SOFTWARE BITS

Schaeffler

Bearinx Online, *Bearinx VIP*, and *Easy Friction* can be used by the customer directly to model bearing fatigue life, shaft deflections, rotor dynamic behavior, and of course frictional power loss associated with rolling element bearings including their lubrication.

Many commercially available gear analysis tools offer bearing analysis (fatigue life, deflections, approx. friction) capabilities as well, however, the detailed internal specifications for modeling a bearing are estimated unless the bearing producer shares this information or the end user designs his/her own bearing. "Also, the frictional behavior of the gears and the bearings in both new and run in conditions with consideration of the lubricant and the lubricant level/type are also approximated," Hart said. "System level structural interactions of the bearings, gears, shafts, housings or planet carriers can be accounted for in many of these analysis tools by integrating FEA based stiffness behavior / methods into the simulations."

KISSsoft

The calculation of nonlinear stiffness and lifetime, taking the internal geometry of the bearing into account is a major feature of KISSsoft's bearing calculation, and with every release new features are added and new results are available to the designer. Earlier this year *KISSsoft 03/2017* was released with new features including evaluation of gear units on the system level, variation calculation for the inner geometry of bearings, determination of the unbalance response during the vibration calculation of shafts and more. *KISSsys* offers optimization of power density and efficiency, damage assessment, consideration of housing stiffness and more. The company offers a great deal of trainings, seminars and web demos through its website.
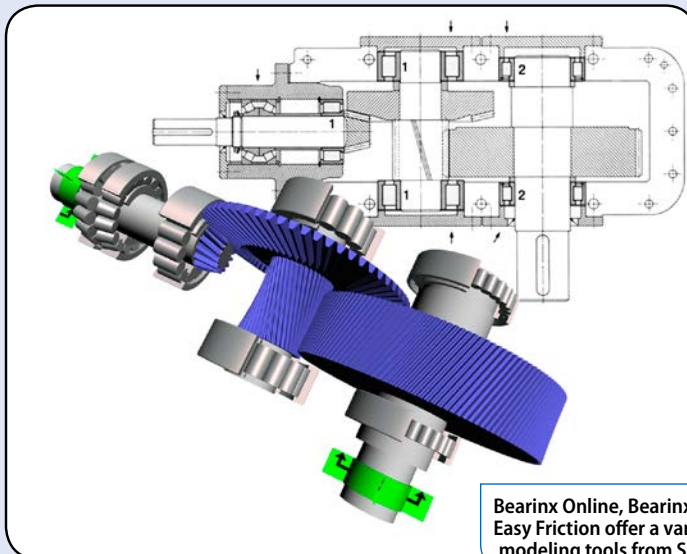
Bearinx Online, Bearinx VIP and Easy Friction offer a variety of modeling tools from Schaeffler

Timken

Bearing knowledge is available through www.timken.com/engineering-tools where customers can link to bearing search, tolerances, frequencies and fatigue life calculations. This web page also covers tapered bearing assembly search, precision bearing selector, Timken catalogs and Timken bearing selection guide.

Users can start with a search of the 3D CAD and 2D drawings, reaching out for help through this site, and engaging a Timken sales engineer. "When it is a complex question, we prefer to speak directly to the customer, understand what problem needs to be solved, and then make sure the appropriate analysis tools are used to provide the most accurate answers possible," Ray said. "We use a combination of our knowledge of metallurgy, friction management and mechanical power transmission to help our customers with many of the advanced challenges they face."

Romax

The latest version of *RomaxDesigner (R17)* includes bearing design, analysis and optimization. *RomaxWind* brings the same functionality and benefits to the wind industry and has specifically developed features to make it more suited to wind applications, such as large bearing design, analysis and optimization. *Concept* is available for fast design and analysis, to enable informed design space exploration. Informed by accurate system predictions, *Concept* empowers users to make informed decisions earlier, and be confident in their selected design.

Romax's engineering team offer consultancy services on all aspects of gearbox design, analysis, optimization and root cause investigation. A core competency and part of Romax's philosophy, the team offers services including: design, advanced analysis, manufacturing and testing support, failure investigation, technical due diligence, feasibility study, trouble shooting, and metallurgy.

SKF

SKF Bearing Select is a web-based bearing selection tool that calculates the rating life of rolling bearings. The calculations are based on the theories presented in the SKF Rolling bearings catalogs. *SKF SimPro Quick* is a single-shaft bearing simulation software available to customers. *SKF Shaberth* is an analytical computer program for the study of thermal performance in rolling element bearings and flexible shaft systems used in areas like aerospace. *SKF Beast* is an advanced dynamic simulation tool for rolling bearings and other mechanical systems with contacts, this proprietary software is used internally by SKF engineers to study and predict dynamic phenomena. **PTE**

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