

Plant Optimization Services

Audits and Training for Corrugators



- *Get the most out of your corrugator with well-trained operators and reliable machinery*
- *Optimize your corrugator's steam system with improved heat transfer, energy efficiency, and system reliability*

Audits

To get the most out of your corrugator you must have well-trained operators and reliable machinery. A critical, but often overlooked, component of your corrugator is your steam system. When your steam system is shut down, your corrugator is shut down. And that can cost you over \$40,000 per hour in lost production.

A reliable steam system requires preventative maintenance. This consists of identifying and correcting potential problems before they cause a shutdown. It does not take many hours of downtime to show the value of a proper, professional, proactive, preventative maintenance program. Such a program begins with identifying the potential problems.

This is where Kadant Johnson can help you. A steam system check-up by Kadant Johnson will not only help you to keep the steam system running, but also help you to keep the steam system running at its peak efficiency.

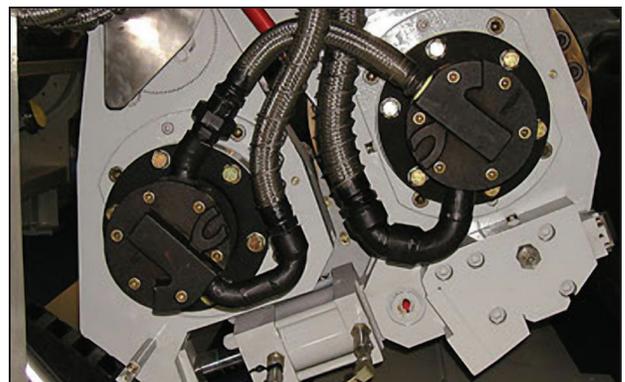
Corrugator Steam System Audit

The Kadant Johnson Corrugator Steam System Audit focuses on all of the essential steam system components of the corrugating machine. Faulty components can result not only in low energy efficiency, but also in low production, poor product quality, high waste, and high operating costs. A Kadant Johnson steam system audit will uncover multiple deficiencies that either risk or are causing poor steam system performance.

The Kadant Johnson audit includes evaluation of the entire steam and condensate loop including:

- Make-up water system
- Deaerator
- Boiler
- Single-facers
- Double-backer
- Condensate pumping stations
- Pressure control loops
- Differential pressure control loops
- Rotary steam joints
- Separator stations
- Steam traps
- Heat transfer capacity

Paper temperatures are assessed following all heating components. Transient conditions are also studied for various system components.



Training



The benefits of a Corrugator Steam System Audit vary dramatically from one machine to another, but they typically far outweigh the audit cost. Advantages include:

- Increased line speed
- Minimized downtime
- Reduced waste
- Reduced starch and paper
- Reduced natural gas, boiler chemicals, water, and compressed air

Corrugator Steam System Training

In addition to conducting corrugator steam system audits, Kadant Johnson can also provide steam system training for your operating personnel for proper and efficient operation of steam systems. It is important your personnel are properly trained and able to identify and promptly address problems that could affect production or efficiency. Trained people recognize when a system is working well, what to do when something goes wrong, and how to restore the systems to its maximum potential.



Training programs cover the following topics:

- Steam system overview
- Steam system component descriptions
- System walk-through
- Recommended daily, weekly, and monthly inspections
- Steam trap operation and maintenance
- Rotary joint and syphon operation and maintenance



During our training sessions, the existing steam system concept and components are reviewed. Training is offered in a classroom or hands-on setting, depending on your needs. To maximize the training impact, the audit scope and training sessions may be customized to focus on specific topics or operating problems:

- Steam basics
- Steam generation
- Distribution basics
- Condensate recovery
- Boilers
- Steam safety
- Ancillary equipment
- Steam trap functions
- Water treatment
- Troubleshooting





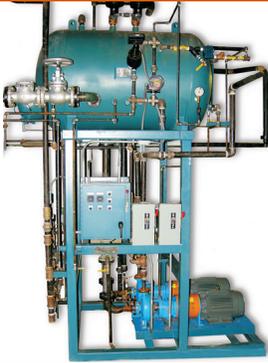
LJ-PT™ Rotary Joint

The LJ-PT rotary joint is mounted to the bearing cover using two external rods. The balanced seal is designed to tolerate misalignment and provide extended service life. The LJ-PT rotary joint is commonly used on corrugating rolls with the Pivot Body™ syphon elbow or locking elbow.



CorrPro® Rotary Joint

The CorrPro rotary joint is mounted directly to the bearing housing cover to provide accurate and rigid alignment to the roll journal. The CorrPro seal is balanced to provide for long service life and is designed specifically for high-speed, modern single-facers. The syphon pipe is rigidly supported by the 360° mounting bracket, allowing the syphon clearance to be accurately maintained even under the most demanding operating conditions. U.S. Patent No. 6,203,072.



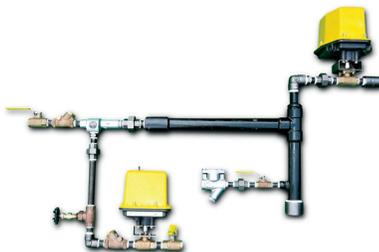
High-Pressure Condensate Receiver

High-pressure condensate receivers are stand-alone units that collect hot condensate from the corrugator and maintain it at a high-pressure and temperature. In this condition, the condensate is ready for direct transfer back into the boiler. Little energy is used and the boiler doesn't have to work hard to turn the condensate back into usable steam. The high-pressure condensate receiver also eliminates undesirable and naturally occurring non-condensable gases from the system, boosting efficiency even higher.



Steam Traps

The proprietary 45 series steam trap is designed to efficiently discharge condensate from corrugating rolls, preheater rolls, preconditioner rolls, and hot plates. The 45 series steam trap handles large and variable loads and steam pressures at any back-pressure and the thermostatic bellows provide automatic air-venting to ensure rapid warm-up of the rolls and other components.



Variable Moisture Steam™ Shower Supply System

A Variable Moisture Steam shower supply system aids with proper flute formation on single-facers running at high-speeds. The shower works by mixing a controlled amount of water into a steam shower. The moisture-rich shower softens and plasticizes the fibers, enabling proper flute formation at higher line speeds.