iglidur® test report

Objective of test:
Dependency of friction on wear The objective was to investigate how the friction between plain bearing and counter partner changes via the wear on the plain bearing.

Client:		
Name: René Achnitz	Team: iglidur® plain bearings	Date: CW21/2012
Order info:		
Customer / No.: internal		
Series / No: internal	Installation type:	
Customer test: Yes ☐ No X	Development test: Yes X No ☐	
Technical data		
Force: 1 MPa	Run time: 100 hrs	
Speed 0.1 m/s	Counter partner: Zinc die-casting	

Experimental setup

Experimental procedure: To determine the influence of wear on the friction, first the coefficient of friction for new parts was determined. Then wear trials were run with these plain bearings/shafts (rotating: 100 h at 1 MPa with 0.1 m/s), in order to then measure the friction. Through the subsequent comparison of the coefficients of friction, it was possible to show the friction in dependence on wear.

Coefficient of friction test: For the coefficient of friction test (diagram 1.2) the friction between plain bearing and shaft is determined in running operation.

Wear test - rotating: For the wear test (diagram 1.3) the plain bearing is measured with a micrometer before and after the wear test. With the distance travelled during the wear test, it can be calculated how many µm of wear occur over a 1 km running length. This then results in the wear rate, which is specified in µm/km.

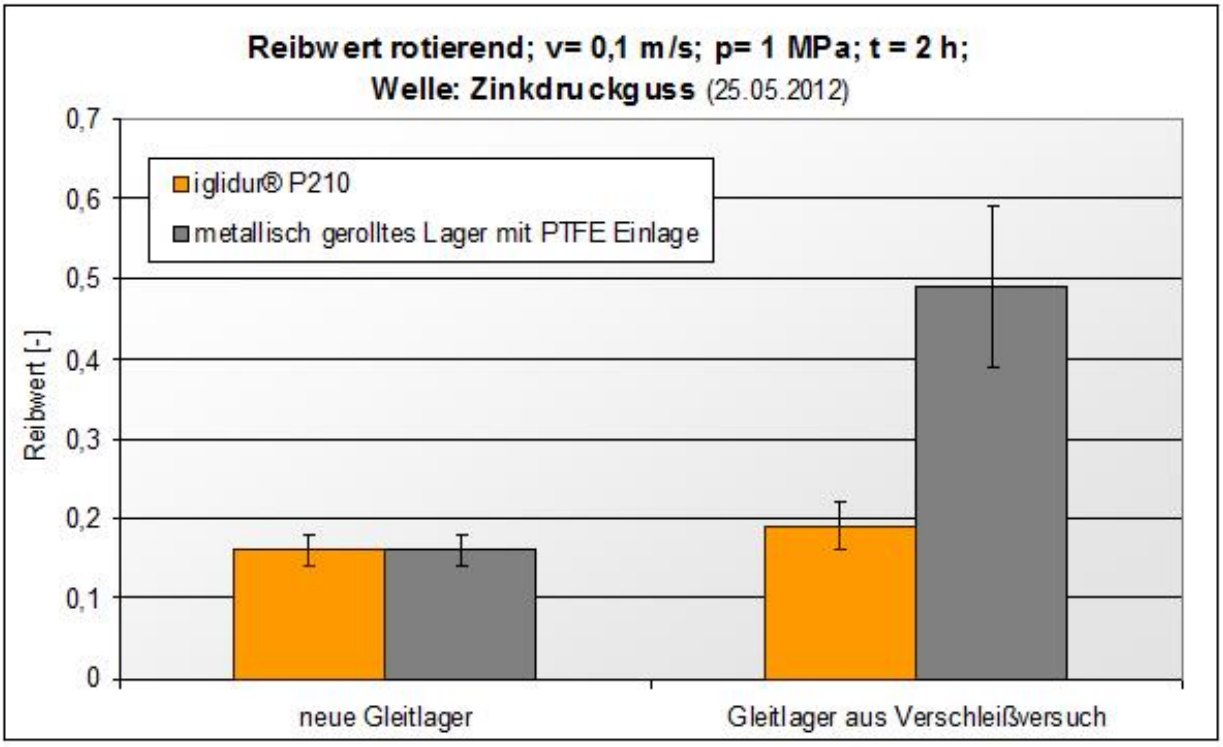
Diagram 1.2: Coefficient of friction test stand

Fig. 1.3: Wear test, rotating

Result

The results of the friction coefficient tests are presented in the following graph 1.1.

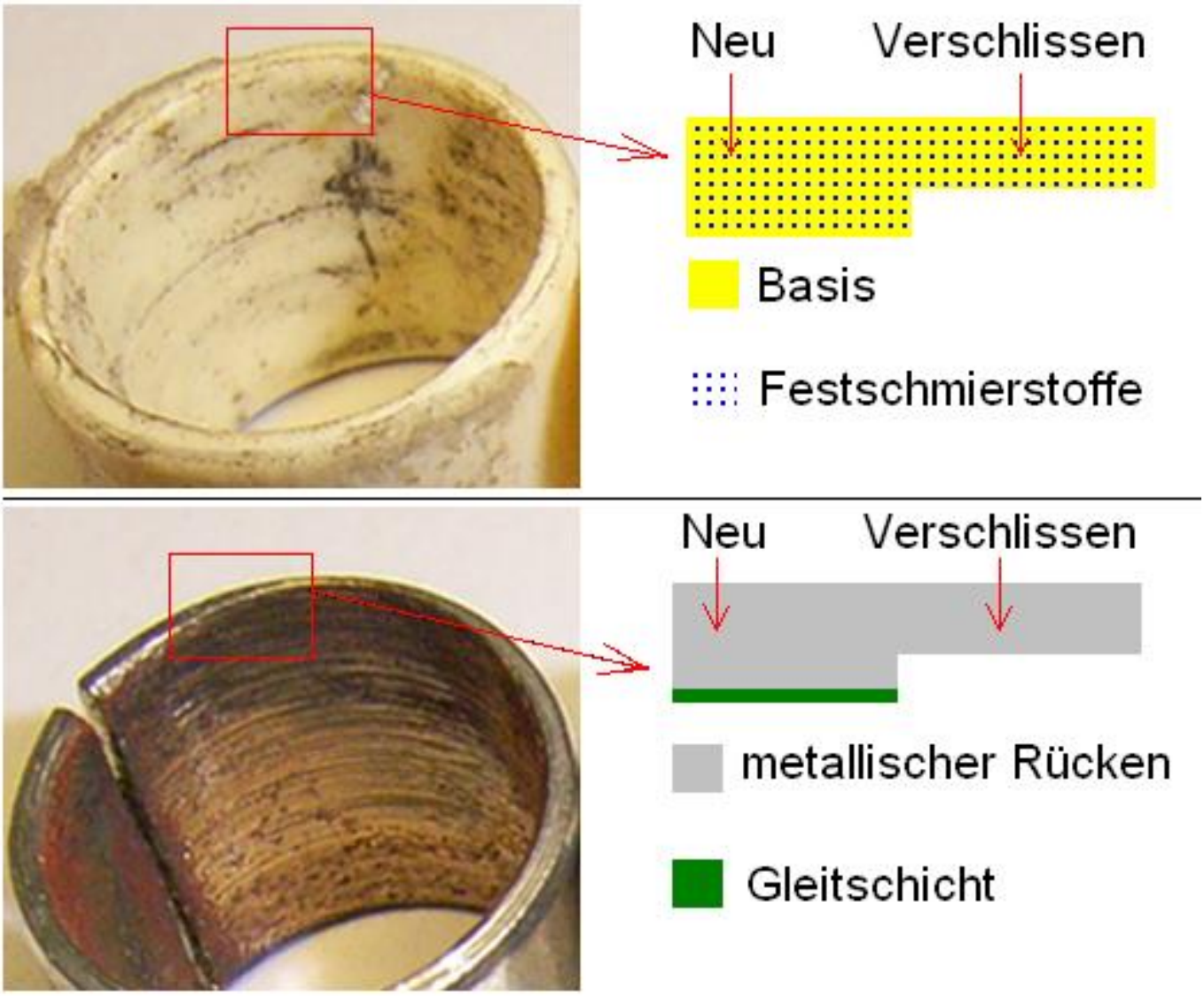
Graph 1.1: Dependency of the coefficient of friction on the wear of the plain bearings



Evaluation

It was determined that for the iglidur® plain bearings the friction hardly changes with wear. This is attributed to the homogeneous structure of the iglidur® plain bearings. This means: The solid lubricants introduced for reduction of friction are distributed uniformly over the entire plain bearing, so that regardless of wear, sufficient solid lubricant is always present.
For comparison, metallic rolled plain bearing were also tested. Because these plain bearings have only a thin gliding layer on the surface, friction and wear increase as soon as this surface is worn.
The structure of the different plain bearings is presented for illustration below (diagram 1.1).

Fig. 1.1: top: iglidur® P210; bottom: Metallic rolled



Name:		Date:	CW21/2013