

**Decrease in downtime.  
Increase in output.  
Year after year.**



**Bearing solutions for the construction and mining industry**

WHO IS  
**NBC**



## 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

- 2005

Bearing production started in Manesar, Haryana

—2003

Received TS  
16949 certification

2000

ISO-14001 and  
OS-9001 certification

- 1995

ISO 9001  
certification

- 1985

Technical collaboration  
with NTN Japan

- 2006

Received AAR  
certification

- 2007

TPM Excellence Award

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

2022

- NBC Mascot Runningo launched
- Certified 'Great Place To Work' 5th year in a row
- NBC Kaili JV, China started
- NBC Global Technology Centre, Germany started

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

- 2020

- Acquired Kinex Bearings, Europe.
- Featured in India's' top 100 companies to work for' list
- Launched Needle Roller Bearings
- The Jaipur plant received the IGBC Platinum certification

- 2017-18

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



# OTHER PRODUCTS FROM NBC

Since the challenges faced by 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.

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



250+ million  
bearings  
manufactured/  
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

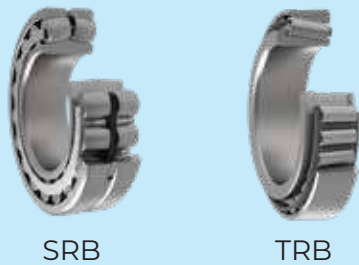
BEARINGS FOR MINING AND CONSTRUCTION INDUSTRY

WHEEL LOADER



BEARINGS FOR MINING AND CONSTRUCTION INDUSTRY

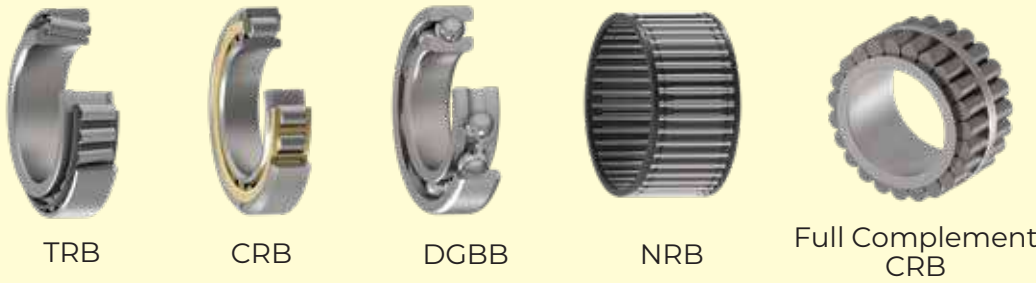
SELF-LOADING CONCRETE MIXER



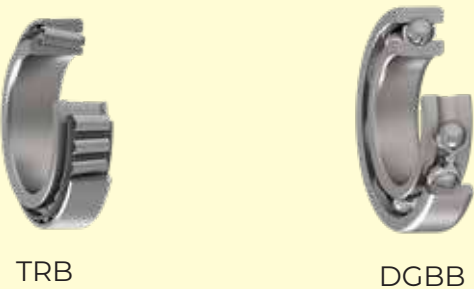
DOZERS



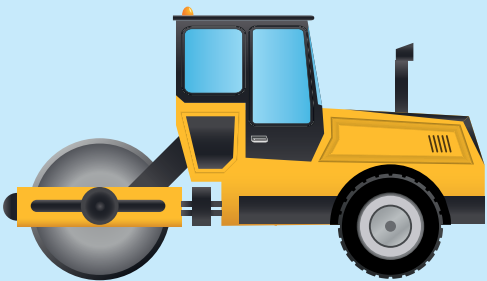
DUMPER TRUCKS



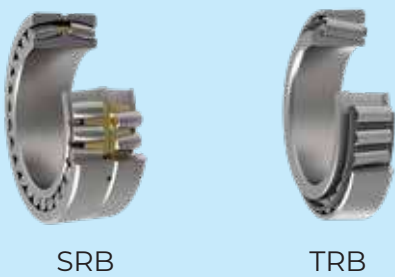
FORKLIFT



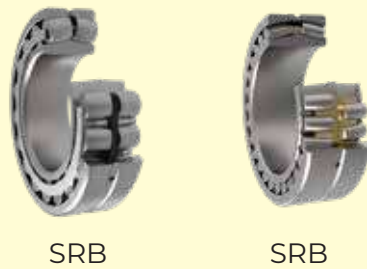
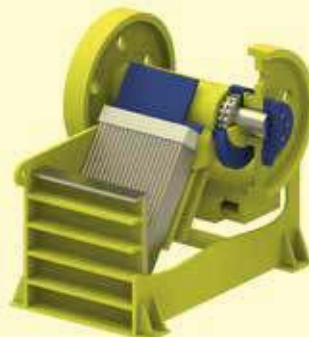
COMPACTORS



PAVERS



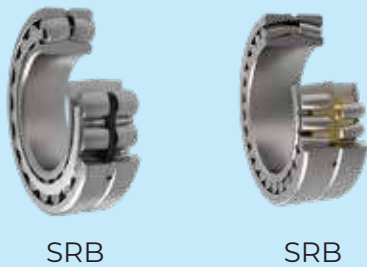
JAW CRUSHER



HYDRAULIC EXCAVATOR



VIBRATORY SCREEN



# 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 maintain their machinery failure-free.

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

## Our offerings

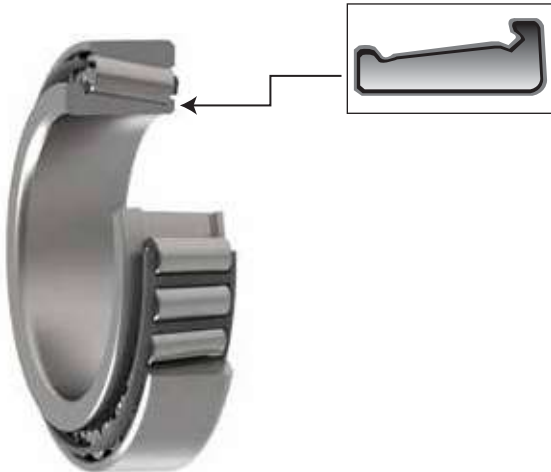
- Vibration monitoring & analysis
- In-situ dynamic balancing
- Laser shaft alignment
- Thermography
- Annual maintenance contract / On-call service



# SPECIAL SOLUTIONS

## CASE CARBURIZED BEARINGS

*Case carburized bearings have a tough ductile core and a hard wear-resistant outer surface.*



### Features

- Made of ultra clean low carbon steel
- Ductile core helps enduring heavy shock loads
- Compressive residual surface stresses

### Benefits

- Reduced possibility of catastrophic damage due to surface cracks
- Better performance in boundary lubrication condition
- Ability to handle/manage some level of debris
- Sustains higher level of hoop stress

## POLYAMIDE CAGE FOR TAPERED ROLLER AND DEEP GROOVE BALL BEARINGS

*Polyamide cage bearings are conventional bearings with glass fiber reinforced polyamide cage material instead of metal. These bearings offer some excellent benefits for certain demanding applications against metallic cage bearings.*



### Features

- Light weight
- Improves the flexibility of bearing
- Self-lubricity
- Low friction

### Benefits

- Excellent performance in high-speed applications
- Excellent performance in high acceleration and deceleration
- Low noise in application
- Better performance in marginal lubrication



# CONSTRUCTION AND MINING EQUIPMENT

## WHEEL LOADERS

An integral machinery for loading and transporting uses twin arms and a lower bucket to lift the material; a bearing plays a crucial role in withstanding the harsh environment.

### Operating Challenges

- High static loads
- Vibrations
- Oscillating motions
- Contaminations
- Relubrication challenges



Bearings  
used

- Tapered Roller Bearing
- Cylindrical Roller Bearing
- Deep Groove Ball Bearing

- Full Complement Double Row Cylindrical Roller Bearing
- Needle Roller Bearing (needle and cage)

## DOZERS

Dozer has a long and wide blade actuated by the booms, which are mounted on the bearings operated by the hydraulic cylinders. The crawlers, driven by the sprocket, are also supported by the bearing.

### Operating Challenges

- Static load
- Combined loads (Vibrations and oscillations)
- Outer ring rotation (results in lower load carrying capacity and fretting damage of inner ring)
- Contamination in the form of moisture and debris



Bearings  
used

- Full Complement Cylindrical Roller Bearing
- Spherical Roller Bearing

- Tapered Roller Bearing
- Needle Roller Bearing

# SPECIAL SOLUTIONS

## HIGH TEMPERATURE BEARINGS

*NBC has developed unique heat treatment solutions for high temperature applications to provide superior dimensional stability for operating temperatures as high as 250°C.*



### Features

- Special heat treatment
- Excellent performance under hot environments

### Benefits

- Dimensional stability at high temperatures.
- Enhanced bearing service life at elevated temperatures

## HYBRID BALL BEARINGS

*Hybrid bearing also known as anti-friction ball bearing consists of 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
- Higher hardness

### Benefits

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

# SPECIAL SOLUTIONS

## SEALED SPHERICAL ROLLER BEARINGS

*Sealed Spherical Roller bearings are like conventional spherical roller bearing in design and features, however for extra protection of bearing and lubricant from any external agents it has contact seals in the recesses of the outer ring.*



### Features

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

### Benefits

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

## INSULATED BALL BEARINGS

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



### 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.
- Higher operational reliability of electrical machinery

# CONSTRUCTION AND MINING EQUIPMENT

## HYDRAULIC EXCAVATOR

The bearings support the crucial part of hydraulic excavators, such as the hydraulic drive, which consists of a hydraulic motor, two-stage planetary gear, and an output pinion drive.

### Operating Challenges

- Frequent load reversal
- Inconsistent load zone
- Misalignment
- Lubrication challenges due to vertical operations
- Moment loads



Bearings  
used

- Tapered Roller Bearing
- Deep Groove Ball Bearing
- Cylindrical Roller Bearing
- Needle Roller Bearing (Needle and cage),
- Full complement Single Row Cylindrical Roller Bearing
- Spherical Roller Bearing
- Slewing ring bearing (Four point contact)

## VIBRATORY SCREEN

The rolling bearings play an essential role in vibratory screens as it helps perform a circular, elliptical, and linear motion in addition to severe working conditions.

### Operating Challenges

- High Vibration
- High radial and centrifugal forces
- Moisture & contamination
- High acceleration in rollers
- Housing deformations



Bearings  
used

- Spherical Roller Bearing



# CONSTRUCTION AND MINING EQUIPMENT

## CRUSHER

The crusher must operate with high efficiency and reliability; therefore, the supporting bearings must be capable of withstanding all operating parameters and requirements.

### Operating Challenges

- Contamination
- Overloading
- High impact forces
- High temperature



Bearings  
used

- Spherical Roller Bearings
- Thrust Cylindrical Roller Bearings

- Thrust Taper Roller Bearings
- Tapered Roller Bearings.

## FORKLIFT

Forklifts and telehandlers are used in mining, and construction is an engine-driven machine with hydraulic-powered units supported by bearings that help move arms and vertical booms.

### Operating Challenges

- Moment loads
- Rotation of outer ring (track roller)
- Axial static thrust
- Lubrication challenges



Bearings  
used

- Tapered Roller Bearing

- Deep Groove Ball Bearing

# SPECIAL SOLUTIONS

## HCR WEAR RESISTANT BEARINGS

*Wear resistance coating on rolling elements helps avoid metal to metal contact in low film thickness and protects against adhesive and abrasive wear.*



### Features

- Optimized coating with metal-containing amorphous carbon with a multilamellar structure
- No columnar structure provides high adhesion strength
- High dimensional accuracies

### Benefits

- Low coefficient of friction even in dry condition:  
Resistant to adhesive wear and micro pitting
- Enhanced fatigue life in insufficient lubrication condition
- Debris tolerance: removes dents created in the contaminated application

## OIL IMPREGNATED BEARINGS

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



### Features

- Improved lubrication with consistent lubricant supply
- Superior lubricant: Synthetic oil
- Excellent performance in water and dusty environment
- Environment-friendly molding process

### Benefits

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

# SOLUTIONS FOR THE CONSTRUCTION AND MINING INDUSTRY

## FULL COMPLEMENT DOUBLE ROW CYLINDRICAL ROLLER BEARING



### Features and benefits

- **Full complement design**  
*for high load rating*
- **Compact design**  
*for easy fitment*
- **Available in different configurations**  
*to suit different application requirements*
- **Clean bearing steel**  
*for longer bearing service life*
- **Optimized internal geometry**  
*for improved load capacity*
- **Superior surface finish on raceways**  
*for reduced friction, lower operating temperature*
- **Modified crowning on rollers/raceways**  
*for better compensation of misalignment*

## TAPERED ROLLER BEARING



### Features and benefits

- **Optimized geometries of raceway and rolling elements**  
*for improved load capacity*
- **Precise cages play**  
*for enhanced bearing life*
- **Special profiling on rollers/races**  
*for reduced stresses and uniform load distribution*
- **Case hardened (on demand)**  
*for shock load resistance, high interference fits*
- **The Superior surface finish on rollers/races**  
*for reduced friction, lower operating temperature*
- **Optimized design of large cone flange & roller large end**  
*for reduced friction and bearing torque*
- **Case hardened (on demand)**  
*for shock load resistance, high interference fits*

# CONSTRUCTION AND MINING EQUIPMENT

## ASPHALT PAVERS

The main components of hot asphalt pavers are feeders, screw conveyors, vibratory screens, etc.; bearings support all these and take considerable load and temperature for smooth operation.

### Operating Challenges

- High deflection
- High static axial load
- High temperature
- Severe contamination



Bearings  
used

• Spherical Roller Bearing

• Tapered Roller Bearing

## COMPACTORS

The major components are the rollers (single and tandem), which are heavy, and their rotary motion is used to compact the material. In addition, the bearing helps support the heavy rollers.

### Operating Challenges

- High vibrations
- High static loads
- Lubrication challenges
- High temperature



Bearings  
used

• Spherical Roller Bearing

• Deep Groove Ball Bearing



# CONSTRUCTION AND MINING EQUIPMENT

## SELF-LOADING CONCRETE MIXER

Machinery has a revolving drum, along with a screw augur, that rotates in the counter direction of the drum. The rolling bearings support this whole process by carrying a considerable operational load.

### Operating Challenges

- High Static load
- Significant thrust loads in both directions
- High deflections
- Contamination (Slurry)
- Inclined operational loads.



Bearings  
used

- Spherical Roller Bearing  
(Outer ring split)

- Tapered Roller Bearing

## OFF-HIGHWAY TRUCKS

The off-highway trucks used in harsh conditions of the mining and quarrying process are different as each tyre is driven by a separate planetary gear mechanism supported by bearings.

### Operating Challenges

- Vibratory loads
- Contamination (dust and moisture)
- High Static loads
- Lubrication challenges



Bearings  
used

- Tapered Roller Bearing
- Cylindrical Roller Bearing

- Deep Groove Ball Bearing
- Needle Roller Bearing

# SOLUTIONS FOR THE CONSTRUCTION AND MINING INDUSTRY

*Application: Wagon Tippler, Conveyor System, Crusher, Screening, Rotary Breaker, Ring Granulator, Coal Pulverizer, Air Preheater*

## STEEL CAGE BEARINGS



## BRASS CAGE BEARINGS



### Features and benefits

- **Two-piece cage design**

This allows both rows to run independently, avoiding the risk of roller slippage, smearing and cage damage.

- **Enhanced roller finishing to reduce friction**

Enhanced race/roller surface finish results in improved lubrication film, which avoids metal-to-metal contact and lowers bearing operating temperature.

- **Improved and robust cage design**

Helps in better roller cage interaction and can accommodate more rollers and longer cage life by providing surface treatment.

- **Central Guide Ring/Flange**

The central guide ring/flange provides optimal guidance to the rollers and limits rollers skew thus, avoids unnecessary force on the cage.

- **Maximum and Larger Rollers**

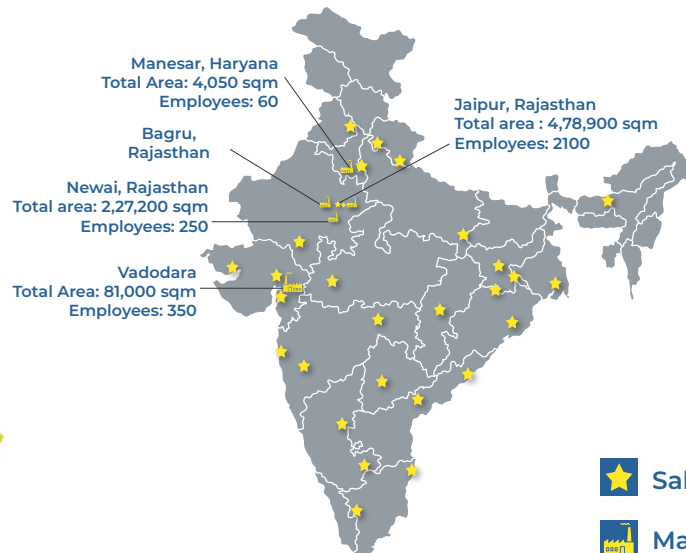
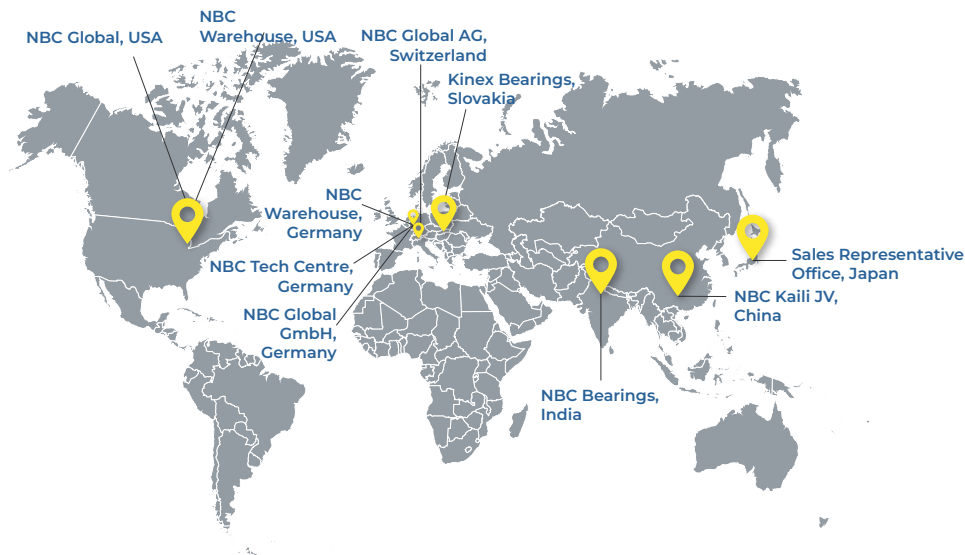
This enhances load carrying capacity.

Size range	30-2000 mm OD
Variants	Straight bore, Tapered bore (1:12, 1:30)
Cage	Brass, Steel
Clearances	C2, CN, C3, C4, C5

# 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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