CLEVELAND
EQUIPMENT & MACHINERY COMPANY

SGP-60-2

Fully Pneumatic Piston Filling Machine

SGP Series – Dual Head

Operation Manual

(Please read it carefully before using the machine!)

ATTENTION:

Machine must be completely torn down, cleaned, sanitized, and lubricated with H3 food grade lubricant prior to use. A recommended lubricant has been provided.

This machine requires an air compressor.
We would recommend a 20+ gallon compressor.
The air requirements for this machine are 5cfm@90psi.

Table of Contents

Chapter 1 Overview

1-1 Overview

The SGP Series Dual Head fully pneumatic filling machines are newly designed for liquid, paste, and cream filling, and its filling amount can be adjusted as required based on the specified range, featuring high stability, reliability and filling accuracy.

1-2 Features

1. All touch materials of this machine adopt 316 stainless steel, with good acid-resistance and corrosion-resistance performances.
2. The whole machine adopts stainless steel, with nice appearance.
3. You can operate it safely and easily and adjust the filling amount within the range as required with high accuracy.
4. Its reasonable layout enables you to simply disassemble it, safely operate it and easily clean it. In this way, you can conveniently maintain and repair it.
5. It features air-proof, explosion-proof and moisture-resistance.

1-3 Parameters

Item		**SGP-60-2**
Available range		Cream/Liquid/Paste
Filling range	Cream	5-60ml
	Liquid	——
Filling accuracy	Cream	±2%
	Liquid	±1%
Working air pressure		0.4-0.5MPa
Throughput		0-50 bottle/minute*2
Outline (length x width x height)		——
Net weight		——

Note: For this series of machine, the maximum liquid amount to be filled should be less than 5%-10% of the cream amount.

1-4 Working Principle

The cylinder runs in reciprocating and linear manners to drive the piston and generate suction pressure and thrust so as to soak and push materials.

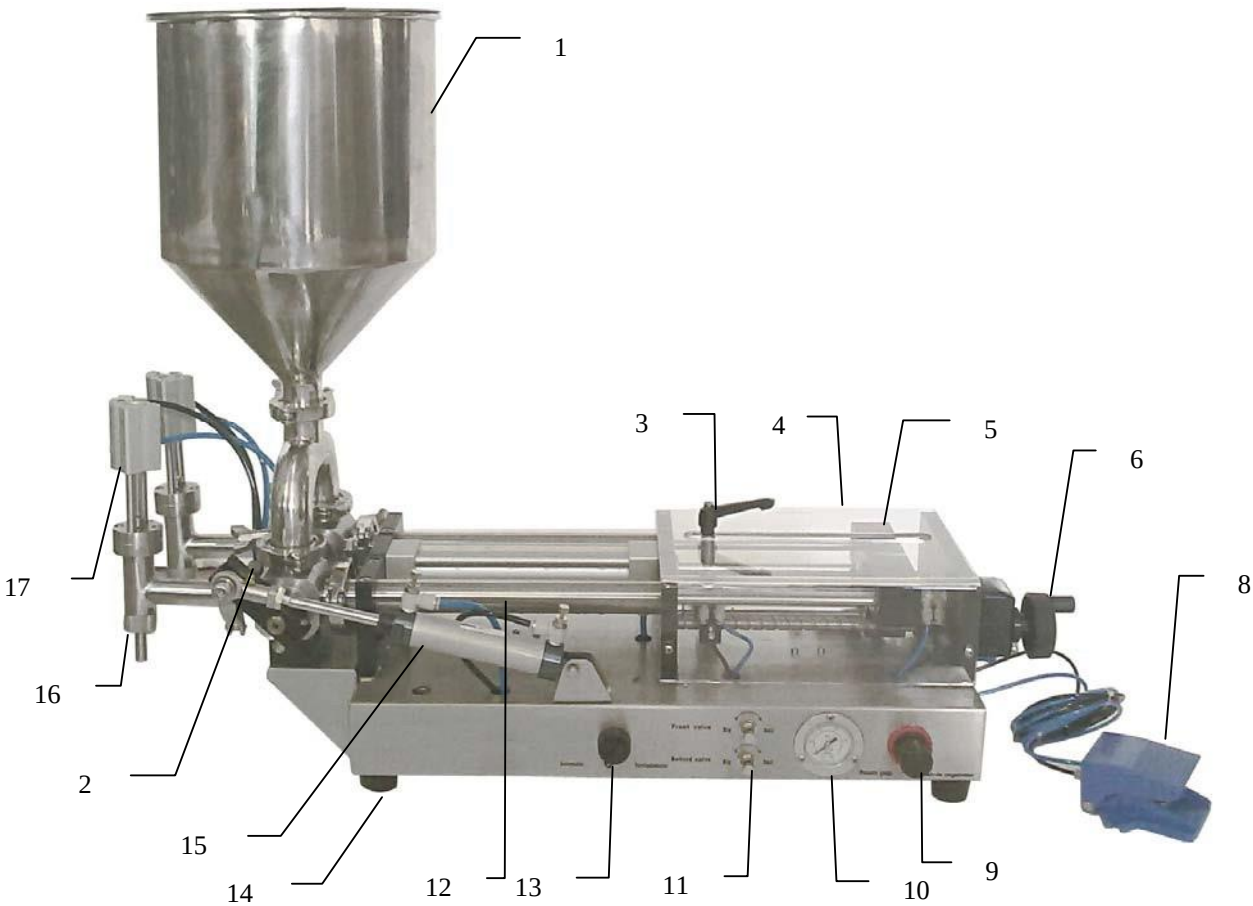
1-5 Working Process

Turn on the inlet valve, adjust the working air pressure and select the working status (automatic or semiautomatic). During the operation, the cylinder shrinkage is turned, the drip-proof thin cylinder moves upwards to open the discharge valve, the piston cylinder returns back to make the piston push materials (the speed can be adjusted by behind valve) for filling (note: air will be discharged for the first filling); after that, the drip-poof thin cylinder moves downwards to close the discharge valve to prevent dripping, the cylinder piston holds out, the piston cylinder pushes to draw materials (the speed can be adjusted by front valve) for next filling. Thus the operation is accomplished.

1-6 Available Range

It is ideal for special industries such as food, daily chemistry, pesticide and medication.

1-7 Introduction to Parts and Specifications



1. Hopper
2. Piston cylinder
3. Adjustable handle
4. Protective covering
5. Active slide
6. Rotating hand wheel
8. Inlet pressure regulation knob
9. Gas pressure meter
10. Behind valve
11. Front valve
12. Filter
13. Automatic/Semiautomatic switchover switch
14. Under-chassis
15. Turning cylinder
16. Discharge valve
17. Drip-proof thin cylinder

Chapter 2 Operation Instruction

2-1 Preparation

1. Precautions

   (1) The inlet air pressure should be 0.5-0.8Mpa and the working air pressure should be 0.4-0.5 Mpa.

   (2) Never put your hands to the protective covering.

2. Filling amount debugging

   Adjust the filling amount based on materials to be filled as follows:

   (1) Put materials to be filled into the container.

   (2) Prepare measuring cup, electronic balance and check whether they are accurate.

   (3) Turn the hand wheel to show the required filling amount value on the position display.

   (4) Switch the semiautomatic level, use the foot switch to ocntrol materials to be filled, measure the obtained materials to see whether it is in the accuracy range. If not, go on with the following steps.

      A First loose the adjustable handle on the computation adjustment block.

      B Loose the fixed screw of the position display near to the handle and turn the handle clockwise or counterclockwise.

      C Repeat step 4, use a measuring cup or bottle to measure the materials and adjust the handwheel until the obtained result is in the accuracy range.

      D Finally fasten the adjustable handle on the adjustment block and fasten the fixed screw of the display to avoid parts shift and influence the filling accuracy.

2-2 Operation Method

(1) Connect the gas source and turn on the switch.

(2) Check whether the air pressure meter is in the specified range. Otherwise, draw the air pressure knob upwards, rotate the pressure regulator until the pressure is in the specified range (0.4-0.5Mpa) and then stop turning the knob.

(3) Use the functional switching switch to get the semiautomatic level so as to switch to the manual status and control the operation through foot switch.

(4) During the adjustment, you can loose the adjustable handle on the adjustment block, rotate the handwheel, read the value on the position display and fasten the handle.

(5) Adjust the front valve (for adjusting drawing speed) and behind valve (for adjusting filling speed) as shown in Figure 1 to get reasonable drawing and filling speed.

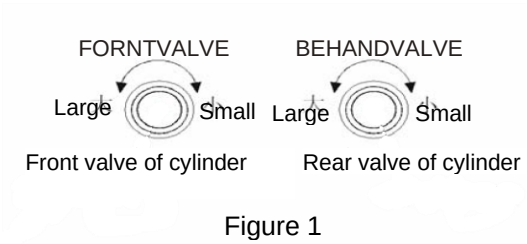


Figure 1

(6) Fill the container with the materials and prepare the container to be filled.

(7) Enter the working status and control the operature with the foot switch. Step on the foot switch once to finish each filling operation. You can adjust the automatic level if you are proficient enough to go on automatic circulating filling.

2-3 Fault Analysis and Troubleshooting

Symptom	Analysis	Troubleshooting
The machine fails	Check whether the air pressure valve is open	Open it
	Check whether the gas source is open	Open it
	Check whether the value on air pressure meter is qualified	Adjust it to 0.4-0.5MPa
	Check whether there is leakage on the pipe joint or damage on pipes	Insert the pipe again or change another one
	Check whether gas amount is adjusted to the minimum or deadlock status via the front valve and behind valve	Adjust the valves to the working status
	Check whether the unidirectional throttle on the thin cylinder is adjusted to the minimum or deadlock to make the piston be blocked	Adjust the throttle to the working status
	Check whether the machine is clean. Materials may go bad to make the machine blocked if the machine is not timely cleaned.	Clean the machine
Filling is not even	Check whether there is leakage on the joint	Fasten each joint
	Check whether there is leakage in the piston cylinder	Replace the piston lock ring
	Check whether the materials to be filled are enough	Add materials
	Check whether the drawing and pushing speed is normal	Adjust the front valve and behind valve to the stable status
	Check whether the material viscosity is even	Make materials be even

2-4 Safety Instruction

1. You can use warm water, suds, alcohol or other washing liquids to clean the machine via the reciprocating working of the machine until no remnant is discharged and then clean the machine with clean water.
2. Never use sharp tool to tough the parts surface when cleaning the internal parts and install the parts when they are dry.
3. Use lubricant for all moving parts except the cylinder.
4. Check the lock rings of all parts and replace new ones for damaged rings.
5. Check whether there is damage or leakage on the gas pipe, and if so, change a new one.
6. Fasten screws of all parts.
7. Never clean the machine surface via washing liquid to protect the air control component.
8. Never make the machine work without material for a long period.
9. Never put hard materials into the air-operated component and hopper interior.
10. Put the machine flatly in a dry place with little dust and leave enough charging and movement space.
11. Use the machine in air-current environment when volatile liquid is to be filled.
12. Body or materials should be far away from moving parts and our factory takes no responsibility for any machinery and human injury due to it.
13. Cut off the gas source when you tough the non-machine key-press control panel such as adding lubricant, changing lock ring, fastening screws and cleaning interal parts.
14. Never use organic flux to clean the machine, such as gasoline, benzene, xylene, banana oil and sodium hypochlorite.
15. Cut off the gas source when repairing the machine.

Chapter 3 Rotary Breakdown Assembly

3-1 Machine Specification – O-ring List

Machine comes standard with buna o-rings

Piston: 4x16

Rotary: 3.5x28

Fill Head: (Several Pieces)

Nozzle: 3x18

Plunger: 3x12

Shaft: 3x5.5

Upper, Outer: 2x18

Upper, Inner: 2.5x13

Rotary to chamber gasket: 1.5 inch TC (tri-clamp)

Rotary to hopper gasket: 1.5 inch TC (tri-clamp)

Rotary to fill head gasket: .75 inch TC (tri-clamp)

Rotary flange o-rings: 2x28

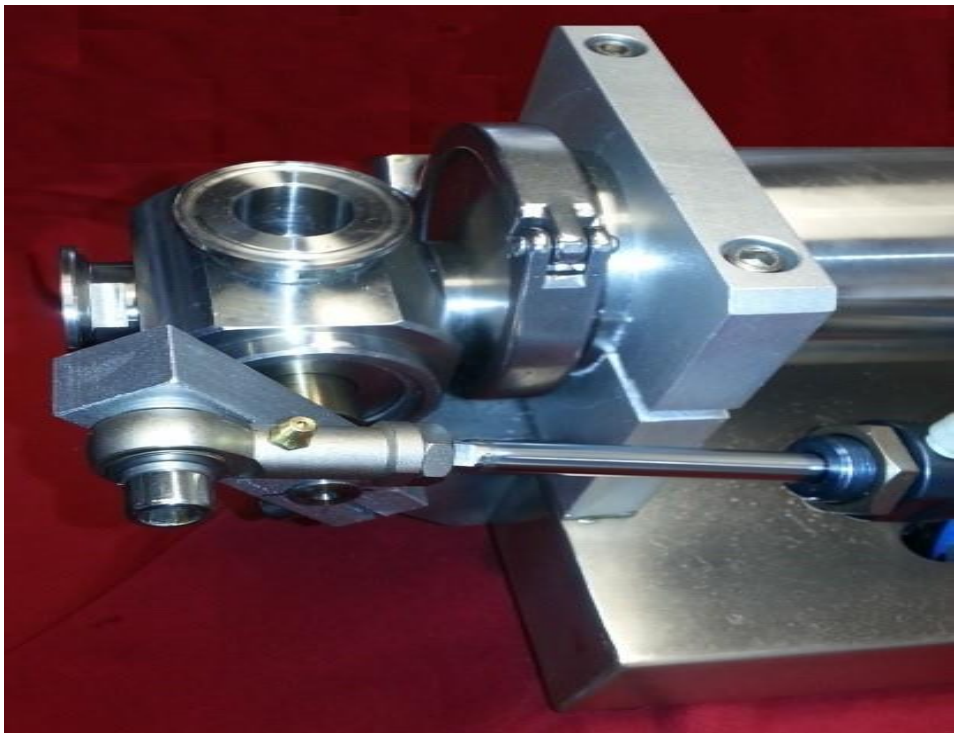
Rotary bearings: 2x28

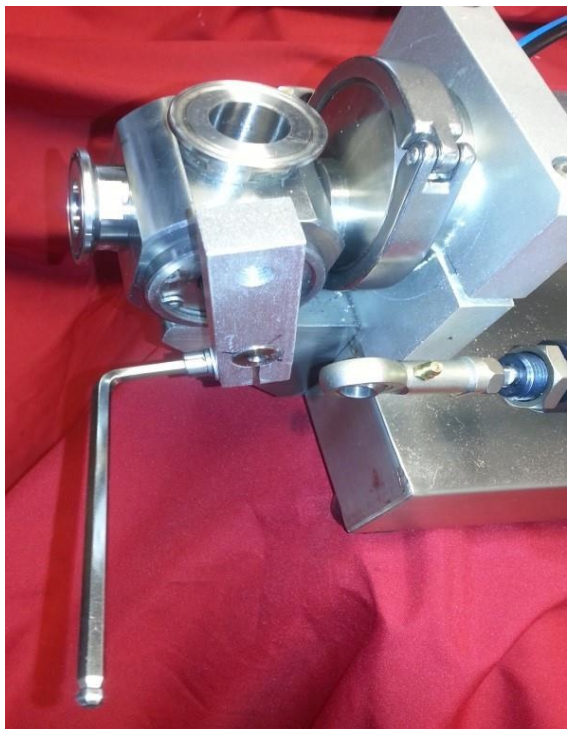
Nozzle: 10x30

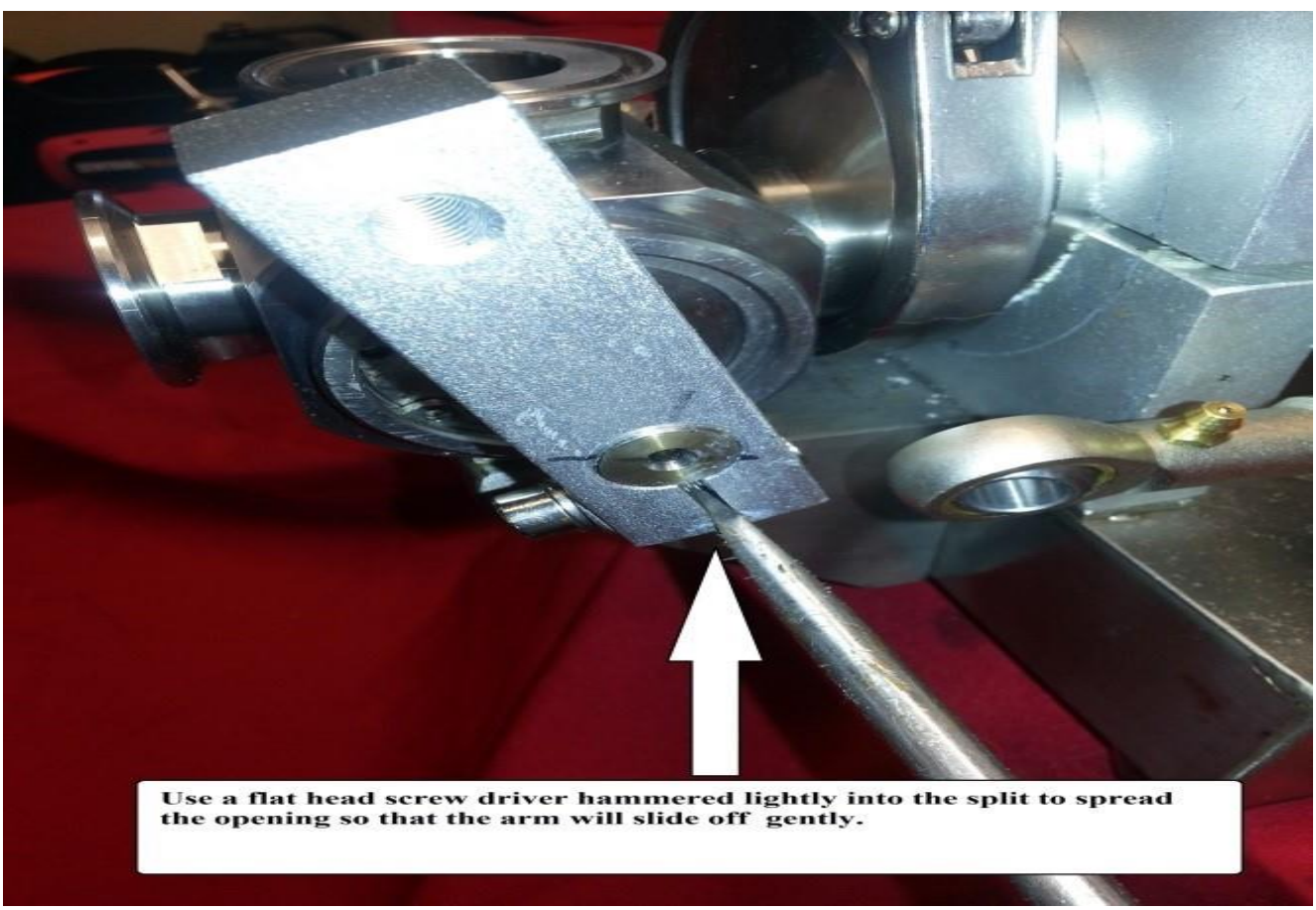
*Machine must be cleaned, sanitized, and lubricated with H3 food grade lubricant prior to use. A recommended lubricant has been provided.

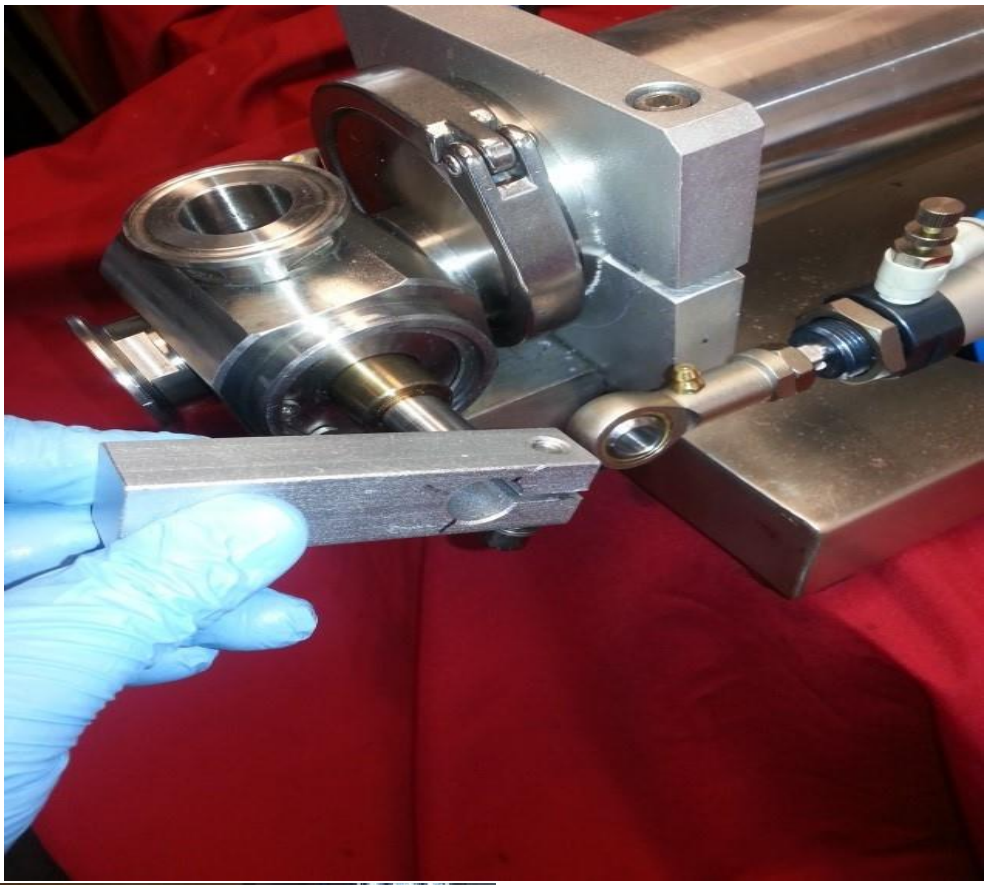
3-2 S Series Filler Breakdown

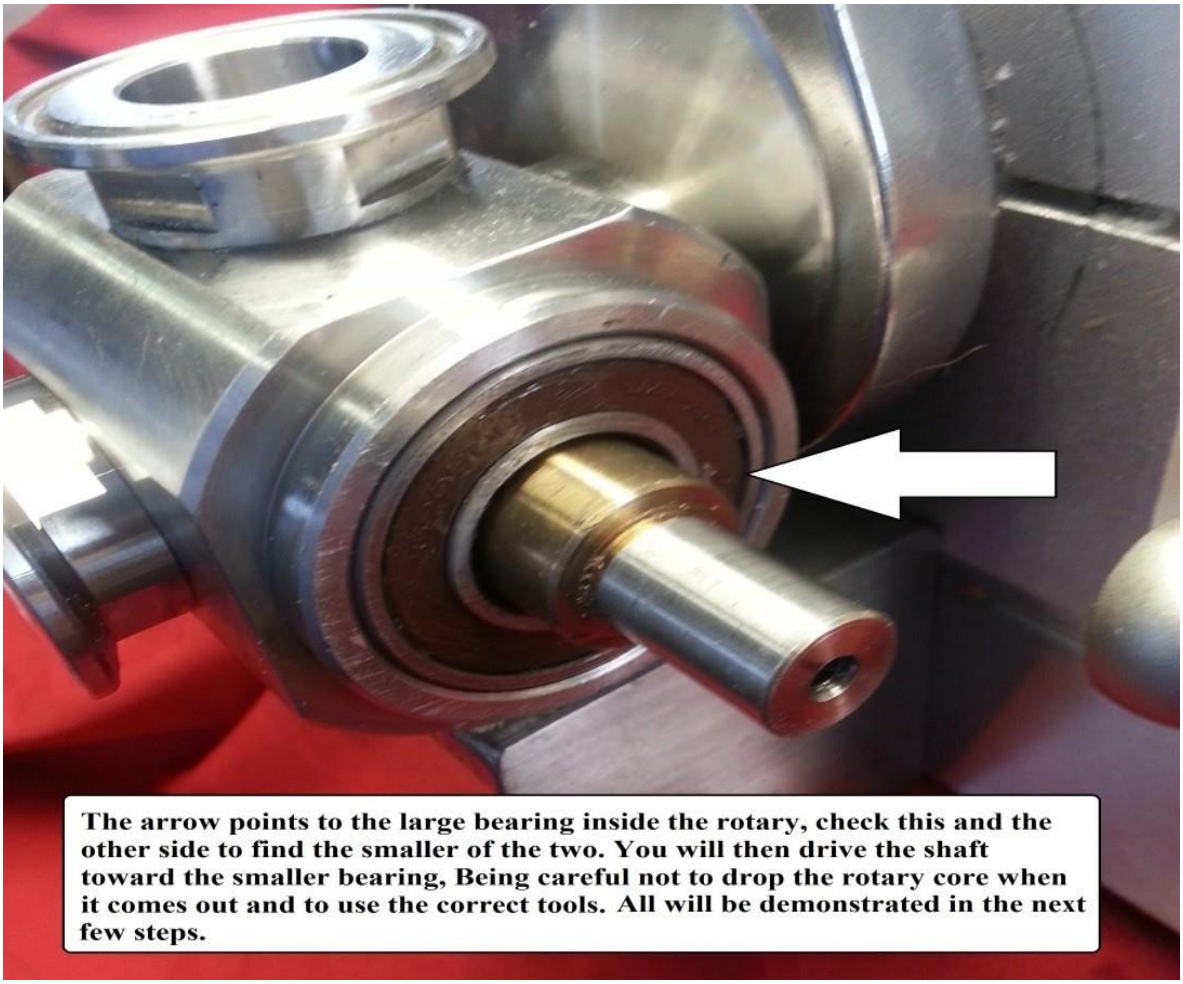
How to break down the rotary

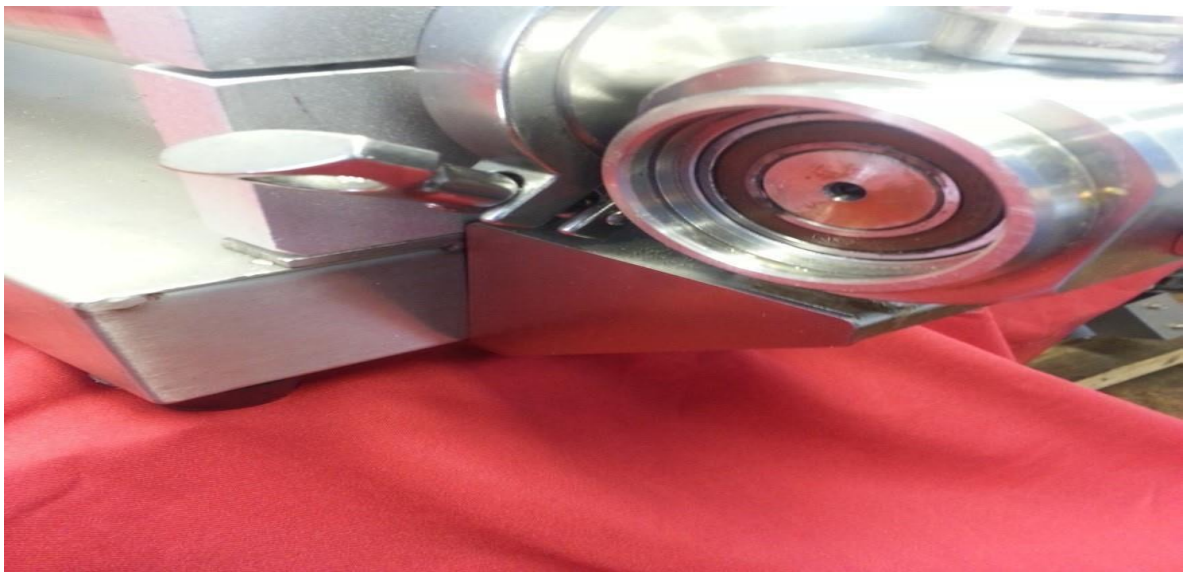




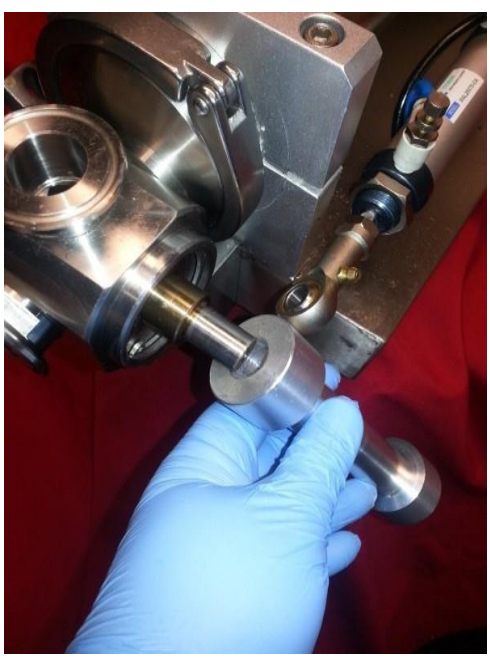

Use a flat head screw driver hammered lightly into the split to spread the opening so that the arm will slide off gently.

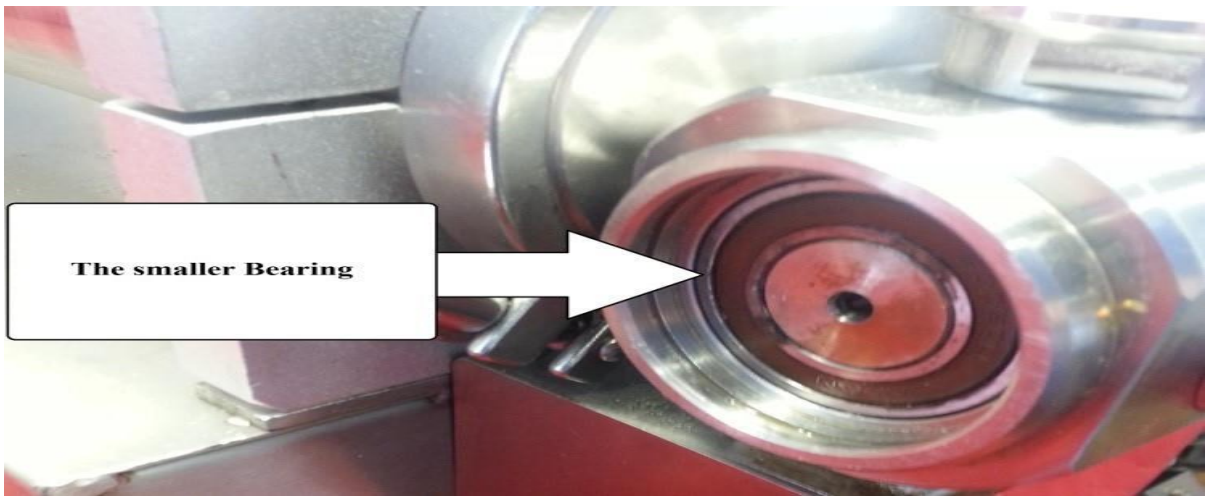


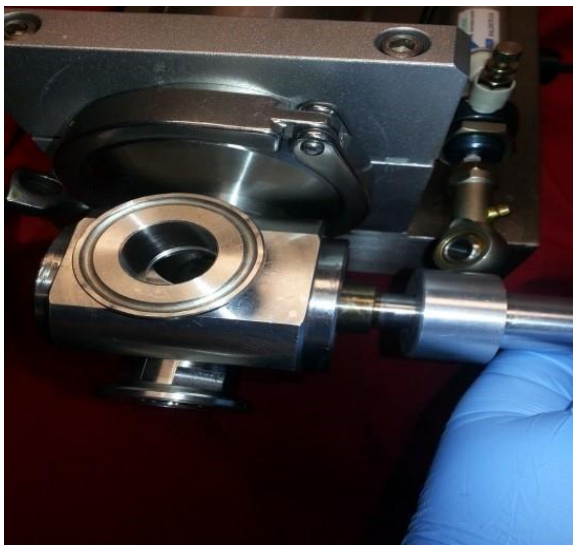

The arrow points to the large bearing inside the rotary, check this and the other side to find the smaller of the two. You will then drive the shaft toward the smaller bearing, Being careful not to drop the rotary core when it comes out and to use the correct tools. All will be demonstrated in the next few steps.

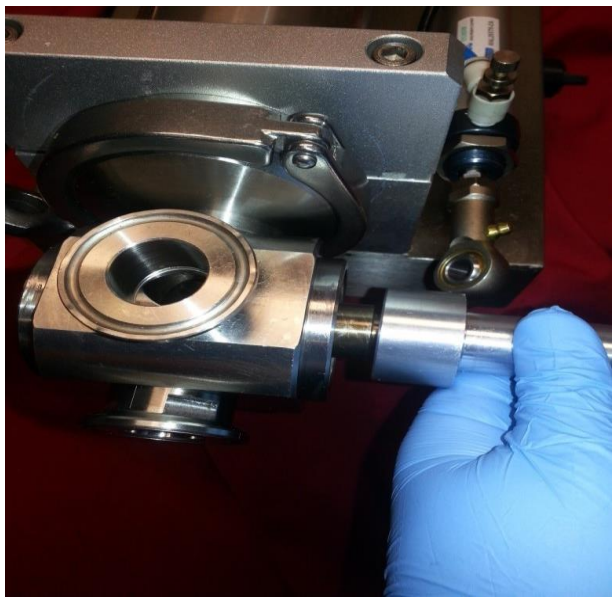


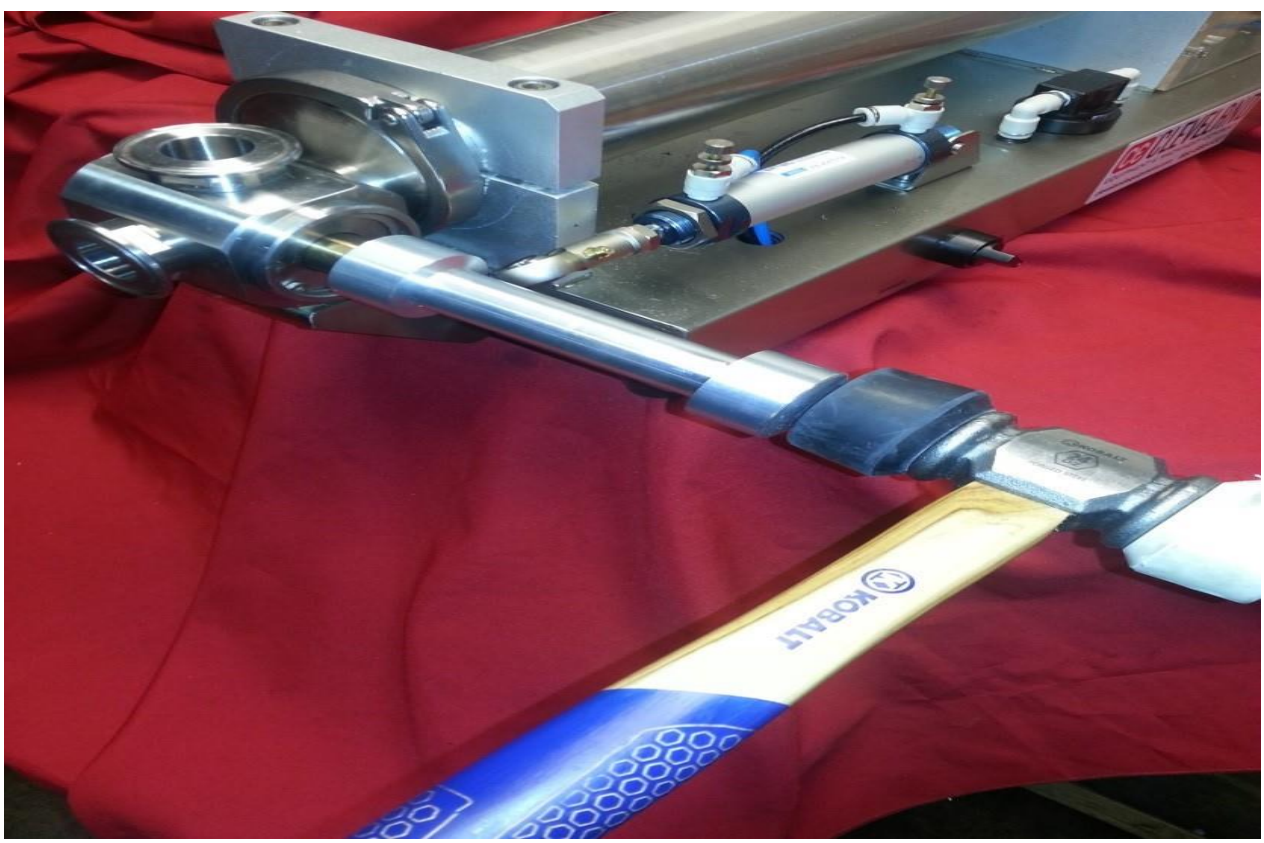

The bearing shaft driver
DO NOT hit directly on the shaft us this tool




The smaller Bearing



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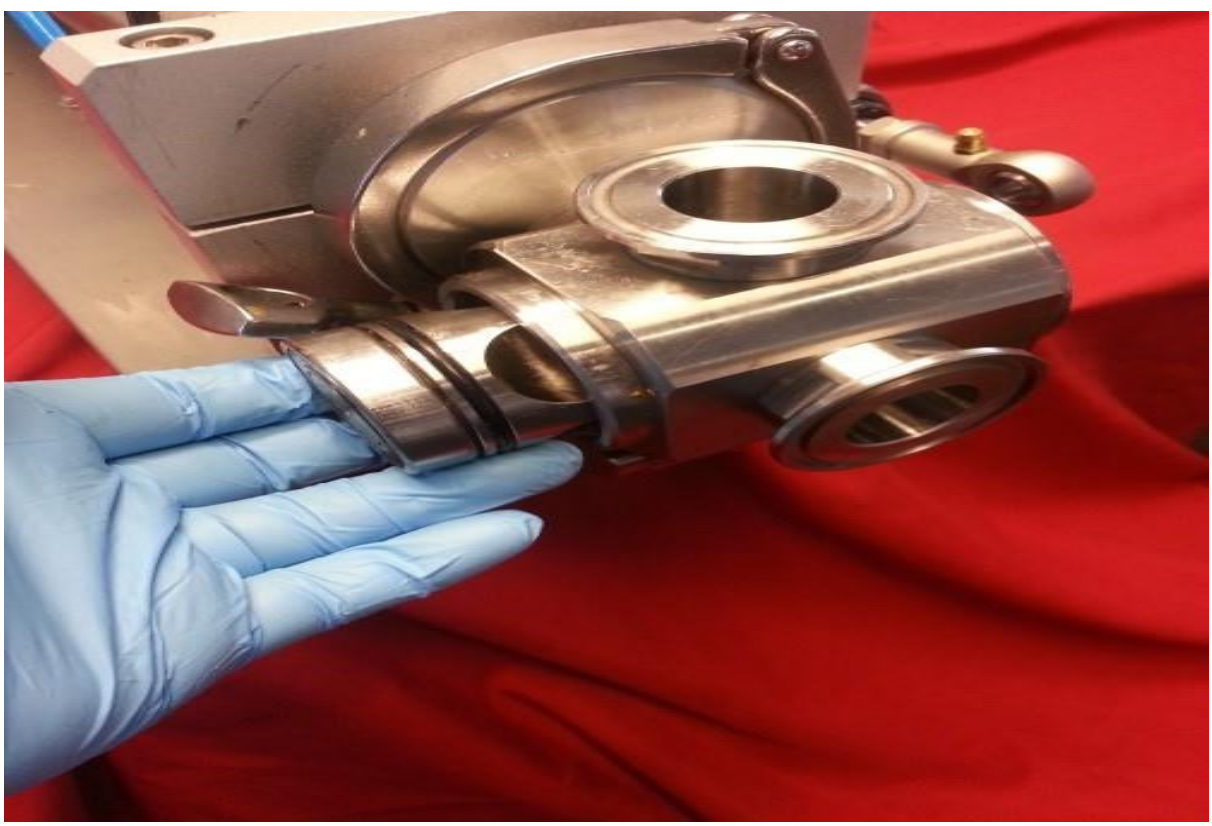
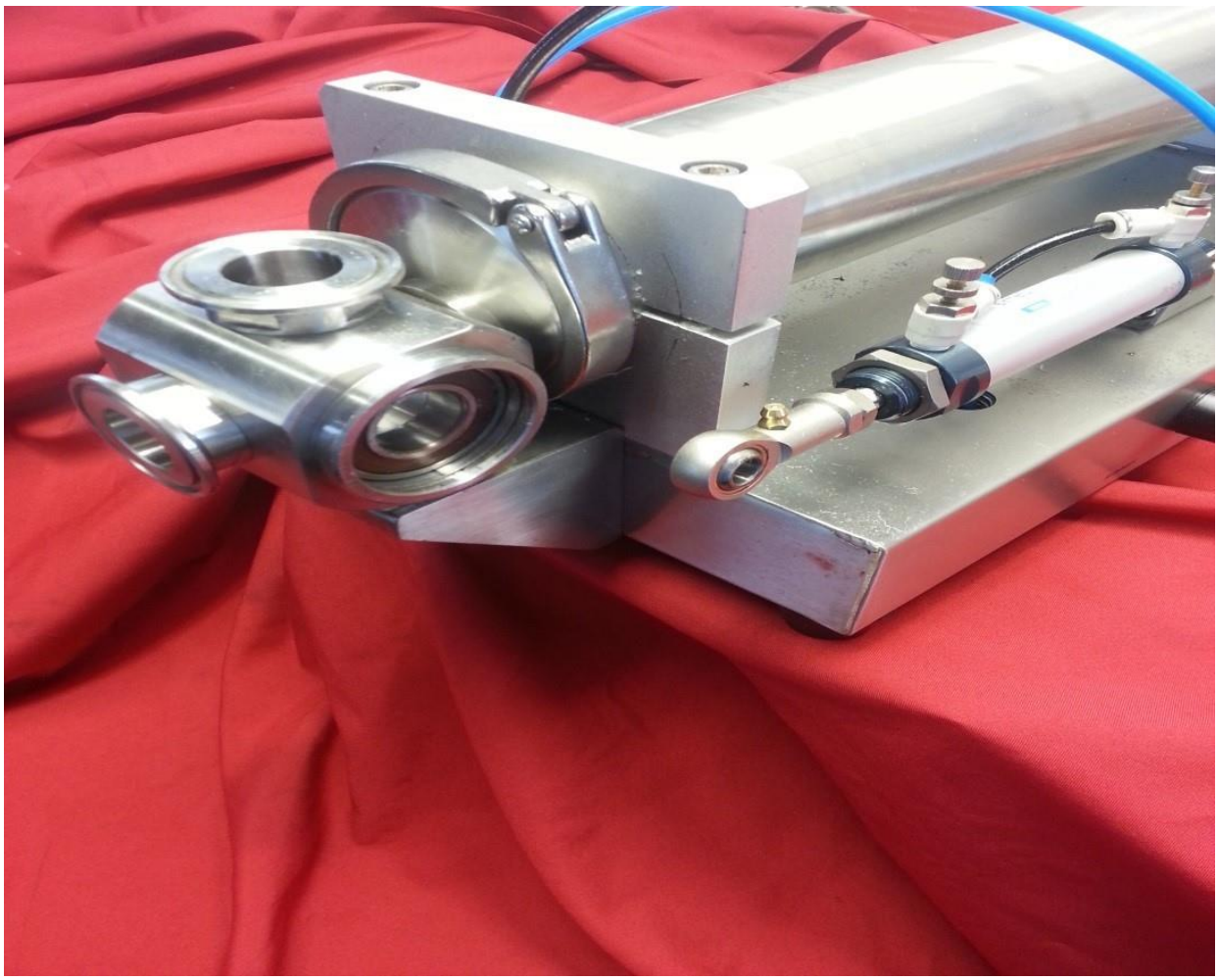
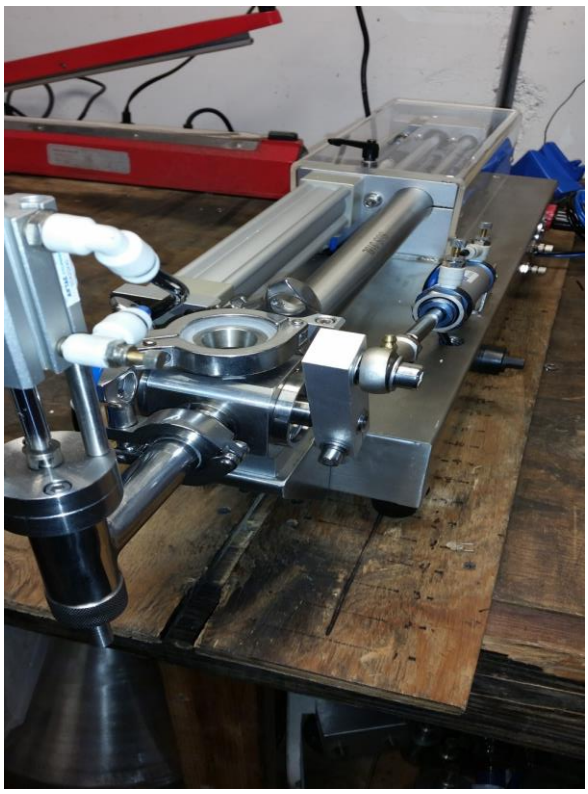
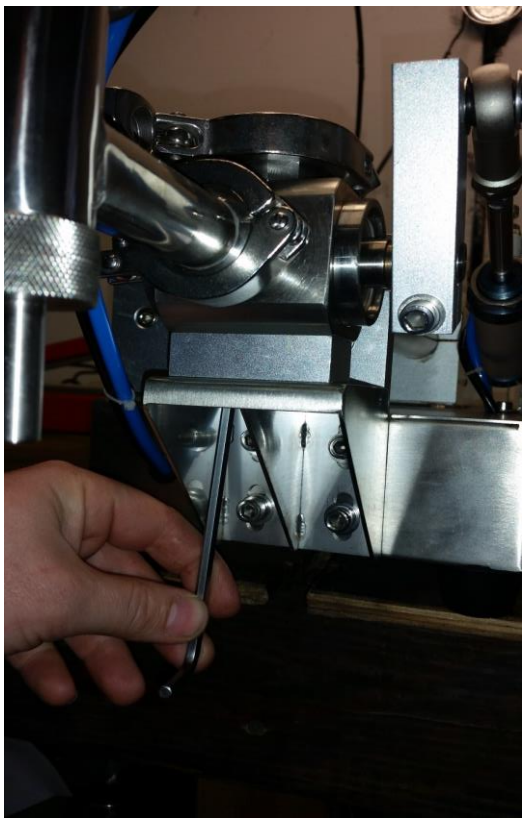


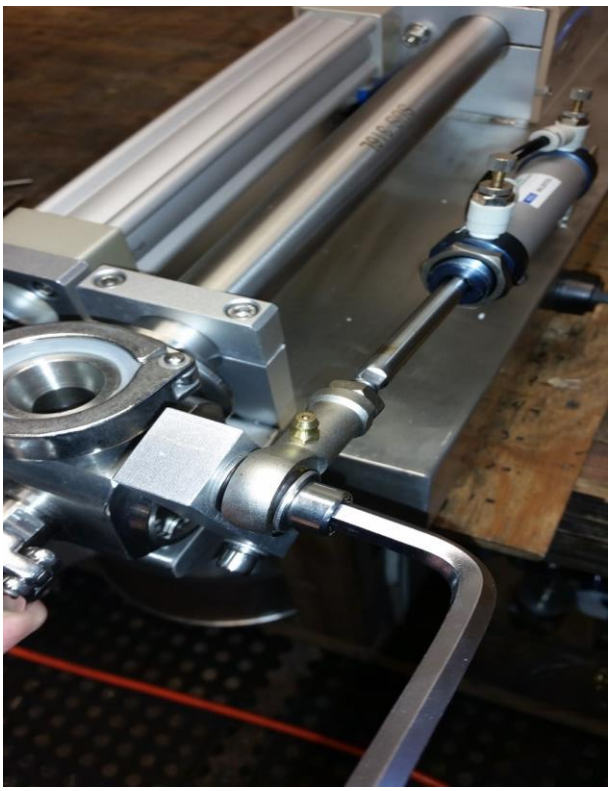


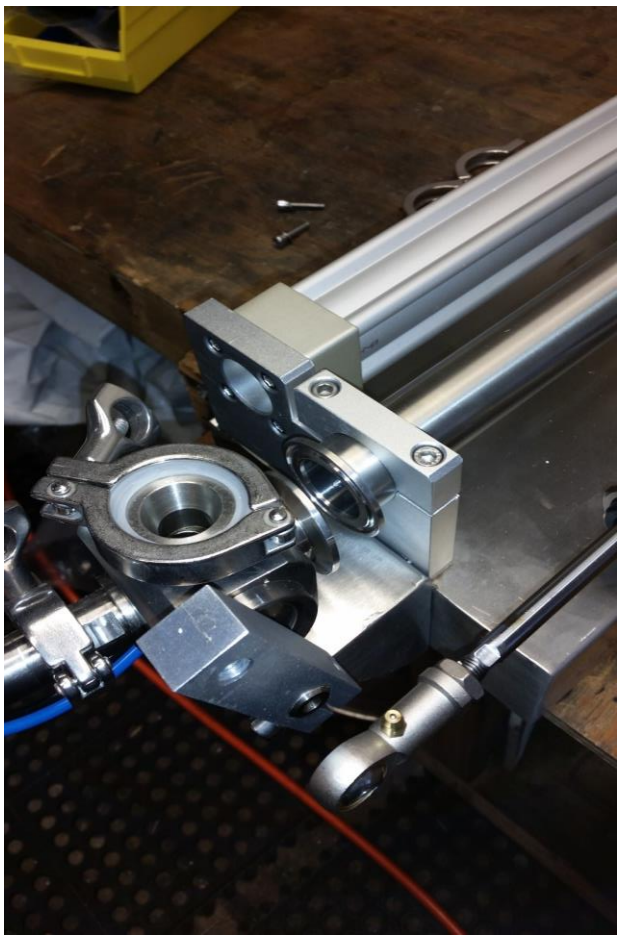
Cylinder removal and piston check

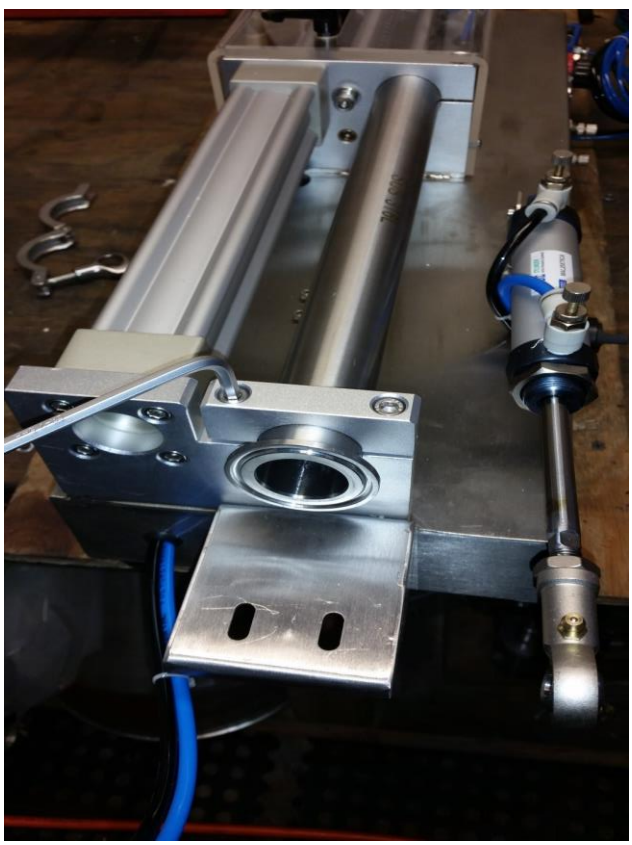
to put the cylinder back together please reverse these steps

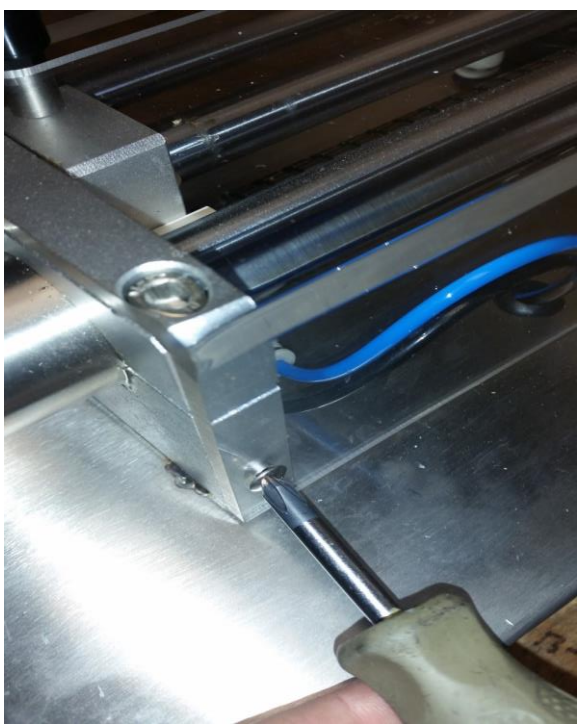


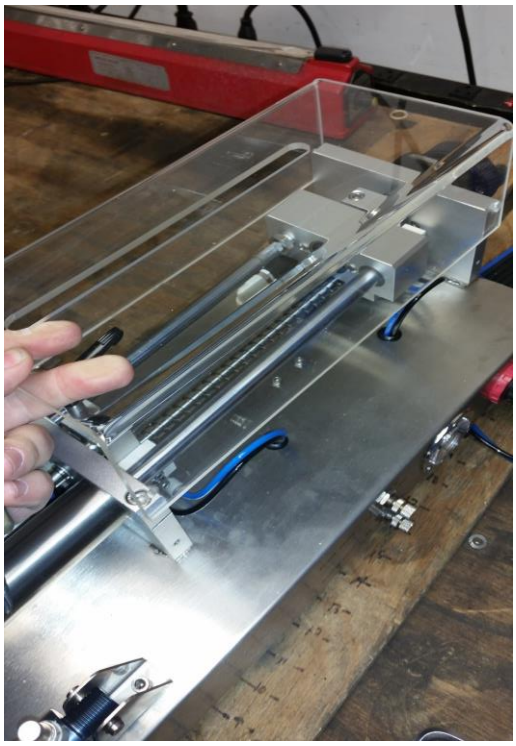


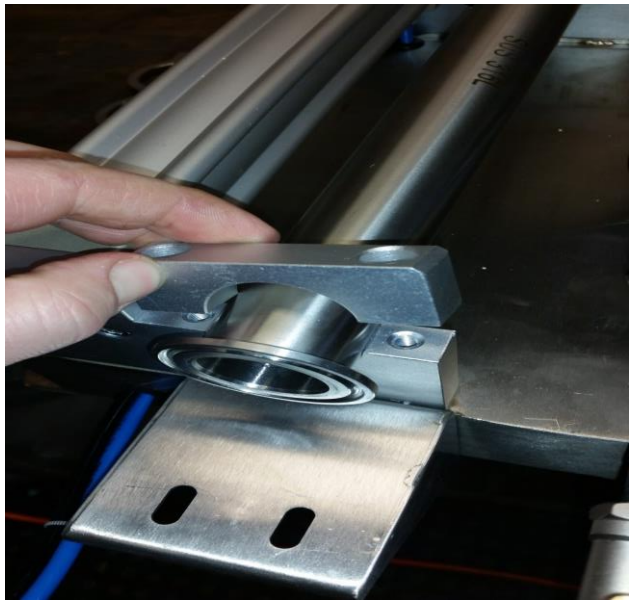


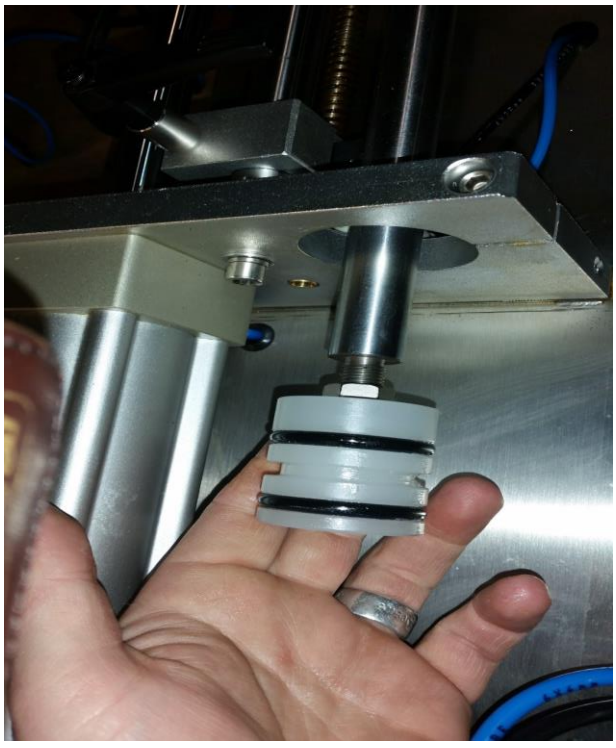






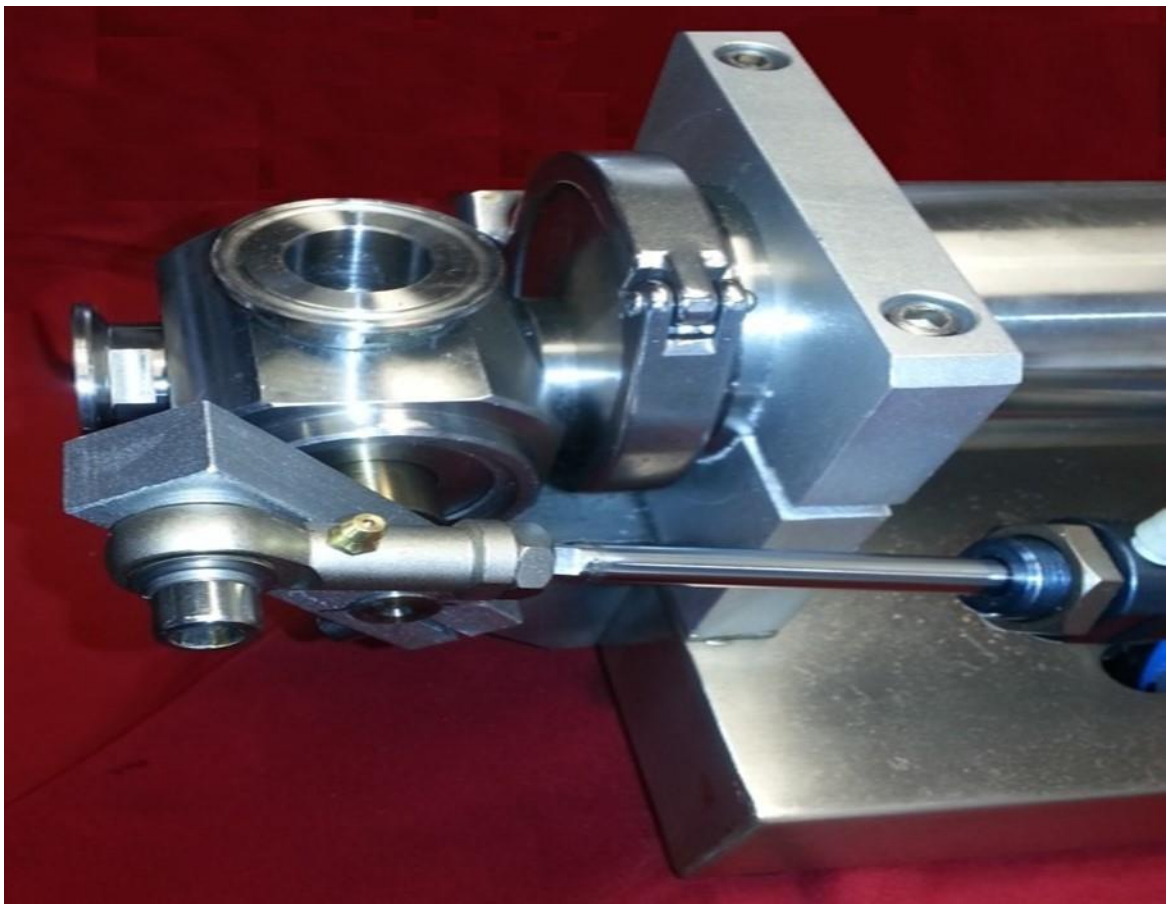






3-3 How to Rebuild the Rotary

How to rebuild the rotary







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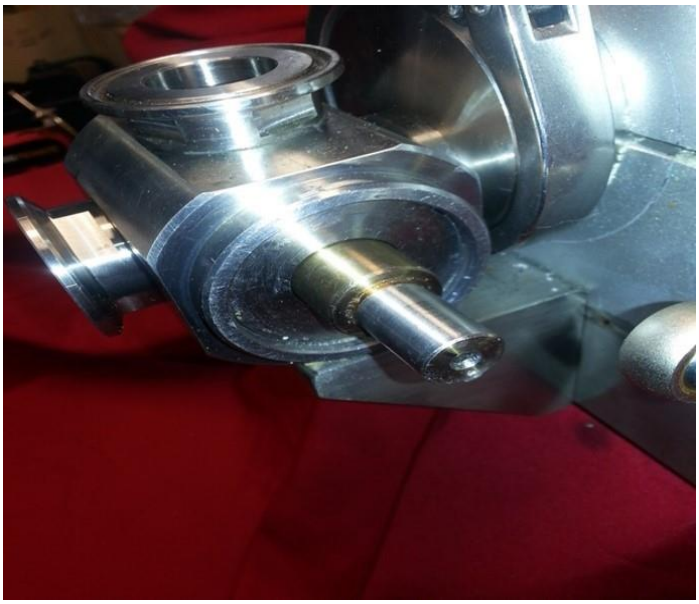
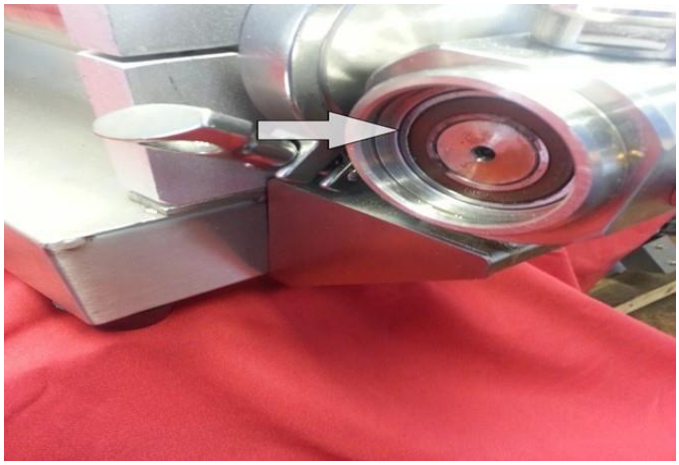
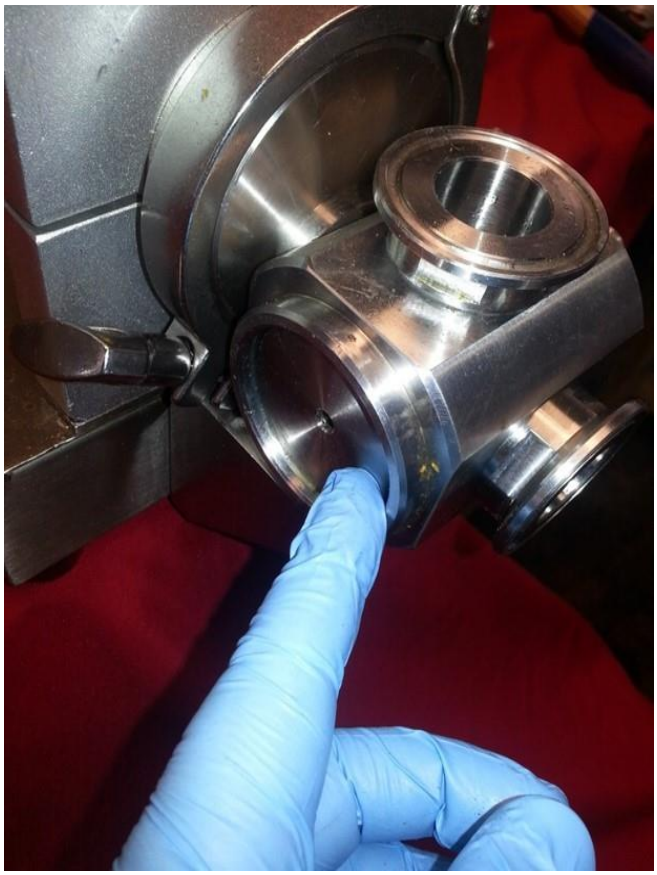
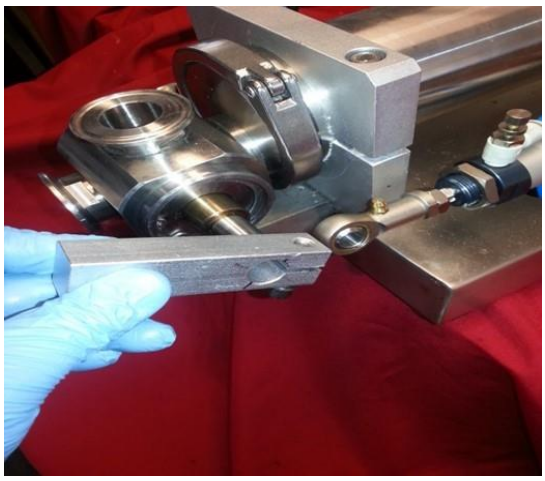
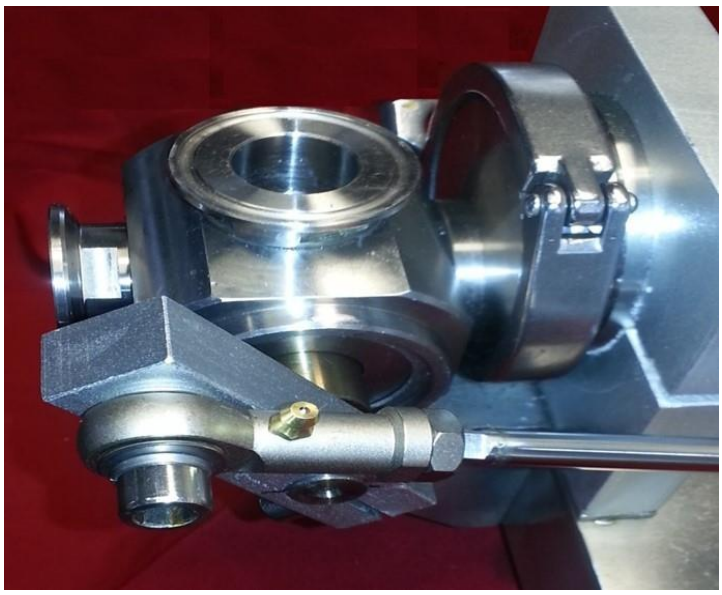


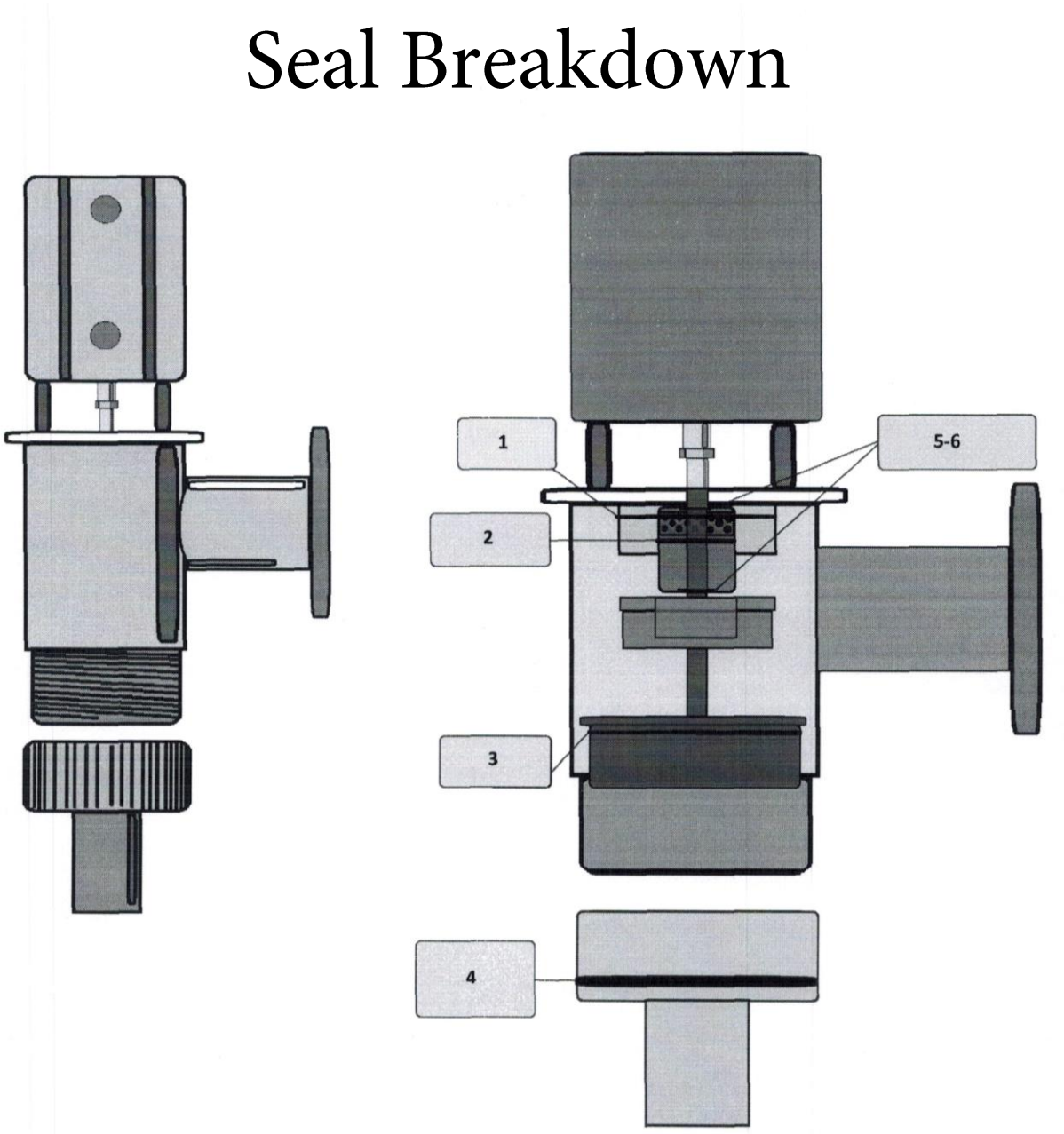


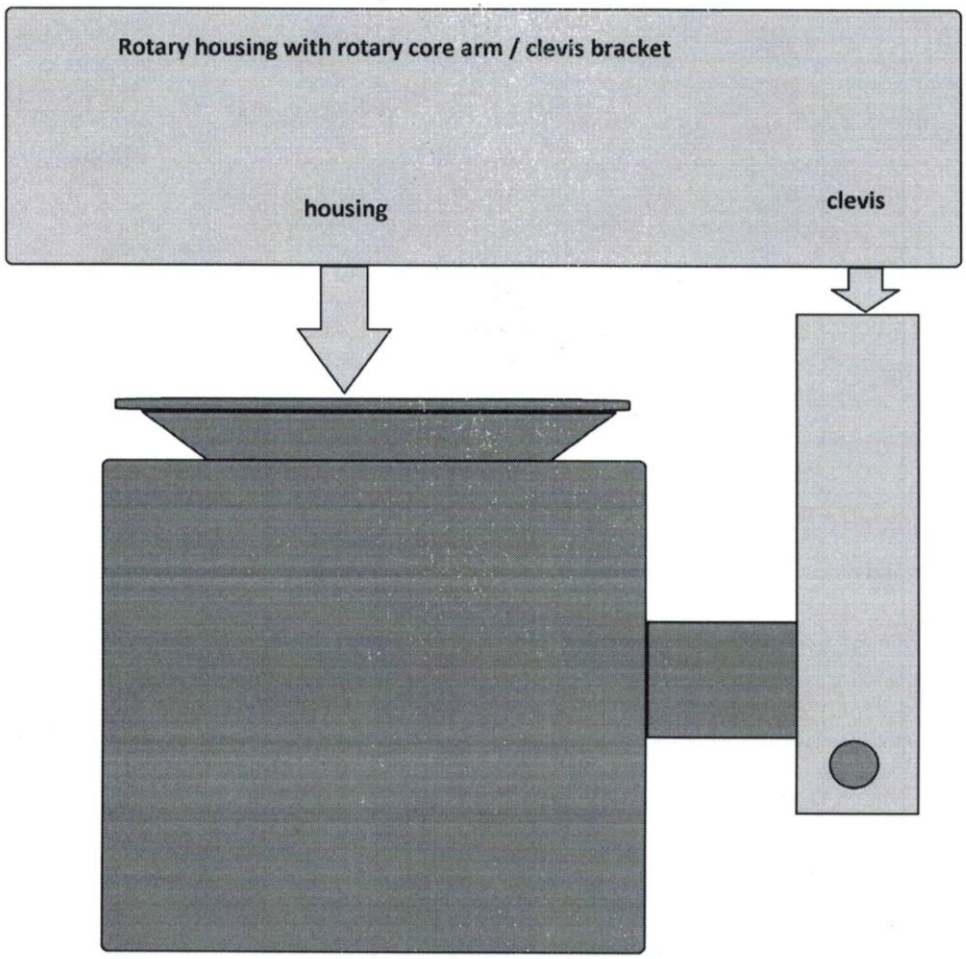




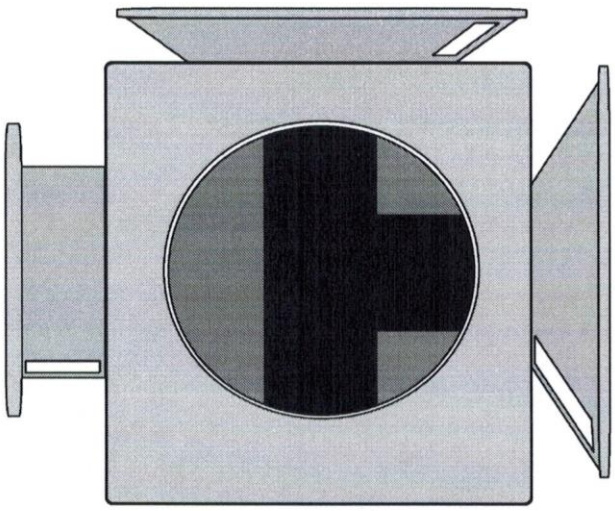


3-4 Seal Breakdown

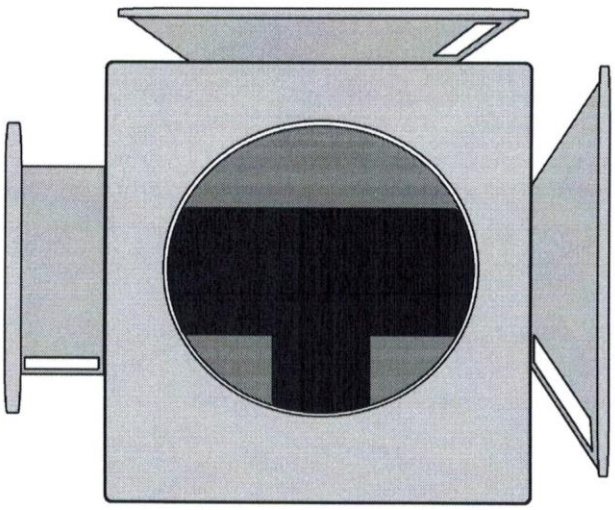



Rotary housing with rotary core arm / clevis bracket
housing
clevis

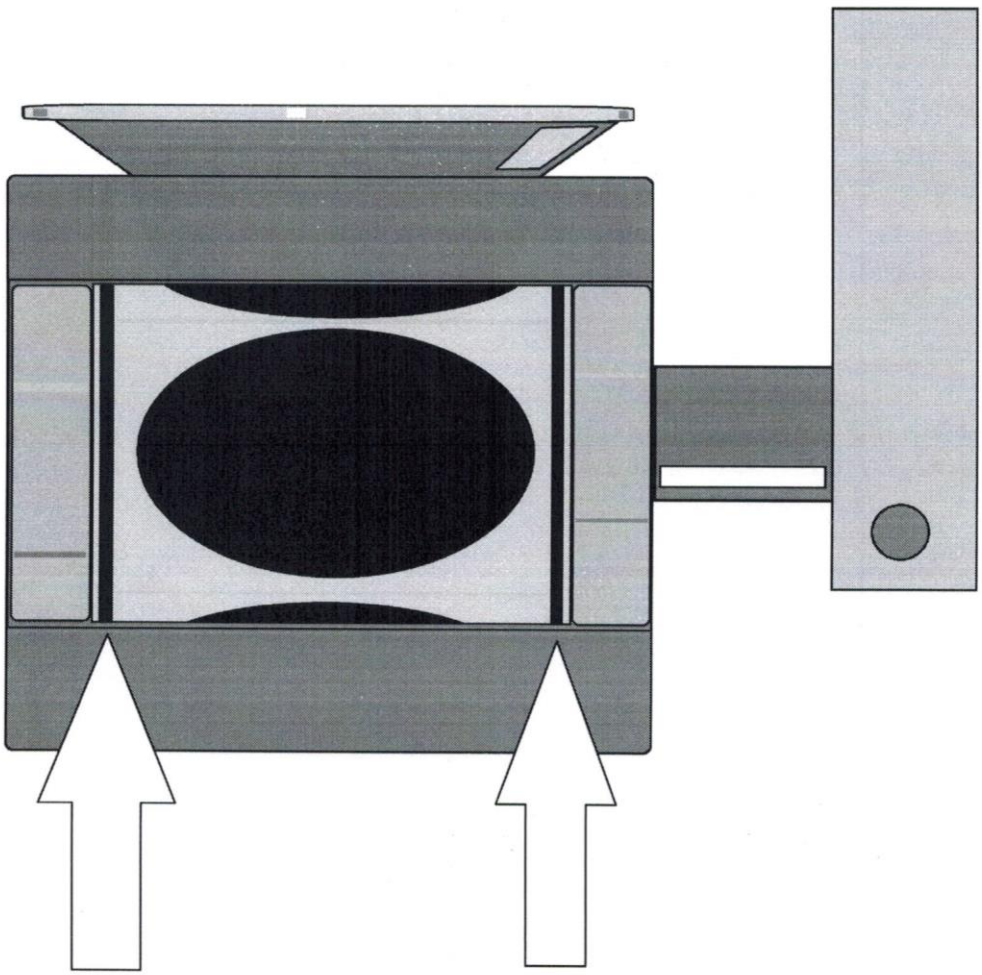
Rotary core in home position, the core arm/clevis will be facing up and in the forward most position



Rotary core in run position, the core arm/ clevis will be facing up and in the reaer most position



There are two arows(Shown below) pointing to the orings installed in the rotary core



Two arrows below point to the orings on the main product piston that is housed inside of the steel product cylinder