

Air Cylinder/Air Saving Type

Ø 32, Ø 40, Ø 50, Ø 63

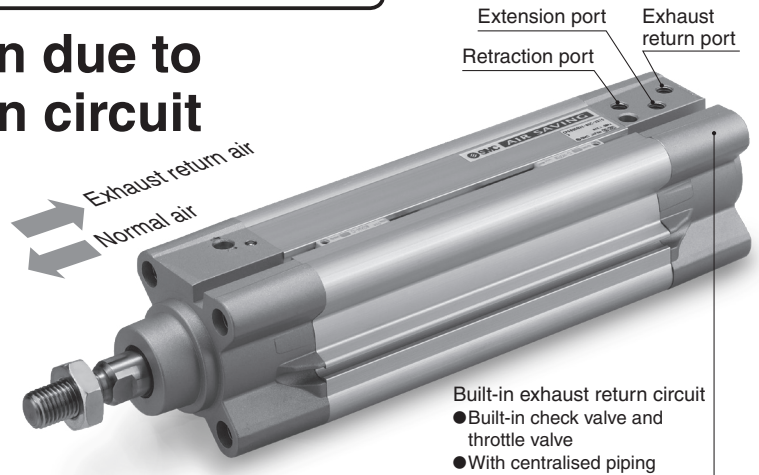
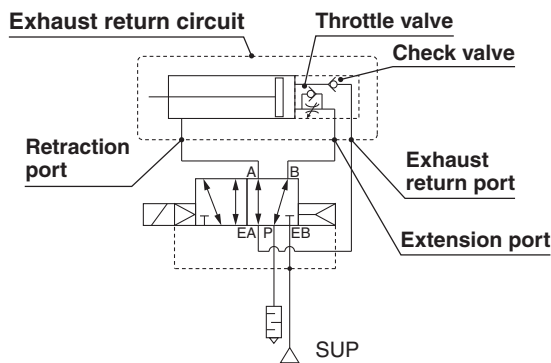


Air consumption Max. 48 % reduction

New Design

Reduced air consumption due to the built-in exhaust return circuit

- Uses the air exhausted from the extension side to supply the retraction side, thus reusing the air
- Allows for increased energy savings just by piping to the product

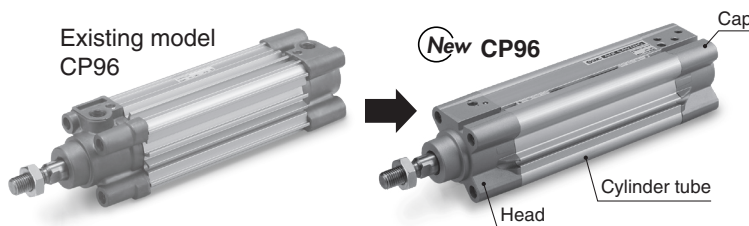


■ Mounting interchangeability with ISO Standard (15552)

* Excludes the port position relationship

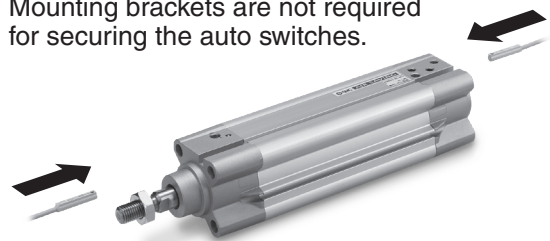
■ Flat surface

By reducing the number of grooves and bumps on the external surface of the cylinder tube, head, and cap, this model features a flat surface allowing for the reduced collection of dust and other foreign matter.



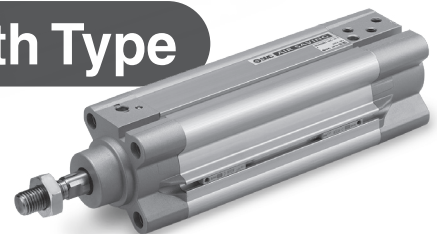
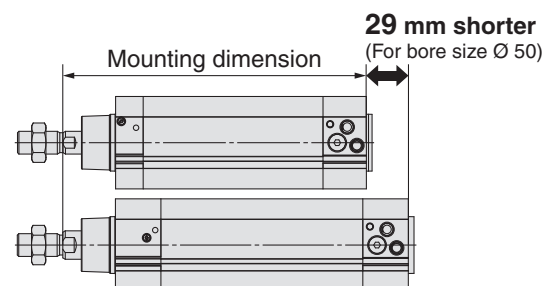
■ Auto switches can be inserted from both sides for direct mounting.

Mounting brackets are not required for securing the auto switches.



Air Saving Shorter Overall Length Type

A model with a max. 12 % reduction in overall length is now available. (Compared with the air saving type)



Bore size	New CP96 Air saving type	New CP96 Air saving shorter overall length type	Reduction amount	Reduction rate
32	220	201	19	9 %
40	235	217	18	8 %
50	243	214	29	12 %
63	258	233	25	10 %

* Compared at a 100 mm stroke

CP96-X3153/X3154



19-EU716-UK

CP96-X3153/X3154

Specifications



Air saving type (X3153)



Air saving shorter overall length type (X3154)

Air Saving Type

Bore size [mm]		32	40	50	63
Action		Double acting			
Fluid		Air			
Proof pressure		1.0 MPa			
Max. operating pressure		0.7 MPa			
Min. operating pressure		0.4 MPa			
Ambient and fluid temperatures		With auto switch: -10 to 60 °C (No freezing)			
Lubrication		Not required (Non-lube)			
Piston speed	Extending operation	50 to 1000 mm/s			
	Retracting operation	50 to 300 mm/s			
Stroke length tolerance		Up to 200 mm stroke: $^{+2}_0$			
Cushion	Rod side	Air cushion + Bumper cushion			
	Head side	Bumper cushion			
Port size	Extension port	M5 x 0.8	G1/8	G1/8	G1/4
	Retraction port	M5 x 0.8			
	Exhaust return port	M5 x 0.8	M5 x 0.8	G1/8	G1/4
Mounting orientation		Horizontal lateral, Vertical upward			
Min. theoretical output*1, *2	Retracting operation	34 N	52 N	82 N	140 N
Allowable kinetic energy	Extending operation	2.3 J	3.6 J	6.1 J	11.4 J
	Retracting operation	1.1 J	1.8 J	3.6 J	6.0 J
Min. rod end load (Horizontal lateral mounting)*2	Retracting operation	6.8 N	10.4 N	16.4 N	28.0 N
Mounting		Basic, Axial foot, Head flange, Cap flange			

*1 Be aware that the cylinder output is reduced during the retraction operation.

*2 The values in the table above are the min. values. Therefore, the values may be greater depending on the operating conditions.

Please contact your local sales representative for more details.

Air Saving Shorter Overall Length Type

(Specifications other than those shown below are the same as those of the air saving type.)

Bore size [mm]		32	40	50	63
Piston speed	Extending operation	50 to 500 mm/s			
	Retracting operation	50 to 300 mm/s			
Min. theoretical output*2, *3	Retracting operation	36 N	57 N	88 N	145 N
Allowable kinetic energy	Extending operation	0.7 J	1.0 J	1.8 J	3.3 J
	Retracting operation	0.4 J	0.5 J	0.9 J	1.7 J
Min. rod end load (Horizontal lateral mounting)*3	Retracting operation	6.9 N	11.4 N	17.5 N	27.2 N
Mounting*1		Basic, Cap flange			

*1 For the air saving shorter overall length type, mount from the cap side.

It cannot be mounted from the head side.

*2 Be aware that the cylinder output is reduced during the retraction operation.

*3 The values in the table above are the min. values. Therefore, the values may be greater depending on the operating conditions.

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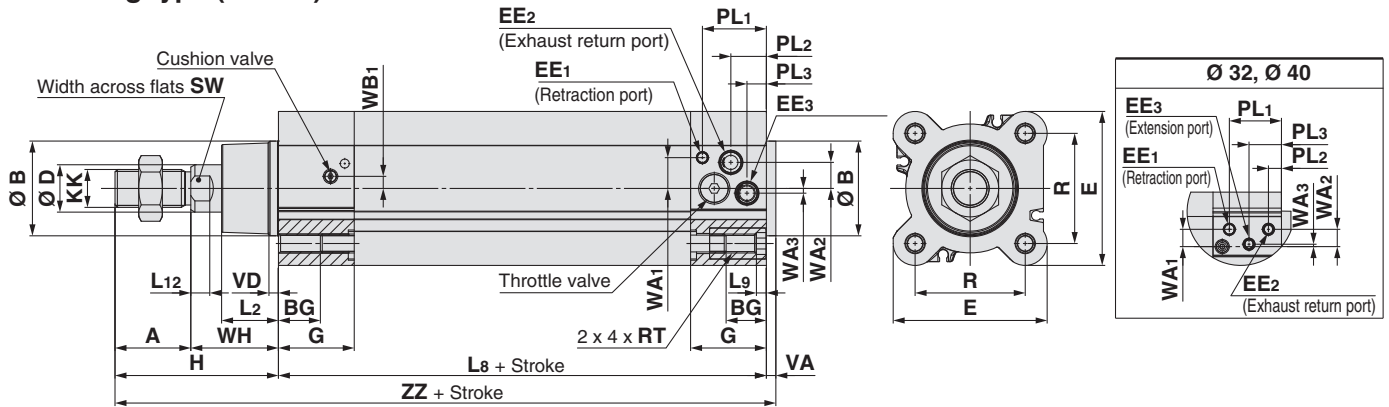


Standard Strokes (Air Saving Type, Air Saving Shorter Overall Length Type)

Bore size	Standard stroke [mm]
32	25, 50, 80, 100, 125, 160
40	
50	
63	25, 50, 80, 100, 125, 160, 200

Dimensions

Air saving type (X3153)

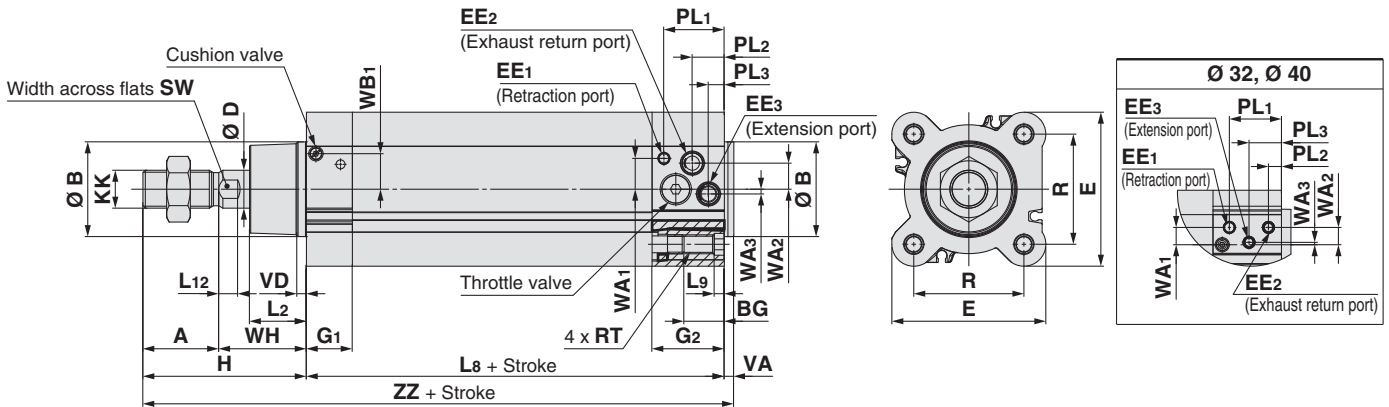


[mm]

Bore size	Stroke range	A	Ø B d11	BG	Ø D	E	EE1	EE2	EE3	G	H	KK	L2	L8
Ø 32	25, 50, 80, 100, 125, 160	22	30	16	12	47	M5 x 0.8	M5 x 0.8	M5 x 0.8	28.9	48	M10 x 1.25	15	94
Ø 40		24	35	16	16	54	M5 x 0.8	M5 x 0.8	G1/8	32.6	54	M12 x 1.25	17	105
Ø 50		32	40	16	20	66	M5 x 0.8	G1/8	G1/8	32	69	M16 x 1.5	24	106
Ø 63	25, 50, 80, 100, 125, 160, 200	32	45	16	20	77	M5 x 0.8	G1/4	G1/4	38.6	69	M16 x 1.5	24	121

Bore size	L9	L12	PL1	PL2	PL3	R	RT	SW	VA	VD	WA1	WA2	WA3	WB1	WH	ZZ
Ø 32	4	6	22	5.5	13.7	32.5	M6 x 1	10	4	4	7.3	7.3	1	9	26	146
Ø 40	4	6.5	27.3	17.8	8.2	38	M6 x 1	13	4	4	6.2	10.2	1.2	10.5	30	163
Ø 50	4	8	27	15	8.2	46.5	M8 x 1.25	17	4	4	13	11	2	5.1	37	179
Ø 63	5	8	32.5	18	10	56.5	M8 x 1.25	17	4	4	17.5	13	4	12	37	194

Air saving shorter overall length type (X3154)



[mm]

Bore size	Stroke range	A	Ø B d11	BG	Ø D	E	EE1	EE2	EE3	G1	G2	H	KK
Ø 32	25, 50, 80, 100, 125, 160	22	30	16	10	47	M5 x 0.8	M5 x 0.8	M5 x 0.8	21	28.9	48	M10 x 1.25
Ø 40		24	35	16	12	54	M5 x 0.8	M5 x 0.8	G1/8	26.7	32.6	54	M12 x 1.25
Ø 50		32	40	16	16	66	M5 x 0.8	G1/8	G1/8	19.4	30.5	69	M16 x 1.5
Ø 63	25, 50, 80, 100, 125, 160, 200	32	45	16	16	77	M5 x 0.8	G1/4	G1/4	24.6	38.6	69	M16 x 1.5

Bore size	L2	L8	L9	L12	PL1	PL2	PL3	R	RT	SW	VA	VD	WA1	WA2	WA3	WB1	WH	ZZ
Ø 32	15	75	4	5.5	22	5.5	13.7	32.5	M6 x 1	8	4	4	7.3	7.3	1	9	26	127
Ø 40	17	87	4	6	27.3	17.8	8.2	38	M6 x 1	10	4	4	6.2	10.2	1.2	10.5	30	145
Ø 50	24	77	4	8	25.5	13.5	6.7	46.5	M8 x 1.25	14	4	4	13	11	2	15	37	150
Ø 63	24	96	5	8	32.5	18	10	56.5	M8 x 1.25	14	4	4	17.5	13	4	12	37	169

CP96-X3153/X3154

Handling

Warning

1. Residual pressure will remain in the exhaust return piping of this circuit.

To completely exhaust all of the residual pressure, install a 3-port valve for residual pressure exhaust in the exhaust return piping.

2. Do not open the cushion valve or the throttle valve on the extension side more than the allowable number of rotations. (Refer to the table below.) (An air cushion is provided on the rod side only.)

Although there is either a crimped section or a retaining ring acting as a retaining mechanism for the cushion valve or the throttle valve, do not open the cushion valve and the throttle valve more than the allowable number of rotations. If air is supplied and operation is started without confirming the above condition, the cushion valve or the throttle valve may be ejected from the cover.

The allowable number of rotations refers to the number of rotations until the restrictor of the cushion valve or the throttle valve is completely opened from the completely closed state.

Bore size [mm]	Type	Allowable number of rotations
32	Cushion valve	4.0
	Throttle valve	5.5
40	Cushion valve	4.0
	Throttle valve	6.0
50, 63	Cushion valve	4.5
	Throttle valve	8.5

3. Keep the screwing torque and the unscrewing torque of the cushion valve and the throttle valve within the allowable torque. (Refer to the table below.)

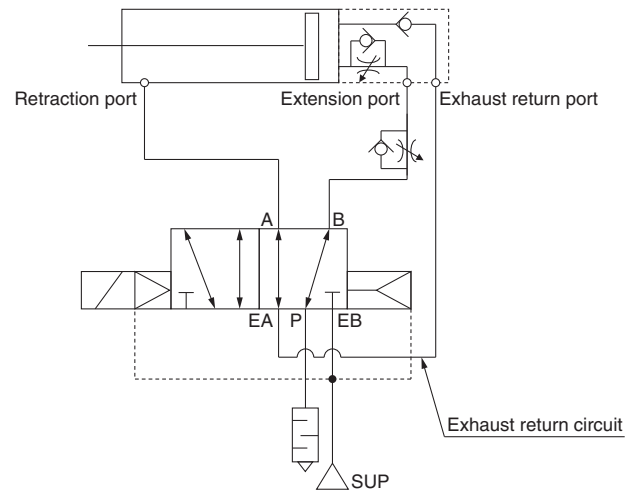
If a screwing torque or unscrewing torque beyond the allowable torque is applied, the valve will be damaged when the valve is closed completely or when the valve exceeds the retaining mechanism when it is opened completely, which will dislocate the engagement of the screw and eject the valve.

Bore size [mm]	Type	Width across flats	Hexagon wrench	Allowable torque [N·m]
32	Cushion valve	2	JIS 4648 Hexagon wrench key 2	0.02
	Throttle valve	2	JIS 4648 Hexagon wrench key 2	—
40	Cushion valve	2	JIS 4648 Hexagon wrench key 2	0.02
	Throttle valve	3	JIS 4648 Hexagon wrench key 3	0.06
50, 63	Cushion valve	2	JIS 4648 Hexagon wrench key 2	0.02
	Throttle valve	4	JIS 4648 Hexagon wrench key 4	—

Caution

1. Pipe according to the circuit diagram shown below when using this cylinder.

Circuit diagram



2. For exhaust return, the selection and installation of suitable fittings, tubes, and devices is required. Please contact your local sales representative for more details.

3. For the solenoid valve, select a single unit (body ported or base ported) external pilot type.

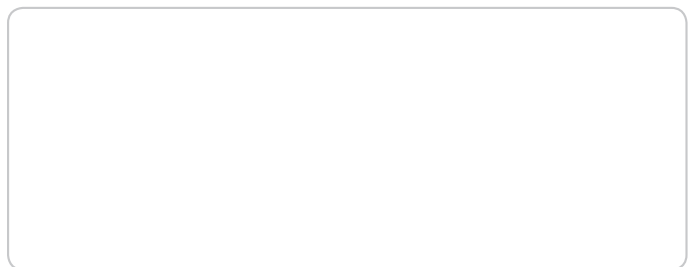
4. Follow the instructions below to adjust the speed of this cylinder.

Extending operation: Use the speed controller (meter-in) installed between the extension port and the solenoid valve.

Retracting operation: Use the built-in throttle valve on the head side.

5. As the retracting operation of this cylinder is performed with low pressure and low thrust, refrain from applying more external force than necessary.

6. Pivot brackets cannot be used.



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