

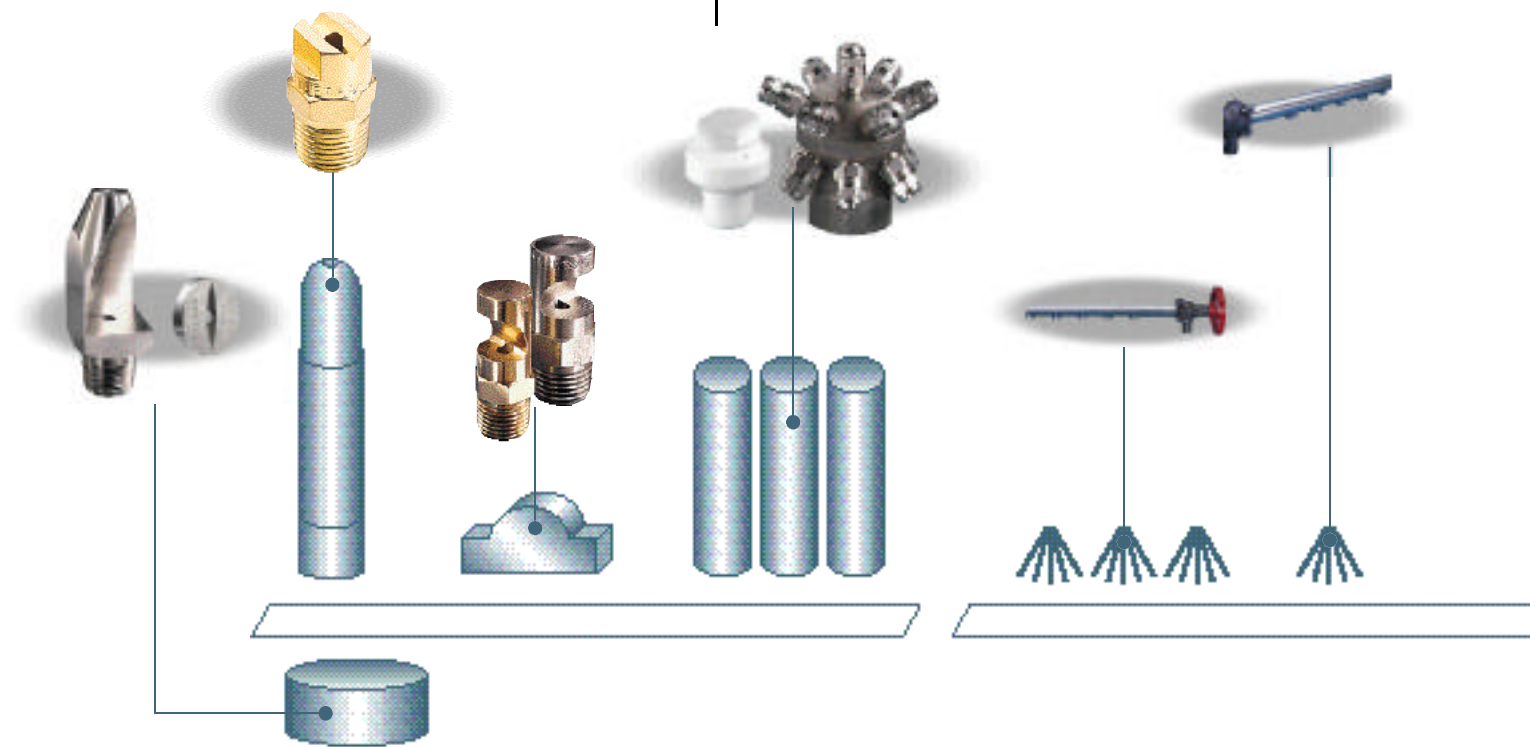
Spray Nozzles,
Showers, and More



for the Pulp
and Paper Industry



Spraying Systems Co.®



Pulp and Stock Preparation

Pulp Washing

Everything you need to optimize spray nozzle system performance in your pulp and paper mill

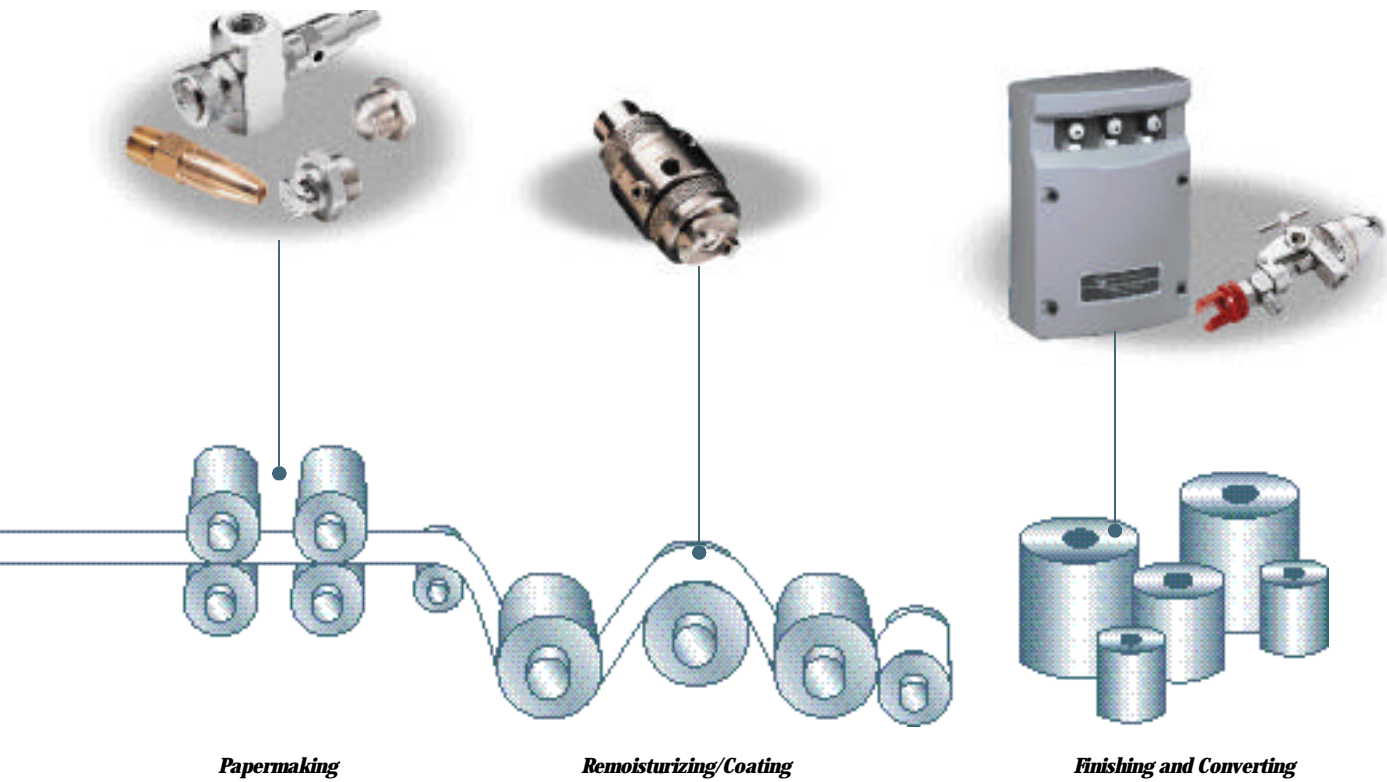
With tens of thousands of different spray nozzles and accessories from which to choose, Spraying Systems Co. can meet all your needs for manufacturing and converting paper and paper products. Whether your spray application consists of cleaning filter discs in the save all, starch coating in the dry end, cleaning suction rolls in the fourdrinier, or humidifying your converting plant, we have the right spray product for optimizing your spray nozzle system performance.

And if we don't have a standard model that's perfect for your application, we will custom design one to solve your problem. You can be assured that your custom-designed product will meet your requirements exactly and will be the most cost-effective design possible.

Producing spray products to the highest quality standards is also very important to Spraying Systems Co. We have instituted rigorous and comprehensive quality control programs throughout our production processes. All production is thoroughly tested to the highest quality standards, including ISO 9001.

In addition to offering the industry's largest selection of high-quality spray products, you'll find that our sales engineers and technical services staff have a wealth of hands-on-experience. And with sales offices located throughout the world, direct assistance is only a phone call away.

We can also help you save time and improve product quality with our Paper Machine Audit. As you know maintenance shutdown is a busy time. You've got your hands full and we know that updating records of shower headers and spray nozzles on your paper machine probably isn't a top priority.



Papermaking

Remoisturizing/Coating

Finishing and Converting

Re-ordering spray nozzles or nozzle tips when you don't know the model number or manufacturer can take a simple task and turn it into a frustrating and time-consuming chore. Having this information readily available eliminates complications and saves you time during nozzle replacement.

So why not let Spraying Systems Co. handle this time-intensive task for you? Our Paper Machine Audit can save time, improve production quality, and identify potential future problem areas. Best of all, it's free with no obligation.

Or, you can request our free, no-obligation Visual Inspection. From pulp and stock preparation to washing, remoisturizing/coating, papermaking, finishing and converting, we'll walk from one end of the mill to the other, observing, recording, and probing for ways to improve your operation. Upon completion, you'll receive a detailed report that shows which nozzles are clogged, which ones may be worn, and those that likely need replacing.

Featured on the following pages is a wealth of information to help you identify the most commonly used spray products for various applications involved in the papermaking process. Should you need additional assistance in selecting the right spray product, simply contact your local Spraying Systems Co. sales engineer.

Save time and improve product quality with our Paper Machine Audit or Visual Inspection

Pulp and Paper Spray Nozzles and Accessories Selection Guide

MILL SECTION	PRODUCT TYPE	APPLICATION	LOCATION	PAGE NO.
Pulp and Stock Preparation	FlatJet® Nozzle	• Knock-off	Save-all	5
	DiscJet® Nozzle	• Clean filter discs	Save-all	6
	VeeJet® Nozzle	• Ground wood stone washing & cooling • Mud washing (logs)	Pulp mill Pulp mill	5
	FloodJet® Nozzle	• Bleaching & brown stock washing • Lime mud filter	Pulp mill Pulp mill	5
	Tank Cleaning Nozzles	• Chest cleaning • Bleach tower cleaning	Pulp mill Pulp mill	7
Pulp Washing	Showers	• Dandy roll • Couch roll • Knock-off or NIP flooding shower • Fabric cleaning or wire cleaning • Lube showers • Breast roll • Felt cleaning • Lube shower	Fourdrinier Fourdrinier Fourdrinier Fourdrinier Fourdrinier Fourdrinier Press Press	8,9
Papermaking	NeedleJet® Adapter	• Clean felt & fabric • Clean suction roll	Wet end, Press Fourdrinier	5
	Self-Cleaning Nozzles	• Clean felt & fabric • Knock-off • Pre-wetting • Lubrication	Wet end, Press Save-all, Fourdrinier Wet end Press	6
	DiscJet® Nozzle	• Clean filter discs • Clean suction roll	Save-all Fourdrinier	6
	UltraStream® Nozzle	• Trim paper web • Slit paper to width	Fourdrinier Dry end	6
	Air Atomizing Nozzles	• Lubrication • Pre-wetting	Fourdrinier Press	6
	GunJet® Spray Guns	• Knock-off • Remoisturizing • Mill clean up	Save-all Dry end Mill	10
	VeeJet® Nozzle	• Clean felt & fabric • Knock-off • Lubrication	Wet end, Press Save-all Press	5
	FlatJet® Nozzle	• Knock-off	Save-all	5
	Air Atomizing Nozzles	• Remoisturizing	Dry end	6
	FloodJet® Nozzle	• Lubrication • Knock-off • Formation shower	Press Fourdrinier Fourdrinier	5
Remoisturizing/ Coating	VAU AutoJet® Nozzle	• Remoisturizing • Starch coating	Dry end Dry end	7
Finishing and Converting	AutoJet® Automatic Spraying System	• Apply light mist of fluid to web • Moisten cardboard cuttings • Water-wax lubrication of webs in cardboard manufacture • Tie tail of tissue & towel logs • Adhesive spotting or spraying	Converting plant Converting plant Converting plant Converting plant Paper box or bag plants	11
	45400 Humidification/ Anti-Static Unit	• Space humidification	Converting plant	11
	AutoJet® Spray Gun with TC Tips	• Spray glue for core constructing	Finishing	11

Our expanded line of spray nozzles gives you more options

Here's a look at some of the spray nozzles available for use in a variety of pulp and paper applications. Most items are available from stock and are ready for immediate shipment.

VeeJet® Nozzles.



These precision-machined flat fan spray nozzles are ideal for high-impact spraying. Featuring a tapered or even spray pattern, the nozzles are available in 316 or 303 stainless steel, brass, and PVC with spray angles ranging from 15° to 110°.

FloodJet® Nozzles.

These nozzles produce a wide-angle, sheet-like, flat spray pattern with minimum atomization. A round orifice minimizes clogging. They are available in 316 or 303 stainless steel, brass, and PVC.



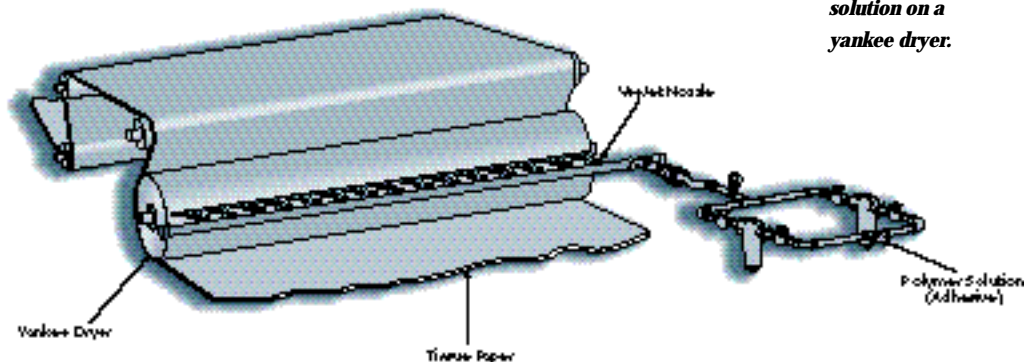
FlatJet® Nozzles.



These high-impact nozzles have a flat spray pattern with narrow spray angles. With their precision-machined deflector surface, the nozzles produce a uniform distribution of medium-sized drops. Their large, unobstructed flow passage minimizes clogging.

NeedleJet® Nozzle/Adapter.

This solid stream, high performance nozzle is ideal for high impact cleaning of felts, fabric wire, and suction rolls. Precision machined to provide exact flow control and superior spray integrity. A NeedleJet Adapter makes adding the nozzle to a shower exceptionally easy.



Spraying polymer solution on a yankee dryer.

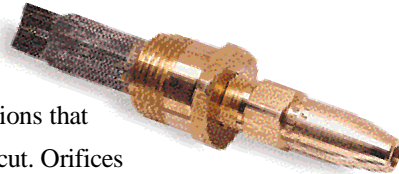
Self-Cleaning Nozzles.



By simply adding our self-cleaning nozzles to a shower, you have the added benefit of significantly reduced maintenance downtime. When line pressure is reduced, the nozzle's purge piston retracts to purge fibers and other suspended solids from a clogged nozzle orifice. This feature makes our self-cleaning nozzles particularly well suited for white water applications.

UltraStream® Nozzles.

Our UltraStream nozzle is ideal for paper trimming applications that require a precise, clean cut. Orifices offer a needle-like solid stream pattern even at elevated pressures — up to 2000 psi (140 bar). Orifice materials include 316 stainless steel or high alumina ceramic.



DiscJet® Nozzles.



When space is critical, the DiscJet nozzle is an excellent choice. This flat spray nozzle can be flush-mounted to a shower pipe and provides effective cleaning with minimum water usage and minimal clogging.

J Series of Air Atomizing Nozzles.



These air atomizing nozzles produce a fine atomization by mixing air and liquid. Each nozzle in the series is available with pressure spray set-up or siphon spray set-up. Plus, spray set-ups within the series are interchangeable for application flexibility. They are also offered with internal or external mix and atomization control.

JAU Series of Air Atomizing Nozzles.

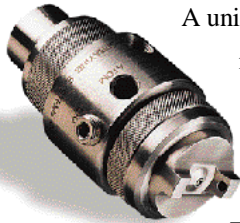
Available with a wide variety of spray set-ups, JAU Series of air atomizing nozzles features an internal air cylinder for controlled on/off operation up to 180 cycles per minute. This on/off cycle only interrupts the liquid portion of the spray. All nozzle parts are manufactured to precise quality control standards for smooth operation and long life. Materials of construction include a choice of nickel-plated brass or stainless steel.



- **Model 1/4JAUCO Nozzle.** Features include 1/4" NPT or BSPT (F) air and liquid inlets and 1/8" NPT or BSPT (F) air cylinder inlets.
- **Model 1/4JAUPMCO Nozzle.** Features include a mounting plate that attaches to the nozzle via a single nut for easy removal and replacement. This makes the nozzle easy to service without disturbing the air and liquid line connections.

VAU/VAA AutoJet® Nozzles.

When uniform spray distribution is especially critical, choose our variable spray VAU/VAA AutoJet nozzle to achieve precise, consistent moisturizing and coating.



A unique external mix design enables independent adjustment of liquid, atomizing air, and fan air pressure for fine tuning of flow rate, drop size, spray distribution, and coverage.

Two basic models are available — the VAU automatic version has a built-in clean-out/shut-off needle that is activated during each spray cycle, virtually eliminating plugging. The VAA version offers continuous operation and can be ordered with a manual shut-off needle, a clean-out needle, or a combination shut-off/clean-out needle.

27500 Tank Cleaning Nozzles.

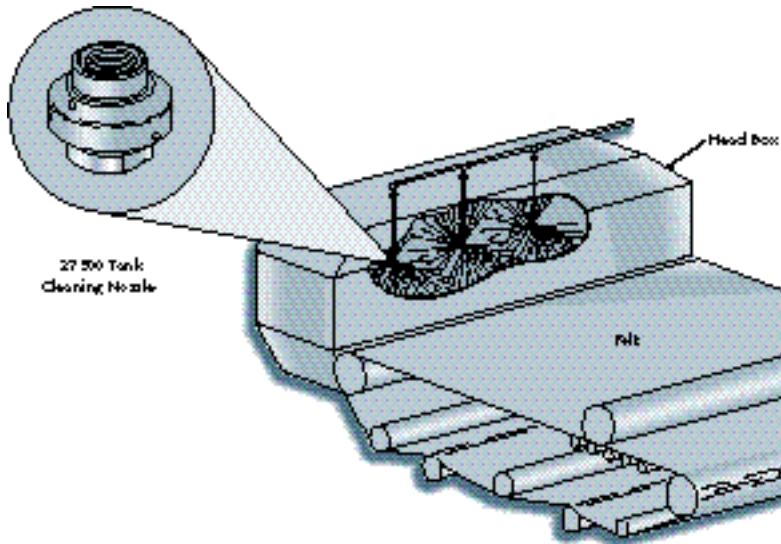
Constructed of chemical- and corrosion-resistant TEFLON® fluoropolymer resin material, this nozzle features five threaded inlet connection sizes, five spray coverages, and a variety of flow rates.



6353 Tank Cleaning Nozzle.



This tank nozzle features 13 full cone nozzles that spray all interior stock chest surfaces at pressures up to 60 psi (4 bar). It's ideal for effective washing or rinsing of tanks of many sizes.



Foam control and internal surface cleaning of head box.

Teflon is a trademark of E.I. DuPont de Nemours.

Improve your finished product quality with manual brush, automatic brush, brushless or oscillating showers

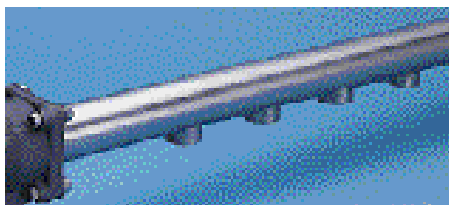
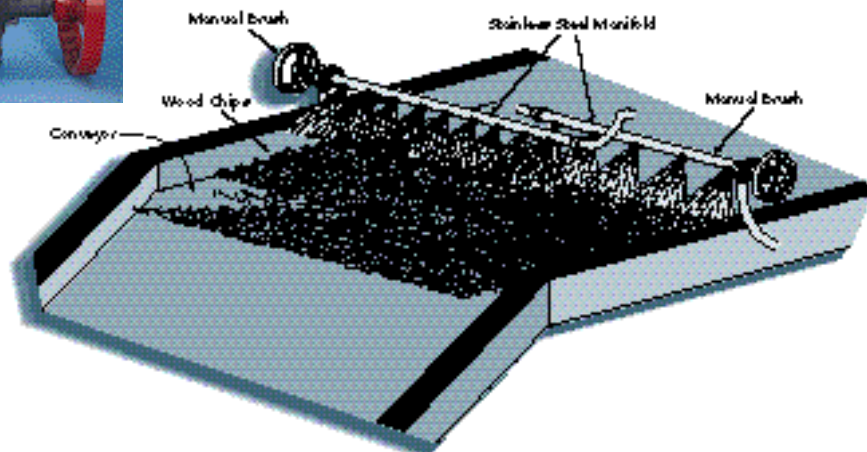
Four models of our stainless steel showers are available — manual brush, automatic brush, brushless and oscillating. If you need a thorough cleaning, our manual brush and automatic brush versions are the right choice. That's because an internal rotating brush assembly scrubs the interior wall of

the header as well as each disc-type shower nozzle orifice. In a matter of seconds, nozzle debris is swept away through the flush-out valve — restoring full liquid flow to the system without contaminating the sprayed surface. But if your needs are more basic, then the brushless version is your best option.

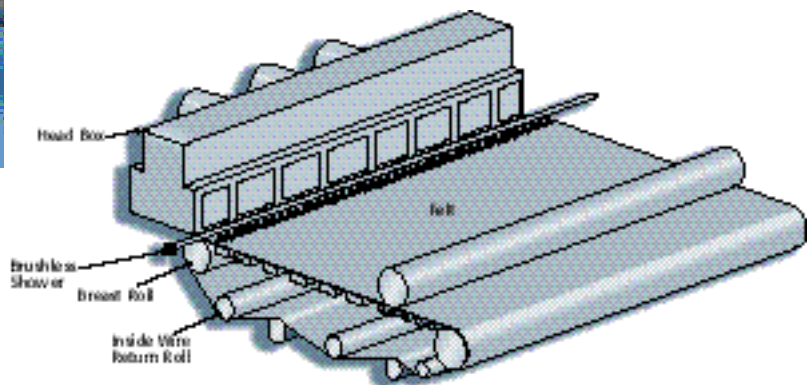
For even more cleaning efficiency, you'll want to choose our No. 30000 Oscillator Assembly. It provides continuous movement of a shower to assure complete, uniform coverage with minimal water usage. The unit is suitable for showers ranging from 1-1/2" to 6" pipe sizes.

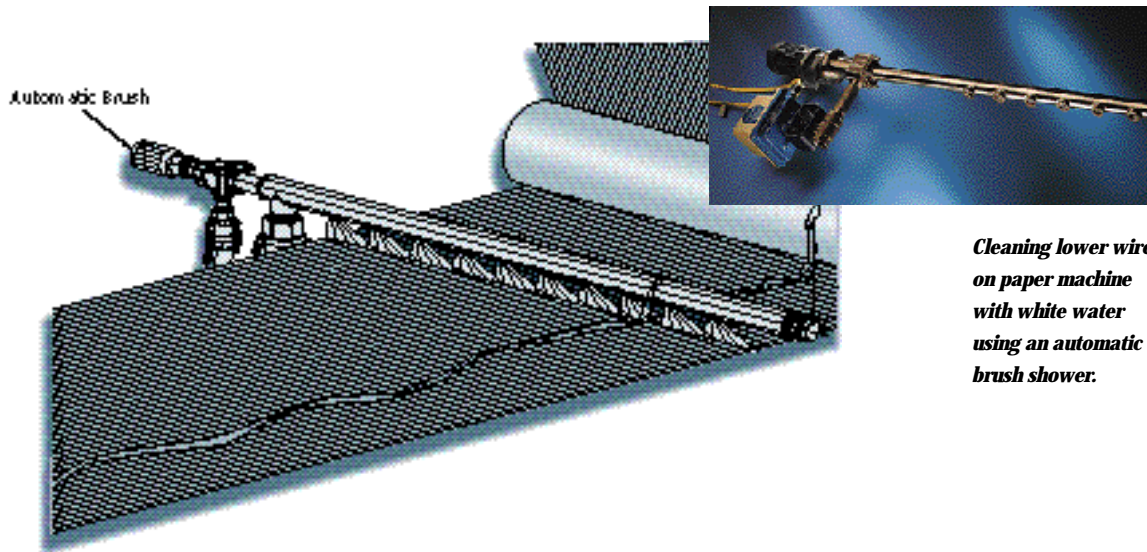


Spraying fungal inoculum on wood chips using a manual brush shower.

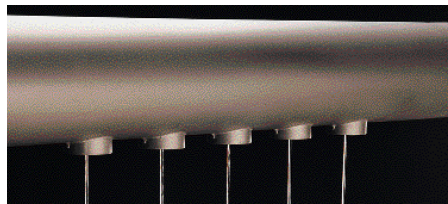


Applying cleaning solvent in a paper mill using a brushless shower.



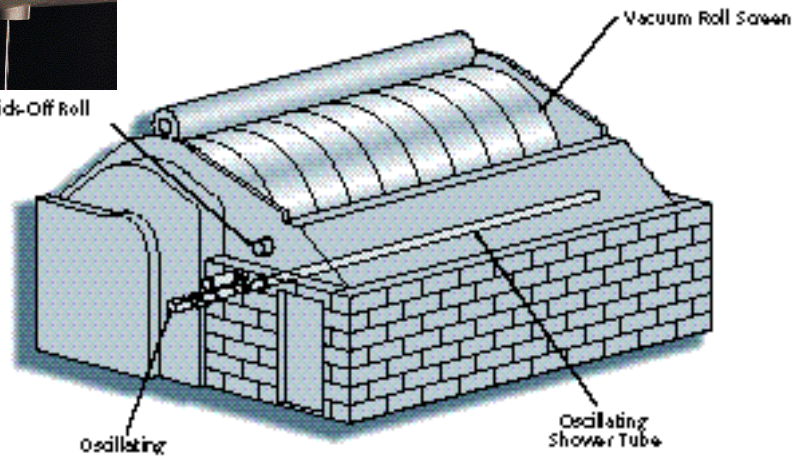


Cleaning lower wire on paper machine with white water using an automatic brush shower.



Cleaning rotary screen in a paper mill using an oscillating shower.

Pick-Off Roll



Vacuum Roll Screen

Oscillating Shower Tube

Shower Design Features

- Brushes are staggered at 120° intervals to allow full system flow.
- Brushes sweep along the full length of the nozzle to prevent clogging – making them ideal for recirculating systems.
- Brush versions are operated by a hand wheel or an electric motor.
- Automatic version is designed for continuous cleaning so as not to disrupt system operation.
- Pipe diameter size ranges from 1-1/2" to 6". Custom-designed pipe lengths.
- Elbows, flanges, hose adapters, and a variety of mounting options are available for inlet/outlet connections. A rebuilding kit is also offered.

Beyond pulp preparation and papermaking, we have other spray solutions for your mill

Need a specific product for a specific application? Here's a brief review of some additional pulp and paper spray application solutions. Be sure to ask your local Spraying Systems Co. sales engineer for complete specifications on these products.

CU 150 GunJet® Spray Gun.

Exclusive ergonomic design of this hand-held spray gun reduces user fatigue and improves comfort. Available in brass or aluminum with a protective rubber body cover and detachable color bands for various flow rates, it's ideal for mill clean-up applications.



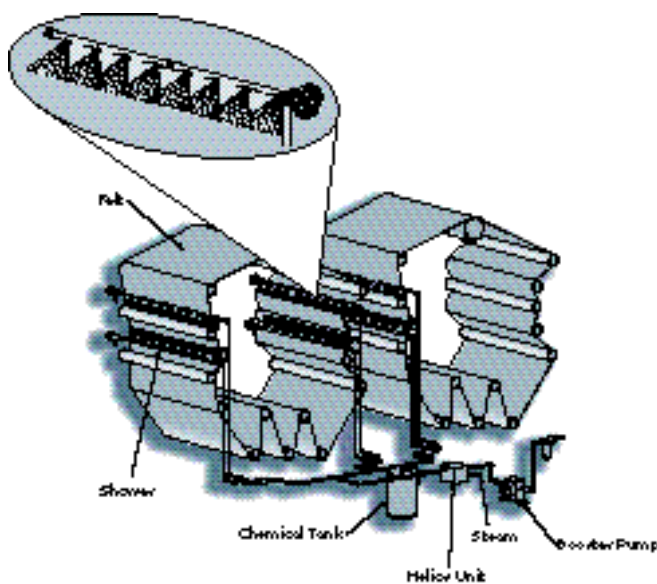
Model 60 and 80 GunJet Spray Guns.

These heavy-duty, impact-resistant spray guns feature a sturdy nylon handle and trigger guard. The Model 60 spray gun operates at pressures up to 2500 psi (175 bar) while the Model 80 spray gun operates at pressures up to 3000 psi (210 bar). Both models are easy to operate and remain responsive even at maximum pressure conditions. This makes them a good choice for knockdown applications.



Black Liquor Nozzles

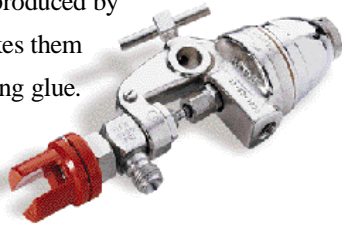
Our black liquor nozzles are available with a splash plate design or with a traditional VeeJet® design. The splash design features 309 stainless steel cast construction and has a large exit orifice for maximum flow passage. The VeeJet design is constructed of 310 stainless steel with a well distributed flat fan spray pattern. Both versions provide excellent corrosion and heat resistance.



Cleaning felts in paper machine.

AutoJet® Spray Guns with TC Tips.

The finely atomized spray produced by our AutoJet spray guns makes them a perfect solution for spraying glue. Add tungsten carbide spray tips for long service life.



45400 Humidification/Anti-Static Unit.

This self-contained, air-efficient 45400 Humidification/Anti-Static Unit is suitable for use with deionized water. It also weighs just 9.7 lbs. (4.4 kg) — making it easy to install on a wall or for use in a non-ducted application. The unit is well suited for storage locations and pre-shipping areas.



AutoJet Automatic Spraying System.

This self-contained, easy-to-use spraying system enhances the performance of air actuated automatic spray guns by providing exceptional spray gun control with dependable results. The system is often used for defect marking applications.

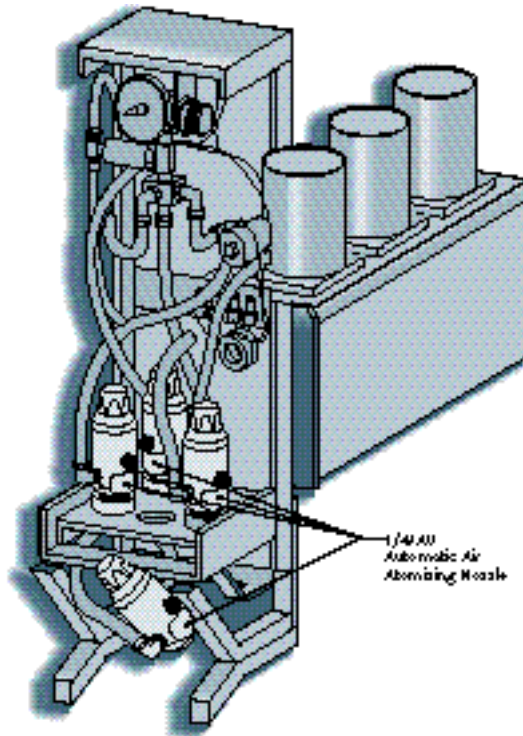


Liquid Strainers.

We offer a variety of different strainers to guard against foreign matter in the line. Select from low, medium, and high pressure liquid strainers in choice of connection sizes and materials.



Spraying color dye to mark defects.



Helpful resources and product information for the Pulp and Paper Industry



Spray Nozzle Maintenance Handbook. This 52-page handbook is packed with tips for keeping spray nozzle systems in peak operating condition. *Request Technical Manual No. 403.*

Problem-Solving Application Reports.

Reports focus on how our humidification nozzles, air atomizing nozzles, and air control nozzles are being used to solve real-life application problems. *Request Application Reports — AR101PP, AR103PP, and AR121PP.*



Air Control Nozzles Bulletin. Our expanded line of air control nozzles, designed for quiet, efficient, and significantly reduced air consumption, is featured in this 12-page bulletin. Several products suitable for a wide range of pulp and paper applications, including surface drying,

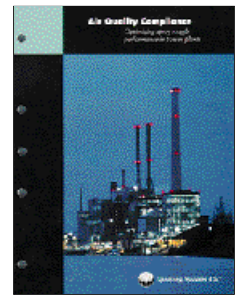
product cooling, material cleaning, and conveying, are highlighted. *Request Bulletin No. 357.*



Air Atomizing Nozzles Bulletin. This eight-page bulletin highlights our versatile line of high-quality air atomizing nozzles designed to meet the needs of many diverse applications, including spray coating, moisturizing, and cooling. Detailed product overviews, performance data, and application drawings are also featured. *Request Bulletin No. 381.*

Air Quality Compliance Bulletin.

This 12-page bulletin shows how spray nozzles can improve process efficiency, system reliability, and availability. The bulletin details specific nozzle solutions for dust control, gas cooling, and conditioning problems. Also highlighted are nozzle specifications, cutaway drawings, and performance data. *Request Bulletin No. 406.*



Industrial Spray Products Catalog No. 55.

Our 210-page catalog features tens of thousands of spray system solutions. You'll find performance data, exploded views of nozzle assemblies, product materials, and ordering information, all in a readable and easy-to-follow

format. *Request Catalog No. 55.*



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Bulletin No. 356A
Printed in U.S.A.



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