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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.

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

3000+People

Happy customers in 30+ countries

Automotive

Industrial

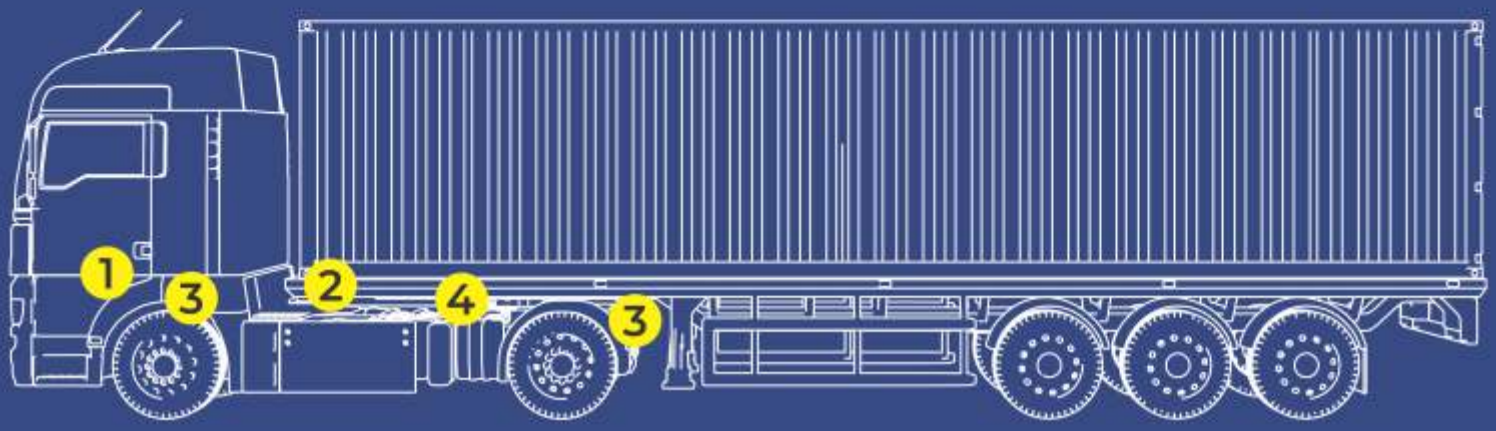
Railway

Aerospace

R&D Centres in India, Slovakia, Germany

500+ Stockists 10000+ Retailers

APPLICATIONS



1. Engine

- Clutch Release
- Auxiliary System
- 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

HUB BEARING

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
- 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

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 AUTOMOTIVE/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 AUTOMOTIVE/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 AUTOMOTIVE/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 AUTOMOTIVE/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)
- Extended bearing's life in a contaminated environment
- Downsizing possible, higher power density

ADVANCED SOLUTIONS FOR MODERN AUTOMOTIVE/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

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.

Ball Bearings

- Deep Groove
- Gen - 1
- Gen - 3
- Angular Contact

Needle Bearings

Tapered Roller Bearings

- Single Row
- Double Row
- Four Row
- Unitised Tapered Roller Bearing
- Cartridge Tapered Roller Bearing (Railways)

Thrust Bearings

- Ball thrust
- Roller thrust

Cylindrical Bearings

- Single Row
- Double Row
- Four Row
- Cylindrical Bearing Unit (CBU)

Pillow Block Bearings

- UCP
- UCF
- UCT

Spherical Bearings

- Roller
- Plain

Special Products & Technology

- Oil Impregnated Polymer Lubricated
- EMB Series High Speed (EV application)
- SIB Series Sensor Integrated
- Bearing with Conductive Wire
- TRB Hub Unit
- Low Torque TRB
- Pre-set Hub
- Insuohm Series (Insulated)
- Ceramic Rolling Element (Hybrid)
- TRB Matched Set
- Black Oxide Treatment
- HCR Series

* 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

1946
National Bearing Company was established

1958
Renamed as National Engineering Industries Limited; the NBC trademark retained.

1981
Bearing production started in Newai, Rajasthan

1982
Technical collaboration with BRENCO, USA for Cartridge Taper Roller Bearings

1985
Technical collaboration with NTN Japan

1995
ISO 9001 certification

2000
ISO-14001 and QS-9001 certification

2003
Received TS 16949 certification

2005
Bearing production started in Manesar, Haryana

2006
Received AAR certification

2010

Deming Application Award

2014
Bearing production started in Savli, Gujarat.

2015

Became the world's only bearing manufacturing company to get the Deming Grand Prize

2017-18
- Industry 4.0 journey started
- Received the 'Great Place To Work' certification

2020
- Acquired Kinex Bearings, Europe.
- Launched Needle Roller Bearings
- The Jaipur plant received the IGBC Platinum certification

2021
- India's Best Workplaces in Manufacturing (Top 30)
- NEI Amsted JV Started in Bagru
- 75 years of incorporation.
- NBC Global Sales Office started in Switzerland

2022

- NBC Mascot Runningo launched
- NBC Kaili JV, China started
- NBC Global Technology Centre, Germany started

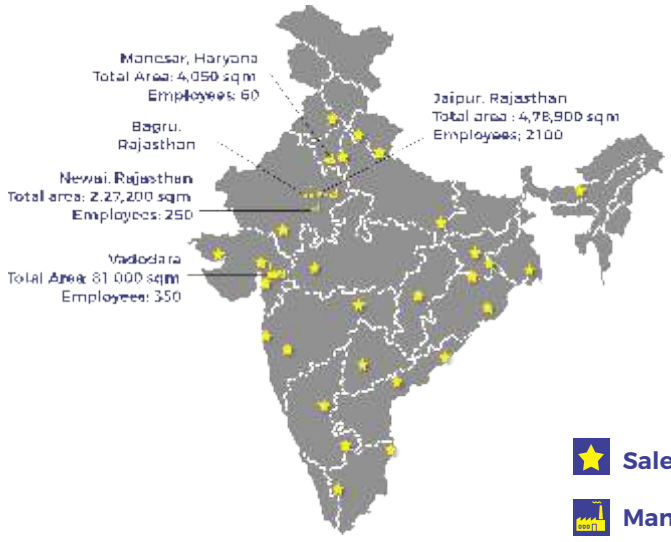
2023
- Certified 'Great Place to Work' 6th year in a row
- Ventured into Aerospace segment.

If our bearings had passports,
they would have stamps
from 30+ countries.

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 78 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

nbc flexible solutions

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

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