

1. Record Nr.	UNINA9910139628403321
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Titolo	Basic helicopter aerodynamics [[electronic resource] /] / John Seddon, Simon Newman
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, N.J. : , : Wiley, , 2011
ISBN	1-5231-2341-9 1-283-17795-1 9786613177957 1-119-97272-8 1-119-99411-X 1-119-99410-1
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (287 p.)
Collana	Aerospace series THEi Wiley ebooks
Altri autori (Persone)	NewmanSimon <1947->
Disciplina	629.133/352 629.133352
Soggetti	Helicopters - Aerodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Basic Helicopter Aerodynamics; Contents; About the Authors; Series Preface; Preface to First Edition; Preface to Second Edition; Preface to Third Edition; Notation; Units; Abbreviations; 1 Introduction; 1.1 Looking Back; 1.1.1 Early Years; 1.1.2 First World War Era; 1.1.3 Inter-war Years; 1.1.4 Second World War Era; 1.1.5 Post-war Years; 1.1.6 The Helicopter from an Engineering Viewpoint; 1.2 Book Presentation; Reference; 2 Rotor in Vertical Flight: Momentum Theory and Wake Analysis; 2.1 Momentum Theory for Hover; 2.2 Non-dimensionalization; 2.3 Figure of Merit; 2.4 Axial Flight 2.5 Momentum Theory for Vertical Climb 2.6 Modelling the Streamtube; 2.7 Descent; 2.8 Wind Tunnel Test Results; 2.9 Complete Induced-Velocity Curve; 2.9.1 Basic Envelope; 2.9.2 Autorotation; 2.9.3 Ideal Autorotation; 2.10 Summary Remarks on Momentum Theory; 2.11 Complexity of Real Wake; 2.12 Wake Analysis Methods; 2.13 Ground Effect; 2.14 Brownout; References; 3 Rotor in Vertical Flight: Blade Element Theory; 3.1 Basic Method; 3.2 Thrust Approximations; 3.3

Non-uniform Inflow; 3.3.1 Constant Downwash; 3.4 Ideal Twist; 3.5 Blade Mean Lift Coefficient; 3.6 Power Approximations; 3.7 Tip Loss  
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 5.4.4 Torque and Power5.4.5 Flapping Coefficients; 5.4.6 Typical Numerical Values; References; 6 Aerodynamic Design; 6.1 Introductory; 6.2 Blade Section Design; 6.3 Blade Tip Shapes; 6.3.1 Rectangular; 6.3.2 Swept; 6.3.3 Advanced Planforms; 6.4 Tail Rotors; 6.4.1 Propeller Moment; 6.4.2 Precession - Yaw Agility; 6.4.3 Calculation of Downwash; 6.4.4 Yaw Acceleration; 6.4.5 Example - Sea King; 6.5 Parasite Drag; 6.6 Rear Fuselage Upsweep; 6.7 Higher Harmonic Control; 6.8 Aerodynamic Design Process; References; 7 Performance; 7.1 Introduction; 7.2 Hover and Vertical Flight  
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 8.3.6 General Conclusion

## Sommario/riassunto

"Basic Helicopter Aerodynamics, now in its third edition, is widely appreciated as an easily accessible, rounded introduction to the first principles of the aerodynamics of helicopter flight. Concentrating on the well-known Sikorsky configuration of single main rotor with tail rotor, the authors avoid the lengthy mathematical treatment of some textbooks, thereby making the material accessible to undergraduates as well as engineers looking for an introduction to the subject. Early chapters deal with the aerodynamics of the rotor in hover, vertical flight, forward flight and climb. Analysis of these motions is developed to the stage of obtaining the principal results for thrust, power and associated quantities. Later chapters turn to the characteristics of the overall helicopter, its performance, stability and control, and the important field of aerodynamic research is discussed, with some reference also to aerodynamic design practice. This third edition has been brought up to date with a complete new set of illustrations & imagery, as well as an accompanying website that contains all the calculation files used in the book, problems, solutions and powerpoint slides. The authors address the unique considerations applicable to rotor UAVs/ MAVs, and coverage of blade dynamics is expanded to include lagging and ground resonance, and new material is included on blade tip design, flow characteristics surrounding the rotor in forward flight, tail rotors, and brown-out, blade sailing and shipborne operations"-- Provided by publisher.