

Gear wheels – FZG*-test method –

Part 1: FZG test method A/8,3/90 for the determination of the scuffing resistance of lubricating oils (ISO 14635-1:2000), Corrigenda to DIN ISO 14635:2006-05

*FZG = Research Centre for Gears and Gear Construction formerly DIN 51354

Scope

The types of gear damage that can be affected by lubricants are seizure, slow-running wear and the manifestations of tooth flank fatigue, such as grey spots and dimples. When designing gear wheels, these gear damages are taken into account by certain characteristic values typical for the lubricant and application. In order to ensure an exact performance related to the field of application, appropriate lubricant test procedures are necessary.

The FZG test methods described in DIN ISO 14635-1, DIN ISO 14635-2 and DIN ISO 14635-3 can be regarded as tools for determining the relative scuffing load capacity of lubricants whose characteristic values can be used in the load capacity calculation of the gears.

DIN ISO 14635-1, FZG test method A/8.3/90 for determining the relative scuffing load capacity of lubricating oils, is helpful for most applications in industrial and marine gears.

DIN ISO 14635-2, FZG-Step Test A10/16,6R/120 for the determination of the relative scuffing load capacity of high EP-alloyed lubricating oils, refers to the determination of the scuffing load capacity

of high-load lubricants used for the lubrication of vehicle transmissions, for example in manual transmissions.

DIN ISO 14635-3 FZG test method A/2,8/50 describes a method for the determination of the relative scuffing load capacity and wear characteristics of gear fluid greases for closed gears. Other FZG test methods for determining the load-bearing capacity of lubricants with regard to slow-running wear, micro-spot and pitting load-bearing capacity of gear wheels are currently being processed under standardization aspects. They can later be added to DIN ISO 14635 as further parts.



Brief description of the test procedure

A test gear pair runs in the lubricant to be tested at a constant speed for a specified number of rotations using the splash lubrication method.

The load on the tooth flanks is gradually increased. Starting with power stage 4, the pinion tooth flanks are checked for surface damage at the end of each power stage and any changes in appearance are recorded.

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