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 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.

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.

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
    - **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
    - **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
  - **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 JR™
      - Applicator: Mini-Roller™
      - Fluid Supply
    - **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 HG
      - Fluid Supply
    - **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
Ailess Spray Nozzles can be an essential component of a complete system when additional lubrication is required downstream of a Uni-Roller® S2.

Low Volume Spray Nozzles
Unist offers a complete line of Low Volume Spray Nozzles that connect directly to valves on the SPR-2000™ programmable fluid controllers. These are recommended for situations where roller use is not practical.

Fluid Supply
A consistent supply of pressurized fluid is a key component of any system that is controlled by an SPR-2000™ programmable fluid controller.

Uni-Blend™
The Uni-Blend™ accurately mixes water with concentrated fluids and delivers the mixture to your piping network.
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

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.

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.

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

**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:**
0° to +50°C [+32° to +122°F]

**Storage temperature range:**
-20° to +70°C [-4° to +158°F]
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
- 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: Q—

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
- 1WR01 1__ 0___ 150
- 1PR01 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.

**Options**

- **Pressure switch**
  - Monitors for low fluid pressure. The switch is adjustable from 3-40 psi and is factory set at 5 psi.

- **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 or 15 gallon tank. The hole in the base of the stand is large enough to accept a 3 gallon 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.

Contact Unist at salessupport@unist.com or 800.253.5462
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

![Uni-Roller® S2](image)

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.

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.

More information: unist.com/s2

---

**Uni-Roller® S2**

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” [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.

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.

---

Single roller entry side

- Rugged aluminum & steel frame
- Integrated guards
- Roller pressure regulator with open/close valve

Single roller exit side

- Air cylinder actuated pivoted stock loading
- Internally-fed rollers lubricate stock up to 0.25” [6.4 mm] thick
- Quick-change rollers

---

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]

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (extrusion length)</th>
<th>B (overall width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3” [76 mm]</td>
<td>12.00” [304.8 mm]</td>
<td>13.13” [333.5 mm]</td>
</tr>
<tr>
<td>6” [152 mm]</td>
<td>12.00” [304.8 mm]</td>
<td>13.13” [333.5 mm]</td>
</tr>
<tr>
<td>12” [305 mm]</td>
<td>18.00” [457.2 mm]</td>
<td>19.13” [485.9 mm]</td>
</tr>
<tr>
<td>18” [457 mm]</td>
<td>24.00” [609.6 mm]</td>
<td>25.13” [638.3 mm]</td>
</tr>
</tbody>
</table>

*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]

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (extrusion length)</th>
<th>B (overall width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.5” [597 mm]</td>
<td>30.00” [762.0 mm]</td>
<td>34.16” [867.7 mm]</td>
</tr>
<tr>
<td>35” [889 mm]</td>
<td>42.00” [1066.8 mm]</td>
<td>46.16” [1172.5 mm]</td>
</tr>
<tr>
<td>46.5” [1181 mm]</td>
<td>54.00” [1371.6 mm]</td>
<td>58.16” [1477.3 mm]</td>
</tr>
<tr>
<td>58” [1473 mm]</td>
<td>66.00” [1676.4 mm]</td>
<td>70.16” [1782.1 mm]</td>
</tr>
<tr>
<td>69.5” [1765 mm]</td>
<td>78.00” [1981.2 mm]</td>
<td>82.16” [2086.9 mm]</td>
</tr>
</tbody>
</table>

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

Features & options

<table>
<thead>
<tr>
<th>Standard features</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyester felt cover</td>
<td>Polyurethane foam cover</td>
</tr>
<tr>
<td>Extremely durable and compatible with</td>
<td>Reduces uneven wear on cover when a</td>
</tr>
<tr>
<td>a broad range of fluids.</td>
<td>variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.</td>
</tr>
<tr>
<td>Standard fluid dispenser tube</td>
<td>Low volume fluid dispenser tube</td>
</tr>
<tr>
<td>Best choice for most applications with</td>
<td>For use in applications requiring coverage of 50 mg/ft² [538 mg/m²] or less.</td>
</tr>
<tr>
<td>the widest range of fluid compatibility and flow rates.</td>
<td></td>
</tr>
<tr>
<td>Manual valve</td>
<td>Solenoid valve</td>
</tr>
<tr>
<td>Manual open/close control of the</td>
<td>To tie into control systems to automate opening of roller set.</td>
</tr>
<tr>
<td>roller set.</td>
<td></td>
</tr>
<tr>
<td>Single pneumatic air cylinder</td>
<td>Double pneumatic air cylinder</td>
</tr>
<tr>
<td>Preferred method for maintaining</td>
<td>The double air cylinder is required for stock thickness over 0.25” [6.35 mm].</td>
</tr>
<tr>
<td>pressure on stock and opening the</td>
<td></td>
</tr>
<tr>
<td>rollers to load a new coil.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proximity sensor</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
Features & options

<table>
<thead>
<tr>
<th>Standard features</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyester felt cover</td>
<td>Polyurethane foam cover</td>
</tr>
<tr>
<td>Extremely durable and compatible with a broad range of fluids.</td>
<td>Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.</td>
</tr>
<tr>
<td>Standard fluid dispenser tube</td>
<td>Low volume fluid dispenser tube</td>
</tr>
<tr>
<td>Best choice for most applications with the widest range of fluid compatibility and flow rates.</td>
<td>For use in applications requiring coverage of 50 mg/ft² [538 mg/m²] or less.</td>
</tr>
<tr>
<td>Manual switch</td>
<td>Solenoid valve</td>
</tr>
<tr>
<td>Manual open/close control of the roller set.</td>
<td>To tie into control systems to automate opening of roller set.</td>
</tr>
<tr>
<td>Single pneumatic air cylinder</td>
<td>Double pneumatic air cylinder</td>
</tr>
<tr>
<td>Preferred method for maintaining pressure on stock and opening the rollers to load a new coil.</td>
<td>The double air cylinder is required for stock thickness over 0.25” [6.35 mm].</td>
</tr>
<tr>
<td></td>
<td>Proximity sensor</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

Standard sizes

**Single roller** coverage up to 18” [457 mm]

**Multiple rollers** coverage over 18” [457 mm]

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

*On units with double air cylinders add 1.40” [35.6 mm] to the pass line and overall height.*
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 Uni-Roller® S2 Powered is built to handle any manufacturing environment without sacrificing ease of maintenance.

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.
Standard sizes

**Single roller** coverage of 12” [305 mm] to 18” [457 mm]

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (extrusion length)</th>
<th>B (overall width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3” [76 mm]</td>
<td>12.00” [304.8 mm]</td>
<td>14.24” [361.7 mm]</td>
</tr>
<tr>
<td>6” [152 mm]</td>
<td>12.00” [304.8 mm]</td>
<td>20.24” [514.1 mm]</td>
</tr>
<tr>
<td>12” [305 mm]</td>
<td>18.00” [457.2 mm]</td>
<td>26.24” [666.5 mm]</td>
</tr>
<tr>
<td>18” [457 mm]</td>
<td>24.00” [609.6 mm]</td>
<td>32.24” [818.9 mm]</td>
</tr>
</tbody>
</table>

**Multiple rollers** coverage over 18” [457 mm]

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (extrusion length)</th>
<th>B (overall width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.5” [597 mm]</td>
<td>30.00” [762.0 mm]</td>
<td>41.18” [1046.0 mm]</td>
</tr>
<tr>
<td>35” [889 mm]</td>
<td>42.00” [1066.8 mm]</td>
<td>53.18” [1350.8 mm]</td>
</tr>
<tr>
<td>46.5” [1181 mm]</td>
<td>54.00” [1371.6 mm]</td>
<td>65.18” [1655.6 mm]</td>
</tr>
<tr>
<td>58” [1473 mm]</td>
<td>66.00” [1676.4 mm]</td>
<td>77.18” [1960.4 mm]</td>
</tr>
<tr>
<td>69.5” [1765 mm]</td>
<td>78.00” [1981.2 mm]</td>
<td>89.18” [2265.2 mm]</td>
</tr>
</tbody>
</table>

Features & options

<table>
<thead>
<tr>
<th>Standard features</th>
<th>Options</th>
</tr>
</thead>
</table>
| Polyester felt cover | Polyurethane foam cover  
Extremely durable and compatible with a broad range of fluids.  
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. |
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

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]

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (mounting holes centers)</th>
<th>B (overall width)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1” [25 mm]</td>
<td>2.73” [69.3 mm]</td>
<td>3.23” [82.0 mm]</td>
</tr>
<tr>
<td>2” [51 mm]</td>
<td>3.73” [94.7 mm]</td>
<td>4.23” [107.4 mm]</td>
</tr>
<tr>
<td>3” [76 mm]</td>
<td>4.73” [120.1 mm]</td>
<td>5.23” [132.8 mm]</td>
</tr>
<tr>
<td>4” [102 mm]</td>
<td>5.73” [145.5 mm]</td>
<td>6.23” [158.2 mm]</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Roller coverage</th>
<th>A (overall height)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1” [25 mm]</td>
<td>4.11” [104.4 mm]</td>
</tr>
<tr>
<td>2” [51 mm]</td>
<td>5.11” [129.8 mm]</td>
</tr>
<tr>
<td>3” [76 mm]</td>
<td>6.11” [155.2 mm]</td>
</tr>
<tr>
<td>4” [102 mm]</td>
<td>7.11” [180.6 mm]</td>
</tr>
</tbody>
</table>

**Features & options**

<table>
<thead>
<tr>
<th>Standard features</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Polyester felt cover</strong></td>
<td>Extremely durable and compatible with a broad range of fluids.</td>
</tr>
<tr>
<td><strong>Polyurethane foam cover</strong></td>
<td>Reduces uneven wear on cover when a variety of stock widths and thicknesses are used. Due to limited fluid compatibility, consult Unist.</td>
</tr>
<tr>
<td><strong>Rotation sensor</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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

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

1/4-20 Mounting hole

M6 X 1 Mounting hole

1.25 in. [31.8 mm]

2.27 in. [57.7 mm]

1.71 in. [43.4 mm]

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.
Low Volume Spray Nozzles

Spray patterns

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

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

<table>
<thead>
<tr>
<th>B</th>
<th>D*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>1.25&quot; [32 mm]</td>
</tr>
<tr>
<td>6&quot;</td>
<td>2.25&quot; [57 mm]</td>
</tr>
<tr>
<td>12&quot;</td>
<td>3.50&quot; [89 mm]</td>
</tr>
<tr>
<td>18&quot;</td>
<td>4.25&quot; [108 mm]</td>
</tr>
<tr>
<td>24&quot;</td>
<td>5.50&quot; [140 mm]</td>
</tr>
<tr>
<td>30&quot;</td>
<td>6.75&quot; [172 mm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>W*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>7.5&quot; [191 mm]</td>
</tr>
<tr>
<td>6&quot;</td>
<td>12&quot; [305 mm]</td>
</tr>
<tr>
<td>9&quot;</td>
<td>15&quot; [381 mm]</td>
</tr>
<tr>
<td>12&quot;</td>
<td>18&quot; [457 mm]</td>
</tr>
<tr>
<td>15&quot;</td>
<td>23&quot; [584 mm]</td>
</tr>
<tr>
<td>18&quot;</td>
<td>26&quot; [660 mm]</td>
</tr>
</tbody>
</table>

* 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

Semi-rigid copper Loc-Line®

Extended nozzle options allow the Low Volume Spray Nozzle to reach tight areas that otherwise might be difficult to access.

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

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

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.

<table>
<thead>
<tr>
<th>Orifice size</th>
<th>Flow rate range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.026” [0.66 mm]</td>
<td>2.21 cc/sec @ 5 psi to 10.1 cc/sec @ 100 psi</td>
</tr>
<tr>
<td>0.031” [0.79 mm]</td>
<td>3.31 cc/sec @ 5 psi to 15.1 cc/sec @ 100 psi</td>
</tr>
<tr>
<td>0.036” [0.91 mm]</td>
<td>4.42 cc/sec @ 5 psi to 20.2 cc/sec @ 100 psi</td>
</tr>
</tbody>
</table>

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

---

**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 and includes a 0-60 psi 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 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 drum.
Tank options

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

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

The **15 gallon [56 liter] ASME rated pressure tank** comes equipped with a 0-100 psi 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 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 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

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

1. MIX RATIO 1:1
2. MIX RATIO 20:1
3. MIX RATIO 50:1

Maintain any ratio between 1:1 and 50:1

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.

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

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.

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.

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.

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.

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
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 systems 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: ______________________________ |

**Operation information**

**Type of operation:**
- Stamping
- Roll forming
- Drawing
- Cold rolling
- Fine blanking
- Other: __________________________

**Blank coating**

| Machine used: ________________________________ | Material feed rate: ____________________ |
| __________________________________________ | Materials: ____________________________ |
| Press rate: ________________________________ | Material width range: __________________ |
| ________ strokes/min ________ mm/stroke | Material thickness range: ____________ |
| ________ inches/stroke ________ mm/min | Supplemental lubrication: Yes or No |
| ________ feet/min | __________________________ |

| Lubricant type: Petroleum | Semi-synthetic |
| Synthetic | Other: __________________________ |

| Is lubricant water soluble?: Yes | No |
| __________________________ | Water: Concentrate ratio |

**Coil coating**

| Machine used: ________________________________ | Material feed rate: ____________________ |
| __________________________________________ | Material information: ____________________ |
| Press rate: ________________________________ | Type of material: __________________________ |
| ________ strokes/min ________ mm/stroke | Material width range: __________________ |
| ________ inches/stroke ________ mm/min | Material thickness range: ____________ |
| ________ feet/min | Supplemental lubrication: Yes or No |

| Lubricant type: Petroleum | Semi-synthetic |
| Synthetic | Other: __________________________ |

| Is lubricant water soluble?: Yes | No |
| __________________________ | Water: Concentrate ratio |

**Lubricant information**

| Lubricant used: ________________________________ | Manufacturer __________________________ |
| Lubricant type: Petroleum | Semi-synthetic |
| Synthetic | Other: __________________________ |

| Did you send a fluid sample kit to Unist?: Yes | No |
| __________________________ | Present lubrication application system: |
| __________________________ | None | Spray | Roller | Other |

**Date: ________________________________**

Date: ________________________________

Telephone: ____________________________

Fax: _________________________________

Contact: ______________________________

Email: ________________________________