REXPO
CUTTING & BLASTING SOLUTIONS

AccuStream™
waterjet products

ABRASIVE REGULATOR II

13096 Abrasive Regulator II

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Contact Information and Customer & Technical Service

At AccuStream, your purchase is only the beginning of our commitment to help you succeed. We believe that what happens after the sale is just as important as what happens before.

Customer Service Representatives are available to take your calls Monday through Friday 7:00 AM to 5:00 PM CST. If you need service after-hours AccuStream is also on-call 24 hours a day, 7 days a week to ensure your system is up and running around-the-clock.

For more information, please call Customer Service toll-free at **866-566-7099.**

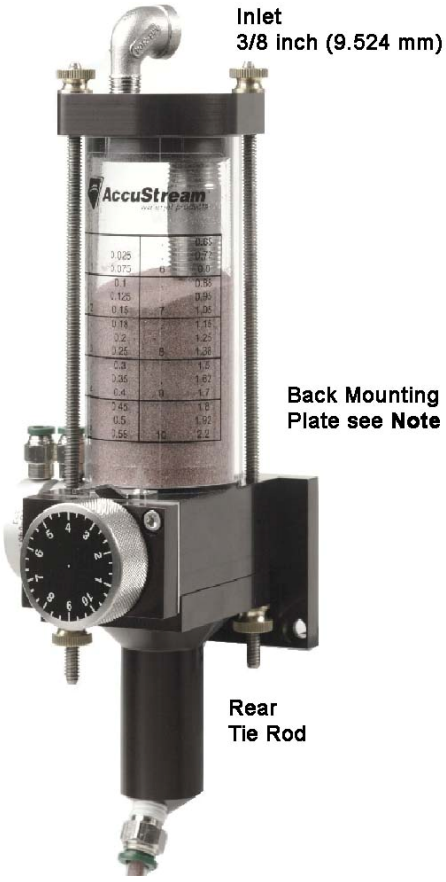
1 Introduction

The AccuStream Abrasive Regulator II is used in the Abrasivejet cutting process. The Regulator will deliver a steady supply of abrasive material to the cutting head system. A metering system allows the operator to control the amount of abrasive needed for each process.

2 Abrasive Regulator

Description:

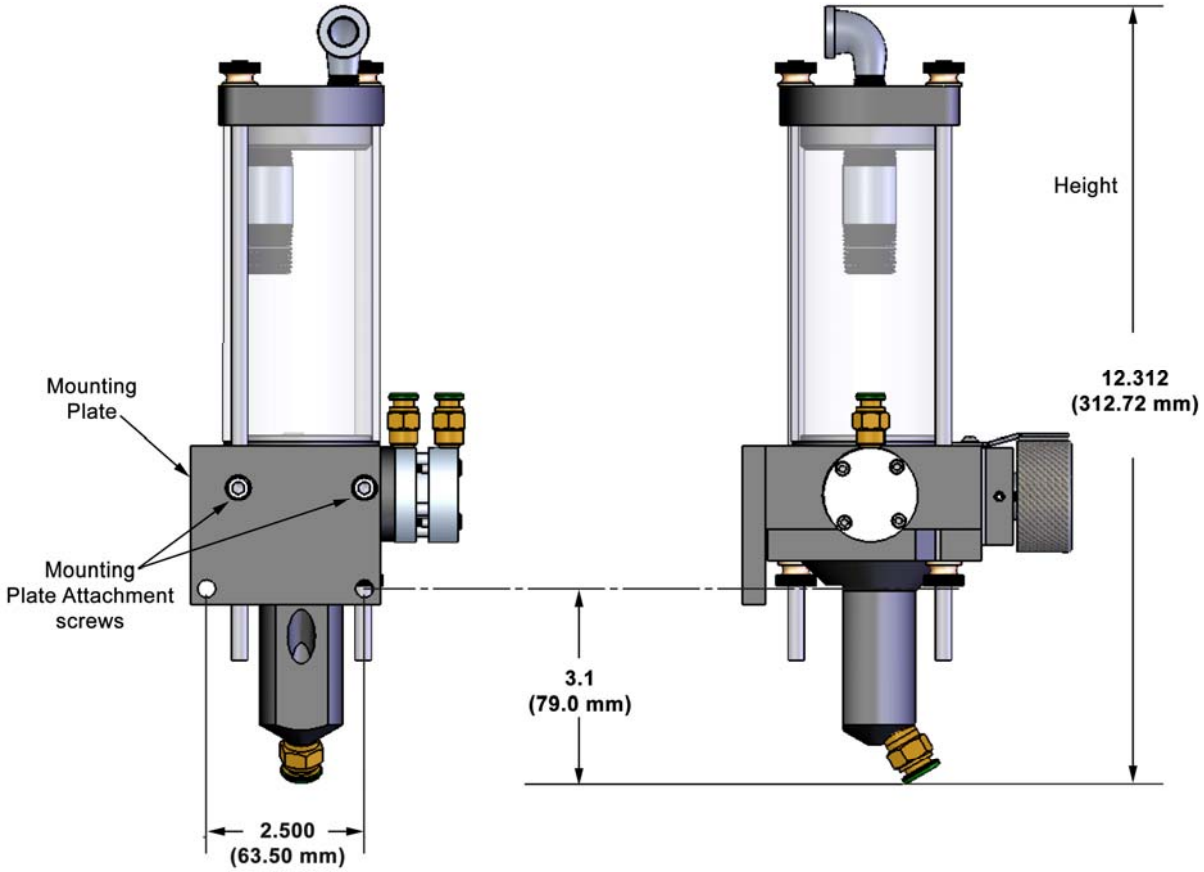
The ***Abrasive Regulator*** is positioned over the cutting head and is fed abrasive from the abrasive delivery pot. The Regulator will provide an accurate metering and control of the abrasive flow rate. The regulator uses an air cylinder to turn the abrasive flow to the cutting head ON or OFF. An adjustment control knob is used to meter the abrasive rate to the cutting head.



2.1 Regulator Installation

Location

The Metering Regulator is mounted to the Z-axis faceplate over the cutting head at up to 6' (feet) from the floor level. This should be high enough to keep the regulator out of the spray-back area from the cutting head and within reach for adjusting the abrasive flow rate. **NOTE**: Use the over-all height of the assembled regulator to determine the amount of space needed before mounting.



Attaching the Regulator to the Machine

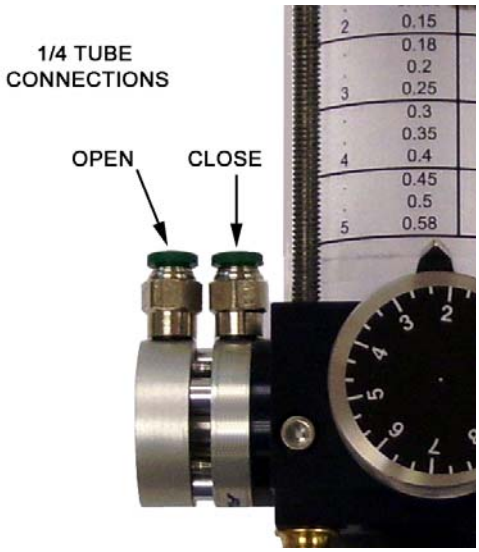
1. **Remove** the two screws that attach the mounting plate to the regulator. Use the mounting plate to position and drill mounting holes on the machine. **NOTE**: The holes on the mounting plate are positioned **2.5** inches (63.5 mm) on center from each other and counter bored for **.**25 (6.35 mm) **Capscrews**.
2. Reassemble the back mounting plate to the regulator.
3. Remove the bottom adapter from the regulator and thread the rear tie rod upward so that there is access to mount the regulator to the machine. Use ¼" (6 mm bolt) cap screws for mounting the regulator.
4. Re-thread the tie rods back into their original locations.

Connecting the Metering Regulator

Items needed:

- Requires: **60-80 psig** incoming compressed air.
- 3/8” OD x 1/4” Polyurethane tubing.
- 1/4” OD nylon or polyethylene tube to connect the regulator air cylinder to the solenoid valve
- 4 way spring return directional solenoid valve. This is needed to pressurize the abrasive on/off air cylinder in both directions.

1. Connect the 4-way valve connections to the 2 (two) fittings on the air cylinder. When the solenoid valve is de-energized or abrasive switch is in the off position, the regulator will be **OFF**.
2. Connect the N/O valve fitting (with air pressure) to the inside fitting on the air cylinder see.
3. Turn the abrasive switch on/off with abrasive in the regulator’s acrylic tube to verify that the regulator valve operates properly.
4. Connect the 3/8 tube into the bottom outlet tube of the regulator.



Abrasive Delivery from the Pot to the Regulator

- The hose from the pot to the metering regulator should have a minimum of elevation changes. A maximum hose height of 10’ (feet) from the floor is usually sufficient.
- The hose should not be more than two feet above the top of the metering regulator to ensure even flow.
- A 90-degree fitting should be used at the top of the Regulator.
- Hose end connections should be with brass barb fittings and hose clamps to prevent the hose from blowing off the fittings.

If using more than one regulator

- Use **ONE** hose from the pot to a location near the regulators.
- Split the flow so that the multiple hoses provide equal resistance to flow.

NOTE: When feeding multiple regulators from ONE pot, the paths to each regulator must be close to the same length so each regulator will receive the *same* flow of abrasive. Different hose lengths after the split will cause uneven abrasive pressure on the regulators. This can cause different abrasive flow rates between the regulators.

2.2 Regulator Startup

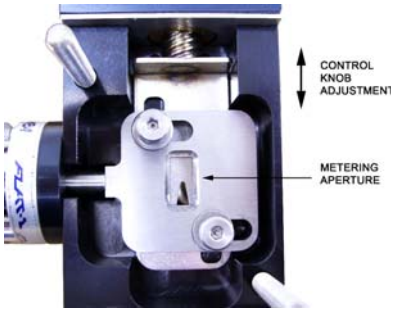
Before the startup, check that the Regulator is installed correctly and all hose connections are in place with the hose clamps tightened.

1. With the pot pressure valve **OFF** attach the compressed air line to the pot.
2. Verify that the **Abrasive Regulator** is turned **OFF**
3. Set the pot air regulator pressure to 40 psi.
4. Fill the pot with at least 500# of abrasive or until full.
5. Turn the pot pressure to **ON**.
6. With lines from the pot **empty** turn the regulator **ON**

The abrasive will initially feed from the pot unevenly until the air in the feed hose is replaced with abrasive. When the line becomes stable (full of abrasive), there will be no flow unless the abrasive metering regulator is turned on. For longer delivery lengths, the pot pressure may need to be increased to a maximum of 80 psi to accommodate for the additional length.

NOTE: If the abrasive flows after turning the regulator OFF do not plug the top of the metering regulator top vent. The top vent elbow is necessary for venting.

Metering Regulator Flow Rate



The abrasive flow rate coming from the Metering Regulator can be adjusted by turning the ***Metering Control Knob.*** The knob settings change the size of the hole in the ***metering aperture*** (right). The adjustment knob is marked in one-quarter graduations starting at 1 and going to 10. *Any *over travel*, in either direction beyond the 1 and 10 markings on the adjustment knob is normal and will not effect the metering rate adjustment settings.

The abrasive flow rate can be, adjusted during cutting.

The Abrasive Regulator includes a pneumatically controlled on-off gate to turn the abrasive flow on and off.

Abrasive Settings

The ***Control Knob Setting*** chart is based on 80HPA garnet and gives the abrasive flow rates that can be set by adjusting the knob settings. Actual rates may vary slightly due to abrasive grit size and the feed pressure into the regulator acrylic tube.

Suggested Set Points:

Combination	Set point
9/30	**5**
10/30	**6**
1340	**7 2/3**
15/40	**8 1/3**

DIAL SETTING	FLOW RATE #/MIN	FLOW RATE grams/MIN
-	0	0.00
-	0.02	9
1	0.08	36
-	0.10	45
-	0.12	54
2	0.15	68
-	0.18	82
-	0.20	91
3	0.25	114
-	0.30	136
-	0.35	159
4	0.40	182
-	0.45	204
-	0.50	227
5	0.58	263
-	0.65	295
-	0.72	327
6	0.80	363
-	0.88	400
-	0.95	431
7	1.05	477
-	1.15	522
-	1.25	568
8	1.38	627
-	1.5	681
-	1.62	735
9	1.7	772
-	1.8	817
-	1.92	872
10	2.0	908

If the abrasive flow does not stabilize due to air bubbles in the hose and puffing at the top of the regulator:

- Make sure that the pot is full of abrasive. Low abrasive content will allow air to push through the abrasive and cause a bubbling effect in the abrasive delivery hose.
- Make sure there is at least the minimum of abrasive feed elevation going into the top of the regulator and that there is a ½" elbow on the top inlet of the regulator.
- Check to see if the abrasive has clumped inside the pot. Clumped abrasive will let air pass through the abrasive. Discharge the contents of the pot into clean containers. Pour the emptied dry abrasive through a window screen and back into the pot.
- If there is moisture in the abrasive, it should be discarded. Verify that the air pressure regulator bowl on the pot is emptied of water.

Moisture or Water

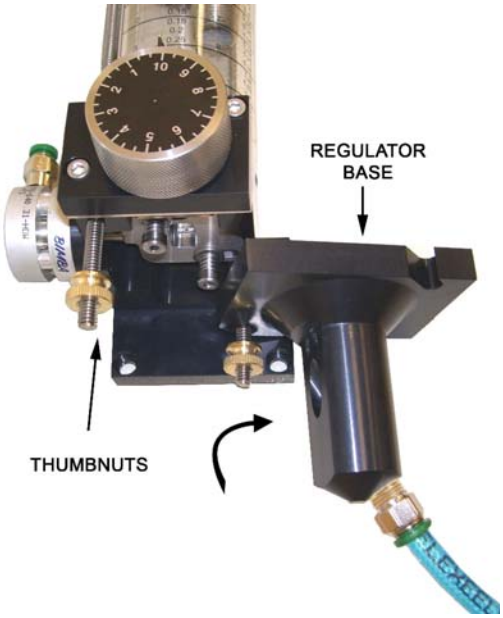
When the nozzle is plugged, water will go up the feed hose to the regulator and discharge from the vent hole on the back of the Output Adapter. If this occurs, the Adapter will need to be cleared.

With the jet **ON** and the Regulator **OFF**, plug the back **VENT** hole (right). This should vacuum any moisture and abrasive from the Adapter.

If the abrasive still does not flow:

1. Disconnect the regulator hose from the ***cutting head***.
2. Loosen the 2 (two) *thumbnuts* that connect the **Regulator Base** to the regulator.
3. Lower and turn the base (Right).
4. Hold the open end of the hose over the tank and blow the contents of the regulator base into the tank until regulator base bowl and hose are dry.
5. Reconnect the regulator base and hose.

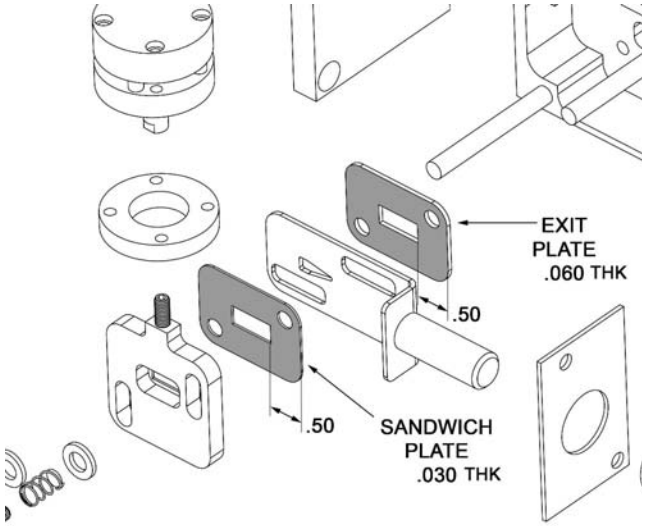
Any moisture reaching the regulator, from piercing should be minimized. It is best to use a splashguard on the nozzle.



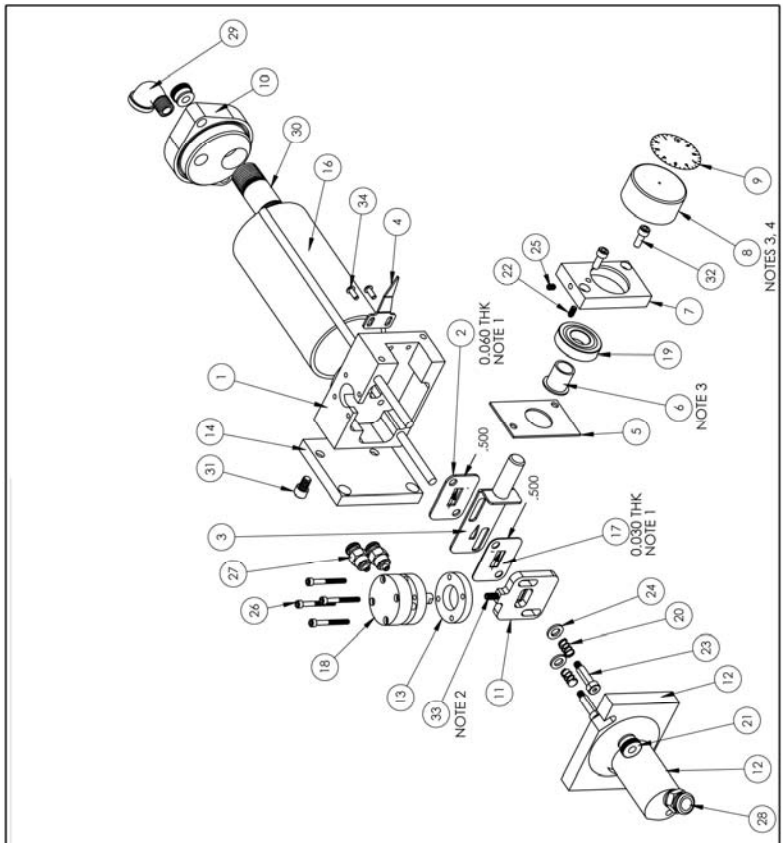
Disassembly and Reassembly

The valve and metering area of the regulator should not normally require maintenance. In the event that this area does require disassembly, the orientation of the parts during reassembly ***must be correct***.

On the assembly drawing cut-out, (right) note the location and thickness of Sandwich plate and the Exit plate. The 0.50 dimensions and plate thickness will determine the orientation and placement of both parts.



3 Drawings and Parts Lists



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11408	HOUSING BASE, REG 2	1
2	11411	EXIT PLATE, REG 2	1
3	11414	APERATURE ASSEMBLY, REG 2	1
4	11412	POINTER, REG 2	1
5	11419	DIVIDER, REG 2	1
6	11405	BEARING NUT, REG 2	1
7	11404	BEARING HOUSING, REG 2	1
8	11406	ADJUSTMENT KNOB, REG 2	1
9	11485	DIAL LABEL	1
10	11410	COVER, REG 2	1
11	11413	VALVE PLATE, REG 2	1
12	11409	BOTTOM ADAPTER, REG 2	1
13	11429	SPACER, REG 2	1
14	11443	MOUNTING PLATE, REG 2	1
15	12247	THREADED ROD	2
16	12251	ACRYLIC TUBE	1
17	12318	SANDWICH PLATE, REG 2	1
18	12253	BIMBA AIR CYLINDER	1
19	12258	BALL BEARING	1
20	12256	SPRING	2
21	11751	THUMB NUT	4
22	12260	SPRING PLUNGER	1
23	12555	SHOULDER BOLT	2
24	12257	1/4 INCH FLAT WASHER	2
25	12783	8-32 X 0.25 NYLON TIPPED SET SCREW	1
26	13024	6-32 X 1-1/4 SOCKET HEAD CAP SCREW 18-8 SST	4
27	12254	TUBE FITTING, 10-32 X 1/4 TUBE	2
28	12529	TUBE FITTING; 1/4 NPT X 3/8 TUBE	1
29	14SSL	1/4 NPT STAINLESS STEEL STREET EL	1
30	12X212SSN	1/2 NPT X 2-1/2 STAINLESS STEEL NIPPLE	1
31	1/4-20 X 0.375 SHCS	1/4-20 X 3/8 SOCKET HEAD CAP SCREW, SST	2
32	10-32 X 0.5 SHCS	10-32 X 0.5 SOCKET HEAD CAP SCREW, SST	2
33	10-32 X 0.75 SHSS	10-32 X 0.75 SOCKET HEAD SET SCREW, SST	1
34	10-32 X 0.5 SBHCS	10-32 X 0.5 SOCKET BUTTON HEAD CAP SCREW	2