Numerical Calculation of Elastohydrodynamic Lubrication. Methods and Programs

Description: This book is a one-stop reference providing equations and solutions to all major elastohydrodynamic lubrication (EHL) problems, in addition to numerical programs on specific applications in engineering. It offers scientists and engineers a clear interdisciplinary introduction and orientation to all major EHL problems and their solutions by first taking them through the basic equations, numerical methods, and calculation programs for Reynolds equation, elastic deformation and energy equation. Readers then progress to problems of isothermal or thermal EHL in line contact, point contact, and ellipse contact. Finally, readers are introduced to the more challenging EHL problems of grease, electric double layer effect, unsteadiness, roughness, and micro-polar fluid.

Systematic introduction of EHL problems, starting from basic concepts to challenging problems and applications

Features numerical simulations of the Reynolds equation, elasticity equation of the surfaces, and energy equations

Offers engineers and scientists a clear interdisciplinary introduction and concise programs for practical engineering applications

Enhances learning through numerous case studies, with common features and methods in solutions highlighted.

Numerical Calculation of Elastohydrodynamic Lubrication: Methods and Programs is a handy and practical numerical method guide for engineers and technicians. Advanced students in tribology, mechanical engineering and materials science courses will also find it a useful text.

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