

How to order

General Purpose Type

● Standard type

210C-2

● Switch Set

210C-2R

Double acting single rod

210C-1 : Standard type
210C-1R : Switch Set

Double acting double rod

210C-1D : Standard type

- [1] Nitrile rubber (φ40 to φ250)
- [2] Urethane rubber (φ40 to φ250)
- [3] Fluorocarbon (φ40 to φ160)
- [6] HNBR (φ40 to φ160)

For 140 and 160 mm bore standard cylinders with rod A and Switch Set Cylinders, only [1] and [2] can be used.

Cylinder bore (mm)
Standard type: φ40 to φ250
Switch Set: φ40 to φ80

- [B] With cushions on both ends
- [R] With cushion on the rod side
- [H] With cushion on the cap side
- [N] No cushion

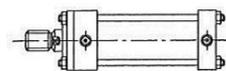
Note) The rod side of the 40 mm bore cylinder with rod A is provided with a fixed cushion.

Cylinder stroke (mm)

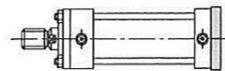
Note) The boots, long thread with lock nut and rod end attachments can be used to cylinders with bores from 40 to 160 mm.

Mounting style

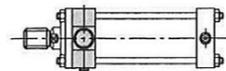
[SD] SD style (basic style)



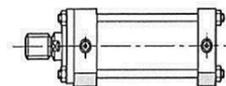
[FB] FB style (cap flange)



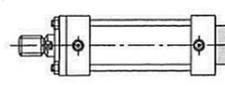
[TA] TA style (rod trunnion)



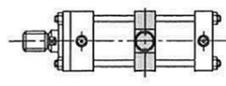
[LA] LA style (side lugs)



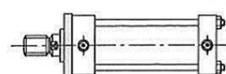
[CA] CA style (cap eye)



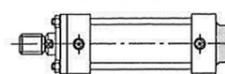
[TC] TC style (intermediate trunnion)



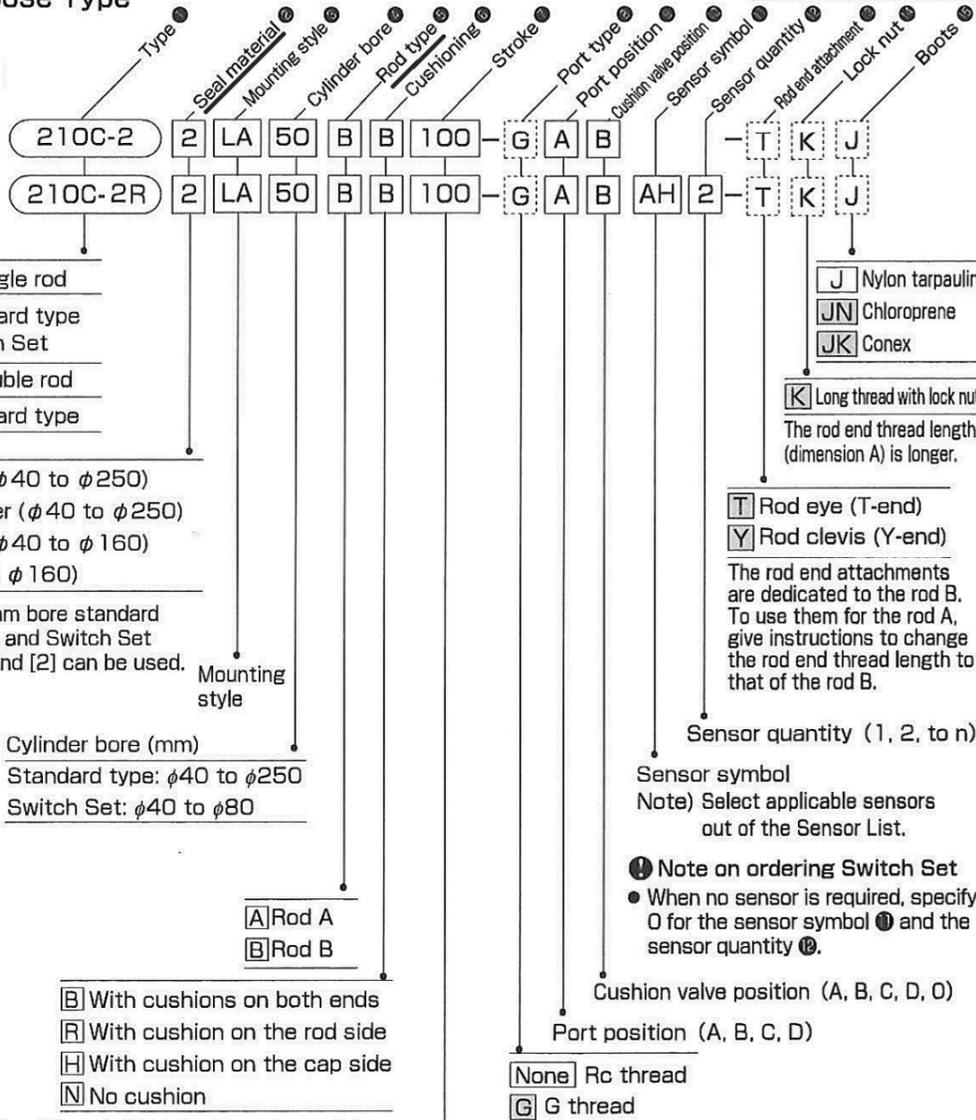
[FA] FA style (rod flange)



[CB] CB style (cap clevis)



The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification



- [J] Nylon tarpaulin
- [JN] Chloroprene
- [JK] Conex

[K] Long thread with lock nut
The rod end thread length (dimension A) is longer.

- [T] Rod eye (T-end)
- [Y] Rod clevis (Y-end)

The rod end attachments are dedicated to the rod B. To use them for the rod A, give instructions to change the rod end thread length to that of the rod B.

Sensor quantity (1, 2, to n)

Sensor symbol
Note) Select applicable sensors out of the Sensor List.

● Note on ordering Switch Set
● When no sensor is required, specify 0 for the sensor symbol ① and the sensor quantity ②.

Cushion valve position (A, B, C, D, O)

Port position (A, B, C, D)

- [None] Rc thread
- [G] G thread

Sensor List

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load								
Reed sensor	[AF] AX101CE	DC:5 to 30V	DC:5 to 40mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3mm ² , 2-core, outer dia. φ4mm Rear wiring	1.5m	Small relay, programmable controller								
	[AG] AX105CE							5m									
	[AH] AX111CE							1.5m									
	[AJ] AX115CE	AC:5 to 120V	AC:5 to 20mA	2VA	Provided	None	None	5m									
	[AE] AX125CE							5m									
	[AK] AX11ACE							0.5m									
	[AL] AX11BCE	DC:5 to 30V	5 to 40mA	1.5W	Provided	LED (Lights in red when sensing)	4-pin connector type, Rear wiring	0.5m									
	[AP] AZ101CE							1.5m									
	[AR] AZ105CE							5m									
	[AS] AZ111CE	DC:5 to 30V	DC:5 to 40mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3mm ² , 2-core, outer dia. φ4mm Upper wiring	1.5m									
	[AT] AZ115CE							5m									
	[AN] AZ125CE							5m									
[AU] AZ11ACE	DC:30V or less AC:120V or less	DC:40mA or less AD:20mA or less	2VA	None	LED (Lights in red when sensing)	4-pin connector type, Upper wiring	0.5m										
[AW] AZ11BCE							0.5m										
[AM] AX135CE							5m										
[AY] AZ135CE	AC/DC:90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3mm ² , 2-core, outer dia. φ4mm, Rear wiring 0.3mm ² , 2-core, outer dia. φ4mm, Upper wiring	5m										
[BE] AX201CE-1							1.5m										
[BF] AX205CE-1							5m										
Solid state sensor	[CE] AX211CE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (2-LED type in red/green)	0.3mm ² , 2-core, outer dia. φ4mm Rear wiring	1.5m	Small relay, programmable controller								
	[CH] AX21CCE-1							5m									
	[CJ] AX21DCE-1							1m									
	[BM] AZ201CE-1							1.5m									
	[BN] AZ205CE-1							5m									
	[CM] AZ211CE-1							1.5m									
	[CN] AZ215CE-1							5m									
	Solid state sensor (CE confirmed)							[CT] AX211CE-1		DC:5 to 30V	5 to 40mA	—	Provided	LED (2-LED type in red/green)	0.3mm ² , 2-core, outer dia. φ4mm Rear wiring	1.5m	Small relay, programmable controller
								[CU] AX215CE-1								5m	
								[CV] AX21BCE-1								0.5m	
[CW] AZ211CE-1		1.5m															
[CX] AZ215CE-1		5m															
[CY] AZ21BCE-1		0.5m															

- Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX and AZ135CE is B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the details of sensors, be sure to read the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

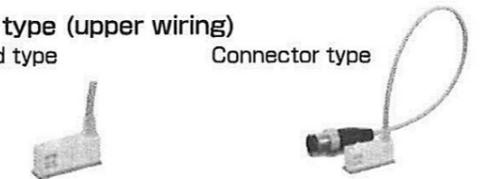
AX type (rear wiring)

Cord type Connector type



AZ type (upper wiring)

Cord type Connector type



Adaptability of Fluid to Seal Material

Seal material	Adaptable fluid				
	Petroleum-based fluid	Water-glycol fluid	Phosphate ester fluid	Water in oil fluid	Oil in water fluid
[1] Nitrile rubber	○	○	×	○	○
[2] Urethane rubber	◎	×	×	△	△
[3] Fluorocarbon	○	×	○	○	○
[6] HNBR	○	◎	×	◎	◎

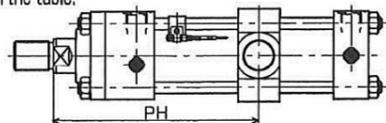
Notes)

1. ◎: Applicable ×: Inapplicable Consult us before using the △-marked items.
2. The ◎-marked items are recommended seal materials in case of giving the first priority to abrasion resistance.

Sensor Mountable Minimum Stroke Unit: mm

Bore	Styles other than TC		TC style	
	With one sensor	With two sensors	With one sensor	With two sensors
φ40	20	20(50)	50	130
φ50	15	20(45)	50	130
φ63	20	20(50)	60	150
φ80	20	20(50)	70	170

Note) ● For the TC style with one sensor, the cylinder strokes when the TC accessory is positioned at the place other than the center (as shown below) are shown in the table.

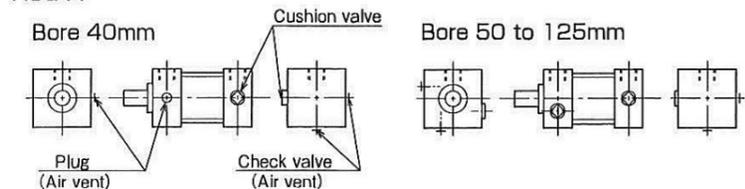


● For the minimum dimension PH of TC style for mounting sensor, refer to the dimensional drawings of TC style.

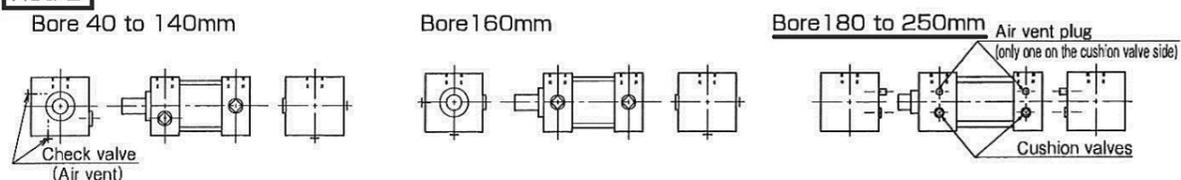
Note) The parenthesized values apply in the case where two sensors are mounted on the same surface.

Cushion valve and check valve (air vent) positions depending on cylinder bore (when port is on A and cushion is on B)

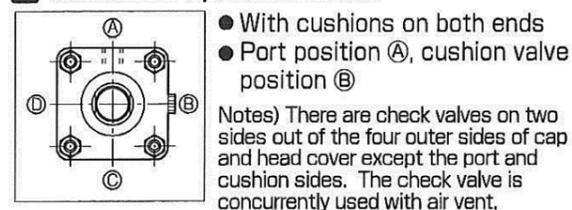
Rod A



Rod B



Standard specifications



- With cushions on both ends
 - Port position (A, B, C, D)
 - Cushion valve position (B)
- Notes) There are check valves on two sides out of the four outer sides of cap and head cover except the port and cushion sides. The check valve is concurrently used with air vent.

Change of port position

When modifying the positions, enter the symbol shown in the dimensional drawings.
 (Example) 210C-2 2LA50BB100-**B** **A**-J
 Port position (A, B, C, D)
 Cushion valve position (A, B, C, D, O)

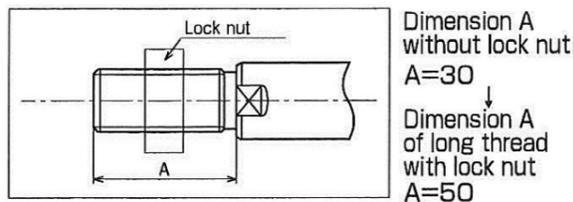
- In case that the cushion is not equipped, the cushion valve position is "O".
- In case of the mounting style LA, the port and cushion valve are positioned on A, B or D. If you want to position any of them on C, consult us.

Port G thread type

For a port G thread type cylinder, make an order in accordance with the following procedure.
 (Example) 210C-2 2LA50BB100-**G** **A** **B**-J
 Port G thread type
 Port position
 Cushion valve position

Notes on ordering cylinder with lock nut

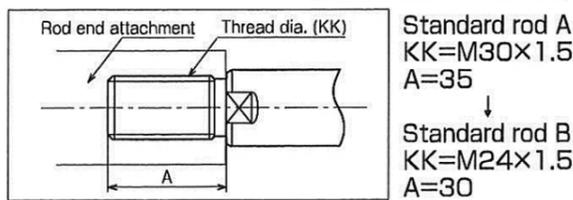
The rod end thread length (dimension A) is longer when a lock nut is attached to the rod end.
 (Example) 210C-2 2LA50BB100-**A** **B**-**K**
 Long thread with lock nut



Note) When a lock nut is attached to the rod end, dimension A must be equal to or longer than that of the long thread with lock nut. For details, refer to the dimensional drawings of rod end attachments.

Notes on ordering cylinder with rod end attachment for rod A

When the cylinder uses the rod A and has a rod end attachment, give instructions to change the standard rod A end thread diameter, pitch and length to those of the standard rod B.
 (Example) 210C-2 2LA50AB100-**A** **B**-**T**
 Rod end attachment (T-end)

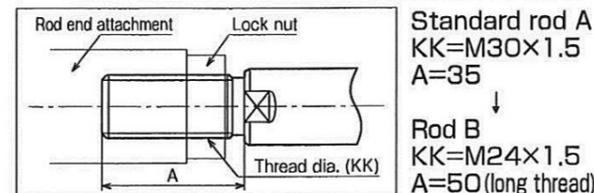


Note) For details, refer to the dimensional drawings of rod end attachments.

Notes on ordering cylinder with rod end attachment for rod A and lock nut

When the cylinder uses the rod A and has a rod end attachment and a lock nut, change the standard rod A end thread diameter, pitch and length to those of the rod B, and specify the long threaded portion of rod B for the thread length (dimension A).

(Example) 210C-2 2LA50AB100-**A** **B**-**T****K**
 Rod end attachment (T-end)
 Long thread with lock nut



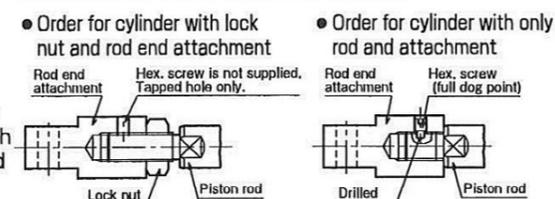
Note) When a lock nut is attached to the rod end, dimension A must be equal to or longer than that of the long thread with lock nut. For details, refer to the dimensional drawings of rod end attachments.

Semi-standard range

- Change in piston rod end
- Change in TC accessory position (dimensional symbol: PH)
- With boots
- Plated cylinder tube (hard chrome plating thickness: 0.02 mm)
- Specification of working fluid (water-glycol fluid)
- Specification of dimension BB (extension of tie rod)

Delivery of rod end attachment (T-end or Y-end)

A delivery method for a cylinder provided with a lock nut and a rod end attachment differs from that for a cylinder provided with a rod end attachment only (without a lock nut). For details, refer to the dimensional drawings of rod end attachments.



Weight Table

Bore (mm)	Rod type	Basic weight (SD style)		Additional weight per mm of stroke		Mounting accessory weight								Rod end attachment weight				
		Single rod	Double rod	Single rod	Double rod	LA		FA		FB	CA	CB	TA	TC	Rod eye (T-end)	Rod clevis (Y-end)		
		Single rod	Double rod	Single rod	Double rod	Single rod	Double rod	Single rod	Double rod								With lock nut	Standard
φ40	A	4.2	-	0.012	-	0.33	-	0.60	-	0.89	0.42	0.58	0.17	0.67	-	-	0.11	0.18
φ40	B	4.1	5.0	0.011	0.014	0.33	0.38	0.52	0.52	0.89	0.42	0.58	0.17	0.67	0.74	1.17	0.07	0.12
φ50	A	7.1	-	0.019	-	0.78	-	1.24	-	1.72	0.81	1.19	0.28	1.08	-	-	0.22	0.36
φ50	B	6.9	8.5	0.016	0.021	0.78	0.88	1.00	1.00	1.72	0.81	1.19	0.28	1.08	1.67	2.30	0.11	0.18
φ63	A	11.1	-	0.029	-	1.12	-	1.66	-	2.68	1.48	2.08	0.54	1.80	-	-	0.48	0.81
φ63	B	10.5	13.2	0.024	0.032	1.12	1.30	1.50	1.50	2.68	1.48	2.08	0.54	1.80	2.51	3.97	0.22	0.36
φ80	A	18.9	-	0.043	-	1.57	-	2.55	-	4.04	2.46	3.64	1.17	3.25	-	-	0.91	1.48
φ80	B	17.9	22.8	0.036	0.049	1.57	1.87	2.09	2.09	4.04	2.46	3.64	1.17	3.25	3.77	6.54	0.48	0.81
φ100	A	29.0	-	0.065	-	2.44	-	5.11	-	7.67	4.92	7.17	2.87	7.02	-	-	1.84	3.10
φ100	B	27.2	35.2	0.054	0.073	2.44	2.90	4.23	4.23	7.67	4.92	7.17	2.81	7.02	7.47	12.62	0.91	1.48
φ125	A	52.2	-	0.104	-	4.46	-	7.21	-	12.61	8.80	13.68	5.01	14.15	-	-	3.23	5.80
φ125	B	49.9	65.2	0.084	0.114	4.46	5.30	6.19	6.19	12.61	8.80	13.68	5.01	14.15	12.41	22.96	1.84	3.10
φ140	A	74.5	-	0.131	-	8.18	-	8.71	-	16.77	11.79	18.72	7.43	20.61	-	-	5.16	9.60
φ140	B	71.1	94.6	0.109	0.149	8.18	8.38	5.76	5.76	16.77	11.79	18.72	7.43	20.61	19.17	33.75	2.50	4.42
φ160	A	101.7	-	0.166	-	13.21	-	13.10	-	25.22	17.54	26.48	12.02	26.14	-	-	6.22	11.14
φ160	B	97.6	129.9	0.142	0.192	13.21	14.22	10.16	10.16	25.22	17.54	26.48	12.02	26.14	26.97	46.72	3.23	5.80
φ180	B	151	-	0.170	-	-	-	20.10	-	41.10	40.10	-	-	30.90	-	-	-	-
φ200	B	237	-	0.220	-	-	-	35.00	-	70.10	47.90	-	-	50.70	-	-	-	-
φ224	B	282	-	0.280	-	-	-	42.20	-	82.80	68.30	-	-	64.80	-	-	-	-
φ250	B	381	-	0.330	-	-	-	72.40	-	124.00	96.40	-	-	93.70	-	-	-	-

Notes) ● The lock nut long thread weight applies in the case where the lock nut symbol is K. The lock nut weight includes the weight of the extended part of the thread length.
 ● The rod eye and rod clevis are dedicated to the rod B. When the rod A is used, change the rod end thread diameter to that of the rod B.

Sensor Additional Weight

Sensor	AX/AZ type		
	Cord length 1.5 m	Cord length 5 m	Connector type
φ40 · φ50	0.05	0.13	0.04
φ63 · φ80	0.07	0.15	0.06

Calculation formula) Cylinder weight (kg) = basic weight + (cylinder stroke (mm) × additional weight per mm of stroke) + (sensor additional weight × sensor quantity) + mounting accessory weight + rod end attachment weight

Calculation example) 210C-2R, rod B, bore φ63, cylinder stroke 500 mm, LA style, 2 pcs of AX215
 10.5 + (500 × 0.024) + 1.12 + (0.15 × 2) = 23.92kg