

Rotary Actuator: Free Mount Type Vane Style

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 90 L []

With auto switch
Size: 20, 30, 40

CDRBU2 W [] 180 S R73 L []

With auto switch
(With switch unit)

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

Applicable	Symbol	Rotating angle
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Vane type

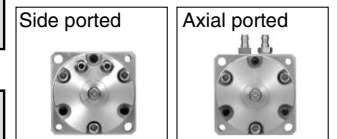
S	Single vane
D	Double vane

Auto switch

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

Connection port location		Size
Nil	Side ported	10
E	Side ported	15
	Axial ported	20
		30
		40



* Fittings are sold separately.

Number of auto switches

S	1 pc. *
Nil	2 pcs.

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

Electrical entry/Lead wire length

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

* Connectors are available only for auto switch types D-R73, D-R80, D-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 Switch/Refer to page 11-1-1 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	Reed switch	Grommet	No	2-wire	24 V	5 V,12 V	5 V,12 V,24 V	90	Parallel cord	●	●	●	—	IC circuit	Relay, PLC	
						5 V,12 V, 100 V	5 V,12 V, 24 V,100 V	90A	Heavy-duty cord	●	●	●	—			
	Solid state switch		Yes			—	—	97	Parallel cord	●	●	●	—	—		
						—	100 V	93A	Heavy-duty cord	●	●	●	—			
						—	—	T99		●	●	—	—			
						T99V		●		●	—	—				
						S99		●		●	—	—				
						S99V		●		●	—	—				
	3-wire (NPN)	5 V,12 V	S9P	●	●	—	—	IC circuit								
	3-wire (PNP)		S9PV	●	●	—	—									
For 20, 30, and 40	Reed switch	Grommet	Yes	2-wire	24 V	—	100 V	R73	Heavy-duty cord	●	●	—	—	—	Relay, PLC	
		Connector				R73C	●	●		●	●					
		Grommet	No			48 V, 100 V	24 V,48 V, 100 V	R80		●	●	—	—	IC circuit		
		Connector				R80C	●	●		●	●					
	Solid state switch	Yes	Grommet			—	—	T79		●	●	—	—	—		
			Connector			T79C		●		●	●	●				
			Grommet			3-wire (NPN)		5 V,12 V		S79	●	●	—	—		IC circuit
						3-wire (PNP)				S7P	●	●	—	—		

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

Rotary Actuator: Free Mount Type Vane Style **Series CRBU2**



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			
Speed regulation range (sec/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 11-3-5.

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			
Speed regulation range (sec/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)				
Angle adjustable ⁽³⁾		0 to 90°				0 to 230°



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 11-3-5.

Inner Volume and 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													
			M3 x 0.5							M5 x 0.8						
Double vane	Rotating angle	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°
	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													
			M3 x 0.5							M5 x 0.8						

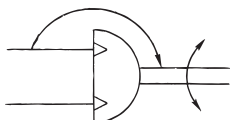
* Values inside () are volume of the supply side when A port is pressurized.

Weight

(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		

JIS Symbol



Caution

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

Series CRBU2

Rotary Actuator: Replaceable Shaft

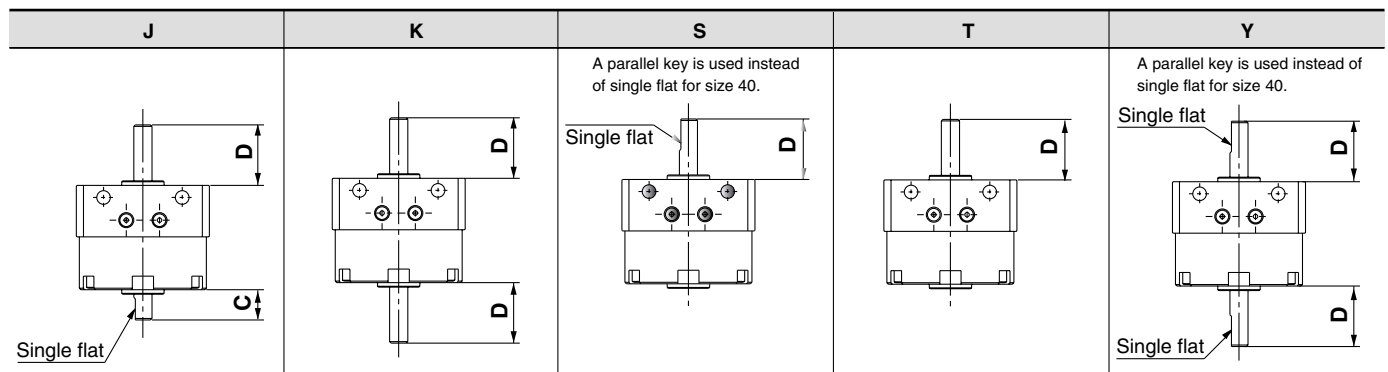
A shaft can be replaced with a different shaft type except standard shaft type (W).

Without auto switch

CRBU2 J Size Rotating angle Vane type Port location

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	●	●	●	●	●
K	Double shaft	Long shaft without keyway & single flat					●
S	Single shaft	Double round shaft	●	●	●	●	●
T	Single shaft	Single shaft with single flat	●	●	●	●	●
Y	Double shaft	Single shaft key					●
		Single round shaft	●	●	●	●	●
		Double shaft with single flat	●	●	●	●	●
		Double shaft key					●



(mm)

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

Note 1) Only side ports are available except for basic type.

Note 2) Dimensions and tolerance of the shaft and single flat (a parallel keyway for size 40) are the same as the standard.

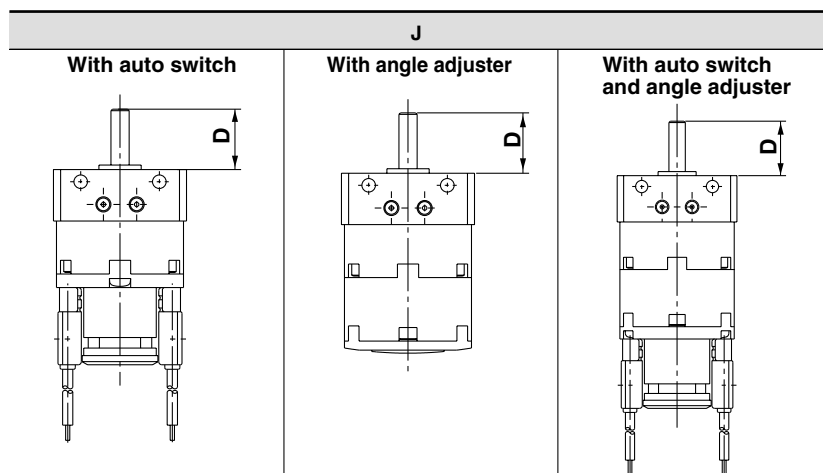
With auto switch
With angle adjuster

CDRBU2 J U Size Rotating angle Vane type Auto switch

With angle adjuster

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					●



(mm)

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

Note 1) Only side ports are available except basic type.

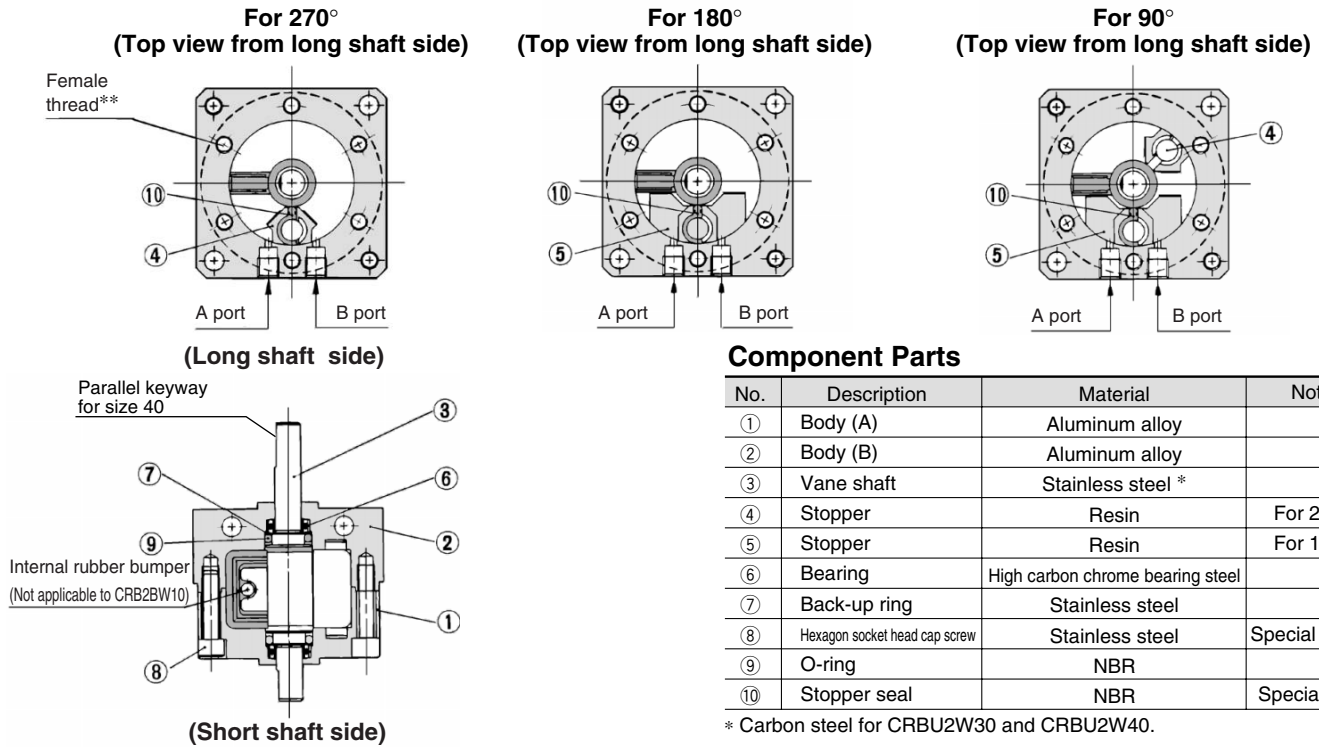
Note 2) Dimensions and tolerance of the shaft and single flat (a parallel keyway for size 40) are the same as the standard.

Rotary Actuator: Free Mount Type Vane Style **Series CRBU2**

Construction: 10, 15, 20, 30, 40

Single vane type

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.)



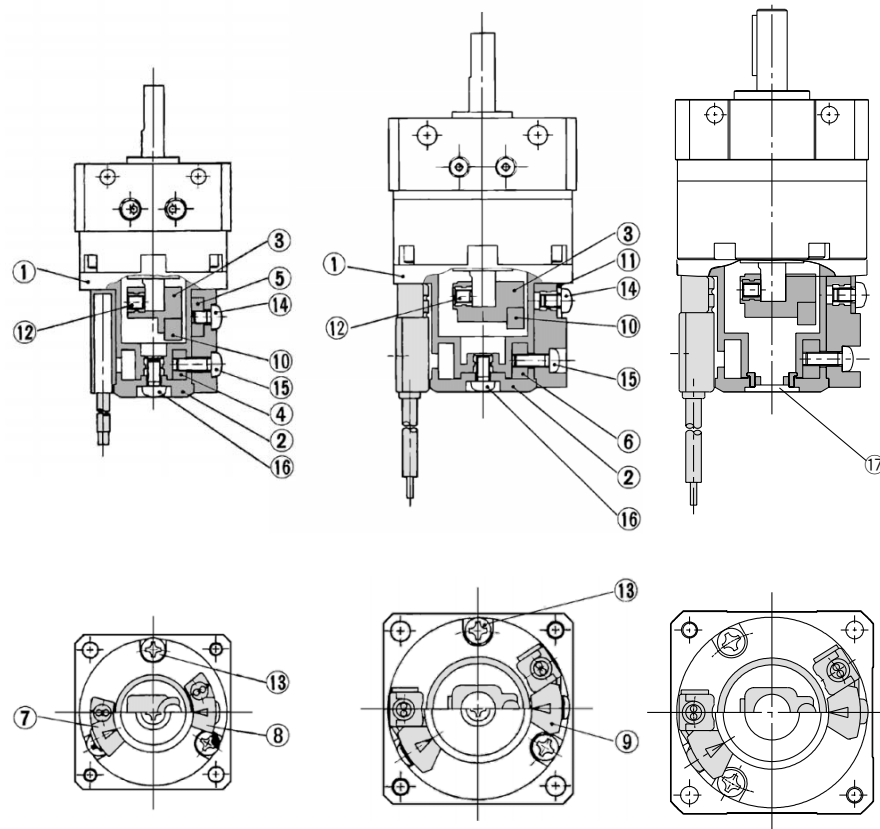
Component Parts

No.	Description	Material	Note
①	Body (A)	Aluminum alloy	
②	Body (B)	Aluminum alloy	
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

* Carbon steel for CRBU2W30 and CRBU2W40.

With auto switch unit

CDRBU2W10/15-□S_D CDRBU2W20/30/40-□S_D CDRBU2W40-S/D



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	Magnetic body
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.

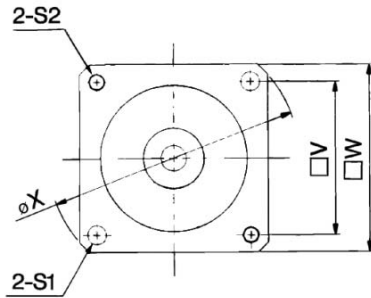
Rotary Actuator: Free Mount Type Vane Style **Series CRBU2**

Dimensions: 10, 15, 20, 30

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

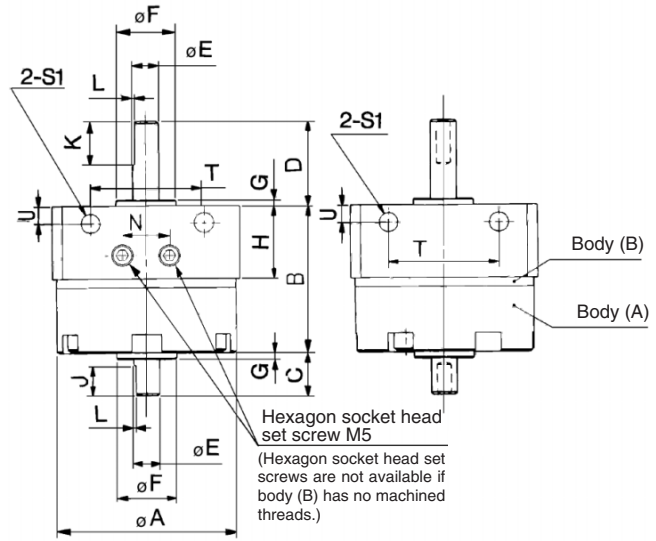
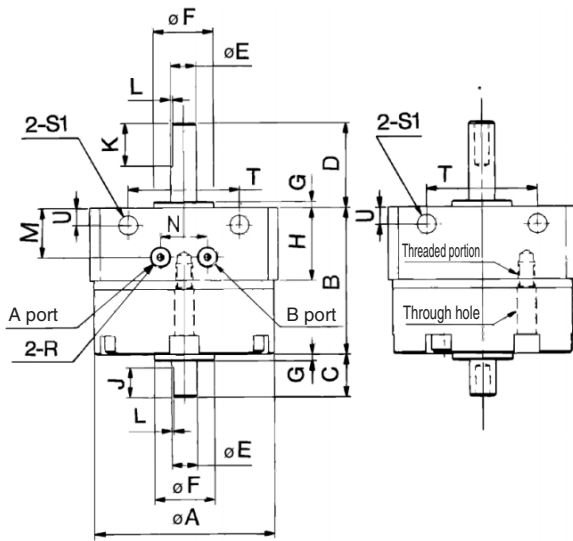
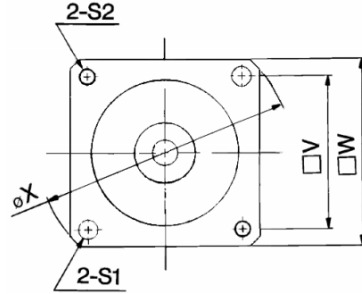
CRBU2W□-□S

<Port location: Side ported>



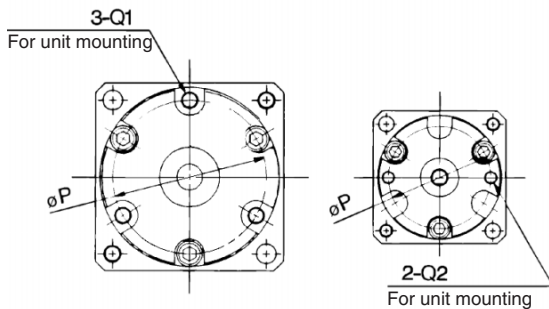
CRBU2W□-□SE

<Port location: Axial ported>



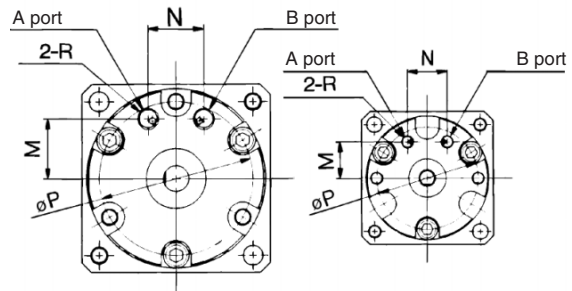
CRBU2W10□-□S

<Port location: Side ported>



CRBU2W10□-□SE

<Port location: Axial ported>



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	M5 x 0.8	3.5	M3 x 0.5	17	3	25	31	41
CRBU2W10-□SE												8.5	9.5			(4)	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											