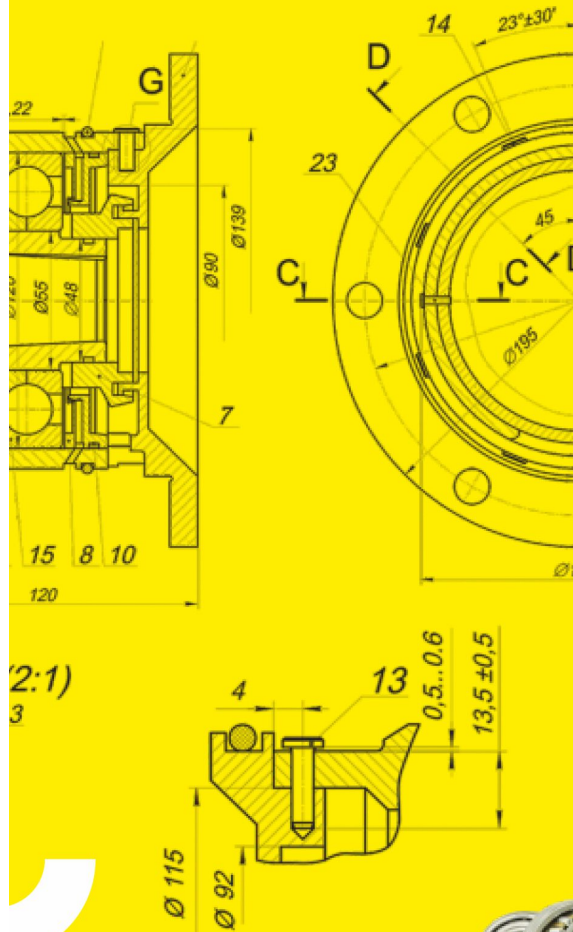


CELEBRATING
75
YEARS



CK BIRLA GROUP

nbc
flexible solutions



ROLLING BEARINGS

Special Process



2 WHEELERS



3 WHEELERS



4 WHEELERS



TRACTORS



LCV, HCV



INDUSTRIES



RAILWAYS



AEROSPACE



nbc
flexible solutions

CATALOGUE/TC-106, 01/2024

This version supersedes all previously published versions. All the bearing mentioned in this catalogue are manufactured with normal tolerance class. We can, however, supply other class bearing against specific requirement.

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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.



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 04 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.

11 Special Process

11.1 Black Oxide Conversion Treated Bearings



Key Features

The Black oxide chemical conversion treatment was originally developed to improve the corrosion resistance of the base material. Overtime, this process was introduced on tribological components.

NBC has expanded its solution to the most challenging condition to meet application needs. Bearings are processed with proprietary black oxide conversion process. This helps prevent mild adhesive wear resistance. In addition, helps retain lubricant and increases smear-resistance especially during run-in periods.

Black oxide is a conversion oxide formed on the metal surface because of a chemical reaction in alkaline solution conforming to standard DIN 50938.

Black oxide also performs well in starved lubrication condition 3 times than standard bearings.

Benefits

- Moisture corrosion resistance
- Improved running-in behaviour
- Resistance against Peeling

11.3 Oil Impregnated Bearing Solutions

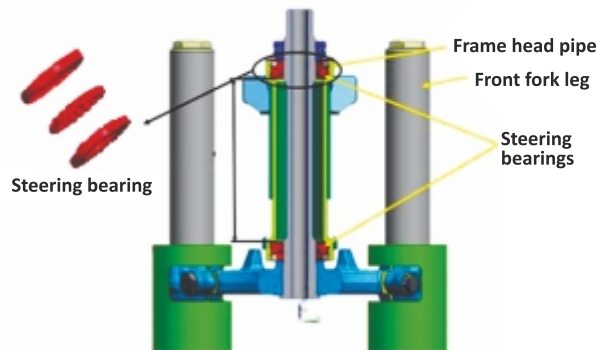
Key features

It is a new class of lubricant for bearings in comparison with oil and greased lubricated bearing.

In this type of lubrication oil is mixed with the polymer (a type of polyethylene) and molded to form a casing which acts as an oil reservoir throughout bearing life.

Benefits:

- More quantity of lubricant in the same bearing pocket
- Resistant to contaminants and dust particles
- No Re-lubrication needed
- Less torque as compared to greased bearing as it is fixed in the bearing pocket as compared to greases which changes its position during rotation (churning in cage pockets and seal pocket)
- Increase in load carrying capacity in case of oil impregnated ball cage assembly.
- No leakage from the bearing due to solidification process



Applications / industries

- 2 & 3 wheeler steering column bearing
- Other Automotive and Industrial application for oil impregnated bearings.



Oil impregnated ball cage assembly



Oil impregnated sealed ball bearing

Handling precautions :

- Oil Impregnated bearings should not be heated beyond 100 °C
- Don't use any kind of organic solvents with oil impregnated bearings.
- Slight load is required to rotate the bearings properly.
- Nitrile gloves should be used for handling
- Slight discoloration can observed

11.4 Bearings for Electric Vehicle (EMB)

These bearings are used for high-speed applications. Each principal component of an Electric Vehicle (EV) has several technologies currently in use or can become prominent in the future. Among all the components, bearings play a vital role to consider when determining the reliability of EVs.

In the near future, electric vehicles and transmission are going to be significant drivers of this automobile industry. To improve the efficiency, reliability, and durability of these upcoming technology, NBC offers to customers the system and components that would withstand their demands and expectations.

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

In order to have higher efficiency of electric motors, the motor runs at a higher speed (around ~20000 RPM) compared to an IC engine (~5000 RPM), which poses a significant challenge in terms of friction and temperature coupled with low noise on bearing design parameters.

Application:

- High-Speed Electric Motors & Transmission
- Planetary gearboxes
- Insulated and conductive bearings for Induction Motors

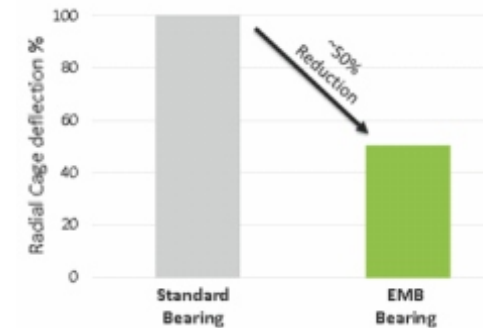
Benefits:

- High-Speed Stability
- Fulfill the Low Noise requirements
- Energy Efficient Bearings
- Solutions for Current Leakage issues

Product Features:

- Deflection reduced by 50% of conventional cage
- Lightweight Cage Design
- Optimized internal design
- Grease with Current Conductive Properties
- Noise suppression properties of grease

Patented Cage Technology



11.5 Sensor Integrated Bearings (SIB)

Sensor Integrated Bearings (SIB) are mechatronic machine components that feature a bearing and a sensor packaged together

Parameter	Purpose of Measurement
Speed, Direction, Acceleration	Signature of the driving shaft of application (e.g., EV, wheel, control, etc.)
Temperature	Bearing & vicinity measurement for criticality, Maintenance, etc.
Vibration	Condition monitoring, prognostic, Maintenance, etc.
Load	Actual operating condition and design validation

Application:

- Critical rotating applications like AC motors and Industrial machinery
- On-board Condition Monitoring, Control algorithms & Fault Diagnosis

Benefits:

- Compact & Integrated solutions resulting in space and cost-saving
- Facilitates Accurate & reliable data acquisition in real time environment
- Durable & rugged for dynamic service requirements



12 Condition Monitoring