



ADVANCED SPRAY SYSTEM

FOR THE FOOD AND BAKERY INDUSTRY



ACCURATE & REPEATABLE SPRAY CONTROL

ADVANCED SPRAY SYSTEM

FOR FOOD AND
BAKERY APPLICATIONS



Applications where our Advanced Spray Technology is used:

- ✓ Spraying food coatings & flavourings
- ✓ Spraying glazes onto baked goods
- ✓ Spraying alcohol (ethanol) onto food packaging to extend shelf life
- ✓ Applying egg wash to baked goods
- ✓ Spraying anti-microbial solutions onto meats and salads for food safety
- ✓ Moistening spray systems for seed and topping adhesion
- ✓ Tin & pan lubrication
- ✓ Spraying mould release agents
- ✓ Spraying mould inhibitors
- ✓ Applying low volumes of water to combat water loss
- ✓ Dough splitting/scoring
- ✓ Many more

Many food and bakery manufacturers and processes have applications that benefit from well designed spray systems that can assist either with direct product quality or process improvement. Whether spraying ingredients, coatings, glazes, release agents or just water, being able to control the amount of material used, reduce waste and improve quality is essential in optimizing production and product quality.

Our electrically actuated automatic spray systems are the ideal solution for all these applications as they can reduce waste, eliminate misting and overspray and reduce rejected products and downtime often experienced by manufacturers with inefficient spray systems.

We have experience in spraying almost all materials within the food and bakery industry and are able to help with the design and supply of the most efficient, reliable spray system. Sealpump can also carry out initial spray tests at our facility in order to help select the best spray solution.

HOW THE AUTOMATIC SPRAY SYSTEM WORKS

The electrically actuated pulse spray system and nozzles have an internal solenoid valve mounted virtually next to the nozzle tip itself. This electrically actuated valve allows the nozzle to be turned on and off extremely quickly giving exact control over the flow rate produced but without altering the pressure as is the case with standard hydraulic and pneumatic atomising sprays.

By being able to control the flow rate through controlling the pulse cycle, lower flow rates can be achieved and importantly without compromising the spray performance, so the angle and droplet size can remain the same while the flow adjusts for different line speeds or product application rates for example.

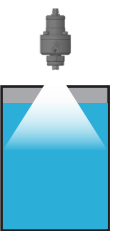
It can be used at high speeds and so can be used on high speed production lines. Pressure can remain constant as the flow can be adjusted by simply altering the spray pulse cycle.

This method of control also greatly reduces the misting and overspray that is often seen in low flow atomising systems. This helps with material usage control, improves system and process cleanliness and can have employee health benefits, especially when spraying oils and glazes.

Benefits

- ✓ High speed pulse of up to 4500 cycles per minute is suitable for high speed production lines and allows production to be increased
- ✓ When used with the Automatic Spray Controller it gives precise control over the flow rate and spray angle
- ✓ Flow rate can be easily adjusted simply by adjusting the on/off of the spray cycle on the control panel screen
- ✓ Different flows can be achieved with a single nozzle size
- ✓ Low flow rates are possible with larger orifice nozzles, reducing the risk of nozzle blockage
- ✓ Food grade nozzle & system available
- ✓ Eliminates misting and potential overspray improving product quality and improving process cleanliness

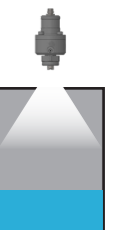
NOZZLES SPRAYING
90% OF THE TIME



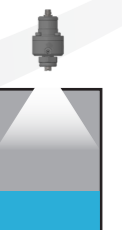
NOZZLES SPRAYING
50% OF THE TIME



NOZZLES SPRAYING
25% OF THE TIME



NOZZLES SPRAYING
WITH **ONLY ON TIME**



HYDRAULIC

AUTOMATIC SPRAY NOZZLE

This new electrically actuated hydraulic spray gun is designed for use in applications where accurate low flow rates and rapid on/off control is required. This automatic spray gun's internal electrically actuated valve allows for rapid pulsing of the spray of speeds of up to 4500 times per minute, which can reduce flow rate but maintain spray performance.

Low flow rates without misting is achieved using this nozzle by being able to adjust the spray pulse cycle, rather than by adjusting liquid or air pressures as is the case with standard air atomising nozzles.

This allows larger orifice size nozzles to be used which in turn reduces the risk of the nozzles blocking, so different viscosity materials can be sprayed with consistency.

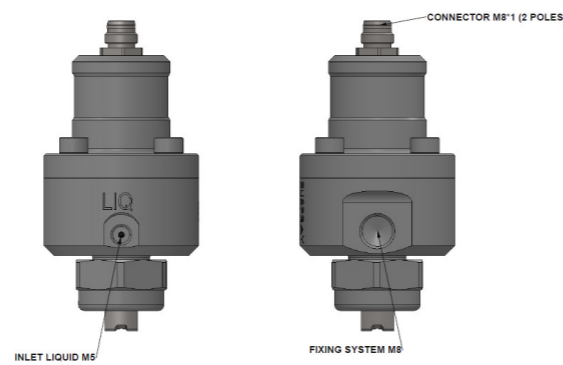
By being able to adjust the flow rate by changing the nozzle pulse cycle, it means that the spray performance remains stable without changes in spray angle or droplet size.

Depending on the application and spray type required, flat fan & deflected flat fan nozzle tips can be used.

Due to its way of working the automatic spray nozzle reduces the amount of mist and overspray created which helps with site cleanliness and also has health benefits especially when spraying oils or glazes.

Technical Description

- Body:** Aisi 316
- Seals:** FPM
- Internal components:** Aisi 316
- Maximum working pressure:** 8 bar
- Opening time:** 5ms
- Closing time:** 5ms
- Fluid temperature:** 0 ° + 130 °
- Maximum viscosity:** max. 21mm² / s (3 ° E)
- Continuous duty:** 100%
- Ambient temperature:** max. + 50 °C
- Degree of protection:** IP67
- Electrical connection:** M8 * 1 connector (2 poles)
- Voltage:** 24VDC (+ 10% -15%) 1.5 Watts
- Nozzles up to flow factor 03 can be mounted (1.1mm orifice diameter)



PNEUMATIC

AUTOMATIC SPRAY NOZZLE

For those applications where ultra low but controllable flow rates are needed, we offer the electrically actuated spray nozzle with an air atomised spray.

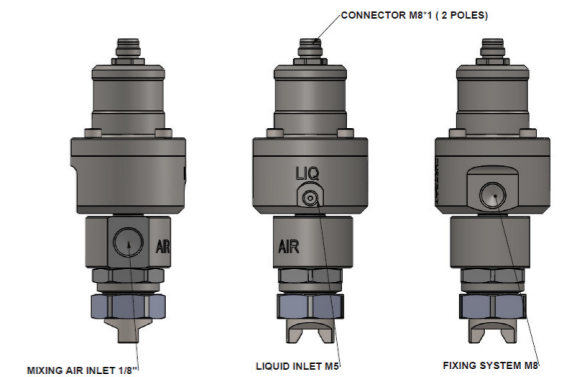
The spray gun's internal electrically actuated valve allows for rapid pulsing of the spray of speeds of up to 4500 times per minute, which can reduce flow rate but maintain spray performance. This enables the nozzle to be used for extremely low flow and uniform spray performance in applications, while only using one nozzle type and size.

It can be used at high speeds and will provide a constant spray angle and droplet size. Pressure can remain constant as the flow can be adjusted by simply altering the spray pulse cycle.

The introduction of atomising air to the nozzle, coupled with the ability to increase or decrease the pulsed spray cycle allows for the flow rate to be decreased even further than just by using the hydraulic version.

Technical Description

- Body:** Aisi 316
- Seals:** FPM
- Internal components:** Aisi 316
- Maximum working pressure:** 8 bar
- Opening time:** 5ms
- Closing time:** 5ms
- Fluid temperature:** 0 ° + 130 °
- Maximum viscosity:** max. 21mm² / s (3 ° E)
- Continuous duty:** 100%
- Ambient temperature:** max. + 50 °C
- Degree of protection:** IP67
- Electrical connection:** M8 * 1 connector (2 poles)
- Voltage:** 24VDC (+ 10% -15%) 1.5 Watts

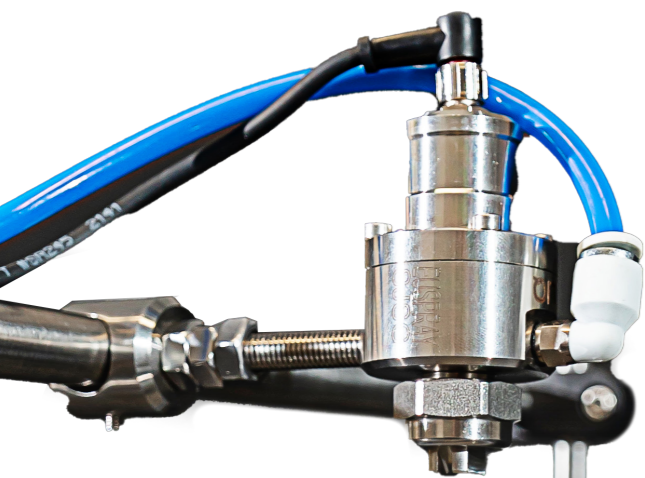


AUTOMATIC SPRAY CONTROLLER

The automatic spray system is made up of the automatic spray nozzles (hydraulic or pneumatic), spray header, spray controller & liquid delivery system. This complete package gives the user a comprehensive spray solution for applying a large range of coatings efficiently and with accuracy.

The spray controller controls the rapid on/off of the electrically actuated spray nozzles while in its spray cycle and also turns them on/off depending on whether product is present or not. The controller can electrically pulse the nozzles upto 4500 cycles per minute, meaning that at a high rate of pulse the spray looks like it is on constantly whereas in fact it is pulsing in order to control the flow rate without affecting spray performance and droplet size.

The controller features touch screen control, making system adjustments easy for the user. Pulse speed and spray duration time can be easily set through the screen controls. Product sensors can be linked in to the spray control to allow for spraying only when product is present.



LIQUID DELIVERY SYSTEM

Depending on the amount of spray heads and the volume required on any particular system, we can either supply a manual fill liquid delivery system or an automatic fill system.

The manual fill system features a material pressure tank which can be manually filled at the start of a shift for example. We can also provide low level alarms to alert the operator when it needs to be refilled. This system is suited to either systems with extremely low volume or for systems that are only needed when a particular product is being produced.

Our auto-fill liquid delivery system is ideally suited to continuous, high speed production lines and where minimal operator input is wanted. For applications where either water or materials that are supplied in large volumes such as IBC's are used, the auto-fill system will use an air driven diaphragm pump to take the liquid from the supply, then pump it into our material pressure tank. This has high and low level sensors so can automatically maintain the right level.

In either system, we use the pressure tank as a stable source of liquid to supply the sprays rather than supply directly from a pump. This eliminates any potential variations in the liquid supply and gives the sprays a consistent supply of liquid when needed.





Scan the QR code to watch our video on our Advanced Spray Systems

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