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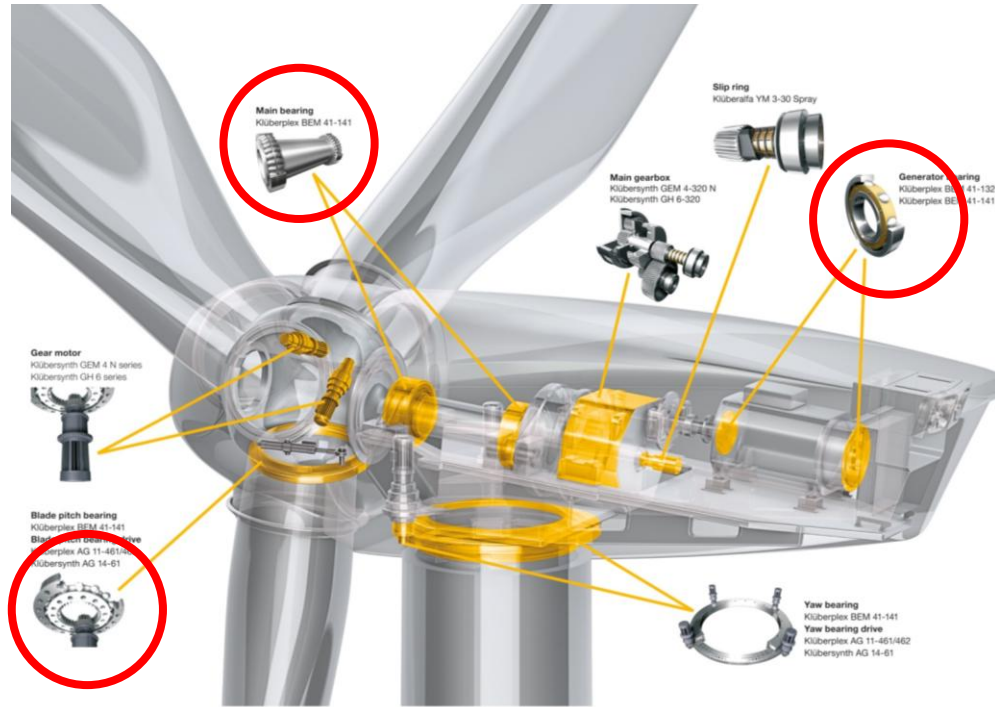
Grease Lubrication For Low Speed Bearing Applications

Mr. Akshay Rajeev

Dr. Balasubramaniam Vengudusamy

Grease used in wind turbines

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Viscosity, film thickness and grease

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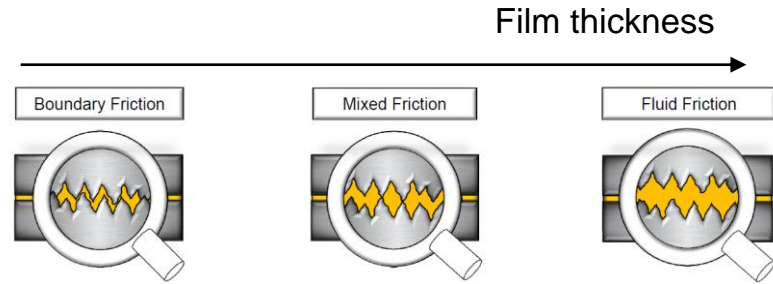
What is Viscosity?



Viscosity of Water and Honey



Grease



Base Oil



+

Thickener



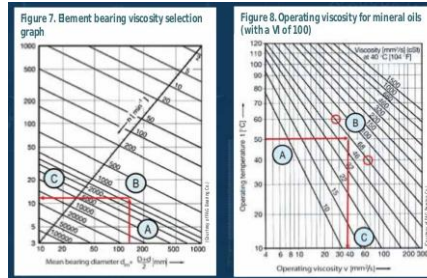
How to select the right grease for a lube point?

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Conventional lubricant selection procedure

Application parameters

Bearing type
Speed
Load
Temperature
.....

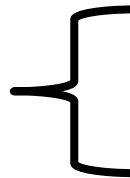


Base Oil viscosity should be:

400 cSt!



Grease



Base Oil

+

Thickener



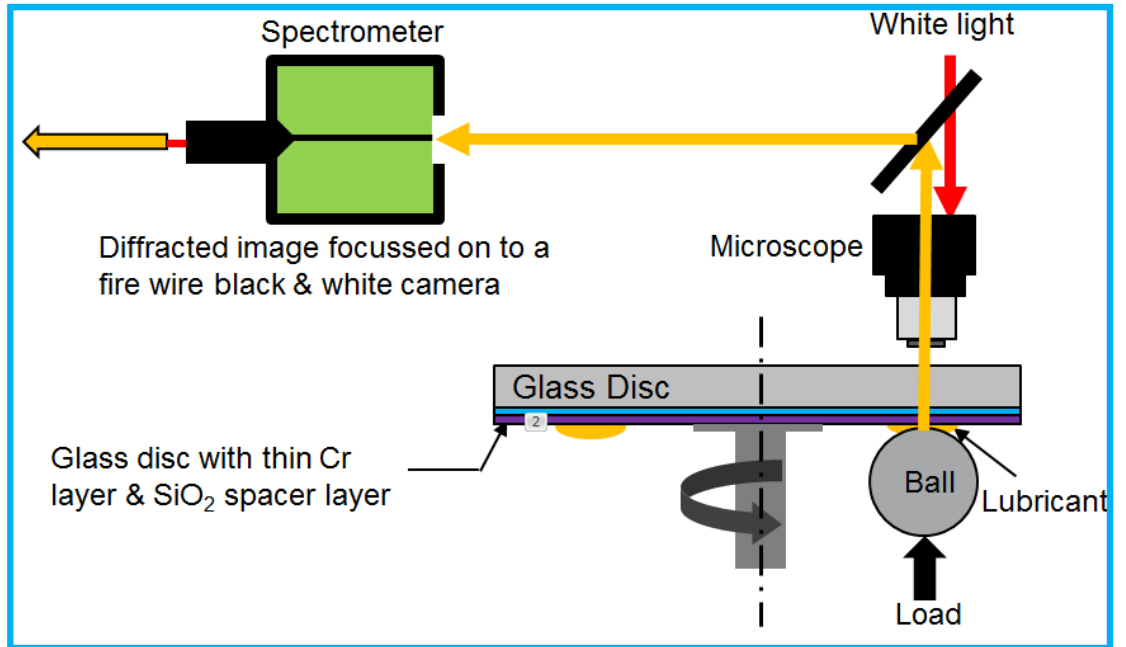
EHL Tribometer

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Film Thickness

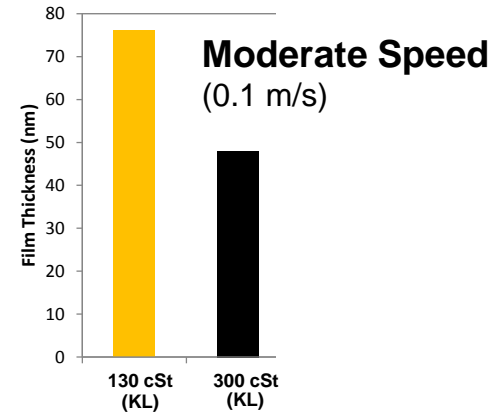
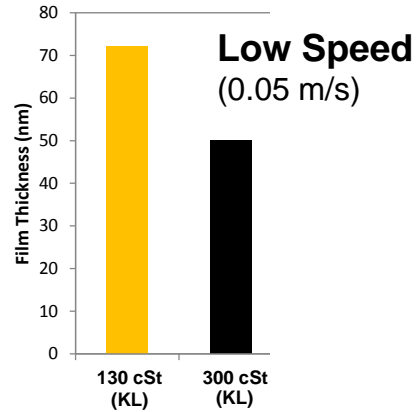
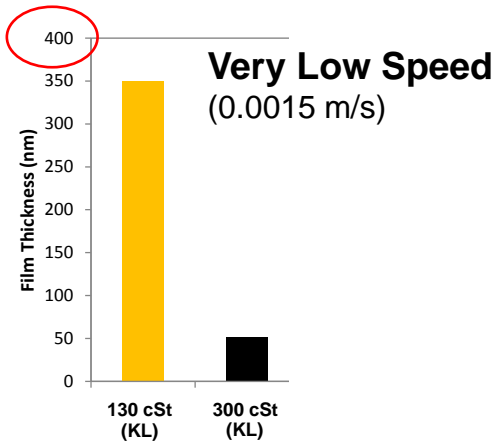


Glass disc-on-steel ball



Film Thickness

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- At low speeds, low viscosity grease forms a thicker lubricating film than the high viscosity grease
 - **This is contributed by thickener**

Summary



Conventional theory suggests that -

- Lubricant can be chosen only based on base oil viscosity
 - *Not for grease lubrication*
- Higher the base oil viscosity, better the film thickness
 - *Not for grease lubrication at low speeds*

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Mr. Akshay Rajeev

Sales Development Manager

Akshay.Rajeev@klueber.com

+49 (0)89 7876 - 829

Dr. Balasubramaniam Vengudusamy

Senior Research Tribologist

Balasubramaniam.Vengudusamy@klueber.com

+49 (0)89 7876 - 606

