid valve PJV8 Series
 - Common wiring enables easier work and saves space.
 - Pressure and explosion-proof structure 42G4 compatible PDVE4 Series



Fluid control valves CB-03-15A

Components for Life Science

Metal-free pinch valve

- HYN Series**
- 2, 3-port solenoid valve (pinch valve)
 - A solenoid valve with an innovative structure that can be used in three ways.
 - Push-in tube attachment/detachment
 - Easy replacement and cleaning of tubes.
 - With manual mechanism
 - Low noise
 - Reduces the metallic noise of solenoid valve operations and keeps the environment quiet.
 - Low wattage design



Fluid control valves CB-03-15A

Automatic watering system components

Automatic watering valves

- RSV-K GSV GSV2 RSV-W Series**
- Watering valve for urban greenery, golf courses, playground, protected horticulture, farmlands, etc.
 - Union fitting connector (GSV2)
 - A structure to reduce water hammer
 - A wide variety of options and variations
 - Equipped with a self-cleaning filter for pilot flow path protection, flow rate adjustment function, manual operation function, latch coil, etc. Port size: Select from 15 A to 100 flange.
 - Approved by JWWA (RSV-W Series)
 - Use in combination with the automatic watering controller supplied by CKD.



Fluid control valves CB-03-15A

Components for Life Science

Metal-free solenoid valves

- MR10/MR16/MAB1/MAG1 MEB2/MEG2 MYB1/MYG1/MYB2/MYG2 MYB3/MYG3 MJB3 EMB21, 41, 51 HMTB1/HMTG1 MKB3 Series**
- Solenoid valve for water, pure water, and chemical liquids
 - Compact and lightweight
 - Designed to reduce the size and weight to address compatibility changes from intensive care medicine to portable care medicine.
 - Maintenance-free
 - Designed for long service life to improve the reliability of equipments.
 - Wider variation
 - A wide variety of models compatible with various reagents and testing fluids are available.
 - Lower noise
 - The valves operate very quietly in consideration of environmental conservation of the site.



Fluid control valves CB-03-15A

Components for Life Science

High corrosion-resistant solenoid valves

- UMB1/UMG1 HB11, 21, 31, 41 Series**
- Control solenoid valve for water and pure water that employs high corrosion-resistant stainless steel
 - Reduces internal residues
 - Minimizes contamination and alteration of fluid by reducing internal residues.
 - Supports most advanced industries
 - Can be used with ion-exchanged water and semiconductor cleaning agent. (HB Series)



Fluid control valves CB-03-15A

Automatic watering system components

Automatic watering controllers

- RSC-S6 RSC-G RSC-1WP RSC-2WP RS-6 Series**
- Automatic watering controller for urban greenery, golf courses, grounds, protected horticulture, and farmlands, etc.
 - Supports a variety of usage programs
 - Capable of supporting watering on specific days of the week, intermittent watering, and sensor detected watering, etc.
 - Wide variation
 - Available selections of solar powered systems, commercial power supply powered systems, and alkaline battery powered systems.
 - Measures against lightning-induced failures
 - Use in combination with an automatic watering valve supplied by CKD



Fluid control valves CB-03-15A

Gas combustion systems

Direct acting valve for gas, combination valves

- Wide variation
- Made in Japan
- High performance/long service life
- V Series is ideal for the heavy-use and high durability requirements of industrial furnaces
- Low price models also available



Gas combustion systems G-2

GENERAL PURPOSE VALVES

HIGH PURITY CHEMICAL GASES/ LIQUID CONTROL SYSTEMS

Component for chemical liquids

Air operated valves for chemical liquids

- AMD/AMG/GAMD AMD*1H/AMD*1M Series**
- Air operated valves to control the ON/OFF of the liquid flow for equipment in which clean chemical liquid for semiconductor or LCD production (including pure water) pass through
- A variety of high quality system products essential for ultrahigh-purity process control
 - Part 3R Series, all-in-one models compatible with various specifications
 - Sizes 1/4", 3/8", 1/2", 3/4", and 1"
 - Supports a variety of chemical liquids
 - Specified pressure = 0.5 MPa
 - Working fluid temperature: 120°C
 - Provides indicator as standard, and sensor as an option (except for 1/4")
 - Manifold and cutting compatible
 - High pressure series products up to 0.7 MPa are available for liquid supply, and water hammer compatible series products are also available
 - This series eliminated metal parts to ensure safety use in a line using strong acids (hydrochloric acid, hydrofluoric acid, and nitric acid)
 - Variation of connection fitting
 - For solvent or static electricity compatibility, SU3 body types are also available from small to large sizes
 - For liquid drainage, PP and PVC material large bore size types are also available
 - Other custom order specifications to suit various controlling usage are also available



Valve Flow Systems high purity chemical liquid system CB-03-15A
Air operated valve for chemical liquids AMD Part 3R Series CC-1071A

Component for chemical liquids

Manual valves for chemical liquids

- MMD/GMMD/TMD MMD*0H/MMD*0M Series**
- Manual valves for equipment in which clean chemical liquid for semiconductor or LCD production (including pure water) pass through
- A variety of high quality system products essential for ultrahigh-purity process control
 - A series of manual valves for chemical liquids with varied sizes from small to large, that adopted PFA molded body
 - High pressure series products up to 0.7 MPa are available for liquid supply
 - Supports a wide variety of pressure/temperature/liquid conditions
 - High reliability with mechanisms such as over-tightening prevention mechanism and malfunction prevention lock ring
 - For solvent or static electricity compatibility, SU3 body types are also available from small to large sizes
 - Manifold also available for liquid supply system (PTFE body only)
 - Select between manual knob open/close and manual push-in



Valve Flow Systems high purity chemical liquid system CB-03-15A

HIGH PURITY CHEMICAL GAS/LIQUID CONTROL SYSTEMS

HIGH PURITY CHEMICAL GASES/ LIQUID CONTROL SYSTEMS

Component for chemical liquids

Drip prevention valves for chemical liquids

- AMS*2 AMDS*0 Series**
- Valves for fine adjustment of nozzle head in the resist coating process
- Suction rate of the nozzle head finely adjustable
 - Speed controller enables easy fine adjustment of the suction speed
 - Internal structure to prevent air accumulation within flow paths
 - A type integrated with air operated valve also available



Valve Flow Systems high purity chemical liquid system CB-03-15A

Component for chemical liquids

Low water hammer valves

- AMD*1L**
- Low water hammer valves designed to minimize vibration, which support higher accuracy and longer service life for usage in equipment and facilities where clean pure water is used for LCD or solar cell production
- Water hammer reduction function is provided in all series as standard
 - A variety of series products (union fitting 15 A to 50 A)
 - Polyvinyl chloride union fitting
 - Abundant options (With flow rate adjustment, with bypass, and with flow rate adjustment & bypass)
 - Not subject to the Export Trade Control Order



Low water hammer valve AMD*1L Series CC-018A

Component for chemical liquids

Fine regulators

- PYM10/PM20/PMP202/402 Series**
- Regulators to control the pressure of chemical liquids for equipment in which clean chemical liquid for semiconductor or LCD production (including pure water) is used
- Filter integrated resistant to foreign matter
 - Excellent flow rate and pressure characteristics, easy installation
 - High corrosion resistance
 - Fluorine resin (PFAPTFE) and SU316 are used for wetted parts to increase corrosion resistance
 - Superior pressure and flow characteristics
 - Fluorine resin diaphragm is adopted to obtain superior pressure and flow characteristics compared to metal diaphragm
 - Built-in filter to keep fluid safe from foreign matters
 - Panel mounting for easier installation, and bottom mounting also available
 - Pilot regulator
 - Regulators are designed to enable stable pressure adjustment using the pilot air control



Valve Flow Systems high purity chemical liquid system CB-03-15A

Component for chemical liquids

Fine level switches

- KML60/MKML, KML60/ MXKML/KML703 Series**
- This surface level switch detects surface level of various corrosive fluids such as pure water, acids, alkalines, and solvents in high precision and outputs electric signals
- Combinations of three level switches of 1 to 8-point types efficiently and safely detect surface level (KML60, KML60)
 - The provided display enables 8-point surface detection using a single detection tube (KML70)
 - No need to set the flow rate to be detected
 - The integrated flow rate adjustment fixed orifice enables detection without installing exterior restriction and setting flow rate



Valve Flow Systems high purity chemical liquid system CB-03-15A

Component for chemical liquids
Air operated valves for chemical liquids

- LMD Series**
- Six orifice sizes available
 - 4, 6, 3, 8, 10, 16, and 20
 - Nine port sizes available: 1/4", 3/8", 1/2", 3/4", 1", 1.5", 2", 2.5", 3"
 - New flare fitting employed
 - Mounting method
 - 2-point flange bracket employed to address the compatibility with AMD Series
 - Bracket shape, the same as AMD Part3, that requires less installation space
 - Various options available
 - With flow rate adjustment, with indicator, fluorine resin coated metal parts



Air operated valve for chemical liquids LMD Series CC-103A

Component for chemical liquids
Flow rate adjusting valves

- FMD Series**
MNV Series
- Valves to control the flow of chemical liquids for equipment in which clean chemical liquid for semiconductor or LCD production (including pure water) is used
- Manual and motorized available for flow rate adjustment method
 - Designed to support highly corrosive fluid (FMD)
 - High temperature supported (MNV)
 - Two types of orifices available depending on the flow rate (FMD orifice size: ø1.6, ø3.5)



Flow rate adjusting valves for chemical liquid system FMD Series CC-034A
Electric needle valve MNV Series CC-128A

Equipment for process gases
Air operated valves for process gases

- AGD**R Series**
LGD Series**
- Air operated valves used to control ON/OFF of gas in equipment in which clean process gas for semiconductor or LCD production pass through
- High functionality and high quality essential for ultrahigh-purity process gas control
 - Zero particle generation is achieved with optimal seal structure and improved surface roughness (0.001 piece / cycle or less)
 - Electrolytic polishing employed as standard for higher internal surface roughness
 - Optional compatible products
 - Block valve, branch valve, valve with switch, etc.



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Equipment for process gases
Manual valves for process gases

- OGD**R/MGD**R/LGD**D Series**
- Manual valves used for equipment in which clean process gas for semiconductor or LCD production pass through
- High functionality and high quality essential for ultrahigh-purity process gas control
 - Select between manual knob open/close and manual push-in
 - Zero particle generation is achieved with optimal seal structure and improved surface roughness
 - Electrolytic polishing employed as standard for higher internal surface roughness



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Equipment for process gases
Integrated gas supply system

- IAGD Series**
- Integrated gas supply system used to collectively control gas in equipment in which clean process gas for semiconductor or LCD production pass through
- Largely reduced internal volume (by 50%) compared with conventional piping types
 - Improved replaceability
 - Replaceability substantially improved (2x or above) due to reduced internal volume and dead volume
 - Easy maintenance
 - Maintainability significantly improved due to one-directional work and bolt mounting
 - Greatly downsized
 - 50% smaller footprint than conventional models
 - Improved corrosion resistance
 - Realized by eliminating welding area



Dry Film System high purity gas control system components CC-056A

Equipment for process gases
Regulator for process gas

- PGM Series**
- PGM series are regulators ideal for applications of ultrahigh-purity gas pressure control in semiconductor manufacturing lines
- Reduced particles
 - Smaller pressure drop
 - Stable control even at a fine flow rate
 - Great installability and operability
 - Cleanliness level compatible with ultrahigh-purity gas
 - Improved internal sealing performance



Dry Film System high purity gas control system components CC-056A

Equipment for process gases
Air operated valves for high vacuum

- AVB / AVP / MVB / MVP Series**
(NW16 to 160) (1/4) (NW16 to 50) (NW25 to 50)
- Air operated valves used to control ON/OFF of vacuum exhaust in dry process equipment for semiconductor or LCD production
- Original molded bellows employed to achieve long service life
 - Body material: selectable between aluminum and SUS depending on the application
 - Vacuum pump can be connected to either of the ports
 - Operation confirmation switch mountable
 - Two-stage: AVB*47 Series added (NW25 to 63)
 - Manual valve: MVB*17 Series added (NW16 to 50)



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Equipment for process gases
Air operated valves for process gases

- AGD11R-HD / AGD**R-HDF / AGD21R-A**
- Air operated valves used to control ON/OFF of gas in equipment in which clean process gas for semiconductor or LCD production pass through
- High performance and high quality essential for ultrahigh-purity process gas control
 - High durability (10 million times guaranteed)
 - High temperature supported (AGD21R-A, AGD**R-HDF)
 - Integrated type available



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Equipment for process gases
Air operated valves for process gases

- AGD11R-HD / AGD**R-HDF / AGD21R-A**
- Air operated valves used to control ON/OFF of gas in equipment in which clean process gas for semiconductor or LCD production pass through
- High performance and high quality essential for ultrahigh-purity process gas control
 - High durability (10 million times guaranteed)
 - High temperature supported (AGD21R-A, AGD**R-HDF)
 - Integrated type available



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

High vacuum components
Air operated valves for high vacuum

- AVB / AVP / MVB / MVP Series**
(NW16 to 160) (1/4) (NW16 to 50) (NW25 to 50)
- Air operated valves used to control ON/OFF of vacuum exhaust in dry process equipment for semiconductor or LCD production
- Original molded bellows employed to achieve long service life
 - Body material: selectable between aluminum and SUS depending on the application
 - Vacuum pump can be connected to either of the ports
 - Operation confirmation switch mountable
 - Two-stage: AVB*47 Series added (NW25 to 63)
 - Manual valve: MVB*17 Series added (NW16 to 50)



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

HIGH PURITY CHEMICAL GAS/LIQUID CONTROL SYSTEMS

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High vacuum components
Air operated valves for high vacuum

- AVB*17/AVB*47 High temperature specifications**
- All advantages of AVB**7 Series being maintained, high temperature specifications added
- AVB*17 NC high temperature specifications: NW16 to 63
 - AVB*47 Two-stage high temperature specifications: NW25 to 63
 - Supported fluid temperature: 150°C
 - Operation confirmation switch mountable



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Vacuum components
Solenoid valves for high vacuum

- HVB112, HVB212/312/412/512, HVB612/712 Series**
- Solenoid valves for high vacuum to support various needs including liquid crystal or cathode ray tube production, food dryer, and electron microscopes
- Varieties of series with orifice sizes from ø1.0 to ø15
 - From N2 pressurization to vacuum, available at the maximum differential pressure of 1.0 MPa (Note that this may differ according to the model)
 - Ideal for high vacuum control without air source. (Pay attention to particles, service life, etc.)



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

Vacuum components
Vacuum pressure proportional control system

- VEC Series**
- A system to control wide range of pressure from high vacuum to low vacuum
- Vacuum pressure control available from high vacuum (13.3 Pa) to low vacuum (approx. 53 kPa)
 - Gradually reducing the atmospheric pressure prevents particles from flying
 - Equipped with vacuum pressure control as well as shut-off function
 - By all-in-one designed functions, piping of vacuum circuit system is made simpler and space can be saved



Custom order product

Vacuum components
Vacuum pressure control valves

- IAVB Series**
- Pressure control function is added, based on a highly reliable vacuum valve
- Full close operation available
 - Easy maintenance
 - Slow exhaust control available
 - RoHS compliant



Dry Film System high purity gas control system components CC-056A
Valve for process gas LGD Series CC-117A

HIGH PURITY CHEMICAL GAS/LIQUID CONTROL SYSTEMS

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SERIES BY INDUSTRY

[FP Series for food management processes]

Accomplishes multiple needs in food processing

Support for the entire food processing process based on advanced engineering technologies in packaging machines, air pressure/liquid control, and motors

An extensive lineup of everything from air filters to actuators allows for secure and safe use in food processing

FP1 Eliminates possible contamination by lubricants
Food-grade (NSF H1) lubricants are used.

FP2 Safe materials
In addition to FP1, materials compliant with the Food Sanitation Act are used for resin and rubber materials.
*Food Sanitation Act "Standards and criteria for food and additives, etc. (Public Notice of the Ministry of Health, Labour and Welfare No. 376 of 1959)"

FP3 For pursuit of greater reliability and safety
In addition to FP2, this series is specifically considered for food processing.



This logo is a representation of ISO9001 certification. Making safe machinery that supports food processing.



Catalog No. CC-1271A



FP1 Prevents food contamination by lubricants. Food-grade (NSF H1) lubricants are used.



FP2 Materials compliant with the Food Sanitation Act are used.



*Other compatible models are also available. Contact CHD for details.

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SERIES BY INDUSTRY

[Outdoor use W Series]

Lineup of reliable products that firmly support outdoor facilities under harsh environments

CKD's Outdoor Series is guaranteed for long-term outdoor use, even in harsh environments.

Durability guaranteed for outdoor use

- Combined cycle test (JIS H8502: 1999) cleared 960 hours.
- Promoted durability (Sunshine weather meter test) cleared 1,000 hours.
- Ozone exposure test (JIS D0205: 1987) cleared 400 hours.

Warranty period for up to 3 years

Gives you long-term peace of mind (option*)

To support use in plants and overseas, the warranty will be either 3 years from the date of delivery or 1 year from initial use, whichever comes first. Targeted models: FW, RW, LW, MW, WW Series (with inspection certificate, inspection guidelines, traceability system diagram)

*1: Options for F.R.L. unit. (except for GW49D)

Pneumatic auxiliary components

SL-W Series, SC1-W Series



Fluid Control Valves

ADK11-W Series, CHB/G-W Series, CSB-W Series



F.R.L. Units

FW Series, RW Series, LW Series, MW Series, WW Series, BW Series, GW Series



Pneumatic valve

4F Series



Custom order product [Cylinder] SCA2 Series/SCS2 Series

[Large main line filter/Air dryer] AF Series/GT Series



The light yellow CKD products are suitable for outdoor use.



Catalog No. CC-1278A

SERIES BY INDUSTRY

[Components for rechargeable battery production P4* Series]

CKD responds to the needs of rechargeable battery manufacturing, with products conforming to production safety in the rechargeable battery manufacturing process, from electrode manufacturing to packaging.

- Material Restrictions**
 - Component material limitation
 - Limited use of inappropriate material and surface treatment in the rechargeable battery manufacturing process. Product failure of rechargeable batteries is reduced.
 - Material Restrictions: Limited copper material, Limited zinc material, Limited nickel-based material, Limited zinc plating, Limited electrolytic nickel plating.
- Dustproof for dust**
 - Long service life even in dusty environments
 - Strong dust-proof mechanisms such as scraper packing are used. Suppresses dust entry into the cylinder.
- Dustproof for gas**
 - Suppresses dust generation of metal wear powder
 - Equipped with a local exhaust function (vacuum treatment pod). Prevents contamination to the electrodes or cell by not leaking the metal wear powder outside.
- Dry environment**
 - Long service life even in ultra-dry environments
 - Ultra-dry environment compatible grease is used. Retains the smooth operation of the sliding part for long periods, even in dry environments.



Catalog No. CC-1228A

Dry air supply SBD Series, ABI/ADK-Z Series	Fluid supply AMD Part 3R Series, LAD Series	Tension control EVO/EVR Series, LBC Series	Explosion-proof environment NAD Series, 4F**DE Series
Vacuum control AVB Series, BELVACB Series	Suction transport PVP Series, 3QR Series	Electrolyte-pouring-related AGD/R Series, AVB Series	Air blow-related AB-Z, AG-Z, ADK-Z Series, FMA2 Series
Labor-saving AX Series, ETS/ECS Series	Assembling/inspection process SSD Series, LCR Series, BTG Series, LHAG Series, 4G Series		

* Other models are also available. Contact CKD for details.

SERIES BY INDUSTRY

[Devices for clean room series]

Usable in clean rooms

CKD devices for clean room system

The CKD devices for clean room system has been developed to be used inside clean rooms. All these components are produced in the production system representing our unique clean ideas. This series offers models applicable to various factors, including the cleanliness level, installation position, environment, processes, and others.



Catalog No. CS-0338A

- Semiconductor manufacturing process
- Liquid crystal manufacturing process
- PCB manufacturing process

Pneumatic cylinders	Directional switching valve	F/R Unit
Pneumatic auxiliary components	Sensors	Valve for air blow

CKD CLEAN idea



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