

1. Record Nr.	UNINA9910789315103321
Autore	Johnson Wayne <1946->
Titolo	Rotorcraft aeromechanics / / Wayne Johnson, NASA Ames Research Center [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-107-23693-2 1-107-34191-4 1-107-34441-7 1-107-25562-7 1-139-23565-6 1-107-34816-1 1-107-34566-9
Descrizione fisica	1 online resource (xix, 927 pages) : digital, PDF file(s)
Collana	Cambridge aerospace series ; ; 36
Classificazione	TEC009000
Disciplina	629.132/3
Soggetti	Helicopters - Aerodynamics Helicopters - Design and construction Rotors (Helicopters)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: 1. Introduction; 2. Notation; 3. Hover; 4. Vertical flight; 5. Forward flight wake; 6. Forward flight; 7. Performance; 8. Design; 9. Wings and wakes; 10. Unsteady aerodynamics; 11. Actuator disk; 12. Stall; 13. Computational aerodynamics; 14. Noise; 15. Mathematics of rotating systems; 16. Blade motion; 17. Beam theory; 18. Dynamics; 19. Flap motion; 20. Stability; 21. Flight dynamics; 22. Comprehensive analysis.
Sommario/riassunto	A rotorcraft is a class of aircraft that uses large-diameter rotating wings to accomplish efficient vertical take-off and landing. The class encompasses helicopters of numerous configurations (single main rotor and tail rotor, tandem rotors, coaxial rotors), tilting proprotor aircraft, compound helicopters, and many other innovative configuration concepts. Aeromechanics covers much of what the rotorcraft engineer needs: performance, loads, vibration, stability, flight dynamics, and

noise. These topics include many of the key performance attributes and the often-encountered problems in rotorcraft designs. This comprehensive book presents, in depth, what engineers need to know about modelling rotorcraft aeromechanics. The focus is on analysis, and calculated results are presented to illustrate analysis characteristics and rotor behaviour. The first third of the book is an introduction to rotorcraft aerodynamics, blade motion, and performance. The remainder of the book covers advanced topics in rotary wing aerodynamics and dynamics.
