

Laminating urethane for flexible packaging



CASE STUDY

Challenge

Provide a continuous flow of laminating urethane to flexible packaging laminator line that is running 300 meters (984 ft) of film per minute. The customer wanted to improve ratio control, mix quality, and increase production.

Urethane material is automatically fed into the laminator nip trough and applied to flexible packaging film (like potato chip bags) which has an oxygen barrier layer and a layer of printable plastic. Adhesive is applied to one film via a series of rollers while a second film is brought together with the first and rewound on a roll.

Solution

The Graco HFR Metering System™ is installed and material is fed from Monark® 5:1 transfer pumps. Primary heaters and heated hoses temper the material to 90° to 100°F (32°C to 38°C) to reduce the viscosity and to provide a uniform temperature during the winter months.

The MD2 Dispense Valve and static mixer are mounted to an actuator on the laminating machine that moves back and forth across the laminator nip trough to evenly distribute the material. The trough utilizes a level sensor with a pneumatic signal output. A pressure switch with contacts sends a “dispense” signal to the Graco HFR Metering System. The laminator nip sensor maintains that signal until the trough level is satisfied.

Results

The Graco HFR Metering System provided increased production, decreased maintenance, and improved ratio control and mix quality of the urethane, resulting in greater uptime. The system's Advanced Display Module allows for real-time monitoring of the system setpoints and status (such as material temperatures, material flow rates and usage, error logging and event logging).



The system's MD2 Dispense Valve and static mixer are mounted to an actuator on the laminating machine that travels back and forth across the nip trough to evenly distribute the mixed material.

SPECIFICATIONS

END USER

Overwraps Packaging, Inc.

INDUSTRY

Flexible packaging production

APPLICATION

Providing a continuous flow of laminating urethane to a flexible packaging laminator line.

MATERIAL SPECS

Liofol® LA1139-04 and UR6029 urethane adhesive

Material Supplier:

- Henkel

Typical Properties

- Ratio (B:A) by volume: 1:1
- Viscosity: Poly – 3800 cps;
ISO – 1800 cps
- Chemistry: Urethane

GRACO EQUIPMENT

- Graco HFR Metering System

CONFIGURATION

- Part number: HFRA-14AJJDBF
- Blue pump (B): 80 cc
Red pump (A): 80 cc
- Four heat zones (two in-line heaters and dual zone hose)
- Hoses:
 - 3/8 in (9.5 mm) x 10 ft (3 m) heated
 - 1/4 in (6.3 mm) x 10 ft (3 m) heated whip
- MD2 Dispense Valve with 3/8 in (9.5 mm) x 36 static mixer
- Advanced Display Module to set and report machine status
- A Graco two-component monitoring system was provided to verify material ratio accuracy and to send an alarm if an off-ratio fault was detected



The Advanced Display Module is upgradable via a USB memory stick. The upgrade allows the addition of a light tower.



GRACO HFR METERING SYSTEM

The system improved mix quality of the urethane, resulting in greater uptime for the laminating line.