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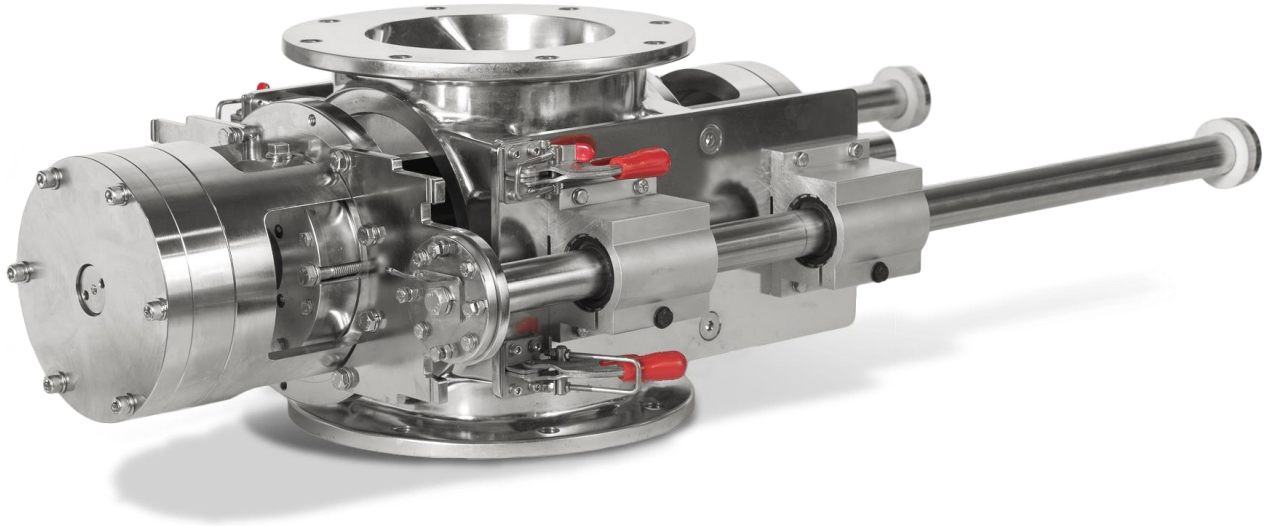
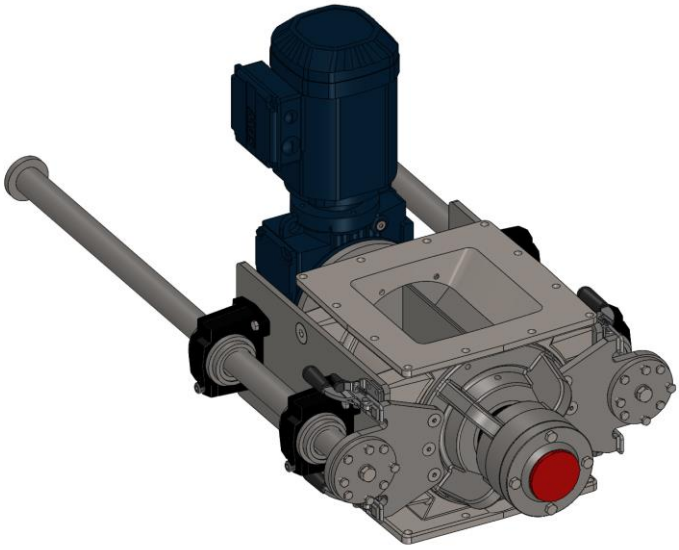


Quick Clean Series

Rotary Airlock

Operators Manual

STANDARD QUICK CLEAN MANUAL



FOR QUICK CLEAN ON RAILS
& QUICK CLEAN WITHOUT RAILS

LOCK OUT ALL SOURCES OF POWER BEFORE CLEANING YOUR QUICK CLEAN VALVE

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 MANUAL.

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

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.

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

SAFETY PRECAUTIONS

Prior to starting work on the equipment, we recommend the following:

1. Always de-energize all electrical equipment by following lock out/tag out procedures.
2. When working on a quick clean valve, disconnect all sources of power before cleaning or performing maintenance on your quick clean valve.
3. Do not operate rotary airlock valve with the inlet or the outlet flange openings unguarded or disconnected from system components. Inlet & outlet flange guards are mandatory. These flange guards are available for purchase upon request.
4. Always allow equipment to come to a complete stop. Never attempt to artificially brake the motion of the equipment.
5. Warning labels must be located on the equipment and near access openings to remind operating personnel of the risk.
6. Block the rotor from turning if the drive chain is disconnected or the gear drive has been removed.

HAZARD WARNINGS AND SAFETY PRECAUTIONS

The safety warnings below are basic guidelines and by no means all inclusive. National and local safety codes and even common sense should be used by qualified personnel to carry out installation and maintenance of the equipment. The hazards listed below are the most likely to be encountered during installation, operation and maintenance of your equipment.

Shear Hazard

There are shear points wherever the rotor and housing meet. Contact with moving rotor blades will amputate fingers, hands, arms or legs and may result in death. Accidents can occur when operators reach through upstream or downstream equipment mounted adjacent to the valve through access openings to clean or remove blockage.

Exposed Rotating Shafts

Exposed shaft locations exist at the seal access area and tail shaft. Contact with rotating shafts can crush or amputate fingers, hands or arms. Avoid touching or contact with the exposed shaft. Tail shaft guards are available as an option.

Electrical Hazard

Electrocution accidents are most likely during maintenance of the electrical system. Follow Lockout/Tagout procedures before working on the equipment.

Automatic Startup of the Valve - Quick Clean on Rail Design

Rotary airlocks are often controlled by an automated system and may start without warning. Ensure that Lockout/Tagout procedure is followed before working on the equipment. The quick clean on rail design is specifically designed for ease of cleaning by the operator without tools. There is a factory supplied safety

switch for protection of personnel and equipment which must be installed and operational to prevent accidental start-up of the valve.

Pressurized System
Danger from opening of equipment if the process is under pressure or from compressed air. Ensure that process pressure has been relieved prior to opening unit.

RECEIVING YOUR EQUIPMENT

Equipment should be carefully inspected immediately after receipt to make certain the unit is in good condition and all items listed on the packing list are included. All damages or shortages should be reported immediately. 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. Any claims for in transit damage or shortage must be brought against the carrier by the Purchaser.

HANDLING AND STORAGE OF YOUR EQUIPMENT

Moving the valve during unloading or installation should always be done with the use of a hand truck, forklift or overhead crane with slings. Do not lift by its flanges or shaft and take care to prevent the unit from rotating due to unbalanced weight distribution.

Short Term Storage
If the equipment is not put into immediate use it should be stored in a clean, dry location. Care should be taken to keep the equipment covered when moving from a cold location to a warm location, otherwise condensation may occur. If condensation does occur, allow it to dry thoroughly before applying power. If the unit is not going to be installed shortly after arrival, it should be stored in a warm, dry location to protect from corrosion to the machined surfaces. Flange covers should be left in place until ready to install.

Long Term Storage
If the equipment storage is required for longer than 90 days, additional precautions are required.

1. Storage should be indoors in a temperature-controlled facility such as a warehouse or enclosed building.
2. Leave weatherproof covering in place. Keep vented parts exposed.
3. Make certain unpainted portions are covered and retouch any scratches or flaked areas.
4. If condensate plugs or drain plugs have been used, make sure they are operative.
5. Consult for guidance on recommendations for long term storage. i.e., If motor is equipped with space heaters make sure space heaters are properly connected and operative.
6. A systematic inspection and maintenance schedule should be established. If rotating apparatus is to be stored for 6 months or longer, it should, in addition to the precautions above, be given a visual inspection every month.
7. Contact for recommendations where equipment has been in storage for periods longer than 12 months.

INSTALLATION

Inspection:
Once the protective flange cover and shipping materials are removed, check the valve and drive components. Confirm that the rotor turns freely without any binding. Don't attempt to turn the rotor assembly by hand as the rotor vane is sharp and can easily cut or pinch hands or fingers. Use a soft push bar (such as a wooden 2 x 4) to ensure that it rotates freely.

The as-built clearance is recorded on the inlet flange and can be measured with feeler gauges. If the clearance measured has changed, this is an indication that the rotor has shifted during shipment. If adjustable tips are provided, re-adjust as per instructions found in maintenance section of this manual. If airlock clearances and rotations are correct, position and anchor package.

Mounting to Inlet and Discharge:
Numerous types of bulk materials feeding devices can be connected to the inlet opening of an airlock. Bins, hoppers, mixers and screw conveyors can be adapted for attachment to the airlock by rigidly attaching to the airlock flange using silicone caulk or flexible gasket to obtain an air-tight connection. Be sure all seams in the feeding device are air-tight. Moving feed devices such as sifters require special consideration to support the valve and a flexible connection.

If the airlock package 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 enough strength to support the weight of the airlock package. 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 cause reduced clearance with the rotor. This will 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 flanges of the airlock housing should never be forced in place or attached to warped or twisted mating connections. 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 to reduce the risk of personal injury to operators, maintenance personnel and others who may be near the equipment. Any object placed in the inlet area or discharge area of the airlock will be sheared off.

INITIAL START-UP PROCEDURE

Prior to Starting

1. Remove the drive guard. Make sure that the drive chain is properly tensioned. If this is a direct drive unit, skip to 4.
2. Check tension in drive chain. There should be 3/8 to ½" slack in the top of the chain. Adjust if necessary.
3. Make sure the chain is properly lubricated. The chains are pre-lubricated by the vendor.

4. The gearmotors are shipped filled with oil. Check the oil level in the drive gearbox and top off if necessary. Oil level and drain plugs must be accessible. Remove any shipping provisions from the breather plug. Refer to the manufacturer's instructions included with the shipment.
5. Make sure that the airlock, feed device, and conveying line are free of foreign material.
6. Verify that all electrical connections have been properly made.
7. Replace all guards and covers.

Start-Up

1. Energize the electrical service (and instrument air if applicable.)
2. Jog the airlock to verify the direction of rotation is correct. Listen for sounds of unwanted mechanical contact and correct if necessary. Reverse operation can result in jamming and possible motor overload.
3. Start the airlock and operate it for a period with no load. Check for excessive noise or other indications of improper operation. Investigate and correct if necessary.
4. Start feed device or fill the hopper. As material flows into the airlock, listen for excessive noise or other indications of improper operation. Investigate and correct.
5. Verify that the current draw of the motor does not exceed its full load amp rating. Refer to motor nameplate for rating.
6. While the system is operating check for air leaks. Correct as needed.
7. Monitor the operation of the main components for heat, noise or vibration as these are indications of a potential problem.

WARNING – Prior to beginning any service or maintenance activities, ensure that "Lockout/ tagout" procedures have been completed to safeguard employees from the unexpected energization or start-up of machinery and equipment.
Disconnect all sources of power before cleaning or performing maintenance on your quick clean valve.

MAINTENANCE PROCEDURES

Regular maintenance is important to the operation and life of your airlock. Areas requiring regular inspection and maintenance are the rotor clearance, seals and/or packing and the drive package

NEVER SLAM THE VALVE SHUT
DAMAGE TO THE DRIVE SHAFT & ROTOR WILL OCCUR.
ALWAYS DISCONNECT POWER.

Quick Clean Disassembly Instructions

1. Ensure that valve has been shut down, following your LOCK OUT procedures before disassembly of this valve
2. Remove T-handles/Quick Handles item 18 or alternately release Toggle Clamps item 25, note if your Quick Clean did not include a safety Switch item 21 then it would ship with Safety Hex Head Bolt Item 30 - this bolt will need to be removed using socket head & wrench
3. If Necessary Insert the T-handles/Quick Handles item 18 into the jacking-bolt holes located top & bottom of the tail endplate item 2 Turn clockwise simultaneously until endplate is extracted from housing
4. Carefully slide endplate item 2 & rotor Item 10 out of housing item – 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 item 7 drive shaft, this has a bore that item 10 rotor drive shaft fits into, unsure 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 item 2 & Rotor Item 10 into Housing item 1 back into housing until rotor comes in contact with the rotor shaft bore item 7
3. Use Locating key Item 19# which is mounted on the linear bearing mount plate item 15, 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 Item 18 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 Item 18 back into tail endplate Item 2
6. Place locating key back on holder Item 19A on linear bearing mount 15

Disconnect all electrical power to airlock before performing any maintenance.
Never slam the valve shut, damage will occur.

Quick Clean ON RAILS clearance & rail adjustment
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 diameter 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 your supplier have your serial number or Purchase Order ready
2. See linear shaft mounts Item 15, you will find four ¼-20 hex head bolts
3. Using these adjustment screws adjust ¼" turn at time in desired direction & re-check clearances until target range is acquired

Remove Single Press-Fit Bearings located on drive endplate, Item 9
1. Remove drive package, (4) hex bolts located on mounting plate loosen and slowing pull drive off of shaft Watch for drive key when removing
2. Remove end cover:
    1. Remove bolts that attach end cover to housing
    2. Loosen and remove bearing lock collar
        a) Remove allen set screw from collar and peen down groove formed by set screw using a small flat punch.
        b) Loosen collar by rotating collar in direction opposite shaft rotation. Use drift pin in the plain hole (not threaded set screw hole) and tap with hammer to rotate collar.
        c) Slide collar off shaft.
    3. Loosen packing gland bolts or shaft seal collar, if applicable.
    4. Attach wheel puller.
    5. Tighten slowly until cover slides off shaft. If cover tends to bind on shaft, tap puller bolt with rubber mallet as you tighten.
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
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.

Tail endplate bearing hub & double row bearings, Item 4 & 5

1. Remove tail endplate from housing leave linear shaft mounts attached to endplate (see replacement of rail instructions for removal of the rail assembly) if your valve is not rails this does not apply.
2. Remove bearing cap item 4
3. Remove nut & washer item 6
4. Remove item 4 bearing hub, 4-bolts
5. Hub & double row bearing assembly from endplate
6. Remove double row bearings & install new ones
7. Reverse above steps for reassembly

Replacing ACST-4 Shaft seal located on Drive & Tail endplate, Item 3 & 8

1. Standard design uses sealed permanently lubricated bearings and ACST-4 seals consisting of a PTFE (teflon) sleeve and 3 quad rings with shaft collar which require replacement when worn. It's recommended to always replace the seals and bearings at the same time.
2. Remove endplate from housing as described in procedure REMOVING ENDPLATES.
3. The bearing, split locking collar, teflon bushing and quad ring seals will come out with the endplate.
4. Remove bearing by pressing away from the seal arrangement. Use of a small diameter soft punch can also be used to "drive" the bearing out of its seat.
5. Pry the lock collar off teflon seal and set aside. Pry the teflon seal straight up and out of the quad ring assembly. Remove quad rings by poking with a sharp object and prying out of seat. Repeat for remaining two (2) rings.
6. Install new quad rings and Teflon sleeve in end plate. Apply a small amount of lubricant to the teflon seal and gently push into the quad ring bore.
7. Install teflon seal lock collar.
8. Align bearing with machined hole in end cover taking care to make sure of direction and orientation before pressing the new bearing in place.
9. Install endplate onto driveshaft, move into position, install and tighten fasteners.
10. Slide bearing collar on shaft. Rotate the collar in the opposite direction of shaft rotation until eccentric faces of collar and inner bearing ring engage.
11. Check clearances and see that rotor turns freely in housing. If rotor does not turn freely, adjust as necessary.
12. Lock the bearing in place by rotating the collar using a drift or flat punch in the non-threaded hole and tapping the collar with a light weight hammer in the opposite direction of rotation until snug. Tighten set screws.
13. Position teflon sleeve and shaft seal collar. Tighten seal collar.

Replacing Linear shaft (On Rail design only) – Item 14

1. Loosen linear bearing set screws (item 13)
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 (On Rail design only) Item 13

1. Remove linear shaft using above instructions for replacing linear shaft
2. Remove (4) ¼-20 Hex head bolts from Linear bearing base
3. Install new Linear bearing by reversing above instructions

SAFETY SWITCH (On Rail Design only) – Item 20 - see sketch for location

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

Adjustable Rotor Tip Clearance

Airlocks equipped with adjustable rotor tips can have their clearances renewed when worn for extended operating life.

1. With the drive chain disconnected (if applicable), number the blades as a means of showing when the adjustment has been completed. Loosen, but do not remove the fasteners.
2. Insert 2 sets of the appropriate size of feeler gauge between the rotor tip and housing on the inlet side. One at each end. Push blade against the feeler gauge and tighten fasteners.
3. Turn rotor so that the same blade appears on the outlet side and measure the clearance to determine which position is tighter. Adjustment should be made on the remaining blades from the side of the airlock that is tighter.
4. Make a final check of clearances by turning the rotor and checking each blade at each end, center and both sides of the housing.

Adjustable Rotor Tip Adjustment and Replacement

1. Remove drive guard and chain (if applicable)
2. Remove the rotor blade fasteners and rotor vanes to be replaced. It is recommended that you replace the backing plates and hardware in the same position they were removed.
3. Make sure the blades are on the leading edge of the rotor.
4. Fasten the new blades onto the valve using a thread adhesive. As you tighten each bolt, ensure the blade is centered between end caps.
5. Begin tightening the bolts one at a time starting from the end caps. Note that flexible material expands when it's tightened so take care not to over compress the vane tips.
6. Turn rotor by hand all the way around. Be sure the clearance is not any less for the full rotation. When tightening each bolt and blade, ensure the rotor can be turned by hand.
7. Repeat this procedure until all blades are installed and rotor can still be turned by hand.
8. Replace chain (if applicable)
9. Adjust motor plate & replace guard.

Disconnect all electrical power to airlock before performing any maintenance.
Never slam the valve shut, damage will occur.

MAIN PARTS LIST & DRAWINGS

PARTS LIST FOR QUICK CLEAN "ON RAILS"			
ITEM	**PART NO.**	**QYT.**	**DESCRIPTION**
1	***QC-R-1	1	Housing
2	***QC-R-2	1	Tail Endplate
3	***QC-R-3	1	Tail endplate shaft seal assembly, ACST-4
4	***QC-R-4	1	Tail endplate bearing hub & cap
5	***QC-R-5	2	Double row sealed insert bearings
6	***QC-R-6	1	Tail endplate Nut & Washer
7	***QC-R-7	1	Drive endplate
8	***QC-R-8	1	Drive endplate shaft seal assembly, ACST-4
9	***QC-R-9	1	Drive endplate insert bearing
10	***QC-R-10	1	QC Rotor
11	***QC-R-11	1	Drive shaft
12	***QC-R-12	1	Housing
13	***QC-R-13	4	Linear Bearings
14	***QC-R-14	2	Linear Rails
15	***QC-R-15	2	Linear bearing mounts
16	***QC-R-16	2	Linear shaft mounts
17	***QC-R-17	2	Linear shaft mount hubs
18	***QC-R-18	LOT	T-Handles / Quick Handles, 4 to 6 depending on size of valve
19	***QC-R-19	1	Locating handle
19A	***QC-R-19A	1	Locating handle mount
20	***QC-R-20	2	Oversized Washer
21	***QC-R-21	1	Safety Switch - **NOTE: WIRED BY END USER**
22	***QC-R-22	1	Drive mount plate
23	***QC-R-23	1	Drive
24	***QC-R-24	1	Removable Tail Cap
OPTIONAL ITEMS			
25	***QC-R-25	4	Toggle Clamps (instead of quick handles)
26	***QC-R-26	LOT	Linear Rail Bellows & Clamps
27	***QC-R-27	4	Impact Grommets
28	***QC-R-28	2	Shock absorber - only on 18" & above
29	***QC-R-29	2	Strike Plates - only on 18" & above
30	***QC-R-30	1	Safety Hex Bolt - Only if valve safety switch is not included

Optional Items

Item 25 Toggle Clamps these are instead of T-Handles Item 18 or sometimes used in combination, generally toggle clamps are for gravity applications or low pressure systems.

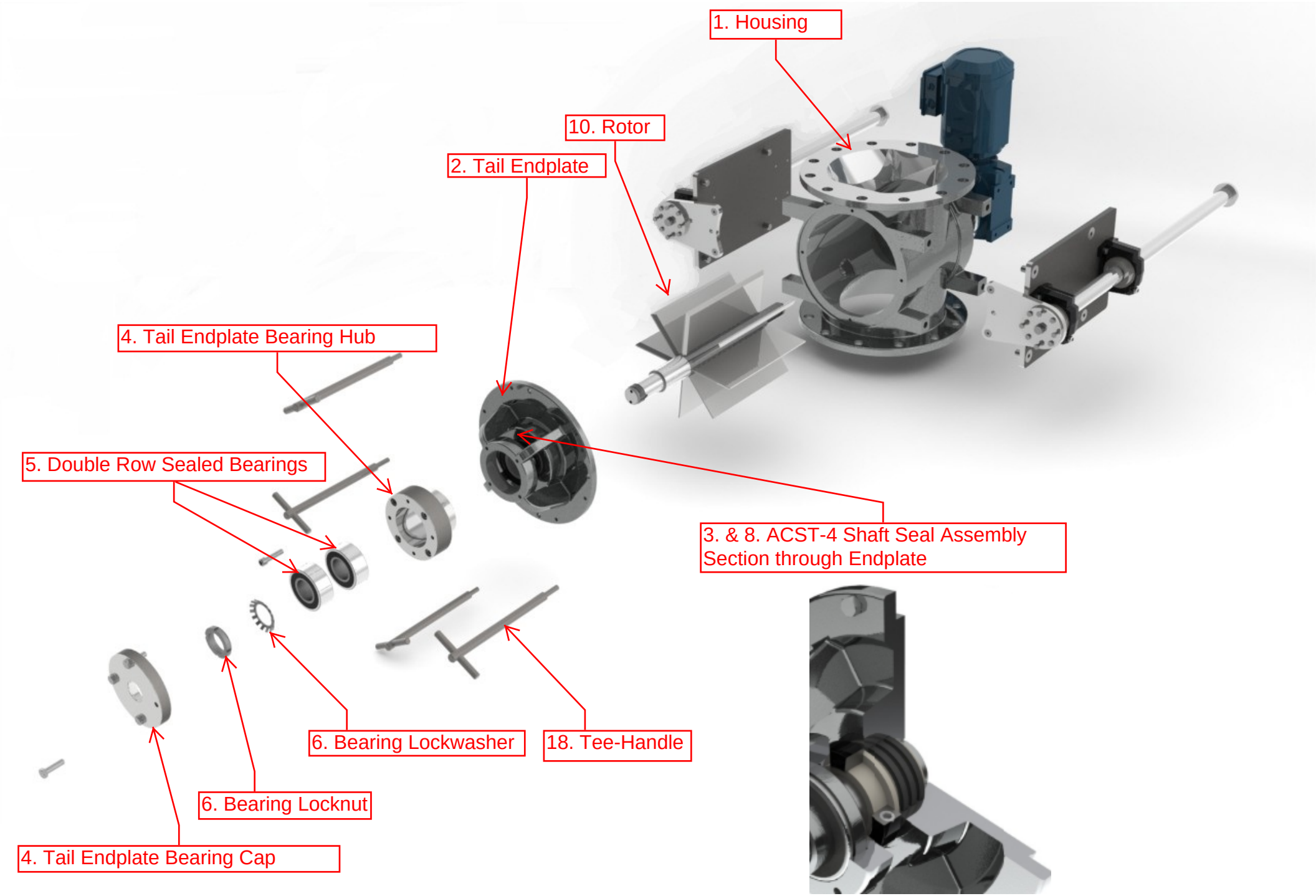
Item 26 Linear Rail Bellows, used in dusty environments generally not recommended for wash down as water will trap & collect in the bellows.

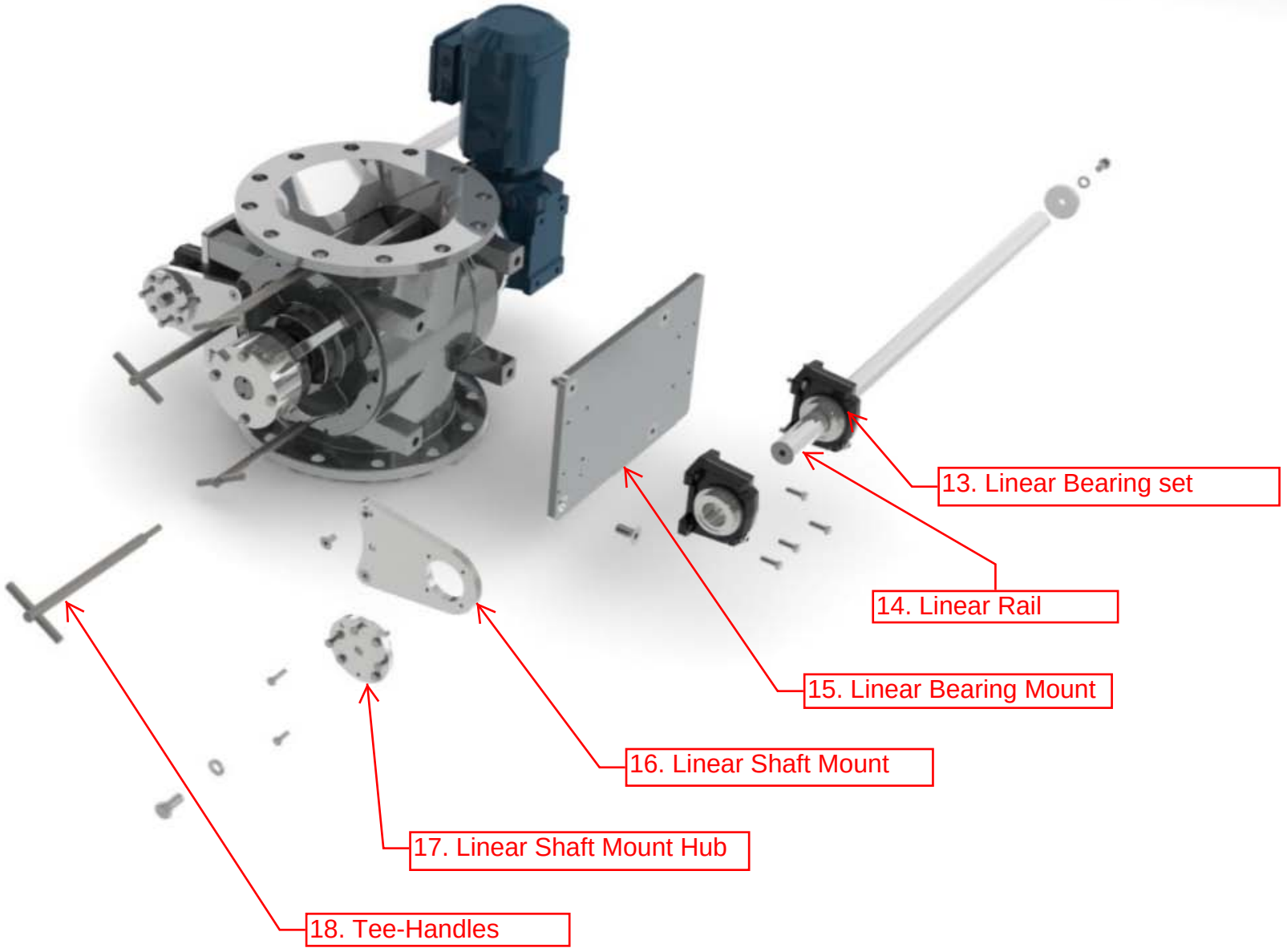
Item 27 Impact Grommets, designed to be on the Drive end of the valve to keep shock down when Quick Clean is sliding open – generally supplied on 14” & above, replaced by Strike Plates Item 29

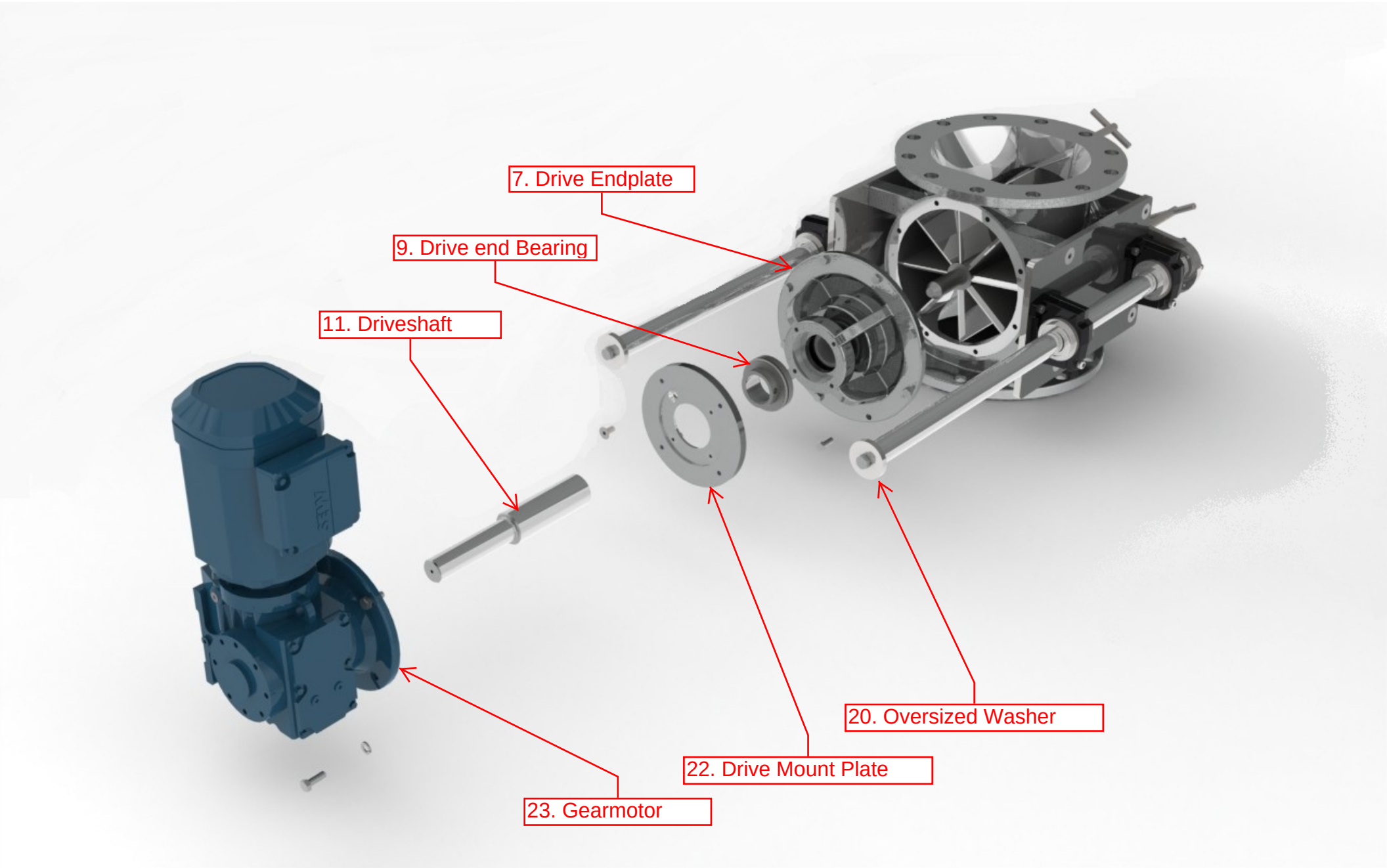
Item 28 Shock Absorbers, Supplied on Larger Quick Cleans 18” & above, supplied to keep tail endplate item 2 and rotor Item 10 from impacting on the housing item 2, due to size and weight if not careful momentum can build if endplate and rotor are pushed into the housing the shock absorber prevents damage.

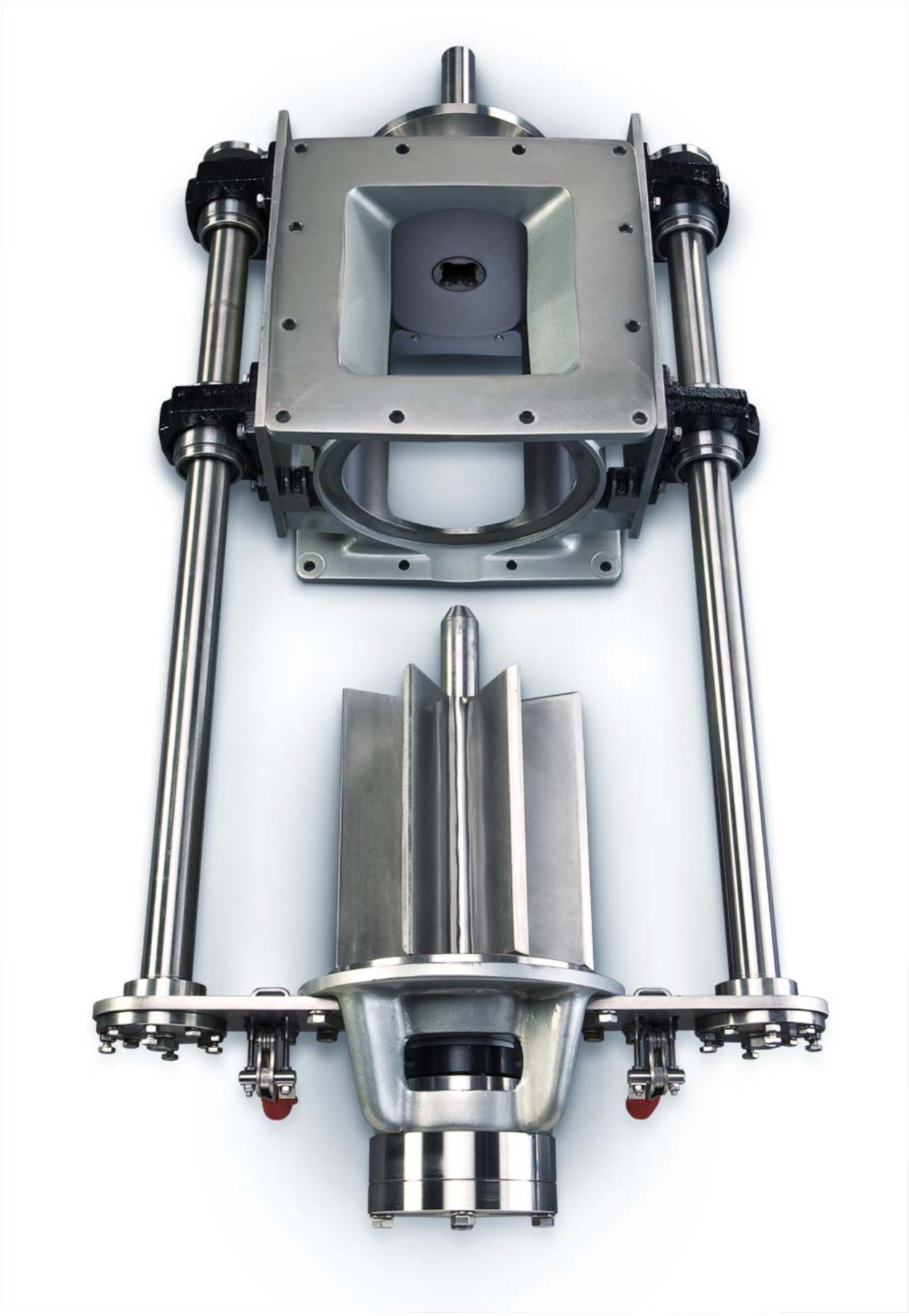
Item 29 Strike Plates supplied instead of impact Grommets Item 27 on 18” & above, on 18” & above there are (4) rails instead of two and this item keeps them aligned & target plate for Shock Absorber item 28

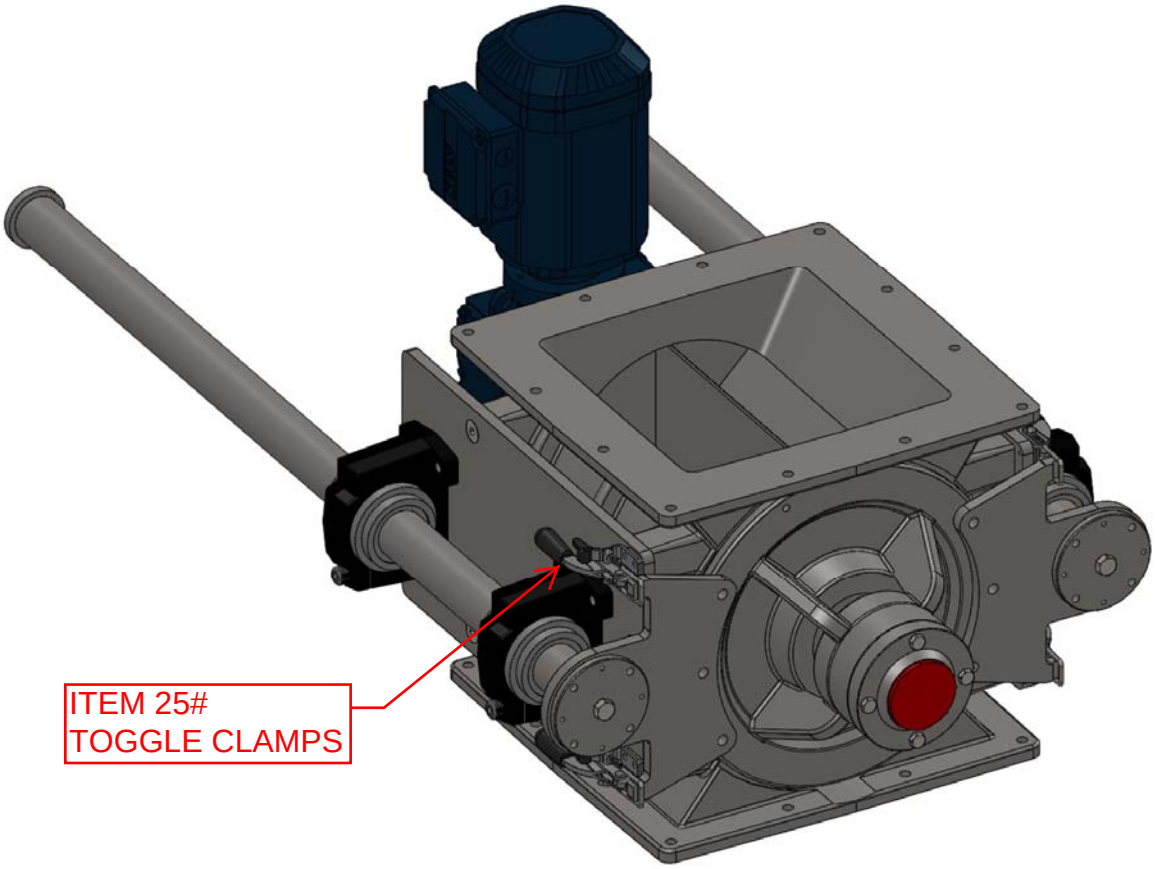
Item 30 Safety Hex Bolt, shipped in place of T-Handle item 18, only if Safety Switch Item 21 has been declined, note if the Safety Switch is included and it is decided not to use it is up to the Customer, Contractor & End user to install the hex head bolt, if you cannot please feel free to contact Kice and we will advise price & delivery.

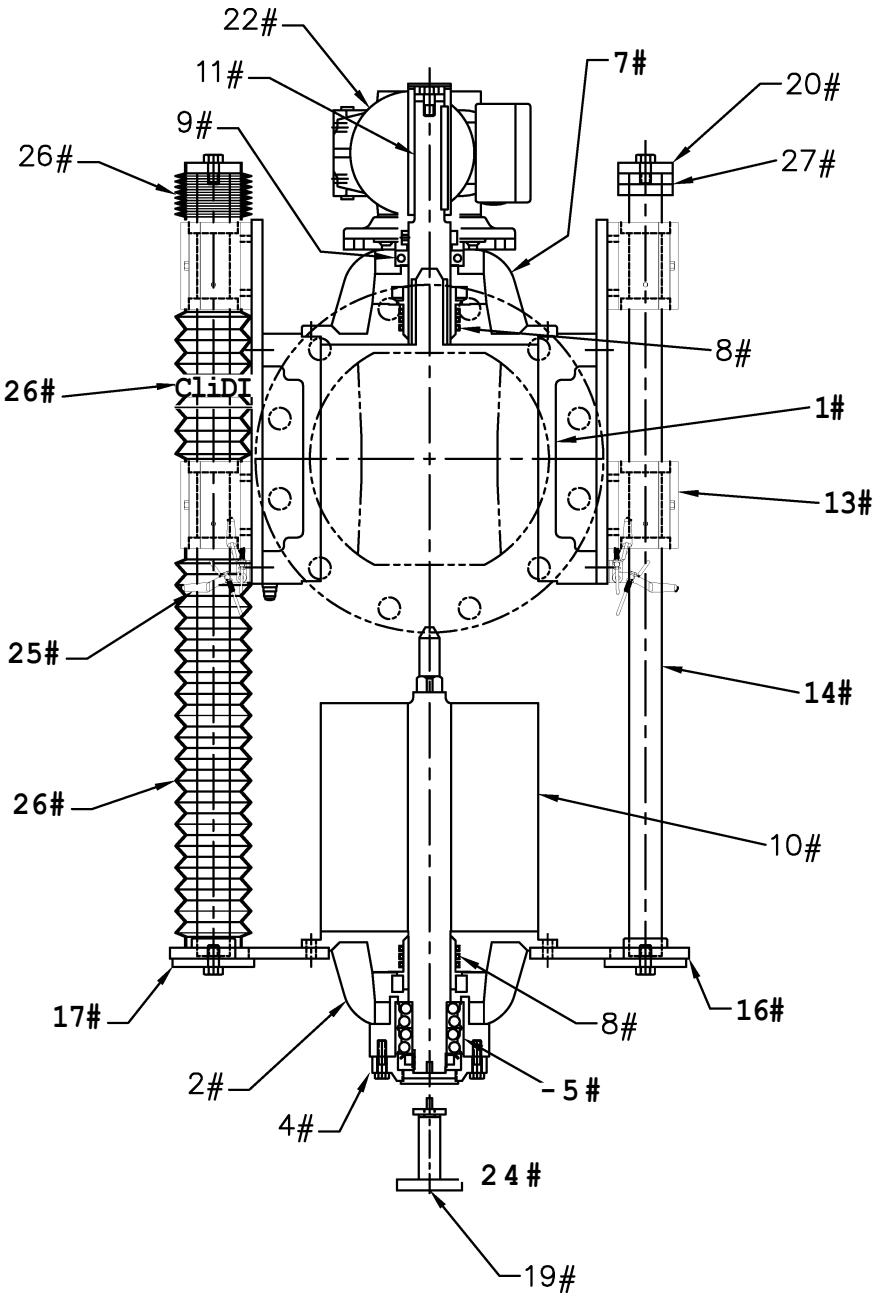

1. Housing
10. Rotor
2. Tail Endplate
4. Tail Endplate Bearing Hub
5. Double Row Sealed Bearings
3. & 8. ACST-4 Shaft Seal Assembly
Section through Endplate
6. Bearing Lockwasher
18. Tee-Handle
6. Bearing Locknut
4. Tail Endplate Bearing Cap

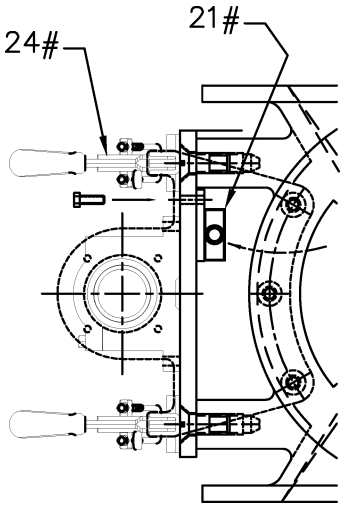

13. Linear Bearing set
14. Linear Rail
15. Linear Bearing Mount
16. Linear Shaft Mount
17. Linear Shaft Mount Hub
18. Tee-Handles


7. Drive Endplate
9. Drive end Bearing
11. Driveshaft
20. Oversized Washer
22. Drive Mount Plate
23. Gearmotor




ITEM 25#
TOGGLE CLAMPS





,21#

OMRON PIN PLUNGER SWITCH
PN: D4C-1631

REPLACEMENT SWITCH INSTRUCTIONS:

1) *RELEASE THE FOUR TOGGLE CLAMPS LOCATED ON EITHER SIDE OF THE ROTARY AIRLOCK, THEN SLIDE OUT THE ROTOR ASSEMBLY.*

2) *UNBOLT EXISTING HONEYWELL MECHANICAL PIN S1YLE SAFETY SWITCH. REMOVE THE TWO 1/..20 UNC HEX HEAD BOLTS HOLDING THE SWITCH IN PLACE.*

3) *CAREFULLY SLIDE HONEYWELL SWITCH OUT IN THE DIRECTION OF THE ROTOR*

4) *TAKE OMRON D4C-1631 REPLACEMENT SWITCH WI11l SUPPLIED MOUNT PLATE AND SLIDE IN PLACE WHERE HONEYWELL SWITCH WAS PREVIOUSLY MOUNTED.*

5) *USE 1/..20 UNC HEX HEAD BOLTS REMOVED IN STEP 2 AND FASTËN THEM SECURING 11lE NEW OMRON MOUNTING PLATE.*

6) *RETURN ROTOR ASSEMBLY INTO VALVE AND RE-LATCH TOGGLE CLAMPS SECURING THE ASSEMBLY IN PLACE.*

QUICK CLEAN PARTS

MAINTENANCE LOG / NOTES

Valve Serial Number: _____

NOTE: QUICK CLEAN ON RAIL DESIGN HAS FACTORY INSTALLED SAFETY SWITCH THAT MUST BE FIELD WIRED BEFORE VALVE START UP, SEE SAFETY SWITCH SECTION OF THIS MANUAL.

Quick clean valves on rails are supplied with 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*****

NOTE: It is recommended that any replacement parts be equal to the original supplied parts on the Rotary Valve, Kice can provide spare parts