

# Compact Cylinder Air Saving Type/ Polygonal Piston Square Type



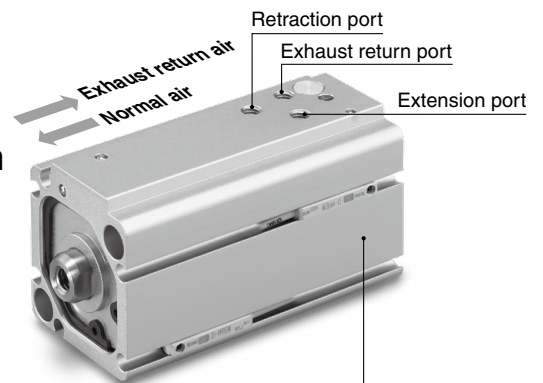
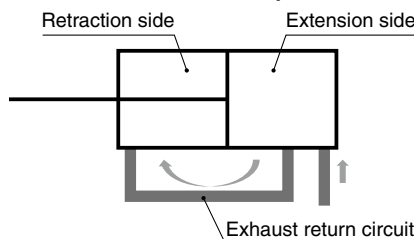
Size: 32, 40, 50

**Air saving and more compact!**  
Improvements due to the adoption of a built-in exhaust return circuit and a polygonal piston

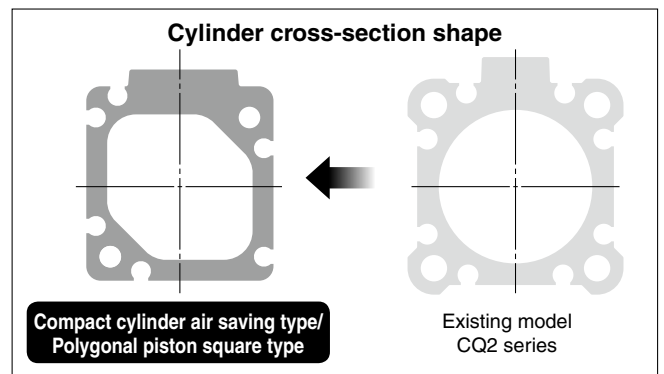
## Air saving (Built-in exhaust return circuit)

**Air consumption**  
**Max. 46% reduction**

- Uses the air exhausted from the extension side to supply the retraction side, thus reusing the air (Built-in exhaust return circuit)
- Reduce air consumption just by piping to the product



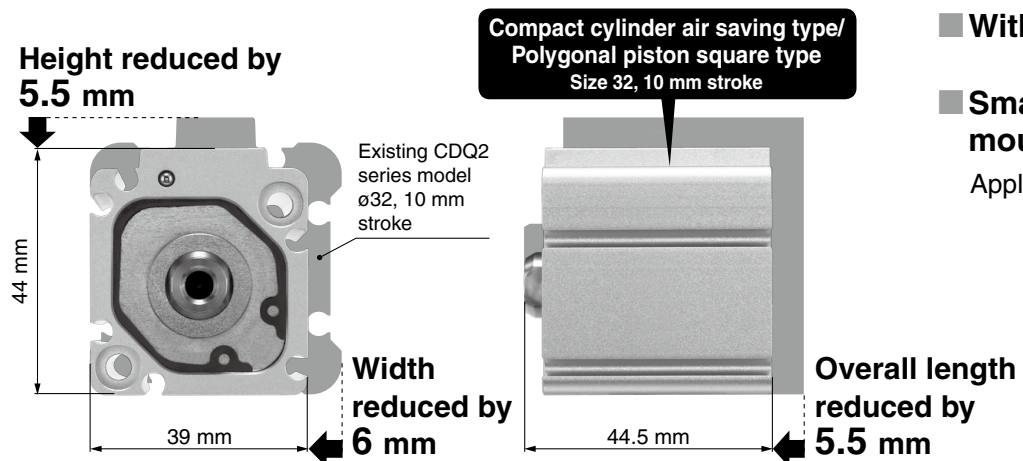
- Built-in exhaust return circuit
- Built-in check valve and throttle valve
  - With centralized piping



## Compact (Now with a polygonal piston)

Width	Height	Overall length
<b>13%<sup>*1</sup> reduction</b> 45 mm → 39 mm	<b>11%<sup>*1</sup> reduction</b> 49.5 mm → 44 mm	<b>11%<sup>*1</sup> reduction</b> 50 mm → 44.5 mm

\*1 Compared with the CDQ2 series, ø32, 10 mm stroke  
The overall length of size 50 is 1 mm longer than that of the existing CQ2 model.



- With rubber bumper
- Small auto switches can be mounted on 4 surfaces.  
Applicable auto switch: D-M9□

**CDQ2B-X3205**



# CDQ2B-X3205

## Specifications

Size		32 (Equiv. ø32 piston area)	40 (Equiv. ø40 piston area)	50 (Equiv. ø50 piston area)
<b>Action</b>		Double acting, Single rod		
<b>Fluid</b>		Air		
<b>Proof pressure</b>		1.0 MPa		
<b>Max. operating pressure</b>		0.7 MPa*3		
<b>Min. operating pressure</b>		0.4 MPa		
<b>Ambient and fluid temperatures</b>		5 to 60°C (No freezing)		
<b>Lubrication</b>		Not required (Non-lube)		
<b>Piston speed</b>	Extending operation	50 to 500 mm/s	50 to 300 mm/s*3	
	Retracting operation	50 to 300 mm/s	50 to 200 mm/s*3	
<b>Cushion</b>		Rubber bumper		
<b>Stroke length tolerance</b>		0 to +1.3 mm*1		
<b>Port size</b>	Extension port	M5 x 0.8		Rc1/8
	Retraction port	M5 x 0.8		Rc1/8
	Exhaust return port	M5 x 0.8		
<b>Mounting orientation</b>		Horizontal lateral, Vertical upward		
<b>Min. theoretical output*2</b>	<b>Retracting operation</b>	35 N	55 N	85 N
<b>Allowable kinetic energy</b>		0.15 J	0.26 J	0.46 J
<b>Allowable lateral load at rod end (At 30 st)</b>		5.1 N	10.2 N	17.3 N
<b>Mounting</b>		Basic type (Through-hole)		

- \*1 Stroke length tolerance does not include the amount of bumper change.
- \*2 Be aware that the cylinder output is reduced during the retraction operation. The cylinder output values in the table above are the min. values. Therefore, depending on the operating conditions, the output may be greater. Please contact your local sales representative for more details.

Depending on the system configuration selected, the specified speed may not be satisfied.

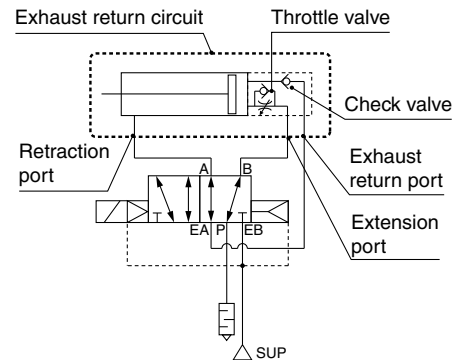
\*3 Maximum operating pressure and piston speed are different from the existing product (CQ2 series).

For sizes 32 and 40, the positions of the switch mounting grooves vary slightly from those of the polygonal piston standard type.

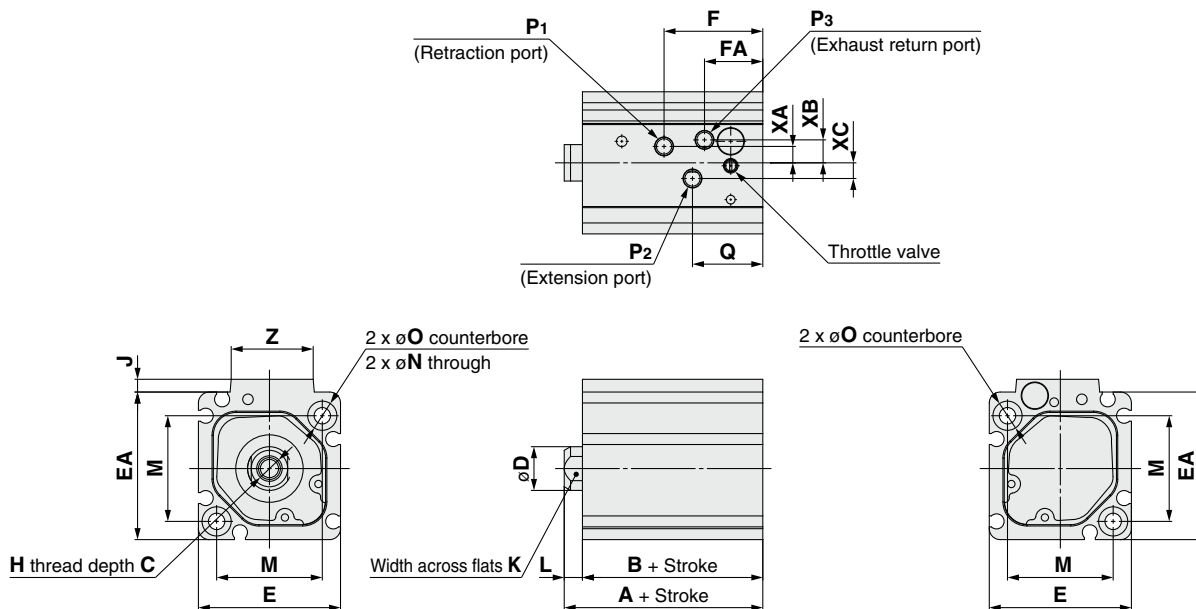
## Standard Strokes

Size	Standard stroke [mm]
32	10, 20, 30, 40, 50
40	
50	

## Circuit Diagram



## Dimensions



Size	A	B	C	D	E	EA	F		FA	H	J	K	L	M	N	O
							10 mm stroke	20 to 50 mm stroke								
32	34.5	29.5	12	12	39	40.5	28.7	27.1	16	M6 x 1.0	3.5	10	5	29	4.5	8 depth 6
40	42	36	13	14	46	48.2	30.8	27.9	16.9	M8 x 1.25	2.8	12	6	35	5.5	9 depth 7
50	49.5	41.5	15	18	55	58.2	33.6	33.2	18.7	M10 x 1.5	2.3	16	8	42	6.6	11 depth 8

Size	P1	P2	P3	Q	XA		XB	XC	Z
					10 mm stroke	20 to 50 mm stroke			
32	M5 x 0.8	M5 x 0.8	M5 x 0.8	19.3	5.9	4.5	6.3	4.3	22.5
40	M5 x 0.8	M5 x 0.8	M5 x 0.8	20.2	5.2	4.6	5.6	5.4	23.5
50	Rc1/8	Rc1/8	M5 x 0.8	21.2	1.2	3	5	10.5	28

## 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. The adjustment range for the throttle valve for retraction operation speed adjustment is, starting from the fully closed position, within the number of rotations shown in the table below.**

Bore size [mm]	Number of rotations
<b>32, 40</b>	4.5 rotations or less
<b>50</b>	3 rotations or less

To adjust the throttle valve, use a 3 mm flat head watchmaker's screwdriver.

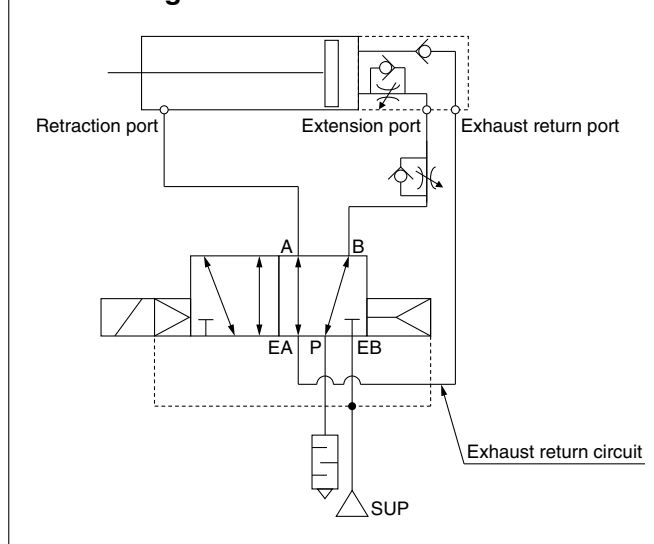
The adjustment range for the throttle valve is, between the fully closed position and the open position, within the range indicated in the table above.

A retaining mechanism prevents the throttle valve from slipping out; however, it may spring out during operation if it is rotated beyond the range shown above.

### ⚠ 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 cylinder.

**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.**

**⚠ Safety Instructions** Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and the "CQ2 Series Specific Product Precautions" before use.

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