

AUSTRALIA AND
NEW ZEALAND
PRIMARY MEAT
PROCESSING
BULLETIN



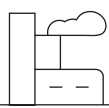
Spraying Systems Co.®

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Our precise solutions will save you time, money and improve safety outcomes for your business.

Why Choose Spraying Systems Australia & New Zealand?



Local Manufacturing Facility

We can custom design and fabricate your orders to suit your specifications in our Melbourne and Auckland facilities.



Nozzle Maintenance

Changing worn-out or blocked nozzles can increase efficiency by at least 20%, and the return on investment (ROI) is often paid back in days or weeks, not months.



State-of-the-art Technology

Our Spraying Systems nozzles are used in the largest manufacturing facilities all over the globe. Our systems are designed locally to ensure we can meet the needs of your business. We're experienced in the industry, and you'll find our products in just about every major abattoir in the country. But we are not just about selling products; we believe in building relationships and providing continuous support to help your business thrive.



Expertise & On-site Support

We're not just providers; we're partners. We offer continual onsite support to ensure that our products are performing at their best, helping you to maximise productivity and efficiency.

Abattoir Processing

Holding Pens

Our products are seen in the leg wash, underbelly wash and overhead sprays.



VeeJet, SpiralJet, FlatJet and FullJet Nozzles

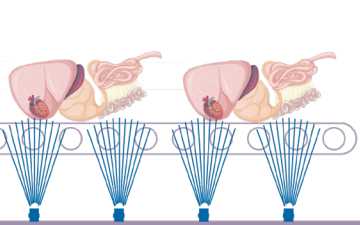


Evisceration Table

Key areas that need cleaning to prevent cross-contamination include the pans and tables.



FlatJet and VeeJet Nozzles

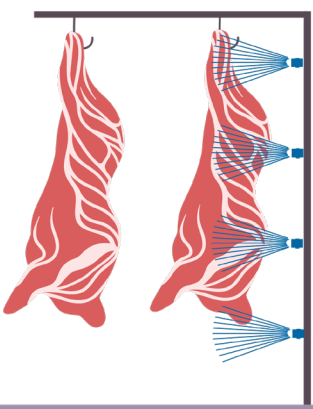


Carcass Washing

Carcass washing plays a vital role in meat processing. It ensures the meat is clean and ready for further processing.



FlatJet, FullJet, VeeJet and ShowerBlast Nozzles

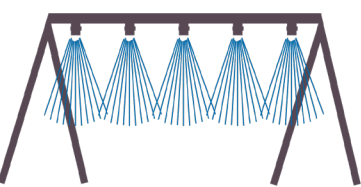


Spray Bars

Spraying Systems fabricates custom designed spray bars in our local manufacturing facility, to suit every section of meat processing.



Spraying Systems Spray Bars

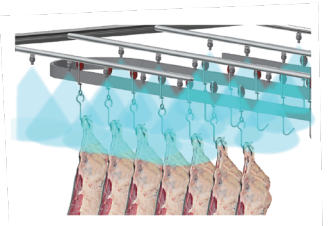


Spray Chilling

The AutoJet® Carcass Chilling Spray System uses sprays of chilled water that occurs to offset the evaporative loss during carcass chilling.



AutoJet® Carcass Chilling Spray System

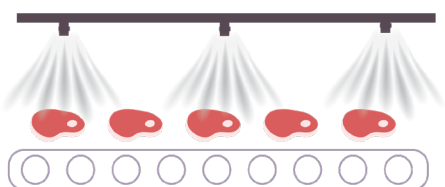


Packaging

Spraying Systems Air Cannon Manifold (ACM) is the superior solution in the meat processing industry for effectively dewatering vacuum-packed meat. Our blower package and WindJet nozzles are designed to offer efficient drying.



Air Cannon Manifold (ACM) and WindJet Nozzles



On-Site Spray Assessments

Our Spray Engineers can come to your facility and assess where Spraying Systems can save you time, money, and resources and improve your safety outcomes. We are the world leaders in spray technology, and we will work with you to come up with the best solution for your business. **Our Spray Engineers are based in every corner of Australia and New Zealand, with fabrication facilities in Melbourne and Auckland**, so you don't have to rely on overseas contractors. Contact us for a free spray assessment to ensure you get the best solution for your business.

Automated, Optimised Spray Operations, Including Spray Bars

The performance of any spray nozzle or spray bar depends on that of the other system components, such as pumps, sensors and other hydraulic and pneumatic devices. That's why we've developed our line of AutoJet spray controllers and automated systems for perfectly measured spray applications. Our technologies range from simple on/off control to sophisticated, real-time monitoring of process variables and automatic adjustment of spray performance. **Our precision will save your business time and money.**

HOLDING PENS

Our nozzles and systems are prevalent in holding pens around Australia, New Zealand and the world. Specifically, our products are seen in the leg wash, underbelly wash and overhead spray.

The most important element is nozzle selection to achieve the desired outcome at the same time reducing water and energy wastage. This is where the advice of the Spray Engineers and our ability to come to your site, no matter where you are in the country, becomes important. We can come walk through your holding pen, and then discuss the best solutions with you for your businesses individual needs.

LEG WASH



FlatJet Nozzle

The purpose of the leg wash is to remove dirt, mud and dags from around the legs of the animals.

Our Solution

Spraying Systems VeeJet or FlatJet flat fan spray nozzles are mounted around the periphery of holding pens aiming at leg height.

The mud is removed or at least softened for later removal. Correctly sized nozzles will give sufficient impact to remove dirt without wasting water.

UNDERBELLY SPRAYS



FullJet Nozzle

Located in the holding pens to remove or at least soften dirt on the belly of the animal.

Our Solution

Maximum free passage FullJet Nozzles have a free vane compared to the standard FullJets with a wider passage that does not block as easily. They come in brass or stainless steel.

Our Spray Engineers can provide nozzle selection and positioning.

Both leg wash and underbelly wash are usually on a timer and sprayed for a specific time at intervals. This allows the dirt to soften in-between sprays.

OVERHEAD SPRAY

Overhead spray is used to remove dust from the tops/back of the animals. It may not be necessary for pasture cattle, but it is needed for cattle from dusty environments.

Our Solution

Wide angle full cone FullJet and SpiralJet nozzles are recommended here. The leg, belly and overhead sprays are often repeated in the cattle race leading to the slaughter floor. Any remaining material loosened in the holding pens can be removed. Also, recycled water is often used in the yards to reduce water usage, so clean water is used in the races to clean residue off the animals. The races are pretty narrow and the cattle have to move through, so they cannot avoid the spray. This means that we can use the same types of nozzles as we do in the pens.



FullJet Nozzle



Full Cone Nozzle Range



SLAUGHTER FLOOR

Bleeding

The Bleed Table is where the initial bleeding process of carcasses takes place. It involves the careful management of blood, ensuring cleanliness and hygiene are prioritised.

This process often includes trays to collect blood and transport it away from the main production area.

Our Solution

Spraying Systems creates high-pressure washing systems designed specifically for blood trays that first clean all the blood away with high-impact cold water, before effectively sterilising with hot water.

Our FlatJet nozzles are ideal for this process.

These nozzles provide consistent and even coverage ensuring optimal cleaning of bleed table, trays and troughs. Proper selection of spray angle, nozzle spacing, and capacity is crucial to achieve quality results without excessive water usage. VeeJet nozzles can also be used here, however FlatJet nozzles have superior impact values, are more accurate and are less likely to block.

Our Spray Engineers are available for advice on optimal nozzle selection and placement.



Ensuring that the correct nozzles are in place and in good condition can save businesses large amounts of money, especially when hot water is being used.

Replacing a worn-out nozzle can save up to 20% of water usage.



FlatJet Nozzles

SLAUGHTER FLOOR

Evisceration Process

The evisceration process requires meticulous cleaning and sterilising as it involves the removal of internal organs and other parts from the carcass. Key areas that need cleaning during this process include the pans and tables. The evisceration handling equipment can vary from business to business, so it is best to work with your local spray expert to develop a design that works for you.

Spraying Systems - We have the experience and quality needed for the most important jobs in the meat industry.

The evisceration equipment needs to be kept clean to ensure all parts of the animal can be made saleable. Any design must eliminate cross-contamination, and quality nozzles are required. Our solutions are in abattoirs all around Australia and New Zealand.

Pan or Table Cleaning

Our Solution

We provide a multi-tiered pan cleaning solution.

- Cold washes are carried out with both FlatJet and VeeJet nozzles to rinse the pans thoroughly to remove all debris.
- Hot washes using FlatJet nozzles are designed to remove stubborn debris and sterilise the table.

Our FullJet Nozzles can also be used during the sterilisation process, as they offer the best coverage and increase the contact time and exposure to the hot water. Making FullJet nozzles the best option for the sterilisation process.

- We can also do high pressure systems

Spray Bars and Manifolds

Our Solution

We have a range of spray bars that can be connected to, and we can custom design and fabricate these at our Melbourne factory. We can configure the design in a wide range of lengths and nozzle spacing options to suit your plant. Our manifolds can be made compact and with a sturdy stainless steel structure. Our stainless steel fabrication process meets the food industry safety standards.



FlatJet Nozzles



VeeJet Nozzles

Steriliser Boxes

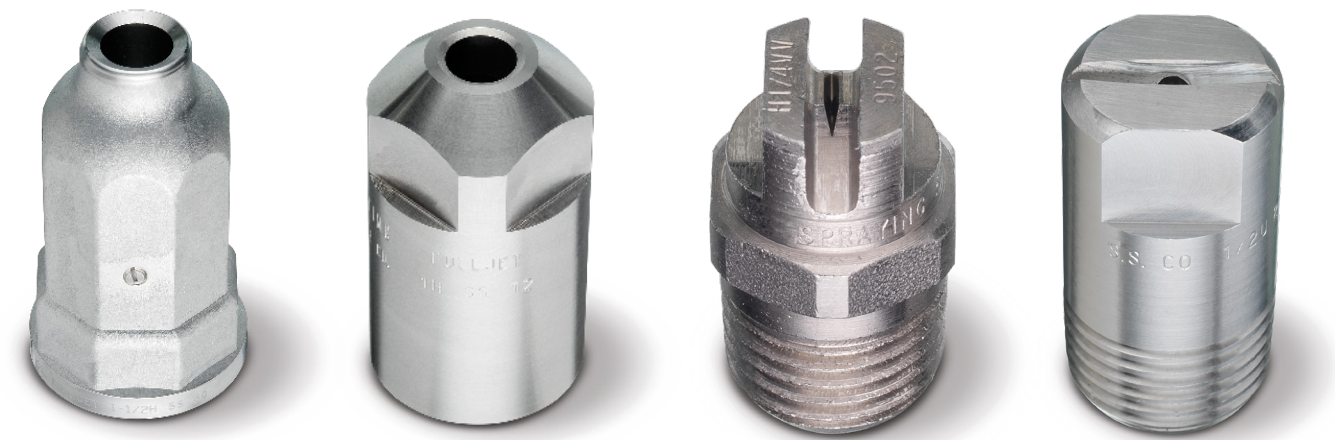
Specific cuts are made in the carcass using saws, knives, blades and other tools. Both cold and hot water in the steriliser boxes are used to wash away debris to eliminate cross-contamination.

Large Steriliser Boxes

- Breaking, Quartering and Splitting Saw
- Leg Stand Cutter
- Hook Wash Steriliser
- Head Cutter Steriliser

Small Steriliser Boxes

- Brisket Saw/Cutter Steriliser
- Auto Hock Cutter Steriliser
- Brisket Saw/Cuttler Steriliser
- Auto Hock Cutter Steriliser
- Horn Cutter Steriliser
- Brisket Saw Steriliser
- Thumb Tool Steriliser



FullJet Nozzles

VeeJet Nozzles

Our Solution

Our nozzles can clean any tools inside the steriliser box. **Our experts recommend FullJet or VeeJet nozzles for these steriliser boxes.** They can deliver both a cold water wash and then high-temperature sprays to ensure complete sterilisation, which helps to comply with stringent hygiene standards. The sterilisation is carefully timed to maintain consistent performance and hygiene. FlatJet nozzles can also be used.

Hot water is used here, so any water saving can result in large cost savings. Replacing your nozzles in a timely manner can result in payback in days and weeks, not months. We suggest replacing any brass nozzles with stainless steel to conform with food industry regulations and to minimise wear rates

Carcass Washing

Carcass washing ensures the meat is clean and ready for further processing. Reducing contamination is crucial for extended shelf life and recent studies have proven that hot water is the most effective way to do this without chemicals.

Our Solution

We create a custom designed spray bars for carcass washing with the correct nozzle, at the most efficient possible angle. We can automate our systems to save water, especially if you are using hot water.

Our AutoJet Carcass Wash System equipped with ShowerBLAST spray nozzles are the industry leader for beef. For lamb, we recommend FullJet nozzles. They provide an accurate and consistent spray pattern across the entire footprint. In carcass wash applications, the water impacts the surface of the carcass and removes faecal matter, blood, bone fragments and hair or wool. The ShowerBlast nozzles can be combined with FullJet or FlatJet nozzles.

The ShowerBLAST spray nozzles are especially efficient for spraying hot water, as the solid stream spray patterns reduce air atomisation and result in effective heat transfer of the water. The multi-orifice solid streams provide excellent impact and a thorough rinsing action - even at low pressures.

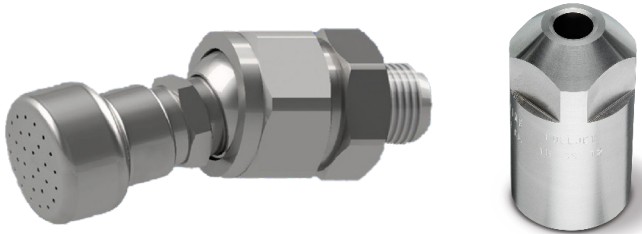
Using hot water during carcass wash is best practice. Spraying Systems can custom design a system to suit your plant. If you have existing hot water lines, we can use those. Alternatively, we can design a solution that heats the water before going into the carcass wash. It is recommend that the water temperature be around 75°C - 95°C.

Benefits

- Reduced Water Consumption
- Maintain Water Temperature
- Optimized Design
- Uniform Spray Distribution
- Reduced Atomisation
- Industrial Design
- Sanitary Finish

Features

- Two standard designs and customisable options are available.
- Made of 316 stainless steel to meet sanitary standards
- Designed with meat works and abattoirs in mind.
- Field tested and validated in several applications to ensure the design matches the required demands.
- Increased wear life and superior compatibility in harsh industrial applications.
- Standard ½" Male and Female BSPT thread options available.



Shower Blast Nozzle

FullJet Nozzle



SPRAY CHILLING



Spray technology can help automate the cleaning and chilling of meat carcasses in abattoirs

Spray chilling is another essential step in the meat processing industry. It helps to improve meat quality by controlling bacterial growth and reducing weight loss from evaporation.

The standard process of chilling animal carcasses is circling cold, dry air over the hot corpses. This draws moisture out of the surface, which is then lost to evaporation. Over time, this results in shrinkage and weight loss. The fat covering of the carcass will influence the amount of total weight loss. However, typical carcass weight loss is about 1.5% to 3.5%.

Benefits of Using Spray Technology

Spray technology can help automate the cleaning and chilling of meat carcasses in abattoirs, ensuring weight retention and reducing cleaning times for carcasses and cool rooms. Moreover, spray chilling prevents blood from drying, simplifying chiller room floor cleaning and reducing it to just minutes. Notably, boning room workers have expressed a preference for processing spray-chilled carcasses.

Beef, pork, lamb, and game meat processors seek a better spray system to increase chill room efficiency, ensure complete carcass coverage and lower maintenance needs. **Spraying Systems offers an exceptional carcass chilling solution to meat processors worldwide.**

Average carcass weight loss is about 1.5% to 3.5% in competitors systems. Our AutoJet system typically reduces the total weight loss to 0.5% or less.

Our Solution - AutoJet Automation

The AutoJet® Carcass Chilling Spray System uses sprays of chilled water to offset the evaporative loss of carcass chilling. Spraying Systems Co.® offers an exceptional carcass chilling solution to meat processors across Australia and the world. Results will vary between chillers, however, typical carcass weight loss is about 1.5% to 3.5%. Our system typically reduces the total weight loss to about 0.5% or less.

The innovative system of spray chilling in abattoirs offers substantial benefits and features that **increase efficiency and lower costs**. It promotes a higher percentage of body weight retention and saves energy and refrigeration due to the reduced heat load.

Our system has a programmable controller that effectively manages the spray duration and intervals between sprays. It also maintains optimal control and monitoring of water pressure and temperature, ensuring a precise and efficient operation. Furthermore, each spray operation's water use is closely monitored to prevent excessive waste. For added convenience and peace of mind, the system can be accessed remotely by an AutoJet® engineer, ensuring immediate backup assistance when needed. Our AutoJet spray chilling system includes FDS, spray bars, and valve trains to provide precise chilling.

We also offer full cone nozzles to ensure efficient and even coverage, maintaining optimal temperatures throughout the process.

SPRAY CHILLING

Our PLC Controls are industry-leading

Features include:

- Fully customisable spray setpoints for each chiller. Including spray time, frequency, and number of cycles.
- The PLC-controlled queue handler introduces a chiller interlock system, ensuring that no two chillers can operate simultaneously. We size the pump skids that we fabricate to handle flow for one chiller and spray one at a time, letting the queue handler assign which chiller is used. If you try to spray more than one room at a time, you can develop flow or pressure issues, which translate to spray and coverage issues and poor shrinkage results.
- Spray recipes and weekend mode setpoints can be locally or remotely sourced and driven.
- Ability to share data such as spray metrics and water usage with you over Ethernet/IP communications.
- Fully configurable alarms and system settings allow for a high level of customisation to match the system use your businesses needs.
- Ongoing SSCO support through remote access is available, including diagnostics and software updates when required.



Spraying Systems PLC, Main Pump Skid and Chilled Water Tank

BONING ROOM

Hot & Cold Boning

Hot boning is the process where the carcass is portioned immediately after slaughter. Spray nozzles are required to keep the conveyor clean. This requires strict hygiene measures and precise temperature control to prevent bacterial growth.

In cold boning, the carcass is first cooled before the meat is removed. This process ensures longer shelf life and superior meat quality.

Our Solution

For hot boning, we recommend our AutoJet system, as it will always keep the temperature correct. Equipped with VeeJet nozzles, these systems are designed to provide a precise and controlled cooling mist that helps maintain optimal temperature throughout the process. Our Spray Engineers can provide guidance on the best system setup for specific requirements, ensuring top-quality results.



Casing Room

The casing room handles the cleaning and processing of intestines for sausage casings. It's crucial to thoroughly wash the intestines to ensure hygienic and quality casings.

Our Solution

For this application, we propose the use of our FullJet nozzles in conjunction with our automated spray systems. This combination delivers a robust washing action that thoroughly cleans the intestines, preparing them for further processing.



GUT WASH

Gut Wash

Gut wash and pelt wash involves the cleaning of the animal's digestive tract and skin respectively. This step is vital in maintaining hygiene and ensuring the quality of the end product.

Our Solution

We offer a comprehensive solution comprising of Spray Bars and Brush Headers. When used with our specially designed nozzles, these systems provide thorough cleaning while minimising water usage. Our team can provide guidance on system setup for maximum efficiency.

A brush header spray bar may be the best solution when materials can easily block nozzles. These spray bars are fitted with an internal rotating brush mechanism to clean the nozzles and ensure they continue performing in challenging conditions. If you are experiencing nozzle plugging, you can choose between an electric, pneumatic or manual system.



Electric Brush Header

ROTARY WEDGEWIRE SCREENS

Rotary Wedgewire Screens

The ContraShear is a rotary screen used for dewatering waste.

Our Solution

Brush headers are the perfect solution here. A brush header is an internal rotating brush assembly within a spray bar that keeps your nozzles clean and spraying efficiently. We sell Electric, Pneumatic and Manual Brush Headers.

This can be attached to a manifold with VeeJet or FlatJet Nozzles. We also provide pump skids.



Pump Skid

Air Cannon Manifolds – The ultimate drying solution for packaging

Spraying Systems Air Cannon Manifold (ACM) is the superior solution in the meat processing industry for effectively de-watering vacuum-packed meat. They are proven to have superior performance when compared to traditional slotted air knives.

Strategically positioned on a transfer conveyor post-shrink tunnel and following the vacuum packing stage, the ACM serves an integral role within both abattoirs’ boning rooms and dedicated meat packing facilities. Using

focused air power, the ACM removes water from meat packs, which undergo shrinkage via hot water in the shrink tunnel. Subsequent to this de-watering process, these packs are encased in cardboard cartons and transported to cold storage units.

Eliminating water residue on packs is pivotal to preventing a range of issues and costs.



Cartons compromised by dampness pose considerable product handling difficulties within the conveyor and sorting systems at cold storage points. The aftermath of such incidences often involves the meat being redirected back to the boning room for repackaging, or outright rejection if the packaging is soiled or damaged, thereby inflating labour costs. Conveyor system blockages due to collapsing cartons further escalate these inefficiencies.

In comparison to compressed air-supplied air knives or nozzles, ACM units drastically reduce operational costs. Our payback analysis can demonstrate substantial annual savings of over \$40k per year!

Each ACM is customised to optimally suit the application and specific blower in use.

Advantages

- Superior water removal.
- Tailored to specific application.
- Compared to compressed air nozzles or air knives.
- Significant operational cost savings.

Benefits

- Large reduction in labour costs.
- Potential elimination of costs for plastic carton liners.
- Decreased operational costs via compressed air savings.

Packaging

In the packaging stage, drying is crucial. It helps to preserve the meat’s quality, allows for labeling, keeps the integrity of the boxes and most importantly prevents bacteria’s growth during transportation and storage.

Our Solution

Our blower package can be fitted to the best nozzles for the job, depending on whether cold or hot air is used. Spraying Systems blowers will deliver a powerful air stream, ensuring quick and thorough drying before packaging.



Blower Assembly

A metal-detectable plastic air nozzle specially made for food processors

The WindJet 727-KY is made from PVDF material but also contains very small metal particles. These metal particles are detectable by food-grade metal detectors, offering a significant safety advantage over other plastic air nozzles.

Specially made for food processors, this air nozzle is FDA-compliant for food contact, as well as EC10/2011 and EC1935/2004 compliant.

The WindJet 727-KY nozzles are lightweight, durable and less costly than stainless steel air nozzles.



Ideal For

- Abattoirs
- Vacuum sealed bags
- Drying food products during processing
- Drying food products post-processing

Benefits

Ensures food safety: Special PVDF material includes small metal particles that are detectable by inspection equipment.

More efficient drying: WindJet nozzles are widely used for moving materials and cleaning, drying and cooling parts. High-impact, uniform air stream ensures effective drying and blow-off even for round or oddly shaped products.

Less noise: Up to 60% reduction in perceived noise level, depending on the initial air pressure. At 100 psig (7 bar), for example, an open pipe would produce a noise level of 98 dBA while an air nozzle would produce 85 dBA, a reduction of 13 dBA and a perceived noise reduction of 60%.

Improved safety: Nozzle design prevents dead-ending should the nozzle accidentally be placed against a flat surface.

Boot Wash

Hand and boot wash stations are essential in maintaining hygiene standards in a meat processing plant. **Our GunJets have a screwed in valve seat to the body of the gun, the nozzle can be taken off and the retaining nut gets left off.**

If the valve seat is loose then water leaks. This design allows for flexibility as it shuts off and you don't have to worry about buying a separate nozzle. GunJet repair kits are also available.



GunJet



Hand Wash

Our ShowerBlast with a valve is the perfect solution. It can come with or without an adjustable ball joint.

General Wash Down Areas

We offer Gunjet 30L guns that ensure these areas are kept clean and sanitary. This helps maintain an overall hygienic environment, which is essential in the meat processing industry.

Spraying Systems, World Leaders in Sustainability Since 1937.

Sustainability is at the core of everything we do here at Spraying Systems, and it has been since 1937.

Over the years, the technology we use to make our nozzles have changed, the materials we use have developed and our logo and tag lines have been updated. But our core mission is still the same, we make the best quality nozzles and spraying systems to save you water or product.

Our spray products can have had a tremendous positive impact on the environment all across the globe. In the harsh but delicate Australian environment, saving water is more important than ever. We use our worldwide experience and excellent team of Australian engineers to customise your business's needs.



Download the 2022 Sustainability Report.





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