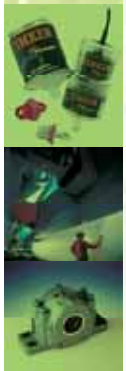


# TIMKEN

Where You Turn

## **Delivering the Difference**

Friction  
Management  
Solutions  
for the  
Paper and  
Forest  
Industries





Harsh, demanding processing operations are a reality within the forest industry. Oftentimes, the difficult environment can play havoc on critical components like bearings, resulting in productivity challenges. That's why when it comes to providing reliable, durable performance and keeping you up and running, the paper and forest industries turn to Timken for friction management solutions. Timken offers a wide range of bearings, related products and services for paper mills, saw mills, bag plants, corrugators and other finishing applications.

#### Brands you trust

Through more than 100 years in business, Timken has built a strong tradition of quality, technology and innovation. A long list of customer certifications provides solid evidence that our products have earned customer trust.

The Timken brand also reflects the well-known quality of Torrington® and Fafnir® product lines. By leveraging the benefits of these brands – from design through distribution – Timken is giving paper and forest industry customers more options. In addition, our experience in paper mills is evident by the fact that Timken Torrington bearings have been designed for and supplied to the industry since 1946.

#### Experienced engineering support

Leveraging decades of expertise, Timken's engineering team works closely with heavy industrial customers to help determine optimal bearing design. Engineers may also recommend appropriate sealing arrangements, lubrication type, quantity and intervals.

## Enhanced Timken® Torrington® Spherical Bearing

### Provides Reliable Operation for Paper Mills

#### W906A modification

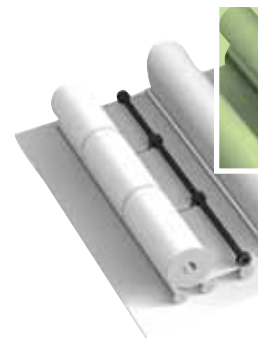
Timken Torrington compressive residual stress spherical roller bearings feature case-hardened steel components help to manage the heavy tensile stresses found in large roll applications on paper machines.

The unique operating conditions of press, suction and calender rolls subject bearings to high surface stresses on the inner ring raceway and rollers. Through-hardened bearings are vulnerable to cracking at these contact points. Further complications come from stresses that can develop during routine bearing installation. These problems can lead directly to premature bearing damage and costly machine downtime.

Torrington compressive residual stress bearings incorporate case-hardened inner rings and rollers that offer a layer

of compression to help counteract these high tensile stresses. This advanced metallurgy minimizes unplanned downtime and improves overall productivity.

In addition to the compressive residual stress bearing design, Timken produces a full range of bearing types and sizes for paper mills. These include ball bearings and housed units, cylindrical roller bearings, small bore spherical roller bearings, tapered roller bearings, triple ring bearings, spherical plain bearings, and all types of heavy-duty thrust bearings. Timken also provides industrial lubricants, lubrication delivery systems, condition monitoring product and services, industrial seals and bearing repair to help extend the service life of paper mill bearings and keep equipment running.



**W906A Benefits**

**Case-hardened components >**  
Provides up to three times longer L10 life in testing with high stress applications. Fracture resistance prevents costly journal damage and has demonstrated the ability to tolerate damage caused by contamination.

**Maximized capacity >**  
Improved internal geometry permits greater roller length and diameter for some of the highest load capacities in the bearing industry. This extends bearing service life under normal operating conditions.

**Superior precision >**  
Advanced manufacturing controls exceed RBEC 5 precision levels for eccentricity control. This is a quarter the radial runout of many competitive designs. Improved eccentricity control reduces vibration and contributes to greater caliper control. Both high and low points of eccentricity are marked on inner and outer rings to guide installation and help achieve optimum running precision.

**Improved components >**  
Smoother finishes and one-piece machined bronze cage enhance lubrication and help to strengthen the total design.

**Broad range >**  
As shown in the chart below, improved features are available across a wide range of Torrington spherical roller bearing types and sizes.

**Timken® Torrington® Compressive Residual Stress Bearings/W906A Modification Code**

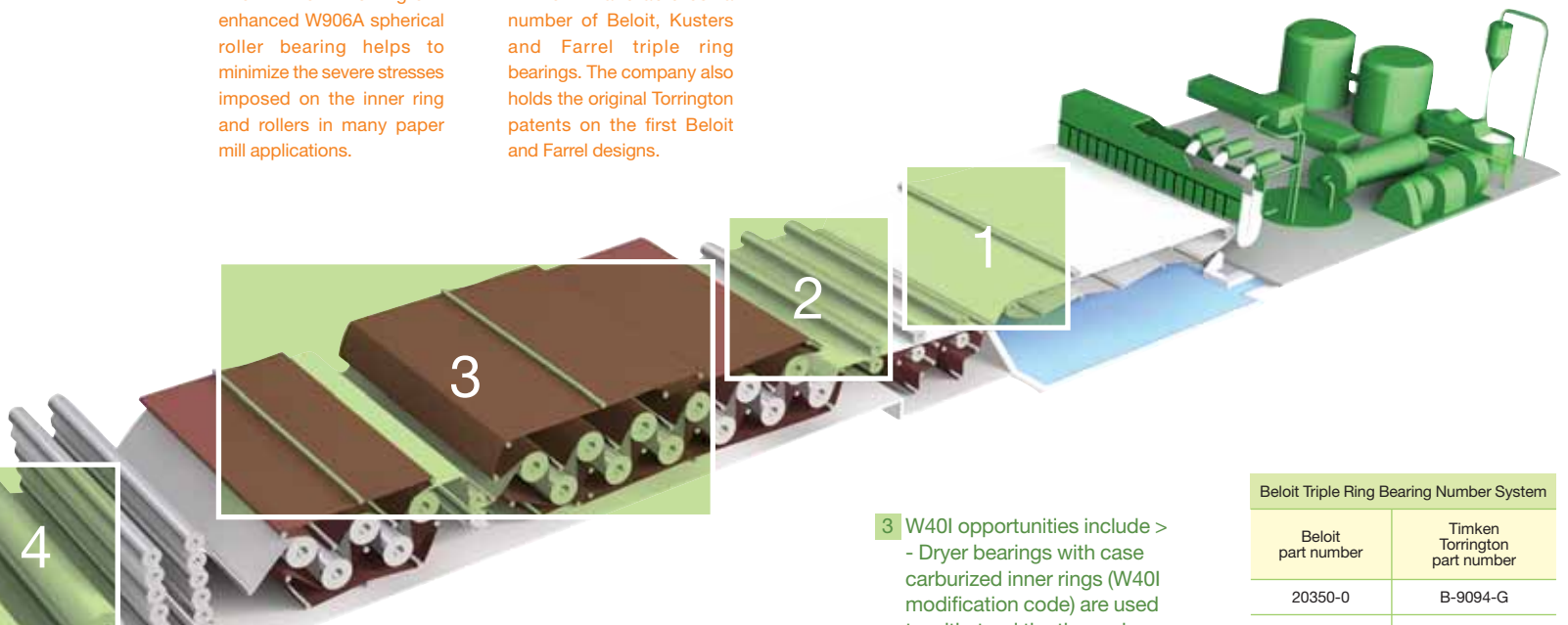
230 Series	23072KYMBW906AC3	23076K	23080K	23088K	23096K	230/500K	230/530K	230/560K	230/600K	230/630K	230/670K	230/850K
231 Series	23172KYMBW906AC3	23176K	23180K	23184K	23188K	23192K	23196K	231/500K	231/530K	231/560K	231/630K	231/670K
232 Series	23260KYMEW906AC3	23264K	23268K	23272K	23276K	23280K	23284K	23292K	232/500K	232/530K	232/560K	232/670K
239 Series	239/600KYMBW906AC3	239/710K	239/750K	239/850K								

Torrington's superior stress profile is now standard on the above spherical roller bearing sizes. To order, simply add the designation "W906A" to the bearing code, i.e. 231/530KYMBW906AC3.



The Timken® Torrington® enhanced W906A spherical roller bearing helps to minimize the severe stresses imposed on the inner ring and rollers in many paper mill applications.

Timken manufactures a number of Beloit, Kusters and Farrel triple ring bearings. The company also holds the original Torrington patents on the first Beloit and Farrel designs.



**1** Small spherical roller bearing [<220mm bore] opportunities include >  
- Press rolls  
- Felt rolls  
- Wire rolls  
- Wire return rolls

Other opportunities include >  
- TDC® coatings offers superior corrosion resistance in harsh wet-end environments. To order, add the W8 modification code to the part number.

**2** W906A opportunities include >  
- Press rolls  
- Suction rolls  
- Variable crown rolls  
- Granite rolls  
- Coater rolls  
- Couch rolls  
- Yankee dryers

Other opportunities include >  
- Triple ring bearings for crown control rolls

**3** W40I opportunities include >  
- Dryer bearings with case carburized inner rings (W40I modification code) are used to withstand the thermal stresses of accelerated start-ups

**4** W906A opportunities include >  
- Calender rolls  
- Super calender rolls  
- Embossing rolls  
- Temperature-controlled rolls

Other opportunities include >  
- Triple ring bearings for crown control rolls

**Beloit Triple Ring Bearing Number System**

Beloit part number	Timken Torrington part number
20350-0	B-9094-G
20350-1	B-9193-G
20350-2	B-9310-G
20350-3	B-9362-G
20350-4	B-9194-G
20350-6	B-9311-G
20350-7	B-9417-G
20350-8	B-9483-G
20350-9	B-9485-G
20350-10	B-9312-G
20350-11	B-9486-G
20350-12	B-9384-G

For The

## Saw Mill

Throughout the many refining and finishing processes within a saw mill, Timken products perform reliably. From the debarker, edger and conveyor systems to the planer mill and kiln, Timken offers a complete range of products to help keep your the saw mill operations on line.

### Timken® Torrington® SAF pillow blocks

Commonly found in the saw mill hog area, edgers and the shafts of air handling units, Torrington SAF pillow blocks combine a rugged housing with advanced spherical roller bearing features to help promote reliable performance. High strength caps and bases provide optimal bearing support and load distribution while the split housing design simplifies assembly and service. Available with multiple sealing options to protect against contamination, Torrington

SAF pillow blocks deliver outstanding performance - either on their own or mounted on SNW assemblies.

### Timken® Torrington® small bore spherical roller bearings

Feeding logs into the chipper knife creates shock loads that must be overcome to produce a uniform chip. The precisely controlled setting of the chipper knife blade is the key to attaining premium quality chips, necessary for consistent paper fiber structure. That's why Torrington spherical roller bearings (160mm-200mm) are often found on jack shafts, among other locations. Our spherical roller bearings are designed to help handle dynamic misalignment, even in the most rigorous of applications.



Timken Torrington SAF pillow blocks combine rugged cast-iron housings with high capacity spherical roller bearings.



Timken has a complete range of Torrington small bore spherical roller bearings for many operations within the paper mill.

## Friction Management Products and Services for the Saw Mill and Beyond

### Timken® Fafnir® ball bearing housed units

Conveyors are critical to the productivity within a saw mill. Equally important are the ball bearing housed units that allow the conveyors to roll smoothly. Timken offers Fafnir® ball bearing housed units in several housing designs, including pillow blocks, flanged cartridges, cylindrical cartridges and take-up units. The standard housing material is cast iron with high-strength Timken steel inserts. Eccentric locking collars and set screw designs can provide the necessary product rigidity, which contributes to its overall performance.



With an extended inner ring and self-aligning bearing, Timken Fafnir ball bearing housed units are easy to mount and install.

### Timken single-point lubricators

For difficult to reach locations like motors located on the roof of a kiln or within the planner room, Timken offers an easy-to-implement solution so that proper lubrication practices can be maintained. Timken single-point lubricators are gas and motorized units that dispense a precise amount of grease to lubricate bearings, chains, guideways and other equipment, improving productivity and maintenance costs. These devices also promote a safe work environment as they are ideal for places where rotating equipment exists.



Available with Timken-formulated grease, our single-point lubricators can keep critical components, located in difficult-to-access locations, operational.

### Timken condition monitoring equipment

Timken has a wide array of online and hand-held condition monitoring equipment along with integrated services to help keep critical components like chippers operating reliably. To effectively monitor bearing health and identify potential issues before unexpected shutdowns occur, Timken shock pulse monitoring products and the StatusCheck™ wireless condition monitoring tool are excellent systems to consider for saw mills, paper mills or other forestry processing facilities.



Timken condition monitoring products and services are an important component to a mill's predictive or preventive maintenance plan.





## For Other Processing Equipment and Forestry Applications

In addition to paper and saw mills, Timken offers products and services for other processing equipment and applications within the forest industry. Corrugating operations, for example, can benefit from the performance of quality Timken Torrington small bore spherical roller bearings. Throughout your facility, pumps of

all types and sizes are ideal applications for Timken Fafnir angular contact ball bearings. And with Timken industrial greases, single-point lubricators and condition monitoring equipment, Timken is your single source for friction management products and services to the forest industry.

## Maximizing Paper Industry Bearing Performance

### Timken Paper Industry Training

Timken offers a two-day training course for maintenance personnel and mill operators at our Tyger River plant in South Carolina.

Paper industry bearing training covers every phase of bearing performance within the mill. Complete bearing training for paper and auxiliary equipment results from industry experience of every aspect of paper manufacturing - from pulp to finish. Knowledge taken from

the paper mill industry is then supplemented by experience in bearing manufacturing and hands-on classes, covering:

- bearing fundamentals
- friction management solutions
- proper bearing care and handling
- measuring and assembly technique
- lubrication practices
- bearing damage analysis
- bearing repair
- condition monitoring

# TIMKEN

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