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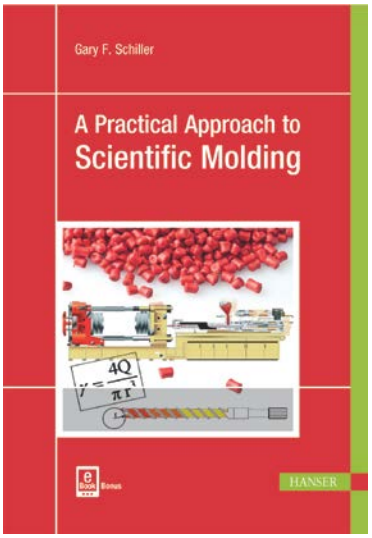
Processing & Manufacturing



A Practical Approach to Scientific Molding)

ISBN: 978-1-56990-686-6
140 pages, Hardcover
Publication date: **April 2018**

This easy-to-understand guide provides the necessary information to implement a scientific molding program. It is a hands-on reference for people on the molding floor, including those previously lacking theoretical background or formal education.

The book covers how the injection molding machine prepares the plastic and understanding of plastic flow. The functions of the main machine components are explained and understanding of correct procedures and testing is developed. Each step of the process is clearly explained in a step-by-step manner, and simple examples of important calculations are provided. The practical approach is augmented by useful guides for troubleshooting and machine set-up. An Excel spreadsheet with a process test and a machine performance test is available as bonus material.

Contents

Injection Unit: Screw; Injection Unit: Barrel, Clamping Unit, Ejectors/Controllers, Human Machine Interface (HMI), Machine Performance Testing, Process Development Test, Plastic Temperature, Plastic Flow, Plastic Pressure (Pack/Hold), Cooling, Benchmarking the Injection Molding Process, Process Troubleshooting, What is Important on a Set-Up Sheet? Commonly Used Conversion Factors and Formulas, Machine Set-Up,Things That Hurt the Bottom Line of a Company, Terms and Definitions, What is Important on a Set-Up Sheet? Commonly Used Conversion Factors and Formulas, Machine Set-Up, Things That Hurt the Bottom Line of a Company, Terms and Definitions
Gary Schiller is a Certified Master Molder I, II, & III with 35 years of experience in the plastics industry, including as an instructor for RJG. He is an Advisory Board member for the American Injection Molding Institute.

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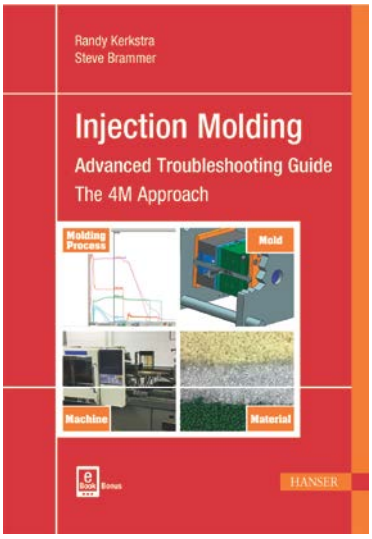


Injection Molding Advanced Troubleshooting Guide

ISBN: 978-1-56990-647-7
300 pages, Hardcoer
Publication date: **May 2018**

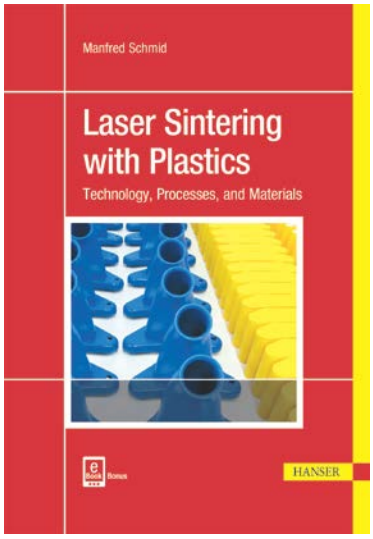
This highly practical troubleshooting guide solves problems at the machine systematically and quickly.

Drawing on a wealth of hands-on experience from the authors, who have built strong reputations in the field, the book is structured by type of problem/solution. Thus, it is an ideal for a reference to be consulted at the machine.

Included is valuable information on robust process windows, cycle time evaluations, scrap savings, and runners/gates with no existing standard in the industry. No other book provides the unique insights found here.

Aimed at students, engineers, process techs, mold makers, researchers, and quality personal

Randy Kerkstra has worked in the plastics industry for over 28 years, with particular experience in troubleshooting injection molding. He is a well-known columnist for magazines covering this area.
Steve Brammer is Molding Technical Manager at Lacks Trim Systems. He is a highly respected writer and educator in the area of plastics processing and manufacturing.



Laser Sintering with Plastics
Technology, Processes, and Materials

ISBN: 978-1-56990-683-5
220 pages, Hardcoer
Publication date: **May 2018**

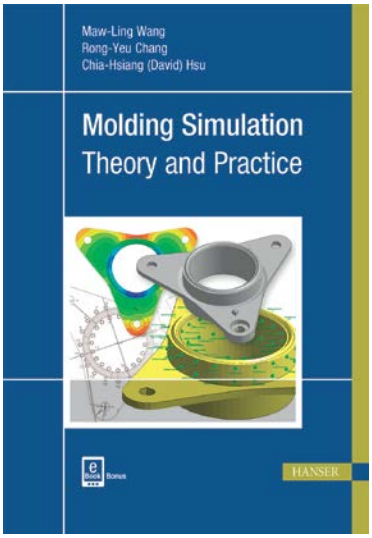
Laser Sintering (LS) with plastics is one of the most promising additive manufacturing technologies: it is currently regarded as the process most likely in the future to permanently cross the border between prototyping and the production of functional parts. This step is challenging because it means that the technology must meet certain requirements that are also valid for traditional and established production processes.

Only by succeeding at this step can a wide industry acceptance of LS be expected in the future.

In this context, this book covers all levels of the LS process chain, including:

- Current state of the machine technology
- Essential process steps, both before and during sintering
- Specific demands of the materials, powder production methods, and evaluation of powder properties
- Mechanical properties and density of the parts produced by LS
- Examples of LS-produced parts are given, including those with special design features, to illustrate the characteristics and also the limitations of the LS method. In particular, the distinct advantages of LS parts over parts produced with other plastics processing methods (e.g., injection molding) are discussed.

Dr. Manfred Schmid studied chemistry at the University of Bayreuth and obtained a PhD in Macromolecular Chemistry. Until 1997, he worked as a chemist in polyamide research at EMS-Chemie (CH). Subsequently, he was the project manager in the field of plastic analysis / biopolymers at EMPA, the Swiss Federal Laboratories for Materials Science and Technology. Since 2008, Dr. Schmid is Head of Research and Development for SLS at Inspire AG, Switzerland.



Molding Simulation: Theory and Practice

ISBN: 978-1-56990-619-4
500 pages, Hardcoer, full color
Publication date: **May 2018**

This practical introductory guide to injection molding simulation is aimed at both practicing engineers and students. It will help the reader to innovate and improve part design and molding processes, essential for efficient manufacturing.

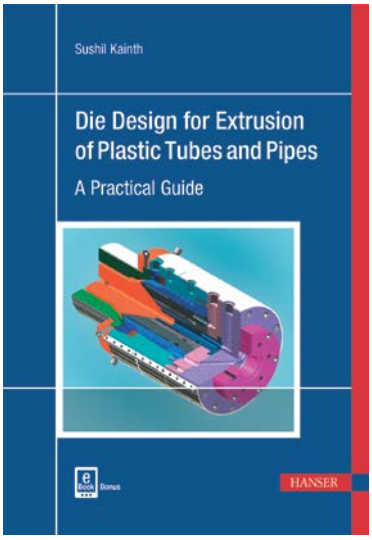
A user-friendly, case-study-based approach is applied, enhanced by many illustrations in full color. The book is divided into three parts:

Part I introduces the fundamentals of injection molding, focusing the factors governing molding quality and how molding simulation methodology is developed. As they are essential to molding quality, the rheological, thermodynamic, thermal, mechanical, kinetic properties of plastics are fully elaborated in this part, as well as curing kinetics for thermoset plastics.

Part II introduces CAE verification of design, a valuable tool for both part and mold designers toward avoiding molding problems in the design stage and to solve issues encountered in injection molding. This part covers design guidelines of part, gating, runner, and cooling channel systems. Temperature control in hot runner systems, prediction and control of warpage, and fiber orientation are also discussed.

Part III introduces research and development in innovative molding, illustrating how CAE is applied to advanced molding techniques, including co-/bi-Injection molding, gas-/water-assisted injection molding, foam injection molding, powder injection molding, resin transfer molding, and integrated circuit packaging.

The authors come from the creative simulation team at CoreTech System (Moldex3D), winner of the PPS James L. White Innovation Award 2015.



Die Design for Extrusion of Plastic Tubes and Pipes
A Practical Guide

ISBN: 978-1-56990-672-9
280 pages, hardcover
Publication date: **November 2017**

"Die Design for Extrusion of Plastic Tubes and Pipes" covers this topic from a uniquely practical perspective. The content draws on the author's over 50 years of experience in the plastics processing industry, most recently as head of the successful extrusion die manufacturing company he established in 1995. His approach is oriented toward solving production problems at the design stage using computer aided techniques for design and simulation of the plastic flow.

The book provides a step-by-step guide to extrusion die design, with worked examples to illustrate problem solving. It is shown how important melt flow variables (e.g., pressure drop, shear stress, shear rate, temperature variations, and distribution variations, etc.) of key materials are determined using FEM software. The detailed drawings of complete dies for various applications that are provided constitute a rare and valuable resource. Both mono- and multilayer pipes are covered.

Using the proven methods and examples from this book, the reader is well-equipped to understand dies for successful manufacture of tubes and pipes of many types.

Sushil Kainth runs an extrusion die design company that he established in 1995, and has over 50 years of experience in the plastics processing industry. He has designed and manufactured over 500 dies and tools for industries varying from medical tubing to water, gas, and petroleum pipes. Coextrusion dies have been his specialty for the last 20 years.