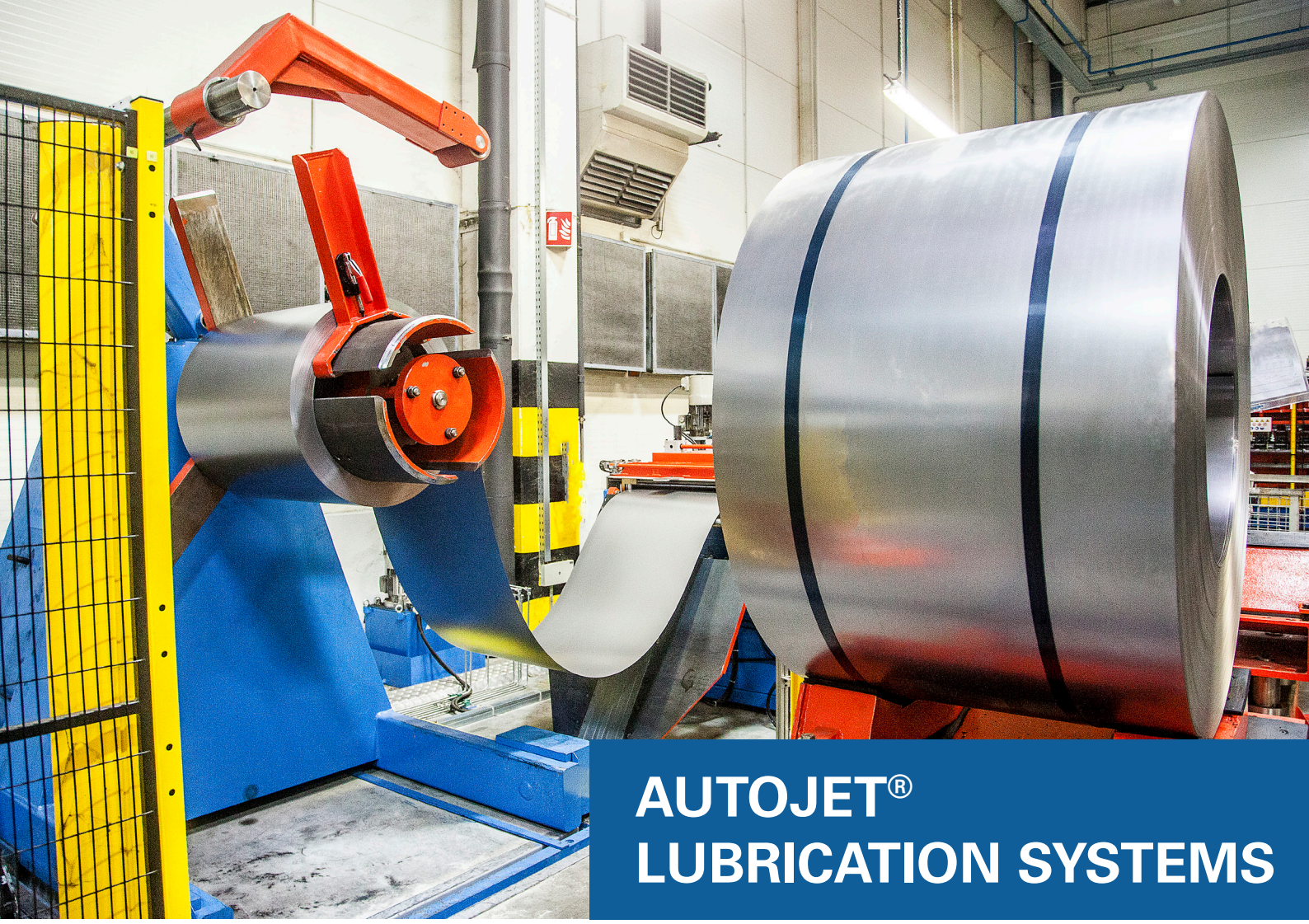
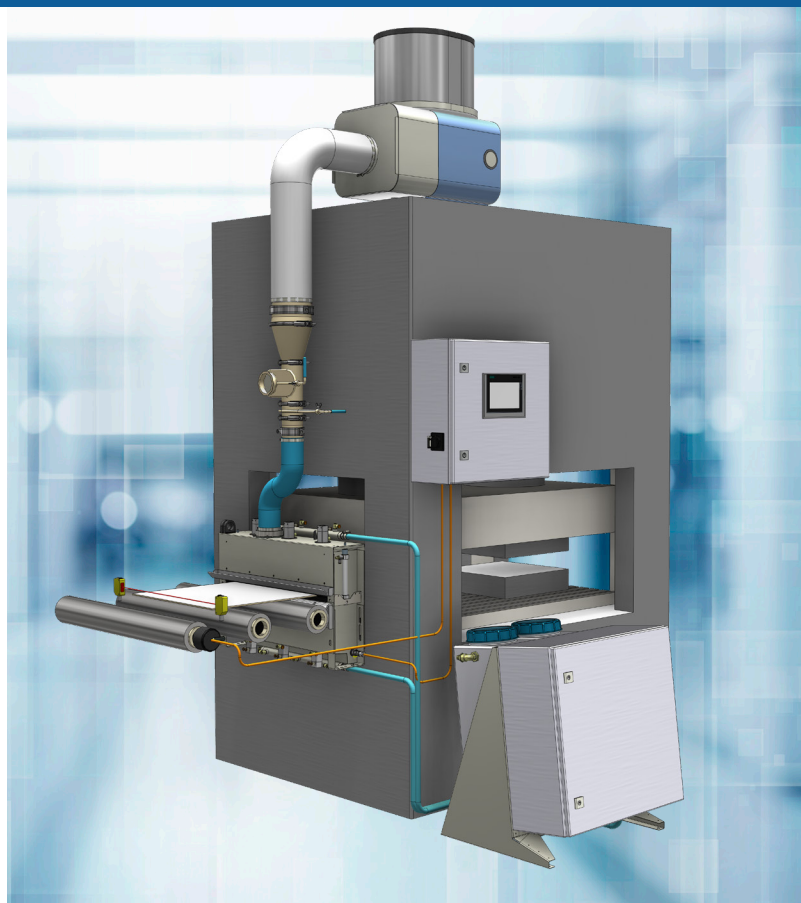


AUTOJET®
LUBRICATION SYSTEMS

Spraying Systems Co.®
Experts in Spray Technology



AUTOJET® LUBRICATION SYSTEMS

AutoJet® Lubrication Systems provide a highly efficient method of applying lubricants and corrosion protection fluids. In addition to lubricating blanks, coils, pipe sections and stamping or forming tools, wires and bars can also be treated.

We know how important it is to reduce production costs and our worldwide leadership in spray technology can help you operate more efficiently and save money. **Precise control of lubricating applications can reduce oil consumption by over 50% and can eliminate time-consuming cleaning of parts.**

To address the needs for any lubrication application we have developed 4 different AutoJet® Lubrication Systems:

- P170
- HP170
- L210
- P400

FUNCTIONAL DIFFERENCES

Type P170 • For low-viscosity media • Hydraulic spray • Continuous spray • Speed-based	**Type HP170** Has the same functionality as the P170 but with optional heating
Type L210 • For low-viscosity media • Hydraulic spray • Discontinuous spray mode	**Type P400** • For all types of viscosity media • External mix air atomizing spray • Continuous spray

All systems consist of a **base unit, coil lubricator and controller**. An optional filter unit prevents air containing oil from polluting the surrounding air.

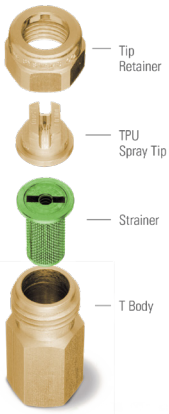
The **base unit** consists of an air-operated diaphragm pump which draws the lubricating fluid from the container through a suction filter. Lubricant is pushed through the lines to the spray nozzles mounted in the coil lubricator using low pressure. Double air jets distribute the lubricant over the work piece in a uniform film.

The **coil lubricator** is an effective solution for the lubrication of bands in automatic presses. Due to the sturdy stainless steel construction it is also able to withstand heavy loads. Pneumatic lifting cylinders open the coil lubricator – fixed versions are also available. The coil lubricator is fitted with a return line with an optional filter.

The **AutoJet® controller** accurately controls the timing of the spray for a precise and efficient spray application.

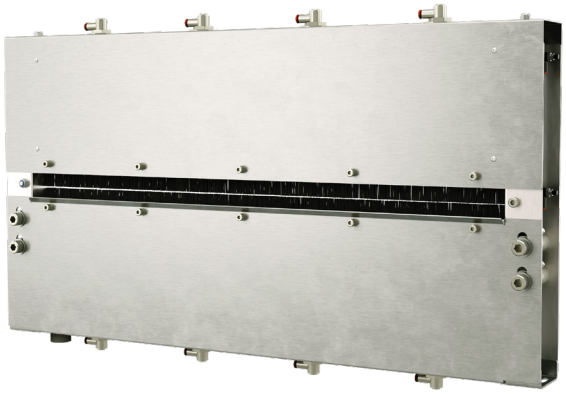
FEATURES & BENEFITS

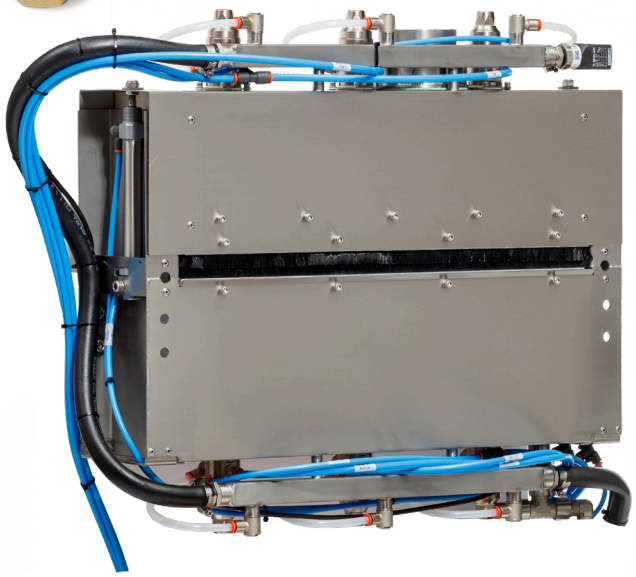
Optimal distribution of the lubricating fluid on the coil (top, bottom, both sides)
Easy to maintain due to pneumatic lifting cylinders
Quick and easy assembly
No misting or polluting of the work environment
Optional installation of additional nozzles for spot lubrication of critical points
Solenoid valves direct the return flow of different lubricants to the proper container
Surplus amounts of lubrication oil are returned to the supply container
Containers are not pressurized so can be continually refilled without stopping operation.
Effective full-flow filters guarantee that no contaminants are allowed to enter the pump or the nozzles
Easy change-over between various lubricants



NOZZLES FOR TYPE L210:

The L210 lubrication system uses airless nozzles to apply low-viscosity media. Due to their flat spray pattern the nozzles cover a substantial width and are thus very economical.





NOZZLES FOR TYPE P400:

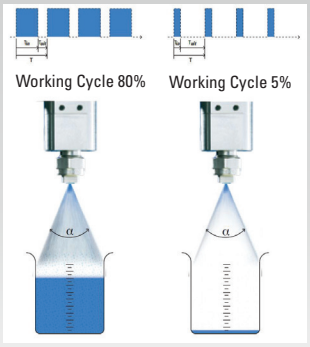
The P400 lubrication system uses air atomizing spray nozzles to apply high viscosity media (more than 600 cSt). All nozzles have a needle which precisely opens and closes the nozzle with each spray pulse and which effectively cleans the orifice from any residue or debris.

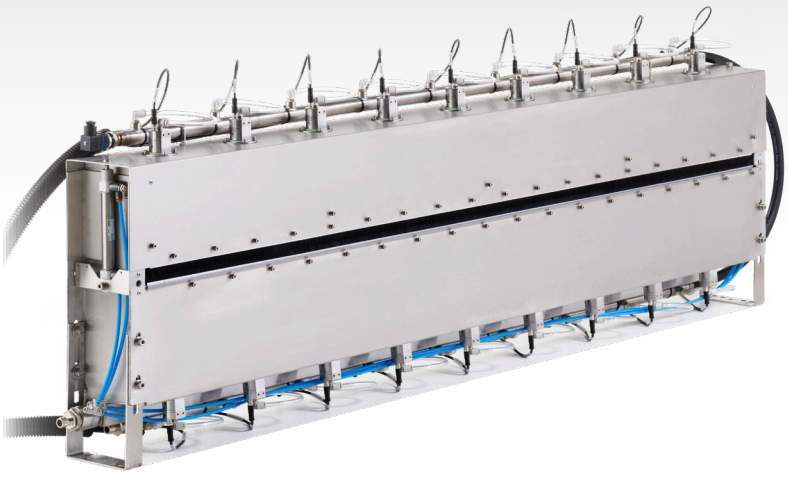
The nozzles are air-controlled and all circuits can be controlled independently. This allows exact control and repeatable metering of the circulated oil and provides full control over the applied amount and the thickness of the oil/lubricant layer.

PRECISION SPRAY CONTROL

Electrically-actuated spray nozzles are turned on and off very quickly to control flow rate. A duty cycle of 50% results in a corresponding flow rate of 50% of the rated flow for this nozzle at a given pressure.

More information:
www.spray.com/Products/Spray-Control-Options/Precision-Spray-Control





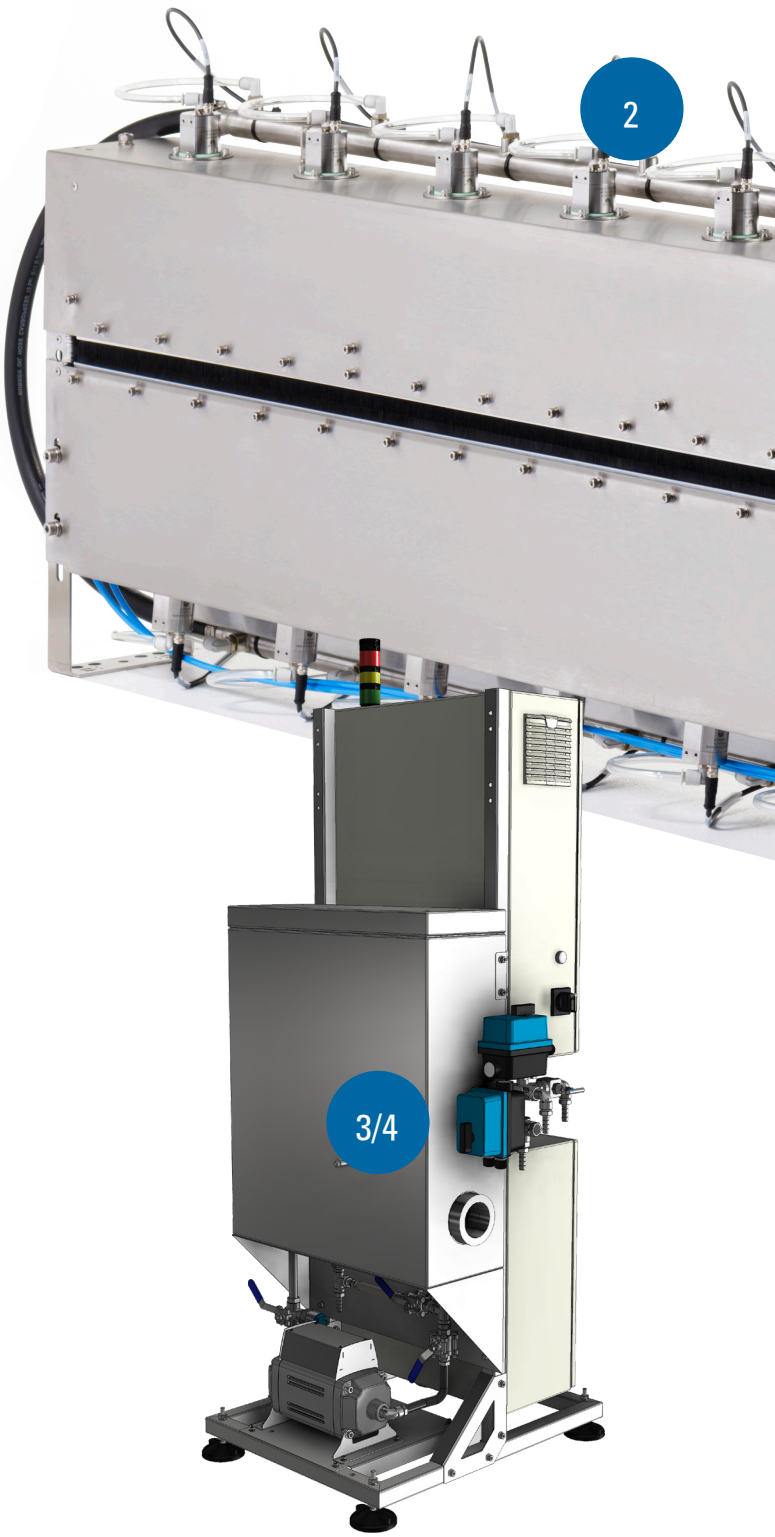
NOZZLES FOR P170 AND HP170:

The P170 and HP170 lubrication systems use PulsaJet® nozzles to apply low-viscosity media without compressed air.

AUTOJET® P170 AND HP170 LUBRICATION SYSTEM

1. FULL CONTROL TO GUARANTEE ACCURATE APPLICATION OF YOUR LUBRICANT

The newly developed AutoJet® P170 and HP170 lubrication system is specifically designed for applications where lines with speed variations require a constant amount of lubricant per m². The AutoJet® systems operate at line speeds up to 300 m/min delivering a pre-set amount of lubricant evenly across the coil regardless of machine speed. Our PWM controllers and PulsaJet® spray nozzles adjust flow to match speed variations during the run: the result is consistency from start to finish. From slow speeds to fast speeds and back again the amount you pre-set will be the amount you get.



2. EASY AND ACCURATE SET UP

The system is easy to set up and operate. Enter the amount of lubricant you require, select the number of nozzles based on coil width and press start!
The AutoJet® controller signals our PulsaJet® spray nozzles to ensure the application rate is always perfect. Fully hydraulic sprays are used for most applications, but for extremely viscous oils, we also have an air-assisted nozzle.

3. SPRAY LUBRICANTS AT AMBIENT TEMPERATURE

The P170 system handles most lubricant oils that don't require heating. The oil is simply sprayed at the ambient temperature.

4. TEMPERATURE CONTROL ALLOWS THE USE OF WHICHEVER LUBRICANT YOU PREFER

The HP170 system can handle most high viscosity oils (wax-based, anti-corrosion, ...). These types of oil are more thixotropic which enables them to remain on the coil in all conditions. However, the oils must be applied at elevated temperatures, sometimes above 55 °C.
The HP170 has temperature control built into the system, allowing the operator to select the correct temperature for the oil in your process.

SPECIFICATIONS

- Flow rate control via PWM (Pulse Width Modulation)
- No compressed air required

DIMENSIONS AND WEIGHTS

- Available for all bands widths
- Dimensions will vary depending on band width
- Nozzle type: Air-Atomizing or Hydraulic PulsaJet® Nozzle

CORROSION PROTECTION

ROLL FORMING

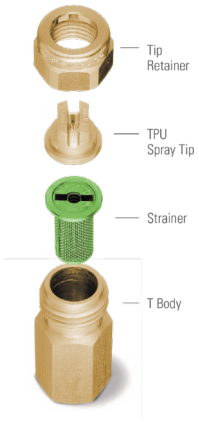
STAMPING

WIRE / TUBE LUBRICATION

AUTOJET® L210 LUBRICATION SYSTEM

1. COIL LUBRICATOR WITH FLAT SPRAY NOZZLES

A very efficient method of applying lubricants is to use a coil lubricator placed between the feeder and the press. In the coil lubricator, the lubricant is evenly distributed over the band. Excessive oil is contained in the coil lubricator and returned to the supply container, preventing contamination of the surrounding area. Flat spray nozzles in the coil lubricator evenly and economically cover the full width of the band. It is possible to design coil lubricators for a wide range of widths. Pneumatic lifting cylinders open the coil lubricator for maintenance purposes or for feeding the band. On request, they can also be made in a fixed configuration.



To retain the oil in the lubricator, brushes are fitted on the inlet and outlet sides. For an optimized distribution of the lubricating fluid on the band the lubricators can be equipped with spring loaded felt strike-off units on the outlet sides.

2. RETURN LINE FILTER

An efficient full flow filter collects particles from the band that would otherwise contaminate the return flow.

3. BASE UNIT

The base units are available in a variety of sizes with containers from 0.5 to 35 liters. When different types of lubricants are used, several containers can be installed. Electro-magnetic valves direct the return flow of surplus lubricant to the proper container.

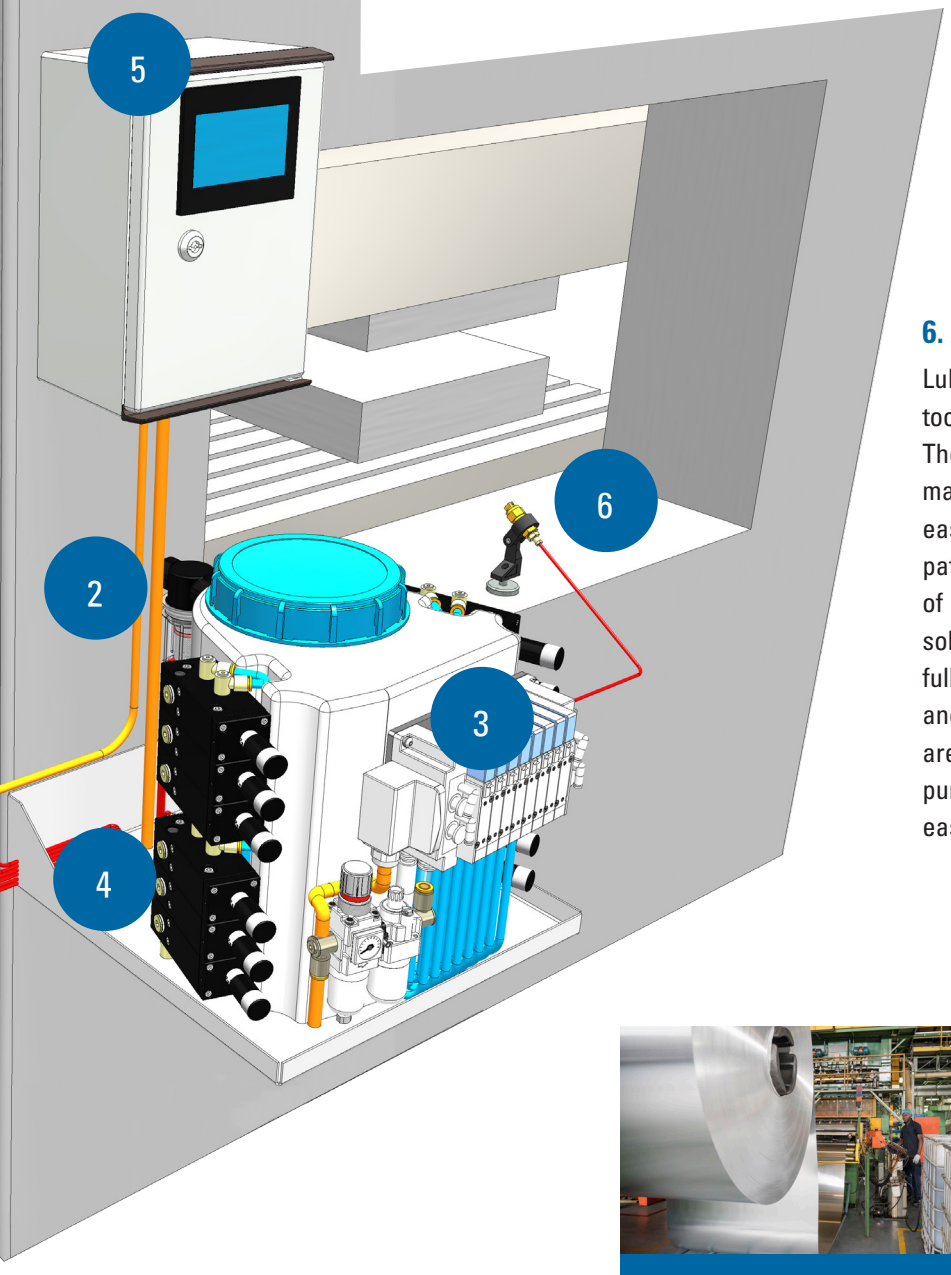
4. PUMP L210

The L210 is a high-pressure pump designed for the application of low-viscosity fluids. Indexing of each pump allows for accurate metering of the amount of lubricant applied to each lubrication point.

5. T100 TIMER AND CONTROL UNITS

Feed lengths over 100 mm require several lubrication pulses per stroke. The T100 timer unit allows up to 10 lubrication pulses per second.

High-speed presses or similar applications do not need a lubrication pulse for each stroke. The T100 control unit features a preselection counter which triggers a lubrication pulse once the selected number of strokes is reached. This feature is particularly useful for roll-forming applications in order to ensure constant lubrication regardless of band/strip speed.



6. ADDITIONAL NOZZLES

Lubrication of critical points, e.g. a single punching tool, can be achieved by using additional nozzles. The nozzles are available with a magnetic foot that may be mounted directly onto any base or may be easily built into a tool. To create a suitable spray pattern, a large variety of nozzle inserts with solid stream, hollow or full cone spray patterns and various spray angles are available. Additional pumps and nozzles can easily be retrofitted.

ROLL FORMING

STAMPING

AUTOJET® P400 LUBRICATION SYSTEM

Precise lubrication control is critical, especially for deep-drawing applications. To ensure optimal results and flexibility the system can be ajdusted to apply anything from a very thin film to thicker layers of lubricant.

The AutoJet® P400 Lubrication System is mainly used for the application of high-viscosity lubricants. When used in combination with a powerful spray controller, the system is capable of recipe handling to ensure optimal fault-free production of different types of lubricants.

1. COIL LUBRICATOR WITH AIR ATOMIZING NOZZLES

A very efficient method of applying lubricants is to use a coil lubricator placed between the feeder and the press. In the coil lubricator, the lubricant is evenly distributed over the band. Excessive oil is contained in the coil lubricator and returned to the supply container, preventing contamination of the surrounding area. Air atomizing nozzles with external mix air caps allows precise and uniform application of even the highest viscosity lubricants. The amount of lubricant is controlled by the pressure in the liquid circuit and is adjustable to a high degree of accuracy.

Coil lubricators can be made in any width over 100 mm. They are available as a fixed version or with lifting cylinders for opening the top part. To allow contact-less feeding or pulling through of the band/strip, it is also possible to simultaneously open the top and bottom parts.

2. BASE UNIT

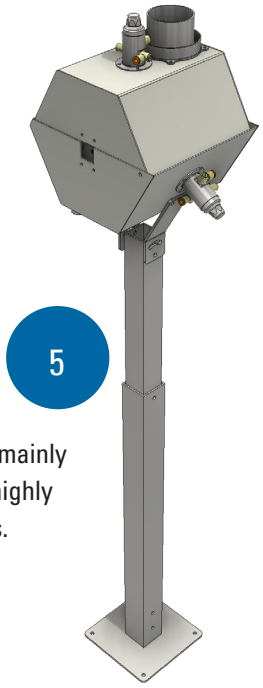
The base unit is most commonly equipped with a 35 liter lubricant container. If multiple lubricants are required, the system can also be equipped with two, three or more containers. The correct lubricant can be selected using simple switches or via the spray controller. The containers are not pressurized and can be filled and serviced while the system is operating through the optional refill strainer. A large lid facilitates filling. Automatic filling from drums or a central oil tank is also possible.

3. FULL FLOW FILTERS

Effective strainers in all suction lines prevent contamination of pumps and nozzles. This ensures a high degree of operational reliability.

4. OIL MIST SEPARATOR

The oil mist separator ensures that no oil-mist is allowed to escape. This keeps the surrounding area dry and clean and prevents harmful aerosols from escaping into the air.



5. PF250/3 APPLICATOR

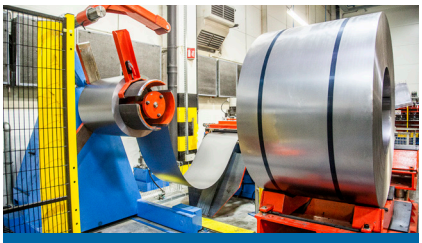
The PF 250/3 applicator is an optional addition to the P400 lubrication system that replaces the coil lubricator and is mainly used for coating wire and small bar stock. The system is highly flexible and can be adapted to many different applications.

6. PRESSURE CONTROL

The pressure control in the lubricant and compressed air systems is adjusted using manual regulators and pressure gauges. Automatic pressure control can be set up by using an electronic control unit in combination with proportional valves.

7. ELECTRONIC CONTROL

The control is centralized by a special spray controller. Alternatively, connection to a central control system is also possible.



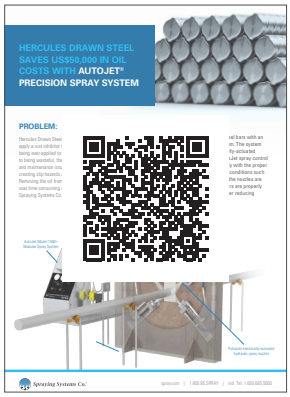
STAMPING

WIRE / TUBE LUBRICATION

AUTOJET® LUBRICATION SYSTEMS CASE STUDIES

CS 140A Automated Lube System Helps **Automotive Parts Manufacturer** Reduce Oil Consumption by 50%

CS 173 Automated Lube System Helps **Truck Manufacturer** Improve Product Quality and Reduce Oil Consumption



CS 260 Hercules Drawn steel Saves US$ 50,000 in Oil Costs with AutoJet Precision Spray System

CS 263 Electrostatic Chain Oiler System Eliminates Contamination Concerns on **Can** Lines

CS 272 AutoJet Spray System Saves **Steel Producer** More Than US$ 200,000 Annually

CS 277 Manufacturer Achieves Significant Worker Safety Improvements with Automated Spray System

CS 283 Wire Manufacturer Saves on Chemicals with AutoJet Spray System

CS E4013 Gnotec Sweden secures a major contract thanks to a more sustainable solution that saves them over EUR 100,000 year

CS E4028 Layde Steel Manufacturing Reduces Lubrication Oil Use with Over 60 Percent

CS E4029 New Sustainable Solution Leads to a Higher Quality End Product and Results in € 350,000 Savings per Year

CS E4034 **Plastic Cup** Manufacturer Saves € 18,000 Annually with Automated Anti-Static Spray System

CS E4035 Automated Spray System Helps **Elastomer** Manufacturer Reduce Release Agent Usage and Save € 50,000

CS E4036 **Wood Pellet** Manufacturer Saves More than € 10,000 Annually Spraying Oil with Automated Spray System

CS E4039 **Modular Retaining Wall** Manufacturer Cuts Release Agent Use by 75 Percent to Save More Than € 60,000

CS E4045 **Cement Board** Manufacturer Reduces Chemical Use and Saves € 27,000 per Year

CS E4046 Automated Spray System Saves **Building Products** Manufacturer More Than € 35,000 per Year

CS E4047 Automated Spray Lubrication System Saves **Foam Parts** Producer More Than € 30,000 per Year

E3001-EN AutoJet System HP170 Heated System for High Precision Spraying on Coils

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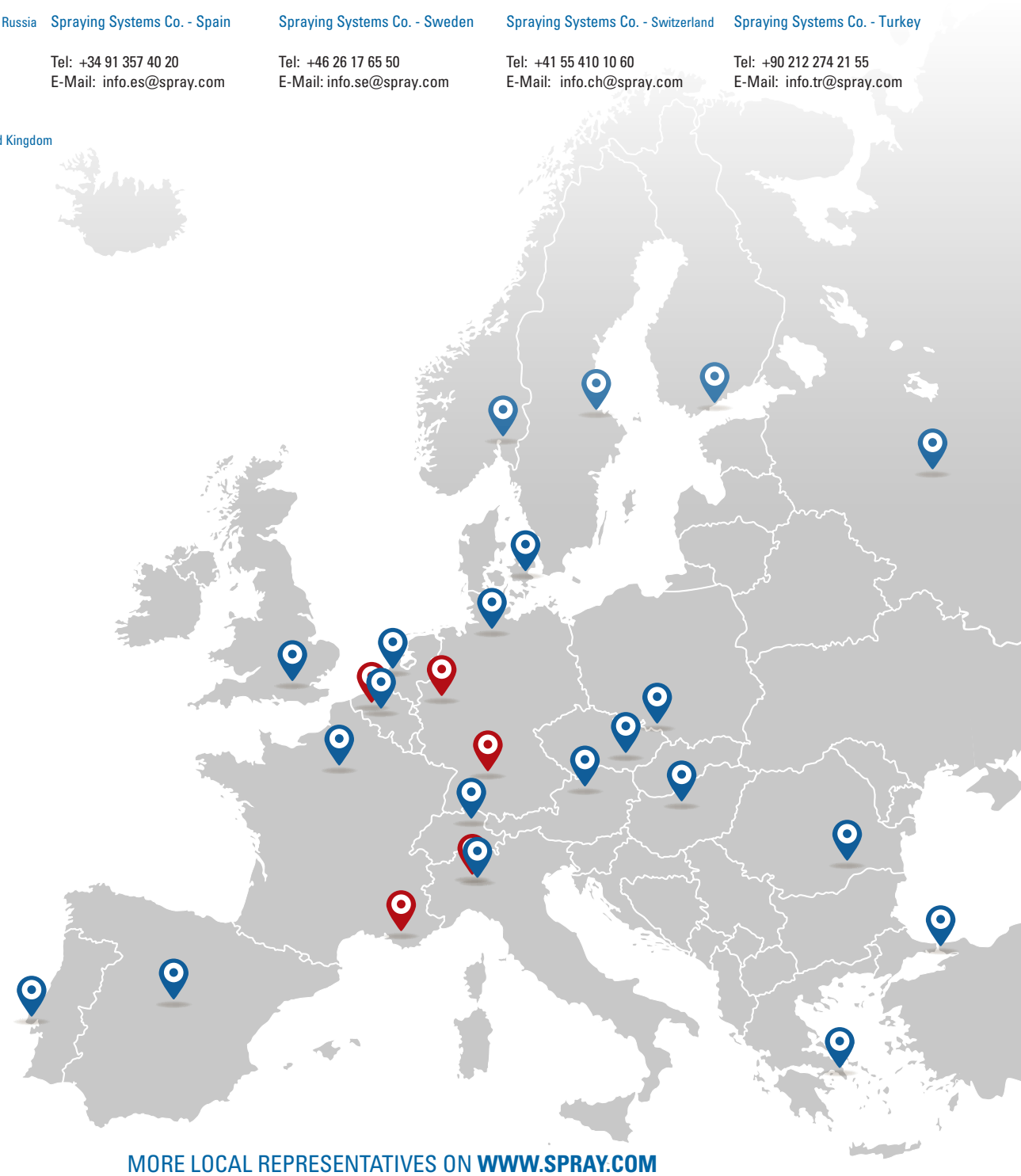

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