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CK BIRLA GROUP

**nbc**  
flexible solutions

**SOLUTIONS THAT  
HELP YOUR BUSINESS  
RACE AHEAD!**



**Bearings for Two-wheelers & Three-wheelers**

WHO IS  
NBC





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.

75 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



200+ million  
bearings  
manufactured/  
annum



2300+ variants  
of bearings  
offered



5 manufacturing  
locations



2800+People



Happy customers  
in 30+ countries



Automotive



Industrial



Railway



Aerospace



R&D Centres  
in India, Slovakia,  
Germany



500+ Stockists  
10000+ Retailers

# NBC bearings for two-wheelers and three-wheelers

When it comes to quick commuting, a two-wheeler or a three-wheeler is an obvious choice for the masses. But what seems to be a hassle-free ride from outside is, in fact, a very rigorous functioning of mechanical parts of a motorbike or an auto rickshaw that keeps it running irrespective of the road and weather conditions. And the part that plays a crucial role here is Bearings.

Approximately twenty-five bearings are used in different parts of a two-wheeler or a three-wheeler, most of which are used in:

- Engine
- Transmission
- Steering column
- Wheels



For a smooth and efficient functioning of the parts mentioned above, a bearing should be able to cope with the application demands such as:

1. Withstanding different speed levels
2. Ability to take shock loads
3. Tolerance to changing temperature (high or low)
4. Resistance to contamination

NBC bearings is a dominant player in the automotive industry and a significant supplier to Original Equipment Manufacturers (OEMs). To meet the challenges of a harsh operating environment, we have developed robust bearing with long service life imparted through extensive surface treatment and improved internal design.



# COMPREHENSIVE SOLUTIONS FOR AUTOMOTIVE INDUSTRY



UNITISED TAPERED  
ROLLER BEARINGS



UNITISED TAPERED  
ROLLER BEARINGS 2



DOUBLE ROW  
ANGULAR CONTACT  
GEN 1



GEN 2 WHEEL HUB  
BEARINGS



CLUTCH RELEASE  
BEARINGS



NEEDLE ROLLER  
BEARINGS



PRE-SET HUB  
BEARINGS



WATER PUMP  
BEARINGS



TAPERED ROLLER  
BEARINGS



CYLINDRICAL ROLLER  
BEARINGS



DEEP GROOVE  
BALL BEARINGS



PINION BEARINGS



POWER DENSE - Special heat treatment,  
Integrated solutions



Bearing plays an essential role in two-wheeler engines as it supports moving parts like crankshafts and connecting rods. Moreover, the engine bearing must withstand the inertial forces generated by accelerating parts and cyclic stresses caused by combustion gases. The critical application areas of bearing in the engine are Cam Shaft, Crank Shaft Support Bearings, Connecting Rod, and Mass Balance Shaft.

#### **Critical application requirements of bearings:**

- Withstand high operating temperatures
- Cyclic load-carrying ability
- Resistance to contamination
- Higher service life & reliability

#### **NBC offers specific bearing solutions:**

- Precision bearing tolerances
- Squeezed radial internal clearances
- Low torque bearings
- Special surface heat treatment
- Improved internal geometry

#### **Bearings offered:**

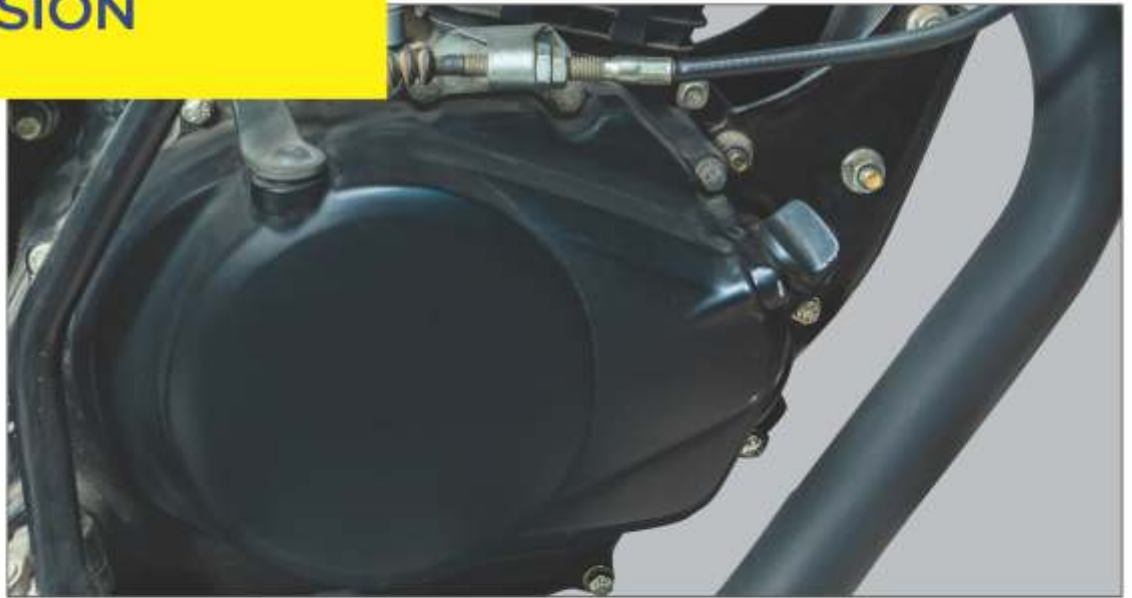


Needle Roller  
Bearing



Deep Groove  
Ball Bearings

# TRANSMISSION



The transmission system is a crucial part of a two-wheeler as it transfers tremendous power generated by the engine to the rear wheel. The bearings support all gears and shafts in the transmission system, thereby providing minimum power loss, low noise, and smooth running of the vehicle. The critical area of bearings application is the input shaft, countershaft, output shaft/drive shaft of a manual transmission, and CVT system of the two-wheeler.

## **Critical application requirements of bearings:**

- Low torque
- Low noise
- Withstand higher operating temperatures
- Resistance to contamination
- Compactness

## **NBC offers application-specific bearing solutions:**

- Low friction and low noise
- Special surface heat treatment
- Improved internal geometry and compact design
- Power Dense solutions

## **Bearings offered:**



Open Type  
DGBB



Sealed Type DGBB  
(Single and Double Side)



# WHEEL END



As the wheel supports the entire weight of the vehicle, it is subjected to constant radial and axial loads, wear, debris, dust, and water. Wheel end bearings are a critical part of vehicle performance as these are engineered to reduce the friction generated due to the rotation of wheels. The critical application area of bearings is the wheel hub.

## **Critical application requirements of bearings:**

- Ease of mounting
- Longer service life with less maintenance
- Resistance to contamination like dust and water
- Constant radial and axial loads

## **NBC offers an application-specific bearing solutions:**

- Integrated and customized solutions
- Low friction
- Improved internal geometry and compact design
- Power dense solutions

## **Bearings used:**



LT-type  
Sealed DGBB



# STEERING COLUMN



The steering column plays a crucial role in the safety of the vehicle. However, today the steering column bearing faces the challenges of re-greasing bearings, noise & increased steering effort. Therefore, besides providing conventional balls and bearing races solutions for the two-wheeler steering column, NBC also offers application-specific special bearing solutions.

## **Critical application requirements of bearings:**

- Thrust loads
- The oscillating motion of bearing

## **NBC offers application-specific bearing solutions:**

- Maintenance-free solutions
- Power Dense solutions
- Improved design features for bearings to reduce noise and vibration

## **Bearings used:**



Thrust  
Ball Bearing



Taper Roller  
Bearing Set



Oil impregnated ball/  
cage assembly

# NBC ADVANCED SOLUTIONS

## SENSOR INTEGRATED BEARINGS FOR 2-WHEELER APPLICATIONS

*Sensor Integrated Bearing is a modern substitute for mechanical toner ring which optimizes two wheeler's performance by providing instantaneous feedback to the controller and ABS for better efficiency as well as controllability, especially in electrically propelled vehicle.*



### Features

- Integrated two-part sub assembly for easy fitment in hub
- Torque Management in electric propelled vehicles
- Minimizes torque ripple effect in motors

### Benefits

- As a unitized complete solution, it provides more reliability, accuracy, and durability
- Eliminates usage of mechanical toner ring and toner ring sensor in wheel
- Compact and integrated solution that reduces OEM's efforts in procurement and fitment of child parts

## OIL IMPREGNATED BEARINGS

*Oil-impregnated bearings are composed of 70-80% of synthetic lubricating oil. Oil is molded and solidified with polymer to form a casing that acts as a lubricant reservoir throughout the bearing's life.*



### Features

- Superior lubricant – synthetic oil
- Lesser torque due to no churning phase
- Excellent performance in water and dusty environment

### Benefits

- Long life and maintenance-free
- Higher operational reliability
- No re-lubrication needed

# NBC ADVANCED SOLUTIONS

## OPTIMILE BEARINGS

*The Optimile bearing has an extended life because of heat treatment processes, thereby improving the steel grain structure at the surface and core.*



### Features

- Improves the yield strength and rolling contact fatigue properties
- Offers better resistance to wear and seizure

### Benefits

- Higher capacity of bearing within a given size (improved yield strength)
- Greatly extended bearing's life in a contaminated environment
- Downsizing possible, higher power density

## HIGH-SPEED ELECTRIC MOTOR BEARINGS

*Electric Motor Bearings (EMB) are for high-speed applications with expectations of lightweight, low friction, high transient ramp capability, high RPM, and low noise.*



### Features

- Lightweight cage design
- Optimized internal design
- Grease with noise suppression properties

### Benefits

- High-speed stability
- Low noise
- Energy efficient bearing



# NBC ADVANCED SOLUTIONS

## LOW TORQUE BEARINGS

*Various studies show that only 13 to 15% of the energy is used to move the vehicle; the rest is lost due to mechanical and friction losses. The low torque bearing technology reduces energy consumption by reducing torque in the bearing.*



### Features

- Optimization of bearing raceways curvature
- Effective sealing solution
- Modified cage geometry

### Benefits

- Low carbon emissions
- Reduced heat loss and friction losses
- Enhanced fuel economy

## SEALED BEARINGS

*Sealed bearings are like conventional bearings in design and feature; however, for extra bearing protection and lubricant from external agents, it has contact seals in the recesses in the outer ring.*



### Features

- Effective and high-performance contact seals
- Different seal materials to suit different temperatures

### Benefits

- Reduced lubricant consumption
- Lower operating and maintenance costs
- Excellent protection against water splashes and contamination

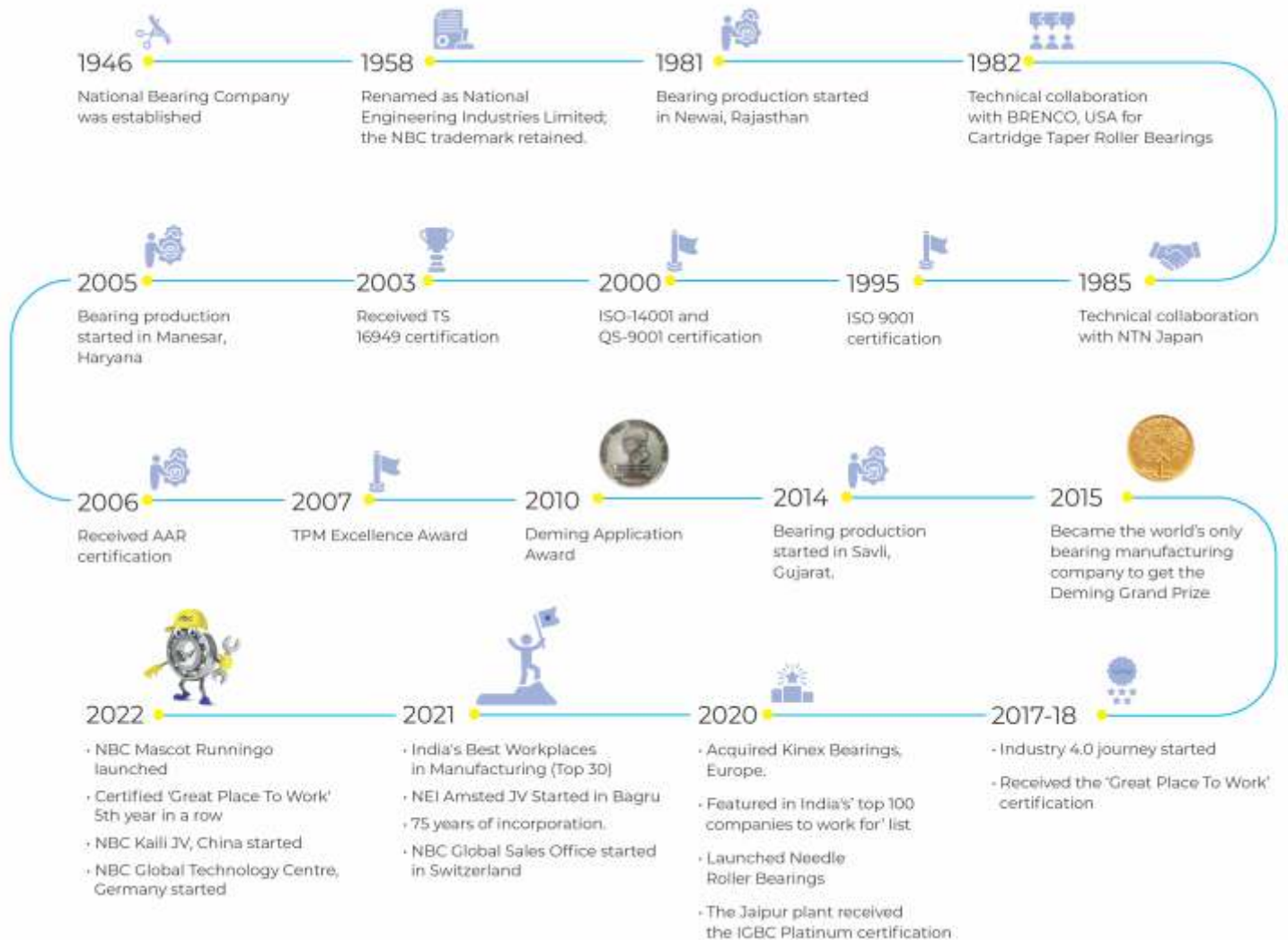
# OTHER PRODUCTS FROM NBC

Since the challenges faced by industries 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/faces and cage options are also available across product range.

## NBC MILESTONES





# *Enabling sustainability by making movement more efficient*

Where there is movement, there is growth.

At NBC, we are committed to making movement sustainable.

By creating cutting edge solutions that deliver more in less.

By enhancing the efficiency of our processes.

By adopting sustainable ways of doing business.

So when we help the world move,  
it moves in the right direction!

- India's first bearing manufacturer, operating since 1946
- Bearings for wide range of applications: from 20 mm to 2000 mm
- Exports to 30+ countries worldwide
- Best-in-class testing and R&D facilities

 **Automotive**

 **Industrial**

 **Railway**

 **Aerospace**



# 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 75 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



National Engineering Industries Ltd

Khatipura Road, Jaipur, Rajasthan, India 302 006

T: +91 141 2223 221 | F: +91 141 2222 259 | Toll free: 1800 3000 6222

E: neilsales@nbcbearings.in

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