Drying Water-Based Coatings on Paperboard Web with a Model 4765 High Density Pyropanel Array

Application

A manufacturer of paper plates and cups drying a water-based clear top coat on paperboard web.

Problem

Water-Based Coating - The water-based clear top coat was applied approximately 1 mil wet on one side of the paperboard and was difficult to dry.

Line Speed - Line speeds of 750 feet (229 meters) per minute were not being attained.

Solution

Heat - Three Model 4765-38-42 High Density Pyropanel Arrays applied heat to the paperboard to dry the coating. Specially designed bottom and side reflectors enclosed the infrared heating section to improve efficiency and reduce heat loss.

Air - Input air flow and exhausting through the Pyropanel Arrays removed moisture-laden air from the oven cavity.

Chilled Rollers - A threading system with chilled rollers provided a two second ambient air flash for final curing and product cooling.

Power Control - A Phase Angle SCR Power Control System controlled the Pyropanel Arrays.

Closed Loop Control - Closed loop control of the Pyropanel Arrays provided fine tuning of product exit temperature.

System Integration - The heat, air, chilled rollers, power control and closed loop control were all integrated as a complete processing system.

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Benefits

Line Speed - Using three Model 4765 High Density Pyropanel Arrays dried the coating in one second and maintained required line speeds.

Energy Consumption - The Phase Angle SCR Power Control System regulated the voltage to the Pyropanel Arrays according to line speed requirements, keeping energy consumption to the minimum required.

Improved Quality - The closed loop control of the integrated system enabled the manufacturer to obtain consistent drying results.