

Dual Rod Cylinder: Basic Type

Series CXS

ø6, ø10, ø15, ø20, ø25, ø32

How to Order

CXS M 20 100 Y7BW S

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke (mm)

Bore size (mm)	Standard stroke
6	10, 20, 30, 40, 50
10	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75
15, 20, 25, 32	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
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* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

Data

Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m) *			Pre-wire connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	Z76	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)		Y7PV		Y7P	●	●	○	○	—		
				2-wire		Y69B		Y59B	●	●	○	○	—		
	Diagnostic indication (2-color indication)			3-wire (NPN)	5 V, 12 V	Y7NWV		Y7NW	●	●	○	○	○	IC circuit	
				3-wire (PNP)		Y7PWV		Y7PW	●	●	○	○	○	—	
	Water resistant (2-color indication)			2-wire	12 V	Y7BWV		Y7BW	●	●	○	○	—		
						—		Y7BA	—	●	○	○	○	—	

* Lead wire length symbols: 0.5 m Nil (Example) Y59A
3 m L (Example) Y59AL
5 m Z (Example) Y59AZ

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

- Since there are other applicable auto switches than listed, refer to page 8-29-10 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

Series CXS



Specifications

Bore size (mm)	6	10	15	20	25	32
Fluid	Air (Non-lube)					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure	0.15 MPa	0.1 MPa		0.05 MPa		
Ambient and fluid temperature	-10 to 60°C (No freezing)					
Piston speed	30 to 300 mm/s	30 to 800 mm/s	30 to 700 mm/s		30 to 600 mm/s	
Cushion	Rubber bumper					
Stroke adjustable range	0 to -5 mm compared to the standard stroke					
Port size	M5 x 0.8				Rc 1/8	
Bearing type	Slide bearing, Ball bushing bearing (Same dimensions for both)					

* The maximum piston speed shown in the table above is for extension.
The maximum piston speed for retraction is approximately 70% that of extension.

Standard Stroke

Model	Standard stroke	Manufacturable stroke range
CXS□6	10, 20, 30, 40, 50	60 to 100
CXS□10	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75	80 to 150
CXS□15		110 to 150
CXS□20	10, 15, 20, 25, 30, 35, 40, 45, 50,	110 to 200
CXS□25	60, 70, 75, 80, 90, 100	
CXS□32		

* Refer to "Made to Order Specifications" for stroke which exceeds the standard stroke length.
Non-standard strokes for a size ø6 cylinder are available as a special order.



Made to Order Specifications (For details, refer to page 8-31-1.)

Symbol	Specifications
-XB6	Heat resistant cylinder (150°C)
-XB9	Low speed cylinder (10 to 50 mm/s)
-XB11	Long stroke type
-XB13	Low speed cylinder (5 to 50 mm/s)
-XB19	High speed cylinder
-XC18	NPT finish piping port
-XC22	Fluoro rubber seals
-X593	Without plate

Theoretical Output

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)							
				0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
CXS□6	4	OUT	56	—	8.4	11.2	16.8	22.4	28.0	33.6	39.2
		IN	31	—	4.6	6.2	9.3	12.4	15.5	18.6	21.7
CXS□10	6	OUT	157	15.7	—	31.4	47.1	62.8	78.5	94.2	110
		IN	100	10.0	—	20.0	30.0	40.0	50.0	60.0	70.0
CXS□15	8	OUT	353	35.3	—	70.6	106	141	177	212	247
		IN	252	25.2	—	50.4	75.6	101	126	151	176
CXS□20	10	OUT	628	62.8	—	126	188	251	314	377	440
		IN	471	47.1	—	94.2	141	188	236	283	330
CXS□25	12	OUT	982	98.2	—	196	295	393	491	589	687
		IN	756	75.6	—	151	227	302	378	454	529
CXS□32	16	OUT	1608	161	—	322	482	643	804	965	1126
		IN	1206	121	—	241	362	482	603	724	844

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

Model	Standard stroke (mm)														
	10	15	20	25	30	35	40	45	50	60	70	75	80	90	100
CXSM6	0.081	—	0.095	—	0.108	—	0.122	—	0.135	—	—	—	—	—	—
CXSL6	0.081	—	0.095	—	0.108	—	0.122	—	0.135	—	—	—	—	—	—
CXSM10	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.25	0.27	0.28	—	—	—
CXSL10	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.25	0.27	0.28	—	—	—
CXSM15	0.25	0.265	0.28	0.29	0.30	0.315	0.33	0.345	0.36	0.39	0.42	0.435	0.45	0.48	0.51
CXSL15	0.27	0.285	0.30	0.31	0.32	0.335	0.35	0.365	0.38	0.41	0.44	0.455	0.47	0.50	0.53
CXSM20	0.40	0.42	0.44	0.46	0.48	0.495	0.51	0.53	0.55	0.585	0.62	0.64	0.66	0.70	0.74
CXSL20	0.43	0.445	0.46	0.48	0.50	0.515	0.53	0.55	0.57	0.605	0.64	0.66	0.68	0.715	0.75
CXSM25	0.61	0.635	0.66	0.69	0.72	0.745	0.77	0.80	0.83	0.89	0.95	0.97	0.995	1.06	1.10
CXSL25	0.62	0.645	0.67	0.70	0.73	0.755	0.78	0.81	0.84	0.895	0.955	0.98	1.005	1.065	1.11
CXSM32	1.15	1.19	1.23	1.275	1.32	1.36	1.40	1.45	1.49	1.58	1.665	1.71	1.755	1.84	1.93
CXSL32	1.16	1.205	1.25	1.295	1.34	1.38	1.42	1.465	1.51	1.595	1.68	1.72	1.765	1.855	1.94

Dual Rod Cylinder: Basic Type **Series CXS**

Clean Series

There are two types of cylinders, relieving type and vacuum type, available for a clean room environment. The relieving type specification with the double-seal construction of the rod section allows the cylinder to channel exhaust through the relief port directly to the outside of a clean room environment. The vacuum type specification allows for the application of a vacuum on the rod section while forced exhaust of air takes place through the vacuum port to the outside of a clean room environment.

How to Order

12 – CXS L Bore size Stroke Auto switch

- Ball bushing bearing
- Clean room specifications

11	Vacuum type
12	Relieving type (With specially treated sliding parts)

Specifications

Bore size (mm)	6	10	15	20	25	32
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure	0.15 MPa	0.1 MPa		0.05 MPa		
Ambient and fluid temperature	−10 to 60°C (No freezing)					
Piston speed	30 to 400 mm/s					
Stroke adjustable range	0 to −5 mm compared to the standard stroke					
Bearing type	Ball bushing bearing					

Refer to "Pneumatic Clean Series" catalog for dimensions.

Copper-free (For CRT manufacturing process)

To prevent the influence of copper ions or halogen ions during CRT manufacturing processes, copper and fluorine materials are not used in the component parts.

Note) Since the standard cylinders are essentially copper and fluorine-free, those are conforming to 20-specifications. However, in the event of combined specifications, it is likely to happen non-conformity to 20-specifications. (e.g. combination between 20- and -XB9 (-XB13)) In order to avoid such a non-conformity, we distinguish the model no. from the one for standard products by prefixing 20-.

How to Order

20 – CXS L Bore size Stroke Auto switch

- Ball bushing bearing
- Copper-free

* Specifications and dimensions are the same as for standard products.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

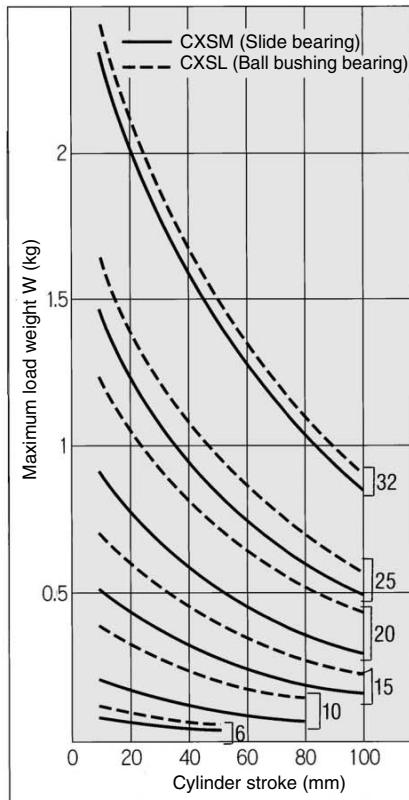
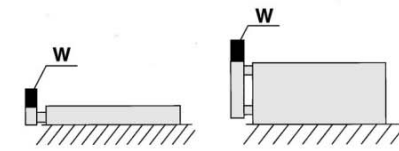
Data

Series CXS

Operating Conditions

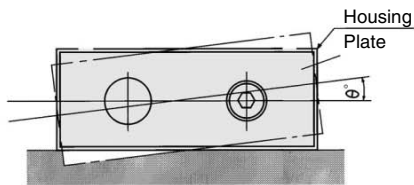
Maximum Load Weight

When the cylinder is mounted as shown in the diagrams below, the maximum load weight W should not exceed the values illustrated in the graph immediately following the diagrams.



Non-rotating Accuracy

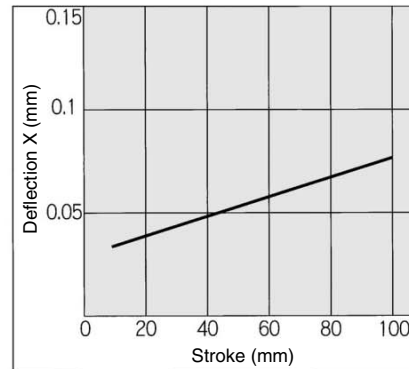
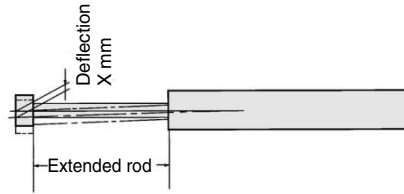
Non-rotating accuracy θ° without a load should be less than or equal to the value provided in the table below as a guide.



Bore size (mm)	6 to 32
CXSM (Slide bearing)	$\pm 0.1^\circ$
CXSL (Ball bushing bearing)	

Deflection at the Plate End

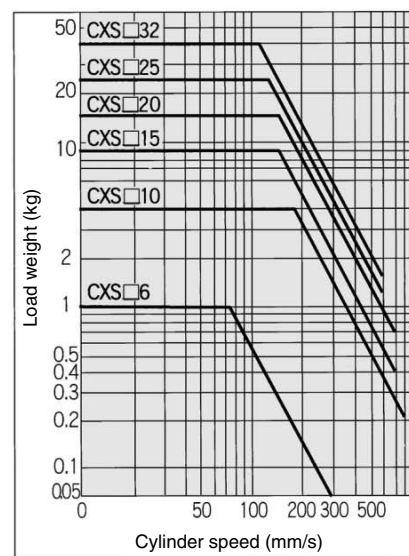
An approximate plate-end deflection X without a load is shown in the graph below.

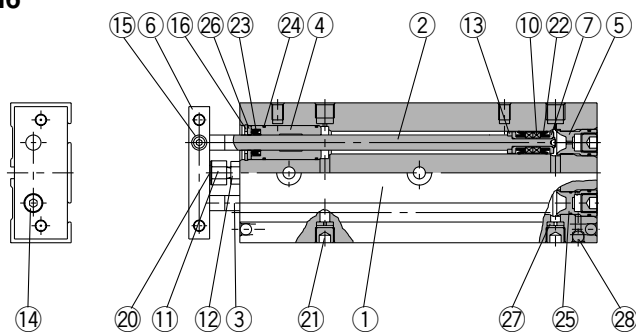
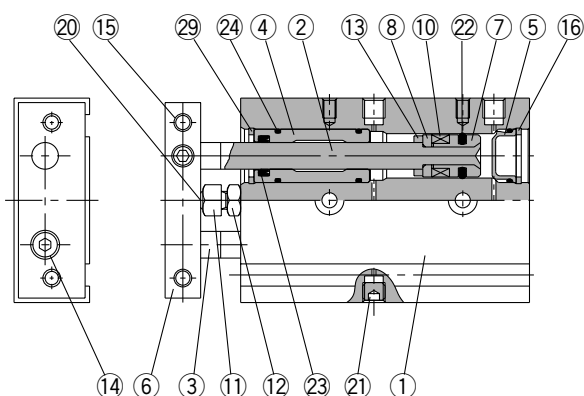
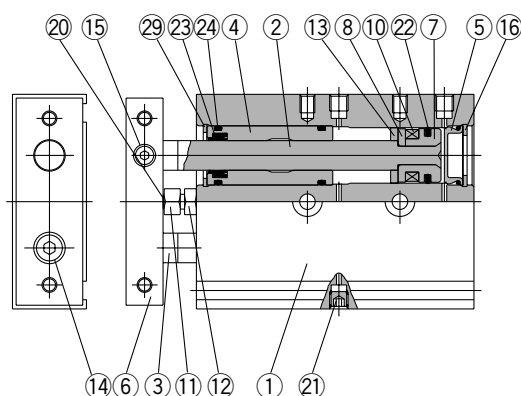
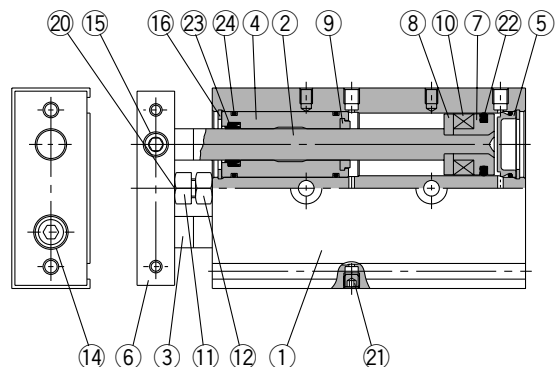


Allowable Kinetic Energy

Load weight and cylinder speed should be observed within the range given in the graph below.

Cylinder speed should be adjusted using a speed controller.



Construction: Slide Bearing**CXSM6****CXSM10****CXSM15****CXSM20 to 32****Component Parts**

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod A	Carbon steel ⁽¹⁾	Hard chrome plated
③	Piston rod B	Carbon steel ⁽¹⁾	Hard chrome plated
④	Rod cover	Aluminum bearing alloy	
⑤	Head cover	Special steel ⁽²⁾	
⑥	Plate	Aluminum alloy	Hard anodized
⑦	Piston A	Aluminum alloy	Chromated
⑧	Piston B	Aluminum alloy	Chromated
⑨	Bumper A	Polyurethane	
⑩	Magnet	Magnetic material	
⑪	Bumper bolt	Carbon steel	Nickel plated
⑫	Hexagon nut	Carbon steel	Nickel plated
⑬	Bumper B	Polyurethane	
⑭	Hexagon socket head cap screw	Chromium steel	Nickel plated
⑮	Hexagon socket head set screw	Chromium steel	Nickel plated
⑯	Snap ring	Special steel	Nickel plated
⑰	Bumper holder	Aluminum bearing alloy	



Note 1) Stainless steel for CXSM6.

Note 2) Anodized aluminum alloy for CXSM6.

Component Parts

No.	Description	Material	Note
⑱	Ball bushing	—	
⑲	Bearing spacer	Aluminum bearing alloy	
⑳	Bumper	Polyurethane	
㉑	Plug	Chromium steel	Nickel plated
㉒	Piston seal	NBR	
㉓	Rod seal	NBR	
㉔	O-ring	NBR	
㉕	Head cover B	Aluminum alloy	Nickel plated
㉖	Seal retainer	Aluminum alloy	
㉗	Port spacer	Aluminum alloy	
㉘	Steel ball	Special steel	Hard chrome plated
㉙	Snap ring B	Special steel	Nickel plated

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CXSM6-PS	Set of nos. above ㉒, ㉓, ㉔
10	CXSM10APS	
15	CXSM15-PS	
20	CXSM20-PS	
25	CXSM25-PS	
32	CXSM32-PS	

* Seal kit includes ㉒, ㉓, ㉔. Order the seal kit, based on each bore size.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

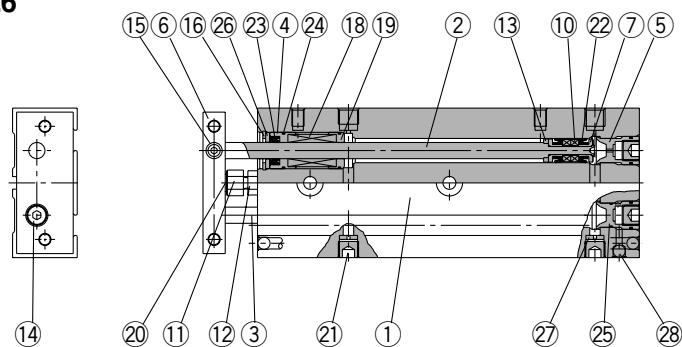
20-

Data

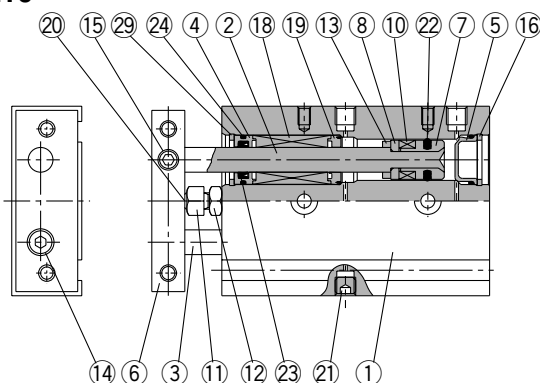
Series CXS

Construction: Ball Bushing Bearing

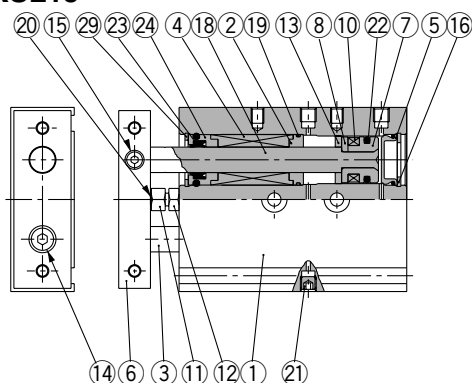
CXSL6



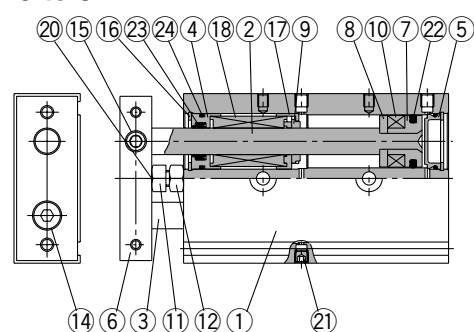
CXSL10



CXSL15



CXSL20 to 32



Component Parts: Standard Piping

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod A	Special steel	Hard chrome plated
③	Piston rod B	Special steel	Hard chrome plated
④	Rod cover	Aluminum bearing alloy	
⑤	Head cover	Special steel ⁽¹⁾	
⑥	Plate	Aluminum alloy	Hard anodized
⑦	Piston A	Aluminum alloy	Chromated
⑧	Piston B	Aluminum alloy	Chromated
⑨	Bumper A	Polyurethane	
⑩	Magnet	Magnetic material	
⑪	Bumper bolt	Carbon steel	Nickel plated
⑫	Hexagon nut	Carbon steel	Nickel plated
⑬	Bumper B	Polyurethane	
⑭	Hexagon socket head cap screw	Chromium steel	Nickel plated
⑮	Hexagon socket head set screw	Chromium steel	Nickel plated
⑯	Snap ring	Special steel	Nickel plated
⑰	Bumper holder	Synthetic resin	



Note 1) Anodized aluminum alloy for CXSL6.

Component Parts

No.	Description	Material	Note
⑱	Ball bushing	—	
⑲	Bearing spacer	Synthetic resin ⁽²⁾	
⑳	Bumper	Polyurethane	
㉑	Plug	Chromium steel	Nickel plated
㉒	Piston seal	NBR	
㉓	Rod seal	NBR	
㉔	O-ring	NBR	
㉕	Head cover B	Aluminum alloy	Nickel plated
㉖	Seal retainer	Aluminum alloy	
㉗	Port spacer	Aluminum alloy	
㉘	Steel ball	Special steel	Hard chrome plated
㉙	Snap ring B	Special steel	Nickel plated

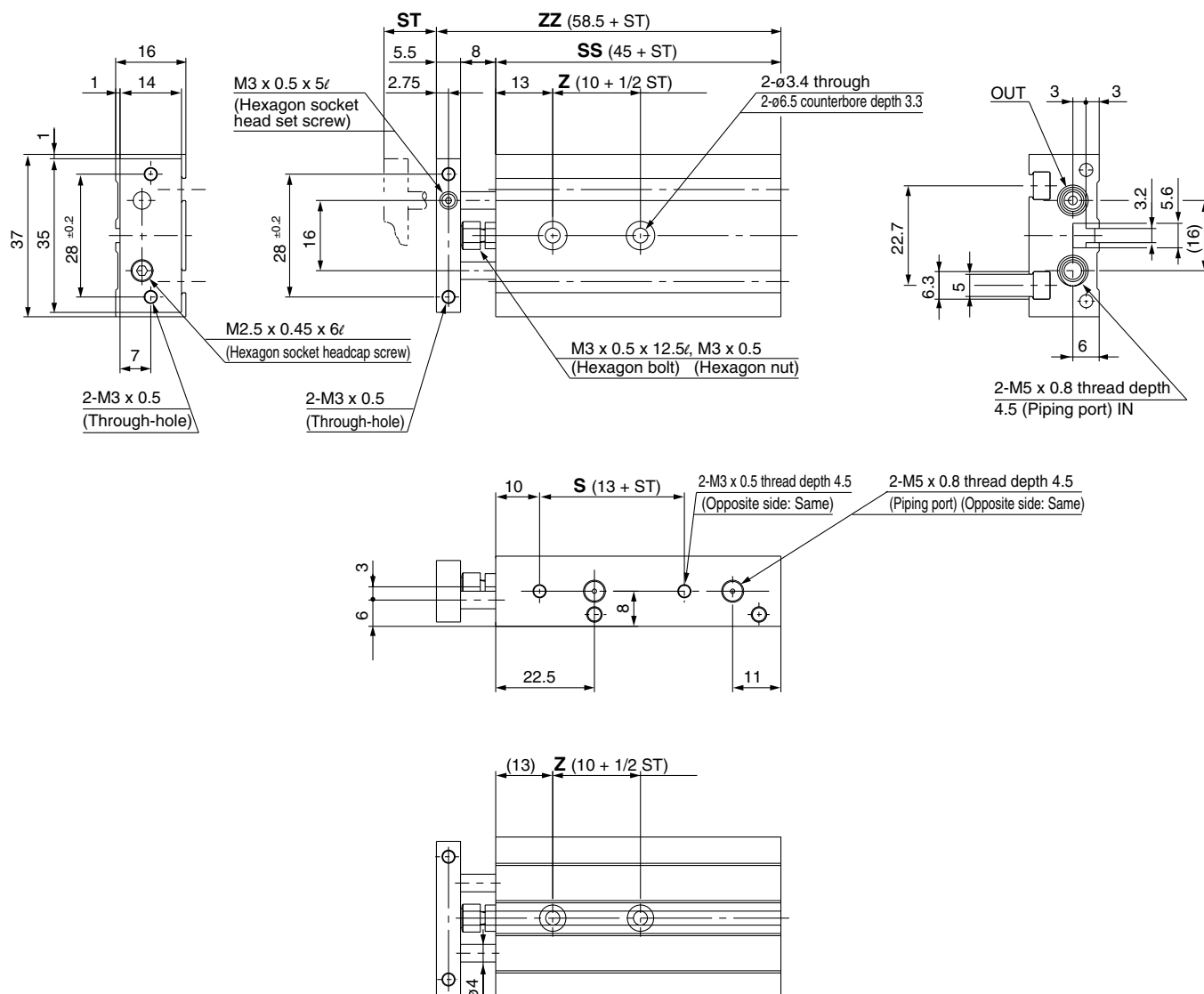
Note 2) Aluminum alloy for CXSL6.

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CXSL6-PS	Set of nos. above ㉒, ㉓, ㉔
10	CXSL10BPS	
15	CXSL15APS	
20	CXSL20APS	
25	CXSL25APS	
32	CXSL32APS	

Dual Rod Cylinder: Basic Type **Series CXS**

Dimensions: $\phi 6$



MX

MTS

MY

CY

MG

CX

D-

-X

20-

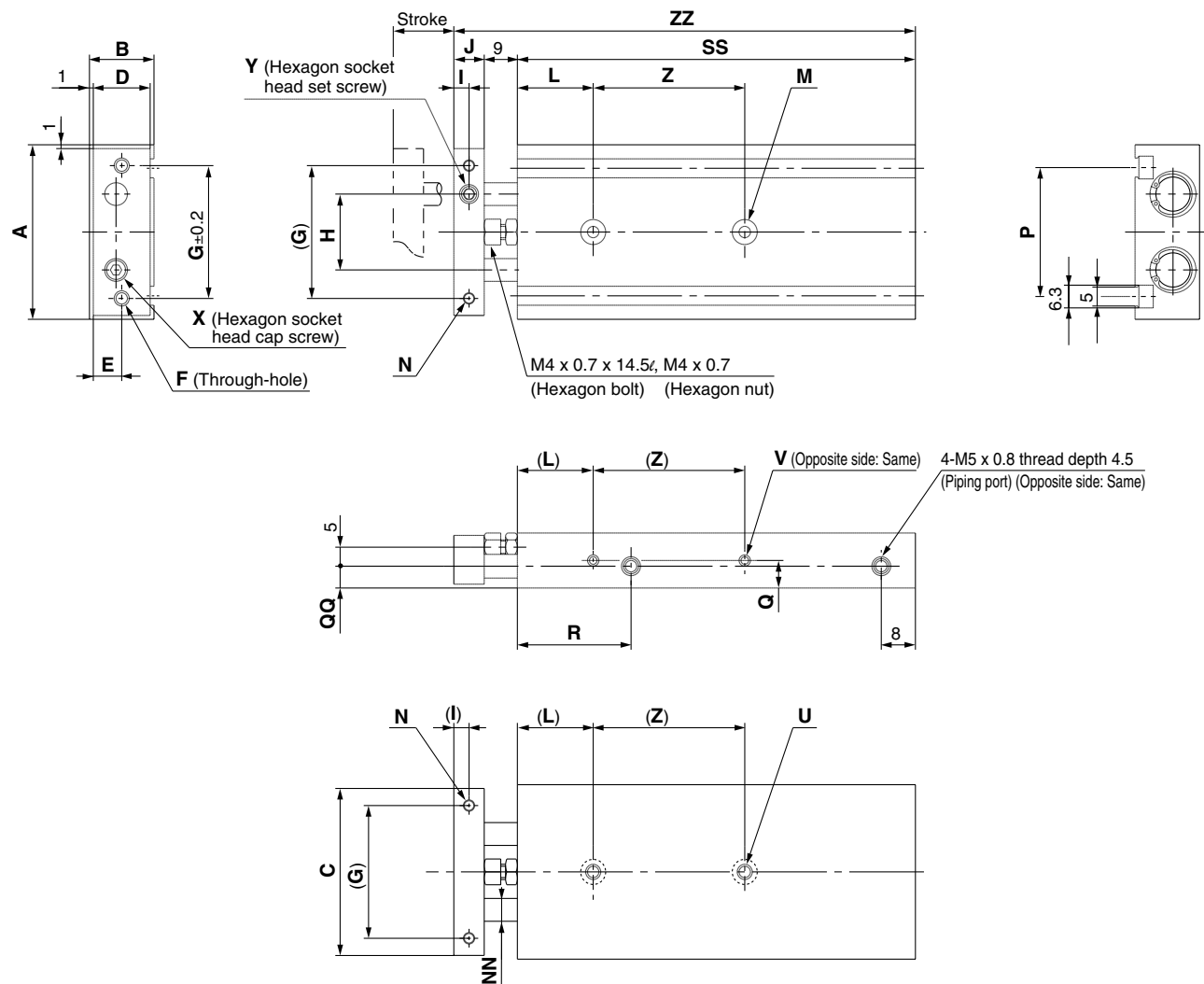
Data

Model	Stroke	Z	S	SS	ZZ
CXS□6-10	10	15	23	55	68.5
CXS□6-20	20	20	33	65	78.5
CXS□6-30	30	25	43	75	88.5
CXS□6-40	40	30	53	85	98.5
CXS□6-50	50	35	63	95	108.5

(mm)

Series CXS

Dimensions: $\phi 10$, $\phi 15$



(mm)

Model	A	B	C	D	E	F	G	H	I	J	L	M	N	NN	P	Q	QQ	R	U	V	X	Y
CXS□10	46	17	44	15	7.5	2-M4 x 0.7	35	20	4	8	20	2- $\phi 3.4$ through 2- $\phi 6.5$ counter-bore depth 3.3	2-M3 x 0.5 thread depth 5	$\phi 6$	33.6	8.5	7	30	2-M4 x 0.7 thread depth 7	4-M3 x 0.5 thread depth 4.5	M3 x 0.5 x 10r	M5 x 0.8 x 5r
CXS□15	58	20	56	18	9	2-M5 x 0.8	45	25	5	10	30	2- $\phi 4.3$ through 2- $\phi 8$ counter-bore depth 4.4	2-M4 x 0.7 thread depth 6	$\phi 8$	48	10	10	38.5	2-M5 x 0.8 thread depth 8	4-M4 x 0.7 thread depth 5	M5 x 0.8 x 10r	M6 x 1.0 x 5r

Dimensions by Stroke

(mm)

Symbol Stroke Model	SS															Z						ZZ													
	10	15	20	25	30	35	40	45	50	60	70	75	80	90	100	10, 15 20, 25	30, 35, 40, 45, 50	60, 70, 75	80	90, 100	10	15	20	25	30	35	40	45	50	60	70	75	80	90	100
CXS□10	65	70	75	80	85	90	95	100	105	115	125	130	—	—	—	30	40	50	—	—	82	87	92	97	102	107	112	117	122	132	142	147	—	—	—
CXS□15	70	75	80	85	90	95	100	105	110	120	130	135	140	150	160	25	35	45	45	55	89	94	99	104	109	114	119	124	129	139	149	154	159	169	179

[illegible]

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	OO	P
CXS□20	64	25	62	23	11.5	2-M5 x 0.8	50	28	6	12	12	30	2-ø5.5 through 2-ø9.5 counterbore depth 5.3	2-M4 x 0.7 thread depth 6	ø10	M6 x 1.0 x 18.5ℓ	53
CXS□25	80	30	78	28	14	2-M6 x 1.0	60	35	6	12	12	30	2-ø6.9 through 2-ø11 counterbore depth 6.3	2-M5 x 0.8 thread depth 7.5	ø12	M6 x 1.0 x 18.5ℓ	64
CXS□32	98	38	96	36	18	2-M6 x 1.0	75	44	8	16	14	30	2-ø6.9 through 2-ø11 counterbore depth 6.3	2-M5 x 0.8 thread depth 8	ø16	M8 x 1.25 x 23ℓ	76

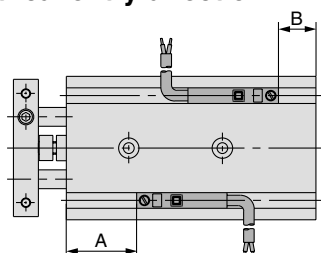
Model	PP	Q	QQ	R	T	TT	U	UU	V	W	X	Y
CXS□20	M6 x 1.0	7.75	12.5	45	9.5	6.5	8	4-M5 x 0.8 thread depth 4.5	8-M4 x 0.7 thread depth 5.5	2-M6 x 1.0 thread depth 10	M6 x 1.0 x 12ℓ	M8 x 1.25 x 6ℓ
CXS□25	M6 x 1.0	8.5	15	46	13	9	9	4-Rc 1/8 thread depth 6.5	8-M5 x 0.8 thread depth 7.5	2-M8 x 1.25 thread depth 12	M6 x 1.0 x 14ℓ	M8 x 1.25 x 6ℓ
CXS□32	M8 x 1.25	9	19	56	20	11.5	10	4-Rc 1/8 thread depth 6.5	8-M5 x 0.8 thread depth 7.5	2-M8 x 1.25 thread depth 12	M8 x 1.25 x 16ℓ	M10 x 1.5 x 8ℓ

Symbol Stroke		SS														Z			ZZ																						
		10	16	20	25	30	35	40	45	50	60	70	75	80	90	100	10, 15, 20, 25			30, 35, 40, 45, 50			60, 70, 75, 80, 90, 100			10	15	20	25	30	35	40	45	50	60	70	75	80	90	100	
Model																																									
CXS□20		80	85	90	95	100	105	110	115	120	130	140	145	150	160	170	30			40			60			104	109	114	119	124	129	134	139	144	154	164	169	174	184	194	
CXS□25		82	87	92	97	102	107	112	117	122	132	142	147	152	162	172	30			40			60			106	111	116	121	126	131	136	141	146	156	166	171	176	186	196	
CXS□32		92	97	102	107	112	117	122	127	132	142	152	157	162	172	182	40			50			70			122	127	132	137	142	147	152	157	162	172	182	187	192	202	212	

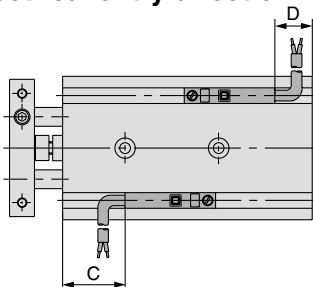
Series CXS

Proper Auto Switch Mounting Position (Detection at stroke end)

Electrical entry direction: Inward



Electrical entry direction: Outward



Bore size (mm)	A	B	D-Z7/Z8, D-Y7□W D-Y5□, D-Y7□		D-Y6□, D-Y7□V D-Y7□WV		D-Y7BAL	
			C	D	C	D	C	D
6	15.5	4.5	11.5 (10)	0.5 (-1)	13	2	5.5	-5.5
10	22.5	7.5	18.5 (17)	3.5 (2)	20	5	12.5	-2.5
15	30.5	4.5	26.5 (25)	0.5 (-1)	28	2	20.5	-5.5
20	38	7	34 (32.5)	3 (1.5)	36	4.5	28	-3
25	38	9	34 (32.5)	5 (3.5)	36	6.5	28	-1
32	48	9	44 (42.5)	5 (3.5)	46	6.5	38	-1



Lead wire entry is inward prior to shipment.

Note 1) Negative figures in the table D indicate an auto switch is mounted inward from the edge of the cylinder body.

Note 2) (): Denotes the dimensions of D-Z73.

Operating Range

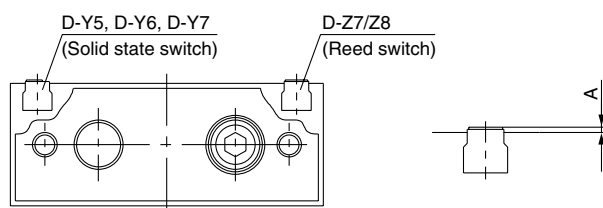
Auto switch model	Bore size (mm)					
	6	10	15	20	25	32
D-Z7□/Z80	9	7	9	9	9	11
D-Y59□, D-Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	3	3	3.5	3.5	4	4.5
D-Y7BAL	4	4	5.5	5.5	6	6

* Since this is a guideline including hysteresis, not meant to be guaranteed.

(assuming approximately $\pm 30\%$ dispersion.)

There may be the case it will vary substantially depending on an ambient environment.

Dimensions for Mounting of Auto Switch



A Dimension

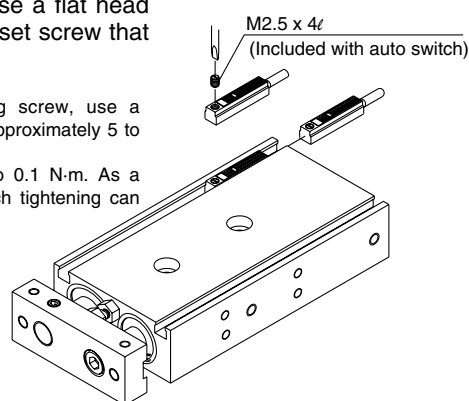
Auto switch model	Bore size (mm)					
	6	10	15	20	25	32
D-Y59A/Y7P/Y59B D-Y69A/Y7PV/Y69B D-Y7NWV/Y7PWV/Y7BWV D-Y7NW/Y7PW/Y7BW	0.7			0.2		
D-Y7BAL	6.5			6.0		
D-Z7, D-Z8	1.2			0.7		

Mounting of Auto Switch

When mounting and securing auto switches, they should be inserted into the cylinder's switch mounting rail from the direction shown in the drawing below. After setting in the mounting position, use a flat head watchmakers screwdriver to tighten the set screw that is included.

Note) When tightening an auto switch mounting screw, use a watchmakers' screwdriver with a handle of approximately 5 to 6 mm in diameter.

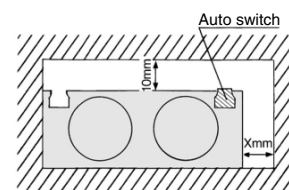
Also, tighten with a torque of about 0.05 to 0.1 N·m. As a guide, turn about 90° past the point at which tightening can first be felt.



Caution

1. Avoid proximity to magnetic objects

shown in the drawing below. If the clearance is less than the values noted in the table below, the auto switch may not function properly.



Bore size (mm)	X (mm)
6	0
10	0
15	10
20	10
25	0
32	0

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 8-30-1.

Type	Model	Electrical entry (Fetching direction)	Features
Reed switch	D-Z80	Grommet (In-line)	Without indicator light

* Normally closed (NC = b contact), solid state switch (D-Y7G/Y7H type) are also available. For details, refer to page 8-30-32.

Dual Rod Cylinder: With Air Cushion

Series CXS

ø20, ø25, ø32

How to Order



Thread type

Symbol	Type	Bore size (mm)
Nil	M	ø20
	Rc	
TN	NPT	25, 32
TF	G	

CXS M 20 100 A Y7BW S

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke (mm)

Bore size (mm)	Stroke
20	20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100
25, 32	25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

Number of auto switches (No. of auto switch)

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

* For the applicable auto switch model, refer to the table below.

* Auto switches are shipped together, (but not assembled).

Air cushion

Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m) *			Pre-wire connector	Applicable load	
					DC		AC			0.5 (Nil)	3 (L)	5 (Z)			
					Perpendicular	In-line									
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	Z76	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)		Y7PV		Y7P	●	●	○	○	IC circuit		
				2-wire		12 V		Y69B	Y59B	●	●	○	○	—	
	3-wire (NPN)			5 V, 12 V		Y7NWV		Y7NW	●	●	○	○	IC circuit		
	3-wire (PNP)			Y7PWV		Y7PW		●	●	○	○	IC circuit			
	Diagnostic indication (2-color indication)			2-wire		12 V		Y7BWV	Y7BW	●	●	○	○	—	
								—	Y7BA	—	●	○	○	—	

* Lead wire length symbols: 0.5 m Nil (Example) Y59A
3 m L (Example) Y59AL
5 m Z (Example) Y59AZ

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

- Since there are other applicable auto switches than listed, refer to page 8-29-10 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

Series CXS

⚠ Precautions

Be sure to read before handling.
For Safety Instructions and
Common Precautions, refer to
pages 8-34-3 to 8-34-6.

Selection

⚠ Caution

- Operate the cylinder until the stroke end.**
If the stroke is restricted by the external stopper and clamp workpiece, effective cushioning and noise reduction will not be achieved.
- Adjust the cushion needles to absorb the kinetic energy during the cushion stroke so that excessive kinetic energy does not remain when the piston reaches the stroke end.**
If the piston reaches the stroke end with excessive kinetic energy remaining (more than the values given in table (1) below) due to an improper adjustment, excessive impact will occur, causing damage to machinery.

Table (1) Allowable Kinetic Energy at Piston Impact

Bore size (mm)	20	25	32
Piston speed (mm/s)	50 to 700	50 to 600	50 to 600
Allowable kinetic energy (J)	0.17	0.271	0.32

Cushion Needle Adjustment

⚠ Caution

- Keep the adjusting range for the cushion needle between the fully closed position and the rotations shown below.**

Bore size (mm)	20	25	32
Rotations	2.5 rotations or less	3 rotations or less	

Use a 3 mm flat head watchmakers screwdriver to adjust the cushion needles to the fully closed position, as this will cause damage to the seals. The adjusting range for the cushion needles must be between the fully closed position and the open position ranges indicated in the table above. A retaining mechanism prevents the cushion needles from slipping out; however, they may spring out during operation if they are rotated beyond the ranges shown above.

Precautions for selection standard, mounting, piping, and operating environment are same as for the standard series.

Specifications

Bore size (mm)	20	25	32
Fluid	Air (Non-lube)		
Proof pressure	1.05 MPa		
Maximum operating pressure	0.7 MPa		
Minimum operating pressure	0.1 MPa		
Ambient and fluid temperature	−10 to 60°C (No freezing)		
Piston speed ^{Note)}	50 to 1000 mm/s		
Port size	M5 x 0.8	Rc 1/8 (NPT 1/8, G 1/8)	
Bearing type	Slide bearing, Ball bushing bearing (Same dimensions for both)		
Cushion	Air cushion (Both ends)		

Note) The maximum piston speed shown in the table above is for extension.
The maximum piston speed for retraction is approximately 70% that of extension.

Cushion mechanism

Bore size (mm)	Effective cushion length (mm)	Absorbable kinetic energy (J)
20	5.9	0.40
25	5.7	0.75
32	5.6	1.0

Standard Stroke

Model	Standard stroke (mm)
CXS□20	20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100
CXS□25 CXS□32	25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

Theoretical Output

Model	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)							(N)
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	
CXS□20	10	OUT	628	62.8	126	188	251	314	377	440	
		IN	471	47.1	94.2	141	188	236	283	330	
CXS□25	12	OUT	982	98.2	196	295	393	491	589	687	
		IN	756	75.6	151	227	302	378	454	529	
CXS□32	16	OUT	1608	161	322	482	643	804	965	1126	
		IN	1206	121	241	362	482	603	724	844	

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

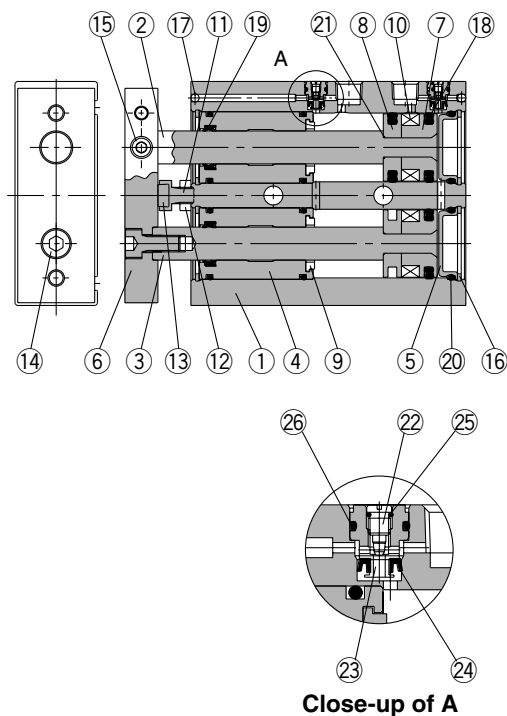
Weight

Model	Standard stroke (mm)													(kg)
	20	25	30	35	40	45	50	60	70	75	80	90	100	
CXSM20-□A	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.66	0.70	0.715	0.735	0.755	0.815	
CXSL20-□A	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.68	0.72	0.735	0.755	0.775	0.835	
CXSM25-□A	—	0.78	0.80	0.82	0.84	0.86	0.88	0.92	0.96	0.98	1.00	1.04	1.08	
CXSL25-□A	—	0.79	0.81	0.83	0.85	0.87	0.89	0.93	0.97	0.99	1.01	1.05	1.09	
CXSM32-□A	—	1.48	1.53	1.575	1.62	1.67	1.72	1.82	1.92	1.96	2.06	2.14	2.20	
CXSL32-□A	—	1.51	1.55	1.60	1.64	1.69	1.74	1.84	1.94	1.98	2.08	2.16	2.22	

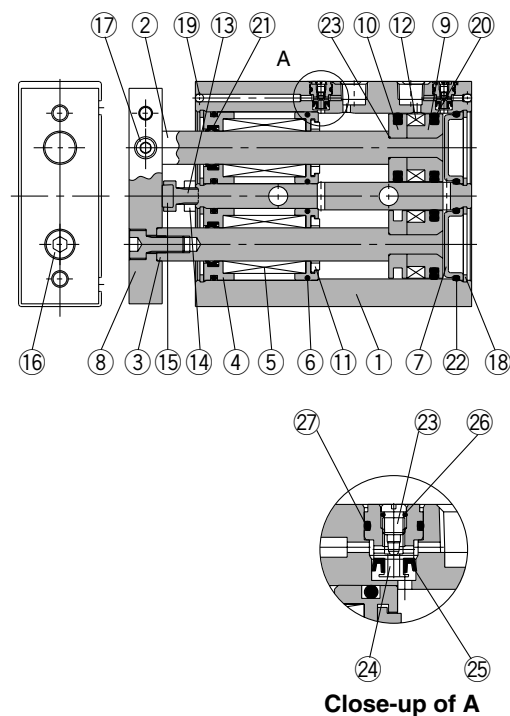
Dual Rod Cylinder: With Air Cushion **Series CXS**

Construction

CXSM/With air cushion



CXSL/With air cushion



Component Parts: CXSM

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod A	Carbon steel	Hard chrome plated
③	Piston rod B	Carbon steel	Hard chrome plated
④	Rod cover	Aluminum bearing alloy	
⑤	Head cover	Special steel	Electroless nickel plated
⑥	Plate	Aluminum alloy	Glossy, self-coloring
⑦	Piston A	Aluminum alloy	Chromated
⑧	Piston B	Aluminum alloy	Chromated
⑨	Bumper B	Polyurethane	
⑩	Magnet	Magnetic material	
⑪	Bumper bolt	Carbon steel	Nickel plated
⑫	Hexagon nut	Carbon steel	Nickel plated
⑬	Bumper	Polyurethane	
⑭	Hexagon socket head cap screw	Chromium steel	Nickel plated
⑮	Hexagon socket head set screw	Chromium steel	Nickel plated
⑯	Snap ring	Special steel	Nickel plated
⑰	Steel ball	Special steel	Nickel plated
⑱	Piston seal	NBR	
⑲	Rod seal	NBR	
⑳	O-ring	NBR	
㉑	O-ring	NBR	
㉒	Cushion needle	Stainless steel	
㉓	Check seal retainer	Copper alloy	
㉔	Check seal	NBR	
㉕	Needle gasket	NBR	
㉖	Check gasket	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
20	CXS□20A-PS	Set of nos. above ⑱, ⑲, ⑳
25	CXS□25A-PS	
32	CXS□32A-PS	

Component Parts: CXSL

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod A	Special steel	Hard chrome plated
③	Piston rod B	Special steel	Hard chrome plated
④	Rod cover	Aluminum bearing alloy	
⑤	Ball bushing	—	
⑥	Bumper holder	Synthetic resin	
⑦	Head cover	Special steel	Electroless nickel plated
⑧	Plate	Aluminum alloy	Glossy, self-coloring
⑨	Piston A	Aluminum alloy	Chromated
⑩	Piston B	Aluminum alloy	Chromated
⑪	Bumper B	Polyurethane	
⑫	Magnet	Magnetic material	
⑬	Bumper bolt	Carbon steel	Nickel plated
⑭	Hexagon nut	Carbon steel	Nickel plated
⑮	Bumper	Polyurethane	
⑯	Hexagon socket head cap screw	Chromium steel	Nickel plated
⑰	Hexagon socket head set screw	Chromium steel	Nickel plated
⑱	Snap ring	Special steel	Nickel plated
⑲	Steel ball	Special steel	Nickel plated
⑳	Piston seal	NBR	
㉑	Rod seal	NBR	
㉒	O-ring	NBR	
㉓	O-ring	NBR	
㉔	Cushion needle	Stainless steel	
㉕	Check seal retainer	Copper alloy	
㉖	Check seal	NBR	
㉗	Needle gasket	NBR	
㉘	Check gasket	NBR	

MX□

MTS

MY□

CY□

MG□

CX□

D-

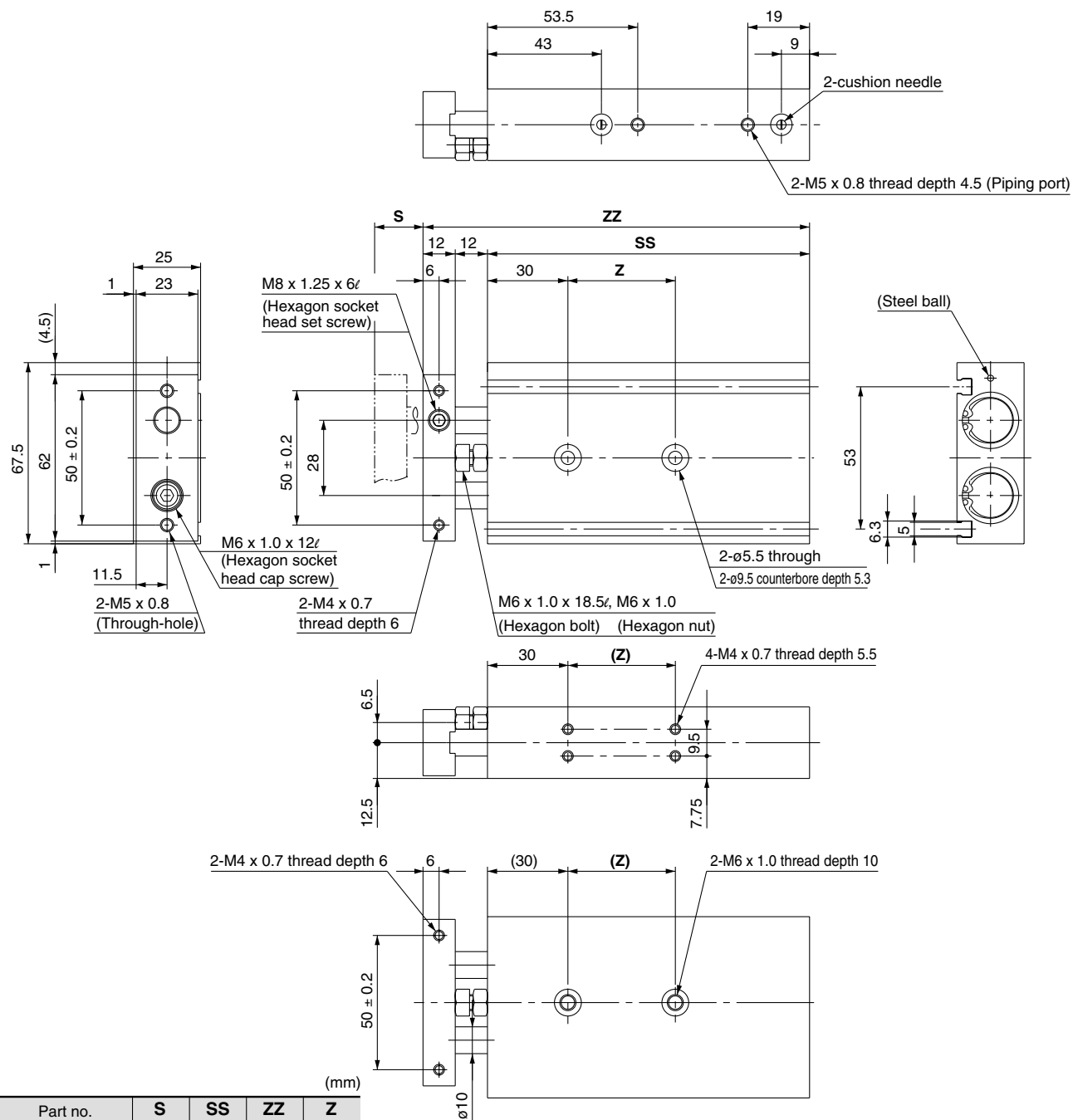
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20-

Data

Series CXS

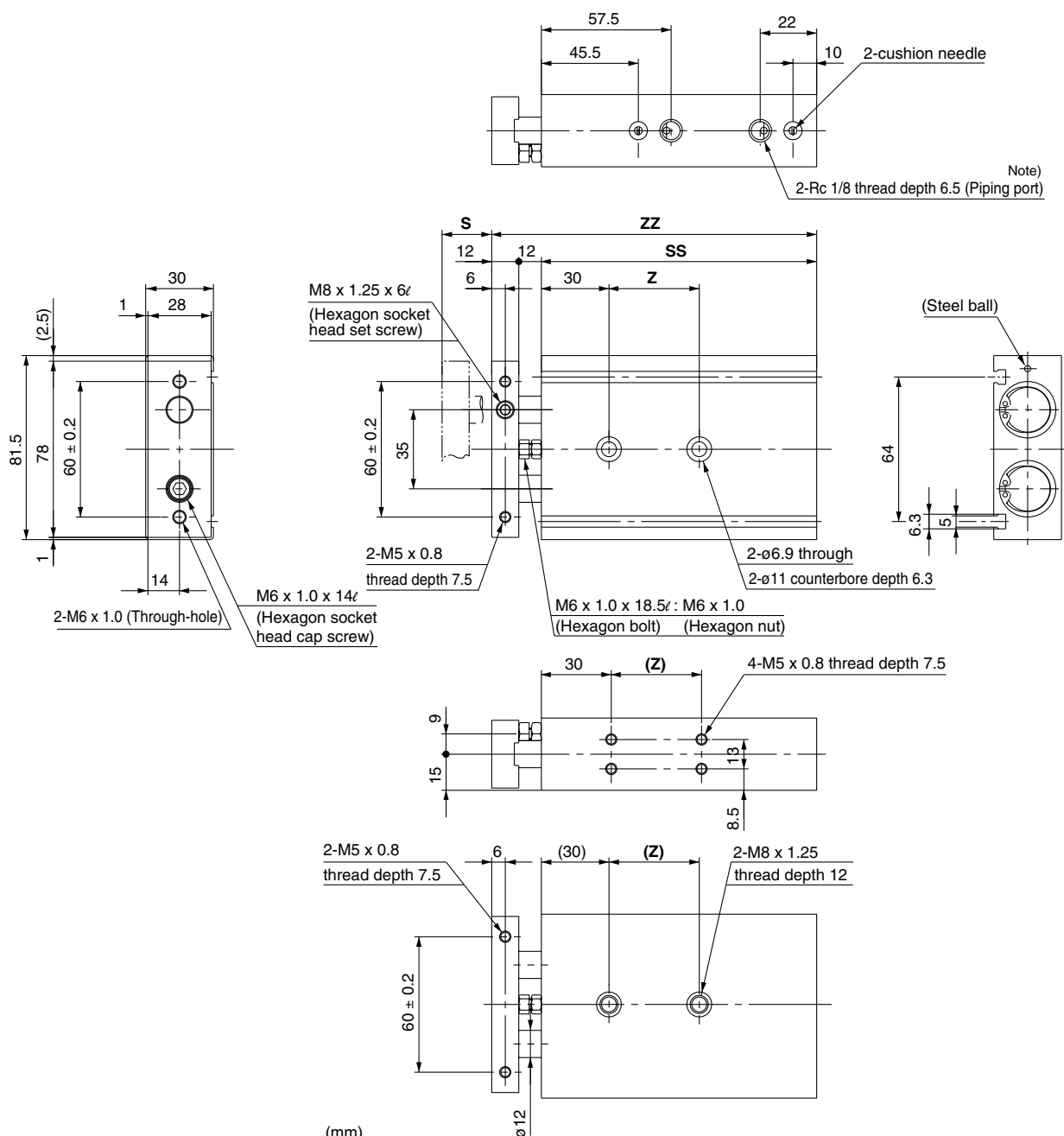
Dimensions: ø20



Part no.	S	SS	ZZ	Z
CXS□20-20A	20	92	116	30
CXS□20-25A	25	97	121	
CXS□20-30A	30	102	126	
CXS□20-35A	35	107	131	40
CXS□20-40A	40	112	136	
CXS□20-45A	45	117	141	
CXS□20-50A	50	122	146	60
CXS□20-60A	60	132	156	
CXS□20-70A	70	142	166	
CXS□20-75A	75	147	171	
CXS□20-80A	80	152	176	
CXS□20-90A	90	162	186	
CXS□20-100A	100	172	196	

Dual Rod Cylinder: With Air Cushion **Series CXS**

Dimensions: $\phi 25$



Part no.	S	SS	ZZ	Z
CXS□25-25A	25	100	124	30
CXS□25-30A	30	105	129	30
CXS□25-35A	35	110	134	30
CXS□25-40A	40	115	139	30
CXS□25-45A	45	120	144	30
CXS□25-50A	50	125	149	30
CXS□25-60A	60	135	159	30
CXS□25-70A	70	145	169	30
CXS□25-75A	75	150	174	30
CXS□25-80A	80	155	179	30
CXS□25-90A	90	165	189	30
CXS□25-100A	100	175	199	30

Note) For port threads TN and TF, only the piping port type varies.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

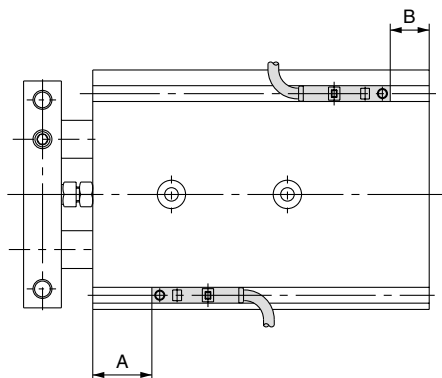
20-

Data

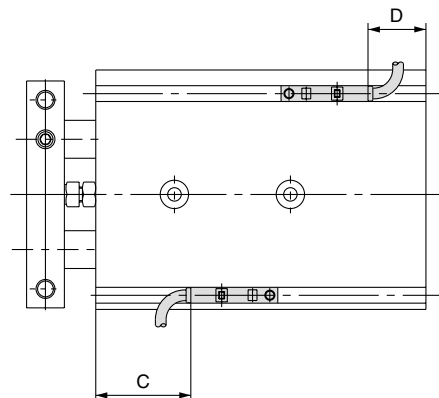
Dual Rod Cylinder: With Air Cushion **Series CXS**

Proper Auto Switch Mounting Position (Detection at stroke end)

Electrical entry direction: Inward



Electrical entry direction: Outward



Bore size (mm)	A	B	D-Z7/Z8, D-Y7□W D-Y5□, D-Y7□		D-Y6□, D-Y7□V D-Y7□WV		D-Y7BAL	
			C	D	C	D	C	D
20	40.5	6.5	36.5 (35)	2.5 (1)	38.5	4	30.5	-3.5
25	42	8	38 (36.5)	4 (2.5)	40	5.5	32	-2
32	52.5	9.5	48.5 (47)	5.5 (4)	50.5	7	42.5	-0.5

As for auto switch mounting dimensions, auto switch mounting method and its operating range, those are the same as basic type. Refer to page 8-29-10.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

Data

Dual Rod Cylinder: With End Lock For Retraction Side

Series CXS

ø6, ø10, ø15, ø20, ø25, ø32

How to Order

CXS M 10 50 R Y7BW S

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke (mm)

Bore size (mm)	Stroke (mm)
6, 10, 15	10, 20, 30, 40, 50
20, 25, 32	10, 20, 30, 40, 50, 75, 100

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
------------	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

• **With end lock for retraction side**

Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m) *			Pre-wire connector	Applicable load		
					DC		AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)		IC circuit		
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	Z76	●	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	Relay, PLC	
				3-wire (PNP)				Y7PV	Y7P	●	●	○	○	IC circuit		
				2-wire		12 V		Y69B	Y59B	●	●	○	○	—		
	3-wire (NPN)			5 V, 12 V		Y7NWV		Y7NW	●	●	○	○	IC circuit			
	3-wire (PNP)					Y7PWV		Y7PW	●	●	○	○	IC circuit			
						Y7BWV		Y7BW	●	●	○	○				
	Diagnostic indication (2-color indication)															
	Water resistant (2-color indication)				2-wire	12 V		—	Y7BA	—	●	○	○	—		

* Lead wire length symbols: 0.5 m Nil (Example) Y59A
3 m L (Example) Y59AL
5 m Z (Example) Y59AZ

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

- Since there are other applicable auto switches than listed, refer to page 8-29-10 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

Dual Rod Cylinder: With End Lock For Retracting Side **Series CXS**



⚠ Precautions

**Be sure to read before handling.
For Safety Instructions and
Common Precautions, refer to
pages 8-34-3 to 8-34-6.**

Mounting

⚠ Caution

Mounting and adjusting

1. Release the lock when mounting and adjusting the cylinder. An attempt to mount or adjust a cylinder while it is locked can damage the lock.
2. Never adjust the retracting stroke using a bumper bolt or external stopper. The lock will not function.

Releasing the lock

Do not release the lock while a load is applied to the lock. This will cause a sudden, erratic movement of the cylinder, and create a dangerous condition.

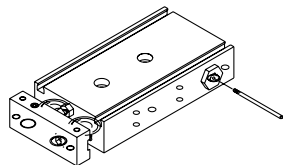
Control circuit

1. To control the end lock cylinder, use a 2 position 4/5 port solenoid valve. Avoid using these valves along with a 3 position solenoid valve (especially a closed-center metal seal type).
2. Be sure to supply air and apply back pressure to the retracted end before operation. If air is supplied to the extended end while there is no air inside of the cylinder, it will cause a sudden, erratic movement of the cylinder, and create a dangerous condition.

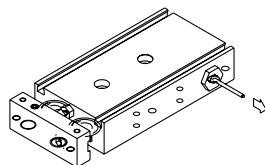
Manual Release

Manual release (Non-locking type)

1. Insert the manual lever and screw it into the lock holder assembly.



2. To unlock, pull the manual lever in the direction of the arrow. Release the manual lever to return the cylinder to a ready-to-lock state.



3. The manual lever (ø1.6 x 35ℓ, tip part: M1.6 x 0.35 x 3ℓ) is included with the cylinder. If additional manual levers are required, use the following part number to place an order: CXS06-48BK2777 (for all series).

Specifications

Bore size (mm)	6	10	15	20	25	32
Fluid	Air (Non-lube)					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure	0.3 MPa					
Ambient and fluid temperature	-10 to 60°C (No freezing)					
Piston speed ^{Note)}	30 to 300 mm/s	30 to 800 mm/s	30 to 700 mm/s		30 to 600 mm/s	
Cushion	Bumper is standard on both ends					
Port size	M5 x 0.8				Rc 1/8	
Bearing type	Slide bearing, Ball bushing bearing (Same dimensions for both)					

Note) The maximum piston speed shown in the table above is for extension. The maximum piston speed for retraction is approximately 70% that of extension.

Lock Specifications

Lock specifications	Rear end lock					
Bore size (mm)	6	10	15	20	25	32
Maximum holding force (N)	14.7	39.2	98.1	157	235	382
Manual release	Non-lock type					

Standard Stroke

Model	Standard stroke (mm)
CXS□ 6	10, 20, 30, 40, 50
CXS□10	
CXS□15	
CXS□20	
CXS□25	10, 20, 30, 40, 50, 75, 100
CXS□32	

* Strokes which exceed the standard stroke length will be available as special goods.

Theoretical Output

Model	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)							
				0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
CXS□ 6	4	OUT	56	—	8.4	11.2	16.8	22.4	28.0	33.6	39.2
		IN	31	—	4.6	6.2	9.3	12.4	15.5	18.6	21.7
CXS□10	6	OUT	157	15.7	—	31.4	47.1	62.8	78.5	94.2	110
		IN	100	10.0	—	20.0	30.0	40.0	50.0	60.0	70.0
CXS□15	8	OUT	353	35.3	—	70.6	106	141	177	212	247
		IN	252	25.2	—	50.4	75.6	101	126	151	176
CXS□20	10	OUT	628	62.8	—	126	188	251	314	377	440
		IN	471	47.1	—	94.2	141	188	236	283	330
CXS□25	12	OUT	982	98.2	—	196	295	393	491	589	687
		IN	756	75.6	—	151	227	302	378	454	529
CXS□32	16	OUT	1608	161	—	322	482	643	804	965	1126
		IN	1206	121	—	241	362	482	603	724	844

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

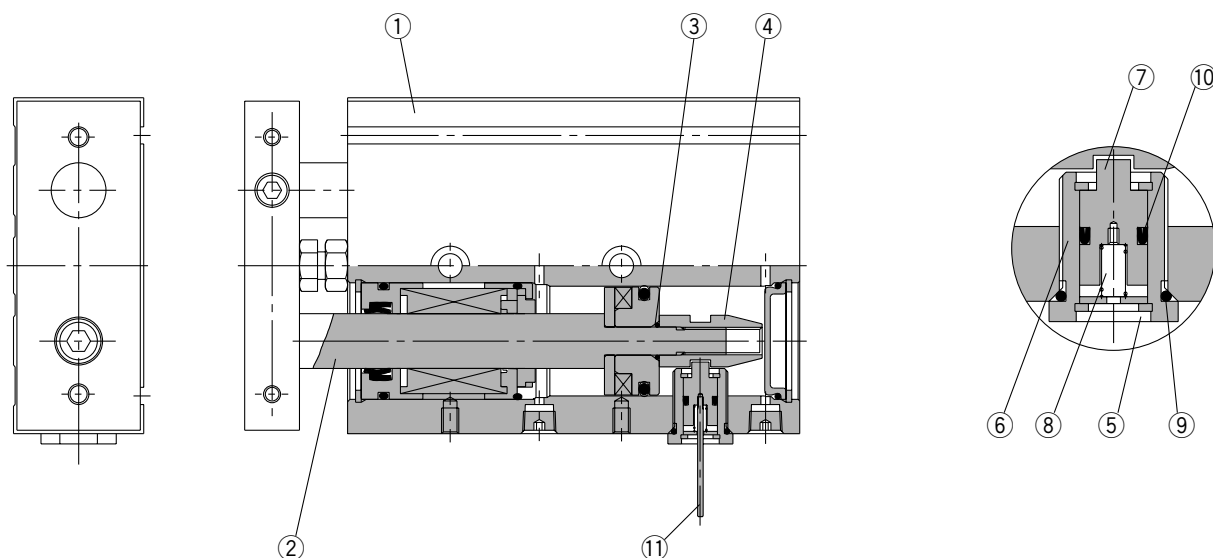
Weight

Model	Standard stroke (mm)						
	10	20	30	40	50	75	100
CXSM6-□R	0.105	0.12	0.135	0.15	0.165	—	—
CXSL6-□R	0.105	0.12	0.135	0.15	0.165	—	—
CXSM10-□R	0.18	0.2	0.225	0.25	0.27	—	—
CXSL10-□R	0.18	0.2	0.225	0.25	0.27	—	—
CXSM15-□R	0.3	0.33	0.355	0.38	0.41	—	—
CXSL15-□R	0.32	0.35	0.375	0.4	0.43	—	—
CXSM20-□R	0.465	0.5	0.54	0.58	0.62	0.715	0.815
CXSL20-□R	0.485	0.52	0.56	0.60	0.64	0.735	0.835
CXSM25-□R	0.72	0.76	0.8	0.84	0.88	0.98	1.08
CXSL25-□R	0.73	0.77	0.81	0.85	0.89	0.99	1.09
CXSM32-□R	1.33	1.43	1.53	1.62	1.72	1.96	2.2
CXSL32-□R	1.35	1.45	1.55	1.64	1.74	1.98	2.22

Series CXS

Construction: Slide Bearing

CXSM6



Component Parts

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod B	Carbon steel	Hard chrome plated
③	O-ring	NBR	
④	Lock rod	Special steel	
⑤	Snap ring	Special steel	
⑥	Lock holder	Aluminum alloy	
⑦	Lock pin	Special steel	
⑧	Lock spring	Piano wire	
⑨	O-ring	NBR	
⑩	Rod seal	NBR	
⑪	Manual lever	Special steel	

* Parts other than those listed above are the same as those for standard type.

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CXSRM6-PS	Includes the kit components of the seal kit featured on page 8-29-6 plus items and from the parts list above.
	CXSRL6APS	
10	CXSRM10-PS	
	CXSRL10APS	
15	CXSRM15-PS	
	CXSRL15APS	
20	CXSRM20-PS	
	CXSRL20APS	
25	CXSRM25-PS	
	CXSRL25APS	
32	CXSRM32-PS	
	CXSRL32APS	

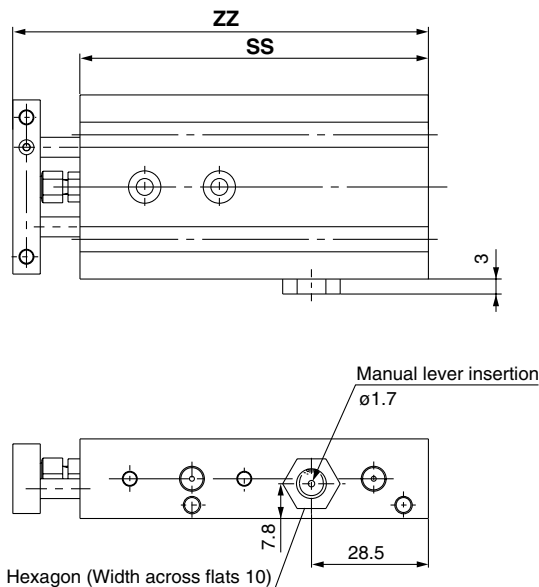
* Seal kits includes the basic type seal (page 8-29-6), ⑨ and ⑩. Order the seal kit, based on each bore size.

Dual Rod Cylinder: With End Lock For Retracting Side

Series CXS

Dimensions: $\phi 6$, $\phi 10$, $\phi 15$

CXS□6-□R

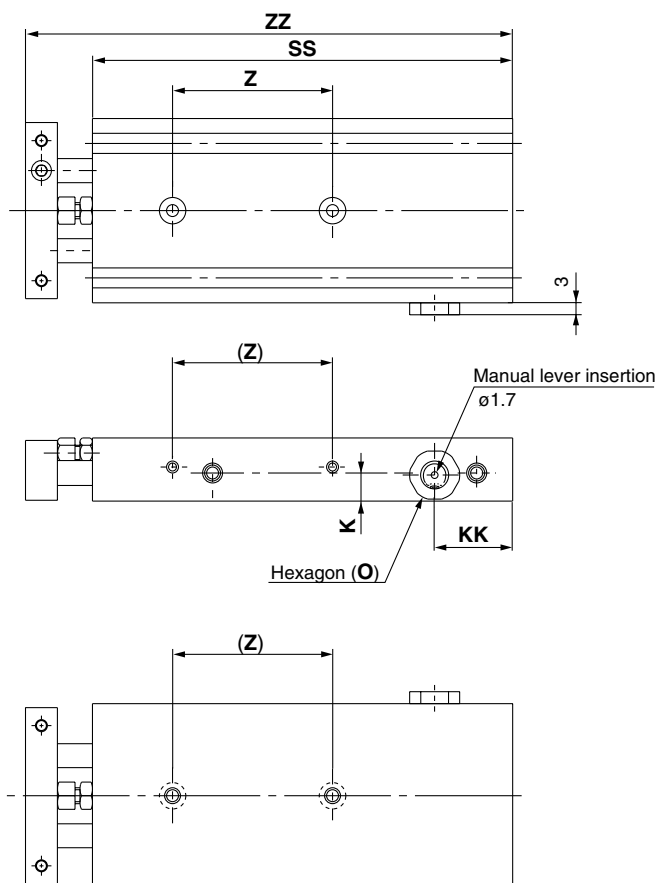


(mm)

Model	SS	ZZ
CXS□6-10R	75	88.5
CXS□6-20R	85	98.5
CXS□6-30R	95	108.5
CXS□6-40R	105	118.5
CXS□6-50R	115	128.5

* Dimensions other than those listed above are the same as for the standard type.

CXS□¹⁰/₁₅-□R



(mm)

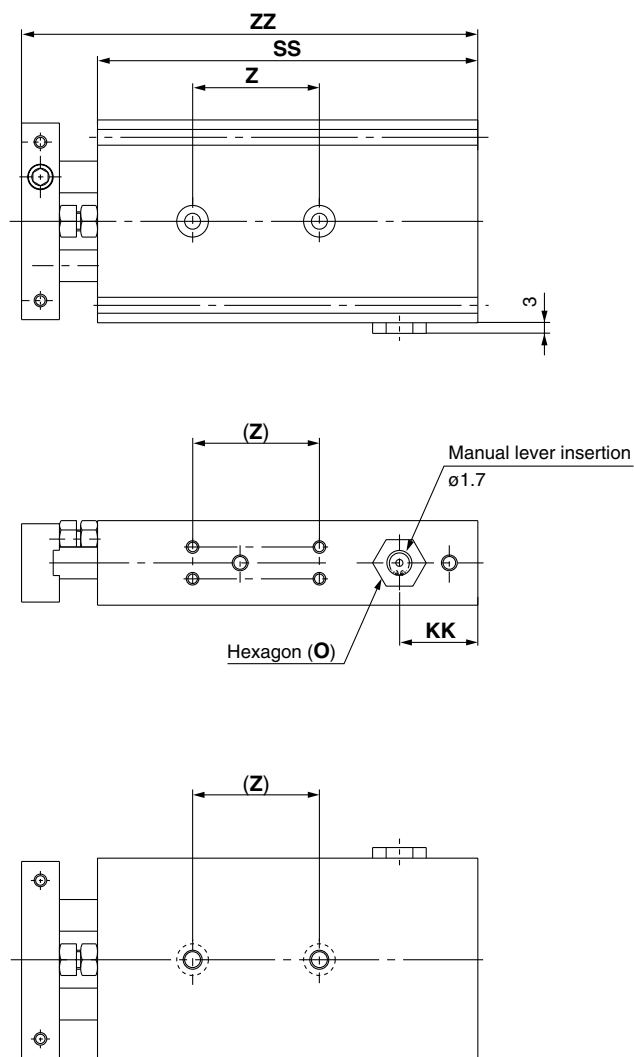
Model	K	O
CXS□10-□R	6.5	Width across flats 12
CXS□15-□R	8.5	Width across flats 13

</

* Dimensions other than those listed above are the same as for the standard type.

Series CXS

Dimensions: $\varnothing 20$, $\varnothing 25$, $\varnothing 32$



(mm)

Model	O
CXS□20-□R	Width across flats 13
CXS□25-□R	Width across flats 16
CXS□32-□R	Width across flats 19

(mm)

Model	Symbol Stroke	KK							SS							Z							ZZ						
		10	20	30	40	50	75	100	10	20	30	40	50	75	100	10	20	30	40	50	75	100	10	20	30	40	50	75	100
CXS□20-□R							27	22	100	110	120	130	140	170	190		40			60		80	124	134	144	154	164	194	214
CXS□25-□R			24.5		29.5		24.5		107	117	132	142	147	172	197		40			60		80	131	141	156	166	171	196	221
CXS□32-□R					29		34	49	122	132	142	152	162	192	232		50			70		90	152	162	172	182	192	222	262

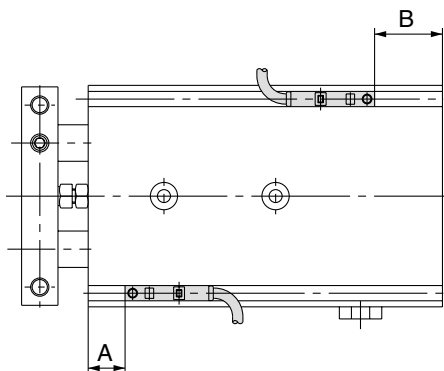
* Dimensions other than those listed above are the same as for the standard type.

Dual Rod Cylinder: With End Lock For Retracting Side

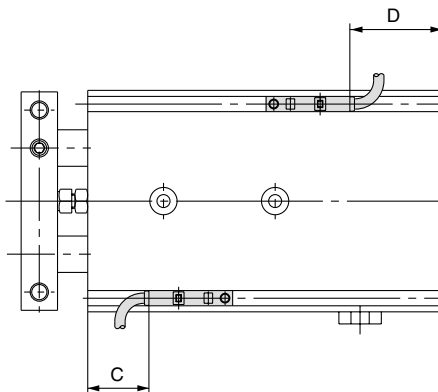
Series CXS

Proper Auto Switch Mounting Position (Detection at stroke end)

Electrical entry direction: Inward



Electrical entry direction: Outward



Bore size (mm)	A	B	D-Z7/Z8, D-Y7□W D-Y5□, D-Y7□		D-Y6□, D-Y7□V D-Y7□WV		D-Y7BAL	
			C	D	C	D	C	D
6	15.5	24.5	11.5 (10)	20.5 (19)	13	22	5.5	14.5
10	22.5	22.5	18.5 (17)	18.5 (17)	20	20	12.5	12.5
15	30.5	24.5	26.5 (25)	20.5 (19)	28	22	20.5	14.5
20	38	27	34 (32.5)	23 (21.5)	36	24.5	28	17
25	38	34	34 (32.5)	30 (28.5)	36	31.5	28	24
32	48	39	44 (42.5)	35 (33.5)	46	6.5	38	29

As for auto switch mounting dimensions, auto switch mounting method and its operating range, those are the same as basic type. Refer to page 8-29-10

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

Data

Dual Rod Cylinder: Double Rod Type

Series CXSW

ø6, ø10, ø15, ø20, ø25, ø32

How to Order

CXS W L 20 100 Y7BW S

Double rod type

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke (mm)

Bore size (mm)	Standard stroke
6	10, 20, 30, 40, 50
10, 15	10, 20, 30, 40, 50
20, 25, 32	10, 20, 30, 40, 50, 75, 100

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m) *			Pre-wire connector	Applicable load	
					DC		AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)			
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	Z76	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	—	Z73	●	●	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)		5 V, 12 V		Y7PV	Y7P	●	●	○	○	—	
				2-wire				Y69B	Y59B	●	●	○	○	—	
				3-wire (NPN)				Y7NWV	Y7NW	●	●	○	○	IC circuit	
	3-wire (PNP)			Y7PWV	Y7PW			●	●	○	○	—			
	Diagnostic indication (2-color indication)			Water resistant (2-color indication)	2-wire	12 V		Y7BWV	Y7BW	●	●	○	○	—	
	—							Y7BA*	—	●	○	○	—		

* Lead wire length symbols: 0.5 m Nil (Example) Y59A
3 m L (Example) Y59AL
5 m Z (Example) Y59AZ

* Solid state switches marked with "○" are produced upon receipt of order.
* ø10, 15, 20 are not applicable. Please consult with SMC separately.

- Since there are other applicable auto switches than listed, refer to page 8-29-10 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

Dual Rod Cylinder: Double Rod Type Series CXSW



Specifications

Bore size (mm)	6	10	15	20	25	32
Fluid	Air (Non-lube)					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure	0.15 MPa			0.1 MPa		
Ambient and fluid temperature	−10 to 60°C (No freezing)					
Piston speed	50 to 500 mm/s					
Cushion	Bumper is standard on both ends					
Stroke adjustable range	0 to −10 mm compared to the standard stroke (Extended end: 5 mm, Retracted end: 5 mm)					
Port size	M5 x 0.8				Rc 1/8	
Bearing type	Slide bearing, Ball bushing bearing (Same dimensions for both)					

Standard Stroke

Model	Standard stroke	Long stroke
CXSW□6	10, 20, 30, 40, 50	—
CXSW□10	10, 20, 30, 40, 50	75, 100, 125, 150
CXSW□15		
CXSW□20		
CXSW□25	10, 20, 30, 40, 50, 75, 100	125, 150, 175, 200
CXWS□32		

* For long strokes, it will be made-to-order. (-XB11)

Theoretical Output

Model	Rod size (mm)	Piston area (mm ²)	Operating pressure (MPa)						
			0.1	0.2	0.3	0.4	0.5	0.6	0.7
CXSW□6	4	31	4.6	6.2	9.3	12.4	15.5	18.6	21.7
CXSW□10	6	100	10	20	30	40	50	60	70
CXSW□15	8	252	25.2	50.4	75.6	101	126	151	176
CXSW□20	10	471	47.1	94.2	141	188	236	283	330
CXSW□25	12	756	75.6	151	227	302	378	454	529
CXSW□32	16	1206	121	241	362	482	603	724	844

(Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

Model	Standard stroke (mm)						
	10	20	30	40	50	75	100
CXSWM6	0.11	0.13	0.14	0.16	0.17	—	—
CXSWL6	0.12	0.13	0.15	0.16	0.18	—	—
CXSWM10	0.24	0.26	0.28	0.30	0.32	0.37	0.42
CXSWL10	0.25	0.27	0.29	0.31	0.33	0.38	0.43
CXSWM15	0.43	0.45	0.48	0.51	0.54	0.61	0.68
CXSWL15	0.47	0.50	0.52	0.55	0.58	0.65	0.72
CXSWM20	0.71	0.74	0.78	0.82	0.85	0.95	1.04
CXSWL20	0.75	0.79	0.82	0.86	0.90	0.99	1.08
CXSWM25	1.06	1.11	1.17	1.22	1.28	1.41	1.55
CXSWL25	1.07	1.12	1.18	1.23	1.29	1.42	1.56
CXSWM32	2.04	2.12	2.21	2.29	2.38	2.59	2.81
CXSWL32	2.06	2.15	2.23	2.32	2.41	2.62	2.83



Made to Order Specifications
(For details, refer to page 8-31-1.)

Symbol	Specifications
-XB11	Long stroke

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

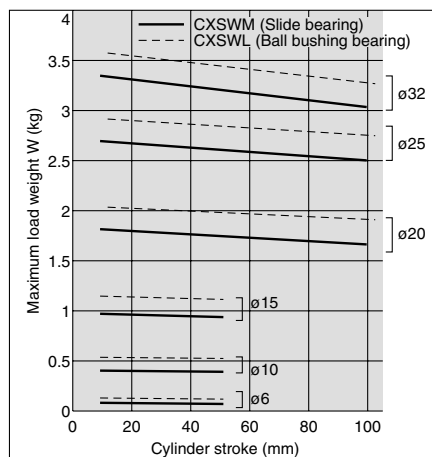
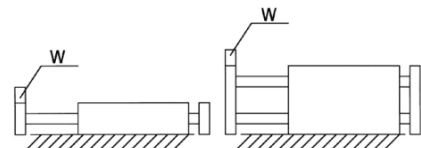
Data

Series CXSW

Operating Conditions

Maximum Load Weight

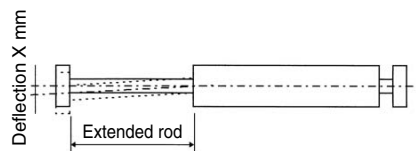
When the cylinder is mounted as shown in the diagrams below, the maximum load weight W should not exceed the values illustrated in the graph immediately following the diagrams.



Note) Please consult with SMC regarding the maximum load weight for long strokes depending on your specific usage conditions.

Deflection at the Plate End

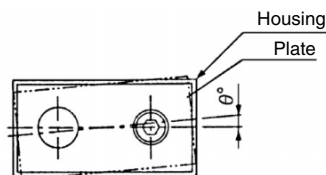
An approximate plate-end deflection X without a load is shown in the table below.



Bore size (mm)	6 to 32
CXSWM (Slide bearing)	±0.03 mm
CXSWL (Ball bushing bearing)	

Non-rotating accuracy

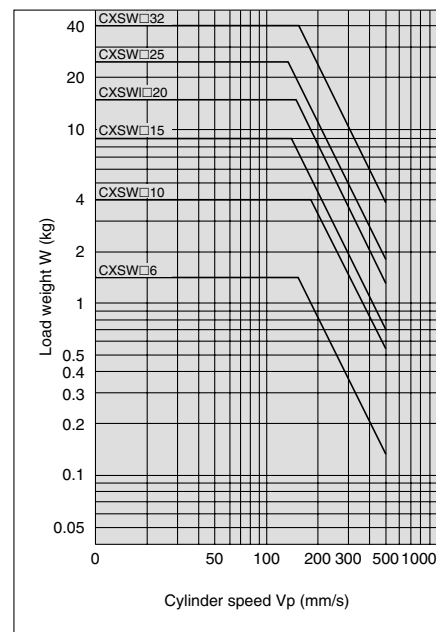
Non-rotating accuracy θ° without a load should be less than or equal to the value provided in the table below as a guide.



Bore size (mm)	6 to 32
CXSWM (Slide bearing)	±0.1°
CXSWL (Ball bushing bearing)	

Allowable Kinetic Energy

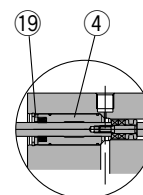
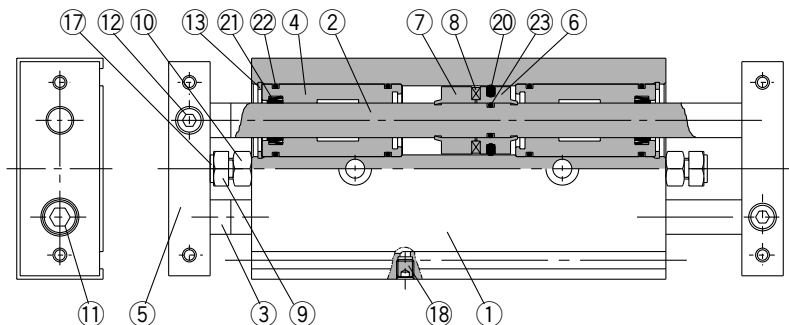
Operate a vertically mounted cylinder with a load weight and cylinder speed not exceeding the ranges shown in the graph below. A horizontally mounted cylinder should also be operated with a load weight less than the ranges given in the graph at left. Cylinder speed should be adjusted using a speed controller.



Dual Rod Cylinder: Double Rod Type Series CXSW

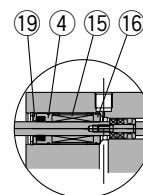
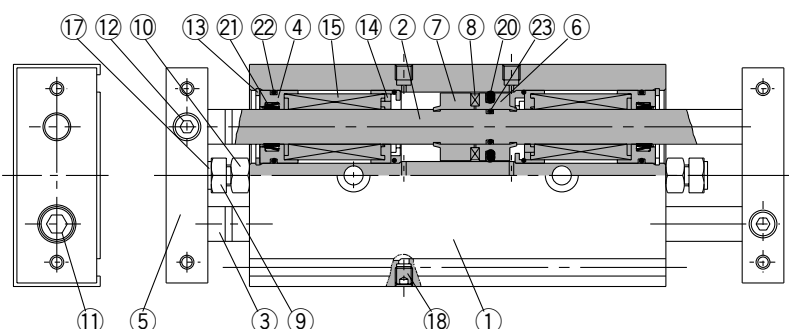
Construction

CXSWM (Slide bearing)



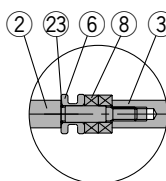
CXSWM6

CXSWL (Ball bushing bearing)

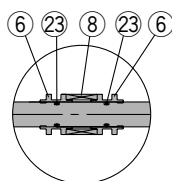


CXSWL6

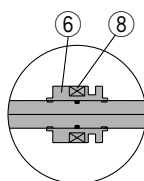
(Piston part)



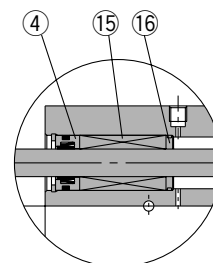
CXSW□6



CXSW□10



CXSW□25, 32



CXSWL10-15

Component Parts

No.	Description	Material	Note
①	Housing	Aluminum alloy	Hard anodized
②	Piston rod A	Carbon steel	Hard chrome plated
③	Piston rod B	Carbon steel	Hard chrome plated
④	Rod cover	Aluminum bearing alloy	
⑤	Plate	Aluminum alloy	Hard anodized
⑥	Piston A	Aluminum alloy	Chromated
⑦	Piston B	Aluminum alloy	Chromated
⑧	Magnet	Magnetic material	
⑨	Bumper bolt	Carbon steel	Nickel plated
⑩	Hexagon nut	Carbon steel	Nickel plated
⑪	Hexagon socket head cap screw	Chromium steel	Nickel plated
⑫	Hexagon socket head set screw	Chromium steel	Nickel plated

Note) Piston rod for CXSWL is quenched.

No.	Description	Material	Note
⑬	Snap ring	Special steel	Nickel plated
⑭	Bumper holder	Synthetic resin	
⑮	Ball bushing	—	
⑯	Bearing spacer	Synthetic resin	
⑰	Bumper	Polyurethane	
⑱	Plug	Chromium steel	Nickel plated
⑲	Seal retainer	Aluminum alloy	
⑳*	Piston seal	NBR	
㉑*	Rod seal	NBR	
㉒*	O-ring	NBR	
㉓	O-ring	NBR	

* Seal kit includes ㉑ to ㉓. To order them, use the order number given in the table above. However, in the case of CXSWL15, there are two types of O-rings for ㉒. There is only one type for other sizes.

For CXSWL6, aluminum bearing alloy is used for ⑯.

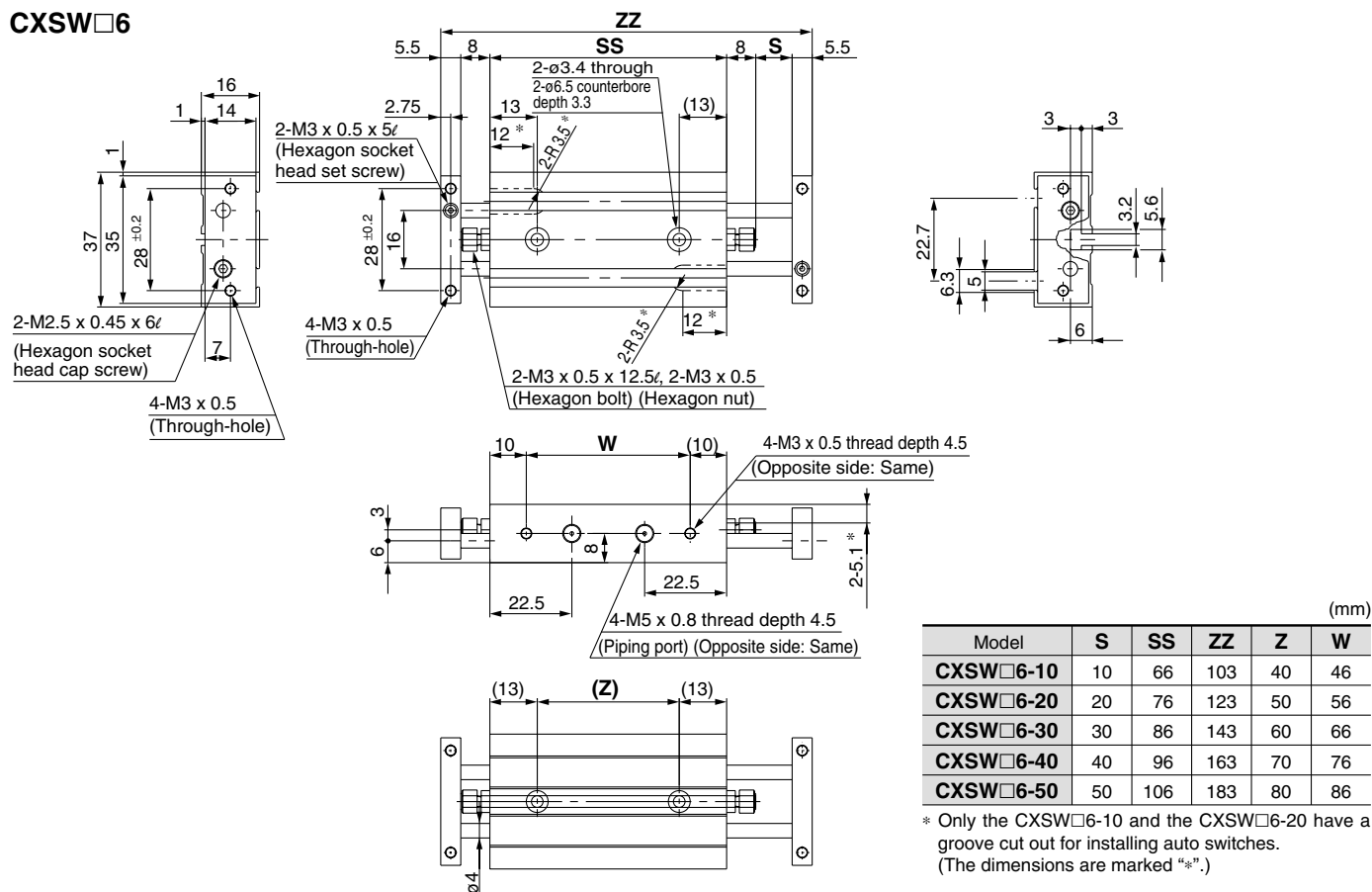
Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CXSWM6-PS	Set of nos. above ⑳, ㉑, ㉒
	CXSWL6-PS	
10	CXSWM10-PS	
	CXSWL10APS	
15	CXSWM15-PS	
	CXSWL15APS	
20	CXSWM20-PS	
	CXSWL20APS	
25	CXSWM25-PS	
	CXSWL25APS	
32	CXSWM32-PS	
	CXSWL32APS	

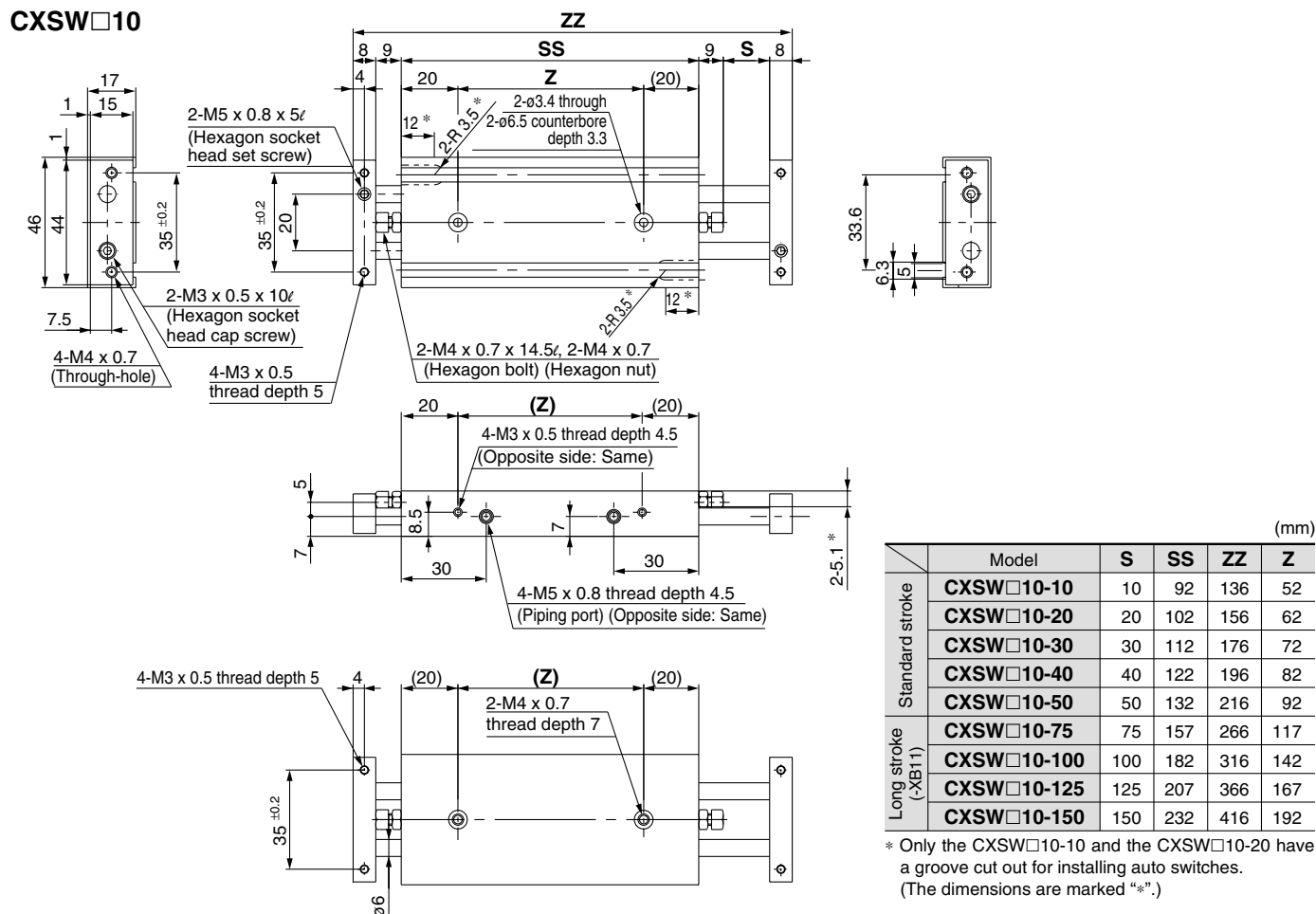
Series CXSW

Dimensions: $\phi 6$, $\phi 10$

CXSW□6



CXSW□10

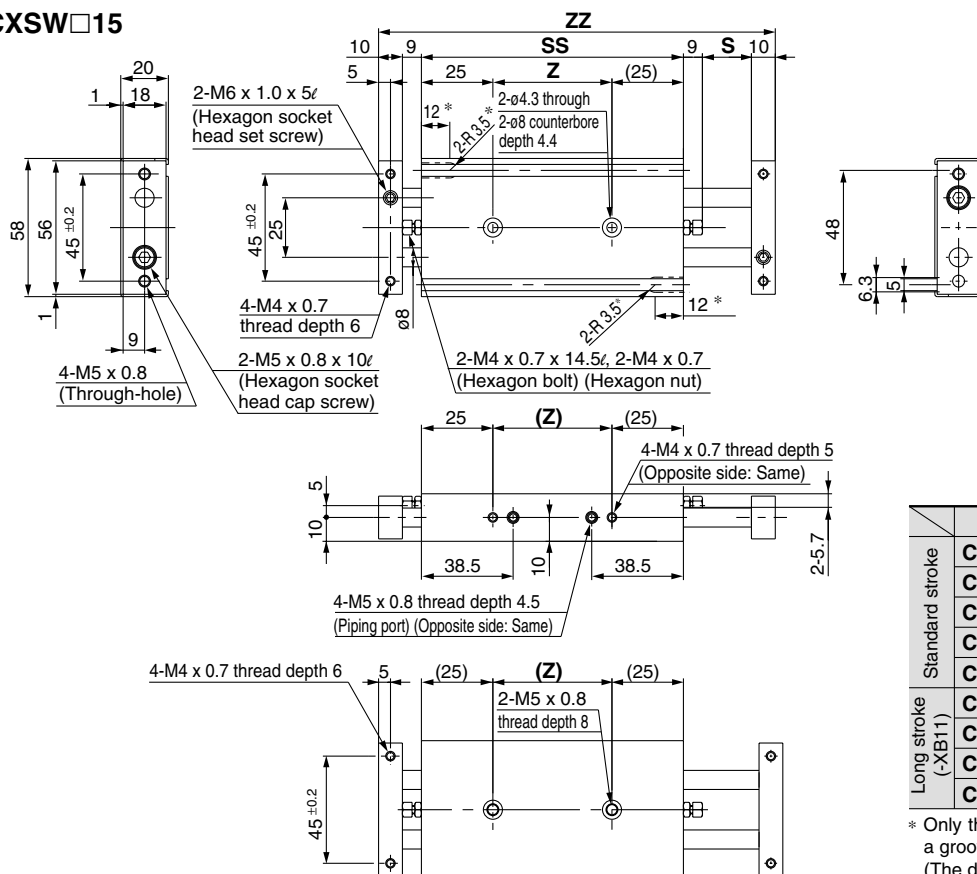


* Only the CXSW□10-10 and the CXSW□10-20 have a groove cut out for installing auto switches. (The dimensions are marked "*".)

Dual Rod Cylinder: Double Rod Type **Series CXSW**

Dimensions: ø15, ø20

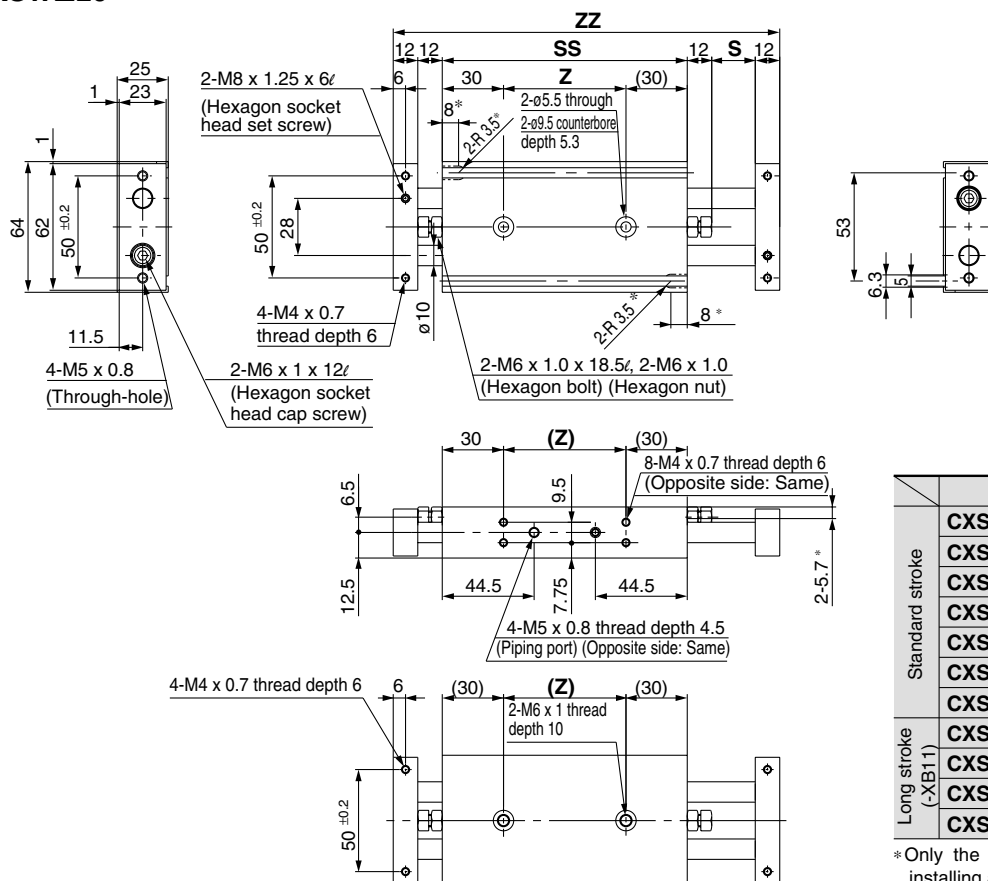
CXSW□15



		(mm)				
	Model	S	SS	ZZ	Z	
Standard stroke	CXSW□15-10	10	105	153	55	
	CXSW□15-20	20	115	173	65	
	CXSW□15-30	30	125	193	75	
	CXSW□15-40	40	135	213	85	
	CXSW□15-50	50	145	233	95	
Long stroke (-XB11)	CXSW□15-75	75	170	283	120	
	CXSW□15-100	100	195	333	145	
	CXSW□15-125	125	220	383	170	
	CXSW□15-150	150	245	433	195	

* Only the CXSW□15-10 and the CXSW□15-20 have a groove cut out for installing auto switches.
(The dimensions are marked “*”).

CXSW□20



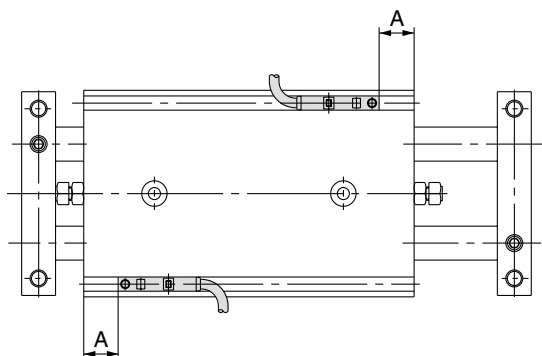
		(mm)				
	Model	S	SS	ZZ	Z	
Standard stroke	CXSW□20-10	10	120	178	60	
	CXSW□20-20	20	130	198	70	
	CXSW□20-30	30	140	218	80	
	CXSW□20-40	40	150	238	90	
	CXSW□20-50	50	160	258	100	
	CXSW□20-75	75	185	308	125	
	CXSW□20-100	100	210	358	150	
Long stroke (-XB11)	CXSW□20-125	125	235	408	175	
	CXSW□20-150	150	260	458	200	
	CXSW□20-175	175	285	508	225	
	CXSW□20-200	200	310	558	250	

*Only the CXSW□20-10 has a groove cut out for installing auto switches.
(The dimensions are marked “*.”)

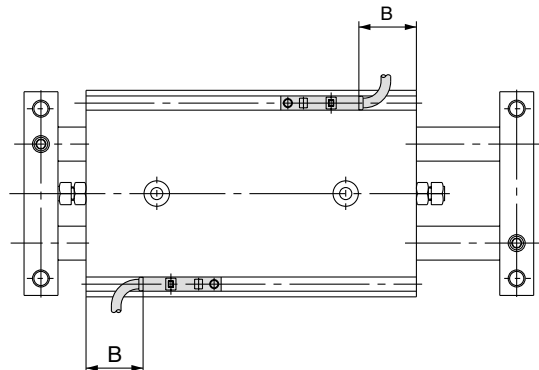
Dual Rod Cylinder: Double Rod Type **Series CXSW**

Proper Auto Switch Mounting Position (Detection at stroke end)

Electrical entry direction: Inward



Electrical entry direction: Outward



Bore size (mm)	A	D-Z7/Z8, D-Y7□W D-Y5□, D-Y7□	D-Y6□, D-Y7□V D-Y7□WV	D-Y7BAL
		B	B	B
6	13.8	9.8 (8.3)	11.3	3.8
10	28.5	24.5 (23)	26	—
15	35	31 (29.5)	32.5	—
20	42.5	38.5 (37)	40.5	—
25	43.5	39.5 (38)	41.5	33.5
32	54	50 (48.5)	52	44

As for auto switch mounting dimensions, auto switch mounting method and its operating range, those are the same as basic type. Refer to page 8-29-10.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

Data