

# Corrugator Reduces Hot Plate Steam Pressure for Flatter Lightweight Board

**Challenge** A corrugated box plant in the Midwest struggled with its turndown capability in the hot plate section. Lightweight board combinations were typically run from cool to hot, but the first zone risked flooding under 30 psig steam pressure. Running at higher pressures than desired caused warping in lightweight, high-graphics board.

The plant also wanted the ability to drop pressure and temperature rapidly to make quick grade changeovers to lightweight board. The plant ran its hot plates up to 180 psig pressure for heavyweight board.

**Solution** Kadant Johnson installed a two-zone ThermoZone™ condensate handling station in the first and second zone of the double backer. The ThermoZone standard features included onscreen performance monitoring, a guided wave radar level sensor, and Fisher™ pneumatic valves. The station was also equipped with a rapid temperature response package.

The turnkey installation included systems engineering and electrical and piping installation. The flanged connections, steel skid base, and removable service panels made a weekend installation go quickly and the trap-free design eliminated the need to install steam traps.

**Results** The ThermoZone condensate handling station enabled the corrugated box plant to run its first hot plate zone at five psig on lightweight board combinations and through the entire board run. The 17% drop in temperature from 274° F to 227° F allowed the plant to optimize the starch drying and bonding for the board flatness needed. The plant also now has a larger window of production with a wider range of pressures and temperatures for different board grades.

The addition of the rapid temperature response package enabled the corrugator to achieve lower temperatures quickly for grade changes to lightweight board and stage runs based on demand and not board weight.

Performance monitoring and alerts gave operators visibility into the system to trouble shoot condensate flow issues before board defects occurred.

Note: Fisher is a trademark of Emerson Electric Co.

### Highlights

- Low pressure achieved in hot plate section for flatter light weight board
- Rapid temperature response for quick grade change overs
- Turnkey installation over weekend
- Performance monitoring detects issues before board defects occur

