Comfort and quality from takeoff to landing

Tribological solutions for aircraft seats

GGB

The key to increased passenger satisfaction

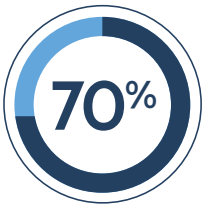
Even in the best of circumstances, flying can be a stressful, uncomfortable experience. And that experience is most directly felt in the seating area. A seat that doesn't recline properly or a tray table that doesn't fold down all the way can quickly make an otherwise uneventful flight into an unnecessarily frustrating experience.

A delicate balancing act

For commercial airline design engineers and commodity purchasers, the desire to make flying as enjoyable as possible often conflicts with the need for cost savings, potentially leading to compromises that can negatively affect both comfort and cost.

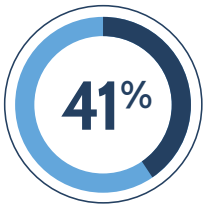
For design engineers, this typically occurs as a result of compartmentalizing component selection, rather than approaching an assembly from a systems perspective in which every component affects the functionality of the whole. And when a commodity purchaser is given a predefined design based on this approach, the need to achieve cost savings often leads to selecting bearings that cost less on their own, but result in a far more expensive overall assembly.

The impact of seating comfort by the numbers



A pre-determined design can cost up to 70% more than a designed-to cost solution**

of a product's costs are determined during the design stage**



of customers are willing to pay more for additional seat comfort

Seat comfort was rated 71 out of 100, making it the worst-ranked aspect of air travel*

A 3 cent savings per bearing could drive up the assembly cost by 20-30 cents. In a project that uses 80,000 bearings, this would cost the manufacturer $24,000 more than needed.**

By wrongly assuming that cost and comfort are mutually exclusive goals, design engineers often provide a component-based design and the purchaser finds a part that's been tried and proven in the past. The result is a design that is not optimized from a systems approach, costs more than necessary and creates additional passenger discomfort.

*2017 ACSI Travel Report: http://www.theacsi.org/news-and-resources/customer-satisfaction-reports/reports-2017/acsi-travel-report-2017

**Based on GGB in-house projection

What if there was a way to increase the effectiveness of your design while meeting cost-saving targets?

More than bearings. Solutions.

By partnering with a tribology expert, design engineers and commodity purchasers can take a systems approach to the assembly, revealing unseen costs in the design, incorporating new technologies and improving passenger satisfaction.

At GGB, we're far more than a bearing manufacturer. We focus on the entire tribological system from the beginning stages of design all the way through manufacturing to help ensure optimal reliability, performance and cost-effectiveness. Our applications and bearings experts work with both design engineers and commodity purchasers to arrive at solutions to achieve both parties' goals. Further, our global footprint and expansive product portfolio allow us to support all of your needs, wherever they may be.

With early collaboration, GGB provides the following benefits:

- Aerospace application experts
- Global footprint
- Fast turnaround for prototypes
- Improved overall system efficiency
- Increased cost effectiveness

GGB seat applications.

The advantage of GGB products:

- Noise elimination
- Vibration damping
- Improved comfort
- Weight reduction
- Extended Service Life
- FAA-compliant, flame resistant materials*
  (*EP®43, EP®63, DU®, DP4)

GLOBAL FOOTPRINT

GGB has manufacturing, sales, service and support locations around the globe. This vast network of resources and expertise enables us to respond promptly to your bearing needs wherever you do business.

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