



Spraying Systems Co.[®]
Experts in Spray Technology



Spray
Nozzles



Spray
Control



Spray
Analysis



Spray
Fabrication



A Guide to Spray Technology for Food Processing

Spray Technology Solutions from a Single Source

Ensure Optimized Coating, Cooling, Washing, Drying, Blow-Off, Tank Cleaning and Sanitation Operations

An integral part of many food processing operations is the spray system. The spray system can affect food quality, packaging quality, plant and equipment cleanliness and more. Spray operations can also significantly impact production time, operating costs and profitability. That's why working with a single supplier who is an expert in all facets of spray technology can yield big benefits – optimal performance, turnkey solutions, food processing expertise and the convenience of single point contact.

Our offering includes:

- The most extensive selection of coating, cooling and tank cleaning nozzles in the industry
- A wide range of standard modular spray manifolds and custom solutions for more challenging applications
- AutoJet® spray controllers and automated systems that increase operational efficiency, decrease manual operation and ensure consistent performance in coating, food safety, drying, tank cleaning operations and more
- Spray research, testing and process modeling services to find solutions to difficult coating, tank cleaning and spray drying problems and identify better ways to spray in new operations
- No obligation evaluations on spray system optimization, compressed air and water conservation, tank cleaning and coating efficiency
- Sales engineers that specialize only in spray technology. We spend our time in plants like yours evaluating spray operations and engineering spray solutions every day and have a proven track record
- Global manufacturing, sales and support. With manufacturing locations on nearly every continent and 80 sales offices, we have the resources you need, where you need them

Why not contact us today and learn more about how we can help ensure optimal performance in all your operations using spray technology?



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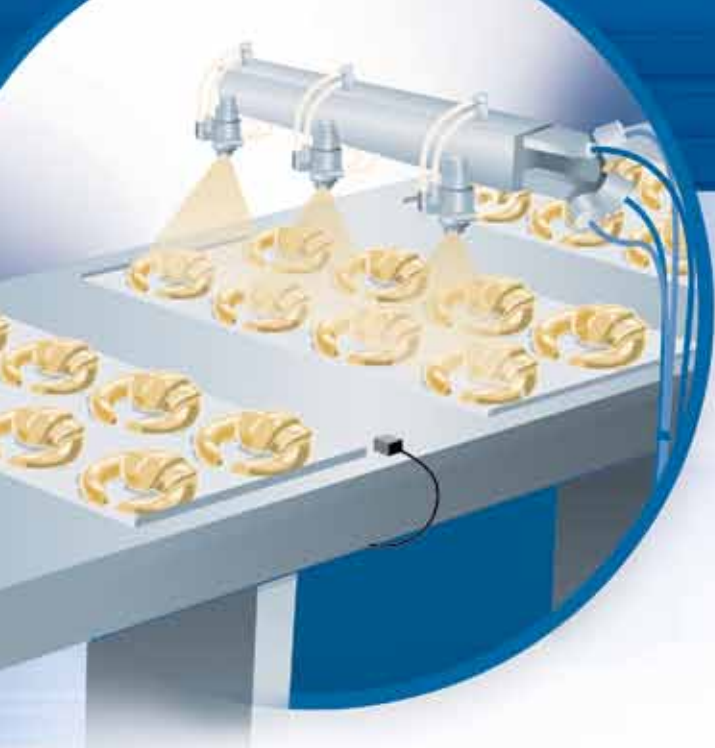
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Spray Nozzle Solutions for

Coating Applications

Egg & Butter Coating

Sugar Coatings

Can Coating

Lubricating Pans

Spraying Flavors & Colors

Spraying Preservatives

Increase production, eliminate waste of costly coatings with PulsaJet® automatic spray nozzles

- High-speed cycling – up to 18,000 cycles per minute with AutoJet® control equipment – allows operation at higher line speeds and increases in production
- Accurate spray placement ensures coating is delivered to target with minimal waste
- Improves worker safety by eliminating/minimizing mist
- Electrically-actuated nozzle offers hydraulic or air atomizing sprays
- Eliminates the need for compressed air in some applications
- Use with AutoJet spray controller to enable Pulse Width Modulated (PWM) flow control



PulsaJet automatic spray nozzle



What is PWM Flow Control?

Pulse Width Modulated (PWM) flow control involves switching electrically-actuated spray nozzles on and off very quickly in order to control flow rate. The cycling takes place so quickly that the flow appears to be constant and the coverage remains uniform. Controlling flow rate by adjusting duty cycle and cycling frequency while maintaining a constant pressure provides many advantages over adjusting pressure to control flow:

- Flow rate can be adjusted without changing the spray angle and drop size
- A wider range of flow rates can be achieved from a single nozzle
- Flow rate adjustments with PWM flow control are almost instantaneous
- PWM flow control can maintain low flows with larger spray orifices, eliminating common clogging and misting problems

Customize spray performance with VMAU automatic nozzles

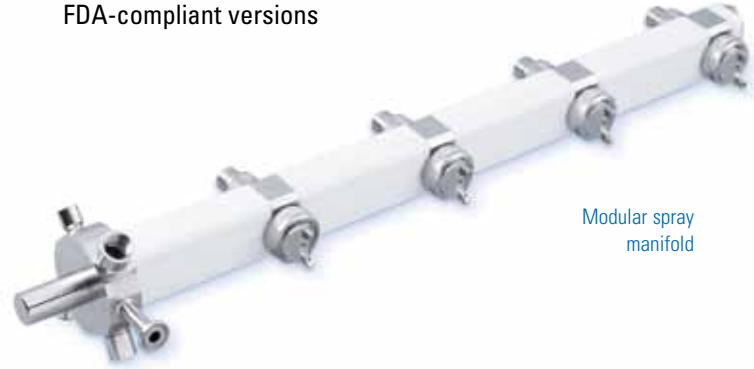
- Independent control of liquid, atomizing air and fan air pressures allows fine-tuning of flow rate, drop size and spray shape for improved coating performance with minimal overspray
- Sanitary body style available for applications requiring FDA-compliance
- Use with AutoJet® spray controller for maximum control of start/stop, clean-out cycles, liquid pressure, atomizing and fan air pressure and more



VMAU automatic spray nozzle

Ensure proper nozzle performance, minimize downtime with spray manifolds

- Prevent kinks and bends in tubing that can restrict flow and cause performance problems
- Keep tubing organized to minimize maintenance time
- Assure proper nozzle spacing and placement
- Choice of exposed designs for easy access to tubing, designs that conceal tubing inside mounting blocks to protect them from damage and the environment, modular designs and FDA-compliant versions



Modular spray manifold

Production area tight? Use 1/4JAU air atomizing nozzles for uniform coating

- Compact design fits in small spaces
- Internal air cylinder for controlled on/off operation up to 180 cycles per minute
- Choose from a wide range of capacities and spray patterns
- Use with AutoJet spray controller for maximum control



1/4JAU Air Atomizing Nozzle

More Coating Resources

For complete features and specifications of our coating nozzles and systems, request the following bulletins:

Topic	Literature Number
VMAU Automatic Spray Nozzles	558
PulsaJet® Automatic Nozzles	603
Air Atomizing Spray Manifolds	607
AutoJet Model 1550 Modular Spray System	624
AccuCoat® Heated Spray System	622
Pulse Width Modulated (PWM) Flow Control	414





Spray System Solutions for Coating Applications

Optimize the performance of automatic nozzles with AutoJet® spray control

An AutoJet spray controller can ensure a consistent coating weight on your product every time. AutoJet systems can monitor and adjust automatic spray nozzles for changes in line speed. Precise intermittent spraying puts the coating only where you need it, reducing liquid usage and manual clean-up.

AutoJet spray controllers are available with basic, intermediate or advanced levels of control for use in a wide range of coating operations.

Compact spray system provides basic nozzle control for more precise coating

- AutoJet Model 1550 Modular Spray System is self-contained – approximately 2.5' (0.76 m) tall, 1' (0.3 m) wide and weighs less than 50 lbs. (22.7 kg)
- Set-up is fast and easy – requiring just a few minutes
- Air-actuated diaphragm pump and pressure pot systems available

Improve coating consistency and minimize waste when spraying viscous liquids – including chocolate

- AccuCoat® Heated Spray Systems apply oils, butter, chocolate and other viscous liquids evenly and without burning
- Precise control of temperature and atomizing air allows lighter coating weights and ensures consistent coverage
- Choice of standard systems designed to replace enrobing systems or panning systems

AutoJet
Model 2250
Spray Controller



AutoJet Model
1550 Modular
Spray System



AccuCoat Heated
Spray System

AutoJet®
SPRAY CONTROL
From *Spraying Systems Co.*

Nozzles for Spray Drying

Gain complete control of particle size and consistency with SBH-MFP and SKH-MFP SprayDry® nozzles

- Clog-resistant maximum free passages extend production runs
- No-tools maintenance reduces downtime
- Superior drop size distribution in hollow cone spray pattern ensures consistent particle size
- Anti-bearding design reduces danger of contamination. Unique design minimizes the number of drops that ride air currents back to the nozzle orifice and dry, causing performance and maintenance problems
- Configurable to specific requirements – hundreds of interchangeable orifice insert/core combinations
- Self-draining exterior surfaces, straight knurls for easy liquid draining and no bar stock finish for compliance with sanitary regulations
- Integrated safety check valve inhibits draining of liquid into the drying tower when pump is off
- Ideal for low- to medium-flow applications



SKH-MFP

SBH-MFP

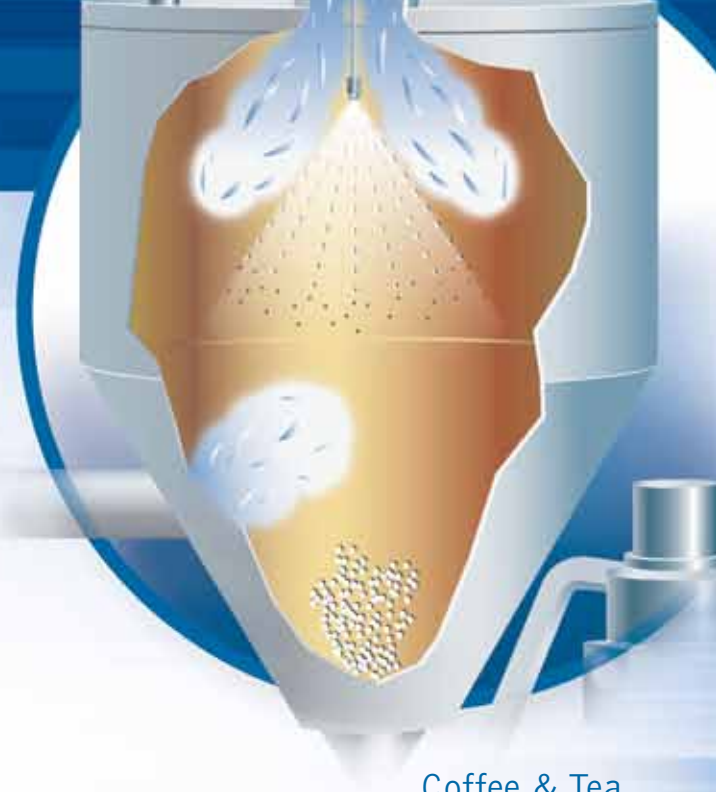
For high-volume spray drying, choose WhirlJet® SprayDry nozzles

- Large clog-resistant passages dramatically extend production time between maintenance intervals
- Suitable for high-flow operations – capacity ranges from 16.1 to 2019 gph (60.9 to 7643 l/hr)
- Flexible design with interchangeable orifice inserts, cores and whirlchambers enables maximum control of particle size
- Superior drop size distribution in hollow cone spray pattern ensures consistent particle size
- SSTC version provides quick and easy assembly
- AA104 is suitable for high-pressure spraying up to 5000 psi (345 bar)



AA104

SSTC



Coffee & Tea

Milk

Yeast

Cocoa

Baking Powder & Soda

Sauces & Spices

Food Color

Infant Formula

More Spray Drying Resources

For complete features and specifications of our SprayDry nozzles, request the following bulletins:

Topic
WhirlJet SprayDry Nozzles
SK Series
SB Series

Literature Number
447
527B
504B





Spray Nozzles for Cooling and Washing

Carcass Cooling

Conveyor Washing & Cleaning

Post-Pasteurization Cooling

Produce Washing

Can & Bottle Washing

Broadest line of spray patterns, droplet sizes and capacities in the industry

- Specially-tapered spray pattern edges that provide even coverage when overlapped make VeeJet® flat spray nozzles ideally suited to washing conveyors and/or products on conveyors
- FlatJet® nozzles have a high-impact flat spray that thoroughly washes fruits and vegetables
- FullJet® nozzles with gentle full cone spray patterns and large drops that conserve water are widely used to chill meat before processing
- WhirlJet® hollow cone spray nozzles are typically used to heat and cool bottles during pasteurization



VeeJet nozzle

FlatJet nozzle



FullJet nozzle

WhirlJet nozzle

Clean cans thoroughly — even in hard to reach areas

- Specially-engineered Can Wash Riser improves cleaning and allows the spray to penetrate the conveyor mat without knocking over the cans
- Unique design increases efficiency in every stage of the washer
- Cans are cleaned thoroughly which enables better coating



Can Wash Riser

Sanitation Solutions

For comprehensive information on spray nozzles for sanitation and tank washing, request our free

Guide to Safe and Effective Sanitation, Catalog 40



Nozzles and Systems for Packaging

Air nozzles and air knife packages provide thorough and cost-effective drying and blow-off

- For operations needing high-velocity air, WindJet® Air Knife Packages that use clean, heated blower air instead of compressed air, provide effective drying and blow-off and dramatic reductions in operating costs
- When high-velocity air is needed at ambient temperature, WindJet Low Flow Air Knives that use minimal volumes of compressed air are an effective solution
- WindJet Air Nozzles are ideal for operations that require high-impact air. These nozzles use compressed air and produce either a round or flat spray pattern



WindJet Low Flow Air Knives

Seal and protect packages efficiently with automatic spray nozzles

- PulsaJet® automatic nozzles apply protective chemical coatings to glass bottles, jars and other containers prior to shipping
- These nozzles are also commonly used to spray adhesives to secure labels on plastic, metal and glass packages



PulsaJet automatic nozzle

Can coating nozzle significantly saves coating material used per can

- Patented nozzle design, developed in conjunction with leading beverage can manufacturers, provides an asymmetrical spray distribution that efficiently coats all can surfaces using a minimal amount of coating material



Can coating nozzle



Blow-Off & Drying

Filling

Internal and External Coating of Cans and Bottles

Adhesive Spraying

More Packaging Resources

For product features and specifications, request the following literature:

Topic	Literature Number
WindJet Air Knife Packages	543
WindJet Air Nozzles	Catalog 20
VMAU Automatic Nozzles	558
PulsaJet Automatic Nozzles	603
Can Coating Nozzles	559





Spray Nozzles for Food Safety and Sanitation

- Antimicrobial Application
- Washdown
- General Plant Washdown
- Conveyor Belt Washing
- Tank Cleaning

Ensure meat and poultry safety with AutoJet® Antimicrobial Spray Systems

- Precise application of a predetermined volume of antimicrobial on each product or into each package protects meat and poultry from pathogens
- Efficacy of technology established by USDA/ARS
- Systems use closed-loop control to ensure consistent application with minimal waste
- Various shot sizes and timing intervals can be preprogrammed for automatic batch changes
- Well-suited for use with bagged whole muscle products, hot dogs, links and formed products, fresh meats, packaged poultry and sliced meat and poultry



AutoJet
SPRAY CONTROL
From *Spraying Systems Co.*

Effectively apply mold inhibitors and antimicrobials to baked goods, snack foods and other food products and packages with PulsaJet® nozzles

- Precise spray timing reduces waste of costly chemicals
- Choice of air or hydraulic atomization; hydraulic atomizing valves eliminate the need for compressed air and minimize misting
- Use with AutoJet spray controller to enable PWM flow control to minimize clogging



More Sanitation and Food Safety Resources

Topic	Literature Number
AutoJet Antimicrobial Spray Systems	647
Sanitation Solutions	Catalog 40
Tank Cleaning Nozzles & Systems	Catalog 15



High-impact, low-pressure spray guns for cleaning and sanitation

- Clean without spreading contaminants with CU150A GunJet® spray guns
- Adjustable spray pattern from hollow cone to solid stream
- Conserve water and chemicals by changing orifice caps to lower capacities for final rinsing stages
- Ergonomic design reduces operator fatigue



CU150A GunJet spray gun

Equip spray manifolds with a wide range of nozzles for conveyor and equipment cleaning

- For rinsing, washing and sanitizing of conveyors, manifolds equipped with VeeJet® flat spray nozzles are widely used because of the uniform coverage provided by overlapping spray patterns
- Cut maintenance time in half by using QuickJet® nozzles with replaceable spray tips that are easily inserted and removed by hand
- For particularly challenging applications, consider a custom-fabricated manifold



ProMax® QuickJet nozzle

VeeJet nozzle

FlatJet® nozzle

Ensure tank cleanliness with TankJet™ 4 tank cleaner

- Powerful unit provides better impact and superior cleaning
- Nozzles rotate 360° in horizontal and vertical planes creating a crisscrossing pattern to thoroughly clean tanks and remove sticky residues
- Fluid-driven units are suitable for cleaning tanks up to 98' (30 m) in dia.



TankJet4 tank cleaner

Easy-to-use, energy-efficient, economical pump system optimizes tank cleaning nozzle performance

- AutoJet® FDS30100 Fluid Delivery System integrates all system components – pump, motor and control – on a compact, portable cart
- Variable Frequency Drive system saves water, energy and chemicals
- Use with spray balls and tank cleaning nozzles – any combination up to total flow and pressure of 30 gpm at 100 psi (114 l/min at 6.9 bar)



AutoJet FDS30100 Fluid Delivery System

High-impact, motor-driven tank cleaners remove stubborn residues

- Nozzles revolve around the central axis of the nozzle assembly and provide 360° coverage to ensure all tank surfaces are thoroughly cleaned
- Motors are positioned outside the tank away from caustics for long wear life; choice of air, electric and explosion-proof motors
- Ideal for cleaning tanks up to 80' (24.4 m) in dia. with many configuration options including flow rate, pressure, shaft length, flange types and more



AA190HP5 tank cleaner

Tank cleaning nozzles and spray balls, provide a cleaning solution for every type of tank

- Extensive line of tank cleaning solutions for tanks, vats, vessels and totes ranging from 2' (0.6 m) to 25' (7.6 m)
- Styles include 3A spray balls and nozzles, fixed, rotating and constant-speed models, single and multiple-orifice options, threadless designs and more
- Fabricated lances ensure proper nozzle positioning within the tank





Spraying Systems Co.
Experts in Spray Technology

North Avenue and Schmale Road, P.O. Box 7900, Wheaton, IL 60187-7901 USA

Tel: 1.800.95.SPRAY Intl. Tel: 1.630.665.5000

Fax: 1.888.95.SPRAY Intl. Fax: 1.630.260.0842

www.spray.com



Spray
Nozzles



Spray
Control



Spray
Analysis



Spray
Fabrication



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