

**TIMKEN**



## TIMKEN® THRUST BEARING CATALOG



TIMKEN® THRUST BEARING CATALOG • Download 3D Models and 2D Drawings at [cad.timken.com](http://cad.timken.com).

TIMKEN

OVERVIEW



***GROW STRONGER WITH TIMKEN***

Every day, people around the world count on the strength of Timken. Our expertise in metallurgy, friction management and mechanical power transmission helps them accelerate improvements in productivity and uptime.

We supply products and services that can help keep your operations moving forward, whether you need drive train kits for commercial vehicles, durable housings for bearings in dirty environments, couplings that avoid metal-to-metal contact between motors and gearboxes, repair services for bearings and gearboxes, roller chain for dry, abrasive and high-moisture applications, or other products and services for your applications.

When you choose Timken, you receive more than high-quality products and services: you gain a worldwide team of highly trained and experienced Timken people committed to working collaboratively with you to improve your business.

Globally, our 17,000 people provide reliable answers for a wide range of operations in manufacturing, mining, medical equipment, aerospace, transportation, oil and gas – and other diverse industries.



**INCREASE YOUR EQUIPMENT  
UPTIME**

In addition to high-quality bearings and mechanical power transmission components, we provide valuable integrated products and services. For example, we offer repair services and monitoring equipment that can alert you to problems before they impact your uptime.

Additionally, we offer a broad selection of seals, premium lubricants, lubricators, couplings and chain to keep your operations moving smoothly.

Our 12 technology centers in the United States, Europe and Asia help pioneer tomorrow's innovations with extensive basic and applied scientific research programs. Through internal development and strategic acquisition of innovative companies, we continue to expand our portfolio of highly engineered bearings, power transmission products and advanced services.





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OVERVIEW

INDUSTRIAL  
INNOVATOR

Today, manufacturing and processing equipment handle heavier loads, faster speeds and greater expectations than ever before. As finished-product quality requirements increase, producers continue to place a very high premium on equipment uptime and performance.

Timken has more than a century of experience developing bearings and related solutions that help equipment run more efficiently in a wide range of applications. As the leader in friction-management and power-transmission solutions for industrial markets, Timken helps operators improve their equipment's performance and uptime. We accomplish this by providing custom solutions – from bearings that stand-up to the harshest environments to condition monitoring that minimizes maintenance costs and improves plant productivity.

INNOVATION AND CUSTOMER  
SUPPORT

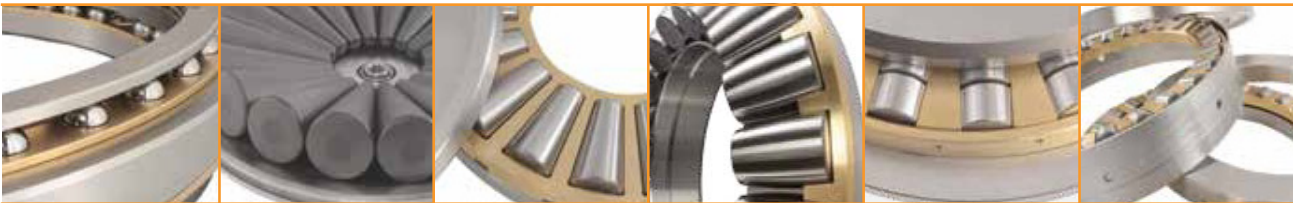
Timken operates technology centers around the world dedicated to developing innovative concepts and products that help you operate more efficiently. Our technical leadership and customer support reach far beyond our products. Timken customers have access to sales and service engineering support at their plants, and options for additional support from application engineers who specialize in a variety of industrial applications.



CORE  
CAPABILITIES

Timken has evolved from its early roots as a bearing producer to a supplier offering much more, including friction-management and power-transmission solutions that add value throughout the complete life cycle of a system. Our material enhancements improve bearing life and can protect against debris and corrosion – two challenges encountered frequently in various industrial applications. Our precision manufacturing capabilities and commitment to quality ensure global consistency in design and manufacturing at every Timken facility. A global distribution network provides our customers with easy access to Timken products and services throughout the world.

We leverage these core capabilities as we work with original equipment manufacturers (OEM) and designers to integrate our technologies into equipment so that end users can enjoy the performance benefits of Timken products from the first day of operation. OEMs depend on Timken for our engineering expertise, manufacturing capabilities and emphasis on reliable performance.



TIMKEN

PRODUCTS AND SERVICES

## PRODUCTS AND SERVICES

We offer equipment builders and operators one of the most extensive friction-management product and service portfolios in the industry.

We also strictly adhere to the Timken Quality Management System in every plant worldwide, so each bearing product meets the same high quality standards – no matter where in the world it is manufactured.

## BEARINGS

Timken provides a broad range of bearing designs and configurations for use in steelmaking vessels, caster segments, work rolls, backup rolls, screwdown systems, mill drives, pinion stands, coilers, table rolls, and auxiliary equipment. Bearing types include:

- **Tapered roller bearings** – Tapered roller bearings are uniquely designed to manage both thrust and radial loads and are available in single- and multi-row designs with a wide range of assembly options. Our extensive offering of tapered roller bearing combinations provides equipment builders and operators simple, reliable and less costly design solutions.
- **Cylindrical roller bearings** – This design generally offers the highest possible radial load capacity for a given size compared to other roller bearing types. Single-row and double-row cylindrical roller bearings are ideal for many mill stand, gear drive and other auxiliary equipment applications, while four-row cylindrical roller bearings are used in roll neck applications. Timken offers both single and multi-row cylindrical roller bearing. Custom designs are available upon request for specific applications.
- **Spherical roller bearings** – Spherical roller bearings offer high radial and moderate thrust capacity together with maximum static and dynamic misalignment capability. Timken® spherical roller bearings provide high-static load

capacity and advanced geometry that reduces friction and heat generation. These bearings are available in a range of dimensional stability configurations to suit elevated operating temperatures.

- **Thrust roller bearings** – Thrust roller bearings for rolling mill applications are available in cylindrical, spherical and tapered designs. Thrust bearings are ideal for applications experiencing heavy axial loads, such as mill stands, screw-down systems and piercing mills.



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## TIMKEN

## PRODUCTS AND SERVICES

- **Ball bearings** - Ball bearings are used extensively in auxiliary applications that have light loads and/or high-speed conditions. Timken offers a range of radial, thrust and angular contact ball bearings in both metric and inch sizes. Please contact your Timken engineer for detailed information on these product ranges.
- **Housed units** - Timken® spherical roller bearing solid-block housed units process a unique cast-steel design that handles demanding conditions in metal industry applications. These solid-block housed units come in several styles and five advanced locking configurations. Timken spherical roller bearing solid-block housed units are designed for challenging circumstances. A full line of primary seals, covers and housings is available to find the right roller housed unit to fit your application. In case of high thrust loads, in excess of the spherical roller bearing carrying capabilities, the Timken® Type E is your recommended solution. Through our unique product design, we have optimized the core components so their performance is elevated to a level we consider the next generation of roller housed units. Application testing has shown that our Type E bearing yields a design life that is 55 percent higher than current industry leading designs which utilize standard Timken bearings. Timken also provides a broad range of SNT metric plummer blocks and the SAF inch pillow block line which include a wide range of sizes, housing designs, seals and accessories. The standard line of Timken split-block housings is constructed of cast iron and designed to protect bearings.

## HIGH-PERFORMANCE BEARING SOLUTIONS

Timken provides a variety of high-performance bearing solutions, including Timken® AquaSpexx®, DuraSpexx® and thin dense chrome bearings for corrosion protection. Our debris-resistant bearings are ideal for contaminated and/or marginal lubrication conditions.

We also provide customized bearing solutions such as special race profiles to meet special application requirements.

In addition to component geometry and metallurgy, we find many ways to enhance bearing performance by applying unique surface finishes and special coatings on rollers, raceways and other functional surfaces. Engineered surfaces and topographical modifications reduce surface roughness to lower levels rather than what can be achieved through conventional grinding and honing methods. We also offer proprietary coatings that can create a surface up to four times harder than steel with twice the elasticity. For more information on Timken high-performance bearings and engineered surfaces, contact a Timken sales representative.





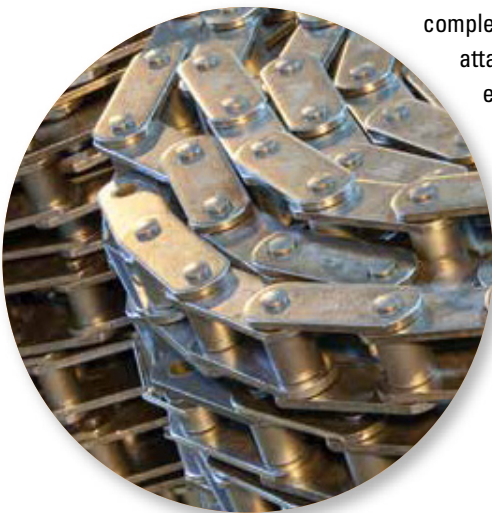
POWER TRANSMISSION  
COMPONENTS AND SYSTEMS

Timken offers an expanding range of power transmission components including seals, couplings and engineered chain.

Extreme temperatures and high contamination levels can disable your equipment and significantly lower productivity. Timken develops seals using advanced material and process solutions that help protect machinery and minimize plant downtime. We offer a comprehensive line of large-bore oil and grease seals, and metallic and non-metallic bearing isolators.

Timken® Quick-Flex® couplings are highly durable, yet need minimal maintenance. They are easy to install and require no lubrication. The couplings are designed to connect motors and gearboxes with other moving equipment with capacity to transmit the same or more torque than a gear coupling in the same dimensions. The Quick-Flex coupling's innovative design utilizes an advanced elastomeric element to transmit the torque and therefore eliminates any interference between coupling hubs which can damage equipment.

Timken manufactures precision roller chains that are designed to meet demanding steel industry applications. We build chains to precise specifications for strength and maximum wear life. The offering includes a complete line of roller chains, attachment chains and engineered conveyor chains.



LUBRICATION

Timken® lubricants reduce friction, prevent wear and protect bearing surfaces from corrosion. We offer a wide selection of lubricants, including Timken® Mill Grease, which we formulated to perform in the difficult roll neck bearing environment. Timken® single- and multi-point lubricators and lubrication delivery devices help maintenance professionals simplify their lubrication practices, saving time and money.



CONDITION MONITORING

Powerful diagnostic tools from Timken are designed to detect potential bearing failure before it occurs. A variety of handheld devices and online options – including our ultra-accurate Online Intelligence System – lets you monitor bearing condition, lubrication quality and machine vibration (either periodically or continuously) for increased productivity, safety and peace of mind.

TIMKEN

PRODUCTS AND SERVICES



MAINTENANCE TOOLS

Timken® maintenance tools may extend bearing life by facilitating proper installation, removal and service. They also help simplify maintenance practices. We provide induction heaters, impact fitting tools, and hydraulic and mechanical pullers.

SERVICES

Used bearings and related components often can be returned to their original specifications with less time and costs than purchasing new. We offer complete remanufacture and reconditioning services for many components, including bearings, chocks, housings, rolls and more.

Our gearbox repair services are globally recognized for power transmission solutions in heavy industrial markets, repairing virtually any large gearbox make or model, with on-site emergency breakdown service available if needed.

Timken offers a full range of maintenance and reconditioning services through our remanufacturing and repair operations. Using these services can lead to improved plant efficiency and reduced overall production costs.

TRAINING

We offer industry-specific training programs designed for plant professionals, as well as on-site customized training to meet your specific needs. Our training programs are available at select locations around the world and cover every phase of bearing performance. Class time is balanced with extensive hands-on training and tours of Timken facilities.





**HOW TO USE THIS CATALOG**

We designed this catalog to help you find the Timken bearings best suited to your equipment needs and specifications.

The product tables list many of the bearing types that are specifically used in thrust positions. For other bearing types, please refer to the respective Timken product catalog reference.

Timken offers an extensive range of bearings and accessories in both imperial and metric sizes. For your convenience, size ranges are indicated in millimeters and inches. Contact your Timken engineer to learn more about our complete line for the special needs of your application.

This publication contains dimensions, tolerances and load ratings, as well as engineering sections describing mounting and fitting practices for shafts and housings, internal clearances, materials and other bearing features. It provides valuable assistance in the initial consideration of the type and characteristics of the bearings that may best suit your particular needs.

ISO and ANSI/ABMA, as used in this publication, refer to the International Organization for Standardization and the American National Standards Institute/American Bearing Manufacturers Association.



## TIMKEN

## SHELF LIFE AND STORAGE

## ***SHELF LIFE AND STORAGE OF GREASE-LUBRICATED BEARINGS AND COMPONENTS***

To help you get the most value from our products, Timken provides guidelines for the shelf life of grease-lubricated ball and roller bearings, components and assemblies. Shelf life information is based on Timken and industry test data and experience.

### **SHELF LIFE**

Shelf life should be distinguished from lubricated bearing/component design life as follows:

Shelf life of the grease-lubricated bearing/component represents the period of time prior to use or installation.

The shelf life is a portion of the anticipated aggregate design life. It is impossible to accurately predict design life due to variations in lubricant bleed rates, oil migration, operating conditions, installation conditions, temperature, humidity and extended storage.

Shelf life values, available from Timken, represent a maximum limit and assume adherence to the storage and handling guidelines suggested in this catalog or by a Timken associate. Deviation from the Timken storage and handling guidelines may reduce shelf life. Any specification or operating practice that defines a shorter shelf life should be used.

Timken cannot anticipate the performance of the grease lubricant after the bearing or component is installed or placed in service.

**TIMKEN IS NOT RESPONSIBLE FOR THE SHELF LIFE OF ANY BEARING/COMPONENT LUBRICATED BY ANOTHER PARTY.**

### **European REACH Compliance**

Timken lubricants, greases and similar products sold in standalone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of CHemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European CHemical Agency). For further information, please contact your Timken engineer.

### **STORAGE**

Timken suggests the following storage guidelines for our finished products (bearings, components and assemblies, referred to as "products"):

- Unless directed otherwise by Timken, products should be kept in their original packaging until they are ready to be placed into service.
- Do not remove or alter any labels or stencil markings on the packaging.
- Products should be stored in such a way that the packaging is not pierced, crushed or otherwise damaged.
- After a product is removed from its packaging, it should be placed into service as soon as possible.



- When removing a product that is not individually packaged from a bulk pack container, the container should be resealed immediately after the product is removed.
- Do not use product that has exceeded its shelf life as defined in the Timken shelf life guidelines statement.
- The storage area temperature should be maintained between 0° C (32° F) and 40° C (104° F); temperature fluctuations should be minimized.
- The relative humidity should be maintained below 60 per-cent and the surfaces should be dry.
- The storage area should be kept free from airborne con-taminants such as, but not limited to, dust, dirt, harmful vapors, etc.
- The storage area should be isolated from undue vibration.
- Extreme conditions of any kind should be avoided.

Due to the fact that Timken is not familiar with your particular storage conditions, we strongly suggest following these guidelines. However, you may be required by circumstances or applicable government requirements to adhere to stricter storage requirements.

Most bearing components typically ship protected with a corrosion-preventive compound that is not a lubricant. These components may be used in oil-lubricated applications without removal of the corrosion-preventive compound. When using some specialized grease lubrications, we advise you to remove the corrosion-preventive compound before packing the bearing components with suitable grease.



**WARNING**

***Failure to observe the following warnings could create a risk of death or serious injury.***

Never spin a bearing with compressed air.  
The components may be forcefully expelled.  
Proper maintenance and handling practices are critical.  
Always follow installation instructions and maintain proper lubrication.

**NOTE**

*Never use steam or hot water when cleaning the bearings because these methods can create rust or corrosion.*  
*Never expose any surface of a bearing to the flame of a torch.*  
*Do not heat bearing beyond 149° C (300° F)*



## TIMKEN

## WARNINGS AND CAUTIONS

**WARNING**

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials.

If hammer and bar are used for installation or removal of a part, use a mild steel bar (e.g., 1010 or 1020 grade). Mild steel bars are less likely to cause release of high-speed fragments from the hammer, bar or the part being removed.

Warnings for this product line are in this catalog and posted on <http://www.timken.com/warnings>.

## NOTE

*Do not attempt to disassemble unitized bearings. Components may become damaged and affect the performance and service life of the bearing.*

*Do not mix components of matched assemblies. Mixing components can reduce the service life of the bearing.*

**NOT TO BE USED AS A DESIGN MANUAL.**

*This is not a manual for the selection of bearings for new applications. Whenever it is necessary to select Timken bearings for new applications consult the Timken Engineering Manual (order no. 10424) or get in touch with the nearest office of The Timken Company.*

## DISCLAIMER

***This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken.***

***Therefore, the suitability and feasibility of all product selection must be validated by you.***

***Timken products are sold subject to Timken's terms and conditions of sale, which include its limited warranty and remedy, which terms may be found at <http://www.timken.com/termsandconditionsofsale>. Please consult with your Timken engineer for more information and assistance.***

***Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.***

## COMPLIANCE

*To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual (order number 10424).*

**European REACH compliance** Timken-branded lubricants, greases and similar products sold in stand-alone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of CHemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European CHemical Agency). For further information, please contact your Timken engineer.

*The Timken Company products shown in this catalog may be directly, or indirectly subject to a number of regulatory standards and directives originating from authorities in the USA, European Union, and around the world, including: REACH (EC 1907/2006, RoHS (2011/65/EU), ATEX (94/9/EC), 'CE' MARKING (93/68/EEC), CONFLICT MINERALS (Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act).*

*For any questions or concerns regarding the compliance or applicability of Timken products to these, or other unspecified standards, please contact your Timken sales engineer or customer services representative.*

*Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken Thrust Bearing Catalog.*