How to Repair a 100K N/O Pneumatic Valve Using Kit #14324

These instructions will demonstrate how to replace components of a KMT style Pneumatic 100K Normally Open Valve with kit #14324

Written By: Adam Dumas

INTRODUCTION

Hypertherm is in no way affiliated with the above mentioned manufacturer

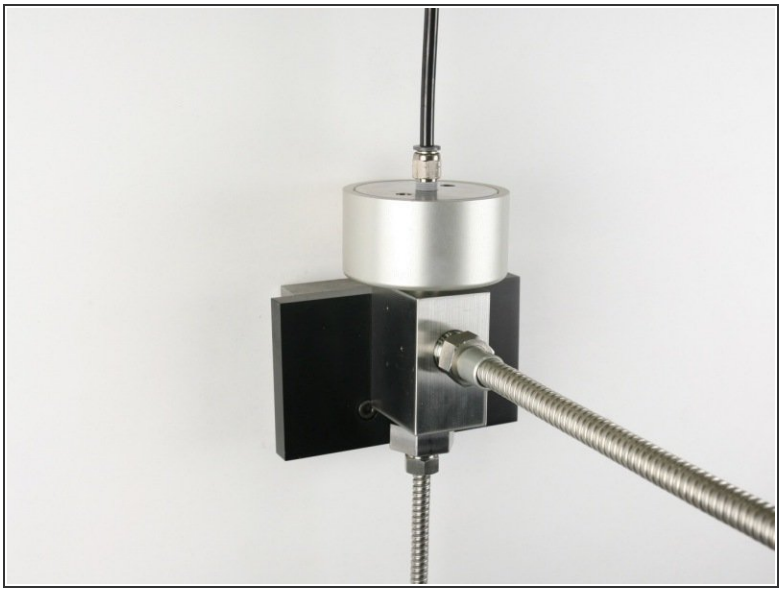
TOOLS:

- 1" wrench (1)
- 5/8" wrench (1)

PARTS:

- Pneumatic Valve Repair Kit #14324 (1)
- Seat #11099 (included in kit) (1)
- Bronze Back-up Ring #14314 (included in kit) (1)
- Valve Stem #14310 (included in kit) (1)
- High-Pressure Seal Assembly #14322 (included in kit) (1)
- High-Vacuum Grease #11447 (included in kit) (1)
- Actuator #13243 (1)
- Valve Body #11320 (1)
- High-Pressure Gland Fitting #12347 (1)
- Isopropyl Alcohol (1)
- Blue Goop #11111 (1)
- Lithium Grease (1)

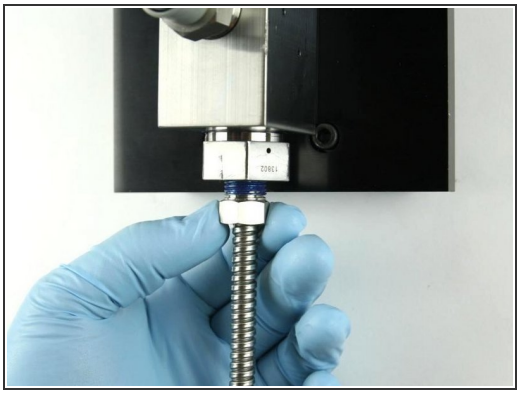
Step 1 — How to Repair a 100K N/O Pneumatic Valve Using Kit #14324

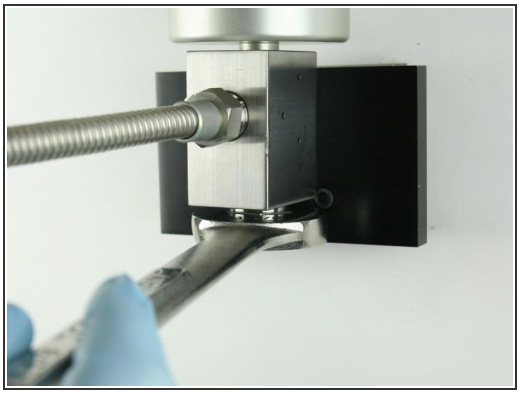


⚠ Always make sure all high-pressure water has been removed from the valve by the following machine manufacturers' safety instructions. Failure to do so can cause severe injury or death.

- Turn OFF all water pressure to the on/off valve.
- The valve components can be replaced with the valve body mounted to pump.

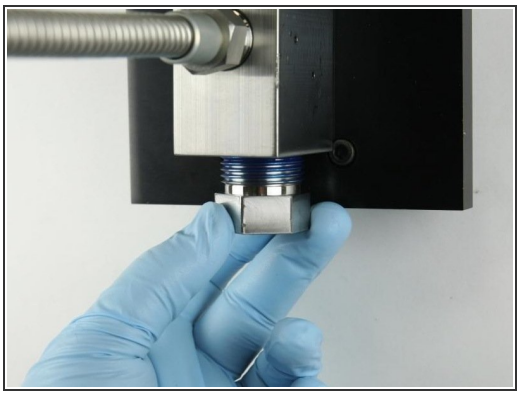
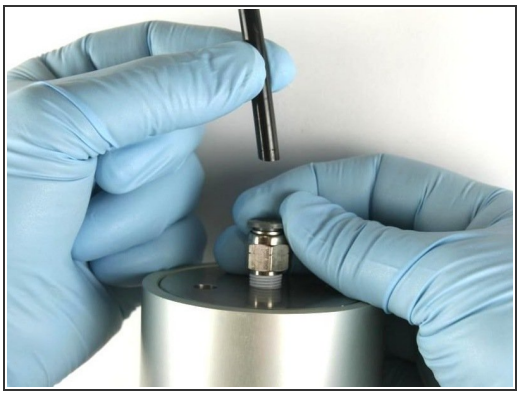
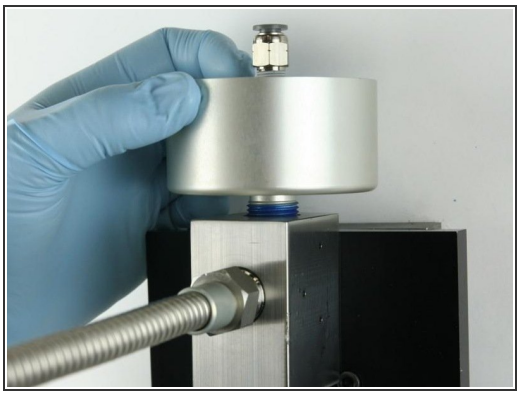
Step 2





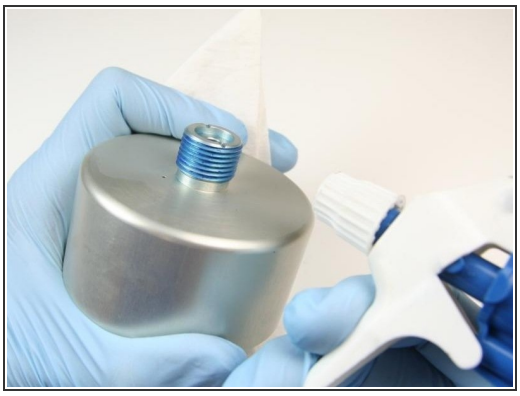
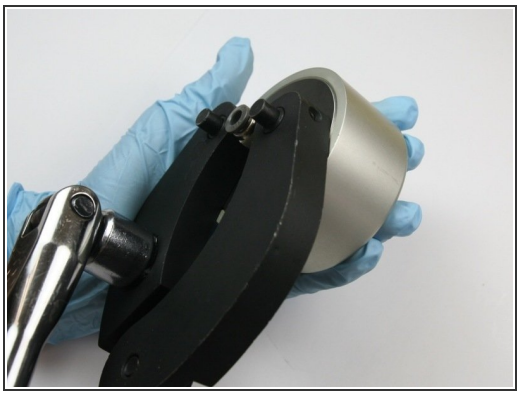
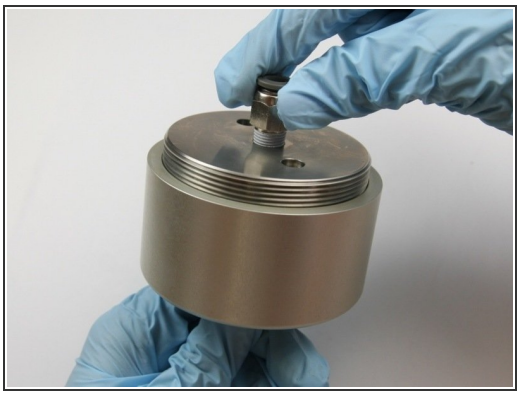
- Loosen the high-pressure tubing from the high-pressure gland fitting using a 5/8" and 1" wrench.
- Unthread the high-pressure tubing from the high-pressure gland fitting.
- Loosen the high-pressure gland fitting using a 1" wrench.

Step 3

- Unthread the high-pressure gland fitting from the valve body.
- Disconnect the air line from the actuator.
- Unthread the actuator from the valve body.

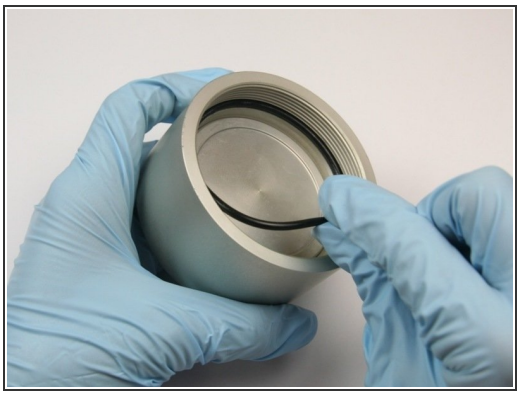
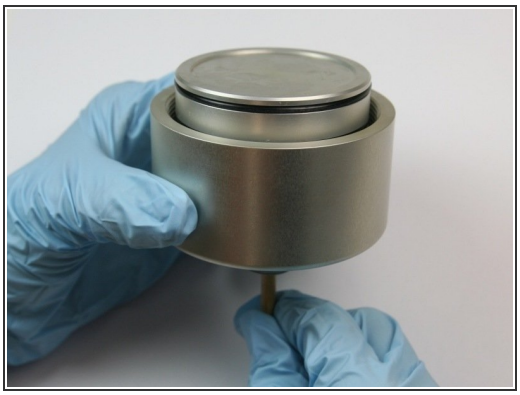
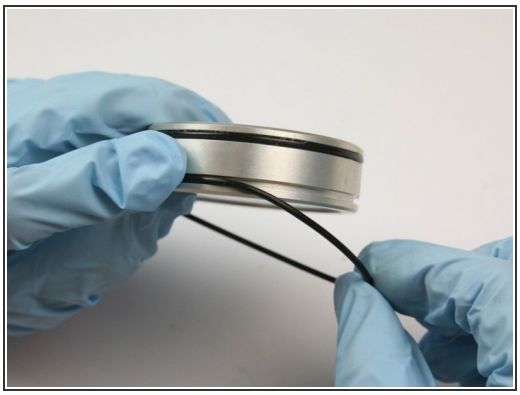
Step 4

- Clean the actuator threads of all Blue Goop with isopropyl alcohol or a similar cleaning agent.
- Loosen the cap to the actuator with a spanner wrench and a 3/4" breaker bar.

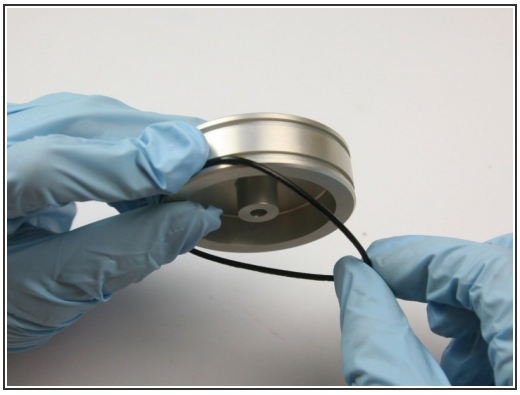
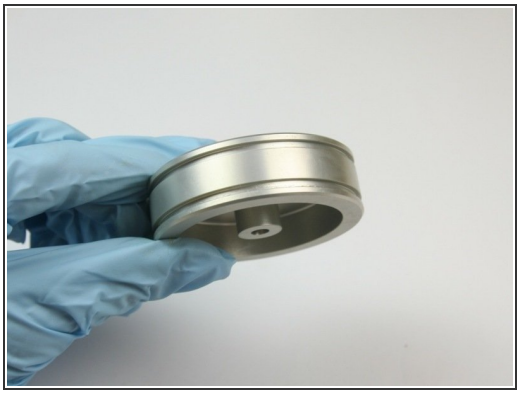
  ⓘ Put the actuator housing in the soft-jaw vise if necessary.
- Unthread the cap from the actuator.

Step 5

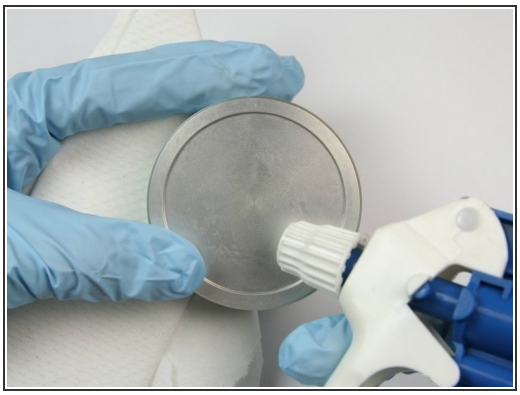
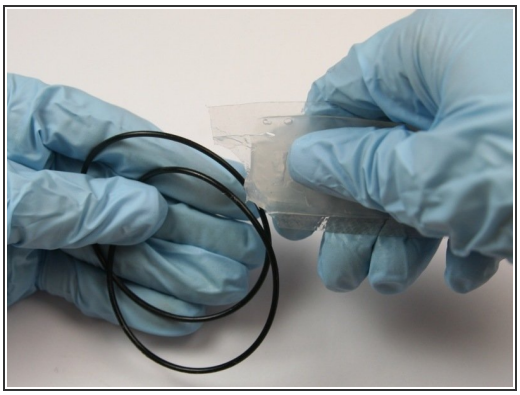
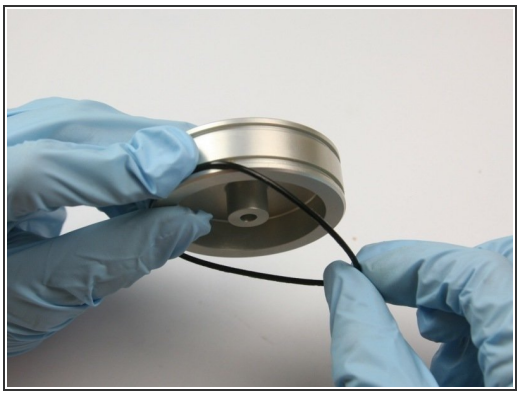
- Remove the largest O-ring from the actuator housing.
- Push the dowel (included in the kit) through the hole of the threaded nipple onto the actuator housing to remove the piston.
- Remove the first O-ring from the piston groove.

Step 6

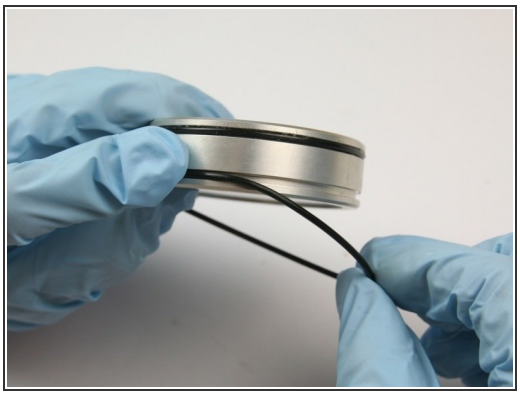
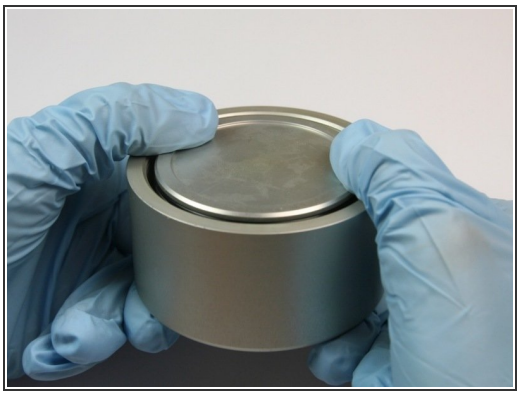
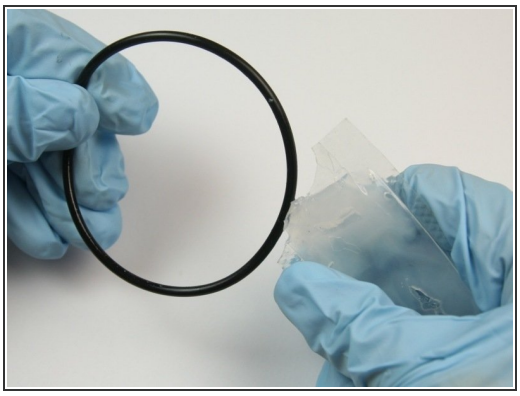

- Remove the second O-ring from the piston groove.
- Visually inspect the actuator piston for cracks/wear.
- Clean the actuator cap of all lithium grease.

Step 7

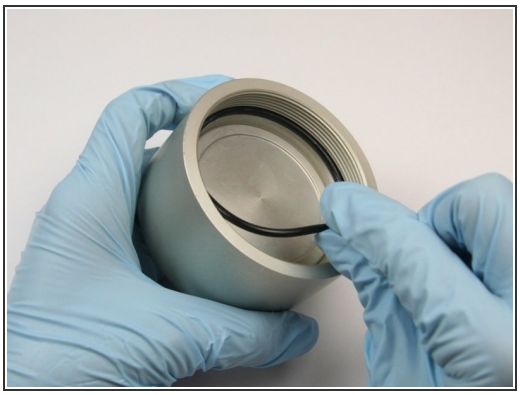
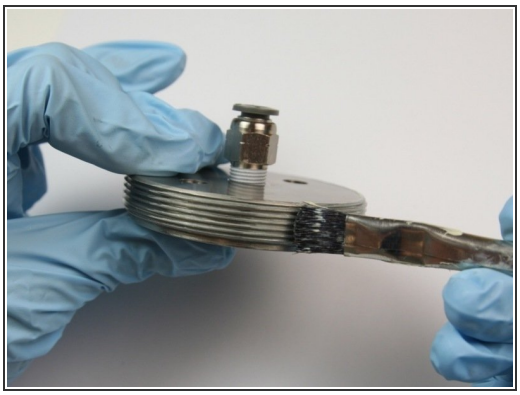
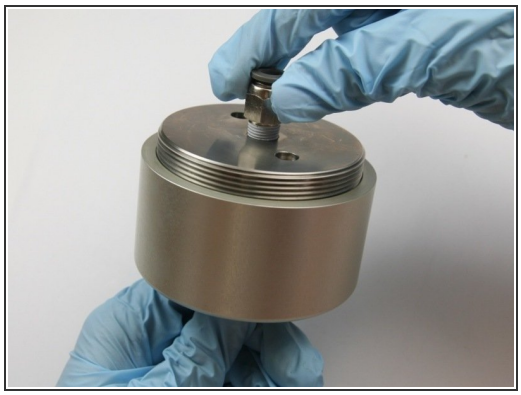
- Clean the piston of all high vacuum lubricant.
- Apply high vacuum grease to the two smallest O-rings from the kit.
- Put one O-ring from the kit onto the groove of the piston.

Step 8

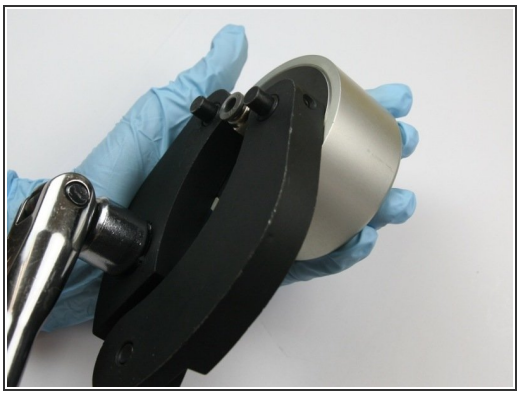
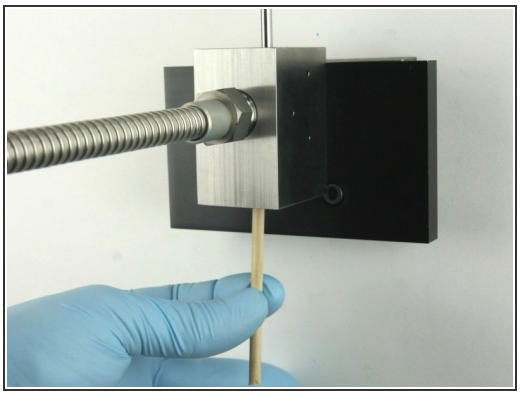
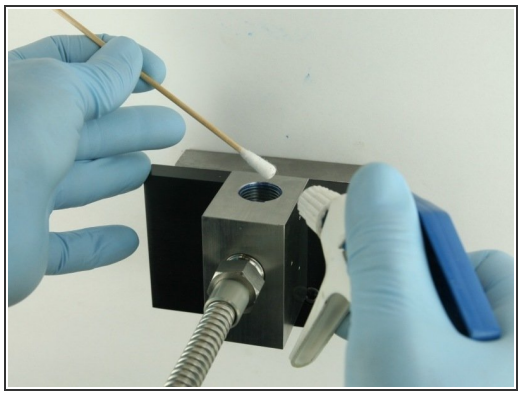
- Put the other O-ring from the kit onto the second groove of the piston.
- Push the piston into the actuator housing with the flat side of the piston up until it bottoms out.
- Apply high vacuum grease to the biggest O-ring from the kit.

Step 9

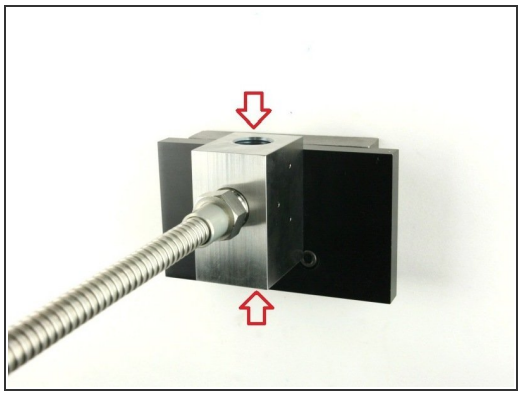
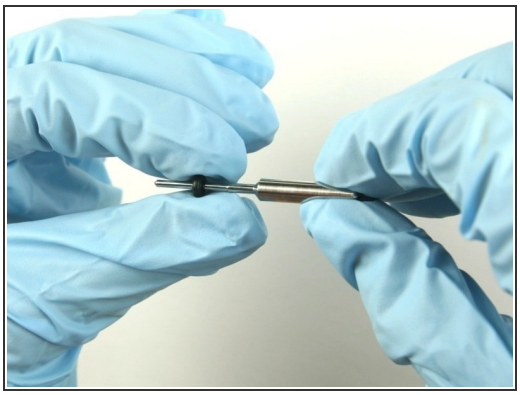
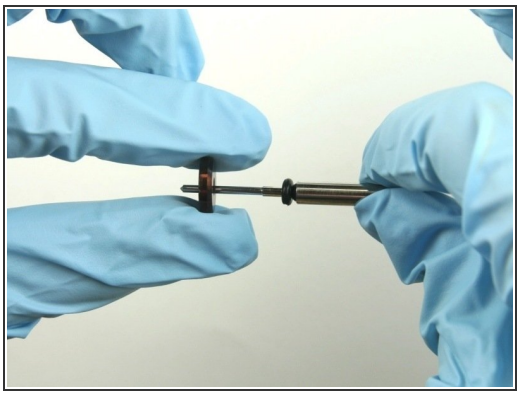
- Put the O-ring into the groove on the inside of the actuator housing.
- Apply lithium grease to the threads of the actuator cap.
- Thread the actuator cap into the actuator housing.

Step 10

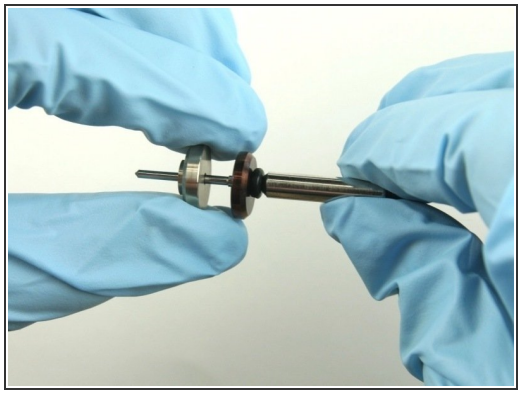
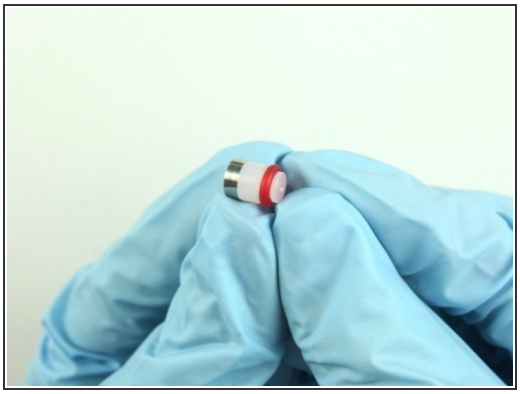
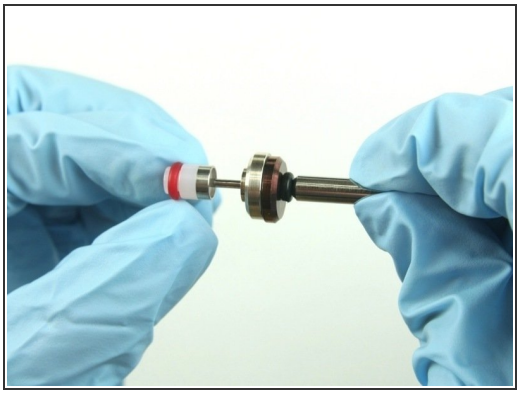
- Tighten the actuator cap to the actuator housing with a spanner wrench and a 3/4" breaker bar.
- Remove all the valve components from the valve body with the included dowel.
- Thoroughly clean the interior of the valve body with the isopropyl alcohol or a similar cleaning agent before replacing the components.

Step 11

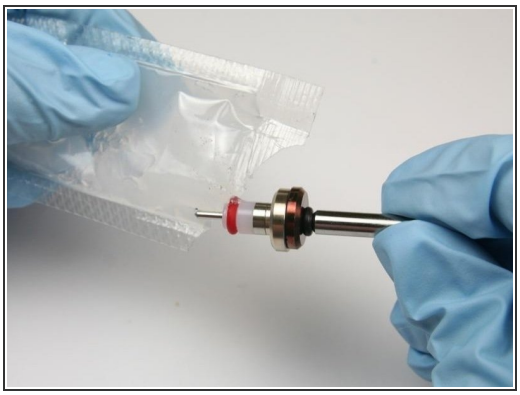
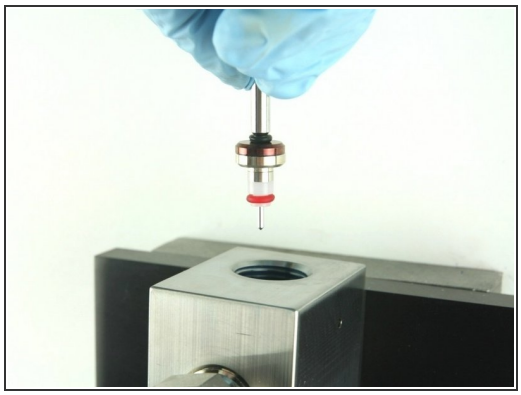
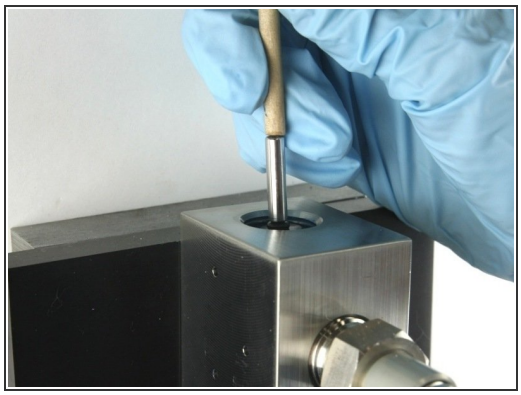
- Visually inspect the top and bottom of the valve bore for cracks/blemishes. If excessive wear or cracks are visible, replace the valve body.
- Slide the O-ring on to the point of the valve stem.
- Slide the stainless steel back-up ring on to the valve stem point with the chamfer side towards the O-ring.

Step 12

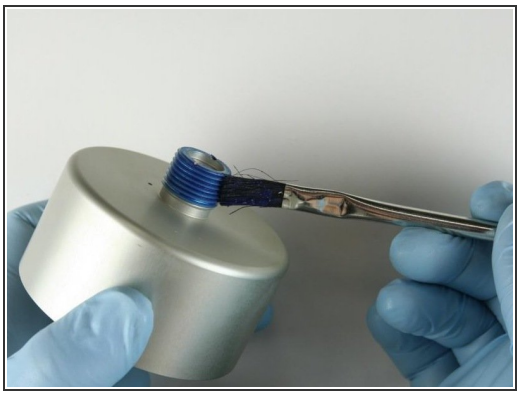
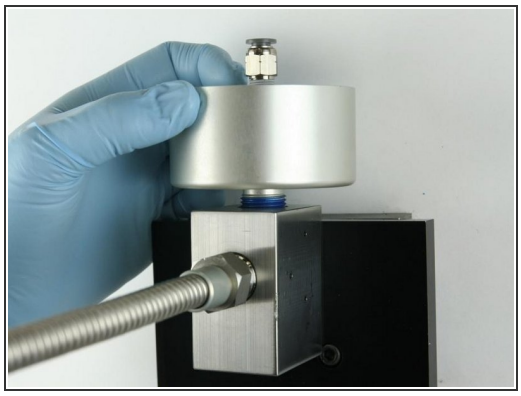
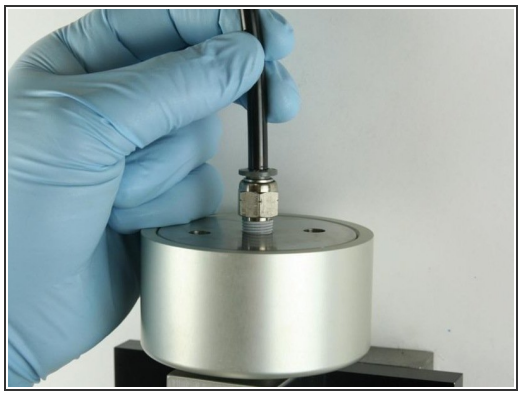
- Slide the bronze back-up ring on to the valve stem point with the chamfer side away from stainless steel back-up ring.
- Put the hoop on the high-pressure seal with the sharp edge of the hoop towards the seal.
- Slide the hoop and the high-pressure valve seal on to the valve stem with the hoop towards the brass back-up ring.

Step 13

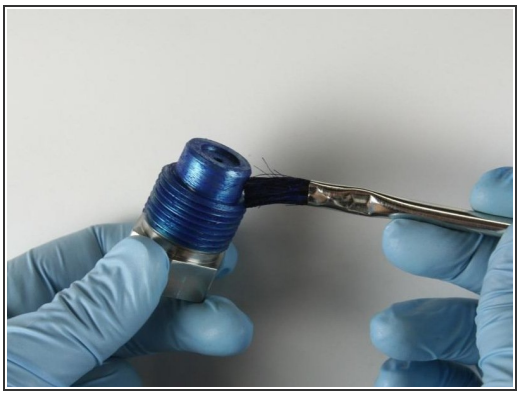
- Apply high vacuum grease to the outside diameter of the high-pressure valve seal.
- Put the point of the valve stem into the valve body.
- Push the valve stem with the dowel until it bottoms out.

Step 14

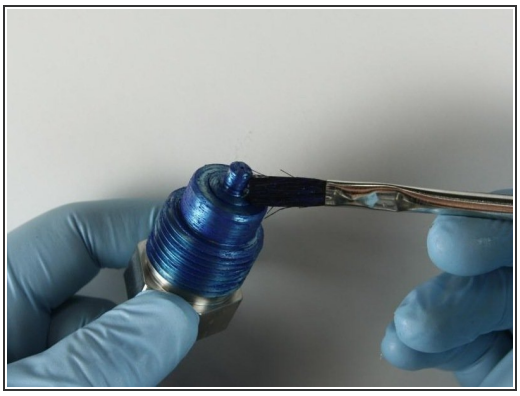
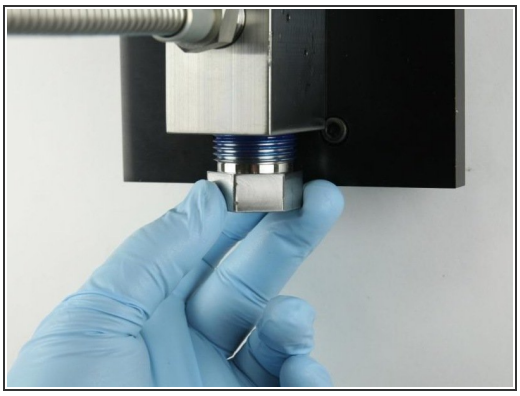
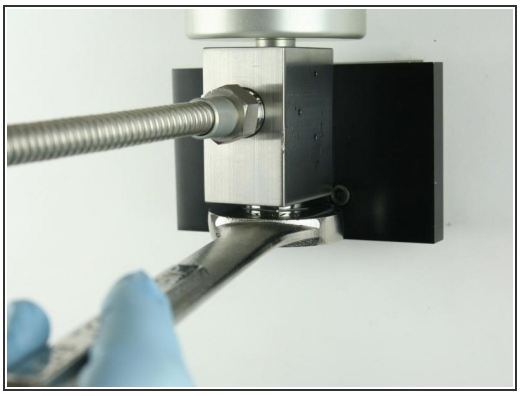
- Apply Blue Goop to the actuator threads.
- Thread (hand tighten) the actuator into the top of the valve body until it bottoms out.
- Reconnect the air tube to the actuator.

Step 15

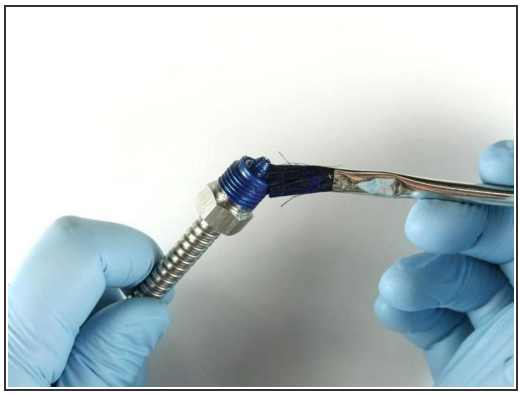
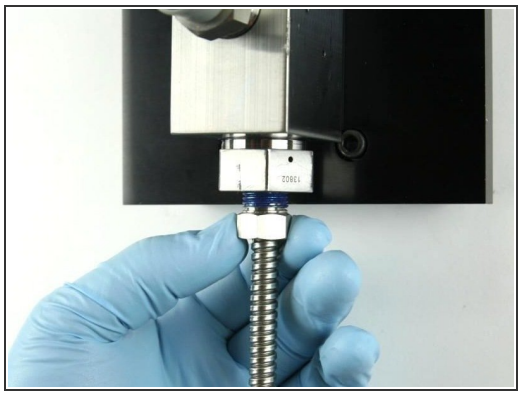

- Clean the high-pressure gland fitting of all Blue Goop.
- Reapply Blue Goop to the threads and to the top of the high-pressure gland fitting.
- Put the seat into the top of the high-pressure gland fitting with the flat side towards the gland fitting.

Step 16

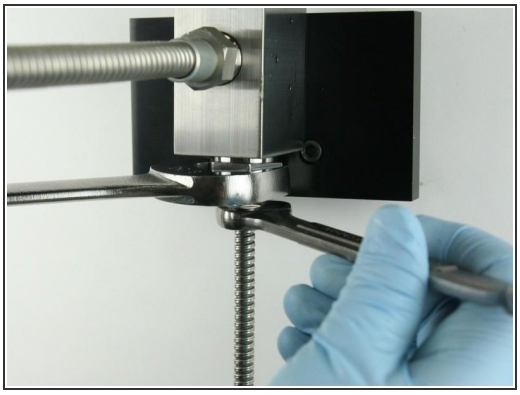
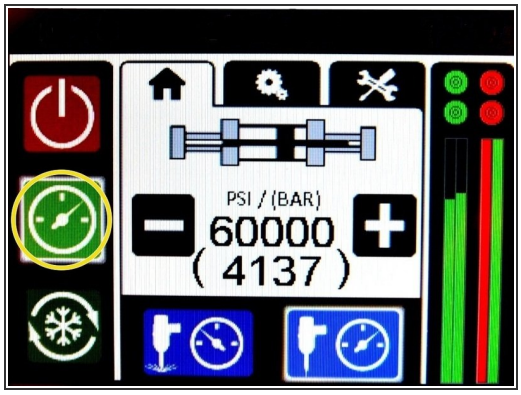
- Apply Blue Goop to the top of the seat.
- Thread the high-pressure gland fitting into the bottom of the valve body.
- Tighten the high-pressure gland fitting using a 1-1/8" wrench.

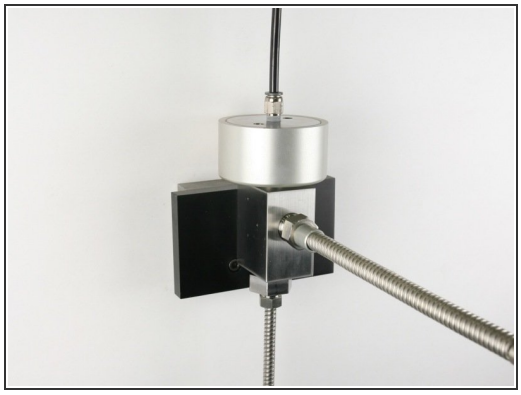
Step 17

- Clean the high-pressure tubing threads and cone of all Blue Goop with isopropyl alcohol or a similar cleaning agent.
- Reapply Blue Goop to the high pressure tubing threads and cone.
- Thread in the high-pressure tubing to the bottom of the high-pressure gland fitting.

Step 18



- Tighten the high-pressure tubing to the high-pressure gland fitting using a 5/8" and 1" wrench.
- Apply water pressure to the valve assembly to verify there are no leaks.
- Re-install the cutting head and continue the cutting process.