

Series 10-/11-/12-21-/22-CXS ø6, ø10, ø15, ø20, ø25, ø32 Dual Rod Cylinder

How to Order

• **Clean series**

10	Relief type	CXSM, CXSL
11	Vacuum suction type	CXSM, CXSL
12	Relief type (with specially treated sliding parts)	CXSL

• **Dual rod cylinder**

10 - CXS M 15 **- 30 - Y59A**

21 - CXS L 15 **- 30 - Y59A**

• **Bearing type**

L	Ball bushing bearing
M	Slide bearing

• **Copper, fluorine and silicone-free + Low particle generation**

21	Relief type	CXSL
22	Vacuum suction type	CXSL

• **Bore size (mm)**

Symbol	Type	Bore size
Nil	M5 x 0.8	ø6 to ø20
	Rc	
TN	NPT	ø25, ø32
TF	G	

• **Port type**

• **Number of auto switches**

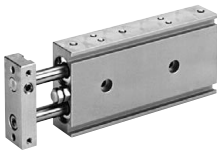
Nil	2 pcs.
S	1 pc.
n	n pcs.

• **Auto switch**

Nil	Without auto switch
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* For applicable auto switches, refer to the Applicable Auto Switch.

• **Cylinder stroke (mm)**



Model

Model		Bore size (mm)	Port size	Lubrication	Action	Standard stroke (mm)	Auto switch mounting	Cushion			
								Rubber	Air		
Vacuum suction type	11-/22-CXS□6	6	M5 x 0.8	Non-lube	Double acting Single rod	10, 20, 30, 40, 50	○	○ (Both sides)	—		
	11-/22-CXS□10	10									
	11-/22-CXS□15	15									
	11-/22-CXS□20	20	10, 20, 30, 40, 50, 75, 100								
	11-/22-CXS□25	25									
11-/22-CXS□32	32	1/8									
Relief type	10-/12-/21-CXS□6	6	M5 x 0.8								10, 20, 30, 40, 50
	10-/12-/21-CXS□10	10									
	10-/12-/21-CXS□15	15									
	10-/12-/21-CXS□20	20									
	10-/12-/21-CXS□25	25	1/8			10, 20, 30, 40, 50, 75, 100					
	10-/12-/21-CXS□32	32									

Specifications

Item	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/Slide bearing		
Grease		10-/11-/12-: Fluorine grease		
		21-/22-: Lithium soap based grease		
Cleanliness class (ISO class)		10-/12-: Class 4, 21-: Class 5		
		11-/22-: Class 3		

Suction Flow Rate of Vacuum Suction Type (Reference values)

Size	Suction flow rate L/min (ANR)
6	2
10	5
15	10
20/25	15
32	20

Auto Switches (Refer to the **Web Catalog** 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-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)			
Solid state auto switch	Diagnostic indication (2-color indicator) Water resistant (2-color indicator)	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)			Y7NWW	Y7NW	●	●	○			
				3-wire (PNP)			Y7PWV	Y7PW	●	●	○			
				2-wire			Y7BWV	Y7BW	●	●	○			
Reed auto switch	-	Grommet	Yes	3-wire (NPN equivalent)	-	5 V	-	Z76	●	●	-	IC circuit	-	
				2-wire	24 V	12 V	100 V	Z73	●	●	●	-	Relay, PLC	
						100 V or less	-	Z80	●	●	-	IC circuit	Relay, PLC	

** 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) Y59A
3 m L (Example) Y59AL
5 m Z (Example) Y59AZ

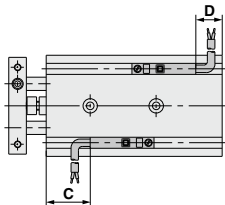
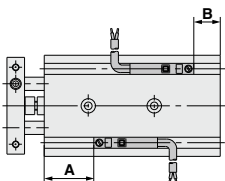
* Solid state auto switches marked with "○" are produced upon receipt of order.

• Auto switches are shipped together (not assembled).

Auto Switch Proper Mounting Position (Detection at Stroke End)

Electrical entry direction: Inward

Electrical entry direction: Outward



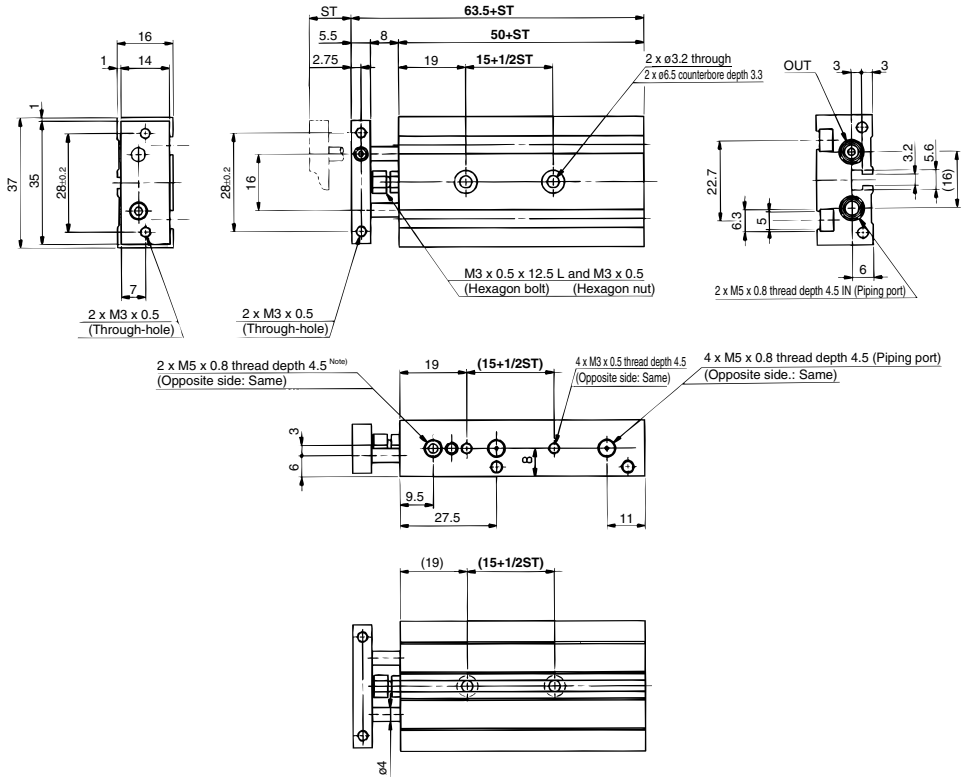
Bore size (mm)	A	B	D-Z7-Z8, D-Y7□W D-Y5□, D-Y7□		D-Y6□, D-Y7□V D-Y7□WV		D-Y7BA	
			C	D	C	D	C	D
6	20.5	4.5	16.5 (15)	0.5 (-1)	18	2	10.5	-5.5
10	27.5	7.5	23.5 (22)	3.5 (2)	25	5	17.5	-2.5
15	38	4.5	34 (32.5)	0.5 (-1)	35.5	2	28	-5.5
20	50	7	46 (44.5)	3 (1.5)	48	4.5	40	-3
25	50	9	46 (44.5)	5 (3.5)	48	6.5	40	-1
32	60	9	56 (54.5)	5 (3.5)	58	6.5	50	-1

Note 1) Negative figures in the table D indicate how much the load wires protrude from the cylinder body.

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

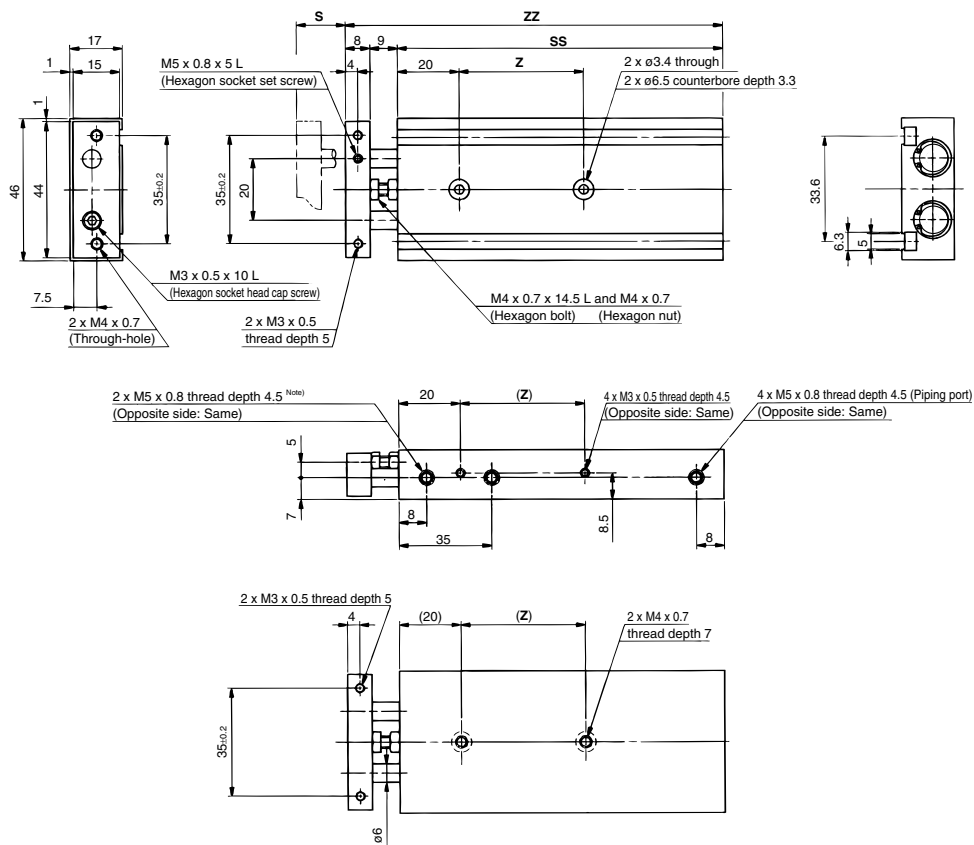
Note 3) Adjust the auto switch after confirming the operating conditions in the actual setting.

Basic: 10-/11-22-CXS□6, 12-21-CXSL6



Note) 11-, 22-: Vacuum suction port Vacuum air from 2 ports on both sides.
10-/12-, 21-: Relief port Exhaust air from a port on one side. The port on the piston rod B side for 10-/12-, 21- is plugged since unlike the vacuum, it is not necessary to exhaust from 2 ports.

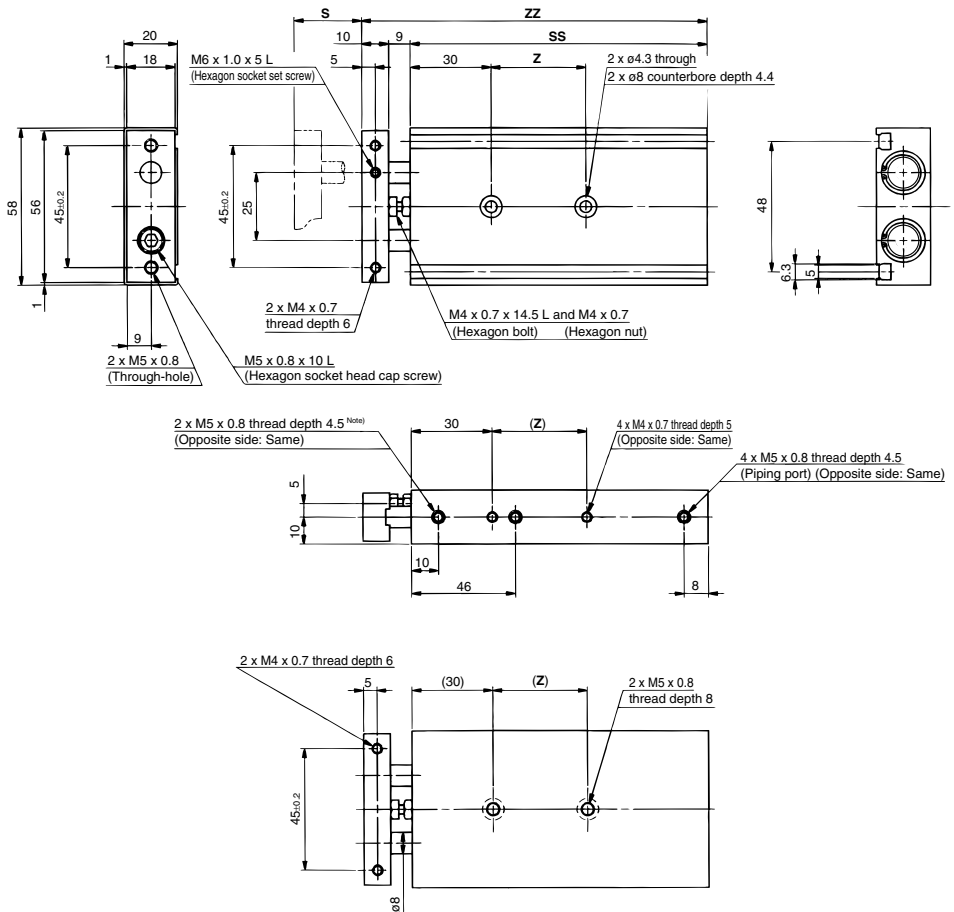
Model	15+1/2ST	50+ST	63.5+ST
10-/11-12-21-22-CXS□6-10	20	60	73.5
10-/11-12-21-22-CXS□6-20	25	70	83.5
10-/11-12-21-22-CXS□6-30	30	80	93.5
10-/11-12-21-22-CXS□6-40	35	90	103.5
10-/11-12-21-22-CXS□6-50	40	100	113.5

Basic: 10-/11-22-**CXS**□10, 12-21-**CXSL**10

Note) 11-, 22-: Vacuum suction port Vacuum air from 2 ports on both sides.
 10-/12-, 21-: Relief port Exhaust air from a port on one side. The port on the piston rod B side for 10-/12-, 21- is plugged since unlike the vacuum, it is not necessary to exhaust from 2 ports.

(mm)

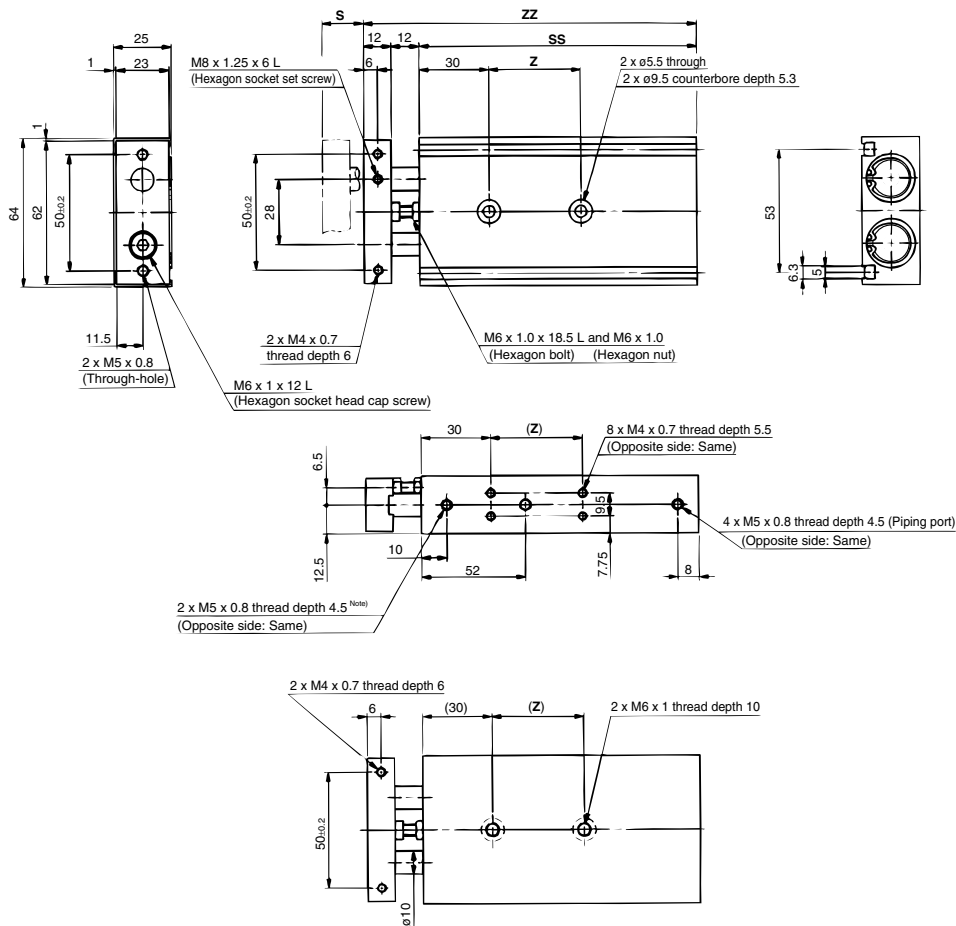
Model	S	SS	ZZ	Z
10-/11-/12-21-22- CXS □10-10	10	70	87	30
10-/11-/12-21-22- CXS □10-20	20	80	97	30
10-/11-/12-21-22- CXS □10-30	30	90	107	40
10-/11-/12-21-22- CXS □10-40	40	100	117	40
10-/11-/12-21-22- CXS □10-50	50	110	127	40

Basic: 10-/11-22-**CXS**□15, 12-21-**CXSL**15

Note) 11-, 22-: Vacuum suction port Vacuum air from 2 ports on both sides.
 10-/12-, 21-: Relief port Exhaust air from a port on one side. The port on the piston rod B side for 10-/12-, 21- is plugged since unlike the vacuum, it is not necessary to exhaust from 2 ports.

Model	S	SS	ZZ	Z
10-/11-12-21-22- CXS □15-10	10	77.5	96.5	25
10-/11-12-21-22- CXS □15-20	20	87.5	106.5	25
10-/11-12-21-22- CXS □15-30	30	97.5	116.5	35
10-/11-12-21-22- CXS □15-40	40	107.5	126.5	35
10-/11-12-21-22- CXS □15-50	50	117.5	136.5	45

(mm)

Basic: 10-11-22-**CXS**□20, 12-21-**CXSL**20

Note) 11-, 22-: Vacuum suction port Vacuum air from 2 ports on both sides.
 10-/12-, 21-: Relief port Exhaust air from a port on one side. The port on the piston rod B side for 10-/12-, 21- is plugged since unlike the vacuum, it is not necessary to exhaust from 2 ports.

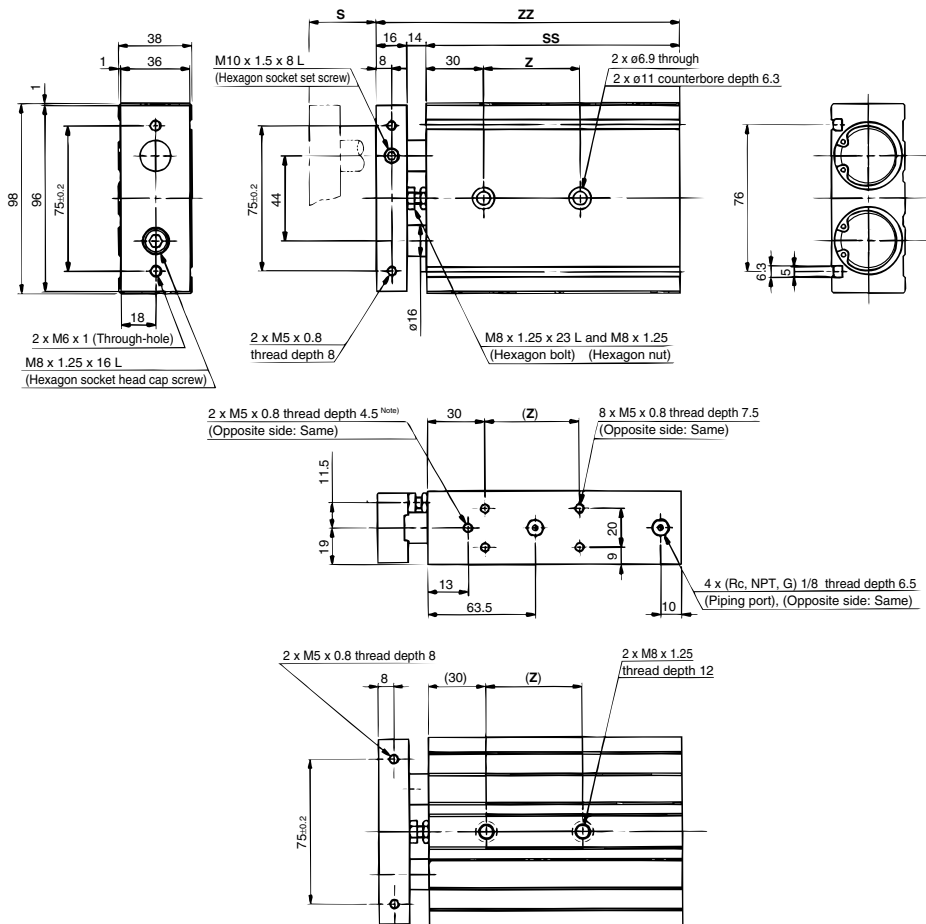
(mm)

Model	S	SS	ZZ	Z
10-11-22- CXS □20-10	10	92	116	30
10-11-12-21-22- CXS □20-20	20	102	126	40
10-11-12-21-22- CXS □20-30	30	112	136	40
10-11-12-21-22- CXS □20-40	40	122	146	40
10-11-12-21-22- CXS □20-50	50	132	156	60
10-11-12-21-22- CXS □20-75	75	157	181	60
10-11-12-21-22- CXS □20-100	100	182	206	80

[illegible]

(mm)

Model	S	SS	ZZ	Z
10^{11-12} $1-2$ CXS \square 25-10	10	94	118	30
10^{11-12} $1-2$ CXS \square 25-20	20	104	128	40
10^{11-12} $1-2$ CXS \square 25-30	30	114	138	40
10^{11-12} $1-2$ CXS \square 25-40	40	124	148	40
10^{11-12} $1-2$ CXS \square 25-50	50	134	158	60
10^{11-12} $1-2$ CXS \square 25-75	75	159	183	60
10^{11-12} $1-2$ CXS \square 25-100	100	184	208	80

Basic: ¹⁰⁻¹¹⁻₂₂₋CXS□**32**, ¹²⁻₂₁₋CXSL**32**

Note) 11-, 22-: Vacuum suction port Vacuum air from 2 ports on both sides.
 10-/12-, 21-: Relief port Exhaust air from a port on one side. The port on the piston rod B side for 10-/12-, 21- is plugged since unlike the vacuum, it is not necessary to exhaust from 2 ports.

(mm)

Model	S	SS	ZZ	Z
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-10	10	104	134	40
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-20	20	114	144	50
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-30	30	124	154	50
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-40	40	134	164	50
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-50	50	144	174	60
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-75	75	169	199	70
¹⁰⁻¹¹⁻ ₂₁₋₂₂₋ CXS□32-100	100	194	224	90

⚠ Specific Product Precautions

Be sure to read this before handling.

Mounting

⚠ Caution

- Make sure that the surface on which the cylinder is to be mounted is flat (reference value for flatness: 0.05 or less).**
Dual rod cylinders can be mounted from 3 directions, however, make sure that the surface on which the cylinder is to be mounted is flat (reference value for flatness: 0.05 or less). Otherwise, the accuracy of the piston rod operation is not achieved, and malfunction may occur.
- The piston rod must be retracted when mounting the cylinder.**
Scratches or gouges in the piston rod may lead to damaged bearings and seals, and causes malfunction or air leakage.
- Secure the plate before mounting the load.**
Load mounting without securing the plate may cause galling of the piston rod, leading to particle generation.

Piping

⚠ Caution

- Plug the appropriate supply port(s) according to the operating state.**
Dual rod cylinders have 2 supply ports for each operating direction (3 supply ports for ø6 only). Plug the appropriate supply port according to the operating state. After the plugged part has been changed, check the port for air leakage. If small leakage is detected, unplug the port, check the seat surface, and reassemble it.
- For 12- relief port, change the plug position according to the operating state.**
A relief port is provided on each side. Change the plug position according to the operating state. After the change, apply 0.1 MPa pressure from the relief port to check the plugged portion for air leakage. If small leakage is detected, unplug the port, check the seat surface, and reassemble it.
- Vacuum air from vacuum ports on both sides of 11- and 22-.**
Vacuum from one side is insufficient. Be sure to vacuum simultaneously from both sides.

Stroke Adjustment

⚠ Caution

- After adjusting the stroke, tighten firmly the hexagon nut to prevent it from loosening.**
Dual rod cylinders have a bolt to adjust 0 to -5 mm strokes on the retracted end (IN).
Loosen the hexagon nut to adjust the stroke. However, make sure to tighten the hexagon nut after making an adjustment.
- Do not operate a cylinder with its bumper bolt removed.**
If the bumper bolt is removed, the piston hits the head cover, causing damage to the cylinder. Therefore, do not use a cylinder without a bumper bolt.
- A bumper at the end of the bumper bolt is replaceable. In case a missing bumper, or a bumper has a permanent setting, use the following part numbers for ordering.**

Model	CXS6/10/15	CXS20/25	CXS32
Part number	CXS10-34A 28747	CXS20-34A 28749	CXS32-34A 28751
No. of bumpers	1		

Disassembly and Maintenance

⚠ Caution

- Never use a cylinder with its plate removed.**
When removing the hexagon socket head cap screw from the end plate, the piston rod must be secured to prevent rotation. However, if the sliding parts of the piston rod are scratched or gouged, malfunction may occur. If a plate is not required for your applications, use the cylinder that does not come with a plate, available through Made to Order (-X593).
- When disassembling and reassembling the cylinder, contact SMC or refer to the separate operation manual.**

⚠ Warning

- Take precautions when your hands are near the plate and housing.**
During cylinder operation, be careful not to get your hand or fingers caught between the plate and housing.