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CK BIRLA GROUP

nbc
flexible solutions

**SEE YOUR
BUSINESS
ACCELERATE!**



Bearings for Commercial Vehicles

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

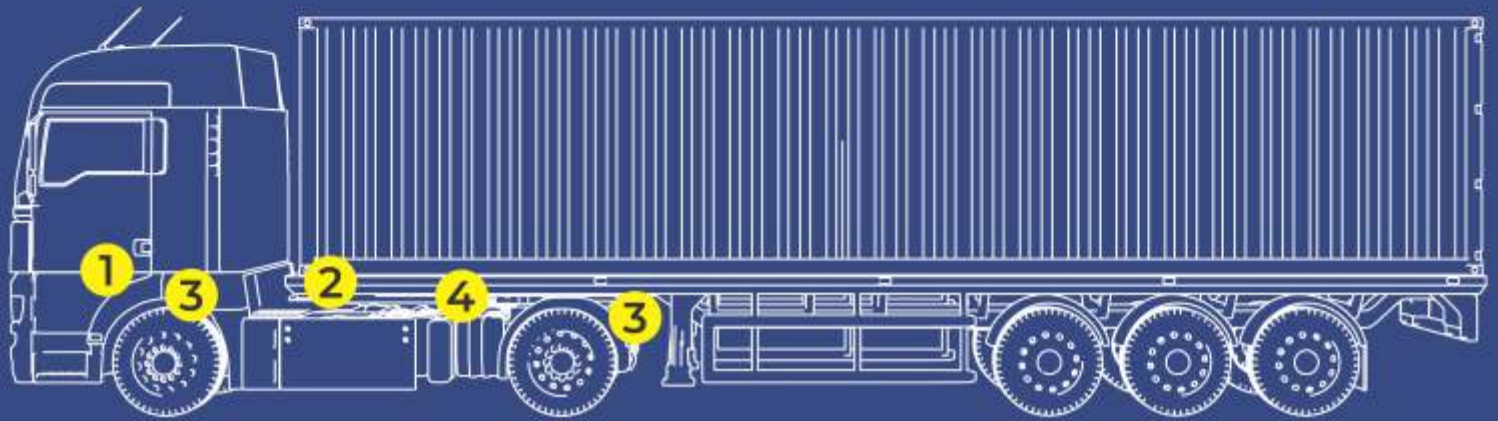


R&D Centres
in India, Slovakia,
Germany



500+ Stockists
10000+ Retailers

APPLICATIONS



1. Engine

- Clutch Release
- **FEAD System:**
AC Compressor Pulley,
Water Pump Pulley,
Power Steering Pulley,
Alternator Pulley,
Idler Pulley,
Tensioner Pulley
- Power Steering
- Water Pump
- Timing Drive System
- Alternator
- Crankshaft

2. Transmission

- Gear Box

3. Axles

- **Drive Axle:**
Center Section,
Wheel-end
- **Steer Axle:**
Kingpin

4. Propeller Shaft

- Universal Joint

COMPREHENSIVE SOLUTIONS FOR LIGHT/HEAVY COMMERCIAL VEHICLES



UNITISED TAPERED
ROLLER BEARINGS



UNITISED TAPERED
ROLLER BEARINGS 2



DOUBLE ROW
ANGULAR CONTACT
GEN 1



DOUBLE ROW
ANGULAR CONTACT-
GEN 3



CLUTCH RELEASE
BEARINGS



NEEDLE ROLLER
BEARINGS



PRE-SET HUB
BEARINGS



WATER PUMP
BEARINGS



TAPERED ROLLER
BEARINGS



CYLINDRICAL ROLLER
BEARINGS



DEEP GROOVE
BALL BEARINGS



POWER DENSE - Special heat treatment,
Integrated solutions

ENGINE



Major challenges:

- High speed and continuous loading for alternator and pulley application
- High operating temperatures at FEAD
- Variable loading and very high operating temperature for viscous fan application
- Optimization of weight for integrated solution
- Effective sealing requirement for FEAD and viscous fan application
- Contaminated and severe application conditions for flywheel position
- Low torque requirement for FEAD usages

NBC solutions:

- Application-specific design for FEAD, able to achieve RPM to tune of 15000. Special focus on bearing cage, internal geometry and sealing etc.
- Sealing configuration optimization for low torque and contaminated environment
- Stabilization heat treatment for high temperature application
- Advanced heat treatment for meeting durability and warranty targets

TRANSMISSION



Major challenges:

- Very high axial and radial loading
- Low friction requirement
- Contamination
- High stiffness
- Compact envelop
- High operating temperature

NBC solutions:

- Extra capacity bearing in same envelop with modification of geometry
- Special heat treatment for high temperature and contaminated environment
- Special heat treatment for compact size bearings
- Power dense solution for high load application
- Modified geometry for low friction
- Specially-designed bearings for high stiffness application

WHEEL END (FRONT AND REAR)



Major challenges:

- High tonnage capacity demand
- Overload usage in applications
- Low friction
- Contaminated environment
- Need of reduced weight
- Integrated solutions requirements for compact assembly

NBC solutions:

- Extra capacity bearing in the same envelop with modified geometry
- Power dense solutions for high tonnage application
- Unitized bearing solution for compact assembly and ease of service
- Integrated solution (preset hub) for ease of assembly and reduced inventory
- Optimized design and heat treatment for high durability and warranty target

PROPELLER SHAFT



Major challenges involved:

- Highly contaminated operating conditions
- Misalignment
- Moderate to high temperature
- Low to moderate loading
- Durability and warranty life demand

NBC solutions:

- Special sealing to meet demanding contaminated conditions
- 4 seal configuration for contaminated operating conditions
- Optimized geometry to take care of misalignment
- Internal design, special heat treatment for enhanced durability and warranty life

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

SENSOR BEARINGS

NBC's Sensor Bearings are a special kind of bearings in which sensors are integrated within the bearing unit to measure critical parameters like Shaft Speed (RPM), the direction of rotation, and temperature. They are compact, reliable, simple, and ready to mount.



Features

- High speed, low torque, and low noise bearing
- Integrated with sensors capable to measure

Benefits

- Compact & robust design yielding reliable results & ready to use
- Onboard condition monitoring of the system
- Hassle-free & integrated solution for EV OEM

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

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

COMPRESSIVE RESIDUAL STRESSES BEARINGS

The special proprietary process enhances the fatigue life of the bearing multiple times. Our unique surface treatment induces high residual compressive stress compared to conventional methods.



Features

- Introduced compressive residual stresses to enhance fatigue life
- Resistance to bending and higher radial load
- Improved surface texturing helps the lubricant retention

Benefits

- Higher operational reliability
- Better performance and higher power density
- Improved lubricant effectiveness

BLACK OXIDE BEARINGS

The black oxide conversion treatment applied to the rings and rolling elements improves lubricant adhesion on the raceway, enhancing the bearings' performance by reducing smearing wear and micro pitting, especially during run-in periods.



Features

- Increased wear resistance during the initial running-in period
- Improved adhesion properties of the lubricant

Benefits

- Longer operating time
- Increased wear resistance

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

HARD COATED ROLLER(HCR) BEARINGS

Wear resistance coating on rolling elements helps to avoid metal-to-metal contact in dry and low lambda lubricated conditions.



Features

- Optimized coating with metal-containing amorphous carbon coating with a multilamellar structure
- High dimensional accuracies

Benefits

- Higher operational reliability
- Resistant to adhesive wear and micro pitting
- Debris tolerance - removes dents created in the contaminated application

INSUOHM BEARINGS

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



Features

- Improves bearing's life in the electrical current passage
- High insulation resistance
- High dimensional stability after coating

Benefits

- Increased machine uptime
- Reduced overall operating costs
- Insulation over a wide range of operating temperature

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

LOW CARBON STEEL(SLC) BEARINGS

NBC has developed an SLC bearing to enhance the life of these bearings. Special heat treatment is given to the bearings made of low carbon steel, which develops a hard surface and tough core on the components.



Features

- Hard, wear/fatigue surface
- Tough, crack-resistant core
- Compressive residual stresses

Benefits

- Better performance under shock loads and misalignment
- Improved contamination resistance
- Enhanced bearing life

HYBRID BEARINGS

Hybrid bearing, also known as anti-friction ball bearing, consists of a rolling element made of Silicon nitride in place of steel. Silicon nitride rolling elements perform exceptionally well in high-speed operating conditions.



Features

- Lower friction
- Reduced weight
- Current insulation

Benefits

- High-speed capability
- Less wear under slippage
- Higher operational reliability

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

LOW TORQUE BEARINGS

Various study shows that only 13 to 15% of the energy is used to move the vehicle; the rest of the energy 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

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

ADVANCED SOLUTIONS FOR MODERN AUTOMOBILE/TRANSMISSION

MEDIUM CARBON STEEL (MCS) BEARINGS

In automotive applications, the bearings should be capable of taking shock-load in severe contaminated lubrication conditions. Medium Carbon Steel bearings offer optimal performance due to their modified intrinsic microstructure properties.



Features

- High amount of retained austenite and hardness after heat treatment
- Consists of carbides or/and carbonitrides
- Hard surface and tough core

Benefits

- Higher resistance to fractures and crack
- Better performance in a contaminated environment

HIGH-SPEED ELECTRIC MOTOR BEARINGS

Electric Motor Bearings (EMB) are for high-speed applications where expectations are 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

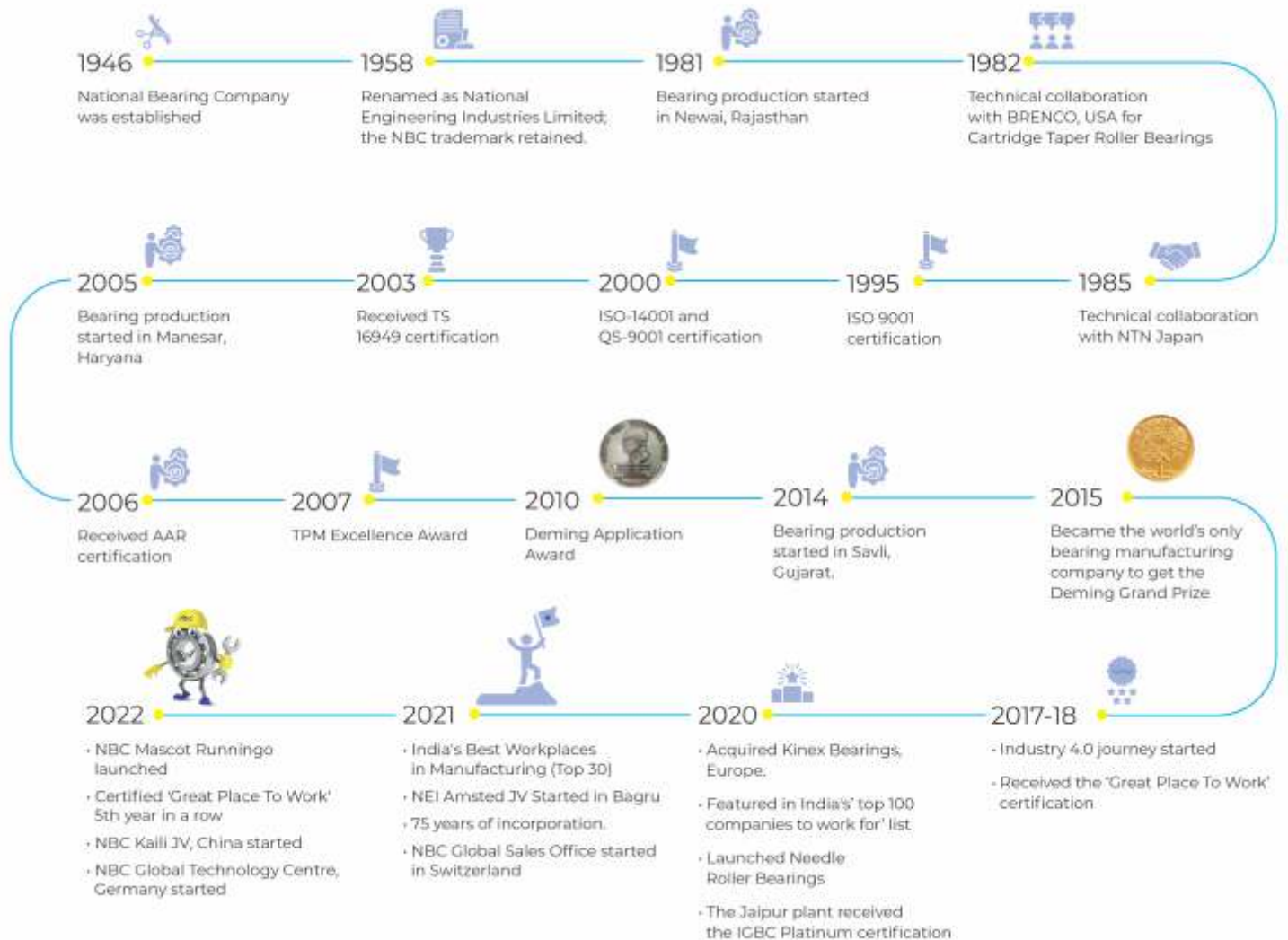
OTHER PRODUCTS FROM NBC

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



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



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