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DX100 Dynamic Mix Valve

Operation Manual

Revision B

Precision Valve & Automation
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Halfmoon, NY 12065





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Table of Contents

1. Introduction.....	5
1.1 PVA Contact Information	5
1.2 Document History.....	5
1.3 System Description	6
1.4 Theory of Operation	6
1.4.1 Rear Closing Air Section	6
1.4.2 Forward Closing Air Section	6
1.4.3 Fluid Section	7
1.4.4 Motor Section.....	7
1.5 Pneumatic Schematic (DX100-WR)	7
1.6 Pneumatic Schematic (DX100-CR).....	8
1.7 Valve Specifications.....	8
1.8 Tool Kit.....	9
2. Valve Operation	10
2.1 Startup	10
2.2 Tips for Installing Dynamic Mix Tube.....	11
3. Periodic Maintenance	13
3.1 Shutdown	13
3.2 Disassembly Instructions.....	13
3.2.1 Forward Closing Section	14
3.2.2 Suck Back Section	15
3.2.3 Fluid Section	15
3.2.4 Motor Section.....	16
4. DX100 Reference Materials	17
4.1 DX100-WR Bill of Materials (B12-3183)	17
4.2 DX100-WR Mechanical Drawings	19
4.3 DX100-CR Bill of Materials (B12-3365)	24
4.4 DX100-CR Mechanical Drawings.....	25



5. Accessories and Options..... 30

5.1 Accessories 30

5.2 Spare Parts Kits..... 31

6. Troubleshooting33

7. Warranty Information35

8. Notes36

9. Warranty37

9.1 PVA Warranty Policy37

10. Table of Figures 38



1. Introduction

Before you operate this valve, 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
A	2012	Initial Release
B	2019	New Template

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.

1.3 System Description

This manual applies to the following Precision Valve & Automation inc. valves:

DX100 Dynamic Mix Valve

1.4 Theory of Operation

The DX100 is a two component, close or wide ratio dynamic mixing valve. Applications include potting, bead placement, and gaskets where a low to medium flow rate is required. This valve incorporates an adjustable suck back feature on the A side to help eliminate dripping or stringing at the end of the static mix tube. The B side includes either a forward closing needle to help reduce the “suck back” of the Part A material into the usually lower viscosity Part B side of the valve, or a second suck back section when the 2 part materials are close in ratio and viscosity. Part A and Part B materials flow into the valve separately and out of the valve separately into a disposable dynamic mix tube. No disassembly and cleaning of the valve should be required at the end of the day.

The DX100 has a divorced design comprising of four major sections. These include:

1. **Rear closing air section**
2. **Forward closing air section**
3. **Fluid section**
4. **Motor section**

1.4.1 Rear Closing Air Section

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

1.4.2 Forward Closing Air Section

The Forward closing air section is very similar to the rear closing air section, except that the piston and needle operate in the opposite direction as the rod and piston assembly in the rear closing section. The forward section also has a screw type stroke adjust to control how far the needle opens from the seat.

Note: the close ratio version “CR” has two suck back sides, and no forward closing section.

1.4.3 Fluid Section

The fluid section is made from stainless steel. The fluid section includes a rod with lip seals on the A side of the valve to control fluid flow of part A. Fluid dispenses as the rod moves to the forward position past the lip seals. When the rod retracts back into the lip seals the fluid flow stops and creates a suck back action on the fluid. On the B side, when the valve opens, the needle retracts away from the seat, releasing the seal and allowing the part B to flow. As the valve closes, the needle fires forward and reseals on the seat, cutting off fluid flow and forcing a very small amount of part B out, preventing any part A from being able to force its way up into the seal portion of the valve. Typical fluids include epoxies, acrylics, urethanes, silicones, etc. This valve was designed to handle two-part materials with wide mix ratios and wide differences in viscosity.

1.4.4 Motor Section

The motor section consists of a closed loop controlled servo motor turning a mix shaft, which then drives the mixing elements in the disposable dynamic mixer.

1.5 Pneumatic Schematic (DX100-WR)

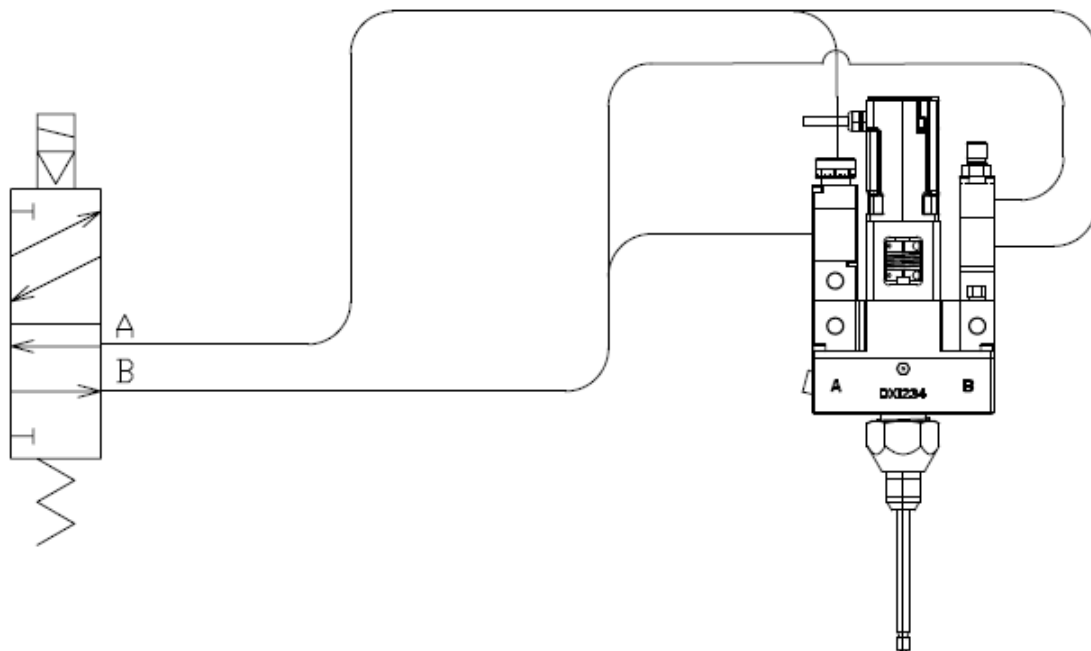


Figure 1 : DX100-WR Pneumatic Schematic

1.6 Pneumatic Schematic (DX100-CR)

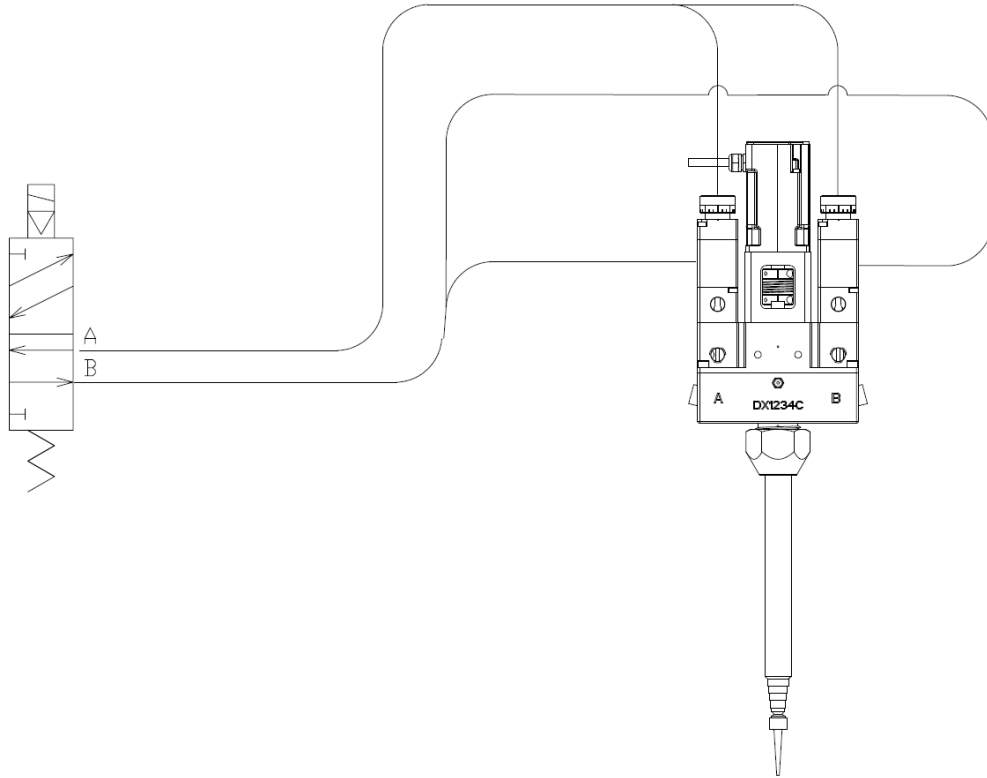


Figure 2 : DX100-CR Pneumatic Schematic

1.7 Valve Specifications

Air Ports	#10-32 UNRF
Material Inlets	1/8-27 NPT
Operating Air Pressure	60 – 100 psi
Maximum Fluid Pressure	1500 psi
Viscosity Range	1 cps – 250,000 cps
Weight	6.8 lbs (108.8 oz)

Figure 3: Valve Specifications

1.8 Tool Kit

PVA offers standard tool kits for all dispensing valves. The tool kit for the DX100 valve is Part Number # **B12-3572**, which includes all necessary tools and lubricating grease to perform maintenance on this valve.

Part Number # **B12-3572** includes the following:

Qty	Part Number	Description
1	0266244	8" Adjustable Wrench
1	7122A16	3/32" Allen Key
2	7122A21	5/32" Allen Key
2	7122A18	1/8" Allen Key
2	7122A19	9/64" Allen Key
1	7289A12	M2 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	98381A724	Lip Seal Insertion Tool

Figure 4: DX100 Tool Kit

2. Valve Operation

2.1 Startup

Refer to assembly drawings in **Sections 4.2** for part callout numbers on the valve model.

1. Plumb up the valve pneumatically as outlined above in Figure 1 and Figure 2.
2. Regulate the air pressure operating the valve between 60-100 psi.
3. Making sure that the valve is not aimed toward anyone, cycle the valve several times. When the valve is cycling properly, the piston can be heard hitting the stroke adjustment screw. The rod (11) and needle (3) can be seen moving up and down in the center section.
4. Connect the material delivery system to the valve, Part A material on the left side, Part B material on the right side.
5. Cycle the valve open to purge. Part A and B should begin to flow separately out of the fluid manifold (18). Continue dispensing until air is removed.

Note: Depending on the mix ratio required, Part A and Part B materials may not begin dispensing from the valve at the same time.

6. Adjust the screw (13) until the desired amount of suck back is achieved. Turning the screw clockwise will decrease the amount of suck back and turning it counterclockwise will increase the amount of suck back. If the stroke adjustment screw is turned down too far then the valve will not close and material will continue to leak from the valve nozzle.

Note: A good rule of thumb is to rotate the stroke adjustment screw clockwise until material just starts to leak from the valve manifold (when under pressure), then back off the stroke adjustment screw ½ turn counterclockwise.

7. Adjust the stroke on the A side by turning the stroke adjustment bolt (46) until the desired flow rate is achieved. Turning the adjustment clockwise will decrease the material flow and counterclockwise will increase the material flow rate. If the stroke adjustment bolt is turned all the way down, the flow of fluid will stop entirely. Once the stroke adjustment setting is determined, use the adjustable wrench to tighten the lock nut (45) against the upper air body (44).
8. Attach a static mix tube to the manifold (18) and use the retaining nut (14) to lock it in place.

Note: Refer to Section 6 (Troubleshooting) for any other problems.

2.2 Tips for Installing Dynamic Mix Tube

1. Hook the mixing element onto the drive shaft cross, ensuring the element stays on the shaft through the following steps.
2. Slip the dynamic mix tube onto the DX100 valve manifold as shown.



Figure 5 : Installing Dynamic Mix Tube

3. Hold the mix tube on the DX100 valve manifold with your hand while using the Purge function (in Manual mode) from the machine controller to begin purging material through the mix tube. Continue to purge until the mix tube is filled with material. **Make sure the dynamic mixer is disabled during this procedure to prevent spraying material or damaging the drive shaft.**



Figure 6 : Filling Mixer

4. At this point, the trapped air must be removed from the top of the mix tube. First pull the mix tube straight down off the DX100 valve manifold, making sure not to dislodge the mixing element from the drive shaft.
5. From the machine controller, use the Purge function and begin purging material until it overflows from the top sides of the mix tube. All air must be allowed to escape from the top of the mix tube.
6. Push the mix tube firmly back onto the DX100 valve manifold.
7. Finally, wipe off material from the mix tube and DX100 valve **thoroughly**.

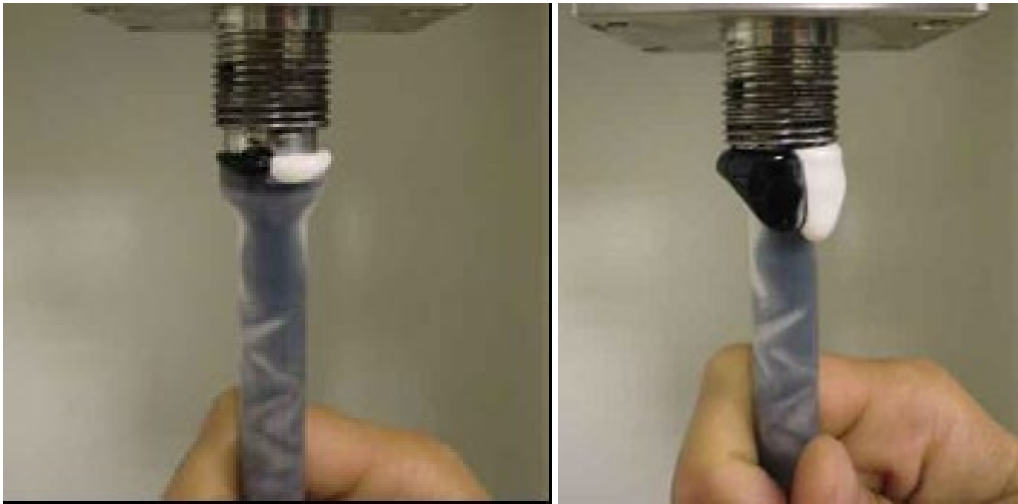


Figure 7 : Bleeding Top of Mixer

8. Replace the dynamic mix tube retaining nut and tighten using an appropriate wrench.
9. Install the desired needle on the end of the mix tube.
10. From the machine controller, use the Purge function to purge material through the mix tube. Reenable the dynamic mixing, and purge at least the volume of the entire mixer tube to fill the mix tube with fresh material.
11. Test for dripping by repeatedly hitting the Purge button and checking for dripping. If dripping persists, repeat from Step 3. Remember, dripping from the tip of the mix tube is caused by air that is trapped inside of the mix tube.
12. The dynamic mix tube should now be properly purged and drip free.

3. Periodic Maintenance

3.1 Shutdown

Proper care must be taken in order to keep the DX100 valve in good working condition. At the end of each day's use, each of the following steps must be followed:

1. Remove static mix tube.
2. Purge fresh material through the valve until both material streams are completely clean and void of cross-contamination.
3. Wipe off the valve nozzle thoroughly.
4. Install night cap (PVA Part Number #214-3832) on the valve nozzle.

3.2 Disassembly Instructions

This section is meant to be a general overview in instructing the user in the common assembly process for DX100 valves as a means to introduce the user to each part to assist in future maintenance/disassembly/assembly of their DX100 valve. Any specific questions regarding a certain step, part, or process should be directed to PVA's customer service department for further assistance.

There are four distinct sections to this valve:

- **Forward Closing Section**
- **Suck Back Section**
- **Fluid Manifold/Motor Section**
- **Motor Section**

The disassembly instructions will be divided similarly.

3.2.1 Forward Closing Section

1. Begin disassembly by removing air and fluid pressure from the valve.
2. Remove all pneumatic tubing and fluid delivery fittings, hoses, etc. from the valve.
3. Using the tip of a 3/32" Allen key, loosen the packing nut (48).
4. Using the same 3/32" Allen key, evenly remove the two machine screws (30) that are located on the same corners as the fluid section standoffs (40). Note during removal that there is a spring (39) forcing the air section away from the fluid section.
5. Pull the air section (red anodized portion) away from the fluid section (16).
6. Clean off the tip of the stainless steel needle (3).
7. From the fluid section of the valve, unthread and remove the packing nut (48), and the packing (47).
8. Clean all of the wetted parts thoroughly with an appropriate solvent.
9. On the air section, use a standard 3/32" Allen Key to evenly remove the final two machine screws (31) that thread into the end cap (41). Note: During removal that the spring (39) will force the air section apart.
10. Separate the upper air body (44) from the lower air body (42) to remove the spring (39) then slide the end cap(41) off of the needle (3).
11. Holding the lower air body (42) in one hand, grab the needle (3) and push the needle and piston (43) assembly out of the lower air body.
12. Remove the 004 Buna o-ring (49) from the lower air body (42).
13. Hold the piston (43) with an adjustable wrench then use a 5/64" Allen key to unthread and remove the set screw (38) to remove the needle (3) then remove the 014 Buna o-ring (54) from the piston (43).
14. Remove the 014 Buna o-ring (54) from the upper air body (44) and the 008 Buna o-ring from the stroke adjust bolt (46).
15. Unthread the stroke adjust bolt (46) from the upper air body (44) and remove the 008 Buna o-ring (51).

Note: the CR version of this valve does not have a forward closing section. Refer to the following "suck back" section for details on disassembly of both sides.

3.2.2 Suck Back Section

1. Begin disassembly by removing air and fluid pressure from the valve.
2. Remove all pneumatic tubing and fluid delivery fittings, hoses, etc. from the valve.
3. Use a 3/32" Allen key to evenly remove the two machine screws (34) on top of the upper air body (12). Note during removal that there is a spring forcing the air section away from the fluid section.
4. Firmly pull the upper air body (12) away from the lower air body (8).
5. Remove the 016 Buna O-ring (55) from the upper air body (12).
6. Unscrew the suck back adjustment knob (13) from the upper air body (12) and remove the 014 Buna O-ring (54).
7. Firmly pull the lower air body (8) away from the separation body (10), along with the piston/rod assembly.
8. Pull the piston (9) and rod (11) assembly out of the fluid section (16).
9. Clean off the rod with an appropriate solvent.
10. Disassemble the Piston/rod assembly by removing the set screw (35).
11. Remove the 016 Buna O-Ring (55) from the piston and the 008 Buna O-Ring (51) from the lower air body.
12. Use a 3/32" Allen key to remove the two machine screws (33) from the separation body (10) and pull it away from the fluid section (16).
13. Remove the 016 Kalrez O-ring (56) , the washer (5) and lip seal (24). Note: when reassembling, make sure that the lip side of the lip seal is facing down.

3.2.3 Fluid Section

1. Use a #2 Metric Allen key to loosen the flexible coupling (27).
2. Slide the drive shaft (19) out through the bottom of the fluid manifold (18) by loosening the seal insert (7).
3. Use a 9/64" Allen Key to unscrew the 4 8-32 screws (37) and detach the fluid manifold (18) from the fluid section (16) of the valve.
4. Use a 9/64" Allen Key to unscrew the 4 8-32 screws (36) from the underside of the fluid section

5. Remove the seal plate (4).
6. Push the lip seal (25) out of the seal plate. Note: when reassembling, make sure the lip side of the lip seal is facing up.
7. Remove the 014 Kalrez O-ring from the fluid manifold (18) and the 016 Kalrez O-ring from the fluid section (16), along with the washer (5).
8. Remove the needle seat (15) from the fluid section (16). Note: Soft jaw pliers may be necessary to remove the seat.
9. Remove the 014 Kalrez O-ring (53) and the 010 Kalrez O-ring (52) from the grooves on the fluid manifold (18).
10. Clean all whetted parts thoroughly with a compatible solvent.

3.2.4 Motor Section

1. If not done already, make sure to loosen the flexible coupling as described in the Fluid Section disassembly instructions above before continuing to these steps below.
2. Use a 3/32" Allen key to unscrew the machine bolts mounting the servo motor (28).
3. Remove the Servo with the flexible coupling.
4. Use a 5/32" Allen key to unscrew the 4 10-32 screws (32) holding the motor mount (17) to the fluid section (16). Remove motor mount.
5. Remove the bushing (2) from the top of the fluid section (16), and remove the lip seal (22).

Note: when reassembling the valve, make sure the lip seal is inserted with the spring side facing down.

6. Loosen and remove the seal insert (7) using a flat headed screwdriver.
7. Remove the lip seal (22), the bearing (26) and the washer (6).
8. Make sure to clean the shaft, shaft cross, seal insert, and fluid manifold thoroughly with solvent and a brass brush to prevent cured material from causing friction on the mix shaft or seizing the motor.

4. DX100 Reference Materials

4.1 DX100-WR Bill of Materials (B12-3183)

ITEM	DESCRIPTION	PART NUMBER	QTY
	Assembly Drawing	112-4909	
	SB200 Side		
1	Seal Plate	114-9685	1
2	Washer	114-9692	2
3	Air Cap	214-3709	1
4	Stroke Adjust	214-3710	1
5	Air Cylinder	214-3370	1
6	Piston	214-3371	1
7	Separation Body	214-3372	1
8	Rod	214-3376	1
9	Lip Seal	01525	1
10	Lip Seal	12500187	1
11	Spring	V056	1
12	Retaining Ring	98410A117	1
	FC100 Side		
13	Needle	114-5247	1
14	Packing	V305	1
15	Packing nut	V306	1
16	End cap	V200	1
17	Lower air body	V201	1
18	Piston	V202	1
19	Upper air body	V228	1
20	Spring	V050	1
21	Set screw	V001	1
22	Stroke adjuster	V230	1
23	Lock nut	V229	1
	Other Parts		
24	Fluid Body	214-4477	1
25	Fluid Manifold	214-4495	1
26	Lip Seal, Insert	214-0733	1
27	Seal, Spring, Loaded, Lip Type	01382	2



28	Bearing, Ball, Steel	2342K81	1
29	Washer	214-0663	1
30	Needle Seat	214-4475	1
31	Motor Mount	214-4486	1
32	Flexible Coupling	AR075-8-4	1
33	Bushing, Bronze	114-2991	1
34	Mixer Shaft	214-4512	1
35	Mixer Shaft Cross	214-5013	1
36	Plug, 1/4" npt	1/4 HP	1
37	Threaded Standoff, 5-40	V075	2
38	Servo, NEMA 17, Kollmorgan	122-4039	1
39	Bleed Port Plug	V007	2
	Hardware		
40	Socket Head Cap Screw, #10-32	SHCS10-32x625	4
41	Socket Head Cap Screw, #8-32	SHCS8-32x0500	8
42	Socket Head Cap Screw, #5-40	SHCS5-40x 2"	2
43	Socket Head Cap Screw, #5-40	SHCS5-40x 2.25"	2
44	Socket Head Cap Screw, #5-40	SHCS5-40x1000	2
45	Socket Head Cap Screw, #5-40	SHCS5-40x1750	2
46	Socket Head Cap Screw, #5-40	SHCS5-40x250	1
47	Socket Head Cap Screw, #4-40	SHCS4-40x375	4
48	#4-40 washer	#4-40 washer	4
	O-Rings		
49	O-Ring	VLV-016-K	2
50	O-Ring	VLV-016-B	2
51	O-Ring	VLV-014-K	1
52	O-ring, Buna	VLV-014-B	3
53	O-Ring	VLV-010-V	3
54	O-Ring	VLV-008-B	3
55	O-ring, Kalrez	VLV-006-K	1
56	O-ring, Buna	VLV-004-B	1

Figure 8: DX100-WR Bill of Materials

4.2 DX100-WR Mechanical Drawings

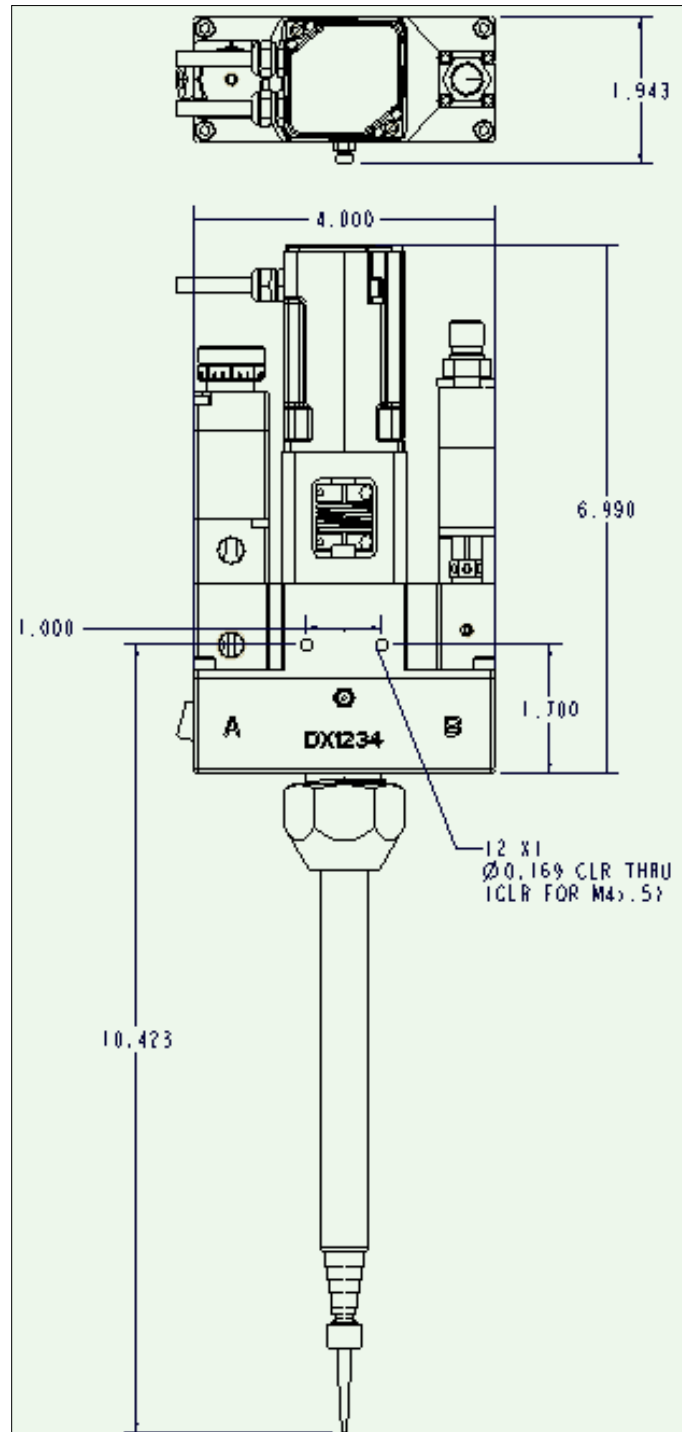


Figure 9: DX100-WR Dimensions 1

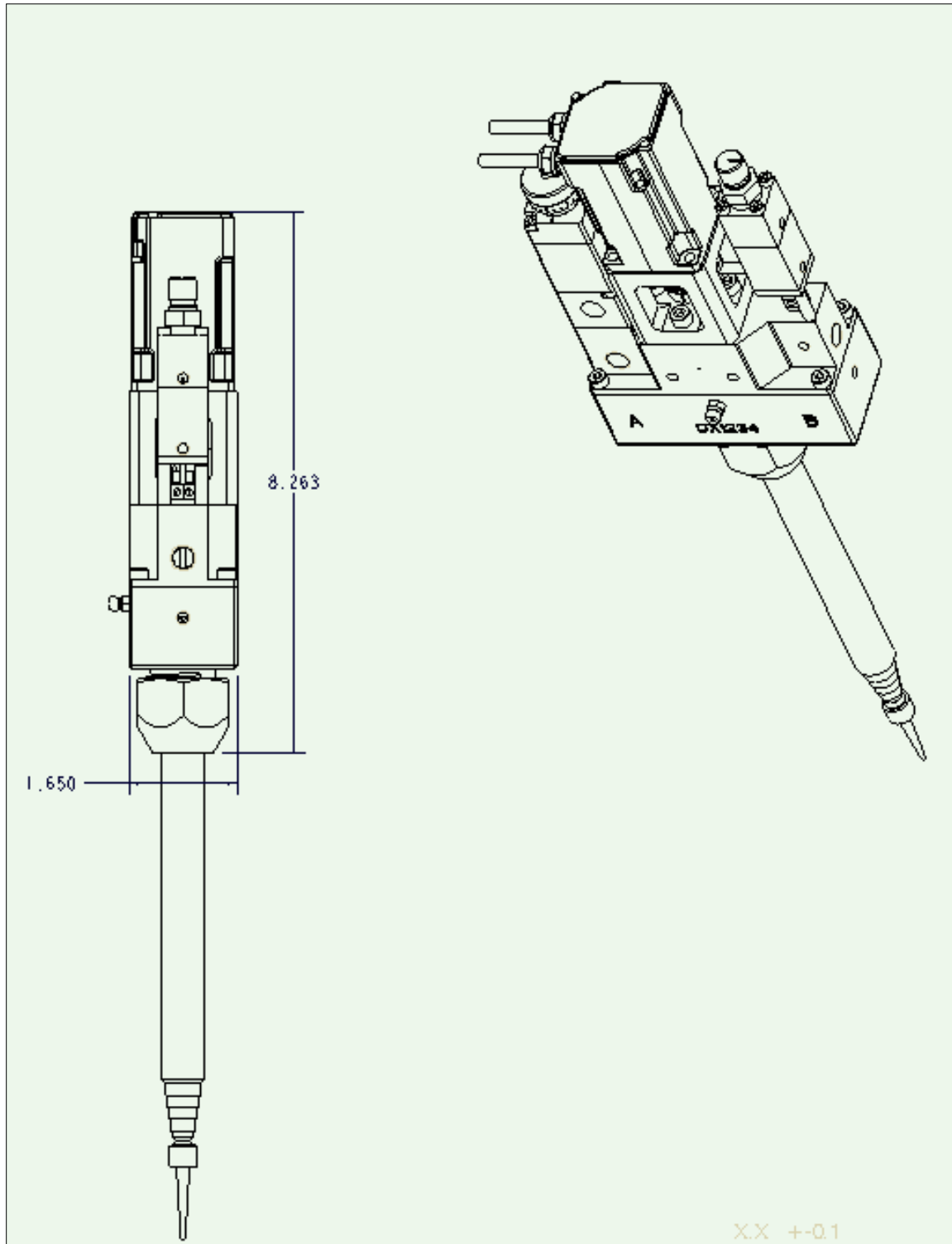


Figure 10: DX100-WR Dimensions 2

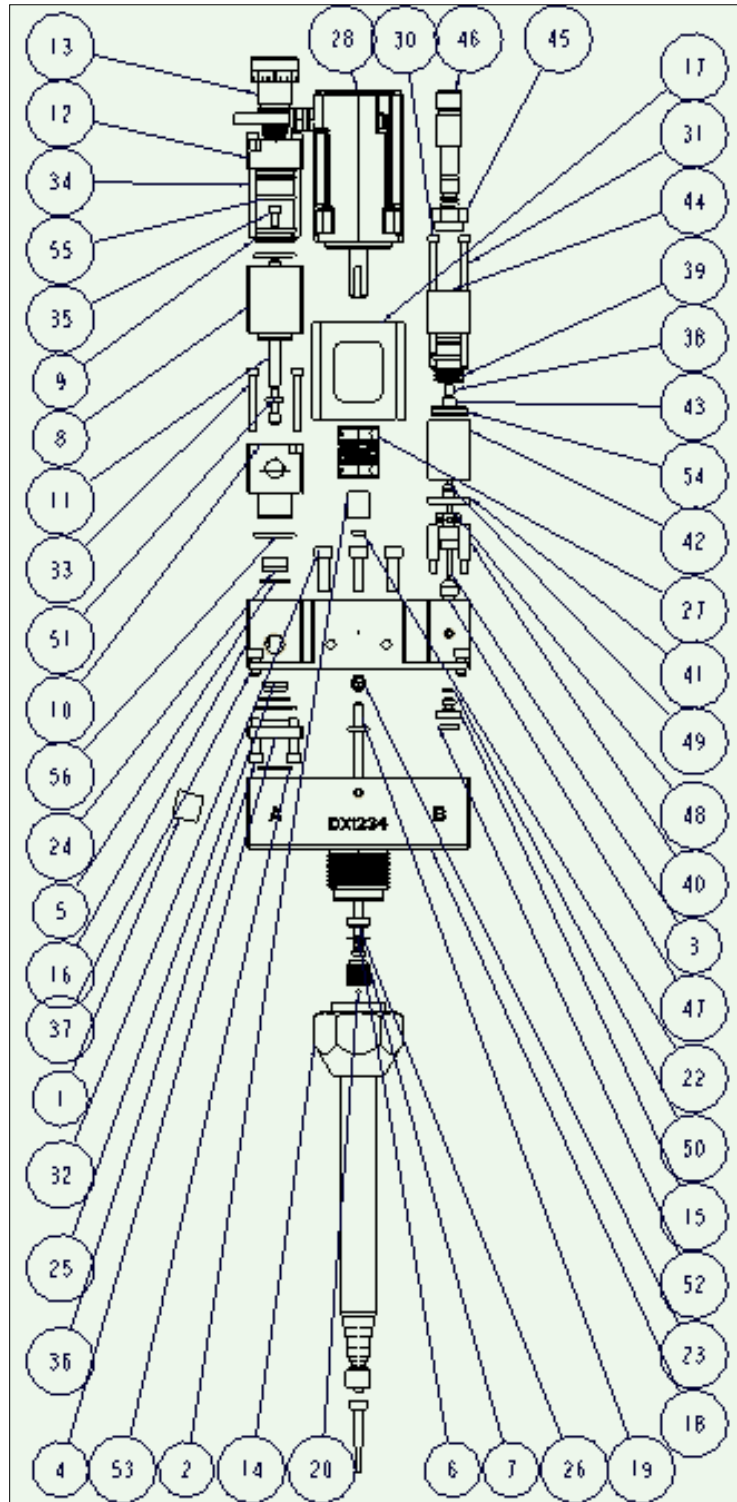


Figure 11: DX100-WR Callouts

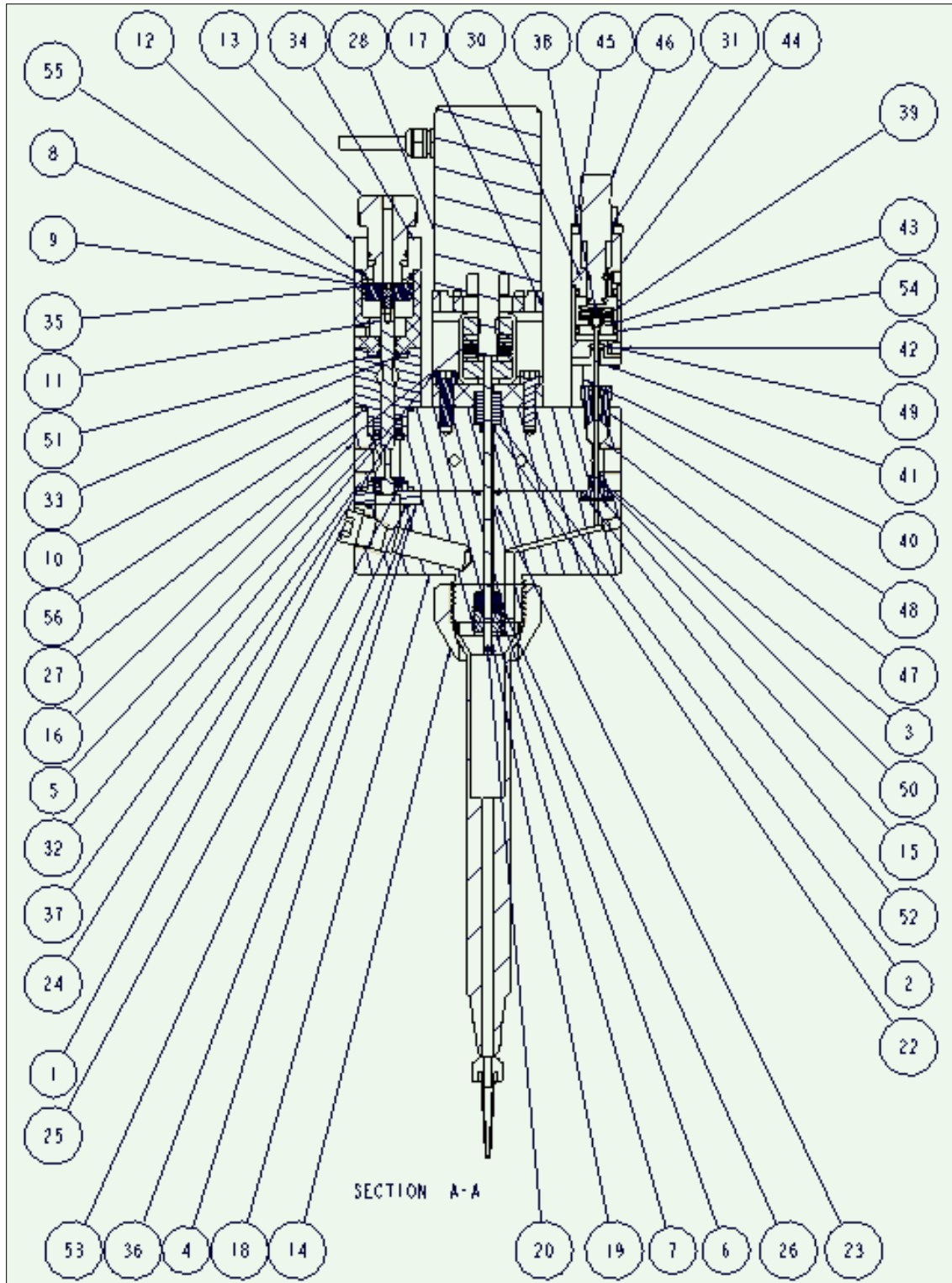


Figure 12: DX100-WR Exploded Callouts

REF #	PART #	DESCRIPTION	QTY
1	1-4_HWP-S	NPT PLUG	1
2	114-2991	BUSHING	1
3	114-5247	NEEDLE	1
4	114-9685	SEAL PLATE	1
5	114-9692	WASHER	2
6	214-0663	WASHER	1
7	214-0733	SEAL INSERT	1
8	214-3370	AIR CYLINDER	1
9	214-3371	PISTON	1
10	214-3372	SEPARATION BODY	1
11	214-3376	NEEDLE	1
12	214-3709	AIR CAP	1
13	214-3710	STROKE ADJUST	1
14	214-4036	NUT, MIXER	1
15	214-4475	SEAL	1
16	214-4477	DX100 FLUID BODY	1
17	214-4486	COUPLING BLOCK	1
18	214-4495	DX100 MANIFOLD	1
19	214-4512	DRIVE SHAFT	1
20	214-5013	MIXER SHAFT CROSS	1
21	442-C1-ALL	MIXING ELEMENT	1
22	01362	LIP SEAL	2
23	01394	GREASE FITTING	1
24	01525	LIP SEAL	1
25	12500187	LIP SEAL	1
26	2342981	BALL BEARING	1
27	ACR075-6-4	Flexible Coupling	1
28	DANAHER-AMMIX-ANCHR-00	Servo Motor	1
29	PV-18F	DISPENSE TIP	1
30	SH5-4032	FASTENER, #5-40 x 2.00"	2
31	SH5-40X225	SH5-40X225	2
32	SHCS10-329625	SHCS, #10-32 x 5/8"	4
33	SHCS5-40X1000	SHCS, #5-40 x 1"	2
34	SHCS5-40X1750	SHCS, #5-40 x 1 3/4"	2
35	SHCS5-40X250	SHCS, #5-40 x 1/4"	1
36	SHCS8-32X0625	SHCS, #8-32 x 5/8"	4
37	SHCSM28	SHCS, M8 x 8mm	4
38	V001	SETSCREW	1
39	V050	SPRING	1
40	V075	STANDOFF	2
41	V200	END CAP	1
42	V201	LOWER AIR BODY	1
43	V202	PISTON	1
44	V226	UPPER AIR BODY	1
45	V229	LOCK NUT	1
46	V230	STROKE ADJUSTER	1
47	V305	PACKING	1
48	V306	PACKING NUT	1
49	VLY-004-B	O-RING	1
50	VLY-006	O-RING	1
51	VLY-008-B	O-RING	3
52	VLY-010	O-RINGS SIZE 010	2
53	VLY-014	O-RINGS	2
54	VLY-D14-B	O-RINGS	2
55	VLY-D16-B	O-RING	2
56	VLY-D16-V	O-RING	2

Figure 13 : DX100-WR Section Callouts

4.3 DX100-CR Bill of Materials (B12-3365)

ITEM	DESCRIPTION	PART NUMBER	QTY
	Assembly Drawing	112-5128	
	SB200 side		
1	Seal Plate	114-9685	2
2	Washer	114-9692	4
3	Air Cap	214-3709	2
4	Stroke Adjust	214-3710	2
5	Air Cylinder	214-3370	2
6	Piston	214-3371	2
7	Separation Body	214-3372	2
8	Rod	214-3376	2
9	Lip Seal	01525	2
10	Lip Seal	12500187	2
11	Spring	V056	2
12	Retaining Ring	98410A117	2
	Other Parts		
13	Fluid Body	214-4477	1
14	Fluid Manifold	214-4495	1
15	Lip Seal, Insert	214-0733	1
16	Seal, Spring, Loaded, Lip Type	01382	2
17	Bearing, Ball, Steel	2342K81	1
18	Washer	214-0663	1
19	Motor Mount	214-4486	1
20	Flexible Coupling	ACR075-8-4	1
21	Bushing, Bronze	114-2991	1
22	Mixer Shaft	214-4512	1
23	Mixer Shaft Cross	214-5013	1
24	Plug, ¼" npt	1/4 HP	2
25	Servo, NEMA 17, Kollmorgan	122-4039	1
26	Dynamic Mixer	442-C1-ALL	1
27	Mixer Tip, needle	PV-18F	1
28	Grease Fitting	01394	1
	Hardware		
29	Socket Head Cap Screw, #10-32	SHCS10-32x625	4
30	Socket Head Cap Screw, #8-32	SHCS8-32x0500	8
31	Socket Head Cap Screw, #5-40	SHCS5-40x1000	4
32	Socket Head Cap Screw, #5-40	SHCS5-40x1750	4
33	Socket Head Cap Screw, #5-40	SHCS5-40x250	2
34	Socket Head Cap Screw, #4-40	SHCS4-40x375	4
35	#4-40 Washer	#4-40 Washer	4
	O-Rings		
36	O-Ring	VLV-016-K	4
37	O-Ring	VLV-016-B	4
38	O-Ring	VLV-014-K	4
39	O-Ring	VLV-010-V	5
40	O-Ring	VLV-008-B	2

Figure 14 : DX100-CR Bill of Materials

4.4 DX100-CR Mechanical Drawings

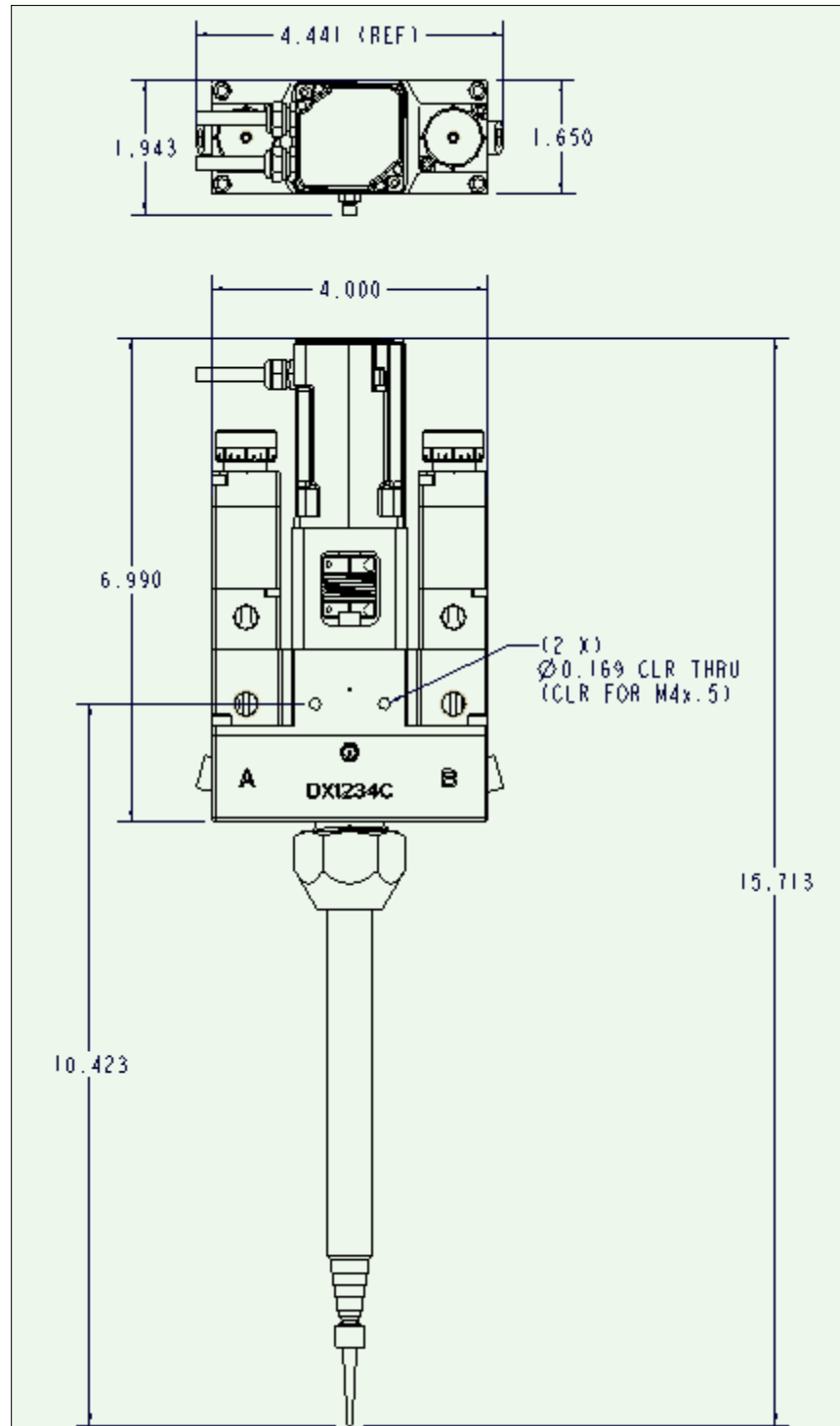


Figure 15 : DX100-CR Dimensions

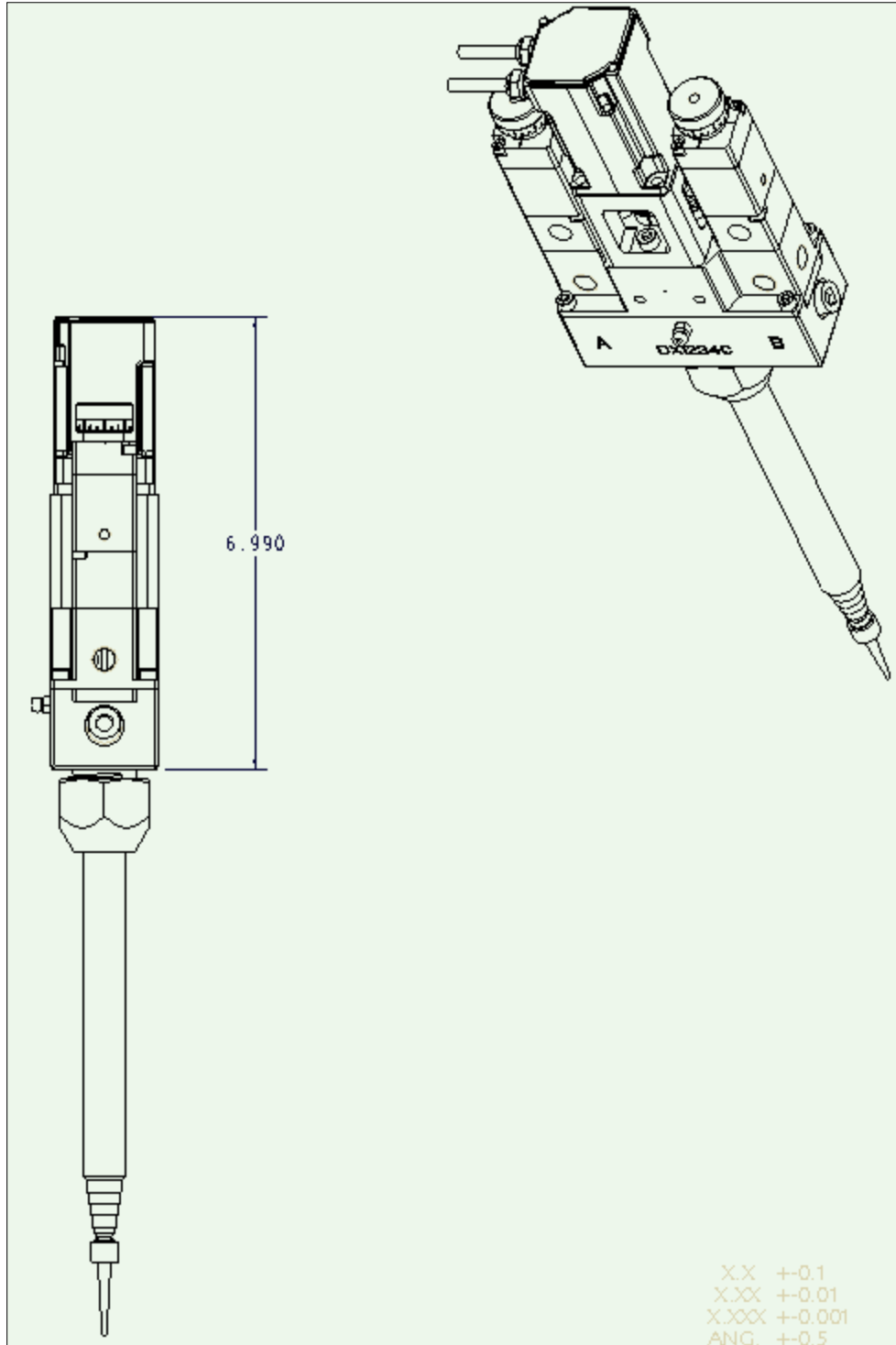


Figure 16 : DX100-CR Dimensions 2

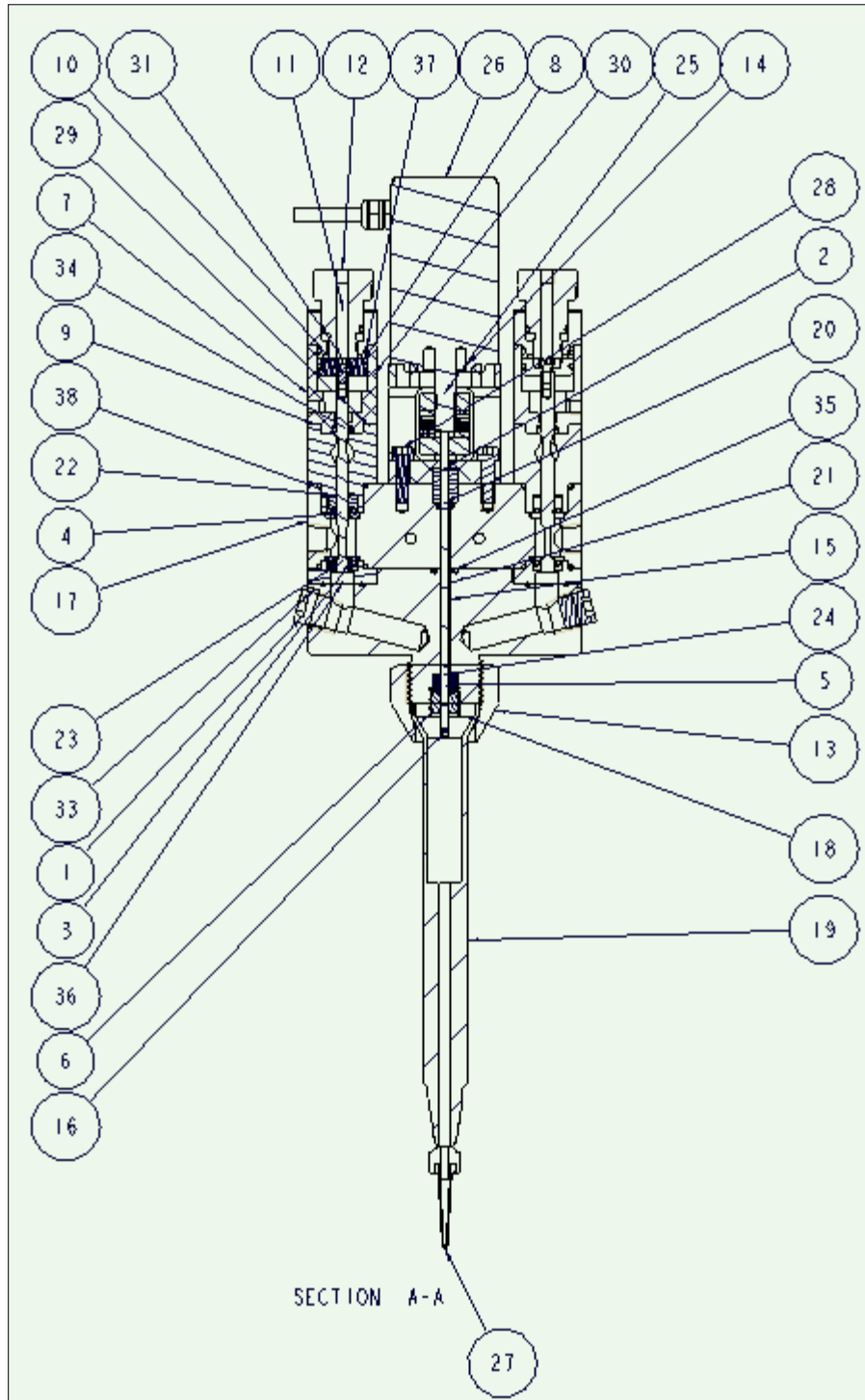


Figure 17 : DX100-CR Section Callouts

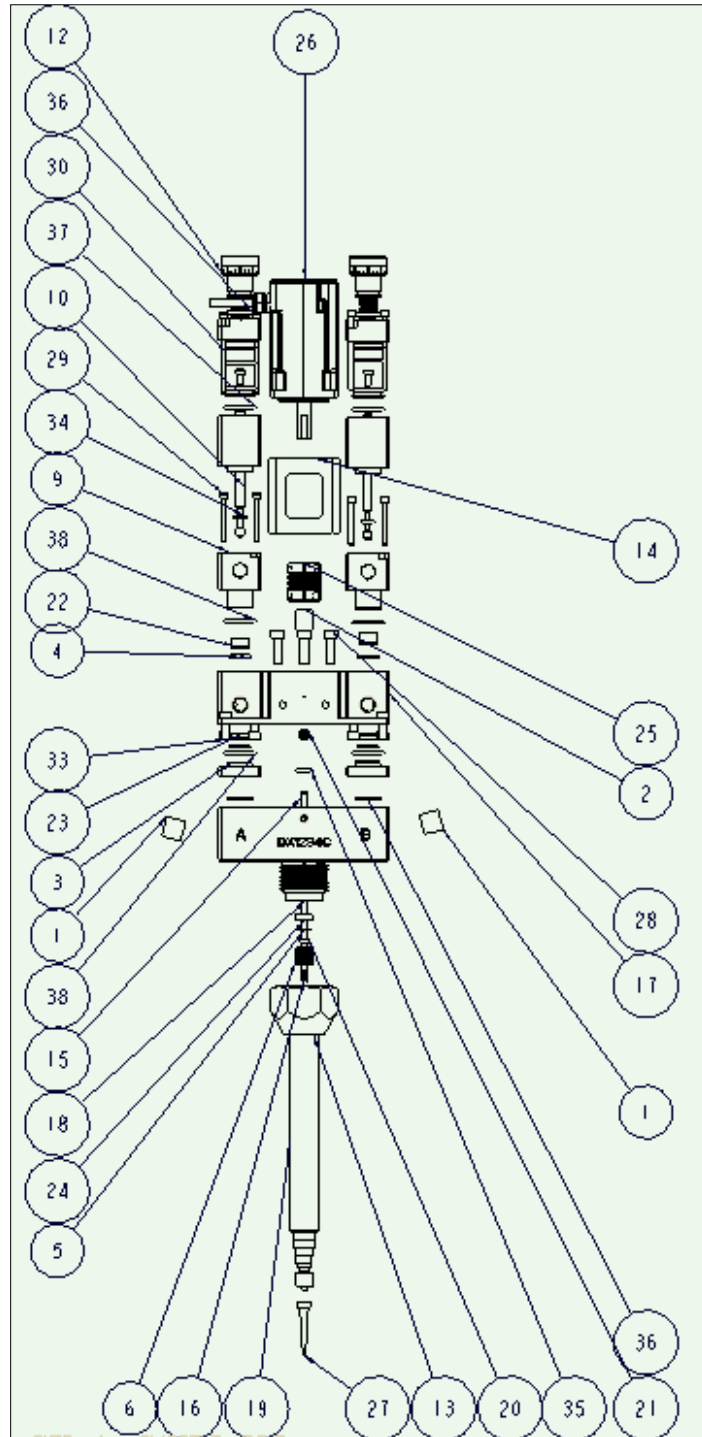


Figure 18 : DX100-CR Exploded Callouts

REF #	PART #	DESCRIPTION	QTY
1	1-4_HHP-S	NPT PLUG	2
2	114-2991	BUSHING	1
3	114-9685	SEAL PLATE	2
4	114-9692	WASHER	4
5	214-0663	WASHER	1
6	214-0733	SEAL INSERT	1
7	214-3370	AIR CYLINDER	2
8	214-3371	PISTON	2
9	214-3372	SEPARATION BODY	2
10	214-3376	NEEDLE	2
11	214-3709	AIR CAP	2
12	214-3710	STROKE ADJUST	2
13	214-4036	NUT, MIXER	1
14	214-4486	COUPLING BLOCK	1
15	214-4512	DRIVE SHAFT	1
16	214-5013	MIXER SHAFT CROSS	1
17	214-5058	DX100-CR FLUID BODY	1
18	214-5128	DX100-CR MANIFOLD	1
19	442-G1-ALL	MIXING ELEMENT	1
20	01382	LIP SEAL	2
21	01394	GREASE FITTING	1
22	01525	LIP SEAL	2
23	12500187	LIP SEAL	2
24	2342K81	BALL BEARING	1
25	ACR075-8-4	Flexible Coupling	1
26	DANAHER-AM11X-ARCNR-00	Servo Motor	1
27	PV-18F	DISPENSE TIP	1
28	SHCS10-32X625	SHCS, #10-32 x 5/8"	4
29	SHCS5-40X1000	SHCS, #5-40 x 1"	4
30	SHCS5-40X1750	SHCS, #5-40 x 1 3/4"	4
31	SHCS5-40X250	SHCS, #5-40 x 1/4"	2
32	SHCS8-32X0500	SHCS, #8-32 x 1/2"	4
33	SHCS8-32X0625	SHCS, #8-32 x 5/8"	8
34	VLV-008-B	O-RING	2
35	VLV-010	O-RING SIZE 010	1
36	VLV-014	O-RING	4
37	VLV-016-B	O-RING	4
38	VLV-016-V	O-RING	4

Figure 19 : DX100-CR Callouts BOM

5. Accessories and Options

5.1 Accessories

#	Part Number	Description
1	214-4084	Ratio Cap, UHMW
2	114-3713	Night Cap
3	XMLRL-1	Fitting, #10-32 x Male Luer
4	01905	Precision Orifice, #8-32 x .035"
5	214-4036	Retaining Nut
6	214-0881	Mixer Jacket
7	4M-C04L-1-V-SS	Check Valve, 1/4" NPT, 1 psi cracking pressure,
8	4M-C04L-1-KZ-SS	Check Valve, 1/4" NPT, 1 psi cracking pressure,
9	4 CTX-S	Fitting, 1/8" mnpt x -04 mjjc Elbow, Carbon Steel
10	4 CTX-SS	Fitting, 1/8" mnpt x -04 mjjc Elbow, Stainless
11	KJL07-32	Fitting, One Touch, 1/4" Tube
12	AS1201F-	Fitting, One Touch, Speed Control, 1/4" Tube
13	1/8 HHP-SS	Recirculation Hole Plug, Hollow Hex, 1/8 MNPT,
14	214-0544	Tool, Lip Seal Insertion
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 20 : DX100 Accessories

5.2 Spare Parts Kits

Spare Part Kit For: DX100-WR / Urethane Seals		PART NUMBER: B12-3183-SP	
ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Urethane	12500187	1
2	Seal, loaded lip, Urethane	01525	1
3	O-ring, 016 Buna	VLV-016B	2
4	O-ring, 016 Kalrez	VLV-016K	2
5	O-ring, 014 Buna	VLV-014B	3
6	O-ring, 014 Kalrez	VLV-014K	1
7	O-ring, 010 Kalrez	VLV-010K	2
8	O-ring, 008 Buna	VLV-008B	3
9	O-ring, 006 Kalrez	VLV-006K	1
10	O-ring, 004 Buna	VLV-004B	1
11	Seal, spring, loaded lip type	01382	2
12	Bearing, Ball, Steel	2342K81	1
13	Bushing, Bronze	114-2991	1
14	Mixer Shaft	214-4512	1
15	Mixer Shaft Cross	214-5013	1
16	Packing	V305	1

Figure 21 : DX100-WR Spare Parts (Urethane)

Spare Part Kit For: DX100-WR / Teflon Seals		PART NUMBER: B12-3183-SP-T	
ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Teflon	Contact PVA	1
2	Seal, loaded lip, Teflon	Contact PVA	1
3	O-ring, 016 Buna	VLV-016B	2
4	O-ring, 016 Kalrez	VLV-016K	2
5	O-ring, 014 Buna	VLV-014B	3
6	O-ring, 014 Kalrez	VLV-014K	1
7	O-ring, 010 Kalrez	VLV-010K	2
8	O-ring, 008 Buna	VLV-008B	3
9	O-ring, 006 Kalrez	VLV-006K	1
10	O-ring, 004 Buna	VLV-004B	1
11	Seal, spring, loaded lip type	01382	2
12	Bearing, Ball, Steel	2342K81	1
13	Bushing, Bronze	114-2991	1
14	Mixer Shaft	214-4512	1
15	Mixer Shaft Cross	214-5013	1
16	Packing	V305	1

Figure 22 : DX100-WR Spare Parts (Teflon)

Spare Part Kit For: DX100-CR/ Urethane Seals		PART NUMBER: B12-3365-SP	
ITEM	DESCRIPTION	SYMBOL	QTY
1	Seal, loaded lip, Teflon	12500187	2
2	Seal, loaded lip, Teflon	01525	2
3	O-ring, 016 Buna	VLV-016B	4
4	O-ring, 016 Kalrez	VLV-016K	4
5	O-ring, 014 Kalrez	VLV-014K	4
6	O-ring, 010 Kalrez	VLV-010K	1
7	O-ring, 008 Buna	VLV-008B	2
8	Seal, spring, loaded lip type	01382	2
9	Bearing, Ball, Steel	2342K81	1
10	Bushing, Bronze	114-2991	1
11	Mixer Shaft	214-4512	1
12	Mixer Shaft Cross	214-5013	1

Figure 23 : DX100-CR Spare Parts (Urethane)

Spare Part Kit For: DX100-CR/ Teflon Seals		PART NUMBER: B12-3365-SP-T	
ITEM	DESCRIPTION	SYMBOL	QTY
2	Seal, loaded lip, Teflon	Contact PVA	2
3	O-ring, 016 Buna	VLV-016B	4
4	O-ring, 016 Kalrez	VLV-016K	4
5	O-ring, 014 Kalrez	VLV-014K	4
6	O-ring, 010 Kalrez	VLV-010K	1
7	O-ring, 008 Buna	VLV-008B	2
8	Seal, spring, loaded lip type	01382	2
9	Bearing, Ball, Steel	2342K81	1
10	Bushing, Bronze	114-2991	1
11	Mixer Shaft	214-4512	1
12	Mixer Shaft Cross	214-5013	1

Figure 24 : DX100-CR Spare Parts (Teflon)

6. Troubleshooting

<u>Problem</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Valve Does Not Cycle	<ul style="list-style-type: none"> • Air pressure to air section too low • Stroke adjustment set screw is bottomed out • Material is cured in the valve • Valve was assembled without lubricating the O-ring seals 	<ul style="list-style-type: none"> • Increase air pressure to 60-100 psi • Back out stroke adjustment set screw by turning it counter-clockwise • Disassemble and clean valve • Disassemble valve, lubricate seals and re-assemble
Material Leaks From Mixer	<ul style="list-style-type: none"> • Stroke adjustment set screw is set too low • Lip seals are worn • Air bubble trapped in fluid body or dynamic mixer 	<ul style="list-style-type: none"> • Back out stroke adjustment set screw by turning it counter-clockwise • Replace parts as necessary • Flip valve upside down and cycle until air bubbles are removed
Air Bubbles In Fluid	<ul style="list-style-type: none"> • Valve not properly purged • Problem with fluid delivery system 	<ul style="list-style-type: none"> • Flip valve upside down and cycle until air bubbles are removed • Diagnose and repair.
No Flow From Valve	<ul style="list-style-type: none"> • Manifold is plugged • Air cylinder is not actuating • Static mixer is plugged • Problem with material supply 	<ul style="list-style-type: none"> • Inspect manifold and clean thoroughly • Increase operating air pressure to 80 psi and inspect valve for cured material • Replace static mixer • Inspect material supply for flow to valve
Valve Drips Continuously After Shutoff	<ul style="list-style-type: none"> • Suck 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 counter-clockwise until dripping stops. • Inspect/replace lip seals • Inspect/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 dynamic mixer 	<ul style="list-style-type: none"> • Invert valve and purge air from the manifold • Invert valve and purge air from the mixer
Cross-contamination In Manifold Nozzle	<ul style="list-style-type: none"> • Suck back set too high • System material supply not properly bled of air 	<ul style="list-style-type: none"> • Turn stroke adjustment screw clockwise to decrease suck back • Thoroughly bleed material supply system of air

<p>Seals Fail Rapidly</p>	<ul style="list-style-type: none"> • Seals are incompatible with material • Material is heavily filled with abrasive fillers 	<ul style="list-style-type: none"> • Consult PVA for alternative seal options • Consult PVA for alternative seal options
<p>Valve Has Air Leak</p>	<ul style="list-style-type: none"> • Jam nut is not tight against stroke adjustment sealing washer • Worn o-ring seals in air cylinder section 	<ul style="list-style-type: none"> • Tighten jam nut against stroke adjustment sealing washer • Replace o-ring seals in air cylinder section
<p>Valve Leaks at Separation Block</p>	<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"> • Inspect/replace lip seals • Inspect/replace valve rods • Inspect/replace sleeve bearings
<p>Material Won't Cure</p>	<ul style="list-style-type: none"> • Mix ratio is incorrect • Material is not mixing well enough 	<ul style="list-style-type: none"> • Perform ratio checks at manifold and correct metering system as required • Increase speed of dynamic mixer motor

Figure 25: Troubleshooting Guide



7. Warranty Information



8. Notes



9. Warranty

9.1 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:

10. Table of Figures

Figure 1: DX100-WR Pneumatic Schematic	7
Figure 2 : DX100-CR Pneumatic Schematic	8
Figure 3: Valve Specifications.....	8
Figure 4: DX100 Tool Kit	9
Figure 5 : Installing Dynamic Mix Tube.....	11
Figure 6 : Filling Mixer	11
Figure 7 : Bleeding Top of Mixer.....	12
Figure 8: DX100-WR Bill of Materials	18
Figure 9: DX100-WR Dimensions 1	19
Figure 10: DX100-WR Dimensions 2.....	20
Figure 11: DX100-WR Callouts	21
Figure 12: DX100-WR Exploded Callouts.....	22
Figure 13 : DX100-WR Section Callouts.....	23
Figure 14 : DX100-CR Bill of Materials	24
Figure 15 : DX100-CR Dimensions.....	25
Figure 16 : DX100-CR Dimensions 2	26
Figure 17 : DX100-CR Section Callouts.....	27
Figure 18 : DX100-CR Exploded Callouts	28
Figure 19 : DX100-CR Callouts BOM.....	29
Figure 20 : DX100 Accessories	30
Figure 21 : DX100-WR Spare Parts (Urethane)	31
Figure 22 : DX100-WR Spare Parts (Teflon)	31
Figure 23 : DX100-CR Spare Parts (Urethane).....	32
Figure 24 : DX100-CR Spare Parts (Teflon).....	32
Figure 25: Troubleshooting Guide.....	34