



Near-Dry Machining • MQL Lubricants • Precision Applicators

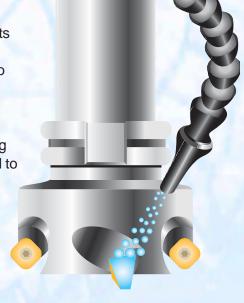
### Introduction

## History of Excellence

Since 1979 Accu-Lube has been the industry leader in manufacturing lubricants and equipment for Minimum Quantity Lubrication (MQL). Today Accu-Lube continues to be at the forefront of near-dry machining through our dedication to innovation, safety, and service.

## Committed to Responsible Manufacturing

Accu-Lube manufactures a complete line of environmentally safe metalworking lubricants using renewable raw materials. These fluids are specially formulated to provide superior performance and economy while helping to keep the planet safe from industrial contaminants by getting rid of the toxins required in flood coolant and eliminating harmful waste. Our mission is to help customers create cleaner, safer, greener facilities with our non-toxic, biodegradable fluid lubricants that are second to none in terms of performance, quality, and value.



## Quality over Quantity

Accu-Lube MQL applicators use advanced technology to focus droplets of lubricant directly onto the tool's cutting edge, providing lubrication and protection precisely where it is needed. Our minimum quantity approach allows manufacturers to conserve fluid and cut down on waste. With a small amount of our premium lubricant tools stay sharp, parts come out cleaner, and machines last longer. By eliminating unneeded flood coolant shops remain clean and fluid maintenance is no longer necessary. This process is called Near-Dry Machining.

### ITW ROCOL North America

ITW ROCOL North America, manufacturer of Accu-Lube products, is an industry leader in the development and production of scientifically advanced fluid products for the metalworking industry.



## Applications:

Circular Sawing Band Sawing Milling Hard Milling Drilling Reaming **Tapping** Stamping **Broaching** Grinding Thread Rolling Tool & Cutter Grinding Edge Trimming **Punching** Roll Forming Spine Rolling **Turning** Abrasive Belt Lubrication Bending Chain Lubrication

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### **M**ETALWORKING LUBRICANTS

## The Natural Choice in Metalworking Lubricants

Accu-Lube fluid lubricants are manufactured using non-toxic, renewable raw materials so they are environmentally safe and biodegradable. They contain no hazardous chemicals and none of the ingredients are subject to SARA (Superfund Amendment and Reauthorization Act) reporting. In addition to their environmental benefits, our lubricants are safe for use with all metals without fear of discoloration or damage.



## Improve Process Quality:

When compared to traditional soluble oil mixtures, Accu-Lube lubricants offer a substantial increase in lubricity which reduces the friction that arises during the machining process. When there is no heat build-up tools last longer and part finish is improved. Accu-Lube products also work to optimize efficiency by eliminating the maintenance, mist, and mess that come with flood coolant. These advancements promote efficiency, improve product quality, and reduce operating costs.

## Reduce Fluid Use And Eliminate Disposal:

In a six month period average Accu-Lube customers are able to replace 55 gallons of coolant concentrate, equivalent to approximately 1,100 gallons of working flood coolant, with only 5 gallons of Accu-Lube lubricant. Manufacturers conserve fluid and reduce waste since Accu-Lube lubricant is used up during the cutting process. Expensive fluid disposal is eliminated and post-operation cleaning is simplified.





## NATURAL-BASED FLUID LUBRICANTS

## Cleaning Required Before Heat Treating

*LB-1000* Premium heavy-duty metalworking lubricant with chlorinated extreme-pressure additives for machining, sawing, deep-hole drilling and large diameter tapping.

*LB-1100* Premium heavy-duty metalworking lubricant with non-chlorinated extreme-pressure additives specially formulated for use with exotic alloys common to the aerospace industry.

LB-2000 Superior moderate to heavy-duty metalworking lubricant for general machining and sawing. Accu-Lube's #1 selling product.

FG-2000 Superior moderate to heavy-duty metalworking fluid with non-chlorinated anti-wear additives that has been developed using only FDA approved ingredients. NSF H1 registered for use in food grade operations.

Power Stamp III Superior heavy-duty metalworking lubricant with anti-wear and non-chlorinated extreme-pressure additives specifically designed for stamping operations.

*LB-3000* Quality moderate-duty metalworking lubricant for general machining and woodworking operations.





PR	ODUCT SPECIF	FICATIONS					
		LB-1000	LB-1100	LB-2000	FG-2000	Power Stamp III	LB-3000
Type of Operation		Heavy	Heavy	Moderate-Heavy	Moderate-Heavy	Heavy	Moderate
	All Metals	√*	✓	✓	✓	✓	✓
	EP Additives	CI	Non-CI		Non-CI	Non-CI	
Rii	nse Water Wash		✓			✓	
So	ap & Water Wash	✓		✓	✓		✓
Pin	& Vee Block (lbs)	> 4500**	> 4500**	1750	2000	> 4500**	1500
	Flash Point	535°F (279°C)	593°F (312°C)	608°F (320°C)	608°F (320°C)	598°F (314°C)	608°F (320°C)
	Pour Point	5°F (-15°C)	5°F (-15°C)	4°F (-20°C)	4°F (-20°C)	5°F (-15°C)	4°F (-20°C)
Visc	cosity at 40°F (cSt)	39	48	37	40	48	37
ے o	1 gal (4/cs) 55 gal	LB1000	LB1100	LB2000	FG2001	LBSTIII55	LB3000
₽, Z	55 gal	LB1055	LB1155	LB2055	FG2055	LBSTIII55	LB3055

<sup>\*</sup> Not recommended for use with titanium

<sup>\*\*</sup> Maximum load capacity



## NATURAL-BASED FLUID LUBRICANTS

## Cleaning Not Required Before Heat Treating

LB-6100 Premium heavy-duty metalworking lubricant with non-chlorinated extreme-pressure

additives for machining, sawing, deep hole drilling and large diameter tapping.

LB-6000 Premium moderate to heavy-duty metalworking lubricant specifically formulated for

aluminum machining and sawing.

*LB-5000* Premium moderate-duty metalworking lubricant for machining and sawing.

Power Stamp II Superior heavy-duty metalworking lubricant with anti-wear and non-chlorinated

extreme-pressure additives developed for stamping operations.

LB-6800 Moderate-duty metalworking lubricant designed for aluminum sawing.

*LB-4600* Economical light-duty lubricant for aluminum extrusion machining and sawing.





PR	ODUCT SPECII	FICATIONS					
		LB-6100	LB-6000	LB-5000	Power Stamp II	LB-6800	LB-4600
Ту	pe of Operation	Heavy	Moderate-Heavy	Moderate	Heavy	Moderate	Light
	All Metals	✓	✓	✓	✓	✓	✓
	EP Additives	Non-CI			Non-CI		
Ri	nse Water Wash				✓		
So	ap & Water Wash	✓	✓	✓		✓	✓
Pin	& Vee Block (lbs)	> 4500**	1250	1000	> 4500**	1250	900
	Flash Point	400°F (204°C)	418°F (214°C)	374°F (190°C)	400°F (204°C)	400°F (204°C)	335°F ( 168°C)
	Pour Point	-40°F (-40°C)	-40°F (-40°C)	40°F (4°C)	-38°F (-39°C)	-40°F (-40°C)	-10°F ( -23°C)
Viso	cosity at 40°F (cSt)	10.4	8.9	18.0	15.0	9.0	7.3
۲.	1 gal (4/cs)	LB6100	LB6000	LB5000	LBSTII0II	LB6800	LB4600
₽, X	1 gal (4/cs) 55 gal	LB6155	LB6055	LB5055	LBSTII55	LB6855	LB4655

<sup>\*\*</sup> Maximum load capacity

## HAND-APPLIED LUBRICANTS

Accu-Lube hand-applied lubricants are made with the same renewable, environmentally safe materials as Accu-Lube fluid lubricants. These products have been developed with varying consistencies and packaged to meet the needs of individual applications. We have a hand-applied lubricant for every type of short-run and hand-held machining project.



### Accu-Lube Pump Sprav

Accu-Lube Pump Spray is our flagship product, LB-2000, packaged in a convenient pump spray bottle.

8 oz pump spray (16/cs)

## 79026

#### Accu-Lube Gel Paste

Accu-Lube Gel Paste has the most workable consistency of our semi-solid lubricants. The gel texture is easy to apply to small and large tools using a soft brush without risk of damaging the tool.

8 oz jar (16/cs)





#### Accu-Lube LS-10 Paste

Accu-Lube LS-10 Paste is a more pliable version of our Stick Lubricant designed to be applied directly to the tool with a stiff brush. The tool can also be dipped directly into the jar for more liberal coverage.

7603

8 oz bottle (16/cs)



#### Stick Lubricant

Unlike petroleum based wax sticks, Accu-Lube's Stick Lubricant is made with premium, natural lubricants that won't run or drip. Apply the ready-to-use stick anywhere lubrication is needed.

79042 2.2 oz push-up stick (24/cs) 13 oz tube (24/cs) 79045



Accu-Lube Blocks are manufactured with the same quality materials as our Stick Lubricant. The small, hand-held blocks are easy to use on a wide range of operations. Packaged with 12 blocks in a tray, 10 trays to a case.

79037 2.6 oz solid block (120/cs)



#### #10 Perfect Tapping Oil

A natural-based cutting fluid that is tough enough to handle repeated cuts without reapplication but gentle on operators and the environment.

8 oz bottle (16/cs) *7583* 7584 1 gal

## **ACCU-LUBE MQL APPLICATORS**

## The Unique Advantage of Accu-Lube Applicators

Accu-Lube Minimum Quantity Lubrication Applicators regulate the lubricant supplied to the cutting edge in exact quantities, eliminating guesswork and conserving fluid. Droplets of lubricant are carried by air with pinpoint accuracy onto the cutting edge of the tool with no hazardous misting. Accu-Lube's wide selection of custom options makes it possible to create an applicator that is perfect for every application.

#### **Getting Started**

- 1. What type of operation will the applicator be used in?
- 2. How many point of application (nozzles) does the operation require?
- 3. Will the applicator be controlled automatically or manually?
- 4. Does the application require fixed, flexible, or specialty nozzles?
- 5. Where will the applicator be installed?

### **Breaking it Down**

- 1. A wide variety of applicators are available to Accu-Lube customers:
  - Box Applicators are recommended for production scale operations and can be easily customized to fit specific/difficult operations.
  - Junior Applicators are designed for use in small production operations.
  - Advantage Applicators offer flexibility for light production operations and intermittently use machines.
- Box Applicators are available in standard configurations up to 4 nozzles but it is possible to build custom units in any size. Junior and Advantage Applicators are available in 1 and 2 nozzle units.
- 3. Applicators come standard with a manual On/Off Valve. Accu-Lube Box Applicators can be constructed with a number of different solenoid valves for automatic on/off.
- 4. Box Applicators come standard with rigid copper nozzles. Junior and Advantage Applicators come standard with flexible Loc-Line nozzles. Copper, Loc-Line, and stainless steel nozzles are available in various lengths and configurations. Specialty sawing nozzles are offered for circular and band sawing.
- 5. 1 and 2 nozzle Box Applicators can be fitted with optional magnetic mounts, larger Box Applicator units must be permanently installed. Junior and Advantage Applicators come standard with magnetic mounts.







## Positive Displacement Pump Technology

## "A little lubricant is the big difference between dry machining and Near-Dry Machining"

With dry machining there is no lubricant to protect the part and tool, no barrier to reduce heat build-up, no means to prolong tool life. These problems are eliminated in near-dry machining with minimum quantity lubrication and precision application of lubricant droplets to the tool's cutting edge.

Accu-Lube positive displacement pumps are designed to accurately deliver a constant and consistent amount of lubricant from the instant the applicator is turned on until the moment it is turned off. Unlike cheap siphontype imitators, which are negatively affected by small variances in air pressure, room temperature, air hose length, and lubricant viscosity, Accu-Lube positive displacement pumps operate with accuracy and precision year after

year to deliver lubricant to thecutting edge each time, every time.

An Accu-Lube positive displacement pump uses air pressure to power the pump cycle. The back stroke of the cycle draws a precise, measured amount of lubricant into a chamber like a syringe. Instantly the forward stroke forces the lubricant down a capillary tube inside an air hose up to 60′ (18 m) long. Since the pump cycle is automatically regulated by a frequency generator it is not affected by lubricant viscosity, which changes with temperature. This is crucial for any application operating in an environment without climate control since lubricants thicken in the cold. Accu-Lube positive displacement pumps deliver instant performance, with every type of Accu-Lube lubricant, in all conditions.



## PRECISION APPLICATORS



- Liquid Reservoir: Lightweight, durable polycarbonate reservoir. Replacement reservoirs are available in varying sizes.
- 2. **Lubricant Valve:** Adjusts the amount of lubricant in each pump stroke.
- 3. **Air Filter Regulator/Pressure Gauge:** Helps prevent particles and water from entering the applicator through the air lines.
- 4. **On/Off Valve:** Turns the applicator on and off by controlling the airflow. Applicators come standard with a manual On/Off valve. It is possible to automate this function with a solenoid valve.
- 5. **Air Supply:** Accu-Lube Positive Displacement Pumps are powered by air instead of electricity

- 6. **Frequency Generator:** Primary lubrication control. Regulates the pump cycle rate, works with the Lubricant Valve (6) for precise lubricant application quantity and speed.
- Steel Security Box: Durable steel box designed with security locks and double doors for maximum access and protection.
- 8. Accu-Lube Positive Displacement Pump: Expert design for precision application of Accu-Lube lubricants.
- 9. **Mounting:** Each security box is equipped with mounting holes for installing the applicator permanently to a machine. Magnetic mounts can be added to 1 and 2 nozzle applicators.
- 10. **Airflow Valve:** Controls the amount of continuous air that is sent down the air hose to the nozzle.

#### **Copper Nozzles**



#### Loc-Line



#### In-line atomizer

Separates lubricant into small particles to help it travel easily with the stream of compressed air and delivers continuous lubrication to the cutting edge of the tool.



## **PRECISION APPLICATORS**

#### **Accu-Lube Box Applicator**

The gold standard in Minimum Quantity Lubrication. Accu-Lube's Box Applicator uses our exclusive positive displacement pump for accuracy and precision that is unmatched in the industry. With countless variations and custom options this applicator has revolutionized machine shops everywhere.



### **Junior Applicator**

The perfect solution for small production operations. The Junior Applicator operates using the same positive displacement pump as our Box Applicator with a slim design that makes it easy to position and move between machines. A great way to get started with Minimum Quantity Lubrication.

 01DO-STD
 1 nozzle

 02DO-STD
 2 nozzles

PRECISION APPL	PRECISION APPLICATORS								
Part Number	Number of Nozzles	Manual On/Off	Solenoid 110 VAC On/Off	Steel Security Box	12" Copper Nozzle	18" Loc-Line Nozzle	12´ Hose	Delivery Method	Reservoir
01A0-STD	1	1		✓	✓		✓	P.D. Pump	10 oz (296 ml)
01A1-STD	1		✓	✓	✓		✓	P.D. Pump	10 oz (296 ml)
02A0-STD	2	1		✓	✓		✓	P.D. Pump	10 oz (296 ml)
02A1-STD	2		✓	✓	✓		✓	P.D. Pump	10 oz (296 ml)
03A0-STD	3	1		✓	✓		✓	P.D. Pump	10 oz (296 ml)
03A1-STD	3		✓	✓	✓		✓	P.D. Pump	10 oz (296 ml)
04A0-STD	4	✓		✓	✓		✓	P.D. Pump	1 qt (946 ml)
04A1-STD	4		✓	✓	✓		1	P.D. Pump	1 qt (946 ml)
01A0-DMO	1	✓		✓			✓	P.D. Pump	10 oz (296 ml)
02A0-DMO	2	✓		✓			✓	P.D. Pump	10 oz (296 ml)
01D0-STD	1	✓					✓	P.D. Pump	10 oz (296 ml)
02D0-STD	2	✓					✓	P.D. Pump	10 oz (296 ml)

#### **Limited Two-Year Warranty**

All Accu-Lube Precision Applicators with positive displacement pumps undergo rigorous testing to ensure that we offer the most reliable application systems in the industry. This attention to detail and quality allows us to offer a limited two-year parts warranty on all equipment when used with Accu-Lube lubricants.

## **CUSTOM PRECISION APPLICATORS**

## **Build the Perfect Applicator**

The professionals at Accu-Lube can create a custom applicator to meet the needs of even the most demanding operations. All Custom Precision Applicators are built with our positive displacement pumps and come standard in steel security boxes. From there our component design makes it easy to customize for an ideal fit.

#### 1. Custom base unit

The first step to create a custom precision applicator is to design the base unit. This includes the number and type (aluminum or brass) of positive displacement pumps, type of On/Off Valve (manual or solenoid), applicator configuration (-STD, -DMO, or -SPC), pump configuration, and additional non-standard items.

#### **Applicator configuration:**

Standard (-STD)

- 12'air/lubricant coaxial hose
- 10 oz reservoir (1-3 nozzle units,1qt reservoir for larger units)
- 12'copper nozzle

#### Demonstration (-DMO)

- 12'air/lubricant coaxial hose
- 10 oz reservoir (1-3 nozzle units,1qt reservoir for larger units)
- 18'Loc-Line nozzle
- Magnetic mounts (1-2 nozzle units only)

#### Special (-SPC)

Use Steps 2-4 to complete

#### Pump configuration:

Indicates the independent operation of the applicator's individual pumps. The unique design of Accu-Lube's positive displacement pumps allows a single applicator unit to have pumps operating on different frequency cycles and to turn on/off independently of one another. Perfect for multiple operation productions.

#### Non-standard items\*

- 2. **Coaxial hose\*** (for -SPC applicators) is available in many different lengths to accommodate a range of applications.
- 3. **Reservoir\*** (for -SPC applicators) come in numerous sizes.
- 4. **Nozzle\*** (for -SPC applicators) are available in copper, Loc-Line, and stainless steel with varying tips, lengths, and optional magnetic mounts.
- 5. Additional options/accessories\*
- \* For more options including non-standard items, specialty sawing nozzles, and additional options/accessories please visit us on the web or contact our Customer Service Department.





## **SPECIALTY APPLICATORS**

#### Aerospace AFIL-2000

Created to meet the needs of aerospace manufacturing professionals, this system is designed for use on with self-feeding pneumatic drill motors and other portable pneumatic machines. Equipped with Accu-Lube's positive displacement pump and a special airflow-sensing valve, the AFIL-2000 lubricates the cutting tool automatically. An independent lubrication system for the air motor ensures that the operation and machine are lubricated properly from start to finish. 02MO-AER



#### **Tap-Arm Lubricator** (not pictured)

Senses the flow of air when the tool is activated to deliver a single shot of lubricant and compressed air each time the tool is triggered. 01KO-STD

### **Light Production Applicators:**

Accu-Lube Advantage:

Great for light production work and intermittently used machines. The magnetic mounts on this compact applicator and nozzle are easy to position and move between operations.

1 nozzle 01CO-STD 02CO-STD 2 nozzles



Developed for thru-spindle tools in CNC machining centers, the system automatically adjusts to the varying diameters of tools as they are changed without needing to reprogram, making it easy to install and operate.

**MBII-HDSR** 

#### SpiderCool (not pictured)

Automated, servo-driven nozzle system for applications in CNC machining centers. For more information please contact our Customer Service Department.





SPECIALTY APPL	LICA	TO	RS

of Editier Fitt Electrons										
Part Number	Number of Nozzles	Manual On/Off	Solenoid 110 VAC On/Off	Airflow Sensing On/Off	12″ Loc-Line Nozzle	12´ Hose	Delivery Method	Reservoir		
02M0-AER	1			✓	NA	1	P.D. Pump	1 qt (946 ml)		
01K0-STD	1			1	1	✓	P.D. Pump	10 oz (296 ml)		
01C0-STD	1	1			1	1	P.D. Pump	10 oz (296 ml)		
02C0-STD	2	1			1	1	P.D. Pump	10 oz (296 ml)		

## Specialty Sawing Nozzles & Packages



## Sawing Lubrication Packages



NOZZLES				
Part Number	Nozzle	Type of Sawing	Number of Feeds	Specifications
9696	N-Nozzle	Band	1	Fits blades ¾" (1.9 cm) to 1¾" (4.4 cm) wide, throat size 15%" (4.1cm)
9692	V-Nozzle	Band	1	Fits blades ¾" (1.9 cm) to 1½" (3.8 cm) wide
9878	C-Nozzle	Circular	1	Fits blades up to 20" (51cm) in diameter, 45° angled head
9857	R-Nozzle	Band	2	Fits blades 34" (1.9 cm) to 112" (3.8 cm) wide, throat size 13%" (3.5 cm)
9877	RL-Nozzle	Band	2	Fits blades 2" (5.1cm) and wider, 21/8" (5.4 cm) throat size
379165	CM-Nozzle	Circular	2-3	Fits blades 22" (56 cm) -36" (91 cm) in diameter
9045	CL-Nozzle	Circular	3	Fits blades 36" (91 cm) -120" (305 cm) in diameter

APPLICATORS									
Part Number	Number of Nozzles	Sawing Application	Manual On/Off	Solenoid 110 VAC On/Off	Steel Security Box	12´ Hose	Delivery Method	Reservoir	Nozzle
01D0-CIR	1	Circular	✓			1	P.D. Pump	10 oz (296 ml)	C-Nozzle
01A1-CIR	1	Circular		✓	1	1	P.D. Pump	10 oz (296 ml)	C-Nozzle
01D0-SAW	1	Band	✓			✓	P.D. Pump	10 oz (296 ml)	V-Nozzle
01A1-SAW	1	Band		✓	✓	✓	P.D. Pump	10 oz (296 ml)	V-Nozzle
01D0-NNZ	1	Band	1			✓	P.D. Pump	10 oz (296 ml)	N-Nozzle
01A1-NNZ	1	Band		1	✓	✓	P.D. Pump	10 oz (296 ml)	N-Nozzle

## **APPLICATIONS**

## **Putting Accu-Lube To Work**

#### Sawing

Together Circular and Band Sawing are the most common applications of Accu-Lube due in part to the precision specialty nozzles that have been developed to meet the particular needs of these operations. Our near-dry approach eliminates flood coolant that can pour down parts and through tubes while improving chip removal and blade life.

### **Circular Sawing**

- Unique design allows 1 nozzle to work like 3
- Lubricates the cutting face and into the gullet
- Three different size nozzles to ensure a perfect fit

#### **Band Sawing**

- Improved chip removal
- Cleaner blades that last longer
- Great for cutting tubes of any size and solids up to 10"wide

### Milling

Milling operations are ideal for MQL because interrupted cutting offers numerous opportunities for lubricant application. Here Accu-Lube eliminates the mess of wet operations, allows more elaborate cuts than dry operations, and enables Hard Milling operations to make deep pockets and rib cuts all while improving part finish and tool life. A variety of solutions are available for external and thru-spindle milling operations of all sizes.

#### Recommended applicators:

- External Operations: 02A1-STD
- Thru-Spindle Operations: MiniBooster
- Automated Positioning: SpiderCool

#### **Drilling**

Drilling operations are often plagued by wet chips that stick and pack, causing an array of problems. Whether drilling in a machining center or with a single/multi-spindle drill, Accu-Lube prevents damaging chip buildup by completely eliminating flood coolant. For external and thru-tool operations there is an MQL applicator for all types of drilling.

#### **External Operations**

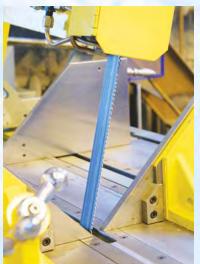
- For drills up to 1"(25 mm)
- Hole depth up to twice the diameter

Thru-Tool Operations with the MiniBooster

- For drills up to 1 ½" (38 mm)
- Hole depth greater than twice the diameter

### Free Trial, Accu-Lube in Action

We are so confident about our natural-based lubricants and Precision MQL applicators that we offer a guaranteed 30 day trial on any of our standard applicators. For more details contact our Customer Service Department.









## **Global Metalworking Fluid Solutions**



Environmentally Safe Lubricants and Minimum Quantity Lubrication Systems for Near-Dry Machining









