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2.6.1. Conditions on bearing edges 2.6.2. Conditions for circular continuity; 2.6.3. Conditions on non-active zone boundaries; 2.6.4. Boundary conditions for supply orifices; 2.7. Flow rate computation; 2.7.1. First assumptions; 2.7.2. Model and additional assumptions; 2.7.3. Pressure expression for the full film fringes on the bearing edges; 2.7.4. Evolution of the width of the full film fringes on the bearing edges; 2.7.4.1. The pressure in the full film fringe remains greater than the cavitation pressure 2.7.4.2. The pressure in the full film fringe becomes lower than the cavitation pressure 2.7.5. Computation of the flow rate for lubricant entering by the bearing sides; 2.8. Computation of efforts exerted by the pressure field and the shear stress field: journal bearing case; 2.9. Computation of efforts exerted by the pressure field and the shear stress field: thrust bearing case; 2.10. Computation of viscous dissipation energy: journal bearing case; 2.11. Computation of viscous dissipation energy: thrust bearing case; 2.12. Different flow regimes; 2.13. Bibliography

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Definition of the problems to be solved; 3.1.1. Definition of the problems to be solved; 3.1.2. Problem 2: determining of the pressure and the lubricant filling; 3.1.3. Other problems; 3.2. The finite difference method; 3.2.1. Computation grid; 3.2.2. Discretization of standard Reynolds equation (problem 1); 3.2.3. Discretization of modified Reynolds equation (problem 2); 3.3. The finite volume method; 3.3.1. Mesh of the film domain; 3.3.2. Discretization of the standard Reynolds equation (problem 1)

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Sommario/riassunto

This Series provides the necessary elements to the development and validation of numerical prediction models for hydrodynamic bearings. This book describes the rheological models and the equations of lubrication. It also presents the numerical approaches used to solve the above equations by finite differences, finite volumes and finite elements methods.
