



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

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

Air cushion

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	●	●	○	○		
				3-wire (NPN)				Y7NWV	Y7NW	●	●	○	○		
				3-wire (PNP)				Y7PWV	Y7PW	●	●	○	○		
				2-wire				Y7BWV	Y7BW	●	●	○	○		
Diagnostic indication (2-color indication)	Water resistant (2-color indication)	—	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.

⚠ 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)						
				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

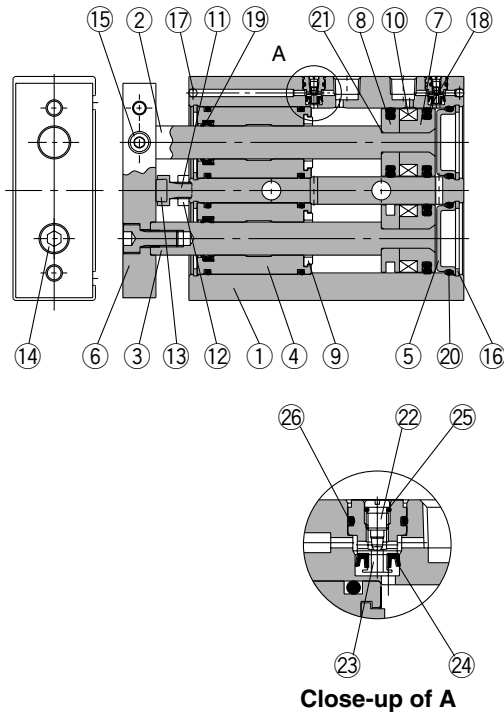
Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

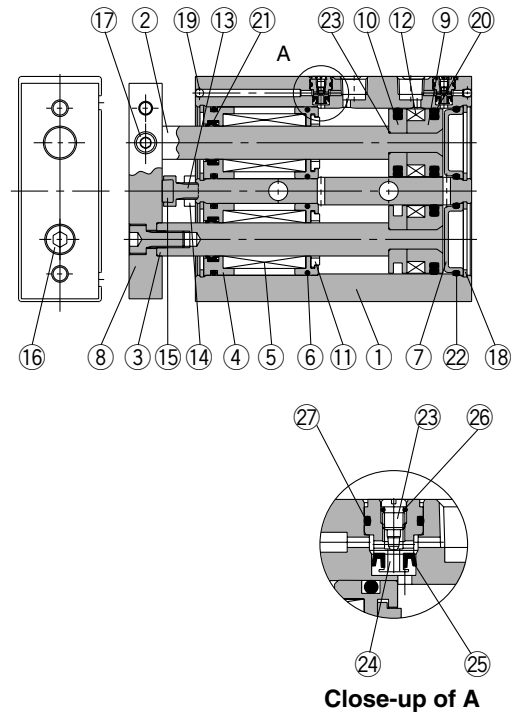
Model	Standard stroke (mm)												
	20	25	30	35	40	45	50	60	70	75	80	90	100
CXSM20-□A	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.66	0.70	0.715	0.735	0.755	0.815
CXSL20-□A	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.68	0.72	0.735	0.755	0.775	0.835
CXSM25-□A	—	0.78	0.80	0.82	0.84	0.86	0.88	0.92	0.96	0.98	1.00	1.04	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

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	

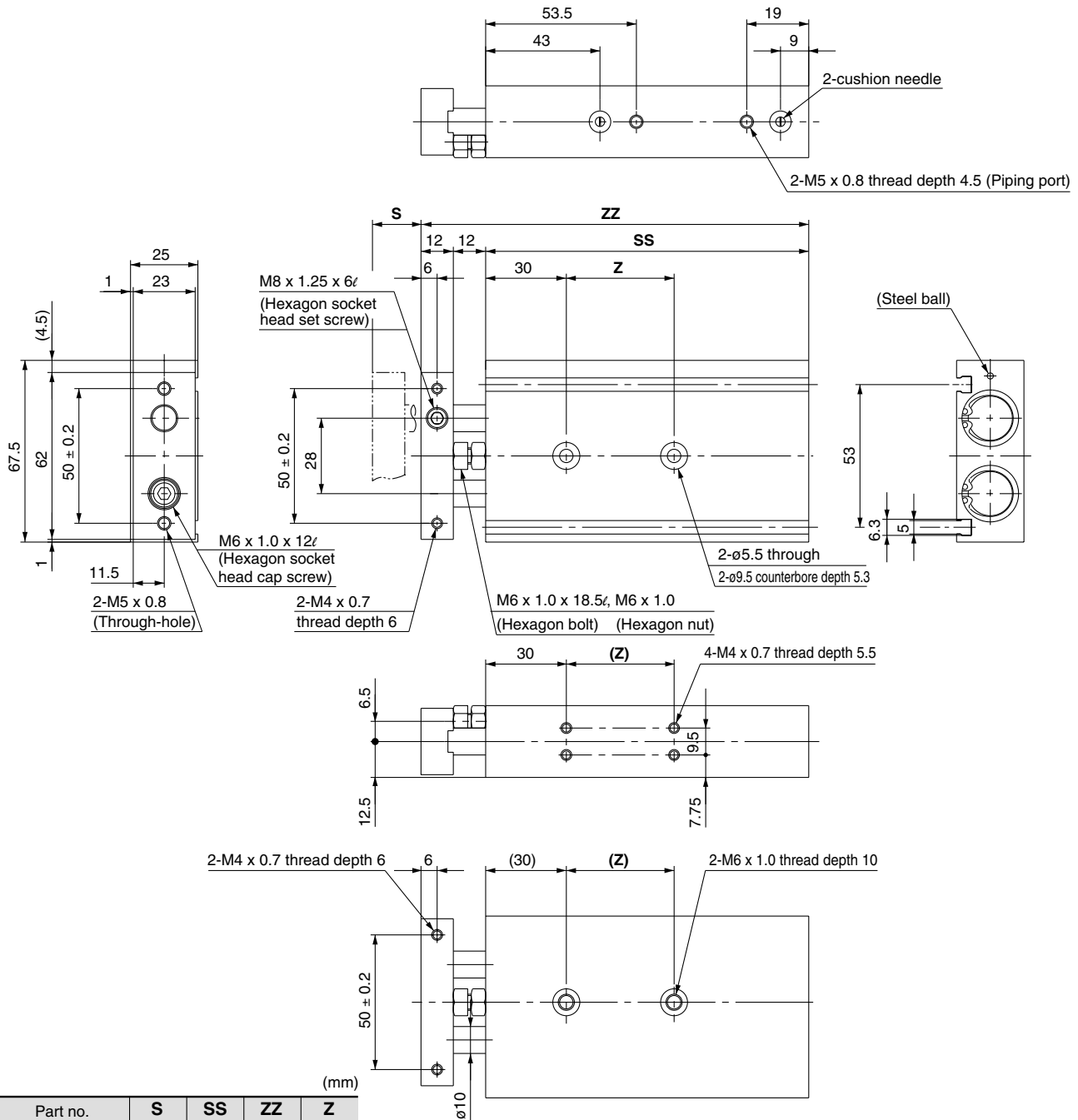
Component Parts: CXSL

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-
-X
20-
Data

Series CXS

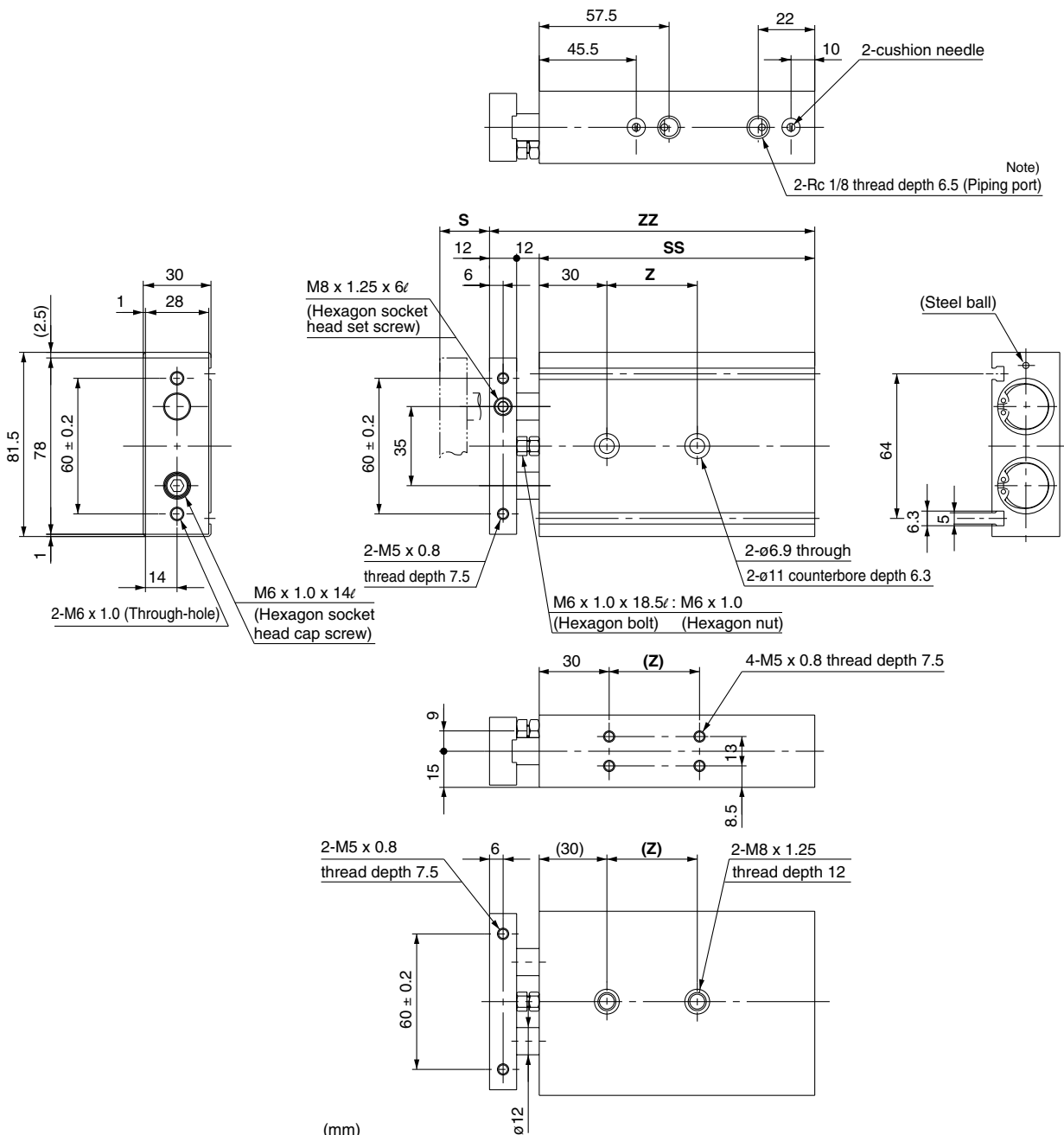
Dimensions: $\phi 20$



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	60
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: $\phi 25$



(mm)

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

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

MX□

MTS

MY□

CY□

MG□

CX□

D-

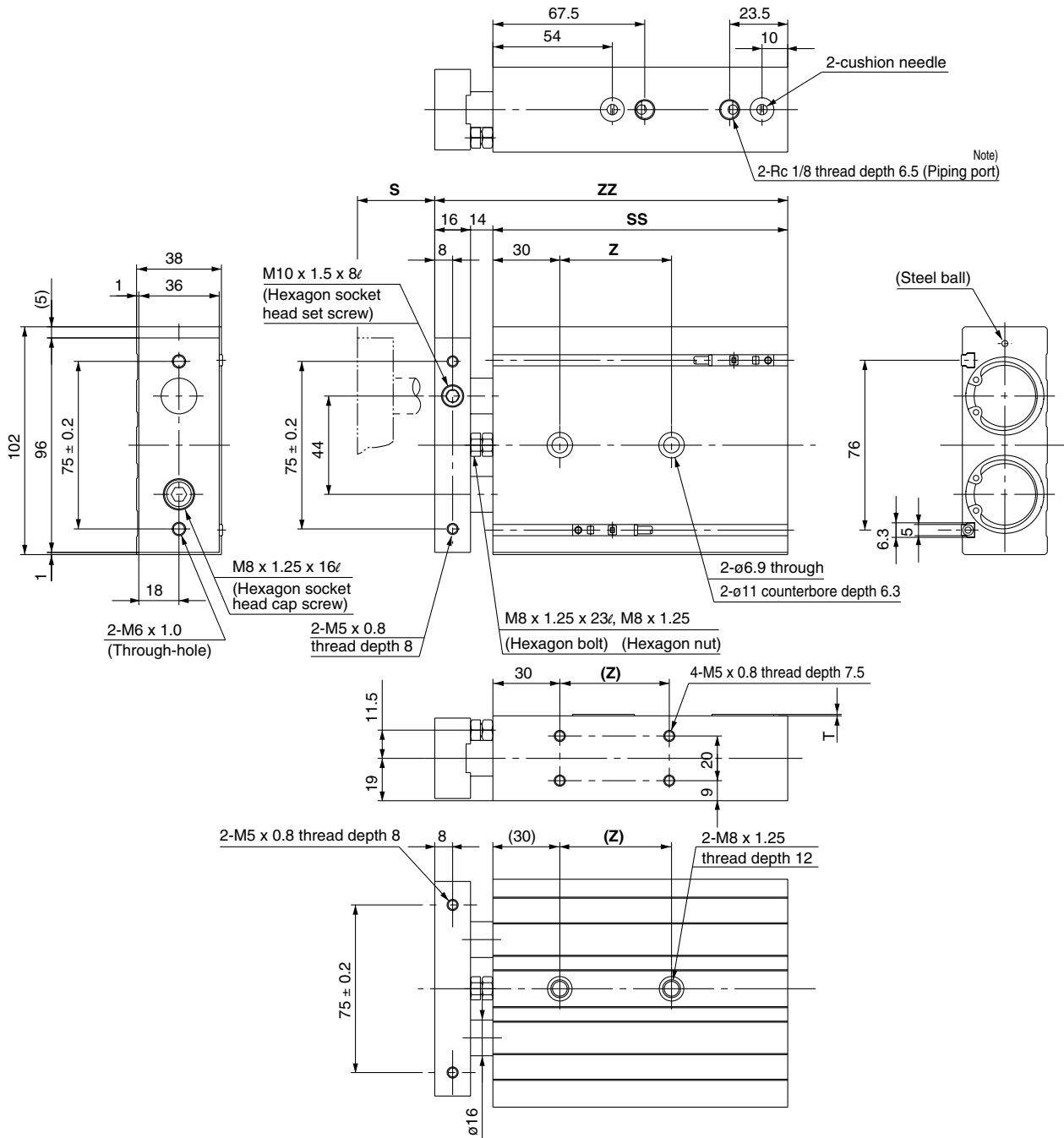
-X

20-

Data

Series CXS

Dimensions: $\phi 32$



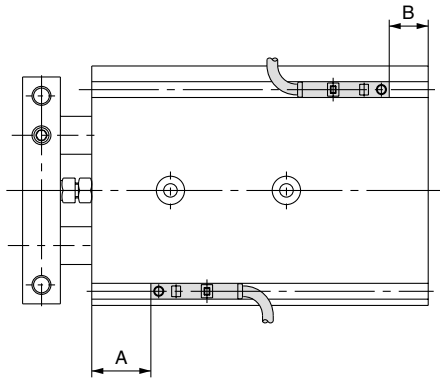
(mm)

Part no.	S	SS	ZZ	Z
CXS□32-25A	25	112	142	40
CXS□32-30A	30	117	147	50
CXS□32-35A	35	122	152	
CXS□32-40A	40	127	157	
CXS□32-45A	45	132	162	70
CXS□32-50A	50	137	167	
CXS□32-60A	60	147	177	
CXS□32-70A	70	157	187	70
CXS□32-75A	75	162	192	
CXS□32-80A	80	167	197	
CXS□32-90A	90	177	207	
CXS□32-100A	100	187	217	

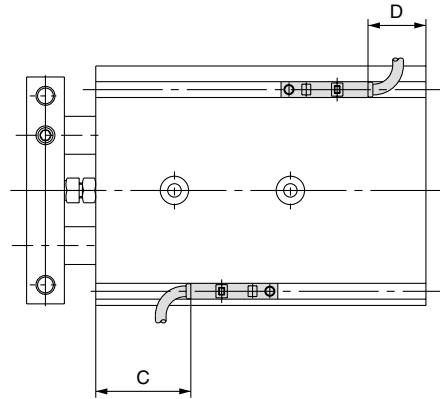
Note) For port threads TN and TF, only the piping port type varies.

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