1. Record Nr. UNINA9910299957303321

Autore	Barber J.R
Titolo	Contact Mechanics / / by J.R. Barber
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-70939-9
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (585 pages) : illustrations
Collana	Solid Mechanics and Its Applications, , 0925-0042 ; ; 250
Disciplina	519
Soggetti	Mechanics Mechanics, Applied Applied mathematics Engineering mathematics Mechanical engineering Theoretical and Applied Mechanics Applications of Mathematics Mechanical Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Kinematics of Contact -- 2 Three-Dimensional Frictionless Elastic Problems -- 3 Hertzian Contact -- 4 More General Problems for the Half Space -- 5 Axisymmetric Contact Problems -- 6 Two-Dimensional Frictionless Contact Problems -- 7 Tangential Loading -- 8 Friction Laws -- 9 Frictional Problems Involving Half Spaces -- 10 Asymptotic Methods -- 11 Receding Contact -- 12 Adhesive Forces -- 13 Beams, Plates, Membranes and Shells -- 14 Layered Bodies -- 15 Indentation Problems -- 16 Contact of Rough Surfaces -- 17 Thermoelastic Contact -- 18 Rolling and Sliding Contact -- 19 Elastodynamic Contact Problems -- 20 Impact -- 21 Appendices -- A Potential Function Solutions for Elasticity Problems -- B Integrals over Elliptical Domains -- C Cauchy Singular Integral Equations -- D Dundurs Bimaterial Constants -- Index.
Sommario/riassunto	This book describes the solution of contact problems with an emphasis on idealized (mainly linear) elastic problems that can be treated with elementary analytical methods. General physical and mathematical

features of these solutions are highlighted. Topics covered include the contact of rough surfaces and problems involving adhesive (e.g. van der Waals) forces. The author is a well-known researcher in the subject with hands-on experience of the topics covered and a reputation for lucid explanations. The target readership for the book includes researchers who encounter contact problems but whose primary focus is not contact mechanics. Coverage is also suitable for a graduate course in contact mechanics and end-of-chapter problems are included.