

# NSK

## ROLLING BEARINGS FOR INDUSTRIAL MOTORS

FIELD-PROVEN SOLUTIONS DESIGNED TO OUTPERFORM AND OUTLAST



STAY IN MOTION. STAY IN CONTROL.

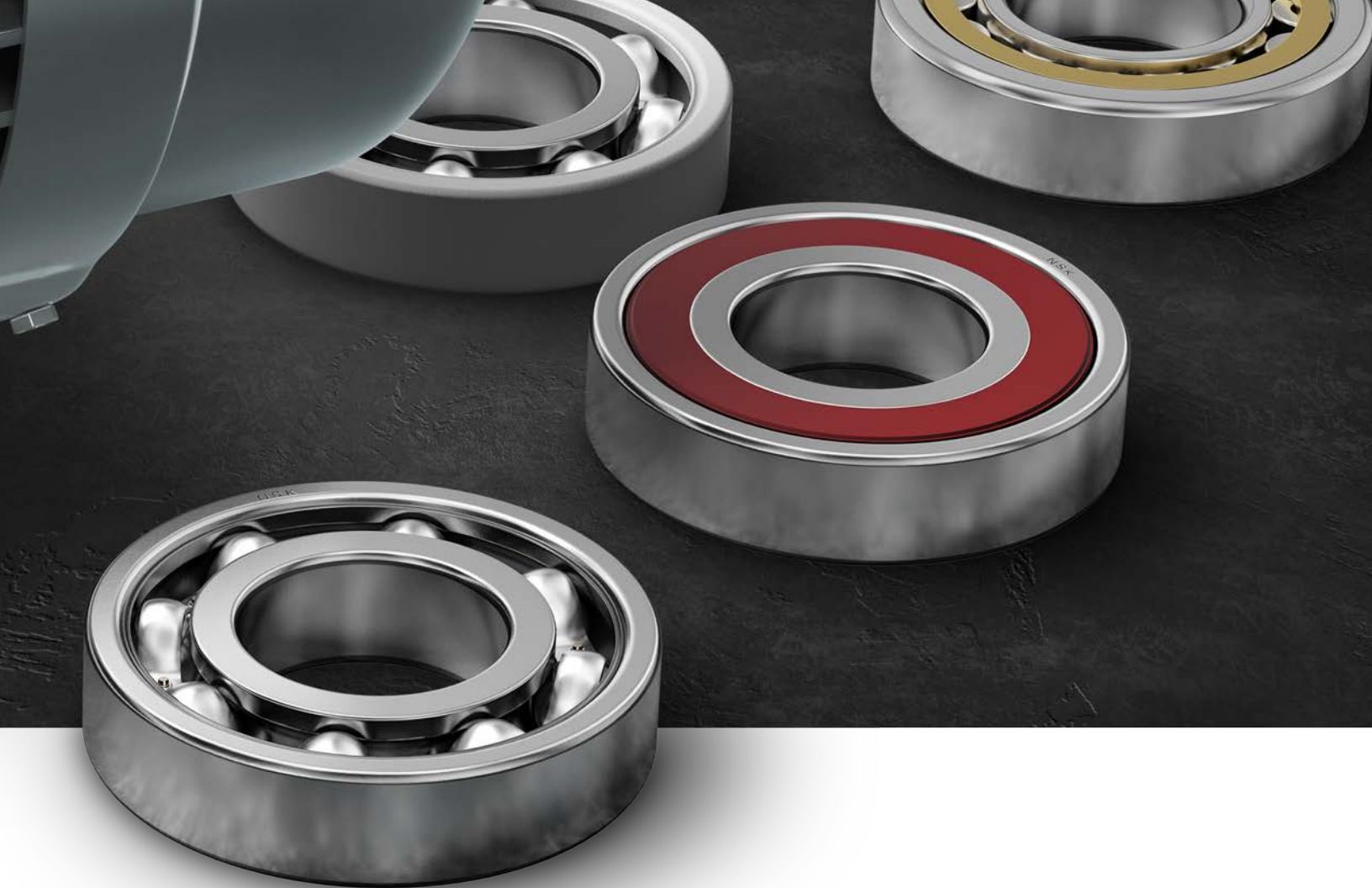


# SMOOTHLY AND QUIETLY EXCEPTIONAL.

## NSK ROLLING BEARINGS FOR INDUSTRIAL MOTORS

Ultra-clean steel for stability, wear resistance and long-life fatigue strength. Optimized rolling contact for reduced noise, energy use and power loss. Advanced lubrication and seal technologies for durability under the most challenging circumstances. Special materials and coatings for insulation from current transmission.

With our extensive lineup of ball and roller bearings for industrial motors, NSK core product development technologies and industry expertise are dedicated to delivering power to industry with total operating and energy efficiency and outstanding reliability.



## SUPPORTING HIGHER PERFORMANCE AND LONGER LIFE

NSK rolling bearings are engineered to support unrivalled motor and machine efficiency over a longer operating life, with smooth and reliable rotation — under load and at high speeds — derived from design and manufacturing technologies that include:

- ➔ **Ultra-clean steel to promote greater fatigue strength** and a long operating life
- ➔ **Special electric motor clearance and noise level specifications** to ensure smooth and quiet operation
- ➔ **Super-finished raceways to minimize running noise** and improve lubricant distribution
- ➔ **Current transmission resistance** with ceramic hybrid and ceramic-coated insulating bearings
- ➔ **High-performance cages that deliver stability** at high speeds, even in high temperatures
- ➔ **Optimized sealing solutions** that retain clean, contaminant-free grease while compensating for speed and torque
- ➔ **Advanced lubricant technologies** ranging from low-noise and water-resistant electric motor grease to formulations for special applications

**Learn more** about NSK rolling bearings for industrial motors and electric machinery at [www.nsk.com/am-en](http://www.nsk.com/am-en)

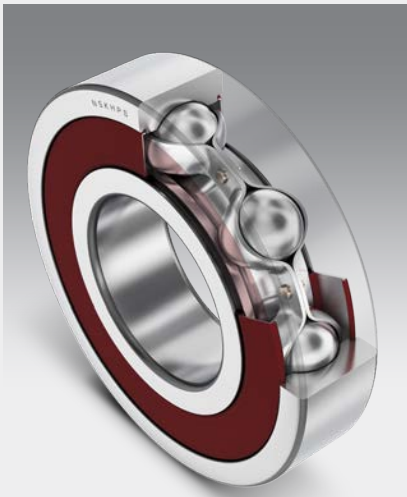
**NSK**

## A WIDE RANGE OF BEARING TYPES

Industrial motors and electrical machines use a wide range of rolling bearing types and designs determined by the machine design and corresponding requirements to support loads and speeds, as well as specific challenges presented by the application.

Deep groove ball bearings are typically used exclusively in small- to medium-sized electric motors. In larger motors or more heavily loaded electrical machinery, cylindrical and spherical roller bearings are used in conjunction with deep groove ball bearings or exclusively.

Angular contact ball bearings or spherical roller thrust bearings are used to support axial loads, relative to magnitude, in vertical machines.



### DEEP GROOVE BALL BEARINGS

Smooth and quiet operation with low friction at high speeds, ensuring stable rotor alignment in small- to medium-sized motors

- › **High-performance NSKHP5 series** for unrivalled motor efficiency
- › **Sealed-clean and maintenance-free** with high-performance seals, shields and greases



### CYLINDRICAL ROLLER BEARINGS

With high radial load capacity and high rigidity to support precise shaft guidance in larger motors and electrical machinery

- › **High-performance NSKHP5 series**, optimized to support higher loads and higher speeds with low running noise and low heat generation
- › **High-performance cage options** for a wide range of operating conditions




### CURRENT INSULATING BEARINGS

Effective prevention of electrical erosion damage in high-efficiency, variable-speed and inverter-driven motors.

- › **HDY2 ceramic-coated bearings** with high current resistance
- › **Hybrid bearings** with silicon nitride ceramic rolling elements

## FOR A WIDE RANGE OF MACHINE TYPES AND APPLICATIONS

Smooth, reliable and long-life operation of NSK rolling bearings is essential to the electrification of industry and the efficient operation of the mission-critical machinery tasked with converting energy to deliver power:

-  **Induction motors** that power pumps and compressors, fans and blowers, drives and conveyors
-  **Stepper and servo motors** that support precise motion control in machining, robotics and automation
-  **Synchronous motors** that deliver consistent speed and high efficiency to paper machines and rolling mills as well as smaller rotating equipment
-  **Electric generators** that ensure a critical source of energy to mining and construction sites, power plants and utilities



### ANGULAR CONTACT BALL BEARINGS

Supporting combined axial and radial loads and enabling precise shaft guidance with high-speed operation in vertical motors

- › **High-capacity series** with higher dimensional and running accuracy
- › **Universally matched pairs or double row bearings** available for higher load capacity



### SPHERICAL ROLLER THRUST BEARINGS

For extremely high axial loads and moderate radial loads while compensating for misalignment in large vertical electrical machinery

- › **High-capacity E-type design** with wear-resistant steel cages to support high-load applications prone to vibration



### SPHERICAL ROLLER BEARINGS







Designed to contend with heavy loads, shaft misalignment and vibration in large heavy-duty motors and generators

- › **High-performance NSKHPS series**, optimized to support higher loads and higher speeds with high temperature stability



## LEARN MORE

For additional information about NSK rolling bearings for industrial motors and electric machinery, refer to the linked publications below or visit [www.nsk.com/am-en](http://www.nsk.com/am-en)

-  **Deep Groove Ball Bearings**  
For Peak Performance of Machinery and Equipment
-  **NSKHPS Cylindrical Roller Bearings**  
High Performance Series
-  **HDY2 Ceramic-Coated Insulating Bearings**  
For Superior Resistance to Electrical Erosion
-  **High-Capacity Angular Contact Ball Bearings**  
Featuring NSKHPS High Performance Series
-  **NSKHPS Spherical Roller Bearings**  
High Performance Series
-  **Electric Motor Handbook**  
Guide to Bearing Selection and Handling





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