

# Quick Clean Rotary Airlock Valve

## Operators Manual

Kice Industries, Inc.

RAV-M04-0000

## INTRODUCTION

When you purchased your new Kice equipment, you bought a dependable and quality-built product. The range of equipment manufactured by Kice should satisfy nearly every conceivable industrial air-handling need.

We are proud of our products and the people at Kice who build them. At Kice, we start in our own foundry and follow the design and manufacturing standards that have proven superior for more than 60 years.

This owner's manual is intended as a guide for proper installation, operation and maintenance to keep your Kice equipment operating safely and efficiently on the job. Service and factory reconditioning information is also included for your benefit.

Sincerely,  
 Drew Kice  
 President  
 Kice Industries, Inc.

### Warranty

The Company (Kice Industries, Inc.) warrants the equipment manufactured by the Company to be free of defects in material and workmanship for a period of one year from the date of shipment. Company agrees to repair or replace, at its option, any parts found to be defective in the opinion of the Company. Company is not liable for any costs in connection with the removal, shipment or reinstallation of said parts. This warranty does not apply to abrasion, corrosion, or erosion.

Purchaser agrees to look to the warranty, if any, of the manufacturer or supplier of equipment manufactured by others and supplied to the Company for any alleged defects in such equipment and for any damages or injuries caused thereby or as a result thereof.

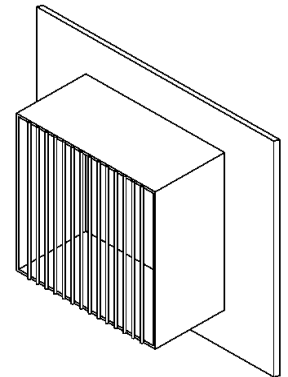
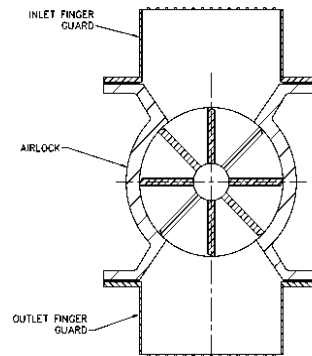
**PURCHASER SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ELECTRICAL COMPONENT MANUFACTURER'S RECOMMENDATIONS, UNDERWRITERS CODE AND ALL SAFETY PRECAUTIONS.**

The only warranty extended under this agreement is the above express warranty and there are no other warranties, express or implied, including warranties of merchantability, fitness for a particular purpose or otherwise which extends beyond the face hereof. The Company and its dealers shall not in any event be liable for consequential or incidental damages and this agreement provides purchaser's sole and exclusive remedy. Any actions for breach of this agreement or warranty must be commenced within one year after the cause of action has occurred.

## SAFETY

### Warning

Do not install rotary airlock valves in an application, which leaves the inlet or the outlet flange opening exposed.



### Safety Precautions



This Safety alert symbol is used to call your attention to an important safety message on equipment, safety decals and in manuals, to warn you of possible danger to your personal safety. When you see this symbol, be alert; your personal safety or the safety of the other persons is involved. Follow the instructions in the safety message.

The following definitions for identifying hazard levels are:



**DANGER (RED)** – Danger is used to indicate the presence of a hazard that **WILL** cause **SEVERE** personal injury, death, or substantial property damage of the warning is ignored.



**WARNING (ORANGE)** – Warning is used to indicate the presence of a hazard that **CAN** cause **SEVERE** personal injury, death, or substantial property damage if the warning is ignored.



**CAUTION (YELLOW)** – Caution is used to indicate the presence of a hazard that **WILL** or **CAN** cause **MINOR** personal injury or property damage if the warning is ignored.



**CAUTION:** Read All Instructions contained in this manual before installing and operating this equipment.



**WARNING:** All owners and operators should read this manual, or be instructed in safe operating and maintenance procedures, before attempting to uncrate, install, operate, adjust, or service this equipment.

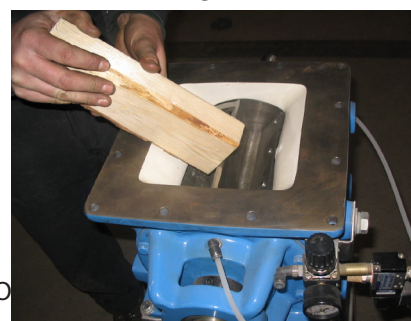


Disconnect all electrical power to airlock before performing any maintenance.



**WARNING**

Figure 1



ONCE PROTECTIVE FLANGE COVER IS REMOVED FROM VALVE, DO NOT PLACE HANDS OR FEET IN THE VALVE OR ATTEMPT TO TURN ROTOR ASSEMBLY BY HAND.

TO TEST ROTATE THE ROTOR, USE A SOFT PUSH BAR (2 X 4) AS SHOWN IN FIGURE 1. WE RECOMMEND ALL OWNERS AND/OR OPERATORS OF THIS EQUIPMENT READ THIS MANUAL. FOLLOW SAFE OPERATING & MAINTENANCE PROCEDURES. SAFETY COMES FIRST!

## DELIVERY INSPECTION

As soon as the equipment is received, it should be carefully inspected to make certain the unit is in good condition and all items listed on the packing list are received. Even though the equipment is mounted on heavy shipping skids at our plant, it is possible for it to be damaged in shipment. All damages or shortages should be noted on the Bill of Lading. Purchaser should take immediate steps to file reports and damage claims with the carrier. All damages incurred to the units in transit are the responsibilities of the common carrier since it is the manufacturer's policy to make shipment F.O.B. its factory: i.e., Ownership passes to purchaser when the unit is loaded and accepted by trucker. Any claims for in transit damage or shortage must be brought against the carrier by the Purchaser.

If the unit is not going to be installed soon after arrival, it should be stored in a warm, dry location to protect from corrosion to the machined surfaces.

### LOCK OUT ALL SOURCES OF POWER BEFORE CLEANING



**WARNING!!!!** QUICK CLEAN ON RAIL DESIGN HAS FACTORY INSTALLED SAFETY SWITCH THAT MUST BE FIELD WIRED TO CUT POWER TO ROTARY VALVE IF TRIGGERED THIS MUST BE DONE BEFORE VALVE START UP!!!! SEE SAFETY SWITCH SECTION OF THIS INSERT!!!

**WARNING!!!** Please review below instructions before opening your Quick Clean Rotary Valve – NEVER SLAM THE VALVE SHUT DAMAGE WILL OCCUR!!!! – READ BELOW INSTRUCTIONS CAREFULLY!!!

**NEVER SLAM THE VALVE SHUT DAMAGE TO THE DRIVE SHAFT & ROTOR WILL OCCUR!!!!**

## INSTALLATION

Numerous types of bulk materials feeding devices can be connected to the inlet opening of an airlock. Bins, hoppers, mixers, sifters, screw conveyors, etc. all can be adapted for attachment to the airlock. In all cases, except sifters, rigidly attach the feeding device to the airlock flange, using silicone caulk to obtain an air-tight connection. Be sure all seams in the feeding device are air-tight.

If the airlock is to be hung from a hopper, storage tank, etc. it may be necessary for some type of structural steel support. However, in most cases, the hopper or tank flange will have sufficient strength to support the weight of the airlock package.

Normally, it is not good practice to use the airlock to support equipment loads either in compression on the top flange or in tension from the bottom flange. Excessive loads will cause the housing to distort, which will result in the loss of precise clearances. Loss of clearance between the rotor and housing can result in excessive noise, binding and galling.

Flanges of components, which attach to the airlock must be flat and "square" with the airlock flanges. The machines flanges of cast airlock housing must not be forced or conform to warped or twisted fabricated flanges. This practice can result in broken airlock housing or loss of clearance as noted above.



If the airlock is to be installed with either the inlet or discharge exposed, a guard must be mounted to the appropriate flange in order to reduce the risk of personal injury to operators, maintenance personnel, or others who may be near the equipment. Any object placed in the inlet area or discharge area of the airlock will be sheared off. Inlet and discharge guards are available from Kice.



Disconnect all electrical power to airlock before performing any maintenance.

## Airlock Maintenance

Blade clearance should be checked as part of the maintenance program. Each airlock is built to a standard, which is determined by its size and design operating conditions. The appropriate standard established for any airlock can be determined by checking the order acknowledgement.

## Quick Clean Disassembly Instructions

1. Before doing anything, make sure to Lock out POWER!!!! Following your plants procedures for "LOCK OUT" after and only after proper "LOCK OUT" proceed with opening your quick clean rotary valve.
2. Remove T-handles/Quick Handles or alternately release Toggle Clamps, note if your Quick Clean did not include a safety Switch then it would ship with Safety Hex Head Bolt- this bolt will need to be removed using socket head & wrench.
3. If Necessary Insert the T-handles/Quick Handles into the jacking-bolt holes located top & bottom of the tail endplate Turn clockwise simultaneously until endplate is extracted from housing.
4. Carefully slide endplate & rotor out of housing – then endplate & rotor are connected and will act as one single unit when removing from the housing.
5. Clean parts as required.

## Quick Clean Re-Assembly Instructions

1. Before re-assembly, check drive shaft, this has a bore that rotor drive shaft fits into, insure the drive shaft bore is cleaned out & free of material. Check the rotor drive shaft is clean & free of material. If there is material on either of these items it can effect opening & closing of the Quick Clean Valve.
2. Carefully slide tail endplate & Rotor into Housing back into housing until rotor comes in contact with the rotor shaft bore
3. Use Locating key which is mounted on the linear bearing mount plate. Remove fit into tail shaft and then slowly turn locating key (with rotor) to line up keyway to key on stub shaft. You will feel contact and rotor & endplate will move freely into place.
4. If required use T-handles thread into housing to draw the rotor into the housing - NOTE: if you feel resistance is too much remove rotor & endplate try re-alignment again.
5. Once rotor/endplate is flush with housing, assemble all remaining T-handles back into tail endplate.
6. Place locating key back on holder on linear bearing mount.

## Quick Clean "ON RAILS" Clearance & Rail Adjustment

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Kice Quick clean on rails is supplied with linear slide rails & linear bearings, these slide rails should be kept free of dust & foreign material and it is recommended that they be cleaned at the same time that you are cleaning the quick clean rotor.

Adjustment of rails & clearances, if you feel that the QC-R Valve is getting difficult to reassemble your rotor may have come out of alignment with the housing & rails & may need to be adjusted. Using qualified experienced personnel follow below instructions.

1. With rotor located inside housing, check your existing dia. clearances these should be .004-.007 for models 4" through 12" & .007-.010 for 14" through 16" & .012-.016 for 18" & above. Double check the clearances against provided drawing or check with Kice and have your serial number or Purchase Order ready
2. See linear shaft mounts, you will find four 1/4-20 hex head bolts
3. Using these adjustment screws adjust 1/4" turn at time in desired direction & re-check clearances until target range is acquired

## Remove Single Press-Fit Bearings Located on Drive Endplate

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1. Remove drive package, (4) hex bolts located on mounting plate loosen and slowly pull drive off of shaft. Watch for drive key when removing.
2. Remove end cover (see instructions on previous page).
3. Press bearing in the appropriate direction to remove from end plate.

## Replacing Press-Fit Bearings & Installing Press-Fit Bearing Lock Collar on Drive Endplate

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1. Align bearing with machined hole in end cover.
2. Be sure the eccentrically machined end of the inner bearing ring will be at the outer face of the endplate so that matching bearing lock collar can be properly installed.
3. Press the bearing in place.
4. Check to see that bearing has been pressed into endplate with eccentrically machined face of inner bearing ring facing outward toward the end of the shaft.
5. Slide collar on shaft with eccentrically machined, recessed face against the inner bearing ring. Rotate the collar in the opposite direction of shaft rotation until eccentric faces of collar and inner bearing ring engage.
6. Continue to rotate the collar in the opposite direction of shaft rotation until snug. Complete tightening by inserting pin in drift pin hole of the collar and tap with lightweight hammer.
7. Tighten allen set screw.

## Tail endplate Bearing Hub & Double Row Bearings

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1. Remove tail endplate from housing leave linear shaft mounts attached to endplate (see replacement of rail instructions for removal of the rail assembly)
2. Remove bearing cap
3. Remove nut & washer
4. Remove bearing hub, 4-bolts.
5. Remove double row bearings & install new ones.
6. Reverse above steps for reassembly.

## Replacing Linear Shaft

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1. Loosen linear bearing set screws
2. Remove hex bolts located on drive end & tail end of the linear shaft
3. Slide Linear bearing out towards drive end of the valve
4. Install new shaft by reversing above directions

## Replacing Linear Bearing

1. Remove linear shaft using above instructions for replacing linear shaft
2. Remove (4) 1/4-20 Hex head bolts from Linear bearing base
3. Install new Linear bearing by reversing above instructions

## SAFETY SWITCH

OMRON PIN PLUNGER SAFTY SWITCH PN: D4C-1631, It is up to the Customer, Contractor or End User to ensure this switch is wired to cut power upon trigger, this is to ensure that no one can access the rotary valve during operation. If you do not wish to use this feature YOU MUST INSTALL HEX HEAD BOLT in one or more of the T-handle positons.



All On Rail Quick clean valves are supplied with a Safety Limit switch, this must be field wired before start up, and safety switch must cut all power to the Quick Clean valve upon being triggered. Switch is set up so if the tail endplate is removed the switch will trigger shutting down power to the rotary valve & any related products.

\*\*\* It is the responsibility of the customer, contractor & or end user to ensure this switch wired to shut cut power to the rotary valve before start up\*\*\*

## TROUBLESHOOTING



Disconnect all electrical power to airlock before performing any maintenance.

- A. If airlock is not operating efficiently or satisfactory, remove from system, inspect and repair in accordance with preceding information.
- B. Inspect airlock for wear and damage.
- C. Inspect base structure, chain guard, and brackets, for damage and deformation. Replace defective parts.
- D. Check all accessory equipment to assure proper operation. Replace any components found to be defective.

When requesting service assistance, please have the following information at hand prior to calling system engineer.

Important

Write down the MODEL and SERIAL NUMBER of the Kice Rotary Airlock, along with the same information for the auxiliary equipment. (Airlock valves, fans, speed reducers, motors, and sheaves size, type and any special modifications to standard).

For additional information, application assistance or special service, you should contact the factory. We'll need to know the MODEL and SERIAL NUMBER of your Kice Rotary Airlock. For ready reference, please record this information and the date of delivery or installation and the date of delivery or installations on the lines below. See the General information section for the location of model and serial number.

MODEL \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

Date of delivery or installation \_\_\_\_/\_\_\_\_/\_\_\_\_

Contact your Kice Quickship support team for questions or issues:

Phone: (316) 744-7151

Toll Free: 1-877-289-5423

Email: quickship@kice.com



MAINTENANCE LOG / NOTES

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