Preface

Steel production of world has increased significantly in the last decade, and has reached over 1.23 billion tons in 2006 from 850 million tons in 1996. Continuous casting of steel is a widely used process and is an important step in steel production. About 90% of the raw steel produced worldwide is continuously cast now. In some parts of the world including the Western Europe, Japan, and USA, continuous casting represents over 97% of steel production. Concurrent with this increase in production levels are stringent quality requirements which have become crucial in the face of progressively increasing machine throughputs and larger product dimensions. As a result, steel cleanliness and strict composition control, together with surface and internal quality of strands, are now becoming the primary concern of steelmakers.

Tundish is the last metallurgical vessel through which molten metal flows before solidifying in the continuous casting mold. During the transfer of metal through the tundish, molten steel interacts with refractories, slag, and atmosphere. Thus, proper design and operation of a tundish are important for delivering steel of correct composition, quality, and temperature. The past three decades or so have seen major advances in tundish technology for clean steel casting. There exist a large volume of important technical papers published in this area, but there was no such book which covered all aspects, from fundamental principles to operational details, of the tundish technology. This book is an attempt in presenting a detailed discussion of tundish technology for clean steel production.

First half of the book deals with the fundamental aspects and theory necessary for understanding the basic concepts of tundish operations. The remainder of the book deals with the operational aspects of the tundish. One chapter is also devoted to recent, emerging, and novel tundish technologies. Thus, the book is sufficiently fundamental to serve as a text book for a graduate course in Process Metallurgy or as an important reference for a metallurgical researcher; at the same time, it is comprehensive enough to contribute to the understanding of scientists and engineers engaged in research, development, or production in steel industry.

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