



## **DISK METERED ABRASIVE MINI HOPPER INSTALLATION AND MAINTENANCE PROCEDURES**

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## 1.

## **1. Overview**

This H2O Jet abrasive mini hopper was specifically designed for the abrasive cutting process. This device will provide a consistent, metered flow of abrasive to the cutting head of your machine.

**WARNING**

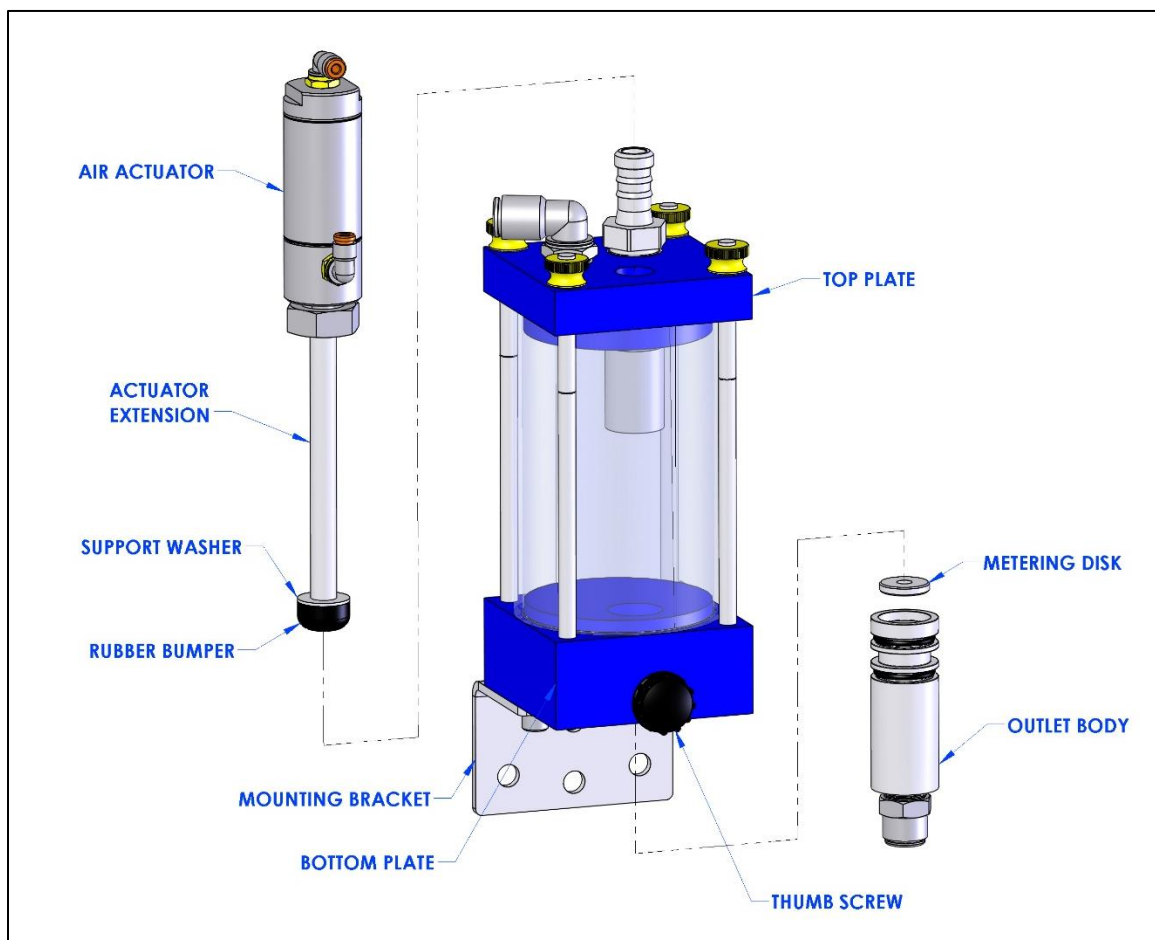
**Failure to follow the outlined maintenance and installation guidelines may result in component failure causing equipment damage.**

## **2. Components**

### **2.1 Abrasive Mini Hopper Assembly**

The H2O Jet Mini Hopper is comprised of a top and bottom plate that supports an acrylic tube to store the abrasive. The air actuator will open and close the rubber bumper when air is supplied to the appropriate port. The abrasive then flows through the metering disk contained in the outlet body, and on to the cutting head.

**Figure 1: H2O Jet Mini Hopper Components**



## 2.2 Abrasive Metering Disks

There are five metering disks enclosed in your kit, each marked with the flow rate in pounds per minute (lb/min). The rate was set using 80 mesh HPX abrasive. Other abrasives will flow a little more or a little less depending on the properties of the material. The chart below lists flow rates and orifice sizes for reference.

**Table 1: Metering Disk Orifice Size**

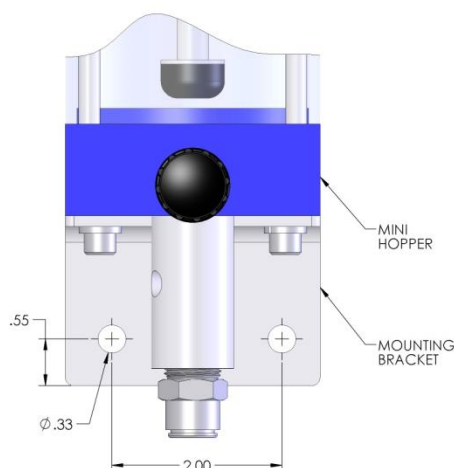
Flow Rate lb/min	ID (in)
.50	0.184"
.75	0.205"
1.0	0.228"
1.25	0.249"
1.5	0.266"

## 3. Installation

To install the abrasive mini hopper to your machine,

1. Find a suitable location on your travel unit that allows enough clearance for routine maintenance of the unit.
2. There will need to be two corresponding holes on the machine with the 2" spacing as shown below. They can either be drilled and tapped for a 5/16 bolt, or clearance drilled with a Q drill bit for the bolt to pass through.

**Figure 2: Mounting Bracket**



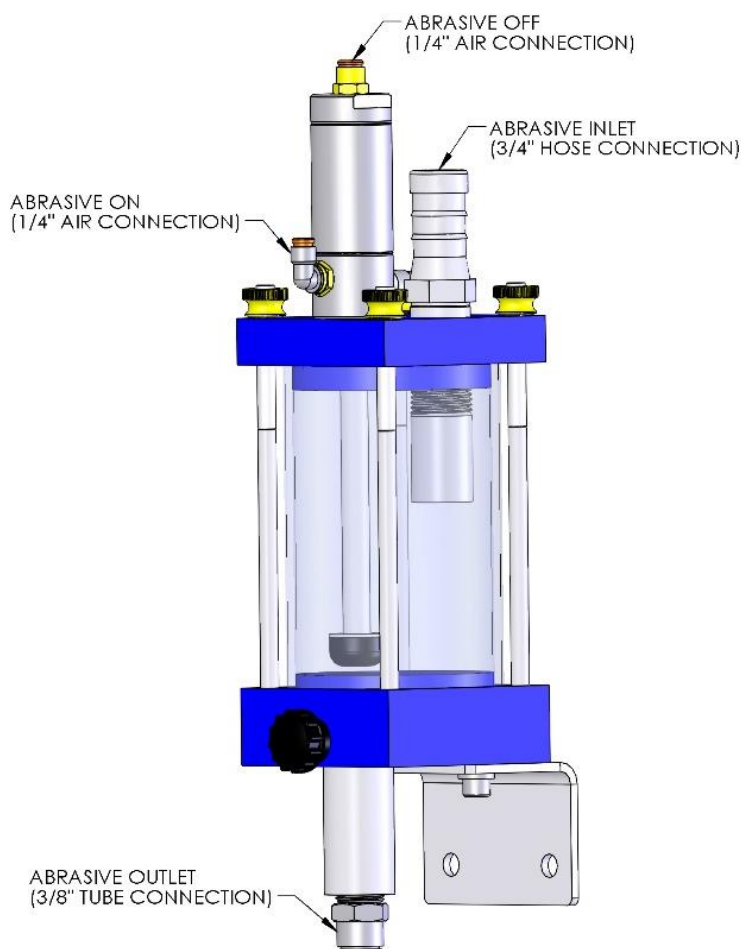
3. Using lock washers and bolts or lock nuts depending on your application, secure the mini hopper to the machine.
4. Loosen the thumb screw and remove the outlet body from the bottom of the mini hopper. Select the correct size metering disk and place it in the top of the outlet body with the marking facing down. The metering disks have a flow rate marked on them; it represents lb/min with 80 mesh HPX.
5. With the metering disk installed, place the outlet body back into the bottom plate and tighten thumb screw until the outlet body is securely in place
6. Attach the air supply lines as show below. The air cylinder is to be run with **40 psi** of air maximum, exceeding the recommended pressure can damage the mini hopper and accelerates the wear on the components.



**DO NOT** apply compressed air to the vent fitting on the top of the hopper. Severe injury may occur.

7. Attach the abrasive feed and outlet lines as shown above. (Note: A 1/2" abrasive feed is pre-installed on the mini hopper. A 3/4" feed inlet is included in the package and may need to be substituted for your specific application.

*Figure 3: Air Supply and Abrasive Connections*

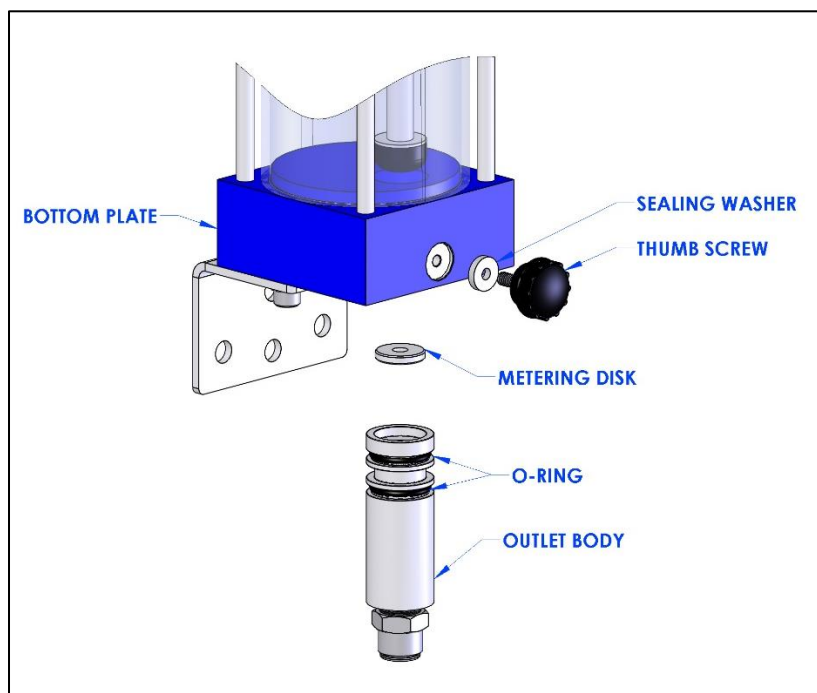


## **4. Maintenance**

### **4.1 Changing Metering Disks (Abrasive Flow Adjustment)**

1. Make sure the air actuator is in the off position and there is no abrasive flow.

*Figure 3: Metering Disk Removal*

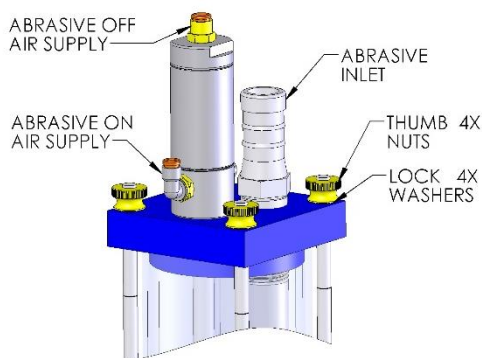


2. Loosen and remove the black thumb screw. Make sure to hold onto the outlet body as you back out the thumb screw so the body does not fall into the tank.
3. Remove outlet body from the bottom plate.
4. With the outlet body and thumb screw removed, use shop air to blow out the threads on the bottom plate to aid in reinstallation and the service life of the components.
5. Remove the current disk from the top of the outlet body and clean all abrasive from outlet body.
6. Select the flow rate needed and place new metering disk with the marking facing down into the top of the outlet body.
7. Slide the outlet body into the bottom plate.
8. While still holding the outlet body in place, reinstall the black thumb screw and tighten until the outlet body is secure.

### 4.2 Rubber Bumper Replacement

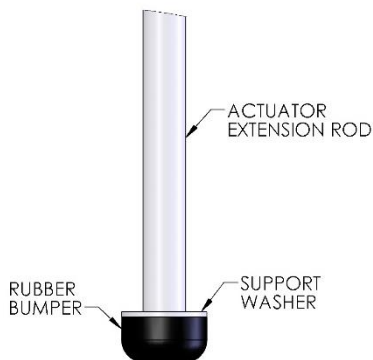
Over time it may be necessary to replace the rubber bumper due to wear.

**Figure 4: Top Plate Assembled**



1. Shut off air supply to bulk hopper and bleed all pressure.
2. Shut off air supply to mini hopper.
3. Remove the abrasive feed line from abrasive inlet on the top plate.
4. Remove the air supply lines from the air actuator.
5. Remove the abrasive from inside the mini hopper.
6. Remove the 4 brass thumb nuts and lock washers from the studs securing the top plate. In dirty environments the exposed threads of the studs should be wiped clean before removal of the thumb nuts.
7. Remove the top plate from the mini hopper assembly.

**Figure 5: Rubber Bumper**



8. Remove the rubber bumper from the actuator extension rod. It may be necessary to hold the extension rod in place while removing the bumper.
9. Remove support washer from rubber bumper.
10. Install support washer onto new rubber bumper.
11. Place a small drop of thread lock on the threads of the rubber bumper and install into actuator extension.



12. Slide top plate back onto threaded studs. Make sure to center the rubber stopper above the abrasive outlet port on the bottom plate.
13. Reinstall lock washers and thumb nuts onto threaded stubs and tighten.
14. Reconnect air and abrasive supply lines.
15. Turn on supply air and pressurize bulk hopper.
16. Refill mini hopper with abrasive.

### **4.3 Mini Hopper Clean Out**

It is important to note, in the event a water back-up occurs, and the mini hopper and its contents get wet, it will need to be disassembled, thoroughly cleaned and dried before it can return to normal operation. If the unit is not cleaned and dried, it can cause the unit to not function properly.



**DO NOT** apply compressed air to the vent fitting on the top of the hopper. Severe injury may occur.

## **5. Troubleshooting**

**Table 2: Troubleshooting Guide**

Issue	Possible Causes	Solution
1. Abrasive hopper is empty	Air pressure in conveying system is too low	Increase air pressure in the conveying system
	Inlet opening is obstructed	Clean abrasive inlet
	Abrasive supply line has become blocked	Check to make sure there are no blockages or kinks in abrasive supply hose
2. Abrasive flow too low, or erratic	Using a metering disk that is too small	Replace metering disk with a larger flow rate
	Abrasive outlet partially or fully blocked.	Remove and clean outlet body and openings
	Rubber bumper is partially blocking outlet hole.	Inspect rubber bumper and replace if damaged
3. Abrasive does not turn off or on, or is slow and erratic	Rubber bumper is worn	Replace rubber bumper
	Insufficient air to actuator	Ensure proper air supply to actuator (Air must be between 25 and 40 PSI)
4. Abrasive on/off functions are reversed	Air lines to air actuator are reversed	Switch the position of the air lines feeding the air actuator
5. Abrasive is flowing out the vent hole on the outlet body	Abrasive outlet body or tube is blocked	Remove outlet body and clean, also check tube feeding cutting head for obstruction

## **6. Specifications**

**Table 3: Technical Specifications**

### **Technical Specifications**

<b>Height</b>	12.4 in (315 mm)
<b>Width</b>	3.0 in (76.2 mm)
<b>Length</b>	3.5 in (89 mm)
<b>Weight</b>	3.65 lbs (1.65 kg)
<b>Acrylic Tube Volume</b>	0.12 gal (0.45 L)
<b>Recommended Air Supply</b>	25-40 psi (1.7-2.7 bar)

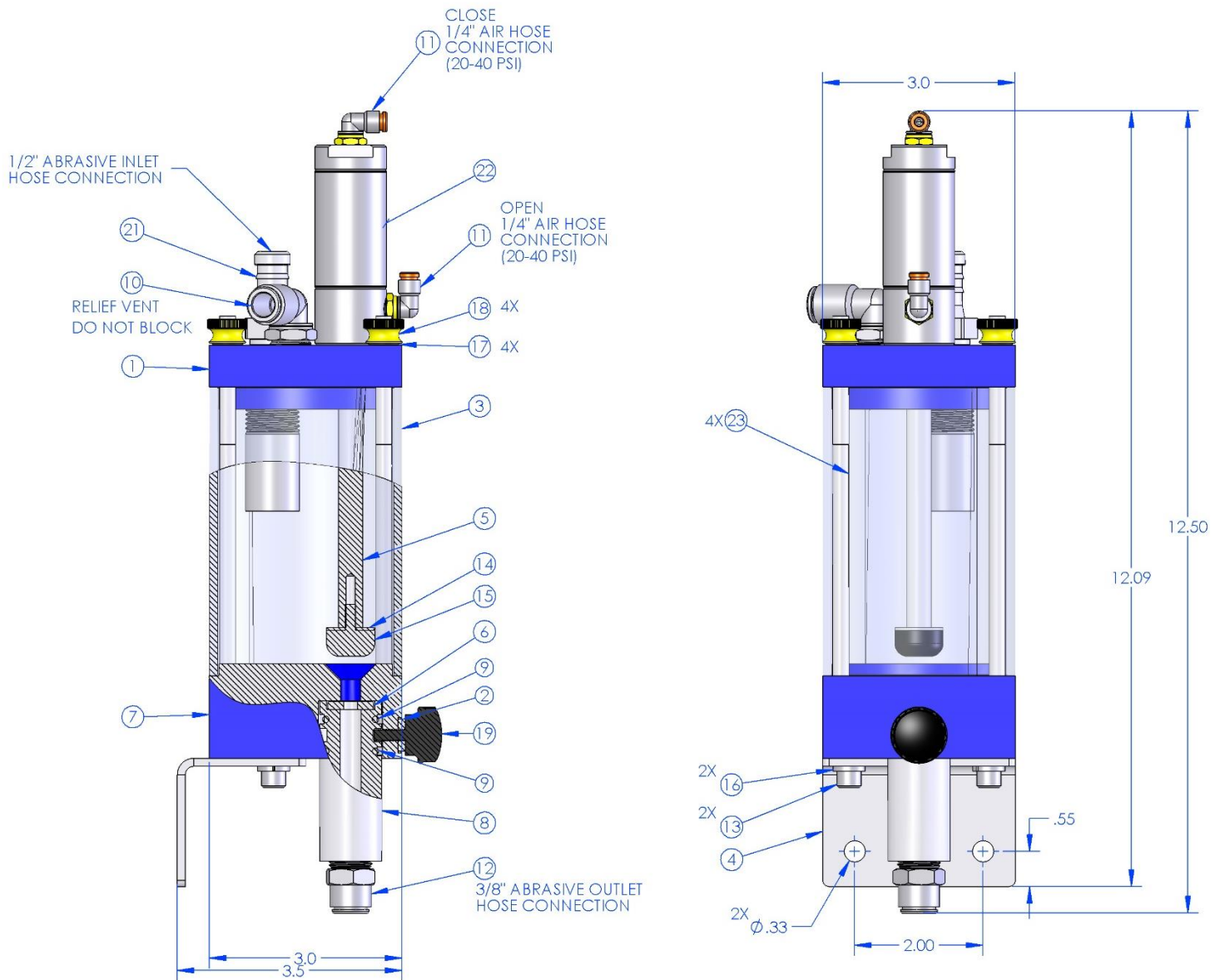
## **7. Parts List**

To facilitate parts ordering, the following table contains the parts list with item numbers that correspond to a diagram of the parts on the following page.

**Table 4: Parts List**

ITEM #.	QTY.	PART #	DESCRIPTION
1	1	100252-1	TOP PLATE, ABRASIVE MINI HOPPER
2	1	100252-10	SEALING WASHER, THUMB SCREW, MINI-HOPPER
3	1	100252-4	VIEWING CYLINDER, ABRASIVE MINI HOPPER
4	1	100252-5-A	ABRASIVE MINI HOPPER, MOUNTING BRACKET
5	1	100252-6	ACTUATOR EXTENSION, ABRASIVE MINI HOPPER
6	1	100252-7-X	ABRASIVE MINI HOPPER, METERING DISK
7	1	100252-8	BOTTOM PLATE, ABRASIVE MINI HOPPER
8	1	100252-9	OUTLET BODY, ABRASIVE MINI HOPPER
9	2	400043-115	O-RING, BUNA-N, 70A, -115
10	1	400064-10	FITTING, AIR, 3/8" ELBOW TO 3/8" NPT
11	2	400064-3	FITTING, AIR HOSE, 1/8"-90 DEGREE
12	1	400064-9	FITTING, AIR HOSE 3/8" TO 3/8" NPT MALE
13	2	400085-25-20-.5	SOCKET HEAD CAP SCREW, SS, 1/4-20 X .5"
14	1	400087-8	WASHER, FLAT, LARGE DIAM., SS, #8X3/4"
15	1	400094-1	RUBBER BUMPER, ABRASIVE METERING VALVE
16	2	400101-.25	WASHER, LOCK, .25", SS
17	4	400104-25	INTERNAL TOOTH LOCK WASHER, STAINLESS, 1/4"
18	4	400228-1	THUMB NUT, 1/4"-20, BRASS
19	1	400229-1	THUMB SCREW, 10-32X3/8"
20	1	400230-1	PIPE NIPPLE, 1/2" NPT X 2", THREADED ONE SIDE
21	1	400231-1	BARBED HOSE FITTING, 1/2" ID TO 1/2" NPT
21a	1	400231-2	BARBED HOSE FITTING, 3/4" ID TO 1/2" NPT
22	1	400232-1	AIR ACTUATOR, 1/8" NPT, DOUBLE ACTING, SS ROD
23	4	605049-7	THREADED STUD, 1/4"-20X6", SS

Figure 6: Parts List Diagram



**8. Revision Table**

	REV. ID.	DESCRIPTION OF CHANGE	WRITTEN BY	CHECKED BY	APPROVED BY
01/25/2011	0	First Publication	L.J.	M.H.	H.A.
07/20/2017	A	Format Update	L.J.	M.H.	H.A.
7/26/19	C	Changed bottom plate and outlet adapter to new design	M.H.	L.J.	G.B.