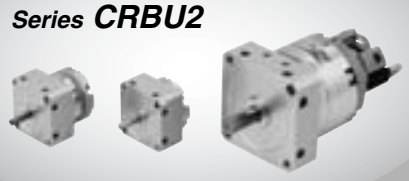
Rotary Actuator: Free Mount Type/Vane Style

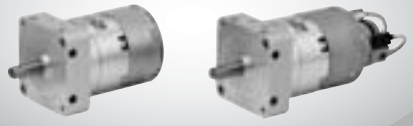
Series CRBU2

Size: 10, 15, 20, 30, 40

Basic style
Series CRBU2



With angle adjuster
Series CRBU2WU



Series Variations

Standard

				10				15				20, 30				40			
Fluid				Air															
Size				10				15				20, 30				40			
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°			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	100°					●	●			●	●			●	●			●	●
	180°			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	270°			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Shaft type	Double shaft	W		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cushion	Rubber bumper			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Variations	Basic type			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With auto switch			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With angle adjuster			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	With auto switch and angle adjuster			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Copper-free and fluorine-free	20-		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Made to Order

					10				15				20, 30				40			
Shaft type	Double shaft type	Long shaft without single flat & Short shaft with single flat	J		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Long shaft without keyway & Short shaft with single flat			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Same length double long shaft with single flat on both shafts	Y		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Double shaft key			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Double round shaft	K		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Single shaft type	Single flat	S		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Single shaft key			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Single round shaft	T		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Pattern	Shaft pattern				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Rotation pattern				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Rotary Actuator: Free Mount Type

Series CRBU2

Size: 10, 15, 20, 30, 40

How to Order

Without auto switch CRBU2 W □□ – 180 S E □

With auto switch Size: 10, 15 CDRBU2 W □□ – 180 S – T99 L □ – □

With auto switch Size: 20, 30,40 CDRBU2 W □□ – 180 S – T79 L □ – □

Size

10
15
20
30
40

Connection port location

Nil	Side ported
E	Axial ported

Size

10
15

Size

20
30
40

With auto switch
(With auto switch unit and built-in magnet)
∗ Refer to page 141 when the auto switch unit is needed separately.

Free mount type

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°

Pattern

Nil	Standard
P	Simple Specials/Made to Order

∗ For details, refer to pages 103 to 114.

Vane type

S	Single vane
D	Double vane

Auto switch

Nil	Without auto switch (built-in magnet)

∗ 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 and 809 for further information on auto switches.

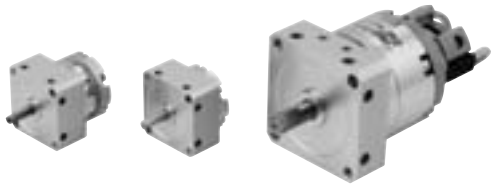
Applicable size	Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model	Lead wire type	Lead wire length (m) ∗ 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Applicable load	
For 10 and 15	Solid state switch	Grommet	Yes	2-wire	12 V	—	T99	Heavy-duty cord	●	●	—	—	—	Relay,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

Made to Order
(Refer to pages 103 to 107, 113 and 114 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 103, 104 and 113 for details.



Single Vane Specifications

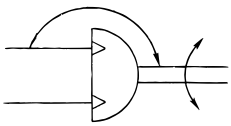
Model (Size)		CRBU2W10-□S	CRBU2W15-□S	CRBU2W20-□S	CRBU2W30-□S	CRBU2W40-□S
Rotating angle		90°, 180°, 270°				
Fluid		Air (Non-lube)				
Proof pressure (MPa)		1.05			1.5	
Ambient and fluid temperature		5 to 60°C				
Max. operating pressure (MPa)		0.7			1.0	
Min. operating pressure (MPa)		0.2	0.15			
Rotation time adjustment range s/90° (1)		0.03 to 0.3			0.04 to 0.3	0.07 to 0.5
Allowable kinetic energy (2) (J)		0.00015	0.001	0.003	0.02	0.04
			0.00025	0.0004	0.015	0.033
Shaft load	**Allowable radial load (N)**	15		25	30	60
	Allowable thrust load (N)	10		20	25	40
Bearing type		Bearing				
Port location		Side ported or Axial ported				
Shaft type		Double shaft (Double shaft with single flat on both shafts)				Double shaft (Long shaft key & Single flat)
Angle adjustable (3)		0 to 230°	0 to 240°			0 to 230°

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

Double Vane Specifications

Model (Size)		CRBU2W10-□D	CRBU2W15-□D	CRBU2W20-□D	CRBU2W30-□D	CRBU2W40-□D
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	**Allowable radial load (N)**	15		25	30	60
	Allowable thrust load (N)	10		20	25	40
Bearing type		Bearing				
Port location		Side ported or Axial ported				
Shaft type		Double shaft (Double shaft with single flat on both shafts)				Double shaft (Long shaft key & Single flat)
Angle adjustable (3)		0 to 90°				0 to 230°

JIS Symbol



Note 1) Make sure to operate within the speed regulation range. Exceeding the maximum speeds 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.

Connection Port

Vane type	Model (size)		CRBU2W10			CRBU2W15			CRBU2W20			CRBU2W30			CRBU2W40		
Single vane	Rotating angle		90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
	Volume (cm^3)		1(0.6)	1.2	1.5	1.5(1.0)	2.9	3.7	4.8(3.5)	6.1	7.9	11.3(8.5)	15	20.2	25	31.5	41
	Port size	Side ported	M5 x 0.8														
		Axial ported	M3 x 0.5						M5 x 0.8								
Double vane	Rotating angle		90°	100°		90°	100°		90°	100°		90°	100°		90°	100°	
	Volume (cm^3) *		1	1.1		2.6	2.7		5.6	5.7		14.4	14.5		33	34	
	Port size	Side ported	M5 x 0.8						M5 x 0.8								
		Axial ported	M3 x 0.5														

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

Mass

(g)

Vane type	Model (size)	CRBU2W10			CRBU2W15			CRBU2W20			CRBU2W30			CRBU2W40		
Single vane	Rotating angle	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
	Body of rotary actuator	47.5	47.1	47	73	72	72	143	142	140	263	258	255	491	480	469
	Auto switch unit + 2 switches	30			30			50			60			46.5		
	Angle adjuster	30			47			90			150			203		
Double vane	Rotating angle	—	90°	100°	—	90°	100°	—	90°	100°	—	90°	100°	—	90°	100°
	Body of rotary actuator	—	62.2	63.2	—	77	81	—	151	158	—	289	308	—	504	550
	Auto switch unit + 2 switches	30			30			50			60			46.5		
	Angle adjuster	30			47			90			150			203		

Rotary Actuator: Replaceable Shaft

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

Without auto switch CRBU2 **J** **P** **Size** — **Rotating angle** **Vane type** **Port location** — **Made to order**

Pattern

Nil	Without Made to Order
P	Simple Specials/Made to Order

Made to Order

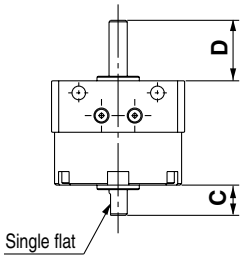
Symbol	Description
XA31 to XA58	Shaft type pattern
XC 1	Add connection port
XC 2	Change threaded hole to through-hole
XC 3	Change the screw position
XC 4	Change rotation range
XC 5	Change rotation range between 0 and 200°
XC 6	Change rotation range between 0 and 110°
XC 7	Reversed shaft
XC30	Fluorine grease

For details, refer to pages 108 to 114.

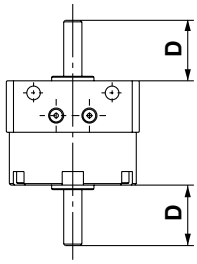
Shaft type

Symbol	Shaft type	Shaft-end shape	Size 10	15	20	30	40
J	Double shaft	Long shaft without single flat & with single flat	●	●	●	●	
		Long shaft without keyway & single flat					●
K	Double shaft	Double round shaft					●
S	Single shaft	Single shaft with single flat	●	●	●	●	
		Single shaft key					●
T	Single shaft	Single round shaft	●	●	●	●	●
Y	Double shaft	Double shaft with single flat	●	●	●	●	
		Double shaft key					●

J

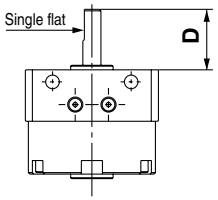


K

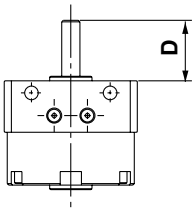


S

A parallel key is used instead of single flat for size 40.

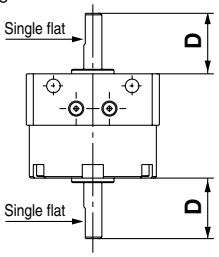


T



Y

A parallel key is used instead of single flat for size 40.



(mm)

Size	10	15	20	30	40
C	8	9	10	13	15
D	14	18	20	22	30

Note) Dimensions and tolerance of the shaft and single flat (a parallel keyway for size 40) are the same as the standard.

With auto switch With angle adjuster CDRBU2 **J** **U** **P** **Size** — **Rotating angle** **Vane type** — **Made to order**

With auto switch

With angle adjuster

Pattern

Nil	Without Made to Order
P	Simple Specials/Made to Order

Made to Order

Symbol	Description
XA31 to XA58	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

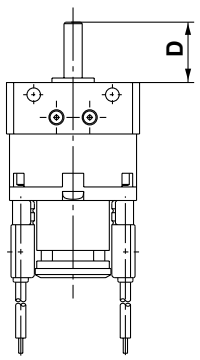
The above may not be selected when the product comes with an auto switch or angle adjustment unit. Refer to pages 108, 109 and 113 for details.

Shaft type

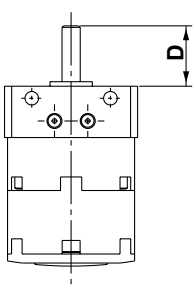
Symbol	Shaft type	Shaft-end shape	Size 10	15	20	30	40
J	Double shaft	Long shaft without single flat & with single flat	●	●	●	●	
		Long shaft without keyway & single flat					●

J

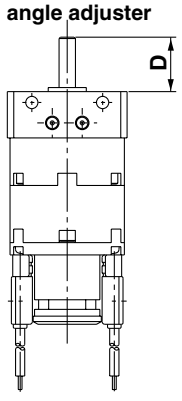
With auto switch



With angle adjuster



With auto switch and angle adjuster



(mm)

Size	10	15	20	30	40
D	14	18	20	22	30

Note 1) Only side ports are available except basic type.
Note 2) Dimensions and tolerance of the shaft and single flat (a parallel key for size 40) are the same as the standard.

Copper-free and Fluorine-free Rotary Actuator

20−CRBU2W | **P** | **Size** | − | **Rotating angle** | **Vane type** | **Port location** | − | **Made to order**

Copper-free and fluorine-free

Pattern

Nil	Without Made to Order
P	Simple Specials/Made to Order

Made to Order

Symbol	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

The above may not be selected when the product comes with an auto switch or angle adjustment unit. Refer to pages 103, 104 and 113 for details.

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

Specifications

Vane type	Single/Double vane				
Size	**10**	**15**	**20**	**30**	**40**
Operating pressure range (MPa)	0.2 to 0.7	0.15 to 0.7		0.15 to 1.0	
Speed regulation range (s/90°)	0.03 to 0.3 s/90°			0.04 to 0.3 s/90°	0.07 to 0.5 s/90°
Port location	Side ported or axial ported (Basic style only)				
Shaft type	Double shaft (Shaft with single flat on both shafts)				Long shaft key & Single flat
Variations	Basic style, With auto switch, With angle adjuster				

CRB2
CRBU2
CRB1
MSU
CRJ
CRA1
CRQ2
MSQ
MSZ
CRQ2X
MSQX
MRQ

⚠ Precautions

Be sure to read before handling. Refer to front matters 38 and 39 for Safety Instructions and pages 4 to 13 for Rotary Actuator and Auto Switch Precautions.

Angle Adjuster

⚠ Caution

1. Since the maximum angle of the rotation adjustment range will be limited by the rotation of the rotary actuator itself, make sure to take this into consideration when ordering.

(Refer to the table below.)

Rotating angle of the rotary actuator	Rotating angle adjustment range
270° $^{+4}_{0}$	0° to 230° (Size: 10, 40) *1
	0° to 240° (Size: 15, 20, 30)
180° $^{+4}_{0}$	0° to 175°
90° $^{+4}_{0}$	0° to 85°

*1 The maximum adjustment angle of the angle adjuster for size 10 and 40 is 230°.

2. Connection ports are side ports only.

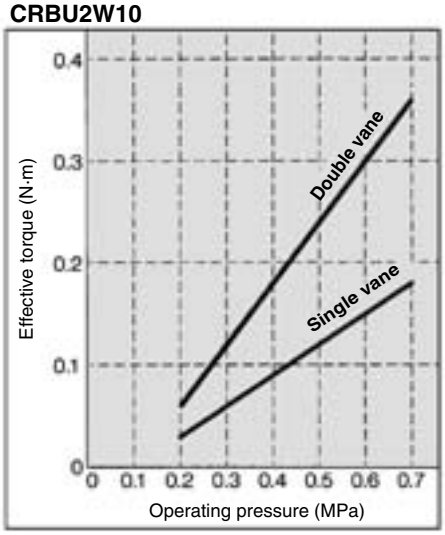
3. The allowable kinetic energy is the same as the specifications of the rotary actuator by itself (i.e., without angle adjuster).

4. Use a 100° rotary actuator if you desire to adjust the angle to 90° using a double vane type.

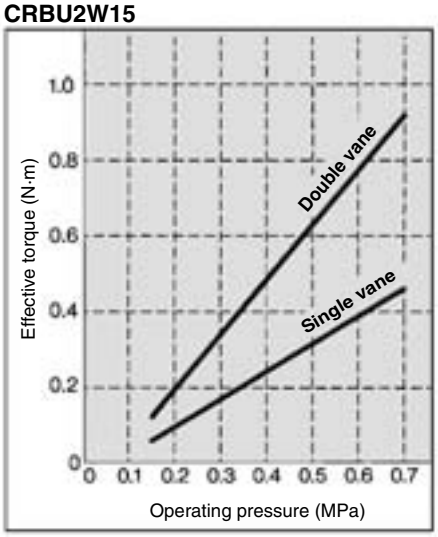
D-□

Effective Output

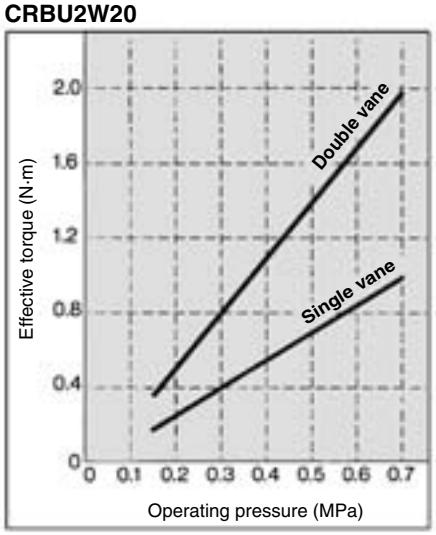
CRBU2W10



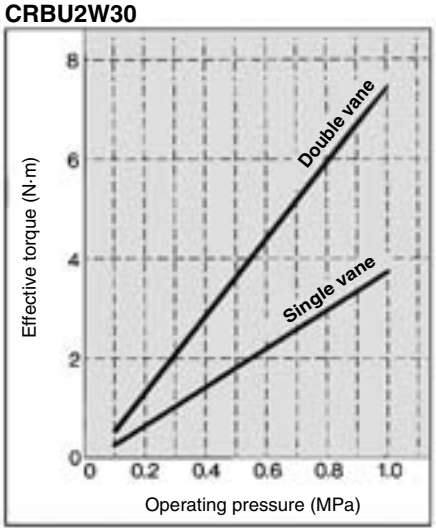
CRBU2W15



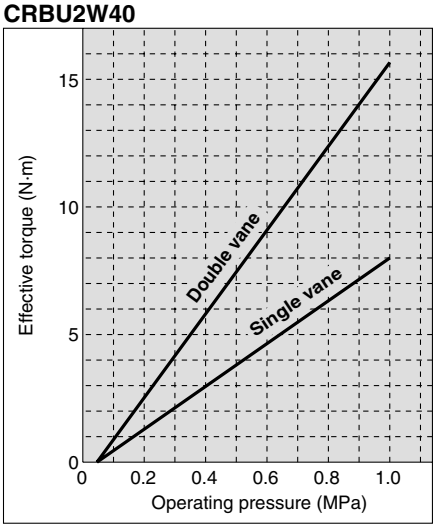
CRBU2W20



CRBU2W30



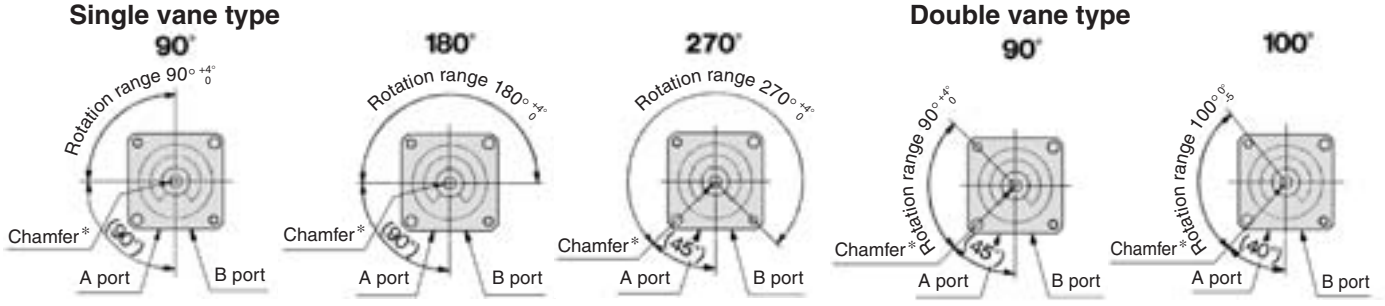
CRBU2W40



Chamfered Position and Rotation Range: Top View from Long Shaft Side

Chamfered positions shown below illustrate the conditions of actuators when B port is pressurized.

Single vane type



Double vane type

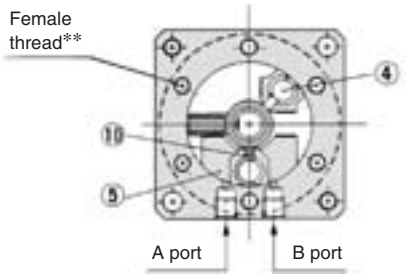
* For size 40 actuators, a parallel key will be used instead of chamfer.

Note) For single vane type, rotation tolerance of 90°, 180°, and 270° actuators $^{+5°}_{0}$ will be for size 10 actuators only.
For double vane type, rotation tolerance of 90° actuators $^{+5°}_{0}$ will be for size 10 actuators only.

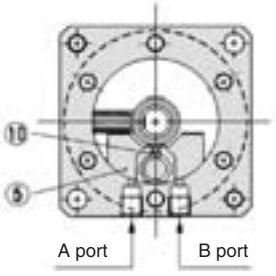
Construction: 10, 15, 20, 30, 40

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.
Standard: CRBU2W10/15/20/30/40-□S (3 female threads (one of them is indicated with "**") spaced equally apart in 120° are not available for size 10.)

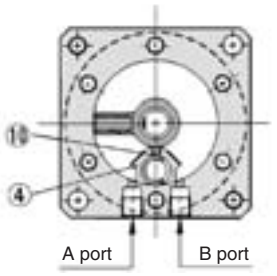
For 90°
(Top view from long shaft side)



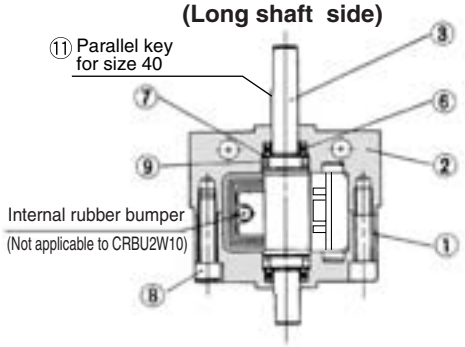
For 180°
(Top view from long shaft side)



For 270°
(Top view from long shaft side)



(Long shaft side)



(Short shaft side)

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

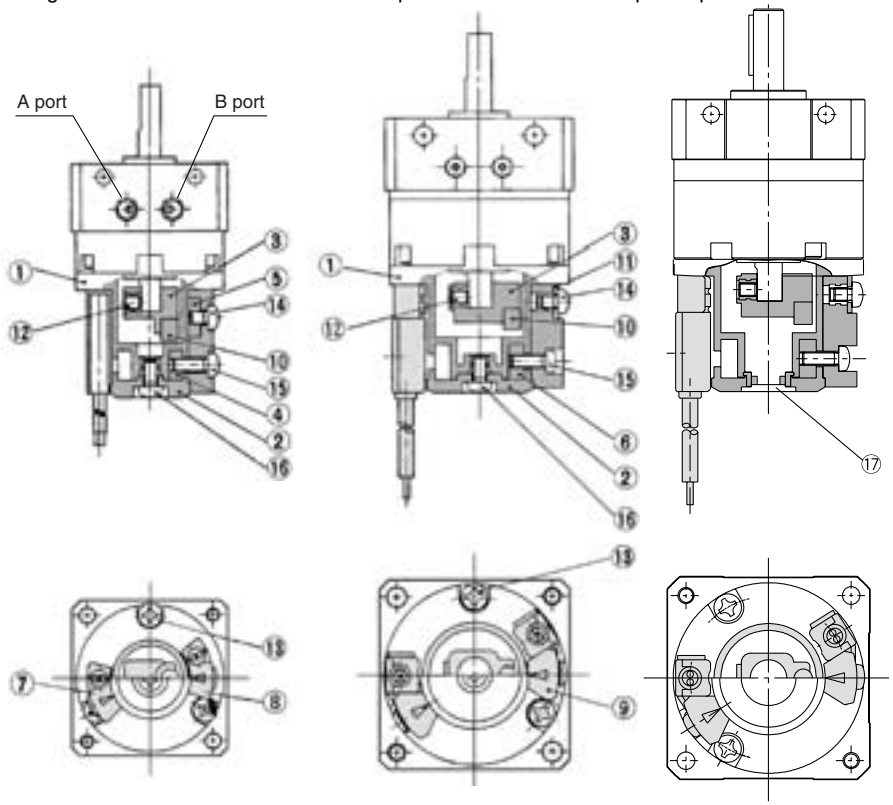
* Carbon steel for CRBU2W30 and CRBU2W40.

With auto switch unit (Units are common for both single and double vane.)

CDRBU2W10, 15-□ S/D **CDRBU2W20, 30, 40-□ S/D** **CDRBU2W40-S/D**

● **For single vane type:**
Figures show actuators for 90° and 180° when the B port is pressurized.

● **For double vane type:**
Figures show the intermediate rotation position when the A or B port is pressurized.



Component Parts

No.	Description	Material
1	**Cover (A)**	Resin
2	**Cover (B)**	Resin
3	**Magnet lever**	Resin
4	**Holding block (A)**	Aluminum alloy
5	**Holding block (B)**	Aluminum alloy
6	**Holding block**	Aluminum alloy
7	**Switch block (A)**	Resin
8	**Switch block (B)**	Resin
9	**Switch block**	Resin
10	**Magnet**	—
11	**Arm**	Stainless steel
12	**Hexagon socket head set screw**	Stainless steel
13	**Round head Phillips screw**	Stainless steel
14	**Round head Phillips screw**	Stainless steel
15	**Round head Phillips screw**	Stainless steel
16	**Round head Phillips screw**	Stainless steel
17	**Rubber cap**	NBR (size 40 only)

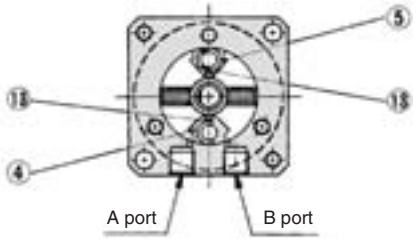
* For CDRBU2W10, two round head Phillips screws ⑬, are required.

Construction: 10, 15, 20, 30, 40

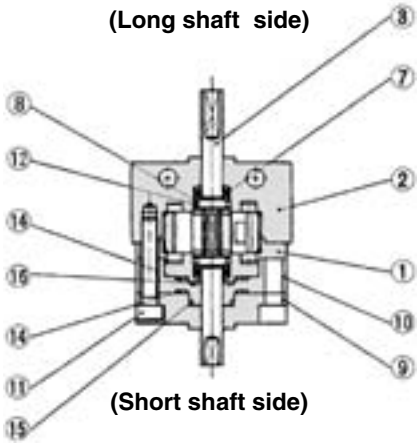
Double vane type ● Figures below show the intermediate rotation position when A or B port is pressurized.

Standard: CRBU2W10-□D

For 90°
(Top view from long shaft side)

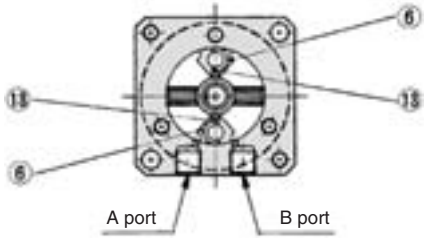


(Long shaft side)



(Short shaft side)

For 100°
(Top view from long shaft side)



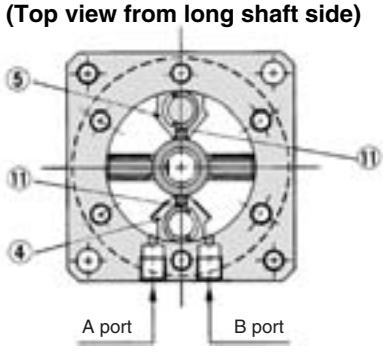
Component Parts

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
10	**Plate**	Resin	
11	**Hexagon socket head cap screw**	Stainless steel	Special screw
12	**O-ring**	NBR	
13	**Stopper seal**	NBR	
14	**Gasket**	NBR	
15	**O-ring**	NBR	
16	**O-ring**	NBR	

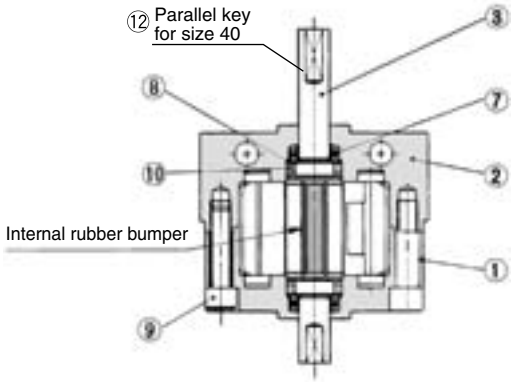
Standard: CRBU2W15/20/30/40-□D

● Figures below show the intermediate rotation position when A or B port is pressurized.

For 90°
(Top view from long shaft side)

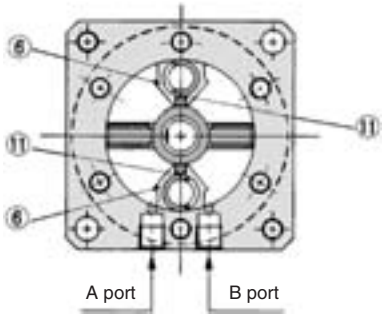


(Long shaft side)



(Short shaft side)

For 100°
(Top view from long shaft side)



Component Parts

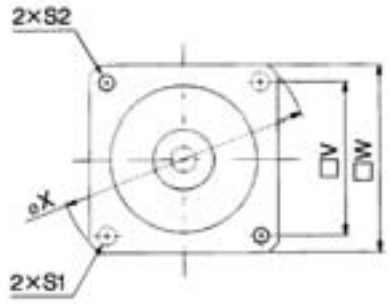
No.	Description	Material	Note
1	**Body (A)**	Aluminum alloy	Anodized
2	**Body (B)**	Aluminum alloy	Anodized
3	**Vane shaft**	Carbon steel	
4	**Stopper**	Stainless steel *	
5	**Stopper**	Resin	
6	**Stopper**	Stainless steel *	
7	**Bearing**	High carbon chrome bearing steel	
8	**Back-up ring**	Stainless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

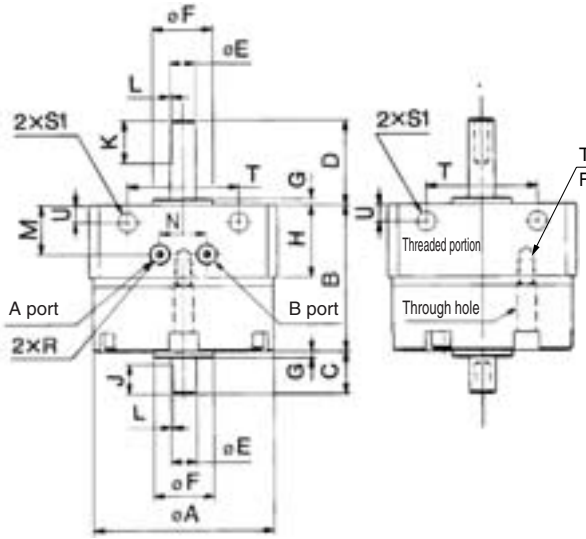
* For size 40, material for no. ④⑥ is die-cast aluminum.

Dimensions: 10, 15, 20, 30

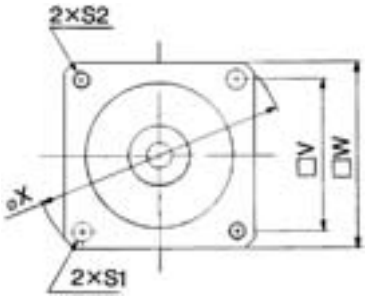
Single vane type ● Following figures show actuators for 90° and 180° when B port is pressurized.

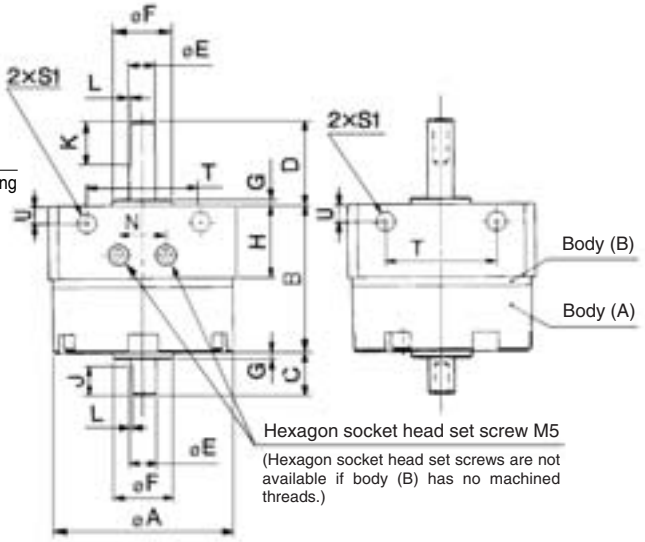
CRBU2W□-□S
<Port location: Side ported>



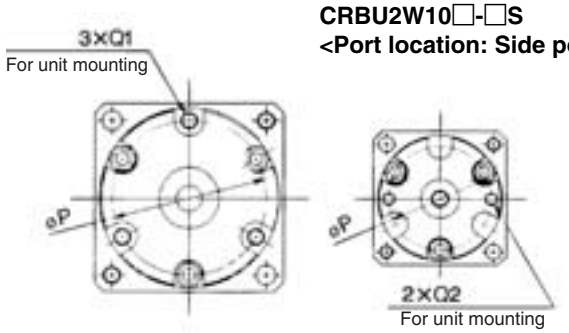


CRBU2W□-□SE
<Port location: Axial ported>

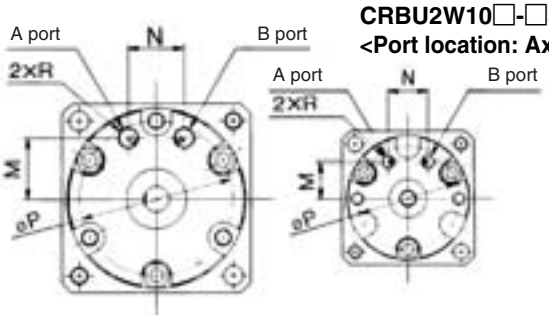




CRBU2W10□-□S
<Port location: Side ported>



CRBU2W10□-□SE
<Port location: Axial ported>



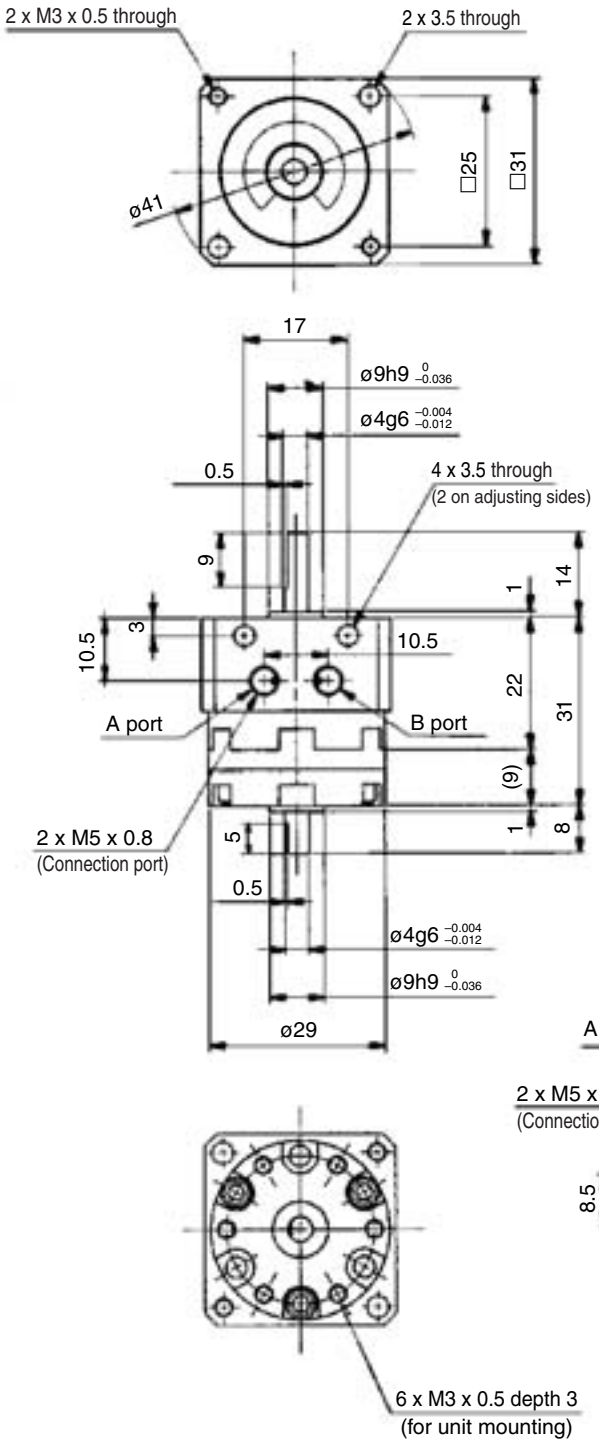
(mm)

Model	A	B	C	D	E(g6)	F(h9)	G	H	J	K	L	M	N	P	Q1	(Depth) Q2	R	S1	S2	T	U	V	W	X
CRBU2W10-□S	29	22	8	14	$4^{-0.004}_{-0.012}$	$9^{0}_{-0.036}$	1	15.5	5	9	0.5	10.5	10.5	24	—	M3 (4)	M5 x 0.8	3.5	M3 x 0.5	17	3	25	31	41
CRBU2W10-□SE												8.5	9.5				M3 x 0.5							
CRBU2W15-□S	34	25	9	18	$5^{-0.004}_{-0.012}$	$12^{0}_{-0.043}$	1.5	15.5	6	10	0.5	10.5	10.5	29	M3 x 0.5	—	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48
CRBU2W15-□SE												11	10				M3 x 0.5							
CRBU2W20-□S	42	34.5	10	20	$6^{-0.004}_{-0.012}$	$14^{0}_{-0.043}$	1.5	17	7	10	0.5	11.5	11	36	M4 x 0.7	—	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59
CRBU2W20-□SE												14	13											
CRBU2W30-□S	50	47.5	13	22	$8^{-0.005}_{-0.014}$	$16^{0}_{-0.043}$	2	17.5	8	12	1	12	13	43	M5 x 0.8	—	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69
CRBU2W30-□SE												15.5	14											

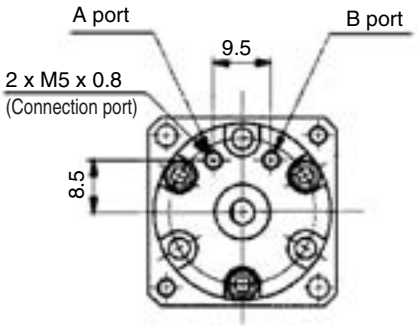
Dimensions: 10

Double vane type ● Figures below show the intermediate rotation position when A or B port is pressurized.

CRBU2W10-□D
<Port location: Side ported>



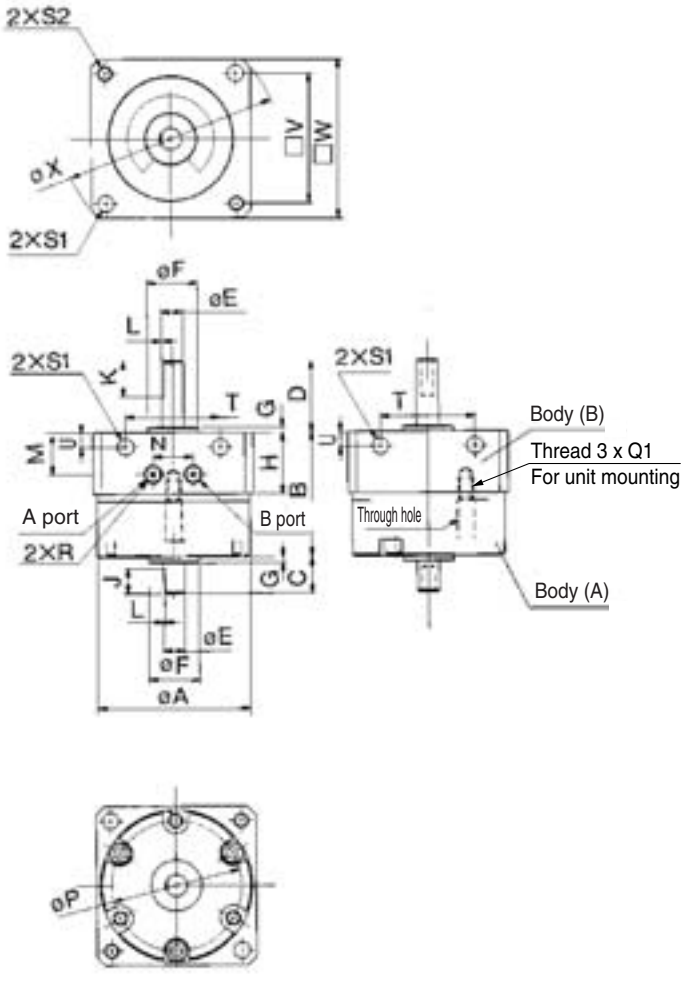
CRBU2W10-□DE
<Port location: Axial ported>



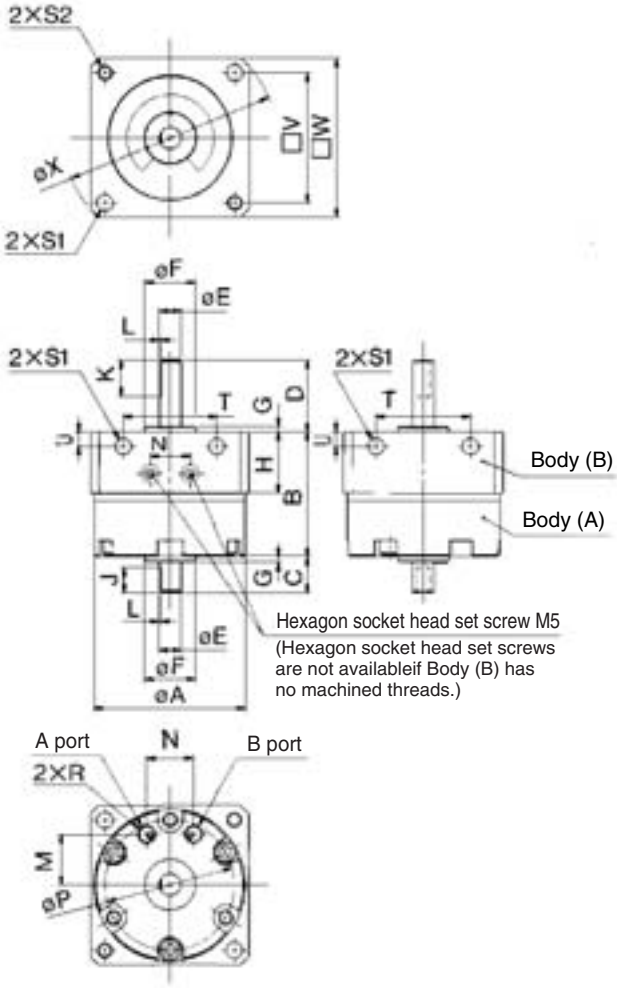
Dimensions: 15, 20, 30

Double vane type ● Figures below show the intermediate rotation position when A or B port is pressurized.

CRBU2W15/20/30-□D
<Port location: Side ported> (Figures below show size 30 actuators.)



CRBU2W15/20/30-□DE
<Port location: Axial ported>



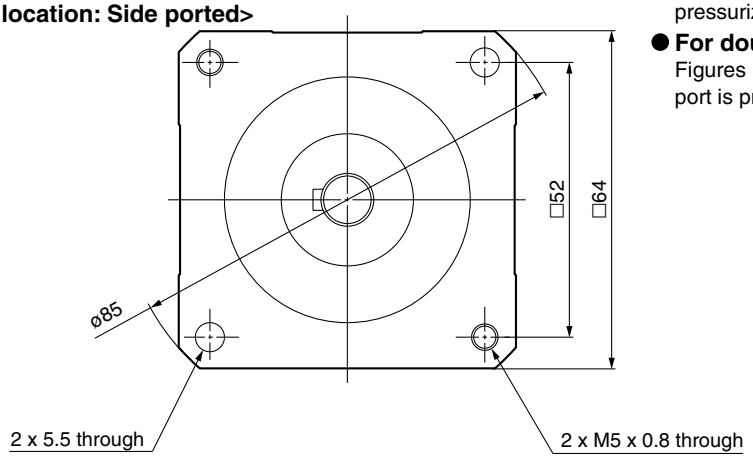
(mm)

Model	A	B	C	D	E (g6)	F (h9)	G	H	J	K	L	M	N	P	Q1	R	S1	S2	T	U	V	W	X
CRBU2W15-□D	34	25	9	18	5 $^{-0.004}_{-0.012}$	12 $^{0}_{-0.043}$	1.5	15.5	6	10	0.5	10.5	10.5	29	M3 x 0.5	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48
CRBU2W15-□DE												11	10			M3 x 0.5							
CRBU2W20-□D	42	34.5	10	20	6 $^{-0.004}_{-0.012}$	14 $^{0}_{-0.043}$	1.5	17	7	10	0.5	11.5	11	36	M4 x 0.7	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59
CRBU2W20-□DE												14	13										
CRBU2W30-□D	50	47.5	13	22	8 $^{-0.005}_{-0.014}$	16 $^{-0.00}_{-0.043}$	2	17.5	8	12	1	12	13	43	M5 x 0.8	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69
CRBU2W30-□DE												15.5	14										

Dimensions: 40

Single vane type/Double vane type

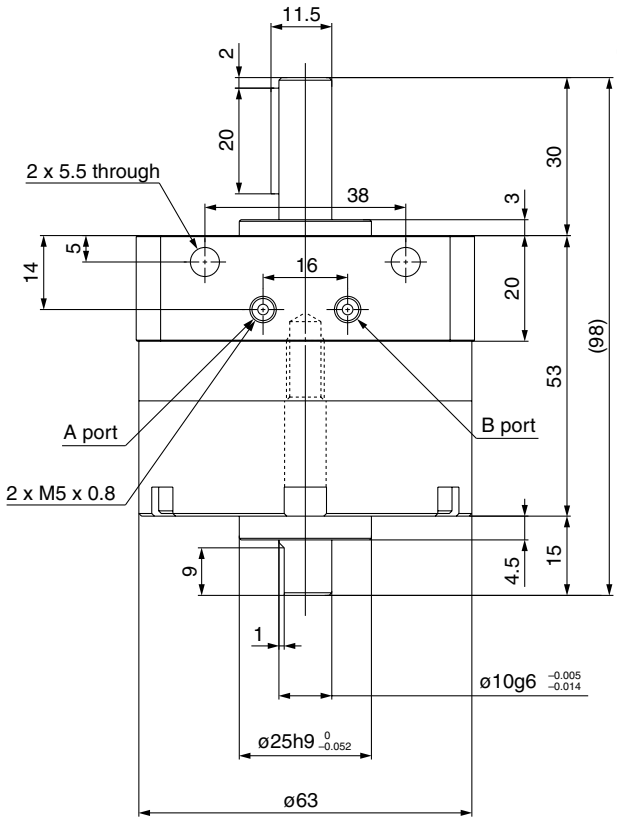
CRBU2W40-□S/D
<Port location: Side ported>

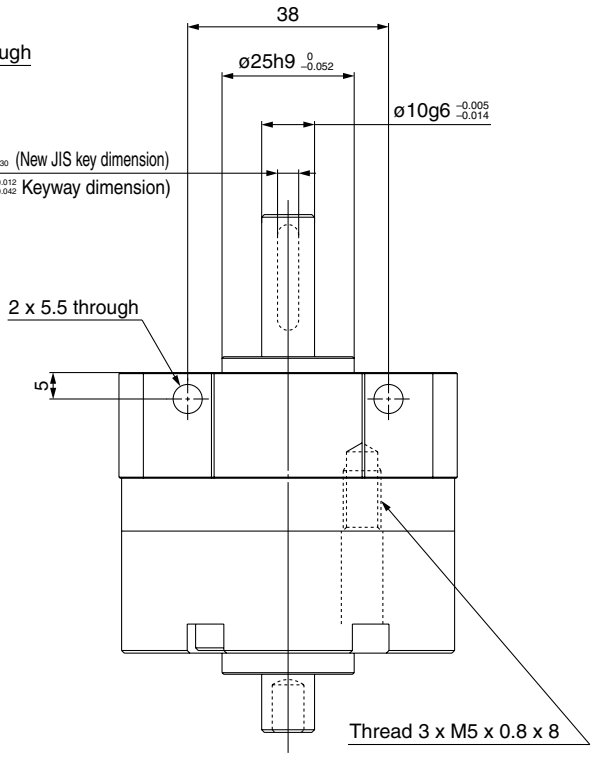


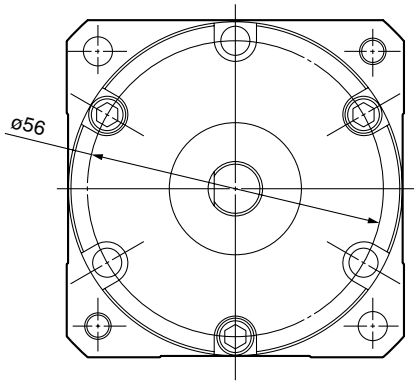
● **For single vane type:**
Figures show actuators for 90° and 180° when the B port is pressurized.

● **For double vane type:**
Figures show the intermediate rotation position when the A or B port is pressurized.

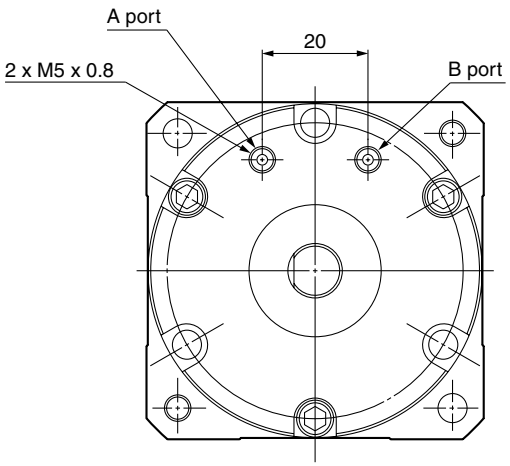
Keyway dimensions	ℓ	b	h
Model	**b** (h9)	**h** (h9)	ℓ
CRBU2W40-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20







CRBU2W40-□SE / DE
<Port location: Axial ported>

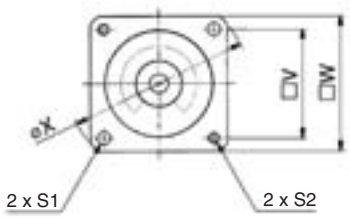


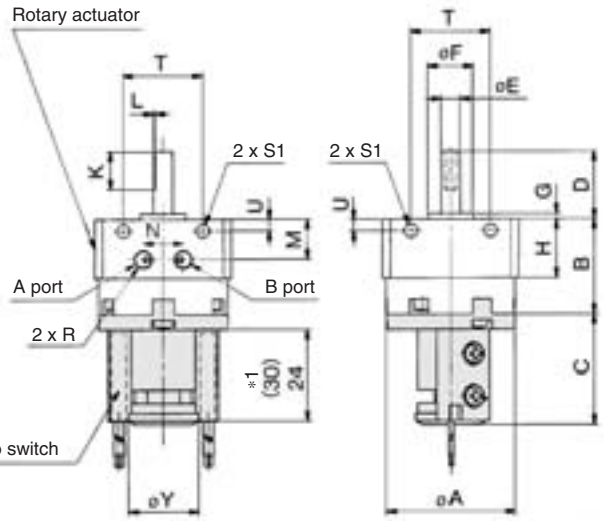
Dimensions: 10, 15, 20, 30 (With auto switch unit)

Single vane type

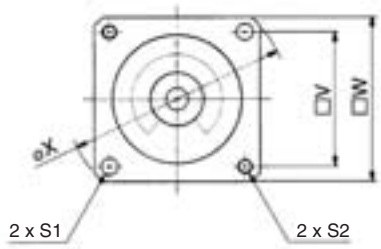
● Following figures show actuators for 90° and 180° when B port is pressurized.

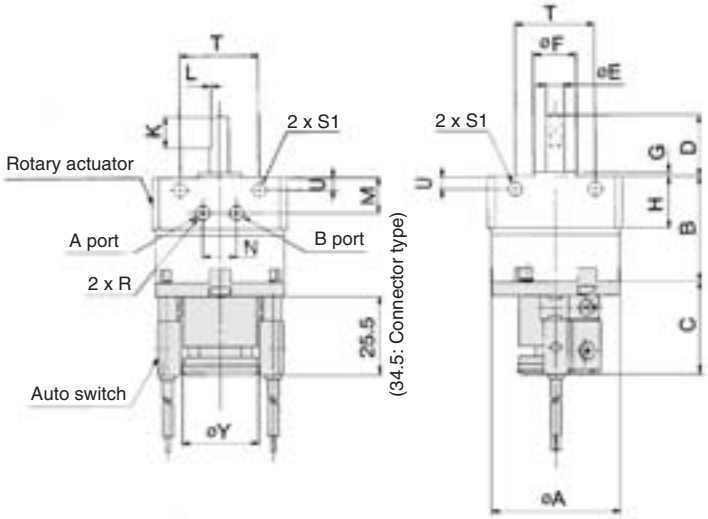
CDRBU2W10, 15-□S

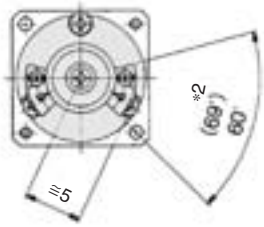


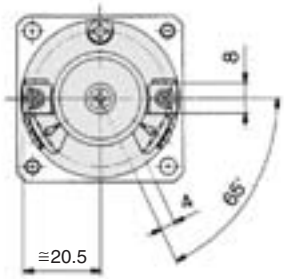


CDRBU2W20, 30-□S









∗1. The length is 24 when any of the following auto switches are used: D-90/90A/S99(V)/T99/S9P(V)
The length is 30 when any of the following auto switches are used: D-97/93A
∗2. The angle is 60° when any of the following auto switches are used: D-90/90A/97/93A
The angle is 69° when any of the following auto switches are used: D-S99(V)/T99(V)/S9P(V)

Note)
- For rotary actuators with auto switch unit connection ports are side ports only.
- The above exterior view drawings illustrate rotary actuators with one right-hand and one left-hand

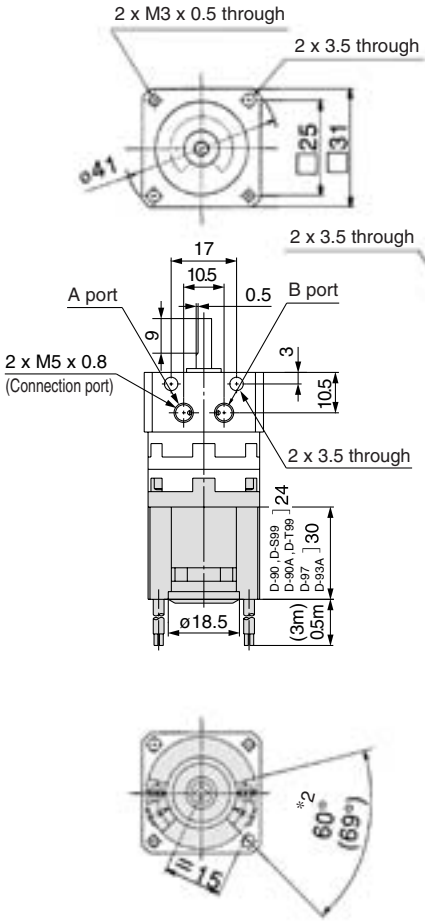
(mm)

Model	A	B	C	D	E (g6)	F (h9)	G	H	K	L	M	N	R	S1	S2	T	U	V	W	X	Y
CDRBU2W10-□S	29	22	29	14	4 $^{-0.004}_{-0.012}$	9 $^{0}_{-0.036}$	1	15.5	9	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	17	3	25	31	41	18.5
CDRBU2W15-□S	34	25	29	18	5 $^{-0.004}_{-0.012}$	12 $^{0}_{-0.043}$	1.5	15.5	10	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48	18.5
CDRBU2W20-□S	42	34.5	30	20	6 $^{-0.004}_{-0.012}$	14 $^{0}_{-0.043}$	1.5	17	10	0.5	11.5	11	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59	25
CDRBU2W30-□S	50	47.5	31	22	8 $^{-0.005}_{-0.014}$	16 $^{0}_{-0.043}$	2	17.5	12	1	12	13	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69	25

Dimensions: 10, 15, 20, 30 (With auto switch unit)

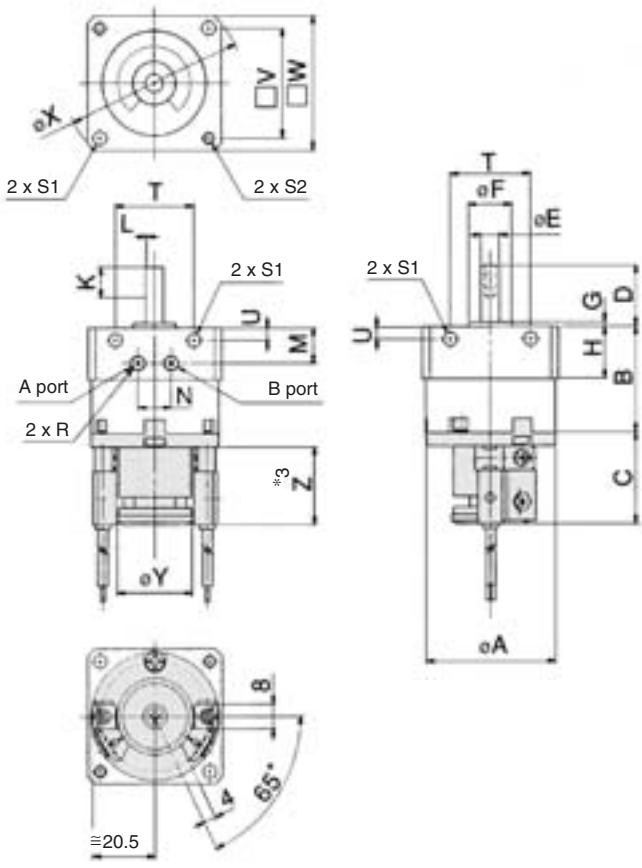
Double vane type • Following figures show actuators for 90° and 180° when B port is pressurized.

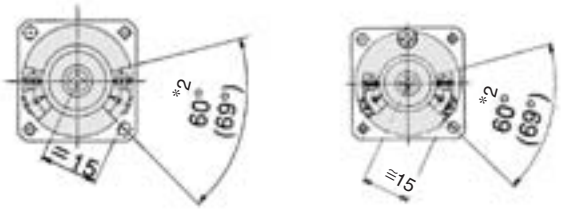
CDRBU2W10-□D



CDRBU2W15, 20, 30-□D

(Figures below show size 20 actuators.)





CDRBU2W15-□D

(Approx. 26.5 for connector type)
CDRBU2W20/30-□D

∗1. The length is 24 when any of the following auto switches are used: D-90/90A/S99(V)/T99(V)/S9P(V)
The length is 30 when any of the following auto switches are used: D-97/93A
∗2. The angle is 60° when any of the following auto switches are used: D-90/90A/97/93A
The angle is 69° when any of the following auto switches are used: D-S99(V)/T99(V)/S9P(V)
∗3. The length (Dimension S) is 25.5 when any of the following grommet type auto switches are used: D-R73/R80/S79/S7P/T79
The length (Dimension S) is 34.5 when any of the following connector type auto switches are used: D-R73/R80/T79

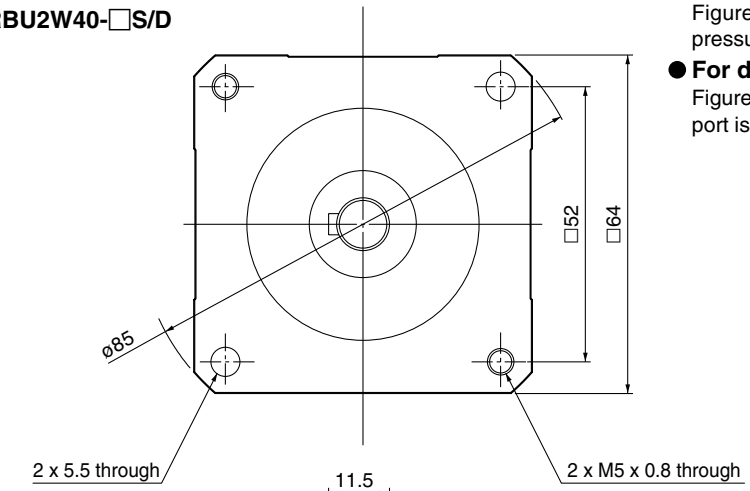
(mm)

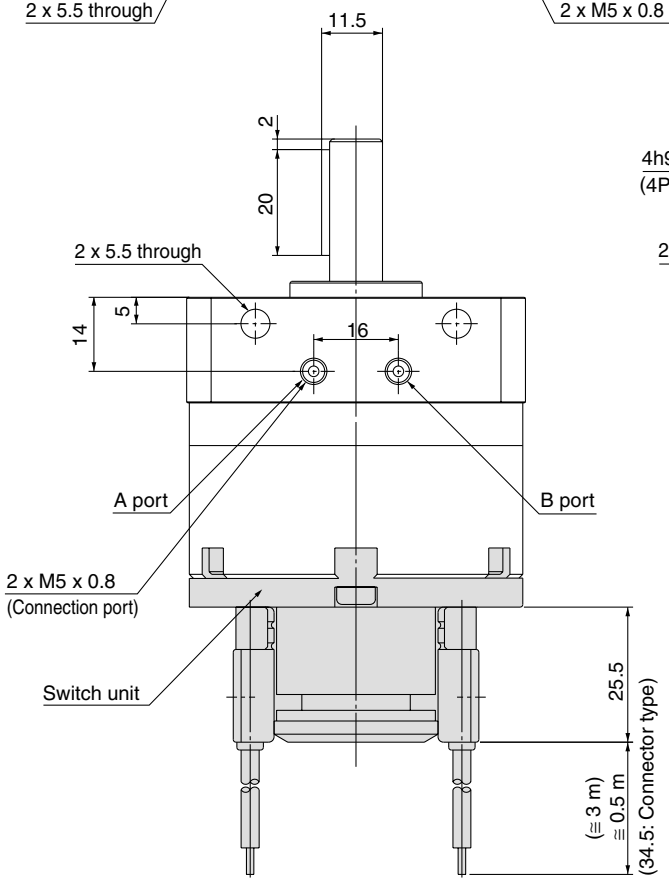
Model	A	B	C	D	E (g6)	F (h9)	G	H	K	L	M	N	R	S1	S2	T	U	V	W	X	Y	Z	
CDRBU2W15-□D	34	25	29	18	5 $^{-0.004}_{-0.012}$	12 $^{0}_{-0.043}$	1.5	15.5	10	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48	18.5	24 *1	30 *1
CDRBU2W20-□D	42	34.5	30	20	6 $^{-0.004}_{-0.012}$	14 $^{0}_{-0.043}$	1.5	17	10	0.5	11.5	11	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59	25	25.5 *3	34.5 *3
CDRBU2W30-□D	50	47.5	31	22	8 $^{-0.005}_{-0.014}$	16 $^{0}_{-0.043}$	2	17.5	12	1	12	13	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69	25		

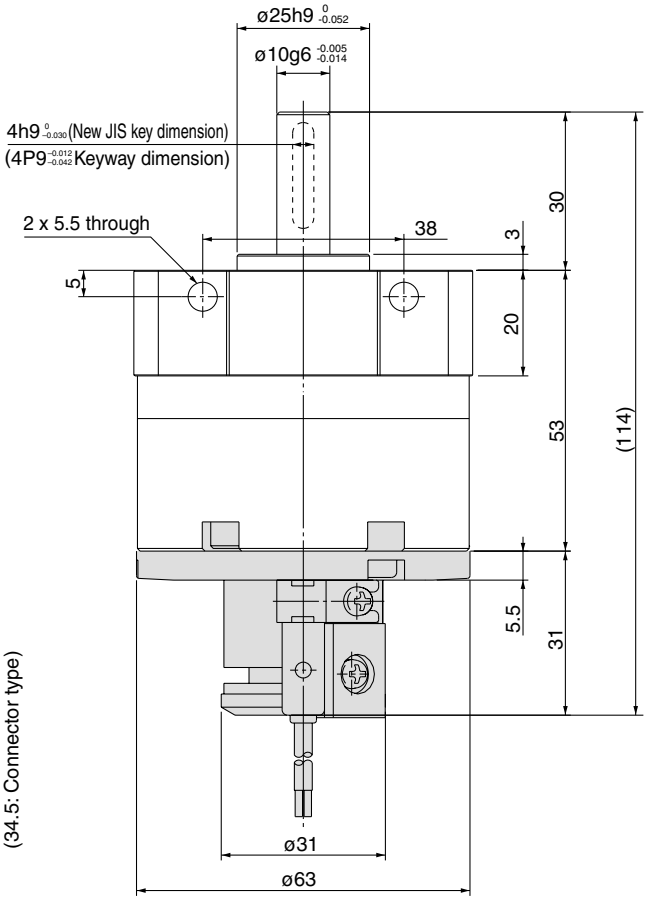
Dimensions: 40 (With auto switch unit)

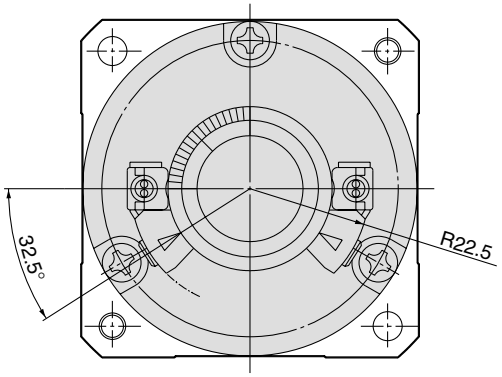
Single vane type/Double vane type

CDRBU2W40-□S/D



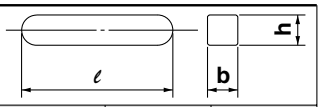






● **For single vane type:**
Figures show actuators for 90° and 180° when the B port is pressurized.

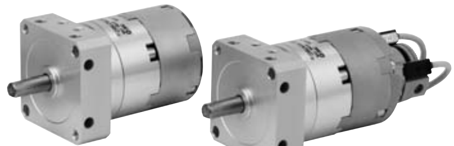
● **For double vane type:**
Figures show the intermediate rotation position when the A or B port is pressurized.

Keyway dimensions			
Series	**b** (h9)	**h** (h9)	ℓ
CDRBU2W40-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20

Rotary Actuator with Angle Adjuster Free Mount Type

Series CRBU2WU

Size: 10, 15, 20, 30, 40



How to Order

Without auto switch
CRBU2 W U [ ] [ ] – 180 S ——— [ ]

With auto switch Size: 10, 15
CDRBU2 W U [ ] [ ] – 180 S – T99 L [ ] – [ ]

With auto switch Size: 20, 30, 40
CDRBU2 W U [ ] [ ] – 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.

Free mount type

Shaft type

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

With angle adjuster

Pattern

Nil	Standard
P	Simple Specials/Made to Order

∗ For details, refer to pages 103 to 114.

Size (Without auto switch)

10
15
20
30
40

Size (With auto switch, Size 10, 15)

10
15

Size (With auto switch, Size 20, 30, 40)

20
30
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

Auto switch

Nil	Without auto switch (built-in magnet)

∗ 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	24 V	12 V	—	T99	Heavy-duty cord	●	●	—	—	—	Relay, PLC
								T99V		●	●	—	—		
				3-wire (NPN)		5 V, 12 V		S99		●	●	—	—	IC circuit	
								S99V		●	●	—	—		
				3-wire (PNP)				S9P		●	●	—	—		
								S9PV		●	●	—	—		
	Reed switch		No	2-wire		5 V, 12 V	5 V, 12 V, 24 V	90	Parallel cord	●	●	●	—		
						5 V, 12 V, 100 V	5 V, 12 V, 24 V, 100 V	90A	Heavy-duty cord	●	●	●	—		
			Yes			—	—	97	Parallel cord	●	●	●	—	—	
							100 V	93A	Heavy-duty cord	●	●	●	—		
For 20, 30 and 40	Solid state switch	Grommet	Yes	2-wire	24 V	12 V	—	T79	Heavy-duty cord	●	●	—	—	—	Relay, PLC
		Connector						T79C		●	●	●	●		
		Grommet		3-wire (NPN)		5 V, 12 V		S79		●	●	—	—	IC circuit	
				3-wire (PNP)				S7P		●	●	—	—		
	Reed switch	Grommet	Yes	2-wire		—	100 V	R73		●	●	—	—	—	
		Connector					—	R73C		●	●	●	●		
		Grommet	No			48 V, 100 V	100 V or less	R80		●	●	—	—	IC circuit	
		Connector				—	24 V or less	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

Made to Order
(Refer to pages 103 to 107, 113 and 114 for details.)

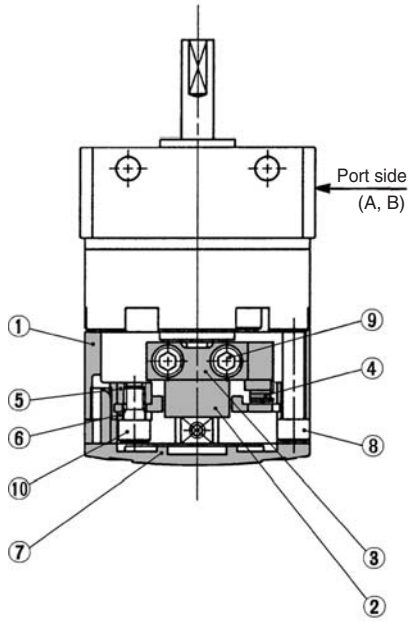
Symbol	Specifications/Description
XA1 to XA24	Shaft type pattern
XC 1	Add connection port
XC 2	Change threaded hole to through-hole
XC 3	Change the screw position
XC 4	Change rotation range
XC 5	Change rotation range between 0 and 200°
XC 6	Change rotation range between 0 and 110°
XC 7	Reversed shaft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

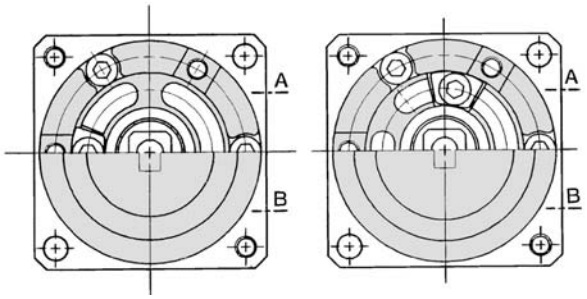
The above may not be selected when the product comes with an auto switch or angle adjustment unit. Refer to pages 103, 104 and 113 for details.

Construction: 10, 15, 20, 30, 40

Single vane type/Double vane type
With angle adjuster

CRBU2W10/15/20/30/40-□S/D

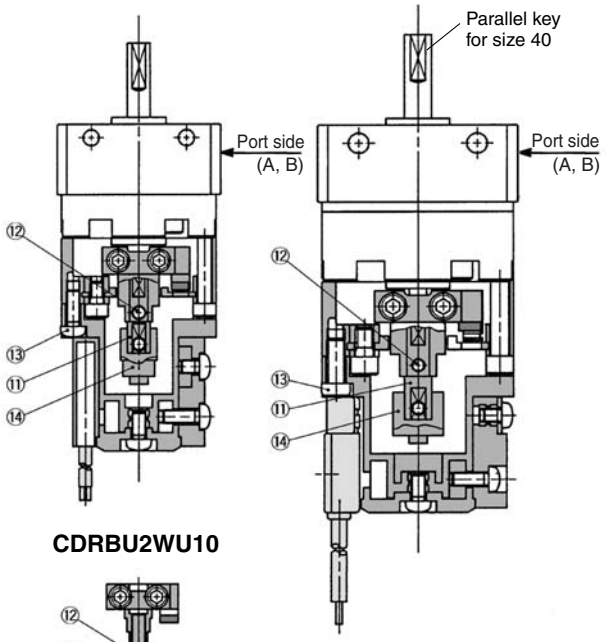




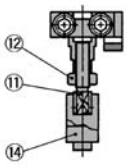
Single vane **Double vane**

With angle adjuster + Auto switch unit

CDRBU2WU10/15-□S/D **CDRBU2WU20/30/40-□S/D**



CDRBU2WU10



Component Parts

No.	Description	Material	Note
1	**Stopper ring**	Aluminum die-casted	Electroless nickel plated
2	**Stopper lever**	Carbon steel	Electroless nickel plated
3	**Lever retainer**	Carbon steel	Zinc chromated
4	**Rubber bumper**	NBR	
5	**Stopper block**	Carbon steel	Zinc chromated
6	**Block retainer**	Carbon steel	Zinc chromated
7	**Cap**	Resin	
8	**Hexagon socket head cap screw**	Stainless steel	Special screw
9	**Hexagon socket head cap screw**	Stainless steel	Special screw
10	**Hexagon socket head cap screw**	Stainless steel	Special screw
11	**Joint**	Aluminum alloy	Zinc chromated
12	**Hexagon socket head cap screw**	Stainless steel	Hexagon nut will be used for CDRBU2W10 only.
	Hexagon nut	Stainless steel	
13	**Round head Phillips screw**	Stainless steel	
14	**Magnet lever**	—	

⚠ Precautions

Be sure to read before handling. Refer to front matters 38 and 39 for Safety Instructions and pages 4 to 13 for Rotary Actuator and Auto Switch Precautions.

Angle Adjuster

⚠ Caution

1. Since the maximum angle of the rotation adjustment range will be limited by the rotation of the rotary actuator itself, make sure to take this into consideration when ordering.
(Refer to the table below.)

Rotating angle of the rotary actuator	Rotating angle adjustment range
$270°\ ^{+4}_{0}$	0° to 230° (Size: 10, 40) *1
	0° to 240° (Size: 15, 20, 30)
$180°\ ^{+4}_{0}$	0° to 175°
$90°\ ^{+4}_{0}$	0° to 85°

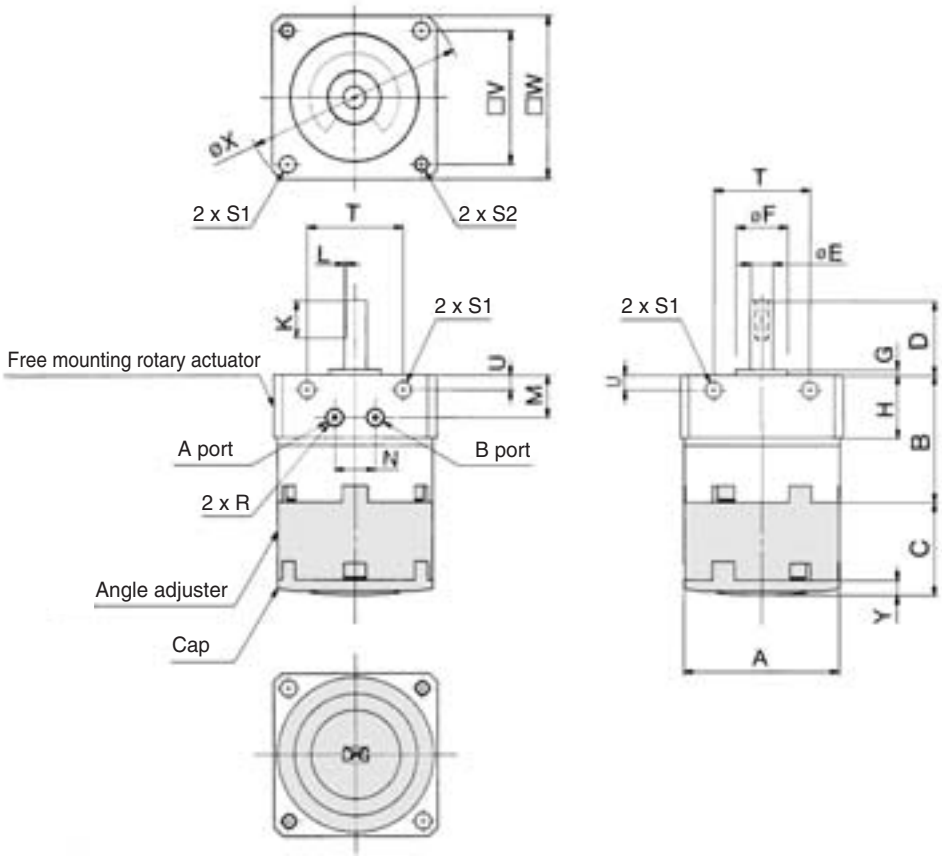
*1 The maximum adjustment angle of the angle adjuster for size 10 and 40 is 230°.

2. Connection ports are side ports only.
3. The allowable kinetic energy is the same as the specifications of the rotary actuator by itself (i.e., without angle adjuster).
4. Use a 100° rotary actuator if you desire to adjust the angle to 90° using a double vane type.

Dimensions: 10, 15, 20, 30 (With angle adjuster)

Single vane type

CRBU2WU10, 15, 20, 30-□S



∗ Figures above show actuators for 90° and 180°
when B port is pressurized,and they show size 20 actuators.

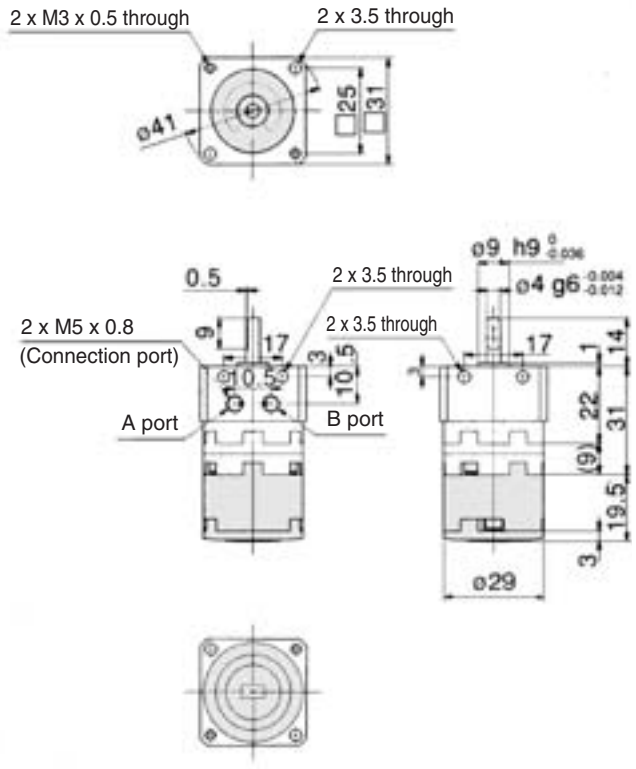
(mm)

Model	A	B	C	D	E (g6)	F (h9)	G	H	K	L	M	N	R	S1	S2	T	U	V	W	X	Y
CRBU2WU10-□S	29	22	19.5	14	$4^{-0.004}_{-0.012}$	$9^{0}_{-0.036}$	1	15.5	9	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	17	3	25	31	41	3
CRBU2WU15-□S	34	25	21.2	18	$5^{-0.004}_{-0.012}$	$12^{0}_{-0.043}$	1.5	15.5	10	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48	3.2
CRBU2WU20-□S	42	34.5	25	20	$6^{-0.004}_{-0.012}$	$14^{0}_{-0.043}$	1.5	17	10	0.5	11.5	11	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59	4
CRBU2WU30-□S	50	47.5	29	22	$8^{-0.005}_{-0.014}$	$16^{0}_{-0.043}$	2	17.5	12	1	12	13	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69	4.5

Dimensions: 10, 15, 20, 30 (With angle adjuster)

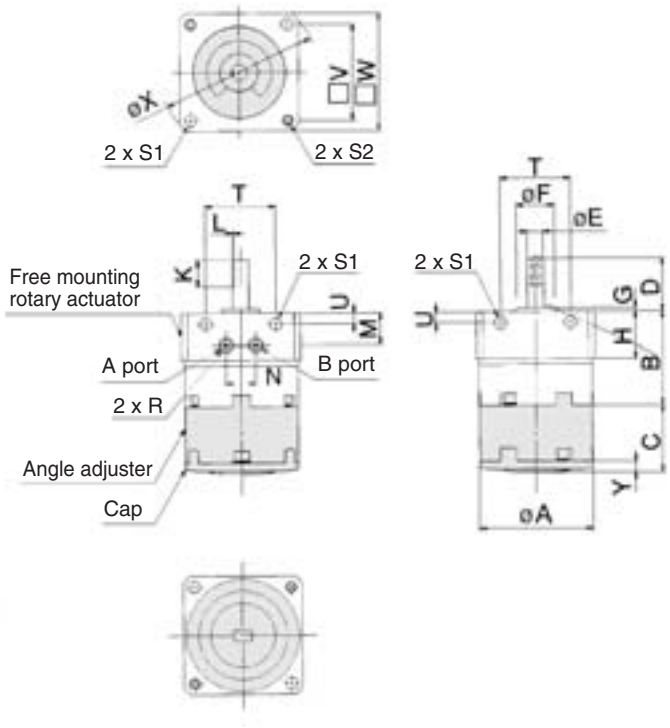
Double vane type

CRBU2WU10-□D



CRBU2WU15, 20, 30-□D

Figures below show size 20 actuators.



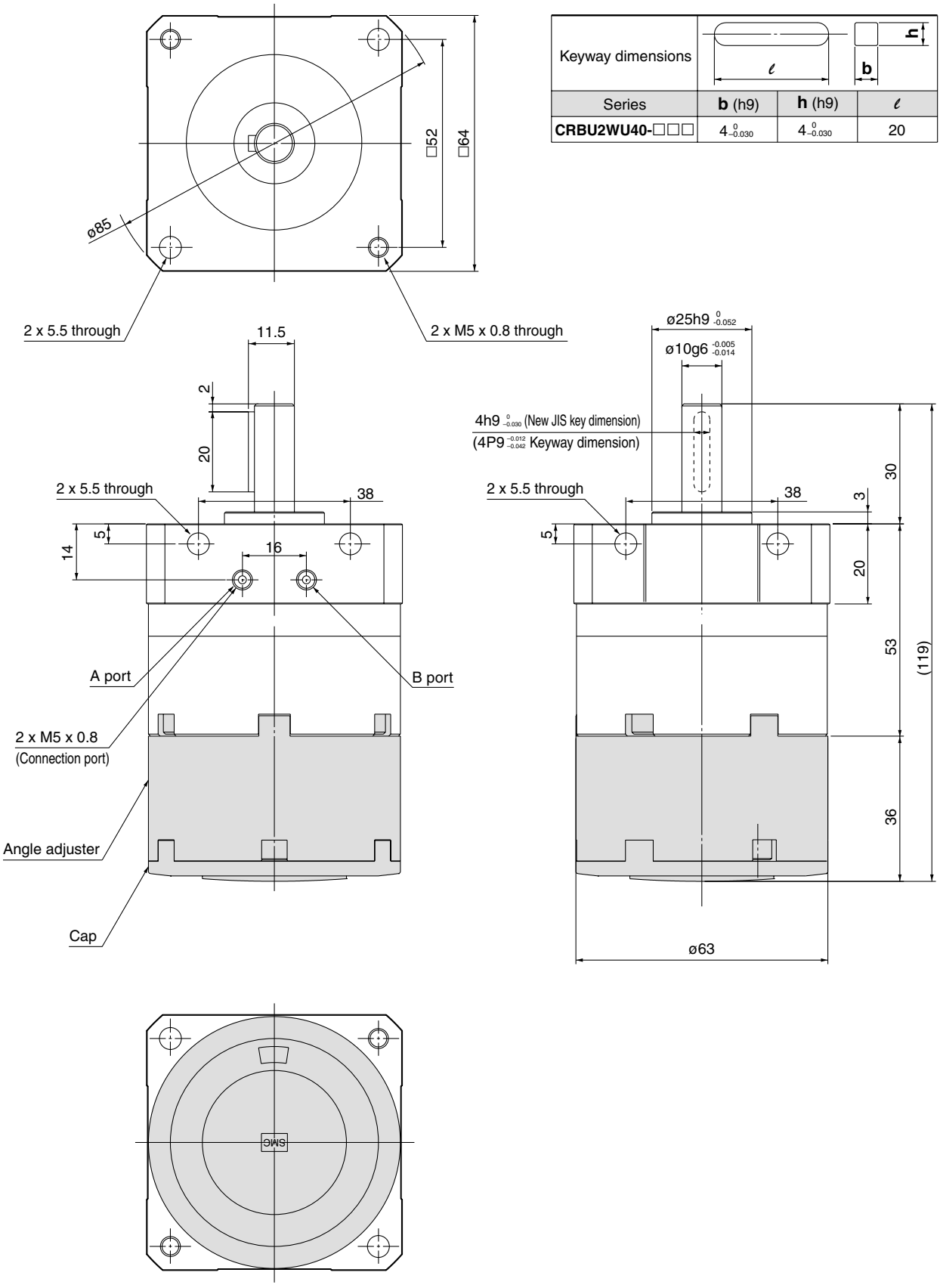
∗ Figures above show the intermediate rotation position when A or B port is pressurized. (mm)

Model	A	B	C	D	E (g6)	F (h9)	G	H	K	L	M	N	R	S1	S2	T	U	V	W	X	Y
CRBU2WU15-□D	34	25	21.2	18	$5^{-0.004}_{-0.012}$	$12^{0}_{-0.043}$	1.5	15.5	10	0.5	10.5	10.5	M5 x 0.8	3.5	M3 x 0.5	21	3	29	36	48	3.2
CRBU2WU20-□D	42	34.5	25	20	$6^{-0.004}_{-0.012}$	$14^{0}_{-0.043}$	1.5	17	10	0.5	11.5	11	M5 x 0.8	4.5	M4 x 0.7	26	4	36	44	59	4
CRBU2WU30-□D	50	47.5	29	22	$8^{-0.005}_{-0.014}$	$16^{0}_{-0.043}$	2	17.5	12	1	12	13	M5 x 0.8	5.5	M5 x 0.8	29	4.5	42	52	69	4.5

Dimensions: 40 (With angle adjuster)

Single vane type/Double vane type
CRBU2WU40-□S/D

- **For single vane type:**
  Figures show actuators for 90° and 180° when the B port is pressurized.
- **For double vane type:**
  Figures show the intermediate rotation position when the A or B port is pressurized.

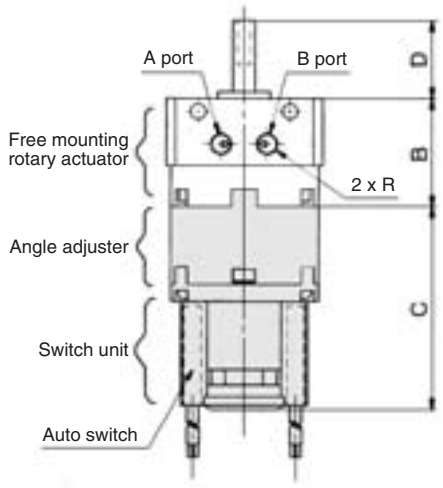


Keyway dimensions	ℓ	b	h
Series	**b** (h9)	**h** (h9)	ℓ
CRBU2WU40-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20

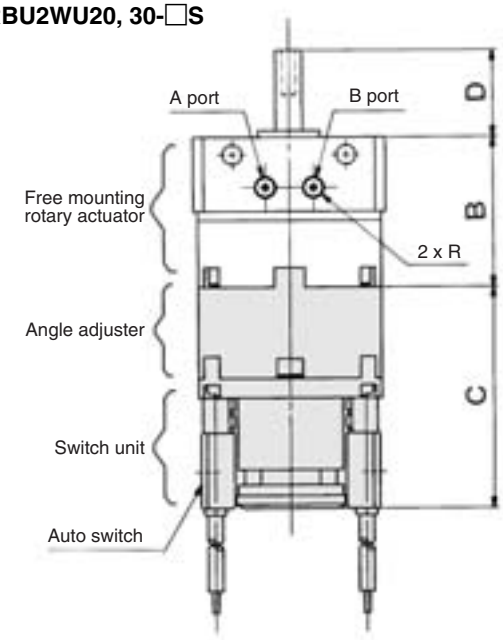
Dimensions: 10, 15, 20, 30 (With angle adjuster and auto switch unit)

Single vane type

CDRBU2WU10, 15-□S



CDRBU2WU20, 30-□S



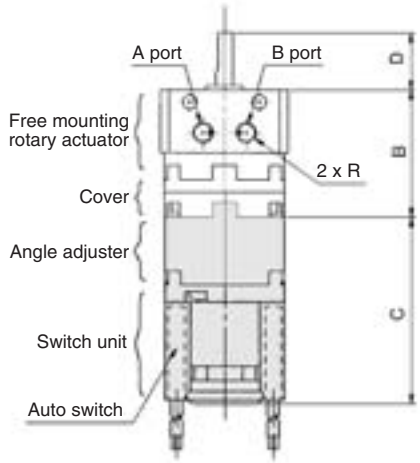
(mm)

Model	B	C	D	R
CDRBU2WU10-□S	22	45.5	14	M5 x 0.8
CDRBU2WU15-□S	25	47	18	M5 x 0.8
CDRBU2WU20-□S	34.5	51	20	M5 x 0.8
CDRBU2WU30-□S	47.5	55.5	22	M5 x 0.8

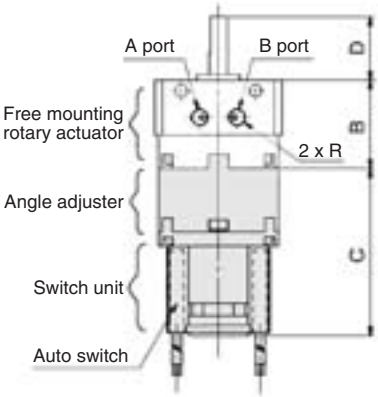
∗ Following figures show actuators for 90° and 180° when A port is pressrized.
Note) • For rotary actuators with angle adjuster and auto switch unit, connection ports are side ports only.
• The above exterior view drawings illustrate the rotary actuator equipped with one right-hand and one left-hand switches.

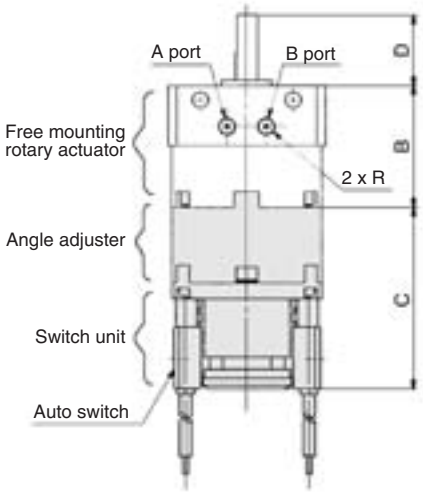
Double vane type

CDRBU2WU10, 15-□D



CDRBU2WU20, 30-□D





(mm)

Model	B	C	D	R
CDRBU2WU10-□D	31	45.5	14	M5 x 0.8
CDRBU2WU15-□D	25	47	18	M5 x 0.8
CDRBU2WU20-□D	34.5	51	20	M5 x 0.8
CDRBU2WU30-□D	47.5	55.5	22	M5 x 0.8

∗ Figures above show the intermediate rotation position when A or B port is pressurized.
Note) • For rotary actuators with angle adjuster and auto switch unit, connection ports are side ports only.
• The above exterior view drawings illustrate the rotary actuator equipped with one right-hand and one left-hand switches.

Dimensions: 40 (With angle adjuster and auto switch unit)

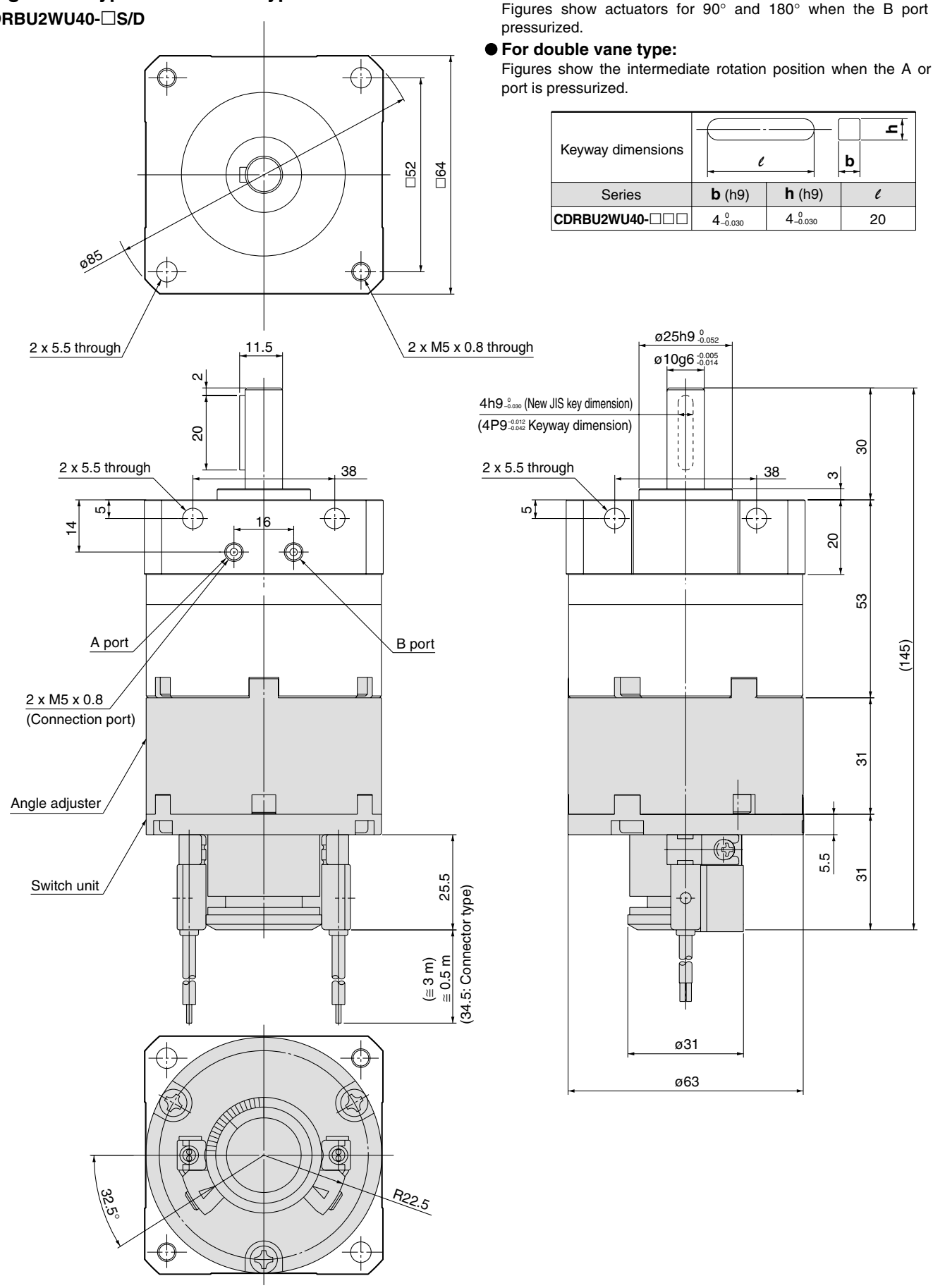
Single vane type/Double vane type

CDRBU2WU40-□S/D

● **For single vane type:**
Figures show actuators for 90° and 180° when the B port is pressurized.

● **For double vane type:**
Figures show the intermediate rotation position when the A or B port is pressurized.

Keyway dimensions	ℓ	b	h
Series	**b** (h9)	**h** (h9)	ℓ
CDRBU2WU40-□□□	$4^{0}_{-0.030}$	$4^{0}_{-0.030}$	20

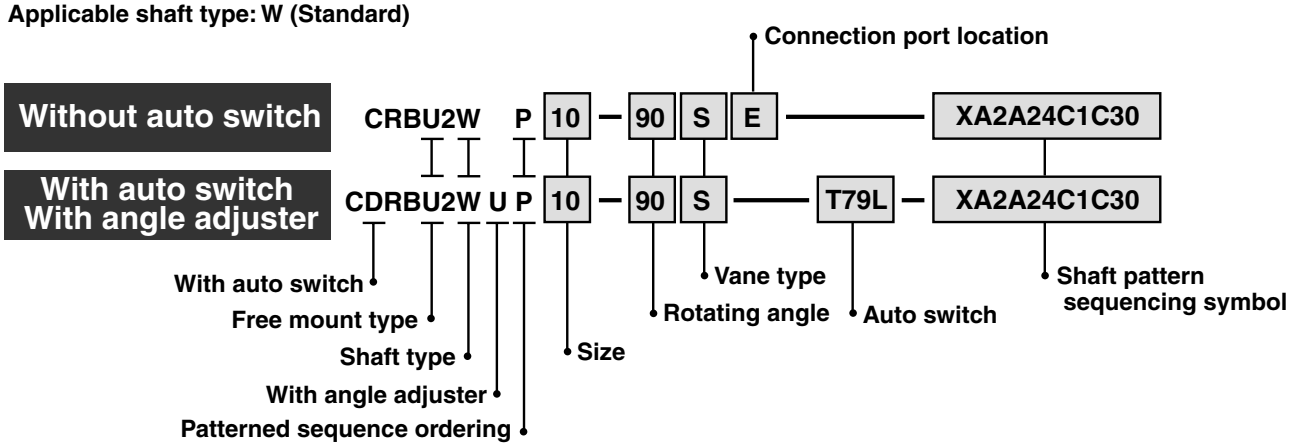


Series ***CRBU2*** (Size: 10, 15, 20, 30, 40)
Simple Specials:
-XA1 to -XA24: Shaft Pattern Sequencing I

Shaft shape pattern is dealt with simple made-to-order system. (Refer to front matter 33). 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				
		10	15	20	30	40
XA 1	Shaft-end female thread		●	●	●	
XA 3	Shaft-end male thread	●	●	●	●	
XA 5	Stepped round shaft	●	●	●	●	
XA 7	Stepped round shaft with male thread	●	●	●	●	
XA 9	Modified length of standard chamfer	●	●	●	●	
XA11	Two-sided chamfer	●			●	
XA14 *	Shaft through-hole + Shaft-end female thread		●	●	●	●
XA17	Shortened shaft	●	●	●	●	
XA21	Stepped round shaft with double-sided chamfer	●	●	●	●	
XA23	Right-angle chamfer	●	●	●	●	
XA24	Double key					●

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

● **Axial: Bottom (Short shaft side)**

Symbol	Description	Applicable size				
		10	15	20	30	40
XA 2 *	Shaft-end female thread		●	●	●	●
XA 4 *	Shaft-end male thread	●	●	●	●	●
XA 6 *	Stepped round shaft	●	●	●	●	●
XA 8 *	Stepped round shaft with male thread	●	●	●	●	●
XA10 *	Modified length of standard chamfer	●	●	●	●	●
XA12 *	Two-sided chamfer	●	●	●	●	●
XA15 *	Shaft through-hole + Shaft-end female thread		●	●	●	●
XA18 *	Shortened shaft	●	●	●	●	●
XA22 *	Stepped round shaft with double-sided chamfer	●	●	●	●	●

● **Double Shaft**

Symbol	Description	Applicable size				
		10	15	20	30	40
XA13 *	Shaft through-hole		●	●	●	●
XA16 *	Shaft through-hole + Double shaft-end female thread		●	●	●	●
XA19 *	Shortened shaft	●	●	●	●	
XA20 *	Reversed shaft	●	●	●	●	●

Combination

XA□ Combination

Symbol	Combination																							
XA 1	XA1																							
XA 2	●	XA2																						
XA 3	—	●	XA3																					
XA 4	●	—	●	XA4																				
XA 5	—	●	—	●	XA5																			
XA 6	●	—	●	—	●	XA6																		
XA 7	—	●	—	●	—	●	XA7																	
XA 8	●	—	●	—	●	—	●	XA8																
XA 9	—	●	—	●	—	●	—	●	XA9															
XA10	●	—	●	—	●	—	●	—	●	XA10														
XA11	—	●	—	●	—	●	—	●	—	●	XA11													
XA12	●	—	●	—	●	—	●	—	●	—	●	XA12												
XA13	—	—	—	—	—	—	—	—	●	●	—	—	XA13											
XA14	—	—	—	—	—	—	—	—	●	●	—	—	—	XA14										
XA15	—	—	—	—	—	—	—	—	●	●	—	—	—	—	XA15									
XA16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	XA16								
XA17	—	●	—	●	—	●	—	●	—	●	—	●	—	—	●	—	XA17							
XA18	●	—	●	—	●	—	●	—	●	—	●	—	●	●	—	—	●	XA18						
XA19	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	XA19					
XA20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	XA20				
XA21	—	●	—	●	—	●	—	●	—	●	—	●	—	—	—	—	—	●	—	●	XA21			
XA22	●	—	●	—	●	—	●	—	●	—	●	—	—	—	—	—	●	—	●	—	●	XA22		
XA23	—	●	—	●	—	●	—	●	—	●	—	●	●	●	●	●	—	●	●	●	—	●	XA22	
XA24	—	●	—	●	—	●	—	●	—	●	—	●	—	—	—	—	—	●	—	—	—	●	—	

A combination of up to two XA□s are available.
Example: -XA2A24

XA□, XC□ Combination

Combination other than -XA□, such as Made to Order (-XC□), is also available.
Refer to pages 113 and 114 for details of made-to-order specifications.

Symbol	Description	Applicable size	Combination
			XA1 to XA24
XC 1*	Add connection port location	10, 15, 20, 30, 40	●
XC 2*	Change threaded holes to through-holes	15, 20, 30, 40	●
XC 3*	Change the screw position	10, 15, 20, 30, 40	●
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		●

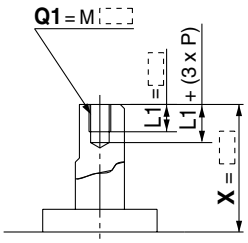
* These specifications are not available for rotary actuators with auto switch unit and angle adjuster.
A total of four XA□ and XC□ combinations is available.
Example: -XA2A24C1C30
-XA2C1C4C30

Axial: Top (Long shaft side)

Symbol: A1

The long shaft can be further shortened by machining female threads into it.

(If shortening the shaft is not required, indicate "∗" for dimension X.)
- Not available for size 10.
- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M3: L1 = 6 mm
- Applicable shaft type: W



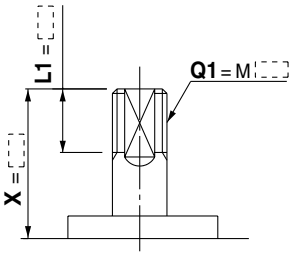
(mm)

Size	X	Q1
15	1.5 to 18	M3
20	1.5 to 20	M3, M4
30	2 to 22	M3, M4, M5

Symbol: A3

The long shaft can be further shortened by machining male threads into it.

(If shortening the shaft is not required, indicate "∗" for dimension X.)
- Applicable shaft type: W



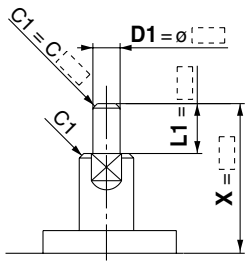
(mm)

Size	X	L1 max	Q1
10	7 to 14	X - 3	M4
15	8.5 to 18	X - 3.5	M5
20	10 to 20	X - 4	M6
30	13 to 22	X - 5	M8

Symbol: A5

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.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C1, indicate "∗" instead.)



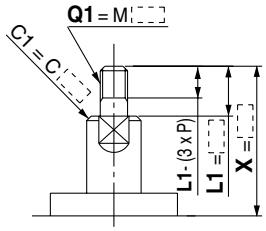
(mm)

Size	X	L1 max	D1
10	2 to 14	X - 1	ø3
15	3 to 18	X - 1.5	ø3 to ø4
20	3 to 20	X - 1.5	ø3 to ø5
30	3 to 22	X - 2	ø3 to ø6

Symbol: A7

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

(If shortening the shaft is not required, indicate "∗" for dimension X.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C1, indicate "∗" instead.)



(mm)

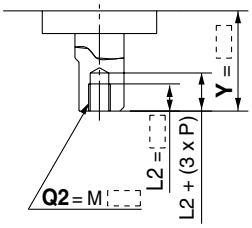
Size	X	L1 max	Q1
10	5.5 to 14	X - 1	3
15	7.5 to 18	X - 1.5	3, 4
20	9 to 20	X - 1.5	3, 4, 5
30	11 to 22	X - 2	3, 4, 5, 6

Axial: Bottom (Short shaft side)

Symbol: A2

The short shaft can be further shortened by machining female threads into it.

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
- Not available for size 10.
- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M3: L2 = 6 mm
- Applicable shaft type: W



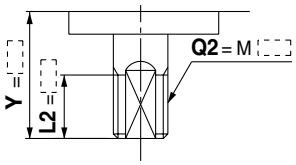
(mm)

Size	Y	Q2
15	1.5 to 9	M3
20	1.5 to 10	M3, M4
30	2 to 13	M3, M4, M5
40	4.5 to 15	M3, M4, M5

Symbol: A4

The short shaft can be further shortened by machining male threads into it.

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
- Applicable shaft type: W



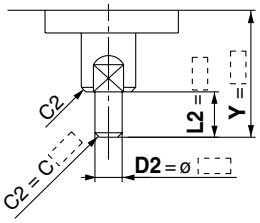
(mm)

Size	Y	L2 max	Q2
10	7 to 8	Y - 3	M 4
15	8.5 to 9	Y - 3.5	M 5
20	10	Y - 4	M 6
30	13	Y - 5	M 8
40	15	Y - 6	M10

Symbol: A6

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.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C2, indicate "∗" instead.)



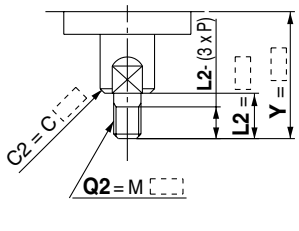
(mm)

Size	Y	L2 max	D2
10	2 to 8	Y - 1	ø3
15	3 to 9	Y - 1.5	ø3 to ø4
20	3 to 10	Y - 1.5	ø3 to ø5
30	3 to 13	Y - 2	ø3 to ø6
40	6 to 15	Y - 4.5	ø3 to ø8

Symbol: A8

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

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C2, indicate "∗" instead.)



(mm)

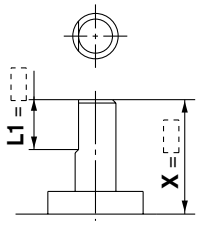
Size	Y	L2 max	Q2
10	5.5 to 8	Y - 1	3
15	7.5 to 9	Y - 1.5	3, 4
20	9.5 to 10	Y - 1.5	3, 4, 5
30	11 to 13	Y - 2	3, 4, 5, 6
40	14 to 15	Y - 4.5	3, 4, 5, 6, 8

Axial: Top (Long shaft side)

Symbol: A9

The long shaft can be further shortened by changing the length of the standard chamfer on the long shaft side.

(If shortening the shaft is not required, indicate "∗" for dimension X.)
- Applicable shaft type: W



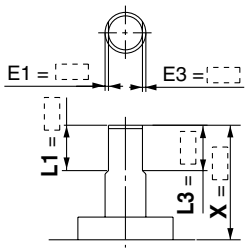
(mm)

Size	X	L1
10	3 to 14	9 - (14 - X) to (X - 1)
15	5.5 to 18	10 - (18 - X) to (X - 1.5)
20	7 to 20	10 - (20 - X) to (X - 1.5)
30	7 to 22	10 - (22 - X) to (X - 1.5)

Symbol: A11

The long shaft can be further shortened by machining a double-sided chamfer onto it.

(If altering the standard chamfer and shortening the shaft are not required, indicate "∗" for both the L1 and X dimensions.)
- Since L1 is a standard chamfer, dimension E1 is 0.5 mm or more.
- Applicable shaft type: W



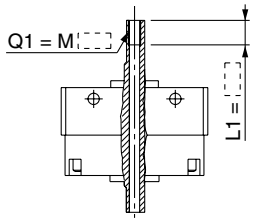
(mm)

Size	X	L1	L3 max
10	3 to 14	9 - (14 - X) to (X - 1)	X - 1
15	3 to 18	10 - (18 - X) to (X - 1.5)	X - 1.5
20	3 to 20	10 - (20 - Xs) to (X - 1.5)	X - 1.5
30	5 to 22	12 - (22 - X) to (X - 2)	X - 2

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-hole, whose diameter is equivalent to the pilot hole diameter.
- Not available for size 10.
- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) for M3: L1 max. = 6 mm
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W



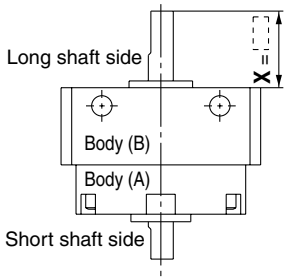
(mm)

Thread \ Size	15	20	30	40
M3 x 0.5	ø2.5	ø2.5	ø2.5	ø2.5
M4 x 0.7	—	ø3.3	ø3.3	—
M5 x 0.8	—	—	ø4.2	—

Symbol: A17

Shorten the long shaft.

- Applicable shaft type: W



(mm)

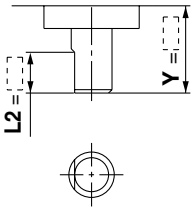
Size	X
10	1 to 14
15	1.5 to 18
20	1.5 to 20
30	2 to 22
40	18 to 30

Axial: Bottom (Short shaft side)

Symbol: A10

The short shaft can be further shortened by changing the length of the standard chamfer.

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
- Applicable shaft type: W



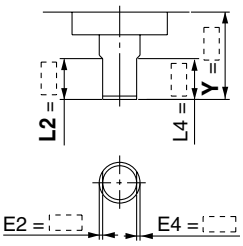
(mm)

Size	Y	L2
10	3 to 8	5 - (8 - Y) to (Y - 1)
15	3 to 9	6 - (9 - Y) to (Y - 1.5)
20	3 to 10	7 - (10 - Y) to (Y - 1.5)
30	5 to 13	8 - (13 - Y) to (Y - 2)
40	7 to 15	9 - (15 - Y) to (Y - 4.5)

Symbol: A12

The short shaft can be further shortened by machining a double-sided chamfer onto it.

(If altering the standard chamfer and shortening the shaft are not required, indicate "∗" for both the L2 and Y dimensions.)
- Since L2 is a standard chamfer, dimension E2 is 0.5 mm or more, and 1 mm or more with shaft bore sizes of ø30 or ø40.
- Applicable shaft type: W



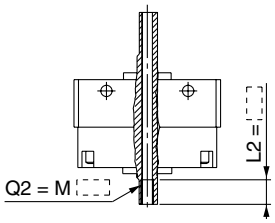
(mm)

Size	Y	L2	L2 max
10	3 to 8	5 - (8 - Y) to (Y - 1)	Y-1
15	3 to 9	6 - (9 - Y) to (Y - 1.5)	Y-1.5
20	3 to 10	7 - (10 - Y) to (Y - 1.5)	Y-1.5
30	5 to 13	8 - (13 - Y) to (Y - 2)	Y-2
40	7 to 15	9 - (15 - Y) to (Y - 4.5)	Y-4.5

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·
- Not available for size 10.
- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) for M4: L2 max. = 8 mm
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W



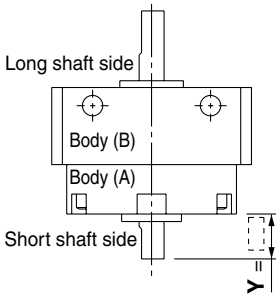
(mm)

Thread \ Size	15	20	30	40
M3 x 0.5	ø2.5	ø2.5	ø2.5	ø2.5
M4 x 0.7	—	ø3.3	ø3.3	—
M5 x 0.8	—	—	ø4.2	—

Symbol: A18

Shorten the short shaft.

- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W



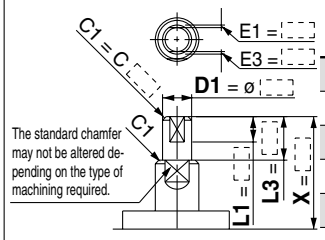
(mm)

Size	Y
10	1 to 8
15	1.5 to 9
20	1.5 to 10
30	2 to 13
40	4.5 to 15

Axial: Top (Long shaft side)

Symbol: A21 The long shaft can be further shortened by machining it into a stepped round shaft with a double-sided chamfer.

(If shortening the shaft is not required, indicate "∗" for dimension X.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C1, indicate "∗" instead.)



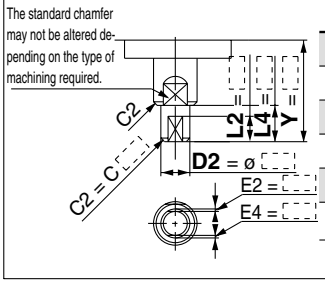
(mm)

Size	X	L1 max	L3	D1
10	4 to 14	X-2.5	L1 + 1.5	ø3
15	4.5 to 18	X-3	L1 + 1.5	ø3 to ø4
20	5 to 20	X-3.5	L1 + 2	ø3 to ø5
30	7 to 22	X-5	L1 + 3	ø3 to ø6

Axial: Bottom (Short shaft side)

Symbol: A22 The short shaft can be further shortened by machining it into a stepped round shaft with a double-sided chamfer.

(If shortening the shaft is not required, indicate "∗" for dimension Y.)
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C2, indicate "∗" instead.)



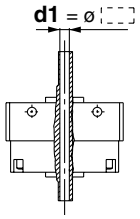
(mm)

Size	Y	L2 max	L4	D2
10	4 to 8	Y - 2.5	L2 + 1.5	ø3
15	4.5 to 9	Y - 3	L2 + 1.5	ø3 to ø4
20	5 to 10	Y - 3.5	L2 + 2	ø3 to ø5
30	7 to 13	Y - 5	L2 + 3	ø3 to ø6
40	8 to 15	Y - 5.5	L2 + 3	ø3 to ø6

Double Shaft

Symbol: A13 Applicable to single vane type only

Shaft with through-hole
- Not available for size 10.
- Minimum machining diameter for d1 is 0.1 mm.
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.

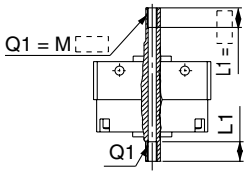


(mm)

Size	d1
15	ø2.5
20	ø2.5 to ø3.5
30	ø2.5 to ø4
40	ø2.5 to ø3

Symbol: A16 Applicable to single vane type only

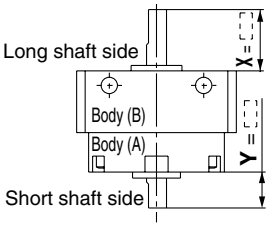
A special end is machined onto both the long and short shafts, and a through-hole is drilled into both shafts. Female threads are machined into the through-holes, whose diameter is equivalent to the diameter of the pilot holes.
- Not available for size 10.
- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) for M5: L1 max = 10 mm
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.



(mm)

Thread \ Size	15	20	30	40
M3 x 0.5	ø2.5	ø2.5	ø2.5	ø2.5
M4 x 0.7	—	ø3.3	ø3.3	—
M5 x 0.8	—	—	ø4.2	—

Symbol: A19 Both the long shaft and short shaft are shortened.
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W

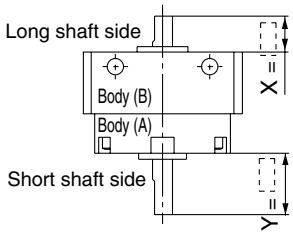


(mm)

Size	X	Y
10	1 to 14	1 to 8
15	1.5 to 18	1.5 to 9
20	1.5 to 20	1.5 to 10
30	2 to 22	2 to 13
40	18 to 30	4.5 to 15

Symbol: A20 The rotation axis is reversed.

(The long shaft and short shaft are shortened.)
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: W

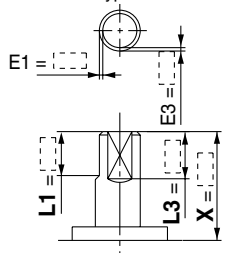


(mm)

Size	X	Y
10	1 to 3	1 to 12
15	1.5 to 6.5	1.5 to 15.5
20	1.5 to 7.5	1.5 to 17
30	2 to 8.5	2 to 19
40	3 to 9	—

Symbol: A23 The long shaft can be further shortened by machining right-angle double-sided chamfer onto it.

(If altering the standard chamfer and shortening the shaft are not required, indicate "∗" for both the L1 and X dimensions.)
- Since L1 is a standard chamfer, dimension E1 is 0.5 mm or more, and 1 mm or more with a shaft bore sizes of ø30 or ø40.
- Applicable shaft type: W

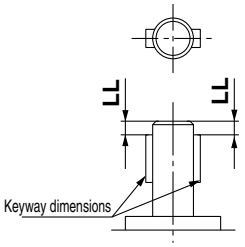


(mm)

Size	X	L1	L3 max
10	3 to 14	9 - (14 - X) to (X - 1)	X - 1
15	3 to 18	10 - (18 - X) to (X - 1.5)	X - 1.5
20	3 to 20	10 - (20 - X) to (X - 1.5)	X - 1.5
30	5 to 22	10 - (22 - X to (X - 2)	X - 2

Symbol: A24 Double key

Keys and keyways are machined at 180° from the standard position.
- Applicable shaft type: W
- Equal dimensions are indicated by the same marker.



(mm)

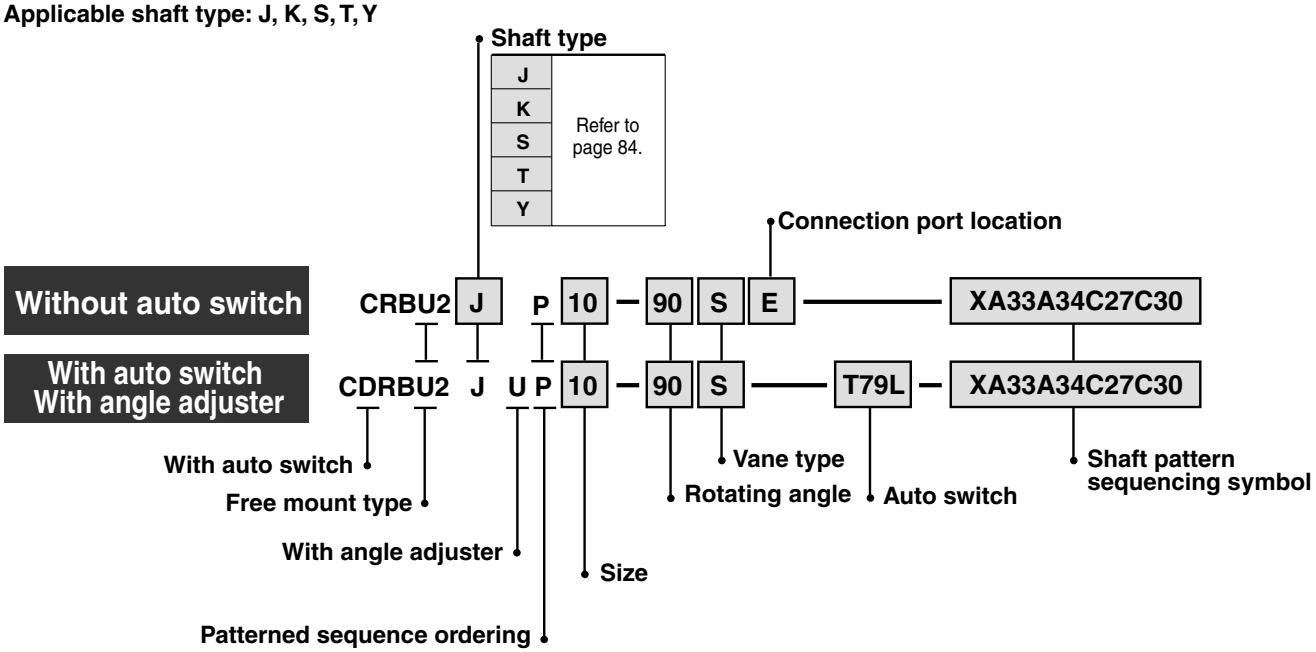
Size	Keyway dimensions	LL
40	4 x 4 x 20	2

Series CRBU2 (Size: 10, 15, 20, 30, 40)
Simple Specials: -XA31 to -XA58: Shaft Pattern Sequencing II

Shaft shape pattern is dealt with simple made-to-order system (Refer to front matter 33). Please contact SMC for a specification sheet when placing an order.

Shaft Pattern Sequencing II — -XA31 to XA58

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



Shaft Pattern Sequencing Symbol

● Axial: Top (Long shaft side)

Symbol	Description	Shaft type	Applicable size				
			10	15	20	30	40
XA31	Shaft-end female thread	S, Y		●	●	●	
XA33	Shaft-end female thread	J, K, T		●	●	●	●
XA37	Stepped round shaft	J, K, T	●	●	●	●	●
XA45	Middle-cut chamfer	J, K, T	●	●	●	●	●
XA47	Machined keyway	J, K, T			●	●	
XA48	Change of long shaft length	S, Y	●	●	●	●	●
XA51	Change of long shaft length	J, K, T	●	●	●	●	●

● Axial: Bottom (Short shaft side)

Symbol	Description	Shaft type	Applicable size				
			10	15	20	30	40
XA32	Shaft-end female thread	S, Y		●	●	●	
XA34	Shaft-end female thread	J, K, T		●	●	●	●
XA38	Stepped round shaft	K	●	●	●	●	●
XA46	Middle-cut chamfer	K	●	●	●	●	●
XA49	Change of short shaft length	Y	●	●	●	●	●
XA52	Change of short shaft length	K	●	●	●	●	●
XA55	Change of short shaft length	J	●	●	●	●	●

● Double Shaft

Symbol	Description	Shaft type	Applicable size				
			10	15	20	30	40
XA39*	Shaft through-hole	S, Y		●	●	●	●
XA40*	Shaft through-hole	K, T		●	●	●	●
XA41*	Shaft through-hole	J		●	●	●	●
XA42*	Shaft through-hole + Shaft-end female thread	S, Y		●	●	●	●
XA43*	Shaft through-hole + Shaft-end female thread	K, T		●	●	●	●
XA44*	Shaft through-hole + Shaft-end female thread	J		●	●	●	●
XA50*	Change of double shaft length	Y	●	●	●	●	●
XA53*	Change of double shaft length	K	●	●	●	●	●
XA57*	Change of double shaft length	J	●	●	●	●	●
XA58*	Reversed shaft, Change of double shaft length	J	●	●	●	●	●

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

Combination

XA□ Combination

Symbol	Description	Axial direction		Applicable shaft type				Combination
		Up	Down	J	K	S	T	Y
XA31	Shaft-end female thread	●				●		●
XA32	Shaft-end female thread		●			●		●
XA33	Shaft-end female thread	●		●	●		●	
XA34	Shaft-end female thread		●	●	●		●	
XA37	Stepped round shaft	●		●	●		●	
XA38	Stepped round shaft		●		●			
XA39	Shaft through-hole	●	●			●		●
XA40	Shaft through-hole	●	●		●		●	
XA41	Shaft through-hole	●	●	●				
XA42	Shaft through-hole + Shaft-end female thread	●	●			●		●
XA43	Shaft through-hole + Shaft-end female thread	●	●		●		●	
XA44	Shaft through-hole + Shaft-end female thread	●	●	●				
XA45	Middle-cut chamfer	●		●	●		●	
XA46	Middle-cut chamfer		●		●			
XA47	Machined keyway	●		●	●		●	
XA48	Change of long shaft length	●				●		●
XA49	Change of short shaft length		●				●	Y*
XA50	Change of double shaft length	●	●					●
XA51	Change of long shaft length	●		●	●		●	
XA52	Change of short shaft length		●		●			
XA53	Change of double shaft length	●	●		●			
XA55	Change of short shaft length		●	●				
XA57	Change of double shaft length	●	●	●				
XA58	Reversed shaft, Change of double shaft length	●	●	●				

∗ Corresponding shafts type available for combination.

A combination of up to two XA□s are available.
Example: XA31A32

XA□, XC□ Combination

Combination other than XA□, such as Made to Order (XC□), is also available.
Refer to pages 113 and 114 for details of made-to-order specifications.

Symbol	Description	Applicable size	Combination
			XA31 to XA47
XC 1∗	Add connection port location	10, 15, 20, 30, 40	●
XC 2∗	Change threaded hole to through-hole	15, 20, 30, 40	●
XC 3∗	Change the screw position	10, 15, 20, 30, 40	●
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		●

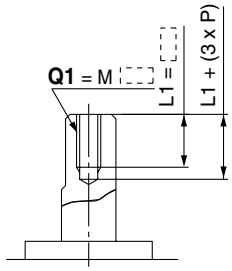
∗ These specifications are not available for rotary actuators with auto switch unit and angle adjuster.
A total of four XA□ and XC□ combinations is available.
Example: XA33A34C5C30

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



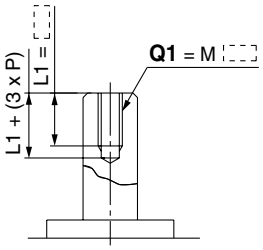
(mm)

Size \ Shaft type	Q1 S	Q1 Y
10	Not available	
15	M3	
20	M3, M4	
30	M3, M4, M5	

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)

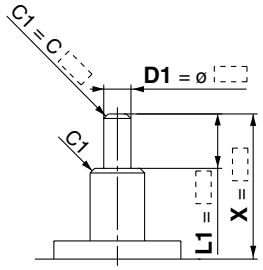
Size \ Shaft type	Q1 J	Q1 K	Q1 T
10	Not available		
15	M3		
20	M3, M4		
30	M3, M4, M5		
40	M3, M4, M5		

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.)

- Applicable shaft types: J, K, T
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C1, indicate "∗" instead.)



(mm)

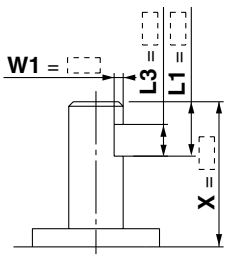
Size	X	L1 max	D1
10	2 to 14	X - 1	ø3 to ø3.9
15	3 to 18	X - 1.5	ø3 to ø4.9
20	3 to 20	X - 1.5	ø3 to ø5.9
30	3 to 22	X - 2	ø3 to ø7.9
40	4 to 30	X - 3	ø3 to ø9.9

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.)

- Applicable shaft types: J, K, T



(mm)

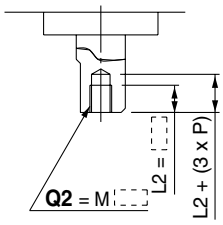
Size \ Shaft type	X J	X K	X T	W1 J	W1 K	W1 T	L1 max J	L1 max K	L1 max T	L3 max J	L3 max K	L3 max T
10	6.5 to 14			0.5 to 2			X - 3			L1 - 1		
15	8 to 18			0.5 to 2.5			X - 4			L1 - 1		
20	9 to 20			0.5 to 3			X - 4.5			L1 - 1		
30	11.5 to 22			0.5 to 4			X - 5			L1 - 2		
40	15.5 to 30			0.5 to 5			X - 5.5			L1 - 2		

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
  However, for M5 with S shaft, the maximum dimension L2 is 1.5 times the thread size.
- Applicable shaft types: S, Y



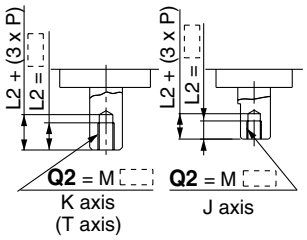
(mm)

Size \ Shaft type	Q2 S	Q2 Y
10	Not available	
15	M3	
20	M3, M4	
30	M3, M4, M5	

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
  However, for M5 with T shaft, the maximum dimension L2 is 1.5 times the thread size.
- Applicable shaft types: J, K, T



(mm)

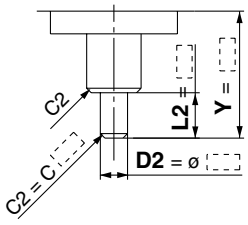
Size \ Shaft type	Q2 J	Q2 K	Q2 T
10	Not available		
15	M3		
20	M3, M4		
30	M3, M4, M5		
40	M3, M4, M5		

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.)

- Applicable shaft type: K
- Equal dimensions are indicated by the same marker.
  (If not specifying dimension C2, indicate "∗" instead.)



(mm)

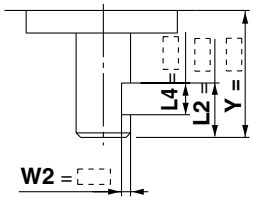
Size	Y	L2 max	D2
10	2 to 14	Y - 1	ø3 to ø3.9
15	3 to 18	Y - 1.5	ø3 to ø4.9
20	3 to 20	Y - 1.5	ø3 to ø5.9
30	6 to 22	Y - 2	ø3 to ø7.9
40	6 to 30	Y - 4.5	ø5 to ø9.9

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 Y.)

- Applicable shaft type: K



(mm)

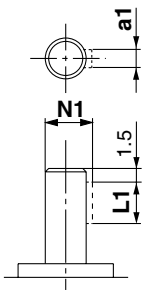
Size	Y	W2	L2 max	L4 max
10	4.5 to 14	0.5 to 2	Y - 1	L2 - 1
15	5.5 to 18	0.5 to 2.5	Y - 1.5	L2 - 1
20	6 to 20	0.5 to 3	Y - 1.5	L2 - 1
30	8.5 to 22	0.5 to 4	Y - 2	L2 - 2
40	13.5 to 30	0.5 to 5	Y - 4.5	L2 - 2

Axial: Top (Long shaft side)

Symbol: A47

Machine a keyway into the long shaft. (The position of the keyway is the same as the standard one.) The key must be ordered separately.

- Applicable shaft types: J, K, T



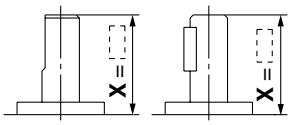
(mm)

Size	a1	L1	N1
20	$2h^{0}_{-0.025}$	10	6.8
30	$3h^{0}_{-0.025}$	14	9.2

Symbol: A48

Shorten the long shaft.

- Applicable shaft types: S, Y



Size: 10 to 30 **Size: 40**

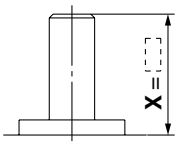
(mm)

Size	X
10	1 to 14
15	1.5 to 18
20	1.5 to 20
30	2 to 22
40	18 to 30

Symbol: A51

Shorten the long shaft.

- Applicable shaft types: J, K, T



(mm)

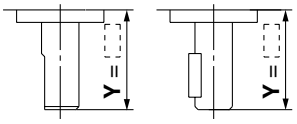
Size	X
10	1 to 14
15	1.5 to 18
20	1.5 to 20
30	2 to 22
40	3 to 30

Axial: Bottom (Short shaft side)

Symbol: A49

Shorten the short shaft.

- Applicable shaft types: Y



Size: 10 to 30 **Size: 40**

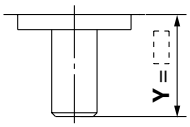
(mm)

Size	Y
10	1 to 14
15	1.5 to 18
20	1.5 to 20
30	2 to 22
40	18 to 30

Symbol: A52

Shorten the short shaft.

- Applicable shaft types: K



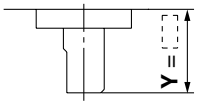
(mm)

Size	Y
10	1 to 14
15	1.5 to 18
20	1.5 to 20
30	2 to 22
40	4.5 to 30

Symbol: A55

Shorten the short shaft.

- Applicable shaft types: J



(mm)

Size	Y
10	1 to 8
15	1.5 to 9
20	1.5 to 10
30	2 to 13
40	4.5 to 15

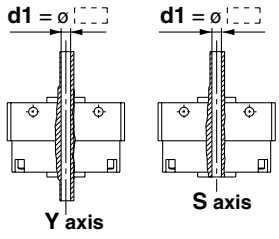
Double Shaft

Symbol: A39

Applicable to single vane type only

Shaft with through-hole (Additional machining of S, Y shaft)

- Applicable shaft types: S, Y
- Equal dimensions are indicated by the same marker.
- Not available for size 10.
- A parallel key is used on the long shaft for size 40.
- Minimum machining diameter for d1 is 0.1 mm.



(mm)

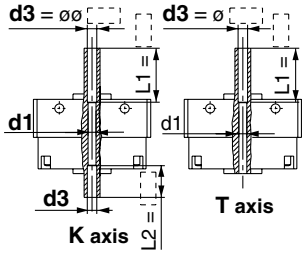
Size / Shaft type / Thread	S	Y
	d1	
15	ø2.5	
20	ø2.5 to ø3.5	
30	ø2.5 to ø4	
40	ø2.5 to ø5	

Symbol: A40

Applicable to single vane type only

Shaft with through-hole (Additional machining of K, T shaft)

- Applicable shaft types: K, T
- Equal dimensions are indicated by the same marker.
- Not available for size 10.
- d1 = ø2.5, L1 = 18 (max.) for size 15 ; minimum machining diameter for d1 is 0.1 mm.
- d1 = d3 for sizes 20 to 40.



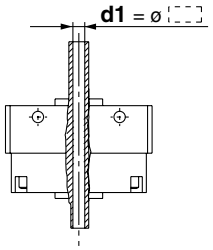
(mm)

Size / Shaft type / Thread	K	T	K	T
	d1		d3	
15	ø2.5		ø2.5 to ø3	
20	—		ø2.5 to ø4	
30	—		ø2.5 to ø4.5	
40	—		ø2.5 to ø5	

Double Shaft

Symbol: A41
Applicable to single vane type only

Shaft with through-hole
- Not available for size 10.
- Applicable shaft type: J
- Equal dimensions are indicated by the same marker.

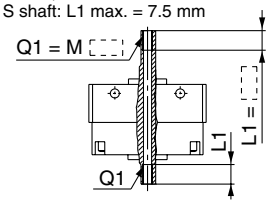


(mm)

Size	d1
15	ø2.5
20	ø2.5 to ø3.5
30	ø2.5 to ø4
40	ø2.5 to ø4.5

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.
- Not available for size 10.
- The maximum dimension L2 is, as a rule, twice the thread size.
  (Example) For M5: L1 max. = 10 mm
  However, for M5 on the short shaft of S shaft: L1 max. = 7.5 mm
- A parallel key is used on the long shaft for size 40.
- Applicable shaft types: S, Y
- Equal dimensions are indicated by the same marker.

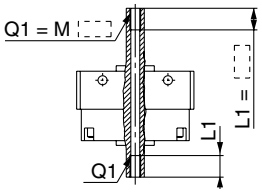


(mm)

Thread \ Size	15		20		30		40	
Shaft type	S	Y	S	Y	S	Y	S	Y
M3 x 0.5	ø2.5		ø2.5		ø2.5		ø2.5	
M4 x 0.7	—		ø3.3		ø3.3		—	
M5 x 0.8	—		—		ø4.2		—	

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.
- Not available for size 10.
- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M5: L1 max. = 10 mm
  However, for M5 on the short shaft of T shaft
  : L1 max. = 7.5 mm
- Applicable shaft types: K, T
- Equal dimensions are indicated by the same marker.

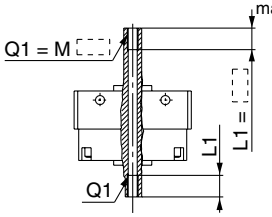


(mm)

Thread \ Size	15		20		30		40	
Shaft type	K	T	K	T	K	T	K	T
M3 x 0.5	ø2.5		ø2.5		ø2.5		ø2.5	
M4 x 0.7	—		ø3.3		ø3.3		ø3.3	
M5 x 0.8	—		—		ø4.2		ø4.2	

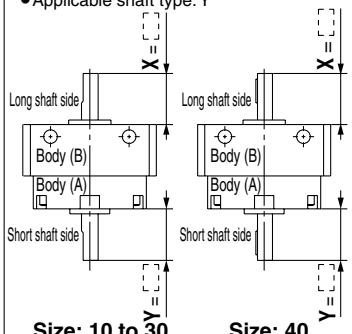
Symbol: A44
Applicable to single vane type only

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.
- Not available for size 10.
- The maximum dimension L1 is, as a rule, twice the thread size.
  (Example) For M5: L1 max. = 10 mm
- A parallel key is used on the long shaft for size 40.
- Applicable shaft type: J
- Equal dimensions are indicated by the same marker.



Thread \ Size	15	20	30	40
M3 x 0.5	ø2.5	ø2.5	ø2.5	ø2.5
M4 x 0.7	—	ø3.3	ø3.3	ø3.3
M5 x 0.8	—	—	ø4.2	ø4.2

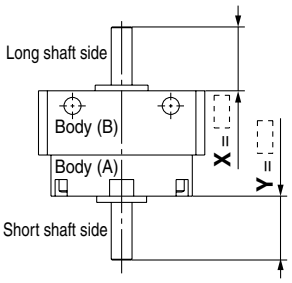
Symbol: A50
Shorten both long and short shafts.
- Applicable shaft type: Y



(mm)

Size	X	Y
10	1 to 14	1 to 14
15	1.5 to 18	1.5 to 18
20	1.5 to 20	1.5 to 20
30	2 to 22	2 to 22
40	18 to 30	18 to 30

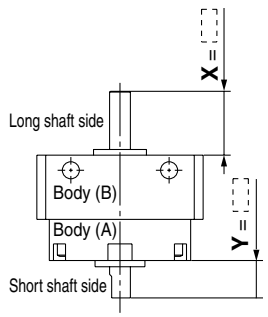
Symbol: A53
Shorten both long and short shafts.
- Applicable shaft type: K



(mm)

Size	X	Y
10	1 to 14	1 to 14
15	1.5 to 18	1.5 to 18
20	1.5 to 20	1.5 to 20
30	2 to 22	2 to 22
40	3 to 30	4.5 to 30

Symbol: A57
Shorten both long and short shafts.
- Applicable shaft type: J

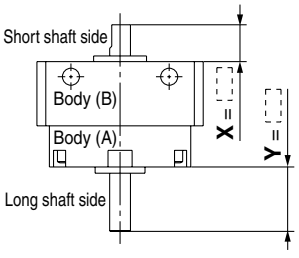


(mm)

Size	X	Y
10	1 to 14	1 to 14
15	1.5 to 18	1.5 to 18
20	1.5 to 20	1.5 to 20
30	2 to 22	2 to 22
40	3 to 30	4.5 to 30

Symbol: A58
The rotation axis is reversed.
The long shaft and short shaft are shortened.

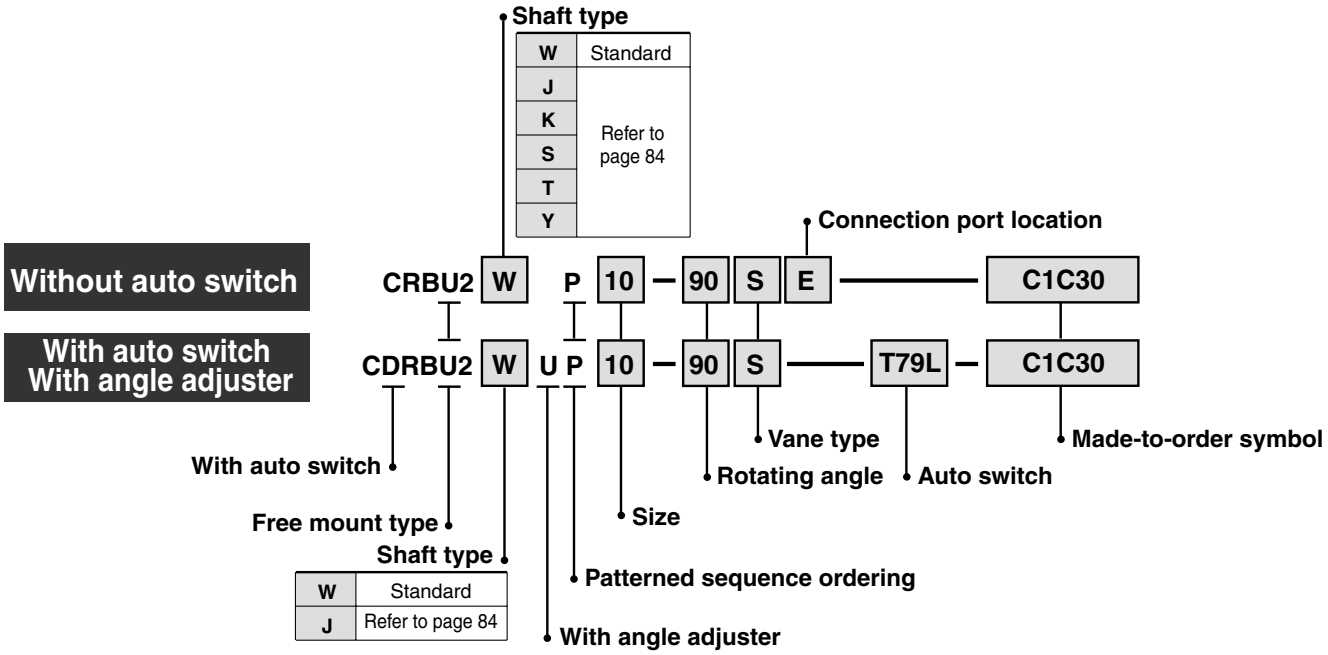
(If shortening the shaft is not required, indicate "∗" for dimension X, Y.)
- Applicable shaft type: J



(mm)

Size	X	Y
10	1 to 10	1 to 12
15	1.5 to 11.5	1.5 to 15.5
20	1.5 to 13	1.5 to 17
30	2 to 16	2 to 19
40	3 to 17	4.5 to 28

Series ***CRBU2*** **(Size: 10, 15, 20, 30, 40)**
Made to Order Specifications: XC1, 2, 3, 4, 5, 6, 7, 30



Made to Order Symbol

Symbol	Description	Applicable shaft type W, J, K, S, T, Y	Applicable size
XC 1*	Add connection port	●	10, 15, 20, 30, 40
XC 2	Change threaded holes 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	W,J	
XC30	Fluorine grease	●	

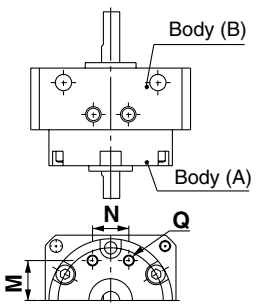
* For products with auto switch; angle adjustment unit cannot be selected.

Combination

Symbol	Combination						
XC 1	XC1						
XC 2	●	XC2					
XC 3	●	—	XC3				
XC 4	●	●	●	XC4			
XC 5	●	●	●	—	XC5		
XC 6	●	●	●	—	—	XC6	
XC 7	●	●	●	●	●	—	XC7
XC30	●	●	●	●	●	●	●

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

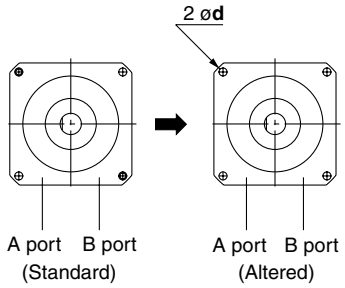
- Parallel key is used on the long shaft for size 40.
- This specification is not available for the rotary actuator with auto switch unit.



(mm)

Size	Q	M	N
10	M3	8.5	9.5
15	M3	11	10
20	M5	14	13
30	M5	15.5	14
40	M5	21	20

Symbol: C2 Change 2 threaded holes on Body (B) into through holes (An additionally machined port will have an aluminum surface since it will be left unfinished.)

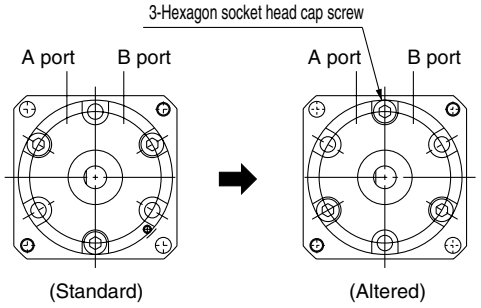


(mm)

Size	d
10	3.4
15	3.4
20	4.5
30	5.5
40	5.5

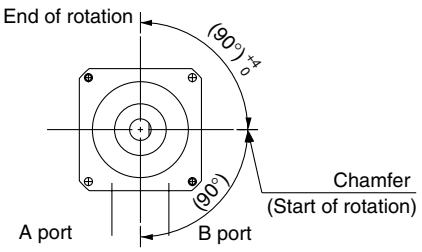
Symbol: C3 Change the position of the screws for tightening the actuator body.

• Not available for size 10.



Symbol: C4 Applicable to single vane style only

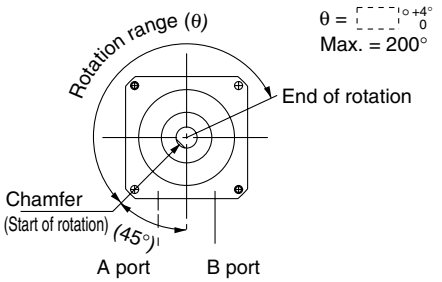
Rotation starts from the horizontal line (90° down from the top to the right side)
• Rotation tolerance for CRBU2W10 is $^{+5°}_{0}$.
• A parallel key is used instead of chamfer for size 40.



Start of rotation is the position of the chamfer (keyway) when A port is pressurized.

Symbol: C5 Applicable to single vane style only

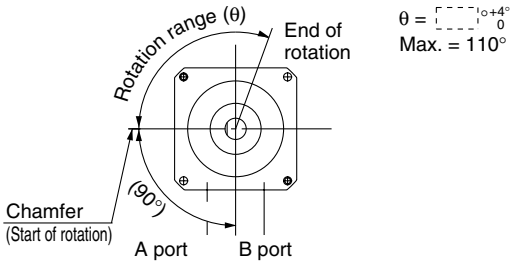
Start of rotation is 45° up from the bottom of the vertical line to the left side.
• Rotation tolerance for CRBU2W10 is $^{+5°}_{0}$.
• A parallel key is used instead of chamfer for size 40.



Start of rotation is the position of the chamfer (keyway) when B port is pressurized.

Symbol: C6 Applicable to single vane style only

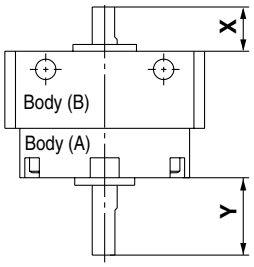
Start of rotation is 45° up from the bottom of the vertical line to the left side.
• Rotation tolerance for CRBU2W10 is $^{+5°}_{0}$.
• A parallel key is used instead of chamfer for size 40.



Start of rotation is the position of the chamfer (keyway) when B port is pressurized.

Symbol: C7 The shafts are reversed.

• A parallel key is used instead of chamfer for size 40.



(mm)

Size	Y	X
10	19	3
15	20.5	6.5
20	22.5	7.5
30	26.5	8.5
40	36	9

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