



Rotary actuator Rack & pinion

# RRC Series

- Size: 8/32/63
- Oscillating angle: 90°/180°/270°

JIS symbol



## Specifications

Item	RRC		
Size	8	32	63
Effective torque <sup>*1</sup> N·m	0.7	3.1	5.6
Actuation	Rack and pinion mechanism		
Working fluid	Compressed air		
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)		
Min. working pressure <sup>*2</sup> MPa	0.1 (≈15 psi, 1 bar)		
Proof pressure MPa	1.6 (≈230 psi, 16 bar)		
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)		
Port size	Rc1/8		
Oscillating angle tolerance °	90 <sup>+8</sup> <sub>-1</sub> , 180 <sup>+8</sup> <sub>-1</sub> , 270 <sup>+8</sup> <sub>-1</sub>		
Cushion	Rubber cushion	Air cushion	
Effective cushion length mm	-	4.8	5.8
Allowable absorbed energy J	0.05	0.21	0.41
Volumetric capacity cm <sup>3</sup>	90°	3	12
	180°	6	24
	270°	9	36
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)		

\*1 : Effective torque value is at working pressure 0.5 MPa.

\*2 : When using RRC-8 with max. oscillating angle, the working pressure is to be 0.3 MPa and over.

\*3 : Adjustable angle is available as an option. Refer to page 1291.

## Switch specifications

- 1-color/2-color display

Item	Proximity 2-wire		Proximity 2-wire				Proximity 3-wire				Reed 2-wire					
	T1H/ T1V	T2H/ T2V	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V				
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay			
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA							
Weight g	1 m: 33	1 m:18	1 m: 33	1 m:18	1 m:18	1 m: 33	1 m:18		1 m:18		1 m: 33					
	3 m: 87	3 m:49	3 m: 87	3 m:49	3 m:49	3 m: 87	3 m:49		3 m:49		3 m: 87					
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80		5 m:80		5 m:142					

\*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

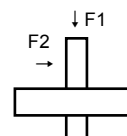
\*3 : The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

## Max. load

Use the load applied to the shaft at the values below or less.

Unit: N

Model No.	RRC-8	RRC-32	RRC-63
Thrust load F1	9.8	39.2	58.8
Radial load F2	19.6	78.4	117.6



## Cylinder weight

Unit: kg

Oscillating angle Model No.	90°	180°	270°	Switch weight (per 1 pc.)	Switch mounting bracket		
					90°	180°	270°
RRC-8	0.39	0.43	0.49	Refer to the weight in the switch specifications.	0.005		
RRC-32	1.02	1.23	1.45		0.011	0.013	0.015
RRC-63	1.68	2.03	2.37		0.012	0.014	0.016

(Example) Product weight of RRC-8-90-T2H-D  
 Body weight..... 0.39 kg  
 Switch weight..... 0.018 2 pcs. = 0.036 kg  
 Switch mounting bracket weight.... 0.005 2 pcs. = 0.010 kg  
 Product weight ..... 0.39 kg + 0.036 kg + 0.010 kg = 0.436 kg

## How to order

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Size

B Max. oscillating angle

C Switch model No.

\* indicates the lead wire length.

D Switch quantity

E Option

[Example of model No.]

### RRC-8-90-T2H-R-A

Model: Rotary actuator rack & pinion

- A Size : 8
- B Max. oscillating angle : 90°
- C Switch model No. : Proximity T2H switch, lead wire 1 m
- D Switch quantity : With clockwise rotation detection 1 piece
- E Option : Adjustable angle

Code	Description					
<b>A Size</b>						
Model No.	Effective torque					
8	0.7 [N·m]					
32	3.1 [N·m]					
63	5.6 [N·m]					
<b>B Max. oscillating angle</b>						
90	90°					
180	180°					
270	270°					
<b>C Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		
T2WH*	T2WV*			●	2-wire	
T2YH*	T2YV*			●		2-wire
T3WH*	T3WV*			●	3-wire	
T3YH*	T3YV*			●		3-wire
T3PH*	T3PV*		●	1-color display	3-wire	
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>D Switch quantity</b>						
R	With clockwise rotation detection 1 piece					
L	With counterclockwise rotation detection 1 piece					
D	2					
<b>E Option</b>						
A	Adjustable angle					
P6	Copper and PTFE free					

LCM  
LCR  
LCG  
LCW  
LCX  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
UB  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCS2  
RCC2  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HRL  
LN  
Hand  
Chuk  
MechHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr

## How to order switch

● Switch body + mounting bracket set (including rail)



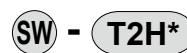
Switch model No. (Item C above)    Size (Item A above)    Max. oscillating angle (Item B above)

● Mounting bracket set (including rail)



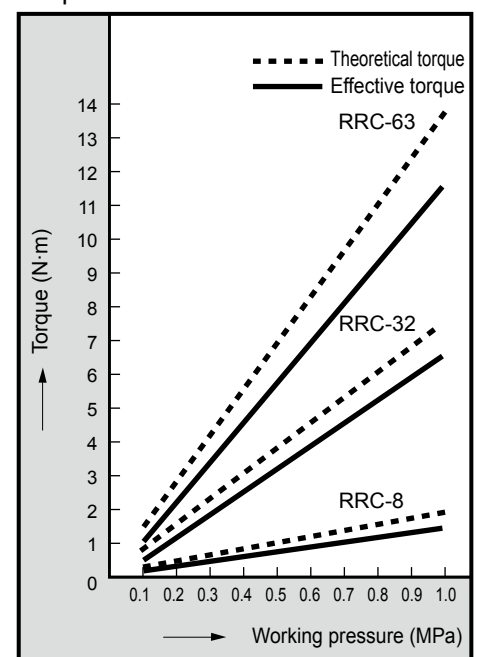
Bracket  
Size (Item A above)    Max. oscillating angle (Item B above)

● Switch body only



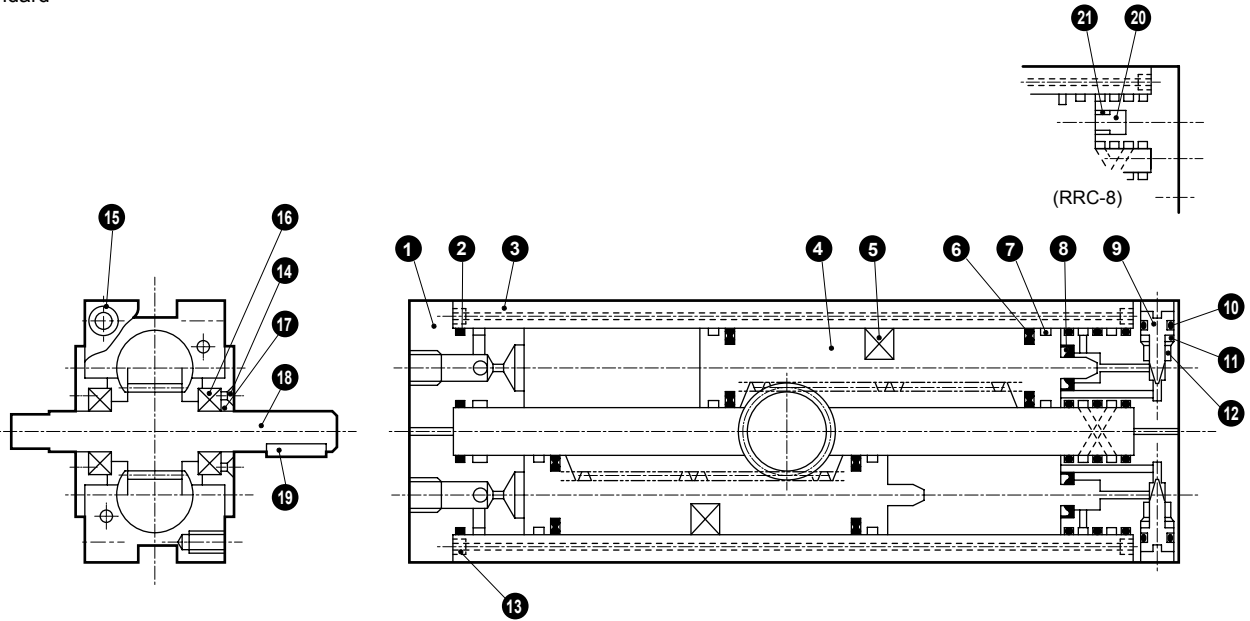
Switch model No. (Item C above)

## Torque

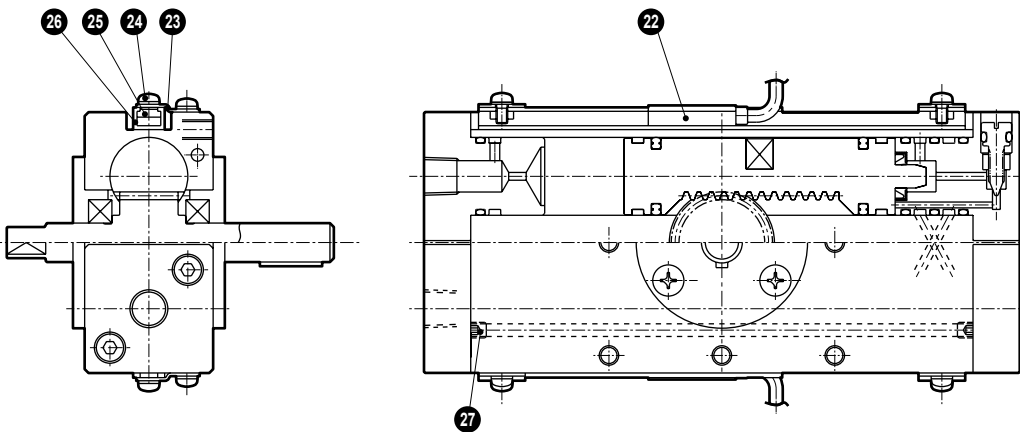


## Internal structure and parts list

● Standard



● With switch



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Cap (2)	Aluminum alloy		16	Bearing	—	
2	Cap gasket	Nitrile rubber		17	Cover	Aluminum alloy	
3	Body	Aluminum alloy		18	Shaft	Steel	
4	Piston	Stainless steel		19	Key	Steel	
5	Magnet	Plastic		20	Cushion rubber	Urethane rubber	RRC-8 only
6	Piston packing	Nitrile rubber		21	DU bush	—	RRC-8 only
7	Wear ring	Acetal resin		22	Switch	—	
8	Cushion packing	Nitrile rubber	Excluding RRC-8	23	Stop plate	Stainless steel	
9	Needle	Copper alloy	Excluding RRC-8	24	Phillips pan head machine screw/captive washer	Steel	
10	Needle gasket	Nitrile rubber	Excluding RRC-8	25	Fixing nut	Stainless steel	
11	Cap (1)	Aluminum alloy		26	Switch rail	Aluminum alloy	
12	U nut	Steel	Excluding RRC-8	27	Hexagon socket set screw	Steel	
13	Hexagon socket set screw	Alloy steel					
14	Phillips flat head machine screw	Steel					
15	Hexagon socket head cap screw	Alloy steel					

## Repair parts list

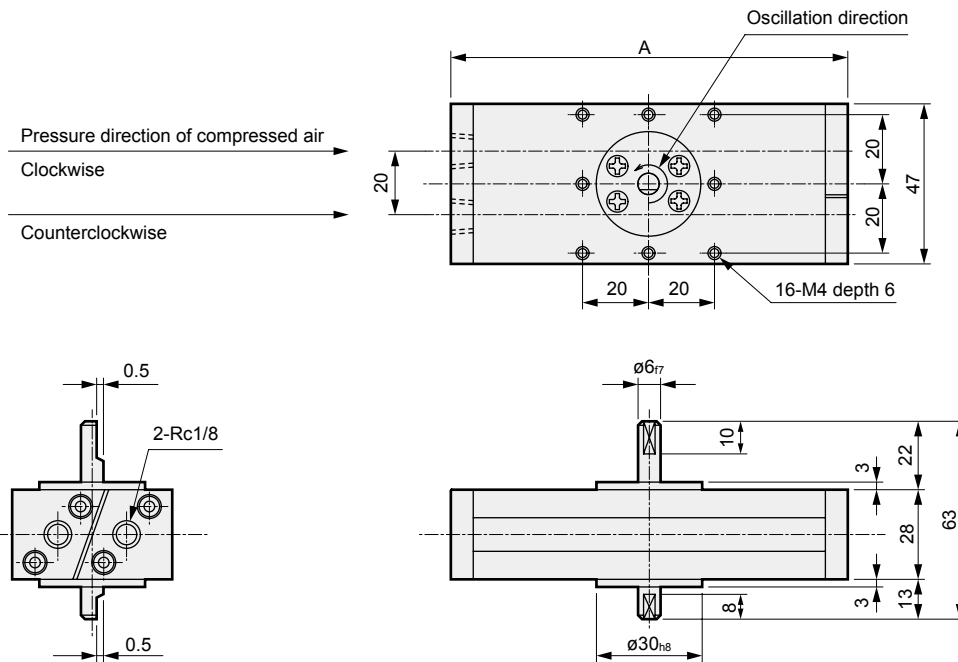
Model No.	Kit No.	Repair parts No.
RRC-8	RRC-8K	2 6 7
RRC-32	RRC-32K	2 6 7 8 10
RRC-63	RRC-63K	2 6 7 8 10

Note: Specify the kit No. when placing an order.

### Dimensions

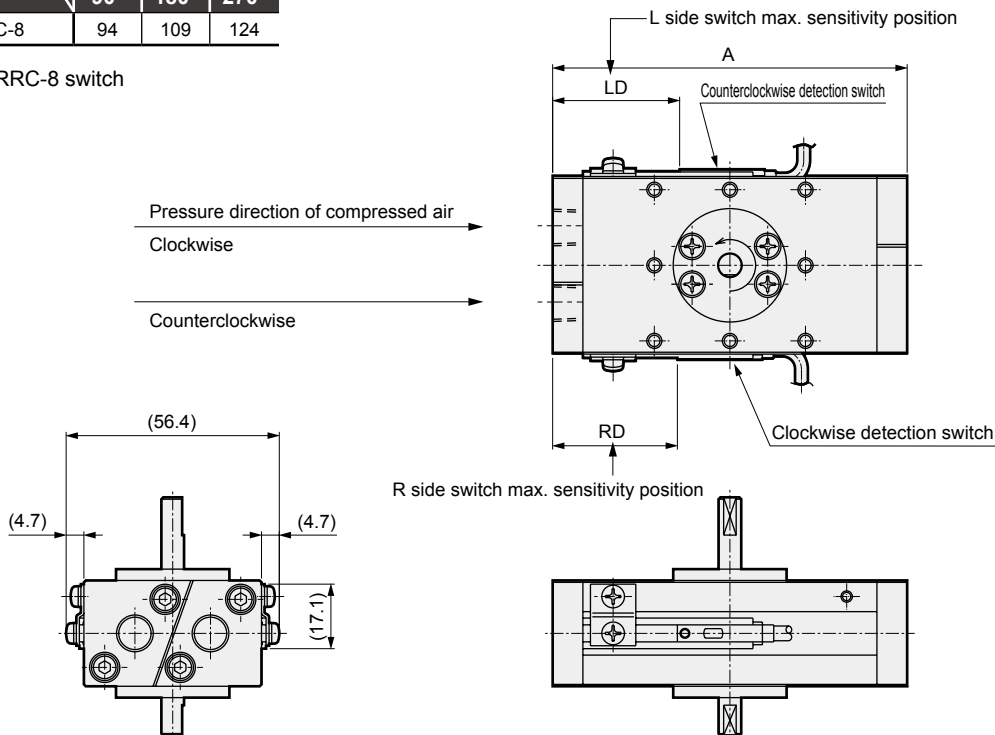


● RRC-8



Code	A		
	Oscillating angle		
Model No.	90°	180°	270°
RRC-8	94	109	124

● With RRC-8 switch



Code	A			RD																	
	Oscillating angle			T1*			T2*/T3*			T0*/T5*			T8*			T2Y*/T3Y*			T2W*/T3W*		
	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
RRC-8	94	109	124	31	36	40	33	37	41	30	37	41	24	31	35	31	36	40	34	39	43

Code	LD																	
	T1*			T2*/T3*			T0*/T5*			T8*			T2Y*/T3Y*			T2W*/T3W*		
	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
RRC-8	31	36	40	33	37	41	30	37	41	24	31	35	31	36	40	34	39	43

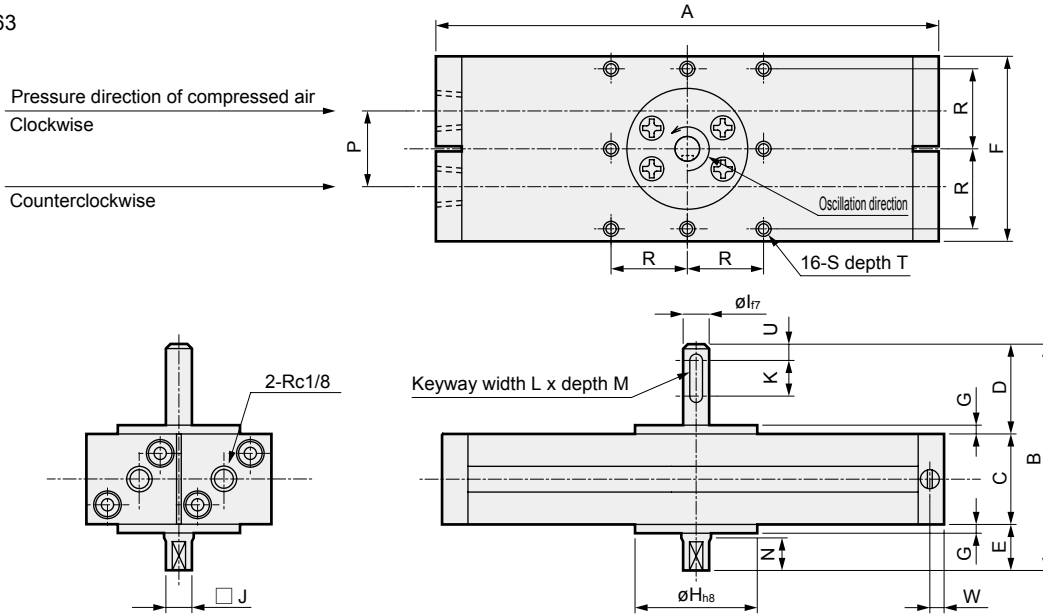
Note: Dimensions other than the above are the same as the type without switch.

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC**
- GRC**
- RV3\***
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

## Dimensions



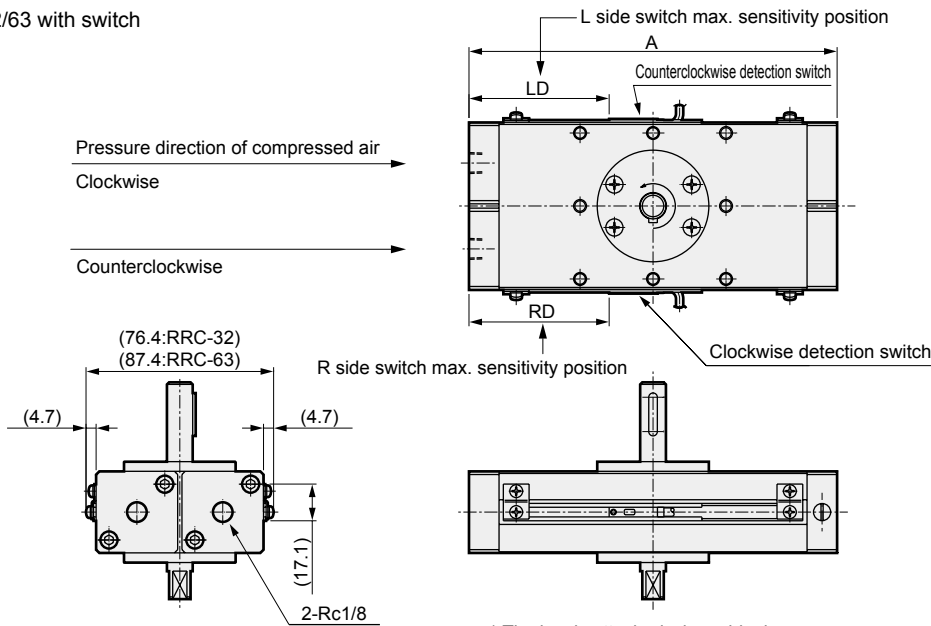
### ● RRC-32/63



\* The key is attached when shipping.

Code	A			B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	W
	Oscillating angle																					
Model No.	90°	180°	270°																			
RRC-32	153	191	229	84	33	31	20	67	3	44	10	8	13	3	1.8	10	34	29	M5	8	4.5	6
RRC-63	172	216	260	101	38	41.5	21.5	78	4.5	52	12	10	16	4	2.5	13	40	34	M6	9	7	7

### ● RRC-32/63 with switch



\* The key is attached when shipping.

Code	A			RD																	
	Oscillating angle			T1*			T2*/T3*			T0*/T5*			T8*			T2Y*/T3Y*			T2W*/T3W*		
	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
RRC-32	153	191	229	56	66	75	58	67	77	57	67	76	51	61	70	56	66	75	59	69	78
RRC-63	172	216	260	64	75	86	65	76	87	65	76	87	59	70	81	64	75	86	67	78	89

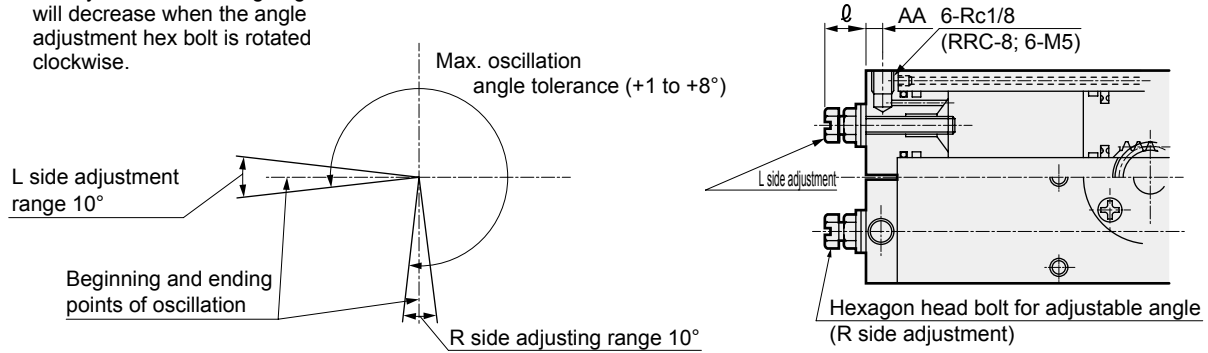
Code	LD																	
	T1*			T2*/T3*			T0*/T5*			T8*			T2Y*/T3Y*			T2W*/T3W*		
	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°	90°	180°	270°
RRC-32	56	66	75	58	67	77	57	67	76	51	61	70	56	66	75	59	69	78
RRC-63	64	75	86	65	76	87	65	76	87	59	70	81	64	75	86	67	78	89

Note: Dimensions other than the above are the same as the type without switch.

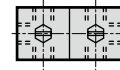
## Dimensions: Option

### ● Adjustable angle

\* The cylinder's oscillating angle will decrease when the angle adjustment hex bolt is rotated clockwise.



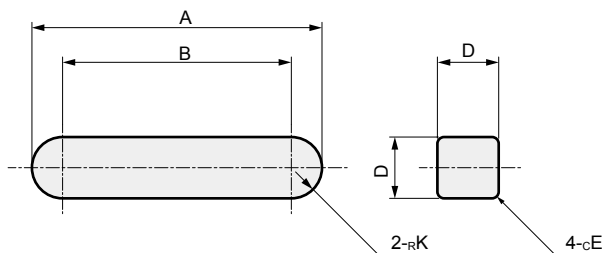
L side R side



3 port positions each are provided on the R and L sides, as in the figure above.

Code	D		AA	Allowable absorbed energy J (For adjustable angle single 10°)	Hexagon head bolt dimension for adjustable angle (Common for R and L)
	MIN	MAX			
RRC-8	10.7	11.5	4	0.02	M5×0.5
RRC-32	13.4	15.5	6	0.06	M6×0.75
RRC-63	13.5	16.0	7	0.13	M6×0.75

### ● Key dimensional drawing



Model No.	Code	A	B	K	D	E
RRC-32		16 <sup>0</sup> <sub>-0.18</sub>	13	1.5	3 <sup>0</sup> <sub>-0.025</sub>	0.2
RRC-63		20 <sup>0</sup> <sub>-0.21</sub>	16	2	4 <sup>0</sup> <sub>-0.030</sub>	0.2

- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC**
- GRC**
- RV3\*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending