UNIST

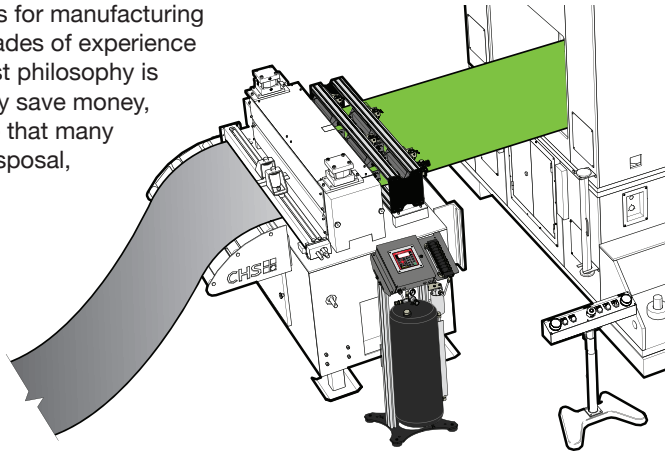
Environmentally Friendly Lubrication

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.

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.

Choosing your UNIST system is as easy as 1-2-3

1 Choose your fluid controller

The SPR-2000™ programmable fluid controller is the key component for accurate control of the fluid in any roller or spray application. With the ability to save settings for up to 250 different jobs and deliver the proper amount of fluid every time, the SPR-2000™ provides the flexibility required for a broad range of applications. With the SPR-2000™, changing to a new job is as simple as pushing a few buttons, and critical parameters such as fluid level, fluid pressure, and flow (optional sensors may be required) can be monitored.

2 What applicator is right for you?

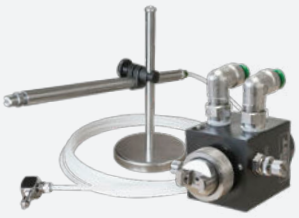
While the SPR-2000™ programmable fluid controller delivers the proper amount of fluid, the applicator applies it where required. The applicator can be a Uni-Roller® lubricator, spray nozzles, or a combination of both.

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 up to 72" [1829 mm] wide or blanks up to 69" [1753 mm] wide.

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 up-time. Many customers have reported savings resulting in a return on investment of less than six months!

Spray nozzles



When a continuous coating of fluid is needed on a smooth surface, the Uni-Roller® excels. However, when the surface isn't smooth, when intermittent coverage is needed, or when additional fluid is needed at specific areas in the die, Unist spray nozzles deliver. Both Airless and Low Volume Spray nozzles are available, each with a variety of spray patterns and mounting options, guaranteeing you can find the right nozzle for your application.

3 Don't forget your fluid supply

A consistent supply of pressurized fluid is required for any system that is controlled by an SPR-2000™ programmable fluid controller. To meet this need, Unist offers a variety of solutions including pressurized tanks from 3 to 30 gallons [11-113 liters], an air-operated diaphragm pump, and a pressure regulator for connection to an existing pressurized fluid supply.

System Selection Guide

1. Start at the top by selecting the appropriate chart for coil stock, blank, or non-contact coating.
2. Next, follow the chart based on the material width and thickness of your application. This will lead to a group of components which are required for a complete system.

Coil stock coating
Without supplemental spray nozzles

(Average stock speeds up to 500 fpm)

Stock width (W) Stock thickness (T)
W < 4" [102 mm]
0.005" [0.13 mm] < T < 0.060" [1.52 mm]

Fluid Controller: SPR-2000 JR™

Applicator: Mini-Roller™

Fluid Supply

Stock width (W) Stock thickness (T)
1" [25 mm] < W ≤ 18" [457 mm]
0.010" [0.25 mm] < T < 0.250" [6.35 mm]

Fluid Controller: SPR-2000 JR™

Applicator: Uni-Roller® S2

Fluid Supply

Stock width (W) Stock thickness (T)
18" [457 mm] < W ≤ 72" [1829 mm]
0.010" [0.25 mm] ≥ T < 0.250" [6.35 mm]

Fluid Controller: SPR-2000™

Applicator: Uni-Roller® S2

Fluid Supply

Stock width (W) Stock thickness (T)
1" [25 mm] < W ≤ 72" [1829 mm]
0.100" [2.54 mm] ≥ T < 0.350" [8.89 mm]

Fluid Controller: SPR-2000™

Applicator: Uni-Roller® S2 HG

Fluid Supply

Coil stock coating
With supplemental spray nozzles

(Average stock speeds up to 500 fpm)

Stock width (W) Stock thickness (T)
W < 4" [102 mm]
0.005" [0.13 mm] < T < 0.060" [1.52 mm]

Fluid Controller: SPR-2000™

Applicator: Mini-Roller™

Supplemental Nozzles: Low Volume Spray Nozzle or Airless Spray Nozzle

Fluid Supply

Stock width (W) Stock thickness (T)
1" [25 mm] < W ≤ 72" [1829 mm]
0.010" [0.25 mm] ≥ T < 0.250" [6.35 mm]

Fluid Controller: SPR-2000™

Applicator: Uni-Roller® S2

Supplemental Nozzles: Low Volume Spray Nozzle or Airless Spray Nozzle

Fluid Supply

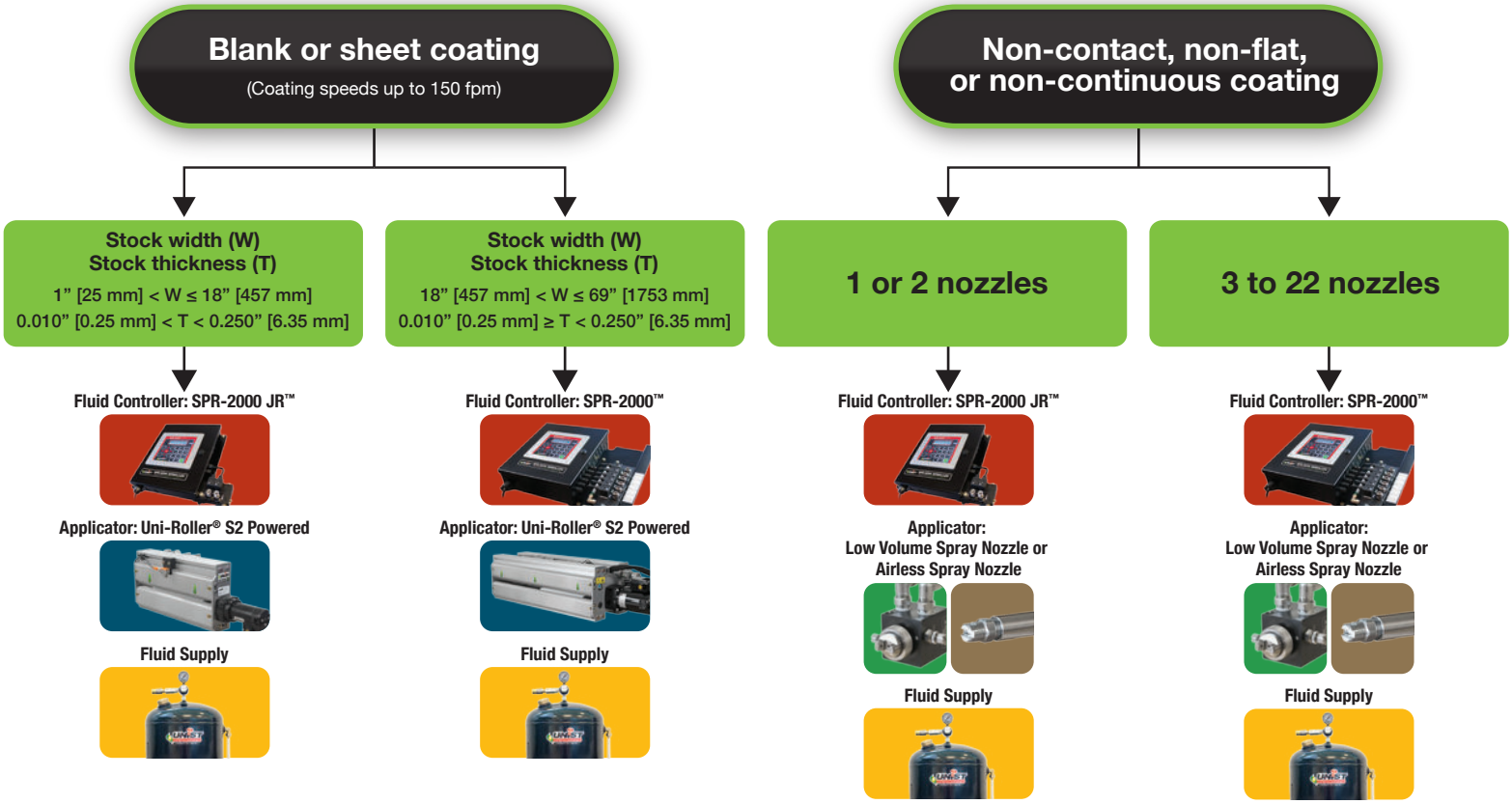
Stock width (W) Stock thickness (T)
1" [25 mm] < W ≤ 72" [1829 mm]
0.100" [2.54 mm] ≥ T < 0.350" [8.89 mm]

Fluid Controller: SPR-2000™

Applicator: Uni-Roller® S2 HG

Supplemental Nozzles: Low Volume Spray Nozzle or Airless Spray Nozzle

Fluid Supply



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SPR-2000™ Programmable fluid controller

The SPR-2000™ 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 die sets or jobs
- Alarm monitoring of critical parameters

Full-featured programmable control

More information: unist.com/spr

At the heart of the SPR-2000™ is a proprietary electronic controller. The controller intermittently actuates a bank of valves to dispense the required quantity of fluid to the appropriate lube points. The programmable actuation of the valves is based on an intermittent (rate dependent) input from the line. On stamping presses, this input is typically based on the stroke of the press and comes from a programmable limit switch (PLS) or the press controller. In continuous speed operations such as roll forming, an optional rotation sensor is available which provides one input for each roller revolution on a Uni-Roller® S2 or Mini-Roller™ system.

The SPR-2000™ menu-driven software easily guides the user through the process of creating setups (programs) and saving them to memory. The system can save up to 250 different setups so changing to a new job is as simple as pushing a few buttons.

An optional press control interface takes this functionality one step further, allowing standard press controls to interface directly with the SPR-2000™ and change the setup based on the currently running job.

The SPR-2000™ is also designed to monitor critical parameters such as fluid level, fluid pressure, and flow (optional sensors may be required). It can alert the operator with an audible alarm, a red LED, and even an external alarm relay which can be wired directly to a press control. If unauthorized access to the system settings is an issue, the system can be configured with a custom 4-digit access code. This allows the operator to monitor alarms and recall saved setups, but not modify system settings or create new setups.

Specifications

Power supply:

110 VAC, 50/60 Hz
or
220 VAC, 50/60 Hz

Control inputs:

Dry contact (switch closure)
Proximity sensor 10-30 VDC NPN, N.O.
24 VDC option for input #1

Alarm inputs:

Dry contact (switch closure)
Proximity sensor 10-30 VDC NPN, N.O.

Flow monitor inputs:

Dry contact (switch closure)
Proximity sensor 10-30 VDC NPN, N.O.

Outputs:

Same voltage as power supply
Maximum power - 10 watts per output
Valves: 1-22

Alarm relay:

Isolated, non-fused, single pole, double throw; 2 amp load maximum

Maximum input rate:

50 cycles/second at 50% duty cycle
Minimum contact open or closed time:
10 milliseconds

Alarm inputs:

Dry contact (switch closure)
Proximity sensor 10-30 VDC NPN, N.O.

Programmable ranges:

Count (CNT): 0-255 counts
Delay (DEL): 0-100 seconds
(.010 second increments)
Duration (DUR): 0-100 seconds

Fuses:

Supply fuse: 2 amp
Output fuse: 5 amp

Operating temperature range:

32˚-122˚F [0˚-50˚C]

Storage temperature range:

-4˚–158˚F [-20˚–70˚C]

Easy setup & configuration

SPR-2000™ includes many features which make it versatile and easy to use. All operational setup and configuration are done through simple menus which are shown on a high-contrast, 4-Line X 20 character LCD display.

Main SPR-2000™ screens:

ACCESS CODE

```
Enter New Access
Code:      1234
Use Access Code? N
Press > for Y/N
```

Allows the user to set up passwords to control system access.

AUTO SETUP

```
Enter Maximum Number
of Strokes or Cycles
per minute: 0___
```

Prompts the user for job specifications and automatically creates a new setup (program) for Uni-Roller® applications.

EDIT

```
 SETUP 001 EDIT
 OUT  CNT DEL   DUR
LWR01 1__ 0___ .150
UPR01 1__ .100 .150
```

Allows the user to modify current setups and program spray nozzles for other auxiliary functions.

ALARM

```
ALARMS (*=Active)
Scroll to View List
01 Low Fluid
02 Low Pressure
```

Allows the user to monitor all critical system functions.

Display alarm screen
Lists all current alarm conditions.

Prime button
Press and hold to momentarily actuate all outputs in the current setup which have count (CNT) and duration (DUR) set greater than zero.

Display edit screen
Use to enter new setups or edit existing setups.

Display run screen
Use to run a saved setup or to view a setup without changing setups.

Alarm LED
Illuminates when an alarm condition exists.

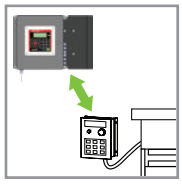
Display configuration menu
Use at initial set up and to modify system operating parameters.

Enter button
Use to confirm data entries. Pressing repeatedly returns user to status screen (shown).

Options

Pressure switch
monitors for low fluid pressure. The switch is adjustable from 3-40 psi [0.21-3 bar] and is factory set at 5 psi [0.34 bar]

Flow sensors
monitor each valve to verify fluid flow when the valve is actuated.



Press control interface
allows the SPR-2000™ to interface with standard press controllers and automatically run the proper setup when a job is changed at the press controls.

Adjustable stand
facilitates convenient, vibration-free mounting. The aluminum extruded legs of the stand also allow easy mounting of a 6 gallon [22 liter] or 15 gallon [56 liter] tank. The hole in the base of the stand is large enough to accept a 3 gallon [11 liter] stainless steel tank.

SPR-2000 JR™

The SPR-2000 JR™ programmable fluid controller is designed as a less costly alternative to the standard SPR-2000™ programmable fluid controller. With many of the same features and functions as its more capable sibling, it can serve as the fluid control system for any application where only two outputs are required.

Uni-Roller® S2 Continuous stock lubrication

The Uni-Roller® S2

is the ultimate solution for continuous stock lubrication. Combined with an SPR-2000™ or SPR-2000 JR™ 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

More information: unist.com/s2

Ultimate solution for continuous stock lubrication

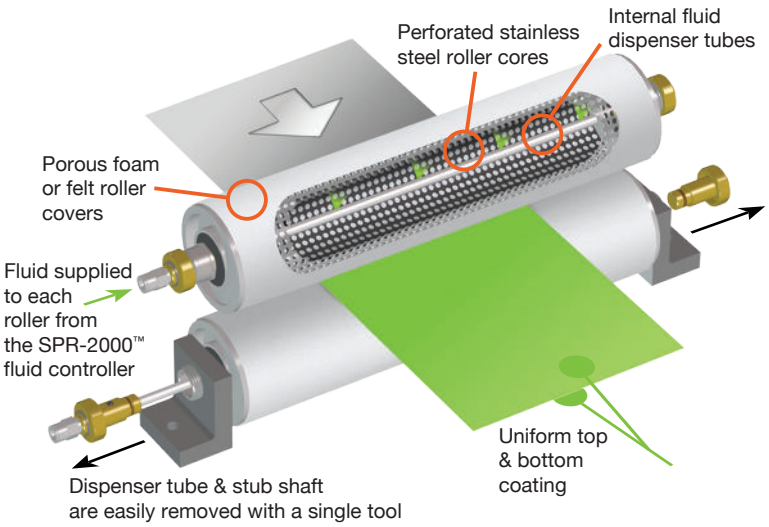
The internally-supplied rollers are essential to precisely applying the fluid. Inside each of the rollers is a dispenser tube with small holes placed along its length. Fluid is injected into the dispenser tubes from the fluid controller and dispensed across the inside of the rollers.

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.

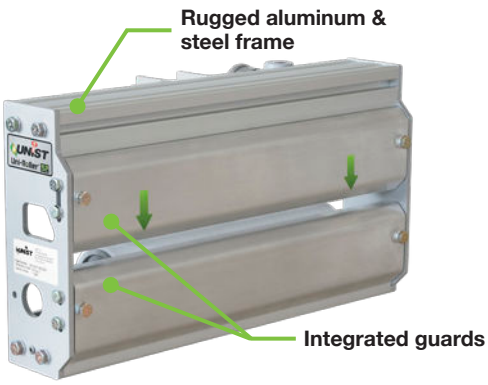
The Uni-Roller® S2 applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine up-time. 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.

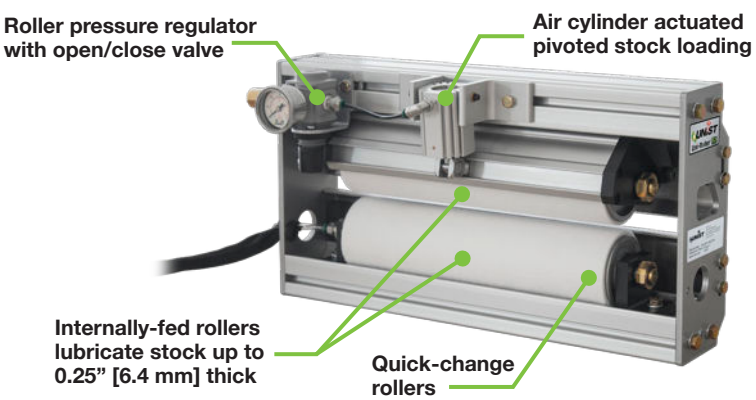
The Uni-Roller® S2 is modular in design. A single roller set is used for widths of 18" [457 mm] or less. For stock over 18" [457 mm] wide, multiple 12" [305 mm] wide roller sets are staggered and overlapped. Standard sizes are available to accommodate common stock widths, with custom sizes available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



Single roller entry side



Single roller exit side



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]

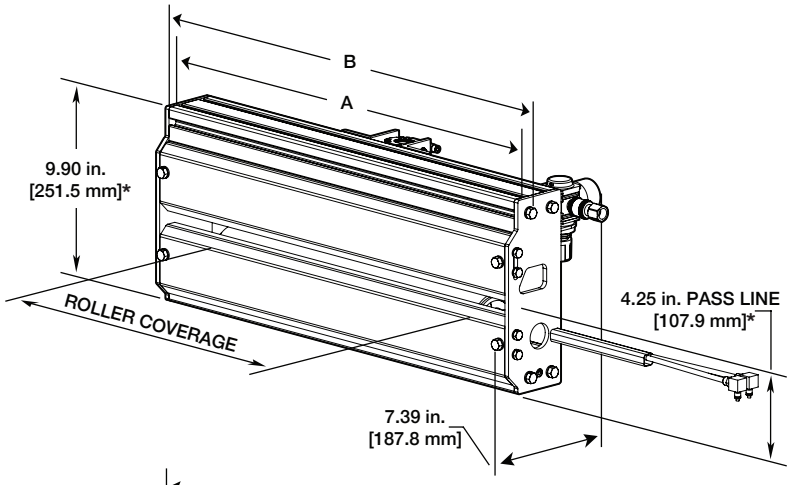
Roller coverage	A (extrusion length)	B (overall width)
3” [76 mm]	12.00” [304.8 mm]	13.13” [333.5 mm]
6” [152 mm]	12.00” [304.8 mm]	13.13” [333.5 mm]
12” [305 mm]	18.00” [457.2 mm]	19.13” [485.9 mm]
18” [457 mm]	24.00” [609.6 mm]	25.13” [638.3 mm]

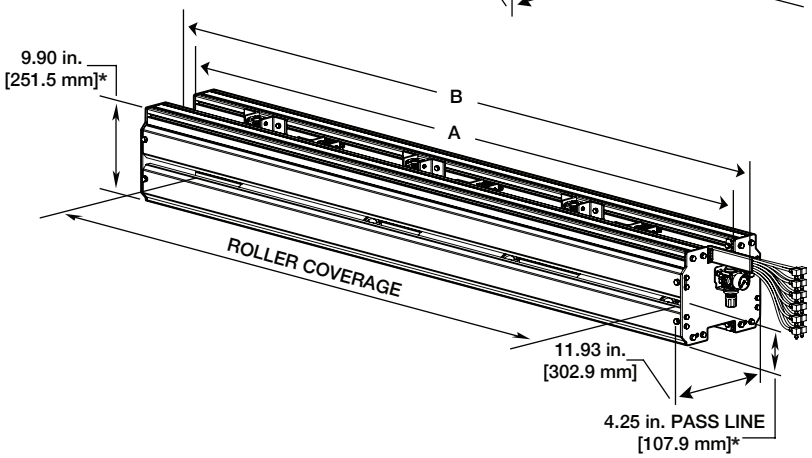
***** *On units with double air cylinders add 1.40” [35.6 mm] to the pass line and overall height.*

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 cover Extremely durable and compatible with a broad range of fluids.	**Polyurethane foam 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 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 valve Manual open/close control of the roller set.	**Solenoid valve** To tie 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 an SPR-2000™ controller based on roller rotation. Select when an intermittent signal from the press is not available.

Uni-Roller® S2 HG Lubrication for thick stock

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

More information: unist.com/s2hg

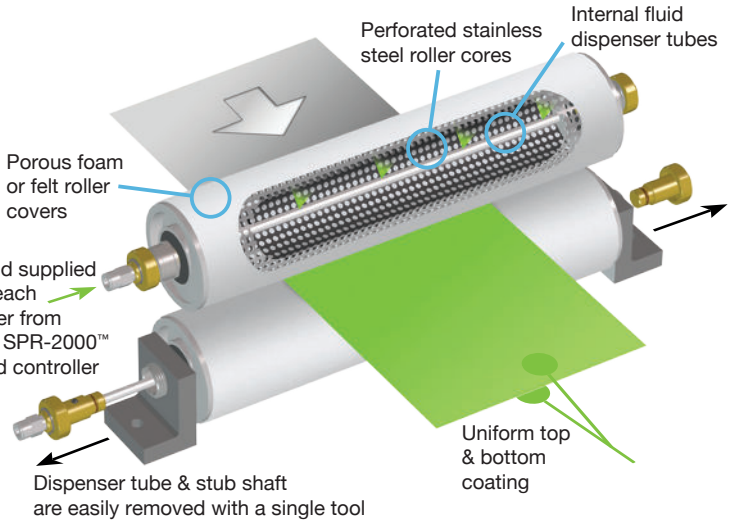
The internally-supplied rollers are essential to precisely applying the fluid. Inside each of the rollers is a dispenser tube with small holes placed along its length. Fluid is injected into the dispenser tubes from the fluid controller and dispensed across the inside of the rollers.

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.

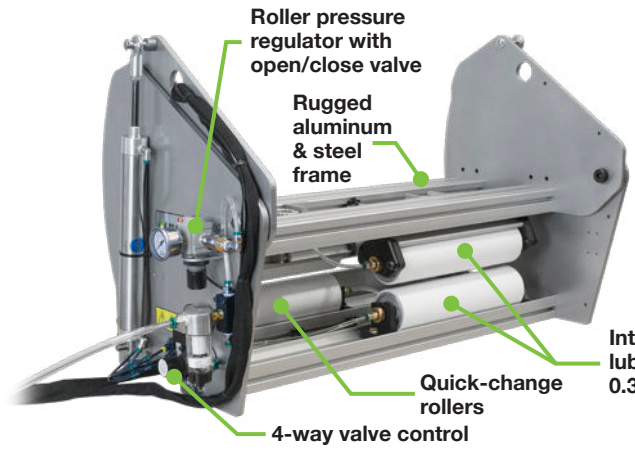
The Uni-Roller® S2 HG applies the exact amount of lubricant required. This eliminates the mess and waste associated with in-die spray systems and externally-fed roller systems. The result is not only a cleaner shop, but also significant savings from decreased fluid waste, improved die life, better part quality and increased machine up-time. 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.

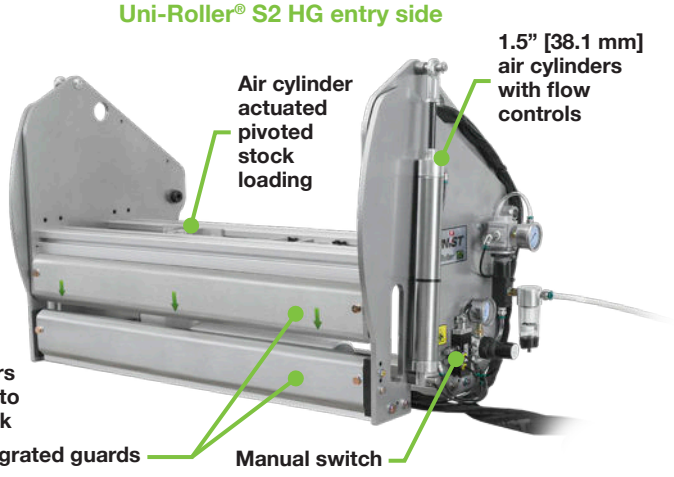
The Uni-Roller® S2 HG is modular in design. Opening and closing is controlled by a manual or solenoid valve. A single roller set is used for widths of 18” [457 mm] or less. For stock over 18” [457 mm] wide, multiple 12” [305 mm] wide roller sets are staggered and overlapped. Standard sizes are available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



Uni-Roller® S2 HG exit side



Uni-Roller® S2 HG entry side



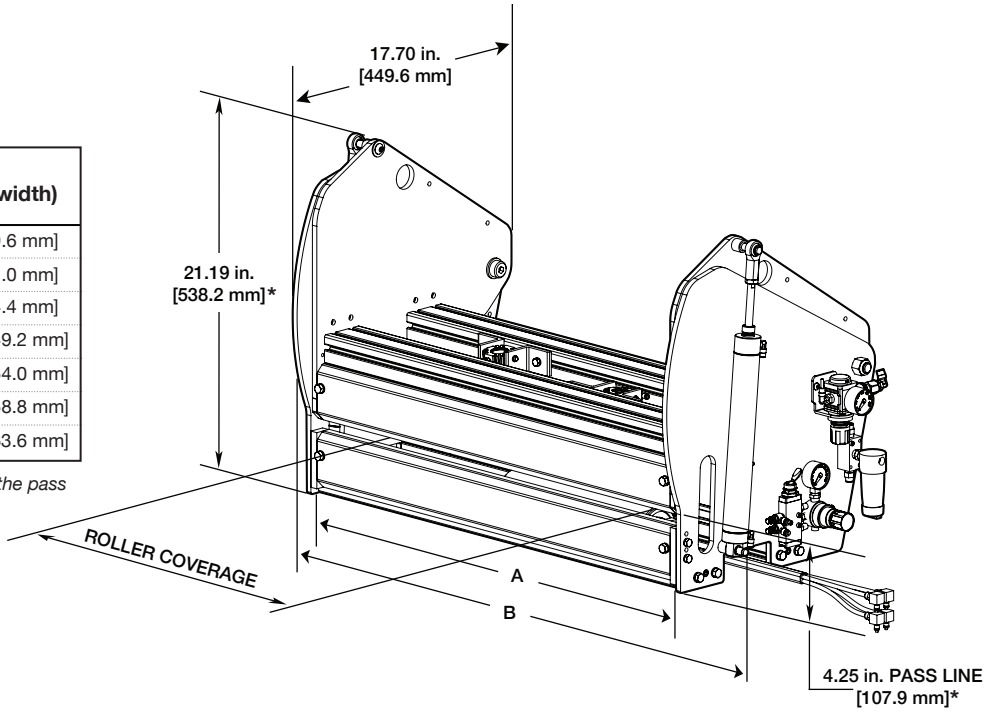
All Uni-Roller® S2 HG lubricators have guards on the entry side only.

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 cover Extremely durable and compatible with a broad range of fluids.	**Polyurethane foam 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 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** To tie 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 an SPR-2000™ 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 an SPR-2000™ or SPR-2000 JR™ 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**

More information: unist.com/s2pwr

The blank coating solution

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

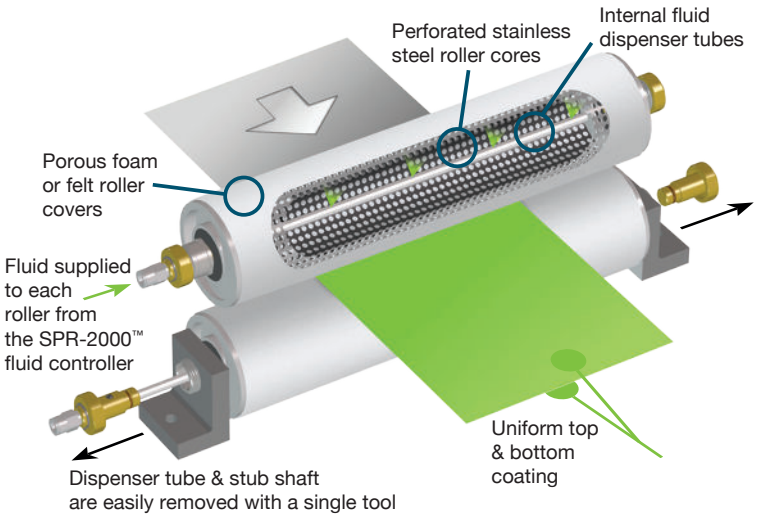
The lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across both the top and bottom of the stock.

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 up-time. Many customers have reported savings resulting in a return on investment of less than six months!

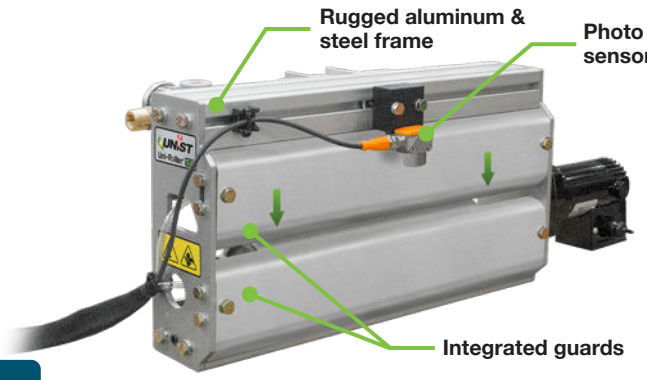
The brushed stainless steel guards protect the rollers and guide material when loading coil stock or feeding blanks. With the guards removed for better access, a roller can be changed in about a minute using a single wrench. The Uni-Roller® S2 Powered lubricator is built to handle any manufacturing environment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

The Uni-Roller® S2 Powered lubricator uses a photo eye sensor to detect blanks and provides an input to the SPR-2000™ programmable fluid controller.

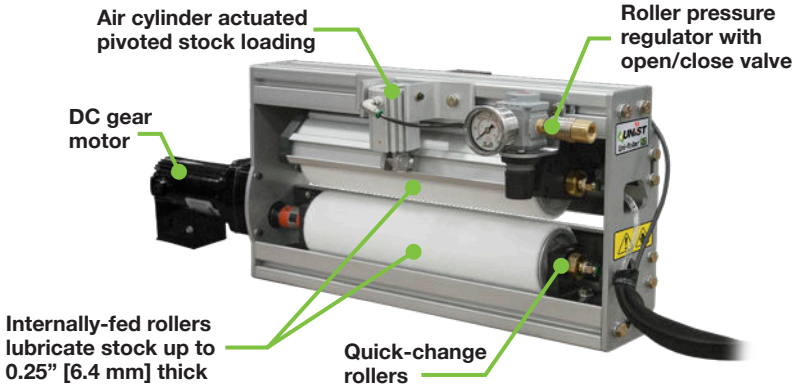
A single roller set is used for widths of 18” [457 mm] or less where the lower roller is directly driven. For blanks over 18” [457 mm] wide, multiple 12” [305 mm] wide roller sets are staggered and overlapped. Each lower roller is driven by a heavy-duty chain from a central shaft.



Single roller entry side



Single roller exit side

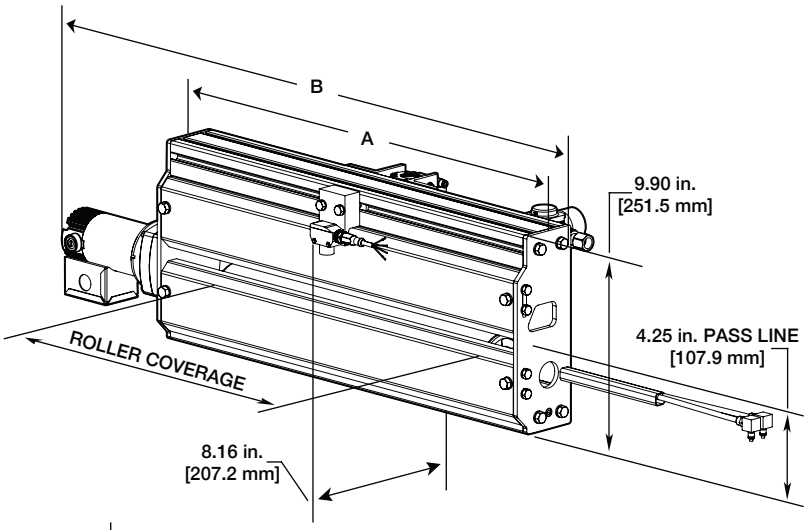


Single roller unit shown above. Lubricators with multiple roller sets have guards on both entry and exit sides.

Standard sizes

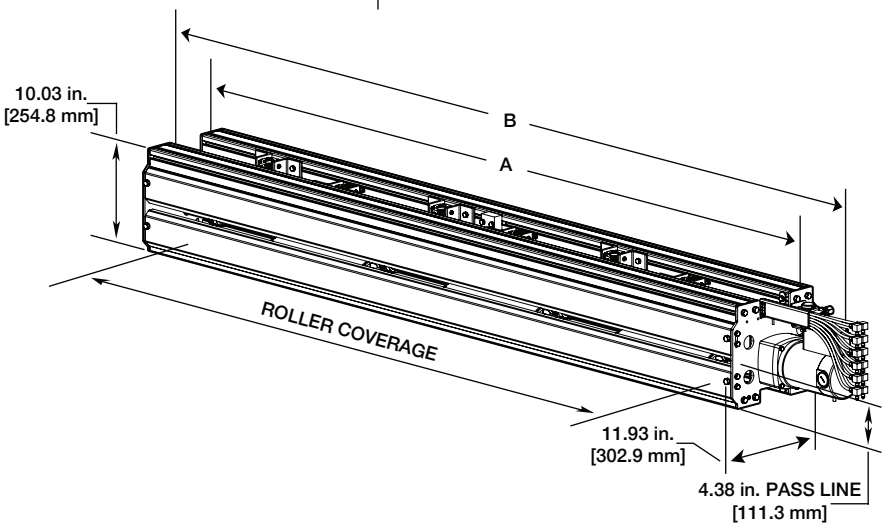
Single roller coverage of 6” [152 mm] to 18” [457 mm]

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 cover** Extremely durable and compatible with a broad range of fluids.	 **Polyurethane foam 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 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.

Mini-Roller™ Thin & narrow coil stock lubrication

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 an SPR-2000™ or SPR-2000 JR™ 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**

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 the fluid.

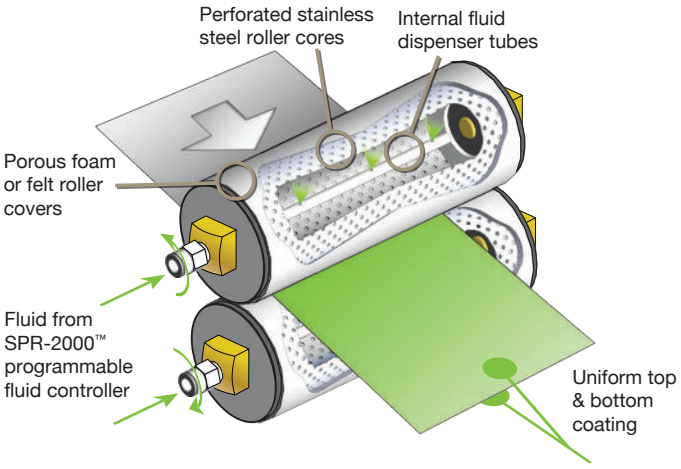
The horizontal configuration has a dispenser tube with small holes placed along its length inside each of the rollers. Fluid is injected into the dispenser tubes from the fluid controller and dispensed across the inside of the rollers.

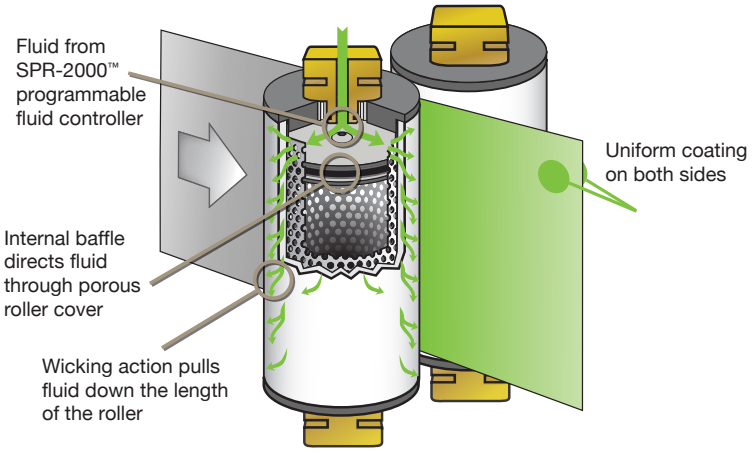
The vertical configuration includes a baffle positioned inside each of the rollers near the top. Every time fluid is injected into the dispenser tube from the fluid controller, it spreads across the baffle where it is then redirected to the outside of the roller. The wicking action of the roller cover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

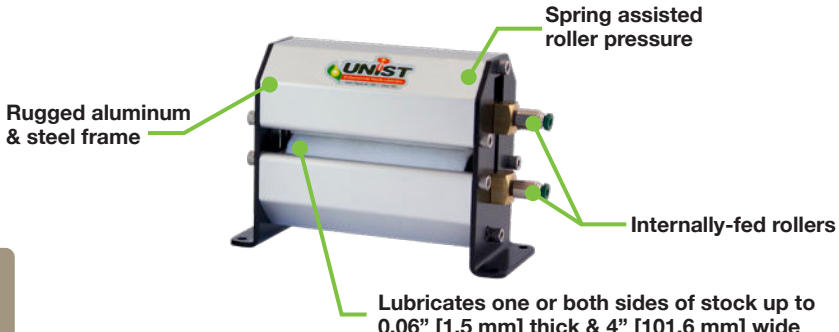
The lubricant is transferred to the stock through durable polyester felt or polyurethane foam roller covers. These cover materials apply the lubricant smoothly and evenly across both sides of the stock.

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 up-time. Many customers have reported savings resulting in a return on investment of less than six months!

The Mini-Roller™ is available in four sizes ranging from 1” [25 mm] wide to 4” [102 mm] wide with a stock thickness up to 0.06” [1.5 mm].



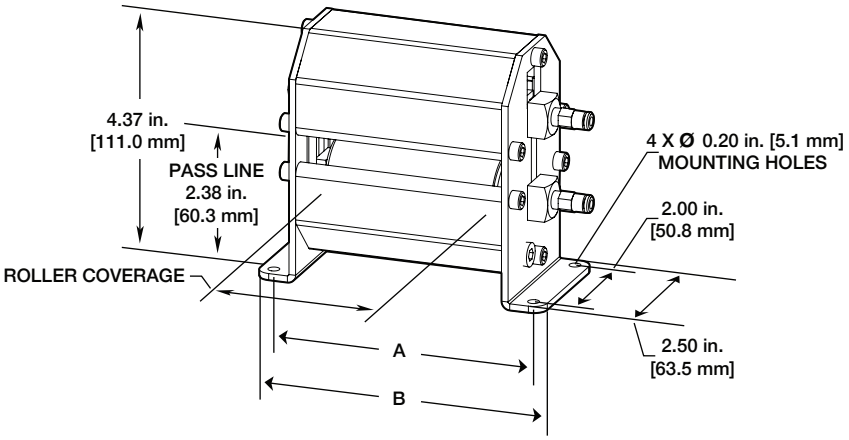




Standard sizes

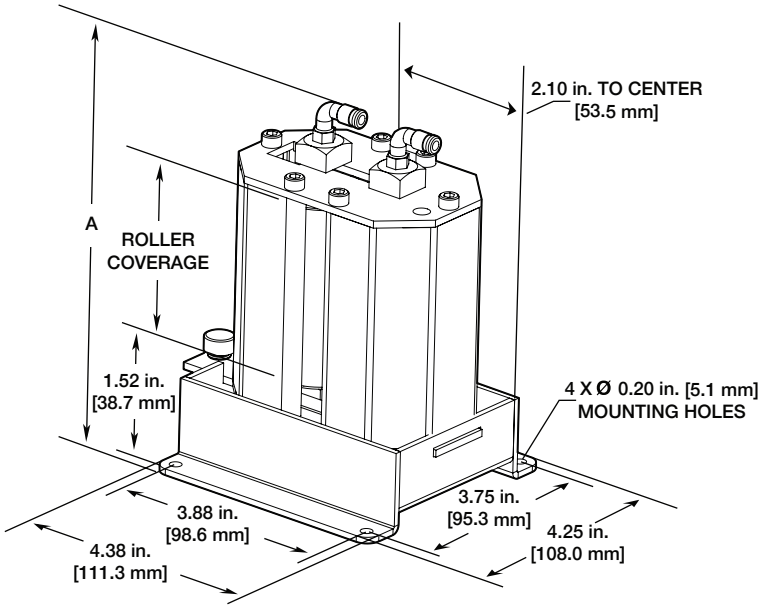
Horizontal Mini-Rollers™ coverage up to 4” [102 mm]

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]



Vertical Mini-Rollers™ coverage up to 4” [102 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]



Features & options

Standard features	Options
Polyester felt cover Extremely durable and compatible with a broad range of fluids.	**Polyurethane foam 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 an SPR-2000™ or SPR-2000 JR™ controller based on roller rotation. Select when an intermittent input signal is not available.

Low Volume Spray Nozzles

For non-contact or supplemental applications

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 SPR-2000™ 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

More information: unist.com/lv

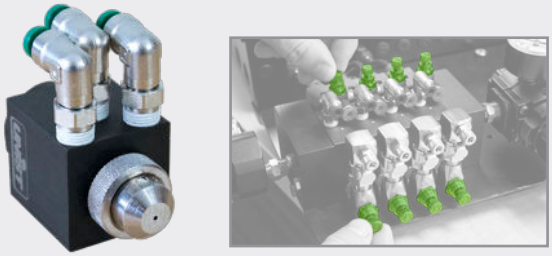
Precision spray for maximum efficiency

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 independent control the liquid and air output. These needle valves can be located on the spray nozzle, or at the SPR-2000™ controller, providing the option of adjusting the spray mix at the point of application or keeping all the controls in a central location.

Standard adjustment

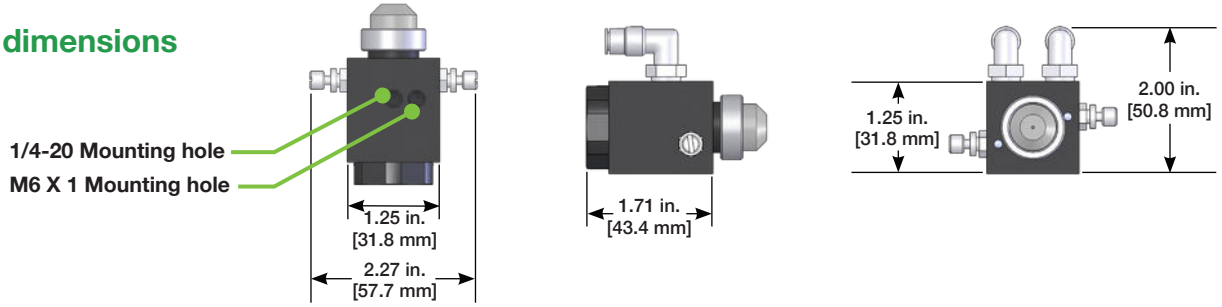
Adjust the fluid and air right at the nozzle

Remote adjustment



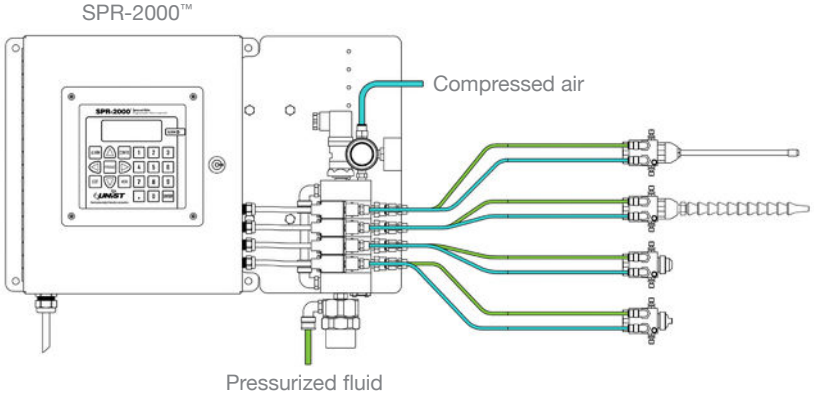
Adjust the fluid and air at the remote adjustment solenoid valve bank on the SPR-2000™ programmable fluid controller

Nozzle dimensions



System example

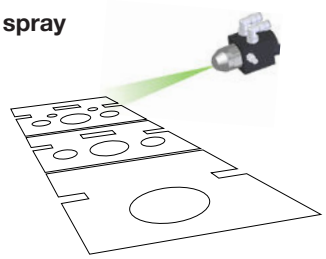
The Low Volume Spray Nozzles connect directly to the outputs on the SPR-2000™. Up to 22 Low Volume Spray Nozzles can be independently controlled, or they can be used in combination with a Uni-Roller® S2 applicator, giving maximum flexibility in coverage and control.



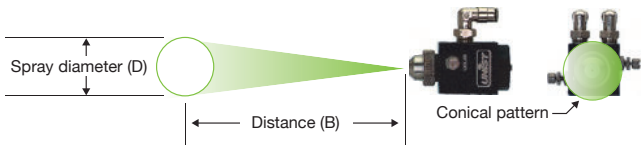
Spray patterns

Conical spray

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

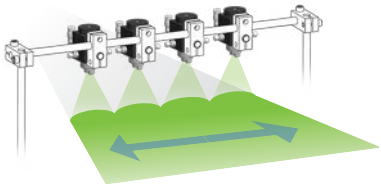


Approximate spray dimensions	
B	**D***
3” [76 mm]	1.25” [32 mm]
6” [152 mm]	2.25” [57 mm]
12” [305 mm]	3.50” [89 mm]
18” [457 mm]	4.25” [108 mm]
24” [610 mm]	5.50” [140 mm]
30” [762 mm]	6.75” [172 mm]

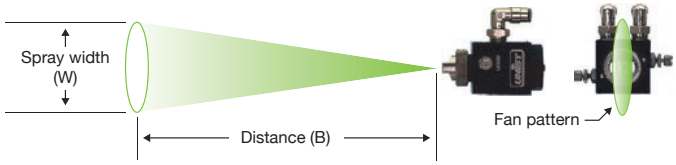


Fan spray

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 pattern for the 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 tight areas that otherwise might be difficult to access.

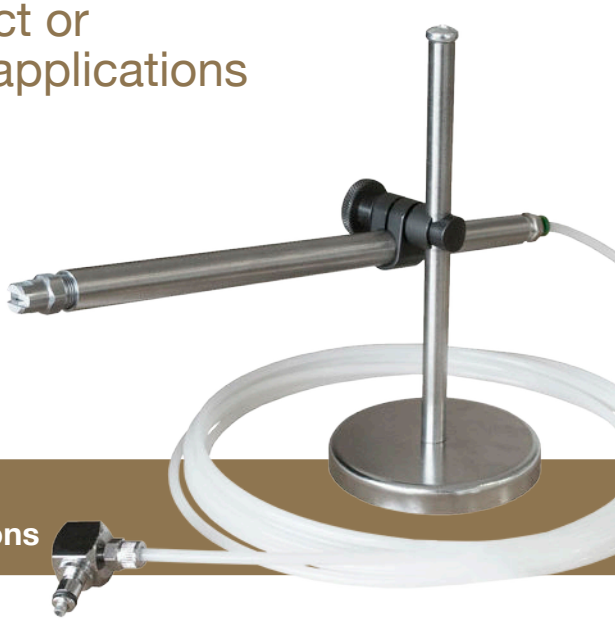
Semi-rigid copper

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 assure operators reattach the lines correctly. Integral check valves prevent dripping. This is an ideal solution when die-mounted nozzles are necessary.

Airless Spray Nozzles

For non-contact or supplemental applications



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 SPR-2000™ programmable fluid controller, they integrate seamlessly into the jobs lubrication profile.

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

More information: unist.com/airless

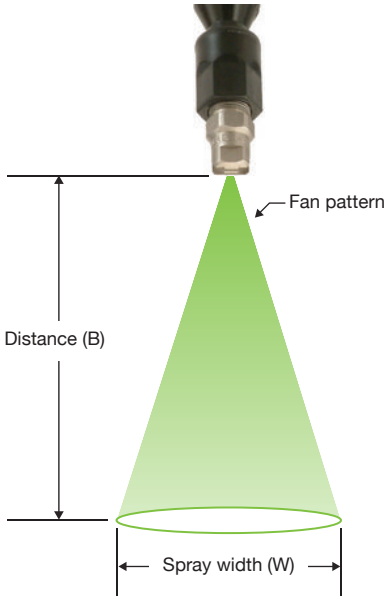
Additional fluid in tough applications

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 coverage 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]

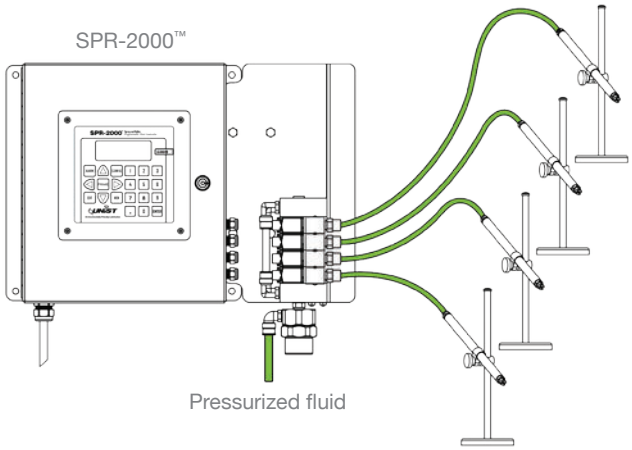


The available flow rates are:

Airless Spray Nozzle flow rate (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

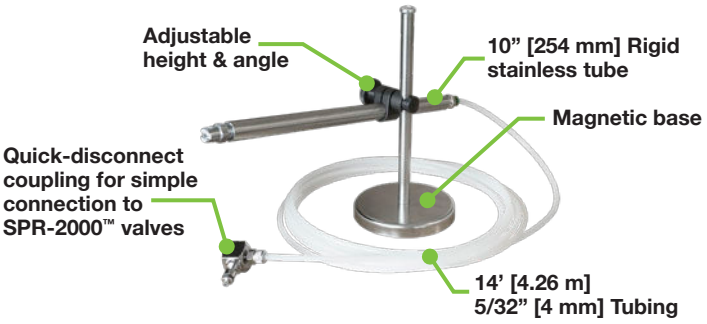
The Airless Spray Nozzles connect directly to the outputs on the SPR-2000™. Up to 22 nozzles can be independently controlled or used in combination with a Uni-Roller® S2 applicator, giving maximum flexibility in coverage and control.



Nozzle styles

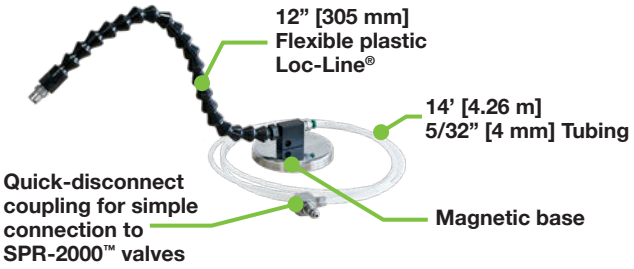
Rigid Stainless Steel Nozzle

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.



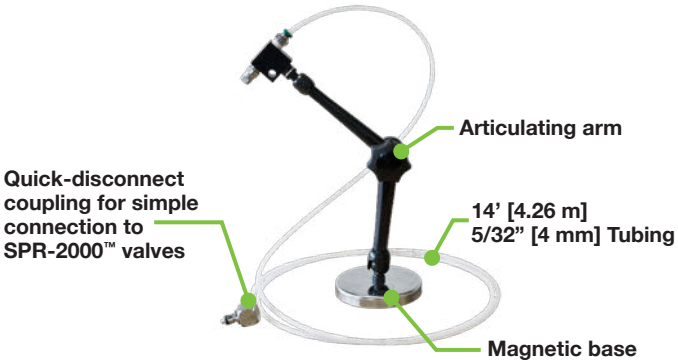
Loc-Line® Nozzle

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



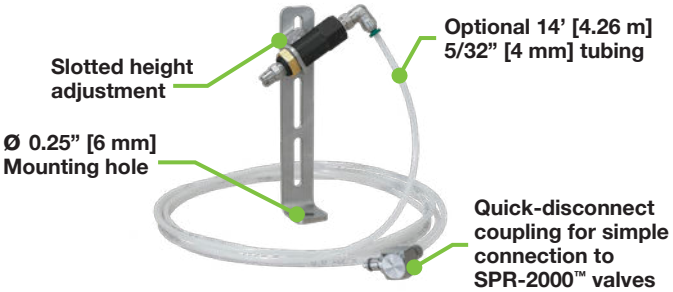
Articulating Arm Nozzle

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

Fluid Supply

Consistent, pressurized fluid

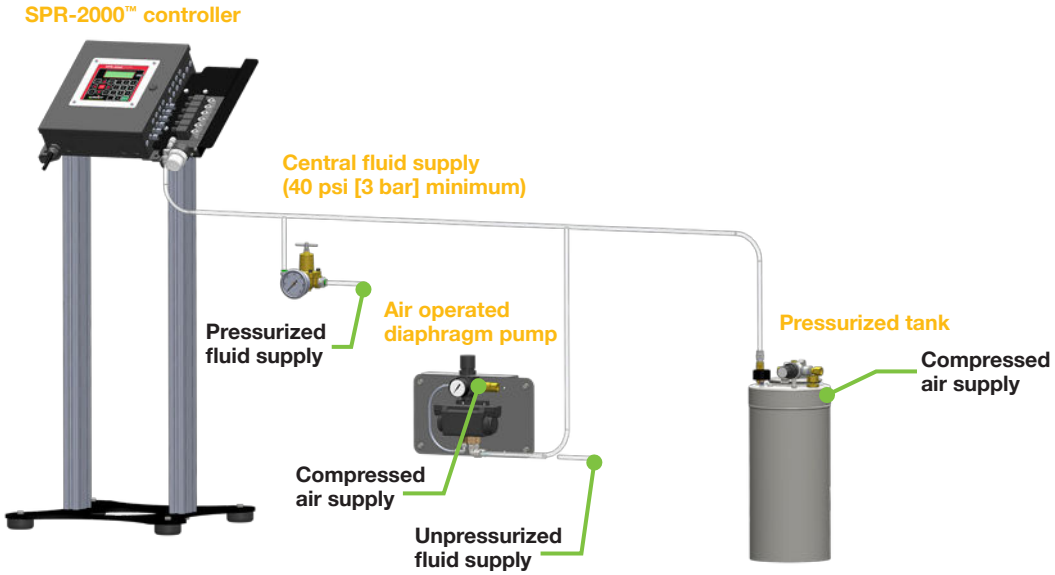
Fluid supply systems & stands

A consistent supply of pressurized fluid is a key component of any system that is controlled by an SPR-2000™ or SPR-2000 JR™ programmable fluid controller. To meet this need, Unist has assembled a broad range of options suitable for most any application including:

- Pressurized tanks from 3 to 30 gallons [11-113 liters]
- Air-operated diaphragm pump
- Fluid pressure regulator for connection to a customer's existing pressurized supply of fluid

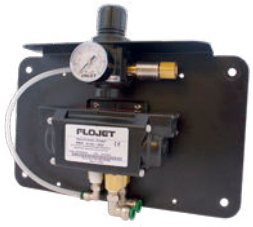
More information: unist.com/tanks

An essential component



Options & accessories

The **fluid 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.



The **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 by-pass loop to prevent stalling.

The **25 micron filter assembly** can be used with any SPR-2000™ based system for superior fluid filtering.

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

Tank options

The **3 gallon [11 liter] stainless steel pressure tank** comes equipped with a 0-40 psi [0-3 bar] regulator and a low level switch.

The **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.

The **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.

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

The **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.

The **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 down time. This system provides superior performance when drawing fluid from a tote or drum.

Uni-Blend™ Accurate & repeatable fluid mixing

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

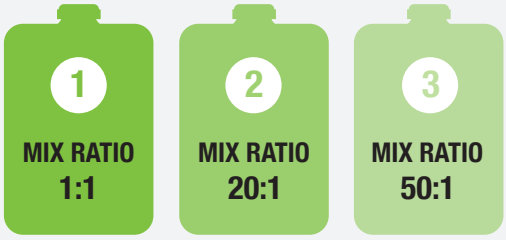
More information: unist.com/uniblend

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]

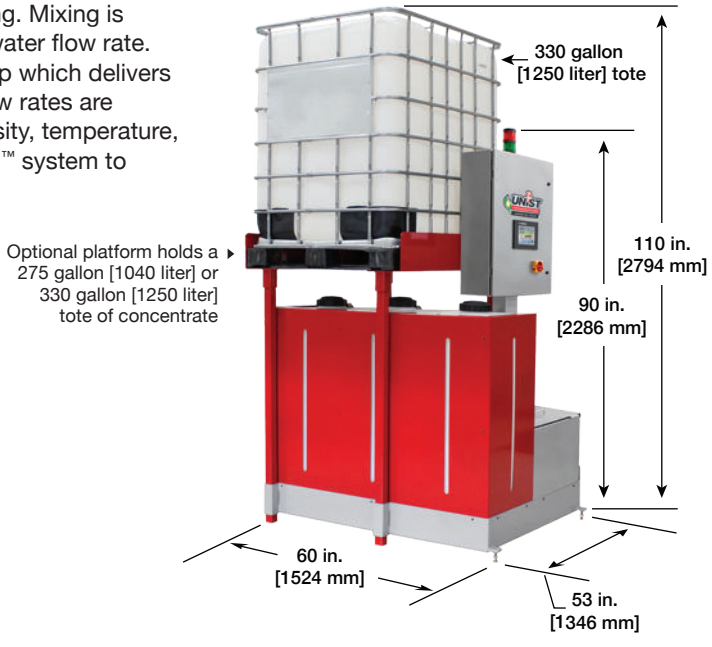
Accurate flow control

The Uni-Blend™ utilizes precise flow meters to ensure accurate mixing. Mixing is controlled by the 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

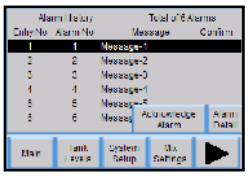
Durable, heavy-gauge steel construction

Reliable & accurate positive-displacement concentrate pump

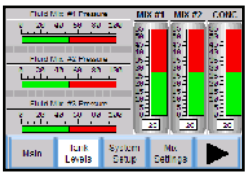


Maintain the perfect pressure & mix

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

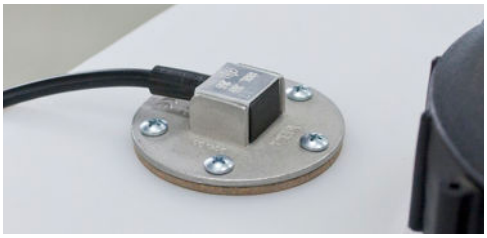
At the heart of its advanced control system is an industrial PLC and touch screen user interface which makes monitoring the operation and setting mix ratios easy.

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 (back flow monitor)
- Low output pressure



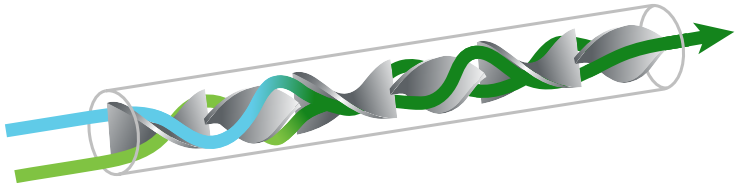
Level sensors monitor fluid levels

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

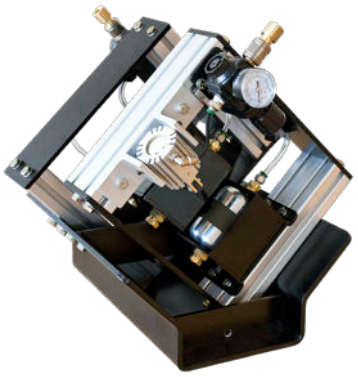
The Uni-Blend™ utilizes an in-line static mixer to ensure a complete blend of the water and concentrate. The design of the static mixer's internal fins force the water and concentrate to intermix. This results in a perfect homogeneous mixture.



Custom Systems Engineering a solution for you

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 at (616) 949-9503, email it to salessupport@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:_____ Distributor:_____

Email:_____ Contact:_____

Telephone:_____

Fax:_____

Operation information

Type of operation:

- ☐ Stamping
- ☐ Drawing
- ☐ Fine blanking
- ☐ Roll forming
- ☐ 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 lubrication

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 lubrication

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

Notes

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Email: salessupport@unist.com

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