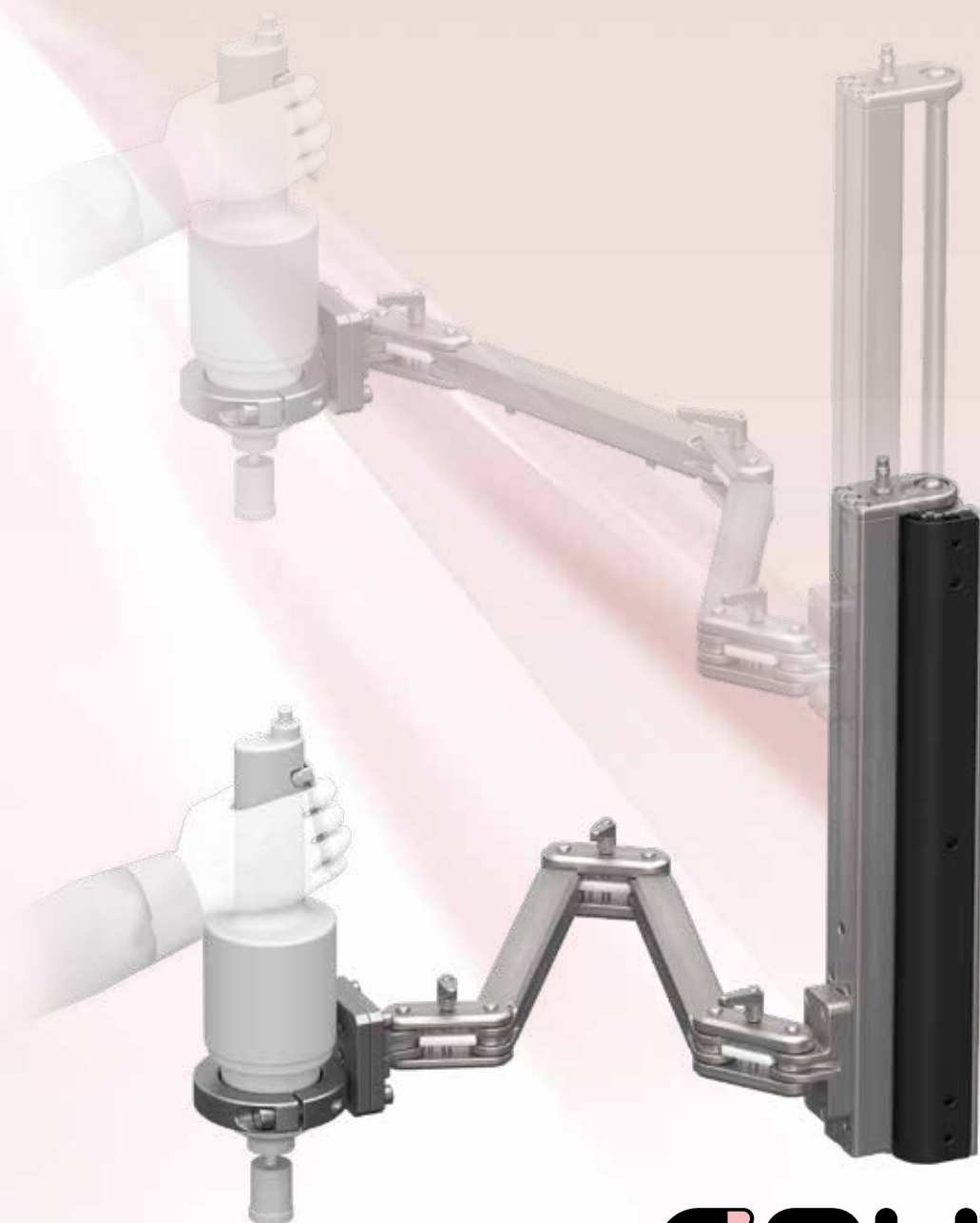


## Compact arm CAW Series



Ease of work starts with ease of use



Human Assist

**CAW** Series  
Compact Arm

CKD Corporation

CC-1613AA

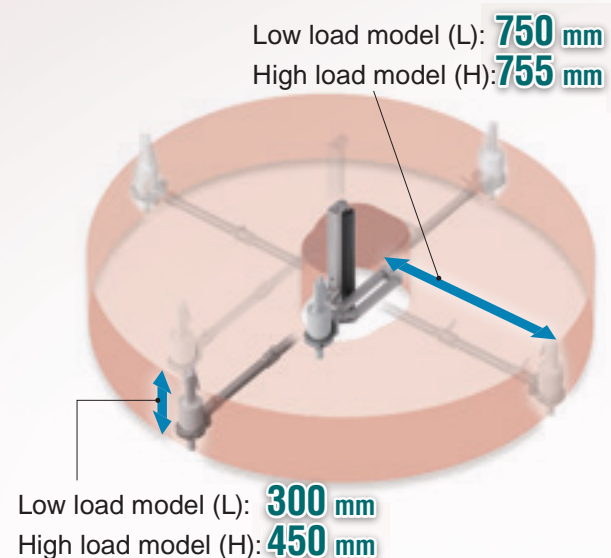
# Human Assist

## Low friction cylinders and high rigidity guides realized Compact balancer that reduces arm and hand loads

### Compact

#### Compact storage

It is expansive when in use and folds compactly for storage..



### Flexible

#### Freely movable articulated arm

The arm moves flexibly in the horizontal direction, enabling tightening work at the desired position. At the joint, a simple locking mechanism is provided.

### Variations

#### Variations tailored to the workpiece

Two types can be selected according to the tool load.



### Safety

#### Safety structure that suppresses vibration or reaction force

Compared to the suspended type, this product suppresses vibration and reaction forces generated by the tool. Also, a check valve prevents sudden drop when air supply is stopped.

For suspension balancer



With CAW Series



### Usability

#### Light operability

Equipped with CKD's unique low sliding cylinder, it can be operated with little force..

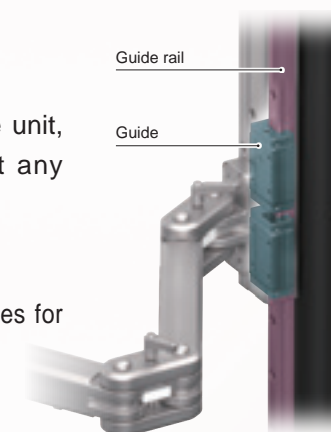
#### Balanced at any vertical position

No elastics are used in the drive unit, so the position can be held at any desired position.

#### High workability

Equipped with vertically moving guides for smooth operation

Guide rail  
Guide



### Simple

#### Easy to install

Can be mounted on an aluminum frame with a mounting width of 60 mm.

#### Easy adjustment mechanism based on pneumatic control

Pressure can be adjusted in a short time with the precision regulator knob according to the weight of the workpiece.

\*It will be included at shipment.



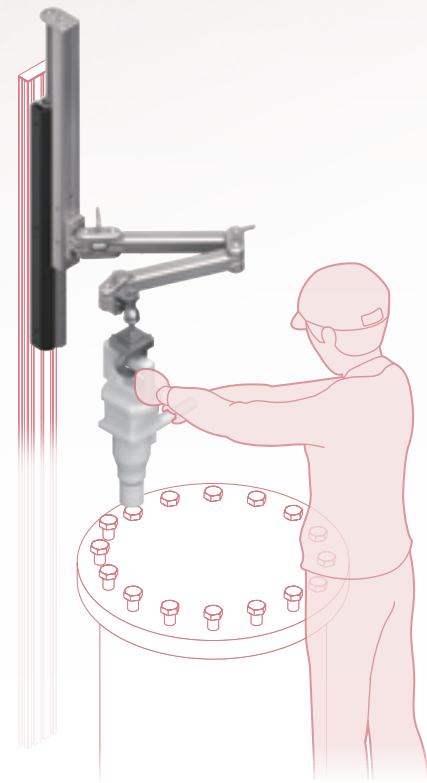
# CAW Series

Compact Arm

## Case Study

### Improving sources of danger by neglecting ergonomic principles..

Helps reduce excessive posture work risk to the wrist, arm, shoulder, and waist.

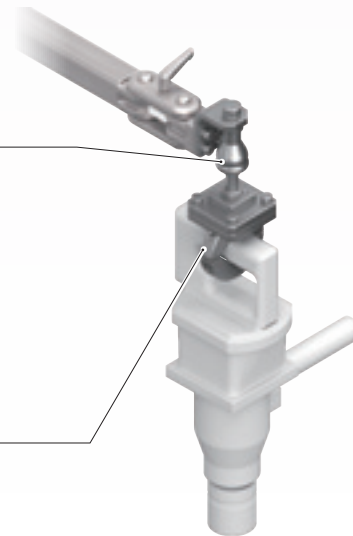


#### Case Study

Work with the piston wrench held by ball fitting and V-bracket and the arm extended at chest height

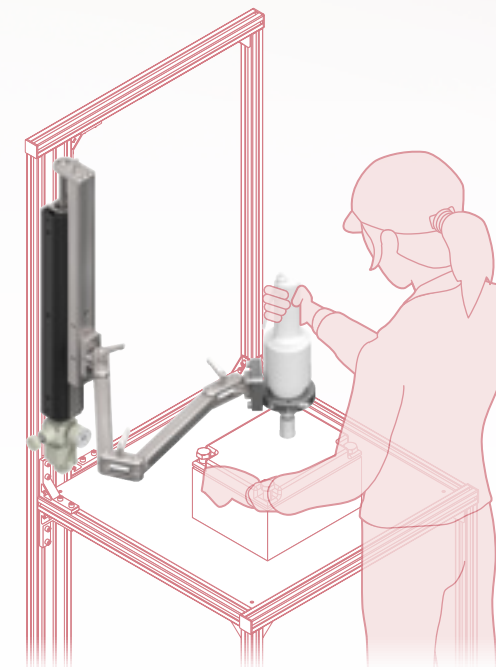
Ball fitting  
CAW-\*B

V-bracket  
CAW-V \*



### Helps reduce the workload of repetitive tasks on a workbench

Reduces the burden on arms and wrists of workers' of all genders and ages.

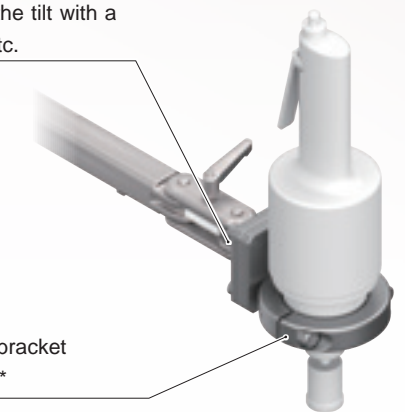


#### Case Study

Straight-type impact wrench held by round bracket for repetitive tasks on workbench.

Adjust the tilt with a  
shim, etc.

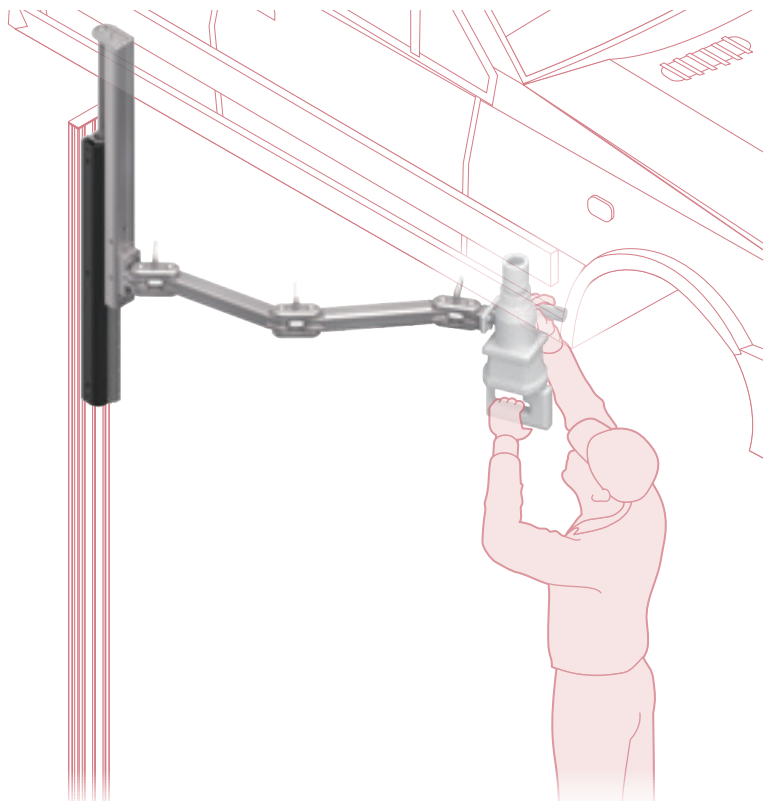
Round bracket  
CAW-D\*



### When designing your fittings and attachments

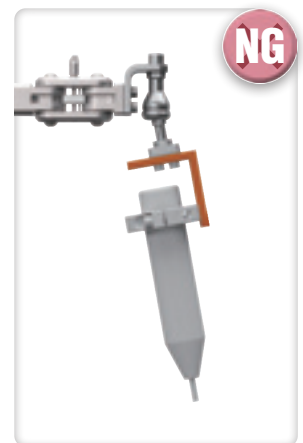
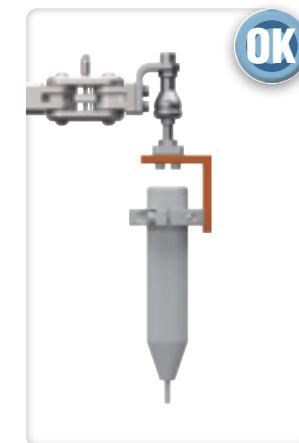
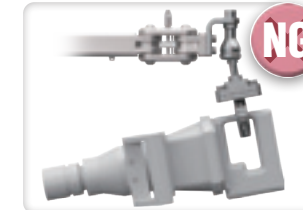
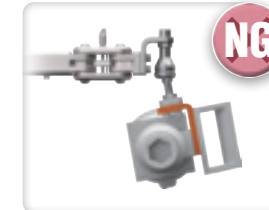
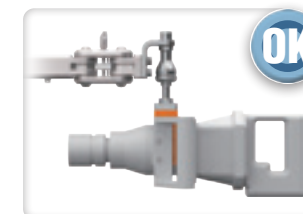
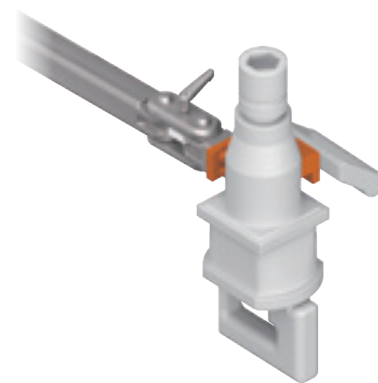
Notes on using ball fittings

When suspending a workpiece with a ball joint, mount the ball joint so that the workpiece is suspended at its center of gravity and is not tilted.



#### Case Study

Holding the piston-type impact wrench with the L-bracket (customer designed) and tightening from bottom to top





Compact arm

# CAW Series

● Bore size:  $\varnothing 32$



## Specifications

Item			CAW-L-300	CAW-H-450
Bore size			$\varnothing 32$	
Working fluid			Compressed clean air (refer to recommended air circuit on page 12)	
Max. working pressure		MPa	0.25	0.45
Minimum working pressure		MPa	0.18	0.26
Proof pressure		MPa	1.05	
Ambient/Fluid temperatures		$^{\circ}\text{C}$	5 to 60	
Movable range	Vertical	mm	300	450
	Horizontal (*1)	mm	R750	R755
Port size			Rc1/4	
Cushion			Top end: Rubber cushion/lowering end: Shock absorber	
Lubrication			Not available	
Load capacity (0.45MPa pressurized) (*2)		kg	5	15
Max. working speed (*3)		mm/s	300	
Air consumption (*4)		L/min (ANR)	4.3	5.4
Weight		kg	8.2	14.2

\*1: Max. rotation radius of arm tip part. Refer to the dimensions for details on the movable range.

\*2: Includes weights of fittings and attachments. Load capacity varies with the supplied pressure. Refer to the payloads at the following pressures.

\*3: 40L/min (ANR) air is required when using continuously at max. working pressure. Supply compressed air with sufficient flow rate.

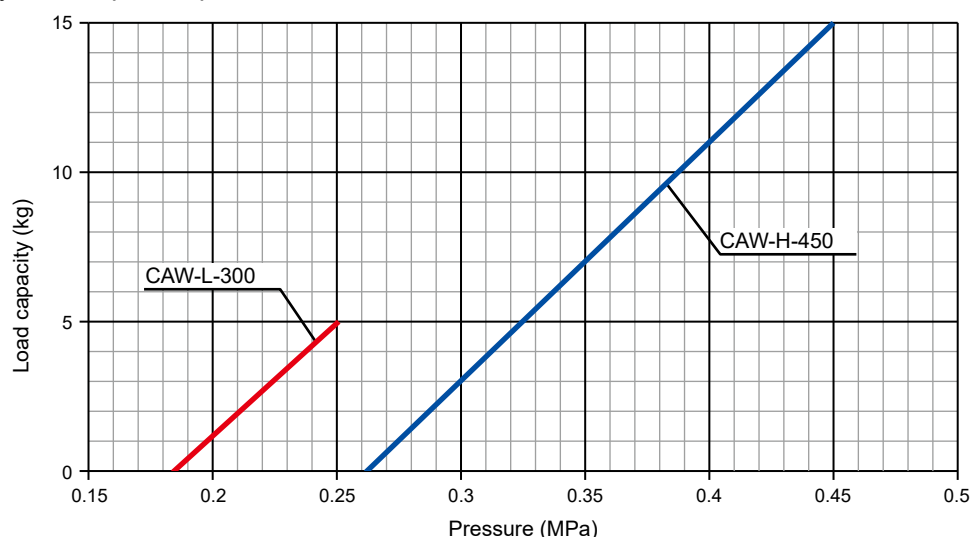
\*4: Air consumption is shown at 1 cycle/min and maximum working pressure. The precision regulator RP1000 constantly releases air to the atmosphere.

## Fitting/attachment weight table

(unit: kg)

Option name	Discrete model No.	Weight	Option name	Discrete model No.	Weight	Option name	Discrete model No.	Weight
Bottom mounting	CAW-U	0.4	V-clamp	CAW-V40	1.5	Round clamp	CAW-D40	1.4
Ball fitting	CAW-L-B	0.6		CAW-V50	1.6		CAW-D50	1.6
	CAW-H-B	0.9		CAW-V60	2.0		CAW-D60	1.8
Flange - thread	CAW-F	0.5		CAW-V70	2.5		CAW-D70	1.9
Flange - hole	CAW-F1	0.5		CAW-V80	2.9		CAW-D80	2.3

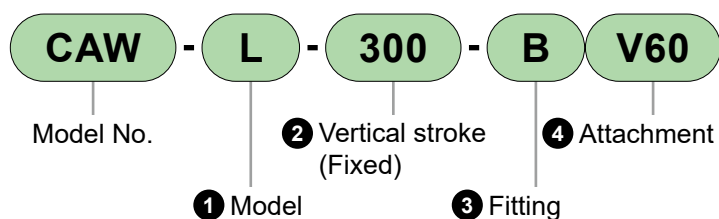
## Load capacity with respect to pressure



Note: Pressure shows the pressure supplied to the "IN" side of the precision regulator.



## How to order





### 1 Model

Code	Descriptions
L	Low load model
H	High load model

### 2 Vertical stroke (fixed)





Code	Descriptions
300	300 mm (low load model)
450	450 mm (high load model)

### 3 Fitting

Code	Descriptions	
Blank	Without fitting	
U	Bottom mounting	
B	Ball fitting	

Note: Multiple selection is not possible.

### 4 Attachment

Code	Descriptions		
Blank	Without attachment		
F	Flange - thread		
F1	Flange - hole		
V40	ø30 to ø40	V-clamp	
V50	ø40 to ø50		
V60	ø50 to ø60		
V70	ø60 to ø70		
V80	ø70 to ø80		
D40	ø40	Round clamp	
D50	ø50		
D60	ø60		
D70	ø70		
D80	ø80		

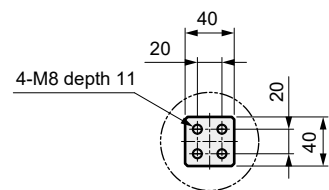
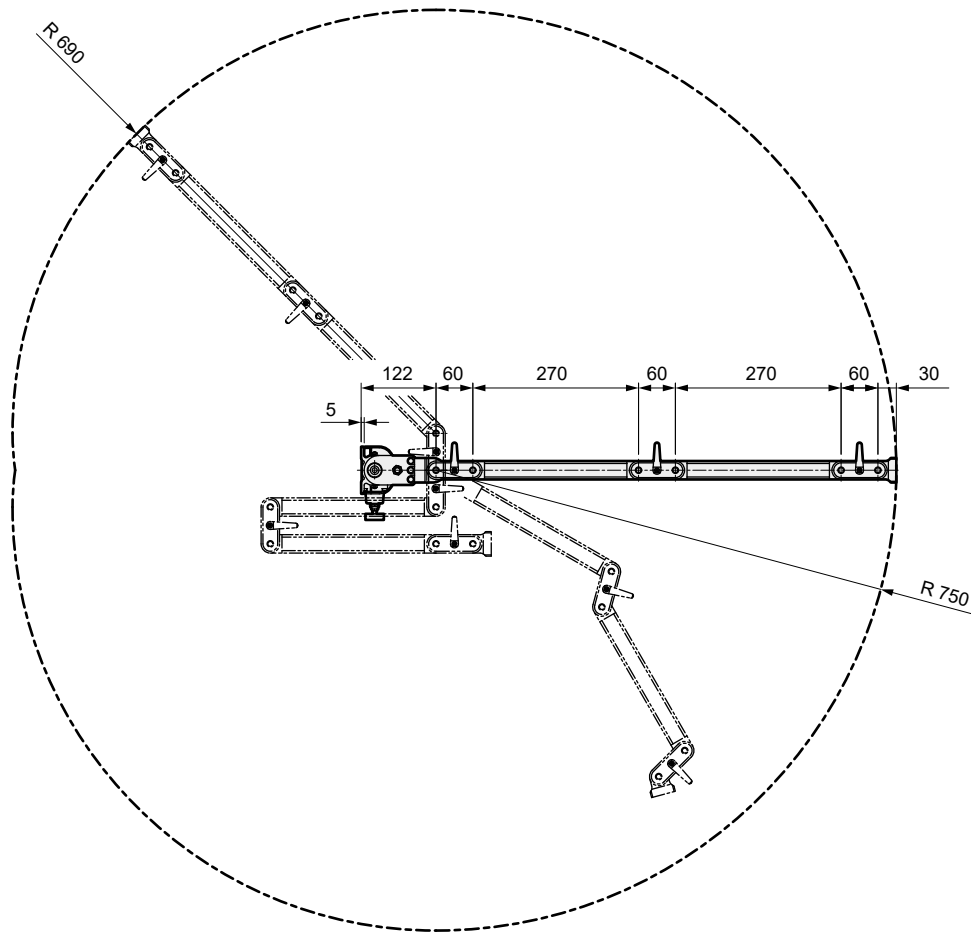
Note: Multiple selection is not possible.

### Discrete fitting and attachment model No.

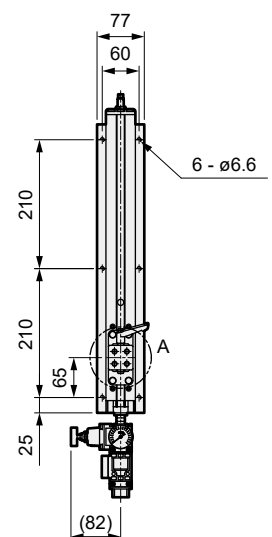
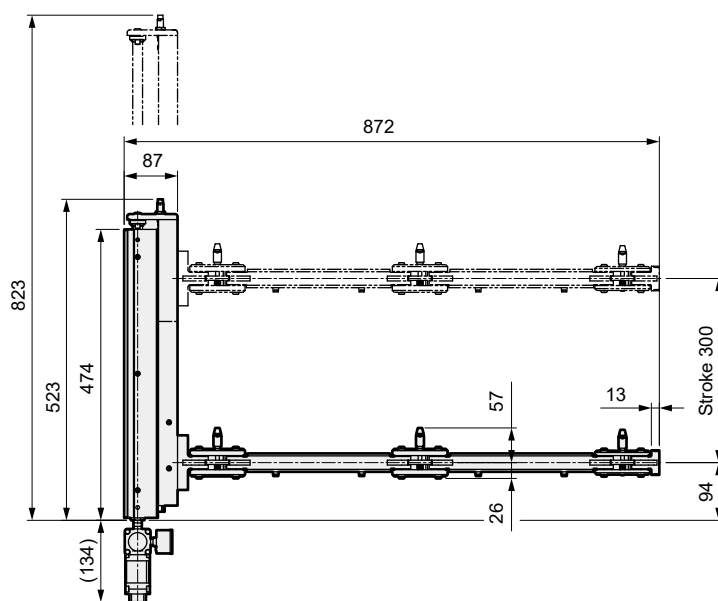
- CAW-U Bottom mounting
- CAW-L-B Ball fitting for CAW-L
- CAW-H-B Ball fitting for CAW-H
- CAW-F Flange - thread
- CAW-F1 Flange - hole
- CAW-V ☐ V-clamp (V40, V50, V60, V70, V80)
- CAW-D ☐ Round clamp (D40, D50, D60, D70, D80)

## Dimensions

### ● CAW-L-300

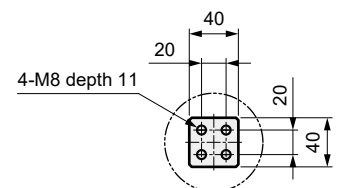
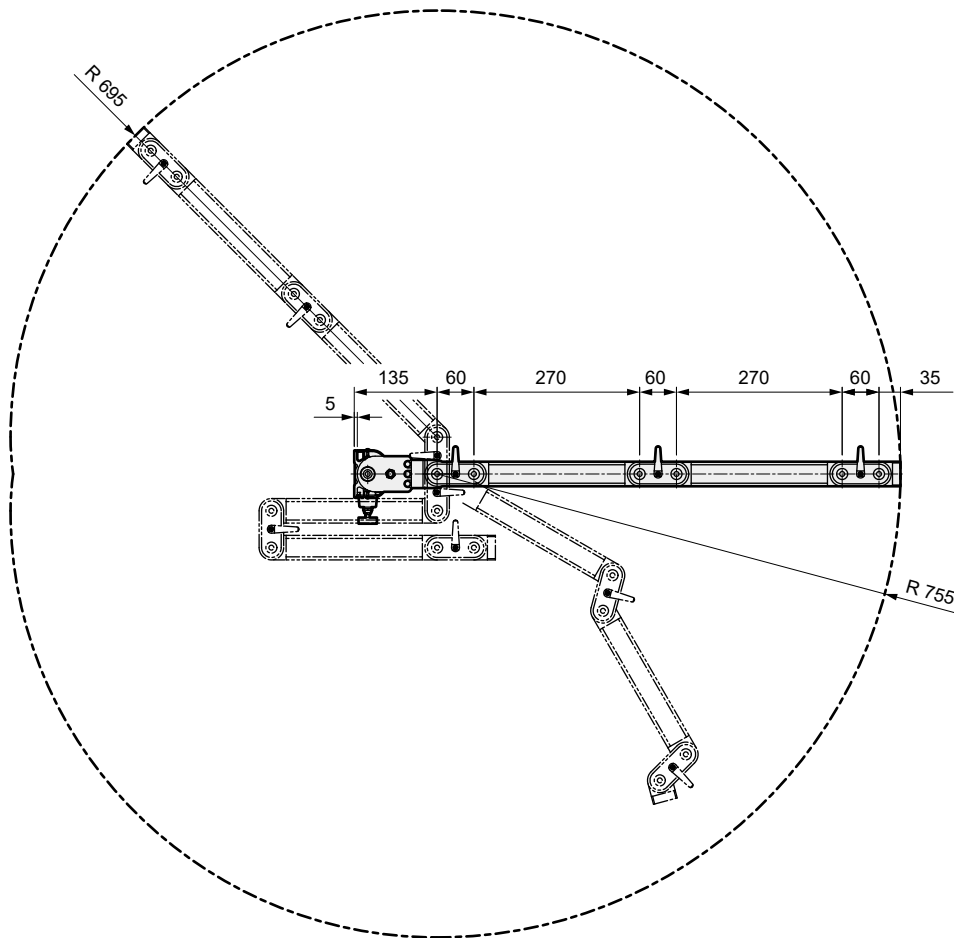


Enlarged view of section A  
(arm end mounting part)

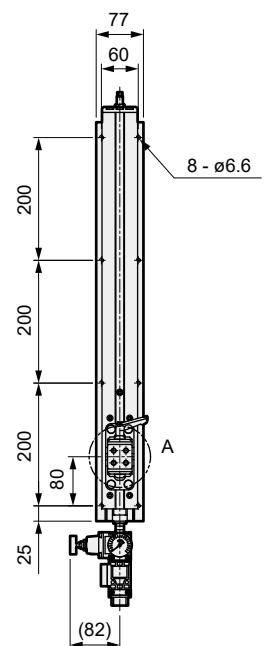
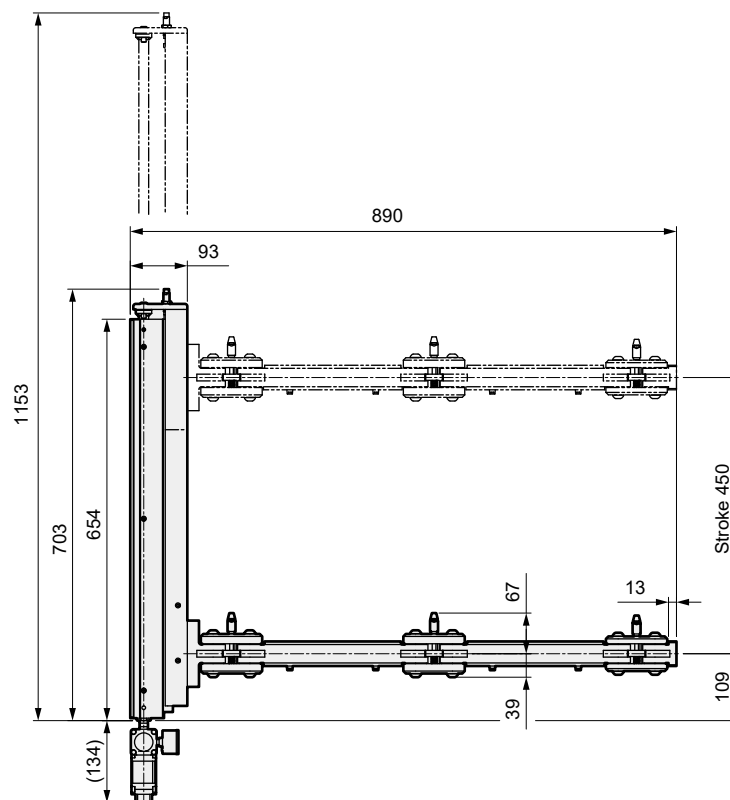


## Dimensions

● CAW-H-450

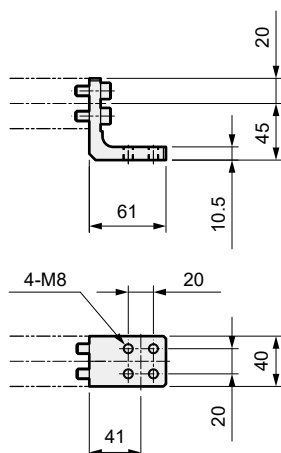


Enlarged view of section A  
(arm end mounting part)



## Fitting dimensions

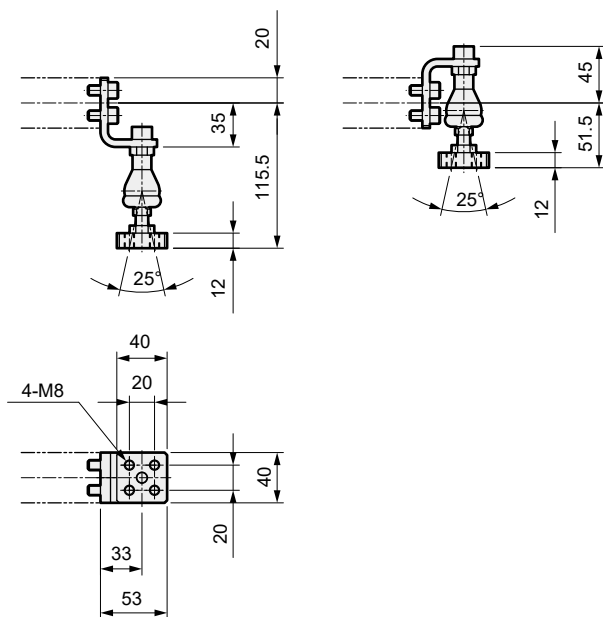
### ● Bottom mounting (U)



\*Fasteners for tightening the bolts are included.

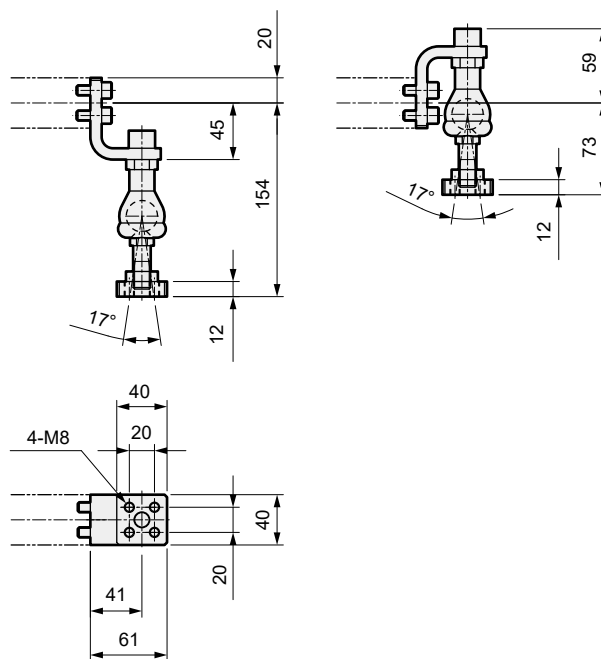
### ● Ball fitting (B)

#### • CAW-L (low load model)



\*Fasteners for tightening the bolts are included.

#### • CAW-H (high load model)

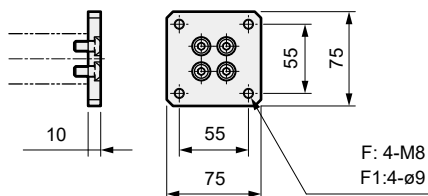


\*Fasteners for tightening the bolts are included.



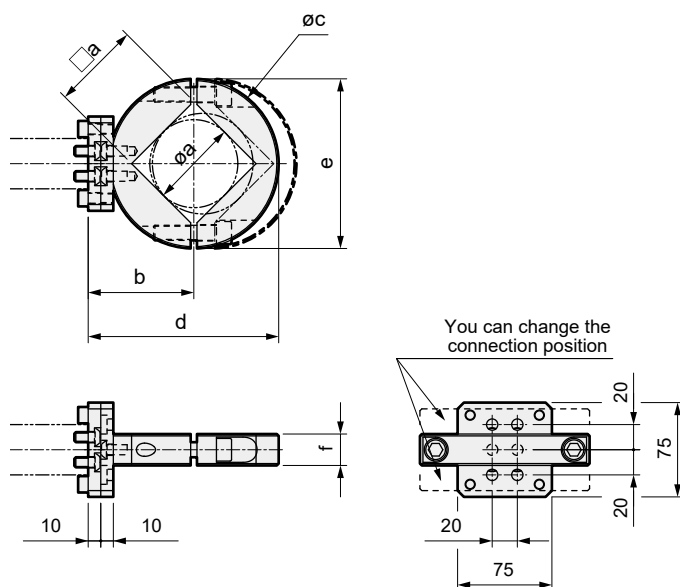
### Attachment dimensions

- Flange - thread (F)
- Flange - hole (F1)



\*Fasteners for tightening the bolts are included.

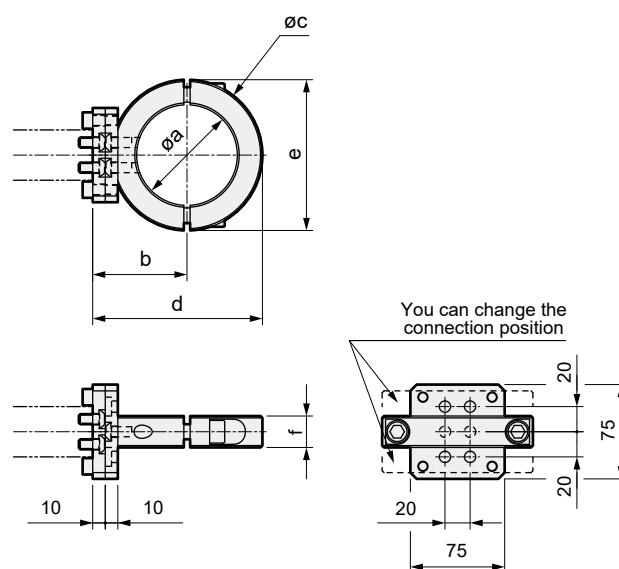
- V type clamp (V□)



\* Fastening bolts and rubber for tool diameter adjustment are included.

Code	a	b	c	d	e	f
V40	30 to 40	51	70	86 to 100	70	18
V50	40 to 50	57	85	99.5 to 113.5	85	18
V60	50 to 60	65	100	115 to 129	100	22
V70	60 to 70	76	120	136 to 150	120	25
V80	70 to 80	84	135	151.5 to 165.5	135	25

- Round clamp (D□)

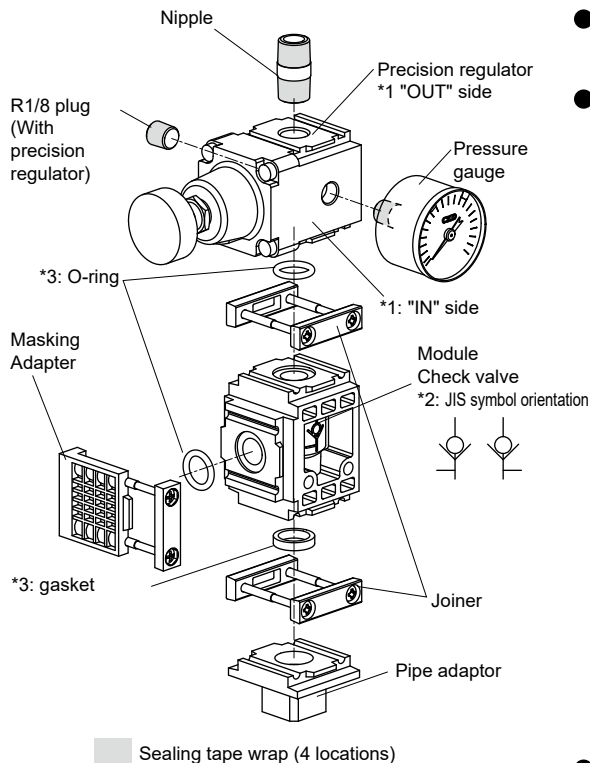


\* Fastening bolts and rubber for tool diameter adjustment are included.

Code	Applicable tool diameter	a	b	c	d	e	f
D40	ø30 to ø40	40	51	70	86	70	18
D50	ø40 to ø50	50	57	85	99.5	85	18
D60	ø50 to ø60	60	62	95	109.5	95	22
D70	ø60 to ø70	70	68	105	120.5	105	22
D80	ø70 to ø80	80	75	120	135	120	25

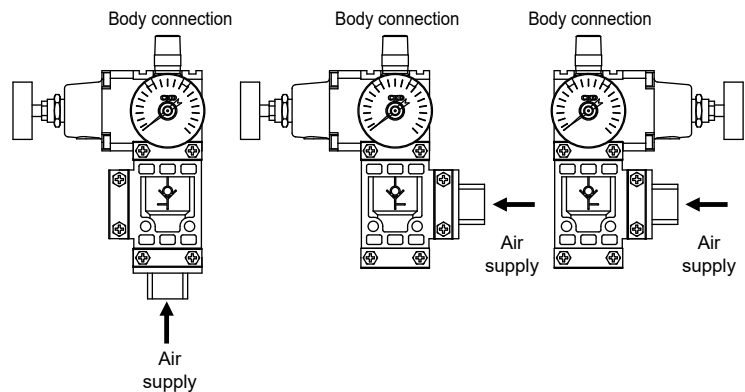
## How to assemble

### ① Assemble the included air components.



- Wind sealing tape around a pressure gauge or R1/8 plug, and assemble it to the precision regulator. By changing the assembly position of the R1/8 plug and pressure gauge, the pressure adjustment knob position of the precision regulator can be reversed.
- The pipe adaptor, precision regulator and module check valve are connected with a joiner or masking adaptor.
  - \*1: Please note the orientation of the "IN" and "OUT" sides of the precision regulator.
  - \*2: Check the JIS symbol on the body before connecting.
  - \*3: Check the shape and position of the O-rings (2 pcs.) and gasket (1 pc.) before connecting.
  - \*3: The pipe leadout direction can be selected by changing the pipe adaptor assembly position and masking adaptor assembly position.

### [Connection example]

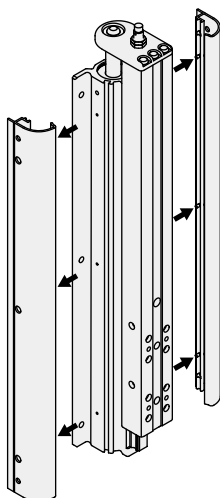


- Assemble the fitting.  
Recommended fittings: Single straight GWS8-8, single elbow GWL8-8

\* The main unit and air equipment can be installed at a distance from each other by using a piping tube and a fastening fitting.  
For details, refer to the instruction manual

### ② Remove the right and left covers.

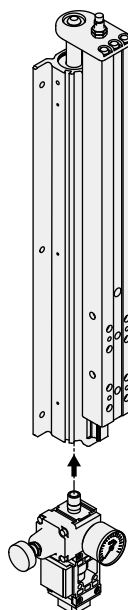
Since it uses a position locking screw, remove the cover while pulling it lightly.



### ③ [When directly installing air component]

Wrap sealing tape around the nipple and attach the air component to the cylinder.

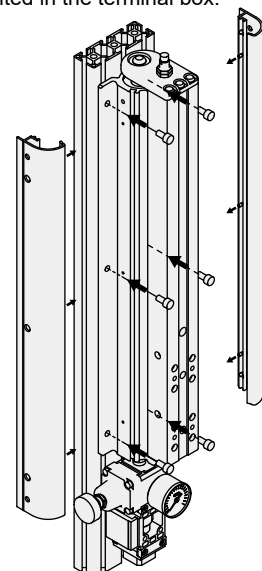
Tightening torque: 6 to 8 N·m



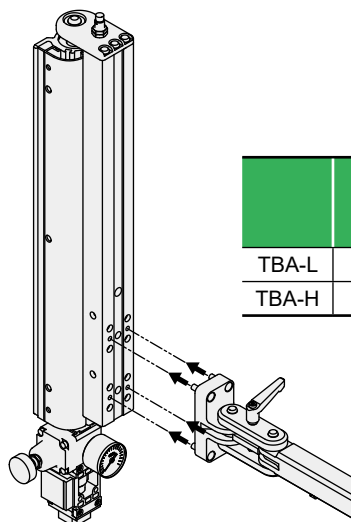
### ④ Mount the cylinder section.

Mounting bolt: Hexagon socket head cap screw: M6×12  
CAW-L : 6 units  
CAW-H : 8 units  
\*Customers are asked to prepare as necessary.

Use a level gauge on the cylinder  
Install vertically. After installing the cylinder, fasten the right and left covers mounted in the terminal box.



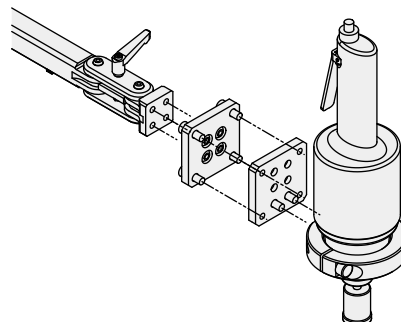
- ⑤ Attach the arm section with the specified tightening torque with the included bolts.



	Included bolts	Tightening torque N·m
TBA-L	M6 x 20	7.8
TBA-H	M8 x 20	18.8

- ⑥ Use any fitting, attachment, etc., to fix the tool to the arm tip.

Rubber plates for dimension adjustment and scratch prevention are included with V-clamps and round clamps. Use as necessary.



- ⑦ Turn the pressure adjustment knob of the precision regulator counterclockwise to set the secondary side flow rate to 0 L/min and supply air. Gradually turn the pressure adjustment knob clockwise to adjust the pressure that is balanced. After adjusting the pressure, tighten the lock nut, and then set the pressure adjustment knob.

## Customer's design of fittings and attachments

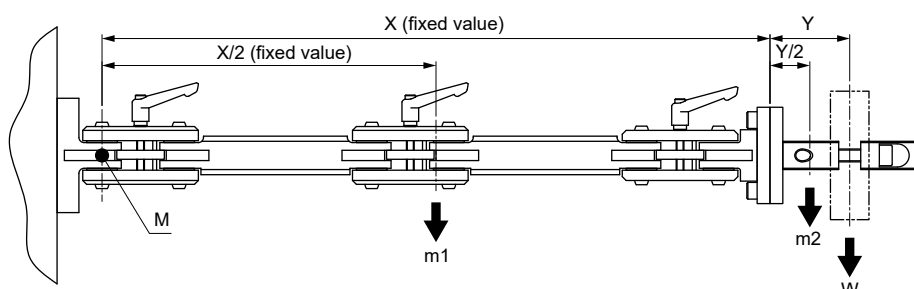
### Moment load

- Calculate the moment load below from the weight of the workpiece used, and select and design the fitting and attachment so that the maximum moment load is not exceeded.

#### Max. moment load

Model No.	M (N·m)
CAW-L-300	52
CAW-H-450	147

#### How to calculate moment load



$$M = \{(X+Y) \times W\} + \{(X+Y/2) \times m2\} + (X/2 \times m1)$$

M : Moment load (N·m)

X : Arm length (fixed value, [CAW-L-300] 0.75m  
[CAW-H-450] 0.755m)

Y : Distance from arm tip to center of gravity of workpiece  
(attachment center of gravity)

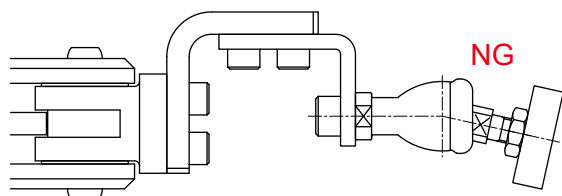
W : Weight of workpiece (N = kg × 9.8)

m1 : Arm weight (fixed value, [CAW-L-300] 33.3N (3.4 kg)  
[CAW-H-450] 65.7N (6.7 kg))

m2 : Fitting, attachment weight (N = kg × 9.8)

#### Notes on using ball fitting

This product cannot be used in a lateral orientation.



#### Example of calculation:

**CAW-H-450-BD70 (ball fitting + round clamp ø70) suspends the 10kg workpiece**

X : Arm length [CAW-H-450] 0.755 m

Y : Distance from the arm tip to the center of gravity of the workpiece (center of gravity of attachment)  
[From B (ball joint) dimensions] 0.041 m (41 mm)

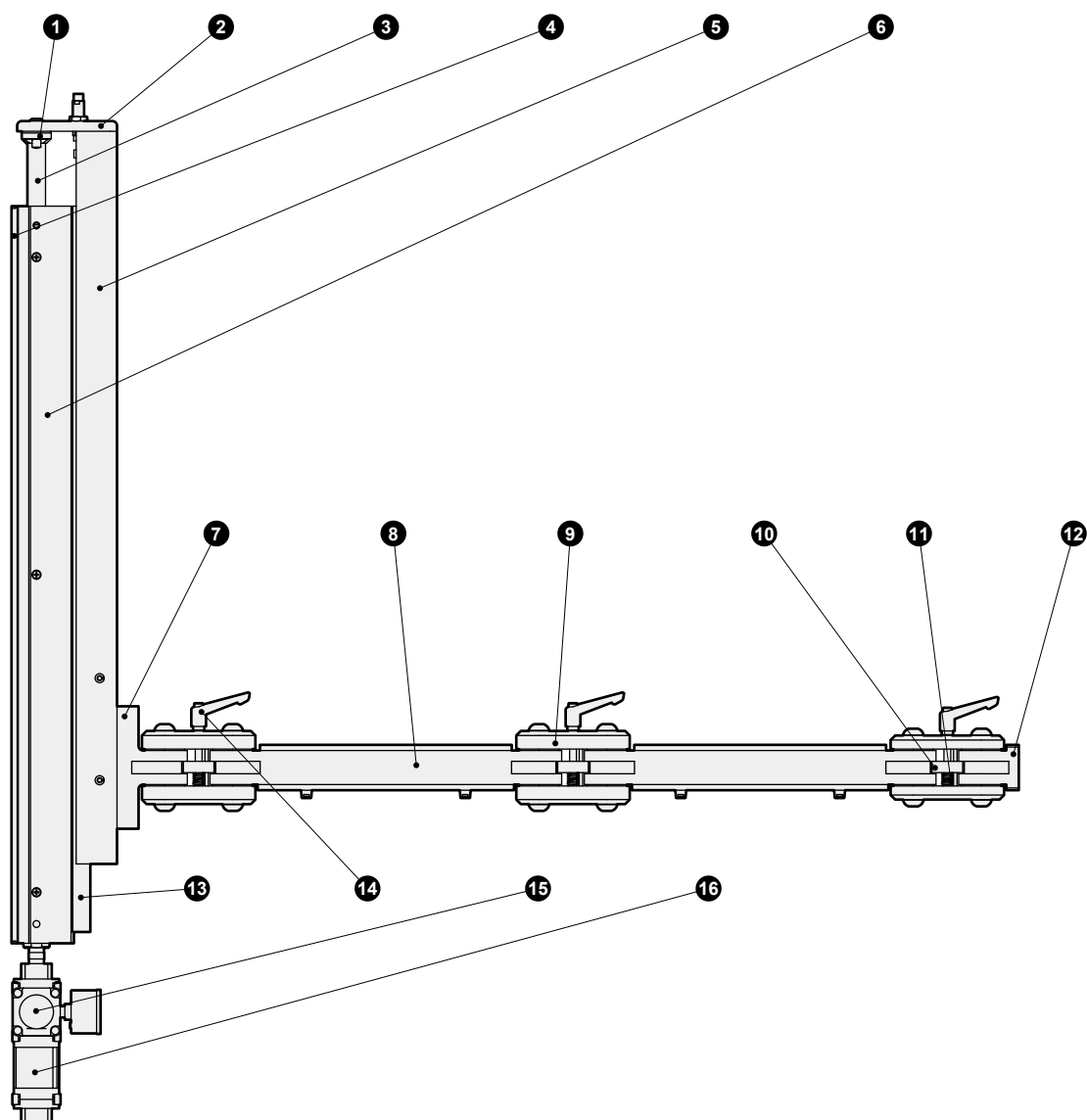
W : Weight of workpiece: 98 N (10 kg)

m1 : Arm weight [CAW-H-450] 65.7N (6.7 kg)

m2 : Fitting, attachment weight (N = kg × 9.8)  
[From B (ball fitting) weight] 8.82N (0.9 kg)  
[From D70 (round clamp øweight) 18.62N (1.9 kg)

$$\{(0.755 + 0.041) \times 98\} + \{(0.755 + [0.041/2]) \times [8.82 + 18.62]\} + \{(0.755/2) \times 65.7\}$$

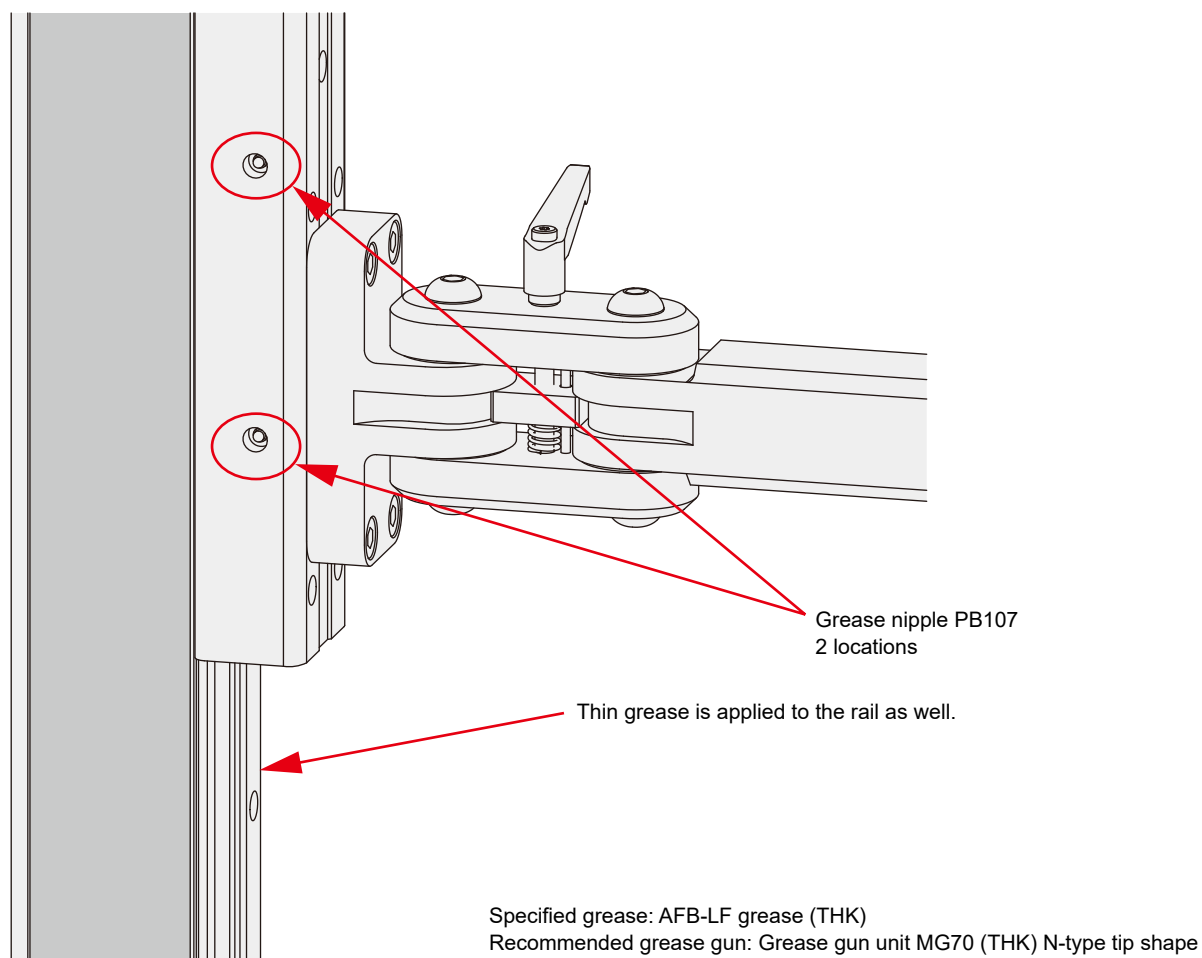
= 124.1N·m ...OK, since the max. moment load is not exceeding 147N·m



No.	Part name	Material	Surface-Treated
1	Floating fitting	Steel	Zinc plated chromate treatment
2	End plate	Steel	Zinc plated chromate treatment
3	Piston rod	Steel	Industrial chrome plating
4	Body	Aluminum alloy	Alumite treatment
5	Table	Aluminum alloy	Alumite treatment
6	Cover	ABS resin	
7	Base clevis	Steel	Zinc plated chromate treatment
8	Arm	Aluminum alloy	Trivalent chromate treatment
9	Link plate	Steel	Zinc plated chromate treatment
10	Lock plate	Resin	
11	Lock plate spring	Stainless steel	
12	Clevis	Aluminum alloy	Trivalent chromate treatment
13	Linear guide	Steel, resin	
14	Lock lever	Steel, etc	Painted
15	Precision regulator	Aluminum alloy, etc.	Painted
16	Module check valve	Resin, stainless steel, etc.	Painted

## Maintenance part

Lubrication to the built-in guide is not required for normal use.  
Inject a small amount of the designated grease when lubricating.



## Consumable parts

Part name	Part model No.	Part content
Packing kit	CAW-32K	Cylinder gasket, piston packing, Wear ring, cushion rubber (R), Dedicated grease for cylinder interior
Shock absorber	NCK-00-0.7-C	



# Safety Precautions

Be sure to read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.

It is important to select, use, handle and maintain the product appropriately to ensure that the CKD product is used safely.


Observe warnings and precautions to ensure device safety.


Check that device safety is ensured, and manufacture a safe device.




## WARNING

- 1** This product is designed and manufactured as a general industrial machine part.  
It must be handled by an operator having sufficient knowledge and experience.
  - 2** Use this product in accordance with specifications.  
This product must be used within its stated specifications. In addition, never modify or additionally machine this product. This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.  
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)
    - ①** Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
    - ②** Use for applications where life or assets could be significantly affected, and special safety measures are required.
  - 3** Observe organization standards and regulations, etc., related to the safety of device design and control, etc.  
ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components)  
JFPS2008 (Principles for pneumatic cylinder selection and use)  
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.
  - 4** Do not handle, pipe, or remove devices before confirming safety.
    - ①** Inspect and service the machine and devices after confirming safety of all systems related to this product.
    - ②** Note that there may be hot or charged sections even after operation is stopped.
    - ③** When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility. Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
    - ④** When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.
  - 5** Observe warnings and cautions in the following pages to prevent accidents.
- The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

 **DANGER:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, and when there is a high degree of emergency to a warning.

 **WARNING:** If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.

 **CAUTION:** When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation.  
Every item provides important information and must be observed.

## Warranty

- 1** **Warranty period**  
The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.
- 2** **Warranty coverage**  
If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge. However, following failures are excluded from this warranty:
  - 1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
  - 2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
  - 3) Failure not caused by the product.
  - 4) Failure caused by use not intended for the product.
  - 5) Failure caused by modifications/alterations or repairs not carried out by CKD.
  - 6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
  - 7) Failure caused by acts of nature and disasters beyond control of CKD.The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.  
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.
- 3** **Compatibility check**  
The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

## Design/Selection

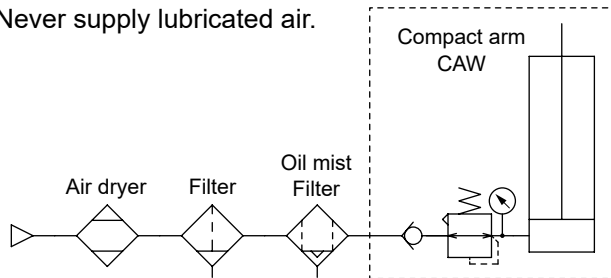
### WARNING

- This product is a pneumatic assistive device, intended for use as a mechanical device with a tool or tools attached to the end of the device. When using the machine, please be sure to conduct a risk assessment of the entire machine and equipment to ensure safety before use. In addition, the end user should conduct a risk assessment of the user side based on the residual risk information of the entire machine and determine a safe operation method before use.

### CAUTION

#### [Pneumatic source]

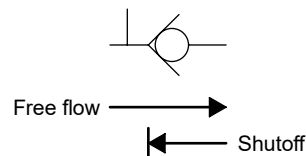
- Working fluid must be clean air from which solids and water/oil have been sufficiently removed using a dryer, filter and oil mist filter. Never supply lubricated air.



- Keep the pressure difference between the primary and secondary sides of the precision regulator to 0.1MPa or more. For the pressure required for load, refer to the graph of "Load capacity under pressure".

#### [Pneumatic piping]

- Check IN.OUT display indicating the air inlet and outlet of the precision regulator before connecting. A reverse connection could result in malfunction.
- When handling the precision regulator, do not move or swing it by the adjustment knob.
- If the pneumatic piping on the secondary side of the precision regulator is dislocated during use, the arm may fall, creating a hazard. Connect with reliable methods to prevent the pneumatic piping from dislocating.
- Check JIS symbols on the body before connecting the module check valve.



- Use sealing tape when piping. Do not use liquid or solid sealant. In addition, ensure that the sealing tape does not enter the piping.

#### [Product installation]

- When mounting the product, mount it on a vertical plane.

## Use/Maintenance

### WARNING

- If abnormal noises are heard, personal safety should be the first priority, and joints should be locked only when it is safe to do so. Failure to do so may result in fatal accidents or total damage to the product.
- Do not modify the product or device without the manufacturer's approval.
- Do not put hands or fingers into product gaps.
- When the operator's hand is removed from the tool, the horizontal position may not be maintained due to tilt during product installation or deflection of the arm due to the weight of the tool or other parts. When not in use, the position can be held by tightening the lock lever at each joint. It is recommended to install a "home position" where the tool is stored in the specified location when not in use.

- Do not use in excess of the maximum load capacity.
- Do not use in excess of the maximum moment load.
- Do not put weight on the arm or hang the product from the arm.

### CAUTION

- Before relocation or maintenance, remove the cylinder and arm sections.
- Do not use this product with the cover removed.

## Precautions for export

- Contact the nearest CKD Sales Office for information on the EAR assessment.



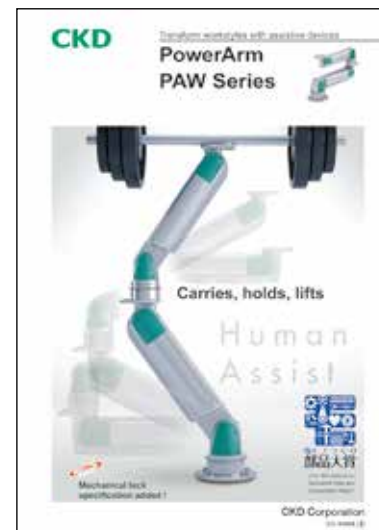
## Related products

### PowerArm PAW Series (Auxiliary mechanism)

Catalog No. CC-1418A

Assistive devices based on the concept of solidarity with workers

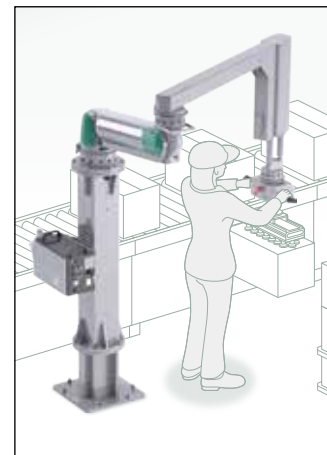
- Select from 3 types of arms based on the workpiece load
- Supports a wider range of movement
- Wide movable range according to usage
- Position holding is possible during emergency stops
- Anti-snap measures
- Fold away for compact storage
- Customers can easily incorporate arms



### [Palletizing specifications PAW-A\*]

Space-saving and space-saving stacking and unloading work

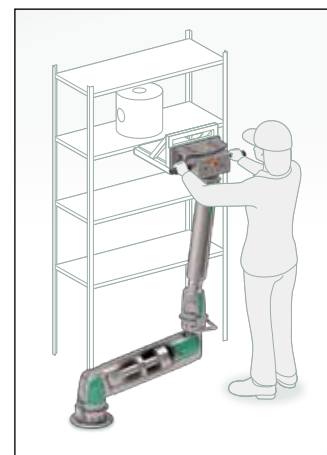
- Focused on stacking and unloading tasks
- Ensures a wide movable range and user safety
- Space saving storage
- Simple combinations are possible



### [Mechanical lock specifications PAW-\*B]

Making transport work safer and easier

- Eliminates floating up and sinking of arm
- Safety structure with built-in lock mechanism
- Vertical locking available for all strokes
- Manual lock can be released



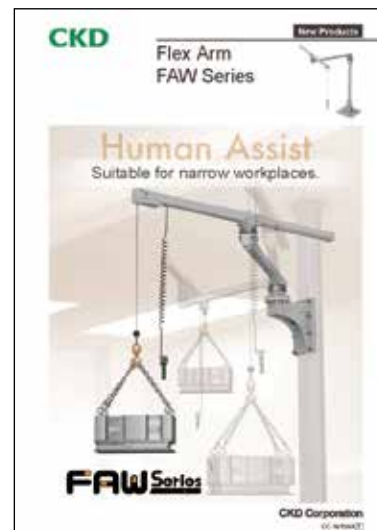
## Flex Arm FAW Series

Can be used widely in narrow sites

An assistive device that can be installed in low-ceiling areas to improve work

- Using compressed air for the power, carrying heavy objects up to 50kg can be done easily.
- A wide range of work areas are covered with a turning radius of 2.5m and a vertical stroke of 1.5m
- It can be selected from four mounting systems: fixed to floors, dollies, columns and ceilings. With a low overall height of 2.5m, it is installable even in low-ceiling locations

Catalog No. CC-1615AA



## Ultra low friction balancing cylinder BBS Series

- With position locking mechanism for safety concerns (BBS-OU)
- Special packing and treatment for low friction sliding
- Compatible with lateral load as well (BBS-OS/OU-B)

Catalog No. CC-1212A



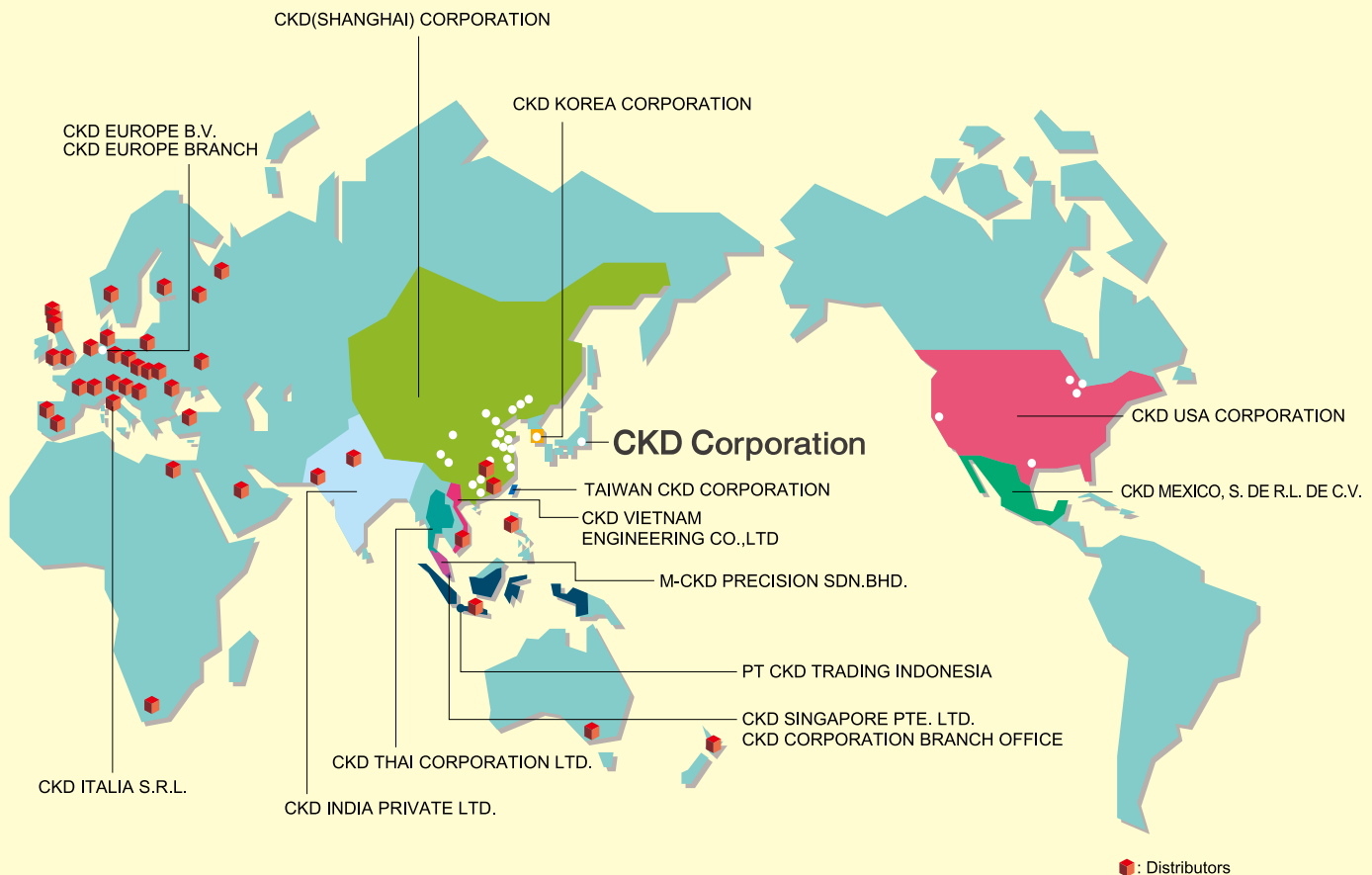
## Air supply unit ASU Series

**Made-to-order product**

- 2 types of flow rates (72 L/min, 25 L/min)
- Localized supply is enabled with easy installation.
- Filter, drain separator, dryer, etc., converted to one unit (300 W only)
- Emergency pressure source (conforms with BCP)

Catalog No. CC-1284A





Red cube icon: Distributors

## CKD Corporation

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

### ASIA

#### 喜開理(上海)機器有限公司

#### CKD(SHANGHAI) CORPORATION

- 営業部/上海浦東事務所(SALES HEADQUARTERS / SHANGHAI PUDONG OFFICE)  
Room 612, 6th Floor, Yuanzhongkeyan Building, No. 1905  
Hongmei Road, Xuhui District, Shanghai 200233, China  
PHONE +86-21-60906046 FAX +86-21-60906046
- 上海浦東事務所(SHANGHAI PUDONG OFFICE)
- 寧波事務所(NINGBO OFFICE)
- 杭州事務所(HANGZHOU OFFICE)
- 無錫事務所(WUXI OFFICE)
- 昆山事務所(KUNSHAN OFFICE)
- 蘇州事務所(SUZHOU OFFICE)
- 南京事務所(NANJING OFFICE)
- 合肥事務所(HEFEI OFFICE)
- 成都事務所(CHENGDU OFFICE)
- 武漢事務所(WUHAN OFFICE)
- 鄭州事務所(ZHENGZHOU OFFICE)
- 長沙事務所(CHANGSHA OFFICE)
- 重慶事務所(CHONGQING OFFICE)
- 西安事務所(XIAN OFFICE)
- 廣州事務所(GUANGZHOU OFFICE)
- 中山事務所(ZHONGSHAN OFFICE)
- 深圳西事務所(WEST SHENZHEN OFFICE)
- 深圳東事務所(EAST SHENZHEN OFFICE)
- 東莞事務所(DONGGUAN OFFICE)
- 廈門事務所(XIAMEN OFFICE)
- 福州事務所(FUZHOU OFFICE)
- 瀋陽事務所(SHENYANG OFFICE)
- 大連事務所(DALIAN OFFICE)
- 長春事務所(CHANGCHUN OFFICE)
- 北京事務所(BEIJING OFFICE)
- 天津事務所(TIANJIN OFFICE)
- 青島事務所(QINGDAO OFFICE)
- 濰坊事務所(WEIFANG OFFICE)
- 濟南事務所(JINAN OFFICE)
- 烟台事務所(YANTAI OFFICE)

#### CKD INDIA PRIVATE LTD.

- HEADQUARTERS  
Unit No. 607, 6th Floor, Welldone Tech Park, Sector 48,  
Sohna Road, Gurgaon-122018, Haryana, India  
PHONE +91-124-418-8212
- BANGALORE OFFICE
- PUNE OFFICE
- CHENNAI OFFICE
- MUMBAI OFFICE
- HYDERABAD OFFICE

□ 2-250 Uji, Komaki City, Aichi 485-8551, Japan

□ PHONE +81-568-74-1338 FAX +81-568-74-1165

#### PT CKD TRADING INDONESIA

- HEAD OFFICE  
Menara Bidakara 2, 18th Floor, Jl. Jend. Gatot Subroto Kav.  
71-73, Pancoran, Jakarta 12870, Indonesia  
PHONE +62-21-2938-6601 FAX +62-21-2906-9470
- MEDAN OFFICE
- BEKASI OFFICE
- KARAWANG OFFICE
- SEMARANG OFFICE
- SURABAYA OFFICE

#### CKD KOREA CORPORATION

- HEADQUARTERS  
(3rd Floor), 44, Sinsu-ro, Mapo-gu, Seoul 04088, Korea  
PHONE +82-2-783-5201~5203 FAX +82-2-783-5204
- 水原營業所(SUWON OFFICE)
- 天安營業所(CHEONAN OFFICE)
- 蔚山營業所(ULSAN OFFICE)

#### M-CKD PRECISION SDN.BHD.

- HEAD OFFICE  
Lot No.6, Jalan Modal 23/2, Seksyen 23, Kawasan MIEL,  
Fasa 8, 40300 Shah Alam, Selangor Darul Ehsan, Malaysia  
PHONE +60-3-5541-1468 FAX +60-3-5541-1533
- JOHOR BAHRU BRANCH OFFICE
- PENANG BRANCH OFFICE

#### CKD SINGAPORE PTE. LTD.

- No.33 Tannery Lane #04-01 Hoesteel Industrial  
Building, Singapore 347789, Singapore  
PHONE +65-67442623 FAX +65-67442486

#### CKD CORPORATION BRANCH OFFICE

- No.33 Tannery Lane #04-01 Hoesteel Industrial  
Building, Singapore 347789, Singapore  
PHONE +65-67447260 FAX +65-68421022

#### CKD THAI CORPORATION LTD.

- HEADQUARTERS  
19th Floor, Smooth Life Tower, 44 North Sathorn Road,  
Silom, Bangkok, Bangkok 10500, Thailand  
PHONE +66-2-267-6300 FAX +66-2-267-6304-5
- NAVANAKORN OFFICE
- EASTERN SEABOARD OFFICE
- LAMPHUN OFFICE
- KORAT OFFICE
- AMATANAKORN OFFICE
- PRACHINBURI OFFICE
- SARABURI OFFICE

#### 台灣喜開理股份有限公司

#### TAIWAN CKD CORPORATION

- HEADQUARTERS  
16F-3, No. 7, Sec. 3, New Taipei City Blvd., Xinzhuang Dist.,  
New Taipei City 242, Taiwan  
PHONE +886-2-8522-8198 FAX +886-2-8522-8128
- 新竹營業所(HSINCHU OFFICE)
- 台中營業所(TAICHUNG OFFICE)
- 台南營業所(TAINAN OFFICE)
- 高雄營業所(KAOHSIUNG OFFICE)

#### CKD VIETNAM ENGINEERING CO.,LTD.

- HEADQUARTERS  
18th Floor, CMC Tower, Duy Tan Street, Cau Giay  
District, Hanoi, Vietnam  
PHONE +84-24-3795-7631 FAX +84-24-3795-7637
- HO CHI MINH OFFICE

### EUROPE

#### CKD EUROPE B.V.

- HEADQUARTERS  
Beechavenue 125A, 1119 RB Schiphol-Rijk, the Netherlands  
PHONE +31-23-554-1490
- CKD EUROPE GERMANY OFFICE
- CKD EUROPE UK
- CKD EUROPE CZECH O.Z.

#### CKD CORPORATION EUROPE BRANCH

- Beechavenue 125A, 1119 RB Schiphol-Rijk, the Netherlands  
PHONE +31-23-554-1490

#### CKD ITALIA S.R.L.

- Via di Fabbiana 15 Calenzano (FI) CAP 50041, Italy  
PHONE +39 0558825359 FAX +39 0558827376

### NORTH AMERICA & LATIN AMERICA

#### CKD MEXICO, S. DE R.L. DE C.V.

- Cerrada la Noria No. 200 Int. A-01, Querétaro Park II,  
Parque Industrial Querétaro, Santa Rosa Jáuregui,  
Querétaro, C.P. 76220, México  
PHONE +52-442-161-0624

#### CKD USA CORPORATION

- HEADQUARTERS  
1605 Penny Lane, Schaumburg, IL 60173, USA  
PHONE +1-847-648-4400 FAX +1-847-565-4923
- LEXINGTON OFFICE
- SAN ANTONIO OFFICE
- SAN JOSE OFFICE/ TECHNICAL CENTER
- DETROIT OFFICE
- BOSTON OFFICE

The goods and/or their replicas, the technology and/or software found in this catalog are subject to complementary export regulations by Foreign Exchange and Foreign Trade Law of Japan. If the goods and/or their replicas, the technology and/or software found in this catalog are to be exported from Japan, Japanese laws require the exporter makes sure that they will never be used for the development and/or manufacture of weapons for mass destruction.