

Rotary Actuator Free Mount Style



Series *CRBU* (Size: 10/15/20/30)

How to Order

Standard



CRBU W 10-180 S E

Free mount

Size: 10, 15, 20, 30

Connecting port location: Body side (—), Axis direction (E)

Vane type: S (Single vane), D (Double vane)

Connecting port locations



Body side (Fittings should be ordered separately.)

Axis direction

Angle of rotation

Application	Symbol	Angle of rotation
Single vane	90	90°
	180	180°
	270	270°

With Auto Switch Size 10/15

CDRB UW 10-180 S-90 L

With auto switch (With switching unit)

Free mount

Size: 10, 15

With Auto Switch Size 20/30

CDRB UW 20-180 S-R73 L

Free mount

Size: 20, 30

No. of auto switches

S	1*
—	2

* The one auto switch attached with order symbol "S" is right hand operating type.

Angle of rotation

Application	Symbol	Angle of rotation
Single vane	90	90°
	180	180°
	270	270°
Double vane	90	90°
	100	100°

Vane Style

S	Single vane
D	Double vane

Auto switch

—	Without auto switch
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* Refer to the table below for selection of applicable auto switch.

Electrical entry and length

—	Grommet, Lead wire: 0.5m
L	Grommet, Lead wire: 3m
C	Connector, Lead wire: 0.5m
CL	Connector, Lead wire: 3m
CN	Connector, Without wires

* Connector type is applicable only to "R73", "R80" and "T79".

** Part nos. of lead wire with connector
D-LC05: Lead wire 0.5m
D-LC30: Lead wire 3m
D-LC50: Lead wire 5m

Auto switch specifications/ Refer to p.2.11-1 for further information on auto switch single unit.

Applicable size	Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch part no.	Lead wire	Lead wire length* (m)				Applicable loading			
					DC	AC			0.5 (—)	3 (L)	5 (Z)	— (N)				
For 10/15	Reed switch	Grommet	No	2 wire	24V	5V, 12V	5V, 12V,24V	90	Parallel cord	●	●	●	—	IC	Relay PLC	
						5V, 12V, 100V	5V, 12V,24V, 100V	90A	Cab tire	●	●	●	—			
	Solid state switch		Yes			—	—	97	Parallel cord	●	●	●	—	—		
						12V	—	100V	93A	Cab tire	●	●	●			—
								T99	●		●	—	—			
						T99V		●	●		—	—				
						S99		●	●		—	—				
						S99V	●	●	—		—					
	S9P	●	●	—	—											
	S9PV	●	●	—	—	IC										
For 20/30	Reed switch	Grommet	Yes	2 wire	24V		—	100V	R73	Cab tire	●	●	—	—	—	Relay PLC
		Connector				48V, 100V	24V, 48V, 100V	R73C	●		●	●	●			
		Grommet				12V	—	R80	●		●	—	—			
		Connector						R80C	●		●	●	●			
		Grommet				T79		●	●		—	—	—			
		Connector				T79C		●	●		●	●				
Solid state switch	Yes	3 wire (NPN)	5V, 12V	—	S79	●	●	—	—	IC						
		3 wire (PNP)			S7P	●	●	—	—							

* Symbols for lead wire length 0.5m: — Ex.) R73C 3m: L Ex.) R73CL 5m: Z Ex.) R73CZ —: N Ex.) R73CN

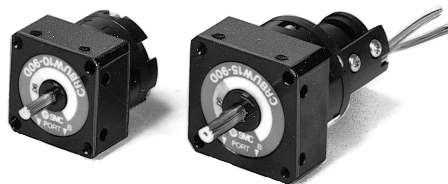
• Operating time — 1.2ms • Operating temperature range — -10° to 60°C

• Shock resistance — 300m/s² {30, 6G} (Reed switch), 1000m/s² {102G} (Solid state switch)

Free Mount Style Rotary Actuator *Series CRBU*

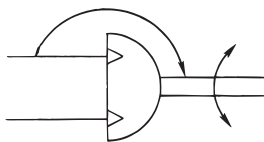


Single vane type



Double vane type

JIS symbol



P.1.2-19 to P.1.2-23

⚠ Caution

Be sure to read before handling.
Refer to p.0-20 and 0-21 for
Safety Instructions and common
precautions on the products
mentioned in this catalog, and
refer to p.1.0-2 to 1.0-4 for
precautions for every series.

Single vane style specifications

Model	CRBUW10-□S	CRBUW15-□S	CRBUW20-□S	CRBUW30-□S
Rotation 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 adjustable range ⁽¹⁾ (sec/90°)	0.03 to 0.3			0.04 to 0.3
Allowable kinetic energy ⁽²⁾ (J)	0.00015	0.001	0.003	0.02
		0.00025	0.0004	0.015
Shaft load	Allowable radial load (N)		15	25
	Allowable thrust load (N)		10	20
Bearing	Ball bearing			
Port position	On the body side or in the axial direction			
Shaft style	Double shaft (With one flat chamfer to each shaft)			
Angle adjustable range of the unit	0 to 230°	0 to 240°		



Note 1) Make sure to operate within the adjustable speed range.

Exceeding the upper limit (0.3 sec/90°) of speed control could cause the unit to stick or not operate at all.

Note 2) In the chart, the upper section indicates the energy factor when the rubber bumper is used (at the end of the rotation); the lower section indicates the energy value when the rubber bumper is not used.

Double vane style

Model	CRBUW10-□D	CRBUW15-□D	CRBUW20-□D	CRBUW30-□D
Rotation 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 adjustable range ⁽¹⁾ (sec/90°)	0.03 to 0.3			0.04 to 0.3
Allowable kinetic energy (J)	0.0003	0.0012	0.0033	0.02
Shaft load	Allowable radial load (N)		15	25
	Allowable thrust load (N)		10	20
Bearing	Bearing			
Port position	On the body side or in the axial direction			
Shaft style	Double shafts (With one flat chamfer to each shaft)			
Angle adjustable range of the unit	0 to 90°			



Note 1) Make sure to operate within the adjustable speed range.

Exceeding the upper limit (0.3 sec/90°) of speed control could cause the unit to stick or not operate at all.

Inner volume and Connecting port

Vane style	Model	CRBUW10			CRBUW15			CRBUW20			CRBUW30		
Single vane	Rotation angle	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
	Inner 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
	Connecting port bore size	Body side		M5 X 0.8									
		Axial direction		M3 X 0.5					M5 X 0.8				
Double vane	Rotation angle	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°	90°	100°
	Inner volume cm ³ *	1	1.1	2.6	2.7	5.6	5.7	14.4	14.5				
	Connecting port bore size	Body side		M5 X 0.8									
		Axial direction		M3 X 0.5					M5 X 0.8				

* Values in () represent inner volume in the SUP side when A port is pressurized. (Rubber cushion is not available for size 10.)

Weight

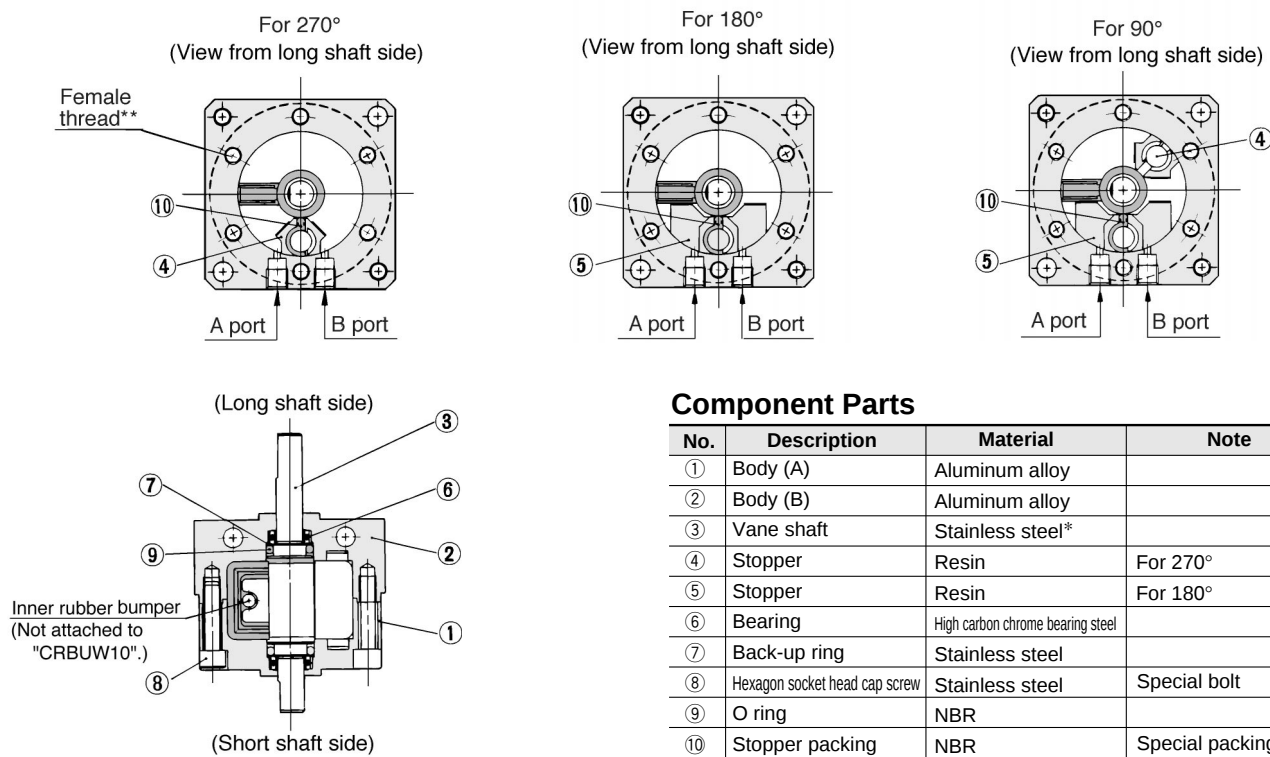
(g)

Vane style	Model	CRBUW10			CRBUW15			CRBUW20			CRBUW30		
Single vane	Rotation angle	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
	Body of the rotary actuator	47.5	47.1	47	73	72	72	143	142	140	263	258	255
	Auto switch unit + 2 auto switches	30			30			50			60		
	Angle adjusting unit	30			47			90			150		
Double vane	Rotation angle	—	90°	100°	—	90°	100°	—	90°	100°	—	90°	100°
	Body of the rotary actuator	—	62.2	63.2	—	77	81	—	151	158	—	289	308
	Auto switch unit + 2 auto switches	30			30			50			60		
	Angle adjusting unit	30			47			90			150		

Series CRBU

Construction/Single Vane Style

Standard: CRBUW 10, 15, 20, 30-□S (Size 10: Without three positions for three equally divided length of circumference of female thread**)



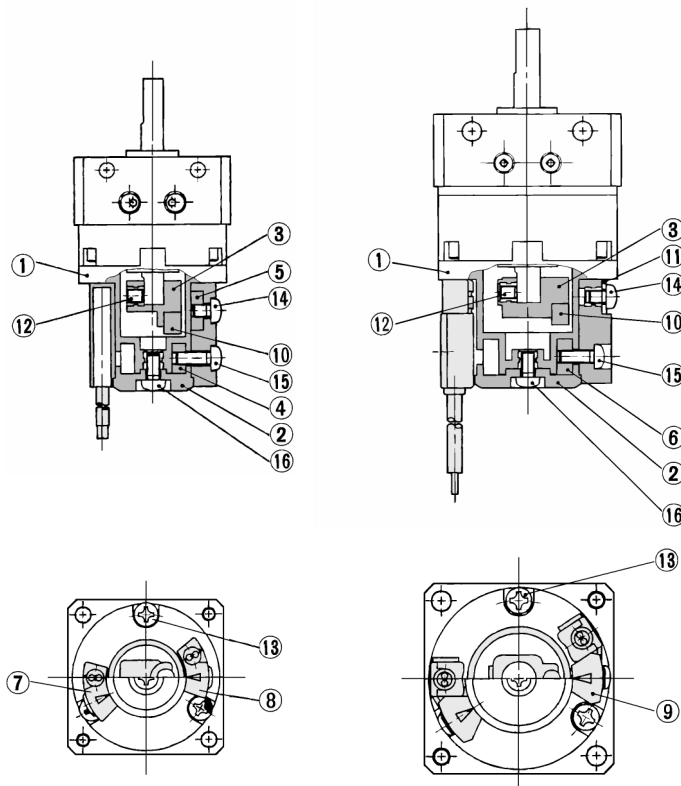
Component Parts

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 bolt
⑨	O ring	NBR	
⑩	Stopper packing	NBR	Special packing

* CRBUW30:Carbon steel

With Auto Switch (Units are common for single vane and double vane.)

CDRBUW10/15-□S CDRBUW20/30-□S



Auto Switch Attached Style/Component Parts

No.	Description	Material
①	Cover (A)	Resin
②	Cover (B)	Resin
③	Magnet lever	Resin
④	Fixation block (A)	Aluminum alloy
⑤	Fixation block (B)	Aluminum alloy
⑥	Fixation block	Aluminum alloy
⑦	Switch block (A)	Resin
⑧	Switch block (B)	Resin
⑨	Switch block	Resin
⑩	Magnet	
⑪	Arm	Steel
⑫	Hexagon socket head cap screw	Steel
⑬	Cross-recessed head cap screw	Steel
⑭	Cross-recessed head cap screw	Steel
⑮	Cross-recessed head cap screw	Steel
⑯	Cross-recessed head cap screw	Steel

* Two cross-recessed head cap screws ⑬ are attached to "CDRBUW10".