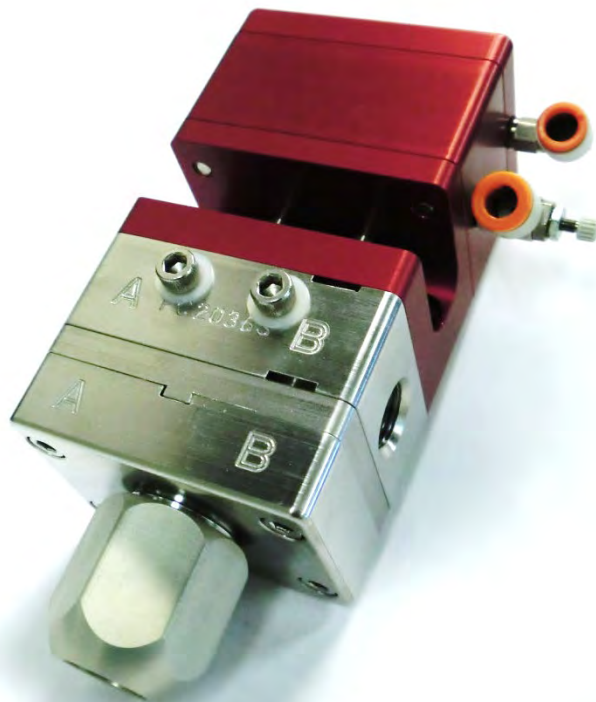




PVA

**WHERE
PRECISION
DRIVES
PRODUCTION**



PC200 Valve Series

OWNER'S MANUAL

Rev G

Precision Valve & Automation
Six Corporate Drive
Halfmoon, NY 12065
www.pva.net

This document is based on information available at the time of its publication. While efforts have been made to ensure the contents of this manual are accurate, the information contained herein does not purport to cover all specific details or variations in hardware, or to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. Precision Valve and Automation, Inc. assumes no obligation of notice to holders of this document with respect to changes subsequently made.

Precision Valve and Automation, Inc. makes no representation or warranty, expressed, implied, or statutory with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of the information contained herein. No warranties of merchantability or fitness for purpose shall apply.

This document, including the information contained herein, is the property of Precision Valve and Automation, Inc. and is considered confidential and proprietary information. It is delivered on the express condition that it not be used, disclosed, or reproduced, in whole or in part, for any reason without prior written consent of Precision Valve and Automation, Inc.

Copyright © 2019

Precision Valve and Automation, Inc.

All Rights Reserved.

Table of Contents

1. Introduction	5
1.2 Document History	5
1.3 Safety	6
1.4 Theory of Operation.....	7
1.4.1 Air Section	7
1.4.2 Fluid Section.....	7
1.5 Pneumatic Schematic.....	7
1.6 Personal Protective Equipment	8
1.7 Waste Disposal.....	8
1.8 Tool Kit	8
2. Overview.....	9
3. Valve Operation	10
3.1 Startup	10
3.2 Install the Static Mixer	11
3.3 Shutdown.....	13
4. Maintenance	13
4.1 Disassemble the Valve	14
4.1.1 Procedure.....	14
4.2 Clean the Disassembled Valve	21
4.3 Assemble the Valve.....	23
4.3.1 Procedure.....	23
4.3.2 With a Press	28
4.3.3 To Engage by Hand:.....	29
5. Periodic Maintenance.....	33
5.1 How to Replace a Static Mixer	33
5.2 How to Replace Lip Seals	33
5.2.1 Seal Plate Lip Seals	33
5.2.2 Fluid Section Lip Seals	33

5.3	How to Replace Valve Rods	33
5.4	How to Replace Sleeve Bearings	33
5.5	How to Replace O-rings	34
5.5.1	Piston O-ring	34
5.5.2	Fluid Section O-rings	34
5.5.3	Air Cylinder O-rings	34
5.5.4	Fluid Manifold O-rings	34
6.	PC200R Series Reference	34
6.1	PC200R-SS Bill of Materials	35
6.2	PC200R-AL Bill of Materials	36
6.3	PC200R Series Mechanical Drawings	37
6.4	PC200R Series Exploded View	38
7.	PC200RW Series Reference	38
7.1	PC200RW-SS Bill of Materials	39
7.2	PC200RW-AL Bill of Materials	40
7.3	PC200RW Series Mechanical Drawings	41
7.4	PC200RW Series Exploded View	42
8.	How to Order	43
8.1	Accessories and Options	44
9.	Spare Parts	46
9.1	Spare Parts Kits	46
10.	Technical Specifications	50
11.	Troubleshooting	51
12.	Notes	53
13.	Warranty	54
14.	Table of Figures	55

1. Introduction

Before you operate this system, read the operation and setup manual. This will help you to become familiar with the product and ensure successful operation.

If any questions or problems arise, contact PVA's Customer Service Department for support.

1.1 PVA Contact Information

Main Office PVA
Six Corporate Drive
Halfmoon, NY 12065
Tel +1-518-371-2684
Fax +1-518-371-2688
Website <http://www.pva.net>
Email info@pva.net

Technical Support

Tel +1-518-371-2684
Email cs@pva.net

1.2 Document History

Revision	Revision Date	Reason for Changes
Revision G	March 2019	Part Number Updated
Revision F	February 2016	Initial Release of New Template

NOTE: All photographs and CAD model representations in this document are a “general representation” of the valve and its components. The actual appearance of the valve and its components can differ based upon customer specific configuration.

1.3 Safety

Certain warning symbols are affixed to the machine and correspond to notations in this manual. Before operating the system, identify these warning labels and read the notices described below. Not all labels may be used on any specific system.



Always wear approved safety glasses when you operate or work near the workcell.



Before you operate the system, read and understand the manuals provided with the unit.



Never put hands or tools in areas with this symbol when the machine is in operation. A dangerous condition may exist.



Read and understand the manuals provided with the unit before any repairs or maintenance is done. Only a qualified individual should do service.



Use caution when there are pressurized vessels. Find and repair any leaks immediately. Always wear appropriate safety equipment when you work with pressurized vessels or vessels that contain chemicals.



Shear hazard from moving parts. Avoid contact.

1.4 Theory of Operation

The PC200 is a rear closing, two component dispensing valve. Applications include potting, bead placement, and gaskets where a low to medium flow rate is required. This valve has adjustable snuff back to prevent drips or strings at the end of the static mixer.

Part A and part B materials flow into the valve separately and out of the valve separately into a disposable static mixer. It is not necessary to disassemble and clean the valve at the end of each day. The PC200 has a divorced design made of two major sections: the air section and the fluid section

1.4.1 Air Section

The air section is an aluminum body with a simple piston/cylinder combination used to open and close the valve. The stroke adjustment screw in the upper air body controls how far the piston and rod assembly can retract and controls snuff back.

1.4.2 Fluid Section

The fluid section is available in two materials:

- Stainless steel
- Aluminum (decreased weight for handheld applications)

The fluid section includes two rods with lip seals on each side of the valve to control fluid flow of part A and part B. Fluid dispenses as the rods move to the forward position past the lip seals. When the rods retract back into the lip seals the fluid flow stops and creates a snuff back action on the fluid.

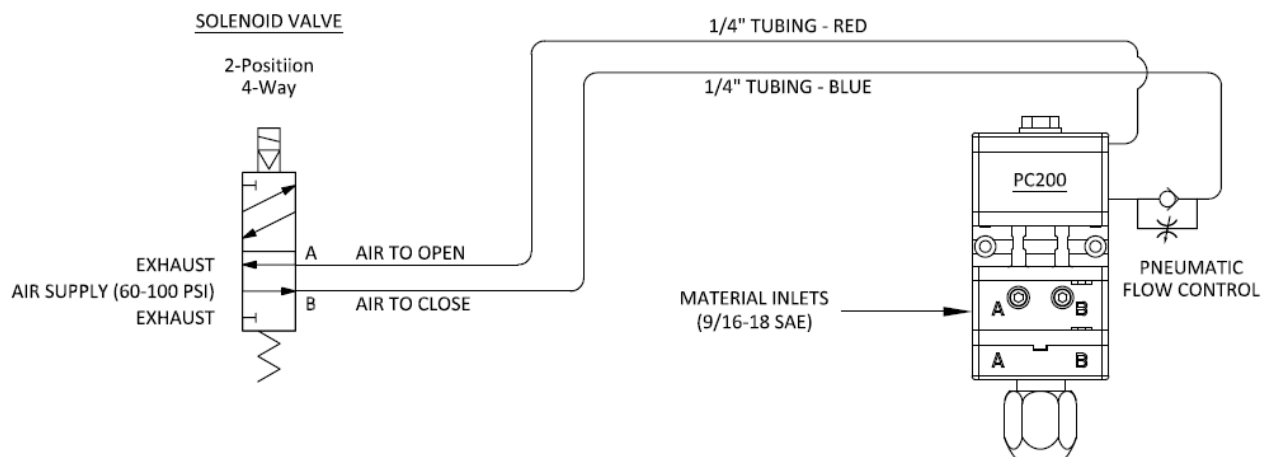


Figure 1: General PC200 Pneumatic Schematic

1.6 Personal Protective Equipment

Operators must use eye protection because material contents are under pressure. Always wear gloves when handling materials and solvents. Refer to MSDS sheets on the material being dispensed for other precautions.

1.7 Waste Disposal

Dispose of all used parts and materials in accordance with local laws and regulations.

1.8 Tool Kit

PVA offers tool kits for dispense valves. The tool kit for the PC200 series valve is part number B12-2602. This includes all necessary tools and lubricant to do maintenance on this valve.

Table 1: B12-2602 Contents List

Qty	Part Number	Description
1	0266244	8" Adjustable Wrench
1	7122A47	3/16" Hex Key
2	26571	5/32" Hex Key
2	7122A44	1/8" Hex Key
2	7122A43	7/64" Hex Key
1	56945A13	3/16" Combination Wrench
1	B62-2048	2.5cc Silicone Lubricant
1	MM115	Removable Thread Locker
1	5516A18	Tweezers
1	9570K71	Hook and Pick Set
1	214-0544	Lip Seal Alignment Tool
1	98381A636	Lip Seal Insertion Tool
1	8511T17	Tool Bag

2. Overview

Before you operate the valve, know the valve components. Examine the valve components shown below for safe and correct operation.

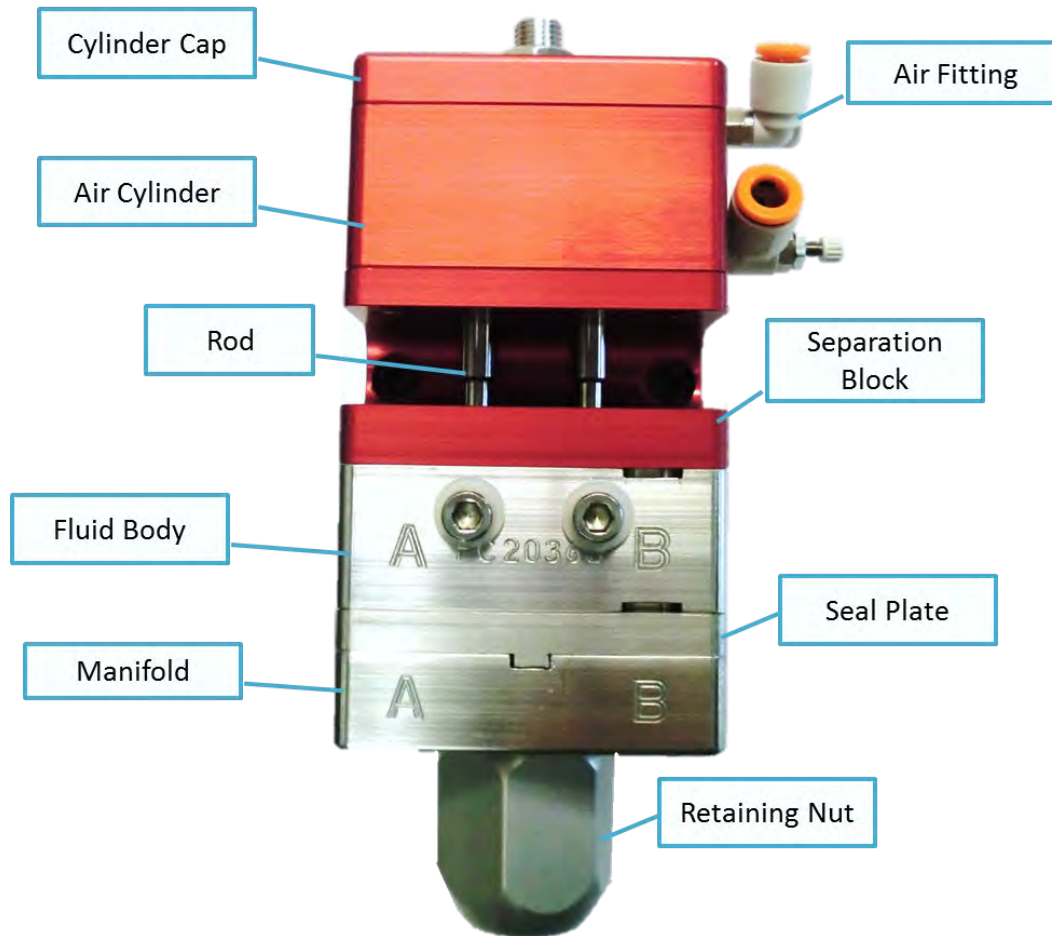


Figure 2: Valve Components

3. Valve Operation

3.1 Startup

1. Install the valve pneumatically as shown in Section 1.5 and set the air pressure that operates the valve between 60-100 psi.
2. Cycle the valve several times. Make sure that the valve is not pointed at anyone.

When the valve cycles correctly, you can hear the piston hit the stroke adjustment screw and the rods can be seen going up and down in the center.

NOTE: If the valve does not cycle correctly, refer to Section 11.

3. Connect the material delivery system to the valve. Part A material connects on the on the left side, part B material connects on the right side.
4. Cycle the valve open to bleed. Part A and B materials should start to flow separately out of the fluid manifold.
5. Bleed the valve until all the air is released, and the material releases smoothly without any breaks in the flow. Any break in the flow of the material shows there is still air in the system.
6. Bleed air from the bleed screws if necessary.

NOTE: Part A and B materials may not start to dispense from the valve at the same time, flow depends on the necessary mix ratio.

7. Use a 3/16" hex key to adjust the stroke adjustment screw to get the necessary amount of snuff back.

Turn the stroke adjustment screw clockwise to decrease the amount of snuff back, or counter-clockwise to increase the amount of snuff back. If the stroke adjustment screw is turned down too far the valve will not close and material will leak from the manifold nozzle.

NOTE: A good general setting for snuff back is to turn the stroke adjustment screw clockwise until material starts to leak from the valve manifold when under pressure, then turn the stroke adjustment screw a 1/2 turn counter-clockwise or until it does not leak.

8. When snuff back is set, use an adjustable wrench to tighten the jam nut against the sealing washer and cylinder cap to lock it in place.

NOTE: Refer to Section 11 for any other problems.

3.2 Install the Static Mixer

1. Put the static mixer on the PC200 valve manifold as shown.



Figure 3: Static Mixer

2. Hold the static mixer on the PC200 manifold with your hand.
3. Use the purge function (in Manual mode) on the machine controller to purge material through the static mixer.
4. Continue to purge until the static mixer is fully filled with material.



Figure 4: Fill the Static Mixer

Now the trapped air must be released from the top of the static mixer.

5. Pull the static mixer straight down, off the PC200 valve manifold so there is a small space between the static mixer and the manifold.
6. Use the purge function on the machine controller to purge material until it overflows from the top of the static mixer. Let all air release from the top of the static mixer.
7. Push the static mixer firmly back onto the PC200 manifold.
8. Clean the material completely off of the static mixer and PC200 valve.

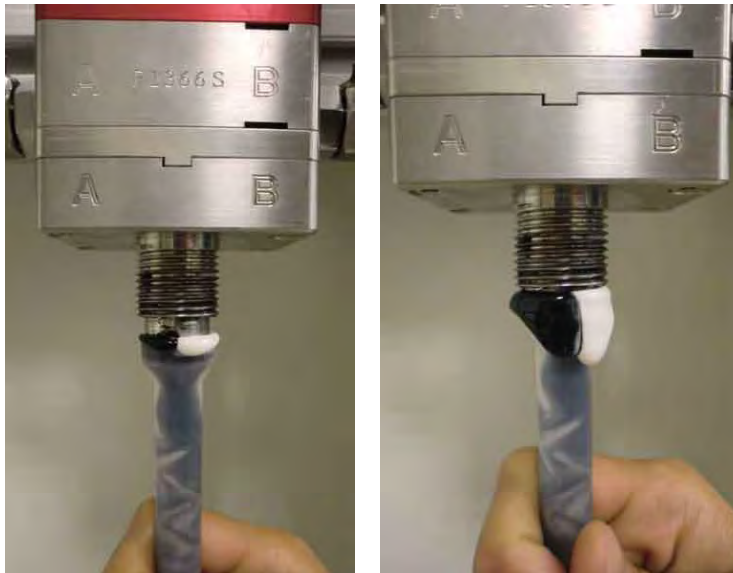


Figure 5: Purge the Static Mixer

9. Put the static mixer retaining nut on and use a wrench to tighten.
10. Install the desired needle on the end of the static mixer.
11. Use the purge function on the machine controller to purge material through the static mixer. Purge the volume of the entire static mixer to fill it with fresh material.
12. Push and release the purge button. Examine the static mixer for drips after the material has dispensed.
13. If it continues to drip, do steps 3-13 again. Drips from the tip of the static mixer are caused by air that is trapped inside.
14. If the static mixer does not drip, the valve is ready to dispense.

3.3 Shutdown

To keep the PC200 valve in good condition do these steps at the end of each day:

1. Remove the static mixer.
2. Purge fresh material through the valve until both material streams are completely clean and have no cross-contamination.
3. Clean all material off of the manifold nozzle.
4. Put a night cap (PVA part number 214-3832) on the manifold nozzle.
5. Release the pressure in the system, refer to the workcell manual.



Figure 6: PC200 Night Cap

NOTE: Refer to Sections 6 and 7 for part reference numbers.

4. Maintenance

Interval	Action
Daily	<ul style="list-style-type: none">• Examine the material outlets for contamination and cured material.
Weekly	<ul style="list-style-type: none">• Examine component A and B material containers or cartridges for signs of cured or dried material.

Before you do maintenance on this valve, make sure you have a spare parts kit. If any parts have wear or damage, replace them with new parts from the kit.

4.1 Disassemble the Valve

This section shows how to disassemble PC200 valves (Std. PC200R process is shown). Some steps that involve rods, lip seals, sleeve bearings, and O-rings will differ between the R and RW series of the PC200. Not all options are shown. When procedures are different from what is shown, "Notes" are given. If you have questions about procedure steps, parts, or content, contact PVA's customer service department.

4.1.1 Procedure

Put valve sections, seals, parts, and screws in solvent to soak if material can be seen on them. Do not combine materials A and B or they will cure. Examine all parts for wear and damage. Replace parts if necessary.

1. Relieve system pressure. Disconnect material and air fittings. Disconnect the valve from the dispense system.
2. Remove the retaining nut and the static mixer and needle.

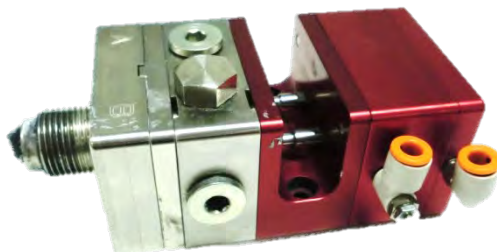


Figure 7: PC200 Ready for Disassembly

3. Remove front bleed port plugs if necessary.
4. Use a hex key to remove the four machine screws in the fluid manifold.



Figure 8: Fluid Manifold Screws

5. Pull the manifold off of the valve assembly.

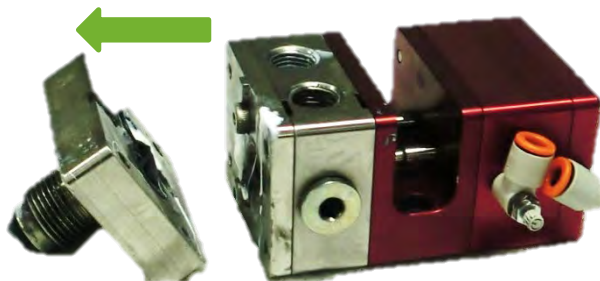


Figure 9: Disassembled Fluid Manifold

6. Remove the O-rings in the fluid manifold.
7. Clean the O-rings and examine them for damage.
8. Use a hex key to remove the two shoulder bolts from the seal plate.

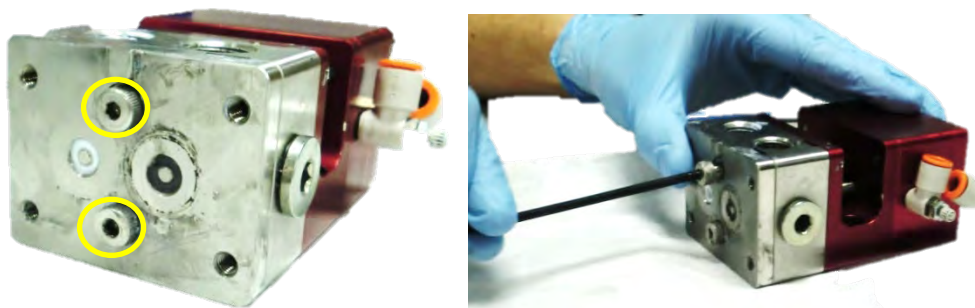


Figure 10: Valve Shoulder Bolts

9. Use a hex key to remove the four machine screws from the air cap.



Figure 11: Remove Air Cap Screws

10. Remove the air cap.



Figure 12: Air Cylinder without Air Cap

11. Use a wrench to loosen the air fittings and then use your hand to remove them.

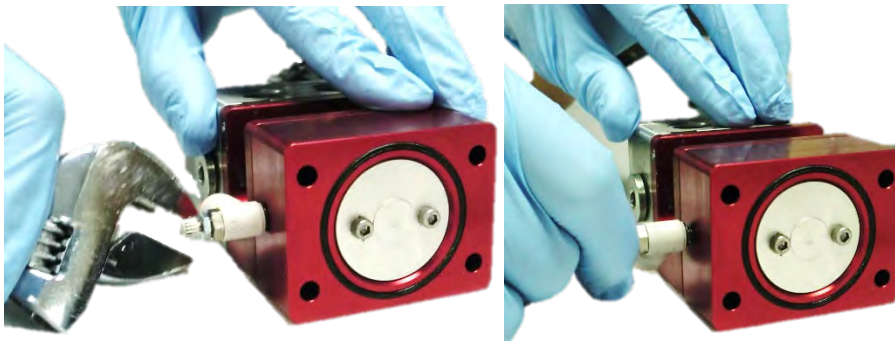


Figure 13: Remove Air Fittings

12. Use a correctly sized hex key to push on the rods engaged in the seal plate.

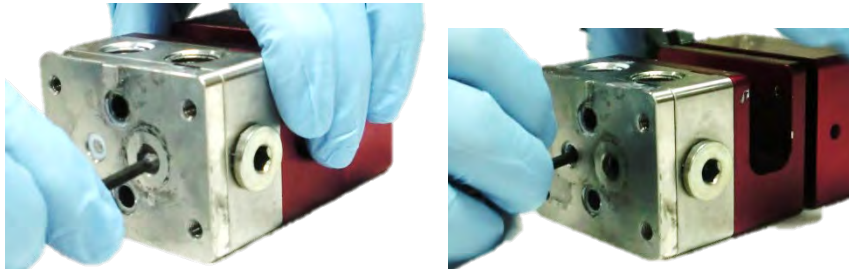


Figure 14: Push Rods to Disengage

13. Push on the rods one at a time until the piston-rod assembly disengages from the air cylinder.



Figure 15: Disengaged Piston-Rod Assembly

14. Remove the seal plate.

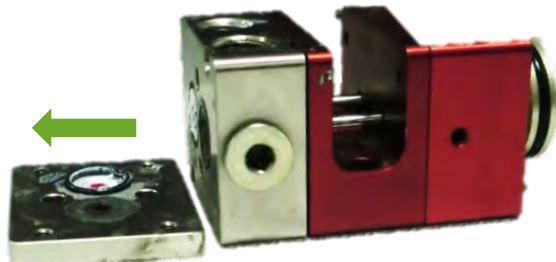


Figure 16: Seal Plate Removed

15. Remove and clean the O-rings in between the seal plate and the fluid section.
16. Remove and clean the lip seals in the fluid section.
17. Pull the piston-rod assembly out of the air cylinder.

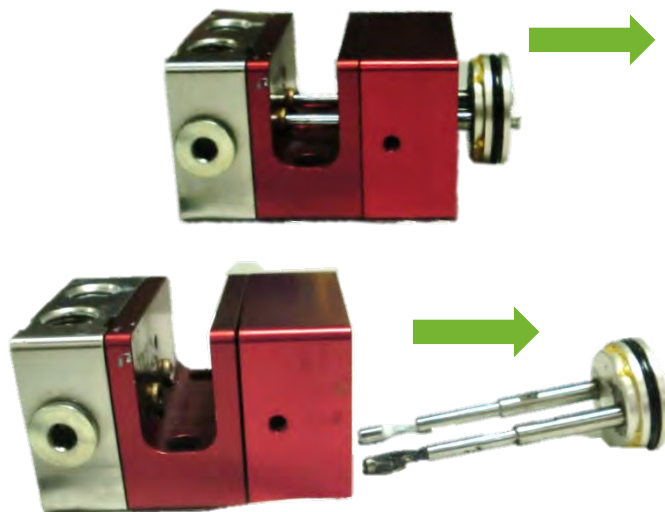


Figure 17: Piston-Rod Assembly Removed

NOTE: *RW-series PC200 uses two different size rods.*

18. Pull the air cylinder, separation block, and fluid section apart.

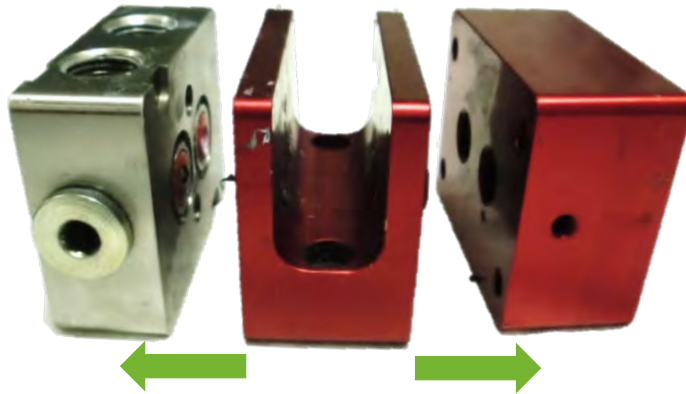


Figure 18: Disconnect Valve Sections

19. Examine the sleeve bearings in the separation block for damage or wear. If there is any sign of wear replace them.

20. To remove the sleeve bearings, install a correctly sized tap into the sleeve bearing in the bottom of the separation block.

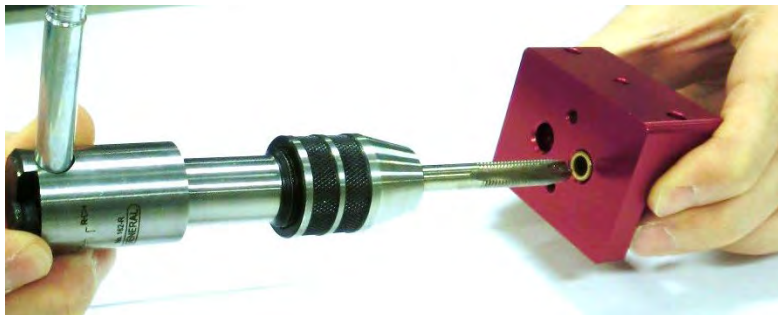


Figure 19: Install the Tap into the Sleeve Bearing

21. Push the tap in and turn it clockwise to engage the tap in the sleeve bearing.

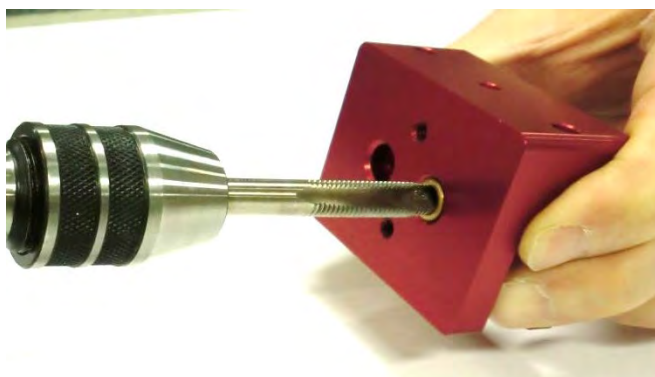


Figure 20: Engage the Tap into the Sleeve Bearing

WARNING: Do not let the tap go through the sleeve bearing and into the separation block.

22. Continue to turn the tap clockwise and push in until the sleeve bearing starts to spin when you turn the tap.
23. Continue to turn the tap clockwise and pull out as you turn. The sleeve bearing will start to pull out of the separation block.

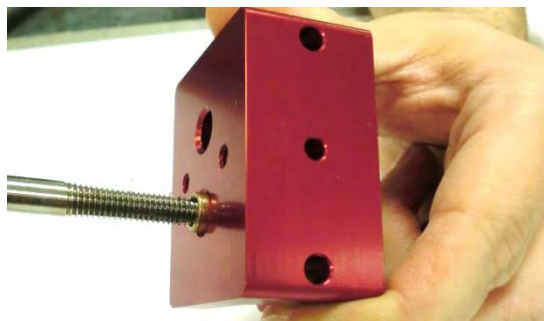


Figure 21: Turn the Tap and Pull Out

24. Pull the sleeve bearing out of the separation block. Do the procedure again for the other sleeve bearing.

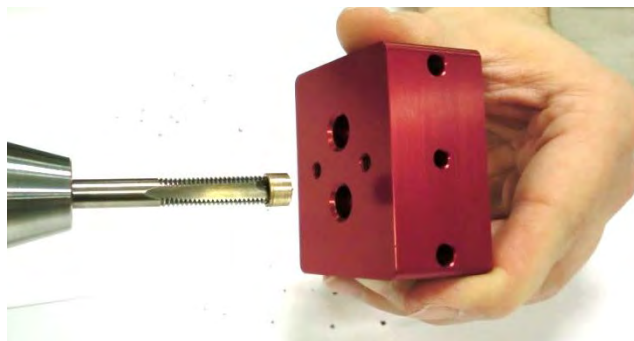


Figure 22: Remove the Sleeve Bearing

25. Clean any pieces of the sleeve bearings from the separation block.
26. Use the hook and pick set to remove the lips seals and the O-rings from the fluid section.



Figure 23: Remove Lip Seals From Fluid Section

- 27. Clean the lip seals.
- 28. Use the hook and pick set to remove the O-ring in the air cylinder.



Figure 24: Air Cylinder O-ring

- 29. Examine and clean the O-ring.

4.2 Clean the Disassembled Valve

Use solvent, lint free towels, and cotton tipped applicators to clean the valve. Wear protective gloves. Do not get material or solvent on your skin.

When you clean the valve, remove all grease and material before the valve is assembled again. All O-rings, seals, and screws should be cleaned.

1. Clean every part completely with appropriate solvent. Do not mix material A with material B or they will cure.
2. Clean the seal plate.

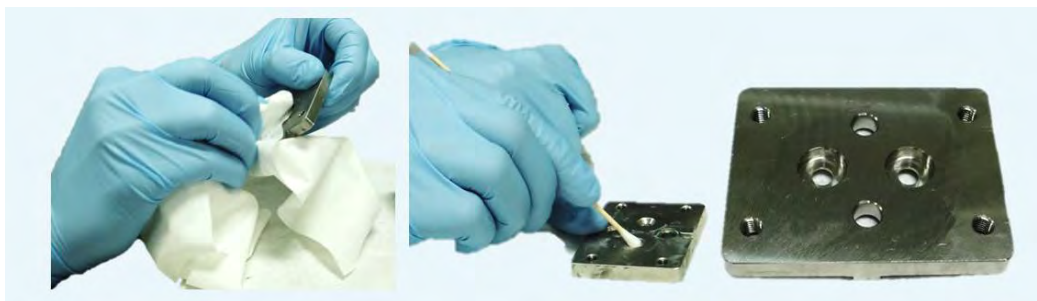


Figure 25: Clean the Seal Plate

3. Clean the air cylinder.

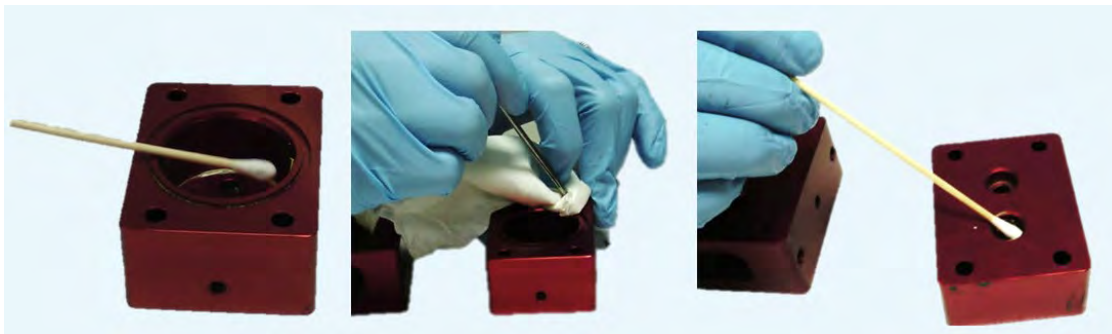


Figure 26: Clean the Air Cylinder

4. Clean the cylinder cap.



Figure 27: Clean the Cylinder Cap

5. Clean the fluid section.
6. Use a pick to remove large amounts of material. Do not mix the materials.
7. Use solvent as necessary to clean hard to get to locations.



Figure 28: Clean the Fluid Section

8. Clean the separation block and manifold. Make sure to clean all grooves and ports.
9. Clean the piston-rod assembly.

NOTE: RW-series PC200 uses two different size rods.

10. Clean the rods.
11. Use a wrench to hold one rod and use a hex key to loosen the screw that holds the rod in position in the piston.
12. Remove both rods. Examine the rods and make sure there is no material on them. Clean the screws if necessary.
13. Use the hook and pick set to remove the O-ring on the piston.
14. Clean the piston and the O-ring.



Figure 29: Clean the Piston-Rod Assembly

4.3 Assemble the Valve

This section shows how to assemble PC200 series valves (Standard PC200R process is shown).

Some installation steps that involve rods, lip seals, sleeve bearings, and O-rings will differ between the R and RW series of the PC200. Not all options are shown. Valve series are closely related. When procedures are different from what is shown, "Notes" are given. If you have questions about procedure steps, parts, or content, contact PVA's customer service department.

4.3.1 Procedure

1. Apply removable thread lock to a machine screw.
2. Put the screw with thread lock in the piston.
3. Put a rod in into the countersunk side of the piston.



Figure 30: Install Screw in the Piston-Rod Assembly

4. Use a 3/16" wrench (or an adjustable wrench) on the flats of each rod to hold them in place and tighten the screw with a 7/64" hex key. The screw will engage the rod.
5. Repeat steps 1-4 for the second rod and machine screw.



Figure 31: Rods and Piston

NOTE: RW-series PC200 uses two different size rods.



Figure 32: Tighten Rods

NOTE: Make sure the rods are tight and cannot turn freely by hand.

6. Put the 123 Buna O-ring on the piston.



Figure 33: Put the O-ring on the Piston

7. Align the sleeve bearings with the two holes in the top of the separation block.
8. Use a press to push the sleeve bearings into the bottom holes of the separation block until they are flush with the bottom of the block.

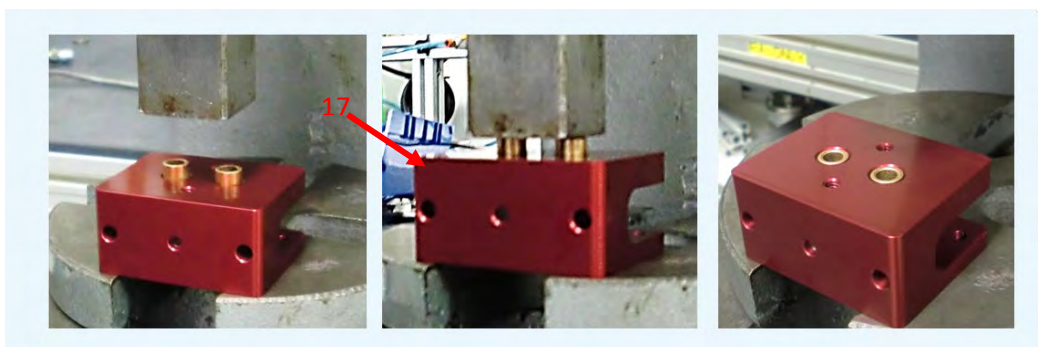


Figure 34: Sleeve Bearings Installed in the Separation Block

Note: RW-series PC200 uses two different size sleeve bearings.

9. Use your hands to push two lip seals (Teflon® seals shown), O-ring side up, into the seal plate holes. Do not to damage them.

10. Apply silicone grease to the lip seals top surfaces.



Figure 35: Lip Seals in Seal Plate

11. Apply a small amount of grease inside the alignment tool and the lip seal openings on the fluid section.
12. Put a lip seal in the lip seal alignment tool (supplied with tool kit) and put it on the top of the fluid section. Install the flared side into the fluid section first.

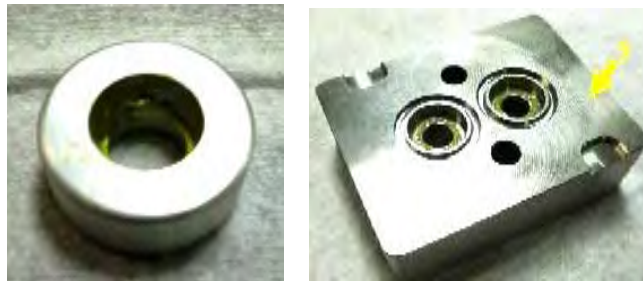


Figure 36: Lip Seal Alignment Tool and Fluid Section

13. Put the lip seal insertion tool onto the top of the lip seal and use it to push the seal into the fluid section so it is flush with the surface.

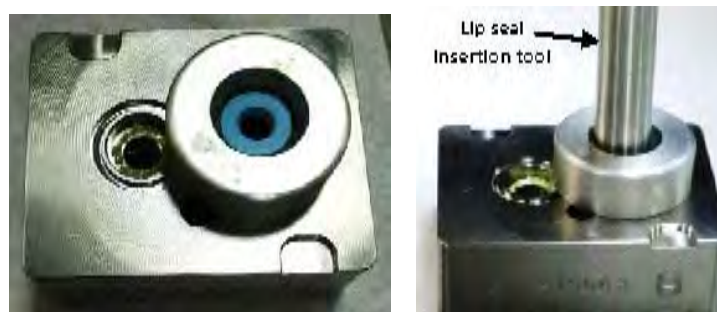


Figure 37: Lip Seal Insertion Tool

14. Do steps 11-13 again for the last lip seal.
15. Apply silicone grease to four O16 O-rings and put one in each of the grooves of the fluid section on both sides of the block.



Figure 38: O-rings for the Fluid Section

16. Align the separation block, the fluid body and the seal plate. Make sure the sections point the correct way (as shown).



Figure 39: Align the Sections

17. Use a hex key to install two #10-24 shoulder bolts at the seal plate to attach the assembly. Tighten the first bolt 1-2 turns and then the second bolt 1-2 turns. Repeat this procedure until the bolts are fully engaged.

NOTE: When bolts are tightened in small increments of 1-2 turns, the lip seals stay correctly positioned.

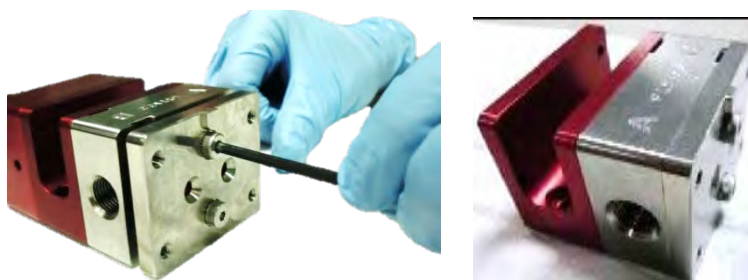


Figure 40: Assemble the Separation Block, Fluid Body and Seal Plate

18. Apply silicone grease to two 108 Buna O-rings and put them in the bottom openings of the air cylinder.
19. Use a pick to make sure the O-rings are correctly aligned and installed.

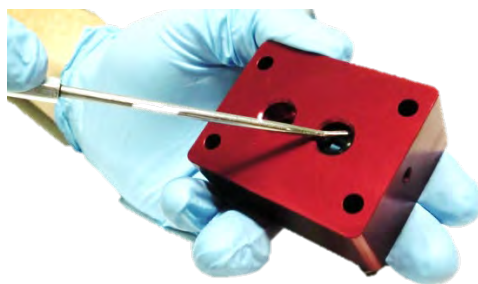


Figure 41: Align the O-rings

20. Align the air cylinder and the assembly.



Figure 42: Air Cylinder Openings Aligned with the Assembly

21. Put the air cylinder on the fluid assembly. Make sure the air port is on the right side.



Figure 43: Air Cylinder and Fluid Assembly

22. Apply silicone grease to the cylinder wall.

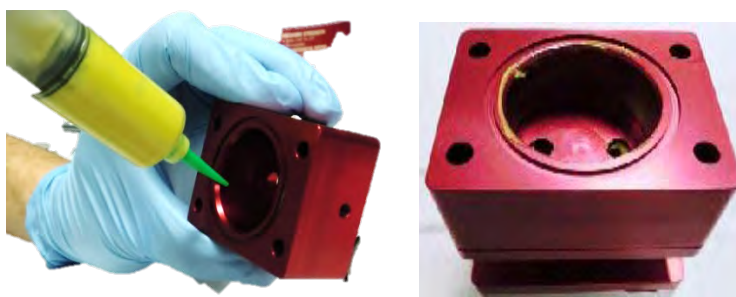


Figure 44: Apply Grease to the Cylinder Wall

23. Apply silicone grease to the O-ring on the piston-rod assembly.



Figure 45: Apply Grease to the O-ring



Figure 46: Piston-Rod Assembly

24. Carefully install the piston-rod assembly into air cylinder opening.
25. Push the piston-rod assembly straight down through separation block, slowly, with pressure that stays the same, until resistance is met (position as shown below).

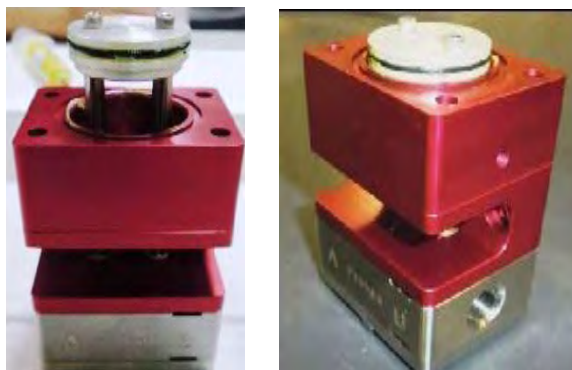


Figure 47: Install Piston

To fully engage the piston-rod assembly you can use a press or do it by hand.

- To use a press continue to step 26.
- To engage the piston-rod assembly by hand, continue to step 28.

4.3.2 *With a Press*

26. Put the valve on the press with the piston up.

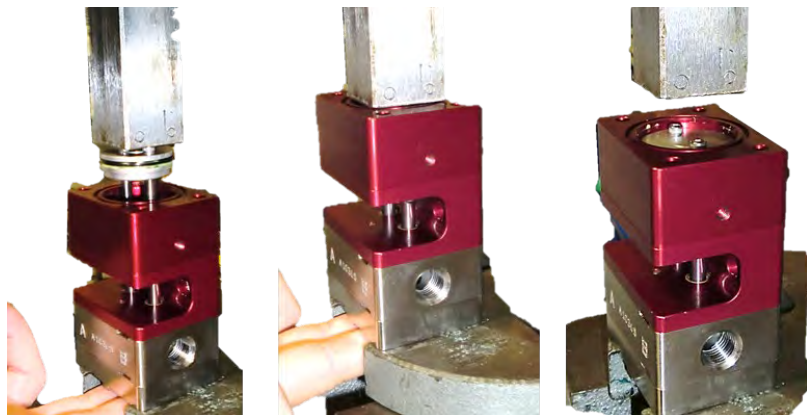


Figure 48: Use a Press to Install the Piston-Rod Assembly

27. Use the press to push down on the assembly with pressure that stays the same until a pop is heard, the rods go through the lip seals, and the piston is fully engaged into air cylinder.

Continue to step 30.

4.3.3 To Engage by Hand:

28. Carefully flip the valve assembly upside-down on a flat surface so that piston head touches the surface and the red air cylinder section is down.
29. Push down hard on the assembly with pressure that stays the same until a pop is heard, the rods go through the lip seals, and the piston is fully engaged into the air cylinder.

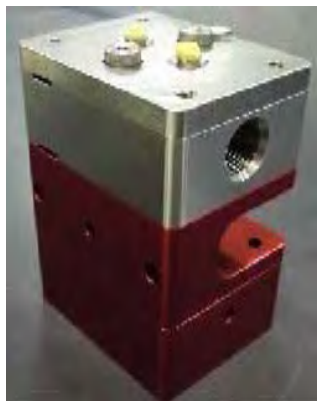


Figure 49: Piston Fully Engaged in Valve Assembly

30. Apply silicone grease to the top groove of the air cylinder.



Figure 50: Apply Grease to Air Cylinder Groove

31. Install a 030 Buna O-ring in the air cylinder groove.
32. Apply grease to the top of the installed O-ring with your finger.

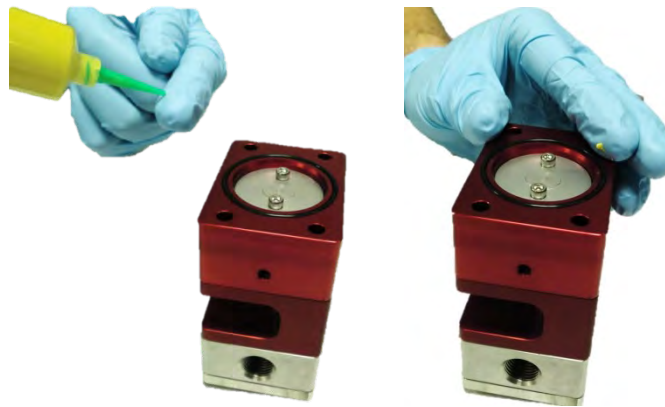


Figure 51: Apply Grease to O-ring

33. Use a 3/16" hex key to tighten the stroke adjustment screw on the cylinder cap.



Figure 52: Tighten Stroke Adjustment Screw

34. Put the sealing washer on the stroke adjustment screw and slide it down to the cylinder cap.



Figure 53: Sealing Washer

35. Put the jam nut on the stroke adjustment screw and turn it until it is tight to the sealing washer.



Figure 54: Jam Nut

36. Put the cylinder cap on the air cylinder.
37. Install the four machine screws.
38. Use a 5/32" hex key to tighten the screws to the separation block.

NOTE: Line up the air hole on the cylinder on the right side of the separation block.

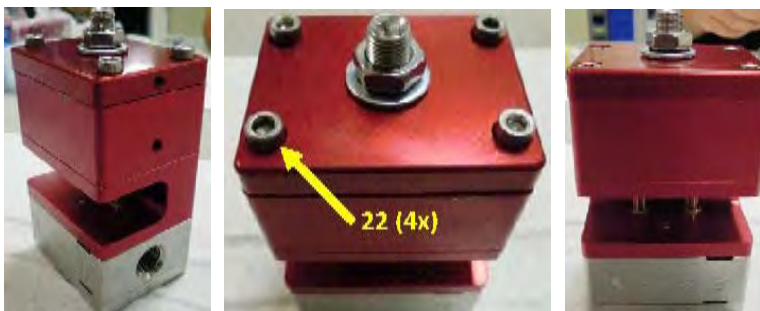


Figure 55: Cylinder Cap Installed on the Valve

39. Apply silicone grease to two 016 O-rings and put them in the grooves of the fluid manifold.

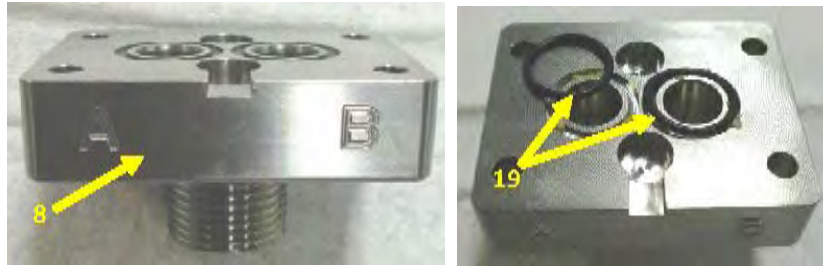


Figure 56: O-rings in the Fluid Manifold

40. With the lettering on the front, put the fluid manifold on the seal plate and install four machine screws.



Figure 57: Fluid Manifold Aligned with Valve

41. Use a 5/32" hex key to tighten the screws.
42. The PC200 valve and its mechanical portion are now assembled.
43. Additional air and fluid fittings should be correctly sized and installed in the applicable ports on the valve for operation.



Figure 58: Assembled Valve

5. Periodic Maintenance

5.1 How to Replace a Static Mixer

Remove the old static mixer and do the steps in Section 3.2 to install a new static mixer.

5.2 How to Replace Lip Seals

The PC200 valve will require lip seal replacement periodically. The interval between seal replacement varies widely depending on duty cycle, material type, and day to day care of the valve. It is highly recommended that spare parts kits and a tool kit be on hand for fast and easy seal replacement. Refer to Section 9 for spare parts kits information.

For a more extensive valve rebuild, refer to Sections 6 and 7 for a complete bill of materials and exploded drawings.

5.2.1 Seal Plate Lip Seals

1. Disassemble and clean the valve.
2. Do steps 1-8 in Section 4.3 and replace the lips seals in the seal plate.
3. Refer to Section 4.3 to assemble the valve again.

5.2.2 Fluid Section Lip Seals

1. Disassemble and clean the valve.
2. Do steps 1-11 in Section 4.3 and replace the lips seals in the seal plate.
3. Refer to Section 4.3 to assemble the valve again.

5.3 How to Replace Valve Rods

1. Disassemble and clean the valve.
2. Do steps 1-2 in Section 4.3 and replace the rods.
3. Refer to Section 4.3 to assemble the valve again.

5.4 How to Replace Sleeve Bearings

1. Disassemble and clean the valve.
2. Do steps 1-7 in Section 4.3 and replace the sleeve bearings in the separation block.
3. Refer to Section 4.3 to assemble the valve again.

5.5 How to Replace O-rings

5.5.1 *Piston O-ring*

1. Disassemble and clean the valve.
2. Do steps 1-5 in Section 4.3 and replace the O-ring in the piston with a new O-ring from the spare parts kit.
3. Refer to Section 4.3 to assemble the valve again.

5.5.2 *Fluid Section O-rings*

1. Disassemble and clean the valve.
2. Do steps 1-14 in Section 4.3 and replace the O-rings in the fluid section with new O-rings from the spare parts kit.
3. Refer to Section 4.3 to assemble the valve again.

5.5.3 *Air Cylinder O-rings*

1. Disassemble and clean the valve.
2. Do steps 1-18 in Section 4.3 and replace the O-rings in the air cylinder with new O-rings from the spare parts kit.
3. Do steps 19-31 and replace the 016 O-ring in the air cylinder groove.
4. Refer to Section 4.3 to assemble the valve again.

5.5.4 *Fluid Manifold O-rings*

1. Disassemble and clean the valve.
2. Do steps 1-39 in Section 4.3 and replace the O-rings in the fluid manifold with new O-rings from the spare parts kit.
3. Refer to Section 4.3 to assemble the valve again.

6. PC200R Series Reference

NOTE: If your valve has Teflon® lip seals you must use Kalrez O-rings. To order these parts please contact PVA.

6.1 PC200R-SS Bill of Materials

ITEM	DESCRIPTION	Part #	QTY.
*	Assembly Drawing	112-2643	Ref
1.	Air Cylinder	114-3794	1
2.	Cylinder Cap	114-3795	1
3.	Separation Block	114-8205	1
4.	Piston	114-3797	1
5.	Rod	114-8213	2
6.	Seal Plate	114-8206	1
7.	Standard: Fluid Body, Stainless Steel	114-8207	1
*	Option (RCA RCB): Fluid Body, Recirculation Ports, SS	(114-9816)	1
8.	Standard (1): Manifold, 1:1, Stainless Steel	114-4482	1
*	Option (2): Manifold, Wide Ratio, SS	(114-3801)	1
*	Option (3): Manifold, Wide Ratio, SS (Reverse A/B)	(214-3830)	1
*	Option (4): Manifold, 3-Port, SS	(114-9495)	1
*	Option (5): Manifold, 3-Port, SS (Reverse A/B)	(214-3745)	1
*	Option (6): Manifold, Bayonet Style, SS	(114-5810)	1
9.	Nut, Retaining	214-3833	1
10.	Bolt, Shoulder, #10-24 x 1.00"	01473	2
11.	Bearing, Sintered Sleeve, .188 x .375 x .250" Long	01502	2
12.	Set Screw, 3/8"-24 x 1"	01426	1
13.	Washer, Sealing, 3/8"	01427	1
14.	Nut, Jam – 3/8"-24	01428	1
15.	Standard (U): Seal, Loaded Lip, Urethane	12500187	4
*	Option (T): Seal, Loaded Lip, PTFE	Contact PVA	4
16.	O-Ring, 030 Buna	VLV-030B	1
17.	O-Ring, 123 Buna	VLV-123B	1
18.	O-Ring, 108 Buna	VLV-108B	2
19.	O-Ring, 016 Viton	VLV-016V	6
20.	Fastener, #6-32 x .375" SHCS, Stainless Steel	SHSS6-32X.375	2
21.	Fastener, #10-32 x .625" SHCS, Stainless Steel	SHSS10-32X.625	4
22.	Fastener, #10-32 x 1.50" SHCS, stainless steel	SHSS10-32X1.5	4
23.	Air fitting, #10-32 x 1/4" tube elbow	KQ2L07-32A	1
24.	Air fitting, #10-32 x 1/4" tube elbow w/ speed control	AS1201F-U10/32-07	1
25.	Bleed Screw	214-5367	2
26.	Washer, Nylon	214-5368	2

*PVA BOM B12-1950

6.2 PC200R-AL Bill of Materials

ITEM	DESCRIPTION	PART #	QTY.
*	Assembly Drawing	112-2643	Ref
1	Air Cylinder	114-3794	1
2	Cylinder Cap	114-3795	1
3	Separation Block	114-8205	1
4	Piston	114-3797	1
5	Rod	114-8213	2
6	Seal Plate	114-8206	1
7	Fluid Body, Aluminum	114-8207-AL	1
8	Standard (1): Manifold, 1:1, Stainless Steel	114-4482	1
*	Option (2): Manifold, Wide Ratio, SS	(114-3801)	1
*	Option (3): Manifold, Wide Ratio, SS (Reverse A/B)	(214-3830)	1
*	Option (4): Manifold, 3-Port, SS	(114-9495)	1
*	Option (5): Manifold, 3-Port, SS (Reverse A/B)	(214-3745)	1
*	Option (6): Manifold, Bayonet Style, SS	(114-5810)	1
9	Nut, Retaining	214-3833	1
10	Bolt, Shoulder, #10-24 x 1.00"	01473	2
11	Bearing, Sintered Sleeve, .188 x .375 x .250" Long	01502	2
12	Set Screw, 3/8"-24 x 1'	01426	1
13	Washer, Sealing, 3/8"	01427	1
14	Nut, Jam – 3/8"-24	01428	1
15	Seal, Loaded Lip, Urethane	12500187	4
16	O-Ring, 030 Buna	VLV-030B	1
17	O-Ring, 123 Buna	VLV-123B	1
18	O-Ring, 108 Buna	VLV-108B	2
19	O-Ring, 016 Viton	VLV-016V	6
20	Fastener, #6-32 x .375" SHCS, Stainless Steel	SHSS6-32X.375	2
21	Fastener, #10-32 x .625" SHCS, Stainless Steel	SHSS10-32X.625	4
22	Fastener, #10-32 x 1.50" SHCS, stainless steel	SHSS10-32X1.5	4
23	Air fitting, #10-32 x 1/4" tube elbow	KQ2L07-32A	1
24	Air fitting, #10-32 x 1/4" tube elbow w/ speed control	AS1201F-U10/32-07	1
25	Bleed Screw	214-5367	2
26	Washer, Nylon	214-5368	2

*PVA BOM B12-2147

6.3 PC200R Series Mechanical Drawings

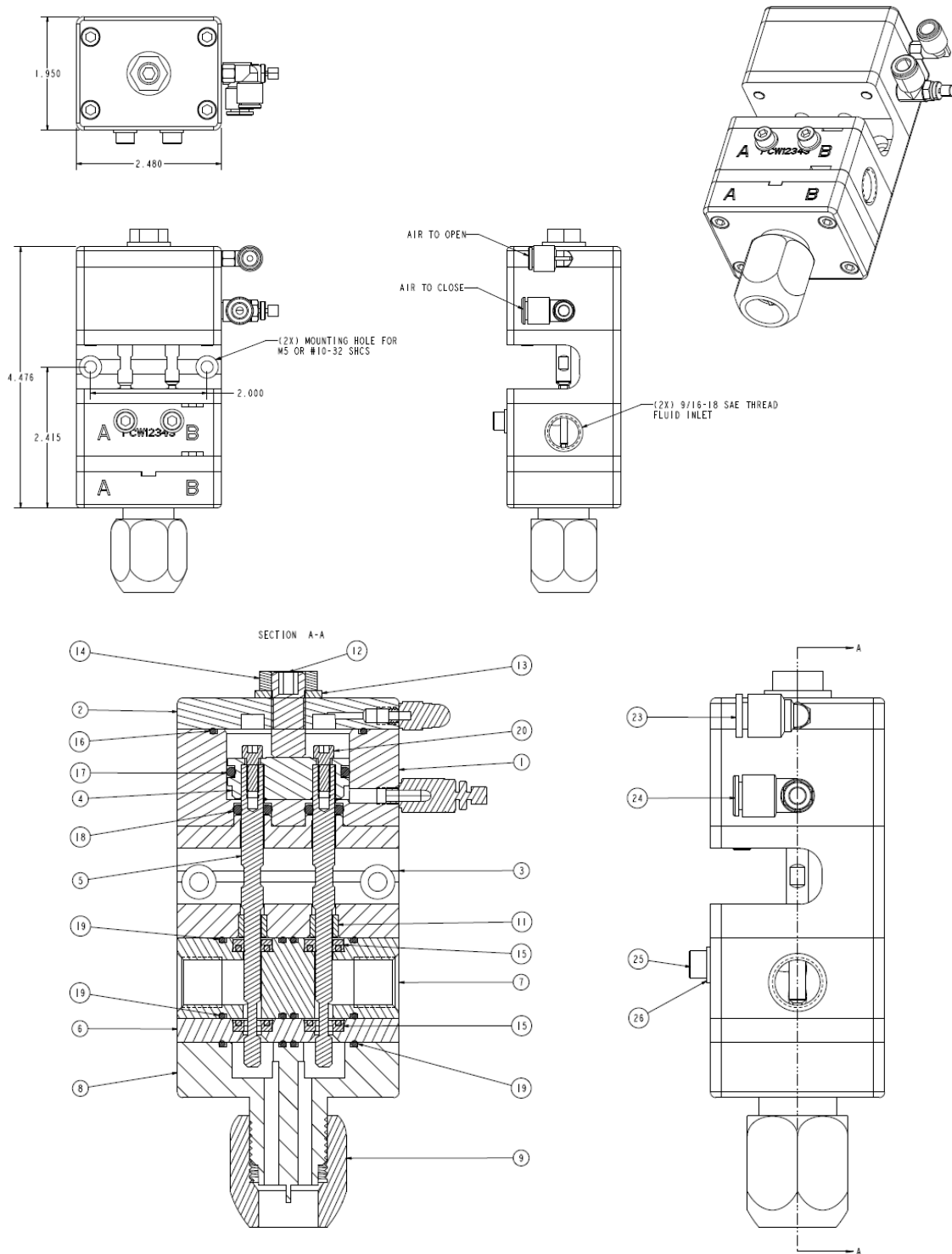


Figure 59: Mechanical Drawings PC200R

6.4 PC200R Series Exploded View

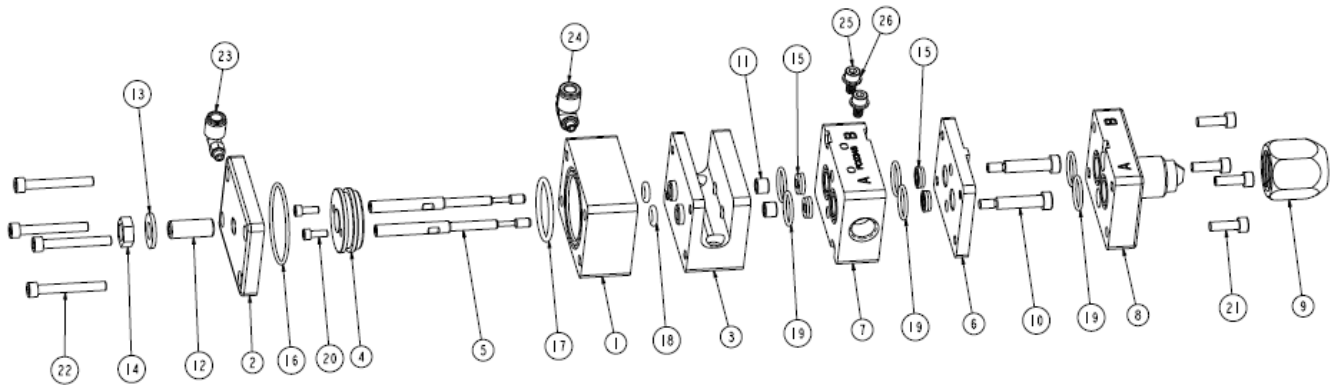


Figure 60: PC200R Exploded View

7. PC200RW Series Reference

NOTE: If your valve has Teflon[®] lip seals you must use Kalrez O-rings. To order these parts please contact PVA.

7.1 PC200RW-SS Bill of Materials

ITEM	DESCRIPTION	PART #	QTY.
*	Assembly Drawing	112-2649	Ref
1.	Air Cylinder	114-3794	1
2.	Cylinder Cap	114-3795	1
3.	Separation Block	114-8225	1
4.	Piston	114-3797	1
5.	Rod, .188"	114-8213	1
6.	Rod, .125"	214-5083	1
7.	Seal Plate	114-8226	1
8.	Fluid Body, Stainless Steel	114-8227	1
9.	Standard (2): Manifold, Wide Ratio, Stainless Steel	114-3801	1
*	Option (4): Manifold, 3-Port, SS	(114-9495)	1
10.	Nut, Retaining	214-3833	1
11.	Bolt, Shoulder, #10-24 x 1.00"	01473	2
12.	Bearing, Sintered Sleeve, .188 x .375 x .250" Long	01502	1
13.	Bearing, Sintered Sleeve, .125 x .250 x .250" Long	01503	1
14.	Set Screw, 3/8"-24 x 1"	01426	1
15.	Washer, Sealing, 3/8"	01427	1
16.	Nut, Jam – 3/8"-24	01428	1
17.	Standard (U): Seal, Loaded Lip, Urethane	12500187	2
*	Option (T): Seal, Loaded Lip, PTFE	Contact PVA	2
18.	O-Ring, 030 Buna	VLV-030B	1
19.	O-Ring, 123 Buna	VLV-123B	1
20.	O-Ring, 108 Buna	VLV-108B	2
21.	O-Ring, 016 Viton	VLV-016V	6
22.	O-Ring, 006 Viton	VLV-006V	2
23.	Fastener, #6-32 x .375" SHCS, Stainless Steel	SHSS6-32X.375	2
24.	Fastener, #10-32 x .625" SHCS, Stainless Steel	SHSS10-32X.625	4
25.	Fastener, #10-32 x 1.50" SHCS, stainless steel	SHSS10-32X1.5	4
26.	Air fitting, #10-32 x 1/4" tube elbow	KQ2L07-32A	1
27.	Air fitting, #10-32 x 1/4" tube elbow w/ speed control	AS1201F-U10/32-07	1
28.	Bleed Screw	214-5367	2
29.	Washer, Nylon	214-5368	2
30.	Precision orifice, .035"	01449	1

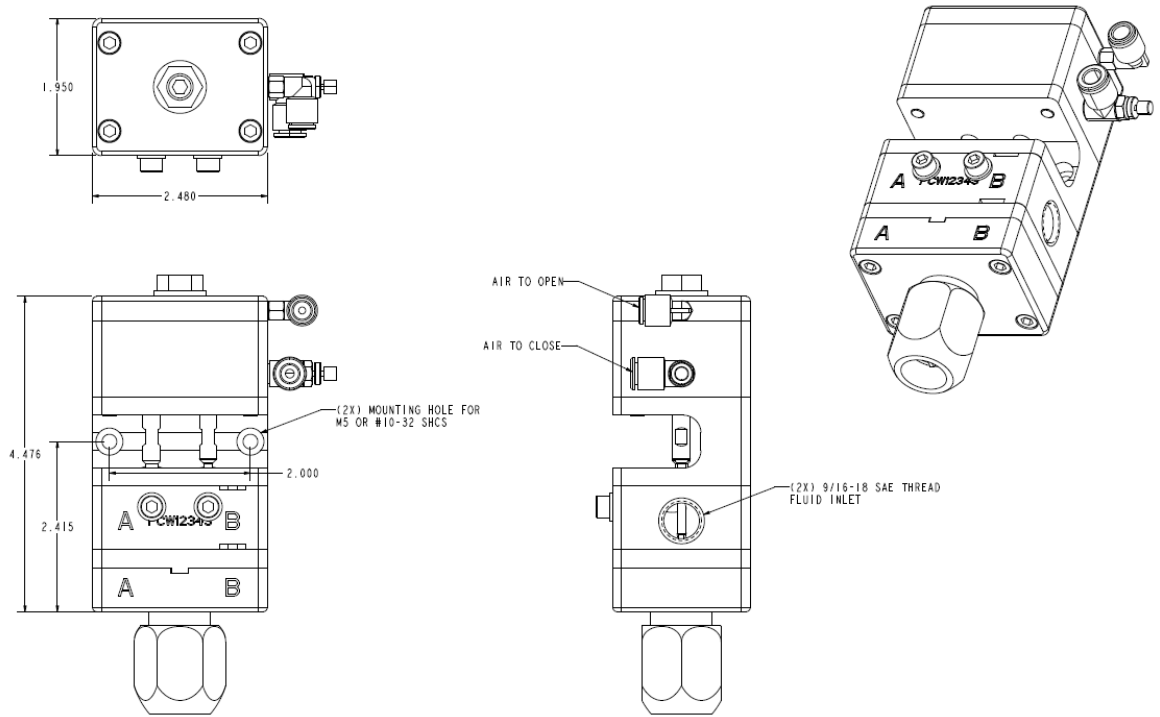
*PVA BOM B12-1954

7.2 PC200RW-AL Bill of Materials

ITEM	DESCRIPTION	PART #	QTY.
*	Assembly Drawing	112-2649	Ref
1.	Air Cylinder	114-3794	1
2.	Cylinder Cap	114-3795	1
3.	Separation Block	114-8225	1
4.	Piston	114-3797	1
5.	Rod, .188"	114-8213	1
6.	Rod, .125"	214-5083	1
7.	Seal Plate	114-8226	1
8.	Fluid Body, Aluminum	114-8227-AL	1
9.	Standard (2): Manifold, Wide Ratio, Stainless Steel	114-3801	1
*	Option (4): Manifold, 3-Port, SS	(114-9495)	1
10.	Nut, Retaining	214-3833	1
11.	Bolt, Shoulder, #10-24 x 1.00"	01473	2
12.	Bearing, Sintered Sleeve, .188 x .375 x .250" Long	01502	1
13.	Bearing, Sintered Sleeve, .125 x .250 x .250" Long	01503	1
14.	Set Screw, 3/8"-24 x 1"	01426	1
15.	Washer, Sealing, 3/8"	01427	1
16.	Nut, Jam – 3/8"-24	01428	1
17.	Seal, Loaded Lip, Urethane	12500187	2
18.	O-Ring, 030 Buna	VLV-030B	1
19.	O-Ring, 123 Buna	VLV-123B	1
20.	O-Ring, 108 Buna	VLV-108B	2
21.	O-Ring, 016 Viton	VLV-016V	6
22.	O-Ring, 006 Viton	VLV-006V	2
23.	Fastener, #6-32 x .375" SHCS, Stainless Steel	SHSS6-32X.375	2
24.	Fastener, #10-32 x .625" SHCS, Stainless Steel	SHSS10-32X.625	4
25.	Fastener, #10-32 x 1.50" SHCS, stainless steel	SHSS10-32X1.5	4
26.	Air fitting, #10-32 x 1/4" tube elbow	KQ2L07-32A	1
27.	Air fitting, #10-32 x 1/4" tube elbow w/ speed control	AS1201F-U10/32-07	1
28.	Bleed Screw	214-5367	2
29.	Washer, Nylon	214-5368	2
30.	Precision orifice, .035"	01449	1

PVA BOM B12-2148

7.3 PC200RW Series Mechanical Drawings



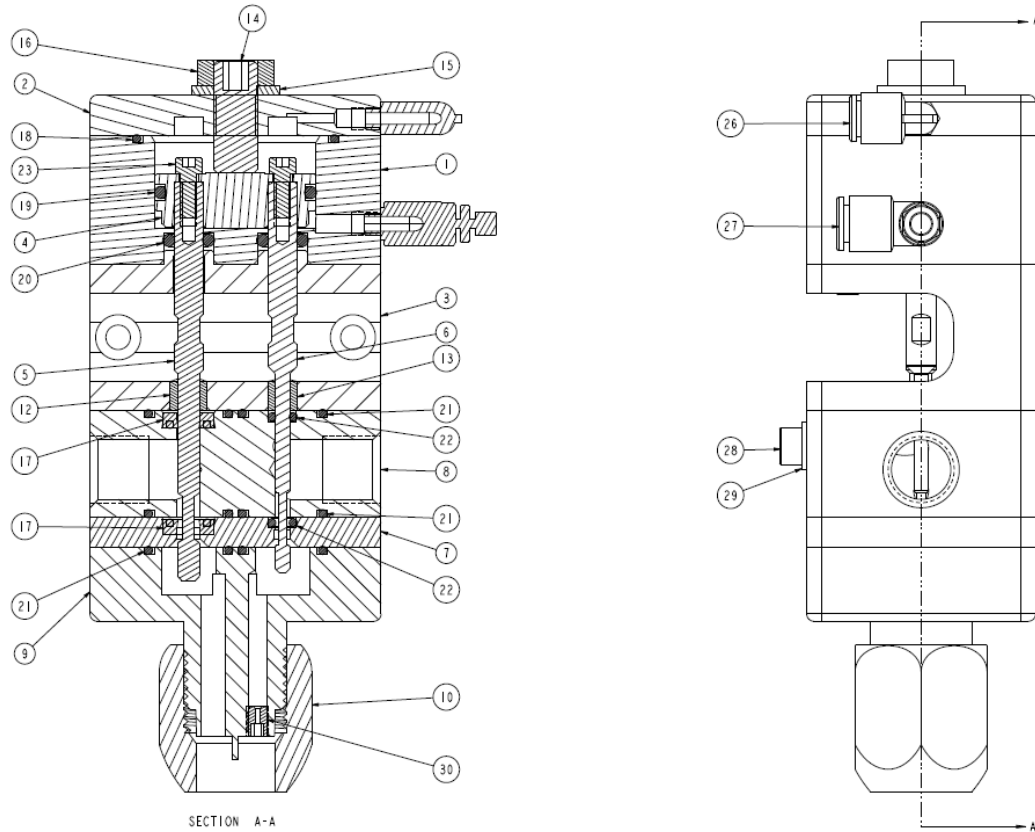


Figure 61: Mechanical Drawing PC200RW

7.4 PC200RW Series Exploded View

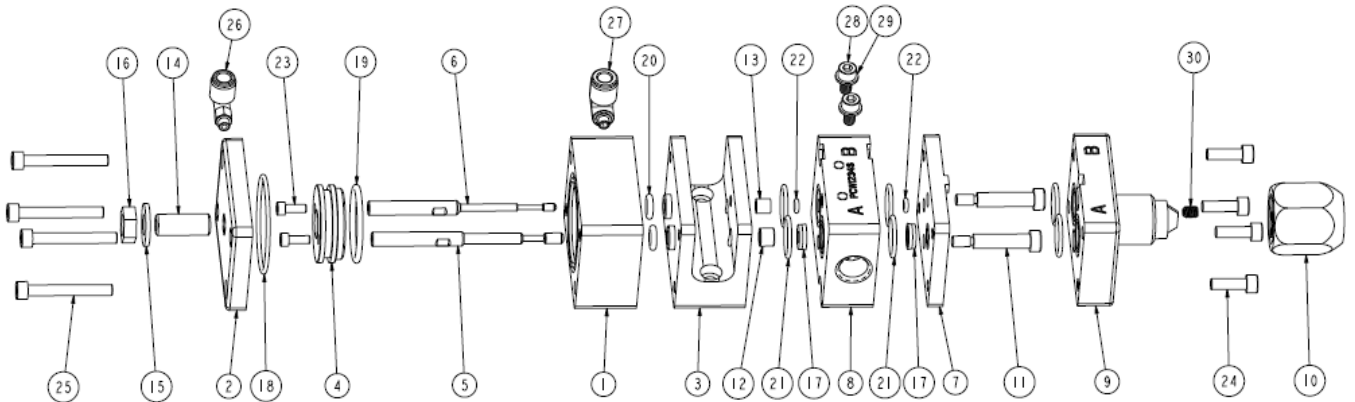


Figure 62: Exploded View PC200RW

8. How to Order

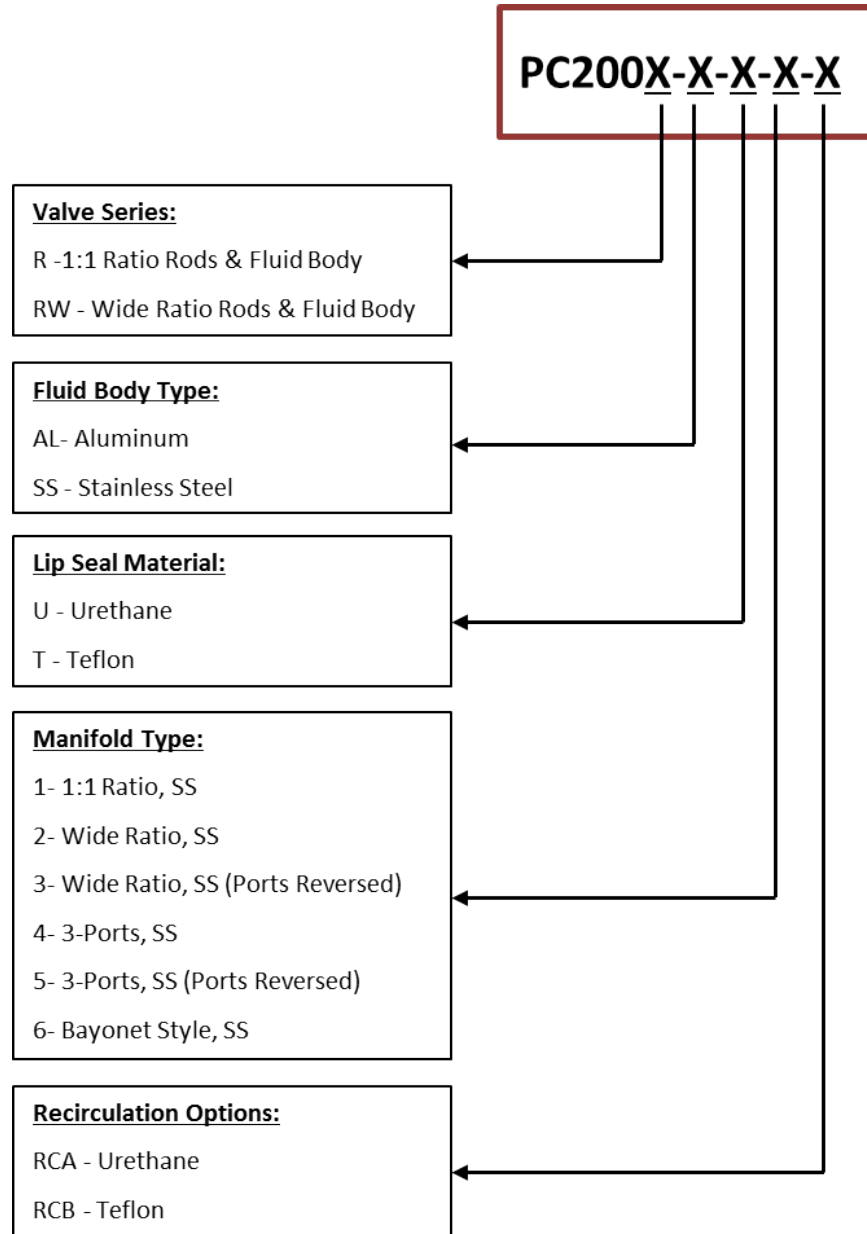


Figure 63: Part Number Configuration

8.1 Accessories and Options

Item	Part Number	Description
1	114-0557-W	Ratio Cap, UHMW
2	214-3832	Night Cap
3	XMLRL-1	Fitting, #10-32 x Male Luer
4	01449	Precision Orifice, #10-32 x .035"
5	214-3833	Retaining Nut, Standard Mixer
6	114-5740	Retaining Nut, Bayonet Mixer
7	4M-C04L-1-V-SS	Check Valve, 1/4" NPT, 1 psi cracking pressure, Viton
8	4M-C04L-1-KZ-SS	Check Valve, 1/4" NPT, 1 psi cracking pressure, Kalrez
9	6-1/4AOEG-S	Fitting, 9/16-18 SAE x 1/4" NPT Elbow, Carbon Steel
10	6-1/4AOEG-SS	Fitting, 9/16-18 SAE x 1/4" NPT Elbow, Stainless Steel
11	KJL07-32	Fitting, One Touch, 1/4" Tube
12	AS1201F-	Fitting, One Touch, Speed Control, 1/4" Tube
13	6HP5ON-SS	Recirculation Hole Plug, Hollow Hex, 9/16-18 SAE, SS
14	214-0544	Tool, Lip Seal Alignment
15	PV101	Hand Gun, Pneumatic
16	PV101E	Hand Gun, Electric
17	PVA-BALANCE	Tooling Arm w/ Mounting Bracket
18	B62-2048	2.5cc Syringe - Silicone Lubricant for Seals



Figure 64: Accessories and Options

9. Spare Parts

9.1 Spare Parts Kits

Spare Part Kit For: PC200R / Urethane Seals

P/N: PC2R-SP

ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Urethane	12500187	4
2	O-ring, 030 Buna	VLV-030B	1
3	O-ring, 123 Buna	VLV-123B	1
4	O-ring, 108 Buna	VLV-108B	2
5	O-ring, 016 Viton	VLV-016V	6
6	Bearing, sintered sleeve, .188 x .375 x .250" long	01502	2
7	Washer, nylon	214-5368	2



Contact PVA for information on replacement parts or to order.

Spare Part Kit For: PC200R / Teflon Seals

P/N: PC2R-T-SP

Contact PVA

ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Teflon	Contact PVA	4
2	O-ring, 030 Buna	VLV-030B	1
3	O-ring, 123 Buna	VLV-123B	1
4	O-ring, 108 Buna	VLV-108B	2
5	O-ring, 016 Kalrez	VLV-016K	6
6	Bearing, sintered sleeve, .188 x .375 x .250" long	01502	2
7	Washer, nylon	214-5368	2



Contact PVA for information on replacement parts or to order.

Spare Part Kit For: PC200RW / Urethane Seals

P/N: PC2RW-SP

ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Urethane	12500187	2
2	O-ring, 030 Buna	VLV-030B	1
3	O-ring, 123 Buna	VLV-123B	1
4	O-ring, 108 Buna	VLV-108B	2
5	O-ring, 016 Viton	VLV-016V	6
6	O-ring, 006 Viton	VLV-006V	2
7	Bearing, sintered sleeve, .188 x .375 x .250" long	01502	1
8	Bearing, sintered sleeve, .125 x .250 x .250" long	01503	1
9	Washer, nylon	214-5368	2



Contact PVA for information on replacement parts or to order.

Spare Part Kit For: PC200RW / Teflon Seals

P/N: PC2RW-T-SP

Contact PVA

ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Teflon	Contact PVA	2
2	O-ring, 030 Buna	VLV-030B	1
3	O-ring, 123 Buna	VLV-123B	1
4	O-ring, 108 Buna	VLV-108B	2
5	O-ring, 016 Kalrez	VLV-016K	6
6	O-ring, 006 Kalrez	VLV-006K	2
7	Bearing, sintered sleeve, .188 x .375 x .250" long	01502	1
8	Bearing, sintered sleeve, .125 x .250 x .250" long	01503	1
9	Washer, nylon	214-5368	2



Contact PVA for information on replacement parts or to order.

10. Technical Specifications

Table 2: PC200 Technical Specifications

Weight	PC200R-AL PC200RW-AL	Approximately 2.3 lbs (36.8 oz)
	PC200R-SS PC200RW-SS	
Material inlets	9/16-18 SAE	
Air ports	#10-32 UNRF	
Operating Air Pressure	60 – 100 psi	
Maximum Fluid Pressure	1500 psi	
Viscosity Range	1 cps – 250,000 cps	

11. Troubleshooting

Troubleshooting Problem	Possible Cause	Corrective Action
Valve Does Not Cycle	<ul style="list-style-type: none"> • Air pressure to air section is too low • Stroke adjustment screw is fully engaged • Material is cured in the valve • Valve was assembled without lubricating the O-rings 	<ul style="list-style-type: none"> • Increase the air pressure to 60-100 psi • Turn stroke adjustment screw counterclockwise to increase snuff back • Disassemble and clean valve • Disassemble valve, lubricate O-rings and assemble again
Material Leaks From Static Mixer	<ul style="list-style-type: none"> • Snuff back is set too low • Lip seals are worn • Air trapped in the valve or static mixer 	<ul style="list-style-type: none"> • Turn stroke adjustment screw counterclockwise to increase snuff back • Replace lip seals • Bleed valve until air is removed
Air Bubbles In Fluid	<ul style="list-style-type: none"> • Valve is not correctly bled • Problem with fluid delivery system 	<ul style="list-style-type: none"> • Bleed the valve until the air is removed • Diagnose and repair
No Flow From Valve	<ul style="list-style-type: none"> • Manifold is blocked • Air cylinder does not operate • Static mixer is plugged • Problem with material supply 	<ul style="list-style-type: none"> • Examine and clean manifold • Increase operating air pressure to 80 psi. Inspect valve for cured material • Replace static mixer • Examine material supply to the valve
Valve Drips Continuously After Shutoff	<ul style="list-style-type: none"> • Snuff back is set too low • Lip seals are defective or worn • Valve rods are defective or worn 	<ul style="list-style-type: none"> • Turn stroke adjustment screw counterclockwise to increase snuff back. • Examine and replace lip seals • Examine and replace valve rods

Valve Drips For a Short Time After Shutoff	<ul style="list-style-type: none"> • Air is trapped in the manifold • Air is trapped in the static mixer 	<ul style="list-style-type: none"> • Bleed the valve until the air is removed • Bleed the valve until the air is removed
Cross-Contamination In Manifold Nozzle	<ul style="list-style-type: none"> • Snuff back is set too high • System material supply not correctly bled of air 	<ul style="list-style-type: none"> • Turn stroke adjustment screw clockwise to decrease snuff back • Bleed material supply system until the air is removed
Seals Fail Rapidly	<ul style="list-style-type: none"> • Seals are not compatible with material • Material has abrasive fillers 	<ul style="list-style-type: none"> • Contact PVA for seal options • Contact PVA for seal options
Valve Has Air Leak	<ul style="list-style-type: none"> • Jam nut is loose • Air cylinder O-rings are worn 	<ul style="list-style-type: none"> • Tighten jam nut against stroke adjustment sealing washer • Replace air cylinder section O-rings
Valve Leaks at Separation Block	<ul style="list-style-type: none"> • Lip seals are defective or worn • Valve rods are defective or worn • Sleeve bearings are worn 	<ul style="list-style-type: none"> • Examine and replace lip seals • Examine and replace valve rods • Examine and replace sleeve bearings
Material Does Not Cure	<ul style="list-style-type: none"> • Mix ratio is incorrect • Material not sufficiently mixed 	<ul style="list-style-type: none"> • Do ratio checks at manifold and adjust metering system as necessary • Use a static mixer with sufficient mixing elements – consult material manufacturer or PVA

12. Notes

13. Warranty

PVA Warranty Policy

PVA warrants the enclosed product against defects in material or workmanship on all components for one year from the date of shipment.

The warranty does not extend to components damaged due to misuse, negligence, or installation and operation that are not in accordance with the recommended factory instructions. Unauthorized repair or modification of the enclosed product, and/or the use of spare parts not directly obtained from PVA (or from factory authorized dealers) will void all warranties.

All PVA warranties extend only to the original purchaser. Third party warranty claims will not be honored at any time.

Prior to returning a product for a warranty claim, a return authorization must be obtained from PVA's customer service department. Authorization will be issued either via the telephone, facsimile, or in writing upon your request.

To qualify as a valid warranty claim, the defective product must be returned to the factory during the warranty period. Upon return, PVA will repair (or replace) all components found to be defective in material or workmanship.

(Retain this for your records)

Product Information:

PRODUCT: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

14. Table of Figures

Figure 1: General PC200 Pneumatic Schematic.....	7
Figure 2: Valve Components.....	9
Figure 3: Static Mixer.....	11
Figure 4: Fill the Static Mixer.....	11
Figure 5: Purge the Static Mixer.....	12
Figure 6: PC200 Night Cap.....	13
Figure 7: PC200 Ready for Disassembly.....	14
Figure 8: Fluid Manifold Screws.....	14
Figure 9: Disassembled Fluid Manifold.....	15
Figure 10: Valve Shoulder Bolts.....	15
Figure 11: Remove Air Cap Screws.....	15
Figure 12: Air Cylinder without Air Cap.....	16
Figure 13: Remove Air Fittings.....	16
Figure 14: Push Rods to Disengage.....	16
Figure 15: Disengaged Piston-Rod Assembly.....	17
Figure 16: Seal Plate Removed.....	17
Figure 17: Piston-Rod Assembly Removed.....	17
Figure 18: Disconnect Valve Sections.....	18
Figure 19: Install the Tap into the Sleeve Bearing.....	18
Figure 20: Engage the Tap into the Sleeve Bearing.....	18
Figure 21: Turn the Tap and Pull Out.....	19
Figure 22: Remove the Sleeve Bearing.....	19
Figure 23: Remove Lip Seals From Fluid Section.....	20
Figure 24: Air Cylinder O-ring.....	20
Figure 25: Clean the Seal Plate.....	21
Figure 26: Clean the Air Cylinder.....	21
Figure 27: Clean the Cylinder Cap.....	21
Figure 28: Clean the Fluid Section.....	22
Figure 29: Clean the Piston-Rod Assembly.....	22
Figure 30: Install Screw in the Piston-Rod Assembly.....	23
Figure 31: Rods and Piston.....	23
Figure 32: Tighten Rods.....	24
Figure 33: Put the O-ring on the Piston.....	24
Figure 34: Sleeve Bearings Installed in the Separation Block.....	24
Figure 35: Lip Seals in Seal Plate.....	25
Figure 36: Lip Seal Alignment Tool and Fluid Section.....	25
Figure 37: Lip Seal Insertion Tool.....	25
Figure 38: O-rings for the Fluid Section.....	26
Figure 39: Align the Sections.....	26

Figure 40: Assemble the Separation Block, Fluid Body and Seal Plate	26
Figure 41: Align the O-rings	27
Figure 42: Air Cylinder Openings Aligned with the Assembly.....	27
Figure 43: Air Cylinder and Fluid Assembly	27
Figure 44: Apply Grease to the Cylinder Wall.....	27
Figure 45: Apply Grease to the O-ring	28
Figure 46: Piston-Rod Assembly	28
Figure 47: Install Piston.....	28
Figure 48: Use a Press to Install the Piston-Rod Assembly.....	29
Figure 49: Piston Fully Engaged in Valve Assembly	29
Figure 50: Apply Grease to Air Cylinder Groove	30
Figure 51: Apply Grease to O-ring.....	30
Figure 52: Tighten Stroke Adjustment Screw	30
Figure 53: Sealing Washer	31
Figure 54: Jam Nut	31
Figure 55: Cylinder Cap Installed on the Valve	31
Figure 56: O-rings in the Fluid Manifold	32
Figure 57: Fluid Manifold Aligned with Valve	32
Figure 58: Assembled Valve	32
Figure 59: Mechanical Drawings PC200R.....	37
Figure 60: PC200R Exploded View	38
Figure 61: Mechanical Drawing PC200RW.....	42
Figure 62: Exploded View PC200RW.....	42
Figure 63: Part Number Configuration	43
Figure 64: Accessories and Options	45