

Beyond Rotation: Bearing's role in Industrial motors



Bearing solutions for the motor industry

Founded in 1946, NBC is India's first bearings manufacturer and the last word in quality and durability. In 2020, the company acquired leading European manufacturer, Kinex Bearings to further boost its expertise.

77 years since its beginning, NBC remains India's leading bearings manufacturer and exporter. NBC is also the world's only bearings manufacturer to receive the prestigious Deming Grand Prize for Total Quality Management.



1946 India's first bearing manufacturer



250+ million bearings manufacturing capacity



3100+ variants of bearings offered



5 manufacturing locations



Leading exporter



Happy customers in 30+ countries



R&D and Innovation Centre



2800+People



Automotive



Industrial



Railway



Aerospace

Beyond Rotation: Bearing's role in Industrial motors

Industrial motors and bearings are inseparable companions that collaborate to drive the wheels of progress within industries. Just as motors provide the necessary mechanical power, bearings offer the essential support and friction reduction required for smooth and efficient motion.

Bearings, the often-unseen components, play a vital role in industrial motors' functioning. They minimize friction between moving parts, allowing motors to operate



with reduced resistance, increased efficiency, and prolonged lifespan. In industries, bearings contribute significantly to the overall reliability of motor-driven equipment. By providing stability and reducing vibrations, they enhance the precision required for delicate operations and manufacturing processes. Whether it's the heavy-duty machinery of a factory or the intricate mechanisms of a high-tech laboratory, bearings ensure that the motors operate with accuracy and consistency.

There are some operational challenges that can arise in the context of industrial motors and bearings:

- **Contamination**
- **Wide operating temperature range instead of extreme temperature**
- **Corrosion and rust**
- **Low load and high Speed**

Addressing these challenges requires a combination of proper design, material selection, maintenance practices, and advanced technologies to ensure the smooth and reliable operation of industrial motors and bearings in various industries.

NBC offers a range of solutions for various motor types.

NBC bearing solutions for Motors equipments

LARGE INDUSTRIAL MOTORS

Bearings used:

- Cylindrical Roller Bearing
- Deep Groove Ball Bearing (DGBB)
- Angular Contact Ball Bearing (ACBB)
- Four Point Contact Ball Bearing
- Spherical Roller Bearing



VIBRATORY MOTOR

Bearings used:

- Spherical Roller Bearing
- Cylindrical Roller Bearing



EV MOTORS

Bearings used:

- Deep groove ball bearing with high speed (EMB series)
- Double row angular contact ball bearing (DRAC)
- Hybrid ball bearing



SERVO MOTORS

Bearings used:

- Deep Groove Ball Bearing with or without seals



NBC bearing solutions for Motors equipments

DEEP GROOVE BALL BEARING

For locating and non-locating positions of small to medium-sized motors and locating position for large-sized motors.



NBC Bearings features

- Clean bearing steel for longer bearing service life
- Superfinished balls and races for higher speed, reduced friction, and lower operating temperature
- Enhanced cage design for higher speeds, improved lubrication film
- Precisely controlled ball and race geometries for reduced noise and vibration (EM and EML Series)
- Optimized ball and race contact for lower operating temperature

CYLINDRICAL ROLLER BEARING

Used as non-locating bearings on the non-drive side in medium to large sized motors.



NBC Bearings features

- Clean bearing steel for longer bearing service life
- Customized profiles on rollers and races for even load distribution, reduced stresses
- Optimized cage design for enhanced lubrication, increased cage strength
- Optimized geometries of raceway and rolling elements for improved load capacity
- The superior surface finish on raceways for reduced friction, lower operating temperature and quiet running
- Improved design of bearing guide flanges for higher axial loads (NJ and NUP)

NBC bearing solutions for Motors equipments

ANGULAR CONTACT BALL BEARING

Usually used as locating bearings in electric motors with high thrust loads or vertical axis.



NBC Bearings features

- Optimized geometry allows an increased number of balls, thereby enhancing the load-carrying capacity of the bearing
- Superfinished balls and races for higher speed, reduces friction, and lower operating temperature and reduce noise
- Modified ball and race contact at lower operating temperature
- Improved cage design reduces the friction, subsequently decreasing the operating temperature

DOUBLE ROW ANGULAR CONTACT BALL BEARING

Used as locating bearings in electric motors with high thrust loads or vertical axis.



NBC Bearings features

- Accommodates radial as well as axial loads in either direction
- Contact angle is 25° and 30° both for Optimum axial load capacity
- Design is back-to-back arrangement for better rigidity
- Also available in both shield and seals

Special solutions

INSULATED BEARINGS

Electrical insulation coating prevents electrical pitting in the bearings and improves bearing life in motor applications.



Features

- Aluminium oxide coating using plasma spraying technology
- Current insulation
- High thermal stability

Benefits

- Extending bearing service life by avoiding damage caused by electric current flow.
- Smooth running of electric machinery

HYBRID BALL BEARINGS

Hybrid bearings consist of ceramic rolling elements (Silicon nitride) in steel races. Silicon nitride rolling elements perform exceptionally well in high-speed operating conditions.



Features

- Lower friction
- Reduced weight
- Current insulation
- Higher hardness

Benefits

- High speed capability
- Less wear under slippage
- Extended bearing service life
- Higher operational reliability

Special solutions

HIGH SPEED EMB BEARINGS

Electric motor bearings are used for high-speed applications. Typical expectations are lightweight, low friction, high transient ramp capability, high RPM, and low noise. In a typical electrical vehicle, an extra 1% of mileage can be gained using a set of optimized bearings and seals on the traction motor and gearbox compared to conventional alternatives.



Features

- Lightweight cage design and two-piece special cage design for accommodating high speeds.
- Optimized internal design
- Grease with current conductive properties
- Low noise grease

Benefits

- High speed suitability
- Fulfill the low noise requirement
- Energy efficient bearings
- Solutions for current leakage issues

CONDITION MONITORING SERVICES FROM NBC



NBC provides intelligent solutions for Condition Monitoring in order to improve the reliability of your assets.

Our expertise in various streams of Condition Monitoring helps industries keep their machinery failure-free.

With a result-oriented approach towards avoiding machinery failure, the scope of CMS consists of Vibration Analysis and Lube Oil Analysis.

- **Vibration monitoring & analysis**
- **In-situ dynamic balancing**
- **Laser shaft alignment**
- **Thermography**
- **Annual maintenance contract / On-call service**

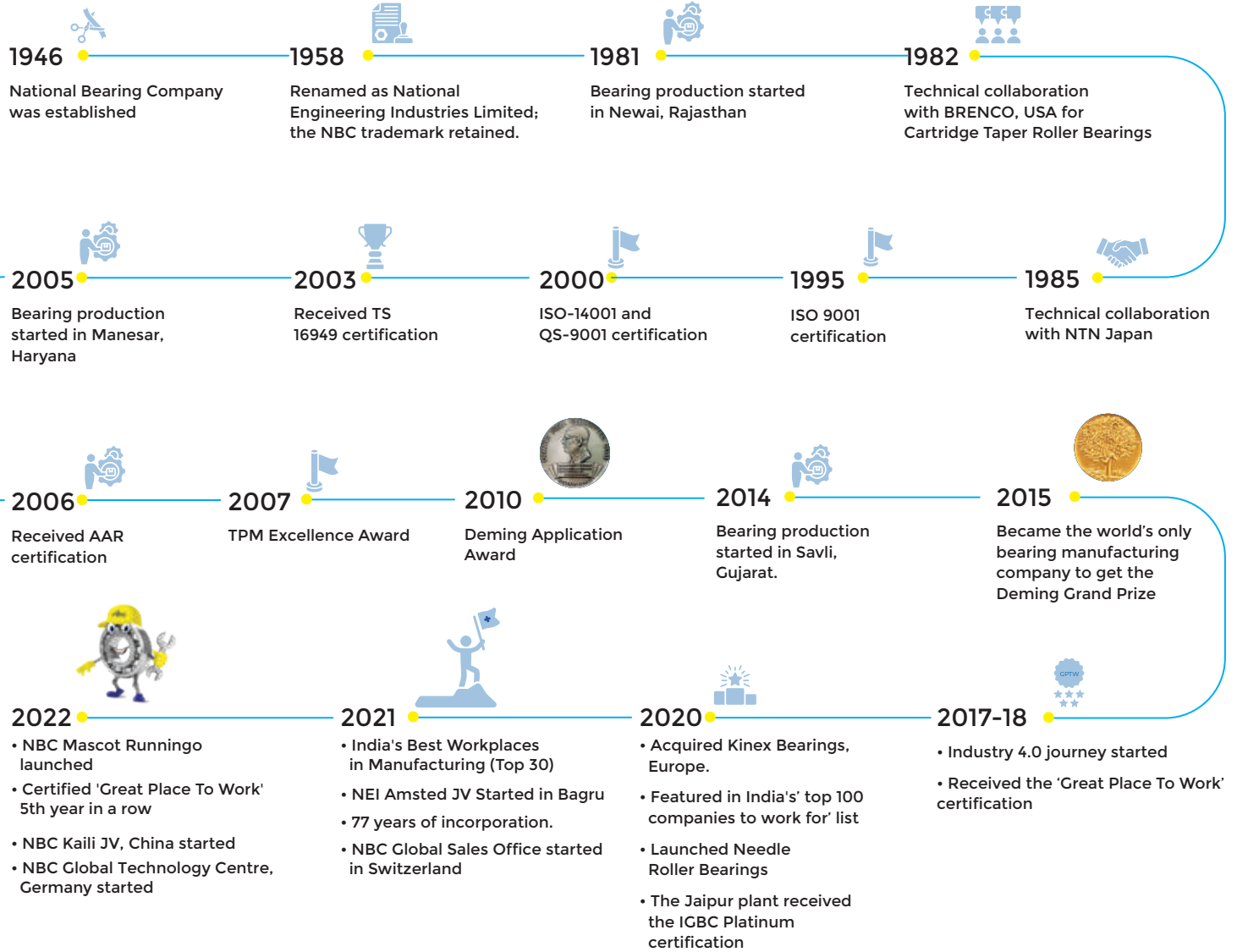
Other products from NBC

Since the challenges faced by the industry are many, NBC offers a diverse range of exceptional bearings. NBC bearings are available in sizes from 06 mm bore to 2000 mm outer diameter.



* Products with special features like high temperature application, special heat treatment, coated roller/races and cage options are also available across product range.

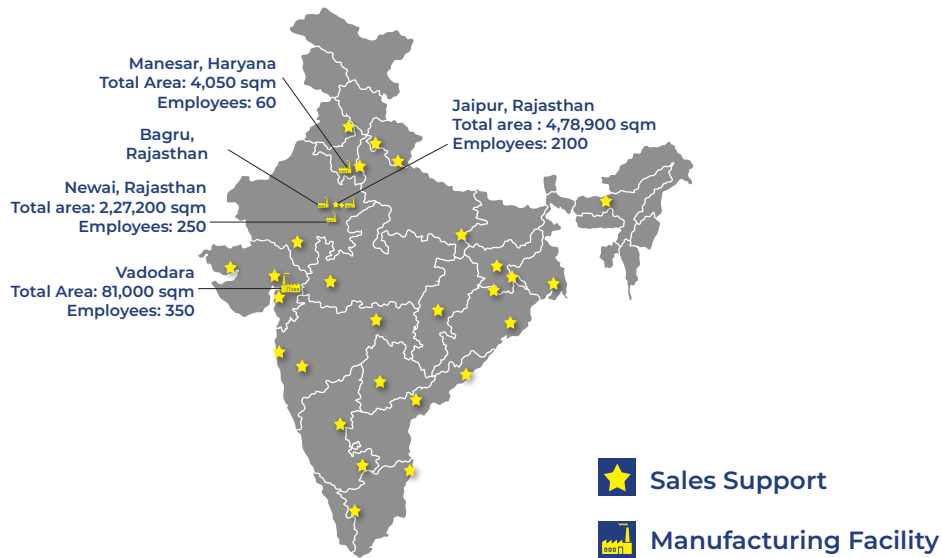
NBC milestones



Our global reach

The NBC Bearings: Product, Technology & Services

NBC provides a wide range of bearings and associated service solutions to diverse industries such as Industrial, Automotive, Railways, and Aerospace. As a company that has been established for over 77 years, NBC Bearings has an international presence with offices and R&D centers across the globe. For us, engineering goes beyond manufacturing; it is the fusion of Product, Technology, and Services that make us different and the most preferred choice of our customers worldwide.



Over 550 stockists and thousand of retailers across India



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