

MagikMinder Model MM100



Automatic Liquid Level Control Proportioner Operating Manual

1) OVERVIEW

Thank you for choosing the MAGIKMINDER MM100 automatic liquid level chemical proportioner. The MAGIKMINDER is a non-electric device that automatically maintains the level and concentration of a solution reservoir. To obtain the best performance from you MAGIKMINDER, please read the instructions thoroughly before proceeding. In addition, please observe all warnings and cautions printed on the chemical's label regarding proper use and handling.

2) PACKAGE CONTENTS

- ✓ Proportioner valve assembly with U-clamp and thumbscrews for mounting.
- ✓ Weighted float with ball chain.
- ✓ Suction tube with foot valve and strainer.
- ✓ Discharge tube.
- ✓ Metering tip kit.
- ✓ Instruction manual.

3) IMPORTANT INFORMATION

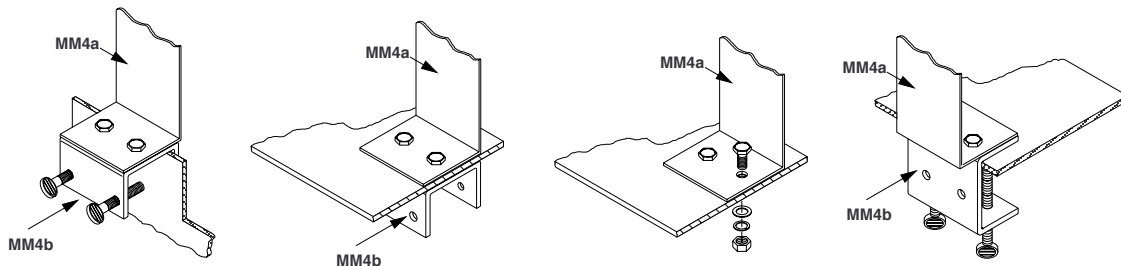
- ➔ It is advisable to wear protective clothing (i.e. gloves) and eyewear when dispensing potentially hazardous chemicals. Also ensure that reservoirs used for proportioning are of suitable construction and/or size. Wear protective clothing when cleaning and maintaining your equipment if hazardous chemicals are being used.
- ➔ It is not advisable to use the MAGIKMINDER on other non-hazardous chemical applications after it was used with hazardous chemicals. This is especially true when health or safety might be a concern. For example, do not use your MAGIKMINDER for dishwasher soap after it has been used for insecticide. It would be advisable to have two separate proportioners for this purpose.
- ➔ Attach the MAGIKMINDER to standard tap water outlets only, with no more than 85 PSI maximum and no less than 25 PSI minimum.

4) PACKAGE CONTENTS

For the following instructions, it may be of assistance to refer to the exploded view on the last page of this manual.

1. Select metering tip (refer to section *Metering Tip Selection*) and insert tip (MM11) into metering tip fitting on eductor (MM10).
2. Slide open end of suction tube (MM18a) over the metering tip fitting on eductor.
3. Attach end of discharge tube (MM17a) with clamp and flooding ring to discharge barb on eductor.

4. Mount the MAGIKMINDER in a level position on edge of solution reservoir. U-Clamp (MM4b) may be repositioned or removed as shown in the following diagram. Ensure open end of discharge tube empties into solution reservoir.
5. Insert foot valve end of suction tube into chemical concentrate container. The level of the concentrate must be below the level of MAGIKMINDER or it will continue to draw after it is turned off. It is very important to keep the strainer off of the bottom of the reservoir if dissolved solids (powders) are being dispensed.



6. Adjust chain length (MM21) to position the float (MM22) at the desired level of solution. To prevent foaming, be certain that the solution level is above the point of discharge.
7. Install minimum 1/2 inch water hose between inlet fitting and water supply (minimum 25 PSI pressure required).

5) METERING TIP SELECTION

The viscosity of the chemical concentrate should be considered in selecting the metering tip because the final concentration of the solution is related to both the size of the metering tip opening and the viscosity of the liquid being siphoned. If the product viscosity is noticeably greater than water, consult the section *Measurement of Concentration & Guide to Tip Selection* to achieve your desired water product ratio. For water-thin products, consult the chart below. Two undrilled white tips are supplied for drilling sizes other than the colour coded tips. If greater dilution of concentrate is required than can be provided by one MAGIKMINDER, an additional MAGIKMINDER may be installed on an adjoining reservoir for two-step dilution.

Tip Color	Drill Size	Dilution Ratio at 40 PSI (Water-thin Viscosity 1.0 CP)
(No Tip)	-	2:1
Grey	30	3:1
Black	40	5:1
Beige	50	8:1
Red	55	15:1
Blue	60	24:1
Tan	65	36:1
Red or White (drilled with 70)		64:1

Red or White (drilled with 74)	80:1
Red or White (drilled with 76)	104:1
Red or White (drilled with 79)	160:1
Red or White (drilled with 87)	256:1

6) MEASUREMENT OF CONCENTRATION & GUIDE TO TIP SELECTION

The water-to-product ratio is calculated using the number of ozs. of chemical concentrate drawn by the proportioner to produce a measured volume of mixed solution. Select a metering tip, using the chart above as a guide. Place the foot valve in calibrated container **A** filled with chemical concentrate. Prime the proportioner by operating such that the suction tube is filled completely; then discard the discharge. Refill container **A**, noting volume in ozs. Operate unit and collect mixed solution in large container **B**. Record final volumes in ozs. of both containers. Determine the number of ozs. of concentrate drawn from **A**. Calculate **X** where **X** is equal to:

$$\frac{(\text{Total ozs. mixed solution in } \mathbf{B}) - (\text{Total ozs. concentrate drawn from } \mathbf{A})}{(\text{Total ozs. concentrate drawn from } \mathbf{A})}$$

The water-to-product ratio is then **X**:1 or **X** parts water to one part concentrate. If the desired ratio was not obtained, select a different tip and repeat the procedure.

Alternate methods to the above are pH test or titration test. Consult your supplier for further information on these methods.

7. OPERATION

Open the water supply and shut-off valve (MM3). When the solution in the reservoir reaches the level set by the float, the valve will close. This will stop the water flow and siphoning of concentrate. When withdrawal of solution from the reservoir causes the level of solution to drop more than 1½ inches the valve will open and the reservoir will be refilled to the previous level. This cycle will be repeated automatically until the supply of concentrate is depleted. The shut-off valve should be fully closed when changing metering tips or chemical concentrate, when the reservoir is drained, or when the unit is not in use.

Your MAGIKMINDER can be used with water soluble powders and granulated materials by filling a reservoir with warm to hot water and dissolving as much powder as possible until precipitate (undissolved chemical) forms on the bottom. This mixture can then be proportioned. However, it is very important to keep the suction strainer off of the bottom of the reservoir so that solid chemical does not plug up the suction strainer, especially when the solution cools off after mixing.

8. TROUBLESHOOTING

Problem	Cause	Remedy
•No discharge.	a) No water. b) Defective magnetic valve assembly. c) Excessive water pressure.	a) Open water inlet valve. b) Replace assembly. c) Install regulator if pressure exceeds 85 PSI.
•No chemical draw.	a) Clogged foot valve strainer. b) Metering tip or eductor clogged. c) Low water pressure. d) Discharge tube or flooding ring not in place.	a) Clean or replace. b) Clean or replace.** c) Minimum 25 PSI required. d) Check position; replace discharge tube if necessary.
•Failure of unit to turn off.	a) Valve parts dirty or defective. b) Magnet spring too short. c) Clogged valve orifice.	a) Clean or replace. b) Stretch or replace. c) Clean or replace.
•Back-flow into concentrate.	a) Concentrate being siphoned into container. b) Water being siphoned into container.	a) Replace or repair foot valve. b) Replace eductor.

**In hard water areas, scale may form at the discharge of the eductor. This scale may be removed by soaking the eductor in a descaling solution or by running the descaling solution through the system.

9) PARTS LIST

Part# Qty Description	Part# Qty Description
MM1 1 Inlet Strainer	MM11 1 Metering Tip (several supplied)
MM2 1 Inlet Fitting	MM12 2 1/4" Elbow
MM3 1 Ball Valve	MM13 1 1/4" Street Elbow
MM4a 1 Z-Bracket	MM14 2 6" Nipple
MM4b 1 U-Clamp	MM15 1 Anti-Syphon Valve
MM4f 1 Thumbscrews (2) and Bolts & Washers (2) and Self-tapping Screws (3)	MM16 1 Spring Clamps (4)
MM5 1 Magnet Cover & Screw	MM17a 1 Discharge Tube with Flooding Ring
MM6a 1 Magnet Assembly	MM18a 1 Suction Tube
MM6b 1 Yoke	MM18b 1 Weight
MM6c 1 Magnet Return Spring	MM19S 1 Check Valve 1/2 x 3/8
MM7 1 1/4" Nipple	MM20S 1 Suction Strainer 3/8F
MM8 1 Water Valve Body	MM21 1 Float Chain with Eyelets
MM9 1 Valve Repair Kit (MM9a/b/c)	MM22S 1 Float with Hanging Screw
MM9a 1 Valve Diaphragm	MM23 1 1/4" Nipple
MM9b 1 Valve Armature	MM24 1 1/4" x 3/8" Reducing Nipple
MM9c 1 Valve Spring	MM25 1 Washer
MM9d 1 Valve Armature Guide	MM26 1 Washer
MM10 1 Eductor	MM28 1 Float w/ Chain & Eyelet
	MM29 1 Gear Clamp

**See following page for exploded view of MM100.

