

Rotary Actuator Vane Style

Series *CRB2*

Size: 10, 15, 20, 30, 40

How to Order

Without auto switch

CRB2 **B** **W** - **180** **S** **E**

• **Size**

10
15

• **Connecting port location**

Nil	Side ported
E	Axial ported

• **Size**

10
15
20
30
40

With auto switch
Size: 10, 15

CDRB2 **F** **W** - **180** **S** - **T99** **L**

With auto switch
Size: 20, 30, 40

CDRB2 **B** **W** - **180** **S** - **T79** **L**

• **With auto switch**
(With auto switch unit and built-in magnet)

* Refer to page 141 when the auto switch unit is needed separately.

• **Mounting style**

B	Basic style
F	Flange style

* F: Except size 40

• **Shaft type**

W	Double shaft with single flat (Size 10 to 30)
	Long shaft key, Short shaft with single flat (Size 40)

• **Rotating angle**

Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

• **Vane type**

S	Single vane
D	Double vane

• **Pattern**

Nil	Standard
P	Simple Specials/Made to Order

* For details, refer to pages 69 to 80.

• **Auto switch**

Nil	Without auto switch (built-in magnet)
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* For the applicable auto switch model, refer to the table below.

• **Made to Order**
Refer to the table below for details.

• **Number of auto switches**

S	1 pc. *
Nil	2 pcs. **

* S (1 auto switch) is shipped with a right-hand auto switch.
** Nil (2 auto switches) is shipped with a right-hand and a left-hand switch.

• **Electrical entry/Lead wire length**

Nil	Grommet/Lead wire 0.5 m
L	Grommet/Lead wire: 3 m
C	Connector/Lead wire 0.5 m
CL	Connector/Lead wire: 3 m
CN	Connector/Without lead wire

* Connectors are available only for auto switch types R73, R80 and T79.
** Lead wire with connector part nos.
D-LC05: Lead wire 0.5 m
D-LC30: Lead wire 3 m
D-LC50: Lead wire 5 m

Applicable Auto Switches/Refer to pages 761 to 809 for further information on auto switches.

Applicable size	Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire type	Lead wire length (m) *				Applicable load
					DC	AC			0.5 (Nil)	3 (L)	5 (Z)	None (N)	
For 10 and 15	Solid state switch	Grommet	Yes	2-wire	24V	12V	T99	Heavy-duty cord	●	●	—	—	IC circuit Relay, PLC
				3-wire (NPN)		—	T99V		●	●	—	—	
				3-wire (PNP)		5V, 12V	S99		●	●	—	—	
				3-wire (PNP)		—	S99V		●	●	—	—	
				3-wire (PNP)		—	S9P		●	●	—	—	
				3-wire (PNP)		—	S9PV		●	●	—	—	
	Reed switch	Grommet	No	2-wire		5V, 12V	90	Parallel cord	●	●	●	—	IC circuit Relay, PLC
				2-wire		5V, 12V, 100V	90A	Heavy-duty cord	●	●	●	—	
				2-wire		—	97	Parallel cord	●	●	●	—	
				2-wire		100V	93A	Heavy-duty cord	●	●	●	—	
For 20, 30 and 40	Solid state switch	Grommet	Yes	2-wire	24V	12V	T79	Heavy-duty cord	●	●	—	—	IC circuit Relay, PLC
				3-wire (NPN)		—	T79C		●	●	●	●	
				3-wire (PNP)		5V, 12V	S79		●	●	—	—	
				3-wire (PNP)		—	S7P		●	●	—	—	
				2-wire		100V	R73		●	●	—	—	
				2-wire		—	R73C		●	●	●	●	
	Reed switch	Grommet	No	2-wire		48V, 100V	R80	Heavy-duty cord	●	●	—	—	IC circuit
				2-wire		100 V or less	R80C		●	●	—	—	
				2-wire		24 V or less	R80C		●	●	●	●	
				2-wire		—	R80C		●	●	●	●	

* Lead wire length symbols: 0.5 m Nil (Example) R73C
3 m L (Example) R73CL
5 m Z (Example) R73CZ
None N (Example) R73CN

Flange Assembly Part No.



(For details, refer to page 52.)

Model	Assembly part no.
CRB2FW10	P211070-2
CRB2FW15	P211090-2
CRB2FW20	P211060-2
CRB2FW30	P211080-2



Made to Order

(Refer to pages 69 to 73, 79 and 80 for details.)

Symbol	Specifications/Description
XA1 to XA24	Shaft type pattern
XC 1	Add connection port
XC 2	Change threaded hole to through-hole
XC 3	Change the screw position
XC 4	Change rotation range
XC 5	Change rotation range between 0 and 200°
XC 6	Change rotation range between 0 and 110°
XC 7	Reversed shaft
XC30	Fluorine grease

The above may not be selected when the product comes with an auto switch or angle adjustment unit. Refer to pages 69, 70 and 79 for details.

Single Vane Specifications



Model (Size)		CRB2BW10-□S		CRB2BW15-□S		CRB2BW20-□S		CRB2BW30-□S		CRB2BW40-□S	
Vane type		Single vane									
Rotating angle		90°,180°		270°		90°,180°		270°		90°, 180°, 270°	
Fluid		Air (Non-lube)									
Proof pressure (MPa)		1.05						1.5			
Ambient and fluid temperature		5 to 60°C									
Max. operating pressure (MPa)		0.7						1.0			
Min. operating pressure (MPa)		0.2		0.15							
Rotation time adjustment range s/90° ⁽¹⁾		0.03 to 0.3						0.04 to 0.3		0.07 to 0.5	
Allowable kinetic energy (J) ⁽²⁾		0.00015		0.001		0.003		0.02		0.04	
				0.00025		0.0004		0.015		0.03	
Shaft load (N)	Allowable radial load	15		15		25		30		60	
	Allowable thrust load	10		10		20		25		40	
Bearing type		Bearing									
Port location		Side ported or Axial ported									
Port size	Side ported	M5 x 0.8	M3 x 0.5	M5 x 0.8	M3 x 0.5	M5 x 0.8					
	Axial ported	M3 x 0.5				M5 x 0.8					
Shaft type		Double shaft (Double shaft with single flat on both shafts)									Double shaft (Long shaft key & single flat)
Angle adjustable range ⁽³⁾		0 to 230°		0 to 240°						0 to 230°	
Mounting		Basic style, Flange style									Basic
Auto switch		Mountable (Side ported only)									

Note 3) Adjustment range in the table is for 270°. For 90° and 180°, refer to page 142.

Double Vane Specifications

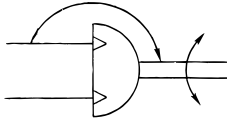
Model (Size)	CRB2BW10-□D	CRB2BW15-□D	CRB2BW20-□D	CRB2BW30-□D	CRB2BW40-□D
Vane type	Double vane				
Rotating angle	90°, 100°				
Fluid	Air (Non-lube)				
Proof pressure (MPa)	1.05			1.5	
Ambient and fluid temperature	5 to 60°C				
Max. operating pressure (MPa)	0.7			1.0	
Min. operating pressure (MPa)	0.2	0.15			
Rotation time adjustment range s/90° ⁽¹⁾	0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy (J)	0.0003	0.0012	0.0033	0.02	0.04
Shaft load (N)	Allowable radial load	15	15	25	30
	Allowable thrust load	10	10	20	25
Bearing type	Bearing				
Port location	Side ported or Axial ported				
Port size (Side ported, Axial ported)	M3 x 0.5		M5 x 0.8		
Shaft type	Double shaft (Double shaft with single flat on both shafts)				
Angle adjustable range ⁽³⁾	0 to 90°				
Mounting	Basic style, Flange style				Basic style
Auto switch	Mountable (Side ported only)				

Note 1) Make sure to operate within the speed regulation range. Exceeding the maximum speed (0.3 sec/90°) can cause the unit to stick or not operate.

Note 2) The upper numbers in this section in the table indicate the energy factor when the rubber bumper is used (at the end of the rotation), and the lower numbers indicate the energy factor when the rubber bumper is not used.

Note 3) Adjustment range in the table is for 100°. For 90°, refer to page 142.

JIS Symbol



Volume

Vane type	Single vane															Double vane											
Model	CRB2BW10-□S			CRB2BW15-□S			CRB2BW20-□S			CRB2BW30-□S			CRB2BW40-□S			CRB2BW10-□D		CRB2BW15-□D		CRB2BW20-□D		CRB2BW30-□D		CRB2BW40-□D			
Rotation	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°
Volume	1 (0.6)	1.2	1.5	1.5 (1.0)	2.9	3.7	4.8 (3.6)	6.1	7.9	11.3 (8.5)	15	20.2	25 (18.7)	31.5	41	1.0	1.1	2.6	2.7	5.6	5.7	14.4	14.5	33	34		

* Values inside () are volume of the supply side when A port is pressurized.

Mass

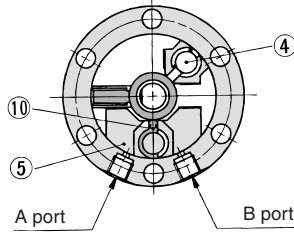
Vane type	Single vane															Double vane											
Model	CRB2BW10-□S			CRB2BW15-□S			CRB2BW20-□S			CRB2BW30-□S			CRB2BW40-□S			CRB2BW10-□D		CRB2BW15-□D		CRB2BW20-□D		CRB2BW30-□D		CRB2BW40-□D			
Rotating angle	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°
Body of rotary actuator	26.3	26.0	25.7	50	49	48	106	105	103	203	198	193	387	376	365	42	43	57	60	121	144	223	243	400	446		
Flange assembly	9			10			19			25			—			9		10		19		25		—			
Auto switch unit + 2 switches	30			30			50			60			46.5			30		30		50		60		46.5			
Angle adjuster	30			47			90			150			203			30		47		90		150		203			

Series CRB2

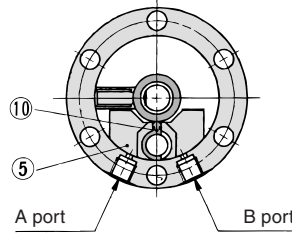
Construction: 10, 15, 20, 30, 40

Single vane type • Figures for 90° and 180° show the condition of the actuators when B port is pressurized, and the figure for 270° shows the position of the ports during rotation.

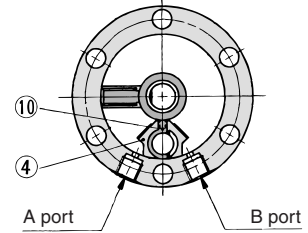
For 90°
(Top view from long shaft side)



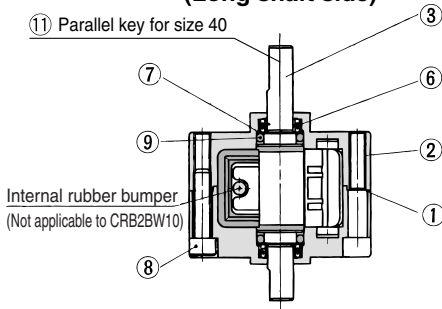
For 180°
(Top view from long shaft side)



For 270°
(Top view from long shaft side)



(Long shaft side)

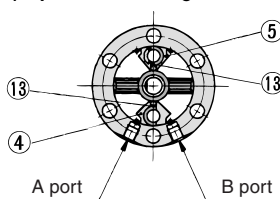


(Short shaft side)

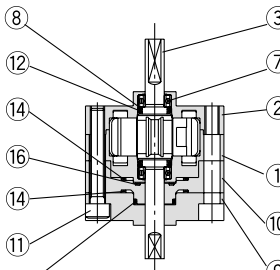
Double vane type

CRB2BW10-□D/Figures below show the intermediate rotation position when A or B port is pressurized.

For 90°
(Top view from long shaft side)

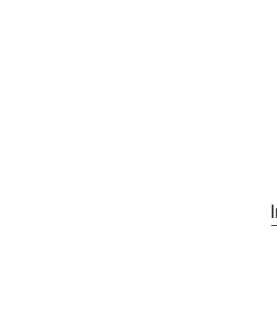
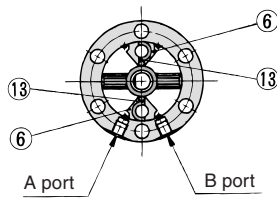


(Long shaft side)



(Short shaft side)

For 100°
(Top view from long shaft side)



Component Parts

No.	Description	Material	Note
1	Body (A)	Aluminum alloy	Anodized
2	Body (B)	Aluminum alloy	Anodized
3	Vane shaft	Carbon steel	
4	Stopper	Stainless steel *	
5	Stopper	Resin	
6	Stopper	Stainless steel *	
7	Bearing	High carbon chrome bearing steel	
8	Back-up ring	Stainless steel	
9	Cover	Aluminum alloy	Anodized

* For size 40, material for no. ④⑥ is die-cast aluminum.

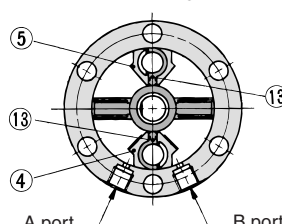
Component Parts

No.	Description	Material	Note
1	Body (A)	Aluminum alloy	Anodized
2	Body (B)	Aluminum alloy	Anodized
3	Vane shaft	Stainless steel *	
4	Stopper	Resin	For 270°
5	Stopper	Resin	For 180°
6	Bearing	High carbon chrome bearing steel	
7	Back-up ring	Stainless steel	
8	Hexagon socket head cap screw	Stainless steel	Special screw
9	O-ring	NBR	
10	Stopper seal	NBR	Special seal
11	Parallel key	Carbon steel	Size 40 only

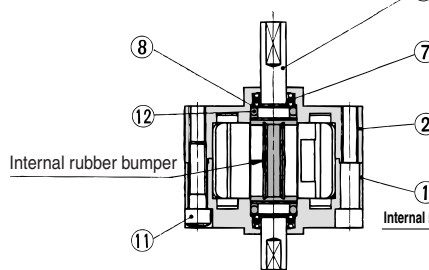
* Carbon steel for CRB2BW30 and CRB2BW40.

CRB2BW15/20/30/40-□D

For 90°
(Top view from long shaft side)

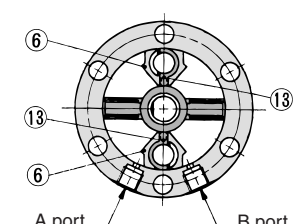


(Long shaft side)

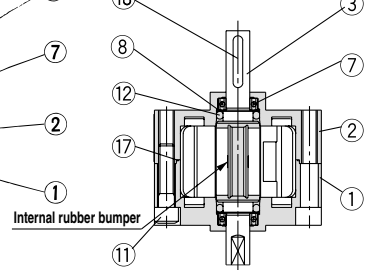


(Short shaft side)

For 100°
(Top view from long shaft side)



(Long shaft side)



(Short shaft side)
For size 40

Component Parts

No.	Description	Material	Note
10	Plate	Resin	
11	Hexagon socket head cap screw	Stainless steel	Special screw
12	O-ring	NBR	
13	Stopper seal	NBR	Special seal
14	Gasket	NBR	Special seal
15	O-ring	NBR	
16	O-ring	NBR	
17	O-ring	NBR	Double vane only
18	Parallel key	Carbon steel	Size 40 only