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Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (81 p.)
Disciplina	620
Soggetti	Biomedical engineering Engineering design Cardiac surgery Control engineering Robotics Mechatronics Biomedical Engineering and Bioengineering Engineering Design Cardiac Surgery Control, Robotics, Mechatronics
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- What kinds of artificial heart are available? -- How do we select pump types? -- Selection of bearing types: Key to durability -- Motor, battery, and magnetic suspension -- Flow visualization and computational fluid dynamic analysis -- How do we select materials? -- Enhancement of hemocompatibility -- System evaluation -- Remarks and future aspects.
Sommario/riassunto	This book first describes medical devices in relation to regenerative medicine before turning to a more specific topic: artificial heart technologies. Not only the pump mechanisms but also the bearing, motor mechanisms, and materials are described, including expert information. Design methods are described to enhance hemocompatibility: main concerns are reduction of blood cell damage and protein break, as well as prevention of blood clotting. Regulatory science from R&D to clinical trials is also discussed to verify the safety

and efficacy of the devices.