

Part I

Flow of Fluids and Mixtures

Although the first part of this little volume deals primarily with the flow of fluids and mixtures through pipes, it also considers the flow of fluids through packed beds and through swarms of suspended solids called fluidized solids, as well as the flow of single particles through fluids. The term “fluids and mixtures” includes all sorts of materials under a wide range of conditions, such as Newtonians (e.g., air, water, whiskey), non-Newtonians (e.g., peanut butter, toothpaste), gases approaching the speed of sound, and gas flow under high vacuum where collisions between molecules are rare.

Chapter 1 presents the two basic equations which are the starting point for all analyses of fluid flow, the total energy balance and the mechanical energy balance. Chapters 2, 3, 4, 5, 6, 7, and 8 then take up the different kinds of flow.