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Mold Engineering
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Preface

Mold Engineering deals with injection molds for thermoplastic molding materials. However, many of the subjects treated here also apply to other molds such as blow molds and molds for thermosets. It presents in easy to understand language, with a minimum of mathematics or difficult theories, a practical approach for the design of injection molds.

The subjects are broken down into parts as follows:

Part I: Mold Engineering

Section 1: Basics About Molds, Machines, Plastics, and Products

Section 2: General Mold Design Guidelines

Section 3: Specific Subjects for the Mold Designer

Part II: Mold Performance

A significant portion of the book is devoted to explaining the relationships affecting mold performance, productivity, and mold life. Understanding these relationships is not only important for mold designers but also for any person who is involved with planning (and cost estimating), buying, and operating injection molds.

The book gives step-by-step guidelines for the design of molds, from product drawing to complete mold assembly drawing. The designer is shown how to study any product drawing before starting to design a mold.

There is an infinite number of molded products and possible arrangements of molds for them; therefore, rather than showing complete mold assemblies that were built for some selected products, molds are broken down into basic elements. The various possibilities for the designer are then discussed.

Subjects such as shrinkage, venting, cooling, ejection, heat expansion, gating, hot and cold runner systems, balancing of cavity layouts, and tolerancing are covered, as well as mold materials selection, heat treat, and finishing of molded parts. There also is a multitude of reference and conversion charts, and information about mold handling. In addition, there is also a wealth of information for technicians working in areas such as molding machine set-up, servicing, and sales of molds and molding machines, and for moldmakers, designers, estimators, and quality control personnel at molders and moldmakers.

This book is intended primarily as a text for students in polymer engineering and a reference book for mold designers, particularly for designers of injection molds, although there are many subjects also applicable to die casting molds, compression molds, as well as any other type of permanent mold into which materials are injected to create a product.

We hope this approach will be of value and help for all those trying to sort out the puzzles they are confronted with during their work with injection molds.

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