



GGB Excellence in King Pin & Suspension Bearings

GGB, an Enpro company

# Speaker Profile



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Working as an application engineer/tribological solution expert from past 6 years with GGB. Suraj attended University of Pune from 2011-2014, where he got his bachelor's degree in Mechanical Engineering and developed an addiction to Automobiles.



# CONFIDENTIAL

**Presented By : Suraj Patil**

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**Circulation List : Attendees from webinar arranged by MotorIndia on “How to develop a maintenance-free, long-life king pin & suspension tribological system for commercial vehicles”**

***The document is meant for GGB internal circulation and /or some specific customer for illustration of application and shall not be circulated outside.***

# Today's Agenda

- GGB Company Profile
- Product & Application Portfolio
- Industry Trends and Challenges
- GGB Solutions
- The wear Mechanism
- Beyond Bearings: Polymer Coatings
- Customer Benefits



<https://www.youtube.com/watch?v=oeC6uxlv8WA>



# An Enpro Company

GGB is proud to be part of the Enpro family of companies.

Enpro is a global manufacturer of critical safety and high-performance products used in some of the most extreme environments.

Enpro operates R&D and manufacturing facilities around the world to develop new, innovative materials and technologies and support diverse engineering needs.



## Sealing Technologies



## Advanced Surface Technologies



## Engineered Materials

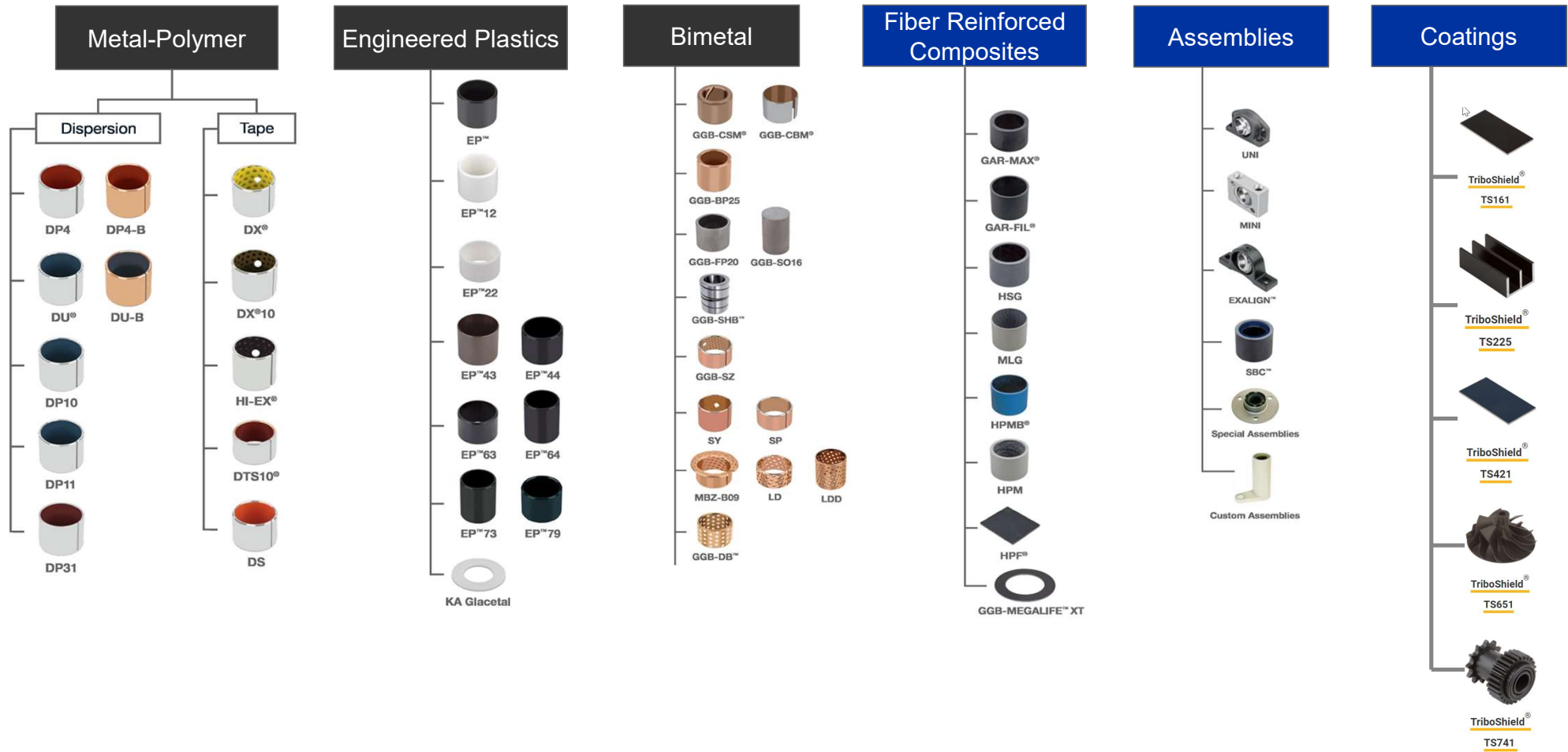




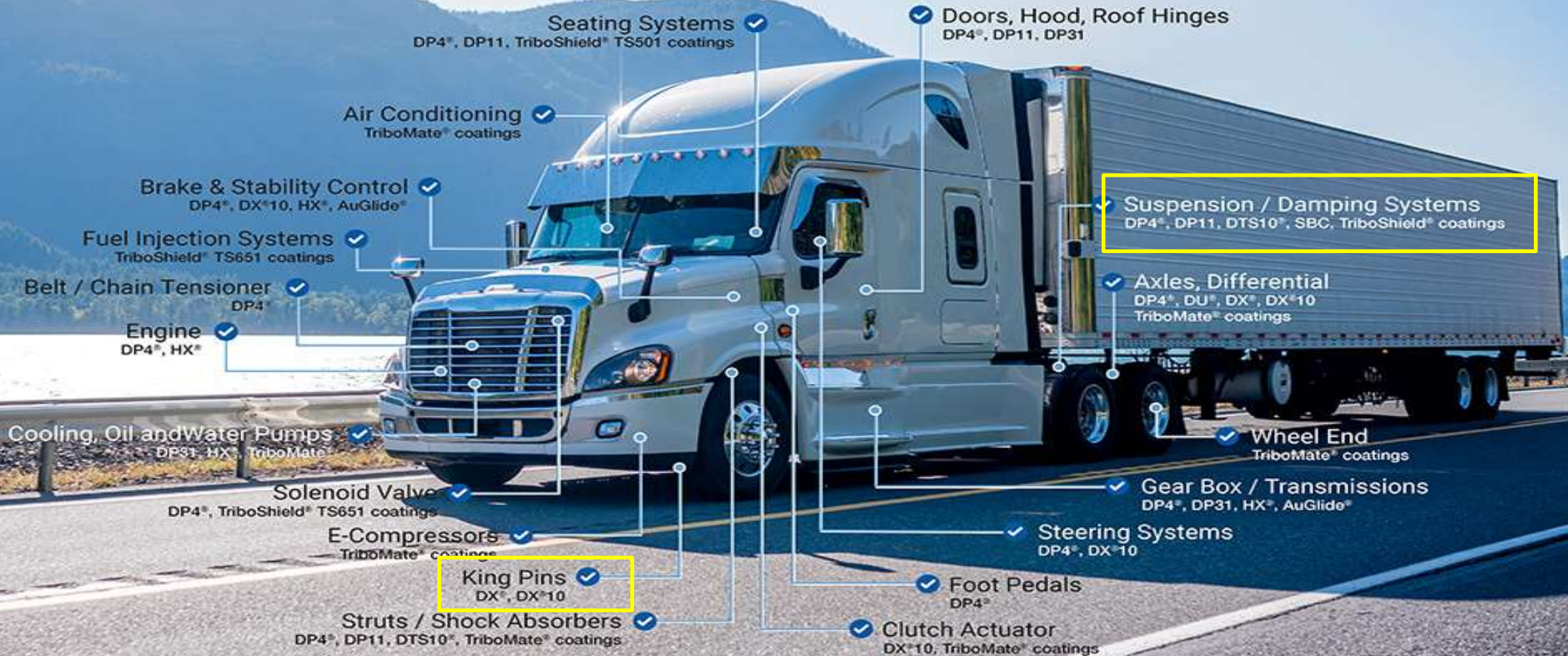
# Tribological Solutions for Industrial Progress

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# GGB PRODUCT PORTFOLIO







Tribological TriboShield® / TriboMate® coatings for chrome replacement.

# Industry Trends



Unitized wheel end bearings with lifetime more than 500k Kms



Non-Stop Running



Increasing service warranty up-to 5 years



Maintenance Free



# Challenges/Issues



Metal/Bi-metal bearings  
Life of around 120k Kms



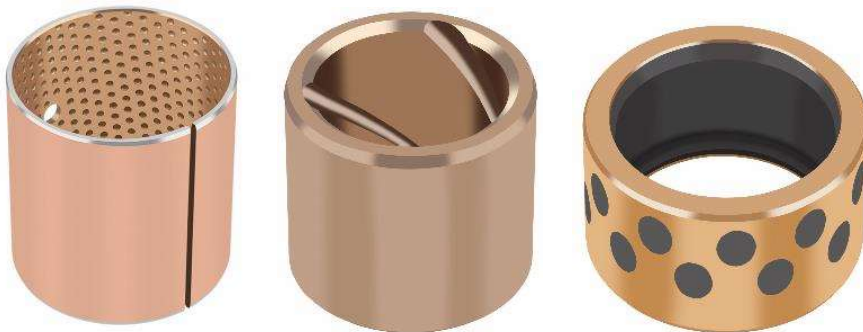
Frequent Greasing-  
Centralized lubrication system



Faster wear of bearings  
increases uneven tyre  
wear, wobbling, pin  
damage due to metal  
contact etc.



Maintenance Downtime –  
Greasing and Replacements



 **GGB**

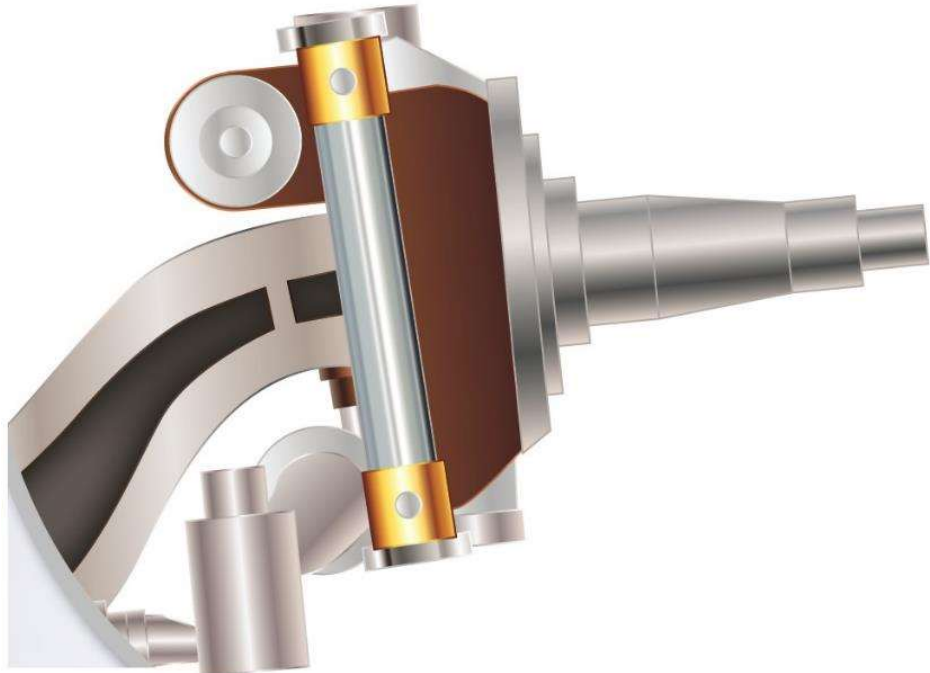
Never grease again!



# Leaders in Tribology

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# KING PIN



## OPERATING CONDITIONS

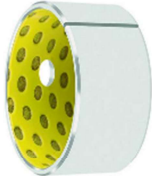
- Grease Lubricated
- Heavy Shock Loads
- Contamination Due to Dust

## REQUIREMENTS

- ✓ Low wear rate
- ✓ Tighter Tolerances
- ✓ Low Maintenance



**DX<sup>®</sup> DX<sup>®</sup>10 TS225**



Wear Resistance

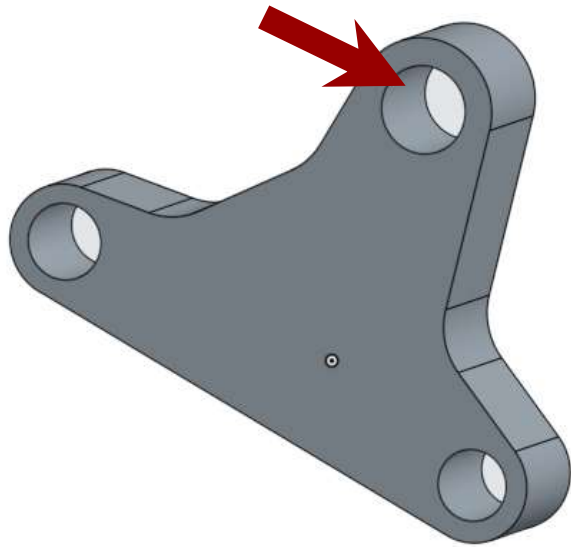


Extended Service Life



High Strength

# SUSPENSION



## OPERATING CONDITIONS

- Grease Lubricated
- Heavy Shock Loads
- Contamination due to dust

## REQUIREMENTS

- ✓ Low wear rate
- ✓ Resistance to Shock loads
- ✓ Abrasion resistance
- ✓ Low Maintenance or Maintenance-free

## DX<sup>®</sup>10 SBC

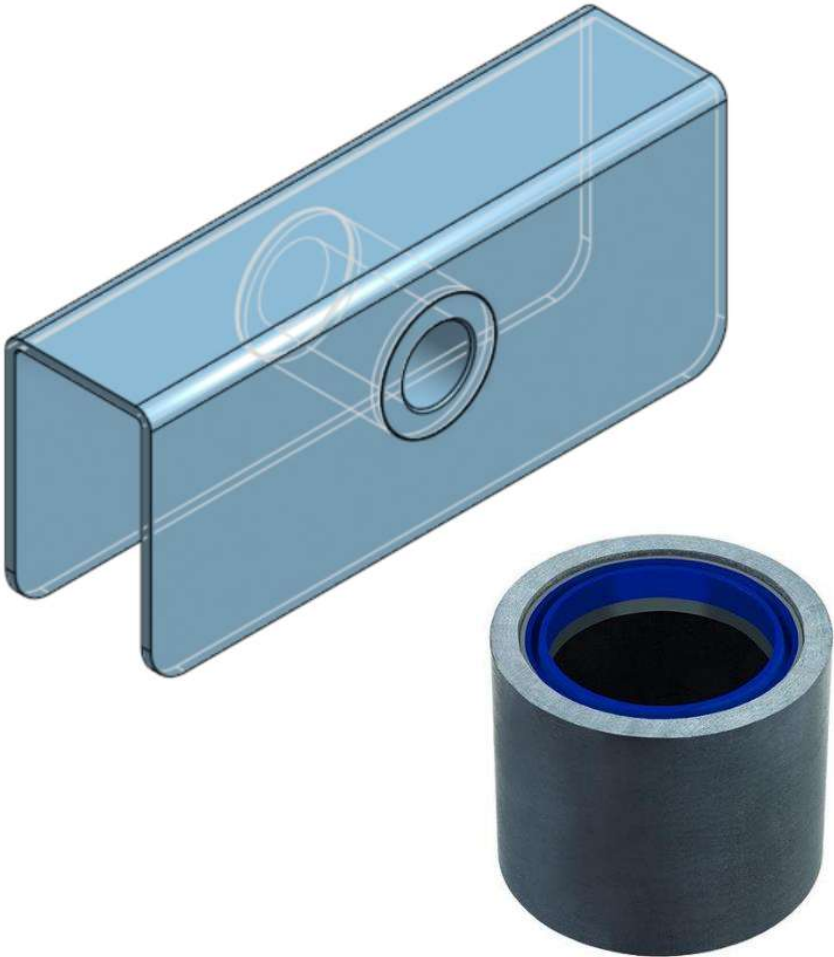


Wear Resistance



Extended Service  
Life

# EQUALIZER



## OPERATING CONDITIONS

- Grease Lubricated
- Contamination due to dust

## REQUIREMENTS

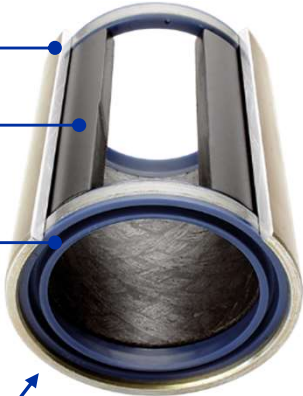
- ✓ Low wear rate
- ✓ Abrasion resistance
- ✓ Low Maintenance or Maintenance-free
- ✓ Increasing Service - Life

**HSG<sup>®</sup> DX<sup>®</sup>10 SBC**

Zinc Plated Steel

High Strength  
GAR-MAX<sup>®</sup>

Integral Lip seal

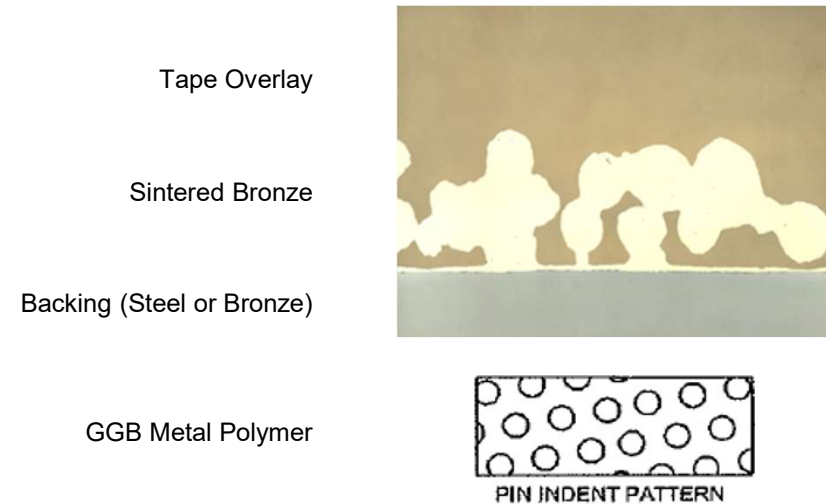
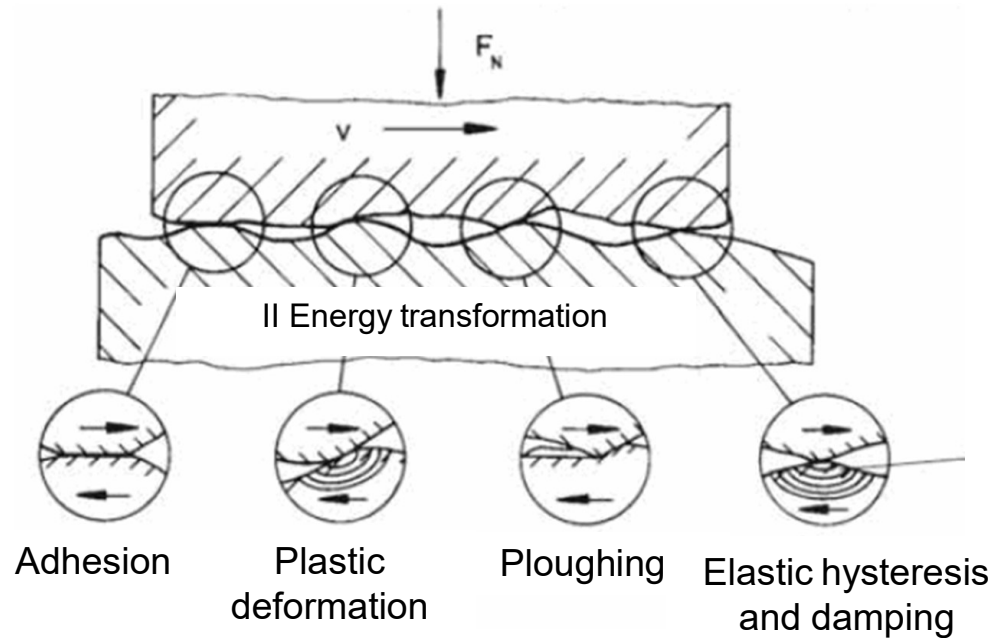


Wear Resistance



Extended Service  
Life

# How? Why? Wear Mechanism



- **Metal to Metal contact** using Bronze/Bi-Metal Bearings
- Leads to **higher friction & wear rates** not allowing to provide better life
- Metal polymer bearings have **Polymer to Metal contact**
- **Reducing friction and wear** allowing to achieve better life





# Beyond Bearings: Enhancing Performance with Polymer Coatings

# Tribological Polymer Coatings



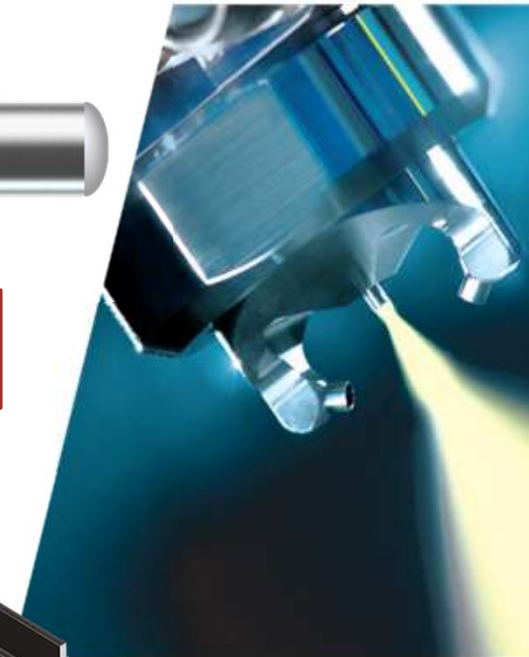
RELIABLE TRIBOLOGY. COLLABORATE.  
FREEDOM OF SHAPE.

## Features and benefits

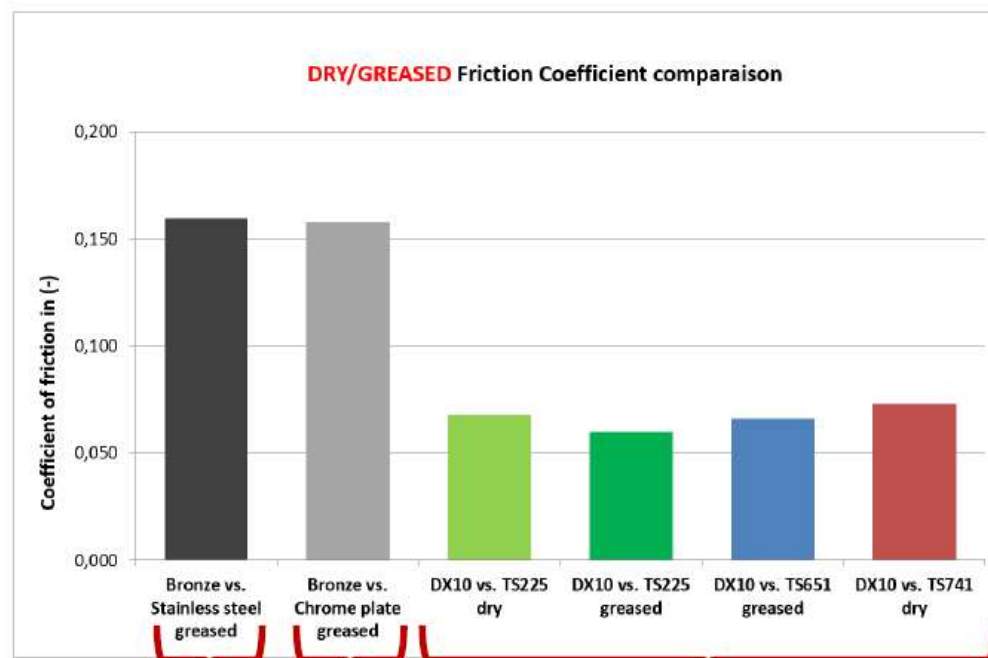
- Simplified design with fewer moving parts
- Exceptional chemical and corrosion protection
- Eliminates the need for additional lubrication
- Customizable formulas based on customer application needs
- Design freedom—virtually any shape or surface can be coated



GGB Bearing or  
GGB TriboShield™  
Coating



# Next Level of Performance and Reliability

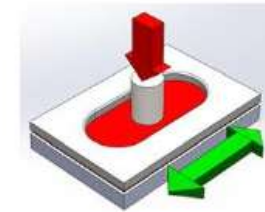


System wear ( $\mu\text{m}$ )

71

137

below 10



## Flat on Flat

Linear reciprocating motion

Constant load 37 MPa

Frequency 0.5 Hz

Stroke 10 mm (one-way)

Sliding distance 35 km

Block: DX10

A blue-tinted photograph of three business professionals in a meeting. On the left, a woman with long dark hair is smiling and holding a tablet. In the center, a woman with blonde hair is looking towards the man on the right. On the right, a man with glasses is holding a tablet and looking at the woman in the center. The background is a blurred office setting.

# Benefits

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# Customer Benefits

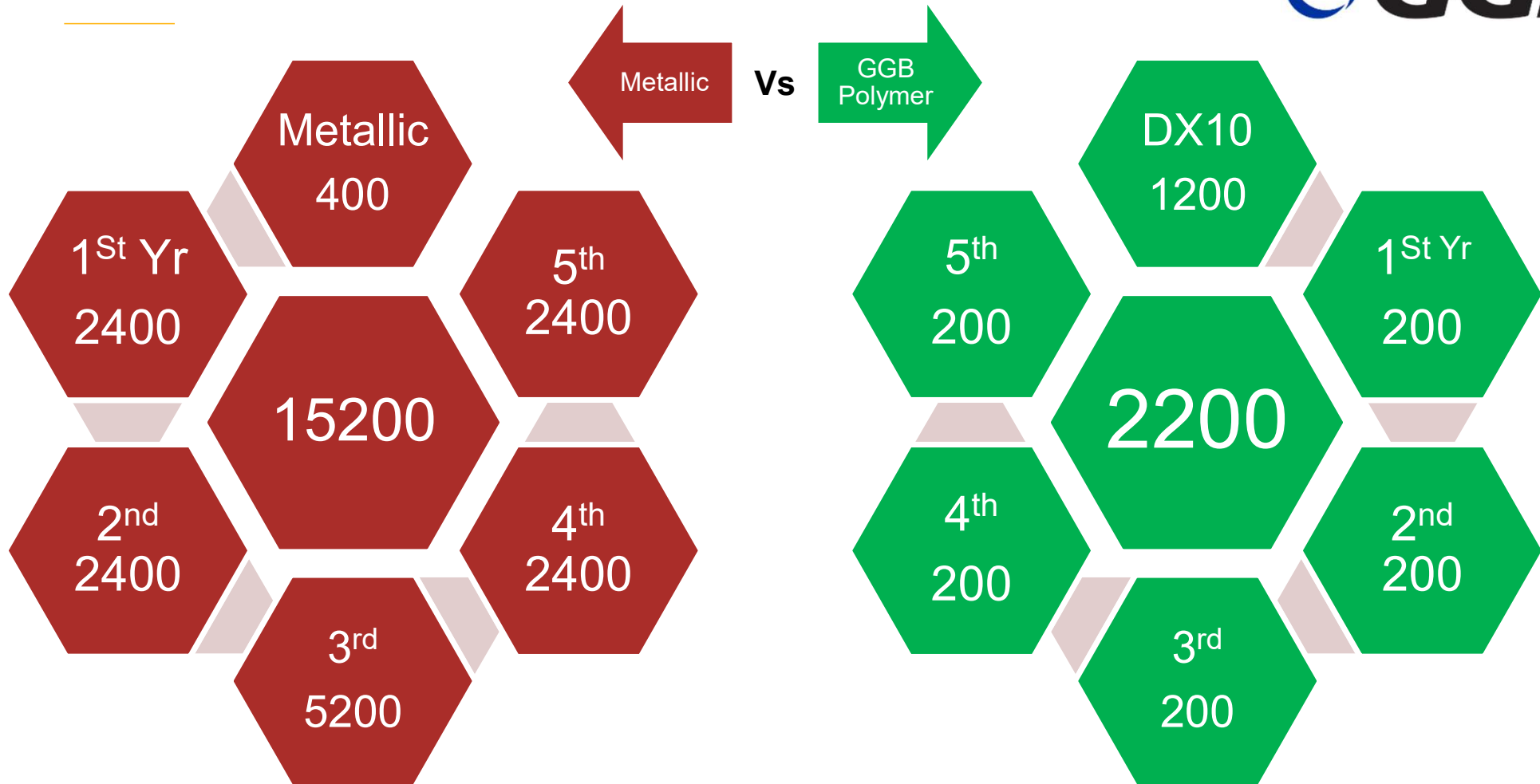


## King Pin

- 5 lakh Kms & above service life
  - NO Bearing replacement
  - NO Oversize King Pin required
  - NO uneven Tyre Wear
  - NO Wobbling
- Less Maintenance/ No Maintenance at all
  - Low downtime
- Less overall system & operating cost

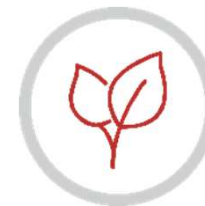
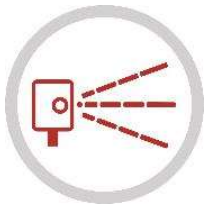
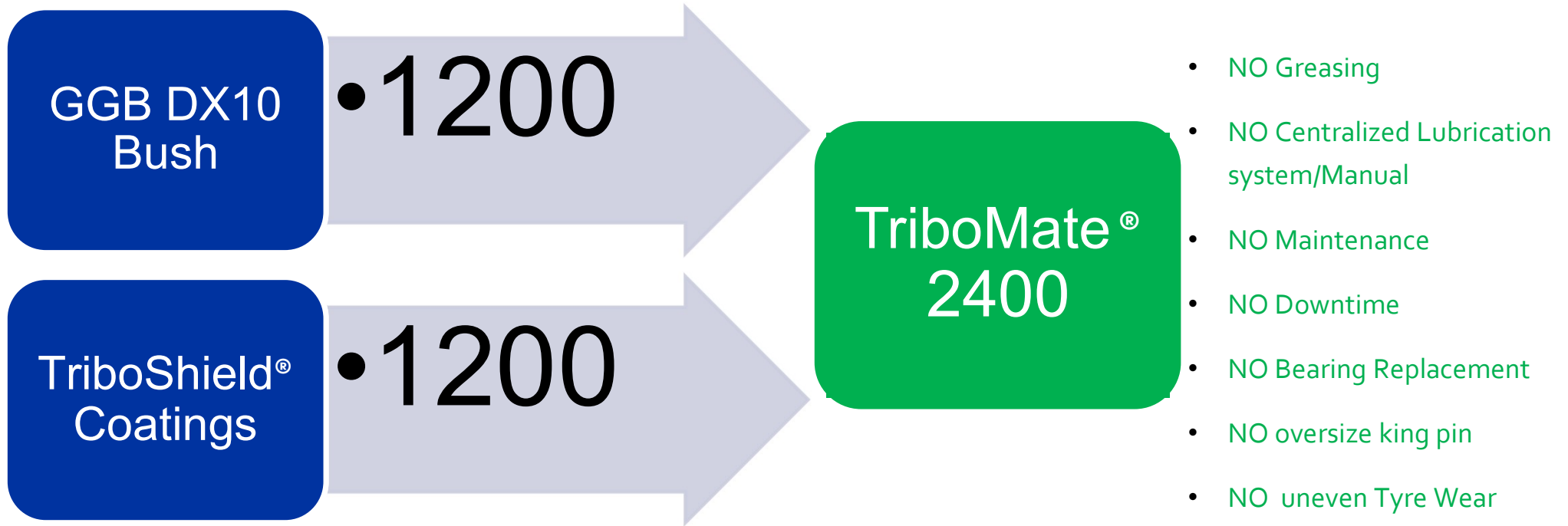


# Maintenance Cost Cycle



\*Approximate cost of greasing and replacement in INR for size of 30-40mm ID. Final cost may vary depend on size/shape/features/material.

# Cost Cycle – Grease free Tribomate





# Thank You

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