



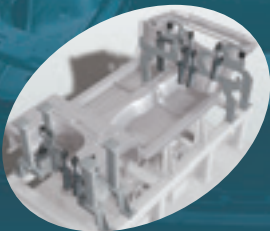


Automotive Process Applications by Machinery

Factory Component Applications for the Automobile Industry

WELDING PROCESS

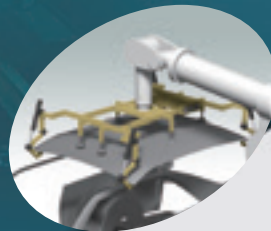
-  Spatter resistance
-  IP65
-  Flame resistance
-  Strong magnetic field
-  Accuracy
-  IO-Link



CLAMP



POSITIONING



TRANSPORT




ENVIRONMENTAL RESISTANCE


Application examples for the spot welding process

We recommend components which provide solutions for the spot welding process of automobile bodies and parts. Individual components for "clamping", "positioning", "transporting" and "cooling water" contribute to the further improvement of productivity.


Clamp



Clamp cylinder
CAC4 Series




Rotary clamp cylinder
RCC2 Series




Flat clamp cylinder
CACF Series

Cooling water




Karman vortex flow rate sensor for water
WFK2 Series

Positioning




Reference pin cylinder
WPC3 Series




Pin clamp cylinder
PCC Series

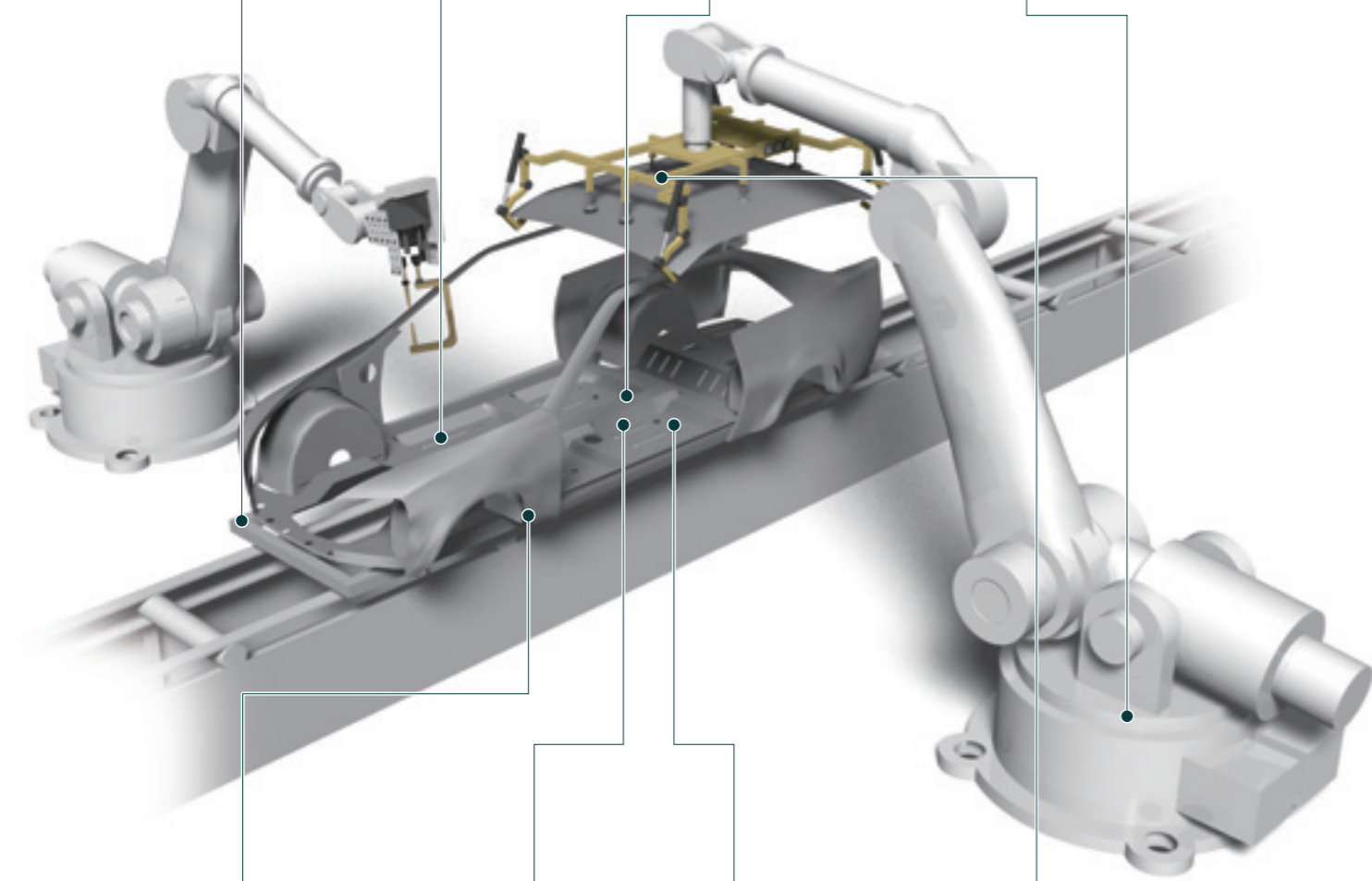
Transport



Free lock unit
FPL Series



Electric actuator
ETS Series



Application examples for the arc welding process

We recommend components which provide solutions for the arc welding process of automobile underbody parts, etc. Individual components for "environmental resistance", "press-fitting", "safety", "shield gas" and "semi-automated facilities" contribute to the further improvement of productivity.

Environmental resistance



Clamp cylinder
Anti-spatter adherence type
(G1/G4)
G1/G4 Series



Cylinder switch with connector
SW-T Series

Shield gas



Compact flow rate sensor
FSM3 Series

Press-fitting/Press



High power cylinder
SHC Series

Safety



Push-button switch
MS Series



Brake unit
JSB3 Series



Shut-off valve
V3010 Series





Clamp

Standard clamp cylinder

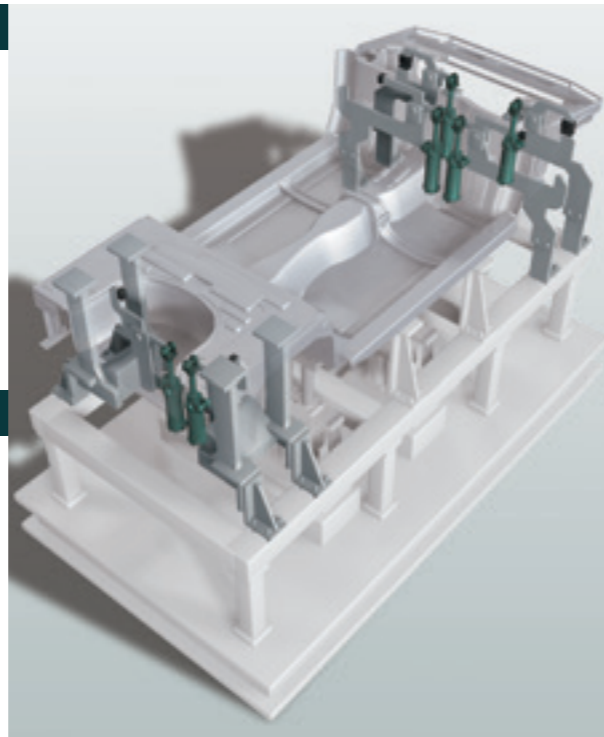
The protrusion of the needle has been minimized to achieve both easy adjustability and safety.
Also available for anti-spatter adherence (G1/G4).



Clamp cylinder

CAC4 Series

Bore size	ø40/50/63/80 mm
Stroke	50/75/100/125/150 mm



Optimal lightweight type usable for transport and rotary jigs

Compact and lightweight clamp that contributes to the weight reduction of welding jigs.
Approximately 56% lighter than the conventional product. Contributes to the weight reduction of robot hand jigs.



Clamp cylinder

CAC-N Series

Bore size	ø32/40 mm
Stroke	50/75/100/125/150 mm



Rotary clamp cylinder

The rotary clamp mechanism is incorporated into a square, space saving cylinder.
Two guide grooves are provided on all bore sizes to improve the wear resistance of the grooves.



Rotary clamp cylinder
RCC2 Series

Bore size	ø16/20/25/32/40/50/63 mm
Stroke	19/21/25/29/32/35/40/70 mm



Space-saving rotary clamp cylinder

Total length dimension is minimized to reduce installation space.
Through bolts can be used for easier mounting.
WAF and square WAF can be selected for the rod end.



Rotary clamp cylinder (Single guide)
RCS Series

Bore size	ø16 mm
Stroke	17.5/27.5 mm



High-thrust clamp cylinder

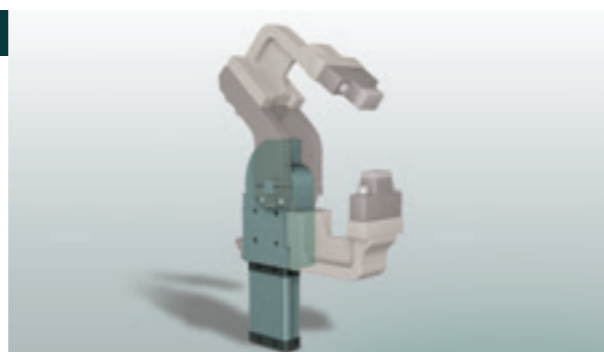
An original mechanism that saves space and provides high thrust. A slim type that contributes to jig space-saving.



Super clamp cylinder

XCAS-SCC Series

Bore size	ø50/63/80 mm
Stroke	-



Clamp cylinder for frame welding

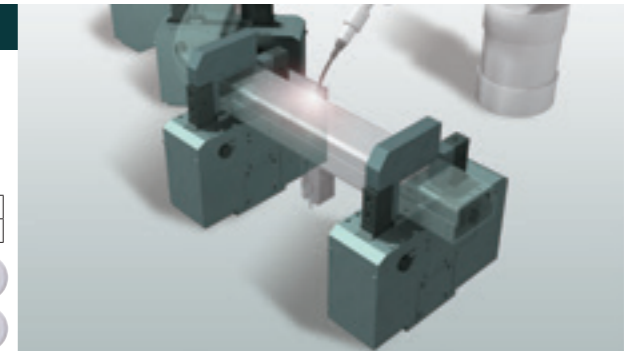
Space saving and high-thrust clamp specialized for frame welding lines.
Clamping force 15,000 N
(Under CKD usage conditions)



Frame clamp cylinder

XCA-FCU Series

Bore size	ø100 mm
Stroke	-



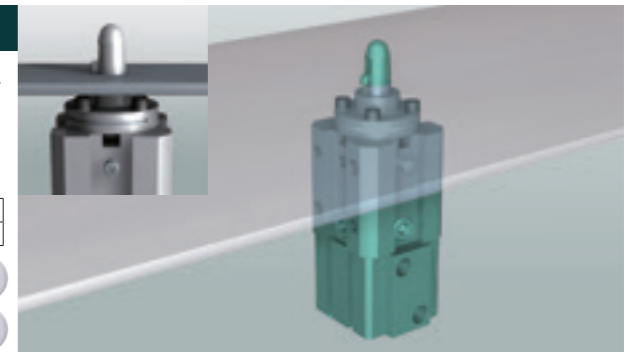
Integrated positioning and clamping

The locating pin and clamp cylinder have been integrated, contributing to jig miniaturization.
Supports various pin diameters and mounting methods.



Pin clamp cylinder
PCC Series

Bore size	ø32/50 mm
Stroke	-



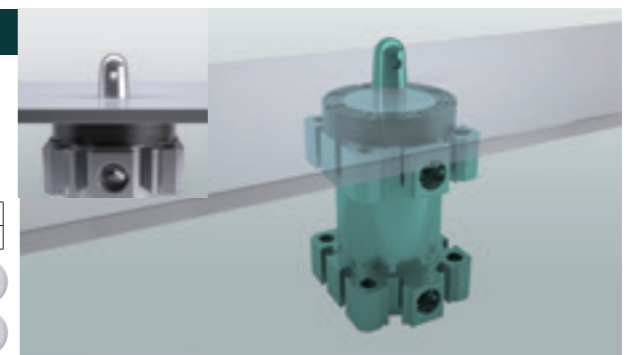
Integration of positioning and magnet suction

The integration of a positioning pin with a suction hand using magnetic force helps keep the robot hand transport jigs lightweight.



Magnet suction hand
XCAS-MHC2 Series

Suction force	60 N
Stroke	-



Flat type ideal for switching vehicle models

Equipped with front clevis fittings. A space saving type that makes the most of its slim width. Ideal for using multiple units in arrays, or installing in a narrow or small space. Position locking is also available.



Flat clamp cylinder
CACF Series

Bore size	ø25/32/50 mm
Stroke	50/75/100/125/150 mm



Compact clamp cylinder with integrated link mechanism

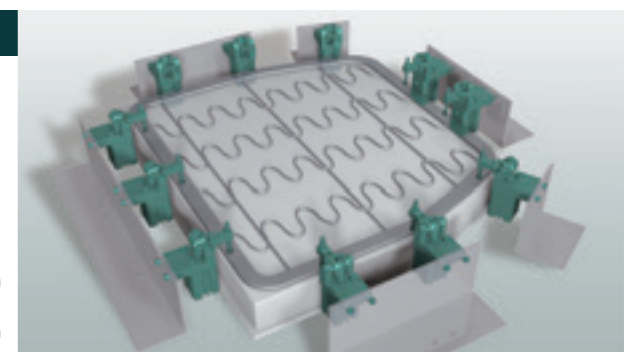
A 3-point link clamp unit ideal for clamping small parts.
(With retainer arm)



Clamp cylinder with link

XCA Series

Bore size	ø20/32 mm
Stroke	-



Standard type ideal for positioning and transport

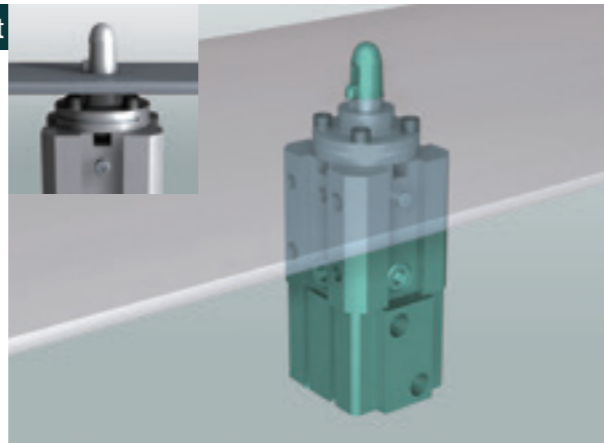
The locating pin and clamp cylinder have been integrated, contributing to jig miniaturization. Supports various pin diameters and mounting methods.



Pin clamp cylinder
PCC Series

Bore size	ø32/50 mm
Stroke	-

- Anti-spatter
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Locating pin shift cylinder ideal for switching vehicle models

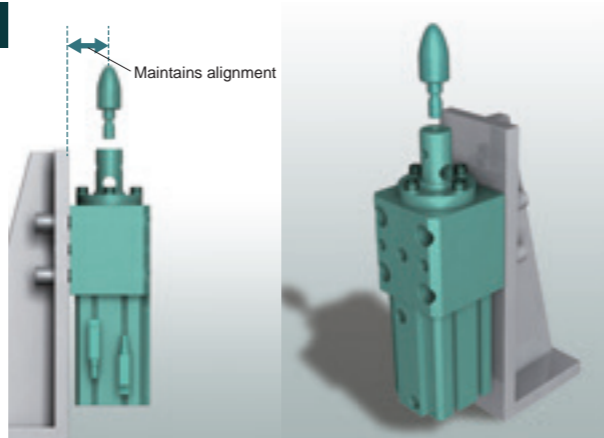
A high-precision compact cylinder specialized for shifting locating pins, etc. Achieves mounting reproducibility and high projecting end accuracy.



Pin shift cylinder
SSD-FL274358 Series, etc.

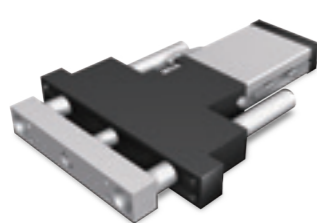
Bore size	ø40/50 mm
Stroke	-

- Anti-spatter
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Flat type ideal for switching vehicle models

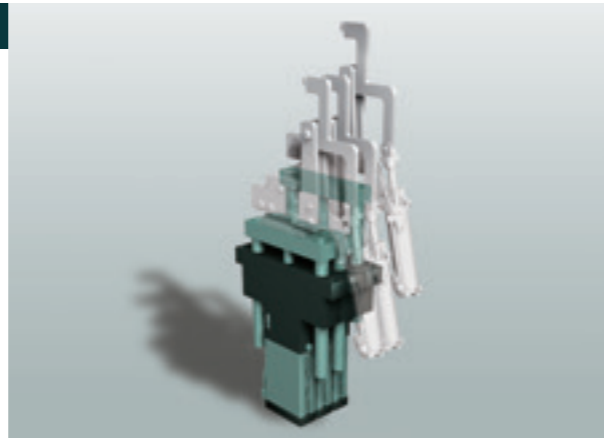
Enables highly accurate, compact switching of welding jigs. A slim flat cylinder ideal for parallel installation.



Flat jig cylinder
FCD-QG1L50-FL370395, etc.

Bore size	ø50 mm
Stroke	50/100/150/200/250/ 300 mm

- Anti-spatter
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Ideal for shifting offset locating pins

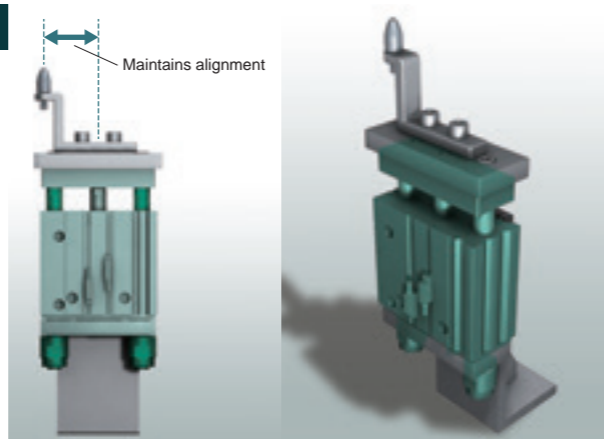
Maintains alignment with 2 guide rods supported by 4 bearings. It has a guide rod of ø20, tripling the rotation resistance compared to the standard ø50 cylinder.



Reference pin cylinder
WPC3 Series

Bore size	ø50 mm
Stroke	40/63 mm

- Anti-spatter
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



For lightweight shuttle transport

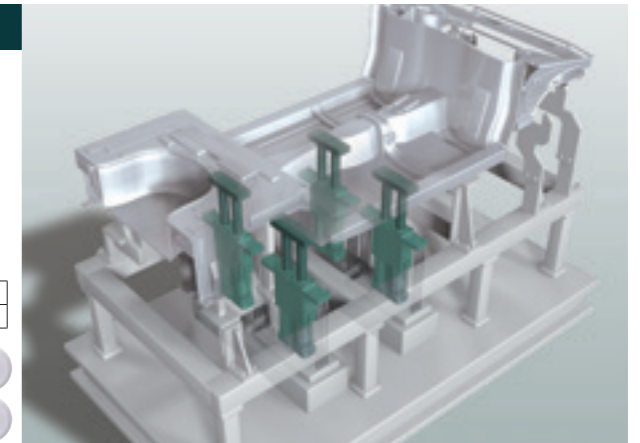
Ideal for lifter applications on a transport shuttle. Lightweight, high-precision and high-rigidity.



Jig cylinder (flange)
XCA-JIG Series

Bore size	ø50 mm
Stroke	100 to 450 mm

- Anti-spatter
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Compact unit capable of tracking the θ axis

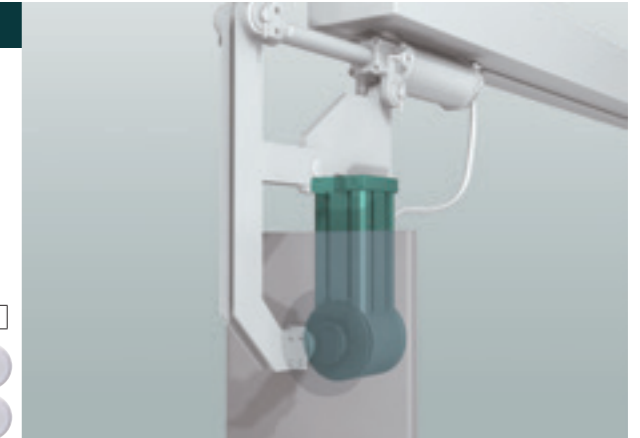
Swing locking material handling clamp jigs and general purpose lower receiving jigs with high holding torque. Compact, yet with high holding torque (4.9 N·m to 19.6 N·m)



Free lock unit
XCAS-FPL Series

Holding torque	4.9 N·m to 19.6 N·m
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- Spatter resistance
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



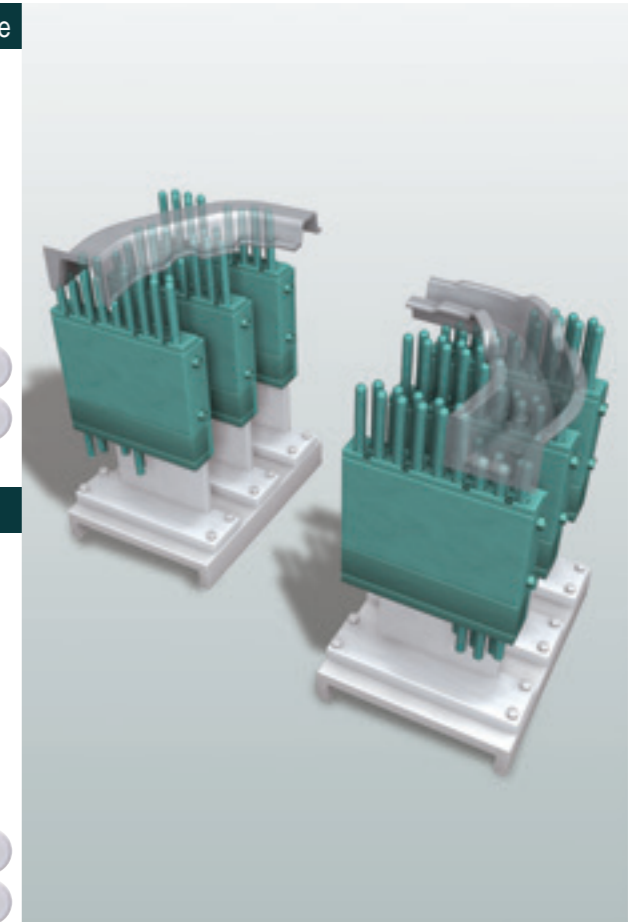
Compact unit that helps make receiving jigs more versatile

It flexibly supports the shapes of various workpieces, eliminating the need for dedicated receiving jigs or changeover.



Flexible support
XCAS-FSB Series

- Spatter resistance
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Simple general purpose jig receiving unit

Simple compact unit that helps make receiving jigs more versatile. Flexible support for workpieces of any shape, as multiple units can be linked together. Position locking is also available.



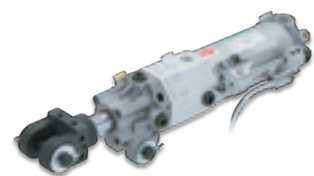
Flexible support
XCAS-FSB Series

- Spatter resistance
- IP65
- Flame resistance
- Strong magnetic field
- Accuracy
- IO-Link



Compact with integrated brake mechanism

Equipped with a free position locking mechanism that prevents falling at any position as long as the rod is stationary. The locking direction can be selected from forward and turnover directions. The one-way lock allows clamped workpieces to be removed from the opposite direction.



Clamp cylinder with position locking

UCAC2 Series

Bore size	ø40/50/63/80 mm
Stroke	50/75/100/125/150 mm



Compact and lightweight

Uses an original brake mechanism with high reliability. Now 56% lighter than the conventional product, specialized for transport applications and contributing to the weight reduction of robot hand jigs.



Lightweight position locking clamp cylinder

UCAC-N Series

Bore size	ø32/40 mm
Stroke	50/75/100/125/150 mm



Suction hand that uses magnetic force

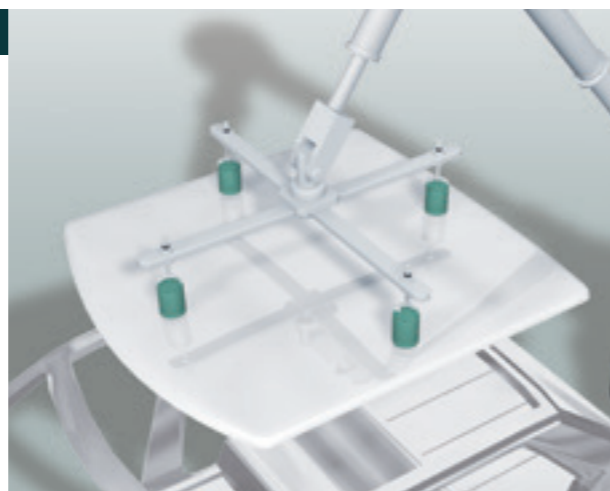
Ideal for the suction of magnetic substances that cannot easily be suctioned with regular pads, or thin copper plates with many punched holes or oil adhered. Suction force is 50 N, 100 N or 200 N. No air consumption when held with suction, energy saving as compared to general vacuum pads.



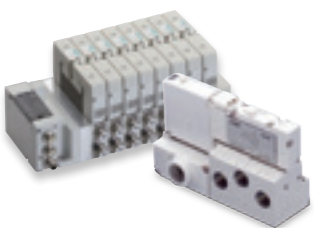
Magnet hand

XCAS-MHC2 Series

Suction force	50/100/200 N
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Manifold valve that enables the miniaturization of conveying tools



Plug-in manifold meets the needs of the times by providing excellent performance in space-saving, usability, service life and power consumption. Supports various wire connections including serial transfer and integrated I/O block.

Compatible cylinder size	to ø125 mm
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Plug-in block manifold

W4G Series



Suction transport that supports multiple workpieces

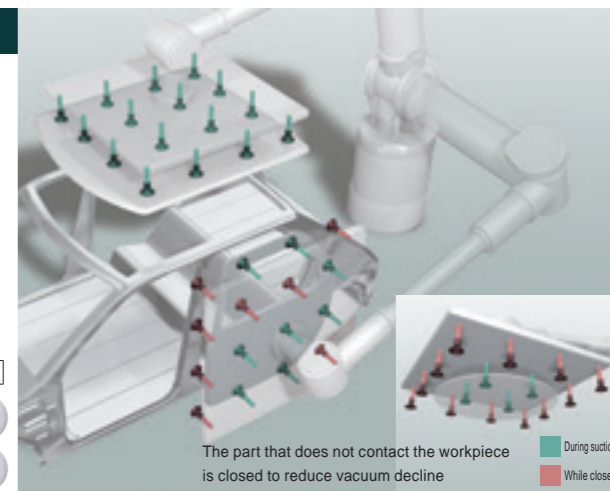
When two or more pads are used, pads that suction normally reduce the vacuum decline even if other pads are not suctioning. Thus, they prevent the normally suctioned workpiece from falling.



Position locking valve

VSECV Series

Port size	M3, M4, M5, M6, R1/8
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The part that does not contact the workpiece is closed to reduce vacuum decline

Orthogonal axis actuator that supports various servo-motor manufacturers

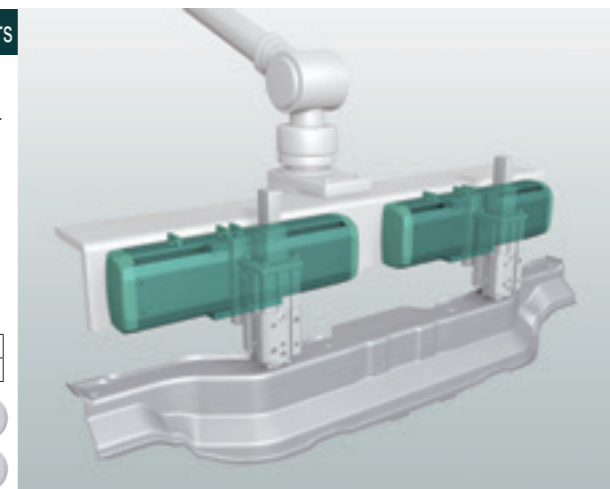
Mount a servo motor from any company you're familiar with. Mounting specifications for origin sensor and limit sensor can also be selected. Stroke can be selected from 50 to 1500 mm (50 mm pitch). Max. load capacity is 150 kg, max. speed is 2000 mm/s for supporting a wide range of applications. Repeatability ±0.02 mm



Electric actuator

ETS Series

Max. load capacity	5 to 120 kg
Stroke	50 to 1500 mm



Transport tool change unit

Used with the device body and adapter equipped with tools such as hands or chucks. When replacing tools, just remount the entire adapter to achieve rapid changeover. Position locking mechanism prevents falling tools even when the drive source is cut off.

Load capacity	1/5/10/20 kg
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Automatic hand changer

CHC Series



Mechanical hand/chuck that does not require either air or electricity

Unlike the conventional hand/chuck that requires air, this product performs opening and closing operation mechanically. Ideal for index tables, etc., that cannot use air piping.

Gripping power	12 to 150 N
Stroke	5 to 20 mm



Mechanical hand

BHA-FC / CKL2-FC Series





Environmental resistance

Series that prevents the adhesion of spatter

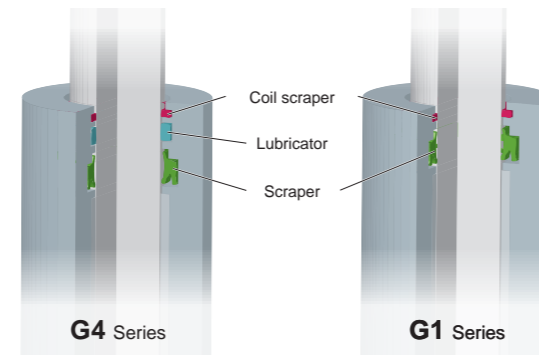
Cylinder with metal scraper and lubricator built in, handling extreme spatter environments. Contributes to longer service life.

Coil scraper	Eliminates solid material such as welding spatter deposited on rods.
Lubricator	Enables easy peeling of spatter. Absorbs fine powder to prevent penetration into the cylinder.
Scraper	Removes dust in general environments.



Anti-spatter adherence (G1/G4)

G1/G4 Series



G4 Series

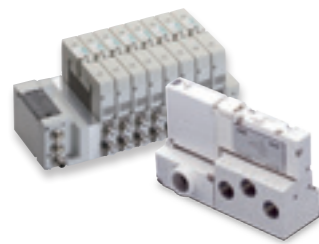
G1 Series

Environment-resistant compact valve that supports IP65

Plug-in manifold meets the needs of the times by providing excellent performance in space-saving, usability, service life and power consumption.

Supports various wire connections including serial transfer and integrated I/O block.

Compatible cylinder size | to $\phi 125$ mm



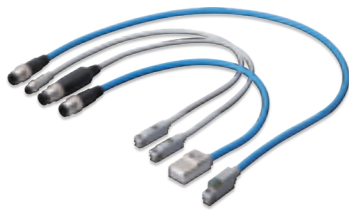
Plug-in block manifold

W4G Series



Compact M12 connector switch that can be used for any cylinder model

M8 and M12 connectors with high versatility are used. Reduces work processes for wiring and maintenance. Cover for anti-spatter adherence is available.



Cylinder switch with connector

SW-T/SW-H Series



Flame-resistant tube and resistant to spatter

Revolutionary tube made using flame-resistant materials. A series specialized for extreme spatter environments is also available.

O.D. | $\phi 4/6/8/10/12$ mm



Flame-resistant tube

SR Series



Cooling water

Flow rate sensor with Flo-Thru structure



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 repeatability in elbow piping.

Flow rate measured range | 0.5 to 60 L/min

Capacitance electromagnetic flow sensor

WFC Series



Eco-friendly solenoid valve for water



Achieves low power consumption (1/3 compared with conventional models). Material has been optimized to make the product lighter (Approximately one-third for both weight and capacity). Large flow rate (Compared with conventional models, 1.3x or more).

Port size | Rc1/4 to 1

Compact pilot operated solenoid valve for water

FWD Series



Karman's vortex sensor compatible with a wide variety of output specifications



It can be switched among a selection of flow rate, temperature switch output, analog output and IO-Link communication. All models feature a water temperature measurement function as standard. The detection range of the flow rate lower limit is expanded to support a wide flow range.

Flow rate measured range | 0.4 to 250 L/min

FLUEREX flow rate sensor for water

WFK2 Series



Shield gas

Flow rate control of argon gas for welding is possible



Compatible with various gases such as air, nitrogen, argon, oxygen, hydrogen and helium. Installable in narrow spaces or on movable parts, enabling equipment downsizing and weight reduction. Controllable through parallel input.

Flow rate | 15 ml to 100 l/min

Compact flow rate controller

FCM Series



High-performance, multi-function flow rate sensor



A single unit handles five types of gases including air, nitrogen, argon, carbon dioxide, and mixed gas. Integrating the needle valve helps save space. IO-Link compatibility allows parameter and event data transmission, enabling predictive maintenance.

Flow rate | 500 ml to 1000 l/min

Compact flow rate sensor

FSM3 Series



Easily extracts nitrogen gas from compressed air



Generates a nitrogen-enriched gas by utilizing a hollow fiber separation membrane that easily separates oxygen. Reduced processes/space: We propose the optimum system according to the required flow rate. Oxygen concentration monitor connection: Inline oxygen monitor PNA Series can be connected.

Nitrogen Gas Extraction Unit

NS Series



Can measure oxygen concentrations while pressurized



Usable at pressures from atmospheric pressure through 1.0 MPa. Easy maintenance too, with space-saving piping. Oxygen/inert gas concentration display is switchable.

Inline oxygen monitor

PNA Series





Press-fitting/Press

Ideal when power is required at the end of the stroke



Enables booster (double/quad force) at the end of the stroke. Air consumption volume is 1/2 to 1/8 (Compared with conventional models). Reduced installation space (25 to 60% compared with conventional models).

Bore size	ø40 to 100 mm
Stroke	40 to 1000 mm

High power cylinder
SHC Series



Achieves thrust up to 5 t with only a pneumatic source



An environmentally considerate cylinder that allows 2t or 5t high thrust power at your desired position with a pneumatic source alone. Helps get rid of troublesome oil management.

Effective thrust	For 2 t and 5 t
Stroke	50 to 500 mm

Mechanical power cylinder
MCP Series



Semi-automated facilities

Improves operability and equipment safety



A large pushbutton switch with emphasis on safety. Contributes to work safety. Diverse range of variations.

Push-button switch
MS series



An all-air solution with electric design, no control panel required



Costs are reduced as it uses an air sequence that does not require electric wiring. Contributes to circuit design work.

Compact mechanical valve
MS Series



Safety

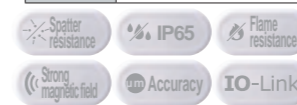
Series equipped with an original brake mechanism with high reliability



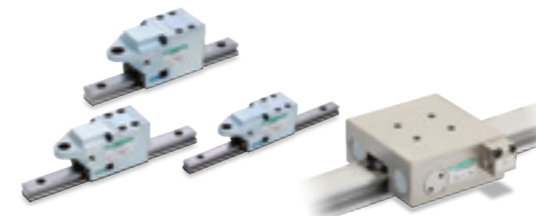
Equipped with a highly reliable mechanical brake. Helps improve facility safety when the pressure is down.

Cylinder with brake
ULK/JSK2/JSG/JSC3/
USSD/UFCD/USC Series

Bore size	ø16 to 180 mm
Stroke	to 2500 mm



Safety brake unit that uses a linear guide



When used with a system incorporating a linear guide, this product can lock the position of a workpiece after moving it to the specified position, locking it during emergency stop for safety and prevent it from falling off.

Linear guide lock
LMB/LML Series

Holding force	300 to 2450 N
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Ideal for preventing accidents due to residual pressure in pneumatic lines



Can be locked at the position where residual pressure is released during maintenance work. OSHA (Occupational Safety and Health Administration) compliant. A shut-off valve with check function.

Shut-off valve with keyhole
V3010 Series

Port size	Rc1/8 to 1
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Stops movable rods instantaneously / Powerful lock



Powerful holding force of 980 N to 20000 N is provided according to ø16 to ø45 rod diameter. Even if air source is shut off, the rod position is held.

Brake unit
JSB3 Series

Holding force	980 to 20000 N
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Slim, lightweight lock unit



Fixing mechanism which locks and unlocks linearly using air. Simple air control means remote operation is possible, enabling "fixing," "improved safety," and "position locking."

Lock unit
UB Series

Holding force	180 N, 450 N
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Compact manual valve for discharging residual pressure

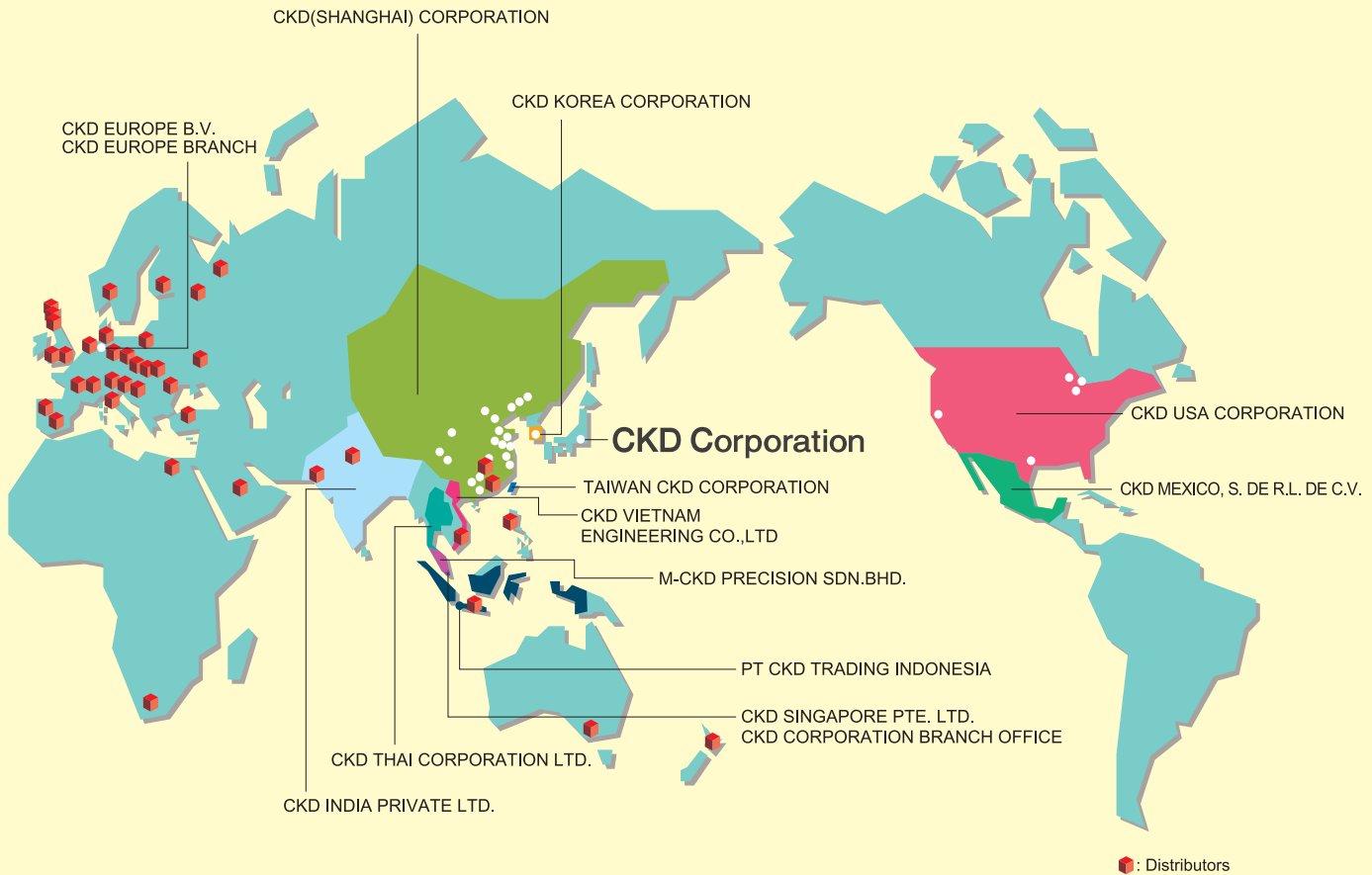


A compact ball shut-off valve. Maintenance work is easy. This shut-off valve, incorporated into a cylinder control circuit using a 3-position all ports closed valve, is used to discharge residual pressure in the circuit when performing maintenance work while the power supply is OFF during emergency stops. It prevents sudden cylinder movement by discharging the residual pressure.

Manual switching valve
HSV-B Series

Port size	Rc1/4
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CKD Corporation

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

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