



Metal Forming Lubrication Systems

Intelligent Metal Forming Lubrication



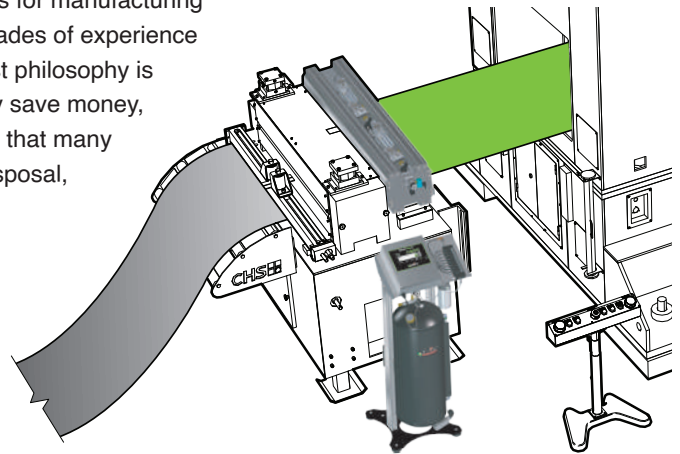


Unist & Metal Forming Lubrication

Unist has long been recognized as a market leader in lubrication systems for manufacturing processes. Established in 1957, Unist (then known as Uni-Mist) has decades of experience designing and providing systems for manufacturing operations. The Unist philosophy is that if we reduce fluid consumption at the source, our customers not only save money, but the environment at the same time. This belief is fueled by knowledge that many manufacturers experience excessive fluid related costs including fluid disposal, fluid treating, and increased housekeeping.

In the 1990's Unist developed solutions specifically for coil stock in metal forming operations. The revolutionary Uni-Roller® applicator was introduced in 1993. In 1999, Unist greatly enhanced its offering with the addition of the SPR-2000™ programmable fluid controller. Unist has continually refined and expanded its offering to meet the ever-changing needs of our customers. The original Uni-Roller® was completely redesigned in 2017 and released as the Uni-Roller® S2. In 2020, Unist replaced the SPR-2000™ controller with the SmartFlow® programmable fluid controller. The SmartFlow® adds an enhanced set of user interface and control features to the time proven core of the SPR-2000™.

The Uni-Roller® continues to save manufacturers 50-90% on their lubricant costs, not to mention the associated benefits including waste reduction and a cleaner work environment. Since that first system in 1993, Unist has remained committed to developing the best products for applying fluids to metal forming operations. Unist sincerely appreciates your business as we work together towards improving your manufacturing processes while protecting the environment.



Choose your system in 4 easy steps



1 Choose your fluid controller

The **SmartFlow® programmable fluid controller** is the key component for accurate control of the fluid in any roller or spray application. With the ability to save up to 250 jobs, the SmartFlow® provides the flexibility required for a broad range of applications. With the SmartFlow®, creating, adjusting, and changing jobs is as simple as pushing a few buttons. Critical parameters such as fluid level, fluid pressure, and fluid flow can be monitored. Precise fluid control starts with the best fluid controller.

For narrow press lines where the ability to save jobs and active monitoring are not requirements, **The Duo™ System** provides basic, controlled and repeatable lubrication. With Duo™, output is set and adjusted with straightforward, two-button Pulse R™ electronic timers.



2 Which applicator is right for you?

While the SmartFlow® programmable fluid controller or Duo™ delivers the proper amount of fluid, the applicator applies it where required.

Internally-fed Uni-Roller® lubricator

The Unist Uni-Roller® lubricator applies a consistent coat of fluid in metal forming applications. A variety of models are available with specific models for coil stock or blanks up to 72" wide [1829 mm].

The Uni-Roller® lubricators use our unique internally-supplied roller design to apply the correct amount of fluid to both sides of the stock. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine uptime. Many customers have reported savings resulting in a return on investment of less than six months!



3 Don't forget your fluid supply

A consistent supply of pressurized fluid is required for any system that is controlled by a SmartFlow® or Duo™ fluid controller. To meet this need, Unist offers a variety of solutions including pressurized tanks from 4 to 30 gallons [15–113 liters], an air-operated diaphragm pump, and a fluid pressure regulator for connection to an existing pressurized fluid supply.



4 Choose your accessories

Unist accessories allow users to add additional capability to their lubrication system.

Spray nozzles

For applications where intermittent coverage or supplemental in-die spray is required, Unist offers a variety of low volume and fluid-only nozzles and mounting options.



Centralized fluid mixing and supply

For applications that require automatic fluid mixing and supply, Unist's Uni-Blend™ delivers accurately mixed fluid through existing piping networks with the control and flexibility needed to serve one or multiple press lines.



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1 Fluid Controllers

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SmartFlow® Fluid Controller

Fully programmable fluid controller with up to 22 fluid outputs for any roller or spray application. Easily create and recall jobs, monitor the lubrication process, and integrate with your press line.

Pg. 3–4



Duo System™

Basic electronic fluid controller with two outputs for any roller application up to 18" wide [457 mm] or any spray application. Simple integration and basic two-button fluid output control.

2 Applicators

Pg. 5–6



Uni-Roller® S2

Best for: Coil Stock

Material Width: Up to 72" [182 cm] and wider**

Material Thickness: Up to 0.4" [10.1 mm]. Materials above 0.25" [6.3 mm] require double air cylinders.*

Pg. 7–8



Uni-Roller® S2 HG

Best for: Coil Stock where partially formed parts or deformed head or tail stock must be avoided.

Material Width: Up to 72" [182 cm] and wider**

Material Thickness: Up to 0.4" [10.1 mm]. Materials above 0.25" [6.3 mm] require double air cylinders.*

Pg. 9–10



Uni-Roller® S2 Powered

Best for: Blank or Sheet Stock

Material Width: Up to 72" [182 cm] wide and larger

Material Thickness: Up to 0.25" [6.3 mm]*

Pg. 11–12



Mini-Roller™

Best for: Narrow-width Coil Stock

Material Width: Up to 6" [152.4 mm]

Material Thickness: Up to 0.06" [1.5 mm]*

* In most cases, stock thicknesses down to 0.005" [0.13 mm] can run without issue. For thinner materials, consult Unist for application review.

** Material widths up to 72" [182 cm] are considered standard, wider widths are available upon request and review.

3 Fluid Supply

Pg. 13–14



- 2, 4, 6, 15, and 30 gallon pressure tanks
- 10 gallon auto refill station
- Fluid pressure regulator

- 20 gallon reservoir with diaphragm pump
- Diaphragm pump

4 Accessories

Pg. 15–16



Low Volume Spray Nozzles

Clean and controlled air-atomized spray for supplemental lubrication or non-contact coating of uneven surfaces.

Pg. 17–18



Airless Spray Nozzles

Fluid-only spray nozzles with a variety of mounting configurations for supplemental in-die lubrication.

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Uni-Blend™

Accurate and repeatable centralized fluid supply and mixing system.

Pg. 21

Custom Systems

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Application Questionnaire

The SmartFlow® programmable fluid controller

is designed to precisely control lubricant supplied to Unist Uni-Rollers®, Unist spray nozzles, and in-die lubrication points.

- User-friendly controller
- Program up to 250 different jobs
- Alarm monitoring of critical parameters
- Press control integration interface
- Track fluid consumption
- Control 2 to 22 outputs

i More information: unist.com/sflow



**Intelligent
programmable control**

The SmartFlow® allows metal formers to take full control of die and stock lubrication. This full-featured, programmable fluid controller makes configuring, controlling, monitoring, and tracking fluid application easier than ever, leading to increased profits from the stamping or forming operation.

Designed around an intuitive and easy-to-use operator interface, the SmartFlow® provides simple and guided setup, advanced press control integration, fluid usage tracking, process monitoring, and enhanced diagnostic and maintenance tools.

Save and recall jobs manually or utilize the press control interface for easy, automatic changeover. Back up and transfer jobs and settings between lines with a USB flash drive and the SmartFlow's® USB port.

Pair the SmartFlow® controller with Unist's proven line of precision fluid applicators for an intelligent lubrication system that eliminates wasted fluid and mess, reduces scrap, and maximizes profits.

The automatic lubrication system intermittently actuates a bank of fluid solenoid valves (up to 22 outputs) that dispense a programmed quantity of fluid to specific lube points. The valve actuation on this electronic fluid dispenser is determined by production line rates so there is no under or over lubrication whether it is a stamping press or roll forming operation.

Specifications

Power supply:

To integral transformer: 120 VAC, 2.5A max or 240 VAC, 1.3A max, 50/60 Hz

Direct to controls: 24 VDC, up to 150 watts

Control inputs:

4 inputs, dry contact (switch closure), or 10-30VDC NPN or PNP sensor

Maximum cycle input rate:

50 cycles/second at 50% duty cycle, minimum contact open or closed time: 10 ms

Alarm inputs:

2 inputs, dry contact (switch closure), or 10-30VDC NPN or PNP sensor

Outputs:

Up to 22 outputs, 24 VDC, 6.5 watts, for nozzles or rollers

Alarm interlock relay:

Dry contact, normally open or normally closed, 2A max current

Operating temperature range:

32°F–122°F [0°C–50°C]

Storage temperature range:

-4°F–158°F [-20°C–70°C]

Press control interface:

Modbus protocol over RS485 serial or Ethernet

Job storage:

250 jobs

Job transfer:

USB-A flash drive



Contact Unist at salesupport@unist.com or 800.253.5462

SmartFlow®

Save 50% on fluid

Combine the SmartFlow® with a Uni-Roller® applicator to reduce fluid usage and save money. On average, a Unist automatic lubrication system can reduce stamping fluid consumption by 50% with some customers reporting reductions as high as 90%!

Features



Touch screen interface

Easily access jobs, settings, maintenance reminders, and more. The intuitive menu allows for easy transition from box to production line.



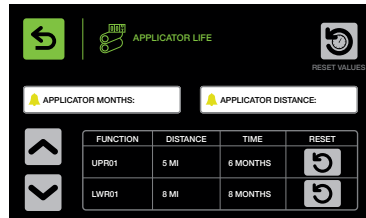
Diagnostics

The SmartFlow® controller can monitor pressure, flow, valve performance, and line status to ensure lubrication is delivered as required and alert operators if otherwise.



Easily create jobs

Once calibrated and configured for your line, jobs are easily set up and saved, making it simple to dial in the right amount of lubrication for each part.



Maintenance reminders

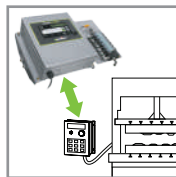
Users are reminded to perform routine maintenance to their application system to ensure proper long-term performance.

Options



Advanced fluid tracking (AFT)

Directly measure the total amount of fluid applied and log it with the job history. View and export this data to a CSV file to take the guesswork out of knowing your exact lubricant cost per part. AFT also provides advanced fluid flow monitoring, ensuring rollers are receiving the proper amount of fluid each dispensing cycle.



Press control interface

Connect to production line controls to exchange information about jobs, settings, and alarms for easy job changeover and monitoring. Modbus communications over RS485 or Ethernet provide universal communication to a variety of press or line control systems.



Pressure transducer

Ensure the system is ready to dispense fluid by monitoring the fluid supply pressure. Be alerted if the fluid pressure changes from the initial calibration settings. A low fluid pressure alarm threshold is configurable via the user interface.



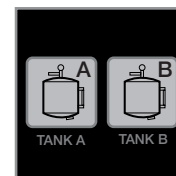
Flow monitoring

Monitor fluid pressure while dispensing to rollers to detect fluid flow for confident operation. Detects presence of flow, but not exact flow rate or volume.



Remote valve enclosure

Mount control valves up to 50 feet away from the main fluid controller for easy access to the operator panel.



Dual fluid supply

Program jobs to use fluid A or B when connected to dual fluid supply with solenoid fluid selector valve.

The Duo System™

delivers controlled, repeatable coil stock lubrication for narrow-width stamping applications.

- Reduces fluid consumption with controlled fluid delivery
- Easy, two-button adjustment with digital display
- Straightforward integration with simple, basic connections
- Tamper-proof lock feature

More information: unist.com/duo



Reliable stock lubrication made simple

The Duo™ System supplies fluid to Unist stock lubricators up to 18" wide with precision and consistency. Ideal for narrow-width stamping applications, Duo™ features simple press line integration and straightforward operation. Its dual fluid-outputs are controlled by separate Pulse R™ electronic timers featuring easy, two-button fluid rate adjustment, tamper-proof lock feature, and digital display.

Pair Duo™ with either a Mini-Roller™ or Uni-Roller® S2 stock lubricator and reliably lubricate coil stock with a smooth and uniform coating. Unist's unique, internally-fed roller design wicks and transfers a controlled amount of lubricant to the stock. Only what is needed is used - saving fluid and preventing messy, wet press areas. Duo™ can alternatively be used to control two Unist Airless Spray Nozzles for supplemental, in-die lubrication.

Specifications

Outputs:

2 outputs, 24 VDC, 6.5 watts

Power supply:

100–220 VAC, 0.5 Amps, Integral voltage transformer to 24 VDC

Control:

Pulse R™ count and duration timers

Maximum cycle input rate:

50 cycles/second at 50% duty cycle

Operating temperature range:

32°–122°F [0°–50°C]

Supply fluid pressure:

5–100 psi [.34–7.0 bar]

Supply air pressure:

Clean, dry compressed air, 80–100 psi [5.5–7.0 bar], 25 SCFM [708 LPM]

Rotation sensor:

PNP inductive sensor (Uni-Roller® S2),
Magnetic reed switch (Mini-Roller™)

Compatible stock widths:

Mini-Roller™: 1–6" (24–154 mm)

Uni-Roller® S2: 3–18" (72–457 mm)

Airless Spray Nozzles: NA

(See pg. 16–17 for spray patterns and coverage.)



Contact Unist at salesupport@unist.com or 800.253.5462

Duo System™



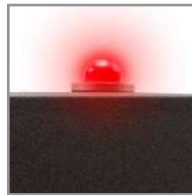
Precise fluid application

Reliably apply a precise, even volume of lubricant.



Easily adjustable

Select and set lubricant amount easily with two-button, Pulse R™ electronic timers..



Low fluid warning

Know when lubricant levels drop and it's time to refill with an LED indicator.



Simple integration

Straightforward, basic connections make integrating Duo™ quick and easy.

Compatible Stock Lubricators



1X Mini-Roller™

Mini-Roller™

Combine Duo™ with a single Mini-Roller™ to coat stock widths from 1–6 in. (24–154 mm).



1X Uni-Roller® S2

Uni-Roller® S2

Combine Duo™ with a single Uni-Roller® S2 to coat stock widths from 3–18 in. (72–457 mm).



2X Airless Spray Nozzles

Airless Spray Nozzles™

Combine Duo™ with up to two Airless Spray Nozzles for supplemental/in-die lubrication.

The Uni-Roller® S2

is the ultimate solution for continuous stock lubrication. Combined with a SmartFlow® programmable fluid controller, the Uni-Roller® S2 will consistently apply the correct amount of fluid to both the top and bottom of your coil, day after day.

- Reduce lubricant consumption by 50% or more
- Quick-change rollers for easy maintenance
- Cleaner floors & work area

i More information: unist.com/s2

Uni-Roller® S2's internally-supplied rollers are essential to precisely applying the fluid. Inside each roller is a dispenser tube with small orifices distributed along its length. Fluid is injected into the dispenser tube from the fluid controller and dispensed across the inside of the roller.

Lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across both the top and bottom of the stock.

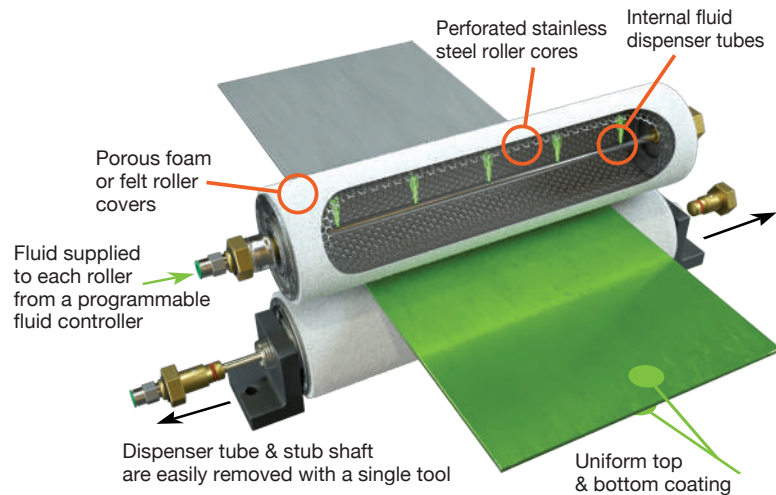
The Uni-Roller® S2 applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine uptime. Many customers have reported savings resulting in a return on investment of less than six months!

The brushed-stainless-steel guards protect the rollers and guide material when loading coil stock or feeding blanks. With the guards removed for better access, a roller can be changed in about a minute using a single wrench. The Uni-Roller® S2 is built to handle any manufacturing environment without sacrificing ease of maintenance.

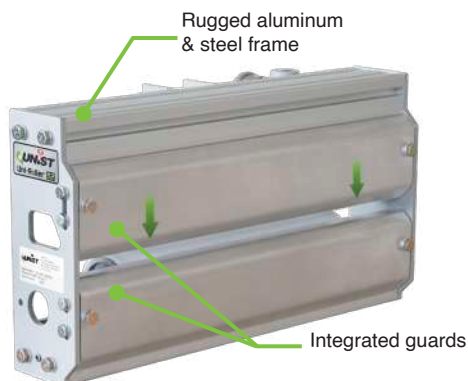


Ultimate solution for continuous stock lubrication

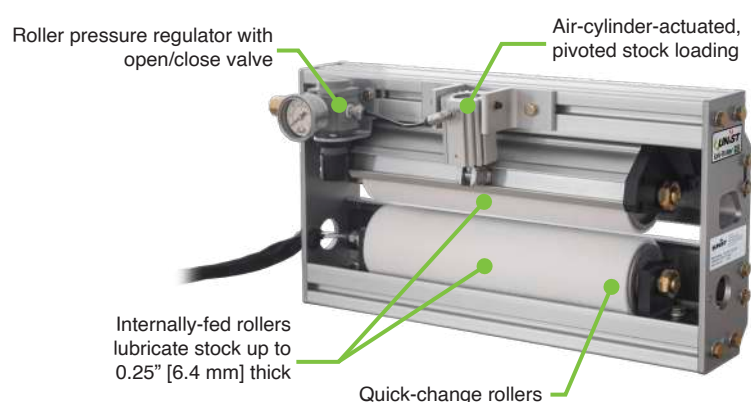
The Uni-Roller® S2 is modular in design. A single roller set is used for widths of 18" [457 mm] or less. For stock over 18" wide [457 mm], multiple 12" wide [305 mm] roller sets are staggered and overlapped. Standard sizes are available to accommodate common stock widths, with custom sizes available on request.



Single roller: entry side



Single roller: exit side



Note: Single roller unit shown above. Lubricators with multiple roller sets have guards on both entry and exit sides.

Standard sizes

Single roller: coverage up to 18" [457 mm]

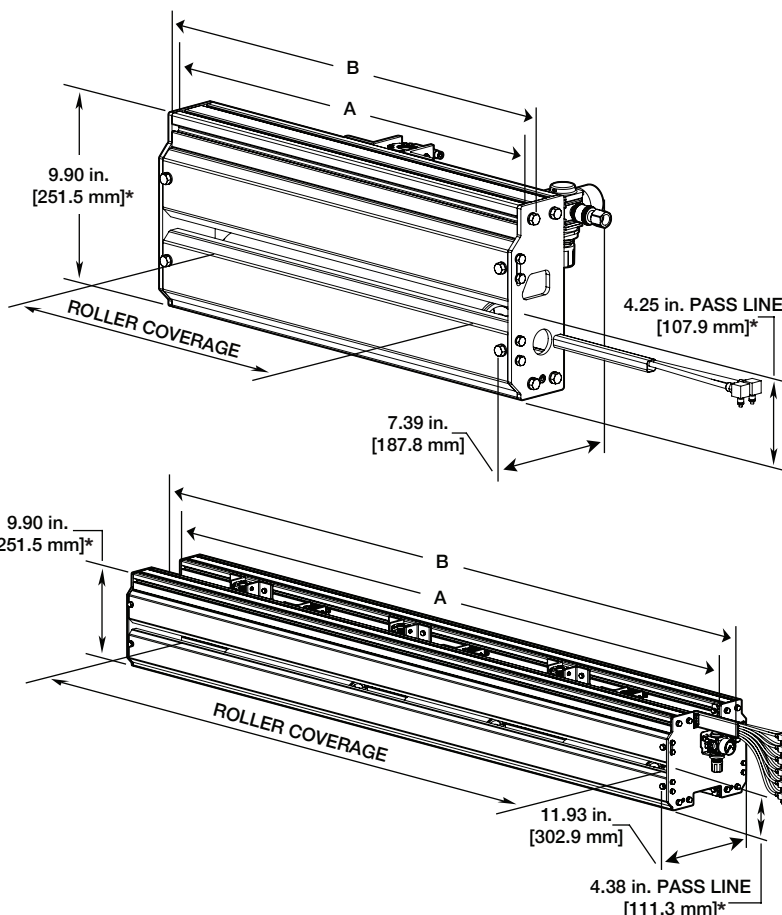
Roller coverage	A (extrusion length)	B (overall width)
3" [76 mm]	12.00" [304.8 mm]	13.13" [333.5 mm]
6" [152 mm]	12.00" [304.8 mm]	13.13" [333.5 mm]
12" [305 mm]	18.00" [457.2 mm]	19.13" [485.9 mm]
18" [457 mm]	24.00" [609.6 mm]	25.13" [638.3 mm]

*On units with double air cylinders add 1.40" [35.6 mm] to the pass line and overall height.

Multiple rollers: coverage over 18" [457 mm]

Roller coverage	A (extrusion length)	B (overall width)
23.5" [597 mm]	30.00" [762.0 mm]	34.16" [867.7 mm]
35" [889 mm]	42.00" [1066.8 mm]	46.16" [1172.5 mm]
46.5" [1181 mm]	54.00" [1371.6 mm]	58.16" [1477.3 mm]
58" [1473 mm]	66.00" [1676.4 mm]	70.16" [1782.1 mm]
69.5" [1765 mm]	78.00" [1981.2 mm]	82.16" [2086.9 mm]

*On units with double air cylinders add 1.40" [35.6 mm] to the pass line and overall height.



Features & options

Standard features	Options
 Polyester felt roller cover Extremely durable and compatible with a broad range of fluids.	 Polyurethane foam roller cover Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.
Standard fluid dispenser tube The best choice for most applications with the widest range of fluid compatibility and flow rates.	Low volume fluid dispenser tube For use in applications requiring coverage of 50 mg/ft ² [538 mg/m ²] or less.
 Manual valve Manual open/close control of the roller set.	 Solenoid valve Ties into control systems to automate opening of roller set.
 Single pneumatic air cylinder Preferred method for maintaining pressure on stock and for opening the rollers to load a new coil.	 Double pneumatic air cylinder The double air cylinder is required for stock thickness over 0.25" [6.35 mm].
	 Proximity sensor Used to provide an input signal to a SmartFlow® controller based on roller rotation. Select when an intermittent signal from the press is not available.

The Uni-Roller® S2 HG

delivers the same smooth and consistent fluid application the industry has come to expect from Unist, and adds an articulating chassis. The upper rollers open a full 6" [152 mm] to avoid deformities in the head or tail of coil stock, making loading easier and preventing damage to the lubricator.

- Reduce lubricant consumption by 50% or more
- Quick-change rollers for easy maintenance
- Cleaner floors & work area

i More information: unist.com/s2hg

The Uni-Roller® S2 HG's internally-supplied rollers are essential to precisely applying the fluid. Inside each roller is a dispenser tube with small orifices distributed along its length. Fluid is injected into the dispenser tube from the fluid controller and dispensed across the inside of the roller.

Lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across both the top and bottom of the stock.

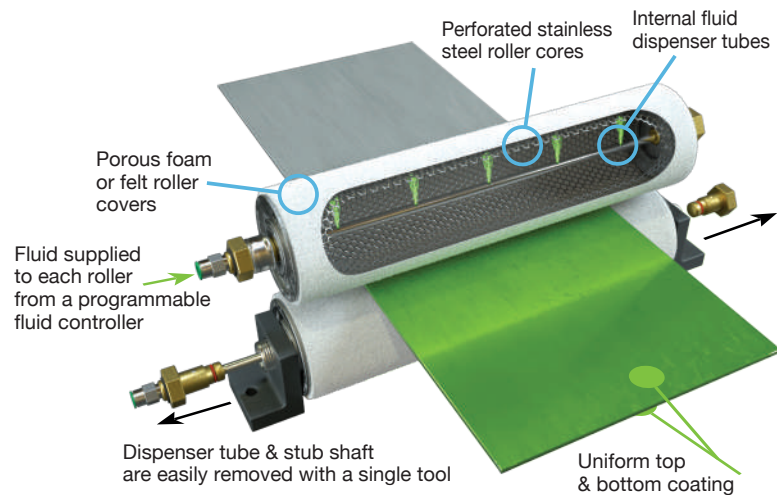
The Uni-Roller® S2 HG applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine uptime. Many customers have reported savings resulting in a return on investment of less than six months!

The brushed-stainless-steel guards protect the rollers and guide material when loading coil stock or feeding blanks. With the guards removed for better access, a roller can be changed in about a minute using a single wrench. The Uni-Roller® S2 HG is built to handle any manufacturing environment without sacrificing ease of maintenance.

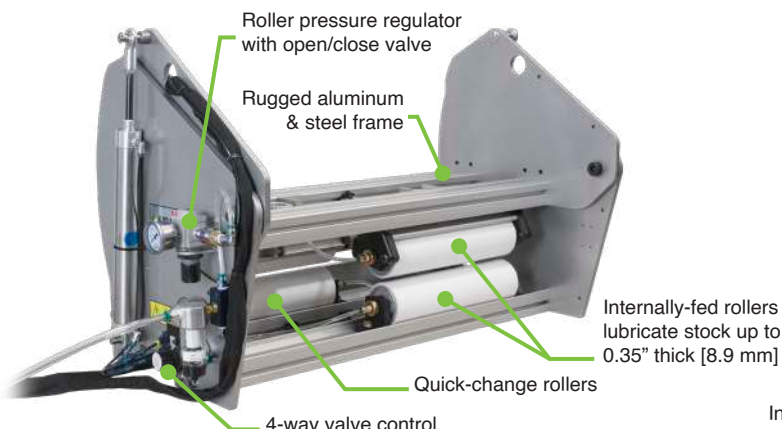


Heavy gauge lubrication

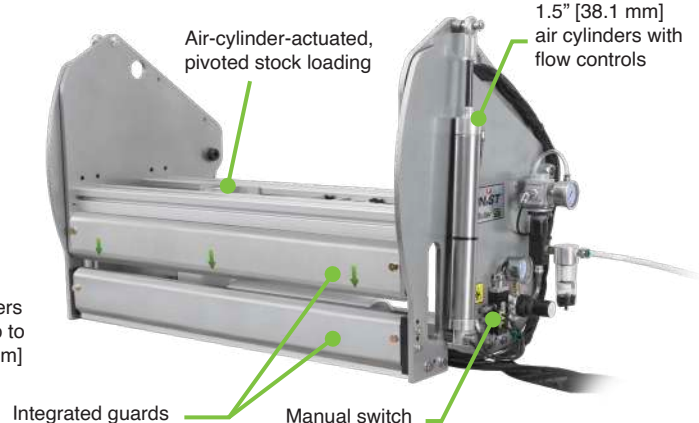
The Uni-Roller® S2 HG is modular in design. Opening and closing is controlled by a manual or solenoid valve. A single roller set is used for widths of 18" [457 mm] or less. For stock over 18" wide [457 mm], multiple 12" wide [305 mm] roller sets are staggered and overlapped. Standard sizes are available to accommodate common stock widths, with custom sizes available on request.



Uni-Roller® S2 HG: exit side



Uni-Roller® S2 HG: entry side



Note: All Uni-Roller® S2 HG lubricators have guards on the entry side only.

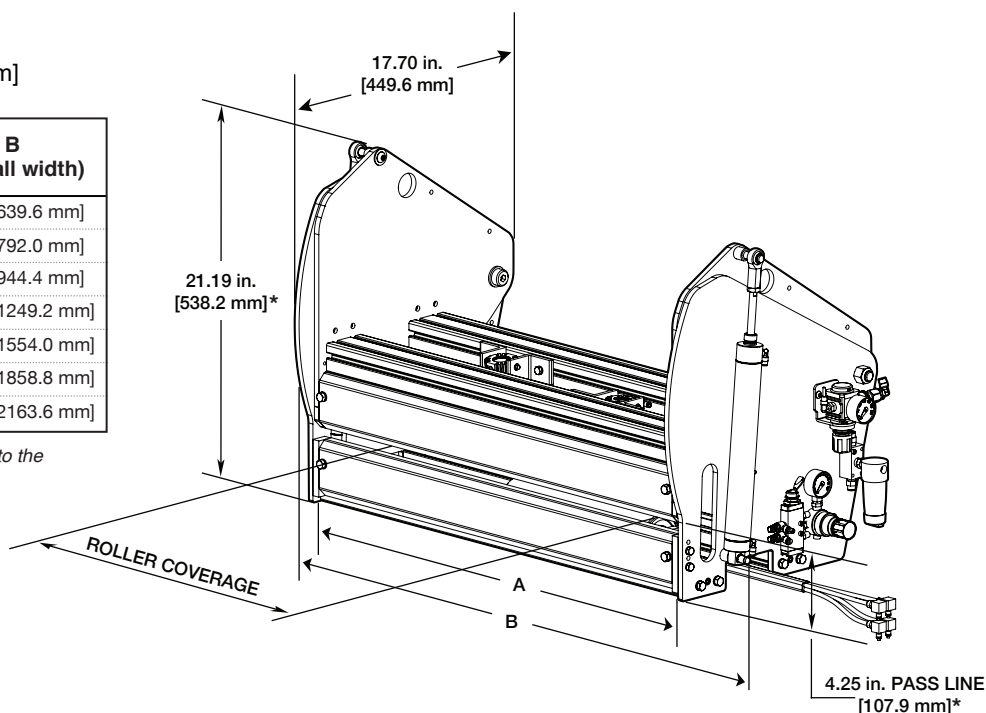
Standard sizes

Single roller: coverage up to 18" [457 mm]

Multiple rollers: coverage over 18" [457 mm]

Roller coverage	A (extrusion length)	B (overall width)
12" [305 mm]	19.00" [482.6 mm]	25.18" [639.6 mm]
18" [457 mm]	25.00" [635.0 mm]	31.18" [792.0 mm]
23.5" [597 mm]	31.00" [787.4 mm]	37.18" [944.4 mm]
35" [889 mm]	43.00" [1092.2 mm]	49.18" [1249.2 mm]
46.5" [1181 mm]	55.00" [1397.0 mm]	61.18" [1554.0 mm]
58" [1473 mm]	67.00" [1701.8 mm]	73.18" [1858.8 mm]
69.5" [1765 mm]	79.00" [2006.6 mm]	85.18" [2163.6 mm]

* On units with double air cylinders add 1.40" [35.6 mm] to the pass line and overall height.



Features & options

Standard features	Options
 Polyester felt roller cover Extremely durable and compatible with a broad range of fluids.	 Polyurethane foam roller cover Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.
Standard fluid dispenser tube The best choice for most applications with the widest range of fluid compatibility and flow rates.	Low volume fluid dispenser tube For use in applications requiring coverage of 50 mg/ft² [538 mg/m²] or less.
 Manual switch Manual open/close control of the roller set.	 Solenoid valve Ties into control systems to automate opening of roller set.
 Single pneumatic air cylinder Preferred method for maintaining pressure on stock and opening the rollers to load a new coil.	 Double pneumatic air cylinder The double air cylinder is required for stock thickness over 0.25" [6.35 mm].
	 Proximity sensor Used to provide an input signal to a SmartFlow® controller based on roller rotation. Select when an intermittent signal from the press is not available.

Uni-Roller® S2 Powered

Blank coating solution

The Uni-Roller® S2 Powered

is the ultimate solution for blank stock lubrication. Combined with a SmartFlow® programmable fluid controller, the Uni-Roller® S2 Powered will apply the correct amount of fluid for your application and do it consistently from one blank to the next.

- Reduce lubricant consumption by 50% or more
- Quick-change rollers for easy maintenance
- Cleaner floors & work area

i More information: unist.com/s2pwr

The internally-supplied rollers are essential to precisely applying the fluid. Inside each roller is a dispenser tube with small orifices distributed along its length. Fluid is injected into the dispenser tube from the fluid controller and dispensed across the inside of the roller.

The lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across both the top and bottom of the stock.

The Uni-Roller® S2 Powered applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine uptime. Many customers have reported savings resulting in a return on investment of less than six months!

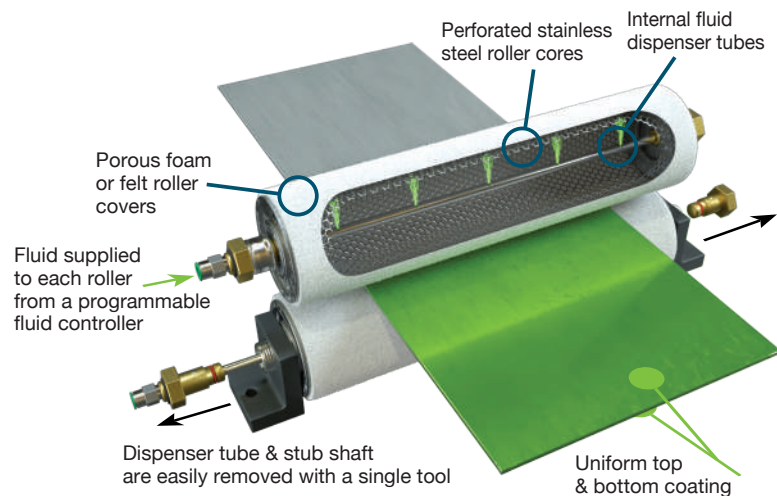
The brushed-stainless-steel guards protect the rollers and guide material when loading coil stock or feeding blanks. With the guards removed for better access, a roller can be changed in about a minute using a single wrench. The Uni-Roller® S2 Powered lubricator is built to handle any manufacturing environment without sacrificing ease of maintenance.



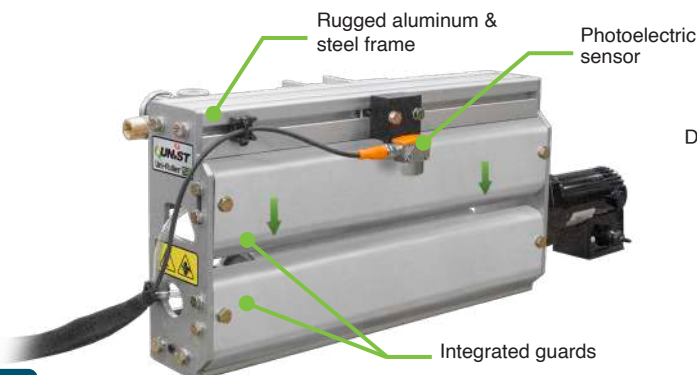
The blank coating solution

The Uni-Roller® S2 Powered lubricator uses a photoelectric sensor to detect blanks and provides an input to the SmartFlow® programmable fluid controller.

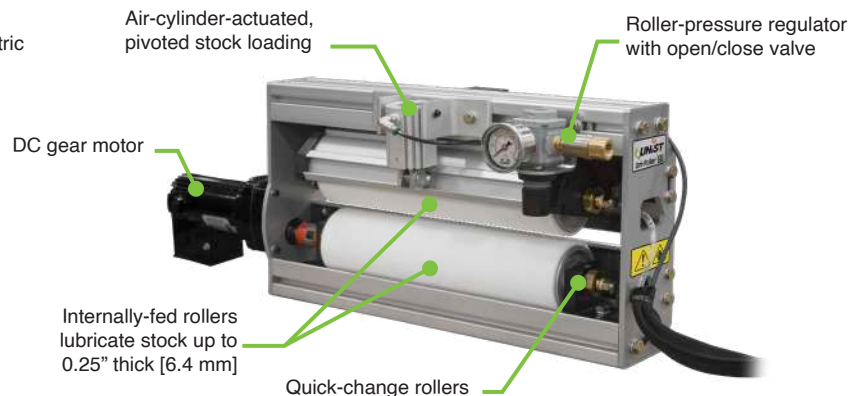
A single roller set is used for widths of 18" [457 mm] or less where the lower roller is directly driven. For blanks over 18" wide [457 mm], multiple 12" wide [305 mm] roller sets are staggered and overlapped. Each lower roller is driven by a heavy-duty chain from a central shaft.



Single roller: entry side



Single roller: exit side



Note: Single roller unit shown above. Lubricators with multiple roller sets have guards on both entry and exit sides.



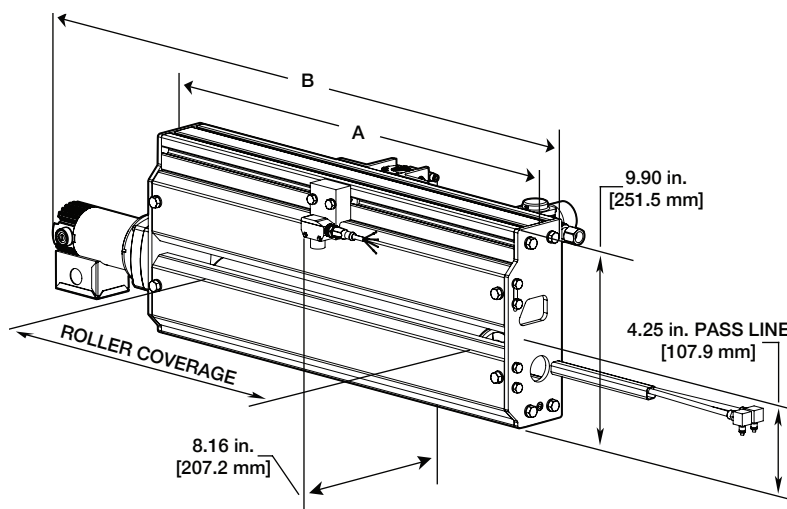
Contact Unist at salesupport@unist.com or 800.253.5462

Uni-Roller® S2 Powered

Standard sizes

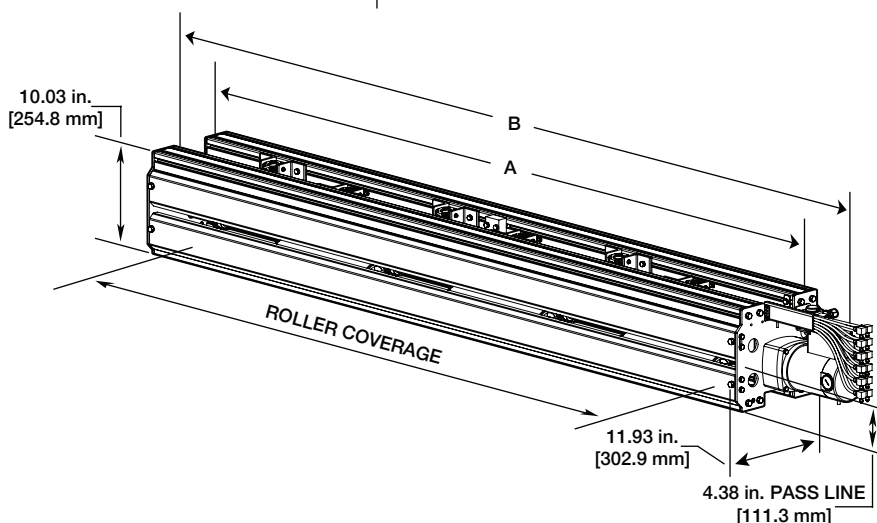
Single roller: coverage of 6" [152 mm] to 18" [457 mm]

Roller coverage	A (extrusion length)	B (overall width)
6" [152 mm]	12.00" [304.8 mm]	20.24" [514.1 mm]
12" [305 mm]	18.00" [457.2 mm]	26.24" [666.5 mm]
18" [457 mm]	24.00" [609.6 mm]	32.24" [818.9 mm]



Multiple rollers: coverage over 18" [457 mm]

Roller coverage	A (extrusion length)	B (overall width)
23.5" [597 mm]	30.00" [762.0 mm]	41.18" [1046.0 mm]
35" [889 mm]	42.00" [1066.8 mm]	53.18" [1350.8 mm]
46.5" [1181 mm]	54.00" [1371.6 mm]	65.18" [1655.6 mm]
58" [1473 mm]	66.00" [1676.4 mm]	77.18" [1960.4 mm]
69.5" [1765 mm]	78.00" [1981.2 mm]	89.18" [2265.2 mm]



Features & options

Standard features	Options
 Polyester felt roller cover Extremely durable and compatible with a broad range of fluids.	 Polyurethane foam roller cover Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.
Standard fluid dispenser tube The best choice for most applications with the widest range of fluid compatibility and flow rates.	Low volume fluid dispenser tube For use in applications requiring coverage of 50 mg/ft² [538 mg/m²] or less.
 Variable speed DC drive Manual speed control through a potentiometer for speeds up to 145 ft/min [44 m/min].	 AC variable frequency drive Automated speed control for speeds up to 150 ft/min [46 m/min]. Not available on single roller units.
	Powered Roller Cart Allows for maneuverability between press lines. Cart provides mounting for a SmartFlow® controller, Uni-Roller® S2 Powered applicator and a fluid supply tank. Accommodates blank widths from 12–46.5" [305–181 mm] and blank lengths from 12–54" [305–1371 mm]. 
	 More information: unist.com/pcart

The Mini-Roller™

is ideal for thin or narrow stock applications where a Uni-Roller® S2 is too large for the press window. When combined with a SmartFlow® programmable fluid controller, the Mini-Roller™ will apply the correct amount of fluid for your application and do it consistently day after day.

- Reduce lubricant consumption by 50% or more
- Cleaner floors & work area
- Increase production rates

i More information: unist.com/mini

**Perfect for
thin & narrow stock**



The Mini-Roller™ is available in both horizontal and vertical configurations. Each uses internally-supplied rollers that are essential to precisely applying fluid.

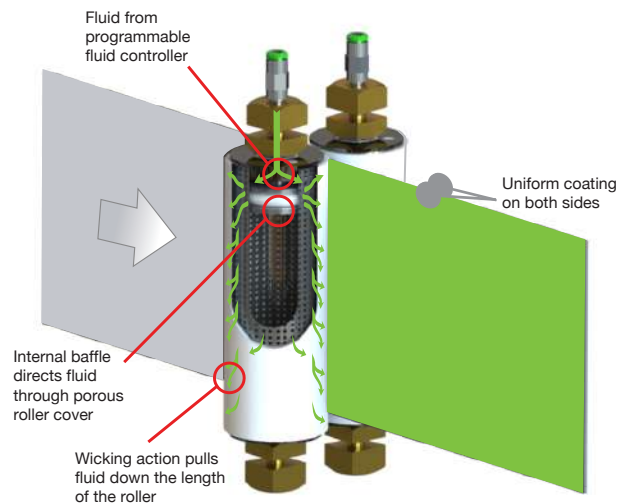
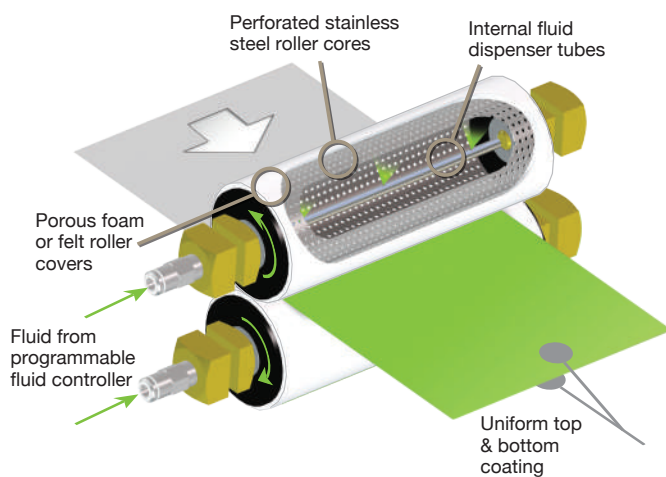
The horizontal configuration has a dispenser tube with small orifices distributed along its length inside each of the rollers. Fluid is injected into the dispenser tubes from the fluid controller and dispensed across the inside of the rollers.

The vertical configuration includes a baffle positioned inside each of the rollers near the top. Every time fluid is injected into the dispenser tube from the fluid controller, it spreads across the baffle and is redirected to the outside of the roller. The wicking action of the roller cover material then draws the fluid along the length of the roller.

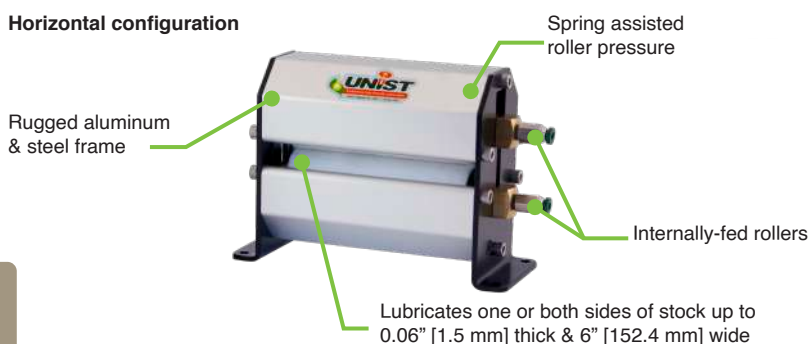
The lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across the top and bottom of the stock.

The Mini-Roller™ applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine uptime. Many customers have reported savings resulting in a return on investment of less than six months!

The Mini-Roller™ is available in six sizes ranging from 1" wide [25 mm] to 6" wide [152 mm] with a stock thickness up to 0.06" [1.5 mm].



Horizontal configuration



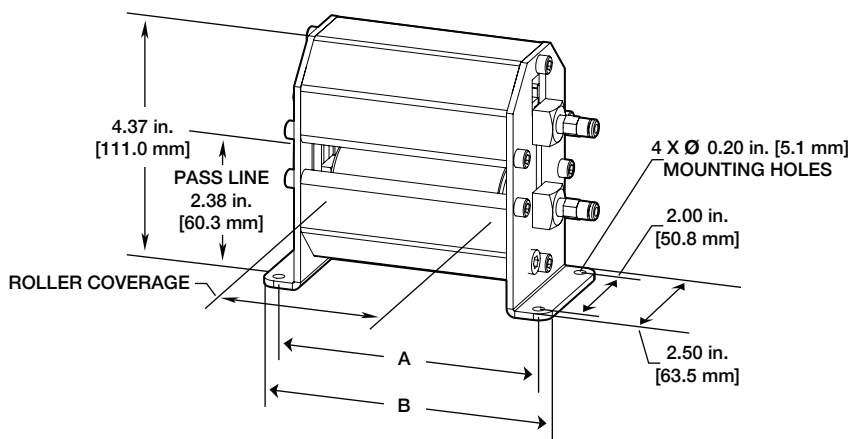
Vertical configuration



Standard sizes

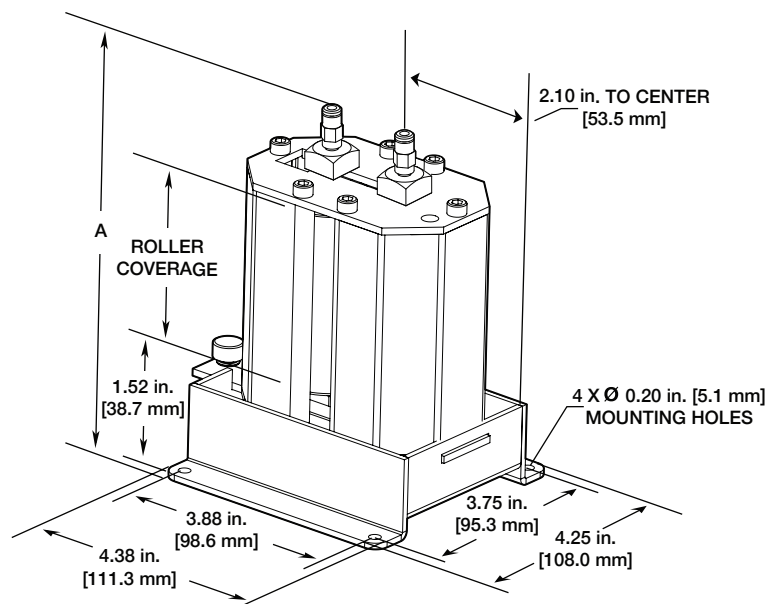
Horizontal Mini-Rollers™: coverage up to 6" [152 mm]

Roller coverage	A (mounting holes centers)	B (overall width)
1" [25 mm]	2.73" [69.3 mm]	3.23" [82.0 mm]
2" [51 mm]	3.73" [94.7 mm]	4.23" [107.4 mm]
3" [76 mm]	4.73" [120.1 mm]	5.23" [132.8 mm]
4" [102 mm]	5.73" [145.5 mm]	6.23" [158.2 mm]
5" [127 mm]	6.73" [170.9 mm]	7.23" [183.6 mm]
6" [152 mm]	7.73" [196.3 mm]	8.23" [209.0 mm]



Vertical Mini-Rollers™: coverage up to 6" [152 mm]

Roller coverage	A (overall height)
1" [25 mm]	4.11" [104.4 mm]
2" [51 mm]	5.11" [129.8 mm]
3" [76 mm]	6.11" [155.2 mm]
4" [102 mm]	7.11" [180.6 mm]
5" [127 mm]	8.11" [206.0 mm]
6" [152 mm]	9.11" [231.4 mm]



Features & options

Standard features	Options
 Polyester felt roller cover Extremely durable and compatible with a broad range of fluids.	 Polyurethane foam roller cover Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.
	 Rotation sensor Used to provide an input to a SmartFlow® controller based on roller rotation. Select when an intermittent input signal is not available.

Fluid Supply

Consistent, pressurized fluid

Fluid supply systems & stands

A consistent supply of pressurized fluid is a key component of any system that is controlled by a SmartFlow® programmable fluid controller. To meet this need, Unist offers a broad range of fluid supply options including:

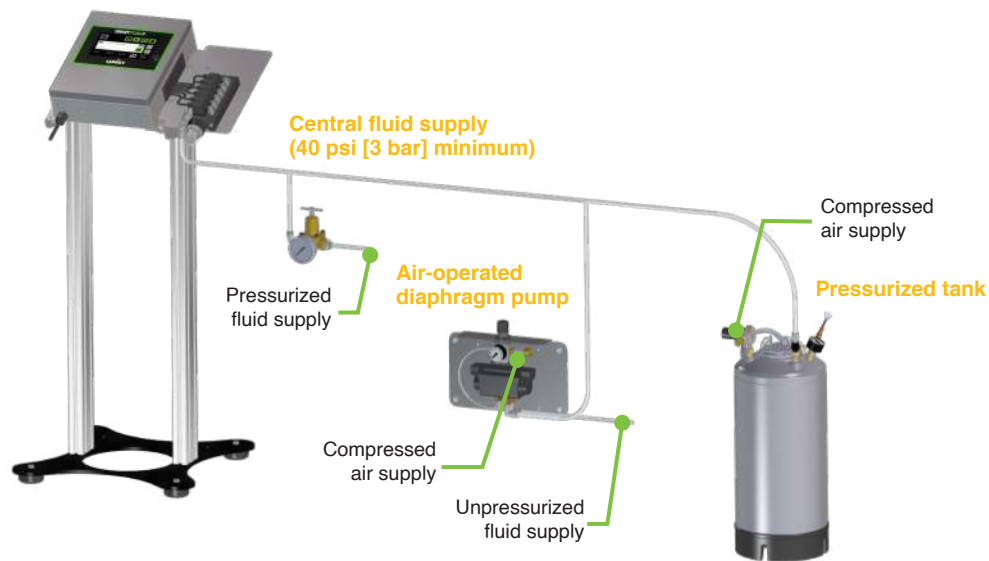
- Pressurized tanks from 4 to 30 gallons [15-113 liters]
- Air-operated diaphragm pump
- Fluid-pressure regulator for connection to a customer's existing pressurized supply of fluid

i More information: unist.com/tanks

An essential component



SmartFlow® programmable fluid controller



Options & accessories



Fluid-pressure regulator assembly can be used to reduce the pressure of an existing fluid supply system. The assembly allows for the fluid pressure to be set anywhere from 3–50 psi [0.21–3 bar] and includes a 0–60 psi [0–4 bar] pressure gauge.



Air-operated diaphragm pump is available to supply pressurized fluid from a non-pressurized tote or drum. The pump includes an on/off valve, 0–60 psi [0–4 bar] regulator and fluid bypass loop to prevent stalling.



25 micron filter assembly can be used with any SmartFlow®-based system for superior fluid filtering.



Sump tube can be used in conjunction with the air-operated diaphragm pump when drawing from a 55 gallon [208 liter] drum.

Tank options



4 gallon [15 liter] stainless-steel pressure tank comes equipped with a 0–100 psi [0–7 bar] regulator and a low level switch.



6 gallon [22 liter] ASME-rated pressure tank comes equipped with a 0–100 psi [0–7 bar] regulator, low level switch and sight gauge.



15 gallon [56 liter] ASME-rated pressure tank comes equipped with a 0–100 psi [0–7 bar] regulator, low level switch and sight gauge.



20 gallon [75 liter] polyethylene tank comes equipped with the 25 micron filter assembly, air-operated diaphragm pump, and stand.



30 gallon [113 liter] ASME-rated pressure tank comes equipped with a 0–100 psi [0–7 bar] regulator, low level switch and sight gauge.



Auto refill fluid supply system incorporates a 10 gallon [38 liter] ASME-rated stainless-steel pressure tank with 0–60 psi [0–4 bar] precision regulator and integral high and low level switches. The system also includes PLC controls and an electric pump to automatically refill the tank, which eliminates downtime. This system provides superior performance when drawing fluid from a tote or drum.

Low Volume Spray Nozzles

When a continuous coating of fluid is needed on a smooth surface, Uni-Roller® applicators excel. However, when the surface isn't smooth or intermittent coverage is required, the Unist Low Volume Spray Nozzle is the answer. The Low Volume Spray Nozzle, when paired with the SmartFlow® programmable fluid controller, delivers a consistent and controlled spray coating to any surface.

- Valve at nozzle tip eliminates messy drips
- Immediate on/off spray control
- Fine control of spray pattern

i More information: unist.com/lv

Precision spray for maximum efficiency



The Low Volume Spray Nozzle operates using a compressed air signal to control an internal valve at the nozzle tip. This allows crisp on/off control, eliminating lag and preventing messy fluid drips. The spray coverage can be finely tuned using precision needle valves that independently control the liquid and air output. These needle valves can be located on the spray nozzle, or at the SmartFlow® controller, providing the option of adjusting the spray mix at the point of application or adjusting all the controls in a central location.

Standard adjustment



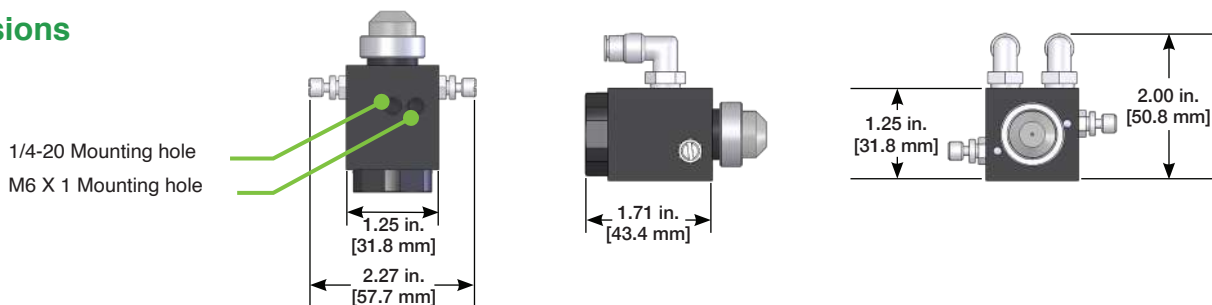
Adjust the fluid and air at the nozzle itself

Remote adjustment



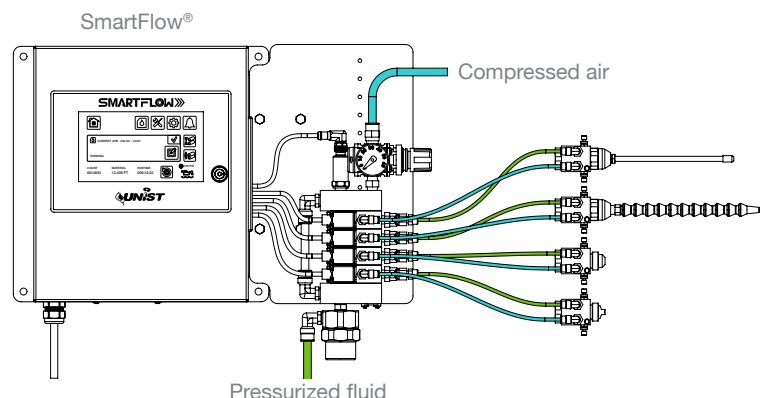
Adjust the fluid and air at the remote adjustment solenoid valve bank on the SmartFlow® programmable fluid controller

Dimensions



System example

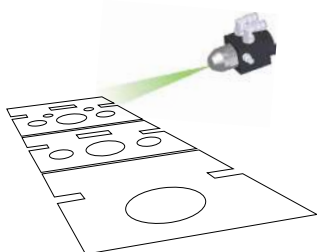
Low Volume Spray Nozzles connect directly to the outputs on the SmartFlow® programmable fluid controller. Up to 22 Low Volume Spray Nozzles can be independently controlled or can be used in combination with a Uni-Roller® S2 applicator, giving maximum flexibility in coverage and control.



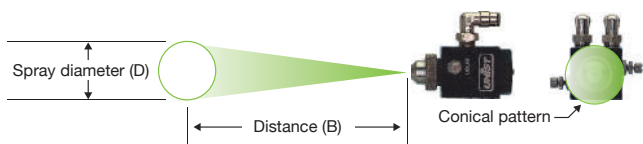
Spray patterns

Conical spray

The conical spray tip produces a round pattern that varies in size based on the distance of the nozzle from the surface.

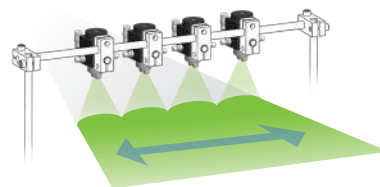


Approximate spray dimensions	
B	D*
3" [76 mm]	1.25" [32 mm]
6" [152 mm]	2.25" [57 mm]
12" [305 mm]	3.50" [89 mm]
18" [457 mm]	4.25" [108 mm]
24" [610 mm]	5.50" [140 mm]
30" [762 mm]	6.75" [172 mm]

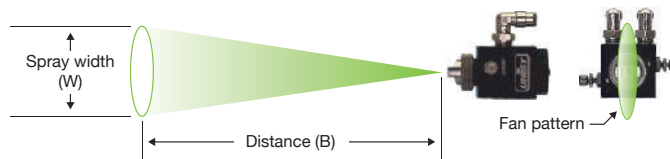


Fan spray

The fan spray tip produces a flat spray pattern that varies in size based on the distance of the nozzle from the surface.



Approximate spray dimensions	
B	W*
3" [76 mm]	7.5" [191 mm]
6" [152 mm]	12" [305 mm]
9" [229 mm]	15" [381 mm]
12" [305 mm]	18" [457 mm]
15" [381 mm]	23" [584 mm]
18" [457 mm]	26" [660 mm]



* Data approximates spray patterns for Low Volume Spray Nozzles. Please note that these values are a guideline for initial nozzle setup. Actual spray pattern will vary depending on the applied fluid, air and fluid pressures, and metering screw settings.

Options



Articulating arm



Adjustable magnet mount



Modular mounting system

Create your own mounting solution with our modular mounting system.



Nozzle stud



Mounting rod

Cut to size from 6–48"
[152.4–1219.2 mm]
Lengths in 6" [152.4 mm]
increments



Bar clamp



Square base plate

Extended nozzle options allow the Low Volume Spray Nozzle to reach difficult to access areas.



Semi-rigid copper



Loc-Line®

The **In-Die Quick Connect** allows Unist spray nozzles to be permanently mounted to the die, ensuring they remain in position with each die change. Each quick connect is keyed to ensure operators reattach the lines correctly. Integral check valves prevent dripping. This is an ideal solution when die-mounted nozzles are necessary.



Airless Spray Nozzles

The Unist Uni-Roller® S2 excels at applying a continuous even coating of fluid to coil stock or a blank. However, there are times when additional fluid is needed at specific areas in the die. Unist Airless Spray Nozzles provide this extra boost. When connected to the SmartFlow® programmable fluid controller, they integrate seamlessly into the job's lubrication profile.

- Versatile nozzle for in-die lubrication
- User-friendly design
- Requires no air to operate

i More information: unist.com/airless

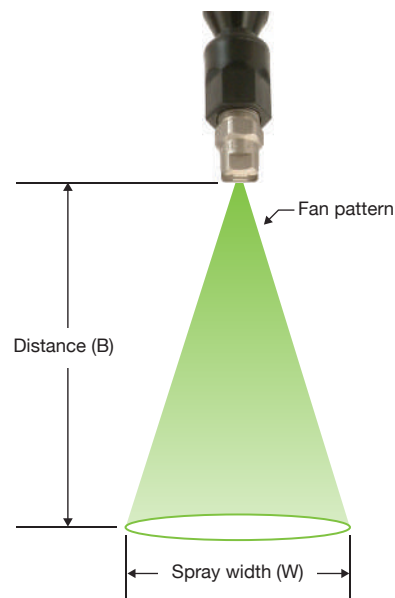
Additional fluid
in tough applications

Because these nozzles rely on the velocity of the fluid to create the spray pattern, their proper operation requires a fluid which is close to the viscosity of water. As a result, they work extremely well with water-based solutions and emulsions, but are generally not recommended for use with oils or viscous synthetic fluids.

All Unist Airless Spray Nozzles have a fan spray pattern. The spray diameter and flow rate of the fluid are controlled by specifying the spray angle and the nozzle orifice size. The available spray angles and corresponding coverages are shown below.

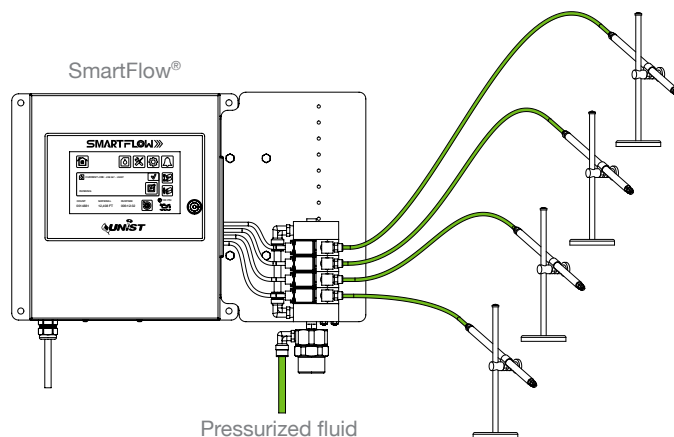
Approximate spray dimensions					
B	W				
	0°	30°	50°	80°	110°
3" [76 mm]	stream	1.6" [41 mm]	2.8" [71 mm]	5.1" [130 mm]	8.6" [218 mm]
6" [152 mm]	stream	3.2" [81 mm]	5.6" [142 mm]	10.1" [257 mm]	17.1" [434 mm]
9" [229 mm]	stream	4.9" [124 mm]	10.0" [254 mm]	18.1" [460 mm]	30.4" [772 mm]
12" [305 mm]	stream	6.4" [163 mm]	11.2" [284 mm]	20.2" [513 mm]	34.3" [871 mm]
15" [381 mm]	stream	8.1" [206 mm]	14.0" [356 mm]	25.2" [640 mm]	42.8" [1087 mm]
18" [457 mm]	stream	9.7" [246 mm]	16.8" [427 mm]	30.3" [770 mm]	51.4" [1306 mm]

Airless Spray Nozzle flow rates (based on water)	Orifice size	Flow rate range
	0.026" [0.66 mm]	2.21 cc/sec @ 5 psi [0.34 bar] to 10.1 cc/sec @ 100 psi [7 bar]
	0.031" [0.79 mm]	3.31 cc/sec @ 5 psi [0.34 bar] to 15.1 cc/sec @ 100 psi [7 bar]
	0.036" [0.91 mm]	4.42 cc/sec @ 5 psi [0.34 bar] to 20.2 cc/sec @ 100 psi [7 bar]



System example

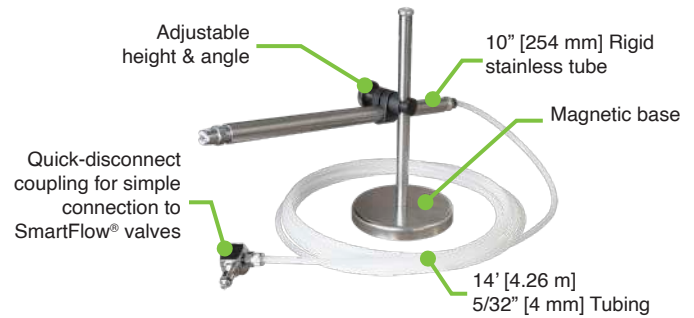
Airless Spray Nozzles connect directly to the outputs on the SmartFlow® programmable fluid controller. Up to 22 nozzles can be independently controlled or used in combination with a Uni-Roller® S2 applicator, giving maximum flexibility in coverage and control.



Nozzle styles

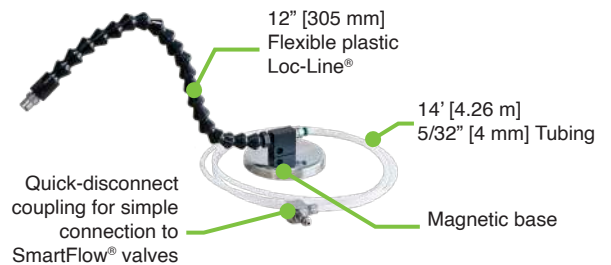
Rigid Stainless-Steel Nozzle

This 10" [254 mm] Rigid Stainless-Steel Nozzle includes a vertical mount that allows height and application angles to be adjusted. The Rigid Stainless-Steel Nozzle offers superior rigidity, making it the preferred choice when the nozzle position doesn't require frequent changes.



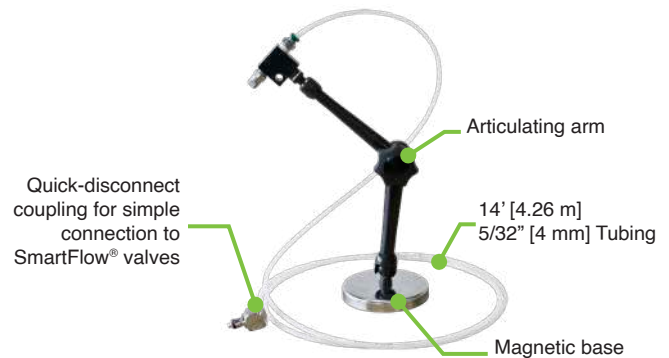
Loc-Line® Nozzle

This 12" [305 mm] flexible plastic Loc-Line® nozzle is easy to adjust, but less rigid than other nozzle options.



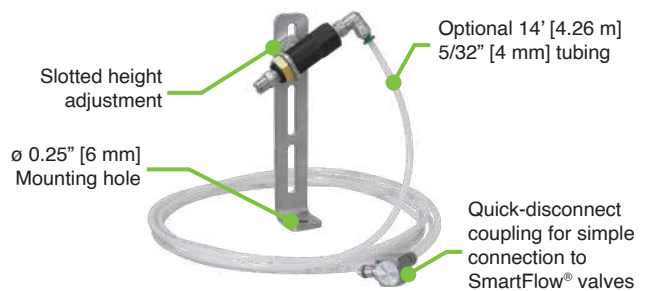
Articulating Arm Nozzle

The Articulating Arm Nozzle provides rigid positioning and can easily be adjusted and locked in place with a single knob.



In-Die Nozzle

This nozzle rigidly attaches to the die. The slotted adjustment bracket allows for multiple nozzle positioning adjustments including nozzle height, fan spray orientation, rotation, and pivoting. Once positioned, it can be locked into position by tightening the hardware.



Options

The **In-Die Quick Connect** allows Unist spray nozzles to be permanently mounted to the die, ensuring they remain in position with each die change. Each quick connect is keyed to assure operators reattach the lines correctly. Integral check valves prevent dripping. This is an ideal solution when die-mounted nozzles are necessary.



The Uni-Blend™ mixing system

is designed to accurately mix water with concentrated fluids in any ratio from 1:1 to 50:1 and deliver the mixture under pressure to a customer-supplied piping network. The Uni-Blend™ automatically mixes batches and maintains a reserve supply of up to 50 gallons [190 liters] per ratio. Up to three batches of differing ratios can be maintained in separate tanks.

- Accurate flow control
- Maintain the perfect pressure & mix
- Easy setup & intuitive interface

More information: unist.com/uniblend

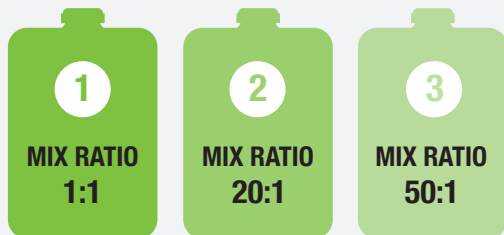
Fluid mixing technology



The Uni-Blend™ is the only fully-programmable, industrial fluid-mixing system available on the market and is built for years of service in tough, industrial environments.

3 ratios

Maintain one, two, or three separate mix ratios



maintain any ratio between 1:1 and 50:1

Specifications

- **Water supply requirements:** 30–60 psi [2–4 bar], 4 gallons/min [15 liters/min] minimum available flow
- **Power requirements:** 230 VAC, 60Hz, 3 phase with neutral tap, 30 amp
- **Holding tank capacity:** 50 gallons [190 liters] per tank
- **Mix ratio range:** 1:1 to 50:1
- **Number of mix ratios:** 1 to 3
- **Mixed fluid supply:** 2 gallons/min [8 liters/min] per ratio
- **Mixed fluid pressure:** 5–80 psi [0.34–6 bar]
- **Tote stand size:** 48" [1219 mm] x 40" [1016 mm] tote, 330 gallons [1250 liters] or 275 gallons [1040 liters]

Accurate flow control

The Uni-Blend™ utilizes precise flow meters to ensure accurate mixing. Mixing is controlled by a PLC which opens a water valve and monitors the water flow rate. Simultaneously, the PLC controls the rotational speed of a gear pump which delivers concentrate at the proper rate for the programmed mix ratio. The flow rates are constantly monitored to maintain the proper rate regardless of viscosity, temperature, or downstream pressure. This level of precision allows the Uni-Blend™ system to deliver the perfect batch each and every time.



Large tank opening makes for easy cleaning & maintenance

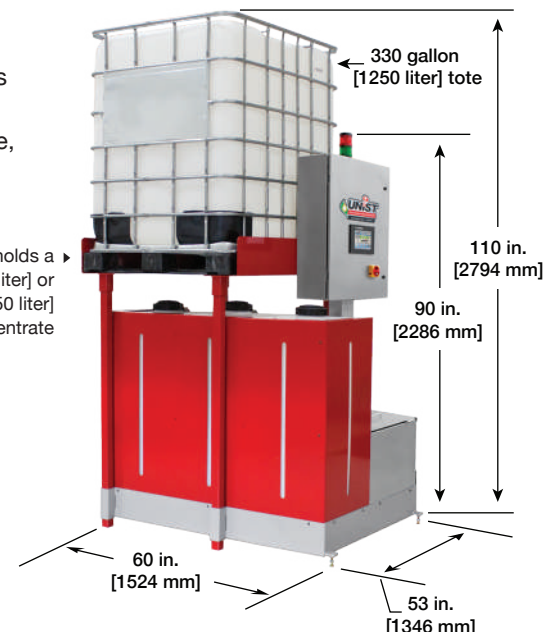


Durable, heavy-gauge steel construction



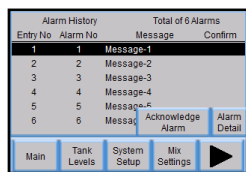
Reliable & accurate positive-displacement concentrate pump

Optional platform holds a 275 gallon [1040 liter] or 330 gallon [1250 liter] tote of concentrate

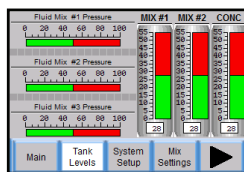


Maintain the perfect pressure & mix

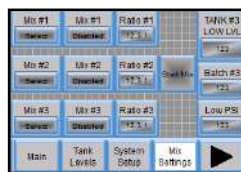
The Uni-Blend™ is designed to constantly circulate your fluid to maintain a homogeneous mixture. The mixed fluid in the tank is stored at atmospheric pressure and delivered to your piping network under pump pressure. To ensure continuous circulation, the piping network should be configured as a loop starting and returning to the Uni-Blend™. To set and maintain proper fluid pressure, a relief valve is installed in the return line of the loop.



View alarm details



View tank levels



Adjust mix settings

Easy setup & intuitive interface

At the heart of its advanced control system is an industrial PLC and touch-screen user interface which makes monitoring the mixing operation and setting mix ratios easy.

Continuous monitoring

The system is designed to constantly monitor the mixing operation and create an alarm condition if a fault occurs. The system features a warning light as well as an alarm output on the PLC which can be used for remote monitoring of the system.



The Uni-Blend™ monitors:

- Low concentrate level
- Low water flow
- Low batch level (mix demand exceeds supply)
- Low concentrate flow
- Mix tank high level (backflow monitor)
- Low output pressure



Level sensors monitor fluid levels

Automatic replenishment

The Uni-Blend™ maintains a continuous supply by monitoring fluid levels and automatically replenishing your batch when necessary. The holding tank(s) contains a level sensor that is monitored by the PLC. The tank will fill with the mixture until it reaches the appropriate level for the programmed batch size at which time, the water valve will close and the concentrate pump will stop. This process will repeat itself as necessary to refill the tank when the fluid drops to a pre-programmed level.

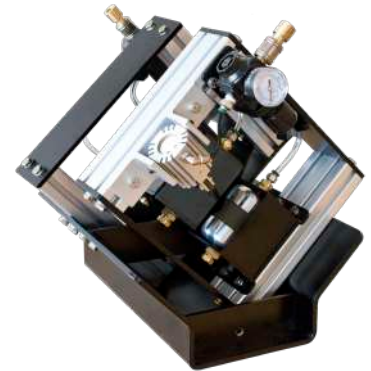
Complete mixing

The Uni-Blend™ utilizes an in-line static mixer to ensure a complete blend of the water and concentrate. The design of the static mixer's internal fins force the water and concentrate to intermix. This results in a perfect homogeneous mixture.



If a standard roller or spray system does not meet your needs, contact Unist for a quotation on a special system. Whether it's a modified standard system, or a complete custom design, **Unist can engineer a solution for you!**

Custom system examples



Application Questionnaire

If you would like Unist to specify a system for your specific needs, please fill out a copy of this form, fax it to (616) 949-9503, email it to salesupport@unist.com or fill it out online at unist.com/mfapp. Include a technical data sheet and a safety data sheet on the fluid you will use with the system. A Unist sales engineer will promptly reply with a system recommendation.

Company information

Company name: _____

Date: _____

Address: _____

Telephone: _____

Fax: _____

Contact person: _____

Email: _____

Distributor: _____

Contact: _____

Telephone: _____

Fax: _____

Operation information

Type of operation:

☐ Stamping

☐ Roll forming

☐ Fine blanking

☐ Drawing

☐ Cold rolling

☐ Other: _____

Coil coating

Machine used: _____

Press rate (strokes/min): _____

Material
feed rate: _____

☐ inches/stroke ☐ mm/stroke
☐ feet/min ☐ mm/min

Material information

Type of material: _____

Material width range: _____ ☐ inches ☐ mm

Material thickness range: _____ ☐ inches ☐ mm

Supplemental information

Requires additional in-die lubrication? ☐ Yes ☐ No

Blank coating

Machine used: _____

☐ Manually fed
☐ Conveyor fed

Blank feed rate (pieces per min): _____

Conveyor speed (feet per min): _____

Blank size information

Type of material: _____

Material width range: _____ ☐ inches ☐ mm

Material length range: _____ ☐ inches ☐ mm

Material thickness range: _____ ☐ inches ☐ mm

Supplemental information

Requires additional in-die lubrication? ☐ Yes ☐ No

Lubricant information

Lubricant used: _____

Manufacturer: _____

Lubricant type:

☐ Petroleum ☐ Semi-synthetic ☐ Synthetic ☐ Other: _____

Is lubricant water soluble?: ☐ Yes ☐ No ☐ If Yes, (Water:Concentrate ratio): _____:

Did you send a fluid sample kit to Unist?:

☐ Yes ☐ No

Present lubrication application system:

☐ None ☐ Spray ☐ Roller ☐ Other



Unist, Inc.
4134 36th Street SE
Grand Rapids, MI 49512 USA
U.S. & Canada: 800.253.5462
International: 616.949.0853
Email: salesupport@unist.com