

# ***DRAMM***



## **Supplemental Manual for Turbo ULV Hybrid Sprayer**



Shipped to:

---

---

---

Serial #

---

Packed By: \_\_\_\_\_

\_\_\_\_\_ date

---

## Thank you for your purchase of this pulsFOG Turbo ULV Hybrid Sprayer.

The Dramm Corporation is the North American representative of pulsFOG, Dr. Stahl & Sohn GmbH of Überlingen Germany. We appreciate your purchase.

As the representative of pulsFOG, Dramm will supply equipment, parts, service and technical advice to customers in North America. Please feel free to contact us for any of these needs.

This manual supplement is designed to help with mixing and care for your pulsFOG Turbo ULV Hybrid. The included pulsFOG manual handles basic operation of your unit. In addition to these manuals, advice and operational videos are available on our website at [www.dramm.com](http://www.dramm.com).

The included manual is specific to your machine and contains valuable operational information as well as basic maintenance and repair information.

**REVIEW ALL MATERIALS** before operating your Turbo ULV.

Please direct any questions or service requests you might have to the contacts below.

**Dramm Corporation**  
Main Office  
PO Box 1960  
2000 North 18<sup>th</sup> Street  
Manitowoc, WI 54221

**Dramm Corporation**  
Canadian Office  
RR#4 906 Hwy 20 W  
Fenwick, ONTARIO  
CANADA, L0S 1C0

920/684.0227  
[information@dramm.com](mailto:information@dramm.com)  
[www.dramm.com](http://www.dramm.com)

## Limited Warranty

This is a limited warranty as defined in in the consumer product warranty and federal trade com- mission improvement act. This warranty gives you specific legal rights which may vary from state to state.

DRAMM CORPORATION warrants all PulsFog units, Models TULV110v, to be free from defect in materials and workmanship to the original purchaser for a period of one (1) year, on labor and parts that are not subject to unusual wear. This warranty does not cover units that have been abused or used in a manner inconsistent with the owners manual instructions. Use of other solutions negates any warranty.

DRAMM CORPORATION gives no warranty, expressed or implied, in regard to efficacy of any pesticide.

DRAMM CORPORATION warrants that VK-I, VK-II and NutriFOG fogging solution is plant compatible when used as directed. These directions reflect the opinion of experts and are believed to be reliable. Special emphases should be paid to dilution rates, temperatures and application rates of pesticides as listed on their labels. It further warrants that VK-I, VK-II and NutriFOG are inert diluents for pesticides to be used only in PulsFOG thermal fogging units.

Under no circumstances will the manufacturer(s) or DRAMM CORPORATION be liable for damages due to incorrect stocking, faulty operation or application, non-observance of safety standards or non- observance of chemical label directions. The manufacturer(s) or DRAMM CORPORATION under no circumstance will be responsible for damage(s) done to any property or persons.

Under no circumstance will the manufacturer(s) or DRAMM CORPORATION be responsible for crops. It is understood that the limit of seller liability for breach of any warranty shall be the invoice price of goods.

This warranty begins on the date of original purchase. If warranty service is required, the equipment must be sent prepaid to:

**Dramm Corporation  
2000 North 18<sup>th</sup> Street  
Manitowoc, WI 54220-1960 USA**

**920/684-0227**

## Mixing Instructions:

The Turbo ULV requires the use of a carrier solution for best application. The carrier solution helps to produce a more even sized droplet, preventing very large droplets from forming.

While some chemicals may include fogging adjuvants, most do not. Check with your chemical manufacturer regarding this.

Dramm sells three different carrier solutions for the pulsFOG: VK-I, VK-II and NutriFOG.

|                 |                                       |
|-----------------|---------------------------------------|
| <b>VK-I</b>     | Use with EC chemicals only            |
| <b>VK-II</b>    | Use with all formulations of chemical |
| <b>NutriFOG</b> | Use with all formulations of chemical |

**VK-I** requires no water for mixing. Mix the correct quantity (see accompanying chart) of EC chemical directly into 1 liter of VK-I to treat 10,000 square feet.

**NOTE: Do not apply VK-I over wet crops. Leaves should be dry during the application.**

**VK-II** is mixed with water. Mix the correct quantity (see accompanying chart) of chemical with 0.5L of VK-II and 1.5 L of water to treat 10,000 square feet.

**NOTE: VK-II can damage certain crops, especially when in bloom. Take care when using, especially later in the season.**

**NutriFOG** is mixed with water. Mix the correct quantity (see chart) of chemical with 0.25 L of NutriFOG and 1.75 L of water to treat 10,000 square feet.

**NOTE: Do not apply more than 1.5 L of NutriFOG to the same 10,000 square foot area in ONE MONTH.**

While these carrier solutions have been used with most greenhouse chemicals without incident, it is always advisable to perform a jar test with the proper ratios of chemical, carrier, and water to ensure compatibility with any chemical you are not certain of.

**The Turbo ULV is a Hybrid Sprayer/Fogger and may be used in a variety of ways.** It can range from a space treatment, utilizing ultra-fine droplets to fog an area to a directed spray, capable of targeted applications.

To accommodate different droplet sizes, the Turbo ULV comes with several nozzles to allow for a range of sizes and application types:

**Approximate flow rates and droplets sizes (VMD) for the Turbo ULV with water:**

| Nozzle Size | Flow Rate (L/h) | VMD (water $\mu\text{m}$ approx.) |
|-------------|-----------------|-----------------------------------|
| 7           | 5.3             | 18-20                             |
| 8           | 7.7             | 25-28                             |
| 10          | 10.8            | 32-35                             |
| 12          | 15.1            | 40-45                             |
| 15          | 23              | 50-60                             |

Below, this manual will explain rate and solution volume calculations for Ultra Low Volume and Targeted Low Volume applications. These are at the outer ranges of the machines capabilities.

The chemical amount used will be the same per square foot for either application. However, the solution volume will change.

**FIRST: Calculate the amount of chemical required for 10,000 square feet.**

Find the 100 gallon chemical label rate for the product you wish to apply. Multiply this by 0.40. This is the amount of chemical to use in 10,000 square feet.

*Example:*

100 gallon rate of CHEMICAL Z = 10 oz  
 $10 \text{ oz} \times 0.40 = 4 \text{ oz}$  of CHEMICAL Z for 10,000 square feet.

Mix with the appropriate amount of carrier and water for 10,000 square feet.

If you wish to treat a larger or smaller area adjust by the percentage increase or decrease appropriate.

*Example:*

Treat a greenhouse of 15,000 square feet with CHEMICAL Z.  
15,000 square feet is 1.5 times larger than our standard of 10,000 sq feet.  
 $4 \text{ oz CHEMICAL Z} \times 1.5 = 6 \text{ oz CHEMICAL Z}$  for 15,000 square feet.

Mix with the appropriate amount of carrier and water for 15,000 square feet. Adjust the carrier and water based on the same ratio above.

**NOTE:** If the chemical you are using provides an area rate on the label in addition to the 100 gallon rate, **USE THIS INSTEAD OF CALCULATING** as shown above.

*Example:*

The label states "Use 10 oz per acre of CHEMICAL Z."

One acre is 43,560 square feet.

Divide 10 oz/43,560 sq ft (to determine how much per sq ft.) = 0.00023 oz/sq ft.

Multiply by the number of sq ft to be covered.  $0.00023 \times 15,000 \text{ sq ft} = 3.4 \text{ oz}$

Mix into the appropriate amount of carrier and water for 15,000 square feet. Adjust the carrier and water based on the previous example.

The chart on the following page describes how to mix carrier solutions as well as converts chemical rates at the 0.40 rate.

**NEXT: Determine the amount of spray solution to use for your application:**

#### **Ultra Low Volume (space treatment) Application**

The Turbo ULV has a tank capacity of 5 liters. Up to a maximum of 25,000 square feet can be treated with the Turbo ULV using the ULV method.

Under this method, use **1 liter of FINISHED SOLUTION to treat 5,000 square feet**. Mixing instructions for solution are described in a chart on the following page.

#### **Targeted Low Volume (directed treatment) Application**

The Turbo ULV has a tank capacity of 5 liters. Up to a maximum of 5,000 square feet can be treated with the Turbo ULV using the Targeted Low Volume method.

Under this method, use **1 liter of FINISHED SOLUTION to treat 1,000 square feet**. Mixing instructions for solution are described in a chart on the following page.

# pulsFOG® & NutriFOG® Pesticide Conversion Chart

## HOW TO USE VK-1

Match the dose recommended by your pesticide label to the same rate on the left side of the chart. Read across to the right side of the chart for the amount of pesticide to use in 1 liter VK-1 Carrier Solution to treat 10,000 square feet.

**Mix 1 liter of VK-1  
Carrier Solution with Chemical  
for 10,000 Square Feet.**

## HOW TO USE VK-2

Match the dose recommended by your pesticide label to the same rate on the left side of the chart. Read across to the right side of the chart for the amount of pesticide to use in 1/2 liter VK-2 Carrier Solution and 1 1/2 liters water to treat 10,000 square feet. For plants in flower or sensitive plants use a ratio of 1 Part VK-2 + 5 Parts Water. Refer to page 15 of your pulsFOG® Manual.

**Mix VK-2 Carrier Solution  
with 1 1/2 liters of Water and Chemical  
for 10,000 Square Feet.**

## HOW TO USE Nutri-FOG®

Match the dose recommended by your pesticide label per 100 gallons to the same rate on the left side of the chart. Read across to the right side of the chart for the amount of pesticide to use in 0.25 liters of NutriFOG and 1.75 liters of water to treat 10,000 square feet.

**Mix 0.25 liters NutriFOG  
with 1.75 liters Water and Chemical  
to Treat 10,000 Square Feet**

**Amount of  
pesticide  
recommended  
for 100 gallons  
of water**

**Amount of  
pesticide for  
10,000 square  
feet.**

|             |             |
|-------------|-------------|
| 1.0 ounces  | 0.4 ounces  |
| 2.0 ounces  | 0.8 ounces  |
| 3.0 ounces  | 1.2 ounces  |
| 4.0 ounces  | 1.6 ounces  |
| 5.0 ounces  | 2.0 ounces  |
| 6.0 ounces  | 2.4 ounces  |
| 7.0 ounces  | 2.8 ounces  |
| 8.0 ounces  | 3.2 ounces  |
| 9.0 ounces  | 3.6 ounces  |
| 10.0 ounces | 4.0 ounces  |
| 11.0 ounces | 4.4 ounces  |
| 12.0 ounces | 4.8 ounces  |
| 13.0 ounces | 5.2 ounces  |
| 14.0 ounces | 5.6 ounces  |
| 15.0 ounces | 6.0 ounces  |
| 16.0 ounces | 6.4 ounces  |
| 17.0 ounces | 6.8 ounces  |
| 18.0 ounces | 7.2 ounces  |
| 19.0 ounces | 7.6 ounces  |
| 20.0 ounces | 8.0 ounces  |
| 21.0 ounces | 8.4 ounces  |
| 22.0 ounces | 8.8 ounces  |
| 23.0 ounces | 9.2 ounces  |
| 24.0 ounces | 9.6 ounces  |
| 25.0 ounces | 10.0 ounces |
| 26.0 ounces | 10.4 ounces |
| 27.0 ounces | 10.8 ounces |
| 28.0 ounces | 11.2 ounces |
| 29.0 ounces | 11.6 ounces |
| 30.0 ounces | 12.0 ounces |
| 31.0 ounces | 12.4 ounces |
| 32.0 ounces | 12.8 ounces |

**NOTE ABOUT MIXING THICK CHEMICAL SOLUTIONS:**

Depending on the type or volume of chemical product you are using, the solution may be too thick to apply without clogging. If the product does not seem dilute enough to apply correctly, it is advisable to add carrier and water in the correct ratio until the product is dissolved well enough to be applied as a fog.

Always adjust the fogging time to ensure that the appropriate amount of chemical active ingredient is applied to the area you are treating.

**Cleaning Your Turbo ULV**

To keep your PulsFOG running well, cleaning is essential. Most maintenance issues we service are a result of poor cleaning and care.

After use, remove tank and triple-rinse. Fill with 0.5 Liters of warm water and fog through the machine to clean out the solution lines.

After five hours of use, inspect the air filters in the rear of the housing for wear or clogging. Replace if necessary.

The primary filter may be washed with water. ENSURE FILTER IS DRY BEFORE REPLACEMENT. The secondary filter may be blown clean with compressed air.

Notes:

---

---

---

---

---

---

---

---

---

---

Dramm Corporation  
920/684.0227  
[information@dramm.com](mailto:information@dramm.com)  
[www.dramm.com](http://www.dramm.com)