

# Troubleshooting Pneumatic Units

## **SYMPTOMS:**

1. Machine will not prime.
2. Product leaking from isolator holes.
3. Operating pressure is not obtainable.
4. Air-motor will not cycle.
5. Air-motor cycles are rugged.
6. Short plunger seal life.
7. Leakage from Tee and Elbow weep holes.

### **1. MACHINE WILL NOT PRIME:**

- If liquid level in reservoir, is seen as rising and falling, remove inlet check valve for inspection of ball and ball seat o-ring. On HC 2,5,8 and M-110T units, the outlet check valve ball seat o-ring must also be inspected.
- Ensure that outlet check valve attached to priming valve is properly installed with the directional arrow pointing upward. Does not apply to M-110L, M-110S, and or HC units.
- Ensure that Air-motor is cycling slowly during priming. 20-25psi on air regulator.
- Using the MPPC, attempt to initiate a prime, by manually pushing the liquid through. This will help break the presents of air bubbles within the piping.
- With the unit cycling slowly, close then open priming valve. Repeat two to three times.
- Ensure that priming valve is properly installed.
- For further assistance, call Microfluidics at 800-370-5452.

### **2. PRODUCT LEAKING FROM ISOLATOR HOLES:**

- Replace plunger seal assembly.

### **3. OPERATING PRESSURE IS NOT OBTAINABLE:**

- Using distilled water check the chamber flow-rate by setting the pressure to 10k psi or the maximum obtainable pressure. Collect the sample for one minute and compare results to data in manual. If the flow-rate has increase to 20%, the chamber will require replacement.

- Confirm that the plunger seals and Check valves are holding pressure. Place a plug into the outlet of the interaction chamber. Open priming valve and cycle Air-motor until the unit is primed. After a prime has been confirmed, close the priming valve when the air motor is on a down ward stroke. The air motor at this time will stop.

Proceed by increasing the process pressure to 15kpsi. For HC units, 2, 5, or 8k psi.

- Confirm a liquid level in reservoir and that the machine has not lost its prime.
- Confirm that there is sufficient air pressure and flow to Air-motor.
- Ensure that air is not leaking pass isolator gasket and or slipper seals.

#### **4. AIR MOTOR WILL NOT CYCLE:**

- Check for clogged chamber. Refer to clogged chamber procedures.
- Ensure that in house air supply valve is open. If using bottled air or nitrogen, ensure there is sufficient pressure in tank.
- Remove bowl on bottom of air regulator, ensure that condensate is not present. If so, Air-motor shall require and overall. In addition, the in house air compressor shall require a dryer or incandescent filter.
- For further assistance call Microfluidics at 800-370-5452.

#### **5. AIR MOTOR CYCLES ARE RUGGED:**

- Call Microfluidics at 800-370-5452.

#### **6. SHORT PLUNGER SEAL LIFE:**

- Review procedures in manual to ensure that plunger seal was properly installed.
- Check product compatibility table in manual with seal material. If product is abrasive, recommend quenching plunger with a compatibility solution.
- Inspect process plunger for score marks or pitting.
- If problems continue, call Microfluidics at 800-370-5452.

## 7. LEAKAGE FROM TEE AND ELBOW WEEP HOLES:

- Stop Air motor operation.
- Open priming valve and deplete pressure within process piping.
- Remove the leaking fitting and inspect tee, elbow, and or nipple for wire draw or score marks.
- Ensure that collar on the high pressure nipple is exposing two to three threads.
- Install and build pressure. Check for leakage.
- If leakage continues. Call Microfluidics at 800-370-5452.



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