



# PWM Flow Control

Pulse Width Modulation (PWM)  
Enables Flow Rate Control Without  
Changing Spray Pressure

## Benefits

- **Flexibility:** Achieve a wide range of flow rates with a single nozzle
- **Immediate flow adjustments:** Using AutoJet<sup>®</sup> spray controllers, response time of electrically-actuated PulsaJet<sup>®</sup> spray nozzles is almost instantaneous
- **Reduced clogging:** Maintain low flows even with large spray orifices for improved reliability and reduced maintenance
- **Reduced misting:** Low flow operation using larger orifices at low pressures reduces the misting common at higher pressures and improves transfer efficiency and safety
- **Uniform coating/improved quality:** Constant pressure operation prevents variations in spray angle and drop size for more even coating over a wide range of flow rates

## Examples of PWM Flow Control Applications in Food Processing

- Spraying flavors or oils onto bread, pastries and rice cakes
- Surface coloring with egg coating, milk protein, or caramel
- Moistening dough with water to maintain proper consistency
- Misting bread with water to improve seed adhesion
- Spraying food ingredients onto products or into trays
- Spraying water on hamburger patties, vegetables and pizza prior to freezing to maintain proper weight
- Spraying antimicrobial agents onto meat & poultry for food safety
- Spraying sunflower oil on peanuts
- Spraying aroma onto coffee and other food products

## What You Need for PWM Flow Control

### A fast spray nozzle

Electrically-actuated PulsaJet® nozzles achieve speeds up to 10,000 cycles per minute and are ideal for PWM flow control. PulsaJet nozzles also offer accurate spray placement, excellent spray pattern integrity and a choice of hydraulic or air atomizing spray tips.



### A spray controller – plus software

AutoJet® Technologies offers a wide range of spray control options for manual or automated PWM flow control regulation. Basic versions offer PulsaJet nozzle control with manual flow adjustment and advanced versions provide total automation, optional spray detection/verification and more.

### Spray knowledge

Effective PWM flow control requires a strong knowledge of how liquids flow and how spray nozzles work. Turning a spray nozzle on and off very quickly is not enough.

## More PWM Flow Control Resources



A Guide to Pulse Width Modulated Flow Control

**Technical Manual 414**

PWM Flow Control Center

**[www.spray.com/pwm](http://www.spray.com/pwm)**

PulsaJet® Automatic Spray Nozzles

**Bulletin 603**

AutoJet® PWM Spray Control Panel

**Bulletin AT162B**

PulsaJet Control Panel

**Bulletin AT164B**



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