Rotary Actuator
Vane Style
Series CRB1
Size: 50, 63, 80, 100

Series Variations

Standard	**Fluid**			Air															
	Size			50				63				80				100			
	Vane type	Single vane (S) Double vane (D)		S		D		S		D		S		D		S		D	
	Port location	Side ported (Nil) Axial ported (E)		Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported	Side ported	Axial ported
	Rotating angle	**90°**		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		180°		●	●			●	●			●	●			●	●		
		270°		●	●			●	●			●	●			●	●		
		Option	**100°**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
			190°	●	●			●	●			●	●			●	●		
			280°	●	●			●	●			●	●			●	●		
	Shaft type	Double shaft	**W**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Cushion	Rubber bumper		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Variations	Basic type		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		With auto switch		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		With One-touch fittings		●	●	●	●												
		Clean series	**10-**	●	●	●	●	●	●	●	●								
		Copper-free	**20-**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Option	**Mounting style**	With foot bracket	**L**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Made to Order	**Material**	Stainless steel specifications for main parts		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Shaft type (Double shaft type)	Double shaft (Long shaft with four chamfers)	**J**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Double shaft with four chamfers	**Z**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Double shaft key	**Y**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Double round shaft	**K**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Shaft type (Single shaft type)	Single shaft key	**S**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Single round shaft	**T**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Single shaft with four chamfers	**X**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Pattern	Shaft pattern		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Rotation pattern		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With solenoid valve			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Rotary Actuator
Vane Style
Series CRB1
Size: 50, 63, 80, 100

How to Order

Without auto switch CRB1 B W 80 – 90 S

With auto switch CDRB1 B W 80 – 90 S – R73

With auto switch

Mounting style

B	Basic style
L	Foot style

Refer to Table (1) below if only foot assembly is required separately.

Table (1): Foot Assembly Part No.

Model	Unit part no.
CRB1LW50	P411020-5
CRB1LW63	P411030-5
CRB1LW80	P411040-5
CRB1LW100	P411050-5

Shaft type

W	Double shaft (Long shaft key & Four chamfers)

Size

50
63
80
100

Rotating angle

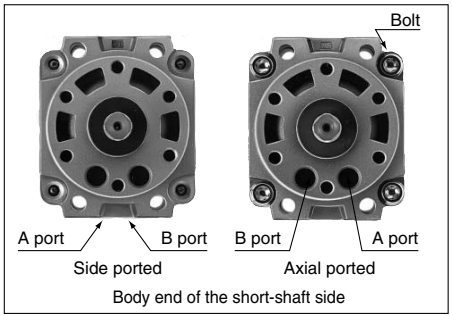
Classification	Symbol	Single vane	Double vane
Standard	**90**	90°	90°
	180	180°	—
	270	270°	—
Option	**100**	100°	100°
	190	190°	—
	280	280°	—

Vane type

S	Single vane
D	Double vane

Connection port location

Nil	Side ported
E	Axial ported



Auto switch

∗ For the applicable auto switch model, refer to the table below.

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, T79.
∗∗ Lead wire with connector part nos.
D-LC05: Lead wire 0.5 m
D-LC30: Lead wire 3 m

Number of auto switches

S	1 pc. ∗
Nil	2 pcs.

∗ Right-hand auto switch will be used for actuators with 1 auto switch.

Applicable Auto Switch/Refer to page 11-11-1 for detailed auto switch switches.

Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model	Lead wire length (m) ∗ 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Applicable load	
Reed switch	Grommet	No	2-wire	24 V	48 V, 100 V	24 V, 48 V, 100 V	**R80**	●	●	—	—	IC circuit	Relay, PLC
	Connector						**R80C**	●	●	●	●		
	Grommet	Yes			—	100 V	**R73**	●	●	—	—	—	
	Connector						**R73C**	●	●	●	●		
Solid state switch	Grommet	Yes	2-wire	24 V	12 V	—	**T79**	●	●	—	—	—	Relay, PLC
	Connector						**T79C**	●	●	●	●		
	Grommet		3-wire (NPN)		5 V, 12 V		**S79**	●	●	—	—	IC circuit	
			3-wire (PNP)				**S7P**	●	●	—	—		

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

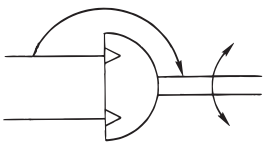
■ **Excellent reliability and durability**
The use of bearings to support thrust and radial loads improves reli-ability and durability.

■ **The body of the rotary actuator can be mounted directly.**

■ **Two different port locations**

Size: 100 **Size: 80** **Size: 50**

JIS Symbol



Specifications

Size		CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100	CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100
Vane type		Single vane (S)				Double vane (D)			
Rotating angle	Standard	$90^{\circ}{}^{+4}_{0}$, $180^{\circ}{}^{+4}_{0}$, $270^{\circ}{}^{+4}_{0}$				$90^{\circ}{}^{+4}_{0}$			
	Option	$100^{\circ}{}^{+4}_{0}$, $190^{\circ}{}^{+4}_{0}$, $280^{\circ}{}^{+4}_{0}$				$100^{\circ}{}^{+4}_{0}$			
Fluid		Air (Non-lube)							
Proof pressure		1.5 MPa							
Ambient and fluid temperature		5 to 60°C							
Max. operating pressure		1.0 MPa							
Min. operating pressure		0.15 MPa							
Speed regulation range (s/90°)		0.1 to 1							
Allowable kinetic energy		0.082 J	0.12 J	0.398 J	0.6 J	0.112 J	0.16 J	0.54 J	0.811 J
Shaft load	Allowable radial load	245 N	390 N	490 N	588 N	245 N	390 N	490 N	588 N
	Allowable thrust load	196 N	340 N	490 N	539 N	196 N	340 N	490 N	539 N
Bearing		Bearing							
Port location		Side ported or Axial ported							
Size	Side ported	Rc 1/8		Rc 1/4		Rc 1/8		Rc 1/4	
	Axial ported	Rc 1/8		Rc 1/4		Rc 1/8		Rc 1/4	
Mounting		Basic style, Foot style							

Volume

(cm³)

Classification	Rotating angle	Single vane (S)				Double vane (D)			
		CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100	CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100
Standard	90°	30	70	88	186	48	98	136	272
	180°	49	94	138	281	—	—	—	—
	270°	66	118	188	376	—	—	—	—
Option	100°	32	73	93	197	52	104	146	294
	190°	51	97	143	292	—	—	—	—
	280°	68	121	193	387	—	—	—	—

Weight

(g)

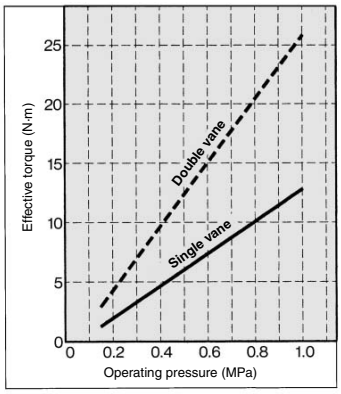
Model	Rotating angle	Single vane (S)				Double vane (D)			
		CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100	CRB1BW50	CRB1BW63	CRB1BW80	CRB1BW100
Main body	90°	810	1365	2070	3990	830	1410	2120	4150
	180°	790	1330	2010	3880	—	—	—	—
	270°	770	1290	1950	3760	—	—	—	—
	100°	808	1360	2065	3980	822	1400	2100	4100
	190°	788	1325	2005	3870	—	—	—	—
	280°	766	1285	1940	3735	—	—	—	—
Auto switch unit + 2 switches		65	85	95	165	65	85	95	165
Foot bracket assembly		384	785	993	1722	384	785	993	1722

⚠ Caution

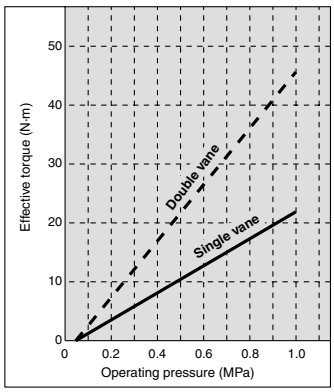
Be sure to read before handling. Refer to pages 11-13-3 to 11-13-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to pages 11-1-4 to 11-1-6 for Precautions on every series.

Effective Output

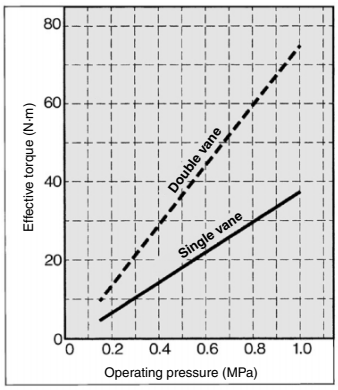
CRB1BW50



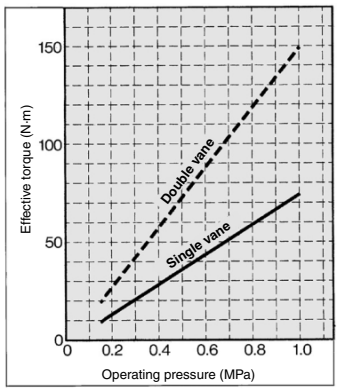
CRB1BW63



CRB1BW80



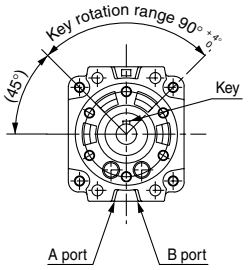
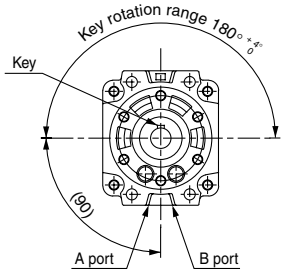
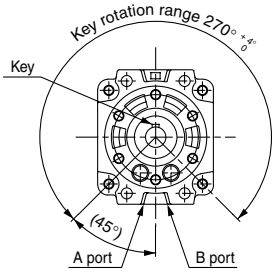
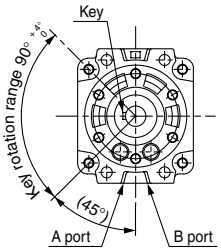
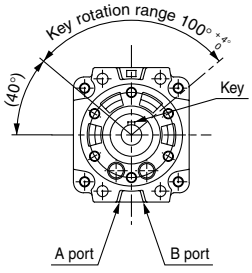
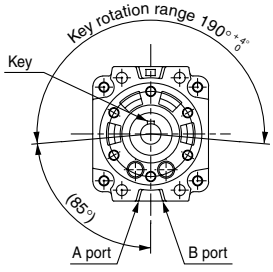
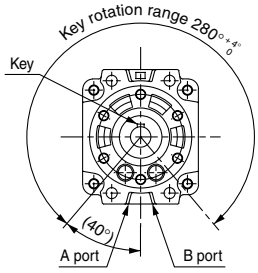
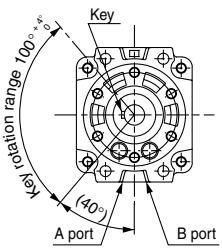
CRB1BW100



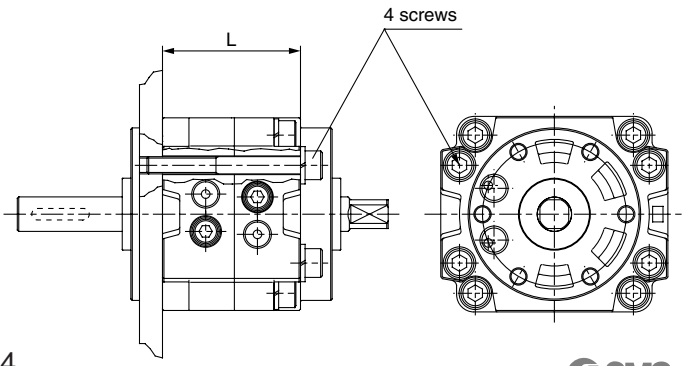
Key Position and Rotation Range

Key positions in the illustrations below show the intermediate rotation position when A or B port is pressurized.

Top View from Long Shaft Side

	Single vane type			Double vane type
	90°	**180°**	**270°**	**90°**
Standard				
	100°	**190°**	**280°**	**100°**
Option				

Direct Mounting of Body



Model	L	Screw
CRB1BW50	48	M6
CRB1BW63	52	M8
CRB1BW80	60	M8
CRB1BW100	80	M10

With One-touch Fittings

CRB1 [Mounting] **W50F** — [Rotating angle] [Vane type] [Port location]

With One-touch fittings

With One-touch fittings facilitate the piping work and greatly reduce the installation space.

Specifications

Vane type	Single vane	Double vane
Size	**50**	
Operating pressure range (MPa)	0.15 to 1.0	
Speed regulation range (s/90°)	0.1 to 1	
Port location	Side ported or Axial ported	
Piping	With One-touch fittings	
Mounting	Basic style, Foot style	
Variations	Basic style, With auto switch	

Applicable Tubing and Size

Applicable tubing O.D/I.D (mm)	ø6/ø4
Applicable tubing material	Nylon, Soft nylon, Polyurethane

Refer to page 11-4-8 for construction drawing.
Refer to page 11-4-12 for external dimensions.

Clean Series

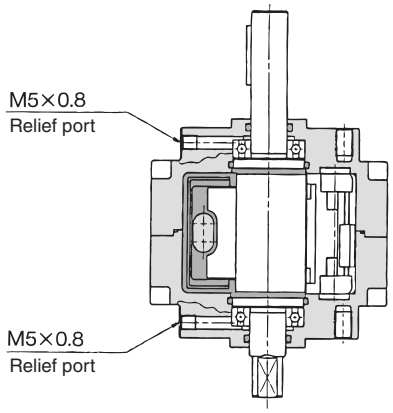
10 — CRB1BW [Size] — [Rotating angle] [Vane type] [Port location]

Clean Series, With relief port

The double-seal construction of the actuator shaft section of these series to channel exhaust through the relief ports directly to the outside of a clean room environment allows operation of these cylinders in a class 100 clean room.

Specifications

Vane type	Single vane	Double vane
Size	**50, 63**	
Operating pressure range (MPa)	0.15 to 1.0	
Speed regulation range (s/90°)	0.1 to 1	
Port location	Side ported or Axial ported	
Piping	Screw-in type	
Relief port size	M5 x 0.8	
Mounting	Basic style	
Variations	Basic style, With auto switch	



The internal construction of the illustration above shows a single vane style.

For further specifications, refer to “Pneumatic Clean Series” catalog.

Copper-free

20 — CRB1 [Mounting] **W** [Size] — [Rotating angle] [Vane type] [Port location]

Copper-free

Use the standard vane style rotary actuators in all series to preventany adverse effects to color CRTs due to copper ions or fluororesin.

Specifications

Vane type	Single vane	Double vane
Size	**50, 63, 80, 100**	
Operating pressure range (MPa)	0.15 to 1.0	
Speed regulation range (s/90°)	0.1 to 1	
Port location	Side ported or Axial ported	
Piping	Screw-in type	
Mounting	Basic style, Foot style	
Variations	Basic style, With auto switch	

Rotary Actuator with Solenoid Valve

How to Order

CD V RB1BW 80 – 90 S

With solenoid valve

	With VZ3000 (CVRB1BW50/63)
	With VZ5000 (CVRB1BW80/100)

Mounting style

B	Basic style
L	Foot style

Size

50
63
80
100

Auto switch

Nil	None
D	With auto switch

∗ Refer to page 11-4-2 for "How to Order", since it is possible to make a product with auto switch.

Rotating angle

90	90°
100	100°
180	180°
190	190°
270	270°
280	280°

Rotations for double vane style are 90° and 100° only.

Vane type

S	Single vane
D	Double vane

Specifications

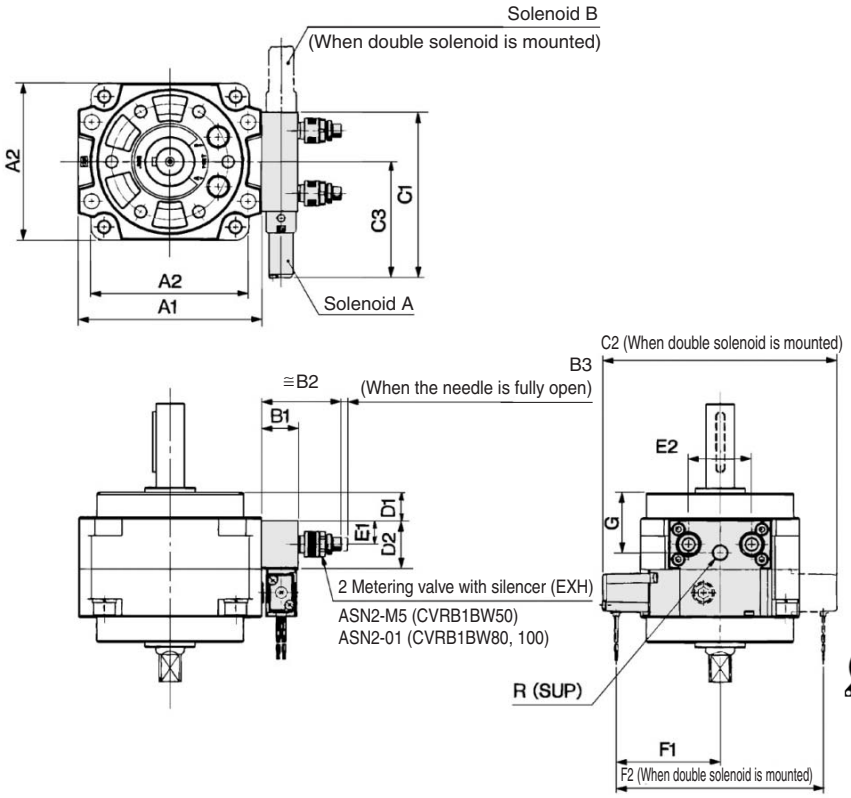
Fluid	Air
Operating pressure (MPa)	0.15 to 0.7
Rotating angle	Standard: 90°, 180°, 270°; Option: 100°, 190°, 280°
Rotation time adjustment range (s/90°)	0.3 to 1.0
Applicable solenoid valve	Size 50, 63: VZ3000, Size 80, 100: VZ5000
Operating voltage	100 VAC, 200 VAC, 24 VDC
Electrical entry	L plug connector, DIN terminal M plug connector

Allowable Kinetic Energy

Size	Vane style	Allowable kinetic energy
50	Single vane	0.082 J
	Double vane	0.112 J
63	Single vane	0.120 J
	Double vane	0.160 J
80	Single vane	0.398 J
	Double vane	0.54 J
100	Single vane	0.6 J
	Double vane	0.811 J

∗ Speed regulation range: 0.3 to 1 s/90°

Dimensions



Note 1) Solenoid valve in external appearance is in the case of VZ$^{3}_{5}$140-1G.
Note 2) Solenoid valve dimensions are for 2 position, and dimensions in ( ) are for 3 position.
Note 3) Make sure to indicate the type of solenoid valve when ordering.

(mm)

Model (size)	A1	A2	B1	B2	B3	C1	C2	C3	D1	D2	E1	E2	F1	F2	G	R
CVRB1BW50	78	67	18	36	2.8	82.5	120 (136.5)	60 (61)	12	24	11.5	30	52 (53)	104 (120.5)	25	1/8
CVRB1BW63	98	82	18	36	2.8	82.5	102 (136.5)	60 (61)	16	24	11.5	30	52 (53)	104 (120.5)	27.5	1/8
CVRB1BW80	110	95	22	48	4	100	140 (155)	70 (71)	17	29	14	38	62 (63)	124 (139)	36	1/8
CVRB1BW100	140	125	22	48	4	100	140 (155)	70 (71)	23.5	29	14	38	62 (63)	124 (139)	42.5	1/8

Rotary Actuator: Replaceable Shaft

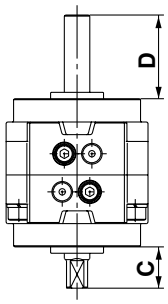
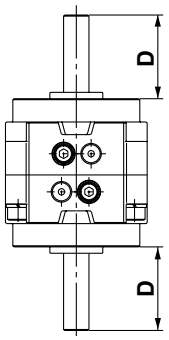
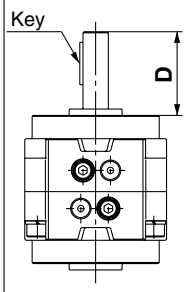
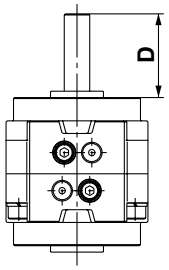
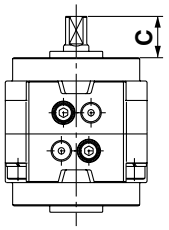
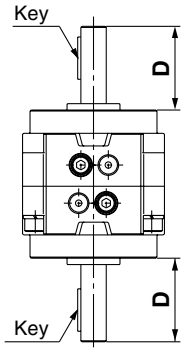
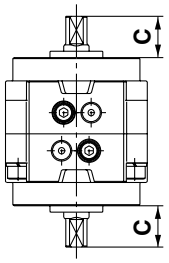
A shaft can be replaced with a different shaft type except for standard shaft type (W).

Without auto switch **CRB1B** **J** **Size** — **Rotating angle** **Vane type** **Port location**

Shaft type

J	Double shaft (Long shaft without keyway & Four chamfers)
K	Double round shaft
S	Single shaft key
T	Single round shaft
X	Single shaft with four chamfers
Y	Double shaft key
Z	Double shaft with four chamfers

CRB2
CRBU2
CRB1
MSU
CRJ
CRA1
CRQ2
MSQ
MRQ
D-
20-

J	K	S	T	X	Y	Z
						

(mm)

Nominal size	C	D
50	19.5	39.5
63	21	45
80	23.5	53.5
100	30	65

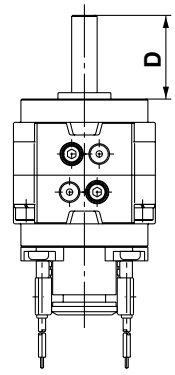
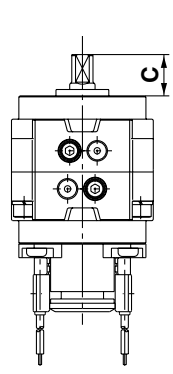
Note) Dimensions and tolerance of the shaft and keyway are the same as the standard.

With auto switch **CDRB1B** **J** **Size** — **Rotating angle** **Vane type** **Port location** — **Auto switch**

With auto switch

Shaft type

J	Double shaft (Long shaft without keyway & Four chamfers)
Z	Double shaft with four chamfers

J	Z
	

(mm)

Nominal size	C	D
50	19.5	39.5
63	21	45
80	23.5	53.5
100	30	65

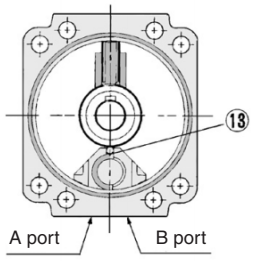
Note) Dimensions and tolerance of the shaft and keyway are the same as the standard.

Construction

Standard (Keys in the illustrations below show the intermediate rotation position.)

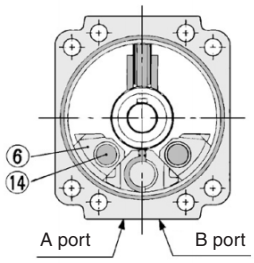
For 270° (Top view from long shaft side)

Single vane



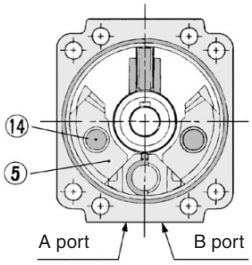
For 180° (Top view from long shaft side)

Single vane



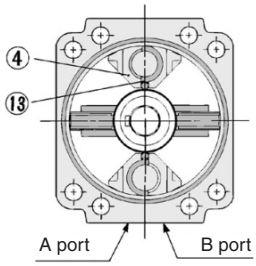
For 90° (Top view from long shaft side)

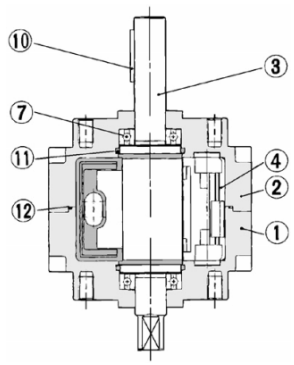
Single vane

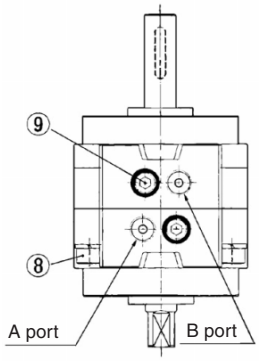


For 90° (Top view from long shaft side)

Double vane



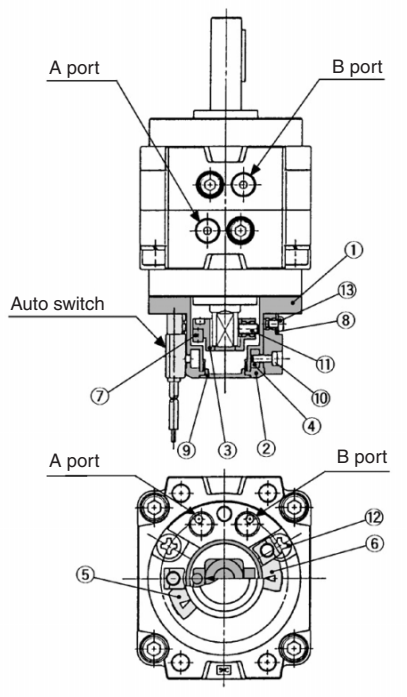




(Short shaft side)

With auto switch

(Keys in the illustrations below show the actuator for 180° when A port is pressurized.)



Component Parts

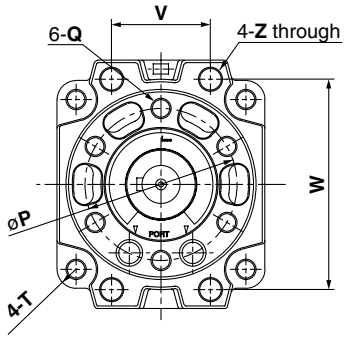
No.	Description	Material	Note
①	Body (A)	Aluminum die-casted	CRB1BW50/63/80, painted
		Cast aluminum	CRB1BW100, painted
②	Body (B)	Aluminum die-casted	CRB1BW50/63/80, painted
		Cast aluminum	CRB1BW100, painted
③	Vane shaft	Carbon steel	
④	Stopper	Aluminum die-casted	
⑤	Stopper	Resin	For 90°
⑥	Stopper	Resin	For 180°
⑦	Bearing	High carbon chrome bearing steel	
⑧	Hexagon socket (with washer)	Carbon steel	
⑨	Fuji lock bolt	Carbon steel	
⑩	Parallel keyway	Carbon steel	
⑪	O-ring	NBR	
⑫	O-ring	NBR	Special O-ring
⑬	Stopper seal	NBR	Special seal
⑭	Holding rubber	NBR	

Component Parts

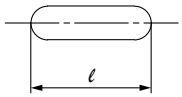
No.	Description	Material	Note
①	Cover (A)	Resin	
②	Cover (B)	Resin	
③	Magnet lever	Resin	
④	Holding block	Aluminum alloy	
⑤	Switch block (A)	Resin	
⑥	Switch block (B)	Resin	
⑦	Magnet	Magnetic body	
⑧	Arm	Stainless steel	
⑨	Rubber cap	NBR	
⑩	Round head Phillips screw	Stainless steel	
⑪	Hexagon socket head set screw	Stainless steel	
⑫	Round head Phillips screw	Carbon steel	For CDRB1BW50/63/80
	Hexagon socket head cap screw	Carbon steel	For CDRB1BW100
⑬	Round head Phillips screw	Stainless steel	

Dimensions: 50, 63, 80, 100

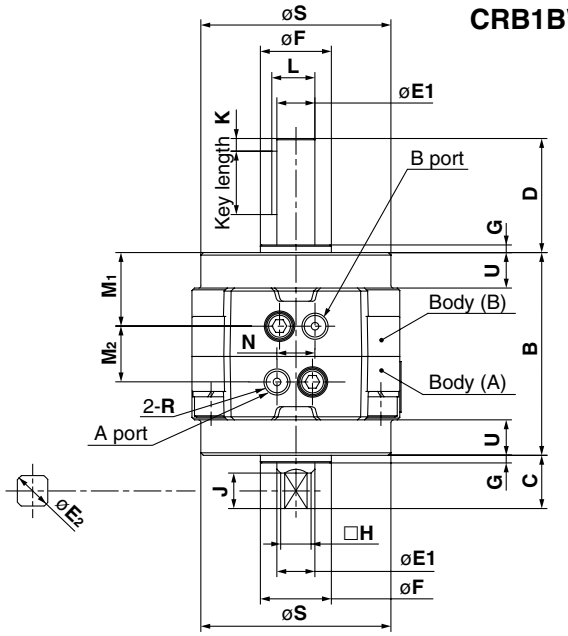
Single vane type/Double vane type
CDRB1BW□-□S/D
<Port location: Side ported>

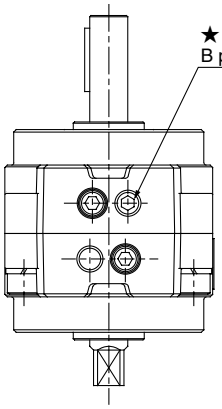


(mm)

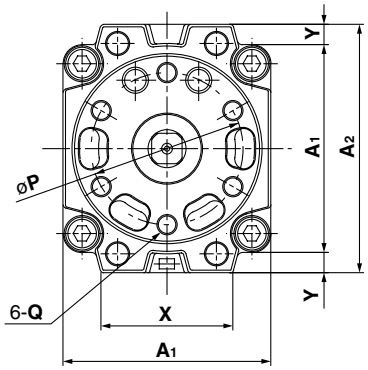
Keyway dimension			
Model	b (h9)	h (h9)	ℓ
CRB1BW50-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20
CRB1BW63-□□□	$5^{0}_{-0.030}$	$5^{0}_{-0.030}$	25
CRB1BW80-□□□	$5^{0}_{-0.030}$	$5^{0}_{-0.030}$	36
CRB1BW100-□□□	$7^{0}_{-0.036}$	$7^{0}_{-0.036}$	40

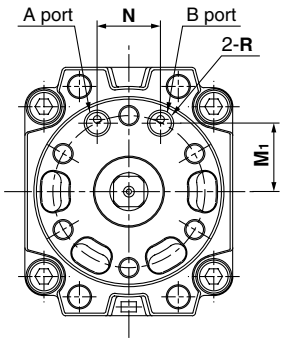
CRB1BW□-□SE, CRB1BW□-□DE <Port location: Axial ported>





★ If B port of Body (B) is machined, the port is plugged with Rc 1/8.





∗ For single vane: Above illustrations show actuators for 180° when B port is pressurized.

(mm)

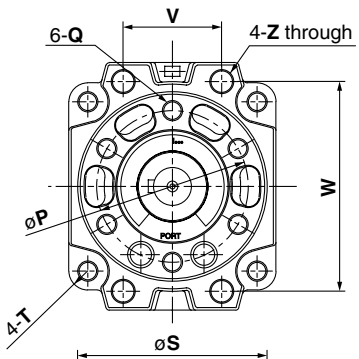
Model	A1	A2	B	C	D	E1 (g6)	E2 (h9)	F (h9)	G	H	J	K	L	M1	M2	N	P	Q	R (Rc)	S	T	U	V	W	X	Y	Z
CRB1BW50-□□	67	78	70	19.5	39.5	$12^{-0.006}_{-0.017}$	$11.9^{0}_{-0.043}$	$25^{0}_{-0.052}$	3	10	13	5	13.5	26	18	14	50	M6 x 1 depth 9	1/8	60	R6	11	34	66	46	5.5	6.5
CRB1BW50-□□E														21	—	18											
CRB1BW63-□□	82	98	80	21	45	$15^{-0.006}_{-0.017}$	$14.9^{0}_{-0.043}$	$28^{0}_{-0.052}$	3	12	14	5	17	29	22	15	60	M8 x 1.25 depth 10	1/8	75	R7.5	14	39	83	52	8	9
CRB1BW63-□□E														27	—	25											
CRB1BW80-□□	95	110	90	23.5	53.5	$17^{-0.006}_{-0.017}$	$16.9^{0}_{-0.043}$	$30^{0}_{-0.052}$	3	13	16	5	19	30	30	20	70	M8 x 1.25 depth 12	1/4	88	R8	15	48	94	63	7.5	9
CRB1BW80-□□E														29	—	30											
CRB1BW100-□□	125	140	103	30	65	$25^{-0.007}_{-0.020}$	$24.9^{0}_{-0.052}$	$45^{0}_{-0.062}$	4	19	22	5	28	35.5	32	24	80	M10 x 1.5 depth 13	1/4	108	R11	11.5	60	120	78	7.5	11
CRB1BW100-□□E														38	—	38											

∗ For single vane: Above illustrations show actuators for 180° when B port is pressurized.

Dimensions: 50, 63, 80, 100 (With auto switch unit)

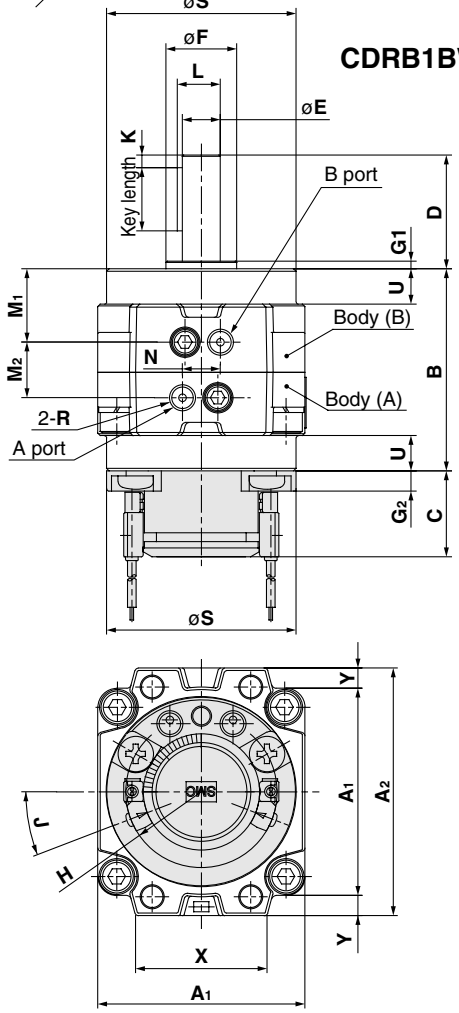
Single vane type/Double vane type
CDRB1BW□-□S/D
<Port location: Side ported>

(mm)

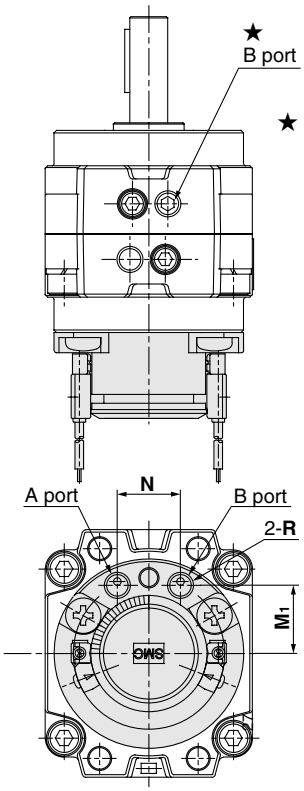


Keyway dimension	ℓ	b, h

Model	b (h9)	h (h9)	ℓ
CDRB1BW50-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20
CDRB1BW63-□□□	$5^{0}_{-0.030}$	$5^{0}_{-0.030}$	25
CDRB1BW80-□□□	$5^{0}_{-0.030}$	$5^{0}_{-0.030}$	36
CDRB1BW100-□□□	$7^{0}_{-0.036}$	$7^{0}_{-0.036}$	40



CDRB1BW□-□SE, CDRB1BW□-□DE <Port location: Axial ported>



★ If B port of Body (B) is machined, the port is plugged with Rc 1/8.

∗ For single vane: Above illustrations show actuators for 180° when B port is pressurized.

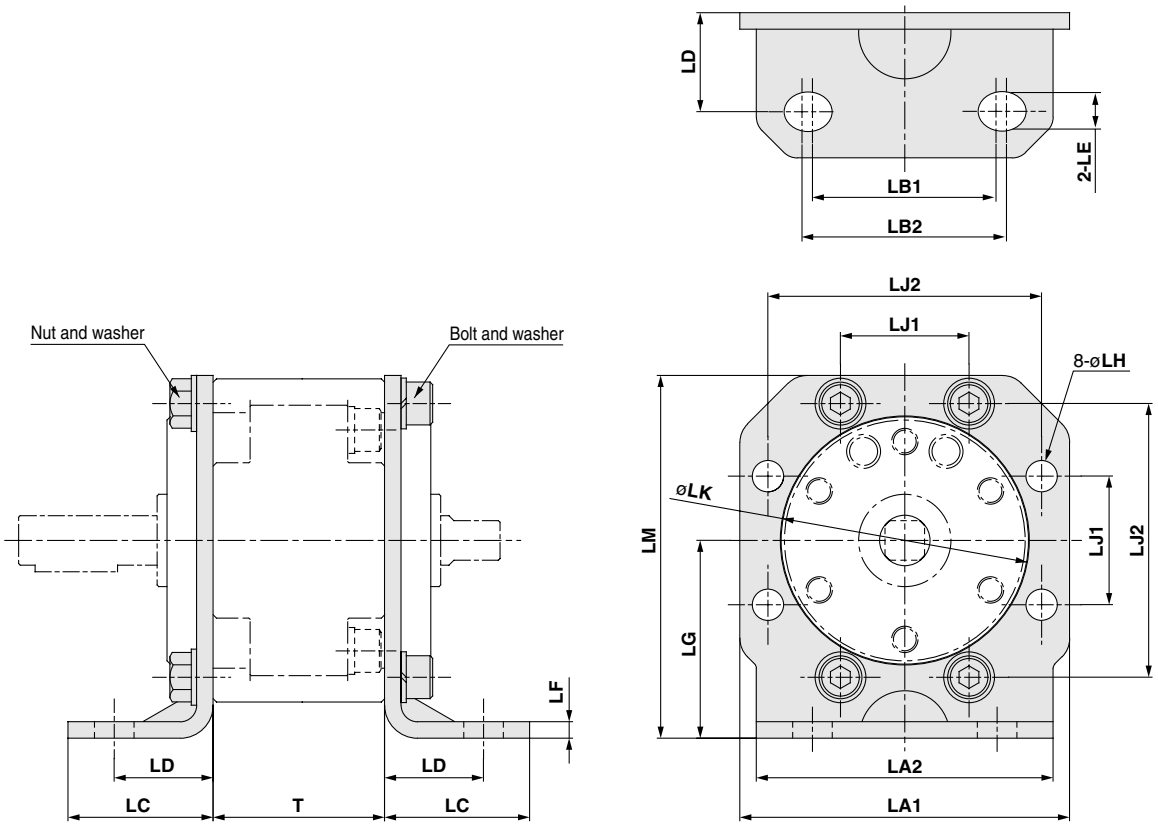
(mm)

Model	A1	A2	B	C	D	E (g6)	F (h9)	G1	G2	H (R)	J	K	L	M1	M2	N	P	Q	R (Rc)	S	T	U	V	W	X	Y	Z
CDRB1BW50-□□	67	78	70	32	39.5	$12^{-0.006}_{-0.017}$	$25^{0}_{-0.052}$	3	6.5	R22.5	32.5	5	13.5	26	18	14	50	M6 x 1 depth 9	1/8	60	R6	11	34	66	46	5.5	6.5
CDRB1BW50-□□E														21	—	18											
CDRB1BW63-□□	82	98	80	34	45	$15^{-0.006}_{-0.017}$	$28^{0}_{-0.052}$	3	8	R30	21	5	17	29	22	15	60	M8 x 1.25 depth 10	1/8	75	R7.5	14	39	83	52	8	9
CDRB1BW63-□□E														27		25											
CDRB1BW80-□□	95	110	90	34	53.5	$17^{-0.006}_{-0.017}$	$30^{0}_{-0.052}$	3	8	R30	21	5	19	30	30	20	70	M8 x 1.25 depth 12	1/4	88	R8	15	48	94	63	7.5	9
CDRB1BW80-□□E														29	—	30											
CDRB1BW100-□□	125	140	103	39	65	$25^{-0.007}_{-0.020}$	$45^{0}_{-0.062}$	4	13	R30	21	5	28	35.5	32	24	80	M10 x 1.5 depth 13	1/4	108	R11	11.5	60	120	78	7.5	11
CDRB1BW100-□□E														38	—	38											

∗ For single vane: Above illustrations show actuators for 180° when B port is pressurized.

Dimensions

Option: Foot bracket



(mm)

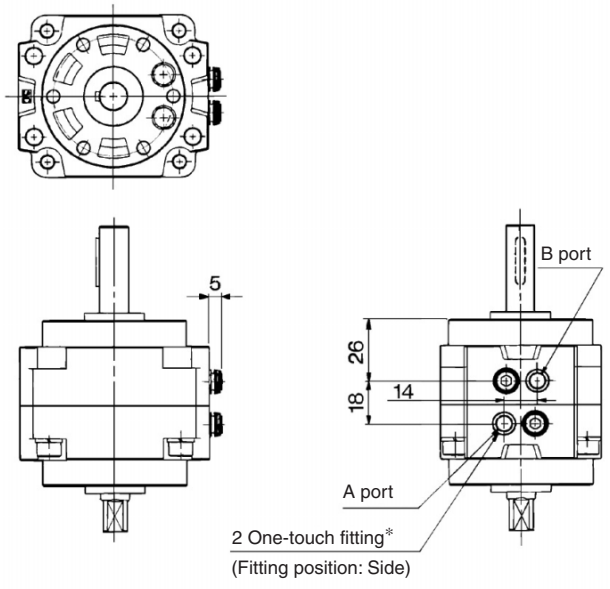
Applicable size	Foot bracket assembly no.	LA1	LA2	LB1	LB2	LC	LD	LE	LF	LG	LH	LJ1	LJ2	LK	LM	T
50	P411020-5	78	70	45	50	36	25.5	10	4.5	45	7.5	34	66	60.5	84	48
63	P411030-5	100	90	56		44	30	ø12	5	60	9.5	39	83	75.5	110	52
80	P411040-5	111	100	63		46	32	ø12	6	65	9.5	48	94	88.5	120.5	60
100	P411050-5	141	126	80		55	39.5	ø14	6	80	11.5	60	120	108.5	150.5	80

Note 1) The foot bracket (with bolt, nut, and washer) is not mounted on the actuator at the time of shipment.
Note 2) The foot bracket can be mounted on the rotary actuator bracket 90° intervals.
Note 3) Refer to the foot bracket assembly part no. in the table at right when foot bracket assembly is required separately.

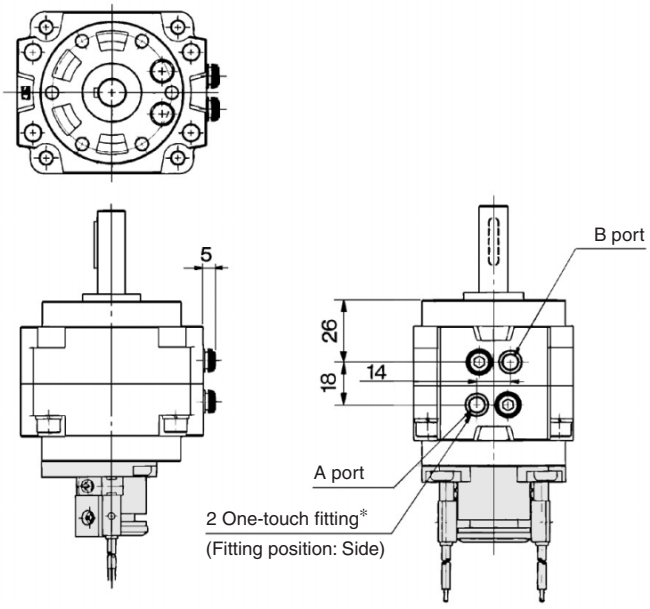
Model		Foot bracket assembly no.
Standard	With auto switch	
CRB1LW50	**CDRB1LW50**	P411020-5
CRB1LW63	**CDRB1LW63**	P411030-5
CRB1LW80	**CDRB1LW80**	P411040-5
CRB1LW100	**CDRB1LW100**	P411050-5

With One-touch Fittings: 50

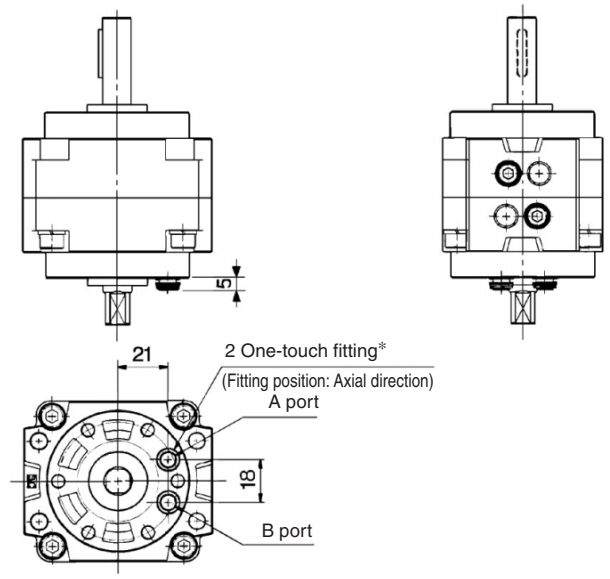
Standard
CRB1□W50F-□□
<Port location: Side ported>



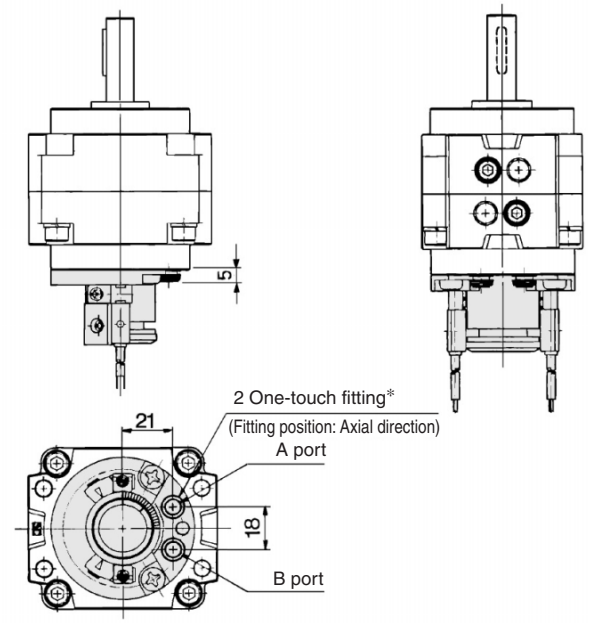
With auto switch
CDRB1□W50F-□□-□
<Port location: Side ported>



CRB1□W50F-□□E
<Port location: Axial ported>



CDRB1□W50F-□□E-□
<Port location: Axial ported>



Applicable Tubing and O.D/I.D

Applicable tubing O.D/I.D (mm)	ø6/ø4
Applicable tubing material	Nylon, Soft nylon, Polyurethane

∗ Dimensions not indicated in the above illustrations are the same as size 50 actuator. Refer to pages 11-4-9 to 11-4-10.

∗ Keys in the illustrations above show the intermediate rotation position for single vane type.

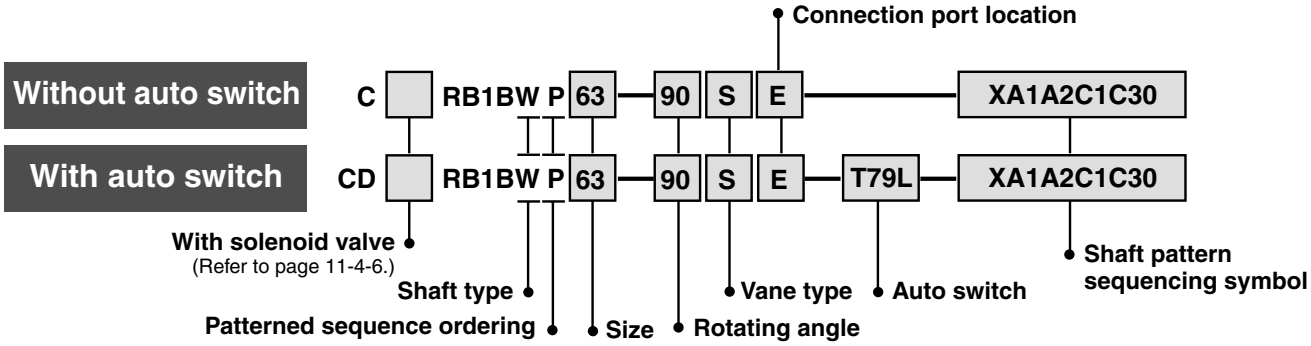
Series ***CRB1*** (Size: 50, 63, 80, 100)

Simple Specials:
-XA1 to -XA24: Shaft Pattern Sequencing I

Shaft shape pattern is dealt with simple made-to-order system.
Please contact SMC for a specification sheet when placing an order.

Shaft Pattern Sequencing I -XA1 to XA24

Applicable shaft type: W (Standard)



Shaft Pattern Sequencing Symbol

● Axial: Top (Long shaft side)

Symbol	Description	Applicable size
XA1	Shaft-end female thread	50, 63, 80, 100
XA14 *	Shaft through-hole + Shaft-end female thread	
XA24	Double key	

● Axial: Bottom (Short shaft side)

Symbol	Description	Applicable size
XA2 *	Shaft-end female thread	50, 63, 80, 100
XA15 *	Shaft through-hole + Shaft-end female thread	

● Double Shaft

Symbol	Description	Applicable size
XA13 *	Shaft through-hole	50, 63, 80, 100
XA16 *	Shaft through-hole + Double shaft-end female threads	

* These specifications are not available for rotary actuators with auto switch unit.

Combination

XA□ Combination

Symbol	Combination	
	XA1	XA24
XA1	●	●
XA2	●	●
XA13	●	●
XA14	—	●
XA15	—	●
XA16	—	●
XA24	—	—

A combination of up to two XA□s are available.
Example: -XA1A2

XA□, XC□ Combination

Combination other than -XA□, such as Made to Order (-XC□), is also available.
Refer to pages 11-4-18 to 11-4-19 for details of made-to-order specifications.

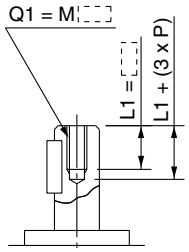
Symbol	Description	Applicable size	XA1, XA2 XA13 to 16, 24
XC1	Add connection port	50, 63 80,100	●
XC4	Change of rotation range and direction		●
XC5	Change of rotation range and direction		●
XC6	Change of rotation range and direction		●
XC7	Reversed shaft		—
XC26	Change of rotation range and direction		●
XC27	Change of rotation range and direction		●
XC30	Fluorine grease		●

A total of four XA□and XC□ combinations is available.
Example: -XA1A2C1C30

Axial: Top (Long shaft side)

Symbol: A1
Machine female threads into the long shaft.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M3: L1 = 6 mm
- Applicable shaft type: W



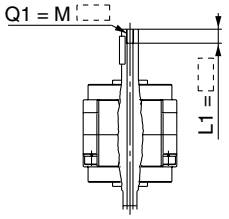
(mm)

Size	Q1
50	M3, M4, M5
63	M4, M5, M6
80	M4, M5, M6
100	M5, M6, M8

Symbol: A14
Applicable to single vane type only

A special end is machined onto the long shaft, and a through-hole is drilled into it. Female threads are machined into the through-holes, whose diameter is equivalent to the diameter of the pilot holes.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M5: L1 = 10 mm
- Applicable shaft type: W



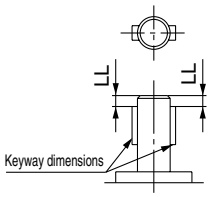
(mm)

Thread \ Size	50	63	80	100
M5 x 0.8	ø4.2	ø4.2	ø4.2	—
M6 x 1	—	ø5	ø5	ø5
M8 x 1.25	—	—	—	ø6.8

Symbol: A24
Double key

Keys and keyways are machined at 180° of standard position.

- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.



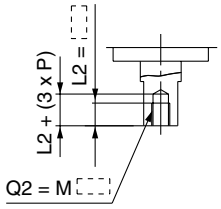
(mm)

Size	Keyway dimension	LL
50	4 x 4 x 20	5
63	5 x 5 x 25	
80	5 x 5 x 36	
100	7 x 7 x 40	

Axial: Bottom (Short shaft side)

Symbol: A2
Machine female threads into the short shaft.

- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M4: L2 = 8 mm
- Applicable shaft type: W



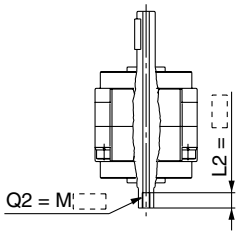
(mm)

Size	Q2
50	M3, M4, M5
63	M4, M5, M6
80	M4, M5, M6
100	M5, M6, M8

Symbol: A15
Applicable to single vane type only

A special end is machined onto the short shaft, and a through hole is drilled into it. Female threads are machined into the through-hole, whose diameter is equivalent to the pilot hole diameter.

- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M4: L2 = 8 mm
- Applicable shaft type: W



(mm)

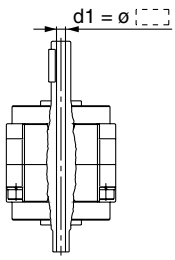
Thread \ Size	50	63	80	100
M5 x 0.8	ø4.2	ø4.2	ø4.2	—
M6 x 1	—	ø5	ø5	ø5
M8 x 1.25	—	—	—	ø6.8

Double Shaft

Symbol: A13
Applicable to single vane type only

Shaft with through-hole

- Minimum machining diametor for d1 is 0.1 mm.
- Applicable shaft type: W



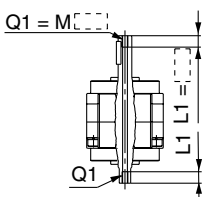
(mm)

Size	d1
50	ø4 to ø5
63	ø4 to ø6
80	ø4 to ø6.5
100	ø5 to ø8

Symbol: A16
Applicable to single vane type only

A special end is machined onto both the long and short shafts, and a through hole is drilled into both shafts. Female threads are machined into the through-holes, whose diameter is equivalent to the diameter of the pilot holes.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M5: L1 = 10 mm
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.



(mm)

Thread \ Size	50	63	80	100
M5 x 0.8	ø4.2	ø4.2	ø4.2	—
M6 x 1	—	ø5	ø5	ø5
M8 x 1.25	—	—	—	ø6.8

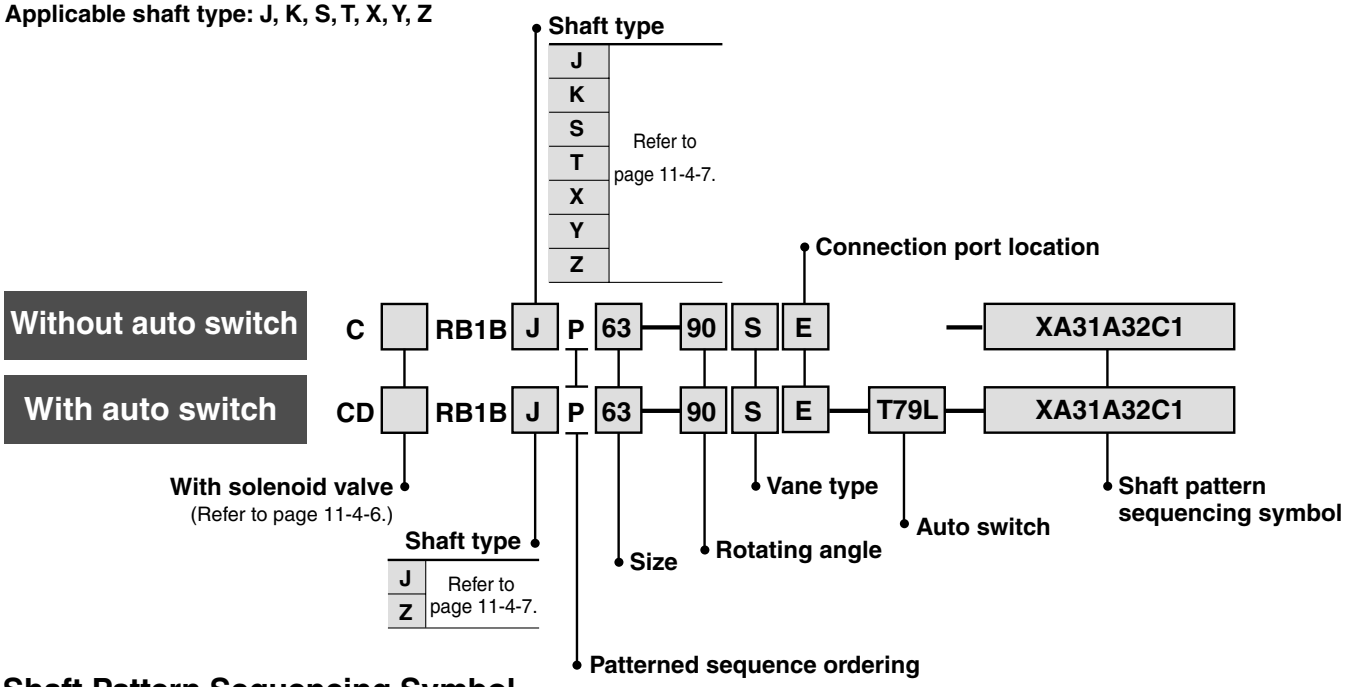
Series CRB1 (Size: 50, 63, 80, 100)

Simple Specials: -XA31 to -XA46: Shaft Pattern Sequecing II

Shaft shape pattern is dealt with simple made-to-order system.
Please contact SMC for a specification sheet when placing an order.

Shaft Pattern Sequencing II — -XA31 to XA46

Applicable shaft type: J, K, S, T, X, Y, Z



Shaft Pattern Sequencing Symbol

● Axial: Top (Long shaft side)

Symbol	Description	Shaft type	Applicable size
XA31	Shaft-end female thread	S, Y	50, 63, 80, 100
XA33	Shaft-end female thread	J, K, T	
XA35	Shaft-end female thread	X, Z	
XA37	Stepped round shaft	J, K, T	
XA45	Middle-cut chamfer	J, K, T	

● Axial: Bottom (Short shaft side)

Symbol	Description	Shaft type	Applicable size
XA32 *	Shaft-end female thread	S, Y	50, 63, 80, 100
XA34 *	Shaft-end female thread	K, T	
XA36 *	Shaft-end female thread	J, X, Z	
XA38 *	Stepped round shaft	K	
XA46 *	Middle-cut chamfer	K	

● Double Shaft

Symbol	Description	Shaft type	Applicable size
XA39 *	Shaft through-hole	S, Y	50
XA40 *	Shaft through-hole	K, T	63
XA41 *	Shaft through-hole	J, X, Z	80
XA42 *	Shaft through-hole + Shaft-end female thread	S, Y	100
XA43 *	Shaft through-hole + Shaft-end female thread	K, T	
XA44 *	Shaft through-hole + Shaft-end female thread	J, X, Z	

* This specification is not available for rotary actuators with auto switch.

Combination

XA□ Combination

Symbol	Combination						
XA31	**XA31**	* These are shaft types that can be combined.					
XA32	●						
XA33	—	**XA33**					
XA34	—	●	**XA34**				
XA35	—	—	—	**XA35**			
XA36	—	J *	K, T *	X, Z *	**XA36**		
XA37	—	—	—	—	J *	**XA37**	
XA38	—	K *	K, T *	—	—	●	
XA45	—	—	—	—	J *	—	**XA45**
XA46	—	●	—	—	—	●	●

Combinations of XA39 to XA44 with others are not available.
A combination of up to two XA□s are available.
Example: -XA1A24

XA□, XC□ Combinations

Combination other than -XA□, such as made-to order (-XC□), is also available.
Refer to pages 11-4-18 to 11-4-19 for details of made-to-order specifications.

Symbol	Description	Shaft type	XA31 to XA46
		J, K, S, T, X, Y, Z	
XC1	Add connection port	●	●
XC4	Change of rotation range and direction	●	●
XC5	Change of rotation range and direction	●	●
XC6	Change of rotation range and direction	●	●
XC7	Reversed shaft	J, S, T, X	—
XC26	Change of rotation range and direction	●	●
XC27	Change of rotation range and direction	●	●
XC30	Fluorine grease	●	●

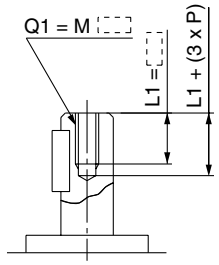
* These specifications are not available for rotary actuators with auto switch unit.
A total of four XA□and XC□ combinations is available.
Example: -XA1A2C1C30
-XA2C1C4C30

Axial: Top (Long shaft side)

Symbol: A31

Machine female threads into the long shaft.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M3: L1 = 6 mm
- Applicable shaft types: S, Y



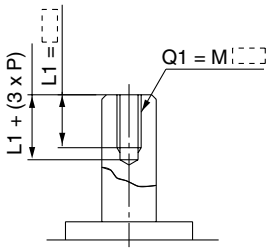
(mm)

Size \ Shaft type	Q1	
	S	Y
50	M3, M4, M5	
63	M4, M5, M6	
80	M4, M5, M6	
100	M5, M6, M8	

Symbol: A33

Machine female threads into the long shaft.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M3: L1 = 6 mm
- Applicable shaft types: J, K, T



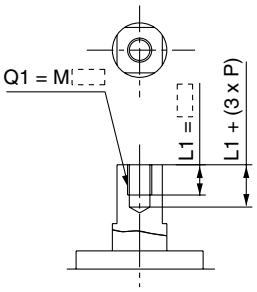
(mm)

Size \ Shaft type	Q1		
	J	K	T
50	M3, M4, M5, M6		
63	M4, M5, M6		
80	M4, M5, M6, M8		
100	M5, M6, M8, M10		

Symbol: A35

Machine female threads into the long shaft.

- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M3: L1 = 6 mm
- Applicable shaft types: X, Z



(mm)

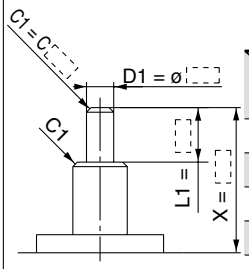
Size \ Shaft type	Q1	
	X	Z
50	M3, M4, M5	
63	M4, M5, M6	
80	M4, M5, M6	
100	M5, M6, M8	

Symbol: A37

The long shaft can be further shortened by machining it into a stepped round shaft.

(If shortening the shaft is not required, indicate "∗" for dimension X.)
(If not specifying dimension C1, indicate "∗" instead.)

- Equal dimensions are indicated by the same marker.
- Applicable shaft types: J, K, T



(mm)

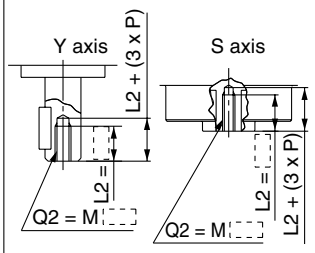
Size \ Shaft type	X			L1 max			D1		
	J	K	T	J	K	T	J	K	T
50	4 to 39.5			X – 3			3 to 11.9		
63	4 to 45			X – 3			3 to 14.9		
80	4 to 53.5			X – 3			3 to 16.9		
100	5 to 65			X – 4			3 to 24.9		

Axial: Bottom (Short shaft side)

Symbol: A32

Machine female threads into the short shaft.

- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M4: L2 = 8 mm
- Applicable shaft types: S, Y



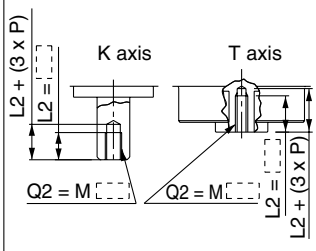
(mm)

Size \ Shaft type	Q2	
	S	Y
50	M3, M4, M5, M6	M3, M4, M5
63	M4, M5, M6	M4, M5, M6
80	M4, M5, M6, M8	M4, M5, M6
100	M5, M6, M8, M10	M5, M6, M8

Symbol: A34

Machine female threads into the short shaft.

- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M3: L2 = 6 mm
- Applicable shaft types: K, T



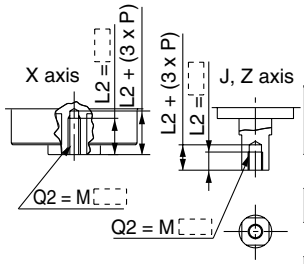
(mm)

Size \ Shaft type	Q2	
	K	T
50	M3, M4, M5, M6	
63	M4, M5, M6	
80	M4, M5, M6, M8	
100	M5, M6, M8, M10	

Symbol: A36

Machine female threads into the short shaft.

- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M3: L2 = 6 mm
- Applicable shaft types: J, X, Z



(mm)

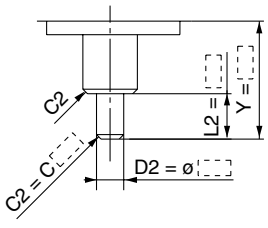
Size \ Shaft type	Q2		
	X	J	Z
50	M3, M4, M5, M6	M3, M4, M5	
63	M4, M5, M6	M4, M5, M6	
80	M4, M5, M6, M8	M4, M5, M6	
100	M5, M6, M8, M10	M5, M6, M8	

Symbol: A38

The short shaft can be further shortened by machining it into a stepped round shaft.

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
(If not specifying dimension C2, indicate "∗" instead.)

- Equal dimensions are indicated by the same marker.
- Applicable shaft type: K



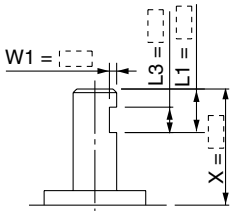
(mm)

Size	Y	L2 max	D2
50	4 to 39.5	Y – 3	3 to 11.9
63	4 to 45	Y – 3	3 to 14.9
80	4 to 53.5	Y – 3	3 to 16.9
100	5 to 65	Y – 4	3 to 24.9

Axial: Top (Long shaft side)

Symbol: A45 The long shaft can be further shortened by machining a middle-cut chamfer into it.
(The position of the chamfer is same as the standard one.)

(If shortening the shaft is not required, indicate "∗" for dimension X.)
• Minimum machining dimension is 0.1 mm. • Applicable shaft types: J, K, T



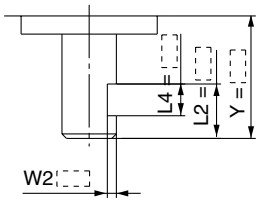
(mm)

Size	X			W1			L1 max			L3 max		
Shaft type	J	K	T	J	K	T	J	K	T	J	K	T
50	11.5 to 39.5			1 to 6			X – 3			L1 – 2		
63	12.5 to 45			1 to 7.5			X – 3			L1 – 2		
80	13.5 to 53.5			1 to 8.5			X – 3			L1 – 2		
100	18.5 to 65			1 to 12.5			X – 4			L1 – 2		

Axial: Bottom (Short shaft side)

Symbol: A46 The short shaft can be further shortened by machining a middle-cut chamfer into it.
(The position of the chamfer is same as the standard one.)

(If shortening the shaft is not required, indicate "∗" for dimension X.)
• Minimum machining dimension is 0.1 mm.
• Applicable shaft type: K



(mm)

Size	Y	W2	L2 max	L4 max
50	11.5 to 39.5	1 to 6	Y – 3	L2 – 2
63	12.5 to 45	1 to 7.5	Y – 3	L2 – 2
80	13.5 to 53.5	1 to 8.5	Y – 3	L2 – 2
100	18.5 to 65	1 to 12.5	Y – 4	L2 – 2

⚠ Caution

For the shaft patterns A45 and A46, a middle-cut chamfer may interfere with the center hole if the W1/W2 dimensions and (L1 – L3), (L2 – L4) dimensions are less than what are shown in the tables at right.

(mm)

Size	W1, W2	L1 – L3, L2 – L4
50	4.5 to 6	2 to 5.5
63	6 to 7.5	2 to 3

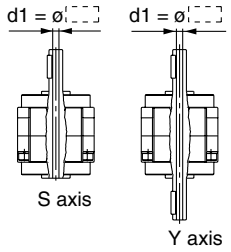
(mm)

Size	W1, W2	L1 – L3, L2 – L4
80	6.5 to 8.5	2 to 6.5
100	10.5 to 12.5	2 to 6.5

Double Shaft

Symbol: A39 Applicable to single vane type only

Shaft with through-hole
• Minimum machining diameter for d1 is 0.1 mm.
• Applicable shaft types: S, Y

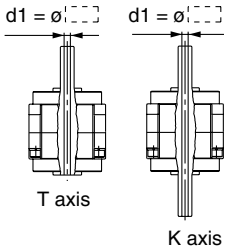


(mm)

Size	d1	
Shaft type	S	Y
50	ø4 to ø5	
63	ø4 to ø6	
80	ø4 to ø6.5	
100	ø5 to ø8	

Symbol: A40 Applicable to single vane type only

Shaft with through-hole
• Minimum machining diameter for d1 is 0.1 mm.
• Applicable shaft types: K, T

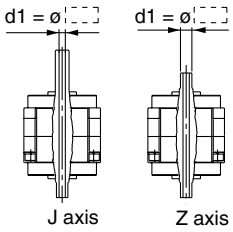


(mm)

Size	d1	
Shaft type	K	T
50	ø4 to ø5.5	
63	ø4 to ø6	
80	ø4 to ø7.5	
100	ø5 to ø10	

Symbol: A41 Applicable to single vane type only

Shaft with through-hole
• Minimum machining diameter for d1 is 0.1 mm.
• Applicable shaft types: J, X, Z

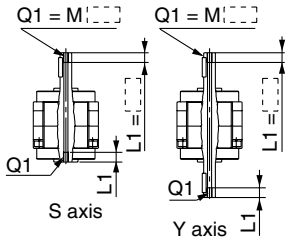


(mm)

Size	d1		
Shaft type	J	X	Z
50	ø4 to ø5		
63	ø4 to ø6		
80	ø4 to ø6.5		
100	ø5 to ø8		

Symbol: A42 Applicable to single vane type only

A special end is machined onto both the long and short shafts, and a through-hole is drilled into both shafts. Female threads are machined into the through-holes, whose diameter is equivalent to the diameter of the pilot holes.
• The maximum dimension L1 is, as a rule, twice the thread size.
• Applicable shaft types: S, Y • Equal dimensions are indicated by the same marker.

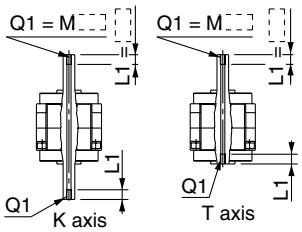


(mm)

Size	50		63		80		100	
Shaft type / Thread	S	Y	S	Y	S	Y	S	Y
M5 x 0.8	ø4.2		ø4.2		ø4.2		ø4.2	
M6 x 1	—		ø5		ø5		ø5	
M8 x 1.25	—		—		—		ø6.8	

Symbol: A43 Applicable to single vane type only

A special end is machined onto both the long and short shafts, and a through-hole is drilled into both shafts. Female threads are machined into the through holes, whose diameter is equivalent to the diameter of the pilot holes.
• The maximum dimension L1 is, as a rule, twice the thread size.
• Applicable shaft types: K, T • Equal dimensions are indicated by the same marker.

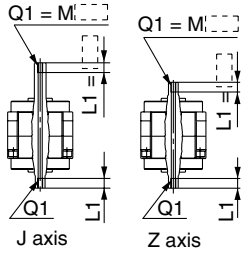


(mm)

Size	50		63		80		100	
Shaft type / Thread	K	T	K	T	K	T	K	T
M5 x 0.8	ø4.2		ø4.2		ø4.2		ø4.2	
M6 x 1	ø5		ø5		ø5		ø5	
M8 x 1.25	—		—		ø6.8		ø6.8	
M10 x 1.5	—		—		—		ø8.6	

Symbol: A44 Applicable to single vane type only

A special end is machined onto both the long and short shafts, and a through-hole is drilled into both shafts. Female threads are machined into the through-holes, whose diameter is equivalent to the diameter of the pilot holes
• The maximum dimension L1 is, as a rule, twice the thread size.
• Applicable shaft types: J, X, Z • Equal dimensions are indicated by the same marker.



(mm)

Size	50			63			80			100		
Shaft type / Thread	J	X	Z	J	X	Z	J	X	Z	J	X	Z
M5 x 0.8	ø4.2			ø4.2			ø4.2			ø4.2		
M6 x 1	—			ø5			ø5			ø5		
M8 x 1.25	—			—			—			ø6.8		

Series ***CRB1*** (Size: 50, 63, 80, 100)
Made to Order Specifications: -XC1, 4, 5, 6, 7, 26, 27, 30

Shaft type

W	Standard
J	Refer to page 11-4-7.
K	
S	
T	
X	
Y	
Z	

Connection port location

Without auto switch

C [ ] RB1B **W** **P** **63** — **90** **S** **E** — **XC1C30**

With auto switch

CD [ ] RB1B **W** **P** **63** — **90** **S** **E** — **T79L** — **XC1C30**

- **With solenoid valve** (Refer to page 11-4-6.)
- **Shaft type**

W	Standard
J	Refer to page 11-4-7.
Z	

- **Patterned sequence ordering**
- **Size**
- **Rotating angle**
- **Vane type**
- **Auto switch**
- **Made-to-order symbol**

Made-to-Order Symbol

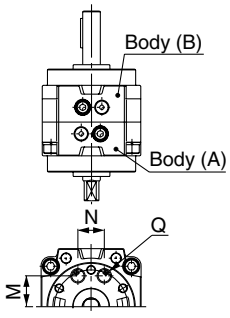
Symbol	Description	Applicable shaft type W, J, K, S, T, X, Y, Z	Applicable size
XC1	Add connection port	●	50, 63, 80, 100
XC4	Change of rotation range and direction	●	
XC5	Change of rotation range and direction	●	
XC6	Change of rotation range and direction	●	
XC7*	Reversed shaft	●	
XC26	Change of rotation range and direction	●	
XC27	Change of rotation range and direction	●	
XC30	Fluoro grease	●	

* This specification is not available for rotary actuators with auto switch unit.

Combination

Symbol	Combination XC1	Combination XC30
XC1	—	●
XC4	●	●
XC5	●	●
XC6	●	●
XC7	●	●
XC26	●	●
XC27	●	●
XC30	●	—

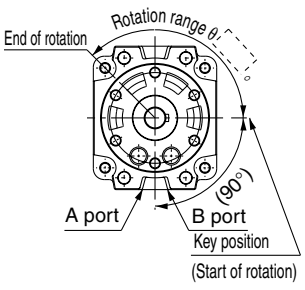
Symbol: C1 Add connection ports on Body (A). (An additionally machined port will have an aluminum surface since it will be left unfinished.)



(mm)

Size	Q	M	N
50	Rc 1/8	21	18
63	Rc 1/8	27	25
80	Rc 1/4	29	30
100	Rc 1/4	38	38

Symbol: C4 Change of rotation. (Applicable to single vane type only) Rotation starts from the horizontal line (90° down from the top to the right side).

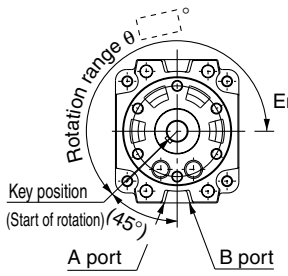


(mm)

Size	Rotation range θ
50	$45^{\circ}{}^{+8^{\circ}}_{0}$, $90^{\circ}{}^{+8^{\circ}}_{0}$, $135^{\circ}{}^{+6^{\circ}}_{0}$
63	
80	
100	

Start of rotation is the position of the key when A port is pressurized. (Top view from long shaft side)

Symbol: C5 Change of rotation. (Applicable to single vane type only)
Rotation starts from the horizontal line
(45° down from the top to the left side).

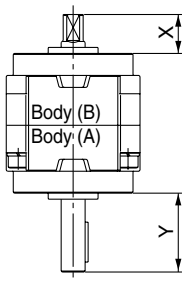


(mm)

Size	Rotation range (θ)
50	45°$^{+8°}_{0}$, 90°$^{+6°}_{0}$, 135°$^{+6°}_{0}$
63	
80	180°$^{+4°}_{0}$, 225°$^{+4°}_{0}$
100	

Start of rotation is the position of the key when B port is pressurized.
(Top view from long shaft side)

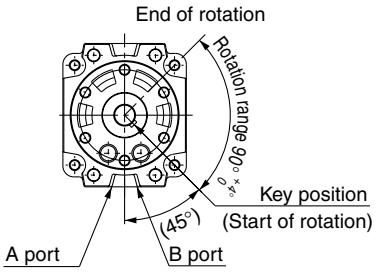
Symbol: C7 The shafts are reversed.



(mm)

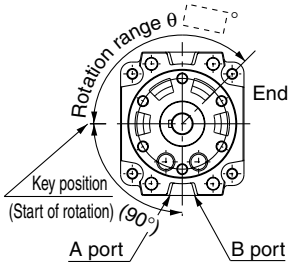
Size	Y	X
50	39.5	19.5
63	45	21
80	53.5	23.5
100	56	30

Symbol: C27 Change of rotation. (Applicable to double vane type only)
Rotation: 90° Rotation starts from the horizontal line
(45° down from the top to the right side).



Start of rotation is the position of the key when A port is pressurized.
(Top view from long shaft side)

Symbol: C6 Change of rotation. (Applicable to single vane type only)
Rotation starts from the horizontal line
(90° down from the top to the left side).

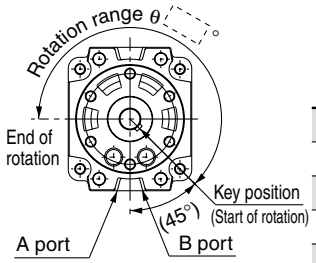


(mm)

Size	Rotation range (θ)
50	45°$^{+8°}_{0}$, 90°$^{+8°}_{0}$, 135°$^{+6°}_{0}$
63	
80	
100	

Start of rotation is the position of the key when B port is pressurized.
(Top view from long shaft side)

Symbol: C26 Change of rotation. (Applicable to single vane type only)
Rotation starts from the horizontal line (45° down from the top to the right side).



(mm)

Size	Rotation range (θ)
50	45°$^{+8°}_{0}$, 90°$^{+6°}_{0}$, 135°$^{+6°}_{0}$
63	
80	180°$^{+4°}_{0}$, 225°$^{+4°}_{0}$
100	

Start of rotation is the position of the key when A port is pressurized.
(Top view from long shaft side)

Symbol: C30 Change the standard grease to fluoro grease
(Not for low-speed specification.)

1 Auto Switch Unit Part No.

Each unit can be retrofitted to the rotary actuator.

Series	Model	Vane type	Unit part no.
Series ***CRB2***	**CDRB2BW10**	Single/Double type	P611070-1
	CDRB2BW15		P611090-1
	CDRB2BW20		P611060-1
	CDRB2BW30		P611080-1
	CDRB2BW40	Single type	P612010-1
		Double type	P611010-1
Free mount type *Series* ***CRBU2***	**CDRBU2W10**	Single/Double type	P611070-1
	CDRBU2W15		P611090-1
	CDRBU2W20		P611060-1
	CDRBU2W30		P611080-1
	CDRBU2W40		P612010-1
Series ***CRB1***	**CDRB1BW50**	Single/Double type	P411020-1
	CDRB1BW63		P411030-1
	CDRB1BW80		P411040-1
	CDRB1BW100		P411050-1

∗ Auto switch unit can be ordered separately if the rotary actuator with auto switch unit is required after the product being delivered. Auto switch itself will not be included. Please order separately.

2 Switch Block Unit Part No.

Auto switch unit comes with one right-hand and one left-hand switch blocks that are used for addition or when the switch block is damaged.

Series	Model	Unit part no.	
Series ***CRB2***	**CDRB2BW10, 15**	Right-handed	P611070-8
		Left-handed	P611070-9
	CDRB2BW20, 30	Right-handed	P611060-8
		Left-handed	
	CDRB2BW40	Right-handed	P611010-8
		Left-handed	P611010-9
Free mount type *Series* ***CRBU2***	**CDRBU2W10, 15**	Right-handed	P611070-8
		Left-handed	P611070-9
	CDRBU2W20, 30	Right-handed	P611060-8
		Left-handed	
	CDRBU2W40	Right-handed	P611010-8
		Left-handed	P611010-9
Series ***CRB1***	**CDRB1BW50**	Right-handed	P411020-8
		Left-handed	P411020-9
	CDRB1BW63, 80, 100	Right-handed	P411040-8
		Left-handed	P411040-9

∗ Solid state switch for size 10 and 15 requires no switch block, therefore the unit part no. will be P611070-13.

3 Angle Adjuster Part No.

Each unit can be retrofitted to the rotary actuator.

Series	Model	Vane type	Unit part no.
Series ***CRB2***	**CRB2BWU10**	Single/Double type	P611070-3
	CRB2BWU15		P611090-3
	CRB2BWU20		P611060-3
	CRB2BWU30		P611080-3
	CRB2BWU40	Single type	P612010-3
		Double type	P611010-3
Free mount type *Series* ***CRBU2***	**CRBU2WU10**	Single/Double type	P611070-3
	CRBU2WU15		P611090-3
	CRBU2WU20		P611060-3
	CRBU2WU30		P611080-3
	CRBU2WU40		P612010-3

4 Auto Switch Angle Adjuster Part No.

Each unit can be retrofitted to the rotary actuator.

Series	Model	Vane type	Unit part no.
Series ***CRB2***	**CDRB2BWU10**	Single/Double type	P611070-4
	CDRB2BWU15		P611090-4
	CDRB2BWU20		P611060-4
	CDRB2BWU30		P611080-4
	CDRB2BWU40	Single type	P612010-4
		Double type	P611010-4
Free-mount type *Series* ***CRBU2***	**CDRBU2WU10**	Single/Double type	P611070-4
	CDRBU2WU15		P611090-4
	CDRBU2WU20		P611060-4
	CDRBU2WU30		P611080-4
	CDRBU2WU40		P612010-4

5 Joint Unit Part No.

Joint unit is a unit required to retrofit the angle adjuster to a rotary actuator with a switch unit or to retrofit the switch unit to a rotary actuator with angle adjuster.

Series	Model	Vane type	Unit part no.
Series ***CRB2***	**CDRB2BWU10**	Single/Double type	P211070-10
	CDRB2BWU15		P211090-10
	CDRB2BWU20		P211060-10
	CDRB2BWU30		P211080-10
	CDRB2BWU40		P211010-10
Free mount type *Series* ***CRBU2***	**CDRBU2WU10**	Single/Double type	P211070-10
	CDRBU2WU15		P211090-10
	CDRBU2WU20		P211060-10
	CDRBU2WU30		P211080-10
	CDRBU2WU40		P211010-10

With Auto Switch

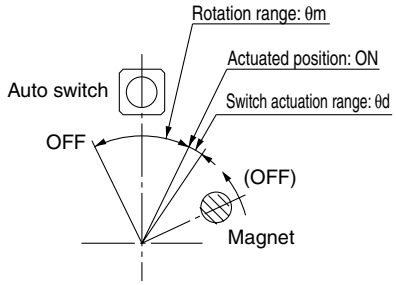
Applicable Auto Switch

Applicable series	Auto switch model		Electrical entry
CDRB2BW10/15 CDRBU2W10/15	Reed switch	**D-90, D-90A**	Grommet, 2-wire
		D-97, D-93A	
	Solid state switch	**D-S99, D-S99V** *	Grommet, 3-wire (NPN)
		D-S9P, D-S9PV *	Grommet, 3-wire (PNP)
		D-T99, D-T99V	Grommet, 2-wire
CDRB2BW20/30/40 CDRBU2W20/30/40 CRB1BW50/63/80/100	Reed switch	**D-R73**	Grommet, 2-wire
		D-R80	Connector, 2-wire
	Solid state switch	**D-S79** *	Grommet, 3-wire (NPN)
		D-S7P *	Grommet, 3-wire (PNP)
		D-T79	Grommet, 2-wire; Connector, 2-wire

* Solid state switch with 3-wire type has no connector type.

Operating Range and Hysteresis

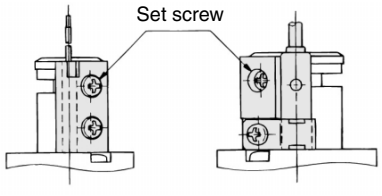
* Operating range: θm
  The range between the position where the auto switch turns ON as the magnet inside the auto switch unit moves and the position where the switch turns OFF as the magnet travels the same direction.
* Hysteresis range: θd
  The range between the position where the auto switch turns ON as the magnet inside the auto switch unit moves and the position where the switch turns OFF as the magnet travels the opposite direction.



Model	Operating range: θm	Switch actuation range: θd
CDRB2BW10/15	110°	10°
CDRBU2W10/15		
CDRB2BW20/30	90°	
CDRBU2W20/30		
CDRB2BW40	52°	8°
CDRBU2W40		
CDRB1BW50		
CDRB1BW63 to 100	38°	7°

How to Change the Detecting Position of Auto Switch

* When setting the detection location, loosen the tightening screw a bit and move a switch to the preferred location and then tighten again and fix it. At this time, if tightened too much, screw can become damaged and unable to fix location. Be sure to set the tightening torque around 0.49 N·m.



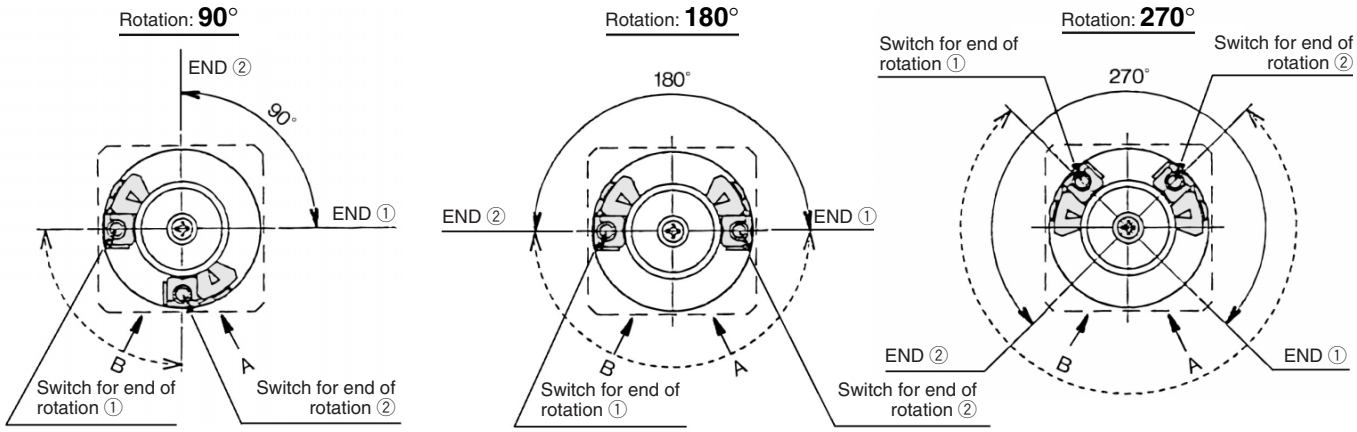
CDRB2BW10/15
CDRBU2W10/15

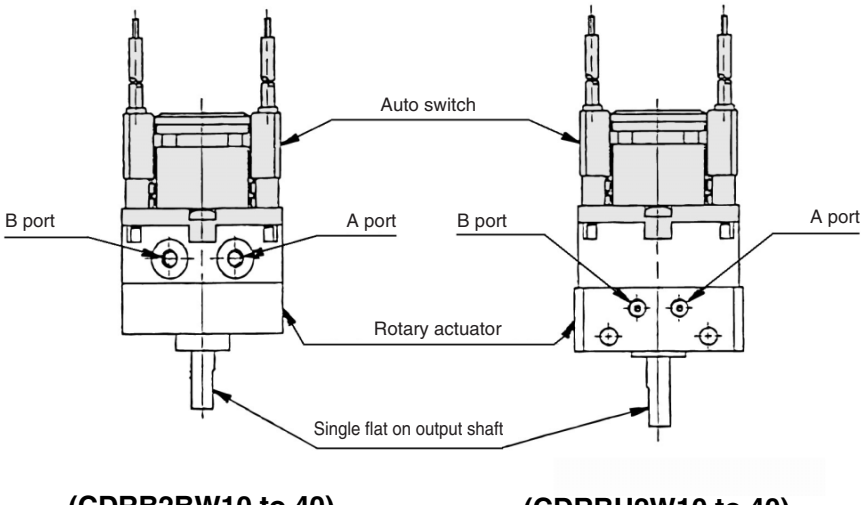
CDRB2BW20 to 40
CDRBU2W20 to 30
CDRB1BW50 to 100

Adjustment of Auto Switch

Rotation range of the output shaft with single flat (key for size 40 only) and auto switch mounting position
Size: 10, 15, 20, 30, 40

<Single vane>





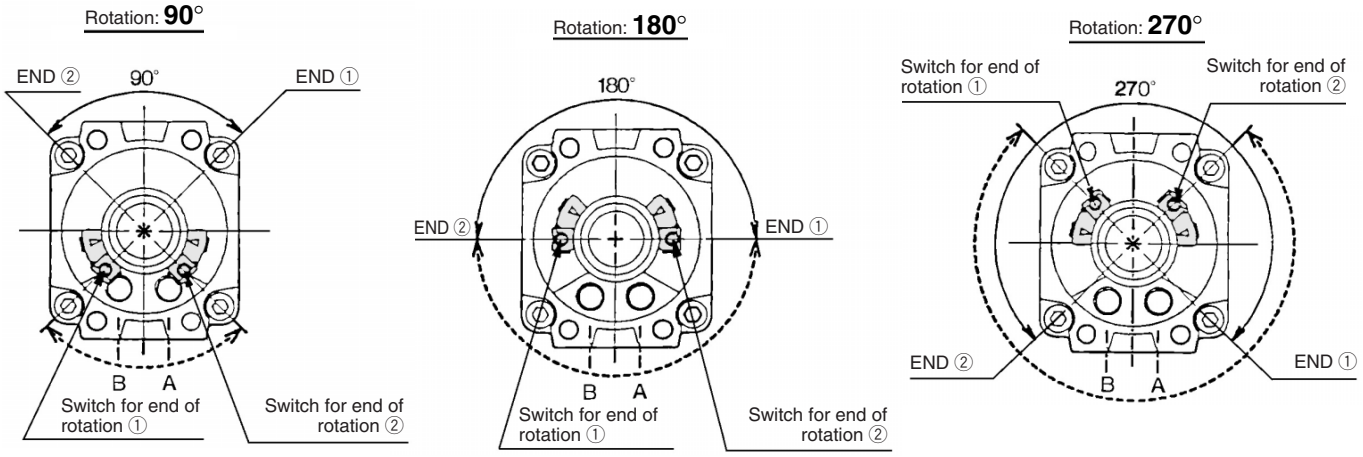
(CDRB2BW10 to 40) **(CDRBU2W10 to 40)**

∗ Solid-lined curves indicate the rotation range of the output shaft with single flat (key). When the single flat (key) is pointing to end of rotation ①, the switch for end of rotation ① will operate, and when the single flat (key) is pointing to end of rotation ②, the switch for end of rotation ② will operate.
∗ Broken-lined curves indicate the rotation range of the built-in magnet. Rotation range of the switch can be decreased by either moving the switch for end of rotation ① clockwise or moving the switch for end of rotation ② counterclockwise. Auto switch in the illustrations above is at the most sensitive position.
∗ Each auto switch unit comes with one right-hand and one left-hand switch.

Adjustment of Auto Switch

Rotation range of the output key (keyway) and auto switch mounting position
Size: 50, 63, 80, 100

<Single vane>



* Solid-lined curves indicate the rotation range of the output key (keyway). When the key is pointing to end of rotation ①, the switch for end of rotation ① will operate, and when the key is pointing to end of rotation ②, the switch for end of rotation ② will operate.
* Broken-lined curves indicate the rotation range of the built-in magnet. Rotation range of the switch can be decreased by either moving the switch for end of rotation ② clockwise or moving the switch for end of rotation ② counterclockwise. Auto switch in the illustrations above is at the most sensitive position.
* Each auto switch unit comes with one right-hand and one left-hand switch.
* The magnet position can be checked with a convenient ▶ indication by removing a rubber cap when adjusting the auto switch position.
* Since four chamfers are machined into the axis of rotation, a magnet position can be readjusted at 90° intervals.