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2.2.4. Calculation of the hydrodynamic load capacity and friction force in the presence of the contact zones2.2.5. Recommendations for the calculation of flow and shear factors; 2.2.6. Calculation of the principal direction; 2.2.7. Analysis of the combination of two combined rough surfaces; 2.2.8. Examples relating to real rough surfaces; 2.3. Homogenization method; 2.3.1. Incompressible and isoviscous steady-state case; 2.3.2. Incompressible and isoviscous unsteady case; 2.3.3. Taking into account the cavitation; 2.3.4. Non-Newtonian or thermoviscous fluid
2.3.5. Implementation for internal combustion engine bearing computation2.4. Comparison between the flow factors obtained with Patir and Cheng, direct computation and homogenization models; 2.5. Example of pressure profiles obtained from flow factors calculated with Patir and Cheng, direct computation and homogenization models; 2.6. Comparison with deterministic computations; 2.7. Bibliography; Chapter 3: Computing the Contact Pressure; 3.1. Concept of sum surface; 3.1.1. The microgeometric properties of the sum surface; 3.1.2. Elastic and plastic properties of the sum surface
3.2. Elastic contact model proposed by Greenwood and Williamson3.3. Elasto-plastic contact model proposed by Robbe-Valloire et al.; 3.3.1. Elasto-plastic constitutive law; 3.3.2. Description of microgeometric properties of rough surfaces; 3.3.2.1. Asperities' radius; 3.3.2.2. Distribution of asperities' heights; 3.3.3. Asperity deformation; 3.3.3.1. Elastic deformation; 3.3.3.2. Elasto-plastic deformation; 3.3.3.3. Plastic deformation; 3.3.4. Contact between two rough surfaces; 3.4. Elasto-plastic double-layer contact model proposed by Progri et al.; 3.4.1. Elastic regime
3.4.2. Elasto-plastic and plastic regimes

Sommario/riassunto

This Series provides the necessary elements to the development and validation of numerical prediction models for hydrodynamic bearings. This book is dedicated to the mixed lubrication.