

# Slide Unit

## CX2/CXWM/CXWL Series

Slide Bearing/CX2:ø10, ø15, ø25 CXWM:ø10, ø16, ø20, ø25, ø32

Ball Bushing Bearing/CXWL:ø10, ø16, ø20, ø25, ø32

### Provided with shock absorbers to absorb impact and noise.

The slide unit can absorb energy in a wide range, in high speed, low-load applications to low speed, high-load applications, without requiring adjustments.

### Ensures high positional accuracy.

A high level of positional accuracy can be attained because the two parallel piston rods prevent the rods from rotating, and the workpiece mounting surface and the parallelism of the piston rods are made highly precise.

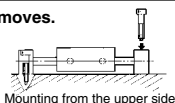
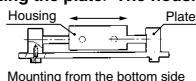
### Auto switches can be installed.

### Smooth operation and high thrust.

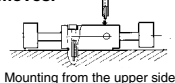
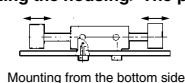
### Mountable on the housing or on the plate.

The slide unit can be mounted on the housing or on the plate, depending on the application. It can also be bolted from the bottom or from the top. The piping can be fitted to the port in any of the three positions, according to how the unit is mounted.




#### <Fixing the plate> The housing moves.



#### <Fixing the housing> The plate moves.



#### Series Variations

Bearing type	Model	Bore size	Stroke (mm)							Accessory	Auto switch mounting	Page
			25	50	75	100	125	150	175	200		
Slide bearing	<b>CX2 Series</b> Double rod type (Basic type, compact) 	ø10	●	●	●	●	●	●	●	●	(1)	650
		ø15	●	●	●	●	●	●	●	●	●	
		ø25	●	●	●	●	●	●	●	●	●	
	<b>CXWM Series</b> Built-in shock absorber type 	ø10	(2)	●	●	●	●	●	●	●	(1)	659
		ø16	(2)	●	●	●	●	●	●	●	●	
		ø20	(3)	●	●	●	●	●	●	●	●	
		ø25	(2)	●	●	●	●	●	●	●	●	
		ø32	(3)	(3)	●	●	●	●	●	●	●	
	<b>CXWL Series</b> Built-in shock absorber type 	ø10	●	●	●	●	●	●	●	●	(1)	685
		ø16	●	●	●	●	●	●	●	●	●	
		ø20	●	●	●	●	●	●	●	●	●	
		ø25	●	●	●	●	●	●	●	●	●	
		ø32	(3)	●	●	●	●	●	●	●	●	

Note 1) Only type E (Reed switch) is applicable as an auto switch when mounting a housing of ø10.

Note 2) The shock absorbers are to be mounted on the both sides for the 25 stroke of the CXWM10 to 25 series.

Note 3) The shock absorber is to be mounted on one side of the plate for the 25 stroke of the CXWM20,

CXWM32, CXWL32 series and the 50 stroke of the CXWM32 series.

With end lock  
Shock absorber  
Adjusting bolt  
Housing mounting  
Plate mounting

CX2

CXW

CXT

CXSJ

CXS

D-□

-X□



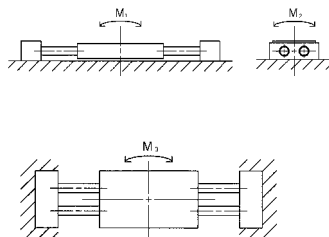
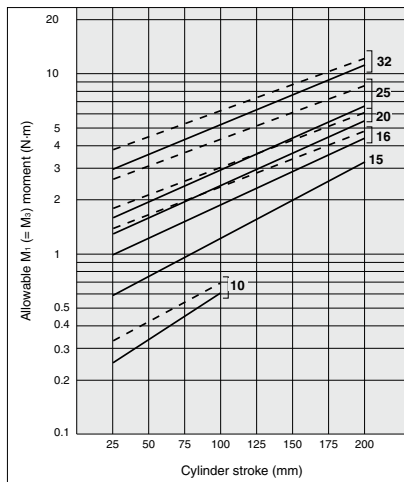
# CX2/CXWM/CXWL Series

## Prior to Use

### Maximum Allowable Moment: CX2N, CXWM, CXWL

Operate within the operating range and under the allowable moment indicated in the table below.

- CX2N
- CXWM (Slide bearing)
- - - CXWL (Ball bushing bearing)



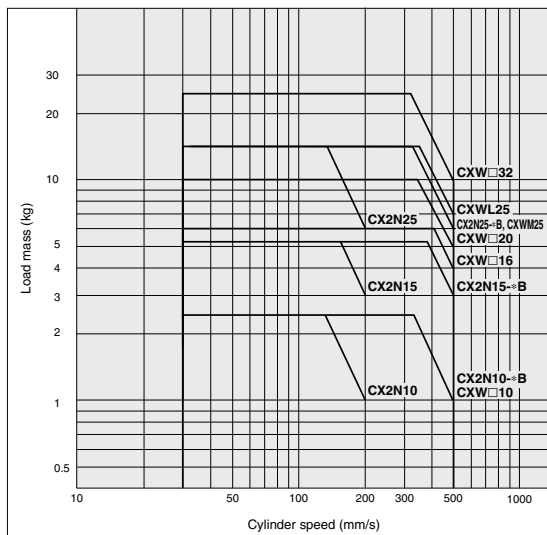
Allowable Moment ( $M_2$ ) (N·m)

Bore size (mm)	10	15	16	20	25	32
<b>CX2N</b>	0.098	0.294	—	—	1.029	—
<b>CXWM</b>	0.108	—	0.549	0.809	1.029	2.695
<b>CXWL</b>	0.108	—	0.549	0.809	1.201	2.695

Note)  $M_2$  is steady regardless of the strokes.

### Allowable Kinetic Energy

Load mass and cylinder speed should be observed within the range given in the graph below.  
To adjust the cylinder speed, use a speed controller.



# CX2 Series

## Prior to Use

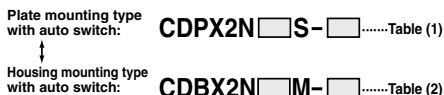
1. Changing from the non-auto switch specifications to the auto switch specifications
2. Changing mounting type of the auto switch specifications

### CX2 Series

1. In the CX2 series, to change from the specification without auto switch to the plate mounting type with auto switch or to the housing mounting type with auto switch, refer to tables (1) and (2) before ordering.



2. In the CX2 series, to change from the plate mounting type with an auto switch to the housing mounting type with an auto switch or vice versa, refer to tables (1) and (2) before ordering.



**Table (1)** Plate Mounting Type with Auto Switch (CDPX2N□□-□)  
Component Parts for Mounting Switches and No. of Component Parts

Component parts	Material	ø10	ø15	ø25
		Assembly model no. for mounting switch		
		CDPX2N 10S-□	CDPX2N 15S-□	CDPX2N 25S-□
Switch mounting block	Aluminum alloy	1	1	1
Block mounting screw	Chrome steel/Zinc chromated	2	2	2
Switch mounting screw	Chrome steel/Zinc chromated	2	2	2
Hexagon nut	Carbon steel/Zinc chromated	2	2	2
Magnet	—	1(2) <sup>2)</sup>	—	—
Socket	Carbon steel/Electroless nickel plated	2	—	—
Plug	Carbon steel/Nickel plated	2	2	—

Note 1) "□" mark indicates strokes.

Note 2) In the case of ø10, the 25 mm stroke has two magnets that are bonded in the holes on the side of the housing. Those with strokes of 50 mm to 100 mm have one magnet. Those with other bore sizes have a built-in magnet in their housings.

**Table (2)** Housing Mounting Type with Auto Switch (CDBX2N□□-□)  
Component Parts for Mounting Switches and No. of Component Parts

Component parts	Material	ø10	ø15	ø25
		Assembly model no. for mounting switch		
		CDBX2N 10M-□	CDBX2N 15M-□	CDBX2N 25M-□
Magnet mounting block assembly	Aluminum alloy	1	1	1
Switch mounting rail	Aluminum alloy	—	1	1
Spacer	Aluminum alloy/Anodized	2	—	—
Block mounting screw	Chrome steel/Zinc chromated	2	2	2
Screw for mounting rail	Chrome steel/Zinc chromated	—	2	2
Switch mounting screw	Chrome steel/Zinc chromated	2	2	2
Hexagon nut	Carbon steel/Zinc chromated	2	2	2
Hexagon socket head plug	Chrome steel/Zinc chromated	2	2	—

Note 1) "□" mark indicates strokes.

Note 2) For ø10, CX2N10-□ can be changed to CDBX2N10-□, but note that CDPX2N10□ cannot be changed to CDBX2N10-□.

CX2

CXW

CXT

CXSJ

CXS

D-□

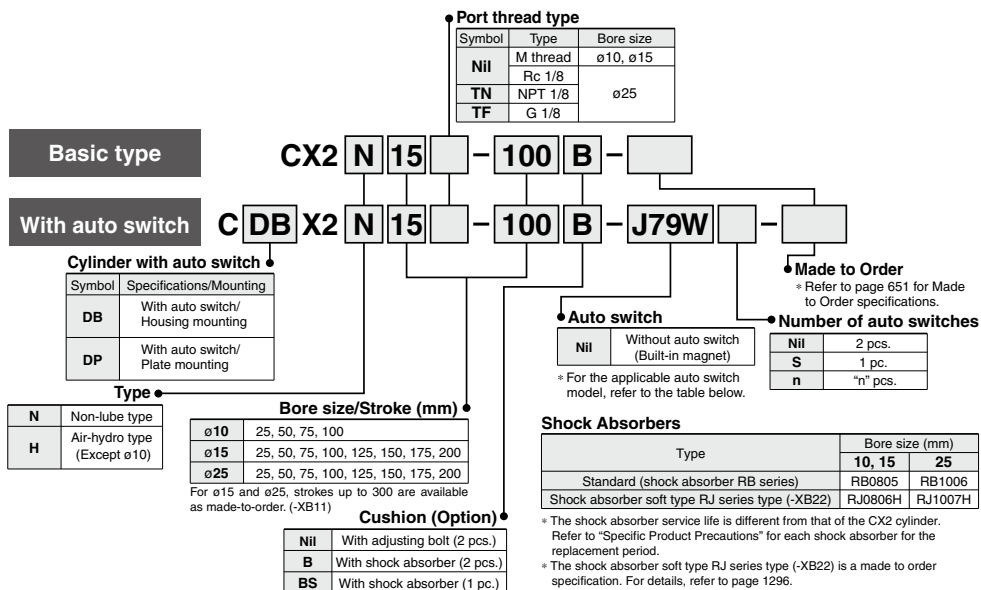
-X□

# Slide Unit/Double Rod Type

# CX2 Series

Slide Bearing: ø10, ø15, ø25

## How to Order



## Applicable Auto Switches

Refer to pages 1119 to 1245 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Rail mounting		Applicable cylinder size		Lead wire length (m)				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	Housing mounting	Plate mounting	0.5 (Nil)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	F7NV	F79	ø15	ø10	●	●	○	—	○	IC circuit		
		3-wire (PNP)		F7PV			F7P	●			●	○	—	○				
	Connector	2-wire		12 V	F7BV		J79	●			●	○	—	○	—			
		3-wire (NPN)		24 V	5 V, 12 V		F7NC	—			●	●	○	—			○	
	Diagnostic indication (2-color indicator)	Grommet		3-wire (PNP)	5 V, 12 V		F7NWV	F79W		●	●	○	—	○	IC circuit			
				3-wire (PNP)	12 V		—	F7PW		—	●	●	○	—		○		
	Water resistant (2-color indicator)	Grommet		2-wire	12 V		F7BWV	J79W		●	●	○	—	○	—			
				4-wire (NPN)	5 V, 12 V		F7BAV <sup>※</sup>	F7BA <sup>※</sup>		—	●	●	○	—		○		
Reed auto switch	—	Grommet	Yes	3-wire	—	5 V	—	A76H	ø15	ø10	●	●	○	—	—	IC circuit		
				2-wire	—	—	200 V	A72			A72H	●	●	—	—		—	
					12 V	100 V	A73	A73H			●	●	—	—	—			
				Connector	2-wire	5 V, 12 V	100 V or less	A80			A80H	●	●	—	—		—	
		12 V			—	A73C	—	●		●	—	—	—					
		Grommet		No	3-wire	—	5 V	—		A80C	ø25	ø25	●	●	●	—	—	IC circuit
					2-wire	5 V, 12 V	24 V or less	—		E76A			—	—	—	—		
					2-wire	12 V	100 V	—		E73A			—	—	—	—		
			2-wire		5 V, 12 V	100 V or less	—	E80A	—	—			—	—				
		Connector	No		3-wire	—	5 V	—	—	ø10		—	●	●	○	—	—	IC circuit
					2-wire	5 V, 12 V	24 V or less	—	—				—	—	—	—		
					2-wire	12 V	100 V	—	—				—	—	—	—		
					2-wire	5 V, 12 V	100 V or less	—	—				—	—	—	—		

\*\* Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

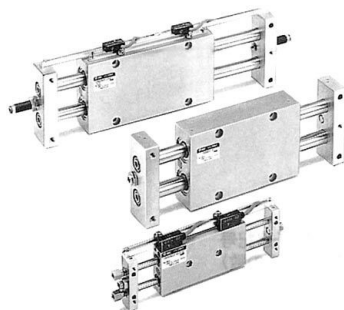
\* Lead wire length symbols: 0.5 m ..... Nil (Example) F79W  
3 m ..... L (Example) F79WL  
5 m ..... Z (Example) F79WZ  
None ..... N (Example) J79CN

\* Solid state auto switches marked with "○" are produced upon receipt of order.

\* Refer to pages 1192 and 1193 for details of auto switches with a pre-wired connector.

\* Auto switches are shipped together (not assembled).

## Specifications



Type		Non-lube		Air-hydro type	
Fluid		Air		Hydraulic fluid	
Proof pressure		1.5 MPa			
Max. operating pressure		1.0 MPa			
Min. operating pressure	CX2N10	0.15 MPa		—	
	CX2□15	0.15 MPa			
	CX2□25	0.10 MPa			
Ambient and fluid temperature		-10°C to +60°C			
Piston speed (Non-lube)	With adjusting bolt	30 to 200 mm/s		Refer to Table (1).	
	With shock absorber	30 to 500 mm/s			
Cushion		With shock absorber (Option)			
Stroke adjustable range		Standard stroke: ±2 mm			
Max. load mass <sup>(1)</sup>	CX2N10	9.8 N			
	CX2□15	29.4 N			
	CX2□25	58.8 N			
Non-rotating accuracy (Except piston rod deflection)	CX2N10	±0.1°			
	CX2□15	±0.04°			
	CX2□25	±0.02°			
Accessory (Option)		Straight knock pin (2 pcs.) , Adjusting bolt (-X138) <sup>(2)</sup> Shock absorber			

Note 1) Place the center of gravity of the load as close to the center of the slide unit as possible during operation. If they are placed far apart, consult with SMC.

Note 2) "-X138" has a stroke adjustable range of 12.5 mm on one side.



**Made to Order: Individual Specifications**  
(For details, refer to pages 706 to 708.)

Symbol	Specifications
-X138	Adjustable stroke
-X146	Hollow piston rod
-X168	CX helical insert thread
-X169	2 built-in magnets

**Made to Order Specifications**  
(For details, refer to pages 1247 to 1440.)

Symbol	Specifications
-XB11	Long stroke type
-XB13	Low speed cylinder (5 to 50 mm/s)
-XB22	Shock absorber soft type RJ series type
-XC22	Fluororubber seals

## Table (1) Air-hydro/Piston Speed

Model	Plate mounting	Housing mounting
CX2H15	Refer to the below. <sup>Note 1)</sup>	5 to 50 mm/s
CX2H25	5 to 40 mm/s	5 to 100 mm/s

Note 1) Consult with SMC when the air-hydro type is mounted on a plate.

Note 2) Consult with SMC when units are used at a low speed (10 mm/s or faster) (when intermediate stops are not required) since -XB13 (Low speed specification) is available.

Note 3) When using the air-hydro type, use the double side hydro unit.

## Shock Absorber Specifications

Shock absorber		RB0805	RB1006
Applicable slide unit		CX2N10, CX2□15	CX2□25
Maximum energy absorption (J)		0.98	3.92
Stroke absorption (mm)		5	6
Max. collision speed (m/sec)		0.05 to 5	
Max. operating frequency (cycle/min)		80	70
Max. allowable thrust (N)		147	353
Ambient temperature range (°C)		-10 to 80	
Spring force (N)	Extended	1.96	4.22
	Retracted	3.83	6.18
Weight (g)		15	25

\* The above shows the maximum absorption energy per cycle. Accordingly, the operating pressure can be increased in accordance with the absorption energy.

\* The shock absorber service life is different from that of the cylinder body depending on the operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

## Theoretical Output

Model	Rod size (mm)	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)							
			0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
CX2N10	6	101	20	30	40	51	61	71	81	91
CX2□15	8	207	41	62	83	104	124	145	166	186
CX2□25	14	597	119	179	239	299	358	418	478	537

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

### Moisture Control Tube IDK Series



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [the IDK series in the Best Pneumatics No. 6](#).

# CX2 Series

## Standard Stroke Table

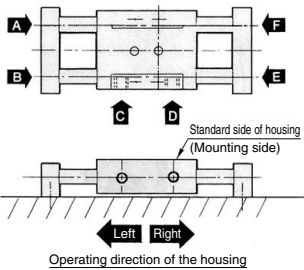
Model	Basic stroke (mm)							
	25	50	75	100	125	150	175	200
CX2N10	●	●	●	●	—	—	—	—
CX2□15	●	●	●	●	●	●	●	●
CX2□25	●	●	●	●	●	●	●	●

## Weight

Model	Basic stroke (mm)								(kg)
	25	50	75	100	125	150	175	200	
CX2N10	0.17	0.22	0.27	0.32	—	—	—	—	
CX2□15	0.23	0.34	0.45	0.56	0.67	0.78	0.89	1.00	
CX2□25	0.93	1.15	1.36	1.58	1.80	2.01	2.29	2.45	

## Operating Direction with Different Pressure Ports

Operating direction of housing when the plate is fixed

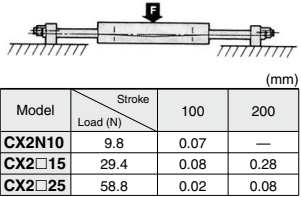


Pressure port	A	B	C	D	E	F
Operating direction	Right	Left	Left	Right	Left	Right

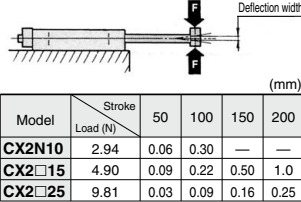
\* There are 9 possible reciprocating piping methods.

## Deflection of Piston Rod by Center Loading (Reference)

When center loading is added to the center of the housing

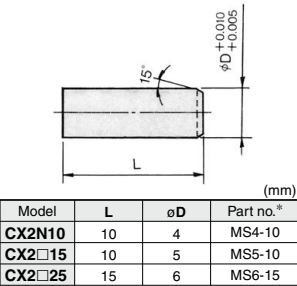


When center loading is added to the center of the plate



Note) The values denote the total width of the deflections in the upward/downward direction.

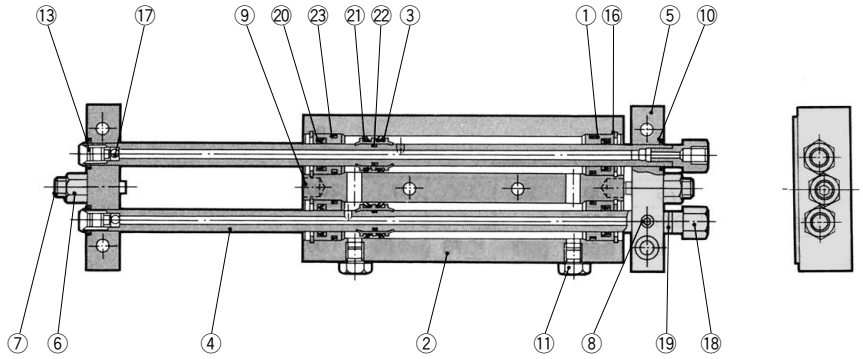
## Accessory Straight Knock Pin (Option)



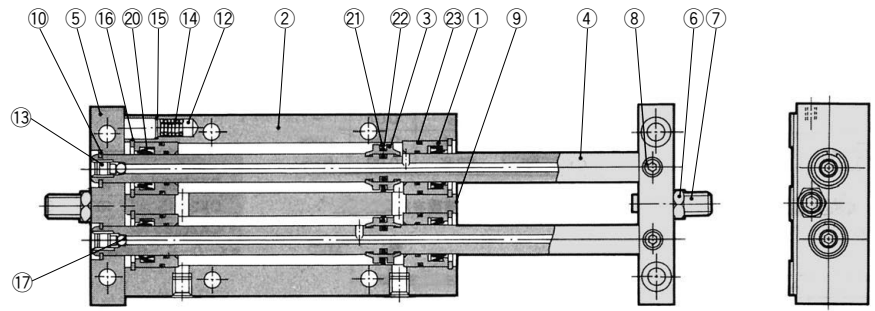
\* Manufactured by Misumi Trading Ltd.

**Construction/Parts List, Seal List**

**CX2N10**



**CX2N15, 25**



**Parts List**

No.	Description	Material	Note
1	Rod cover	Aluminum bearing alloy	
2	Housing	Aluminum alloy	Hard anodized
3	Piston	Aluminum alloy	
4	Piston rod	Carbon steel piping for machine constructions	Hard chrome plated
5	Plate	Aluminum alloy	Anodized
6	Lock nut	Carbon steel	Nickel plated
7	Adjusting bolt	Chromium steel	Zinc chromated
8	Set screw (For fixing rods)	Chromium steel	Zinc chromated
9	Pin	Carbon steel	Quenched
10	Retaining ring	Carbon tool steel	Phosphate coated
11	Plug	Carbon steel	Nickel plated
12	Magnet	—	
13	Ball fixing screw	Chromium steel	Zinc chromated
14	Spring	Stainless steel	
15	Type CR retaining ring	Carbon tool steel	
16	Round type R retaining ring	Carbon tool steel	Phosphate coated

**Parts List**

No.	Description	Material	Note
17	Steel ball	High carbon chrome bearing steel	Heat treated
18	Socket	Brass	Electroless nickel plated
19	Gasket	NBR	
20	Rod seal		
21	Piston seal		
22	Piston gasket		
23	Cylinder tube gasket		

**Replacement Parts: Seal Kit**

Model	Kit no.	Contents
CX2N10	CX2N10-PS	A set of 20, 21, 23 listed above
CX2N15	CX2N15-PS	
CX2N25	CX2N25-PS	

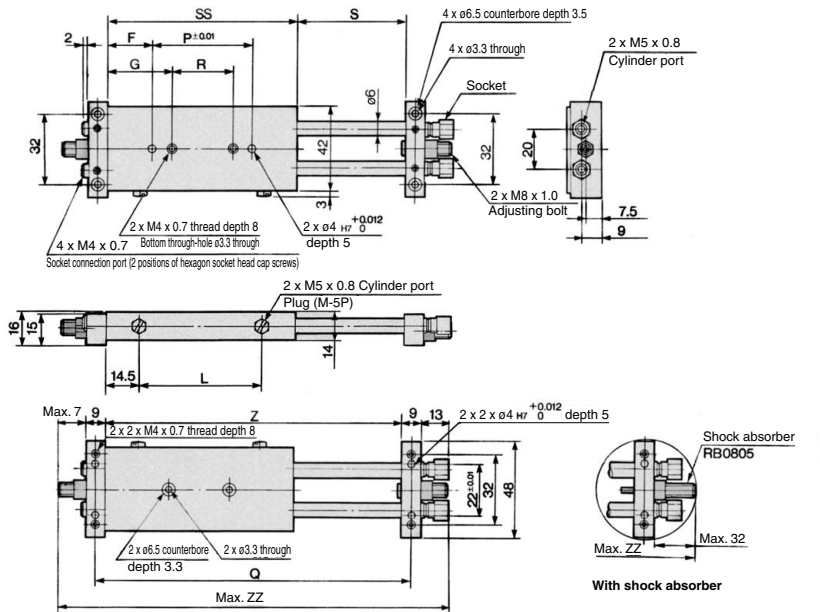
\* Seal kit includes 20, 21, 23. Order the seal kit, based on each bore size.  
 (The piston gasket 22 is not replaceable.)  
 \* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.: GR-S-010 (10 g)**

**CX2**  
**CXW**  
**CXT**  
**CXSJ**  
**CXS**

**D-□**  
**-X□**

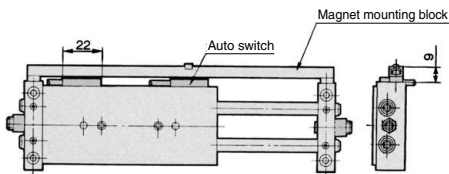


Ø10 Basic Type: CX2N10 – Strokes: 25 to 100 ☐



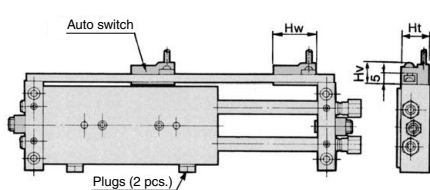
Model	F	G	L	P	Q	R	S	SS	Z	With adjusting bolt	With shock absorber
										ZZ	ZZ
<b>CX2N10-25</b>	9.5	19.5	38	48	103	28	27	67	94	132	176
<b>CX2N10-50</b>	20	30	63	52	153	32	52	92	144	182	226
<b>CX2N10-75</b>	25	35	88	67	203	47	77	117	194	232	276
<b>CX2N10-100</b>	25	35	113	92	253	72	102	142	244	282	326

**Housing mounting type with auto switch**  
**CDBX2N10-** Stroke



Note 1) The dimensions show D-E7□A and D-E80A.

Plate mounting type with auto switch  
CDPX2N10- Stroke

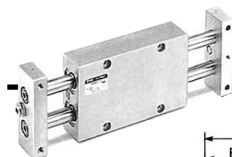


Note 1) The dimensions show D-A7 and D-A8.

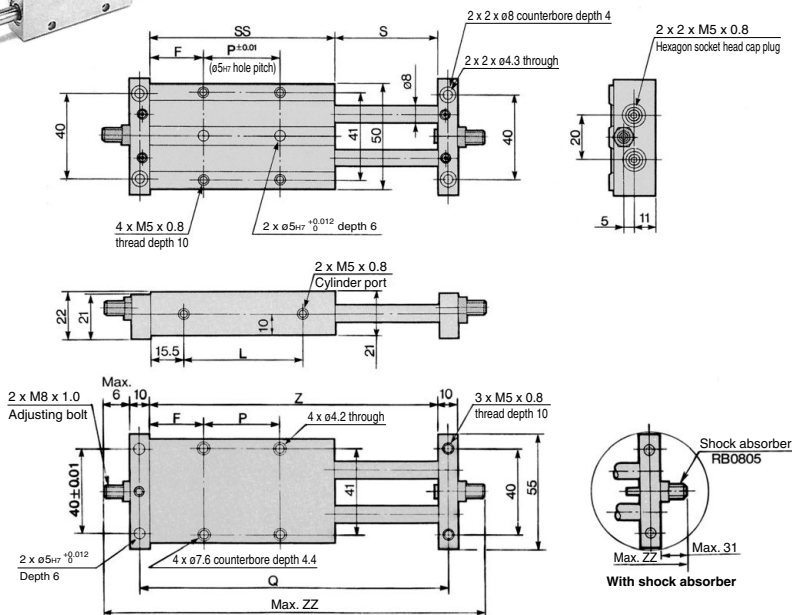
Auto switch model	Hw	Ht	Hv
D-A7, D-A8	23	15	10.5
D-F7□, D-J79, D-J79W, D-F7PW, D-F79F, D-F7BA, D-F7NT	23	15	11.5
D-A7□H, D-A80H	22	15	11.5
D-A73C, D-A80C	23	17.5	17.5
D-F7□V	23	15	14
D-J79C	24	17.5	17
D-F7LF	30	15	11.5

Note 2) For only 25 strokes, two magnets for auto switches are installed in the housing.



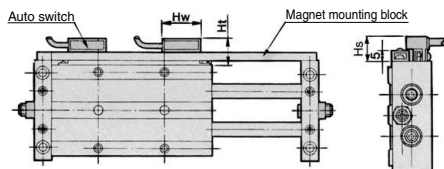


ø15 Basic Type: CX2□15- [Strokes: 25 to 200] □



Model	F	L	P	Q	S	SS	Z	With adjusting bolt	With shock absorber
								ZZ	ZZ
CX2□15-25□	24.5	38	20	106	27	69	96	128	178
CX2□15-50□	24.5	63	45	156	52	94	146	178	228
CX2□15-75□	27	88	65	206	77	119	196	228	278
CX2□15-100□	27	113	90	256	102	144	246	278	328
CX2□15-125□	39.5	138	90	306	127	169	296	328	378
CX2□15-150□	52	163	90	356	152	194	346	278	428
CX2□15-175□	64.5	188	90	406	177	219	396	428	478
CX2□15-200□	77	213	90	456	202	244	446	478	528

## Housing mounting type with auto switch CDBX2□15- [Stroke]

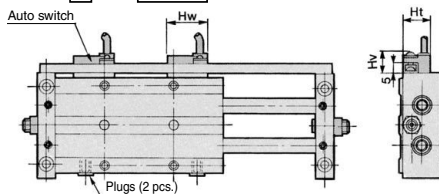


Note 1) The dimensions show D-A7 and D-A8.

Auto switch model	Hw	Hs	Ht
D-A7, D-A8	23	12.5	15
D-F7□, D-J79, D-J79W, D-F7PW, D-F79F, D-F7BA, D-F7NT	23	12.5	15
D-A7□H, D-A80H	22	12.5	15
D-A73C, D-A80C	23	15	17.5
D-F7□V	23	12.5	15
D-J79C	24	15	17.5
D-F7LF	30	12.5	15

Note 2) For only 25 strokes, two magnets for auto switches are installed to the magnet mounting block.

## Plate mounting type with auto switch CDPX2□15- [Stroke]

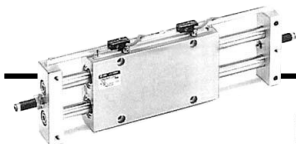


Note 1) The dimensions show D-A7 and D-A8.

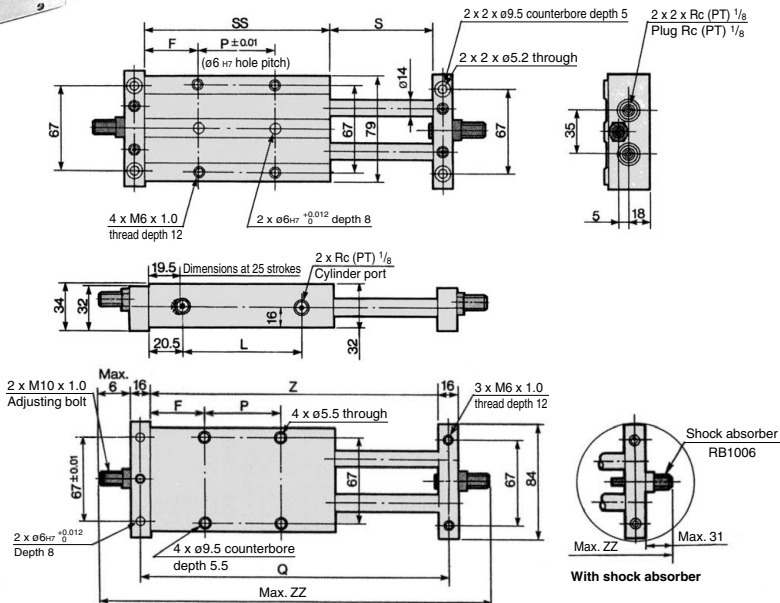
Auto switch model	Hw	Ht	Hv
D-A7, D-A8	23	15	10.5
D-F7□, D-J79, D-J79W, D-F7PW, D-F79F, D-F7BA, D-F7NT	23	15	11.5
D-A7□H, D-A80H	22	15	11.5
D-A73C, D-A80C	23	17.5	17.5
D-F7□V	23	15	14
D-J79C	24	17.5	17
D-F7LF	30	15	11.5

Note 2) For only 25 strokes, two magnets for auto switches are installed in the housing.

# CX2 Series



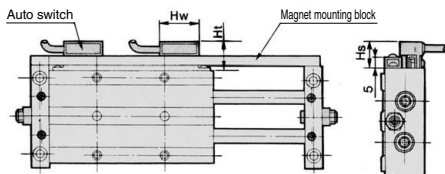
ø25 Basic Type: CX2 □ 25 - Strokes: 25 to 200 □



Model	F	L	P	Q	S	SS	Z	With adjusting bolt	With shock absorber
								ZZ	ZZ
CX2 □ 25-25 □	28.5	43	25	125	27	82	109	153	203
CX2 □ 25-50 □	31	66	45	175	52	107	159	203	253
CX2 □ 25-75 □	33.5	91	65	225	77	132	209	253	303
CX2 □ 25-100 □	33.5	116	90	275	102	157	259	303	353
CX2 □ 25-125 □	46	141	90	325	127	182	309	353	403
CX2 □ 25-150 □	58.5	166	90	375	152	207	359	403	453
CX2 □ 25-175 □	71	191	90	425	177	232	409	453	503
CX2 □ 25-200 □	83.5	216	90	475	202	257	459	503	553

## Housing mounting type with auto switch

CDBX2 □ 25 - Stroke



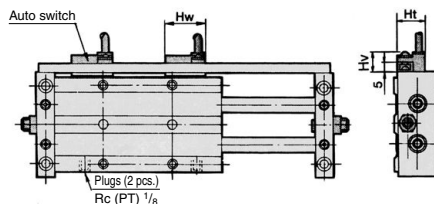
Note 1) The dimensions show D-A7 and D-A8.

Auto switch model	Hw	Hs	Ht
D-A7, D-A8	23	12.5	15
D-F7 □, D-J79, D-J79W, D-F7PW, D-F79F, D-F7BA, D-F7NT	23	12.5	15
D-A7 □H, D-A80H	22	12.5	15
D-A73C, D-A80C	23	15	17.5
D-F7 □V	23	12.5	15
D-J79C	24	15	17.5
D-F7LF	30	12.5	15

Note 2) For only 25 strokes, two magnets for auto switches are installed to the magnet mounting block.

## Plate mounting type with auto switch

CDPX2 □ 25 - Stroke



Note 1) The dimensions show D-A7 and D-A8.

Auto switch model	Hw	Ht	Hv
D-A7, D-A8	23	15	10.5
D-F7 □, D-J79, D-J79W, D-F7PW, D-F79F, D-F7BA, D-F7NT	23	15	11.5
D-A7 □H, D-A80H	22	15	11.5
D-A73C, D-A80C	23	17.5	17.5
D-F7 □V	23	15	14
D-J79C	24	17.5	17
D-F7LF	30	15	11.5

Note 2) For only 25 strokes, two magnets for auto switches are installed in the housing.

Operating Range

Auto switch model		(mm)		
		Applicable cylinder size		
D-A7□/A80 D-A7□H/A80H D-A73C/A80C	Housing mounting	10	15	25
	Plate mounting	6	6	6
	Housing mounting	6	—	—
D-E7□A/E80A	Housing mounting	6	—	—
D-F7□/J79 D-F7□V/J79C D-F7□W/F7□WV D-F7BA/F7BAV D-F79F/F7NT	Housing mounting	—	2.5	2.5
	Plate mounting	2.5	2.5	3

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approximately ±30% dispersion). It may vary substantially depending on an ambient environment.

Besides the models listed in How to Order, the following auto switches are applicable.  
Refer to pages 1119 to 1245 for the detailed specifications.

Auto switch type	Model	Electrical entry (Fetching direction)	Features	Applicable cylinder size	
				Housing mounting	Plate mounting
Solid state	D-F7NT	Grommet (In-line)	With timer	ø15, ø25	ø10, ø15, ø25

\* With pre-wired connector is also available for D-F7NT type. For details, refer to pages 1119 and 1193.  
\* It is impossible to mount solid state auto switches to the housing mounting ø10.

CX2

CXW

CXT

CXSJ

CXS

D-□

-X□