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	Autore	Calciati, Cesare <1885-1929>
	Titolo	Les méandres de la Sarine : le travail de l'eau dans les méandres encaissés : Thèse présentée a la Faculté des Sciences de l'Université de Fribourg (Suisse) ... / par Cesare Calciati
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Nomenclature; Chapter 1: Kinematics and Dynamics of Crank Shaft-Connecting Rod-Piston Linkage; 1.1. Kinematic model of crank shaft-connecting rod-piston linkage; 1.1.1. Model description; 1.1.2. Expressions of angular velocities; 1.1.3. Expressions of velocity for points A, G2 and B; 1.1.4. Expressions of connecting rod angular acceleration and points G2 and B accelerations; 1.2. Efforts in the links between the crank shaft, the connecting rod and the piston; 1.2.1. Hypothesis and data; 1.2.2. Dynamics equations for the piston 1.2.3. Dynamics equations for the axis1.2.4. Dynamics equations for the connecting rod; 1.2.5. Dynamics equations for the crank shaft; 1.2.6. Efforts for frictionless links; 1.3. Load diagram correction in the case of large deformations; 1.3.1. Kinematics of crank shaft-connecting rod-piston system with mobility; 1.3.2. Dynamics of crank shaft-connecting rod-piston system with mobility; 1.4. Examples of link efforts between the elements of crank shaft-connecting rod-piston system; 1.4.1. Data; 1.4.2. Load diagrams for the connecting rod big end bearing 1.4.3. Load diagrams for a connecting rod small end bearing1.4.4. Load diagrams for a crank shaft main bearing; 1.4.5. Engine torque; 1.5. Bibliography; Chapter 2: The Crank Shaft-Connecting Rod Link; 2.1. Geometrical and mechanical characteristics of the connecting rod big end bearing; 2.2. Lubricant supply; 2.3. Correction of the load diagram in the case of large deformations; 2.4. Multibody models; 2.4.1. Interfaces and interactions: main assumptions; 2.4.2. Equations of unilateral contact with friction and equilibrium equations; 2.4.3. Compliance matrices 2.4.4. Finite element modeling of the contact in the joint plane2.4.4.1. Normal problem or opening problem; 2.4.4.1.1. The cap is the "master" body; 2.4.4.1.2. The connecting rod body is the "master" solid; 2.4.4.1.3. Closing the equation system for the normal contact problem; 2.4.4.1.4. Algorithm for solving the normal problem; 2.4.4.2. Tangential problem or stick-slip problem; 2.4.4.2.1. Algorithm for solving the tangential problem; 2.4.4.3. Resolution algorithm for the joint plane behavior problem; 2.4.4.4. Example of computation with a 2D model 2.4.4.5. Example of computation with a 3D model2.4.5. Modelization of the contact between the housing and the shells; 2.4.5.1. Normal problem; 2.4.5.2. Tangential problem; 2.4.5.3. Contact algorithm; 2.5. Case of V engines; 2.6. Examples of connecting rod big end bearing computations; 2.6.1. Presentation of connecting rods and corresponding load diagrams; 2.6.1.1. Connecting rod for a gasoline engine; 2.6.1.2. Connecting rod for diesel engine; 2.6.1.3. Connecting rod for Formula 1 engine; 2.6.2. Geometry and lubricant data; 2.6.3. Analysis of some isothermal results 2.6.3.1. Minimum film thickness
Sommario/riassunto	This Series provides the necessary elements to the development and validation of numerical prediction models for hydrodynamic bearings. This book with the specific case of internal combustion engine (ICE) journal bearing lubrication. Many examples, relating to various types of ICE, are presented.