

## **Up to 70 per cent weight reduction due to global innovation**

### **HIRSCHMANN integrates rolled-in heavy duty spherical plain bearings directly into carbon fiber reinforced plastic components**

On Lightweight Summit 2017 in Würzburg HIRSCHMANN GMBH presented a global innovation: after an intensive phase of development, the company located in Baden-Württemberg managed to integrated rolled-in heavy duty spherical plain bearings directly to carbon fibre reinforced plastic components. Long-term tests on test bench showed that this lightweight innovation resists even highest tensile and pressure loads and is as durable and robust as previously assembled products. Most important advantages of combined CFRP flat part and Al<sup>2</sup>-lightweight bearings are low weight and excellent cost-benefit ratio for tensile and pressure loaded components.

It was a challenge to HIRSCHMANN Engineering team to solve constructional requirements of spherical plain bearings directly mounted into CFRP components. In case of direct contact the characteristics of aluminum and carbon fibre reinforced plastic lead to a chemical reaction followed by corrosion. "Our engineers developed a combination of materials that meets these problems", says Rainer Harter, CTO of HIRSCHMANN GmbH. With an insert as link between base body and spherical plain bearing it is now possible to mount bearings directly in CFRP components.

### **Weight reduction of about 70 per cent**

The HIRSCHMANN innovation is a milestone in race sport where the matter of weight reduction plays a decisive role. In this case the new development may convince in chassis applications: related to a conventionally mounted standard steel unit weight reduction of a Al<sup>2</sup>-lightweight bearing with CFRP components is about 70 per cent. “And our new innovation can not only be used as open bearing in race sport. We offer the parts also as sealed spherical plain bearings, which can be mounted in sportive street cars as GT series”, says Rainer Harter.

Another key advantage is the very good cost-benefit ratio for tensile and pressure loaded components. Due to the future-oriented manufacturing process, less complex and not so extensive as production of so far known lightweight components for chassis applications with Tie Rods and spherical bearings, user's financial expenses are sharply decreased. As full-service provider the company delivers all out of one source. HIRSCHMANN uses special roller staking tools which guarantee efficient and economic production. Holes in CFRP parts are bored exactly according customer specification and the rolled-in spherical plain bearings are directly integrated. HIRSCHMANN innovation is suitable especially for chassis applications as tie rods, wishbones or handlebars. “And if a customer would like to use our product as coupling bar for suspension strut linkage we can provide even that”, says sales manager Ingo Schmidberger. Besides this the spherical bearings specialist offers also a revision of the units – worn out bearings are professionally renewed in house and are fully functional again.

# **HIRSCHMANN**

## **SPHERICAL BEARINGS**



**New:** Al<sup>2</sup> lightweight bearing with and without sealing      Photo: HIRSCHMANN GmbH

Pictures and text for download: [www.hirschmannmbh.com/press](http://www.hirschmannmbh.com/press)



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### **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.