



FOOD & BEVERAGE PRODUCTS + SERVICES GUIDE

BREADTH. SAFETY. SAVINGS.

Safe, efficient manufacturing. It's vital to the health of the products you produce – and the viability of your business.

While your operations must meet demanding safety regulations, they also need to maintain profitable uptime. You need equipment tough enough to handle chemical washdowns, high temperatures, fast throughput and other challenges they endure day in and day out.




FRICITION HAS MET ITS MATCH.

We manufacture and deliver one of the broadest ranges of application-proven products and services for the food and beverage industry. After decades of serving leading equipment builders and food processors across the globe, we have extensive knowledge about the ever increasing requirements for food safety.

Our products thrive in severe operating conditions, and you gain a partner who understands the regulations and operating challenges you face.

Let's work together to overcome your challenges. We are committed to your success. For more information, visit us at www.timken.com/food.

Timken Engineered Bearings

| Product | Summary | Advantages |
|--|--|---|
| Hygienic Solutions | | |
| CORROSION-RESISTANT DEEP GROOVE BALL BEARINGS |  Constructed with stainless steel rings, balls and cages, these corrosion-resistant materials and food-grade lubricant can help elevate food safety and production uptime with improved reliability | <ul style="list-style-type: none"> Resist corrosion and improve metal detectability Improve food safety with NSF H1-registered water-resistant grease for shielded and sealed bearings Available with FDA/EC compliant optically detectable blue seals Handle a wide range of operating temperatures with high-performance lubricants |
| SOLID LUBE |  Timken Solid Lube provides a lubricating alternative to grease in harsh environments; Solid Lube is a micro-porous polymer structure combined with high-performance oils and additives | <ul style="list-style-type: none"> Hygienic. Its unique makeup helps prevent lube from contaminating food products. Some Solid Lube grades have NSF H1 registration Protected. Full-fill and large-oil reservoirs help guard against washdown and ingress of contaminants for safe and reliable operation Cost-effective. Timken Solid Lube can help reduce your operating costs and increase operational productivity Versatile. With a wide range of Solid Lube solutions, we can match application requirements, including extreme temperatures or washdown environments |
| RADIAL POLY-ROUND |  Timken FE Radial Poly-Round® bearings eliminate the need for all rolling elements, preventing the hazard of damaged bearing components falling into food products | <ul style="list-style-type: none"> Unaffected by washdowns due to the use of corrosion-resistant materials and a greaseless design Available in FDA/EC/USDA compliant optically detectable blue Increased food safety due to optically detectable blue polymer Reduced bearing maintenance due to absence of lubrication Designed to reduce shaft fretting |



Timken Legacy Bearings






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| TAPERED ROLLER BEARINGS |  Timken® tapered roller bearing components are precisely designed to manage both axial and radial loads | <ul style="list-style-type: none"> Increase power density with a smaller, lighter bearing |
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Mounted Bearings

| Hygienic Ball Bearing Inserts | | |
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| POLY-ROUND BEARING INSERT |  Made of high performance bearing-grade polymer materials that incorporates lubricity into its composition, allowing the unit to operate as a bearing without any grease | <ul style="list-style-type: none"> Zero grease Completely non-corrosive Available in FDA/EC/USDA compliant optically detectable blue Unaffected by washdown or process moisture Eliminates seals and shields |
| TIMKEN IP69K HYGIENIC STAINLESS BALL BEARING INSERT |  Fully stainless bearings with IP69K water and dust protection rating without the use of an end cover  | <ul style="list-style-type: none"> Rings, balls and cage are fully stainless making them fully metal detectable and corrosion resistant FDA/EC compliant optically detectable blue sealing Available in numerous housing combinations an including options designed to fit any food and beverage application need |
| STAINLESS STEEL INSERT |  Fully stainless steel ball bearing inserts with set screw locking, metal cage and double lip seal for ingress protection; EDT by Timken eccentric locking insert also available | <ul style="list-style-type: none"> Interchangeable industry-standard mounted bearings from 20 mm to 50 mm (3/4 in. to 2 in.) Rings, balls and cage are fully stainless making them fully metal detectable and corrosion resistant |
| SOLID LUBE |  An effective alternative to grease; this bearing eliminates over-greasing, wrong grease application or lack of grease | <ul style="list-style-type: none"> Never requires relubrication Consistently delivers the right amount of lubrication Resists contamination Stands up to harsh applications and washdowns Dramatically improves cleanliness |

Housing Materials and Style












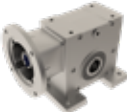
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| HOUSING MATERIAL |  Four different housing materials including hygienic blue thermoset, hygienic stainless, white thermoplastic and cast stainless all designed to elevate food safety | <ul style="list-style-type: none"> One of the broadest housing material selections in the industry Protection against corrosion and a variety of wet and dry contaminants Available in all multiple housing styles |
| HOUSING STYLES |  Housing styles available in pillow block, flange, take up, tapped base and piloted flange | <ul style="list-style-type: none"> Can be assembled with stainless ball inserts or Poly-Rounds. Designed for easier and more efficient cleaning Available in our Quiklean® design, which is our integral stand-off option for improved cleanability and easier implementation USDA-accepted mounted bearings feature smooth surfaces to help prevent bacteria growth |

| Product | Summary | Advantages |
|---|--|---|
| Timken Legacy Bearings (continued) | | |
| SPHERICAL ROLLER BEARINGS |  Manage high radial loads with innovations that help extend bearing life and boost reliability | <ul style="list-style-type: none"> Run at consistently lower temperatures than same-size competitive bearings |
| CYLINDRICAL ROLLER BEARINGS |  Comprehensive line of single-, double- and multi-row versions helps extend equipment life and lower maintenance costs | <ul style="list-style-type: none"> EMA high-performance series offers premium brass land-riding cages that reduce operating temperatures |
| BALL BEARINGS |  Engineered to perform in a wide range of applications, from motors to gearboxes to all food processing equipment | <ul style="list-style-type: none"> Radial bearings tolerate relatively high-speed operation under various load conditions Angular contact designs can support both radial and axial loads The Timken® series ball bearings are fully interchangeable to competitor product |
| THRUST BEARINGS |  Ideal for when axial loads meet high speeds, heavy loads or other challenging conditions | <ul style="list-style-type: none"> Get optimum performance with either standard or custom designs |
| COATINGS AND ENGINEERED SURFACES |  Hard coatings and topographical modifications help boost the performance of precision components in difficult applications | <ul style="list-style-type: none"> Enhance performance and reliability in equipment with marginal lubrication or in high-debris environments AquaSpex® and Thin-Dense Chrome electrodeposited coatings provide outstanding corrosion resistance and wear protection |







Legacy Mounted Bearing Solutions

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| FANIR® MOUNTED BALL BEARINGS |  Multiple housing styles, shaft sizes, sealing and locking solutions support a wide range of demanding applications and conditions | <ul style="list-style-type: none"> Provide advanced protection against contaminants, reducing costly wear and tear Set screw solution (Shaft Guard Technology) eliminates shaft damage from set screws Industry leading eccentric lock for simplified and secure mounting and shaft damage prevention |
| U SERIES MOUNTED BALL BEARINGS |  Multiple housing styles and insert locking options across imperial and metric shaft sizes | <ul style="list-style-type: none"> Two-piece sealing with contact lip seal and flinger for additional protection Three effective locking styles Includes standard and heavy duty series |
| FANIR® SURVIVOR SERIES |  Our Survivor Series mounted ball bearings offer superior durability in highly corrosive food and beverage applications | <ul style="list-style-type: none"> Survivor Series units are FDA/USDA compliant for incidental contacts Housings available in polymer and nickel-plated cast iron Available in pillow block, flange, tapped base and take-up unit housing styles |
| MOUNTED TAPERED ROLLER BEARINGS |  Manage high axial and radial loads and avoid contamination; unrivaled multi-point sealing solution design; solid and split housings; self-aligning options available | <ul style="list-style-type: none"> Triple-barrier seal for industry-leading protection against contamination Secondary sealing system with open and closed end covers are available to improve grease retention and protect the bearing Available with FDA-compliant coating for corrosion resistance and food safety Stainless steel housing available |
| MOUNTED SOLID BLOCK SPHERICAL ROLLER BEARINGS |  Engineered for the harshest conditions, multiple housing and locking options, multi-point sealing solutions and interchangeable with large range of products | <ul style="list-style-type: none"> Easy to mount and align in 15 minutes Helps eliminate contamination with a full range of end covers Available with FDA-compliant coating for corrosion resistance and food safety Sealing and locking options help optimize uptime Stainless steel housing available |
| SNT/SAF MOUNTED PLUMMER BLOCK |  Fast installation with reliability in rugged environments; keep lubrication in and contamination out; cast steel, cast iron or ductile iron housing | <ul style="list-style-type: none"> Easily convert from fixed to float configurations Split housing allows for removal of cap for easy assembly and bearing inspection |
| MOUNTED SPLIT CYLINDRICAL ROLLER BEARING |  Reduce downtime in trapped applications; innovative split-to-the-shaft bearing; fast and simple replacement of bearing components | <ul style="list-style-type: none"> Reduce inspection and replacement time dramatically Increase operational life and reduce maintenance expense |

Industrial Motion






| Product | Summary | Advantages |
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| PRECISION ROLLER CHAIN  | Manufactured to meet or exceed both ANSI and ISO/British Standards and excel in tough, high-performance applications; lubrication-free chain, precision roller attachment chain, engineered class chain and stainless steel, nickel plated and Silver Shield chains are available | <ul style="list-style-type: none"> Excel in tough, high-performance, demanding applications Custom and standard MTO attachments available Available in both ANSI and ISO/British Standard specifications Reduced maintenance chain, precision roller attachment chain, engineered class chain and corrosion resistant options available |
| BELTS  | Purpose-built and designed for optimal performance in a multitude of demanding applications | <ul style="list-style-type: none"> Comprehensive line of premium-quality heavy-duty v-belts and synchronous belts Engineered and built to rigid specifications to provide superior performance and reliability |
| QUICK FLEX® COUPLINGS  | Easy to install and requiring no lubrication, their lifespan matches the rotating equipment to help lower overall cost of ownership | <ul style="list-style-type: none"> Transmit the same or higher torque than a gear, grid, chain or other elastomeric coupling with similar dimensions Insert is easy to replace without moving hubs – maintenance takes minutes Sized to fit virtually all needs, with multiple hub and shaft combinations for easy mounting |
| S-FLEX ENDURANCE COUPLINGS™  | S-Flex Endurance couplings are excellent at protecting equipment in a wide variety of uniform-load applications | <ul style="list-style-type: none"> Ideal for pump and fan applications Easy to install and maintenance free Accommodates all types of shaft misalignment Dampens vibration and shock loads |
| STAINLESS STEEL JAW COUPLINGS  | Jaw couplings provide highly reliable service for light-, medium-, and heavy-duty applications | <ul style="list-style-type: none"> Hubs and inserts are available in many materials to cater to the needs of your environment no matter how harsh No lubrication Rust resistant Convertible to in-shear coupling type when you need to accommodate misalignment or want to reduce downtime when performing maintenance |
| DISC COUPLINGS  | The revolutionary disc pack profile design can accommodate ½ to 1.5 degrees of angular misalignment | <ul style="list-style-type: none"> Eliminates the need for lubrication and coupling maintenance Can be inspected without disassembly No wearing parts Special styles available - spacer, closed coupled, drop-in and adjustable |
| UNIVERSAL JOINTS  | Strong, durable and flexible joints are designed to be disassembled and reassembled without damage to the component and can be readily taken apart without special tools | <ul style="list-style-type: none"> Available in stainless steel, hubs can be modified to fit customer specifications Built-in system provides sustained lubrication and no special tooling is needed to assemble or disassemble |
| AUGERS  | Helicoid and sectional augers are available for industrial applications like conveyors, diggers and combines | <ul style="list-style-type: none"> Helicoid augers reduce friction, wear and power requirements in screw conveyors moving bulk materials Sectional augers fit heavy-duty requirements in applications needing a thicker outside diameter flight edge – providing extended wear life |
| GREASE/LUBRICATION AND LUBRICATORS  | Application- and environment-specific selection of industrial, automotive and rail lubricants developed for optimum bearing performance Dispense precise amounts of lubricants in a wide range of applications and operating conditions, from simple, single-point needs to multi-point or progressive systems | <ul style="list-style-type: none"> Help extend bearing life, relubrication intervals and protect equipment Keep operations running efficiently and reduce maintenance costs Single-point lubricators tailored to specific environments and requirements |
| AUTOMATIC LUBRICATION SYSTEMS  | For a wide range of automatic lubrication solutions, Groeneveld products deliver safety and efficiency at every work site | <ul style="list-style-type: none"> Improved vehicle/machine uptime leads to higher productivity Extended service life of critical components means lower repair and maintenance costs, resulting in higher residual value Improved safety for workers; decreased environmental burden |
| SEALS  | A variety of types and material options provide resistance to extreme temperatures, pressure, debris and most chemicals | <ul style="list-style-type: none"> Contact and non-contact designs suit any application Durable materials offer long seal life and minimize maintenance Secondary seals, covers and end caps provide extra protection Custom blue seals available upon request |
| CONE DRIVE B SERIES  | Suitable for applications without direct food contact and designed with conveyors in mind | <ul style="list-style-type: none"> Complete motor mounting accessories Easy motor removal with patented fret free motor bushing Dimensionally interchangeable with other manufacturers Lightweight aluminum construction Conex double enveloping gearing |

Industrial Motion (Continued)

| Product | Summary | Advantages |
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| CONE DRIVE F SERIES  | Designed to be in the middle of direct food contact such as cutting, slicing, mixing, blending, etc.  | <ul style="list-style-type: none"> Custom-engineered solutions available with standard quill and non-fretting blue bushing True double enveloping gearing for superior rigidity and torque density IP69K and NSF rated, tested, and approved hygienic design Stainless steel construction Five-year warranty |
| SPINEA G SERIES  | High-precision reduction gears with a unique main bearing design and improved performance for food and beverage applications | <ul style="list-style-type: none"> Small design envelope and low weight High torsional and tilting stiffness Precision output bearing with high moment capacity High torque density and torque overload capacity |
| X-RAIL  | Linear bearings with C-profile; available in zinc-plated steel, stainless steel or hardened with Rollon NOX treatment | <ul style="list-style-type: none"> Cost-effective bent steel profiles Available with Rollon NOX hardening process Simple mounting Anti-corrosion – stainless steel version Optimal reliability in dirty environments Self-aligning system |
| HEGRA RAIL  | Capable of handling high loads up to 20 kN per pair, overextensions up to 200percent of length of the guide in closed position | <ul style="list-style-type: none"> Handling of heavy loads combined with minimal deflection Profiles with 1, 2 or 3 moving elements for extensions up to 200 percent Available in stainless steel AISI 304 and AISI 316 High rigidity and moment of inertia with thin sections Fluid noiseless operation Long working life Extremely reliable |
| Plus System  | High-performance linear actuators with steel re-enforced driving belt transmission; they have a high level of protection | <ul style="list-style-type: none"> High working cycles High protection for dirty environments Available with fixed carriage and movable profile for Z axis solutions High dynamics: V=5 m/s, A= 50 m/s² Anti-corrosion version available with stainless steel components High repeatability accuracy: ±0.05 mm |

Industrial Services

Timken offers bearing and power system rebuild and repair services that can return components or entire systems to like-new. We overhaul drive train products, including switchgears, control panels, electric motors, generators, gear drives, bearings and couplings.

| Product | Summary | Advantages |
|---|--|--|
| TECHNICAL CAPABILITIES  | Benefit from cleaner, stronger materials and an ever-growing selection of high-performance products from an expert with more than a century of experience in friction management and materials science | <ul style="list-style-type: none"> Application engineers identify and overcome unique challenges, using the most advanced analytics in the industry |
| ADVANCED BEARING ANALYSIS SYSTEM  | Syber analyzes bearing systems, helps optimize design and development, and predicts potential damage | <ul style="list-style-type: none"> Speed system concept-to-design stage with fewer test requirements Customer-specific software versions offer base design analytic capabilities |
| ONLINE SERVICES  | Enjoy the ease and convenience of online services with a variety of options | <ul style="list-style-type: none"> Find product selection tools, CAD drawings, dimensional tolerances and more at cad.timken.com Check product availability, place orders and track order status – 24/7 at our online stores |
| TRAINING AND CERTIFICATION  | On-site training, end-user maintenance seminars and bearing certification programs help your team select bearings and optimize system performance | <ul style="list-style-type: none"> Tailored training programs range from bearing basics to advanced best practices Certification programs help maintenance shops improve efficiency and performance |
| SERVICE ENGINEERING  | On-site engineers help solve challenges and prevent future problems using data, testing and technical resources | <ul style="list-style-type: none"> Get on-site problem solving, life cycle calculations, interface design options, bearing inspections and evaluations Find new ways to improve efficiency and productivity |



TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related industrial motion rebuild and repair services.

Stronger. By Design.

www.timken.com