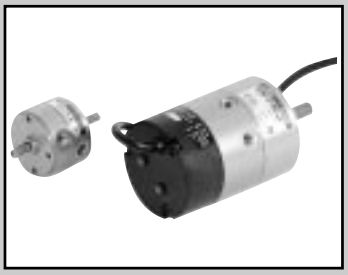


Compact rotary actuator with vane mechanism standard type

RV3S/D Series

- Torque: 1, 3, 10, 20, 30
- Oscillating angle: 90°, 180°, 270°

JIS symbol 

RoHS CAD

Specifications

● Single vane mechanism

Descriptions		RV3S														
Size		1			3			10			20			30		
Effective torque	N·m	0.12			0.31			0.98			1.70			3.19		
Actuation		Single vane														
Working fluid		Compressed air														
Max. working pressure	MPa	0.7									1.0					
Min. working pressure	MPa	0.2														
Withstanding pressure	MPa	1.05									1.5					
Ambient temperature	°C	-5 to 80 Note 3												-5 to 60		
Port size		M5												Rc1/8		
Oscillating angle tolerance	degree	90^{+4}_{0}	180^{+4}_{0}	270^{+4}_{0}	90^{+4}_{0}	180^{+4}_{0}	270^{+4}_{0}	90^{+4}_{0}	180^{+4}_{0}	270^{+4}_{0}	90^{+4}_{0}	180^{+4}_{0}	270^{+4}_{0}	90^{+3}_{0}	180^{+3}_{0}	270^{+3}_{0}
Oscillating origin	degree	45, 90		45	45, 90		45	45, 90		45	45, 90		45	45		
Allowable energy absorption Note 1	mJ	0.6			1.5			3			15			25		
Maximum cycle rate Note 2	cycle/min	300	180	96	240	150	60	240	150	90	210	120	84	180	90	60
Volumetric capacity	cm^3	1.4	1.4	1.5	3.4		4	9.8		12	17		21	37		43
Allowable radial load	N	30			40			50			300			400		
Allowable thrust load	N	3			4						25			30		
Weight	kg	0.036			0.07			0.14			0.25			0.47		0.46
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)														

● Double vane mechanism

Descriptions		RV3D				
Size		1	3	10	20	30
Effective torque	N·m	0.28	0.71	2.11	3.88	7.70
Actuation		Double vane				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7			1.0	
Min. working pressure	MPa	0.2				
Withstanding pressure	MPa	1.05			1.5	
Ambient temperature	°C	-5 to 80 Note 3				-5 to 60
Port size		M5				Rc1/8
Oscillating angle tolerance	degree	90^{+4}_{0}				90^{+3}_{0}
Oscillating origin	degree	45				
Allowable energy absorption Note 1	mJ	0.6	1.5	3	15	25
Maximum cycle rate Note 2	cycle/min	300	240		210	180
Volumetric capacity	cm^3	1.1	2.8	8.1	15	34
Allowable radial load	N	30	40	50	300	400
Allowable thrust load	N	3	4		25	30
Weight	kg	0.037	0.072	0.14	0.26	0.48
Lubrication		Not required (when lubricating, use turbine oil ISO VG32.)				

Note 1: Calculate allowable energy with allowable inertia energy of shaft of rotary actuator as following.
Allowable energy ≧ $1/2I\omega^2 \times 10^3$ (refer to Page 121 for detail.)
Note 2: The maximum working frequency is at supply pressure 0.5MPa <in no load state>.
Note 3: 5 to 60°C when switch is provided.
Note 4: A key is enclosed with the rotary actuator with keyway.
Note 5: Consult with CKD for products other than standard specifications.

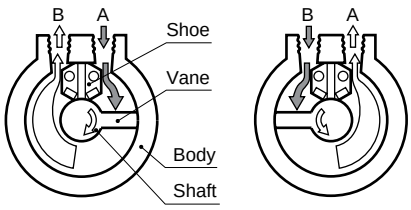
Switch specifications

Descriptions	Proximity switch
	SR-* (-U)
Applications	Programmable controller, relay, IC circuit, small solenoid valve
Power voltage	5 to 30 VDC
Load voltage / current	5 to 30 VDC, 200mA or less
Current consumption	20mA or less with 24 VDC
Internal voltage drop	1.5V or less
Light	LED (ON lighting)
Leakage current	10 μA or less
Lead wire length	1m (oil resistant vinyl cabtire cable 4-conductor 0.2mm^2)
Maximum shock resistance	490m/s^2
Insulation resistance	100MΩ and over with 500V mega
Withstand voltage	No failure when 1000 VAC is applied for one minute
Ambient temperature	5 to 60°C
Protective structure	IEC standards IP67, JIS C0920 (water tight type)

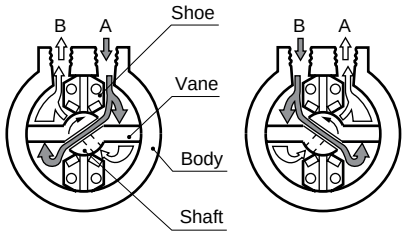
*mark indicates a rotary actuator size. (3, 10, 20, 30)

Operational principle

● Single vane
1. Configured with vane sliding inside of body, shaft, and shoe (stopper).
2. Air from port A pushes vane rotates shaft, and generates torque.
3. Air in opposite room is exhausted from port B, and shaft rotates clockwise.
4. Vane stops when it contacts to shoe.
5. Air supply from port B causes counterclockwise rotation in the same manner.



● Double vane
1. Configured with two vanes sliding inside of body, integrated shaft, and shoe (stopper).
2. Air from port A pushes vane, and goes through passage in shaft, pushes another vane, turns shaft, and finally generates torque.
3. Rotating in the same manner of single vane.



How to order

● Compact rotary actuator (standard type) RV3*

RV3S 3 - 90 - 45 - SR-U - FA

Ⓐ Model no.
Ⓑ Nominal size
Ⓒ Oscillating angle
Ⓓ Oscillating origin
Ⓔ Switch type
Ⓕ Option (Note 1, Note 2)

Symbol	Descriptions	Ⓐ Model no. Single vane mechanism RV3S	Ⓐ Model no. Double vane mechanism RV3D
Ⓑ Nominal size			
1	Effective torque 0.5MPa	0.12N·m	0.27N·m
3		0.31N·m	0.71N·m
10		0.98N·m	2.11N·m
20		1.70N·m	3.88N·m
30		3.19N·m	7.7N·m

Ⓒ Oscillating angle			
90	90°	●	●
180	180°	●	
270	270°	●	

Ⓓ Oscillating origin											
Nominal size		1	3	10	20	30	1	3	10	20	30
45	45°	●	●	●	●	●	●	●	●	●	●
90	90° (excluding oscillating angle 270°)	●	●	●	●						

Ⓔ Switch type											
Nominal size		1	3	10	20	30	1	3	10	20	30
Blank	Without switch	●	●	●	●	●	●	●	●	●	●
SR	Axial lead wire with switch		●	●	●	●		●	●	●	●
SR-U	Radial lead wire with switch		●	●	●	●		●	●	●	●

Ⓕ Option											
Nominal size		1	3	10	20	30	1	3	10	20	30
Blank	No option	●	●	●	●	●	●	●	●	●	●
S	Axial port position	●	●	●	●		●	●	●	●	
FA	With flange bracket	●	●	●	●	●	●	●	●	●	●
LS	With foot bracket	●	●	●	●	●	●	●	●	●	●

⚠ Note on model no. selection

Note 1: The type with switch is not available for the port position axial direction "S".
Note 2: The mounting bracket (FA and LS) is attached when shipping. Refer to Page 104 for dimensions.

<Example of model number>

RV3S3-90-45-SR-U-FA

Model: Compact rotary actuator
Ⓐ Model no. : Single vane mechanism RV3S
Ⓑ Nominal size : 3
Ⓒ Oscillating angle : 90°
Ⓓ Oscillating origin : 45°
Ⓔ Switch type : Radial lead wire with switch
Ⓕ Option : With flange bracket

● How to order switch unit

RV3S - SR-3 - 90 - 45 - U

Ⓐ Model
Ⓑ Oscillating angle
Ⓒ Oscillating origin
Ⓓ Lead wire outlet direction

Symbol	Descriptions
Ⓐ Model	
SR-3	Applicable actuator: RV3S/D3
SR-10	Applicable actuator: RV3S/D10
SR-20	Applicable actuator: RV3S/D20
SR-30	Applicable actuator: RV3S/D30

Ⓑ Oscillating angle	
90	90°
180	180°
270	270°

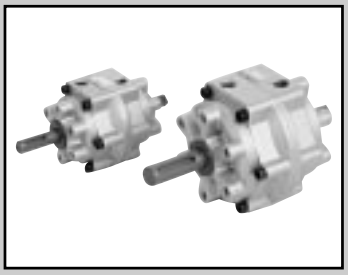
Ⓒ Oscillating origin					
Model		SR-3	SR-10	SR-20	SR-30
45	45°	●	●	●	●
90	90°	●	●	●	

Ⓓ Lead wire outlet direction	
Blank	Axial lead wire with switch
U	Radial lead wire with switch

<Example of model number>

RV3S-SR-3-90-45-U

Model: Switch unit
Ⓐ Model : RV3S3
Ⓑ Oscillating angle : 90°
Ⓒ Oscillating origin : 45°
Ⓓ Lead wire outlet direction : Radial lead wire



Large rotary actuator vane mechanism standard type

RV3S/D Series

- Torque: 50, 150, 300
- Oscillating angle: 90°, 100°, 180°, 270°, 280°

JIS symbol 

RoHS CAD

Specifications

Descriptions	Single vane mechanism RV3S												Double vane mechanism RV3D					
Size	50				150				300				50		150		300	
Effective torque N·m	4.7				14.7				27.9				10.1		34.3		66.6	
Actuation	Single vane												Double vane					
Working fluid	Compressed air												Compressed air					
Max. working pressure MPa	1.0												1.0					
Min. working pressure MPa	0.2 Note 1												0.2 Note 1					
Withstanding pressure MPa	1.5												1.5					
Ambient temperature ℃	5 to 60												5 to 60					
Port size	Rc1/8				Rc1/4				Rc3/8				Rc1/8		Rc1/4		Rc3/8	
Oscillating angle tolerance degree	90^{+3}_{0}	180^{+3}_{0}	270^{+3}_{0}	280^{+3}_{0}	90^{+3}_{0}	180^{+3}_{0}	270^{+3}_{0}	280^{+3}_{0}	90^{+3}_{0}	180^{+3}_{0}	270^{+3}_{0}	280^{+3}_{0}	90^{+3}_{0}	100^{+3}_{0}	90^{+3}_{0}	100^{+3}_{0}	90^{+3}_{0}	100^{+3}_{0}
Oscillating origin degree	45			40	45			40	45			40	45	40	45	40	45	40
Allowable energy absorption Note 2 mJ	49				225				1078				49		225		1078	
Maximum cycle rate Note 3 cycle/min	180	90	60		120	80	50		90	60	40		180		120		90	
Volumetric capacity cm^3	51		61	62	146		179	185	244	283	352	365	42	43	127	123	244	271
Allowable radial load N	588				1176				1960				588		1176		1960	
Allowable thrust load N	44.1				88.2				147				44.1		88.2		147	
Weight kg	0.82	0.79	0.73	0.7	2.0	1.9	1.7	1.6	3.7			3.6	0.82	0.8	2.0	1.9	4.3	4.1
Lubrication	Not required (when lubricating, use turbine oil Class 1 ISO VG32.)												Not required (when lubricating, use turbine oil ISO VG32.)					

Note 1: The minimum working pressure is 0.3MPa when the optional shock absorber is selected.
Note 2: Calculate allowable energy with allowable inertia energy of shaft of rotary actuator as following.
(Allowable energy) $\geqq 1/2 I\omega^2 \times 10^3$ (Refer to Page 121 for detail.)
If formula above is not satisfied, problems such as shaft broken may be caused.
Note 3: The maximum working frequency is at supply pressure 0.5MPa <in no load state>.
Note 4: A key is enclosed with the rotary actuator with keyway.
Note 5: Consult with CKD for products other than standard specifications.

Switch specifications

Descriptions	Proximity 2 wire	Proximity 3 wire
	M2V	M3V
Applications	Programmable controller	Programmable controller, relay, IC circuit, small solenoid valve
Output method	—	NPN output
Power voltage	—	4.5 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 30mA	30 VDC or less, 200mA or less
Light	LED (ON lighting)	
Leakage current	1mA or less	10μA or less

Descriptions	Reed 2 wire	
	M0V	M5V
Applications	Programmable controller, relay	Programmable controller, reray, IC circuit (no light), serial connection
Load voltage/current	5 to 50mA at 12/24VDC, 7 to 20mA at 110VAC	50mA or less at 5/12/24VDC, 20mA or less at 110VAC
Light	LED (ON lighting)	no light
Leakage current	0mA	

* M0 switch can be used for 24VAC and 48VAC within load current range of 7 to 20mA.

How to order

● Large rotary actuator (standard type) RV3*

RV3S 50 - 90 - 45 - M2V - R - C

Ⓐ Model no.
Ⓑ Nominal size
Ⓒ Oscillating angle
Ⓓ Oscillating origin Note 1
Ⓔ Switch type
Ⓕ Switch quantity
Ⓖ Option Note 2, Note 3 Note 4

Symbol	Descriptions	Ⓐ Model no. Single vane mechanism RV3S	Ⓐ Model no. Double vane mechanism RV3D
Ⓑ Nominal size			
50	Effective torque 0.5MPa	4.7N·m	10.1N·m
150		14.7N·m	34.3N·m
300		27.9N·m	66.6N·m
Ⓒ Oscillating angle			
90	90°	●	●
100	100°		●
180	180°	●	
270	270°	●	
280	280° (The type with switch is not available when the shock absorber is selected.)	●	
Ⓓ Oscillating origin			
40	40°	●	●
45	45°	●	●
Ⓔ Switch type			
Blank	Without switch	●	●
M2V*	Proximity, 1 color indicator type, 2-wire	●	●
M3V*	Proximity, 1 color indicator type, 3-wire	●	●
M0V*	Reed, 1 color indicator type, 2-wire	●	●
M5V*	Reed, no light, 2-wire	●	●
*Lead wire length			
Blank	1m (standard)	●	●
3	3m (option)	●	●
5	5m (option)	●	●
Ⓕ Switch quantity			
R	With clockwise rotation detection 1 piece	●	●
L	With counterclockwise rotation detection 1 piece	●	●
D	Two	●	●

Ⓖ Option

Nominal size		50	150	300	50	150	300
Blank	No option	●	●	●	●	●	●
FA	With flange bracket	●	●		●	●	
LS	With foot bracket	●	●	●	●	●	●
C	With shock absorber	●	●	●	●	●	●

⚠ Note on model no. selection

Note 1: Refer to below table for the relevant of the oscillating angle and oscillating origin.

Relevant of oscillating angle and oscillating origin

Ⓒ Oscillating angle \ Ⓓ Oscillating origin	40°	45°
90°		●
100°	●	
180°		●
270°		●
280°	●	

Note 2: The mounting bracket (FA and LS) is attached when shipping. Refer to Page 104 for dimensions.

Note 3: Refer to Page 106 for shock absorber (C).

Note 4: The switch cannot be installed with the oscillating angle 280 shock absorber.

<Example of model number>

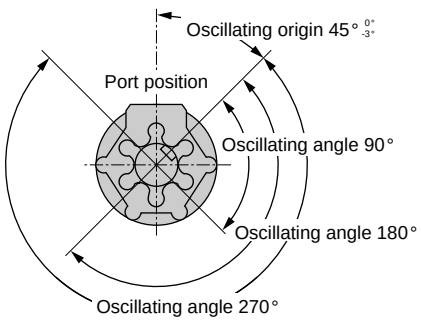
RV3S50-90-45-M2V-D-C

Model: Large rotary actuator

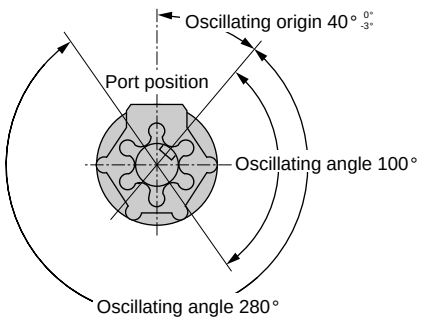
Ⓐ Model no. : RV3S
Ⓑ Size : 50
Ⓒ Oscillating angle : 90°
Ⓓ Oscillating origin : 45°
Ⓔ Switch type : M2V switch, lead wire length 1m
Ⓕ Switch quantity : Clockwise rotation detection 1 piece
Ⓖ Option : With shock absorber

Oscillating origin position

● Oscillating origin 45°
RV3*50 to 300



● Oscillating origin 40°
RV3*50 to 300



Note 1: If the type with switch is selected, the switch unit will be enclosed with the shipped product. Adjust the external stopper and then install the switch.

Note 2: Deflection of torsion angle between keyway on longer axis side (or cut plane) and square on shorter axis side to be within 1.5°.

How to order switch unit

Switch unit

RVU50 - C - 90 - M2V - R

Ⓐ Model

Ⓑ Unit type

Ⓒ Oscillating angle

Ⓓ Switch model no.

Ⓔ Switch quantity

Symbol	Descriptions
Ⓐ Model	
RVU50	Applicable actuator: RV3S/D50
RVU150	Applicable actuator: RV3S/D150
RVU300	Applicable actuator: RV3S/D300
Ⓑ Unit type	
Blank	Standard products
C	With shock absorber
Ⓒ Oscillating angle	
90	90
100	100°
180	180°
270	270°
280	280° ("C" (for shock absorber installation) cannot be selected.)

Ⓓ Switch model no.			
M2V*	Proximity	1 color indicator type	2-wire
M3V*			3-wire
M0V*	Reed		2-wire
M5V*		no light	

***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)

Ⓔ Switch quantity	
R	With clockwise rotation detection 1 piece
L	With counterclockwise rotation detection 1 piece
D	Two

⚠ Note on model no. selection

Note: When selecting the type for shock absorber, the shock absorber unit must be purchased separately.

<Example of model number>

RVU50-C-90-M2V-R

Model: Switch unit

Ⓐ Model: RV3S/D50

Ⓑ Unit type: With shock absorber

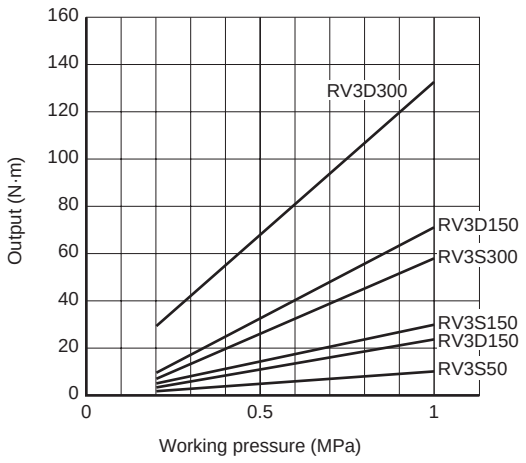
Ⓒ Oscillating angle: 90°

Ⓓ Switch model no.: M2V switch, lead wire length 1m

Ⓔ Switch quantity: Clockwise rotation detection 1 piece

Output characteristics graph (effective torque)

● RV3S/D50/150/300



Output table (effective torque) Unit: N·m

Working pressure (MPa) / Model no.		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Single vane	RV3S50	1.25	2.59	3.69	4.79	5.9	7	8.29	9.5	10.6
	RV3S150	5.5	8.5	11.5	15	18	21	24	27.3	30.5
	RV3S300	10.5	16.5	22.5	28.5	34.5	40.5	46	51.8	57.5
Double vane	RV3D50	3.3	5.79	8.29	10.4	12.8	15.1	17.6	20.1	22.5
	RV3D150	12.5	19	27	35	41.5	48	55	62	69
	RV3D300	25.5	39	54	68	83	97	110	124	137

Oscillating time setting

1. Use oscillating time within range of below table. If used with exceeding this range, smooth operation can not be obtained due to stick and slip, etc.

(s)

Model no.	Oscillating angle				
	90°	100°	180°	270°	280°
RV3S/D50	0.08 to 0.8	0.09 to 0.9	0.16 to 1.6	0.24 to 2.4	0.25 to 2.5
RV3S/D150	0.12 to 1.2	0.13 to 1.3	0.24 to 2.4	0.36 to 3.6	0.37 to 3.7
RV3S/D300	0.16 to 1.6	0.17 to 1.7	0.32 to 3.2	0.48 to 4.8	0.49 to 4.9

Compact rotary actuator with vane mechanism angle variable type

RV3SDA Series

- Torque: 3, 10, 20, 30
- Oscillating angle: Angle assignment

JIS symbol 

RoHS CAD

Specifications

● Single vane mechanism

Descriptions		RV3SA			
Size		3	10	20	30
Effective torque	N·m	0.31	0.98	1.70	3.19
Actuation		Single vane			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7		1.0	
Min. working pressure	MPa	0.2			
Withstanding pressure	MPa	1.05		1.5	
Ambient temperature	°C	-5 to 80 Note 4			-5 to 60
Port size		M5			Rc1/8
Oscillating angle setting range	degree	30 to 180			30 to 270
Oscillating origin	degree	90			45
Allowable energy absorption Note 2	mJ	1	2	3	7
Maximum cycle rate Note 3	cycle/min	150	150	120	90
Volumetric capacity	cm^3	3.3	9.8	18	43
Allowable radial load	N	40	50	300	400
Allowable thrust load	N	4.0		25	30
Weight	kg	0.085	0.17	0.28	0.51
Lubrication		Not required (when lubricating, use turbine oil ISO VG32.)			

● Double vane mechanism

Descriptions		RV3DA			
Size		3	10	20	30
Effective torque	N·m	0.71	2.11	3.88	7.7
Actuation		Double vane			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7		1.0	
Min. working pressure	MPa	0.2			
Withstanding pressure	MPa	1.05		1.5	
Ambient temperature	°C	-5 to 80 Note 4			-5 to 60
Port size		M5			Rc1/8
Oscillating angle setting range	degree	30 to 90			
Oscillating origin	degree	45			
Allowable energy absorption Note 2	mJ	1	2	3	7
Maximum cycle rate Note 3	cycle/min	240	240	180	180
Volumetric capacity	cm^3	2.8	8.1	15	34
Allowable radial load	N	40	50	300	400
Allowable thrust load	N	4.0		25	30
Weight	kg	0.087	0.18	0.29	0.53
Lubrication		Not required (when lubricating, use turbine oil ISO VG32.)			

Note 1: The allowable energy absorption differs from the compact rotary actuator RV3* Series.
Note 2: Calculate allowable energy with allowable inertia energy of shaft of rotary actuator as following.
Allowable energy ≧ $1/2I\omega^2 \times 10^3$ (refer to Page 121 for detail.)
Note 3: The maximum working frequency is at supply pressure 0.5MPa <in no load state>.
Note 4: 5 to 60°C when switch is provided.
Note 5: A key is enclosed with the rotary actuator with keyway.
Note 6: Consult CKD for products other than standard specifications.

External stopper specifications

Descriptions		RV3SA3	RV3SA10	RV3SA20	RV3SA30	RV3DA3	RV3DA10	RV3DA20	RV3DA30
Min. setting angle	degree	30							
Max. setting angle	degree	180			270	90			
Angle setting pitch	degree	15							
Stopper fine adjustment range for angle setting	degree	-9 to + 6							
Stopper fine adjustment range for reference point	degree	±3				-1 to + 3	±3		
Stopper fine adjustment range for angle setting at max. setting angle	degree	-9 to + 6			-9 to + 3	-9 to + 1	-9 to + 3		

Oscillating angle setting range and oscillating origin

Model no.		Oscillating angle setting range	Oscillating origin
Single vane	RV3SA3	30 to 180°	90°
	RV3SA10		
	RV3SA20		
	RV3SA30	30 to 270°	45°
Double vane	RV3DA3	30 to 90°	45°
	RV3DA10		
	RV3DA20		
	RV3DA30		

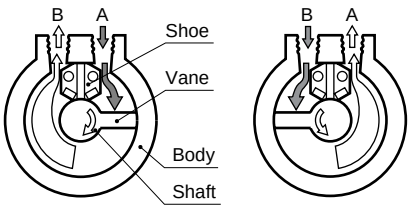
Switch specifications

Descriptions	Proximity switch
	FR-* (-U)
Applications	Programable controller, reray, IC circuit
Power voltage	5 to 30 VDC
Load voltage	5 to 30 VDC
Load current range	5mA to 200mA
Current consumption	20mA or less with 24 VDC 10mA or less with 12 VDC 4mA or less with 5 VDC
Internal voltage drop	1.5V or less
Light	LED (ON lighting)
Leakage current	10 μA or less
Lead wire length	1.0m (Oil-proof black 3-core cord)
Max. shock resistance	490m/s²
Insulation resistance	100MΩ and over with 500V mega
Withstand voltage	No failure when 1500 VAC is applied for one minute
Ambient temperature	5 to 60°C
Protective structure	IEC standards IP67, JIS C0920 (water tight type)

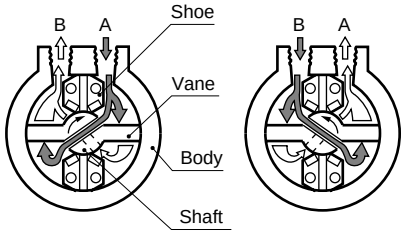
* mark indicates a rotary actuator size. (3, 10, 20, 30)

Operational principle

● Single vane
1. Configured with vane sliding inside of body, shaft, and shoe (stopper).
2. Air from port A pushes vane rotates shaft, and generates torque.
3. Air in opposite room is exhausted from port B, and shaft rotates clockwise.
4. Vane stops when it contacts to shoe.
5. Air supply from port B causes counterclockwise rotation in the same manner.



● Double vane
1. Configured with two vanes sliding inside of body, integrated shaft, and shoe (stopper).
2. Air from port A pushes vane, and goes through passage in shaft, pushes another vane, turns shaft, and finally generates torque.
3. Rotating in the same manner of single vane.



How to order

● Compact rotary actuator (angle variable type) RV3*A

RV3SA 3 - 0 - 90 - FR-U - FA

Ⓐ Model no.
Ⓑ Nominal size
Ⓒ Oscillating angle
Note 1, Note 2
Ⓓ Oscillating origin
Ⓔ Switch type
Note 3, Note 4
Ⓕ Option
Note 5, Note 6

Symbol	Descriptions	Ⓐ Model no. Single vane mechanism: RV3SA	Ⓐ Model no. Double vane mechanism: RV3DA
Ⓑ Nominal size			
3	Effective torque 0.5MPa	0.31N·m	0.71N·m
10		0.98N·m	2.11N·m
20		1.70N·m	3.88N·m
30		3.19N·m	7.70N·m
Ⓒ Oscillating angle			
0	Without angle assignment	●	●
Desired angle	With angle assignment	●	●

Ⓓ Oscillating origin

Nominal size		3	10	20	30	3	10	20	30
45	45°				●	●	●	●	●
90	90°	●	●	●					

Symbol	Descriptions		
Ⓔ Switch type			
Blank	Without switch	●	●
FR	Axial lead wire with switch	●	●
FR-U	Radial lead wire with switch	●	●
Ⓕ Option			
Blank	No option	●	●
FA	With flange bracket	●	●
LS	With foot bracket	●	●
K	With protective cover	●	●

⚠ Note on model no. selection

Note 1: If "Without angle assignment" is selected, the reference point stopper will be mounted and the angle setting stopper will be enclosed. Mount the stopper if necessary.
Note 2: The required angle is set to the approximate angle from the oscillation origin, so always adjust the final angle with the fine adjust screw before starting use.
Note 3: Two switches are enclosed.
Note 4: If the type with switch is selected, the switch unit will be enclosed with the shipped product. Adjust the external stopper and then install the switch.
Note 5: If the type with switch is selected, the "K" protective cover cannot be selected.
Note 6: The mounting bracket (FA and LS) is attached when shipping. Refer to Page 104 for dimensions.

<Example of model number>

RV3SA3-0-45-FR-FA

Model: Compact rotary actuator angle variable type
Ⓐ Model no. : RV3SA
Ⓑ Size : 3
Ⓒ Oscillating angle : Without angle assignment
Ⓓ Oscillating origin : 90°
Ⓔ Switch type : Axial lead wire with switch
Ⓕ Option : With flange bracket

● How to order switch unit

RV3S - FR-3 - U

Ⓐ Model
Ⓑ Lead wire outlet direction

Symbol	Descriptions
Ⓐ Model	
FR-3	Applicable actuator: RV3SDA3
FR-10	Applicable actuator: RV3SDA10
FR-20	Applicable actuator: RV3SDA20
FR-30	Applicable actuator: RV3SDA30
Ⓑ Lead wire outlet direction	
Blank	Axial lead wire with switch
U	Radial lead wire with switch

<Example of model number>

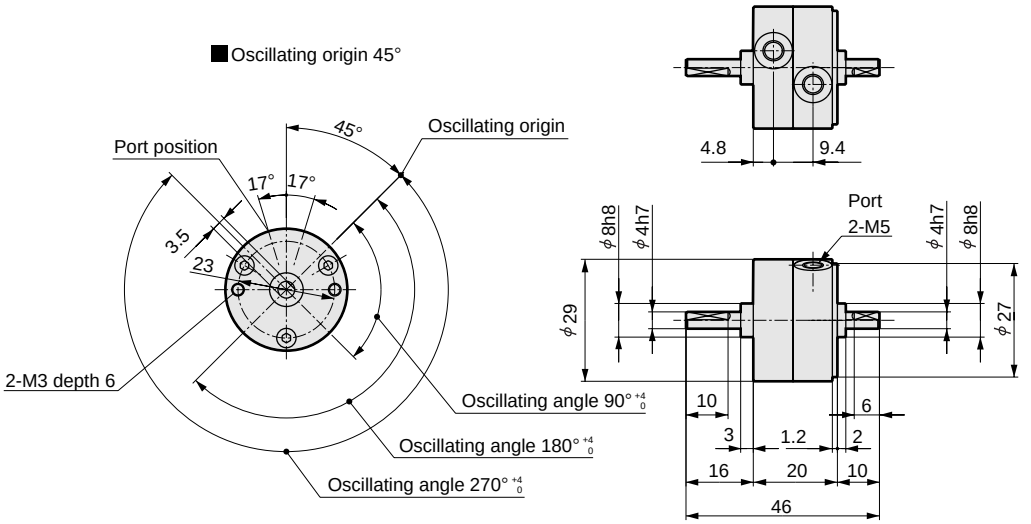
RV3S-FR-3-U

Model: Switch unit angle variable type
Ⓐ Model : RV3SA3
Ⓑ Lead wire outlet direction
: Radial lead wire

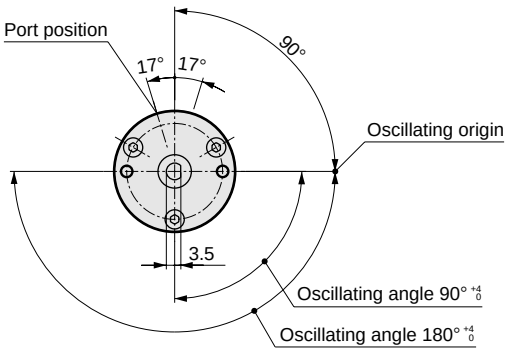
Dimensions

● RV3S/D1

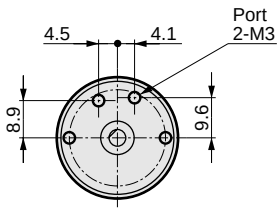
■ Oscillating origin 45°



■ Oscillating origin 90°



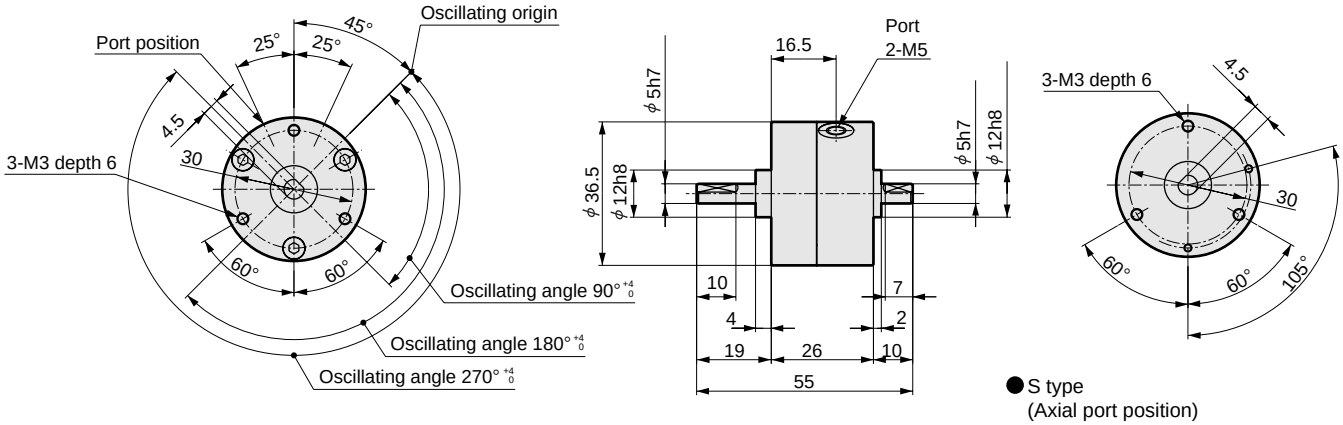
● S type
(Axial port position)



Dimensions

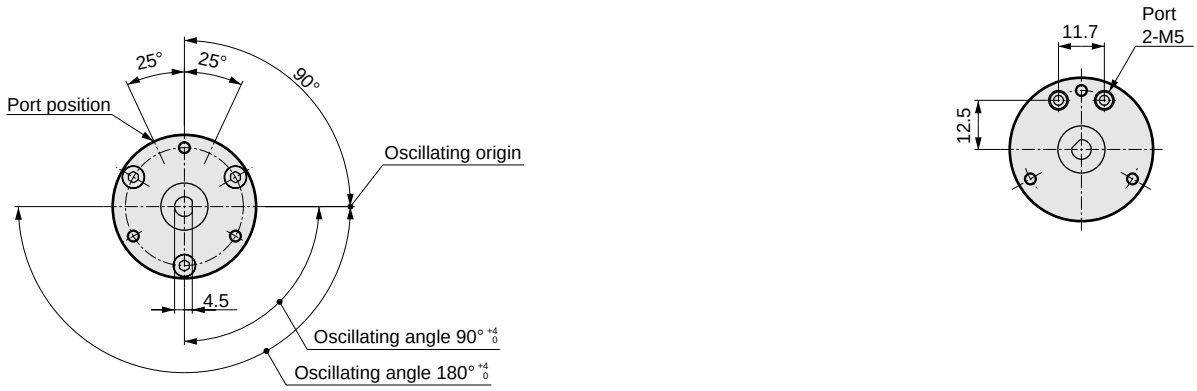
● RV3$^{S}_{D}$3 CAD

■ Oscillating origin 45°



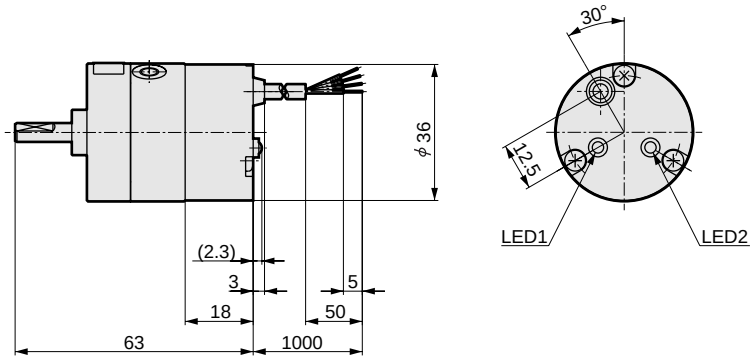
● S type
(Axial port position)

■ Oscillating origin 90°

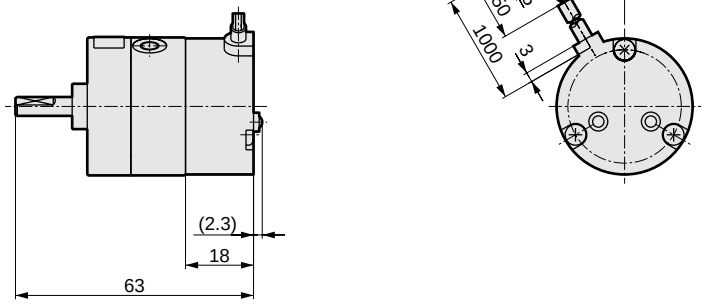


● RV3$^{S}_{D}$3-*-SR (U)

■ Axial lead wire



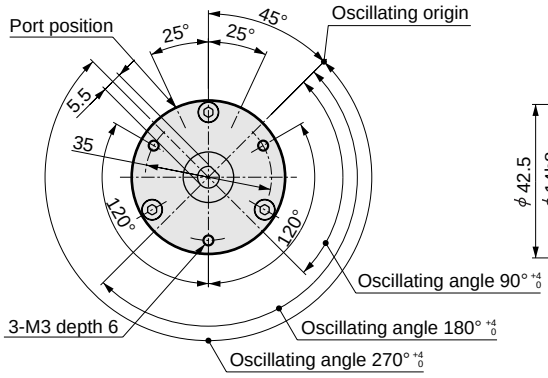
■ Radial lead wire

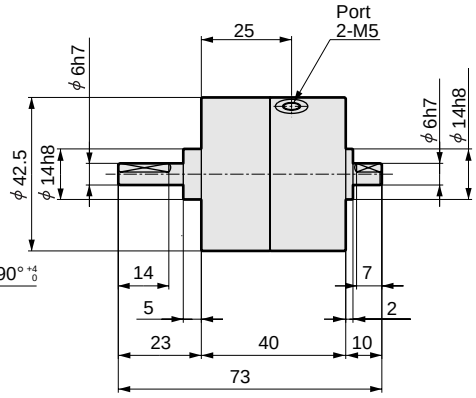


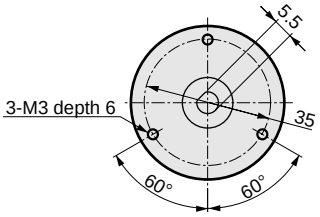
Dimensions

● RV3S/D10

■ Oscillating origin 45°

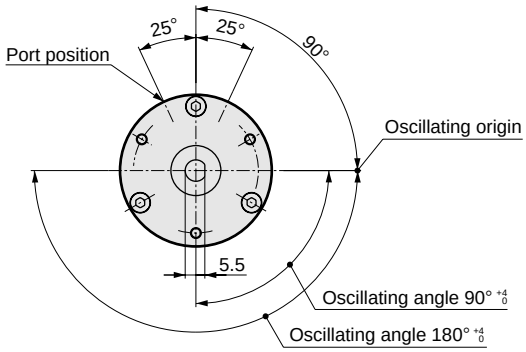


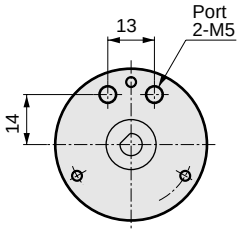




● S type
(Axial port position)

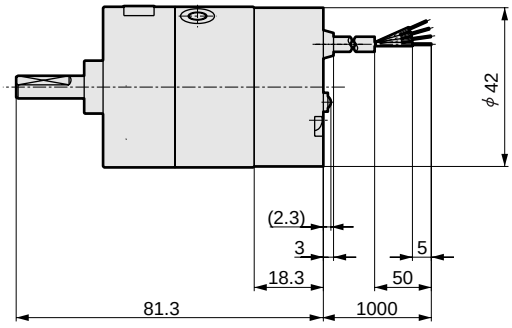
■ Oscillating origin 90°

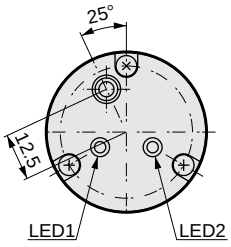




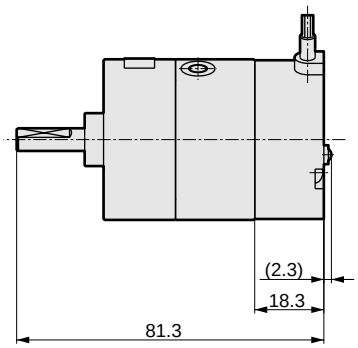
● RV3S/D10-*-SR (U)

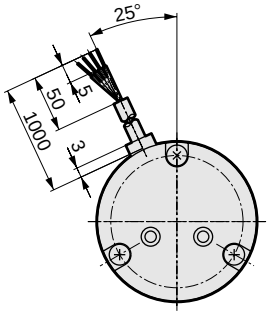
■ Axial lead wire





■ Radial lead wire

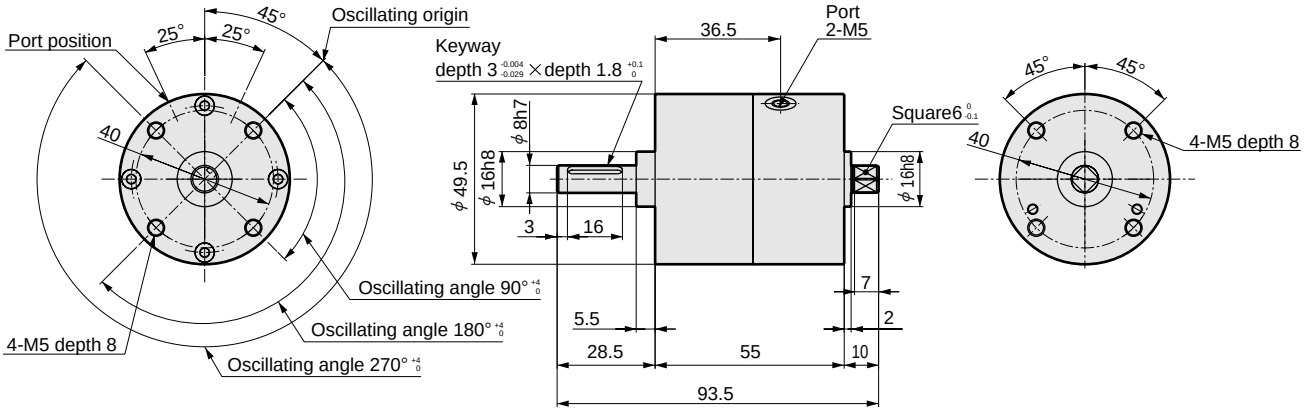




Dimensions

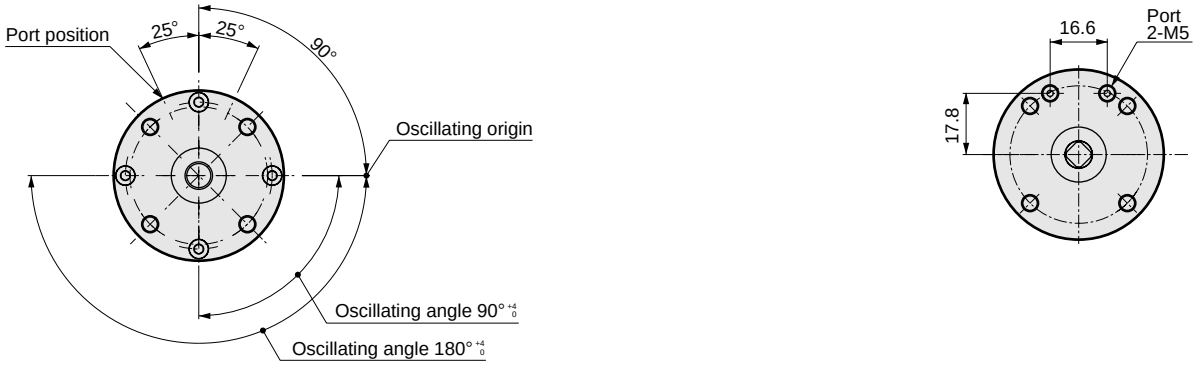
● RV3S/D20 CAD

■ Oscillating origin 45°



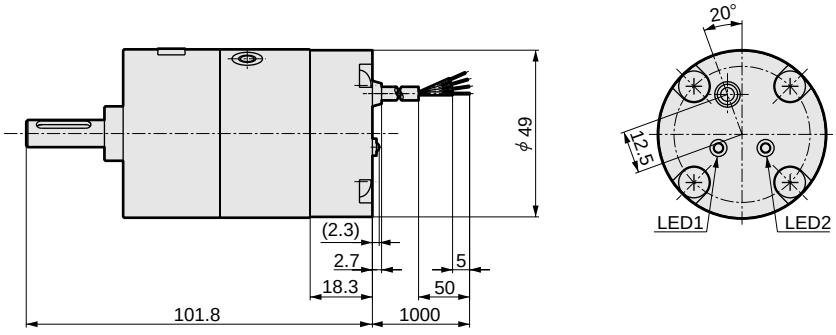
● S type
(Axial port position)

■ Oscillating origin 90°

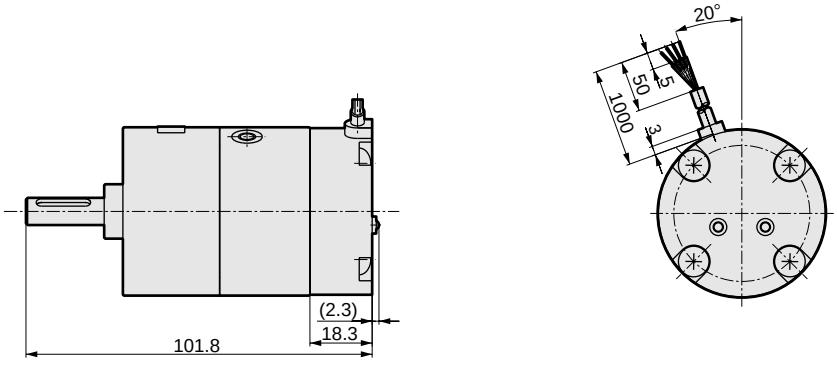


● RV3S/D20-*-SR (U)

■ Axial lead wire

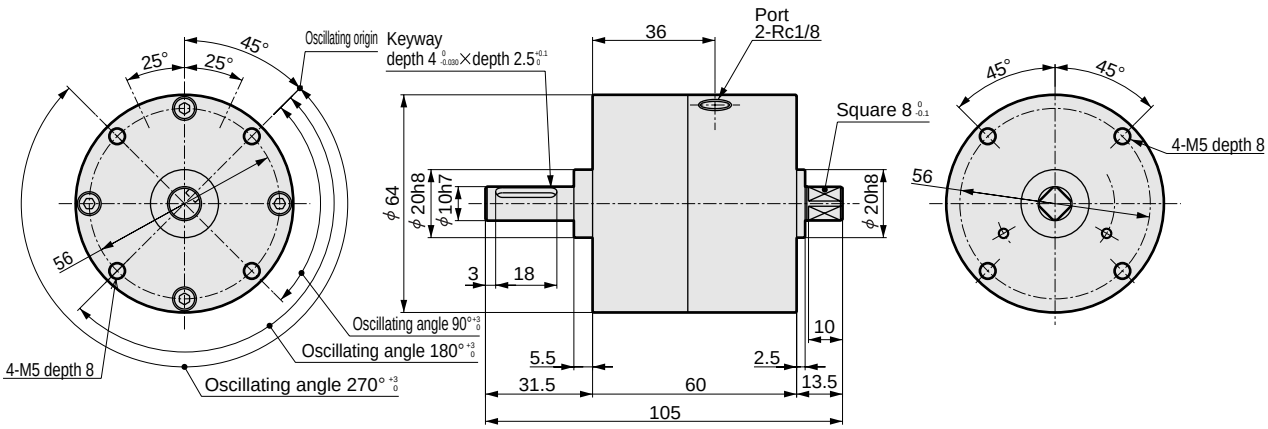


■ Radial lead wire



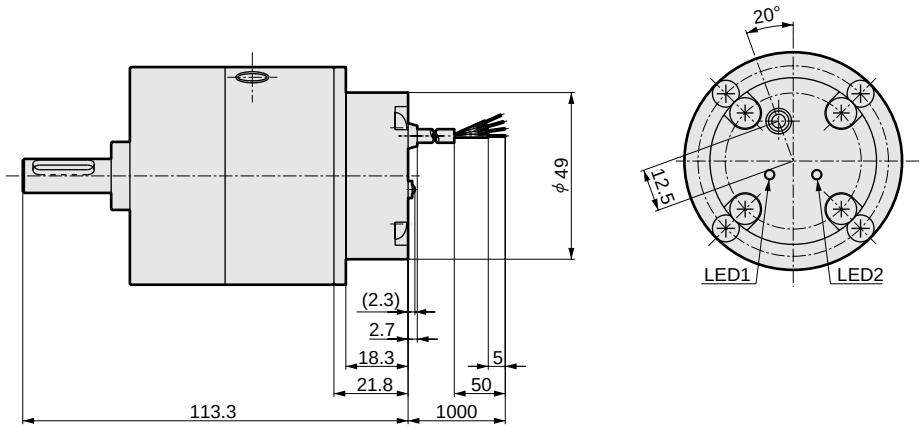
Dimensions

● RV3S/D30

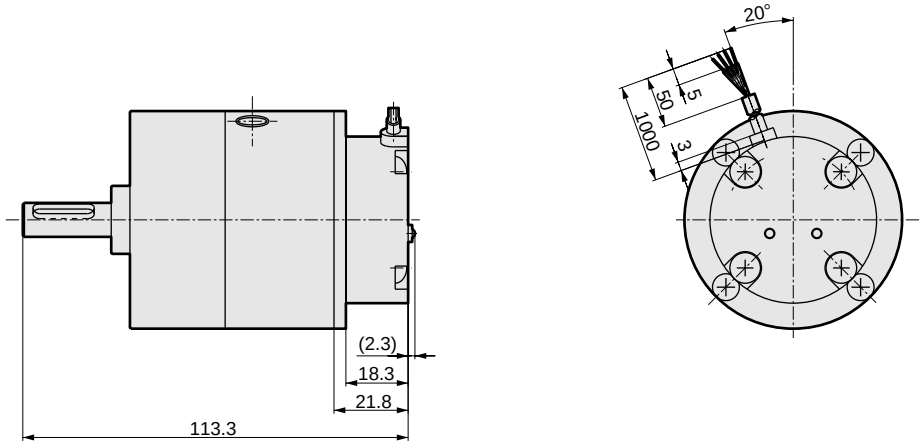


● RV3S/D30-*-SR (U)

■ Axial lead wire

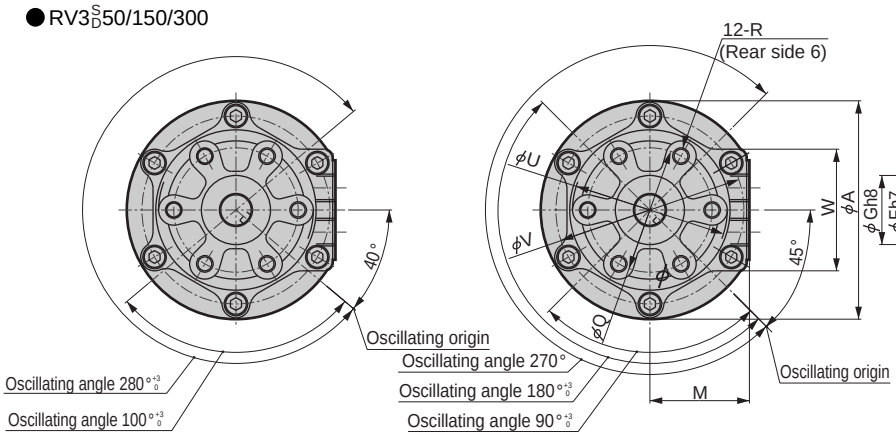


■ Radial lead wire



Dimensions

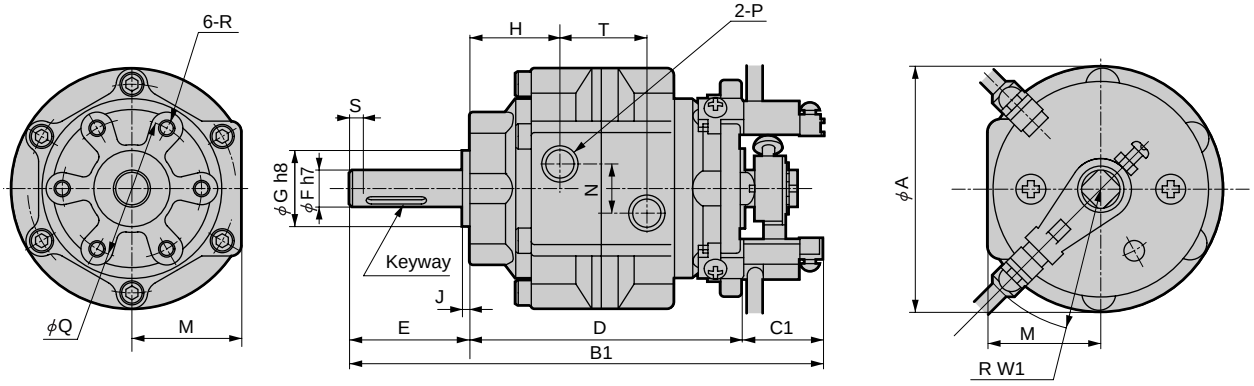
● RV3 S D 50/150/300



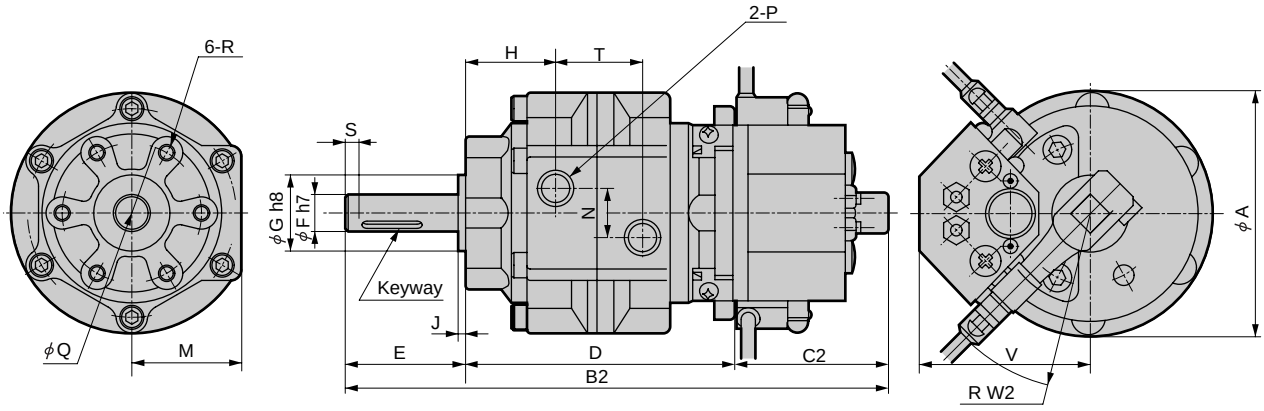
* The key is attached. Refer to Page 105 for the key dimensions.

Symbol / Model no.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	Keyway Width X Depth X Length	U	W	V	Z	X	X'	Y	Y'
RV3 S D 50	79	145	19.5	86	39.5	12	25	29	2.5	10	13	36	16	Rc1/8	45	M6 depth 9	5	28	4X2.5X20	57	44	68	58	20	5	11	3
RV3 S D 150	110	180	23.5	103	53.5	17	30	34.5	3	13	16	51	24	Rc1/4	70	M8 depth 12	5	34	5X3X36	85	61	97	85.2	23.5	6	10.5	5
RV3 S D 300	141.5	220	30	125	65	25	45	41.5	3.5	19	22	66	32	Rc3/8	80	M10 depth 15	5	42	7X4X40	98.5	78	125	110	27.5	8	13	4.5

● With switch



● With switch, shock absorber

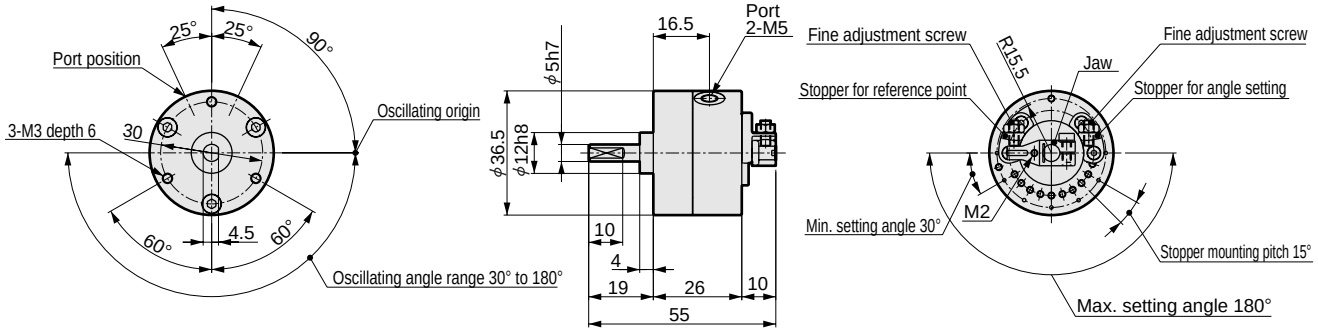


* The key is attached. Refer to Page 105 for the key dimensions.

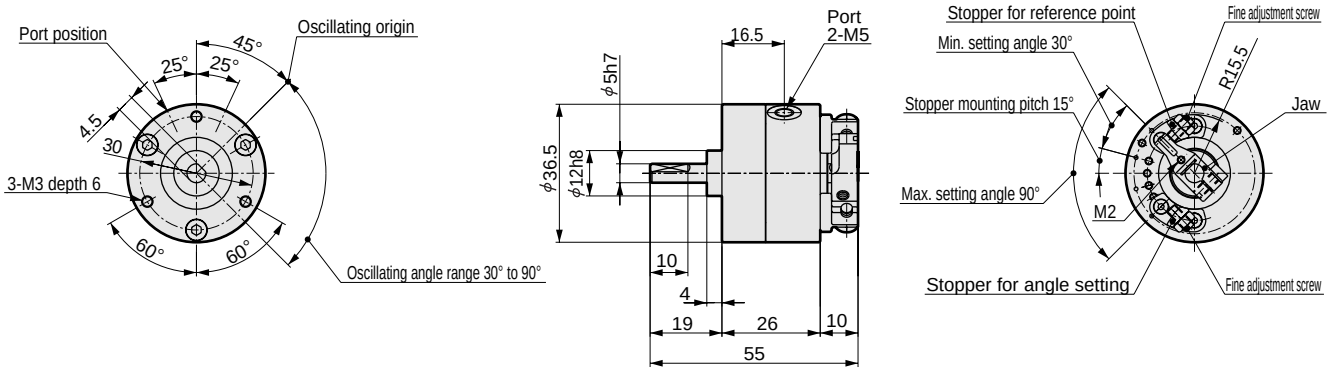
Symbol / Model no.	A	B1	B2	C1	C2	D	E	F	G	H	J	M	N	P	Q	R	S	T	V	W1	W2	Keyway Width X Depth X Length
RV3 S D 50	79	157.7	177.2	31	50.5	87.2	39.5	12	25	29	2.5	36	16	Rc1/8	45	M6 depth 9	5	28	54	47	58	4X2.5X20
RV3 S D 150	110	188.7	214.2	31	56.5	104.2	53.5	17	30	34.5	3	51	24	Rc1/4	70	M8 depth 12	5	34	71.5	61	72	5X3X36
RV3 S D 300	141.5	222.2	253.7	31	62.5	126.2	65	25	45	41.5	3.5	66	32	Rc3/8	80	M10 depth 15	5	42	96	69	88	7X4X40

Dimensions

● RV3SA3

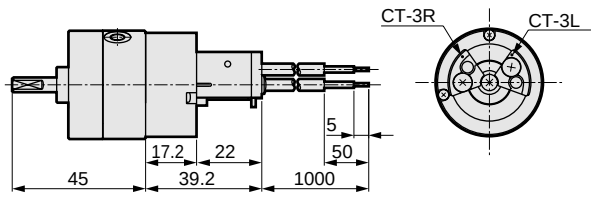


● RV3DA3

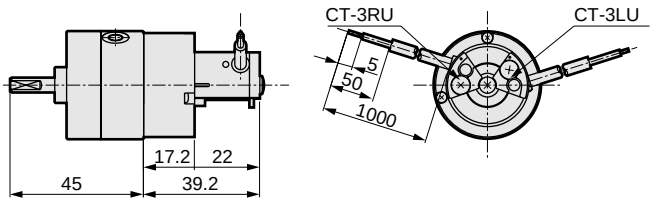


● RV3SDA3-*-FR (U)

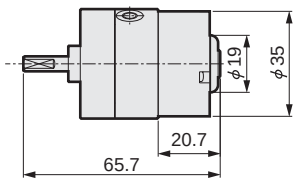
■ Axial lead wire



■ Radial lead wire

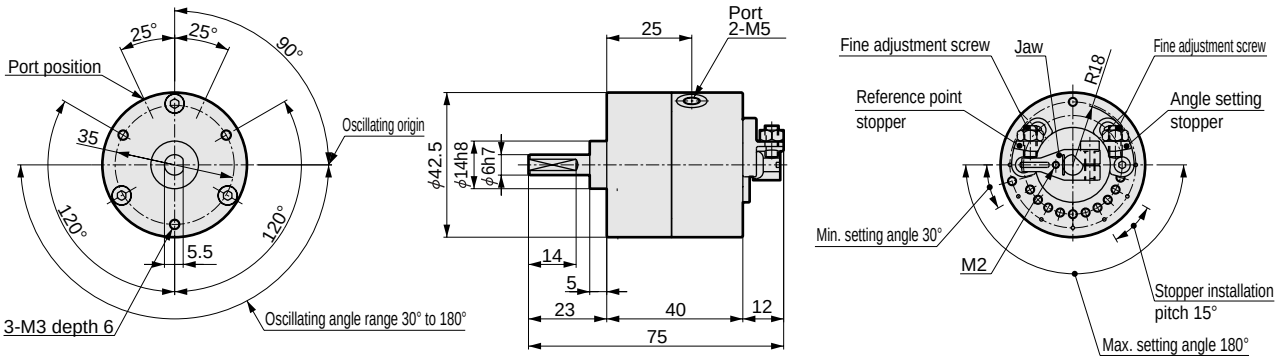


● RV3SDA3-*-K (with protective cover)

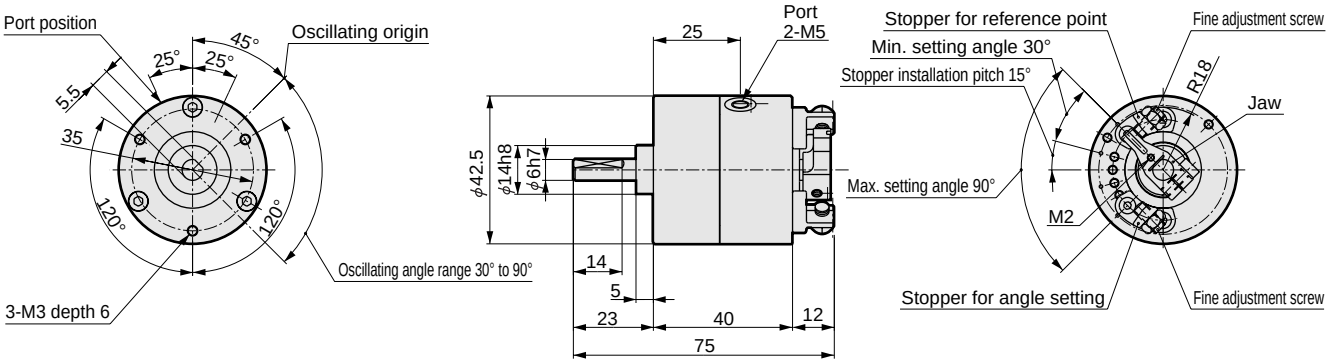


Dimensions

● RV3SA10

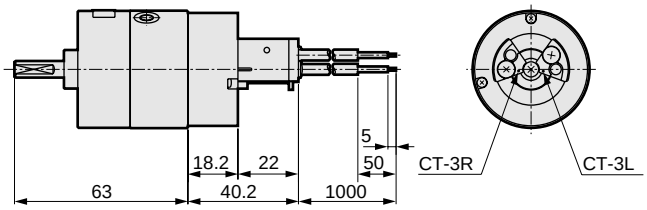


● RV3DA10

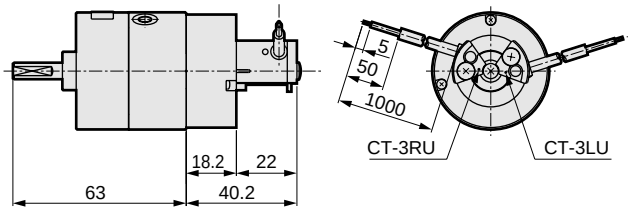


● RV3SDA10-*-FR (U)

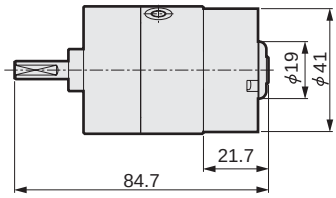
■ Axial lead wire



■ Radial lead wire

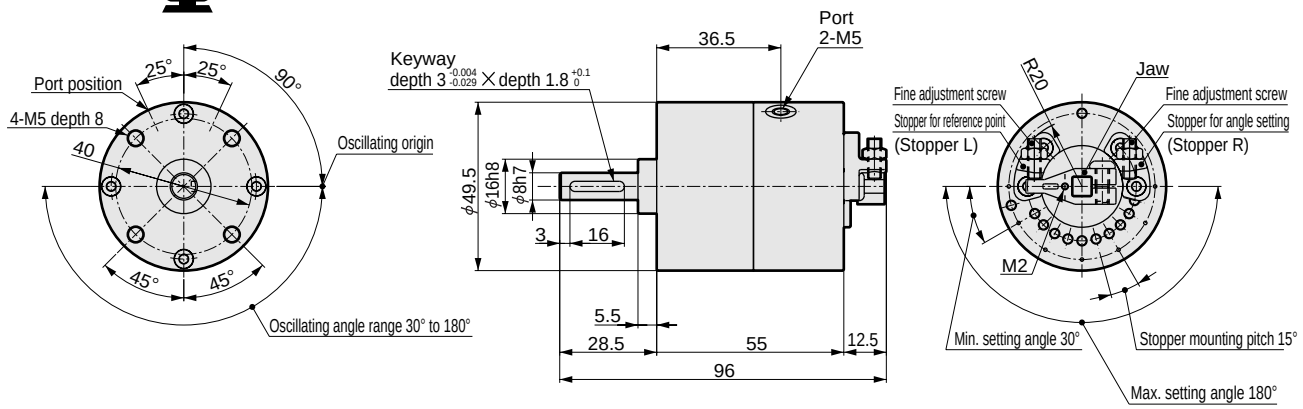


● RV3SDA10-*-K (with protective cover)



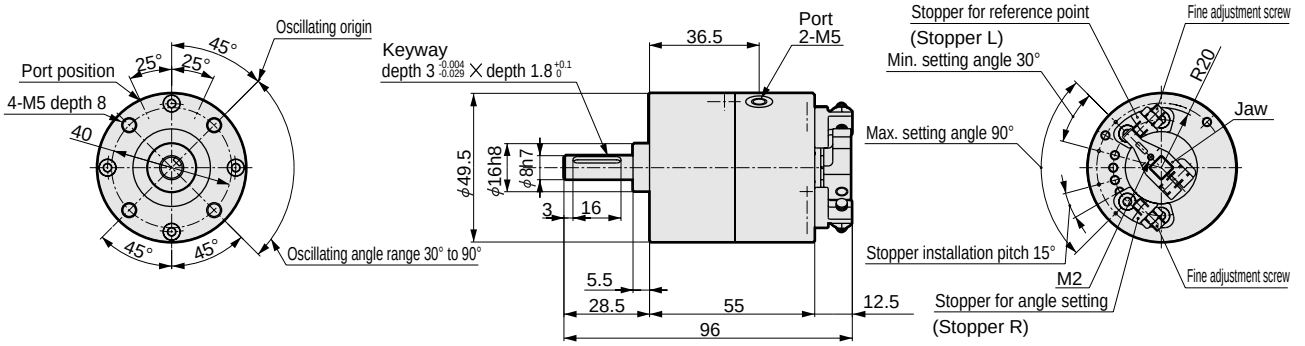
Dimensions

● RV3SA20



* The key is attached. Refer to Page 105 for the key dimensions.

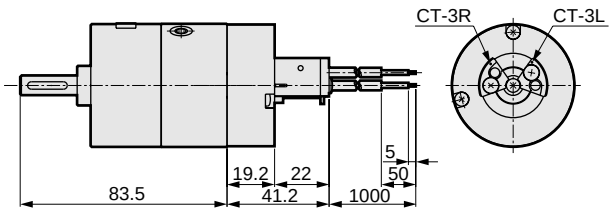
● RV3DA20



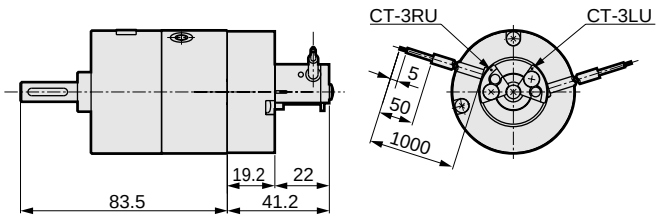
* The key is attached. Refer to Page 105 for the key dimensions.

● RV3$^{S}_{D}$A20-*-FR (U)

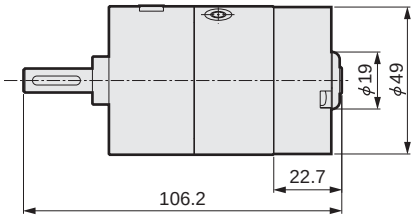
■ Axial lead wire



■ Radial lead wire

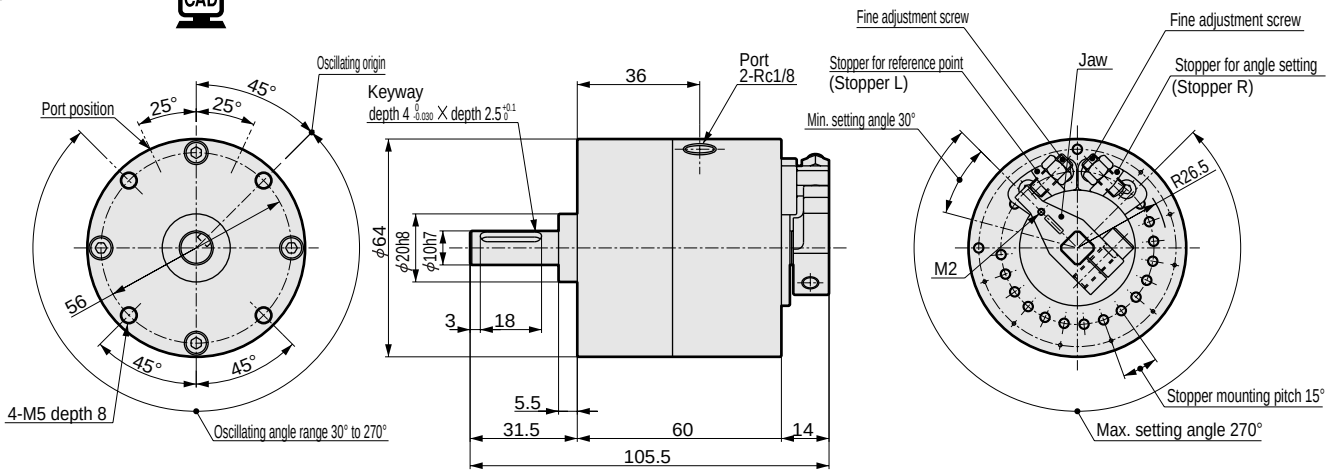


● RV3$^{S}_{D}$A20-*-K (with protective cover)



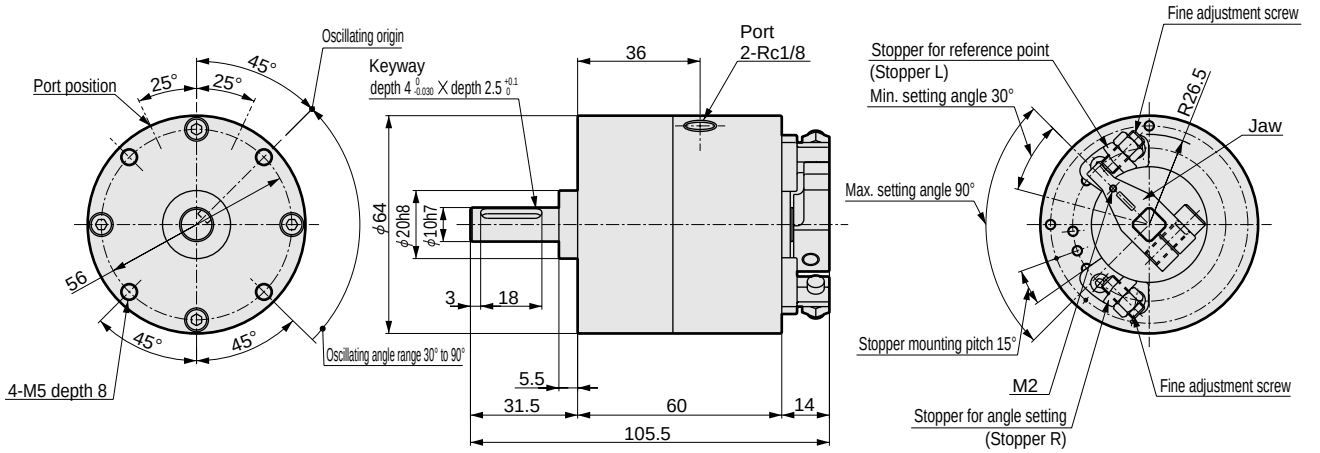
Dimensions

● RV3SA30



* The key is attached. Refer to Page 105 for the key dimensions.

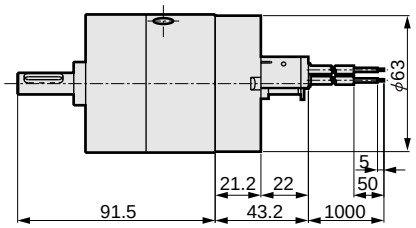
● RV3DA30

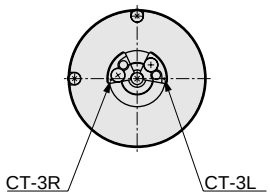


* The key is attached. Refer to Page 105 for the key dimensions.

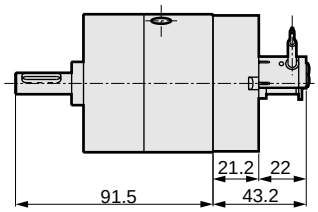
● RV3SDA30-*-FR (U)

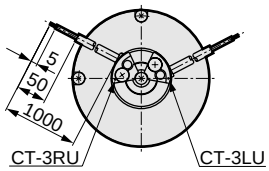
■ Axial lead wire



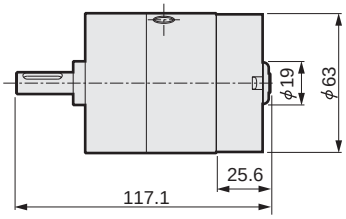


■ Radial lead wire



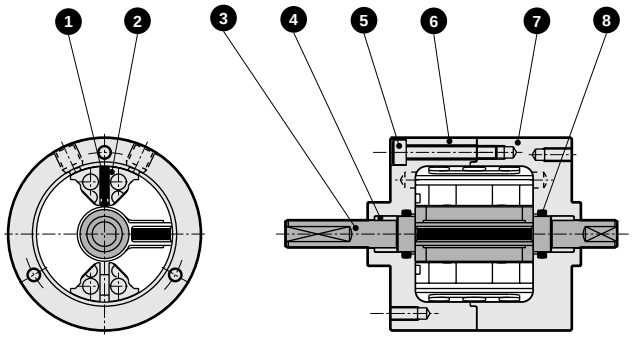


● RV3SDA30-*-K (with protective cover)

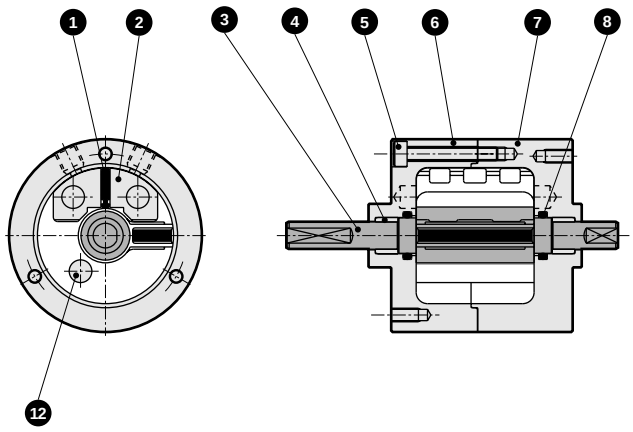


Internal structure and parts list

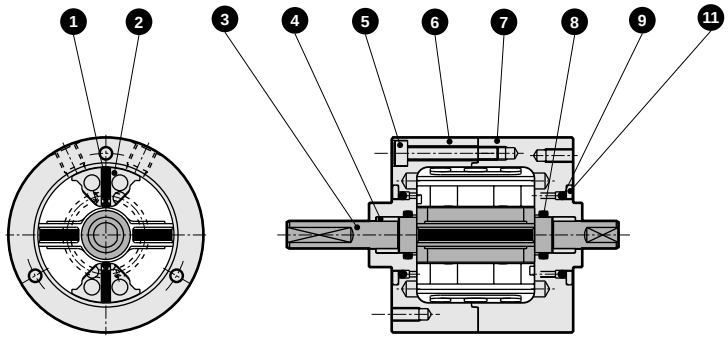
● RV3S1 to 30
Oscillating origin 45°



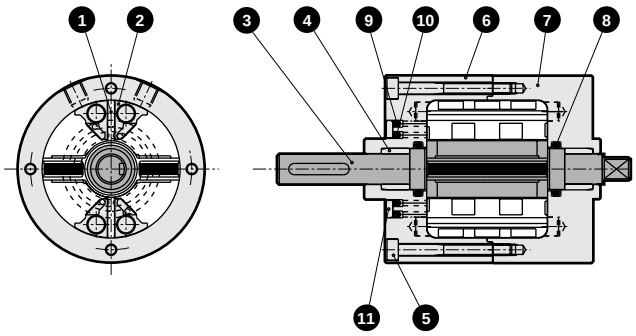
● RV3S1 to 30
Oscillating origin 90°



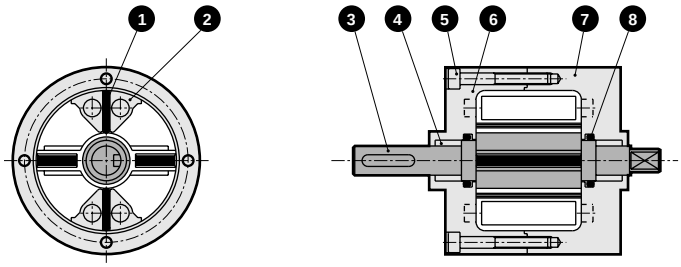
● RV3D1 to 10



● RV3D20



● RV3D30

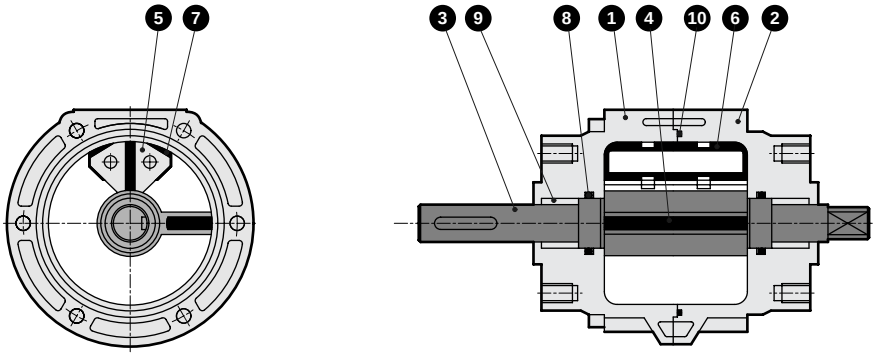


No.	Parts name	Material	No.	Parts name	Material
1	Shoe sealant	Nitrile rubber	7	Body B	Aluminum alloy
2	Shoe	Resin	8	O ring	Nitrile rubber
3	Vane shaft	Iron steel + resin + nitrile rubber	9	O ring	Nitrile rubber
4	Bearing	Sintering oil impregnated material	10	O ring	Nitrile rubber
5	Mounting bolt	Iron steel	11	Plate	Iron steel
6	Body A	Aluminum alloy	12	Stop pin	Iron steel

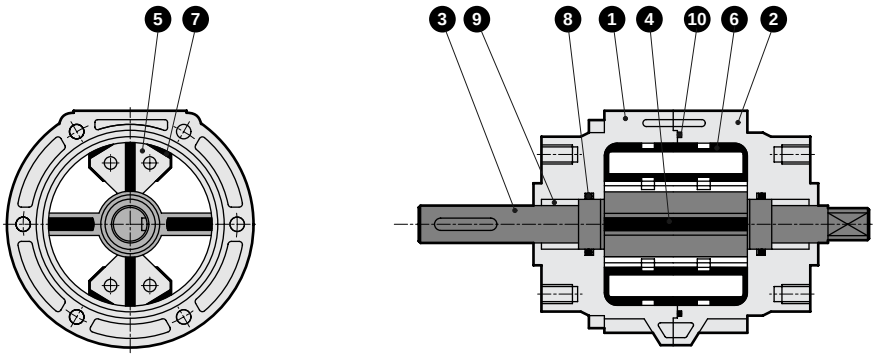
Refer to page 116 for the repair parts list.

Internal structure and parts list

● RV3S50/150/300



● RV3D50/150/300

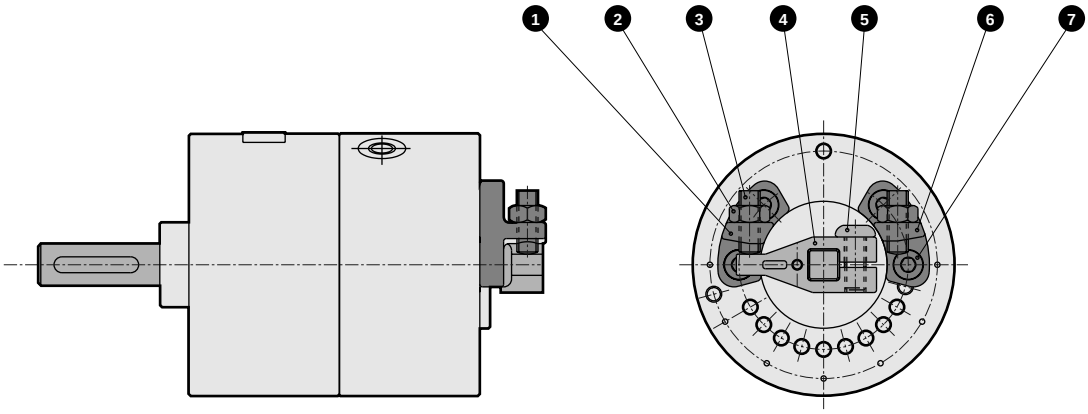


No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Body A	Aluminum alloy die-casting		6	Shoe sealant	Nitrile rubber	
2	Body B	Aluminum alloy die-casting		7	Damper	Resin	
3	Vane shaft	Steel		8	O ring	Nitrile rubber	
4	Vane sealant (vane shaft)	Nitrile rubber		9	Bearing	Sintering oil impregnated material	
5	Shoe	Zinc alloy die-casting		10	O ring	Nitrile rubber	

Refer to page 116 for the repair parts list.

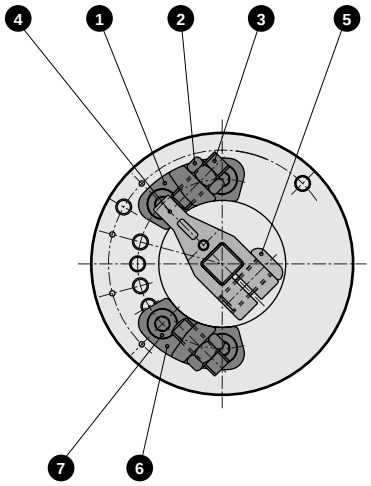
Internal structure and parts list

● RV3SA*



Single vane

● RV3SDA*



Double vane

* The internal structure of the rotary actuator is the same as the compact rotary actuator RV3SD.
Refer to Page 68 for details.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Stopper L	Steel	Reference point	5	Jaw mounting bolt	Steel	
2	Lock nut	Steel		6	Stopper R	Steel	Angle setting
3	Fine adjustment screw	Steel		7	Stopper mounting bolt	Steel	
4	Jaw	Steel					