

**ImpactTuff®**

**Engineering Better Bearings For Confident Performance**

**New! The Patented ImpactTuff Spherical Plain Bearing Improves Resistance To Shock Loads by 300%.**

In many rugged applications where substantial impact loads are common, spherical plain bearings can break and chip, adding to the high cost of warranties. In particular, suspension components in off highway construction vehicles have been subject to abuse from impacting rocks or abrupt terrain changes. Often, the result is broken bearings. Machinery repair is costly. Downtime is even costlier.

## DESIGNING FOR RELIABILITY



**RBC solves tough problems.**

Controlling impact breakage is a growing concern as equipment users expect higher levels of performance. Our engineers developed most of the design and manufacturing innovations being used in the spherical plain bearing industry. They addressed this new challenge with a creative dedication that resulted in a unique, patented solution. How do we develop a break resistant bearing without compromising wear properties?

Producing bearings using softer, more ductile materials can control breakage during use. Yet softer steel will wear at an accelerated rate. So, we looked at combining the impact resistant properties of ductile steel with the wear resistance of harder steel. Additionally, we had to design this product and retain our ability to employ fractured outer ring manufacturing technology. How do we fracture using a ductile material solution?

**RBC**  
**BEARINGS®**

400 Sullivan Way  
West Trenton, NJ 08628-7430  
Phone (609) 882-5050  
Fax (609) 882-5533  
[www.rbcbearings.com](http://www.rbcbearings.com)



# ImpactTuff®

## Engineering Better Bearings For Confident Performance

Standard SPB's are made from through-hardened 52100 steel. This steel is highly resistant to wear and facilitates the fractured outer ring manufacturing technology. But, it is somewhat brittle and reduces resistance to breakage from impact.

RBC's ImpactTuff SPB's are made from carburized 8620 steel. By using this material RBC engineers are able to produce a case hardened outer surface of HRc60 while retaining the inner core ductility of HRc40. The combination of ductile steel plus heat treating delivers a wear resistant bearing that eliminates impact induced breakage.



The real challenge of the case carburized design is being able to fracture the outer ring to facilitate assembly. We designed a unique outer ring profile with a minimal notch exposure that permits controlled fracture through the softer inner core.

**Warranty claims eliminated.**

High impact loads were unforgiving until ImpactTuff SPB's came along.

The ImpactTuff spherical plain bearing has been developed in close association with manufacturers of off highway vehicles and heavy-duty machinery.

For several years, this new bearing has been actively used in some of the most demanding off-highway applications. Warranty claims for suspension bearing breakage have been virtually eliminated.



Outside force on "through hardened" continues through entire bearing causing total breakage.



Brittle throughout, impact grows to fracture

ImpactTuff SPB with shock absorbing inner core.



Soft inner core absorbs energy from impact and prevents fracture

Hardened outer shell

Patented notch design



Enables fractured outer ring manufacturing technology

# RBC BEARINGS®

400 Sullivan Way  
West Trenton, NJ 08628-7430  
Phone (609) 882-5050  
Fax (609) 882-5533  
[www.rbcbearings.com](http://www.rbcbearings.com)