

# SS50 Manual



*Liability Note: The manufacturer assumes NO liability for damage however caused in the handling & usage of the nebulizers. Use at your own risk.*

**Caution:** Do Not Handle unless you are sure that the nebulizer is dry, or washed with clean water. Acids and other harmful liquids often look like water and will wet the end of the nebulizer during usage.

**Warning:** This device operates on compressed gases. The components of the 1/8 inch OD version of the SS 50 nebulizer are all made of parts rated for 5,000 - 8,000 psi. We can not test above 120 psi. As such, we can not guarantee or warranty the system to be operational or safe at pressures above 120 psi. You, the customer, must take appropriate precautions when using this nebulizer. Neither we, the manufacturer, nor the re-seller accept any liability beyond the purchase price of the nebulizer.

If this is not satisfactory, please return nebulizer for a full refund. Appropriate care must be taken. If in doubt about correct operating procedures, call an experienced operator or call Burgener Research at 905 823 3535.

**Minimizing Pulsations:** Mira Mist Nebulizers will pulse if the pump can not deliver constant sample flow. Change your pump tubing often, or use a surgeless pump if possible. A Syringe Pump or Gravity feed system will also work.

**DO NOT TOUCH THE TIP! The gas orifice and liquid interaction portion of the nebulizer is at the very tip of the nebulizer. Stainless Steel is reasonably strong, but the fine details in the shape of the tip of the nebulizer are essential for the operation of the nebulizer. Touching the tip with your finger, or anything else MAY DESTROY your nebulizer.**

**IF you accidentally touch the tip: If the nebulizer continues to work afterwards you have done no harm and can continue to use the SS50.**

**It is recommended that the nebulizer safety cap is kept on the nebulizer while not in use. This will protect the tip from accidental damage.**

**Dropping and Breakage:** Burgener Nebulizer bodies are strong and generally will not break. If a nebulizer is dropped such that the tip is deformed, then it will be irreparably damaged. If it continues to operate after being dropped, then it has not been affected, and it is safe to use.

## Operating Instructions

### 1. Optimum Gas Flow Rate & Pressures

The SS 50 nebulizer has been run at 120 psi, with the gas flowing from the nebulizer into atmospheric pressure gas. SS nebulizers usually run at a nominal 50 psi for good mist. You can expect a reasonable mist at pressures from 30 psi (2 bar) to 45 psi (3 bar). However, the higher the gas pressure, the better the mist will be, and similarly, as the gas pressure decreases, the mist will have larger droplets. The SS 50 is made of components rated for 5,000 psi (340 bar), so pressures up to 500 psi (34 barr) are very safe.

### 2. Liquid Flow Rates

The standard SS 50 has a 1/8 OD giving it a large liquid passage and they can handle liquid flow rates as high as 10 to 20 ml/min. With a 1/4" OD, then nebulizer should be able to handle 40 to 50 ml/min. If the nebulizer is aiming vertically, then the SS 50 should work well even at very tiny liquid flow rates. We have run some on flow rates as low as 2 or 3 microliters. It depends on the liquid being delivered in a consistent manner, and on the type of liquid. Water is one of the most difficult to atomize, and Alcohol is one of the easiest. If the surface tension of the liquid is high, the low flow range goes up. If the surface tension is low, the lowest flow rates go down.

### 3. Orientation

The SS 50 has a large diameter for the liquid. For flow rates of 2 ml/min or more, orientation is not a problem. For lower flow rates, the nebulizer can grab the liquid faster than it may be delivered, causing pulsing in the aerosol and larger drops. If the nebulizer is aiming up, then the liquid can fill the insides of the liquid passage and then even very low flows should run without pulsing. You should be able to run low flow rates as low as a few microliters per minute.

### 4. Droppage and Breaking

The Burgener SS 50 Nebulizer is Stainless Steel. If you drop it, it may be dented where it hits. If you dent the body of the nebulizer, it will not affect its performance. If the tip is dented, it may destroy the nebulizer. If it works after dropping, it has not been affected, and may be continued to be relied upon.

