Dual-Double-Rod Cylinder

Series CXSW

ø6, ø10, ø15, ø20, ø25, ø32

How to Order

CXS W L 20 — 100 — Y7BW S

Dual-double-rod type

Bearing type

M	Slide bearing
L	Ball bushing bearing

Bore size/Stroke

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

Auto switch type

Nil	Without auto switch (with built-in magnet)

∗ Select applicable auto switch types from the table below.

Number of auto switches

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

Applicable auto switches: Refer to pages 40 through 49 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage			Auto switch type		Lead wire length (m)∗			Applicable loads	
					DC		AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)		
								Perpendicular	In-line					
Reed switch	—	Grommet	Yes	3-wire	—	5V	—	—	**Z76**	●	●	—	IC circuit	—
				2-wire	24V	12V	100V	—	**Z73**	●	●	●	—	Relay, PLC
			No			5V, 12V	100V or less	—	**Z80**	●	●	—	IC circuit	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24V	5V, 12V	—	**Y69A**	**Y59A**	●	●	○	IC circuit	Relay, PLC
				3-wire (PNP)				**Y7PV**	**Y7P**	●	●	○		
				2-wire		12V		**Y69B**	**Y59B**	●	●	○	—	
	Diagnostic indication (2-color display)			3-wire (NPN)		5V, 12V		**Y7NWV**	**Y7NW**	●	●	○	IC circuit	
				3-wire (PNP)				**Y7PWV**	**Y7PW**	●	●	○		
				2-wire		12V		**Y7BWV**	**Y7BW**	●	●	○	—	
	Water-resistant (2-color display)							—	**Y7BA**	—	●	○		

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

Note) Solid state switches marked "○" are produced upon receipt of order.
Y7BAL is not compatible with sizes ø10, ø15, and ø20. Please inquire separately.

Specifications

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

Standard Strokes

(mm)

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

∗ Refer to "Made to Order" on page 51 for long strokes (i.e., strokes beyond the standard stroke range).

Made to Order Specifications

Refer to pages 50 through 53 for Series CXSW Made to Order specifications.

Theoretical Output

(N)

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 (mm^2)

Weights

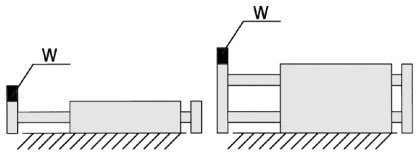
(kg)

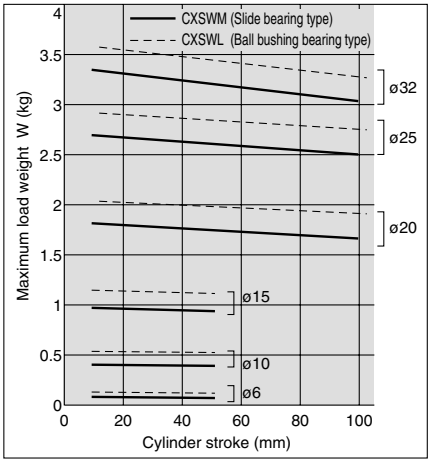
Model	Standard stroke (mm)						
	10	20	30	40	50	75	100
CXSWM 6	0.11	0.13	0.14	0.16	0.17	—	—
CXSWL 6	0.12	0.13	0.15	0.16	0.18	—	—
CXSWM 10	0.24	0.26	0.28	0.30	0.32	0.37	0.42
CXSWL 10	0.25	0.27	0.29	0.31	0.33	0.38	0.43
CXSWM 15	0.43	0.45	0.48	0.51	0.54	0.61	0.68
CXSWL 15	0.47	0.50	0.52	0.55	0.58	0.65	0.42
CXSWM 20	0.71	0.74	0.78	0.82	0.85	0.95	1.04
CXSWL 20	0.75	0.79	0.82	0.86	0.90	0.99	1.08
CXSWM 25	1.06	1.11	1.17	1.22	1.28	1.41	1.55
CXSWL 25	1.07	1.12	1.18	1.23	1.29	1.42	1.56
CXSWM 32	2.04	2.12	2.21	2.29	2.38	2.59	2.81
CXSWL 32	2.06	2.15	2.23	2.32	2.41	2.62	2.83

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.

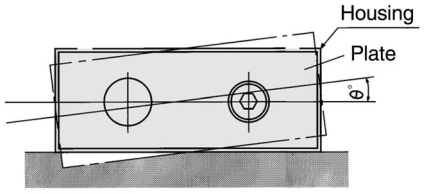




Note) Consult with P/A regarding the maximum load weight for long strokes depending on your sepecific usage conditions.

Non-rotating accuracy

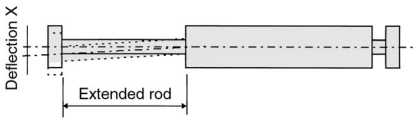
Non-rotating accuracy θ° without a load should be less than or equal to the value provided in the table below as a guide.



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

Deflection at the plate end

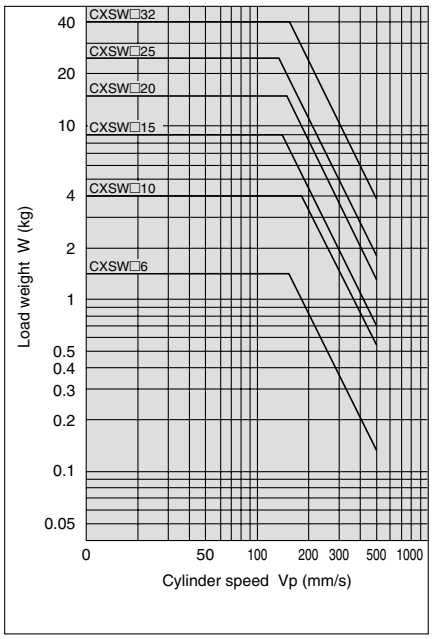
An approximate plate-end deflection X without a load is shown in the graph below.



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

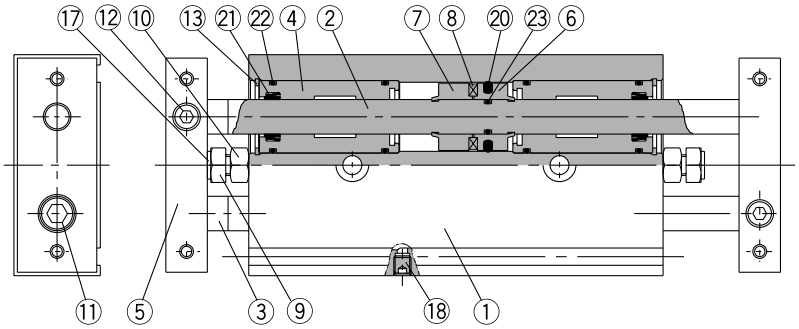
Allowable kinetic energy

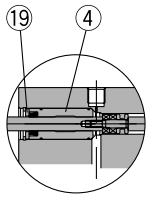
Operate a vertically mounted cylinder with a load weight and cylinder speed not exceeding the ranges shown in the graph below. A horizontally mounted cylinder should also be operated with a load weight less than the ranges given in the graph at left.
Cylinder speed should be adjusted using a speed controller.



Construction

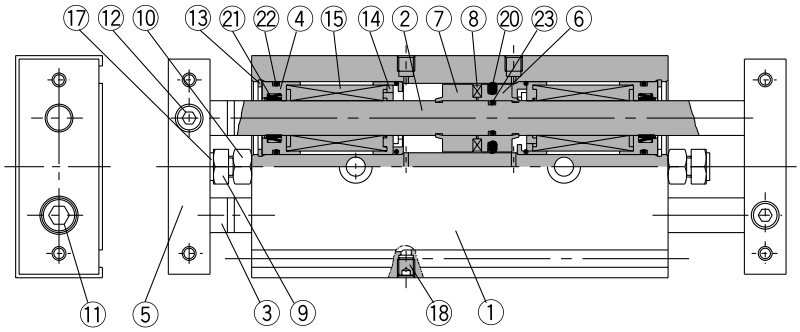
CXSWM Slide bearing

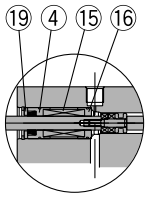




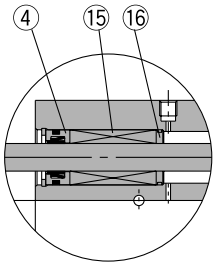
CXSWM6

CXSWL Ball bushing bearing



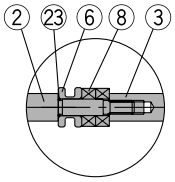


CXSWL6

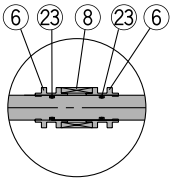


CXSWL10, 15

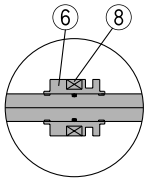
(Piston)



CXSW□6



CXSW□10



CXSW□25, 32

Parts list

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/Bearing**	Aluminum 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.

Parts list

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	

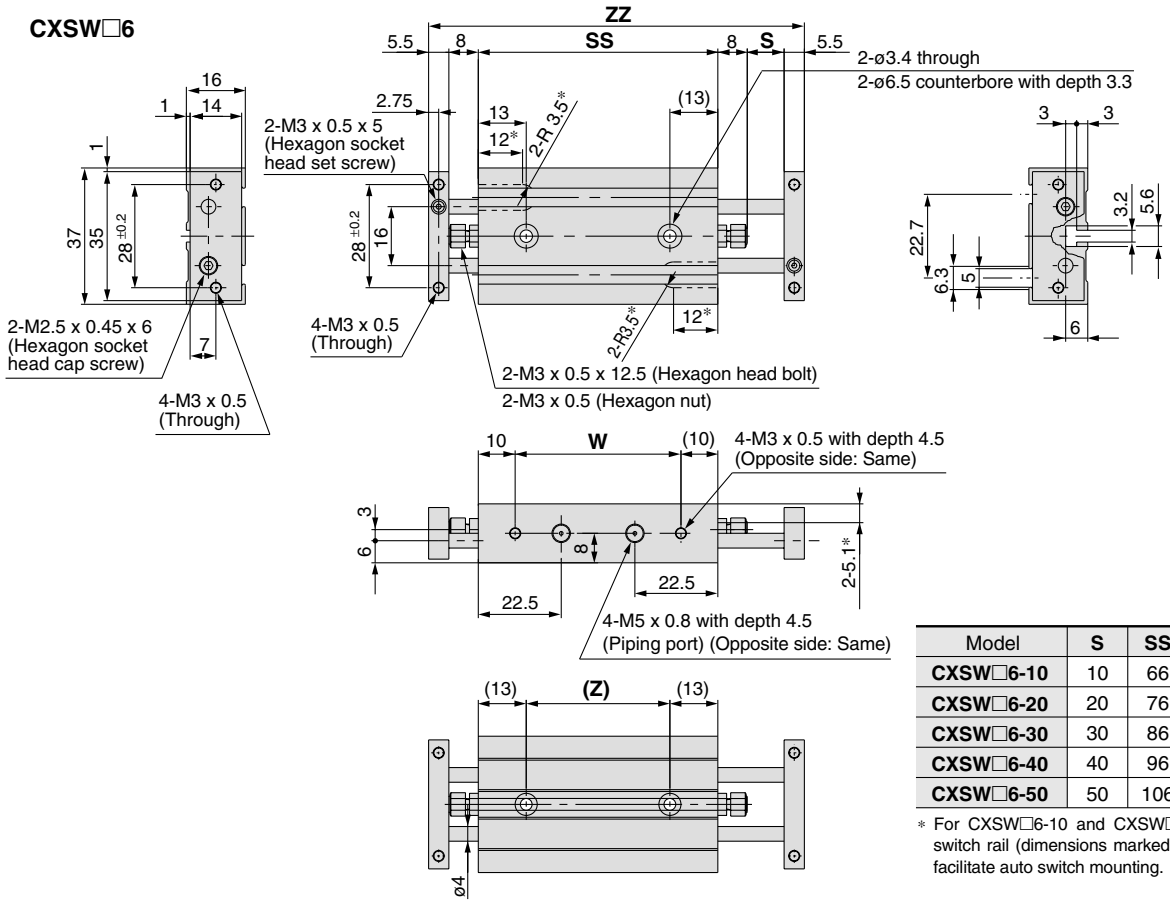
* Seal kits consist of items 20 through 22, and can be ordered by using the seal kit number corresponding to each bore size. However for CXSWL15, there are two types of O-ring (22). For other sizes, one type of O-ring is available.
For CXSWL6, aluminum alloy is used for 16.

Replacement parts: Seal kits

Bore size (mm)	Seal kit no.	Kit components
6	CXSWM6-PS	Items 20 through 22 from the chart above.
	CXSWL6-PS	
10	CXSWM10-PS	
	CXSWL10APS	
15	CXSWM15-PS	
	CXSWL15APS	
20	CXSWM20-PS	
	CXSWL20APS	
25	CXSWM25-PS	
	CXSWL25APS	
32	CXSWM32-PS	
	CXSWL32APS	

Dimensions: ø6, ø10

CXSW□6

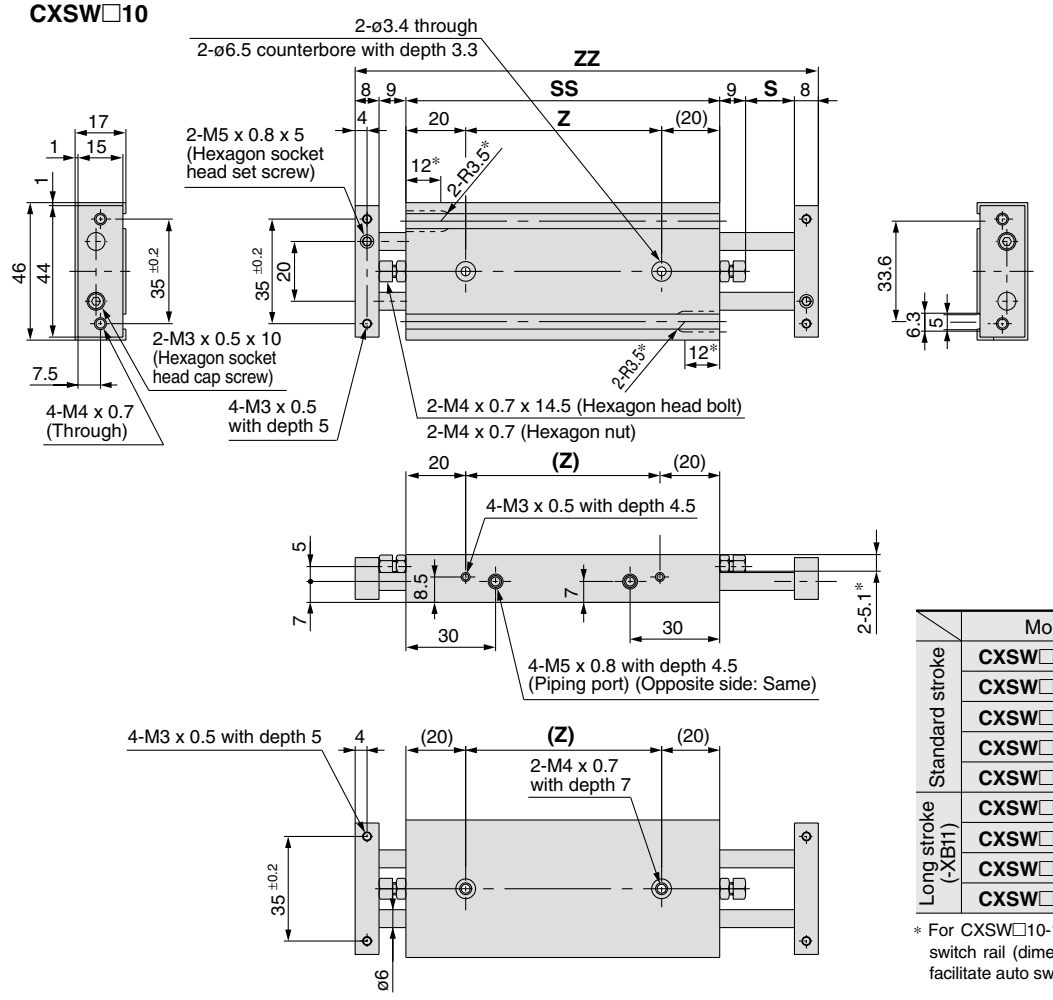


(mm)

Model	S	SS	ZZ	Z	W
CXSW□6-10	10	66	103	40	46
CXSW□6-20	20	76	123	50	56
CXSW□6-30	30	86	143	60	66
CXSW□6-40	40	96	163	70	76
CXSW□6-50	50	106	183	80	86

∗ For CXSW□6-10 and CXSW□6-20 only, a part of the switch rail (dimensions marked with an "∗") is notched to facilitate auto switch mounting.

CXSW□10



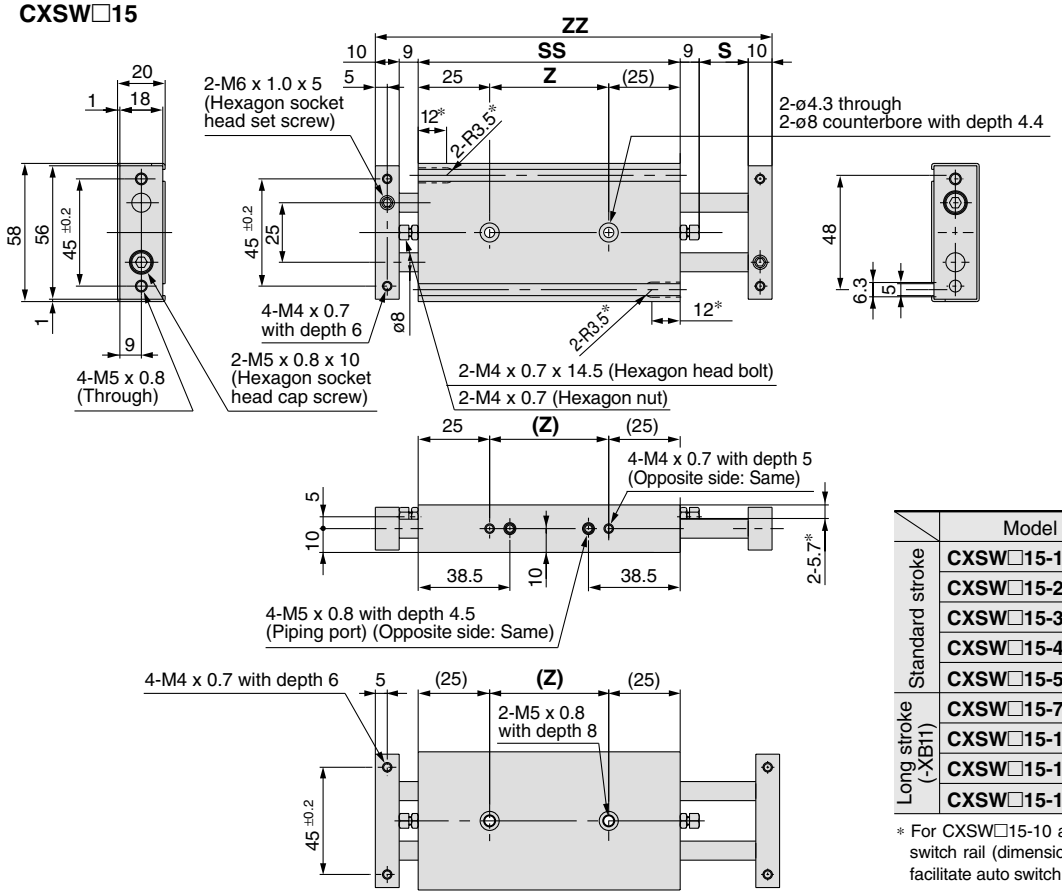
(mm)

	Model	S	SS	ZZ	Z
Standard stroke	**CXSW□10-10**	10	92	136	52
	CXSW□10-20	20	102	156	62
	CXSW□10-30	30	112	176	72
	CXSW□10-40	40	122	196	82
	CXSW□10-50	50	132	216	92
Long stroke (-XB11)	**CXSW□10-75**	75	157	266	117
	CXSW□10-100	100	182	316	142
	CXSW□10-125	125	207	366	167
	CXSW□10-150	150	232	416	192

∗ For CXSW□10-10 and CXSW□10-20 only, a part of the switch rail (dimensions marked with an "∗") is notched to facilitate auto switch mounting.

Dimensions: ø15, ø20

CXSW□15

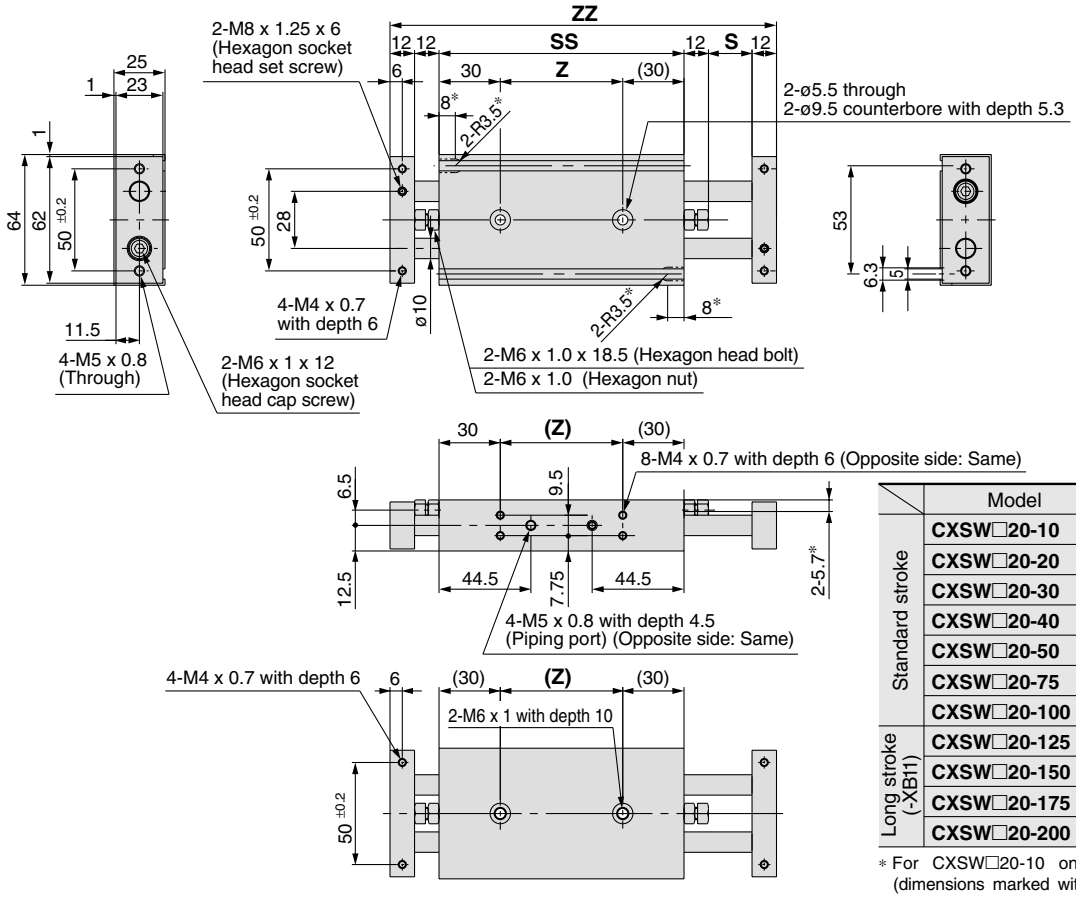


(mm)

	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

* For CXSW□15-10 and CXSW□15-20 only, a part of the switch rail (dimensions marked with an "*") is notched to facilitate auto switch mounting.

CXSW□20



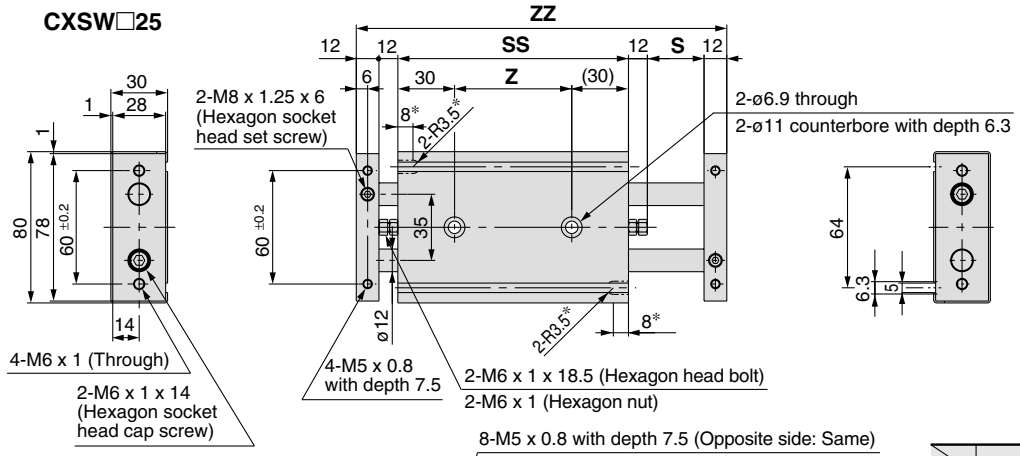
(mm)

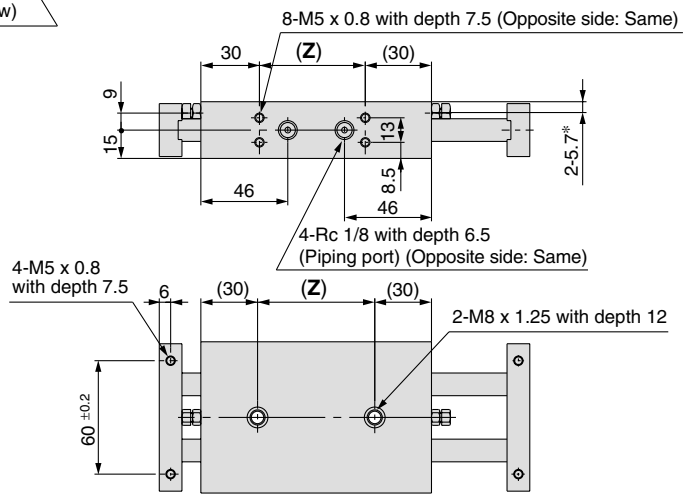
	Model	S	SS	ZZ	Z
Standard stroke	**CXSW□20-10**	10	120	178	60
	CXSW□20-20	20	130	198	70
	CXSW□20-30	30	140	218	80
	CXSW□20-40	40	150	238	90
	CXSW□20-50	50	160	258	100
	CXSW□20-75	75	185	308	125
	CXSW□20-100	100	210	358	150
Long stroke (-XB11)	**CXSW□20-125**	125	235	408	175
	CXSW□20-150	150	260	458	200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

* For CXSW□20-10 only, a part of the switch rail (dimensions marked with an "*") is notched to facilitate auto switch mounting.

Dimensions: ø25, ø32

CXSW□25



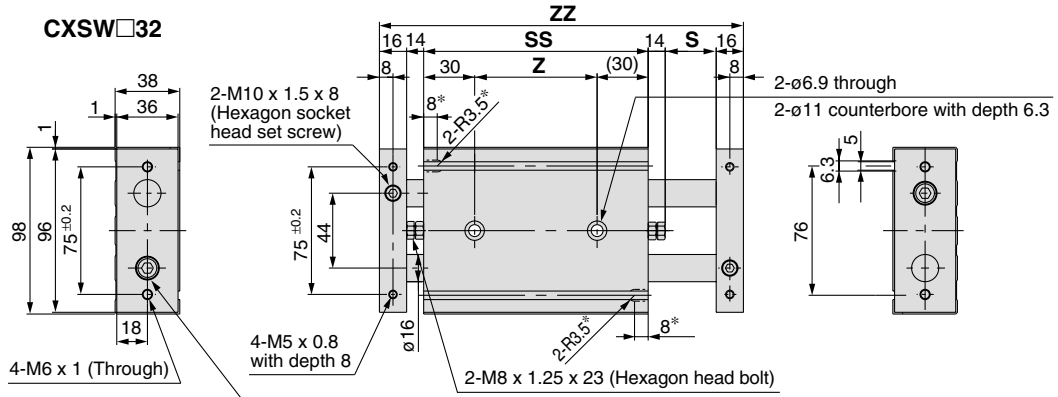


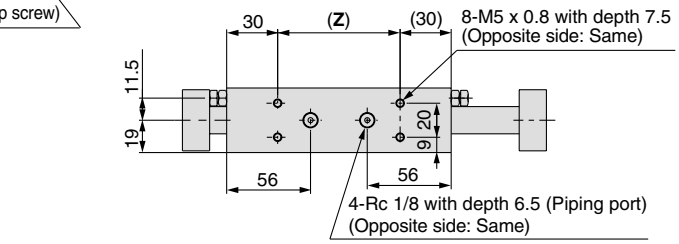
(mm)

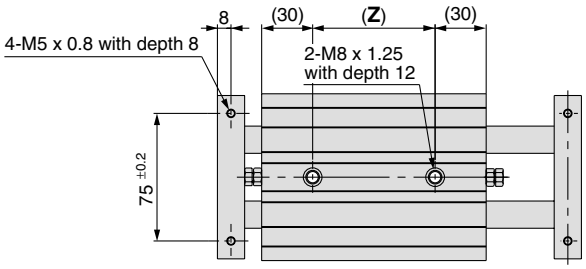
	Model	S	SS	ZZ	Z
Standard stroke	**CXSW□25-10**	10	122	180	62
	CXSW□25-20	20	132	200	72
	CXSW□25-30	30	142	220	82
	CXSW□25-40	40	152	240	92
	CXSW□25-50	50	162	260	102
	CXSW□25-75	75	187	310	127
	CXSW□25-100	100	212	360	152
Long stroke (-XB11)	**CXSW□25-125**	125	237	410	177
	CXSW□25-150	150	262	460	202
	CXSW□25-175	175	287	510	227
	CXSW□25-200	200	312	560	252

∗ For CXSW□25-10 only, a part of the switch rail (dimensions marked with an "∗") is notched to facilitate auto switch mounting.

CXSW□32







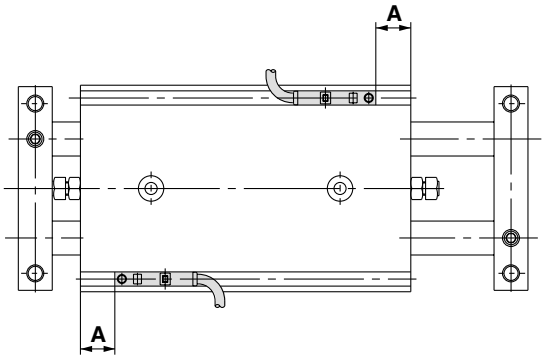
(mm)

	Model	S	SS	ZZ	Z
Standard stroke	**CXSW□32-10**	10	143	213	83
	CXSW□32-20	20	153	233	93
	CXSW□32-30	30	163	253	103
	CXSW□32-40	40	173	273	113
	CXSW□32-50	50	183	293	123
	CXSW□32-75	75	208	343	148
	CXSW□32-100	100	233	393	173
Long stroke (-XB11)	**CXSW□32-125**	125	258	443	198
	CXSW□32-150	150	283	493	223
	CXSW□32-175	175	308	543	248
	CXSW□32-200	200	333	593	273

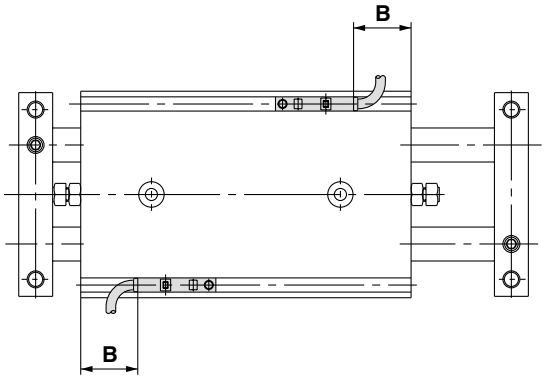
∗ For CXSW□32-10 only, a part of the switch rail (dimensions marked with an "∗") is notched to facilitate auto switch mounting.

Auto Switch Proper Mounting Positions for Stroke End Detection

Electric entry direction: Inward



Electric entry direction: Outward



Bore size (mm)	A	D-Z7, D-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

Auto switch mounting and mounting dimensions are same as those for the standard type. Refer to page 18.