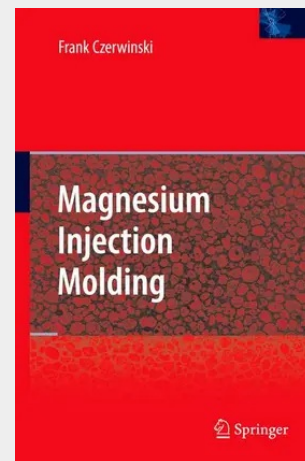


Magnesium Injection Molding

Magnesium injection molding is used to manufacture millions of components from magnesium alloys for various applications, including computer, camera and consumer electronic housings; automotive parts; sporting goods; and household and office equipment.

This book presents both the scientific background and the technological aspects of magnesium injection molding. It covers all aspects of material development, manufacturing and engineering, including production, processing and application of magnesium and its alloys; research and practical implementation of magnesium injection molding and die casting; semisolid processing of alloys and composites; and design and building machinery, applicable for magnesium processing.

The continuous quest for weight reduction, especially in ground and air transportation, has catalyzed the development of light metals and alloys. In this search, particular attention is being paid to magnesium, used at present in a diversity of applications, each one exploring a specific range of unique properties. As a result, the magnesium consumption by many important market sectors is growing at an impressive rate exceeding 10% per year. In parallel with the alloy development the search continues for new techniques of converting magnesium into useful products in a safe and effective manner. Magnesium injection molding, commercialized in recent years, represents a modern technology that is clean and safe for workers as well as friendly for an environment. Extensive research, conducted at both the industrial and university levels, indicates that the technique exceeded its initial expectations. While combining key features of a number of processing techniques, magnesium injection molding is emerging as a universal technology, capable of implementing many conventional and novel processing routes. The routes are based on both the semisolid slurry and fully molten alloy with tightly controlled temperature. Despite well-advanced practice, the critical breakthrough is still hindered by slow progress in understanding key mechanisms, controlling the process at stages of slurry preparation and component forming.



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