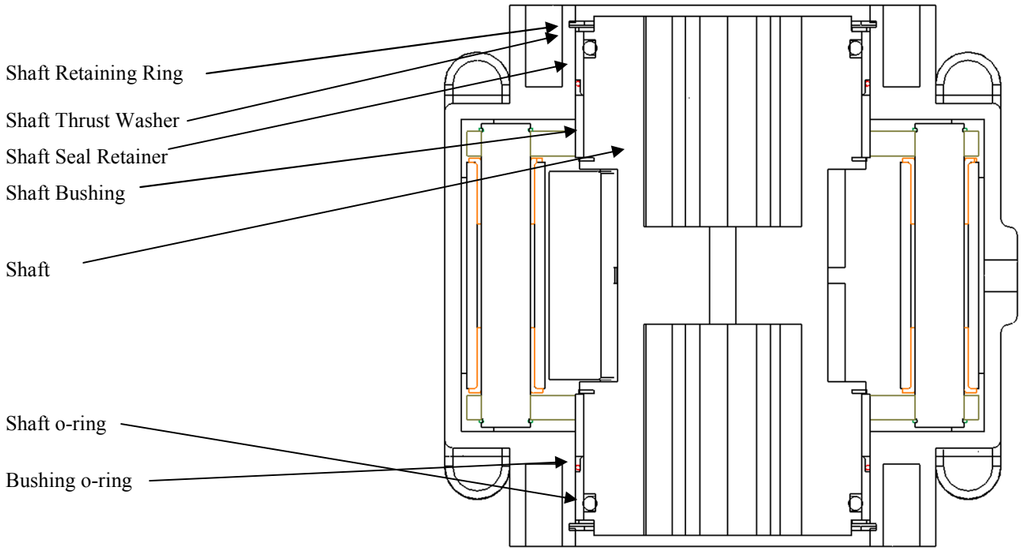
MAINTENANCE con't.

Q12DA AND Q14DA ACTUATORS
Typical for Q07 thru Q14 sizes

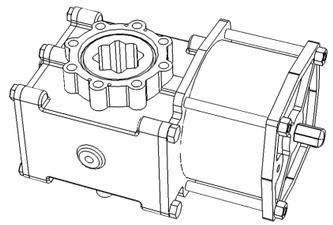


- Inspect saddle bushings, shaft and shaft bushings for wear. Replace as necessary
- **Body and shaft Re-assembly** (lubricate bushings before installation)
  - Install one shaft bushings in one end only of the body
  - Push inward on shaft bushing until it aligns within the saddle assembly
  - With the saddle assembly in place - and from the opposite end of the body from the installed shaft bushing, install the shaft through the saddle assembly and the shaft bushing.
  - Push shaft thru body and install shaft o-ring into shaft groove
  - Install shaft bushing in other end of body
  - Extend shaft outward from this end of body and install second shaft o-ring into shaft groove
  - Center shaft on body faces
  - Push bushing seal o-ring into one side of body until fully in contact with shaft bushing
  - Push shaft seal retainer into this end of body
  - Install thrust washer on this end
  - Install shaft retainer ring on this end
  - Duplicate installation of o-rings and retainers on opposite end of body.
- **Piston and cylinder reassembly**
  - Turn shaft so that it is rotated past zero degrees by 35 degrees
  - Align rack teeth to shaft and push inward. When piston is fully inward, full travel position should be 90 degrees for shaft. If not, rack and gear teeth are likely one tooth out of sequesnce. Remove rack and realign before insertion.
  - For the Q14DA, the above is duplicated with one rack. Once correct, pull this rack outward carefully just until gear tooth engagement ends. Then reinstall this rack AND the other rack simultaneously. Check full stroke to assure proper teeth engagement.
  - With lubricate piston o-rings in place and the cylinders lubricated, re-install the cylinders, end caps and nuts. Tighten nuts to 25 foot pounds in a diagonal sequence.

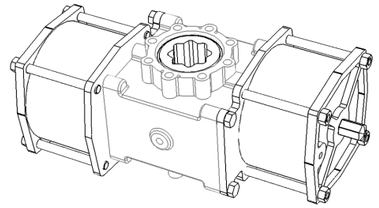
INSTALLATION & OPERATING IN-STRUCTIONS

Installation:

- Q Series Double Acting actuators have double square female drive shafts on each side of the actuator. One side has a 'Top Hat' that converts the female geometry to a standard NAMUR type slotted male shaft for driving accessories. As normally supplied, when the Top Hat is in the up position, applying pressure to the end cap port(s) will cause counter clockwise shaft rotation - when looking downward at the Top Hat. For mounting convenience, the Top Hat may be relocated to the opposite end of the shaft to reverse the action.

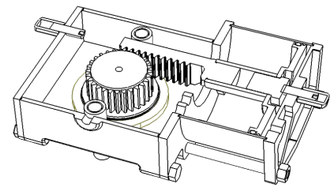


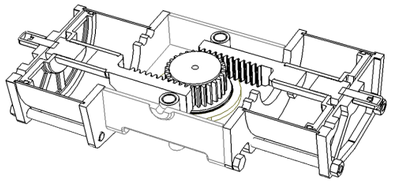
Q12DA



Q14DA

- Refer to separate dimensional drawings for mounting dimensions when designing any required mounting bracketry.
- Q Series actuators may be mounted in any plane
- Both sides of the Q12DA and Q14DA body are drilled and tapped with 30mm x 130mm M5 bolt patterns conforming to NAMUR #3 standard dimensions. The Top Hat provides a 30mm tall drive slot height.

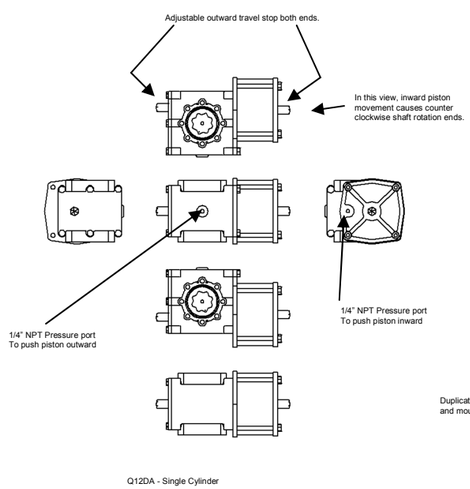




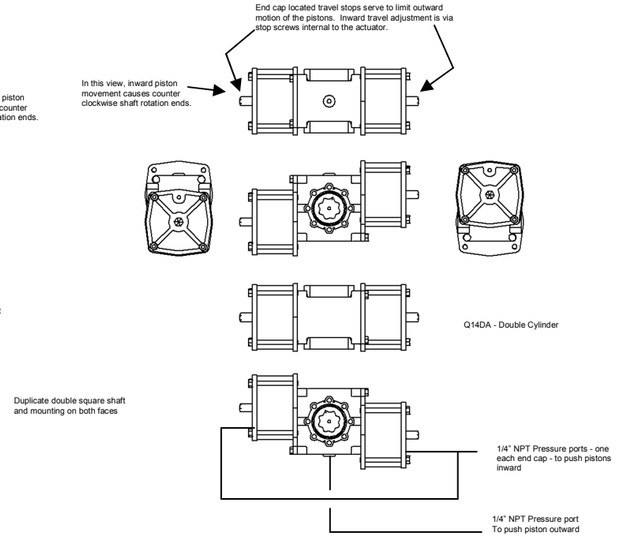
- Outward travel adjustment for the Q12DA and Q14DA actuators (maximum 5 degrees over-travel) is via removal of the travel stop covers on each cylinder which exposes a large diameter set screw. Backing out the set screws (both are to be backed off the same amount on the Q14DA) allows added travel of the pistons and shaft.

Piping Examples

Q12DA



Q14DA



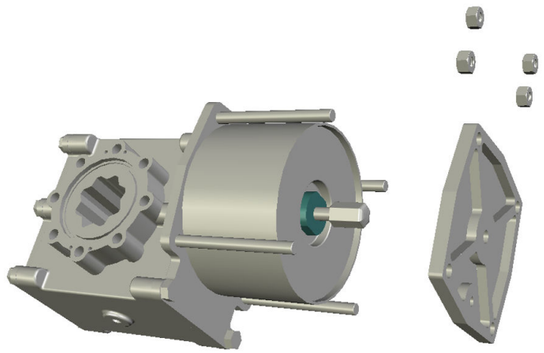
MAINTENANCE

Q12DA AND Q14DA ACTUATORS
Typical for Q07 thru Q14 sizes

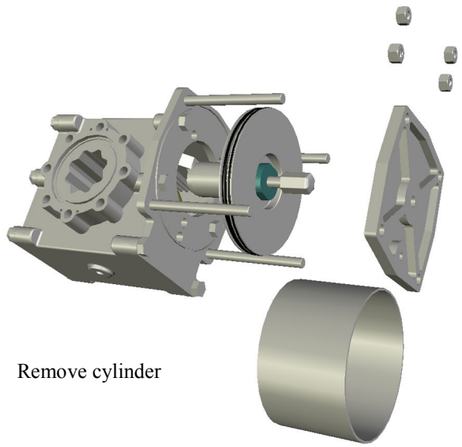
Under normal conditions, the Q12DA and Q14DA series actuators require little maintenance. The unique design of the Rack & Gear actuators incorporates friction reducing features that result in extended actuator life. That said, should maintenance be necessary, the following procedures will apply:

Piston o-ring replacement

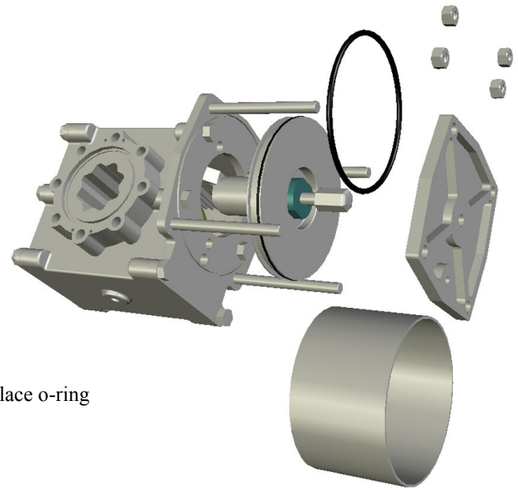
- Before working on these or any actuator, **REMOVE ALL PRESSURE**. For added safety, DISCONNECT THE PRESSURE LINES from the actuator. In this condition, the Q12DA and Q14DA actuators will passively remain in their last position - HOWEVER, they are unable to hold the valve in this position should other forces, such as flow induced dynamics, act on the valve. THEREFORE **IT IS ADVISED THAT THE VALVE BE ISOLATED** in a manner to prevent such other forces.
- Replacement of the piston o-rings may be performed with the actuator remaining on the valve and with all accessories remaining on the actuator.
- Also it is not necessary to remove or re-adjust the travel stops. Therefore allow the travel stop covers to remain in place.
- Q14DA - **With all pressure and supply pressure piping disconnected from the actuator, and the valve isolated,** remove the end cap nuts, end cap and cylinder from one end of the actuator. Remove and replace the piston o-ring. Inspect the cylinder bore for damage (polish with scotchbrite pad or replace if necessary), apply lubricant to the new o-ring and install it in the piston groove. Clean and apply lubricant to the cylinder bore. Replace the cylinder, end cap and nits. Tighten nuts in diagonal sequence to a final torque of 25 foot pounds. Repeat on second cylinder.
- Q12DA - Same as Q14DA except only one cylinder



Remove nuts and end cap



Remove cylinder



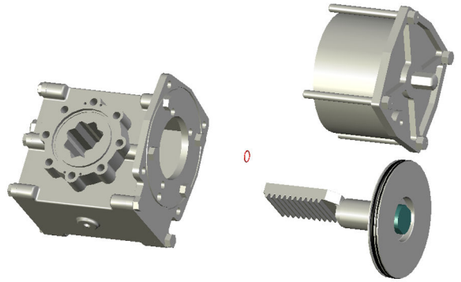
Replace o-ring

MAINTENANCE con't.

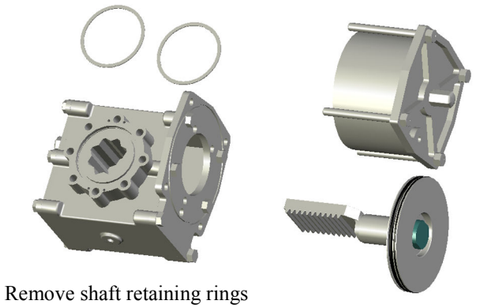
Q12DA AND Q14DA ACTUATORS
Typical for Q07 thru Q14 sizes

Shaft o-ring replacement

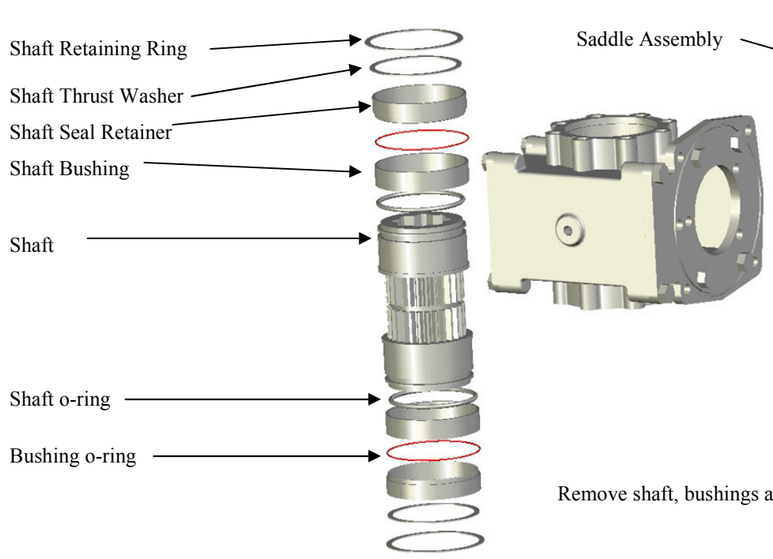
- Before working on these or any actuator, **REMOVE ALL PRESSURE**. For added safety, DISCONNECT THE PRESSURE LINES from the actuator. In order to replace the shaft seals, the actuator must be removed from the valve and will therefore be unable to hold the valve in position should forces, such as flow induced dynamics, act on the valve. THEREFORE **IT IS ADVISED THAT THE VALVE BE ISOLATED** in a manner to prevent such other forces.
- With the actuator removed from the valve:
  - **Disassembly**
    - It is not necessary to remove or re-adjust the travel stops. Therefore allow the travel stop covers to remain in place in the end caps.
    - Q12DA and Q14DA - **With all pressure and supply pressure piping disconnected from the actuator,** remove the end cap nuts, end cap and cylinder(s) from the actuator.
    - Remove shaft retaining rings
    - Remove shaft and bushings as well as saddle assembly



Remove nuts, end cap and cylinder



Remove shaft retaining rings



Remove shaft, bushings and saddle assembly