

Fully-automated closed loop spray system provides outstanding monitoring and control capabilities.



Automated spray system using 1/4JAUH Automatic Spray Guns

### Application:

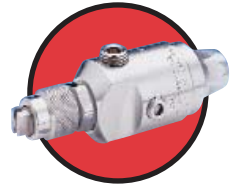
A carpet manufacturer needed an automated spray system to apply a latex-based solution as an anti-slip backing on their carpets. To keep their operations running at peak efficiency, they needed a system that provided outstanding monitoring and control capabilities.

### Problem:

The customer needed to control the application rate of the dry product in a specific range with the application rate remaining constant even at line speeds which varied between 15 m/min and 25 m/min (49 ft/min and 82 ft/min). Since the product being sprayed is very tacky and plant safety is an issue, it was imperative to minimize spray drift, avoid overspray and install an effective rinsing system to keep the system clean. The control system also needed to account for three different carpet widths on the same machine. Finally, the control system needed to monitor two latex spray tanks and determine when a tank was empty so that the other one could be activated.

### Solution:

A fully-automated spray system was designed and installed by AutoJet Technologies. The Model 2250 AutoJet Spray Controller met all of the customer's needs using powerful SprayLogic™ Software. The controller detects the various carpet widths through proximity switches and automatically switches on the appropriate bank of stainless steel 1/4JAUH Automatic Spray Guns (three spray gun banks in total). A speed-dependent closed loop flow rate control system was implemented.



## CUSTOMER TESTIMONIAL

"I had never heard of AutoJet Technologies, however, after visiting their facilities I realized that AutoJet was capable of much more than just delivering a pump, a pipe and a nozzle. They bring precision spray control and spray automation to a level I haven't seen before from any of their competitors.

As we, at DOMO, were breaking new ground ourselves and were still experimenting with new spraying material, we got all the support we needed to achieve the results we wanted. The AutoJet engineers really went for it. It was well worth the investment."

— Production Manager, DOMO International



Precision spray system maintains throughput and minimizes maintenance.



In order to prevent clogging of the spray tips, a fully-automated rinsing system was implemented. When the system stops spraying for longer than a predetermined length of time, a piston-activated stainless steel rinsing gutter is automatically positioned under the spray nozzles and either a latex spray cycle or a complete rinsing cycle is performed.

Operating conditions such as flow rate, liquid and air pressures, tank levels and carpet widths are constantly monitored by the AutoJet Spray System. Fault detections were established using SprayLogic Software which allow the controller to generate alarms and to shut the entire system down under specific conditions.

The “System Integrity Checking” program automatically detects spray nozzles that are clogged or worn. The Model 2250 Spray Controller then generates alarm messages such as: “Check clogged nozzles” or “Check worn nozzles.” The spray controller also has a built-in algorithm that prevents the pump from running dry.

The custom AutoJet Spraying System has allowed the customer to gain a competitive advantage by adding the anti-slip feature to their carpets, while keeping up with existing production throughput. The automated rinsing system has minimized maintenance, and all environmental and safety requirements for applying latex have been met.

**For process consultation or application assistance on any AutoJet Technologies product, contact your local Sales and Engineering office.**

The latex flow rate is measured with an electromagnetic flowmeter, and the Model 2250 AutoJet Spray Controller continuously adjusts the flow rate to the spray guns by regulating the RPM of an eccentric worm pump with a frequency driven motor. The continuous flow rate calculations are based on six factors:

- Setpoint for the desired dry product application rate
- Measured flow
- Speed signal coming from the customer’s PLC that controls the speed of the production line
- Dilution ratio of the latex
- Specific gravity of the latex
- Measured carpet width