

1. Record Nr.	UNINA9911006989403321
Autore	Meyer Richard E
Titolo	Introduction to Mathematical Fluid Dynamics
Pubbl/distr/stampa	Dover Publications, 2012
ISBN	1-5231-0958-0 0-486-15140-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (343 p.)
Collana	Dover Books on Physics
Disciplina	532/.05
Soggetti	Fluid dynamics Engineering & Applied Sciences Applied Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	""Title Page""; ""Dedication""; ""Copyright Page""; ""Table of Contents""; ""Preface""; ""Acknowledgements""; ""CHAPTER 1 - Kinematics""; ""1. Introduction""; ""2. Lagrangian Description""; ""3. Eulerian Description""; ""4. Conservation of Mass""; ""5. Circulation""; ""6. Some Potential Flows""; ""7. Vorticity""; ""8. Line Vortex""; ""9. Vortex Sheet""; ""CHAPTER 2 - Momentum Principle and Ideal Fluid""; ""10. Conservation of Linear Momentum""; ""11. Mixing and Lift""; ""12. Equations of Motion""; ""13. D'Alembert's Theorem""; ""14. Kelvin's Theorem""; ""15. Conservation of Angular Momentum""; ""CHAPTER 3 - Newtonian Fluid""; ""16. The Couette Experiment""; ""17. Constitutive Equation""; ""18. Kinetic Theory""; ""19. Some Viscous Fluid Motions""; ""CHAPTER 4 - Fluids of Small Viscosity""; ""20. Reynolds Number""; ""21. A Singular Perturbation Example""; ""22. Limit Equations for the Flat Plate""; ""23. Discussion of Blasius's Solution""; ""24. Limit Equations with Pressure Gradient and Wall Curvature""; ""25. Similarity Solutions""; ""26. Momentum Integral""; ""27. Separation""; ""28. Wake""; ""CHAPTER 5 - Some Aspects of Rotating Fluids""; ""29. Bjerknes's Theorem""; ""30. Rossby Number""; ""31. Ekman Layer""; ""32. Taylor-Proudman Theorem""; ""CHAPTER 6 - Some Effects of Compressibility""; ""33. Thermodynamic State""; ""34. Flow

Initiation""; ""35. Conservation of Energy""; ""36. Shock Relations""; ""37. Shock Structure""; ""38. Navier-Stokes Equations""; ""Bibliography""; ""Index""

Sommario/riassunto

<DIV>An introduction to the behavior of liquids and gases, this volume provides excellent coverage of kinematics, momentum principle, Newtonian fluid, rotating fluids, compressibility, and more. It is geared toward advanced undergraduate and graduate students of mathematics and general science, and it requires a background in calculus and vector analysis. 1971 edition.</DIV>
