Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use. For general cylinder information, see Intro 41, and for cylinder switches, see P. 1512.

Individual Precautions: Rotary Actuator Vane Type RV3 Series

Design / Selection

1. Common

⚠ Warning

■ Do not brake or hold the product by trapping it with pneumatic pressure.
If there is no external stopping device for the product, stopping midway by trapping air with a directional control valve may result in the inability to hold the stop position due to air leaks, etc., which may cause injury or damage to personnel, equipment, and devices.

■ Consider load fluctuation, rising/lowering operation and changes in frictional resistance for safe design.
The operating speed of the rotary actuator will increase, which may cause damage to personnel or machinery.

■ Do not use the rotary actuator as a shock absorbing structure.
If abnormal pressure is applied or air leakage occurs, the deceleration effect will be significantly impaired, which may cause damage to personnel or machinery.

■ Be sure to tighten very securely in order to prevent the fixed parts or connected sections from loosening.
When using a high rotor with high operating frequency or in places with much vibration, adopt a particularly secure fastening method.

■ Rotary actuator modification
Do not modify the rotary actuator.

⚠ CAUTION

■ Do not apply torque exceeding rated output to the product.
If an external force exceeding the rated output of the product is applied to the product, it will cause damage to the product.

■ If repeatability is required for the oscillating angle, provide an external stopper to directly stop the load.
If stopped by the stopper provided on the rotary actuator, the oscillation angle may change from the initial setting.

■ Always use the rotary actuator within the specified oscillation time range.
If used in a low-speed range below this range, it will not operate smoothly due to stick-slip phenomenon.

■ Install a speed controller in order to control the oscillation speed of the rotary actuator.
Adjust gradually from the low speed side to the specified speed.

■ Precautions for rotary actuator switch
Be careful about the proximity of rotary actuators to each other.
When using two or more rotary actuators with switches in close proximity, or when a magnetic body moves very close to a rotary actuator, the switches may malfunction due to mutual magnetic interference. Design so that the distance between rotary actuators is 40 mm or more. (If an allowable distance is indicated for each rotary actuator, follow it.)

At intermediate positions of the oscillation angle, pay attention to the switch ON time.
If the switch is set to an intermediate position of the oscillation angle and the load is driven when the magnet passes, be careful as if the oscillation speed is too high, the switch may turn ON, but the operating time may be short, and the load may not be able to complete its operation.

In that case, the oscillation speed will be:

$$V = \frac{\text{Switch Operating Range (°)}}{\text{Load Operating Time (ms)}} \times 1000\ (°/s)$$

■ This rotary actuator is a no-lubrication actuator.
The actuator can be lubricated, but once it has been oiled, it must be maintained in an lubricated state. Lubrication may cause the pre-applied lubricant to be washed away, and interruption may lead to malfunction. When lubricating, use turbine oil Class 1 (non-additive) ISO VG32. Never use other oils (spindle oil, machine oil, etc.). Use will damage the seal part. Recommended lubricants are shown in the table below. Please refer to the weight listed in the switch specifications.

Manufacturer	Name
Idemitsu Kosan Co.,Ltd.	Diana Fresia S-32
Fuji Kosan Co., Ltd.	FUCHS Turbine 32
Mitsubishi Oil Co., Ltd.	Mitsubishi Turbine Oil 32
Showa Shell Sekiyu K.K.	Shell Vitrea 32
Mitsui & Co. Petroleum Ltd.	Mitsui Turbine Oil 32
Japan Energy Corporation	Turbine 32
Nippon Oil Corporation	Turbine Oil 32
Cosmo Oil Co., Ltd.	Cosmo Turbine 32
Esso Sekiyu K.K.	Stanol 43N
Kygnus Sekiyu K.K.	Turbine Oil 32

During Use

1. Common

⚠ CAUTION

■ Do not wipe items showing the model number, such as the nameplate, with organic solvents.
This will cause the display to disappear.

2. Variable Oscillation Angle Type RV3$^{S}_{D}$A

⚠ Warning

■ Do not loosen the angle adjustment screws outside of the adjusting range for variable oscillation angle rotary actuators.
Loosening beyond the adjustment range may cause the angle adjustment screw to come off, which may cause injury or damage to personnel or machinery.

⚠ CAUTION

■ Stopper
- Operate the rotary actuator only after installing a stopper to serve both as a reference point stopper and angle setting device.
- When the stopper is set to the oscillating origin or Max oscillating angle, if set to the positive side beyond the adjusting range, the vane could hit the internal stopper and cause damage. Always adjust the angle so that the jaw stops at the external stopper.
- The reference point stopper is fixed in position and cannot be moved.

■ The stopping angle is set by touching the fine adjusting screw of each stopper with the jaw.
Stop angle accuracy does not include wear due to operation. If the stop angle changes due to wear, readjust with the fine adjustment screw.

For precautions during mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components product site (https://www.ckd.co.jp/kiki/en/) → "Model No." → Instruction Manual.