Operating the MeterMizer:

A. Position the MeterMizer and Nozzle in approximate location to final setup. It is best at start up to have the Nozzle higher than the MeterMizer outlet. This will make it easier to move any air out of the lubricant line when priming.

B. Fill the Reservoirs with Lubricant.

C. Bleed air out of the MeterMizer Ejectors by turning set screw located under the bottom Ejector counter clockwise a few turns until lubricant drains out of the fitting. When fluid flows void of air bubbles, close the Bleeder Valve. This bleeding is done only at startup or if Reservoir is allowed to run dry.

D. When starting up it is recommended that the Air CONTROL VALVE for the AIR OUT AT THE FRONT OF THE EJECTORS be turned off by turning the knurled knob clockwise.

E. Open Volume Control on the Ejector by turning Thumb Screw all of the way.

F. For MeterMizer with Oscillating Timer and Manual On/Off Valve for Air-In. See Note, bottom of this section.

1. Turn the Manual On/Off Valve ON, allowing air to enter the MeterMizer’s Manifold. The Oscillating Timer will start actuating. If in Off position adjust the Needle Valve at the back of the Oscillating Timer until it starts Oscillating, preferably at a high rate to speed up the fluid movement.
2. When lubricant drips out of the nozzle tip the unit is primed and ready for operation. The Limit Switch will normally be one signal per cycle of the machine.
3. Turn Air Control Valve, at the front of the Ejectors ON. Turn knurled knob counter clockwise. Lubricant will now be mixed with air.
4. Adjust the amount of lubricant needed for the operation. Slow down the Timers pulses per minute and reduce the volume of lubricant dispensed per actuation by turning the Lubricant Volume Control Knobs on the back of the Ejectors clockwise until desired volume is reached. Very little volume is normally needed when operating this unit.
5. Adjust the volume of air being exhausted out of the Nozzle Tip for the desired spray.

NOTE: If a SOLENOID VALVE is used as a direct substitute for the MANUAL ON/OFF VALVE the system will be controlled by a LSP Timer. The Timer will receive a signal from a source and then stay on until the source is disconnected. This system eliminates the human factor as it is automatic and tied into the machine. It should be noted that each time the Solenoid Valve is turned OFF the Oscillating Timer stops and also the air being exhausted out of the Nozzle Tip will also stop until the Solenoid Valve is reactivated. See Operating instructions if using a LSP Timer.

G. For MeterMizer with Solenoid Valve in place of Oscillating Timers with Manual On/Off Valve for Air-In.

1. Aim Nozzle Tip down when priming so when lubricant has filled the lubricant line it will be visible when leaving the Nozzle.
2. Turn the Manual On/Off Valve ON, allowing air to enter the MeterMizer’s Manifold.
3. The Solenoid Valve used to actuate the Ejectors is controlled by either a LSP Controller, PLC or Limit Switch. When the Solenoid Valve receives a signal from one of the actuators it will actuate the Ejectors. The Limit Switch will normally be one signal per cycle of the machine. The LSP Controller or a PLC offer a greater amount of flexibility to how the Solenoid Valve will be activated.
4. When lubricant drips out of the nozzle tip the unit is primed and ready for operation.
5. Turn Air Control Valve, at the front of the Ejectors ON. Turn knurled knob counter clockwise. Lubricant will now be mixed with air.
6. Adjust the amount of lubricant needed for the operation. Slow down the Timers pulses per minute and reduce the volume of lubricant dispensed per actuation by turning the Lubricant Volume Control Knobs on the back of the Ejectors clockwise until desired volume is reached. Very little volume is needed when operating this unit.
7. Adjust the volume of air being exhausted out of the Nozzle Tip for the desired spray.

Read Note in Section 4 above. See Operating instructions if using a LSP Controller.

H. For MeterMizer with Solenoid Valve only at the Air-In, Single Cycle Units

1. The Solenoid Valve is inserted into the Air-In on the Manifold. This valve controls the Ejector and also exhaust air out of the Nozzle Tip.
2. The Solenoid Valve is controlled by either a LSP Controller, PLC or Limit Switch. When the Solenoid Valve receives a signal from one of the actuators it will actuate the Ejectors and exhaust air out the Nozzle Tip at the same time.
3. The Limit Switch will normally be one signal per cycle of the machine.
4. The LSP Controller or a PLC offer a greater amount of flexibility to how the Solenoid Valve will be activated. With these Controllers the MeterMizer can be given multiple actuations each cycle of the machine; or can actuate on a count, every other cycle or 5th cycle or any cycle up to 99 cycles. The controller can also be a timer, acting on a prearranged time sequence unrelated to the cycle of the machine. See Operating instructions if using a LSP Controller.

Installation and Operation of the MeterMizer

A versatile lubricating system that can be operated with a variety of Nozzles and Actuating Systems. Fluids are dispensed with or without air depending upon the needs of the application. The MeterMizer is normally controlled with an Oscillating Timer but can be operated with a LSP Electronic Controller or other actuating devices.
**MeterMizer Components and Operations**

**Actuators**

**STAND ALONE, SA, METERMIZER, OSCILLATING TIMER CONTROLLED**

MM-2001SA - MM-2006SA, with 19 oz. Reservoir
MM-2011SA - MM-2016SA, without Reservoir

Oscillating Timer
- Controls injecting lubricant into the air stream.
- A Manual Valve is used to control the air entering the Manifold.
- The Manual Valve requires that the operator turn the air on and off manually each time the unit goes into operation or needs to be shut down.
- OR
- A Solenoid Valve is used to control the air entering the Manifold if it is set up so that it goes into the "ON" mode each time the machine is in operation and stays on as long as the machine is operational.

The Oscillating Timer controls air by opening and closing a diaphragm on a repeatable time cycle. The speed of the Timer is set by adjusting the needle valve on the top of the Timer. Each time the diaphragm opens it allows air to pass through it. This air is sent to as many as four ejectors at a time. A piston in the Ejector is energized and dispenses a predetermined amount of fluid into the air stream as it exits the nozzle tip.

**MANUAL VALVE**
- Required that the operator turn the air on and off manually each time the unit goes into operation or needs to be shut down.

**OSCILLATING TIMER**
- Energized and dispenses a predetermined amount of fluid into the air stream as it exits the nozzle tip.

**MANIFOLD**
- Setup so that it goes into the "ON" mode each time the machine is in operation and stays on as long as fluid has to be injected into the air stream. When the air enters the Manual Valve, it goes into the "OFF" mode each time the machine is in operation and stays off as long as fluid has to be injected into the air stream.

**Solenoid Valve**
- Replaces the Oscillating Timer and is controlled by the LSP Electronic Controller or a PLC.

**STAND ALONE, SA, METERMIZER, ELECTRONIC TIMER OR PLC CONTROLLED**

**STAND ALONE, SA, METERMIZER, ELECTRONIC TIMER OR PLC CONTROLLED**

**MeterMizer and Electronic Controllers for Timed Cycles**
- Electronic Controllers can be used to control the dispensing of fluids from the MeterMizer into the air stream exiting the nozzle tip. A Solenoid Valve replaces the Oscillating Timer and is controlled by the LSP Electronic Controller or a PLC.
- Shop air enters the Manifold through a Manual Valve or a Solenoid Valve at 60 to 80 PSI. Maintaining air pressure entering the Manual Valve or the Solenoid Valve at 60 to 80 PSI is critical.

**STAND ALONE, SA, METERMIZER, OSCILLATING TIMER OR PLC CONTROLLED**

**MeterMizer Components and Operations**

**Replacement Parts List for the MeterMizer**

**Parts List for the MeterMizer SA (Stand Alone), MeterMizer SC (Single Cycle) & Nozzle Assembly**

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
1A | CAP-031 | 1 | Lid, Top, Reservoir
2A | RES-049 | 1 | Reservoir
3A | RGD-055 | 1 | Ring, "O" Seal
4A | FIL-005 | 1 | Filter
5A | ADP-082 | 1 | Car Threaded
6A | TIM-002 | 1 | Timer, Oscillating
7A | MAN-026 | 1 | Manifold
8A | FIT-007 | 1 | Needle, Top, Reservoir
9A | VAL-004 | 1 | Valve, Manual
10A | RGD-021 | 1 | Ring, "O" Seal (2 per Ejector)
11A | RGD-010 | 1 | Ring, "O" Seal (1 per Ejector)
12A | 115EJT02 | 1 | Ejector, Middle
13A | 115EJT03 | 1 | Ejector, Bottom
14A-1 | SCR-007 | 2 | Screw, Socket Head Cap (1) EJECTOR'S
14A-2 | SCR-134 | 2 | Screw, Socket Head Cap (2) EJECTOR'S
14A-3 | SCR-315 | 2 | Screw, Socket Head Cap (3) EJECTOR'S
14A-4 | SCR-136 | 2 | Screw, Socket Head Cap (4) EJECTOR'S
15A | ADP-083 | 1 | Fitting, Mounting - Blower
16A | FIT-022 | 1 | Screw, Set
18A | MAG-005 | 1 | Magnet
19A | MCT-114 | 1 | Nut, Lock

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
20B | OUT-050 | 1 | Fitting

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
2B | SPG-061 | 1 | Spring, Compression
3B | BALL-026 | 1 | Ball
4B | CAP-030 | 1 | Cap, Volume Control
5B | RGO-004 | 1 | Ring, "O" Seal
6B | RGD-042 | 1 | Ring, "O" Seal
7B | RGO-023 | 1 | Piston
8B | SFG-059 | 1 | Spring, Compression
9B | WAS-027 | 1 | Washer
10B | RGD-103 | 1 | Ring, "O" Seal
11B | 115EJT02 | 1 | Ejector, Middle
12B | 115EJT03 | 1 | Ejector, Bottom
13B | RGD-252 | 1 | Ball, Check
14B | EYE-007 | 1 | Eyebolt
15B | SFG-048 | 1 | Spring, Compression
16B | RGD-052 | 1 | Ring, "O" Seal
17B | MAG-016 | 1 | Magnet
18B | RGD-014 | 1 | Ring, "O" Seal
19B | RGD-051 | 1 | Ring, "O" Seal
20B | OUT-050 | 1 | Fitting
21B | RGD-059 | 1 | Ring, "O" Seal
22B | 115EJT02 | 1 | Knob, Velocity Control

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
1C | MAN-027 | 1 | Manifold
2C | FIT-007 | 1 | Needle, 1/8 NPTM x 1/8 NPTM
3C | FIT-019 | 1 | Elbow, 1/8 NPTM x 1/8 NPTM
4C | VAL-011 | 1 | Valve, Solenoid, 24V

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
1D | MAN-027 | 1 | Manifold
2D | FIT-007 | 1 | Needle, 1/8 NPTM x 1/8 NPTM
3D | FIT-019 | 1 | Elbow, 1/8 NPTM x 1/8 NPTM
4D | VAL-004 | 1 | Valve, Manual
5D | SCR-140 | 2 | Screw, Socket Head Cap
6D | VAL-014 | 1 | Solenoid, 24V-DC

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
1E | FIT-014 | 1 | Fitting, 1/4 Tube x 1/8 NPTM
2E | ADP-080 | 1 | Adapter, 1/8 NPTM x 1/8 NPTM
3E | SOC-003 | 1 | Adapter, 1/8 NPTM x 1/4 Locknut Ball
4E | TUB-082 | 1 | Locknut, 1/4 Locknut Ball
5E | TUB-081 | 1 | Adapter, 1/8 NPTM x 1/4 Locknut Ball
6E | NOZ-010 | 1 | Nozzle, External
7E | BRK-114 | 1 | Bracket, 1/2-20 x 1/8 NPTM
8E | MAG-005 | 1 | Magnet
9E | NUT-114 | 1 | Nut, Lock
10E | NOZ-011 | 1 | Nozzle, Internal
11E | TUB-083 | 1 | Tube, Internal, 1/8" x 1/2-20
12E | TUB-215 | 1 | Tube, 3/8" x 1/2 Locknut Ball

**Key #** | **Part #** | **No.** | **Description**
--- | --- | --- | ---
1E | FIT-014 | 1 | Fitting, 1/4 Tube x 1/8 NPTM
2E | ADP-080 | 1 | Adapter, 1/8 NPTM x 1/8 NPTM
3E | SOC-003 | 1 | Adapter, 1/8 NPTM x 1/4 Locknut Ball
4E | TUB-082 | 1 | Locknut, 1/4 Locknut Ball
5E | TUB-081 | 1 | Adapter, 1/8 NPTM x 1/4 Locknut Ball
6E | NOZ-010 | 1 | Nozzle, External
7E | BRK-114 | 1 | Bracket, 1/2-24 x 1/8 NPTM
8E | MAG-005 | 1 | Magnet
9E | NUT-114 | 1 | Nut, Lock
10E | NOZ-011 | 1 | Nozzle, Internal
11E | TUB-083 | 1 | Tube, Fluid, Internal, 1/8"
12E | TUB-215 | 1 | Tube, 3/8", External, 1/2 Locknut Ball

**Parts for the MeterMizer SC (Single Cycle). (Replaces Oscillating Timer)**

**Parts for the MeterMizer Model SC (Single Cycle). (Replaces Oscillating Timer)**

**Parts for the Meterizer Model SA Series (Single Cycle), SOLENOID VALVE. (Replaces Oscillating Timer)**

**Parts for the Meterizer Nozzle Assembly**

**Parts for the Meterizer Nozzle Assembly**

- The LSP Electronic Controller can be programmed on a control, pulsating or timer sequence. Controller will receive a signal from the Proximity Sensor or from a limit switch tied into an operating machine.
- See catalog for different controllers.
Single Cycle MeterMizer with Single Solenoid Valve

A Solenoid Valve is installed at the air in port. It can be controlled by either a LSP Controller or a PLC. When the Solenoid Valve is activated, air enters the Manifold and is split in two directions, some air going out the Nozzle and some air actuating the Ejector to dispense fluid into the air stream.

1) Holding the Solenoid Valve open will allow air to flow out of the nozzle as fluid is ejected, once, into the air stream. Air will stay on until the controller shuts down or goes through another cycle.

2) If the Solenoid is programmed to pulsate, air will come “ON” and “OFF” with each pulsation. The pulses will also actuate the Ejector so fluid will be injected into each pulse of air going out of the Nozzle Tip.

This system is recommended for applications where the lubrication is only needed during a single cycle of a machine. Production drilling would be a good application.

Maintain air pressure entering the Manifold Valve or the Solenoid Valve at 60 to 80 PSI.

Multiple Systems Coupled Together for Larger Jobs. MeterMizer Systems can be connected together in series on a bracket. Poppet Valves controlled by LSP Electronic Controls or PLC’s can be used to actuate larger numbers of Ejectors. When the Poppet valve is opened shop air will energize multiple Ejectors for the really big jobs.
Setting up the MeterMizer for Operation:

1 Position the Nozzle

For best results it is recommended that the MeterMizer be mounted on either the bottom or the side of a vertical or horizontal steel surface.

Position the Nozzle

To position the MeterMizer so that the Coaxial Tubing is not stretched, place the MeterMizer on a vertical or horizontal surface. Magnets can be used on steel surfaces, studs can be used on non-steel surfaces.

3 Reservoir’s


Attaching Reservoirs

The MM-3319 is screwed directly into the top of the Manifold. Other Reservoirs are normally attached to a vertical surface within 5 feet of the MeterMizer. Two quart Reservoir can be permanently attached to a vertical surface or held to a steel surface with magnets or attached directly to the MeterMizer.

2 Position the MeterMizer

Illustration shows that Magnets can be located on either the bottom or the side of the MeterMizer so that it can be mounted on either a vertical or horizontal steel surface.

Positioning the MeterMizer

Place the MeterMizer so that the Coaxial Tubing is not stretched. The Coaxial Tubing is normally supplied with either a Solenoid Valve or a Manual Valve. It is recommended that either a quick disconnect or a Manual Valve be placed within a close proximity to the MeterMizer.

4 Air Inlet

The Air Inlet Port is located on the side of the Manifold. The MeterMizer is normally supplied with either a Solenoid Valve or a Manual Valve. It is recommended that either a quick disconnect or a Manual Valve be placed within a close proximity to the MeterMizer.

Attaching Shop Air

The Air Inlet Port is located on the side of the Manifold. Other Reservoirs are normally attached to a vertical surface within 5 feet of the MeterMizer. Two quart Reservoir can be permanently attached to a vertical surface or held to a steel surface with magnets or attached directly to the MeterMizer.

5 Bleeding the MeterMizer

Bleeding the MeterMizer.

For the MeterMizer to work any trapped air in the Ejector must be bled out. Fill the Reservoir and loosen the Set Screw located on the Stud under the bottom Ejector until fluid runs freely around the Set Screw void of air bubbles. Tighten the Set Screw. Usually bleeding is accomplished in one operation sometimes it requires more than one bleeding.

6 Making the MeterMizer Operational

To Start up the MeterMizer.

Turn the air on and put the Actuator being used into high speed. Remember each actuation of the ejector moves just a small quantity of fluid each time so it will take a while for the fluid to reach the Nozzle Tip. When fluid reaches the Nozzle Tip the fluid will still contain some pockets of air so the dispersion will be erratic until all of the air is evacuated. Once the air is gone fluid will pulse out with each cycle of the ejector. Open the air valve at the front of the Ejector so fluid and air mix on each cycle.

1. Position the Nozzle
2. Position the MeterMizer
3. Reservoir’s
4. Air Inlet
5. Bleeding the MeterMizer
6. Making the MeterMizer Operational

Nozzle Assemblies and Coaxial Tubing

A. Disassemble Nozzle and Tube from the Ejector
B. Disassemble Inner and Outer Tube from Nozzle Assembly
C. Disassemble Inner and Outer Tube from Ejector
D. Disassemble Fitting at back of Hex Fitting to expose Tube being held in place by a plastic sleeve
E. Gable the tube from the front side of the fitting and push forward into the fitting. The tube will move forward and expose inner tube. The tube and fitting can now be removed from the Ejector.
F. Remove tube from Barb Fitting and either replace or remove about 1/4 inch of tubing and insert into the Barb Fitting. The Inner and Outer Tube can be pulled completely from the Nozzle Assembly.
G. DisconnectOuter Tube from Barb Fitting on the Nozzle Assembly so that the Inner and Outer Tube can be pulled completely from the Nozzle Assembly.
H. Remove outer tube from the Barb/Fitting in the front of the Ejector leaving the Inner Tube exposed.
I. Outer Tube and Inner Tube are now left connected only to the Ejector.
J. IMPORTANT REASSEMBLY INSTRUCTIONS
The outer tube being attached to the Nozzle Extender must be attached to the Nozzle Extender before the Inner Tube. The Inner Tube Extender must be attached to the Nozzle Extender after the outer tube is attached. It is also recommended that a pressure regulator be attached to the air inlet to regulate the air pressure to the unit.

Short Nozzle

Use for getting into tight spots by using it in conjunction with the Swivel Bracket. For extended range attach to the Nozzle Extender and Swivel Bracket.

The Saw Nozzle

A Nozzle that is split so that lubricant and air are dispensed from three directions within the split totally encapsulating the cutting edge of a saw blade. The Nozzle slides into a Mounting Bracket and the Bracket is permanently attached to the cover of a circular saw or affixed in some manner to a band saw. The Nozzle has a one inch travel within the Nozzle Bracket. An Allen screw will hold the Nozzle securely in place.

Low Pressure Fan Nozzle

Produces short narrow fan spray pattern. Useful for certain stamping applications or some applications. Attaches to the Swivel Bracket.