

NOISE- AND VIBRATION-REDUCING PLASTIC PUMP SUPPORT FOR HYDRAULIC DRIVES

Project leader: Dipl.-Ing. Bert Böhme

Project duration: 10/07-12/09

ABSTRACT

The target of the project was the development of components for the noise reduction of a pump support. The focus was on a complete solution for new pump support as well as on a retrofitting concept for existing units. This concept aims to eliminate existing problems concerning sound and vibration insulation in drive units that are already in use, too.

Great importance was attached to the development and manufacture of the required textiles for sound absorption and reinforcement used for the retrofitting variant. One focal point is the technological conception of the function-integrated structure for noise absorption and reinforcement as well as their integration into the pump support. Pretests concerning the sound insulation of filled spacer fabrics showed that the stretch fabric with the open structure is not suited. The necessary filling material did not remain evenly distributed on the circumference of the structure. Moreover, the filling with rubber or plastic granules was very time-consuming. For this reason, textile retrofitting variants with a dense surface were created for the corresponding applications. The extensive tests showed that the best results can be reached with unfilled spacer fabrics and a dense arrangement of the monofilaments provided that a dense, sealed surface is realised. For the first tests, this surface was created by a ready made outer cover of polyamide coated with polyurethane in order to avoid costly and time-consuming coating tests in the first phase of the project. The manufactured functional model of a textile sound-absorbing retrofitting variant for pump supports fulfills all the requirements and can be marketed both together with the pump support and as accessory for existing pump supports already in use.

Acknowledgement

We would like to thank the Federal Ministry of Economics and Technology for the financial funding and the AiF project management organisation (German Federation of Industrial Cooperative Research Associations "Otto von Guericke") for the support of the project KF 0087 105UK7.