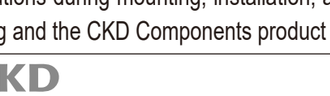
2. Common (With T-type Switch)

⚠CAUTION

■When Moving the Switch Position in the Stroke Direction

- The T2, T3, T0, and T5 switches can be fine-tuned by approximately ±3 mm from the default position of installation. If the adjustment range exceeds ±3 mm, or when finely adjusting the position of other switches, move the position of the band.
- Loosen the switch mounting screw, move the switch along the rail, and tighten at the specified position. For T2, T3, T0, T5, use a flat-head screwdriver (watchmaker's screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, tip shape width of 2.4 mm or less, and thickness of 0.3 mm or less to tighten the switch fixing screw with a tightening torque of 0.1 to 0.2 N·m. For T1, T□C, T2J, T2Y, T3Y, T8, tighten with a tightening torque of 0.5 to 0.7 N·m.
- The switch rail has a marking 4 mm from the end face of the rail. Use it as a guide for mounting position when replacing the switch. The switch rail marking is set to the switch maximum sensitivity position at factory shipment. If the switch type changes or the band is moved, the maximum sensitivity position changes, so adjust the position each time.

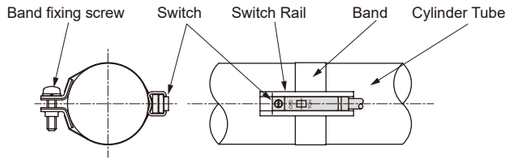


■When Moving the Switch Position in the Circumferential Direction

- Loosen the band fixing screw, move the switch rail circumferentially, and tighten it at the specified position. The tightening torque is 0.6 to 0.8 N·m.

■When Moving the Band Position

- Loosen the band fixing screw, move the switch rail and band along the cylinder tube, and tighten them at the specified position. The tightening torque is 0.6 to 0.8 N·m.



For precautions during mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components product site (https://www.ckd.co.jp/kiki/en/) → "Model No." →Instruction Manual.

CAV2, COVPN2

With Valve

Cell Cylinder®

ø50, ø75, ø100

CONTENTS

With Valve Cell Cylinder

CAV2/COVP/N2 Series

(ø50, ø75, ø100)

Features of Cell Cylinder

- Cylinder with valve allows no worries about solenoid valve installation and straightforward piping
- No piping between cylinders ↔ valves, reducing air consumption
- The distance between the cylinder and valve is minimized for quick response
- Single solenoid can be changed to pushed out when energized ↔ pull when energized
- Double solenoid that self-holds the cylinder position when energized is OFF also available (CAV2)
- Robust design with tie rod enables use with long periods of safety

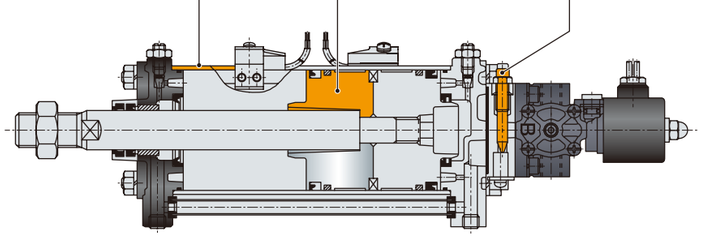
Product Introduction

Cylinder Tube
Highly corrosion resistant aluminum tube

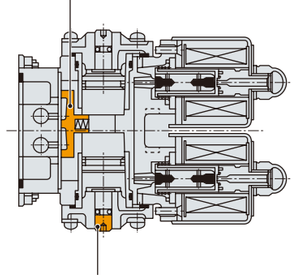
Piston
No-lubrication sliding packing used. Durability is also notably improved

Speed adjustment needle
The advance speed and return speed can be adjusted separately

Slide valve
Tetrafluoroethylene resin body with high abrasion resistance and long service life



New short overall length type
Helps save installation space



Valve rod
Can be manually switched by pushing with a Drivers, etc

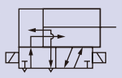
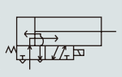
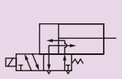
Application Example

Ideal when the cylinder position is far from the control panel, etc., and there is no installation space for a solenoid valve nearby.

For driving air operated gate valves

For opening/closing hopper gates

CAV2/COVP/N2 Series Product System

Model Variations	Lubrication	Variation	Variation model No.	JIS Symbol
 **Double acting/ double solenoid CAV2**	Lubricated Type		CAV2	
		With Cushion Short overall length type	CAV2-S	
	Non-lube Type		CAV2-N	
		With Cushion Short overall length type	CAV2-NS	
 **Double acting type, single solenoid Pushed out when energized COVP2**	Lubricated Type		COVP2	
		With Cushion Short overall length type	COVP2-S	
	Non-lube Type		COVP2-N	
		With Cushion Short overall length type	COVP2-NS	
 **Double acting type, single solenoid Energized retraction type COVN2**	Lubricated Type		COVN2	
		With Cushion Short overall length type	COVN2-S	
	Non-lube Type		COVN2-N	
		With Cushion Short overall length type	COVN2-NS	

Cell Cylinder CAV2/COVPN2 Series

●: Standard, ◎: Option, : Not Available

Variation	Model No. / Circuit Diagram Code	Bore Size (mm)	Standard Stroke (mm) 50	75	100	150	200	300	Min Stroke (mm)	Max Stroke (mm)	Producible Stroke (mm)	Intermediate stroke (per mm)	Mounting Style: Axial foot type LB	Rod Side Flange Type FA	Single clevis type CA	Intermediate trunnion type Shaft type TC	Intermediate trunnion type Hole type TF	Cushion: Without cushion N	Both sides cushion B	Option: Bellows (100°C) J	Round Terminal Box TB1	Square terminal box TB2	With muffler MF1	Molded coil Z	Air supply block Q	Accessories: Single knuckle I	Double Knuckle Y	Double bracket B2	Switch	Page
Double Acting/Double Solenoid Lubricated Type	CAV2	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎		
Double Acting type, single solenoid, energized push type Lubricated Type	COVP2	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎		
Double Acting type, single solenoid, energized retraction type Lubricated Type	COVN2	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎		◎	●	◎	◎	◎	◎		
Double Acting/Double Solenoid Non-lube Type	CAV2-N	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎	◎	●	◎	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎	◎	●	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎	◎	●	◎	◎	◎	◎	◎		
Double Acting type, single solenoid, energized push type Non-Lube Type	COVP2-N	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎		
Double Acting type, single solenoid, energized retraction type Non-Lube Type	COVN2-N	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●	●	●	◎	◎		●	●	◎	◎	◎	◎		
Double Acting type, double solenoid with cushion Short overall length type	CAV2-S / CAV2-NS	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●		●	◎	◎	◎	Lubrication ◎ / Non-lube ●	◎	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●		●	◎	◎	◎	Lubrication ◎ / Non-lube ●	◎	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●		●	◎	◎	◎	Lubrication ◎ / Non-lube ●	◎	◎	◎	◎	◎		
Double Acting type, single solenoid Energized push type with cushion Short overall length type	COVP2-S / COVP2-NS	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎		
Double Acting type, single solenoid, energized retraction type with cushion Short overall length type	COVN2-S / COVN2-NS	ø50	●	●	●	●	●	●	1	500	1000	1	●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎	◎	694
		ø75	●	●	●	●	●	●		600			●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎		
		ø100	●	●	●	●	●	●		800			●	●	●	●	●		●	◎	◎		Lubrication ◎ / Non-lube ●	●	◎	◎	◎	◎		

With Valve
CKV2
CAV2/ COVP/ N2
Cylinder Switch
Ending

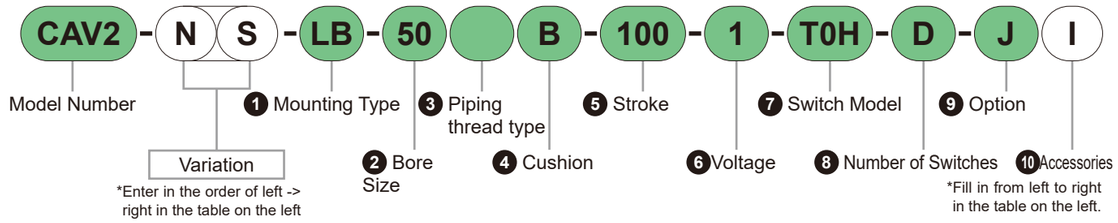
Variation and Option Item Combination Availability Table

◎Mark: Option
○Mark: Custom-made
△Mark: Manufacturable depending on conditions (please consult)
× Mark: Not available

Category		Category	Variation							Piping thread			Option					
			Double Acting basic type (Lubricated type)	Non-lube	Short overall length type	Double Solenoid	Single solenoid	With Cushion	With Cylinder Switch	NPT	G		With bellows, Neoprene	Round Terminal Box	Square terminal box	With muffler	Molded coil	Intake block
		Code	None	N	S	CAV2	COV□2	None	None	N	G		J	TB1	TB2	MF1	Z	Q
Variation	Double Acting basic type (Lubricated type)	Blank			◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎
	Non-lube	N			◎	◎	◎	◎	◎	◎	◎		◎	◎	◎	×	◎	◎
	Short overall length type	S				◎	◎	*1	◎	◎	◎		◎	◎	◎	◎	◎	◎
	Double Solenoid	CAV2						◎	◎	◎	◎		◎	◎	◎	◎	◎	◎
	Single solenoid	COV□2						◎	◎	◎	◎		◎	◎	x	◎	*2	◎
	With Cushion	Blank							◎	◎	◎		◎	◎	◎	◎	◎	◎
	With Cylinder Switch	Blank								◎	◎		◎	◎	◎	◎	◎	◎
Piping thread	NPT	N									x		◎	◎	◎	◎	◎	◎
	G	G											◎	◎	○	◎	◎	◎
Option	With bellows, Neoprene	J												◎	◎	◎	◎	◎
	Round Terminal Box	TB1													x	◎	◎	x
	Square terminal box	TB2														◎	◎	x
	With muffler	MF1															◎	◎
	Molded coil	Z																x
	Intake block	Q																
Accessories	Cylinder Switch	Separately Shown	◎	◎	◎	◎	◎	◎	◎	○	○		◎	◎	◎	◎	◎	◎
	Single knuckle	I	◎	◎	◎	◎	◎	◎	◎	○	○		◎	◎	◎	◎	◎	◎
	Double Knuckle	Y	◎	◎	◎	◎	◎	◎	◎	○	○		◎	◎	◎	◎	◎	◎
	Double bracket	B2	◎	◎	◎	◎	◎	◎	◎	○	○		◎	◎	◎	◎	◎	◎

*1: Short overall length type is only available with cushion.
*2: The coil for COV□2 is standardly a molded type.

[Model No. Example]



Model No.: Cell Cylinder
●Variation: Non-lubricated, with cushion, short overall length type
1 mounting style : Axial foot type
2 Bore Size : ø50 mm
3 Port thread : Rc Thread
4 Cushion : With Cushion on Both Sides
5 Stroke : 100 mm
6 Voltage : 100 VAC
7 Switch model No. : Solid State T0H Switch, Lead Wire 1 m
8 Switch quantity : With 2 pcs.
9 Options : Bellows, max Ambient Temperature 100°C
10 Accessory : Single knuckle

Operation description

Air supply Exhaust ●For explanation purposes, the valve position is rotated 90° counterclockwise when viewed from the Piston Rod side.

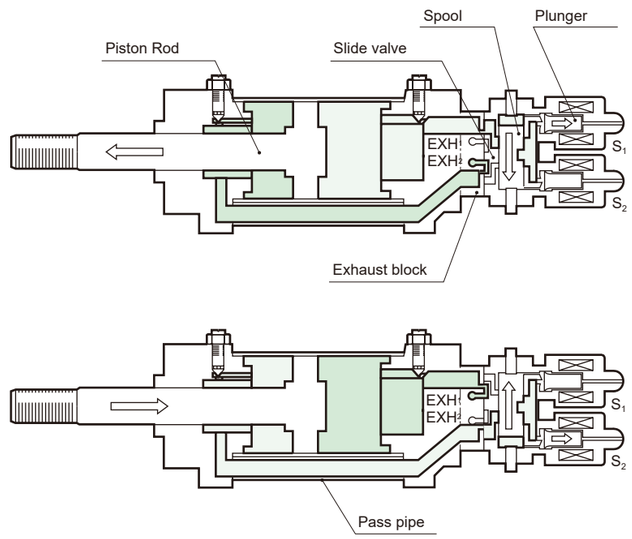
● CAV2, CAV2-N, CAV2-S, CAV2-NS

A In case of Piston Rod push

1. When the solenoid S1 is energized, the plunger is suctioned.
2. Since the orifice opens, air moves the spool, and the slide valve moves downward.
3. Air immediately passes through the exhaust block, flows into the cylinder, and pushes out the Piston Rod.
4. As the spool is self-held after the solenoid valve S1 is de-energized, the Piston Rod remains protruding.

B In case of Piston Rod retraction

1. When the solenoid S2 is energized, the plunger is suctioned.
2. Since the orifice opens, air moves the spool, and the slide valve moves upward.
3. Air immediately passes through the exhaust block and pass pipe, flows into the cylinder, and retracts the Piston Rod.
4. As the spool is self-held after the solenoid valve S2 is de-energized, the Piston Rod remains retracted.



● COVP N2, COVP N2-N, C0VP N2-S, COVP N2-NS

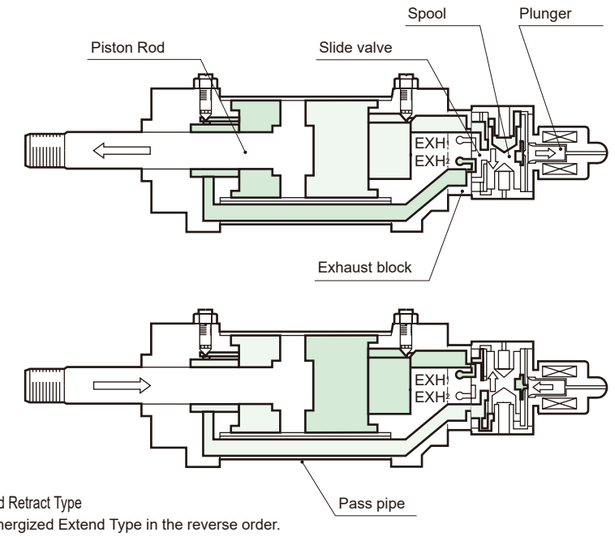
This operating explanation is for the energized push type (P-type). In the case of the energized retraction type (N-type), the operation is reversed.

A When solenoid is energized

1. When the solenoid valve is energized, the plunger is suctioned and the orifice opens.
2. The force on the upper side of the spool becomes greater than the force on the lower side, moving the spool and causing the slide valve to move downward. (Due to the difference in pressure receiving area)
3. Air immediately passes through the exhaust block, flows into the cylinder, and pushes out the Piston Rod.

B When energization to solenoid is stopped

1. When energization to the solenoid is stopped, the plunger moves down due to the spring force and closes the orifice.
2. Compressed air stops flowing to the upper side of the spool, the force on the lower side of the spool becomes greater, moving the spool and causing the slide valve to move upward.
3. Air immediately passes through the exhaust block and pass pipe, flows into the cylinder, and retracts the Piston Rod.



C Method of changing between Energized Extend Type ⟶ Energized Retract Type

*1: Perform the change from Energized Retract Type to Energized Extend Type in the reverse order.

⚠ CAUTION

*1: Be sure to stop the air before changing.

1. Loosen and remove Ⓑ the screws of the cap and fixing piston Ⓐ (four screws each) with a Phillips screwdriver as shown in Fig. 1.
2. Switch the positions of the cap and fixing piston ⒷⒶ as shown in Fig. 2 and tighten the screws.

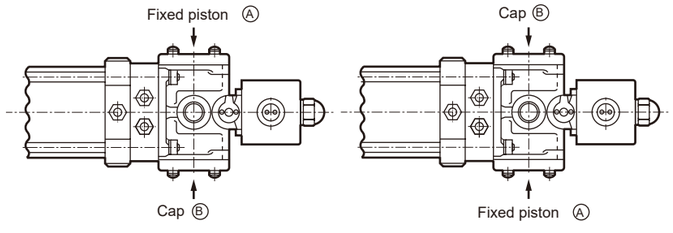


Fig. 1 Energized extend type

Fig. 2 Energized retract type

MEMO

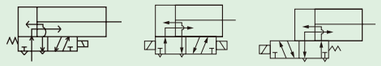
With Valve
CKV2
CAV2/ COVP/ N2
Cylinder Switch
Ending

Cell Cylinder

CAV2(-S), CAV2-N(S) COV$^{P}_{N}$2(-S), COV$^{P}_{N}$2-N(S) Series

● Bore Size: ø50, ø75, ø100

Circuit Diagram Code



RoHS

Model No. Notation

Without switch (Built-in magnet for switch)

CAV2 - ( ) - LB - 50 ( ) B - 100 - 1 ——— J I

With switch (Built-in magnet for switch)

CAV2 - ( ) - LB - 50 ( ) B - 100 - 1 - T0H - R - J I

1	2	3	4	5	6	7	8	9	10	11	12
Model Number	Variation	Mounting Style	Bore Size	Piping thread type	Cushion	Stroke	Voltage	Switch Model	Number of Switches	Option	Accessories

1 Model Number

Code	Content
CAV2	Double Acting double solenoid
COVP2	Double Acting single solenoid energized push type
COVN2	Double Acting single solenoid energized retraction type

2 Variation

Code	Content
Blank	Lubricated Type
N	Non-Lube Type
S	Short overall length type with cushion Lubricated type
NS	Short overall length type with cushion Non-lubricated type

3 Mounting Type

Mounting brackets are assembled and shipped.

Code	Content	
LB	Axial foot type	
FA	Rod side flange type	
CA	Clevis type	
TC	Intermediate Trunnion Type (Shaft type)	
TF	Intermediate Trunnion Type (Hole type)	

4 Bore Size (mm)

Code	Content
50	ø50
75	ø75
100	ø100

5 Piping thread type

Code	Content
Blank	Rc Thread
N	NPT Thread (Custom Order Product)
G	G thread (Custom product)

6 Cushion

Code	Content
B	With Air Cushion on Both Sides
*1 N	Without cushion

*1: Cannot be selected for short overall length type with cushion S-NS.

7 Stroke (mm)

Bore Size	Stroke	Intermediate Stroke
ø50	1 to 500	in 1mm increments
ø75	1 to 600	
ø100	1 to 800	

*1: If the maximum stroke is exceeded, product specifications may not be met depending on the conditions, so please consult us.
*2: A non-sag block is attached per 500 mm if the stroke is longer than 500 mm.
*3: For minimum stroke with switch, refer to P. 697.

8 Voltage

Code	Content
*1 Blank	Without valve
1	100 VAC
2	200 VAC
24 VDC	24 VDC (Custom product)

*1: 11 Option "Q" is blank only when air supply block is selected.

9 Switch Model

For switch details, refer to P. 1457. Switches are shipped with the product.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead wire *1 Straight	Lead wire *1 L-shape	
Solid State	1-Color	2-wire	85 to 265	—	5 to 100	-	T1H□	T1V□	
			-	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—		-		T3PH□	T3PV□	
	2-color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
	2-color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Off-Delay Type		—	10 to 30	—	5 to 20 *2	T2JH□	T2JV□	
	1-color Flexible Lead Wire Type		—	10 to 30	—		T2HR3	T2VR3	
Contact	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	Without Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	
	1-color		110/220	12/24	7 to 20 / 7 to 10	5 to 50	T8H□	T8V□	

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating Ambient Temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: It does not guarantee the water resistance performance of the cylinder (including the valve).
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, refer to P. 1457.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
*5 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T0H
3 m T0H3
5 m T0H5

10 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

11 Option

Code	Content			
J	Bellows	Max Ambient Temperature 100°C	Instantaneous Max Temperature 200°C	
TB1	Round Terminal Box			
*1 TB2	Square terminal box (Cannot be selected for single solenoid type.)			
MF1	With muffler (Lubrication only. Attached as standard with no-lubrication)			
*4 Z	Molded coil (Applicable only to CAV2)			
*3 Q	Air supply block			

*1: For 3 mounting type "CA" with ø75, ø100, "TB2" cannot be selected.
*2: Instantaneous maximum temperature is the temperature when fire, chips, etc. momentarily contact the bellows.
*3: When option "Q" is selected, only "J" can be selected for other options.
*4: Since COVP2 and COVN2 adopt molded coils as standard, option "Z" cannot be selected.

12 Accessories

Code	Content	
*1 I	Single knuckle	
*1 Y	Double Knuckle (With pin, washer, split pin)	
*2 B2	Double bracket (With pin, washer, split pin)	

*1: "I" and "Y" cannot be selected at the same time.
*2: "B2" is not available for "TC" and "TF" 3 mounting styles.

About specifications of custom products

For details, please refer to P. 727.

Code	Content
-XAQ◇◇	Trunnion Position Specification

Model No. Ex.)

CAV2 - ..... - XAQ□□

COV□2 - ..... - XAQ□□

Switch Single Unit Model No. Notation

T-type Switch

●Switch body+Mounting bracket set

CAV2 - T0H - 50

9 Switch Model; 4 Bore Size

●Switch body only

SW - T0H

9 Switch Model

●Mounting bracket set

CAV2 - TS - 50

4 Bore Size

Valve Unit Model No.

Model Number		Model No.
CAV2	Lubricated Type	CAV2-ACTUATOR-□
		CAV2-ACTUATOR-□-Z *2
	Non-Lube Type	CAV2-N-ACTUATOR-□
		CAV2-N-ACTUATOR-□-Z *2
COVP2	Lubricated Type	COVP2-ACTUATOR-□
	Non-Lube Type	COVP2-N-ACTUATOR-□
COVN2	Lubricated Type	COVN2-ACTUATOR-□
	Non-Lube Type	COVN2-N-ACTUATOR-□

*1: For □, enter voltage code "1" or "2".
1...100 VAC 2...200 VAC
*2: For option, molded coil (Z).

Specifications

Item		CAV2 CAV2-S			CAV2-N CAV2-NS			COVP N2 COVP N2-S			COVP N2-N COVP N2-NS		
Bore Size	mm	ø50	ø75	ø100	ø50	ø75	ø100	ø50	ø75	ø100	ø50	ø75	ø100
Operation type		Double Acting / With Valve											
Number of solenoids		Double Solenoid						Single solenoid					
Operating Fluid		Compressed Air											
Max Operating Pressure	MPa	0.7											
Min Operating Pressure	MPa	0.15											
Proof Pressure	MPa	1											
Ambient Temperature	°C	5 to 40											
Port Size		Rc1/4											
Stroke Tolerance	mm	$^{-0.9}_{0}$ (up to 360), $^{+1.4}_{0}$ (361 or more)											
Operating Piston Speed	mm/s	50 to 750	50 to 450	50 to 250	50 to 750	50 to 450	50 to 250	50 to 750	50 to 450	50 to 250	50 to 750	50 to 450	50 to 250
Cushion		Air cushion available/not available selectable											
Effective air cushion length	mm	6.5	6.5	5	6.5	6.5	5	6.5	6.5	5	6.5	6.5	5
Lubrication	(*1)	Required			Not Required			Required			Not Required		
Allowable Absorbed Energy J	With cushion	1.37	3.33	10.3	1.37	3.33	10.3	1.37	3.33	10.3	1.37	3.33	10.3
	Without cushion	0.072	0.154	0.154	0.072	0.154	0.154	0.072	0.154	0.154	0.072	0.154	0.154
		Without cushion, large energy generated by external load cannot be absorbed. It is recommended to use an external shock absorber together.											

*1: When lubricating, please use turbine oil type 1 ISO VG32.

Valve specifications

Valve specifications		
Rated Voltage V	100 VAC (50/60Hz)	200 VAC (50/60Hz)
Starting Current (A)	0.29/0.27	0.15/0.14
Holding Current (A)	0.11/0.09	0.06/0.04
Power consumption W	6/5	6/5
Voltage fluctuation range	±10%	
Heat Resistance Class	Class A (CAV2)	Class B (COVP N2)

Stroke

Bore Size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Min Stroke (mm)
ø50	50, 75, 100 150, 200, 300	500	1000	1
ø75		600		
ø100		800		

*1: If the maximum stroke is exceeded, the product specifications may not be met depending on the conditions, so please consult us.
*2: Intermediate strokes can be manufactured in 1 mm increments.
*3: Minimum stroke varies depending on the switch mounting method. Please refer to the minimum stroke with switch on the next page.

Minimum stroke with switch

● T0/T5/T8 type switch, no cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	18 (18)	13 (9)	18 (18)	215 (215)	215 (215)
ø75	19 (19)	12 (10)	19 (19)	203 (203)	203 (203)
ø100	19 (19)	10 (10)	19 (19)	119 (89)	119 (89)

*1: ( ) indicates T□V (L-shaped lead wire type).

● T0/T5/T8 type switch, with cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	18 (18)	9 (9)	18 (18)	241 (241)	241 (241)
ø75	19 (19)	10 (10)	19 (19)	241 (241)	241 (241)
ø100	19 (19)	10 (10)	19 (19)	120 (108)	120 (108)

*1: ( ) indicates T□V (L-shaped lead wire type).

● T1/T2/T3 type switch, no cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	13 (10)	13 (6)	13 (10)	100 (70)	100 (70)
ø75	12 (11)	12 (6)	12 (11)	100 (70)	100 (70)
ø100	12 (12)	7 (6)	12 (12)	119 (89)	119 (89)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● T1/T2/T3 type switch, with cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	10 (10)	6 (6)	10 (10)	102 (72)	102 (72)
ø75	11 (11)	6 (6)	11 (11)	102 (72)	102 (72)
ø100	12 (12)	6 (6)	12 (12)	121 (91)	121 (91)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● T2W/T3W type switch without cushion (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	10 (10)	16 (5)	16 (10)	106 (76)	106 (76)
ø75	15 (11)	15 (5)	15 (11)	106 (76)	106 (76)
ø100	12 (12)	10 (6)	12 (12)	125 (95)	125 (95)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● T2W/T3W type switch, with cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	10 (10)	5 (5)	10 (10)	106 (76)	106 (76)
ø75	11 (11)	5 (5)	11 (11)	106 (76)	106 (76)
ø100	12 (12)	6 (6)	12 (12)	125 (95)	125 (95)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

● T2WL type switch, no cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	17 (9)	17 (5)	17 (9)	108 (76)	108 (76)
ø75	16 (9)	16 (5)	16 (9)	108 (76)	108 (76)
ø100	11 (9)	11 (5)	11 (9)	127 (95)	127 (95)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

●T2WL type switch, with cushion type (Unit: mm)

Number of Switches	Different Surface Mounting	Same Surface Mounting		Intermediate Trunnion Mounting	
Bore Size	2	1	2	1	2
ø50	9 (9)	5 (5)	9 (9)	108 (76)	108 (76)
ø75	9 (9)	5 (5)	9 (9)	108 (76)	108 (76)
ø100	9 (9)	5 (5)	9 (9)	127 (95)	127 (95)

*1: ( ) indicates T□V (L-shaped lead wire type).
*2: If the stroke is 15 mm or less, two switches may turn ON simultaneously. In this case, adjust the switch mounting positions so that they are further apart from each other.

Cylinder Weight

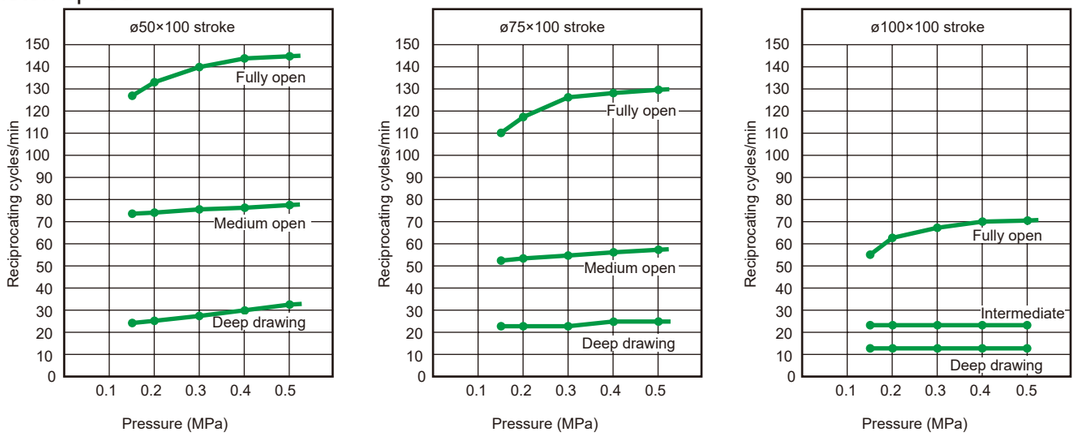
(Unit: kg)

Item / Mounting Style	Cushion Available/ Not available	Product Weight when stroke (S) = 0 mm								Switch Weight (Per piece)	Switch Mounting Bracket Weight	S = Added weight per 100 mm
		Foot type LB		Flange type FA		Clevis type CA		Trunnion type TC/TF				
Bore Size (mm)		CAV2 CAV2-S	COV$^{P}_{N}$2 COV$^{P}_{N}$2-S	CAV2 CAV2-S	COV$^{P}_{N}$2 COV$^{P}_{N}$2-S	CAV2 CAV2-S	COV$^{P}_{N}$2 COV$^{P}_{N}$2-S	CAV2 CAV2-S	COV$^{P}_{N}$2 COV$^{P}_{N}$2-S			
ø50	B (Available)	2.1	1.9	2.3	2.1	2.2	2.0	2.4	3.2	Refer to the Weight listed in the Switch Specifications on P. 1457.	0.024	0.50
	N (Not available)	1.9	2.2	2.1	1.9	2.0	1.8	2.2	2.0			
ø75	B (Available)	3.6	4.5	3.8	3.6	4.3	4.1	4.3	4.1		0.020	1.20
	N (Not available)	3.3	3.1	3.5	3.3	4.0	3.8	4.0	3.8			
ø100	B (Available)	4.7	10.2	5.7	5.9	5.5	5.7	7.1	7.3		0.026	1.50
	N (Not available)	4.1	6.4	5.1	5.3	4.9	5.1	6.5	6.7			

(Example) CAV2-LB-50B-200-1-TOH-R

- Product Weight at S = 0 mm: ..... 2.1 kg
- Additional weight when S = 200 mm ..... $0.50 \times \frac{200}{100} = 1.0$ kg
- Weight of 1 switches ..... 0.018 kg
- Product weight ..... 2.1 kg+1.0 kg+0.018 kg = 3.118 kg

Piston speed



Note: Deep throttle, intermediate, and full open indicate the throttle condition of the speed adjustment needle. Note that this value is for no load.

Theoretical Thrust Table

(Unit: N)

Bore Size (mm)	Operating Direction	Operating Pressure MPa						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø50	Push	2.95×10^{2}	3.93×10^{2}	5.89×10^{2}	7.85×10^{2}	9.82×10^{2}	1.18×10^{3}	1.37×10^{3}
	Pull	2.48×10^{2}	3.30×10^{2}	4.95×10^{2}	6.60×10^{2}	8.25×10^{2}	9.90×10^{2}	1.15×10^{3}
ø75	Push	6.63×10^{2}	8.84×10^{2}	1.33×10^{3}	1.77×10^{3}	2.21×10^{3}	2.65×10^{3}	3.09×10^{3}
	Pull	5.90×10^{2}	7.85×10^{2}	1.18×10^{3}	1.57×10^{3}	1.96×10^{3}	2.36×10^{3}	2.75×10^{3}
ø100	Push	1.18×10^{3}	1.57×10^{3}	2.36×10^{3}	3.14×10^{3}	3.93×10^{3}	4.71×10^{3}	5.50×10^{3}
	Pull	1.11×10^{3}	1.47×10^{3}	2.21×10^{3}	2.95×10^{3}	3.68×10^{3}	4.42×10^{3}	5.15×10^{3}

Mounting Bracket Model No.

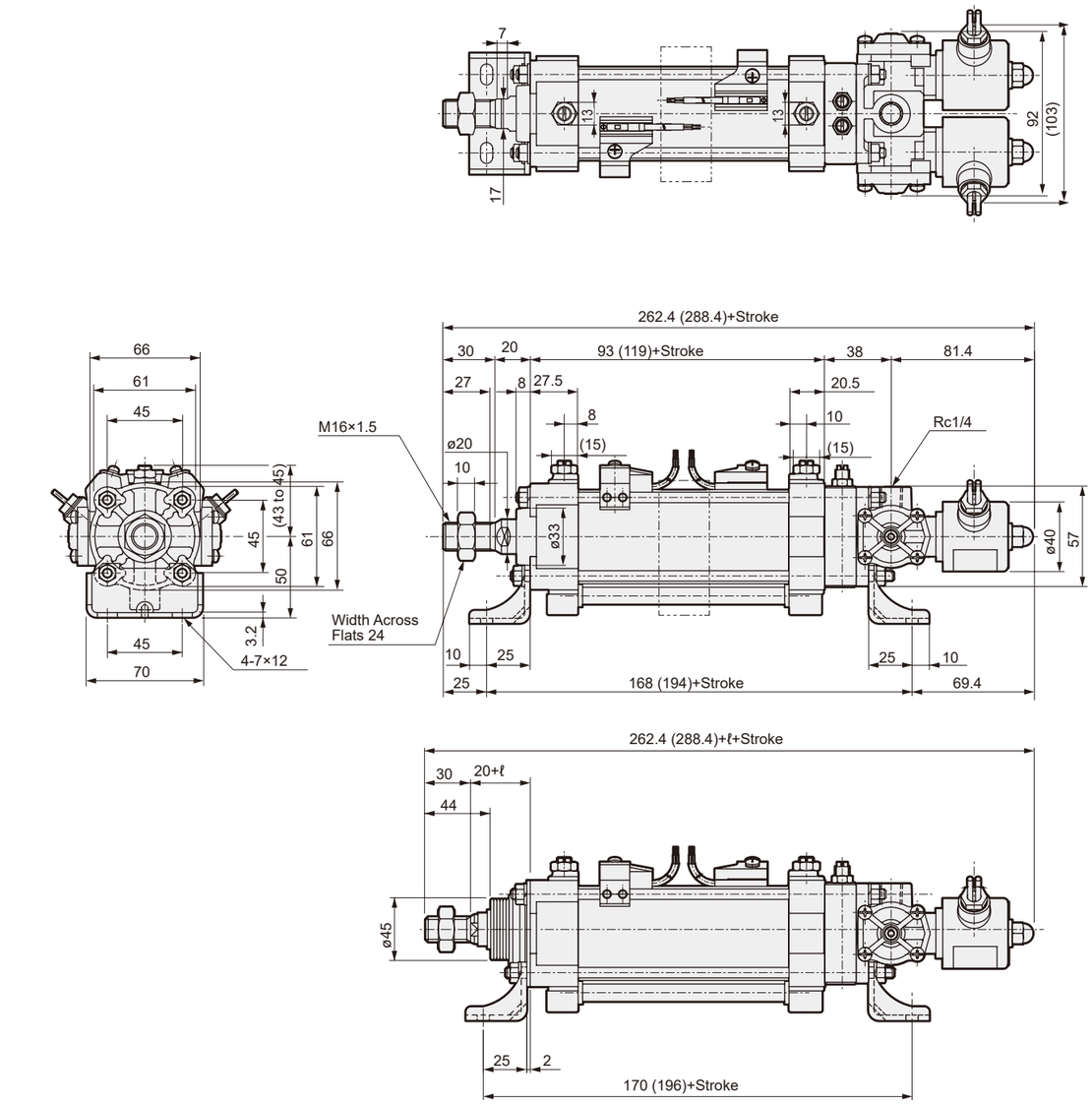
Bore Size (mm) / Mounting bracket	ø50	ø75	ø100
Foot (LB)	CAV2-50-LB	CAV2-75-LB	CAV2-100-LB
Flange (FA)	CAV2-50-FA	CAV2-75-FA	CAV2-100-FA
Clevis (CA)	CAV2-50-CA	CAV2-75-CA	CAV2-100-CA
Shaft type trunnion (TC)	CAV2-50-TC	CAV2-75-TC	CAV2-100-TC
Hole type trunnion (TF)	CAV2-50-TF	CAV2-75-TF	CAV2-100-TF

*1: The above model numbers are for the mounting bracket single unit only and do not include tie rods.
*2: Foot type mounting brackets come in sets of 2.

MEMO

External Dimensions Diagram (Double Solenoid CAV2)

● Axial foot (LB) ø50



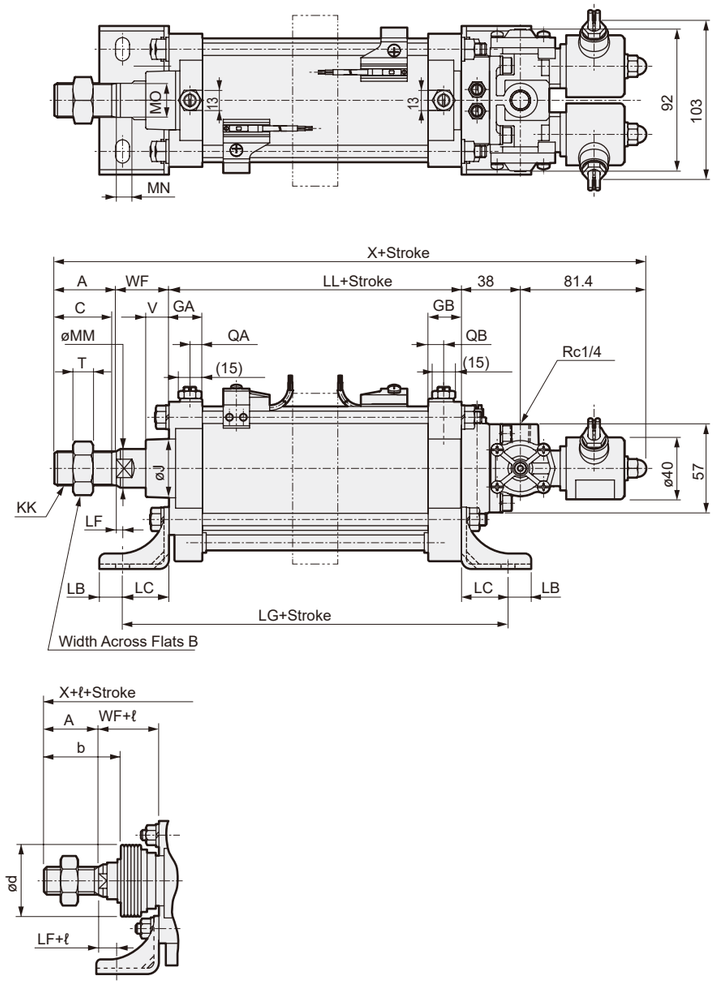
[With bellows]

Code	With Bellows						
	ℓ						
Bore Size (mm)	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For external dimensions of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**

External Dimensions Diagram (Double Solenoid CAV2)

● Axial foot (LB) ø75, ø100



[With bellows]

Code	Axial Foot Type Basic Dimensions																			
Bore Size (mm)	A	B	C	GA	GB	J	K	KK	L	LL	MM	MN	MO	QA	QB	SD	T	V	WF	X
ø75	40	32	37	22	22	38	86	M22×1.5	52 to 54	91 (139)	25	10	22	8.7	10.7	66	13	15	34	284.4 (332.4)
ø100	40	32	37	24.5	24.5	38	109	M22×1.5	60.5 to 62.5	105 (142)	25	10	22	10.7	10.7	86.3	13	15	35	299.4 (336.4)

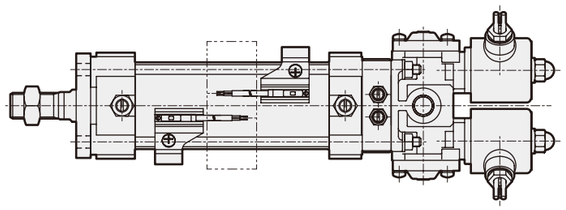
Code	Mounting Dimensions									With Bellows								
												ℓ						
Bore Size (mm)	LB	LC	LD	LF	LG	LH	LR	LS	LT	b	d	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	15	30	9×15	4	151 (199)	65	66	96	3.2	55	50	7	14	27	37	47	57	(Stroke/5)
ø100	15	30	11×20	5	165 (202)	85	85	120	3.2	55	50	7	14	27	37	47	57	(Stroke/5)

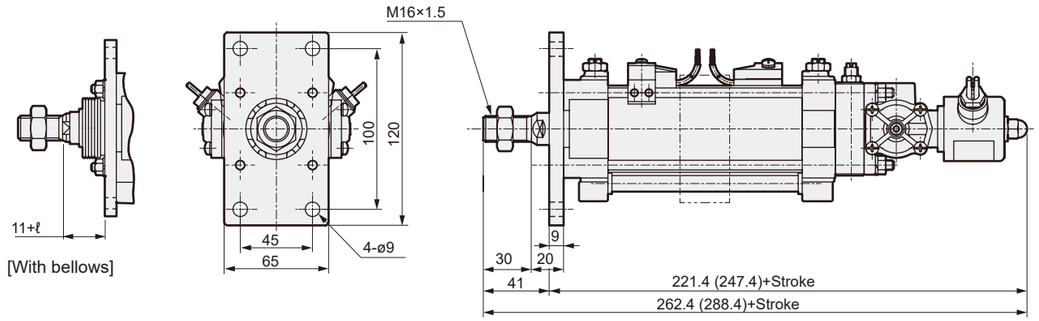
*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For external dimensions of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**

External Dimensions Diagram (Double Solenoid CAV2)

● Rod side flange (FA) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
*4: In case of with bellows, the bellows mounting surface, Hexagon Nut (M6), etc. protrude from the flange mounting surface. Provide a relief of ø77 or more and depth 11 or more.
***5: For external dimensions of accessories, please refer to P. 722.**
***6: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***7: For dimensions of models with switches, see P. 726.**

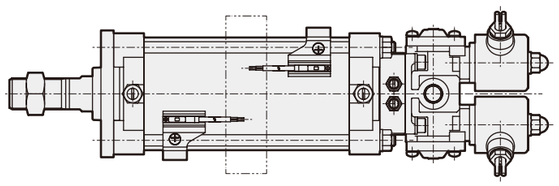


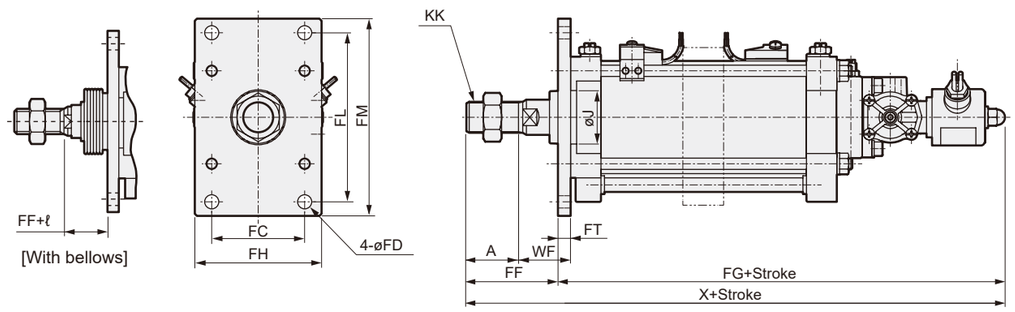


Code	With Bellows						
	ℓ						
Bore Size (mm)	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

● Rod side flange (FA) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For external dimensions of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**



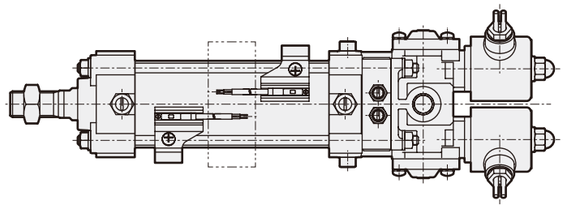


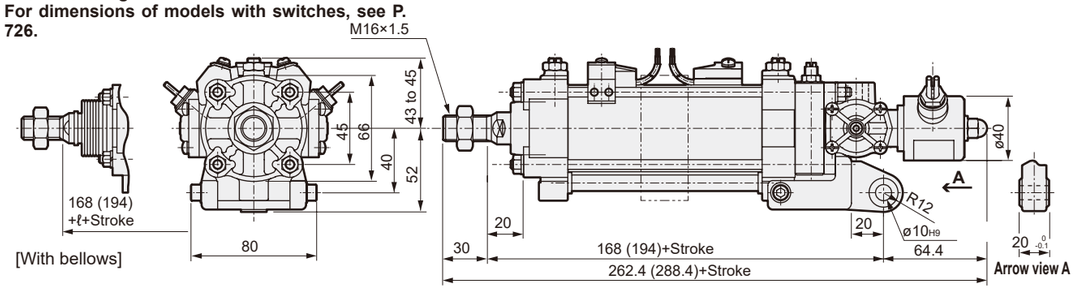
Code	Rod Side Flange Type Mounting Dimensions											With Bellows						
												ℓ						
Bore Size (mm)	A	KK	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	40	M22×1.5	34	284.4 (332.4)	66	10	65	219.4 (267.4)	90	120	140	9	7	14	27	37	47	57	(Stroke/5)
ø100	40	M22×1.5	35	299.4 (336.4)	85	12	63	236.4 (273.4)	120	150	180	12	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Double Solenoid CAV2)

● Clevis (CA) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
***3: For the swing range of combination with double yoke bracket (B2), please refer to P. 728.**
*4: The outline dimensional drawing of short overall length type with cushion (-S, -NS) is the same as the dimensions of no cushion (N) in this figure.
***5: For the external dimensions diagram of accessories, please refer to P. 722.**
***6: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to catalog P. 712.**
***7: For dimensions of models with switches, see P. 726.**

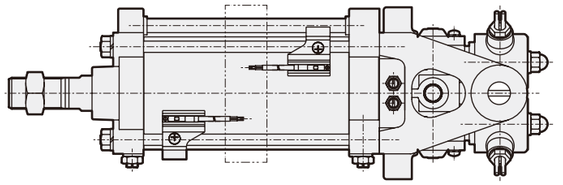


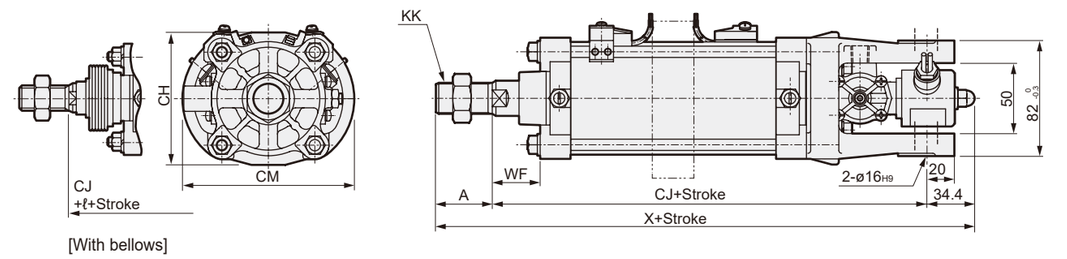


Code	Clevis type with bellows						
	ℓ						
Bore Size (mm)	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

● Eye bracket (CA) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
***3: For the swing range of combination with double yoke bracket (B2), please refer to P. 728.**
*4: Manual operation of the valve is not possible. Please be forewarned.
*5: The outline dimensional drawing of short overall length type with cushion (-S, -NS) is the same as the dimensions of no cushion (N) in this figure.
***6: For the external dimensions diagram of accessories, please refer to P. 722.**
***7: An intermediate support head (double-dot chain line) is added depending on the stroke. Please refer to catalog P. 712.**
***8: For dimensions of models with switches, see P. 726.**



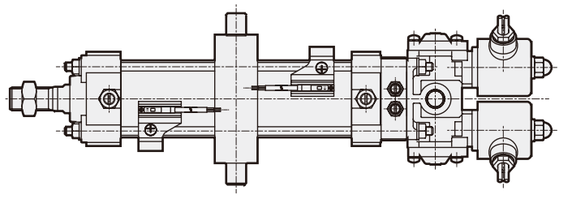


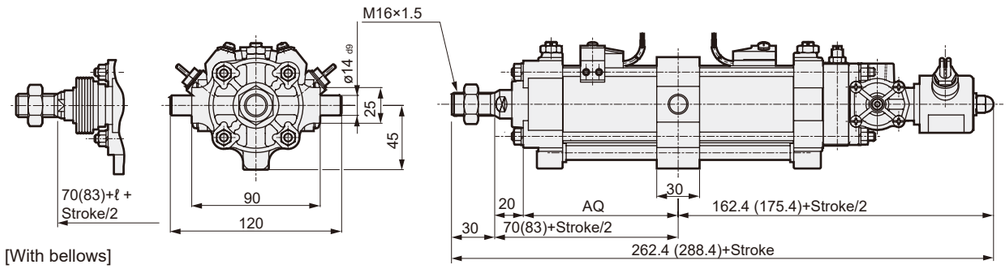
Code	Single Yoke Clevis Type Mounting Dimensions							With Bellows						
								ℓ						
Bore Size (mm)	A	KK	WF	X	CH	CJ	CM	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	40	M22×1.5	34	284.4 (332.4)	94	210 (258)	122	7	14	27	37	47	57	(Stroke/5)
ø100	40	M22×1.5	35	299.4 (336.4)	109	225 (262)	124	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Double Solenoid CAV2)

● Intermediate trunnion (shaft) (TC) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**

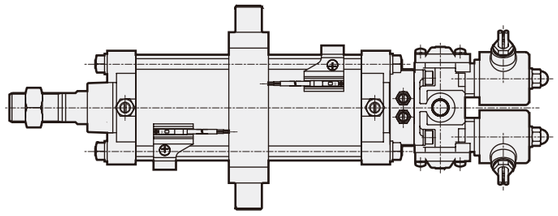


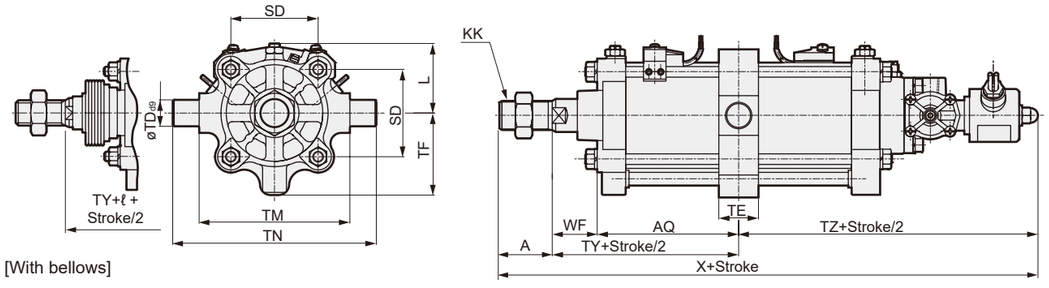


Code	Intermediate Trunnion Type (Shaft type) ø50 Mounting Dimensions	With Bellows						
Bore Size (mm)	AQ	ℓ						
		50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	50 (63)+Stroke/2	17	24	37	47	57	67	(Stroke/5)

● Intermediate trunnion (shaft) (TC) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The outline dimensional drawing of short overall length type with cushion (-S, -NS) is the same as the dimensions of no cushion (N) in this figure.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**





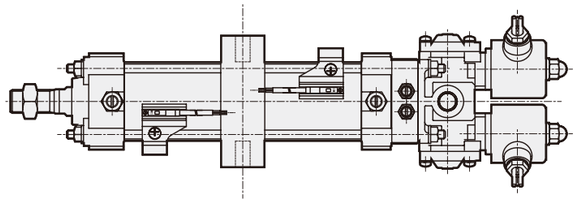
Code	Intermediate Trunnion Type (Shaft type) ø75, ø100 Mounting Dimensions											
Bore Size (mm)	A	KK	WF	X	AQ	TD	TE	TF	TM	TN	TZ	TY
ø75	40	M22×1.5	34	284.4 (332.4)	45.5 (69.5) + Stroke/2	20	30	62	114	154	164.9 (188.9)	79.5 (103.5)
ø100	40	M22×1.5	35	299.4 (336.4)	52.5 (71) + Stroke/2	35	50	78	135	205	171.9 (190.4)	87.5 (106)

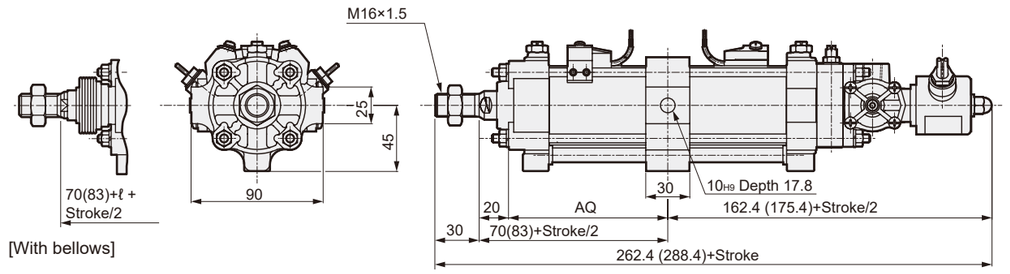
Code	With Bellows						
Bore Size (mm)	ℓ						
	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	7	14	27	37	47	57	(Stroke/5)
ø100	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Double Solenoid CAV2)

● Intermediate trunnion (supporting hole type) (TF) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**

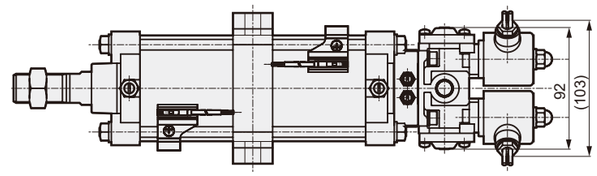


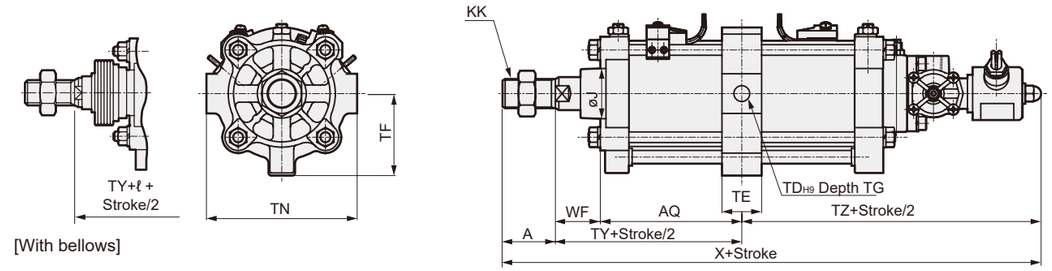


Code	Intermediate Trunnion Type (Hole type) ø50 Mounting Dimensions	With Bellows						
Bore Size (mm)	AQ	ℓ						
		50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	50 (63)+Stroke/2	17	24	37	47	57	67	(Stroke/5)

● Intermediate trunnion (supporting hole type) (TF) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**



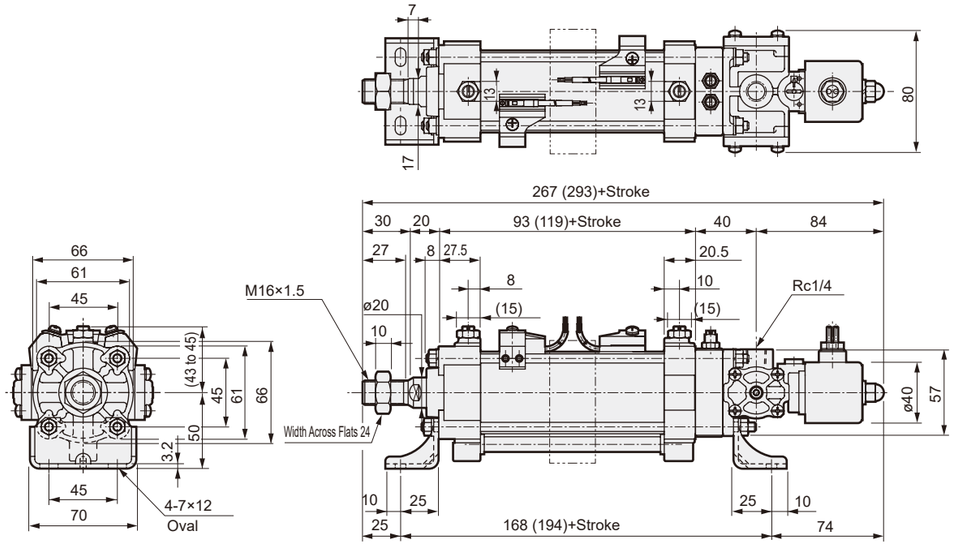


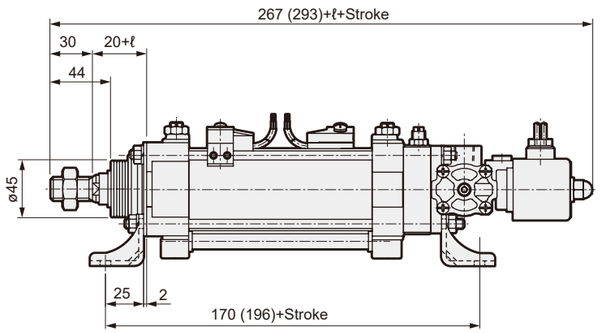
Code	Intermediate Trunnion Type (Hole type) ø75, ø100 Mounting Dimensions												
Bore Size (mm)	A	KK	WF	X	J	AQ	TD	TE	TF	TG	TN	TZ	TY
ø75	40	M22×1.5	34	284.4 (332.4)	38	45.5 (69.5) + Stroke/2	12	30	62	16.8	114	164.9 (188.9)	79.5 (103.5)
ø100	40	M22×1.5	35	299.4 (336.4)	38	52.5 (71) + Stroke/2	16	40	78	18.6	144	171.9 (190.4)	87.5 (106)

Code	With Bellows						
Bore Size (mm)	ℓ						
	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	7	14	27	37	47	57	(Stroke/5)
ø100	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Axial foot (LB) ø50





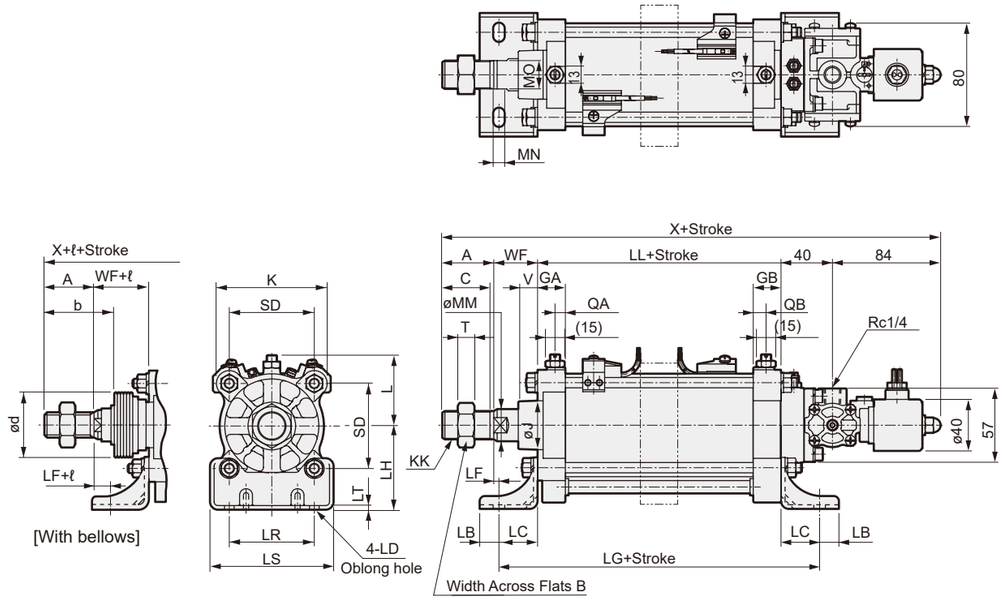
[With bellows]

Code	Axial foot type ø50 with bellows						
	ℓ						
Bore Size (mm)	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For external dimensions of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Axial foot (LB) ø75, ø100



Code	Axial Foot Type ø75, ø100 Basic Dimensions																			
Bore Size (mm)	A	B	C	GA	GB	J	K	KK	L	LL	MM	MN	MO	QA	QB	SD	T	V	WF	X
ø75	40	32	37	22	22	38	86	M22×1.5	52 to 54	91 (139)	25	10	22	8	10	66	13	15	34	289 (337)
ø100	40	32	37	24.5	24.5	38	109	M22×1.5	60.5 to 62.5	105 (142)	25	10	22	10.7	10.7	86.3	13	15	35	304 (341)

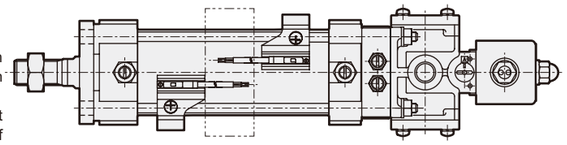
Code	Mounting Dimensions									With Bellows								
												ℓ						
Bore Size (mm)	LB	LC	LD	LF	LG	LH	LR	LS	LT	b	d	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	15	30	9×15	4	151 (199)	65	66	96	3.2	55	50	7	14	27	37	47	57	(Stroke/5)
ø100	15	30	11×20	5	165 (202)	85	85	120	3.2	55	50	7	14	27	37	47	57	(Stroke/5)

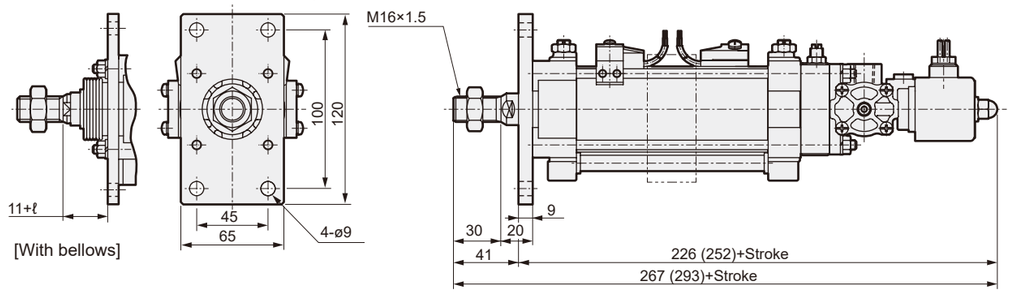
*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For external dimensions of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Rod side flange (FA) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
*4: In case of with bellows, the bellows mounting surface, Hexagon Nut (M6), etc. protrude from the flange mounting surface. Provide a relief of Ø77 or more and depth 11 or more.
***5: For the external dimensions diagram of accessories, please refer to P. 722.**
***6: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***7: For dimensions of models with switches, see P. 726.**

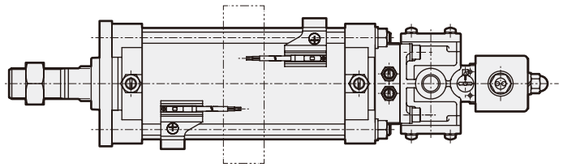


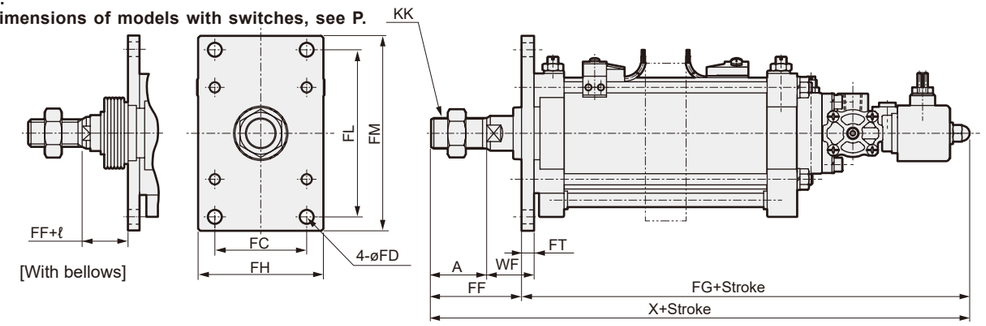


Code	Rod side flange type ø50 with bellows						
Bore Size (mm) \ ℓ	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

● Rod side flange (FA) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***6: For dimensions of models with switches, see P. 726.**





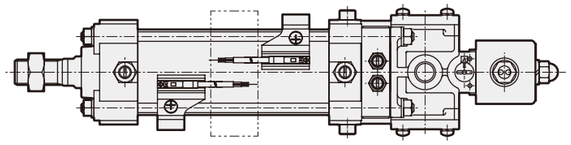
Code	Rod Side Flange Type ø75, ø100 Mounting Dimensions											
Bore Size (mm) \	A	KK	WF	X	FC	FD	FF	FG	FH	FL	FM	FT
ø75	40	M22×1.5	34	289 (337)	66	10	25	224 (272)	90	120	140	9
ø100	40	M22×1.5	35	304 (341)	85	12	23	241 (278)	120	150	180	12

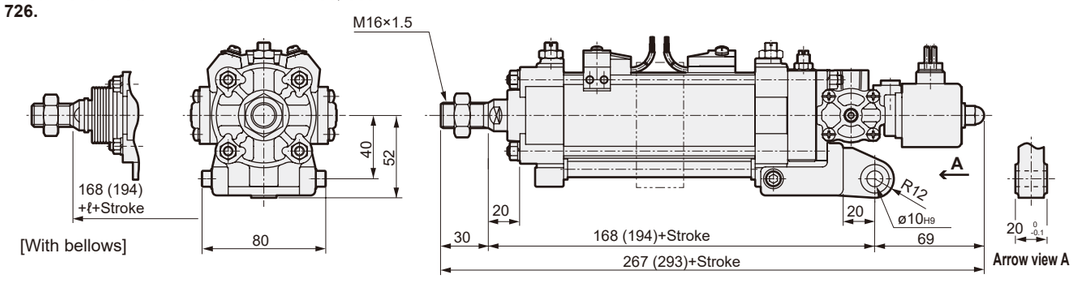
Code	With Bellows						
Bore Size (mm) \ ℓ	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	7	14	27	37	47	57	(Stroke/5)
ø100	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Clevis (CA) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
***3: For the swing range of combination with double yoke bracket (B2), please refer to P. 728.**
*4: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***5: For the external dimensions diagram of accessories, please refer to P. 722.**
***6: An intermediate support head (two-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***7: For dimensions of models with switches, see P. 726.**

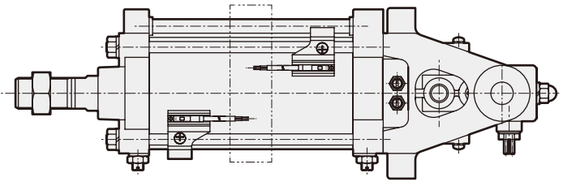


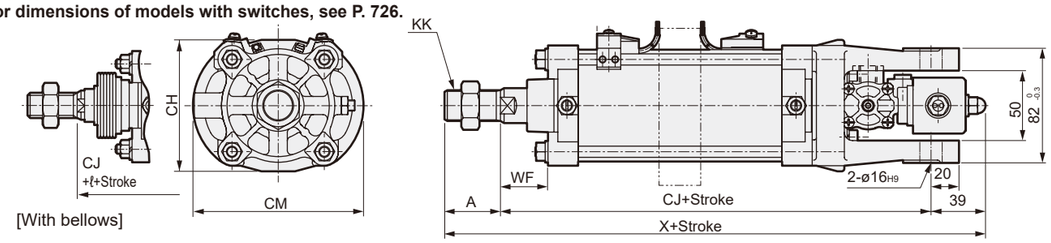


Code	Clevis type ø50 with bellows						
Bore Size (mm) \ ℓ	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	17	24	37	47	57	67	(Stroke/5)

● Eye bracket (CA) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
***3: For the swing range of combination with double yoke bracket (B2), please refer to P. 728.**
*4: Manual operation of the valve is not possible. Please be forewarned.
*5: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***6: For the external dimensions diagram of accessories, please refer to P. 722.**
***7: An intermediate support head (double-dot chain line) is added depending on the stroke. Please refer to P. 712.**
***8: For dimensions of models with switches, see P. 726.**





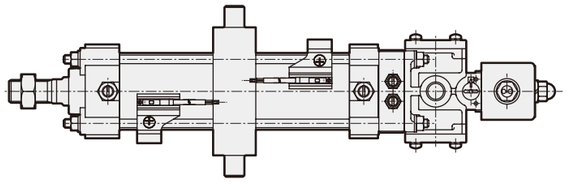
Code	Single Yoke Clevis Type ø75, ø100 Mounting Dimensions							
Bore Size (mm) \	A	K	KK	WF	X	CH	CJ	CM
ø75	40	86	M22×1.5	34	289 (337)	94	210 (258)	122
ø100	40	109	M22×1.5	35	304 (341)	109	225 (262)	124

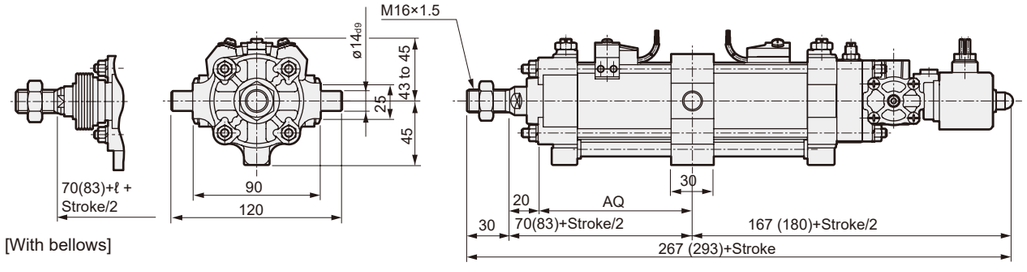
Code	With Bellows						
Bore Size (mm) \ ℓ	50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	7	14	27	37	47	57	(Stroke/5)
ø100	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Intermediate trunnion (shaft) (TC) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**



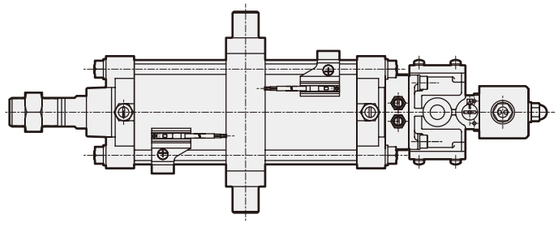


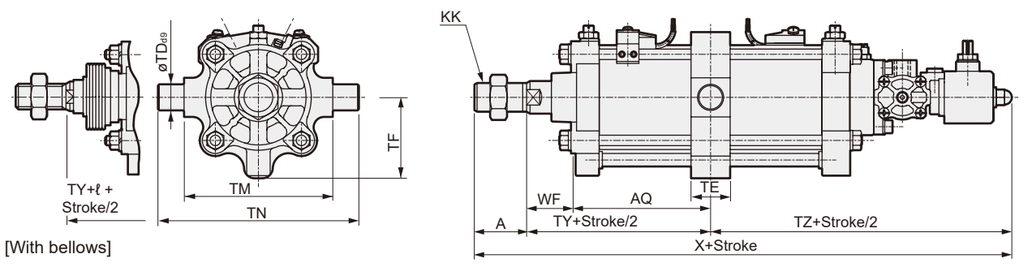
[With bellows]

Code / Bore Size (mm)	Mounting Dimensions AQ	With Bellows ℓ 50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	50 (63)+Stroke/2	17	24	37	47	57	67	(Stroke/5)

● Intermediate trunnion (shaft) (TC) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**





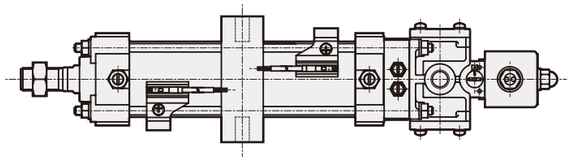
[With bellows]

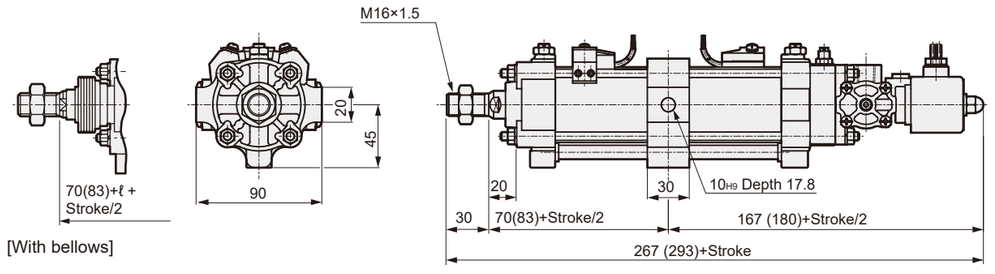
Code / Bore Size (mm)	Intermediate Trunnion Type (Shaft type) ø75, ø100 Mounting Dimensions A	KK	WF	X	AQ	TD	TE	TF	TM	TN	TZ	TY	With Bellows ℓ 50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	40	M22×1.5	34	289 (337)	45.5 (69.5) +Stroke/2	20	30	62	114	154	169.5 (193.5)	79.5 (103.5)	7	14	27	37	47	57	(Stroke/5)
ø100	40	M22×1.5	35	304 (341)	52.5 (71) +Stroke/2	35	50	78	135	205	176.5 (195)	87.5 (106)	7	14	27	37	47	57	(Stroke/5)

External Dimensions Diagram (Single Solenoid COV$^{P}_{N}$2)

● Intermediate trunnion (supporting hole type) (TF) ø50

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**



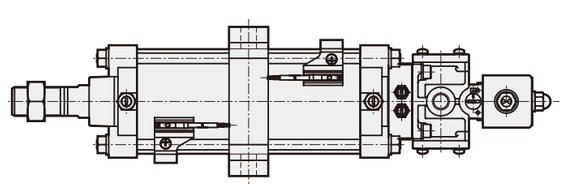


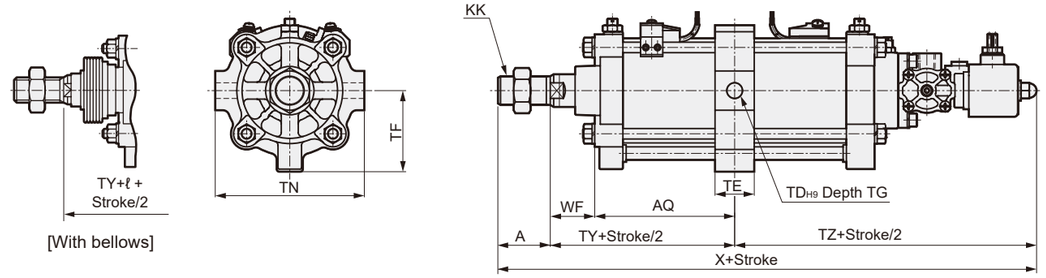
[With bellows]

Code / Bore Size (mm)	Mounting Dimensions AQ	With Bellows ℓ 50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø50	50 (63)+Stroke/2	17	24	37	47	57	67	(Stroke/5)

● Intermediate trunnion (supporting hole type) (TF) ø75, ø100

*1: Dimensions in ( ) indicate the case of with cushion (B).
*2: Round up the ℓ dimension to the nearest integer.
*3: The external dimensions diagram for the short overall length type with cushion (-S, -NS) is the same as the dimensions for the no cushion (N) type in this diagram.
***4: For the external dimensions diagram of accessories, please refer to P. 722.**
***5: For dimensions of models with switches, see P. 726.**





[With bellows]

Code / Bore Size (mm)	Intermediate Trunnion Type (Hole type) ø75, ø100 Mounting Dimensions A	KK	WF	X	L	AQ	TD	TE	TF	TG	TN	TZ	TY	With Bellows ℓ 50 or less	Over 50 to 100 or Less	Over 100 to 150 or Less	Over 150 to 200 or Less	Over 200 to 250 or Less	Over 250 to 300 or Less	Exceeding 300
ø75	40	M22×1.5	34	289 (337)	52 to 54	45.5 (69.5) +Stroke/2	12	30	62	16.8	114	169.5 (193.5)	79.5 (103.5)	7	14	27	37	47	57	(Stroke/5)
ø100	40	M22×1.5	35	304 (341)	60.5 to 62.5	52.5 (71) +Stroke/2	16	40	78	18.6	144	176.5 (195)	87.5 (106)	7	14	27	37	47	57	(Stroke/5)

About intermediate support head

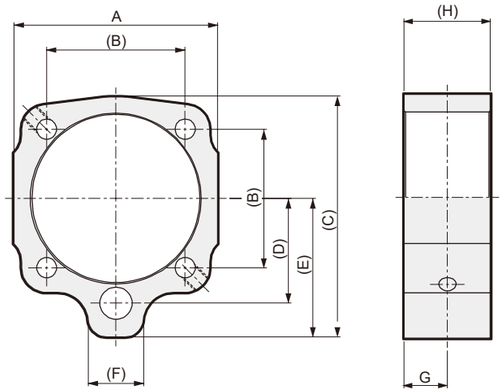
An intermediate support head is added to the center of the cylinder depending on the stroke.

Quantity of intermediate support heads by stroke

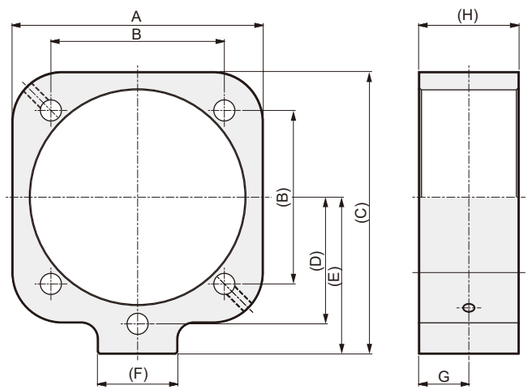
Tube diameter (mm)	Stroke (mm)	Intermediate support head quantity
ø50	501 to 1000	1
ø75	501 to 1000	1
ø100	501 to 1000	1

Also, the dimensions of the center holding head are as shown in the diagram below, so please consider the dimensions of the center holding head when installing the cylinder.

● ø50, ø75



●ø100



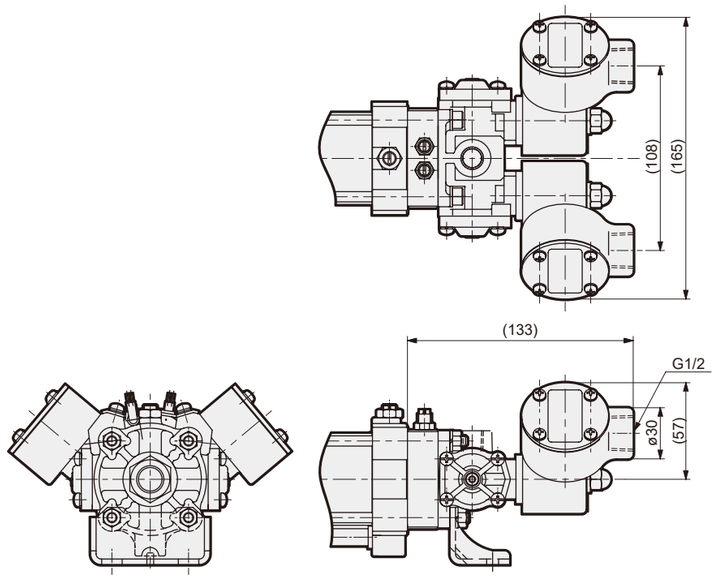
Tube diameter (mm)	Intermediate support head dimensions							
	A	B	C	D	E	F	G	H
ø50	66	45	78	34	45	18	15	30
ø75	100	66	112	48	62	22	15	30
ø100	125	86	140.5	63	78	40	25	50

MEMO

External Dimensions Diagram with Options (Double Solenoid, TB1)

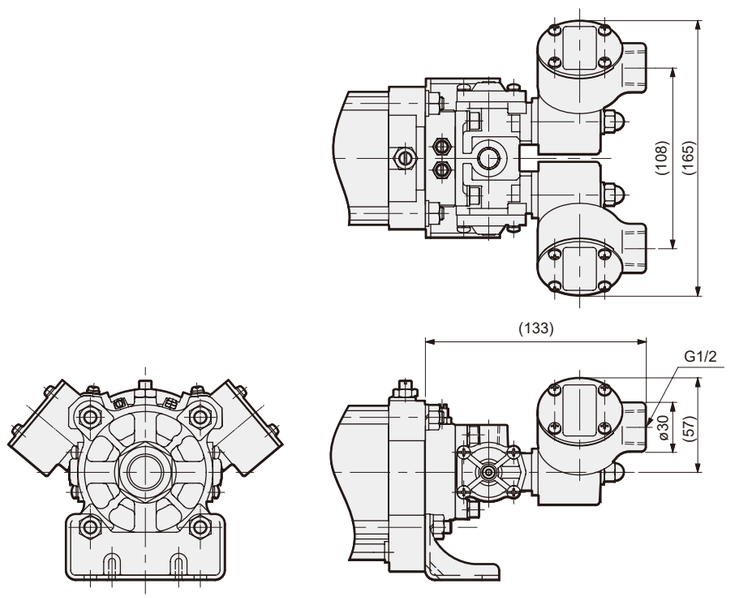
● CAV2-LB, CAV2-N-LB (double solenoid)
Axial Foot Type (LB), With Round Terminal Box (TB1) ø50
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø50
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø50

***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 700.**



● CAV2-LB, CAV2-N-LB (double solenoid)
Axial Foot Type (LB), With Round Terminal Box (TB1) ø75, ø100
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø75, ø100
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø75, ø100

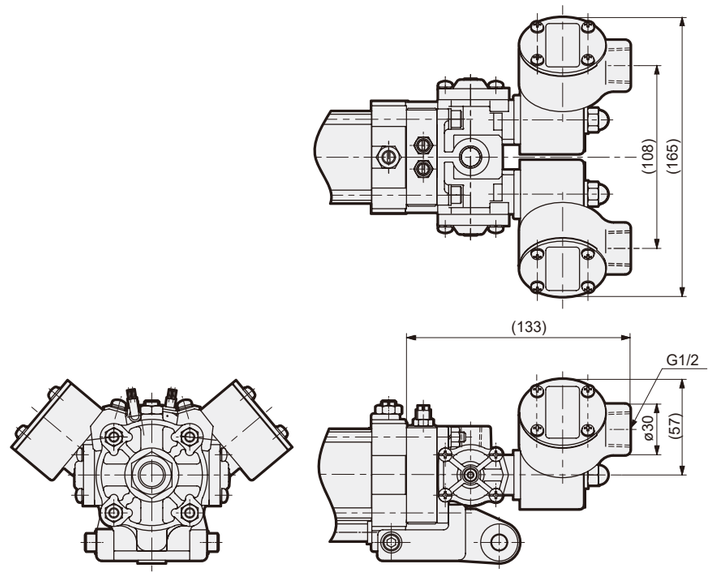
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 701.**



External Dimensions Diagram with Options (Double Solenoid, TB1)

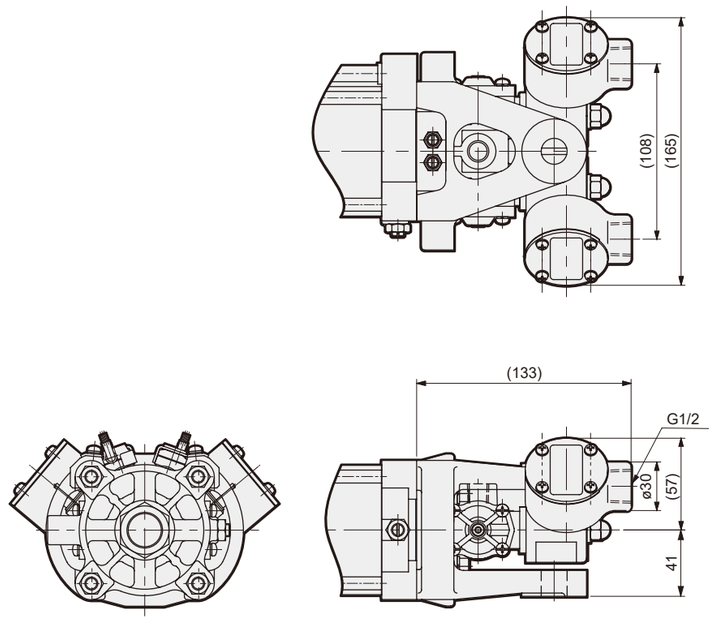
● CAV2-CA, CAV2-N-CA (double solenoid)
Clevis Type (CA), With Round Terminal Box (TB1) ø50

***1: For detailed external dimensions of the terminal box, please refer to P. 721.**



● CAV2-CA/CAV2-N-CA (double solenoid)
Clevis Type (CA), With Round Terminal Box (TB1) ø75, ø100

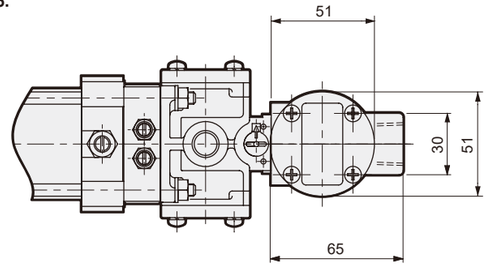
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**

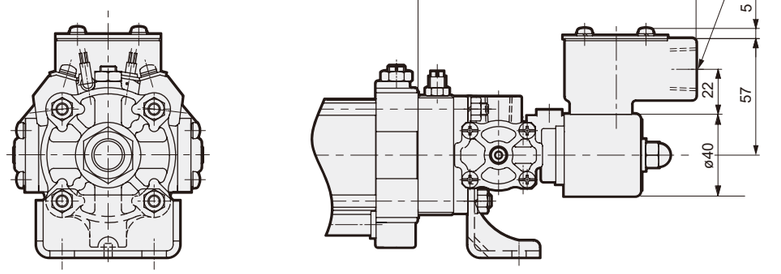


External Dimensions Diagram with Options (Single Solenoid, TB1)

● COV$^{P}_{N}$2-LB/COV$^{P}_{N}$2-N-LB (single solenoid)
Axial Foot Type (LB), With Round Terminal Box (TB1) ø50
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø50
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø50

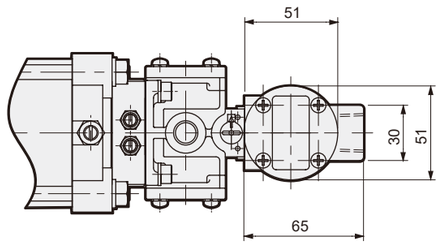
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 706.**

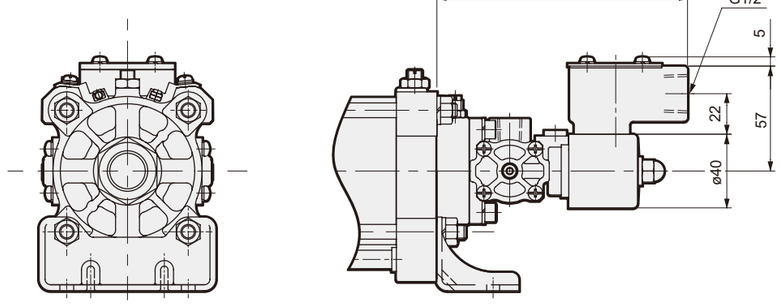




● COV$^{P}_{N}$2-LB/COV$^{P}_{N}$2-N-LB (single solenoid)
Axial Foot Type (LB), With Round Terminal Box (TB1) ø75, ø100
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø75, ø100
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø75, ø100

***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 707.**

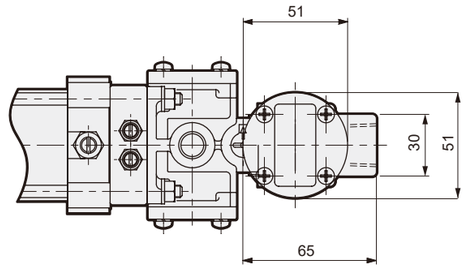


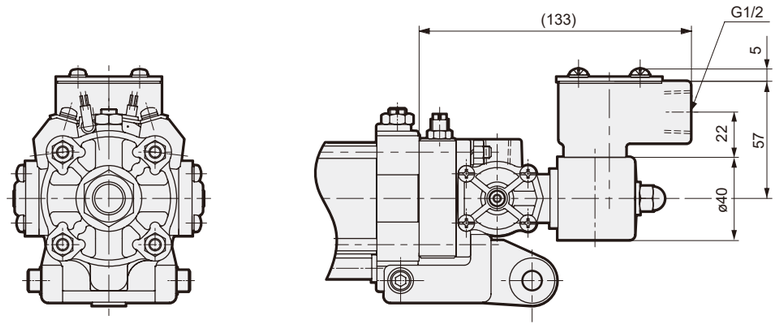


External Dimensions Diagram with Options (Single Solenoid, TB1)

● COV$^{P}_{N}$2-CA/COV$^{P}_{N}$2-N-CA (single solenoid)
Clevis Type (CA), With Round Terminal Box (TB1) ø50

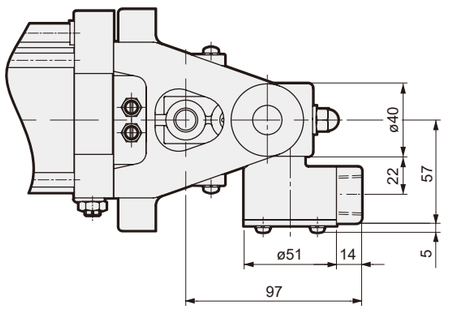
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**

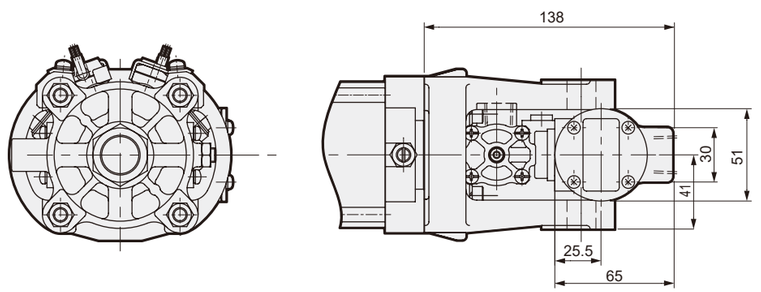




● COV$^{P}_{N}$2-CA/COV$^{P}_{N}$2-N-CA (single solenoid)
Clevis Type (CA), With Round Terminal Box (TB1) ø75, ø100

***1: For detailed external dimensions of the terminal box, please refer to P. 721.**

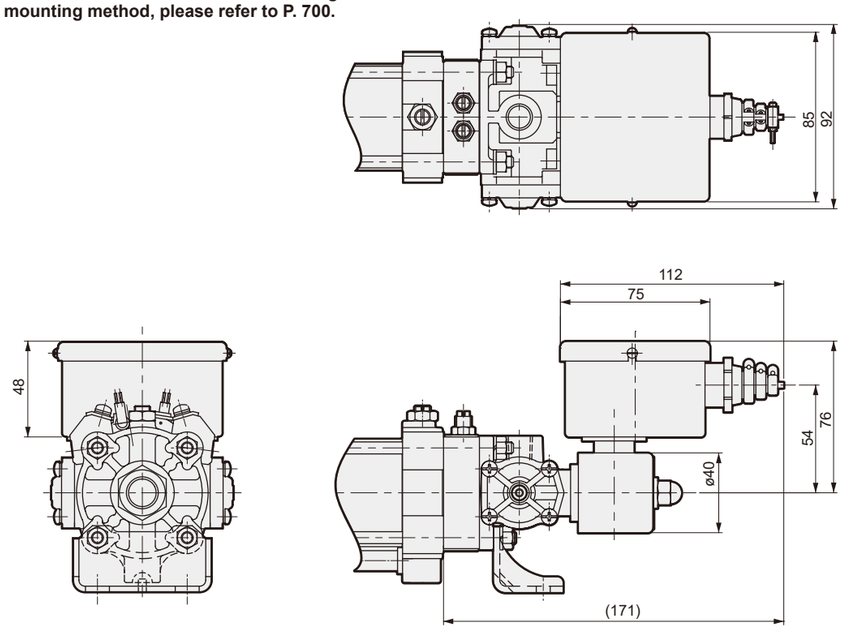




External Dimensions Diagram with Options (Double Solenoid, TB2)

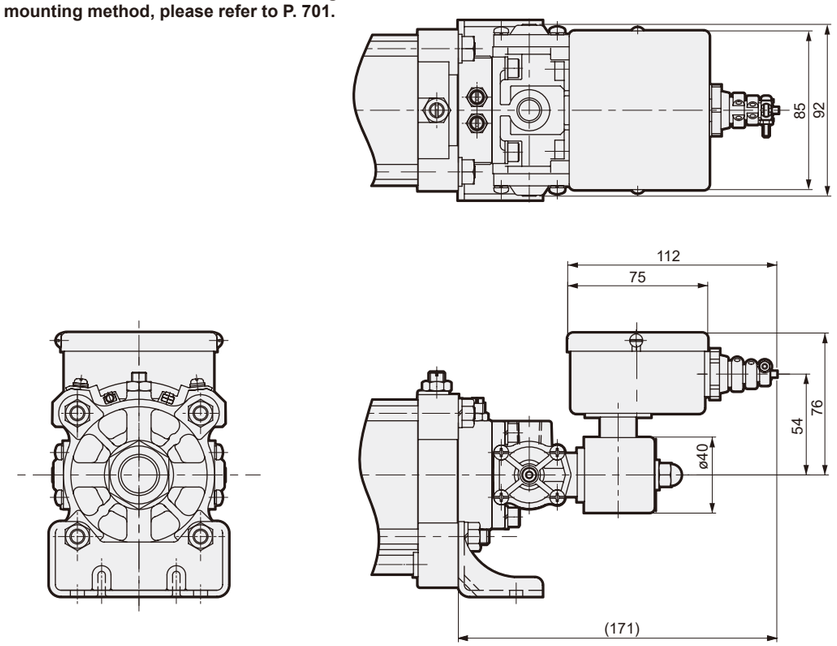
● CAV2-LB, CAV2-N-LB (double solenoid)
Axial Foot Type (LB), With Square Terminal Box (TB2) ø50
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø50
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø50

***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 700.**



● CAV2-LB, CAV2-N-LB (double solenoid)
Axial Foot Type (LB), With Square Terminal Box (TB1) ø75, ø100
Rod Side Flange Type (FA), With Round Terminal Box (TB1) ø75, ø100
Intermediate Trunnion Type (Shaft type) (TC), With Round Terminal Box (TB1) ø75, ø100

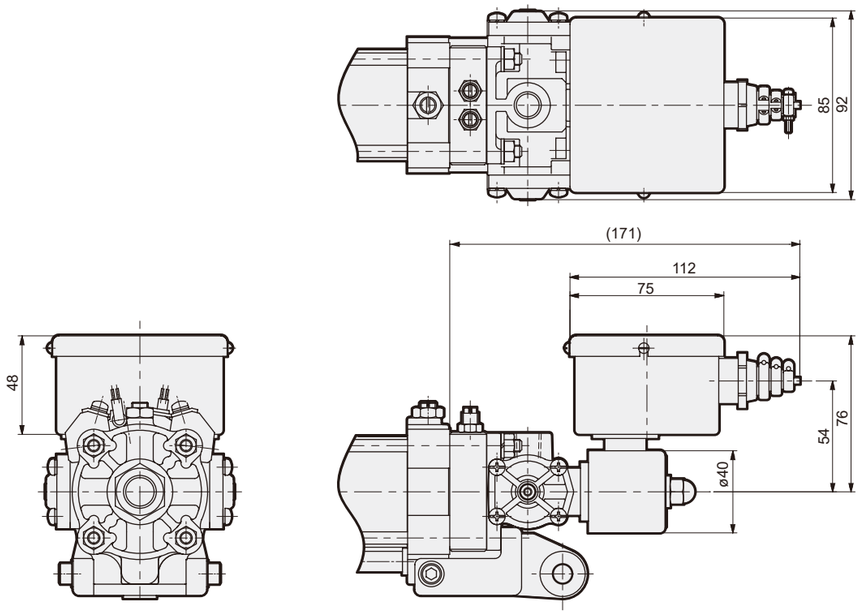
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**
***2: Dimensions with terminal box of the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 701.**



External Dimensions Diagram with Options (Double Solenoid, TB2)

● CAV2-CA/CAV2-N-CA (double solenoid)
Clevis Type (CA), With Square Terminal Box (TB2) ø50

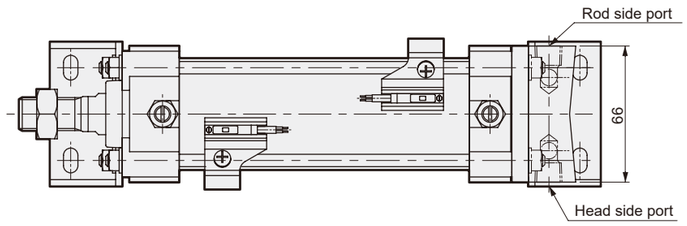
***1: For detailed external dimensions of the terminal box, please refer to P. 721.**

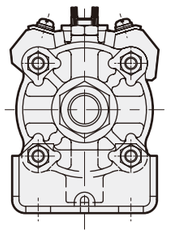


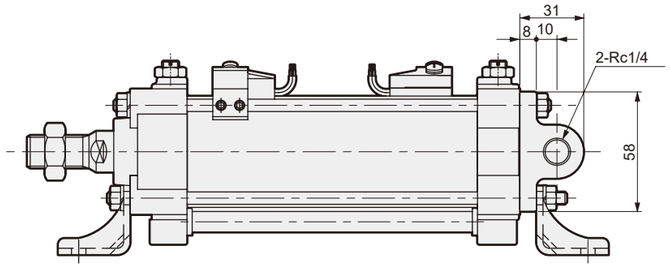
External Dimensions Diagram with Option (Q)

● CAV2/COVP N2, CAV2-N/COVP N2-N
Air supply block (Q) ø50

***1: For detailed external dimensions of the air supply block, please refer to P. 721.**
***2: Dimensions with supply block on the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 700, 706.**

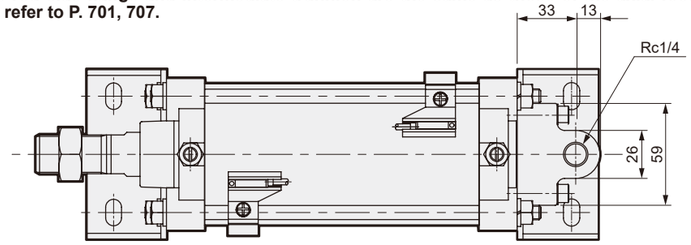


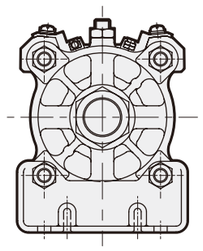


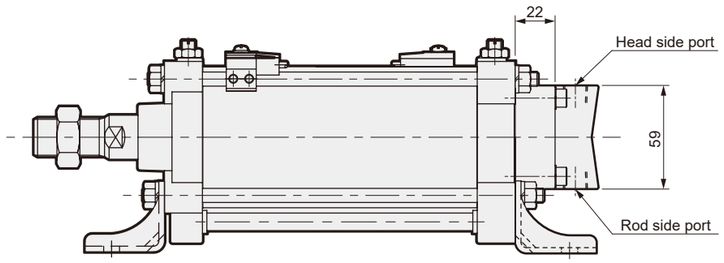


● CAV2/COVP N2, CAV2-N/COVP N2-N
Air supply block (Q) ø75, ø100

***1: For detailed external dimensions of the air supply block, please refer to P. 721.**
***2: Dimensions with supply block on the rod side flange and intermediate trunnion are the same as those of the axial foot (figure below). For mounting method, please refer to P. 701, 707.**



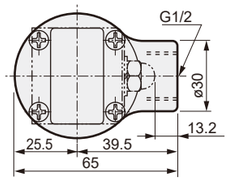


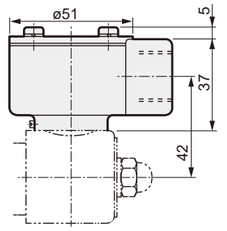


Dimensional Drawings with Option

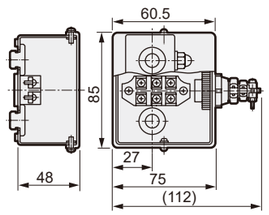
●Terminal box

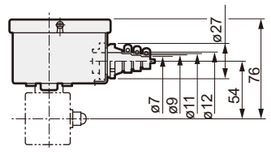
TB1 (For double solenoid type, single solenoid type)





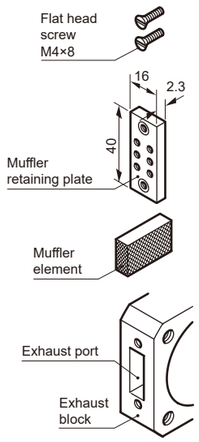
TB2 (For double solenoid type)



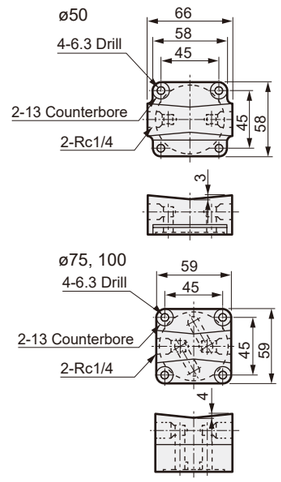


*1: If ordered at the same time as the cylinder, it will be assembled and shipped.
*2: Do not rotate the bonnet with the cap nut tightened. The coil and lead wires will break.

● Muffler (MF1)



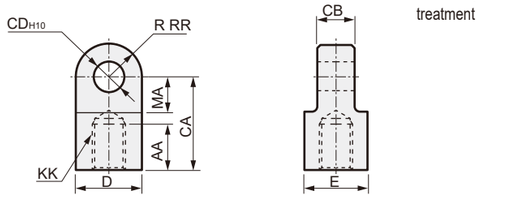
● Supply block (Q)



Accessory External Dimensions

● Single Knuckle (I)

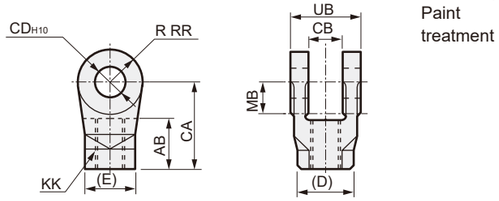
Material: Cast Iron, Paint treatment



Model No.	Applicable Bore Size (mm)	AA	CA	CB	CD	D	E	KK	MA	RR	Weight (g)
CAV2-50-I	ø50	25	50	20 $^{0}_{-0.3}$	14	26	26	M16×1.5	20	15	217
CAV2-75-I	ø75, 100	30	65	28 $^{0}_{-0.3}$	20	38	35	M22×1.5	28	22.5	622

●Double Knuckle (Y)

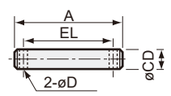
Material: Cast Iron, Paint treatment



Model No.	Applicable Bore Size (mm)	AB	CA	CB	CD	D	E	KK	MB	RR	UB	Weight (g)
CAV2-50-Y	ø50	25	50	20 $^{+0.3}_{0}$	14	26.6	23	M16×1.5	20	15	42	189
CAV2-75-Y	ø75, 100	30	65	28 $^{+0.3}_{0}$	20	40.4	35	M22×1.5	30	22.5	60	577

*1: MB dimension represents CB dimension effective length.
*2: Pin, washer, and split pin are included with the product.

● Rod eye pin (P1)



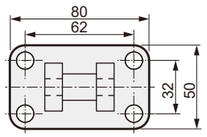
Model No.	Applicable Bore Size (mm)	A	CD	D	EL	Plain Washer	Split Pin	Weight (g)
CAV2-50-P1	ø50	62	ø14 $^{-0.042}_{-0.075}$	4	53	For M14	ø4×20	96
CAV2-75-P1	ø75, 100	82	ø20 $^{-0.012}_{-0.045}$	4	72	For M20	ø4×25	243

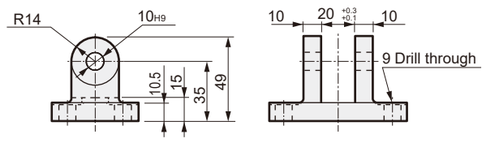
Note: Split pin and washer are included with the product.

● Clevis bracket (B2)/pin (P2) for ø50

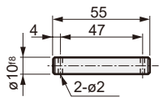
Model No.
CAV2-50-B2

Material: Body: Cast Iron, Painted
Pin: Steel, Zinc Chromate treated





Model No.
CAV2-50-P2

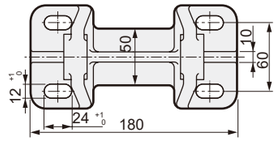


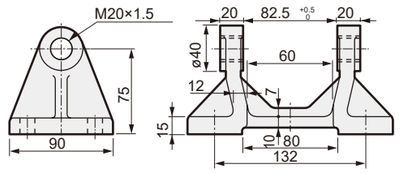
*1: Clevis bracket includes a pin, a split pin (ISO ø1234 1976 2×15) and a plain washer.
***2: For the swing range of combination with single yoke clevis (CA), please refer to P. 728.**

●Clevis bracket (B2)/pin (P2) for ø75, ø100

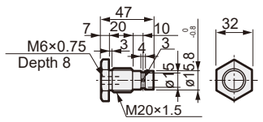
Model No.
CAV2-75-B2

Material: Body: Cast Iron, Painted
Pin: Steel, Zinc Chromate treated





Model No.
CAV2-75-P2

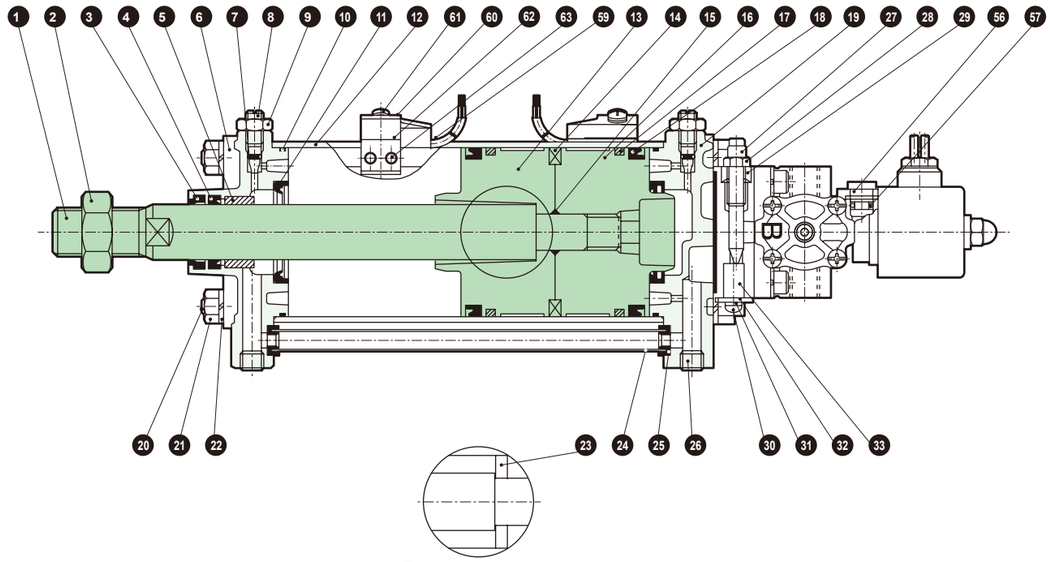


*1: Double yoke bracket comes with pin and toothed washer.
***2: For the swing range of combination with single yoke clevis (CA), please refer to P. 728.**

MEMO

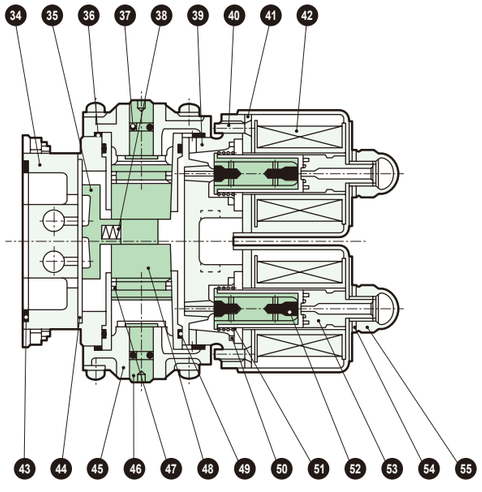
Internal Structure / Materials

● CAV2, COVP N2

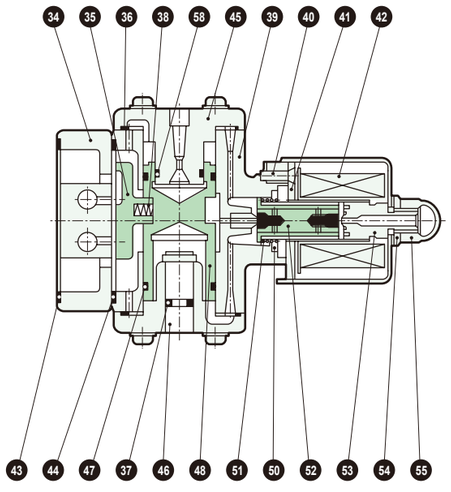


23 washer is attached to the ○ part of cylinder Bore Size ø100 only.

● CAV2, CAV2-N (double solenoid)



● COVP N2, COVP N2-N (single solenoid)



Material

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Steel	Industrial Chrome Plating	34	Exhaust block	Aluminum Alloy	Hard anodize (Lubricated type only) Nickel Plating (Non-lube type only)
2	Hexagon Nut	Steel	Zinc Chromate				
3	Scraper	Nitrile Rubber		35	Slide valve	Polytetrafluoroethylene resin	
4	Rod Packing	Nitrile Rubber		36	Cap gasket	Nitrile Rubber	
5	Bushing	Oil-Impregnated Bearing Alloy		37	Rod gasket	Nitrile Rubber	O-ring
6	Rod Cover	Aluminum Alloy	Painted	38	Port spring	Stainless Steel	
7	Needle gasket	Nitrile Rubber		39	Port body	Aluminum Alloy	
8	Cushion needle	Copper Alloy		40	Phillips flat head screw	Steel	Zinc Chromate
9	Needle nut	Copper Alloy		41	Ring core	Steel	
10	Cylinder gasket	Nitrile Rubber		42	Coil Assembly		Bobbin type [CAV2], Mold [COV2]
11	Cushion Packing	Nitrile Rubber, Steel		43	Exhaust block gasket	Nitrile Rubber	
12	Cylinder Tube	Aluminum Alloy	Hard Alumite	44	Port body gasket	Nitrile Rubber	
13	Piston (R)	Aluminum Alloy		45	Cap	Aluminum Alloy	
14	Magnet	Plastic		46	Valve rod	Aluminum Alloy	
15	Piston gasket	Nitrile Rubber		47	Spool packing	Nitrile Rubber	
16	Piston (H)	Aluminum Alloy		48	Spool	Aluminum Alloy	
17	Wear Ring	Polyacetal		49	Sleeve gasket	Nitrile Rubber	CAV□2 only
18	Piston Packing	Nitrile Rubber		50	Core gasket	Nitrile Rubber	
19	Head Cover	Aluminum Alloy	Painted	51	Plunger spring	Stainless Steel	
20	Tie rod	Steel	Zinc Chromate	52	Plunger Assembly	Stainless Steel, Nitrile Rubber	
21	Hexagon Nut	Steel	Zinc Chromate	53	Core Assembly	Stainless Steel, Copper	
22	Spring washer	Steel	Zinc Chromate	54	Spring washer	Steel	
23	Washer	Steel	Zinc Chromate (ø100 only)	55	Cap nut	Steel	
24	Pass pipe	Aluminum Alloy		56	Manual knob	Polyacetal	COV□2 only
25	Pipe gasket	Nitrile Rubber		57	Manual gasket	Nitrile Rubber	COV□2 only
26	Plug	Steel	Black Oxide	58	Spool packing	Nitrile Rubber	COV□2 only
27	Speed adjustment needle	Steel	Nickel Plating	With switch			
28	Lock Nut	Steel	Zinc Chromate	59	Switch		
29	U-nut	Steel	Zinc Chromate	60	Switch holder	Stainless Steel	
30	Cross-Recessed Pan Head Screw	Steel	Zinc Chromate [Non-lube type only]	61	Cross-Recessed Pan Head Screw	Steel	
31	Spring washer	Steel	Zinc Chromate [Non-lube type only]	62	Switch mounting base	Aluminum Alloy	
32	Muffler retaining plate	Steel	Zinc Chromate [Non-lube type only]	63	Set Screw	Steel	
33	Element	Resin	[Non-lube type only]				

Note: The No. 7, 8, 9, 11 without cushion is not available.

Mounting Bracket Material

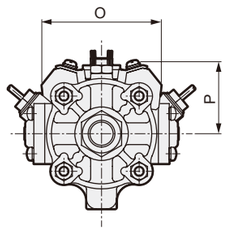
Mounting Style	Material	Remarks
Foot (LB)	Steel	Black Oxide
Flange (FA)	Steel	Painted
Clevis (CA)	Cast Iron	Painted
Trunnion (TC, TF)	Cast Iron	Painting

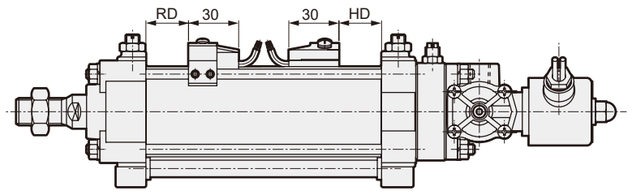
Note: All are assembled before shipment.

For maintenance parts, refer to the CKD component product site (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> See "Maintenance Parts".

CAV2, COVP2, COVN2 Series External Dimensions Diagram with Switch

● T0H/V,T5H/V,T2H/V,T3H/V,T3PH/V,T2[H/V]R3,T2WH/V,T3WH/V,T2WLH/V,T8H/V,T2JH/V
• CAV2, COVP2, COVN2

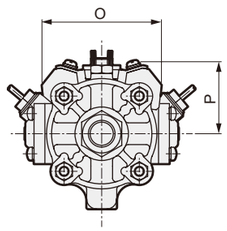


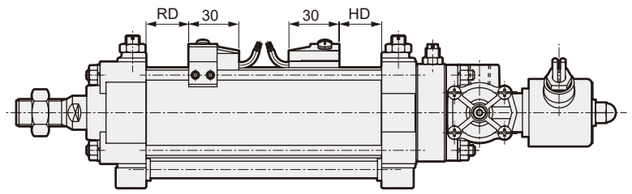


Code / Bore Size (mm)	O	P	T0,T5,T2,T3,T3P T2*R3		T2W, T3W, T2WL		T8		T2J	
			RD	HD	RD	HD	RD	HD	RD	HD
ø50	73	44	12.5 (25.5)		15.5 (28.5)		7 (20.5)		12.5 (25.5)	
ø75	92	52	13.5 (37.5)		16.5 (40.5)		8.5 (32.5)		13.5 (37.5)	
ø100	118	64	17.5 (36.0)		20.5 (39.0)		12.5 (31)		17.5 (36.0)	

*1: Dimensions in ( ) indicate the case with cushion (B).
*2: For switch mountability, refer to the model number notation of each variation.

● T1H/V, T2YD
• CAV2, COVP2, COVN2





Code / Bore Size (mm)	O	P	T1, T2YD	
			RD	HD
ø40	73	45	12.5 (25.5)	
ø50	92	56	13.5 (37.5)	
ø63	118	68	17.5 (36.0)	

*1: Dimensions in ( ) indicate the case with cushion (B).
*2: For switch mountability, refer to the model number notation of each variation.

■ Trunnion Position Specification (-XAQ□□)

Content: Specify the dimension from the rod cover end face to the center of the trunnion axis.

Model No. Notation

CAV2 - TC - 50 B - 100 - XAQ 130

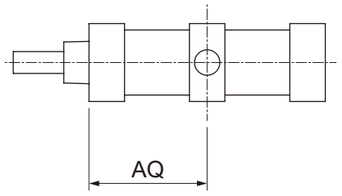
COV□2 - TC - 50 B - 100 - XAQ 130

Model Number

Please see the model number display method for CAV2, COV□2.

* Describe the AQ dimension length.
Example) AQ dimension = 130 mm

Note: The rod cover is also the standard for cylinders with brakes. (Please note that it is not the brake end face.)



Dimensions

Pneumatic Components

To Use This Product Safely

Be sure to read this before use. For general cylinder information, see Intro 41, and for cylinder switches, see P. 1512.

Individual Precautions: Cylinder with valve CAV2, COVPN2 Series

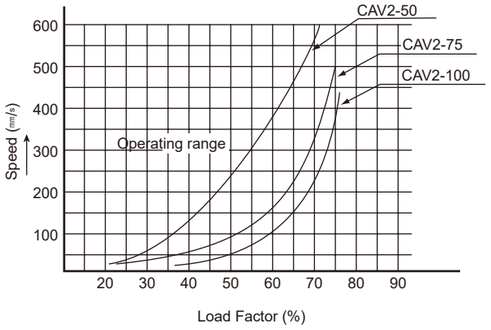
Design / Selection

Warning

■Air may be taken in at the exhaust port of the valve due to valving element operation, causing the intake of foreign matter near the exhaust port. Foreign matter may also enter when the exhaust port is pointed upwards. Install a silencer or pipe the exhaust port downward.

● The actuator will not operate correctly if the exhaust air is not discharged smoothly.

■When moving the load with CAV2/COV2 attached vertically, use within the specified range shown as below. Outside this range, cylinder speed adjustment will not be possible.



CAUTION

■Instantaneous energization

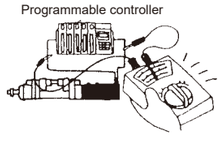
When using the double solenoid type with instantaneous energization, ensure the energization time is 0.1 seconds or more.

■If the 2-position double solenoid is started and then switched, it will hold that status unless a reverse operation electrical signal is input.

■Check leakage current to prevent malfunction caused by leakage current from other fluid control components.

● When using a programmable controller, leakage current may affect the valve and cause a malfunction.

● The values affected by leakage current depend on the voltage type. Refer to the table below.



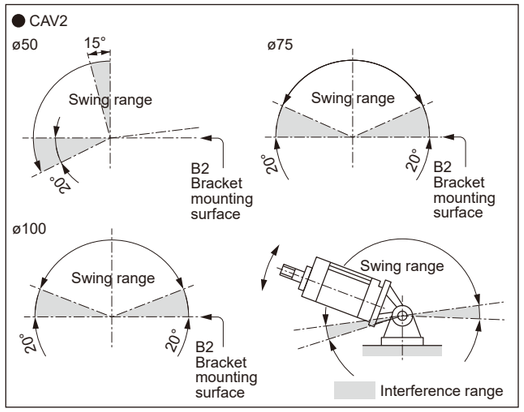
Reference

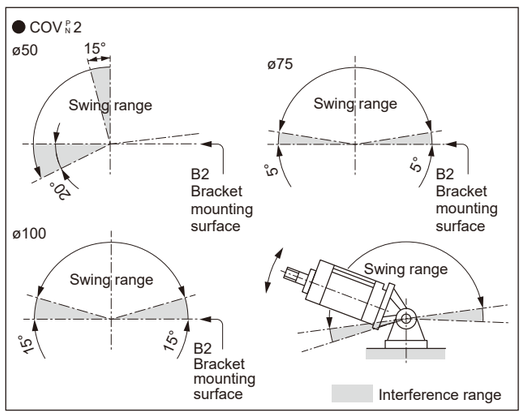
For 100 VAC	3.0 mA or less
For 200 VAC	1.5 mA or less

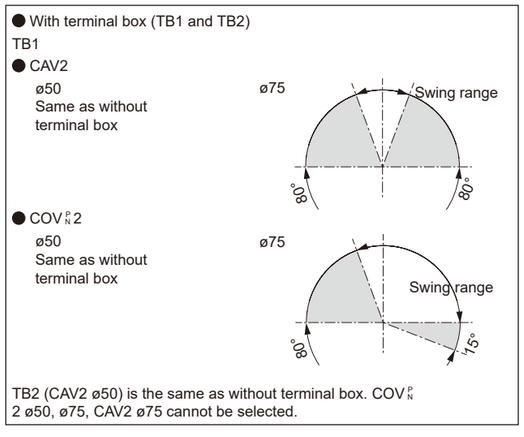
■Switch the valve at least once every 30 days to prevent malfunction.

■Oscillating range

◎ Note that the oscillating range of the combination of eye bracket (CA) and clevis bracket (B2) is limited as in the figure below.





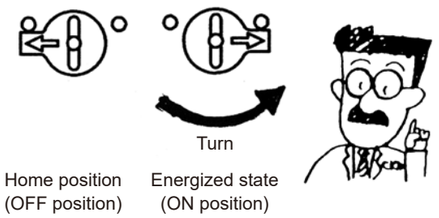


During Use

Warning

■Manual operation causes the connected device to function. Make sure that there is no danger before performing manual operation.
If the manual operating device of the valve has been activated, be sure to return it to the home position (OFF state) before operating the equipment. Non-locking type (CAV2, COVPN2) automatically returns; for locking type (COVPN2), always confirm the home position (OFF state).

[Example]



● If compressed air is supplied when not at origin, the cylinder will become operational, creating hazardous conditions.

CAUTION

■Be careful not to hit the solenoid valve with a tool or the equipment during mounting.

■Do not support the cylinder with pipes during mounting.

■Do not pick up the product by the coil lead wire.

● This may lead to disconnection.

■Infrequent use

● Switch the valve at least once every 30 days to prevent malfunction.

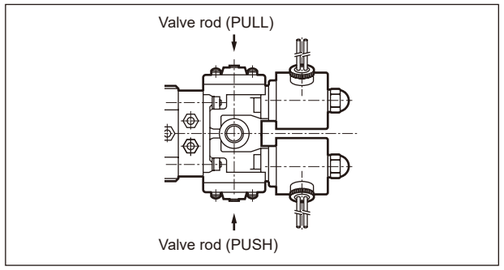
■When disassembling and assembling the valve, be sure to confirm that it operates normally according to the following work procedure.

Work procedure

1. Check that the locking manual override is at the origin (OFF state).
2. Set to low pressure. (0.15 MPa)
3. Set the manual override to the operation side (push the non-locking type, turn the manual dial for the locking type) to check that the cylinder is operational.
4. Return the locking manual override to the origin (OFF state) and check that the cylinder returns. (Operation confirmation by manual operation is complete.)
5. Perform operation check by electricity.
● After manual operation check, energize/de-energize to confirm operation.

■Manual operation

● For CAV2

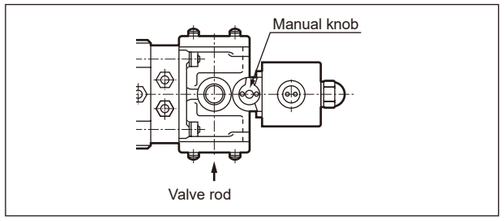


● Pushing the valve rod (PUSH) with a Drivers extrudes the Piston Rod.

● Pushing the valve rod (PULL) with a Drivers retracts the Piston Rod.

● Although this product is non-locking, the Piston Rod is held as it is when PUSH or PULL is pressed.

● For COV2

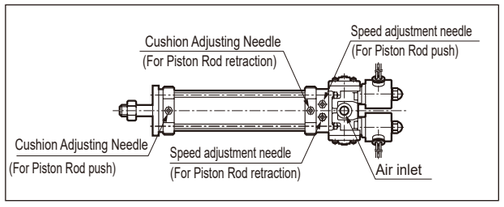


● Turning the manual dial energizes the solenoid. (Locking type)

● Pressing the valve rod with a Drivers, etc., energizes the solenoid. (Non-locking type)

⚠For COV2-75 and 100 with CA or B2 mounting bracket, manual operation is possible with non-locking but not with locking.

■How to adjust the speed and cushion of CAV2/COV2



1. The speed decreases when the speed adjustment needle is turned clockwise with a Drivers, and increases when it is turned counterclockwise.
2. The cushioning effect increases when the cushion needle is turned clockwise with a Drivers, and decreases when it is turned counterclockwise.

For precautions during mounting, installation, adjustment, use, and maintenance, refer to "During Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) -> "Model No." -> Instruction Manual.