

1. Record Nr.	UNINA9910583315703321
Titolo	Organic rankine cycle (ORC) power systems : technologies and applications / / edited by Ennio Macchi, Marco Astolfi
Pubbl/distr/stampa	Amsterdam, [Netherlands] : , : Woodhead Publishing, , 2017 ©2017
ISBN	0-08-100511-3
Descrizione fisica	1 online resource (859 p.)
Collana	Woodhead Publishing Series in Energy ; ; Number 107
Disciplina	621.4021
Soggetti	Thermodynamic cycles Rankine cycle
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Title page; Table of Contents; Related titles; Copyright; List of contributors; Woodhead Publishing Series in Energy; Part One. Introduction to Organic Rankine Cycle power systems; 1. Theoretical basis of the Organic Rankine Cycle; 1.1. Introduction; 1.2. The unique features of Organic Rankine Cycles; 1.3. Why air (or any other gas) is not an appropriate working fluid for a power cycle operating with low-medium temperature heat sources; 1.4. Why water is not the right working fluid for power cycles fed by energy sources of limited capacity 7.1. Design of Organic Rankine Cycles and their optimization7.2. System optimization; 7.3. Numerical examples; Acronyms; Nomenclature; Subscripts; Part Two. Organic Rankine Cycle plant components and system optimization; 8. Fluid dynamic design of Organic Rankine Cycle turbines; 8.1. Introduction; 8.2. Review of Organic Rankine Cycle turbine architectures; 8.3. Mean-line preliminary design; 8.4. Bridge between preliminary and aerodynamic design: throughflow model; 8.5. Aerodynamic design; 8.6. Conclusions; 9. Axial flow turbines for Organic Rankine Cycle applications 9.1. The role of axial-flow turbines in the power generation sector
Sommario/riassunto	Organic Rankine Cycle (ORC) Power Systems: Technologies and Applications provides a systematic and detailed description of organic Rankine cycle technologies and the way they are increasingly of interest

for cost-effective sustainable energy generation. Popular applications include cogeneration from biomass and electricity generation from geothermal reservoirs and concentrating solar power installations, as well as waste heat recovery from gas turbines, internal combustion engines and medium- and low-temperature industrial processes. With hundreds of ORC power systems already in operation and the market growing at a fast pace, this is an active and engaging area of scientific research and technical development. The book is structured in three main parts: (i) Introduction to ORC Power Systems, Design and Optimization, (ii) ORC Plant Components, and (iii) Fields of Application.
