Steam and Condensate Handling Systems

Steam Tube Dryers

The integration of steam system design, piping, process control, and drying hardware helps prevent flooded dryers that typically result in wet product. A proper steam system can quicken response time to system upsets and production changes as well as prevent improper start-up and shutdown procedures.

Scope of Supply

Not all steam systems are created equal; each steam system is based on the application and its operating conditions. A properly designed steam system can increase production capacity and can provide a reliable and robust system.

Kadant Johnson has over 50 years of unique knowledge of condensate drainage from rotating cylinders and provides an integration of steam system design and hardware. Scope of supply includes:

- Rotary steam joint
- Separator pump module
- Blow-through control
- Instrumentation and control valves
- System visibility through DCS system
- Start-up and operator training assistance
- Piping design services
- Project management
- Turnkey installations are available

Overview

Features
- Proper steam and condensate control
- Application specific design
- Responsive control system
- Managed start-up and shutdown control logic
- Optimal dryer pressure control

Benefits
- Improved overall production efficiency
- Reliable and robust system
- Decreased rotary joint and dryer maintenance
- Increased energy efficiency
- Improved system visibility
**Blow-Through Steam and Separator Tanks**

Blow-through steam from the dryer is controlled by an external condensate line orifice sized to provide steam system balance. Kadant Johnson can define the required blow-through steam flow required to achieve good drainage, as well as supply line orifices.

It is important to provide proper separation of the blow-through steam from the condensate that is removed from the dryer. Condensate tanks are used to provide efficient separation. These tanks are designed to achieve over 98% steam quality leaving the tank. A conventional trapped system does not provide sufficient blow-through steam for continuous flow through the syphon pipe. The condensate level in the tanks is actively controlled by a level-control valve.

**Rotary Steam Joint Upgrades**

For reliable and robust dryer systems, it is important to consider the rotary joints. Many steam tube dryers are equipped with lug-supported rotary joints. Lug-supported rotary joints can experience misalignment that can lead to:

- Reduced seal life
- Steam leaks
- Increased maintenance requirements

Self-supported rotary joints are a highly-reliable rotary joint option for steam tube dryers. The self-supported rotary joint provides two widely-spaced carbon bearings that can:

- Extend seal life
- Handle misalignment
- Reduce downtime

**Other applications and industries that have benefited from modern steam and condensate handling systems include:**

- Chemical
- Corrugating
- Flaking
- Food and beverage
- Paper
- Pharmaceutical
- Oil and gas
- Soda-ash mining