

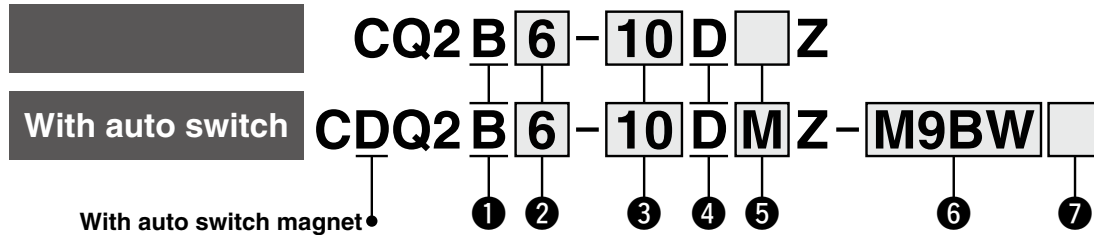
# Compact Cylinder: Standard Double Acting, Single Rod

## CQ2 Series

ø4, ø6, ø10

RoHS

### How to Order



#### 1 Mounting

<b>B</b>	Through-hole/Head end tapped
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#### 2 Bore size

<b>4</b>	4 mm
<b>6</b>	6 mm
<b>10</b>	10 mm

\* Auto switches cannot be mounted on ø4.

#### 3 Cylinder stroke [mm]

Bore size	Standard stroke
<b>4, 6</b>	5, 10
<b>10</b>	5, 10, 15, 20

#### 4 Action

<b>D</b>	Double acting
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#### 5 Body option

<b>Nil</b>	Rod end female thread (Without thread for ø4)
<b>C</b>	With rubber bumper
<b>M</b>	Rod end male thread

\* Combined body options "CM" can be selected.

#### 6 Auto switch

<b>Nil</b>	Without auto switch
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\* For applicable auto switches, refer to the table below.

#### 7 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

**Applicable 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]*2						Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	F8N	—	●	—	●	○	—	—	IC circuit	Relay, PLC
				M9NV				M9N	●	●	●	○	—	○			
				F8P				—	●	—	●	○	—	—			
				M9PV				M9P	●	●	●	○	—	○			
				F8B				—	●	—	●	○	—	—			
				M9BV				M9B	●	●	●	○	—	○			
	Diagnostic indication (2-color indicator)			3-wire (NPN)	5 V, 12 V	M9NWV		M9NW	●	●	●	○	—	○	IC circuit		
				3-wire (PNP)		M9PWV		M9PW	●	●	●	○	—	○			
				2-wire		M9BWV		M9BW	●	●	●	○	—	○		—	
				3-wire (NPN)		M9NAV*1		M9NA*1	○	○	●	○	—	○		IC circuit	
				3-wire (PNP)		M9PAV*1		M9PA*1	○	○	●	○	—	○			
				2-wire		M9BAV*1		M9BA*1	○	○	●	○	—	○			

<sup>\*1</sup> Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance. Please contact SMC regarding water-resistant types with the above model numbers.

<sup>\*2</sup> Lead wire length symbols: 0.5 m ..... Nil (Example) M9N      \* Solid state auto switches marked with a "○" are produced upon receipt of order.

1 m ..... M (Example) M9NM  
3 m ..... L (Example) M9NL  
5 m ..... Z (Example) M9NZ

\* For 2-color indicator, use caution on hysteresis. Refer to the "Auto Switch Hysteresis" section in the **Web Catalog**.

\* For the detailed specifications of auto switches, refer to the **Web Catalog**.

\* Auto switches are shipped together with the product but do not come assembled.

# Compact Cylinder: Standard Double Acting, Single Rod

## CQ2 Series

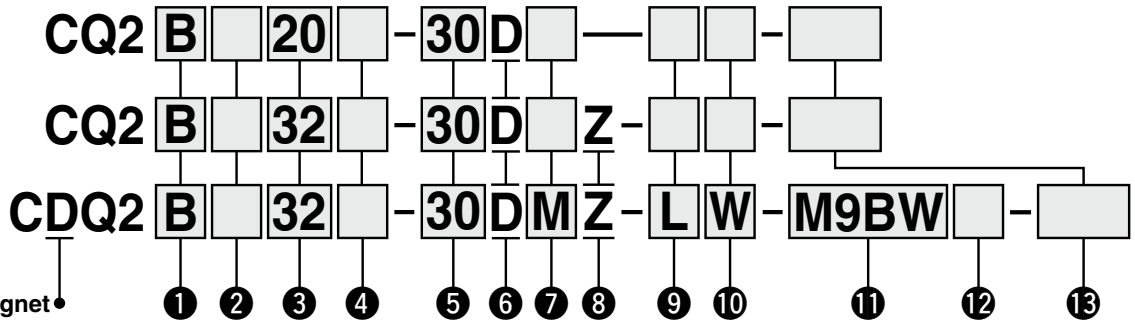
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø100

With auto switch



#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

<b>B</b>	Through-hole
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Rod flange
<b>G</b>	Head flange
<b>D</b>	Double clevis

- \* Mounting brackets are shipped together with the product but do not come assembled.
- \* Refer to 9 for the through-hole type mounting bolt.
- \* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

#### 2 Type

<b>Nil</b>	Pneumatic
<b>H</b>	Air-hydro*1

\*1 The bore sizes available for the air-hydro type are ø20 to ø100.

#### 3 Bore size

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### 4 Port thread type

<b>Nil</b>	M thread	ø12 to ø25
<b>TN</b>	Rc	
<b>TF</b>	NPT	ø32 to ø100
<b>F</b>	G	
<b>F</b>	Built-in One-touch fittings*1	

- \*1 The bore sizes available with One-touch fittings are ø32 to ø63. However, they cannot be selected for the air-hydro type.
- \* "TF" is not selectable for the air-hydro type.
- \* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157)

Bore size	Standard stroke
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

- \* For long strokes exceeding the standard stroke range ⇨ p. 80
- \* For details on the manufacturing of intermediate strokes ⇨ p. 18
- \* The bore sizes available for the air-hydro type are ø20 to ø100.

#### 7 Body option

<b>Nil</b>	Rod end female thread
<b>F</b>	With boss on head end
<b>C</b>	With rubber bumper*1
<b>M</b>	Rod end male thread

- \*1 The type with a rubber bumper is not selectable for the air-hydro type.
- \* Combined body options, such as "FC," "FM," "FCM," and "CM" can be selected.

#### 9 Through-hole type mounting bolt

<b>Nil</b>	None
<b>L</b>	Shipped together

- \* Mounting bolt is shipped together with the product only when the mounting bracket is "B" (Through-hole). For details: Without auto switch magnet ⇨ p. 21 With auto switch magnet ⇨ p. 22
- \* When a made-to-order option is selected, the mounting bolt is not shipped together with the product. Please order it separately.

#### 10 Rod end bracket (⇨ p. 34 to 36)

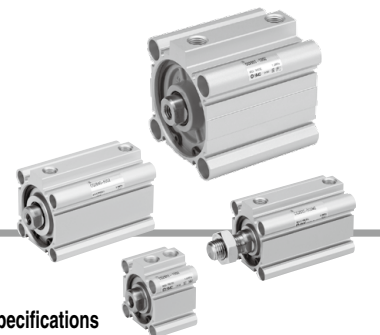
<b>Nil</b>	None
<b>D</b>	Type A mounting bracket + Joint
<b>E</b>	Type B mounting bracket + Joint
<b>V</b>	Single knuckle joint
<b>W</b>	Double knuckle joint

- \* Options "D" and "E" must be used in combination with body option (Nil), the rod end female thread, and options "V" and "W" must be used in combination with body option (M), the rod end male thread.
- \* A knuckle pin is not provided with the single knuckle joint (V). If a pin is required, please order it separately. For details ⇨ p. 34
- \* When a made-to-order option is selected, the rod end bracket cannot be selected. Please order it separately.

#### 8 Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

# Compact Cylinder: Standard Double Acting, Single Rod **CQ2 Series**



## 11 Auto switch

Nil	Without auto switch
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\* For applicable auto switches, refer to the table below.

## 12 Number of auto switches

Nil	2
S	1
n	n

## 13 Made to order common specifications

For details ⇨ p. 17

## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2L32-25DZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Proposals for Improving Water and Dust-resistance

SMC offers a wide range of models suitable for various operating environments. This includes models that can be used in environments that the basic model cannot, such as those where coolant liquid, water droplets/splashing, dust, etc., are present.

For details, refer to the **Web Catalog**.

- **Water-resistant cylinder**
- **Cylinder with Stable Lubrication Function (Lube-retainer)**
- **Dust resistant cylinder**

## Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○	—			
	2-wire			M9BV				M9B	●	●	●	○	—	○	—			
	3-wire (NPN)			M9NWV				M9NW	●	●	●	○	—	○	—			
	3-wire (PNP)			M9PWV				M9PW	●	●	●	○	—	○	—			
	2-wire			M9BWV				M9BW	●	●	●	○	—	○	—			
	3-wire (NPN)			M9NAV*1				M9NA*1	○	○	●	○	—	○	—			
	3-wire (PNP)			M9PAV*1				M9PA*1	○	○	●	○	—	○	—			
	2-wire			M9BAV*1				M9BA*1	○	○	●	○	—	○	—			
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	—	P3DWA	●	—	●	●	—	○		—
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—	
	No		2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—	—	
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	IC circuit	Relay, PLC

\*1 Water-resistant type auto switches can be mounted on the models on page 15, but SMC cannot guarantee water resistance.

A water-resistant type cylinder (⇨ p. 107) is recommended for use in environments which require water resistance.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

\* Solid state auto switches marked with a "○" are produced upon receipt of order.  
\* The D-P3DWA type is only available in sizes ø25 to ø100.

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Single Rod	<b>CQ2</b>
Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Single Acting, Spring Return, End	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2</b> □ <b>S</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-R/V</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-R/V</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Spring Return, End	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		

# Compact Cylinder: Standard Double Acting, Double Rod *CQ2W Series*

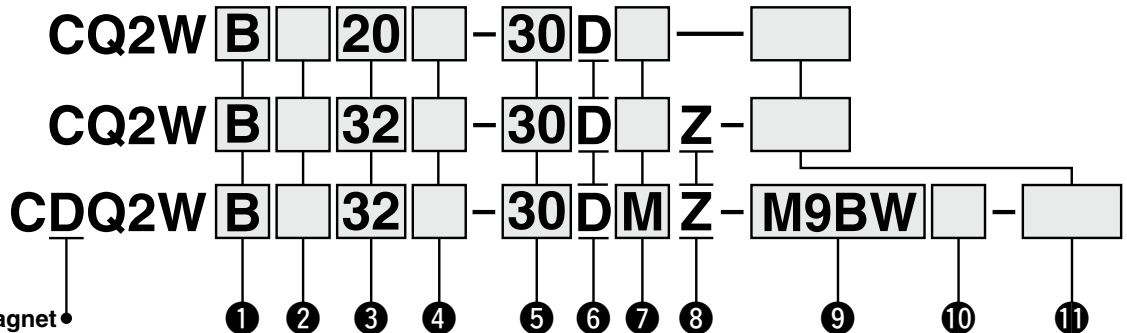
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø100

With auto switch



### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

### 1 Mounting

<b>B</b>	Through-hole
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Flange

- \* Mounting brackets are shipped together with the product but do not come assembled.
- \* A through-hole type mounting bolt is available as an option. For details ⇨ p. 42
- \* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

### 2 Type

<b>Nil</b>	Pneumatic
<b>H</b>	Air-hydro*1

\*1 The bore sizes available for the air-hydro type are ø20 to ø100.

### 3 Bore size

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

### 4 Port thread type

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings*1	

- \*1 The bore sizes available with One-touch fittings are ø32 to ø63. However, they cannot be selected for the air-hydro type.
- \* "TF" is not selectable for the air-hydro type.
- \* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157)

Bore size	Standard stroke [mm]
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

- \* For the manufacturing of intermediate strokes ⇨ p. 39
- \* The bore sizes available for the air-hydro type are ø20 to ø100.

### 7 Body option

<b>Nil</b>	Rod end female thread
<b>C</b>	With rubber bumper*1
<b>M</b>	Rod end male thread

- \*1 The type with a rubber bumper is not selectable for the air-hydro type.
- \* Combined body options "CM" can be selected.

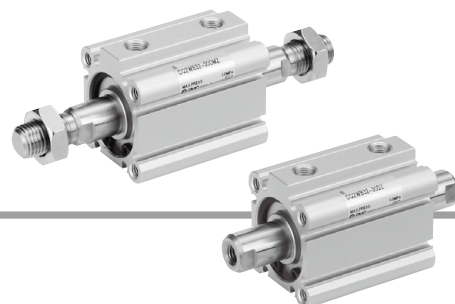
### 6 Action

<b>D</b>	Double acting
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### 8 Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

# Compact Cylinder: Standard Double Acting, Double Rod **CQ2W Series**



## 9 Auto switch

Nil	Without auto switch
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\* For applicable auto switches, refer to the table below.

## 10 Number of auto switches

Nil	2
S	1
n	n

## 11 Made to order common specifications

For details ⇨ p. 39

## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2WL32-25DZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○			
	2-wire			M9BV				M9B	●	●	●	○	—	○				
	Diagnostic indication (2-color indicator)			3-wire (NPN)				5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○		IC circuit
	3-wire (PNP)			M9PWV				M9PW	●	●	●	○	—	○				
	Water resistant (2-color indicator)			2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○		—
				3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit
				3-wire (PNP)				12 V	M9PAV*1	M9PA*1	○	○	●	○	—	○		
		Magnetic field resistant (2-color indicator)	2-wire	12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○	—					
	2-wire (Non-polar)		—	—	P3DWA	●	—	●	●	—	○	—						
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the models on page 37, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 37.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

\* Solid state auto switches marked with a "○" are produced upon receipt of order.  
\* The D-P3DWA□ type is only available in sizes ø25 to ø100.

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Single Rod	CQ2
Standard	Single Acting, Double Rod	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2□S
Long Stroke	Double Acting, Single Rod	CQ2
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Double Acting, Double Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		

# Compact Cylinder: Standard Single Acting, Single Rod

## CQ2 Series

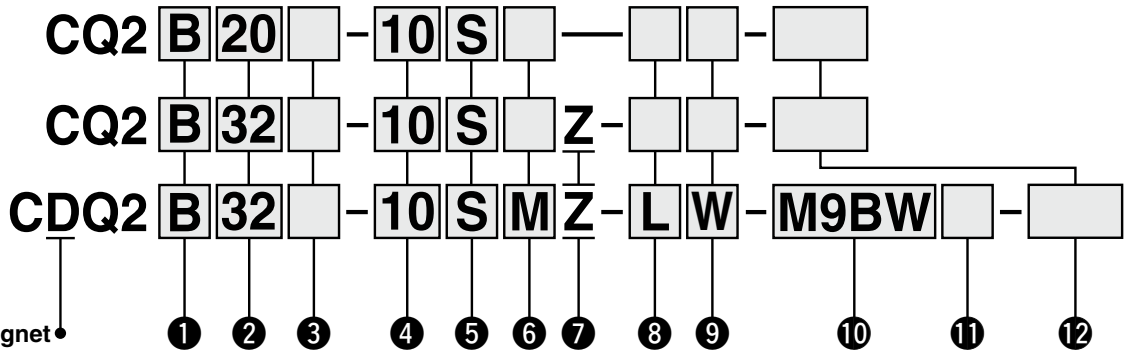
ø12, ø16, ø20, ø25, ø32, ø40, ø50

### How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø50

With auto switch



#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

<b>B</b>	Through-hole
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Rod flange
<b>G</b>	Head flange
<b>D</b>	Double clevis

- \* Mounting brackets are shipped together with the product but do not come assembled.
- \* Refer to 8 for the through-hole type mounting bolt.
- \* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

#### 4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
12, 16, 20, 25, 32, 40	5, 10
50	10, 20

- \* For the manufacturing of intermediate strokes ⇨ p. 53

#### 7 Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø50	4 surfaces

#### 2 Bore size

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm

#### 5 Action

<b>S</b>	Single acting, Spring return
<b>T</b>	Single acting, Spring extend

#### 8 Through-hole type mounting bolt

<b>Nil</b>	None
<b>L</b>	Shipped together

- \* Mounting bolt is shipped together with the product only when the mounting bracket is "B" (Through-hole). For details ⇨ p. 56

- \* **When a made-to-order option is selected, the mounting bolt is not shipped together with the product. Please order it separately.**

#### 3 Port thread type

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø50
<b>TF</b>	G	
<b>F</b>	Built-in One-touch fittings*1	

- \*1 The bore sizes available with One-touch fittings are ø32 to ø50.
- \* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

#### 6 Body option

<b>Nil</b>	Rod end female thread
<b>F</b>	With boss on head end
<b>M</b>	Rod end male thread

- \* Combined body options "FM" can be selected.

#### 9 Rod end bracket (⇨ p. 34 to 36)

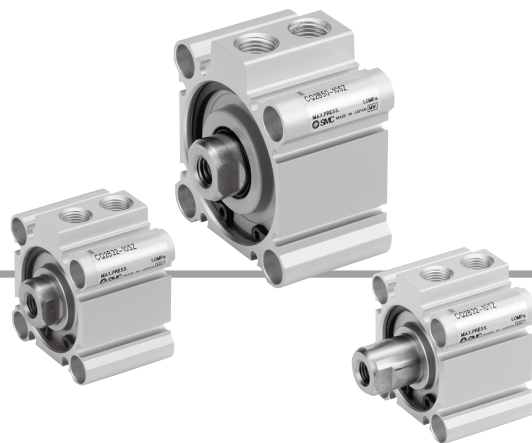
<b>Nil</b>	None
<b>D</b>	Type A mounting bracket + Joint
<b>E</b>	Type B mounting bracket + Joint
<b>V</b>	Single knuckle joint
<b>W</b>	Double knuckle joint

- \* Options "D" and "E" must be used in combination with body option (Nil), the rod end female thread, and options "V" and "W" must be used in combination with body option (M), the rod end male thread.
- \* A knuckle pin is not provided with the single knuckle joint (V). If a pin is required, please order it separately. For details ⇨ p. 34

- \* **When a made-to-order option is selected, the rod end bracket cannot be selected. Please order it separately.**



# Compact Cylinder: Standard Single Acting, Single Rod **CQ2 Series**



## 10 Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

\* For applicable auto switches, refer to the table below.

## 11 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

## 12 Made to order common specifications

For details ⇨ p. 53

## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2L32-10SZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
	3-wire (PNP)			12 V		M9PV		M9P	●	●	●	○	—	○			
	2-wire			12 V		M9BV		M9B	●	●	●	○	—	○			
	3-wire (NPN)			5 V,		M9NWV		M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)			12 V		M9PWV		M9PW	●	●	●	○	—	○			
	2-wire			12 V		M9BWV		M9BW	●	●	●	○	—	○			
	3-wire (NPN)			5 V,		M9NAV*1		M9NA*1	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			12 V		M9PAV*1		M9PA*1	○	○	●	○	—	○			
	2-wire			12 V		M9BAV*1		M9BA*1	○	○	●	○	—	○			
	Reed auto switch			—		Grommet		Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	
No		2-wire	24 V	12 V	100 V		A93V*2		A93	●	●	●	●	—	—	—	—
				5 V, 12 V	100 V or less		A90V	A90	●	—	●	—	—	—	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the models on page 51, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 51.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NW  
3 m ..... L (Example) M9NL  
5 m ..... Z (Example) M9NZ

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

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

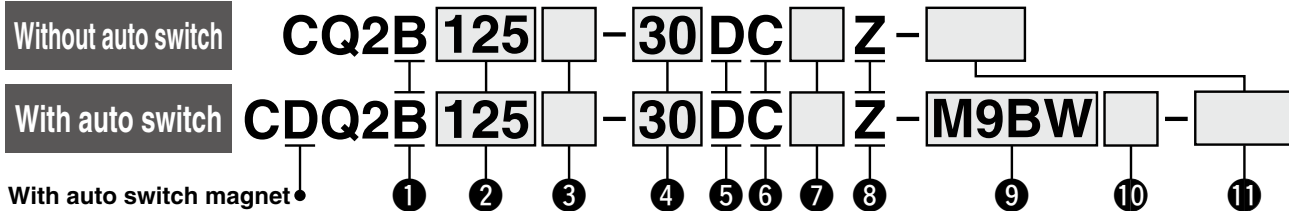
Standard	Double Acting, Single Rod	<b>CQ2</b>
Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Single Acting, Spring Return, End	<b>CQ2</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2</b> <input type="checkbox"/> <b>S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Double Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-RV</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-RV</b>
With End Lock	Double Acting, Single Rod	<b>CQP2</b>
With End Lock	Double Acting, Double Rod	<b>CQP2</b>
Auto Switch	Double Acting, Single Rod	<b>CBQ2</b>
Made to Order	Double Acting, Single Rod	<b>CBQ2</b>

# Compact Cylinder: Large Bore Size Double Acting, Single Rod

## CQ2 Series

ø125, ø140, ø160, ø180, ø200

### How to Order



#### 1 Mounting

**B** Through-hole/both ends tapped

\* A through-hole type mounting bolt is available as an option. For details  
⇒ p. 64

#### 2 Bore size

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

#### 3 Port thread type

Nil	Rc
TN	NPT
TF	G

#### 4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇒ p. 145) [mm]

Bore size	Standard stroke
125, 140, 160	10, 20, 30, 40, 50, 75
180, 200	100, 125, 150, 175
	200, 250, 300

\* For the manufacturing of intermediate strokes ⇒ p. 62

#### 5 Action

**D** Double acting

#### 6 Cushion

**C** Rubber bumper

#### 7 Body option

Nil	Rod end female thread
M	Rod end male thread

#### 8 Auto switch mounting groove

**Z** 4 surfaces

#### 9 Auto switch

**Nil** Without auto switch

\* For applicable auto switches, refer to the table below.

#### 10 Number of auto switches

Nil	2
S	1
n	n

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2B140-30DCZ

#### 11 Made to order common specifications

For details ⇒ p. 62

For details on auto switch mounting ⇒ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

### Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○			
	2-wire			M9BV				M9B	●	●	●	○	—	○			
	3-wire (NPN)			M9NVW				M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PWV				M9PW	●	●	●	○	—	○			
	2-wire			M9BWV				M9BW	●	●	●	○	—	○			
	3-wire (NPN)			M9NAV*1				M9NA*1	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PAV*1				M9PA*1	○	○	●	○	—	○			
	2-wire			M9BAV*1				M9BA*1	○	○	●	○	—	○			
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	—	P3DWA	●	—	●	●	—	○	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
				No	2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	IC circuit	Relay, PLC

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* There are applicable auto switches other than those listed above. For details ⇒ p. 165



# Compact Cylinder: Large Bore Size Double Acting, Double Rod

## CQ2W Series

ø125, ø140, ø160, ø180, ø200

### How to Order

Without auto switch

CQ2WB125-30DCZ-

With auto switch

CDQ2WB125-30DCZ-M9BW-

With auto switch magnet

1 2 3 4 5 6 7 8 9 10 11 12

#### 1 Type

W	Double rod
---	------------

#### 2 Mounting

B	Through-hole/both ends tapped
---	-------------------------------

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 70

#### 3 Bore size

125	125 mm
140	140 mm
160	160 mm
180	180 mm
200	200 mm

#### 4 Port thread type

Nil	Rc
TN	NPT
TF	G

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
125, 140, 160	10, 20, 30, 40, 50, 75, 100, 125
180, 200	150, 175, 200, 250, 300

\* For the manufacturing of intermediate strokes ⇨ p. 68

#### 6 Action

D	Double acting
---	---------------

#### 8 Body option

Nil	Rod end female thread
M	Rod end male thread

#### 7 Cushion

C	Rubber bumper
---	---------------

#### 9 Auto switch mounting groove

Z	4 surfaces
---	------------

#### 10 Auto switch

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.

#### 11 Number of auto switches

Nil	2
S	1
n	n

#### 12 Made to order common specifications

For details ⇨ p. 68

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2WB140-30DCZ

For details on auto switch mounting ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

### Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)						
Solid state auto switch	————	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC		
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○					
	2-wire			M9BV				M9B	●	●	●	○	—	○					
	3-wire (NPN)			M9NWV				M9NW	●	●	●	○	—	○	IC circuit				
	3-wire (PNP)								M9PWV	M9PW	●	●	●	○		—		○	
	2-wire								M9BWV	M9BW	●	●	●	○		—		○	
	Water resistant (2-color indicator)			3-wire (NPN)				M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit			
				3-wire (PNP)				M9PAV*1	M9PA*1	○	○	●	○	—	○				
				2-wire				M9BAV*1	M9BA*1	○	○	●	○	—	○	—			
				Magnetic field resistant (2-color indicator)				2-wire (Non-polar)	—	—	—	—	—	—	○				
Reed auto switch	————	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V 12 V	— 100 V 100 V or less	A96V	A96	●	—	●	—	—	—	IC circuit	—		
	No			2-wire				A93V*2	A93	●	●	●	●	—	—	—	—	—	—
			A90V					A90	●	—	●	—	—	—	—	—	—	IC circuit	PLC

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

# Compact Cylinder: Anti-lateral Load

## CQ2□S Series

ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch

CQ2 B S 32 □ - 30 D □ C □ Z - □

With auto switch

CDQ2 B S 32 □ - 30 D □ C □ Z - M9BW □ - □

#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

B	Through-hole
A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

\* Mounting brackets are shipped together with the product but do not come assembled.

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 77

\* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

#### 2 Type

S	Anti-lateral load
---	-------------------

#### 3 Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

#### 4 Port thread type

Nil	Rc
TN	NPT
TF	G
F	Built-in One-touch fittings*1

\*1 The bore sizes available with One-touch fittings are ø32 to ø63.

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

\* For the manufacturing of intermediate strokes ⇨ p. 75

#### 6 Action

D	Double acting
---	---------------

#### 7 Body option 1

Nil	Standard
F	With boss on head end

#### 8 Cushion

C	Rubber bumper
---	---------------

#### 9 Body option 2

Nil	Rod end female thread
M	Rod end male thread

#### 10 Auto switch mounting groove

Z	4 surfaces
---	------------

#### 11 Auto switch

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches ⇨ p. 74

#### 12 Number of auto switches

Nil	2
S	1
n	n

#### 13 Made to order common specifications

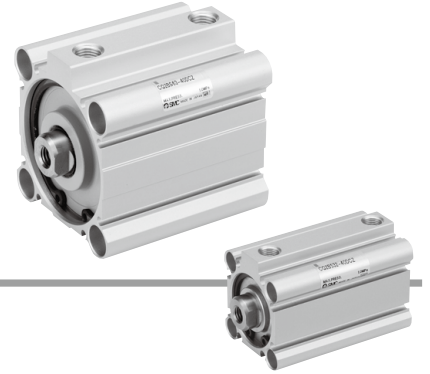
For details ⇨ p. 75

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2LS40-30DCZ

# Compact Cylinder: Anti-lateral Load **CQ2□S Series**



For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

**Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○				
	2-wire			M9BV				M9B	●	●	●	○	—	○				
	3-wire (NPN)			5 V, 12 V				M9NWV	M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)							M9PWV	M9PW	●	●	●	○	—	○			
	2-wire							M9BWV	M9BW	●	●	●	○	—	○			
	Water resistant (2-color indicator)			3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit
				3-wire (PNP)					M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire					M9BAV*1	M9BA*1	○	○	●	○	—	○		
				Magnetic field resistant (2-color indicator)					2-wire (Non-polar)	—	P3DWA	●	—	●	●	—		
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—	
	No			2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	IC circuit	

\*1 Water-resistant type auto switches can be mounted on the models on page 73, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 73.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
 1 m ..... M (Example) M9NWM  
 3 m ..... L (Example) M9NWL  
 5 m ..... Z (Example) M9NWZ

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

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

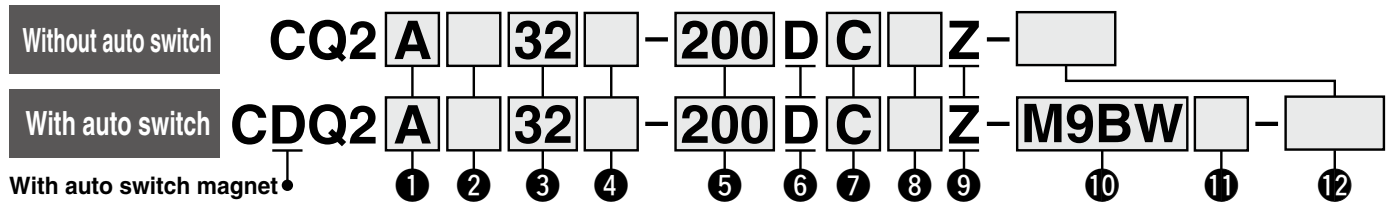
Standard	Double Acting, Single Rod	<b>CQ2</b>
Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Single Acting, Spring Return, End	<b>CQ2</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2□S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Double Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-R/V</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-R/V</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Spring Return, End	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		

# Compact Cylinder: Long Stroke Double Acting, Single Rod

## CQ2 Series

ø32, ø40, ø50, ø63, ø80, ø100

### How to Order



#### 1 Mounting

A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

\* Mounting brackets are shipped together with the product but do not come assembled.

#### 2 Type

Nil	Pneumatic
H	Air-hydro

#### 3 Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

#### 4 Port thread type

Nil	Rc
TN	NPT
TF	G
F	Built-in One-touch fittings*1

\*1 The bore sizes available with One-touch fittings are ø32 to ø63. However, they cannot be selected for the air-hydro type.

\* "TF" is not selectable for the air-hydro type.

#### 5 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
32, 40, 50	125, 150, 175
63, 80, 100	200, 250, 300

\* For the manufacturing of intermediate strokes ⇨ p. 81

#### 6 Action

D	Double acting
---	---------------

#### 7 Cushion

Nil	Without rubber bumper
C	With rubber bumper

\* Pneumatic type: With rubber bumper only  
Air-hydro type: Without rubber bumper only

#### 8 Body option

Nil	Rod end female thread
M	Rod end male thread

#### 9 Auto switch mounting groove

Z	4 surfaces
---	------------

#### 10 Auto switch

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.

#### 11 Number of auto switches

Nil	2
S	1
n	n

#### 12 Made to order common specifications

For details ⇨ p. 81

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2L40-200DCZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

### Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○				
	2-wire			M9BV				M9B	●	●	●	○	—	○				
	Diagnostic indication (2-color indicator)			3-wire (NPN)				5 V, 12 V	M9NVW	M9NW	●	●	●	○	—	○		IC circuit
	3-wire (PNP)			12 V				M9PWV	M9PW	●	●	●	○	—	○			
	Water resistant (2-color indicator)			2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○		—
				3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit
				3-wire (PNP)				12 V	M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire				12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○		—
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	—	P3DWA	●	—	●	●	—	○		—
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—	
				2-wire		24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—
							5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	—

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

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

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Spring Return, End	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Single Rod	CQ2
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Single Acting, Spring Return, End	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch	Double Acting, Single Rod	Auto Switch
Made to Order	Double Acting, Single Rod	Made to Order

# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod

## CQ2K Series

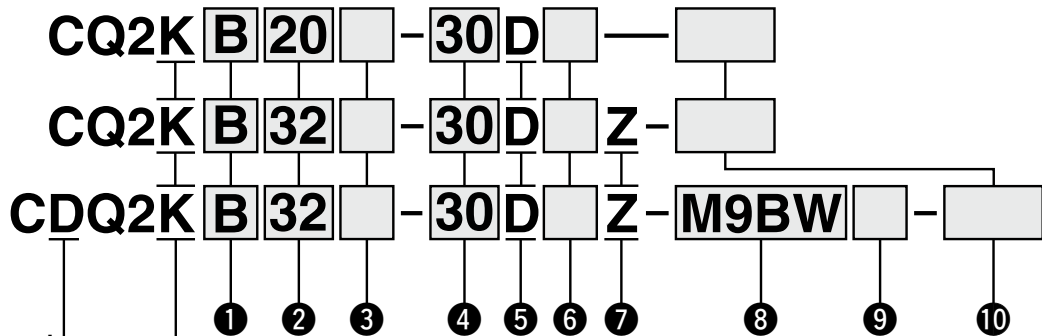
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

### How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø63

With auto switch



#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

• Non-rotating rod

#### 1 Mounting

<b>B</b>	Through-hole	ø12 to ø63
<b>A</b>	Both ends tapped	ø40, ø50, ø63
<b>L</b>	Foot	
<b>LC</b>	Compact foot	
<b>F</b>	Rod flange	
<b>G</b>	Head flange	
<b>D</b>	Double clevis	

\* Mounting brackets are shipped together with the product but do not come assembled.

\* A through-hole type mounting bolt is available as an option. For details:

Without auto switch magnet ⇒ p. 89

With auto switch magnet ⇒ p. 90

\* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder.

For details ⇒ p. 178

#### 2 Bore size

<b>12</b> <sup>*1</sup>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm

\*1 When ø12 with auto switch magnet is required, the body option should be with rubber bumper (C).

Example) CDQ2KB12-30DCZ

#### 3 Port thread type

Nil	M thread	ø12 to ø25
	Rc	ø32 to ø63
TN	NPT	
TF	G	
F	Built-in One-touch fittings* <sup>1</sup>	

\*1 The bore sizes available with One-touch fittings are ø32 to ø63.

\* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

#### 4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇒ p. 157) [mm]

Bore size	Standard stroke
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

\* For the manufacturing of intermediate strokes ⇒ p. 87

#### 5 Action

<b>D</b>	Double acting
----------	---------------

#### 6 Body option

<b>Nil</b>	Rod end female thread
<b>F</b>	With boss on head end
<b>C</b>	With rubber bumper (ø12 with auto switch magnet only)
<b>M</b>	Rod end male thread

\* Combined body options "FM" can be selected.

# Compact Cylinder: Non-rotating Rod Double Acting, Single Rod **CQ2K Series**



## 7 Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

## 8 Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

\* For applicable auto switches, refer to the table below.

## 9 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

## 10 Made to order common specifications

For details ⇨ p. 87

## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2KB32-30DZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
	2-wire			M9BV				M9B	●	●	●	○	—	○	—		
	3-wire (NPN)			M9NVW				M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PWV				M9PW	●	●	●	○	—	○			
	2-wire			M9BWW				M9BW	●	●	●	○	—	○	—		
	3-wire (NPN)			M9NAV*1				M9NA*1	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PAV*1				M9PA*1	○	○	●	○	—	○			
	2-wire			M9BAV*1				M9BA*1	○	○	●	○	—	○	—		
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	P3DWA	●	—	●	●	—	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
				No				2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●
					5 V, 12 V	100 V or less	A90V	A90		●	—	●	—	—	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the models on page 85, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 85.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

\* Solid state auto switches marked with a "○" are produced upon receipt of order.  
\* The D-P3DWA□ type is only available in sizes ø25 to ø63.

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Double Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-RV</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-RV</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Single Rod	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		



# Compact Cylinder: Non-rotating Rod Double Acting, Double Rod

## CQ2KW Series

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

### How to Order

Without auto switch  
ø12 to ø25

CQ2KW B 20 - 30 D

Without auto switch  
ø32 to ø63

CQ2KW B 32 - 30 D Z

With auto switch

CDQ2KW B 32 - 30 D Z - M9BW

#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

B	Through-hole	ø12 to ø63
A	Both ends tapped	ø40 to ø63
L	Foot	
LC	Compact foot	
F	Flange	

- \* Mounting brackets are shipped together with the product but do not come assembled.
- \* A through-hole type mounting bolt is available as an option. For details:  
Without auto switch magnet ⇨ p. 101  
With auto switch magnet ⇨ p. 102
- \* For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L<sub>1</sub>) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

#### 4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40 45, 50, 75, 100

- \* For the manufacturing of intermediate strokes ⇨ p. 99

#### 7 Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

#### 2 Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

#### 3 Port thread type

Nil	M thread	ø12 to ø25
	Rc	ø32 to ø63
TN	NPT	
TF	G	
F	Built-in One-touch fittings*1	

- \*1 The bore sizes available with One-touch fittings are ø32 to ø63.
- \* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

#### 5 Action

D	Double acting
---	---------------

#### 6 Body option

Nil	Rod end female thread
C	With rubber bumper (ø12 with auto switch magnet only)
M	Rod end male thread

#### 8 Auto switch

Nil	Without auto switch
-----	---------------------

- \* For applicable auto switches, refer to the next page.

#### 9 Number of auto switches

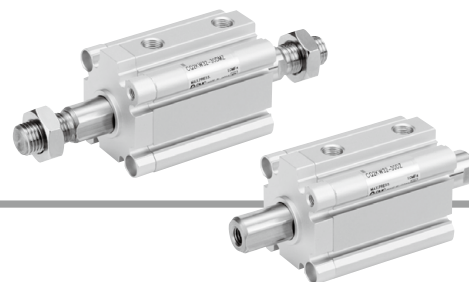
Nil	2
S	1
n	n

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2KWB32-30DZ

# Compact Cylinder: Non-rotating Rod Double Acting, Double Rod **CQ2KW Series**



For details on **auto switch mounting** ⇒ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

**Applicable Auto Switches** / Refer to the **Web Catalog** for further information on auto switches.

Applicable Note: 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)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○				
	2-wire			M9BV				M9B	●	●	●	○	—	○				
	Diagnostic indication (2-color indicator)			3-wire (NPN)				5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○		IC circuit
	3-wire (PNP)			5 V, 12 V				M9PWV	M9PW	●	●	●	○	—	○			
	Water resistant (2-color indicator)			2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○		—
				3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit
				3-wire (PNP)				12 V	M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire				12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○		—
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	—	P3DWA	●	—	●	●	—	○		—
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V 12 V	100 V or less	A96V	A96	●	—	●	—	—	—	IC circuit	—	
	2-wire			A93V*2				A93	●	●	●	●	—	—	—	—	—	
				A90V				A90	●	—	●	—	—	—	—	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the models on page 97, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 97.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWL

\* Solid state auto switches marked with a "○" are produced upon receipt of order.  
\* The D-P3DWA□ type is only available in sizes ø25 to ø63.

\* There are applicable auto switches other than those listed above. For details ⇒ p. 165

Standard	Double Acting, Single Rod	<b>CQ2</b>
Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Single Acting, Spring Return, End	<b>CQ2</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2</b> □ <b>S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Double Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-R/V</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-R/V</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Spring Return, End	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		

# Compact Cylinder: Water Resistant Double Acting, Single Rod

## CQ2-R/V Series

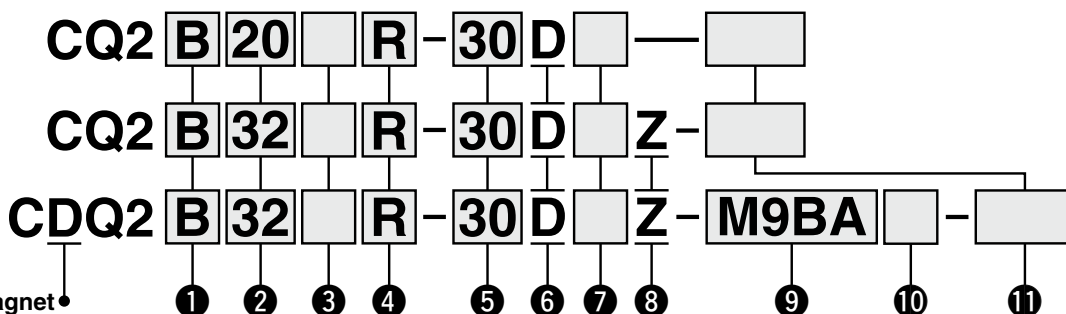
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch  
ø20, ø25

Without auto switch  
ø32 to ø100

With auto switch



#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

<b>B</b>	Through-hole	(ø20 to ø100)
<b>A</b>	Both ends tapped	(ø40 to ø100)
<b>L</b>	Foot	
<b>LC</b>	Compact foot	
<b>F</b>	Rod flange	
<b>G</b>	Head flange	
<b>D</b>	Double clevis	

\* Mounting brackets are shipped together with the product but do not come assembled.

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 110

#### 2 Bore size

<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### 3 Port thread type

<b>Nil</b>	M thread
	Rc
<b>TN</b>	NPT
<b>TF</b>	G

#### 4 Water-resistant cylinder

<b>R</b>	NBR seal (Nitrile rubber)
<b>V</b>	FKM seal (Fluororubber)

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

\* For the manufacturing of intermediate strokes ⇨ p. 108

#### 6 Action

<b>D</b>	Double acting
----------	---------------

#### 7 Body option

<b>Nil</b>	Rod end female thread
<b>M</b>	Rod end male thread

#### 8 Auto switch mounting groove

<b>Z</b>	ø20 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

#### 9 Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

\* For applicable auto switches, refer to the table below.

#### 10 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

#### 11 Made to order common specifications

For details ⇨ p. 108

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

#### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2B32R-25DMZ

#### Applicable 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)	1 (M)	3 (L)	5 (Z)			
Solid state auto switch	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	<b>M9NAV</b>	<b>M9NA</b>	○	○	●	○	—	IC circuit
				3-wire (PNP)		12 V		<b>M9PAV</b>	<b>M9PA</b>	○	○	●	○		
				2-wire		12 V		<b>M9BAV</b>	<b>M9BA</b>	○	○	●	○		

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9BA  
1 m ..... M (Example) M9BAM  
3 m ..... L (Example) M9BAL  
5 m ..... Z (Example) M9BAZ

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

# Compact Cylinder: Water Resistant Double Acting, Double Rod

## CQ2W-R/V Series

ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch

CQ2W B 40 R - 30 D Z -

With auto switch

CDQ2W B 40 R - 30 D Z - M9BA -

With auto switch  
(Built-in magnet)

#### 1 Mounting

B	Through-hole
A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange

\* Mounting brackets are shipped together with the product but do not come assembled.

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 119

#### 6 Action

D	Double acting
---	---------------

#### 9 Auto switch

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

#### 2 Bore size

40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

#### 3 Port thread type

Nil	M thread
	Rc
TN	NPT
TF	G

#### 4 Water-resistant cylinder

R	NBR seal (Nitrile rubber)
V	FKM seal (Fluororubber)

#### 5 Cylinder stroke [mm]

For standard strokes ⇨ p. 117

#### 7 Body option

Nil	Rod end female thread
M	Rod end male thread

#### 8 Auto switch mounting groove

Z	ø40 to ø100	4 surfaces
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#### 10 Number of auto switches

Nil	2
S	1
n	n

#### 11 Made to order common specifications

For details ⇨ p. 117

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQ2B40R-50DMZ

### Applicable 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)	1 (M)	3 (L)	5 (Z)			
Solid state auto switch	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV	M9NA	○	○	●	○	IC circuit	Relay, PLC
				3-wire (PNP)		12 V		M9PAV	M9PA	○	○	●	○		
				2-wire		12 V		M9BAV	M9BA	○	○	●	○		

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9BA  
1 m ..... M (Example) M9BAM  
3 m ..... L (Example) M9BAL  
5 m ..... Z (Example) M9BAZ

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

Standard	Double Acting, Double Rod	CQ2W
Standard	Double Acting, Single Rod	CQ2
Standard	Single Acting, Spring Return, Double Rod	CQ2W
Standard	Single Acting, Spring Return, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Large Bore Size	Double Acting, Single Rod	CQ2
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Double Rod	CQ2
Long Stroke	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Water Resistant	Double Acting, Double Rod	CQ2W-R/V
Water Resistant	Double Acting, Single Rod	CQ2W-R/V
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Single Acting, Spring Return, Single Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		

# Compact Cylinder: Axial Piping Double Acting, Single Rod

## CQP2 Series

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch

CQP2B [ ] 50 [ ] - 30 D [ ] - [ ]

With auto switch

CDQP2B [ ] 50 [ ] - 30 D [ ] - M9BW [ ] - [ ]

#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

• Axial piping

#### 1 Mounting

<b>B</b>	Through-hole
----------	--------------

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 127

#### 2 Type

<b>Nil</b>	Pneumatic
<b>H</b>	Air-hydro*1

\*1 The bore sizes available for the air-hydro type are ø20 to ø100.

#### 3 Bore size

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### 4 Port thread type

<b>Nil</b>	M thread	ø12 to ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157)

Bore size	Standard stroke
<b>12, 16</b>	5, 10, 15, 20, 25, 30
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

\* For the manufacturing of intermediate strokes ⇨ p. 125

\* The bore sizes available for the air-hydro type are ø20 to ø100.

#### 6 Action

<b>D</b>	Double acting
----------	---------------

#### 7 Body option

<b>Nil</b>	Rod end female thread
<b>C</b>	With rubber bumper*1
<b>M</b>	Rod end male thread

\*1 The type with a rubber bumper is not selectable for the air-hydro type.

\* Combined body options "CM" can be selected.

#### 8 Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

\* For applicable auto switches ⇨ p. 124

#### 9 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

#### 10 Made to order common specifications

For details ⇨ p. 125

# Compact Cylinder: Axial Piping Double Acting, Single Rod **CQP2 Series**



## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQP2B32-30D

For details on **auto switch mounting** ⇒ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

**Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)								
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC				
		3-wire (PNP)		M9PV				M9P	●	●	●	○	—	○							
		Connector		2-wire				12 V	M9BV	M9B	●	●	●	○	—			○			
	Diagnostic indication (2-color indicator)	Grommet		3-wire (NPN)				5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○		IC circuit			
				3-wire (PNP)				12 V	M9PWV	M9PW	●	●	●	○	—	○					
				2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○					
	Water resistant (2-color indicator)	Grommet		3-wire (NPN)				5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	—	○		IC circuit			
				3-wire (PNP)				12 V	M9PAV*1	M9PA*1	○	○	●	○	—	○					
				2-wire				12 V	M9BAV*1	M9BA*1	○	○	●	○	—	○					
	With diagnostic output (2-color indicator)	Grommet		4-wire				5 V, 12 V	—	F79F	●	—	●	○	—	○		IC circuit			
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	P4DW	—	—	●	●	—	○	—					
3-wire (NPN equivalent)	—		5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit								
Reed auto switch	—	Grommet	Yes	2-wire	24 V	—	200 V	A72	A72H	●	—	●	—	—	—	—	Relay, PLC				
								No	12 V	100 V	A93V*2	A93	●	●	●			●	—	—	
		Connector						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—			—	—	IC circuit	
								12 V	—	A73C	—	●	—	●	●			●	—	—	
	Diagnostic indication (2-color indicator)	Grommet						Yes	5 V, 12 V	24 V or less	A80C	—	●	—	●	●		●	—	—	IC circuit
								No	—	—	A79W	—	●	—	●	—		—	—	—	
								Yes	—	—	A79W	—	●	—	●	—		—	—	—	

\*1 Water-resistant type auto switches can be mounted on the models on page 123, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 123.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
None ..... N (Example) J79CN

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

\* The D-P4DW type is only available in sizes ø40 to ø100.

\* Only for the D-P4DW type, an auto switch is assembled and shipped with the cylinder.

\* There are applicable auto switches other than those listed above. For details ⇒ p. 165

Standard	Double Acting, Single Rod	<b>CQ2</b>
Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Single Acting, Spring Return-Extend	<b>CQ2</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2</b> <input type="checkbox"/> <b>S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Non-rotating Rod	Double Acting, Double Rod	<b>CQ2KW</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-R/V</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-R/V</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Spring Return-Extend	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		



# Compact Cylinder: Axial Piping Single Acting, Single Rod

## CQP2 Series

ø12, ø16, ø20, ø25, ø32, ø40, ø50

### How to Order

Without auto switch

CQP2B 50 - 10 T -

With auto switch

CDQP2B 50 - 10 T - M9BW -

#### With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

#### 1 Mounting

B	Through-hole
---	--------------

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 134

#### 2 Bore size

12	12 mm	32	32 mm
16	16 mm	40	40 mm
20	20 mm	50	50 mm
25	25 mm		

#### 3 Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø50
TF	G	

#### 4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
12, 16, 20, 25, 32, 40	5, 10
50	10, 20

\* For the manufacturing of intermediate strokes ⇨ p. 131

#### 5 Action

S	Single acting, Spring return
T	Single acting, Spring extend

#### 6 Body option

Nil	Rod end female thread
M	Rod end male thread

#### 7 Auto switch

Nil	Without auto switch
-----	---------------------

\* For applicable auto switches, refer to the table below.

#### 8 Number of auto switches

Nil	2
S	1
n	n

#### 9 Made to order

##### common specifications

For details ⇨ p. 131

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

#### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQP2B32-10S

### Applicable 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)	1 (M)	3 (L)	5 (Z)	None (N)									
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC					
		3-wire (PNP)		M9PV				M9P	●	●	●	○	—	○								
	Connector	2-wire		12 V				M9BV	M9B	●	●	●	○	—	○			—				
				J79C				—	●	—	●	●	●	—								
	Diagnostic indication (2-color indicator)	Grommet		3-wire (NPN)				24 V	5 V, 12 V	—	M9NWV	M9NW	●	●	●			○	—	○	IC circuit	
				3-wire (PNP)							M9PWV	M9PW	●	●	●			○	—	○		
				2-wire							M9BWV	M9BW	●	●	●			○	—	○		—
				3-wire (NPN)							M9NAV*1	M9NA*1	○	○	●			○	—	○		
	Water resistant (2-color indicator)	Grommet		3-wire (PNP)	24 V	12 V	—	M9PAV*1	M9PA*1	○	○	●	○	—	○	IC circuit						
				2-wire				M9BAV*1	M9BA*1	○	○	●	○	—	○			—				
With diagnostic output (2-color indicator)	Grommet	4-wire	5 V, 12 V	—	F79F	●	—	●	○	—	○	IC circuit	—									
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●		—	—	—	IC circuit	Relay, PLC				
								Connector	2-wire	200 V	A72	A72H	●	—	●	—	—		—	—	—	
		24 V		12 V							100 V	A93V*2	A93	●	●	●	●		—	—		IC circuit
				5 V, 12 V				100 V or less	A90V	A90	●	—	●	—	—	—	—		IC circuit			
	Diagnostic indication (2-color indicator)	Grommet		Yes	2-wire	24 V	12 V	—	A73C	—	●	—	●	●	●	—	—			IC circuit		
									Connector	2-wire	5 V, 12 V	24 V or less	A80C	—	●	—	●		●		●	—
		Grommet		Yes	2-wire								—	—	A79W	—	●		—		●	—
									Connector	2-wire	—	—			A79W	—	●		—		●	—

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ  
None ..... N (Example) J79CN

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

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Spring Return	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Single Rod	CQ2
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Double Acting, Double Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		

# Compact Cylinder: With End Lock

## CBQ2 Series

ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch

CBQ2 **B** **40** **30** **DC** **H** **N**

With auto switch

CDBQ2 **B** **40** **30** **DC** **H** **N** **M9BW**

With auto switch magnet

1 2 3 4 5 6 7 8 9 10 11 12

#### 1 Mounting

<b>B</b>	Through-hole*1	ø20 to ø100
<b>L</b>	Foot	
<b>LC</b>	Compact foot	
<b>F</b>	Rod flange	
<b>G</b>	Head flange	
<b>D</b>	Double clevis	
<b>A</b>	Both ends tapped	ø32 to ø100

- \*1 ø20, ø25 have both through-hole (B) and both ends tapped (A).  
At the 75 and 100 mm strokes with ø80, ø100, both ends tapped (A) is the standard. Through-hole (B) is not available.  
\* Mounting brackets are shipped together with the product but do not come assembled.  
\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 143

#### 4 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 157) [mm]

Bore size	Standard stroke
<b>20, 25, 32, 40, 50, 63</b>	10, 15, 20, 25, 50, 75, 100
<b>80, 100</b>	25, 50, 75, 100

- \* For the manufacturing of intermediate strokes ⇨ p. 141

#### 2 Bore size

<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### 3 Port thread type

Nil	M thread	ø12, ø25
	Rc	
<b>TN</b>	NPT	ø32 to ø100
<b>TF</b>	G	

#### 5 Action

<b>D</b>	Double acting
----------	---------------

#### 6 Cushion

<b>C</b>	Rubber bumper
----------	---------------

#### 7 Body option

<b>Nil</b>	Rod end female thread
<b>M</b>	Rod end male thread

#### 8 Lock position

<b>H</b>	Head end lock
<b>R</b>	Rod end lock

#### 9 Manual release type

<b>N</b>	Non-lock type
<b>L</b>	Lock type

#### 10 Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

- \* For applicable auto switches  
⇨ p. 140

#### 11 Number of auto switches

<b>Nil</b>	2
<b>S</b>	1
<b>n</b>	n

#### 12 Made to order common specifications

For details ⇨ p. 141

### Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDBQ2L32-30DC-RL

# Compact Cylinder: With End Lock **CBQ2 Series**



For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Applicable Auto Switches / Refer to the **Web Catalog** for further information on auto switches.

Appendix 2: Selection of auto switch for various information on data entered																							
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)	1 (M)	3 (L)	5 (Z)	None (N)								
							ø20, ø25	ø32 to ø100	ø20, ø25	ø32 to ø40 to ø100													
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,	—	M9NV		M9N		●	●	●	○	—	○	IC circuit	Relay, PLC				
		3-wire (PNP)		12 V		M9PV		M9P		●	●	●	○	—	○								
		Connector		2-wire		12 V		M9BV		M9B		●	●	●	○	—	○						
	Diagnostic indication (2-color indicator)			Grommet		3-wire (NPN)		5 V,	M9NWV		M9NW		●	●	●	○	—			○	IC circuit		
		3-wire (PNP)				12 V		M9PWV		M9PW		●	●	●	○	—	○						
		2-wire				12 V		M9BWV		M9BW		●	●	●	○	—	○						
		3-wire (NPN)				5 V,		M9NAV*1		M9NA*1		○	○	●	○	—	○			IC circuit			
		3-wire (PNP)				12 V		M9PAV*1		M9PA*1		○	○	●	○	—	○						
		2-wire				12 V		M9BAV*1		M9BA*1		○	○	●	○	—	○						
		4-wire				12 V		—		F79F		●	—	●	○	—	○						
		With diagnostic output (2-color indicator)				Grommet		2-wire (Non-polar)	5 V, 12 V	—		P4DW		—	—	●	●			—		○	IC circuit
		Magnetic field resistant (2-color indicator)							—	—		—		—	—	—	—			○			
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V		A96		●	—	●	—	—	—	IC circuit	Relay, PLC				
		Connector		—		200 V		A72		A72H		●	—	●	—	—	—						
				Diagnostic indication (2-color indicator)		Grommet		2-wire	12 V	100 V	A93V*2		A93		●	●	●			●	—	—	
	5 V, 12 V	100 V or less							A90V		A90		●	—	●	—	—			—	IC circuit		
	12 V	—							A73C		—		●	—	●	●	●			—			
	5 V, 12 V	24 V or less							A80C		—		●	—	●	●	●			—			
	—	—							A79W		—		●	—	●	—	—			—			
	—	—							—		—		—	—	—	—	—			—			

\*1 Water-resistant type auto switches can be mounted on the models on page 139, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 139.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV  
 1 m ..... M (Example) M9NW  
 3 m ..... L (Example) M9NL  
 5 m ..... Z (Example) M9NZ  
 None ..... N (Example) J79CN

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

\* The D-P4DW type is only available in sizes ø40 to ø100.

\* Only for the D-P4DW type, an auto switch is assembled and shipped with the cylinder.

\* There are applicable auto switches other than those listed above. For details ⇨ p. 165

\* When the D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types with ø32 to ø50 are mounted on a surface other than the port side, order auto switch mounting brackets separately. For details ⇨ p. 163, 164

Standard	Double Acting, Double Rod	<b>CQ2W</b>
Standard	Double Acting, Single Rod	<b>CQ2</b>
Large Bore Size	Double Acting, Double Rod	<b>CQ2W</b>
Large Bore Size	Double Acting, Single Rod	<b>CQ2</b>
Anti-lateral Load	Double Acting, Single Rod	<b>CQ2□S</b>
Long Stroke	Double Acting, Single Rod	<b>CQ2</b>
Non-rotating Rod	Double Acting, Single Rod	<b>CQ2K</b>
Water Resistant	Double Acting, Double Rod	<b>CQ2W-RV</b>
Water Resistant	Double Acting, Single Rod	<b>CQ2-RV</b>
Axial Piping	Double Acting, Single Rod	<b>CQP2</b>
Axial Piping	Single Acting, Single Rod	<b>CQP2</b>
With End Lock	Double Acting, Single Rod	<b>CBQ2</b>
Auto Switch		
Made to Order		