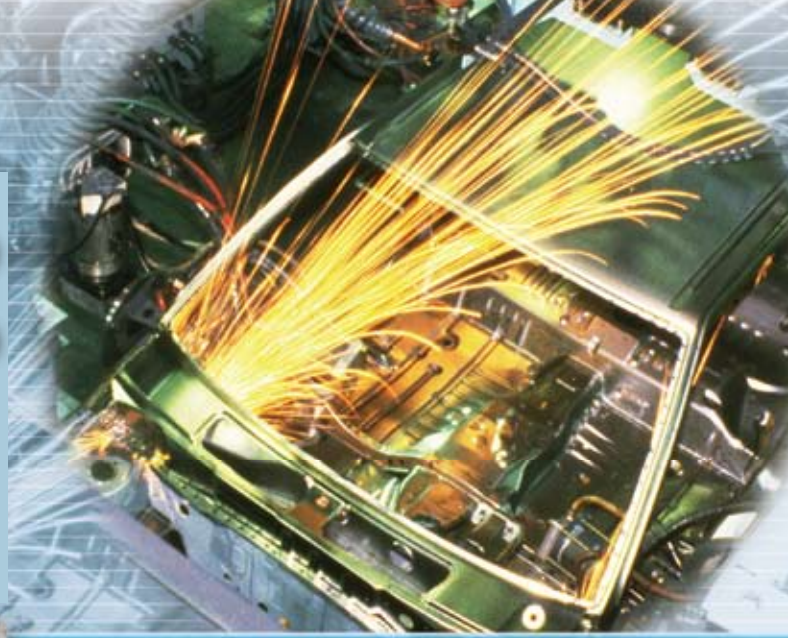


## Clamp cylinder CAC4 Series Position locking clamp cylinder UCAC2 Series

Clamp cylinder CAC4 series/Position locking clamp cylinder UCAC2 Series



# The Height of "Light"



## Clamp cylinder

# CAC4 Series

Bore size:  $\varnothing 40$ ,  $\varnothing 50$ ,  $\varnothing 63$ ,  $\varnothing 80$

- Optimal cover design for a slim and light product.
- Minimal needle projection for easier adjustment and safety.
- Spatter adherence prevention type CAC4-G4 series is also available.

## Position locking clamp cylinder

# UCAC2 Series

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

- Free position locking mechanism is equipped for CAC4 series.
- Cylinder can be locked in any position if it is not moving.
- Lock reverse direction is free.



**Our pursuit of weight reduction contributes to reducing the load on the welding jig.**

# Slim & Light Weight

**RoHS** RoHS directive complied  
All substances that can adversely affect the environment, including lead and hexavalent chrome, have been eliminated.

# Series variation

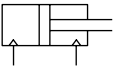
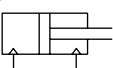


## Clamp cylinder Position locking clamp cylinder

## CAC4 Series UCAC2 Series


### ● CAC4 series variation

●: Standard ○: Option ■: Unavailable

Variation	Model no. JIS symbol	Bore size (mm)	Standard stroke length (mm)					Max. stroke length (mm)	Option			Accessory			Page		
									Bellows (100°C)	Open limit switch bracket with dog	Without limit switch mounting bracket dog	Toggle bracket	Rod clevis Cast iron	Rod clevis Steel		Rod eye Steel	Switch
Double acting single rod type	CAC4 	ø40, ø50, ø63	●	●	●	●	●	150	○	○	○	○	○	○	○	1	
		ø80	●	●	●	●	●	150	■	■	■	■	○	■	○		
Double acting spatter adherence prevention type	CAC4-G4 	ø40, ø50, ø63	●	●	●	●	●	150	■	○	○	○	○	○	○	11	
		ø80	●	●	●	●	●	150	■	■	■	■	○	■	○		

### ● UCAC2 series variation

●: Standard ○: Option

Variation	Model no. JIS symbol	Bore size (mm)	Standard stroke length (mm)					Min. stroke length (mm)	Max. stroke length (mm)	Options and accessories							Switch	Page	
										Bellows (100°C)	Open limit switch bracket with dog	Without limit switch mounting bracket dog	Toggle bracket	Rod clevis Cast iron	Rod clevis Steel	Rod eye Steel			
																			K
Double acting single rod type	UCAC2 	ø50, ø63	●	●	●	●	●	50	150	○	○	○	○	○	○	○	○	○	17



# Safety precautions

Always read this section before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety and mechanism, pneumatic or hydraulic 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 in handling.
- 2** Use this product in accordance of specifications.  
This product must be used within its stated specifications. It must not be modified or machined.  
This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.  
(However, if CKD is consulted prior to use and the customer consents to CKD product specifications, then the product may be used under conditions not intended. In that case, the customer must provide safety measures to avoid risks in the event of failures.)
  - ①** Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medical devices, devices coming into contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits (cutoff, open, etc.), press machines, press circuits, or safety devices.
  - ②** Use for applications where life or assets could be adversely affected, and special safety measures are required.
- 3** Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.  
ISO4414, JIS B8370 (pneumatic system rules)  
JFPS2008 (principles for pneumatic cylinder selection and use)  
High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.
- 4** Do not handle, pipe, or remove devices before confirming safety.
  - ①** Do not inspect or service equipment/machinery until safety is confirmed on the entire system 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 maximum attention to possible leakage of water and 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 on the pages below 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, or when there is a high degree of emergency to a warning.
-  **WARNING:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.
-  **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. In any case, important information that must be observed is explained.

## Limited warranty and disclaimer

- 1** Term of warranty  
"Warranty Period" is one (1) year from the first delivery to the customer.
- 2** Scope of warranty  
In case any defect attributable to CKD is found during the term of warranty  
This limited warranty will not apply to:
  - (1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications.
  - (2) Failure due to other causes.
  - (3) Use other than original design purposes.
  - (4) Third-party repair/modification
  - (5) Failure due to causes not foreseeable with technology at the time of delivery.
  - (6) Failure attributable to force majeure.In no event shall CKD be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses costs or damages.
- 3** Compatibility confirmation  
In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.



Pneumatic components

# Safety precautions

Always read this section before starting use.

Please refer to "Pneumatic Cylinders I" for further details on cylinder switches and cylinders in general.

Specific precautions: Clamp cylinder CAC4 series, position locking clamp cylinder UCAC2 series

## Design & Selection

### 1. Spatter adherence prevention type CAC4-G4

#### ⚠ WARNING

■ This cylinder series has improved durability over the general-purpose cylinder in atmospheres where spatter could occur, but durability may be shorter than the general cylinder when used in other environments.

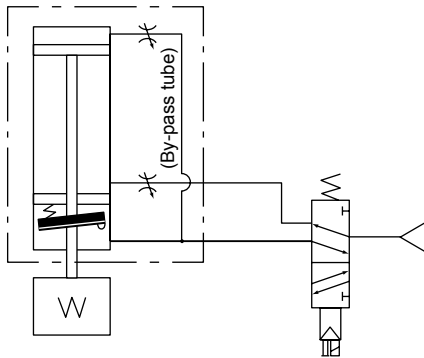
### 2. Double acting UCAC2

#### ⚠ CAUTION

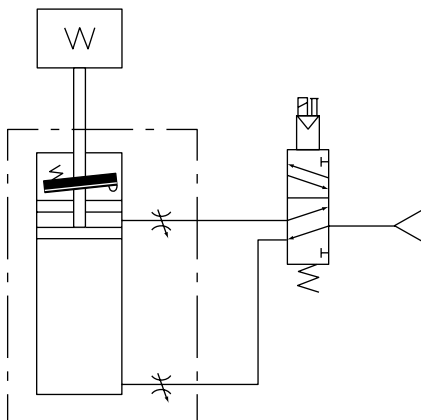
##### ■ Basic circuit diagram

The built-in metering valve eliminates the need to install a speed controller. However, both the meter-in and meter-out states are metered so even if one needle is adjusted, the advance and retract speeds will both change. To control the advance and retract speeds individually, a speed controller must be installed.

##### ● Forward lock F type

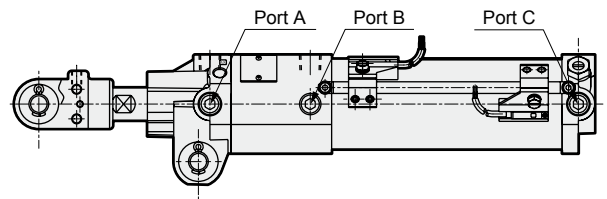


##### ● Backward lock B type



■ The UCAC2 piping port position may be changed in the same way as the CAC4 Series, but check the pressure port when making changes.

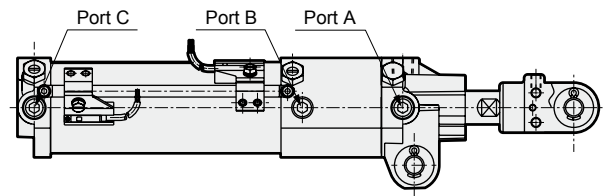
- When setting port position to the right side (Lock direction F1 is a right side as standard.)



Port	Port A	Port B	Port C
Lock direction			
Forward lock F type Note 1	PUSH side Port	PULL side Port	Plug
Backward lock B type	Plug	PULL side Port	PUSH side Port

Note 1: Locking direction F2 type has a by-pass tube so the port cannot be changed to the right side.

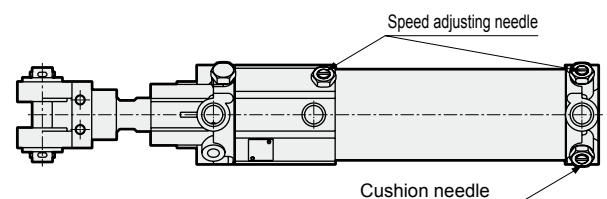
- When setting port position to the left side



Port	Port A	Port B	Port C
Lock direction			
Forward lock F type Note 1	PUSH side Port	PULL side Port	Plug
Backward lock B type	Plug	PULL side Port	PUSH side Port

Note 1: Locking direction F type has a by-pass tube so the port cannot be changed to the left side.

■ Do not mistake the speed adjustment needle for the cushion needle.



## Installation & Adjustment

### 1. Double acting UCAC2

#### ⚠ WARNING

- Do not disassemble the unit, since this may be hazardous.

#### ⚠ CAUTION

- Before connection, flush the pipes sufficiently to prevent foreign matter and cutting chips, etc., from entering the cylinder.

- Check that load is applied axially to the piston rod.
- Handle carefully to prevent scratching or denting the piston rod sliding section. Rough handling could damage packing seal and result in air leaks.

## During Use & Maintenance

### 1. Double acting UCAC2

#### ⚠ WARNING

- For safety reasons, prevent the load from dropping under its own weight during maintenance.

#### ⚠ CAUTION

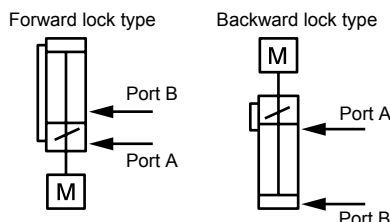
- The cushion absorbs kinetic energy that the piston acquires using air compressibility, and prevent the piston and cover from colliding at the stroke end. The cushion is not used to decelerate the piston near the stroke end. The table below shows the kinetic energy that can be absorbed by the cushion. If kinetic energy exceeds these values, or if bouncing caused by air compressibility is to be avoided, consider using another shock absorber.

$$\text{Kinetic energy (J)} = \frac{1}{2} \times \text{Mass (kg)} \times \{\text{Speed (m/s)}\}^2$$

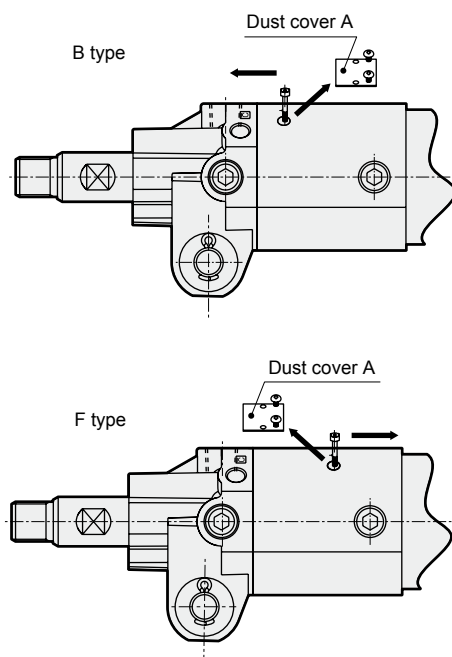
Cushioning characteristics table

Bore size (mm)	Effective cushion length (mm)	Allowable energy absorption (J)	
		Cushioned	No cushion
ø50	13.5	6.54	0.14
ø63	13.5	11.63	0.21

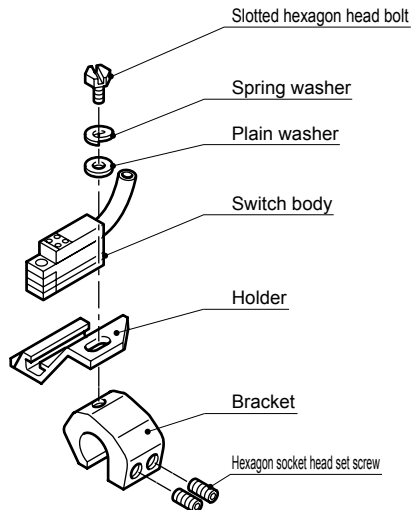
- Do not apply torque to the rod when locked as the holding force could drop and cause danger. Use a mechanism that does not rotate the rod.
- When releasing the lock, supply pressure to port B, and release brakes after the load is removed from the locking mechanism. If pressure is supplied to port A when both ports A and B are exhausted and the piston is locked, the lock may not be released or the piston rod may pop out even if the lock is released. This can be extremely hazardous.



- The lock may be released if the cylinder is held while pressure is applied on the lock mechanism. Do not use a 3-position closed center or 3-position P/A/B port connection solenoid valve.
- If a back pressure is applied while locked, the lock may be released. Use a discrete solenoid valve for brake release, or use an individual exhaust type manifold.
- Do not use with the by-pass tube disconnected as lock response could be delayed.
- Note that due to the structure, a 1mm deviation may occur in stopping the lock.
- How to unlock manually
  - Remove dust cover A.
  - Screw the M4 hexagon socket head cap screw (length 40 or more) into the lock metal screw.
  - The rod is freed when the hexagon socket head cap screw is tilted in the direction of the arrow.



### T type switch installation and movement method



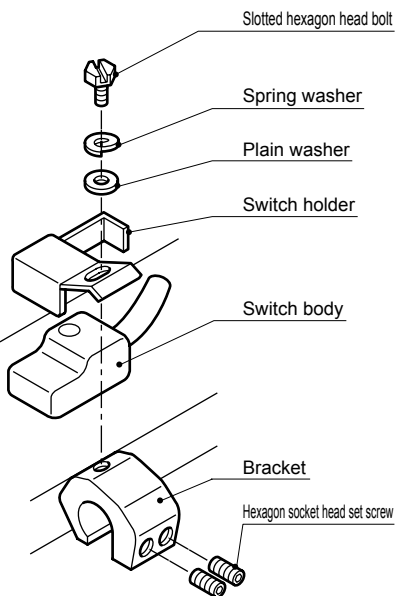
#### How to install the product

- (1) Pass the spring and plain washers through the slotted hexagon head bolt, and set the holder.
- (2) Fit the bracket onto the cylinder tie rod and tighten the slotted hexagon head bolt with a tightening torque of 0.5 to 0.7N·m.
- (3) Finally, tighten the hexagon socket head set screw with a tightening torque of 1.7 to 2.0N·m.

#### Movement

- ① Fine adjustment  
Loosen the slotted hexagon head bolt, and move only the switch. Tighten the bolt at the required position with a tightening torque of 0.5 to 0.7N·m.
- ② Rough adjustment  
Loosen all the slotted hexagon head bolt and set screw, and move the entire bracket to the required position. Tightening torque is 0.5 to 0.7N·m.  
Then, tighten the set screw with a tightening torque of 1.7 to 2.0N·m.

### Installing and moving the H switch

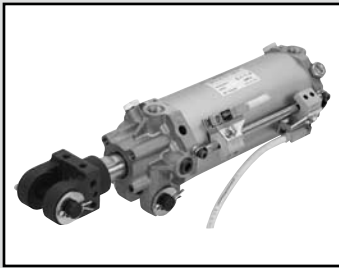


#### How to install the product

- (1) Pass the plain and spring washers through the slotted hexagon head bolt, and fit onto the switch holder oval hole and then into the bracket.
- (2) Fit the bracket onto the cylinder tie rod and tighten the slotted hexagon head bolt with a tightening torque of 1.5 to 1.9N·m.
- (3) Finally, tighten the setscrew. Tightening torque is 1.7 to 2.0N·m.

#### Movement

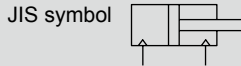
- ① Fine adjustment  
Tightening torque is 1.5 to 1.9N·m.
- ② Rough adjustment  
Finally, tighten the setscrew. Tightening torque is 1.7 to 2.0N·m.



Clamp cylinder Double acting single rod type

# CAC4 Series

● Bore size: ø40, ø50, ø63, ø80



## Specifications

Descriptions	CAC4			
Bore size mm	ø40	ø50	ø63	ø80
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.1			
Withstanding pressure MPa	1.6			
Ambient temperature °C	5 to 60			
Port size	Rc1/4			Rc3/8
Standard stroke length mm	50, 75, 100, 125, 150			
Working piston speed mm/s	50 to 500	50 to 400	50 to 300	
Cushion	Head end air cushioned			
Effective cushion length mm	13.5			
Lubrication	Not required (when lubricating, use turbine oil ISO VG32.)			
Mounting style	Clevis			

\* Use within the absorbed energy. Refer to the below table.

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke length with switch (mm)
ø40	50, 75 100, 125 150	150	50	50
ø50				
ø63				
ø80				

Note: Stroke length that is not standard is custom order.

## Cushioning characteristics table

Bore size (mm)	Effective cushion length (mm)	Allowable energy (J)	
		Cushioned	No cushion
ø40	13.5	5.14	0.137
ø50	13.5	6.41	0.137
ø63	13.5	11.37	0.205
ø80	15.4	25.4	0.360

### ● Cushion

The cushion absorbs kinetic energy that the piston acquires using air compressibility, and prevents the piston and cover from colliding at the stroke end. The cushion is not used to decelerate the piston near the stroke end.

The left table shows the kinetic energy that can be absorbed by a cushion. If kinetic energy exceeds these values or bouncing by air compression needs to be avoided, consider using another shock absorber.

$$\text{Kinetic energy (J)} = \frac{1}{2} \times \text{Mass (kg)} \times \{\text{Speed (m/s)}\}^2$$

## Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length = 0mm	Additional weight per stroke length = 10mm	Accessory weight				
			Axial foot	Rod clevis	Rod eye	Limit switch mounting bracket	Dog bracket
ø40	0.75	0.34	0.21	0.37	0.27	0.18	0.08
ø50	0.82	0.36					
ø63	1.03	0.39					
ø80	2.80	0.60	-	0.95	-	-	-

### (Example) Product weight of CAC4-A-40-150-Y

- Product weight when stroke length = 0mm ..... 0.75kg
- Additional weight when stroke length = 150mm ....  $0.34 \times \frac{150}{100} = 0.51\text{kg}$
- Accessory weight (rod clevis) ..... 0.37kg
- Product weight .....  $0.75 + 0.51 + 0.37 = 1.63\text{kg}$

## Switch specifications (T type switch)

- 1 color/2 color indicator/strong magnetic field proof

Descriptions	Proximity 2 wire	Proximity 2 wire				Proximity 3 wire				Reed 2 wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/T3V	T3PH/T3PV (custom order)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V			
Applications	Programmable controller Relay and small solenoid valve	Programmable controller				Programmable Controller and relay				Programmable controller and relay		Programmable controller, relay I/C circuit (w/o light), serial connection		Programmable controller, relay		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Power voltage	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	
Load current	5 to 100mA	5 to 20mA (Note 1)				100mA or less		50mA or less		5 to 50mA	7 to 20mA	50mA or less	20mA or less	5 to 50mA	7 to 20mA	7 to 10mA
Light	LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)		Without indicator light		LED (ON lighting)			
Leakage current	1mA or less at 100 VAC, 2mA or less at 200 VAC	1mA or less				10 µA or less				0mA						

- Strong magnetic field proof

Descriptions	Proximity 2 wire	
	T2YD	T2YDU
Applications	Programmable controller	
Light	Red/green LED (ON lighting)	
Load voltage	24 VDC ±10%	
Load current	5 to 20mA	
Internal voltage drop	6V or less	
Leakage current	1.0mA or less	
Output delay time Note 1 (ON and OFF delay)	30 to 60ms	
Lead wire length	1m (oil resistant vinyl cabtire cable ø6, 0.5mm <sup>2</sup> , 2 conductors) Note 2, Note 3	Flame resistant cabtire cord with cable connector 0.5 mm <sup>2</sup> , 2 conductors
Insulation resistance	100MΩ and over with 500 VDC megger	
Withstand voltage	1000 VAC impressed for one minute.	
Maximum shock resistance	980m/s <sup>2</sup>	
Ambient temperature	-10 to + 60°C	
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistance	

Note 1: The time required for magnetic sensor to release the switch output after detecting the piston magnet.

Note 2: For lead wire length, 3m and 5m are available as an option.

Note 3: For lead wire material, flame resistant type is available as an option.

## Switch specifications (H type switch)

- Strong magnetic field proof

Descriptions	Reed 2 wire		
	HO	HOY (2 color indicator type)	
Applications	Programmable controller, relay	Programmable controller	
Load voltage	12/24 VDC	110 VAC	24 VDC
Load current	5 to 50mA	7 to 20mA	5 to 20mA (Note 1)
Internal voltage drop	5V or less		6V or less
Leakage current	10 µA or less		10 µA or less
Light	Green LED (ON lighting)		Red/green LED (ON lighting)
Lead wire (standard)	1m (flame resistance cabtire cord ø6, 0.5mm <sup>2</sup> , 2 conductors)		
Insulation resistance	100MΩ and over with 500 VDC megger		
Withstand voltage	1000 VAC impressed for one minute.		
Maximum shock resistance	294m/s <sup>2</sup>		
Ambient temperature	-10 to + 60°C		
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistant		

Note 1: The maximum following load current: 20mA is applied at 25°C. The current will be lower than 20mA if ambient temperature around switch is higher than 25°C. (5 to 10mA. when 60°C)

# CAC4 Series

## How to order

Without switch

**CAC4** - **A** - **40** - **B** - **50** **R** - **Y1**

With switch

**CAC4** - **A** - **40** - **B** - **50** **R** - **T0H** - **R** **B** - **Y1**

With strong magnetic field proof (HO and HOY) switch

**CAC4-L2** - **A** - **40** - **B** - **50** **R** - **H0** - **R** **B** - **Y1**

**A** Clevis width  
Note 1

**B** Bore size

**C** Port thread type

**D** Cushion

**E** Stroke length

**F** Speed adjustment  
Needle

**G** Switch model no.  
Note 2

\* Indicates lead wire length.

**H** Switch quantity

**I** Switch  
Installation position

**J** Accessory  
Note 3  
Note 4  
Note 5

## ⚠ Note on model no. selection

Note 1: A clevis pin, a split pin, and a plain washer is attached to A, B, AL and BL.

Rod clevis width is as same as clevis width.

Note 2: T2YD, T2YDT, T2YDU, H0 and H0Y are strong magnetic field proof switches.

Note 3: Pin, split pin and a plain washer is included with the Y and Y1.

Note 4: For Q, piston rod projecting length is different from standard type. This cannot be installed to standard type.

Note 5: If "Q" is selected, only "A" can be selected for **A** clevis.

Note 6: Bellows' max. ambient temperature 100°C and instantaneous max. temperature 200°C

<Example of model number>

**CAC4-A-40B-50R-T0H-RB-Y1**

Model: Clamp cylinder

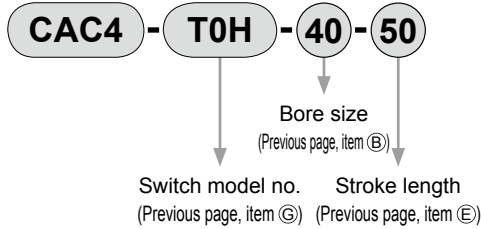
- A** Clevis width : 16.5mm.
- B** Bore size : ø40mm
- C** Port thread type : Rc thread
- D** Cushion : both sides
- E** Stroke length : 50mm
- F** Speed adjusting needle : rod end
- G** Switch model No. : reed switch T0H, Lead wire length 1m
- H** Switch quantity : One on rod end
- I** Switch installation position: B
- J** Accessory : rod clevis (SS400)

Symbol	Descriptions					
<b>A Clevis width (mm)</b>						
	Bore size (ø)	ø40	ø50	ø63	ø80	
<b>A</b>	16.5	●	●	●		
<b>B</b>	19.5	●	●	●		
<b>AL</b>	16.5 (axial foot type)	●	●	●		
<b>BL</b>	19.5 (axial foot type)	●	●	●		
<b>B Bore size (mm)</b>						
<b>40</b>	ø40					
<b>50</b>	ø50					
<b>63</b>	ø63					
<b>80</b>	ø80					
<b>C Port thread type</b>						
<b>Blank</b>	Rc thread					
<b>N</b>	NPT thread (custom order)					
<b>G</b>	G thread (custom order)					
<b>D Cushion</b>						
<b>Blank</b>	Head end cushion					
<b>B</b>	Both sides cushioned					
<b>N</b>	No cushion					
<b>E Stroke length (mm)</b>						
50, 75, 100, 125, 150						
<b>F Speed adjusting needle</b>						
<b>Blank</b>	On both sides					
<b>R</b>	On rod end					
<b>H</b>	On head end					
<b>N</b>	None					
<b>G Switch model no.</b>						
<b>Lead wire</b>	<b>Lead wire</b>	<b>Contact</b>	<b>Indicator</b>	<b>Lead wire</b>		
<b>Axial</b>	<b>Radial</b>					
<b>T0H*</b>	<b>T0V*</b>	Reed	1 color indicator type	2-wire		
<b>T5H*</b>	<b>T5V*</b>		Without light			
<b>T8H*</b>	<b>T8V*</b>	Proximity	1 color indicator type	2-wire		
<b>T1H*</b>	<b>T1V*</b>				3-wire	
<b>T2H*</b>	<b>T2V*</b>		1 color indicator type (custom order)	3-wire		
<b>T3H*</b>	<b>T3V*</b>		2 color indicator type		2-wire	
<b>T3PH*</b>	<b>T3PV*</b>				3-wire	
<b>T2YH*</b>	<b>T2YV*</b>				2-wire	
<b>T2WH*</b>	<b>T2WV*</b>				3-wire	
<b>T3YH*</b>	<b>T3YV*</b>		Strong magnetic field proof switch		2-wire	
<b>T3WH*</b>	<b>T3WV*</b>				3-wire	
<b>T2YD*</b>	-		Strong magnetic field proof switch with connector (custom order)		2-wire	
<b>T2YDT*</b>	-			2-wire		
<b>T2YDU</b>	-	Off-delay type		2-wire		
<b>T2JH*</b>	<b>T2JV*</b>	Reed	Strong magnetic field proof switch	2-wire		
<b>H0*</b>	-		Strong magnetic field 2 color indicator type			
<b>H0Y*</b>	-					
<b>*Lead wire length</b>						
<b>Blank</b>	1m (standard)					
<b>3</b>	3m (option)					
<b>5</b>	5m (option)					
<b>H Switch quantity</b>						
<b>R</b>	1 on rod end					
<b>H</b>	1 on head end					
<b>D</b>	2					
<b>I Switch installation position</b>						
<b>Blank</b>						
<b>B</b>						
<b>C</b>						
<b>J Accessory</b>						
	Bore size	ø40	ø50	ø63	ø80	
<b>Y</b>	Rod clevis cast iron	●	●	●		
<b>Y1</b>	Rod clevis steel	●	●	●	●	
<b>I</b>	Rod eye steel	●	●	●		
<b>K</b>	Bellows Note 6	●	●	●		
<b>D</b>	With dog	Limit switch mounting bracket	●	●	●	
<b>D1</b>	Without dog		●	●	●	
<b>Q</b>	Toggle bracket	●	●	●		

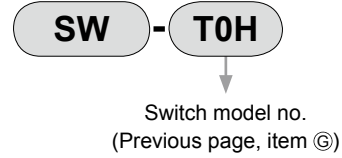
## How to order switch \* Pay attention to the direction when mounting the tie rod. Refer to page 7.

### ● T type switch

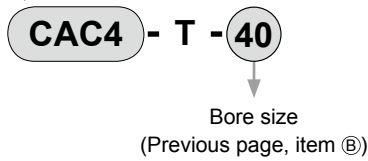
A) Switch body + mounting bracket  
(= B + C + D)



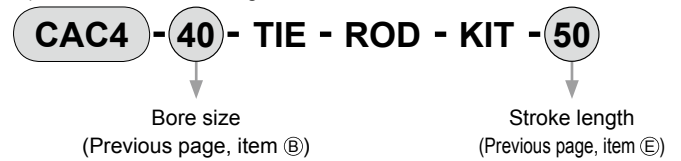
B) Only switch body



C) Bracket kit

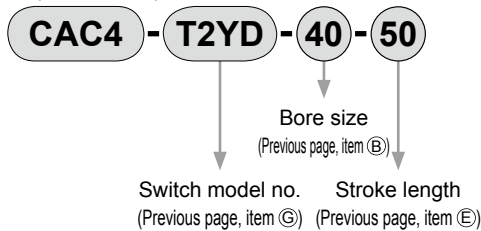


D) Tie rod kit for mounting

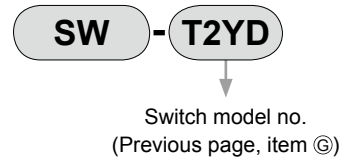


### ● T2YD type switch

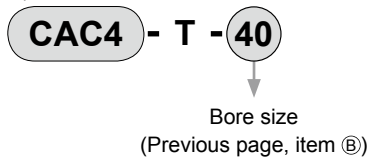
A) Switch body + mounting bracket  
(= B + C + D)



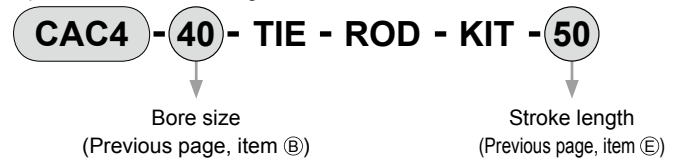
B) Only switch body



C) Bracket kit

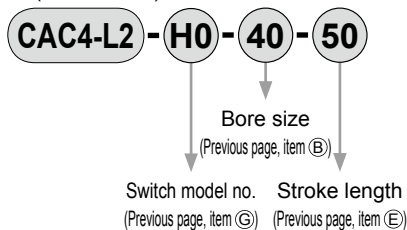


D) Tie rod kit for mounting

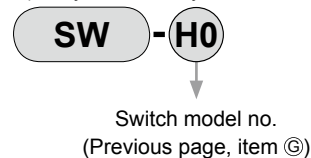


### ● H type switch

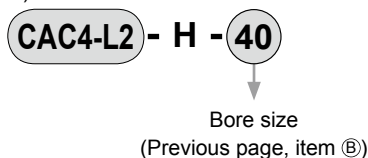
A) Switch body + mounting bracket  
(= B + C + D)



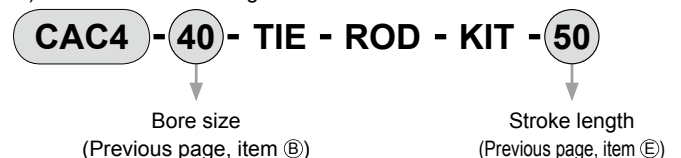
B) Only switch body



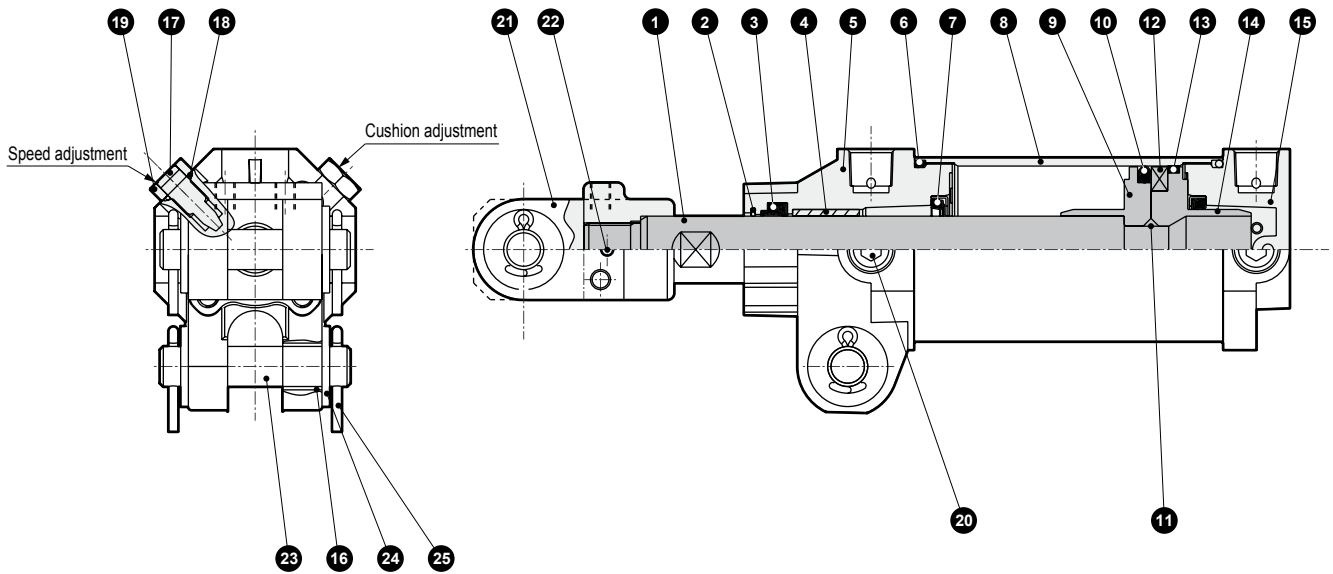
C) Bracket kit



D) Tie rod kit for mounting



## Internal structure drawing and parts list (ø40 to ø63)



Note) The cushion packing on 7 will be on the rod side when both sides cushioned is selected.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	14	Piston (H)	Aluminum alloy die-casting	ø40: aluminum alloy
2	Metal scraper	Copper alloy		15	Head cover	Aluminum alloy die-casting	Chromate
3	Rod packing seal	Nitrile rubber		16	Bush for clevis	Steel and copper	
4	Bush	Copper alloy		17	Needle	Copper alloy	
5	Rod cover	Aluminum alloy die-casting	Chromate	18	Needle gasket	Nitrile rubber	
6	Cylinder gasket	Nitrile rubber		19	Hexagon nut	Steel	Chromate
7	Cushion packing seal	Urethane rubber and copper	Chromate	20	Hexagon socket head plug	Steel	Blackening
8	Cylinder tube	Aluminum alloy	Hard alumite	21	Rod clevis	Cast iron	Phosphoric acid manganese
9	Piston (R)	Aluminum alloy die-casting	ø40: aluminum alloy	22	Spring pin	Steel	Blackening
10	Piston packing seal	Nitrile rubber		23	Clevis pin	Steel	Blackening
11	Piston gasket	Nitrile rubber		24	Plain washer	Steel	Chromate
12	Magnet	Plastic		25	Split pin	Steel	Chromate
13	Wear ring	Polyacetal resin					

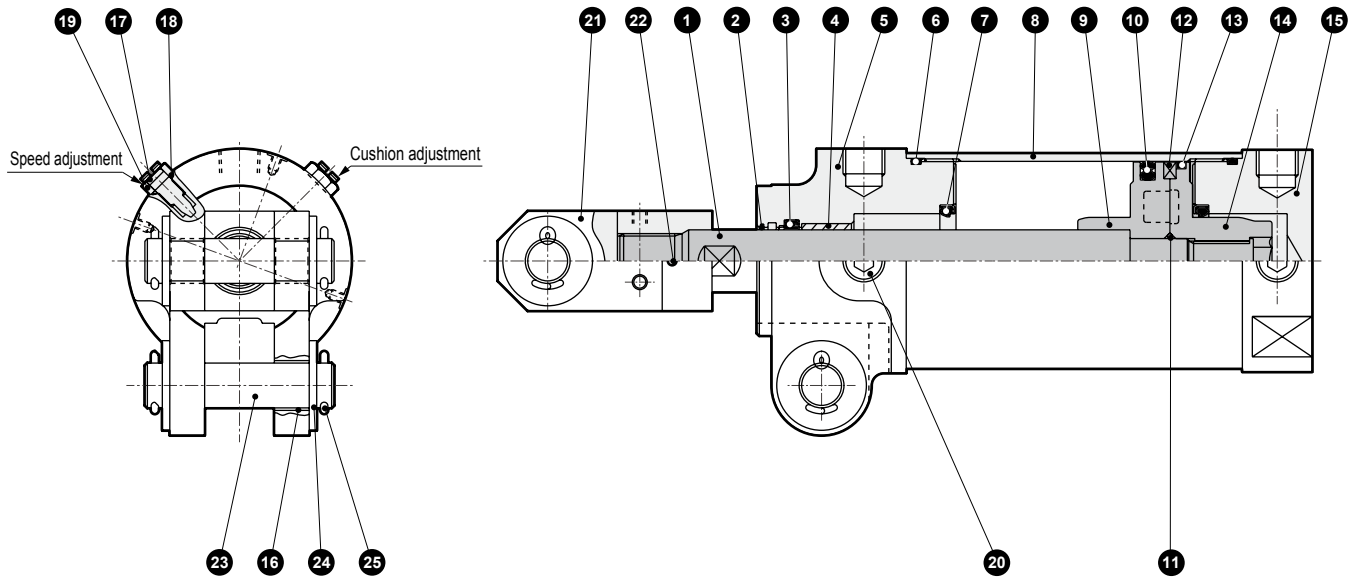
### Repair parts list

Bore size (mm)	Kit No.	Repair parts number
ø40	CAC4-40K	
ø50	CAC4-50K	
ø63	CAC4-63K	

### If both sides are cushioned

Bore size (mm)	Kit No.	Repair parts number
ø40	CAC4-40BK	
ø50	CAC4-50BK	
ø63	CAC4-63BK	

### Internal structure drawing and parts list (ø80)



Note) The cushion packing on 7 will be on the rod side when both sides cushioned is selected.

### Parts list

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	14	Piston (H)	Aluminum alloy casting	
2	Metal scraper	Copper alloy		15	Head cover	Aluminum alloy	Chromate
3	Rod packing seal	Nitrile rubber		16	Bush for clevis	Steel and copper	
4	Bush			17	Needle	Steel	Chromate
5	Rod cover	Aluminum alloy	Chromate	18	Needle gasket	Nitrile rubber	
6	Cylinder gasket	Nitrile rubber		19	Hexagon nut	Steel	Chromate
7	Cushion packing seal	Urethane rubber and steel	Chromate	20	Hexagon socket head plug	Steel	Blackening
8	Cylinder tube	Aluminum alloy	Hard alumite	21	Rod clevis	Steel	Blackening
9	Piston (R)	Aluminum alloy die-casting		22	Spring pin	Steel	Blackening
10	Piston packing seal	Nitrile rubber		23	Clevis pin	Steel	Blackening
11	Piston gasket	Nitrile rubber		24	Plain washer	Steel	Chromate
12	Magnet	Plastic		25	Split pin	Steel	Chromate
13	Wear ring	Polyacetal resin					

### Repair parts list

Part name	Repair parts number
Kit No. CAC4-80K	2 3 6 7 10 13 18

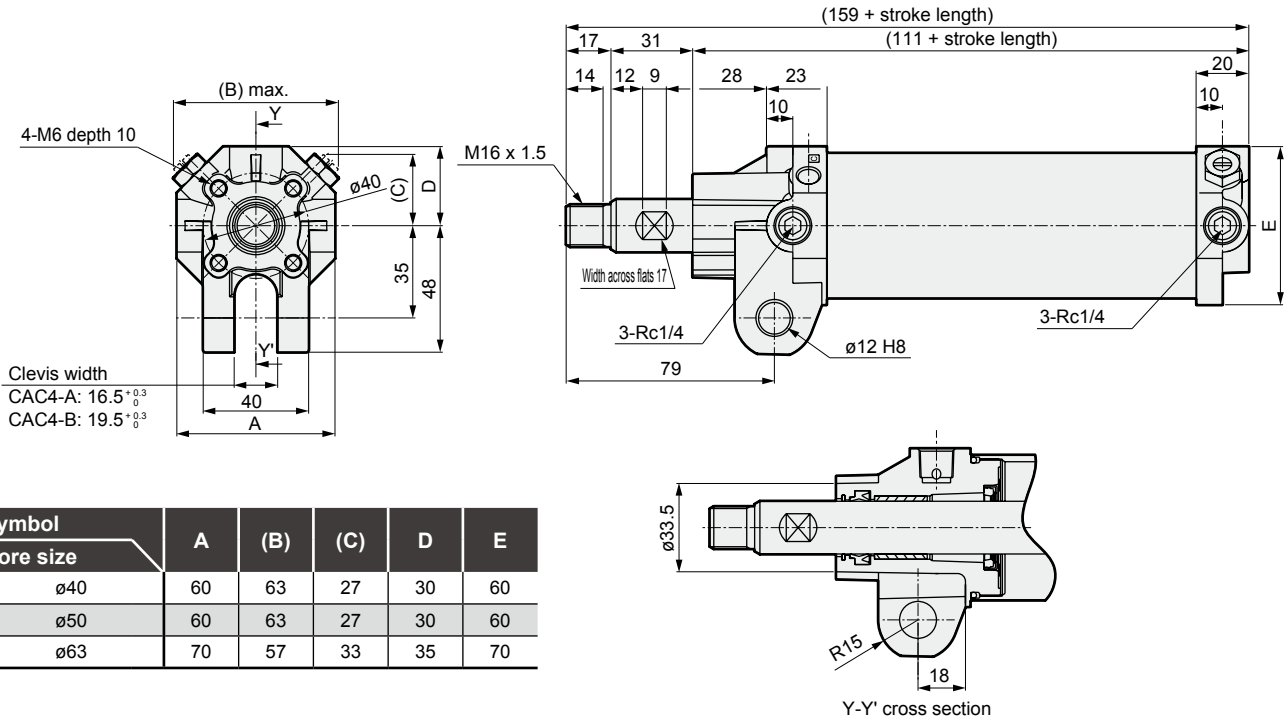
### If both sides are cushioned

Part name	Repair parts number
Kit No. CAC4-80BK	2 3 6 7 10 13 18

# CAC4 Series

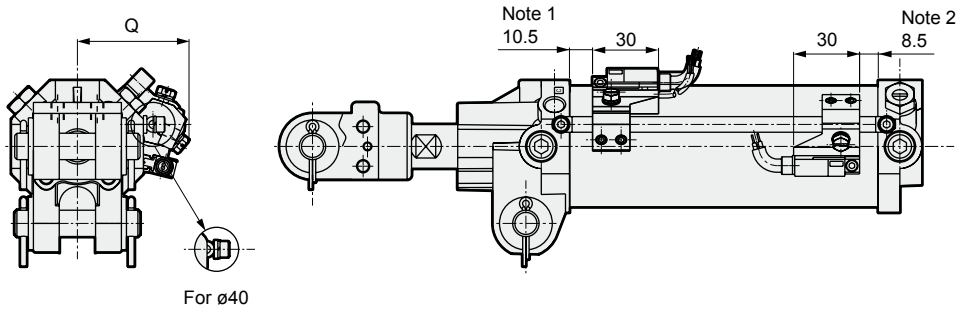
## Dimensions (ø40, ø50, ø63)

- No bracket



## T\*H/V and T2YD incorporated dimensions

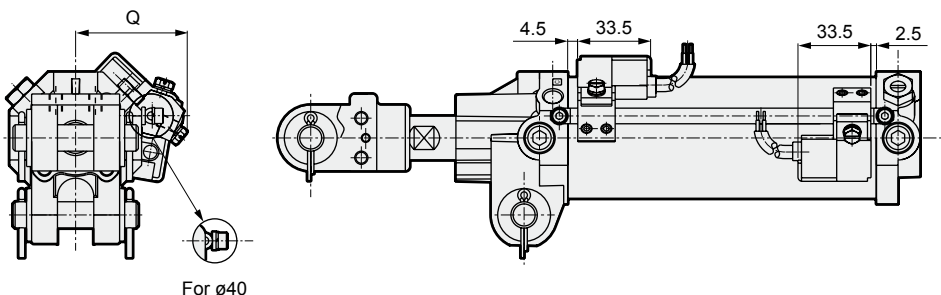
- CAC4



Note 1: 5.5 for T8H/V switch, 13.5 for T2/3W switch  
 Note 2: 3.5 for T8H/V switch, 11.5 for T2/3W switch  
 \* Check principles for a tie rod.

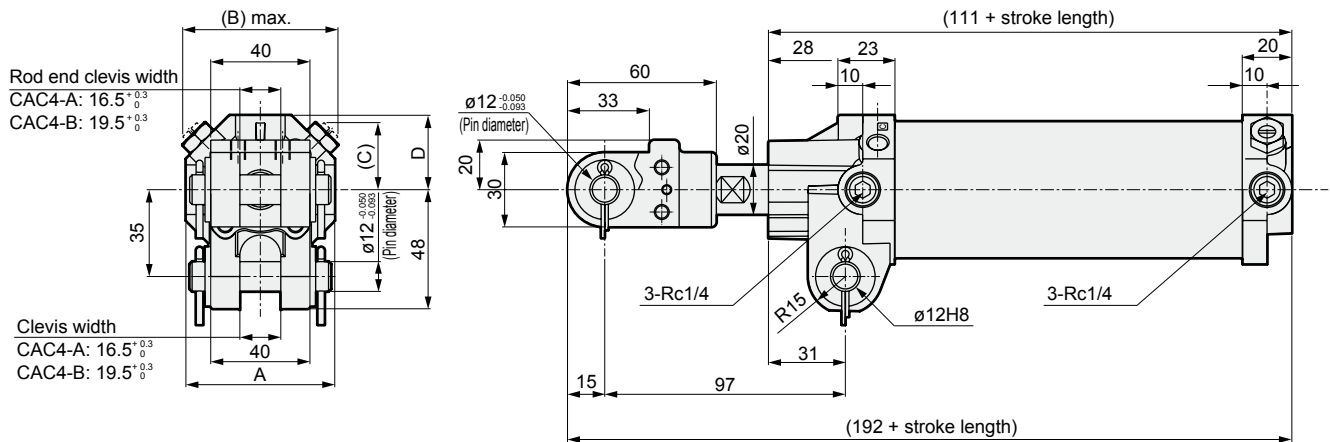
## H0Y incorporated dimensions

- CAC4-L2



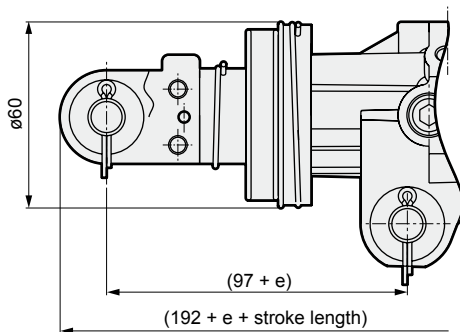
### Dimensions (ø40, ø50, ø63)

● With rod clevis (Y)



Symbol	A	(B)	(C)	D	E
ø40	60	63	27	30	60
ø50	60	63	27	30	60
ø63	70	57	33	35	70

● With bellows (K)

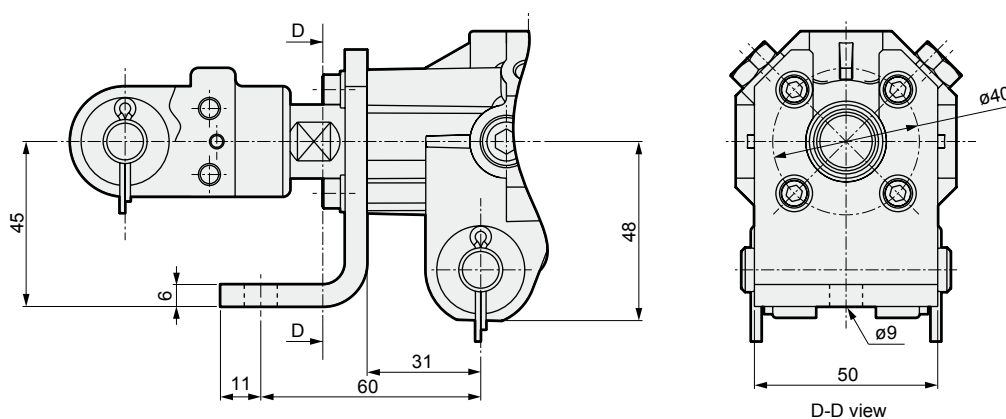


- Two-dot chain line on the rod eye/clevis indicates the material (steel)
- Clevis/rod eye pins, split pin or plain washer is included.

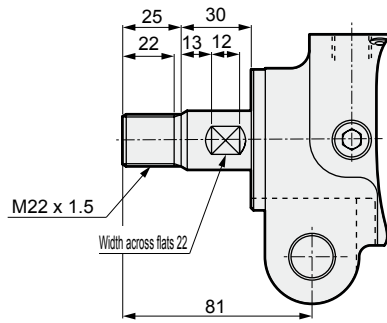
● Dimension with bellows

Stroke length	2 mountain rod eye/clevis with bellows				
Symbol	50	51 to 75	76 to 100	101 to 125	126 to 150
e	0	10	18	31	31

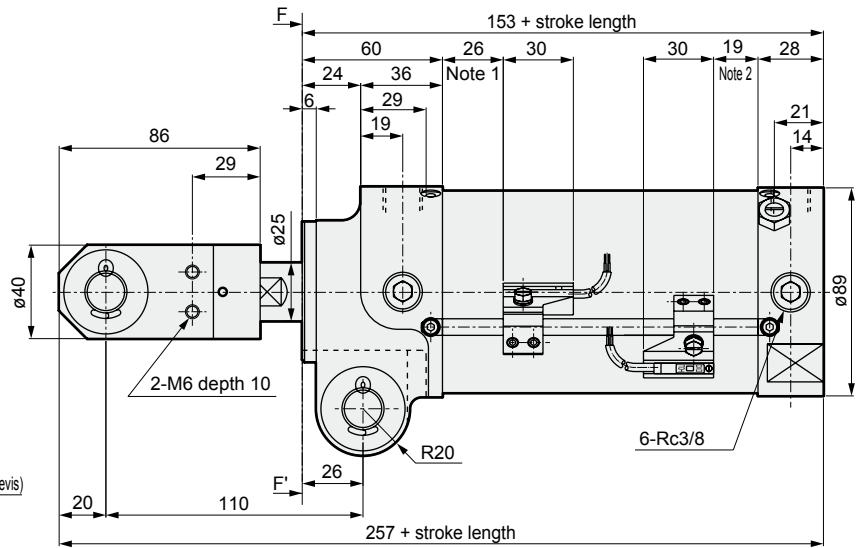
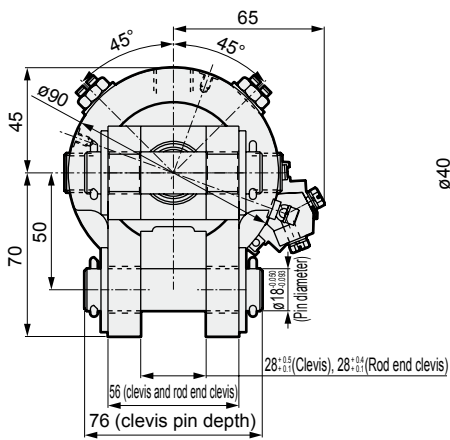
● Axial foot type  
ø40 to ø63



## Dimensions (ø80)

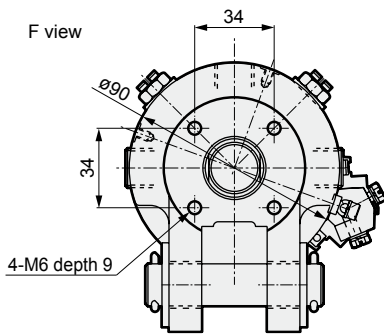


● With rod clevis (Y), T\*H/V



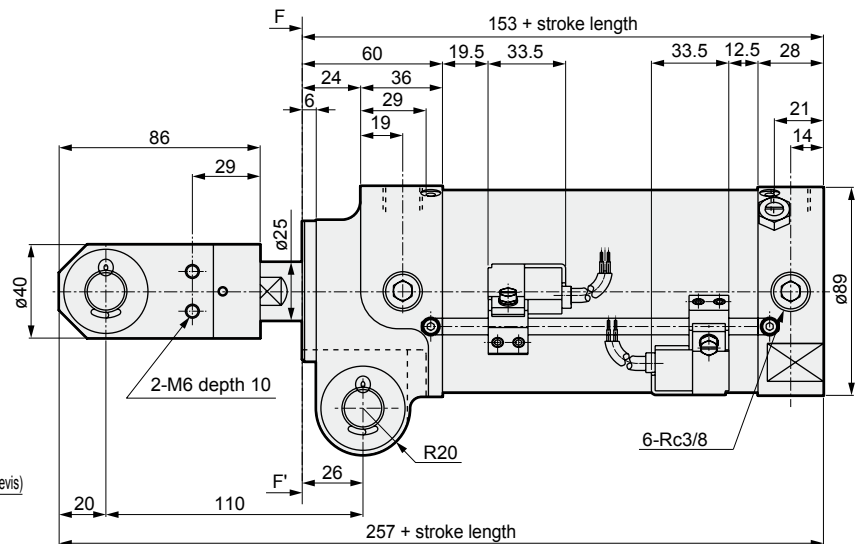
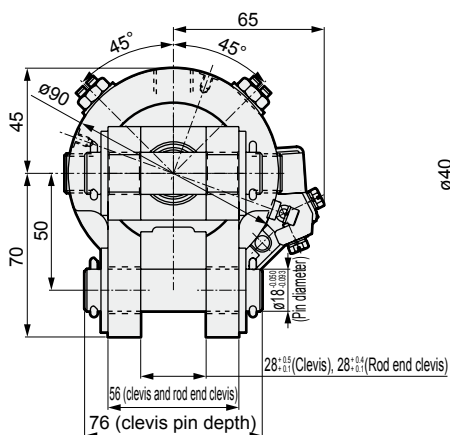
Note 1: 29 for switch T8H/V, 21 for switch T2/3W  
Note 2: 22 for switch T8H/V, 14 for switch T2/3W

F view



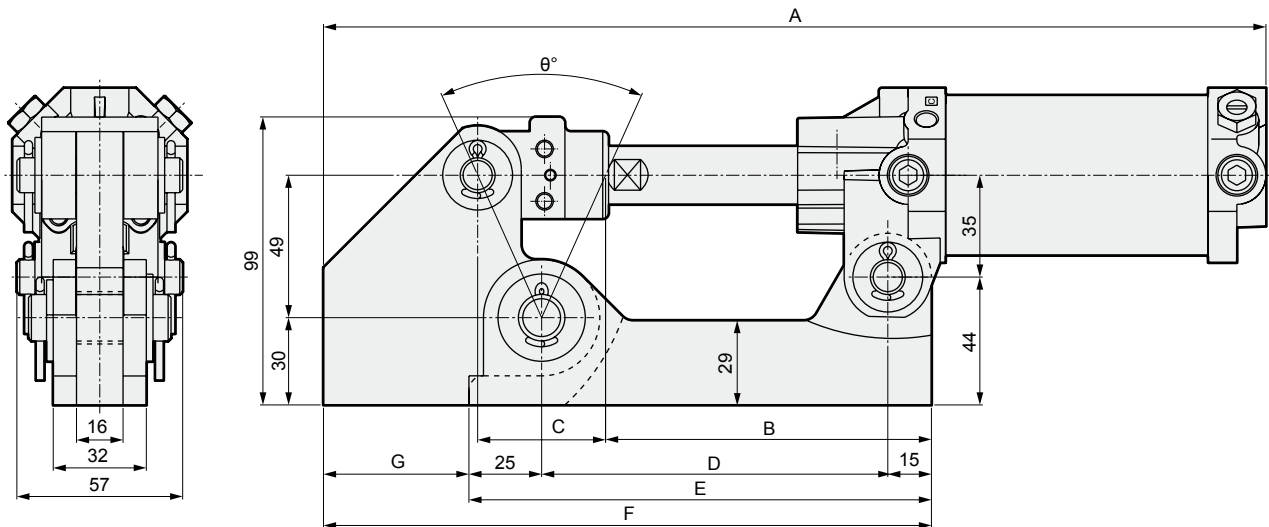
F-F' view

● Incorporated HOY (CAC4-L2)



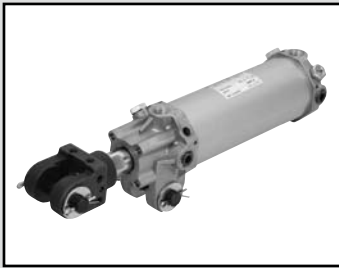
### Dimensions: toggle bracket (ø40 to ø63)

- Toggle bracket



- Since rod end projecting dimensions is different from standard products, this cannot be installed on standard products.
- This drawing is for when the rod is projected. B dimension indicates the knuckle pin center position at rod retracted.
- The dimension is same with bellows.
- This product is installed by welding.
- ø80 is not available.

Symbol Model no.	Stroke length	A	B	C	D	E	F	G	θ°
CAC4-A-50-Q	50	324	97	44	119	159	209	50	48
CAC4-A-75-Q	75	372	107	70	142	182	232	50	71
CAC4-A-100-Q	100	415	115	90	160	200	250	50	85
CAC4-A-125-Q	125	468	128	120	188	228	278	50	101
CAC4-A-150-Q	150	513	128	140	198	238	298	60	110

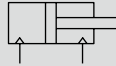


Clamp cylinder Spatter adherence prevention type

# CAC4-G4 Series

● Bore size: ø40, ø50, ø63, ø80

JIS symbol



## Specifications

Descriptions	CAC4-G4/CAC4-G4L2			
Bore size mm	ø40	ø50	ø63	ø80
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.1			
Withstanding pressure MPa	1.6			
Ambient temperature °C	5 to 60			
Port size	Rc1/4			Rc3/8
Standard stroke length mm	50, 75, 100, 125, 150			
Working piston speed mm/s	50 to 500	50 to 400	50 to 300	
Cushion	Head end air cushioned			
Effective cushion length mm	13.5			15.4
Lubrication	Not required (when lubricating, use turbine oil ISO VG32.)			
Mounting style	Clevis			

\* Use within the absorbed energy. Refer to the below table.

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)	Min. stroke length with switch (mm)
ø40	50, 75 100, 125 150	150	50	50
ø50				
ø63				
ø80				

Note: Stroke length that is not standard is custom order.

## Cushioning characteristics table

Bore size (mm)	Effective cushion length (mm)	Allowable energy (J)	
		Cushioned	No cushion
ø40	13.5	5.14	0.137
ø50	13.5	6.41	0.137
ø63	13.5	11.37	0.205
ø80	15.4	25.4	0.360

● Cushion

The cushion absorbs kinetic energy that the piston acquires using air compressibility, and prevents the piston and cover from colliding at the stroke end. The cushion is not used to decelerate the piston near the stroke end.

The table to the left shows the kinetic energy that can be absorbed by the cushion. If kinetic energy exceeds these values or bouncing by air compression is to be avoided, consider using another shock absorber.

$$\text{Kinetic energy (J)} = \frac{1}{2} \times \text{Mass (kg)} \times \{\text{Speed (m/s)}\}^2$$

## Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length = 0mm	Additional weight per stroke length = 10mm	Accessory weight				
			Axial foot	Rod clevis	Rod eye	Limit switch mounting bracket	Dog bracket
ø40	0.75	0.34	0.21	0.37	0.27	0.18	0.08
ø50	0.82	0.36					
ø63	1.03	0.39					
ø80	2.82	0.60	-	0.95	-	-	-

(Example) Product weight of CAC4-G4-A-40-150-Y

- Product weight when stroke length = 0mm ..... 0.75kg
- Additional weight when stroke length = 150mm ...  $0.34 \times \frac{150}{100} = 0.51\text{kg}$
- Accessory weight (rod clevis) ..... 0.37kg
- Product weight .....  $0.75 + 0.51 + 0.37 = 1.63\text{kg}$

### Switch specifications

● Strong magnetic field proof proximity

Descriptions	Proximity 2 wire	
	T2YD	T2YDU
Applications	Programmable controller	
Light	Red/green LED (ON lighting)	
Load voltage	24 VDC ±10%	
Load current	5 to 20mA	
Internal voltage drop	6V or less	
Leakage current	1.0mA or less	
Output delay time Note 1 (ON and OFF delay)	30 to 60ms	
Lead wire length	1m (oil resistant vinyl cabtire cable ø6, 0.5mm <sup>2</sup> , 2 conductors) Note 2, Note 3	Flame resistant cabtire cord with cable connector 0.5 mm <sup>2</sup> , 2 conductors
Insulation resistance	100MΩ and over with 500 VDC megger	
Withstand voltage	1000 VAC impressed for one minute.	
Maximum shock resistance	980m/s <sup>2</sup>	
Ambient temperature	-10 to + 60°C	
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistant	

Note 1: The time required for magnetic sensor to release the switch output after detecting the piston magnet.

Note 2: For lead wire length, 3m and 5m are available as an option.

Note 3: For lead wire material, flame resistant type is available as an option.

● Strong magnetic field proof reed

Descriptions	Reed 2 wire		
	HO		HOY (2 color indicator type)
Applications	Programmable controller, relay		Programmable controller
Load voltage	12/24 VDC	110 VAC	24 VDC
Load current	5 to 50mA	7 to 20mA	5 to 20mA
Internal voltage drop	5V or less		6V or less
Leakage current	10 μA or less		10 μA or less
Light	Green LED (ON lighting)		Red/green LED (ON lighting)
Lead wire (standard)	1m (flame resistance cabtire cord ø6, 0.5mm <sup>2</sup> , 2 conductors)		
Insulation resistance	100MΩ and over with 500 VDC megger		
Withstand voltage	1000 VAC impressed for one minute.		
Maximum shock resistance	294m/s <sup>2</sup>		
Ambient temperature	-10 to + 60°C		
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistant		

# CAC4-G4 Series

## How to order

Without switch

**CAC4-G4** - **A** - **40** **B** - **50** **R** ————— **Y1**

With switch

**CAC4-G4** - **A** - **40** **B** - **50** **R** - **T2YD** - **R** **B** - **Y1**

Strong magnetic field proof (HO and HOY switch) with switch

**CAC4-G4L2** - **A** - **40** **B** - **50** **R** - **H0** - **R** **B** - **Y1**

**A** Clevis width  
Note 1  
**B** Bore size

**C** Cushion

**D** Stroke length

**E** Speed adjustment  
Needle

**F** Switch model no.  
\* indicates lead wire length.

**G** Switch quantity

**H** Switch  
Installation position

**I** Accessory  
Note 2  
Note 3

## ⚠ Note on model no. selection

Note 1: Clevis pin, split pin or plain washer is included with A, B, AL, BL.

Rod clevis width is as same as clevis width.

Note 2: Pin, split pin and a plain washer is included with the Y and Y1.

Note 3: For Q, piston rod projecting length is different from standard type. This cannot be installed to standard type.

## <Example of model number>

### CAC4-G4-A-40B-50R-T2YD-RB-Y1

Model: Clamp cylinder spatter adherence prevention type

- A** Clevis width : 16.5mm
- B** Bore size : ø40mm
- C** Cushion : both sides cushioned
- D** Stroke length : 50mm
- E** Speed adjusting needle : On rod end
- F** Switch model no. : Proximity switch T2YD and lead wire length 1m

- G** Switch quantity : One on rod end
- H** Switch installation position: B
- I** Accessory : Rod clevis (SS400)

Symbol	Descriptions				
<b>A Clevis width (mm)</b>					
	Bore size (ø)	ø40	ø50	ø63	ø80
<b>A</b>	16.5	●	●	●	
<b>B</b>	19.5	●	●	●	
<b>AL</b>	16.5 (axial foot type)	●	●	●	
<b>BL</b>	19.5 (axial foot type)	●	●	●	

<b>B Bore size (mm)</b>	
<b>40</b>	ø40
<b>50</b>	ø50
<b>63</b>	ø63
<b>80</b>	ø80

<b>C Cushion</b>	
<b>Blank</b>	Head end cushioned
<b>B</b>	Both sides cushioned
<b>N</b>	No cushion

<b>D Stroke length (mm)</b>	
50, 75, 100, 125, 150	

<b>E Speed adjusting needle</b>	
<b>Blank</b>	On both sides
<b>R</b>	On rod end
<b>H</b>	On head end
<b>N</b>	None

<b>F Switch model no.</b>				
Lead wire Axial	Lead wire Radial	Contact	Indicator	Lead wire
<b>T2YD*</b>	-	Proximity	Strong magnetic field proof switch	2-wire
<b>T2YDT*</b>	-			
<b>T2YDU</b>	-		Strong magnetic field proof switch with connector (Custom order)	
<b>H0*</b>	-	Reed	Strong magnetic field proof switch	
<b>HOY*</b>	-		Strong magnetic field 2 color indicator type	

<b>*Lead wire length</b>	
<b>Blank</b>	1m (standard)
<b>3</b>	3m (option)
<b>5</b>	5m (option)

<b>G Switch quantity</b>	
<b>R</b>	1 on rod end
<b>H</b>	1 on head end
<b>D</b>	2

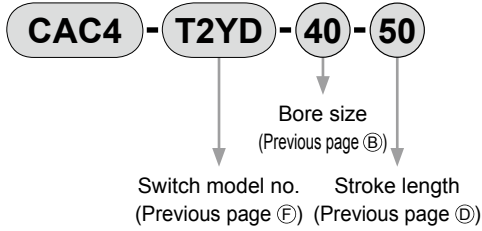
<b>H Switch installation position</b>	
<b>Blank</b>	
<b>B</b>	
<b>C</b>	

<b>I Accessory</b>					
	Bore size	ø40	ø50	ø63	ø80
<b>Y</b>	Rod clevis cast iron	●	●	●	
<b>Y1</b>	Rod clevis steel	●	●	●	●
<b>I</b>	Rod eye steel	●	●	●	
<b>D</b>	With dog	Limit switch mounting bracket	●	●	●
	Without dog		●	●	●
<b>Q</b>	Toggle bracket	●	●	●	

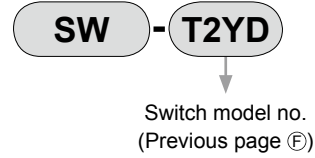
How to order switch

● T2YD\*type switch

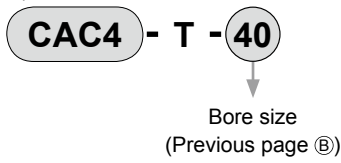
A) Switch body + mounting bracket  
(= B + C + D)



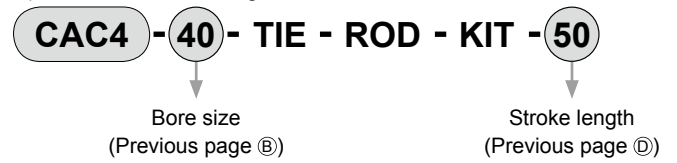
B) Only switch body



C) Bracket kit

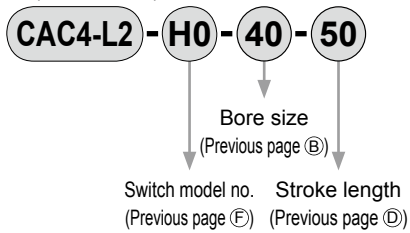


D) Tie rod kit for mounting

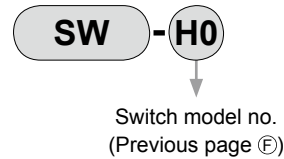


● H type switch

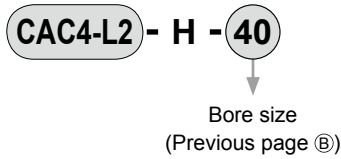
A) Switch body + mounting bracket  
(= B + C + D)



B) Only switch body



C) Bracket kit

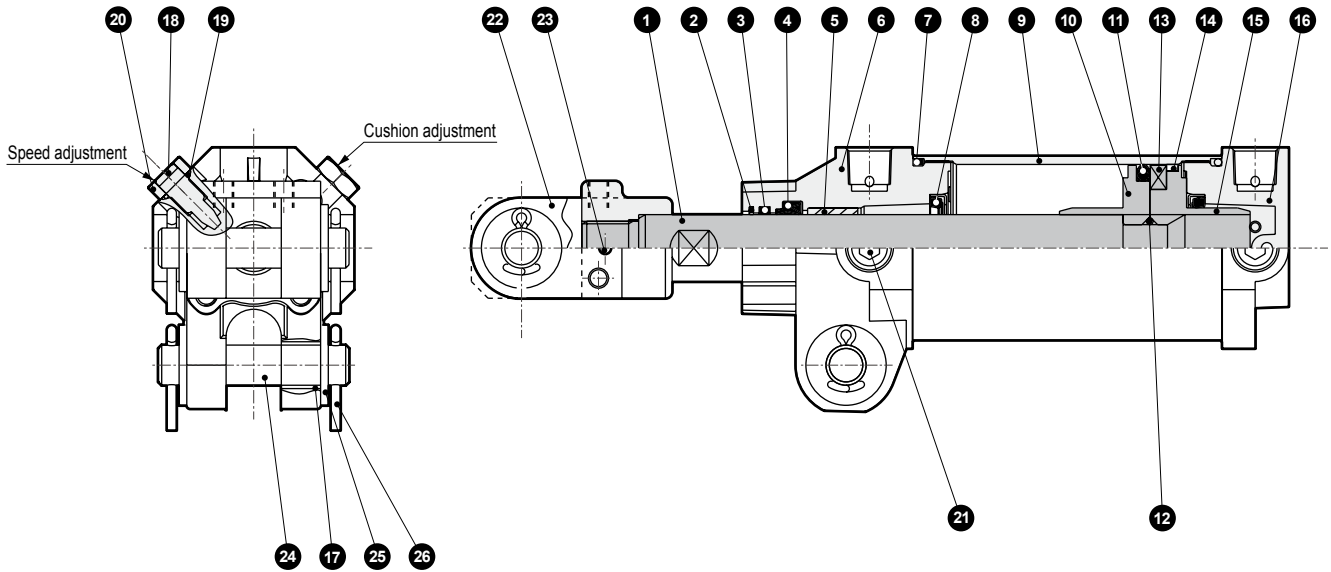


D) The rod kit for mounting



# CAC4-G4 Series

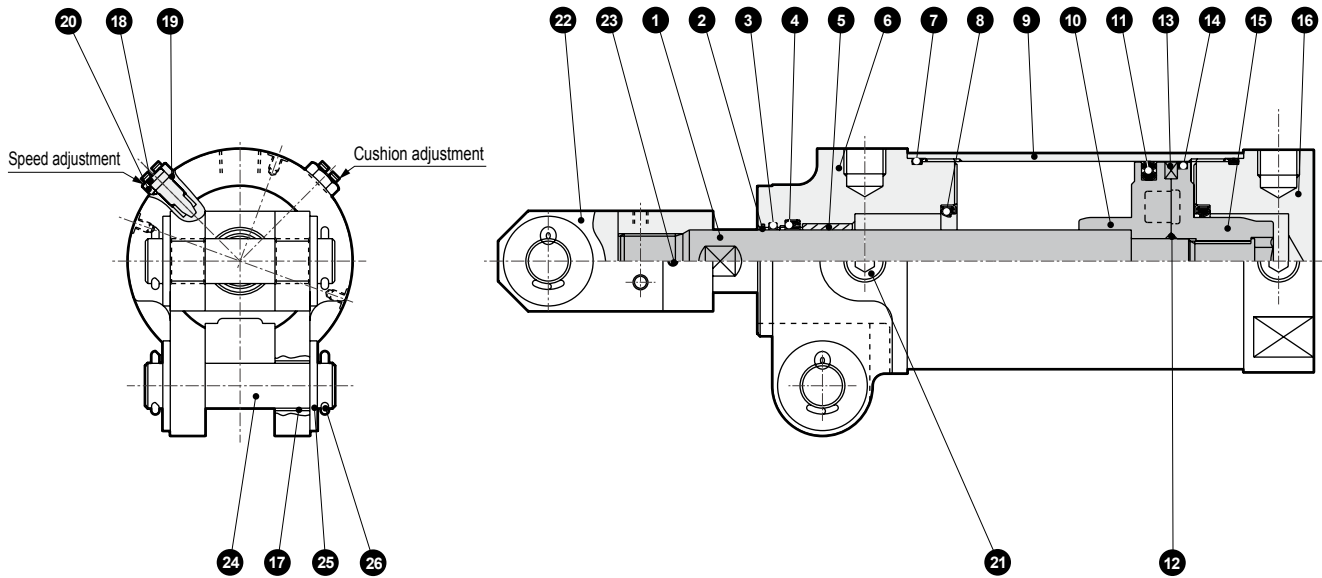
## Internal structure drawing and parts list (ø40 to ø63)



Note) ③ This cushion packing is placed on the rod end only when both sides are cushioned.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	14	Wear ring	Polyacetal resin	
2	Metal scraper	Copper alloy		15	Piston (H)	Aluminum alloy die-casting ø40: aluminum alloy	
3	Lube keeping structure	Special rubber		16	Head cover	Aluminum alloy die-casting	Chromate
4	Rod packing seal	Nitrile rubber		17	Bush for clevis	Steel and copper	
5	Bush	Copper alloy		18	Needle	Copper alloy	
6	Rod cover	Aluminum alloy die-casting	Chromate	19	Needle gasket	Nitrile rubber	
7	Cylinder gasket	Nitrile rubber		20	Hexagon nut	Steel	Chromate
8	Cushion packing seal	Urethane rubber and steel	Chromate	21	Hexagon socket head plug	Steel	Blackening
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	22	Rod clevis	Cast iron	Phosphoric acid manganese
10	Piston (R)	Aluminum alloy die-casting	ø40: aluminum alloy	23	Spring pin	Steel	Blackening
11	Piston packing seal	Nitrile rubber		24	Clevis pin	Steel	Blackening
12	Piston gasket	Nitrile rubber		25	Plain washer	Steel	Chromate
13	Magnet	Plastic		26	Split pin	Steel	Chromate

## Internal structure drawing and parts list (ø80)

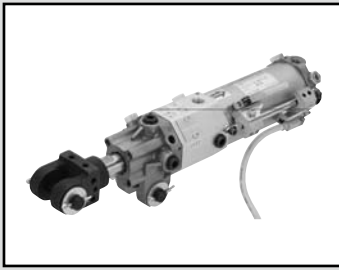


Note) ③ This cushion packing is placed on the rod end only when both sides are cushioned.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Steel	Industrial chrome plating	14	Wear ring	Polyacetal resin	
2	Metal scraper	Copper alloy		15	Piston (H)	Aluminum alloy die-casting	
3	Lube keeping structure	Special rubber		16	Head cover	Aluminum alloy	Chromate
4	Rod packing seal	Nitrile rubber		17	Bush for clevis	Steel and copper	
5	Bush	Copper alloy		18	Needle	Steel	Chromate
6	Rod cover	Aluminum alloy casting	Chromate	19	Needle gasket	Nitrile rubber	
7	Cylinder gasket	Nitrile rubber		20	Hexagon nut	Steel	Chromate
8	Cushion packing seal	Urethane rubber and steel	Chromate	21	Hexagon socket head plug	Steel	Blackening
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	22	Rod clevis	Steel	Chromate
10	Piston (R)	Aluminum alloy die-casting		23	Spring pin	Steel	Chromate
11	Piston packing seal	Nitrile rubber		24	Clevis pin	Steel	Chromate
12	Piston gasket	Nitrile rubber		25	Plain washer	Steel	Chromate
13	Magnet	Plastic		26	Split pin	Steel	Chromate

## Dimensions

The dimensions are identical to double acting single rod type. Refer to pages 7 to 10.



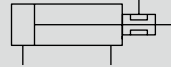
## Position locking clamp cylinder

# UCAC2 Series

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

- Double acting single rod type

JIS symbol



### Specifications

Descriptions		UCAC	
Bore size	mm	$\varnothing 50$	$\varnothing 63$
Actuation		Double acting	
Working fluid		Compressed air	
Max. working pressure	MPa	1.0	
Min. working pressure	MPa	0.25	
Withstanding pressure	MPa	1.6	
Ambient temperature	$^{\circ}\text{C}$	5 to 60	
Port size		Rc1/4	
Standard stroke length	mm	50, 75, 100, 125, 150	
Stroke tolerance		+1.0 0	
Working piston speed	mm/s	50 to 400	50 to 300
Cushion		Head end air cushioned	
Lubrication		Not available	
Installation mounting style		Clevis	
Position locking mechanism		Forward lock or backward lock	
Holding force	N	1470	
Allowable absorption	Cushioned	6.54	11.63
Energy	J No cushion	0.137	0.206

Note: No cushion type can not absorb large energy generated by an external load.  
Use of an external shock absorber is recommended.

### Stroke length

Bore size (mm)	Standard stroke length (mm)	Min. stroke length (mm)	Max. stroke length (mm)
$\varnothing 50$	50·75·100	50	150
$\varnothing 63$	125·150		

Custom stroke length is available per 1mm increment.

### Switch specifications (T type switch)

- 1 color/2 color indicator/strong magnetic field proof

\* TO/T5 switches 220 VAC are also available. Consult with CKD for working conditions.

Descriptions	Proximity 2 wire		Proximity 3 wire				Reed 2 wire							
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/T3V	T3PH/T3PV (custom order)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			
Applications	Programmable controller Relay and small solenoid valve	Programmable controller		Programmable Controller and relay				Programmable Controller and relay	Programmable controller, relay IC circuit (w/o light), serial connection	Programmable controller, relay				
Output method	-			NPN output	PNP output	NPN output	NPN output	-						
Power voltage	-			10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC $\pm 10\%$	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100mA	5 to 20mA (Note 1)		100mA or less	50mA or less		5 to 50mA	7 to 20mA	50mA or less	20mA or less	5 to 50mA	7 to 20mA	7 to 10mA	
Light	LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Without indicator light		LED (ON lighting)		
Leakage current	1 mA or less at 100 VAC, 2 mA or less at 200 VAC	1 mA or less		10 $\mu\text{A}$ or less				0 mA						

- Strong magnetic field proof

Descriptions	Proximity 2 wire	
	T2YD	T2YDU
Applications	Programmable controller	
Light	Red/green LED (ON lighting)	
Load voltage	24 VDC $\pm 10\%$	
Load current	5 to 20mA	
Internal voltage drop	6V or less	
Leakage current	1.0mA or less	
Output delay hour Note 1 (ON and OFF delay)	30 to 60ms	
Lead wire length	1m (oil resistant vinyl cabtire cable $\varnothing 6$ , 0.5mm <sup>2</sup> , 2 conductors) Note 2, Note 3	Flame resistant cabtire cord with cable connector 0.5 mm <sup>2</sup> , 2 conductors
Insulation resistance	100M $\Omega$ and over with 500 VDC megger	
Withstand voltage	No failure when 1000 VAC is applied for one minute	
Maximum shock resistance	980m/s <sup>2</sup>	
Ambient temperature	-10 to + 60 $^{\circ}\text{C}$	
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistant	

Note 1: The time required for magnetic sensor to release the switch output after detecting the piston magnet.

Note 2: For lead wire length, 3m and 5m are available as an option.

Note 3: For lead wire material, flame resistant type is available as an option.

## Switch specifications (H type switch)

- Strong magnetic field proof

Descriptions	Reed 2 wire	
	H0	H0Y (2 color indicator type)
Applications	Programmable controller, relay	Programmable controller
Load voltage	12/24 VDC	110 VAC
Load current	5 to 50mA	7 to 20mA
Internal voltage drop	5V or less	6V or less
Leakage current	10 μA or less	10 μA or less
Light	Green LED (ON lighting)	Red/green LED (ON lighting)
Lead wire (standard)	1m (flame resistance cable cord ø6, 0.5mm <sup>2</sup> , 2 conductors)	
Insulation resistance	100MΩ and over with 500 VDC megger	
Withstand voltage	1000 VAC impressed for one minute.	
Maximum shock resistance	294m/s <sup>2</sup>	
Ambient temperature	-10 to + 60°C	
Protective structure	JIS C0920 (water tight type), IEC standards IP67, oil resistant	

Note 1: The maximum load current of the following: 20mA, is when the ambient temperature is 25°C. The current will be lower than 20mA if ambient temperature around the switch is higher than 25°C. (5 to 10mA when 60°C)

## Cylinder weight

(Unit: kg)

Bore size (mm)		Product weight when stroke length = 0mm	Additional weight per stroke length = 100mm	Accessory weight				
				Axial foot	Rod clevis	Rod eye	Limit switch mounting bracket	Dog bracket
ø50	Advance lock: F	1.61	0.40	0.21	0.37	0.27	0.18	0.08
	Return lock: B	1.56	0.39					
ø63	Advance lock: F	2.11	0.40	0.21	0.37	0.27	0.18	0.08
	Return lock: B	2.06	0.39					

## How to order

Without switch

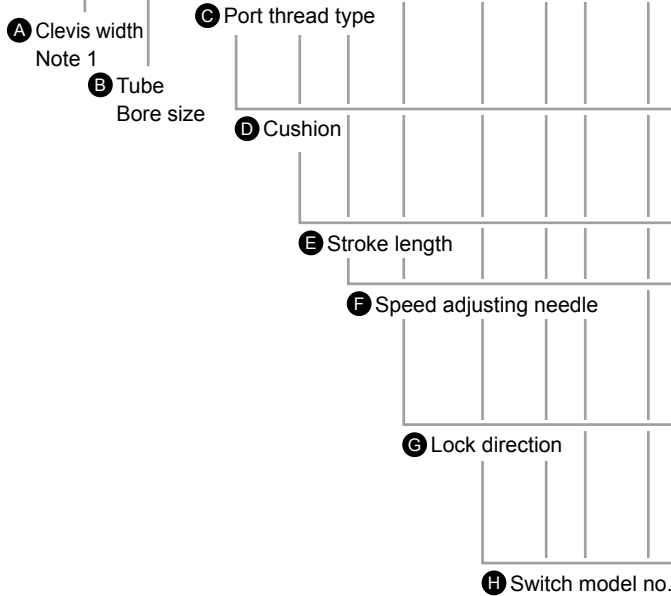
UCAC2 - (A) - 50 (N) (B) - 50 (N) - (B) ————— (Y1)

With switch

UCAC2 - (A) - 50 (N) (B) - 50 (N) - (B) - (T2H) - (D) (B) - (Y1)

With strong magnetic field proof (H0, H0Y) switch

UCAC2-L2 - (A) - 50 (N) (B) - 50 (N) - (B) - (H0) - (D) (B) - (Y1)



### ⚠ Note on model no. selection

- Note 1: Clevis pin, split pin, plain washer is included for A, B, AL, BL.  
Rod clevis width is as same as clevis width.
- Note 2: Switches can not be installed on the same side of by-pass tube installed position.
- Note 3: Pin, split pin, plain washer is included for Y, Y1.
- Note 4: For "Q", piston rod projection length is different from standard type. This cannot be installed on standard type.
- Note 5: When "Q" is selected, (A) can be selected for the (A) clevis width.
- Note 6: Bellows max. ambient temperature 100°C and instantaneous max. temperature 200°C

### <Example of model number>

**UCAC2-A-50B-50R-B-T0H-DB-Y**

Model: Position locking clamp cylinder double acting

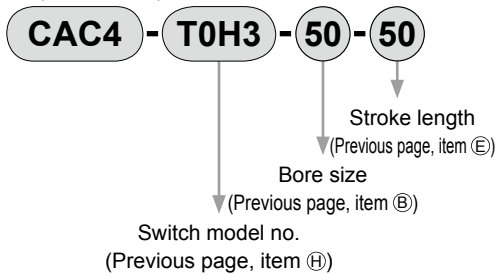
- A** Clevis width : 16.5mm.
- B** Bore size : ø50mm
- C** Port thread type : Rc thread
- D** With cushion : both sides
- E** Stroke length : 50mm
- F** With speed adjusting needle: rod end
- G** Lock direction and by-pass tube position : Backward lock
- H** Switch model no. : Reed T0H switch and lead wire 1m
- I** With switch quantity : 2 piece
- J** Switch installation position : B
- K** Accessory : rod clevis cast iron

Symbol	Descriptions					
<b>A Clevis width (mm)</b>						
A	16.5					
B	19.5					
AL	16.5 (axial foot type)					
BL	19.5 (axial foot type)					
<b>B Bore size (mm)</b>						
50	ø50					
63	ø63					
<b>C Port thread type</b>						
Blank	Rc thread					
N	NPT thread (custom order)					
G	G thread (custom order)					
<b>D Cushion</b>						
Blank	Head end cushion					
B	Both sides cushioned					
N	No cushion					
<b>E Stroke length (mm)</b>						
50, 75, 100, 125, 150						
<b>F Speed adjusting needle</b>						
Blank	On both sides					
R	On rod end					
H	On head end					
N	None					
<b>G Lock direction and by-pass tube position</b>						
F	Forward lock (by-pass tube position F and ports position F1)					
F1	Forward lock (by-pass tube position F1, port position F2)					
F2	Forward lock (by-pass tube position F2, port position F1)					
B	Backward lock					
<b>H Switch model no.</b>						
	<b>Lead wire Axial</b>	<b>Lead wire Radial</b>	<b>Contact</b>	<b>Indicator</b>	<b>Lead wire</b>	
	T0H*	T0V*	Reed	1 color indicator type	2-wire	
	T5H*	T5V*		Without light		
	T8H*	T8V*		1 color indicator type	2-wire	
	T1H*	T1V*		1 color indicator type		
	T2H*	T2V*		Proximity	1 color indicator type (custom order)	3-wire
	T3H*	T3V*			2 color indicator type	2-wire
	T3PH*	T3PV*				
	T2YH*	T2YV*				
	T2WH*	T2WV*			Strong magnetic field proof switch	2-wire
	T3YH*	T3YV*				
	T3WH*	T3WV*	Strong magnetic field proof switch with connector (Custom order)		2-wire	
	T2YD*	-				
	T2YDT*	-	Off-delay type		2-wire	
	T2YDU	-	Reed		Strong magnetic field proof switch	2-wire
	T2JH*	T2JV*		Strong magnetic field 2 color indicator type		
	H0*	-				
	H0Y*	-				
<b>*Lead wire length</b>						
	Blank	1m (standard)				
	3	3m (option)				
	5	5m (option)				
<b>I Switch quantity</b>						
	R	1 on rod end				
	H	1 on head end				
	D	2				
	T	3				
<b>J Switch installation position</b>						
	Blank					
	B					
	C					
<b>K Accessory</b>						
	Y	Rod clevis cast iron				
	Y1	Rod clevis steel				
	I	Rod eye steel				
	K	Bellows				
	D	Limit switch mounting	With dog			
	D1	bracket	Without dog			
	Q	Toggle bracket				

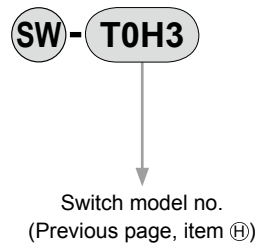
How to order switch \* Pay attention to the direction when mounting the tie rod. Refer to Page 23.

## T type (1 color and 2 color display) cylinder switch

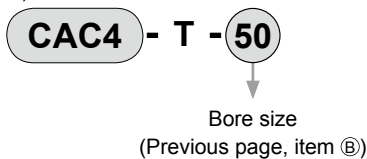
A) Switch body + mounting bracket  
(= B + C + D)



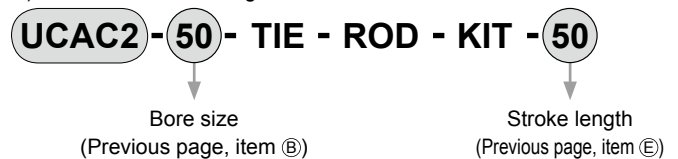
B) Only switch body



C) Bracket kit



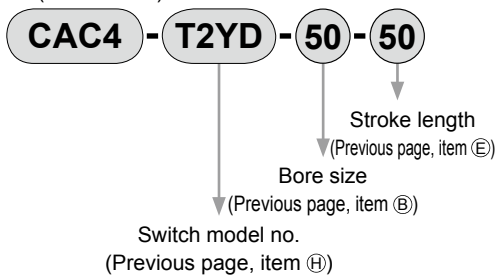
D) Tie rod kit for mounting



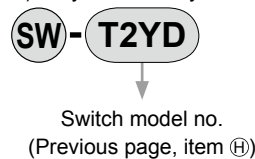
## Strong magnetic field proof switch

● T type cylinder switch

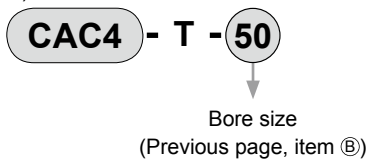
A) Switch body + mounting bracket  
(= B + C + D)



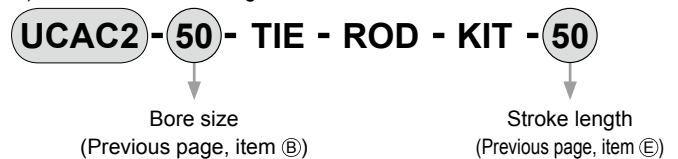
B) Only switch body



C) Bracket kit

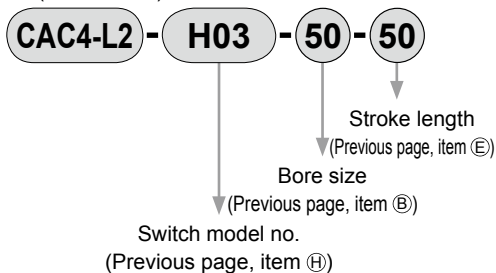


D) Tie rod kit for mounting

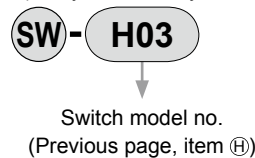


● H type cylinder switch

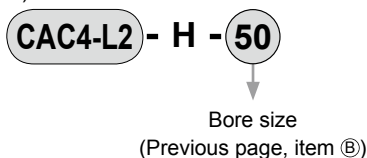
A) Switch body + mounting bracket  
(= B + C + D)



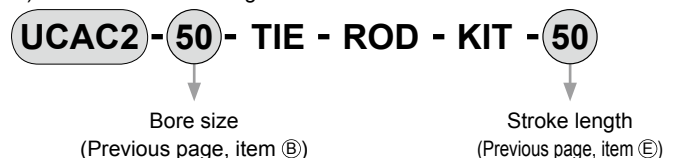
B) Only switch body



C) Bracket kit

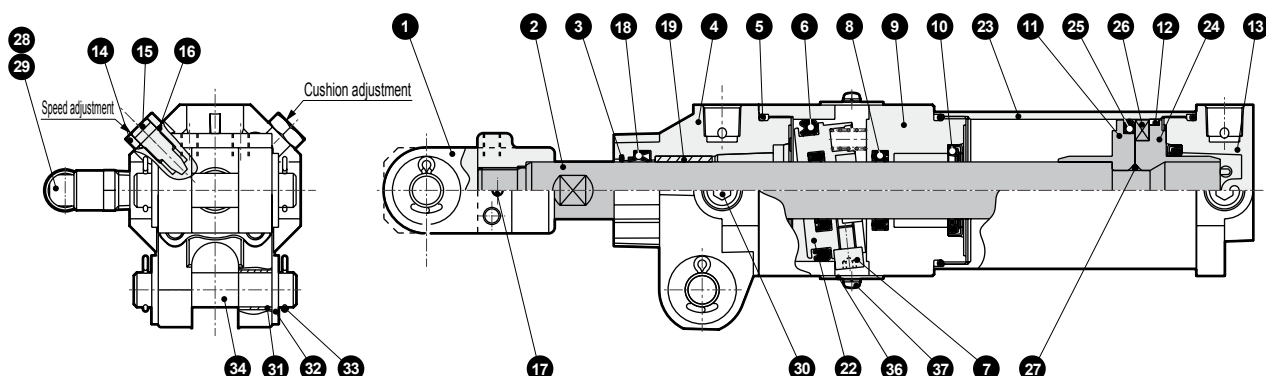


D) Tie rod kit for mounting

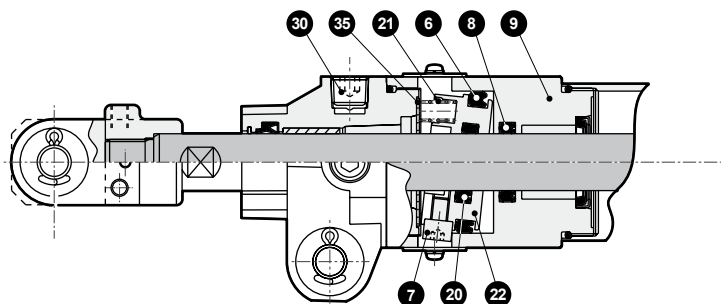


## Internal structure and parts list

● With forward lock (UCAC2-F)



● With backward lock (UCAC2-B)



Note) The cushion packing on 10 is installed on the rod side only when both sides cushioned is selected.

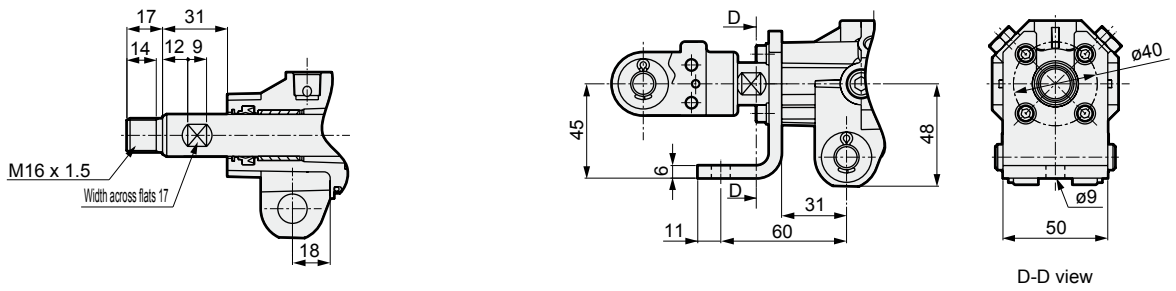
### Parts list

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod clevis	Cast iron	Phosphoric acid manganese	20	Lock rod packing seal	Nitrile rubber	
2	Piston rod	Steel	Industrial chrome plating	21	Lock spring	Steel	Blackening
3	Metal scraper	Copper alloy		22	Lock metal	Special steel	Zinc chromate
4	Rod cover	Aluminum alloy die-casting	Zinc chromate	23	Cylinder tube	Aluminum alloy	
5	Cylinder gasket	Nitrile rubber		24	Piston (R)	Aluminum alloy die-casting	
6	Lock piston packing seal	Nitrile rubber		25	Piston packing seal	Nitrile rubber	
7	Fulcrum nut	Steel	Zinc chromate	26	Magnet	Plastic	
8	Rod packing seal	Nitrile rubber		27	Piston gasket	Nitrile rubber	
9	Intermediate guard	Aluminum alloy		28	By-pass tube		PULL side lock (B) time not required
10	Cushion packing seal	Urethane rubber and steel	Zinc chromate	29	Push-in joint		PULL side lock (B) time not required
11	Piston (H)	Aluminum alloy die-casting		30	Sunk plug with sealant	Steel	Blackening
12	Wear ring	Polyacetal resin		31	Bush for clevis	Tetrafluoroethylene resin and steel	
13	Head cover	Aluminum alloy die-casting		32	Plain washer	Steel	Zinc chromate
14	Hexagon nut	Steel	Zinc chromate	33	Split pin	Steel	Zinc chromate
15	Needle	Copper alloy		34	Clevis pin	Steel	Blackening
16	Needle gasket	Nitrile rubber		35	Washer	Steel	PULL side lock (B) time zinc chromate not required
17	Spring pin	Steel	Blackening	36	Dust cover	Aluminum alloy	
18	Rod packing seal	Nitrile rubber		37	Machine screw	Steel	Zinc chromate
19	Bush	Copper					

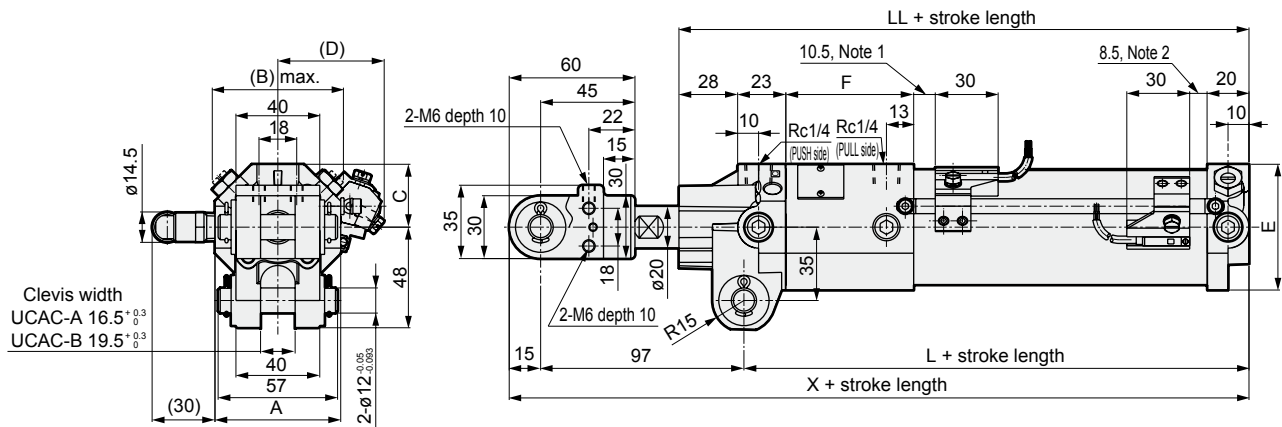
### Dimensions

● Without rod eye/clevis

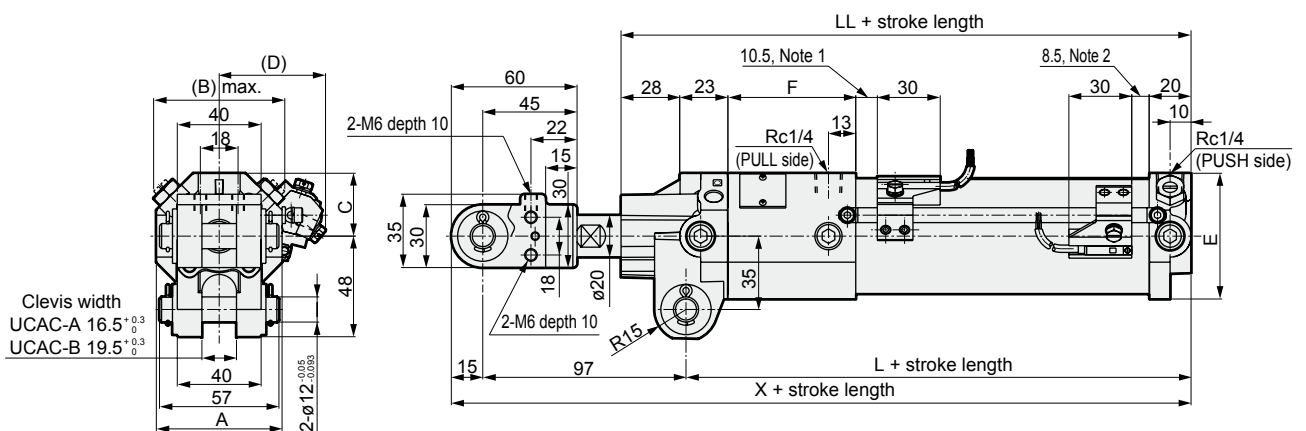
● Axial foot type



● With forward lock (UCAC2-F)



● With reverse locking (UCAC2-B)

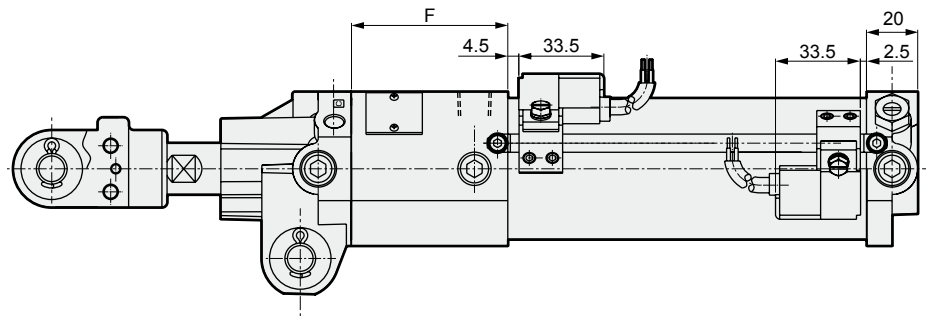


Note 1: 5.5 for T8H/V switch, 13.5 for T2/3W switch.  
 Note 2: 3.5 for T8H/V switch, 11.5 for T2/3W switch.

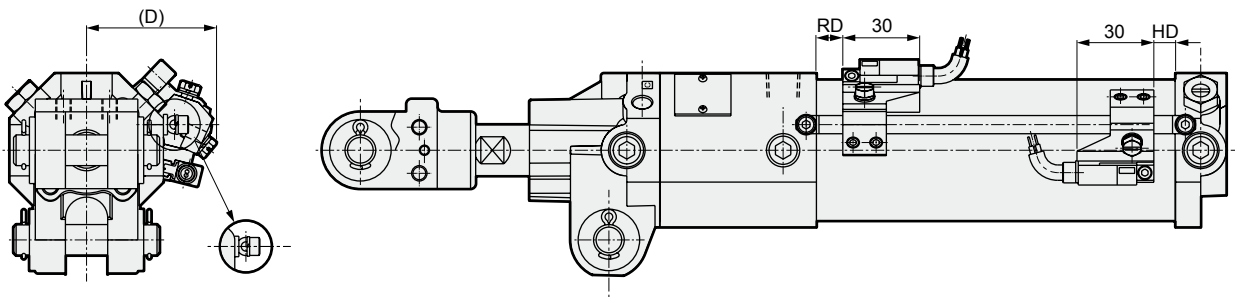
Symbol	A	(B)	C	(D)	E	F	L	LL	X
Bores size (mm)									
ø50	60	63	30	50	60	61	141	172	253
ø63	70	57	35	56	70	63	143	174	255

## Dimensions

● H type switch installation position



● T2YD type switch installation position

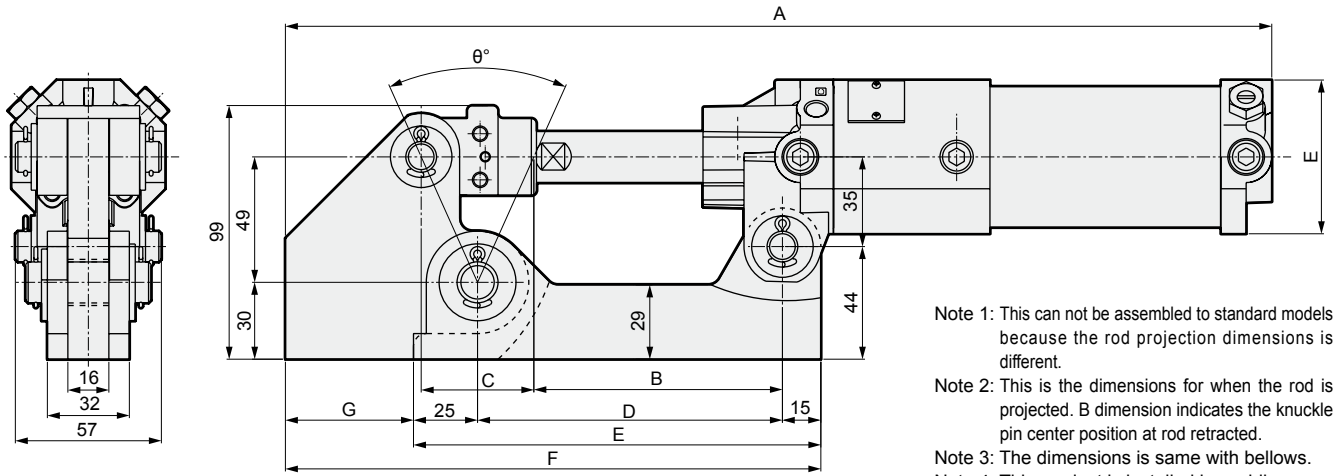


Symbol	HD	RD	(D)	F
Bores size (mm)				
ø50	8.5	10.5	50	61
ø63	8.5	10.5	56	63

\* Check the direction of the tie rod.

### Dimensions

● Toggle bracket dimensions



- Note 1: This can not be assembled to standard models because the rod projection dimensions is different.
- Note 2: This is the dimensions for when the rod is projected. B dimension indicates the knuckle pin center position at rod retracted.
- Note 3: The dimensions is same with bellows.
- Note 4: This product is installed by welding.

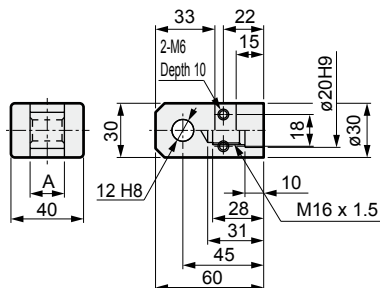
Symbol Model no.	Stroke length	A	B	C	D	E	F	G	$\theta^\circ$
UCAC2-A-50*-Q	50	387	97	44	119	159	209	50	48
UCAC2-A-75*-Q	75	435	107	70	142	182	232	50	71
UCAC2-A-100*-Q	100	478	115	90	160	200	250	50	85
UCAC2-A-125*-Q	125	531	128	120	188	228	278	50	101
UCAC2-A-150*-Q	150	576	128	140	198	238	298	60	110

# CAC4/UCAC2 Series

## Accessory dimensions

- Rod eye dimensions  
ø40 to ø63

Material: Steel

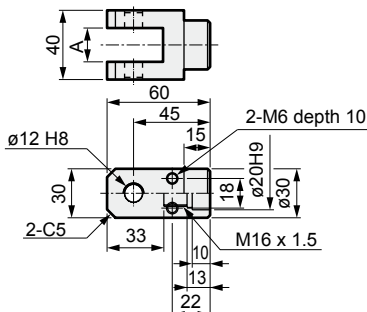


\* A spring pin is attached.

Model no.	A	Applicable clamp	Weight (kg)
CAC4-IB	19.5 <sup>+0.1</sup> <sub>-0.4</sub>	CAC4-A and CAC4-B UCAC2-A and UCAC2-B	0.27

- Rod clevis steel (Y1) dimensions  
ø40 to ø63

Material: Steel

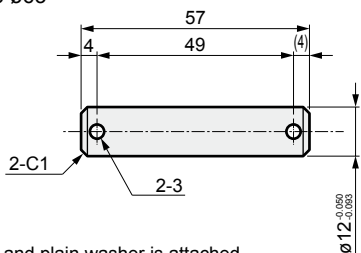


\* A pin, split pin, spring pin and a plain washer is attached.

Model no.	A	Applicable clamp	Weight (kg)
CAC4-Y1A	16.5 <sup>+0.3</sup> <sub>0</sub>	CAC4-A and UCAC2-A	0.37
CAC4-Y1B	19.5 <sup>+0.3</sup> <sub>0</sub>	CAC4-B and UCAC2-B	0.37

- Clevis pin dimensions  
ø40 to ø63

Material: Steel



\* Split pin and plain washer is attached.

Model no.	Applicable clamp	Weight (kg)
CAC4-P	CAC4-A and CAC4-B UCAC2-A and UCAC2-B	0.05

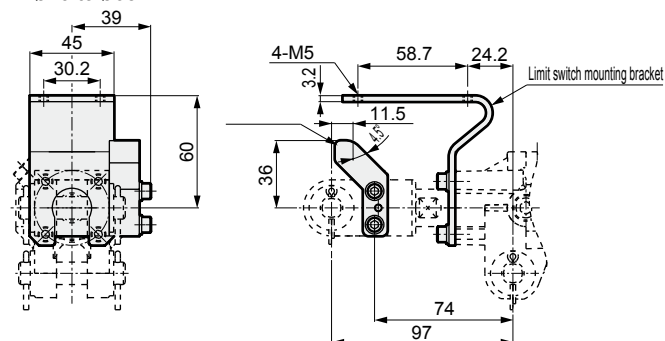
- Limit switch mounting bracket dimensions

Material: Steel

- Dog bracket dimensions

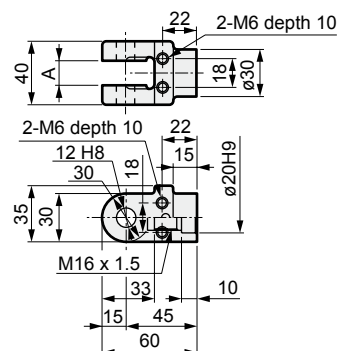
Material: Steel

ø40 to ø63



- Rod clevis steel (Y) dimensions  
ø40 to ø63

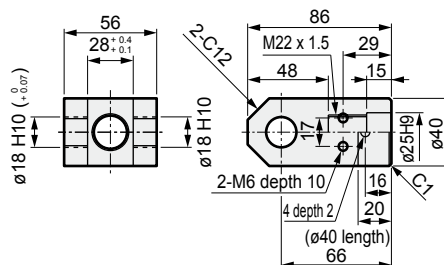
Material: Cast iron



\* A pin, split pin, spring pin and a plain washer is attached.

Model no.	A	Applicable clamp	Weight (kg)
CAC4-YA	16.5 <sup>+0.3</sup> <sub>0</sub>	CAC4-A and UCAC2-A	0.37
CAC4-YB	19.5 <sup>+0.3</sup> <sub>0</sub>	CAC4-B and UCAC2-B	0.37

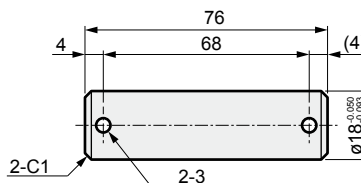
ø80



\* A pin, split pin, spring pin and a plain washer is attached.

Model no.	Applicable clamp	Weight (kg)
CAC4-Y1-80	CAC4-A and CAC4-B	0.95

ø80



\* Split pin and plain washer is attached.

Model no.	Applicable clamp	Weight (kg)
CAC4-P-80	CAC4-A and CAC4-B	0.15

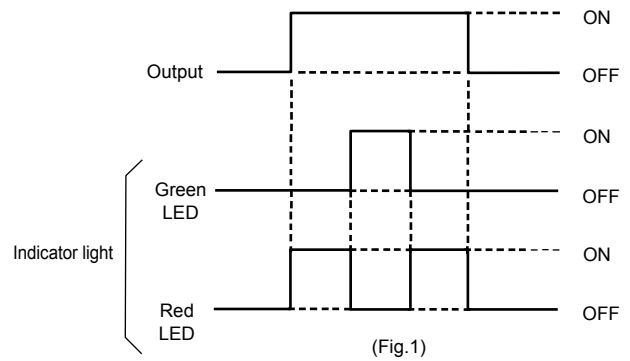
- Please use a limit switch interchangeable with WLH2 (Omron)

Model no.	Part name	Applicable clamp	Weight (kg)
CAC4-L	Limit switch mounting bracket	CAC4-A and CAC4-B	0.18
CAC4-D	Dog bracket	UCAC2-A and UCAC2-B	0.08

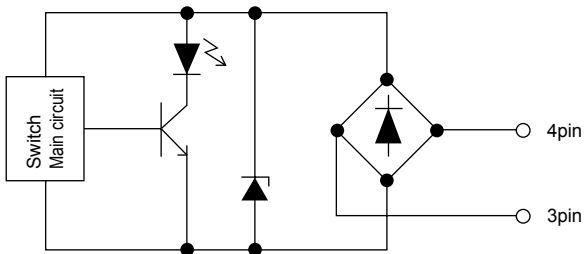
## Specifications

Model no.	T2YDU
Descriptions	
Applications	Programmable controller DC
Switch polarity	Not polarized
Light	Red/green LED (Lit when ON) (Refer to drawing -1)
Load voltage	24 VDC $\pm$ 10%
Load current	5 to 20mA DC
Internal voltage drop	6V or less
Leakage current	1.0mA or less
Lead wire	Flame resistant cabtire cord with cable connector 0.5 mm <sup>2</sup> , 2 conductors
Insulation resistance	100M $\Omega$ and over with 500 VDC megger
Withstand voltage	No failure impressed at 1000 VAC for one minute
Maximum shock resistance	980m/s <sup>2</sup>
Output delay time (ON and OFF delay)	30 to 60ms
Ambient temperature	-10 to + 60°C
Storing temperature	-20 to + 80°C
Protective structure	JIS C0920 (water tight type), IP67, oil resistant

## Operation chart

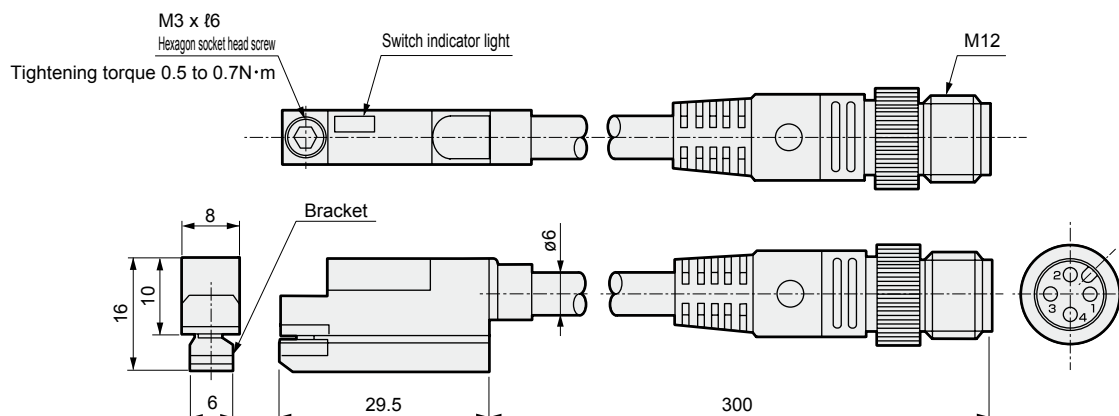


## Internal circuit diagram



1, 2pin is N.C.

## Dimensions



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**MEMO**

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## Related products

### Pilot operated 3, 5 port valve

#### Plug-in block manifold W4G2 Series

Advanced friendliness to people and the environment from the "4G<sup>A</sup>·MN4G<sup>A</sup> Series"

- Improved environmental design
  - Flame resistant cable cord with cable connector 0.5 mm<sup>2</sup>, 2 conductors
  - Material name is displayed on main resin parts.
- Works in tougher environment.  
Protective structure IP65
- Easier to use
  - Plug-in method for an easier valve replacement.
  - Wiring connectors eliminates the task of wiring necessary when adding manifolds (DC spec.)
- Driving cylinder up to  $\varnothing 80$  at valve depth 15mm  
New 3·5 port reduced wiring valve with safety functions

Catalog No. CC-654



#### Plug-in/manifold W4G4 Series

- Power consumption reduced 40%
  - 1W coils cuts energy consumption.
- Footprint down 30%
  - Substantially downsized by reducing valve width and length
- Easily add valves
  - You can add valves easily thanks to the connectors installed between manifold blocks.
- Arrange wiring blocks flexibly.
  - Wiring block can be set on left or right side of the manifold
- Improved safety and reliability
  - Rubber cover installed on the manual button prevents foreign materials, etc., from being caught to prevent malfunctions

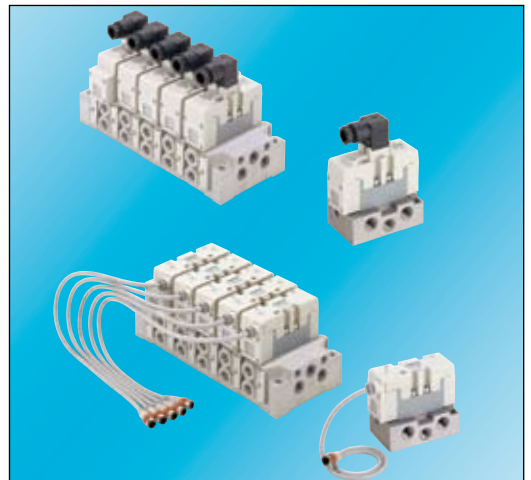
Catalog No. CC-845



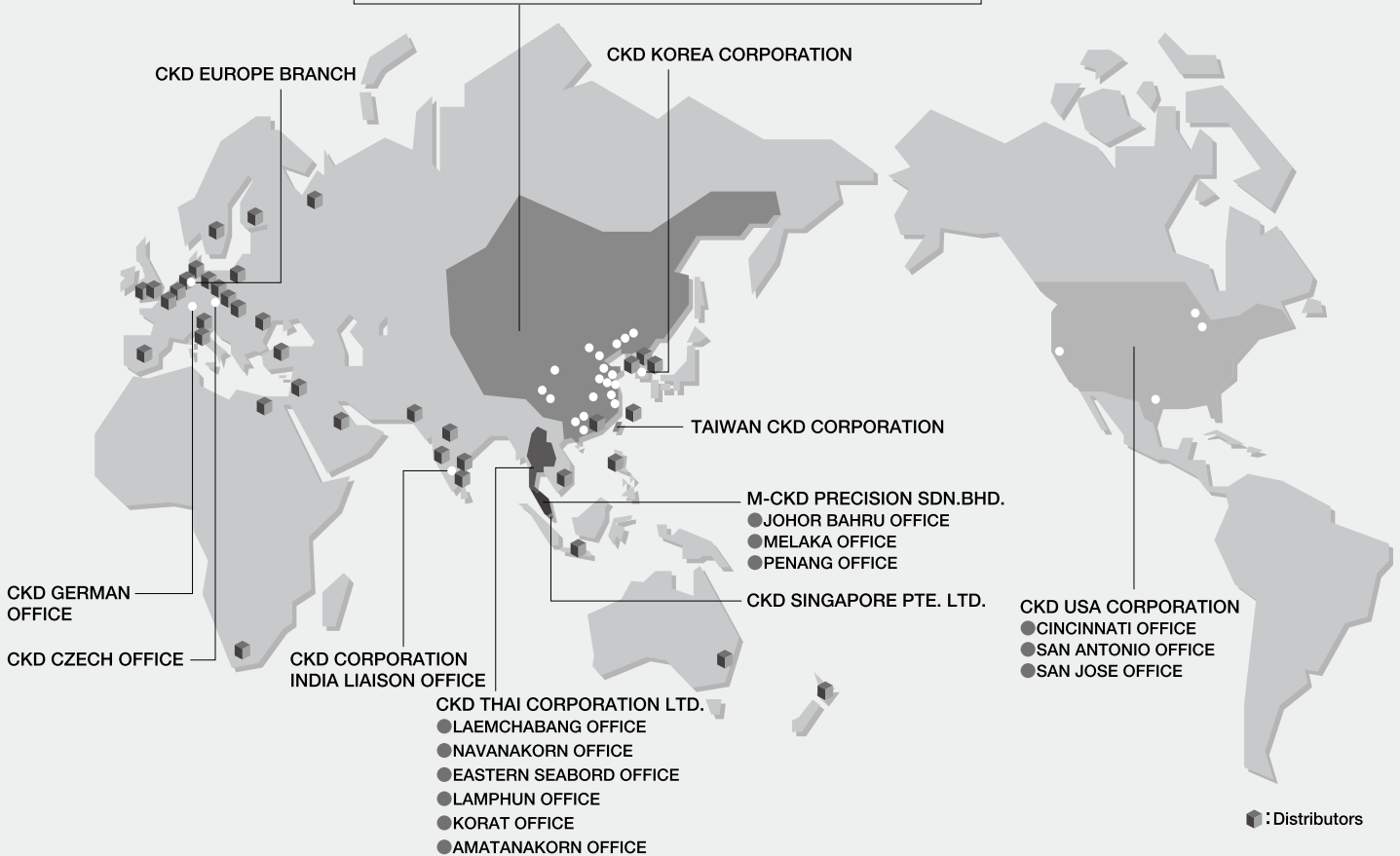
#### ISO compliant valve PV5G/PV5/CMF Series

- Compact body size
  - Improved overall performance including smaller size.
- Easy operation
  - Ideally placed manual button and power indicator light for improved operability
- 2 color indicator light
- Improved reliability and safety
  - Thanks to rubber cover installation over manual button, catching contaminant, etc., is prevented, and malfunction is eliminated.
- Easy and efficient piping
  - The valve body is not projected from the base, allowing you to pipe it more efficiently.

Catalog No. CC-824



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