INTRODUCTION TO MINIMUM QUANTITY LUBRICATION

For over a decade, the concept of minimum quantity lubrication, sometimes referred to as "near dry machining", has been suggested as a means of addressing environmental concerns and occupational hazards associated with airborne mist. In most instances, when cutting fluids are used, an airborne mist is released into the air that eventually falls to shop floors, causing concern for employee health and safety. By minimizing the use of cutting fluids economical benefits can be achieved; such as reduced costs of lubricant and disposal, as well as machine and workpiece cleaning time.

WHAT IS MINIMUM QUANTITY LUBRICATION?

The basic principal of minimum quantity lubrication is the utilization of precision dispensers to apply the smallest amount of lubricant (typical applications use 1 oz. of lubricant in an 8-hour shift) needed to effectively perform the metal cutting operation. These dispensers help eliminate friction at the tool chip interface by minimizing the heat that can be generated. Special lubricants, such as Tri-Cool MD-1 and MD-7, are used with these dispensers which are virtually consumed during the machining operation, resulting in residue-free machine surfaces and work pieces, and the elimination of airborne mist.

BENEFITS OF MINIMUM QUANTITY LUBRICATION

When using minimum quantity lubrication dispensers, the following benefits will be achieved:

- Increased tool life
- Increased material removal
- Improved tolerances
- Improved surface finish
- No sump maintenance
- Less machine downtime
- No coolant disposal costs
- Higher resale value of chips
- Elimination of airborne mist

Minimum quantity lubrication used on a horizontal saw

Minimum quantity lubrication used during a milling operation

Minimum quantity lubrication used on a tapping workcenter

MD-1200 MICRO-DROP®


30802

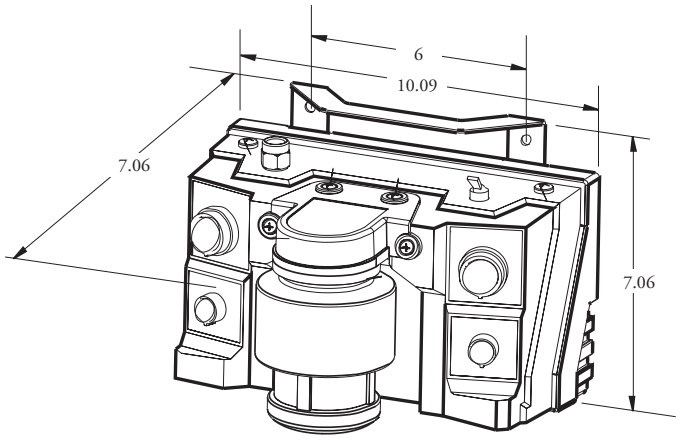
APPLICATIONS

The MD-1200 Micro-Drop® dispenser provides a cost effective solution when flood cooling is impractical or unavailable. When used in milling, tapping, and sawing applications, the MD-1200 dispenses small amounts of Tri-Cool Micro-Drop synthetic or vegetable based lubricant. Compared to flood cooling, there is no coolant sump to maintain or used coolant to dispose of. The MD-1200 offers higher material removal rates, improved part finish, longer tool life, and tighter dimensional tolerances.

Solenoid versions allow these units to be interfaced with CNC controls or other signaling devices. The pressurized delivery system of the MD-1200, provides instant on/off performance when used with the solenoid control.

SPECIFICATIONS

System Type	Pressure Delivery, Non-Cyclic
Delivery Lines	6 ft. Polyurethane
Nozzles	18″ Loc-Line or 13″ Copper
Liquid Flow Range	2-16 Drops/Minute
Liquid Viscosity	50-200 SUS
Inlet Air Pressure	60-125 PSI
Recommended Air Filter	40 Micron
Air Consumption	1.7 CFM/Line
Air Inlet Fitting	1/4 NPT
Solenoid Voltages	120V 60Hz
Dimensions	7.06″ H x 10.09″ W x 7.06″ D
Reservoir Capacity	16 oz.



SELECTION CHART

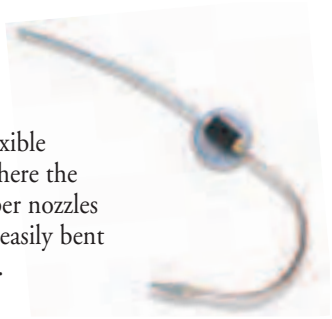
Model No. with Loc-Line Nozzles	Model No. with Copper Nozzles	Description
30801	30813	1 Line, Manual On/Off
30802	30814	2 Line, Manual On/Off
30805	30817	1 Line, Solenoid On/Off
30806	30818	2 Line, Solenoid On/Off

HELPFUL TIP:

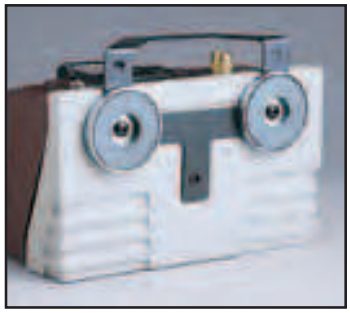
+ **The MD-1200 Micro-Drop should not be used with a water-soluble coolant. These types of fluids will damage and clog system components. Trico offers a line of lubricants that is ideal for use with the MD-1200. Please see Tri-Cool Fluids document for Tri-Cool MD-1 and MD-7.**

MD-1200 MICRO-DROP®

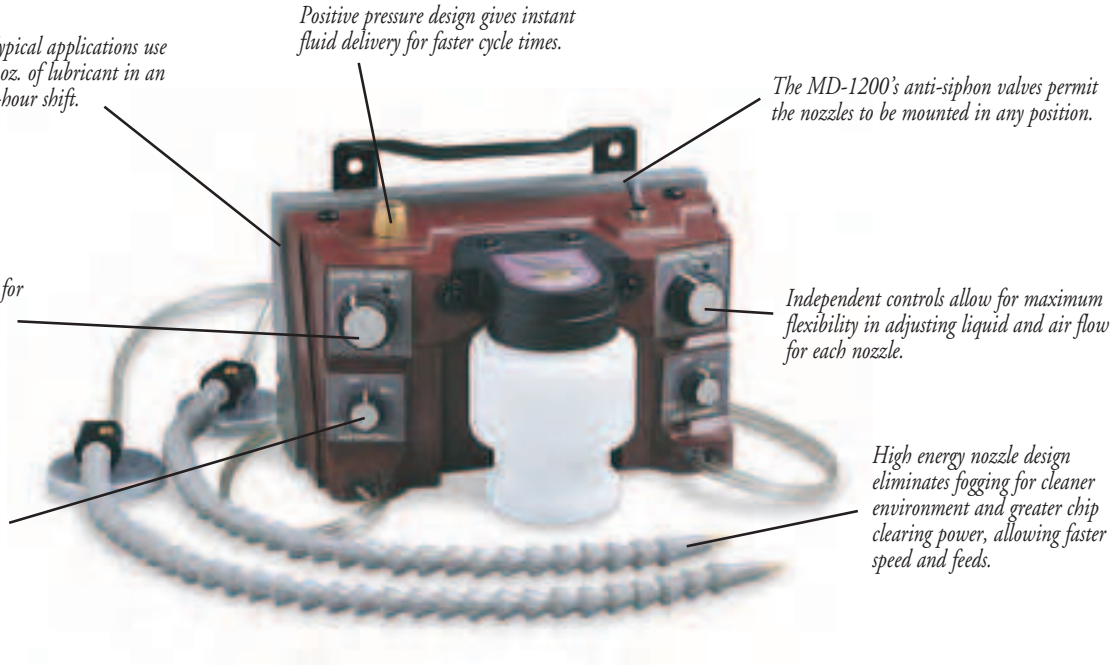
OPTIONS



Copper Nozzles replace the flexible plastic lines in applications where the nozzle position is fixed. Copper nozzles are supplied straight, and are easily bent to the desired nozzle position.



Magnetic Mounting Kit - Model No. 30687
Simplifies mounting when used in portable applications.



REPLACEMENT NOZZLE TIP

Model No.	Description
20024R	Nozzle Tip for Plastic or Copper Nozzle