INNOVATION. PRECISION. EXCELLENCE.

PDP

Progressive Cavity Dual Pump

Operation Manual

Revision D

Precision Valve & Automation
6 Corporate Drive
Halfmoon, NY 12065

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.

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Table of Contents

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 Technical Support department.

1.1 PVA Contact Information

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1.2 Document History

Revision	Revision Date	Reason for Changes
REV D	May 2025	Updated Flow Rates in Figure 95
REV C	December 2021	Updated Technical Specifications and Contact Info
REV B	December 2020	Updated Bill of Materials and Parts Breakdown
REV A	August 2020	Initial Release

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

1.1 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.

Do not remove protective guarding.

In situations where inattention could cause either personal injury or damage to equipment, a warning notice is used.

Do not smoke near the machine. Always have a fire extinguisher available for emergency use.

Before performing any repairs or maintenance to the system, turn off power and lock out the power disconnect switch.

Warning notices are used to emphasize that hazardous voltages, current, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use. Only qualified personnel should enter areas designated with this symbol.

Laser light source present. Do not stare directly into the beam. Do not use in the presence of highly reflective surfaces

Pinch hazard from moving parts. Avoid contact.

Hot surface. Avoid contact.

Warning, Ultraviolet (UV) light hazard. Do not look directly at the UV light source.

1.3 System Description

This manual applies to the following Precision Valve & Automation, Inc. pumps:

PDP015	**PDP015-C**
PDP050	**PDP050-C**
PDP150	**PDP150-C**
PDP500	**PDP500-C**
PDP1000	**PDP1000-C**

1.4 Theory of Operation

The PDP Series of progressive cavity pumps bring superior volumetric accuracy to your most demanding two-component dispensing applications. Progressive cavity pumps feature a machined rotor that couples with a rubberized seal to assure drip-free operation with a wide range of viscous chemistries. Each servo-controlled rotor displaces a fixed volume of material per revolution. This true positive displacement process assures consistent volume regardless of slight material variations.

The PDP Series features independently controlled pumps for both resin and hardener allowing users the ability to customize their desired mix ratio. Five different rotor sizes span a wide range of flow rates. An optional carbide rotor is available for extended life when processing filled or abrasive chemistries.

1.5 Description of Components

Component	Description
Electric Motor	The motor turns the rotor. Motor speed and direction can be fully adjusted to change the flow rate and flow direction.
Rotor	The rotor is a stainless-steel helical shaft. A fixed volume of material is moved as it rotates inside the stator and uses the principal of the “endless piston”.
Stator	The stator is an elastomeric seal with a double helix molded into it. The stator lets material flow when the rotor turns but has a perfect seal when the rotor is stopped.
Manifold	The manifold receives material from the stator and supplies it to the static mixer through two material outlets. There is one manifold that attaches to the two pumps. The materials are still separate at this point and do not combine until they enter the static mixer.

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 Necessary Tools

PVA offers tools and cleaning accessories to maintain the PDP progressive cavity pumps.

Part Number	Description
12862	Stator Tool
02506	Hook and Pick Set

Figure 1: Necessary Tools

2. Setup

Before you operate the pump, know the pump components. Do the steps instructed below for safe and correct operation.

WARNING: Never operate the pump dry. If the pump is operated dry or without pump conditioner, severe damage will occur. Always put pump conditioner on the rotor before the pump is assembled.

1. Use the mounting holes to install the PDP onto the workcell.
2. Attach component A and B fluid supply lines to the related fluid inlets.

Make sure the fluid fittings are tight and do not leak.

3. Attach the motor cables and make sure the routing of the cables is correct.

Make sure the two motor connections on the pump are tight and that the prongs are not bent.

Make sure the system power is off before attaching the cables.

3.Operation

WARNING: Never operate the pump dry. If the pump is operated dry or without pump conditioner, severe damage will occur. Always apply lubricant to the rotor before the pump is assembled.

You must perform the initial bleed for the pump to function correctly. Make sure the material is supplied correctly to each side. The sections that follow are in the recommended order to operate the pump. To operate the pump, perform every sub-section in Section 3, in the order shown.

3.1 Bleed the Pump

1. Open the bleed clip.

Figure 2: Open Bleed Clip

2. Turn the bleed clip counterclockwise to loosen. Turn one full rotation then slowly until material appears.

Figure 3: Turn Bleed Clip

3. Turn one full rotation and then slowly until the material begins to bleed.
4. Let the material flow from the material outlets until there are no breaks in the material flow.

Figure 4: Material Flow

NOTE: Any break in the flow of the material shows there is still air in the system. Bleed the pump until the material flows smoothly without any breaks in the flow.

NOTE: The fluid supply operating pressure must have a flow rate equal to or more than the maximum flow rate capacity of the pump.

5. Clean all material from the manifold and material outlets.
6. Close the bleed clip by spinning it clockwise until there is resistance.
7. Close the door of the bleed clip.

3.2 Material Flow Rate

Material flow rate can be adjusted in Auto Cycle or Manual mode through PVA Portal. Refer to How to Use the PDP with Portal for more information.

An alternative is to adjust the path speed in PathMaster instead of material flow rate. Refer to your PathMaster manual.

3.3 Mix Ratio

The mix ratio can be adjusted in Auto Cycle or Manual mode through PVA Portal. Refer to How to Use the PDP with Portal for more information. The maximum mix ratio value is 10:1.

3.4 Pump Setup

1. Remove the pump from the workcell.
2. Clean the manifold and the mix clip. Do not mix material from side A with side B.
3. Use a 2.5 mm hex key to remove the two screws from the mix clip.
4. Remove the mix clip.

Figure 5: Remove Static Mixer Collar and Screws

5. Make sure the ratio cap screws are equipped with two o-rings.
6. Align the ratio cap ports with the manifold ports and the ratio cap screws with the holes in the manifold.

Figure 6: Align Ratio Cap Ports and Screws with the Manifold

7. Push the ratio cap into position.
8. Tighten one screw in the ratio cap 3-4 turns.
9. Tighten the other screw in the ratio cap 3-4 turns.
10. Continue to tighten each screw 3-4 turns until both screws are tight.

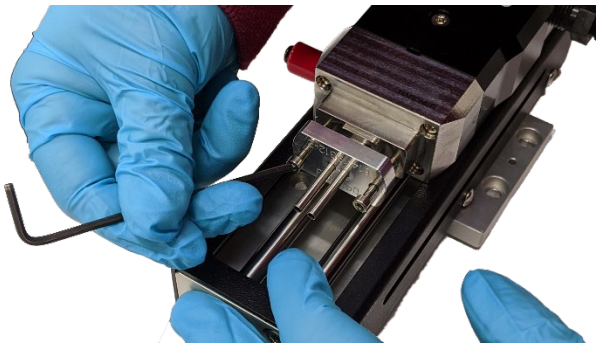


Figure 7: Tighten Ratio Cap Screws

NOTE: The screws will not be fully engaged.

11. Purge the ratio cap and clean it off.

3.5 Install the Static Mixer

1. After the system has been bled, you must install the static mixer.
2. Push the static mixer up and attach it.
3. Use the purge function to release all air from the static mixer.

3.6 Pump Shutdown Procedure

1. Remove the static mixer from the manifold.
2. Purge material through the manifold until both materials come out clean with no cross contamination.
3. Completely clean the manifold material outlets.
4. Install a night cap on the manifold material outlet.
5. Release the fluid supply pressure. Refer to the workcell manual if necessary.

4.Disassemble and Clean the Pump

4.1 Remove the Pump from the Workcell

1. Remove the two motor connections from the motor housing of the pump.

Note: Make sure the system power is off before removing the motor connections.

2. Remove the static mixer.
3. Use a wrench to remove the two hoses from the pump. Make sure to keep the A and B sides separate. The material fitting will stay attached to the fluid bodies.
4. Put a cap on the two material fittings and plug the hoses.
5. Use a 2.5 mm hex key to remove the mounting bolt from the twin block.
6. Remove the pump from the workcell.

4.2 Disassemble the Pump

1. Place the pump on a clean work surface.
2. Use a 2.5 mm hex key to remove the two M3 x 8 mm socket head cap screws from the mix clip.
3. Remove the mix clip.

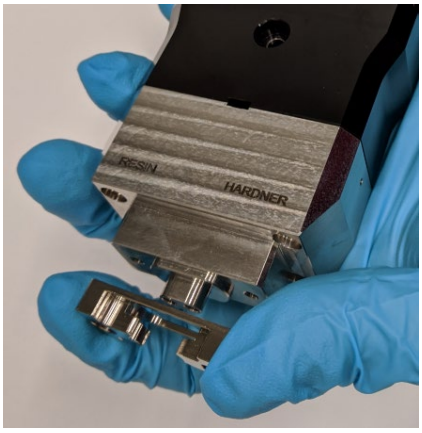


Figure 8: Remove Mix Clip

4. Use a 2.5 mm hex key to remove the four M3 x 25 mm socket head cap screws from manifold.

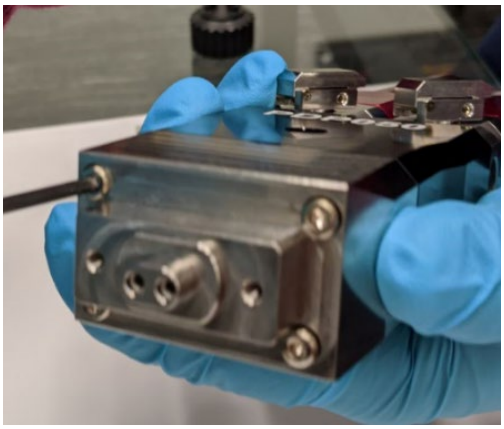


Figure 9: Remove Screws from Manifold

5. Separate the manifold and the twin block.

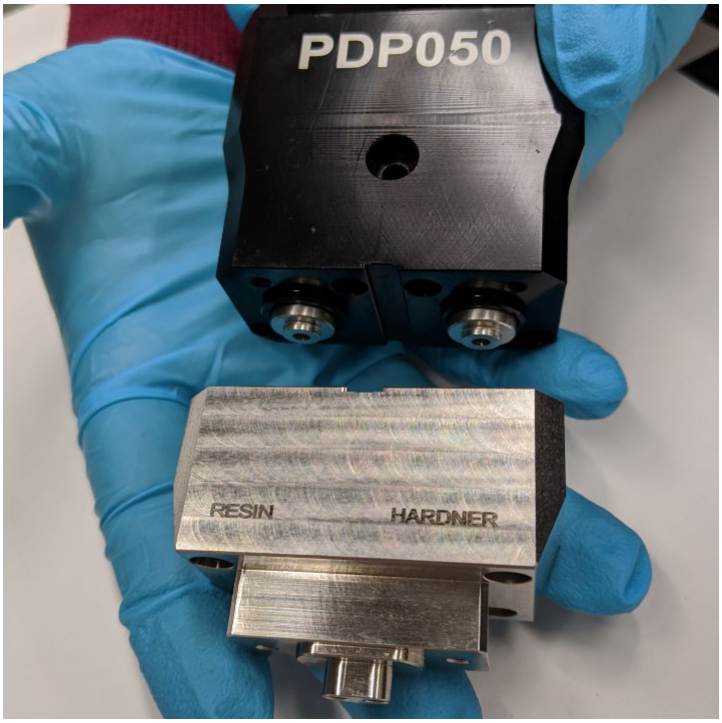


Figure 10: Separate Manifold from Twin Block

6. Remove the o-rings from the manifold.

7. Examine the o-ring for damage. Save it if it is not damaged. Replace it if it is damaged.

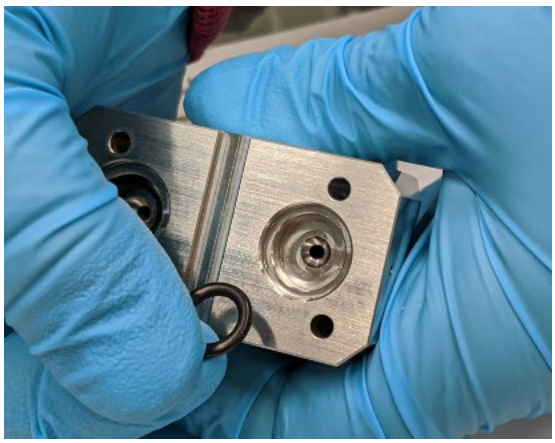


Figure 11: Remove O-Rings from Manifold

8. Use a 2.5 mm hex key to remove the four M3 x 50 mm socket head cap screws from the twin block.

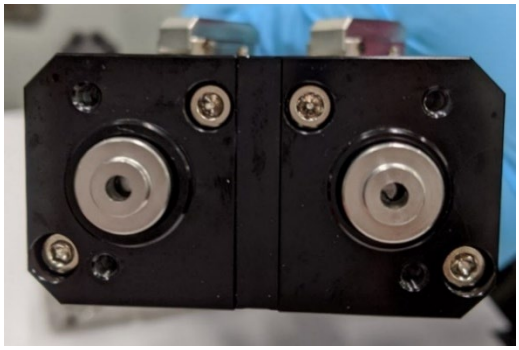


Figure 12: Remove Screws from Twin Block

9. Remove both pumps from the twin block.

Figure 13: Remove Pumps from Twin Block

10. Use a 2.5 mm hex key to remove the two M3 x 55 mm socket head cap screws from the rotor assembly.

11. Separate the motor from the rotor assembly.

Figure 14: Separate Motor from Rotor Assembly

12. Remove the blue coupling from the rotor assembly.

Figure 15: Remove Coupling

13. Twist to unscrew the union cap and remove it from the stator sleeve.

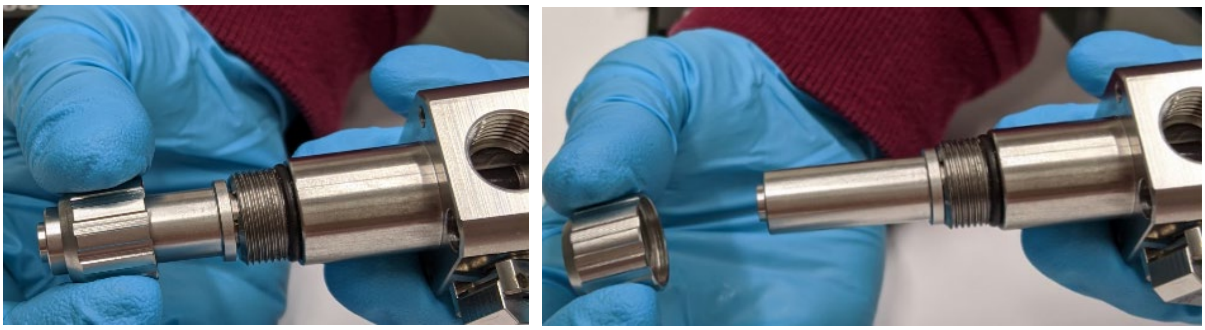


Figure 16: Remove Union Cap

14. Remove stator sleeve.

Figure 17: Remove Stator Sleeve

15. Install the stator tool onto the rotor assembly.

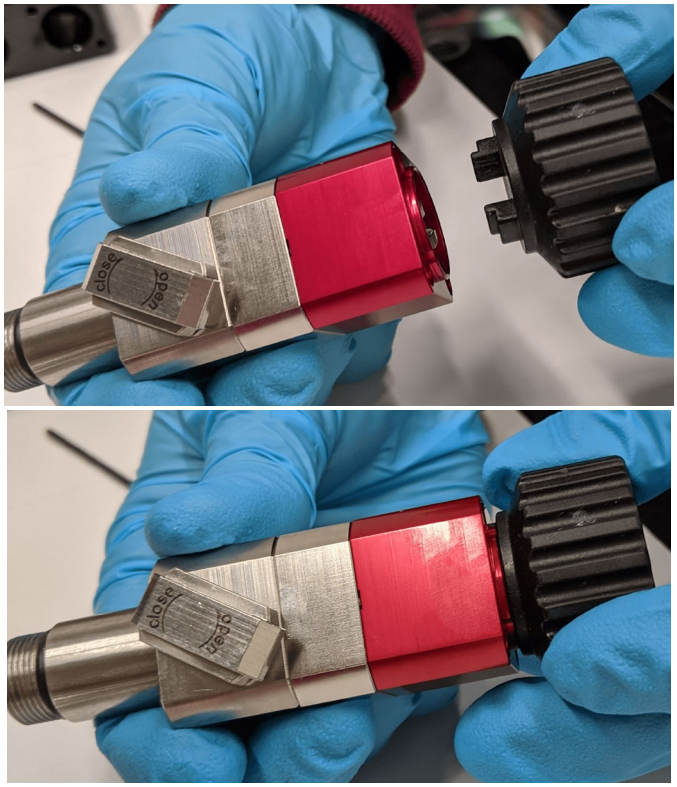


Figure 18: Install Stator Tool

16. Hold the stator tool to stabilize and twist counterclockwise to remove the stator.

Figure 19: Remove Stator

17. Twist to remove the bleed clip from the vent port.

Figure 20: Remove Bleed Clip

18. Remove the o-rings from the fluid block assembly.

19. Examine the o-rings for damage. Save it if it is not damaged. Replace it if it is damaged.

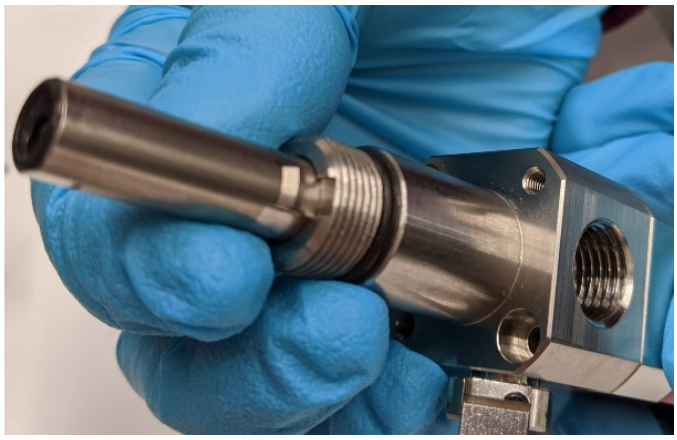


Figure 21: Remove O-Ring

20. Use a 2.5 mm hex key to remove the two M3 x 35 mm socket head cap screws from the rotor assembly.

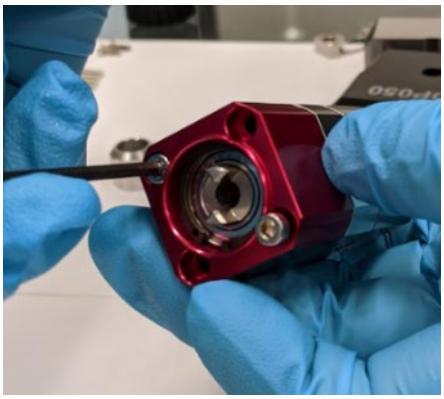


Figure 22: Remove Screws from Rotor Assembly

21. Separate the fluid block from the seal block/rotor assembly.

Figure 23: Separate Fluid Block

22. Remove the o-ring from the fluid block.

23. Examine the o-ring for damage. Save it if it is not damaged. Replace it if it is damaged.

Figure 24: Remove O-ring from Fluid Block

24. Remove the o-ring from the seal block.
25. Examine the o-ring for damage. Save it if it is not damaged. Replace it if it is damaged.

Figure 25: Remove O-Ring from Seal Block

26. Separate the seal block from the rotor assembly.

Figure 26: Remove Seal Block

27. Remove seals and o-rings from seal block.

4.3 Clean All Wetted Parts

- Wear gloves when you use solvents.
- Cover the work surface so the solvent and material does not damage it.
- Only use appropriate solvents.

1. Use solvent, cotton tipped applicators and lint free disposable towels to clean all wetted parts of the pump. When cotton tipped applicators and towels get dirt and material on them, discard them and use a new one. Do not mix the materials.
2. Make sure all material is removed from the inside and outside.
3. Clean the fluid port.
4. Make sure all material is removed from the rotor and the groove at the base of the rotor.

Figure 27: Clean Rotor

Note: Do not flush the rotor assembly with any material or put it in solvent as the bearings may be damaged as a result. Clean only with cotton tipped applicators, a cloth, and/or a soft brush.

5. Make sure all material is removed from the inside and outside of the stator using a pipe cleaner.

Figure 28: Clean the Stator

6. Make sure material is removed before assembling the pump.
7. Repeat steps for side B of the pump.
8. Clean both the mix clip and manifold with solvent, cotton tipped applicators and lint free disposal wipes.

5. Assemble the Pump

5.1 Assemble the Pump

1. If necessary, install the AN015 o-rings onto the UHMW-PE rotary seals then install the seals onto the seal block.

2. Install the seal block onto the rotor assembly.

Figure 29: Install Seal Block on Rotor Assembly

Note: When installed, the four small holes on the seal block should be facing away from the rotor assembly. The side in the image below should be facing towards the rotor assembly.

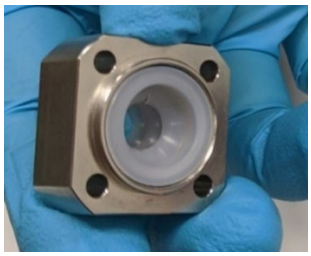


Figure 30: Seal Block Direction

3. Press the seal block and rotor assembly together. To avoid damage to the seals, ensure that the seal block and rotor assembly are concentric.

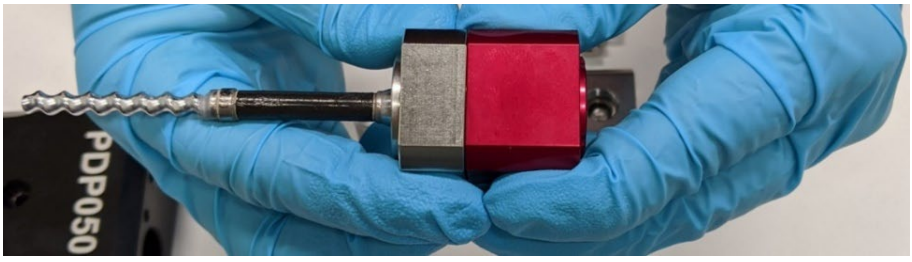


Figure 31: Seal Block and Rotor Assembly

4. Lubricate the AN016 O-ring with pump conditioner.
5. Install the AN016 O-ring onto the seal block.

Figure 32: Install O-Ring on Seal Block

6. Lubricate the P9 O-ring with pump conditioner.
7. Install the P9 O-ring onto the fluid block.

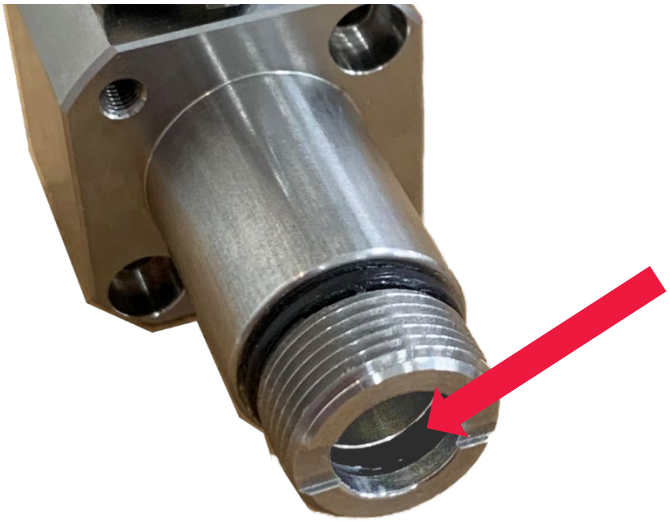


Figure 33: Install O-ring onto Fluid Block

8. Install the fluid block onto the seal block/rotor assembly.

Note: When installing the fluid block, ensure that the bleed port is on the front and the fluid inlet is on the outer side of the pump. For example, in the left pump pictured above, the fluid inlet is on the left side.

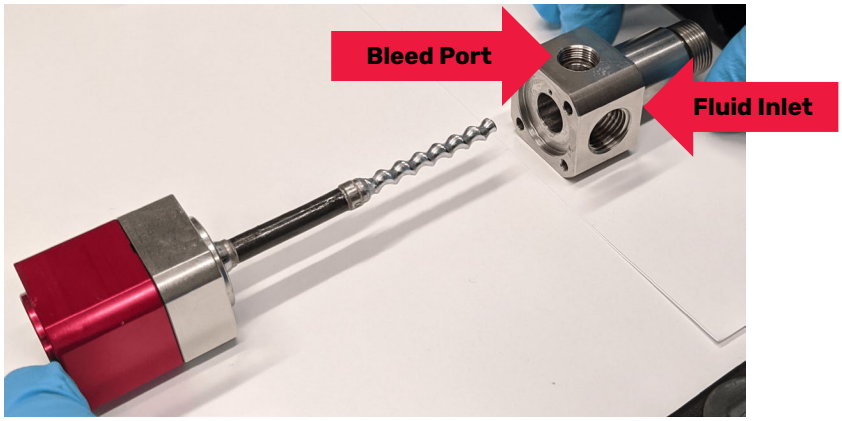


Figure 34: Install Fluid Block

Figure 35: Fluid Block Installed

9. Install the two M3 x 35 mm socket head cap screws onto the rotor assembly and fluid block. Tighten with a 2.5 mm hex key.

Figure 36: Install Screws onto Rotor Assembly/Fluid Block

10. Lubricate the AS013 O-ring with pump conditioner.
11. Install the AS013 o-ring on the bottom of the fluid block assembly.

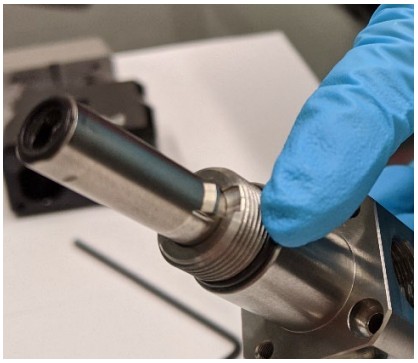


Figure 37: Install O-Ring on Fluid Block Assembly

12. Lubricate the SS5 O-ring with pump conditioner.
13. Install the SS5 O-ring onto the vent port.

Figure 38: Install O-Ring on Vent Port

14. Lubricate the SS5 O-rings with pump conditioner.
15. Install the SS5 O-rings on the bleed clip based on the picture below.

Figure 39: Bleed Clip O-Rings

16. Install the bleed clip onto the vent port.

Figure 40: Install Bleed Clip

17. Apply pump conditioner to the rotor.

18. Install the stator tool onto the rotor assembly.

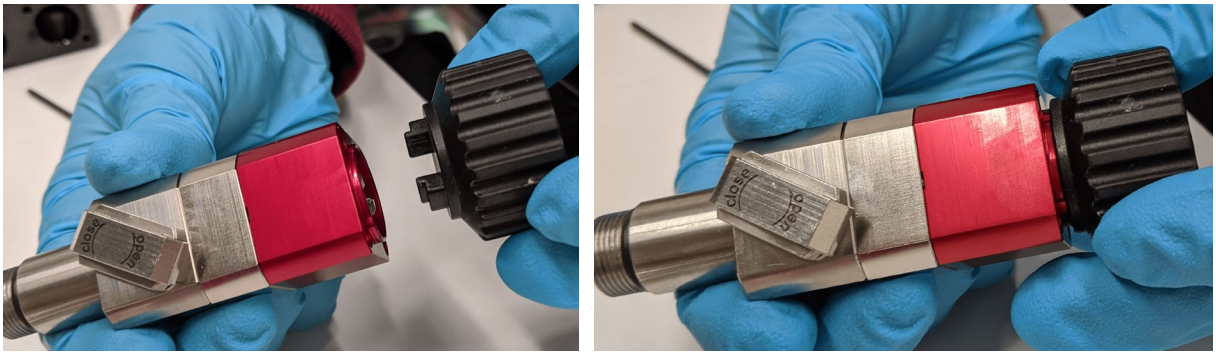


Figure 41: Install Stator Tool

19. Face the tabs of the stator toward the fluid block assembly. Hold the stator tool to stabilize and twist on the stator.

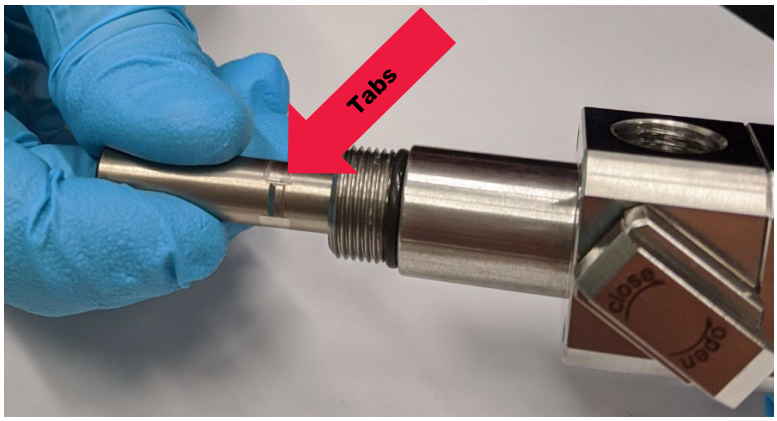


Figure 42: Install Stator onto Rotor Assembly

Note: Align the tabs with the locating features.

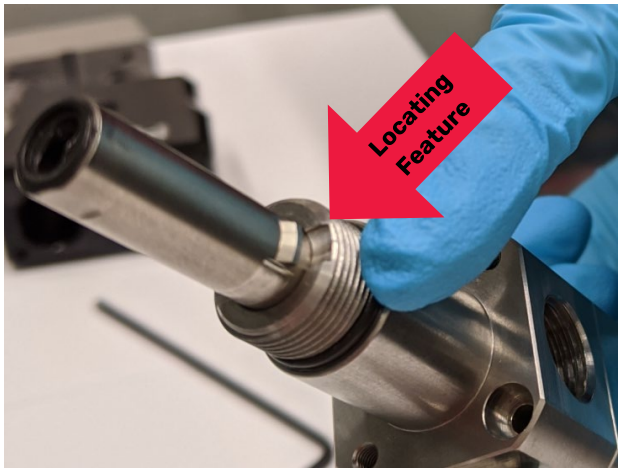


Figure 43: Align Tabs with Locating Features

Note: The rotor should be flush with the bottom of the stator.

Figure 44: Rotor and Stator

20. Slide the stator sleeve over the stator.

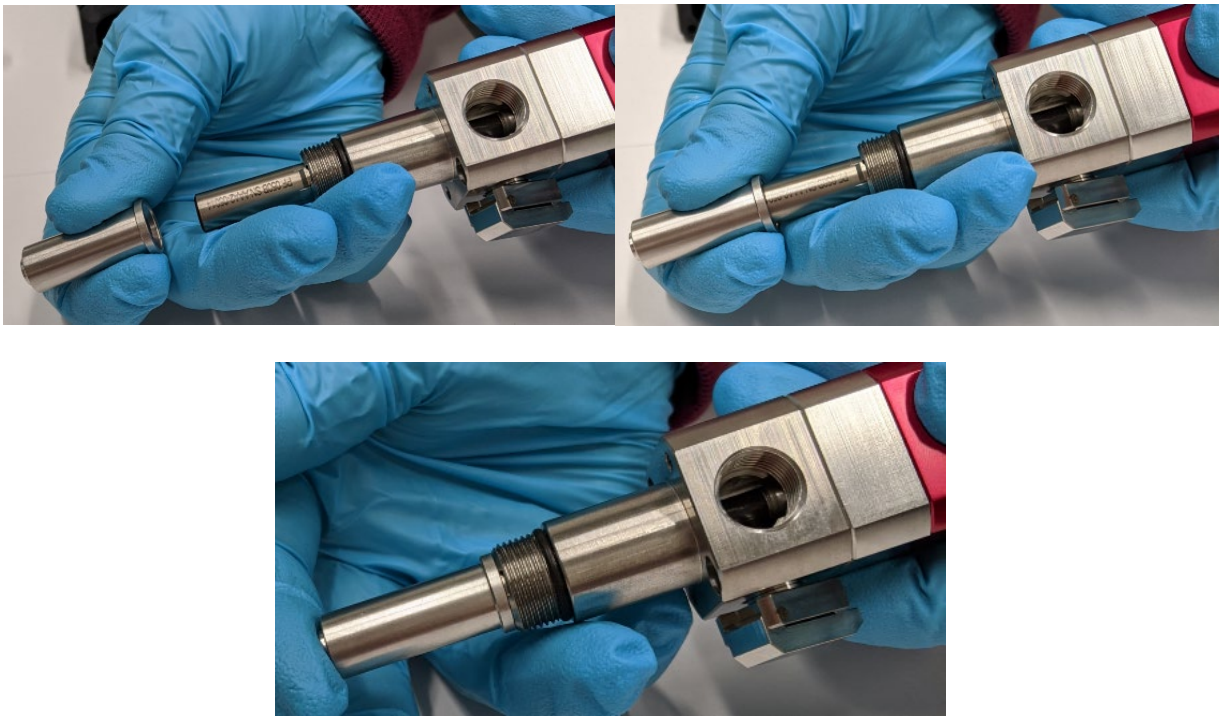


Figure 45: Install Stator Sleeve

21. Slide the union cap over the stator sleeve. Twist until it is secure.

Figure 46: Install Union Cap

22. Install the blue coupling onto the rotor assembly.

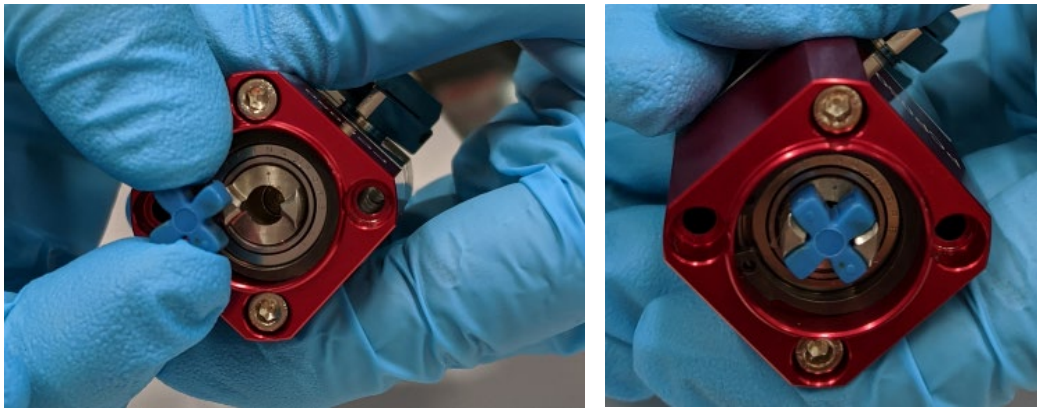


Figure 47: Install Blue Coupling

23. Install the motor onto the rotor assembly.

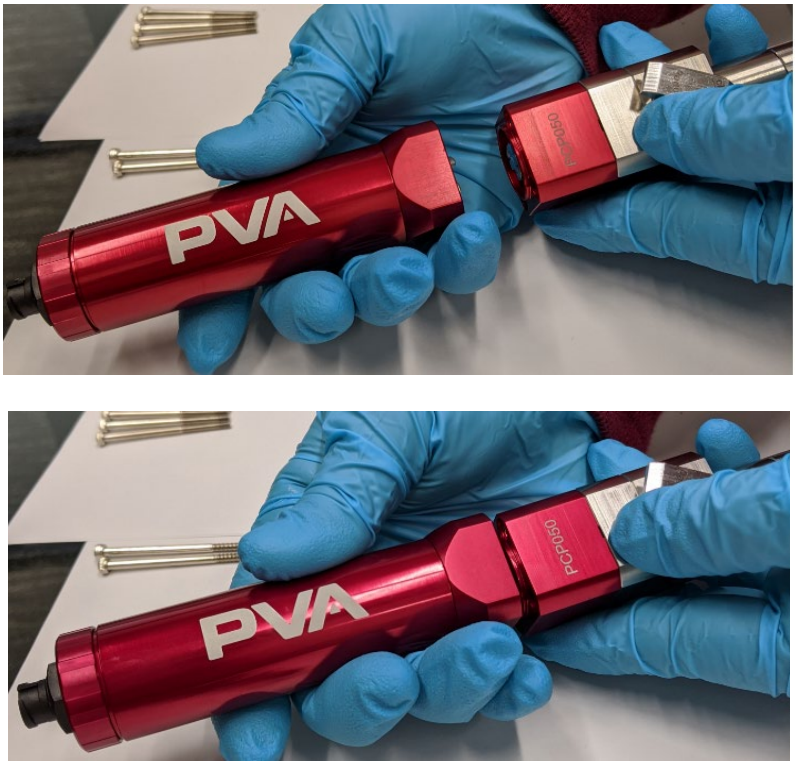


Figure 48: Install Motor

24. Install the two M3 x 55 mm socket head cap screws. Tighten with 2.5 mm hex key.

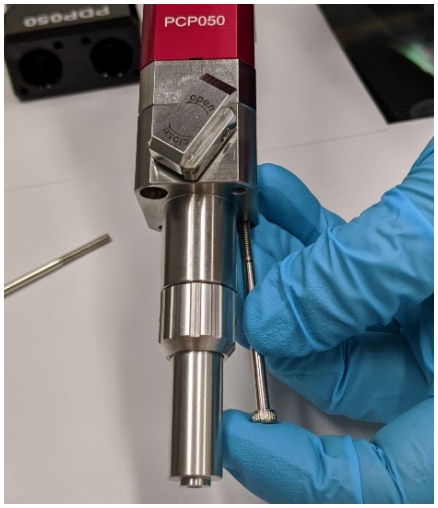


Figure 49: Install Screws

25. Complete steps 1-16 with the other pump.

26. Install both pumps onto the twin block.

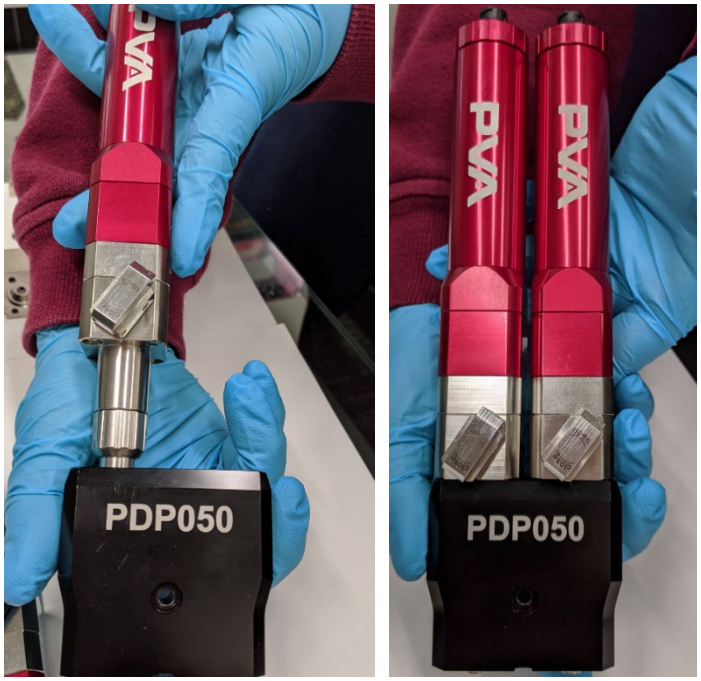


Figure 50: Install Pumps on Twin Block

27. Install the four M3 x 50 mm socket head cap screws onto the twin block. Tighten with a 2.5 mm hex key.

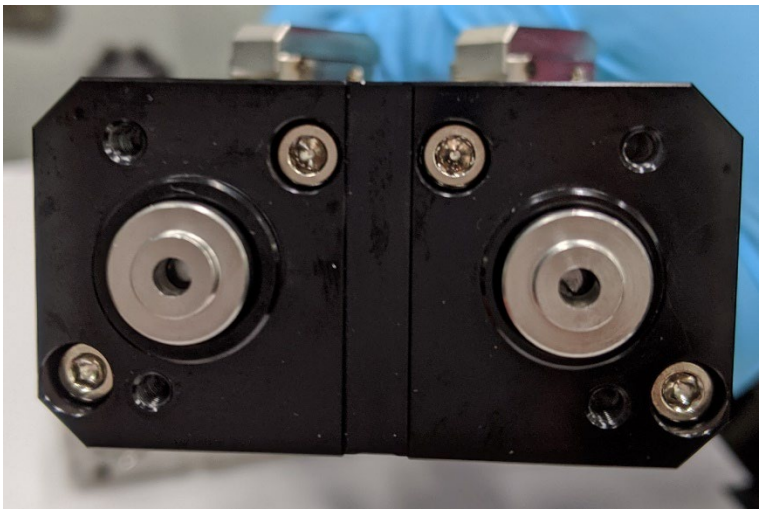


Figure 51: Install Screws on to Twin Block

28. Lubricate the FKM AS013 O-rings with pump conditioner.

29. Install the FKM AS013 O-rings onto the manifold block.

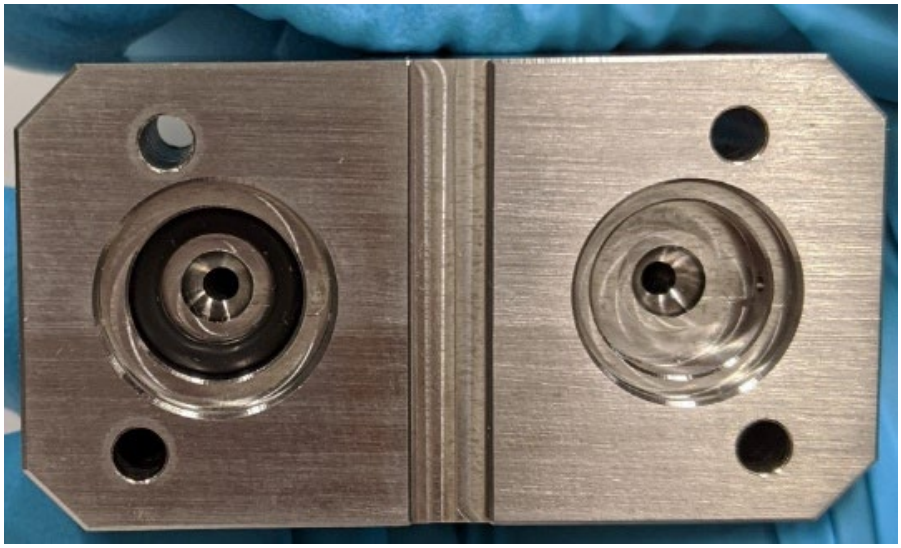


Figure 52: Install O-Ring onto Manifold Block

30. Install the manifold onto the twin block.

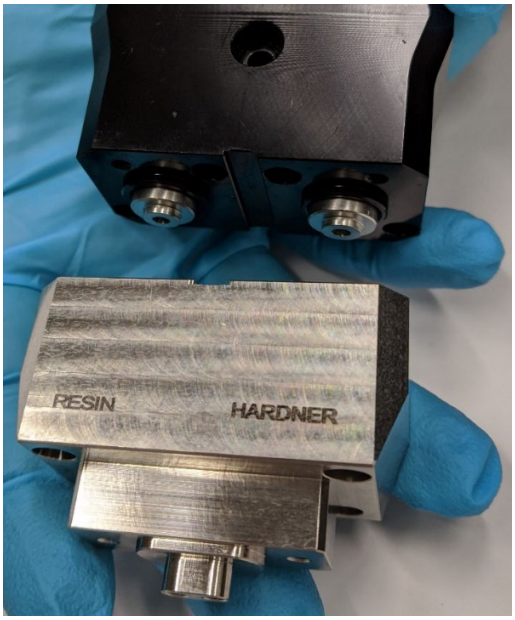
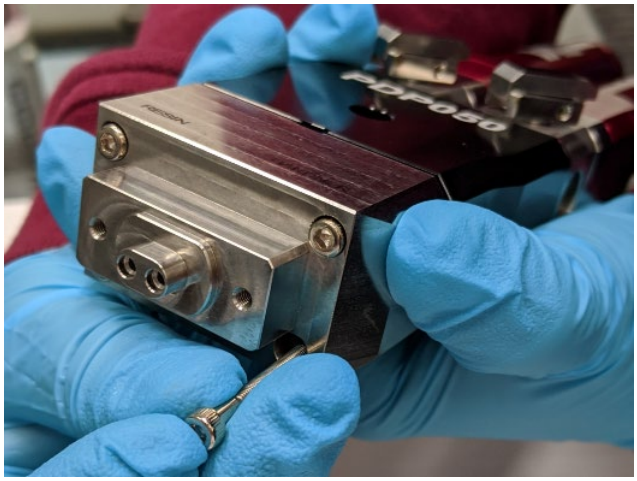


Figure 53: Install Manifold onto Twin Block

31. Install the four M3 x 25 mm socket head cap screws onto the manifold. Tighten with a 2.5 mm hex key.



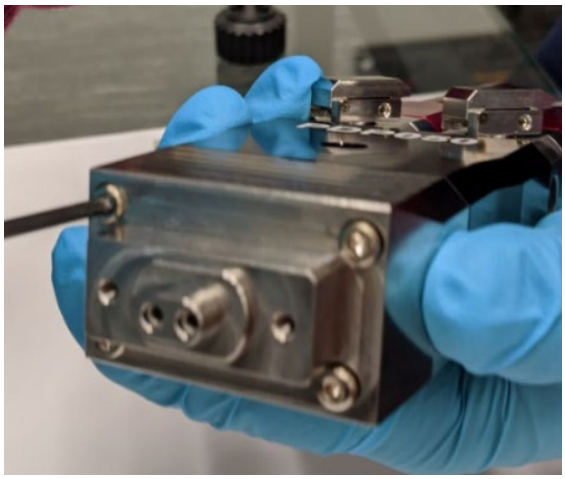


Figure 54: Install Screws on Manifold

32. Install mix clip onto the manifold.

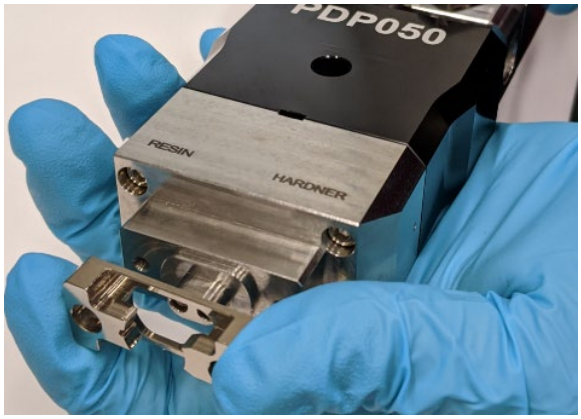


Figure 55: Install Mix Clip

33. Use two M3 x 8 mm socket head cap screws to install the mix clip. Leaving the screws loose, install the static mixer. Tighten the screws with a 2.5 mm hex key.

Figure 56: Assembled PDP

5.2 Install the Pump on the Workcell

1. Install the mounting bolt into the twin block to attach the pump to the workcell.
2. Connect the material fittings to the fluid body.
3. Attach the two motor connections.

Note: Make sure the system power is off before removing the motor connections.

5.2.1 Install the Static Mixer

1. Turn the pump lever down to the loosen the pump.

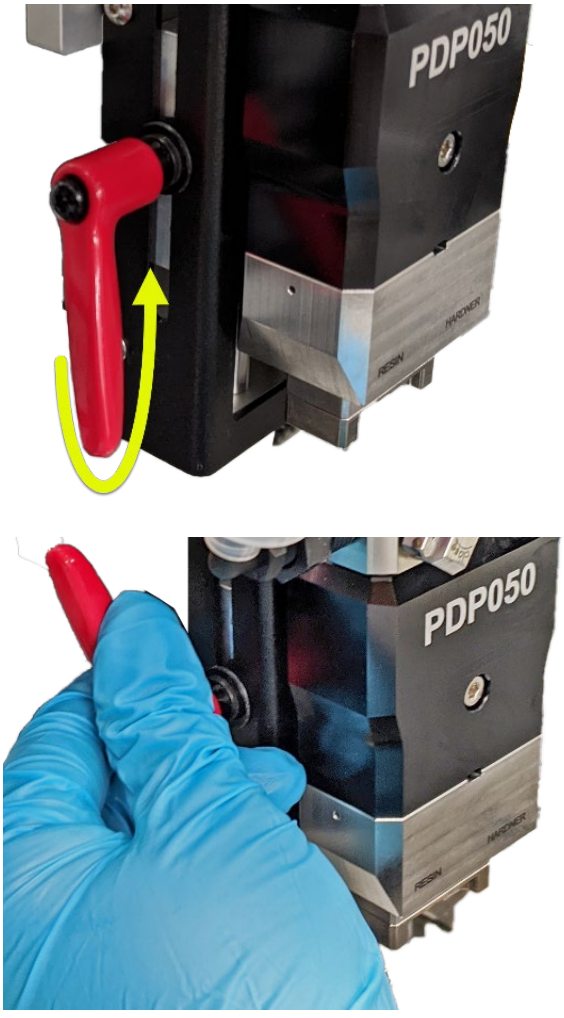


Figure 57: Pump Lever

2. Push the pump upwards.

3. To install the static mixer, align the tabs of the static mixer with the mix clip.
4. Push the static mixer up into the mix clip and twist to lock it into place.

Figure 58: Install Static Mixer

5.2.2 Install the Stopcock

1. Remove the bolts on the securing block.

Figure 59: Loosen Bolts

2. Remove the securing block.

Figure 60: Remove Securing Block

3. Turn the valve into the closed position before installation.

Figure 61: Close Valve

4. Insert the valve into the stopcock assembly.

Figure 62: Insert Valve

5. Reinstall the securing block onto the stopcock assembly.
6. Install and tighten the bolts.

Figure 63: Install Bolts

7. Install static mixer onto stopcock assembly.

Figure 64: Install Static Mixer

8. Install needle onto the bottom of the stopcock assembly.

Figure 65: Install Needle

6. Maintenance

Interval	Action
Daily	• Examine the material outlets for contamination and cured material. • Make sure the mix ratio and the volume and flow rate of component A and B materials are correct. • Examine the motor cables and material supply hoses for signs of wear, kinks or twists.
Weekly	• Examine component A and B material containers or cartridges for signs of cured or dried material. • Replace filters if necessary. • Examine the motor cables and material supply hoses for signs of wear, kinks or twists.

6.1 Replace the Static Mixer

It is necessary to change the static mixer when the pressure goes out of range. This depends on the type of materials being dispensed and the number of cycles done per day. Each time the static mixer is changed it is necessary to clean the material outlets on the manifold.

1. Remove the used static mixer.
2. Clean the material outlets.
3. Use solvent, cotton tipped applicators and lint free disposal wipes.
4. Do not use the same tools to clean side A and B. Use separate applicators and wipes to avoid contamination and mixing the materials.
5. Install the new static mixer.
6. Install new dispensing components, if applicable for your dispense system, such as a needle or stopcock (refer to the related appendix for more information).
7. Purge the pump and fill the static mixer with material before operation.

6.2 Replace the Star Shaped Coupling

1. Examine the star shaped coupling in the bearing block. If it is damaged, replace it.
2. Use a pick to remove the star shaped coupling.
3. Put the new star shaped coupling in the bearing block.
4. Use the pick to position it correctly.
5. Push on the coupling to make sure it is correctly installed.

Figure 66: Examine Coupling

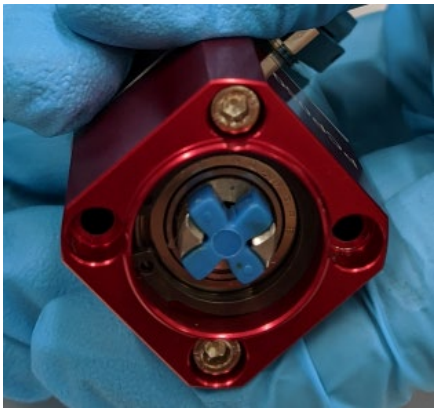


Figure 67: Replace Coupling

7. How to Use the PDP with Portal

If your PDP is on a workcell with PVA Portal, you will use the screens that follow to operate it. Refer to the Portal manual for additional information on how to use the program.

NOTE: The screens may be different based on customer specific configuration.

The screens that relate to the PDP are in Manual mode under “PDP050”. When you are in this screen, a row of tabs will be shown under the row of manual mode tabs. Use the left and right arrows to scroll through the tabs.

7.1 Setup Mode

The settings that are used in Auto Cycle can be changed in Setup Mode as shown below.

1. Select Setup mode.
2. Select the Setup Tree tab.
3. Select the **+** symbol next to a Parameter to expand the setup tree as shown in the examples below.

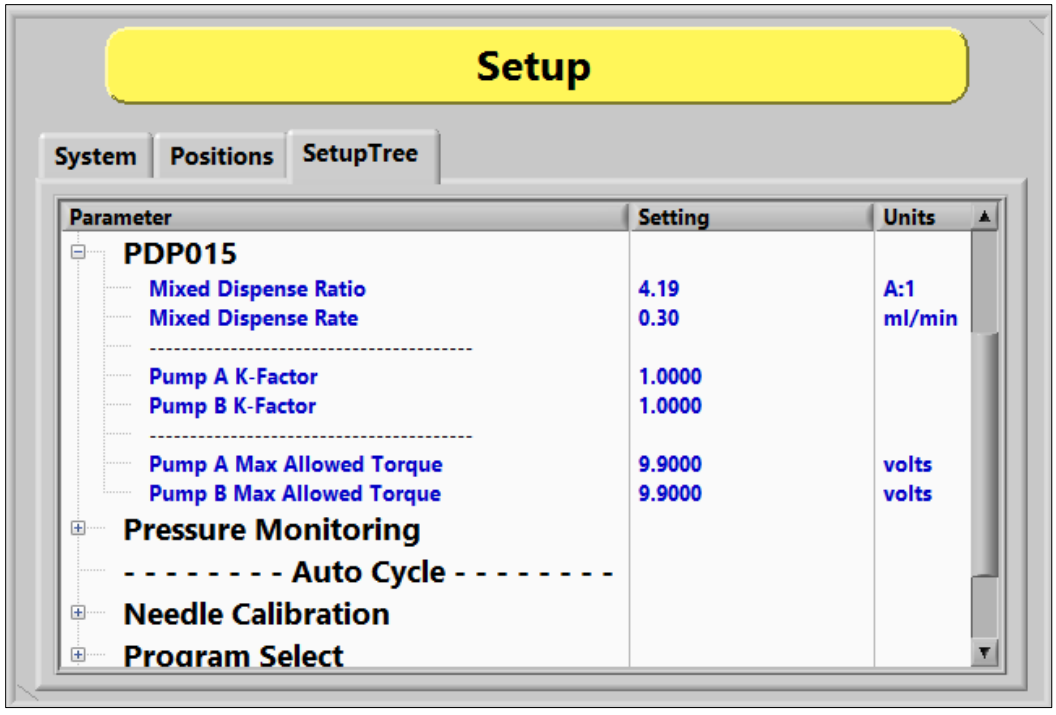


Figure 68: Setup Mode

4. Double click on any parameter to open an edit window.

7.2 Manual Mode

7.2.1 Devices

1. Select **Manual** from the cycle stop screen.
2. Select the **Devices** tab.
3. Select the valve from the **Select Valve** drop down menu.
4. Select **Purge Valve** to purge material from the selected valve.
5. Select the **Z-Slide Up** or **Down** buttons to move the Z-slide.

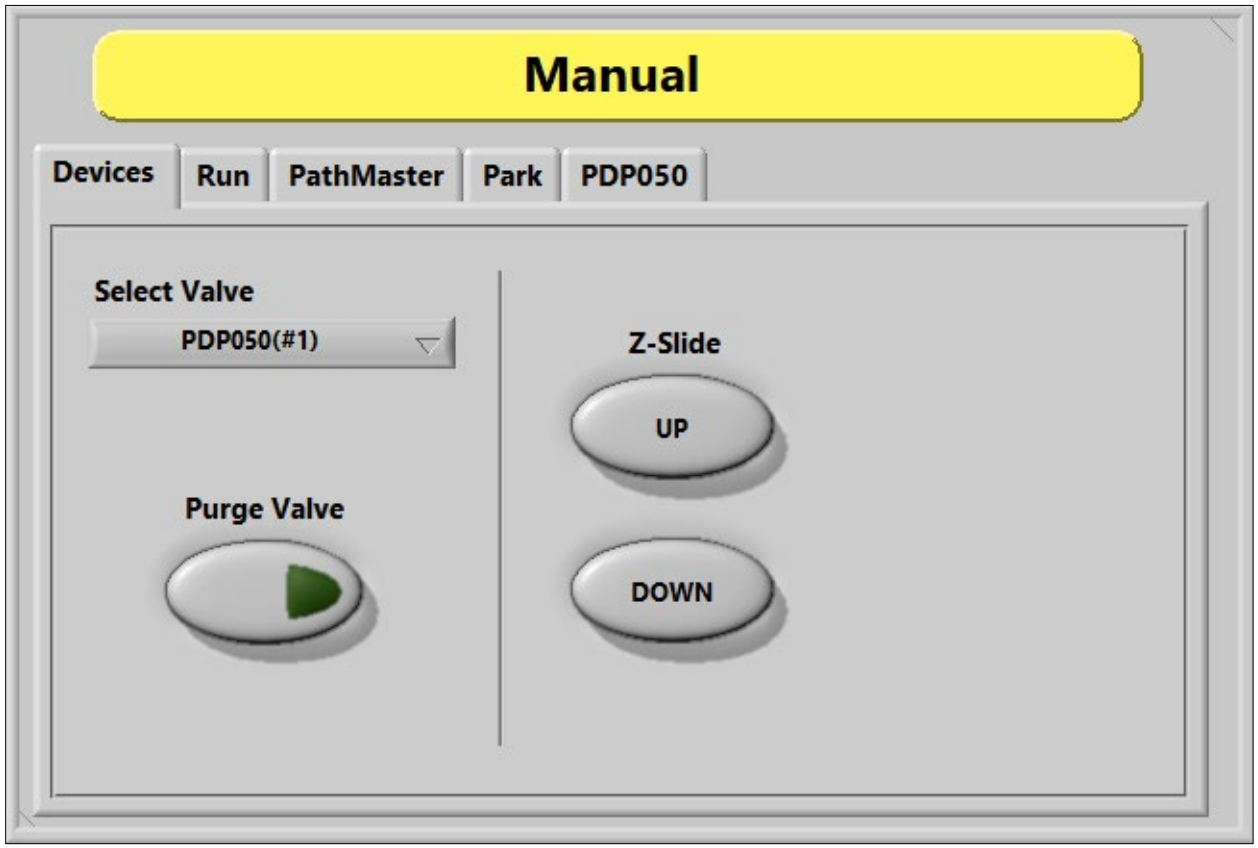


Figure 69: Manual Mode, Devices Tab

7.2.2 Mixed Dispense

1. Select **Manual** from the cycle stop screen.
2. Select the **Options** tab.
3. Select the **Mixed Dispense** tab.
4. Set the ratio for the mixed dispense. Select the value box and use the up and down arrows or use the keyboard to type the value.
5. Set the dispense rate in grams per minute. Select the value box and use the up and down arrows or use the keyboard to type the value.
6. Select **Apply to Auto** to apply the set values to Auto Mode.

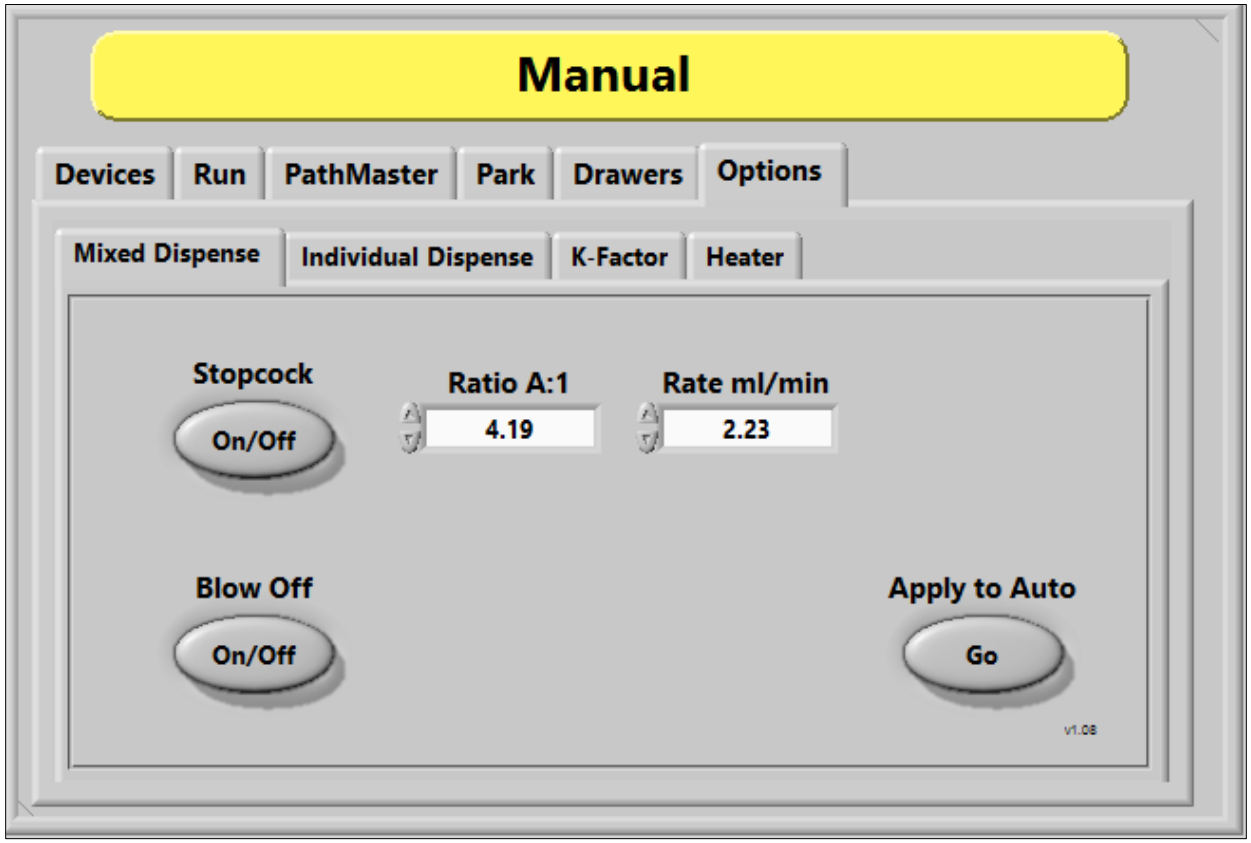


Figure 70: Mixed Dispense

7.2.3 Individual Dispense

1. Select **Manual** from the cycle stop screen.
2. Select the **PDP050** tab.
3. Select the **Individual Dispense** tab.
4. Set the dispense rate in grams per minute for side A and side B. Select the value box and use the up and down arrows or use the keyboard to type the value.
5. Set the timer in seconds. Select the value box and use the up and down arrows or use the keyboard to type the value.
6. Select the **Purge** buttons to toggle them on and off.

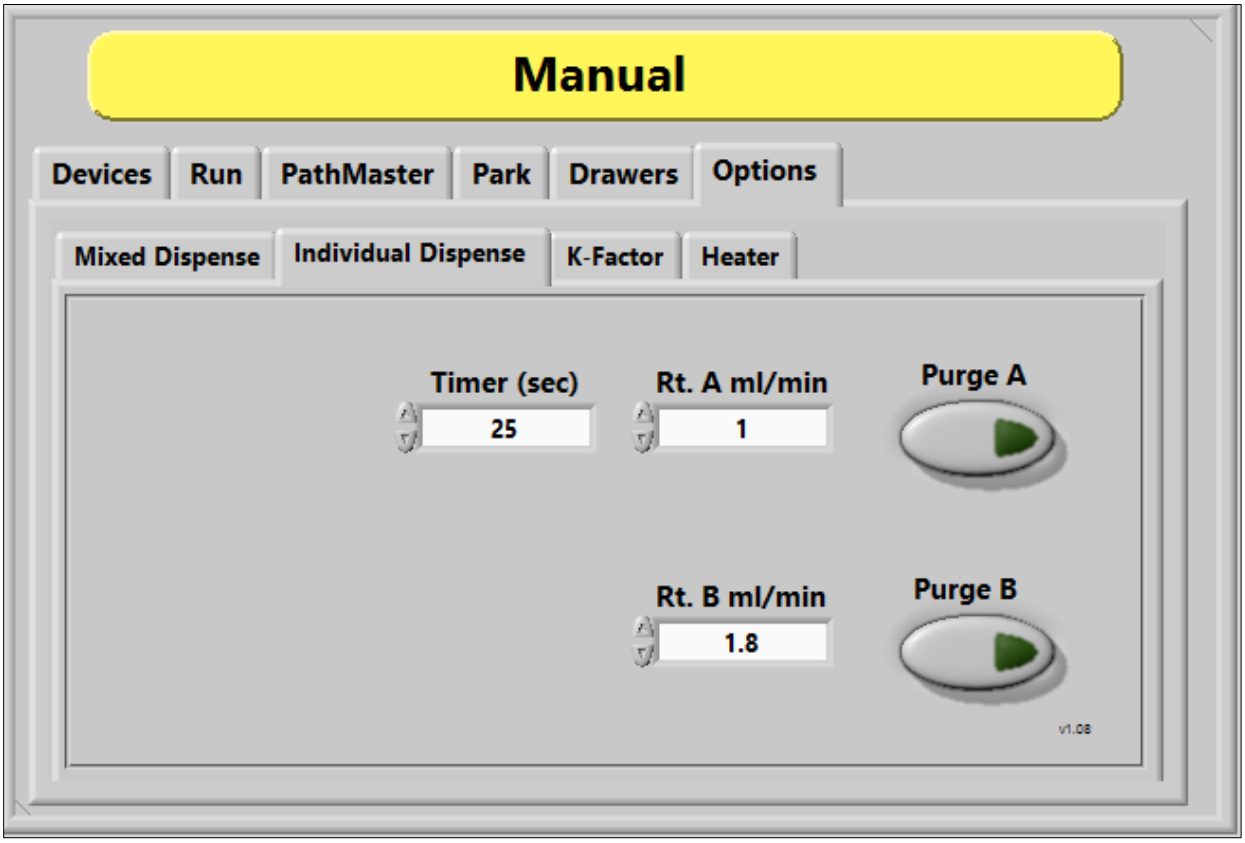


Figure 71: Individual Dispense

7.2.4 K-Factor

1. Select **Manual** from the cycle stop screen.
2. Select the **Options** tab.
3. Select the **K-Factor** tab.
4. Enter the K-Factor for **Pump A**.
5. Enter the K-Factor for **Pump B**.
6. Select **Apply to Auto** to apply the set values to Auto Mode.

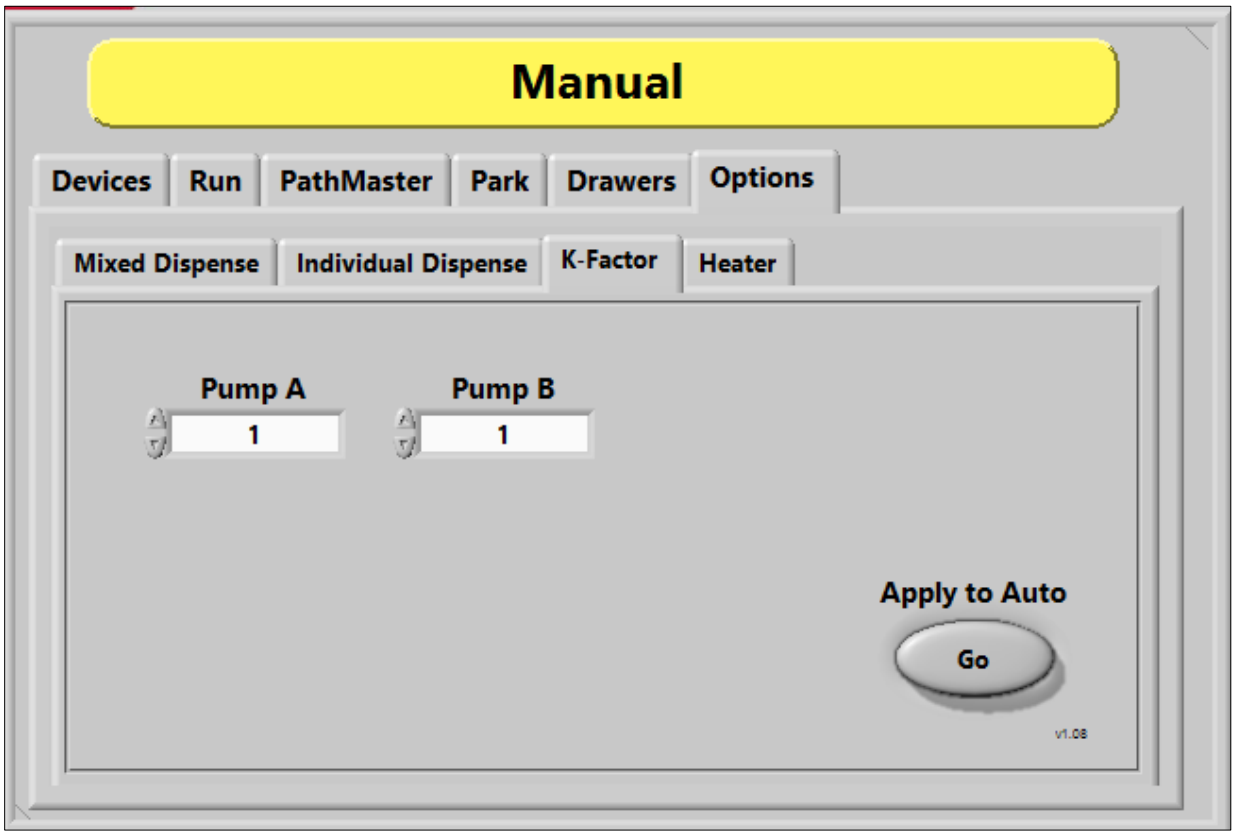


Figure 72: K-Factor

8. Parts Breakdown

8.1 PDP015 and PDP015-C

8.1.1 PDP015 Bill of Materials

Figure 73: PDP015 Disassembled

Item	Part Number	Description	Qty
1	PDP-015-A3	MOTOR ASSEMBLY, PDP015	2
2	PDP-015-9	COUPLING, MOTOR, PDP015	2
3	PDP-015-A2	ROTOR ASSEMBLY, PDP015	2
4	PDP-015-7	SEAL BLOCK, PDP015	2
5	PDP-015-8	ROTARY SEAL, PDP015	6
6	PDP-015-G	O-RING, AN015, PDP015	6
7	PDP-015-A1	STATOR, FFKM, PDP015	2
8	PDP-015-4	STATOR SLEEVE, SS, PDP015	2
9	PDP-015-3	UNION CAP, PDP015	2
10	PDP-015-5-TL	CHAMBER, RIGHT, SUS303, PDP015	1
11	PDP-015-5-TR	CHAMBER, LEFT, SUS303, PDP015	1
12	PDP-015-6	BLEED CLIP, BLEED PORT, PDP015	2
13	PDP-015-C	O-RING, SS5, PDP015	6
14	PDP-015-F	O-RING, AN016, PDP015	2
15	PDP-015-B	O-RING, FKM, AS013, PDP015	2
16	PDP-015-A	O-RING, FKM, P9, PDP015	2
17	PDP-015-12	TWIN BLOCK, PDP015	1
18	PDP-015-L	O-RING, P8, PDP015	2
19	PDP-015-11	MANIFOLD, SS, MIX ADAPTER, KA	1
20	PDP-015-10	MIXER CLIP, KA MANIFOLD, PDP015	1
21	PCP-015-J	M3 X 25 MM SOCKET HEAD CAP SCREWS	4
22	PCP-015-I	M3 X 35 MM SOCKET HEAD CAP SCREWS	4
23	PCP-015-K	M3 X 50 MM SOCKET HEAD CAP SCREWS	4
24	PCP-015-H	M3 X 55 MM SOCKET HEAD CAP SCREWS	4
25		M3 X 8 MM SOCKET HEAD CAP SCREWS	2

Figure 74: PDP015 Bill of Materials

8.1.2 PDP015-C Bill of Materials

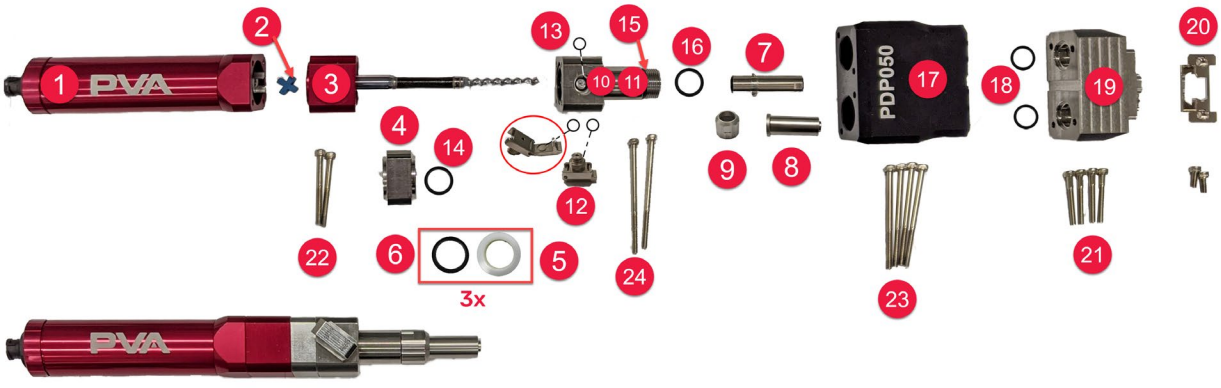


Figure 75: PDP015-C Disassembled

Item	Part Number	Description	Qty
1	PDP-015-A3	MOTOR ASSEMBLY, PDP015	2
2	PDP-015-9	COUPLING, MOTOR, PDP015	2
3	PCP-015-A2-WC	ROTOR ASSEMBLY, TUNGSTEN CARBIDE, PDP015-C	2
4	PDP-015-7	SEAL BLOCK, PDP015	2
5	PDP-015-8	ROTARY SEAL, PDP015	6
6	PDP-015-G	O-RING, AN015, PDP015	6
7	PCP-015-A1-HFS	STATOR, HFS, PDP015-C	2
8	PDP-015-4	STATOR SLEEVE, SS, PDP015	2
9	PDP-015-3	UNION CAP, PDP015	2
10	PDP-015-5-TL	CHAMBER, RIGHT, SUS303, PDP015	1
11	PDP-015-5-TR	CHAMBER, LEFT, SUS303, PDP015	1
12	PDP-015-6	BLEED CLIP, BLEED PORT, PDP015	2
13	PDP-015-C	O-RING, SS5, PDP015	6
14	PDP-015-F	O-RING, AN016, PDP015	2
15	PDP-015-B	O-RING, FKM, AS013, PDP015	2
16	PDP-015-A	O-RING, FKM, P9, PDP015	2
17	PDP-015-12	TWIN BLOCK, PDP015	1
18	PDP-015-L	O-RING, P8, PDP015	2
19	PDP-015-11	MANIFOLD, SS, MIX ADAPTER, KA	1
20	PDP-015-10	MIXER CLIP, KA MANIFOLD, PDP015	1
21	PCP-015-J	M3 X 25 MM SOCKET HEAD CAP SCREWS	4
22	PCP-015-I	M3 X 35 MM SOCKET HEAD CAP SCREWS	4
23	PCP-015-K	M3 X 50 MM SOCKET HEAD CAP SCREWS	4
24	PCP-015-H	M3 X 55 MM SOCKET HEAD CAP SCREWS	4
25		M3 X 8 MM SOCKET HEAD CAP SCREWS	2

Figure 76: PDP015-C Bill of Materials

8.2 PDP050 and PDP050-C

8.2.1 PDP050 Bill of Materials

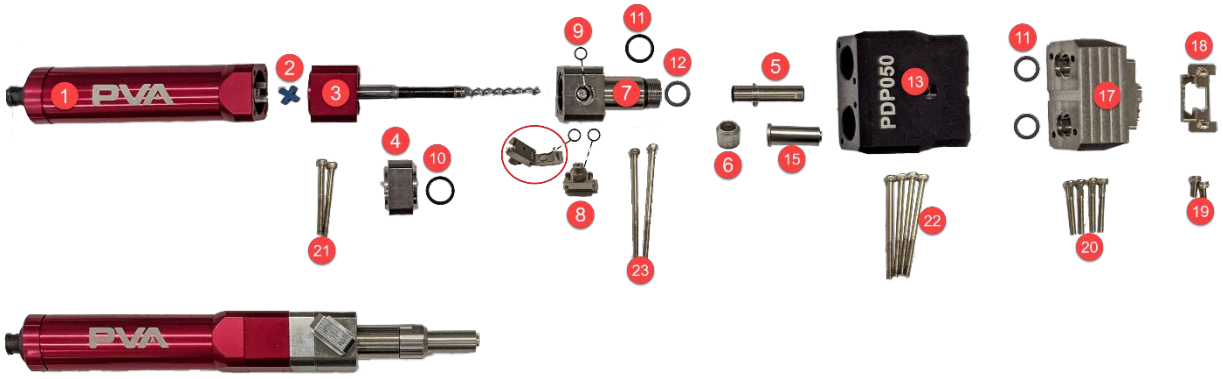


Figure 77: PDP050 Disassembled

Item	Part Number	Description	Qty
1	12813	MOTOR ASSEMBLY	2
2	12814	COUPLING, MOTOR, PDP050	2
3	12815	ROTOR ASSEMBLY, PDP050	2
4	12838	SEAL BLOCK ASSEMBLY, PDP050	2
5	12819	STATOR, FFKM, PDP050	2
6	12822	UNION CAP, PDP050	2
7	12824	FLUID BODY, SS, LEFT PORTED, 1/4" NPT, PDP050	2
8	12825	BLEED CLIP, BLEED PORT, PDP050	2
9	12830	O-RING, SS5, PDP050	6
10	12831	O-RING, AN016, PDP050	2
11	12836	O-RING, FKM, AS013, PDP050	4
12	12837	O-RING, FKM, P9, PDP050	2
13	12832	TWIN BLOCK, PDP050	1
14	12840	Cable, Motor, PDP/PDP, shielded, high flex, 5 meter	2
15	12841	STATOR SLEEVE, SS, PDP050	2
16	12861	SS Chamber, 1/4 NPT, Right	1
17	12859	MANIFOLD, SS, MIX ADAPTER, KA	1
18	12860	MIXER CLIP, KA MANIFOLD, PDP050	1
19		M3 X 8 MM SOCKET HEAD CAP SCREWS	2
20		M3 X 25 MM SOCKET HEAD CAP SCREWS	4
21		M3 X 35 MM SOCKET HEAD CAP SCREWS	2
22		M3 X 50 MM SOCKET HEAD CAP SCREWS	4
23		M3 X 55 MM SOCKET HEAD CAP SCREWS	2

Figure 78: PDP050 Bill of Materials

8.2.2 PDP050-C Bill of Materials

Figure 79: PDP050-C Disassembled

Item	Part Number	Description	Qty
1	PDP-050-A3	MOTOR ASSEMBLY, PDP050	2
2	PDP-050-9	COUPLING, MOTOR, PDP050	2
3	PCP-050-A2-WC	ROTOR ASSEMBLY, TUNGSTEN CARBIDE, PDP050-C	2
4	PDP-050-7	SEAL BLOCK, PDP050	2
5	PDP-050-8	ROTARY SEAL, PDP050	6
6	PDP-050-G	O-RING, AN015, PDP050	6
7	PCP-050-A1-HFS	STATOR, HFS, PDP015-C	2
8	PDP-050-4	STATOR SLEEVE, SS, PDP050	2
9	PDP-050-3	UNION CAP, PDP050	2
10	PDP-050-5-TL	CHAMBER, RIGHT, SUS303, PDP050	1
11	PDP-050-5-TR	CHAMBER, LEFT, SUS303, PDP050	1
12	PDP-050-6	BLEED CLIP, BLEED PORT, PDP050	2
13	PDP-050-C	O-RING, SS5, PDP050	6
14	PDP-050-F	O-RING, AN016, PDP050	2
15	PDP-050-B	O-RING, FKM, AS013, PDP050	2
16	PDP-050-A	O-RING, FKM, P9, PDP050	2
17	PDP-050-12	TWIN BLOCK, PDP050	1
18	PDP-050-L	O-RING, P8, PDP015	2
19	PDP-050-11	MANIFOLD, SS, MIX ADAPTER, KA	1
20	PDP-050-10	MIXER CLIP, KA MANIFOLD, PDP050	1
21	PCP-050-J	M3 X 25 MM SOCKET HEAD CAP SCREWS	4
22	PCP-050-I	M3 X 35 MM SOCKET HEAD CAP SCREWS	4
23	PCP-050-K	M3 X 50 MM SOCKET HEAD CAP SCREWS	4
24	PCP-015-H	M3 X 55 MM SOCKET HEAD CAP SCREWS	4
25		M3 X 8 MM SOCKET HEAD CAP SCREWS	2

Figure 80: PDP050-C Bill of Materials

8.3 PDP150 and PDP150-C

8.3.1 PDP150 Bill of Materials

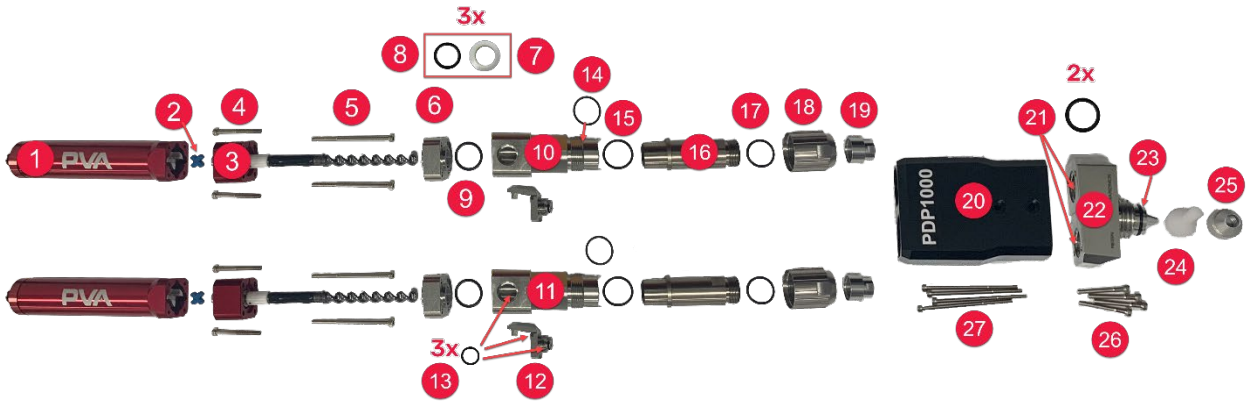


Figure 81: PDP150 Disassembled

Item	Part Number	Description	Qty
1	PDP-150-A3	MOTOR ASSEMBLY, PDP150	2
2	PDP-150-8	COUPLING, URETHANE, PDP150	2
3	PDP-150-A2	ROTOR, SUS303, PDP150	2
4	PDP-150-J	SHCS, M3 x 35mm, PDP150	4
5	PDP-150-I	SHCS, M3 x 55mm, PDP150	4
6	PDP-150-6	SEAL BLOCK, AL2024, PDP150	2
7	PDP-150-7	SEAL, ROTARY, UHMW-PE, PDP150	6
8	PDP-150-H	O-RING, FKM, AN015, PDP150	6
9	PDP-150-G	O-RING, FKM, AN016, PDP150	2
10	PDP-150-4-TR	CHAMBER, RIGHT, SUS303, PDP150	1
11	PDP-150-4-TL	CHAMBER, LEFT, SUS303, PDP150	1
12	PDP-150-5	PURGE KNOB, CLIP, SUS303, PDP150	2
13	PDP-150-K	O-RING, FKM, SS5, PDP150	6
14	PDP-150-C	O-RING, FKM, AS015, PDP150	2
15	PDP-150-B	O-RING, FKM, AS014, PDP150	2
16	PDP-150-A1	STATOR, FFKM, PDP150	2
17	PDP-150-A	O-RING, SS10, FFKM, PDP150	2
18	PDP-150-3	UNION CAP, PDP150	2
19	PDP-150-11	ORIFICE ADAPTER, SUS303, PDP150	2
20	PDP-150-12	TWIN BLOCK, AL6061, PDP150	1
21	PDP-150-N	O-RING, FKM, AN012, PDP150	2
22	PDP-150-10	MIX ADAPTER, MANIFOLD, SUS303, PDP150	2
23	PDP-150-M	O-RING, AS014, FKM, PDP150	1
24	CA11	CA NIGHT CAP	1
25	PDP-150-9-B13.5	MIXER RETAINER, B, PDP150	1
26	PDP-150-L	SHCS, M3 x 25mm, PDP150	4
27	PDP-150-O	SHCS, M3 x 60mm, PDP150	4

Figure 82: PDP150 Bill of Materials

8.3.2 PDP150-C Bill of Materials

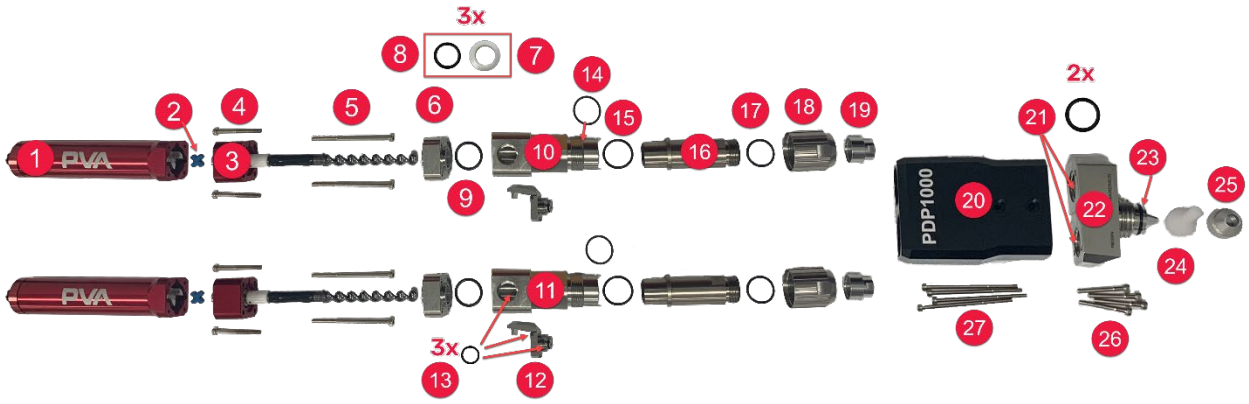


Figure 83: PDP150-C Disassembled

Item	Part Number	Description	Qty
1	PDP-150-A3	MOTOR ASSEMBLY, PDP150	2
2	PDP-150-8	COUPLING, URETHANE, PDP150	2
3	PDP-150-A2-WC	ROTOR, TUNGSTEN CARBIDE, PDP150-C	2
4	PDP-150-J	SHCS, M3 x 35mm, PDP150	4
5	PDP-150-I	SHCS, M3 x 55mm, PDP150	4
6	PDP-150-6	SEAL BLOCK, AL2024, PDP150	2
7	PDP-150-7	SEAL, ROTARY, UHMW-PE, PDP150	6
8	PDP-150-H	O-RING, FKM, AN015, PDP150	6
9	PDP-150-G	O-RING, FKM, AN016, PDP150	2
10	PDP-150-4-TR	CHAMBER, RIGHT, SUS303, PDP150	1
11	PDP-150-4-TL	CHAMBER, LEFT, SUS303, PDP150	1
12	PDP-150-5	PURGE KNOB, CLIP, SUS303, PDP150	2
13	PDP-150-K	O-RING, FKM, SS5, PDP150	6
14	PDP-150-C	O-RING, FKM, AS015, PDP150	2
15	PDP-150-B	O-RING, FKM, AS014, PDP150	4
16	PDP-150-A1-HFS	STATOR, HFS, PDP150-C	2
17	PDP-150-A	O-RING, SS10, FFKM, PDP150	2
18	PDP-150-3	UNION CAP, PDP150	2
19	PDP-150-11	ORIFICE ADAPTER, SUS303, PDP150	2
20	PDP-150-12	TWIN BLOCK, AL6061, PDP150	1
21	PDP-150-N	O-RING, FKM, AN012, PDP150	2
22	PDP-150-10	MIX ADAPTER, MANIFOLD, SUS303, PDP150	2
23	PDP-150-M	O-RING, AS014, FKM, PDP150	1
24	CA11	CA NIGHT CAP	1
25	PDP-150-9-B13.5	MIXER RETAINER, B, PDP150	1
26	PDP-150-L	SHCS, M3 x 25mm, PDP150	4
27	PDP-150-O	SHCS, M3 x 60mm, PDP150	4

Figure 84: PDP150-C Bill of Materials

8.4 PDP500 and PDP500-C

8.4.1 PDP500 Bill of Materials

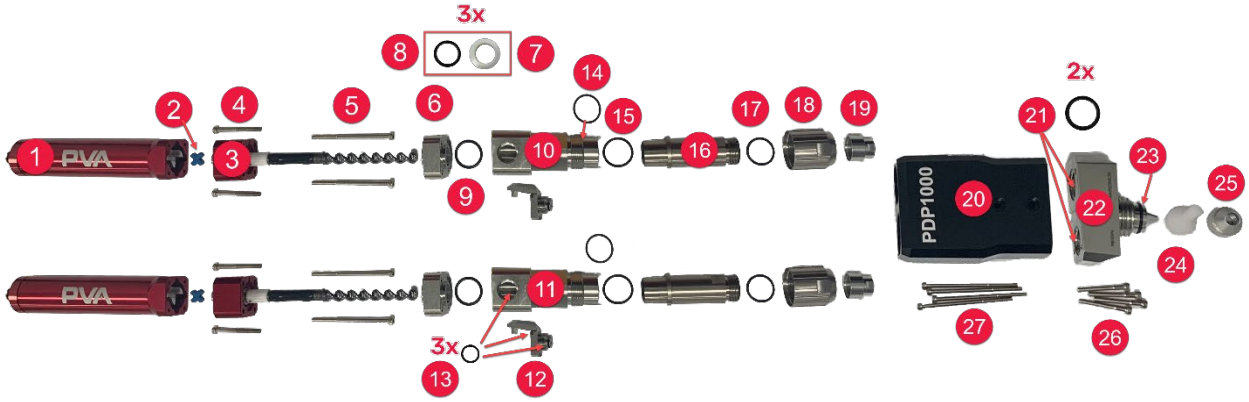


Figure 85: PDP500 Disassembled

Item	Part Number	Description	Qty
1	PDP-500-A3	MOTOR ASSEMBLY, PDP500	2
2	PDP-500-8	COUPLING, URETHANE, PDP500	2
3	PDP-500-A2	ROTOR, SUS303, PDP500	2
4	PDP-500-J	SHCS, M3 x 35mm, PDP500	4
5	PDP-500-I	SHCS, M3 x 55mm, PDP500	4
6	PDP-500-6	SEAL BLOCK, AL2024, PDP500	2
7	PDP-500-7	SEAL, ROTARY, UHMW-PE, PDP500	6
8	PDP-500-H	O-RING, FKM, AN015, PDP500	6
9	PDP-500-G	O-RING, FKM, AN016, PDP500	2
10	PDP-500-4-TR	CHAMBER, RIGHT, SUS303, PDP500	1
11	PDP-500-4-TL	CHAMBER, LEFT, SUS303, PDP500	1
12	PDP-500-5	PURGE KNOB, CLIP, SUS303, PDP500	2
13	PDP-500-K	O-RING, FKM, SS5, PDP500	6
14	PDP-500-C	O-RING, FKM, AS015, PDP500	2
15	PDP-500-B	O-RING, FKM, AS014, PDP500	4
16	PDP-500-A1	STATOR, FFKM, PDP500	2
17	PDP-500-A	O-RING, SS10, FFKM, PDP500	2
18	PDP-500-3	UNION CAP, PDP500	2
19	PDP-500-11	ORIFICE ADAPTER, SUS303, PDP500	2
20	PDP-500-12	TWIN BLOCK, AL6061, PDP500	1
21	PDP-500-N	O-RING, FKM, AN012, PDP500	2
22	PDP-500-10	MIX ADAPTER, MANIFOLD, SUS303, PDP500	2
23	PDP-500-M	O-RING, AS014, FKM, PDP500	1
24	CA11	CA NIGHT CAP	1
25	PDP-500-9-B13.5	MIXER RETAINER, B, PDP500	1
26	PDP-500-L	SHCS, M3 x 25mm, PDP500	4
27	PDP-500-O	SHCS, M3 x 60mm, PDP500	4

Figure 86: PDP500 Bill of Materials

8.4.2 PDP500-C Bill of Materials

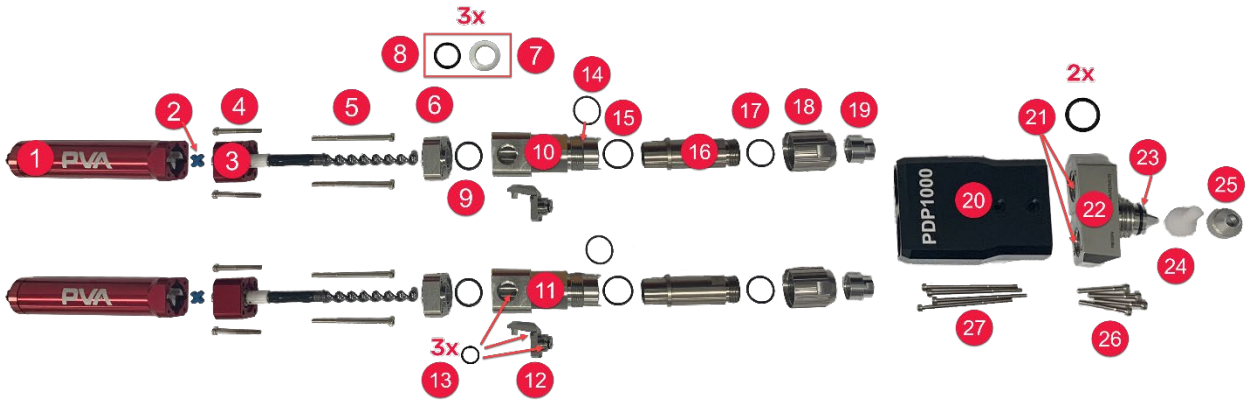


Figure 87: PDP500-C Disassembled

Item	Part Number	Description	Qty
1	PDP-500-A3	MOTOR ASSEMBLY, PDP500	2
2	PDP-500-8	COUPLING, URETHANE, PDP500	2
3	PDP-500-A2-WC	ROTOR, TUNGSTEN CARBIDE, PDP500-C	2
4	PDP-500-J	SHCS, M3 x 35mm, PDP500	4
5	PDP-500-I	SHCS, M3 x 55mm, PDP500	4
6	PDP-500-6	SEAL BLOCK, AL2024, PDP500	2
7	PDP-500-7	SEAL, ROTARY, UHMW-PE, PDP500	6
8	PDP-500-H	O-RING, FKM, AN015, PDP500	6
9	PDP-500-G	O-RING, FKM, AN016, PDP500	2
10	PDP-500-4-TR	CHAMBER, RIGHT, SUS303, PDP500	1
11	PDP-500-4-TL	CHAMBER, LEFT, SUS303, PDP500	1
12	PDP-500-5	PURGE KNOB, CLIP, SUS303, PDP500	2
13	PDP-500-K	O-RING, FKM, SS5, PDP500	6
14	PDP-500-C	O-RING, FKM, AS015, PDP500	2
15	PDP-500-B	O-RING, FKM, AS014, PDP500	4
16	PDP-500-A1-HFS	STATOR, HFS, PDP500-C	2
17	PDP-500-A	O-RING, SS10, FFKM, PDP500	2
18	PDP-500-3	UNION CAP, PDP500	2
19	PDP-500-11	ORIFICE ADAPTER, SUS303, PDP500	2
20	PDP-500-12	TWIN BLOCK, AL6061, PDP500	1
21	PDP-500-N	O-RING, FKM, AN012, PDP500	2
22	PDP-500-10	MIX ADAPTER, MANIFOLD, SUS303, PDP500	2
23	PDP-500-M	O-RING, AS014, FKM, PDP500	1
24	CA11	CA NIGHT CAP	1
25	PDP-500-9-B13.5	MIXER RETAINER, B, PDP500	1
26	PDP-500-L	SHCS, M3 x 25mm, PDP500	4
27	PDP-500-O	SHCS, M3 x 60mm, PDP500	4

Figure 88: PDP500-C Bill of Materials

8.5 PDP1000 and PDP1000-C

8.5.1 PDP1000 Bill of Materials

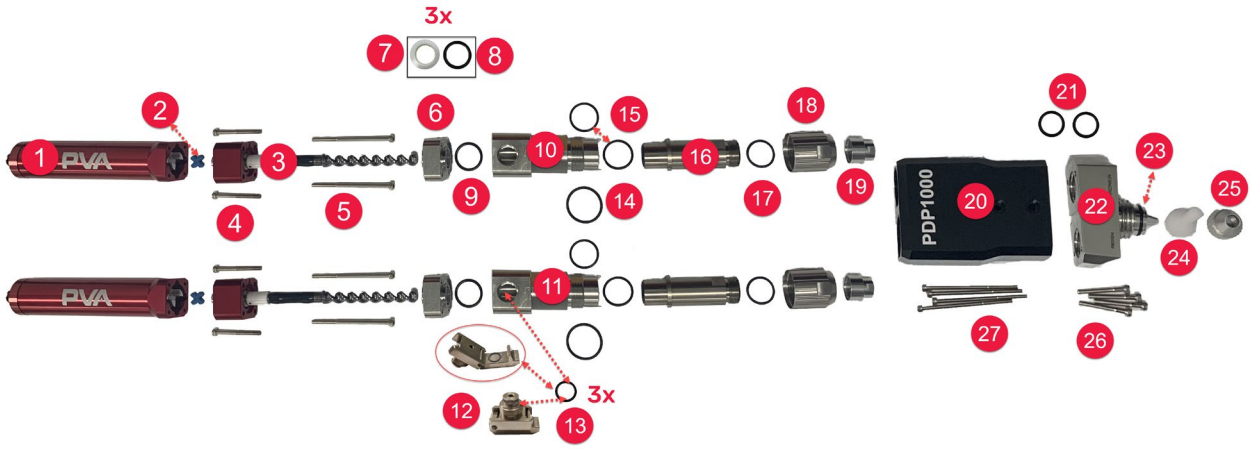


Figure 89: PDP1000 Disassembled

Item #	Part Number	Part Description	Qty
1	PDP-1000-A3	MOTOR ASSEMBLY, PDP1000	2
2	PDP-1000-10	COUPLING, URETHANE, PDP1000	2
3	PDP-1000-A2	ROTOR, SUS303, PDP1000	2
4	PDP-1000-P	SHCS, M3 x 35mm, PDP1000	4
5	PDP-1000-O	SHCS, M3 x 55mm, PDP1000	4
6	PDP-1000-8	SEAL BLOCK, AL2024, PDP1000	2
7	PDP-1000-9	SEAL, ROTARY, UHMW-PE, PDP1000	6
8	PDP-1000-L	O-RING, FKM, AN015, PDP1000	6
9	PDP-1000-K	O-RING, FKM, AN016, PDP1000	2
10	PDP-1000-6-TR	CHAMBER, RIGHT, SUS303, PDP1000	1
11	PDP-1000-6-TL	CHAMBER, LEFT, SUS303, PDP1000	1
12	PDP-1000-7	PURGE KNOB, CLIP, SUS303, PDP1000	2
13	PDP-1000-I	O-RING, FKM, SS5, PDP1000	6
14	PDP-1000-G	O-RING, FKM, AS019, PDP1000	2
15	PDP-1000-E	O-RING, FKM, AS017, PDP1000	4
16	PDP-1000-A1	STATOR, FFKM, PDP1000	2
17	PDP-1000-D	O-RING, S15, FFKM, PDP1000	2
18	PDP-1000-3	UNION CAP, PDP1000	2
19	PDP-1000-4	ORIFICE ADAPTER, SUS303, PDP1000	2
20	PDP-1000-5	TWIN BLOCK, AL6061, PDP1000	1
21	PDP-1000-C	O-RING, FKM, AN012, PDP1000	2
22	PDP-1000-1-CA	MIX ADAPTER, MANIFOLD, SUS303, PDP1000	2
23	PDP-1000-A-5	O-RING, AS014, FKM, PDP1000	1
24	CA11	CA NIGHT CAP	1
25	PDP-1000-2-B	MIXER RETAINER, B, PDP1000	1
26	PDP-1000-M	SHCS, M3 x 25mm, PDP1000	4
27	PDP-1000-N	SHCS, M3 x 60mm, PDP1000	4

Figure 90: PDP10000 Bill of Materials

8.5.2 PDP1000-C Bill of Materials

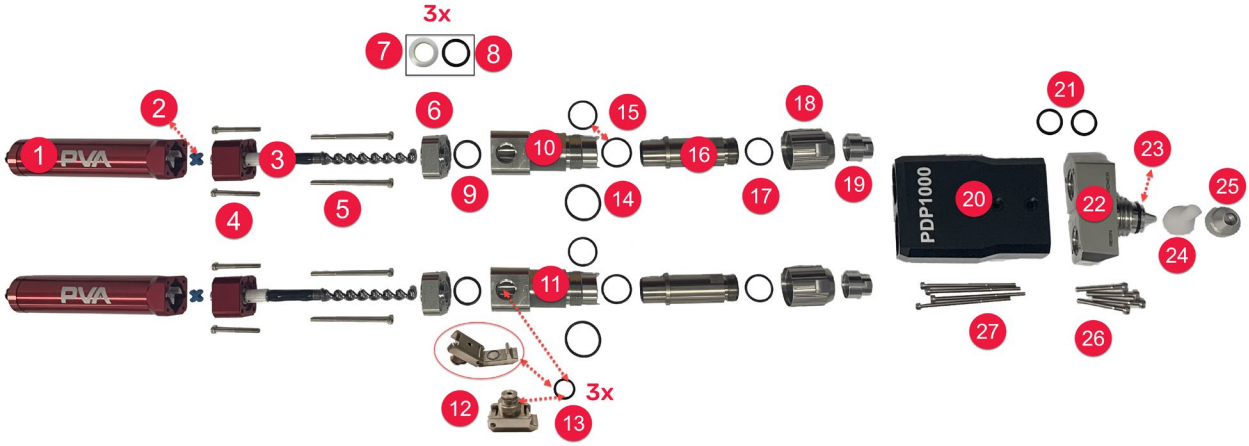


Figure 91: PDP1000-C Disassembled

Item #	Part Number	Part Description	Qty
1	PDP-1000-A3	MOTOR ASSEMBLY, PDP1000	2
2	PDP-1000-10	COUPLING, URETHANE, PDP1000	2
3	PDP-1000-A2-WC	ROTOR, CARBIDE, PDP1000-C	2
4	PDP-1000-P	SHCS, M3 x 35mm, PDP1000	4
5	PDP-1000-O	SHCS, M3 x 55mm, PDP1000	4
6	PDP-1000-8	SEAL BLOCK, AL2024, PDP1000	2
7	PDP-1000-9	SEAL, ROTARY, UHMW-PE, PDP1000	6
8	PDP-1000-L	O-RING, FKM, AN015, PDP1000	6
9	PDP-1000-K	O-RING, FKM, AN016, PDP1000	2
10	PDP-1000-6-TR	CHAMBER, RIGHT, SUS303, PDP1000	1
11	PDP-1000-6-TL	CHAMBER, LEFT, SUS303, PDP1000	1
12	PDP-1000-7	PURGE KNOB, CLIP, SUS303, PDP1000	2
13	PDP-1000-I	O-RING, FKM, SS5, PDP1000	4
14	PDP-1000-G	O-RING, FKM, AS019, PDP1000	2
15	PDP-1000-E	O-RING, FKM, AS017, PDP1000	4
16	PDP-1000-A1-HFS	STATOR, HFS, PDP1000-C	2
17	PDP-1000-D	O-RING, S15, FFKM, PDP1000	2
18	PDP-1000-3	UNION CAP, PDP1000	2
19	PDP-1000-4	ORIFICE ADAPTER, SUS303, PDP1000	2
20	PDP-1000-5	TWIN BLOCK, AL6061, PDP1000	1
21	PDP-1000-C	O-RING, FKM, AN012, PDP1000	2
22	PDP-1000-1-CA	MIX ADAPTER, MANIFOLD, SUS303, PDP1000	2
23	PDP-1000-A-5	O-RING, AS014, FKM, PDP1000	1
24	CA11	CA NIGHT CAP	1
25	PDP-1000-2-B	MIXER RETAINER, B, PDP1000	1
26	PDP-1000-M	SHCS, M3 x 25mm, PDP1000	4
27	PDP-1000-N	SHCS, M3 x 60mm, PDP1000	4

Figure 92: PD1000-C Bill of Materials

9. Spare Parts

A spare parts kit is available to prevent machine downtime.

Part Number: **612-10811-1**

ITEM	PART NUMBER	DESCRIPTION	QTY
1	12830	O-RING, SS5, PDP050	8
2	12831	O-RING, AN016, PDP050	2
3	12836	O-RING, FKM, AS013, PDP050	2
4	12837	O-RING, FKM, P9, PDP050	2

Figure 93: Spare Parts Kit

10. Technical Specifications

Operating Temperature	10 - 40°C (50 - 104° F)
Viscosity Range	1 - 100,000+ cps
Max Inlet Fluid Pressure	85 psi
Max Discharge Pressure	285 psi
Wetted Components	Stainless Steel/FFKM Carbide/EPDM

***Dimensions, Flow Rate, and Fluid Inlet will vary based on pump size.**

10.1 Model Numbers

Model Number	Dimensions (mm)	Standard Stator Material	Nominal Displacement (ml/rev)	Minimum Flow Rate (ml/min)	Maximum Flow Rate (ml/min)
PDP015	60 x 30 x 260	FFKM	0.034	0.034	3.406*
PDP015-C	60 x 30 x 260	EPDM	0.019	0.019	0.194
PDP050	60 x 30 x 260	FFKM	0.087	0.087	8.680*
PDP050-C	60 x 30 x 260	EPDM	0.066	0.066	0.658
PDP150	67 x 35 x 310	FFKM	0.351	0.351	35.098*
PDP150-C	67 x 35 x 310	EPDM	0.356	0.356	3.564
PDP500	67 x 35 x 310	FFKM	0.864	0.864	86.402*
PDP500-C	67 x 35 x 310	EPDM	0.737	0.737	7.375
PDP1000	67 x 35 x 340	FFKM	1.952	1.952	195.174*
PDP1000-C	67 x 35 x 340	EPDM	1.696	1.696	16.960

***Maximum flow rate for low viscosity material**

Figure 94: Model Specifications

11. Drawings

*Dimensions may vary based on pump size

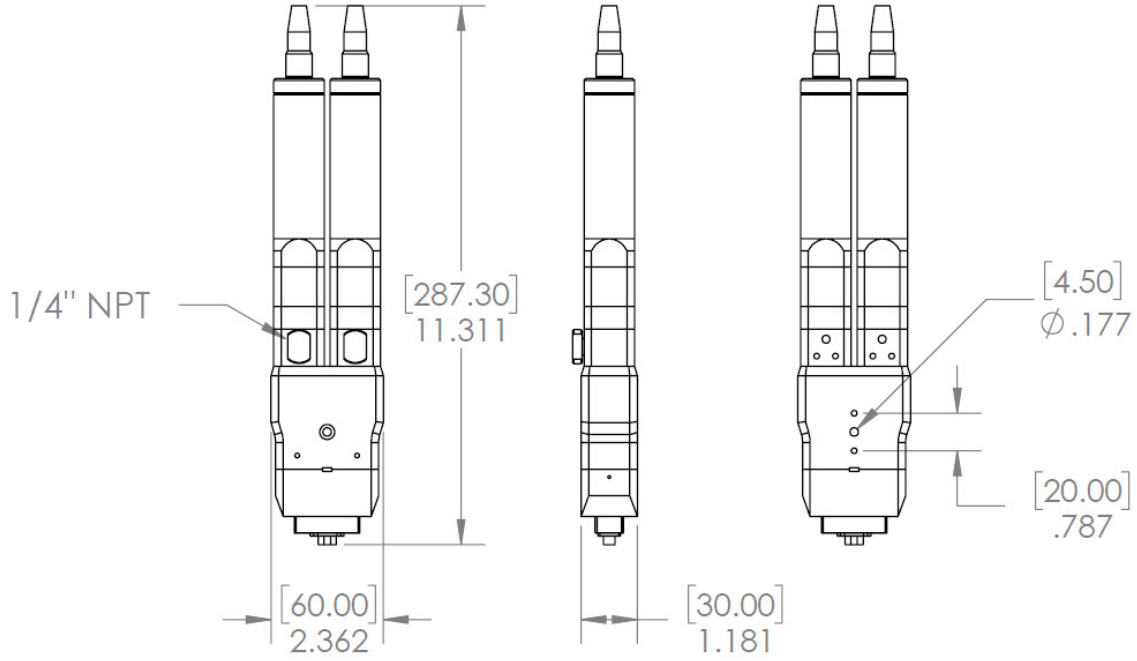


Figure 95: PDP Dimensions Drawing

12. Troubleshooting

Troubleshooting Problem	Possible Cause	Corrective Action
Pump does not cycle or too little material dispenses	Motor not connected correctly	Check motor connections
	Cured material in pump section	Disassemble pump and clean
	Static mixer is blocked	Replace the static mixer
	Stator is swollen or worn	Replace stator
	Dispenser speed is too low	Increase speed
	Inadequate supply of material	Supply the material, examine the hose, and check the primary pressure, increase if necessary; bleed again to equalize cartridge pack.
	Electrical connection is incorrect	Connect correctly at the motor housing and at the mains, make sure the prongs in the motor are not bent
	Rotor is broken	Install a new rotor assembly
Material leaks from the pump tip	Fluid pressure too high (5.8 bar max)	Decrease inlet fluid pressure
	Not enough snuff back on rotor	Increase snuff back.
	Stator is worn	Replace stator.
	Air bubbles in material	Refer to the “Air bubbles in material” section under the Troubleshooting Problem heading in this table
	Material is compressible	Degas the material
Pump leaks between seal block and fluid body	Seal is worn between fluid body and the sealing block	Replace seal
Pump does not dispense when triggered	Fluid pressure is too low	Increase fluid pressure (5.8 bar max)
	Cured material in pump section	Disassemble pump and clean
	Motor running in the wrong direction	Check motor settings
Air bubbles in material	Pump not correctly purged	Cycle pump open to purge air
	Needle not correctly purged	Make sure installation is correct
	Problem with fluid delivery system	Diagnose and repair

13. Notes

14. Table of Figures

15. 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 Technical Support 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: _____