MONTFORT INTERNATIONAL

UNIST

Minimum Quantity Lubrication Systems

Precision Fluid Dispensing Solutions

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

What is Minimum Quantity Lubrication?

Minimum Quantity Lubrication (MQL) replaces the flood coolant commonly used in metal working operations with a minute amount of high-quality lubricant precisely applied to the interface of the cutting tool and workpiece. The lubricant minimizes friction between the material and the tool, greatly reducing the heat that is generated during metal-cutting processes. In contrast, the purpose of traditional flood coolant is to absorb the heat after it has been created. MQL technology has been used for over 45 years and has proven its effectiveness in a broad range of applications.

MQL is great for:

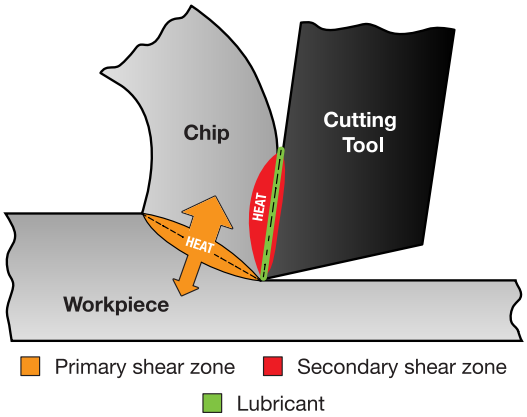
Drilling · Milling · Tapping · Broaching · Turning · Routing · Sawing

Why use MQL?

- Increase tool life up to 500%
- Eliminate flood coolant mess, treatment, and disposal
- Increase chip value by eliminating coolant contamination
- Use environmentally-friendly, renewable lubricants
- Exceptional surface finishes
- Use as little as 2–4 oz per shift

Less friction = longer tool life

Minimum Quantity Lubrication (MQL) is effective because it focuses on managing heat rather than eliminating it, and cutting tools perform best within a specific temperature range. MQL applies a small amount of high-quality lubricant directly to the cutting tool/workpiece interface, forming a lubrication boundary that reduces friction and minimizes heat generation. Most of the heat generated by material deformation is carried away by the chips, allowing the tool to maintain a steady temperature. Unlike traditional cooling methods, which can quench the tool and create thermal cracks at the cutting edge, MQL promotes thermal stability.



MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

45 years of MQL innovation

Consistent and reliable fluid output

Unist MQL systems utilize pneumatically powered, positive-displacement pumps which deliver a precise volume of lubricant with each stroke, ensuring consistent fluid delivery. Available in fixed or adjustable output, Unist pumps are designed to ensure long-term reliability and performance.

Dial in the “Sweet Spot”

Every machining operation has its own “sweet spot”—the exact amount of lubricant needed for peak performance. Unist systems provide precise control with micro fluid and air adjustment, allowing the operator to fine-tune lubrication to match the demands of the application.

Two spray modes. Total control.

Continuous spray

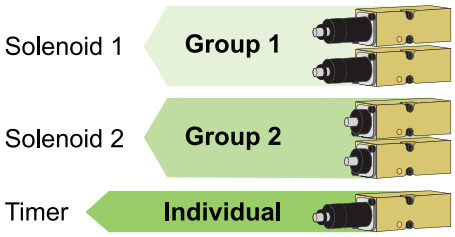
In continuous spray systems, the pumps deliver a steady supply of lubricant to the tool using a pneumatic pulse generator or electronic timer. The fluid output is adjusted by changing the pump stroke and frequency. This mode is ideal for continuous operations like sawing, routing, and milling.

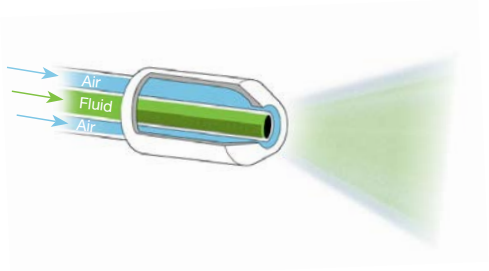
Shot spray

In shot spray systems, the pumps deliver a fixed amount of lubricant for every input. The shot count and output are adjustable, making this mode ideal for intermittent operations like short-cycle drilling and tapping.

Modular by design

Unist’s innovative design makes it easy to configure a system for nearly any application. Pumps can be actuated individually or grouped to spray multiple points using a single control valve. Each pump output can be connected to a unique nozzle suited for the application.





Precision at the nozzle

Coaxial spray nozzles keep air and fluid separate until the point of application. By mixing them at the nozzle tip, the system creates a balanced spray pattern that stays consistent—even across long tubing runs. The result is clean atomization, reduced waste, and reliable lubrication right where it’s needed.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Improve your processes and save with MQL

Use the best lubricant

Coolube®

MQL isn't just about the equipment—it only works when paired with the best lubricant. Coolube® lubricants are specifically formulated for Minimum Quantity Lubrication.

- Specifically formulated for MQL
- Superior friction reduction
- 100% non-toxic and bio-degradable
- Non-staining and non-oxidizing

Select the correct system

UNi-MAX ST

Ideal for straightforward applications where reliable spray and minimal configuration are key.

- Continuous or shot spray
- 1–2 nozzle outputs
- Simple installation

UNi-MAX PRO

Built for complex applications that require advanced control, expanded output capacity and system scalability.

- Continuous or shot spray
- 1–12 nozzle outputs
- Advanced actuation options
- Performance monitoring

QUANTUM™

A fully digital MQL system for high-precision control, CNC integration and real-time monitoring in advanced machining environments.

- Robust serial integration
- 1–6 nozzle outputs (fluid or air blow-off)
- Job storage
- Active monitoring and alarms

Choose the ideal nozzle

MQL nozzles

Unist offers a wide range of nozzles engineered for precise fluid delivery in any application.

- Rigid and flexible designs
- Specialty application options
- Spray pattern options
- Versatile mounting configurations

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Coolube®

The best minimum quantity lubricant

Coolube® is specifically engineered for MQL applications—clean, efficient, and built to perform at the cutting edge. Its polar properties bond to metal surfaces, forming a thin, durable film that reduces friction and heat, extending tool life and delivering cleaner, more precise cuts.

Why Coolube®?

- 100% natural, bio-degradable and non-toxic
- Non-staining and non-oxidizing (no sticky residue)
- Completely skin safe & operator friendly
- No VOC's, chlorine, or silicone
- Use Coolube® for a lifetime warranty on Unist pumps

Which Coolube® is right for you?

Coolube® 2210

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 93%

Coolube® 2210XP

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 91%

Coolube® 2210AL

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 70%

Use on

	Coolube® 2210	Coolube® 2210XP	Coolube® 2210AL
Ferrous	recommended	highly recommended	not recommended
Non-ferrous	highly recommended	recommended	not recommended
Aluminum	recommended	recommended	highly recommended
Stainless steel	recommended	recommended	highly recommended

SDS info Learn more: unist.com/sds

Non-hazardous	yes	yes	yes
Biobased	yes (USDA certified)	yes (USDA certified)	yes (USDA certified)
Oxidizing properties	none	none	none
Flash point	>400°F [200°C]	>400°F [200°C]	446°F [230°C]
Viscosity cSt 104˚F [40˚C]	16 cSt [82 SUS]	16 cSt [82 SUS]	<14.5 cSt [76 SUS]
Solubility (H20)	insoluble	insoluble	insoluble

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Select the correct system

MONTFORT INTERNATIONAL

UNi-MAX ST

Reliable MQL performance for metal-cutting

1–2 outputs | Continuous spray | Shot spray

Transform your machining or sawing operation with proven and reliable Unist technology and the benefits of MQL.

Consistent Lubrication

Means consistent machining

- Repeatable, accurate lubrication
- Consistent output regardless of temperature or viscosity

Trusted Reliability

An investment that goes the distance

- Pumps tested to 12 million cycles
- Built tough to reliably perform for years in demanding applications

Low Maintenance

Lubrication made simple

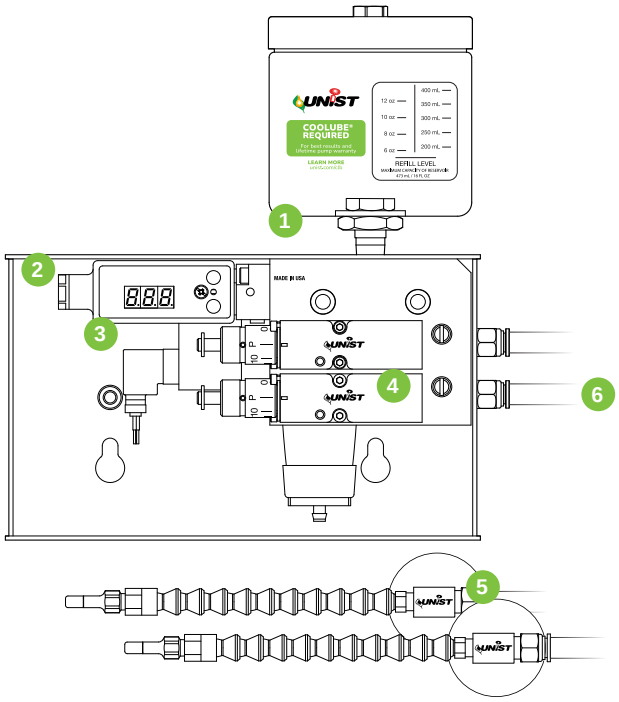
- Neat application without fluid mess
- Designed for quick and easy maintenance
- Self-priming pumps

Coolube® Lifetime Pump Warranty

Unist pumps are warrantied for life when used exclusively with Coolube®

Uni-Max® ST features

1. **Just add Coolube®**
   Use as little as 2–4 oz per shift. Add an optional low-level sensor for peace of mind.
2. **Chip free**
   Rugged enclosure or chip guard keeps components clean and protected.
3. **Simple digital control**
   Precise pump cycle rate adjustment with a digital readout and user-friendly, 2-button interface.
4. **Reliable performance**
   40µL positive-displacement pumps with adjustable stroke and air output.
5. **Flexible nozzle setup**
   Supports 1–2 outputs with a variety of nozzle choices to fit your application.
6. **Quick connect tubing**
   Changing nozzles has never been easier.



MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Applications

Drilling | Milling | Tapping | Broaching | Turning | Routing | Sawing

Band sawing

The Uni-Max® ST delivers clean, controlled lubrication without the headaches of flood coolant.

- **Eliminate flood coolant draining through hollow materials (tubing or extrusions)**
- **Increase scrap value with chips that are virtually dry**

"Flood coolant was expensive—paying for cleanup, labor, and wasted time. I have no chip disposal issues now."
- Fabrication shop

Circular sawing

Configured to actuate with your saw's pneumatic clamp, the Uni-Max® ST delivers precise lubrication only during the cut—ideal for auto-fed saw stations.

- **Eliminate flood coolant mess, treatment and disposal**
- **Improve blade life up to 500% and prevent galling**

"With Unist, you can clean the saw with a vacuum cleaner"
- Therma-Tron X, Inc.

Tapping

The Uni-Max® ST can be configured to deliver one or more precise shots of lubricant per hole, extending tap life and leaving minimal lubricant on the workpiece to clean.

- **Eliminate manual lubrication**
- **Improve tap life**
- **Decrease cycle times**

"We were able to increase our effective tap life from 450 to 1500 pieces per tap."
- Signicast

CNC routing

Dual nozzles provide 360° lubrication for cleaner, burr-free cuts with minimal cleanup.

- **Exceptional surface finish with minimal burrs**
- **Eliminate galling and improve tool life up to 500%**

"In just 3 months and thousands of parts later, we used only 2 gallons of Coolube®— and extended tool life by 400%."
- NGS Signs & Mailboxes

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Select the correct system

UNi-MAX PRO

Maximum configurations for complex MQL applications

1–12 outputs | Continuous spray | Shot spray | Performance monitoring

Built for complex applications, the Uni-Max® PRO provides advanced control with support for multiple actuation signals. Each signal can control individual or grouped pumps, allowing the Uni-Max® PRO to provide lubrication for the entire process.

Unlimited Configurations
Tailored to your application

- 1–12 outputs
- Adjustable or fixed output pumps
- Fluid output monitoring

Seamless Integration
For even the most complex process

- Control pumps individually or in groups
- Advanced pump actuation (direct, remote, common)

Minimize Downtime
Keep production running

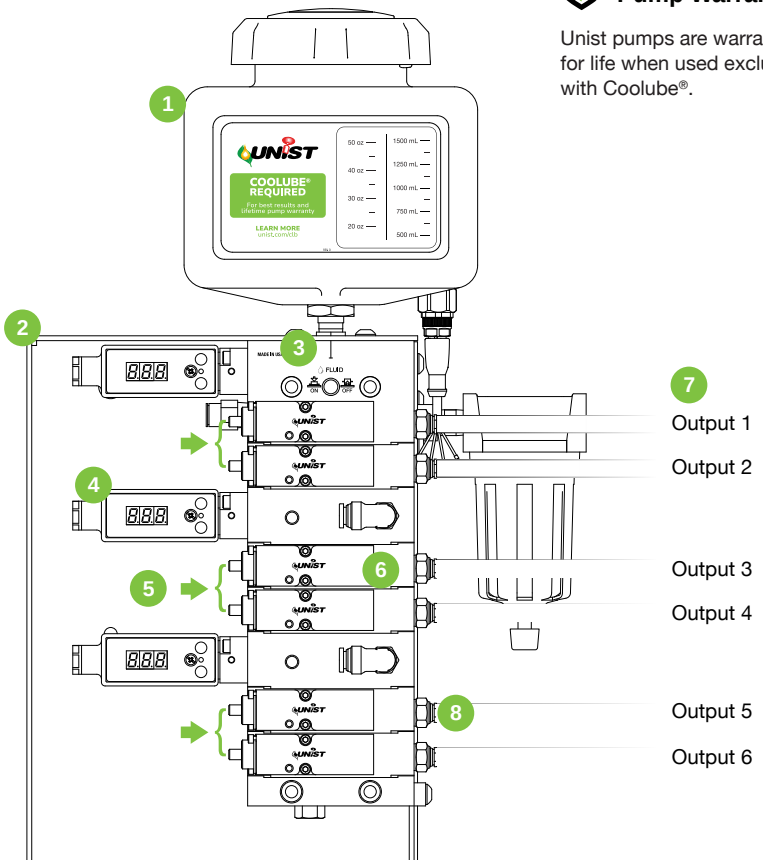
- Pumps tested to 12 million cycles
- Designed for quick and easy maintenance
- Self-priming pumps

Uni-Max® PRO features

1. **Just add Coolube®**
   Multiple fluid supply options, including gravity reservoirs and pressurized tanks. Add an optional low-level sensor for peace of mind.
2. **Chip free**
   Rugged enclosure keeps components clean and protected.
3. **Easy maintenance**
   Fluid shut-off valve allows for leak-free pump replacement.
4. **Simple digital control**
   Precise pump cycle rate adjustment with a digital readout and user-friendly, 2-button interface.
5. **Reliable performance**
   Adjustable or fixed output pumps in 20µL, 40µL, or 60µL fluid volumes.
6. **Performance monitoring**
   Monitor fluid output with optional flow sensors.
7. **Flexible output setup**
   Supports 1–12 outputs with a variety of nozzle choices to fit your application.
8. **Quick connect tubing**
   Changing nozzles has never been easier.

Coolube® Lifetime Pump Warranty

Unist pumps are warrantied for life when used exclusively with Coolube®.



MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Applications

Automation cells

Multi-process machining cells, especially in the fenestration industry, often require lubrication at multiple points. The Uni-Max® PRO is ideal for this scenario, delivering fluid to all necessary locations from a single system integrated with machine actuation.

In the cell shown, three outputs lubricate individual spindles, one targets a drill, and two are used on saw blades. Thanks to the clean, precise nature of MQL, the station remains clean, and aluminum parts need only a quick wipe-down before welding.

"Drilling over 10,000 holes per shift, we used less than a pint of Coolube® per machine each month—while significantly extending tool life."
- Impact Security, LLC

Robotic machining

End-of-arm machining is gaining popularity in automated manufacturing. Accessing equipment inside robotic cells typically requires a full lockout/tagout (LOTO) procedure—costing time and disrupting workflow.

The Uni-Max® PRO solves this problem by allowing remote pump control, so operators can adjust output without entering the cell. Positive-displacement pumps ensure consistent and precise, drip-free lubrication regardless of tubing length—making it an ideal solution for end-of-arm tooling.

"Fluid adjustments became significantly easier, resulting in a 50% reduction in fluid use, improved hole quality, and extended tool life."
- Wilder Systems

OEM integration

While the Uni-Max® PRO features advanced capabilities, it is also built for extreme modularity. This level of configuration makes it the ideal solution for OEM's looking to integrate an MQL system into their products.

When you partner with Unist, you're not just adding a proven system, you're giving your customers the same reliable performance and support trusted by manufacturers worldwide.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Select the correct system

MONTFORT INTERNATIONAL

QUANTUM™

Mess-free CNC lubrication

1–6 outputs | Continuous spray | Air blow-off | Serial communication | Job storage | Active monitoring

The Quantum™ integrates seamlessly with your machine controls, delivering unmatched precision over your MQL application.

Protected by Patent: US10259088B2

Precision Lubrication
Take full control of fluid and air output

- Fine-tune output to a fraction of a drop
- Up to 6 dual-use nozzles for lubrication and air blow-off

Smarter Integration
Seamlessly fits into your workflow

- Control via RS-232 or discrete inputs
- Store up to 250 jobs

Real-time Monitoring
Protect your tools and your process

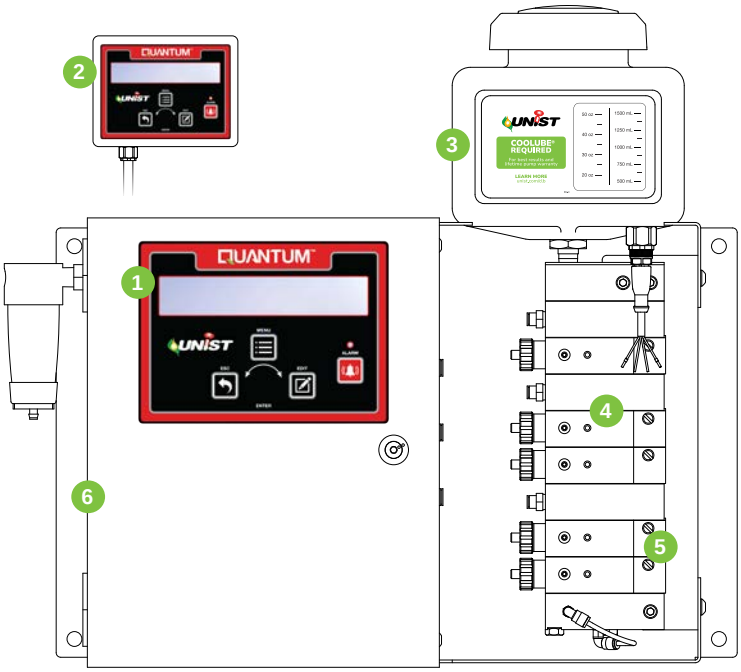
- Actively monitor fluid flow, air pressure, and fluid level
- Trigger alarms for critical issues

Coolube® Lifetime Pump Warranty

Unist pumps are warrantied for life when used exclusively with Coolube®

Quantum™ features

1. **Digital display**
   CNC-ready serial integration with job storage, fluid usage tracking, and real-time system alerts.
2. **Remote interface**
   Allows for alternate control mounting location.
3. **Just add Coolube®**
   Low-level sensor and auto-refill options keep lubrication flowing.
4. **Pump outputs**
   Configure up to 6 outputs for fluid delivery and air blow-off.
5. **Active monitoring**
   Track fluid flow and air pressure in real time.
6. **Chip free**
   Rugged enclosure keeps components clean, even in messy chip environments.



MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Applications

CNC mills

No matter the brand, CNC machines equipped with RS-232 communication can use M-codes to gain full control of the Quantum™. With both air blow-off and fluid nozzle outputs, you can adjust the fluid-to-air ratio, control pump output, and trigger direct bursts of air, ideal for clearing chips from pockets. The Quantum provides real-time alarm monitoring, keeping operators informed and in control.

"This system allowed us to realize some very impressive tool change frequencies in very demanding super alloys without compromising quality or cycle time! Highly recommend!"

- Winsert

Machining with MQL

Machining with flood coolant

Maximum visibility

Struggling to see your tool through the flood coolant? The Quantum™ provides maximum visibility with Minimum Quantity Lubrication. Use rapid feed-rate confidently with clear sight of your tool path.

"The students can see what is happening as they test their programming. This greatly improves learning and avoids crashes (most of the time)."

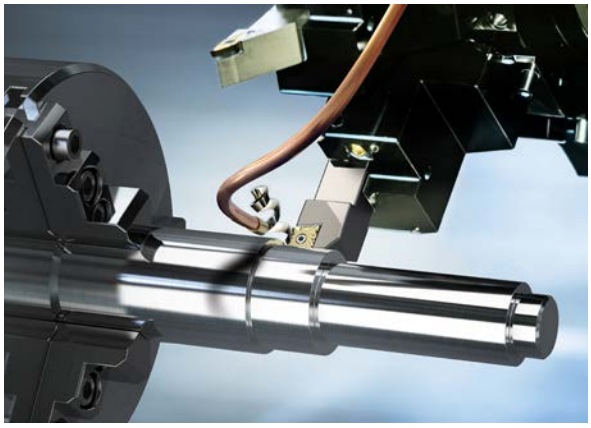
- Allan Hancock College

CNC lathes

Maximize your machine's lubrication efficiency by using built-in coolant ports to deliver precise, atomized lubricant directly to the cutting edge. Eliminate flood coolant maintenance, sump cleanouts, and fluid disposal. With Minimum Quantity Lubrication, chips come off virtually dry—cleaner, easier to handle, and more valuable—while improving tool life and part quality.

"The Unist MQL system is helping in this and eliminating the need for flood coolant. We will be adding MQL to all our machines."

- Rotormaxx

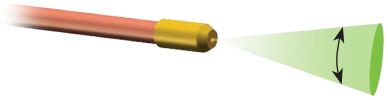
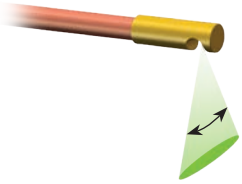
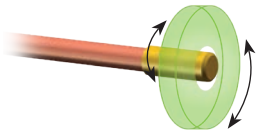


MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

MQL nozzles

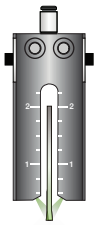
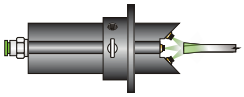
Standard nozzles (available lengths: 6”, 12”, 18”)

Standard nozzles use coaxial tubing to atomize lubricant right at the nozzle tip—ensuring a clean, controlled spray. Available in multiple lengths with versatile mounting options like magnetic bases and articulating arms, they adapt easily to a wide range of applications.

Standard conical spray 15-20º conical spray 		The **Flexible plastic nozzle** with a **stainless steel tip** protects the nozzle from damage.
		The **Semi-rigid copper nozzle** offers a nice balance of flexibility and rigidity. It can easily bend and mold to shape.
		The **Stainless steel nozzle** offers strength and rigidity. Great for jobs where you don’t want the nozzle to move or change shape.
Fan spray  80-100º elliptical fan spray		The **Semi-rigid copper nozzle** with a **fan tip** is useful when a fan spray pattern is preferred instead of a conical pattern. For example, coating an item coming down a conveyor line.
Radial spray  Conical radial spray; 360º coverage		The **Semi-rigid copper nozzle** with a **radial tip** is useful when a radial spray pattern fits the application. For example, coating the inside of a tube for assembly.

Application specific nozzles

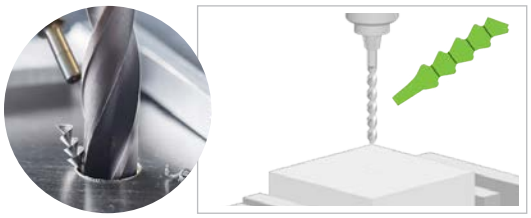
These nozzles use single-line tubing that mixes air and fluid after the pump—ideal for compact setups or tight routing constraints.

BSB & BSG spray Standard BSB lengths: 1”, 2”, 3” 		The **Band Saw Blade nozzle** provides users with alternative mounting options and delivers an ideal spray pattern for horizontal band saw blade lubrication.
		The **Band Saw Guide nozzle** lubricates the sides of the blade to help minimize guide block friction.
Bat spray Standard lengths: 1”, 3”, 7” 		The **Bat nozzle** was designed to easily fit on a wide variety of circular saws, vertical band saws, and horizontal band saws.
Conical spray Standard lengths: 6”, 12”, 18” 15-20º conical spray		The **1/8” OD Semi-Rigid Copper Nozzle** offers flexibility and rigidity. It can easily mold to shape.
		The **Splitter Nozzle** features two 1/8” OD Semi-Rigid Copper Nozzles attached to one nozzle coupler block.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

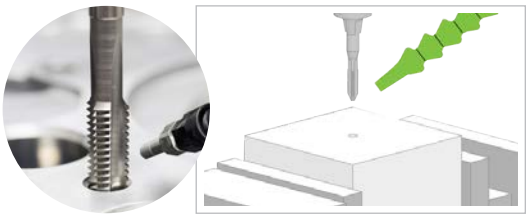
Nozzle applications

Drilling & Reaming



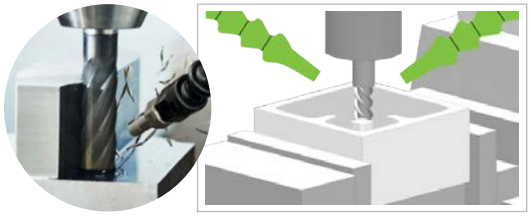
Reduce drill wear and improve hole quality.

Tapping



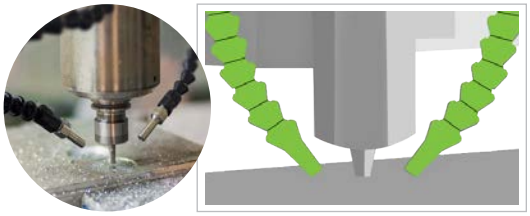
Reduce tap wear and improve thread quality on both cutting and forming taps.

Milling



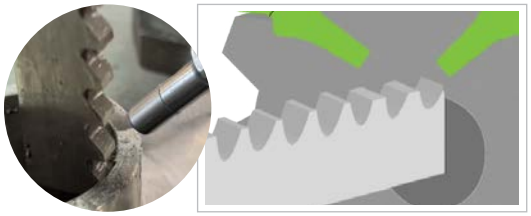
Increase tool life and improve surface finish.

Routing



Increase tool life and produce dry, vacuum-able chips.

Broaching

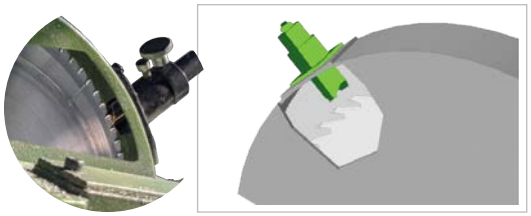


Eliminate the need for manual lubrication.

Turning

Extend insert life while producing virtually dry chips.

Circular Sawing



Completely lubricate blade teeth without any mess.

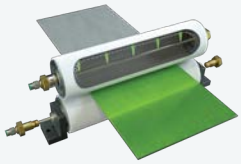
Band Sawing

Eliminate the mess and hassle of traditional coolants without any loss of blade life.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Beyond MQL

Beyond metal-cutting, Unist helps manufacturers save money, improve efficiency, and reduce waste through controlled, reliable fluid application. Our expertise extends across a range of industries and processes, including:



Metal forming

Apply a uniform coating with a fraction of the fluid—improving part quality, eliminating mess and extending die life.

- Reduce fluid usage 50-90%
- ROI in less than 1 year
- Increase die life
- Eliminate wet, slippery floors

Fluid mixing and supply

Mix and deliver precise fluid-to-water ratios—whether you need batch mixing or facility-wide distribution.

- Eliminate pre-mixed fluid freight
- Consistent and repeatable mix ratios
- Active performance monitoring
- Batch or on-demand supply

Precision fluid dispensing

Deliver a controlled shot or spray of lubricant exactly where it's needed.

- Continuous or shot dispensing
- Highly configurable
- Microliter precision
- Wide fluid compatibility

Grease application

Accurately dispense small amounts of NLGI Grade 000–3 grease to wear points or during assembly operations.

- Eliminate manual application
- Refill with standard grease gun
- Lubricate up to 12 grease points
- Low maintenance

Every application is different.
We're ready for yours.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

Custom engineered solutions

For unique applications, machine builders, and OEMs needing seamless integration with complex capabilities, Unist specializes in custom lubrication solutions. We engineer complete systems tailored to your exact operational needs, specifications, and goals—so you can stay focused on what's important.

System considerations

Through a short consultation, we work with you to understand your machine, your goals, and your operational needs. From there, we design a complete lubrication system—handling everything from:

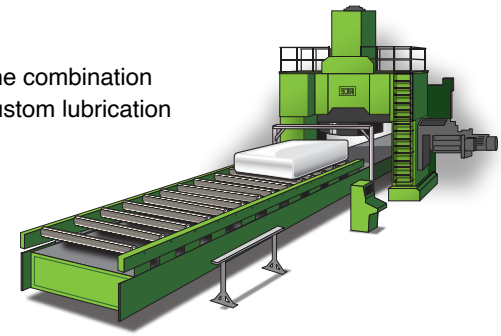
- Fluid delivery
- Delivery type
- Contact or non-contact fluid application
- Spray generation
- Spray shaping
- Fluid controls

Your custom solution may include:

- Fluid-only spray nozzles
- Low-volume spray nozzles
- Roller or pad applicators
- Automatic control valves
- Solenoids
- Sensors (flow, pressure, temp.)
- Pressure regulators
- Filters/strainers
- Motors
- Pumps
- Relays, switches
- Tubing, piping, fittings
- Fluid-supply reservoirs
- Pressurized fluid-supply tanks
- Manual air or fluid valves
- Structural support framing
- Enclosures
- Electronic timers
- Custom control panels / GUIs

Example: Ingot scalping lubrication

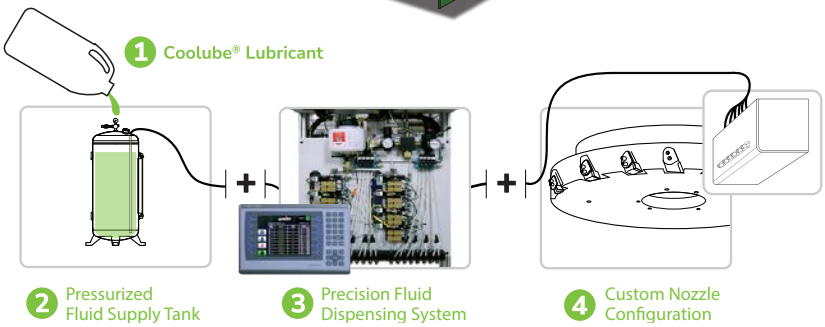
Ingot scalping removes surface defects from aluminum ingots weighing up to 10 tons. The combination of massive part size, high cutter head speeds, and tight quality requirements means a custom lubrication solution is essential for success.



Our solution

We engineered a custom, 16-output lubrication system featuring eight groups of two pumps, creating multiple spray banks across the cutting head. An integrated touchscreen interface gives the customer full control over pump cycle rates, fluid output, and air flow.

Beyond standard flow monitoring, we incorporated pressure sensors to detect broken nozzles caused by tooling collisions, ensuring the cutter head always receives proper lubrication. The result: extended tool life, improved cut quality, and dry chips easily collected by the scalper's cyclone system.



MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

MONTFORT
INTERNATIONAL

Why Unist?

Since 1957, Unist, Inc., has been a world leader in the design and manufacture of fluid application systems for the industrial market.

Our goal is to provide innovative solutions to our customers that save money in their manufacturing processes by reducing the amount of fluids consumed through repeatable, reliable application. The consistent application of minimum quantities of fluids improves process efficiency and is friendly to the environment by reducing waste.

UNIST
unist.com

Trusted globally.

MONTFORT INTERNATIONAL ltd
2500 avenue Watt, Québec (QUÉBEC) Canada G1P 3T3
+ 1 (418) 877-0778 - (800) 463-6668 - info@montfort-international.com

V1.2 | LIT-00218