

# FlexFlow Precision Spray Systems Operation

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## Introduction

Precision intermittent spraying systems grant an innovative opportunity to improve processes and upgrade various plant operations, from bakery conveyor lines to roofing shingle production. This guide delves into the basic operation and advanced features of the FlexFlow 1000 and 2000 spray systems, ensuring maximum performance for your Electric HydroPulse and other compatible automatic nozzles.

BETE's cutting-edge automated spray systems enhance manufacturing with precision spray control and flexible automation. In this post, we'll explore the features, benefits, and operation of the FlexFlow 1000 and FlexFlow 2000 systems, showcasing how they can improve product quality and reduce waste in your processing plant.

## FlexFlow Hygienic Automated Spray Systems

BETE's FlexFlow Spray Systems provide precision control and flexible automation for various food processing applications. These systems feature a hygienic enclosure and, when equipped with HydroPulse® nozzles, are ideal for precision coating, moistening, and lubricating tasks. The plug-and-play controllers ensure precise application to the target, enhancing product quality while minimizing waste.

### Key Features:

- **HMI Touch Screen:** Intuitive operations and diagnostic overview for streamlined control and troubleshooting.
- **Nozzle Control:** Operate up to 12 nozzles (FlexFlow 1000) or 20 nozzles (FlexFlow 2000) with independent or synchronous settings.
- **Zones of Precision Control:** FlexFlow 1000 supports two control zones, each handling up to 6 nozzles. FlexFlow 2000 offers up to 20 independently controlled spray zones.
- **Pulse Width Modulation (PWM):** Electronically adjust the spray flow rate by pulsing sprays while maintaining constant fluid supply pressure.



## FlexFlow 1000 Spray System

The FlexFlow 1000 is designed for operations requiring up to 12 nozzles in two control zones. This user-friendly system offers a straightforward setup and versatile control options.

### Setup and Operation:

1. **Safety First:** Install the system according to OSHA and other safety regulations. Always wear safety glasses and hand protection, and follow lockout/tagout procedures.
2. **Power On:** Turn on the controller using the power switch on the panel's face.
3. **Control Setup:** Configure the spray zones to operate independently or synchronously from the main menu.

4. Spray Modes:
  - Continuous Spray Mode: The nozzle sprays continuously when receiving a signal.
  - Repeat Spray Mode: The spray turns on and off at intervals while receiving a signal.
  - One-shot Spray Mode: After receiving a signal, the nozzle sprays for a set duration and does not spray again until a new signal is received.
5. Adjustments:
  - Duty Cycle: Adjusts the spray duration within each cycle.
  - Frequency: Determines the pulse rate per second.
  - Output Control: Turns nozzles on or off.
  - Start and Stop Delays: Fine-tune when the nozzle starts and stops spraying relative to the trigger signal.



## FlexFlow 2000 Spray System

The FlexFlow 2000 provides unparalleled flexibility for more extensive operations, managing up to 20 nozzles in 20 independently controlled spray zones.

### Enhanced Features:

- Trigger Input Setup: Assign trigger signals to normally on or off states.
- Nozzle Zone Selection: Group nozzles into zones for specific control settings.
- Advanced Control: Match spray volume to conveyor speed with an auto-adjust duty cycle.
- Ethernet Integration: Integrate with plant control platforms for custom control applications.

### Demonstration:

The FlexFlow 2000 can operate multiple zones with different spray modes simultaneously. For example, you can set Zone 1 to Continuous Spray Mode and Zone 2 to Repeat Spray Mode or program any combination that meets your processing needs. This versatility ensures comprehensive coverage and precise application across various tasks.

### Conclusion

Leveraging the advanced features of FlexFlow spray systems with automatic nozzles can achieve superior operational efficiency and production quality for a broad range of manufacturing industries. Whether you choose the FlexFlow 1000 for smaller setups or the FlexFlow 2000 for more extensive operations, these systems provide reliable, precise, and flexible spray control. For detailed instructions, refer to the system manuals, watch the videos below, or contact BETE spray experts at [sysfab@bete.com](mailto:sysfab@bete.com).

Contact us to learn more about how you can optimize your spray process and save resources with BETE spray technology.