Corrugator Steam Joints
Advanced rotary joint technology

Steam joint solutions for demanding applications.

Engineered reliability and performance.
Rotary steam joints have been a part of the corrugating manufacturing process since the 1930s, when Kadant Johnson introduced the rotary pressure joint. Since then, Kadant Johnson has incorporated advances in sealing technology, rotary joint design, and materials to extend the application range of the conventional pressure-type rotary joint.

Kadant Johnson’s advanced seal technology and extensive line of rotary joints provide increased reliability and performance for any corrugator application, even at operating speeds in excess of 460 mpm and steam pressures up to 20 bar.

**Seal technology for demanding applications**

Until recently, the most popular sealing technology used in corrugating applications was the pressure-type joint, with resin-impregnated carbon graphite seal rings. Silver Streak™ seal rings have since replaced the resin seals to allow higher speeds and steam pressures and longer seal ring life.

Balanced seal technology combined with advanced seal geometry offers maximum seal life, reduced maintenance downtime, and improved reliability at any speed.

**Silver Streak seal rings**

Silver Streak seal rings have been proven to be superior to standard carbon graphite seal rings and are used by many corrugators today. Silver Streak seal rings tolerate the high temperature created by steam pressure and seal friction. Silver Streak seal rings can increase the operating life of pressure joints operating at high speeds.
Kadant Johnson’s extensive research into condensate behaviour and heat transfer in rotating rolls and corrugator hot plates has been combined with an intimate knowledge of steam joints, syphons, and the integration of these components with the steam system to provide a holistic steam distribution and handling system; one that delivers more heat, more consistently, more efficiently. Kadant Johnson offers three unique steam system options for corrugating plants: ThermoTrap™, ThermoPlus™, and ThermoMax® systems. The type of system is dependent on the specific needs of the plant.

Unique features:

- Designed specifically for the application to increase machine responsiveness and system visibility. Decades of experience and research on the heat transfer from steam-heated rolls uniquely positions Kadant Johnson to address the problems other steam systems encounter when varying heat loads and operating at various speeds.

- The Kadant Johnson steam system design is linked to the performance of all the system components including rotary joints, syphons, heat transfer bars, and thermocompressors.

- Kadant Johnson technicians and application engineers provide regular, on-site support for process evaluations, upgrades, installations, and systems optimisation.

A PLC provides visibility into the system leading to greater control and reduced maintenance requirements.
SX® Rotary Joint

Features
- Two internal support guides
- Optimised seal diameter
- Convex seal ring in compression
- Maximum carbon guide separation
- Adjustable syphon clearance option
- Seal wear indicator

Benefits
- Increased life and reliability
- Extended seal life, reduced maintenance
- Self-aligning seal, longer life
- Improved rotary joint and syphon support
- Repeatable syphon clearance adjustment
- On-machine measurement of seal wear

Ratings
- Maximum Pressure: 20 bar
- Maximum Temperature: 288°C
- Maximum Speed: 350 RPM

Recommended Options
- Split wedge syphon support
- Silver Streak seal ring

* Other thread types (NPT, BSP) available on request.
**Adjustable syphon (optional)**

- Adjustable syphon (optional)
- One-piece body
- Split wedge syphon support
- Convex antimony seal ring
- Two carbon guides
- Syphon clearance adjusting screw
- Corrosion resistant nipple available threaded or with quick release "Q" flange

### Specifications

| Model | K* - ISO 7-1 | M* - RH ISO 7-1 | P* - RH ISO 7-1 | S - RH ISO 7-1 | A | B | C | D | E | F | G | H | J | O | Z | Units |
|-------|--------------|-----------------|-----------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| 3550  | 1 1/2"      | Rc 1 1/4"      | Rc 3/4"        | Rc 3/4", Rc 7/8" | 38 | 45 | 167 | 36 | 45 | 55 | 203 | 246 | 303 | 18 | 148 | mm    |

* Other thread types (NPT, BSP) available on request.
**LJ-PT™ Rotary Joint**

**Features**
- Balanced seal design with Silver Streak technology
- External rod-supported, locked in place
- Seal wear indicator
- Retrofit type LJ™ rotary joints
- Adjustable syphon clearance option

**Benefits**
- Minimised seal loading and seal wear
- Increased reliability at higher speeds
- On-machine measurement of seal wear
- No piping modifications, easy upgrade
- Repeatable syphon clearance adjustment

**Ratings**
- Maximum Pressure: 15 bar
- Maximum Temperature: 232°C
- Maximum Speed: 400 RPM

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<th>Size</th>
<th>M</th>
<th>P</th>
<th>S</th>
<th>A</th>
<th>B</th>
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![Diagram of LJ-PT™ Rotary Joint](image)
CorrPro® Rotary Joint

**Features**
- Balanced seal design with Silver Streak technology
- Circular bracket mounting
- Adjustable syphon clearance
- Accommodates thermal expansion up to 12 mm

**Benefits**
- Minimised seal loading and seal wear
- Rigid support for safety and reliability
- Optimise heat transfer and temperature uniformity
- Designed for “wide roll” installations

**Table**

<table>
<thead>
<tr>
<th>Size</th>
<th>Syphon Type</th>
<th>M</th>
<th>P</th>
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<tr>
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Local Assistance On A Worldwide Basis

Pivot Body™ syphon elbow
The Pivot Body syphon elbow allows a syphon pipe to be inserted into a roll through the journal and then pivot into place. Unlike conventional syphon elbows, the Pivot Body syphon elbow does not rely on a hinge pin to hold vertical and horizontal pipes together. Its patented pinless design provides improved performance and increased reliability compared to conventional syphon elbows. U.S. Patent No. 7,618,068.

Flexible hose
Flexible hose is engineered specifically for use as inlet and outlet connections to Kadant Johnson rotary joints. It is used to prevent pipe strains from creating stress on the rotating joint and enhances the rotating joint's built-in flexibility. Available in sizes from 1/4” to 8” with threaded or flanged couplings.

Liqui-Mover® pumps
Liqui-Mover condensate pumps replace conventional centrifugal pumps and motors in returning condensate at high pressures. Both float and float-free condensate pump designs are available as complete skid-mounted assemblies or as stand-alone pressure-powered pumps. Liqui-Mover pumps are rated up to 17 bar.

Steam traps
Kadant's proprietary steam traps are designed for the varying steam loads in the corrugating process and the unique requirements of rotating steam-heated rolls.

Variable Moisture Steam™ shower supply system
A Variable Moisture Steam shower supply system aids with proper flute formation on single facers, especially for those running at high speeds.