A NEW HIGH SPEED GREASE WITH SIGNIFICANT ENLARGED PERFORMANCE

R. KARBACHER
FAG OEM & Handel AG, Components/Tribology, Georg Schaefer Strasse 30; D-97421 Schweinfurt; GERMANY;
e-mail: Karbacher_R@fag.de;

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ABSTRACT

In past, high speed greases mostly were developed for low temperature applications and low friction behavior. The high speed performance was given by the chosen low viscosity base oil. Only a few products really were designed as high speed greases, mostly with the problem of insufficient low temperature and low friction behavior. Also certain thickeners got environmental and healthy problems and therefore the use of such materials was prohibited. FAG developed with a very good qualified lubricant manufacturer a new high speed grease with enlarged properties. The till now known disadvantages of such a special grease didn't appear, because of a target oriented development.

For the new grease a new developed polyurea-thickener was used. Also a special mixture of synthetic base oil was tested as best for this grease. The additive package was optimised for steel-steel combination as well as for steel-ceramic combination.

The result is a mile-step in high quality grease performance. The new grease has compared with current formulations better low temperature and better high temperature performance. In result the grease can be used down to –50 °C and without any degrease of service life up to +80 °C. According to DIN 51825 the upper temperature limit is 140 °C.

In spindle bearings with ceramic balls the speed can be up to n*dm = 2,6 Mill. An additional advantage is the very fast running in procedure and the uncritical grease distribution, especially at very high speeds. The special thickener composition allows a low thickener content. An also result is a very good performance in bearings with a high need of base oil separation, like tapered roller bearings. A couple of tests show the very good performance in rolling bearings. In the meantime the new grease is in use at several customers with full satisfaction.