

„Our aluminum/titanium lightweight bearings divide weight into half and reduce running costs in aviation“

Interview with Rainer Harter, CTO of HIRSCHMANN GmbH

Question: On the ILA Berlin Air Show HIRSCHMANN for the first time presented their innovative aluminum-titanium lightweight bearings combined with Tie Rods (coupling bars) made of a composite fabric mesh. Why is such a product needed in aerospace?

Rainer Harter: In modern commercial aircrafts where a lot of spherical bearings are installed our aluminum-titanium lightweight bearings contribute to a lower total weight and therefore to savings in fuel consumption. This is very important even in aerospace. Each kilogram saved in construction reduces operating costs and relieves the environment. Nowadays, industry is confronted with the large challenge to build aircrafts which meet these requirements at its best. Our patent pending new development contributes to this. It guarantees a weight reduction using extremely light materials but with high load capacity at the same time.

Question: You use aluminum-titanium spherical bearings – can you explain the specific features of this material combination?

Rainer Harter: Developing our aluminum-titanium LW bearings we specified two general requirements. The spherical bearings must have the same performance data as bearing technology used up to now and they must be significantly lighter. Our engineers managed both. With our new aluminum-titanium lightweight bearings we reach a weight reduction of about 50 per cent at identical performance data. This is proofed not only on test bench but also in practice. Since market launch in 2015 our innovative products passed test run in race technology superbly.

Question: You mentioned the test bench. How were the new LW bearings tested?

Rainer Harter: We adjusted the aluminum-titanium LW bearings for static and dynamic power transmission under different load directions. This robust quality product withstands high alternating and impact loads. Under ambitious test conditions the aluminum/titanium bearings impressively proved their resistance, powerful HIRSCHMANN sliding films with a special supporting structure guarantee a high bearing capacity. Four million movements were simulated in an internal test run on a biaxial test bench: pulling and pressing as well as rotating and tilting movements. Due to this extreme simulation we guarantee the quality characteristics and the durability of our new product.

Question: For which applications in aircraft building HIRSCHMANN aluminum-titanium lightweight bearings are dedicated?

Rainer Harter: Our aluminum-titanium LW bearings meet the requirements of aerospace industry and after examination and certification they are suitable for many applications. HIRSCHMANN is certificated according EN9100 and guarantees highest safety and quality standards in development and production.

Question: Can your customer choose from a standard assortment or do you offer these new products also for special customer applications?

Rainer Harter: Both, our customers have the possibility to select the suitable product from our assortment of aluminum-titanium lightweight bearings as a standard product in a modular construction kit. In addition, we offer customized solutions. That means, our engineering develops applications precisely adapted to individual specification concerning installation space, geometry, width, temperature, loading capacity as well as torque and tilting moment. On account of our flexibility we are able to deliver the suitable lightweight bearing for nearly every application.



Rainer Harter CTO HIRSCHMANN GmbH Photo: HIRSCHMANN GmbH

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Your contact person for press:

Florian Joos / +49 7402 183 66 / florian.joos@hirschmannmbh.de

Visit us at the Hannover Fair 2018 Hall 5 Stand D46

Your contact persons:

Ingo Schmidberger / +49 7402 183 41 / ingo.schmidberger@hirschmannmbh.de

Rainer Harter / +49 7402 183 0 / rainer.harter@hirschmannmbh.de

About HIRSCHMANN

For more than 60 years HIRSCHMANN develops and manufactures trendsetting products amongst others for vehicle construction, motor sport, aerospace, railed vehicles, mechanical engineering, naval architecture and wind power plants. Core competences lie in the three product lines Rod Ends and Spherical Bearings, Rotary Indexing Tables and Reference Systems. In these sectors HIRSCHMANN has extensive expert knowledge as well as experience for decades and can offer beside a varied standard assortment also customer-specific solutions. The medium-sized enterprise from Baden-Württemberg with sales companies in US and China actually has about 200 employees.